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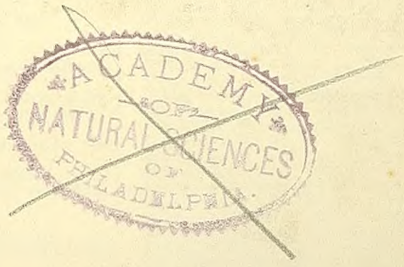
THE

GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE

FOR



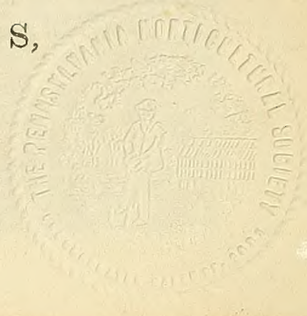
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THE GARDENERS' CHRONICLE

AND

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New and Genuine Garden Seeds.

LUCOMBE, PINCE, AND CO. beg leave to say that their PRICED DESCRIPTIVE CATALOGUE of NEW SEEDS is now ready, and will be forwarded post free on application.

This season's abundant harvest of Seeds generally, enables L. P. & Co. not only to offer them of superior quality, but also at unusually low prices.

A comparison of their prices with those of any other respectable firm, previously to giving orders, is respectfully solicited.

Exeter Nursery, Exeter.

FRESH IMPORTED WELLINGTONIA SEED.—Gathered in October 1863. Splendid Seeds. Per 1000 Seeds, 12*s.* 6*d.* 5000 Seeds, 50*s.* To be had of our Predecessor Mr. PETER SMITH, 2, North Fort Street, Leith, for Cash, or direct from us.

We also beg to call attention to our WHOLESALE SEED CATALOGUE, which may be had on application, and contains a good general collection of choice varieties of Trees, Shrubs, Conifers; also first-rate Stocks, Asters, and other Seeds, all of which may be had at moderate prices.

PETER SMITH & Co., Seed Merchants, Hamburg.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, NARROW-LEAVED ENGLISH, 2 years seedling
,, ,, ,, ,, fine transplanted
,, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
,, HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
,, WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
,, LOMBARDY, 8 to 10, and 10 to 12 feet
,, ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
,, ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black

Huntingdon Nurseries.

To Land Owners and Managers of Estates.

MESSRS. TREMBLE beg to offer, on very reasonable terms, fine healthy LARCH, 1 to 3 feet, having an over Stock, and an extensive Nursery Stock. Prices, &c., may be had.

Nursery and Seed Establishment, Penrith, Cumberland.

SUTTON'S SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1864,

Containing much useful information in Agriculture and Horticulture,

IS NOW READY, AND MAY BE HAD POST FREE, PRICE 6*d.*

GRATIS TO CUSTOMERS.

SUTTON'S SHORT SELECT SEED LIST

Is also ready, and will be sent Gratis and Post Free on application.

ADDRESS, SUTTON AND SONS, SEED GROWERS and MERCHANTS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

Orders amounting to 21*s. sent Carriage Paid.*

NEW SEED CROP, 1863.

ORDERS FOR THE ABOVE CAN NOW BE EXECUTED.

A COPY OF OUR

DESCRIPTIVE PRICED LIST

OF

VEGETABLE AND FLOWER SEEDS,

EMBRACING

OF BOTH SECTIONS ALL THAT IS WORTHY OF CULTIVATION,

Will be forwarded to each of our Customers in a few days.

PRICE of SEEDS moderate; quality extra fine.

SURPLUS STOCK of BULBS, all SOUND.

SEE LAST WEEK'S ADVERTISEMENT.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

GERANIUM "WHITE TOM THUMB" and G. "SNOWBALL."

In speaking of these two NEW WHITE GERANIUMS raised by me, the first sold to Messrs. E. G. Henderson & Son, the last sold to Messrs. James Carter & Co., I hereby declare that the characters of the two kinds are quite distinct one from the other. G. SNOWBALL (compared with White Tom Thumb) is a stronger grower, larger leaf, with great substance of flower, purity of colour, and form of truss; whereas the WHITE TOM THUMB is a dwarfer habit, with smaller leaf, free in bloom, and much larger truss, being also a PURE WHITE, and equal in size to the old Globe Scarlet; does not lose its centre blossoms as many White Geraniums do, and its bloom remains a long time in perfection. The variety Snowball was sold to an Agent of Messrs. James Carter & Co. after Messrs. Henderson had made their choice from the batch of seedlings. The warranty of character to G. Snowball was given to their Agent on a strict promise that it should never appear in print. I admit myself wrong in having so expressed myself in favour of it, as it was against my inclination.

December 31, 1863. (Signed) JAMES KEELER.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery have long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s. d.
STANDARD ROSES of all the leading varieties in cultivation	18 0
Do. Newer varieties, introduced in 1861 and 1862	24 0
DWARF ROSES, extra fine plants upon the Manetti stock	9s. to 12 0
Do., do., upon Dog-rose stock	9 0
Do. Newer Varieties, introduced in 1861 and 1862	15s. to 18 0
Do., do., of 1862 and 1863	24s. to 30 0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24 0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons	9s. to 12 0
Do., do, Tea-scented	12s. to 15 0
CLIMBING ROSES	9 0
PILLAR ROSES, extra strong plants, 4 to 5 feet	12s. to 15 0
STANDARD WEEPING ROSES	each 2s. to 2 6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties	24s. to 30 0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class:

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA
P. RUBRA
P. PICTA
P. CARMINATA RUBRA
P. FILICIFOLIA
P. „ ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA
ALBA PLENA
ROSEA PLENA
RUBELLA PLENA
ALBA PLENA FIMBRIATA
ATROROSEA PLENA FIMBRIATA.

CALCEOLARIA PLANTS.—This stock is carefully hybridised.

CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—s. d.
APPLES.—Very fine Dwarf-trained	2 6
„ Pyramids	2 6
„ Standards	2s. to 2 6
APRICOTS.—Dwarf-trained	3s. 6d. to 5 0
„ Standard-trained	5s. to 7 6
CHERRIES.—Dwarf-trained	3s. 6d. to 4 6
„ Pyramids	2s. 6d. to 3 6
GRAPE VINES.—Standards	2 6
„ Very fine and well-ripened	5s. 6d. to 5 0
NECTARINES.—Dwarf-trained	3s. 6d. to 5 0
„ Standard-trained	5s. to 7 6
PEACHES.—Dwarf-trained	3s. 6d. to 5 0
„ Standard-trained	5s. to 7 6
PEARS.—Dwarf-trained	3 6
„ Pyramids	2s. 6d. to 3 6
„ Standards	2 6
PLUMS.—Dwarf-trained	3s. 6d. to 4 6
„ Standards	2 6
WALNUTS.—Standards	2 6
„ Extra strong	3s. 6d. to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5s. each.

ASPARAGUS, two years — 2s. 6d. per 100
SEA KALE, „ — 8s. per 100

Nurseries, King's Acre, near Hereford.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed

Best Seeds, Carriage Free.

RICHARD SMITH,
SEED MERCHANT and NURSERYMAN,
Worcester.



To Planters of Public Parks, Cemeteries, and Avenues.

MAULE AND SONS invite attention to a fine Stock of Specimen CEDRUS DEODARAS, from 7 to 8 feet high; all thoroughly prepared with Large Pots, so as to insure their removal with the greatest safety. Price 10s. 6d. each. Larger and smaller sizes at the same proportionate low figures.

The Nurseries, Bristol.

Carter's Champion Broccoli.

A DWARF AND COMPACT-GROWING LARGE-HEADED LATE WHITE BROCCOLI, RAISED IN 1858 BY MR. SWINHERD, GARDENER TO JOHN SWINFORD, ESQ., MINSTER ABBEY, KENT.





JAMES CARTER AND CO. have much pleasure in calling special attention to the above first-class variety of BROCCOLI; it has been thoroughly proved by them for the last five seasons, and they can with confidence recommend it as being the BEST LATE WHITE BROCCOLI in CULTIVATION.

J. CARTER & Co. are prepared to offer seed of this first-class Broccoli in packets, price 1s. each, and to the Trade in larger quantities on liberal terms.

For Copy of Testimonials and List of Seed Merchants who have received their supply direct from J. CARTER & Co., see *Gardeners' Chronicle* of December 19, page 1200.

The following are additional:—

Mr. JOHN BELL .. .. .. Norwich.
Mr. S. BROWN .. .. .. Sudbury.
Messrs. W. CUTBUSH & SON .. .. Highgate.
Mr. R. P. KER .. .. .. Liverpool.
Mr. R. PARKER .. .. .. Tooting.
Mr. W. PAUL .. .. .. Waltham Cross.
Mr. J. SCOTT .. .. .. Yeovil.
Mr. R. SMITH .. .. .. Worcester.
Mr. W. THOMAS .. .. .. Wolverhampton.
Messrs. TOOLE & Co. .. .. .. Dublin.

JAMES CARTER & Co., 238, High Holborn, W.C.

THE YORKSHIRE HERO PEA.—A Dwarf Green Wrinkled Marrow, pronounced by all who have tried it to be a "WONDERFUL" Pea. We have selected from numerous testimonials the following:—

From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart., *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer, requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thin in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can readily dispose of at 5s. per quart to those who saw them in bearing."—Bracebridge, Oct. 5, 1863.

Price 5s. per Quart.

EDMUND PHILIP DIXON & SONS, Yorkshire Seed Establishment, Hull.

Supplied in London:—

Messrs. HURST & SON, 6, Leadenhall Street.
„ COOPER & BOLTON, 152, Fleet Street.
„ BECK, HENDERSON, & CHILD, Upper Thames Street.
„ JACOB WRENCH & SONS, London Bridge.

CHARLES TURNER can supply the following NEW FLOWER and VEGETABLE SEEDS:—

PEAS.

PREMIER.—A large wrinkled Marrow with large well filled pods, very productive, and of excellent flavour. A great addition to the summer or late varieties. Height, 3½ to 4 feet.

LITTLE GEM.—A dwarf green wrinkled Marrow, very early and prolific. A great acquisition. Height, 1 foot.

ADVANCER.—A new dwarf blue wrinkled Marrow of fine flavour, the earliest and best of its class. Height, 2 feet.

WONDERFUL.—A first-class second early white wrinkled Pea, of robust branching habit, growing only 3 feet high, and producing a mass of pods from the bottom of the haulm, each pod containing 7 to 9 large Peas of the most delicate flavour. Highly recommended.

FLORENTINE CAPE BROCCOLI.—The most useful kind known for a supply during autumn and winter.

FROGMORE FORCING CAULIFLOWER (or NEW EARLY MAMMOTH).—Earliest in cultivation, with large white heads, firm and compact, and of dwarf habit.

STANSTEAD WINTER CABBAGE LETTUCE.—A superior variety for autumn sowing hardy, early and fine.

NEW and CHOICE FLOWER SEEDS.

CHRYSANTHEMUM CORONARIUM.
FINEST HYBRIDIZED CALCEOLARIA.
CHOICE CINERARIA.—Saved from the finest named flowers.
HELIPTERUM SANFORDII.
NEMOPHILA AURICULÆFLORA.
FANCY or BELGIAN PANSY.
FINEST FRINGED PRIMULA.
RHODANTHE ATROSANGUINEA.
RHODANTHE MACULATA.
RHODANTHE MACULATA ALBA.

C. TURNER'S DESCRIPTIVE CATALOGUE of SEEDS is now ready and can be had, Post Free, upon application.

Royal Nurseries, Slough.—January, 1864.

NEW VEGETABLES.

DALMENY SPROUTS.—A cross between the common Heading Cabbage and Brussels Sprouts. Awarded First-Class Certificate by the Royal Horticultural Society of London. Per packet, 1s.

FEARNOUGHT CABBAGE.—A hybrid between the Early Dwarf Cabbage and the Hearting Scotch Green. Selected stock. Awarded First-Class Certificate by the Royal Horticultural Society of London. Per packet, 6d.; per oz., 2s.

NEW NEMOPHILA.

NEMOPHILA AURICULÆFLORA.—Dwarf and distinct. Awarded a Commendation by the Royal Horticultural Society's Floral Committee, July 7, 1863, and described as "a handsome variety with a well-defined pure white margin." Per packet, 1s.

For fuller descriptions of the above, and List of Agents, see *Gardeners' Chronicle* of December 19, p. 1199.

The following are additional Agents:—

Messrs. BARR & SUGDEN .. 12, King Street, Covent Garden
„ CUTBUSH & SON .. Highgate, London
„ DICKSON & TURNBULL Perth
„ J. & C. LEE .. .. Hammersmith, London
„ WHEELER & SON .. Gloucester
Mr. JOHN CATTELL .. Westerham, Kent
„ ROBERT P. KERR .. 7, Basnett Street, Liverpool
„ ROBERT PARKER .. Tooting, London

Wholesale prices may be had on application to

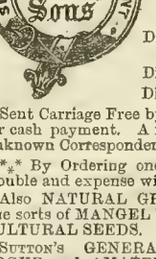
STUART & MEIN, Seed Merchants, Kelso, N.B.

A Few Really Good Things.

	per packet—s. d.
DIXON'S NEW YORKSHIRE HERO PEA, 5s. per quart.	1 0
DIXON'S New MAMMOTH WHITE CELERY	1 0
DIXON'S New CHAMPION GREEN COS LETTUCE	1 0
DIXON'S YORKSHIRE FAVOURITE MELON	2 0
DIXON'S YORKSHIRE HERO CUCUMBER	1 0
The EARLY FORCING CAULIFLOWER	1 0
The ROSEBERRY BRUSSELS SPROUTS	0 6
MELVILLE'S VARIEGATED GARNISHING KALE	0 6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.



SUTTON'S UNRIVALLED COLLECTIONS of GARDEN SEEDS for ONE YEAR'S SUPPLY, Carriage free.

SUTTON & SONS are now prepared to receive Orders for their unrivalled Collections of GARDEN SEEDS, as under:—

	£ s. d.
A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply (with Instructions on Cultivation)	3 3 0
Ditto, in quantities proportionately reduced	2 2 0
Ditto Ditto	1 1 0
Ditto for a SMALL GARDEN	10 6

Sent Carriage Free by Rail, and 5 per cent. discount allowed for cash payment. A remittance or reference requested from unknown Correspondents.

*** By Ordering one of these Collections once a year much trouble and expense will be saved.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other AGRICULTURAL SEEDS.

SUTTON'S GENERAL DESCRIPTIVE PRICED CATALOGUE and AMATEUR'S GUIDE is now ready, price 6d., gratis to customers.

Remittances may be made by Cheques on Town or Country Bankers, or by Post-office Orders payable to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CATTELL'S ECLIPSE BROCCOLI.—Large White and Late. 1s. per Packet, post free.

The above is the finest late Broccoli that has ever come under my notice. As late as the middle of last June I had fine white heads of it as large as a peck measure.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.

Fulham Nursery, London, S.W.—January 2.

Special offer to the Trade on application.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24, 1863; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading

GERANIUM "WHITE TOM THUMB" *versus* "SNOWBALL."

In reference to the remarks made by us (at p. 1198) on the inferiority of Geranium "Snowball," which Messrs. Jas. Carter & Co. style invidious, we simply state our inability to perceive how a just comparison can, by fair inference, appear an invidious one. Having purchased the best Seedling variety of a Geranium from the raiser, and honestly avowed by him as such, we think it but just to him, ourselves, and the public to protect our interests from misconceptions arising from the offer of others known to be of inferior quality.

With regard to Messrs. Carter & Co. complaining of our "direct" manner in exposing the real difference of the plants in question, we need but refer to their respective properties, and to the absence in the one of those essential features required for flower-garden decoration, to justify us in the statements made by us. Any intelligent cultivator is aware that a variety of Geranium may have "substance of flower, purity of colour, and form of truss," without possessing one essential feature that makes up a first-class bedding plant.

That the name of "White Tom Thumb" should appear objectionable to Messrs. James Carter & Co. we are not surprised at, since it openly implies the features and properties most desirable to the cultivator. The name expresses its character if not its excellencies, in being of "Tom Thumb" habit with white flowers. We are aware that it is unlike that favourite variety, and desirably so, in having a larger and more compact truss, with neater foliage, &c., and if its appellative is not otherwise answerable to its qualities, it is because its individual properties of DWARF HABIT, SMALL LEAF, LARGE TRUSS, COMPACT OUTLINE, PURE COLOUR, FREE BLOOM, and PERMANENCE OF EFFECT, do not admit of being expressed in one short name!

That Messrs. Carter & Co. should also demur to our plant being otherwise named than after its parent type, appears to be an anomalous assumption, but in admitting the questionable policy of such a rule, why should their own adopted one form so ominous an exception?

If an improved variety of a popular plant differs but in some one particular feature from the orginal type, it may still be best recognised by it, but when the differences of growth and bloom ally it to any other popular favourite in the same tribe, it will undoubtedly be best understood by its new alliance.

The best evidence in favour of "Geranium White Tom Thumb" is that there has been but one opinion as to its merit for purity of colour and general effect, from all who have seen it. Having been purchased by our personal selection, and not through an agent, we have adhered closely to our own judgment of its value, and as their plants, as well as ours, were the produce of seed sown two years ago, we do not affirm, as Jas. Carter & Co. in the case of G. Snowball, that it was tested against all the best white varieties in the same two seasons.

Messrs. Carter & Co. inquire by whom Geranium "Bel Demonio" is considered inferior. We again remind them that it was first submitted for our opinion and purchase, and it was in our establishment that their agent first saw the plant. After testing its qualities with others in the same class, and finding its merits inferior as a new one, we declined taking it.

We correct an error in our former notice that GERANIUM "WHITE TOM THUMB" would be sold out in 1865; it should have been in 1864.

Wellington Nursery, St. John's Wood, London, N.W.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

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GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that the ANNUAL GENERAL MEETING of the SUBSCRIBERS to this Institution will be held at the Bedford Hotel, Covent Garden, on THURSDAY, January 14 next, for the purpose of receiving the Report of the Committee and the Accounts of the Society for the past year, and Electing Officers for the ensuing year.
An ELECTION of THREE PENSIONERS will afterwards take place.
The Chair will be taken at 6 o'Clock in the evening.
The Ballot will close at 8 o'Clock precisely.
The Balloting Papers have all been issued ; any Subscriber not having received one is respectfully requested to make immediate application for one. By Order,
EDW. R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden. W.C.

The Gardeners' Chronicle.

SATURDAY, JANUARY 2, 1864.

OUR collections of hardy fruits have received many important additions during the present century, both by introductions from the continent and by hybridising at home. To France and Belgium we are indebted for many of the finest varieties of those Pears which are now so extensively cultivated in our orchards. It is but a few years since such kinds were all but unknown in this country, and yet what a void would there seem to be if we were by any means deprived of them. The Strawberry may be brought forward as one of the examples of what we have been ourselves doing by hybridising. Keens' Seedling, MYATT'S varieties, and a number of later kinds well known to our readers, and of great value, have quite driven the older sorts out of cultivation. And certainly as regards size and general appearance, if not in flavour, the new kinds are a great improvement upon the old. We can also point to a number of fine new Apples, Plums,

Cherries, and Raspberries, which we could ill afford to lose, and for which we have to thank our English horticulturists.

In what are called exotic fruits, that is, such as require the aid of walls, glass-houses, or artificial heat to bring them to perfection, we have not made so much progress either in raising new kinds at home or in introducing them from foreign countries. A stray Peach or Nectarine, and one or two remarkable Grape Vines, are almost all we can point to as having been done amongst this class of fruits. Moreover, although we may take some credit to ourselves for the superior way in which we cultivate and bring to perfection the commoner kinds of exotic fruits, such as Pine-apples, Grapes, Peaches, and Nectarines, we have made little progress in the cultivation of many other sorts which have been introduced from abroad. The Mango and the Mangosteen have been long in our gardens, and yet how rarely do we see their fruit at our exhibitions. Many of us may remember a circumstance that occurred a few years since when the Horticultural Society of London held one of its meetings at Kensington Gore. A fruit of the Mangosteen was exhibited, and considered so interesting and so rare, that after being cut and tasted by the judges, it was sent to the Royal table at Buckingham Palace.

It would seem, however, there are now some signs of a movement in favour of the cultivation of exotic fruits which belong to that class which has hitherto been almost neglected, and whose habits and requirements have been unstudied by English gardeners. We have stated at p. 1179 how successful Mr. RIVERS has been with the Tangierine Orange, and we have little doubt that the other sorts will soon be cultivated with equal success. The large loose-skinned variety known as the Mandarin Orange, although inferior in flavour to the common China Orange, is well worth attention. Its deep red colour, flat shape, and large size, renders it a very remarkable object, both when growing on the tree and when placed upon the table. The Cherimoyer has also been alluded to by some of our correspondents, and is certainly a delicious fruit when it can be had in perfection.

A bunch of fruit of the Banana or Plantain was exhibited the other day in the Gardens of the Royal Horticultural Society, which weighed no less than 86 lbs. This was grown by Mr. CARR, gardener to P. L. HIND, Esq., of Byfleet, Surrey, and was produced by a plant which had only been imported about a twelvemonth. The Banana is easily cultivated, perhaps more easily than any other tropical fruit, and when the species known as Musa Cavendishii is selected for cultivation, no large amount of space is required for its growth, as it is one of the dwarfest of its race.

There are some Chinese fruits which are almost unknown to us, except in a dry preserved state, which would form very interesting objects if they could be induced to produce their fruit freely in this country. We allude to the Lee-chee (Nephelium Lichi), Longan (N. Longan), and the Wampee (Cookia punctata). Less known, even than these, is the Yang-mae of Chusan (Myrica sapida var.), a tree which produces bunches of scarlet fruit resembling in outward form and appearance those of our Arbutus, but considerably larger in size. As the Yang-mae is nearly hardy in our climate, and requires only a warmer summer than that of England, it would probably be as easily cultivated as the Orange.

We give the above as a few of the exotic fruits upon which our English gardeners might try their skill, and such is our opinion of their skill, that we are sure their efforts would eventually be crowned with success, providing always they went to work in the right way, that is, by studying the habits and requirements of the trees under their management. In order to assist them we shall return to the subject and endeavour to point out what we conceive to be the foundation of ultimate success in the culture of those exotic fruits which have hitherto withstood all efforts to bend them to our will.

Our Horticultural Societies ought to encourage, by every means at their command, the production of exotic fruits at their exhibitions, for something fresh is greatly needed to attract the attention of visitors. One or two of the foreign fruits which we have just named, would be more attractive than a van-load of those huge SPECIMENS which are sent annually to our flower shows.

May we ask any of the readers of this journal to tell us what they know about the "Flat Peach of China?" Has it been lost to our gardens, or has any one succeeded well in its cultivation? It is a most delicious fruit, curious in form, and ought to be highly prized both in the orchard house and in the dining-room.

WHILE the managers of our FLOWER SHOWS are casting about for novel subjects of competition, to relieve the tedious monotony which the appearance of the same plants over and over again is so well calculated to produce; and while they are sometimes floundering in the slough of indecision—inviting certain subjects in a particular-sized pot, for example, one year, and withdrawing the invitation the next, and thus by the same stroke, spoiling their own exhibition, and warping the temper of the exhibitor who has been trying to meet them on their own terms, there is one field which offers at least a promise of yielding some interesting gatherings, and which, as yet, has been scarcely worked. True, Sir WENTWORTH DILKE'S dinner-table prizes point in this direction; and the window-grown Hyacinths suggested by us, and which the Royal Horticultural Society has, we see, invited in the arrangements for the next spring shows at South Kensington, also have the same tendency; yet, after all, very little has been done to give the gentler sex a direct interest in the competitions on these occasions.

We see no reason, however, why there should not, but many reasons why there should, be instituted a series of CLASSES FOR LADIES. They are good gardeners—many of them excellent, and therefore there is no question but that they could produce certain flowers in a state every way fit to command the admiration of the throng of visitors which frequent these fêtes. They have skill in the arrangement of flowers, and could give us of the ruder sex many a lesson by which we should only be too glad to profit. They have spirit, and would, we doubt not, take up *con amore* a matter of this sort, if made congenial to their tastes.

We have not, indeed, been commissioned to draw up a schedule of ladies' classes for the flower shows of the ensuing season, and therefore we do not propose to enter upon any such formal task; but we may at least, without such a commission, undertake to indicate some of the subjects which, as it appears to us, might be introduced into such a schedule, with every prospect of leading to a series of interesting competitions. These we will notice under the two heads of Plants and Cut Flowers.

Amongst the Plants which ladies may cultivate to perfection in the windows of their drawing-rooms, and that either in pots or glasses, are such bulbs as Hyacinths, Tulips, and Crocuses. Some indeed of the most beautiful and perfect of these flowers we have ever seen, have been so grown, in a style, moreover, which quite fitted them for public competition. Now, nothing in the way of gardening is more delightful than to see in winter and early spring a good display of these gay and cheerful flowers lightening up a living room; and consequently nothing can be a more legitimate object for horticultural societies, of whatever standing, than to encourage by any and every means, the extension of this kind of gardening. Nothing moreover in the way of gardening can be more easily accomplished—to use a homely familiar phrase; and therefore we shall hope to see many ladies competing at South Kensington, on the 9th of March next, for the honour of being placed first with their six window-grown Hyacinths. We hope that steps may be taken to induce some fair competitors at least to enter the lists; and we urge on the authorities the duty of not withholding the prizes another year, even though the invitation should now be but sparingly responded to, but of repeating it again and again, with every inducement to make it a success. True, at present there is not a special ladies' class for Hyacinths, but the amateurs' class is open to them now, and we trust to see one provided especially for them, in accordance with the foregoing suggestions, at some future early day.

Probably, after bulbs, the most suitable plants for indoor cultivation by ladies would be such as might be managed in one of Miss MALING'S indoor plant-cases: and as the capacities of these are limited, the demands upon the fair cultivators should not be made too heavy. Thus, single plants would be more readily and successfully grown and shown than duplicates, triplicates, or any higher number. Suppose the best plant of Adiantum cuneatum, grown in a case, were to be selected as one subject. What object could be conceived more beautiful for home decoration, and what more lovely as an exhibition? Caladium argyrites or C. Chantinii again, would be suitable plants for this purpose; so also would many Ferns; and in due time there might be added a succession of numerous other plants with handsome foliage. To produce the best Gold Fern, the best Silver Fern, the best Film Fern, or the best Hardy Fern, case-grown, would furnish interesting occupation to many ladies who have the convenience either of a cold or a heated glass case for plant-growing, and such as these would furnish subjects for summer competition; while Cyclamens, Chinese Primroses, single or double, and such like things, added to the bulbs, would yield subjects for the spring months. In this way many charming little groups of competitive plants might from time to time be brought together at our shows; and a new feature of interest—of intense interest of course to all the fair visitants of these fairy scenes—would be provided.

But perhaps ladies might compete even better with home-grown Cut Flowers than with home-grown plants. Why not have a ladies' class for the best half-dozen cut Roses—we do not say a "stand" of cut Roses, indeed we advisedly avoid doing so—but we would say, the best half-dozen cut Roses, set up according to the taste of the exhibitor. Should not we Solons gain a grain or two of wisdom out of such an exhibition? Might it not—we had almost written, must it not—lead us to some better and more effective way of setting up the cut flowers at our exhibitions, than that of dabbing them at regular intervals upon flat boards, or stuffing them with equal tameness into flat boxes? It would be worth making the experiment if only to secure such a result as this; but we should no doubt gain much in the way of suggestion besides. Other favourite flowers might in a similar way be made the subjects of competition. Then in the selection and setting up of cut flowers—say for a drawing-room table: how peculiarly a lady's work! yet how attractive and interesting a feature would be made by a group of settings up like these—how useful and suggestive too as a lesson or monition in this art, in which, unassisted, few but ladies could hope to excel. It would of itself be worth the price of an admission ticket, to see, as shown to us in the reflex of some "master" mind, that as a decoration, a few simple flowers put together as such an one would place them, must distance a whole crowd of flaunting exotics, and win as easily as did Miss MARCH'S dinner-table decorations. But the ladies might further amuse themselves and benefit gardeners and gardening, by showing us how to arrange the colours in our parterres. They might and doubtless would devise some means of doing this without inflicting on us those vulgar things called "designs" which sometimes appear at exhibitions. Assuredly in whatever way they might prefer to illustrate the subject, it would be done with taste. Of that we cannot doubt.

These brief indications will serve to show, that the introduction of Ladies' Classes at our flower shows is a perfectly feasible matter. We venture to think the ladies themselves would not shrink from becoming actors in these fairy scenes if the invitation were courteously addressed to them; and we are sure that both societies and visitors would be benefited either directly or indirectly if the plan were to be carried out with sufficient zeal and tact. Certainly in the case of the cut flowers, though perhaps not in that of the plants, the decisions must be left in the hands of the ladies.

THE friends of Mr. FLEMING of TRENTHAM, and among practical Gardeners all are his friends, will be pleased to learn that the *Trentham Men*, that is to say his gardening pupils, have among themselves collected money enough to present him with a handsome silver Tea and Coffee service, upon his relinquishing the charge of the Gardens for that of the Trentham estates, over which the Duke of SUTHERLAND has placed him. Long may he live to enjoy the honour his talents and high character have won for him.

HINTS ON ORCHARD MANAGEMENT.—No. I.

FOR some years I have devoted a considerable amount of attention to the subject of orchards, and have also occasionally had opportunities of contrasting the method of cultivation adopted in different localities. I am sorry to have come to the conclusion that in a very large proportion of cases our orchard management is at a low ebb, and has not progressed in equal proportion to that of other branches of the profession, although the same guiding principles which should govern our practice are equally applicable. There seems to be a vast amount of hap-hazard work, of wrong-headed adherence to traditional and antiquated practices, and a thorough disgust at new-fangled

notions, all which is opposed to improved culture on a scale at all proportioned to its growing importance. I say, growing importance, because the importation of fruit from foreign countries has rendered the produce of orchards so much more easily obtainable by the general mass of the people, that it has become as it were a much greater necessity of life than formerly; and there is no reason why the trade which this increased demand creates, should be entirely thrown into the hands of foreigners, since I believe that with a judicious choice of sorts to suit the various markets, and a system of careful culture, in accordance with the improved knowledge of the principles of cultivation which characterises the present day, we may certainly be able to hold our own against all comers.

The success which has attended the application of improved principles in the cultivation of pyramids in gardens, should lead us to hope that an equal amount of care and skill thrown into the culture of orchard fruits on a large scale, would meet with equal success. I commend these considerations to the rising generation of gardeners, as a subject in which they may legitimately try to do a little good in the different localities to which they may be distributed in after years. I do not mean with regard to the orchards which will come under their own immediate supervision in the gardens of their employers—their own interests there should render them careful cultivators—but I would have them try by their own practice to recommend and endeavour to introduce a better system of management among the tenant farmers of their employers. These are the great sources of supply, and ought to be able to produce enough both for their home supply, and to meet the ever increasing demands of the ever increasing populations of our towns. I think if some of our spirited high-farming tenants could be induced to bestow as much care on their Apple trees as they do on their Wheat crops, they would be somewhat surprised at the average of profits which would follow.

The subject is one which cannot be very well dismissed in a few words. I shall therefore be obliged to enter somewhat largely into the various matters which bear upon it, and although much of what I shall advance will probably be only a repetition of the principles laid down by most writers on the subject, yet it will do us no harm to pass them in review, as we have all a common starting ground, and there are certain ruling principles governing every case, the only difference being in the practical application of them; for they must not be applied indiscriminately to every case, but varied according to local circumstances. There are in most localities certain conditions peculiar to each, and it would scarcely be possible for one to imitate exactly such and such conditions, or follow out such and such directions, laid down by any writer; it becomes, therefore, necessary to study the general principles which are common to all, leaving it to the operator to apply them, either partially or wholly, according to local conditions.

Now the principles which should guide our practice in the cultivation of orchard fruit trees are practically the same as those by which we are guided in fruit tree culture generally. Take for example wall-fruit culture. Here we shall find that certain conditions must be aimed at, and a certain amount of care bestowed, before even a moderate degree of success can be expected; but when these are applied with extra care and liberality, success becomes a certainty. There can then be no doubt but that an equal amount of care and attention bestowed upon Apple, Pear, Plum, and Cherry trees, in orchards, would produce a corresponding degree of success. One great mistake is often made in supposing that when the trees are planted, and fairly started, no more care is needed—at least for many years. The contrary is the case, and however much expense may have been incurred and care employed in the operation of planting, the trees will need a constant supervision, and liberal treatment; of which I shall have something to say further on.

I have now detailed the train of ideas which has induced me to believe that it may not be very unprofitable to spend a little time in examining into the causes and effects which bear on the subject in detail. I will therefore proceed to a more practical illustration, and in so doing must take the matter *seriatim*, but without enlarging much upon things that are self evident, such, for example, as that when a proper site is fixed upon, it must be fenced in, as the neglect of such a precaution does not involve the breach of any laws proper to good management.

In the first place the site of an orchard will require careful attention, and in making a selection there are two principal considerations by which the choice must be influenced. The first is the situation as regards aspect and shelter, which will influence the condition of the trees externally, and next the nature of the soil, but more particularly of the subsoil, which will act upon the roots. Shelter from the S.W. to N. and E. is not only desirable, but also indispensable to a perfect condition of fitness for the object desired; it is one of those favourable conditions which often results in a good crop of fruit, in seasons when trees more exposed to the searching winds and morning frosts which are so common in spring, are comparatively barren. I would not assert that this is invariably the case, but I have often observed effects which, other conditions being equal, I could trace back to no other cause.

The aspect I would prefer is one open to the south, and well sheltered on all other sides. Such shelter, however, should not be so near as to prevent a free circulation of air. A distance of about 30 yards is desirable; and if there is not a natural shelter, or existing plantations, there should be a belt of deciduous and coniferous timber trees intermixed, with a close undergrowth of Laurels, Yews, and Hollies, planted at the time the orchard is formed. A width of 20 yards is sufficient for this belt, and it forms an excellent and favourite covert for pheasants.

The bottoms of valleys are often so much more favourable as regards the depth of good soil, owing probably to the constant washing down by heavy rains of worm-casts and other softened disintegrated earth, that they are often chosen as sites for an orchard; but I should hesitate before recommending such a choice until it could be ascertained from observation that the heavy low fogs, so prevalent in early spring, did not hang over such localities, and carry with them the concomitant evils of severe frosts at the time when the leaves were just expanding and the trees in bloom. There are very few of these low situations where such is not the case, in the majority of seasons, particularly if there is sluggish-moving water in the neighbourhood. Besides which, there is the difficulty of obtaining a good outlet for drainage; and as there are very few situations where this will not be necessary, it becomes an all important consideration. Again, it is sometimes found to be desirable to plant very steep declivities with orchard trees, and lay them down in grass at once, on account of the great difficulty of carrying on arable or spade husbandry in such situations. If such declivities have a southerly aspect, and are well sheltered behind, it may be done with very great advantage, and the fruit being naturally more exposed to the sun, and on high land, will come of very fine colour and quality; but, on the other hand, if these steep hills face the east, or are otherwise devoid of shelter, the chances of a crop will be very precarious indeed.

The site which I would prefer, and the eligibility of which I have often found confirmed by practical observation, is that of a gentle slope facing the south, high enough to be out of the reach of the spring fogs and frosts, but not so elevated as to be exposed to the sweeping blasts which come from the higher grounds. The soil, it is true, may not always be so deep as in lower ground, for the reasons before mentioned, nor will the fruit always be so large, but it will be finer in flavour, colour and quality, and therefore more likely to be of superior value in the market.

The great advantage which orchards derive from good shelter will be very apparent to any one who will take the trouble to examine the condition of any large orchards which are devoid of shelter, although otherwise very well situated. I have made a point of doing so for some years, and I invariably find that the best fruit and most abundant crops are on the southern sides and in the centres of the orchards, whilst the condition of the outer exposed trees shows plainly the influence of the winds, both on fruit and branches, and that it is only by their sheltering influence on the interior trees, that good crops and fine fruit are attained; which state of things has often suggested to my mind an idea that it would be good practice in those cases where shelter was unattainable to plant dwarfs of the strong growing hardy sorts on the east, west, and north sides, also to plant them nearer together and prune very little, more with a view to shelter for choicer and tenderer sorts, than with a view to profit. *John Cox.*

SOME OF THE DISTINCTIVE FEATURES BETWEEN BRIAR AND MANETTI STOCKS.

THESE, as I have said before, are both good stocks for suitable Roses and lands. I am no enemy to the Briar, but I am obliged to depend on the Manetti chiefly. Had I strong land, or deep friable loam, I should mainly depend on Roses on 2 feet Briars. The summer Roses here do equally well on both stocks.

The Briar is best for moderate growers, the Manetti for strong growers. The former is good for strong growers, but the latter is not good for dwarf growers. Whether a Rose be for pole, wall'or standard, the Briar must be cut hard the first spring of plantation, also whenever the plant is moved. The Manetti never requires to be cut hard, either at the first spring of plantation, or when the plant is moved. After it is established you need only thin out the plant and cut the tops to a good eye, much as you would ordinarily prune an established hybrid China or hybrid Bourbon. In pruning the Briar you must cut it as close to the eye as possible; but in pruning the Manetti you must, if the sap is abundant, cut some way above the eye that you mean to break. In the former you leave an outside eye; in the latter it is immaterial; probably, as you may wish to keep the plant upright, an inside eye is best. The wood of the Briar is usually firmer and better than that of the Manetti, because it is of slower growth. The Briar will not flower from succulent unripe wood, but the Manetti will often do so. The former is not good for dry and shallow lands, or dry banks, but the latter is admirable for such places, and also good for strong lands, where monster plants are wanted. For pole purposes I think the Manetti is superior to the Briar, still the latter is very good for such a purpose if the land and tillage is good. It requires a year's establishment. The Manetti is established as by a talismanic touch. The wood of the Briar must be ripe before the plant is moved, but the removal of the Manetti ripens the wood, if the leaves are shaded, or moistened for a few days. The greater part of my Manetti stocks were planted in the burning heats of September last year, and in October in three previous seasons. Manetti plants may be, and probably in strong land should be, moved annually, or root-pruned; or they may not yield flowers owing to excess of roots.

The Manetti is earlier than summer Roses on the Briar. It is more abundant, more continuous, and later as to blooms. In my lands the blooms are much larger and better coloured. Has it never occurred to any one to ask how it is that Mr. Keynes produces such huge Roses. I reviewed his nursery in the August or September preceding the severe winter. The stock of plants on the Briar and Manetti were both splendid, but the buds of the latter were as big again as those of the Briar. The latter has a long line of frontier to defend, and its root being nearer the surface must be protected in severe winters, and mulched in torrid summers. The Manetti is underground, and requires less defence in winter and summer, and also less water. When the Briar is sick it seldom recovers—it may linger on; but the Manetti when very sick will often recover, as it is so free to make roots. The former casts its suckers from the root, the latter from the stock, seldom from the roots, rarely at all after the first year. The Briar requires a short season of rest after each series of flowers. The Manetti never rests. Its motto seems to be "nunquam dormio." The Briar and the Celine stocks are best for standards. The Manetti is not good for this purpose, as, when exposed to sun the skin cracks, and the wood becomes hard and dry as a stick. Neither is the Rosa cinnamomea as good for standards as the Briar and Celine stocks. The Briar is suited to July and August budding; the Manetti may be budded earlier and later, as well as in July and August. Whether the stock be Briar or Manetti, success mainly depends on the sappiness of the stock. For late budding a ripe bud is best. For earlier budding, if the stock is sappy, and a leaf is put over the bud for a day or so, a very young eye is as good, if not better than a ripe one, because the slice is sappier. If the weather is hot, bud early and late in the day. If you bud in midday, turn your back to the sun, or let your man hold an umbrella over your head. A sharp knife, an even tie, quickness of operation, a sappy stock (watered or mulched), cotton twist or worsted, and a leaf over the bud, are the main "keys of the position." Lastly, a Briar plant can never be more than one plant; but I have just taken up two seven years' old plants of Auguste Mie, and stripped off seven excellent plants, one on own roots and six on Manetti roots; and the two originals are put back in their places, all the better for stripping. This is tolerable interest.

One word as regards the lasting nature of the Manetti stock. I should think it was the hardiest stock in the world, especially when I consider how much too high it has been budded in time past. Manetti budders must go to Sawbridgeworth; and there they will see the stock budded scarcely more than 2 or 3 inches over the radius of the roots; in fact, at a little distance you would think that they were Roses on their own roots. Among many others I bought 12 each of Mad. Rivers, Cecile Chabrillant, Sen. Vaisse, Anna Alexieff, Louise Carique, planted January past. Their efflorescence and continuity of blooming were wonderful. Anna Alexieff groaned with flowers 4 and 5 inches in diameter (Mr. Adolphus Kent saw them), whilst M. Rivers and S. Vaisse threw corymbs from new shoots at the base, 3 and 4 feet long, with five and six Roses expanded in bouquet terminal. I have just moved two huge Manetti Roses (La Ville de St. Denis) that I had of Mr. Rivers six years ago, small pot plants; they had not on removal any other roots than their own. The year before last the first series of these plants was 250 Roses; some of the blooms were as big as a man's fist, beautiful in outline, colour, and series of petals.

One word to Nurserymen. Do not bud Roses on high Briar stocks. Two-feet stocks are most convenient: 3-feet stocks are high enough. Do not give up propagating Roses on the Manetti, or you will be left behind. Do not bud so high, or purchasers will be left behind! Send out good materials; and, after they are delivered, if complaint is not made at once, you are absolved from all blame.

One word to Rose planters. Remember, Nature was never a sexton or a bricklayer. All nature sighs for the surface. Roses can scarcely be planted too fleet; in which case they will need more summer and winter protection, and also more water; they can never be better planted than when the earth is dry and friable, especially if it is strong; in spring they will require water after planting; in November they will require none. *W. F. Radclyffe, Rushton.*

Home Correspondence.

Vitality of Seeds.—In your last Number you mention as a strong illustration of the fact that buried seed, retain for a long time their germinating power, the

case observed by Mr. G. B. Wollaston, of Chislehurst, a few years since, at the time the Beckenham station on the Mid-Kent railway was being formed. Certain excavations were necessary, and these had to be made to a depth varying from 5 to 10 feet in the virgin sand and gravel of the district. Thereupon Erigeron canadense sprang up everywhere, so as to completely cover the surface of the earth, to the almost total exclusion of other vegetation; and you add that the fact Mr. Wollaston records, though not to be taken as exact evidence, seems to afford strong presumptive proof that the plant is a true native, and that its seeds must have been buried for an indefinite period in the soil on which they sprung up. It appears to me, however, that a careful consideration of the facts would lead to a very different conclusion; that this is no exception to the general law which experience has laid down, viz., that the greater number of seeds lose their power of germination within a few years after they are ripened, that some may retain it for many years, yet that the number both of species and individuals diminishes rapidly with every successive season, and that their preservation for a little more than one century, the longest period of which an authentic record occurs, is under very exceptional circumstances, not enjoyed by seeds buried in the earth. I think that the sudden appearance of the Erigeron canadense must be attributed to some other causes. I do not deny that our soil is often full of seeds. Mr. Darwin raised 537 plants from three table-spoonfuls of mud taken from the edge of a little pond beneath water. I have myself seen at certain times of year soil full of seeds; but then it is the surface soil, or surface soil recently buried, and the seeds, or the plants reared from them, are always of many kinds. I never knew of any instance, even of soil taken from a field or garden to fill a garden-pot, and placed out of reach of a seed-shedding weed, which has produced an abundant crop of any one kind of weed. However few those that come up from the soil, they are generally of several kinds, and the very fact that the Erigeron canadense alone came up in such abundance, to the almost total exclusion of any other vegetation, appears to me strong evidence that the seed was not in the virgin soil excavated. But "how else," you ask, "is the profusion in which the plant appeared immediately after the cutting was made to be accounted for?" as "the Erigeron was not previously known to grow in the neighbourhood." The sudden appearance of Charlock and other weeds in great profusion, like that of enormous quantities of insects or Fungi, popularly designated as blight, has been frequently observed, and as popularly attributed in the one case to seeds buried in the ground, in the other to spontaneous generation through atmospheric influences, as the simplest modes of accounting for them; and if we attempt to disbelieve it, we are met by such a poser as the above question, to which we can only give a conjectural answer, depending upon precedent facts insufficiently observed. Erigeron canadense is certainly not common in England, but it is pretty generally scattered about some of the southern counties on roadsides, river banks, railway cuttings, &c., where the soil is light or loose and vegetation thin. The individuals are usually few, and its slender stems, grass-like leaves and insignificant flowers cause it to be easily overlooked. It is moreover one of those short-lived annuals endowed with enormous means of reproduction, of which, as of the Groundsel, two generations may flower in a single year. Every individual may produce thousands of good seed. A moderate sized plant of about 20 inches now before me has above 100 good flower heads at once; each flower head can ripen 40 to 50 seeds, giving a total of near 5000 seeds, and many foreign specimens have twice that number. In ordinary cases these seeds being shed in a time of drought or otherwise ungenial weather, or falling upon a hard, or a pre-occupied, or otherwise ungenial soil, remain on the surface long enough to become the prey of insects or other animals; or if they succeed in germinating are soon devoured, or choked by the surrounding vegetation, or otherwise destroyed in their young state; so that in those places where we see year after year the same small number of scattered individuals, an average of 4999 of the seeds shed come to an untimely end, for every one that lives to form a full-grown plant. But supposing two or three individuals to have been growing among the roadside weeds in the neighbourhood of the cutting, although from their paucity they may have passed unheeded, and suppose their seeds to have been blown on to the fresh earth, exposed and loosened by the cutting, in wet weather or immediately before rain; almost every such seed, thus placed in the conditions of a crop intentionally and carefully sown, would germinate; and in the clean soil, as free from insects and grubs as from obstructing vegetation, the crop would prosper and exclusively cover the ground, not by a successful struggle with those enemies which are usually too much for it, but because it has met with none such to struggle with. There are many means by which strange weeds are brought into the soil thus prepared in railway and canal cuttings, amongst which a very common one is with the fodder for the horses. I have several times observed young plants, especially annuals, not common in the district, come up near the troughs where railway horses are fed; they mostly perish soon after, but one or two surviving might produce a large patch the ensuing year. Every one must have observed how much more frequent large patches of one kind of weed are on a new embankment than upon old ground. Seeds buried in the surface soil, as deep as the filtration of water or the working of worms and insects can penetrate, are subject to those hygrometrical and thermometrical changes which they will resist for a number of seasons greater or less according to the intensity of these changes, but in the end they will be influenced by them, and either germinate or perish, and their burial in the "virgin soil" below, must be of exceedingly rare occurrence—so rare and so partial that the chance must be very great against any such soil being ever again turned up. The only evidence which might be convincing that seeds contained in such "virgin soil" (like the "antediluvian" Mustard mentioned by the late Mr. Herbert for instance, in a note to White's Selborne, E. T. Bennett's edition, p. 486), remain alive, would be as soon as such a crop is observed, to fetch a barrowfull of the same soil from where it has not yet been disturbed, and bring it into a planthouse out of the reach of weed seeds, and watch what will come up, or carefully wash it and search for the seeds. Mustard and Charlock seeds at least are not so microscopic as not to be readily seen before they germinate. I say nothing of the celebrated cases of the Mummy Wheat and the Devonshire Raspberries. However unimpeachable the veracity and good faith of the authorities on whose evidence these cases rest, there are circumstances in each which, to my mind, make it not at all improbable that some small links in the long chain of proofs may not be entirely free from suspicion of delusion or deception. *B.* [Perhaps Mr. Wollaston would adopt the above suggestion, of treating a barrowfull of the soil, and would report the result.]

Pears not Keeping.—Before reading your leading article on this subject, I was under the impression that this climate had something to do with Pears not keeping. I find, however, that in other parts as well as in Ireland, Pears are affected with a disease which I attribute to the cold sunless autumns we have had. Fruit prematurely ripened decays quicker than that thoroughly matured. Pears at this place came in nearly all at once, very late kinds being ready almost as soon as early ones, and even when ripe they were not of really first-rate flavour; half of them before arriving at maturity became covered with spots, which grew larger until they ended in entire rottenness. Apples on the whole were better; they were not so much spotted; still a goodly portion of them were covered with brown spots. I need only remark that all the Pears here are just over; a fortnight hence will see us cleared out. This will at once show how indifferently they have kept. *John Edlington, Crom Castle.*

Singular Discovery in an Icehouse.—While employed some days ago in clearing out an old icehouse that had not been in use for several years, and the gate of which had in consequence been let fall to pieces, I was surprised to find at the bottom of it the skulls of several cats and of above 100 hares. This somewhat singular discovery suggests to me the necessity of having places of this kind closed when they are no longer wanted; lest other animals more valuable should meet with a similar fate. *E. Welch, Palace Garden, Armagh.*

Mildness of the Season.—In further confirmation of this, I beg to send you a Souvenir de Malmaison Rose grown in the open air here, and cut on Christmas Day. I think you will say you have seldom seen a finer. In reference to Rose showing, noticed lately in your columns, I would say let exhibitors go on as heretofore, as who can tell whether a Rose has been disbudded when you cut it or not. The "National" gives a prize for Teas and Noisettes open, and I informed the Secretary of the Crystal Palace that if a prize were to be given for 18 Teas, Noisettes and Bourbons, the show there would be perfect. *J. Hollingworth, Turkey Mill, Maidstone.* —— Although we had 8° of frost here (Stamford) for a short time on the night of the 22d ult., the following are in bloom in the open air, viz., Devoniensis, old Crimson, and monthly China Roses, Mignonette, Gazania splendens, Stocks, Carnations, Chrysanthemums, Ivy, Laurustinus, Cydonia japonica, Mezereon, Arabis, Butterbur (Petasites), Double and Single Primroses, Polyanthus, Wallflower, Double and Single Violets, Pansies, and May Queen Strawberries. I have also cut to-day (Christmas) Walcheren and Snow's Winter White Broccoli and Neapolitan Cabbage Lettuces, the latter well hearted, crisp and sound, and the best Lettuces I have had during the year. This variety has for a long time stood A 1 with me amongst the Cabbage Lettuces, but being a shy seeder is rarely to be obtained true. *T. L.*—— I send herewith two sprays of Yellow Banksian Rose, which were gathered on the 23d inst., from a south-wall in a garden at Brockley, near Bristol. *A Subscriber.* ——We enclose you specimens illustrative of the mild weather which we are now experiencing; one is a portion of a pyramidal King of the Pippins Apple tree, several branches of which have come into full leaf within the last few days; the other is an example of Peach bloom gathered from an open wall 400 yards long. We have a cold lean-to Peach-house about 40 yards long, but we do not notice the trees in it to be much more forward than they were last season. *Adams & Co., London Road, Gloucester.* ——The Eastern Counties are reported to be cold and bleak, but the subjoined list of shrubs and flowers now blooming in a garden at Dedham, near Colchester, will prove the present season to be equally genial there, as in more favoured localities. Among the plants referred to are Laurustinus, Berberis Darwinii, Double-flowering Cherry, Potentilla fruticosa, Jasminum nudiflorum, Clematis azureus, Coronilla glauca, Christmas Roses, Polyanthus, Intermediate Stocks of various colours, White German Stocks, Wallflowers, Purple Primroses (single and double), Common and Neapolitan Violets, Pansies, Mignonette, Arabis albida, Iberis sempervirens, Double Marigolds, Perpetual Carnations, Gazania splendens, Chinese Chrysanthemums, Tormentilla reptans, Polygala Chamæbuxus, Erica carnea, and others, and Menziesia polifolia. Wild Furze and Broom brighten the plantations, while on the sheltered banks are to be found the Periwinkle, the purple and white Dead Nettle, with Primroses, Oxlips, and Lychnis dioica. The delicate fronds of Adiantum Capillus-veneris, also yet adorn the hardy Fernery. The following Roses have also been gathered since the 24th inst., viz., Gloire de Rosomène, Gloire de Dijon, Mrs. Elliot, Geant des Batailles, Louis Philippe D'Angers, Devoniensis, Souvenir de Malmaison, Duchesse Decazes, together with many blossoms from the miniature Fairy and the common China Rose. *Dedham, Dec.* 30.—— Up to the present time we have not had the least symptoms of the severe frost predicted by your correspondent at page 1160, Dec. 5. On the 18th ult. we had from 2° to 3° of frost, which only lasted a few hours, and was soon succeeded by a dense warm fog. A few beds of Heliotrope and Tom Thumb Nasturtiums were destroyed by it in the flower garden; but with the exception of these all else still presents a healthy appearance. Two or three days ago I filled a vase consisting of 43 varieties of flowers, all from out-door plants, 23 of them being bedding plants and tender annuals. Among them were Camellia Sweetii, Clianthus puniceus, Ceanothus azureus, Pittosporum Tobira, Double Myrtle, Veronicas, Fuchsias, Pentstemons, Calceolarias, Verbenas, Scarlet Geraniums, Wallflowers, Stocks, Alyssums, Seedling Picotees, Lobelias, Mignonette, Tropæolums, Cobœa scandens, Ageratums, Yellow Crocus, and Roses. We have also had Rhododendrons in bloom more than a fortnight since; a plant of R. pulcherrimum has now on it dozens of heads of well expanded blossoms, the colour of which is most brilliant. Among other things are Willow, Cratægus, and Hazel; the latter has catkins from 2 to 3 inches long. *R. Westcott, Singleton, Swansea.* [We have many more communications on this subject, but want of space to-day obliges us to defer them.]

Orchard Houses.—I have been much interested in the discussions which have from time to time appeared in your publication respecting orchard houses, but I have not seen that any one has compared the quantity of fruit which has been obtained from trees in pots with that obtained in a similar sized house from trees planted in beds in the ordinary manner. I have endeavoured with a small portion of a south wall during the past eleven years to grow fruit without protection; you may judge how I have succeeded when I tell you that my three trees have not during the whole time produced 12 dozen of fruit. The trees are in good condition, bloom in abundance every year, but the spring frosts have invariably killed nearly all the fruit. In the spring of 1861 I erected a small orchard house, about 30 feet long by 10 feet wide, in which I placed 24 trees in pots; these in that year produced about 5 dozen good fruit. In 1862, the trees were repotted into 13-inch pots, the former pots being only 10-inch; in consequence of late potting I only obtained about 7 dozen fine fruit in the last season. The fruit produced was as follows, viz.:—5 dozen Pears; 12 dozen Peaches; 11 dozen Nectarines; 1 dozen 2 Apricots; 9 dozen 7 Plums. Cherries on two trees an abundant crop. The fruit has been all fine, and of the best flavour. *An Amateur, Watford.*

Rhododendrons and Sea Breezes.—May I be permitted to observe for the benefit of your correspondent "C. D., Ashdean, near Chichester," that he is in error in supposing that sea-breezes are destructive to the Rhododendron. I live in a purely maritime district, and my own nursery farm, extending, as it does, over 50 acres, is within a few hundred yards of high-water mark. Here I could show him thousands of plants of all sizes, such as I think could not be surpassed for health and beauty in any part of England, and constantly subject to sea breezes. It is equally fallacious to suppose that they will not grow on limestone subsoil. Here at least they grow splendidly almost on the bare limestone rocks, and constantly watered by the spray from the sea. *William Barron, Sketty Nursery Farm, Swansea.*——Your Correspondent, "C. D.," is certainly quite wrong in saying that Rhododendrons will not grow near the sea. They grow luxuriantly near Bournemouth, and also in the Channel Islands; but of course they require to be sheltered. In consequence of "C. D.'s" article, at p. 1205 (1863), I was very nearly taking up all my Rhododendrons in despair; but having ascertained that with care they will flourish near the sea, I have determined to remove them to a sheltered spot in the spring. *E. Sandeman, Havant.*

Bottom Heat.—As the utility of geothermal culture appears to be universally admitted, might not the principle be applied with advantage in orchard houses? The pots might be surrounded—say to half their depth—by some slowly fermenting material, such as a mixture of leaves and tan which would, impart the desired heat gradually and continuously. Have any of

your readers ever tried this plan, and with what result? And which would be the best time to make the application—when the trees are blossoming, or afterwards? *A. J.*

Vine Borders.—Borders constructed on such good principles and of such ample proportions as regards width and depth as those described by your correspondent (see p. 1181, 1863) will undoubtedly produce first-class Grapes, provided proper indoor treatment is given. Borders of the dimensions described are in my opinion quite wide enough, at least for some years to come. Probably at some future period if the Vines are very luxuriant it may be found necessary to make them a little wider; at present, however, it would be next to useless to do so, especially considering the short time the Vines have been planted. I have grown really good Grapes on Vines planted in a border not wider than 4½ feet, walled in on each side, so that it was next to an impossibility for the roots to receive any support from any other source than the narrow limits in which they were placed. Borders leaning to the narrow side are preferable to very wide ones; the roots being under control, and you can supply them with food in a liquid state when required. *John Edlington, Crom Castle, Ireland.*

Heating Orchard-houses.—In reply to an inquiry from a correspondent at Otley, in Yorkshire (p. 1230, 1863), I say yes, he may ripen fruit, but he will find a great uncertainty about securing a crop if he does not adopt hot-water pipes. His question was not so distinctly put as it should have been, for any person residing in the south and unacquainted with the moist atmosphere we so frequently experience here, would at once reply, "Certainly, there is no difficulty whatever to be feared;" and as I have had many years experience in the south, and know what a dry atmosphere prevails there generally, I quite agree that pipes are not required in such favoured localities. Here, and in the surrounding district, we experience so much moist weather in the months of August, September, and October, that a little fire-heat and plenty of air will give material aid in ripening the wood and fruit, whilst at the blooming time, when we are also subject to much moisture in the air, it will be found most valuable in order to keep the indoor atmosphere dry, so that fertilisation can readily take place, and injury to the bloom by frost be prevented. Several orchard houses have been erected in this neighbourhood without heating apparatus, but I believe in every case the gardener now wishes his was heated. I have always been an advocate for heating such structures in this district, and am now erecting an orchard house which will be supplied with pipes just sufficient to preserve a dry atmosphere and keep out frost. *Bradford, Yorkshire.*

Foreign Correspondence.

The Island of Ascension.—The following interesting account of some of the results of the operations instituted by the Admiralty for improving the condition of the Island of Ascension (originally a barren cinder heap without water or other vegetation than a little Grass and Fern towards the summit of the Peak), have been communicated to Sir William Hooker by the energetic officer in command of that Island.

Ascension, Nov. 13, 1863.

MY DEAR SIR WILLIAM,

I regret to say that this my last planting season is as unfavourable or more so than the two former years, and all my sanguine expectations which fine moist weather in the beginning of September gave rise to have vanished, and I do not think that a single transplanted shrub will succeed. Fortunately we confined our operations to the moving of the Wattle (Acacia) of which we have an ample supply, and all the beautiful things you sent us from Kew by Commodore Wilmot, and the "Industry" are safe. I have nearly completed one greenhouse 45 feet long, and if I find that it succeeds I shall build a similar one before I leave; it is well ventilated, and I have built a cement-lined tank within it, which will catch the water from the roof. All our vegetable crops have failed over and over again this year, and there has been so little rain that I am obliged to limit the allowance of water to a gallon a man per diem. You will be glad to hear that the birds are rapidly increasing on the island, sparrows are breeding, and I hear of five nests near Dampier's springs. We feed the cattle there on Oat straw, so they are sure to thrive. Canaries, chaffinches, and several coast birds, brought by Commodore Wilmot, are also doing well, and the avidivats (amadavades) introduced by Captain Burnett, are in flocks of thousands. Thrushes could not get their living in Ascension during the hot season, so I hardly think it worth while to make the experiment. Bees would be invaluable here, and several unsuccessful attempts have been made to introduce them, but they seem to have invariably arrived dead; there is no reason why they should not do very well if sent out direct in proper hives by a store ship. Commodore Wilmot was here when I received your letter, and I delivered your message; he still takes the greatest interest in our little island, and spoke very highly of Mr. Mann, whom he met on the coast. I shall recommend my successor to follow up a system of stone enclosures in the sheltered valleys which we have commenced, for Lime and Orange trees. I could have wished to have done more in this way, but labour is very limited, and the Africans make but little show. I want 20 more marines to do justice to the place, but any increase involves additional supplies to be conveyed to the mountain, and unless their lordships should decide hereafter to increase the establishment altogether, I am not prepared to submit any new plans to them. English Potatos are doing very well now that we have plenty of manure, and I never miss an opportunity of getting seed. In a short time we shall be able to sow our own, as I have built a fine vegetable loft with convenient places of spreading out and preparing all kinds of seeds which have hitherto been destroyed by damp and rats. We have upwards of 20 milch cows, and for several months have been issuing 40 quarts of milk daily; they find good pasturage in Breakneck during the day, and are kept in stalls during the night, on Oat straw and the runners of the sweet Potato. Island-bred sheep are very fine. We had 125 lambs between January and June; but I shall endeavour to enter more fully into these subjects in my next report. Some Norfolk Island Pine cones, sent to me from St. Helena, are germinating, and I hope a few will be raised from them, but I am almost in despair of these ever being anything better than stunted trees and shrubs, the long droughts are so very trying and withering. Much, however, may be done by steady perseverance and watching opportunities. *J. Barnard.*

Societies.

ROYAL HORTICULTURAL: *Dec. 28.—Meeting of Council.*—Mr. Henry Cole was elected a member of Council, *vice* the Earl of Ducie resigned.

SCOTTISH ARBORICULTURAL: The Tenth Annual General Meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on the 4th of Nov. last, Mr. J. Balden, V.P., Forester, Lennoxlove, in the chair. The following Candidates were elected:—Rev. H. W. Cookes, Astley Rectory, near Stourport; Messrs. Waterer and Godfrey, Knaphill, Surrey; J. Blackley, Esq., Milton and Castlemilk; R. T. Macintosh, Esq., Nurseryman and Seedsman, Edinburgh; S. M'Glashen, Esq., Canonmills, Edinburgh; P. Robertson, Esq, Foulis Easter, Dundee; Mr. D. Christie, Assistant-Forester, Dalkeith Park; Mr. G. Taylor, Assistant-Forester, Hopetoun House.

The following prizes were awarded to the successful competitors for Essays, during 1862 and 1863:—To Mr. Wm. M'Corquodale, Forester, Scone Palace, 5*l.* for an Essay on "Successful Planting with Scotch Fir after previous crops of old Scotch Fir had been removed from the ground," and the Society's Silver Medal for an Essay on "The Diseases of the Larch" [These papers have already appeared in the Transactions, Vol. II. p. 3.] To Mr. Wm. Gilchrist, Forester, Castlemilk, the Society's Silver Medal for an Essay on "The Conducting of Planting Operations in mixed Fir Plantations.' [This will appear in the Transactions for the present year.]

The Secretary read an Essay on "The Construction of Plantation and Farm Roads and Walks;" and a statement regarding the establishing "Reading Rooms and Libraries for Working Men on Landed Estates," by Mr. R. E. Brown, Forester, Wass, Yorkshire.

A letter was read from Mr. M'Glashen, having reference to the successful transplanting of a number of trees and shrubs near Edinburgh by his machines, in June and July last. A Committee was appointed to examine the trees in August 1864, and report thereon at the next general meeting as to their health and growth, and also as to the time required, and expense connected with their removal by the machines.

It was agreed that Prizes of 5*l.* each should be offered for the best and approved Essays or Reports on any of the following five subjects:—1. Introduction and Cultivation of the newer Coniferæ and other Forest Trees, with special reference to the climate of Great Britain and Ireland. 2. On the Best Modes of Constructing and Maintaining Plantation Roads and Walks, with special reference to their Cost. 3. The Best Method of Rearing and Maintaining Live Fences; with an account of the Plants best fitted for filling up gaps in old hedges. 4. The Species of Timber Trees suitable to the various Soils, Elevations, and Exposures, and the Effects produced on the different Varieties. 5. Hedgerow Trees, having special reference to their utility and ornamental character, and the most successful mode of rearing them. 6. A Silver Medal will be given for the best and approved Essay or Report on any other subject connected with Arboriculture. 7. A Silver Medal will be given for any marked advantageous improvement on any of the Instruments used in Forestry (to be accompanied by a report). It is expected that the Essays and Reports be founded on the experience of the Competitors, and their remarks confined to the subjects of which they treat. All Essays, Reports, and Instruments intended for Competition must be given in to the Secretary not later than October 1, 1864, each bearing a motto, and being accompanied by a sepa ate sealed letter bearing the same motto, and containing the name and address of the author.

The Treasurer submitted a statement of the Society's financial affairs, showing a balance in favour of the Society of 88*l.* 14*s.* 2*d.*

The Office Bearers for 1863—64 were then elected, the Right Hon. T. F. Kennedy, Dalquharran Castle, Maybole, being President, and Mr. J. Sadler, Assistant to Professor of Botany in the University of Edinburgh, Secretary.

Notices of Books.

Johnston's Civil Service Arithmetic. Longman & Co.

Of late the country has been inundated with very good books of arithmetic, but we have sufficient faith in the laws of supply and demand, to believe that new books on such subjects are only written to meet a felt want. The fact is, competitive examination is the hobby of the day, and every candidate for the office of exciseman, tide waiter, weigher, or boatman, every person seeking employment in the post office, dockyard, education office, constabulary, India Board, Inland Revenue, *cum multis aliis*, wishes to know the questions that actually have been set in examinations for his particular department, in order that he may form some notion of the kind of questions he is likely to meet with, and regulate his studies accordingly. Mr. Johnston professes to give 1300 questions that have actually been set, specifying for what class of candidates.

Manual of the Metalloids. By James Apjohn, M.D., F.R.S. London, 1864, Longman & Co. Pp. 596, small 8vo.

The excellent series of scientific manuals edited by Messrs. Galbraith & Houghton, of Dublin University, are well known, and the thick little volume before us fully sustains the character that students and the public have formed of its predecessors. This book is written in a clear, concise, intelligible manner, combining the two very important merits of brevity and a lucid style, so seldom found together in works of this kind. Dr. Apjohn has we think done well to introduce the commoner chemico-algebraic symbols into his treatise, and he has taken care to supply woodcuts with a liberal hand wherever they are needed to elucidate the subject, or to help the experimentalist. In the Introduction we find the laws of chemical combination clearly laid down, and the mode of finding chemical equivalents deduced, the atomic theory is then explained, and after this the symbols and nomenclature peculiar to the science are gone into, and other matters which we must pass over.

On coming to the description of the elements, which Dr. Apjohn designates as Metalloids, one feels inclined to take objection to the term which he has applied to them collectively. Not that the word itself is new, but the things included under it are not those that we have been accustomed to. Where Berzelius classes sulphur, phosphorus, carbon, boron, and silicon as *metalloids;* oxygen, hydrogen, and nitrogen as permanently elastic or *gaseous* bodies; and puts chlorine, fluorine, iodine, and bromine in a class by themselves; Dr. Apjohn places all these, together with selenium, tellurium, and arsenic, making 15 elements in all, under the name of metalloids. Chemists are perfectly aware of certain difficulties in the way of the generalisation, and if they are satisfied, it does not become us to complain. The book was intended for the especial use of students, who will know how to appreciate its merits. There is an index of subjects and of names.

Garden Memoranda.

ROYAL GARDENS, STUTTGART.—The villa of the Crown Prince is situated on the top of a hill opposite the Wilhelmira Palace, on the east side of the town of Canstatt. Its position commands a view of Stuttgart, Canstatt, and the beautiful valley of the Neckar with its Vine-clad hill-sides. The hill on which the Palace stands is beautifully wooded to the top; while on the lower part of it are shady walks winding in all directions, open for public promenade, and forming one of the many pleasant retreats in the environs of this highly-favoured city. The approach from Canstatt is by a good carriage road, which winds round the hill for about three-quarters of a mile. On the upper portion Vines are planted on each side and carefully cultivated. The canes vary from 3 to 5 ft. in height, and at the time of our visit were loaded with rich amber-coloured Grapes, some of the bunches being nearly a foot in length. The canes are pinned down close to the ground every season. On the left side, facing the south, a series of terraces are formed, on which Vines are planted, and being trained over the walks form an agreeable shade. Beyond this the bank is well covered with evergreens. The carriage drive here takes a sudden turn to the left and enters the court-yard of the Palace.

The latter is a handsome structure in the Italian style of architecture; it is nearly square, with a balcony balustraded on the north and east side; in the centre of the court-yard is a handsome fountain, placed in front of one of the principal windows, and facing a long avenue of trees. It has an excellent effect, whether viewed from the drawing-room or from the end of the vista in the pleasure ground. Passing on to the west side we came to a beautiful Pavilion, stretching away from the house some 150 feet. This was made both useful and ornamental. The floor in connection with the balcony was used as a kind of conservatory and promenade, and seats and plants were arranged on all the available space. The underneath part was used for the stables, coach-houses, &c., on the western side; and a grand staircase to the house on the eastern front formed the principal entrance to the villa. The sides of the entrance just named, were adorned with plants in tubs and pots. From the conservatory floor a magnificent view was obtained of the country for many miles round. The roof of the Pavilion is supported upon handsome stone columns, and the sides are all open. When we visited it, it happened to be the good King's birthday, and on that occasion a grand fête is always given at Canstatt. Amongst all kinds of fun and amusement, horticulture was not forgotten. Prizes were given for fruits and vegetables; and independent of this there was a grand architectural façade at the entrance to the ground, designed by the King's architect, and covered with evergreens, fruits, vegetables, and flowers. Lines of Apples, Grapes, Carrots, Turnips, and similar productions might be seen, nearly 200 feet in length, and very artistically arranged; and vases placed on the top of the façade were filled with fruit and flowers. In the whole of this work care was taken to render it worthy of the event which it was intended to celebrate. This could all be seen from the Pavilion, and produced an impression not soon forgotten.

On the south side of the villa—well protected on three sides and open only to the Palace—is the English flower garden, the plans for which, we were informed, were prepared in England. It is nearly square, with a covered way down the centre; this was formed of open brick work, about 3 feet high, and from this, brick columns were carried up at intervals, about 7 feet high, and surmounted by strong wooden lattice-work, and the whole was covered with Vines, yielding agreeable shade and abundance of rich Grapes. The flower beds were well arranged and filled with flowers, and upon the whole the garden in question was worthy of the name it bore. At the end of this, separated by a fence, was a piece of ornamental water, in the form of a half-moon, well stocked with various kinds of water fowl.

Passing under the Pavilion by the principal entrance we came out on the north side of the Palace, and proceeded down the avenue previously alluded to; at the bottom is a round basin of water with a single jet in the centre. Close to this is the Pinetum, where we found good examples of some of the most hardy of the Coniferæ, including Wellingtonia gigantea, Abies Pinsapo, Douglasii and Nordmanniana, and some of the

hardy kinds of Cupressus, &c. In front of the Pinetum is the conservatory, a square building with semicircular wings; this was undergoing repair at the time of our visit, but we could see by the serpentine form of the central pathway that the plants were to be arranged in dense masses on each side. In Germany fine plants do not appear to be a desideratum, but a number of small thin plants, so that by placing them closely together a compact mass of green foliage may be obtained. This appears to be the prevailing mode of setting off or arranging conservatories both here and all through South Germany.

A circuitous path to the left leads to the kitchen garden. This is a large piece of ground on the slope of a hill facing south-west. There are no walls around it, but it is sheltered by large trees on the north side. At the top of this garden are numbers of greenhouses and pits for the propagation and cultivation of plants for the conservatories. Azaleas and Camellias are grown to a large extent, together with a great number of Australian and other greenhouse plants. There were no Pines or other fruit cultivated under glass, the Princes of Germany appearing to be well satisfied with what can be produced naturally.

There was a collection of very handsome pyramid Pear trees planted in long lines by the sides of the walks; also Apple trees and other hardy fruits, and the garden was well stocked with vegetables of all kinds. Altogether this proved to be a most interesting place, the grounds being well wooded, nicely arranged, and well kept.

Miscellaneous.

Royal Horticultural Society.—The days for the Flower Shows of the ensuing season, are fixed as follows, viz:—A Hyacinth Show on 9th March; a Camellia Show on 30th March; an Azalea and Early Rose Show on 26th April; the First Great Show on 1st June; the Great Rose Show on 29th June; the Second Great Show on 6th July; a Strawberry Fête on 13th July; an International Fruit Show in the third week of October. With respect to all, except the Spring Shows, the Council propose to open each for two days—the first day to be considered as a Fellows' day, the second day for the general public. Fellows only will be admitted at one o'clock; at two o'clock they may introduce personally any number of their friends, whom they will have the new privileges of personally introducing on the reduced payment of half-a-crown. At three o'clock the general public will be admitted by tickets, on the usual payment of 7*s.*, or by tickets purchased previous to the day, price 5*s.* The second day of the Show is intended more especially for the admission of the general public. The charge will be one shilling, and the Council propose that one-fourth of the receipts on the shilling day shall be divided among the exhibitors in proportion to the space which they occupy. The Council also propose to give to those who declare their intention of exhibiting, one month before the Show, the privilege of purchasing tickets for the shilling days at the rate of 30 for 1*l.* With regard to the Spring Shows, the prices of admission will be 1*s.* to the friends of Fellows personally introduced, and 2*s.* 6*d.* to the general public. The hours of admission will be the same as at the Great Shows. The Council propose to hold a Strawberry Fête on the 13th of July. At this show the Council will award three grades of honorary certificates. Out of the receipts for admission, one-fourth will be allotted to the gainers of the several certificates, in proportion to their grade of honour, and one fourth among the whole of the exhibitors, in proportion to the space they occupy. These receipts will be calculated as well on the first or Fellows' day as on the public day. The Council propose to make an agreement by which those who may choose to pay for the privilege may be allowed to taste the fruit at the termination of the day. An International Fruit Show will take place during the third week in October. On the first day it will be open to Fellows and their friends personally introduced, upon payment of 1*s.*, and to the public on payment of 2*s.* 6*d.* During the remainder of the week the Show will be open to the public on payment of 1*s.* Out of the receipts for admission, one-fourth will be allotted to the gainers of the several certificates, in proportion to their grade of honour, and one-fourth among the whole of the exhibitors, in proportion to the space they occupy. These receipts will be calculated as well on the Fellows' day as on the following or public days.

Effects of Deadly Nightshade.—In the month of September we saw a magnificent specimen of the Deadly Nightshade, Atropa Belladonna, growing in a chalk dell in Hertfordshire, near Wheathampstead. It formed a splendid bush, spreading out on all sides, the stems five or six feet long, and the berries quite as large as small Damsons. Shortly afterwards the plant was visited by a young lady, accompanied by a gentleman, who cut a branch, which she held while he cut some more, and then walked away with the branch in her hand. In a few minutes she felt uneasy, and afterwards was seized with violent headache, giddiness, and nausea. These symptoms continued for the rest of the day, through the night, and through the following day, when her eyes were very heavy, and she found herself unable to walk on account of the giddiness. On the third day the headache was better, but pain in the side had come on, and considerable debility. Six days after the first attack the headache and sickness began to return, but were removed by a little brandy and water. The pain in the side did not cease till some days later. These facts indicate the great caution that should be used in dealing with this remarkable poison, to the influence of which some constitutions are peculiarly sensitive. *Intellectual Observer.*

Calendar of Operations.

(*For the ensuing week.*)

THE pleasure to be derived from a garden at this season depends much upon neatness and cleanliness in every department. Lawns should be carefully looked over and cleared of dead spray from trees, worm-casts, &c. Walks should be freed from weeds, and neatly rolled—operations which in the majority of cases require attention rather than much additional labour. In short, the gardener will do well to go over the grounds under his charge with the determination of finding fault with himself rather than with his assistants; he will often discover that this is productive of good, and much more satisfactory than if the fault-finding emanated from his employers.

FLOWER GARDEN AND PLANT HOUSES.

The principal work in plant houses will consist in keeping them and their inmates scrupulously clean. Moderate fires, and frequent washing of stove plants, will be necessary. Conservatories, and indeed all show houses, should now be gay with forced plants, of which a supply must be kept up by means of successions introduced into heat as often as may be necessary.

AURICULAS.—While the weather is mild these should have as much air as possible; remove dead leaves, and keep the surface of the pots free from moss. Water should be given very sparingly.

AZALEAS.—If an early display of flowers is required, a few of the most forward plants should be placed where they can have a temperature of from 50° to 55°. Water carefully when necessary, and in mild weather ventilate freely.

BEDDING PLANTS.—Little, if any, water will be required by these at present; when necessary, give it on the forenoons of fine days, and leave the lights of the pits off for an hour or two afterwards. Give air on all favourable opportunities; but be careful to close up early in the afternoon, and when frosty cover well up at night.

CAMELLIAS.—Many of the earliest will now be in flower. Water must be liberally supplied, and air given tolerably freely during fine weather.

CINERARIAS.—These require careful attention in the way of watering. Do not place them so close together as to touch one another, and be sure to keep them secure from frost.

CHINESE PRIMROSES.—Forward plants in bloom should be introduced to the greenhouse or conservatory, and others brought on to succeed them as their beauty fades. Do not let them suffer from want of water.

PELARGONIUMS.—Finish repotting all plants that require it as early as possible, and keep them free from dead leaves and insects. Specimens intended for flowering in May should be placed as near the glass as possible; let the temperature at night be about 50°. That for the later blooming plants should not be above 40°.

ROSES.—Plants for early flowering should have a brisk steady bottom heat, and a moist growing atmosphere. Keep down the Rose maggot by means of hand picking, and green fly by fumigation.

VIOLETS.—Both Neapolitan and Russian varieties will now be in flower, the latter out of doors. Let the pits in which the Neapolitan is grown, have plenty of air while the weather is mild.

FORCING GARDEN.

Little can be recommended under this head at present beyond attention to the instructions subjoined. During open weather like the present, fire heat should be used with as much moderation as possible. Keep an eye to constant successions of crops, which if well managed, will require both care and forethought.

ASPARAGUS.—Make a bed to succeed that in use last month. On fine days draw off the lights to allow the heads to acquire their natural flavour and colour.

CHERRIES.—Gentle fires may now be lighted to expel damp previous to forcing. Let the first crop be taken from trees in pots.

CUCUMBERS.—If manure is used to supply bottom-heat, sweeten it by means of frequent turnings, and by mixing tree leaves with it, and make every preparation for the construction of a bed soon. Keep down thrips and red spider on those in houses heated with hot water, by maintaining a moist healthy atmosphere.

FIGS.—Trees in pots may now be started, treating them as recommended for Cherries.

MUSHROOMS.—Prepare horse-droppings for beds to succeed such as will soon become exhausted.

PEACHES.—Give abundance of air during the day, keeping gentle fires at the same time, so that during the present mild weather little fire-heat may be required at night.

PINES.—Plants intended for fruiting during the summer must now have careful attention. Let them have a steady earth temperature, and a top heat of about 65° at night. It is not too early to excite the general stock, which, however, must not be allowed to become drawn.

VINES.—See that there is always a steady warmth in the covering on the outside borders of early houses. Attend to the stopping and tying in of young shoots as they advance in growth. Let Hamburghs have a night temperature of about 65°. Muscats should be kept 5° or 6° higher.

HARDY FRUIT AND KITCHEN GARDEN.

While the weather keeps mild, holes or pits may be got ready for the reception of new fruit trees; where old trees too are not growing well, a portion of the soil might be carefully removed from their roots and replaced by better material. All unoccupied ground should be rough dug, trenched, or ridged, regulating these operations according to the nature of the soil and the character of preceding and contemplated future crops.

APPLES.—Prune these, and let all trees infested with insects have a thorough cleaning. Over-luxuriant varieties may now be root-pruned.

ARTICHOKES.—If not already secured from frost, means of protection should not be longer delayed. Tie up the stems with straw bands, and earth up with soil; or, which is better, mulch with litter and leaves close to the stems and as far as the roots extend.

BEANS.—Plant Early Mazagan in a warm situation.

CARDOONS.—Protect these from frost by means of straw bands.

CAULIFLOWERS.—Remove dead leaves, keep down slugs, and should severe weather set in, see that the plants are properly protected.

CELERY.—Sow a little for an early crop. If bad weather should occur, cover that in use with straw or fern.

ENDIVE.—If not already done, tie up to blanch on fine dry days; protect also from hard frost.

LETTUCE.—Protect in very bad weather, but expose freely on all other occasions. Sow Paris Cos for an early crop.

PEARS.—Prune and nail the trees on walls while the weather favours the performance of such operations. Very robust-growing trees may now be root-pruned.

PEAS.—Sow Daniel O'Rourke or Sangster's No. 1 in a warm situation; draw a little earth to the stems of those already up, and protect with Fir branches or dry Fern in severe weather.

POTATOS.—Plant in frames on a bed of leaves, for an early crop.

RHUBARB.—Continue to introduce into warmth successions of Rhubarb, as that in use becomes worn out.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 30, 1863, as observed at the Horticultural Garden

Dec.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 24	14	30.167	30.121	49	39	44.0	45	46	W.	.00
Friday 25	○	30.100	30.085	40	37	41.5	46	46	W.	.00
Satur 26	16	29.984	29.786	52	39	45.5	46	46	S W.	.03
Sunday 27	17	30.135	29.894	46	21	33.5	47	46½	W.	.00
Mon. 28	18	30.283	29.965	44	35	39.5	45½	46½	N.	.00
Tues. 29	19	29.929	29.879	50	35	42.5	46	46½	W.	.00
Wed. 30	20	30.088	29.973	42	24	33.0	46	46	N E.	.00
Average.		30.052	29.954	46.1	31.4	39.9	46.2	46.2		.03

Dec. 24—Light clouds; exceedingly fine; very fine at night.
— 25—Fine, very fine with sun, unusually fine.
— 26—Uniformly overcast, densely clouded, slight rain at night.
— 27—Fine, very fine, frost at night.
— 28—Overcast, a few flakes of snow in forenoon; overcast.
— 29—Densely overcast, exceedingly fine.
— 30—Fine, very fine throughout, changeable; frosty.
Mean temperature of the week 3 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending Jan. 9, 1864.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3	43.4	31.1	37.1	19	0.56 in.	1	3	6	1	6	11	4	6
Mon. 4	42.6	31.5	37.0	17	0.86	4	7	5	5	2	10	3	2
Tues. 5	41.8	30.4	36.1	14	0.46	4	7	4	4	4	10	4	1
Wed. 6	41.5	29.5	35.0	14	0.33	4	7	4	3	5	10	3	2
Thurs. 7	41.6	29.0	35.3	15	0.34	3	5	2	3	2	8	7	5
Friday 8	40.9	30.1	35.5	11	0.26	4	4	1	4	1	14	2	2
Satur. 9	41.2	31.1	36.1	14	0.71	1	7	4	3	5	11	6	1

The highest temperature during the above period occurred on the 5th, 1841—therm. 54 deg.; and the lowest on the 9th, 1841—therm. 6 deg.

Notices to Correspondents.

BOOKS: *Anon.* We do not know of such a book. Such instruction must be communicated personally and not by means of books.

CHERIMOYER *M.* Pooh!

NAMES OF PLANTS: *Corsham.* 1. No doubt a very bad specimen of Dyschoriste littoralis: 2. Clerodendron infortunatum, unskilfully dried. It is almost impossible to name dried fragments unless well selected, and neatly pressed flat.—*J K.* No doubt a weak specimen of Grevillea rosmarinifolia.—*St. Omer.* Certainly not a Cherimoyer, nor any kind of Anona. We do not recognise the leaf.—*J Mc I.* The leaf belongs to the true Peruvian Cherimoyer.

PINE-APPLES: *St. Omer.* Next week

R. GARDEN, KEW: *Jernigham.* If you wish to see how a great national garden *should* be managed, we advise you to visit Kew *now*, especially if, as we believe, you knew it forty years ago.

RHODODENDRONS: *Keswick.* They doubtless grow too fast, forming leaves instead of flowers. Are you unable to give them peat? Try lifting them and replacing them where they are.

Manures and Feeding Stuffs.

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SUPERPHOSPHATES of LIME, &c.
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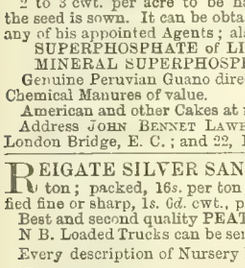
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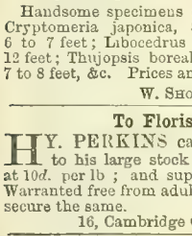
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Handsome specimens of Araucaria imbricata, 12 to 14 feet; Cryptomeria japonica, 8 to 10 feet; Fitzroya patagonica, 6 to 7 feet; Libocedrus chiliensis, 6 to 7 feet; Picea Pinsapo, 12 feet; Thujopsis borealis, 7 to 8 feet; Wellingtonia gigantea, 7 to 8 feet, &c. Prices and all other particulars on application.
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HY. PERKINS calls the attention of the above to his large stock of TOBACCO PAPER and CLOTHS, at 10*d.* per lb; and superior ROLL PAPER, at 1*s.* per lb. Warranted free from adulteration, having taken every pains to secure the same.
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CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent'



Magnified Aphis.

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1*s.* and 2*s.* per packet,
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Repayment may be made by the Landowner as successive portions of the Works are completed, or the outlay and expenses may be charged on the estate by way of rent charge created for such a term of years as the Landowner shall determine will best adopt the annual payment to the circumstances of the tenants.
No investigation of title being required, or notices given to reversioners or mortgagees, no legal expenses are incurred.
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Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

Chemical Analyses.

DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 191, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
AUTUMN SESSION, 1863.
President—THE RIGHT HON. THE EARL BATHURST.
Council.
The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Hon. WILLIAM BATHURST.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
EDWARD HOLLAND, Esq., M.P.
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Resident Professors.
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J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 15 Lectures on Agricultural Machines and Farm Buildings.
CHEMISTRY.
ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.
ASSISTANT TO CHEMICAL PROFESSOR.
R. WARINGTON, Jun., F.C.S.
BOTANY.—JOHN BAYLDON, M.B. Lond. B. Sc.
VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.
MATHEMATICS AND SURVEYING.
W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
DRAWING.—JAMES MILLER.
* These Gentlemen will be in temporary residence.
Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—
AGRICULTURE.
J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on South-down and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
For further particulars apply to the PRINCIPAL.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
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Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
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TRADE
HALLETT'S | PEDIGREE | NURSERY WHEAT.
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For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.
PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In December drill 8 bushels on 5 acres.*
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NE PLUS ULTRA, 10*s.* 6*d.* per bushel.
WEBB'S IMPERIAL KIDNEY POTATO, 6*s.* per bushel, or 11*s.* per cwt.
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Terms cash.
W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

JOHN S. LEGERTON, SEED GROWER, Shalford, near Braintree, Essex, begs to offer the following, all of fine samples and true stocks:—
PEAS: Denyer's Prolific Green Marrow, true; Woodford Green Marrow, Sebastopol, Bedman's Imperial, Bishop's Early Dwarf, Ne plus Ultra, Hair's Dwarf Mammoth, Climax or Napoleon, Eugenie, and Veitch's Perfection.
ROYAL DWARF FAN or BOG BEANS, HOLLOW-CROWN PARSNIP, and mixed SWEET PEAS.

CATTELL'S DWARF PURPLE-TOP BEET.—The colour of the root is a splendid dark crimson of finest quality, not having the light centre as possessed by other kinds, and when growing it is the truest and handsomest Beet in cultivation.
To be had only in sealed packets, price per oz., 1*s.*, postage free.
The following Seedsmen have already had a supply, and of whom it may be had genuine.

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JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent

Ornamental Grass for Game Covers, &c.,
(ELYMUS GLAUCESCENS.)
B. S. WILLIAMS begs to call the attention of noblemen and gentlemen to the above ORNAMENTAL GRASS. It is perfectly hardy, having proved it for several years, and can recommend it as being superior to anything yet offered for that purpose. 6*s.* per dozen, 40*s.* per 100.
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CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 2, 1864.

ANOTHER year has passed away: and the 'New' Year is come! From a hundred journals, like the chimes from a hundred belfries, this same tale is told out to-day, in all the various tones and tunes; such as you hear in a great city when everything else is silent, but the many-tongued announcement of the hour. It is a thought-compelling task to listen to the busy self-assertion of each brazen throat that takes possession of the atmosphere of that little circle where it stands the centre, only broken in upon by some deep distant note whose commanding intervals form a fundamental bass to all the petty rivals harping at once upon the same strain, and venting all their powers to give it special significance to their special audience.

Yet perhaps at no other striking of the hour is there, in the busy throng of human life, so complete and involuntary a convergence of all minds upon one thought, one attitude of reflection, as at that which with one stroke declares a death and a birth,—the departure of the old year, and the commencement of the New. At this moment, and to this extent, we all stand concerned alike: "Time is the stuff that life is made of," let the life and its labours, and its concerns, be what they may. What use have we made of the Past,—how much remains of the Future—occurs, as the twin-question of the hour to each;—the hour poised between them both—the hour of honest review, and of anxious forecaste. It is soon gone; and we are off again each upon our own track; and the year we were just now so busy with, falls off into

the wake which blends it in outline less and less distinguishable from those that have preceded it.

But there is one class to which Time is more than a thing of mere artificial measurement. To the agriculturist, the year is not a mere extension of days and hours: to him the year stands in the substantive relation of 'seasons:' not the mere space he works in, but a veritable portion of the work itself. No fashion can change it, or the duties it brings; and no after-thought or resolution can redeem it. To him the history of the past year is a routine that every year must in its most important features present alike. The march of invention cannot alter it. No new 'line of Rail' can obliterate the beaten road that those before have travelled, no Electric Telegraph shorten the process or hasten the accomplishment, and the end. As it was in the beginning it must in the main continue; and that, exactly because the seasons are themselves its partners and co-agents, and it "is in league with the very stones of the field."

But have we nothing then to report of the Past, or to anticipate of the Coming year, beyond what every revolution of the Earth must bring, of uniformity and sameness? There are not a few who do thus think of the Farmer's calling, and from the shallow judgment of appearance, would, and often do so characterize it. Nor is there wanting the semblance of ground for an opinion so superficial. Yet nothing can be more derogatory. The farmer has to work in partnership with Nature: and all who know anything of her, know that while her law is inflexible Uniformity, her life is incessant Variety. At once faithful, and capricious, she never may be doubted; yet she never can be learnt.

And therefore it is, for one important reason at least, that Farming presents such an inexplicable variety of appearances and results. One man is ruined, and another man gets rich, on the same land, at the same rent. Like Matrimony, it is the conjunction (often *dis*junctive enough!) of two forces, acting and reacting for good or evil on each other,—Man and Nature,—and the shrewdest engineer that ever lived cannot calculate the quotient, or reduce it to equation or to formula.

And, truth to say, this fact has been a good deal overlooked in the discussions we have lately heard, and do periodically hear, upon the subject of Farm Leases. A lease is good for this much; it will undoubtedly compel the Landlord to keep the Tenant: but it will not compel the tenant to keep the farm, nor the Farm *to keep him*. Whereas, that curious Running-noose, called a yearly holding, with a 'good understanding' often fits into the mouth of the composite problem we have named, with all the flexile handiness of a Snaffle, where the Curb does sometimes mischief. A shake of the head, or even a 'playful' kick now and then is as nothing compared with that everlasting rear up on the hind legs, that threatening 'vertical movement' which suggests so strikingly a backward—but emphatically negatives a *forward* action; a very noted indicator of the tight curb, and the hard unsympathising hand.

Perhaps this is one of those 'Anomalies of agriculture,' of which it would not be difficult to furnish a whole catalogue, while we must here be content with taking but a sketch. It may be, indeed, that that light floating buoy-like phenomenon, the 'yearly holding' is moored deeper in English soil than those are aware whose eye does not trace, throughout, the links that connect its elastic surface play with the solid anchorage beneath. Looked at as a self-established *fact*, with an eye privileged by the crowsfoot gathered round it, to know what that implies, it may perhaps be taken as the symbol and expression of a whole system of cause and effect, of a certain existing condition and constitution of rural *life*—as distinguished from 'rural *economy*' presented by no other country but England,—not by Ireland—not even by Scotland. It may imply land so dear, and as a mere investment so fruitless that no one would buy it but those rich enough to be content with the lowest return in money that Capital can submit to,—looking, as it is sure to do, for something *else*, to make up the difference. A Lease for a good round term of years would bring perhaps a higher rent—in Scotland it notoriously does so,—and possibly in some cases a greater produce from the soil. But even the political economist is shrewd enough to recognise in a resident English ownership wealthy enough to be *able* to retain a sort of sleeping interest that might, by a long lease, be parted with for money value, some compensating advantages which he would describe under the title 'reserve capital.'

Wasteful at first sight, to the eye that sees waste in a park of deer, a gallery of costly paintings, and the other hundred forms that only the highest forms of capital assume, it is yet all reducible under the same rule that applies in succession to each condition of life above the lowest, viz., that it retains in possession something that might be parted with for money value. But, as we have said, the whole question as it stands in England, may be classed as an anomaly. And if anything be wanting to complete, or even add to it, it lies in the fact, which non-agricultural writers refuse to be persuaded of, that the defect, we might almost say decay of leases in English farm-tenancy, lies less at the door of those who might give than of those who might receive them.

But the subjects that have cropped up for special, and repeated discussion during the past year, and fallen flat upon their faces, refusing to be comforted and settled, are many and important. Who that is familiar with the noble history and triumphs of the Steam-engine can look without a sense of painful surprise and incredulity at the present aspect of steam-cultivation? Is it real; or spurious? Is it a fact? or a fallacy? If it be a fact, and steam-cultivation in its intended and ultimate form really exists; then it is clearly the inventor of the *Steel-rope* who is entitled to the discovery, and true master of the situation. Are we prepared to admit this? Is the future Earth to be really subdued by *steel ropes?* For, as to a framed multiple of the plough at one end of the tether, and a steam engine at the other, a child at a Christmas pantomime would laugh at the mockery of the clown who "putting this, and that, together," and a rope between them, should shout his mimic *Eureka!* and declare that he had solved the GREAT PROBLEM.

And who, again, can explain the phenomenon, almost unique in economic science, of an undisputed—nay a cruel deficiency of Labourers' Cottages, and that it will not 'pay' to build them? A widely-felt and acknowledged 'Demand' on the one side, and on the other, an appeal not to your self-interest and common sense, but to your charity for the 'Supply!' What secret law is operating there, far, far down beneath what meets the eye, avenging error latent at the source,—hidden near the very mainspring—by this absurd cross-pointing of the hands upon the dial? Again, what pen, or brain shall fathom the mystery involved in the question, and the history, of agricultural Education? Sing, O Muse! the direful wrath poured out, like anything but oil, midnight or diurnal, at the Royal Agricultural College of Cirencester, and the many distinguished souls untimely sent to Hades, in that fierce encounter: and the tender interest thereanent of another Royal Agricultural body in the plenitude of its fostering care for the education of the Farmer, one of the expressed objects for which it took its Charter. And, last not least, look at the recent letters in the *Times* imploring anybody to give somebody some sort of information about Grass-farming, now that free trade in Corn is just beginning to be believed in, and that Rents cannot be paid by Wheat alone:—and, if more than this be wanted, look at the Replies!

If ever the History of Agriculture, the only history that remains unwritten, should be seriously taken in hand, by that coming man, the 'intelligent New Zealander,' the poor year 1863 just defunct will figure in the long chronology of coming time as the year of Babel mystery and dispersion of tongues: everybody asking questions which nobody can answer or understand; large meetings held, and resolutions moved, by which nothing is met, and nothing finally resolved; an almost unexampled good harvest unaccompanied by profit, and followed by a tight money market on a Bank rate of 8, and threatening 9 per cent.! It would puzzle the Cumæan Sybil to write its history in nine books; much more epitomise it in a page.

But with a new year we have entered upon new hopes. "The horse's death," we are told, "is the dog's life." The questions which have baffled the year 1863, remain as food for its young successor to discuss and disentangle. Let us look upon the very grappling with them as a signal of encouragement. Hope is the privilege of youth; and is said to have remained behind, when all the plagues had been opened upon the world to torture with new cares the practical minds of men.

It is allowable, for instance, to hope that the time may come when either by a European Congress of reigning agricultural authorities, or some other imperial measure, 'the best form of Farm-Agreement' may be finally decided on, and some solution arrived at of the problem of persuading English landowners to grant Leases to tenants who would rather be without them: of making a 20-horse power engine glorify the name of STEAM by doing the work of 20 horses quicker and cheaper than they can do it themselves, and breaking up the land without breaking down upon it: of building labourers' cottages "with three bedrooms," to profit, like other human dwellings, and fitted with some patent apparatus to prevent the bees still settling together as before, and letting the 'spare' hives to other swarms: of applying a Royal Agricultural College to the education of the agricultural class it was built for, and inducing a Royal Agricultural Society to take a real interest in that branch of its objects, and try a practical experiment in aid of the Institution that has tried many a scientific one in its behoof, with good effect: of persuading model example farms to set a modest example of paying rent, and keeping out of debt: of learning how to make Grass-land *pay*, when meat and wool and dairy-stuff, are selling at extravagant prices; and of examining the principle of laying nothing out upon it, because it yields spontaneous crops without the cost of ploughing or sowing, and makes the greatest returns for the least expense: and lastly, of exhuming and converting Agricultural Journals from the charnel-house of dry carcases and dead bones, into the cheerful daylight of current topics of agricultural life and practice and events; and when so converted, persuading agriculturists to buy them; and to read them.

Perhaps, to some, our programme may seem heavy, for the coming year: it may contain some few questions that would puzzle an ŒDIPUS, and one or two labours that might try a HERCULES. But it is the recognised privilege of Agriculture to live by promise rather than calculation: and to a careful and a hopeful observer, it is a thought of no trifling significance that the most ancient of all arts should even to this our day present the greatest number of questions unanswered, of problems still unsolved, and of duties, both to the soil and those who labour on it, unaccomplished.

—— AT a recent meeting of the Faversham Highway Board it was moved that the use of locomotive engines on the public highways is dangerous, and that therefore an application be made to the Home Secretary to prohibit their use within that district. It appeared in the course of the discussion that steam traction engines are extensively used in Kent, Messrs. AVELING & PORTER of Rochester having made upwards of 100 of them. Many of the owners of such engines attended the meeting to protest against the suicidal course proposed to be adopted, and on a division the motion was fortunately lost—a very large majority voting against it.

—— The value of Gorse as winter food for dairy cattle has been lately discussed in the columns of the *Times* newspaper. One writer asserts that a few acres of it enable him nearly to dispense with hay, and thus to keep a much larger head of cattle on the same extent of land. Another states, 3½ bushels of crushed Gorse daily, with about 4 or 5 lbs. of hay, and ¼ cwt. of Swedes, are good daily allowance per cow. Others meet the difficulty of preparing the provender for food, and describe the cultivation of the plant. Twenty lbs. of seed sown per acre will yield a crop in the autumn and winter of the following year. The shoots are cut in a chaff cutter and crushed in an ordinary cyder mill, or they are smashed and cut at one operation by machines for the purpose. Messrs. BARRETT & EXALL, of Reading, have long made one. Messrs. CASSARD & TERRALES of Nantes, Loire Inférieure, also make a grinding machine for Gorse, much used in Brittany. The best mode of cultivating the plant is said to be in rows sown 20 inches apart, every alternate row being cut each year—so that two years growth is allowed.

—— A discussion on the best method of laying tillage land in autumn open to the influence of the coming winter's frosts was lately quoted by us from the *Times*. Mr. WRAY, of Tunbridge Wells, denied the economy of steam cultivation; Mr. SMITH, of Woolston, both illustrated it and proved it; Mr. MILWARD asserted the efficiency of cultivation by horse-power; and Messrs. HOWARD recommended that the land should be broken up by the steam-cultivator or grubber as soon after harvest as possible, and in November or even later, with the steam-plough or by horses,

crossed and ridged up for the winter. Messrs. HOWARD also declared that the plan pursued and advocated by Mr. SMITH has these great drawbacks: the benefitsof the action of the autumn sun and air in destroying weeds, and the still greater benefits arising from the thorough aëration of the soil are entirely lost; and further on large farms it would be most unwise to postpone the work to so late a period as Mr. SMITH recommends.

To this Mr. SMITH replies:—"I have carefully examined every letter I have ever written on the subject of steam cultivation and nowhere have I found any such recommendation as Mr. HOWARD names." He then quotes a letter written in 1858, in which he had declared September, October, and March to be the best months for steam cultivation. It appears to us that so far as the literature of the subject is concerned, Mr. SMITH'S reply was satisfactory and conclusive; and had it not been for the tone of a concluding remark, wherein he appears to charge Messrs. HOWARD with untruthfulness, the discussion might be left unnoticed. This imputation is, however, of course one under which no man can silently remain, and Messrs. HOWARD have accordingly called our attention to the fact that a course of action is "advocated and recommended" much more by the practice than by the writings of its advocate, and that it was to the Woolston practice of leaving the stubbles untouched until after Wheat sowing, sometimes even as late as December, and then breaking them up with the combined ridging and subsoil plough that their strictures referred. Lest the public should be misled on this subject, they had written a temperate letter to the *Times*, commencing with a full recognition of Mr. SMITH'S services, but pointing out a more excellent way than that which he had recommended.

SOME months ago an article in the *Times* on the value of Vegetable Mould, and the dependence of our continued fertility upon its maintenance, attracted a good deal of attention. That communication was written by our occasional correspondent, Mr. PATRICK MATTHEW, of Gourdie Hill, Errol, N.B. And we understand that no one was more astonished than himself at the publication of what was originally written as a private letter to a friend.

The article in question was referred to by Professor DAUBENY in a lecture recently delivered by him before the Oxford Farmers' Club, to which publication was given in this Journal; and it was mentioned that this letter in the *Times* had "elicited from Baron LIEBIG a reply in which, under a lively sense of the injury done to society by the dissemination of such errors, he seems to treat almost as a moral delinquency the revival of an hypothesis, which he considers to have been so long consigned to oblivion." This reply has not hitherto been published. Baron LIEBIG had indeed left it within Professor DAUBENY'S discretion to publish it or not as he pleased; but it remained unpublished. An inquiry from Mr. MATTHEW as to the character of LIEBIG'S reply thus referred to, has elicited the fact that it is no other than a letter addressed by LIEBIG to himself, not in reply to the *Times*' article, but in reply to a letter written when at Shenefeld, near Altona, Holstein, on the 23rd of June, 1863.

Mr. MATTHEW permits us to publish this correspondence, which will be read with interest as indicating the personal feeling of the great German chemist regarding the reception of his doctrines as an agricultural chemist by the agriculturists in this country.

Mr. MATTHEW wrote as follows:—

June 23, 1863.

DEAR SIR,—In the hope of meeting you at the International Show at Hamburg I came over from Scotland, but I am informed that you are not expected to be there. This will be a disappointment to me, as I had hopes of some profitable discussion on the subject of the vegetable mould. You the foremost that has yet appeared in vital chemistry, I might almost say the parent—and myself with the experience of 57 years in conducting agriculture in the Carse of Gowrie, once regarded the garden of Scotland. Being entirely unknown to you I extract the following. * * * (Then follow some references). I enclose a slip the postscript of a letter I had written to my friend, who without my knowledge or permission forwarded it to the *Times* for publication. (Here follows a note regarding the error of the republisher of my postscript.) * * * I have still hopes your presence will give *éclat* to the meeting. Some may indeed regard it a breach of patriotism for Germany's most approved son to be absent. I am, Dear sir

Your obedient servant,
PATRICK MATTHEW.

The following is Baron LIEBIG'S reply:—

July 10, 1863.

SIR,—I should hardly have made up my mind to reply to your letter of June 23, were it not written by a man whose standing in society is such that his words necessarily exercise a certain influence over others. Your article on "The Exhaustion of Vegetable Mould" caused me the greatest astonishment; and I am utterly at a loss to comprehend how, in the present time and state of agriculture, it is possible for any one to express such opinions publicly as are to be found in that paper. In the time in which we live, when the population of every country is yearly increasing, it is of the greatest importance that agriculturists should take the right road, that they should choose that one which will make it possible for them to satisfy the wants of the increasing number to be fed, by obtaining from their fields an increased amount of food. A series of laborious investigations on the conditions which govern the life of plants and animals, occasioned me in the year 1840 to employ in agriculture the experience I had thus gained; and during the last 23 years I have endeavoured, to the very utmost of my power, to make the agriculturist intimately acquainted with the natural laws which govern the production of food for men and animals—laws which he must know, if he has any wish to improve his farm management.

That in giving my studies this direction, I was not impelled by a desire for vain honours, or in order to gain the favour of the agriculturists, will, I think, be clear to you, when I say that I am one of the six foreign members of the Academy of France, foreign member of the Royal Society, as well as, without exception, of all the Academies of Europe; and I would beg you not to lose sight of the fact, that those academies showed me such honour not *because* I had occupied myself with agriculture, but *notwithstanding* that I had done so. Now, when a man has obtained the good opinions of the most distinguished individuals of all countries, as recognition of what he has done in science, this is certainly the highest fame it is possible for him to possess, and you may grant that, for such a one, the applause of a thoroughly ignorant crowd, as that of agriculturists for example, must be absolutely indifferent to him. You may suppose too, that when this man strenuously endeavours to make such a crowd view things rightly, he does it not for their individual sakes, but in order to ward off future dearth and like imminent dangers which threaten society at large. After a struggle of 23 years, I have succeeded in Germany and France in getting those simple natural laws acknowledged, taught by science in reference to agriculture. The success obtained in Saxony, Prussia, Austria, and Bavaria by carrying out my principles in the right way, have once and for ever completely set aside the former theory which asserted vegetable mould to be the chief cause of fertility. On this point there exists not the slightest dissidence. You may then imagine the impression which your *Times* article has produced upon me. I see by it that you endeavour to uphold and disseminate a theory which long ago has been completely set aside by the most positive facts and by repeated experience. By contradicting opinions which I never had, you show, by that article, that you have read none of my works, or, if you have done so, that you did not understand them. I esteem it a great calamity when men like yourself are the opponents of my doctrines; men who, if they would only give themselves the trouble to make themselves acquainted with them, would become warm supporters of them. And, further, I consider it a sin against God and humanity, when such men in questions that so intimately concern the future of the human race, in so flippant a manner arrogate to themselves an opinion about matters which they do not understand, and hinder that very progress which, by their position, they are called upon to promote.—I have the honour, &c. J. v. LIEBIG.

AYRSHIRE AGRICULTURE.

A GREAT part of the soil of Ayrshire is of a heavy character, and the moist climate of the western coast makes it unfit for Turnip cropping unless it be drained. Previous to the introduction of thorough draining the growth of Turnips on anything like an extensive scale was confined to the porous soils near the sea coast, to river side holms, and to trap, sandstone, and other light soils in various parts of the county. There was a considerable extent of bare fallow on land not more than 300 feet above the level of the sea, and therefore suitable, as regards climate, for the growth of Wheat. From land above the Wheat line, two Oat crops were taken in succession; Rye-grass and Clover seeds were sown with the second; a crop of hay was generally taken; and the land lay in Grass for two, three, or four years.

From 1830 to 1840 the draining generally was too shallow to be very effective; but a considerable extent of land was drained by the late Duke of Portland and other proprietors who followed his spirited example. About 1840 the advantages of drains not less than 2½ feet deep began to be admitted by intelligent farmers. The practice formerly had been to make them from 18 to 24 inches deep. The St. Quivox Farmers' Club was instituted in 1837, chiefly through the influence of the late Mr. Campbell, of Craigie, a country gentleman, who united scholarly qualifications with a taste for farming, and a zeal for its improvement which almost amounted to enthusiasm. The Club meetings were held in Ayr on market days, and discussions took place as in Farmers' Clubs at present. The deep drainers of the Club were in a small minority at first, but they gradually gained ground, though several years elapsed before the 2-feet drains were generally acknowledged to be too shallow. The Government grant for draining in 1846 gave a great impulse to agricultural improvement. Draining became general, and, under the superintendence of the Government surveyors, the pipes were laid to greater depths. But a mistake of another kind was made—the drains were put too far apart; instead of 15 to 20 feet, on heavy land, they were widened to 30 feet. A great extent of land in Ayrshire is thus little more than half drained; after lying two years in Grass, Rushes spring up as formerly. With the extension of drainage, guano and dissolved bones came into general use, and farmers were enabled to grow good green crops. A large proportion of the newly-drained land, when it was levelled, and pulverised for the first time, had something of the vigour of virgin soil. The produce of the Cereals was greatly increased, and unfortunately farmers were led to depend too much upon them. Growing good crops with light manures, they too often lost sight of the fact that a proportionate amount of well fed stock must be kept if the fertility of the soil is to be maintained. The heavier land is now growing less Grass, which is a pretty sure indication of reduced condition. Many farms of rather heavy land do not keep more cows than they did before they were drained, and the stiffest clays keep fewer. The evil has been greatly aggravated by a succession of wet, late seasons in the west of Scotland. During four successive seasons the Turnip crop has been very poor on stiff land, and the distempered soils have carried almost equally poor corn crops in the following years. With better seasons we may hope for a return of prosperity; but there is something like a settled conviction that a change of system is required for much of the land that lies above the Wheat-growing districts. With too much cropping there is a want of permanent pasture for the cows, and the proper management of meadow land has to be learned. In the best parts of the lower districts good crops continue to be grown; but in these also, though in a less degree, farmers have depended too much upon corn.

Besides fostering a spirit of inquiry and disseminating information at its meetings, the St. Quivox Farmers' Club took another way of stimulating its members to careful management. Near the beginning of harvest, meetings were held at which the practice was to proceed from farm to farm and see what the members were doing. Much good was done in this way. The prospect of so many critical eyes made farmers exert themselves in order to have well-cleaned green crops and pastures, with headlands, fences, and farm roads in good order. And, in addition to the members, the meetings were attended by intelligent farmers from other parts of the county, who could not fail to profit by such inspections, and carry the influence of the Club over a wider circle. Nor were there wanting men of eminence from a distance. The late Professors Johnston and Shier, and more recently Professor Anderson, attended those pleasant meetings, and sowed a little seed as opportunity offered on soil where it was likely to fructify. The meetings of the Club have been discontinued for ten years.

In 1835 the Highland and Agricultural Society of Scotland had a very successful show at Ayr, and the Ayrshire Agricultural Association sprang from it full grown at once, like Minerva from the brain of Jupiter. The Ayrshire Association was instituted in September, 1855, and has had a prosperous career. Like many other societies its success is mainly attributable to the services of an active and efficient secretary. It had its annual show of cattle, horses, and other farm stock in various towns till 1851, and since that time regularly in Ayr. There can be no doubt that the efforts of the Association have had a considerable influence upon the improvement of Ayrshire stock—a breed of cattle which is justly rising in estimation throughout the country for dairy purposes. Well bred stock is becoming common all over the county, and the coarser descriptions are gradually wearing out. The efforts of the Association in this direction have been seconded by local Societies which have sprung up in every part of this county during the last 15 years. Some of those Societies are already on the wane, but not before they have served a good purpose. It is marvellous how much may be done in a few years when a spirit of improvement is excited, and good breeding cows introduced into a locality where formerly every one seemed content with the old inferior stock.

The introduction of the Cheddar mode of cheese-making and its extension throughout the south-west of Scotland is one of the greatest successes which has been achieved by any provincial society. Scotland was far behind the best dairy counties of England in regard to cheese-making. Good Dunlop cheese was made on some farms, but there was no general mode followed, and the most of the cheese would have been hardly saleable in English markets. Dissatisfied with this state of things, the Highland Society from time to time offered prizes for the best imitation of Cheshire, Gloucester, or Stilton cheese. No great success attended these attempts,

though they undoubtedly tended to prepare the minds of many people for a change of practice. Twenty years ago the cheese making of Galloway was very inferior. It was much behind Ayrshire. Some intelligent dairymen, particularly Mr. Robert McAdam and his brothers, turned their attention to the improvement of the Dunlop cheese in Wigtonshire, and they made a very appreciable advance. Mr. Caird, then in Baldoon also turned his attention to the improvement of cheese-making, and sent his dairyman to learn the method practised in Lancashire. Mr. Robert McAdam afterwards became "Bower" to Mr. Caird, and he introduced with much success the Cheshire mode at Baldoon. At the same time the subject was frequently discussed in Ayrshire, particularly in the columns of the *Ayr Advertiser*. A series of articles in that paper in the winter of 1853-4, one of which contained an encouraging letter from Mr. Caird, stirred up the directors of the Ayrshire Association, who sent two of their number to England with instructions to inquire and report whether any of the English modes might be adopted with advantage in Scotland. The deputation reported in favour of the Cheddar mode. It appeared to them to combine in the highest degree the important advantages which may be classed under the heads, lightness of labour, ease and simplicity of management, and high price of produce. The report of the deputation was published in August, 1854, and beginnings were at once made on farms in Ayrshire. In 1855 the Ayrshire Association brought Mr. and Mrs. Joseph Harding from Somersetshire to give instruction publicly in the various districts of the county, and the new mode took a firm hold. Mr. Robert McAdam and other Galloway makers also took it up immediately. Mr. McAdam went to Mr. Harding's farm to learn the art more fully, and in his turn he has taught a number of very successful cheese-makers. At the end of October, 1856, the Ayrshire Association held their first cheese show at Kilmarnock. It has been continued since with increasing success, and is, we believe, the most important annual cheese show in the world. Kirkcudbright has taken part in it for a number of years, and Wigtonshire and Argyle have competed at these shows. There are also classes open to English competitors. Probably one-half of the cheese in the south-west of Scotland is now made in the Cheddar mode, and the new practice is extending year by year. And the spirit of emulation has not been without its effect on the makers of Dunlop cheese, who now produce a much better article in general than could have been got from them 10 years ago.

The produce of cheese has been much enlarged within the last 20 years. I know farms where it has been doubled. These farms have been drained, and were susceptible of great improvement, from the soil being deep and porous. Over considerable districts the increase may be from 30 to 50 per cent. The increase may be ascribed to draining, green cropping, careful selection of stock, and better house feeding. On the other hand a great extent of strong land appears to be deteriorated by green-cropping. Such farms do not keep more stock, nor produce more cheese than they did before the draining and levelling of the old high ridges. The draining of itself must do good, but heavy soil is apt to become distempered by green crop husbandry in our wet climate. This is not so much the case, however, in the lower districts, where the rainfall is not so great. Where the land is adapted for grazing, the remedy would seem to be to lay part of it down for permanent pasture and meadow. There is little of the former and almost none of the latter in Ayrshire.

Large quantities of early Potatos are now grown on light land near the sea-coast of Ayrshire. The Potatos are planted in March, and are highly manured. Fair prices are generally obtained, but the following Wheat crop is not so good as after Turnips.

I can say little about the introduction of the system of distributing liquid manure by pipes which you do not know already. It is understood to have originated in conversations between the Right Hon. P. F. Kennedy, of Dunure, and the late Primrose Wm. Kennedy, Esq., of Drummellan, in 1848. Mr. P. W. Kennedy took up Myremill Farm at Martinmas, 1848, and installed the former tenant, Mr. James Kennedy, as farm steward. Extensive buildings were erected, the land was thoroughly drained, and pipes were laid to distribute manure over 400 to 500 acres. The force-pump, tanks, pipes, &c., were in full operation in March, 1850. Great herds of sheep and cattle were fed, and vast quantities of purchased food consumed for six years. Large crops of Italian Rye-grass were raised for summer feeding, and of Turnips for winter; but the system was carried on at an enormous pecuniary sacrifice. Before Mr. Kennedy gave up the experiment and let the farm at Martinmas, 1856, he had lost the value of the land in fee simple. He attempted too much. The liquid manure of the tanks could have little effect on so much land. Mr. Kennedy's followers may perhaps avoid his mistakes, and have more success, but there is very little done with the pipes now at Myremill.

At Cunning Park Mr. Telfer had the pipes in operation a little earlier that at Myremill. The late Mr. Ralston followed at Lagg, and saved the cost of steam power by running the liquid through pipes to land at a lower level. Mr. Ralston's plans are still followed by his son, and it is believed with success. Mr. Ralston went on cautiously. He saw that the plan would not stand much expense; he was working for profit, and he carefully avoided the rock on which Mr. Kennedy's vessel was split. It makes a wonderful difference as regards pecuniary success in farming when a careful supervision and rigid economy are carried through every part of a process. *J. Drennan, Holmston, Ayr.*

Home Correspondence.

The Prize System at Agricultural Shows.—You have laid before us Mr. Morton's paper, read at the Society of Arts, with the discussion thereon. The prize system appears very prominent in it. As an interested man my thanks are due to Mr. Morton, when he says that "the trials are inadequate. There is a false advantage given to mere novelty. The prizes are in effect a premium upon mere speed and capability of standing a short race," and they are especially due to Mr. Fowler, when he says that "he had many times been placed in an unduly prominent position by a prize—a position he had no right to at the time. . . . With respect to the present system of awarding prizes by the Royal Society, it was known to be a mere scramble," thus virtually admitting that I won the great 500*l.* when he entered his tackle at Chester, &c. But this contrasts sadly with Mr. Fowler's sayings at the Society of Arts in February, 1858, after the reading of Mr. Clarke's paper. "Who was to try all these experiments? Were the inventors to bear the whole brunt of that which was in fact a national benefit? The landlords had hitherto done little. The Royal Agricultural Society had given no help." (See *Mark Lane Express*, Feb. 15, 1858). This shows that Mr. Fowler is now a changed man, but he is not content even now, for he "opposed the continuation of the prize system for agricultural implements and preferred to see well digested reports upon their merits as to the results of test and experience in various localities." This might have been all very well, but it is too late, for the agricultural press has anticipated the Society, and has gone first and done its work well, and Mr. Clark has well summarized their doings in the last number of the Society's Journal. What the Society will do I cannot say, but I do say this, that without the prize system, neither Mr. Fowler nor I should have done what we have as yet, for if it did nothing else it enabled me to agitate the question whether I competed or not, and I have done as I said I would do at the Society of Arts in 1858 after Mr. Fowler: "That I would stand or fall upon the merits of my inventions." Mr. Fowler now virtually says that I have been the winner all along. I thank him. I know I have been, and I also know that I shall be, without ever again submitting to a July "scramble." *W. Smith, Woolston.*

Rape-cake and Bean-meal.—Having seen Rape-cake strongly recommended for cows both in your Paper and in the *Agricultural Journal*, I was induced to try it, but the results are unsatisfactory; several of my cows will not eat it at all; the cow I put on trial liked the Rape-cake, had calved about three months, and is an average cow. She gave on Rape-cake 3 lb. 12 oz. of butter. When 4 lb. of Bean-meal were substituted for 4 lb. of Rape-cake, she gave 5 lb. 4 oz. of butter and 4 quarts 1 pint more milk. In addition to the cake or meal, I gave the cows 50 lb. a day of Turnips pulped up and mixed with hay and straw chaff; it is allowed to heat for 24 hours, and then given to the cows, who relish it extremely. *Dairy Farmer.*—P.S. Professor Voelcker analysed a Rape-cake, and pronounced it of very superior quality.

Societies.

ROYAL AGRICULTURAL OF IRELAND.—At the half-yearly general meeting, His Grace the Duke of Leinster in the chair.

Captain Thornhill, Secretary, read the report, from which the following extracts are made:—

The annual cattle show at Kilkenny was very successful. The following is a statement of Receipts and Disbursements:—

NATIONAL CATTLE SHOW, KILKENNY, 1863.

BALANCE-SHEET.

RECEIPTS.

Amount received from the local committee ..	£500	0	0
Balance to debit	405	3	4
	£905	3	4

DISBURSEMENTS.

Expenses of deputations to Kilkenny	£7	10	6
Accountant and assistants' expenses to show ..	13	7	3
Travelling expenses of judges	110	2	0
Printing, advertising, and sundry small payments	60	16	1
Mr. Corrigan's expenses, 10*l.* 12*s.* 6*d.*, and gratuity, 10*l.*	20	12	6
Accountant's assistants, preparing for show ..	3	10	0
Money premiums awarded	659	5	0
Two gold and 18 silver medals	30	0	0
	£905	3	4

The attention of your Council was particularly called to the description of thorough-bred horses competing for the Croker challenge cup. The judges appointed to adjudicate thereon considered they were so very deficient in the qualities required by the conditions, that not one of them was fully qualified for the prize. It was, however, thought desirable to award it to an English horse named Claret, as coming nearer to what was required than any other of those exhibited. The question of the breeding of horses, and the deterioration that has taken place thereon, consequent on the inferiority of thoroughbred sires in Ireland, had for a considerable time occupied the attention of many of your members.

Your Council have accepted the invitation of a very influential and numerously signed requisition from the noblemen and gentlemen of Sligo and the adjoining counties to hold the annual cattle show of your society for 1864 in that town.

Your Council feel great pleasure in stating that the local farming societies in connection with the central one continue to disseminate their usefulness. Your council regret that the working farmers do not more generally attend such assemblies, and take advantage of the information afforded at such meetings.

Your Council regret that their efforts to carry out the third object of your society, viz., the improvement which may be effected in the dwellings and domestic condition of the farming and labouring classes in Ireland, have not been attended with greater success. For the provincial gold medals and the valuable challenge cup presented by his Grace the Duke of Leinster, for newly erected labourers' cottages, there were only five competitors, all in the province of Leinster; and for the medals for improved previously existing cottages there has been only one entry.

Your Council cannot conclude without expressing a hope that next year the funds of your society will increase so as to enable them to continue the prizes to the local societies for the encouragement of the small farmers, and stimulate their exertions in the rearing of young stock, which has of late years been so much on the decline.

Reviews.

Science and Practice in Farm Cultivation. By Prof. James Buckman, F.L.S., F.G.S. No. 2. *How to Grow Good Grasses.* R. Hardwicke, 192, Piccadilly.

Another Part of Professor Buckman's work on Farm Practice has just been issued. It contains well drawn illustrations of most of the Grasses; instructions for combining them in Pastures; references to the weeds of meadow-land; chapters on irrigation, on laying down land to pasture; and on the management of Grass surfaces. Prof. Buckman has now taken a farm in Dorsetshire, and at Bradford Abbas, near Sherborne, receives agricultural pupils, who will have the advantage, in addition to superintending the operations to be witnessed on any well managed farm, of receiving the scientific instruction which this series of essays from Professor Buckman's pen shows he is so well able to communicate.

Journal of the Bath and West of England Society, Vol. XI., Part 2. Ridgway.

The present Part contains nine substantial essays and 23 shorter fragments. Mr. J. C. Morton writes of steam cultivation, Mr. Scott Burn on town sewage, Professor J. Buckman on the cultivation of meadow, Mr. Wallace Fyfe on farm seeds, Dr. Crisp on splenic apoplexy, Professor G. T. Brown on small pox, Mr. Goodwin and Mr. Langdon on the Exeter meeting, and Dr. Voelcker on milk—this last being quoted from the English Agricultural Society's Journal. In the note book a large number of shorter pieces, many of them original, some of them extracted, are collected. And the whole, sold for 4*s.*, is a very cheap and excellent collection of essays. The following is an extract from the essay on steam cultivation.

"It is more and more the experience of steam-cultivators that the grubber is especially the tool for the production of tilth, and that steam-power is most efficiently employed for tillage-purposes when applied to tools of this class. The rough state in which by means of tools of this class dry land is 'smashed up,' to use the Woolston phrase before winter, is the principal object for the attainment of which steam-power should be applied to tillage. The attempts which have been made to attain the state called tilth by one operation, or by one series of operations in combination with each other, are mistakes. And in this class of error I venture to think that the idea of making a sort of saw-dust of the land at once by rapidly revolving teeth, and that of attaining tilth by a combination of cultivator, roller, and harrow in one great implement, must both be placed.

"The state called tilth is not altogether, nor even chiefly, an artificial thing. You might grind clods, and even rocks, to powder, but the powdered stuff would not be mould, nor would the condition to which the material would be thus reduced be the state we call tilth. The hardened soil must be moved, of course, by artificial means, broken into fragments, and the labour of such heavy work particularly adapts it to steam-power; but these fragments, large or small, must moulder down by the influence of the weather. It is a great mistake to suppose that steam-power will be best applied to the work of cultivation by setting it to grind the hard ground artificially to powder. Even if this could be done, it would most likely end not in creating but in retarding tilth: the powdered soil would run together in a mass on the first rain which should thoroughly soak it. The great object of the tillage-farmer is to break his land up into dry frag-

ments on a well-drained subsoil, and then leave time and weather to do their work. Frost, with alternate rain and drought, on deeply-moved and well-drained land, are the real tillage implements. The soil is thus reduced from fragments and clods by the mere costless lapse of time into that condition of soft moistened mould which is best both as seed-bed and as feeding-ground for our crops.

"It is the fitness of steam-power for that preliminary artificial process by which the natural and final processes are enabled and facilitated, which renders it of such inestimable value to the tillage-farmer, and which will, especially on clay land, make steam cultivation, following drainage, the inauguration of a new era of fertility and productiveness."

Miscellaneous.

Bread.—The bitter flavour which is too apt to prevail in bread made from home-brewed ale, or indeed from purchased table-beer, yeast, can be effectually obviated by washing the ferment repeatedly with pure, very cold water, suffering the yeast to subside, and then pouring off the water after every subsidence till the washing cease to bring away the bitter flavour. After which the yeast is to be strained through a quantity of good Wheat bran, such as a farmer obtains when he sends his own grist to the mill. This medium does not only correct the alkaloid bitter of the ferment, but adds fresh fermentive principle to it. But a better mode of working bread is to use the genuine German yeast. This substance confers no bitterness, and the required proportion for any batch of flour is estimated at 1 avoirdupois ounce to every pint and a half of water, which will be used in making up a dough of sufficient substance to admit of thorough kneading.

Unfermented Bread.—To 3 lb. of flour, give half an ounce of bicarbonate of soda and 5 fluid drachms of muriatic acid.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer: corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Dec.	Inches.	°	°				°	°	°	°	Inches.
Thursday	25	30.24	46	42	S.W.	0	9	49	43	55	38	..
Friday	26	30.00	50	49	S.W.	2	10	52	42	55	35	0.02
Saturday	27	29.89	44	40	N.W.	3	10	49	42	54	38	..
Sunday	28	30.30	34	33	S.W.	0	10	44	29	45	23	..
Monday	29	29.92	49	47	S.W.	1	10	49	38	50	33	0.01
Tuesday	30	30.15	43	41	N.W.	2	7	51	33	53	33	..
Wednesday	31	29.84	36	36	S.E.	3	10	46	29	55	24	..
Thursday												

Notices to Correspondents.

OATS:—*Young Farmer.* See Mr. W. Fyfe's paper on Seeds in the new number of the Bath and West of England Agricultural Society's Journal. Also Morton's Farmers' Calendar, from which we gather that the Black Tartarian Oat, the Sandy Oat, and the Barbachlaw Oat, are good for late climates, and high and heavy land.

PEAS: *G W.* The Early Charlton, of medium bulk as to straw, yields an abundant crop and tolerably early, is a white boiling Pea adapted for field culture.

SAVORY'S STEAM CULTIVATOR IN THE WEST INDIES: *R.* The following is the summary of the work done by the engine sent by Messrs. Savory from June 9 to August 24:—213 acres grubbed; 772 cwt. of coal consumed, at the rate of 3½ cwt per acre, in 50 days, at the rate of 4½ acres and 15½ cwt. of coal a day. The work was extremely hard and efficient.

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Seconds ...	3¾*d.*	5*d.*
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Fourths ...	2¼*d.*	3¼*d.*

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These prices only apply to the sizes stated.

										4ths.	3rds.	4ths.	3rds
										s. d.	*s. d.*	*s. d.*	*s. d.*
11	by	9	12	by	9	13	by	9	14	by	9				
12	„	10	13	„	10	14	„	10	15	„	10	10 9	12 3	12 6	14 0
13	„	11	14	„	11	..			..						
14	„	12	15	„	12	15	„	11	16	„	11				
18	„	12	19	„	12	16	„	12	17	„	12				
16	„	13	17	„	13	20	„	12	21	„	14	11 6	13 6	13 6	16 0
19	„	13	20	„	13	18	„	12	..						
16	„	14	17	„	14	21	„	18	..			14 to 15 ozs.		16 to 17 ozs.	
19	„	14	20	„	14	18	„	14	..			to the foot.			

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

										s.	*d.*	
6	by	4	and	6½	by	4½	...	...		10	6	per box.
7	„	5	„	7½	„	5½	...	...		12	0	„
8	„	6	„	8	„	6½	...	...		13	6	„
9	„	7	„	9½	„	7½	and 10 by 8	...		15	0	„

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13	Thirds ...	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14	Seconds		English.	English.
20 „ 15	Best		18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

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GENUINE WHITE LEAD. ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. FINE OAK VARNISH. | FINE OAK CARRIAGE. PATENT DRYERS. | LINSEED OIL. BOILED OIL.

TURPENTINE.

LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

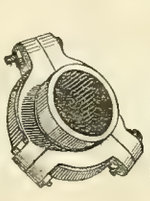
To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

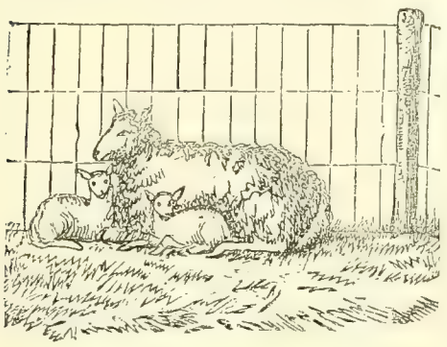
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Patronised by H.R.H. the late Prince Consort.



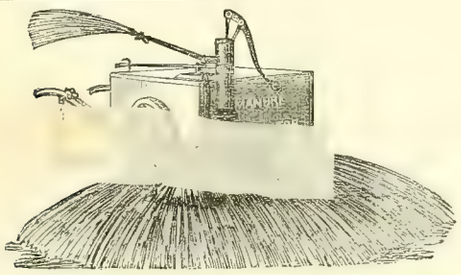
No. 7B variety, 9*d.* per lineal yard.

GREENING AND CO. received the award of another Silver Medal and Commendations at the recent great Birkenhead Cattle Show of the South Lancashire Society.

In 1857 the judges of the Royal Society reported of their Patent Iron Wire Sheep-fold Fence, that it "was cheap and excellent. It can be very easily fixed, and was well coated with a bright and durable-looking varnish."

G. & Co.'s prices remain unadvanced, notwithstanding the rise in the iron market. Their enlarged Catalogue of Fences and Iron Gates post-free on receipt of three stamps. An explanatory circular sent without charge, on application.

Address GREENING & COMPANY, Victoria Works, 81, Oxford Street, Manchester.



JAMES'S FIRST PRIZE MANURE CART has been Awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for Supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

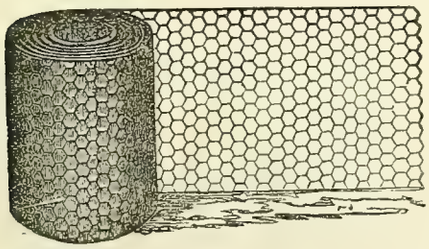
Washing.

The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. JAMES, Tivoli Works, Cheltenham.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

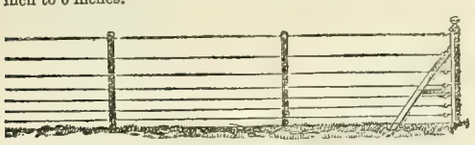


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½*d.*	3½*d.*
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6½	5
2-inch " " " .. "	16	8	6½
1⅝-inch " " " .. "	19	4¾	4
1⅝-inch " " " .. "	18	6	4¾
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 11*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* 1*d.* per yard.

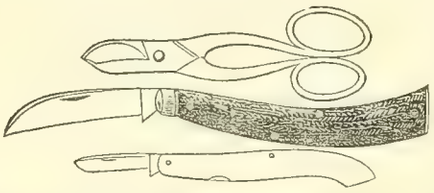
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i e*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

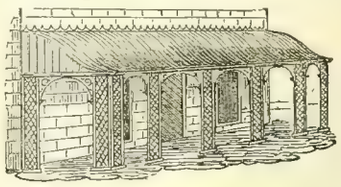
PAXTON GARDEN ENGINE. — Is portable, easily worked, not liable to get out of order; will throw with Jet 40 feet, and with "Rose" will cover 40 feet across. Price 30*s.* and 40*s.* each.

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PATENT ASPHALTE ROOFING FELT. Rail Carriage Paid. One Penny per Square Foot. Also Inodorous Felt, and Dry Hair Felt for covering Boilers and Steam Pipes.

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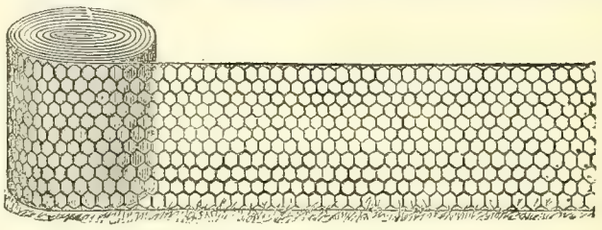
VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, (Iron Works) 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2½ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3⅜*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4⅞*d.*	4⅜*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5⅜*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

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STEAM CULTIVATING AND PLOUGHING APPARATUS.

J. & F. HOWARD HAVE NOW MANUFACTURED AND SOLD 300 SETS OF STEAM CULTIVATING APPARATUS.

Full particulars may be had of their Agents throughout the kingdom, or will be sent free on application to

JAMES AND FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.

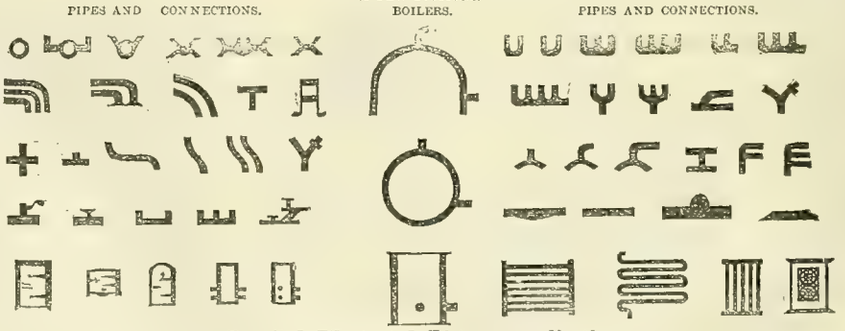
ST. PANCRAS IRON WORK COMPANY,

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HOT-WATER APPARATUS,

FIXED AND UNFIXED.

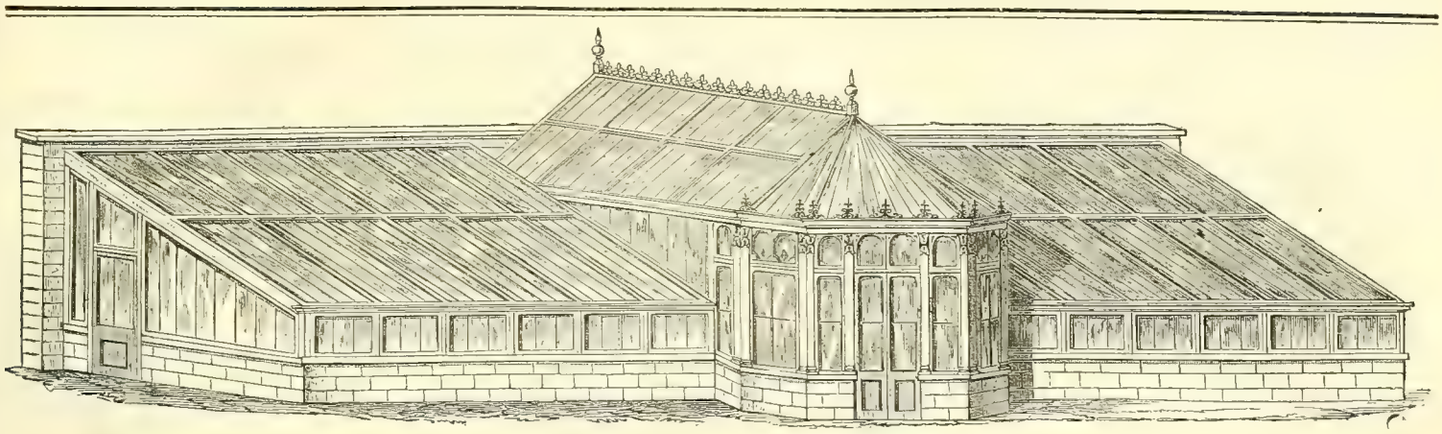
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EVERY DESCRIPTION OF IRON WORK.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

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LOWEST PRICES AND BEST MATERIALS.

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Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

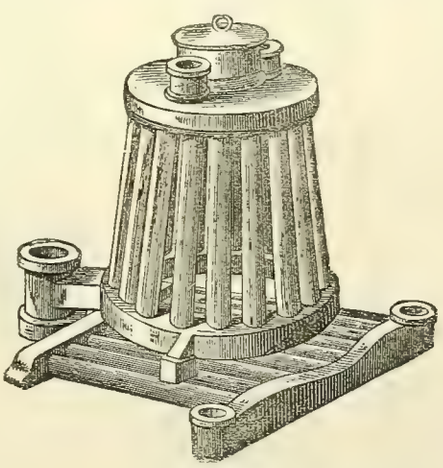
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FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
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FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
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ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

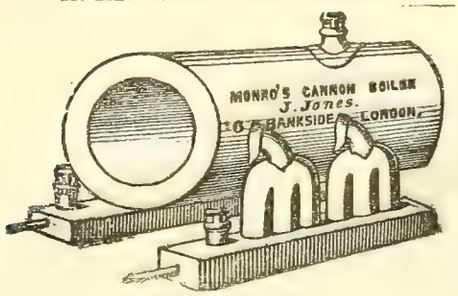
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HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES, AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

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SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

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CHURCHES, CHAPELS, SCHOOLS,

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OF THE BEST QUALITY, AND AT MODERATE CHARGES.

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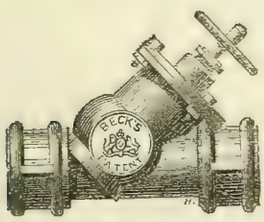
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AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 *of the Patent Valves are now in use and giving the greatest satisfaction.*

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

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OF EVERY DESCRIPTION OF

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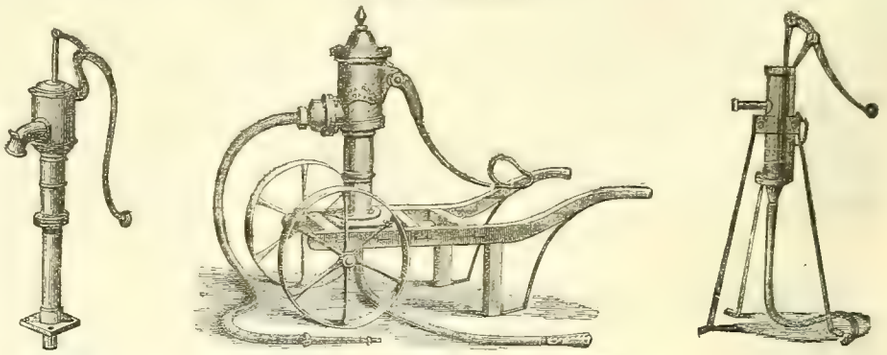
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BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

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JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



No. 12. No. 20. No. 1.

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IMPROVED

KOH-I-NOOR LAMP,

TO BURN

HYDRO-CARBON OILS.

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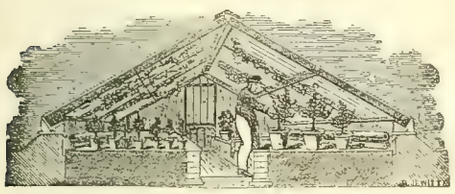
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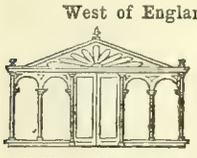


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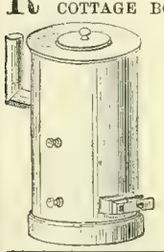


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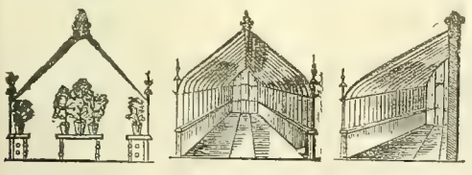


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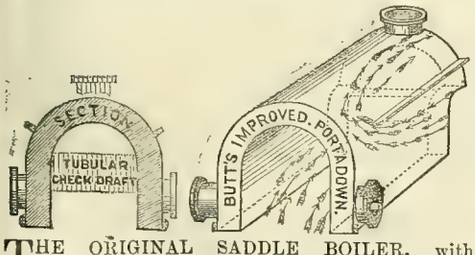


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12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons ..	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gilt bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gilt bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gilt bowl	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An Oak Chest to contain the above, and a relative number of Knives, &c., 2*l.* 15*s.* Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices. All kinds of re-plating done by the patent process.

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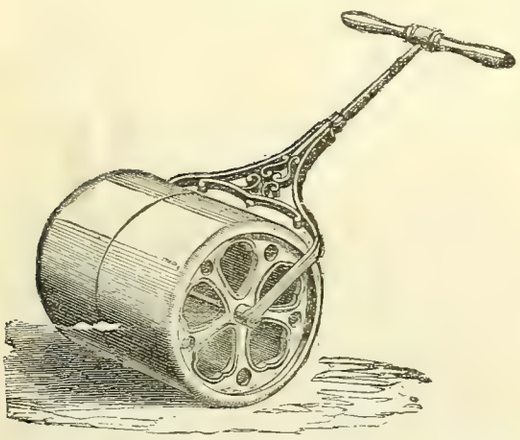
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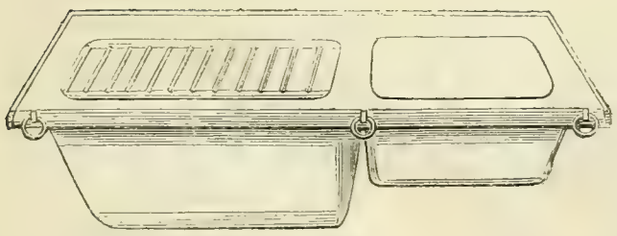
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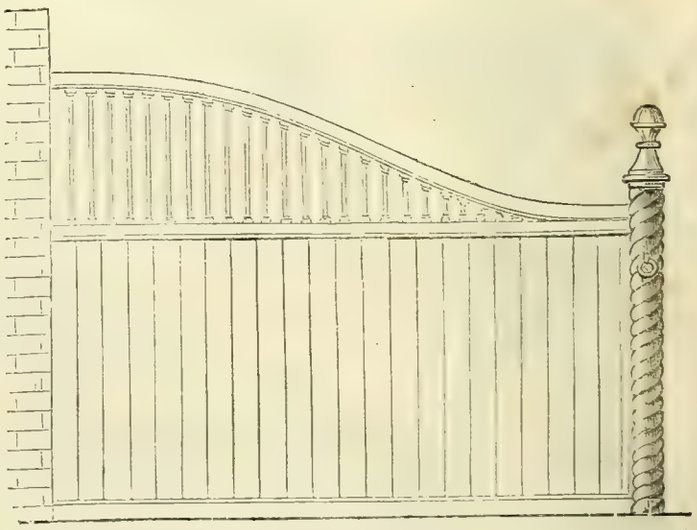


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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 2.—1864.] SATURDAY, JANUARY 9. {Price Fivepence. {Stamped Edition, 6*d*.

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B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
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RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

New Seeds, Carriage Free.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.
A Copy of our DESCRIPTIVE PRICED LIST of VEGETABLE and FLOWER SEEDS worthy of cultivation, will be sent to each of our customers in a few days.

Notice of Removal.

WM. DENNIS AND CO., late of King's Road, Chelsea, beg to announce that in future their business will be carried on at Mitcham Nursery, Lower Mitcham, Surrey.

Seeds.

HUGH LOW AND CO. respectfully announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS is now ready for distribution, and will be forwarded post free to all applicants.
Clapton Nursery, N.E.

Dodecatheon elegans.

DOWNIE, LAIRD, AND LAING have to offer 6000 of the above, at 30*s*. per 100. Price to the Trade on application.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, 57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, St. John's, Worcester.

Good Seeds, Carriage Free.

B. S. WILLIAMS, NURSERYMAN and SEEDSMAN, Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots. Covent Garden Market, London, W.C.

THE PLYMOUTH SEED COMPANY, LIMITED, has AMALGAMATED with the LONDON SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

Good Seeds, Carriage free.

WILLIAM PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s*. per dozen; Ditto ditto DWARFS, 12*s*. per dozen. NEW ROSES of 1863: DWARFS, 36*s*. per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT is now ready, and will be forwarded Gratis and post free on application.

SEEDS for the KITCHEN GARDEN supplied by the LONDON SEED COMPANY (Limited).
Carriage Free.

SEEDS for the FLOWER GARDEN supplied by the LONDON SEED COMPANY (Limited).
Carriage Free.

SEEDS for the FARM supplied by the LONDON SEED COMPANY (Limited).
Carriage Free.

FRESH IMPORTED WELLINGTONIA SEED, gathered in October, 1863; splendid seed, 12*s*. 6*d*. per 1000 Seeds; 50*s*. for 5000 Seeds. To be had of Messrs. PETER SMITH & Co., Seed Merchants, Hamburgh.

Dalmeny Sprouts.

TO THE TRADE.—We beg to intimate that we are now SOLD OUT of the above.
STUART & MEIN, Kelso, N.B.—Jan. 9, 1864.

DOUBLE TUBEROSES, just imported, 3*s*. per dozen.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

NEW FUCHSIAS for 1863, at 5*s*. per dozen, including the most choice varieties.
JOHN TUCKER, The Nursery, Burnham, Somerset.
Post-office orders to be made payable at the Burnham Post Office.

NEW FUCHSIAS (post free).
NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5*s*. each.
EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.
E. G. HENDERSON & SON, Wellington Road, London, N.W.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.
P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

Paul's Hollyhock Seed.

COLLECTION OF 12 NAMED VARIETIES, POST-FREE, 5*s*.
PAUL AND SON have now ready the above; they can be also had of the principal nurserymen and seedsmen. Genuine Vegetable and Flower Seeds Carriage Free. List on application.
"Old" Cheshunt Nurseries, Cheshunt, Herts.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

GLENNY'S IMPROVED BALSAM SEED, (unapproached as yet); 6 Classes, 37 stamps; 24 varieties, mixed, 13. A list of the best 60 Flower Seeds for Amateurs, free on receipt of a directed envelope.
G. GLENNY, Fulham, S.W.

SURPLUS STOCK of BULBS.—See our large Advertisement in *Gardeners' Chronicle*, December 26, 1863.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

Strong 2-years Transplanted Larch.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.
CATALOGUES and Samples will be sent free on application.

TO BE SOLD, a large quantity of LARCH, 1½ to 2 feet; do., 2 to 3 feet, well grown, with a general selection of other FOREST TREES equally well grown.
Address, ISAAC SMITH, Froggatt Nurseries, Calver, Sheffield.

ASPARAGUS ROOTS WANTED.—Send Sample and Price to
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s*. per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

Broccoli, Snow's Winter White (True).

ROBERT PARKER begs to announce that he can supply a few pounds of SEED (harvested this season) of this scarce and valuable variety. Price per pound on application.
Exotic Nursery, Tooting, Surrey, S.

PEAS.—DANIEL O'ROURKE, EARLY PRIZE-TAKER, WOODFORD'S MARROW, CHAMPION of ENGLAND.
For Samples and Prices apply to C. SHARPE & Co., Seed Merchants, Sleaford.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l*. per Ton, or 8*s*. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton St. Ives, Hunts. Sacks, 2*s*. each.

Seed Potatos.

JOHN KELLETT begs to offer FLUKE KIDNEYS—the best late Potato; and DALMAHOY, the best second early, picked for Seed from land unbroken for 10 years. Price per bushel, or load of 252 lbs. on application.
Green Lane Nurseries, Heaton Norris, Stockport.
The Trade liberally dealt with.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7s. 6d. each; fine trees, 5s. each; carriage paid to London.

Nurseries, Sawbridgeworth.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7s. 6d. each; for Planting Out, from 3s. 6d. each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

5000 BLACK and BLACK NAPLES CURRANTS, extra fine.

10,000 RED GRAPE and RED VICTORIA CURRANTS, extra fine.

250,000 Two-years-transplanted QUICK, 2 to 2½ feet, and 2½ to 3 feet, strong, healthy, and well-rooted.

For prices, &c., apply to J. W. COCKS, Donington Nurseries, near Spalding.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—s.	d.
BROCCOLI, SUPERB WINTER WHITE (Snow's)	2	6
,, LATE WHITE (shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

Ornamental Grass for Game Covers, &c.,

(ELYMUS GLAUCESCENS.)

B. S. WILLIAMS begs to call the attention of noblemen and gentlemen to the above ORNAMENTAL GRASS. It is perfectly hardy, having proved it for several years, and can recommend it as being superior to anything yet offered for that purpose. 6s. per dozen, 40s. per 100.

Paradise and Victoria Nurseries, Holloway, London, N.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class:

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. ,, ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised.

CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

NEW VEGETABLES.

DALMENY SPROUTS.—A cross between the common Heading Cabbage and Brussels Sprouts. Awarded First-Class Certificate by the Royal Horticultural Society of London. Per packet, 1s.

FEARNOUGHT CABBAGE.—A hybrid between the Early Dwarf Cabbage and the Hearting Scotch Green. Selected stock. Awarded First-Class Certificate by the Royal Horticultural Society of London. Per packet, 6d.; per oz., 2s.

NEW NEMOPHILA.

NEMOPHILA AURICULÆFLORA.—Dwarf and distinct. Awarded a Commendation by the Royal Horticultural Society's Floral Committee, July 7, 1863, and described as "a handsome variety with a well-defined pure white margin." Per packet, 1s.

For fuller descriptions of the above, and List of Agents, see *Gardeners' Chronicle* of December 19, p. 1199.

The following are additional Agents:—

Messrs. BARR & SUGDEN	12, King Street, Covent Garden
,, CUTBUSH & SON	Highgate, London
,, DICKSON & TURNBULL	Perth
,, J. & C. LEE	Hammersmith, London
,, WHEELER & SON	Gloucester
Mr. JOHN CATTELL	Westerham, Kent
,, ROBERT P. KERR	7, Basnett Street, Liverpool
,, ROBERT PARKER	Tooting, London

Wholesale prices may be had on application to

STUART & MEIN, Seed Merchants, Kelso, N.B.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

NEW HYBRID MIMULUS MACULOSUS.

MR. WILLIAM BULL

Has much pleasure in offering to the Trade, SEEDS of this beautiful NEW HYBRID, and as it is undoubtedly the most striking and effective novelty of the season, he recommends it with the greatest confidence.

With each Order a Coloured Drawing by ANDREWS will be presented, and Orders of not less than a dozen packets will be supplied.

The *Gardeners' Chronicle* of April 25, 1863, remarks:—

"We have received from Mr. Bull, of Chelsea, a boxful of Mimulus Flowers, the produce of a new cross, the recently introduced Mimulus cupreus being one parent, and a fine large-flowered spotted sort, called Gaiety, the other. The plants resulting from this intermixture are said to be of the same dwarf habit as cupreus itself, while the flowers are full sized (about 2 inches across), and very richly marked; some of the blossoms now before us are exceedingly beautiful, reminding one, in their curious spottings, of the Tydæas, or of some of the handsomely marked Herbaceous Calceolarias, which were seen in the days when Calceolarias were popular. Altogether this may be set down as a remarkably successful cross, and Mr. Bull may be congratulated on having procured for our gardens, some very gay and sparkling novelties amongst monkey flowers."

Mr. WILLIAM BULL begs to intimate that he does not supply the above Retail; but it can be obtained from any of the undermentioned Seedsmen, all of whom have had a supply direct from him, and therefore can furnish it true to name:—

Banbury	Messrs. R. J. PERRY & Co.
Bath	Mr. W. C. DRUMMOND
,,	,, E. TILEY
Birmingham	,, J. COLE
,,	,, J. HEWETT
,,	,, H. POPE
Bradford	,, W. DEAN
Brentwood	,, J. MANN
Bristol	,, J. F. HARRIS
Carlisle	Messrs. LITTLE & BALLANTYNE
Cheltenham	Miss CLARK
Chepstow	Mr. J. PILLINGER
Chester	Messrs. CHIVAS & WEAVER
,,	,, J. DICKSON & SONS
Colchester	Mr. B. R. CANT
Cork	,, J. B. HARTLAND
Cottingham	Messrs. WITTY & SONS
Dalkeith	,, BALLANTYNE & SON
Derby	Mr. E. COOLING
Dorking	Messrs. J. IVERY & SON
Dublin	,, J. BERRY & SONS
,,	,, DICKSON, HOGG, & ROBERTSON
,,	,, W. DRUMMOND & SONS
,,	,, EDMONDSON BROTHERS
Dundee	,, W. URQUHART & SONS
Dursley	Mr. J. MORSE
Edinburgh	Messrs. CARSTAIRS & SONS
,,	,, DICKSON & Co.
,,	,, P. LAWSON & SON
,,	Mr. R. T. MACINTOSH
,,	,, P. ROBERTSON
Glasgow	Messrs. A. FOWLER & SONS
,,	,, SMITH & SIMONS
Gloucester	,, HUME & COSENS
,,	,, J. C. WHEELER & SON
Highgate	,, W. CUTBUSH & SON
Hull	,, E. P. DIXON & SONS
,,	Mr. A. MARTIN
,,	,, F. MARTIN
,,	Messrs. J. MARTIN & SONS
Huntingdon	,, WOOD & INGRAM
Jedburgh	Mr. W. DEANS
Kelso	Messrs. STUART & MEIN
Kilmarnock	,, DREGHORN & AITKEN
Leeds	,, J. KEARSLEY & SONS
Liverpool	Mr. J. CUTHBERT
,,	Messrs. T. DAVIS & Co.
,,	Mr. W. SKIRVING
London:—	
Camberwell	Mr. W. BARNES
Covent Garden	Messrs. BARR & SUGDEN
Strand	,, BATT, RUTLEY, & SILVERLOCK
Adelphi	,, BECK, HENDERSON, & CHILD
King William St.	Mr. T. BRIGDEN
Covent Garden	Messrs. BUTLER & MCCULLOCH
Tavistock Row	,, CHARLWOOD & CUMMINS
Brixton	Mr. G. CLARKE
London:—	
Covent Garden	Messrs. H. CLARKE & SONS
Fleet Street	,, COOPER & BOLTON
Castle Street	Mr. J. DAVIDSON
Gracechurch St.	,, W. DENYER
Moorgate Street	,, G. W. DIXON
Isleworth	Messrs. J. DOBSON & SON
Strand	Mr. B. J. EDWARDS
Mansion House	Messrs. FLANAGAN & SON
Down Street	,, G. GIBBS & Co.
Covent Garden	,, W. HOOPER & Co.
Shepherd's Bush	Mr. F. HOPGOOD
Leadenhall Street	Messrs. HURST & SON
Covent Garden	Mr. J. KERNAN
Cheapside	Messrs. P. LAWSON & SON
Hammersmith	,, J. & C. LEE
Clapton	,, H. LOW & Co.
Strand	,, MINIER, NASH, & NASH
Barbican	,, NUTTING & SONS
Dulwich	,, F. & A. SMITH
Welbeck Street	THE LONDON SEED COMPANY
Chelsea	Mr. J. VEITCH
Holloway	,, B. S. WILLIAMS
London Bridge	Messrs. J. WRENCH & SON
Ludlow	Mr. S. COX
Malton	,, E. TAYLOR
Malvern	,, W. SIMONS
Manchester	Messrs. DICKSONS & BROWN
,,	,, J. DICKSON, SONS & Co.
,,	Mr. J. SHAW
,,	,, H. WATKINSON
Norwich	,, J. BELL
Northampton	Messrs. MARSH & PERKINS
,,	Mr. J. PERKINS
Oxford	,, G. PRINCE
Paisley	,, P. MACKENZIE
,,	,, G. WHITE
Perth	Messrs. DICKSON & TURNBULL
Reading	,, SUTTON & SONS
Richmond	Mr. F. R. KINGHORN
,, Yorkshire	,, CROSSLAND
Rugby	,, W. H. TREEN
Sheffield	Messrs. FISHER, HOLMES & Co.
Slough	Mr. C. TURNER
Sudbury	,, S. BROWN
Taunton	Messrs. J. DYER & SON
Torquay	Mr. J. MORGAN
Tunbridge Wells	,, E. HOLLAMBY
Waterford	Messrs. R. FENNESSY & SON
Wells	,, G. EDWARDS & SON
Windsor	Mr. J. WHOMES
Wolverhampton	Messrs. R. LOWE & Co.
Woodbridge	Mr. J. JEFFRIES
Worcester	,, J. S. HAYWOOD
,,	,, R. SMITH
,,	Messrs. WOOD & Co.
Yeovil	Mr. J. SCOTT
Paris	Messrs. VILMORIN, ANDRIEUX, & Co.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, S.W.



CARTER'S SELECT LIST of SEEDS for 1864,

Containing all the best and latest Novelties in FLOWER SEEDS, FARM SEEDS, and GARDEN SEEDS, also NEW PLANTS, and FRENCH GLADIOLI, is now published, and will be forwarded gratis and Post Free on application to

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.



To the Seed Trade.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that the Stock of the following beautiful and distinct NEW ANNUALS—

RHODANTHE ATROSANGUINEA,
RHODANTHE MACULATA ALBA,
HELIPTERUM SANFORDII,

for which Silver Banksian Medal and First-class Certificates have been awarded him, is now ready for distribution.

Prices may be had on application either to his London Agents, Messrs. HENDERSON & Co., Pine Apple Place, Edgware Road, W., or to himself.

THOMAS METHVEN begs to intimate that his NEW CATALOGUE of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., for 1864 is now ready, and will be forwarded Post-free on application.

Seed Warehouse, Nursery Gate, Leith Walk, Edinburgh.

THE LONDON SEED COMPANY, LIMITED has been established under the Companies' Act of 1862, for the purpose of supplying all kinds of Seeds for the Farm and the Garden.

The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.

The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.

The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.

One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.

ALFRED BREWIN, Manager.

THE YORKSHIRE HERO PEA.—A Dwarf Green Wrinkled Marrow, pronounced by all who have tried it to be a "WONDERFUL" Pea. We have selected from numerous testimonials the following:—

From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart. *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer, requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thin in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can readily dispose of at 5*s.* per quart to those who saw them in bearing."—Bracebridge, Oct. 5, 1863.

Price 5*s.* per Quart.

EDMUND PHILIP DIXON & SONS, Yorkshire Seed Establishment, Hull.

Supplied in London:—

Messrs. HURST & SON, 6, Leadenhall Street.
" COOPER & BOLTON, 152, Fleet Street.
" BECK, HENDERSON, & CHILD, Upper Thames Street.
" JACOB WRENCH & SONS, London Bridge.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5*s.* per quart.

	per packet—*s.*	*d.*
DIXON'S New MAMMOTH WHITE CELERY ..	1	0
DIXON'S New CHAMPION GREEN COS LETTUCE	1	0
DIXON'S YORKSHIRE FAVOURITE MELON ..	1	0
DIXON'S YORKSHIRE HERO CUCUMBER ..	2	0
The EARLY FORCING CAULIFLOWER	1	0
The ROSEBERRY BRUSSELS SPROUTS	0	6
MELVILLE'S VARIEGATED GARNISHING KALE	0	6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill* 2 *bushels per acre.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

SEED CORN from the (Cold Chalk) Chiltern Hills, clean, true, and in good sowing condition, a capital change for all other soils.

WATERLOO OATS, for early or late sowing, good croppers in corn and straw, 25*s.* per quarter.

GOLDEN MELON BARLEY, a selection from Chevalier, 35*s.* per quarter.

HALLETT'S RED NURSERY WHEAT, having a few white corns in it, at 45*s.* per quarter.

New sacks and delivery to Henley Station included in prices Cash to accompany orders addressed to Mr. R. C. M. YOUNG, Hambleden, Henley-on-Thames.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s.* 6*d.* per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4*s.* per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4*s.* per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s.* and 2*s.* 6*d.* per packet.

Either of the above to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.—Jan. 9.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading



To Planters of Public Parks, Cemeteries, and Avenues.

MAULE AND SONS invite attention to a fine Stock of Specimen CEDRUS DEODARAS, from 7 to 8 feet high; all thoroughly prepared with Large Pots, so as to insure their removal with the greatest safety. Price 10*s.* 6*d.* each. Larger and smaller sizes at the same proportionate low figures.

The Nurseries, Bristol.

Wanted—to the Trade.

MESSRS. ADAMS AND CO. have purchased the Horticultural Establishment (late Hucclecote Gardens), two miles from Gloucester, on main road to London, which it is their intention to carry on as a First-class NURSERY and General HORTICULTURAL ESTABLISHMENT for the growth of Choice Fruit, it being well adapted for that purpose, having over 7000 feet of Glass, consisting of Vineries, Pineries, Peach Houses, Stoves and Greenhouses, and several hundred yards of magnificent Peach Wall covered with Trees in bearing state. Also upwards of 20 Acres of Land, for which they require several Thousands One and Two-year-old of the following, to plant on a portion. Parties having such to dispose of, please to address as below, stating lowest price per 1000.

Araucaria imbricata	Juniper, Irish
Abies nobilis	" Swedish
" Douglasii	Retinospora ericoides
" Menziesii	Thuja aurea
" canadensis	" gigantea
" Nordmanniana	Thujopsis borealis
" Pinsapo	Taxodium sempervirens
" grandis	Wellingtonia gigantea (seedlings)
" Lasiocarpa	Variegated Hollies
Cedrus Deodara	Arbutus, Red
" africanus	Aucuba japonica
" Libani	Berberis Darwinii
Cupressus Lawsoniana	Holly, Common
" Thujoides	Yews, English
" variegata	" 6 to 9 inches
Cedars, Virginian	" Irish
Pinus excelsa	20,000 Manetti Stocks
" Cembra	
Juniper, Chinese	

Also 20,000 Larch, 2 to 3 feet; 20,000 Spruce, 2 to 3 feet; 14,000 Ash, 3 feet; 20,000 Withy, 2 feet; and a Collection of distinct and choice Dwarf Roses, Dwarf or Pyramid Apples, Pears, Plums, and Cherries. Must be warranted true to name and perfectly clean.

N.B. An active PARTNER required.

The Horticultural Establishment, London Road, near Gloucester.

CATTELL'S DWARF PURPLE-TOP BEET.—The colour of the root is a splendid dark crimson of finest quality, not having the light centre as possessed by other kinds, and when growing it is the truest and handsomest Beet in cultivation.

To be had only in sealed packets, price per oz., 1*s.*, postage free.

The following Seedsmen have already had a supply, and of whom it may be had genuine.

Messrs. SUTTON & SONS .. .. Reading.
" WILLIAM WOOD & SON .. Maresfield
" HURST & SON .. .. 6, Leadenhall Street.
" J. & C. LEE .. .. Hammersmith.
" THOS. BUNYARD & SON .. Maidstone and Ashford
Mr. THOMAS CRIPPS .. .. Tunbridge Wells.
" JAMES VEITCH .. .. Chelsea.
" W. DENYER .. .. .. 82, Gracechurch Street

Trade Price on application.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

MCRAE AND FRASER, SEED MERCHANTS and NURSERYMEN, Bow, London, E.

COLLECTIONS of VEGETABLE SEEDS for One Year's Supply, comprising the most approved varieties for successional crops, and including many novelties. No. 1, 10*s.*; No. 2, 20*s.*; No. 3, 40*s.*; No. 4, 60*s.*; No. 5, 80*s.*

NEW VEGETABLES FOR 1864.

CUCUMBER, FRASER'S MODEL of PERFECTION, handsome, long fruit, most prolific bearer. Per packet, 2*s.* 6*d.*

MELON BEAUTY of DENMARK, a delicious fruit of pure Pine-apple flavour, handsome shape. Per packet, 1*s.*

CELERY DEPTFORD COVENT GARDEN RED; the finest Red Celery in existence. Per ounce, 1*s*

CAULIFLOWER COVENT GARDEN MAMMOTH WHITE; seed carefully saved from a beautiful pure stock; we can confidently recommend this as the finest Cauliflower yet sent out. Per packet, 1*s.*

CATALOGUES free on application.

Carter's Champion Broccoli.

A DWARF AND COMPACT-GROWING LARGE-HEADED LATE WHITE BROCCOLI, RAISED IN 1858 BY MR. SWINHERD, GARDENER TO JOHN SWINFORD, ESQ., MINSTER ABBEY, KENT.

JAMES CARTER AND CO. have much pleasure in calling special attention to the above first-class variety of BROCCOLI; it has been thoroughly proved by them for the last five seasons, and they can with confidence recommend it as being the BEST LATE WHITE BROCCOLI in CULTIVATION.

J. CARTER & Co. are prepared to offer seed of this first-class Broccoli in packets, price 1*s.* each, and to the Trade in larger quantities on liberal terms.

For Copy of Testimonials and List of Seed Merchants who have received their supply direct from J. CARTER & Co., see *Gardeners' Chronicle* of December 19, page 1200.

The following are additional:—

Mr. JOHN BELL .. .. Norwich.
Mr. S. BROWN .. .. Sudbury.
Messrs. W. CUTBUSH & SON .. .. Highgate.
Mr. R. P. KER .. .. Liverpool.
Mr. R. PARKER .. .. .. Tooting.
Mr. W. PAUL .. .. Waltham Cross.
Mr. J. SCOTT .. .. Yeovil.
Mr. R. SMITH .. .. Worcester.
Mr. W. THOMAS .. .. .. Wolverhampton.
Messrs. TOOLE & Co. .. .. .. Dublin.

JAMES CARTER & Co., 238, High Holborn, W.C.

CATTELL'S ECLIPSE BROCCOLI.—Large White and Late. 1*s.* per Packet, post free.

The above is the finest late Broccoli that has ever come under my notice. As late as the middle of last June I had fine white heads of it as large as a peck measure.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.

Fulham Nursery, London, S.W.—January 9.

Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2*s.* per packet. Will be forwarded to any part of England on forwarding 26 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARE & SON, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

Potatoes—Skerry Blues.

EDMONDSON BROTHERS, SEEDSMEN, 10, Dame Street, Dublin, offer SEED POTATOS of this new and valuable variety, which has proved quite free from disease, is a heavy cropper, and of most excellent flavour.

Price 7*l.* 10*s.* per ton, bags included. Less than half a ton, 8*s.* per cwt. Delivered free in Bristol, Glasgow, Whitehaven, or Liverpool.

Cash in all cases to be sent with the order. Cheques may be crossed "Provincial Bank of Ireland."

Splendid New Potatos raised from Seed.

SCAMELL'S GLORY AND PURPLE PRINCE.

D. DAVIS, in offering the above, informs his Friends that he has the entire Stock, and is now prepared to send them out at the following prices, viz.—

SCAMELL'S GLORY, 10*s.* per 18 lbs. Ditto., 30*s.* per 56 lbs.
PURPLE PRINCE, 7*s.* per 18 lbs. Ditto., 21*s.* per 56 lbs.

When 56 lbs. or upwards are taken, Carriage free.

The following notices in the *Gardeners' Chronicle* sufficiently attest their merit:—

"Both are excellent sorts, the Red one rather shorter than the White. They are even, regularly shaped, without deep eyes, and consequently without waste. When cooked they become very floury; and if they had been a little riper would certainly have been entitled to be placed A 1."—August 15.

"POTATOS: *D. Davis.* Both sorts are of excellent form, without deeply sunk eyes; but Scamell's Glory, which is as perfect in all respects as it is possible for a Potato to be, tender and floury, without a fault, is much better than the Purple Prince. This is the verdict of a jury requested to consider the matter."—October 3.

N.B.—A remittance must accompany all orders from unknown Correspondents.

A quantity of ANEMONE SEED; the Trade supplied. Price on application.

Kensington Nursery, London Road, Bath.

RUSTIC JARDINETS, filled with Bulbs.—See Article by "E. A. M.," p. 1204, *Gardeners' Chronicle*, December 19.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W. C.

SMITH, BECK AND BECK'S New MERCURIAL BAROMETER, very sensitive. Scale, 3 to 8 inches for every inch of variation, compensating tube instead of a reservoir. Price from 35*s.* to 42*s.*

Description sent free by post, or to be had on application at 31, Cornhill, E.C.

Universal Microscope. Price £5 5*s.*

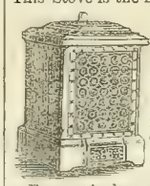
SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24, 1863; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

New Dracæna.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer good Strong Plants of

DRACÆNA TERMINALIS LATIFOLIA PENDULA, a very distinct novelty, at 15*s.* each.

PHALÆNOPSIS SCHILLERIANA, good established plants, at 4*l.*

" AMABILIS, ditto, at 3*l.*

LILIUM LANCIFOLIUM PUNCTATUM, strong roots, at 5*s.*

The above named Plants can be supplied by the Dozen.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London.

Best Seeds, Carriage Free.

RICHARD SMITH,
SEED MERCHANT and NURSERYMAN,
Worcester.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151.

Seeds of Coniferæ, Herbaceous Plants, &c.

MR. IRVINE, 28, Upper Manor Street, Chelsea, S.W., is instructed by Professor Heldreich to submit to Nurserymen and Amateurs SEEDS of GREEK PLANTS; amongst these are Cones and Seed of rare CONIFERÆ, and of the new species PINUS HELDREICHII.

LISTS and Prices will be sent on application as above.

Transplanted Larch,

9 TO 12 INCHES, 12 TO 18 INCHES, 18 TO 24 INCHES.

MORRISON BROTHERS, NURSERYMEN, Aberdeen, have several Hundred Thousands of each of the above sizes of TRANSPLANTED LARCH to offer, of very superior quality and moderate price; also a general stock of SEEDLING and TRANSPLANTED FOREST TREES.

Prices, with Samples if required, may be had on application.

PORTUGAL LAURELS, 3 to 4 feet high, and 3 to 4 feet in diameter, compact handsome bushes, which having been frequently removed, will lift with balls like Rhododendrons.

MORRISON BROTHERS, Nurserymen, Aberdeen, have several hundreds of the above to offer; the ground they now stand on being required for a particular purpose, they will be sold cheap.

Also a general stock of HARDY EVERGREENS, prices of which may be had on application.

To Nurserymen.

WANTED, 70 STANDARD ENGLISH ELM, with 12 feet clear stem and good roots, suited for an Avenue. State price delivered free at North Mill, Dublin.

Address, A. CAMPBELL & SON, 7, Eden Quay, Dublin.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.

A trial is respectfully solicited.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

Orders amounting to 21*s. sent Carriage Paid.*

NEW SEEDS.

ORDERS FOR THE ABOVE CAN NOW BE EXECUTED.

A COPY OF OUR

DESCRIPTIVE PRICED LIST

OF

VEGETABLE AND FLOWER SEEDS,

EMBRACING

OF BOTH SECTIONS ALL THAT IS WORTHY OF CULTIVATION,

Will be forwarded to each of our Customers in a few days.

PRICE of SEEDS moderate; quality extra fine.

SURPLUS STOCK of BULBS, all SOUND.

SEE OUR ADVERTISEMENT IN GARDENERS' CHRONICLE, DECEMBER 26, 1863.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.



NEW BEDDING GERANIUMS.



JAMES CARTER & CO.

HAVE MUCH PLEASURE IN CALLING ATTENTION TO THE UNDERMENTIONED

FIRST-CLASS NEW BEDDING GERANIUMS,

WHICH THEY ARE NOW PREPARED TO LET OUT.

Quantity required.

The late Mr. DONALD BEATON'S GERANIUMS.

It is with sincere regret that we have to notice the demise of the above-named highly esteemed gentleman, one whom we believe cannot easily be replaced in the world of horticulture. For the last 20 years he has been looked to by all as the genius of the gardening world; and it has been admitted on all sides that his SEEDLING GERANIUMS alone have immortalised his name among the floral public.

We have now to announce that only 10 days prior to his death, he concluded a contract with us for all the Geraniums sold by him during the present season to nurserymen for distribution in 1864. We, therefore, now offer that which for three years had been thought by him to be the best Nosegay Geranium he had ever raised, viz.:—

CYBISTER.

We need add no other testimony in its favour, but when we say for two years successively it has been exhibited in the most prominent beds both at South Kensington and the Crystal Palace Gardens, and universally admired by all who have seen it; we have only to say that the flowers are scarlet crimson, produced in immense trusses, often more than 200 flowers and pips on each truss, habit of a Tom Thumb, and producing its trusses quite as freely. That all may be possessed of so desirable a plant, we offer them thus early in strong plants THAT MAY BE PROPAGATED FROM BEFORE MAY, AT 5*s.* EACH. The first week in May we shall send out the remainder of those entrusted to us; at this time we will only say that they are novel and of sterling merit. Full description will be given in the spring.

Quantity required.

SNOWBALL.

A new pure White Bedding Geranium, raised by Mr. Keeler, of Woodhouse, Dulwich, and who has placed the entire stock in our hands for distribution. Description of the same type as Madame Vaucher, but IN EVERY RESPECT SUPERIOR—fine large truss, well up in the centre, giving a flat even surface, and both in form and colour almost equal to the old Double White Camellia. Petals pure white, good form, and of great substance. Habit very robust and compact. Foliage rich green, with dark zone, will form a most desirable pot plant for Conservatory, and is without doubt a valuable acquisition for general Bedding purposes. It is the opinion of Mr. Keeler the raiser that it is superior to anything yet introduced to the notice of the public, and is the best White Geranium ever raised by him.

Each 5s.

BEL DEMONIO.

A bright lively salmon colour, of dwarf, compact, but very robust habit of growth. The free blooming habit of this variety will make it most desirable for planting in large masses or extensive ribbon lines. The trusses are very large, individual flowers large and of uncommon substance in petal, and blooms well up above the foliage. This variety resists the effect of sun and rain better than any before offered in this class, and was raised at the same place as the preceding splendid White variety.

Each 3s. 6d.

NOTICE.—We think it needless to reply to Messrs. E. G. Henderson & Son's incoherent mass of verbiage, which appeared in last week's *Gardeners' Chronicle*, further than to observe that their statement that our plants were bought through an Agent is not founded on fact, as the plants were submitted to the principals of our Firm, who bought them, considering them first-class varieties, which has subsequently proved correct. The prevaricatory letters of Mr. Keeler speak for themselves, and require no comment from us. We shall decline taking any further notice of this matter, as the public must be weary of such purposeless controversy.

JAMES CARTER & CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.;
and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

SUTTON'S SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1864,

Containing much useful information in Agriculture and Horticulture,

IS NOW READY, AND MAY BE HAD POST FREE, PRICE 6*d*.

GRATIS TO CUSTOMERS.

SUTTON'S SHORT SELECT SEED LIST

IS ALSO READY, AND WILL BE SENT GRATIS AND POST FREE ON APPLICATION.

ADDRESS, SUTTON AND SONS, SEED GROWERS and MERCHANTS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	Containing 33 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion							£3	3	0
No. 2.	Containing 16 quarts Peas and Beans			ditto		ditto	ditto ...	2	2	0
No. 3.	,,	12	,,	,,	,,	,,	,, ...	1	10	0
No. 4.	,,	8	,,	,,	,,	,,	,, ...	1	1	0

A DETAILED LIST of these COLLECTIONS may be had on application.

THE LONDON SEED COMPANY, LIMITED.

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE COMPANY are now sending out their COLLECTIONS of SEEDS, which will be delivered Carriage Free to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1.	Complete Collection, sufficient for a Large Garden for One Year's supply	£3	0	0
No. 2.	Complete Collection for a Moderate Sized Garden	2	0	0
No. 3.	Complete Collection, in Smaller Quantities	1	0	0
No. 4.	Complete Collection for a Small Garden	0	15	0
No. 5.	Complete Collection for ,, ,, ...	0	10	6
No. 6.	Extra Large Collection, containing Double the Quantities of No. 1 ...	5	0	0

A DETAILED LIST of these COLLECTIONS will be found in the GENERAL PRICE CURRENT, which is now ready, and will be forwarded Gratis and Post Free to any address in the Kingdom.

ADDRESS: 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

GENUINE SEEDS.—CARRIAGE FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to state that he is now prepared to supply with NEW and GENUINE SEEDS all Orders he may be favoured with.

A PRICED and DESCRIPTIVE CATALOGUE is now published, and will be forwarded Post Free to all applicants. It contains all that is really worth growing amongst novelties, and carefully selected Lists of indispensable articles, amongst which are the following New and Choice kinds:—

PEAS.
DILLISTONE'S EARLY PROLIFIC.
HARRISON'S ROYAL BLUE.
ADVANCER.
PRINCESS ROYAL.
PRINCE of WALES.

BROCCOLI.
BACKHOUSE'S WINTER WHITE PROTECTING.
CARTER'S CHAMPION.
SNOW'S WINTER WHITE.

CAULIFLOWER.
EARLY LONDON.
EARLY DWARF ERFURT.
NEW EARLY MAMMOTH.

CUCUMBERS.
DONALD BEATON, new hybrid Ridge.
EMPRESS EUGENIE.
HAMILTON'S MARKET FAVOURITE.
TELEGRAPH.

LETTUCE.
MOOR PARK.
ALMA.
TOM THUMB (Wheeler's).
STANSTEAD PARK.

WILLIAMS'S MATCHLESS RED CELERY.
THE STUDENT PARSNIP.
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The Gardeners' Chronicle.

SATURDAY, JANUARY 9, 1864.

THE branches and leaves of the Holly tree, which, at this festive season, are so much used to decorate our churches and dwelling houses, remind us of a discussion that took place in our pages a short time ago upon some lines in one of SOUTHEY'S works. An excellent paper on the common English Holly (Ilex Aquifolium), by Mr. WILLIAM PAUL, of Waltham Cross, had been read at a meeting of the Floral Committee of the Royal Horticultural Society, and was afterwards published in the "Proceedings" of the Society. In that paper Mr. PAUL quotes the following lines from "The Holly Tree," one of SOUTHEY'S most elegant and charming poems:—

"Below, a circling fence, its leaves are seen
Wrinkled and keen;
No grazing cattle through their prickly round
Can reach to wound;
But, as they grow where nothing is to fear,
Smooth and unarm'd the pointless leaves appear."

Mr. PAUL adds, "it may seem ungracious to throw a doubt on so charming a fantasy, and my opportunities of observation have not been sufficiently extended to allow me to speak decidedly; but, as far as I have observed, the evidence is not conclusively in favour of SOUTHEY'S view."

Several of our Correspondents have given us the result of their observations upon this curious question, and some of them gave examples of trees

which had come under their notice, which had their lower leaves "wrinkled and keen," and the upper ones "smooth and unarmed." Mr. FORTUNE states that Ilex cornuta, a species in many respects resembling our English Holly, is often met with in this condition. Another Correspondent informs us that at Burnchurch, Co. Kilkenny, where there are many beautiful old evergreens, there are Hollies in the condition which SOUTHEY describes. One of them, from which he gathered some leaves to send us as a proof of the correctness of his statement, was 35 feet in height, and in form somewhat like the Lombardy Poplar. On the other hand a Correspondent at p. 390 (1863), "is fully prepared to support Mr. PAUL'S assertion," and describes the Holly trees in the Palace Gardens, Armagh, Ireland, to show that the poet is clearly in the wrong. He says, "one 30 feet high has smooth foliage from bottom to top; one is rough; *and one has rough leaves at bottom and perfectly smooth ones at top.*" We have put the last few words in italics to show that at Armagh, as also at some other places, at least, the circumstance to which SOUTHEY alludes in his charming lines may be met with.

We have no doubt that many other examples might easily be brought forward of Holly trees being in the condition which the poet describes so well. Of course we do not mean to affirm that all old Holly trees are furnished in this way, or even that those individuals that take this form have every leaf at the base prickly, and every one at the top smooth. All we contend for is this, that the Holly is frequently met with having its lower leaves for the most part prickly, and its upper ones for the most part smooth. SOUTHEY saw this, and the circumstance naturally suggested the pretty idea, so well worked out in the poem on "The Holly Tree"—

> "I love to view these things with curious eyes,
> And moralise;
> And in this wisdom of the Holly tree
> Can emblems see,
> Wherewith perchance to make a pleasant rhyme,
> One which may profit in the after time."

There are other trees which exhibit the same peculiarity as the Holly, and provide themselves with prickly stems or leaves near the base, while they are smooth and unarmed above. Limonia trifoliata, a tree belonging to the Orange tribe, and on which some of the varieties are frequently grafted, is a remarkable example of this kind of structure. In its native country the lower part of this plant is furnished with spines of the most formidable kind, quite sufficient to protect it from injury by animals, and on this account it is frequently used for hedges round gardens. Like those of the Hollies above noticed, the upper branches of this plant are smooth and spineless when they are fully grown. And it is not improbable, our readers may be able to point to other examples of a like kind. That certain plants take on this form no one can doubt; why they do so, whether for the poetical reason which suggested itself to the mind of the poet, or owing to an exhaustion of natural power, or to what other cause, we are unable to say.

As having some relation to the subject in question, we may mention a remark upon the Chusan Palm by the late ROBERT BROWN, a man well known as a prince amongst botanists, and a keen observer of Nature's ways. The Chusan Palm produces fibre on its stem in much greater quantities than the Palms of the tropics do, and this fibre is an article of great commercial value. The country where the plant is found growing, is very cold in winter, and its leaves are often bent down under a load of snow. When Mr. BROWN was shown one of its stems, covered with thick layers of brown fibre, each of which was woven as if by a loom, he appeared much struck by the appearance it presented, and remarked, "This thick covering is, no doubt, intended by Nature to protect the more tender parts of the plant from the extreme cold to which it is exposed in its native country." These and many other things which we are constantly meeting with in Nature are—

> "Ordered by an Intelligence so wise,
> As might confound the Atheist's sophistries."

IT has often been a matter of surprise both to ourselves and others, that the GARDENERS' BENEVOLENT INSTITUTION, an institution which, measured by its means, is assuredly dispensing a very considerable amount of benefit amongst the gardening community, should be so lukewarmly supported by the very class of persons, to the failing members of which its benefits are distributed. Even admitting that there may be differences of opinion as to the principles by which such a Society should be guided, some taking the high ground of preferring to dispense to all who need so far as the funds permit, and others favouring the special claims of those who have themselves subscribed—admitting all this, we fear there must be some other powerful reasons which keep back from becoming supporters of the present Institution very many who would not withhold their guinea from mere indifference as to its success.

It would appear from the letter of a correspondent, who is himself one of the fraternity, and who writes under the pseudonym of "DELTA," that one great cause of the state of things to which we have adverted, may be traced to the PRESENT SYSTEM OF ELECTIONS, AND THE EXPENSES CONSEQUENT THEREUPON. It is perfectly true, as our correspondent intimates, though he does not express himself exactly in this form, that under the system now in force, the weakest goes to the wall. The election is a struggle between the combined influence and the money of supporting friends, in which the poor candidate who may happen to be without the help of rich or influential supporters, is certain to be worsted. Of course we use the word "rich" in a limited sense, meaning thereby such as those who would relieve the candidate from the expenses of canvassing, which, small as they may appear to many of us, yet when amounting, as our correspondent observes, to "several pounds," are really overwhelming to one who is almost *in extremis*. The substance of DELTA'S communication on the subject, reads thus:—

"I have been an annual subscriber for many years, during which time I have solicited many of my brother gardeners to subscribe also, but for the most part I have received for answer: Not at present; we will wait until we see the rules made more 'definite.' At present a gardener must subscribe his guinea a year for a number of years before he can have any chance as a candidate; and then in soliciting the votes of subscribers he must incur great expense. This ought not to be the case, for many a hard-working man has to be very careful indeed to be able to pay even the guineas. I regret there should be so much lukewarmness amongst the craft, but under these circumstances it is no marvel. Not long since I interested myself in behalf of a candidate, but after succeeding, I learned that the expenses of the election had amounted to several pounds. From the voting paper now before me I see there are eight candidates, all having a claim through having subscribed many years, but of those only three can be elected, consequently, though put to the expense of canvassing, five of them must wait their chance at another election, to be perhaps passed over by some new candidate who has done much less for the institution, but who has influential supporters. Can it then be wondered that gardeners 'count the cost,' and, believing the chances to be against them, hold aloof?"

If this is really the view taken by the bulk of those gardeners who have as yet done nothing to support the Gardeners' Benevolent Institution, and we cannot say that it is an unreasonable view under the circumstances, the subject is worthy the serious consideration of the managers. It would indeed be a matter of regret if, instead of 'bearing hand' to strengthen an institution which has worked so long and already done so much good, and the results of the management of which in everything but this very item of support are all that could be desired, the gardening body should be drawn off to establish a mere Gardeners' Benefit Society, as has been mooted. Surely something can be arranged which while it would not dispirit those who wish to keep up the benevolent character of the association, would yet satisfy the hard-working men who brood over the objections at which we have glanced, until they button up their pockets and leave the Institution to its fate—turning their eyes meanwhile perhaps in the direction of some new scheme more congenial to their views, but which if carried out could only lead to the inevitable result which attends on doing battle with divided forces. Rather let something be done to induce the whole race of gardeners, and of the friends of gardeners and gardening, to concentrate their efforts in this conflict with distress. A divided camp is weakness, but union is power.

As a contribution towards this object, DELTA offers the following proposition:—"According to Rule 31, the Committee has power, by the bye-laws, to submit any alterations for approval at the next general meeting. Would it not be well for them to suggest that the elections should be dispensed with, and that as vacancies occur, or as the funds will allow of it, new pensioners should be placed upon the list, THOSE CANDIDATES HAVING PREFERENCE WHICH HAVE SUBSCRIBED THE GREATEST NUMBER OF YEARS. I think if the Committee would take it into their serious consideration, they would come to the conclusion that this plan would be the best. I heartily believe that nothing would tend so much to induce gardeners to become subscribers. I trust they may do so, in large numbers, for no one can tell what may befall him. Let those who doubt turn to the *Gardeners' Chronicle* of December 6, 1862, and they will find some melancholy illustrations of this truth."

Now, the real question is, would such an alteration as this bring in the recusant gardeners to the ranks of the benevolent? If it would, we think the committee is bound in fulfilment of its trust to place it before a general meeting in such a form as upon consultation might be found to be most practicable. We confess that for ourselves we should be sorry to see entirely put out the benevolent and charitable spirit manifest in the present arrangement, by which a deserving brother in distress, though he may not have had an opportunity of helping the Institution, or having had the opportunity may have failed to make use of it, is not shut out from receiving the benefits to be dispensed; but at the same time we must admit that those who are the most ready to help others are themselves most deserving of help when the hour of adversity comes, and therefore those who have for the longest period subscribed have the strongest claim on the funds, as they now have on the votes of subscribers. If a fair proportion of the thousands of gardeners who can, but who do not, subscribe, could by the adoption of any such principle as that which "DELTA" suggests, be induced to do so, and, better still, if they would take means to secure also the support of their employers, and in this way augment the funds sufficiently to admit of doubling the number of pensioners—if this could be done on the one hand, it might be considered a reasonable arrangement on the other hand, and one that should satisfy both parties, if, say, two-thirds of the number to be from time to time added, being eligible and deserving candidates, were to be put on the pension list according to seniority as subscribers, and the other third were to be selected by election. This would give considerable advantages to subscribers, which is what the gardening community would seem to wish for; and it would also leave an opening for the exercise of pure benevolence, a principle which must assuredly be kept in view if the generous support of the upper classes of society is to be at all reckoned on.

THE decease of our much lamented friend Dr. BOOTT, which occurred on last Christmas Day, is a heavy blow to Botanical science. We are collecting some materials concerning the life and works of this eminent man, and hope to be able to lay them before our readers next week.

—— THE commencement of a New Year affords a fitting opportunity to look back on the productions of that which has just passed away, and to take stock of any acquisitions in the shape of MERITORIOUS NOVELTIES which may have been introduced to our notice during the course of it.

To begin with the hardy series, we may observe that amongst shrubby plants there have been some grand additions made to those of climbing habit in the Japanese Clematis Fortunii with large double sweet-scented white flowers; C. florida Standishii, from the same country, with large single purple flowers; and C. Jackmanii, an English hybrid, with flowers of the richest velvety violet purple—all of them decidedly front-rank plants. Deutzia crenata flore-pleno, whose flowers are double and tinged with rose, and Weigela rosea alba with pure white flowers, both Japanese, are useful and ornamental dwarf shrubs whose peculiarities are expressed in their names; they will doubtless make good forcing plants. There has been further made known, a very handsome variegated evergreen, called Taxus hibernica fastigiata, which has golden-yellow leaves with green midribs, and is one of the most ornamental of the upright Yews.

Of hardy herbaceous perennials, the past year has made us acquainted with the following as garden plants:—Lychnis Senno, which has red-stained leaves and stems, and very large deep crimson flowers; Tricyrtis hirta, with elegant ovate amplexicaul leaves, from whose axils emerge the singular white purple-spotted handsome flowers; Primula cortusoides amœna, which has flowers of the richest crimson, twice as large as in the common form; Sedum Sieboldii medio-variegatus, which adds to the well-known beauty of its prototype the additional feature of ornament presented

by its centrally-blotched foliage — all these being Japanese. Silene Elizabethæ, an Italian species, forms a beautiful dwarf tuft with large rich magenta-coloured flowers. To these must be added the Chilian Ourisia Pearcii, a Linariad with broad crenated leaves, and beautiful Pentstemon-like crimson flowers, which quite eclipses the Ourisia coccinea introduced last year; and Anemone japonica Honorine Jobert, a dwarf-habited free-flowering autumnal plant, with large white blossoms. Annuals have not yielded much novelty, at least in the shape of distinct species; but one, Helipterum Sandfordii, a golden Everlasting, seems to possess an ornamental character, and is likely to become popular.

Passing to plants of half-hardy character, we may especially mention Lycioplesium pubiflorum, a shrubby Chilian Solanad, with rather pretty reddish-purple flowers, having somewhat the aspect of those of Lycium, but with ventricose flower-tubes, and probably hardy as a wall plant; and Valdivia Gayana, a pretty saxifragaceous perennial, quite different in aspect from anything in cultivation, and producing abundant rose-coloured flowers. This last will perhaps be found a useful half-hardy subject for greenhouse decoration in spring.

Amongst greenhouse plants perhaps the most distinct and ornamental amongst those of herbaceous habit, is the Peruvian Bomarea multiflora, a climbing species with drooping umbels of orange-red and yellow flowers. Erica exquisita decidedly takes the first place amongst shrubby plants, being probably one of the finest Heaths ever raised, a seedling, it is said, between obbata and some form of tricolor, and remarkable for its thick-tubed salmony-red flowers, with dark constricted throat and blush-white limb. Other plants deserving of prominent mention, are the very curious bipinnate Marattia-like Cycad, named Bowenia spectabilis; a very free-flowering variety of Browallia Jamesoni, called multiflora, with changeable orange yellow, and deep orange-coloured flowers; Eranthemum tuberculatum, a dwarf neat-leaved New Caledonian bush bearing a profusion of white flowers; a Rhododendron called Prince of Wales, raised between javanicum and retusum, and associating narrow-tubed orange-red blossoms with broadish elliptic foliage; a blue and white Statice called Frostii, bred between Holfordii and imbricata, and of ornamental character; and a Japanese Saxifraga, having the leaves handsomely variegated with white and pink, and called in gardens, pending its flowering, S. japonica tricolor.

Stove plants have been extensively recruited, but we confine our present observations to Meyenia Vogeliana and Stauranthera grandifolia, amongst the ornamental-flowered series: the first being an erect-habited shrubby Acanthad, with large purple flowers, orange in the throat; and the second a lovely herbaceous Cyrtandrad with panicles of short wide-tubed lilac flowers stained with deep orange at the base. Of the handsome-leaved series, Miconia pulverulenta, though not equal to either Sphærogyne latifolia or Cyanophyllum magnificum, has a beauty of its own, its broad rugose silvery-ribbed leaves being very effective as borne on young fresh-grown plants. Pandanus elegantissimus again, is a plant always presenting a graceful aspect, and it does not appear as if it would attain the cumbrous size of some other species of the Screw Pine family. Lastly, we may mention Gymnostachyum Verschaffeltii, a low-growing perennial with the habit of Eranthemum leuconeurum, and cultivated in English gardens under the name of Eranthemum rubronervium, which is remarkable for the elegant pinkish-red veining of its broad flat oval leaves.

Of Orchids, some few have been brought into prominence by the publication of figures, and others have been introduced as hybrid productions. Occupying a foremost place in the latter category is a Cattleya called Aclandi-Loddigesii, bred between the species bearing these two names, a very handsome dwarf plant whose rosy flowers are spotted with crimson, and the lip beautifully marked with deep rose. Lælia Turneri is a grand plant with the habit of elegans, and large purplish-rose flowers with a lip of intense violet rose. Limatodes rosea alba, whose flowers are pure white, will be a choice acquisition as a contrast with the usual rosy-flowered plant. Dendrobium Wardianum is one of the charmingly-coloured plants related to D. Falconeri, and the finest of the whole series for cultivation as an ornamental plant; while Dendrobium Parishii is both novel in character, and handsome in appearance, as its rosy-tinted flowers, with a fringed lip and deep crimson spots, sufficiently attest; and Dendrobium eburneum, with white flowers, stained with orange on the lip, promises to add both variety and beauty to the fine genus to which it belongs.

Leaving out of sight the magnificent group of Film Ferns, most of them remarkable for their exceeding rarity, if not absolute novelty, which was sent up to London by Messrs. BACKHOUSE & SON, there have been some fine additions made to our garden Ferns. Prominent examples may be cited in the New Grenadian Asplenium ferulaceum with its tall smooth fronds cut up into innumerable fine segments; in Pleopeltis albido-squamata, a Bornean plant, whose pinnate pendulous fronds are dotted over with white spots; in Marattia Cooperi, a provisionally-named New Caledonian species, with motley-green decompound pendent-branched fronds; in Lastrea erythrosora, a fine evergreen Japanese hardy species, with red sori; in Pteris serrulata crispa, a handsome Japanese tasselled form of one of the commonest but most useful of exotic species; and in Asplenium elegantulum, a dwarf evergreen species from Japan, intermediate in aspect between two of our own natives, A. fontanum and lanceolatum.

Amongst the novelties of what are commonly called Florists' Flowers—a term which has not now the definite limits it had in bygone times—there have been some acquisitions, a few of which may be briefly mentioned. Of Indian Azaleas, the most novel have been Louise von Baden, a bold-flowered and remarkably pure smooth-looking white; and Beauty of Dorking, also a white and very smooth, but stained with green, and flecked with carmine. Of Camellias we have had Filippo Parlatore, a smooth blush-white with rosy-carmine stripes; Jubilee rosea, a flat but showy imbricated sport of Jubilee, with rosy-pink flowers; Napoleon III., a cupped flower of veined pink, paler at the edge; and Carlotta Papudoff, a white-blotched carmine-rose—all desirable flowers. Among bedding Calceolarias, Bijou, a rich velvety brown-red, proves to be an acquisition. Chrysanthemums have received meritorious accessions in such flowers as Princess of Wales, ivory white with delicate peach-coloured margin; Prince Alfred, rosy purple; Lady Slade, pale rosy lilac; General Bainbrigge, amber coloured; Venus, pearly lilac—all large-flowered incurved sorts; Mrs. Edward Miles, clear pale yellow; and Lord Clyde, deep crimson, both of the ranunculus form, and of medium size; and Lizzie Holmes, a very perfect yellow Pompon with reddish-tinted margin. Cinerarias have nearly run their length as named flowers; the only ones, out of many shown, which may claim a record here were John Spencer, a deep crimson, and Snowflake, a pure white with blue disk, both selfs, and likely to be useful for decoration.

Dahlias were largely shown, but they want novelty. In this view perhaps Enchantress stood as high as any, having good properties, and being of a pale apricot tipped with rosy carmine; a very showy flower, deeper in colour, but not equal to this in quality, was Brunette. Anna Keynes, a blush white tipped with lilac; White Perfection, a pure ivory white; Fairy Queen, a creamy-blush flushed with rose; Willie Austen and Nonsuch, both amber coloured; and Magpie, rosy purple tipped with white, were also amongst the most noticeable; and Erebus is deserving of mention on account of its intensely dark maroon colour. The carmine-crimson Dianthus multiflorus hybridus, one of the best of bedding plants and nearly always in flower, has been recruited by varieties of exactly similar habit—striatiflorus, with pale pink flowers flecked with crimson; and Marie Pare with the flowers pure white. Gladioli have not shown any remarkable progress this season, but Charles Davis and Mrs. Dix, the first a light rosy scarlet and the latter white with purple stripe, may be mentioned as pleasing novelties. Among Hollyhocks one named R. B. Ullet, a large crimson, occupies a front rank; so also does Neatness, deep crimson; The Queen, blush-white with darker base; Mrs. M. Binning, dark rose; Alexander Shearer, rich deep red; and Acme, peach-colour. Pansies, of which a good many have been raised, we pass over, with the remark that among the fancy sorts Her Majesty, Prince of Wales, Princess of Wales, King of Italy, Hibernia, and Thomas Moore, are amongst the most novel and desirable.

Pelargoniums have not taken the position they did in 1862, but nevertheless some good things have been added. Diadem stands highest in our estimation, a rosy purple with dark top petals, and of exquisite form; Artist, a variety similar in character, but more rosy and less purple; as well as Achilles, a crimson clouded with maroon, are both fine flowers; while Prince of Wales and Princess of Wales, both high-coloured crimsons with maroon markings, differing a little in the disposition of the colours; and Maid of Honour, with a pale purplish-lilac tone, come among the desirable flowers of the year. Many varieties of the Scarlet Pelargonium class have been produced, but from the very profusion of sorts one becomes rather fastidious in the selection of novelties. Adonis, however, a scarlet with white eye, is good; Dr. Lindley is one of the finest of all for form, a light red-scarlet; Beauty, a white with salmon eye, is well described by its name, both form and marking being beautiful; Princess of Wales is a good salmon-coloured sort, deeper in the centre, and a very free bloomer; Lord of the Isles is a fine bold rosy-scarlet; Roi d'Italie is a dwarfish dark-zoned, finely-formed, salmon-tinted scarlet; and Waltham Pet, for its small foliage, dwarf habit, and finely-formed orange-scarlet white-eyed flowers, deserves to be a favourite. The variegated Mrs. Benyon is a free dwarf vigorous novelty in the style of Mrs. Pollock as to its foliage, but flowering very abundantly, the flowers scarlet. Stella variegated, a sport from the well-known and deservedly prized nosegay of that name, is an acquisition, having the same character as the original in all but the foliage, which has a creamy margin. Of single flowered Petunias, Royalty and Duchess of Northumberland, both magenta and white striped sorts, are to be recommended for their fine form. Amongst Picotees, Lucy, a light-edged rose, and Exhibition, a heavy-edged red, are useful; and Pinks have been recruited by a very fine one named in memory of a true florist, the late Rev. G. JEANS. The new race of Pyrethrums continues to be recruited by novelties gradually advancing towards perfection in form. Some of the best of these are Princess Alexandra, white; Lysias; crimson: Roseum album, rose with white centres, Fair Rosamond, pale peach; and Delicatum, lilac. Of Roses, so much has been said, that we content ourselves with the remark that Mrs. William Paul has proved one of the best; and that Lord Herbert and Lord Clyde, both English seedlings, have taken a high position. To out-door Tropæolums has been added King of Tom Thumbs, a variety raised from Brilliant, which it resembles in its dark foliage and scarlet flowers, both rather diminished, but in its habit is quite different, being close and tufted. Very little advance has been made in Verbenas; Mauve Queen has mauve coloured flowers of fair quality; Comte Bernard Lechi has white flowers striped with purple; and Othello is a good mulberry-purple bedder. A large single yellow Wallflower called Yellow Perfection, very sweet and fine, has been obtained by careful seeding and selection through several generations.

With this fragrant flower we close our brief sketch of some of the more important and desirable of the novelties of 1863.

New Plants.

267. THE CANNIBAL'S TOMATO (*Solanum anthropophagorum*).

THE "Correspondence relative to the Fiji Islands,' presented to both Houses of Parliament by command of her Majesty in May, 1862, is accompanied by an interesting Appendix, being a report, by Dr. Seemann, on the "Vegetable Productions and Resources of the Vitian or Fijian Islands," in which a chapter at page 58 is devoted to "Vegetables eaten with human flesh;" from which I make the following extract: "These it may be important to notice; since, thanks to the influence of commerce, Christian teaching, and the presence of a British Consul, cannibalism survives only in a few localities, and is daily becoming more and more a matter of history. Human flesh, Fijians have repeatedly assured me, is extremely difficult to digest, and even the healthiest suffer for two or three days after partaking of it. Probably in order to assist the process of digestion, bokola, as dead man's flesh is technically termed, is always eaten with the



addition of vegetables. There are principally three kinds, which in Fijian estimation ought to accompany bokola,—the leaves of Malawari (Trophis anthropophagorum, Seem.), the Tudano (Omalanthus pedicellatus, Benth.), and the Boro dina (Solanum anthropophagorum, Seem.). The two former are middle-sized trees, growing wild in many parts of the group, but the Boro dina is cultivated, and there are generally several large bushes near every "bure" (or stranger's house), where the bodies of those slain in battle are always taken. The Boro dina is a bushy shrub, seldom higher than six feet, with a dark glossy foliage, and berries of the shape and colour of Tomatos. This fruit has a faint aromatic smell, and is occasionally prepared like tomato sauce. The leaves of these three plants are wrapped round the bokola, as those of the Taro are around pork, and baked with it on heated stones. Salt is not forgotten. Whilst every other kind of vegetable and meat are eaten with the fingers, cannibal food is touched only with forks, generally made of the wood of the Nokonoko (Casuarina equisetifolia), or the Vesi (Afzelia bijuga, A. Gray), bearing curious names, and having three to four long prongs.

The reason given for this deviation from the general mode of eating is a wide-spread belief that fingers which have touched bokola are apt to generate cutaneous diseases when coming in contact with the tender skin of children; and as the Fijians are very fond of their offspring, they are most scrupulous in using forks on the above occasions."

The Boro dina above mentioned is the subject of our present Plate. Our plants were reared from seed brought home by Dr. Seemann, and which flowered in the stove of the Royal Gardens in July. Except when in fruit, this species of Solanum has no beauty to recommend it for cultivation; it is only interesting historically as connected with a practice which is happily yearly becoming more and more obsolete. *Botanical Magazine*, t. 5424.

EXHIBITION PLANTS.

THE INDIAN AZALEA.—No. I.

IN treating of this magnificent class of plants, my intention is to give the result of practical experience, extending over a period of thirty years, during which time I have been a successful grower, and a buyer of most of the new varieties as they made their appearance. In my early days we may have had 12 sorts, including varieties and species; this would have been the outside number, and the greater part of them were species. What a change has taken place since that time, both as to the number of varieties and the general cultivation of the plants!

Those who were in the habit of attending the Chiswick shows of the period referred to, will remember the kind of plants which were then exhibited, and which were of course considered to be very near perfection, not only as to their growth and cultivation, but also as to the shape and colour of their flowers. The plants of those days were mostly thin and flat, with their blossoms all tied so as to be brought to one face, lest any of them should be lost from view. The pots were small, seldom exceeding the sizes called 24s or 16s; the latter was indeed considered rather an extravagant size to adopt. However, as time moved on, and every year brought new cultivators into the field, as well as new varieties, it became observable that a very great improvement in cultivation had taken place; and from that time up to the present the improvement has every season become more and more manifest, until now those who attend the great Flower Shows about London, as well as those in many provincial towns, must be struck with admiration as they view the magnificent specimens brought together, perfect giants in size, and literally covered with blossoms of the finest shape, and of nearly every shade of colour.

To the dozen species and varieties we had to select from at the time I refer to, there have been made up to the present time something like 300 additions, consisting chiefly of varieties. The species have been nearly all discarded, as they have been quite superseded by the varieties raised from seed, and by the sports that have developed themselves upon named varieties. Many of the best kinds that are now in cultivation have been obtained from this latter source, the sported branch being taken off and grafted. It has been found in almost every case that these sports retain the colour and character which they have thus accidentally assumed. Many such have been grown and ultimately sent out as "new seedling" Azaleas—not that I think it makes any difference to the buyer whether a desirable novelty is a seedling or a sport. I feel certain that above half the number we are now growing are sports from other established sorts. Some varieties are more inclined to sport than others: the white and striped kinds are all of them disposed to do so, and from these almost all the colours we possess have been selected, grafted, and cultivated, and then generally introduced as seedlings.

I remember that at some of the great shows last season I counted seven distinct varieties, all open at the same time, upon Admiration; some of them were very distinct and beautiful, and well worth preserving, while others were inferior to the parent in shape, and not sufficiently distinct in colour from those already in existence. On another occasion I saw a plant of Iveryana with seven distinct varieties upon it; and had the plant been mine I should have felt disposed to graft some of them. Alba Magna is another kind very much inclined to throw sports; and although the blossoms of the parent are thin and flimsy in texture, yet at times it will give off splendid sports of various colours, having the blossoms finely shaped and of good substance. Madame Miellez is a sporting lady; many fine varieties have been secured from this, and as its colours are distinct from most of the other white-ground varieties (being purple-striped instead of pink or rose), it has opened a wide field for sports of a very different character.

Barclayana I believe to be the mother, grandmother, or great grandmother of more new varieties than any other kind grown. It is really astonishing what extraordinary sports this will produce. I have had one small branch with three blooms upon it, all quite distinct, and none of them in the least like the parent. The most singular circumstance was this, that though there was but one small shoot bearing these flowers, yet when multiplied it yielded all three varieties. The original shoot was taken off and grafted; as the season advanced several more shoots were taken off it, the plant throwing out two or three each time, and the first grafted shoots themselves yielding a good supply of later grafts by taking off their tops as soon as they had made sufficient growth: so that by the next season I had some two or three dozen plants. Some of these young grafted plants bloomed the next year, and to my surprise all the three varieties were there, quite perfect, as they had shown themselves on the one shoot the year before. I have them now under number (sport 1, 2, and 3), but until they bloomed it was quite impossible to tell which of the three they belonged to. One of them was much deeper in colour than Criterion, and much more spotted on the segments. The second was almost the same in colour as Criterion, but the flowers were much larger, and of a fine thick texture. The third was much lighter than Criterion, but larger, in fact, something between Eulalie and Criterion. These sports are now beginning to throw off others of a different strain, some of them nearly white, with slight stripes and flakes; others white with a green eye; but as I am rather particular in my selection, studying to obtain improvements rather than novelties, I am not at present preserving the sports of the second generation, although I may yet get something good from them.

I have noticed, particularly in these Indian Azaleas, that when plants become aged, and the wood hard and stubby, they are the more disposed to sport. Many sports will make their appearance while the plants are young, but as they advance in growth and age, still more will be developed. One can generally determine by the growth of a plant after it has been grafted, from what family or class of Azaleas it has descended. For instance, there are the small-leaved varieties, variegata, lateritia, and Gledstanesii, representing one family, but which of these is the original I cannot decide, though I am certain they are sports from one parent; and as the white-ground sorts show a greater disposition than others to yield sports, I am led to suppose that Gledstanesii is the original. I have had all three distinctly developed upon one plant when grafted with either of the varieties separately; but I have found Gledstanesii and variegata more disposed to sport than lateritia.

There are now many fine sports from the kinds just named, as well as some few varieties that have been produced from seed, but I should say there are two produced from sports to one from seed. There is variegata superba, sent out by Messrs. Ivery & Son, of Dorking, very much superior to the old variegata in its colour and markings, and really a fine thing, well worthy of a place in any collection, however limited. Another sent out by Mr. Bull, under the name of Duc d'Aremberg, is evidently a sport from variegata; and when in bloom I cannot perceive the least difference between this and variegata superba, which had been sent out two or three years before the Duc d'Aremberg made its appearance. There is a whole host of this class, which I have yet to prove, most of them continental productions; but having cut them rather freely for grafting, I have not been able to bloom them to perfection, though as they are all loaded with bloom buds, I hope to do so this next season. Etoile de Gand, which is a lovely flower sent to us from the Continent, has always appeared to me to be a sport from either variegata direct, or from one of its sports, perhaps in the third or fourth generation. I myself had two or three sports this season from Etoile de Gand, that I set the greatest store by; one of them, a beautiful salmon pink, has a distinct white stripe down each segment, wide at top and terminating in a point at the eye. Another is a rosy peach with a lilac or rose shading in the throat, and finely spotted. If I can only succeed in fixing these two sports such as they have showed themselves last season, I flatter myself they will prove two of the very best Azaleas ever seen, as their shape and texture is everything that could be desired.

There is another family of Azaleas represented by Criterion, which has yielded many sports. Had I not been assured by Mr. Ivery, who sent out Criterion, that he had raised it from seed, I should at once have said it was a sport from Iveryana, as I have many times had a sport precisely similar, from that variety. There is one called Iveryana Improved, a sport from Iveryana, with the flowers of thicker and finer texture; this also gives Criterion sports, and some of them very fine flowers. Another received from the Continent under the name of Iveryana alba cincta, and evidently a sport from Iveryana, but not sufficiently distinct from Criterion, gave me reason to suppose that Criterion was a sport, until Mr. Ivery assured me to the contrary. I find that if Criterion, Iveryana Improved, and Iveryana alba cincta are standing together, I cannot distinguish the one from the other without referring to their numbers, as their wood, the colour of their leaves, the shape of their flower-buds, and the general habit and growth of the plants are the same. Another sport of this group has of late made its appearance under the name of Mdme. Ambroise Verschaffelt; this is a robust growing and showy variety, very rough in its flowers it is true, but one that will be sought after by many growers in consequence of its having a frilled edge, in the way of crispiflora, and very distinctly dark-spotted upper lobes. If this is compared with Alexander II. it will be found precisely the same not only in growth but in the buds before opening, and in the whole aspect of the plant. I had always considered it to be a sport from Alexander II. when last season my opinion was confirmed by Mdme. Ambroise Verschaffelt having produced distinct blooms upon her of Alexander II., and by the latter having also borne distinct blooms of Mdme. Ambroise Verschaffelt. Another sport, called Surprise, has appeared at the London shows of the past year. When this was pointed out to me by one of its owners, I at once pronounced it to be none other than Madame Ambroise Verschaffelt, but it was declared to be one of their own seedlings, and very distinct, the great distinction being of course pointed to me, as well as the qualities in which it excelled the variety I had mentioned; unfortunately however, my declining sight did not permit me to perceive the vast difference between the two. It was further remarkable that the plant shown was a grafted one, but this was accounted for by the parent having been unfortunately knocked down and broken off, the mutilated remnants, however, having been as fortunately secured. This splendid variety, as it was considered, was brought before the Floral Committee at South Kensington, and a plant of Mdme. Ambroise Verschaffelt from Mr. Veitch's collection being placed with it on the table, it was unanimously decided by that body, comprising many of the best judges of the day, that they were the self-same thing. I have no doubt but that our continental friends had discovered the sport some years previously to this; and had taken the opportunity of grafting it, and then sending it to this country for distribution under its present name. The plants when first received must have been at least three years old from the graft.

I allude to these facts under the impression that proper attention is not paid, either in the case of seedlings or sports, before sending them out to the public. The parties holding them form the opinion that they are really improvements, and superior to those in cultivation, but do not make themselves sufficiently acquainted with the varieties already distributed. Such a course will most assuredly end in disappointment to purchasers, whether it be those who grow them for commercial purposes, or as specimen plants for their own pleasure. I fear we shall have too many sent out; and the number of new varieties we are continually receiving, especially from the continent, leads me to believe that many of them must be inferior to what we have already got. Upon referring to my list book I find 56 new names added to it in 1862, and 47 in 1863, making 103 in these two years. Now it must be evident that these cannot all be improvements. I would therefore suggest to those who are cultivators of either seedlings or sports, that they should be very particular to send out nothing which is not of a superior character; otherwise we shall have such a crowd of varieties that many of the best sorts will be discarded to make room for others bearing new names, but whose flowers are in every respect inferior. Out of those I have received during these two years, I have as yet flowered but few, in consequence of propagating them, but I shall bloom most of them in the ensuing season, and shall then be able to give my opinion as to their qualities. Some few continental kinds that have bloomed with me are not up to the mark, but I shall give them another trial before I condemn them. I intend hereafter giving a list of those I consider to be fine and valuable varieties, both seedlings and sports. *William Barnes, Camden Nursery, Camberwell.*

NOTES ON GARDENS.—No. II.

(*Continued from p.* 1133, 1863.)

YORK.—EDINBURGH.

THE grounds at York, in which the Museum of the Yorkshire Philosophical Society stands, rise boldly from the river Ouse, and are diversified in a very picturesque manner. They contain, besides the Museum, the ruins of the Roman fortification of Eboracum, as well as the very beautiful remains of the Abbey of St. Mary, and those of other buildings of great antiquity. In the Museum there is a good collection of fossil Ferns and Cycads in fine preservation, also a Hortus Siccus; while out of doors, in front of the Hospitium, an old building filled with Roman antiquities, is a small botanic garden, naturally arranged. But the chief interest in the plant way lies in the houses, of which there are several in a retired part of the grounds, filled with well-grown, fine-leaved plants, Ferns, stove and greenhouse plants, &c. The Ferns were particularly well managed, and a house devoted to the exotic species was very effectively filled with good specimens. I particularly noticed here Hymenolepis revoluta, a singular Fern, producing its sori on long caudal appendages at the apex of the fronds; Phegopteris sancta; Meniscium simplex; Nothochlæna tomentosa, and the beautiful silvery N. trichomanoides; the curious Doodia monstrosa, and a noble specimen of the highly interesting and rare Llavea cordifolia, with numerous other Ferns of interest. The British species were equally well represented, nearly all the curious varieties which have been shown in London during the past few seasons being amongst them. Finely-grown plants of that most elegant of Britishers, Athyrium Filix-fœmina plumosum, placed here and there, shed additional grace amongst these natives. I noticed a very remarkable form of Lastrea montana named Nowelliana; Scolopendrium vivo-polyschides in true

character; and a fine tuft of Asplenium Trichomanes incisum. On a small terrace in front of the houses was a very neat arrangement of alpines, and conspicuous amongst them several specimens of the dwarf and very striking Acæna novæ-zelandiæ, with its purplish crimson bristles decorating the heads of fruit. Mr. Baines being indisposed, and his assistant Mr. Feilden, fern-hunting in the Highlands, I was minus a guide; and, though the glorious old ruins, wavy grounds, and museum, make the place charming under any circumstances, yet I suspect much of interest was lost to me.

The neighbourhood of Edinburgh is a delightful one for the lover of rare and beautiful hardy plants, spring bulbs, &c. The pure air, and very sandy soil, in which plants thrive admirably that would perish, or at best only live, in a clay soil, no doubt tend to make it so; but the immediate reason is that many of the nurserymen and amateurs of Edina are not in the habit of measuring their horticultural excellence and pleasure by the number of Tom Thumbs and Purple Kings which they can marshal out by the first of June each year, but on the contrary endeavour to cultivate the most beautiful of the many plants which will bear the open air of our climate, many of which, indeed may but

"Show their plumage for a day
To wondering eyes, and wing away,"

yet the very transiency of their beauty is in itself a charm. Assuredly if the most sensational of flower gardens were to be petrified and preserved in all its glare, it would soon become about as interesting as a gaily-coloured pocket-handkerchief, and the wearied eye would demand repose. And then there is the associations of these rare plants. What a difference between the emotions called up by the sight of the little bed of Andromeda hypnoides, smaller than many of our Mosses, at the Comely Bank Nursery, and of those produced by some new blazer which has first seen the light at Kingston-on-Thames, and differs by a tint or two from some already known variety of the ubiquitous and "unkillable" Pelargonium zonale.

Taking the advantage of meeting with Mr. Stark at York, to get the names of a few places in his neighbourhood where I should be likely to find something interesting, I was particularly recommended to see Mr. Tait, the superintendent of Messrs. Dickson's extensive nursery in Leith Walk; and finding time to spend an hour with him there, I was well rewarded for it. Amongst the first things which struck my attention were two fine plants of Lilium giganteum, just going out of flower, and still perfuming the air for a considerable distance round. The plants were 6 and 7 feet high respectively, with 12 or 13 flowers each, and had proved quite hardy in the Leith Walk Nursery, having been planted out in 1858, the only protection given being a few inches of old tan over the roots in winter, and it was doubted if even this was necessary. But Mr. Tait's own especial favourites and *protegés* are the British Ferns, and he grows them to perfection in a charming retreat behind his house, though a wall only intervenes between them and the dusty Leith Walk. However, a real lover of Ferns will overcome any difficulty, and on the right side of the wall, the fronds are as fresh and clean as if a dozen miles from a waggon track. It would be useless to enumerate individuals, as all the species and almost every peculiar variety of British Fern is grown there. The Hymenophyllums with Trichomanes radicans and Andrewsii are grown in Wardian cases placed against the Ivy-covered wall which surrounds the Fernery on three sides, Mr. Tait's house completing the square and opening into the delightful spot. Against the walls glass cases of all sorts and sizes are placed, and many of them contain the densest, dwarfest, and healthiest specimens that I have seen of the British Hymenophyllums. As dead flakes of these are often to be seen in the best Fern-growing places, it may be worth while to describe Mr. Tait's mode of treating them. The north side of a wall is preferred for the cases, and there they remain in all weathers, protected in severe frost by having a bass-mat or two thrown over them. The patches of Hymenophyllum are fastened firmly with incorrodible wire on rounded conical stones, one of which is placed in the centre of each case. No soil is used except a little fine peat and silver sand, which is sprinkled over the plants when they are fixed, and then washed in with a fine rose. The cases are never kept close, more or less air being always given; when I saw them the doors were wide open, and I learned that during calm and moist weather they are left so night and day. Mr. Tait found that if the cases were kept close the plants were apt to get discoloured, drawn and rarely fertile, some one or other of which ailments have certainly affected all the specimens of the British Film Ferns I have elsewhere seen in cultivation, except a very fine specimen in the garden of the late Mr. Borrer, which was subjected to nearly similar treatment. The plants and atmosphere surrounding them were not kept saturated with moisture, which some think should be the case.

In the herbaceous department I was delighted to see a bed of the graceful Acis autumnalis, so seldom met with about London, struggling into flower, the bed in which it grew being edged with Antennaria dioica rosea; several other beds filled with choice hardy bulbs were margined with the same exquisite composite. Most of the beds containing such things as Dog's-tooth Violets, Fritillarias, &c, were edged with some good alpine plant, such as the species of Gentian and Saxifrage. Having often admired the beauty of a few weakly-flowered plants of Helonias bullata, a large bed of it here in rampant health, woke up a vision of what its April aspect would be. The larger growing Ferns are planted extensively and with good effect on the banks of a dyke which runs through part of the nursery, the fronds nearly meeting in the middle, and thus making a pleasing feature of an otherwise unsightly stream. American plants are very largely grown in this extensive, excellently-cropped, and well-kept nursery, much of which, including the specimen ground, time did not permit me to see. The Americans are arranged systematically in 4 feet beds, the beds being edged with the dwarfer kinds, such as Gaultheria procumbens, Ledum buxifolium, Vaccinium Vitis idæa, Menziesias, &c. Menziesia empetrifolia makes a beautiful edging, and Dryas octopetala is also used for that purpose.

Mr. Rae, Superintendent of the Dean Cemetery, and late of the Comely Bank and Edgehill nurseries, being a noted "rare plant man," it was necessary to pay him a visit, and pleased I was to find that banks and stones were being adapted to suit the fastidious tastes of his pets. The cemetery really deserves more than a passing notice from its fine and picturesque situation on the banks of the Water of Leith, its tasteful laying out, and particularly from its being embellished by almost every hardy ornamental tree and shrub procurable, including nearly all the weeping ones. Coniferæ, which there can be no doubt as to the propriety of employing extensively in such places, were largely used, Wellingtonias and the very best kinds being freely planted. The Miselto was abundant on several species of Thorn, and also on the Mountain Ash, Lime and Almond, which I thought unusual so far north. Without the blemish of gaudiness, the place was decidedly a garden, and from improvements now being carried on, it is likely to be much more interesting. One of these was the building of a house in a retired sort of reserve ground, for bedding and tender plants in winter. There were fine clumps of Lilium eximium in all its snowy beauty; several other kinds of Lily were in flower; and there was a great abundance of Perpetual and Tea Roses of the very best kinds. Simple spring flowers were, I was informed, much used for the decoration of the graves—another proof of good taste.

A handsome and commodious Gothic cottage for the Superintendent, is at once an ornament to the cemetery, and just such a house as a responsible servant should have. One could form an opinion of the sort of treat likely to be afforded by Mr. Rae's rockwork a year or two hence, when, after a few months of his stewardship, plants rare even in botanic gardens, such as Iris reticulata, Androsace Chamæjasme and villosa, Primula Stuartii, and numbers of suitable companions were already established there—meet inhabitants of the place where lie the remains of Ed. Forbes.

I had been told on good authority, that when Mr. G. Stirling was gardener at Melville Castle, he had the best private collection of Alpines and herbaceous plants in Scotland; and I found that he had not lost his love and enthusiasm for such things, for he has now two small gardens devoted to their culture at Comely Bank Place and Malta Terrace, Edinburgh, the latter for Alpines and the neat growing kinds, and the former for the larger species. Together, I was informed the gardens contained several thousand species, the greater number of them of ornamental character. The collection is a most interesting one, and probably the largest that is preserved by any private individual in the country. The Soldanellas, Primulas, and such plants were grown largely in 60 and small 60 pots, and seemed to do well in them. In the open borders patches of Acæna novæ-zelandiæ, a yard in diameter, were very striking; this is a very distinct and desirable plant. Amongst the scarcest species may be mentioned Petrocallis pyrenaica, grown very successfully in pots, Primula Stuartii, Saxifraga cernua, Chrysobactron Hookeri, Sedum Hookerianum, and Allium flavum, a pretty Allium, which I did not see elsewhere. The collection not being arranged systematically, it is probable that many other interesting plants were passed over during a hurried visit; but it was very evident to me, that before concluding any old favourite or rarity was quite lost to the country, it would be judicious to consult Mr. Stirling on the subject. *William Robinson.*

Home Correspondence.

First State of the Season.—The following letters relative to this subject had reached us before the present frost had set in:—I beg to furnish (says Jasper Standstill) a list of plants gathered in the open air in Berkshire, and presented to a young lady on New Year's morning, viz., Daphne Laureola and Mezereum, Verbenas, Gaillardia picta, Scarlet Pelargoniums, Polypodium vulgare, Scolopendrium vulgare, Polyanthuses, Cowslips, Stocks, Wallflowers, Violets, Berberis Aquifolium, Pampas Grass, Marigolds, Anemones, Gazania splendens, Picotees, Mignonette, Furze, Erysimum, Roses, Alyssum saxatile, Chamomile, Periwinkle, Arbutus, Laurustinus, Sowthistle, Groundsel, Rue, Ivy, Saponaria calabrica, Candytuft, Dianthus Heddewigii, Gentiana acaulis, Primroses, Arabis alpina, Nemophila insignis, Linaria Cymbalaria, Rhododendron dauricum, Daisies, Virginian Stocks, Antirrhinum, Jasminum nudiflorum, Banksian Roses (in bud) Pansies, Cydonia japonica, and Chrysanthemums. Total, 85 species and varieties. ——The following were in blossom in Christmas week, at Sunday's Well, Cork, viz., broad-leaved Myrtles between 5 and 6 feet high, which were as green as they were in August; narrow-leaved variety of Myrtle in the same condition; Jasminum nudiflorum, and the sweetly scented Cape Jasmine, Mignonette in abundance, and a few other annuals which have continued in bloom from July. Gentianella, Scarlet Tom Thumb Pelargonium, common Nasturtium, Marigolds, Violets, single and double; Primroses, Auriculas, Polyanthuses, Chrysanthemums, Garrya elliptica, China and Macartney Roses, also three varieties of Tea Rose, Picotees, Wallflowers, Cydonia japonica, Laurustinus, Chimonanthus fragrans, Yucca gloriosa, Magnolia grandiflora (standard); White Heath, Fuchsias, Snapdragon, Double blossomed Furze, and a Camellia tree 6 feet high covered with buds, and displaying about a dozen well blown bright scarlet flowers. In several parts of Cork the Strawberry beds look gay with their snowy tufts peeping from among the green leaves.—— In Leicester, on the last day of December, the following varieties of Rose were in flower, viz., Baron Hallez, Madame Laffay, Souvenir de la Malmaison, and Gloire de Dijon. Our correspondent adds that none of the new varieties of Rose in his opinion equal these for autumn flowering.——Mr. J. Webster, writing to the *Scottish Farmer* from Gordon Castle, Banffshire, on the 15th ult., says:—"The following is a list of plants still flowering in the open borders here, and, what is even more remarkable, some Ash-leaved Kidney Potatos, which had been left in the ground at lifting time, along the bottom of a south wall, started into growth in the warm weather about the middle of November, and some stems are now fully 6 inches long, with leaves as green and healthy as if it were the beginning of May:—Tritoma Uvaria, Nepeta salvifolia, Pyrethrum Parthenium flore-pleno, Morina persica, Valeriana montana, Anemone hortensis, Potentilla formosa, Antirrhinum majus, Arabis alpina, Alyssum saxatile, common Polyanthus, Gazania splendens, Carnations, Branching Larkspur, Geum coccineum, pot Marigold, Statice Pseudo-Armeria, Scabiosa fragrans, Dianthus sinensis, Gilia tricolor and capitata, Sweet Alyssum, Venus's Looking Glass, Collinsia bicolor, Mignonette, Clarkia pulchella, Brompton and Ten-week Stocks, Senecio elegans alba, Silene Atocion, Helichrysum, Nemophila insignis, Borage, Hollyhocks, Coronilla Emerus, Cydonia japonica, Garrya elliptica, Roses: Noisette Lamarque, and Gloire de Dijon; Tea, on a south wall, very fine; common China and a number of Hybrid Perpetuals also in flower." [So much for the beginning of winter. But what a change has come over us! A reference to the Weather Tables in another page shows that the THERMOMETER has fallen as low as 7°, in the Garden of the Royal Horticultural Society—*and this without snow!* Such a state of things is so uncommon that very serious consequences are to be apprehended among recently introduced plants. Communications on the subject, when the real amount of mischief shall be known, will be very carefully recorded in our columns, and we trust will prove so many beacons hereafter.]

Cool Treatment of Orchids.—Bletia (?) species from Orizaba (Botteri) having refused to bloom under glass in stove or greenhouse for years, was planted out in a heated open air bed. The pseudo-bulbs doubled in size during the season's growth, were taken up in autumn, and flowered strongly in the stove the following spring. *R. T. C.* [A very interesting fact, although we do not know what species was the subject of this experiment. Botteri did not send any Bletia among his dried plants, as far as we can discover.]

Rose Showing.—Having read the correspondence between Messrs. Cutbush and Paul relating to exhibitions of new Hyacinths, we were much disappointed at not seeing the names of the judges mentioned, as this might have thrown a ray of light upon the subject. For the last 30 years we ourselves have taken much interest in exhibiting, but the men who act as judges will compel us to retire. It might well have been said by a noble lady to her gardener at the Royal Horticultural Show in May last—"Go and see why Messrs. Lane's Roses are put second, as they are by far the best." Also at the Royal Botanic Society's Show in May last, our Roses were far in advance of those of our adversary, but the judges, Messrs. Perry & Perry, told John Edward Lane that they should not have the first prize, though the plants were admitted to be fine, because the blooms were all brought "to a face"—which was however surely better than showing one half of the flowers to the company, and the other half to the green baize at the back. In June, from what we were told by the judges in May, we trained our plants to show the same face all round; and, to our surprise, a collection was awarded the first prize, which consisted of nearly all stale flowers; one plant in particular, Louise Odier, had not one perfect bloom upon it, while others were trained as flat as a lady's fan, and the plants generally were small in size. We should not have taken the trouble of making these remarks, but it is quite time that the officials of the different societies took some interest in seeing whether the judges are capable of doing their duty or not, and

in the latter case to select others. Earlier or later, this, or something approaching it, must be done in order to prevent the most useful exhibitors from quietly staying at home. *H. Lane & Son, The Nurseries, Great Berkhampstead, Herts.* [Surely the judges have acted on some principle—a just one we should hope; and can meet these strictures. In our opinion they do quite right when they attach small value to mere size.]

The Year 1863 *at Weybridge Heath, Surrey :—*

Wind.		Weather.		Departure from Mean of last Eight Years. +, *above.* —, *below.*
Prevailing Winds.	On Days.			
N.	16	Mean height of barometer	inches 29.8907	inches .0316
N.E.	42	Mean height of thermometer :		
E.	4	Highest in the sun	66°.6238	.6618+
S.E.	13	Highest in the shade	60°.7465	1.2308+
S.	21	Lowest	40°.4932	.0826—
S.W.	125	Mean daily amount of ozone	3.4440	
W.	18	Mean temperature	50°.6240	.5534+
N.W.	32	Rainfall	inches 21.5350	inches 2.8433—
		Number of wet days..	32	days 5.6250—
		Number of days on which rain, &c. fell	181	days 10.2500—
Highest Winds		Driest month, April Wettest ditto, September		
January 1 and 2 (S.W., 5 (S.S.W)		Range of barometer	inches 1.78	inches .024 +
19 and 20 (N.W. to W.)		Range of thermometer	70°.00	7.875—
24, 26, and 27 (S.W.)		Range of ozonometer..	11.25	
30 (S.W. to S.S.W.)		February 13. Barometer highest..	inches 30.59	inches .0175+
February 2 (W. to S.W.)		November 2. Barometer lowest	inches 28.81	inches .0062—
March 28 (S.W. to N.W.)				
April 22 (S.W.)		August 9. Thermometer highest :		
May 19 (N.E.)		In the sun	98°.5	1°.4375—
August 15 and 16 (S. to S.W.)		In the shade	89°	1°.6250—
September 7 (W. to N.W.), 19 (S.W.)				
October 31 (S.W.)		February 15. Thermometer lowest (in the night of)	19°	6°.0875+
November 2 (S.W.), 21 (S.W. to W.)		January 2. Greatest amount of ozone..	11.5	
December 2 (S. to N.W.), 3 (W.)		May 4. Least amount of ditto	0.25	

W. F. Harrison, Bartropps, Weybridge Heath.

Vitality of Seeds.—I observe at page 1228 (1863) that allusion is made to the sudden appearance of plants previously unknown in the locality, by the upturning of the subsoil, in which the seeds are supposed to have remained in a dormant state from time immemorial. About 20 years ago I discovered plants of Linaria minor (previously unknown in Ireland) on a bank of earth or clay then recently thrown up in the formation of the southern and western railway near Carlow. On another occasion (1847) I found near Camolin in this county (Wexford), on a newly made ditch bank, a number of fine healthy plants of Melilotus leucantha, 4 feet high; and as far as my knowledge extends (and I have been a collector for 30 years), this plant was previously unknown hereabouts. In both cases seed was produced, from which I raised plants; but I have never been able to find either kind since in the same places. *A Constant Reader, Enniscorthy.*

Musa Cavendishii.—At page 6 is a remark relative to the splendid bunch of Banana grown by Mr. Carr, gr. to Mr. Hind, of Byfleet. I can testify to the precocity of the plant, for in the summer of 1862 a small example of this Musa was presented to my late employer, T. A. Gibb, Esq. It was immediately potted into a 12-inch pot, and plunged (for want of a more suitable place) in the centre of a fruiting Pine stove. It grew luxuriantly during the autumn, and as it had filled the pot with roots, I gradually withheld the supply of water, but (as I supposed from making its growth during the short days) it did not show fruit in the spring. After pushing several magnificent leaves in the months of May, June, and July, I again withheld water for about a month. The result was, after an abundant supply of water in September, that it showed signs of fruiting, and as the leaves were doubled against the glass I sunk the pot below the surface of the plunging material, taking off at the time two suckers and cracking the sides of the pot to allow the roots to find food in the bed. The bunch of fruit, which was just changing colour when I last saw it (Dec. 11), was not so large as that exhibited by Mr. Carr, but it was of such a weight that it had to be supported by a very stout stake. From the small amount of trouble with which this Musa may be cultivated, I hope to see it as common in the gardens of the affluent as Peaches or Grapes. As Mr. Carr has been so successful with it, perhaps he will kindly furnish us with his mode of treatment. *J. Gadd, Woodside, Crawley.*

Salisburia adiantifolia.—Our female variety of the Salisburia has this year borne 15 fruit, but these, in spite of the favourable season of our latter autumn months, have not been brought to full ripeness. *Extract of a Letter from the late Baron Jacquin, formerly Director of the Imperial Botanic Garden at Vienna, Nov.* 15, 1839.

Soap Plants.—For many years past they bring here a root, under the name of Levant Soap-wort in commerce, to wash lace and shawls with, and it is now being tried for washing wool on the sheep's back. It is a Gypsophila, and lately the root of G. paniculata has been imported from Hungary, where Rochel has introduced the use of it for the same purpose. *Extract of a Letter from the late Baron Jacquin, formerly Director of the Imperial Botanic Garden at Vienna, Nov.* 15, 1839.

Rhododendrons and Sea Breezes.—Permit me to add a word in corroboration of what has been advanced by your correspondents at page 8. I reside in the north of Ireland in a thoroughly maritime district, and I can assure your readers that Rhododendrons grow here luxuriantly not 200 yards above high-water mark, in loamy soil, in a position very slightly sheltered from the cold piercing east wind coming off the sea. I am also perfectly convinced that it is a mistake to suppose that they will not grow and flourish on a limestone subsoil, as I have known them grow and luxuriate as finely as could be desired in a subsoil of that description, and without one particle of peat in the composition in which they were growing. *J. Bothwell, Co. Down, Ireland.*

Rhododendrons as Game Cover.—The kind of soil best suited for these has been pretty well discussed, but there is another question quite as much in want of being settled :—viz., the fitness of Rhododendrons for planting for game cover. I have always observed, wherever a choice was to be had, that pheasants, blackcocks, and hares, (I speak not of rabbits, for they seem less particular in their likings), invariably prefer such covers as have few or no Rhododendrons in them in the shape of underwood. This therefore is a subject much in want of attention, and I trust that some of your practical Correspondents will give us their experience in the matter. *Senilis.*

Societies.

LINNEAN: *Dec.* 17.—G. Bentham, Esq., President, in the chair. R. Hardwicke, Esq., was elected a Fellow. The following communications were read :—1. "On a new species of Cissus (C. gastropus, Welw.) from the littoral region of South Benguela (district, Mossamedes), with some general observations on the chorographical distribution of the Ampelideæ in Angola," by Dr. Welwitsch. The author stated that the entire number of species of this family which he had met with in Angola amounted to about 40, so distributed that, in advancing from the coast towards the elevated plains of the interior, there was found to be a gradual increase in the number of species, as well as of individuals, and with this peculiarity, that certain species with very fleshy stems and slightly hairy leaves were confined to the coast region, while others with long climbing stems and nearly smooth or even shining leaves, occurred principally in the primitive forests of the second region reached in proceeding eastwards; others again with short upright stems, and usually more or less tomentose leaves, were particularly abundant in the third and most easterly region, comprising the high table-lands of the interior. The author then indicated the principal characteristics of C. gastropus, and exhibited dried specimens of the leaves and flowers, and a living one of the singularly swollen and fleshy stem, the lower part of which was upwards of 2 feet in circumference, although the height to the forking of the branches was scarcely a foot. This singular species, which, though one of the dwarfs of the genus, is at the same time that in which the trunk attains the greatest diameter, was stated to be further remarkable from the manner in which the smooth membranous, buff or cinnamon-coloured epidermis separates from the green gouty-looking stem. The author intimated his wish to communicate at a future meeting some further observations on the Ampelideæ of Angola and Benguela, on which occasion he proposed to give some account of a few of the more remarkable species, to one of which, particularly characterised by the golden brown velvety hairiness of its leaves, he had assigned the name, C. Livingstoniana, in commemoration of the distinguished African traveller, with whom he had spent several weeks in the interior of Angola. The curious stem of this new Cissus gastropus bore a remarkable resemblance to the gouty trunk of Jatropha podagrica; while the leaves were large, palmately divided, with long-stalked obovate leaflets.—2. "Flora of the Jhelum District of the Punjab," by Dr. Aitchison, communicated by Dr. Thomson. The district comprised in this Flora is bounded on the south by the river Jhelum, on the south and east by the Khasian hills, on the east and north by the bend of the Jhelum river, which forms the boundary between the British and Kashmir territories, on the north by the ravine country of the Rawul Pindee district, and on the west by an imaginary line drawn from Shapore to Tullagury. The Eastern half has the Bukrala and Ratian ranges of hills running through it; their average height is stated as about 1100 feet, but one of the most westerly parts of the Ratian range, Mount Tilla, rises to 3200 feet. The portion lying on both sides the Jhelum, between the Ratian and Khasian hills, consists of well cultivated plains; but in the hills already referred to, spoken of generally as the Low ranges, there is no cultivation, but a growth of low jungle, among which droves of cattle, sheep, goats and camels, are sent to graze. To the north of the salt range, between the Ratian and Bukrala ranges, the land is cut up by ravines, and is poor and more or less saline; passing westwards, however, it is richer, and produces fine crops of Pulse; indeed the Gram of this part of the district supplies much of the Punjab. The crops were however stated to be much dependent upon rain. From Jelullpore towards Pend-dadan-khan the soil is rich, producing fine crops, including the Sugar-cane as a field crop, and some rice in the moister parts. The bulk of the paper now read, was occupied by an enumeration of the plants of which the Flora is composed. It was mentioned that Brassica campestris, largely cultivated, yields Sarson oil; and B. Eruca, also largely grown, yields Black Sarson, or Tarameera oil. Capparis aphylla yields wood which burns even while green, and does well instead of boxwood for turning; the fruit is preserved as a pickle, and called Teuti. Crataeva religiosa, called Burna, furnishes a cement in the clammy mucilage of its fruit. Gossypium herbaceum is cultivated throughout the district for local consumption. Zizyphus Jujuba, called Baer, is grown for its leaves and fruit, which furnish good fodder for cattle; the Baer jungles, however, are partly formed by Zizyphus nummularia. Rhus integerrima yields tolerably good timber, called Zebra wood, suitable for cabinet work. Acacia arabica is common, and yields valuable timber; the leaves, flowers, and fruit, being also used as fodder for cattle, and the bark for tanning; the gum, called Keekur, is valuable. Another species, A. modesta, yields timber of great value from its durability and hardness, and supplies much of the fire-wood of the district. Tamarix dioica yields galls called Burree Muee, of which large quantities are exported from the Mooltan district. The wood of Olea europæa, which is called Cow by the natives, is chiefly used for the handles of axes, and for turning and fire-wood. Caroxylon fœtidum, which with Suæda fruticosa occupies large tracts of land incapable of producing more useful vegetation, furnishes by burning a coarse carbonate of potash and soda, called Sudgee. Of Rottlera tinctoria, the red epidermis of the fruit is recognised as a vermifuge for tape-worm by the natives. Many other similar notices of the uses of the plants, were scattered through the paper. ——3. "On Adelanthus, a new genus of Hepaticæ," by W. Mitten, Esq. The Jungermannia falcata of Hooker is one of the three species referred to this new genus.

Notices of Books.

Popular Names of British Plants. By R. C. A. Prior, M.D. Williams & Norgate, 1863, 8vo., Pp. 250.

It is curious to observe, how the information derived from one department of human learning dovetails into that which another supplies, till the two in conjunction put us on a vantage ground, from which light may be thrown upon some perfectly new, and perhaps difficult branch of study. These thoughts are suggested by the very interesting work before us, in which the author brings his ample store of botanical knowledge and the results of deep research into the northern and other languages, to bear, not merely on botany and philology, as one would expect, but actually tries to elucidate by their means curious and difficult questions, such as the early civilisation of our forefathers, and the route which they must have followed in travelling from the East.

We are all familiar with the fact, that the names of the animals tended and fed by our Saxon ancestors in England, the ox, calf, sheep, &c., are known to this day by their Saxon designations, while the flesh of the same animals, considered in its quality of food, under which character only the Norman conquerors cared to know it, still goes by the French or Norman names of beef, veal, and mutton. This single fact would prove a Norman conquest, even if there were no existing document whatever giving an account of it. Dr. Prior's mode of reasoning is something of this kind, and we take the word Apple as a good example.

"In all the Celtic and Sclavonian languages the word is, with allowance for dialect, the same. This similarity, or we may say identity, of name, among alien nations would lead us to believe that it was brought with the tree from some one country, and that no doubt an Eastern one; and that the garden Apple is not, as it is often supposed to be, merely an im-

proved Crab, but rather the Crab a degenerate Apple. This was apparently the only fruit with which our ancestors were acquainted before they came into Europe; for, with the exception of a few wild berries and the Hazel-nut, it is the only one for which we have a name that is not derived from the Latin or French. It seems to have accompanied them on a northern route from the western spur of the Himalayan mountains, a district extending through Ancient Bactria, Northern Persia, and Asia Minor, to the Caucasus, and one from which we have obtained, through the Mediterranean countries, and within the historical period, the Peach, Apricot, Plum, Damson, Cherry, Filbert, Vine, and Walnut, and probably some of the cereal grains: a district in which there is reason to think that our portion of the human race first attained to civilisation, and whence it spread, with its domestic animals and plants, to the south-east and north-west. The meaning of the word is unknown, but as *ap* is, in Zend and Sanskrit, 'water,' and *phala* 'fruit,' we might be tempted to believe that it originally meant 'water-fruit,' or 'juice-fruit,' with which the Latin *pomum*, from *po*, to drink, exactly tallies. The remarkable coincidences of name, to which allusion has been made, are due to the intimate connection with each other of all the Ind-European nations and their languages, from their having grown up in the same nursery together in Upper Asia, and dispersed subsequently to their becoming acquainted with this fruit, and not to a mutual borrowing of it since their settlement in Europe."

Again, Dr. Prior proves that the tribes which descended upon Britain, had entered Europe, not as a set of savages, wandering pastoral tribes, or mere pirates and warriors, but as colonists, who, though rude in dress and manners, yet in essential points were already a civilised people. Further, they must have come from a colder country, for, while the names of their trees comprehend the Oak, Beech, Birch, Hawthorn and Sloe, trees that extend far into Northern Asia, they do not comprise the Elm, Chesnut, Maple, Walnut, Sycamore, Holly, or any evergreen except some of the Fir tribe, or Plum, Pear, Peach, and Cherry, or any other fruit tree except Apple. The fact of their adopting Latin names for all these trees, shows at once that when first they came in contact with the Roman provincials on the Lower Rhine, they were foreigners, newly arrived as colonists or conquerors, from a country where these trees were unknown. In fact, they came from their home in the East, with a knowledge of letters, and the useful metals, and with nearly all the domestic animals, cultivated Oats, Barley, Wheat, Rye, and Beans, built houses of timber and thatched them, and actually hedged their fields and fenced their gardens.

The romantic reader will be sorry to find that "our Sweet Alisons and Herb Trueloves, our Heartseases, Sweet Cicelies, and Sweet Williams resolve themselves into sadly matter-of-fact terms, which arose from causes very different from the pretty thoughts with which they are now associated, and sometimes, as in the case of the Forget me-Not, were suggestive of very disagreeable qualities. Many we shall find to have been given to them in accordance with the so-called doctrine of signatures. This was a system for discovering the medicinal uses of a plant from something in its external appearance, that resembled the disease it would cure; and proceeded upon the belief that God had in this manner indicated its especial virtues. Thus the hard stony seeds of the Gromwell must be good for gravel, and the knotty tubers of Scrophularia for scrofulous glands; while the scaly pappus of Scabious showed it to be a specific in leprous diseases."

Besides the etymology of the names, taken by themselves, Dr. Prior says the question is ever arising, why they should have been affixed to certain plants. Here the fanciful notions of old writers must generally be accepted with reserve. Synonyms in foreign languages, though useful, are not very trustworthy; for authors, mistaking the sense of some unusual or obsolete word, often mistranslate it into another; so that it is quite impossible to reconcile what is said of certain plants by Greek and Latin writers. At home we find the Scotchman's "Bluebell," which he celebrates in song, a totally different flower from the English Bluebell. This vague way of applying the same name to very different plants causes endless confusion. Who would dream that the Privet has obtained a name indicative of early spring, from having been confused under "Ligustrum" with the Primrose? or that the Primrose has borrowed its name from the Daisy?

Under the word Beech we learn that in northern languages the word book and Beech-tree are identical, except in gender. Thence, by comparison with the Sanskrit, we deduce that the introduction of alphabetic signs from the East was by a northern route, and not from the Mediterranean. For had we learnt them from Greeks or Romans, we should have adopted their names for book and writing materials. The Greeks take their *βίβλος* from the name of an Egyptian plant, showing that book writing was a foreign art, and that they had left the parent stock before its invention. The Germans still retain the word *buch-stab* (beech-stave) in the sense of a letter of the alphabet, the tree and its wood having taken their name and use in writing from northern nations. We observe also that both *βίβλος* and *liber* meant primarily the material, and only in a secondary sense a book; while our Beech means primarily a book, and only in a secondary sense a tree. Under the word Birch we learn the connection between the rind of a tree and the vessel that was made of it, and called a bark or barge; as also that between the same tree-bark and the German *bergen*, Anglo-Saxon *beorgan*, to protect or shelter, for which purpose Birch bark was used. Butter-cup is supposed to come, not from butter and cup, but from *bouton d'or*, the bachelor's button, the cup being the old English *cop*, a head. Flower-de-Luce, from the French *Fleur de Louis*, changed to fleur de lys, and fleur de lis. Baldmoney, the Mew, a corruption of Latin *valde bona*, as we learn from the *Grete Herbal*, is Meum athamanticum. Holly or Holm, Anglo-Saxon *holen* or *holegn*, from Latin *ulex*, confused in middle ages with *ilex*, the Holm Oak of the ancients, whence adj. *uligna*, and with the aspirate *huligna* and *holegn*. Tansy, from French *athanasie*, now contracted to *tanacée* and *tanaisie*; monks' Latin, *athanasia*; Greek, *ἀθανασια*, immortality, referring to a passage in Lucian's Dialogues, where Jupiter tells Mercury to take Ganymede away, "and when he has drunk of immortality, bring him back as cupbearer to us." The word *ἀθανασια* here, like *ἀμβροσια* elsewhere, has been taken for some special plant.

The author refers to no less than 70 works, mostly of early date, one of them being as early as 1486. He also uses abbreviations for no less than 44 different languages, to which he refers. This is a very extensive critical apparatus, and gives some notion of the labour and learning that he has devoted to his subject. The student who seeks to ascertain the truth, and the man of learning who can appreciate such things, will be delighted with Dr. Prior's contribution to the general stock of authentic information; but the general public will feel disappointed that so little ground has been discovered for the fancy names and romantic tales, which comparatively modern fancy has attached to so many of our pretty flowers.

Wine, the Vine, and the Cellar. By Thomas G. Shaw. Longmans. 1863. 8vo. Pp. 505.

The well-printed and very readable book before us is full of amusing gossip, connected with the wine trade, written by one who has visited the countries which he describes, and is evidently acquainted with the business in all its details, and who does not hesitate to let the reader into a vast number of the general tricks of the trade.

Mr. T. G. Shaw was the first man seriously and persistently to advocate the reduction of the wine duties to the uniform rate of 1*s.* per gallon. In this object he has been successful, but not altogether to the extent that he desired, for while wines below a certain low strength pay the uniform shilling duty, all wines in bottle, and all above this very low degree of strength, are charged with the higher rate of 2*s.* 6*d.*

Mr. Shaw describes some of the wine merchants' difficulties, arising at one time from the absurdities of our bonding system (which seem devised for the deterioration of all wines but those that are highly dosed with alcohol, and are thus proof against bad management); at another, from the capricious taste of the public; much from the intended protection of such bodies as the Alto-Douro company; more from the general ignorance that prevails respecting the treatment of all but the indestructible kinds above referred to. But there can be no doubt that a grand future is in prospect both for the consumer and grower of wine, for on the one hand the supply might be enormously increased, and on the other, did Englishmen care to have pure drinkable wines, they could be obtained at little more than the price that we often give for good cyder. As yet, however, these wine-producing countries have in general none but the worst of roads, and often distant shipping ports with heavy dues to pay; the growers are needy persons and very careless, both in the cultivation of the Vine and in the management of their processes; the capitalists are able still to keep up prices to an exorbitant height; and above all, the taste of a nation requires years to change, where the masses have scarcely ever touched wine in their lives, and the few who drink it habitually, love the potent alcoholic stimulant to which they have been accustomed, and will not tolerate the unsophisticated article. The book before us is dedicated to the Right Hon. W. E. Gladstone, the Chancellor of the Exchequer, under whose administration the duties have been so materially reduced; and the little success which these measures have hitherto met with is very properly attributed, in part, to the oïdium or Vine disease, for this has increased the price of wine more than 20*l.*, while the reduction of duty on the same quantity amounts to only about 18*l.*

The result, as Mr. Shaw observes, can scarcely be called "satisfactory" where the consumption of wine in this country, which was 7,263,026 gallons in 1851, last year only reached 9,803,046 gallons, after the very large reduction in duty had been made; and 77 per cent. of all the wine imported last year, exclusive of that in bottle, paid the 2*s.* 6*d.* duty, showing that people will have strength. They will have colour too, though it be made with Elderberries.

There is every reason to believe that these pages give a trustworthy account of the mysteries of wine-craft, which, besides the usual and necessary manipulations, is constantly employed in blending wines, so as to make a mixture "to order," agreeing as far as possible with the description given in colour, taste, and price—no easy matter, when certain kinds refuse to blend kindly with their opposites.

Mr. Shaw doubts the received opinion that the "sherris sack" of Shakspeare is "dry sherry," from the French word "sec," for he thinks little, if any, dry wine was drunk, without honey, sugar, or mead added to it. Again, he recommends decanting all wines, even champagne, and says that sherry requires decanting. At Malaga he found both white and red wine, at the "table d'hôte," little better than vinegar. Within a stone's throw of Chateau Margaux the wine he got could only be drunk with water.

But enough, those who care to know what they are drinking in the shape of wine, and its history, and what may be obtained in future, and whence, will do well to consult Mr. Shaw's comprehensive book, where they will find the fullest information that can possibly be desired. After the preliminary remarks, there is a description of every wine country and its produce, contained in 21 chapers, including short ones on Australian, Californian, and Peruvian. Then comes a chapter on cellarage and bottling; and the concluding chapter treats of gout. What more could one wish for. A list of all known wines is given, occupying 50 pages! and an appendix, followed by a general index.

Bemerkungen, &c. (*Figures of the Variations in Viola tricolor*). By Lesemann.

A handsome 4to volume, costing between 20*s.* and 30*s.*, containing coloured figures of 25 of the ugliest of all Pansies, which nevertheless appear to be pets in Austria.

The Popular Science Review, No. 10 (Hardwicke), contains many interesting well written articles, the best of which we think is Gamgee's paper on "Diseased Pork, and Microscopic Worms in Man."

The Natural History Review, No. XIII. (Williams & Norgate) has some capital papers, the best of which are Huxley's "On the Origin of Species," which no well informed man can dispense with reading, and Hooker's "On the Replacement of Species," of both which we may have something to say hereafter.

Miscellaneous.

Royal Horticultural Society.—In addition to the arrangements for 1864 mentioned at p. 10, we understand that his Grace the Duke of Buccleuch has signified his intention of giving a prize of 25*l.* for the best 12 fine-foliaged and flowering plants—six of each; the Council adding thereto a prize of 15*l.*, for competition among the unsuccessful candidates for his Grace's prize. The judicious mingling of fine-flowering and fine-foliaged plants offers an opportunity for the display, not only of horticultural skill, but of good taste.—Mr. Bateman also offers a prize for Orchids, in the shape of a gold challenge medal, value 20*l.*, or if preferred, the same amount in money, to the exhibitor (whether amateur or nurseryman) who may, during two consecutive years, obtain the largest number of marks for Orchids exhibited, the marks to be reckoned on a definite scale, *i. e.*, a second-class certificate or a special certificate of commendation counting for 50, a first-class certificate for 100. This will not be competed for at the great exhibitions, but will be determined at the Monthly Floral Meetings of the Society. — Lady Dorothy Nevill has placed 10*l.* at the disposal of the Council, for prizes for Pitcher plants. This sum will be divided between Sarracenias and any other Pitcher plants.—Sir Wentworth Dilke has repeated his offer of three prizes for dinner-table decorations. The only alterations in its terms are that the decorations are to be more strictly confined to horticultural elements, while the vessels in which they are to be shown continue unrestricted. The contents are now to be limited to natural flowers, foliage, or fruit—these may be shown in vessels of silver or clay or wicker, but the presence of artificial flowers, gold fishes, and stuffed caterpillars, or humming birds, will disqualify the exhibitor. Unless some novelty in another form be elicited by the prizes now announced, it is probable that this will be the last time of their being offered.—Mr. Blandy, V.P., proposes to encourage the Strawberry Fête by a prize of 10*l.*—Mr. Wilson Saunders offers prizes to the amount of 13*l.* for tea-scented or Noisette Roses, and for hanging baskets of pendent plants.—Mr. Kelk, by means of a prize of 10*l.*, directs the attention of cultivators to growing plants fitted for the decoration of the dinner-table. Many gentlemen prefer a handsome well-grown plant, naturally covered with flowers, for the decoration of their dinner-table, to a bouquet, however skilfully arranged, or even to the elegant adornment of such decorations as those of Mr. March. But the great difficulty has always been to get such plants in a small enough pot to admit of being put on the dinner-table. Mr. Kelk offers 5*l.* for an Azalea, and 5*l.* for a Rose, so adapted;—that is, grown in 6-inch pots. A new feature in the schedule for the July Show is the prizes offered for Scarlet Pelargoniums, or, as they are more commonly called, Scarlet Geraniums. The colours of these vary infinitely—as we have white Lilacs, so have we white Scarlet Geraniums; and the prizes that are offered in July will, it is hoped, bring out a good display of many different shades of colour in these flowers. The superiority of greenhouse specimens

of these flowers over those grown in the open air is scarcely sufficiently recognised. A show of Rhododendrons and American plants will be made by Messrs. Waterer & Godfrey, Knaphill, Woking, in the Rhododendron ground, in the end of May or beginning of June. For the encouragement of the study of scientific botany amongst all classes, the Society offers the following prizes:—1. One Silver, and two Bronze Medals for the three best collections of wild plants of each separate county of the United Kingdom, dried, mounted on paper, folio demy size, classified according to the natural system, and labelled with the name of locality where found, and the date when found. Intending competitors may obtain the forms of labels on sending 12 postage-stamps to the Secretary of the Society, South Kensington. 2. Three Gold Medals will be given for the three best of all the collections out of all the several county collections. Not more than one of the medals can be awarded in one county. The collections must be delivered on or before the 31st December, 1864, to the Secretary of the Society, carriage free, marked with a number or cypher, and accompanied with a sealed letter, containing the collector's name, the address, and the price at which the collection can be sold or another made. Further, a Society's Gold Medal will be awarded to every exhibitor of a new species of plant found growing in the United Kingdom. The Society will hold an exhibition of Ancient and Modern Bouquet-holders, to be opened on the 13th July, and to continue open for four weeks. For the three most artistic and effective modern Bouquet-holders, made since June, 1861 (the opening of the Gardens), they will award three medals—one gold, one silver, and one bronze. The ornamentation of these Bouquet-holders may be with precious stones or their imitations, enamelling of all kinds, niello work, or any other process. The competition is open to all nations.

Fraudulent Trade Marks.—On the 1st of January an important Act of Parliament, intituled "the Merchandise Marks Act, 1862," the main provisions of which it concerns all persons engaged in trade of every description to know, came into practical operation for the first time. The Act, passed in August, 1862, makes it a misdemeanour to forge or counterfeit any trade mark, or falsely to apply any such trade mark, with intent to defraud, whatever the article to which it may be applied, whether it be a cask, bottle, stopper, vessel, case, cover, wrapper, band, reel ticket, label, or any other thing in or with which any commodity is sold or intended to be sold. Again, it is from henceforth an offence for any one to sell or expose, either for sale or for any purpose of trade or manufacture, articles with forged or false trade marks attached, the penalty being the forfeiture of a sum of money equal to the value of such articles, and a sum besides not exceeding 5*l.* nor less than 10*s.* By another provision every addition to and alteration and imitation of any trade mark made with intent to defraud—the intent being of the essence of the offence in all cases—are to be deemed forgeries, and punishable as such. It is made obligatory on every person who shall sell an article having a false trade mark to give information, on a demand in writing being made upon him, as to where he procured it; and power is given to justices of the peace to summon parties refusing or neglecting to afford such information, and in the event of their persisting in their neglect or refusal, to impose a penalty of 5*l.* Further to mark any false indication of quantity upon an article with intent to defraud, is made punishable by a penalty equal to the value of the article, and the payment of an additional sum not exceeding 5*l.* and not less than 10*s.* This provision will apply among other cases to the familiar instances of pale ale sold in bottles, and of cotton reels and the like, on which the contents are falsely denoted. The punishment on conviction of any offence which by the Act is made a misdemeanour is to be, at the discretion of the Court, imprisonment for not more than two years with or without hard labour, or by fine, or both by imprisonment with or without hard labour and fine, and also by imprisonment until the fine (if any) shall have been paid and satisfied. The time within which any action or proceeding may be commenced for the recovery of penalties or procuring a conviction is limited to three years next after the commission of the offence, or one year after its first discovery by the person proceeding. There is a clause according to which the vendor of an article with a trade mark is to be deemed to warrant or contract with the purchaser that the mark is genuine, unless the contrary shall be expressed in some writing signed by or on behalf of the vendor and delivered to and accepted by the purchaser. The seller of an article, too, with a description upon it of its quantity, is to be deemed to contract and warrant that the description is true, unless, as before, the contrary shall be expressed in writing delivered to and accepted by the buyer. This again will apply to the familiar example among others of pale ale sold in bottles on which the contents are indicated. A plaintiff suing for a penalty under the Act may be compelled to give security for costs; and on the other hand a defendant, in case of judgment going in his favour, is to have a full indemnity for costs.

Death of M. Fintelmann.—The papers record the death of the head gardener to the King of Prussia, M. Fintelmann, at Charlottenburg, on Christmas-day, at the age of 90. When young, he was employed at Sans Souci, and he loved to tell how Frederick the Great used to point to the finest Figs with his cane and make him fetch them down from the trees. It was he who cultivated the first Dahlias, which Alexander von Humboldt introduced into Prussia, and to him are due the chief attractions of the gardens on Peacock's Island, near Potsdam, the favourite resort of Frederick William III. *Times.*

Spondias dulcis.—The most prominent place among the native fruits undoubtedly belongs to the Wi (Evia dulcis, Comm. = Spondias dulcis, Forst.) The tree appears to be self-sown, and is met with in abundance about towns and villages. It is often 60 feet high; the bark is smooth and whitish, the leaves pinnate, glabrous, and of a dark green, forming a fine contrast with the yellow oval-shaped fruits with which the tree is heavily laden. The fruit has a fine Apple-like smell, and a most agreeable acid flavour, rendering it highly suitable for pies; indeed, the Wi is the only Fijian fruit which recommends itself for that purpose. At Rewa I weighed and measured several highly developed ones, and found the largest to be exactly 1 foot in circumference, and 1 lb. 2 oz. in weight. *Seemann's Mission to Viti.*

Calendar of Operations.

(*For the ensuing week.*)

THE present hard weather will have proved favourable to the filling of icehouses, a matter of considerable importance in large establishments. Of the mode of constructing ice-houses plans have been given in our volume for 1857, p. 6; and advice as to the best method of storing them with ice will be found at p. 20 of the same volume. In the article just alluded to, sawdust is stated to be the best material that can be employed for placing between the ice and the walls of the ice-well. It is a powerful non-conductor of heat, and ice packed in it on a small scale seems to indicate that it is worthy of trial on a large one. At all events the condition indispensable to the preservation of ice during summer, is that it shall be permanently surrounded by a mass of ill-conducting matter; no experienced person would allow his ice to be actually in contact with the sides of his well, and therefore straw is commonly resorted to as a preventive. We have reason to believe, however, that in many respects straw is inferior to sawdust for that purpose. Another point connected with storing ice that requires attention is efficient drainage. Under no circumstances in this country can ice be prevented from melting in some degree; as soon as it is converted into water, the latter rapidly conveys to it the warmth of the bodies with which it comes into contact, and the melting process becomes daily more and more rapid. To prevent this all icehouses should be furnished with a drain that will carry away the water as fast as it is formed. But if this drain is neglected or ill-constructed, it only increases the mischief instead of diminishing it; for warm air readily passes up it, acts upon the ice, and reduces it to water. To remedy this evil, such drains should be formed like an *n* so as to ensure the constant presence of water in the bend; straight drains facilitate the entrance of air and destroy the ice. Other out-door operations recommended to be performed last week, will in many cases be stopped in consequence of the sudden appearance of severe weather; nevertheless, we again advert to some of them, in order that our readers may be on the alert to take advantage of the earliest favourable opportunity of redeeming lost time. Within doors it is different; the time may be profitably employed in thoroughly cleaning every part of the glass houses and other buildings, in cleaning seeds, and arranging them with their labels ready for sowing, and in many other occupations.

FLOWER GARDEN AND PLANT HOUSES.

See that nothing out-doors is suffering from want of protection, and should a heavy fall of snow occur, take care that it does not injure tender plants by breaking off their branches. In-doors keep up sufficient heat to keep out frost.

AURICULAS.—Keep these dry for the present, and if they get frozen do not expose them on the return of favourable weather until they are thoroughly thawed.

BEDDING PLANTS.—The instructions just given are also applicable to these should frost touch them, but if possible they must be kept from it by means of efficient coverings.

CINERARIAS.—Many of these will now be coming into bloom; see that they do not suffer from want of water, and when placed in the conservatory or show-house take care that they are not set too near the glass at night while severe weather lasts.

VIOLETS.—The Neapolitan variety now in flower in pits may require covering up with mats while the frost lasts. When it breaks up let air again be given as freely as the weather will permit.

FORCING GARDEN.

Increased care must now be paid to temperature, which must however be accompanied by moisture sufficient to maintain the atmosphere in a healthy state; heat must nevertheless be used with moderation.

ASPARAGUS.—Add linings to the beds of plants put in for forcing if necessary.

MUSHROOMS.—Let the temperature for beds now in bearing range from 60° to 65°.

PEACHES.—If there is no tank for water in the early house, which there should be, the water used for syringing must be heated by other means, say to 60° or 65°, before applying it.

PINES.—If the bottom heat has sunk low in any of the tan beds, a little well prepared bark should be added to the height of the pot rims; let the heat of the beds and the state of the weather be the guide in administering water.

POTATOS.—Some may now be planted in boxes and forwarded in any convenient situation, previously to planting them in pits on leaves and dung.

VINES.—Guard against sudden changes; damp the houses in the morning with the syringe, and carefully guard the roots and stems from frost.

HARDY FRUIT AND KITCHEN GARDEN.

Little can be done in this department at present except pruning and wheeling. Draining and trenching may, however, also be proceeded with; and while snow keeps off, dead trees may likewise be felled and their stumps grubbed up.

APPLES.—When the weather becomes favourable root-prune such trees as may require such attention; afterwards mulch with rotten manure.

CAULIFLOWERS.—Plants under hand glasses, if not already done, must be covered with mats or dry Fern.

CELERY.—If not yet seen to, cover some of the best ridges with litter, or what is better perhaps, take a quantity of the plants up, tie their leaves together to prevent them from breaking, and house them in a cellar or shed.

ENDIVE.—Cover plants in frames to keep out frost, and also to assist in blanching them.

PEAS.—Trap mice, which may be destructive to rows of Dan. O'Rourke lately sown. Let sticks be got ready for use when required.

PEARS.—These may be treated in the same way as is directed for Apples.

ORCHARD-HOUSE.—Fruit trees in pots may now be introduced to this house. In open weather give all the air possible.

STRAWBERRIES.—Put sufficient of these for a second crop into a Peach-house or Vinery, and place them on a shelf near the glass where they will have plenty of light. A fresh supply of plants should be afterwards placed under cover every fortnight or so. Let the temperature be low at first, and even afterwards force gently and give all the air possible, or the flowers will be apt to become "blind."

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the Week ending Jan. 6, 1863, as observed at the Horticultural Garden.

Dec. and Jan.	Month's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind.	Rain.
Thurs. 31	21	29.851	29.605	40	30	35.0	45	46	S.E.	.13
Friday 1	22	30.173	29.805	37	20	28.5	45	46	E.	.00
Satur 2	23	30.451	30.382	36	16	26.0	44	45	N.E.	.00
Sunday 3	24	30.528	30.487	34	16	25.0	42	44	E.	.00
Mon. 4	25	30.537	30.393	32	22	27.0	41	43½	E.	.00
Tues. 5	26	30.324	30.154	31	8	19.5	40	43	N.E.	.00
Wed. 6	27	30.188	30.165	23	7	15.0	39½	42	E.	.60
Average.		30.289	30.141	33.2	17.0	25.1	42.3	44.2		.13

Dec. 31—Foggy; hazy; rain at night.
Jan. 1—Hazy clouds; cold and dry; frosty at night.
— 2—Cloudy and frosty; hazy, cloudy, and cold; overcast; frosty.
— 3—Ground sprinkled with small hail; frosty; sharp frost at night.
— 4—Clear and frosty; overcast; sharp frost.
— 5—Hazy; light clouds; severe frost at night.
— 6—Intense frost, continuing all day; within 7 deg. of zero at night.
Mean temperature of the week 12 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending Jan. 16, 1864.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 10 .	41.7	30 5	36.1	17	0.40 in.	3	10	3	4	5	7	4	2
Mon. 11..	41.5	30.6	36.0	19	0.77	4	6	4	2	6	9	5	2
Tues. 12..	42.4	30.7	36.5	16	0.76	2	7	3	4	6	10	4	2
Wed. 13..	43.0	32 1	37.5	18	0.29	5	4	5	4	6	8	5	2
Thurs. 14..	42.0	29.6	34.8	16	0.80	6	7	6	4	3	6	3	3
Friday 15..	41.5	28.9	35.2	12	0.54	3	6	4	3	4	8	7	3
Satur. 16..	41.7	30.6	36.2	19	0.32	1	9	5	2	5	9	4	3

The highest temperature during the above period occurred on the 14th, 1849; 15th, 1834, and 1852—therm. 56 deg.; and the lowest on the 14th, 1838—therm. 4 deg.

Notices to Correspondents.

CHERIMOYER: *St. Omer.* We venture to hope that your difficulty will vanish if you will again read attentively the reply we gave. "St. Omer" sends something, and is answered by what follows his name. "I M'I." sent something else, and was answered in like manner. Pray don't pin your faith on Loudon as an authority in Botanical nomenclature.

GARDENERS: *P, Sussex Street.* We much regret to say that we see no hope of your getting any other employment than that of an ordinary labourer. A gardener must write legibly, spell fairly, and express himself intelligibly; unfortunately your letter shows that you do not possess one of these qualifications: quite the contrary.

MANURE: *G H.* Yes; it is suitable, if not too strong; Rhododendrons prefer that of the cow. On no account, however, apply manure of any kind to Conifers.

NAMES OF PLANTS: *J S.* Ruscus androgynus. — *E J T.* 1, Hakea clavata; 2, Grevillea repens; 3, Muhlenbeckia adpressa; 4, Polygonum pennsylvanicum.—*L G C.* The plant with lilac flower and narrow leaves is Goldfussia isophylla; the broad-leaved blue-flowered plant, Eranthemum nervosum. The other leaves are not recognised.—*A.* Bridgesia spicata.

PLANT CASES: *Enquirer.* Miss Maling's Indoor Plant Cases are the same as the Patent Indoor Plant Cases, mentioned in our advertising columns at p 15.

WATER PIPES: *An Iron Pipe* has lately had some pipes laid down to connect the tanks in his greenhouses with a reservoir at some distance off, and he wants advice as to the most certain way of preventing their rusting.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
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Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

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Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

AGENTS WANTED for a well-known MANURE which commands a ready sale, is highly recommended by Customers for several years, and sold carriage free. Liberal terms given.

Address B. C., 10, Pall Mall East, London, S.W.

Chemical Analyses.

DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 191, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

Land Drainage, and other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.

For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C. IN ENGLAND AND WALES AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

106, Leadenhall Street, E.C.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY,
Offices: 52, Parliament Street, S.W.
HENRY KER SEYMER, Esq., M.P., *Chairman.*
Sir J. VILLIERS SHELLEY, Bart., M.P., *Vice-Chairman.*
J. BAILEY DENTON, Principal Engineer.

Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following land improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz:—

1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.

The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, the term for building works being limited to 31 years.

No investigation of title being required, and the charge not being affected by encumbrances, no legal expenses are incurred.

The arrangements for effecting improvements are threefold:—

No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.

No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.

Applications to be addressed to WILLIAM CLIFFORD, the secretary, at the Office of the Company, 52, Parliament Street, W.

THE CONSERVATIVE LAND SOCIETY.—Investments can be made either in the Share or Deposit Departments, with prompt withdrawal when required. The Interest allowed is 5 per cent. per annum on Shares, and 4 per cent. on Deposits, paid half yearly. No partnership liability, and the taking of land is quite optional. Depositors do not become Shareholders, and the latter only participate in any profits above the guaranteed Interest. The Society has paid from 4½ to 7 per cent. to Shareholders, and they have received 5½ per cent. for the past year. Prospectuses explanatory of the Share, Deposit, and Land Department, will be sent free of charge and postage to any part of the world. Plots of Land for Sale in 18 Counties, giving the freehold franchise and securing a safe investment. CHARLES LEWIS GRUNEISEN, Secretary.

33, Norfolk Street, Strand, London, W.C.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER, will REOPEN on MONDAY, Feb. 8. Applications for Admission must be made to the Principal.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—J. BAILEY DENTON, M. Inst. C.E., will LECTURE on DRAINAGE.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—Professor J. MORRIS, F.G.S., will give a COURSE of LECTURES on GEOLOGY, commencing on Feb. 15.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER. — Hon. ALGERNON CLARKE, of Long Sutton, Lincolnshire, will Lecture on CATTLE, SHEEP, PIGS, and POULTRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.— JOHN THORNHILL HARRISON, of Frocester Court, near Stroud, will give a COURSE of LECTURES on DAIRY HUSBANDRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER. — RICHARD GRIFFITHS WELFORD, Barrister-at-Law, will give a COURSE of LECTURES on LEASES and the LAW of REAL PROPERTY as affecting Agriculture.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.

The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.

CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 9, 1864.

A LITTLE volume has recently been published at Cirencester,* containing in so many chapters the lectures delivered by the Professors at the Royal Agricultural College, introductory to the several courses on Practical Agriculture, Chemistry, Botany, and Veterinary Surgery. It is itself introduced by a discourse on education in general, and more especially on agricultural education, by the Rev. J. CONSTABLE, the Principal, and it closes with a short description of the farm attached to the College, by Mr. J. LYNCH FLETCHER. The whole is a very fair illustration, both of what agricultural education ought to be, and of what the education at the Royal Agricultural College is.

The several courses of Lectures to which these were introductory have been since delivered, and a session has elapsed. What it is supposed that the students may have acquired during the course of it, is indicated by the several examination papers which are appended to the volume; and by which their attention to the instructions of the several professors has been tested.

The direct agricultural teachings of the past session have been conducted on a somewhat novel plan. The topics which more especially fell to be discussed during it were the series between the cultivation of the land, and the harvesting of the crops. Instead of placing the whole, as heretofore, in the hands of one teacher or professor, the services of several lecturers were obtained, and those of others were gratuitously rendered. Thus Mr. MORTON, whose introductory lecture appears in the volume just referred to, delivered eight lectures on land drainage and tillage. Mr. BAILEY DENTON also lectured on the former of these subjects. Mr. SCOTT BURN delivered a course of elaborate and instructive lectures on farm implements and farm buildings. Mr. BALDWIN, of Glasnevin, was resident for several weeks as lecturer on the cultivation of farm crops; and acquitted himself so satisfactorily that we understand his services have been secured for occasional courses hereafter. Mr. HEWITT DAVIS and the Rev. G. WILKINS were good enough to lecture on the right apportionment of seed to the extent of land to be seeded. Mr. WILLOUGHBY WOOD, Mr. T. DUCKHAM, and Capt. TANNER DAVY, the Editors of the Herd Books, undertook introductory lectures on the three leading breeds of cattle. Mr. ELLMAN, of Bedingham, Lewes, lectured on Short-woolled breeds of Sheep, and Mr. J. A. CLARKE delivered a lecture on Leicesters and Long-wools, part of which we have this day given in our columns.

It is plain that by the appearance before the students of occasional lecturers of public reputation and well known qualifications in connection with the several subjects which they discussed—all these topics have been much more fully treated, and the students themselves have been much more completely taught, than they could have been had the task devolved on one alone.

The thoroughness of the agricultural instruction thus given, has so commended itself to the Council of the College that the system thus inaugurated is to be persevered in, and already we understand arrangements have been made by which during the coming session the services of Mr. ROBERT RUSSELL, Editor of the Highland Society's Transactions; of Mr. J. ALGERNON CLARKE, whose name is well known everywhere in the agricultural world; of Mr. BALDWIN, of Glasnevin; and of Mr. J. T. HARRISON, C.E., of Frocester Court, Gloucestershire, have been secured in connection with courses of lectures on the breeding, rearing, and feeding of live stock, on dairy management, &c.

The volume before us, by which the full extent of the system of education adopted at Cirencester is indicated, should be procured and read by every one interested in the subject of agricultural education, whether on his own account or in behalf of others. We hope that by its general circulation and perusal it will tend to the increased usefulness of the Institution which it illustrates.

* "*Agricultural Education.*" Baily. Cirencester.

THOUGH the produce of the Turnip field has not been quite so bad as was anticipated from the appearance which it wore in many parts of England in early autumn, from the combined effects of drought and mildew, the crop has suffered materially in quality from a diseased condition of its tissues, which in many cases will not only detract from its feeding value, but must end in decay. Nor indeed has this condition been confined entirely to districts which have suffered from drought, but in parts of Wales where the crops in the beginning of September were peculiarly luxuriant we observed indications of the malady, which was induced apparently by a decay of the delicate rootlets, by means of which deleterious matters were introduced into the tissues, which could not have entered had the absorbent tips remained sound. It was easy to pick out such diseased individuals from an unhealthy appearance in the leaves, though the malady was in an early stage of development, and a vertical section through the crown and root at once showed the

decay which was sure to follow. The lower leaves are the first to suffer, but ultimately the whole tuft decays, and then the root more or less rapidly perishes.

In at least three varieties of white Turnips, moreover, we have observed a peculiar condition which deserves notice. In both late and early sown Turnips, when just arrived at perfection, we have been surprised to find the bark of the roots, especially just beneath the cuticle, though quite sound externally, and again that portion of it which is close to the vascular bundles situated more deeply, traversed with round patches distinctly visible to the naked eye, and of a more moist appearance than the surrounding cellular tissue. On examination these patches are found to consist of much smaller cells, which either radiate from a central point which is often discoloured, or are arranged concentrically round it. In process of time they acquire a brownish tinge, indicating an organic change in the walls of the cells somewhat similar to that which was noticed so constantly in the Potato murrain.

If we examine the central substance of the roots, we find similar spots, but far more disposed to run into decay, together with vessels gorged with dark brown matter, an indication which is never without significance. It was remarked of the white crop which was more especially under notice, consisting of three approved varieties, two of which had grown with extreme rapidity, that in boiling they contracted a foxy appearance, which seemed to intimate that the cell walls were ripe for decomposition.

As regards the crops of Swedes, which have recovered so wonderfully from the mildew which seemed to threaten their destruction, it can have scarcely escaped notice that the Turnips were peculiarly long-necked, a circumstance which clearly arose from the old leaves, which had been destroyed by the mould, falling away, and being succeeded by an entirely new crown.*

The mention of this circumstance induces us to offer a few words respecting the controversy which has arisen lately about the reversion of Swedes to the Rape type. This reversion, if it may be so called, attracted our notice several years ago, and induced us at that time to recommend farmers to grow their own seed from selected and transplanted roots, attention being paid rather to distinctness of type than to the mere size of the roots, which after all might be deceptive.

The question is one of great importance not only as regards farmers themselves but seed growers, and it is highly desirable that juries should not be led away by positive evidence where it is scarcely possible that the evidence can be really decisive.

The notion of the rapid degeneration of cultivated varieties of plants, and their reversion to the original type, when removed from cultivation, though extremely popular, is not borne out by well established facts. Indeed some of our best botanists doubt it altogether, and think it quite as problematical as the kindred notion that wild plants will improve in the garden without a skilful selection during a series of years, of individuals which seem to indicate improved qualities. The wild Cabbage from the rocks, for example, without such selection remains under culture a wild Cabbage, as harsh and unfit for food as it was originally; on the other hand cultivated varieties soon die out in the struggle for life, but we have no proof that they revert to the wild condition from whence they originated. Where however seedlings are liable to impregnation from other varieties, a multitude of forms may arise, some of which will depart materially from the approved type; and in consequence it becomes needful to secure as far as possible the standard of perfection, by a careful selection of individuals intended for seed. But even supposing every care to be taken, there will be differences in the produce, against which it is impossible to guard. Who for example could blame the seedsman if a large portion of a field of Carrots should flower the first year and the roots in consequence be useless for agricultural purposes. With the best seed, owing to particular conditions of soil and climate, of the exact nature of which we are ignorant, and possibly to some peculiarity in the individual seeds, there will often be a failure. And so in the Swede crop, some individuals may have a tendency to run up to stem rather than to form roots, without any fault of the seedsman. No blame can justly attach to him, if the crop be the subject of anbury, a disease which, like the club in Cabbages, depends on circumstances over which he has no control. There is good evidence, indeed, to show that in different parts of a field, where the same seed has been sown throughout, the plants will assume a different character, partaking according to circumstances more of the Turnip or Rape type. That this is more likely to be the case where no care has been exercised by the seed grower, or where without his knowledge a neighbouring crop of Rape seed may impregnate the Swedes, cannot be denied; but it is probable that no care can guard effectually against the evil. Certain it is that in some years Swedes are more subject to become long-necked than in others. If, however, the seed varies much in size, and the larger seeds produce Rape, we may at once assert that there has been somewhere a fraudulent mixture, but if there is no such indication, and there is merely a tendency to become long-necked, we should not rashly lay blame where none may be due.

After all, we must allow something in such cases to the natural tendency of man to exaggeration; and Rape is Rape, and Turnip Turnip, though the proportions of stem and root may vary. *M. J. B.*

* This tendency is not entirely confined to Swedes. We have noticed it this year in a long-rooted White Turnip (*navet long de Clairfontaine.*)

NORFOLK FIFTY YEARS AGO.

[The following notes are extracted from Mr. Forsyth's Journal referred to last week.]

VISITED Mr. Hagran's farm at Quarles; consists of 600 acres of good Turnip land, all enclosed. Fences in excellent order. Every acre drilled by 5 and 6 row drills, at 6 inches apart for Barley, and 9 for Wheat. Hoed by machine or hand, as the weather is favourable or not. Pays 335*l.* tithe free, and extra parochial. Has Devon cattle and Southdown sheep. Everything neat and clean, and his remaining three Wheat ricks, which he calculates 120 coombs each, were plastered from the bottom about 3 feet up all round, and quite smooth, to prevent rats getting up, which are most destructive here. Of these he had no appearance whatever. He has a transplanted or inoculated pasture of 20 acres round his house, done two years, and most excellent close surface. Has also 30 acres of reclaimed marsh land, for which he pays 60*l.* a year. Threshes it by machine five or six times, but not generally saved here. Where it is saved the Clover is eaten by sheep till first week of June, and then saved for crop of seed.

Mr. Denny, Egmere, has 1188 acres, rent 2021*l.*, all arable or rich old pasture, completely enclosed in square fields of about 40 acres, an excellent friable loam, fit for the four-course shift, in which he works it. It is a parish of itself, has very few poor, and tithe free; has a new and most commodious dwelling-house, offices, and homestead erected by Mr. Coke, with two detached barns at a distance, with fold-yards and sheds, and cottages for labourers, the whole of which cost about 10,000*l.* His stock are Devons and descendants of Galloway Scots. They are in very fine condition; one pair of 4-year old heifers he showed of 69 stone, oxen about 70 stone, of which he had through the winter about 159. His sheep are on the Downs, very fine, 200, and 40 horses in work, except colts, &c. This is altogether a magnificent farm. Breeds and feeds 400 pigs in a year.

Mr. Hagran, sen., Crabscastle, has 577 acres of arable, and 32 marsh; the former 309*l.*, the latter 65*l.*, tithe free; poor rates about 4*s.* 6*d.* per pound rent. His land and enclosures similar to the former. Does not breed any stock except pigs, of which he has a great number. Feeds Devon oxen and Galloway Scots; feeds also Leicester and Southdown sheep. All his fat stock goes to London market. His horses are of the same tribe as formerly described, and proportioned three horses to 100 acres arable. Every inch drill, and all on the flat; horse and hand-hoed. Farm-house and premises situated in the centre of the farm; has therefore no field barn, as is commonly the case on large farms; four-course shift.

Mr. Waller, Brenthill, has 816 acres arable, 31 marsh; rent 552*l.*, tithe free, poor rates about 5*s.* per pound rent. House and premises built by Mr. Coke; has a field barn, and fold-yard, and cattle sheds, and labourers cottages detached at a distance, besides those at homestead. Land and enclosures as before. Breeds Southdown sheep and Suffolk pigs, and feeds Devon oxen and Galloway Scots, all for the London market. Horses as before and proportion as before. Everything drilled on the flat, except Turnips, at 27 inches on the ridge. Worked in four and five alternate shifts as already described.

Mr. Thos. Moore, Warham, has 562 acres arable and marsh, rent 485*l.*, titheable, and pays 5*s.* per acre for ditto, poor rates, 3*s.* 6*d.* per pound. Breeds Southdown sheep, Suffolk pigs, Devon cattle; all the fat sent to London market; also Galloway Scots fed for ditto. Horses same breed as formerly and same proportion. A new house and homestead with detached field barn, foldyard, and shed, and labourers' cottages, all built at Mr. Coke's expense; cost about 6000*l.* Everything drilled on the flat, except Turnips. Land in four and five alternate shifts as already described.

Mr. Tuttlemoore, Warham, has — acres arable and marsh, and has also salt marsh; rent 317*l.*, tithe 5*s.* per acre, poor rates, 3*s.* 6*d.* per pound. Breeds and feeds Devon cattle, Southdown sheep, and Suffolk pigs, and feeds Galloway Scots for London market. Horses and proportion as before. The four and five alternate course shift. Good old farm house and homestead; no field barn. All drilled on the flat, except Turnips.

Mr. Bloomfield, Warham, has 767 acres arable, including 42 acres inoculated pasture, of which latter he is the inventor and father, rent 639*l.*; also 783 acres of salt marsh, rent 2*l.* 17*s.* in all; also 19 acres of reclaimed marsh, rent 27*l.* Tithe on arable 5*s.* per acre, poor rates 3*s.* 6*d.* per pound. All the arable is worked in a four-shift course. Has a most commodious house and homestead, with field barn, cattle sheds, and foldyard, and labourers' cottages detached. His stock are bred and fed by himself, and consist of Devons, Southdown sheep, and Suffolk pigs, and work horses as before described; also Devon oxen, two in a plough, and three in scarifier; they have great action. The proportion of oxen are three to two horses. Sends his fat stock to London market.

Mr. Ward, Warham, has 400 acres arable and pasture, rent 301*l.*, tithe 5*s.* per acre, poor rates 3*s.* 6*d.* per pound. New farm house and homestead, with labourers' cottages, cost about 3000*l.* No field barn. Worked on a four-shift course. Stock, Devon cattle, Suffolk pigs, and Southdown sheep; bred and fed by himself, and fat sent to London market. Horses and proportion the same as formerly. All drilled on the flat.

Mr. Reeve, Wighton, has 529 acres pasture and water meadow, rent 346*l.*, tithe free, poor rate 4*s.* per pound. Old farm house and homestead, and one field barn, sheds, foldyard, and cottages. His water meadow consists of 32 acres, made by himself, and cost 1000*l.* It is in excellent condition, and the Grass richer and longer at this moment (6th May) than anything else in its neighbourhood. Also a piece of pasture (about 20 acres) reclaimed by one under drain, which throws sufficient water to turn a mill; this drain was his own planning, and done at his own expense. Works his land on a four-course shift, and all drilled. His stock are Southdown sheep, highly improved. Let his tups (6) at from 20*l.* to 60*l.* each. Breeds Suffolk pigs, and home-bred neat cattle, polled, which appear to be descendants of the Galloway Scots. Sells all his fat to London market. Horses and proportion as before; works no oxen. All drilled and on the four-shift course. This gentlemen lives in a house of his own, and on his own estate adjoining to the farm he rents of Mr. Coke. For Holkham and its Agriculture, see Dr. Rigby's pamphlet.

GENERAL OBSERVATIONS.—The drill system is universal, and more perfect than in any other district in the island, perhaps in the world; 10,000 acres may be seen well done on the flat, without a "hinting furr," and every drill perfectly straight.

The land is in consequence kept in the greatest possible state of cleanness by the use of horse and hand hoes, and the judicious mode of cropping, which invariably makes a green crop succeed a white one.

Another immense advantage is the universality of calcareous matter found within 12 or 18 inches of the surface, by which it is renovated every 20 years. Next, their system of eating Turnips on the land by sheep, which their vicinity to the London market enables them to keep in vast numbers, and for which purpose the whole land is enclosed, and fenced in the most careful manner, the sheep being kept on smaller portions of the Turnip field by moveable hurdles. Ten to 12 sheep are allowed to an acre of Turnips to keep them all the winter. On good land part of the Turnip crop is drawn for the neat cattle in the yards.

In addition to the enrichment of the fields by sheep eating off Turnips, and the vast quantity of muck obtained from the straw-yard, they have for 16 or 20 years past increased their manure produce amazingly by the use of ground Rapeseed, oilcake, applied to the Turnip crops, but lately more generally to Wheat, at the rate of from 5 to 7 cwt. per acre for Turnips without dung; and 4 to 5 cwt. with 10 loads (of 1 ton) yard manure also for Turnips. For Wheat, 4 cwt., without any yard dung.

The Devons are a very kindly breed of cattle, small heads, thin necks, very broad on the hookbones, and particularly fine and small in the bones—with a fine pile and thin skin. They feed easily and come to great weights; saw many of them 50, 60, and some 70 stones of 14 lb., from 2½ to 4½ years old. The oxen of them have particularly good action and make excellent workers; are bred hardy, ranging at their pleasure from the sheds to the straw-yard, both in summer and winter.

The Southdowns are now general in Norfolk, and highly approved of; coming to 18 lb. and 20 lb. per quarter, of two-years-old wethers, and prime mutton.

The horses are active, bony, powerful animals, about 15 hands to 16 high, come into work after three years old, and will carry 1100 cwt. dead weight. Bought in a market just now would cost 25*l.*; two years ago, about 15*l.*; but are generally bred for their own use by all the farmers.

LEICESTERS AND LONGWOOL SHEEP.

A LECTURE DELIVERED BEFORE THE ROYAL AGRICULTURAL COLLEGE, BY JOHN ALGERNON CLARKE, LONG SUTTON, LINCOLNSHIRE.

It is not my intention to-day to glorify any one breed at the expense of another. However strong may be my predilections in favour of certain races, I cannot admit a doctrine of universal supremacy in sheep. There is no reason that I know of for supposing that, among the perfect types which existed in Paradise, the finest oxen were of necessity Short-horns, while Eve in pastoral innocence milked an Alderney, neither do I see why the best mutton and wool in that age of blissful perfection must have appeared in the form say of an Oxford Down. The lands and climates of our mighty globe are spacious enough and variable enough to feed and nurture almost endless diversities of those domestic animals which yield flesh-meat and other products for our comfort and sustenance; and however pre-eminent certain varieties may be in the feeding-house or the showyard, we find that their prevalence is limited (sometimes within the precincts of a county as well as well as within the boundaries of a kingdom) by peculiarities of soil and climate more favourable to one kind of sheep or cattle than to another. There is scarcely more difference between mountain and lowland regions than you perceive between the breeds of sheep respectively adapted to each locality. And as truly there are also found minor distinctions of climate, aspect, herbage, husbandry, in districts possessing a general similarity, which forbid a successful summer grazing, or a profitable wintering of precisely similar sheep in what might appear to be almost parallel situations. Where one sheep fails because he is imported, a native sheep (though little differing in form and qualities) thrives in the home to which innumerable generations of his ancestry became acclimatised and inured. Of course I do not mean that a good breed from a distance is unable to displace with advantage a home breed greatly its inferior; for I am about to speak of almost miraculous transformations and triumphs achieved by the wide dispersion of improved types, supplanting some aboriginal breeds and combining with and wonderfully ameliorating others. I am simply entering a protest against the notion that either the Leicester, the Lincoln, the Cotswold, or some other perfected long-wool breed, if there be another comparable with these, is destined to surpass all rivals wherever they may be found, and to gradually overspread all the pastures in Britain adapted to long-wool sheep.

Scientific experiments upon the feeding capabilities of different breeds may establish the superior excellence of one description of sheep in the particular locality and circumstances of each trial; but after all, there are so many influences surrounding actual flocks of which no such experiment can take any account, that I believe each master breed, so to speak, must be left to establish itself in new districts, or yield the palm of profitableness to competitors by the tedious but certain conclusions of practical experience. In this neighbourhood you are proud of your noble Cotswolds, that are the ornament of every fat stock or breeding show, and any proposal to substitute Leicesters or Lincolns for them would be treated with ridicule. Yet in Lincolnshire and neighbouring counties we should deem it ruination to have any of your arched necks and handsome forelocks in our sheep pens. And in neither locality is this mere prejudice. The strongest reasons can be given for a stout adhesion to the breed of the district, experience having shown how your West-Country sheep fail in fleece and in profit in our district, while our sheep are unadapted for climbing your hills, and will not attain the colossal proportions for which your breed is famed. I consider that no adequate answer has ever been given to the question "Which is the best breed of long-wool sheep?" and also that no discussion of the relative merits of long-woolled and certain descriptions of short-woolled sheep can arrive at any dogmatic conclusion, settling the controversy at once and for ever for all parts of Britain, and for whatever purposes the flock may be kept. It is for the advocates and cultivators of the different breeds to push their favourites from hill to vale, over dry uplands and unctuous marshlands, just so far and so long as this extension is found to answer in a course of years; and I have no doubt that the shrewdness of the practical manager and the test of his cash returns will ultimately determine for every district what special characteristics of early maturity, hardihood, fecundity, quality of flesh, or variety of fleece are required in its particular flocks.

Without attempting any comparison then, between breeds of equal eminence, I propose to offer a few remarks upon the Leicester, the Cotswold, the Lincoln, and other breeds of long-wool sheep.

It is now somewhat over a century since Robert Bakewell of Dishley, near Loughborough, in Leicestershire, began to experiment upon the sheep of his day and neighbourhood, with the view of rendering more economical in feeding and productive in mutton, animals that had been remunerative mainly from their supply of staple to our woollen factories. The old Leicester was a long, heavy, coarse-woolled animal, described as having "a frame large and remarkably loose; his bone heavy, his legs long and thick, terminating in great splaw feet; his chine, as well as his rump, sharp as a hatchet; his skin rattling on his ribs, and his handle resembling that of a skeleton wrapped in parchment." So that the great master of the breeding art began with what you would call "a regular brute;" seldom ready for the butcher before it was three years old, its weight then being 25 to 30 lbs. a quarter, and its coarse wool averaging about 10 lbs. per fleece. Unfortunately for his successors, he kept his secrets pretty much to himself; but we now know from his results that he must have observed the relation which subsists between certain external characteristics of an animal and its properties of ready disposition to fatten, early development, and larger proportional accumulation of the best-grained meat. By long-continued selection, breeding in and in from animals of greatest compactness and symmetry of form, and finest quality of flesh, and crossing with rare judgment, the Dishley or new Leicester was produced, possessing the requisite fixity of type necessary to render its good properties perpetual. The new breed was distinguished by a general squareness of outline, a uniformly broad and straight firm back, terminating in a square rump and full deep shoulder, with rather too much tendency to the "soda-water bottle," full middle and rounding-off ends, however, to please a Lincolnshire man, who likes a thick scrag at one end, and a wide rump and heavy leg of mutton at the other; it had a well-arched rib, full plate, deep wide chest, tapering neck, a small head covered with short white hair, an open countenance and clean muzzle, a full but quiet eye, and long, thin, well-placed ear; its offal was light, bone uniformly fine, twist well turned, and its pelt was thin, soft, and elastic, with a mellow handling. Its principal deficiencies consisted in a want of size, lightness of wool, and the comparative want of fertility and good milking qualities in the ewe.

Bakewell joined with a few individuals in forming the Dishley Society, the main object of which was to make a complete monopoly of the new breed, for which the secretive inventor was unable of course to take out a patent. The practice of letting rams for the season, either publicly or privately (probably originated in Lincolnshire), was adopted by Bakewell about the year 1760, when he let his first ram for only 17*s.* 6*d.*, and for several seasons afterwards could not realise more than two or three guineas for his best sheep. In 1784 and 1785 however, he obtained 100 guineas for a ram; and the desire to possess this valuable breed then became so great, that in 1789 he made 1200 guineas by three rams, (the very sum for which a Short-horn bull, "Master Butterfly" was sold a few years ago), and 2000 guineas by seven others. He likewise received 3000 guineas from the Dishley Society for the use of the rest of his flock. A Lincolnshire farmer hired two rams at 1000 guineas for the year. The most extraordinary letting was that of a ram called "Two Pounder," for the use of which during one season, he obtained 400 guineas each from two breeders, still reserving one-third of the usual number of ewes for himself; the value of the ram for that season being thus rated at 1200 guineas.

The Dishley Society itself was about as mysterious an affair as a lodge of Freemasons, though probably its members needed no password, grip, or sign. Resolution I. was, "Eleven subscribers, including Mr. Bakewell himself, agree to pay the sum of 10 guineas each, in such sums, and at such times, and for such purposes as shall hereafter be agreed upon by the majority of subscribers." Resolution IV. declares "that secrecy shall be kept by all members respecting the business of these meetings; and that any member quitting the Society keep secret, upon his honour, the transactions before he left it." In 1795, "It is resolved that no ram shall be let to any members of the Lincolnshire Society, in classes, at less than 200 guineas." Also "That no member shall sell any ewes, except to kill, at less than 10 guineas each. In 1796, "Resolved, that whoever deals with Mr. —— shall pay the Society 50 guineas." The new Leicester became a rage and fashion, and quickly spread into all parts of the kingdom, whether into suitable or unsuitable districts. The breed was pushed everywhere from John-o'Groat's to Land's End; Leicester blood was to improve any description of sheep that could be found, whether in flat highly cultivated districts, or upon moorlands and mountains. Certainly the extent to which very distinct varieties of sheep have profited by the symmetrical form and feeding qualities of the Leicester is very surprising. Not only have the various long-wool breeds been largely crossed with Leicester, but there are short-woolled sheep which owe a great part of their present merit to this source. The Ryeland sheep of Herefordshire was enlarged in carcase and lengthened in wool by repeated crosses with Leicesters, thus changing in character the finest wool that England used to produce. I believe that there is good authority for the statement that the improvement of the old Shropshire Downs was begun by the late Mr. Meire, by the use of the Leicester. And in Scotland, upon sheepwalks which, though too elevated and wild for the Leicesters, are yet capable of supporting a larger sheep than the ordinary Cheviot, a cross has been introduced, retaining most of the properties of a true Cheviot, while possessing the larger carcase and ready disposition to fatten conferred by Leicester blood. Of course crosses, alike between Cheviot and Leicester and between Blackface and Leicester, are found most successful in Scotland, where the whole produce is annually sold off, just as crosse between Leicester and Norfolk, Leicester and Southdown, &c., are so valuable to our own midland counties graziers. And the great border fair of St. Bothwell, in Roxburghshire, formerly supplied with pure Cheviots, is now entirely composed of pure Leicesters or crosses. In Cumberland, the Leicester improved the old Kentmore sheep; in Westmoreland, the original long-wools were supplanted by Leicesters and Cheviots. In Devonshire and Cornwall, the Leicester (introduced by Mr. Peters, and by the father of Mr. Turner of Barton), materially changed the character of the South Ham Notts, a small Long-woolled sheep; and on the rich land of Bridgewater Level, to other low tracts of Somersetshire, and extending into Devonshire, the old Bampton breed has been changed by Leicester crossing into the Bampton Notts, their Leicester alliance having deprived them of the original horns. These sheep are larger boned, longer in the legs and body, but not so broad backed as the pure Leicester. They are ready for the butcher at 20 months old, weigh 20 lb. to 22 lb. a quarter, and yield an average of 8 lb. of wool. The Leicester has entirely remodelled or displaced the sheep of Yorkshire, parts of Lincolnshire and Cambridgeshire, and Leicestershire, Warwickshire, and other midland counties. The demand for rams for crossing both in England, Ireland, and Scotland, is very great, and there is a large yearly export of Leicesters to France, many other parts of the continent, and to our pastoral colonies.

(To be continued.)

PROFITABLE FARMING.

Ah! but Mr. Mechi, farming is after all a very slow way of making money.—Yes, but it is a very quick way of losing it if you don't mind what you are about. But what do you mean, Mr. Mechi, by saying, "if you don't mind what you are about?" Well, I will tell you. I see so many farmers whose capital is being gradually absorbed, and who are on the road to poverty or want, and so many others who eke out a bare existence, that I have made myself acquainted with the causes of their unsatisfactory condition.

These unfortunate people are generally occupants of very stiff unimproved clay lands, physically poor, but chemically capable of producing under altered circumstances a very much larger acreable return than their present yield. The rents of these heavy lands are not generally high. I know of one farm of 240 acres with an excellent residence and first-rate farm buildings, let at 12*l.* per acre—barely the interest on the buildings alone—and yet the occupier is losing 400*l.* a year; therefore if he had it rent-free he would still make a considerable loss. The cause is obvious—

A minimum crop.

An unescapeable expense.

Here is a list of expenses that must be incurred whether you grow a half crop or a great crop.

Unescapeable Expenses.	£	*s.*	*d.*
Rent	1	0	0
Tithes, great and small	0	5	0
Poor-rate (including Police and County Rate)	0	3	0
Road Rate	0	0	3
Church Rate	0	0	3
Loss of land by trees, hedges, roads, waste, and buildings	0	2	0
Horse labour	1	0	0
Manual labour	1	10	0
Losses by live stock	0	2	0
Depreciation of horses	0	2	0
Seed	0	8	6
Wear and tear of carts and implements	0	2	0
Malt and Hops for beer for men	0	2	0
Mole and rat-catching	0	0	3
Road mending, ditch cleaning, fence trimming, &c.	0	1	0
Wear, tear, and loss of sacks	0	0	3
Bean tyers	0	0	3
Miscellaneous petty expenses	0	1	6
Blacksmith, wheelwright, cooper, founder, saddler, basket-maker, bricklayer, carpenter, and veterinary	0	5	0
	£5	5	0

Besides the clothing, food, and other expenses of the farmer and his family, which cannot, with great economy, be put at less than 10*s.* per acre. These expenses often amount to 150 per cent. on a half crop, but only 75 to 85 per cent. on a full crop.

Yes, but how are you to get a full crop on such soils?—By drainage, by a good farm road, by deeper cultivation, and by a quadruple supply of manure.

But how is the latter to be got?—By selling all the produce of your farm (except Wheat) to your animals, instead of to the miller or factor; by the purchase of cake or other food not grown on the farm, and by artificial manures to begin with. In short, make up your mind to manufacture 5*l.* worth of fat meat for every acre of land that you hold, and I will promise you a success that you never dreamed of.

Well, supposing that this tenant had to pay 8*s.* an acre more for drainage and roads, and 1*l.* per acre for loss on the meat, making under 12*s.* per acre for guano, bones, &c., I will promise him that his crop shall promptly realise an average increase of at least 3*l.* per acre, or 50 per cent. profit on the outlay I mentioned

If the original gross produce was only 4*l.* per acre (and it is generally less on such soils), the increase to 7*l.* would diminish by 50 per cent. those unescapable charges which I first mentioned. I speak practically on this matter. I have tried both ways, and found that

which pays best. Last year I consumed on 170 acres 700*l.* worth of cake, corn, &c., purchased of myself and others. The manure from these purchases must, according to Mr. Lawes's valuation, be of great value; but independent of chemical analysis, we know by the results that this is the right way to farm profitably, and that there is no manure so cheap or so good as unwashed home-made manure.

It is an unpleasant truth to enunciate, but still it is a great truth, that this country is not half manured, and the consequence of taking out and not putting in, empties the agricultural field and the farmer's pocket, but does not diminish the unescapeable expenses. On the contrary it enhances their per centage, and gradually impoverishes the tenant.

It is all very well to say—where is the money to come from? We all hold too much land, and I now see before me a man who lost most of his money on 50 acres, but now, keeping the same amount of stock on 10 acres, he is recovering himself and paying his way.

Experience has taught me that the more meat you make, the more manure you have, and the more corn and produce you must of necessity grow. The first question I ask of an arable land farmer is, how many pounds of fat meat do you make per acre? and by his answer I can determine (other things being equal) as to his crops and probable well-doing.

But then we must take care of this precious and costly manure, and not allow any of it to go otherwise than on the land.

It is astonishing how soon a keen man of business will improve poor neglected land; he will cover it in dry weather with sheep or other animals eating cake, corn, hay, &c., that was not grown on the farm, making in fact a farmyard or a foldyard of the land. The results are immediate and unmistakeable.

He carries out, in fact, Liebig's great theory, that the emptiness of exhaustion must be repaired by the fulness of replenishment. The miserably small supply of stock which I see on poor heavy lands generally, indicates prominently the disease and its remedy. *J. J. Mechi, Dec.* 30.

P.S. It must be obviously a sound proposition that the poorer the land the greater should be the quantity of live stock kept upon it, because such land requires more manure than soils of a naturally more fertile character, and because there is no way of obtaining such good or cheap manure as by feeding stock. I don't ask where the food for the stock is to come from. It is certainly only robbing Peter to pay Paul, to take food from one field on the farm to produce manure for another field on the farm. To increase fertility, which should be the object on poor farms, we should feed our animals with something that did not grow on the farm. This must be done in the case of poor farms, for we know that such soils will not naturally, and especially in their unimproved condition, support so much stock as fertile soils.

SCIENCE, TACT, AND SKILL.

I HAVE, in the first place, to remind you that whatever else you have or want, you must have this practical skill in order to succeed in agriculture or in any other art. The general officer and the agriculturist alike need this as the very foundation of their professional education. It is impossible to speak too strongly on this point. Every art—that of agriculture as one—consists of course in the doing of a series of operations in the right way, and the ability to do things in the right way is just what we call skill. An intelligent man is not thereby an agriculturist, even though his intelligence includes agriculture within its scope. He must have this skill, without which his agricultural intelligence will be useless, before he can take a farm with any prospect of success.

How is this skill to be acquired? There is no other way than simply by observation and practice. An art cannot be learned from the description of it. It must be seen in operation; and it must be practised. Herein lies the immense advantage possessed by him whose natural tastes impel him to the careful observation and mastery of farm details, or whose boyhood spent upon a farm has given him this knowledge and mastery almost without his knowing it. Let me tell you a story in illustration of this:—

A young man fresh from the University, who had taken cordially to the position of a country gentleman—and, among other occupations, had adopted that of agriculturist—was riding round his land one morning with a neighbour of long experience and well proved practical ability and judgment as a farmer. He listened with docility and good-will to the instruction and advice that were given to him; and, struck by the wisdom and good sense of his companion's discourse, he at length exclaimed, "Ah, Mr. ——, I wish I knew as much as you do." "Make yourself perfectly easy on that score, my dear fellow," was the reply—"You never will." The one was fresh from the schools, and the other had spent all his life in the fields, and yet there was neither mock modesty in the speech of the one, nor arrogance in the answer of the other. Mr. —— did not finish his reply. "I have been accustomed," he might have said, "to be amongst plants and animals, constantly riding and walking on the soil which supports them both since I was a child. Ever since I can remember I have had to do with the tillage of the land, the cultivation of crops, the management of live stock. There is not an aspect of weather, land, or life, so far as the live stock of the farm are concerned, which I have not habitually witnessed, realised, and studied. That of which instances and striking cases may be observed by you is foreseen or recognised by me in its first beginnings almost as if by instinct. Long familiarity with the details of my occupation, beginning, too, with the mind of a child which has hardly any other impression on it to weaken the sensitiveness with which its early knowledge is received, gives me, almost unconsciously, and without the effort of any special attention such as you must exercise, those intimations of fitness or of unfitness, of quality and condition, whether of soil or crop, or animal, on which the right direction of our business of course depends." Mr. —— was perfectly correct; it is an immense advantage to an agriculturist, as to the follower of any other occupation, to learn that occupation young; and the reason is that the skill which he thus acquires grow naturally with him, and is thus more perfectly acquired than it can be in any other way.

Gentlemen:—It is impossible for you to accept too unreservedly, or too confidently, the assertion that a personal acquaintance with details—accurate knowledge of every particular regarding those processes and operations which make up the daily practice of the farm—in other words, practical skill, is essential to your professional success.

And all this, as I have said, is only to be acquired by close personal observation.—There is a story, I see, going the round of the papers just now about Bewicke, the celebrated naturalist and artist. He was asked how it was that his engravings of birds were so much truer to nature than those of other men. He replied:—"I suppose I must have just looked harder than other men at the birds when sketching them." The late Lord Ducie used to say, "A young man will never be a farmer unless he can enjoy to sit for two hours on a hurdle and look at a sheep." Bewicke and Lord Ducie were of one mind on this subject; and every other sensible man will agree with them. It is only by close and careful observation that skill, whether as a farmer or an artist, is to be acquired.

I need not tell you that this Institution gives you capital opportunity for acquiring by this close and careful observation, the skill as well as the intelligence which you will need as farmers. A large farm, with considerable variety of soil, under vigorous management affords all the scope of this kind which any one can desire; and one of your most useful opportunities of professional education here (dependent however for its efficiency, like all the others, altogether on your own determination to make use of it) is that afforded by the daily routine of farm operations on so large a scale, carried on directly under your observation.

Next to practical skill, I would rank business tact and ability among the essentials to professional success; and this again is to be acquired only by experience. The profits of farming, like those of every business, are made in the market-place as well as in the field—they hinge upon your ability and judgment in your dealings with other men, whether your servants or your neighbours. However skilful in the management of land and crops, in the management of a flock or of a herd, a man may be, he needs sufficient shrewdness in dealing with his equals as well as ability to direct his inferiors, before he can attain full success in farming. Indeed, this shrewdness, or common sense as it is called, rather because it is commonly needed than because it is commonly possessed, is required in every relation which you will as farmers sustain. I remember, after relating the story which I have just told you, about the young landlord and the practical farmer, to one who was consulting me about the agricultural education of a son, we afterwards conversed on this second point—the necessity for skill and tact in dealing with men. And I told him of one whose career, terminating in great ability as a farmer, had led him through active service in various public offices, and in many different countries, until, while still a young man, he had, with only the advantage, I believe, of general country knowledge, taken a farm and managed it successfully—the inference being, of course, the great superiority in shrewdness, general intelligence, and common sense which such an education must have over that of the young man who is kept labouring all his life in the same parish and almost in the same set of fields, acquiring merely manual dexterity. His reply was, "I can see the force of that, but I can also see that it is the exact antipodes of what you have been telling me before." He was entirely mistaken. It was no such thing. These advantages of practical skill and of business tact, respectively different as they may be, are certainly not opposed to one another. They may be both possessed by the same individual. They must be both possessed by him in order to the full attainment of agricultural success. You may in your own persons unite the skill of the common labourer, the shepherd, and the cowman, with that general intelligence and quickness in business relations, which a larger and more general experience in the market place and elsewhere will give you.

And I say of this, as I said of the other, it is impossible for you to accept too unreservedly and too confidently the assertion that temper, tact, and common sense, (business ability, in short,) are essential to professional success. You will need them all in striking with the landowner the first bargain of the long series in which agriculture, like every other business, consists. You will need them all when taking your farm, when making your purchases and sales, and especially when dealing with your labourers.

It is, in fact, in this last relation, more than anywhere else, that your ability of this kind will show itself—in selecting your labourers—in getting the right man and putting him in the right place—and in your relations with them afterwards—so that all the difference between the services of an ignorant, ill-conditioned body of men, and that of active, intelligent fellow labourers may be in your favour. Even men of undoubted practical skill are dependent upon the willing services of their men. This has been strikingly illustrated within the last few weeks, in instances where no one will deny that a high degree of professional judgment and ability existed.

You know the late Jonas Webb had a career of unparalleled success as a breeder of Southdown sheep. Next to him perhaps stood Mr. Rigden, of Sussex, and Lord Walsingham, of Norfolk. Mr. Webb was almost almost always first in any general competition among Southdown breeders. Mr. Rigden almost always beat Lord Walsingham in any competition between these two. Mr. Webb is no longer with us, and the competition now is between Mr. Rigden and Lord Walsingham alone. The latter has, I understand, secured, during the past year, the services of Mr. Webb's old shepherd. Mr. Rigden's shepherd, on the other hand, has been of late disabled by illness. Under these circumstances, these two breeders met at Worcester the other day, and Lord Walsingham took all the prizes! An incident of this kind shows how dependent even the practical man is on the skill and good will of his labourers—and I relate it here as an illustration not only of the need of skill but of the necessity also of so conducting business as to be on good terms with your servants, and with every other class with whom you are in business relations.

For this second qualification which you need in order to professional success, as well as for that of personal skill, the only school open to you is actual experience and observation. In this respect an Agricultural College does not differ from any other place of professional education. A resolute student can acquire here a great amount of skill in the art which he has come to learn. He can, of course, acquire the intelligence which is to direct him in his operations, but the responsible prosecution of his business can be learnt only in actual experience. It may, therefore, be your interest, in order to supplement what the Agricultural College can communicate, that you should seek elsewhere practice and experience in business arrangements, either on a farm, or with a salesman, or in an office, before taking a farm on your own account.

Be this however as it may, it is worth while to remember that while the skill which you may acquire, here or elsewhere, will confer on you only the rank of a good farm labourer, this business ability, in addition to it, will only raise you to the rank of a good farm manager. A successful and influential, because intelligent agriculturist, needs something more than these. And this is the third point to which I have to direct your attention: he needs a liberal and scientific education.

As I have mentioned this last of the three—and especially as I have referred to its resulting in an altogether different rank and style of man—it may occur to you that I am advocating scientific knowledge and a liberal education simply on the ground that it places you in a higher social rank. That of course is a result which no sensible man will undervalue, but it is not the ground on which I have any special right to recommend it. Unless it be professionally serviceable, I have no right to be its advocate from this place. But here, again, gentlemen, I believe you may with the most unreserved confidence accept the assertion, that a knowledge of all the sciences of matter will be of direct advantage to you in your profession.

How can it be otherwise? Your experience in the field is necessarily in accordance with all the great natural truths determined by the geologist, the chemist, and the natural philosopher. These have been observed under such a variety of circumstances, in such a multitude of instances, on every kind of scale, that those relations and properties of matter which they illustrate and teach may be trusted to as existing everywhere, affecting therefore, or rather I may say moulding the practice, and constituting the experience of the farmer as they do that of every other art and manufacture.

One sometimes hears experienced farmers speak of the doctrines of the chemist or the botanist as if they were mere theory—that is, I suppose, mere speculation. But this is a great mistake. The doctrines of the chemist, the geologist, and botanist are based on facts much more numerous and more carefully determined than those on which many a practical agriculturist is content to build his confidence. And what is more, they are built, among others, on the very facts which agriculture itself presents.

Experience is of value just in proportion as the facts which it has witnessed have in this way taught their lesson perfectly—the longer the experience the greater is its value, because the more the facts of which it takes account, the less the chance of the peculiarities of any of them interfering with the lesson taught by all. Now science is the result of all experience—its doctrines are

the truths which the observation of all time has taught. How can any one despise or disregard its teaching, while an experience in the field, furnishing perhaps but two or three of the thousand foundation stones on which it rests, is considered by him of such value! I must say that I greatly prefer to let the usefulness of a scientific education to the farmer rest in this way on the obvious nature of things, rather than pretend to prove it as an actual fact by reference to particular instances.

When you consider the great mass of truths determined by the chemist concerning the constitution of matter, and the relations of its constituents to one another, surely the pretence to prove by instances the usefulness of chemical science to one engaged in that perpetual reconstruction of matter which goes on in every agricultural process, whether in the field or farmery—whether in the growth of plant or animal—must seem a mere gratuitous impertinence. One feels, in such a case, somewhat as if in the position—still possible in certain circles—of having to convince an agriculturist of the usefulness of statistical information on agricultural results—only the former case is even stronger. As if knowledge of the facts relating to our business, whether those which the chemist gives us illustrative of its processes, or those which the statist gives us indicative of its results, can fail of being beneficial. In either case, we may be sure that whether we may choose to shut our eyes to them or not, there these facts are; and there they are at work, operating mischievously to us if in our ignorance we run counter to them, or beneficially if by our knowledge of them we are enabled to make use of them.

It is unnecessary, I feel, to refer at any greater length to the practical value of scientific knowledge in the prosecution of farming as a business. Unquestionably the labours, both of the student and of the teacher of farm practice, are, as I said, lightened, made easier and more efficient by the agricultural light which is thrown upon them by all the sciences represented at an Agricultural College. And I need not refer at any length to the ample scope, as students of the sciences of agriculture, which you have in the various professorships and schools collected here. *Lecture by Mr. J. C. Morton before the Royal Agricultural College, in the volume lately published on "Agricultural Education"* (*Longmans*).

Home Correspondence.

The Pigs Shown at the Agricultural Hall, Dec. 7.—The following is Professor Simonds' report to the Council of the Smithfield Club:—I have to report that in accordance with the rules of the Club an examination has been made of the state of the dentition of each of the pigs in the several classes for comparison with the certificates of age, and I find that the pigs shown in pens 416, 427, 437, 445, and 452 exceed the age stated by their respective owners. I also find that the dentition of the pigs in pen 436 indicates that the animals are not of the same litter. With reference to the pig, No. 445, it should be observed that the animal so much exceeds the certified age as to make it manifest that a clerical error was committed by his owner in filling up the certificate, he being described as a 3 months and 26 days' old pig, whereas it was at once apparent that he could not be less than four times that age. Besides the pigs named in this report as disqualified, the dentition of others, especially in the class under four months of age, showed a greater development than is consistent with absolute correctness, and as this is a circumstance of almost constant occurrence at the shows, I would suggest that for the future the class be altered from animals not exceeding four months to animals not exceeding six months, and further that the class not exceeding eight months be altered to nine months, allowing the other classes to remain as now arranged. I may add that in pigs under four months it is difficult to decide so accurately upon the dentition as in older animals, and hence the Club is always liable to attempts being made to exhibit animals in this class, which are in truth nearly five months old. (Signed) *Jas. B. Simonds, Veterinary Inspector.*

The Hereford Breed.—I consider the general character, quality, evenness of flesh, and aptitude to fatten of the Hereford is greatly improved during the past 20 years, and the uniformity of appearance which they present at our Hereford fairs is such that I have often heard expressions of astonishment and delight from gentlemen who, for the first time, have attended them. I have occasionally heard it stated that they have decreased in size; upon this point I am inclined to think it is more imaginary than real, for although we do not now see the fine oxen of by-gone days, yet it must be borne in mind that they now go off at from two to three years old, instead of from five to six years. This year there were some lots of steers, about two and a half years old, sold from 28*l.* to 30*l.* at our October fair, which now takes place on the third Wednesday in October, instead of upon the 20th as heretofore. The price I quote was for the rear of steers in each case, and when it is borne in mind that they were confidently stated to have been fed without cake or corn, I consider that price will compare well with animals of any breed, and although we have not now the noble five or six years old ox, yet we have the more money-making animal in the Hereford steer, by his early maturity providing food for the million, and a quick return to the farmer. As regards the influence of agricultural societies, I think they stimulate men to renewed exertions for improvement, and frequently produce very beneficial results. The most marked influence I ever saw is in this immediate neighbourhood. In 1855 a ploughing match was started at Ross; the next year a show of stock was established, but this being a great sheep and not a cattle district, the latter cut a sorry figure, there being but few animals beyond the mediocrity, and with, I believe, the exception of myself, no one in the district ever thought of sending to our county show, whereas this year there were five exhibitors, and six prizes were awarded to their animals. I am of opinion that the general improvement observable in the stock and in the cultivation of the county, is attributable in a great measure to the influence of the different local societies, as persons having good animals are induced to send them to compete who would not do so to distant shows, and by this comparison they see faults that would otherwise escape their attention, and thus they are stimulated to improve; besides this they form opportunities for an interchange of ideas, which is at all times beneficial, and for which the farmer has less opportunities often than any other class. I certainly agree with the prize system, but can only regret the over fattening and its attendant evils, that is absolutely requisite to adopt to ensure success, and upon which when judges exercise their opinion upon the relative breeding points of the animals competing, if unfavourable to the over fatted, they are condemned not only by the owner and the public, but by the press also, and indeed upon this point it is a very difficult matter to discriminate; for instance, last year, at Battersea, two or three were passed as too fat for breeding purposes in our class, whereas in the next class the first prize was awarded to the fattest animal exhibited in any of the classes, and she subsequently brought a live calf and did well. Upon this point some societies have restrictive rules, which in my opinion are worse than useless, inasmuch as unprincipled exhibitors have the advantage over the man of honour and integrity. *T. Duckham.*

Roots of Knapweed.—I send you the root of a Knapweed which I took out of a pit opened near here, in an arable field, for digging sand and gravel. The root went down 7 feet below the surface, and it is difficult to speculate on its age. The upper part of the root shows where the plough has damaged it from time to time at depths of about 3 inches. I do not think it would be easy to find a more convincing proof of the folly of shallow ploughing, which is still practised in this county. The pit was full of similar roots. *F. Marx, Ailebury, Alresford.*

Foreign Correspondence.

BRITISH COLUMBIA.—There is a fine field here open to enterprising young agriculturists, and if married so much the better for them. But they should have a little capital to start with—500*l.* clear after the passage money has been paid, would make a nice little beginning. Any one thinking of such a thing should carefully read over Bishop Hill's address to the people of Yarmouth, where he says that no soft-handed young men need think of the colony, and none who cannot resist the temptation to drink; that has ruined many a fine young fellow, and brought many to an early grave. A mother of rank and fashion, who sends some young scapegrace of a son to these colonies with a little money in his pocket, and thinks she has done the best she can for him, little knows to what she has consigned him. *New Westminster, Oct.* 14, 1863. [There is no question as to the perfect authenticity of these statements, which proceed from as honest and experienced a settler as ever set foot in N. W. America.]

BANDA ORIENTAL: *Estancia del* ——, *Aug.* 24, 1863.—I have been somewhat interested in what you say regarding the milk from ewes, but, in flocks similar to mine it is not so practicable, and cannot so easily be obtained as you imagine. Flocks similar to mine never pass a night under a shed (galpón), no matter whether the night is bad or good, and many are never in an enclosure at night time, but remain on an open sheep-walk called a rodéo. My flock has been on rodéo for the last three or four months, in which time it never once has passed a night in an enclosure of any description. If the night be bad they will huddle in some sheltered nook, under some hill or rocks, and far better it is too, than in a corral, or permanent circular sheepfold near the homestead. The consequence of this is that the sheep are not anything like so tame as those at home or those that pass the night under cover (as fine flocks do here), and to catch a ewe for milking out of a flock on rodéo would necessarily worry the flock. What you have said about this milking of the ewes, however, has not been thrown away; it has put a fresh idea in my noddle, and a feasible one too, under certain circumstances. I have tried the ewe's milk, and really it was delicious, much to my surprise, for hitherto I knew nothing of its qualities. And now, perhaps, you can understand how it is so many lambs die here at times in a heavy storm. Imagine the flock on rodéo, at the usual time, sunset. The night comes on windy and rainy. Well, off go the sheep to seek shelter, for stop in an unsheltered and unenclosed place they will not, and very naturally too. Well, the ewes with lambs march away, many lambs are left behind and get lost and perish in the cold, others lose their dams, and those that are born are lost, too, for a ewe won't take to her lamb dropped in such a night, and the consequence is the number of lambs lost in a bad night is often very great. And such nights are often the nights when you have a good fall of lambs, especially if the weather has been dryish for some time previous. In bad nights, when the sheep are on rodéo, a good shepherd will pass the night with his flock and keep "rounding" them, and so perhaps save a "point" that would have strayed off, and many a young lamb besides. Not long since in a heavy tempest (which lasted three consecutive days), I knew a man who was 18 hours out in the camp with his flock, all alone and on foot, his horse being knocked up and useless. He could not leave his flock, or they probably would have mixed with another and got scattered all over the camp, and what was worse he could not drive them home, as a rivulet (arróyo) which the flock passed in the morning had become so swollen that it was impossible to get the sheep over at night. And there he was "rounding" and "rounding them" the whole night, as dark as pitch, until he was relieved the next day. "And," said he, "I hadn't so much as even a bit of 'baccy to chew the whole time."

On very windy nights the sheep will go off rodéo, and in clear moonlight also, so that one has often to jump out of bed in the middle of the night, and turn them back. And the fault is generally with the capones (wethers), for they are devils to wander, and then the sheep go after them. This season I have lost not half so many as in the previous one. One day George skinned more than 50 sheep that had perished during the stormy weather of the day before. You may infer, then, from what I have said, that the corral is always the best place for the flock at night. Well, it is the best if you can get them in against a temporal (squall), whereas in fine weather they thrive best and keep cleaner on rodéo than they would were they folded. Enclosing them every night engenders the scab or encourages it, at least I believe so from what I have seen and have heard from others. When I first had my flock I used to put them in the corral every night, and by and by I noticed the scab coming on one, then on another, until it augured ill for my wool clip. Well, I suspected the cause was from shutting them in, especially as other flocks not enclosed were nice and clean, so I then put mine on the rodéo every night, where they have now been for between three and four months, and the result is they look in good condition and pretty clear of the scab, although many are still touched more or less. A young man told me that for three years he never shut in his sheep, and the result was they were generally nice and clean and pretty clear from scab; but this year, however, he commenced the shutting-in business, for certain reasons, and this year he has more scab than he ever before had. So I think my inference is not altogether unfounded. I mention this as I think your ideas of our sheep out here are rather for fancying they get the same sort of treatment as they do at home. If you were to see some of these flocks when in a corral, and put yourself in among them, they would gallop away from you in all directions, bolting about everywhere, and the corral must be strongly made, or else down it certainly would go. Again, if you were riding to see some of these flocks, and got within say 50 yards of them, off they would gallop to a centre as quickly as they could, and nearer you would not get for a time. Of course you must not misunderstand the class of flock I am speaking of. The fine flocks here (in the country) are generally as tame as those at home, and those that are folded every night quite as much so, but I am speaking of an ordinary mestiza flock, that usually stays the night on rodéo, that is, at large.

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We have two lambing seasons, March and October, but of our flock of two thousand, all told, we have lost about 40 lambs.

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You have asked what I think of the country, &c. All that I have seen of the Banda Oriental, and I have been over various parts of it, is on a grand scale, the same interest and picturesqueness to be met with which give a charm to the traveller and ever freshen the eye of the settler. One word would describe it all, as far as surface extent goes, when I say "undulating;" but at the same time would convey but a very imperfect idea of its beauty. The nature of the hills varies—some are of massive rock, immense pieces jutting out in all directions, or are piled and balanced most wonderfully one on the other to a most minute nicety, whilst other rocks are placed, as it were, in regular layers, one above the other; other hills have a gentle slant, covered with verdure, resembling a well-kept lawn, whilst some again are steep and difficult to traverse.

Owing to the hilly nature of the country it is well watered, and numerous arroyos (rivulets) are to be found in all directions, some of which after a good storm become so swollen that it is impossible to ford them except at certain passes, and even then great caution is at times required. To show their danger I will state a little occurrence that happened when I was at San Juan, some 12 months ago. A gentleman lying dangerously ill at a neighbouring estancia, sent a faithful and long-tried servant to procure him some medicine at the nearest town. The servant was desired to be

back the next day. Off in the morning with a spare horse (tied on to the other's tail), he accordingly galloped, obtained the medicine, and slept that night at an intermediate puesto or sheep station, kept by one of his own countrymen, an Irishman. The night was a severe one, and next morning he found the arroyo he had to recross much swollen and was advised to wait a little; but, mindful of his sick master, he resolutely said he would chance it, as he knew the ford he was sure. Well, he entered the pass, with his extra horse tied as theretofore, but he must have made a miscalculation, for the horse he was on lost its foothold, plunged about, and threw the rider into the water. Poor fellow, he came up, and seeing how it was, he immediately drew his big knife and cut the rope which tied the two horses, and so freed them; but he, somehow or other, could not reach the bank. A puesto was not far off from where he was, but before assistance came from the people there he was too far gone. The current had carried him down a distance, when the men lassoed and hauled him out, but he was dead, the medicine firmly wrapped round his body.

So you see one must be careful where they pass these arroyos. A wooden cross, placed near where any unfortunate fellow is drowned, tells its silent tale. In the hot dry weather of summer most of these arroyos get dried up.

There are many rivers, which generally are fringed with trees on either side, giving the whole a pretty appearance, and affording a cooling shade to any one after a ride in the sun. The Rio Negro (Black River), within a league of which I am at present settled, a tributary to the Uruguay, is one of the principal rivers in the Banda. Broad forest strips clothe its banks, affording excellent timber and cabinet woods, and filled with armadillos, of which there are here three species, skunks, pole-cats, capinchas (sea-pigs), foxes, deer, lizards and other reptiles, pigeons, wild ducks, partridges, parrots, the horned plover, and birds of every imaginable hue are to be seen in immense flocks. The pigeons are exquisitely sweet and nice, and impart a rich flavour to soup, whilst some of the partridges are as large as ducks. Wild turkeys also abound in great numbers. As for ostriches, why they are everywhere, and about my house exceedingly tame. Sometimes they come in fifties and hundreds quite close to the house, some within a dozen yards, and often I have counted 40 and 50 within 50 or 60 yards; so that it is hardly worth while to have "tame" ones about, as tamer than these could scarcely be found. Some of the natives eat parts of the ostrich, and one who was visiting me the other day told me that the flesh round the wing-bone is delicious when made an asado (a roasting bit) over a clear fire, and many of which he had eaten. So the next I shoot, which I do for my dogs and chickens now and again, I mean to test the culinary novelty.

The river (Negro) contains a great quantity of fish, of all sorts and sizes. The largest is called the "suruvi," measuring as much as 9 or 10 feet in length and very fine eating; but the "dorado," another fish, reaching 3 feet in length, seems to form the favourite dish, its flesh being most delicious. It is so called from its belly being of a bright yellow or golden hue. Other kinds of fish, and very fine eating also, abound, and a very good day's sport can be obtained by taking a gallop there, as many do, the ride itself not lessening the pleasure, being over a fine piece of country. On a summer's day one may frequently see a party of caballeros galloping over the camp on the way to the Rio Negro, where, when once arrived, the horses are unsaddled and picketed out, the lines regulated and thrown in, and a fire made for boiling water for *maté* and cooking what is necessary of the victims of the bait. If you take your gun there is plenty of exercise for you, and so passes a pleasant day's enjoyment. Wild bees abound, and fine and rich is their honey. Sarsaparilla is also found abundantly on the borders of the Negro. The soil is very fertile and always affords good pasturage for sheep and cattle. I have, however, heard many say, and I believe it too, that the Grass on the Pampas of Buenos Ayres is much better for sheep than it is here. I must, whilst speaking of the Grass, not omit mentioning the pretty little flowers which give in many cases a pleasant odour and always a refreshing charm. Buttercups there are, but not Daisies. The wild Verbena (red and white) take their place, besides others some blue and others scarlet, &c.

I have already mentioned that wood is very abundant. In this locality, one of the most common is the Guava tree, from which I presume the Estancia owes its name. The Guayaba wood when young and fresh is very strong and durable, and therefore very serviceable; it is also excellent fire-wood. An English carpenter tells me he considers it most to resemble Ash in its qualities. The Tala is another serviceable tree found in abundance; the Ombú is an immense tree when full grown, and spreads out its branches to a great extent. One I have seen, under which I should think 200 men could well take shelter, but its wood is valueless, the delightful shade it affords, and its noble appearance being its only merits. The Orange, Fig, Pear, Peach, Quince, Apple, and Walnut trees also abound to a greater or less extent in all parts. The fruit of the Orange tree that I have seen is rather too sour to eat, but forms an excellent ingredient in punch. The Fig trees do not grow as at home, trained to walls, but stand up alone without any but its own support, the same as any other tree. Peach trees are everywhere, and the fruit in town is cheap. I have planted, along with various other seeds, some Ash-Keys, which you so kindly sent out. I am in hopes of a success, as they are in a fertile soil.

Vegetables thrive exceedingly so long as their deadliest enemies, the red and black ants, keep away. To save my little garden from animals breaking into it, I have planted all round a thick prickly thorn now about three feet high. We have two goats, a cat, and upwards of thirty head of poultry—bad gardeners enough; but the black ant, a quarter of an inch in length, is a very devil in stripping young plants, and in carrying off the leaves piecemeal to its hillock. These ants prefer Apple, Pear, and Apricot blossoms, and whilst that supply lasts, they do not invade Poplar, and such like trees. At a neighbouring Estancia a man was employed for eighteen months to do nothing else but destroy ant nests in the garden there. He succeeded, but at the end of a few ensuing months, fresh swarms, doubling the original numbers, overrun the garden. I believe Mr. A. professes to know how to get rid of ants in England. Ask him to let me into the secret, which I fancy I could sell out here for a good round figure. There is cover for pheasants, and if that bird could be introduced, he might do much good by feasting on his favourite food, the ant egg.

At San Jorge (our cattle establishment) there is a first-rate quinta, which is admirably kept in order under the superintendence of a nice young fellow, a Scotchman. There you may find all sorts—Potatos, Peas (green), Broad Beans, Lettuce, Onions, Leeks, Parsley, &c.; numerous Peach and other fruit trees, and a small Vinery, which in a short time, with the tasteful care bestowed on it, will form a fine bower. As it is, it looks wonderfully tempting to smoke a pipe when all is hot outside.

I like this kind of life very well, and never enjoyed finer health, but there are drawbacks which disincline one to wish to settle down permanently. There is too much of uncertainty in being able to hold one's own, amidst the local warfare which disturbs the country in one quarter or another with few intermissions. Cattle and horses are never quite safe, nor indeed is one's life, although Englishmen are generally respected, and I seldom hear of any being murdered, notwithstanding that the native marauding bands are not over scrupulous even on that point. The most irksome condition of pastoral life here is at all times the rarity of the sight of a new face. A week or two often passes without our seeing a stranger.

One of our minor vexations is when G. and S. come home dead beat after minding our separate flocks all day in tempestuous weather, during which 30 or 40 head have been lost, to find our provisions gone (*i. e.* biscuit, meal, and coffee), and we unable to leave our post in quest of a fresh supply.

In a previous letter I believe I told you of the quantity of stone exported being something considerable. Nearly all the streets in Buenos Ayres are paved with stone from the Banda Oriental. Vast quantities are shipped from the Island of Martin Garcia, and when in San Juan I told you of a company that had bargained for stone from hills belonging to this Estancia for Buenos Ayres. Limestone is abundant, and it with lime is exported largely. Marble, as a natural consequence, is also found and exported to Buenos Ayres. I have heard that gold, silver, and precious stones are to be found in this small but naturally rich republic; but its legitimate source of wealth, is in its agricultural productions, unchecked by interminable civil broils. Not that the foreign settler is every way comfortable, for when the charm of novelty is gone, his beautiful solitude is nothing but a solitude, and nothing short of health and youth will enable him to get through the hard work, the privations, the loneliness, and the wear and tear of mind in his half banishment from the haunts of civilised man.

[The following note is added to illustrate the climate of the station during its winter season:—]

ESTANCIA DEL GUAYABO, Lat. 32° 30′ S., Long. 55° 15′ W.—Banda Orientale.

Day.	Date.	Reading of Therm. (Fahr.)	Hour.	Remarks on Wind and Weather.
Monday	June 1	46°	8 A.M.	Wind N. Frosty morning, but lovely day. Coldish at night-time.
Tuesday	June 2	46°	8 A.M.	Wind N. Fine clear sharpish morning, but quite a warm summer's day. Milder at night-time than last few days.
Wednesday ..	June 3	50°	8 A.M.	Exceedingly mild morning—not a breath of wind. At 2 P.M. Therm. rose to 64°. Commenced raining at 8 P.M.
Thursday	June 4	61°	8 A.M.	Wind E., but turned to S. Very close and misty morning, and a disagreeably wet and dismal day.
Friday	June 5	53°	8 A.M.	Wind S. Damp morning but no rain. Turned out a warm day.
Saturday	June 6	48°	8 A.M.	Wind W. Frosty and clear morning. Lovely day.
Sunday	June 7	47	8 A.M.	Wind S.E. Cold sharp morning. Fine day but cold at night, with a strong E. wind.
Monday	June 8	55°	8 A.M.	Wind N.E., strong. Fairish day, but wind very unpleasant.
Tuesday	June 9	58°	8 A.M.	Wind N.W., strongish and disagreeable, but not cold. At 2 P.M. Therm. 64°. Windy night and much lightning.
Wednesday ..	June 10	62°	8 A.M.	Wind N.W. Rain commenced at 7. A.M., and ceased about 3½ P.M.—A mild and calm night.
Thursday	June 11	56°	8 A.M.	Very foggy till about 10.30 A.M. Wind E., and a sharp morning. Heavy storm during the night.
Friday	June 12	50°	8 A.M.	Wind N.W. Very close and stormy. Heavy fog towards sunset, but fairish night.
Saturday	June 13	62°	8 A.M.	Wind N. Stormy during the day, but towards sunset a most severe tempest commenced, lasting all through the night. The thunder was terrific, and the lightning most fearful.
Sunday	June 14	57°	8 A.M.	Wind S. Wind sharpish, but about 11 A.M. the sun shone out.
Monday	June 15	52°	8 A.M.	Wind S.W. Fresh and bright day.

John Miller, June 16, 1863.

Societies.

ESSEX.—The Society was established in 1858. It owes its origin to the Royal Agricultural Society's meeting at Chelmsford in 1856. The surplus funds left from the town and county subscription on that occasion formed the nucleus for its commencement and successful establishment. It was taken up by the gentry and agriculturists with an energy and zeal which was boldly predicted would consume itself in three years. This prophecy was based upon two grounds, viz., that Essex was not a breeding county, and that several local societies in the county, with their annual shows of stock, had flourished and decayed in as brief a space of time. Whether these failures arose from want of sustained effort among the projectors, or inefficient management in its officials, or from local prejudices, which often engender differences and sow the seeds of speedy disruption, I do not pretend to say. But the county society is established on a broader basis. Individual indifference, or prejudice, active or passive, will often prove fatal to the life of a mere local society, but has little effect upon the steady purpose and successful career of a great county society, which has the sympathy and support of all classes living in it. The Essex society is gradually making progress, and has succeeded beyond all expectation.

The annual shows have taken place as follows:—

1858 at Chelmsford.
1859 at Colchester.
1860 at Saffron Walden.
1861 at Romford.
1862 at Halsted.
1863 at Witham.

The aggregate sum awarded in prizes since the commencement is between 3000*l.* and 4000*l.*, or about 600*l.* per annum. It has not been necessary to draw upon the surplus left by the Royal, which amounted to upwards of 300*l.*; but a further sum of 200*l.* has been invested with it, making a total of above 500*l.* now bearing interest.

We have no discussions on agricultural matters. Our operations are confined at present to the offering of liberal prizes for the best specimens of stock at the annual shows, endeavouring thereby to increase the adoption of the purest and best breeds. This competitive rivalry, if I may so call it, has beyond doubt a beneficial effect in various ways, which I think is shown in the increased attendance and practical interest evinced by the farmers in particular and the public generally at the annual exhibitions. *Robert Emson Secretary.*

INVERNESS.—The Inverness Farmers' Society, as it presently stands, was instituted in 1838; but there was a Society for similar purposes in Inverness many years before, and several smaller Societies in the neighbourhood, all which united in 1838 and formed the present Society. There are two general meetings in the year, one in February and one in October, at each of which there is a discussion on some subject connected with agriculture, such as the best method of preparing and applying farm-yard manure; the cultivation, &c., of Flax; the comparative advantages of the soiling and pasturing of cattle; the best means of improving the condition of farm servants; the effects on the true interests of agriculture of the practice of binding tenants to a certain rotation of cropping; whether the change from Blackfaced sheep and Highland cattle to Cheviots and crosses has been of advantage to the county; the causes that obstruct the cultivation of reclaimable waste lands; the ways and means by which these may be obviated or removed; and the advantages that would result from the full development of our native agricultural resources; and such like subjects. The Society is supported generally in the district, and these discussions are usually looked upon as useful, and as having considerable influence on the management of lands in the district. The Society does not publish any report of its proceedings; these are reported to the members at the general meetings, and the result as to funds, &c., recorded in the minutes of the several meetings by the Secretary, whose duty is to keep the minutes

and other books of the Society. There have been great improvements in agriculture in this quarter during the last 20 years. These consist chiefly of bringing into cultivation waste lands and draining old lands. For these purposes large sums were obtained from the Government Grant for Drainage of 1846. On several estates in the north, sums amounting to nearly 10,000*l.* were then expended, which gave a great stimulus to farming. Tenants themselves added to this outlay considerably, and in several parts of this neighbourhood the face of the country is entirely changed, and hundreds of acres brought into profitable cultivation. There is little doubt that the gross produce has greatly increased during the last 20 years, but it is questionable if the produce per acre has increased; indeed I think there is little doubt that the produce per acre has rather declined for some years back. Rents have generally advanced in the district, though there are instances of the reverse, and wages are now almost double what they were 20 years ago.

FORMARTINE.—The Formantine Agricultural Association was instituted 27th May, 1829, for the "encouragement and promotion of agricultural interests and improvements in the district." The district of Formantine is that portion of Aberdeenshire lying between the rivers Don and Ythan. It has endeavoured to carry out its object by holding an annual show at Green of Uduy of cattle and horses, and giving encouragement for good ploughing by yearly ploughing matches. The Society has also at intervals given prizes for seeds and roots, sheep, pigs, poultry, and dairy produce; while premiums to servants, male and female, for long-continued and good service, have more than once been awarded.

In addition to the yearly competition of stock above mentioned, there is an annual general meeting of the Society on the second Monday in November, at which office bearers for the ensuing year are elected, the state of the funds looked into, premiums paid, and arrangements made for the coming year, which have to be carried out by a committee of the Association; at this meeting any subject affecting agriculture locally or generally is taken up. The topic under discussion last year was "Finger and Toe in Turnips;" this year "Grub, and its ravages on lea corn" will come under notice. One member is appointed to introduce the subject, and give his views upon it, after which each member in rotation expresses his particular experience. The Chairman sums up, and gives the general result. We have no published records, but a minute book is kept of all the proceedings.

There is not the least doubt but that local Agricultural Societies have done much for the improvement of the country, and without boasting I may say that the Formartine Society has been of great benefit to the district, particularly in improving the breed of cattle. Aberdeenshire stands high as a cattle-rearing district, and in no part of it is there better stock than in the Formartine district. *Alex. Davidson, Sec.*

FRAMLINGHAM.—I send per book post a copy of the proceedings of the Framlingham Farmers' Club from its commencement until November 1862. The improvements witnessed in agriculture are the extension of underdraining, straightening old fences, an extended growth of green crops, and an increase of quantity of cattle kept. In connexion with the straightening of fences, large inclosures are made, and an amount of surplus trees removed, but too great a clearance of trees may be made in this flat country to be beneficial to agriculture, in my opinion. As to the increase of produce, rents and wages, I have nothing definitive to give upon these points, only that by thorough drainage, extension of root culture, and the increased quantity of cattle kept, a larger corn return is made, and no doubt owners are alive to increased rents in consequence. As to wages, an extension of the system of task work gives the labourer an opportunity of increasing his wages. The general wages here are now 10*s.* per week for a horse driver, and 9*s.* per week for a day labourer, but the farm supplies many little perquisites in addition, in the shape of firing, &c. At haymaking and harvests higher wages are paid; at haymaking about 15*s.* per week, which lasts about a fortnight. Harvests, 30*s.* to 40*s.*, which lasts about a month. Of course occupations are increased in extent, and it is clear even to the casual observer, the superior cultivation of holdings of 150 acres and upwards. This is consequent upon capital, and a higher rate of intelligence amongst occupiers of the larger holdings. *D. Smith, Jun., Oct.* 26.

Reviews.

Homes without Hands. By the Rev. J. G. Wood. Longmans. Small 8vo.

This is a periodical in shilling numbers, consisting of 32 pages, and from the first part which is now before us, promises to be as interesting and popular a publication as Mr. Wood's "Illustrated Natural History." The wood engravings are clever and well executed, and the letterpress highly interesting. The meaning of the title shall be given in the author's own words:—"Human habitations, however, do not come within the scope of the present work, which is restricted to those homes that are constructed without the aid of hands, and are planned, not by reason, but by instinct. We pass, therefore, from the handiwork of man to those dwellings which are constructed with feet, or jaws, or beaks, and which are never marred by incompetence, or improved by practice."

The mole is the first animal treated of, being "entitled to take the first place in our list of burrowers," for it not only digs tunnels, "but forms a complicated subterranean dwelling place, with chambers, passages, and other arrangements of wonderful completeness. It has regular roads leading to its feeding grounds, and establishes a system of communication as elaborate as that of the subterranean network of metropolitan sewers. It can run tolerably fast, it can fight like a bulldog, it can capture prey under or above ground, it can swim fearlessly, and it can sink wells for the purpose of quenching its thirst." Nearly eleven pages are given to this interesting little animal, because it is not only one of our commonest, but one of the least understood of our mammals. "Had the creature been a rare and costly inhabitant of the tropics, how deep would have been the interest which it excited. How the scientific world would have crowded to see the marvellous structure of a skeleton wherein are several accessory bones, and which exhibit peculiarities hitherto found only in fossil remains. How great would have been the admiration evoked by its soft, velvet-like fur, its tiny eyes deeply hidden in the fur, so as to be sheltered from the earth through which the animal is continually making its way, the strange mixture of strength and softness in the palms of its fore feet, and the elastic springiness of its nose."

Besides the history of the mole, the first number contains an account of the shrew mole, the elephant shrew, the musk rat, the fox, the badger, the prairie dog, the rabbit, and the chipping squirrel. Upon the whole the work must be regarded as a great acquisition to everybody's library, and especially to that of our young friends.

Farm Memoranda.

SARSDEN.—The Sarsden Estate, twenty years since was composed of a large proportion of wet and many acres of uncultivated land. The roads also came in for their share of the general character and aspect of the country. It is true, before this period, the late Mr. Langston had made a beginning in various ways of improving the estate, which he had since continued on a much larger scale, not only in effectually draining, fencing, and bringing into cultivation the common lands, but in altering the form and character of the old inclosures simultaneously with the progress of draining. These operations alone occupied at least one hundred men for years, and this of itself would have been a great achievement for any one to accomplish, but every other part of the improvement of the estate was equally promoted. About the same period he began to build, re-build, and renovate the farm houses, offices, and buildings, with very little exception, throughout the whole estate—in several instances erecting entirely new houses and all the requisite farm buildings, fitting them up with the means for performing, with machinery driven by steam power, the sundry operations of in-door work, without which the present mode of farming and feeding could not be accomplished by manual labour.

To give an idea of the magnitude of what has been done in this department, it may be mentioned that seven large farm houses, with the necessary out-buildings, have been newly built, and 10 so renovated as to be equal to half new. Two mills, a tilery, kiln, and drying sheds, and various other buildings not connected with the farms, have also been erected. The buildings just enumerated—the draining of about 4000 acres, and making the pipes for the same—the conversion of several hundred acres of common and otherwise uncultivated land into good cultivation—many miles of new roads on different parts of the estate—assistance towards the improvement of the public parish roads of the parishes adjoining to Sarsden—the straightening and otherwise altering water-courses: these form a summary of the principal improvements. We will not attempt to estimate, even approximately the amount of outlay for all these works. Very large of course it must have been. No one can go over the domain without surpise at the extent of new buildings in every direction, and the general fertility of the land. The increase in the produce generally is more than one-third, and in root crops not less than half."

Mr. Langston had recently introduced steam cultivation on his farms in hand; he began with Fowler's ten-horse engine and plough, which did good service, and was the pioneer for the introduction of one of greater power, viz., of 14-horse, with additional implements attached. Both were kept constantly at work. The beneficial effects of this mode of cultivation became so apparent in the increase of roots and other crops that a third engine, of the same power as the second, with all the implements, was procured at an expense of more than 900*l.*, in order that the tenants of the estate should have the opportunity of adopting steam cultivation. One of the tenants, to his praise be it said, seeing the benefit of this system, although only tried on his farm about two months, ceased to continue a customer for the plough procured expressly for him and other tenants, by purchasing one of Fowler's for himself. We cannot omit naming that when Mr. Langston was told that this tenant intended to purchase one, it gave him great pleasure, saying it was what he wished to produce when he procured the plough for the use of his tenants, so convinced was he that eventually the system must become more general.

We have thus narrated many very important works completed on the estate of one gentleman, and though more might be brought forward, enough has been mentioned to establish the fact that he who has accomplished all this is not only deserving the thanks of the community at large, but a memorial also, to testify how greatly he had been the benefactor of the working population of his neighbourhood. The various improvements effected by the late James Houghton Langston up to the day of his decease will be that memorial for many generations to come.

It may be well to state that the system of land drainage adopted at Sarsden is not that of the uniform depth of 4 feet. However this may do elsewhere, it will not do here—notwithstanding the greatest proportion by far is four feet, this being the shallowest allowed. The subsoil is the only criterion for determining whether the depth shall be 4, 8, 10, 14, or more feet. If this guide had not been adopted, a great deal of this land could not have been cured.

More than 20 years since instances occurred where the draining had been done on the uniform depth of 4 feet without any benefit—a second attempt deeper met with the same result—a third deeper still (6 feet) had no better success. The conclusion come to was that it could not be cured. About 14 years since this very ground was again drained, guided as to depth entirely by the character of the subsoil, with complete success. One drain was cut up the hill till it reached the depth of 18 feet, at which point only the water was below, and the outfall would not allow of its being sunk deeper; however, the drain was continued a little further at the same depth; pipes were then put in vertically 2 feet deeper where the water lay, which immediately ascended and flowed off in the pipes laid in the ordinary manner at the depth of 18 feet upwards. This answered completely. In the other cases the depths were not so great, varying from 8 to 14 feet—latterly there has been no occasion to exceed 8 or 10 feet; these even are not frequent. It is fortunate some of the deep draining does not cost so much per acre (superficial) as many of the shallower ones; they draw off the water from a greater distance, and are hence placed further apart.

It is only necessary to add, with reference to the Sarsden property, that it was not only the material prosperity of the inhabitants that was the object of the owner. Mr. Langston had built five school-rooms and four dwelling houses and offices for schoolmasters. Two village reading-rooms had also been founded, and a new church at Milton had been erected.

Calendar of Operations.

JANUARY.

LAMMERMUIR SHEEP FARM: *Jan.* 6.—With the exception of a few days of frost, and one day's snow, the weather has not yet assumed a winter character. We have had a long course of high winds, with a temperature so mild that vegetation has met with little check. The aftergrowths upon the pastures and the luxuriant rankness of the Turnip fields, evidence this in an unusual degree. Such open weather has been very favourable for all kinds of stock, and has already economised winter keep to an appreciable extent, and should it continue for some time longer, must make Turnips plentiful. This crop (with the exception of Swedes, which in many places are not well rooted) was a good one to begin with, and bids fair to be remunerative, which is all the more required that corn makes so little money. Stock is the last string to the bow for the present at any rate; and though we have all heard something of the doctrine that cattle are only useful as manure machines, we suspect that something in the shape of direct return will be looked for from the fattening stock, and that few farmers will be very content to have to look into the manure heap alone for their profits, or that their hopes would much revive at the prospect, or in the above case the necessity, of placing their whole dependence on corn. We are far however from despising the use of auxiliary cattle food to an extent that the animals using it will directly pay for, we even find that a moderate quantity of cake and bruised grain given to young cattle upon straw is this year cheaper than Turnips for wintering, and have a lot of calves which have hitherto had nothing but 3 lb. per day of the above mixture, with plenty of straw and a run out in the field through the day, and seem to thrive admirably. This plan commends itself in many ways. The Turnips are left on the ground to be consumed by sheep, and in a sheep rearing district as this is, they are turned to better account in the wintering of sheep than cattle, especially with the present high prices of store sheep and wool. The expense of pulling the Turnip crop and carting to the steading is also avoided, and the land is left in better trim for the succeeding corn crop by having all the Turnips eaten upon the ground. Part of our own Turnip crop has much disappointed us, never having used more artificial manure in the raising of it, and seldom with so unsatisfactory a result—Swedes upon which 3*l.* worth (besides farmyard manure) was spent, having turned out scarcely half a crop. Unfortunately Peruvian guano alone was used, which the dry season turned to poor account, and we have plenty of proof now that a smaller money expenditure upon a mixture of guano and bones would have produced better results. Other things also were against them, amongst which was an overpowering braird of Wild Mustard, which stole much of the guano, retarded their early growth, and left them too short a season after the pest was mastered for the requirements of the Swede; as also a clay soil, which, though tile-drained every 30 feet some 12 or 15 years ago, shows an increasing wetness every rotation, from a falling off in the efficiency of the drains. There is no doubt that wet land suffers more from drought than either dry land or land which is thoroughly drained. Every season's experience serves to show that where drained every alternate furrow it is only half-drained, and raises the question, if a limited amount of money is to be expended on the drainage of a farm, whether it is not better economy to expend that money on a more limited acreage, doing the work

well, rather than spread it over an increased area and have the work imperfectly executed. Our Corn crops are this year yielding satisfactorily, and the harvest was propitious. A Picksley, Sims, & Co.'s reaping machine did good service, although the land was not prepared for it, but the breakages in such rough work teach us the advantage or rather the necesity of having the open furrows reduced and the stones rolled down or removed in spring. As it was, however, we were enabled during the first week or two of harvest to get along with the ordinary staff of farm workers, and were thus rendered less dependent upon the Irish hands, who at the beginning of harvest are employed in the lower and earlier districts of the county. The low price of grain this autumn has sent a considerable quantity of our surplus corn to a different market than usual, much of it having been given to the stock; and there seems good sense in using a commodity which we have at home at a low price, thus economising Turnips, rather than restricting ourselves entirely to the use of manufactured cakes. There is this disadvantage, however, in giving corn to store sheep, that though they do well upon it at the time, they feel the want more when it is taken from them, and do not continue to thrive so well as after Turnips. It is now our practice to winter the ewe hogs of our Cheviot flocks upon Turnips, or at least half Turnips, folding them on through the day, and taking them to the heather at night. They thrive well on this system, and the deaths are fewer than when they are close folded on the Turnip break night and day; but a great disadvantage attending it is that the Turnip field is robbed of a large portion of the manure, which is carried off to the heather and lost. If Turnips were plentiful enough to admit of it, a better plan would be to run the young sheep over heather or rough pasture for an hour or two each day (during which time they will eat as much of the dry herbage as they care about), and then return them to their fold. The Leicester rams used for crossing are now being brought in from the ewes; the Cheviot and Black-faced rams are allowed to run with them for a longer period. It is doubtful policy, however, to let them remain long, and as the season advances it is a question whether you are not better to have an eild or barren ewe than a late lamb. The ewe in the first case gets fat in summer, and can be sold to the butcher, while with a lamb late in the season she is in poor condition herself the following autumn, and is most likely to be again late in taking the ram. After missing lamb for two seasons a ewe is not retained in the flock, but getting fat on the hills, no finer quality of mutton for delicacy and flavour can be produced. Hill ewes look well at the present time, but from this date, during the months of January and February their condition gradually recedes till the backgoing is arrested by the supply of Turnips in spring. If possible, this should be commenced in small quantities about the first of February, and continued till lambing time, or when Grass brings relief. It is much better policy to begin the supply of Turnips early, though in small quantities, than to reserve them for a month's full meat at lambing time. The transition, then, from the dry hill pasture at once to abundance of good keep is too sudden for ewes heavy in lamb, and the timely supply of nutritious food arrests the relapse of condition which is afterwards so difficult to make up. *J. S. B., Jan.* 1, 1864.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Dec.	Inches.	°	°				°	°	°	°	Inches.
Thursday	1	29.91	34	31	N.E.	1	9	40	33	41	31	0.33
Friday	2	30.48	30	28	N.E.	0	10	35	22	42	16	..
Saturday	3	30.61	28	27	N.E.	0	9	34	19	44	16	..
Sunday	4	30 58	24	23	N.W.	0	0	32	19	35	12	..
Monday	5	30 47	29	27	E.	0	3	32	21	39	13	..
Tuesday	6	30.22	10	18	E.	0	0	36	15	39	10	..
Wednesday	7	30.23	17	—	E.	0	0	26	12	34	9	..

Notices to Correspondents.

HOPS: 14 *years' Subscriber*. There is an elaborate article on Hops by the late Mr. Paine of Farnham in the Cyclopædia of Agriculture (Blackie).

SALT: *H S P*. It should be applied in March, April, and May, 1 cwt. per acre each time in wet weather. It is most likely to be useful to Grass land in cases where the Grass is coarse and gross. For fine Grass it is not likely to be of much use. Some nitrogenous manure, as cake, nitre, or sulphate of ammonia, 1 cwt. per acre, is most likely to be of service then —applied in March or April, the season of growth.

To Florists and Nurserymen.

HY. PERKINS calls the attention of the above to his large stock of TOBACCO PAPER and CLOTHS, at 10*d.* per lb.; and superior ROLL PAPER, at 1*s.* per lb. Warranted free from adulteration, having taken every pains to secure the same.

16, Cambridge Circus, Hackney Road, N.E.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent'

Winter Dress all Fruit Trees with

GISHURST COMPOUND,



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS "Nurseries, Sawbridgeworth Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont, Vauxhall, London, S.

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing DAY'S EXTRACT and GASEOUS FLUID,

which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as paining in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2*s.* 6*d.* and 7*s.* per bottle; or quarter of dozen in wood box, 7*s.* 6*d.* "Gaseous Fluid," 1*s.* 8*d.* per bottle, or 20*s.* per dozen in wooden box. Plain directions for use given with every Article.

☞ Caution. Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & Co.'s," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"

The "Key to Farriery," free by post for 13 stamps.

SAMPLE MEDICINE CHEST, 16*s.* 6*d.* Carriage paid.

Patrons, 70,000.

Address, 22, Dorset Street, Baker Street, London, W., and Wantage, Berks. No other branch in the kingdom.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.

May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

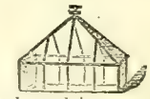
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street, E.C., from whom only it can be obtained.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING  GLASSES.

Each—	*s.*	*d.*	Each—	*s.*	*d.*
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES,  WITH OPEN TOPS.

Each—	*s.*	*d.*	Each—	*s.*	*d.*
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1*s.*; 9 inches, 1*s.* 6*d.*; 12 inches, 2*s.* 6*d.*

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz., 2*s.* 6*d.* | Improved shape, p. doz., 4*s.* 6*d.*

Patent shape, per dozen, 6*s.* 6*d.*

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

PAXTON GARDEN ENGINE.—Is portable, easily worked, not liable to get out of order; will throw with Jet 40 feet, and with "Rose" will cover 40 feet across. Price 30*s.* and 40*s.* each.

CROGGON & Co, 2, Dowgate Hill, London, E.C.

PATENT ASPHALTE ROOFING FELT. Rail Carriage Paid. One Penny per Square Foot. Also Inodorous Felt, and Dry Hair Felt for covering Boilers and Steam Pipes.

CROGGON & Co., 2, Dowgate Hill, London, E.C.; and 2, Goree Piazzas, Liverpool.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.* 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 8*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

The Original Seed Bag Manufactory.

ALEXANDER NICOL AND CO.,

MANUFACTURERS of SEED BAGS, CORN SACKS, &c.

Chalmers Street Works, Arbroath, N.B.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

ANDERSON'S ARCHANGEL MATS are the best for protecting plants from frost; also common DUNNAGE MATS, at low prices. SEED BAGS and SACKS, SHOP and NURSERY TWINES. Prices sent free on application.

JAMES T. ANDERSON, 15, Sherborne Lane, King William Street, London, E.C.

For Sale.

E. DENCH, 152, King's Road, Chelsea, having sold the Lease of his premises, has now for SALE the whole of the MACHINERY, TOOLS, &c, for the Manufacturing of Patent Galvanised Iron Sashes, and Hothouses, Greenhouses, &c., with the GOODWILL of the Business, which will be sold a bargain.

Also several Conservatories, Greenhouses, and Hothouses, and one of Mr. Clarke's Patent Water Jacket Tubular Boilers, No. 4, cheap.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 8*d.* per yard run.
Four yards wide .. .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide, 1*s.* 9*d.* per yard.
An improved make, 3 yards wide, 2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS

IN

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PATENT LAWN MOWERS FOR THE ENSUING SEASON.

The above Machines are warranted to last for years without getting out of order. They do not require two-thirds the amount of power to work them of any other Machine extant.

ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

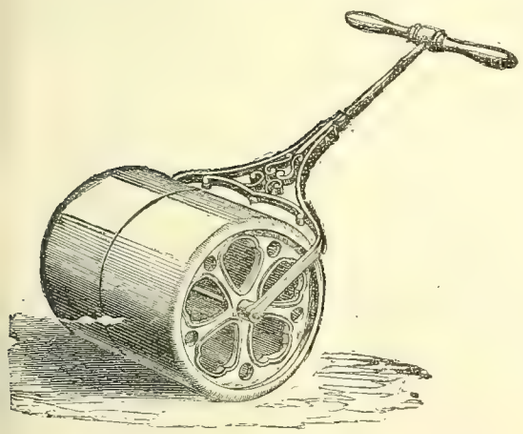
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GREEN'S IMPROVED NEW PATENT ROLLER,

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LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, AND GRAVEL PATHS,

MADE FOR HAND OR HORSE POWER.

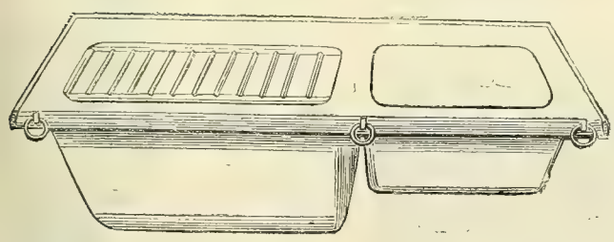


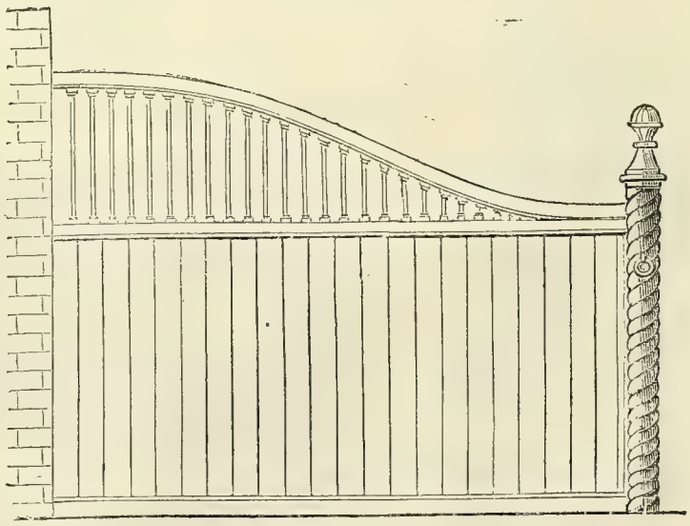
These Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facility for turning; and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best material, and are got up in a manner surpassing any ever yet brought out.

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Agricultural and Horticultural Implements and Machines of every description.

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IMPORTANT NOTICE.

IT IS WITH FEELINGS OF CONSIDERABLE PLEASURE, MINGLED WITH A SANGUINE DESIRE TO ADVANCE THE BEST INTERESTS OF THE HORTICULTURAL WORLD, THAT

JOHN WEEKS & COMPANY

EMBRACE THIS SEASONABLE OPPORTUNITY OF CALLING SPECIAL ATTENTION TO THE STORE OF USEFUL AND PRACTICAL INFORMATION TO BE OBTAINED BY PAYING AN EARLY VISIT TO THE UNDERMENTIONED ESTABLISHMENTS, WHERE THEIR MARVELLOUS AND EFFICIENT

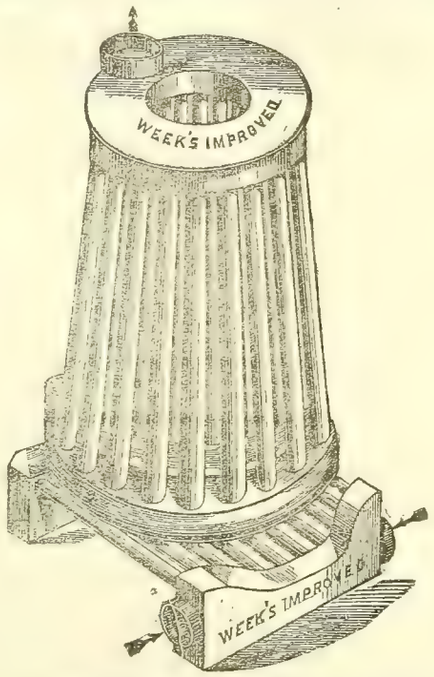
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MAY BE SEEN IN SPLENDID OPERATION.

The number of BOILERS and FURNACES removed from these various Establishments to be substituted by WEEKS'S ONE-BOILER SYSTEM, range from 8 to 22. Thus, in one instance the labour and fuel of 21 fires becomes a complete saving.

The Principal Establishments are :—

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THE CRYSTAL PALACE, SYDENHAM
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J. WEEKS & Co. unhesitatingly aver that for magnitude and efficiency, and heated by one fire, a parallel to the various apparatuses at the above is not to be found in the United Kingdom.

At the CRYSTAL PALACE their New No. 6 BOILER is Heating an equivalent to nearly 20,000 feet of 4-inch piping. A feat hitherto unheard of, and certainly not to be accomplished by any other than WEEKS'S ONE-BOILER SYSTEM.

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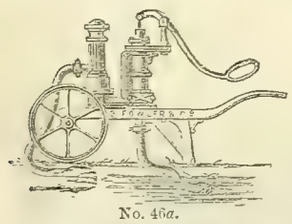
CLINTON & OWENS

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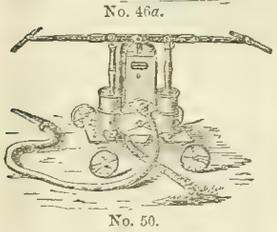
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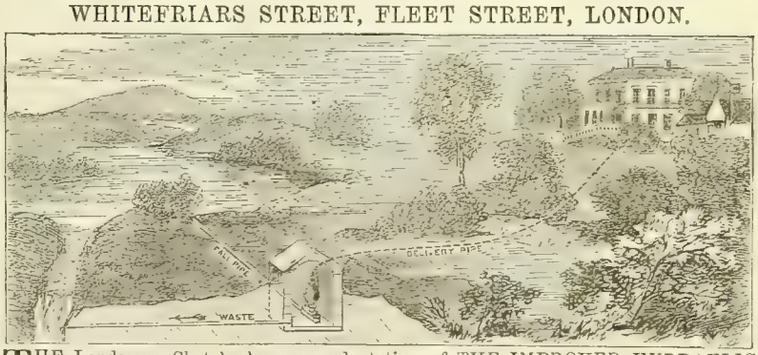


No. 46a.


No. 50.



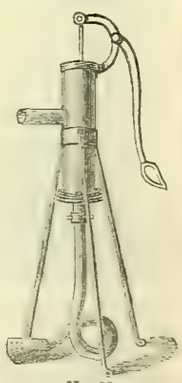
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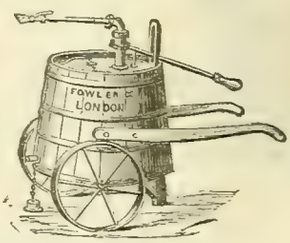


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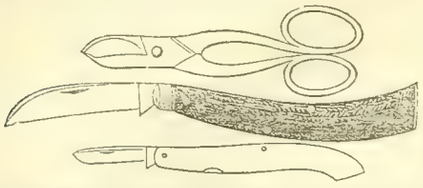


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No. 49. GARDEN ENGINES of all sizes.
No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons for Garden Use.

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Paxton Works, Sheffield, Established 1738.



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Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

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"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

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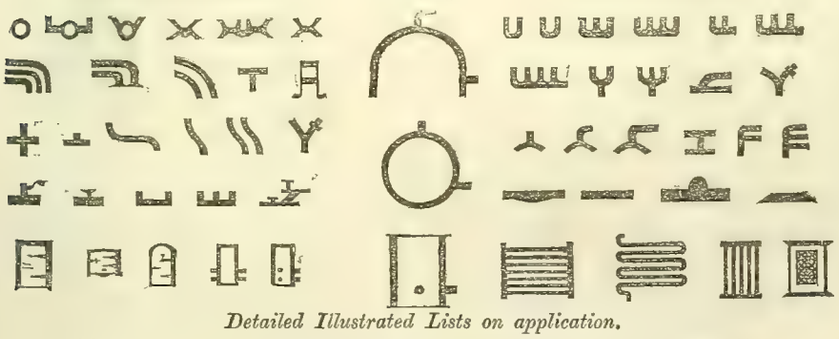
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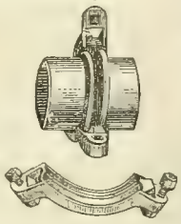
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By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints

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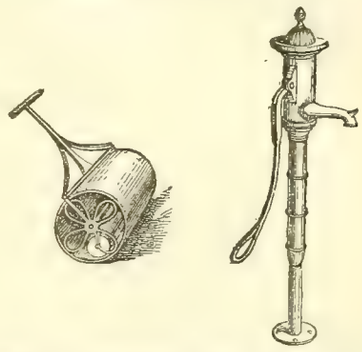
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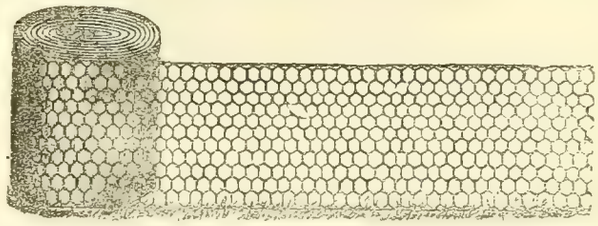
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GREAT IMPROVEMENT



WITH REDUCED PRICES.

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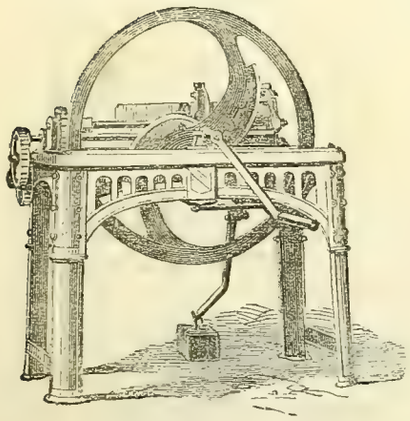
Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
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2½ inch	Dogs or Poultry...	0 3	0 4	0 3¾	0 5	0 4½	0 6	0 5½	0 7
2 inch	Poultry	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ inch	Small Rabbits, Hares, &c....	0 4	0 4¾	0 4¾	0 6	0 5½	0 7	0 7	0 9
1½ inch	Smallest Rabbits	0 5	0 6	0 5¾	0 7	0 7	0 9	0 9	0 11
1 inch	Pheasantries, &c.	0 9	0 11	0 10½	1 1½	1 3	1 6	1 9	2 0
¾ inch	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	...	...

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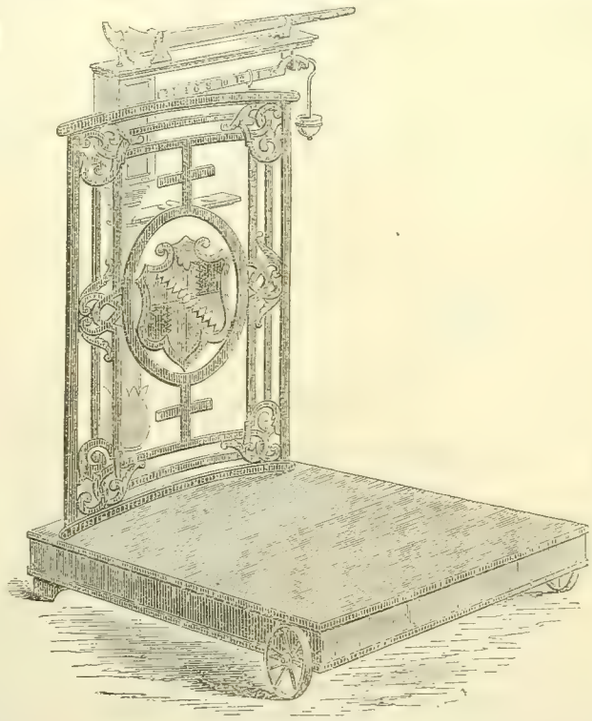


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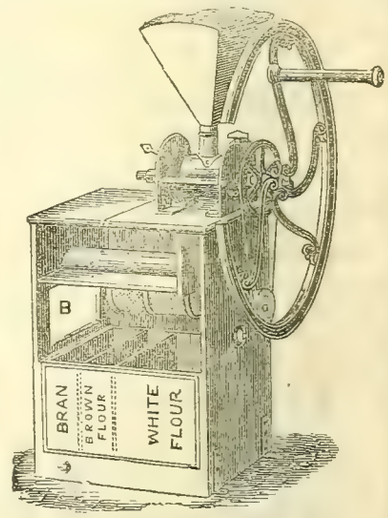


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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, January 9, 1864.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 3.—1864.] SATURDAY, JANUARY 16. {Price Fivepence. {Stamped Edition, 6*d*.

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CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
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WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
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Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
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General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Superb Double Hollyhocks.
WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.
P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

Paul's Hollyhock Seed.
COLLECTION OF 12 NAMED VARIETIES, POST-FREE, 5*s*.
PAUL AND SON have now ready the above; they can be also had of the principal nurserymen and seedsmen. Genuine Vegetable and Flower Seeds Carriage Free. List on application.
"Old" Cheshunt Nurseries, Cheshunt, Herts.

Kitchen Garden, Flower, and Agricultural Seeds.
WILLIAM BARNES begs to inform his friends and the Public generally, that his NEW CATALOGUE is now ready, and can be obtained upon application, Post-free.
Camden Nursery, Camberwell.

Dodecatheon elegans.
DOWNIE, LAIRD, AND LAING have to offer 6000 of the above, at 30*s*. per 100. Price to the Trade on application.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

TO BE SOLD, a large quantity of LARCH, 1½ to 2 feet; do., 2 to 3 feet, well grown, with a general selection of other FOREST TREES equally well grown.
Address, ISAAC SMITH, Froggatt Nurseries, Calver, Sheffield.

Strong 2-years Transplanted Larch.
DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.
CATALOGUES and Samples will be sent free on application.

WANTED to PURCHASE, TURF; and also LAURELS, YEWS, and other SHRUBS, to plant upon about half an acre of Land.
Full particulars as to price, &c., to be forwarded to Mr. EFFKINS, "Marrowells," Oatlands Park, Walton-on-Thames.

Grape Vines.
B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines.
WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.
PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5*s*. each.
"Old" Cheshunt Nurseries, N.

Grape Vines from Eyes.
WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s*. 6*d*. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Vines Black Hamburgh and Muscat of Alexandria.
ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 10*s*. 6*d*. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.
JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.
N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

NEW PRIZE MELON, CLIMAX.—This superb Green-flesh MELON was raised by Mr. WEBB, of Calcot, and obtained 1st Prize at the Crystal Palace Fruit Show in 1862; never yet offered to the public; a most abundant bearer, and of exquisite flavour. Sold in packets at 2*s*. 6*d*. each. Applications as above.
Calcot Gardens, Reading.

GOOSEBERRIES. — Crown Bob, Warrington, Whitesmith, Balloon, strong fruiting trees, 16*s*. per 100, 2*s*. 6*d*. per doz.
RASPBERRIES, CURRANTS, STRAWBERRIES, one and two year ASPARAGUS, strong one-year SEAKALE, SEED POTATOS, &c.
GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, &c.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
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FLOWER and KITCHEN GARDEN SEEDS.
CATALOGUES free on application.
GEO. S. DODS, Epsom Nursery.

H. LAVEY, GARDENER, begs to offer privately his Strong Established Show Plants of the following:—AZALEAS, CAMELLIAS, ORCHIDS, EXOTIC and BRITISH FERNS, GERANIUMS, &c.; also two nearly new VANS to be sold at Fetcham, one mile from Leatherhead, on WEDNESDAY, January 20, and three following days.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s*. per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—
DANIEL O'ROURKE PEAS (Waite's Stock)
EARLY PRIZETAKER MARROW
WOOD'S GREEN MARROW

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

To the Trade.
MYATT'S PROLIFIC ASH-LEAF KIDNEY POTATO.—The above excellent early variety to be had of J. MYATT, Offenham, Evesham; also the EARLY HANDSWORTH and EARLY DALMAHOY.
Price on application.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7s. 6d. each; fine trees, 5s. each; carriage paid to London.

Nurseries, Sawbridgeworth.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7s. 6d. each; for Planting Out, from 3s. 6d. each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec. 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

5000 BLACK and BLACK NAPLES CURRANTS, extra fine.

10,000 RED GRAPE and RED VICTORIA CURRANTS, extra fine.

250,000 Two-years-transplanted QUICK, 2 to 2½ feet, and 2½ to 3 feet, strong, healthy, and well-rooted.

For prices, &c., apply to J. W. COOKS, Donington Nurseries, near Spalding.

The "Pine Apple" Scarlet Flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best of the varieties already sent out, and it has proved superior to either. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, of a rich scarlet colour, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a first-class variety for preserving. Price 2s. 6d. per packet.

The following list of Melons have been sent out in former years by E. T., none of which have failed to give satisfaction, and can now be supplied at 1s. per packet:—Bromham Hall, Garibaldi (scarlet flesh), General Havelock, M'Ewen's Arundel Hybrid Green Flesh, ditto Scarlet Flesh, Golden Drop, Golden Perfection, Scarlet King, Golden Ball, Austen's Incomparable, Queen, Bowood Green-flesh, Emperor. The following varieties can also be supplied at 1s. per packet:—Monro's Green Gage, Monro's Crystal Palace Hero, Eclipse, Scarlet Gem, Green Gage, Incomparable, Pine Apple Green Flesh, Camerton Court, Blackall's Green Flesh, Bailey's Green Flesh, Beechwood, Windsor Prize, Fleming's Trentham Hybrid, Duncan's Green Flesh, Hampton Court, Egyptian Green Flesh, Cuthill's Camberwell Beauty, Gordon Castle.

CUCUMBERS.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2s. 6d. per packet.

The following varieties at 1s. per packet sent out by E. T.:—Sir Colin Campbell, General Canrobert, Victory of Bath, Gordon's White Spine, Lord Kenyon's Favourite, Phenomenon, Captivation, Rifleman, Tiley's Improved Perfection, and Wonderful Ridge; as also the following, sent out by other growers:—Mill's Jewess, Manchester Prize, Conqueror of the West, Hunter's Prolific, Incomparable, Sion House, Cuthill's Black Spine, Allen's Victory, Champion of England, Stockwood Ridge, Ipswich Standard, Ayres' Prolific, Manchester Prize, Hamilton's Black Spine, Sutton's Champion, Dickson's Newton Hero, Burgess's Conqueror, Kelway's Victory, Henderson's A 1.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1s. per packet

TILEY'S SOLID WHITE CELERY, 1s. per packet.

Griffin's ALMA LETTUCE, true, 1s. per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER and MELON in the Advertisement, with the exception of General Outram Cucumber, for 3s.

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class:

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. " ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised.

CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.



To Planters of Public Parks, Cemeteries, and Avenues.

MAULE AND SONS invite attention to a fine Stock of Specimen CEDRUS DEODARAS, from 7 to 8 feet high; all thoroughly prepared with Large Pots, so as to insure their removal with the greatest safety. Price 10s. 6d. each. Larger and smaller sizes at the same proportionate low figures.

The Nurseries, Bristol.

DOBSON'S UNEQUALLED CALCEOLARIA SEED.—In sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each. The quality of this superb strain is too well known for much comment, and may be depended upon as the most superb ever offered. May be had of the following Agents, who have had supplies, and where Coloured Drawings by Andrews may be seen.

Bristol	Messrs. GARAWAY & Co.
Cheshunt	" PAUL & SON
Chester	" F. & A. DICKSON & SONS
Dublin	" TOOLE & Co.
"	" DICKSON, HOGG & ROBERTSON
Maresfield	" WOOD & SON
Reading	" SUTTON & SONS
Rugby	Mr. TREEN
Sheffield	Messrs. FISHER, HOLMES & Co.
London:—	
Chelsea	Messrs. VEITCH & SON
Covent Garden	" CHARLWOOD & CUMMINS
Chiswick	" GLENDINNING & SON
Bishopsgate Street ..	" FRASER, RICHARDSON & GOAD
Mansion House Street ..	" FLANAGAN & SON
Leadenhall Street	" HURST & SON
Russell St., Covent Garden	Mr. KERNAN
60, Barbican	Messrs NUTTING & SON
Tooting	" ROLLISSON & SON
Holloway	Mr. B. S. WILLIAMS
High Holborn	" J. G. WAITE
London Bridge	Messrs. WRENCH & SON
America	Messrs. BLISS, Springfield
Australia	Mr. HOCKING
Hamburgh	Messrs. PETER SMITH & Co.
Paris	" VILMORIN & Co.
Prussia	" PLATZ & SON

Or of J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

VEGETABLE SEEDS, best quality only.
FLOWER SEEDS, best quality only.
FARM SEEDS, best quality only.
Prices moderate. CATALOGUES gratis.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—s.	d.
LILIUM LANCIFOLIUM ALBUM	1	0
" " ROSEUM	1	3
" " RUBRUM	1	3

Three each of the above, 10s.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none.

DOBSON'S SUPERB CALCEOLARIA, in sealed Packets.
DOBSON'S SUPERB CINERARIA, in sealed Packets.
DOBSON'S SUPERB PRIMULA, in sealed Packets.
DOBSON'S SUPERB PANSY, in sealed Packets.
DOBSON'S SUPERB SHOW PELARGONIUMS, ditto.
DOBSON'S SUPERB FANCY PELARGONIUMS, ditto.
DOBSON'S SUPERB BALSAM, in sealed Packets.
DOBSON'S SUPERB ANTIRRHINUM, in sealed Packets.
DOBSON'S SUPERB LOBELIA SPECIOSA, in sealed Packets.
DOBSON'S SUPERB HOLLYHOCKS, in sealed Packets.

The above, post free, in packets, 1s., 2s. 6d., and 5s., except Calceolarias and Pelargoniums, which are 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

The Trade supplied liberally.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—s.	d.
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..	2	6
" LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

New Dracæna.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer good Strong Plants of

DRACÆNA TERMINALIS LATIFOLIA PENDULA, a very distinct novelty, at 15s. each.

PHALÆNOPSIS SCHILLERIANA, good established plants, at 4l.

" AMABILIS, ditto, at 3l.

LILIUM LANCIFOLIUM PUNCTATUM, strong roots, at 5s.

The above named Plants can be supplied by the Dozen.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

CHEAP PLANTS.—The following in strong Plants for stock:—

NEW FUCHSIAS, best of 1863, per dozen, 6s.
NEW VERBENAS, ditto, per dozen, 4s.
NEW AGERATUM (PRINCE ALFRED), the best out, per dozen, 6s.
NEW GERANIUMS, (BEDDING), per dozen, 9s.
NEW PETUNIAS, per dozen, 6s.
LOBELIA PAXTONIANA, GORDONIANA, and four others, best of 1863, per dozen, 4s.
NEW TROPÆOLUMS, best of 1863, per dozen, 6s.
NEW HOLLYHOCKS, per dozen, 18s.
NEW ANTIRRHINUMS, per dozen, 4s.
NEW PENTSTEMONS, per dozen, 6s.
NEW MIMULUS (MACULOSUS), per dozen, 4s.
PAMPAS GRASS (ROSEUM), per dozen, 9s.
LONICERA AUREO-RETICULATA, per doz, 6s. to 9s.

Also the following in strong Plants:—

HEPATICAS, of sorts, per dozen, 3s. to 4s.
PRIMROSES, per dozen, 4s. to 9s.
POLYANTHUS, choice mixed, per dozen, 3s.
AURICULAS, border variety, per dozen, 3s.
LILIES OF THE VALLEY, per dozen, 2s.
LAVENDER, per dozen, 3s.
PINKS, finest named, per dozen, 3s. 6d.
VIOLETS, DOUBLE WHITE, PURPLE, and RUSSIAN, 3s.
ŒNOTHERA MISSOURIENSIS, per dozen, 4s.
" SPLENDENS, per dozen, 4s.
DIELYTRA SPECTABILIS, per dozen, 4s.
PHLOX, fine named, per dozen, 4s.
HOLLYHOCKS, fine seedling, per dozen, from 3s.
GNAPHALIUM LANATUM, per dozen, 4s.
PANSIES, fine named, per dozen, from 3s
100 CHOICE HARDY HERBACEOUS PLANTS in 50 Varieties, carefully named and packed for 25s.
12 SUPERB STANDARD ROSES, 12 ditto DWARF } 24 sorts for 21s.

☞ Carriage of Parcels amounting to 20s., paid to London.

Post Office Orders payable on Castle Hedingham, to WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Ranunculuses, Anemones, Seeds, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, invites attention to his unrivalled COLLECTION of the above-named Flowers, of which he offers selections as under :—

RANUNCULUSES,	50 superb sorts, named	£2 0s.
,,	50 fine ditto	1 0
,,	100 select mixtures, 5s., 8s. and..	0 15
ANEMONES,	50 splendid double, named ..	0 13
,,	50 select mixtures	0 5

Treatise on CULTURE of RANUNCULUS, for 7 stamps. Ditto on ANEMONE, 4 stamps.

CATALOGUES gratis.

IMPORTED GERMAN SEEDS.—Named Asters, Stocks, Zinnias, Balsams, Phloxes, Larkspurs, Wallflowers, Immortelles, &c., in assortments, 1s. to 5s. post free. Annuals, 25 choice varieties, 5s.

All the above can be forwarded safely per post.

PINUS DOUGLASII.—A Box of CONES in good condition, direct from Vancouvers, TO BE DISPOSED OF at the price charged for collecting in Vancouvers.

Apply to Rev. M. J. BERKELEY, King's Cliff, Wansford.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

FINE FRUITING ORCHARD-HOUSE TREES.

PEACHES. | APRICOTS.
NECTARINES. | CHERRIES.
PLUMS.

Price on application.

GEO. S. DODS, Epsom Nursery.

DWARF-TRAINED FRUIT TREES.

PEACHES. | APRICOTS, fine.
NECTARINES. | PLUMS.

Price on application.

GEO. S. DODS, Epsom Nursery.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, NARROW-LEAVED ENGLISH, 2 years seedling
,, ,, ,, fine transplanted
,, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
,, HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
,, WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
,, LOMBARDY, 8 to 10, and 10 to 12 feet
,, ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
,, ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black

Huntingdon Nurseries.

Important to Planters.

CHARLES CLARKE, Windmill Hill Nursery, Gravesend, has a fine Collection of DECIDUOUS FLOWERING SHRUBS; also a mile of ornamental SPECIMEN FOREST TREES from 10 to 15 feet high; many worked varieties, too numerous to detail. These to be sold very cheap, as the ground is wanted. Large Laurels, very handsome Specimen Yews, Firs various, Scarlet Horse Chestnuts, strong Quick, Ivies in and out of pots, very handsome Gooseberries and Currants, Sea Kale, &c. Also Standard Apples, Pears, Plums, and Cherries, and Dwarf-trained ditto, not to be surpassed.

Handsworth Nursery, near Sheffield.

FISHER, HOLMES AND CO. have to offer the following superior well-grown and good-rooted TREES, SHRUBS, &c., viz. :—

50,000 BLACK ITALIAN POPLARS, 2 to 3 ft. and 3 to 5 ft., one of the best trees for damp or wet situations.
50,000 PORTUGAL LAURELS, extra transplanted, stout and well furnished, 9 to 12 in. and 12 to 18 in.
50,000 Strong Transplanted PEAR STOCKS, good roots, mostly fit for working the first season.
6,000 ONTARIO or AMERICAN POPLARS, 5 to 6 ft. and up to 10 ft., well adapted for exposed or smoky situations, strong.
3,000 GIANT or CANADIAN ELMS, 4 to 7 ft., fine.

Several thousands each of the following, viz.

DOUBLE-FLOWERING GORSE, in pots, fine.
ENGLISH and SCOTCH LABURNUMS, strong, 5 to 8 ft.
NORWAY MAPLES, extra transplanted, 5 to 8 ft.
HORSE CHESNUTS, stout, 4 to 7 ft.
ARBUTUS UNEDO, in pots, stout and bushy, 1 to 2 ft.
CREAM and WHITE-FLOWERING BROOMS, extra transplanted.
ARBORVITÆ LOBBI, extra transplanted, well furnished, fine, 3 to 4 ft.
HARDY HEATHS, of sorts, fine bushy beautiful plants.
VIRGINIAN CREEPERS, fine.
EARLY and LATE RED HONEYSUCKLES, strong.
COTONEASTER MICROPHYLLA, strong.
RIBES SANGUINEUM, Double-flowering.
WEIGELAS, Van Houtte, Stelzneri, Isolene, striata, and others, strong
ROSES, STANDARDS and HALF STANDARDS, fine named; for sorts, see our Printed List No. 12.
FRUIT TREES, extra quantity of Standard PEARS, comprising Jargonelle, Beurré Diel, Seckle, Easter Beurré, Prince Albert, Citron des Carmes, Glou Morceau, Beurré Clairgeau, Brown Beurré, Winter Bergamot, with many other good and useful kinds, 4½ to 6 ft. stems.
APPLES, Ribstone Pippin, several hundred, 4 to 6 ft. stems, strong.
PEARS, two years untrimmed, fine, suitable for pyramids.
PLUMS, Green Gage and Magnum Bonum; several hundred Standard 4½ to 5½ ft. stems.
CRABS, Scarlet-fruited Standards, fine.
FRUIT TREES, other kinds, see our Printed List, No. 3.

Priced Lists on application.

Transplanted Forest Trees.

MARSH AND PERKINS have pleasure in offering the following, being fine and well rooted.

Prices on application to 42, Drapery, Northampton.

BEECH, 2 to 3 feet.
LARCH, 1½ to 2 feet and 2 to 3 feet.
WHITE THORN, 2 inches, 2 and 3 years transplanted.
SEEDLING LARCH, 1 year.

CATTELL'S ECLIPSE BROCCOLI.—Large White and Late. 1s. per Packet, post free.

The above is the finest late Broccoli that has ever come under my notice. As late as the middle of last June I had fine white heads of it as large as a peck measure.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.

Fulham Nursery, London, S.W.—January 16.

Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. per packet. Will be forwarded to any part of England on forwarding 26 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARK & SON, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had post free on application.

The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend :—

DILLISTONE'S EARLIEST PEAS, 1s. 6d. per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2s. 6d. per packet.
BROCCOLI, SNOW'S SUPERB, 2s. 6d. per ounce.
CUCUMBER KIRKLEES HALL, 1s. per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1s. per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1s. per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1s. per pkt.
MELON SCARLET PERFECTION, new, First Class Certificate at Royal Horticultural Society, 2s. 6d. per packet.

Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

New Seeds.

FISHER, HOLMES AND CO., Handsworth Nursery, Sheffield, beg to offer the following, which they have perfect confidence in recommending :—

BEET, CLAYTON'S SUPERB DWARF DARK RED; extra packets, 1s. and 2s. each.
BORECOLE, GREEN CURLED, a very superior variety; packets, 6d. and 1s. each.
BROCCOLI, HANDSWORTH, SUPERB LATE WHITE; packets, 1s. and 2s. each.
CUCUMBER, BATLEY TELEGRAPH, not to be surpassed; 3s. per dozen seeds.
CUCUMBER, BARTON'S MONARCH, excellent for general purposes; 1s. per dozen seeds.
CUCUMBER, WILSON'S PROLIFIC, the very best for forcing; 1s. 6d. per dozen seeds.
CUCUMBER, PORTER'S PROLIFIC, very superior; 3s. per dozen seeds.
LOVE APPLES, GRENIER, new packets; 1s. each.
PARSLEY, very superior Curled, beautiful for garnishing; packets, 6d. and 1s. each.

Agents in London, Messrs. HURST & SON, 6, Leadenhall Street, E.C.

PRICED CATALOGUES of VEGETABLE and FLOWER SEEDS, Gratis and Post Free on application to Messrs. FISHER, HOLMES & Co.

CATTELL'S DWARF PURPLE-TOP BEET.—The colour of the root is a splendid dark crimson of finest quality, not having the light centre as possessed by other kinds, and when growing it is the truest and handsomest Beet in cultivation.

To be had only in sealed packets, price per oz., 1s., postage free.

The following Seedsmen have already had a supply, and of whom it may be had genuine.

Messrs. SUTTON & SONS	Reading.
,, WILLIAM WOOD & SON ..	Maresfield
,, HURST & SON	6, Leadenhall Street.
,, J. & C. LEE	Hammersmith.
,, THOS. BUNYARD & SON ..	Maidstone and Ashford
Mr. THOMAS CRIPPS	Tunbridge Wells.
,, JAMES VEITCH	Chelsea.
,, W. DENYER	82, Gracechurch Street

Trade Price on application.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

THE YORKSHIRE HERO PEA.—A Dwarf Green Wrinkled Marrow, pronounced by all who have tried it to be a "WONDERFUL" Pea. We have selected from numerous testimonials the following :—

From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart. *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer; requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thin in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can readily dispose of at 5s. per quart to those who saw them in bearing."—Bracebridge, Oct. 5, 1863.

Price 5s. per Quart.

EDMUND PHILIP DIXON & SONS, Yorkshire Seed Establishment, Hull.

Supplied in London :—

Messrs. HURST & SON, 6, Leadenhall Street.
,, COOPER & BOLTON, 152, Fleet Street.
,, BECK, HENDERSON, & CHILD, Upper Thames Street.
,, JACOB WRENCH & SONS, London Bridge.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine, and prices low.

Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6d. per Ton, or 8s. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2s. each.

Seed Potatos.

JOHN KELLETT begs to offer FLUKE KIDNEYS—the best late Potato; and DALMAHOY, the best second early, picked for Seed from land unbroken for 70 years. Price per bushel, or load of 252 lbs. on application.

Green Lane Nurseries, Heaton Norris, Stockport.

The Trade liberally dealt with.

EARLY POTATOS.

GOLDEN DROP WHITINGS, earliest variety grown, and very prolific.
ASHLEAF KIDNEY, true.
MYATT'S IMPROVED ASHLEAF.

Price on application.

GEO. S. DODS, Epsom Nursery.

To the Seed Trads.

PEAS.—Early Emperor, Prizetaker, Bedman's Imperial, Ne Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to

MARSH & PERKINS, 42, Drapery, Northampton.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5s. per quart.

	per packet—s. d.
DIXON'S New MAMMOTH WHITE CELERY ..	1 0
DIXON'S New CHAMPION GREEN COS LETTUCE	1 0
DIXON'S YORKSHIRE FAVOURITE MELON ..	1 0
DIXON'S YORKSHIRE HERO CUCUMBER ..	2 0
The EARLY FORCING CAULIFLOWER	1 0
The ROSEBERRY BRUSSELS SPROUTS	0 6
MELVILLE'S VARIEGATED GARNISHING KALE	0 6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

Ornamental Grass for Game Covers, &c.,

(ELYMUS GLAUCESCENS.)

B. S. WILLIAMS begs to call the attention of noblemen and gentlemen to the above ORNAMENTAL GRASS. It is perfectly hardy, having proved it for several years, and can recommend it as being superior to anything yet offered for that purpose. 6s. per dozen, 40s. per 100.

Paradise and Victoria Nurseries, Holloway, London, N.

SEED CORN from the (Cold Chalk) Chiltern Hills, clean, true, and in good sowing condition, a capital change for all other soils.

WATERLOO OATS, for early or late sowing, good croppers in corn and straw, 25s. per quarter.
GOLDEN MELON BARLEY, a selection from Chevalier, 35s. per quarter.
HALLETT'S RED NURSERY WHEAT, having a few white corns in it, at 45s. per quarter.

New sacks and delivery to Henley Station included in prices. Cash to accompany orders addressed to Mr. R. C. M. YOUNG, Hambleden, Henley-on-Thames.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill 2 bushels per acre.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

THE LONDON SEED COMPANY, LIMITED, has been established under the Companies' Act of 1862, for the purpose of supplying all kinds of Seeds for the Farm and the Garden.

The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.

The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.

The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.

One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.

ALFRED BREWIN, Manager.

REIGATE SILVER SAND, 7s. 6d. per ton packed, 16s. per ton, delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c.

Handsome specimens of Araucaria imbricata, 12 to 14 feet; Cryptomeria japonica, 8 to 10 feet; Fitzroya japonica, 6 to 7 feet; Libocedrus chilensis, 6 to 7 feet; Picea Pinsapo, 12 feet; Thujopsis borealis, 7 to 8 feet; Wellingtonia gigantea, 7 to 8 feet; also a select collection of other Coniferæ and plants of various sizes.

Prices with all other particulars on application.

N.B. Loaded trunks can be sent on all the principal railways. W. SHORT, Reigate, Surrey.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application: it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.



SUTTON'S SHORT SELECT SEED LIST,

which contains the price of every article separately, is NOW READY, and may be had GRATIS and POST FREE on application to

SUTTON & SONS, Seed Merchants,
Reading.



GENUINE NEW SEEDS,
CARRIAGE FREE.

DESCRIPTIVE PRICED LIST
FOR THE PRESENT SEASON,
Post free upon application.

JAMES DICKSON AND SONS,
SEED MERCHANTS AND NURSERYMEN,
102, Eastgate Street,
Chester.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24, 1863; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W

Genuine Seeds, Carriage Free.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., begs to state that he is now prepared to supply with NEW and GENUINE SEEDS all orders he may be favoured with.

A PRICED and DESCRIPTIVE CATALOGUE is now Published, and will be forwarded Post-free to all applicants. It contains all that is really worth growing amongst novelties, and carefully selected lists of indispensable articles. The Prices are quoted as low as possible for the finest samples that are to be procured.

Complete COLLECTIONS of KITCHEN GARDEN SEEDS, for one year's supply, containing none but the best and most useful kinds. 10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, 84*s.*

WILLIAMS's MATCHLESS RED CELERY, 1*s.* 6*d.* per packet.

A large stock of strong ASPARAGUS ROOTS for Forcing.

CHOICE GLADIOLI ROOTS, 24 Choice Varieties, one root of each for 21*s.*

Ditto, NAMED VARIETIES, 4*s.*, 6*s.*, 8*s.*, and 10*s.* per doz.

DOUBLE TUBEROSES, just imported, 3*s.* per dozen.

NEW AND GENUINE GARDEN SEEDS.

LUCOMBE, PINCE & CO.

Beg leave to say that their PRICED DESCRIPTIVE CATALOGUE of NEW SEEDS is now ready, and will be forwarded Post Free on application.

This Season's abundant harvest of Seeds generally, enables L., P. & Co. not only to offer them of superior quality, but also at unusually low prices.

A comparison of their prices with those of any other respectable Firm, previously to giving orders, is respectfully solicited.

EXETER NURSERY, EXETER.

GERANIUM WHITE TOM THUMB versus SNOWBALL.

"In reference to the assertion that the variety 'Snowball' has been tested by planting out, we are duly aware of the fact, and also of the result, in having been found inferior to Madame Vaucher."

The above remarks having been given in the *Journal of Horticulture* (January 5), we think it our duty to correct the same, by stating it to have been our intention to say that it had not surpassed Madame Vaucher, and whether by being planted in different soil its habit may improve, may be left to the test of another season's culture, and the superiority of the two varieties in question to be decided by the unerring testimony of public opinion.

In reference to the remarks made by us (at p. 1198) on the inferiority of Geranium "Snowball," which Messrs. Jas. Carter & Co. style invidious, we simply state our inability to perceive how a just comparison can, by fair inference, appear an invidious one. Having purchased the best Seedling variety of a Geranium from a raiser, and honestly avowed by him as such, we think it but just to him, ourselves, and the public to protect our interests from misconceptions arising from the offer of others known to be of inferior quality.

With regard to Messrs. Carter & Co. complaining of our "direct" manner in exposing the real difference of the plants in question, we need but refer to their respective properties, and to the absence in the one of those essential features required for flower-garden decoration, to justify us in the statements made by us. Any intelligent cultivator is aware that a variety of Geranium may have "substance of flower, purity of colour, and form of truss," without possessing one essential feature that makes up a first-class bedding plant.

That the name of "White Tom Thumb" should appear objectionable to Messrs. James Carter & Co. we are not surprised at, since it openly implies the features and properties most desirable to the cultivator. The name expresses its character if not its excellencies, in being of "Tom Thumb" habit with white flowers. We are aware that it is unlike that favourite variety, and desirably so, in having a larger and more compact truss, with neater foliage, &c.; and if its appellative is not otherwise answerable to its qualities, it is because its individual properties of DWARF HABIT, SMALL LEAF, LARGE TRUSS, COMPACT OUTLINE, PURE COLOUR, FREE BLOOM, and PERMANENCE OF EFFECT, do not admit of being expressed in one short name.

That Messrs. Carter & Co. should also demur to our plant being otherwise named than after its parent type, Madame Vaucher, appears to be an anomalous assumption; but in admitting the questionable policy of such a rule, why should the name of their own adopted variety form so ominous an exception?

If an improved variety of a popular plant differs but in some one particular feature from the original type, it may still be best recognised by it; but when the differences of growth and bloom ally it to any other popular favourite in the same tribe, it will undoubtedly be best understood by its new alliance.

The best evidence in favour of Geranium "White Tom Thumb" is, that there has been but one opinion as to its merit for purity of colour, and general effect, from all who have seen it. Having been purchased by our personal selection, and not through an agent, we have adhered closely to our own judgment of its value; and as their plants, as well as ours, were the produce of seed sown two years ago, we do not affirm, as Jas. Carter & Co. in the case of Geranium "Snowball," that it was tested against all the best white varieties in the same two seasons.

Messrs. Carter & Co. inquire by whom Geranium "Bel Demonio" is considered inferior. We again remind them that it was first submitted for our opinion and purchase, and it was in our establishment that their Agent first saw the plant. After testing its qualities with others in the same class, and finding its merits inferior as a new one, we declined taking it.

We correct an error in our former notice that GERANIUM "WHITE TOM THUMB" would be sold out in 1865; it should have been in 1864.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.



CARTER'S COLLECTIONS of GARDEN SEEDS for 1864.



FOR the convenience of those of our Customers who have not the time or inclination to make out their own selection of Vegetable Seeds, we submit the undermentioned COLLECTIONS, to which we respectfully invite attention, and we confidently hope that the liberal and judicious manner in which the selections are made, will induce our Customers to favour us with their commands, also their kind recommendations to their Friends. We have bestowed great care in the arrangement of the sorts; none but what we have proved in our Trial Grounds at Dedham to be the very best of its class is included, and those varieties have been chosen that are most calculated to procure a constant SUPPLY of the best kinds of VEGETABLES all the year round.

These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

No. 1, price 10s. 6d.; No. 2, price 21s.; No. 3, price 42s.; No. 4, price 63s.

CARTER'S GARDENER'S AND FARMER'S VADE-MECUM. (Now Ready.)

PART I.—Containing Scientific Description of upwards of 2000 Species and Varieties of Flower Seeds, with Lists of Bulbs and Plants for Early Spring Planting, and a Calendar of Garden and House Operations for every month in the year.

PART II.—Comprising Complete Lists of Vegetable and Farm Seeds, with cultural directions and a Calendar of Practical Farm Operations.

PARTS III. and IV. will be published in May and September respectively.

The entire Book will be forwarded in Parts as issued Free of Charge, upon receipt of 12 *Postage Stamps. Gratis to Customers.*

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.
A trial is respectfully solicited.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

SUTTON'S

UNRIVALLED COLLECTIONS of GARDEN SEEDS

FOR ONE YEAR'S SUPPLY, WITH INSTRUCTIONS ON CULTIVATION.

1.	A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply		£3	3 0
2.	A Complete Collection of KITCHEN GARDEN SEEDS, proportionately reduced		2	2 0
3.	A Complete Collection of KITCHEN GARDEN SEEDS	ditto ...	1	11 6
4.	A Complete Collection of KITCHEN GARDEN SEEDS	ditto ...	1	1 0
5.	A Complete Collection of KITCHEN GARDEN SEEDS	ditto ...	0	15 0
6.	A Complete Collection of KITCHEN GARDEN SEEDS for a Small Garden		0	10 6
7.	A Complete Collection of KITCHEN GARDEN SEEDS, extra quantities, for a Large Family		5	5 0

All Goods Sent Carriage Free by Rail, except very small parcels, and 5 per cent. discount allowed for Cash Payment.

The sorts of VEGETABLES included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation, and of which sorts we have therefore grown large Crops of Seed. We exclude from our Collections not only inferior old sorts, but also such new ones as we have been unable to test the merits of, and which are selling at high prices. By this means we are enabled to furnish a Complete Collection at much less expense than when a Gentleman or his Gardener makes his own selection.

A List of the Contents of SUTTON'S COMPLETE COLLECTIONS may be had Post Free on application, as also SUTTON'S SHORT SELECT SEED LIST, which gives the price of every article separately.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a General Meeting of the Members of this Institution, held on Thursday, the 14th inst., for the purpose of Electing Three Pensioners, the following was the result of the Ballot:—

CANDIDATES.

NAME.	AGE.	VOTE.
ROBERT DOWDELL	74	581
JANE ATLEE	73	802
BENJAMIN COLLINS	65	114
CUTHBERT EMBLETON	61	220
JOHN BOSWELL	67	19
MARY BRAY	56	242
GEORGE GREEN	77	723
WILLIAM KER	63	119

The Meeting then declared JANE ATLEE, ROBERT DOWDELL and GEORGE GREEN, as having the greatest number of votes duly elected Pensioners of this Society.

14, Tavistock Row, Covent Garden, W. EDWD. ROGER CUTLER, Secretary

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A MEETING of this COMMITTEE will be held on FRIDAY, January 29, at the Rooms of the Society at South Kensington, for the Examination of such FRUITS and VEGETABLES as may then be submitted, and for awarding the following Prizes:

CLASS A.—For the best Dish of ADAMS' PEARMAIN APPLE. 10*s*., 5*s*.
CLASS B.—Ditto MARGIL. 10*s*., 5*s*.
CLASS C.—Ditto OLD NONPAREIL. 10*s*., 5*s*.
CLASS D.—Ditto JOSEPHINE DE MALINES PEAR. 10*s*., 5*s*.
CLASS E.—Ditto ZEPHIRIN GREGOIRE. 10*s*., 5*s*.
CLASS F.—Ditto of any of the newer varieties of PEARS. 10*s*., 5*s*.
CLASS G.—The best Two Bunches of New BLACK HAMBURGH GRAPES. 30*s*., 20*s*.

All Fruit must be ripe, sound, and fit for table. A Dish is to consist of Six Fruits. Subjects for Exhibition must be at the rooms by 11 o'clock on the day of Meeting. As the awards are made by flavour, those Exhibitors who require their Fruit to be returned must not expect to receive it entire.

Communications and Packages to be addressed to ROBERT HOGG, LL.D., Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, JANUARY 16, 1864.

MEETING FOR THE WEEK.

THURSDAY, January 21—Linnean .. .. 8 P.M.

A VERY important paper has lately been published by SCHACHT in PRINGSHEIM'S "Botanical Annual," * on the modifications produced by the presence of FUNGOUS THREADS IN THE CELLS OF PLANTS. It was suggested many years since by Dr. HASSALL that the threads of moulds exercised a specific action on the cell walls, and experience has shown that this is the case, not only where the walls consist of little more than cellulose, but also where there is a thick woody deposit. The matter, however, has never been so closely investigated as by SCHACHT, and though a great many of his facts have no pretensions to novelty, there still remains much that was before unknown, besides other matter which is highly suggestive, while the old things are brought forward in such a guise as to wear an appearance at least of freshness.

His attention was first directed especially to the aërial roots of Orchids, and it is interesting to observe that even the mycelium of an Agaric is capable of penetrating and modifying the cells, as it confirms the suspicions which are entertained of the unfavourable influence of fungous spawn in general on vegetable structures with which it may chance to come in contact. In general, however, when once the threads have entered a cell, the baneful effect seems to be confined almost entirely to the points where they actually touch the walls, and this is equally the case whatever be their nature or thickness, or whether the threads are applied to the starch granules contained in the cells. The solid parts are made soluble apparently by the conversion of cellulose and starch, and what is more wonderful even of the woody lining, directly or indirectly, into sugar,† and consequently, wherever the

* Jahrbücher für wissenschaftliche Botanik. Dritter Band. Drittes Heft. Berlin, 1863.

† The threads of *Oidium violaceum* when penetrating starch grains acquire a rose-coloured tint when treated with sulphuric acid, a tint which is assumed when sugar and albuminous matter are in contact. The author's notion, therefore, of the conversion of the parts of the cells which are in contact with or are penetrated by the fungous threads into sugar, is not pure theory alone.

threads have rested, or have branched and burrowed into the substance of the walls, cavities or depressions are formed, which assume, according to circumstances, various characters. Hence in some cases the cell walls, after the Fungus threads themselves have entirely vanished, appear under the form of a spongy network, in others crystal-shaped impressions are left, while occasionally the depressions are spiral. The most easy passage from cell to cell is afforded by the punctures through the lining membrane which supply a means of communication with neighbouring cells, and in this case should the thread chance to branch within the puncture, we have extraordinary dilatations which have hitherto been considered as peculiarly abnormal forms, without any suspicion of their real origin.

By an ingenious manipulation our author has been enabled to examine microscopically certain conditions of decaying wood, of which hitherto it has been impossible to make clean sections from their friable nature.* And even in cases of that chemical dry-rot which consists in a slow combustion, known under the name of Eremacausis, he has found that during some part of the process fungous growths have been at work. He finds even traces of the same thing in fossil woods, a fact of which Mr. ROBERT BROWN was to a certain extent cognisant, as he informed us many years ago. In true dry-rot the whole effect is not due to the penetration of the threads, which are generally very superficial, but something depends on a specific action, and more probably on the peculiar faculty which Merulius lacrymans has of attracting moisture. Indeed, in every case a certain quantity of moisture is absolutely necessary for the development of the fungous threads, and their penetration into the contiguous tissues.

It appeared from Herr SCHACHT'S observations—a fact indeed which was ascertained before—that where the fungous threads are dark, and if we may so say carbonised, they are far less fugacious than when they are quite free from colour. Accordingly in certain cases where the spores are dark brown, and the threads white, the former are left behind in the cells when the latter have completely vanished.

We have of course been able to give merely a slight sketch of the memoir, and it may be acceptable to many of our readers to have the author's conclusions from the whole of his observations literally translated, as the Journal in which they appear is one which has not an extensive circulation in this country, notwithstanding the extreme value of many of its papers.

1. Besides true parasitic Fungi, others which live on decomposing substances, penetrate the dying or dead tissues of plants, and destroy them more or less completely. They are the almost universal companions of decay, and require for their development above all things moisture and oxygen.

2. These Fungi exercise a peculiar chemical influence on the cells of plants and their contents, acting either directly or indirectly. Starch, cellulose, and woody lining are dissolved by their chemical action. Both cellulose and lignine vanish together from the indurated cells, while on the contrary the intercellular substance is seldom if ever affected.

3. Cavities or canals arise by the direct contact of the fungous threads in the starch grains and thickened linings of the cells, as also complete perforation of the walls. The fissure-shaped crystalloid cavities in the cell lining of the bast-cells of Caryota, and the woody tissue of Hernandia, which were formerly considered as peculiar forms of cell punctures, are due to the action of fungous threads.

4. The dry-rot Fungus acts indirectly on the wood, whose cells are saturated with its juice, and in consequence lose their lignine and cellulose, though their walls suffer no corrosion.

5. The different forms of decay in wood are accompanied by Fungi which either completely destroy the tissue or alter its nature so much by the abstraction of the cellulose and lignine, that it becomes loose and friable. Fungi induce the rapid destruction of decaying wood.

6. The species of Fungus which induces destruction, is not always distinguishable, since fructification is not always present, and the threads of mycelium in the same Fungus are subject to considerable variations in the length and breadth of their articulations.

7. The brown fungous threads alone resist destruction for a considerable time, and like the brown envelope of the spores of the same Fungus are little if at all affected by concentrated sulphuric acid; the colourless threads, on the contrary, are extremely fugitive, and are frequently no longer present in the wood, though the channels which they have bored, and the more persistent spores when brown, give evidence of their former existence. *M. J. B.*

* A small portion of [illegible] is [illegible] for a short time [illegible] to dry, which may easily be divested of their [illegible] by immersion in warm water

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WE regret to have to record the loss of a veteran in the ranks of Horticulturists in the person of Mr. CHARLES MCINTOSH, who died in his 70th year, at his residence, Newcome Villa, Murrayfield, near Edinburgh, on the morning of the 9th inst. For some months he had been under medical treatment, and it would appear that he never completely rallied from the effects of a surgical operation, which it was necessary he should undergo some time since. He will be remembered not only as a gardener who during a long life had occupied a prominent position in the horticultural world, and who had in the course of it acquired a varied and extensive fund of information in all departments of horticulture; but also as one who had contributed largely to the literature, and through his writings to the scientific advancement of the profession; and, further, as the genial, kindly, unselfish, and warm-heated friend of a wide circle of professional associates and acquaintances.

Mr. MCINTOSH was born at Abercairney in Perthshire, in August, 1794. He was educated at Maderty, under Dr. MALCOLM; and after acting for some time under his father at Abercairney, he succeeded him in the charge of the gardens there, and afterwards removed to undertake the management of those of Taymouth Castle, the seat of the Marquis of BREADALBANE. While still young he left for the south, and was engaged as gardener to Sir THOMAS BARING, Bart., at Stratton Park, Hampshire, whence we find him in 1825 contributing to the first volume of "LOUDON'S Gardeners' Magazine," a description of an extremely useful and novel form of Orange tub. After leaving Stratton Park he was engaged under Mr. HORNER in laying out and planting the grounds attached to the Colosseum in the Regent's Park, then newly built. His intelligence and energy recommended him to the notice of Prince LEOPOLD, and at Claremont he resided for many years, during which period he effected very considerable improvements in the gardens and grounds. After the accession of Prince LEOPOLD to the Belgian throne, Mr. MCINTOSH was employed by the KING, whose confidence he possessed, not only to superintend the Royal Gardens at Claremont, but also to remodel those at Laecken, of which he for some time had charge. While filling this position at Claremont, Mr. MCINTOSH had many opportunities of meeting with the Princess VICTORIA, now our gracious QUEEN; and on more than one occasion HER MAJESTY has shown him kindnesses which are, or can be, rarely extended to any subject. In 1838, Mr. MCINTOSH returned to Scotland to take the management of the Duke of BUCCLEUCH'S gardens at Dalkeith; and it was he who planned the magnificent grounds and conservatories which form such an attraction to the Palace. After a period of nearly 20 years spent as head gardener to the DUKE, Mr. MCINTOSH resigned his appointment to become a landscape gardener and garden architect on his own account, since which time he has been engaged in beautifying the villa residences of many citizens, and the gardens and parks of many of the gentry and nobility of the country, his advice being sought not only in Scotland but in England. Prior to his departure from Dalkeith, Mr. MCINTOSH was presented by 600 subscribers with a handsome testimonial, consisting of a tea service and purse, the value of which was 325*l.*, in token of the eminent services he had rendered to horticultural science.

Mr. MCINTOSH was a voluminous writer, and his publications upon the several branches of the profession are numerous. Those however by which he will be best and most favourably known, are the *Practical Gardener*, published many years ago, and of which several editions have appeared; *The Greenhouse*, and *The Orchard and Fruit Garden*, of more recent date; and the *Book of the Garden*, published about 10 years since, in two bulky octavo volumes, recording the results of modern practice, and forming the most recent of garden encyclopædias. He was also a frequent contributor to the *Gardeners' Magazine*, *Paxton's Magazine of Botany*, and the *Gardeners' Chronicle*; and was connected with the periodical horticultural and agricultural literature of the northern metropolis, up to the time of his death. The horticultural department of the *Scottish Farmer* has been conducted by him from its commencement three years ago. He was a corresponding member of the Royal Caledonian Horticultural Society, of the Royal Horticultural Society, and of the Massachusetts Horticultural Society; a member of the Architectural Institute of Scotland, an A.L.S, F.R.P.S., and F.R.S.S.A.

WE return to-day to the subject of the cultivation of exotic fruits in our English gardens. It is very instructive to mark the geographical distribution of the fruits of the earth. The Cocoa-nut, as we have already observed, prefers a situation near the sea-shore, in addition to the heat of the tropics. The Mangosteen grows most luxuriantly on the Islands of the Eastern Archipelago, such as Borneo, Java, Singapore, &c.—places almost under the line, where the seasons vary but little throughout the year. It is always summer there, vegetation is evergreen, and growing and cold or dry seasons are almost unknown. The Mangosteen evidently requires a climate of this nature, and is consequently very difficult to manage in other tropical countries, like Southern India for example, which are subject to cool and hot, and wet and dry seasons. The Mango is much less exacting in its requirements than the Mangosteen. It is cultivated over a much greater space of latitude, and in places where the temperature and seasons are very variable. It is had in perfection in the Philippine Islands, and at Bombay, as well as over a great portion of Southern India.

The class of fruits with requirements like those of the Orange prefer a more temperate climate than the Mangosteen or even the Mango. Places with a temperature and seasons like Southern China, the south of Europe, the north of Africa, the Azores, and the islands in the Mediterranean, are best suited for this class of fruits. Southern China is the home of the Orange, the Lee-chee, the Longan, and the Wampee. Their cultivation extends northwards as far as the River Min, or to about latitude 26° north. In this part of the country the winters are comparatively mild; frost and snow are almost unknown, unless upon the tops of the highest hills. The cultivation of these fruits does not extend further to the northward. Two small kinds of Oranges very like the Tangierine, and the Kumquat (Citrus japonica) are, however, an exception to this rule.

Beyond the region we have named, and further north, another class of fruits is met with, one which requires a different climate again, namely, a summer of equal warmth but a colder winter. The Peach, the Loquat, the Yangmae (Myrica sapida var.), and the Vine, together with the species of Citrus above named, occupy this second belt of latitude, say from 25° to 35°; some of them, such as the Vine and the Peach, going even further north, while others do not go quite so far. And we may remark here, that between these degrees of latitude in that part of Asia our common English fruits, such as Apples and Pears, do not flourish, and where they exist at all, they are almost worthless.

These then are the natural conditions under which the various kinds of exotic fruits we have named are placed in the countries to which they are indigenous, or in which they are successfully cultivated; and we may fairly assume that if we can supply them, in an artificial way, with the same temperature, seasons, and soil, our efforts will have a fair chance of being successful. But if we are ignorant of, or if we disregard, the natural requirements of such fruit trees; if, for example, we keep forcing and steaming a plant all the year round, when it naturally requires a season of rest and repose, need we wonder that the tree remains barren, and eventually becomes sickly and stunted in condition. Or take another case, which, we may remark, is a very common one; suppose our plant requires a higher summer temperature than we are favoured with in this country to enable it to ripen its wood and lay up a store of nourishment, and we simply give it as much as we give to our indigenous fruit trees, can we feel any surprise if it remains unfruitful?

Such being, as we believe, the theory of a successful cultivation of exotic fruits, we will now endeavour to show how it may be practically applied. Leaving fruit trees which are purely tropical on one side for the present, we shall confine our observations to the second class we have mentioned, which is represented by the Orange, the Lee-chee, the Longan, and the Wampee. What,

then, is the character of the climate of Southern China, where these fruits are at home? We answer: warm summers, much warmer indeed than our English ones; mild winters; rainy weather, and consequently a moist atmosphere in the months of May and June. July and August are the hottest months in the year. During these months the thermometer (Fahr.) ranges between 80° and 94° in the shade; the air is very dry, and the atmosphere is clear and cloudless. In the winter, that is from December to March, the thermometer frequently sinks nearly down to the freezing point, and ranges from 65° to 33°. Ice or snow are rarely seen, except on the tops of the hills. The rains, as already observed, fall copiously in May and June; the summer and autumn is dry, and the other portions of the year are not remarkable for any excess of heat, cold, or dryness. This, then, is the atmosphere and temperature in which the fruit trees we have named grow and flourish, and yield abundant crops. If our English gardeners can supply this atmosphere and temperature in an artificial way by means of glass houses and hot-water pipes or fermenting materials, there is no reason why their labours should not be crowned with the most complete success. The different varieties of the Orange would probably be the easiest to manage among the fruits we have mentioned, and it would appear that we are already much more successful in its cultivation than we were a few years ago.

In the description of climate and temperature which we have given above, we have omitted one very important circumstance, namely, the temperature of the soil. Every intelligent gardener knows the importance of this, and therefore we will only add that in the cultivation of exotic fruits BOTTOM-HEAT is oftentimes as necessary as heat above ground.

THE Proprietors of the *Gardeners' Chronicle* have offered annually, for two years, the sum of Twenty Pounds in prizes each year for flowers &c. grown by Ladies, and shown by them at the meetings of the Royal Horticultural Society. The details are to be settled immediately.

—— MR. C. J. PERRY strongly recommends PEGGED-DOWN ROSES for the flower garden; and states their advantages to be:—1, that a much greater quantity of good blooms are produced; 2, the blooming period is considerably prolonged; 3, many kinds which are otherwise too much crowded with buds to open freely, will thus produce single blooms of great size; 4, the plants are less subject to injury from winds. The mode of procedure, which is described in last month's *Florist*, is to take vigorous plants budded low on the Manetti, or better on their own roots; to cut away all the small shoots, and a few inches of the ends of the strong ones; and to bend these pruned shoots carefully down to the ground, and fasten them with pegs strong enough to last for the season. The result is a crop of fine blooms—such blooms indeed as enabled Mr. PERRY to carry off two leading prizes at Birmingham last July. But besides the flowers, many shoots will be produced from the base, too strong for summer-flowering, but most of them such as to produce 'noble flowers' in the autumn. These are the shoots for pegging down the following season. The old ones are cut away in the course of the winter, and the plants, with their ample supply of strong shoots 4 to 8 feet high, are described as then resembling Raspberry bushes. These shoots are bundled together and tied to a stake to prevent their being injured by wind, and at the latter end of March are pegged down. Mr. PERRY observes, that when this method of pegging-down and dwarfing strong-growing Roses becomes generally known, many of the valuable robust show varieties will occupy the prominent position in our flower gardens, to which their merits entitle them.

—— In regard to the LUMINOSITY of FRAXINELLA (see p. 1134, 1863) Mr. JAMES BACKHOUSE states in the *Journal of Botany*, that he is certain the solution of this question, which would make the inflammability dependent on the presence of glands secreting etherial oil, is correct. This inflammability is not, however, he states, confined to the glands of the pedicels. Little round glands also cover the stems of the plant, and by applying a candle to the lower part, on a fine summer's evening, he has often obtained a sudden blaze enveloping the stems, and rising considerably above the plant. But the experiment can only be successful once in a season, as the combustible glands are not reproduced on the same stems. The late Prof. HENSLOW adopted a somewhat similar explanation. "The Fraxinella," he observes, "is covered with minute glands which excrete a volatile oil. This is continually evaporating from its surface, and on a calm still evening forms a highly inflammable atmosphere round the plant. If a candle be brought near it, the plant is enveloped by a transient flame without sustaining any injury from the experiment" (*Desc. and Phys. Bot.* 221.) Mr. BACKHOUSE further suggests that the red-flowered plant met with in gardens is the normal state of Dictamnus albus, while the white-flowered state of the plant from which apparently the name is taken, is merely an albino.

—— It has become pretty generally known that certain remarkably fine NEW PEARS have been raised by the Rev. J. HUYSHE, of Cullompton, the most familiar of which have been called HUYSHE'S Bergamot, and HUYSHE'S Victoria. To these, as recorded in our last year's volume (p. 8), has to be added a third, which had just fruited, and is called HUYSHE'S Princess of Wales, the quality of which, moreover, so far as experience has gone, is said to equal that of its sister seedlings. During the past season the Fruit Committee of the Royal Horticultural Society very properly offered prizes for the two better known sorts, which are already in the hands of pomologists, and some very fine fruit was produced, fully confirming the high rank which the Devonshire seedlings are entitled to take. That, however, which has hitherto been known as HUYSHE'S Bergamot, having neither the Bergamot shape nor flavour, is in future to be called HUYSHE'S PRINCE OF WALES, a change of name of which, as the varieties are no doubt destined to come into general cultivation, fruit-growers should take note.

—— Writing of ACORUS CALAMUS in the penny *Botanist's Chronicle* (Irvine), a contributor who adopts the signature "E. G. R." states that he has "found that quinine has its efficacy in ague and neuralgia quintupled by being administered in a strong infusion of Acorus."

—— The *Journal of Botany* gives amongst its BOTANICAL NEWS the following items:—Dr. SCHWEINFURTH, of Berlin, has started for Egypt, with the intention of exploring botanically the Sinai peninsula, and the eastern shores of the Red Sea.—The Historic Society for Lower Saxony—Niedersachsen, as nearly the whole of northern Germany was formerly called—has offered a prize for the best essay on the native plants of Lower Saxony, in their relation to the mythology and superstitions of the old Saxons.

FRANCIS BOOTT, M.D., V.P.L.S.

IT is with deep regret that we have had to announce the death of Dr. Francis Boott, F.L.S., L.R.C.P., a gentleman well known amongst a large circle of friends, no less for his love of science, and especially of botany, than for his cultivated mind and genial disposition, and the affectionate interest he took in the careers of young aspirants to honour in various branches of literature and art. Dr. Boott was born at Boston, in Massachusetts, U.S., Sept. 26th, 1792, and was the son of Kirk Boott, an Englishman who had settled there early in life; his mother was a Scotch lady, and his early education was acquired at Harvard University. When only between 16 and 17 years of age he came over to England, where he resided near Derby with a family connected with his own, and where he made the acquaintance of Mrs. Hardcastle, his future mother-in-law, from whom he acquired his taste for botany, and for everything that is beautiful in nature and refined in literature and art. At about this time he also became acquainted with Sir Joseph Banks, and formed life-long friendships with the late Robert Brown, Sir William (then Mr.) Hooker, Sir James Smith, and most of the eminent botanists of the day. During the years 1818–20 he made several voyages to America, and formed an excellent herbarium of Massachusetts plants, then little known in this country. These he afterwards gave to Sir William Hooker, in whose Herbarium they are preserved at Kew. On his final return to England in the latter year he determined to follow the medical profession, for which purpose he placed himself under the direction of the late Dr. J. Armstrong, for whose professional ability and private character he ever entertained a profound veneration. From London he went to the University of Edinburgh, where he studied under Hope, Munro, Alison, Pillans, Christison, and other most eminent men, of whom the latter only survives him. After presenting his inaugural Essay on Hydrocephalus, he received his degree of M.D. in 1824, and finally settled in London in 1825. Here he first held the chair of lecturer on botany in the Webb Street school of medicine, where his friend Dr. Armstrong was professor of Materia Medica. His lectures are said to have been admirable, both in matter and style, and to have excited much enthusiasm; whilst his untiring efforts to promote the welfare of his pupils in other ways were so deeply and generally felt, that on the eve of his too early withdrawal from the lectureship, they in one day raised a large subscription to present a testimonial "to their friend and teacher," a tribute which, with characteristic modesty and consideration, was declined as soon as heard of; he was however afterwards persuaded to accept a collection of books instead, in remembrance of their grateful feelings and good will.

The death of his friend Dr. Armstrong soon followed, at whose dying request he undertook to publish his life, which appeared in 2 vols. 8vo. in 1834, and was entitled "Memoir of the Life and Medical Opinions of John Armstrong, M.D.; to which is added an inquiry into the Facts connected with those forms of Fever attributed to Malaria and Marsh Effluvium. In this work Dr. Boott entered largely into the subject of the Plague in Egypt, Syria, Holland, France, and London; holding that the Plague obeys the same laws which govern other forms of malignant fever, and does not wholly lose its periodical type in the more northern latitudes. He also states his belief that mean temperature influences type, which he founds on a careful study of the disease in its march from Italy and the Mediterranean through Paris to Great Britain. He also published in 1837 two lectures on Materia Medica.

About this period University College was founded; an institution in which Dr. Boott took the warmest interest, holding for upwards of a quarter of a century the posts of member of its Senate and Council, and being chosen latterly President of the Committee of Council. During this time, and indeed up to the last, he kept up an active correspondence with America, while his house became a place of resort for many of his countrymen, who were not only introduced by him to the men best worth knowing in England, but were also provided with letters of introduction to his continental friends.

For some years Dr. Boott carried on a very successful practice in London, and was especially noted for his treatment of fevers, he being one of the first physicians who, abandoning the old system of confining the patient in hot close rooms, gave abundance of free air in carefully ventilated apartments. For the arduous duties of a full London practice he was, however, constitutionally unfitted; and inheriting a competency at a comparatively early age, he devoted most of his time to the study of literature, both ancient and modern, and to the analysis of an extensive and very difficult genus of plants, that of the Carices. The genus Carex is one of the largest in the vegetable kingdom, embracing, according to his computation, upwards of 600 species, and is spread over every quarter of the globe; and to the study of these he latterly gave up most of his time, much to the detriment of his health, though greatly to the interest of science. Amongst other contributions to their history, he prepared the monograph of 158 species, published in Hooker's "Flora Boreali Americana," and analysed and determined the species in every private and public herbarium to which he could gain access.

More recently he commenced at his own expence the publication of a folio work in two volumes, intended to contain no fewer than 600 plates and descriptions of Carices. Of this work 411 admirably executed plates, full of most accurate analyses of as many species and varieties, are already published: he was engaged in its continuation up to within a few weeks of his death, and we understand that a considerable part of a third volume is all but ready for publication. This work is certainly one of the most munificent contributions ever made to scientific botany, besides being one of the most accurate; on which account it certainly entitles its author to take a much higher place amongst Botanists than that of an amateur, which was all his modesty would allow him to lay claim to. Carex, he used to observe to his friends, was his hobby; tracing out the characteristics of its multitudinous forms was his delight; and to be the exponent of the structure of every species, after an examination of every available specimen, was his unselfish ambition. The work itself cost him many years of assiduous labour, and a very large sum of money; both drawings, engravings, and letterpress, being executed at his own cost. Of his own merits as author of so noble an undertaking, Dr. Boott could never be brought to speak (nor to listen to any praise of them), and the motto inscribed on the title page of the volumes, best explains his own estimate of his feelings regarding them.

> "The man who labours and digests things most,
> Will be much apter to despair than boast."—*Roscommon.*

A double allusion is here intended, to his own assumed incompetency for the task, and the perplexing difficulties the genus Carex presents to the systematist. Again, in no part of the volumes is there any allusion whatever to the duration or extent of his labours, or the manifold cares that must attend the production of so considerable a work; and, indeed, the only mention of himself as connected with the task he had set himself, is the following, which occurs in the dedication to John Amory Lowell, Esq., trustee of the Lowell Institute of Boston:—"I say nothing of the difficulties of my undertaking, undoubtedly increased by my inadequacy to treat them successfully."

Of the many kind offices he undertook on behalf of the needy, the sick and the diffident, this is no time to speak, for he suffered no allusion to them during his life; one action alone is so far public, and so truly characteristic, that we may be permitted to mention it; viz., his having placed in All Saints Church, Cambridge, a tablet in memory of Henry Kirke White, a poet in whose character and early fate he was deeply interested. The epitaph for this was by his friend Professor Smythe, of Cambridge, and the medallion portrait was executed by Chantrey; and it is a circumstance worth mentioning, that the first piece of sculpture received by the National Portrait Gallery was his gift to it of Chantrey's original of this medallion.

It was, however, in connection with the Linnean Society that Dr. Boott was best known in London; he joined the Society in 1819, and acted for some time as its Secretary, and for a longer period as its Treasurer. The latter office he still held when those changes were introduced into its working, to which the Society is so largely indebted for its present unexampled pros

perity; and it is not too much to say that but for his admirable moderation and judgment, those reforms could not have then been carried out. As it was, with consummate tact and irresistible kindliness of manner, he stepped in to harmonize opinions apparently the most opposite, as to what was for the best interest of that venerable body, and carried without a dissentient voice whatever organic changes were required. His tall and fragile frame, silvery voice, and quiet energy were then familiar, both in the Council and general meetings of the Society, at which he practically acted as the Nestor, and that amongst some of the oldest and most eminent scientific men in London.

In this, and in all other phases of life, Dr. Boott was remarkable for great force of character, boundless sympathy for whatever is good and beautiful, and an enthusiastic admiration for all honest cultivators of literature and science. His house was filled with pictures, chiefly by modern artists, selected without regard to names, but with a keenly discriminative eye to harmony of colour and truth of expression; his library was as select as were his pictures; and all his tastes, actions, and manners were in keeping. When practising as a physician, he discarded the customary black coat, knee-breeches, and silk stockings, for the very good reason that sombre colours could not but suggest gloomy ideas to the sick; and was one of the first who adopted the custom now universal in the profession, of dressing in ordinary costume. In doing this Dr. Boott adopted the blue coat, gilt buttons, and buff vest of the period, which he continued to wear to the last, and with which dress his casual acquaintances, no less than his personal friends, will ever associate him. In person he was so tall and thin as almost to suggest ill-health, and the refinement of his manners, his expression, address, and bearing, were in perfect keeping with his polished mind and many accomplishments. Of enemies he had none; very much, no doubt, because he shunned contact with uncongenial spirits; and he never lost a friend, which is the more remarkable, as he often appeared to be over enthusiastic in his estimate of the qualities of those he loved; this, however, mainly arose from that true modesty which with him amounted to an unconscious abnegation of self as a standard of comparison, and not to any affectation of admiration which he did not feel; for he was never known to alter such opinions.

Dr. Boott's scientific merits were widely known and recognised. He was on several previous occasions, and at the time of his death, a Vice-President of the Linnean Society; in 1837 he was elected a corresponding member of the Lyceum of Natural History of New York; in 1835 he became a Foreign Honorary Member of the American Academy of Arts and Sciences: in the same year an honorary Fellow of the Medical Society of Massachusetts; in 1840 a corresponding member of the Boston Society of Natural History; and in 1844 a correspondent of the National Institute of Science of Washington.

Dr. Boott's health had never been robust, and in 1839 he had a dangerous attack of pneumonia. From this time he had repeated slight attacks, but no alarming symptoms occurred till June, 1863, when the remaining lung gave way, and from that time he never fairly rallied. He died at his residence, 24, Gower Street, on Christmas Day; retaining to the last his faculties and all the characteristics of his most admirable life.

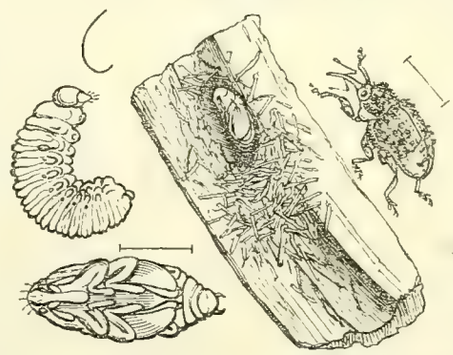
ENTOMOLOGY.

THE WILLOW BORING BEETLE.

INDEPENDENT of the value, in an economic point of view, of the genus Salix, whether grown as coppice wood or timber, or for basket and hoop-making, or the many other purposes to which their very flexible parts have been applied, a Salicetum or collection of growing specimens of the different kinds of Willows is of considerable botanical interest, in consequence of the great difficulties connected with the specific determination of these trees. The late Mr. Loudon in his "Arboretum Britannicum," twenty-five years ago, was compelled to admit and lament the unsatisfactory state of the science which, notwithstanding all his care, existed in the portion of his work relating to this genus. With the view to the determination of some of the many points of uncertainty thus admitted to exist, as well as from the beauty of growth in many of the trees themselves, various collections of the living trees have from time to time been formed. The Salicetum at Woburn was rendered famous by the volume printed for private circulation by the Duke of Bedford in 1829, entitled "Salictum Woburnense," in which 160 species were figured and described. The Arboretum of Messrs. Loddiges, at Hackney, also contained a fine collection of these trees, which were studied in 1836 for the purposes of the "Arboretum Britannicum" by Mr. Loudon and his contributors, and since that period others have sprung up, including one at the "Old" nurseries of Messrs. Paul & Son, at Cheshunt, to whom we are indebted for specimens of the insect described below, and which is one of the most destructive enemies to the Willow-tree.

Other species of insects have been enumerated as especially injurious to these trees, including the Goat Moth, Cossus ligniperda, which attacks the Salix babylonica in particular, and "as the larvæ in each tree are generally numerous, in the course of a few year they destroy so much of the trunk that the first violent gale of wind blows down the tree: so infested are the Weeping Willows, in many nurseries, with these insects, that scarcely one in ten can be selected free from them." (W. Curtis, in Trans. Linn. Soc., vol. i.) The Musk beetle, Cerambyx moschatus, in the same manner, but not to the same extent, attacks Willow trees; whilst the Trochilium bembeciforme or lunar hornet moth, is very injurious to Salix Caprea, the most valuable of the British Willows, the caterpillars boring into the solid wood of the trunk in a longitudinal direction. Even the twigs and young shoots are bored into by the larvæ of several minute midges belonging to the genus Cecidomyia, of which we have given instances in our articles on Cecidomyia viminalis, *Gardeners' Chronicle*, 1847, p. 588, and C. saliciperda, *Gardeners' Chronicle*, 1863, p. 891.

But one of the most injurious of these Willow-burrowing insects is a species of weevil, which would hardly be suspected of being such a culprit, first from the name, Curculio Lapathi, which was applied to it by Linnæus, and which, notwithstanding its impropriety, it still retains, and secondly, because the injury itself has been attributed to other insects, which, being attracted to the spot by the extravasated sap and rotten sawdust-like chips of wood made by the larvæ of the weevil, have been erroneously considered as the authors of the mischief. Mr. W. Curtis, in the article in the first volume of the Linnæan Transactions above referred to, has given the history of Nitidula grisea, a small beetle, the larvæ of which he had found in the sawdust-like material thrown out from various parts of the trunk of Salix viminalis, and which fell at its base in no inconsiderable quantity, and of which he had also found specimens of the perfect insect (not very unlike the common bed-bug in size and appearance) in the crevices of the bark. The whole of the trunk where this sawdust was found, emitted a smell somewhat like beer in a state of fermentation. A more careful examination of the state of the tree revealed the real cause of the mischief in the shape of a white grub very similar to that of the common nut weevil, and which proved to be the larva of the Curculio Lapathi. Messrs. Paul state that when the larvæ of the weevil first attack the tree, they eat through the bark and into the centre of the tree, sometimes not going so far as the



centre, and sometimes eating for a considerable distance between the bark and the wood before entering the latter. They appear to attack the trees at or near the ground, and eat their way from bottom to top of the main stem, occasionally eating through the outer bark. They begin their ascent by eating a round tubular hole several inches in length, occasionally winding off its first course at right angles. On looking amongst the trees so destroyed, at first sight they had every appearance of some one having wilfully taken a gimlet and bored holes for their own amusement.

The larva, as stated above, is a white fleshy grub very similar to, but much larger than, the Nut maggot; it is destitute of feet, the place of which is supplied by three pairs of fleshy tubercles capable of dilatation on the underside of the three anterior segments of the body. The head is armed with a pair of strong short triangular horny jaws. The body is curved, and very much wrinkled transversely. When fully grown (as represented in our woodcut, the natural size being indicated by the curved line) it forms an oval cell in the burrow which it has made, the outside of which is defended by a great number of small particles of the wood gnawed into fine short strips, as shown in our figure, and within this cell the larva is transformed into a white inactive pupa, represented as seen sideways, and of the natural size, within the cell, and as magnified and seen on its ventral surface in our lower figure. It was during the month of August that the transformations of the specimens sent to us took place, the pupa state not lasting more than three weeks.

The perfect insect, Curculio (Cryptorhynchus) Lapathi, varies in length from one-third to half an inch; it is of an opaque dirty black colour, with the sides of the thorax and apical portion of the wing-covers clothed with white scales, the latter as well as the thorax also ornamented with tufts of black scales. It feeds also upon the Alder, and, according to Gyllenhal, on the Rumex acutus, but the latter habitat is doubted; indeed Kirby and Spence attribute the application to the insect of the specific name of Lapathi to the accidental discovery of the beetle on some species of Dock (Lapathum) growing under Willows from which the insect may have fallen. In the Salicetum of the Botanic Garden at Oxford several species of Salix are in some seasons almost entirely destroyed by this insect, S. pentandra, S. decipiens, and S. nigricans being the least subject to its attacks, and S. viminalis, on the contrary, seeming to be especially subject to them. As the perfect insect is of considerable size, and is to be found easily on the trunk or leaves of the Willow trees during the months of August and September, a careful investigation of them should be then made, and every individual found destroyed. At an earlier period tobacco smoke introduced into the mouths of the burrows would dislodge the grubs, which would crawl out of their retreats; probably, also, small pieces of rag dipped in turpentine and inserted into the mouths of the burrows, would suffocate them. *J. O. W.*

POINSETTIA PULCHERRIMA.

A MORE charming and beautiful plant than this is during the winter months, when grown in perfection, it is difficult to imagine. Mr. Monk, gardener at The Cedars, Tottenham Green, sent a cut specimen of it to the Royal Horticultural Society's Gardens at South Kensington a fortnight ago, which was placed in water in a Wardian case, and is still comparatively fresh. Its gorgeous whorl of vivid scarlet leaves measures 49 inches in diameter, and the plant from which it was cut bore three other flower heads of similar beauty. Mr. Monk states that he has 15 plants in one stove, growing in 8 and 9-inch pots, and having from four to six flower heads on each plant, and that many are of the size just named. Their beauty has been the admiration of all who have seen them.

As the details of his method of treatment may be useful to our readers, I venture to furnish you with them. The plants are partially dried off preparatory to their being cut down in July. As soon as the young shoots are fairly started, they are taken out of the pots, the ball reduced, and the plants repotted in the same-sized pots. As soon as the latter are filled with roots, the plants receive their last shift into 9-inch pots. They are then placed in a cold pit, and kept close for a short time, after which air is admitted freely day and night, until the beginning of September, when they are again placed in the stove, and about the middle of November their flowers appear encircled by a magnificent whorl of vivid scarlet leaves, which remain in perfection for a space of six weeks, and of semi-perfection for two or three weeks longer.

The Poinsettia is a plant now being grown very largely for the London market, and if properly hardened off it is peculiarly fitted as an ornamental plant for drawing-room decoration. If placed in a plant case free from dust, its period of flowering will be lengthened, and its beauty long preserved. *G. E.*

ROSES.

THE Rose cause in England is as yet but in its infancy: still it spreads. The furor is national. The Rev. S. R. Hole, to whom we owe so much for bringing the Rose more prominently before the public, has lighted a candle that I believe will never be extinguished. I propose now to answer a few questions that are sometimes put to me.

1. "Would you advise me to have Roses on their own roots?"—I can hardly answer such a question as this without knowing other circumstances. I would advise no one to depend entirely upon Roses on their own roots. To succeed well they require great care, till the roots are firm and strong. Rose-wood roots when matured, are very hardy. Tea-roses for out-of-door purposes, when nursed for a year or two, do well on their own roots. Elise Sauvage, Devoniensis, Silene, Souvenir d'un Ami, Gloire de Dijon, are quite hardy on their own roots. As regards other autumnals, except Malmaison—the finest and best of all light-coloured autumnals—I do not think that Roses on their own roots bloom so abundantly, so continuously, or so late, as on alien stocks. There is, however, this advantage in having Roses on their own roots, viz., that if the wood of a previous year is bad, or if it is killed by the winter, you may cut it down to the stump; and if it is injured there, it will still break from the roots. My advice is, have some Roses on their own roots, and also other stocks. Here, no stock is so early, so bloom-producing, so continuous in producing blooms, or so late a producer, as the Manetti stock. As an old Harrow cricketer I call it the "tip and run" stock.

The following autumnals here are (besides being on other stocks) on their own roots, and do well:—Malmaison, Gloire de Vitry, Jules Margottin, Géant des Batailles, General Jacqueminot, M. Laffay, Caroline de Sansal, Pauline Lansezeur, Cardinal Patrizzi, Proserpine, Paul Joseph, La Reine, Madame Campbell, Auguste Mie, and Baronne Prevost. The five Teas and those are all that I have on their own roots.

2. "What Roses won't die, or at any rate will die least?"

This has been partly answered. Confirmed Rose roots will last longest; but, if these questions relate to families, then I answer that the summer Roses are the hardiest of all Roses. About seven years ago I procured some of Mr. Cranston on 2 feet Briars. They are nearly all alive, and they are better trees than when they came here. Half of them are in my home garden, and were removed this time last year; the other half (the same kinds) are in my N.E. garden

and have just been removed for the first time (Nov. 25). I was surprised at their splendid roots—so much better do Briars root with summer Roses on them than with autumnals; moreover their heads are splendid, and their wood is uninjured by summer demolitions, from which other kinds have suffered more or less. They do equally well on Manetti. From their freedom of growth, and sucking so freely at their heads, the stocks and roots are kept more healthy. Roses, however, as I have said before, will, on their own roots, and on all stocks, occasionally die. The most scientific gardener himself has not an immunity from decay and death. How unreasonable then is it to expect that Roses should never decay and die! Even if they were budded on "Lignum vitæ," they would be subject to death and to

"Time's tyrannic sway."

The great wonder to me is, considering what the weather has been for the last four years, that Roses, on own roots and on all stocks, have not been exterminated. The demolition in England and in France this summer has been very great. I watered all mine four times copiously during the torrid weather before the rain came, and I saved all but a very few. They gave an excellent bloom, and they are in excellent condition for next year. Owing to the mischief done to the foliage there is, however, amongst them more dead wood (this year's wood) than I ever saw before. Still there is plenty of matured wood, old and young.

I would here ask those who have lost many Roses this summer, two questions—first, Did you after the continuous rains of winter fork the ground deeply in the spring with Parkes's fork to make the ground healthy? Secondly, after the torrid weather set in, did you water the Roses copiously? If you did not do these two things, they are the main reasons why you have lost your Roses, and why I have saved mine. I dare say you divided the blame between Providence and the nurserymen! I hope nurserymen do not listen.

3. "Is it best to move Roses?"

This depends on circumstances. My rule is to let well alone. If a Rose looks ill, or continues to do badly, I remove it. Roses may be removed annually, or biennially, into fresh ground, if it is done carefully. All depends on the *modus operandi*. The remover should dig all round the plant in a 10-inch radius, and cut off all the roots before he lifts with the spade under the plants. I have seen some dig the spade down under the plant and force it up. Of course some of the best roots are broken off close to the stock. By the above plan I have just moved 200 Briar Roses without the least damage to the roots. After the plant is up, cut out all brood suckers, and shorten the roots to a 6 or 8-inch radius, preserving the fringy roots as much as you can. If it is not desired to remove the plant, to stop blind wood the roots may be pruned with good effect. Trees given to blind wood should be thinned out, but allowed to carry a liberal quantity of wood.

4. "My Roses are covered with Sedge; what would you do?"

Many of mine are much in the same state. I have ordered 2 bushels of quicklime, which I shall slake and mix with soot; and, having made it into a wash, I shall apply it with a brush. This compost is excellent for Apple trees. Add a little salt, and it is good for American blight. This Moss or Sedge is owing to excessive moisture, and also to injury done to the foliage; and, as it grows into the rind of the tree it impedes its healthy functions. It is equivalent to scurf in the skin. Clean rind and clean foliage are essential to the health of the stock, and of the Rose on it. A hardy Rose often dies because the stock, or its roots die.

5. "What are the best tallies?"

I use none myself. They are apt to be lost, or the name becomes defaced. I plant my Roses chiefly in straight lines, and always write their names in a book. The chief object of tallies is to enable the Rosarian to know how to prune them, as the habits of Roses, even in the same family, are often dissimilar, some requiring merely thinning out and a more liberal quantity of wood than others.

6. "What is the best time to prune?"

Taking the average of seven years as regards summer Roses and autumnals (excepting Teas and Chinas, which should be pruned later), the 15th of March would be the best time. The two exceptions require but little pruning.

On these and many other points, the excellent books of Mr. Rivers, Mr. W. Paul, and Mr. Cranston, give sound advice—indeed, one or other, or all, should be in the library of all Rosarians.

I believe that I have now answered, as well as I can, questions frequently proposed to me. The questions may seem trifling, but they are by no means immaterial. *W. F. Radclyffe, Rushton.*

FISH MANUFACTORIES.

UNDER this head we find in the *Builder* an excellent *résume* of an account of the new French Establishments for Breeding Fish, which originally appeared in the *Times*; from this we borrow what follows:—

The system of spawning fish by manipulation owes its success to the fact of the fecundation of fish eggs being an external act,—in other words, the roe of the female is not fecundated by the milt of the male fish till after it has been deposited in its watery bed. A fisherman of the department of La Bresse, in the Vosges, one Joseph Remy, was the first in France to discern that the natural principle of fish fecundation could be easily imitated, and so be turned to profitable account in the pursuit of his business. The Chinese have long practised the art, and have carried it to such an extent as to be able to keep up a constant supply of those particular fishes which inhabit their seas and rivers, so that any quantity of this kind of food can be obtained all over the kingdom, at the rate of about 3*d*. a stone weight. Heat expedites the birth of the fish. Salmon-eggs deposited early in the season, when the temperature is high, come sooner to life than those spawned in mid-winter. Salmon have been brought to life in 60 days at Huninguen; but the quickest hatching ever accomplished at the Stormontfield breeding-ponds took 120 days.

Fish-breeding had been practised in Germany 100 years before Remy, and experiments in salmon-breeding had been made some years before his time by Mr. Shaw, at Drumlanrig Castle; but of all this Remy was ignorant, it seems, and went his own way in the matter. Knowing how enormously prolific all kinds of fish naturally are, he could not understand why they were yearly becoming less plentiful; but he found, first, that an immense proportion of the ova was never properly fecundated; secondly, that even if all the eggs obtained the benefit of the milt, a vast proportion never came to life, from being deposited in places where they were ultimately bereft of water; that others were eaten by waterfowl, or devoured by other fishes; and a proportion swept away to the sea, and so lost for ever. He therefore soon saw that the best way to increase the supply was by obtaining the eggs and protecting the young fish till they were able to take care of themselves. He accordingly went to work, obtained a great degree of success, and was taken up by the Government, who established Huninguen, where millions of eggs are given away every year.

Mr. Frank Buckland, who devotes himself to the animal kingdom, and seems equally at home whether in attendance on a life-guardsman or a porpoise, points out that a large number of gentlemen, proprietors of fisheries, &c., in England, are quite as anxious to take up pisciculture as the 296 applicants for ova from the French fish-breeding establishments at Huninguen; nay more, that there are at this moment fish-hatching boxes either actually at work or waiting for fish ova whereon to operate at the following places; viz., Hampton, Twickenham, Watford, Carshalton (two in number), Farningham, the Zoological Gardens, Regent's Park, and the Crystal Palace; also near Dublin; Canterbury; Petersfield, Hants; Bayfordbury, Herts; Ashbourne, Derbyshire; Mansfield, Notts; Reading, Witney, and Woodstock; in all of which he has more or less interest; to say nothing of the larger establishments at Stormontfield, Mr. Ashworth's, Galway, and other places.

Mr. Stephen Ponder, of Hampton, and himself having undertaken to hatch fish for the Thames Angling Preservation Society, he gives the following as the result of their labours last year—"We let loose on the shallows in the neighbourhood of Hampton, Sunbury, Walton, &c., 22,000 English trout, 6000 Rhine salmon, 2000 French trout, 3000 ombre chevalier (charr), and 2000 grayling, in all 35,000 fish; being when let loose about the size of minnows. Should there be any doubt as to whether these fish are doing well in the Thames, let me beg the reader to take a boat some warm morning next spring, and paddle gently along the shallows above Hampton, and I shall be much mistaken if he does not see a considerable number of our little silver-scaled beauties darting away like water-swallows from the bank side." This is very promising; but we want the practice on a much larger scale, and we have no doubt Mr. Buckland quite agrees with us.

Let us now turn again to the establishment at Huninguen, which occupies a space of 80 acres, and the suite of buildings necessary for carrying on the business has been erected in the form of a square.

The supply of water necessary for carrying on the piscicultural operations is derived from three sources—the springs on private grounds at Huninguen, the Rhine, and the Augraben stream. The water of the higher springs is directed towards the buildings through an underground conduit, whilst those rising at a lower level are used only in the small basins and trenches for the experiments in rearing fish on the outside. The waters of the Rhine, being at a higher level than the springs, can be at once employed in the *appareils* and basins. Being uncovered, however, they are easily frozen, and are besides frequently muddy and troubled. The waters of the Augraben stream which cross the grounds are of very little use. Nearly dry in summer, rapid and muddy after rain, they have hitherto served only to supply some small basins for *l'alevinage extérieur*.

In the middle of the principal building there is a pavilion, containing on the ground-floor in front, the laboratory, used for such operations as require particular care, or are undertaken as experiments. In the buildings, of which the wings communicate with each other underneath the middle of the pavilion, are the arrangements for incubation. The waters of the spring enter by the end, running through three underground trenches, surmounted by high trenches. The waters of the Rhine run along one of the sides, at their natural level, in a built trench, whilst the opposite side is edged with troughs, with falls. The reservoirs containing to a certain height the waters of the spring, allow them to fall into the higher trenches. All the *appareils* of incubation of this building preserve the primitive type of trenches in a continual stream.

A building to the right is a large hall, containing the apparatus of incubation. The waters of the spring there flow into three trenches, built underground, and capable of receiving the hurdles. These trenches are surmounted through their whole length by fittings of earthenware, with falls and hurdles. The higher reservoirs contain the waters of the spring, distributed into all the troughs by pipes and cocks. At the higher end of the building are placed two small turbines, set in motion by the waters of the Rhine, which drive two pumps to raise the waters of the spring into the reservoirs. The waters of the Rhine, conducted at their natural level in a built trench, run along one of the inner sides of the building on the right, to return into the principal building and the left wing. They can, at will, be directed over the *appareils* of incubation, in case the waters of the spring should fail.

Behind the main building a series of simple open air-ponds and running streams have been formed for the purpose of showing the various stages of growth attained in a given period by the Rhine salmon, the ombre chevalier, the trout, and other of the fishes which are of interest to the French people. These can be seen at all ages, some a few weeks old, others having attained their fourth year. We may explain here that the fish are not bred from the eggs in these outside ponds—they are only transferred to them from the basins we have alluded to, and where, of course, the temperature is a great deal higher, and more conducive to the speedy ripening of the ova than it would be in the open air. At Stormontfield, again, the salmon breeding-boxes are quite unprotected, and all through the winter lie open to the frost or snow of the season; hence the ova there are not hatched under a period of 100 days, whilst in a warmer temperature eggs have come to life in little more than half that time. We may just state here, in passing, that the breeding ponds on the Tay at Stormontfield have been so successful as to induce the erection of others both in Scotland and Ireland.

Considering that only 20 years have expired since the re-discovery of the art by Remy, a wonderful amount of good has been accomplished in the repopulating of those streams that had become by overfishing barren of fish. Many millions of eggs are annually distributed throughout the country by the French Government; these being first collected and sent to Huninguen, where they are nursed on the apparatus we have described till they are ripe enough to be transported to any required distance.

[These extracts will doubtless lead many of our country friends to procure the original (*Builder*, No. 1092, Jan. 9, 1864), in which are given capital views of the fish-buildings constructed at Huninguen.]

Home Correspondence.

The National Rose Show.—The day appointed for this show is June 29. I see also that it is proposed to make it a two days' show, the first day to be open to Fellows of the Society and their friends, and the second day to be open to the public. The programme is so liberal that it costs me something to demur to this arrangement, and I hope that what I am about to say (and I speak the mind of one distinguished censor and two amateur exhibitors) will not give offence, nor even seem to begrudge so liberal a Society, to whom we are all so much indebted, a more favourable review of the Roses than could be accorded to crowds of the public. I fear there are serious reasons for not extending the show of these frail cut flowers to two days. 1st, The flowers will be barely worth seeing the second day. 2d, Many cannot give up the time, and many will not incur the expense. The clerical exhibitors could not give up the time; and to send a servant not versed in Roses, is, as I have found, simply futile. The nurserymen for obvious reasons might like the arrangement, and of course servants of exhibitors would also like it, but I am certain that the body of amateurs would be averse to it; and further, the public, I think, would be greatly disappointed at having to review Roses, which, even on the first day, are often sadly wanting in condition. Instead of making it a two days' show, could not the Fellows of the Society and their friends have a private review, to which they are so justly entitled, by the following arrangement:—Let all the Rose boxes be placed by 8 o'clock in the morning, and then the Fellows and their friends could have till half-past 10 to review the Roses. If this was not sufficient time, another hour might be added by turning out the public at 6, making use of the next hour for their private review Amateurs would rather consent to anything than be kept in London with their witherlings two days. Two days' shows, or Saturday shows, are adverse to clericals. I have just had a letter on the subject, in which the

writer says, "The reason I did not go to the Alexandra Park Show was the two days' exhibition. If I show I must go myself, and I cannot stand London for two days, nor can I afford to leave my servant there doing nothing." The writer is a layman and distinguished Rosarian, and successful exhibitor and censor. I see no objection to admitting the Fellows and friends during the time of adjudication, provided they will keep away from the class under adjudication, I hope if this should meet the eyes of Fellows of the Society, that they will graciously consider what I have just stated. The recommendation to give prizes for six Roses shown by ladies is good. You could not mend it unless you were to suggest prizes for ladies who have left off hoops! Probably prizes for the best box of yellow Roses, pure or mixed yellows, would give a golden effect to the show. The class might be open, and the number of Roses undefined. P.S. I have just received a letter from Somersetshire from a distinguished amateur. He says, "I think the extension of a two days' show will entail a deal of fatigue, and, no doubt, prevent some from exhibiting." *W. F. Radclyffe, Jan.* 9. [Censors can't work in a crowd; and we fear there would be difficulty in having all ready for them by 8 A.M.]

Hothouses and their Erection.—Many of your readers may find themselves in the same situation as myself, so I venture to trouble you with the following remarks, which may lead to the removal of their difficulty and mine. On a comparatively limited space, commanded by the windows of my house, I wish to erect the following glasshouses—viz. a good-sized conservatory leading out of the drawing-room, together with suitable houses to keep the conservatory supplied with flowers; also an early and late Grape house, together with Melon, Cucumber, and Pine houses. I want to confide the order for such work to some one who thoroughly understands all the most recent improvements and modifications, and I am entirely at a loss to whom to turn, as I wish the buildings to look well from the inside and outside of my house. I have not the time to sketch the plans nor arrange the buildings myself, nor indeed look after the work while it is being put up; so that I require some one who should represent the architect in house building. We all live in houses and know pretty well what are our wants, but we are not all gardeners, and therefore do not understand the most perfect arrangement for insuring the least loss of heat, and the greatest efficiency with regard to the health of the plants, and handiness for working. While wishing to have my houses put up in a perfectly durable manner, I wish at the same time not to pay more than a fair price for value received. Here again I am at a loss; there is no institution for taxing a hothouse builder's bill as there is for one's law bill. That they often need it must be evident, for on reading Mr. Rivers's book on Orchard-house culture, I thought a building such as he describes would be an agreeable present for a lady in the country. I sent a copy of his printed specifications to an East and West-end Builder, to know the price they could erect the building for. The one answered 37*l.* complete, the other about 135*l.* exclusive of extras. I accepted the 37*l.* offer, and found the house all I desired. Again, with heating, I am often surprised at the sums my friends tell me their pipes have cost, when I ascertain the number of feet and consequent tons of iron which I know can be purchased at from 3*l.* to 5*l.* or 10*l.* per ton, depending on the market and the nature of the castings. It is contrary to human nature to expect the gentlemen who advertise in your columns to be efficient supervisors of their own work, and yet it seems to my uninitiated mind that with the increasing luxury in our gardens one ought to feel as sure of getting as efficient glass houses as cotton mills for one's money. Do there exist any gentlemen who have made this branch of business their study, as, if not, I hope a race may yet rise who will be content with the one commission from their employer, and so look properly after his interests. Did I know an efficient judge in those matters, I should be happy to offer a few guineas for the first and second best designs. Can any correspondent help me? *Merchant, London, Jan.* 6.

Carpenter's Express Pea.—Observing in your impression of the 9th inst. that Mr. Carpenter, of Brighton, advertises that this Pea is to be had only of himself, I beg to state that I had my stock of it direct from Mr. Carpenter, and that he charged me three guineas per bushel for it, exclusive of carriage and packing. If Mr. Carpenter therefore does not forthwith contradict the statement just adverted to, I shall return the Peas I had of him immediately. *William Barnes, Camden Nursery, Camberwell.*

Rhododendrons as Cover for Game.—The Rhododendron is extensively used by Lord Stamford in the plantations here for this purpose, and the mere fact of his lordship having killed 1367 pheasants, 500 hares, besides rabbits, in one day, in covers abounding in Rhododendrons, is evidence that Rhododendrons are not disliked by pheasants and hares. I have not observed that hares or rabbits "bark" them in the woods, though a few growing in an enclosure where Chinese and other fancy rabbits are kept have been quite denuded of bark as high as the animals could reach; a few Ash branches strewed over the ground for the rabbits to nibble at, would, however, have saved the Rhododendrons. *W. Craw, Enville.*—I find that pheasants and hares, except when driven into them, are seldom or never found among Rhododendrons. I believe the reason to be, that the flat growing habit of the branches, prevents game from running along the ground under the leaves or twigs of the plant. The fact is undoubted, and it is unfortunate, for there is no handsomer or more easily grown evergreen cover or underwood than the Rhododendron, and it is not nibbled by hares, and seldom even I believe by that most detestable of vermin, the rabbit. *J. O. M., Lanark.*

Rhododendron Soils.—I observe that several correspondents will have it that Rhododendrons grow on chalk soils, and within reach of sea breezes. I only wrote from my own experience, and for these dozen years I had tried in vain to get them to thrive in this neighbourhood. I never have yet seen them come to perfection in such situations, and probably never shall. Swansea, I observe by the map, is in a sheltered bay with a S.E. exposure; this is very different from the sweep of the S.W. wind. The same applies to the E. coast of Ireland. Limestone, if hard enough for building, may consequently be sufficiently insoluble not to injure them; but our soft chalk, at only a foot or two beneath the surface, is evidently pernicious. Of course, if the soil (loam or sandy) is deep enough, it would not matter much what the nature of the subsoil is. I still believe that the only places where they attain their full size and perfection are sandy loam, or peat. All these, I believe, contain iron; but not professing to understand chemistry, this is only a surmise. I think now the subject is exhausted. *C. D., Ashdean, near Chichester.*

British Oaks.—In the Proceedings of the Royal Horticultural Society just issued, there is an account given by Mr. Scott of the dimensions of Oak trees felled in 1793, in Vagnor Park, Montgomeryshire, and also an assertion that some trees nearly as large are still growing on the estate of Powis Castle adjoining. Can any of your correspondents in that part of the country inform me if these Oaks are of the species pedunculata or sessiliflora? *Diss.*

Orchard Houses.—Seeing that the dispute between open walls and orchard houses is becoming rather hot, allow me before the skirmish becomes general among my brother gardeners to take one shot which perhaps may settle the matter. Will any champion of orchard houses answer truly the following questions? 1. Has he ever without heat succeeded in getting his trees to bear even in the first year? 2. Have his trees not invariably drooped in the second year, when confined to pots? 3. Have they ever reached the blossom or fruiting season of the third year? If, as I expect, his fate has been the same as mine, his answers will save your subscribers from heavy cost, and suffering themselves to become victims to deluded hopes never to be fulfilled. I, for one, have tried, at an enormous expense, the system of orchard houses, and have signally failed, saving but a few of my favourite trees by transferring them to an open wall under a good coping, when my trees revived, and produced fine full-flavoured fruit such as I never tasted from trees in pots, even though compelled to force by heat, without which I had never been able to raise anything but fleshless stony abortions. I feel that Mr. Thompson was perfectly right, and so was the late Mr. Loudon, in asserting that the new system of culture in question is completely contrary to all practical knowledge, as their opinions have been verified not only by myself, but also, I imagine, by every orchard house grower in the kingdom. Be the end of the controversy what it may, I shall eschew orchard-houses as a burnt child does the fire; content with a lean-to-house, or even a common brick flue, or a 3-inch pipe, so as to command my heat, and to have my fruit when requisite. Orchard houses, unlike Peach or Nectarine houses, are totally worthless, being utterly devoid of every facility for forcing by heat. *An Old Subscriber.*

Bletia (*Botteri*).—It is possible that the plant alluded to last week may have been one of Mr. Skinner's contributions, a batch of which were nursing at the same time with Botteri's. I have left a plant of it in Mr. Eyles's charge, which appears strong enough to bloom in the spring. It was grown in the heated border during this season. The flower stem is thrown up before the leaves. I mentioned the circumstances thinking that some of the South African ground Orchids sent out lately by the Royal Horticultural Society might succeed by the warm treatment out-of-doors. I am happy to hear from several quarters that the subject of heating the earth out of doors is at last receiving attention. Of course everybody knows it was invented (save the mark) by a Frenchman! A Belgian gentleman too startles the world by his recommendation to grow tender aquatics in an artificially heated pond! which was done years ago, let alone "Weeks" ago, in Chelsea. Probably many of your present readers are not aware that the glorious Victoria Water Lily was no long time since to be seen flowering in high health and beauty in the open air in Loudon! Perhaps Messrs. Weeks would kindly re-insert an account of their achievement. *R. H.* [Circumstances oblige us to defer any observations upon the great subject of Bottom Heat. In the meanwhile read Mr. Bateman's announcement in another page of our present Number.]

Extending Vine Borders under Gravel Walks.—With reference to the communication of "An Old Subscriber" in your Number of the 12th of December last (see p. 1181), I feel confident that the recommendation of his gardener to extend the border under the gravel walk in order to give the roots more room is very judicious. I expect very shortly myself to be under the necessity of having recourse to the same expedient, and my reason for coming to the conclusion that it will answer is this:—a few years ago I had occasion to transplant a Jefferson Plum tree growing in the middle of the orchard house near the footpath. No artificial walk had been made, and therefore it was composed merely of the natural soil, which is moderately light. On taking up the tree, I found that it had thrown out a multiplicity of beautiful fibrous roots quite across the walk, and coming within 3 inches of the surface. If I rightly remember, you have at times expressed an opinion that no possible harm can result to the roots of fruit trees from pressure on the surface, provided the soil is not of too stiff a character. On examining the roots of the tree referred to, it was evident that under the footpath they were completely in their element; and there cannot, I think, be a doubt as to the accuracy of the view which you have taken on this subject. *U., Sheffield.*

Notices of Books.

Industrial Biography; Iron Workers and Tool Makers. By Samuel Smiles. Murray, 1863. 12mo. Pp. 342.

Mr. Smiles, so well known as the author of the very interesting "Lives of the Engineers," has presented another equally attractive volume to the world, written in the same simple easy style, and as instructive as it is pleasant to read. He commences with the early history of iron, or rather with the time when that great source of England's wealth was unknown, when our islands were inhabited by savages, whose only weapons and tools were made of wood, flint, or bone. As civilisation progressed, bronze was introduced, composed of tin and copper, metals which require a comparatively low degree of temperature to smelt. Iron was the last metal that came into use, a fact easily accounted for when we know that tin melts at 3° by Wedgwood's Pyrometer, while iron requires a heat of 130°. "Persons unacquainted with minerals would be unable to discover the slightest affinity between the rough ironstone as brought up from the mine, and the iron and steel of commerce. It is only after subjecting the stone to severe processes of manufacture that usable metal can be obtained from it. The effectual reduction of the ore requires intense heat, maintained by artificial methods, such as furnaces and blowing apparatus. But it is principally in combination with other elements that iron becomes so valuable. Thus, when combined with carbon, in varying proportions, substances are produced so different, but each so valuable, that they might almost be regarded as distinct metals, such for example as cast-iron and cast and bar steel; the various qualities of iron enabling it to be used for purposes so opposite, as a steel pen, and a railroad; the needle of a mariner's compass, and an Armstrong gun; a surgeon's lancet, and a steam engine; the mainspring of a watch, and an iron ship; a pair of scissors, and a Nasmyth hammer; a lady's earrings, and a tubular bridge."

The art of smelting this useful metal was known and practised in England by the Romans, and after them by the monks. Working in iron was regarded as a useful and honourable calling, and the smith, who was also the armourer, was held in great estimation in Anglo-Saxon times. The life and honour of his noble employer depended upon his skill. "His person was protected by a double penalty. He was treated as an officer of the highest rank, and awarded the first place in precedency. After him ranked the maker of mead, and then the physician. In the Royal court of Wales, he sat in the great hall, with the King and Queen, next to the domestic chaplain; and he was entitled to a draught of every kind of liquor that was brought into the hall."

In 1282, as many as 72 forges were leased from the Crown by various iron smelters in the Forest of Dean. The making of iron was carried on in various parts of England, chiefly where wood was easily to be obtained, yet the quantity was insufficient to meet the demand, and the English iron was as much dearer, as it was inferior in quality to that procured from abroad. The first cast-iron cannons of English manufacture were made at Buxtead in Sussex in 1543. At one time so great was the zeal with which iron making was prosecuted, that the heads of many of our noblest families, who engaged in this branch of industry, did not spare their ancestral oaks, but cut them down as fuel for their furnaces. The iron manufacture of Sussex reached its height at the close of Elizabeth's reign, and England, instead of importing iron, exported cannon, so that the Spaniards armed their ships to fight us, with guns of our own manufacture. Sir Walter Raleigh called the attention of the House of Commons to this fact. In the reign of James I., Sussex produced one-half of all the English iron, but the best furnaces produced only three or four tons a week. Wood was the only fuel used in England, indeed a prejudice existed against using pit-coal for domestic purposes. The consumption of charcoal was great, as the ore could not be smelted and worked without it, but the forests were being cut down so fast as to cause a fear that timber-trees would

be quite exterminated from our island. Attempts were therefore made to use pit-coal in the iron-works, and at first without much success. The sulphur from pit-coal combining with the iron made it brittle, whereas one great object of the heating process was to eliminate the sulphur already in combination with the iron. How was the pit coal to be used, and iron of a superior quality produced by its agency? Men arose from time to time who spent their lives in endeavours to solve the difficult problem; men of undaunted energy and untiring patience, who worked for the good of their country and the interests of humanity; men whose services were often unrequited and their fortunes wrecked, but who, as the pioneers of civilisation, cleared the way for others, who at length, after centuries of toil, have laid the sure foundation of England's commercial greatness. It is to rescue the memory of such men from oblivion, and to give us some definite ideas of their characters and work, the difficulties under which they laboured, and the measure of success which they each obtained, that this volume has been compiled from authentic sources.

Did space permit, we should be greatly tempted to make extracts from the lives of some of those sagacious and patriotic Englishmen, to whose inventive genius this country owes so much of her commercial prosperity. Andrew Yarrenton rendered the Stour navigable from Stourbridge to Kidderminster, and planned a canal to connect the Thames with the Severn, which was carried out by modern engineers more than a century afterwards. He introduced from abroad the manufacture of tin plates and many things besides, with great success. The Darbys and Richard Reynolds are instances also of successful improvements in the iron trade. To Huntsman we are indebted for the invention of cast steel. Others died in extreme poverty, like Cort, who invented the method of passing iron through rollers, and thus laid the foundation of gigantic fortunes for other men, and himself was ruined by untoward circumstances; and Dr. Roebuck, who commenced the first ironworks in Scotland, and lived to see those and Watts' steam engine, in which he had a pecuniary interest, prospering in a marvellous way, but in the hands of others. But we have said enough.

Having followed the history of iron making from its first commencement to perfection, tracing that history through the lives of its principal "worthies" in the process, Mr. Smiles passes on to the mechanical inventors and tool makers: Bramah and his hydraulic press; Maudsley, with his various inventions and improvements; Joseph Clement and his power-looms; Fox of Derby, Murray of Leeds, Roberts and Whitworth of Manchester, James Nasmyth, the Vulcan of the 19th century, and William Fairbairn with his iron ships. To the very end of the volume an intense degree of interest is kept up, and those who would duly appreciate the work must read it for themselves.

Heat Considered as a Mode of Motion. By John Tyndall, F.R.S., &c. Longman & Co.

This volume contains the substance, nay, the very words, of a course of lectures delivered by Professor Tyndall at the Royal Institution; and in it the author has attempted to place before the non-scientific public the explanation of that sensation which we call heat. Most of the phenomena of heat are perfectly familiar to all of us; yet when we light a fire, or rub our hands together to warm ourselves, not one person in a thousand ever sets himself to consider why these actions produce the desired result. In all ages philosophers of course framed explanations, and that which was most commonly adopted, and which for a long time was deemed satisfactory, was that heat was "a kind of matter—a subtle fluid stored up in the inter-atomic spaces of bodies." In proportion as science progressed and fresh discoveries were made, it became apparent that this would not settle the question; and physicists accordingly sought some new theory which should reconcile conflicting facts, and by explaining all phenomena, approve itself to men's minds as the true solution of the difficulty. Such is the dynamical or mechanical theory of heat; the theory, namely, "that heat is a kind of molecular motion, and that by friction, percussion and compression, this motion may be generated, as well as by combustion."

This theory Mr. Tyndall has expounded in these lectures, with that clearness of explanation, and fertility in the devising of experiments, so peculiarly his own; and with the aid of diagrams, he has contrived so to describe his experiments, that his readers are enabled to follow them almost as clearly as if they were before their bodily, instead of their mental eye.

We have said that Mr. Tyndall has reproduced the very words in which these lectures were delivered; perhaps this simplicity of rendering is even carried a little too far; for although to those who attended these or similar lectures it may possess the charm of vividly recalling pleasant hours, yet those to whom the Royal Institution is but a name, will feel puzzled at the frequent recurrence of the assistant's name, and a few similar slight allusions irrelevant to the matter in hand. A very little pruning would have removed these trifling blemishes, without in any way detracting from the clear and simple style which forms the great charm of this lecturer, and by which he wins and rivets the attention of his listeners, and leads them gradually from the elements of his subject to the latest discoveries and theories published on it, or made by himself. Thus, in the present course, commencing with the familiar illustration that "when a boy at school, I have often blistered my hand by the contact of a brass button which I had rubbed energetically against a form," he leads his audience up to the climax of all, these grand truths enunciated at the close of the last lecture:—

"This law generalises the aphorism of Solomon, that there is nothing new under the sun, by teaching us to detect everywhere, under its infinite variety of appearances, the same primeval force. To Nature nothing can be added: from Nature nothing can be taken away; the sum of her energies is constant, and the utmost man can do in the pursuit of physical truth, or in the applications of physical knowledge, is to shift the constituents of the never-varying total, and out of one of them to form another. The law of conservation rigidly excludes both creation and annihilation. Waves may change to ripples, and ripples to waves—magnitude may be substituted for number, and number for magnitude—asteroids may aggregate to suns, suns may resolve themselves into floræ and faunæ, and floræ and faunæ melt in air—the flux of power is eternally the same. It rolls in music through the ages, and all terrestrial energy—the manifestations of life, as well as the display of phenomena, are but the modulations of its rhythm."

It is difficult to find passages for extract in a book which is, as it were, a running commentary on the experiments described; nor have we space to attempt even a sketch of Prof. Tyndall's argument; but perhaps the following passage will show, as well as any other, the manner in which he educes laws from laboratory experiments, and brings practical knowledge to test theories and hypotheses:—

"From these considerations, I think it is manifest, that if we know the velocity and weight of any projectile, we can calculate, with ease, the amount of heat developed by the destruction of its moving force. For example, knowing as we do the weight of the earth, and the velocity with which it moves through space, a simple calculation would enable us to determine the exact amount of heat which would be developed, supposing the earth to be stopped in her orbit. We could tell, for example, the number of degrees which this amount of heat would impart to a globe of water equal to the earth in size. Mayer and Helmholtz have made this calculation, and found that the quantity of heat generated by this colossal shock would be quite sufficient, not only to fuse the entire earth, but to reduce it, in great part, to vapour. Thus, by the simple stoppage of the earth in its orbit, "the elements might be caused to melt with fervent heat." The amount of heat thus developed would be equal to that derived from the combustion of 14 globes of coal, each equal to the earth in magnitude. And if, after the stoppage of its motion, the earth should fall into the sun, as it assuredly would, the amount of heat generated by the blow would be equal to that developed by the combustion of 5600 worlds of solid carbon."

In the current Number of the *Botanical Magazine* we find portraits of the following plants:—*Aristolochia leuconeura*, a scandent arborescent corky-barked species of Birthwort, introduced by M. Linden from the Magdalena, and having large cordate green leaves of a fleshy-leathery texture, and marked by seven pallid nerves; the flowers, which are comparatively small, are of curious form, as in so many of the plants of this genus, and of a chocolate-purple, the oblique one-lipped ovate limb beautifully marked with pale yellow lines; they spring in clusters from the lower part of the trunk.—*Pelargonium Bowkeri*, one of the dwarf tuberous South African species, with radical finely-cut bi-tri-pinnatipartèd leaves, and a simple scape terminated by an umbel of curious fringe-petaled flowers, which are creamy yellow, stained with purple; it is a native of the Trans-Kei country, and was introduced by Mr. Cooper to the collection of W. Wilson Saunders, Esq., by whom it was flowered.—*Schizostylis coccinea*, a beautiful Iridaceous plant from British Kaffraria and Natal, having a good deal the habit of Crocosmia (Tritonia) aurea, but bearing bright crimson flowers. The plant grows 3 feet high, with several clustered stems, furnished at the base with long ensiform leaves, merging upwards into bracts, and at the apex by a distichous spike of large crimson flowers opening in succession; these flowers have a long slender tube, and six-parted concave limb, and individually bear close resemblance to those of a Crocus, both when closed and expanded. It has been flowered by Messrs. Backhouse.—*Mimulus repens*, a pretty little tufted prostrate Australasian plant, not unlike a Pimpernel in habit, having the slender spreading stems furnished with small opposite obtusely ovate leaves; the flowers, however, are comparatively large, nearly an inch across, and of a delicate lilac, with a yellow spotted throat.—*Solanum anthropophagorum*, noticed by us at p. 27, the flowers of which are white, and the fruit scarlet, about as large as that of Citrus Limetta, obscurely two-lobed, and mamillate at the apex.

The *Florist and Pomologist* commences the new year with a figure of *Camellia Sarah Frost*, a variety said to be of American origin, and one which the admirers of fine Camellias have to thank Mr. Standish for bringing under their notice at the spring flower shows. It is remarkable for its symmetry of form, in which it is probably not excelled, and is altogether a variety of great excellence; the colour is a deep carmine rose. The letterpress of this serial has been usefully augmented at the expense of one of the coloured illustrations; and amongst the new matter thus made room for, we observe that Dr. Hogg has commenced an account of all known Pears, with frequent outline illustrations, upon the plan of his British Pomology, the published portion of which is confined to the Apple.

The pictures in the *Floral Magazine* consist of *Rhododendron Princess of Wales*, a hardy variety raised by Mr. Young, of the Milford Nursery, and described as a white ground flower with dark mauve edge, but which is represented as a pale-centred lilac-purple, faintly spotted on the upper segments; it flowers at the end of June.—*Rose Baron de Rothschild* is represented as a cupped crimson-scarlet H.P., and, in the opinion of some good Rose growers, occupies a foremost place amongst the novelties of last season. Some examples of striped *Gloxinias* wait further improvement, both as to the form of the flowers and the definition of the colours, but are interesting as novelties; *Lady Emily Villiers* being carmine, and *Lady Victoria Howard* purple, both irregularly streaked or striped with white. A plate is devoted to a pair of good seedling *Achimenes—purpurea elegans* and *Leopard*—raised by Mr. Parsons, handsome varieties of the small-flowered group, the first a mulberry, the second a carmine-rose.

In *Seemann's Journal of Botany* is a plate of the new purple Trefoil found in Sicily, and which Prof. Babington describes as a purple-flowered variety of Trifolium repens, the common state of which it resembles in all but the colour of the flowers. The Editor continues his observations on the distinctions between the Umbelliferæ and the Araliaceæ, or, as he prefers to call them, the Hederaceæ, the text being Crithmum maritimum, which has been observed to have a truly valvate æstivation, and hence, along with Hydrocotyle, which has the same character, is referred to the latter order, with which it also agrees in its carpels not separating nor being furnished with distinct carpopods. Among other matters treated on in this Number there is a Florula Orcadensis by Mr. H. C. Watson.

TRADE LISTS RECEIVED.—We have before us the following, all excellent in their way:—*Carter's Autumn Supplement:* very rich in bulbs.——*Butler & McCulloch's Spring Catalogue:* 100 closely printed pages full of information, cultural and otherwise. —— *Williams's Descriptive Catalogue of choice and selected Flower and Vegetable Seeds:* capital selection, and plenty of good matter for young gardeners to study.——*S. Glendinning & Son's Catalogue of Kitchen Garden, Agricultural and Flower Seeds:* a nice selection, exclusive of flower seeds, "a general list of which will be forwarded in a few days."

Garden Memoranda.

G. GLENFIELD GLYN'S, ESQ., BANSTEAD.—From this pretty summer retreat, which is situated on rising ground in the neighbourhood of Epsom, a fine view of the surrounding country, with its celebrated Downs, can be obtained. To the house, an ancient brick building, has lately been attached a neat conservatory; and in the kitchen garden new Peach, Cucumber, and Melon houses have been erected, the whole being well built and efficiently heated by Mr. Weeks. Through the middle of the conservatory runs an embroidered Minton tile pathway, on each side of which is a border filled with prepared soil for the reception of plants which are to be grown both in this border and in pots.

This place, previously to Mr. Glyn's occupation of it, had been permitted to fall into disorder; fruit trees on walls had been ill pruned and badly trained, and many of them had become so worn out from neglect that they have been rooted up and replaced by new ones. The proper management of Espaliers appears also to have been overlooked; but by means of root-pruning, which took place in October last, and mulching on the surface with rotten dung, it is hoped that they may yet be brought into a fruitful condition. In Vineries the old Vines are planted outside; but as these are getting past their best, young ones have been planted inside in a border prepared for their reception as follows:—In the bottom has been put sufficient rough gravelly material to ensure thorough drainage, and on that have been laid turves with the grassy side downwards, the remainder being made up with good turfy loam mixed with old mortar rubbish, well-decayed manure, and bone-dust. For the present the young Vines are to be trained between the old ones; but when the former have got into fruit bearing, the latter, either wholly or in part, will be removed. The Peach houses, which are span-roofed, are furnished inside with circular trellises, on which the trees are trained so as to form an arch over the pathway; on the bottom are dwarfs, and "riders" or trained standards occupy the top, the whole being placed at a distance varying from 2 to 3 feet from the glass, which is good 16 oz. sheet in long panes. The Cucumber and Melon houses have a pit in the centre, in which are laid hot-water pipes. On the latter are placed rough brickbats, and on these are put

turves with the grassy side downwards to support the soil. The latter forms a ridge from which the plants are led up to the central angle of the roof and trained downwards on trellises on either side towards the bottom. Round the sides of the houses just mentioned are shelves furnished with well grown Cinerarias just coming into bloom. These were sown in July last.

A flower garden in front of the house is in course of formation; in this the beds, which are on gravel, are edged with Ransome's patent siliceous stone, a material which, although not as white as Portland stone, has nevertheless a good appearance, and is stated to be much cheaper, and to perfectly withstand the effects of frost. This garden being cut off from the Park in front of it by a sunk fence, an extensive view of a charming piece of English park scenery is obtained without apparent interruption. Near the house, as well as in the Park, are some noble specimens of trees, consisting of evergreen Oaks, Cedars of Lebanon, Beech and Spanish Chesnut.

In the flower garden and newly made ground in its vicinity have been planted a few of the finer kinds of Conifers, standard Roses, and Rhododendrons. The latter, it may be added, have been planted in good turfy loam, and Mr. Newton, of Eastbourne Terrace, to whom the improvements of the grounds, as well as the laying out of the flower garden, have been entrusted, confirms the fact advanced by several of our correspondents last year, that not only will all except perhaps the most delicate high-coloured hybrids live in that kind of soil, but that they will grow and blossom in it quite as well as in peat, an opinion in which Mr. Breeze, the gardener, likewise concurs. To ensure success, however, the loam should be rich in vegetable matter, and if it does not possess it naturally, sufficient leaf-mould, or thoroughly decayed refuse of a similar kind, must be well worked into it, in order to render it of that character.

Calendar of Operations.

(For the ensuing week.)

THE late severe frost will have afforded an opportunity of forwarding many little indoor operations which otherwise might have been overlooked; and now when a favourable change in the weather has taken place, everything it is hoped will be in readiness for active outdoor work when wanted. Tools out of order will doubtless have been repaired; a stock of labels, flower sticks of different lengths, and layering pegs will have been carefully stored up; dirty pots will have been washed and arranged according to their respective sizes; potsherds broken; composts required for early potting will have been mixed; frame and other lights not in use will have been cleaned and repaired; and sheds and similar places will have been put in order. In short the whole machinery of a garden should be ready for operation when required. As regards glass-houses take care not to excite rapid growth either in stoves or greenhouses while the weather remains dull and uncertain.

FLOWER GARDEN AND PLANT HOUSES.

If not already done, look over beds of Crocuses and other bulbs to see that they are not thrown out off the ground by frost. Also inspect half-hardy plants that have been closely covered up, in order to see whether or not they are secure from injury. As severe weather may yet be expected, every precaution should be taken to ward off its ill effects.

AURICULAS.—While the weather continues favourable let these have as much air as possible; they dislike close confinement.

BEDDING PLANTS.—These, if in pots, must also have air while the weather is mild; but means of protection at night must be at hand.

CARNATIONS AND PICOTEES.—Draw the lights off these in the day time when dry, but let them be put on again at night.

PELARGONIUMS.—These will now be growing slowly; therefore in fine weather let them have as much air as possible, consistent with the proper temperature. Fancy varieties may be kept a little warmer than ordinary kinds.

ROSES.—A second batch of these may now be placed in heat to succeed those in active growth. Keep down fly on the latter by frequent fumigations, and the Rose maggot by hand picking.

TULIPS.—Place in heat potsful of bulbs to succeed those now in bloom, and see that the latter are not allowed to droop from want of water.

FORCING GARDEN.

During the present dull weather high temperature must be avoided, or unhealthy growth will be the result. This will be indicated by Vines about to unfold their blossoms becoming spindly and by the bunches curling; in Peach houses by weak pale growth and abortive flowers; in Strawberries by their throwing up trusses of bloom incapable of supporting themselves upright; in Roses by the buds dropping; in short throughout the whole forcing department similar evils will present themselves. The proper temperature to maintain is therefore a matter of the utmost importance, and will require during this and the next month or so great attention.

ASPARAGUS.—If not already done, make a bed to succeed that now becoming exhausted. On fine days give as much air as possible consistent with maintaining proper amount of heat.

CHERRIES.—Force very slowly while the weather is dull and sunless. Syringe the trees occasionally, and keep all floors and other evaporating surfaces moist.

CUCUMBERS.—Worn out plants in houses may now be rooted up, the beds renewed, and their places filled with young plants. Be careful in covering up such as may be in dung pits, not to allow the coverings to overhang the edges of the pits, lest they should conduct the rank steam from the linings to the plants. Tilt each light at an upper corner with a thin wedge for the egress of steam, and to admit a little air at night.

MELONS.—For early crops sow now; pot in small pots when strong enough; keep near the glass, and either plant out or pot into large pots, using properly warmed, rather strong turfy soil. Sow for succession at intervals of about a month until May.

PEACHES.—Admit air freely whenever the weather is mild, and keep the atmosphere moist, maintaining a steady night temperature of about 50°. Very early houses in which the fruit is set should be afforded a nice growing temperature, syringing liberally to prevent red spider, and keeping the border in a healthy state as to moisture, to secure a vigorous root action.

PINES.—Young plants growing in beds that have been some time planted will be benefited by having the soil loosened up as deeply as can be done without injuring the roots, giving it a liberal soaking of tepid water if it be found to be too dry. The water should be applied by means of a pot with a rose on it, and not so fast as to flood the surface, for if this is done the soil will be rendered almost as close as before forking up; indeed, careless watering is the great cause of the surface of the soil becoming close and hard, and should be carefully avoided. Endeavour to afford a nice regular bottom-heat, with a thoroughly moist atmosphere, and keep the plants growing as freely as may be consistent with preserving them dwarf and bushy. Have a constant eye to maintaining a succession of fruit, or securing a supply at the season when it may be most wanted, and let the treatment of the plants be regulated according to circumstances; this is a matter which demands considerable forethought, and which can be successfully managed only by careful observation and attention.

VINES.—Take advantage of all favourable opportunities to admit fresh air as freely as can be done with safety, and be satisfied with as low a temperature from fire-heat as may be considered safe under the state of the Vines, but shut up early, allowing the thermometer to rise considerably. This will to some extent economise fuel, and will be much more congenial than much fire-heat. Except where Vines are in flower keep the atmosphere moist, but the foliage should always be allowed to become perfectly dry in the course of the day.

HARDY FRUIT AND KITCHEN GARDEN.

Digging and trenching may now be carried on with activity, and, where necessary, drains may also be put in. Wheeling should, if possible, be kept for hard weather.

APPLES.—Pruning and thinning of these must now be pushed forward with expedition. Where necessary root-pruning may also be performed; but this kind of work is best done in the autumn—say in the end of October or in November.

PEARS.—The observations made in reference to Apples also apply to these.

PEAS.—If not already done, make a sowing of Dillistone's Early, Sangster's No. 1, or Daniel O'Rourke for early crops, and of the Auvergne to succeed them. The latter though an old is still a good useful Pea.

SPINACH.—This has suffered, we hear, in some places from the late hard frost. A sowing to supply early plants should therefore now be made.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 13, 1864, as observed at the Horticultural Garden.

January.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 7	28	30.148	29.076	32	18	25.0	39	41½	N.E.	.00
Friday 8	29	30.007	29.904	32	13	22.5	39	41½	N.E.	.00
Satur. 9	●	29.906	29.867	39	24	31.5	39	41	S.E.	.00
Sunday 10	1	29.850	29.904	47	27	37.0	39	41	S.	.00
Mon. 11	2	30.116	30.060	49	29	39.0	38	40½	E.	.00
Tues. 12	3	30.130	30.050	43	35	39.0	39	40	E.	.00
Wed. 13	4	30.270	30.250	39	34	36.5	39	40½	S.W.	.02
Average.		30.061	29.873	40.1	25.7	32.9	38.8	40.8		.02

Jan. 7—Intense frost; partially overcast; frosty.
— 8—Frosty and foggy; densely overcast; severe frost, with fog.
— 9—Foggy; hazy; frosty; roads still dry and dusty.
— 10—Foggy; slight thaw; frosty at night; no snow nor rain.
— 11—Fine; slight fog; clear and fine; slight frost at night.
— 12—Uniformly overcast; cloudy; hazy.
— 13—Foggy; drizzly and foggy, hazy and damp.
Mean temperature of the week 4½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending Jan. 23, 1864

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17	42.5	30.67	36.6	13	0.48 in.	3	8	2	4	3	10	4	4
Mon. 18	42.6	31.3	36.9	15	0.55	1	3	1	3	7	10	6	5
Tues. 19	42.9	30.4	36.6	17	0.38	4	2	4	3	6	10	6	3
Wed. 20	42.4	31.0	36.7	14	0.60	4	7	4	2	7	10	2	2
Thurs. 21	43.6	32.4	38.0	17	0.48	1	5	5	1	7	11	6	2
Friday 22	44.0	32.7	38.4	16	0.57	3	5	1	5	3	15	5	1
Satur. 23	44.8	32.9	38.8	17	0.27	2	3	2	3	7	13	4	4

The highest temperature during the above period occurred on the 19th, 1828—therm. 60 deg.; and the lowest on the 19th, 1838—therm. 4½ deg. below zero.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1863 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January	2.00	1.06	1.33	2.25	2.97	2.85	1.31	1.16	1.73	1.48	3.07	2.72	2.14	1.92	0.19	1.76	2.09	0.41	0.61	2.18	0.82	1.53	2.19
February ..	0.76	1.22	2.35	2.27	0.09	1.47	1.34	3.12	2.52	0.95	0.90	1.06	0.59	0.78	1.55	0.62	0.31	1.48	1.31	1.20	1.41	0.38	0.26
March	1.32	1.81	0.47	2.44	1.25	1.09	0.41	3.06	0.85	0.13	3.57	0.25	1.48	0.42	1.75	0.97	0.73	0.88	0.77	1.03	1.89	3.74	0.68
April	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.65	0.52	2.58	0.30	0.26	1.97	1.77	2.19	2.01	0.95	1.41	2.29	0.54
May	2.10	1.73	5.30	0.25	2.89	1.35	1.59	0.28	3.53	1.84	0.74	1.74	1.60	4.03	1.91	4.38	0.87	2.05	1.80	3.04	1.31	3.54	1.46
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	2.51	1.53	1.48	0.88	1.91	0.78	3.10	5.15	2.35	2.53	4.46
July	8.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.00	2.28	4.17	2.40	6.30	1.43	1.22	2.55	2.18	2.72	1.99	2.09	0.80
August	2.69	2.81	3.38	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	3.71	1.57	1.77	1.45	3.50	2.80	1.45	2.49	4.16	0.50	2.40	1.96
September..	3.71	3.89	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.30	0.42	3.54	2.41	0.58	1.16	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.17
October	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.93	2.18	1.55	2.01	3.87	3.78	2.01	6.15	2.40	4.01	1.36	2.55	1.00	1.04	3.00	1.56
November ..	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.92	2.03	1.53	6.20	0.91	1.31	1.34	0.94	1.53	0.10	2.72	2.60	4.10	1.01	1.68
December ..	2.12	0.70	0.58	0.39	0.61	1.21	1.81	2.03	1.28	1.15	0.62	1.07	0.30	1.27	1.11	1.88	0.30	1.53	1.95	2.03	0.91	1.49	1.26
Annual amount	30.97	22.97	25.48	21.34	23.23	27.71	16.65	28.94	22.84	18.28	20.79	32.55	24.37	18.92	24.38	22.72	21.06	15.78	25.54	30.08	19.48	26.54	30.32

The amount of rain which fell in 1863 was 20.32 inches, or 3.14 inches below the average of the preceding 37 years.

Notices to Correspondents.

DRACÆNA FERREA: We have received from Mr. W. H. Treen, Victoria Nursery, Rugby, a very nice spike of bloom of the Dracæna ferrea from the centre of a nice plant in a 9-inch pot. We learn that it has been in bloom a long time, and although now going a little over is still a charming decoration of the drawing-room or conservatory.

GARDENERS FOR INDIA: *J W.* We doubt your success; all depends upon your ability and intelligence being first-rate, concerning which points we have no information.

ICE HOUSES: *N.* Don't use salt and water.

INSECTS: *W C.* Your two insects are the weevils Otiorhynchus sulcatus, very destructive to the young shoots of Vines, &c., in greenhouses; the crevices in the bark should be carefully examined by day and the leaves after dark with a light, having first placed a large sheet of paper beneath the trees, as the insects drop on being disturbed. *W.*

IMPATIENS NOLI-TANGERE: *W B* is anxious to procure a few seeds of this native plant. We are unable to inform him where he can obtain them, unless it be from some botanic garden. Can any of our readers help him?

MUSHROOMS: *W Nobles.* You will find an article on the disease which has attacked your Mushrooms, which are otherwise very good, in our number for Dec. 26, 1863. *M J B.*

NAMES OF PLANTS: *F G.* 1, Eranthemum nervosum; 2, Gesnera lasiantha.—*A, Plymouth.* Some Petrophila, but nobody can say which, it having no flowers.—*Mary.* A dried bit of Fenzlia dianthiflora, a gem in its way, *if well grown.*—*R G T.* We suppose Mandevilla suaveolens, but we really cannot undertake to name plants not in flower.

PROTECTING THE ROOTS OF PEACH TREES: *A H.* It can at least do no harm to protect during severe frosts the roots of trees, like Peaches, which are not perfectly indifferent to the occasional severity of our climate; and in the case of young or newly planted trees, or trees which may happen to be planted shallow, a suitable covering would be decidedly beneficial. In the case of old healthy well-established trees on properly drained borders it is perhaps hardly necessary, but it would not injure them. Such open coverings as a layer of dry Fern or litter are most to be preferred. However, as a rule, in the case of such trees as the Peach, Nectarine, or Apricot, we should certainly not recommend that the roots should be allowed "to feel the frost"—a regime which may be all very well for hardier subjects of excessive vigour, but not for these children of the East.

THE TUSSOCK GRASS. *A Lady.* This is the Dactylis cæspitosa. Dr. Hooker has given a capital account of it with a figure in his valuable Botany of the Antarctic Voyage (Reeve & Co.), p. 384 and following pages. The Pampas Grass, Gynerium argenteum, bears no other affinity to Tussock than that both are true Grasses. *Very* sorry that your note was accidentally overlooked last week.

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DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 101, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

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The advances are repaid by way of Rent Charge on the Estate created for such a term of years as the Landowner shall determine will best adapt the annual charge to the circumstances of the Tenants.

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The Company either supply the money expended by landowners in works designed and executed by their own Agents, or they undertake the entire improvement by their experienced staff, supply the weekly advances required, and charge on the estate the actual outlay in the works, and their commission thereon.

Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, London, S.W.

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2, Old Palace Yard, Westminster, S.W.

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2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
   Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

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ROYAL AGRICULTURAL COLLEGE, CIRENCESTER, will REOPEN on MONDAY, Feb. 8. Applications for Admission must be made to the Principal.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—J. BAILEY DENTON, M. Inst. C.E., will LECTURE on DRAINAGE.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—Professor J. MORRIS, F.G.S., will give a COURSE of LECTURES on GEOLOGY, commencing on Feb. 15.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, will Lecture on CATTLE, SHEEP, PIGS, and POULTRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—JOHN THORNHILL HARRISON, of Frocester Court, near Stroud, will give a COURSE of LECTURES on DAIRY HUSBANDRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—RICHARD GRIFFITHS WELFORD, Barrister-at-Law, will give a COURSE of LECTURES on LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

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The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.

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The Agricultural Gazette.

SATURDAY, JANUARY 16, 1864.

A CORRESPONDENT asks for the rules by which the award of merit at the ploughing match may best be made. Amidst all our advocacy of steam cultivation, and of "smashing up" the land by a superior power, let us not forget, he says, that the great majority of our acres for many years to come must continue to be ploughed by horses, and that to maintain the skill of our ploughmen must always be a point of great agricultural importance.

"I unfortunately live," he adds, "as many others do, in a part of the country where I do not hope ever to have the mighty power of steam at my command; consequently the farmers of this district are endeavouring to develope and perfect the mode of cultivation we have under our control, viz., that by horse-power, by instituting ploughing matches for that purpose; and I have repeatedly acted as judge of ploughing at those contests; and for the better qualifying myself for the task, I have scanned the pages of the *Agricultural Gazette* and the "Encyclopædia of Agriculture," and also many of the latter numbers of the "Royal Agricultural Society of England's Journal," for instructions or rules by which ploughing might be judged, but I am sorry to confess I have gained next to nothing from either or all of these costly aids. My object, therefore, in thus writing to you is to induce you to provoke a discussion on this very important agricultural topic in your valuable periodical."

Will any of our readers who, like our correspondent, have acted as judge at ploughing matches, declare the rules which have guided their awards?

We imagine the main point in ploughing, whether by steam or horses, is to secure that the whole of the surface soil to a uniform depth shall be turned over in slices of uniform dimensions. The straightness of these slices from end to end of the field, and their uniformity of sectional dimension, uniformity of width and thickness, are the chief points to ascertain. Any departures from the first are at once obvious to the eye; and, as a series of straight furrows can be made only by observing in each a uniformity of width from end to end of the slice, that point, too, is at once ascertained by mere inspection. Whether they are all of a *common* breadth will appear by observing that they all uniformly overlap each other. Whether they are all of a *common* depth will also be observed at once in this way. But in order to determine that *each* is of the same depth at both sides must be ascertained by uncovering a portion of the moved ground, and observing the configuration of the unmoved subsoil. That should be a perfectly plane surface without ribs, such as must be left when one side of the slice is cut deeper than the other.

When the uniformity of the work and the perfect turning of the whole of the soil to the full depth required has been ascertained, then those points which are essential to good work will have been observed. The preservation of the crest of the furrow-slice, and the requisite pressure of the slices close against each other, are points of considerable practical importance in some cases, and in all add greatly to the beauty of the work, and the observance of these points also accordingly has generally considerable influence on the awards of judges.

We should, however, be glad if we could induce judges to speak for themselves, and inform our Correspondent and others what are the grounds on which their decisions have been made. Will our Correspondent himself begin the discussion? If he and other gentlemen—those for instance who officiated in this capacity at the Warwick meeting of the Royal Agricultural Society—would state their recollection of the proceedings there, they would help to secure good judging at the corresponding trial of ploughs and other tillage implements which is to take place at the meeting of the Society at Newcastle next July.

—— THERE is in the recently published *Annals and Magazine of Natural History* an account of a memoir by Professor THURY, of Geneva, on the law of the Production of the Sexes, which is of great agricultural interest. The author was guided to his conclusions on this subject partly by analogies furnished by the natural history of the Bee and of Poultry. It has been observed, he says, that in bees the fecundation of the ovum, when it takes place early, results in the production of workers (females), while if it be retarded beyond the 22d day all the eggs deposited are male eggs. So, in the case of poultry, the author has observed that the eggs last laid nearly always furnish the cocks of the clutch, and he has thought it probable that the last eggs which detach themselves from the ovary of the fowl are those which have had the most time for maturation. The following accordingly are among the conclusions at which he arrives:—

1. Sex depends on the degree of maturation of the ovum at the moment of its fecundation.

2. The ovum which has not attained a certain degree of maturation, if it be fecundated, produces a female; when this degree of maturation is passed, the ovum, if fecundated, produces a male.

3. When, at the rutting-season, a single ovum separates from the ovary to descend slowly through the genital canal (as in uniparous animals), it is sufficient that the fecundation takes place at the commencement of the rutting-season to produce females, and at the end to produce males—the turning-point of the ovum occurring normally during its passage in the genital canal.

Then follow instructions sufficiently obvious as to the application of these principles in the case of the larger mammalia.

The following certificate, however, from a practical farmer, Mr. GEORGE CORNAZ, of Montel, in the Canton de Vaud, is what will have most interest in the eyes of breeders here. He says, under date of Feb. 10, 1863:—

I received from M. THURY, Professor in the Academy of Geneva, under date of the 18th February, 1861, some confidential instructions the object of which was an experimental verification of the law which governs the production of sex in animals.

I have applied to the management of my herd of cows the data furnished to me by M. THURY, and obtained at once, without any uncertainty, all the expected results.

In the first place, in twenty-two successive cases, I wished to obtain heifers; my cows were of the Schwitz breed, and my bull a pure Durham; the heifers were in demand amongst breeders, and the bulls were only sold to the butchers. I obtained the desired result in all cases.

Having subsequently purchased a cow of pure Durham breed, I desired to obtain from her a new bull, which might replace the one which I had bought at great cost, without waiting for the chance of the birth of a male. I operated in accordance with the directions of Professor THURY, and the success again

confirmed the truth of the process which had been communicated to me—a process the application of which is direct and very easy.

Besides my Durham bull, I obtained six other bulls, of a cross-breed between the Durham and Schwitz, which I intended for work: by selecting cows of the same colour and size, I obtained very well-matched pairs of bulls.

My herd consists of 40 cows of all ages.

To sum up, I have made in all 29 experiments according to the new process, and all have given the desired product, male or female: I have had no case of non-success. All the experiments were made by myself, without the intervention of any other person.

I can consequently declare that I regard the method of Prof. THURY as real and perfectly certain, hoping that he will soon be able to profit all breeders and agriculturists in general by a discovery which will regenerate the business of cattle-breeding.

This certificate will certainly have sufficient interest in the eyes of English breeders to induce them to repeat M. THURY's instructions.

—— It will have been seen in our advertising columns that Mr. DUCKHAM announces his sixth volume of "The Hereford Herd Book" early this year, and invites applications from breeders for the forms on which to enter the requisite information. This volume will contain a paper recently read by Mr. DUCKHAM at the Royal Agricultural College, Cirencester, on the "History, Progress, and Comparative Merits of the Hereford Breed of Cattle," as well as several figures of prize animals.

—— A fat cattle show is to be held at Hamburgh on March 17, and three following days. Besides prizes for Continental breeds, the Agricultural Association offer three premiums for oxen bred in Great Britain and Ireland—viz., 30*l.*, 15*l.*, and 7*l.* 10*s.* They also offer prizes for Southdowns, Long-woolled, and Cross-bred sheep—three for each breed of the respective values of 5*l.*, 2*l.* 8*s.*, and 1*l.* 4*s.* Applications for entries must be made to Dr. HACHMANN, Hamburgh, on or before the 1st February, 1864, and the stock must be in the showyard on the 14th and 15th March. The entry-money of cattle is 9*s.* each, and for sheep, pigs, &c., 3*s.* each.

THE PRIZE SYSTEM.

I BELIEVE every manufacturer of implements who has anything either to lose or to take care of is of the same opinion as myself. I have, however, been longer under the "Harrow" than any other firm; I began with the Society and exhibited at Oxford when only one or two others were present, and I kept it up for 21 successive years. It cost me during that time certainly not less than 30,000*l.* I refer to the expense I was at in preparing implements at extra cost, which were of no extra value afterwards; in making useless contrivances for the mere purpose of gaining prizes; in the cost of a prize-winning staff of men to work the machines, and to be up to all sorts of dodges to obtain prizes in their various departments; in the general disarrangement of business at the Works, in consequence of the foremen being taken away with all the most expert and best men for three or four weeks to attend the shows, and for as long a time before being unsettled and almost useless, and the same afterwards, making it in all a general upset in the proper conduct of manufacturing business for three or four months in every year; to say nothing of the importance, the consequence, and the almost unbearable independence of foremen and men if they happened to be successful in winning prizes. In fact prize-contending workmen were after a time rendered almost useless in the general business of the Works.

In stating 30,000*l.* as spent by my firm alone, I am certain I am under the mark, and I know other firms who have spent as much or more, although none have been so long at it.

Well, the consequence of this is that we have been obliged to put these yearly sums as waste charges on the selling prices, and our customers have paid them and got nothing for them, nor have they done any good, except to contribute to an annual entertainment for the Council of the Royal Agricultural Society of England, and for those who act as stewards of the yard and commanders of the whole affair.

Persons are called upon to act as judges, who have no more pretensions to sit in judgment upon the products of implement makers than to say who are the fit subjects for eternal bliss. There are exceptions, but generally they will be found far from being the best managers of their own businesses, and some of them even not highly valued in their own localities.

And, besides all I have here set forth, there are well-known evils attending the prize system when applied to manufactures which can never be averted while human nature remains what it is.

I have known several good standard implements entirely spoiled by the principle being so interfered with in order to make it look a novelty year after year, and to win a prize with it so long as we could show something different in it, till at last we had to go back to the original implement and give up the prize gaining. This has been carried on to such an extent that the most practical and money making users of implements now frequently accompany their orders with a remark that we are not to send them a prize implement, but such as we know practically will answer their purpose.

I am convinced that this system will do no longer, and that it is degrading to our English reputation. In foreign countries, where they are behind in agriculture and want the use of improved machines to increase the produce from the land, and have but inefficient or no means whatever of making implements themselves, they may very properly offer prizes in medals, as much for the purpose of inducing the owners and tillers of the soil to adopt the use of the machinery, as for inducing English makers to push the introduction of their implements and machines into such countries.

But there is nothing of this sort required now-a-days in England. It is true there was a time (some 25 years ago) when some tangible reasons might have been shown and actually existed, for offering prizes for the introduction of agricultural machinery by way of stimulating the manufacturers, but if it was so, that time is now gone past, as the very fact of bringing the manufacturers together with their products in the different localities throughout the kingdom is more than sufficient to induce farmers to adopt improved implements with improved stock, without the artificial stimulus of prizes. The natural competition consequent on trade and manufacture is sufficient inducement for the manufacturer to do his very best, regardless of prizes, and awarding such is, in our opinion, encouraging a system of trickery and deception entirely unnatural, and what is more, productive of much evil to both buyer and seller, as explained above.

I need hardly say that it is altogether different with the exhibitors of stock. Let them continue competing for prizes, for they like it, and require in a manner this sort of stimulus. A gentleman or a farmer may send an animal for competition, and if he does not succeed, his future income and means of business are not affected by it, whether the decision be right or wrong. He may not perhaps think so highly of the animal as he did before, but there it ends. If on the contrary he wins a prize, the animal is extolled to the utmost by some and depreciated by others, and there it ends again, having answered his "hobby." In fact if he is a farmer dependent on his business for his livelihood, this is only an extra effort added to his daily business, and every success at competitive shows will be an extra profit gained by his extraordinary exertions and abilities. If he is a gentleman of independent fortune, then it is a "hobby," and let him ride it just as he pleases. The difficulty with the judges does not occur in the same degree with the stock as it does with the implements. The most objectionable prejudice is got rid of then, because the owners of the stock are not known to the judges, or at least not in such a degree as is the case with the implement maker, whose articles, on the sale of which depends his very daily bread, are all provided with his full name and address; and he himself, or some representative, is there to describe and show off the goods, and if he cannot afford to pay a first-rate man or set of men to do this showing off to the judges, he never gets a prize.

For those who think that the prize system has made the leading agricultural implement firms of the present day, I append to this letter a report which was sent by my firm in reply to a request for information which would have illustrated the growth of the implement trade during the period of the Agricultural Society's operations. *R. Garrett, Leiston Works, Suffolk.*

R. GARRETT & SONS' REPLY TO INQUIRY AS TO GROWTH OF IMPLEMENT TRADE.

October, 1863.

"We are favoured with yours of the , and since its receipt have spent some time in ascertaining the number of implements and machines manufactured by us in the years 1838 and 1862 respectively.

"The result shows most conclusively the great advances which have taken place during the last quarter of a century in the use of machinery for agricultural purposes.

"We would, however, observe that no proper comparison for any practical purpose can be drawn between these two years, for the whole system of the trade has undergone a complete revolution; many implements of which we made large numbers in the former year have now fallen into disuse, whilst others have been introduced in the interval, and are now manufactured most extensively, and come into universal demand. In the latter class we would enumerate traction and portable steam-engines, steam-power thrashing machines, steam cultivating apparatus, reaping and mowing machines, &c. &c., which were quite unknown in 1838.

"Our returns are now fully 35 per cent. more than they were in 1838, and this we attribute to our every day increasing and extending connection, and to the great care and attention which we devote to the manufacture of our implements and machines, and a determination to supply every article of the best construction and materials; and by the employment of the most skilled labour, and the most untiring attention on the part of masters to all matters of detail in the manufacturing, the employment of a very large amount of capital in plant, and the facilities afforded by railways, which were scarcely in existence 25 years since. These facts, applied with a growing appreciation on the part of the public of the economy and dispatch and other advantages secured by the use of agricultural machinery, will, we think, sufficiently account for the rapid strides our particular branch of manufacture has taken during the period under notice.

"As to the Royal Agricultural Society, we are thankful that it has promoted an advancing spirit of inquiry, and called attention to useful inventions. But when we come to the prize system the matter stands very differently. We are compelled to state that prizes, especially at short intervals, are fallacious as a test of value; we have gained an immense number, but we have learnt—

"1st. That the manufacturer is driven to a constant and serious expense by competitions, and this must increase the purchaser's price.

"2nd. Attention is given to what is showy rather than to what is useful. A machine which works splendidly under certain presented conditions in the miscellaneous wear and tear of a farm will perhaps be useless.

"3rd. The production of one very perfect machine, the special result of several years exclusive attention, is no proof that the manufacturer can produce as many of these as may be wanted at reasonable prices. 'Mr. A.' may, therefore, carry off the palm for a striking machine which would be of little practical value or use, whilst Mr. B., with any required number of machines which have been proved and approved, is thrown aside after all his outlay, for this one theoretical novelty. The prize system is only advantageous at long intervals and for new implements, otherwise it cramps the manufacturer and puzzles the buyer. The approval of the public, as shown by every machine sold causing others to be purchased afterwards because of its proved ability—this is the reward to be sought by English manufacturers.

"We would, in conclusion, remark, that we object to give any detailed particulars as to the number and kind of implement we send out in one year, or indeed for any specified period; but any general information for which you may be desirous, we shall be most happy to furnish if you will give us some idea of its nature."

STEAM CULTIVATION.

WOOLSTON MANAGEMENT.—I have read in your Paper of this week your remarks upon some correspondence between myself and the Messrs. Howard. In justice to myself, I must beg space to say a word.

The Messrs. Howard must have been misled when they "called your attention to the fact, that a course of action is 'advocated, and recommended' much more by the practice than by the writings of its advocate, and that it was to the Woolston practice of leaving the stubbles untouched until after Wheat sowing, sometimes even as late as December, and then breaking them up with the combined ridging and subsoil plough, that their strictures referred." I make this long quotation to make sure that their case is rightly stated.

This you will see is not disproving the correctness of my allegation of their not stating the whole truth, but raising another issue, and under the cover of charging me with advocating one course of action, and practising another, they are avoiding the original charge altogether.

To this charge of advocating one course of action and practising another, here is my reply.

It is not a "fact" that "my stubbles are left untouched until after my Wheat sowing, sometimes even as late as December," for with the sole exception of making an experiment to try whether the tackle would work at all when it first came home, I have never done a day's work at all in December. The latest period in any year to which I have worked was in 1857, to the 4th of November. I have never worked in November since, and why?—simply because I found the days so short and dark that we had not time to do a day's work. It was therefore expedient to have the autumn work done as early as possible. I never use any particular course of order. I simply study my own convenience; sometimes one kind of work is done first, and at another time another; but it is a curious fact in connection with this subject, and illustrates the incorrectness of the Messrs. Howard's assertion, that the last piece of autumn work that has been done in any one year has always been a piece of Wheat seeding after the whole of my steam ridgings, smashings, or whatever else had been done by way of proof, here are a few recorded instances. On the 17th of Sept., 1861, Mr. Morton visited me, and found No. 3 smashing heavy land, a Barley stubble; another field of heavy land, a Wheat stubble, had been smashed, and he saw a pair of horses cross-cultivating it. This was before I did any Wheat seeding that year; see what the *Agricultural Gazette* says about his visit. "As we walked over the stubbles they were being grubbed 9 or 10 inches deep."

This year the whole of my steam work, including the ridging and subsoiling, was finished on the 20th of October, before I finished my Clover lea Wheat seeding with horses. See *Bell's Weekly Messenger* of the Monday following. It says, "On Tuesday we availed ourselves of an opportunity of paying another visit to Woolston, and were "just in time to see the last steam operation for the season." It was the Editor himself who saw and is my witness upon this point. Then it is a "fact" that I not only advocate expedition after harvest, but practise it as well.

Messrs. Howard say that the plan pointed out by them is a more excellent way than the one recommended by me, the plan of steam ridging and subsoiling at one operation. What evidence have they upon the point? They may tell you that it is more extensively practised, but that does not prove that it is a better plan. The combined ridging and subsoiling is but little known, and I believe less understood. I have practised it, and have always had good results from it. I have several times tried the plan pointed out by the Messrs. Howard, and before they did, and again in 1861 and 1862, but the results upon that plan have never been so good, although the operation cost more.

In conclusion, had the Messrs. Howard been a little more careful in their statements and information, you would not have been misled into the commission of so incorrect a charge as the one quoted

above, neither should I have had the trouble to correct it, but never mind, let us hope for the best, and especially that the Messrs. Howard will be more accurate for the future. *William Smith, Woolston, Bletchley Station, Bucks, Jan.* 6.

LEICESTERS AND LONGWOOL SHEEP.

(*Continued from p.* 35.)

I CAN scarcely describe to you a pure Leicester of the present day, because the type varies so much according to the influences of locality and the objects which have governed the breeder in his selection; so that you can hardly recognise for instance the exquisitely symmetrical and beautiful sheep of Mr. Sanday, of Holme Pierpoint, Nottinghamshire, and the larger framed coarser sheep of Mr. Valentine Barford, in Northamptonshire, as alike purely descended from the renowned Dishley flock. At 15 months the Leicester wether, highly kept, commonly weighs 20 lb. a quarter; but older animals, when well fatted, have occasionally been exhibited of more than three times this weight. The mutton is not so highly esteemed as some, owing to the usual superabundance of fat; but the flesh of good Leicester crosses has a delicious flavour, with a more equable distribution of fat and lean. The average weight of the fleece may be about 7 to 8 lb., varying much with the character of Leicester found in different districts.

To make a Leicester sheep in good order from the butcher at 15 or 16 months old, it is necessary that it be well fed from the day it is lambed. This will be about the beginning of March, when the pastures are longing to feel the influence of spring, and earlier lambing incurs the risk of very severe storms, besides involving a Turnip or Mangel diet for the ewes, which is not so nourishing nor so productive of milk as when natural herbage forms a main portion of the food. The ewe with the lamb is at once removed from the lambing field to better quarters, as a prepared field of Rye, or of Rye and Tares mixed with a little Rape, but more commonly to young seeds or to Grass lands which have been purposely rested, and there they are supplied with a few Turnips or corn. Upon Turnips and seed farms, where the object is to raise fat wether lamb hoggs, the high management of the lamb is commenced early.

They are first separated from the ewe lambs, and allowed to take precedence through the year. In weaning them it is better to take the ewes from their lambs to a distant field reserved for them, than to take the lambs away from the dams; the lambs being accustomed to this pasture will remain more quiet than when removed to a strange field, where they fret, become thin and exhausted at bleating, and too often incur fever and scouring, which are the forerunners of other diseases, and the cause of their doing badly for weeks, if not during the whole of the ensuing winter. The ram lambs are put with their dams into the Clover on reserved spots for some days previous to weaning, where they learn to eat green Tares, which are found invaluable by those breeders who use them for a start. Lambs should never be placed upon rested summer-eaten Clovers, however tempting they may appear, as they invariably cause scouring and disease. Old Grass, Clover, and Grass aftermath, is preferable until the autumnal quarter commences. So much depending upon the manner in which the young animals are started or taught to eat this winter fare; in the middle of September the lambs are placed in lots upon Grass or seeds, as they are fond of picking this food at this season of the year, Cabbages being thrown to them upon the pastures, or cut in troughs; after a short time White Turnips are mixed with the Cabbages, as a further preparation for winter. As October advances they are placed upon the common or White fleshed Turnips. Some breeders mix a little Rape (or Cole seed) in the first sowing. After a short time the wether lambs have ¼ lb. of oilcake, or corn of that value, per day. At Christmas they are placed upon the Swedes, which are cut for them. As spring advances the cake and corn are increased in quantity. The ewe hoggs are kept upon Turnips and cut Clover-chaff, with plenty of salt to lick; and when the roots are finished they are put upon Grass land or old seeds. In many parts of Leicestershire, however, the lambs are wintered upon Grass only, and are frequently sold fat as early as the following August or September.

Cotswolds.—I don't know whether there is more than tradition for the assertion that the Cotswold sheep were introduced into Britain by Eleanora of Castile, queen of Henry the Second; but soon after that time their wool had become one of the staple riches of this empire. In the 14th century its price was almost fabulous, 5*s.* to 7*s.* per stone, when a fat sheep itself was worth only 1*s.* to 3*s.*; reckoned at the present value of money, the wool realised about 4*s.* per pound. This extraordinary price arose from its demand in the Netherlands for the manufacture of the light and beautiful fabrics, such as cloth of gold, so noted and costly in those days. In the 15th century King Edward the Fourth sent a number of Cotswold rams as a present to Henry of Castile; and another royal lot was sent to John of Aragon, to improve the Spanish long-woolled breed. The old Cotswolds were very coarse animals, with a thick heavy fleece, and with a hardy constitution, well adapted, in spite of their great size, for the bleak unenclosed hills on which they were fed. With the inclosure and high cultivation of the district came the development of all that is desirable in the sheep grazed there; and whether truly or not I cannot say, it is stated by some authorities that Leicester blood was employed to give symmetry and rapidly-feeding propensity. It is understood, however, that to judicious selection the principal part of the improvement was due, and the Cotswolds of the present day are as purely distinct a type of sheep as the Herefords or Devons are distinct breeds of cattle. It is the special qualification of the Cotswold, that while of most massive weight and proportions, he is capable of enduring great hardships, succeeding well in exposed situations on nearly every kind of soil adapted for sheep farming, and he produces a great amount of mutton and wool at an early age. In the best flocks it is no unusual thing to see 12 months' old sheep weighing 30 lbs. a quarter; the average weight of an ordinary flock, when fit for the butcher, at 14 or 15 months old, being from 25 to 30 lbs. The weight to which old sheep may be brought is truly enormous. Mr. Robert Garne, a few years ago, fed a sheep which weighed no less than 86 lbs. per quarter. A 3-year old wether fed by the late Mr. Langston, weighed 85 lbs. per quarter.

The Cotswolds are in very great demand for crossing to give noble dimensions and vigorous constitution to many breeds, at home and abroad—in Australia as well as on the Continent of Europe. It is estimated that about 3000 rams are annually sold by auction, in addition to which a great number are disposed of by private contract, the majority probably going eastward from their native district, but many being sold to Herefordshire breeders and for exportation, sometimes at 40, 50, and even 60 guineas apiece.

Of the management of Cotswold sheep I have no experience, but the following I believe is generally the course pursued. The ewes are put to the ram rather early in the season, they continue with the ram about nine weeks, being drawn out from time to time as they are rammed, being marked with ochre, a different mark being used for each succeeding week, so as to guide the shepherd in lambing time. When the lambs begin to fall, the ewes are shut in warm yards, and very carefully attended to. When the lambs get sufficiently strong, they are removed with their dams to a Turnip field. Sometimes a temporary pen is made in a Turnip field for the ewes to lamb in, surrounded by little houses made with hurdles, to put each ewe to lamb in, until the lambs are a day or two old. Some of the best hay is given to the ewes at this period; and this is especially valuable in producing milk for the lambs, when Turnips and green food may have run short. When the Turnips have been consumed, the sheep are put upon the second year's seeds, where they remain till July, when the lambs are weaned and placed upon aftermath of seeds or Sainfoin. The wether tegs and ram tegs, if any, are put upon Vetches to be forced on for the sales of August. Here they are either allowed fresh pens very frequently, or the green succulent forage is mown and given in racks or alongside hurdles, so as to be eaten through them. Iron hurdles upon feet are very useful for this purpose. Towards Michaelmas the sheep go to Turnips, which are cut with hay for the wether tegs. Some farmers give cake and corn also, but many fat tegs, weighing from 20 to 30 lbs. per quarter, are brought to the fairs in the following April and May, being from 13 to 15 months old, that have tasted neither cake nor corn. Those breeders who have bestowed less care and expense in summering and wintering, sell their hoggets in a store state at the same time, to be fattened by the summer Grasses. The flock ewes are drafted early in the summer, and those to be disposed of are sold in the autumn.

Lincolns.—Though the Lincoln long-wools are now bred in such numbers upon the Wold and Heath-hills, they are not natives of those elevated grounds; the aboriginal natives, indeed, were rabbits, and the flocks were introduced there within the memory of persons still living. The heavy Lincoln sheep is a native of the lower hills, the valleys, and more especially the wide marshlands of the county. The ancient Fen sheep is described as "the largest-legged and largest-carcased sheep of all others; and although their legs and bellies were, for the most part, void of wool, yet they carried more wool than any sheep whatsoever." The old Lincolns were ungainly animals, with carcases long and thin, razor backs, legs thick and rough, bones large, pelts thick; and though attaining to a great weight, they were very slow feeders. In fact, their chief merit was their wool, from 10 to 18 inches long, and weighing form 8 to 16 lb. per fleece; and this heavy skin formerly made the breed profitable to the lowland graziers, although covering such a slow-feeding, coarse-grained carcase of mutton. Sixty years ago, when Arthur Young wrote his Survey of Lincolnshire, the new or Dishley Leicesters were spreading very rapidly over the county, probably faster than they had done (with one or two exceptions) in any other, driving out the primeval breed from the poorer uplands, or improving them by crossing. "The true Lincoln," he says, "is a larger sheep, and with a longer wool, and therefore demands a better pasturage; where it finds such, there the old breed remains; upon inferior land, the Leicester establishes itself from the necessity of having smaller size and shorter wool." At the present time the pure old-fashioned Lincolns are scarcely to be found, except in some few places in the rich marshes adjoining the sea; and these sheep are as might be expected, greatly improved by selection and careful breeding. The improved Lincolns partake largely of the peculiarities of both Cotswold and Leicester, having the expansion of frame and nobility of appearance of the one, combined in a great degree with the quality of flesh, compactness of form, beauty of countenance, and propensity to fatten of the other. But they exceed either in the weight of their fleece. The Lincoln sheep has a thick neck; he is butcher's meat, as it were, up to the very ears; his head is bare of wool, and the face not so white as to exclude black spots, each of which is valued as a mark of superior blood. The wool frills up well round the neck, and covers well down to knees and hocks.

Some remarkable animals of former times have left their history behind them. Mr. Trimnell, of Bicks, near Spalding, killed a 4-year old wether sheep in 1791, which weighed 67 lbs. per quarter, and it had never eaten oilcake, corn, &c., being made up with only Grass and herbage, the extraordinary diet of "Sow-thistles" having been its principal keep. In 1826, Mr. Dawson, of Withral, in Louth, killed three most extraordinary sheep. The heaviest, a three-shear, was alleged to have weighed 386 lbs. or 96½ lbs. per quarter. It measured from the top of the head to the tail, 4 feet 7 inches; girth behind the shoulders, 6 feet 1 inch; height, 2 feet 8¼ inches; thickness of the fore-leg under the knee, 4½ inches. The second, a two-shear, weighed 364 lbs., or 91 lbs. per quarter; and the third, a shearling, weighed 284 lbs., or 71 lbs. per quarter. In 1827, Mr. Clarke, of Canwick, near Lincoln, exhibited two wether sheep—one 65¼ lbs. per quarter, the other 62½ lbs. per quarter. A wether sheep, killed in Holbeach Marsh, in 1844, weighed 72½ lbs. per quarter. Ten wethers were produced by one farmer in the same locality and at the same time, averaging upwards of 52 lbs. per quarter each. A ewe exhibited by my father, Mr. John Clarke, of Long Sutton, at the Smithfield Club Show, of 1846, weighed 262 lbs., or 65½ lbs. per quarter; and she had certainly been in higher condition at the previous Newcastle Meeting of July in that year. At Lincoln April fair, 14 months old lamb-hoggs have been known to be slaughtered, as many as 30 together, averaging 35 lbs. each per quarter; and 100 together have clipped 14 lbs. of washed wool each. It is not the common practice for breeders of Lincolns to have them fit for the butcher at 14 or 15 months old, but they are generally kept by graziers who buy of the breeders until they are 22 or 28 months old, when their weight will be from 30 to 40 lbs. per quarter, and they cut a second fleece of 10 to 14 lb. Mr. Plowright, a grazier near Spalding, has throughout many years shown in his regular business sales, 300 to 400 annually of two-shear wether sheep, weighing 35 to 45 lb. per quarter.

The flesh of the Lincoln sheep is of admirable quality, though a foolish notion exists among breeders of Downs that it is not so. While not equal to Down mutton, it has less fat, and a greater proportion of fine-grained meat than is found in the Leicester. The ewes are fair breeders—about one-third of those lambing, producing "pairs"—but they are not first-rate sucklers. The wool of the Lincoln sheep is in great request, from its peculiar properties of length, strength, and lustre or brightness. It is not requisite that the staple should be very long; it need not exceed some 6 inches in length to come under the denomination of "lustre wool;" but the longer and stronger the hair, providing it is bright, and not coarse, the more valuable is it. At Battersea Show, my father exhibited a hogget fleece on the back of the living sheep, the length of hair of which averaged about 17 inches; the weight supposed to be about 20 lbs. Owing to the lateness of the Show (in July) of course this was somewhat over a year's growth. Such a fleece, when used in the Bradford manufactories, as an admixture with cotton in the finest "alpaca" fabrics, suffices for upwards of 12 pieces, each 42 yards in length, and might possibly be extended to 16 pieces, or 672 yards. In the production of this valuable lustre wool (now worth 2*s.* per lb.) the Lincoln breed of sheep have the pre-eminence both in weight and quality. Next in point of merit come the fleeces of the Cotswolds and Leicesters, and Kent and Romney Marsh wool is next.

I have a lock and staple of wool from a ewe hoggett, which is 24 inches long, and another from a ewe, but of more than two years growth, which is no less than 40 inches in length. I may give a few instances of weights of fleece. My father's prize ram at the Lincoln meeting of 1854, had clipped 51¾ lbs. of wool in three years; an average of 17¼ lbs. per fleece. A two-shear ram clipped last year by Mr. Bond of Yarborough, yielded a fleece of 23½ lbs., and though heavy fleeces are too commonly coarse in quality, this was as remarkable for length and fineness of staple as for weight of wool. In 1859, a neighbour of mine clipped 327 hogget fleeces, weighing 130 "tods" of 28 lbs., or an average of over 11 lbs. each. In 1862, one case gave 179 hogget fleeces, averaging nearly 12 lbs. each; another, 190 hogget fleeces, averaging 11 lbs. each; these at present prices would be worth more than a sovereign per fleece.

In the present year a marshland farmer in Norfolk has clipped 200 Lincoln hoggs, averaging 14 lbs. each fleece. Another neighbouring farmer at Walpole, near Wisbech, clipped 100 Lincoln hoggets, and 144 mixed Lincoln wethers and ewes, that is, 244 fleeces weighing 103½

tods, or an average of about 12 lbs. per fleece, and this clip has been lately sold at 56*s.* per tod, *i.e.*, 2*s.* per lb. or, 24*s.* per fleece. Mr. Plowright, near Spalding, whose fat sheep I have already referred to as attaining such great weights of mutton, has this year the following tod bill of hogg and wether sheep:—690 "threes," 376 "twos," and 2 "ones," or 2824 fleeces, averaging within a trifle of 11 lbs. per fleece, and many of them had been clipped in spring for the butcher.

A farmer at Leverington, near Wisbech, grazed 219 Lincoln hoggetts (bred near Caistor, in Lincolnshire), and 46 Lincoln shearlings, and the 259 fleeces weighed 117 tods, or an average of 12½ lbs. per fleece; 81 fleeces of half-bred Down and Leicesters, averaging 8 lbs. per fleece, made up a clip, sold (October 21st) at 56*s.* per tod, or 2*s.* per pound.

Probably ordinary breeding flocks, where the proportion of hogg wool is about one-third of the whole, the fleeces average 8½ to 9 lbs. each.

The Lincoln long-wool sheep, though of course possessing uniformity in essential character, differ very considerably in minor points. They are bred chiefly in their native county, in some parts of Yorkshire, in the fens of Cambridgeshire and Norfolk, in Huntingdonshire and Northamptonshire. In the northern part of Lincolnshire, and on the high Wolds, most attention is paid to the uniform character and fattening properties of the breed, preferring the wool to be of fine quality, and rather closely set. In the midland portion wool and mutton are sought with about equal care, with a more open and somewhat heavier fleece; and in the southern districts of the county, including the sheep fens and marshes, the three great requisites of large proportions, with plenty of wool and heavy flesh are most prized, and universally sought after. In addition to these general differences, each breeder, or at least each breeder of rams on a somewhat large scale, has some peculiar taste or character displayed in his flock; and common or ordinary breeders congregate at the lettings, according to their tastes, or the peculiar demands of their respective farms, the occupiers of the fat lowlands seeking out rams that can scarcely be too large in frame, or possess too long and broad a staple of wool. Herbage and climate are found in practice to exert a very potent influence upon the fine shades of character in sheep suited to different districts. And this should be borne in mind when advocating a spread of the breed into other parts of the kingdom. I do not see why the Lincoln breed should not be more widely dispersed than it is, provided the extraordinary market demand for lustre wool is kept up.

I am of opinion that the sheep can be introduced into almost any district of the United Kingdom where good natural pasturage abounds, or can be found, and good Turnips can be grown, and also wherever good Clover or seeds are produced. Providing, however, that you have one of two important conditions. It is perfectly futile and useless to attempt the introduction of Lincoln sheep into mountain and moorland districts, or even upon lofty chalk downs. The very size and weight of the animal deters it from travelling far in search of food; but it may be profitably located upon hills of moderate elevation and under good husbandry. The Lincolnshire wolds, and heath and cliff, are not much unlike the Cotswold uplands, and these ranges alike nurture breeds of sheep of wonderful size and weight.

The other condition is that the Lincoln sheep is unadapted to an excessively moist climate. Lincolnshire is one of our dry counties, and the absence of great and incessant rainfall is conducive to the growth of a lustrous fleece. Hence, in introducing this breed into new localities, we should act upon the same principles which guide the choice of breeders in Lincolnshire itself. The long open thin-set staple will not thrive well in a cold, wet, stormy, and changeable season, even in the native habitat; the closer fleece beats it hollow, because neither cold, wet, nor wind can so easily penetrate to the skin through the denser coat or covering. You have only to notice how readily the wool of a thin-set fleece is parted by a slight breeze, to be convinced such is not the best covering to ward off the snow, the cold rains, and storms of a fickle clime. So that judgment will select the closer-skinned wools for wet and bleak districts, larger and heavier fleeces for better soils and situations, while the largest and heaviest sorts, both of wool and mutton, are suited to the best lands and driest climates. For the continuous rains of the West of England, the Lincoln breeder can supply a close-set skin, yet valuable as being true lustre wool. For warm districts of the south of England, where it is objected that the wool degenerates and becomes short and "mossy," owing to too much heat, the open skins and brighter fleeces of North Lincolnshire are adapted. I do not believe that the production of this lustre wool is limited by poverty of soil and inferiority of natural herbage. On Lincolnshire chalk wolds and the oolitic heath district, where 60 years ago, tens of thousands of acres yielded an annual produce, not exceeding three or four couples of rabbits per acre; now they are producing magnificent sheep in almost equal numbers, with sheep's valuable wool instead of rabbits' skins. And the high importance of extending the production of lustre wool appears from the fact that while our manufacturers can obtain ample supplies of short wool from our pastoral colonies, Australia, New Zealand, and the Cape of Good Hope, there is no country in the world but our own which seems capable of yielding supplies of long lustrous wool. The experiment, however, is being tried; 18 young Lincoln sheep, mixed as regards sex, was this autumn shipped for Melbourne.

As illustrations of the value set upon Lincolnshire rams, I may instance a few of the sales and lettings this autumn. Mr. Howard, of Temple Bury, sold by auction 60 shearlings at an average of over 13*l.* each, and 20 two-shears at an average of 10*l.* 5*s.* each; but the prices reached up to 40*l.*; others were 34*l.*, 29*l.*, 27*l.*, and so on. Mr. Mayfield, of Pegdyke, let 100 rams, at prices up to 45*l.* My father's prize ram of Leicester in 1854 was let for the season for 50*l.* It is quite a common thing for sheep of established fame to make 30*l.* to 40*l.* for their use during a season.

The general system of management of Lincoln sheep is as follows:—The ram is put to the ewes about the beginning of October, and runs loose in the field with 60 or 70 of them, upon Turnips, or Coleseed where it is grown, and upon Grass land where the farm will allow of it, a stimulating diet (particularly a bite of white Mustard), being found to forward the ewes, and tend greatly to their fertility. The ram is rubbed underneath with ochre or soot, so as to leave a mark upon the ewes he has tupped. In the lambing season the ewes are placed upon good green land, or seeds reserved for them, near to the homestead, and are supplied with either Turnips or Mangels, which are not so good, but may be alternated with Turnips with good effect, and a supply of chaff from Oat sheaves, cut up, is an excellent addition to the food. The lambs are castrated, their tails cut short, and they remain with the dams until late in the summer, when they are drafted to Clover eddish, and furnished with a gradually increasing allowance of oilcake. The principal breeders upon the heaths and wolds, have a great fancy to put forward their wether lambs from the earliest period; they are separated from the ewe lambs, and promoted to all the best food. When taken off about the middle of July, they are still supplied with corn or oilcake upon the seeds, and then they are placed upon the Turnips, Cabbages being little used. As the Barley-thrashing advances, they receive bruised Barley and malt combs with their oilcake. As spring advances this artificial food is increased along with the cut Swedes. In the southern district of the county, where Coleseed is grown, the lambs stock this crop early in October, having a stock of Wheat, Oat, or Pea straw to pull at and to shelter under; and Oat chaff is given in troughs, dry food being essential to prevent injurious consequences from an exclusive diet of rich succulent forage. Next to the Coleseed comes the White-fleshed Turnip crop; to them follow the Swedes, sliced for the sheep, which are afforded a fresh square of fold every day, or less frequently in fine dry weather artificial food, as cake, with Bean and Pea meal, and Oats, is plentifully supplied by the best managers, in order to make big, strong and useful lamb-hoggs for sale at the spring fairs.

These lamb-hoggs are bought by graziers from the good sheep pastures, and are got off to market either late in summer, after yielding their first fleece, or if bought in poorer store condition, during the next winter, after clipping a second fleece. The time for clipping is June, the washing being performed about 10 days previously, in wash-dikes constructed for the purpose. The young lambs are cleansed by dipping in a mixture of arsenic, soft-soap, and assafœtida, soon after the ewes are shorn, and in October they are sometimes dressed with mercurial ointment. In August, the ewes are drafted; those selected for future breeding being placed upon ordinary pastures, stubbles, &c., and those for fatting, put upon the best keeping the farm will afford at that season. The breeding ewes are generally dressed with some liquid to free their skins from vermin, arsenic and soft soap being common ingredients.

I have still two more breeds of Long-wool sheep to notice.

The Teeswater, so named from its original locality, the banks of the river Tees in Yorkshire, was at one time a very tall, clumsy animal, without horns, much after the manner of an old Lincoln, with wide back and round barrel, but very sluggish in arriving at maturity. The wool was remarkably long and coarse, but thinly set in staple. One valuable property of the breed was, that it was very prolific, twins having been not only usual, but there are cases of four, and even five lambs at once. By crossing with Leicesters, the size and constitution of this breed have become united with quick feeding properties, with an excellent description of fleece. The management is very similar to that pursued in Lincolnshire; the breeders, however, generally sell their produce as shearlings in autumn, making a great show at Market Weighton farm in September. The young sheep, fattened upon Turnips, are artificially forced during the winter; and those intended for shearlings are kept more moderately, placed upon Clover early in the summer, and then finished upon Coleseed. When they are sold, the wether lambs are put upon the Coleseed to clean it up previously to their going to Turnips, which is a good arrangement for finishing the shearlings, starting the lambs, and preparing for the succeeding Wheat crop.

The Romney Marsh breed, a very hardy long-wool sheep, believed by its breeders to be the only sheep capable of weathering the storms that blow off the English Channel, was at one time distinguished by thickness and length of head, a long and thin neck and flat-sided carcase, rather firm quarters, large belly, heavy bone, and long and coarse wool. Though improved of late years with Leicester blood, they still retain too much of their old character to be favourites in a show-yard, but have very valuable qualities, and all their primitive hardihood. The great business of Romney and adjoining marshes, extending over more than 60,000 acres, is the breeding, rearing, and fattening of this sheep. Every grazier, whose business is complete, has two sorts of pasture, breeding land and fattening land. The former is stocked with ewes in autumn for the winter; from two and a half to three and a half, and even four sheep an acre. The rams are annually put to the ewes, allowing one to 40 or 50, and sometimes 60, in the middle of November, this being very late, staying with them about five weeks. The ewes live entirely upon the Grass, and without any hay during the winter; in deep snow blasts, scraping with their feet, and obtaining a subsistence, although they then lose flesh and become very poor by lambing time. Many twins are produced, but many lambs are lost; so that the breeders are satisfied if they wean as many lambs as they put ewes to ram. The lambs are weaned the first and second week in August, and very soon after are put out to the upland farmers to keep, the price paid being commonly 5*l.* to 6*l.* a score, lasting until the beginning of April. The Wold district is thus stocked with the Romney Marsh sheep during the winter season; and, indeed, this breed is found largely spread throughout the county of Kent. When the Turniped lambs return into the Marsh (often in a poor and half-starved condition, from not being under their owner's attention), they are put on the poorest land, or on such fields as the grazier thinks want improvement by hard stocking. Here they remain until August, distributed, or rather concentrated, at the rate of from 5 to 12 sheep per acre, according to the powers of the different fields. The wether tegs are removed in the autumn to the fatting, and the ewe tegs to the breeding grounds, when they graze among the two and three years old ewes. The wethers remain until July or August following, when, as they become mutton, they are drawn out, and sold to the butchers at the Marsh markets, or sent up to London. The two-shear wethers, when fat, at this season, weigh from 20 to 28 or 30 lb. a quarter.

The old ewes, or "barrens," as soon as their milk is dried after their third lamb (which is at the age of six years), are put to fatting on some of the best land, when they run from three to five per acre during the winter. In favourable seasons these are sometimes made fat and sold in the spring, soon enough for the same field to take in a lot of wethers, to fatten them by the autumn; but this can be done only by light stocking. In very growing summers it is necessary to keep a strict watch on the Grass, to prevent it running away from the sheep, by any stock that will keep it under; young beasts being commonly taken in for this purpose, from the upland farmers.

The Romney Marsh wool is now of exceedingly good quality, being very long and fine; the fleeces of the young sheep are about 5 lbs. in weight, those of the ewes 6 lbs., and of the fattening wethers 8 or 9 lbs. each.

DEEP CULTIVATION.

TWENTY years of practical experience ought to be worth something to any man who has observation and reflection. In 1843 I named shallow ploughing as one of the principal curses of British agriculture, and in 1863 I am more than ever convinced that my statement was true; but although I then acted on my own conviction and broke up deeply the soil, I am sorry to be obliged still to state, that in my opinion, formed from observation, 4 inches (solid) is still the full average depth of the British agricultural pie-crust, in which plants are to grow whose roots would, if permitted, descend many feet.

Baron Liebig's last work, "On the Natural Laws of Husbandry," has revealed to us many subterranean secrets, and among the rest that we cannot manure the subsoil through the top or cultivated soil. Deep cultivators can now understand why it is so profitable to mix the manure with the subsoil and both with the top soil—not to bring up all the bad and bury all the good, but so to intermix them that the subsoil may be thus placed in a position to benefit by and participate in the manurial dressings. If you have any doubt of the Baron's theory, cut a deep section, and you will see immediately below the cultivated land the pale, poverty-stricken and unmanured subsoil, presenting a striking and instructive line of demarcation.

The reasons for this non-fertilisation of the subsoil are sufficiently given in his work.

We can now readily understand how it is that the Rev. Samuel Smith, of Lois Weedon, gets his rows of Swedes to "shake hands" by their leaves at 5 feet intervals. He ploughs back all his top soil, and having thus laid bare the poor subsoil, puts on it his manure, and forks it into the said subsoil, and thus providing food and air in the right place, the subsoil, for the deep-feeding root crops. Gardeners understood this, but farmers as a general rule either know nothing of it or do not think it profitable.

I never could understand on logical and reasonable

grounds why a farmer should have one rule for his fields and another for his garden, except the slavery of long custom. No farmer would be content with the farming depth of cultivation for his garden. In the latter he requires greater acreable produce, and is not that what he should require on his farm?

From 16 to 20 years ago I broke up much of my land by six horses following in the track of the first plough drawn by three horses, and in this very year I could see the great contrast in part of a field where I had omitted to do this.

To-day I am following the two-horse plough with four horses attached to an iron plough without the breast. The subsoil breaks up, boils over, and intermixes with the top soil and manure, and as it flows over you see the strong roots of old weeds torn from their hitherto safe residence, but condemned now to destruction or removal.

I have produced on the physiognomy of my farming friends certain curious muscular evidences of entire disbelief, when I told them that my neighbour, Dr. Dixon, of Rivenhall, once pulled up a Parsnip with a vertical root 13 feet 6 inches long, besides the further piece left by its breaking off. This was in a bank of earth, 20 feet deep, that fell over loosely when excavated; a paved or polished and hardened subsoil in stiff clays or other soils won't do. Liebig tells you why in his last work. As water cannot wash manure to the roots, the roots must go to every granule if they mean to have the manure. Consolidation is just the thing to prevent such a free working of the roots.

Turn a heavily laden cart in damp weather over a stiff clay and it will leave its mark of poverty unmistakeably; in fact, I have not patience with our present system of shallow cultivation, but believe that the great reformer will be the steam plough after drainage on stiff clays.

The more I reflect upon the Lois Weedon system, the more I am impressed with admiration of the sagacity of its amiable owner. He anticipated the philosopher's discovery, and provided food in the subsoil for plants that do not feed on the surface soil, or that search the subsoil for a completion of their growth.

The advantages of exposing the sullen, unaërated, unaltered subsoil clay, to the influences of climatic vicissitudes, are too obvious to be denied. Let those who doubt this read Liebig on Fallow, and Way on the Absorptive Power of Soils; let them peruse Mr. Thomas F. Jamieson's able prize essay "On the Action of the Atmosphere upon Newly Deepened Soil," in vol. xvii., p. 407, of the Royal Agricultural Society's Journal, and they will appreciate his witty conclusion:—

"Many other benefits however than those of the frost will result. Are the oxygen, ammonia, carbonic acid, nothing? Let the agricultural mind, therefore, be of good cheer; the atmosphere is a force everywhere present; although his form may be like Justice Shallow's, 'barren, barren,' he has at least this consolation 'marry, good air.'"

I remember throwing out of the cutting of a new ditch in my "Black Sandys" field, an absolutely barren subsoil of hard sand and gravel stones, bound together by protoxide of iron. For several years no vegetation was seen upon it, at length a few straggling plants appeared, and now, after a lapse of 20 years, it is well covered. This is evidently due to the action of the atmosphere on the ingredients of the soil. *J. J. Mechi.*

PRODUCE OF MILK AND CREAM.

PROBABLY the greatest quantity of milk in this country is set for cream in leaden cisterns about 4 or 5 inches deep; yet tinned-iron cisterns are on the whole preferable, as being more easily kept clean. It is a great mistake to put up the milk in cisterns 4 or 5 inches deep. Such deep vessels economise space, and cost less than a number of small pans requiring to be renewed from time to time, but what is gained on the one hand is lost on the other, by the smaller quantity and the inferior quality of the cream which they give, in comparison with shallow vessels.

The quicker cream can be made to rise the better its quality; for cream, like all perishable substances, does not preserve its original properties for any great length of time. The cream, or rather milk-globules, being lighter than the fluid portion of milk, necessarily rise in a shorter time from a less depth than from a greater depth, because they have less pressure to overcome than those in the deeper strata; the action is also more complete, as well as more rapid, in shallow vessels. There is another reason for preferring shallow vessels. Milk as it comes from the cow has a temperature of about 90°. If kept in this condition for any length of tsme, air being freely admitted, it rapidly turns sour. Hence it is of consequence to reduce it as rapidly as possible down to a temperature of at least 60° Fahr. In a shallow tinned-iron milkpan placed upon stone this change is soon effected; and then, in a good dairy, the milk may be kept from 36 to 48 hours, at a season when in deeper vessels it would soon turn sour. When once begun, the process of acidification cannot be stopped by any available means. Hence it is of great importance to cool down the milk as rapidly as possible. As metals are good conductors of heat, shallow tinned-iron milk-vessels, resting on stone, are better adapted to keep milk sweet than glass or earthenware, or slate-pans, placed on a bad conductor like a wooden bench.

It must not be imagined, however, that the lower the temperature is allowed to sink the more cream will rise; for we must bear in mind that with the reduction of the temperature the specific gravity of the liquid is raised, and the rising of the cream or milk-globules checked accordingly.

When shallow metallic milk-vessels are employed in a proper dairy, kept at this temperature, all the cream that will rise at all will have come to the surface in about 24 hours. Under these circumstances it is therefore no use to set milk aside for a longer period. Some people let milk get sour before they skim it; but although the layer of cream in that case appears more bulky and of greater consistency, it does not produce so much nor so good a quality of butter. On this point we possess an interesting experiment by Sannert, who put aside two equal quantities of milk, of which the first skimmed after 30 hours yielded 30 lbs. of butter; and the second skimmed after a lapse of 60 hours, only 27 lbs. of butter.

In another experiment two equal quantities of milk yielded—the one when skimmed after 30 hours, 31 lbs. of butter; and the other after 60 hours, 29 lbs. of butter. In both experiments, in which the milk was skimmed after 30 hours' standing, the skimmed milk was still sweet, and the cream not so thick and less in bulk than that which was thrown up after 60 hours' standing.

Composition of Cream.—As may be expected, the composition of cream varies greatly, according to the circumstances under which it is produced. Four different samples analysed in my laboratory yielded the following results:—

	I.	II.	III.	IV.
Water	74.46	64.80	56.50	61.67
Butter (pure fatty matters)	18.18	25.40	31.57	33.43
*Casein	2.69	7.61	8.44	2.62
Milk-sugar	4.08			1.56
Mineral matter (Ash) ..	0.59	2.19	3.49	0.72
	100.00	100.00	100.00	100.00
*Containing nitrogen ..	.43	..	..	.42

Cream is lighter than milk, but slightly denser than pure water; consequently it sinks in distilled water. No. 1 was skimmed off after standing for 15 hours, and was found to have a specific gravity of 1.0194 at 62° Fahr. The specific gravity of two other samples of cream which stood 48 hours was 1.0127 at 62° Fahr., and 1.0129 at 62° Fahr. Rich cream, I find, has a lower specific gravity than thin cream mixed with a good deal of milk, such as the sample analysed under No. 1.

No. 2 may be taken as representing the composition of cream of average richness. It then contains about one-fourth its weight of pure butter.

These differences in the composition of cream fully explain the variable quantities of butter which are produced by a given bulk of cream.

On an average, 1 quart of good cream yields from 13 to 15 ounces of commercial butter. Occasionally cream is very rich in fatty matters, and then yields much more butter. Thus Mr. Horsfall states that a quart of cream in his dairy yielded 1 lb. of butter, when the cows were out in Grass, and no less than 22 to 24 ounces of butter when the cows were fed in the house on Rape cake, Bran, and other substances rich in oil.

The cream which rises first I find is always richer in butter than that which is thrown up later. Such differences are always particularly marked in warm weather. Generally speaking, cream yields more butter when its bulk, in proportion to that of the milk from which it is taken, is small, and *vice versâ*. Thus, in Mr. Horsfall's dairy, the cream did not exceed 6½ per cent. in the bulk of the milk: but it was so rich as to yield 25 ounces of butter per quart.

In an experiment which I published last year only 4 per cent. of cream was thrown up by the milk. This cream, however, was so rich that 10 quarts yielded 18 lbs. of butter.

The first portions of cream which rise are always thin, but rich in fat; a fact which is explained by the circumstance that during milking and the subsequent agitation to which milk is exposed a portion of the milk-globules get broken, in consequence of which their light fatty contents, liberated from the denser casein-shells, rise to the surface with greater facility, and there occupy less room than the unbroken milk-globules, which, on account of their greater specific gravity, are more sluggish in rising.

In my experiments the milk had to be measured out several times over, in order to secure accuracy; and this exposure to extra agitation explains the unusually small bulk of the cream: since in all instances of careful experiment the milk must be a good deal agitated, until it becomes a sort of mixture of ordinary cream and ready-made butter. The large quantity of butter yielded by cream in Mr. Horsfall's and my own experiments is explained by this circumstance. We may learn from this that on farms where cream is sold the milk should not be shaken more than is absolutely necessary.

Although no doubt originally all the butter exists in the shape of butter-globules, a partial separation, however, between the contents and the envelopes of these take place already in the udder of the cow; for if ether, an excellent solvent for unencased fatty matter, is carefully mixed with the milk as it comes from the cow, and the layer of ether which collects after some time on the surface of the milk is evaporated to dryness, an appreciable quantity of fatty matter is left behind. This is not more than might be expected; for the milk in the udder of the cow to some extent becomes agitated by every violent movement of the animal. For this reason, whether butter or cheese be our object, we should endeavour to keep milking-cows as quiet as possible. *Dr. Voelcker, Agricultural Society's Journal.*

Home Correspondence.

A Cure for Bitter Bread.—I think I may safely say that if Potato yeast be used as in the following recipe, which has been in use in this household for more than 20 years, the bread cannot be bitter. Take 1 lb. Potatos, boil them till thoroughly soft, skin and mash them very smooth, then stir in hot water until the mixture is the thickness of cream. When it is nearly cold, stir into it two tablespoonsful of beer yeast, and set it before the fire until it has done fermenting. It is then fit for use; 1 lb. of Potatos will make a quart of Potato yeast, which is enough for 2 pecks of flour. *Lattenbury.*

Tithe Commutation.—As many of your readers may feel anxious to know the result of the corn averages for the seven years to Christmas, 1863, published by authority in the *London Gazette* of this evening, viz.:—Wheat, 6*s.* 3½*d.*; Barley, 4*s.* 5½*d.*; Oats, 2*s.* 11½*d.* per imperial bushel—I beg to state for their information that each 100*l.* of tithe rent charge will, for the year 1864, amount to 103*l.* 3*s.* 10½*d.*, or about 4 per cent. less than last year's value. The following statement from my "Annual Tithe Commutation Tables" will show the worth of 100*l.* of tithe rent charge for each year since the passing of the Tithe Commutation Act, viz.:—

	£	s.	d.
For the year 1837..	98	13	9½
,, 1838..	97	7	11
,, 1839..	95	7	9
,, 1840..	98	15	9½
,, 1841..	102	12	5¼
,, 1842..	105	8	2¾
,, 1843..	105	12	2¼
,, 1844..	104	3	5¼
,, 1845..	103	17	11¼
,, 1846..	102	17	8¾
,, 1847..	99	18	10¼
,, 1848..	102	1	0
,, 1849..	100	3	7¾
,, 1850..	98	16	10
,, 1851..	96	11	4¾
	£1512	8	11½

	£	s.	d.
Brought forward	1512	8	11½
For the year 1852..	93	16	11¼
,, 1853..	91	13	5¾
,, 1854..	90	19	5
,, 1855..	89	15	8¾
,, 1856..	93	18	1¼
,, 1857..	99	13	7¼
,, 1858..	105	16	3½
,, 1859..	108	19	6¼
,, 1860..	110	17	8¼
,, 1861..	112	3	4¾
,, 1862..	109	13	6
,, 1863..	107	5	2
,, 1864..	103	3	10¾
	£2830	5	8¼

General average for 28 years £101 1 7¼

Charles M. Willich, Actuary to the University Life Assurance Society, 25, Suffolk Street, Pall Mall East, S.W., Jan. 8.

Patent Earth Closets.—The arrival of the frost, and its expected effect of rendering unserviceable the water-closets in many country residences, recalls to my mind an article in the Journal of the Royal Agricultural Society, published last spring; and suggests thoughts of the convenience of the contrivance therein described at this season of the year. I have often thought of the advantage to the occupier of a suburban residence, with a small plot of garden attached, had he the means of utilising the manure produced in his own house and of applying it to fertilize his garden, instead of suffering it to pollute the neighbouring streams. And the contrivance appears from the description given to be not very much more cumbrous than an ordinary night-commode, in moving from room to room, and very much more easy to clean and replace when required for use in a sick-room. I should then be very much obliged to any of your correspondents who have employed this piece of furniture if they would favour me with the results of their experience of its use, either as compared with a common watercloset in hard frost, as a means of manuring a small holding, or for the purposes of the hospital or sick-room. *Ruricola.*

Farmers' Clubs.

LONDON.—(3, Robert Street, Adelphi, London, W.C.)—The following subjects have been selected for discussion during the present year:—

February 1. The Malt-Tax—Proposed by Mr. J. A. Williams, Baydon, Hungerford.
March 7. On Feeding Stuffs—Professor A. Voelcker, 101, Leadenhall Street, E.C.
April 4. The New Assessment Act—Mr. J. Dumbrell, Ditchling, Hurstperpoint.
May 2. The Imperfect State of the Corn Returns. Mr. T. Chandler, Aldbourne, Hungerford.
November 7. County Expenditure and Local Taxation—Mr. W. Spearing, Kennet, Marlborough.
December 5. On some of the Causes that tend to render Farming Unprofitable—Mr. Alderman Mechi, Tiptree Hall, Kelvedon.

*** The discussions commence at half past 5 o'clock, P.M. There are no meetings in January, June, July, August, September, or October.

WIGTON: *High Farming; but, where is the Money to come from?*—Sir R. Brisco, the President of the Club, read a paper on this subject at a recent meeting. We make the following extracts from it:—After a reference to the fact that great land improvements prosper in bad times and slacken in periods of high prices, and to the

absolute need of land drainage, by which this assert on was particularly illustrated, Sir Robert proceeded:

"High Farming" I take to mean the act of obtaining from any given land the greatest possible value of production of which it may be capable by any or whatever means, through the investment of capital in any or whatever form. Now to the proof:—

Given a farm of 50 acres Grass land.

Debit the rent	£100
Debit the rates	10
1 herdsman	40
	£150

Produce 25 cattle grazed, equal to 6*l.* per head cost.

View the same farm under higher farming:—

Given a farm of 50 acres of Grass land.

Rent	£100
Rates	10
Cattle man	40
Manure at 3*l.* (or other enrichment) ..	150
	£300

Produce 50 cattle grazed, equal to 6*l.* per head cost,

In these two examples I have so arranged them as to make the cost per head on the cattle equal in each case, but the result will be found very different. In the first example all the money paid out has left the farmer's pocket for ever; but in the second example half the expenditure is invested in his lease, or, if you like it better, say in his farm. Now, for example sake, let me assume that the farmer clears one pound a head in both cases, after paying expenses. In the first case he will gain a profit of 25*l.* off his 50 acres, leaving his land no richer than he found it. In the second example he will gain a profit of 50*l.* off this same 50 acres, and will leave these acres richer than he found them. In this case he gains 20*s.* per acre profit, but in the previous case only 10*s.* per acre. But you will, I hope, observe, that he gains much more than is here represented; for, as the first lot of twenty-five cattle have paid off all the rent, rates, and labour, he will be repaid by the second lot of 25 cattle all his cost in manure also. Practically, the first man has paid 6*l.* per head for the grazing of 25 cattle, whilst the 50 cattle of the second man have only cost him 3*l.* per head for grazing, and he has his land in very superior condition for the next year. The plan adopted in the first example represents what is called a good fair farmer. The second would properly be called a high farmer. The first receiving 16 per cent. on his outlay for rent, rates, and labour, would complain that rents were too high, because he might not receive sufficient profit to suit his views, and would most likely think a reduction of rent was the only way left of improving those profits. The high farmer, on the other hand, gaining 32 per cent. on his outlay of the same amount of rent, rate, and labour, would cheerfully pay an increase of rent, which would make profitable farming an impossibility to the other man. Gentlemen, excuse me, but I would deny the truth of any statement embodying an idea that rents on the average are too high. It is not the case that rents generally are assessed at too high a value for the land, but that the man is not equal to the rent; or, in other words, that the average of farmers do not know and therefore do not carry out correctly the true principle of profit making in their cultivation of the land. This I am convinced is the true explanation of the apparent difficulty. It is a dangerous and too prevalent idea that land gives the rent: it is not the land, but the capital invested in the land, aided by the farmer's judgment, which gives the rent and profit. As well might it be said that the plough or the fork yields the rent. Land can only be viewed as a machine through which the farmer passes his capital, which, worked with judgment, will turn out goods yielding a profit.

In selecting Grass land to exemplify my meaning, I have only done so because it enabled me to put an example in the simplest form. Arable farms are governed by exactly the same law; but on them my examples would have become much more complex and intricate. Neither do I wish it to be supposed that the outlay and return on the examples given above are intended to represent the exact sums either of expenditure or receipts. My object has been to simplify as much as possible and make my meaning clear, so that the great guiding principles of making profits by high farming, might not be clouded or lost sight of, by entering into minute details.

In concluding the first half of our subject, let me now summarise what has gone before.

"High Farming" is best for the nation at large, because it provides a maximum of human food at the cheapest rate. It is the best for the landlord, because it insures him the highest and most regularly paid rent for his land. It is the best for the tenant, because it gives him the greatest interest for, and security to his capital, with the least possible drudgery to himself.

"High Farming" practically, but only ultimately, increases rent to the landlord; at the same time that it virtually decreases rent, rates, and labour to the farmer.

"High Farming" forces from the land the greatest possible amount of food which its composition may be capable of. This is accomplished by liberally supplying it with the uttermost amount of strength and richness it is capable of assimilating, by means of the various manures, suitable for its composition and the requirements of the plants grown upon it.

Having now explained to the best of my power, and I hope clearly, what is meant by "High Farming," with the principles necessary to bring about that result, I shall proceed to show "where the money is to come from."

In answering and explaining this question, do not for a moment suppose I am about to show you some hidden hoard of ready-coined shining sovereigns from which you may supply your wants, or that I am about to show you any smooth royal road to wealth. Man was told in the beginning, "In the sweat of thy brow shalt thou eat bread." To this we must all submit, whether we like it or not: but in obeying this universal and salutary law we nevertheless have it in our power to render it more or less irksome, more or less profitable.

To make it less irksome and more profitable is the object of the remarks I am about to offer.

The primary object of all business occupations is to make the largest possible profit from a given capital, be that large or small, in whatever shape or in whatever character that capital may present itself.

Cumberland farmers profess to think they have no spare capital for improvement by "High Farming." I answer, if it be admitted that a little land farmed well is better than a large area only half cultivated, then there is little weight in this argument. Nothing is so grateful or liberal for kindness shown it as land. Fatten it by high and liberal management and it will as surely fatten you; hunger it and it will hunger you, for there will in that case be left wherewithal nothing to feed you. Do not kill the goose in the vain hope of obtaining the golden eggs; but preserve it, feed it, fatten it, for so in like proportion will you receive its ample, unlimited, and golden gifts.

Capital must be concentrated by employing it upon a less amount of surface. Let the 200-acres farmer confine himself to 150. The 150-acres man to 100 acres. If ordinarily good farming will barely pay, we may be quite sure low or poor farming will soon land a man into ruin.

Suppose a man to commence to farm 100 acres with a capital of 600*l.*, equal to 6*l.* per acre; from this capital he may obtain a profit, more or less, according to his capacity for managing land.

But suppose that instead of 100 acres he were to spread this same capital over a surface of 600 acres, equal to 1*l.* per acre, would he not, even in the present day, be called a fool? Well, then, is not this very same plan carried out on nearly all our Cumberland farms, in a greater or less degree, and does not the question, "But where is the money to come from?" too faithfully confirm this view? Gentlemen, reduce your surface and thus increase the power and profit of your capital. By this means you reduce your outgoings in rents, rates, and labour, which amount of capital saved you can expend in manure to be applied to your lessened surface, from which you will derive much more profit than from your previous double amount of acres. Capital paid away in rent and rates gives little profit, but the same amount expended in manure enriches and blesses the spender.

In exemplification of the above let us revert to our examples in "High Farming."

The first example was that of an ordinary jog-trot farmer who takes his 50 acres of Grass land. He manures not, he improves not, believing that it is the land only which yields the profit; who, faithful to his belief, satisfies his disheartened spirit by finding everybody in fault but himself: his landlord for exacting too much rent; the magistrates for wasteful expenditure of county rates, hardly earned by the sweat of this poor farmer's brow; the overseer for wasting upon the poor and charging him with too much poor rate, both of which rates he is confidently certain he could have laid out much more economically himself.

Had this man, instead of finding fault with everything and everybody, immediately reduced his holding to one half, he would have found himself in possession suddenly of sufficient available capital to pay for a good manuring to his land; thus doubling its previous production, carrying his previous number of cattle, as well as doubling his percentage on the rent, rate, and labour outlay.

Thus by saving the territorial expenses on 25 acres he receives the profit of 50 acres, besides annually receiving back the additional investment of his High Farming expenditure. It has not been my intention in this paper, nor indeed would the range of my subject permit me, to go into and detail the various and minute applications of this principle, to the practical cultivation of every separate farm, every variety of soil, and every system of cultivation adopted by each farmer. I profess to point out and explain the principle only, on which all profitable farming, as a business, must be based. I leave each shrewd and practical farmer to apply this principle to his own special case, and directed by his own practical intelligence.

It is much to be regretted, that merely to name High Farming is sufficient to raise a laugh, not to say a feeling of animosity, as though High Farming were only adopted by fools, or advocated by tyrants, for the purposed ruin of agriculturists. Has it never entered your thoughts that you are all more or less open to the doubtful smile bestowed on High Farmers?

Permit me to say that you are all High Farmers in a degree, though you do not seem to know it. It is not so very long ago, and I doubt not that some here present can even remember it, when the usual system of farming embraced the taking an Oat or Bigg crop, year after year off the same land, without manure, until that land could produce no more grain crops; after which it was left to cover itself with its own wild Grass, as best it could, so to remain neglected until it was thought to be sufficiently refreshed to bear another and similar scourging ordeal. Suppose a man in that day had done as I am doing now; suppose him to have recommended as High Farming, to the farmers of that day, the adoption of the same system of cropping and manuring land as is now adopted by the very worst of farmers; would they not then have treated his advice as that of a madman, or a doubtful friend, and would they not have asked him as now is done "But where is the money to come from?" Their question you have already answered, for you have found the money to accomplish what the farmers of that day thought impossible both in practice and theory. You, however, have done immensely more than that; and you know it, for the whole of you, from the most advanced to the very worst farmer in the county, would look down with contempt upon any man who might recommend or adopt that ancient system; yet you, even in this day, treat, with a pitying smile, the advice to farm high. Let me remind you again that you all, the worst as well as the best, farm high, compared with that ancient system, which you all with one accord would so bitterly condemn. Though you are all High Farmers compared to your ancestors, yet you are far, aye, very far from being High Farmers if judged by the science and knowledge of the present day. It is to open your minds if possible, to this fact, that I have read my paper to-day. Now, what have I advised you to do? Not to alter or change your kind of cropping; I have not advised you to introduce and grow an entirely new class of plants, which might oblige you to obtain entirely fresh knowledge and experience; nor have I advised you to introduce an entirely new breed of animals requiring management and care entirely different from your previous habits and experience. No, I have merely pointed out to you how necessary it is to get a greater produce from land with less relative cost but with greater profit. I have shown you the unalterable laws by which this can be accomplished, and that the adoption of it is perfectly open and easy to all of you; to the very poorest as well as to the richest. It requires little if any change in your system of farming; it only requires you to advance rather further than you are now doing in the enrichment of your land. If at the present moment Mr. A. admits it to be requisite to give 12 yards per acre of farm yard manure to produce 8 Carlisle bushels of Wheat, then the advice given in this paper urges him not to be satisfied with 8 bushels, but to assist the land by an investment of more capital per acre to produce a greater weight and better quality of grain or straw; either by means of more manure, or lime, or subsoil, or trench ploughing, or by some means best fitted to enrich his land. But should Farmer A. answer—"Well, I would do so, but I have no spare capital for the purpose;" then I answer that there is only one plan left: If you consider the land on which you have invested 6*l.* per acre would profitably carry 3*l.* more capital, you must part with 34 acres, and in future only cultivate 66 acres, which will furnish you with 3*l.* an acre more capital at once, thus saving the cost of rent, rates, and expense of cultivation, which you must have expended on the 34 acres given up. This expenditure saved from the 34 acres, with the recovered capital of 3*l.* per acre, would enable you to cultivate and manage the remaining 66 acres in so liberal a manner as to give you a very much better per centage and profit on your fixed capital, than any increase of surface.

Gentlemen, my paper is a short one, but so also is the principle I have been advocating a simple one. It is simple and small, like the tiny spark applied to a magazine of gunpowder, which in its explosion may convulse a district. So also may this small but mighty principle of money-making which we are now discussing either enrich or convulse the world.

Reviews.

Agricultural Education. Longmans.

To this little volume, named last week, we refer once more.

Mr. Constable, the Principal of the Royal Agricultural College, has collected in it the introductory lectures to the several courses delivered last Session at this Institution; and under a common title he suggests that they furnish a satisfactory answer to the question—What is a sound agricultural education? In his own preliminary discourse he speaks of the advantages of studying abstract science, and of the uses of lectures, of examinations, and of practical observation to the agricultural student; and he then states modestly, and on that account all the more trustworthily, the kind of efficiency in agricultural education which the College claims.

"Let it be borne in mind that we do not at this college make any extravagant pretensions; although in the lecture rooms you will find teachers who, having dedicated their lives to special studies, are in a position to give you, with peculiar point, the results of their labours; and on the farm one not more qualified than he is ready and anxious to help all who are trying to help themselves; yet we do not profess to make farmers after a two years' course. There is no royal road to agriculture, and we should be professing to have found one did we pretend to turn out students after so short a stay with us capable of managing a farm to a profit. We hope, by our system, to lay a good foundation on which each student may build effectually for himself. The principles of farming may be taught—how to put these principles into practice each man must learn for himself. Some may acquire this in a shorter period than others—one man's powers of observation may be great, and from early and constant use may enable him to amass an amount of practical detail which it will take another a much longer period to secure. In a college system it is not possible to do more than to put a student into the way of obtaining this practical knowledge for himself; neither the length of our course, nor the circumstances under which students are placed (diligent students of difficult sciences), will admit of that constant and close attention to practical detail which alone enables any one to cultivate land with pecuniary success; and therefore, although we consider that no student does his duty who does not spend some hours of each day on the farm, observing the operations and collecting those details which he is expected to acquire and to produce afterwards in examination; yet we are quite sensible that however perfectly our system is worked, we can never hope to make in a two years' course, a previously uninstructed youth, a farmer. At the same time, we have every reason to believe that we can so teach him that after another two years' residence with an experienced farmer, having learnt with us how and what to observe, he may start in business on his own account with a tolerable chance of success."

Mr. Constable's lecture concludes with an earnest advocacy of the higher aims of education.

"Our prayer is, that while your hearts are fresh and young, you may seek to have them set on some high purpose, which may be blessed to the good of your fellow creatures; and not remain satisfied, as alas too many are, to creep into comfortable homes, closing ears and eyes to the ignorance and evil beyond them. And should any influence here at work tend to foster these good aspirations, and strengthen you to act them out in life, we can say truly, you need no higher honour and we no better reward."

From Mr. Morton's lecture on the qualifications of the successful farmer, we have already made a long extract (p. 36). It commences with somewhat of a contrast to the passage just quoted with which the preceding lecture ends:—

"Gentlemen, you are here to acquire the knowledge and the skill by which agriculturists turn land to profitable account."

And it proceeds to discuss the value of science, tact, and skill, and the efficiency respectively of oral and of practical instruction in agricultural education.

Professor Church's introductory lecture, which succeeds it, discourses with great fulness of illustration on scientific and applied chemistry, on organic and inorganic chemistry. And how well able the lecturer is to point out the bearing of his teachings on the practice of the farmer, let the following illustration indicate:—

"The grand aim of the agriculturist is to form the largest quantity and the best quality of food, vegetable and animal, at the least cost consistent with the permanent good condition of the land. As the animals which he rears subsist on vegatable food, his first aim is to secure the healthy growth and perfect maturity of the plant which he cultivates. The aid which chemistry can here render the agriculturist is evident. What mineral elements, we ask, do the Wheat, the Clover, and the Turnips contain? If the supply of these elements be deficient, how can they best be given? The soil may be barren, and yet contain stores of all the materials requisite for plant food, but so securely locked up in insoluble forms as to defy even the won-

derful powers of the plant to use them. It is requisite to do something more than merely add the special material which the soil needs, it must be added in an available form. And in some cases it need not be added at all; it will suffice to develope the hidden resources of the soil by some chemical or mechanical process. If a soil, for instance, lacks available potash, but contains insoluble silicates of that alkali, liming will slowly release the potash. Chemistry will show where this process may be usefully performed, and predict and explain in other instances where failure would ensue. Chemistry will point out the time for applying lime, the mode of applying it, the quantity required, and even indicate remedies if the land has been overlimed."

The Professor of Chemistry is followed by the Professor of Botany; and the introductory lecture by Professor Bayldon will be generally pronounced the most eloquent and suggestive of the series here collected. It has great interest for the agriculturist, not only necessarily as generalising and combining all the facts of that plant growth which he guides and directs, but also because of its many illustrations on the one side of the services of agricultural writers and thinkers to the science of vegetable physiology, and on the other of the higher uses of botanical studies in the education of the man.

Professor Murray introduces his course of lectures on veterinary surgery with a few instructive observations on the advantage of a knowledges of veterinary science to the agriculturist. In particular the following will be admitted to be true by every one connected with the management of live stock:—

"It has a special place in the education of the agriculturist; tending to form in him habits of observation and att ntion to circumstances often of the most trifling kind; fostering a taste for direct contact with stock and careful observation of their various peculiarities; pointing out the necessity not only of a general acquaintance with domestic animals but of such an attention as is only to be acquired by handling them, watching their movements, comparing one with another, in fact becoming thoroughly acquainted with them as almost members of his family."

The volume closes with Mr. Fletcher's account of the Farm under his management; and it will be read with interest, both as a description of the only school of agriculture in the island, and as an answer to the question — What constitutes a sound agricultural education?

A Lecture on the History, Progress, and Comparative Merits of the Hereford Breed of Cattle. By T. Duckham, Baysham Court, Ross. Rogerson & Tuxford, 246, Strand.

In this pamphlet, which contains the substance of lectures given before the Royal Agricultural College, Mr. Duckham has collected a great quantity of testimony to the merits of the Hereford breed—and a very full history of its growth, progress, and achievements. And we quite agree with him in his concluding remarks:—

"That the Herefords, although an acknowledged aboriginal race of cattle indigenous to the soil of the county from whence they take their name, readily become acclimatised, and retain their general character, not only throughout the United Kingdom, but wherever they have been fairly tried in distant parts of the world; also, that they continue fully to retain their reputation, which has for ages past been accorded to them, for aptitude to fatten; that the quality of their meat is unsurpassed, if equalled; that it is duly appreciated wherever they have been tried; that, by proper management, their milking properties are good; that for early maturity and hardiness of constitution they are equal if not superior to any known breed; that they are a most valuable race of animals for their working powers when required; and that whenever they have been fairly tried, the quantity of meat they make, in proportion to the food consumed, is such that they can justly claim to rank amongst the most valuable class of animals known for the production of animal food, and therefore the most profitable breed of cattle for the grazier."

The only point here specified which will not command general assent, is that relating to the milking properties of the breed; but several of the witnesses whose evidence he collects, attest the high dairy quality of their herds.

The characteristic feature of the pamphlet is its large collection of named witnesses and facts from the various counties, countries, and one might almost say centuries, in which the breed has been known and valued. It will form a valuable introduction to the ensuing volume of the Hereford Herd Book, for which Mr. Duckham is now collecting material.

Farm Memoranda.

NEWLANDS, NEAR MANSFIELD.—Mr. Wilson has during the past year employed steam-power in the cultivation of his farm. The arrangement under which he has given it a year's trial included terms so favourable as to have made the year's experience profitable and satisfactory; but he has concluded,* after a careful review of all the circumstances, to abandon the use of steam-power, and resume that of horses for tillage purposes. A statement of his case must, therefore, none can deny, be as trustworthy a standpoint or platform from which to advocate the abandoned system as any candid person could desire.

Mr. Wilson's original purchase of his 10-horse power engine and apparatus from Mr. Fowler was fortunately effected on such terms as enabled him to give them up at the end of his year's experience without loss. It is, not, however, on a consideration of these favourable terms, but of those on which he would hereafter stand as the owner of this tackle, that he endeavours to base his decision; and to these the attention of the reader will in the first place be directed.

His land, extending over about 1600 acres of extremely light soil, had been worked hitherto by 18 to 20 horses, though this has been rather a narrow allowance. It was stated in the last volume of this Journal that the cost of horse-power on this farm has been about 6*s.* an hour throughout the working hours of the year, or only 5*d.* per cwt. of draught (= lift) at an ordinary walking pace. And this is a case not only where the cost of horse-power is thus a minimum, great attention having been given to reduce the expense of horse-labour, but where the working of land by horses is, owing to the character of the soil, attended with a minimum of injury. It is on a comparison both of the cost and the quality of the annual tillage work of the farm as done by horse and steam-power respectively that our preference of the one or of the other hinges, and in Mr. Wilson's case both of these considerations are unusually favourable to the former. The large amount of work which a pair of horses can perform on such land, and the trifling injury, or, indeed, sometimes actual benefit, incurred by their trampling, reduces the chance of finding any cheaper tillage power. Nevertheless, even here, as it seems to me, the only reason why steam-power has not proved obviously the more economical of the two has been the smallness of the farm.

Mr. Wilson's farm needs 14 horses for the work of carriage, and of harrowing, drilling, &c., which steam-power cannot be conveniently set to do. He puts in 180 acres of Turnips and Mangel Wurzel every year. Two ploughs open up and cover ridglets as fast as three carts draw the dung out to be placed in them, and two sets must be kept going in order to get the work done with sufficient rapidity. There is thus a possibility of saving only four to six horses by the use of the steam plough; and this is not enough to make steam cultivation economical.

The following was the performance of the 10-horse power set of tackle between May, 1862, and May, 1863, the period in which Mr. Wilson's agreement with Mr. Fowler related. In 98 days of work, part of which was taken up with the labour of removing from field to field, 270 acres were ploughed from 6 to 10 inches deep, and 60 were at the same time pressed by means of a 4-wheeled presser attached to the ploughing apparatus. 397 acres were deeply cultivated, as deep in most cases as 9 to 12 inches, and of these 188 acres were at the same time dragged by heavy harrows attached to the cultivating apparatus. The wages and cost of supplying water amounted together to 14*s.* a day, the oil cost 1*s.* 6*d.* a day, the coals (at 12*s.* 6*d.* per ton upon the ground) cost 7*s.* 6*d.* a day. The whole cost of coal, wages, oil, and water was 112*l.* 14*s.* The repairs required have been very small, and the rope has worn but little; but putting the cost of rope and of repairs at the average expense of steam-cultivators on this point, they are charged at 70*l.* for the year's work. Tear and wear and consequent depreciation of value are estimated at 10 per cent. on the original value of the tackle, and this, with interest on capital at 5 per cent., amounts to 120*l.* a year. These three items of the annual expenditure thus stand as follows:—

Wages and fuel	£112	14	0
Repairs and rope, say	67	6	0
Interest and depreciation	120	0	0
Total cost per annum	£300	0	0

This sum, compared with the number of days' work which it represents, is just 3*l.* a day, for which the usual performance has been 5 acres of ploughing or 8 acres of cultivation; which operations thus cost fully as much by steam as they do by horses. The light horse ploughing on that farm does not cost more than 7*s.* an acre, the deeper ploughing costs 11*s.* The "cultivation" by Bentall's broadshare costs less than 2*s.* an acre. Heavy dragging costs about 10*d.* per acre. Pressing costs 1*s.* 9*d.* Deep grubbing would probably cost 5*s.* an acre.

On a careful estimate of the quantity of light and deep ploughing respectively, and of grubbing, dragging, and pressing, needed to be done upon the farm, in order that the tillage-work might be always in as forward a state with 14 horses as it had hitherto been with the full set of teams, it appears that 430 acres of ploughing at 7*s.*, 150 acres of ploughing at 11*s.*, 320 acres of cultivating at less than 2*s.*, 200 acres of dragging at 10*d.*, and 60 acres of pressing at 1*s.* 9*d.*, would be allotted for steam-power. This work, at these prices, would cost about 270*l.*—somewhat less than the annual cost which was actually incurred by the steam-tackle last year; or rather, than the cost which it may be fairly expected to incur annually for the future.

Mr. Wilson thinks very properly, in addition to all this, that loading a farm with capital is not in itself a desirable thing; that the horses which he must purchase if he concludes to give up steam-culture for the present can now be bought cheap; and that as improvements may yet be looked for in steam-cultivating apparatus, no great harm can arise from waiting a few years should he hereafter resolve to adopt it. His decision is, of course, determined simply by the consideration of immediate profit or loss to himself, and so he proposes to give up steam-cultivation for the present, unless the experience of the coming year should alter his views.

Before his decision is allowed to influence others, it is well to point out that, in his case, horse-labour is as efficient and as cheap as it can be anywhere (4 horses and a broadshare will clear 7 or 8 acres of his Wheat-stubble in a day); that the quality of the work on his farm does not materially differ whether it be done by horses or by steam (no difference in the productiveness of the land cultivated by steam and horse-power respectively has been observed, and in the case of a deep sand, such as his, none was to be expected); and, lastly, it is worth noting that this is a case in which the cost of steam-cultivation is so great per acre because there is not enough work for the steam-apparatus to perform.

It appears that there is not on this farm more than 100 days' work for the tackle; and this, where the standing charge for interest and depreciation is as much as 120*l.* a year, is not enough. This standing charge would not exceed 12*s.* a day were the work to be done enough to occupy 200 days; so large a charge as 24*s.* a day or 5*s.* an acre, for ploughing, at which it at present stands, is enough to convert a profit into a loss. All, therefore, that Mr. Wilson's experience proves is, that 1000 acres of light land managed on his plan do not give sufficient work per annum for Mr. Fowler's tackle; and certainly any other with its narrower tools is not adapted for land so light. I suggested to Mr. Wilson that he should put his Turnips in on the flat—spreading his manure broadcast and covering it with the steam-driven plough—thus doing away with the need both of teams for ridging, and also of getting the work all done during comparatively few weeks in May and June. If his teams of horses were thus reduced to the number required for carting in his harvest, it is probable that steam-cultivation would be profitable even in his case. He declares, however, that it is necessary to put in his root-crops after this plan for the sake of the thorough horse-hoeing which he is thus enabled to give them during their growth; and, if so, it is probable that he has arrived at the right conclusion, and that horse-power is in his case really cheaper than that of steam.

The lessons of his experience seem to be that steam-power for tillage purposes needs (1) a soil where the superiority of its work will appear; or (2) extent enough—if on light land—to keep the apparatus going more than 100 days per annum. It is plain that there is an enormous and profitable field for steam-cultivation, even though a very large number of farms should be excluded by these two rules; and that the first consideration alone will render it profitable in many cases where, according to principles of the second, it might be supposed inapplicable.

* Since the preparation of this paper, Mr. Wilson has determined to take another year's experience for his guidance to a final conclusion.

Miscellaneous.

The Late Mr. Richard Hornsby.—We have with great regret to announce the death, in the 74th year of his age, of Mr. Richard Hornsby, the head of the well known firm of Hornsby & Son, of Grantham, after a protracted illness borne with Christian fortitude.

Mush.—Add half a teaspoonful of salt to half a pint of Indian Corn meal, gradually mix with a quart of cold milk, or water, boil for 10 or 12 minutes, eat with sugar, molasses, or jam. Another recipe for porridge: Of a spoonful each of Indian meal and Wheat flour, make thin batter, pour it into a quart of boiling milk and water, salt to taste, boil 10 minutes.

Calendar of Operations.

JANUARY.

SOUTH HANTS: *Jan.*—Since the rain and the rough gales of December we can judge better of the Wheat crops than previous to their visitation. Generally the Wheat plant looks weak, thin, and "spindly," The land gets little rest, and consequently is more foul. The seed Wheat and weeds have gone in commingled together. The 'tines' of the harrows clogged and the ridges look 'droky,' that is trails of the tines when clogged with strap-grass and weeds. The worm has been busy in Wheats sown after Peas and Beans (not uncommon this), and scarlet Clover has been in places all but carried away. No dressing of ashes, no ploughings and harrowings seem to abate this pest of a green crop. Winter Tares look well, especially the early sown on fallows, which are rare now-a-days. No sabbath, or jubilee, or day of rest does this Christian soil receive but in sparse spots. Here the Wheat plant looks gay and prosperous; the present frosts will contribute to their yield. Deep ploughing in the fine loam of Hampshire is much neglected. It is useless to preach:—

Plough deep, whilst sluggards sleep,
And then you shall have plenty to sow and to reap!

The yield of last year's crops runs about 9 to 10 sacks an acre, and in very rich soils 12 to 14 per acre. Barley on loams from 9 to 12 sacks, and the weight 50 to 54 lbs. per bushel, but really fine samples are rare; this crop was housed for the most part after heavy rains. Oats are not so good a yield, either in quality or quantity. But many farmers sow their Oats and Barley after Wheat, and their Wheat is sown after a hay crop; the after share being depastured by sheep, and the Wheat deposited in the land, after one ploughing, but this has become quite common, though upon strong soils it is a most unprofitable practice. Light sandy soils (such as Scotchmen never crop with Wheat, the climate being too cold and frosty), may be treated in this manner, but they should be sown thicker and earlier than the rest of the Wheat land. There is n soil in England which embraces such a capacity for pro-

ducing all varieties of crops as Hampshire, only the farming is very slovenly done. The labourers as a class more ignorant than they were 50 years ago, and the tenants grasp at what crops they can obtain, and abandon the tenancy if losers; but if the tenant has an easy lease from a landlord who never sees his estate, the land is cropped as the tenant pleases. The crops are thrust into the soil, weeds and all, and left to the seasons. The horse-hoe and the hand-hoe are employed by many intelligent owners of land, but as a rule the hand-hoeing is a most slovenly and costly executed operation of husbandry. Artificial manures are largely applied to the land for spring crops for hay, and soiling crops. But we doubt if we see so much white crop or such strong straw on these farms as formerly when fallows and some rest were given the land, but the chief blame to farming, is the land is not ploughed deep enough. However good the plough the labourer shirks depth, and considers his horses more than the future crop. The labourer is badly housed, badly paid, and imperfectly educated. The youth must be taught the use of his hands, and the management of the tools by which he has to earn his daily bread in the same manner as the better class have to exercise their intellects for their several professions by which they are to subsist. We want a school to teach not only reading and writing, but how to dig, to plant, to build, to reap, to mow, to thatch, to trench, and plant a garden; and the girls how to sew, to cook, to wash, and prepare a chamber, and every other useful acquirement. In many parts they go to service, and know nothing and will refuse instruction, and also, what is a most painful fact, they are taught at home to lie, to thieve, and be impudent. When going into service in this ignorant condition, the mother's advice is "Eat plenty of meat, for that you will need to keep up your strength to do the work!" The consequence is, many young persons from the country are ill during the first six months of their duties, of downright surfeit—not uncommon in London in large establishments, where a butler has been known to be seriously ill from 6 to 9 varieties of meals. The late Dr. Southwood Smith had many such curious but not singular cases. The wages of labourers are too low, only 7*s.* to 9*s.* a week, and instances are known that when pay day comes, 1*s.* to 1*s.* 6*d.* per week is deducted for rent of the cottage—not left to the harvest month to be liquidated then, and with far more ease to the labourer, but week after week is the cottager's rent deducted. Some have cottages of their own, or have a superior and distinct occupation not attached to the farm. The cottages are often in a very dilapidated condition, too many in a room, because there are not rooms enough, and none, should a member of the family be ill, for an invalid. Instances of five and six, and even more having to sleep in one apartment. But no landlord, no agent seems ever to regard these deficiencies. The rent is taken, and "the housed beggar left." *P. Q. R.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
Thursday	Jan. 8	Inches. 30.03	° 27	° 27	N.E.	0	7	° 27	° 22	° 31	° 15	Inches. ..
Friday	9	29.90	32	32	S.E.	1	10	33	21	33	15	..
Saturday	10	29.949	39	38	S.W.	1	7	39	32	40	31	0.10
Sunday	11	30.10	40	39	S.	2	9	43	39	44	33	..
Monday	12	30.04	41	40	S.W.	3	10	45	38	40	35	..
Tuesday	13	30.22	38	38	N.W.	0	10	42	37	42	35	0.27
Wednesday	14	30.59	36	36	E.	0	10	37	36	38	34	..

Notices to Correspondents.

BOOKS: *Amateur.* "Cyclopædia of Agriculture" (Blackie), or "Stephens' Book of the Farm" (Blackwood), "Morton's Farmers Calendar" (Routledge).

ENTRY TO FARM: *X Y Z.* The payments you must make will include the charge for all acts of cultivation on stubbles up to Michaelmas, and either the value of the green crops estimated as for consumption on the land or the whole cost of manure and cultivation spent upon them.

FARM CAPITAL: *R Smith.* From 6*l.* to 15*l.* are required according to the richness of the land, and the quality of stock which it will carry.

SALTZMUNDE: *S R. in O.* We shall be very glad to hear your further report, as also occasional communications.

WIND ENGINES: *T B M.* An old subscriber will be obliged for information about wind engines. Are they found to answer for agricultural purposes, such as straw cutting, pulping, grinding, &c.? Could any of our numerous correspondents inform us if there is one to be seen at work in either of the counties of Salop or Hereford?

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.* ...	7¼*d.*
Seconds	3⅝*d.* ...	5*d.*
Thirds	2⅝*d.* ...	3½*d.*
Fourths	2¼*d.* ...	3¼*d.*

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

	4ths.		3rds.		4ths.		3rds	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
11 by 9 12 by 9 13 by 9 14 by 9	10	9	12	3	12	6	14	0
12 „ 10 13 „ 10 14 „ 10 15 „ 10								
13 „ 11 14 „ 11								
14 „ 12 15 „ 12 15 „ 11 16 „ 11								
18 „ 12 19 „ 12 16 „ 12 17 „ 12								
16 „ 13 17 „ 13 20 „ 12 21 „ 14	11	6	13	0	13	6	16	0
19 „ 13 20 „ 13 18 „ 13 ..								
16 „ 14 17 „ 14 21 „ 13 ..	14 to 15 ozs. 16 to 17 ozs. to the foot.							
19 „ 14 20 „ 14 18 „ 14 ..								

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

	s.	*d.*	
6 by 4 and 6½ by 4½	10	6	per box.
7 „ 5 „ 7½ „ 5½	12	0	„
8 „ 6 „ 8 „ 6½	13	6	„
9 „ 7 „ 9½ „ 7½ and 10 by 8 ...	15	0	„

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13	Thirds ...	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14	Seconds ...	...	English.	English.
20 „ 15	Best ...	...	18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅔	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD. | ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. | FINE OAK VARNISH. | FINE OAK CARRIAGE. | PATENT DRYERS. | LINSEED OIL. | BOILED OIL.

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LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

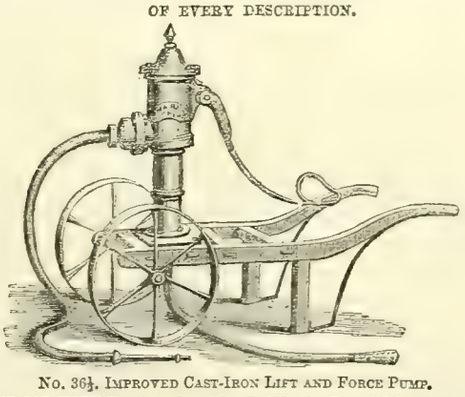
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BELL AND BRASS FOUNDERS TO HER MAJESTY,

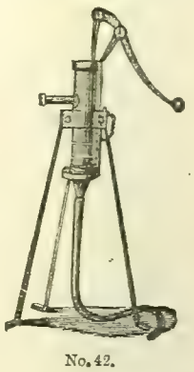
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No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

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PATENT LAWN MOWERS FOR THE ENSUING SEASON.

The above Machines are warranted to last for years without getting out of order. They do not require two-thirds the amount of power to work them of any other Machine extant.

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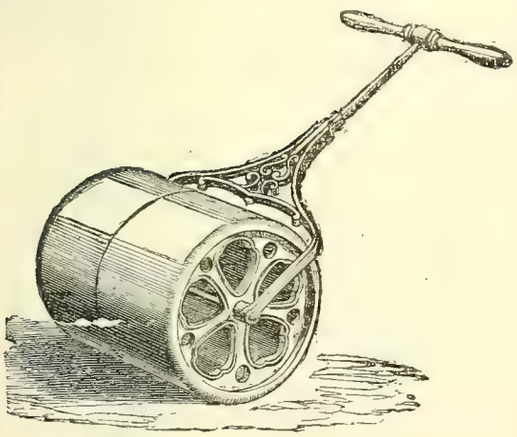
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LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, AND GRAVEL PATHS,

MADE FOR HAND OR HORSE POWER.

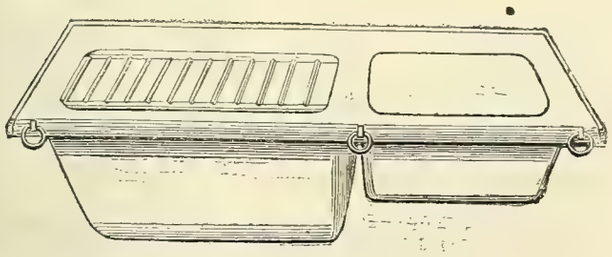


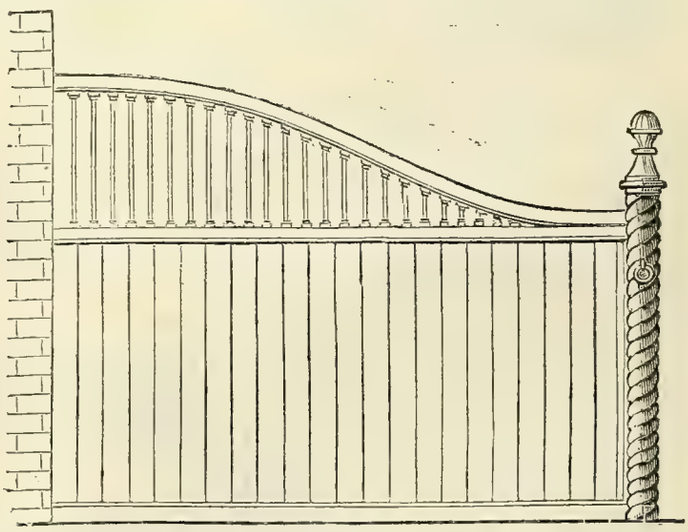
These Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facility for turning; and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best material, and are got up in a manner surpassing any ever yet brought out.

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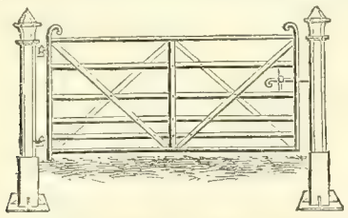
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VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.* 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

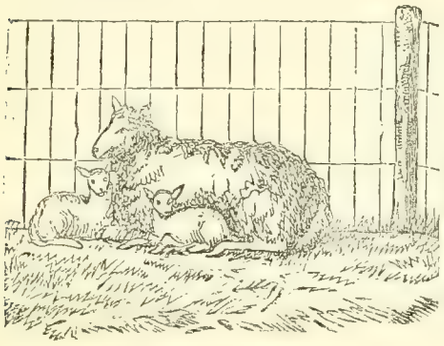
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Patronised by H.R.H. the late Prince Consort.



No. 7B variety, 9*d.* per lineal yard.

GREENING AND CO. received the award of another Silver Medal and Commendations at the recent great Birkenhead Cattle Show of the South Lancashire Society.

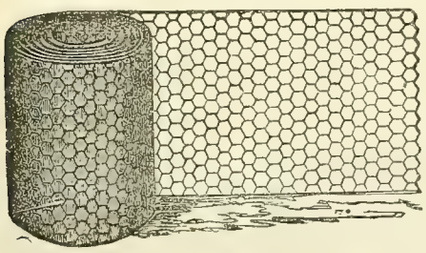
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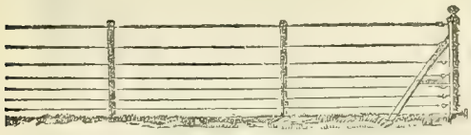


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	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½*d.*	3½*d.*
2-inch „ „ „ .. „	18	5	4
2-inch „ „ „ .. „	17	6½	5
2-inch „ „ „ .. „	16	8	6½
1⅝-inch „ „ „ .. „	19	4¾	4
1⅝-inch „ „ „ .. „	18	6	4¾
1⅜-inch „ „ „ .. „	17	7	5½
1⅜-inch „ „ „ .. „	16	9	7

All the above kinds can be made any width (under 6 feet at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 11*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* 1*d.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street, E.C., from whom only it can be obtained.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.

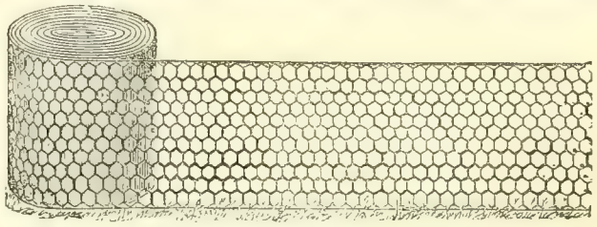
Paxton Works, Sheffield.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3½*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4½*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

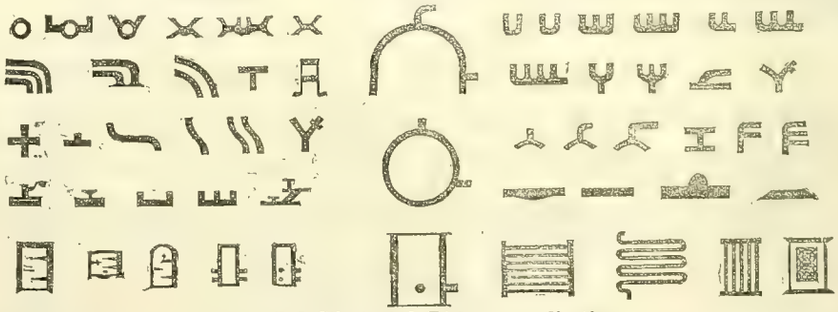
ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS. BOILERS. PIPES AND CONNECTIONS.



Detailed Illustrated Lists on application.

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

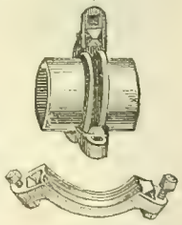
EVERY DESCRIPTION OF IRON WORK.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Exhibition Prize Medal, 1862.

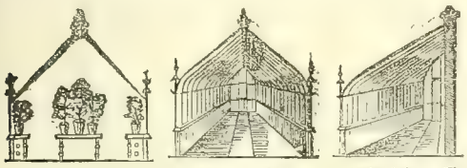


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. Span-roof Houses, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

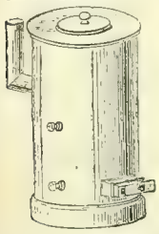
For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



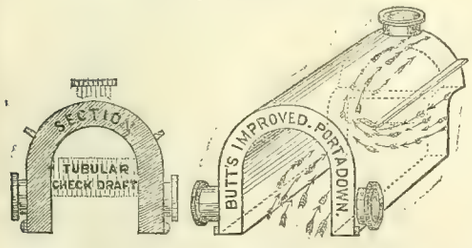
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Heating by Hot-water.



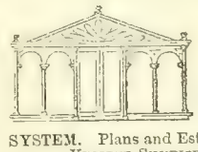
THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.

Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

West of England, Ireland, and Wales.

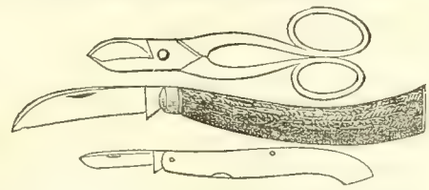


VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER



SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

PAXTON GARDEN ENGINE.—Is portable, easily worked, not liable to get out of order; will throw with Jet 40 feet, and with "Rose" will cover 40 feet across. Price 30*s.* and 40*s.* each.
CROGGON & Co., 2, Dowgate Hill, London, E.C.

PATENT ASPHALTE ROOFING FELT. Rail Carriage Paid. One Penny per Square Foot. Also Inodorous Felt, and Dry Hair Felt for covering Boilers and Steam Pipes.
CROGGON & Co., 2, Dowgate Hill, London, E.C.; and 2, Gorce Piazzas, Liverpool.

Winter Dress all Fruit Trees with GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr RIVERS, "Nurseries, Sawbridgeworth. Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont, Vauxhall, London, S.

To Florists and Nurserymen.

HY. PERKINS calls the attention of the above to his large stock of TOBACCO PAPER and CLOTHS, at 10*d.* per lb.; and superior ROLL PAPER, at 1*s.* per lb. Warranted free from adulteration, having taken every pains to secure the same.
16, Cambridge Circus, Hackney Road, N.E.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent'

Short-horn Bulls.

ON SALE, by PRIVATE CONTRACT, Five young pure-bred BULLS, chiefly descended from the original Tortworth Herd, the recent crosses being fine Bates blood; their ages range from 9 to 22 months old, and all possess rich colours and general fine character.

Also on Sale, two rich Roan BULL CALVES, by Captain Gunter's celebrated Seventh Duke of York (17,754).

For Pedigrees, &c., apply to the breeder, Mr. STILES RICH, Didmarton, Chippenham.

To Breeders of Berkshire Pigs.

FOR SALE, a few very Choice BOARS and SOWS, 4 Months Old, bred from the prize stock of Mr. Joseph Smith, Henley-in-Arden.

For particulars apply to Mr. J. SMITH, or Mr. J. STREET, Swan Hotel, Henley-in-Arden.

To Nurserymen and Market Gardeners.

TO BE LET, for 20 years, at 10*l.* per acre, 28 acres of the Finest LAND, in the best situation, on the high road, seven miles from London.

G. GLENNY, Horticultural Agent, Auctioneer, and Valuer, Fulham, S.W.

Sales by Auction.

Fruit Trees from France; Conifers, Roses, and Rhododendrons from Surrey.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 20, at half-past 12 o'Clock precisely, PYRAMIDAL and DWARF STANDARD PEACH, PLUM, CHERRY, PEAR and APRICOT TREES from France; RHODODENDRONS, LAURELS, CONIFERS, ROSES, WALNUT, MULBERRY and FIG TREES, HOLLIES, GOOSEBERRY and CURRANT TREES, POPLARS, &c., from one of the oldest established Nurseries in Surrey.

On view the Morning of Sale, and Catalogues had.

Large and Valuable Consignment of Coniferous Seeds from California, Japan, and Other Parts.

JUST ARRIVED IN VERY EXCELLENT CONDITION.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on THURSDAY, January 21, at half-past 12 o'clock precisely, upwards of 300 lots of CONIFER SEED, amongst which will be found Wellingtonia gigantea, Abies Douglasii and A. Mertensiana, Picea amabilis and P. grandis, Pinus contorta, P. ponderosa, and P. Lambertiana, Cupressus Lawsoniana, Picea Nordmanniana, Abies Veitchiana, Retinospora pisifera and R. obtusa, and many other very rare sorts.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Trustees of Mr. Robert Donald, to submit to an unreserved SALE by AUCTION, unless previously disposed of by Private Contract, in the month of FEBRUARY, on the Premises, Goldworth, near Woking, Surrey, about one mile from the Railway Station, the LEASES, together with the whole of the Valuable and Extensive NURSERY STOCK, ranging over 152 Acres, including Evergreens, Conifers and other Shrubs, Fruit, Ornamental and Forest Trees, Greenhouse Plants, Greenhouses, Pits, Frames, and other effects, of which full particulars will be furnished in future advertisements.

American Nurseries, Leytonstone, N.E.

East Retford.

ELIGIBLE RESIDENCE AND GARDEN OR BUILDING GROUND.

MR. JOHN WILSON will SELL by AUCTION, at the Crown Inn, East Retford, on THURSDAY, Feb. 4, at 6 o'clock in the evening, in Lots to be arranged at the time of Sale, a very desirable FREEHOLD PROPERTY, situate in close contiguity to the town of East Retford, and now in the occupation of Mr. John Freeborough, the owner, consisting of a Large PLOT of LAND, now used as Garden and Nursery Ground, filled with healthy Trees and Shrubs, containing upwards of 4 Acres, and in which there is a newly built convenient Dwelling House, to which all requisite offices and conveniences are attached; and also a newly erected VINERY constructed on the most improved principle, and containing 11 Vines in full bearing, and Propagating House containing two Vines.

The situation of the Property is very eligible, and there are roads in connection with it which render it convenient alike for occupation, and the business of a Nurseryman or Gardener.

The land is of the very best quality for Garden purposes.

Retford is well situated for market and railway communication, and there is every facility for disposing of garden and other produce.

It is proposed to offer the Property either as an entirety or in lots; but, if in lots, the House and adjoining land, including an area of 1484 square yards, would form one lot; and the other lots would range in quantities from about 250 square yards to 550 square yards.

The sites of the lots for building purposes would be found very eligible. Possession may be had at Lady Day 1864, or sooner if desired.

For further Particulars, apply to Mr. FREEBOROUGH, on the Premises; to R. C. CARLINE, Esq., Lincoln; to the Auctioneer, West Retford; or to Messrs. BURNABY & DENMAN, East Retford.

A Plan of the Property is lodged with Mr. FREEBOROUGH, who will show the property, and point out the proposed lots.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

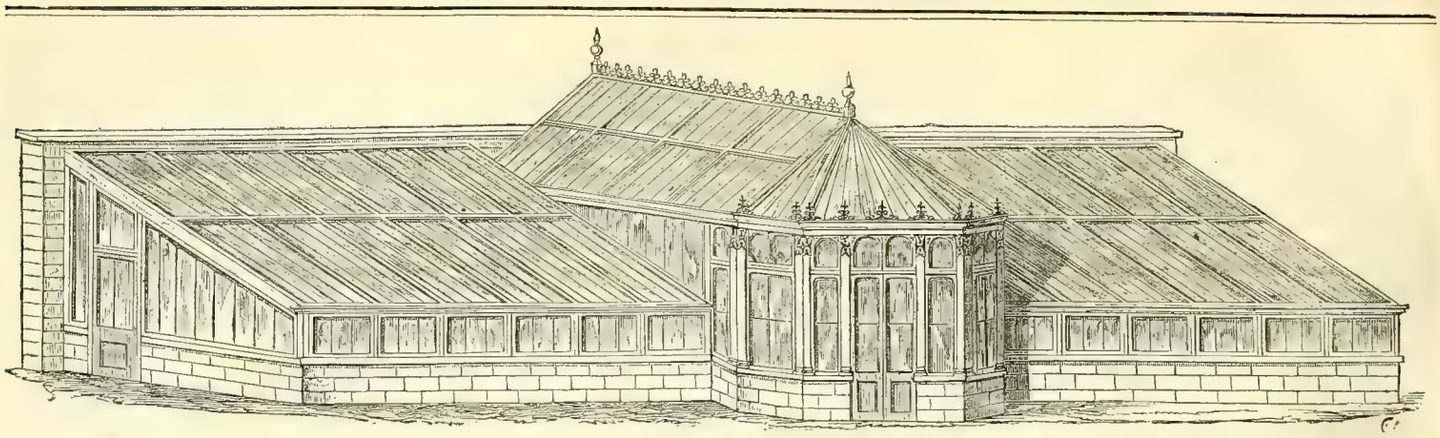
DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

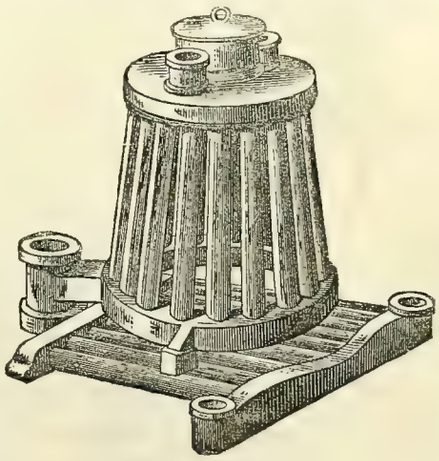
The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, January 16, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 4.—1864.] SATURDAY, JANUARY 23. {Price Fivepence. / Stamped Edition, 6d.

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Complete Grazier, rev.	86 b	Rhododendrons	77 a
Cottage building	85 b	Rose judging	77 c
Dr Liebig	81 c	Sea-side shelter	78 a
Dr. Booth, the late	78 c	Societies, Royal Horticultural	75 c
Farm Memoranda	86 b	— Dalkeith	85 c
Flower Gardening, Fleming on, rev.	79 a	— Kingscote	86 a
Frost, the late	78 a	— Halifax	86 a
Gardens, Notes on	76 a	Turnip seed	86 c
Gardeners' Benevolent Institution	79 a	Vegetable growing	75 a
Kitchen Gardening	75 a	Vegetable mould	83 b
Meat Manufacture	85 a	Weather of 1863	76 a
Milk pans, deep and shallow	84 b	Wheat on a fen farm	84 b
Orchard houses	77 a	Wild plants, prizes for	77 b
		Winter in Ireland	78 b
		Woking Common	82 a
		Woollen refuse	78 a

ADVERTISEMENTS *must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

GRAND FLORAL FETE at YORK, JUNE 15 and 16, 1864.
Prizes nearly Three Hundred and Fifty Pounds.
Schedules and Forms of Entry may be had on application to JOHN WILSON, Secretary.
Committee Room, 13, New Street, York.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.
PAUL's Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.

PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5s. each.
"Old" Cheshunt Nurseries, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each. LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Vines Black Hamburgh and Muscat of Alexandria.

ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 10s. 6d. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.

JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.
N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard. Garston, near Liverpool.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

Seeds.

HUGH LOW AND CO. respectfully announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS is now ready for distribution, and will be forwarded post free to all applicants.
Clapton Nursery, N.E.

THOMAS METHVEN begs to intimate that his NEW CATALOGUE of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., for 1864 is now ready, and will be forwarded Post-free on application.
Seed Warehouse, Nursery Gate, Leith Walk, Edinburgh.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

Notice of Removal.

WM. DENNIS AND CO., late of King's Road, Chelsea, beg to announce that in future their business will be carried on at Mitcham Nursery, Lower Mitcham, Surrey.

Paul's Hollyhock Seed.

COLLECTION OF 12 NAMED VARIETIES, POST-FREE, 5s.
PAUL AND SON have now ready the above; they can be also had of the principal nurserymen and seedsmen. Genuine Vegetable and Flower Seeds Carriage Free. List on application.
"Old" Cheshunt Nurseries, Cheshunt, Herts.

To Purchasers of Seeds.

SUTTON'S PRICED LIST of NEW GARDEN and FARM SEEDS and POTATOS is now ready, and will be forwarded Post free on application. Address SUTTON & SONS, Royal Berks Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

THE PLYMOUTH SEED COMPANY, LIMITED, has AMALGAMATED with the LONDON SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

Good Seeds, Carriage free.

WILLIAM PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, 57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, St. John's, Worcester.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. LANE AND SON. (For particulars, see page 71), The Nurseries, Berkhampstead, Herts.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS, NURSERYMAN and SEEDSMAN, Paradise and Victoria Nurseries, Holloway, London, N. General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

New Flower Seeds sent Post Paid.—See

BARR AND SUGDEN'S COMPENDIUM of their ILLUSTRATED GUIDES to FLOWER and KITCHEN GARDEN. See page 74 of *Gardeners' Chronicle*.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Garden and Flower Seeds.

R. M. STARK has now secured his supplies of the above, in fine condition, and respectfully solicits early orders. CATALOGUES on application.
Edgehill Nursery, Edinburgh—Jan, 23.

THUNBERGIA COCCINEA, 1s. per packet. BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, W.C.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The GENERAL PRICE CURRENT is now ready, and will be forwarded Gratis and post free on application.

SEEDS for the KITCHEN GARDEN supplied by the LONDON SEED COMPANY (Limited). Carriage Free.

SEEDS for the FLOWER GARDEN supplied by the LONDON SEED COMPANY (Limited). Carriage Free.

SEEDS for the FARM supplied by the LONDON SEED COMPANY (Limited). Carriage Free.

FLOWER and KITCHEN GARDEN SEEDS. CATALOGUES free on application.
GEO. S. DODS, Epsom Nursery.

DOUBLE TUBEROSES, just imported, 3s. per dozen.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

CALCEOLARIA AUREA FLORIBUNDA.—Fine sturdy Plants of the above, struck without heat, ready for potting off, 2s. per 100, 75s. per 1000.
WOOD & INGRAM, Huntingdon.

WANTED, BLACK THORN.—Please to state height and lowest price per 1000 to F. WARWICK, Seedsman, &c., Sleaford.

ROSES, NEW and OLD. CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18s. per dozen; DWARFS, 12s. per doz. NEW ROSES of 1863, 30s. per doz. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

JAMES CRAWFORD begs to state that he has a few more Collections of ROSES in 60-pots, all first-rate sorts in from 12 to 60 varieties, at the unprecedented low price of 3s. 6d. per dozen, leaving the selection to himself.
A LIST on application.
High Beech, Essex.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.
P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

Kitchen Garden, Flower, and Agricultural Seeds.

WILLIAM BARNES begs to inform his friends and the Public generally, that his NEW CATALOGUE is now ready, and can be obtained upon application, Post-free.
Camden Nursery, Camberwell.

Dodecatheon elegans.

DOWNIE, LAIRD, AND LAING have to offer 6000 of the above, at 30s. per 100. Price to the Trade on application.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

List of Select Vegetable and Flower Seeds.

WOOD AND INGRAM beg to announce that their New PRICED and DESCRIPTIVE CATALOGUE of the above may be had Post free on application.
Huntingdon Nurseries.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

New Vegetable Seeds, Carriage Paid.—See

BARR AND SUGDEN'S COMPENDIUM of their ILLUSTRATED GUIDES to FLOWER and KITCHEN GARDEN. See p. 74 of *Gardeners' Chronicle*.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

PEAS—DICKSON'S FAVOURITE, BLUE SCIMITAR, NE PLUS ULTRA.—Prices very moderate.
Apply to W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

PEAS.—EARLY WARWICK, DOUBLE BLOSS, FRAME, and DICKSON'S FAVOURITE. A few quarters of the above to be sold cheap. Samples and prices on application to WOOD & INGRAM, Huntingdon.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1s. per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

Fresh Mushroom Spawn.

SUTTON AND SONS have a superior stock of MUSHROOM SPAWN, 5s. per bushel.
Royal Berkshire Seed Establishment, Reading.

Potatos for Planting.

SUTTON'S DESCRIPTIVE LIST Post Free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

Ash-leaf Kidney Seed.

FOR SALE, a Quantity of True ASH-LEAF KIDNEYS, at a reasonable price. For particulars apply to W. ROBERT ALCHIN, Salesman, Borough Market, S.E.

To the Trade.

MYATT'S PROLIFIC ASH-LEAF KIDNEY POTATO.—The above excellent early variety to be had of J. MYATT, Offenham, Evesham; also the EARLY HANDSWORTH and EARLY DALMAHOY.
Price on application.

Myatt's Prolific Ashleaf Kidney Potatos (True).

WILLIAM BOOSEY, NURSERYMAN, Middlewich, Cheshire, has a very excellent stock of the above fine POTATO, which he offers at 4s. 6d. per bushel of 56 lbs., or 8l. per ton, for Cash only.

Seed Potatos.

FOR SALE, several Bushels of MYATT'S EARLY ASH-LEAVED KIDNEY POTATO.
For particulars, apply to JAMES JAMES, Samieston, Edinburgh, N.B.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24, 1863; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W

Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.

SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.

No. 1, *3l. 3s.*; No. 2, *2l. 2s.*; No. 3, *1l. 11s. 6d.*; No 4, *1l. 1s.*; No. 5, *15s.*; No. 6, *10s. 6d.*; No. 7, in extra quantities for a large family, *5l 5s.*

Royal Berkshire Seed Establishment, Reading.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*

Price 15s. per bushel, or 1s. per pound. Carriage free.

SUTTON & SONS, Seed Growers, Reading, Berks.

R. M. STARK having arranged to part with his NURSERY at the Spring Term, has commenced to DISPOSE of the STOCK at very reduced rates. It is all well furnished, in fine healthy condition, suitable for Transplanting. As his Successor will take some remainder of the Stock early in Spring, intending purchasers are requested to apply early.

PRICED LISTS on application, and liberal discount for Cash.

Edgehill Nursery, Edinburgh.—Jan. 23.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price *2s. 6d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, *18s.* per dozen and upwards; Do. DWARFS, *9s.* per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from *18s.* to *30s.* per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Ranunculuses, Anemones, Seeds, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, invites attention to his unrivalled COLLECTION of the above-named Flowers, of which he offers selections as under:—

RANUNCULUSES,	50 superb sorts, named	£2 0*s.*
,,	50 fine ditto	1 0
,,	100 select mixtures, *5s.*, *8s.* and..	0 15
ANEMONES,	50 splendid double, named ..	0 13
,,	50 select mixtures	0 5

Treatise on CULTURE of RANUNCULUS, for 7 stamps. Ditto on ANEMONE, 4 stamps.

CATALOGUES gratis.

IMPORTED GERMAN SEEDS.—Named Asters, Stocks, Zinnias, Balsams, Phloxes, Larkspurs, Wallflowers, Immortelles, &c., in assortments, *1s.* to *5s.* post free. Annuals, 25 choice varieties, *5s.*

All the above can be forwarded safely per post.

GREAT REDUCTION in the PRICE of ROSES.

BENJAMIN R. CANT

Has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.

CATALOGUES, with special Prices, on application to

BENJAMIN R. CANT, ST. JOHN'S STREET NURSERY, COLCHESTER.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.

A trial is respectfully solicited.

PRICED CATALOGUES POST FREE ON APPLICATION.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

GENUINE SEEDS.—CARRIAGE FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to state that he is now prepared to supply with NEW and GENUINE SEEDS all Orders he may be favoured with.

A PRICED and DESCRIPTIVE CATALOGUE is now published, and will be forwarded Post Free to all applicants. It contains all that is really worth growing amongst Novelties, and carefully selected Lists of indispensable articles. The Prices are quoted as low as possible for the finest samples that are to be procured.

Complete COLLECTIONS of KITCHEN GARDEN SEEDS, for One Year's Supply, containing none but the best and most useful kinds. *10s. 6d.*, *21s.*, *42s.*, *63s.*, *84s.*

WILLIAMS'S MATCHLESS RED CELERY, *1s. 6d.* per packet.

A Large Stock of Strong ASPARAGUS ROOTS for Forcing.

CHOICE GLADIOLI ROOTS, 24 Choice Varieties, one root of each, for *21s.*

Ditto, NAMED VARIETIES, *4s.*, *6s.*, *8s.*, and *10s.* per doz.

DOUBLE TUBEROSES, just imported, *3s.* per dozen.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	**Containing 33 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion ... ...**	**£3**	**3**	**0**
No. 2.	**Containing 20 quarts Peas and Beans ditto ditto ditto ...**	**2**	**2**	**0**
No. 3.	**,, 13 ,, ,, ,, ,, ,, ,, ...**	**1**	**10**	**0**
No. 4.	**,, 10 ,, ,, ,, ,, ,, ,, ...**	**1**	**1**	**0**

For full particulars, see Catalogue, page 78.

DESCRIPTIVE SEED CATALOGUE for 1864 may be had Free and Post Paid upon application, containing all the new and most approved varieties of FLOWER SEEDS.

To Exhibitors we can strongly recommend our assortments of ASTERS, BALSAMS, CARNATIONS, STOCKS, and other Imported Seeds.

RASPBERRIES. — Cornwell's Seedling, 14*s.*; Carter's Prolific, 14*s.*; Fillbasket, 10*s.*; Autumn-fruited, 6*s.*; Red Prolific, Yellow Antwerp, 8*s.*

CURRANTS. GOOSEBERRIES:—Crown Bob, &c., 16*s.* Strong 1-year SEAKALE, 6*s.* per 100; ASPARAGUS, 1 year, 10*s.*; 2-year, 15*s.* per 1000; POTATOS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7*s.* 6*d.* each; for Planting Out, from 3*s.* 6*d.* each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec. 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

VINES.—Fine, well-ripened, short-jointed Plants from Eyes of all the leading kinds, many of which will bear fruit this season. For names and prices of the various sizes, apply to

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

CUCUMBER and MELON SEED.—Early Prolific, Prince Albert, Highland Mary, Black Spine, and Long Gun, 1*s.* per packet each; Trade by the oz. Best Melons, 1*s.*; Spawn, 5*s.* per bushel. Mushrooms Grown all the Year Round. PAMPHLET on MUSHROOM GROWING, 2nd Edition, 1*s.* 1*d.*

JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

The "Pine Apple" Scarlet Flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

The following list of Melons have been sent out in former years by E. T., none of which have failed to give satisfaction, and can now be supplied at 1*s.* per packet:—Bromham Hall, Garibaldi (scarlet flesh), General Havelock, M'Ewen's Arundel Hybrid Green Flesh, ditto Scarlet Flesh, Golden Drop, Golden Perfection, Scarlet King, Golden Ball, Austen's Incomparable, Queen, Bowood Green-flesh, Emperor. The following varieties can also be supplied at 1*s.* per packet:—Monro's Green Gage, Monro's Crystal Palace Hero, Eclipse, Scarlet Gem, Green Gage, Incomparable, Pine Apple Green Flesh, Camerton Court, Blackall's Green Flesh, Bailey's Green Flesh, Beechwood, Windsor Prize, Fleming's Trentham Hybrid, Duncan's Green Flesh, Hampton Court, Egyptian Green Flesh, Cuthill's Camberwell Beauty, Gordon Castle.

CUCUMBERS.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.

The following varieties at 1*s.* per packet sent out by E. T.:—Sir Colin Campbell, General Canrobert, Victory of Bath, Gordon's White Spine, Lord Kenyon's Favourite, Phenomenon, Captivation, Rifleman, Tiley's Improved Perfection, and Wonderful Ridge; as also the following, sent out by other growers:—Mill's Jewess, Manchester Prize, Conqueror of the West, Hunter's Prolific, Incomparable, Sion House, Cuthill's Black Spine, Allen's Victory, Champion of England, Stockwood Ridge, Ipswich Standard, Ayres' Prolific, Manchester Prize, Hamilton's Black Spine, Sutton's Champion, Dickson's Newton Hero, Burgess's Conqueror, Kelway's Victory, Henderson's A 1.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

Griffin's ALMA LETTUCE, true, 1*s.* per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement, with the exception of General Outram Cucumber, for 3*s.*

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

To the Trade.

PLUM STOCKS.—Good clean stuff, from 1½ to 4 inches in girth.

Price and full particulars upon application to W. GROVE, Nurseryman, &c., Tenbury.

WANTED, Strong STANDARD APPLES, about 4 inches in girth.

Apply, stating price per 100, &c., to W. GROVE, Nurseryman, Tenbury.

WANTED, a quantity of TRANSPLANTED BLACK THORN.

Apply, stating price, &c., to W. CROWDER, Nurseryman, Horncastle.

WANTED, 5000 ALDERS, 5 to 6 feet; 2000 ENGLISH OAK, 5 to 6 feet; good clean stuff. Also about 60 handsome PLANES, 20 feet or more high.

Send particulars and prices to J. & C. LEE, Royal Vineyard Nursery, Hammersmith.

Transplanted Larch,

9 TO 12 INCHES, 12 TO 18 INCHES, 18 TO 24 INCHES.

MORRISON BROTHERS, NURSERYMEN, Aberdeen, have several Hundred Thousands of each of the above sizes of TRANSPLANTED LARCH to offer, of very superior quality and moderate price; also a general stock of SEEDLING and TRANSPLANTED FOREST TREES.

Prices, with Samples if required, may be had on application.



To Planters of Public Parks, Cemeteries, and Avenues.

MAULE AND SONS invite attention to a fine Stock of Specimen CEDRUS DEODARAS, from 7 to 8 feet high; all thoroughly prepared with Large Pots, so as to insure their removal with the greatest safety. Price 10*s.* 6*d.* each. Larger and smaller sizes at the same proportionate low figures.

The Nurseries, Bristol.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
" HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
" WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
" LOMBARDY, 8 to 10, and 10 to 12 feet
" ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
" ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black

Huntingdon Nurseries.

CARTER'S NEW BEDDING GERANIUMS

	Each—*s.* *d.*
SNOWBALL, THE BEST WHITE BEDDING GERANIUM	5 0
BEL DEMONIO	3 6
CYBISTER (BEATON)	5 0

JAMES CARTER & Co., High Holborn; and Crystal Palace Nursery, Sydenham, S.E.

RHODODENDRON COUNTESS of WILTON (LODGE'S).—The Executors of the late WILLIAM LODGE are SELLING OFF their STOCK of the above in consequence of declining the business. Fine bushy plants from layers, from 5*s.* to 10*s.* 6*d.* each; also some large Specimens about 3 feet; price on application. The Premises to be LET, see other advertisement.

Park Nurseries, Singleton Brook, Higher Broughton, near Manchester.

THOMAS BUNYARD AND SONS, the Old Established Nurseries, Maidstone and Ashford, Kent, beg to offer the following genuine NOVELTIES:—

BUNYARD'S IMPROVED TOM THUMB SCARLET NASTURTIUM.—Habit: remarkably dwarf and compact; flowers vivid scarlet, well formed, and of good substance, thrown well above its small foliage. It was the admiration of all who saw it growing last season. It is well adapted for ribbon borders. In flower from beginning of June till killed by the frost. Price 5*s.* per oz., 1*s.* per packet.

The following London Seedsmen, &c., have received their supply direct from us:—

* Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.
" DOWNIE, LAIRD, & LAING, Forest Hill, S.E.
" *A. HENDERSON & Co., Pine-apple Place, W.
" E. G. HENDERSON & SON, Wellington Road, N.W.

* Can also supply our new tall Pea, Kentish Hero. Other names will be published.

BUNYARD'S NEW VERBENA, named (by permission), LORD CLIFDEN.—Colour: rosy scarlet, with a very large and clearly defined white eye; each single flower flat and clean edged. Truss: large and well shaped. Habit: good and free. Obtained a First-class Certificate at the Hastings Flower Show (the only place where it was publicly exhibited), and was universally admired. Gained flattering opinions from several London firms; who have ordered. Price for twelve, 2*l.* 10*s.*; six, 1*l.* 7*s.* 6*d.*; each, 5*s.*

The usual Trade discount.

Handsworth Nursery, near Sheffield.

FISHER, HOLMES AND CO. have to offer the following superior well-grown and good-rooted TREES, SHRUBS, &c., viz.:—

50,000 BLACK ITALIAN POPLARS, 2 to 3 ft. and 3 to 5 ft., one of the best trees for damp or wet situations.
50,000 PORTUGAL LAURELS, extra transplanted, stout and well furnished, 9 to 12 in. and 12 to 18 in.
50,000 Strong Transplanted PEAR STOCKS, good roots, mostly fit for working the first season.
6,000 ONTARIO or AMERICAN POPLARS, 5 to 6 ft. and up to 10 ft., well adapted for exposed or smoky situations, strong.
3,000 GIANT or CANADIAN ELMS, 4 to 7 ft., fine.
Several thousands each of the following, viz.
DOUBLE-FLOWERING GORSE, in pots, fine.
ENGLISH and SCOTCH LABURNUMS, strong, 5 to 8 ft.
NORWAY MAPLES, extra transplanted, 5 to 8 ft.
HORSE CHESNUTS, stout, 4 to 7 ft.
ARBUTUS UNEDO, in pots, stout and bushy, 1 to 2 ft.
CREAM and WHITE-FLOWERING BROOMS, extra transplanted.
ARBORVITÆ LOBBI, extra transplanted, well furnished, fine, 3 to 4 ft.
HARDY HEATHS, of sorts, fine bushy beautiful plants.
VIRGINIAN CREEPERS, fine.
EARLY and LATE RED HONEYSUCKLES, strong.
COTONEASTER MICROPHYLLA, strong.
RIBES SANGUINEUM, Double-flowering.
WEIGELAS, Van Houtte, Stelzneri, Isolene, striata, and others, strong
ROSES, STANDARDS and HALF STANDARDS, fine named; for sorts, see our Printed List No. 12.
FRUIT TREES, extra quantity of Standard PEARS, comprising Jargonelle, Beurré Diel, Seckle, Easter Beurré, Prince Albert, Citron des Carmes, Glou Morceau, Beurré Clairgeau, Brown Beurré, Winter Bergamot, with many other good and useful kinds, 4½ to 6 ft. stems.
APPLES, Ribstone Pippin, several hundred, 4 to 6 ft. stems, strong.
PEARS, two years untrimmed, fine, suitable for pyramids.
PLUMS, Green Gage and Magnum Bonum; several hundred Standard 4½ to 5½ ft. stems.
CRABS, Scarlet-fruited Standards, fine.
FRUIT TREES, other kinds, see our Printed List, No. 3.

Priced Lists on application.

PORTUGAL LAURELS, 3 to 4 feet high, and 3 to 4 feet in diameter, compact handsome bushes, which having been frequently removed, will lift with balls like Rhododendrons.

MORRISON BROTHERS, Nurserymen, Aberdeen, have several hundreds of the above to offer; the ground they now stand on being required for a particular purpose, they will be sold cheap.

Also a general stock of HARDY EVERGREENS, prices of which may be had on application.



CARTER'S COLLECTIONS of GARDEN SEEDS for 1864.



FOR the convenience of those of our Customers who have not the time or inclination to make out their own selection of Vegetable Seeds, we submit the undermentioned COLLECTIONS, to which we respectfully invite attention, and we confidently hope that the liberal and judicious manner in which the selections are made, will induce our Customers to favour us with their commands, also their kind recommendations to their Friends. We have bestowed great care in the arrangement of the sorts; none but what we have proved in our Trial Grounds at Dedham to be the very best of its class is included, and those varieties have been chosen that are most calculated to procure a constant SUPPLY of the best kinds of VEGETABLES all the year round.

These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

No. 1, price 10s. 6d.; No. 2, price 21s.; No. 3, price 42s.; No. 4, price 63s.

CARTER'S GARDENER'S AND FARMER'S VADE-MECUM. (Now Ready.)

PART I.—Containing Scientific Description of upwards of 2000 Species and Varieties of Flower Seeds, with Lists of Bulbs and Plants for Early Spring Planting, and a Calendar of Garden and House Operations for every month in the year.

PART II.—Comprising Complete Lists of Vegetable and Farm Seeds, with cultural directions and a Calendar of Practical Farm Operations.

PARTS III. and IV. will be published in May and September respectively.

The entire Book will be forwarded in Parts as issued Free of Charge, upon receipt of 12 *Postage Stamps. Gratis to Customers.*

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

CHEAP PLANTS.—
The following in strong Plants for stock :—
NEW FUCHSIAS, best of 1863, per dozen, 6s.
NEW VERBENAS, ditto, per dozen, 4s.
NEW AGERATUM (PRINCE ALFRED), the best out, per dozen, 6s.
NEW GERANIUMS, (BEDDING), per dozen, 9s.
NEW PETUNIAS, per dozen, 6s.
LOBELIA PAXTONIANA, GORDONIANA, and four others, best of 1863, per dozen, 4s.
NEW TROPÆOLUMS, best of 1863, per dozen, 6s.
NEW HOLLYHOCKS, per dozen, 18s.
NEW ANTIRRHINUMS, per dozen, 4s.
NEW PENTSTEMONS, per dozen, 6s.
NEW MIMULUS (MACULOSUS), per dozen, 4s.
PAMPAS GRASS (ROSEUM), per dozen, 9s.
LONICERA AUREO-RETICULATA, per doz, 6s. to 9s.
Also the following in strong Plants :—
HEPATICAS, of sorts, per dozen, 3s. to 4s.
PRIMROSES, per dozen, 4s. to 9s.
POLYANTHUS, choice mixed, per dozen, 3s.
AURICULAS, border variety, per dozen, 3s.
LILIES OF THE VALLEY, per dozen, 2s.
LAVENDER, per dozen, 3s.
PINKS, finest named, per dozen, 3s. 6d.
VIOLETS, DOUBLE WHITE, PURPLE, and RUSSIAN, 3s.
ŒNOTHERA MISSOURIENSIS, per dozen, 4s.
,, SPLENDENS, per dozen, 4s.
DIELYTRA SPECTABILIS, per dozen, 4s.
PHLOX, fine named, per dozen, 4s.
HOLLYHOCKS, fine seedling, per dozen, from 3s.
GNAPHALIUM LANATUM, per dozen, 4s.
PANSIES, fine named, per dozen, from 3s.
100 CHOICE HARDY HERBACEOUS PLANTS in 50 Varieties, carefully named and packed for 25s.
12 SUPERB STANDARD ROSES, } 24 sorts for 21.
12 ditto DWARF }
☞ Carriage of Parcels amounting to 20s., paid to London.
Post Office Orders payable at Castle Hedingham, to WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

To the Trade.

GREEN HOLLIES, shifted last May, 1½ to 2 feet, 18s. per 100; 2 to 2½ feet, 30s. do. Also AUSTRIAN PINE, 2 to 3 feet; PINUS EXCELSA, 12 to 18 inches, and 2 to 2½ feet; PINUS MENZIESII, 2 to 3 feet; SIBERIAN ARBOR-VITÆ, 2 to 3 feet; do. LOBBII, 2 to 3 feet. Also SPRUCE FIR, MAHONIA, &c.
Prices on application to WILLIAM BOOSEY, Nurseryman, Middlewich, Cheshire.

Strong 2-years Transplanted Larch.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.
CATALOGUES and Samples will be sent free on application.

Important to Planters.

CHARLES CLARKE, Windmill Hill Nursery, Gravesend, has a fine Collection of DECIDUOUS FLOWERING SHRUBS; also a mile of ornamental SPECIMEN FOREST TREES from 10 to 15 feet high; many worked varieties, too numerous to detail. These to be sold very cheap, as the ground is wanted. Large Laurels, very handsome Specimen Yews, Firs various, Scarlet Horse Chestnuts, strong Quick, Ivies in and out of pots, very handsome Gooseberries and Currants, Sea Kale, &c. Also Standard Apples, Pears, Plums, and Cherries, and Dwarf-trained ditto, not to be surpassed.

H. AND R. STIRZAKER can supply, of good quality,
200,000 SPRUCE FIR, strong, from 1 up to 2½ ft.
500,000 LARCH, twice transplanted, from 1½ to 2 feet
50,000 HORSE CHESNUTS, from 2 up to 10 feet
10,000 STANDARD APPLES, 2 to 3 and 3 to 4 feet stems
The above are well rooted and hardy; Prices low.
Also about 300 bushels of EARLY HANDSWORTH, ASHLEAF, and IMPROVED LEMON KIDNEY POTATOS, good stocks; Prices on application.
The Nurseries, Lancaster.

SEEDLING FOREST TREES, &c.

		s.	d.
4,000,000	1 year LARCH .. .. .. per	100,000	100	0
400,000	1 year BIRCH .. .. .. per	1000	2	0
300,000	1 year ALDER .. .. .. ,,		1	6
300,000	1 year SYCAMORE .. .. .. ,,		2	0
50,000	1 year MAHONIA AQUIFOLIA .. ,,		7	0
1,000,000	2 year SPRUCE FIR .. .. .. ,,		1	6
500,000	3 year ,, ... ,,		2	0
300,000	2 year BEDDED SPRUCE FIR .. ,,		5	0
600,000	3 year SILVER FIR .. .. .. ,,		5	0
50,000	4 year ,, ... ,,		7	6
50,000	2 year PINUS AUSTRIACA .. ,,		6	0
300,000	3 year BEECH .. .. .. ,,		4	0
2,000,000	2 year ASH .. .. .. ,,		2	0
60,000	1 year COMMON LAUREL .. ,,		15	0
300,000	Transplanted SPRUCE FIR, 12 to 18 ins. ,,		15	0
80,000	Twice Transplanted AMERICAN ARBOR-VITÆ, 6 to 8 inches ,,		30	0

The Subscriber begs to call the attention of the Trade to the above, hoping to be favoured with their orders, which shall be executed without delay, and in the best possible manner. All delivered free of expense at Dublin.
Application to MICHAEL BURKE, Drumlargan Nurseries, Summerhill, County Meath, Ireland.

H. LANE AND SON beg to inform their Patrons that the season is advancing, and that it is quite time intending Planters should examine our CATALOGUES. We beg permission to call their especial attention to our WELL NAMED STOCK, among which will be found great quantities of the following, viz. :—

Abies Douglasii, 3 to 12 feet	Picea Lowii
,, orientalis, 1 to 3 feet	,, nobilis, to 4 feet
,, taxifolia, 1 to 3 feet	,, Nordmanniana, to 4 feet
Azalea indica	Pinus in sorts
,, Ghent	Podocarpus
Araucaria imbricata, 2 to 12 ft.	Retinispora
Cedrus Deodara, 3 to 10 feet	Roses, strong and fine, second to none
,, Libani, 3 to 10 feet	Thuja aurea
Cupressus Lambertiana, 3 to 6 feet	,, gigantea
Cupressus Lawsoniana, to 3 ft.	,, Siberian
Fruit Trees of every description	Thujopsis borealis
Juniperus, upright, 2 feet	,, dolabrata
,, chinensis, 1 foot	Wellingtonia, 1 to 4 feet
Picea grandis	Yews in variety
,, lasiocarpa	

which we can supply at most reasonable prices.
CATALOGUES may be had gratis on application at the Nurseries, Berkhampstead, Herts.

New Sorts of Peas.

THE ADVANCER, PRINCESS ROYAL, PRINCESS of WALES, and other NEW PEAS, are included in SUTTON'S PRICED SEED LIST, just published, and which may be had, Gratis and Post free, on application addressed
SUTTON & SONS, Seed Growers, Reading, Berks.

CHARLES SHARPE AND CO., SEED MERCHANTS Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application :—
DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW ,,
WOODFORD'S GREEN MARROW ,,

To the Seed Trade.

PEAS.—Early Emperor, Prizetaker, Bedman's Imperial, Ne Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to
MARSH & PERKINS, 42, Drapery, Northampton.

Fairbeard's Forty-fold Blue Marrow Pea.

J. FAIRBEARD begs to offer to the public in general a large and distinct New BLUE WRINKLED MARROW PEA, as early as Fairbeard's Champion, about the same height, quite equal in flavour, but much more prolific, and remains much longer in a green state for picking. Retail 3s. 6d. per quart. Trade price upon application. Early orders are requested, as the stock is limited.
J. FAIRBEARD, Nurseryman and Seedsman, Green Street, Sittingbourne, Kent.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2s. 6d. per quart.
The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4s. per quart.
The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4s. per quart.
The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1s. and 2s. 6d. per packet.
Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 93, St. James's Street, Brighton.

THE YORKSHIRE HERO PEA.—A Dwarf Green Wrinkled Marrow, pronounced by all who have tried it to be a "WONDERFUL" Pea. We have selected from numerous testimonials the following :—
From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart. *Somerby Park.*
"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer; requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thin in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can readily dispose of at 5s. per quart to those who saw them in bearing."—Bracebridge, Oct. 5, 1863.
Price 5s. per Quart.
EDMUND PHILIP DIXON & SONS, Yorkshire Seed Establishment, Hull.
Supplied in London :—
Messrs. HURST & SON, 6, Leadenhall Street.
,, COOPER & BOLTON, 152, Fleet Street.
,, BECK, HENDERSON, & CHILD, Upper Thames Street.
,, JACOB WRENCH & SONS, London Bridge.

FINE NEW SEEDLING EARLY POTATO OF EXCELLENT QUALITY, BEING VERY MEALY, OF AN AGREEABLE FLAVOUR, AND VERY PROLIFIC, EPPS' GLORY.
WM. HAMMERTON having purchased the entire Stock of this fine new Potato from the Assignee of the late W. J. Epps, begs to offer the same to the Public.
The Editor of the *Gardeners' Chronicle*, Aug. 9, page 824, speaks thus of its merits :—
"*W. S. Epps, Maidstone.*—Your Seedling is without exception the best we ever tasted, and if, as you say, it is a great cropper, you should name it Epps' Glory."
The Editor of the *Journal of Horticulture and Cottage Gardener*, Sept. 8, says :—
"*W. J. Epps.*—Your Seedling Potato boils to a perfect ball of flour, and is of excellent flavour."
Price 10s. per peck, hamper included. Post Office Order must accompany the order.
W. H. also begs to offer a fine Stock of FILBERTS and true KENTISH COB NUTS, at 4s., 6s., and 8s. per dozen.
His CATALOGUE of Fruit Trees, Garden and Agricultural Seeds, may be had on application.
High Street, Maidstone.—January 23.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had post free on application.
The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend :—
DILLISTONE'S EARLIEST PEAS, 1s. 6d. per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2s. 6d. per packet.
BROCCOLI, SNOW'S SUPERB, 2s. 6d. per ounce.
CUCUMBER KIRKLEES HALL, 1s. per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1s. per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1s. per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1s. per pkt.
MELON SCARLET PERFECTION, new, First Class Certificate at Royal Horticultural Society, 2s. 6d. per packet.
Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.
Fulham Nursery, London, S.W.—January 23.
Special offer to the Trade on application.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6l. per Ton, or 8s. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2s. each.

Seed Potatos.

JOHN KELLETT begs to offer FLUKE KIDNEYS—the best late Potato; and DALMAHOY, the best second early, picked for Seed from land unbroken for 70 years. Price per bushel, or load of 252 lbs. on application.
Green Lane Nurseries, Heaton Norris, Stockport.
The Trade liberally dealt with.

EARLY POTATOS.
GOLDEN DROP WHITINGS, earliest variety grown, and very prolific.
ASHLEAF KIDNEY, true.
MYATT'S IMPROVED ASHLEAF.
Price on application.
GEO. S. DODS, Epsom Nursery.

BLOOMER POTATO.
THE EARLIEST POTATO GROWN.
"As compared with the Ash-leaved Kidney it is 14 or 20 days earlier, a much heavier cropper, and far superior in flavour .....as to quality and productiveness, the Early Handsworth is not to be compared with the Bloomer."
Scottish Gardener for July, 1862.
Price 4s. 6d. per Peck of 14 lbs. (including bag).
DICKSONS & Co., Nurserymen and Seedsmen, Waterloo Place, Edinburgh.

Henry's Prize Hybrid Leek (true).

DOWNIE, LAIRD, AND LAING are now sending out the above in packets at 1s. each. This is decidedly the LARGEST and BEST LEEK in cultivation. Can be grown 16 inches in length of blanch, and 4 to 5 lbs. in weight.
17, South Frederick Street, Edinburgh; and at Stanstead Park, Forest Hill, London, S.E.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.
Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—	s.	d.
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..		2	6
,, LATE WHITE (Shearer's)		2	6
CAULIFLOWER, NEW EARLY MAMMOTH		2	6
LEEK, HYBRID PRIZE (Henry's)		2	0
LETTUCE, MOOR PARK		1	6
PEA, ADVANCER (Maclean's)		2	0

Exotic Nursery, Tooting, Surrey, S.

New Seeds.

FISHER, HOLMES AND CO., Handsworth Nursery, Sheffield, beg to offer the following, which they have perfect confidence in recommending :—
BEET, CLAYTON'S SUPERB DWARF DARK RED; extra packets, 1s. and 2s. each.
BORECOLE, GREEN CURLED, a very superior variety; packets, 6d. and 1s. each.
BROCCOLI, HANDSWORTH, SUPERB LATE WHITE; packets, 1s. and 2s. each.
CUCUMBER, BATLEY TELEGRAPH, not to be surpassed; 3s. per dozen seeds.
CUCUMBER, BARTON'S MONARCH, excellent for general purposes; 1s. per dozen seeds.
CUCUMBER, WILSON'S PROLIFIC, the very best for forcing; 1s. 6d. per dozen seeds.
CUCUMBER, PORTER'S PROLIFIC, very superior; 3s. per dozen seeds.
LOVE APPLES, GRENIER, new packets; 1s. each.
PARSLEY, very superior Curled, beautiful for garnishing; packets, 6d. and 1s. each.
Agents in London, Messrs. HURST & SON, 6, Leadenhall Street, E.C.
PRICED CATALOGUES of VEGETABLE and FLOWER SEEDS, Gratis and Post Free on application to Messrs. FISHER, HOLMES & Co.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities :
Price for Picked Roots, per 100 .. .. 12s. 6d.
Do. second size ,, ... 10 0
Also strong for Planting, per 100 .. 5s. and 7 6
Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5s. per quart.

	per packet—	s.	d.
DIXON'S New MAMMOTH WHITE CELERY ..		1	0
DIXON'S New CHAMPION GREEN COS LETTUCE		1	0
DIXON'S YORKSHIRE FAVOURITE MELON ..		1	0
DIXON'S YORKSHIRE HERO CUCUMBER ..		2	0
The EARLY FORCING CAULIFLOWER		1	0
The ROSEBERRY BRUSSELS SPROUTS		0	6
MELVILLE'S VARIEGATED GARNISHING KALE		0	6

All post free except the Peas.
EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

"Z" Family, now offered for the First Time.
TRADE
HALLETT'S | PEDIGREE | NURSERY WHEAT.
MARK.
THE BEST SPRING WHEAT KNOWN.
For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.
PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill 2 bushels per acre.*
HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.
Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

FINE FRUITING ORCHARD-HOUSE TREES.

PEACHES. NECTARINES. | APRICOTS. CHERRIES. PLUMS.

Price on application.

GEO. S. DODS, Epsom Nursery.

DWARF-TRAINED FRUIT TREES.

PEACHES. NECTARINES. | APRICOTS, fine. PLUMS.

Price on application.

GEO. S. DODS, Epsom Nursery.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Transplanted Forest Trees.

MARSH AND PERKINS have pleasure in offering the following, being fine and well rooted.

Prices on application to 42, Drapery, Northampton.

BEECH, 2 to 3 feet.
LARCH, 1½ to 2 feet and 2 to 3 feet.
WHITE THORN, 2 and 3 years transplanted.
SEEDLING LARCH, 1 year.

NEW PRIZE MELON, CLIMAX.—This superb Green-flesh MELON was raised by Mr. WEBB, of Calcot, and obtained 1st Prize at the Crystal Palace Fruit Show in 1862; never yet offered to the public; a most abundant bearer, and of exquisite flavour. Sold in packets at 2*s.* 6*d.* each. Applications as above.

Calcot Gardens, Reading.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s* 6*d.*, 5*s.*
DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PANSY, 1*s.*, 2*s.* 6*d.*
DOBSON'S SUPERB SHOW PELARGONIUM, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB FANCY PELARGONIUM, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB BALSAM, 1*s.*, 2*s.*
DOBSON'S SUPERB ANTIRRHINUM, 1*s.*, 2*s.*
DOBSON'S SUPERB LOBELIA SPECIOSA, 1*s.*
DOBSON'S SUPERB HOLLYHOCKS, 1*s.*, 2*s.* 6*d.*, 5*s.*

The Trade supplied on liberal terms.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

GENUINE NEW SEEDS,

CARRIAGE FREE.

DESCRIPTIVE PRICED LIST

FOR THE PRESENT SEASON,

Post free upon application.

JAMES DICKSON AND SONS,

SEED MERCHANTS AND NURSERYMEN,

102, Eastgate Street,

Chester.

SUTTON'S SHORT SELECT

SEED LIST,

which contains the price of every article separately, is NOW READY, and may be had

GRATIS and POST FREE

on application to

SUTTON & SONS, Seed Merchants,

Reading.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS have a fine stock of New Seed. Also all other kinds of Agricultural Seeds at very moderate prices, as see SUTTON'S PRICED SEED LIST (gratis and post free).

Royal Berks Seed Establishment, Reading.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post-free, 1*s.* per ounce. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the Lists which appeared in *Gardeners' Chronicle* of Nov. 28 and Dec. 19, 1863.

Royal Berks Seed Establishment, Reading.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1*s.* Post free, 14 stamps.

Sonning, near Reading.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2*s.* per packet. Will be forwarded to any part of England on forwarding 26 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

ALGERIAN ACCLIMATATION SOCIETY.—The New PLANT, SEED, and TREE CATALOGUE of the ALGERIAN ACCLIMATATION SOCIETY is just published, and may be obtained on application to the Society's London Agents,

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; if packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c.

N.B.—Loaded trucks can be sent on all the principal Rail ways. W. SHORT, Reigate, Surrey.

THE LONDON SEED COMPANY, LIMITED, has been established under the Companies' Act of 1862, for the purpose of supplying all kinds of Seeds for the Farm and the Garden.

The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.

The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.

The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.

One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.

ALFRED BREWIN, Manager.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped J. BARSHAM'S Patent'

Winter Dress all Fruit Trees with

GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS, "Nurseries, Sawbridgeworth. Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees: it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont, Vauxhall, London, S.

DISEASE on VINES and FRUIT TREES.—The Advertiser discovered, a few years ago, a COMPOSITION which most effectually eradicated a virulent disease that attacked the late crops of Grapes then under his charge, and by one annual dressing with this Composition, no blight became visible for the season. We have used it now for several years with all the success we could desire.

This Wash applied to Peach and Plum trees, before they are nailed, will keep them perfectly free from mildew and every other species of blight during the ensuing spring and summer months.

The season is now at hand for using this Composition, both on Vines and Wall Trees, and any parties wishing to give it a trial can be furnished with the Recipe on application (enclosing a Post-office Order for 5*s.*) to the

GARDENER, Middleton Park, near Mullingar, Ireland.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—



PROPAGATING GLASSES.

	Each—s.	d.		Each—s.	d.
2 inches in diameter..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			



HAND GLASSES, WITH OPEN TOPS.

	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1*s.*; 9 inches, 1*s.* 6*d.*; 12 inches, 2*s.* 6*d.*

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

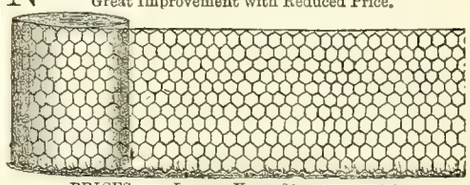
Common shape, p. doz., 2*s.* 6*d.* | Improved shape, p. doz., 4*s.* 6*d.*
Patent shape, per dozen, 6*s.* 6*d.*

London Agents for Hartley's Improved Patent Rough Plate. Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light.		Medium.		Strong.		Extra Strong.	
		Jap	Gal.	Jap	Gal.	Jap	Gal.	Jap	Gal.
2½ in.	Hares, Dogs, Poultry ..	*s. d.* 0 3	*s. d.* 0 4	*s. d.* 0 3½	*s. d.* 0 5	*s. d.* 0 4½	*s. d.* 0 6	*s. d.* 0 5½	*s. d.* 0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

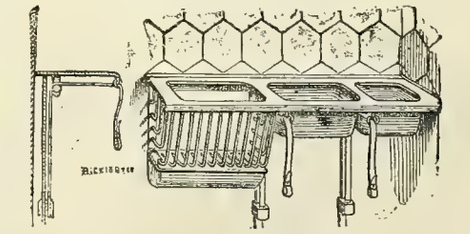
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

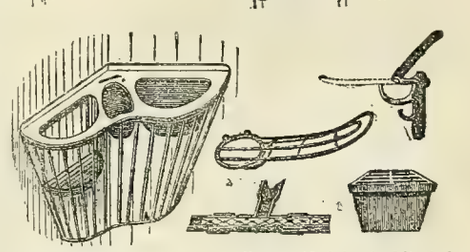
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.





These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.

COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.

*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Seeds for Exportation.—New Seeds, Growth of 1863.

SUTTON AND SONS will shortly be prepared with their NEW SEEDS of this year's growth for export orders. Messrs. SUTTON'S mode of packing is most effectual and economical.

For terms, &c., apply to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0

SUTTON'S CATALOGUE of SEEDS will be sent post free.

SUTTON & SONS, Seed Growers, Reading, Berks.

THE LONDON SEED COMPANY, LIMITED, with which is AMALGAMATED the PLYMOUTH SEED COMPANY, LIMITED, Offices, 68, Welbeck Street, Cavendish Square, London, W.

Best Seeds, Carriage Free.

RICHARD SMITH, SEED MERCHANT and NURSERYMAN, Worcester.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

New Florist Flower Catalogue.

DOWNIE, LAIRD, AND LAING beg to intimate that their DESCRIPTIVE CATALOGUE of FLORIST FLOWERS, New Garden and Flower Seeds, &c., for 1864, is now ready, and may be had free on application.

17, South Frederick Street, Edinburgh; and at Stanstead Park, Forest Hill, London, S.E.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Seeds Carriage Free.

J. DOBSON AND SONS' CATALOGUE for 1864 is now ready, gratis and Post-free.

VEGETABLE SEEDS, best quality, 300 sorts.
FLOWER SEEDS, best quality, 400 varieties.
FARM SEEDS, best quality.

Woodlands Nursery, Isleworth, W.; and High Street, Hounslow, W.

PELARGONIUMS and CINERARIAS.—Intending Purchasers are respectfully solicited to send for our DESCRIPTIVE CATALOGUE of many hundreds of varieties, at very moderate prices, which will be forwarded Post free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—*s.*	*d.*
LILIUM LANCIFOLIUM ALBUM	1	0
,, ,, ROSEUM	1	3
,, ,, RUBRUM	1	3

Three each of the above, 10*s.*

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz.; 20*s.* per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

THE LONDON SEED COMPANY, LIMITED.

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE COMPANY are now sending out their COLLECTIONS of SEEDS, which will be delivered Carriage Free to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1.	**Complete Collection, sufficient for a Large Garden for One Year's supply**	**£3**	**0**	**0**
No. 2.	**Complete Collection for a Moderate Sized Garden ... ...**	**2**	**0**	**0**
No. 3.	**Complete Collection, in Smaller Quantities ... ...**	**1**	**0**	**0**
No. 4.	**Complete Collection for a Small Garden ... ...**	**0**	**15**	**0**
No. 5.	**Complete Collection for ,, ,, ...**	**0**	**10**	**6**
No. 6.	**Extra Large Collection, containing Double the Quantities of No. 1 ...**	**5**	**0**	**0**

A DETAILED LIST of these COLLECTIONS will be found in the GENERAL PRICE CURRENT, which is now ready, and will be forwarded Gratis and Post Free to any address in the Kingdom.

ADDRESS: 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

BARR & SUGDEN'S

COMPENDIUM OF THEIR ILLUSTRATED GUIDES TO THE KITCHEN AND FLOWER GARDEN.

NOW READY, AND MAY BE HAD FREE AND POST PAID.

BARR & SUGDEN'S COLLECTIONS of VEGETABLE SEEDS FOR ONE YEAR'S SUPPLY.

Orders for Vegetable Seeds amounting to 21s. and upwards sent Carriage Paid.

These assortments are suited to Gardens of various sizes; they contain the most approved varieties, and such as are most suited to secure a succession of the best vegetables from January to December.

The Seeds are all of the very best quality.

COLLECTIONS OF SEEDS FOR ONE YEAR'S SUPPLY.

	No. 1. 10s. 6d.	No. 2. 15s. 6d.	No. 3. 21s.	No. 4. 30s.	No. 5. 42s.	No. 6. 63s.
LEGUMINOUS SECTION.						
PEAS, including those best suited for Succession, the most productive and the finest flavoured	4 pt.	4 qts.	6 qts.	8 qt.	12 qt.	20 qt.
BROAD BEANS, best sorts	2 pt.	2 qts.	3 qts.	4 qt.	6 qt.	10 qt.
FRENCH BEANS, including Dwarf and Runners	1 pt.	1½ pt.	2 pt.	3 pt.	4 pt.	6 pt.
EDIBLE LEAVED AND EDIBLE FLOWERED SECTION.						
BORECOLE, or KALE, including Cottager's Kale, &c. ..	2 pkt.	2 pkt.	3 pkt.	3 pkt.	4 pkt.	5 pkt.
BROCCOLI, the best Successional varieties	2 pkt.	4 pkt.	5 pkt.	5 pkt.	6 pkt.	8 pkt.
BRUSSELS SPROUTS, Imported, and ROSEBERRY ..	1 pkt.	1 pkt.	1 pkt.	1 pkt.	2 pkt.	2 pkt.
CABBAGE, including Covent Garden Superfine Early, &c. ..	1 pkt.	3 pkt.	4 pkt.	5 pkt.	6 pkt.	8 pkt.
CABBAGE, SAVOY, best sorts	1 pkt.	1 pkt.	2 pkt.	2 pkt.	3 pkt.	4 pkt.
COUVE TRONCHUDA,,or SEAKAIL CABBAGE	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.
CAULIFLOWER, including Covent Garden Early, &c. ..	1 pkt.	1 pkt.	2 pkt.	2 pkt.	2 pkt.	3 pkt.
SPINACH, Summer and Winter	2 oz.	4 oz.	6 oz.	1 pt.	1 qt.	2 qt.
EDIBLE ROOTED SECTION.						
BEET, including Covent Garden varieties, &c...	1 pkt.	1 pkt.	1 pkt.	2 pkt.	2 pkt.	3 pkt.
CARROT, best for forcing and general crop	1 oz.	2 oz.	3 oz.	5 oz.	8 oz.	14 oz.
LEEK, Musselburgh, &c.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	2 pkt.
ONION, including White Spanish (Reading), &c.	1 oz.	2 oz.	3 oz.	6 oz.	8 oz.	14 oz.
PARSNIP, including Selected Hollow Crown, &c.	1 oz.	1 oz.	2 oz.	3 oz.	4 oz.	6 oz.
SALSIFY..	..	..	..	..	1 pkt.	1 pkt.
SCORZONERA..	..	..	..	..	1 pkt.	1 pkt.
TURNIP, including best varieties for Successional Crops ..	2 oz.	2 oz.	3 oz.	6 oz.	8 oz.	14 oz.
EDIBLE FRUITED SECTION.						
CUCUMBER, including Empress Eugenie, &c...	1 pkt.	1 pkt.	2 pkt.	3 pkt.	3 pkt.	4 pkt.
MELON, including Princess Alice, &c.	..	..	1 pkt.	1 pkt.	2 pkt.	3 pkt.
TOMATO..	..	..	1 pkt.	1 pkt.	2 pkt.	2 pkt.
VEGETABLE MARROW, including New Custard, &c. ..	1 pkt.	1 pkt.	2 pkt.	2 pkt.	3 pkt.	4 pkt.
SALAD SECTION.						
CELERY, including the two Covent Garden varieties, &c. ..	1 pkt.	1 pkt.	2 pkt.	2 pkt.	2 pkt.	3 pkt.
CRESS, including Curled, Plain, and Australian	3 oz.	3 oz.	4 oz.	8 oz.	10 oz.	12 oz.
ENDIVE, best kinds	..	1 pkt.	1 pkt.	2 pkt.	2 pkt.	3 pkt.
LETTUCE, including the Covent Garden Giant Cos, &c. ..	2 pkt.	2 pkt.	3 pkt.	3 pkt.	4 pkt.	5 pkt.
MUSTARD	2 oz.	4 oz.	6 oz.	8 oz.	12 oz.	16 oz.
RADISH, suitable sorts for Succession	3 oz.	4 oz.	6 oz.	8 oz.	12 oz.	16 oz.
POT, SWEET, & GARNISHING HERB SECTION.						
HERBS, Pot and Sweet	2 pkt.	2 pkt.	3 pkt.	3 pkt.	4 pkt.	6 pkt.
HERBS for Garnishing, &c.	1 pkt.	1 pkt.	2 pkt.	3 pkt.	3 pkt.	4 pkt.
PARSLEY	1 pkt.	1 pkt.	1 oz.	1 oz.	2 oz.	3 oz.

SURPLUS STOCK OF HYACINTHS, TULIPS, &c.

FINE BULBS.

HYACINTHS, 7*s.* 6*d.*, 10*s.* 6*d.*, and 12*s.* 6*d.* per 100.
TULIPS, in 20 Splendid Varieties, 5*s.* 6*d.* per 100.
TULIPS, in 30 Splendid Varieties, 7*s.* 6*d.* per 100.
POLYANTHUS NARCISSUS, 10*s.* 6*d.* per 100.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A MEETING of this COMMITTEE will be held on FRIDAY, January 29, at the Rooms of the Society at South Kensington, for the Examination of such FRUITS and VEGETABLES as may then be submitted, and for awarding the following Prizes:

CLASS A.—For the best Dish of ADAMS' PEARMAIN APPLE. 10*s*., 5*s*.
CLASS B.—Ditto MARGIL. 10*s*., 5*s*.
CLASS C.—Ditto OLD NONPAREIL. 10*s*., 5*s*.
CLASS D.—Ditto JOSEPHINE DE MALINES PEAR. 10*s*., 5*s*.
CLASS E.—Ditto ZEPHIRIN GREGOIRE. 10*s*., 5*s*.
CLASS F.—Ditto of any of the newer varieties of PEARS. 10*s*., 5*s*.
CLASS G.—The best Two Bunches of New BLACK HAMBURGH GRAPES. 30*s*., 20*s*.

All Fruit must be ripe, sound, and fit for table. A Dish is to consist of Six Fruits. Subjects for Exhibition must be at the rooms by 11 o'clock on the day of Meeting. As the awards are made by flavour, those Exhibitors who require their Fruit to be returned must not expect to receive it entire.

Communications and Packages to be addressed to
ROBERT HOGG, LL.D., Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.

CONTRACTS for the GARDEN
OF THE ROYAL HORTICULTURAL SOCIETY AT SOUTH KENSINGTON.

1. The Council of the Royal Horticultural Society are of opinion that increased interest would be given to the Garden at South Kensington if a portion were set apart as EXHIBITION GROUNDS of BEDDING PLANTS, FLOWERS, SHRUBS, &c., Let Out to responsible Nurserymen and Florists of eminence. They accordingly have prepared a Plan of such portions, which may be seen at the Garden, and invite TENDERS for filling such Spaces with Bedding or other Plants during each month of the year 1864.

2. The selection and arrangement would be left entirely to the taste of the Exhibitors, provided that the same shall be in keeping with the general character of the Garden. The Beds so planted must be kept in order by the parties planting them throughout the season. The names and addresses of the Nurserymen and Florists will be placed conspicuously upon the Beds so filled by them.

3. A competent Jury will be appointed to examine the spaces two or three times during the season, and will adjudicate upon the merits of the several arrangements, and select the best. The test of merit will be "Best Arrangement of Colour with Plants of the most durable character," *i. e.*, those that will remain longest in flower. The Council will then award Certificates of Merit to the most successful Competitors.

4. Sealed Tenders must be sent in to the Assistant Secretary on or before March 1, 1864.

Further explanations, and the conditions, may be had of Mr. EYLES, the Garden Superintendent, South Kensington, S.W.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—JANE ATLEE begs to tender her most sincere and heartfelt thanks to those who kindly supported her on Thursday the 14th inst, at the Election of Pensioners on the Funds, when, by the united efforts of many kind friends, she was placed on the Pension List of your excellent Institution.
Clapham Road, Stockwell, Jan. 19.

The Gardeners' Chronicle.

SATURDAY, JANUARY 23, 1864.

MEETING FOR THE ENSUING WEEK.

FRIDAY, Jan. 29 { Royal Horticultural (Fruit Committee) at South Kensington .. .. .. Noon

A NORTHERN contemporary has recently, not without reason perhaps, directed attention to the comparative NEGLECT OF THE VEGETABLE DEPARTMENT, both by the correspondents of the gardening periodicals, and by the rising generation of gardeners. Vines and Peaches, Orchard-houses and Bedding plants, Florists' flowers and Exhibition plants, it is said, come in for their share and more than their share of discussion, but neither writers nor young gardeners appear to give the thought and attention it deserves to plain kitchen gardening, notwithstanding that it is the very foundation of the gardener's success in the battle of life.

That this is true to a certain extent there can be no doubt; and perhaps, so far as the horticultural press is concerned, for the very reason which the writer of the remarks we refer to has suggested, namely, that what are—rightly or wrongly—termed the highest branches of the profession are the safest and most pleasant to roost upon. There may indeed be more of novelty in those matters which readers and writers appear alike to prefer, but at least we may assert that the hobbies which are thus in some cases so hardly ridden, are not of more importance to the gardening profession than is a thorough knowledge of the management of a kitchen garden, which, as is truly remarked by the writer referred to, "takes in a far wider range of society than any other department." "Most gardeners," he adds, "find the kitchen the most ticklish latitude, from which demands fall upon them with the most exacting promptitude; and he who can satisfy those artistes who prowl in white linen about the hottest regions of the hall, has reason to congratulate himself on being up to the mark in a department through which as much annoyance is likely to arise, as in any other with which he has to do." This, we think, no one will question.

It may not be urged as a reason for this apparent neglect of the vegetable department, that, taking a view of gardens in general, this department is uniformly managed with complete success. In how many of the thousands of gardens scattered through the land, would really good crops and good successions of crops of esculents be found, if a simultaneous examination could be made at any time between Candlemas and Christmas? A sprinkling of our best practical gardeners would of course be found up to the mark in this particular, amongst them doubtless some of whom Fame knows but little; but in too many cases it would be seen that the crop of one kind of vegetable was out of all proportion to the rest, either through deficiency or superabundance, while the very important—indeed the most important—question of succession was either ignored or misunderstood. There are of course difficulties to be encountered in respect to seasons and weather, uncongenial soils, and limited means, all which may be beyond a gardener's control; but the aim should be (and this we hold to be the very perfection of kitchen gardening), to have an abundant supply to meet every reasonable demand, this supply being so regulated that there shall be no glut at one period and scarcity at another, but that every crop shall tell in the total as it comes to maturity, and yield its quota towards an uninterrupted succession—young, fresh, and crisp—of such vegetables as are preferred in each particular establishment.

It is, moreover, by no means to be assumed that the *ultima thule* of kitchen garden cropping has yet been reached. Though the cultivation of all or most of our esculents, severally, in the hands of individual gardeners may have been, (we do not assert that it has been), carried very nearly to the highest degree of perfection, yet it is to be remembered that this is a very different thing from perfection of culture having been reached with the generality of vegetable crops, by all or even the majority of gardeners. There are yet remaining many dark recesses in our kitchen gardens—here in one position, there in another—which each require that a bright ray of light should penetrate their obscurity, so as to bring out in strong relief some real defect of treatment that is lurking there. We recommend the subject of enlightenment on obscure points of practice, to the notice of skilful gardeners of a thoughtful turn of mind, as one which if well worked up would earn for them an honourable eminence in the ranks of their profession.

We should perhaps have been less ready to open this subject in our columns, were it not that we heartily concur in what our Scottish friend writes in reference to its bearing on the interests of the RISING GENERATION OF GARDENERS. This is the class of men to which we must look in the coming time, to maintain the proud position which British horticulture has attained. And in this connection we cannot refrain from an expression of regret that our great English Horticultural Society should have deliberately chosen the path of fashion rather than of fame. Surely there is no way in which it could better carry out the important charge committed to its care—namely the fostering and encouragement of horticulture, in this our happy and fruitful isle, than by an earnest solicitude for the instruction of young gardeners, and by doing its part towards training and disseminating through the land such young men, well-informed in all the branches of horticulture, so that they might act as leaven on the general practice of gardening: permeating and elevating the whole mass. And if this be so, it follows that to utterly neglect if not to repudiate such a duty, and to confine its efforts and its aspirations almost entirely to catering for the world of fashion, putting horticulture as much as possible in the back ground, is, to say the least, a dereliction of trust on the part of a body established for no other purpose than that of advancing horticulture. That the subject of the preparation of young gardeners requires attention is patent to the experience of all who care to observe. The writer to whom we have already referred remarks from personal knowledge:—"I do not know whether my experience corresponds with that of other gardeners who have passed a good many young men through their hands, but I find the majority quite as deficient, or even more so, in this department than in any other. There are plenty of worthy young men who, were they called upon to grow a few genera of plants in pots, or to get up a good many thousand bedding plants, would do so with credit to themselves. But call upon them to subdivide a few acres of kitchen garden into allotments for the proportions of the different vegetables, and crop them with a proper selection of vegetables, and in a manner and at times which would ensure a proper supply for the season, and they would find themselves in a fix. There cannot be a more gross mistake on the part of young men, who, as soon as their two or three years of what is called an apprenticeship are over, indulge a ceaseless hankering to get into houses where forcing and plant-growing are carried on, before they have made themselves conversant with the details of a well-managed kitchen garden."

Let us remind young gardeners too, that this matter is one which intimately concerns themselves. They may or they may not have the assistance and advantages which societies and the higher ranks of their professional elders may be able to afford them in acquiring a knowledge of the principles and practice of the art they have chosen as their own; they may or not have the help, now happily more abundant than ever, which well-chosen books are capable of supplying; they may even have the greatest advantage of all, that of bearing a share in carrying out the most correct and refined practice under the direction of some horticultural SOLON; but notwithstanding all this, if they do not observe and think for themselves, such advantages will avail them but little. The real secret of their advancement—such advancement at least as leads to eminence—lies in their own determination to master the profession they have chosen to follow. And in striving to do this they may rest assured that though they study geology and chemistry, and learn all the mysteries of earths and manures; though they may become proficients in the science of botany, and know at sight all the species which our stoves and greenhouses and flower-gardens contain; though they may perfectly understand the principles of planting parterres, and be quite *au fait* at the manufacture of bedding stuff, yea, even though they may be able to estimate at their true worth the conflicting opinions which clash around them on such subjects as Orchard houses and Peach walls, and can solve the many problems of the forcing garden—and it is well to master all or as much as possible of all these matters; yet if they are not also masters of the mysteries of kitchen garden cropping, they will find themselves in a position which will give rise to constant annoyance if to nothing worse: in a word, they will stand upon a false foundation.

The evil at which we have just been glancing is somewhat characteristic of the age, and hence there is all the more need of its being honestly pointed out to those whom it most concerns. Young men are for getting on as they think, without duly remembering the old proverb, 'the more haste the least speed.' They either have too much pride to begin fairly at the beginning, or having begun there, they have too much impatience to wait long enough to enable them to practise thoroughly and exhaustively the elementary parts of their training; and in this eagerness to advance (which in itself would be laudable enough and only becomes otherwise when unduly indulged), they forget or are not sufficiently impressed by two things, which they get to know afterwards, sometimes even by bitter experience—first, that there is no success before them as general gardeners without a thorough knowledge of kitchen-garden practice as a basis, and secondly, that such knowledge is the most certain, as it is also the most accessible stepping-stone in the attainment of the information they need to enable them to undertake the management of other departments. Too many of them are afraid of rough work, and chafe at their necessary probation as journeymen, or they take to amusements and eschew study, yet at the very first opportunity they hasten to set up on their own account, it may be in some single-handed, or other inferior place, where in the case of the average of men comparatively little is to be learned by experience, a few only of the brighter intellects being capable from such stand-points of moving forwards. What wonder, therefore, that so few comparatively of the thousands of young men who turn to the pursuit of gardening, really distinguish themselves in after life?

Let young gardeners, then, endeavour to realise the fact, that on them, in the future, depends in great measure the position of British horticulture, and that in order to render that position a pleasant one there is nothing for it but to strive and study—study and strive, allowing no enticements to lure them from their course, and no difficulties to damp their ardour. Let them work on with a will, and take as their motto—"Never despair." For all such there is an honourable future in store.

—— THE Royal Horticultural Society has publicly expressed the opinion that increased interest would be

given to the Gardens at South Kensington if portions were set apart as exhibition grounds of bedding plants, flowers, and shrubs, &c., let out to responsible nurserymen and florists of eminence. They accordingly have prepared a plan of such portions, which may be seen at the Gardens, and invite tenders for filling such spaces with bedding or other plants during each month of the year 1864. The selection and arrangement are to be left entirely to the taste of the exhibitor, provided they shall be in keeping with the general character of the Gardens. The beds so planted must be kept in order throughout the season by the parties planting them. The names and addresses of the nurserymen and florists will be placed conspicuously upon the beds so filled by them. A competent Jury will be appointed to examine the spaces two or three times during the season, and will adjudicate upon the merits of the several arrangements, and select the best. The test of merit we are informed will be the best arrangement of colour with plants that will remain longest in flower. Certificates of merit will be awarded to the most successful competitors.

Sealed tenders must be sent in to the Assistant Secretary on or before 1st March, 1864, and in the meanwhile further explanations may be had of Mr. EYLES, at the Gardens, South Kensington.

THE WEATHER OF 1863.

January.—In noticing the weather of 1862, at p. 52 of our vol. for last year, it was remarked that December "was remarkable for the total absence of N.E. winds, whilst strong gales had brought much warm air from southern regions." In January 1863 the mean temperature was fully 6° above the average. The extreme lowest was only 23°. The prevalent winds were still from a south-westerly direction. The amount of rain was fully half an inch above the usual depth; it mostly fell in the first half of the month.

February.—This month, like the preceding, was remarkably mild. The maximum temperature of the days averaged little below the mark denoting a temperate climate, 55°; whilst frequently it was above that point. On three of the nights the thermometer fell 12° or 14° below freezing; but on all others the frosts if any were but slight, and often on the contrary, the temperature at night was above 40°. Only about half an inch of rain fell, so that all ground operations could be carried on without interruption. Favourably thus the winter season passed over without leaving traces of severity.

March.—An average mean temperature was again maintained in this month. The mean minimum was nearly 2½° below the average; but, on the contrary, the maximum of the days averaged 5½° higher than usual. On the 4th, the thermometer in the shade rose as high as 70°; on the night of the 21st it fell to 21°, and these were the extreme temperatures of the month. The amount of rain was nearly an inch below the average.

April.—The minimum temperature at night was but little below the average; whilst the average maximum of the days was 6¾° higher than usual. Owing to the latter circumstance the blossoms of some kinds of fruit trees were brought forward too much for their safety from the frosts which frequently occurred at night, and even so late as the 31st, when the thermometer fell to 8° below freezing. The amount of rain was little more than ½ inch, or about ⅓ of the usual quantity for the month.

May.—The days were occasionally warm; but the nights were still generally cold. Thirteen of them were more or less frosty. On those of the 23d and 25th the thermometer indicated 6° below freezing. In consequence of the blossoms of some sorts of Apples having been injured by the frosts of the previous month, and additionally so by those of the present, the crop of these fruits was but partial. The amount of rain was still considerably below the average, and by the end of the month a supply of moisture was much wanted. The 19th was boisterous, and many trees in parks were blown down.

June.—At the commencement of this month the aggregate deficiency of rain due to the preceding three months amounted to 2½ inches. In the present month there was however an abundant supply, the total depth which fell being nearly 4½ inches, or more than double the average quantity for the month. Heavy falls took place on the 5th, 18th, and 24th. Although the nights were cold, more than 4° below the average, yet the mean maximum of the days was fully maintained, and this being the case, moisture being abundant, the growth of hardy crops proceeded favourably.

July.—This month was most remarkable for the warmness of the days, and the coldness of the nights. The mean maximum was 3½° above the average, whilst the mean minimum was no less than 10° colder than usual. On the night of the 18th the thermometer indicated 5° below freezing; and frequently it was either at, or within a few degrees of that point. We have often observed that if the days are hot and sunny, even although the nights be cold, grain and hardy crops succeed well under the circumstances. Colder nights in July have very seldom been experienced than was in this; and, on the other hand, but rarely warmer days; and to such weather must in a great measure be attributed as a result, one of the finest and most abundant crops ever known. Instead of being tolerably warm night and day, it appears to be essential towards producing a good, substantial, nutritive grain crop, that the days should be not merely warm but hot, even if the nights should be rather cold. Of a certain amount of mean temperature it seems better that it should consist of intensity in the day than that it should be distributed more equally throughout the 24 hours.

August.—The mean temperature of this month was exactly equal to the average for the last 37 years. The mean maximum was 2½° above that of the days, and the mean minimum as much lower than its usual average. A moderate quantity of rain fell, but with sufficient intervals of dryness to permit the crops to dry and ripen.

September.—This was a wet month. Very nearly 3½ inches of rain fell, or about an inch above the average. Its mean temperature was also 3½° lower than the average. The nights were often cold. The 26th and 29th were respectively 5° and 7° below freezing.

October.—Fully an average temperature was maintained. About 1½ inch of rain fell, which was more than an inch less than the usual quantity. The nights were occasionally frosty. As early in the month as the 5th the thermometer indicated 27°, which partially injured the flowering of such plants as Dahlias; but on the whole the weather was favourable for gardening operations.

November.—From the 9th to the 12th inclusive, the nights were frosty, and again at the end of the month.

TABLE SHOWING THE HEIGHT OF THE BAROMETER AND THERMOMETER, AND DEPTH OF RAIN AT CHISWICK, FOR EACH MONTH OF 1863, COMPARATIVELY WITH THE AVERAGE OF THIRTY-SIX YEARS.

1863.	Barometer.			Thermometer.								Rain.	
	Mean.	Extreme highest.	Extreme Lowest.	Mean Max.	Above (+) or below (—) the average.	Mean Min.	Above (+) or below (—) the average.	Mean.	Above (+) or below (—) the average.	Extreme Highest	Extreme Lowest.	Amount.	Above (+) or below (—) the average.
	Inches	Inches	Inches	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Inches	I ches
January	29.709	30.476	28.807	48.84	+6.03	35.19	+4.17	42.01	+6.10	57	23	2.19	0.56
February	30.223	30.575	29.712	52.14	+6 42	32.75	+1.07	42 44	+3.74	60	18	0.26	—1.17
March	29.820	30.457	29.170	56.48	+5.70	30.91	—2 46	43.69	+1.62	70	21	0.68	—0.97
April	29.927	30.360	29.464	61.20	+6.76	35.60	—0.58	48.40	—1.59	71	24	0.54	—0.97
May	29.967	30.363	29.505	66.25	+1.53	37.35	—4.26	51.80	—1.51	80	26	1.46	0.50
June..	29 827	30.230	29.376	73.07	+1.09	44.30	—4.34	58.68	—1.63	83	34	4.46	+2.47
July	30.071	30.405	29.448	78.27	+3.66	40.48	—10.83	59.37	—3.59	88	27	0.80	—1.65
August	29.847	30.121	29.568	75.68	+2.24	48.25	—2.25	61.96	0.00	86	34	1.96	—0.46
September	29.790	30.296	28.806	66.93	—0.74	39.66	—6.27	53.29	—3.51	75	30	3.47	+0.99
October	29.734	30.222	29.042	61 71	+1.48	39.99	—1.79	50.80	—0.64	68	27	1.56	—1.14
November	29.946	30.459	28.857	54.06	+4.38	35.16	—0.05	44.60	+2 16	63	20	1.68	—0.54
December	30.026	30.415	28.944	48.97	+3.62	33.32	+0.01	41.14	+1.81	56	19	1.26	—0.21
	29.907	30.575	28.806	61.96	+3.51	37.74	—2.29	49.84	+0.53	88	18	20.32	—3.40

The Mean Pressure was .003 inches, almost an inappreciable amount below the average.

The Mean Temperature about ½ degree above the average. The Mean Maximum Temperature 3·51 above the average.

The Mean Minimum Temperature 2.29 below the average. Amount of Rain nearly 3½ inches less than the average.

The mean maximum temperature was above the average. The weather was frequently boisterous; but the quantity of rain was below the average, and most of it fell in the first week of the month. None fell between the 10th and 20th; and on the whole the weather was very favourable for all out-door operations being carried on.

December.—Strong gales were frequent; but the weather was generally dry and the ground in good working order, so that planting and other operations could be carried on with but little interruption, which is rarely the case at this season. The mean temperature was fully maintained; that of the days was above the average. There was no snow, and the year ended with unusually fine weather.

NOTES ON GARDENS.—No. III.

COMELY BANK NURSERY, EDINBURGH.

"Have you such and such a plant?" "No; you will find that at Comely Bank," was the question and answer put and received in more than one place noted for "good things." This made me form a very respectable opinion of the stock of rarities in that famous nursery of Cunningham, Fraser & Co., which still retains the propagation fame imparted by its founder, the late Mr. Jas. Cunningham; and I was not disappointed.

The nurseries are about 20 acres in extent, and are surrounded by a substantial stone wall 12 feet high. Against this wall is a superb collection of Tea, Bourbon, Noisette, and Hybrid Perpetual Roses, occupying about 600 yards run of the wall, and embracing the very best sorts in each section. Most of the plants are fine specimens, and during the height of the blooming season the display of flowers must be worth a journey to see; from May to November Mr. Fraser informed me there generally was a succession of fine blooms. Other portions of the wall are well covered with fine specimens of the best flowering and other shrubs, including Magnolia conspicua, Thompsoni, Soulangeana, speciosa, and Hammondii, most of which looked like plants that would flower profusely; some of them, I was told, produced several hundreds of blooms annually. Ceanothus azureus, rigidus, dentatus, floribundus, and papillosus; Eucalyptus cordata, Arbutus procera, Escallonias, Jasmines, and many such plants were against this great wall, all admirable specimens of their kind.

The houses, sheds, &c., at Comely Bank, surpass for magnitude and strength those generally found in nurseries, as much as does the boundary wall a wooden fence. There is a Leviathan shed used for packing which would make a tolerable barrack, being 120 feet long, 50 wide, and almost strong enough to stand a siege. There are great ranges of glass each measured by the hundred feet, the walls woodwork &c., being as strong as if the houses had been made for all time, some of them being backed by lofty and commodious sheds, stables, and seed-lofts; and there is nearly an acre of pits and frames devoted chiefly to the propagation of rare shrubs, Coniferæ, and plants difficult to increase, which are but little propagated elsewhere.

The first house I entered was the show house, 60 feet long, and filled with a miscellaneous collection of flowering plants; next a new span-roofed house, constructed on the best principles as to heating and ventilation, and intended for Heaths and other greenhouse plants; and then began a walk through long lines of vast lean-tos, which when first erected must have been wonders to the horticultural mind. The first of these was 120 feet long, and contained a large and healthy collection of Cape Heaths and greenhouse plants in general. Among them four handsome Grevilleas—rigidissima, Latrobii, alpestris elegans, and acanthifolia; also Anopterus glandulosa, Muraltia Heisteria, Lachnæa purpurea, &c. Next a range 150 feet long, filled chiefly with soft-wooded plants, and specimen Acacias, Polygalas, &c.; a remarkably fine plant of Rhododendron arboreum, with some old favourites, such as Pelargonium tricolor, Erodium incarnatum, Monsonia lobata, Hoitzia coccinea, Othonna pectinata, Gaultheria erubescens, Gardoquias, Diosmas; Statice imbricata, puberula, and fruticosa; also a fine seedling Statice, unnamed, which from its free habit, bold spikes, and long continuance in bloom, seems likely to be a useful kind. Next came a range about 220 feet long, in which was a large and select collection of Azaleas, many of them good specimens; also lots of Rhododendron Dalhousiæ, R. Falconeri, R. Edgeworthii, and R. Nuttalii; Daphnes in variety; Stauntonia latifolia; and several plants of the beautiful Castanea chrysophylla or Golden-leaved Chestnut of California; Drimys Winteri, and many other plants of interest. Then the stove range, about 210 feet long, containing a good assortment of stove plants, exotic Ferns and Orchids; several hundred fine young plants of Luculia gratissima, which is very successfully propagated at Comely Bank, as well as some good specimens of the same plant, also of Lapageria rosea, Allamandas, Gardenias, Cypripediums, and Aphelandras. Next, a house 260 feet long without a division, containing a miscellaneous and very large stock of hardy and half-hardy plants in a young and marketable condition, including such as Magnolias, Grislinia littoralis, Jasmines, and a considerable quantity of young Coniferæ. Behind this was another range 340 feet long, stocked with Roses of all kinds, cultivated in pots, and all on

their own roots. The Tea-scented kinds predominated, there being, I was told, nearly 50,000 of them, and in better health they could not be. In the pits the newer and approved sorts of Tea Rose were planted out for stock, and were growing luxuriantly. In the same range, which is the longest at Comely Bank, there were good specimens of Retinospora obtusa and pisifera, Viburnum macrocephalum, plicatum, and supensum, Arthrotaxus selaginoides, Thuja Doniana, Magnolias, &c.; and a very noticeable variety of Magnolia grandiflora, with undulated ferruginous leaves, quite distinct from any other variety of that species. Another range 240 feet long! chiefly filled with Camellias and Vines in pots; and on the shelves a host of Amaryllis, Ixia, Lachenalia, Hæmanthus, &c., with a fine batch of Spigelia marilandica in flower, a quantity of the Exmouth variety of Magnolia grandiflora, and of Desfontainia spinosa. At last comes the last range, 120 feet long, and serving the double purpose of Vinery and specimen Camellia house.

Out of doors the interest is of a high order. On leaving the last-mentioned range I first came upon an immense quantity of Tree Peonias, strong plants 2 to 3 feet high and as much through, which I learnt were "covered with bloom" two months before. Coniferæ were very extensively grown, and in excellent health. There were large and thriving plantations of Araucaria, Wellingtonia, and all the better kinds, while in the Pinetum good plants of most of the species were exhibited. Those of Picea nobilis, Nordmanniana, and Pinsapo, Wellingtonia, Cupressus Lawsoniana, Torreya myristica, Juniperus cracovia, Cephalotaxus Harringtonia, Taxus coriacea and the yellow-berried Yew were fine specimens. The Irish Yew was in great force in various parts of the ground, and of all sizes, some trained to one stem, and others allowed to grow naturally to suit different tastes, all beautiful healthy plants, numbering collectively between 60 and 70,000. The stock of American plants is very large, Rhododendron davuricum atrovirens being conspicuously plentiful. In several parts of the ground were large masses of hybrid Rhododendrons, which have been all raised in the nursery, and judging from the foliage and the parentage, these were likely to produce some fine varieties. A long border is devoted to single plants of the most admired varieties of Rhododendron, and noble specimens most of them are.

From this point a broad walk leads to the top of the nursery, having a border on each side, planted with a mixed collection of choice and hardy shrubs. Of the Tulip tree there were many thousand seedlings, both in seed-beds and transplanted; hardy Heaths were very extensively grown, there being nearly 50 varieties and species, of which a great number were in bloom, covering large squares with their delicate though effective tints. I was quite surprised at the immense quantity of Lilium lancifolium in fine health, and occupying about the fourth of an acre of ground. There was also a goodly stock of Lilium eximium, chalcedonicum, excelsum; of the best Scillas; as well as of Zephyranthus, Colchicum, and Crocus, both spring and autumn-flowering, and of Orchis foliosa. To see the tiny Andromedas—tetragona, hypnoides, and fastigiata, is alone worth a visit to this home of rarity. A. fastigiata is a mechanical looking little gem, in the way of tetragona, but if possible prettier. A. hypnoides is very rarely met with now-a-days, the only other place where I noticed it was on Mr. Backhouse's noble rockery. And then there was such a fine lot of Rhododendron Chamæcistus, of Azalea procumbens, and Epigæa repens, all three seen in perfection and abundance for the first time.

Amongst herbaceous plants were many worthy of notice, and some hardly to be found elsewhere in cultivation. The rare silvery leaved Geranium argenteum could not be increased sufficiently to supply its numerous admirers. There was a nice healthy stock of that most beautiful of Pinks, Dianthus alpinus; of Houstonia cœrulea, and Æthionema membranaceum; and a single plant of Arnebia echiodes, a very striking yellow and black-flowered boraginaceous thing, which probably will not be found elsewhere. The fine Anemones, alpina, narcissiflora, sulphurea, and vernalis were plentifully and luxuriantly grown; as were the Gentians, amongst which I was delighted to find a batch of the rare Gentiana purpurea. There were plants of Thermopsis barbata, with flowers almost black; a good stock of Chrysobactron Hookeri, of three species of Helonias, four of Androsace—in short of almost all first-rate and scarce herbaceous plants, the cultivation of which is far from decreasing at Comely Bank, a nursery that affords a treat to the lover of rare plants, for which the term interesting is altogether too weak. *Wm. Robinson.*

Home Correspondence.

Orchard Houses.—I beg to answer your correspondent, "An Old Subscriber," (see p. 54) that my orchard-house trees, most of them bought in Dec. 1856, are in perfect health; that each year's crop has been an improvement on its predecessor; and that in my opinion, under the pinching system, the only caution necessary is to thin the fruit enough to keep the crop down. The only crop I have not absolutely under control is that of Apricots; the blossoms of these are rather addicted to fall, but from last year's experience and greater success, I believe this to be merely a consequence of insufficient currents of air through the house. The orchard-house fruit is, as a rule, quite full flavoured; there is just uncertainty enough about it to show how much we all have yet to learn about the ripening of some descriptions of fruit. Peaches are excellent, Nectarines equally so, if you only thin enough. Being an incorrigible experimentalist, and having last year an Elruge a perfect picture, with its fruit so evenly spread over, its master could not resist seeing how many it would ripen, so, after taking off a very great many, he left on 13 dozen; these coloured well, but were small and much inferior in flavour to their only properly loaded brethren. Again with Pears, some of the sorts, only moderately good last year, were delicious this, while others usually of the highest flavour, among them Josephine de Malines, was this year comparatively poor. Apples were all good, and apropos of these, which being perhaps the freest growing of orchard-house trees, should suffer most from the confinement of the pot, I may perhaps be allowed to quote your own opinion as to flavour of some Northern Spy Apples I had the pleasure to send. "Finer flavoured specimens we never tasted of this, the most delicious of United States Apples, as well as one of the very finest of table varieties. We prefer it to the best New Town Pippins." Plums, such as the Golden Drop, are an absolutely certain and fine flavoured crop; some of these trees photographed year after year just before ripening show the fruit almost in the same places—the only difference being the increased number increasing years allow them to be trusted with. Cherries are a very beautiful and nice crop. Last year four Stanwick Nectarines ripened excellent fruit and without cracking (owing probably to the warm summer); a basket of these was honoured with a first prize at the great fruit show at South Kensington on 9th September last. My houses have no means of heating nor even keeping out frost; one is 60 feet long and 20 feet wide, the other 60 feet by 15 feet; the last, built with the idea of keeping the fruit as near as possible to the light and exposed to the greatest possible quantity of air, I find to give the best results. How your "Old Subscriber" has arrived at his conviction is the more puzzling to me, as while the only sort of advantage my trees have is that of being under the care of a man, not much of a gardener, who takes pride in them and is not afraid of work, they have the disadvantages of a master much too busy to give them a tenth of the overlooking they deserve, and who (for purposes of experiment) subjects them to much stronger Gishurst and other anti-insect washes than he would dare to recommend to others. The result of his conviction, which has grown with the trees' growth, is that any one with time at command, and with a fair amount of habit of close observation, might grow such fruit in orchard houses as has never yet been seen from walls, for besides the roots of the trees being under perfect control, so that stimulants can be administered in the right place at the right time, the fact of the free play of air all round each fruit gives a more even ripening and colouring than the half-sunned, half-shaded wall fruit ever has. *George Wilson, Gishurst Cottage, Weybridge.* [For other communications on this subject received and already in type, we must endeavour to find room next week.]

Prizes for Wild Plants.—I have been puzzling myself to make out the meaning of the announcement which I quote below from your notice of the programme of the Royal Horticultural Society at p. 32. Can you help me? You say, that "for the encouragement of the study of scientific botany amongst all classes, the Society offers the following prizes:—1. One Silver, and two Bronze Medals for the three best collections of wild plants of each separate county of the United Kingdom, dried, mounted on paper, folio demy size, classified according to the natural system, and labelled with the name of locality where found, and the date when found. 2. Three Gold Medals will be given for the three best of all the collections out of all the several county collections. Not more than one of the medals can be awarded in one county. The collections must be delivered on or before the 31st December, 1864, to the Secretary of the Society, carriage free," &c. I take the words to mean that No. 1 is to be something approaching a complete British Flora arranged under the counties, as it is to consist of collections from "each" county; but then, as more valuable medals are to be given for separate county collections under No. 2, I am fairly puzzled. By the by, is this quite in the line of a horticultural society? *A Young Botanist.* [We do not think that the Royal Horticultural Society's charter justifies this step, which has nothing to do with horticulture, and we trust the Society may not also be laying itself open to a charge of helping to destroy the habitats of rare British plants.]

Rhododendrons.—Another instance to show the extreme hardiness of the Rhododendron in soil which suits it, may be interesting to your readers. About 10 years ago three plants were planted amongst the Sedge at the west end of Hornsea Mere; of these, two were smothered when small by the Sedge, but one of them has grown above it. During these 10 years no cold has ever injured it in the least. Now Hornsea Mere is a sheet of water about two miles long, with but half a mile of low ground, scarcely above high water mark, between it and the sea. Between the plant in question and the coast of Norway there is nothing to break the north-east wind, which sweeps across the Mere with a violence which any of your readers who happen to know what the east coast of Yorkshire is in the month of March, will easily understand. All trees and shrubs are either killed or dwarfed and stunted by it. But the Rhododendron, which has not a tree or a bush of any kind near it, has become a perfectly symmetrical hemisphere 5½ feet high and 11 feet in diameter, and is covered every summer, quite equally all over, with flowers which make it a very beautiful object, conspicuous at a great distance. So much for its hardiness. Of course there is no trace of lime in the peat which it grows in. If any of your correspondents can give an instance of Rhododendrons thriving in soil containing lime (that is, which effervesces in muriatic acid), I for one should be extremely glad to know of it. *C. W. Strickland, Hildenley.*

Roses in Pots at the Royal Botanic Society's Shows.—Messrs. Lane, of Berkhampstead, have (p. 29) thought proper even at this distant period to question the decision of the Judges, in reference to Roses, made in June last. Had they done so a week or two after the exhibitions had been held, and while the circumstances connected with the award were fresh in the minds of all of us, a more satisfactory reply could have been given. It is quite true that I told Mr. Lane that I had a great objection to faced plants. Not only did I mention this to Mr. L., but for years past I have taken every opportunity of instilling into the minds of all the exhibitors the necessity of showing Roses as good in form and as well grown as ordinary greenhouse plants, if they wished to keep pace with the times. What judges would countenance Azaleas, Fuchsias, or Heaths, grown so much to a face as to have the appearance of plants split down the middle—in fact, only half plants, looking as if they had been just unnailed from a wall. Such was the character of nearly all the large specimens that were shown on the occasion in question. Messrs. Lane seem to have a great dislike to show blooms to "green baize at the back," but if they could have prevented the baize from staring through their plants at the judges, they would have stood a better chance of gaining a first prize. Tall transparent plants, whether Roses, Fuchsias, or Azaleas, will in the present advanced stage of cultivation stand no chance with compact, dense, well-formed plants. This has been a constant remark made to me by visitors to the great shows:—"How is it we see so many old worn-out varieties of Roses that we have long since discarded from our gardens shown, while the introductions of later years are so infinitely superior to them in all respects?" My reply has been, "that the growth of several years is requisite before a plant can have arrived at a size sufficiently large to correspond with others shown in the same collection." This undoubtedly to a certain extent is correct, but it is no reason why varieties conspicuous only for their bad qualities should be retained, solely on account of their size. I may just add that young dwarf compact plants have invariably been the turning point towards the higher prizes, and that the tall scraggy ones have had a contrary tendency, whenever they have come under my notice. It is unfortunate for Messrs. Lane that the same judges did not officiate both at the Royal Horticultural and Royal Botanic Shows, as then they would have had only Messrs. Perry and Perry to blame, but as other judges committed the same so-called error in placing Messrs. Lane second, it must be evident that the generality of censors will require some training before they will fall in with Messrs. L.'s views. I do not think that it will be "the men who judge" that will drive Messrs. Lane from the exhibition field, but the worn-out specimens which they will persist in dragging before the public. Messrs. L. may depend upon it that before many years are past Roses in pots will be shown circular in outline, dense in foliage, dwarf and compact in growth, with blooms equally diffused over the surface of the plant, and of a quality rarely met with in the older kinds. [We hope so.] "Spectre or transparent" plants will rarely be seen, and never with a first prize attached to them. *Chas. Jas. Perry, The Cedars, Castle Bromwich.* [Messrs. Lane state that they did receive a first prize last June at the Royal Botanic Gardens, Regent's Park. What they complain of is that it would not have been awarded to them had their opponents' plants not also been trained to a "face."]——In your Number for January 9, I find a rather sharp attack by Messrs. Lane & Son on "Messrs. Perry & Perry." As many of your readers may probably be at a loss to know who or what these gentlemen are, allow me to state that one is Mr. Wm. Perry, of Sawbridgeworth, the other Mr. C. J. Perry, of Castle Bromwich. I have not the pleasure of knowing the latter, but the former, who has been with Mr. Rivers from boyhood, a period of nearly 40 years, I believe to be one of the best judges of Roses in England. Rose showing, plant showing, and above all poultry showing for prizes, more particularly the latter, seem to have a most demoralising influence at the present day. What can be more unpleasant for the cool looker-on, yet lover of all these things, than to see ladies, or clergymen, officers in the army or navy, and other persons calling themselves gentlemen, disputing—perhaps quietly and discreetly, but still with vexation in their countenances—about a feather; or the Rose growers before their Rose boxes, full of disputation and dissatisfaction, because they think they have been treated unjustly by the judges.

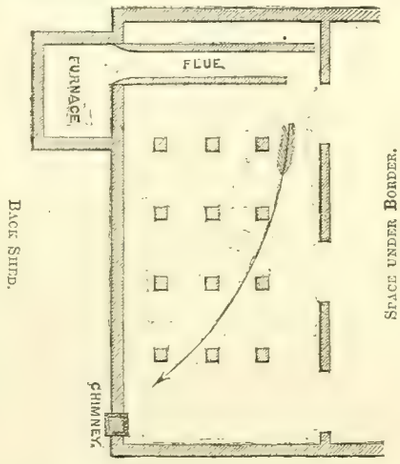
Cannot and ought not this state of things—almost as lowering to men's minds as the transactions of the turf—be remedied? It is a subject quite worthy the attention of our two great prize-giving societies. Could not gardeners and nurserymen who make it a rule to show for prizes and orders, and to whom the expense of sending their flowers or plants is an object, be paid all reasonable expenses of transport, leaving to the public to decide which collection is best or best arranged; and could not amateurs show their Roses or their plants to their friends in honourable and agreeable competition, without the disagreeable feeling of seeing favourite plants disfigured by the usual placards of 1st, 2d, 3d, and 4th prize (as it may be), but still not without some token of honour. I throw out these suggestions to our prize-giving societies, feeling a firm conviction that we ought to endeavour to turn over a new leaf, and thus avoid the bitter feelings often engendered by prize giving. *Looker On.*

Woollen Refuse.—Will Mr. Thomson, Wortley, near Leeds, who recommends (p. 1133, 1863), the use of this material, kindly give us some further experience in reference to its value as a manure? This is a matter in which I feel specially interested, as I have been led by circumstances to take a market garden here, and a friend of mine being a manufacturer of oil from woollen waste by means of the new chemical patent process, has highly recommended his "patent wool manure," as he calls it, to me, and I have already got 7 or 8 tons of it, and I contemplate having 10 tons more. I intend employing it along with tan for hotbeds for Cucumbers, and I have already made a compost for a general crop. It is a first-class heating material, indeed too hot without admixture with tan or some other substance slower in heating than itself, as for instance leaves. The refuse used at Wortley is stated to be what had been subjected to pressure only, to obtain the oil from it; but this would surely only imperfectly separate the oil, whereas the chemical processs perfectly cleanses it from oil. There can be no doubt as to wool itself possessing highly fertilising qualities when decomposed; but oil acts in a way to prevent decomposition taking place. If we take Johnstone as an authority, we shall find in his "Agricultural Chemistry," p. 238, a comparison of woollen rags with other manures as follows:—1 ton of woollen rags is equal to 2 tons of pigeon's dung, or 6 tons of blood, or 14 tons of sheep's dung, or 40 tons of farm-yard manure. If this comparative table is correct, the manurial value of woollen waste is very high indeed, but as I have already stated, its worth depends upon its decomposition, which is slow, especially when the oil is in it. But, this being removed, decomposition goes on rapidly, and a large amount of ammonia is evolved. A farmer with whom I am acquainted tried 1½ ton to the acre last year for Potatos, along with, or rather in addition to, his usual dressing of farm-yard manure, and the result was 30 cwt. of Potatoes more to the acre where the woollen refuse was used. He says, too, that he considers it quite as good for the next crop as for that to which it has been applied. He proposes using 2 tons per acre this year. I am told that its effects upon flowers are very remarkable, both as to vigour and colour. I am trying it on Roses out of doors, and various kinds of plants in the greenhouse, besides Strawberries, and Gooseberries, and vegetables; and I may at some future time give the results for the benefit of your readers. *George Rymer, Meadow Cottage, Mansfield, Notts.*

Seaside Shelter.—I have a piece of fruit ground which adjoins the River Medway, that is to say, the river flows over the saltings that adjoin my land; it is therefore exposed to north and east winds, which blow from the sea (the Nore), 5 or 6 miles distant. Would you kindly give me your opinion what trees would grow along the river, exposed to the above-mentioned winds, the air no doubt being charged with saline particles. I do not know if Larch or Spruce would grow; if they would not, what could you recommend me to plant by way of protection to the young trees and bushes? The soil, which is hard at places where it has lain wet, is a strong loam, with a subsoil of gravel and chalk. *M. Y., Rodmersham.* [You should plant Pinaster, Larch, Sycamore, and, of the Willows, Salix Russelliana and S. caprea. To these the Tamarisk shrub may be added.]

The Late Frost.—During the late frost our lowest register was early on the morning of the 7th inst., when the thermometer indicated + 6¼°. The same evening, from 4·30 to 6 o'clock, the temperature was + 8°. Both these registers were at 4 feet from the ground. On the ground (naked earth) immediately below the other thermometer, the register was 10° at the same period! No snow, air perfectly calm. Vegetation being well ripened, and the ground unusually dry, very little damage appears to have been done. It may be interesting to know that Hymenophyllum demissum, H. crispatum, and Trichomanes reniforme (from New Zealand); H. cruentum from Chili; and our British Trichomanes radicans are all uninjured, after being in several instances encased in massive icicles for two to three weeks without intermission! Along with Hymenophyllum Wilsoni and tunbridgense, these species are all growing out of doors in sheltered fissures or cavernous recesses, and I believe that I am quite safe in declaring that they look greener and in every way better since the frost than they did before. Some fine plants of T. radicans are still encased in ice, and their clear green colour, seen through the ice, is charming! We have every reason now to believe that all the Hymenophyllaceæ of New Zealand and Chili will bear our frosts without injury. I should perhaps add that two plants of H. demissum were unprotected by ice, and that one of them was exposed to dry frost that could not be much short of 15° to 20°. Todea pellucida, frozen hard for about a fortnight, looks perfectly well, even the youngest (scarcely developed) frond being uninjured. Adiantum chilense and A. sulphureum, the charming Lycopodium dendroideum (like a dwarf Cryptomeria), Sarracenia purpurea, and the Anæctochilus-like Goodyera pubescens are all uninjured, apparently, after having been also frozen for a fortnight. Our new crimson scarlet Schizostylis coccinea seems perfectly hardy, and even the petals of the exquisite Caucasian Primula amœna, Cyclamen coum var. vernum, and Colchicum montanum remained expanded and uninjured throughout the trial to which they were subjected. *James Backhouse, York.*

Bottom Heat.—I am making a house for keeping cuttings, &c., through the winter, and the mode by which I am warming it is an imitation of the Roman hypocaust. The fire will be that of a Kentish oast-house, namely, two sides of large lumps of fire-brick, about 20 inches apart and 2 feet 6 inches or 3 feet long. From this, which will burn anything, from roots or cinders to coke or Welsh coal, a flue will proceed to the front of the excavation under the floor (to prevent the fire cracking the floor). The fire-place will be at one end of the back of the building, and the chimney at the other. The chimney will be furnished with a damper, and the furnace with a simple door, often used in oast-houses; viz., a plate of iron suspended with a balance weight over a pulley, which will draw down over the whole or any part of the opening. The cavity under the floor will be 2 feet 3 inches high; the floor three courses of tiles bedded in cement, supported, at intervals of 3 feet 6 inches, by piers of brick 9 inches square. In front there will be a wall with three arches, (which can be closed at pleasure), and the floor will be continued for about 11 feet under the front



PLAN.

The Cost of the Floor will be about 8*l.*, and the Fire-place 50*s.* to 60*s.*—Dimensions, 26 × 13.

border (a continuation of an adjoining Vine border), so as to die away to about 6 inches deep at that distance from the front of the house. Now I wish to be understood as to the motive for adopting this construction. It is simply to try the effect of introducing this bottom heat under the border. Other plans would answer as well or better perhaps for warming the house, but I think if bottom heat is to be introduced, no other plan would do it so uniformly as this, and probably none would be so much under command. What I chiefly want to know is the depth of soil that I should give in the border? I do not mean to put Vines at first, but to try early Strawberries. I have abundance of water close at hand, and so I can feel my way. I also think of putting a border with stone or brick edges over the floor of the house, with gangways at short intervals, for striking cuttings. Probably you may not like in any way "to stand godfather" to my child, but if you or your correspondents do think of anything that will assist me, I shall be much obliged for a hint. *C. W. M.*

Poinsettia pulcherrima.—This plant is deserving of extensive cultivation, but singular to say, many fail to manage it well. I have under my care half a dozen plants of it, each of which has flowered profusely, but all of them lost their foliage, an occurrence for which I cannot assign any cause. I have grown my plants in loam and peat, mixed with a little leaf-mould and sand. They retained their leaves till the plants showed flower, and shortly afterwards the foliage fell. Perhaps "G. E.," or some of your other Correspondents, may favour us with the mode in which such beautiful specimens as that adverted to in your last week's Number is grown. *Joseph Baxter, The Gardens, Merivale, Atherstone.* [In the article just alluded to, signed "G. E.," p. 52, for 49 inches in "diameter," read "circumference."]

The Winter in Ireland.—As a proof of the mildness of the climate at Killarney, I enclose two out of five Tulips grown in the parterre (in the open air) at Sunday's Well, the residence of Alexander Morphy, Esq. *E. A. M., Dublin, Jan.* 18. [The specimens sent were examples of Duc Van Thol, small, but well coloured, and free from speck or blemish.]

The late Dr. Boott.—In the interesting notice (p. 51) of Dr. Francis Boott, when mentioning the professors under whom he had studied in the University of Edinburgh, it is said that only one of the eminent men named survives him. This is a mistake, for besides Dr. Christison, Dr. Fillans is alive, though he resigned his professorship last spring. I have thought it worth while to correct this error for the satisfaction of the Professor's old pupils at a distance—and their name is legion—for they will be glad to know that he is still in life, and enjoying the retirement so well earned by his long and active labours. *D. A., Hawick.*

Foreign Correspondence.

[We are indebted to the Committee of the *British Columbia Botanical Association* for the following very interesting letter addressed by Mr. Brown, their collector, to Isaac Anderson Henry, Esq., Secretary to the Association, at Hay Lodge, Trinity, Edinburgh.]

VANCOUVER'S ISLAND: *Valley of the Les-haat Indians, Barclay Sound, N.W. America.*—Lat. 48° 47′ 28″, *Nov.* 4, 1863.—Since I last wrote I have been to Washington Territory, U.S., British Columbia, and all in the way of business have, first of white men, reached the head of the "Great Central Lake" of Vancouver Island, that *ignis fatuus* of the local geographers of this far western portion of her Majesty's dominions. I have obtained seeds of between 100 and 200 species of plants (in almost every case in quantities sufficient to allow of a complete division), including some very pretty and previously unintroduced herbaceous plants, shrubs, and forest trees. Among the last are some good Coniferæ, including Juniperus, three species, one a large tree, Taxus, n. sp.? a fine lot of the Cupressus nutkaënsis; Thuja Craigiana; a large quantity of Abies Bridgesii not yet introduced into England; about 100 ounces of the finest seed of Abies Douglasii; Pinus species undescribed; Abies grandis, 20 to 30 ounces; Abies Menziesii (is this Pinus sitchensis, Bongard, Veg. Sitch., in the St. Petersburg Academy Transactions?); Quercus Garryana? Arbutus Menziesii; Spiræa, n. sp., a fine shrub; Oreodaphne, n. sp., a fine shrub; and, what I think justly entitles this expedition to the credit which it originally laid claim to, viz., "national importance," about 3 lbs. weight of seeds of a fine pasture Grass from the Upper Fraser, which survives all winter, and is accounted by the Cariboo muleteers superior in fattening qualities to hay, and certainly much more valuable to them, as the cattle and the mules have nothing else to subsist on during the long bleak winter, when the ground is covered with snow, and hard as iron. I have gathered and am still gathering many particulars of its properties from the muleteers and teamsters, which in due time I will submit to you. I believe that it is superior to the much lauded Tussock Grass of the Falkland Islands, and might be introduced with great advantage into some of the bleak islands of the Hebrides, or of Orkney and Shetland, where I have known cattle to die off in the winter from want, or the cost of proper fodder. My attention was originally drawn to this Grass by Colonel Moodie, R.E., to whom therefore all credit is due, and I believe that I am at liberty to say that he coincides fully in the above statement. You may remember that it was he who introduced the Tussock Grass, and obtained a gold medal for his discovery.

The great region for Coniferæ I have found, since my present summer's travels have terminated, to lie south of this latitude, and to it therefore, with your permission, I shall in future devote my attention.

My funds are in a satisfactory condition, and although the stormy winter now fairly set in will prevent me doing much more for some months, I am prepared to start in early spring with renewed vigour to a widely different, and what I now believe to be a better region than the one I have explored. I trust that I shall be able to take the field by the 1st April with every advantage to the Association, and with every prospect of much greater success attending my efforts than during the previous six months. I know of some good species of Coniferæ which I could not obtain this year, but am almost certain of next year, such as Abies Williamsoni, from the 'Three Sisters' in the Cascade Mountains, Abies bracteata, Picea nobilis, and a new species of Thuja. I have had much to contend against this season, but the difficulties are now, I am glad to say, in a great measure over. I now know the country, and, what is just as important, the people, so well, that should there be only half the subscribers of the previous year I will be able to do tolerably well. Many expenses were incurred last year, which will not be required again, independently of the sum paid for travelling to this distant part of the world. Kamchatka is the furthest sea voyage, and that is only a few days sail from here. Last night I was awoke from my camp-fire sleep by the "long cry" of the same wolf that howls from Unalaska's shore. On my return to civilisation, I will send my seeds to England by Wells Fargo & Co.'s express in several air and water-tight boxes, addressed to you, care of the Hudson Bay Company, prepaying the freight. This will be expensive, but their agent refuses to receive them on any other terms, a standing order having been issued to that effect. I will at the same time send a fuller account of my proceedings, and by

later mail a statement of my intromissions will be sent to treasurer. In order that you may be early advised of the despatch of the seeds, and be ready to make the necessary arrangements with the secretary of the Hudson Bay Company, I will send this and the next letter overland by the pony rider, *viâ* the Salt Lake city, to Dr. Joseph, in Missouri, and then *viâ* New York to Liverpool. It will save nearly three weeks, and I hope will escape the emissaries of President Davis.

I am in good health, and strong, rough, ragged, weather-beaten, perhaps a little dirty, and certainly a most unpresentable figure at the meeting where this communication will be read. I am sleeping on a curious Indian blanket, woven from the fibre of Pinus Strobus (is it the same as the P. Strobus of the East?) and to keep the hoar frost off my blanket there is a mat of the bark of Thuja gigantea. Both will, I hope, at some future day, ornament the Museum at the Botanic Garden.

Societies.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The 24th Annual Meeting of this charity was held on the 14th inst. at the Bedford Hotel, Covent Garden. Mr. John Lee presided. The report of the Committee and the balance sheet as signed by the auditors were read and adopted. During the past year five pensioners have died, and four have been elected. The total amount disbursed in pensions during the year has been 769*l.* 16*s.* 8*d.*, and the funded stock has been increased to 5500*l.* The Chairman stated that his Grace the Duke of Buccleuch had consented to become the Patron of the Society in the room of the late Prince Consort. Officers for the current year were then elected. The meeting afterwards proceeded to the election of three pensioners, when Jane Atlee, Robert Dowdell, and George Green, having the greatest number of votes, were declared to be duly elected. A vote of thanks to the Chairman and Secretaries was then passed, and the meeting separated.

Notices of Books.

Spring and Winter Flower Gardening: containing the System of Floral Decoration as practised at Cliveden, &c. By John Fleming. London, 162, Fleet Street. Pp. 104.

Some time since we took occasion to notice the condition of modern flower gardens, now that parterres have become the dominant form in which they appear, and to regret the banishment from our flower borders, consequent thereupon, of very many charming flowers of the various seasons, which will not bend to the exigencies of "bedding out. Gay and jaunty as the flower beds may be made by this monopoly of some dozen species of plants boasting of brilliant colours, there was a growing feeling that we were sacrificing much of beauty and variety in following out this style of gardening, not only in the mere loss of many beauteous forms, but worst of all in the long period of dreary waste to which the system has too commonly doomed us. Hence, even where parterre gardening was still maintained in principle, there was a reaction to be seen; for whole beds and margins of beds which owed their effect to foliage and not to flowers, and in which there was commonly a preponderance of some neutral tint, were not only to be seen, but were becoming more and more fashionable, and were quietly, though surely, ejecting a portion of the glaring masses which were once so much approved. Indeed we may point to one of the leaf-beds in Battersea Park last season, that of Coleus bordered by Centaurea, as superior in beauty to any combination of gaudy colours which was ever dignified by the name of a flower-bed.

The grand objection to the parterre system lies in the bareness to which it reduces the garden for a much longer period than is desirable in winter and spring. This evil is of course remedied to a great extent when spring-flowers are largely made use of to bridge over the blank; and perhaps there is no garden which has become more famous for its adaptation of spring flowers to this very end, than that of the Duchess of Sutherland at Cliveden, under the management of Mr. Fleming, the description of which occupies the pages now lying before us. As success is a pretty sure test of merit, we may safely conclude that Mr. Fleming's system of management possesses this latter high quality; and his treatise being an explanation of his practice, it cannot but be welcome to those who take pleasure in the beauty of their gardens. We learn that our own remarks already alluded to, have had the effect of bringing out this practical and useful addition to the gardener's library.

The book is divided into five parts, separate chapters being devoted to general observations on spring and winter flower-gardening; to the spring flower gardens at Cliveden; to sundry designs for spring and winter gardens, showing how to fill them; and to the bulb garden at Dropmore; while some 50 pages are allotted to the general treatment, culture, and propagation of the plants most desirable for this kind of decoration.

While asserting that a well-filled summer flower garden in a bright season is very beautiful, Mr. Fleming admits that its beauty is too soon over, and that the gay period is followed by a much longer one, in which the bare soil of the beds is usually the leading object. Of the many plans tried and suggested as remedies for this defect, such as making the beds into different devices or separate gardens, or covering the surface with materials of different colours, or filling the beds in winter with Evergreens kept in pots for the purpose, the latter is the most commonly adopted. To this, however, Mr. Fleming objects as giving a nursery-like appearance to the garden, on account of the difficulty of imparting at once by this plan a full and furnished appearance and a level surface to the beds. We may remark, that when we have seen Evergreens used for this purpose they have mostly been planted too far apart; they have been put in as though they were to remain long enough to grow out the space, whereas they have to remain but a short period, and when put in ought at once to furnish the bed completely. Mr. Fleming regards Ivy as the best of these evergreen materials on account of its creeping habit, and the many beautiful variegated varieties now to be had, but he suggests that it is most appropriately used as a perpetual edging for beds on Grass or for baskets, or in the form of distinct permanent beds for both winter and summer effect.

We are told that as a substitute for the two states of dreariness and incompleteness at which we have glanced, the use of spring flowers and annuals has been gradually making its way during the past few seasons. Our author does not consider it of much importance what plants are made use of, if they but give the colours and other necessary requisites, which are indicated as being:—sufficient hardiness to keep the beds green in the dead part of the winter months, and sufficient precocity to yield an attractive display in early spring. Annuals are found very useful, as two months good bloom can be got from them before the scorching suns of June set in; and variegated plants, both shrubby and herbaceous, now so largely coming into favour, are also found effective. One passage which we must quote, gives a general idea of the kind of materials used at Cliveden, their exact application forming the subject of the second chapter:—

"If a good bed of scarlet is wanted we have the single scarlet Anemone, which continues in bloom for most of the season. The double varieties are more rich still, and for the time surpass any Scarlet Geranium, but they are not of so long duration, and more tender than the single. In the same class there is, besides the scarlet mentioned, a great variety of colours—some white, others a most beautiful blue, but nearly all the varieties are most appropriate in the various divisions of a flower garden.

"Alyssum saxatile is a fine yellow, equal in every way to a Calceolaria, with yellow Pansies, Cheiranthus Marshallii, and a great many others equally good, leaving no lack of choice for yellow beds and ribbons.

"Daisies, both red and white, make good compact rows of colour in chains and ribbons. For small beds or edgings they are equally effective; but they must be planted close and full at first, and by March they are good distinct lines of colour. Through April there is scarcely a leaf to be seen from the great amount of bloom, which will continue up to the end of May.

"For blue we have the beautiful blue Myosotis arvensis [? sylvatica], which being an annual is easily got in great quantities with little care. It can also be planted at any time up to its blooming, but it is better to plant it early for the sake of covering the soil. Cliveden Blue Pansy makes fine rows in ribbons and small beds, and it is nearly always in bloom both summer and winter; but April and May, if planted in the beds early in autumn, is the season in which it makes the most display.

"The white Myosotis arvensis, and the creamy Silene, with white Pansies and Daisies, give good beds and rows of several heights; but all are very useful, and not to be surpassed by any of the summer plants. * * *

"Among Primroses we have an extensive variety of colours, both in double and single; the latter, by far the most beautiful, continue much longer in bloom than the double, being one charming glow of colour from February to the middle of May. They are scarce because the proper treatment has never been understood; or we might perhaps, with more justice, say their habits have never been studied, from there being no call for them in the garden requirements. I have no doubt this will soon be obviated when their beauties become better known."

It is to be remembered that all these glowing descriptions apply to the fine elevated situation and pure air of a table land overlooking the Thames in a pleasant part of the county of Bucks, and is not to be realised in every spot, especially in low, damp and smoky localities.

The second chapter is devoted to the spring flower gardens at Cliveden, of which plans, and an explanation of the arrangement of the plants in the two seasons of 1862-3, are given. Herein is described the manner of filling the Duke's Garden, the Ribbon Border, large Stone Baskets, the Great Garden, and the Lovers' Knot, and various remarks are offered on the treatment of the plants. As regards the large beds, Mr. Fleming tells us that "as soon as the summer flowers are over, which is generally about the first week in October, the beds are prepared for the spring plants; each bed is dressed over with something as it can be got—dung, leaf-mould, or the siftings of the potting bench—which is dug in; and every three seasons the bottom spit is brought up, or what is generally termed double-dug. These are planted as close to the fresh-turned-up soil as circumstances will permit. The Tulips are first planted irregularly all over the bed, avoiding rows as much as possible; they are put in 6 or 7 inches deep, with a tool on purpose. The other plants are then planted all over the surface as close as possible, both the Myosotis and Silene. * * When the time comes to remove these for the summer plants, the Annuals are cleared away and the Tulips taken out, as the footstalk will always show where the root is; the beds are then well hoed and raked over. A man commencing at one side with a Parkes' digging-fork moves the soil up as far down as the fork will reach, loosening the surface at the same time, but the beds are not dug because of turning up the autumn dressing and moisture. The same is done with all the other beds and borders."

The third chapter is devoted to various designs for spring and winter gardens, and the manner of filling them. We find Mr. Fleming agreeing with us is recommending that the garden should consist of two distinct series of beds, worked up together, devoted to summer and winter decoration respectively. This can be done, he says, without in the least detracting from the summer display, or making any more confusion than spaces for dead material would do.

Mr. Fleming's opinion is not much in favour of polychromatic beds. These, he observes, "were no doubt originally intended to relieve the winter season, and on paper, neatly painted, they are very beautiful. Perhaps the most elaborate and extensive example of this sort of designing is to be found in the large piece of garden forming the south parterre at Versailles. Its great extent prevents the eye at first from taking in all the details, but when once this is accomplished, there is nothing more to look for—the oftener it is seen the more dreary and uninteresting it is. It appears strange we should be going back to this system, while the French are everywhere eagerly adopting ours, both of the present and of former times, when large ovals and circles were everywhere to be found." He however, indicates a fitting use for the polychrome beds. "In or close to large towns this sort of designing may be correct, where nothing will grow. I could fancy one of the little dirty square patches so often seen in front of houses in some streets, with very scanty signs of vegetation, greatly improved by introducing a neat design of this sort, and instead of box, wood or artificial stone edging painted green. A good-sized vase in the centre, and one at each corner might always be kept full, from the facility with which plants are purchased in such places all the summer months. Surrounding these a neat design for polychromatics would at least be kept clean by rain, and much more pleasant for persons passing in and out than the bare black soil, besides the improvement in appearance from the windows." In gardens in the country, where flowers are possible, he is however, sorry to see the plan adopted, as "it certainly is not progress."

The remaining part of the book is devoted to a description of the planting and management of the bulb garden at Dropmore, contributed by Mr. Frost; and by a full account of the uses, varieties, and treatment of an extensive selection of the most useful spring flowers to be recommended for this style of gardening. We observe that Galanthus plicatus is erroneously stated to be smaller than the common Snowdrop; and a few misprints occur amongst the names of plants, such as Alyssum saxatile variegata, Erythronium albiflora, &c. There is also omission of capital letters where they should be used; but these errors are not numerous, and do not affect the practical value of the book, which we have no hesitation in recommending to all who take an interest in their flower gardens.

We may add that Mr. Fleming informs us, that in such autumns as we have had for the three last years, his practice might as truly be called autumn flower gardening as spring flower gardening, the beds and borders having been quite gay up to January with Anemones, Alyssum, Arabis, Daisies, Iberis, Pansies, and the various coloured Primroses.

No. 4, Vol. 1 of the *Alpine Journal*, edited by H. B. George, M.A., consists of papers read at meetings, or contributed by members of the Alpine Club. The first paper is by Mr. F. F. Tuckett, F.R.G.S., and entitled "Explorations of the Alps of Dauphiné." The second is a very interesting account of the avalanches of the Jungfrau, which Mr. F. Galton, F.R.S., was enabled to witness from a safe covert in the very course of the fall. He says:—"The snow or ice in the upper fields slides onwards, until it assumes the shape of an overhanging cliff, or reaches a slope too steep to support it. Then a vast piece gives way, and crashes into fragments that roll and tumble and grind one another into globes, on their way to the head of the ravine that forms the path of the ice cataract. They then bound in a succession of leaps down the ravine, and dash forth at its foot in an enormous hailstorm upon the head of a long uniform slope or *talus* of snow and ice." This must have been grand indeed, considering that the perpendicular fall, first spoken of, was about 2000 feet. Fancy Mr. G., sheltered by one of the overhanging slabs of rock, hearing the prodigious roar by which the avalanche

heralded its approach. Fearing there was some mistake, his first impulse was to run for it, but a glance convinced him that the cataract was taking its wonted channel, and he hurried back to rejoice in the storm and uproar. The hurtling of the ice balls in the depth of the ravine, and the crash of the huge hailstones, were almost frightful.

Part 2 of *A History of the World*, by Philip Smith, B.A., one of the principal contributors to the Dictionaries of Greek and Roman] Antiquities, commences with a concise description of the Pyramids, and the History of Egypt from the rule of the Shepherd Kings to the Persian conquest. "The chief interest of the story of our race remains with the people of Israel." Accordingly, Mr. Smith traces the destiny of the Hebrew race, and the Hebrew Theocracy up to the Babylonian captivity; and the second part concludes with the first pages of the Chaldæan, Assyrian, and Babylonian empires. It is no small praise to say that the author has up to this point fulfilled his promise of condensing his matter into a "moderate compass," and Messrs. Walton & Maberly present it to the reader in beautiful type.

Orlando Whistlecraft pleads for his *Weather Almanac* that he has made the weather his study for above 40 years, and states that he has found purchasers for 10,000 copies of it yearly. We cannot compliment him on his weather predictions for January, which have been singularly *out*.

The Brown Book is a book of ready reference, published by Messrs. Saunders & Otley, enabling persons, by very ingeniously constructed tables, to find the nearest post-office, cab stand, police station, hospital, telegraph station, &c., together with a mass of useful information relating to hotels, lodgings, dining places, &c., in some instances giving the prices charged; a list of charities, libraries, museums, sights and amusements; and the officers of 47 scientific societies, commencing with the Acclimatisation and ending with the Zoological; the whole contained in 152 pages, all for the small sum of half-a-crown.

Part 11 of the *Dictionary of Chemistry*, published by Messrs. Longman, and edited by Henry Watts, B.A., F.C.S., contains articles from Fluorine to Gallotannic acid. Under the head of *Fruit* we find tabulated the compositions of various fruits, both in the ripe and unripe state; and there is a long and apparently valuable article on *Fuel*, giving the composition and formulæ for ascertaining the thermal effect of any kind of fuel.

Miscellaneous.

Paris Flower Markets.—Paris is about to be enriched with another flower-market, to be established on the Boulevard Richard Lenoir, between the Bastile and the fountain of the Boulevard du Temple. The sale of flowers and shrubs, which now constitutes an important branch of commerce in Paris, was until of late years of no great value. Gardeners in former times did not possess the variety they do at present, and they sold the few flowers they cultivated at the Marché-aux-Poirées or at the Pont Neuf. Their collection comprised only the native Violet and Rose, the Ranunculus of the Archipelago, and the Damascus Rose, imported during the reign of Louis IX.; the Lilacs, imported from Persia in the 16th century; and the Pinks, of which Rabelais brought the first from Italy for his friend Cardinal Estissac. In the reign of Louis XIII. some Spanish women gave the Paris flower-market an additional attraction. The Parisian corporation of flower-sellers would not be surpassed, and in the following reigns the market on the Pont-Neuf acquired considerable importance. The French gardeners had by this time increased their stock by the Japan Tulip, which they received through Holland at the beginning of the 17th century, the Narcissus from the East, and the Hyacinth from Constantinople. The cultivation of flowers was thenceforth considerably extended, and Mignonette and the Bengal Rose were imported into France towards the conclusion of the reign of Louis XV.; the Dahlia was sent to Paris in 1792 from the Botanical Garden of Madrid, which had received it from Mexico two years before. Some years later a French captain brought another new plant from China, which he called Hortensia, after his wife Hortense. Since then various exotics have arrived in such abundance that many plants which were at first received with favour are now neglected. Towards the end of the last century the Pont-Neuf was no longer sufficient for the ever-increasing number of dealers in flowers. The market spread over the Quai de la Ferraille, and in 1808, the carriage way being completely blocked up, it was transferred to the Quai Desaix, in the island of the Cité. In 1824 the number of flower-markets was increased to four, and there is an additional market about to be established at present. *Times.*

Pachyrhizus.—Among the esculent roots growing wild, and eagerly sought for just before the regular crops come in, or in times of scarcity caused by intertribal wars during the planting season, or by unfavourable weather, may be named the Yaka or Wa yaka (Pachyrhizus angulatus, Rich.), a Papilionaceous creeper, with trifoliate leaves and whitish flowers tinged with purple. In September and October its tubers send forth new shoots, which grow with rapidity and yield a tough fibre, invaluable for fishing nets. The plant delights in open exposed places and a rich vegetable soil, where the roots, which generally assume a horizontal direction, often attain from 6 to 8 feet in length and the thickness of a man's thigh. When cooked, they have a dirty white colour, and a slightly starchy but otherwise insipid flavour, much inferior, I thought, to that of wild Yams. However, Mr. Charles Moore, of Sydney, ate them in New Caledonia, and is inclined to pronounce more favourably upon their taste. Living plants were brought by him to the Sydney Botanic Garden, where they are now growing with native vigour in the open air. *Seemann's Mission to Viti.*

Calendar of Operations.

(*For the ensuing week.*)

HYACINTHS, Narcissus, Crocuses, and other Bulbs, placed either in pots or glasses, should be kept as close as possible to light, provided they are well furnished with roots and are commencing active growth. A slight amount of fire heat should be kept up in conservatories and Greenhouses, in order to expel damp. All dead leaves on plants in these structures should be picked off and removed. Water should be given sparingly while the present dull weather lasts; and leaves, if dusty, should be carefully washed with a sponge. In short, thorough cleanliness should be enforced in every department.

FLOWER GARDEN AND PLANT HOUSES.

ACHIMENES.—A batch of these should now be started in heat for stove and warm conservatory decoration during next month. They may either be grown in pans or pots, according to the taste and requirements of the cultivator.

BEDDING PLANTS.—Cover securely at night; but during favourable weather give air pretty freely during the day.

CALCEOLARIAS.—Herbaceous sorts potted last autumn will now be well established, and will require little attention beyond that of frequently fumigating them to keep down green-fly. Such as are required to bloom a little earlier than the others may now be shifted and placed where they will have a temperature of about 45°, and a moist growing atmosphere. In shifting it is a good practice always to sink the ball a little, in order to admit of a top-dressing of fresh mould being put over the riper parts of the young wood, which thus treated soon emits roots, which materially increase the strength of the plants. Thorough drainage, too, is a point to which particular attention must be paid if healthy well-bloomed specimens are desired.

GLOXINIAS.—A few potsfull of these may now be placed in heat and treated in the same way as Achimenes.

FORCING GARDEN.

Forcing of all kinds must advance very gradually until we are favoured with more light and sun heat; the remarks made last week under this head are equally applicable to this.

CHERRIES.—Follow Nature closely in the Cherry-house; no extreme heat will succeed. Plenty of air, permanency of atmospheric moisture, and a very moderate temperature, are the requisites.

FIGS.—Steer a course with these about intermediate between the early Vinery and the Peach-house. In sunny days, however, the temperature may rise equal to that in the Vinery.

PEACHES.—Proceed cautiously with these. Supposing the trees to be in course of blossoming give a little more fire in the daytime, to enable you to give more air; the latter can scarcely be given too freely if the weather is favourable, and the thermometer within can be maintained at 55°; let it, however, sink at night to 40° or 45°. If the roots inside have not been watered, or only slightly so, and the drainage can be relied on, apply another thorough watering with rich liquid manure, clarified of course, and heated to 75°, part of which heat will be reduced immediately it comes in contact with the soil.

PINES.—Plants expected to fruit early should now be allowed a slight rise of temperature. On light days let the thermometer indicate 70° or 75°, and should sunshine occur, 10° more may be indulged in. Those who are inclined to try the planting-out system had better postpone it for a few weeks; some special compost and previous training are however necessary in order to ensure success.

POTATOS.—Endeavour to get a spare frame or pit for early Potatos; a bottom-heat of 70°, that will last for a month, will be amply sufficient; the sooner it dies away after that the better, a continuance of bottom-heat too long will draw the halm.

VINES.—Supposing the buds in the early house to be now considerably advanced, thinning them becomes a daily and important operation. In all disbudding, do not take Nature by surprise—gradual, but rather frequent thinning is the maxim. Above all things, ensure a permanent supply of atmospheric moisture; if this is accomplished by fermenting materials so much the better. If not yet done, put abundance of covering on outside roots, and if it be slightly fermenting so much the better. In late houses in the majority of cases the last Lady Downes' and St. Peter's will now be cut; if the rods are to be taken out to rest let it be done forthwith. They are best laid on the ground, and covered up with straw for fear of injury by frost.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with digging, trenching, &c., whenever spare ground occurs and time and weather permit. If some of this ground should require digging a second time, previous to cropping, so much the better; it will amply repay the labour. All fruit-tree planting not done in the autumn should be proceeded with at mild intervals; wherever the subsoil is bad it should be entirely removed, and a platform of brick-bats, rubble, or cinder-ashes, rammed hard at about 1 foot below the ground level. On this place, if possible, a little rough turf in a fresh state, and be sure to mix some fresh maiden soil with the compost, using sound and tenacious loams for Apples and Pears; sound yet mellow loam for Peaches, Apricots, &c., and free upland soil for Plums, Cherries, Vines, and Figs. Follow up nailing and training of fruit trees; lose no time, when the weather permits, of advancing these matters. Where such is completed, we would advise a syringing with the laundry soapsuds, saturating every crevice in the wall.

CAULIFLOWERS.—Plants in frames or under hand-glasses should now have free exposure, except during heavy rains. Should frost again set in they must be protected.

CARROTS.—Sow Early Horn on a slight hot-bed.

LETTUCES.—Cabbage and Green Cos may now be sown on a warm border, and when up protected, should the weather become unfavourable.

ONIONS.—A few may be sown on a warm border for drawing in a young state; if they should be destroyed by frost the loss will not be great.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 20, 1864, as observed at the Horticultural Garden

January.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 14	7	30.255	30.248	39	36	37.5	40	40½	E.	.00
Friday 15	8	30.256	30.236	39	31	35.0	40	41½	E.	.00
Satur. 16	9	30.180	30.100	37	30	33.5	40	41	S.E.	.00
Sunday 17	10	29.940	29.880	45	34	39.5	40	40	E.	.25
Mon. 18	11	30.054	30.047	47	35	41.0	41	41¼	E.	.09
Tues. 19	12	30.126	30.109	50	43	41.5	42	41	S.	.20
Wed. 20	13	30.222	30.100	49	42	45.5	44	41	S.	.06
Average.		30.147	30.117	43.7	35.8	39.0	41	40.9		.60

Jan. 14—Foggy; dusky and foggy; overcast; foggy.
— 15—Hazy; foggy; overcast.
— 16—Slight frost; partially overcast; fine.
— 17—Rain; drizzly; rain; heavy rain at night.
— 18—Dense fog; foggy; rain.
— 19—Fine; very fine; slight rain; rain at night.
— 20—Rain; densely overcast; rain at night.
Mean temperature of the week 3 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending Jan. 30, 1864.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 24	44.3	32.6	38.5	18	0.63 in.	3	4	2	1	4	16	6	2
Mon. 25	44.6	32.4	38.5	20	0.90	1	4	3	1	5	14	5	5
Tues. 26	45.3	32.6	39.0	17	0.34	1	5	3	4	2	15	5	4
Wed. 27	44.2	30.8	38.1	17	0.43	2	5	4	1	5	14	5	3
Thurs. 28	45.4	30.8	38.9	20	0.17	2	5	4	1	2	15	8	3
Friday 29	45.7	32.0	38.8	17	0.23	2	4	—	2	2	13	6	6
Satur. 30	44.4	32.4	38.4	19	0.39	2	3	3	4	3	12	8	3

The highest temperature during the above period occurred on the 29th, 1863—therm. 57 deg.; and the lowest on the 31st, 1857—therm. 8 deg.

Notices to Correspondents.

CAMELLIAS: *Alpha.* We should recommend you to grow fimbriata, alba plena, and Duchesse de Berri, all whites; Comtesse Lavinia Maggi, and Countess of Derby, white striped with red; Reine des Beautés, delicate rosy blush; Sacco, pale pinkish rose; Baron de Vriese and Sarah Frost, bright rose; Mathotiana and punicea, crimson; Chandleri, mottled red and white. They are all good.

EXHIBITIONS: *I. of Thanet.* We may be wrong, but you cannot be right. Who ever heard of such a measure?

NAMES OF PLANTS: *X Y Z.* Echeveria coccinea, Sparmannia africana. Sempervivum glutinosum. Not one of these was numbered.—*C H S.* Some Solanaceous plant; but what do you mean by a *pod?* We find nothing but an empty calyx.—*A C.* Oncidium sanguineum, and Eulalia nepalensis, a beautiful Grass we never before saw alive; it is, as we learn from a friend well acquainted with Sikkim, a native of the temperate parts of that Indian country—*C F.* Next week. We are not quite well enough to go into the inquiry to-day.

PEACH-HOUSES: *Lincoln.* The information given is not sufficient. If the border is outside, and the trees are to root in that direction, keep the pipes a couple of feet from the wall, so that the stems may not be affected by it; but if the border is inside, as is to be preferred, keep the pipes near the front wall and plant inside them, sloping the trees so as to meet the front of the trellis at the point required. In either case the stems would require protecting from the direct heat radiated from the pipes. As to heating power, a good saddle boiler, well set, will do all that any other boiler could accomplish, not so rapidly, perhaps, as a tubular one—which you seem to dislike, but quite as efficiently. You do not give the size of your house. We can therefore only say in respect to the quantity of piping required, that a practical rule is to use one foot of 4-inch pipe for every 5 feet of glass.

RENANTHERA COCCINEA: *G L R.* The flowers are scarlet marked with yellow. It was bloomed at Claremont in 1827, subsequently at Wentworth for many years in succession, and at Chatsworth in 1836. This will be sufficient to show you that it is not such a rarity as you seem to suppose. In these cases the success appears to have resulted from exposure to strong light.

VANDA CRISTATA: *A Subscriber.* We cannot recommend dealers. Apply to any of the firms which advertise that they have collections of epiphytes for sale.

MISC.: *Norwich.* We are very sorry to say that your communication is perhaps the most illiterate we ever saw, and quite unsuited to our columns. If what you say can be proved, pray, in that case, get your statement put into English.—1s. will be given for Oct. 15, 1853, on application at this Office. Also 1s. will be given for No. 19, 1863.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

AGENTS WANTED for a well-known MANURE which commands a ready sale, is highly recommended by Customers for several years, and sold carriage free. Liberal terms given.
Address B. C., 10, Pall Mall East, London, S.W.

LAND DRAINAGE.—WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY, on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.
Repayment may be made by the Landowner as successive portions of the Works are completed, or the outlay and expenses may be charged on the estate by way of rent charge created for such a term of years as the Landowner shall determine will best adapt the annual payment to the circumstances of the tenants.
No investigation of title being required, or notices given to reversioners or mortgagees, no legal expenses are incurred.
Works of irrigation, enclosing, wood grubbing, road-making, and farm buildings are executed in a similar manner.
Landowners desirous to execute any of the improvements by their own agents, and charge the outlay and expenses on the Estate, may obtain loans for the purpose.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY. Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

Land Drainage, and other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large Staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

Chemical Analyses.

DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 191, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
J. BAILEY DENTON, M. Inst. C.E., will LECTURE on DRAINAGE.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Professor J. MORRIS, F.G.S., will give a COURSE of LECTURES on GEOLOGY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh, will give a COURSE of LECTURES on the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, will LECTURE on CATTLE, SHEEP, PIGS, and POULTRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
JOHN THORNHILL HARRISON, of Frocester Court, near Stroud, will give a COURSE of LECTURES on DAIRY HUSBANDRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin, will give a COURSE of LECTURES on FARM LABOUR.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions," will LECTURE on ROTATION of CROPS.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
RICHARD GRIFFITHS WELFORD, Barrister-at-Law, will give a COURSE of LECTURES on LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER, will REOPEN on MONDAY, Feb. 8.
Applications for Admission and for further particulars may be made to the Principal, the Rev. JOHN CONSTABLE.

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing
DAY'S EXTRACT and GASEOUS FLUID,
which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as paining in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2*s.* 6*d.* and 7*s.* per bottle; or quarter of dozen in wood box, 7*s.* 6*d.* "Gaseous Fluid," 1*s.* 8*d.* per bottle, or 20*s.* per dozen in wooden box. Plain directions for use given with every Article.
☞ Caution. Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & CO.'S," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"
The "Key to Farriery," free by post for 13 stamps.
SAMPLE MEDICINE CHEST, 16*s.* 6*d.* Carriage paid.
Patrons, 70,000.
Address, 22, Dorset Street, Baker Street, London, W., and Wantage, Berks. No other branch in the kingdom.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds.
Illustrated Catalogues on receipt of 6 stamps. Price Lists free.
BURGESS & KEY, 95, Newgate Street, E.C.
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1*s.* 8*d.* per yard run.
Four yards wide .. .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide, 1*s.* 9*d.* per yard.
An improved make, 3 yards wide, 2*s.* 8*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.
PRICED LISTS may be had, Post free, from SUTTON & SONS Royal Berkshire Seed Establishment, Reading.

Good Clover Seeds at Market Prices.

SUTTON AND SONS have now ready, at very moderate prices, fine new RED, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a Priced List of which may be had Post free.
Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASS SEEDS for IMPROVING OLD PASTURES.—Many Old Upland Pastures, Parks, and Meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses, in which case we are in the practice of furnishing such sorts only as are wanting. If the Seeds are *sown early in the Season*, the improvement in the Pasture will be very considerable, and at a small expense. *Quantity of Seed required*, 8 *lbs.* to 12 *lbs. per Acre. Price* 9*d. per pound.* Carriage free.
Address SUTTON & SONS, Seed Growers, Reading, Berks.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.
The following letter has been received, besides many others:—
From Professor LINDLEY, *Royal Horticultural Society, London.*
"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. s. d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE .. .. 28*s.* to	30 0
Cheaper MIXTURES, omitting certain sorts .. 20*s.* to	26 0
Best quality ditto, for Three or Four Years' Lay ..	22 0
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CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6*s.* to	9 0
Finest LAWN GRASS SEEDS .. .. per bushel	18 0
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The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.
A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.
Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.
PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Ornamental Grass for Game Covers, &c.,
(ELYMUS GLAUCESCENS.)

B. S. WILLIAMS begs to call the attention of noblemen and gentlemen to the above ORNAMENTAL GRASS. It is perfectly hardy, having proved it for several years, and can recommend it as being superior to anything yet offered for that purpose. 6*s.* per dozen, 40*s.* per 100.
Paradise and Victoria Nurseries, Holloway, London, N.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.
CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 23, 1864.

IN a recent number of a Swiss journal, the *Gazette de Lausanne*, there is published a letter from Baron LIEBIG to M. BLANCHET, of Lausanne, replying to a communication in which that gentleman had called attention to a defect lately observed in the colouring principle of the Madder root. He had also asserted the probability that this is owing to that imperfectly nourished growth of the root, which is alone possible on a soil that has been long robbed of its potash salts and other necessary mineral matters. The following is LIEBIG'S letter, which we publish in connection with the criticism by Mr. MATTHEW on a former letter given in our columns the other day:—

"Dec. 2, 1863.

"Receive my sincere thanks for your welcome letter, which is another proof of the interest which you take in my labours. The fact which you have communicated to me about the cultivation of Madder is very curious, and I do not doubt its accuracy, for I have remarked an analogous circumstance in the cultivation of the Potato. I have spoken of it in my discourse as President of the Academy of Sciences, of which I send you a copy. The experiments which are there described throw great light on plant diseases.

"A French landowner in the department of the Indre, whose Vines were severely attacked by oïdium, had asked my advice about a remedy—

the sulphur being no longer of any use. I advised him to manure his Vineyards with wood ashes and phosphates. Last October he sent to me a document signed by a number of persons who had seen his Vines: it declared that those which had been manured with ashes and phosphates had produced healthy fruit in abundance, while others close by, which had not received these manures, were the prey of oïdium.

"My teaching, after so much discussion and resistance, has now reached the period when it is no longer opposed, and when doubt has disappeared. The time has now come when agriculturists should learn to apply it, in order to gather its fruit. In Saxony they have already served this apprenticeship, and the consequence is that the crops of 1863 have surpassed the average of 10 previous years—a great and beautiful result. In order publicly to acknowledge it, the King of SAXONY has written to me, that the progress of agriculture in Saxony has been due to the judicious application of my theory in his kingdom."

We cannot in this country regard a general good harvest as the result of either LIEBIG's teaching or that of any other man.

In 1863 we have had a harvest not merely better than the average of the past 10 years, but exceeding in its productiveness that of probably any previous year; but we do not consider this increased productiveness to have been a work of Art at all. It cannot be attributed to drainage, to guano, or to tillage, or to practice based either on the mineral theory or that of humus and the vegetable mould. It has been owing simply to the weather; and this we are very much inclined to think is all powerful in Saxon agriculture, just as it is in English. Certainly, loyal people as we are, we should not consider the testimony or opinion of a King on such a subject to be of any special value, unless he were also an intelligent agriculturist.

The following is an account of the Potato experiment described by LIEBIG as having been carried out under the direction of Professor NAEGELI and Dr. ZOELLER. Three fields of peaty soil—"tourbe pulverisée"—were set apart for it, of which one was left unmanured, another received a dressing of ammoniacal salts, and the third received a dressing of mineral matters corresponding to the ash of the Potato. Treated in other respects alike, the crops of the three fields were in the proportion of 100, 120, and 285; and in addition to this the two inferior crops soon became the prey of the Potato disease, while the third is sound to this day (Dec. 1.)

These facts, says LIEBIG (we are condensing his remarks), throw great light on the subject of plant diseases generally, especially on that of the Vine, and probably also on that of the silkworm. If the leaf of the Mulberry tree is no longer a healthy food, it is because the exhausted soil where the tree grows is no longer able to supply it with the elements of healthy growth. The discourse concludes with a reference to the coming impoverishment of Lombardy, owing to the failure of the silk industry, which is itself declared to be the result of an impoverished soil.

THERE is not a drearier waste than Woking Common within the limits of the island. A black sand, white and yellow six inches below the surface, which is covered with a stunted growth of Ling, and here and there a Furze bush, offers the very poorest promise to the agriculturist. And yet close upon the edge of this waste, gradually winning way within it, lies a farm whose produce averages close on 5 quarters of Wheat per acre, more than 6 quarters of Barley, and more than 30 tons of Mangel Wurzel.

Riding as we did last Friday along the very edge of the moor, then looming black, indefinite, and gloomy through the mist of a cold damp January day, nothing could exceed the contrast presented on this farm by the bushy green luxuriant plant of Rye, the clean fallows covered with piles of Mangel Wurzel, earthed over from the frost, and the thin but uniform and healthy plant of Wheat already well flattened down for tillering in the early spring, all of which are separated merely by the hedge from the utter worthlessness, and, but for the obvious facts beneath our feet, the hopeless sterility of the waste close by.

This contrast, which must be even greater at almost any other season of the year, is wholly a work of Art. And in its history we have one of the best lessons which English agriculture offers to the cultivator of light land.

Of course the difference between the Common and the cultivated land is not the work or growth of yesterday. Hoe Bridge Farm has, for the most part, been long enclosed and cultivated. Close by it stands the mansion built by JAMES THE FIRST, they say, for a favourite of the Court; and the "Banquet House Field," next to it, taking its name from those times, seems to put back the original enclosure to centuries ago. But within the farm, on what is now one of its most fertile spots, stands almost in ruins the slender column which then served as a land lighthouse to guide the traveller across the moor. And there is enough of evidence not only upon the gradually retreating edge of the waste, but over the whole farm which here abuts upon it, to show how the poor sandy wilderness of one century becomes the fertile field of the next.

Of course the increased productiveness of this land is not the gradual growth of centuries when it is held by men of the energy and intelligence of the present tenant of the Hoe Bridge Farm. Mr. HILDER has added greatly to its fertility during the 16 years he has occupied it under Earl ONSLOW. And it is to his unusually vigorous prosecution of the plans by which light land may everywhere be fertilised, and by which it has been made so productive here, that we have now to call attention. On land originally poor, great crops of Wheat and Barley are now grown—and nowhere is the necessary connection between a great head of stock and a great growth of grain more strikingly illustrated. The land altogether in Mr. HILDER's hands is about 500 acres in extent, of which about 360 lie upon the edge of the moor. On this small light sandy farm a herd of 50 to 70 cows is milked for the London market, a dry flock of Hampshire sheep, varing from 200 to 400 head, is fed, and hogs ranging in number from 1000 to 2000 have been fattened annually up to an average weight of 10 or 12 scores a piece. Add to these, which are the principal points in the management of the business, that 16 to 18 farm horses are employed in cultivation and carriage, and that the labour bill varies between 1000*l.* and 1100*l.* per annum, and it is plain that we have here a very remarkable specimen of vigorous and liberal farm management.

It is now seven or eight years since Mr. HILDER commenced the pig feeding, which has since been one of the chief features of his farming. The sheds and barns of a characteristic Surrey homestead have been divided into pens 10 to 15 feet square, in each of which 6 to 8 hogs are kept. The food is three times a day put in their troughs, as much as they will at once eat up; and straw, thrown in among them, is trodden down on the box-feeding plan, the whole being cleaned out when 3 or 4 feet deep. The pigs are purchased in various parts of the country (being generally delivered by the London and South-Western Railway at the Woking Station). They average from 5 to 7 scores' weight when bought. Barley, spoiled Wheat, Indian Corn, Peas, Beans, Buckwheat, and Lentils, purchased in Mark Lane, are brought down to Woking, ground and mixed in the proportion of one-half Barley meal, and the remainder mingled and varied according as the market prices guide their purchase. The food is prepared in large tubs upon the barn floor, to which water is laid on. It is given fresh and fresh, not allowed to sour; and in a thin uncooked porridge it is served out to all alike at the average rate of half a peck of meal per head daily. Three men do the whole work of feeding and keeping 500 hogs, which has been the usual number on hand at a time. The average growth of pork or bacon is 1 stone (8 lbs.) a week each. They are kept till fit for the butcher, from three to four or even five months, according to the condition in which they had been bought. The last weeks in the fattening process, when they sleep and rest most, are the most profitable. And when ready for the market they are sent by truck to wholesale bacon curers in many parts of the country; large numbers going into Gloucestershire to the manufactory of Messrs. HILLIER & SON, near Nailsworth, lately described in these columns. So long as the carcase is worth near 6*d.* per lb., and the meal can be bought between 7*l.* and 8*l.* per ton, the business yields a moderate profit, independently of the manure, which on so large a scale of rich feeding is very valuable. But, on the other hand, disease has occasionally destroyed all profit. During the past autumn, for example, an attack prevailed which when suffered to pursue its course proved generally fatal in a few days, the result of disease both in the lungs and in the stomach, which destroyed large numbers, and put a stop almost entirely to the feeding. And the number now on hand would be still further reduced on this account, but for the need of maintaining a connection with the trade. The disease has now ceased its ravages, but were it not for the need or advantage of keeping up a connection with regular customers, Mr. HILDER would have stopped his pig feeding altogether until his premises should be considered wholly fresh and free from any taint. In the mean time nothing can be kept neater or cleaner than the gangways, boxes, sties, and every separate part of the old steading in which all these operations are carried on.

Another great business on the farm is the cow-keeping. A herd varying from 50 to 70 in number is kept as long as they continue productive—young cows of all kinds, but chiefly smallish horned cows, being bought in Suffolk markets. They are milked twice a day—the evening's meal being sent up by the mail train in time for London breakfasts. They come to calve at all times of the year, so that the produce of milk does not vary materially from one month to another. And an average yield is about 10 quarts a day—this being made up of such maxima as 25 and even 30 quarts a day in a few rare cases, with the larger number of moderate and inferior milkers dwindling to the time when they will be dry before calving. The price realised is 2*d.* per quart upon the farm after all the risks and expenses of conveyance are covered. The cows are fed just now on Mangel Wurzel, grains, Cotton-seed cake (rough), pollards, Wheat chaff, and hay. During summer they are at Grass, and receive grains and cake in addition. The rough (not decorticated) cake is found to answer almost as well as the Linseed cake previously given. From 4 to 6 lbs. of the cake, 1½ peck of pollards and as much Wheat chaff, about 3 pecks of brewers' grains, 1 cwt. of cut Mangel Wurzels, and 5 or 6 lbs. of hay, make up the liberal daily ration at present.

The sale of milk, in this way generally profitable, is often made a loss by the attacks of foot and mouth disease. The herd is replenished as often as required by purchased cows, and it is rarely that any fresh additions are made in this way without bringing this great cattle plague along with them. The herd is now comfortably housed in half-closed sheds and yards, being supplied with water when required. Four men, a boy, and two women feed and clean and milk from 50 to 70 cows.

Of course with such an immense live stock to feed and bed, the purchases, always of food and often of straw, are very large. Grain and cake and meal, equal to 500 or 600 and sometimes 1000 bushels a week, are brought on to the farm. And the return of meat is correspondingly large. Taking the flock of fatting sheep into the account, and supposing that 300 make 40 lbs. of mutton each—that in a favourable year 1500 hogs make 100 lbs. of bacon each—that 50 cows make 800 gallons of milk each, and putting the gallon of milk as equal in feeding value to 1 lb. of meat—we have here a produce in animal food of 200,000 lbs. a year on a farm of 500 acres—a manufacture of 400 lbs. of meat per acre—probably quite unparalleled.

Of course it is made possible only by the large quantities of food bought on to it, purchased in Mark Lane and elsewhere. But on the other hand, the immense quantities of rich manure thus made on the farm, are increasing its productiveness not only of cattle food, but also of grain crops. The land is cropped for the most part on the four-field course—but Barley is sometimes taken after Wheat—and Clover is taken only with half the Barley crop, the other half of the Barley stubble being generally put to Peas. Wheat stubbles are also sown down sometimes with Rye or Trifolium, followed by Turnips—or with Rape followed by Peas and Turnips, or they are deeply ploughed, manured, and then shallow-ploughed, and followed by Barley.

It is the practice, for all root crops, to plough deeply with four horses in the autumn. And all the land thus gets a furrow about 12 inches deep every other year. The steam-plough has been hired—and has worked the steepest and most uneven slopes upon the farm with ease. From 12*s.* to 15*s.*, and in one case to 30*s.* per acre, along with the provision of coal and water, has been paid. The last being a case of subsoiling, where two furrows only were worked at a time.

Returning to the subject of crop cultivation: 5 to 6 pecks of Wheat, 7 pecks of Barley, 8 to 9 pecks of Peas, are the ordinary seeding per acre. White Velvet-ear, Talavera, and Suffolk white Wheats; Chevalier and long-eared Nottingham

Barleys; Early Dun hog Peas; Long Red and Orange Globe Mangel, (the seed grown and saved at home) are the sorts grown. They were covering in Peas already sown, and elsewhere ploughing 12 inches deep a Wheat stubble for Mangel Wurzel last Friday. The week's frost had enabled the clearance of all the pigsties and cow-yards—and the manure was lying in heaps already for the most part spread over the deeply ploughed Wheat stubbles ready to be lightly covered in for Barley or Mangel Wurzel. The Mangel heaps, 9 or 10 feet wide, thickly covered up to the ridge lines with earth, these being thatched, lay along the road sides near the cow sheds, or they lay in small conical piles scattered over the field where they grew, and close by the Rye fields, on both of which they were to be fed by folded sheep. In this case they are thrown, leaves and all together, untouched by the knife, and they come out dry and sweet. From 50 to 60 acres of Mangels are annually grown. Their cultivation and manuring is as liberal as possible; 20 to 30 cartloads of dung are ploughed in, and 3 or 4 cwt. of mixed guano and salt are applied per acre, and the seed is drilled on the flat in rows about 33 inches apart.

In this way, notwithstanding the cold weather of the last three or four summers, great crops have been grown. And in good years 40 to 50 tons per acre, ascertained by weighing a few perches here and there, have been obtained. The crop is of course less in cold wet summers, for here, but still more in the case of the grain crops, the cultivator, notwithstanding all his efforts, is dependent on the season. Off the hundred acres of Wheat which are annually grown, 1000 sacks for sale are expected and generally obtained. This year, from such threshing as has yet been done, the yield promises to be considerably greater; last year, with the land in quite as good condition, the yield did not exceed 26 bushels per acre. And the variation in the yield of Barley is just as great.

With the immense yield of rich farm-yard manure at his command, Mr. HILDER is gradually feeling his way towards an extension of his farm within the moor. The Gorse is pulled up; and the Ling and Heather turned under by the plough. All that is brought up by the harrows is burned, and the land, then dressed with ashes, with soapers' waste, with lime, or left undressed, is sown with Turnips. A poor crop is the result; best, however, where the soapers' waste has been used. Sheep are being folded on the land—receiving Cotton-cake and hay—and with a dressing of dung upon the sheep-fold the land will soon be fit for some more valuable crop.

It is chiefly by very deep ploughing, and by heavy dressings of rich farm-yard dung, and by the sheep-fold, and by the application of artificial manure, that the land is raised and kept up to the high mark of its fertility. There is not here, as there is in the light land districts of Norfolk, a calcareous marl immediately beneath the surface with which to improve both the texture and the composition of the soil. Fertility has been all along and is still almost wholly artificial, depending less here than probably anywhere in the country upon the natural resources of the land. It is a fact of very great agricultural importance that in a case so entirely artificial, the result should have been fairly remunerative.

The neatness, cleanliness, orderliness of the whole farm and its management, show that good business capacity has had a great deal to do with this success. And the Hoe Bridge Farm, no doubt one of many such examples, is a proof that our best illustrations of agricultural energy, efficiency and success, do not exist among the speakers and the writers upon agriculture, whose names everybody knows—but among the less pretentious men who are rarely heard of beyond the limits of their well conducted business.

—— WE learn with great satisfaction that Professor JAMES BUCKMAN, F.L.S., &c., has lately received two handsome presentations of plate, in acknowledgment of the valuable services rendered by him during his Professorship at the Royal Agricultural College, and in token of the regret with which his departure from Cirencester is regarded.

A massive Silver Salver, and other pieces, have been presented to him by numerous scientific and personal friends, including the very highest names in the ranks of English men of science, "to mark their high appreciation of his extensive attainments in various sciences and collateral pursuits, as well as of his readiness and success in imparting knowledge."

And a very beautiful "Grace Cup" has been given by old pupils at the College, "as an expression of their high esteem—in testimony of the fidelity and success with which he has discharged the duties of his Professorship during sixteen years—and in acknowledgment of the important services rendered by him in the advancement of scientific agriculture."

BARON LIEBIG VERSUS THE VEGETABLE MOULD.

REFERRING to a letter from Baron Liebig to me which appeared in your Journal of the 2d inst., in which he supports what he terms the mineral theory of the fertility of soils in rather a novel manner, and denounces the opponents of his doctrine as sinners "against God and humanity," as if he were Papal head of agricultural science, himself incapable of fallacy, I regret to observe that a little more than a whole paragraph has somehow been omitted. This the Baron may take umbrage at, as it contains a portion of such proof as he adduces of his mineral theory: I therefore forward to you a copy transcribed from his letter to me of the omitted portion, which is as follows:—

"You will, I trust, not consider it vanity on my part, if as a means of convincing you I quote the words with which a decoration sent me yesterday by the King Johann of Saxony was accompanied. In the diploma brought me by one of his Majesty's Ministers, it was written that an order was given in recognition of my services to agriculture in Saxony, whose practical working had in manifold instances been benefited by my teaching; and on account of the undeniable success resulting from the impulse it had given.

"These are words which a king only utters when about the truth of a doctrine no doubt any longer exists. He must have before him real successes and results, and thousands of witnesses, to pronounce such a judgment."

The very convincing scientific arguments of the above quotation need no comment. Here I must apologise for the flippancy of which the writer complains, and also perhaps for the wantonness of the act of forwarding to him a copy of the *Times* extract. In his reply, which I received last summer, but which only appeared in your Paper of the 2d inst., pique seems to have prevailed over a superior intellect which had just left off banqueting upon incense from royalty, and led him to express himself in a manner, which out of regard to him as a man of science I considered improper for me to publish without his sanction, although I think if any part be published, the whole ought to be. And since he himself sent over a copy to England with authority to publish, I had no right to object. In the note I wrote to him from Holstein, I spoke out my true sentiments regarding him, though perhaps somewhat strongly expressed, which might be necessary to balance what he terms the flippancy of the extract of the *Times*. His reply, in its disparagement of the writer of the note and extract (who, if he did not know, he ought to have known, had done what may be considered quite as much as he himself had done to pioneer useful science), shows how much sensitiveness will overcome the better judgment of a man of eminent ability. But the vanity and irritability of eminent men is generally quite in the ratio of their ability—is indeed often the cause of the eminence and usefulness they attain. We must therefore rest content, though our man of science is not all perfect. It does not dim the beauty of the flower or diminish the usefulness of the fruit, that the plant has sprung from and fed upon what we in our delicacy regard as offensive. It affords one of the curious balancings of Nature which extract good out of evil, and also evil out of good.

Liebig in his letter adduces his numerous honours as proof of his doctrine, that fertility does not depend upon the existence of the vegetable mould. In maintaining this doctrine, he says that he has received honour from all the Academies of Europe, and especially from a crowned head. I may state that I have received no such marks of honour? But anybody knows the little faith that can be placed upon such. The note I sent to Baron Liebig was honestly, kindly, and respectfully written, and contrasted a little with the character of the reply. When my brother agriculturists and myself are spoken of so arrogantly, some may think so offensively, so insultingly, it is right for me to speak out.

I do not say that Baron Liebig's honours are not fairly won, or that a little self congratulation may not rightly be allowed him. His analyses of vegetables, his researches, discoveries, many of his conclusions in vital chemistry, and even his mineral theory, one-sided, defective, and so far erroneous as it is, are the fruits of untiring labour, deep thought, and strong natural ability, researches carried out no doubt from a desire to do good to his fellow man, as well as from the desire of fame. In honouring such a man, scientific societies and crowned heads do honour to themselves. It is pleasing to think he has lived to enjoy his merited fame.

It is proper here to remark that at the commencement of his most recent work, "The Natural Laws of Husbandry" (1863), in the 13th line of the first chapter Liebig states as follows: "*All the materials constituting the food of our cultivated plants belong to the mineral kingdom.* The gaseous elements are absorbed by the leaves, the fixed elements by the roots; *the former, however, being often constituents of the soil, also may reach the plant by the roots as well as by the leaves*"! (The italics are mine.) I may add that in almost all cases of fertility they do reach the plant by the roots, and, along with the minerals composing the vegetable mould, are the cause of the fertility. The paramount importance of the vegetable mould does not depend upon the gaseous elements alone, but upon being the garnered supply of all the constituents of vegetables, even including in the fields of nature their germs or seeds. What says Liebig to this? Why does he ignore the paramount importance of the vegetable mould? He need not attempt any longer to maintain the shadow of his old absurd theory, when he himself is forced to proscribe the substance. The above quotation affords a very curious assertion of, and tantamount renouncement of his exploded theory—said and unsaid in the same sentence. There is an old adage, "learn young, learn fair." It is pretty clear that this chemist, in the new field of agriculture which he had entered upon, when the mental pliability becomes impaired, found himself a little at sea, and seized the first opportunity in his recent work to say something in Sybil fashion—something dubious, to be construed in either sense.

After the above not very ingenuous acknowledgment of error, it may seem a matter of supererogation to expose his denial of the vegetable mould being the chief cause of fertility, as stated in his letter, yet was the letter written after his last work, from whence the above extract is taken. It is rather curious that Baron Liebig, in reference it would appear to what I have written, adds the word humus (in his letter to me the words were "the vegetable mould or humus," but humus was left out in his published letter). I never made use of the term humus, and desire him when he directs anything against what I state, to remember this. To some it may appear that this combining of terms is upon the principle of "call a dog a thief and hang him"—although the most honest and faithful creature in creation.

Let it not be supposed that I ever advocated the idea that the minerals which constitute the loose matter of the globe are of no importance to the fertility. Even clay (argil) the least serviceable of the common minerals as a constituent, is the most serviceable in the retention of moisture, and in giving a firmness or adhesiveness to the soil. My vegetable mould—that which the wise, thoughtful German people term Mutter Erde—Mother Earth—is especially composed of the more fixed constituents of past organic life, a portion of the more volatile escaping, more especially under aration and aëration. Therefore let Baron Liebig and his followers look a little deeper into nature before they attempt to controvert any of my views or statements, or arrogate to themselves a right to reprove.

Space is wanting to proceed further at this time. As yet I have only been playing with the subject and with Liebig's letter. In a future contribution I will enter seriously upon the subject of the vegetable mould, its gradual accumulation in the fields of nature, its exhaustion under civilised man, and its importance as the parent of fertility, containing the minerals as well as the more volatile constituents of plants, also the means how best it can be maintained or increased under aration. This is the most important question that has been brought under the consideration of man. *Patrick Matthew, Gourdie Hill, Errol.*

WHAT IS TO BE DONE WITH OUR CLAY LAND?

PEOPLE are sometimes heard to express surprise at the apparent disproportion which has existed for some time between the prices of grain and butcher meat, on the supposition that when the labouring classes can get breadstuffs at a low price they will not pay a high one for meat, by which the relative prices of both should be in some measure equalised. Such, however, is proved not to be the case, and may, I think, be accounted for upon no unreasonable grounds. The labourers in this country, with the unhappy exceptions of those connected with the cotton trade and manufacture, have been in general well employed and earning good wages; and many more now than at any former period employed in the construction and use of machinery, which may be called "skilled labour," are in receipt of higher wages than usual, in proportion to the intricacy and value of their work. Such people having acquired the taste for and the habit of using meat in their families will not readily leave it off. And it is a natural consequence that the cheaper they can obtain the necessary amount of bread and potatos, both of which are to be had at low prices, the more they have to spare to indulge the taste for meat—a healthful state of things—which every well-wisher of the industrious and productive classes of the community would wish to see perpetuated. Notwithstanding the high prices which have prevailed for butcher meat of late years, there is good reason to conclude that they would have risen still higher but for the depressed condition of the countless operatives and their families in the cotton manufacturing districts, who have been unhappily forced on short allowance.

This change in the relative value of agricultural produce is telling a tale and affecting in an equal degree the value of the kinds of land calculated for raising the different descriptions of produce; for while sound mountain pastures, grazing land, and farms in a convertible state of husbandry, adapted to the growth of root crops and capable of maintaining a good head of stock, both in summer and winter, are in great demand, tenants can hardly be found to engage clay or Wheat-growing farms as they fall out of lease, at the same rents which they are now paying, even where considerable outlay has been incurred by the owners in draining, and the construction of suitable and substantial buildings. It becomes matter of anxious inquiry how such lands are to be treated, and what course is to be taken in order to maintain their value, and to obtain compensation for the money invested in them. Some people are heard to say, but rashly and ignorantly, that such description of land should be laid away for permanent pasture. To this there are obvious objections. Such as the great expense attending the first process in doing so effectually, the great doubt of success from the unfitness and intractable nature of the soil, and the necessity which exists for a sufficient and nutritious supply of food for live stock in winter as well as in summer, which by such a course would be found wanting. I fully admit the benefit of having a good proportion of old Grass land in all farms of that description, and the wisdom of supplying that judiciously when wanted. To do this with any hope of a satisfactory result, it is necessary that the land be well prepared, cleaned from all Couch and weeds, pulverised by a winter's exposure, manured and limed on the surface,—(nothing is more conducive to a good take of small seeds than the application of lime)—and then sown when in a friable and open state, with a good mixture of seeds suitable to the kind of soil, and without a corn crop; though, if the soil will admit of sheep folding, a thin sowing of Rapeseed or Barley among the Grass seeds may be allowed, to be eaten down in autumn before frost comes on and while the land is in a dry state. In the second year it should be stocked with sheep, and light cattle, which keep down the strong Grasses that are passed over by the sheep, and have a tendency to usurp the ground and overgrow the finer plants, if left to luxuriate. Then in the third or fourth year, when the plants begin to look sickly and the pastures to fall off, a manuring of guano mixed with bonedust may be applied early in spring, and a dose of nitrates or phosphatic matter a little later. One cwt. of nitrate of soda and two cwt. of salt per acre, sown in rain, will tend greatly to invigorate the plants, causing them to put out fresh roots as well as to shoot out a large increase of foliage, which is again returned to the soil as manure through the stock. In this way a portion of good pasture may be obtained on each farm where it is deficient of it, which will tend greatly to its profitable occupation.

But still the question remains, which forms the great difficulty—of how clay soils are to be cultivated to advantage with low prices for Wheat? It is unnecessary at this day to refer to the great essential of thorough and effectual draining as the first and indispensable step. But even after being drained, land of a strong and tenacious quality often sustains great injury from being ploughed in too damp a state, which can hardly be at all times avoided where the annual work of the farm is to be performed by such a number of horses as are considered to be adequate to it, or as it is deemed advisable to keep. But besides that, the constant passing over the land with the pressure of the horses' feet in the furrow creates a kind of firm band beneath the loose soil, at once impervious to the roots of plants and to the percolation of water and air, thus not only reducing the depth of soil by which plants are nourished, but also deteriorating the quality of what is left for them to operate upon. Many experiments have proved that the roots of Wheat and other grains will penetrate for several feet downwards in search of nourishment, and many of us have seen that the roots of Rape and Turnips have penetrated into newly made drains at the depth of three or four feet, to their great injury. To form an impenetrable band then under the furrow, cannot fail to be very detrimental. This might be in some measure remedied by trench or subsoil ploughing, but I fear nothing will obviate the evil of pressure by horses' feet, and obtain for such soils a deep and thorough cultivation, short of doing the work by steam. Few farms are, in their present state, as to the size and shape of fields and fast stones under the surface, fit for the introduction of the steam plough and cultivator, and many farmers are incapable of it; but no one can doubt that its advantages in clay soils are incalculable. Not only in its greatly superior cultivation, but in the power it affords of only going upon the land when in a fit state for working, whereas horses are required to work almost constantly to keep up with the requirements of the season.

In the county of Northumberland, where fuel is abundant, and clay soil prevails on the coast, if, by the combined efforts of landlords and tenants, by remodelling fields, straightening or removing fences, digging out boulders, &c., steam cultivation could be generally adopted, instead of that now in use by horses, I believe the great difficulty which now stands in the way of the profitable occupation of clay land would be obviated, and its produce immensely increased, to the general benefit of the owners, the occupiers, and the public. *John Grey, Tyneside.*

WHEAT ON A FEN FARM.

[The following interesting information on the produce of Wheat, date and cost of harvest, and cost of labour per acre on the whole farm, has been sent to us by the tenant of a Lincolnshire Fen farm.]

Year.	Harvest Commenced.	Cost Corn Cutting.	Produce Per Acre.	Sold Per Quarter.	Realized Per Acre.	Weekly Wages excepting Harvest.	Manual Labour Per Acre all Arable.
		s. d.	qrs. bus.	£ s. d.	£ s. d.	s. d.	£ s. d.
1839	August 22	13 2	4 2	3 2 0	13 6 10	..	..
1840	,, 13	11 4½	5 4	3 2 0	17 2 1	..	..
1841	,, 17	11 8	4 4⅝	2 18 6	13 8 0	13 0	1 8 0
1842	,, 12	11 1	5 3	2 6 8	12 10 10	12 0	1 7 6
1843	,, 18	13 7	4 6⅝	2 10 8	12 4 9	11 0	1 8 6
1844	,, 7	10 9	6 0⅝	2 5 8	13 18 2	12 0	1 10 0
1845	,, 28	10 2½	4 0	2 6 0	9 4 0	11 6	1 12 9
1846	July 23	13 2½	5 1	2 18 9	15 0 9	12 6	1 9 3
1847	August 7	13 6	5 2	2 7 4	12 9 4	13 0	1 9 9
1848	,, 2	12 2½	5 3⅝	2 6 0	12 10 0	12 0	1 9 10
1849	,, 17	12 6	5 4	1 16 5	9 19 0	12 0	1 11 6
1850	,, 12	9 1½	3 4	1 10 0	5 8 0	10 6	1 5 8
1851	,, 13	10 9½	5 5	1 15 3	10 0 0	10 0	1 8 5
1852	,, 9	13 2	5 7	1 16 6	10 13 10	10 6	1 10 6
1853	,, 15	14 7	5 1	3 16 8	19 16 10	13 0	1 16 4
1854	,, 22	12 4½	5 5⅜	3 7 4	19 2 3	15 0	1 18 10
1855	,, 22	10 7½	3 2⅝	3 8 9	11 7 7	15 0	1 16 7
1856	,, 15	17 5½	5 7	2 15 7	16 11 0	15 0	1 19 0
1857	July 31	15 0	6 0	2 9 0	14 14 6	13 6	1 15 10
1858	,, 29	13 10	5 0	2 4 2	11 0 2	12 0	1 10 9
1859	August 1	18 4	3 2	2 3 6	7 2 4	12 0	1 10 7
1860	,, 27	12 9½	3 0*	2 2 6	6 0 0	12 0	1 11 6
1861	,, 8	11 0	3 3⅜	2 17 6	9 15 7	12 0	1 11 6
1862	,, 14	12 0	4 2	2 6 11	10 0 0	12 0	1 10 1
24 years	.. ..	304 4	116 2	60 13 8	293 5 10	266 6	34 12 8
Average	August 11	12 8	4 6¾	2 10 7	12 4 4½	12 0	1 11 5¾

* Barely.

DEEP AND SHALLOW MILK PANS.

I SEND you a paper which I lately submitted to the Cork Agricultural Society—on deep and shallow pans. The experiments were conducted on reading an article which appeared in your Paper some time ago. It may prove interesting to your readers. *D. Cunningham, Munster Farm, Cork.*

It may be recollected that I had the honour of bringing before you in February last a paper on the various kinds of vessels employed in the dairy, and which was published in the society's last report.

"I showed from carefully conducted experiments, carried out at the Munster School Farm, that the materials of which dairy vessels are made had a considerable influence on both the quantity and quality of the butter produced. I found that glass vessels gave the largest quantity and best quality butter, and I stated that although their first cost considerably exceeded that of other vessels, yet that in the end I found them to be the most economical. The facility with which they can be washed and cleansed, &c., reduces the cost of labour by at least 100 per cent. Wooden vessels gave the smallest quantity of butter, and its quality was inferior to that from milk set in glass vessels. It is almost impossible, owing to the naturally porous nature of the wood, to keep the wooden keelers properly clean and free from acidity, and without which I need scarcely remark good and well tasted butter cannot be obtained. In the same paper I mentioned that many persons entertained the opinion that shallow pans or vessels threw up a larger proportion of cream than deep ones did, and I instanced an experiment which was published in the agricultural papers. The experiment was thus set forth:—

"In pans containing 1 quart the cream measured 1 gill.
" " 2 " " " 2 "
" " 3 " " " 2¼ "
" " 4 " " " 3 "
" " 5 " " " 3½ "

"With the view of ascertaining whether there would be any difference in the per centage of butter from milk set in deep and shallow pans, I instituted some experiments in the school farm dairy, and I now beg to submit the results. In the months of July and August I made repeated attempts to carry out this experiment, but failed in consequence of the very high temperature in those months. It was indeed found to be almost impossible to make butter during these months, even with the use of ice for reducing the temperature of the milk.

"I had hoped to carry out this experiment at that season, as the cows were then fed solely on Grass. It was, however, during the month of September the experiments were made, and the cows were then getting a small quantity of Mangel leaves in addition to Grass. The milk was measured, skimmed, and churned under my own supervision. I have tabulated the experiments, giving the kinds of vessels used, the depth of milk and number of quarts in each, the produce of butter, and the increase per centage in each kind of shallow pan.

"The increase in favour of shallow pans I found to vary from 1 per cent. in glass to 4¾ in wooden keelers. It may be remarked that each experiment consisted of two kinds of vessels—glass having been taken as the standard, and this was done for the purpose of again testing the accuracy of my former experiment with regard to the best material for milk vessels. The former experiments were carried out during the winter season, when the temperature of the dairy varied considerably, and the cows were then fed upon roots, rape cake, brewers' grains, and straw. The experiments fully show that both in summer and winter the materials of which milk vessels are composed have a decided influence on the yield of butter. The quantity of milk in the shallow pans was three quarts of milk in seven experiments, four quarts in four, and eight quarts in one experiment. In deep pans the quantity of milk commenced at four quarts and by gradation reached up to 16 quarts. The per centage of increase in the shallow pans differs very little, if any, when glass vessels were compared with those of delph, tinned iron, or earthenware, but when glass vessels were compared with wooden ones the difference was much greater. The result of the entire experiment shows that shallow vessels do produce more butter than deep ones, ranging from 1 per cent to 4¾ per cent. The average increase is 3 per cent. in favour of the shallow pans. The practical question then arises: Will it be desirable to extend our dairies to more than twice their present size, to purchase three times the quantity of milk vessels, thereby involving an increase of labour and expense in order to gain 3 per cent. of butter? There can, however, be no doubt that where only a few cows are kept it will be advisable to use shallow pans.

TABULATED EXPERIMENTS OF DEEP AND SHALLOW PANS.

Milk Vessels.		Number of vessels in each experiment.	Depth of milk in each vessel.	Number of quarts of milk in each pan.	Total quarts of milk in each experiment.	Total produce of butter.	Increase of butter in oz.	Per centage increase in favour of shallow pans.
		Pans.	Inches.	Quarts.	Quarts.	Ounces.	Ounces.	Per cwt.
No. 1 Experiment. Sept. 5.	Glass . ..	4	1¼	3	12	20¾	½	2½
	Do.	3	1¾	4	12	20	..	..
	English ware .	4	2½	3	12	20¼	¼	2½
	Do.	4	3½	4	12	20	..	..
No. 2 Experiment. Sept. 12.	Glass vessels .	3	1½	3	9	14	¾	4½
	Do. Do. ..	2	2½	5	10	15½	..	..
	Tinned Iron ..	3	1¾	3	9	14¼	¾	4½
	Do. Do. ..	2	2½	5	10	15¼	..	..
No. 3 Experiment. Sept. 19.	Glass vessels .	3	1½	3	9	14	¾	3½
	Do. Do. ..	2	2½	6	12	18	..	..
	Delph Do. ..	3	1¾	3	9	13	¼	2
	Do. Do. ..	2	2¼	6	12	17	..	..
No. 4 Experiment. Sept. 22.	Glass vessels .	3	1½	3	9	14	½	2¼
	Do. Do. ..	2	3½	8	16	21½	..	..
	Wooden Do. ..	1	1¾	8	8	12	1	4¾
	Do. Do. ..	1	3½	16	16	23	..	..
No. 5 Experiment. Sept. 29.	Glass vessels .	2	1¾	4	8	12¾	⅛	1
	Do. Do. ..	1	4½	12	12	19	..	..
	Wooden Do. ..	1	¾	4	4	5¼	¾	4
	Do. Do. ..	1	2¾	12	12	18	..	..

"On reading an elaborate article on milk, by Dr. Voelcker, in the 'Royal Agricultural Society's Journal,' I was much struck by an experiment conducted by Tannert, which shows that milk should be skimmed in 30 hours to obtain the largest quantity of butter, the temperature being at 60 degrees. Two equal quantities of milk were put aside, of which the first, skimmed after 30 hours, yielded 30 lb. of butter; and the second, skimmed after the lapse of 60 hours, gave only 27 lb. of butter. Now, the practice in this country is to allow the milk to sit longer than 60 hours, in fact until the milk has changed from the acetous fermentation to the putrefactive, the result of which is seen daily in the Cork Butter Exchange, the greater portion of the butter sent in from the country com-

manding only third and fourth qualities. For the purpose of ascertaining the proper time to skim milk, I beg to give you the result of two experiments on that point. Four pans of milk of 9 quarts each were set, the first was skimmed in the course of 30 hours, the second in 36 hours, the third in 48 hours, and the fourth in 60 hours. In the first pan the milk was perfectly sweet—that is, free from any trace of acidity—when tested by litmus paper, as was also the second; the third showed slight acidity, and the fourth decidedly so. The yield of butter in the first was 9½oz., in the second 11½ oz., and in the third and fourth 14 oz. A second experiment gave similar results—the temperature being 55 degrees. It thus appears that as long as the milk keeps sweet, the 'milk globules' continue to rise; that as soon as it turns sour, whether in 24 hours or 60 hours, the cream should be taken off, and under no circumstances should it be allowed to remain a longer time. *D. Cunningham.*"

THE MEAT MANUFACTURE.

[The following is the omitted portion of Mr. Coleman's paper read before the London Farmers' Club in December.]

How are the occupiers of arable land to stand their ground with the present low prices of Wheat? Why every one who knows anything of farming will answer, by keeping more stock, or rather I will say by increasing both the acreage and the quantity per acre of his root and green crops. It is all very well to tell a farmer to keep four bullocks where before he had only three; but let him, before he thinks of increasing his stock, direct his attention to the production of food for them, for if there is anything that does not pay, it is having more stock than he can find food for, although I do not think many farmers now-a-days will have more money than is really necessary to invest in stock, as corn does not fill the pocket to overflowing. I am quite sure that a small number of cattle, well done, will pay more than a large number improperly attended to, or that have to be supplied with in nutritious food, suchas straw, to make up for the want of roots or hay.

We will take an acre of roots at 20 tons for a good crop, and a crop of Trefoil or Clover at 30 cwt. per acre, and see how long this will with proper management keep a fair-sized ox in a going-on state. The food per day shall be—84 lbs. of roots, 6 lbs. of Clover chaff, 6 to 8 lbs. of straw chaff. The artificial food shall be put at the quantity I generally use, viz.—4 lbs. of Linseed cake, 2 lbs. of corn meal. This gives from the produce of 1 acre of Turnips and 1 of Clover 76 weeks' keep for a bullock: the artificial food, with cake at 10*l.*, and Bean, Indian Corn or Lentil meal at 8*l.* per ton, will cost 3*s.* 6*d.* per week per head. Now, it is but a moderate sort of bullock that will not pay 6*s.* per week for this keep, which will leave 5*l.* per acre for the roots, and 3*l.* per ton for the Clover consumed, besides the manure; those who do not wish to give Clover to their cattle will have to add 2 lbs. of artificial food per day, and use all straw; but I like a portion of each for profitable feeding, if possible. I consider if a farmer (take an average of seasons) realises 5*s.* per ton for his roots, and 3*l.* for his hay, by feeding bullocks, he does very well, and it is quite as much as many of us do. With present prices of beef of course more is made, but he is a lucky man who this year averages 20 tons of roots per acre.

Those who say that cattle do not pay I would tell to take a trip into Norfolk during the winter, and ask some of the farmers in the eastern part of the county what (with the present price of corn) pays their rents, and they will tell you their bullocks. I consider as profit to a farmer all that an animal makes over cost price, and cost of purchased food, if we value the Turnips, as some persons do, at 10*s.* per ton, we must put a liberal price upon the manure made by his cattle and very often very much more than it will bear; but upon Turnip soils, that will not bear treading with sheep (and as I have before said such soils grow the very best quality of roots), bullocks do, have done, and will pay for fattening, with beef anything like or approaching its present price, if the right sort of animal is purchased at not too high a price to commence with.

What is the best sort of bullock for our stalls? Without doubt the Shorthorn, because as good a sort as any man need wish to have is always procurable at a lower price than any of our other established breeds; and I find if they, the Shorthorns, do consume a little more food than the Hereford or Devon, they make more meat, and invariably pay best where a liberal supply of cake, corn, and roots, can be given. Now, unless a farmer knows what is the right sort to purchase, he may soon get tired of feeding bullocks; there are many men who are good judges of a beast when fat, but there are very few who know a good animal when poor. You see men looking at a lot of store beasts, handling them all very carefully, and pronouncing some good quality, and some bad; but I find the hand but of little use if the eye cannot in a lot tell 19 out of 20 without ever touching them; and now that I am recommending the Shorthorn to my brother farmers who may want their Turnips consumed profitably, I must explain, that I do not mean an animal that boasts of a long pedigree, for, though no one likes blood better than I do, still I find the best bred Shorthorns are not the best butchers' beast; they show all their points to perfection, straight back, catchy rumps, nice loin, but not very grand behind the shoulder, and do not generally make such fleshy beasts, when fat, as do some of the more common bred ones. I fancy all our improved breeds of cattle have now-a-days a tendency to produce more fat, in proportion to the lean, than is quite profitable to the consumer, and whenever I have a chance at any of our shows, I like to make a mark against one that carries flesh as well as fat. I have found the Herefords very well in the stall, but much better in the Grass field, and therefore our arable farmer cannot compete with the Grass men for their possession, at any profit to himself; and if he chose to do so, I should like to know where he is to procure any quantity of good beasts from; there are not a great number bred, and of these the best never get far from their native county, and they do not make growth enough when in the stall to pay for expensive feeding. I consider their place is in the Grass field; and although I very often finish a good many in the stalls, and have some in now that will I hope this week make 40*l.* each, still I never like to keep them there for many weeks, and never will put them in unless they are in good condition. The Devon, or red beast of the West of England, is a very useful animal; I do not mean the pure "North Devon," for these are few and far between at our fairs and markets. I did pick up 15 at last Barnet fair, but I never saw many of them so far from home; the large coarser breed of South Devon are bought by many of our arable farmers, and sometimes worked for a year or two, and then fattened; if put at once into the stall they require a little patience on the part of the owner, but when fat are more selling than almost any other breed, because they have always a good proportion of lean to the fat. The Scotch, both polled and horned, are now nearly all the best of them kept at home, and when fattened, sent to London and our other markets. It is to Ireland we must look for the main supplies to our feeding stalls, as her moist climate and humid atmosphere are more suitable for growing cattle than corn. I trust the reports we have lately heard of the decrease of stock in the sister isle will prove incorrect, for it will be an immense loss to us all if the Irish store cattle came shorter in numbers than they have done; some of my Leicestershire friends will begin to think they may never make any more profit of their good Grass land in consequence of the high price of store cattle.

The breeding of cattle upon arable land—is it advisable or not? Well, if I am to give an opinion, I say no; still, as there are few farms upon which there is not some old pasture, a limited number may be bred and reared for the purpose of fattening for the butcher, and as store cattle are now so high in price, it is a good practice for all occupiers of arable land to keep a few cows, and rear the produce of them. Now as I know many of our best farmers are adopting this plan, I will give my reasons for thinking it a good one, and how we can best set about it. Let cows be selected of good size, of any breed, that may be best adapted to the locality; always give a preference to the particular breed that may prevail in the district, as there is a reason for such animals being kept, for our forefathers had good cause, no doubt, for their choice. Let the cows be fair milkers, and chosen with an eye to that quality. A bull, of as pure blood as can be obtained, should be procured; and if he is not of such great size, it is not of so much importance, as the produce will inherit size from the dam, and quality and aptitude to fatten from the sire. This I find to be the cheapest way of breeding stock for the fattening stall, as I am quite sure our pedigree stock are of no use to the tenant farmer; their first cost would be much too high, and they would require more attention than would be remunerative to him. As our arable-land farmer will have his greatest supply of food in the winter, he will manage to have his calves dropped about September and October, as calves born at that time I have invariably found go out six months sooner than those that come after Christmas, even when all have lived together. As dairy produce now fetches a good price, a cow well chosen for milk will always pay for her keep, and perhaps more for the same food than a fattening ox; but then what is the difference in the value of the manure? why, something considerable; therefore let us be careful, and not keep too many; cows will pay for a portion of artificial food, and should always, when good milkers, in winter, have some.

(To be concluded next week.)

Home Correspondence.

Cottage Building.—I have been furnished with some important facts connected with cottage-building. The mason I am lodging with having a little money, purchased a feu and built a cottage on speculation. One of his acquaintances built a cottage of the same style. He got a wooden stair, three bedrooms with lath and plaster partitions, and three doors for an additional 15*l.* The mason says he is "very vexed that he did not put three attic bedrooms in his cottage, which he could have got for 15*l.* These cottages are built in accordance with the prepared plans of professional architects, and the 15*l.* covered the contract prices for the stairs and the three attic rooms and doors. My informant tells me that a person who purchases a feu in Edinburgh can have the rubble mason-work, hammer-dressed, done for ten pounds (10*l.*) a rood (36 square yards). This 10*l.* a rood includes the cost of purchasing and carting the stones, lime, and sand. Builders in Edinburgh get rubble for 4*d.* at the quarries, and they pay 3*s.* 6*d.* for the cartage of a load. My informant tells me that cottages with two rooms on the ground floor and a pantry, and two attic rooms could be erected for 70*l.*, provided all the building materials were carted—that is, were a landowner to provide the stones, and cart the lime, sand, wood, and slates, a number of cottages could be built for 70*l.*, barring the expense of providing the stones. Mr. E. Holland prohibits labourers with large families from keeping lodgers; and "Roaldus," p. 1094, states:—"Cottages should be built of two sizes; one suitable for a married couple with no children; these would afford ample provision for health and decency if they contain a good living room, a pantry, and one bedroom. For those who have several children, two and occasionally three bedrooms should be provided." If ploughmen and other farm operatives without children are not entitled to have the same domestic accommodation as those with families, how are Mr. Holland, M.P., Mr. Chambers of Glenarmiston, Mr. Henry Stephens of "The Book of the Farm," Mr. Robb, and "Roaldus" going to dispose of bachelors like your occasional controversial correspondent, myself? If a ploughman is regarded as unworthy of a four-room house when he is in the prime of life, and when he may have only two or three infant children, he will have less chance of getting a four-room house when he presents the appearance of a nearly worn-out ploughman. "Roaldus" states:—"Say that the man marries when he is 25, and his wife is 22 years of age, is it reasonable to expect that these young people, who in a majority of cases have nothing but their own savings to help them, can have money to furnish a house with three bedrooms? But supposing that by some extraordinary piece of good fortune they have the money to buy so much furniture, is it possible to devise a more unproductive method of using it?" "Roaldus" has yet to learn that it requires less money to furnish a house divided into separate apartments than it does to furnish an old-fashioned one. The house in which I was brought up is an oblong enclosure, open from end to end. The box-beds were set across the floor, and the press and a chest of drawers, and a clock on the north side. But I need not repeat what I have already stated in the *Agricultural Gazette*. Reckoning 12*l.* for the purchase of a cow, it requires a Roxburghshire hind and his wife to be jointly possessed of 50*l.* to 60*l.* to enable them to commence their married life free of debt, with furniture adapted for houses without partitions, and without a sufficient number of joists to support a flooring for an attic-room. To bring "Roaldus" to the point, being a bachelor, I have to pay 2*s.* 6*d.* per week for lodgings, 3*d.* per week for gas, and pay for the half of the coals burnt in the room I occupy. Another man and I sleep in the same bed. Owing to my sleeping alone from 1840 till 1854, I do not like a bedfellow, but 5*s.* would be too large a per centage off my wages for lodgings alone. The rent and taxes of the flat I am lodging in average about 11*l.* per annum. Notwithstanding that two lodgers pay more than the rental of the whole house, "Roaldus" asks respecting farm cottages: "Is it possible to devise a more unproductive method of using money than furnishing three bedrooms?" *W., Edinburgh.*

Societies.

DALKEITH.—The Dalkeith Agricultural Society was formed in the year 1836. It has had no meetings for discussion on any subject—at any rate there has been no report of any since I became a member, which was in 1845—but has alone devoted its energies to offering premiums for stock of all kinds, roots, best finished stackyard, and such like. This last season there was held a special meeting to take into consideration the propriety of destroying the wood pigeons, which had become a great pest of late; subscriptions were entered into, and the following sums were offered for the destruction of the said birds, namely, for every pair of heads, 3*d.*, and 1*d.* for every pair of eggs, and I am glad to say that the scheme has been pretty successful, a large number having been killed. Not having as yet got all the returns I cannot exactly say the number, but should say about 800 heads, besides eggs, in this district alone; and the same destruction is going on in West and East Lothian.

The Society has published no annual report, but merely a statement of their affairs at Whitsunday.

The effect generally produced by Agricultural Societies has been for the good of the district they are in.

Of late years reaping machines have been introduced, and are now in pretty general use in this district; the first one used here was Bell's side-delivery machine, which was introduced by myself in 1852, and at the same time I ordered other three, all for parties in this neighbourhood, but they were not in general use here till 1860 and 1861, and there are now all kinds of them, and which there is no doubt lessens the labour considerably on the farm.

Wages have rather increased than fallen of late

years, although the cheapness of the markets should rather have kept them down; the average wages of married men here is 21*l.* in cash, 6½ bolls meal, 3 bolls Potatos, and 1*l.* for harvest meat, and a free house, equal to 12*s.* 3½*d.* per week or thereabouts. *James Wilson, Wester Cowden.*

KINGSCOTE.—The Kingscote Agricultural Association was formed in 1857 with a view to improve the mental and moral condition of the farm labourers, and I have no hesitation in saying it has done much in that way the short time it has existed. At the first ploughing match there were 46 teams—on the whole the work was very inferior. This year a larger number of teams, and the work well executed; as a proof I may mention that a ploughman in the neighbourhood gained the champion prize in competition with the Messrs. Ransome & Sims, of Ipswich, and Howard's, of Bedford. All the improvement is not due to the men; since competition has taken place masters have given them improved ploughs. The premium to shepherds is deserving of notice, as it is in this neighbourhood of great importance.

I enclose our premium list, that you may see the amount, &c., which the Society gives. The Association holds six discussion meetings from November to April; the subjects in 1857 and 1858 were—

On the best and most economic mode of rearing calves to a year old.

The best and most economic system of breaking old fields.

Whether is it best to purchase artificial manure or to enrich the yard-dung by feeding cattle with artificial food?

Is it necessary that an alteration should take place in the laws relating to the management of the highways in England and Wales?

The comparative qualities of different kinds of artificial food for stock, and whether it is advantageous to use such; if so, to what extent, and best way?

The management of breeding ewes.

The cultivation and use of Mangel Wurzel.

The best mixture of seeds for one or two years lea.

The winter housing of stock.

The comparative value of Italian and common Rye-grass.

Observations on the alterations proposed and the improvements introduced in agriculture during the past year.

The proper management of pasture land, and the best method of making meadow hay.

The best means of establishing confidence and imparting a good and mutual understanding between agriculturists and their labourers.

The policy of breaking up Grass lands, and the best means of doing so.

The necessity of farm holdings being for a term, and agreements to contain clauses, guaranteeing compensation for unexhausted improvements at the time of quitting.

The relative merits of high, moderate, and indifferent farming.

The relative merits of grazing and dairy farming.

The preparation of land for Wheat, its after cultivation, and management up to the time of cutting.

Is ox labour economical in comparison with horse labour.

The desirability of the farmer being well versed in the theory as well as practice of his art.

The comparative advantages and expenses of animal and steam-power in the cultivation of the soil.

In what does a knowledge of geology assist the farmer in judging the quality and proper treatment of land?

The relative duties of landlords, tenants, and labourers, with a view to the mutual social well-being of themselves at large.

The use of straw on a farm.

Under what circumstance is it advisable for the farmer to rear his own stock for fattening in preference to buying them in, also the propriety of breeding and keeping sheep on heavy land.

A comparison between the Cotswold and Hampshire systems of farming.

The natural history of weeds, and the best means of extirpating them.

The probable working of the new Highway Act.

The method of determining the nature and value of land by the Grasses growing upon them.

Artificial manures, their relative value and economic application to farm crops.

Comparative anatomy. *Francis Burnett.*

HALIFAX AND CALDER VALE.—The Society was established in May, 1839, and has held 25 meetings. No particular subjects have been discussed at these meetings, except such remarks, bearing on agriculture, as have fallen from the speakers at the annual dinners. No annual report has been published, except the report of the proceedings published by the local papers. The Society having its seat in the midst of a densely populated manufacturing district, where the principal portion of the land is devoted to grazing purposes in order to meet the demand for milk and butter, its influence upon the grain and root cropping of the soil in the neighbourhood is, of necessity, comparatively insignificant. The prizes, however, offered by the Society embrace two sorts of Mangel Wurzel, two sorts of Turnips and Grain crops, and where the farmers have turned their attention to cropping, the produce per acre has increased from 5 to 10 tons, and this increase has arisen partly from the encouragement given to the farmers by this association. The most important feature of the Society's proceedings has been the attention it has given to the encouragement of the breeding and rearing of cattle, horses, and pigs. The improvement of the cattle bred in the district during the last twenty years has been most marked. One of its members (Mr. Henry Ambler, of Watkinson Hall), having been called into existence as a Short-horned breeder, through the instrumentality of this Society, has produced some as fine animals as any in England. Horses, too, in this district have improved wonderfully. The cottagers' pigs stand unsurpassed for their excellence; and the spirit of emulation which this Society has fostered amongst the working classes has been the means, not only of bringing the porcine race to great perfection, but has induced habits of thrift and industry which were quite unknown amongst them previous to the existence of this Society. A liberal list of premiums for poultry was also added to the Society's prizes a few years ago, and in this department alone the improvement has manifested itself most strikingly. *Wm. Irvine.*

Reviews.

Quarterly Journal of Science. No. 1. John Churchill & Son.

We lately quoted from a lecture delivered at the Cirencester Agricultural College remarks on the advantages to the agriculturist of general intelligence as well as of professional knowledge and technical skill. In accordance with these remarks let us recommend our agricultural readers to become subscribers to the Quarterly Journal named above, of which the first Number has just been issued. It will keep them informed of the progress of the various arts and sciences —of Agriculture among others. They will be placed by it in nearly the same position as if they habitually attended the meetings of all the learned societies. They will read in its pages discussions and discourses by men of the highest scientific reputation on the latest additions to our knowledge. It will be as if there were held upon their farms quarterly meetings of the Royal Society, the British Association, the Society of Arts, and the Social Science Congress. Whether this should result in any immediate and direct professional guidance or not, it is certain that it would at any rate give the agriculturist a higher place and rank in the esteem of himself and everybody else. And no one will say that this is not a great professional as well as merely personal advantage.

The Complete Grazier. By W. Youatt, Esq., V.S. Eleventh Edition, by Robert Scott Burn. Lockwood & Co.

"The Complete Grazier," as educated by these pages, is taught the breeding, rearing, fattening, and management of cattle—the economy and management of the dairy—the breeding, rearing, and management of horses, sheep, and swine—the treatment of disease in the live stock of the farm—the management of poultry —all that is necessary to be known on farm buildings and their arrangement, and on farm implements and their uses—the culture and management of Grass land—the cultivation of crops, especially of those for cattle food—and a mass of information on manures. There is also a chapter on farm accounts.

Some of these subjects are treated more fully than others, but on all there is a great deal of information, drawn from many sources, and it is impossible to doubt that any one with a practical knowledge of the many topics here discussed would be a "complete grazier." There are now many systematic works on agriculture, more or less original, to which the agricultural student may refer; and this is an addition to their number. Mr. Scott Burn has both added and remodelled chapters, so as to make the eleventh edition of a well known and popular work as representative of the present state of farm practice, as the original was of the state of agriculture then.

Farm Memoranda.

KIDLAW, HADDINGTON.—The breaking in of heath land at the height of 1300 or 1400 feet above the level of the sea is not a matter of easy accomplishment. This task has, however, been very successfully accomplished by Messrs. W. & J. Jenkinson, the enterprising tenants of the farm of Kidlaw, since the farm came into their hands in 1856.

Kidlaw—the farmhouse of which stands at an elevation of 737 feet above the sea level—was at the commencement of the present lease advertised to contain 750 acres Scotch, 198 of which were arable, and the rest pasture land—in other words, heather. Like all hill farms, the soil varies very much in quality, small portions of it being equal in fertility to anything in the county, and only requiring climate to produce the finest crops. The new tenants, on taking possession of the farm, indicated by the steps they took that they intended to inaugurate a fresh era for Kidlaw. The first thing they did was to reclaim from the heath a large tract of sloping hill-side immediately south of the farmhouse. This had never at any time been under cultivation, and was quite in a state of nature, the ground being covered by Junipers, Fern, and Heather. The nature of the soil, and the elevation of the land—not much more than 800 feet above the sea level—were favourable to the conversion of the hill into arable ground, and this was accordingly done — not less than 144 acres having been added in this way to the grain-producing portion of the farm within the last seven years. The process of reclamation is a somewhat tedious one. The first year's labour is entirely devoted to the uprooting of Junipers and Whins, the hoeing up of the Heather, and draining. The next season as many of the stones are removed from the hill as possible, and thousands of cartloads have in this way been taken off one field. The ground is then enclosed by dry-stone dykes, according to the size of the fields that have been planned out. The third year the ground is cropped either with Oats or Turnips; and in the fourth year it is heavily limed and sown out with a crop, after which it comes into the regular rotation of the farm. These multifarious operations have been successfully performed, as we have said, in the case of 144 acres, and we believe that the tenants are contemplating a still further addition to the arable produce of Kildaw. Extending their system of "high" farming to a loftier elevation, the enterprising tenants have broken ground on a portion of the hill-side not less than 1300 or 1400 feet above the level of the German Ocean, which here lies full in view. Notwithstanding all the expenditure of labour in carting lime up to nearly the crest of the Lammermoor range, the new tenants have already succeeded in getting 55 acres of mountain land under pasture. To bring in the Heath for permanent pasture is not in its progress quite so tedious an operation as converting it into arable land. The preliminary operations are of course the same—the Heather has to be burned, the Junipers removed, and the large stones rolled off. This is found enough for one year; in the next, the ground is turned up with the plough, and allowed to lie fallow till the third year, when a crop of Turnips is taken off it. The ground is then heavily limed at the rate of 20 bolls per acre, and sown down without a crop for permanent pasture. The first field taken in for pasture was sown down with Perennial Grass in May 1862, and eaten over with sheep in August of the same year. In the month of April this year, the same field was stocked with half-bred hoggs in the proportion of 6½ to the Scotch acre. The shotts from these sheep, after being kept on the pasture till the Turnips were ready, were sold in Haddington, at the Christmas sale on Monday week, at 3*l.* each. It is worthy of note—as indicating the pecuniary value of the improvement thus effected on the land—that, on the piece of land which in 1863 was found capable of feeding 6½ sheep per acre, the natural pasturage previous to the land being cropped was barely adequate to the support of one sheep to the acre. Fifty acres of land at this extreme elevation have already been converted into permanent pasture, where Grass instead of Heather is given to the stock; and at the present moment other 80 acres on the western edge of the farm adjacent to Stobshiels, are undergoing the same process of transformation. *Abridged from Haddington Courrier.*

Miscellaneous.

Turnip Seed.—I have read a great deal lately in your columns about the so-called "sporting" of Turnips, and I should be glad if you would allow me to tell a little I know about the question, as tending to show the extreme care used by some of our seed merchants in their much-talked-of and never-practised importation of seeds "grown only from selected bulbs." Five or six years ago, a friend of mine, an amateur farmer (since dead), sowed a small field of Turnips on what the labourers called "Soda-water;" the Turnips came up, but they evidently did not relish the saline draught; perhaps they would have liked it better with a slight mixture of brandy through it. One of your correspondents mentions Turnips as big as soda-water bottles. Now, if you compared these to the corks, you would have been nearer the mark. The land was miserably dirty: every weed that ever had a name, and some, I should think, without names, grew there in rank luxuriance. So my friend very wisely said he would save them for seed; he did so, and, as well as I remember, had about 60 bushels of seed. Now, sir, you will admit that this was a "sporting" lot! and to be sold to the highest bidder. Now, sir, who bought these seeds; and where did they go to? The truth is, the seedsman is like every other trader; he carries out the first principles of trade, as the late Sir Robert Peel said: "he buys in the cheapest market, and he sells in the dearest." K— was the cheapest market, and this worthy trader, who, as Sarah Gamp says, "shall be nameless," bought my friend's seeds at certainly a fair price, and after all said and done, this seed, or combination of seeds, did just as well for mixing as "burnt Rapeseed;" for if you could not grow soda-water bottles, you might have a good chance of the corks. Growing Turnip seed from selected roots, in 99 cases out of 100, is nothing but humbug. They are almost all grown from plants or seed. I have seen the market gardener in Bedfordshire, where most of th

Dublin Turnip seed comes from, bringing in plants from the farmers in cart loads, and I say, and that without fear of contradiction, that they never grow them from selected roots at all. Sutton, of Reading, as an admirable article in the Royal Agricultural Journal of England, says that "burnt Rapeseed is largely used for adulterating Swedes," and surely there might be some of the seeds that did not get enough of the fire, and hence the "sporting" in our Turnip fields. No, sir, do not let us poor farmers become the "sport" of the Dublin seedsmen: they charge us quite enough for our seeds to be able to give us a good article, without making "game" of us. *A. K., Farmer, in the Dublin Farm Gazette.*

Calendar of Operations.

JANUARY.

BERWICKSHIRE MERSE FARM: *Jan.* 16.—Up to the close of the year the weather continued uncommonly mild. Until the middle of November it was too wet for Wheat sowing; but with December there came a singularly fine and dry time, though very windy, and during these six weeks the rainfall has amounted to but nine-tenths of an inch. A large breadth of Wheat has been put in in first-rate order, and most of it brairded just in time to get a nip of black frost. Last week the frost was very keen, but dry, the protected thermometer indicating 16° on the morning of the 5th; but this week is neither very frosty nor fresh: under a still and foggy atmosphere, the ground remains hard as iron below. Our cattle courts, which were very full of muck, have got a good clearance; and we are anxious to be at the plough again. During the week Turnips have been pulled in a partially frozen state for immediate use; but they are not yet fit to be stored. Indeed the softer kinds are damaged, and must be eaten soon. The larger portion of Swedes were stored in fine condition; but the crop being a very moderate one owing to July drought, some farmers were tempted to let them grow a little longer. These, we imagine, must be the men who are said to be hurrying their live stock away, and depressing the market. Potatos are at present unsaleable, and will come in good stead to help the root crop. Cattle have done well, and hoggs amazingly, where free of epidemic, but foot-and-mouth disease has prevailed far and wide, and some lots of ewes have had a specially bad time of it. We brought the disease from Newcastle Fair, but were fortunate in having only three cases, all mild. When cattle are not over-driven, they get off more easily. Of course we took special care to have a separate attendant for the tainted lot, to wash the tongue frequently and give a few doses of homœopathic medicine; we use no other. Whether the result of this seclusion proves anything as to the theory of infection or no, certain it is the murrain went no further. Wheat is now getting into condition for threshing, but the yield is nothing so great as in the south. We have had better crops. Barley was a middling crop, and is now pretty well sold out. We have some very fine Oats, but very ordinary as to quantity. In our weekly bulk market there may be seen quite the usual quantity of inferior grain, especially Wheat. On the whole, stock promises to beat corn again. *J. T.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches. 30.26	°	°								Inches. 0.05
Friday ..	Jan. 15											
Saturday ..	16	30.25	40	39	S.E.	2	10	37	33	35	33	..
Sunday ..	17	29.91	30	33	S.E.	3	10	40	32	40	34	0.07
Monday ..	18	30.03	40	40	S.E.	0	10	41	34	42	30	0.09
Tuesday ..	19	30.16	39	39	S.	0	10	45	33	46	28	..
Wednesday ..	20	30.24	48	47	S.W.	2	10	48	38	51	36	0.42
Thursday ..	21	29.98	42	41	S.W.	1	8	48	41	49	37	0.13

Notice to Correspondents.

ERRATUM: At page 35 in Mr. Mechi's article on Profitable Farming, a farm of 240 acres at 12*l.* an acre is spoken of. For "12*l.*" read "12*s.* 6*d.*"

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

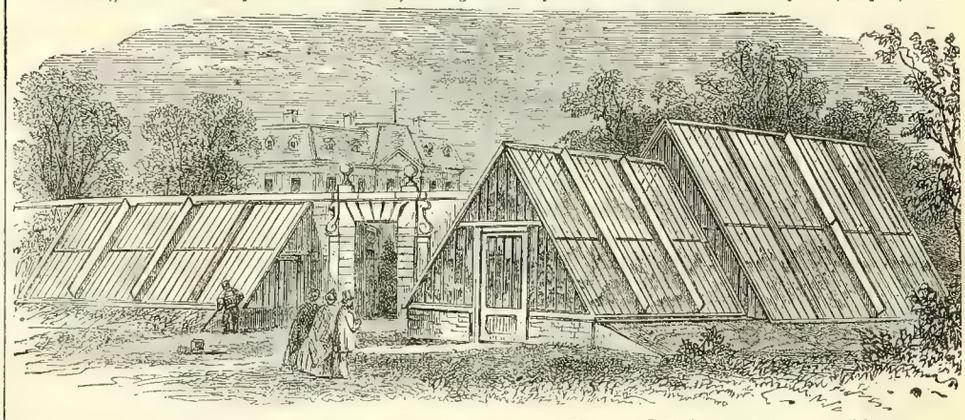
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft.	In.	8 ft. Lights	10 ft. Lights	Ft.	In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20	7 in length	£12 0 0	£16 0 0	20	11 in length	£21 18 0	£28 10 0	£34 5 0
31	3 in length	16 10 0	21 2 6	31	9 in length	29 6 0	37 12 0	45 16 0
41	11 in length	20 18 0	26 18 6	42	7 in length	36 16 0	46 14 0	57 7 0
63	3 in length	30 6 0	38 10 0	64	3 in length	51 14 0	64 18 0	80 10 0
84	7 in length	39 6 0	49 11 6	85	11 in length	66 12 0	83 2 0	103 11 0
105	11 in length	48 17 6	60 12 6	107	7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses may be had of Mr. HEREMAN, Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical."—*Cottage Gardener*, Oct. 6, 1863.

AUSTIN'S ARTIFICIAL STONE.

INVENTED BY FELIX AUSTIN, 1826.

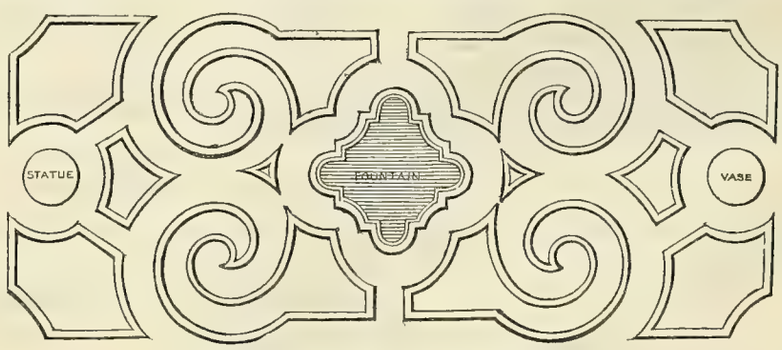
THIS WATERPROOF STONE, improved during a practice of more than 30 years, is the only one to which the chisel can be applied for high finish of ornament.

An immense quantity of work has during the period been executed for WINDSOR, OSBORNE, TRENTHAM, ARUNDEL CASTLE, WOBURN, WREST, and most other residences of the nobility, which in consequence of its close resemblance to Portland Stone, it is generally mistaken for, and therefore brings no credit to the peculiar invention. It thus becomes necessary (now that Portland Cement is obtaining a factitious reputation) to mark the distinction between Mr. AUSTIN'S material and a mere Cement which is as variable in quality and as much abused by workmen as the old Roman Cement.

AUSTIN, SEELEY, & Co. guarantee their work when fixed by themselves; and after so long a series of years they have accumulated a stock of models far exceeding any ever before possessed by a similar establishment. A general idea of it may be conveyed by the following summary:—

246 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at Prices from 10*l.* to 400*l.*
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a GREAT VARIETY of BALUSTRADING and PEDESTALS.

As public specimens of their work, open to the inspection of all persons, they beg to refer to FOUNTAINS erected in the Cities of CANTERBURY and GLOUCESTER, and to the large FLOWER BASINS and KERBS, executed for the ROYAL HORTICULTURAL GARDENS, and the new AVENUE GARDENS, REGENT'S PARK.



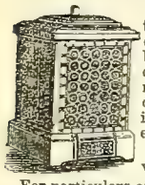
Kerbing made to any plan, in 3 or 4 feet lengths.

AUSTIN, SEELEY, AND CO., 369—375, EUSTON ROAD, REGENT'S PARK, N.W.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

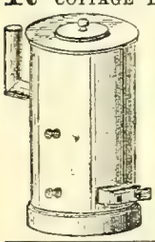


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.



The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

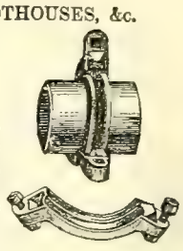
For Prospectus, &c., address T. H. P DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet... ...	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet... ...	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet... ...	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

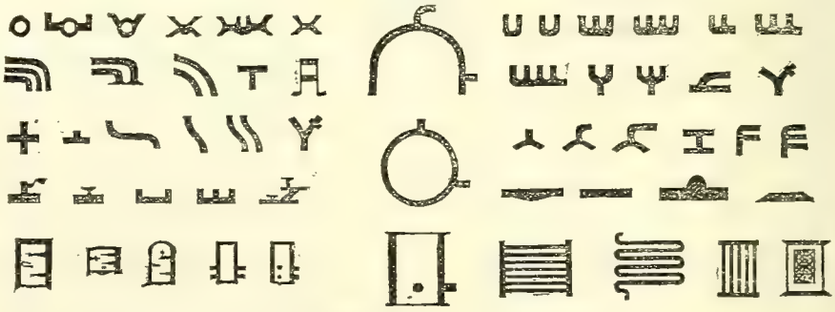
ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS. BOILERS. PIPES AND CONNECTIONS.



Detailed Illustrated Lists on application.

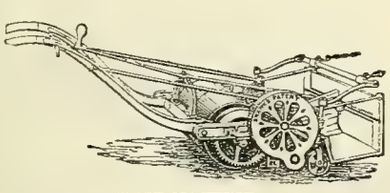
CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

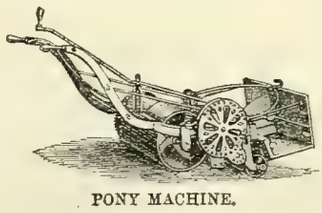
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

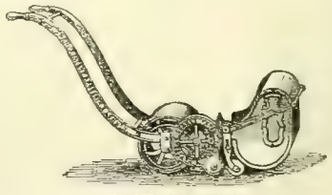
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

The First Practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers, do not hesitate in recommending SHANKS' MACHINE as the best Mower for general use, their great durability, simplicity of construction, ease in working, and ability to mow (wet or dry) on uneven as well as on level Lawns, give them an immense superiority over all others.

ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

Shanks' Patent Lawn Mowers are free from all useless novelties; they require less power to work them than any other, and are all warranted to give satisfaction.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A stock of Lawn Mowers always kept at the London Depot.

NOTICE.—ADVANCE IN THE PRICE OF IRON.

IN consequence of the great advance that has lately taken place in the price of Iron, most people have been compelled to advance the price of HOT-WATER PIPES in proportion, but J. JONES, having as usual a very large Stock at Bankside, and also having made extensive purchases previous to the rise, has decided to supply the Public with all PIPES and FITTINGS they may require WITHOUT ANY ADVANCE in PRICE.

J. JONES takes this opportunity of stating that the Pipes will be of the same weight and superior quality as those which he has supplied for many years past, and which have rendered his Establishment so celebrated.

6, BANKSIDE, LONDON.—January, 1864.

HOT-WATER PIPES

DELIVERED TO ANY STATION IN ENGLAND.

J. JONES

Begs to state that he can now supply HOT-WATER PIPES and FITTINGS delivered Carriage Paid to any Railway Station in England, and that he has made very advantageous arrangements for delivery at the following Stations; and parties availing themselves of this offer will in many cases get their Pipes at a Country Station at a less price than would be charged in London.

Alfreton	Chester	Gainsborough	Macclesfield	Peterborough	Selby
Accrington	Chorley	Grantham	Malton	Penkridge	Sheffield
Ashbourne	Chelford		Manchester		Tamworth
Adlington	Crewe	Halifax	Mansfield	Retford	Thirsk
Ashby-de-la-Zouch	Cheadle	Harrogate	Market Harboro'	Richmond (Yorks.)	Tipton
Atherstone	Congleton		Marton	Rotherham	Trentham
	Colwich	Ilkeston		Rochdale	Thrapston
Bradford (Yorks.)			Nottingham	Rugeley	
Burton		Kirkham	Normanton	Rugby	Uttoxeter
Burnley	Derby	Knapton	Northallerton	Redditch	Ullesthorpe
Bolton	Dewsbury	Knaresborough	Northampton		Worcester
Bingham	Doncaster			Shrewsbury	Wolverhampton
Bulwell	Driffield	Lancaster	Oakham	Stafford	Wellington (Salop)
Beverley	Droitwich	Leeds	Oldbury	Stourbridge	Wrexham
Bury	Dudley	Liverpool	Oldham	Salford	Warrington
Bedale		Loughborough	Ormskirk	St. Helen's	Wigan
Barnsley	Edgebaston	Leek	Oswestry	Settle	Wakefield
Barton	Eckington	Lichfield	Oundle	Skipton	Worksop
Birkenhead		Leamington		Stamford	Wellingboro'
		Leicester	Preston	Sleaford	
Chesterfield	Farnworth	Lincoln	Pontefract	Scarborough	York

Also to any Station in Derbyshire, Shropshire, Warwickshire, Cheshire, Lancashire, Yorkshire, Leicestershire, Worcestershire, Lincolnshire, and Staffordshire.

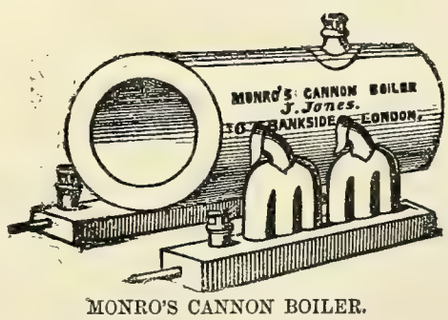
J. JONES will be happy to forward his ILLUSTRATED CATALOGUE of HOT-WATER PIPES, BOILERS, and FITTINGS, and PRICES for the same delivered Free to any Station; but parties requiring prices must state the quantities of Pipes, &c., required, and the Station to which they are to be delivered.

J. JONES,

IRON MERCHANT and HORTICULTURAL ENGINEER 6, BANKSIDE, LONDON, S.E.

J. JONES'S HOT-WATER APPARATUS.

	PRICE.
20-inch Wrought Iron	£3 15 0
24-inch "	6 10 0
30-inch "	7 10 0
36-inch "	8 10 0
48-inch "	12 0 0
60-inch "	20 0 0
72-inch "	25 0 0



MONRO'S CANNON BOILER.

These Boilers are now acknowledged by all who have used them to be the best Boilers at present invented. They are both economical in their first cost, and also in the consumption of fuel. They require but little space to fix them in, and when set the total height of brickwork need not be more than 3½ feet, consequently they can be fixed in many places where it would be impossible to set an Upright Boiler. These Boilers are now made of various sizes, suitable to heat from 500 feet to 3000 feet of 4-inch pipe, and are kept in stock and sold only by J. JONES, 6, Bankside, South wark, London, S.E.

Prices for HOT-WATER PIPES, ELBOWS, TEES, SYPHON, VALVES, TROUGH PIPES, ORNAMENTAL COIL CASES, BECK'S PATENT VALVES, &c.; or ESTIMATES for HOT-WATER APPARATUS, delivered Free to any Railway Station, or erected complete in any part of the country, with CANNON, SADDLE, or CYLINDER BOILERS, will be sent, with an ILLUSTRATED CATALOGUE, free on application.

J. JONES,

HOT-WATER APPARATUS MANUFACTORY, 6, BANKSIDE, LONDON, S.E.

THE INTERNATIONAL FINANCIAL SOCIETY, LIMITED,

ARE PREPARED TO RECEIVE SUBSCRIPTIONS FOR THE CAPITAL OF

THE LAND SECURITIES COMPANY, LIMITED.

CAPITAL, £2,000,000, in 40,000 SHARES of £50 each,

OF WHICH £1,000,000, IN 20,000 SHARES OF £50 EACH, ONLY TO BE ISSUED AT PRESENT.

£3 per Share to be Paid on Allotment.

IT IS NOT CONTEMPLATED TO CALL MORE THAN £10 PER SHARE IN ALL, OR MORE THAN £5 PER SHARE (INCLUDING £3 ON ALLOTMENT) IN THE FIRST YEAR.

Incorporated, with Limited Liability, under "The Companies Act, 1862."

APPLICATION WILL BE MADE TO PARLIAMENT, IN THE NEXT SESSION, FOR AN ACT CONFERRING SPECIAL POWERS.

DIRECTORS.

HIS GRACE THE DUKE OF MARLBOROUGH—*President.*

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FULKE SOUTHWELL GREVILLE, Esq., M.P.
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SIR CHARLES RICH, Bart. (Chairman Lands Improvement Company).
PHILIP TWELLS, Esq. (Messrs. Barclay, Bevan, & Co.)

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MESSRS. BARCLAY, BEVAN, TRITTON, TWELLS, AND CO., Lombard Street, London.
MESSRS. HERRIES, FARQUHAR, AND CO., St. James's Street, London.

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MESSRS. HUNTER, BLAIR & COWAN, W.S. ... ... Edinburgh.
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BROKERS.

MESSRS. SEYMOUR & CO., 38, Throgmorton Street. | MESSRS. P. CAZENOVE & CO., 52, Threadneedle Street.

OFFICES.

INTERNATIONAL SOCIETY'S TEMPORARY OFFICES, 54, OLD BROAD STREET, E.C., and 2, OLD PALACE YARD, WESTMINSTER, S.W.

The Directors of the INTERNATIONAL FINANCIAL SOCIETY, in submitting this Prospectus to the Public, call attention to the fact that the Company has been established to supply an admitted want in this country, where landed property is less negotiable as a Fund of Credit, than in any other of the States of Europe, in most of which large financial associations, such as the Banks of Hypothecation in Prussia, Austria, and Holland, the Credit Foncier of France, &c., make advances on Land with promptitude, at a moderate rate of Interest, and at small attendant expense.

These undertakings are all founded on the principle of the intervention of a Society, with large subscribed capital and consequent credit, enabling it to raise money on the most favourable terms, as an intermediary between borrowers, and lenders seeking investment on Landed Security.

The difficulty, delay, and heavy costs incurred in effecting the mortgage of even first-class property are well known; and there are numerous valuable interests arising out of Land which are at present almost wholly unavailable as a source of Credit, especially in times of financial depression.

The Company will act as Agents between the investing Public and the Borrower. They will also make advances repayable at fixed terms, or by terminable annuities, on Landed Estate, and on every charge upon Land, such as County and Parish Rates, Rates levied on Land under Public or Private Acts of Parliament, Royal Charters, Commissions of Sewers, Improvement Rent Charges on Private Estates, Towns Improvement Rates, Ground Rents, Harbour Trusts, &c.

All the necessary preliminary steps have been taken for applying to Parliament in the ensuing Session for a special Act in aid of the Company's operations; and with a view immediately to secure to the Company a field for the commencement of business, provisional and remunerative arrangements have been made for operations of an extensive character in connection with securities created for the Improvement of Land, under the Lands Improvements Company's Acts of Parliament, and which are preference charges on valuable private estates.

Upon the basis of the Securities thus acquired, the Company will issue Mortgage Debentures at fixed rates of interest, payable half yearly, for shorter or longer terms, as may suit Investors; and such a system of registration will be adopted as will effectively protect the lenders from any over issue of Debentures by the Company. It is well known that very large sums of money lie comparatively idle in the Provincial Banks, and in the hands of Trustees and private individuals, which it is believed will be readily invested through those Agencies, in Mortgage Debentures founded upon real securities, and further guaranteed by a large uncalled capital, many of the securities constituting, as before mentioned, first charges upon Land under special Acts of Parliament.

The Company acting by their Debenture system, will be enabled to turn over their paid-up capital many times in the year. It is estimated that a working fund of £200,000, being £10 per share, would be sufficient to conduct a business involving operations of three or four millions per annum, and a moderate commission upon that amount would produce an income which, after making the most ample deductions for working expenses and reserve fund, will leave a sum available for Dividend sufficient to remunerate the Shareholders on an unusually high scale, as proved by the large profits made by the Lands Improvement Company in the ten years they have been in operation.

The powerful landed and financial support which the Company has already obtained, insure the two elements which are essential to a commercial success, namely a steady and constant demand and supply.

Applications for Shares must be made to the INTERNATIONAL FINANCIAL SOCIETY (LIMITED), at their Temporary Offices, 54, Old Broad Street, E.C.

FORM OF APPLICATION FOR SHARES.

No.....

TO THE DIRECTORS OF THE INTERNATIONAL FINANCIAL SOCIETY (LIMITED),
54, OLD BROAD STREET, E.C.

GENTLEMEN,—I request you to Allot me Shares of £50 in the LAND SECURITIES COMPANY (LIMITED), and I hereby agree to become a Member of that Company, and to accept such Shares, or any less number that may be Allotted to me, and I request that my name may be placed on the Register of Members in respect of the Shares Allotted to me.

I am, Gentlemen, your obedient Servant,

Name in full .....
Address in full .....
Reference .....
Date .....

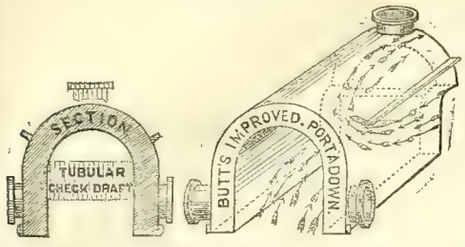
LAND SECURITIES COMPANY, LIMITED.

The Directors of the INTERNATIONAL FINANCIAL SOCIETY (LIMITED) HEREBY GIVE NOTICE that no further APPLICATIONS for SHARES in the above Company will be received after SATURDAY the 23d inst., from London, or MONDAY the 25th, from the Country.

54, Old Broad Street, E.C., Jan. 21.

By Order, WALTER A. MICHAEL, Secretary.

Heating by Hot-water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.

Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

A New Boiler.

THE PATENT UPRIGHT-CELLED BOILER, combining efficiency, economy, durability, and the possibility of cleaning every part.

The Patentee begs to bring to the notice of the public this Boiler, which is new in principle, and is constructed to give the greatest possible amount of heating surface in a given space. It has been in use for some years by amateurs and professional gardeners, as well as for heating large public buildings, and has never failed to give entire satisfaction.

The cost (which is less than that of any patent Boiler of equal power yet out) together with the great saving it effects in fuel, bring it within the reach of all classes.

Testimonials and particulars as to price, the various sizes, &c. to be had on application to Messrs. CLARKE & HOPE, Horticultural Engineers, Lionel Street, Birmingham.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

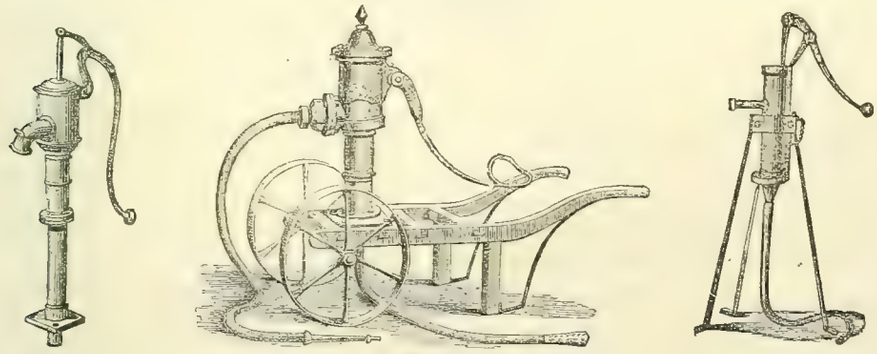
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

ESTATE IMPROVING.—JOSEPH NEWTON undertakes the General Management of Land, Garden Architecture, Laying-out Grounds, Draining Improvements, &c.
Address for Foreman of Works, reference and terms, 30, Eastbourne Terrace, W.

WANTED to PURCHASE, Two PROPAGATING TANKS, about 20 feet long, with Slates complete, and a Span-roof GREENHOUSE, nearly new, not less than 40 to 60 feet long, fitted with Boiler and Hot-water Pipes, &c. ☞State full particulars, with price delivered, to Mr. SAWARD, Castle House Nursery, Marsh Hill, Lower Homerton.

WANTED to RENT by an industrious practical Man, a small FLORIST NURSERY or Ground suitable for one. No objection to join another as Partner, where his energies and a few pounds could be profitably employed.
Address F. N., with particulars, to Mr. Ashman's, 1, Oxford Street, London.

WANTED, a few miles from Town, Westward, a practical GARDENER (SINGLE-HANDED), who is competent to take the charge of Kitchen and Flower Gardens, Vineries, Greenhouses, &c. Wages 16*s.*, increasing to 1*l.* per week; gardener's cottage of four rooms, and part vegetables.—Address, in own handwriting, to A. B., care of Thomas Pearson, Esq., 12, Abingdon Street, Westminster, S.W.

To Seedsmen and Others.

TO BE DISPOSED OF, with Immediate Possession, an Old Established SEED BUSINESS, near St. John's Market, in the centre of Liverpool. Terms moderate. This is an excellent opportunity for a young man desirous of commencing business.
For particulars and notes to view, apply to JOHN WHITE, 20, Clayton Square, Liverpool.

Park Nurseries, Singleton Brook, Higher Broughton, Manchester.

TO BE LET, on LEASE, the well known NURSERIES as above, Established upwards of 70 years, belonging to the Executors of William Lodge, deceased, and situated in the best part of Manchester, containing Hothouses, Greenhouses, Propagating, Specimen and Show Houses, covered by upwards of 5000 square feet of Glass, exclusive of Pits and Frames, the greater part heated by Hot Water, upon an improved principle; the Plant Stages built on brick arches, and well adapted for Forcing underneath.
There is an excellent Seed Shop, well fitted up with Drawers, &c., and Private Office attached, also Packing and Potting Sheds, and Cottage for Foreman; the Soil is rich and fertile, and suitable for growing Florist Flowers, for which the late proprietor had long been famous. The Premises are plentifully supplied with Water, and well stocked with Trees, Shrubs, &c., which can be taken at a Valuation at the option of the Tenant.
For further particulars apply to Mrs. LODGE, Broughton Lane, near Manchester.

TO BE LET, and the BUSINESS to be DISPOSED OF, a WELL-STOCKED NURSERY, with Dwelling-house and Grapery attached, within half a mile of a flourishing Market Town on the London and North-Western Railway. A good Business being done, and capable of much improvement. The Stock and Fixtures to be taken at a valuation.
Application to be made to the *Estates Gazette* Office and Agricultural Library, 200, Fleet Street, Temple Bar, W.C.

Lancashire.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE DISPOSED OF, with immediate possession, in consequence of the Proprietor retiring from business, an Old Established NURSERY BUSINESS, situate at Prescot, about eight miles from Liverpool, and about 22 from Manchester, easy of access by Rail or Bus.
The Nursery, with about 6 acres of rich Pasture Land, occupies about 22 acres, is in a good state of cultivation, and situate in a highly respectable neighbourhood, which is rapidly improving with Villa Residences, affording a first-rate prospect for a Landscape Gardener and Nurseryman, for which the Nursery possesses every facility for cultivating the most extensive business.
The Grounds are well stocked with choice Fruit Trees and ornamental Nursery Stock, including a great variety of first-class Evergreens, Deciduous Trees, and Shrubs. There are five Hothouses, filled with Fruiting Vines and Pines, a large Greenhouse containing Vine and other plants, and a Dutch Pit; also several Frames for propagating; the whole containing above 5000 feet of Glass.
The whole of the Stock, Fixtures, &c., to be taken at a valuation. The landlord is willing to grant a lease to an incoming tenant.
For particulars and notes to view, apply to JOHN WHITE, 20, Clayton Square, Liverpool.

Sale by Auction.

East Retford.

ELIGIBLE RESIDENCE AND GARDEN OR BUILDING GROUND.

MR. JOHN WILSON will SELL by AUCTION, at the Crown Inn, East Retford, on THURSDAY, Feb. 4, at 6 o'clock in the evening, in Lots to be arranged at the time of Sale, a very desirable FREEHOLD PROPERTY, situate in close contiguity to the town of East Retford, and now in the occupation of Mr. John Freeborough, the owner, consisting of a Large PLOT of LAND, now used as Garden and Nursery Ground, filled with healthy Trees and Shrubs, containing upwards of 4 Acres, and in which there is a newly built convenient Dwelling House, to which all requisite offices and conveniences are attached; and also a newly erected VINERY constructed on the most improved principle, and containing 11 Vines in full bearing, and Propagating House containing two Vines.
The situation of the Property is very eligible, and there are roads in connection with it which render it convenient alike for occupation, and the business of a Nurseryman or Gardener.
The land is of the very best quality for Garden purposes.
Retford is well situated for market and railway communication, and there is every facility for disposing of garden and other produce.
It is proposed to offer the Property either as an entirety or in lots; but, if in lots, the House and adjoining land, including an area of 1484 square yards, would form one lot; and the other lots would range in quantities from about 250 square yards to 550 square yards.
The sites of the lots for building purposes would be found very eligible. Possession may be had at Lady Day 1864, or sooner if desired.
For further Particulars, apply to Mr. FREEBOROUGH, on the Premises; to R. C. CARLINE, Esq., Lincoln; to the Auctioneer, West Retford; or to Messrs. BURNABY & DENMAN, East Retford.
A Plan of the Property is lodged with Mr. FREEBOROUGH, who will show the property, and point out the proposed lots.

GREEN'S PATENT SILENS MESSOR,

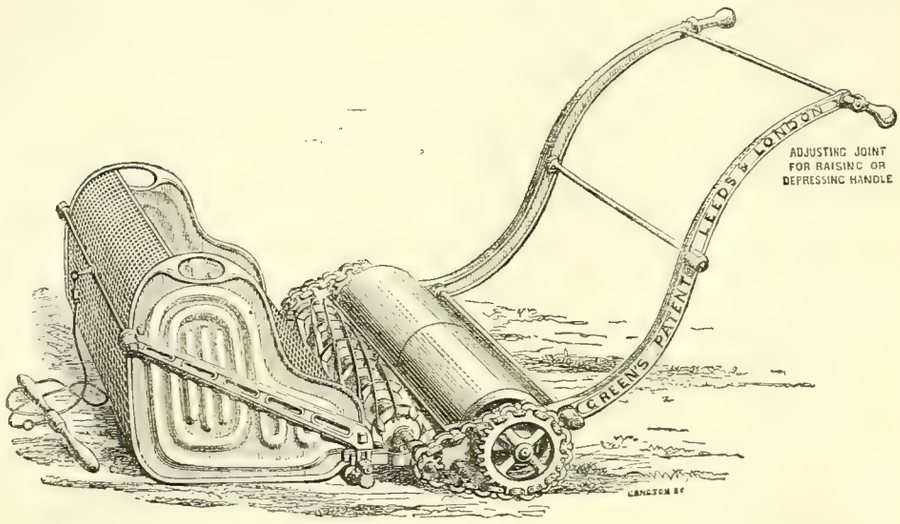
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS
MAJESTY THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches ... ... £27 0 0 ... ... Leather Boots for Horse, 26*s*.
„ 48 „ ... ... 30 0 0 ... ... „ „

The 26 and 28 inches can be easily worked by a donkey or by two men on an even Lawn, the 30 and 36 inches by a pony, and the 42 and 48 inches by a carriage horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening, the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 5.—1864.] SATURDAY, JANUARY 30. {Price Fivepence. {Stamped Edition, 6*d*.

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ADVERTISEMENTS *must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY.—NOTICE is HEREBY GIVEN, that the ANNUAL MEETING of this Society for the ELECTION of COUNCIL, Officers, Auditors, and Expenses Committee Men for the ensuing year, will be held in the Council Room, at South Kensington, W., on TUESDAY, February 9. The Chair to be taken at 1 o'Clock precisely. ANDREW MURRAY, Assistant Secretary.
January 30.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.
BUTLER AND McCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots. Covent Garden Market, London, W.C.

THE PLYMOUTH SEED COMPANY, LIMITED, has AMALGAMATED with the LONDON SEED COMPANY, LIMITED. Offices, 68, Welbeck Street, Cavendish Square, London, W.

Good Seeds, Carriage free.
WILLIAM PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, 57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.
RICHARD SMITH, NURSERYMAN and SEED MERCHANT, St. John's, Worcester.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. LANE AND SON. (For particulars, see page 95), The Nurseries, Berkhampstead, Herts.

BERBERIS AQUIFOLIA.—The above can be supplied at 12*s*. 6*d*. per 100, nice stocky Plants, two years transplanted. Cottingham Nurseries, near Hull.

THUNBERGIA COCCINEA, 1*s*. per packet. BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, W.C.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

THOMAS METHVEN begs to intimate that his NEW CATALOGUE of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., for 1864 is now ready, and will be forwarded Post-free on application. Seed Warehouse, Nursery Gate, Leith Walk, Edinburgh.

GLENNY'S IMPROVED BALSAM SEED, (unapproached as yet); 6 Classes, 37 stamps; 24 varieties, mixed, 13. A LIST of the best 60 Flower Seeds for Amateurs, free on receipt of a directed envelope. G. GLENNY, Fulham, S.W.

German Flower Seeds Fresh Imported.
SUTTON AND SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

Fresh Imported Double Italian Tuberoses.
SUTTON AND SONS have just received their supply, and can now offer very fine roots at 3*s*. 6*d*. per dozen. Royal Berkshire Seed Establishment, Reading.

DOUBLE TUBEROSES, just imported, 3*s*. per dozen. BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

VERBENAS.—Stock plants of all the leading varieties, strong plants full of Cuttings, 6*s*. per dozen in large 60's. J. REEVES, Ladbroke Nursery, Notting Hill, W.

ROSES, NEW and OLD. CATALOGUES NOW READY. A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s*. per dozen; DWARFS, 12*s*. per doz. NEW ROSES of 1863, 30*s*. per doz. DESCRIPTIVE PRICED LISTS on application. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

JAMES CRAWFORD begs to state that he has a few more Collections of ROSES in 60-pots, all first-rate sorts in from 12 to 60 varieties, at the unprecedented low price of 3*s*. 6*d*. per dozen, leaving the selection to himself. A LIST on application. High Beech, Essex.

Roses.
WILLIAM HUSSEY begs to offer 24 STANDARD ROSES, in 24 choice named sorts, for 21*s*., or 3*l*. 15*s*. per 100, package included. Horticultural Gardens, Norwich.

To the Trade.
STANDARD and DWARF and CLIMBING ROSES in large or small quantities, at reduced prices. Special Lists on application. Address WM. WOOD & SON, Maresfield, Uckfield, Sussex.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The GENERAL PRICE CURRENT is now ready, and will be forwarded Gratis and post free on application.

HERBST AND STENGER, Kew Nursery, Kew Road, Richmond, London, S.W., respectfully inform their friends that their SEED CATALOGUE is ready, and will be forwarded Free on application.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS, NURSERYMAN and SEEDSMAN, Paradise and Victoria Nurseries, Holloway, London, N. General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

To the Trade.
W. WITTY AND SON have to offer a quantity of named HOLLYHOCKS (good plants), at 2*l*. per 100. Nurseries, Cottingham, near Hull.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

NURSERYMEN possessing Surplus Stock of FOREST and ORNAMENTAL TREES and SHRUBS, would oblige by sending Lists, with particulars, addressed ALEX. MCKENZIE, Superintendent, Alexandra Park, Hornsey.

LARCH, extra fine, 2 to 3 feet, and other sizes.—Gentlemen wanting a quantity of any kind of Nursery Stock can have Samples and Prices. We supply some of the largest planters of forest trees. JOSEPH TREMBLE & SONS, Penrith.

Larch.
W. WITTY AND SON have to offer well grown LARCH of various heights at reasonable prices. Samples and prices on application. Cottingham Nurseries, near Hull.

WANTED, a few THOUSAND SINGLE GORSE PLANTS. J. C. WHEELER & SON, Nurserymen, Gloucester.

Cuttings.
WANTED to PURCHASE by a Nurseryman, any number of CUTTINGS of FUCHSIAS, CALCEOLARIAS, VERBENAS, &c.—Address in confidence, L. M., 21, Brook Street, Euston Road, N.W.

To the Seed Trade.
MUSK and HELIOTROPE, clean Seed, Growth of 1863. Price on application to WOOD & SONS, 172, Old Kent Road, S.E.

WHEELER'S LITTLE BOOK on SEEDS.

Grape Vines.
PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5*s*. each. "Old" Cheshunt Nurseries, N.

Grape Vines from Eyes.
WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application. Highgate Nurseries, London, N.

Grape Vines.
B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application. Paradise and Victoria Nurseries, Holloway, London, N.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s*. 6*d*. each. LIST of SORTS sent on application. Wellington Nursery, St. John's Wood, London, N.W.

500 MAIDEN MORELLO CHERRIES.—Fine strong Trees, 3*l*. 15*s*. per 100; also good MAIDEN APPLE and PEAR TREES. J. REEVES, Ladbroke Nursery, Notting Hill, W.

RASPBERRIES, STRAWBERRIES, CURRANTS, GOOSEBERRIES, strong ASPARAGUS, SEAKALE, &c. POTATOS—Early Handsworth, Ashleaf, Myatt's Prolific, Fortyfold, Shaw, &c. GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

Vines Black Hamburgh and Muscat of Alexandria.
ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 10*s*. 6*d*. each. The usual discount to the Trade. Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.
JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES. N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

ASPARAGUS, Extra Fine, 3 years old, for Forcing, 7*s*. per 100. J. REEVES, Ladbroke Nursery, Notting Hill, W.

Broccoli all the Year Round.—See
SUTTON'S AMATEUR'S GUIDE, pages 9 and 10, which will be sent post free on receipt of 6 penny stamps. SUTTON & SONS, Seed Growers, Reading, Berks.

The Best Frame Cucumbers.
SUTTON'S BERKSHIRE CHAMPION and IMPROVED SION HOUSE, 1*s*. per packet each. Free by post from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Fresh Mushroom Spawn.
SUTTON AND SONS have a superior stock of MUSHROOM SPAWN, 5*s*. per bushel. Royal Berkshire Seed Establishment, Reading.

NEW PEAS, PRINCESS of WALES and PRINCESS ROYAL.—For description of these unrivalled PEAS, see SUTTON'S AMATEUR'S GUIDE, price 6*d*., or Gratis to Customers (post free). SUTTON & SONS, Royal Berks Seed Establishment, Reading.

CHAMPION of ENGLAND PEA. For Sample and Price apply to Mr. WILLIAM CANT, Seed Grower, Myland Lodge, Colchester

PEAS.—EARLY WARWICK, DOUBLE BLOSS, FRAME, and DICKSON'S FAVOURITE. A few quarters of the above to be sold cheap. Samples and prices on application to WOOD & INGRAM, Huntingdon.

SCIMITAR PEAS for SALE, good and true, 60*s*. per quarter. Apply to the Grower, Mr. BIRD, Chessington Court Farm, near Kingston, Surrey.

SEAKALE, per 100, 5*s*. 6*d*., 7*s*. 6*d*.; Extra Strong, 12*s*. 6*d*.; quotations to the Trade on application. BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

VINES and SEED POTATOS, of all the best varieties, at very moderate prices. Address, Mr. GEORGE OWEN, Teddington, S.W.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

To the Trade.
MYATT'S PROLIFIC ASH-LEAF KIDNEY POTATO.—The above excellent early variety to be had of J. MYATT, Offenham, Evesham; also the EARLY HANDSWORTH and EARLY DALMAHOY. Price on application.

Myatt's Prolific Ashleaf Kidney Potatos (True).
WILLIAM BOOSEY, NURSERYMAN, Middlewich, Cheshire, has a very excellent stock of the above fine POTATO, which he offers at 4*s*. 6*d*. per bushel of 56 lbs., or 8*l*. per ton, for Cash only.

Seed Potatos.
FOR SALE, several Bushels of MYATT'S EARLY ASH-LEAVED KIDNEY POTATO. For particulars, apply to JAMES JAMES, Samieston, Jedburgh, N.B.

Great Reduction in the Price of Roses.

BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.

CATALOGUES, with special Prices, on application to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

ROSES.—Fine DWARF ROSES, still on Sale. A few fine Standards of 1863 yet on hand. Prices on application.

The NEW DAHLIA CATALOGUE now ready.
All the NEW ROSES in April.
JOHN KEYNES, Nurseryman, Salisbury.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18*s.* per dozen and upwards; Do. DWARFS, 9*s.* per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18*s.* to 30*s.* per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Roses! Roses! Roses!

JOHN HARRISON begs to inform his friends in the Trade that he has still left on hand upwards of 20,000 Roses on the Manetti stock, worked so close to the root that it is difficult to know them from plants on their own roots. They are unsurpassed, if equalled, in England for strength and vigour. Also a fine stock of Dwarfs on their own roots, and Standards of unsurpassed excellence. Prices exceedingly low.

CATALOGUES on application.
Darlington Nurseries.

A Very Extensive and Well-grown Stock of Roses,

CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—*s.*	*d.*
STANDARD HYBRID PERPETUALS ..	18*s.* to 24	0
HALF STANDARD ditto	15*s.* ,, 18	0
DWARF ditto	9*s.* ,, 12	0
STANDARD SUMMER ROSES	18	0
HALF ditto ditto	15	0
DWARF ditto ditto	9	0
DWARF BOURBON and TEA-SCENTED ..	12*s.* ,, 18	0
DWARF CHINA	9*s.* ,, 12	0
DWARF NOISETTE	9*s.* ,, 15	0
CLIMBING ROSES	9*s.* ,, 12	0
CLIMBING ROSES, without names, for covering banks, &c. .. .. .. per 100	30*s.*	4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE ..		5 0

Ranunculuses, Anemones, Seeds, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, invites attention to his unrivalled COLLECTION of the above-named Flowers, of which he offers selections as under:—

RANUNCULUSES,	50 superb sorts, named	£2	0*s.*
,,	50 fine ditto	1	0
,,	100 select mixtures, 5*s.*, 8*s.* and..	0	15
ANEMONES,	50 splendid double, named ..	0	13
,,	50 select mixtures	0	5

Treatise on CULTURE of RANUNCULUS, for 7 stamps. Ditto on ANEMONE, 4 stamps.

CATALOGUES gratis.

IMPORTED GERMAN SEEDS.—Named Asters, Stocks, Zinnias, Balsams, Phloxes, Larkspurs, Wallflowers, Immortelles, &c., in assortments, 1*s.* to 5*s.* post free. Annuals, 25 choice varieties, 5*s.*

All the above can be forwarded safely per post.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

FREDERICK ADOLPHUS HAAGE, JUN. NURSERYMAN and SEEDSMAN, of Erfurt, Prussia, offers to the Trade the following NEW ANNUALS of his own growing, and is fully convinced that they will be general favourites in the Flower Gardens:—

PHLOX DRUMMONDI, chamois rose, quite distinct and constant in colour.

DWARF DOUBLE JACOBŒA of the following new colours, viz.: white, crimson, carmine, purple, dark purple, violet, dark ash-coloured lilac.

For Prices, see his New TRADE SEED LIST for 1863-4, which may be had on application to his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London.—January, 1864.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.

P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

PELARGONIUMS and CINERARIAS.—Intending Purchasers are respectfully solicited to send for our DESCRIPTIVE CATALOGUE of many hundreds of varieties, at very moderate prices, which will be forwarded Post free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Paul's Hollyhock Seed.

COLLECTION OF 12 NAMED VARIETIES, POST-FREE, 5*s.*

PAUL AND SON have now ready the above; they can be also had of the principal nurserymen and seedsmen. Genuine Vegetable and Flower Seeds Carriage Free. List on application.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

RHODODENDRON COUNTESS of WILTON (LODGE'S).—The Executors of the late WILLIAM LODGE are SELLING OFF their STOCK of the above in consequence of declining the business. Fine bushy plants from layers, from 5*s.* to 10*s.* 6*d.* each; also some large Specimens about 3 feet; price on application. The Premises to be LET, see other advertisement.

Park Nurseries, Singleton Brook, Higher Broughton, near Manchester.

Dodecatheon elegans.

DOWNIE, LAIRD, AND LAING have to offer 6000 of the above, at 30*s.* per 100. Price to the Trade on application.

17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60*s.*; per doz., 9*s.*, including package.

Elvaston Nurseries, Derby.

BERBERIS DARWINI, Lawn and Cover.—Too much cannot be said of this fine evergreen species; it is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.

W. BARRON can supply strong and well-rooted plants of the above.

1 to 2 feet .. per 100, 20*s.* | 2 to 3 feet .. per 100, 30*s.*
Elvaston Nurseries, Derby.

DOBSON'S EXTRA CHOICE SEEDS. Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PANSY, 1*s.*, 2*s.* 6*d.*
DOBSON'S SUPERB SHOW PELARGONIUM, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB FANCY PELARGONIUM, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB BALSAM, 1*s.*, 2*s.*
DOBSON'S SUPERB ANTIRRHINUM, 1*s.*, 2*s.*
DOBSON'S SUPERB LOBELIA SPECIOSA, 1*s.*
DOBSON'S SUPERB HOLLYHOCKS, 1*s.*, 2*s.* 6*d.*, 5*s.*

The Trade supplied on liberal terms.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

CHEAP PLANTS.—The following in strong Plants for stock:—

NEW FUCHSIAS, best of 1863, per dozen, 6*s.*
NEW VERBENAS, ditto, per dozen, 4*s.*
NEW AGERATUM (PRINCE ALFRED), the best out, per dozen, 6*s.*
NEW GERANIUMS, (BEDDING), per dozen, 9*s.*
NEW PETUNIAS, per dozen, 6*s.*
LOBELIA PAXTONIANA, GORDONIANA, and four others, best of 1863, per dozen, 4*s.*
NEW TROPÆOLUMS, best of 1863, per dozen, 6*s.*
NEW HOLLYHOCKS, per dozen, 18*s.*
NEW ANTIRRHINUMS, per dozen, 4*s.*
NEW PENTSTEMONS, per dozen, 6*s.*
NEW MIMULUS (MACULOSUS), per dozen, 4*s.*
PAMPAS GRASS (ROSEUM), per dozen, 9*s.*
LONICERA AUREO-RETICULATA, per doz., 6*s.* to 9*s.*

Also the following in strong Plants:—

HEPATICAS, of sorts, per dozen, 3*s.* to 4*s.*
PRIMROSES, per dozen, 4*s.* to 9*s.*
POLYANTHUS, choice mixed, per dozen, 3*s.*
AURICULAS, border variety, per dozen, 3*s.*
LILIES OF THE VALLEY, per dozen, 2*s.*
LAVENDER, per dozen, 3*s.*
PINKS, finest named, per dozen, 3*s.* 6*d.*
VIOLETS, DOUBLE WHITE, PURPLE, and RUSSIAN, 3*s.*
ŒNOTHERA MISSOURIENSIS, per dozen, 4*s.*
,, SPLENDENS, per dozen, 4*s.*
DIELYTRA SPECTABILIS, per dozen, 4*s.*
PHLOX, fine named, per dozen, 4*s.*
HOLLYHOCKS, fine seedling, per dozen, from 3*s.*
GNAPHALIUM LANATUM, per dozen, 4*s.*
PANSIES, fine named, per dozen, from 3*s.*
100 CHOICE HARDY HERBACEOUS PLANTS in 50 Varieties, carefully named and packed for 25*s.*
12 SUPERB STANDARD ROSES, 12 ditto DWARF } 24 sorts for 21.

☞ Carriage of Parcels amounting to 20*s.*, paid to London.

Post Office Orders payable on Castle Hedingham, to WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24, 1863; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendron Stocks.—To the Trade.

MR. VEITCH has from 20,000 to 30,000 fine young RHODODENDRONS, with single stems, suitable for Grafting, which he can offer as follows:—

By the 100, at 15*s.* per 100
,, 1000, at 6*l.* 6*s.* per 1000
Royal Exotic Nursery, Chelsea, S.W.—Jan. 30.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

SEEDS for the KITCHEN GARDEN supplied by the LONDON SEED COMPANY (Limited).
Carriage Free.

SEEDS for the FLOWER GARDEN supplied by the LONDON SEED COMPANY (Limited).
Carriage Free.

SEEDS for the FARM supplied by the LONDON SEED COMPANY (Limited).
Carriage Free.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—*s.*	*d.*
LILIUM LANCIFOLIUM ALBUM	1	0
ROSEUM	1	3
,, ,, RUBRUM	1	3
,, ,, Three each of the above, 10*s.*		

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

New Seeds.

FISHER, HOLMES AND CO., Handsworth Nursery, Sheffield, beg to offer the following, which they have perfect confidence in recommending:—

BEET, CLAYTON'S SUPERB DWARF DARK RED; extra packets, 1*s.* and 2*s.* each.
BORECOLE, GREEN CURLED, a very superior variety; packets, 6*d.* and 1*s.* each.
BROCCOLI, HANDSWORTH, SUPERB LATE WHITE; packets, 1*s.* and 2*s.* each.
CUCUMBER, BATLEY TELEGRAPH, not to be surpassed; 3*s.* per dozen seeds.
CUCUMBER, BARTON'S MONARCH, excellent for general purposes; 1*s.* per dozen seeds.
CUCUMBER, WILSON'S PROLIFIC, the very best for forcing; 1*s.* 6*d.* per dozen seeds.
CUCUMBER, PORTER'S PROLIFIC, very superior; 3*s.* per dozen seeds.
LOVE APPLES, GRENIER, new packets; 1*s.* each.
PARSLEY, very superior Curled, beautiful for garnishing; packets, 6*d.* and 1*s.* each.

Agents in London, Messrs. HURST & SON, 6, Leadenhall Street, E.C.

PRICED CATALOGUES of VEGETABLE and FLOWER SEEDS, Gratis and Post Free on application to Messrs. FISHER, HOLMES & Co.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18*s.* to 30*s.* per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12*s.* per dozen. Catalogues of all the Novelties from Japan, gratis, ready February 1.

THOMAS AYRES.

Celosia pyramidalis—"Shanghae Cockscombs."

S. HODGES having grown the above largely for two years, is enabled to recommend them with confidence for the decoration of Conservatories, Greenhouses, and for the Dinner-table; they grow from 1 to 4 feet high, and are of every shade of purple and crimson, buff, yellow and pink. Some are plumed or feathery, others spiked and crested. They were exhibited at the Horticultural Shows in Cheltenham and at the "Great Fruit and Chrysanthemum Show" in Birmingham, where they were "highly commended."

Packets of mixed seeds of all the varieties, 2*s.* 6*d.* each; or in separate colours, 1*s.*

Very fine variety of Dwarf Cockscomb, 1*s.* per packet.

Collections of fine dwarf Quilled German Asters, 12 varieties, 2*s.* 6*d.* per packet.

Imperial Nursery, Cheltenham.

WHEELER'S LITTLE BOOK on SEEDS.

Seeds for Exportation.—New Seeds, Growth of 1863.

SUTTON AND SONS will shortly be prepared with their NEW SEEDS of this year's growth for export orders. Messrs. SUTTON'S mode of packing is most effectual and economical.

For terms, &c., apply to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

RICHARD SMITH,
SEED MERCHANT and NURSERYMAN,
Worcester.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.
RICHARD SMITH, Nurseries, Worcester.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES. — Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseries, Worcester.

Half-standard Apples.

RICHARD SMITH being overstocked, will sell in lots of not less than 50, good Trees of best sorts, and true to name, at 30*s.* per 100; also Half-standard GREEN GAGE PLUMS, very fine, at 50*s.* per 100.
RICHARD SMITH, Nurseries, Worcester.

VINES.—Fine, well-ripened, short-jointed Plants from Eyes of all the leading kinds, many of which will bear fruit this season. For names and prices of the various sizes, apply to
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7*s.* 6*d.* each; for Planting Out, from 3*s.* 6*d.* each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec. 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

NEW PRIZE MELON, CLIMAX.—This superb Green-flesh MELON was raised by Mr. WEBB, of Calcot, and obtained 1st Prize at the Crystal Palace Fruit Show in 1862; never yet offered to the public; a most abundant bearer, and of exquisite flavour. Sold in packets at 2*s.* 6*d.* each. Applications as above.
Calcot Gardens, Reading.

THE VICTORIA NECTARINE. — This is undoubtedly the finest Nectarine known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861. The following is an extract from the report:—"Mr. Rivers's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive." Fruit large, often measuring 9 inches in circumference. Young trees, full of blossom buds, 10*s.* 6*d.* each.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

The "Pine Apple" Scarlet Flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

The following list of Melons have been sent out in former years by E. T., none of which have failed to give satisfaction, and can now be supplied at 1*s.* per packet:—Bromham Hall, Garibaldi (scarlet flesh), General Havelock, M'Ewen's Arundel Hybrid Green Flesh, ditto Scarlet Flesh, Golden Drop, Golden Perfection, Scarlet King, Golden Ball, Austen's Incomparable, Queen, Bowood Green-flesh, Emperor. The following varieties can also be supplied at 1*s.* per packet:—Monro's Green Gage, Monro's Crystal Palace Hero, Eclipse, Scarlet Gem, Green Gage, Incomparable, Pine Apple Green Flesh, Camerton Court, Blackall's Green Flesh, Bailey's Green Flesh, Beechwood, Windsor Prize, Fleming's Trentham Hybrid, Duncan's Green Flesh, Hampton Court, Egyptian Green Flesh, Cuthill's Camberwell Beauty, Gordon Castle.

CUCUMBERS.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.

The following varieties at 1*s.* per packet sent out by E. T.:—Sir Colin Campbell, General Canrobert, Victory of Bath, Gordon's White Spine, Lord Kenyon's Favourite, Phenomenon, Captivation, Rifleman, Tiley's Improved Perfection, and Wonderful Ridge; as also the following, sent out by other growers:—Mill's Jewess, Manchester Prize, Conqueror of the West, Hunter's Prolific, Incomparable, Sion House, Cuthill's Black Spine, Allen's Victory, Champion of England, Stockwood Ridge, Ipswich Standard, Ayres' Prolific, Manchester Prize, Hamilton's Black Spine, Sutton's Champion, Dickson's Newton Hero, Burgess's Conqueror, Kelway's Victory, Henderson's A 1.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

Griffin's ALMA LETTUCE, true, 1*s.* per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement, with the exception of General Outram Cucumber, for 3*s.*

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.
Knap Hill Nursery, near Woking, Surrey.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

BARKER'S NEW HYBRID TROPÆOLUMS.—Seed of these beautiful Hybrids, which gave so much satisfaction last year, now ready. Some of them have a charming yellow ground, strikingly spotted with dark crimson; others are variously coloured; but all are admitted to be extremely handsome. (See reports in this and other papers.) Price 1*s.* and 2*s.* 6*d.* per packet.
C. J. BARKER, Exotic Nursery, Godalming, Surrey.

New Florist Flower Catalogue.

DOWNIE, LAIRD, AND LAING beg to intimate that their DESCRIPTIVE CATALOGUE of FLORIST FLOWERS, New Garden and Flower Seeds, &c., for 1864, is now ready, and may be had free on application.
17, South Frederick Street, Edinburgh; and at Stanstead Park, Forest Hill, London, S.E.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.



To Planters of Public Parks, Cemeteries, and Avenues.

MAULE AND SONS invite attention to a fine Stock of Specimen CEDRUS DEODARAS, from 7 to 8 feet high; all thoroughly prepared with Large Pots, so as to insure their removal with the greatest safety. Price 10*s.* 6*d.* each. Larger and smaller sizes at the same proportionate low figures.
The Nurseries, Bristol.

Lawn Trees.

LILACS, STANDARDS and PYRAMIDS.—The following interesting varieties of LILACS are offered at 1*s.* 6*d.* each; the trees are straight and well grown:—

Gloire de Moulins	Valletiana
Triomphe d'Orleans	New Light Blue
Charles 10th	Grandiflora rubra
New Dark Red	White Siberian
Lilas de Louvain	Red Siberian

SIBERIAN TREES, Standards, 5 feet stems.

Caragana jubata (rare)	2*s.*	6*d.*	Halimodendron argenteum	2*s.*	6*d.*
,, frutescens	2	6	Ulmus microphylla pendula, a new small-leaved Weeping Elm	3	6
,, arenaria ..	2	6			
,, Chamlagu ..	2	6			
,, spinosa ..	2	6			
Calophaca Wolgarica	2	6			

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

WM. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	,, Portugal, 1 to 2 feet
,, dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	,, Turkey, 3 to 4 feet
,, standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

A few Thousands of CRAB STOCKS to be Disposed of, at 30*s.* per 1000.

To the Trade.

GREEN HOLLIES, shifted last May, 1½ to 2 feet, 18*s.* per 100; 2 to 2½ feet, 30*s.* do. Also AUSTRIAN PINE, 2 to 3 feet; PINUS EXCELSA, 12 to 18 inches, and 2 to 2½ feet; PINUS MENZIESII, 2 to 3 feet; SIBERIAN ARBOR-VITÆ, 2 to 3 feet; do. LOBBII, 2 to 3 feet. Also SPRUCE FIR, MAHONIA, &c.

Prices on application to WILLIAM BOOSEY, Nurseryman, Middlewich, Cheshire.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

BLACK THORN for Covert Planting.—Sample and price on application to
JOHN PERKINS, 52, Market Square, Northampton.

STRONG THORN QUICKS, 2, 3, and 4-year Transplanted; EVERGREEN PRIVET, 3 to 4 feet; WHITE GLOBE RASPBERRY, CARTER'S PROLIFIC RASPBERRY.
For Price and Samples, apply to JOHN CARTER, Nursery, Keighley, Yorkshire.

WANTED, 2000 ENGLISH OAK, 5 to 6 feet; good clean stuff. Also about 60 handsome PLANES, 20 feet or more high.
Send particulars and prices to J. & C. LEE, Royal Vineyard Nursery, Hammersmith

Transplanted Forest Trees.

MARSH AND PERKINS have pleasure in offering the following, being fine and well rooted.
Prices on application to 42, Drapery, Northampton.
BEECH, 2 to 3 feet.
LARCH, 1½ to 2 feet and 2 to 3 feet.
WHITE THORN, 2 and 3 years transplanted.
SEEDLING LARCH, 1 year.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.
For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6 ft., 7 ft., and 8 ft., 3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft., 6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft., 9*l.* 9*s.* to 10*l.* 10*s.*
Elvaston Nurseries, Derby.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.
W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.
Elvaston Nurseries, Derby.

Transplanted and Seedling Larches.

BENJAMIN REID AND CO., NURSERYMEN, Aberdeen, N.B., offer for Sale several Millions of SEEDLING and TRANSPLANTED LARCHES. They are furnished with abundant healthy roots, clean stems, and capital leaders, and being grown in friable soil in an exposed situation are well worth the attention of proprietors and the Trade. CATALOGUES Post Free.
Special Prices and free delivery for large quantities on application.

To Persons Engaged in Planting.

MESSRS. WOOD AND SONS beg to offer the following TREES and SHRUBS at very low prices, in consequence of their land being required for Building purposes, viz.:—A few handsome Weeping Ash, English Elms, Birch, Poplars of sorts, Standard Almonds, Standard Thorns of sorts, Evergreen Privets, Purple Lilacs, Guelder Roses, Viburnums, Bladder Senna, Filberts, American Dogwood, Syringa, Spiræa, Tree Box, Aucuba, Euonymus japonica, Green Hollies, &c. The above being mostly of large sizes, Messrs. WOOD & SONS would recommend them as well suited for public Parks, Squares, &c.
Also Standard PEARS, Standard PLUMS, Dwarf-trained PLUMS, and other FRUIT TREES.
172, Old Kent Road, S.E.

H. LANE AND SON beg to inform their Patrons that the season is advancing, and that it is quite time intending Planters should examine our CATALOGUES. We beg permission to call their especial attention to our WELL FAMED STOCK, among which will be found great quantities of the following, viz.:—

Abies Douglasii, 3 to 12 feet	Picea Lowii
,, orientalis, 1 to 3 feet	,, nobilis, to 4 feet
,, taxifolia, 1 to 3 feet	,, Nordmanniana, to 4 feet
Azalea indica	Pinus in sorts
,, Ghent	Podocarpus
Araucaria imbricata, 2 to 12 ft.	Retinispora
Cedrus Deodara, 3 to 10 feet	Roses, strong and fine, second to none
,, Libani, 3 to 10 feet	
Cupressus Lambertiana, 3 to 6 feet	Thuja aurea
	,, gigantea
Cupressus Lawsoniana, to 3 ft.	,, Siberian
Fruit Trees of every description	Thujopsis borealis
Juniperus, upright, 2 feet	,, dolabrata
,, chinensis, 1 foot	Wellingtonia, 1 to 4 feet
Picea grandis	Yews in variety
,, lasiocarpa	

which we can supply at most reasonable prices.
CATALOGUES may be had gratis on application at the Nurseries, Berkhampstead, Herts.

H. AND R. STIRZAKER can supply, of good quality,
200,000 SPRUCE FIR, strong, from 1 up to 2½ ft.
500,000 LARCH, twice transplanted, from 1½ to 2 feet
50,000 HORSE CHESNUTS, from 2 up to 10 feet
10,000 STANDARD APPLES, 2 to 3 and 3 to 4 feet stems
The above are well rooted and hardy; Prices low.
Also about 300 bushels of EARLY HANDSWORTH, ASHLEAF, and IMPROVED LEMON KIDNEY POTATOS, good stocks; Prices on application.
The Nurseries, Lancaster.

ALGERIAN ACCLIMATATION SOCIETY.—The New PLANT, SEED, and TREE CATALOGUE of the ALGERIAN ACCLIMATATION SOCIETY is just published, and may be obtained on application to the Society's London Agents,
Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
" HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
" WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
" LOMBARDY, 8 to 10, and 10 to 12 feet
" ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
" ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black
Huntingdon Nurseries.

SEEDLING FOREST TREES, &c.

		s.	d.
4,000,000	1 year LARCH .. .. .. per	100,000	100	0
400,000	1 year BIRCH .. .. .. per	1000	2	0
300,000	1 year ALDER .. .. .. "		1	6
300,000	1 year SYCAMORE! .. .. .. "		2	0
50,000	1 year MAHONIA AQUIFOLIA .. "		7	0
1,000,000	2 year SPRUCE FIR .. .. .. "		1	6
500,000	3 year " " .. .. "		2	0
300,000	2 year BEDDED SPRUCE FIR .. "		5	0
600,000	3 year SILVER FIR .. .. .. "		5	0
50,000	4 year " " .. .. "		7	6
50,000	2 year PINUS AUSTRIACA .. "		6	0
300,000	3 year BEECH .. .. .. "		4	0
2,000,000	2 year ASH .. .. "		2	0
60,000	1 year COMMON LAUREL .. "		15	0
300,000	Transplanted SPRUCE FIR, 12 to 18 ins. "		15	0
80,000	Twice Transplanted AMERICAN ARBOR-VITÆ, 6 to 8 inches "		30	0

The Subscriber begs to call the attention of the Trade to the above, hoping to be favoured with their orders, which shall be executed without delay, and in the best possible manner. All delivered free of expense at Dublin.

Application to MICHAEL BURKE, Drumlargan Nurseries, Summerhill, County Meath, Ireland.

List of Select Vegetable and Flower Seeds.

WOOD AND INGRAM beg to announce that their New PRICED and DESCRIPTIVE CATALOGUE of the above may be had Post free on application.
Huntingdon Nurseries.

Seeds.

HUGH LOW AND CO. respectfully announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS is now ready for distribution, and will be forwarded post free to all applicants.
Clapton Nursery, N.E.

Kitchen Garden, Flower, and Agricultural Seeds.

WILLIAM BARNES begs to inform his friends and the Public generally, that his NEW CATALOGUE is now ready, and can be obtained upon application, Post-free.
Camden Nursery, Camberwell.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

GENUINE VEGETABLE and FLOWER SEEDS of first-class quality.—Carriage paid on Orders amounting to 21s. and upwards. To lovers of really first-class ASTERS, STOCKS, PRIMULA, CALCEOLARIA, CINERARIA, and other choice Flower Seeds, we respectfully invite a trial of our matchless strain.

MCRAE & FRASER, Seed Merchants and Nurserymen, Tredegar Nursery, Bow, London.
PRICED LISTS free on application.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.

For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Seeds Carriage Free.

J. DOBSON AND SONS' CATALOGUE for 1864 is now ready, gratis and Post-free.
VEGETABLE SEEDS, best quality, 300 sorts.
FLOWER SEEDS, best quality, 400 varieties.
FARM SEEDS, best quality.
Woodlands Nursery, Isleworth, W.; and High Street, Hounslow, W.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.
Highgate Nurseries, London, N.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of SEEDS for 1864 is now ready and contains select lists only of
SEEDS for the KITCHEN GARDEN,
SEEDS for the FLOWER GARDEN,
SEEDS for the FARM.
And will be forwarded, Post-paid, on application.
Nursery and Seed Establishment, Westerham, Kent.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had post free on application.

The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend:—
DILLISTONE'S EARLIEST PEAS, 1s. 6d. per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2s. 6d. per packet.
BROCCOLI, SNOW'S SUPERB, 2s. 6d. per ounce.
CUCUMBER KIRKLEES HALL, 1s. per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1s. per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1s. per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1s. per pkt.
MELON SCARLET PERFECTION, new, First Class Certificate at Royal Horticultural Society, 2s. 6d. per packet.
Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

Seed Potatos.

JOHN KELLETT begs to offer FLUKE KIDNEYS—the best late Potato; and DALMAHOY, the best second early, picked for Seed from land unbroken for 70 years. Price per bushel, or load of 252 lbs. on application.
Green Lane Nurseries, Heaton Norris, Stockport.
The Trade liberally dealt with.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6l. per Ton, or 8s. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2s. each.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863:—

"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."

Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

Splendid New Potato—The Pink Fluke.

SUTTON AND SONS have great confidence in recommending this fine Potato. It has hitherto been entirely free from disease, and keeps mealy and fine flavour until the succeeding harvest,

The Grower, writing to Messrs. SUTTON, says:—

"They are a beautiful Potato, and will astonish your customers. They will keep 12 months, and improve in flavour when all others are getting unpalatable."

Price 3s. per peck, or 10s. per bushel, carriage free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S LIST of SEED POTATOS.

DELIVERED CARRIAGE FREE.
Prices per Ton may be had on application.

**** *The sorts marked* (K) *are kidney-shaped.*	PRESENT PRICES. Per pk. or stone of 14 lbs.	Per bushel of 56 lbs.
	s. d.	s. d.
SUTTON'S EARLY RACEHORSE (K), earlier and finer than any other early Potato known. After growing our Early Racehorse Potato in competition with every sort advertised by other growers last season, we can more confidently than ever repeat the above description of our Early Racehorse, as we have not yet seen any sort worthy of comparison with this	5 0	..
HUDSON'S NONSUCH (K), forwarder than the Early Ashleaf	3 0	10 0
HUDSON'S EARLY MAY (K), one of the best early kinds	3 0	10 0
CARTER'S CHAMPION (K), early forcing, very short haulm	3 6	12 0
RIVERS'S ROYAL ASHLEAF (K), direct from Mr. Thomas Rivers .. .. .. N.B.—This came in next to Sutton's Racehorse in our trials.	5 0	..
EARLY ASHLEAF (K), a well-known old early sort	3 0	10 0
MYATT'S EARLY ASHLEAF (K), more productive than the preceding	3 0	10 0
GLOUCESTERSHIRE KIDNEY, highly spoken of by Messrs. Wheeler & Son, from whom we obtained our supply	3 0	10 0
EARLY WALNUTLEAF (K), somewhat similar to Ashleaf	3 0	10 0
HANDSWORTH EARLY, one of the best for forcing, but rather deficient in flavour .	3 0	10 0
IMPROVED EARLY SHAW, a favourite Potato with the London Market Gardeners; very productive and full flavour	2 6	9 0
WEBB'S IMPERIAL (K), very fine large white	3 0	10 0
FLUKE (K), productive and well known sort	2 0	7 0
DALMAHOY, fine second early, and good for main crop	1 9	6 0
PRINCE of WALES or RED REGENT, from the original stock which took the first prize at Birmingham, and one of the finest and most productive Potatos out	2 0	7 0
NEW IRISH APPLE, very hardy and prolific, never affected by blight	2 6	9 0
NEW PINK FLUKE (K), will keep 12 months, and improve in flavour until the new crop comes in again	3 0	10 0
SKERRY BLUE, very large and productive, new from Ireland	1 9	6 0
THE KING (K), gained First Prizes at the Royal Horticultural Society's International Show, as also at Birmingham and other shows	3 0	10 0
THE QUEEN of FLUKES (K), a fine late sort, keeps well	3 0	10 0
FLOUR BALL, the true sort, recommended for main crops	1 9	6 0
FORTYFOLD, very productive, mealy, and fine flavour	1 9	6 0

TRUE YORK REGENT and other sorts at lower prices.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:
Price for Picked Roots, per 100 .. .. 12s. 6d.
Do. second size " 10 0
Also strong for Planting, per 100 .. 5s. and 7 6
Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.
Fulham Nursery, London, S.W.—January 30.
Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. per packet. Will be forwarded to any part of England on forwarding 26 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5s. per quart. per packet—s. d.
DIXON'S New MAMMOTH WHITE CELERY .. 1 0
DIXON'S New CHAMPION GREEN COS LETTUCE 1 0
DIXON'S YORKSHIRE FAVOURITE MELON .. 1 0
DIXON'S YORKSHIRE HERO CUCUMBER .. 2 0
The EARLY FORCING CAULIFLOWER 1 0
The ROSEBERRY BRUSSELS SPROUTS 0 6
MELVILLE'S VARIEGATED GARNISHING KALE 0 6
All post free except the Peas.
EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., begs to state that he is now prepared to supply with NEW and GENUINE SEEDS all orders he may be favoured with.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded Post free on application. It contains all that is really worth growing amongst Novelties, and carefully selected Lists of indispensable articles, amongst which are the following choice kinds. The prices are quoted as low as possible for the finest samples that are to be procured.

PEAS.—Dillistone's Prolific, Princess Royal, Prince of Wales, Harrison's Royal Blue, 1s. 6d. per quart; Beck's Gem, Sangster's No. 1, General Wyndham, Eclipse, Nonpareil, Champion of Scotland, Lord Raglan, Ne Plus Ultra, Hair's Dwarf Mammoth, Veitch's Perfection, Knight's and Dwarf Marrow, 1s. per quart; British Queen, Rising Sun, Champion of England, Champion of Paris, Dickson's Favourite, Auvergne, Fairbeard's Surprise, Bishop's New Long Podded, Harrison's Glory and Perfection, 10d. per quart; Early Emperor, Early Frame, Blue Scimitar, Waterloo, Prince Albert, Victoria Marrow, 8d. per quart.

BEANS.—Early Long Pod, Early Mazagan, Green Long Pod, Monarch, Taylor's Broad Windsor, Green Windsor, Johnson's Wonderful. French Beans, the best kinds, 1s. 6d. per qt.; Scarlet Runner Beans, 1s. 3d. do.

BEET.—Pine Apple Short-top, 6d. per oz.; Barratt's Crimson, 4d. do.; Nutting's Dwarf Red, 4d. do.; Cattell's Blood Red. 4d. do.

BORECOLE.—Asparagus Kale, Ragged Jack, Cottager's Kale, Siberian, Tall Green Curled, Dwarf Green Curled, Melville's Curled Variegated.

BROCCOLI.—Walcheren, 1s. per oz.; Snow's Winter White, 2s. do.; Carter's Champion, 1s. per pkt.; Backhouse's Winter White and Protecting, 2s. 6d. do.; White Cape, Pink Cape, Brimstone, Chappell's Cream, Dalmeney Park, Dilcock's Bride, Dwarf Russian, Mammoth, Elletson's Emperor, Waterloo, Knight's Protecting, Wilcove Late White, Snow's Spring White.

BRUSSELS SPROUTS.—Imported, Roseberry, Perkins's Improved Dwarf, 6d. per oz.

CABBAGE.—Little Pixie, Battersea, Reliance, East Ham, Early York, Early Nonpareil, Eclipse, Enfield Market, Paragon, Shilling's Queen, Victoria, Wheeler's Imperial, &c., 4d. per oz.

CARROT.—Altringham, Red Horn, James's New Scarlet, Long Orange, Red Surrey, Prince's Improved, 3d. per oz.

CAULIFLOWER.—Early and Late London, 1s. per oz.; Asiatic or Leyden, 1s. do.; Early Dwarf Erfurt, 2s. 6d. do.; Frogmore Forcing, 1s. do.

CELERY.—Williams's Matchless Red, a new and very superior variety, 1s. 6d. per pkt.; Cole's White Perfection, per oz. 8d.; Hood's Imperial Dwarf Red, 8d. do.; Crystal White, Defiance Red, Ivery's Nonsuch, Turner's Incomparable, Seymour's Champion White, Cole's Superb Solid Red, 4d.

CRESS.—Curled leaved Normandy, 3d. per oz.; Golden or Australian, 3d. do.; Plain, 1s. per qt.

CUCUMBERS.—Berkshire Champion, Long Gun, Conqueror of the West, Dr. Livingstone, Barratt's Excelsior, Highland Mary, Sir Colin Campbell, Rifleman, Empress Eugenie, Telegraph, Manchester Prize, Yorkshire Hero, Hamilton's Market Favourite, Donald Beaton, new Ridge, 1s. per pkt.

LEEK.—Ayton Castle Giant, 1s. per pkt.; Henry's Hybrid Prize, 1s. do.

COS LETTUCE.—Alma, folds without tying, 8d. per oz.; Moor Park, a superior variety, 1s. do.; Bath, Compact Green, Egyptian Green, Paris White, Paris Green, Florence, 6d. per oz.

CABBAGE LETTUCE.—Brown Dutch, Grand Admiral, Hardy Green, Large Versailles, Drumhead, Neapolitan, Tennisball, Victoria, 6d. per oz.

MELON.—The best varieties, per pkt. 1s.

MUSTARD.—Per qt. 1s.

ONION.—Brown Globe, Welsh Hardy, James' Long Keeping, White Lisbon, 6d. per oz.; Brown Spanish, Deptford, Strasburg, White Globe, White Spanish, 4d. per oz.

PARSNIP.—Hollow Crown, 3d. per oz.; The Student, 6d. per oz.

PARSLEY.—Enfield Matchless, Extra fine Curled, 3d. per oz.

RADISH.—Beck's superb Short Top, Wood's Early Frame, Red and White Turnip, 2s. per quart.

SEAKALE, 3s. per quart.

SPINACH.—Prickly or Winter, Round or Summer, Prickly Flanders, 8d. per quart.

TURNIP.—American Strap-leaf, Early Dutch, Early Stone, Orange Jelly, Snowball, Red-top American Stone, 3d. per oz.

VEGETABLE MARROW.—Chusan, a new and distinct variety, 2s. 6d. per packet; Custard, 6d. do.; Long-fruited Green, 3d. do.; Long-fruited White, 3d. do.

SWEET and other HERBS, 3d. per packet.

POTATOS.—All the best and most useful kinds at moderate prices.

Strong ASPARAGUS ROOTS for Forcing.

A DESCRIPTIVE CATALOGUE of FLOWER SEEDS is now published, and may be had post free.

Paradise and Victoria Nurseries, Holloway, London, N.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application :—

DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW ,,
WOODFORD'S GREEN MARROW ,,

To the Seed Trade.

PEAS.—Early Emperor, Prizetaker, Bedman's Imperial, Ne Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to

MARSH & PERKINS, 42, Drapery, Northampton.

Fairbeard's Forty-fold Blue Marrow Pea.

J. FAIRBEARD begs to offer to the public in general a large and distinct New BLUE WRINKLED MARROW PEA, as early as Fairbeard's Champion, about the same height, quite equal in flavour, but much more prolific, and remains much longer in a green state for picking. Retail 3s. 6d. per quart. Trade price upon application. Early orders are requested, as the stock is limited.

J. FAIRBEARD, Nurseryman and Seedsman, Green Street, Sittingbourne, Kent.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2s. 6d. per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM ; height, 8 or 9 feet. 4s. per quart.
The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO ; height, 2½ feet. 4s. per quart.
The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1s. and 2s. 6d. per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

THE YORKSHIRE HERO PEA.—A Dwarf Green Wrinkled Marrow, pronounced by all who have tried it to be a "WONDERFUL" Pea. We have selected from numerous testimonials the following :—

From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart. *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer ; requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thin in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect ; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can readily dispose of at 5s. per quart to those who saw them in bearing."—Bracebridge, Oct. 5, 1863.

Price 5s. per Quart.

EDMUND PHILIP DIXON & SONS, Yorkshire Seed Establishment, Hull.

Supplied in London :—
Messrs. HURST & SON, 6, Leadenhall Street.
,, COOPER & BOLTON, 152, Fleet Street.
,, BECK, HENDERSON, & CHILD, Upper Thames Street.
,, JACOB WRENCH & SONS, London Bridge.

FINE NEW SEEDLING EARLY POTATO OF EXCELLENT QUALITY, BEING VERY MEALY, OF AN AGREEABLE FLAVOUR, AND VERY PROLIFIC, EPPS' GLORY.

WM. HAMMERTON having purchased the entire Stock of this fine new Potato from the Assignee of the late W. J. Epps, begs to offer the same to the Public.

The Editor of the *Gardeners' Chronicle*, Aug. 9, page 824, speaks thus of its merits :—

"*W. S. Epps, Maidstone.*—Your Seedling is without exception the best we ever tasted, and if, as you say, it is a great cropper, you should name it Epps' Glory."

The Editor of the *Journal of Horticulture and Cottage Gardener*, Sept. 8, says :—

"*W. J. Epps.*—Your Seedling Potato boils to a perfect ball of flour, and is of excellent flavour."

Price 10s. per peck, hamper included. Post Office Order must accompany the order.

W. H. also begs to offer a fine Stock of FILBERTS and true KENTISH COB NUTS, at 4s., 6s., and 8s. per dozen.

His CATALOGUE of Fruit Trees, Garden and Agricultural Seeds, may be had on application.

High Street, Maidstone.—January 30.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended. Per oz.—*s. d.*

BROCCOLI, SUPERB WINTER WHITE (Snow's)	2	6
,, LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862 ; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1s. Post free, 14 stamps.

Sonning, near Reading.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post-free, 1s. per ounce. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the Lists which appeared in *Gardeners' Chronicle* of Nov. 28 and Dec. 19, 1863.

Royal Berks Seed Establishment, Reading.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*

Price 18*s per bushel, or* 1*s. per pound.* Carriage free.

SUTTON & SONS, Seed Growers, Reading, Berks.

Good Clover Seeds at Market Prices.

SUTTON AND SONS have now ready, at very moderate prices, fine new RED, YELLOW, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a PRICED LIST of which may be had Post free.

Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS have a fine stock of New Seed. Also all other kinds of Agricultural Seeds at very moderate prices, as see SUTTON'S PRICED SEED LIST (gratis and post free).

Royal Berks Seed Establishment, Reading.

Ornamental Grass for Game Covers, &c.,

(ELYMUS GLAUCESCENS.)

B. S. WILLIAMS begs to call the attention of noblemen and gentlemen to the above ORNAMENTAL GRASS. It is perfectly hardy, having proved it for several years, and can recommend it as being superior to anything yet offered for that purpose. 6s. per dozen, 40s. per 100.

Paradise and Victoria Nurseries, Holloway, London, N.



GENUINE NEW SEEDS,

CARRIAGE FREE.

DESCRIPTIVE PRICED LIST

FOR THE PRESENT SEASON,

Post free upon application.

JAMES DICKSON AND SONS,

SEED MERCHANTS AND NURSERYMEN,

102, Eastgate Street,

Chester.

Excellence and Economy.

SEEDS, CARRIAGE FREE.

COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY.

I have the pleasure to state that my Collections continue and cannot fail to give satisfaction, as only known really good useful sorts for succession are included. They prove a convenience for Amateurs and Gentlemen who prefer ordering their own Seeds. Any seed not required should be mentioned, when others of equal value will be substituted. I would, however, advise, where a professional gardener is employed, that he should select his own sorts and quantities, as he will judge from the nature of the soil, and the wants of the family he has to serve, what are required.

For Collections of FLOWER SEEDS, &c., see PRICED DESCRIPTIVE 44-page CATALOGUE of Vegetable, Flower, and Agricultural Seeds, containing much information, which may be had free on application.

N.B. All local orders delivered free ; and, if over 20s., to any principal station or port in England, Ireland, Scotland, or Isle of Man. Five per cent. for cash.

QUANTITIES CONTAINED IN COLLECTIONS.

	No. 1. 60*s.*	No. 2. 40*s.*	No. 3. 21*s.*	No. 4. 10*s.* 6*d.*
BEANS, common and Kidney, &c.	12 qts	8 qts	4 qts	2 qts
BEET	2½ oz	1½ oz	1 oz	½ oz
BORECOLE, or Kale	5 pkts	4 pkts	2 pkts	1 pkt
BRUSSELS SPROUTS	2 pkts	2 pkts	1 pkt	1 pkt
BROCCOLI, best sorts for succession	8 pkts	5 pkts	3 pkts	2 pkts
CABBAGE, best sorts for succession	8 pkts	5 pkts	3 pkts	3 pkts
CAPSICUM, sorts	2 pkts	2 pkts	1 pkt	—
CARROT, good useful sorts	14 oz	8 oz	4 oz.	1 oz
CAULIFLOWER, true Walcheren	2 pkts	2 pkts	2 pkts	1 pkt
CELERY, Brown's Wallasey, and others	2 pkts	2 pkts	2 pkts	1 pkt
CORN SALAD	1 pkt	1 pkt	1 pkt	1 pt
COUVE TRONCHUDA, delicious	1 pkt	—	—	—
CRESS, Plain and Curled	1½ pt	1 pt	½ pt	4 oz
CRESS, American, &c.	2 pkts	2 pkts	2 pkts	1 pkt
CUCUMBERS, the best varieties	4 pkts	3 pkts	2 pkts	1 pkt
ENDIVE	3 pkts	2 pkts	1 pkt	1 pkt
GOURD (1 cwt. variety, &c., &c.)	2 pkts	2 pkts	1 pkt	1 pkt
HERBS, good sorts	12 pkts	8 pkts	3 pkts	2 pkts
LEEK, Musselburgh, &c.	2 pkts	2 pkts	1 pkt	1 pkt
LETTUCE, Brown's Monstrous Cos, &c.	6 pkts	4 pkts	3 pkts	2 pkts
MUSTARD	1 qt	1 pt	½ pt	3 oz.
MELON, choice varieties	3 pkts	2 pkts	1 pkt	—
ONION, best sorts	14 oz	8 oz	4 oz	1½ oz
PARSLEY, curled, very fine, two sorts	4 oz	2 oz	1 oz	1 pkt
PARSNIPS, Student, &c.	8 oz	6 oz	2 oz	1 oz
PEAS, approved succession sorts	24 qts	14 qts	7 qts	5 pts
RADISH, in sorts	1 qt	16 oz	6 oz	3 oz
RAMPION	1 pkt	1 pkt	1 pkt	1 pkt
SAVOYS	4 pkts	3 pkts	2 pkts	1 pkt
SPINACH, Summer and Winter	3 pts	2 pts	4 oz	2 oz
SPINACH, Orache	1 pkt	—	—	—
SALSAFY	1 pkt	1 pkt	—	—
SCORZONERA	1 pkt	1 pkt	—	—
TOMATO	1 pkt	1 pkt	—	—
TURNIP, best home grown	12 oz	8 oz	3 oz	2 pkts
VEGETABLE MARROW mixed	1 pkt	1 pkt	1 pkt	1 pkt

Collections from 30*s.* to 200*s.* Quantities proportionately larger, or sorts more numerous.

H. BROWN, Wholesale and Retail Seedsman, 4, Commutation Row, (opposite the Wellington Column), Liverpool.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1s. each. This Leek can be grown from 4 to 5lbs. weight. None genuine unless in their own sealed packets.

17, Frederick Street, Edinburgh ; and Stanstead Park, Forest Hill, London, S.E.

IVERY'S NONSUCH LETTUCE, 1s. per packet, the best summer variety in cultivation ; will stand four weeks longer than any other kind without running to seed ; of exquisite flavour. It is too well known to require more particulars. Testimonials have been received too numerous for insertion in this advertisement. The undermentioned is a List of Seed Merchants who have received their supply direct from WM. IVERY, Hanover Nursery, Peckham, S.E. :—

BURGESS, CHARLES	Cheltenham
BATT, RUTLEY & SILVERLOCK	Strand, London
BRIGDEN, T.	King William Street
BASKERVILLE & SON	Bristol
BOSHELL, F.	Borough, Southwark
BATES, J.	Oxford
BARNES, W.	Camberwell
COOPER, BOLTON, & Co.	Fleet Street, London
CLARKE & SON	King Street, Covent Garden
CARTER & Co.	High Holborn
CLARK, W.	Bishopgate Street, London
CHARTRES, J.	King William Street
CLARK	London Road, Cheltenham
CHARLWOOD, CUMMINS & Co.	Covent Garden
CHIVAS & WEAVER	Chester
DICKSON, JAMES, & SON	Chester
DICKSON, F. & A. & SONS	Chester
DENYER, W.	Gracechurch Street, London
DANCER, A.	Fulham
FLANAGAN & SON	Mansion House Street
FISHER, HOLMES, & Co.	Sheffield
GARAWAY & Co.	Bristol
HURST & SONS	Gracechurch Street, London
HENDERSON, E. G. & SON	St. John's Wood
HUME & Co.	Gloucester
IVERY & SON	Dorking
LANGHAM & Co.	Worcester
LEE, J. & C.	Hammersmith
LOWE & Co.	Wolverhampton
MAULE & SONS	Bristol
NUTTING & SONS	Barbican, London
OSBORN & SONS	Fulham
POTTER	Farringdon Street, London
PAUL & SON	Cheshun
PAUL, W.	Waltham Cross, Herts
ROLLISSON & SONS	Tooting
SANDY, J.	Stafford
SMITH, R.	Worcester
TURNER, CHARLES	Slough
VEITCH, J.	Chelsea
THOMSON, T.	Birmingham
WHALLEY, T.	Liverpool
WRENCH & SON	London Bridge
WOOD, THOS.	Worcester
WATKINSON, H.	Manchester
WOOD & SON	Maresfield

N.B. SEED CATALOGUE may be had on application, post free.

The Trade supplied with MUSHROOM SPAWN.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

CARRIAGE ARRANGEMENTS.

The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.

CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

WANTED, 25 of each, HAWTHORNDEN, New, LORD DERBY CODLIN, COX'S ORANGE PIPPIN and RIBSTONE PIPPIN APPLES, Dwarf Bushes on Paradise Stock.

Address, stating price, to GEORGE BRADSTOCK, Market Gardener, Beddington Corner, Mitcham, S.

Handsworth Nursery, near Sheffield.

FISHER, HOLMES AND CO. have to offer the following superior well-grown and good-rooted TREES, SHRUBS, &c., viz. :—

50,000 BLACK ITALIAN POPLARS, 2 to 3 ft. and 3 to 5 ft., one of the best trees for damp or wet situations.
50,000 PORTUGAL LAURELS, extra transplanted, stout and well furnished, 9 to 12 in. and 12 to 18 in.
50,000 Strong Transplanted PEAR STOCKS, good roots, mostly fit for working the first season.
6,000 ONTARIO or AMERICAN POPLARS, 5 to 6 ft. and up to 10 ft., well adapted for exposed or smoky situations, strong.
3,000 GIANT or CANADIAN ELMS, 4 to 7 ft., fine.
Several thousands each of the following, viz.
DOUBLE-FLOWERING GORSE, in pots, fine.
ENGLISH and SCOTCH LABURNUMS, strong, 5 to 8 ft.
NORWAY MAPLES, extra transplanted, 5 to 8 ft.
HORSE CHESNUTS, stout, 4 to 7 ft.
ARBUTUS UNEDO, in pots, stout and bushy, 1 to 2 ft.
CREAM and WHITE-FLOWERING BROOMS, extra transplanted.
ARBORVITÆ LOBBI, extra transplanted, well furnished fine, 3 to 4 ft.
HARDY HEATHS, of sorts, fine bushy beautiful plants.
VIRGINIAN CREEPERS, fine.
EARLY and LATE RED HONEYSUCKLES, strong.
COTONEASTER MICROPHYLLA, strong.
RIBES SANGUINEUM, Double-flowering.
WEIGELAS, Van Houtte, Stelzneri, Isolene, striata, and others, strong
ROSES, STANDARDS and HALF STANDARDS, fine named ; for sorts, see our Printed List No. 12.
FRUIT TREES, extra quantity of Standard PEARS, comprising Jargonelle, Beurré Diel, Seckle, Easter Beurré, Prince Albert, Citron des Carmes, Glou Morceau, Beurré Clairgeau, Brown Beurré, Winter Bergamot, with many other good and useful kinds, 4½ to 6 ft. stems.
APPLES, Ribstone Pippin, several hundred, 4 to 6 ft. stems, strong.
PEARS, two years untrimmed, fine, suitable for pyramids.
PLUMS, Green Gage and Magnum Bonum ; several hundred Standard 4½ to 5½ ft. stems.
CRABS, Scarlet-fruited Standards, fine.

FRUIT TREES, other kinds, see our Printed List, No. 5.

Priced Lists on application.

Gladioli.

SUTTON'S LIST, containing the Sorts most worthy of Cultivation, including those to which Prizes were Awarded at the Crystal Palace and other Shows, may be had Gratis and Post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz. ; 20s. per 100.

Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last :—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application ; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S. ; and 4, Windsor Terrace, Pimlico, S.W.

Cinerarias.

WILLIAM HUSSEY begs to offer the undernamed Collection for 10s., package included, viz., Acme, Duke of Cambridge, Perfection, Bellissima, Constancy, Mrs. Dix, Flower of Spring, Wonderful, Capt. Schreiber, Brilliant, Eclipse, Magenta, Highland Mary, Lady Seymour, Slough Rival, Beauty, Louisa Pyne, Queen Victoria, Lord Stamford, Prince of Wales.

Horticultural Gardens, Norwich.

Cheap and Select Nursery Stock.

WM. JACKSON AND CO., Bedale, Yorkshire, offer the following at annexed very low prices, including delivery at our Leeming Lane Station :—

	£	s.	d.
12 SCARLET and WHITE PYRUS JAPONICA ..	0	6	0
12 PERSIAN LILACS, 2 feet, in variety	0	6	0
12 SPIRÆAS, in variety, strong plants	0	6	0
12 HONEYSUCKLES, in variety, strong plants ..	0	6	0
12 PÆONIA ALBIFLORA, in variety, sweet scented	0	9	0
12 TREE PÆONIA, in variety	0	18	0
12 NEW WEEPING TREE BOX, strong plants, gold striped	1	10	0
12 BEST HARDY GHENT AZALEAS, 2 feet, with buds	1	0	0
12 RHODODENDRON MYRTIFOLIUM, dwarf plants, with buds	0	12	0
12 ,, HIRSUTUM, and gold edged, ditto ..	0	12	0
12 ,, SPLENDID HARDY HYBRIDS, by name, scarlet, crimson, white, salmon, &c., about 1½ to 2 feet, neat growers	1	5	0
12 SCARLET and other FANCY THORNS, strong, 5 to 6 feet	0	10	0
12 TAXODIUM SEMPERVIRENS	0	10	0
12 WILLIAMS' DOUBLE YELLOW AUSTRIAN ROSE, strong	0	10	0
12 STANDARD ROSES, choice kinds	0	10	0
100 DWARF ROSES, in variety	1	10	0
100 PYRACANTHA, 1½ to 2 feet	1	0	0
100 PORTUGAL LAURELS, twice transplanted ..	0	15	0
100 COMMON LAURELS, ditto ditto 1½ to 2½ feet	0	15	0
100 EVERGREEN and FLOWERING SHRUBS, and FANCY TREES	4	0	0
100 HORSE CHESTNUTS for Avenues, extra transplanted	0	10	0

Fruit Trees. Per doz.—

	£	s.	d.
APPLES, PEARS, and PLUMS, strong Standards ..	0	12	0
MAYDUKE CHERRIES, 5 feet stem ditto ..	0	15	0
PEARS, best kinds, dwarfs	0	8	0
,, ,, trained	1	0	0
CURRANT TREES, RED and BLACK, best kinds, 2 to 2½ feet	0	2	0
,, per 100 fruiting trees, 2 to 2½ feet	0	10	0

☞ All the above are strong and well-rooted.

A reference or remittance is respectfully solicited from unknown correspondents. The Trade supplied.

GENUINE SEEDS.—CARRIAGE FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to state that he is now prepared to supply with NEW and GENUINE SEEDS all Orders he may be favoured with.

A PRICED and DESCRIPTIVE CATALOGUE is now published, and will be forwarded Post Free to all applicants. It contains all that is really worth growing amongst Novelties, and carefully selected Lists of indispensable articles. The Prices are quoted as low as possible for the finest samples that are to be procured.

Complete COLLECTIONS of KITCHEN GARDEN SEEDS, for One Year's Supply, containing none but the best and most useful kinds. 10s. 6d., 21s., 42s., 63s., 84s.

WILLIAMS'S MATCHLESS RED CELERY, 1s. 6d. per packet.

A Large Stock of Strong ASPARAGUS ROOTS for Forcing.

CHOICE GLADIOLI ROOTS, 24 Choice Varieties, one root of each, for 21s.

Ditto, NAMED VARIETIES, 4s., 6s., 8s., and 10s. per doz.

DOUBLE TUBEROSES, just imported, 3s. per dozen.

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Embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.

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No. 6 contains	33 qt.	of Peas, Beans, and other Seeds in proportion	...	...	for	£3	3	0
No. 5	,,	20 qt.	ditto	ditto	ditto	ditto	...	...	...	2	2	0
No. 4	,,	13½ qt.	ditto	ditto	ditto	ditto	...	...	...	1	10	0
No. 3	,,	10 qt.	ditto	ditto	ditto	ditto	...	...	...	1	1	0
No. 2	,,	13½ pt.	ditto	ditto	ditto	ditto	...	...	...	0	15	6
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SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS.

ADAPTED TO ANY STYLE OF GARDENING. *Sent Post Paid.*

These Collections are composed of the most beautiful and effective Flowers, so that Amateurs who are unacquainted with the more recently introduced species and varieties, may be furnished with such only as are calculated to maintain throughout the summer and autumn months a rich and gay floral display.

HARDY ANNUALS.

						s.	d.								s.	d.
319	100	Packets of beautiful varieties, including the most effective				21	0	324	100	Packets, including those introduced in 1862 and 1863					30	0
320	50	Ditto	ditto	ditto	..	10	6	325	50	Ditto	ditto	ditto	..		15	0
321	30	Ditto	ditto	ditto	..	5	6	326	30	Ditto	ditto	ditto	..		10	6
322	21	Ditto	ditto	ditto	..	3	6	327	21	Ditto	ditto	ditto	..		7	6
323	15	Ditto	ditto	ditto	..	2	6	328	15	Ditto	ditto	ditto	..		5	6

HALF-HARDY ANNUALS.

						s.	d.								s.	d.
329	100	Packets of the most beautiful varieties ..				30s.	0d.	332	21	Packets of the most beautiful varieties ..					5s.	6d.
330	50	Ditto	ditto	ditto	..	15	0	333	15	Ditto	ditto	ditto	..		4	6
331	30	Ditto	ditto	ditto	..	10	6	334	10	Ditto	ditto	ditto	..		2	6

HARDY PERENNIALS.
HALF-HARDY PERENNIALS.
BEST ANNUALS and PERENNIALS for ROCKWORK.
BEST ANNUALS for ROCKWORK.
BEST PERENNIALS for ROCKWORK.
DWARF ANNUALS best ADAPTED for EDGINGS.
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EVERLASTING FLOWERS for WINTER BOUQUETS.
ORNAMENTAL-FOLIAGED PLANTS.
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For these the Royal Horticultural Society at the Great International Gourd Show, awarded three principal Prizes. At the Birmingham International Gourd Show the First Prize was awarded to our Collection.

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FOR the convenience of those of our Customers who have not the time or inclination to make out their own selection of Vegetable Seeds, we submit the undermentioned COLLECTIONS, to which we respectfully invite attention, and we confidently hope that the liberal and judicious manner in which the selections are made, will induce our Customers to favour us with their commands, also their kind recommendations to their Friends. We have bestowed great care in the arrangement of the sorts; none but what we have proved in our Trial Grounds at Dedham to be the very best of its class is included, and those varieties have been chosen that are most calculated to procure a constant SUPPLY of the best kinds of VEGETABLES all the year round.



These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

No. 1, price 10s. 6d.; No. 2, price 21s.; No. 3, price 42s.; No. 4, price 63s.

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PART I.—Containing Scientific Description of upwards of 2000 Species and Varieties of Flower Seeds, with Lists of Bulbs and Plants for Early Spring Planting, and a Calendar of Garden and House Operations for every month in the year.

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PARTS III. and IV. will be published in May and September respectively.

The entire Book will be forwarded in Parts as issued Free of Charge, upon receipt of 12 *Postage Stamps. Gratis to Customers.*

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.
A trial is respectfully solicited.
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UNRIVALLED COLLECTIONS of GARDEN SEEDS

FOR ONE YEAR'S SUPPLY, WITH INSTRUCTIONS ON CULTIVATION.

1. A Complete Collection of Kitchen Garden Seeds for One whole Year's Supply	£3	3 0
2. A Complete Collection of Kitchen Garden Seeds, proportionately reduced ...	2	2 0
3. A Complete Collection of Kitchen Garden Seeds ditto ditto ...	1	11 6
4. A Complete Collection of Kitchen Garden Seeds ditto ditto ...	1	1 0
5. A Complete Collection of Kitchen Garden Seeds ditto ditto ...	0	15 0
6. A Complete Collection of Kitchen Garden Seeds for a Small Garden	0	10 6
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All Goods Sent Carriage Free by Rail, except very small parcels, and 5 per cent. discount allowed for Cash Payment.

The sorts of VEGETABLES included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation, and of which sorts we have therefore grown large Crops of Seed. We exclude from our Collections not only inferior old sorts, but also such new ones as we have been unable to test the merits of, and which are selling at high prices. By this means we are enabled to furnish a Complete Collection at much less expense than when a Gentleman or his Gardener makes his own selection.

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ESTABLISHED UPWARDS OF A CENTURY.

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BUTLER & McCULLOCH,

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GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

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No. 1. Containing 33 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion	£3	3 0
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No. 3. ,, 13 ,, ,, ,, ,, ,, ,, ...	1	10 0
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For full particulars, see Catalogue, page 78.

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To Exhibitors we can strongly recommend our assortments of ASTERS, BALSAMS, CARNATIONS, STOCKS, and other Imported Seeds.

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NEW VARIEGATED-LEAVED FUCHSIA "CLOTH OF GOLD."—A sport of Souvenir de Chiswick, retaining all its fine properties, with beautiful golden variegated leaves in way of Golden Chain and Cloth of Gold Geraniums. Strong Old Plants in March at 21s., or Small Plants in May at 5s. each. Usual discount to Trade.
S. STAFFORD, Nurseries, Hyde, Manchester.

CENTRAL HORTICULTURAL SOCIETY for the PROTECTION of PURCHASERS of NOVELTIES, held at Dr. Johnson's Rooms, Essex Head, Essex Street, Strand, London.

President—Mr. GEORGE GORDON, A.L.S.

PROGRAMME of the Papers to be read, and Prizes offered for Flowers, Plants, and Fruits for the year 1864.

January 12.—Mr. N. COLE, on the Winter Cultivation of the Mushroom.
February 9.—Mr. J. CRUTE, on Vine Growing on the Continent, with an Account of the Process of Wine Making.
March 8.—Mr. G. GORDON, A.L.S., Author of the "Pinetum," on the Nature and Principles upon which the Operation of Grafting and Budding Plants are founded.
Mr. PHILIP YOUNG'S Prize of 10s. 6d. for the best Six Hyacinths, dissimilar in colour. Size of pots no object.
April 12.—Mr. BURTON, on the Culture and Management of Clianthus Dampieri, or Captain Dampier's Glory Pea.
Mr. GEORGE GLENNY'S Prize of 10s. 6d. for the best pair of Auriculas.
May 10.—Mr. S. BROOME, Temple Gardens, on Plants suitable for Bedding in the Smoky Atmosphere of large Towns.
May 24.—Mr. PRESTOE, Victoria Park, Prizes for the best Six Hardy and Half Hardy Ferns. 1st Prize, 15s.; 2d, 5s.
June 7.—Mr. WYNESS, Royal Gardens, Buckingham Palace, on Hybridising and Raising new varieties of Plants from Seed.
June 21.—Mr. MORLEY'S Prize of 10s. 6d. for the best Specimen Plants of Pelargonium.
July 12.—Mr. GEORGE GLENNY, Author of "The Properties of Flowers," &c., on the Rose.
Mr. E. HUTCHINS' Prize of 10s. 6d. for the best Six Blooms of Roses, dissimilar.
Mr. JOSEPH NEWTON, F.R.H.S., Prize of 10s. 6d. for the best Dish of Strawberries.
July 26.—Mr. CUNNINGHAM'S Prize of 1l. 1s. for the best specimen Plant of Fuchsia.
Mr. C. SMITH'S Prizes for the best Specimen Plants of Zonale Geraniums. 1st Prize, 7s. 6d.; 2d, 5s.
August 9.—Mr. HEROD, on Villa Gardening.
August 23.—Mr. BENNINGFIELD'S Prize of 1l. for the best Seedling Hollyhock.
September 13.—Mr. JOSEPH NEWTON, F.R.H.S., on Warming and Aerating Horticultural Buildings.
Mr. BROOME'S Prize of 10s. 6d. for the best Seedling Dahlia, not less than three Blooms.
September 27.—Mr. CRUTE'S Prize of 10s. 6d. for the best Spike of Gladiolus.
October 11.—Mr. DALE, F.R.H.S., Temple Gardens, on Tobacco, its Uses and Abuses.
Messrs. COLE and HALL'S Prize of 10s. 6d. for the best Dish of Ribston Pippin Apples, not less than Six.
Mr. JOSEPH NEWTON'S Prize of 1l. for the best Bunch of Grapes grown without Fire Heat.
November 8.—Mr. N. COLE, on Pruning and Planting of Fruit Trees and Shrubs.
Mr. BROOME'S Prize of 10s. 6d. for the best Three Chrysanthemums, grown in 48-pots, not over 2 feet in height, incurved varieties.
Mr. PARKER'S Prize of 10s. 6d. for the best Specimen Plant of Pompon Chrysanthemum. No restriction to size of pot or form of plant.
Mr. EICKHOFF'S Prize of 5s. for the best Six Blooms of Chrysanthemums, dissimilar.
December 13.—Mr. SHIRLEY HIBBERD, F.R.H.S., Author of "Brambles and Bay Leaves," on British Ferns.
Competition for the Prizes confined to Members only.

The object of the Society, Rules, and every information to be had on application to the Secretaries.

Annual Subscriptions, 4s.; Quarterly Subscriptions, 1s.; Entrance Fee, 1s. JAMES CRUTE, EDWARD HUTCHINS, } Hon. Secs.

The Gardeners' Chronicle.

SATURDAY, JANUARY 30, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, February 4—Linnean .. .. 8 P.M.

IN a late article on the cultivation of exotic fruit trees (p. 50) our observations were mainly directed to that class represented by the Orange, and whose requirements were somewhat of the same kind as those of that genus. We described the climate under which these plants grow and produce their fruit abundantly when at home—a climate with a high summer temperature, but with a winter comparatively mild: and we suggested that a similar climate should be made for them in this country by all those who might attempt their cultivation in an artificial way.

We will now take another class which we brought forward at the same time, and which is represented by the Loquat, the Yangmae, and the more hardy species of the Orange tribe. This class of fruits occupies a belt of latitude to the north of that which we pointed out as being the home of the common China Orange, say from 25° to 35° north. Here vegetation is subjected to the rigour of a winter nearly as cold as that of England, and the fruits we have named seem to require such a winter, or, at all events, it does not do them any harm. In this respect they differ from those plants which occupy the more southern belt.

Here then we have a class of almost unknown fruits which one would say, at first sight, ought to be hardy in our climate. But they are not so; or

if they will even exist in the open air with us, they will rarely, if ever, produce their flowers or fruit. And the reason of this is sufficiently obvious. Although their winters may be nearly as cold as ours, their summers are much hotter. During the hot summer months their wood is ripened, or in other words, a store of nourishment is formed and laid up, which makes them strong during the winter season, and which enables them to produce their flowers and their fruit in the following year. The warm summers too, enable them to ripen the fruit for which provision has thus been made. A knowledge of these facts is, we believe, the key to the successful cultivation of these fruits in a climate like that of England. We shall, therefore, endeavour to show with more minuteness, the nature of the climate, as regards temperature and seasons, of the country to which these plants are indigenous.

The eastern sides of great continents are known to be more subject to extremes of temperature than the western sides—to excessive heat in summer, and extreme cold in winter. This was pointed out by HUMBOLDT many years ago, and is very remarkably exemplified on the eastern shores of Asia, which are now under our consideration. Between the 10° of latitude named above, the climate differs greatly from that between the same parallels in western Europe. The winter is of the following description:—In the end of October the thermometer frequently sinks as low as the freezing point, and at this period the cotton and other tender crops which are cultivated in the fields are destroyed by frost. December, January, and February, are the coldest months in the year, and the cold is oftentimes quite as severe as it is with us in the south of England. But the summer, as we have already said, is much warmer than ours. The heat is greatest during the months of July and August. The thermometer (Fahr.) during this period is frequently as high as 100° in the shade, and sometimes even a few degrees higher. The rainy season is not very decided in its character, but rains fall copiously during May and June.

This is the kind of climate which is required by the fruit trees we have mentioned, and if we can make it, in an artificial way, in this country, these trees may be made to yield abundant crops. With glass houses, and heat from flues or hot-water pipes, a climate may be made which will answer all the requirements of such plants. The main points to be kept in view are these—the supply of heat and moisture at the proper season, the ripening of the wood during the summer and autumn, and allowing the trees to go to rest during the winter months.

There is one point more which should not be overlooked. When these trees are growing in the open air in their own country they are exposed to influences which favour the impregnation of their blossoms, and consequently the "setting" of the fruit. The wind shakes their branches and scatters the pollen about in every direction, or insects carry it on their bodies as they flutter from flower to flower, and in these ways the blossoms are fertilised. In cultivating such plants in an artificial way in our English hothouses, these matters ought not to be lost sight of; the flowers should be impregnated by hand.

Various other matters of a practical kind will suggest themselves to those who may feel inclined to cultivate the fruit trees we have named. Soil, manure, and drainage will all have to be considered; but these matters may safely be left to the intelligence of our English gardeners.

In conclusion we may remark that the same natural laws regulate the production of flowers upon plants, as the production of fruits. It is by acquiring a knowledge of these laws, accidentally or otherwise, that our plant growers are enabled to produce those marvellous examples of horticultural skill which we see at our flower shows; and it is to this knowledge we are indebted for a sight of those masses of gorgeous floral bracts upon Bougainvillea spectabilis—a plant which, until very lately, refused to produce its flowers under the hands of our English gardeners.

THAT the cool treatment of a very large proportion of TROPICAL ORCHIDS will rapidly displace the stewing system is becoming more and more evident every day. Of this some specimens just placed in our hands by Mr. ROBERT WARNER afford most remarkable proof. They were grown in a Vinery under the shade of the leaves, and among them were three varieties of Lycaste Skinneri, most brilliant in colour, perfect in form, and in the white parts pure as ivory. Two of these flowers measured 6 inches across, and the other 8 inches. With them were Oncidiums and Odontoglots in equally vigorous health.

As Cotton still retains its high price, and is likely as far as we can judge, for a long time to do so, every one is naturally anxious to find some substitute. No success has however attended such inquiries, even when they have been more wisely directed than that which for a short time gained a credit wholly undeserved to the common Zostera, or, as it is called in the trade, Ulva marina. An inquiry has lately be en made at the Kew Herbarium respecting a cottony substance, the produce of a shrub which covers many acres on light sandy soil in the west of Africa. It is of a pure white, and is composed of compressed slightly twisted threads, resembling closely those of Cotton, but unfortunately so short in the staple that there is no probability that it can ever be of use. It may not, however, be uninteresting to say a few words respecting the plant itself, which was at once pronounced by Mr. BENTHAM to belong to the Eriocephaleæ, and which in fact appears to be the Linnean species Eriocephalus racemosus, a native of the Cape of Good Hope, in which, according to specimens preserved in Herbaria, as DE CANDOLLE remarks, the cottony substance varies from a reddish or Nankin brown tint, to the purest white, a circumstance which obtains equally in true cotton. The Eriocephaleæ form a small division, consisting of a single genus in the subtribe Anthemideæ, and are evidently closely allied to the Gnaphalia, differing essentially in their caudate anthers, while those of Gnaphalia are without any appendages. The florets form little heads which are surrounded by a double involucre, of which the inner one, after flowering, is invested with dense cottony hairs. The seeds, or, as they are called in strict Botanical phrase, the achænia, are only slightly downy. When the specimens were sent, inquiry was made whether it might not be possible by cultivation to improve the plant, so that it might answer some economical purpose. No mere cultivation, however, would effect this, and any improvement in the fertility of the soil would most probably act in a directly contrary direction, as plants in general are more woolly in proportion to the dryness and shallowness of the soil in which they grow. The only chance of doing anything towards improving the staple would be by a principle of repeated selection, to raise new plants from seed collected from the most promising individuals. This, however, is a slow process at the very best, and before spending time and trouble on what might after all never remunerate, it would be necessary first to inquire what powers of production the plant possesses, on which at present we have no information. *M. J. B.*

New Plants.

268. DENDROBIUM FYTCHIANUM (*Bateman*). Colonel Fytch's Dendrobium.

D. (EUDENDROBIUM) caule erecto florido aphyllo, racemis terminalibus multifloris spithameis, sepalis lineari-lanceolatis acutis, petalis duplo latioribus obovatis obscure apiculatis, labelli trilobi lobis lateralibus brevibus erectis auriformibus integris rotundatis lobo intermedio dilatato spathulato petalis subæquali versus basin tomentoso.

This charming Dendrobium was received last year by Messrs. Hugh Low & Co., from Moulmein, whence it was sent to them by their invaluable correspondent Mr. Parish. At the time of its discovery Mr. Parish was accompanied by Colonel Fytch, who observed the plant on the branches of an old tree overhanging the river up which they were proceeding; and as it is perfectly new to science, it may with much propriety bear the name of the gallant officer who was the first to notice it.

The flowers of D. Fytchianum are throughout of the most dazzling whiteness, except that the small lateral lobes of the lip are tinged with crimson. They are scentless, and borne in graceful racemes a span long, proceeding from the extremity of the upright stems; the latter being about a foot long and of the thickness of a goose quill.

The slender linear leaves unfortunately fall off before the flowers, which are about an inch across, have had time to expand.

My description is taken from a most beauteous raceme, bearing upwards of 20 flowers, obligingly sent to me last December by Mr. Aspinal Turner, in whose collection at Pendlebury House the species then flowered for the first time in Europe. Specimens have also reached me from Messrs. Low, but being the produce of smaller plants they were very inferior to Mr. Turner's. The plant, which should be grown on a block of wood, is of the easiest culture. *J. B.*

EXHIBITION PLANTS.

THE INDIAN AZALEA.—No. II.

(*Continued from p.* 28).

LET me now give a few hints upon the general management and cultivation of this showy flower, commencing with small plants as they are sent from a nursery. In the first place it is necessary to be very particular to selecting plants that are worked upon clean healthy stocks from 6 to 12 inches high; even if 18 inches high it will be so much the better. I am convinced that a long clean stock is more conducive t their well-doing than a short one, and the great beauty of a specimen Azalea is to weep down over the rim of the pot. If the stem is not sufficiently high to allow of this, the bottom of the plant soon becomes too thick, and the shoots so confused that the blossoms have no chance of properly developing themselves. It may be said by some that they have always had plenty of bloom upon their plants without paying all this attention to the stocks. But I would ask them, did they ever compare the quality of the blooms produced by plants that have been properly trained and the wood neatly thinned, with those that have been allowed to grow thick and confused? I think there will not be two opinions upon the matter.

I will suppose then, that we are commencing with nice young clean-stemmed healthy plants. In the first place put one stake to each plant, selecting the longest and most central shoot to be taken up as a leader, and never allowing the stake to be higher than the top of this shoot. Then commence at the base, and tie the shoots down with very fine string, or with thread if the wood is not too stubborn, for the smaller the material the neater the plant will look; tie the thread loosely round the shoot to draw it down to the stake, so that it may assume a weeping character. In this way the shoots are to be so disposed as to form a regular well-shaped pyramidal plant; the lower tier of branches round the bottom being first drawn down with the thread or string to the position required, and then the second tier, these latter not requiring to be drawn down so much as the first. All however must be brought into their proper places, so as to make the plant appear regularly and neatly furnished on every side. The shoots may be held where they are required by reversing the string around the stake. When the plants are first taken in hand for tying out, the tops of all the longest shoots are to be removed, in order to bring the plants into a symmetrical form. The leader should never be allowed to grow more than 4 inches in length before it is topped; this will make the plants throw out their side shoots more freely, and thus they will become well furnished. It is as soon as the shoots have grown 3 or 4 inches in length, that the strongest and best is to be selected and tied up to form the leader, and the others tied down in the manner described.

The plants are now, we will suppose, growing in 6-inch pots, made shapeable, just out of bloom, and commencing their season of growth. Under these circumstances they should be put into moderate heat to make their growth. If bottom-heat is available for them, so much the better, provided it is not too strong; that supplied by any half-spent fermenting material will suit them best. If there are more shoots to be disposed of, treat them precisely the same as the two first tiers, that is to say draw them down to the place where they will be most useful in furnishing the plant. The foundation will now have been laid for a well balanced plant, and by keeping this in view while they are growing, there will be no difficulty in building up handsome well-shaped and well furnished plants; indeed, with such a foundation, there is but little attention required as they advance in growth, to keep them in good order. After the shoots have once been tied down and made pendent by keeping on the string for 12 months, they will all become set to this shape, and will never rise again, even though the ties may then be removed. Plunge them half the depth of the pots, and keep them close or nearly so for a few days until they begin to break into growth freely; then admit air rather plentifully during the day. Syringe them liberally in the afternoon, and shut them up while the sun has power to raise the temperature to 75° or 80°. Thus treated, they will make rapid growth, for no plant I am acquainted with enjoys a close moist atmosphere more than the Azalea. As the season advances, and the sun becomes bright and powerful, a very thin light shading must be used for three or four hours in the hottest part of the day, but it must not remain over them too late in the afternoon, and on no pretence is it to be used at all unless the sun is very powerful. Too much shading will only induce weak, long-jointed growth. In the course of four or five weeks they will require to be examined at the root, and if they have done well and their pots are quite full of roots, they must be repotted. They must never, however, be shifted into larger pots until they have quite filled with young roots those in which they are already. If the roots are in the proper state, give them a liberal shift, that is to say, put them into pots two sizes larger, from a 32 to a 16. The soil, to be prepared in quantity according to the number of plants to be potted, should be prepared as follows:—Take of light fibrous peat and heavy rich peat—the latter such as may be obtained from Petersfield in Hampshire, or Wanstead in Essex—equal parts; add to this a fourth part of good sharp sand, and well mix the whole together.

I would here remark that there are various opinions about preparing good peat for potting. Some prefer to use the peat rough, with the coarse fibres and roots, precisely as it is dug. This, however, is unwise, as these roots and fibres will sometimes become partly decomposed, and breed a poisonous fungus, which, spreading through the ball of earth, will ultimately kill the plant. Unfortunately I have had to suffer from this real and only cause of death, by losing some of my best and

choicest specimens. The next objection I have to the use of rough peat is, that the ball of earth cannot be made sufficiently solid at the time the plant is shifted for the latter to prosper for any length of time. I would therefore recommend the peat to be broken up by being beaten with heavy sticks, and sifted through a moderately coarse sieve, rubbing out every particle of soil, and rejecting every root or strong fibre. When this is done, and the sand is added and well mixed with it, the compost will be ready to commence potting. Having the pots prepared according to the size required, by well draining them with potsherds, say 2 inches deep, put over this drainage some of the lumpy portions of the peat unsifted, but broken into pieces about the size of a small hen's egg, all coarse fibres and roots being picked out. Place about an inch of this over the potsherds, and mix with it a liberal quantity of sand, which is not to be thrown in and allowed to remain in a layer upon the rough peat, but is to be mixed with it, so that the roots may work freely into it after the plants have recovered from their removal. I mention this because I am aware that very little omissions sometimes serve to frustrate the best endeavours; and I have seen it happen, even when orders have been distinctly given to mix the sand with the rough peat, that the direction has been unnoticed, or perhaps thought of too little importance to be attended to. I have had plants come into my hands, in which, in potting, a handful of sand has been thrown upon the top of the peat, forming a layer, and when such plants have come to be again shifted, it could plainly be seen that the sand had done injury instead of good, the roots not having penetrated it, and the rough peat being rendered next to useless.

These matters being attended to, the plant is to be taken out of its pot and examined. If the ball of earth and roots is in good order, shift into the larger pot; but if it should be discovered that the ball is dry, by no means shift until it has been thoroughly soaked, for which purpose a tub of water should be provided, and the plant stood into it, so that the water may cover the ball entirely, in which position it is to remain two or three hours, or until the water has penetrated the whole ball. When this is the case, take it out and allow it to drain well before it is potted, for to pot while the water was still dripping from it, would only tend to make the new soil wet and sour. In potting always be provided with two or three rammers of different sizes, and as the fresh soil is added, ram it well down with that rammer that best fits the space between the new pot and the old ball of earth. This is the most important particular in all the various stages of potting. The greatest possible attention should be paid to make the new soil as solid as the old ball of earth, for if this is not attended to at this time, the cultivator may rest assured that his endeavours will not be rewarded with much success. I feel confident that in the case of half the plants that are lost or get into a sickly state of health, the evil could be traced to one of these two causes: either the plant has been potted with its ball dry, or the new soil has not been made as solid as the old ball so that both may absorb moisture alike. It is well known that water will not percolate through hard solid ground when it can find its way into any that is soft and porous; and this of course would be the condition of the newly-potted plants if the fresh soil was not rammed down as solid as the old ball; but if this firm condition is secured, the water will filter through the whole mass of earth in a regular way. The potting is to be finished off by covering the old ball about half an inch, ramming down both old and new soil, then shaking a little fresh soil on the top to prevent the ball from cracking or shrinking, this being pressed down with the hand, and the surface made neat and level, and finally sprinkled with a little dry sand on the top to keep the surface open and healthy.

Any long shoots that may have grown should be pinched back, to cause the growth of young shoots to fill out the plants; and where the shoots are plentiful, if any of them are too vigorous they should be tied down with string so as to check them. This being done, the plants may be returned to their former warm quarters, where besides daily syringing them so as to keep up a moist atmosphere, and preserving a genial temperature, with proper attention to watering, there will be but little more to be done, with the exception of keeping all the strong shoots which have a tendency to lengthen pinched back as early as it can be done, this being continued until July,—not later however, if the plants are required to bloom the following spring. After they are topped for the last time they must be kept in heat until they have pushed forth fresh shoots, and formed the bloom buds upon the point of each. As soon as this is ascertained to be the case, commence in a gradual way to give more air and exposure; and as the season advances, the plants may either be exposed entirely to the weather by placing them out of doors, or they may be kept in the pits with plenty of air day and night; they will thus become hardened, and the wood well-matured before winter. *William Barnes, Camden Nursery, Camberwell.*

NAILING.

IN works on gardening this question is generally treated of in connection with that of training. There is, however, a single point in the proceeding which seems to be generally overlooked in practice, and which we consider of great importance in various respects, therefore to it specially we would wish to direct attention.

The point will be understood from the following statement:—1st, Some persons drive the nails into the face of the bricks; 2d, Some promiscuously into the face of the bricks, and into the joints; 3d, Others do not nail into the faces of the bricks, but only into the mortar joints. Now the question arises which of these three modes of operation is the best, presuming that their results are not equally indifferent, or that they are not all equally good. No. 2 may, however, be left out of the question, because those who adopt it act partly in accordance with those who nail into the bricks, and partly with those who nail only into the mortar joints, so that if there is decidedly a right and a wrong way it must lie between the other two, whilst those who act both ways, as it happens, must be sometimes right and sometimes wrong. The matter at issue then becomes reduced to the simple question:—Whether should nails be driven into the faces of the bricks, or into the mortar joints?

It is needless to say that garden walls are expensive. Many gentlemen know that full well; and many gardeners can form a correct enough estimate of the fact, to be aware that such walls should be preserved as entire as is possible, consistent with the use for which they were erected—a wearing one it is true; but still with proper care they ought not to be much defaced in the course of one long life-time. Let us see whether adopting the proceeding No. 1, that is, driving the nails into the bricks, is likely to result in this desideratum.

Bricks employed for garden walls are usually about 9 inches long by 2½ thick; and between the courses of bricks there is about ½ inch thick of mortar. This is saved to a considerable extent by nailing into the bricks; but on the other hand, by doing so, the bricks suffer irreparable damage. In nailing Peach and Nectarine trees, and Morello Cherries, a vast number of nails are necessarily employed, and the consequence is that the faces of the bricks are struck all over with nail holes. But the worst is that in driving near the edges of the bricks, pieces are broken off and their squares are by degrees chipped away. If the faces of the bricks are left intact and their edges square, the joints can at any time be cleared out and pointed afresh, and the wall will be almost as good as new; but this cannot be the case when the angles of the bricks are rounded off. The defects of the latter can only be made up by cement, which will exhibit patchwork, or the wall must be refaced with new bricks. The joints may be worn into rather deep grooves, but even in that case the wall will not have such a bad appearance as if the bricks were defaced and pitted with innumerable holes, which afford no end of shelter to hordes of insects, and these cannot be so easily dislodged as they can from the joints. Nailing into the face of the bricks is then to be avoided, on account of the expense which it entails, the unsightly appearance which it produces, and the injury it causes to vegetation by harbouring insects. It is bad.

The mode of nailing in the joints is most to be recommended, inasmuch as the joints can be renewed, and the wall made to look well after many years' wear. If the mortar be good, and the nails driven no farther than is absolutely necessary, a wall should be little worse after being nailed upon, even for training Peaches or Nectarines for half a century. In the course of 60 or 80 years it might be advisable to fresh point the joints, but this is not much expense compared with rebuilding the wall, as would be necessary if the bricks were destroyed by nailing in them. We are aware that some will say "We are obliged to nail in the face of the bricks, because the mortar will not hold a nail." That may be; but then it is wrong to call it mortar. Better replace it with what is really such, and then nail in it only: as we think all should make it a rule to do unless any one can prove the contrary to be a better practice.

THE SOURCE OF THE NILE.

"Nilus in extremum fugit perterritus orbem,
Occubuitque caput, quod adhuc latet."

WE have before us on the page of history, four separate accounts of good old Father Nile.

Ovid, some two thousand years ago, has informed us, that during the awful conflagration of the world (caused, we are told, by the folly of a brainless cabman), Father Nile was scared out of his wits, and took himself off into Mother Earth's extremest boundary. There he hid his head, which still lies concealed. So far the poet.

For some centuries after this nobody knew what had become of the terrified fugitive, until one day some adventurous and holy sons of St. Ignatius de Loyola stumbled on him in Abyssinia, whilst they were engaged in preaching Christ crucified to the surrounding Gentiles.

Things went gingerly on in these distant wilds of Africa, when a well known native of Caledonia went into those regions in quest of Father Nile's dark cavern. He fancied that he had succeeded in his investigations, and he then informed the scientific world of his success, congratulating himself that he alone was the discoverer of the long hidden source of the Nile.

And now, in our own days, two hardy explorers, dissatisfied with former accounts, sallied forth from home, and stopped not until they had reached the very spot where the scorched king of the Nile had hid himself at the time when the world was on fire.

Should these accounts be still unsatisfactory, let us hope that some experienced investigator may speedily go on his travels; and that (avoiding however the track of the gorilla, in which science lately has cut so sad a figure) his discoveries may content all parties, and prove to the world at large that the source of the Nile no longer remains in doubt. In talking of the river Nile, we wish to hear no more that "adhuc sub judice lis est." *Charles Waterton, Walton Hall.*

Home Correspondence.

Orchard Houses. — Your correspondent (p. 54) seems to require answers to the following questions, which he puts as if he were actually serious. 1. "Has any one without heat succeeded in getting his trees to bear fruit even the first year?" To which I answer most decidedly, yes. 2. "Have his trees not invariably drooped in the second year when confined to pots?" This is really too much for one's gravity, and so I very merrily but emphatically answer, no. 3. "Have they ever reached the blossom or fruiting season the third year?" Again I can most truly say, yes. Many of my trees are upwards of 10 years old; they are still in the most robust health, and bore last year large crops of finer fruit than I ever saw from walls; they seem as if they are just now in their prime, and likely to live and bear fruit annually as regularly as they have done these 10 or 12 years past. Your "Old Subscriber" does not seem well up in his gardening knowledge—Mr. Loudon died in 1843, some eight or 10 years before the "orchard house" idea was broached. You are at liberty to give your "Old Subscriber" my name; if he is in the flesh, which I doubt, and not one of Mr. Home's "rappers," who occasionally say many odd things, I shall be glad to show him my trees, so that he may verify my statements. *A Very Old Subscriber.*——I have been much amused in reading the eccentric effusion of "An Old Subscriber" in your last number. His "one shot to settle the matter" is so modest, and reminds one, to compare small things with great—a flea to an elephant—of the prophecy in the "Quarterly Review" years ago, that travelling by rail 20 miles an hour would take away the breath of the passengers, and the steam from the engines devastate the country. To his three questions I can say 'yes' to the first, 'no' to the second, and a very emphatic 'yes' to the third. I have never had any difficulty with my potted trees, now several years old. They bear good crops annually, and, as I have no Peach trees trained to walls to give me fruit, finding it useless to contend against spring frosts, my orchard-house Peaches are an annual treat. I can, however, picture to myself a failure like that which your "Old Subscriber" so affectingly narrates, for I have a friend, a good but weak-minded old gentleman, who built a large orchard-house, and furnished it with trees. The first year he had a nice crop of fruit; the second year, in early summer, he claimed my advice, knowing how well I succeeded with my trees. I paid him a visit, and found that neither he nor his gardener understood the management of his orchard house, he being unwilling to learn, and trusting all to his gardener. I gave both master and man good advice as to the necessity of opening the house in hot weather in June and July quite early, and also the care required in syringing the trees twice daily, giving them abundance of water in hot weather, less in cool, and some rich loose surface dressing to nourish the trees and keep in the moisture. Master and man both listened. I hoped I had, as Paddy says, "insensed" them. Not at all; when I saw the trees in the autumn of the second year the earth in the pots was dry and hard, and had had no surface dressing; but the trees had the red spider, and looked starved and unhealthy; the third year the trees produced "fleshless stony abortions," to use the expressive language of your correspondent. Strong measures were required; the man was at my suggestion discharged, an active young intelligent gardener employed, and the trees as if by magic recovered their health, and have continued to give abundant crops of fruit ever since, without fire heat. I presume your correspondent lives in some cloudy cold corner of the kingdom, and cannot grow Peaches and Grapes under glass without fire heat. I pity him. The assertion made by your "Old Subscriber," that orchard houses are totally worthless because they cannot be heated, inclines me to think that he must to a certain extent resemble my amiable friend, for surely every glass-roofed house can be heated by hot water. My first house, a very rude structure, was I found too cool for Figs, and so I had two 4-inch pipes placed round it, and a small boiler attached; it is now a very efficient forcing-house. I trust your correspondent will "go and do likewise." I sincerely wish him a new gardener capable of cultivating orchard-house trees, and of growing Peaches equal to those grown by your obedient servant, *Royal George.*——I do not call myself a champion, but I may assert that I am a successful grower of orchard-house fruit. I have got a very nice house on Mr. Rivers's plan (see Figure 8 of his "Orchard House," third edition), 35 feet long and 20 feet wide, filled with trees in pots, nine years old next month;

and there they all are now, except a few which were thrown away to make room for better sorts. None died, and all the trees I have are in as good condition as they were six years ago. They are not in the least pot-bound, for I repot them every year in October, and I have always had plenty of fruit, without any means of heating artificially. They were never hurt except once by a late frost, which happened about four or five years ago, on the last day of March or the 1st of April, when I lost a few Apricots, but even in that year I had 133 dozen of good fruit worth 6*d.* each. The year before last my employer had a photograph taken of a Peach tree in a pot, which had on it at the time 72 good fruit. I am always sorry to hear any one speak against an orchard house, for I know that they are useful. A good gardener came into my house one day when the fruit was ripe. "Well," said he, "if I had not seen your house, I should have said such success couldn't be achieved." I should therefore advise all who fail to go round and see, in order that they may believe what can be done with orchard houses. Failure must be the cultivator's own fault, for if the trees are duly attended to they will bear well. To have good fruit they must be in good health. Orchard-house champions need not, I am sure, be afraid of speaking on account of getting shot, for I believe that the charge is nothing but powder. My house contains nothing but Apricots, Peaches, and Nectarines in pots; but I have some Pears in pots doing equally well. I put them in another house about three months every spring. I had a fancy to weigh the fruit from two trees last year. One was 10½ lbs. and the other 11½ lbs. The sort is Louise Bonne of Jersey. *J. P., Alton.* [Here this sort of discussion *stops*. We have admitted too much of the NONSENSE of orchard house grumblers.]

Prizes for Wild Flowers.—I agree with the editorial note (see p. 77) that it is not advisable for the Royal Horticultural Society to give the proposed prizes. It is very much out of its way. I also think that such prizes are very undesirable, for they tend, as is justly remarked, to destroy the localities of rare plants without being of real advantage even to the successful competitor. As he is at liberty to obtain his specimens in any way, to have such help as he likes in mounting and arranging, and to get any botanist he can to name the plants, the result will not show his activity and acuteness as a collector, his skill as a manipulator, nor his knowledge as a botanist. At local shows we often have prizes for wild plants to be shown alive and named. There is very little use even in this, for the exhibitor *and his helps* scour the country, and get some *qualified person to correct the names*. The result is therefore simply the promotion of activity in finding the plants, and of some amount of discriminative power in distinguishing them: but not in determining their names. I hope that the Society will see fit to withdraw its proposal. *C. C. B.*

Weather Prophets.—Judging from Mr. Plant's letter in the *Times*, he prophesied a very severe winter, because we had a very mild autumn. We have had, it is true, a week's frost not exceeding in severity our usual winter weather, and it seems, if he is to be relied upon, that frost of greater intensity is to come. I have kept a rough journal of the weather for upwards of 30 years, and am quite inclined to doubt that mild autumns as a rule precede severe winters. When I say mild autumns I mean mild weather with but slight intervals of frost up to the middle of December. Thus in the year 1832 we had a mild autumn followed by a winter with no severe frosts; 1833 was remarkable for the mildness of the autumn, followed by so mild a winter that Crocuses were in full bloom the middle of January, 1834. The mild dry autumn of 1834 was followed by a winter without any severe frost, and again the very mild autumn of 1835 was followed by only 10 days of frost, not at all noteworthy for its severity. In the autumn of 1836 we had towards the end of October a deep snow, and for the season a sharp frost, lasting two or three days, the weather from that date till Christmas remarkably mild; we then had a heavy fall of snow, without any severe frost. January and February 1837 were remarkable for their mildness. Then followed an exceedingly warm dry autumn, which, with the exception of a few November frosts, continued till the commencement of January, the temperature at Christmas ranging from 50° to 55°. On or about the 6th January commenced that terrific frost which lasted till the end of February. We thus had five consecutive mild autumns not followed by severe winters, and one equally mild (1837), followed by a winter remarkable for its severity, showing that if a severe winter is prognosticated from a mild autumn, the prophet would more often than not prove a false one. The truth is, frosts of any severity in autumn in this country are the exception, for taking 30 consecutive years from 1832, I find only eight marked as being worthy of notice from the severity of autumnal frosts. Those who read that most interesting of all Diaries —Evelyn's, may see that 200 years ago the seasons differed but little from those of our own days, with the exception of the frost of 1684, to which we have had none to compare in extreme severity and continuance, except 1814; mild autumns were succeeded by mild winters, with now and then an exception. An opinion prevalent in Evelyn's days as well as in ours, that mild winters are the forerunners of unproductive seasons, like the opinion that mild autumns generally precede severe winters, proved fallacious in 1693 according to Evelyn, and most remarkably so last season, for after the mildest winter ever known, we had in the harvest of 1863 the most abundant crops ever recorded. Another popular idea amongst country people is that when there is an abundant crop of Hips and Haws, a sharp winter will follow, and that when the crop fails the following winter will be mild. In 1862, Hips and Haws were most abundant, and the winter most remarkably mild, dry and agreeable. Last autumn scarce any could be seen, so that the birds during the few days frost we had lately were much distressed. Winds and storms it seems, to a certain extent, can be foretold, but the seasons—the less the weather prophets say about them the better. Was it not Arago, who after studying meteorology, so as to endeavour to foretell the seasons, for 60 years, confessed at the end of that period that he knew nothing? *T. R.*

Heating.—If your Correspondent "C. W. M." who describes (see p. 78) the mode in which he purposes to heat his new plant house or grapery, were to deepen the chamber underneath the floor and have the fire entirely inside it, without any flue, merely having a piece of flat iron suspended directly above the fire so as to spread the heat, similar to what is done in many of the hop kilns in Kent, I think he would economise warmth; and as I understand him to say that the tile and cement floor is to be covered with earth on which plants are to be grown, it would certainly be advisable to keep one or two places bare, so as to give off sufficient heat to warm the atmosphere of the house. A space 1 foot wide along the front of the house should be retained for that purpose, and it would further increase the heating power if a sort of flue, say 1 foot wide and 18 inches deep, were built, whose bottom would be open to the chamber below, from which it would derive its heat; any other form might be given to this flue, the top of which should be thin, and its sides, if convenient, so constructed as to transmit heat through to well warm the house. With some contrivance of this kind no doubt the plan will answer, but I fear if the heated roof of the hot-air chamber is covered entirely over with a foot or more of earth, your correspondent will not be able to secure sufficient internal atmospheric heat to maintain anything like that even temperature required for the purposes to which he alludes. *H. H.*

Patent Earth Closets.—Observing the inquiry of "Ruricola" in your Number of the 16th inst. (see p. 61), I beg to state that I have had one of the earth closets in question in daily use in my house for these past eight months, and my experience has more than borne out the statements made as to its efficiency. Indeed, one thing alone would make it worth its introduction into every house, and that is its answering as a night commode, for it deodorises all effluvia immediately. The late frosts have not interfered with its action in the least—and that is very different from the general experience of the common water-closets during severe weather. "*Custodian*," *Wareham.*

Grape Setting.—I grew some Fuchsias for exhibition in the year 1862 in a small Vinery. The tops of the plants were close to the glass amongst the foliage of the Vines, and not caring much about Grapes I made a practice of syringing both Vines and Fuchsias two or three times a day, from the starting of the Vines to the stoning of the berries. In fact, the house was never allowed to approach anything like dryness during that time. Under these circumstances I was surprised to see how well the berries had set; in fact they were so jammed together in the bunch that I was unable to get the point of the thinning scissors amongst them. I attributed this profuse setting to the syringing. The season following I tried the same experiment in another Vinery containing Black Hamburgh, Tokay, Muscat, &c., and I had a splendid crop, with bunches of which I took two first-class prizes for Black and White Grapes at a horticultural show. *J. C. Nicholson, Osgodby Hall, Selby.*

Sauromatum guttatum.—This plant has just sloughed its pretty spathe in a stove here, and afforded enjoyment in admiring that richly spotted appendage, drooping gracefully from a brown column 18 inches high, banded near the base by a straw-coloured ring; but the gratification was momentary and not unmixed. While I admired, my man was searching about for what he supposed to be the delinquency of a cat—nothing more odious than the effluvium in the house could be conceived; this we found at length to proceed from the plant. On removing it the odour lingered in the open air behind it as it was carried along like a trail; the top of the spadix was warm, and apparently the seat of the smell, which issued from it invisibly, but in other respects like smoke from a chimney. This plant could not possibly be retained in the largest hot-house, a matter for regret, considering its beauty and its time of blooming. *B., Dungarrow, Jan.* 21.

Ferns.—Since the publication of Sir William Hooker's "Species Filicum," wherein it is shown that the self-same kind is found in many latitudes widely separated from each other—and as a consequence are found growing under very different circumstances, it occurred to me that we may have many quiet nooks that might be suitable for many Ferns not natives of our country, and that only required an introduction to enable them to be denizens of our isle, as many Pines and Conifers generally are now doing. With this impression I looked for a favourable site, and soon, through the kindness of the Hon. Sir John Bligh, Bart., I was enabled to try the experiment. The village of Sandgate, in Kent, is on the sea shore; a turnpike road separates the ground of Enbrook, on which stands, overlooking the sea, a very tasty marine villa. The ground rises so high that the village is out of sight, and the lawn and shrubs appear to be growing on the "margent flood." From the top of this high ground a spring has trickled down for ages, and worn away the softer material, in places exposing the stone of greensand formation in a very pictorial manner. Scattered about irregularly are growing, some naturally and some introduced, many of our British species and varieties of Ferns, and a most charming sight it is to look upon, when they are in their prime. A portion of this ravine I selected for trial of exotic Ferns, and with what success you shall judge. Out of nearly 100 species from all climates, the following are found to have survived:—

*Asplenium lucidum	Onychium lucidum
* ,, coriaceum	*Pteris vespertilionis
* ,, Odontites	* ,, umbrosa
Adiantum pubescens	* ,, hastata
*Dicksonia rubiginosa	* ,, cretica albo-lineata
Doodia caudata	Platyloma falcatum
*Lastrea decurrens	* ,, rotundifolium
,, pubescens	*Niphobolus rupestris
*Lomaria Patersoni	

And those marked * vigorously.

From this our Fern-loving friends, and they are legion, will know that much greater diversity and beauty is to be effected than has yet been obtained in out-door culture. *William Masters.*

Roses.—Having lost many Roses on their own roots, during their first winter out after being struck, I can confirm the Rev. W. F. Radclyffe's dictum, that they "require great care till their roots are firm and strong." The conclusion I arrived at was, that it is only strongly rooted and vigorous plants that should be planted out, and that others should be kept in a cold pit or frame till they became strong. Will Mr. Radclyffe kindly say whether his "great care," or "nursing," consists in that, or whether any better or less troublesome plan may be adopted. *A. B., Narberth, S. Wales.*

Iron and Glass Houses.—Being about to erect some houses of this description, will any of your readers inform me of the best mode in which to construct them? Without being in any way prejudiced in the matter, I certainly have a liking for galvanised iron; but for small work is not zinc often used? Paint and putty seem to adhere to these two metals equally well as to wood, but I am told that ordinary wrought iron can be so prepared as to resist corrosion nearly as well as if galvanised. Might I ask through your columns if this is really the case, and what the opinion of practical men is as regards the merits of iron houses compared with wooden ones—keeping in view beauty, utility, and durability? The difference in opinion that exists on this subject is very perplexing, and the practical experience of those who have tested all kinds is much wanted, and in my own case will in some degree determine the class of house I may put up. *L. L.*

Poinsettia pulcherrima.—I would advise your correspondent, Mr. Baxter, to examine the roots of his plants; I fear they are dead, or at least that what should be the active portion of them is in a bad condition. This might arise from the plants being allowed to get dry and flag; when that happens they will sometimes drop their leaves after receiving water; or the soil being ill drained and allowed to become soddened with water would cause the plant to lose its leaves. Any sudden check, too, arising from cold or otherwise will sometimes produce the mischief complained of. Faithfully follow the instructions given at page 52, and success in growth, as well as in having very large floral leaves will be the result. *G.E.*

Societies.

ENTOMOLOGICAL: *Jan.* 4.—F. Smith, Esq., President, in the chair. A series of drawings of the caterpillars of several species of moths belonging to the genus Anticlea, executed by Mr. Buckler, were exhibited by Mr. E. Newman. Captain Cox also exhibited a large number of drawings of the caterpillars of British Lepidoptera, executed by Mrs. C. Cox, and read some notes on the collection and discrimination of such larvæ. A communication was read by the Secretary from the Lords of the Admiralty, inclosing a copy of a letter from the Governor of St. Helena, relative to the ravages of the white ants in that island, where it is asserted these insects were introduced from Guinea about 20 years since, and where they have so multiplied that almost every dwelling, store, or shed, in Jamestown, containing nearly 4000 inhabitants, has been seriously injured by them. Information was requested as to the most effectual means of checking the ravages of the insects and preventing the spread of the mischief. Various suggestions for this purpose were made by General Sir J. B. Hearsey, Mr. E. W. Robinson, and Mr. H. W. Bates. The first of these gentlemen stated that he had found when in India, that timber which had been placed in a trough filled with quick lime and water had proved to be effectually obnoxious to these most annoying insects; a house which he had built, worth 3000*l.*, being in as sound a state when he left India as when first built. Mr. Robinson stated that kyanised wood was used for the sleepers of railways in India with advantage; and Mr.

Bates had found on the banks of the Amazons, that the houses in the towns were seldom injured by the white ants, being built with a hard timber called Acapu; and that when the insects had effected a lodgment they were destroyed or driven away by the use of arsenical soap or of the oxide of arsenic. Professor Westwood exhibited a small selection from a collection of Coleopterous and Lepidopterous insects recently forwarded to the Museum of Oxford, from the Zambesi, by the Rev. H. Rowley, one of the clergymen attached to the Oxford and Cambridge Mission, amongst which were a number of new and interesting species of beetles, although there was a great similarity to, and even identity with, the species of these orders inhabiting Mozambique, described in Peters's Voyage by the Berlin entomologists. He also read descriptions of three new species of Paussidæ from India and South Africa, and also of several new exotic species of Lucanidæ.

Notices of Books.

Index Fungorum Britannicorum. By M. C. Cooke. 8vo, pp. 58. Robert Hardwicke, 1864.

This is a mere list of all the British Fungi, so far as they have been ascertained up to the time when this little volume went to the press. No less than 3079 species are recorded, and the list is daily increasing, many fine species, and at least two new genera having been detected during the past year. Mr. Cooke states in his title-page that his work is meant as a check list or for Herbarium labels. If for the latter purpose, separate copies should be printed on one side only. Perhaps this already has been done. In a work like the present there is little or no room for showing the knowledge of Fungi which Mr. Cooke really possesses, but his industry and powers of drawing lead us to hope that the interesting branch of Cryptogams to which he is devoting his attention will receive hereafter much elucidation from his labours, which have commenced so creditably in his Plain and Easy Account of British Fungi.

The Gooseberry Grower's Register; an account of the different Gooseberry Shows for the year 1863, *&c.* Macclesfield: C. Leicester, Crompton Road Nursery.

The growers and exhibitors of Gooseberries are fortunate in having so complete a register as this, of their annual proceedings. A 12mo. volume of some 200 and odd pages gives the results of 155 Gooseberry shows held during the past summer, in "Lancashire, Cheshire, Staffordshire, Yorkshire, Derbyshire, Nottinghamshire, and other parts of the kingdom and the United States of America," recording the respective weights of the berries exhibited, the names of the varieties, and the names of the winners. As probably many of our readers are ignorant of the existence of a fraternity of Gooseberry growers (of which this Register is the bond of union), it may be interesting to glance a little over the records of 1863. The portion most interesting will doubtless be the descriptions of new sorts. Those shown at Manchester, on the 1st of August, which seems to have been a special seedling show, are described thus:—

Reds.—Bratherton's Foreman—29 dwts. 12 grns.; colour dark red, with purplish-tinted veins; a very long three-veined well-formed berry with a few spines; two large berries; and a pair of twins—45 dwts. 15 grns., were exhibited of this most promising variety; distinct. Pilkington's Farmer—24 dwts. 4 grns. Leicester's Smoker—22 dwts. 22 grns.; colour dark purplish-red, very rough; a long good-shaped three-veined berry; distinct. Bayley's Make-room—22 dwts. 7 grns.; colour and form of Wonderful, but rough; distinct. Jones's Macaroni—21 dwts. 22 grns.; a fine-formed dark rough red; distinct; Wilkinson's Registrar—20 dwts. 21 grns.

Yellows.—Walton's Garibaldi—22 dwts. 19 grns. Eardley's Hannah—22 dwts. 5 grns.; a fine-formed three-veined berry, similar in colour to Leader, and smooth, with broad light yellow veins, and fine supple rind; very promising and distinct. Wilkinson's Oyster Girl—22 dwts. 2 grns. Chippindale's Ringer—21 dwts. 15 grns.; a large smooth dark muddled yellow berry; very promising and distinct. Soar's Sir Robert—20 dwts. 22 grns.; a round formed light yellow berry; distinct.

Greens.—Bratherton's Birchen Lane—24 dwts. 17 grains; this variety was one of the most promising; distinct. Prophet's Diadem—23 dwts. 8 grains; a smooth bright green, with broad conspicuous light veins; a fine formed three-veined berry; very promising and distinct. Beckett's Bravo—22 dwts. 19 grains. Soars's Radford—21 dwts. 14 grains; a round bright green; distinct. Jones's Spark—19 dwts. 16 grains; colour and form of Thumper, but very rough; distinct.

Whites.—Walton's Annie—24 dwts. 12 grains. Soars's Miss Soars—17 dwts. 5 grains; a long smooth dull-coloured white; distinct. Shingler's Edna—16 dwts. 2 grains; a greenish white, a little rough, with puckered rind, deficient of seed; distinct, but evidently a tender variety.

The following varieties were not successful in obtaining prizes, but were considered distinct. Prophet's red, Lord Audley; Maddox's reds, Benicia Boy and Roughcast; Bennett's red, Honeywall; Holden's yellow, Lady Popham.

The Yorkshire Seedling Show, which took place on the 10th of August, brought out the following novelties:—

Reds.—Firth's Seedling—13 dwts. 3 grns.; colour and form of Guido, and rough strong veins. Muscroft's Prince of Wales—15 dwts. 16 grns.; resembles Clayton in form, but rough and bright in colour; distinct. Lodge's Yorkshireman—15 dwts. 7 grns.; in form of Lumper but very rough; distinct.

Yellows.—Firth's Yellow—16 dwts. 18 grains; colour of Stella, a long strong vein; berry distinct. Stafford's Hedgehog—19 dwts. 2 grns.; a pale dappled yellow, very rough, distinct, and very promising. Muscroft's Seedling—15 dwts. 1 gr.; a smooth yellow; colour betwixt Leveller and Leader.

Greens.—Lodge's Lizard—17 dwts. 22 grns.; a muddled green, smooth, very promising; distinct. Muscroft's Seedling—16 dwts.; a smooth light green, in form of Turnout.

White.—Muscroft's Seedling—14 dwts. 12 grns.

A table at the end of the Register gives at one view the number of prizes won by each variety, and the weight of the heaviest berry. From this it appears that amongst Reds the favourite is that called London, which has taken 253 prizes, and has attained the weight of 34 dwts. 1 gr. Of Yellows, the highest placed is Leveller, which has won 229 prizes, and been grown as heavy as 28 dwts. 18 grains. Greens, like the Yellows, weigh less than the other classes; the heaviest is Shiner, which reached 29 dwts.; but Stockwell, which in weight only reached 28 dwts. 13 grains, has won many more prizes, as many as 168 falling to it. In Whites, Antagonist has won 267 prizes, and attained 34½dwts. 21 grains in weight. This last appears to be at the head of the list for weight, and is accordingly represented on the title page. Those who wish to be well up in the Gooseberry fancy, ought to study this Register, which appears annually early in October, and is to be had of Mr. Leicester, Secretary of the Manchester show. Such exhibitions as these no doubt tend to improve the flower or fruit to which they are devoted; but we trust, in their efforts after size and weight, the producers of new Gooseberries are not quite indifferent to flavour. We certainly do not find any allusion to this point throughout the book.

Garden Memoranda.

BASING PARK.—This place has been long celebrated for its high keeping, and for the great ardour with which horticulture in all its branches has been successfully cultivated. It is situated in the eastern part of Hampshire, about seven miles from Alton, and the same distance from Petersfield—a district possessing great natural beauty, and presenting many pleasing examples of what an artist would regard as the highest class of rural scenery. For the last 30 years, Basing Park was the property of the late Joseph Martineau, Esq., whose memory will long be cherished by all who knew his worth or enjoyed his friendship. As a patron and promoter of horticulture he was particularly distinguished, and the beautiful gardens and pleasure ground, with the noble specimens of rare and valuable trees and shrubs they contain, afford abundant proof of his liberality and refined taste.

The domain comprises about 2000 acres, almost within a ring fence. The greater part of the land is of a very useful character, being a clayey sort of loam on chalk, interspersed with flint. The surface is much undulated, and beautifully diversified with wood and thriving plantations. The mansion occupies a good position near the centre of the domain, on a gentle swell with a sloping lawn in front. It is comparatively a modern erection in the Grecian style, commanding some charming views of park scenery. The approaches to it are excellent, and have been planned with consummate judgment, so as to embrace the various points from which the most striking features of the park and surrounding country may be seen. The one from the Gosport road on the north is upwards of a mile and a half in length, while another from the Petersfield road on the south, extends more than two miles through thriving plantations, the carriage drive being skirted on either side with Deodars, Araucarias, and Laurels. The entrance lodges are in our opinion models of what such buildings ought to be, neat and expressive in design, substantially built, and planned with a due regard to their outward appearance, as well as to the comfort and convenience of the persons who may inhabit them.

The flower gardens and pleasure ground occupy the south and east sides of the mansion, and greatly add to its cheerfulness and beauty. The one on the east side is a symmetrical garden of exquisite design, having a handsome fountain in the centre, and being otherwise ornamented by large vases filled with flowers. The beds are well proportioned, and when we saw them they were remarkably gay, owing to the care that had been taken in selecting the plants for the different beds, and arranging them so that their colours might harmonise with one another and produce the most agreeable effect. Shelter is afforded by means of large masses of Rhododendrons and other evergreens, which are also tastefully distributed over the sloping lawn. Along the south front of the mansion is a spacious terrace with a walk down the centre, that leads to an open colonnade which serves as a protection for Camellias and similar half-hardy plants, and connects the terrace with the Conservatory—a large and handsome erection, about 60 feet long, and lofty in proportion. It contains some fine specimens of Camellia, Indian Rhododendron, Habrothamnus, Brugmansia, and numerous other plants that are found so useful for decorative purposes during winter. Immediately in front of the Conservatory, but on a much lower level, is another symmetrical garden with a fountain in the centre, from which the flower beds and walks between them radiate to a border surrounding the whole, in which standard Roses are planted at regular distances. Although not so elaborate in design as the garden previously noticed, yet it has altogether a very striking effect—from the masses of colour in the beds being nicely arranged, and relieved by a wide border of Rhododendrons and other evergreens, which forms the outer boundary. No one can look upon this lovely scene without admiring it, or stroll through the pleasure ground, of which it forms a part, without being delighted with the beautiful example it presents of what art can effect when properly directed. On every side are splendid specimens of some of the finest of our ornamental trees and shrubs, and for the information of those who take an interest in this branch of gardening, we subjoin the measurements of a few that particularly attracted our attention.

Wellingtonia gigantea, 14 feet high; girth at 6 inches from the ground 2 feet 9 inches; at 4 feet high 1 foot 6 inches; circumference of the branches 31 feet 6 inches. It is feathered with branches to the ground, and is without exception one of the most perfect specimens of its kind that has yet come under our notice.

Of Cedrus Deodara, there are many fine examples. The largest is 31 feet high, 3 feet 5 inches in girth at 4 feet from the ground, and covers with its branches a space of 75 feet in circumference.

Cryptomeria japonica, 24 feet high; 15 inches in girth at 4 feet from the ground, and covering a space 53 feet in circumference.

Pinus excelsa, 20 feet 6 inches high; girth 20 inches; spread of the branches 48 feet in circumference.

Thuja orientalis, 17 feet high, with branches covering a space 50 feet in circumference; an unique specimen.

Thuja pendula, a fine example, 11 feet high, worked on a Yew.

Taxodium sempervirens, 22 feet high, girthing at the ground 4 feet 6 inches, and 3 feet 6 inches at 4 feet above it. The branches cover a space 48 feet in circumference, and gradually diminish upwards so as to form a perfect pyramid, dense and beautiful.

Cephalotaxus Fortuni, worked on a Yew, 5 feet high, covers a space 30 feet in circumference.

Of Abies Douglasii there are several handsome specimens; the finest is 36 feet high, girthing 3 feet 5 inches at 4 feet from the ground, with branches covering a space 51 feet in circumference, and forming a dense conical mass of beautiful foliage. Some specimens that were raised from cuttings are but little inferior in size, and quite as ornamental in appearance as the one just mentioned.

Near the Conservatory is a fine example of Araucaria imbricata, 23 feet high, girthing 2 feet 1 inch at 4 feet from the ground, and covering a space 34 feet 6 inches in circumference, without a blemish in any tier of branches from top to bottom.

A Juniperus recurva is 14 feet high; and of Cupressus macrocarpa and Cupressus Lawsoniana the specimens are large and handsome—especially of the latter, which for graceful habit and appearance, we think, is unsurpassed by any other species.

There are also nice examples of the Irish and Golden varieties of Yew, and of many other evergreen trees and shrubs that contribute so much to enliven our gardens during winter.

Adjoining the pleasure ground on the west is a garden wholly devoted to Roses, of which there is a very choice assortment. It is centred by a fountain in a sunken panel, and is surrounded by an oval terrace, from which a broad walk ornamented on both sides with beds of gay flowering plants, and trained specimens of Irish Yew, and varieties of Holly, &c., leads to a terrace on a higher level, where stands the orchard house. This is a large structure erected against the south wall of the kitchen garden, 300 feet long, 17 feet wide, and of proportionate height. The roof is fixed, but for the purpose of ventilation there are numerous openings both at top and bottom of the back wall, and moveable sashes in front, so constructed as to be easily opened and shut by a very simple piece of machinery attached to an iron rod carried along the front. An arched iron trellis occupies the centre, and extends throughout the whole length of the building. The fruit trees are planted along the front and back of this trellis, and trained over it. They comprise the most select kinds of Peaches, Nectarines, Plums, and Apricots, with a row of dwarf pyramid trees of the most esteemed varieties of dessert Pears, between the trees at the back. Against the wall are similar kinds of fruit trees to those on the trellis, with the addition of Vines and Figs. Some are trained to a wire trellis, while others are nailed to the wall, and the fruit ripens a week or ten days earlier than on the trellis. As an orchard house, this is unquestionably the finest example of its kind in the country. It has no artificial heat, nor is it requisite, the principal object for which it was erected having

been solely with the view of protecting the trees from being injured by late frosts in spring, and preventing the fruit when approaching maturity from being damaged by wind or heavy rain. All this has been accomplished with the most gratifying success, and we do not hesitate to say that in our long experience we never saw anything to equal the display of fruit that this house contained at the time of our visit. Every tree appeared in the most perfect health, and regularly covered with rosy, luscious-looking fruit. As for Plums, they were most abundant, particularly Green Gages, Jefferson's, Coe's Golden Drop, and Pond's Seedling. Figs were also in great perfection, especially on such branches as were nailed against the wall. A house of this description, even on a much smaller scale, would be found extremely useful in situations liable to hoar frost, and where a crop of wall fruit cannot always be depended upon. During winter it might be made serviceable for a variety of purposes, such as the protection of plants for salading, of Strawberries intended for forcing, or of different half-hardy and other ornamental plants that require but a slight protection during very severe weather.

For a description of the Kitchen Garden, and for some other particulars respecting this fine place, we must endeavour to find room next week.

Miscellaneous.

Irish Peat Bogs.—In a paper on the supply of fuel in Ireland, recently read by Mr. Hamilton O'Hara before the Royal Dublin Society, much useful information was given as to the extent of the coalfields and peat bogs of Ireland, the different varieties of fuel, and how the immense supply of peat, now of little use for manufacturing purposes, may be rendered by improved modes of preparation nearly as valuable as coal. The area of the bogs of Ireland was stated to amount to 2,830,000 acres, and estimating a cubic yard of dry peat to weigh 550 lb., the quantity of valuable fuel from this source would amount to 6,338,666,666 tons. Taking the economic value of turf, compared with that of coal, as 9 to 54, the total amount of peat fuel in Ireland is equivalent in power to about 470,000,000 tons of coal; and estimating coal at 12*s.* per ton, the money value of all the peat in Ireland would be 280,000,000*l.* sterling. Mr. O'Hara referred to the particular qualities of coal found in the various coalfields, and quoted statistics as to the quantities found in each, the area occupied in Leinster being 230 square miles. There are 73 collieries at present in Ireland, 31 of which are in Leinster, 29 in Munster, 7 in Connaught, and 6 in Ulster. Of these 46 only are at present worked. The quantity of coal taken from them has been 120,000 tons a year, but in 1862 it amounted to 127,000 tons. *Daily Paper.*

Barometer Readings.—It is now a well-known fact that the value of a barometer reading depends less on the actual height of the mercury than it does on whether the column be rising steadily or falling; and, further, before the reading can be rendered available for weather purposes, the hygrometer must be consulted to see the amount of moisture in the air, and also whether this be on the increase or the reverse. The direction of the wind is also another element, as is likewise the temperature. As a help to those who are not yet versed in the science of weather, we append a few short rules, that may serve as guides, however imperfect, until they are more advanced in this interesting and useful study. *A Rising Barometer*: A "rapid" rise indicates unsettled weather; a "gradual" rise indicates settled weather; a "rise" with dry air and cold increasing in summer indicates wind from northward, and if rain has fallen better weather is to be expected; a "rise" with moist air and a low temperature indicates wind and rain from northward; a "rise" with southerly wind indicates fine weather. *A Steady Barometer:* With dry air and a seasonable temperature, indicates a continuance of very fine weather. *A Falling Barometer:* A "rapid" fall indicates stormy weather; a "rapid" fall with westerly wind indicates stormy weather from northward; a "fall" with a northerly wind indicates storm, with rain and hail in summer and snow in winter; a "fall" with increased moisture in the air and the heat increasing, indicates wind and rain from southward; a "fall" with dry air and cold increasing in winter indicates snow; a "fall" after very calm and warm weather indicates rain, with squally weather. *Negretti and Zambra, in the Times.*——All barometers should show the same pressure at the same place, if well made, whatever their construction, if duly corrected for their internal temperature—usually that of air close round them. A mercurial barometer, whether of one kind or another, may differ from and vary in its difference from a good and truly graduated aneroid accurately compensated for temperature; but these differences are only fractions of the tenth of an inch generally. Atmospheric currents and their pressure, or tension, occasion changes in barometers very much more considerable than those caused by rains or snow (which descend from one current of air while influenced or acted on by another). Two such currents of air, or winds, impelled against each other, and having more or less momentum, raise the barometer, by an increase of tension, or pressure, laterally as well as vertically, and rain may fall, or snow or hail, notwithstanding a high reading—perhaps considerably above 30 inches. In such cases the use of a thermometer, and a knowledge of seasonable temperature (see any sixpenny manual), at once indicate the approach and temporary prevalence of either wind displacing another. *Admiral Fitzroy, in the Times.*

Winter Garden in Dublin.—From a report of the Dublin Exhibition Palace and Winter Garden Company just issued, and signed by the Duke of Leinster as chairman, it appears that the contractors, Messrs. Beardwood, have made rapid progress with the work, and there is a prospect that the company will be put in possession of the palace buildings, complete in every respect, in the autumn of this year. The various works in connection with the formation and planting of the surrounding ornamental pleasure-grounds are almost brought to a close, and a considerable portion of the gardens already presents a very pleasing and tasteful appearance. Preparations are being made for an extensive system of ornamental waterworks, for which the Messrs. Grendon, of Drogheda, have contracted to erect the machinery.

Calendar of Operations.

(For the ensuing week.)

ALTHOUGH the expediency of night covering for the roofs of glass houses has been frequently pointed out and pretty generally admitted, yet hitherto little has been done in the way of carrying the plan into effect. It is, however, very economical in point of fuel, more especially in old houses with badly fitting glass. Under such circumstances a trial is only required to prove its utility.

FLOWER GARDEN AND PLANT HOUSES.

Maintain a mild agreeable atmosphere in show houses, and see that all plants are clean and in good health. If any become infested with insects remove them immediately; for no course of culture will succeed without thorough cleanliness.

CHINESE PRIMROSES.—Plants intended for succession to those now in bloom may have a shift, and be otherwise encouraged to make free growth.

CINERARIAS.—Plants intended for specimens may also now receive a shift into larger pots. Admit air freely to them while the weather is mild, and do not let them flag from want of water.

FORCING GARDEN.

The fine weather which we are now experiencing will be found highly favourable to all kinds of forcing. Do not however drive matters too rapidly until we have more sunlight.

CHERRIES.—A mild and somewhat moist atmosphere is what should be aimed at; give air, as in the case of Peaches, when the trees are in flower and the weather favourable, and see that the roots are in a proper state as to moisture.

CUCUMBERS.—Sow successions of choice kinds in case of failure. Pot off young stock and top as soon as the rough leaf has been unfolded. In planting out lay a thick turf under each hill, and in making the latter confine it to the centre of the light. Give air as often as possible, and, in order to be able to do so, keep up powerful linings.

MELONS.—Sow seed of the Beechwood or other early kind. Get some dung at work for the bed, and carry it through as careful a process as that for the early Cucumbers. If ridged out by the second week in February, they will be sufficiently early to prove a safe crop, and will be ready by the first week in June, if not a fortnight earlier.

PEACHES.—Give air at all times when the weather is favourable, and maintain a temperature of about 60°, allowing it to fall 5° lower at night. If the trees have done blooming, syringe freely in the afternoon about 4 o'clock, or earlier if the nights are frosty. Commence disbudding whenever the shoots are in a fit state for that purpose, removing a small quantity periodically till the work is finished.

PINES.—Such plants as are pushing should have plenty of heat and atmospheric moisture. Let the bottom-heat for the present be about 80°.

VINES.—In the early house let the thermometer be 70° by day and 60° at night. Disbud steadily; stop the shoots as they advance at the joint above the fruit. If the lower part of the house be deficient of wood, select some well-placed buds as they break to fill the vacancy; they will soon push into vigorous shoots and fill up the gaps.

HARDY FRUIT AND KITCHEN GARDEN.

The time is at hand for commencing operations here in earnest, and one of the first steps is to plan out every inch of ground for the whole year, if possible. Laths should be written upon and placed at the heads of the quarters, descriptive of the kind of crop, the manuring, and what succeeded by. It is necessary also, in order to follow up a systematic rotation of crops, to keep a cropping book corresponding with the labels.

CAULIFLOWERS.—As autumn-sown stock has doubtless been diminished by the ravages of slugs and the late frost, a slight hotbed may now be made, covered with 3 or 4 inches of soil, and sown immediately.

ONIONS.—Those who desire to have large bulbs ought now to sow White Spanish, Brown Spanish, or Tripoli, either in boxes or on a slight hotbed. The last is a very large mild Onion, but it does not keep long.

PEAS.—These might still be sown in heat for transplanting. Where boxes are not to be got, common draining tiles will be found useful substitutes, or better still, turves cut into long narrow strips and hollowed out in the centre lengthwise for the reception of the seed. In transplanting, these have merely to be lifted and placed where the Peas are intended to grow, first hardening them off a little, and then, when put out, protecting them for a time by means of Spruce branches.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 27, 1864, as observed at the Horticultural Gardens

January.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 21	14	29.909	29.867	51	38	44.5	44	43	S.W.	.02
Friday 22	15	29.830	29.770	54	37	45.5	45	43½	S.W.	
Satur 23	○	29.918	29.774	50	26	38.0	45	45	S.W.	.14
Sunday 24	17	30.296	30.100	47	25	36.0	45	45	S.W.	.00
Mon. 25	18	30.368	30.245	46	29	37.5	45	45	S.W.	.00
Tues. 26	19	30.259	30.159	52	32	42.0	44½	44½	S.	.04
Wed. 27	20	29.978	29.964	54	38	46.0	45	44	S.W.	.00
Average.		30.083	29.971	51.3	32.5	41.3	45.1	44.3		.20

Jan. 21—Rain; very fine; fine at night.
— 22—Densely clouded, cloudy and windy; boisterous at night.
— 23—Rain; fine; cloudy, rain at night; slight frost.
— 24—Clear, fine; clear at night; slight frost.
— 25—Hazy; fine throughout.
— 26—Cloudy; exceedingly fine with sun; overcast; rain at night.
— 27—Densely overcast, very fine; cloudy; fine at night.
Mean temperature of the week 3 1-5th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending Feb. 6, 1864.

January and Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 31.	44.4	—	—	17	0.38 (in.	5	5	1	2	9	10	3	3
Mon. 1..	43.3	31.0	37.2	12	0.52	5	6	1	2	3	10	5	6
Tues. 2..	43.7	31.0	37.4	13	0.75	3	6	5	3	2	10	6	3
Wed. 3..	44.3	30.9	37.6	17	0.42	4	3	3	2	2	16	3	2
Thurs. 4..	44.8	33.2	39.0	13	0.31	3	4	4	1	7	12	5	2
Friday 5..	45.8	33.7	39.8	17	0.39	2	3	2	3	1	5	6	5
Satur. 6..	46.3	32.7	39.5	19	0.25	2	3	4	3	4	9	7	5

The highest temperature during the above period occurred on the 1st, 1852, and 3d, 1850—therm. 57 deg.; and the lowest on the 31st, 1857—therm. 8 deg.

Notices to Correspondents.

CUCUMBERS: *A B.* The affection in your Cucumber plants is very common and can scarcely be called a disease. There is not power of vegetation to nourish the whole leaf perfectly, and consequently particular spots which are acted upon too strongly by the sun's rays, do not form any chlorophyll, to which the green colour of leaves is due. You may often see the same thing in Spinach, and indeed in many other plants. The worst is that the fruit may have weak points too, and in consequence be spotted. We see no trace of thrips about the leaves. *M J B.*

GRAPES FROM SEVILLE: *W S.* It will take some time to examine the Spanish and other books that *must* be consulted. You shall have an answer next week. In the meantime the eyes will take no harm.

HYACINTHS: *S B.* Your Hyacinths, now in cold frames 3 inches high, will require but little heat to be in bloom by the middle of March. A slight hotbed or a greenhouse with plenty of air will furnish all they want. Water them occasionally with weak liquid manure made from sheep or cow-droppings.

NAMES OF PLANTS: *C E F.* Platyloma rotundifolium.—*G C.* 1, Justicia speciosa; 2, Begonia manicata.—*H H J.* 1, Goniophlebium verrucosum; 2, Pteris argyræa; 3, Aspidenium Colensoi.—*C F.* We believe one of the many varieties of Epidendrum variegatum; but the flower is terribly crushed. —*Ridge Hall.* The leaf is that of some Solanum, and probably of S. xanthocarpum.—*Australis.* Lucilia acutifolia, very pretty.—*Granadilla.* It is one of the many varieties of Passiflora quadrangularis; but a mere leaf does not enable us to say which. We must have flowers.

ORANGES: *Sub.* By no means build your Orangery with an opaque roof. If you intend to cultivate the trees for their fruit, build a span-roofed or lean-to house with good clear glass. Oranges ripen best with plenty of light and heat, witness Malta. The pots may be plunged in leaves or tan to give bottom-heat, but the trees will ripen their fruit without it in any Vinery where Grapes are forced. In your cool climate they should have artificial heat all the summer.

THE SLIPPERY ELM: *C E F.* Compare with the extravagant statement you have sent us, the following sober account by Wood & Bache, whose *United States Dispensatory* is a perfectly trustworthy authority:—"Slippery Elm bark is an excellent demulcent, applicable to all cases in which this class of medicines is employed. It is especially recommended in dysentery, diarrhœa, and diseases of the urinary passages. Like the bark of the common European Elm, it has been employed in leprous and herpetic eruptions; but neither in these nor in any other complaints does it probably exert *any greater powers than such as belong to the demulcents generally.* Its mucilage is highly nutritious; and *we are told* that it has proved sufficient for the support of life in the absence of other food. The instance of a soldier is mentioned, who lived for 10 days in the woods on this bark and sassafras; and the Indians *are said* to resort to it for nutriment in extreme emergencies. It is usually employed as a drink in the form of infusion. The powder may be used, stirred in hot water, with which it forms a mucilage, more or less thick according to the proportion added. The bark also serves as an emollient application in cases of external inflammation. For this purpose the powder may be formed into a poultice with hot water, or the bark itself may be applied, previously softened by boiling." There is a great deal of hearsay even here.

WINTERING VINES: *W Nicholson.* The exposure of the wood of a Vine during autumn and winter after the ripening is completed, is a common and beneficial practice within certain limits, the advantage arising from the state of rest which is induced and secured. It is not very material whether this is done by taking down the stems and putting them outside the house or by removing the sashes, except that in the latter case they should not be continued off too long if the season is wet. The object is to keep the wood inactive by securing coolness and dryness; when therefore removed from the shelter of the glass some protection ought to be afforded. The best is a sort of open thatch of straw or fern sufficient to keep off rains, and afford some shelter from frosts in case they should be severe. Unless however there is a special reason for doing so, it is not often desirable to subject healthy Vines to the risk of disorganisation from frost which might be sustained if the exposure were continued throughout the depth of winter.

ERRATUM.—In Messrs. Lane's advertisement in our last impression, 1st page, referring to another column, read page 72 *for* page 71.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY

RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.

WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.

Samples and Prices post free on application.

THE LONDON SEED COMPANY, LIMITED, has been established under the Companies' Act of 1862, for the purpose of supplying all kinds of Seeds for the Farm and the Garden.

The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.

The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.

The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.

One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.

ALFRED BREWIN, Manager.

FOR SALE by PRIVATE TENDER, about FORTY LOADS of RICH TURF LOAM, Three Years old, and in excellent condition, to be seen on the Premises of Mr. HANSON, Builder, Southall Green, W.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

"Z" Family, now offered for the First Time.

TRADE MARK.

HALLETT'S PEDIGREE NURSERY WHEAT.

THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill 2 bushels per acre.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.

Chairman: JOHN CLAYDEN, Littlebury, Essex.

Managing Director: JAMES ODAMS.

Particulars of these Standard Manures may be obtained at the Offices.

C. T. MACADAM, Secretary, or of the local Agents.

Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures. American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways.

W. SHORT, Sand and Peat Depot, Reigate, Surrey.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

106, Leadenhall Street, E.C.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

J. BAILEY DENTON, M. Inst. C.E., will LECTURE on DRAINAGE.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

Professor J. MORRIS, F.G.S., will give a COURSE of LECTURES on GEOLOGY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh, will give a COURSE of LECTURES on the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, will LECTURE on CATTLE, SHEEP, PIGS, and POULTRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

JOHN THORNHILL HARRISON, of Frocester Court, near Stroud, will give a COURSE of LECTURES on DAIRY HUSBANDRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin, will give a COURSE of LECTURES on FARM LABOUR.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions," will LECTURE on ROTATION of CROPS.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

RICHARD GRIFFITHS WELFORD, Barrister-at-Law, will give a COURSE of LECTURES on LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER, will REOPEN on MONDAY, Feb. 8.

Applications for Admission and for further particulars may be made to the Principal, the Rev. JOHN CONSTABLE.

SUTTON'S GRASS SEEDS FOR ALL SOILS.



SUTTON & SONS, SEED GROWERS,

READING, BERKS,

Have a most extensive and complete stock of all the best kinds of GRASS SEEDS for PERMANENT PASTURE, which they are now sending out daily to all parts of the Kingdom, mixed expressly to suit the soil for which they are intended and the purposes for which the Pasture is required. It is believed that Messrs. SUTTON'S Stock of GRASS SEEDS is the largest in the country, and certainly the quality cannot be surpassed. The sorts can be supplied separate or mixed to suit the soil. The Light Large Seeds in one Mixture, and the Clovers and other Small Heavy Seeds in another; 2 bushels of the former and 12 lb. of the latter per Acre are supplied.

No. 1.	Mixtures for Permanent Meadow and Pasture, mixed expressly to suit the Soil	per acre, 28s. to 30s.
No. 2.	Mixtures for Permanent Field Lawns, Parks and Cemeteries ...	per bushel, 16s.
No. 3.	Mixtures for Irrigation or Catch Meadows	per acre, 25s.
No. 4.	Mixtures for Reclaimed, Marsh, or Heath Land	,, 20s.
No. 5.	Mixtures for Loose Blowing Sands, Heavy Clays, Chalky Soils, and Sharp Gravel	,, 30s.
No. 6.	Mixtures of Finest Short Grasses for Garden Lawn	1s. per lb., or, per bushel 18s.
No. 7.	Renovating Mixture of Clovers and Fine Grasses for Old Parks and Meadows	9d. per lb., or, by the cwt., 80s.

MR. MARTIN SUTTON'S *Essay on Permanent Pasture, containing complete Instructions for Sowing and Management, is supplied with the Seeds.*

SUTTON'S LIST OF PRESENT PRICES OF OTHER AGRICULTURAL SEEDS, MAY BE HAD POST FREE.

Goods delivered Carriage Free, except very Small Parcels.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

The Agricultural Gazette.

SATURDAY, JANUARY 30, 1864.

MR. GREY'S question—WHAT TO DO WITH OUR CLAYS?—which he answered in our last Paper by pointing out both the methods of laying down and improving Grass lands, and the superiority of steam cultivation on arable land, is one of the most important of the present day for all owners and occupiers. Those who with us believe that the now popular cry for laying down land to permanent pasture, and the increasing outcry against breaking up old Grass, is excessive, and will be shortlived, have of course to contend with the undoubted fact that land thus laid down can be broken up again, improved as plough land by the process—while land thus broken up can regain its condition as established pasture or meadow only through a long series of comparatively unprofitable years. And we must admit that there are some clays which under ordinary management are so expensive and so profitless that their condition in poor Grass seems the only state in which they will yield what rent is charged upon them. Under ordinary management, therefore, the question can be answered only by reference to the character of the soil. There are some clays which horse-tillage cannot fertilise, and on which a poor coating of Grass is the only produce obtainable without a loss. There

are others which naturally yield such magnificent annual growths of Grass that it would be the utmost folly to incur the expense of arable culture for what would probably be a less valuable annual return. There is yet another class yielding poor Grass from which arable cultivation will profitably extract a great increase of food for both man and beast.

We were last Tuesday over a Gloucestershire dairy farm, where the first and last of these cases were well illustrated. A deep cutting of a railway runs through this farm. The blue lias in alternate layers of stone and shale is shown by it to underlie the greater part of the land. But in places this shaly, stony subsoil is overlaid by a sheer clay without parting of any kind. The soil over this is the poorest and most intractable, and apparently either incapable of cultivation, or yielding at an enormous waste of horse flesh the poorest produce of Wheat, Beans and Vetches. It yields also an extremely poor pasture, blue with Sedge, rather than green with Grass. The stony subsoil, easily drained by channels 4 feet deep and 12 to 15 yards apart, yields naturally a very poor Grass, but is comparatively easily cultivated, and grows Wheat, Oats, Peas or Beans, and Turnips or Mangel Wurzels, heavy crops of good quality at comparatively small expense.

The question what we are to do with our clays is easily answered in such a case as this. It would be folly to break up the whole of the Grass land, even in this latter case; and thus attempt to upset the whole style of the agricultural industry of the district. It is a dairy country, and the larger portion, even of this middling Grass land, must remain in pasture, being improved by drainage and patient continuance in more ordinary good management. But there cannot be a doubt that the superiority of the arable land on such farms as we saw last Tuesday, ought to give confidence to landowners, who are being perpetually petitioned on all Gloucestershire dairy farms for leave to break up a little more Grass land. The little straw that is grown is insufficient to keep the cattle either comfortable or tidy at this time of the year; and the few roots that are grown are quite insufficient for the needs of the herd during winter. If more roots and straw were grown, much less haymaking need be done, and a larger herd could be kept and more cheese made on a given extent.

If more corn crops were cultivated, the dairy farmer would not be reduced to the plight of carting out the fresh-soiled litter on the fields, spreading it there, and waiting till it should be washed clean and dried, and then raking the bleached straw together again for another use as litter.

It seems plain that the present exceptional price of the grain produce of our arable land ought to be allowed but little influence on the decision of the question—What to do with our clays? and that, especially in our dairy districts where first-class pastures do not prevail, a larger portion of our Grass land ought to be brought under the plough.

And, for the large remainder of our poorest clays, where the cost of labour, the poverty of the produce, and perhaps the inclemency of the climate, unite to forbid plough-land cultivation—even here we believe that the line which encloses those lands where a poor natural produce of Grass is the only thing that will pay for occupation, is shrinking and being driven in by the steam plough where it has been substituted for that horse cultivation which has hitherto been unprofitable.

Land drainage must, of course, precede any attempt at the profitable cultivation of such land; but land drainage is hardly possible here, except where steam cultivation deeply opens up the surface soil; even poor clays thus treated will, we doubt not, ultimately yield a profitable return to arable management.

It is a curious fact that at the very moment when our farmers are complaining of the deterioration of their Swede Turnips, and anticipating their reversion more or less completely to Cole seed, as loud cries are raised in the departments of Le Calvados and Maine et Loire in France against disease and degeneration in Colza, a plant referred to Brassica campestris, the species from which the different varieties of Swede Turnips or Rutabaga are supposed to be derived.*

In all such questions, the main point on which the matter turns is the object which the cultivator has in view. If he wants his Cole seed merely as green food for sheep, he looks to quite a different type from what he would do were his labours directed to an abundant crop of seed for the sake of extracting oil.

We will first refer to the disease as observed by ISIDORE PIERRE, an abstract of whose observations is given in the last number of the "Popular Science Review," p. 249, which we take the liberty of extracting:—

"He selected 15 plants of both kinds, healthy and unhealthy, and taking the leaves from each specimen, he compared the normal with the diseased form, and from this was enabled to conclude:—1. That the malady prevents the development of organic matter in the leaves which have been attacked. 2. That a comparison of equal weights (dry or green) of both forms shows an excess of about 20 per cent. of nitrogen in the unhealthy leaves. 3. The latter are also richer in mineral matters, and especially in phosphoric acid and lime, of which there are about 80 per cent. more than in the healthy leaves. 4. The tainted leaves also possess more soda than the normal ones. 5. In equal weights the two varieties contain about the same proportion of salts of potash.

"In estimating the total weight of the substances contained by each leaf his results are more interesting. Thus he proved—1. That the quantity of nitrogen in the tainted leaves is one-fifth less* than that of the healthy leaves. 2. That the total weights of organic matter is about 50 per cent. less in the unhealthy leaves than in the same number of healthy ones. 3. That the total weight of mineral matter in the unhealthy leaves is about one-sixth less than that in the same number of healthy leaves. 4. That the unhealthy leaves contain about one-sixth more phosphoric acid than the same number of healthy ones. 5. That the diseased leaves contain about one-eighth more of lime than the same number of healthy leaves. 6. The unhealthy leaves contain only six-tenths of the quantity of potash contained in the same number of normal specimens. The most important result of all these investigations is evidently the discovery that the diseased leaves have a far greater supply of lime and phosphoric acid than the healthy ones, and are also richer in nitrogenous principles."

The other notice of Colza is by Monsieur CHATEL, who does not enter into chemical details, and who looks rather to degeneration than actual disease. We translate the following from a small brochure which he has kindly forwarded:—

"In looking over or cutting a field of Colza, every one must have remarked a great inequality in the development of the plants. At every step we find, by the side of a vigorous plant, garnished with numerous pods, others far weaker, slightly branched, or with the pods scattered or badly corned. The cause of these differences must depend generally on the bad quality of the plant, which, springing originally from seeds not sown in drills but broadcast, or in other words, from very crowded plants, has been more or less impeded in its development. With small pains and little expense, it would seem to be extremely easy to obtain finer plants and to augment the yield and quality of seed."

M. CHATEL then proceeds to show that wisdom, instead of depending upon the chance produce of ill cultivated land, of selecting the most promising and characteristic plants, and keeping up a supply by a constantly repeated selection.

His remarks apply equally to the maintenance of the character of Swede Turnips, which can only be done by careful selection, and the removal of every possible means of contamination from neighbouring crops of other varieties of Brassica. Selection however is the preliminary point which requires special attention.

It is well-known that in the case of mere varieties of one species, the intermixture of varieties, and the consequent origination of numerous forms, is almost without limit. It is to this tendency that we owe a great portion of the ornaments of our garden. Supposing then that all the access of every form of the genus Brassica be excluded, which differs sensibly from the particular variety of which we want to secure the purity, we shall still have a source of impurity in the intermixture of the different varieties which will inevitably arise in the course of cultivation of the especial form which we wish to propagate. It is clear then that if we wish to raise pure seed, we must first root out from our seed bed every individual which shows the slightest departure from the most approved form. And if this be the case where there is no danger of impregnation from abnormal varieties, much more ought the selection to be careful where such exposure is to be dreaded.

In a former article we touched upon the question of reversion to the original type. As regards the Cabbage tribe, M. DECAISNE, who is a convert after much observation to the views which have been maintained by Dr. HOOKER and others as to the wide sense in which species ought to be taken, has lately expressed himself as follows respecting the non-reversion to the original wild type:—"We may consider it certain that every good variety of Pear, and I may say the same of all our fruits, will, if it is impregnated by itself alone, give rise to good varieties: they may differ, and will in all probability differ, sometimes by one character, sometimes by another from the same variety, but none of them will resume the character of the wilding any more than our Drumheaded Cabbages or Cauliflowers will return to any of the wild species which are so distinct in habit, which grow on the cliffs of the Atlantic or Mediterranean."

Those who wish to see the contrary opinion well and fairly stated, may turn to the January Number for 1864, of the "Natural History Review," in an article on DECAISNE'S late memoir on the variability of the European forms of the Pear tree. *M. J. B.*

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* In Dr. LINDLEY'S article Brassica in MORTON'S "Cyclopædia of Agriculture," Colza is referred to Brassica campestris, Rape to Brassica napus. These supposed species, however, as well as Brassica rapa, the common Turnip; Brassica oleracea, the Cabbage; and Brassica præcox, the Summer Rape, all breed with each other with the utmost facility, so that it is extremely difficult to keep them pure. In the article Turnip in the "Penny Cyclopædia," the Swede Turnip is referred to Brassica campestris. Sometimes, however, as in the article Rape in MORTON'S "Cyclopædia," Colza is called Brassica napus, while Rape is called Brassica oleracea.

* So in the text, but apparently it is a slip of the pen for greater.

TALE OF A LANDLORD.

[Lark-spur.]

IT is the happy quality of those subjects which have Nature, and her doings for their theme, that they never grow old, and never get stale. But they have even a higher privilege than this, a charm which (with one exception) is possessed by nothing else that comes within human experience,—namely, the power to impart a portion of their own perpetual youth to those who follow them. In the ordinary things that make up life, the early impressions are vivid and durable; and as the journey proceeds they become tame; and evaporate: but a little morning alliance with Nature affords a pretty evening illustration of the well-known 'pariental' adage "Be old when you're young, and you'll be young when you're old." To be sure, it looks a little old-fashioned, or affected, (accordingly as you view it) in a boy, to be scrutinizing curiously and carefully some process of vegetable or insect life, which others apparently more lively and active than he, pass by without a look or thought. But mark them when the grey and silver hues of man's Autumn have touched their temples; and you see a change come on, a sort of inversion: in the one case, either the charms that were so ravishing, or the eyes that followed them, have got dimmed a little; but what is worse than that, there is a touch of fickleness added to insipidity, and the lover finds himself left behind at a rather trying time. Not so in the other case; impressions trifling at first, as mere curiosity, deepen and strengthen as knowledge gives them fuller scope and broader relations; and that vivid mental action on which happiness so much depends becomes intensified by every new discovery of science as life proceeds, reminding one of those shrubs whose hues grow more rich and varied as their annual toilet draws nearer to its appointed close. The true lover of Field or Garden, Tree or Flower, could hardly adopt a more appropriate and touching motto for his banner than that loving invocation of Quinctilian to the Earth as "the nurse and delight of our childhood, the sustainer and invigorator of our youth, the instructress of our manhood and age, and the gentle mother who receives into her bosom our wearied frame, when life and labour are accomplished."

A truant pen recalling a half abandoned theme, hung up like an old cobweb in a corner, a great way back in this Chronicle,—a hand to which by the crushing accident of a moment the wielding of a pen became an agony instead of a pleasure, indulges thankfully its half-restored capacity with such reflection as the above, on reuniting the broken thread of a broken tale.

When a very young landowner riding back home from a visit to his lawyer for general advice, about the management of his newly-born estate, finds on referring to his mental notes of the conference, only a dissertation on pruning and timber management, about which the lawyer knew nothing, and an old brother landowner something if possible less, the conclusion that dimly shapes itself to his mind is apt to be the coming shadow of one that recurs in greater force and substance in many an after year. This conclusion has taken various forms and figures of expression: there may be many more elegant, but I know of none with more of the brevity of wit than that which tells us that 'Every tub must stand on its own bottom.' The experience of 'going to ask advice' brings in fact one

of two opposite results,—either a morbid tendency to lean on other minds, or the healthy and invigorating habit of self-reliance. That a lawyer and land-agent should know nothing about pruning, I had no right, I suppose, to wonder at; yet to a beginner, it was a sort of discovery to find that my lawyer knew nothing about *something*. It felt and acted like a tonic: I had been to the doctor—had got my prescription, and paid for it, as you shall see. And I resolved henceforward to use this medicine, and no other.

I don't say that all this came at once, by any means, during that long dark winterly ride homeward. Nothing ever does that is born to last: but there have been moments in most men's lives when a few—a very few words accidentally dropped upon the mind in a certain condition, cling like a fishhook, and for the moment almost as stingingly: and that *smart* is often the birth throe of a half unconscious resolve—a germ of power to grow into rooted and settled purpose. It finds food from circumstance; and soon acquires a sort of organising power to convert a good deal into special food that might have been indifferent enough without the vital action first started by the venomous barb of that little 'fishhook.'

It had happened to me thus. Before his office hours were over, the good natured lawyer, after replying somewhat indecisively and even unsatisfactorily as I thought, to my anxious and repeated question about the 'Agreements,' and very much after the fashion of that diplomatist, who said 'Language was made to conceal thought,' broke in with a cheery proposal to both his client visitors to stay and join his early family dinner. A grunt, with "You're very good" (also grunted), in a jolly gouty kind of way not easily described, from my 'neighbour,' decided me also: and away we presently repaired to the lawyer's residence close by. "And then we can talk it over you know!" he had added, to me, in a kind of hospitable promissory way, that somehow boded better for the dinner and port wine to my ear, than for anything about 'Leases and Agreements.'

And my ear was right. Plenty of kindness, hospitality, and compliment. "Had I had much shooting?' (He knew I had scarcely been a day from town, and up to my eyes in executory business). 'Best coverts in the county you know, yours, for woodcocks' (Oh! you wicked tempting 'Lawyer,' you very well knew *why!*) And so on from subject to subject, as regular a *run* as if 'Lease' and 'Agreement' were a couple of greyhounds that I had slipped upon him under the dinner-table, or across it, and he was doubling round the decanters. What could it mean? Suddenly, turning round to my neighbour of that morning's anonymous introduction, in the office, who sat half-asleep near me,—the ladies having left the room,—I said, apropos of the coverts—

"Do *you* know that district well, Sir?"

"Which?" wakening up with a start,—

"Windwolde."

"Win'uld!" *Know it?* Yes!—'ld starve a lark!"

If you ever saw a struggling vessel that has had all hands at the pumps for eight-and-forty hours, suddenly shipping a tremendous sea into all the ports, and cabins, —one general sweep and smash over all the deck, and all upon it—as I once did witness, and live,—you may form a fair approximate idea of the shock under which Mr. Penn's face suddenly collapsed—gave up the struggle, and seemed to go right down, under this sudden 'let out'—this boisterous shake of the fresh-awakened lion.

A dead silence. There was nothing to be said or done for it. The shell had burst: there was no 'picking up the bits.' This lay plainly enough in the blank speechlessness of our host's face, from which indeed I gathered a deeper and more formidable meaning of the few words so emphatically dropt, than even from the tongue that uttered them. And as I am inditing a tale of facts, let me record to the honor of solicitorial human nature, which novelists delight to demonize, that I hardly ever saw a more thoroughly tender phrase of wounded feeling for another, written on man's kindly countenance, than the table-lamp shone upon, and lit up like a glory to the mind's eye that recalls that well-remembered evening.

For many a long year he had known, as only the agent of an undrained estate knows, the troublous history of the wide and neglected tract that had just fallen to the life-task of the inexperienced guest seated at his table. Well he could measure the value of a strong heart—strong in its youth and its very ignorance—to enter on a charge that no overdose of fore-knowledge should be allowed to damp or discourage: and down had gone the sticks at the first bowl, as it seemed to him, before the young batsman was fairly planted at his wicket! As time improves every good picture—so did the experience of after years light up with more and more of grace to my remembrance, the lamp-photograph, that still remains, of a large-developed but well-chiselled face with its full and genial expression suddenly blanched—stung by the bite of a rough careless word that seemed to have converted his cheerful dining parlour into a kind of moral slaughter-house. Luckily Mr. Penn undermeasured (as elder people mostly do) the forces of Youth, and Ignorance—blessed Youth, happy Ignorance! to which Life and Labour are hidden behind the painted drop-scene, which no hand can lift but that of Time: blessed Youth! happy Ignorance! that listen to the tale of Knowledge with unconscious ear, and meet the faded look of old Experience with a kindling eye, and its chill touch with a warm hand, conquering the earth by the fresh relays of generations, in a fight that is always winning—never won.

This then was the 'fishhook'! Emptyhanded enough as far as legal advice was concerned, I might have been returning home after all my long day with the Lawyer, and so in truth I was. But if all those hours had been spent in receiving good advice—if all the plans for estate improvement that could be uttered in words or written on paper or sketched on pasteboard, or recited from "the best authorities" had been lavished upon me throughout that livelong day, or if all the Leases and Agreements that ever were perfected on paper or parchment, had been shown to exist and placed before my satisfied eyes—would all that time-honoured apparatus put together have surpassed or equalled the laconic force conveyed in that old gentleman's explosive phrase "Starve a lark!" As it turned and twisted itself in my thoughts in all its cutting yet laughable brevity and pertinence, it took almost to my own consciousness the likeness of the little weapon that was speeding my journey home over the frosty road. Better than all the help that lawyer or land-agent could give, the SPUR made itself felt that night! and for many and many an after day and night its keen point was at work to remove that stigma—to shame away the very echo of the words I had heard, from that portion of earth that had fallen to my lot.

Strange, it seemed to me, that I should never have heard of this before! How the boy may fish, and the youth may shoot and hunt, and disport himself in a hundred ways over the land, and meet merry faces, responsive to his own, and partake of jolly luncheons offered with welcoming smiles, at hospitable farmhouses, and never learn, never guess one tittle of the trouble and the sorrow and the need—and the unrequited toil and slavery from year's end to year's end, and alas! often the careless unenquiring ignorance—that lie skin-deep under his feet over wide tracts where the foot that follows the plough, and steps to the hopper and sickle, has preceded him for unknown ages on its annual accustomed errand; yet where the foot of skill and science, the hand that dives below the stale wearied surface-soil, the mind that directs the drain-fall and penetrates the course and character of the under-strata, have advanced no more than into the primeval forests of the Western World, where the bow and tomahawk and warwhoop of the Indian have alike preceded for as many centuries, or more. Wonderful is the history of the earth's development to the growing wants of man! only less seen and less wondered at because human life is too short to read the chapters as they should be read. To one whole generation is given a mere section of the progress of the Turnip-crop—to another its gradual extension—to another the introduction of the drain-tile—to another the improvement of its form, and in its depth—to another the application of steam power to the processes of the farm yard—to another its advancement into the field,—and so on. But who that now stands and contemplates an almost garden soil embalmed with every enrichment and every improved manipulation that present knowledge can give, would believe there was a time when struggling labour could only rescue from the same acres a produce which in the language of expressive irony would 'starve a lark!' *T.*

THE MEAT MANUFACTURE.

(*Concluded from page* 85.)

[The following is the remainder of Mr. Coleman's paper read at the London Farmers' Club]

A FARMER, having selected or bred his young stock, must keep them nicely, and care must be taken to draw a line between too high feeding and too low—the one on the score of expense, and the other for the sake of the well doing of the animal. I would advise an occupier of arable land not to give his young stock too much straw. The food should be, when a year old, from 24 to 40 lbs. of roots, and 1 lb. of Linseed meal or cake with 1 lb. of Oat, Barley, Maize, or other corn, according to price. This should be boiled or steamed with pulped roots and chaff; from 6 to 8 lbs. of chaff may be given; but care must be taken so to apportion the food as to keep them in a healthy state. I have known many young stock very much injured by the injudicious use of straw chaff, and have lost them myself through it. But after all may be said and done, it is to the fattening of cattle that occupiers of arable land must pay most attention, as the difference in management is often the margin between profit or loss. It is of no use allowing an animal the best of food, if he has an uncomfortable bed at night; he will not make much progress. I remember some years ago seeing 20 very good Shorthorns purchased on Norwich Hill, in October, by two neighbouring farmers, and I helped them to divide the lot, each man taking 10—the one the red, and the other the roan bullocks; I do not think there was 1*s.* per head difference between the two lots; yet, when they came to market the following spring, one lot made, if I remember right, 3*l.* to 4*l.* each more than the others. Upon asking the reason of this difference, knowing both lots to have had the same quantity of artificial food, I was told that the owner of the cattle that paid the most money made as much fuss with them as he did with his children; the others were only attended to in the common way. This taught me a lesson I shall never forget, and I imagine many other farmers would be better for just such an one; for, when I go into some men's stalls and yards, I do not find the comfort of the animal studied so much as it ought to be; and we may be well assured, without great attention, bullocks, instead of paying, or helping to pay, the rent on arable farms, will be looked upon, as they are now by some people, as a necessary evil, and called nothing better than manure manufacturers, and expensive ones too.

When cattle are first put into the stalls I prefer boiling the meal or cake, and mixing the roots with the chaff, pouring the liquid over them, and leaving the mixture either in a heap or cistern to ferment for 24 hours. By this means the chaff is made more palatable, and the mixture eaten very readily. At this time the roots will be pulped or minced, and may be continued the first eight to 10 weeks with the bullocks to the fattening stalls; but when the cattle become about half fat, or within a month or six weeks of being ready for the butcher, then give the roots raw, and the corn and cake dry. The butchers say cattle fed on cooked food do not weigh well, nor do they turn out so full of fat, and the flesh is far from so firm as they wish it to be. Now I know this to be correct; and an instance occurred only last spring, showing that, without a fair allowance of roots, cattle fed in winter will not give the purchaser satisfaction. My brother, who farms in Norfolk (upon the estate of Lord Wodehouse), had 25 very nice Shorthorn steers in his yards, when I visited him last February; he was giving them pulped roots and Clover chaff, with a very small proportion of straw, if any, and from 4 lb. to 6 lb. of cake or meal. They wese sent to the Metropolitan Market in April, fat, and I, happening to be there the following week, saw Mr. Thos. Burrell, the well-known cattle salesman, who came and asked me what my brother had been feeding his bullocks upon, as the butchers who bought them complained most terribly of their weighing so badly, and turning out such brutes. The credit the Norfolks maintain in the London market, from January to June, is owing to the abundance of roots with which they are supplied, and I would have some of my friends remember this, who think that cattle can be fed without any roots at all.

I will now notice the values, according to a farmer's notion, of some of the artificial foods that are most in vogue in the present day. Without doubt, that which stands first is Linseed cake, and, when moderately pure, deservedly so; but we must be careful what we purchase, and be guided by our own "palates" as the best test of its genuineness. I prefer to mix meal of some sort with cake, when a good portion of roots is given; but the relative prices of each article will rule this. Now that most feeding meals are cheap, such as Beans, Barley, Maize, Lentils, and others, it is a good practice to use crushed Linseed, in proportion of about one to five; this does not add much to the expense, and carries off the heating and binding properties of corn meal; and when cattle are eating Mangels, I prefer meal to cake, and give a larger proportion, if possible.

Cotton-seed cake is, I find, very useful on Grass, or Mangels, from its astringent qualities; but it is rather dangerous when imperfectly ground and manufactured. I have had to make a claim within the last few weeks (upon a vendor of it) for a neighbour, who lost two strong Welsh beasts from using it, and the quantity was only 4 lbs. per head per day, thrown to them on the Grass land. Professor Voelcker, when the cake was sent him for inspection, said we might as well give cattle compressed "cherry stones," as they would be quite as digestible; so mind, when purchasing Cotton-seed cake, and let the seed be well crushed, and the cake have a mealy appearance. Decorticated Cotton cake I never did like, and, after repeated trials, gave up using it; but the whole seed cake I use now for store cattle in the yard, being very particular not to give too much, and then rarely or ever to very young stock. The experience of others may differ, and if so I shall be glad to hear that I am wrong, as from its reasonable price, it is just the sort of food a farmer would like to use more extensively. Rape-cake I like very well upon light land for manure, but do not think it profitable for feeding, notwithstanding what great authorities may say upon the matter. I am now taking a practical view of things, and putting aside all analyses of the various foods given to cattle, as I consider them but of little or no value as a test of their fattening properties, or why does Linseed show no better quality by analysis than Rape cake? Maize, Lentils, Beans, Peas, Barley, are all good food for bullocks, when ground fine, and given in moderate quantities; but no one of them separately will increase the weight of an ox so fast as Linseed cake, nor will the manure from them be so valuable. We have heard some statements about cattle eating 28 lbs. of cake per day; now I believe this, in a few instances, has been exceeded, yet when the cake has been pure, no ill effects have resulted, except to the farmer's pocket. The most artificial food I ever had a lot of bullocks eat was 21 lbs. per day, consisting of 14 lbs. of cake, and 7 lbs. of Barley and Bean meal. This was 20 bullocks that I purchased some years ago at Wragby, Lincolnshire, in October; and, as soon as I had bought

them, the late owner came up to me, and told me, as a young man, to mind what I was after with them, as they had been having 14 lbs. of cake per day upon the Grass. They continued eating the quantity I have named until the Smithfield great market, to which most of them went; they paid me about 8*l.* per head for 10 weeks' feeding; so I got a lot of extra good manure, and very well out of a business I can tell you I did not much like, for I would not have had them, had I known their antecedents. Is it not often the case that, when we buy beasts to put in the stalls, they have been living too well to make the improvement we expect with the food we give them? I like to commence with 4 lb. of artificial food, when cattle first go into the stall, and gradually rise to 8 lb., so that they average 6 lb. per day for the whole time they are feeding. If they do not pay for this quantity, they rarely will for more, unless very good large beasts indeed, and when finishing for Christmas markets.

Boxes, stalls, or yards for cattle; which are best? Boxes I prefer, as the manure, under cover, is superior; but I have found cattle in stalls gain quite as much weight, with the same amount of food, as those in boxes. The cost of cleaning the stalls out, and the manure being afterwards exposed, must be set against the cost of erecting the boxes, the only difference being that the one is borne by the tenant, the other is the duty of the landlord. We know nearly all the Norfolk beasts are fed in yards holding from 10 to 20 in each. This is a system not to be condemned, where there is plenty of straw for litter; for I have had cattle, and well-bred Short-horns, too, when the yards were well littered and dry, prefer the open yard to the shed. I do not think the manure made in a yard, with one-third of its space covered by a shed, is very much worse than that made in boxes, notwithstanding what many persons say upon the subject. I have often taken the shed manure and put upon the land by itself, but never yet saw much difference between it and that made in the open yard. Of course no stagnant water is allowed to remain in the yard, but all drains off into a tank. If a landlord, in a district where straw is plentiful and roots scarce (as they are for bullocks in light-land districts), offers to put up his tenant good roomy yards, with one-third covered, I do not think the tenant ought to stand out for boxes, as they are more expensive to both landlord to build and tenant to occupy; but wherever straw is scarce, there it is necessary to have boxes to economise it.

I have been asked to tell fen farmers how to make bullocks pay upon straw and 7 lbs. of cake per day. Now this is a question that will, I think, puzzle even a fen farmer to answer, as their straw is hardly good enough for litter; and some seasons I am sure I pity the animal that has to exist upon it. The occupiers of fen soils must grow, as Mr. Ruston does, a large lot of Mangels, and, by pulping and mixing with straw, he may make his manure at a cheaper cost than by the dry system. I will here remark that my experience as to the value of straw is this; sweet Barley, Oat, Pea, and Bean straw, in the order named; Wheat I do not like for cattle at any time, although sometimes compelled to use it. I look upon straw at best as little more than filling up stuff, allowing the animal to digest more fully the highly rich nitrogenous food that is given to a fattening bullock. I have now 70 fat cattle in the stall for Christmas that eat 1 bushel of straw chaff per day; but they have a like quantity of old hay chaff, 8 lbs. of cake and corn, and 2 bushels of Swedes. We very much want a machine to prepare the straw in a more digestible form than chaff, and I hope our agricultural engineers will try and see if something cannot be constructed. It is the indigestibility of straw that prevents its being more extensively used in the feeding of farm stock. We all now-a-days, as occupiers of arable land and Barley growers, feel very much interested in the course that will be pursued with reference to the malt-tax. If we farmers are not allowed to use malt for our stock feeding, free of duty, it will be a great injustice, for we well know only the worst qualities of Barley would go for this purpose, and therefore not in the least affect the revenue derived from malt made for the purposes of brewing. I see farmers are asked to come forward to give the result of experiments as to the value of malt as food for cattle. I know this much of its value—that if I have an animal getting up for show purposes, there is nothing like a portion of malt, ground fine, and mixed with its food. I now use several hundred quarters of Barley every year; and if I were allowed to turn this into malt, instead of its being applied to the production of the lowest priced meat, (viz., pork), as it now is, it would be used in producing beef and mutton, and would, I am sure, very much save the farmers' cake bills.

THE DEVON BREED OF CATTLE.

[The following lecture was delivered by Captain J. Tanner Davy, the Editor of the Devon Herdbook, before the Royal Agricultural College.]

It is not difficult to observe that the Devonshire and Sussex races are of the same extraction, indeed, so nearly do they resemble each other in colour and length of horn, that if a stranger to the breeds were shown two animals, one a Devon, the other a Sussex, I doubt if he would observe any material difference between them, except that the Sussex beast might appear rather the larger, or as the Swiss would say, the "taller" breed, from the greater length of leg; but the more experienced observer would discover in him a larger and less finely chiselled head, coarser eyelids, combined with a less pleasing expression of the eye, and a crescent-shaped upward horn, instead of the deerlike head and gracefully curved yellow coloured horn of the Devon. He would also detect a tendency to be less level when fattened; but I will do Sussex breeders the justice to admit, they are now breeding animals with loins, and more especially with rumps, very like their original relatives the Devons, and I think them right in doing so.

We find that particular breeds and varieties of a breed were formed long before the modern scientific system of breeding was established; that bulky powerful breeds are co-extensive with a warm climate and rich herbage; and that smaller breeds or varieties of the same breed pervade those districts where the pasturage is more scanty and the climate colder; and as animals are now quite under the control of man, and dependent on him for food, they would degenerate if attention were not paid to their breeding, instances in proof of which too frequently come under our observation.

As with all other breeds, so with the Devons, a great difference is perceptible in animals of the same breed, and cattle of the like colour, and with similar characteristic marks about them, nevertheless differ widely in their feeding and milking properties. The Devon reared in the north of the county is noted for his rich curly coat, which he frequently loses when taken into other districts.

In Vancouver's "Report of Farming in Devonshire," published in 1808, he speaks of the Devon cattle as "active at work, and unrivalled in their aptitude to fatten," but states that they were then declining in their general standard of excellence and numbers, which he traces to "the great demand made for them from other parts of England (where the purchasers, Mr. Coke, afterwards Earl of Leicester, and others) spare neither pains nor price to obtain those of the highest proof and beauty."

I have been told repeatedly by my father and others, and it has been stated by the late Mr. Francis Quartly, that when they were young men, about the close of the last century, that well-shapen, purely-bred Devons were much more plentiful than now; that most of the county gentlemen and the majority of the principal yeomen were breeders. By this I must not be understood to mean that they simply bred animals of a red colour, but fine, hardy, handsome, pure North Devons, of good shape, and possessing great aptitude to fatten quickly. In fact, animals which would now be called choice, were then to be found constantly in South Molton, Barnstaple, Bampton, or any of the local fairs or markets; although at that time there existed no means of testing their relative merits, for those were days long before cattle shows were established.

During the late war with France, the excessive prices offered for cattle tempted many farmers to sell their best at fat stock prices; the quality of these animals being such that in the autumn on Grass alone, they were then, as they are now (even milch cows) always fit for the butcher. It is customary to drive the cows into the yard to be milked, but I have known some of my father's so fat that they were milked in the field, to spare them the fatigue of walking home, which would have been a great punishment. Having sold the greater part of their cattle, the farmers were next attracted by the high price of corn, and gave up their best pastures to its cultivation. Turnip husbandry necessarily followed, and the improvement of their sheep became an object of importance; cattle breeding being for a time generally neglected, and a class of comparatively inferior stock were reared on farms, where those of a superior kind had existed for years previously. During this period a few spirited individuals fortunately acted otherwise. It is reported that the late Mr. Francis Quartly seeing that good Devons were becoming scarce, bought as many as his farm and circumstances would permit, and by the exercise of care and judgment, brought his herd to a high state of perfection. At this time also my father, at Rose Ash; Mr. Merson, of Brinsworthy, in North Molton; Mr W. Davy, of Flitton; Mr. Mogridge, Mr. Tapp, and the late Messrs. Michael Thorne, and Mr. Acland, of Little Bray, the Halses, and a few others, not tempted by high prices, retained their herds, which were handed down to their successors, and in most instances continue in the same families to the present day. After some years local cattle shows were established, and in their show-yards men had an opportunity of seeing the vast difference between well-bred animals and those of the unimproved breed, and being convinced that the former consumed no more food than the latter, probably less, and that they were at the same time more eagerly sought after, and commanded a higher price in the fairs and markets, a spirit of emulation was aroused, men became conscious of the value of their native breed, and were incited to assist in increasing, improving, and restoring the Devons to their former pre-eminence and purity. At length the Royal Agricultural Society of England was founded, and by the assistance of railways the breed again increased and spread, until instead of being confined to the North of Devon and a small portion of West Somerset, they are now not only extended over a very large portion of Somerset and Cornwall, but also to the Royal farms at Windsor, and in Dorsetshire, Norfolk, Warwickshire, Hertfordshire, Staffordshire, and the Isle of Wight; also into Wales, Ireland, France, Australia, Canada, and lastly, but largely, into the United States of America, which country boasts of several valuable herds, where they are deservedly prized from their answering a very good purpose. They bear the change of climate and soil well, thrive where many breeds would starve and rapidly outstrip most others, when they have plenty of good pasture. There are some sceptical persons who complain of the want of improvement in the Devons of the present day; but surely for the last 20 years there has been a manifest improvement in the general breed throughout the kingdom, and a great increase in numbers throughout the world. This improvement has been effected by a judicious selection of the best materials for the purposes of propagation, without the admission of any foreign blood. The Devons which find their way to the grazing districts in the Midland Counties are bred chiefly in the west of the county and in Cornwall, and are for the most part a coarse bony sort of animal; but they have been gradually undergoing improvement for the last few years, by the introduction of well-bred North Devon bulls, through the instrumentality of the prizes offered by agricultural societies. Here I would remark, that I think there is no way in which landowners could more effectually benefit their tenants than by purchasing a good bull, from two to three years old; he is then fitted to get stock for some years. If bulls are much used when too young, says a little more than a year old, they soon get barren, perhaps at five or six years old. If the bull be kept at a place where the tenantry may avail themselves of his services at moderate cost, the increase of improved stock would be greatly promoted, and the nation benefited.

There is another variety of the Devon kept in the southern part of the county, known by the provincial term of the "South Hams breed," from the dirtrict in which they are bred. They are of a lighter colour than the North Devon, and I fancy must have been originally a mixture of the North Devon with the Guernsey. They are large framed, coarse boned, good milkers, with hardy constitutions, and large offals. A friend of mine in speaking of them, is a little severe when he says, "The North Devon differs from the South Devon in everything which is necessary to constitute a good animal." They are now quite a distinct variety, their admirers argue that they answer the double purpose of the dairyman and the butcher; they certainly possess immense frames and are much longer than the North Devons, but I confess I do not like their wedge-like shape, as not calculated to gain much credit either at the Smithfield, or at our breeding stock shows; still it is possible by judgment and care in selecting heifer calves from the best milking cows which approach nearest to the "prize animal" quality and shape, and by using bulls which come from good milking cows, not only to sustain the two qualities in the same herd, but to produce animals which the public will value more. However in South Devon these South Hams have their stanch friends, and are said to answer a good purpose for summer feeding. The land on which they graze is undoubtedly very rich, and profit being the ultimate object of most men of business, it seems unlikely that tenant farmers in South Devon, (who have to pay rent, maintain their wives and families, to educate their children, live by their business, and we will hope, lay up a fair store for the future), would continue to keep, and be so much attached to, a breed if they did not find it fairly remunerative.

The offal of these animals is large, their flesh decidedly inferior to that of the North Devon, and when fattened (which is a difficult process) they are chiefly sold in the neighbouring markets or for provisions for the Navy.

Hence, it appears that each breed and variety of breed possesses its own peculiar merits, each answering a better purpose than the other, accordingly to the climate, soil, situation, and other circumstances in which it may be placed. I think as a general rule, the better the milking properties of cattle the more are they disposed to internal accumulation of fat; and it should be understood that excessive accumulations of this kind are the farmer's loss and the butcher's gain. The North Devon breed is most valuable for aptitude to fatten, for delicacy of touch, and the choice quality of its beautifully veined and marbled beef, the especial favourite of the butcher who has a select family trade, for carrying the most beef in the most valuable parts; and for lightness of offal they stand unrivalled. The original type of the breed is peculiar to the north of Devon and the very lower part of West Somerset. Here they have revelled from time immemorial in their bracing, yet humid atmosphere, where nature clothes them in early autumn with rich curly coats, well adapted to their native home at the foot of Exmoor range of hills. Little is known respecting their origin, further than that from the earliest records they can be traced as the peculiar breed of the county from which they take their name. Some persons fancy those of a dark red colour are the best, and that the animals of a lighter shade, almost approaching to chesnut, are in some degree related to the South Hams breed. It is not so. Many of the best Devons I have ever seen were of the lighter shades of red, and in this respect, viz. colour only, do they resemble the South Hams.

Thirty years ago these light-coloured Devons were much more plentiful than they are now. In summer their skins are mottled with beautiful spots of a little darker shade than the ground colour of the skin; and I have seldom witnessed a more pleasing picture than a herd of them, with their beautifully chiselled heads, bright intelligent eyes, and long gracefully curved horns, giving a deer-like appearance to the head, quietly grazing in our undulating meadows, which are frequently almost surrounded by wooded slopes, at the foot of which a rapid trout stream rushes on, gurgling round its many bends, the wild mountain scenery of our west country forming an appropriate background. These light-coloured Devons are generally of the best quality, *i. e.*, they fatten quickly; but I consider those of the darker shade the more hardy, and they possess more lean flesh in proportion to the fat, the objection to the very dark shades being that the skin is then apt to be coarse and the hair wiry, indications of a less rich quality of flesh. The best course to follow is the *via media*; to get our cattle of a middle colour, neither too dark for fear of coarseness, nor too light for fear of a too delicate constitution. In this manner we combine the hardy habit of the former with the high proof of the latter. To a little white about the udder I do not object, but almost think it a part proof of a long line of descent from the best ancestors. I have been told by breeders and by my father, who received a carefully selected herd from his father, and my own experience has confirmed the fact that it cannot be accounted for, and knowing that some of the best and purest Devons that have ever been bred in the kingdom, have occasionally had white about the udder, I should certainly not refuse a good animal for that reason, but the white must be confined to that part alone. Red being the established colour of the Devon from the earliest time, breeders justly object to the intermixture of white, and are supported in this opinion by the public taste; nevertheless it is true that at rare intervals some animals of the most undoubtedly pure descent from solely red parents, say for more than a century, have been known to produce calves with white about the feet or tail or under the belly; whenever these calves are reared, which is but seldom, they almost invariably grow up to be as handsome as any in the herd, and of equally rich quality. When we consider the isolated position of the county of Devon, the absence of railways, and the difficulty of communication with other counties, until within a comparatively recent period, and remember that it is entirely a breeding county, supplying others, but not being supplied; and consequently not having different varieties of cattle brought into it—reflecting also on the just preference which the inhabitants have always entertained for their own cattle, and that in former days it would be impossible for an animal to reach a new home without having spent several days on the journey; so that a fresh arrival of another breed would be surely known, and the herd of any breeder who introduced such, would be for ever after considered mongrels, and strictly avoided. Hence we may feel certain that this occasional show of white is not the admixture with any other breed, but the rare appearance probably of an original colour, which may have lain dormant, and is gradually wearing out. I must not be understood to argue in favour of a mixture of white, or that I should wish calves to be so marked. The true colour of the Devon is pure red. In the north of the county the Devon generally has a soft, rich, curly coat of hair, whilst those kept in the richer districts of Devon and in Somerset have longer and straighter hair, not usually so fine and curly. The effect produced by time, soil, climate, and I will also add water, on their colour and hair, is duly appreciated; and it is a well-known fact that many animals are sent to North Devon for summering, with the two-fold object of grazing and changing their coats.

I felt strongly on this subject, and wrote to my friend Mr. Robert Smith, who resides on Exmoor, and who in replying, after agreeing with me as to the influence of our climate, herbage, and water, says—"Having had in one season perhaps 1000 head of cattle to summer on the hills, I have remarked this change to advantage; the thick short-legged animals invariably do the best. In fact, animals of large frame and smooth coats do not improve, but in most instances return in worse condition than when sent to us. This is also seen at the foot of our Exmoor Hills, at North Molton, Molland, and the neighbourhood, where most of the best Devons are bred, and where many are also sent for summer grazing. The remark with some being, "We send them into North Devon to darken and curl their coats—we find them sell better."

About 20 years ago Messrs. Bult and Bond (two gentlemen farming in the rich vale of Taunton Dene) bought the noted bull, Hundred Guinea (56) of Mr. Quartly. I saw the bull before he left Molland, when his hair resembled that of North

Devon bulls generally. I saw him again, after he had been two or three years in his new home, his hair and general appearance were then considerably changed—he looked a deeper-fleshed animal, but was wanting in that refinement and grandeur which he originally possessed.

Notwithstanding his curly hair, the skin of the Devon should be mellow and elastic. We know that some animals fatten faster than others, and that they are generally more handsomely formed; on handling them we find the skin and parts beneath, soft and "mellow."

This "mellowness" is a kind of softness and elasticity perceived upon pressing the skin with the fingers, and is a favourable sign of the aptitude of animals to fatten. These parts are the cellular membranes, which in fat animals are full of fat, and in store stock the possession of this mellow feeling denotes that there are plenty of membranous cells ready for the reception of fat. No class of breeders have succeeded more thoroughly than our own in attaining this object; indeed, they consider an animal almost valueless, even when possessed of perfect symmetry, if it cannot be made fat without very extraordinary keep. It is difficult, but I have done my best to describe the smooth pleasant feeling conveyed to the senses, by the "handling," as it is termed, of a first-rate Devon; yet it is absolutely necessary that a breeder should attain this knowledge before he can bring his herd to any high state of excellence: and it is the possession of such knowledge that has enabled our breeders to bring their herds to their present perfection. This delicacy of touch is only fully obtained by those who have a natural love of animals, and by constant and unwearied observation. The general form of a Devon is very graceful, and exhibits a refined organisation of animal qualities, not surpassed by any breed. The head should be small, with a broad indented forehead, and should taper considerably towards the capacious nostrils, the nose of a creamy white, the jaws clean and free from flesh, the eye bright, lively, and prominent, encircled by a deep orange-coloured ring, the ears thin, the horns of the female long, spreading and gracefully turned up, tapering off towards the points—in fact the general aspect of the head should in many points resemble that of the deer. At the same time the expression must be gentle and intelligent. The horns of the male are thicker set and more slightly curved, or in some instances standing out nearly square, with only a slight inclination upwards. Fault has been found with the length of the horn of the Devon as being disproportionate, and we have been recommended to get them more like those of the Shorthorn, but I hope, and indeed I feel sure that our breeders will never consent to give up one of the grandest characteristics of their breed.

(To be continued.)

Home Correspondence.

Will the Ewe breed twice in the Year?—In these days of rapid agricultural progression, we may be forgiven for asking such a novel question as this. We know not how soon such a practice or mode of breeding sheep may become popular. We have seen wonderful things done in our day, in almost every department of management and business; and we see no true reason why this cannot be accomplished. The following extracts are to the point. In Loudon's "Encyclopædia" it is said—"The ewe will breed twice in the year, if it be made a point to produce such an effect by attention and high keep; she will receive the male indifferently at any season, and, like the rabbit, very soon after bringing forth. Lisle gives an instance of three of his ewes, well kept, lambing at Christmas, fattening off their lambs at Lady-day, and producing lambs again the first week in June. . . . Could the lambs be advantageously weaned at two months, sufficient time would, he conceives, remain for the ewe to bring forth twice within the year." The following facts are recorded. "The practice of obtaining lambs twice from their ewes in the year was the almost invariable custom throughout Flanders some years ago." "It occasionally happened among the Dorset sheep, and by some farmers used to be followed upon the Mendip Hills." "In the spring of 1801 Mr. Sherriff, of Kinmyles, Inverness, had a ewe lambed in March or April. She dropped a second lamb on the 1st November, a third on the following 29th April, and a fourth on the 12th January, so that she brought forth four lambs at different times in the course of 21 months. The writer of this short paper can testify to a ewe kept upon an adjoining farm having had two lambs at two separate times within the year, and this twice repeated. Many instances have been repeatedly given in the agricultural papers. In fact there can be no doubt as to its partial practicability, but at present there may be great doubts as to its general applicability; many breeds of sheep for instance would not be well adapted to it. The short-woolled kinds would undoubtedly be most likely to succeed, or any breeds which are good sucklers, and quickly make off fat lamb, for upon this much depends. A lamb cannot with safety be weaned at eight or 10 weeks old, but it may be fatted in that time, and so set the dam at liberty to breed again. It is a subject of great importance to breeders, to lovers of fat lamb, and to our mutton-eating community. Some of our calculating countrymen profess to fix upon a time when we shall be without either, owing to the absurd but very general custom now adopted of fatting off both dam and lamb in the same season. What a wonderful difference and what a national benefit it would be if the ewe could be made to drop another lamb instead of being slaughtered. It is worth the trial. There is no impossibility in the way. The average gestation of a ewe is about 150 days, consequently, there would be about 65 clear days, or between nine and 10 weeks for the early sucklings, *i. e.* the fatting of the lambs. The ewe will frequently take the ram in the course of the first three weeks after lambing. To bring about this intercourse she should be withdrawn from the lambing field, and be placed with the ram elsewhere and be fed in the most liberal manner, as upon this high keeping everything depends; it being otherwise impossible that she can with profit suckle her lamb and keep herself in condition. The lambing season is approaching. It could not be attended with any serious disadvantages, if numbers of sheep breeders would take up the subject and try upon a small scale what can be done, and next year give the public the result. Something must be done to increase in number our breeds of sheep. The price of wool is enormous, and mutton and lamb is annually more in demand and bears a high price. We often wonder what the skill, research, and industry of our countrymen will effect; we trust our breeders will ere long produce a double crop of lambs equally profitable with the single one now bred. *O. F.*

Ploughing Matches.—I am the Correspondent alluded to in the leading article of a recent impression of this paper, who asked for rules by which the award of merit at the ploughing match may best be made. My aim in so doing was not to give prominence to my own observations; but to elicit from some of the numerous readers of the *Agricultural Gazette*, a discussion on this important agricultural question, that might lead to the establishment of a more explicit mode by which ploughing would be judged by. Being courteously invited by the writer of the article above mentioned to commence the discussion, I with great diffidence beg to submit to the ordeal of public criticism, the following mode by which I have successfully judged ploughing, viz.:—

	Points.
1. Straight feering	2
2. Well shaped rown	2
3. A rectangular straight furrow, bearing the same ratio of dimensions as the standard, viz. 7 inches deep by 10 inches wide, and consequently lying close upon one another, at an angle of 45° to the plane of the unstirred subsoil	6
4. A thorough burial of surface matter, as stubble, &c.	3
5. A straight, narrow well-finished central furrow	3
6. Expeditious manner of doing the work	3
7. Style of finish	2
Total	21

Therefore the possessor of the greater number of points is considered the best ploughman. I quote no authority on this rule, but rely on my own experience, considering "experience bought better than experience taught." *D. P. Davies, Troedybryn, Carmarthenshire, Jan.* 19.

Societies.

HIGHLAND AND AGRICULTURAL: *General Meeting, Jan.* 20.—At the General Meeting of this Society, H.R.H. Prince Alfred being present, the Duke of Argyll (President of the Society) in the chair, the Prince of Wales was elected an honorary member. 110 new members were elected.

The Earl of ROSSLYN reported the arrangements for the next general meeting at Stirling to be very far advanced.

Mr. CAMPBELL SWINTON reported on the subject of premiums for well kept cottages and cottage gardens. He said the members of the Society throughout the country do not frequently enough recollect that by a contribution of 30*s.* from a parish, they can receive an equal sum from the funds of the Society, which may be divided into three prizes of different amounts; and that if there are four competitors, the Society's medal will be given in addition to the most successful of these competitors. Last year only 14 parishes applied for these premiums, and of these there were competitions only in nine. And even that was above the average of the last 10 years, the average being 11 parishes on the list, and of these not more than 8 competing. There can be no doubt that a good deal of delicacy is required in conducting the inspections; but it has been suggested by those who have taken an interest in the subject, that when the ladies connected with the districts in which the improved cottages are situated interest themselves in the matter, it is found to be much more successful than when the landlords or tenants form the inspecting body.

Professor ANDERSON reported of the chemical investigations, that he had finished that of the Potato, and made considerable progress in those connected with the cheese manufacture in the dairy districts of Scotland. The results of these inquiries will be reported in the Transactions of the Society.

In reply to Mr. Harvey, of Whittinghame, Professor Anderson explained that Baron Liebig's statement that Peruvian guano contains only 7 per cent. of ammonia, meant that there exists in guano 7 per cent of ammonia ready formed; but there exists also in it a quantity of uric acid, which, when it undergoes a process in the soil, is capable of yielding 10 per cent. of ammonia, so that when the whole of the nitrogen contained in the guano comes into the plant, it is equivalent to 17 per cent. of ammonia. As he understood the matter, Baron Liebig is of opinion that the ammonia existing in the guano is superior in point of manurial value to that which exists in the condition of uric acid. He stated it as his opinion, and one which he had always held and expressed, that in estimating the value of the Peruvian guano, we must take the whole of the nitrogen as if in the state of ammonia, and reckon its value as he had done at 17 per cent. of ammonia.

PREMIUMS FOR REPORTS.

Mr. FORBES IRVINE, of Drem, then read the following report on Premiums for Reports:—

1. Gold Medal or 10*l.* to Robert G. Thomson, Grange Farm, Kilmarnock, for a Report on Phosphatic and Ammoniacal Manures. 2. Gold Medal or 10*l.* to Robert J. Thomson, Grange Farm, Kilmarnock, for a Report on Soluble and Insoluble Phosphates. 3. Medium Gold Medal or 5*l.* to Samuel D. Shirreff, Saltcoats, Drem, for a Report on the same subject. 4. Gold Medal or 10*l.* to William Walker, Ardhuncart, Mossat, Aberdeenshire, for a Report on Autumn Manuring. 5. Gold Medal or 10*l.* to James M'Gillivray, V.S., Bonnytown, Rayne, Aberdeenshire, for a Report on Internal Parasites in Domestic Animals. 6. Medium Gold Medal or 5*l.* to Hugh Borthwick, Traquair Knowe, Peebles, for a Report on Foot Rot in Sheep. 7. Medium Gold Medal or 5*l.* to John Morrison, Manager, Drummond's Nurseries, Coney Park, Stirling, for a Report on Mixed Plantations. 8. Medium Gold Medal or 5*l.* to Robert Hutchison, of Carlowrie, Kirkliston, for a Report on Breeding Hunters and Roadsters.

Report by Committee on Agricultural Education.—Mr. HALL MAXWELL read the following report:—The remit to your committee is in the following terms:—

"To inquire into the means of Agricultural Education in Scotland, and into the results of the working of the Society's Educational Charter." The following gentlemen named as members of the committee declined to act:—Sir John Forbes, who seconded, and Mr. Maclagan, of Pumpherston, who moved the resolution at the general meeting by which the matter was remitted to the directors, Sir William Gibson-Graig, and Mr. Dundas, of Arniston. In the absence of the mover and seconder of the remit, your committee have no means of ascertaining the views with which it may have been proposed, nor the precise objects to which they might have directed the inquiry. The terms of the remit embrace two points, "the means of agricultural education in Scotland," and "the working of the Society's Educational Charter;" and it appears to your committee that the facts connected with both are so simple and so patent, that they may be exhausted within the bounds of a very brief report. I. The "means of agricultural education in Scotland" are threefold, and consist of:—1st, Facilities for obtaining a practical acquaintance with agriculture by residence on a farm. Several of our most eminent farmers have been in the habit of receiving pupils, the advantage of which not only Scotchmen but Englishmen and foreigners have for long availed themselves. 2d, The means for acquiring a knowledge of the various sciences connected with agriculture, such as botany, chemistry, natural history, veterinary surgery, &c. It would be superfluous to enlarge on the ample opportunities which students have for obtaining such training at the Scotch Universities and veterinary colleges. 3d, The means of acquiring a knowledge of the science of agriculture itself, and of the manner in which other sciences are connected with and applied to it. This branch is fully taught in the class of agriculture in the University of Edinburgh. The above may be a brief, but the committee regard it as a comprehensive summary "of the means of agricultural education in Scotland," and they do not seem called upon either by the terms of the remit or the exigencies of the subject remitted, to go beyond a statement of facts, nor to diverge into matter of speculation and opinion. II. Results of the Society's Educational Charter. Before reporting the results, your committee may be permitted to state the object of that charter. It was obtained to induce agricultural students to avail themselves of the means which have been recapitulated—by acquiring on the field a practical acquaintance with agriculture, and in the class a knowledge of the various sciences allied to it. For this purpose the Society obtained a charter constituting a "council on education," and empowered this council "to grant to students in agriculture diplomas certifying their proficiency in the arts and sciences connected with agriculture." The council, in terms of the charter, framed a curriculum of study, with relative instructions for the guidance of students, and appointed a board of examiners. Since 1858, 15 candidates have presented themselves. Of these, nine obtained the diploma, two were remanded for re-examination, and four were rejected. Such are "the results of the working of the Society's Educational Charter." To some they may appear unsatisfactory and inadequate, and perhaps a greater number of candidates might have been looked for, but it must be kept in mind that the diploma certifying "proficiency in the arts and sciences connected with agriculture" can only be conferred on those who have received a really high education, and who successfully pass a very stringent examination. Your committee conceive that they would transgress their province were they to carry this report beyond the results of the working "of the Educational Charter." The administration of the charter is committed to a council constituting a board independent of the directors, and your committee are informed that so recently as on the 30th November, the regulations and bye-laws and the instructions to students were revised and re-adjusted by the council, with the concurrence and approval of the Professor of Agriculture, who is himself a member of it.

The following discussion ensued on the reading of this report:—

Sir JOHN STUART FORBES explained that he had declined to act on the committee because of the constitution of it. He said:—"I should have wished the Professor of Agriculture to be a member of it, because it appeared to me that without his attendance it would be impossible to obtain such practical information in regard to the existing state of education, and the probable means by which it might be improved by the Society, as we should require in the course of our investigation. I also mentioned that it appeared to me undesirable that any members of the direction hostile to the institution of this inquiry, should be members of the committee." He expressed his regret that the report was so meagre and unsatisfactory. It appeared to him that with such a machinery the results are the minimum of the possible effects of such an arrangement. Fifteen students only in the course of five years have applied for a diploma, and out of these a considerable proportion were rejected. Sir J. Forbes added: "I feel strongly that the machinery we have for carrying out the progressive improvement of the agriculture of Scotland has not been worked up to the point it ought to have been. I regret to say anything personal in the matter, but I may say that this is the last effort I wish to make in regard to the practical views I have taken on these subjects. Our educational department appeared to me to be one on which there could be no difference of opinion in regard to the desirableness of making it efficient, and I had hoped this committee would have been productive of some advantage. I have seen with regret that some points I have brought up have not been approved of by this general meeting, which may be taken as the index of the opinions of the Society, and I bow to their decision, but I entertain my own opinions still and I hope the time will come when some other mem-

ber may be more fortunate in bringing these matters forward in such an influential manner that they may be freely and satisfactorily discussed, and that, in consequence of that, we may still see some improvements which have not yet resulted from it. I state this with the utmost humility with regard to my position in this Society, and I only beg to thank you for the kindness with which you have heard me.

Mr. MACLAGAN, Pumpherston, said in all well-connected and well-organised societies, the usual plan was for the gentleman who introduced the question to be appointed convener of the committee. He was certainly surprised to find, when the committee was appointed, that Sir John Forbes was passed over, and, as he had already mentioned, he sent in his resignation immediately on receipt of Sir John's letter. He thought a great deal of good might be done by a thorough investigation into agricultural education. He could not agree with much that was stated in the report. On the other hand, he agreed with Sir John Forbes that it was a mere statement of facts, and he hoped that ere long the question would be taken up and fully discussed. No doubt, this Society has done a great deal for agriculture; but, in his opinion, it had done nothing for agricultural education. They might point to the agricultural diploma, but, he asked, of what use was it, while they did not give the farmers of Scotland the means of being educated? Or what use was there in merely issuing well-worded reports? No use whatever, except for one thing, and that was the shelving of the matter in question, and trying to silence the voices of honest men. He must say that he was somewhat staggered by the remarks made from the directors' table that day. Many of those present were called reformers, but not "improvers." Look at the Kelso Show, and see what caused the success of that exhibition. Was it not because of the improvements that were made upon former arrangements—as, for instance, the sheds for implements, and the arrangement of them; the sheds for the press, and the show of horses in the ring? And who was instrumental in getting these improvements effected? Was it not those who were called reformers, but not "improvers?" The agricultural press of Scotland and many practical farmers had advocated such improvements, but invariably the directors resisted. At last they yielded, and the result was one of the most successful shows ever held under the auspices of the Society.

Mr. MACDUFF, of Bonhard, explained the composition of the committee, and in reference to the objection that the Professor of Agriculture was not named upon it, to his mind, he could not conceive any one who was less fit to appear as a member of that committee. They were about to enter upon a very delicate inquiry. Suppose they had in the course of their investigation noticed anything by which they were obliged to reflect upon the Professor or upon his class, would there not have been grounds for a captious public saying that they had been less severe upon the Professor of Agriculture because he was there to control them? Suppose, on the other hand, that they had had nothing to do but eulogise the Professor, and praise the great success of his class, would it not have been said that that favourable report was tinged and coloured owing to his being present? He, therefore, said that in any proposal they could make with regard to adding to that committee the name of the Professor of Agriculture was the very last that would have occurred to him, and to this moment he did not know that the Professor had expressed a wish on the subject. For all they knew, he might all the time have been wishing to be saved from his friends. At all events he had in no way protested against his having been left out.

The Earl of HADDINGTON moved the adoption of the report.

Lord POLWORTH seconded the motion that the report should be received.

The noble CHAIRMAN said that no member in agreeing with this report committed himself to any but a simple statement of fact. And as far as he could judge from the terms of the remit, that committee had performed its duty satisfactorily to the Society.

Mr. MILNE HOME begged to assure the meeting, that there was no indisposition on the part of the directors to entertain this question of education. He individually approved of the report, though it ought not to be forgotten, that it came from a committee originally of several members, but ultimately reduced to three; and he quite agreed with the observations expressive of regret that the other members of the committee did not feel it their duty to join the committee and express their views, in order to lay before the Society a more satisfactory report on this important subject. He believed there was no subject of such practical importance to the agricultural interest.

The report of the committee was then adopted.

The noble CHAIRMAN said—Before this meeting separates, I am sure you will allow me to express for you all your gratification at being honoured with the presence of his Royal Highness Prince Alfred. Gentlemen, our meetings are purely for matters of business, and you must be well aware that his Royal Highness has honoured us with his company to-day, not from any amusement he may derive from our proceedings, but for the purpose of expressing the interest which, I think, he has inherited from his illustrious father in every society such as this which has the social and economical progress of the people at heart.

The meeting then separated.

Reviews.

Phospho Guano; its Nature and Properties, with Reports by Baron Justus von Liebig, Dr. Voelcker, and Dr. Anderson. Blackwood & Sons, Edinburgh and London.

This pamphlet describes the material of which the manufactured Phospho Guano is prepared, gives a history of its use as a manure in this country, and quotes reports and testimonials from the distinguished men whose names are on its title-page. Nothing can be more decided than the tone of these reports. If any dependence is to be placed on a chemist's opinion of a manure, there is every reason to believe in the high agricultural value of this manure.

It appears that the Columbian or Maracaibo Guano, which is the basis of the Phospho Guano, is a substance not of mineral but of animal origin, a true guano; and that the manure prepared from it thus contains a considerable quantity of ammonia and some potash, besides the characteristic quantity of soluble phosphate of lime which is present in it. The experience of farmers in the use of this manure has been generally quite in correspondence with the high character given to it by the chemist; and although the reports here given from Liebig, Anderson, and Voelcker, are evidently drawn up with a commercial rather than a scientific end in view, yet it is impossible for an indifferent person, on review of all the facts concerning this manure, collected from the field as well as the laboratory, to refuse his assent to the proposition in its favour on which all this evidence is brought to bear.

The following is the statement with which the pamphlet is introduced by Messrs. Lawson & Son, who are agents for the sale of the manure:—

"It was not until after very great consideration, and ascertaining the result of trials by some of our leading agriculturists, that we accepted the contract for the sale of the Phospho Guano. For although we had often been urged to add the sale of manures to our general business, we steadily refused to connect our names with any of the substances brought before the farmers of this country, from a knowledge of the fact that artificial fertilisers are of ever-varying character and value; and that, consequently, a dealer exposed himself to great risks with his customers, if the article supplied to them was not of precisely the same quality as the guaranteed analysis, on the faith of which bargains were made and sales effected.

"The Phospho Guano, however, came before us, backed by the opinion of our best chemical authorities, who agreed in pronouncing it to be a substance of unvarying character, and far superior to Peruvian Guano. Such evidence demanded our confidence; and, in the interests of agriculture, we set on foot a most searching investigation into the alleged merits of this guano. This investigation resulted in the conviction that Phospho Guano is really the most valuable manure which has yet been introduced to the farmers of this country; and, moreover, that it is a substance perfectly uniform in composition, and not subject to those variations in quality and value, which have tended so much to damage the prestige of Peruvian guano.

"We, therefore, did not hesitate in taking the contract for its sale in Scotland; and subsequently in England also.

"This contract expired last year; but has been renewed for a further term of years, and now embraces the entire Continent of Europe.

"We deem it unnecessary to add anything further; but we commend to the serious attention of agriculturists the subjoined reports of the Baron Justus von Liebig, Dr. Anderson, and Dr. Voelcker, embodying, as they do, facts of so much importance in regard to the comparative value of the Phospho and Peruvian Guanos."

Miscellaneous.

Free Education.—How many readers of the *Times* have large families and small incomes; and how many again, who have received a liberal education themselves, find it difficult or impossible to secure the same advantages for their children. Sir W. Harper, Knight, Lord Mayor of London in 1561, left to his native town of Bedford an estate in Holborn Fields, the rents of which were to be appropriated to the education of the children of this town. This property has increased so enormously in value that the income now derived therefrom is about 14,000*l.* per annum. Large handsome schools have been erected; there are classical, commercial, and preparatory schools, in separate establishments. The classical school is under the supervision and control of the warden and fellows of New College, Oxford, by whom all the masters are appointed. The highest scholastic attainments and efficiency are thus secured. Young men are prepared for the universities, the professions, for the public services. In addition, there are exhibitions of 80*l.* each per annum to either the Universities of Oxford, Cambridge, Dublin, London, or Durham, to be held for four years. In the commercial school, the education is of a liberal character; and two prize premiums of 50*l.* each per annum, to be held for four years, are open to boys who, at the yearly examinations, are selected by the examiners, the premiums to be applied in articling the boys to some profession or business. Bedford is on the Midland Railway, and is an hour's journey from London. It is under the Local Government Act, the operation of which will place the town in the best sanitary condition. Building is going on to a considerable extent, and houses of various sizes are readily obtainable. The only excuse I have for troubling you with this letter is the importance of the subject to so very many respectable families, and the small number to which the advantages of the Bedford schools are known. *James Howard, Mayor of Bedford* (*Times*).

Oatmeal Cakes.—One only should be made at a time, as the mixture dries quickly. Put two or three handfuls of meal in a bowl, moisten with water merely sufficient to form into a cake; knead it round and round with the hands on the paste board, strewing meal under and over it; it may be made as thin as a wafer, or any thickness (generally about half the thickness of a traveller's biscuit). Put it on a hot iron plate called a griddle; bake it till it be a little brown on the under side, then take it off and toast that side before the fire which was uppermost on the griddle. The toaster is such as is commonly used for heating smoothing irons, having a back to support the cake. The griddle is a piece of round iron 1 foot in diameter, which any blacksmith can make, and must be laid on the fire which, should be flat. A trivet does very well for the toaster, putting the cakes on a plate.

Waterproof Boots. — Saturate the boots with solution of caoutchouc (india-rubber), till they will absorb no more, at intervals of a week, without needing to leave a coating on the surface. With this I have walked through the bogs of Dartmoor for hours together, and days in succession, without the least leakage. But it is water tight both ways; the perspiration does not escape when it is thoroughly done. The solution was made with an ounce of india-rubber in a pint of spirits of turpentine, or coal naphtha, kept warm, and occasionally stirred till dissolved, which takes three or four days. In a boiling water bath it can be done in a few hours; but it can now be purchased in large towns ready prepared.

Gloucestershire Bacon.—After it has been killed one day, put a light coat of salt on the sides, and when that is dissolved, about ½ lb. of saltpetre is used to every 50 lb. of bacon, and covered with salt as it is lying single on the floor. After three or four days, put four or five sides together, and turn them every three days; after 10 days, 20 sides may be put together and turned once a week; in three weeks from the first salting they will be ready for the stoves unless they are very heavy, in which case this should be delayed another week.

Cider.—Gather the fruit when thoroughly ripe and dry, and store it in some cool room in heaps. Grind in November in cold weather. Add sugar or malt wort to bring the juice to specific gravity 1070 or 80; ferment in a vat until the specific gravity is reduced to 1060. Transfer it to casks, until at length it may be transferred to a clean barrel, previously filled with sulphur vapour, and placed in a cool cellar.

Eggs.—Take eggs when newly laid, and place them, with the small end downwards, exactly perpendicular in a board perforated with holes for the purpose. It should be, say 2 feet by 1 foot 6 inches, and have legs at the four corners about 3 inches long. This will enable them to be piled one upon another to any extent, as they are filled. Eggs put in thus fresh from the nests in August and September will keep till winter as good as fresh ones, not only for cooking but eating.

To Render Feathers Fit for Use for Beds, Pillows, &c.—Put them in strong paper bags, and these in the oven as soon as the bread comes out; remaining there till the next day, they will be sufficiently dry to prevent the animal juices decomposing and causing a most disagreeable smell. After this, strip the feathery part from the quill of all those whose points are sufficiently strong for pressure to cause their piercing the bed-case. They should be again put in the oven for 12 hours to render them quite sweet and safe from moth, whose eggs might possibly have been deposited among them. The price as piece-work is from 4*d.* to 6*d.* per lb., the feathers being weighed after being brought home picked and ready for use.

Calendar of Operations.

JANUARY.

CHATTERIS: *Isle of Ely, Jan.* 21.—We have had a taste of winter this year, if we escaped last. The weather up to Christmas was unusually fine; we had not only a comparatively high temperature, but a succession of fine dry weather. On several days in December, as also on Christmas Day, the dust was blowing in the streets and on the highways like March or April, and it seemed hard to persuade oneself that spring had not really come; but the new year has quite undeceived us in this respect, although we still have but little downfall. With the exception of a slight shower of rain on the 17th, we have scarcely had any moisture at all since November. The intense frosts, without a covering of snow, will have acted beneficially upon all the strong lands, pulverising them most efficiently, and preparing them for the reception of the spring seed. And as far as we can yet see, they have not injured the fen soils. The Wheats are looking strong and healthy, and where sown after Oats will be much benefited by the severity of the weather, as the Oats growing amongst them are pretty nearly all destroyed; and we have the prospect of being able another year to show a sample of Wheat free from Oats, which have seriously affected the sales of many of our fen Wheats this year. We have just finished steam ploughing, having ploughed 55 acres from 12 to 14 inches deep, on lands with a gravelly subsoil.

We have also ploughed 12 acres 15 inches deep, and 7 acres 22 inches deep with horses on black-bottomed lands. We continue to find deep cultivation a great advantage, and although expensive work, yet an operation which yields a quick and liberal return. With the steam-engine we plough 2½ acres per day, and at the depth named it takes a pressure to the square inch of from 75 to 80 lb. with a 10-horse engine. The cost for manual labour is about 5*s.* per acre, and for coals, exclusive of cartage into the field, about 2*s.* 6*d.* per acre. The cost per acre for the horse-ploughing was 8*s.* manual labour on the 15-inch work, and 10*s.* 6*d.* on the 22-inch work; eight horses being employed in the former and 12 in the latter. We have ploughed 62 acres of land for Beans, and the action of the frost upon it will make it a good seed-bed, and should the weather continue favourable, we shall commence sowing about the middle of February. We have also 22 acres ploughed for Barley, 19 acres for Peas, and 105 for Oats. Besides this, we have 45 acres cultivated by steam in the autumn, which we purpose as soon as the weather will permit cultivating again preparatory to sowing it with Barley. We shall also cultivate another field of 17 acres before sowing, which has not yet been broken up. Our Barley crop last year where thus prepared was very good, and we are encouraged to pursue a similar course this spring. In another week our Cole seeds will be all eaten off. Already we have 342 lambs in yards eating Mangels and cake, Peas, and self-prepared condimental food, to the cost of 4*d.* per head per week. These were put to Coleseed early in October, at which they continued until early in the new year. The lambs are consequently strong, and the Mangels being good in quality, we hear no complaints of scour, but they appear to thrive admirably. Lameness we have none. 96 shearlings, finishing a field of Coleseed, will next week be put into the yards, and these 438 will about consume all our Mangels by the middle of April, when we hope to get them on the pastures. Besides these we have for manure-making machines 76 Scots, which came into the yards at about 12*l.* per head, and to which we give cake and Oats, equal in value to 3 lbs. of cake daily. Our Wheat crops are yielding well, but not extravagantly. White Wheats are considerably better than either Hallett's or the ordinary Nursery. We have just sold 250 quarters White at 45*s.*, and 140 quarters Nursery, 41*s.* and 42*s.*, but prices are again lower, and trade is very heavy. On the hot lands the Oat crop was poor, from 3 to 4 quarters per acre below that on similar lands last year. On cooler lands it is better. A worse crop and lower prices will make Oats tell a poor tale as compared with last year. The price of meat, except pork, continues good. We have just finished selling fat sheep. Prices have ranged from 58*s.* to 75*s.* per head, the average being over 60*s.* Pigs pay very badly for feeding, and we have lately sold them stores, rather than lose so much by fattening them. A termination of the American contest will probably again change the relative value of pork and other kinds of meat, as the exportation of bacon would most likely soon be considerably increased. *A. S. R.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	Reading of Barometer corrected to Freezing Point at Mean Sea Level. At 9 A.M., Railway Time.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday	Jan. 21	29.70	52	50	S.W.	3	10	51	42	56	36	0.04
Friday	22	29.83	48	45	S.W.	0	10	49	46		42	0.06
Saturday	23	30.16	40	37	W.	3	0	40	33	56	30	..
Sunday	24	30.42	42	42	N.W.	0	5	45	37	53	29	..
Monday	25	30.27	40	38	S.E.	2	1	49	33	60	30	..
Tuesday	26	30.00	48	47	S.W.	0	S	47	39	52	35	0.10
Wednesday	27	29.94	43	40	S.W.	3	0	51	41	59	35	..
Thursday	28											

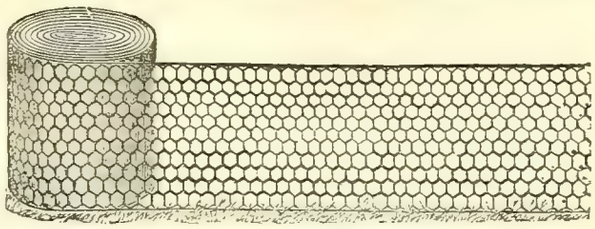
Notices to Correspondents.

DRILL CULTIVATOR: *J G.* Crosskills still make it, we believe It is too heavy a tool for the width worked by it at once.

GRASS HARROWS: *Constant Reader.* Harrowing with a stout toothed tool will do good to mossy Grass-land, whether the pasture be dressed or not. Alkaline manure will do good in such a case, lime or wood ashes—especially any ammoniacal salt. Any seedsman will supply what they call renovating Grass seeds—but it is not of any use trying to renovate the Grass without some renovation of the soil, which should be drained, manured, and harrowed, and then sown.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3⅜*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4⅝*d.*	4⅝*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

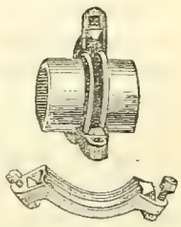
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PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

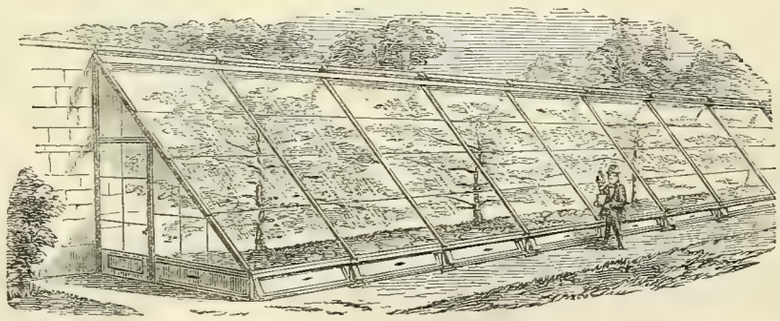
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

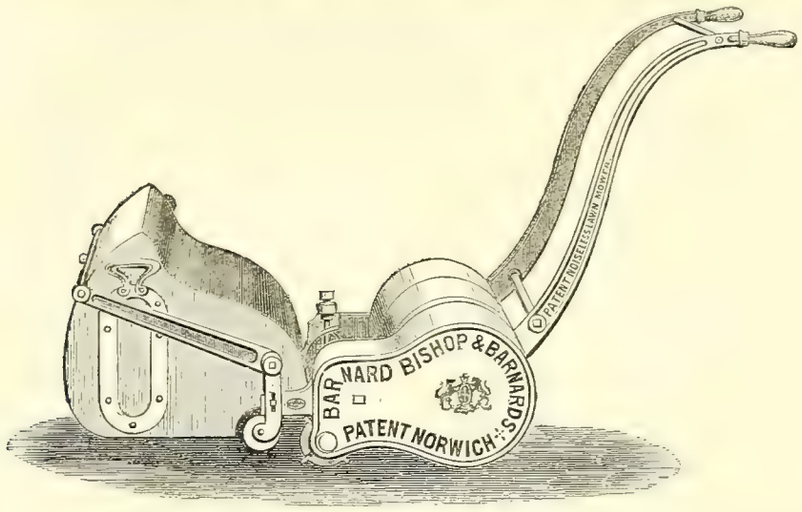
PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

BARNARD, BISHOP, & BARNARDS'

PATENT NOISELESS LAWN MOWER.



THIS MACHINE differs from all other LAWN MOWERS, in being constructed without either Gear-Wheels, Chains, or Levers, the Power being transmitted to the Cutters by a loose Intermediate Wheel, with an India-rubber Tyre which is placed between a Plain Faced Driving Wheel, and Pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the Intermediate Wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber Tyre will last from one to two seasons, and can be replaced at the cost of a few pence. An extra Tyre is sent with each Machine.

The Iron Work of Grass-Box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

THE MINIATURE LAWN MOWER, Cuts 8 inches **£2 10 0**

Suitable for the very Smallest Grass Plots or Edgings; can be Worked with Ease by a Child.

To Cut 10 inches. This can be Worked by a Lady **3 5 0**

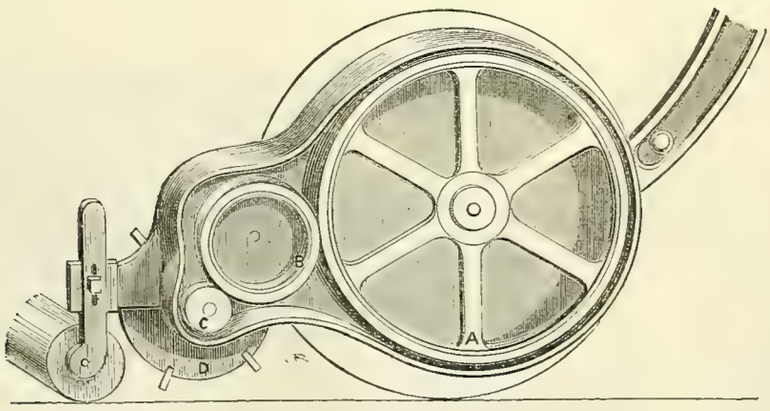
To Cut 12 inches. Suitable for One Person **4 10 0**

The 12 inch and all larger sizes have the Drum or Roller divided in two parts, for the convenience of turning.

To Cut 14 inches. Suitable for One Person **5 0 0**

Packed, and Delivered Carriage Free to the principal Railway Stations in England.

GUARANTEED TO GIVE SATISFACTION, AND IF NOT APPROVED, CAN BE RETURNED.



THE ABOVE ENGRAVING SHOWS THE ARRANGEMENT OF WHEELS.

A, Plain-faced Driving Wheel. **B,** Intermediate Wheel, with India-rubber Tyre. **C,** Pinion. **D,** Cutters.

To insure an early delivery of these useful Machines, all Orders should be sent at once to

J. JONES,

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GREEN'S PATENT SILENS MESSOR,

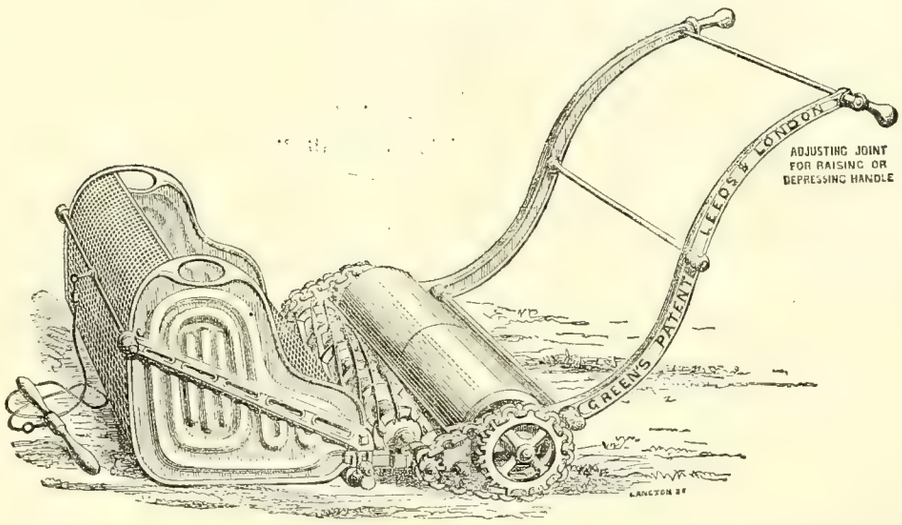
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut	10	inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	...	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18s.	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22s.
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

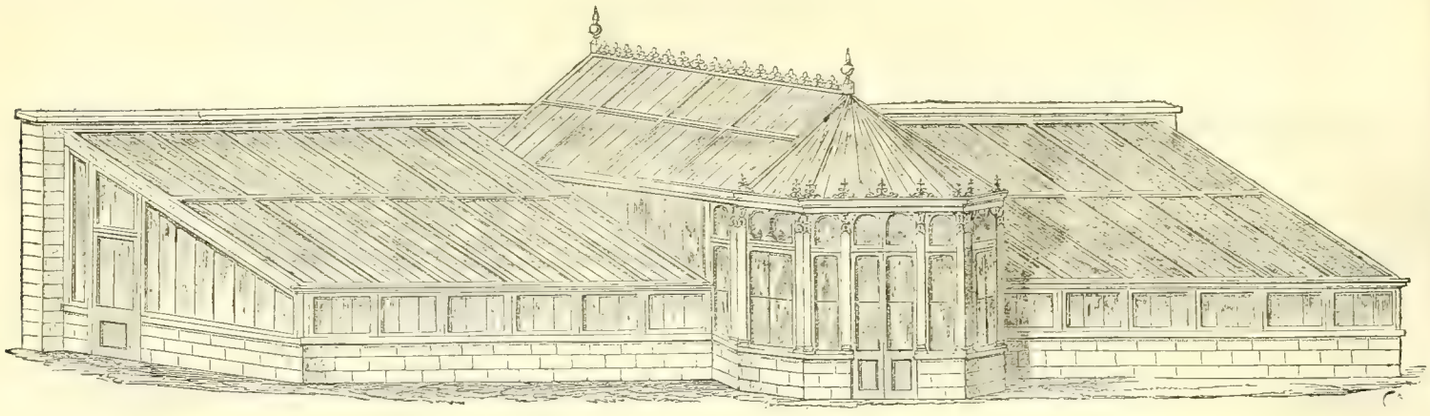
To Cut	42	inches	...	...	...	£27	0	0	...	...	... Leather Boots for Horse, 26s.
„	48	„	...	...	...	30	0	0	...	...	... „ „

The 26 and 28 inches can be easily worked by a donkey or by two men on an even Lawn, the 30 and 36 inches by a pony, and the 42 and 48 inches by a carriage horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening, the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations, and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

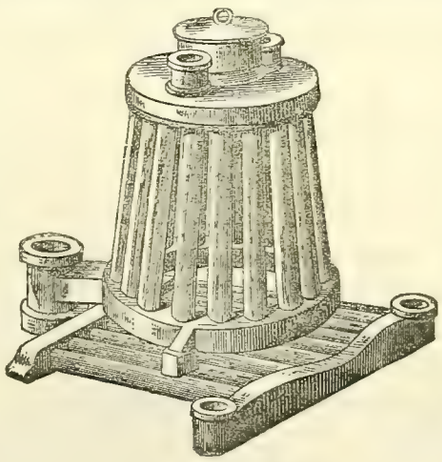
The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

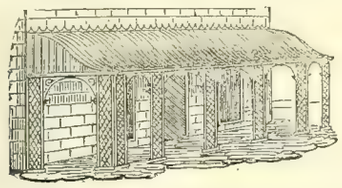
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

ESTATE IMPROVING.—JOSEPH NEWTON undertakes the General Management of Land, Garden Architecture, Laying-out Grounds, Draining Improvements, &c.
Address for Foreman of Works, reference and terms, 36, Eastbourne Terrace, W.

To Seed Merchants and Nurserymen.

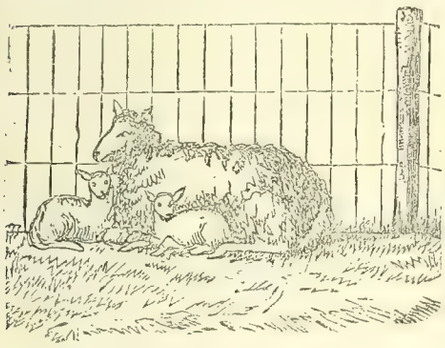
SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, (Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

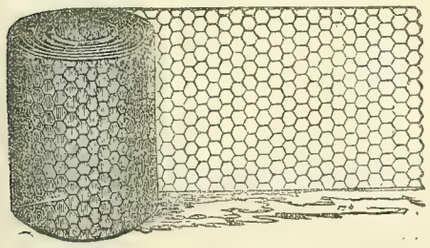
Patronised by H.R.H. the late Prince Consort.



No. 7L variety, 9d. per lineal yard.

GREENING AND CO. received the award of another Silver Medal and Commendations at the recent great Birkenhead Cattle Show of the South Lancashire Society.
In 1857 the judges of the Royal Society reported of their Patent Iron Wire Sheep-fold Fence, that it "was cheap and excellent. It can be very easily fixed, and was well coated with a bright and durable-looking varnish."
G. & Co.'s prices remain unadvanced, notwithstanding the rise in the iron market. Their enlarged Catalogue of Fences and Iron Gates post-free on receipt of three stamps. An explanatory circular sent without charge, on application.
Address GREENING & COMPANY, Victoria Works, 81, Oxford Street, Manchester.

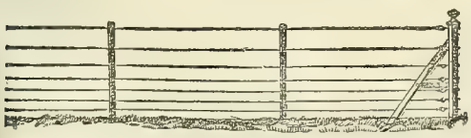
BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½d.	3½d.
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6½	5
2-inch " " " .. "	16	8	6½
1⅝-inch " " " .. "	19	4⅝	4
1⅝-inch " " " .. "	18	6	4½
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet Wide. Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



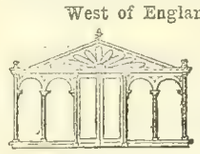
Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1s. per yard.
The same with Galvanised Wire Rope, 1s. 2d. per yard.
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. Span-roof Houses, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24l.; 43 ft. by 19 ft., 73l. 5s.; 64 ft. by 25 ft., 161l.
Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.

West of England, Ireland, and Wales.

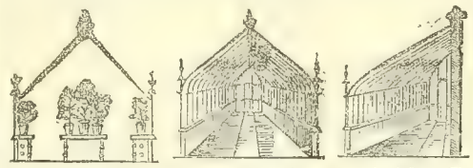


VINCENT SKINNER (late Partner with J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER



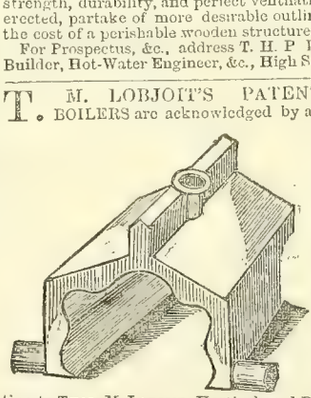
SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



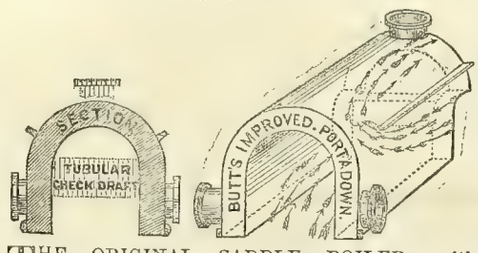
best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.
The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.
For Prospectus, &c., address T. H. P DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, Mount Villa, Acton Green, Turnham Green, W.

Heating by Hot-water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.
Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

Sussex.

FOR PRIVATE SALE, a Ring-fence ESTATE of 1500 acres, consisting of Marsh, Hop, Meadow, Pasture, Arable, and Wood Lands. Purchase-money 70,000l., including Timber. Or, 900 acres and 600 acres could be sold separately.
Apply, by letter, to E. S. CARR, Esq., Solicitor, 61, Moorgate Street, London, E.C.

LAND and NURSERIES to LET and WANTED. G. GLENNY, Horticultural Agent, Fulham, S.W.

TO BE LET, an Old Established NURSERY, SEEDSMAN'S, and FLORIST'S BUSINESS, with comfortable Residence, Hothouses and Greenhouses, Pits, and about 3 Acres of Land in excellent condition, situate at Long Melford, Suffolk, three miles from Sudbury. Coming-in easy, as the Stock will be Sold by Auction on February 5 and 6.
For Rent and Particulars apply to Mr. G. CARDINAN, Auctioneer, &c., Sudbury.

TO BE LET, and the BUSINESS to be DISPOSED OF, a WELL-STOCKED NURSERY, with Dwelling-house and Grapery attached, within half a mile of a flourishing Market Town on the London and North-Western Railway. A good Business being done, and capable of much improvement. The Stock and Fixtures to be taken at a valuation.
Application to be made to the *Estates Gazette* Office and Agricultural Library, 200, Fleet Street, Temple Bar, W.C.

Brighton.

TO BE LET on LEASE, for Seven Years from March next, a WALLED-IN GARDEN, about 3½ Acres, in good working order, comprising 6 Vineries, 2 Peach-houses, 1 Cucumber House, large Orange-house, and Cottage for Gardener, conveniently situated at the West End of the Town in an aristocratic neighbourhood.
Apply to EDWARD CARPENTER, Seed Merchant, 96, St. James's Street, Brighton.

Park Nurseries, Singleton Brook, Higher Broughton, Manchester.

TO BE LET on LEASE, the well known NURSERIES as above, Established upwards of 70 years, belonging to the Executors of William Lodge, deceased, and situated in the best part of Manchester, containing Hothouses, Greenhouses, Propagating, Specimen and Show Houses, covered by upwards of 5000 square feet of Glass, exclusive of Pits and Frames, the greater part heated by Hot Water, upon an improved principle; the Plant Stages built on brick arches, and well adapted for Forcing underneath.
There is an excellent Seed Shop, well fitted up with Drawers, &c., and Private Office attached, also Packing and Potting Sheds, and Cottage for Foreman; the Soil is rich and fertile, and suitable for growing Florist Flowers, for which the late proprietor had long been famous. The Premises are plentifully supplied with Water, and well stocked with Trees, Shrubs, &c., which can be taken at a Valuation at the option of the Tenant.
For further particulars apply to Mrs. LODGE, Broughton Lane, near Manchester.

Sale by Auction.

Sale This Day, at Half-past 12 o'Clock Precisely, of Fruit Trees and Roses.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, January 30, at half-past 12 o'Clock precisely, 600 splendid STANDARD ROSES, good varieties; 6 Sacks of Ashleaf Kidney Potatos, for Seed; Dwarf Standard and Pyramidal Pear, Peach, Apricot, and Cherry Trees from France. An assortment of Hardy Trees and Shrubs from Surrey, and a few lots of first-rate Rustic Garden Seats and Flower Stands.
On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, February 2, at 12 o'clock precisely, a First-class Assortment of POULTRY, PIGEONS, and RABBITS, comprising a few rare and fine Birds from the Crystal Palace, bred on the lake in the grounds of the Company during the seasons of 1862 and 1863; they are hybrids between the Canadian and Chinese Geese, and are very attractive Birds on any ornamental water, their character and markings being very peculiar. Also some handsome Dorking Cocks from J. F. Newton, Esq., of Stokesley; Partridge and Cinnamon Cochins, Black Spanish, and Silky Fowls from F. B. Walker, Esq., of Croydon; Polands from Mr. Tegetmeier; Hamburghs, Geese, Dorkings, Rouen Ducks, and Spanish Runts, from J. J. Stainton, Esq., of Woking; Spanish, Hamburghs, Dorkings, and Game from Mrs Pattison; Buff Cochins from Mrs. H. Fookes; Barbs, from Mr. Jones, of Fulham; Fantails and Tumblers, from Mr. Boghurst; Brahmas, White Cochins, Rabbits, Geese, Pouters, Carriers, Bantams, Nuns, Baldheads, Trumpeters, and other varieties from 19 different Amateurs.
On view the Morning of Sale, and Catalogues had.

Consignment of Greenhouse and Hardy Plants
FROM GHENT, AN IMPORTATION OF ROSES AND FRUIT TREES FROM FRANCE, AND A SELECTION OF CHOICE VINES FROM WILTSHIRE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 3, at half-past 12 o'clock precisely, 300 choice CAMELLIAS, 200 INDIAN AZALEAS, 400 LILIUM LANCIFOLIUM RUBRUM, 150 STANDARD ROSES, 200 HARDY RHODODENDRONS, and 100 GHENT AZALEAS, from two well known Nurserymen in Belgium; 400 STANDARD ROSES, fine bushy heads and good varieties, and 100 DWARF STANDARD and PYRAMIDAL CHERRY, APRICOT, PEACH and PLUM TREES from France, and 40 fine VINES from Wiltshire.
On view the Morning of Sale, and Catalogues had.

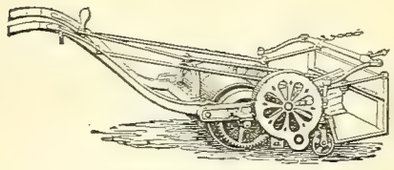
The Largest and Choicest Collection of Fruit Trees
EVER OFFERED FOR PUBLIC SALE AT ONE TIME, COMPRISING 3600 FINE PLANTS, AND SPLENDID VARIETIES, FROM ONE OF THE OLDEST ESTABLISHED NURSERIES IN SURREY. ALSO 400 STANDARD ROSES, FINE BUSHY HEADS, FROM FRANCE, AND A FEW SPECIMEN CONIFERS FROM SURREY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 6, at half-past 12 o'clock precisely, a first-class Assortment of STANDARD, PYRAMIDAL, and TRAINED Apple, Pear, Plum, Cherry, Apricot, Peach, Nectarine, Gooseberry, Currant, Quince, Medlar, Fig, Vine, Walnut, Filbert, Mulberry, and other Choice Fruit Trees, comprising most of the newest and best varieties in cultivation. Also 400 splendid STANDARD ROSES, fine bushy heads, and good varieties, from a celebrated Nurseryman in France.
On view the Morning of Sale, and Catalogues had.

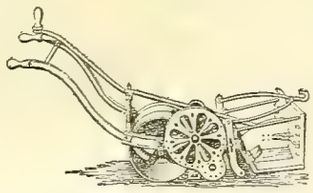
Sarsden, near Chipping Norton, Oxon.
EXTENSIVE AND IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late J. H. Langston, Esq., M.P., to SELL by AUCTION, without any Reserve, on TUESDAY, March 22, the entire and far-famed HERD at Sarsden, consisting of about 100 head of BULLS, COWS, and HEIFERS, that have been long and carefully bred from animals purchased in the counties of Durham, Northumberland, and Yorkshire; some choice specimens have since been added from the Tortworth, Fawsley, Milcote, and other famed Herds, whilst Bulls of the highest breeding and character have been used, such as Prince (4772), Locksley (4240), Prince of Wales (8432), Lord Milton (10,461), General Elliott (10,266), &c., and latterly Gloster's Grand Duke (12,949), Archduke 2d (15,588), and Royal Turk (16,875). The young stock are chiefly by Lord of the Harem (16,430), Royal Arch (18,749), and Royal Counsellor (20,725).
Catalogues, with pedigrees, will shortly be issued, and announced, with further particulars, in future advertisements.
London: 13, Euston Square, Jan. 30.

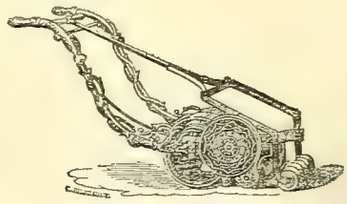
LAWN MOWING MACHINES FOR 1864.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN) AND FEW THERE ARE WHO DO NOT), WOULD, FOR ONE SEASON, BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

1st. Because it Economises Labour. A man will Mow as much in three hours with a Machine as in ten hours with a Scythe.
2nd. Because the Machine does the work not only more expeditiously, but cleaner and better.
3rd. Because the close cutting and simultaneous rolling of the Machine improves the appearance of the Turf in a short time, and this cannot be done with the Scythe.

J. B. BROWN & Co., as is well-known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of satisfaction, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success.

J. B. B. AND Co. have resolved not to place before the public at this period of the season any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that gentlemen or gardeners naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All orders thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.*

Orders entrusted to J. B. B. AND Co. for the Machines of any particular maker, will have most careful attention in every respect.

SHANKS' LAWN MOWING MACHINE FOR 1864.

SHANKS' MACHINE has been further improved this season by reducing the weight, and in other respects remodelling it. These Machines are still, as they have always been, very durable, simple in construction, and execute their work in a superior manner.

PRICES.

SHANKS' HORSE MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions of Use.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' PONY and DONKEY MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Direction for Use.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 10*s.* per set.

SHANKS' HAND MACHINE.

The four larger Machines for Pushing or Drawing Separately or Together—the three smaller for Pushing only—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*
No. 11.—16-inch Machine	6 12 6	*Do. by a Man.*

Width of Cutter.		
No. 12.—14-inch Machine	£5 10 0	*Easily Worked by a Man.*
No. 13.—12-inch Machine	4 10 0	*Do. by a Boy.*
No. 14.—10-inch Machine	3 10 0	

The Patent Delivering Apparatus may be attached to the two larger Hand Machines, 25*s.*; Box with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.* for the larger Hand Machine, and for those smaller, 4*s.*

GREEN'S HAND MACHINE FOR 1864.

GREEN'S MACHINE for this season is made lighter and stronger, also simpler in construction and more durable, and is very easily worked.

PRICES, including carriage to most of the principal Railway Stations and Shipping Ports in England :—

10-inch Machine	£3 10 0	*Easily worked by a Boy.*
12-inch Machine	5 0 0	
14-inch Machine	5 10 0	
16-inch Machine	6 10 0	*Do. by a Man.*
18-inch Machine	£7 10 0	*Easily worked by a Man.*
20-inch Machine	8 0 0	*Do. by two Men.*
22-inch Machine	8 10 0	
24-inch Machine	9 0 0	

A specimen of each of the best Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. AND Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

DESCRIPTIVE and PRICED LISTS of the best MACHINES to be had on application.

*** *Every Machine sent out is warranted to give ample satisfaction, and if not approved of may be exchanged for any other, or may be at once returned.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, January 30, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 6.—1864.] SATURDAY, FEBRUARY 6. {Price Fivepence. STAMPED EDITION, 6d.

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Oxford Museum Park	123 b	Vines, Spanish	126 c
		Woollen refuse	126 b

ROYAL HORTICULTURAL SOCIETY.—NOTICE is HEREBY GIVEN, that the ANNUAL MEETING of this Society for the ELECTION of COUNCIL, Officers, Auditors, and Expenses Committee Men for the ensuing year, will be held in the Council Room, at South Kensington, W., on TUESDAY, February 9. The Chair to be taken at 1 o'Clock precisely. ANDREW MURRAY, Assistant Secretary.
February 6.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.
SPRING EXHIBITIONS, SATURDAYS, March 19, April 9, and April 30. GENERAL EXHIBITIONS, SATURDAYS, May 21, June 11, and July 2. AMERICAN PLANTS, MONDAYS, June 6, and June 20.

CRYSTAL PALACE.—The GREAT FLOWER SHOW of the Season will take place on SATURDAY, May 28. All communications in respect thereof to be addressed, GEORGE GROVE, Esq., Secretary, Crystal Palace, Sydenham, S.E

Grape Vines from Eyes.
WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Vines Black Hamburgh and Muscat of Alexandria.
ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 10s. 6d. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.
JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.
N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

WANTED, FRUITING PINES. — Price and particulars to
JOHN PERKINS, 52, Market Square and Drapery, Northampton.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square,
London, W.

THE LONDON SEED COMPANY, LIMITED,
has AMALGAMATED with the
PLYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The FARM SEED PRICE CURRENT will be ready in a few days, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of GARDEN SEEDS are now Ready.
See Advertisement, page 119.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of FLOWER SEEDS are now Ready.
See GENERAL PRICE CURRENT.

Genuine Seeds.
THOMAS BUNYARD AND SONS, NURSERYMEN, &c., Ashford and Maidstone.
CATALOGUES free to all applicants. See our Novelties, Jan. 23 (page 71).

DAHLIA POT ROOTS.—Lord Derby, Miss Henshaw, Bob Ridley, &c., at 6s. per dozen; Mixtures, 10s. per 100. Also a few spare roots of BRITISH TRIUMPH and other leading varieties of 1863 at moderate prices.
G. RAWLINGS, 21, Globe Road, Bethnal Green, E.

WHEELER'S LITTLE BOOK on SEEDS.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.
BUTLER AND McCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Good Seeds, Carriage Free.
WILLIAM PAUL (Son and Successor to the late A. PAUL),
Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, 57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.
RICHARD SMITH, NURSERYMAN and SEED MERCHANT, St. John's, Worcester.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. LANE AND SON. (For particulars, see page 121), The Nurseries, Berkhampstead, Herts.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

PELARGONIUMS and CINERARIAS.—Intending Purchasers are respectfully solicited to send for our DESCRIPTIVE CATALOGUE of many hundreds of varieties, at very moderate prices, which will be forwarded Post free.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

List of Select Vegetable and Flower Seeds.
WOOD AND INGRAM beg to announce that their New PRICED and DESCRIPTIVE CATALOGUE of the above may be had Post free on application.
Huntingdon Nurseries.

To the Trade.
STANDARD and DWARF and CLIMBING ROSES in large or small quantities, at reduced prices. Special Lists on application. Address
WM. WOOD & SON, Maresfield, Uckfield, Sussex.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18s. per dozen; DWARFS, 12s. per doz. NEW ROSES of 1863, 30s. per doz.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

DOUBLE TUBEROSES, just imported, 3s. per dozen.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Fresh Imported Double Italian Tuberoses.
SUTTON AND SONS have just received their supply, and can now offer very fine roots at 3s. 6d. per dozen.
Royal Berkshire Seed Establishment, Reading.

WANTED, BALSAM SEED, first-class. — Apply, A.B, 25, Bishopsgate Within.

SEEDS of EVERY KIND, and best quality, supplied by HOOPER & Co., Covent Garden Market, London, W.C.
CATALOGUES post free.

HERBST AND STENGER, Kew Nursery, Kew Road, Richmond, London, S.W., respectfully inform their friends that their SEED CATALOGUE is ready, and will be forwarded Free on application.

To the Trade.
W. WITTY AND SON have to offer a quantity of named HOLLYHOCKS (good plants), at 2l. per 100.
Nurseries, Cottingham, near Hull.

Larch.
W. WITTY AND SON have to offer well grown LARCH of various heights at reasonable prices.
Samples and prices on application.
Cottingham Nurseries, near Hull.

German Flower Seeds Fresh Imported.
SUTTON AND SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

THOMAS METHVEN begs to intimate that his NEW CATALOGUE of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., for 1864 is now ready, and will be forwarded Post-free on application.
Seed Warehouse, Nursery Gate, Leith Walk, Edinburgh.

Royal Nursery, Great Yarmouth.
YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

BERBERIS AQUIFOLIA.—The above can be supplied at 12s. 6d. per 100, nice stocky Plants, two years transplanted.
Cottingham Nurseries, near Hull.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

Kitchen Garden, Flower, and Agricultural Seeds.
WILLIAM BARNES begs to inform his friends and the Public generally, that his NEW CATALOGUE is now ready, and can be obtained upon application, Post-free.
Camden Nursery, Camberwell.

CUCUMBER SEED.—BLACK SPINE, PRINCE ALBERT, HIGHLAND MARY, LONG GUN, 1s. per packet each. Trade supplied by the oz. Best MELONS, 1s. MUSHROOM SPAWN, 5s., 12 Cakes. Ditto Pamphlet, 1s. 1d. Mushrooms grown here all the year round.
JAMES CUTHILL, Camberwell, London, S.

HOW to GROW ASPARAGUS.—For the quickest and best method of Cultivating Asparagus see SUTTON'S AMATEUR'S GUIDE, pages 6 and 26, which may be had post free for 6 stamps, or gratis by customers.
Royal Berkshire Seed Establishment, Reading.

Broccoli all the Year Round.—See
SUTTON'S AMATEUR'S GUIDE, pages 9 and 10, which will be sent post free on receipt of 6 penny stamps.
SUTTON & SONS, Seed Growers, Reading, Berks.

Fresh Mushroom Spawn.
SUTTON AND SONS have a superior stock of MUSHROOM SPAWN, 5s. per bushel.
Royal Berkshire Seed Establishment, Reading.

SEAKALE, per 100, 5s. 6d., 7s. 6d.; Extra Strong, 12s. 6d.; quotations to the Trade on application.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

NEW PEAS, PRINCESS of WALES and PRINCESS ROYAL.—For description of these unrivalled PEAS, see SUTTON'S AMATEUR'S GUIDE, (price 6d., or Gratis to Customers (post free).
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

CHAMPION of ENGLAND PEA.
For Sample and Price apply to
Mr. WILLIAM CANT, Seed Grower, Myland Lodge, Colchester.

EARLY TEN WEEK POTATOS, price 4s. per cwt.
Apply to Mr. GEO. H. CANT, Mile End, Colchester.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

Potatoes for Planting.
SUTTON'S DESCRIPTIVE LIST sent Free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Skerry Blue Potato.
SUTTON AND SONS have a large Stock of this very productive and fine POTATO, which they can sell at low prices in large quantities for Field Planting.
Royal Berks Seed Establishment, Reading.

SEED POTATOS: TRUE SKERRY BLUES.—For QUALITY, PRODUCTIVENESS, and FREEDOM from DISEASE A 1, at 20s. per sack of 4 imperial bushels, sack included. Larger quantities at special rates.
JOHN E. NELSON, Rinefield, Lymington, Hants.

LEMON KIDNEY POTATOS, for Seed, warranted True. (The Stock direct from the Rev. E. F. Manby, Morecambe).
To be had of GEORGE FENN, Ingate Lodge, Beccles, Suffolk, at 2s. 6d. per bushel.

Myatt's Prolific Ashleaf Kidney Potatos.
WILLIAM BOOSEY, NURSERYMAN and SEEDSMAN, Middlewich, Cheshire, has three or four Tons of the above left, and in order to clear out begs to offer them at 6l. 10s. per Ton, cash.

SEED POTATOS.—An unsurpassed Stock, including every variety of value, carefully selected. Prices moderate.
HOOPER & Co., Covent Garden Market, London, W.C.
CATALOGUES Post-free.

To the Trade.
SEED POTATOS.—Early Handsworth, Lemon Kidney, Webb's Imperial, Daintree's Seedling, Lapstone, &c., warranted true.
PRICED DESCRIPTIVE LIST sent on application to
G. & W. YATES, Seed Merchants Manchester.

Cheap and Select Nursery Stock.

WM. JACKSON AND CO., Bedale, Yorkshire, beg to refer for particulars of this Advertisement to page 98, the *Gardeners' Chronicle*, 30th January last.

☞ A few duplicate Specimens of the following:—

CŒLOGYNE CRISPATA, var., large perfect specimens, with 70 to 80 blooms. Fifty Guineas each.

VANDA SUAVIS, best kind, 4 to 5 feet, with several breaks, perfect specimens. Fifty Guineas each.

DENDROBIUM DENSIFLORUM, 8 to 10 feet in circumference, fine specimens. Thirty Guineas each.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	s.	d.
50 in 50 choice varieties	2	12	6
25 in 25 ,, ,, ...	1	5	0
12 in 12 ,, ,, ... 5s. to	0	12	0
Extra choice mixed, 3s. 6d. per doz. .. per 100	1	5	0
Fine mixed, 2s. 6d. per doz. .. .. ,,	0	17	6
GANDAVENSIS, strong roots, 2s. 6d. per doz. ,,	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3s. p. doz. ,,	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

Dodecatheon elegans.

DOWNIE, LAIRD, AND LAING have to offer 6000 of the above, at 30s. per 100. Price to the Trade on application.

17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60s.; per doz., 9s., including package.

Elvaston Nurseries, Derby.

BERBERIS DARWINI, Lawn and Cover.—Too much cannot be said of this fine evergreen species; it is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.

W. BARRON can supply strong and well-rooted plants of the above.

1 to 2 feet .. per 100, 20s. | 2 to 3 feet .. per 100, 30s.

Elvaston Nurseries, Derby.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18s. to 30s. per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12s. per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.

THOMAS AYRES.

WANTED, FICUS ELASTICUS, well grown bushy plants, from 6 to 10 feet high, must branch from within 1½ foot of pot or tub. Anybody having one or more really well grown specimens to dispose of will oblige by forwarding height, size, and price to

ARTHUR HENDERSON & Co., Plant and Seed Merchants, 1, Pine Apple Place, Edgeware Road, London, N.W.

CHEAP PLANTS.—The following in strong Plants for stock:—

NEW FUCHSIAS, best of 1863, per dozen, 6s.
NEW VERBENAS, ditto, per dozen, 4s.
NEW AGERATUM (PRINCE ALFRED), the best out, per dozen, 6s.
NEW GERANIUMS, (BEDDING), per dozen, 9s.
NEW PETUNIAS, per dozen, 6s.
LOBELIA PAXTONIANA, GORDONIANA, and four others, best of 1863, per dozen, 4s.
NEW TROPÆOLUMS, best of 1863, per dozen, 6s.
NEW HOLLYHOCKS, per dozen, 18s.
NEW ANTIRRHINUMS, per dozen, 4s.
NEW PENTSTEMONS, per dozen, 6s.
NEW MIMULUS (MACULOSUS), per dozen, 4s.
PAMPAS GRASS (ROSEUM), per dozen, 9s.
LONICERA AUREO-RETICULATA, per doz., 6s. to 9s.

Also the following in strong Plants:—

HEPATICAS, of sorts, per dozen, 3s. to 4s.
PRIMROSES, per dozen, 4s. to 9s.
POLYANTHUS, choice mixed, per dozen, 3s.
AURICULAS, border variety, per dozen, 3s.
LILIES OF THE VALLEY, per dozen, 2s.
LAVENDER, per dozen, 3s.
PINKS, finest named, per dozen, 3s. 6d.
VIOLETS, DOUBLE WHITE, PURPLE, and RUSSIAN, 3s.
ŒNOTHERA MISSOURIENSIS, per dozen, 4s.
,, SPLENDENS, per dozen, 4s.
DIELYTRA SPECTABILIS, per dozen, 4s.
PHLOX, fine named, per dozen, 4s.
HOLLYHOCKS, fine seedling, per dozen, from 3s.
GNAPHALIUM LANATUM, per dozen, 4s.
PANSIES, fine named, per dozen, from 3s.
100 CHOICE HARDY HERBACEOUS PLANTS in 50 Varieties, carefully named and packed for 25s.
12 SUPERB STANDARD ROSES, 12 ditto DWARF } 24 sorts for 21.

☞ Carriage of Parcels amounting to 20s., paid to London.

Post Office Orders payable on Castle Hedingham, to WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	**Containing 33 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion**							...	**£3**	**3**	**0**
No. 2.	**Containing 20 quarts Peas and Beans**				**ditto**		**ditto**	...	**2**	**2**	**0**
No. 3.	,,	**13**	,,	,,	,,	,,	,,	...	**1**	**10**	**0**
No. 4.	,,	**10**	,,	,,	,,	,,	,,	...	**1**	**1**	**0**

For full particulars, see Catalogue, page 78.

DESCRIPTIVE SEED CATALOGUE for 1864 may be had Free and Post Paid upon application, containing all the new and most approved varieties of FLOWER SEEDS.

To Exhibitors we can strongly recommend our assortments of ASTERS, BALSAMS, CARNATIONS, STOCKS, and other Imported Seeds.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

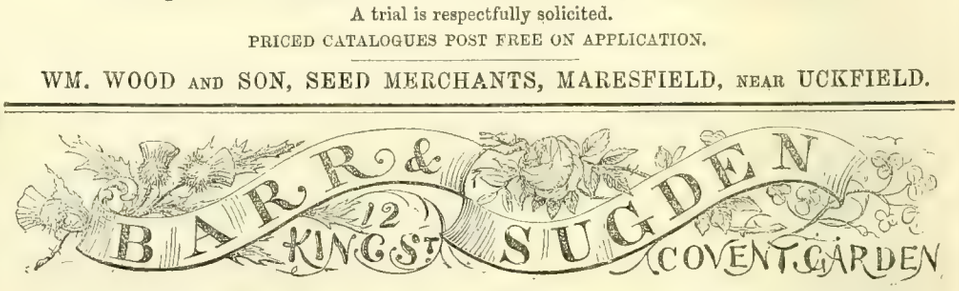
£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.

A trial is respectfully solicited.

PRICED CATALOGUES POST FREE ON APPLICATION.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.



VEGETABLE SEEDS, amounting to 21s., sent Carriage Paid. FLOWER SEEDS sent Post Paid.
SEAKALE ROOTS, per 100, 5s. 6d., 7s. 6d.; Extra Strong, 12s. 6d.

BARR & SUGDEN'S COLLECTIONS of VEGETABLE SEEDS for 1864.

Embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.

For Particulars see *Gardeners' Chronicle*, January 23, 1864, page 74; or B. & S.'s COMPENDIUM of their ILLUSTRATED GUIDES to KITCHEN and FLOWER GARDEN.

No. 6	**contains 33 qt. of Peas, Beans, and other Seeds in proportion**						...	...	**for £3**	**3**	**0**
No. 5	,,	**20 qt.**	**ditto**	**ditto**	**ditto**	**ditto**	...	...	...	**2**	**2**	**0**
No. 4	,,	**13½ qt.**	**ditto**	**ditto**	**ditto**	**ditto**	...	...	...	**1**	**10**	**0**
No. 3	,,	**10 qt.**	**ditto**	**ditto**	**ditto**	**ditto**	...	...	...	**1**	**1**	**0**
No. 2	,,	**13½ pt.**	**ditto**	**ditto**	**ditto**	**ditto**	...	...	...	**0**	**15**	**6**
No. 1	,,	**7 pt.**	**ditto**	**ditto**	**ditto**	**ditto**	...	...	...	**0**	**10**	**6**

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS.

ADAPTED TO ANY STYLE OF GARDENING. *Sent Post Paid.*

These Collections are composed of the most beautiful and effective Flowers, so that Amateurs who are unacquainted with the more recently introduced species and varieties, may be furnished with such only as are calculated to maintain throughout the summer and autumn months a rich and gay floral display.

HARDY ANNUALS.

319	100	Packets of beautiful varieties, including the most effective					s. 21	d. 0	324	100	Packets, including those introduced in 1862 and 1863				s. 30	d. 0
320	50	Ditto	ditto	ditto	..	10	6		325	50	Ditto	ditto	ditto	..	15	0
321	30	Ditto	ditto	ditto	..	5	6		326	30	Ditto	ditto	ditto	..	10	6
322	21	Ditto	ditto	ditto	..	3	6		327	21	Ditto	ditto	ditto	..	7	6
323	15	Ditto	ditto	ditto	..	2	6		328	15	Ditto	ditto	ditto	..	5	6

HALF-HARDY ANNUALS.

329	100	Packets of the most beautiful varieties			..	30s.	0d.	332	21	Packets of the most beautiful varieties			..	5s. 6d.
330	50	Ditto	ditto	ditto	..	15	0	333	15	Ditto	ditto	ditto	..	4 6
331	30	Ditto	ditto	ditto	..	10	6	334	10	Ditto	ditto	ditto	..	2 6

HARDY PERENNIALS.
HALF-HARDY PERENNIALS.
BEST ANNUALS and PERENNIALS for ROCKWORK.
BEST ANNUALS for ROCKWORK.
BEST PERENNIALS for ROCKWORK.
DWARF ANNUALS best ADAPTED for EDGINGS.
SWEET-SCENTED ANNUALS.
EVERLASTING FLOWERS for WINTER BOUQUETS.
ORNAMENTAL-FOLIAGED PLANTS.
ORNAMENTAL-FRUITED PLANTS.
ORNAMENTAL GRASSES.
ORNAMENTAL PRIZE GOURDS.

For these the Royal Horticultural Society at the Great International Gourd Show, awarded three principal Prizes At the Birmingham International Gourd Show the First Prize was awarded to our Collection.

Standard and Dwarf Roses.

PRICE ON APPLICATION.

GEO. JACKMAN AND SON, Woking Nursery, Surrey, have a quantity of the above in known leading varieties and good trees; they are desirous of clearing the ground, and will sell them cheap.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1s. 6d., 2s. 6d., 5s.
DOBSON'S SUPERB CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PANSY, 1s., 2s. 6d.
DOBSON'S SUPERB SHOW PELARGONIUM, 2s. 6d., 5s.
DOBSON'S SUPERB FANCY PELARGONIUM, 2s. 6d., 5s.
DOBSON'S SUPERB BALSAM, 1s., 2s.
DOBSON'S SUPERB ANTIRRHINUM, 1s., 2s.
DOBSON'S SUPERB LOBELIA SPECIOSA, 1s.
DOBSON'S SUPERB HOLLYHOCKS, 1s., 2s. 6d., 5s.

The Trade supplied on liberal terms.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.

SPECIAL LISTS of SEEDS (crop 1863) gratis on application.

Prices the lowest consistent with first-class quality.

Vegetable and Flower Seeds

OF THE VERY BEST, INCLUDING MANY NEW VARIETIES.

WM. B. JEFFRIES is now sending out his 21s. Collections of VEGETABLE SEEDS, for a whole year's supply, which have given general satisfaction the last 10 years, including 20 packets of choice FLOWER SEEDS, or half the quantities, 10s. 6d.

CATALOGUES of PLANTS, SEEDS, &c., free for two stamps. Arboretum Nurseries, Ipswich.

WHEELER'S LITTLE BOOK on SEEDS.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of SEEDS for 1864 is now ready, and contains select lists only of

SEEDS for the KITCHEN GARDEN,
SEEDS for the FLOWER GARDEN,
SEEDS for the FARM.

And will be forwarded, Post-paid, on application.

Nursery and Seed Establishment, Westerham, Kent.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1s. Post free, 14 stamps.

Sonning, near Reading.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1s. each. This Leek can be grown from 4 to 5lbs. weight. None genuine unless in their own sealed packets.

17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

SUTTON'S SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1864,

Containing much useful information in Agriculture and Horticulture,

IS NOW READY, AND MAY BE HAD POST FREE, PRICE 6d.

GRATIS TO CUSTOMERS.

SUTTON'S SHORT SELECT SEED LIST

IS ALSO READY, AND WILL BE SENT GRATIS AND POST FREE ON APPLICATION.

ADDRESS: SUTTON AND SONS, SEED GROWERS and MERCHANTS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

THE LONDON SEED COMPANY, LIMITED.

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE COMPANY are now sending out their COLLECTIONS of SEEDS, which will be delivered Carriage Free to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1. Complete Collection, sufficient for a Large Garden for One Year's supply	£3	0 0
No. 2. Complete Collection for a Moderate Sized Garden	2	0 0
No. 3. Complete Collection, in Smaller Quantities	1	0 0
No. 4. Complete Collection for a Small Garden	0	15 0
No. 5. Complete Collection for ,, ,,	0	10 6
No. 6. Extra Large Collection, containing Double the Quantities of No. 1	5	0 0

A DETAILED LIST of these COLLECTIONS will be found in the GENERAL PRICE CURRENT, which is now ready, and will be forwarded Gratis and Post Free to any address in the Kingdom.

ADDRESS: 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

GENUINE SEEDS.—CARRIAGE FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to state that his PRICED and DESCRIPTIVE CATALOGUE of FLOWER and VEGETABLE SEEDS can be had Post Free on application. It contains all that is really worth growing amongst Novelties, and carefully selected Lists of indispensable articles. The Prices are quoted as low as possible for the finest samples that are to be procured.

The following are specially recommended:—

	Per packet.—s.	d.
CUCUMBER, all the best kinds	1	0
MELONS, all the best kinds	1	0
BROCCOLI, SNOW'S WINTER WHITE	1	0
,, GRANGE'S EARLY WHITE CAPE	0	6
,, CARTER'S CHAMPION	1	0
,, BACKHOUSE'S WINTER WHITE PROTECTING	2	6
ALMA COS LETTUCE	0	6
MOOR PARK COS LETTUCE	0	6
STANSTEAD CABBAGE LETTUCE	1	0
LITTLE PIXIE CABBAGE	0	6
CELERY, WILLIAMS' MATCHLESS RED	1	6
CAULIFLOWER, WALCHEREN	0	6
,, EARLY MAMMOTH	1	0
,, EARLY LONDON	0	6
PARSNIP, THE STUDENT	0	3
PINE APPLE SHORT-TOP BEET	0	3
MELVILLE'S GARNISHING KALE	0	3
COTTAGERS' KALE	0	3
CHUSAN MARROW, a new and distinct variety	2	6
IMPROVED DWARF BRUSSELS SPROUTS	0	3

*** *Any of the above can be had Post Free.*

STRONG ASPARAGUS ROOTS for FORCING. DOUBLE TUBEROSES, 3s. per dozen.

CHOICE GLADIOLI ROOTS, 4s., 6s., 8s., 10s. per dozen.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—s.	d.
BROCCOLI, SUPERB WINTER WHITE (Snow's)	2	6
,, LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.

Fulham Nursery, London, S.W.—February 6.

Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. per packet. Will be forwarded to any part of England on forwarding 26 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had post free on application.

The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend:—

DILLISTONE'S EARLIEST PEAS, 1s. 6d. per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2s. 6d. per packet.
BROCCOLI, SNOW'S SUPERB, 2s. 6d. per ounce.
CUCUMBER KIRKLEES HALL, 1s. per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1s. per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1s. per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1s. per pkt.
MELON SCARLET PERFECTION, new, First-class Certificate at Royal Horticultural Society, 2s. 6d. per packet.

Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

New Seeds.

FISHER, HOLMES AND CO., Handsworth Nursery, Sheffield, beg to offer the following, which they have perfect confidence in recommending:—

BEET, CLAYTON'S SUPERB DWARF DARK RED; extra packets, 1s. and 2s. each.
BORECOLE, GREEN CURLED, a very superior variety; packets, 6d. and 1s. each.
BROCCOLI, HANDSWORTH, SUPERB LATE WHITE; packets, 1s. and 2s. each.
CUCUMBER, BATLEY TELEGRAPH, not to be surpassed; 3s. per dozen seeds.
CUCUMBER, BARTON'S MONARCH, excellent for general purposes; 1s. per dozen seeds.
CUCUMBER, WILSON'S PROLIFIC, the very best for forcing; 1s. 6d. per dozen seeds.
CUCUMBER, PORTER'S PROLIFIC, very superior; 3s. per dozen seeds.
LOVE APPLES, GRENIER, new packets; 1s. each.
PARSLEY, very superior Curled, beautiful for garnishing; packets, 6d. and 1s. each.

Agents in London, Messrs. HURST & SON, 6, Leadenhall Street, E.C.

PRICED CATALOGUES of VEGETABLE and FLOWER SEEDS, Gratis and Post Free on application to Messrs. FISHER, HOLMES & Co.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

The MANAGER begs to solicit attention to the following Choice GARDEN SEEDS, now being sent out by the Company, full descriptions of which will be found in the GENERAL PRICE CURRENT.

	s.	d.
MACLEAN'S HERO PEA, 2 feet per qt.	5	0
,, NEW DWARF WHITE, 2½ feet ,,	1	6
ADVANCER, 2 feet ,,	1	6
WONDERFUL, 2½ feet ,,	1	6
BECK'S DWARF GEM BEANS, 1 foot ,,	1	0
VARIEGATED DUN DWARF, 1 foot ,,	1	6
NUTTING'S fine RED BEET per oz.	1	0
BACKHOUSE'S WINTER PROTECTING BROCCOLI, per pkt.	1	0
DALMENY WHITE ,,	1	0
DALMENY SPROUTS ,,	1	0
FEARNOUGHT CABBAGE ,,	1	0
TOM THUMB ,,	1	0
HOOD'S IMPERIAL DWARF RED CELERY ,,	1	0
MOORE'S VEGETABLE CREAM ,,	1	0
TOMATO DE LAYE, a new upright growing var. ,,	1	0
PRINCESS ALEXANDRA MELON ,,	2	6
STUDENT PARSNIP per oz.	1	0

CATALOGUES and all other information may be had on application at the Offices, 68, Welbeck Street, Cavendish Square, London, W.

DWARF BOX and 2-year ASPARAGUS ROOTS

A quantity of the above to be Sold cheap.

S. COOPER, Cambridge Street, Wellingborough, Northamptonshire.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post-free, 1s. per ounce. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the Lists which appeared in *Gardeners' Chronicle* of Nov. 28 and Dec. 19, 1863.

Royal Berks Seed Establishment, Reading.

Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.

SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.

No. 1, *3l.* 3*s.*; *No.* 2, *2l.* 2*s.*; *No.* 3, *1l.* 11*s.* 6*d.*; *No.* 4, *1l.* 1*s.*; *No.* 5, 15*s.*; *No.* 6, 10*s.* 6*d.*; *No.* 7, in extra quantities for a large family, *5l.* 5*s.*

Royal Berkshire Seed Establishment, Reading.

Economy in the Garden.

SUTTON'S GUINEA COLLECTION OF KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY. CARRIAGE FREE.

SUTTON AND SONS, SEED GROWERS, Reading, confidently recommend the above as Genuine New Seeds, of the best sorts in cultivation, properly apportioned, and labelled with instructions for sowing, *i.e.*, so as to insure a good succession throughout the year.

A LIST of the contents of this Collection, or a general SEED CATALOGUE, with prices affixed to each kind, may be had Post-free, on application, addressed

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Seeds Carriage Free.

J. DOBSON AND SONS' CATALOGUE for 1864 is now ready, gratis and Post-free.

VEGETABLE SEEDS, best quality, 300 sorts.
FLOWER SEEDS, best quality, 400 varieties.
FARM SEEDS, best quality.

Woodlands Nursery, Isleworth, W.; and High Street, Hounslow, W.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—

DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW ,,
WOODFORD'S GREEN MARROW ,,

To the Seed Trade.

PEAS.—Early Emperor, Prizetaker, Bedman's Imperial, No Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to

MARSH & PERKINS, 42, Drapery, Northampton.

Fairbeard's Forty-fold Blue Marrow Pea.

J. FAIRBEARD begs to offer to the public in general a large and distinct New BLUE WRINKLED MARROW PEA, as early as Fairbeard's Champion, about the same height, quite equal in flavour, but much more prolific, and remains much longer in a green state for picking. Retail 3*s.* 6*d.* per quart. Trade price upon application. Early orders are requested, as the stock is limited.

J. FAIRBEARD, Nurseryman and Seedsman, Green Street, Sittingbourne, Kent.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s.* 6*d.* per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4*s.* per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4*s.* per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s.* and 2*s.* 6*d.* per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:

Price for Picked Roots, per 100	.. ..	12*s.* 6*d.*
Do. second size ,,	.. ..	10 0
Also strong for Planting, per 100	.. 5*s.* and	7 6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

To Nurserymen and Others.—Sea Kale.

FOR SALE, about Five or Six Thousand good strong SEA KALE ROOTS, fit for Forcing or Planting, 3 years old. The Plants were met with under peculiar circumstances, and will be sold in one or more lots, a bargain.

Apply to Mr. STEPHEN GREGORY, Jun., Whittlesey, Cambs.

Splendid New Potato, the Pink Fluke.

SUTTON AND SONS have great confidence in recommending this fine Potato. It has hitherto been entirely free from Disease, and keeps mealy and fine flavour until the succeeding harvest.

The Grower, writing to Messrs. SUTTON, says: "They are a beautiful Potato, and will astonish your customers. They will keep 12 months, and improve in flavour when all others are getting unpalatable."

Price 3*s.* per peck, or 10*s.* per bushel. Carriage free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

MYATT'S PROLIFIC ASH-TOP, by the Stone, Cwt., or Ton.

DAINTREE'S SEEDLING ditto, ditto.
WEBB'S IMPERIAL KIDNEY, ditto ditto.
DALMAHOYS, ditto ditto.
FORTYFOLDS, ditto ditto.
WHEELER'S GLOUCESTERSHIRE KIDNEY, by the stone or cwt.

Several other sorts in stock.

DESCRIPTIVE LISTS post free on application to CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

THOMAS AYRES, Biggleswade, Beds, NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Seed Potatos.

JOHN KELLETT begs to offer FLUKE KIDNEYS—the best late Potato; and DALMAHOY, the best second early, picked for Seed from land unbroken for 70 years. Price per bushel, or load of 252 lbs. on application.

Green Lane Nurseries, Heaton Norris, Stockport.

The Trade liberally dealt with.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Feudrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine, and prices low.

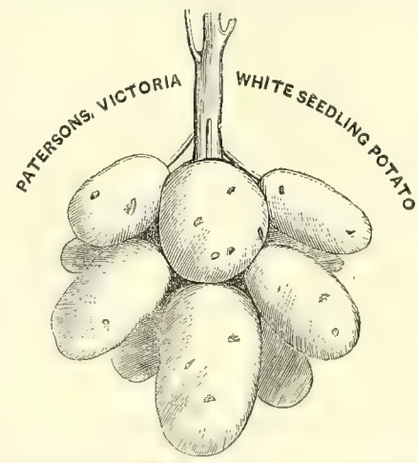
Seed Growing Establishment, Wisbech.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863:—

"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."

Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

Paterson's Victoria White Seedling Potato.



PATERSON'S NEW SEEDLING POTATOS have been tested in the grounds of (among others) the following Noblemen and Gentlemen during the past season of 1863, all of whom have pronounced their unhesitating approval of them, viz.:—

His Grace the DUKE of ARGYLL, K.T., Inverary Castle
The Right Hon. the EARL of DALHOUSIE, K.T., G.C.B., Brechin Castle
The Rt. Hon. the EARL of CAMPERDOWN, Camperdown House
The Right Hon. the EARL of SOUTHESK, Kinnaird Castle
The Right Hon. LORD KINNAIRD, K.T., Rossie Priory
Sir PETER MURRAY, Bart., Threipland, Fingask Castle
Sir JOHN S. RICHARDSON, Bart., Pitfern Castle
PETER M'LAGAN, Esq., of Pumpherston
Dr. MOORE, H.M. Royal Botanical Gardens, Dublin
PETER LAWSON & SONS, Edinburgh
THOS. HORBERRY, Esq., Ganthorpe, near Gainsborough

WM. PATERSON & SON, Fruit and Italian Warehousemen and Potato Merchants, 1, Union Street, Dundee, after many years' labour and careful culture, from the seeds (or apple) of Potatos obtained not only in Great Britain, but many parts of the globe, have succeeded in procuring entirely NEW VARIETIES of POTATOS, of various forms and colours. Of these they now confidently offer for public demand a selection, carefully arranged by their Senior (who has devoted the past 30 years chiefly to Potato Culture), of the most approved and tested varieties, which, for hardy and vigorous growth, productiveness, and the other qualities, are unequalled in the annals of Potato Culture.

Descriptive Circulars, Reports, &c., sent free by post on application to W. P. & SON, direct; or any of their Agents, viz.:—

Mr. C. TURNER	The Royal Nursery, Slough
Mr. JOHN BENNETT	Sandhill, Adlingfleet, near Goole
Mr. WM. TAYLOR	Skyme Cottage, Bromley Common, near Kent
Mr. R. P. KER	Seed Merchant, Basnett Street, Liverpool
Mr. GEO. TABER	Rivenshall, near Witham, Essex
Mr. WM. GODWIN	Market Drayton, Shropshire
Messrs. WM. DRUMMOND & SONS	Seed Merchants, Dublin
Mr. JOHN COUTTS	29. James Street, Covent Garden, London
Messrs. WM. URQUHART & SON..	Nurserymen, Dundee
Messrs. LAIRD & SINCLAIR ..	,, ,,
Messrs. J. STEWART & SONS ..	,, ,,
Mr. D. JAMES	,, ,,

THE LONDON SEED COMPANY, LIMITED, has been established under the Companies' Act of 1862, for the purpose of supplying all kinds of Seeds for the Farm and the Garden.

The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.

The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.

The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.

One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.

ALFRED BREWIN, Manager.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.

PRICED LIST on application.

PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7*s.* 6*d.* each; for Planting Out, from 3*s.* 6*d.* each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec. 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

VINES.—Fine, well-ripened, short-jointed Plants from Eyes of all the leading kinds, many of which will bear fruit this season. For names and prices of the various sizes, apply to

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.

LIST of SORTS sent on application.

INGRAM'S PROLIFIC MUSCAT, the most free bearer of all for pot culture; suitable for ordinary Vineries.
FRANKENTHAL, the best of all the Black Hamburghs.
TRUE CHAMPION HAMBURGH, the largest berry, and very fine fruit.
CHAVOUSH, new white; Fruiting Canes, 10*s.* 6*d.* to 21*s.*

Wellington Nursery, St. John's Wood, London, N.W.

Half-standard Apples.

RICHARD SMITH being overstocked, will sell in lots of not less than 50, good Trees of best sorts, and true to name, at 30*s.* per 100; also Half-standard GREEN GAGE PLUMS, very fine, at 50*s.* per 100.

RICHARD SMITH, Nurseries, Worcester.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.

RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

NEW PRIZE MELON, CLIMAX.—This superb Green-flesh MELON was raised by Mr. WEBB, of Calcot, and obtained 1st Prize at the Crystal Palace Fruit Show in 1862; never yet offered to the public; a most abundant bearer, and of exquisite flavour. Sold in packets at 2*s.* 6*d.* each. Applications as above.

Calcot Gardens, Reading.

THE VICTORIA NECTARINE.—This is undoubtedly the finest Nectarine known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861. The following is an extract from the report:—"Mr. Rivers's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive." Fruit large, often measuring 9 inches in circumference. Young trees, full of blossom buds, 10*s.* 6*d.* each.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

STRAWBERRIES, Cash price.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keens' Seedling, Oscar, Wizard of the North, 10*s.* per 1000; Alice Maude, Eliza, Prince of Wales, Sir C. Napier, Carolina Superba, Sir Harry, 1*s.* 6*d.*; Empress Eugenie, 2*s.* per 100.

RASPBERRIES, ASPARAGUS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

The "Pine Apple" Scarlet Flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

CUCUMBER.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.

A fine Collection of CUCUMBERS and MELONS at 1*s.* per packet. For List see this Paper of Jan. 30, 1864.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

Griffin's ALMA LETTUCE, true, 1*s.* per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement of Jan. 30, 1864, with the exception of General Outram Cucumber, for 3*s.*

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by
SUTTON AND SONS.
A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.
6 ft., 7 ft., and 8 ft., 3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft., 6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft., 9*l.* 9*s.* to 10*l.* 10*s.*
Elvaston Nurseries, Derby.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.
For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

Transplanted Larch,

9 TO 12 INCHES, 12 TO 18 INCHES, 18 TO 24 INCHES.
MORRISON BROTHERS, NURSERYMEN, Aberdeen, have several Hundred Thousands of each of the above sizes of TRANSPLANTED LARCH to offer, of very superior quality and moderate price; also a general stock of SEEDLING and TRANSPLANTED FOREST TREES.
Prices, with Samples if required, may be had on application.

Transplanted and Seedling Larches.

BENJAMIN REID AND CO., NURSERYMEN, Aberdeen, N.B., offer for Sale several Millions of SEEDLING and TRANSPLANTED LARCHES. They are furnished with abundant healthy roots, clean stems, and capital leaders, and being grown in friable soil in an exposed situation are well worth the attention of proprietors and the Trade. CATALOGUES Post Free.
Special Prices and free delivery for large quantities on application.

Strong 2-years Transplanted Larch.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.
CATALOGUES and Samples will be sent free on application.

FOR SALE, 30,000 LARCH, 30,000 SCOTCH, 100,000 SPRUCE, and 100,000 extra strong THORNS, all from 2 to 3 feet high; 3000 DEODARS, splendid plants, to be sold a bargain.
For prices, &c., apply to J. SCOTT, Merriott Nurseries, Somerset.

SCOTT'S FRUIT TREE CULTIVATOR, his CONIFEROUS CATALOGUE, his FLOWER GARDEN ANNUAL DIRECTORY, and his SELECT SEED CATALOGUE, ought to be in the hands of every lover of a garden. They are allowed to be the best published on these subjects, and are replete with information. Two Stamps required.

2,000,000 Transplanted Thorn Quicks for Sale.

JOHN BUCK, Melbourne, near Derby, in offering the above, begs to say that they are of superior quality, and that he will deliver any quantity free at Derby Station at the following prices:—

3 years old, transplanted	8*s.*	0*d.*	per 1000
,, strong, all selected ..	10*s.* to 12	0	,,
4 years old, very strong, suitable for filling up old fences	16	0	,,
GREEN HOLLIES, fine bushy plants with fine roots, from 16 to 20 inches .	10	0	per 100

Handsworth Nursery, near Sheffield.

FISHER, HOLMES AND CO. have to offer the following superior well-grown and good-rooted TREES, SHRUBS, &c., viz.:—
50,000 BLACK ITALIAN POPLARS, 2 to 3 ft. and 3 to 5 ft., one of the best trees for damp or wet situations.
50,000 PORTUGAL LAURELS, extra transplanted, stout and well furnished, 9 to 12 in. and 12 to 18 in.
50,000 Strong Transplanted PEAR STOCKS, good roots, mostly fit for working the first season.
6,000 ONTARIO or AMERICAN POPLARS, 5 to 6 ft. and up to 10 ft., well adapted for exposed or smoky situations, strong.
3,000 GIANT or CANADIAN ELMS, 4 to 7 ft., fine.
Several thousands each of the following, viz.
DOUBLE-FLOWERING GORSE, in pots, fine.
ENGLISH and SCOTCH LABURNUMS, strong, 5 to 8 ft.
NORWAY MAPLES, extra transplanted, 5 to 8 ft.
HORSE CHESNUTS, stout, 4 to 7 ft.
ARBUTUS UNEDO, in pots, stout and bushy, 1 to 2 ft.
CREAM and WHITE-FLOWERING BROOMS, extra transplanted.
ARBORVITÆ LOBBI, extra transplanted, well furnished fine, 3 to 4 ft.
HARDY HEATHS, of sorts, fine bushy beautiful plants.
VIRGINIAN CREEPERS, fine.
EARLY and LATE RED HONEYSUCKLES, strong.
COTONEASTER MICROPHYLLA, strong.
RIBES SANGUINEUM, Double-flowering.
WEIGELAS, Van Houtte, Stelzneri, Isolene, striata, and others, strong
ROSES, STANDARDS and HALF STANDARDS, fine named; for sorts, see our Printed List No. 12.
FRUIT TREES, extra quantity of Standard PEARS, comprising Jargonelle, Beurré Diel, Seckle, Easter Beurré, Prince Albert, Citron des Carmes, Glou Morceau, Beurré Clairgeau, Brown Beurré, Winter Bergamot, with many other good and useful kinds, 4½ to 6 ft. stems.
APPLES, Ribstone Pippin, several hundred, 4 to 6 ft. stems, strong.
PEARS, two years untrimmed, fine, suitable for pyramids.
PLUMS, Green Gage and Magnum Bonum; several hundred Standard 4½ to 5½ ft. stems.
CRABS, Scarlet-fruited Standards, fine.
FRUIT TREES, other kinds, see our Printed List, No 3.
PRICED LISTS on application.

Transplanted Forest Trees.

MARSH AND PERKINS have pleasure in offering the following, being fine and well rooted.
BEECH, 2 to 3 feet.
LARCH, 1½ to 2 feet and 2 to 3 feet.
WHITE THORN, 2 and 3 years transplanted.
SEEDLING LARCH, 1 year.
Prices on application to 42, Drapery, Northampton.

To Planters.

WFEAN begs to offer a quantity of Transplanted ASH, from 3 to 9 feet; COB NUTS; POPLARS, of sorts; LABURNUMS, ENGLISH MAPLE; also a large quantity of SPRUCE FIR, THORNS, LARCH, ARBOR-VITÆ, BERBERIS, from 2 to 4 feet. Price and sample on application.
Nurseries, Silcoates, near Wakefield, Yorkshire.

CHARLES DALY and SON will sell 2-years Transplanted THORNS, at 6*s.* per 1000; 1-year ditto, at 4*s.* per 1000; 2-years SEEDLINGS, at 2*s.* 6*d.* per 1000; PORTUGAL LAUREL, 1½ feet, at 4*s.* per 100; IRISH YEWS, 1½ feet, last year transplanted, at 12*s.* per 100; DUTCH CABBAGE SEED, our own saving, 1*s.* per lb., or 5*l.* per cwt. for cash. PRICED LISTS free on application.
Coleraine.—Feb. 6.

H. AND R. STIRZAKER can supply, of good quality,
200,000 SPRUCE FIR, strong, from 1 up to 2½ ft.
500,000 LARCH, twice transplanted, from 1½ to 2 feet
50,000 HORSE CHESNUTS, from 2 up to 10 feet
10,000 STANDARD APPLES, 2 to 3 and 3 to 4 feet stems
The above are well rooted and hardy; Prices low.
Also about 300 bushels of EARLY HANDSWORTH, ASHLEAF, and IMPROVED LEMON KIDNEY POTATOS, good stocks; Prices on application.
The Nurseries, Lancaster.

Planting Season.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.
PROTHEROE AND MORRIS most respectfully invite the Public to inspect their valuable NURSERY STOCK, extending over THIRTY ACRES, and in the finest state of cultivation, consisting of FRUIT, FOREST, and ORNAMENTAL TREES of every description and in considerable quantities; also a large and rich assortment of AMERICAN PLANTS, fine EVERGREENS, all sizes, including many Magnificent Specimens, which will give immediate effect, and from the adhesive nature of the Soil, and being continually Transplanted, incur no risk from removal.
The following include a portion of their Stock:—
These are fine bushy Plants and well set with Bloom Buds.
30,000 Rhododendrons: Scarlet, Catawbiense, Ponticum, and others
10,000 Ghent and other Azaleas
1,000 Kalmia latifolia
3,000 Andromeda floribunda
EXTRA FINE FRUIT TREES.
2000 PEACHES, NECTARINES, and APRICOTS. Dwarf-trained and very handsome.
6,000 Standard Apples of the best sorts, many of which have large fruiting heads, and will come into bearing at once.
A LARGE VARIETY of ORNAMENTAL and FOREST TREES, including
7,000 Limes, 5 to 12 feet, Laburnums, Chesnuts, Birch, Maples, Poplars, Mountain Ash, Acacias, Thorns, &c.
10,000 Fine Standard Roses, including the newest and most approved varieties, with clean straight stems, fibrous roots, and full bushy heads
2,000 Fine Double Camellias
3,000 Azalea indica, best kinds, beautifully set with bloom buds
50,000 Laurels, 1 to 10 ft.
3,000 Handsome Fan Yews, 3 to 12 ft. high, and 6 ft. wide, (Magnificent Plants).
12,000 Bushy Aucubas, 1 to 5 ft.
Green and Variegated Hollies, Box Trees, Cedrus Deodara, Cedar of Lebanon, Pinus excelsa, Hemlock Spruce, Araucaria imbricata, Picea Pinsapo, Nordmanniana, and nobilis, Cupressus Lawsoniana, Thujopsis borealis, Laurustinus, Sweet Bays, Phillyreas, Irish Yews, Privet, Arbor-vitæ, Berberis, Chinese Privet, &c.
Lists and Prices forwarded on application.
The Nurseries are accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street Stations, whence Trains leave 12 times daily to Leytonstone Station, which adjoins the Nurseries.
American Nurseries, Leytonstone, Essex.

H. LANE AND SON beg to inform their Patrons that the season is advancing, and that it is quite time intending Planters should examine our CATALOGUES. We beg permission to call their especial attention to our WELL FAMED STOCK, among which will be found great quantities of the following, viz.:—
Abies Douglasii, 3 to 12 feet
,, orientalis, 1 to 3 feet
,, taxifolia, 1 to 3 feet
Azalea indica
,, Ghent
Araucaria imbricata, 2 to 12 ft.
Cedrus Deodara, 3 to 10 feet
,, Libani, 3 to 10 feet
Cupressus Lambertiana, 3 to 6 feet
Cupressus Lawsoniana, to 3 ft.
Fruit Trees of every description
Juniperus, upright, 2 feet
,, chinensis, 1 foot
Picea grandis
,, lasiocarpa
Picea Lowii
,, nobilis, to 4 feet
,, Nordmanniana, to 4 feet
Pinus in sorts
Podocarpus
Retinispora
Roses, strong and fine, second to none
Thuja aurea
,, gigantea
,, Siberian
Thujopsis borealis
,, dolabrata
Wellingtonia, 1 to 4 feet
Yews in variety
which we can supply at most reasonable prices.
CATALOGUES may be had gratis on application at the Nurseries, Berkhampstead, Herts.

SEEDLING FOREST TREES, &c.

		s.	d.
4,000,000 1-year LARCH	..per 100,000	100	0
400,000 1-year BIRCH	per 1000	2	0
300,000 1-year ALDER	,,	1	6
300,000 1-year SYCAMORE	,,	2	0
50,000 1-year MAHONIA AQUIFOLIA ..	,,	7	0
1,000,000 2-year SPRUCE FIR	,,	1	6
500,000 3-year ,, ,, ...	,,	2	0
300,000 2-year BEDDED SPRUCE FIR ..	,,	5	0
600,000 3-year SILVER FIR	,,	5	0
50,000 4-year ,, ,, ...	,,	7	6
50,000 2-year PINUS AUSTRIACA ..	,,	6	0
300,000 3-year BEECH	,,	4	0
2,000,000 2-year ASH	,,	2	0
60,000 1-year COMMON LAUREL ..	,,	15	0
300,000 Transplanted SPRUCE FIR, 12 to 18 ins.	,,	15	0
80,000 Twice Transplanted AMERICAN ARBOR-VITÆ, 6 to 8 inches	,,	30	0

The Subscriber begs to call the attention of the Trade to the above, hoping to be favoured with their orders, which shall be executed without delay, and in the best possible manner. All delivered free of expense at Dublin.
Application to MICHAEL BURKE, Drumlargan Nurseries, Summerhill, County Meath, Ireland.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.
ELMS, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
,, HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
,, WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
,, LOMBARDY, 8 to 10, and 10 to 12 feet
,, ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
,, ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black
Huntingdon Nurseries.

Lawn Trees.

LILACS, STANDARDS and PYRAMIDS.—The following interesting varieties of LILACS are offered at 1*s.* 6*d.* each; the trees are straight and well grown:—

Gloire de Moulins	Valletiana
Triomphe d'Orleans	New Light Blue
Charles 10th	Grandiflora rubra
New Dark Red	White Siberian
Lilas de Louvain	Red Siberian

SIBERIAN TREES, Standards, 5 feet stems.

Caragana jubata (rare)	2*s.*	6*d.*	Halimodendron argenteum .. .. .. 2*s.* 6*d.*
,, frutescens	2	6	
,, arenaria ..	2	6	Ulmus microphylla
,, Chamlagu ..	2	6	pendula, a new
,, spinosa ..	2	6	small-leaved Weeping Elm 3 6
Calophaca Wolgarica	2	6	

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.
W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.
Elvaston Nurseries, Derby.

WANTED, CUTTINGS of the following sorts of VERBENAS.—Melindre's, Venus, Reine des Amazons, Firefly, Predestine, Ocean Pearl, Madame Gassier, Perle de Parterre, Hardy Freres.
Address, stating price per 100, T. S., Lutterworth.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS have a fine stock of New Seed. Also all other kinds of Agricultural Seeds at very moderate prices, as see SUTTON'S PRICED SEED LIST (gratis and post free).
Royal Berks Seed Establishment, Reading.

To Purchasers of Seeds.

SUTTON'S PRICED LIST of NEW GARDEN and FARM SEEDS and POTATOS is now ready, and will be forwarded Post free on application. Address
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Notice.

PURCHASERS of LARGE QUANTITIES FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Page's Genuine Seeds.

PAGE'S COMPLETE COLLECTIONS for GARDENS, 3*l.*, 1*l.* 10*s.*, 15*s.*
PAGE'S DEEP BLOOD-RED BEET, 9*d.* per oz.
PAGE'S EARLY DWARF CABBAGE, 6*d.* per oz.
PAGE'S GOLIAH PEAS, 1*s.* 6*d.* per quart.
PAGE'S PRODIGY (Earliest Dwarf), do., 1*s.* 6*d.* per quart.
PAGE'S CRYSTAL CELERY, 6*d.* per oz.
BLUNDELL'S CATTLE MELON, and BLUNDELL'S CATTLE MARROW, only a few Packets left, 50 Seeds, 2*s.* 6*d.*; 100 Seeds, 3*s.* 6*d.*; 150 Seeds, 5*s.*
PAGE'S SUPERB HOLLYHOCK, 2*s.* 6*d.* per packet.
PAGE'S SUPERB ANTIRRHINUM, 1*s.* per packet.

BLACK TARTARIAN OATS.—Gentlemen desirous of having a Change of Seed of the above productive Oat can be supplied by the Subscribers with a remarkably clean and heavy sample. Price furnished on application.
W. DRUMMOND & SONS, Seed Warehouse, Stirling, N.B.
N.B.—This Advertisement will not be repeated.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY
RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.
WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.
Samples and Prices post free on application.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.
CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways.
W. STORT, Sand and Peat Depôt, Reigate, Surrey.

A Very Extensive and Well-grown Stock of Roses,
CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS,
OFFERED BY
WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—s. d.
STANDARD HYBRID PERPETUALS	18s. to 24 0
HALF STANDARD ditto	15s. ,, 18 0
DWARF ditto	9s. ,, 12 0
STANDARD SUMMER ROSES	18 0
HALF ditto ditto	15 0
DWARF ditto ditto	9 0
DWARF BOURBON and TEA-SCENTED	12s. ,, 18 0
DWARF CHINA	9s. ,, 12 0
DWARF NOISETTE	9s. ,, 15 0
CLIMBING ROSES	9s. ,, 12 0
CLIMBING ROSES, without names, for covering banks, &c. per 160	30s. 4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE	5 0

Roses, New and Old.
PAUL AND SON, having still an immense stock of ROSES, are able to complete orders, both as Standards and Dwarfs, of all the best varieties.
They beg to remind intending planters that February and March are, with November, the best months for removing Roses.
PRICED LISTS on application. The NEW ROSES of 1864 will be ready in April.
"Old" Cheshunt Nurseries, Herts, N.

Mitchell's Renowned Roses.
PATRONISED BY THE ROYAL FAMILY.
JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.
(No grafted plants or any drawn up under glass, which cause the great number to fail every season).
Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

ROSES.—Fine DWARF ROSES, still on Sale. A few fine Standards of 1863 yet on hand. Prices on application.
The NEW DAHLIA CATALOGUE now ready.
All the NEW ROSES in April.
JOHN KEYNES, Nurseryman, Salisbury.

Roses.
EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.
DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Great Reduction in the Price of Roses.
BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.
CATALOGUES, with special Prices, on application to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross, N.
ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.
All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.
FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.
PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.
WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

GENUINE SEEDS.

JAMES VEITCH,

THE ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF KITCHEN GARDEN AND FLOWER SEEDS FOR 1864,

WITH A LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

IS NOW PUBLISHED, AND WILL BE FORWARDED POST FREE ON APPLICATION.

J. V. devoting his personal attention to this department of his business, can warrant his Seeds true to name, and of the most genuine description.

The CATALOGUE will be found to contain all new VEGETABLE and FLOWER SEEDS of merit in addition to those kinds in general cultivation, and includes—

PEAS.
DILLISTONE'S NEW EARLY | CARPENTER'S EXPRESS, NEW EARLY | MACLEAN'S ADVANCER, EARLY, very fine | ,, DWARF PROLIFIC | VEITCH'S PERFECTION, fine selected stock.

BROCCOLI.
WALCHEREN, fine stock | SNOW'S WINTER WHITE, True | CHAMPION (CARTER'S), New

The following are varieties which are offered after many years careful selection, and will be found very select and choice :—

VEITCH'S IMPROVED WILCOVE, fine Late White
,, SURPRISE, new, the latest variety yet in cultivation
VEITCH'S FINE EARLY WHITE, for Spring use
,, ROYAL VICTORIA, Late White

BRUSSELS SPROUTS.
Imported seed, from a very fine and true stock.
ROSEBERRY, very select | DALMENY SPROUTS, new

BEET.
DWARF DARK, very fine

CABBAGE.
DWARF and LARGE YORK, very true
ENFIELD MARKET, fine
FULHAM or BATTERSEA, very select stock
LONDON COLEWORT, fine
LITTLE PIXIE, an excellent Dwarf kind,
And other fine kinds.

CAULIFLOWER.
STADTHOLDER.—A very fine late variety
EARLY LONDON, WALCHEREN } From very select stocks
EARLY ERFURT, true

CUCUMBER.
MASTERS' PROLIFIC.—A very excellent variety. See *Gardeners' Chronicle* of October 11, 1862, page 957.

LETTUCE.
NONSUCH, COS, new | NEAPOLITAN CABBAGE, very fine

MELON.
HYBRID CASHMERE, Green flesh
MOUNSDEN'S MORETON HALL, Scarlet-flesh } Fine exhibition varieties

TURNIP.
VEITCH'S RED GLOBE, an excellent Garden variety

POTATOS.
EARLY ASHLEAF, true
VEITCH'S PROLIFIC ASHLEAF, an excellent second early kind
EARLY HANDSWORTH, very prolific
MONA'S PRIDE, new

NEW and CHOICE FLOWER SEEDS.

LOBELIA PAXTONIANA | MIMULUS MACULOSUS | RHODANTHE ATROSANGUINEA | RHODANTHE MACULATA ALBA | AMARANTHUS MELANCHOLICUS RUBER | MIMULUS CUPREUS

Imported GERMAN STOCKS and ASTERS, in collections of various kinds; for details see CATALOGUE. Also COCKSCOMBS, LARKSPURS, WALLFLOWERS, ZINNIAS, HOLLYHOCKS, &c.

J. V. would also direct attention to the following, which are of the very choicest description :—

CALCEOLARIA, choicest mixed } Saved from the best kinds in cultivation.
CINERARIA ,, }
PRIMULA SINENSIS FIMBRIATA, Red and White, saved from the best fringed flowers only.
PRIMULA KERMESINA SPLENDENS.
CELOSIA AUREA PYRAMIDALIS.
,, COCCINEA
DIANTHUS HEDDEWIGI," and varieties, both Single and Double
PANSY, both English and Belgian, from named kinds, &c.

ALL OTHER NOVELTIES OF MERIT AT ADVERTISED PRICES.



CARTER'S COLLECTIONS of GARDEN SEEDS for 1864.



FOR the convenience of those of our Customers who have not the time or inclination to make out their own selection of VEGETABLE SEEDS, we submit the undermentioned COLLECTIONS, to which we respectfully invite attention, and we confidently hope that the liberal and judicious manner in which the selections are made, will induce our Customers to favour us with their commands, also their kind recommendations to their Friends. We have bestowed great care in the arrangement of the sorts; none but what we have proved in our Trial Grounds at Dedham to be the very best of its class is included, and those varieties have been chosen that are most calculated to procure a constant SUPPLY of the best kinds of VEGETABLES all the year round.

These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

No. 1, price 10s. 6d.; No. 2, price 21s.; No. 3, price 42s.; No. 4, price 63s.

CARTER'S GARDENER'S AND FARMER'S VADE-MECUM. (Now Ready.)

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YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

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Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

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SUTTON'S LIST, containing the Sorts most worthy of Cultivation, including those to which Prizes were Awarded at the Crystal Palace and other Shows, may be had Gratis and Post free.

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B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

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WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

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AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

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DOWNIE, LAIRD, AND LAING beg to intimate that their DESCRIPTIVE CATALOGUE of FLORIST FLOWERS, New Garden and Flower Seeds, &c., for 1864, is now ready, and may be had free on application.

17, South Frederick Street, Edinburgh; and at Stanstead Park, Forest Hill, London, S.E.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

WHEELER'S LITTLE BOOK on SEEDS.

Best Seeds, Carriage Free.

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Good Seeds, Carriage Free.

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SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, can supply every kind of FARM and GARDEN SEEDS of genuine and superior quality.

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment. For particulars apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

WANTED, by the ROYAL HORTICULTURAL SOCIETY, about 100 extra sized TREES, of each of the following kinds:—

ABELE POPLAR, CANESCENS or GRÆCO,
COMMON SYCAMORE, and
TURKEY OAK.

Samples, with prices, to be sent to GEORGE EYLES, Royal Horticultural Society, South Kensington.

ROYAL HORTICULTURAL SOCIETY,
SOUTH KENSINGTON.

HEDGES and SCREEN-FENCES.

The Council of the Royal Horticultural Society being desirous of Dividing, Sheltering, and Screening-off certain parts of the Garden, invite competition from persons willing to TENDER to PLANT such Hedges or Screen-fences, and to keep the same in order during a period of two years.

CONDITIONS.

The Hedge or Screen-fence must occupy the smallest space of ground consistently with its verdure and its effectiveness as a screen.

It must be not less than 6 feet 6 inches high.

It must be either of Evergreen Plants, or covered with green foliage from May to September inclusive, Annuals being admissible if fulfilling or aiding to fulfil such conditions.

Any Trelliage, Stake-work, or Open-work Netting to support and for training the plants, must be provided by the person contracting, and kept in proper order during two years.

Persons tendering must name the mode of constructing the Screen-fence, whether it is on a raised bank or otherwise, the nature of the supports for Training, &c., and the plant or plants to be used.

Persons whose Tenders are accepted will be required to have the Fence planted and in an effectual state by the 30th of April next.

The Horticultural Society will engage to affix to the work the name of the Contractor in some conspicuous manner, but will not engage to accept the lowest or any tender.

Sealed Tenders to be sent to the Assistant Secretary on or before the 1st of March, 1864.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 6, 1864.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Feb. 9 { Royal Horticultural (Anniversary) at South Kensington .. .. 1 P.M.

IN a recent Number (p. 1131, 1863) we submitted to our readers Mr. BATEMAN'S plan for laying out the estate adjoining the new Museum at Oxford. The plan had been prepared in accordance with instructions supplied by Delegates specially chosen by the University, and had received their unanimous approval, as well as the sanction of certain high professional authorities to whom the parties in question—somewhat diffident of their own judgment—had very properly submitted it. It was moreover popular with the inhabitants of the city of Oxford itself. Nothing, therefore, remained but that Convocation should give its *imprimatur* to the recommendations of its own delegates, pass a vote for the necessary funds, and set the pickaxe and shovel merrily to work. Yet when, on the 28th of last month, the subject came on for discussion before that august and irresponsible body at whose bar the works of heretical professors, and the plans of innocent landscape-gardeners, have alike to appear, it soon became evident that the entire scheme would have to encounter a most fierce and intractable opposition on the part of certain resident members of the University, who in their zeal for muscular Christianity and athletic sports were heedless of all the charms of nature and all the refinements of art. It was in vain that such men as the Dean of Christchurch and the President of Magdalen sought to bring Convocation to a better mind, and exposed the inconsistency of first issuing and then ignoring the instructions on which the Delegates had acted from the first! It was in vain they expatiated on the advantages of a park—properly so called—to the University at large, and on the support and dignity that it would impart to the façade of the Museum, which is certainly in no condition to dispense with such aid! In vain, too, in order to propitiate the cricket interest, they pointed to the 30 acres (more than a third of their disposable space) that had been unconditionally surrendered to the votaries of that popular sport. But the Leviathan of cricket was not so tamed! Then the voice of foot-ball made itself heard, and fives-courts were loudly called for. The equestrians next laid claim to a share of the space—for hurdle-races and steeple-chases we presume; and although nothing seems to have been said about the pigeon-shooters, we can scarcely conceive that such important interests should have been entirely overlooked. Some, indeed, there were, who, true to a reactionary policy, were willing to solve all difficulties by the simple expedient of converting the park into a sheep walk. This proposition however fell to the ground, as did, by decisive majorities, the various sections of the original plan. We need not say how much we regret this strange result, nor how entirely we sympathise with the Delegates, who, naturally indignant at the manner in which their labours have been requited, now propose to resign *en masse*.

But supposing some scheme to be introduced, such as might satisfy the wild expectations of the movement party. How, we would ask, could it be carried out without utterly subverting that quietude and decorum which ought to reign in the neighbourhood of the Museum, and in the absence of which but little head-work could possibly be done? Professor PHILLIPS is not the man to be scared by trifles, but we may yet, some day, see him claiming as against these anarchs—whether old or young—of Oxford, the same protection that Parliament is about to accord to Professor BABBAGE from the hurdy-gurdies and organ-grinders of London. Failing this, we would suggest that the site of the Museum be transferred to some spot at the greatest possible distance from its own park; that the lecture-rooms of the existing building be supplied with billiard tables, and the grand central hall be at once converted into a tennis-court. The sprightly idea of the opposition would thus be realised in all its integrity, and a huge playground substituted for the contemplated park.

It is difficult to write seriously on such a topic, but nevertheless it is high time that the question be seriously put to the University as to whether Park or Playground shall carry the day. If it is to be the latter, there is an end of the Oxford of the olden time; but if, as we still venture to hope, the advocates of the former should ultimately triumph, then let it be borne in mind that no plan would deserve to be entertained that did not include (besides cricket grounds)—

1. A re-distribution of the surface to such an extent as to afford grateful variety, and ensure by means of mounds the requisite seclusion from the outer world.

2. Water to light up the picture, and afford, in the excavations that it would necessitate, materials for the mounds.

3. Groups of hardy trees and shrubs.

4. A walk carried round the boundary of the estate, and conducting to all the more remarkable spots.

5. A grand mall or promenade in connection with the central buildings.

These principles are well illustrated in the parks at Birkenhead and Derby—laid out respectively by PAXTON and LOUDON—and in common fairness to the Delegates it must be admitted that they were sufficiently regarded in the plans that they submitted—to such little purpose—to Convocation. The next move now rests with the obstructives, and we wait with much curiosity and some solicitude to see what it is that they propose to do.

IN our Paper for 1861, pp. 966 and 1091, we gave our readers an account of a new method of RAISING FUNGI FROM SPORES, which had been reported to the French Institut by M. CHEVREUIL, as practised by M. LABORDETTE. It consisted in making the spores mixed with sand germinate on slips of glass, and inserting them when quickened in beds of river sand and lime rubbish, which were then irrigated with a weak solution of saltpetre. Large Mushrooms were exhibited to the Academy, which were said to have been actually developed in this manner in six days.

There was something approaching the incredible about the matter, though it seemed to rest on good evidence. Some suspicion however arose from the fact that there was evident confusion about the distinction between the young Mushrooms and spawn, and that the published accounts did not exactly tally with each other. Further information therefore was looked for, but as far as we are aware none was given.

Dr. NYLANDER, however, at p. 307 of the "Flora" for 1863, informs us, on the authority of Monsieur TRIANA, that the whole was a myth, and that the gigantic specimens exhibited did not owe

their growth to any peculiar method of culture, but were the creatures of accident.

Dr. NYLANDER has in vain tried to coax the spores of Agaricus campestris into germination on glass, and he believes that they will not germinate till they have passed into the stomach of some graminivorous animal. This is not indeed a new idea, but it is one of some importance, as it accounts for the growth of Mushrooms without spawn from artificial mixtures of dung and other matters, as also for the wonderfully sudden appearance of the numerous deliquescent species which appear on hot-beds in a perfect state of development in from 24 to 48 hours after they have been made.

COEMANS had some time before made the same remark with respect to Pilobolus, the sporangia of which are shot out elastically and attached to neighbouring herbs, which are devoured by cows, and after passing through their stomachs, spring up like a little forest on the dung. The enormous abundance in which this little plant often appears, and the rapidity of its development, are easily accounted for on this supposition, though very difficult of explanation in any other way.

NYLANDER does not fail to point out the curious analogy which exists between the development of these Fungi and the different species of Gasterophilus (Œstrus, LINN.), or Bots, the eggs of which are subject in the stomach of the horse to a temperature of 102° Fahr. The true Œstri have a different habit, the pupæ being developed in the frontal cavities of the sheep, or under the hides of oxen and cows, where the eggs are deposited by the flies, and are subject to a degree of heat requisite for the earlier stage of their development. *M. J. B.*

—— IN every new home-produced, robust or hardy variety of fruit, of good quality, which is originated, there is a clear gain to the Pomologist in the acquisition of a superior fruit especially suited to our climate. The value of the prize may not at first be fully realised, as it often takes time to develope all the good qualities inherent in a novel variety, but if the preliminaries we have mentioned are to be satisfactorily made out, the future becomes full of promise. We have recently (p. 51) mentioned some fine NEW PEARS of Devonshire origin, but there are others also of recent date, that deserve to be better known, on account of their intrinsic merits. One of them is the BRITISH QUEEN, raised by Mr. INGRAM of Frogmore, and said to be a seedling from the Seckel crossed with the Marie Louise. This is a very fine looking Pear, and as good as it looks; it has been shown on one or two occasions, and has invariably met with approval. The fruit itself is large and pyramidal, with an undulating surface, and smooth shining golden yellow skin, here and there freckled with patches of thin cinnamon russet, and on the exposed side often acquiring a crimson flush. In flavour it resembles Marie Louise, the flesh being fine grained and melting, with a rich saccharine juice, and fine aroma. As an autumn Pear, ripe in October and November, this has few equals. Another to which we may specially refer is the AUTUMN NELIS, a variety raised by Mr. F. J. GRAHAM, of Cranford, a variety of remarkably hardy character, and so compact and short-jointed in habit, that the branches become closely set with spurs. Indeed the whole habit of the tree especially recommends it for culture as a pyramid, either out-doors or in the orchard house. The fruit is rather above medium size, obovate-turbinate in outline, almost entirely russeted on a surface which here and there shows a little patch of greenish yellow. The flesh is yellowish, fine grained, and melting, with abundance of rich aromatic sugary juice, and an exquisite flavour, which has been compared to that of the Winter Nelis. The ripening season is October. The parent tree of this variety has been in bearing for some five or six years, and proves to be most prolific. We believe this is the same as a Pear which Mr. GRAHAM exhibited before the British Pomological Society in 1858, under the name of Graham's Bergamot, when it was considered one of the most delicious of Pears, but that before being let out last year it was rechristened Autumn Nelis.

There can be no doubt that these Pears, both of which have had First-class Certificates from the Royal Horticultural Society's Fruit Committee, are, like Mr. HUYSHE's varieties, acquisitions of real merit, and as such destined along with them to occupy a prominent place amongst our hardy dessert fruits. It appears to us that the Fruit Committee would do well another year to include them in its list of prizes to be distributed on ordinary meeting days. They might be invited in the shape of pot plants grown in orchard houses, for which the Pear seems very well adapted; and if young plants were invited, all growers would compete on equal terms, the fruit being shown on the plant. It would add we think very much of interest to these meetings to adopt such a mode of familiarising the public eye with the aspect of fruits so well deserving to be generally known.

—— OF the many bulbs which may be employed for the decoration of the SPRING FLOWER GARDEN, there is perhaps none more useful than the BEDDING TULIP as it is now to be obtained. This flower is to be recommended for the showiness and brilliancy and the fair endurance of its blossoms, which in consequence of their closing up against the evil influences of adverse weather, last nearly or quite as long as the flowers of most other bulbs available for the spring garden. And it is not less estimable on account of the variety it affords, the facility of its culture, and its earliness. Within the last few years the number of varieties has been very largely increased; and if the season be at all favourable we know of no sight about London in the way of Spring Flowers more worth seeing, than the display of these bedding Tulips usually to be found in the Wellington Road Nursery of Messrs. E. G. HENDERSON & SON, and in the garden of the Royal Botanic Society in the Regent's Park.

Of course for the earliest bloom the bulbs are planted in autumn, and as a general rule this is to be preferred; but those who have failed to avail themselves of the opportunity, or who wish to avoid risk to the incipient blossoms from severe weather, and have no very ready means of protection at hand, or who are content with blossoms at a somewhat later period, may realise a very satisfactory bed by planting in the early part of January, provided the bulbs have been well kept. In the case of small gardens this may even be generally the more convenient season of the two, but its success would depend on the manner in which the roots had been kept. The plants themselves are exceedingly gay; they are hardy enough not to suffer injury from the cold of ordinary seasons; and they are amongst the easiest of all plants to manage, requiring only that the bulbs should be properly planted, and be taken up when partially ripened, and after exposure for a week or so in a dry place, stored away where damp and frost cannot reach them until the next planting time. The soil which suits them most exactly is a sandy loam, moderately enriched with thoroughly decayed cow manure, and the bulbs should be uniformly planted at a depth of about 4 or 5 inches from the surface, which may be done more beneficially by means of drills or removing the surface to the necessary depth before placing the bulbs, dropping a little dry sand about them before returning the soil, than by means of dibbles, which although easily enough regulated as to depth, leave the sides and bottom of the hole compressed, by which the rains are more readily conducted to the bulbs—a condition decidedly prejudicial if the season proves to be either cold or wet. These bedding Tulips especially recommend themselves to the notice of those who follow the parterre system of flower gardening, as they fit in exactly with the wants of the summer plants, having yielded their display, completed their growth, and commenced the ripening process to a sufficient extent for removal by the time the summer plants require to be put out.

As in all cases where varieties are multiplied, there are many which do not recommend themselves to notice except for special purposes. Indistinct or confused markings, unattractive hues, or slight differences in the shades of colours which are in themselves desirable enough, are examples of this sort; but putting these aside, there is a sufficient residuum of distinct and decided colours, successive as to flowering, which are of the greatest value in enlivening the garden in the earliest months of spring. Indeed, a constant succession of bloom may be had from the early part of April till the end of May.

The very earliest will furnish some of the brightest and most decided colours. Thus in scarlets there are such as Duc Van Thol, Vermilion Brilliant, and Waterloo; in crimsons, Cramoisie Fidèle, Couleur Cramoisie, and Couronne Pourpre; in whites, Queen Victoria, Pottebakker, and Luna; and in yellows, Canary Bird, Golden Prince, and Pottebakker. These are from 4 to 6 inches high. Somewhat later there come, of crimsons or bronze reds, Brutus, Couleur de Feu, and La Majestueuse; of violet crimsons, Duc de Luxembourg and Typhon; of orange scarlets, Couleur de Cardinale; of bronzy crimsons with yellow edge, Duc Major, Archduc d'Autriche, and Duc de Chartres; of violet purples, La Plaisante; of purples, Molière; of orange-buffs, Thomas Moore; and of rosy crimsons, Monument. Besides these there are numerous white-ground sorts variously marked with rose carmine and purple. These later sorts grow from 9 to 12 inches high, and afford a good succession to the dwarfer earliest series.

To these latter a succession may be had, by planting the double-flowered varieties, such as Rex Rubrorum and Pæony Rose amongst reds, Tournesol red and yellow, Couronne Impériale, violet-crimson and white, Yellow Rose, and Yellow Tournesol amongst yellows, and La Candeur, a white. Those who have failed to plant either in autumn or at the turn of the year, should at least make an opportunity to examine a good collection when the blooming time comes, in order to select varieties suited to their respective requirements for next season's planting.

These bedding Tulips serve admirably for mixing in beds with low-growing evergreen perennials, and are perhaps better used in this way than in any other, as their comparative deficiency of foliage is compensated for, and the flowers are thrown up better by contrast with the green surface.

LADIES' GARDENING.

AFTER the prizes offered by the proprietors of the *Gardeners' Chronicle* for the benefit of lady gardeners, it would be quite beyond female nature to abstain from attacking the subject. One feels that any tried data must be so very valuable, that I think every one who has grown any one plant well, *i. e.*, to admiration, ought forthwith to contribute her quota on the subject; and if there should be an objection to the idea of "appearing in print," I shall be but too glad to be made the channel of using any good practical details, not already too well known. For to-day, however, I have a few hints of my own to offer.

It seems to me perfectly useless for ladies to try to grow, with any hope of prize-winning, any plant that is not first proved to be capable of being grown to perfection under the special circumstances that they have to offer it. One person may, for instance, grow the most lovely Pelargoniums; but then, you perceive, she has a well-ventilated span-roof greenhouse with a south-east aspect. If her neighbour across the square were to start the same sort of plants, growing them in a window or in a north-west greenhouse, it is not very probable that they would answer by any means—any more than the Ferns and the grand Begonias thriving there, would retain their beauty if changed to the sunnier quarters.

There are a few special plants just now that people should bethink themselves of. For those who have any means, either in a greenhouse or hotbed, or with a warmed plant-case, of giving some heat to start with, I know there are many splendid things, but even without any heat there are a few that do perfectly. First and foremost of these I reckon the Japan Lilies, which flower year after year, and are most entirely beautiful. I have had them in full beauty grown in a window always, and without any heat, a thing that they do not need at all. Lilies of the Valley are quite of the same class; and I know if I were a judge I should award a prize instantaneously to a well-grown pot of such Lilies, skilfully forced or retarded. That really takes some gardening—and yet you may do the latter beautifully without heat. I have never seen any better than those forced in a plant case, so that is an evident chance for all who are using these cases.

The Vallota purpurea is another plant that does in London very well; but this again as a rule is glad to be started in heat, and unless one can manage something just to give the first start, things of this description are apt to be too late to attain full size and beauty. Tree Carnations are things that with plenty of air will thrive well. Auriculas are another kind which require no heat whatever: whose enemy is damp, and yet who can't stand sun. Ferns may be grown to perfection with or without a glass shade, taking due care as to aspect, and extreme care as to watering. Then there are the Campanulas, which cannot be better off than in a cool light window; and there are the Veronicas, which do quite equally well.

The great thing, it seems to me, that we must bear in mind, is never to begin anything with weight against it at starting—a thing we have not the right aspect for, or a thing we can't allow air enough—or, quite as much as either, plants that require heat to start with, that we can't give them. The prizes are quite open, and if one plant fails, perhaps another will win. In all the great gardens there are succession houses, where the plants are brought into bloom, or hardened, or set to grow. I don't know if every one can arrange for succession windows, but most houses have two sides at least, and it would be a great thing if they could. The north windows would then be for plants quite at rest and for Ferns; the east and west for such as were in bloom or growing fast; and the south would be for heat-loving plants coming out, and for hardening and ripening the wood of newly-grown shoots. *E. A. M.*

ORCHARD MANAGEMENT.—No. II.

IT will be seen that in my former remarks (see p. 7) much stress was laid upon the necessity of a good and efficient shelter for orchards. This, indeed, is all important, and if the attainment of it involves any sacrifice, either between employer and gardener, or landlord and tenant, it ought to be made. After that fearful and destructive gale which occurred on the 26th and 27th of May, 1860, several orchards came under my observation, and very marked indeed was the difference between the sheltered and the exposed—not in isolated, but in numerous cases. In exposed places many trees were entirely denuded of their young and tender leaves, and were consequently barren of fruit, whilst in the same orchards, the interior trees, and those on the sheltered sides, were uninjured, and bore fruit in abundance.

I have been thus strenuous in advocating the necessity for effectual shelter, because the exercise of a little forethought and research into the subject, by any one about to plant an orchard, would often prevent mistakes which no after trouble could fully rectify. Situations might also be selected where the necessary shelter might be so arranged as to become an ornamental feature of the landscape, and thus combine

ornament with utility. For let it be observed that there is no necessity for an orchard to be rectangular in shape; and supposing it to be possible to combine the planting of some high ground, within view from important points, with shelter for the orchard, a bold circular outline would be preferable to a formal straight one, under almost any circumstances. Thus a circular or irregular outline for an orchard may possibly be an advantage, rather than otherwise, but this of course is merely suggestive, and its non-adoption breaks no necessary rule of practice.

The next consideration will be that of soil and subsoil, and this is in a great measure inseparable from that of shelter, so that it will be necessary to look at them in combination, rather than as separate influences. It may be that a situation is all that could be desired, but the soil bad; on the other hand, the soil may be favourable, but the site bad. A locality which combines the two will of course be preferred and sought after; but as this combination is rarely to be met with, it becomes necessary for the operator to cast about for the means of supplying deficiencies, which should in a great measure guide his selection; and as I hold it to be the best plan of two evils to choose the least, I should prefer a thoroughly sheltered situation with an inferior soil to one with a better soil, but deficient in shelter or the means of supplying it, and this, not only because I believe external influences to have an important bearing upon the well-doing of the trees, but also because I believe that by careful management and liberal treatment, the deficiencies of soil can be the most easily supplied, and good orchards thus raised on inferior soils. All this of course implies a liberal expenditure at the outset, for the purpose of getting together a large quantity of good soil at the time of planting; but indeed, under the system of planting and management which I shall have to propose, this will have to be the case under any condition of soil.

The best soil for an orchard would be a good dark loam of a retentive and aluminous nature, rather than siliceous. Great depth is not necessary, although it is advantageous when present. The subsoil should be of a strong and retentive nature, in preference to one of sand or rock, or gravel, but at the same time, not of a character so strong and retentive as to preclude the possibility of effecting the most efficient drainage. This indeed is a matter of so much importance, that unless it can be secured it would be useless to plant, because the effects which are supposed to follow on certain modes of proceeding are entirely dependent on its thorough efficiency. Hence it might perhaps be inferred by some that it would be preferable to plant where the subsoil is naturally porous and dry, such as gravel, or rock, or sand; but I have not found this to be the case in practice, except indeed the superstratum of good soil lies very deep on a gravelly subsoil, in which case the conditions are often very highly favourable. In most cases however, such subsoils, particularly those which are composed more or less of sand, have a very shallow surface soil, which again is often very poor, requiring large additions of fertilising elements to keep the trees in good health. Moreover, if the cultivation is such that the roots must of necessity penetrate such subsoils for want of better food, the wood is apt to canker and die off; and hence it is that the vigorous and luxuriant growth, which is so necessary to the healthy and profitable development of trees which are required to stand for a vast number of years, can only be attained in an economical manner in strong loamy soils and subsoils. Not but what trees may be kept healthy and vigorous on shallow and poor soils, but then the expense is proportionately greater, thereby diminishing the profit, and still further exemplifying the necessity for very great care in selecting localities.

I may here observe, in reference to this part of my subject, that one important point to be kept in view in the cultural management of orchards should be to keep the roots as near the surface as possible, and for the furtherance of this object I place a much greater faith in superficial cultivation than in depth of soil. I therefore maintain that a great depth of surface soil is not an absolute necessity, and only so far advantageous as affording a healthy medium in which stray roots may spread and penetrate without incurring the risk of canker and dying branches. I say stray roots, because the main roots, on which the healthy development of the tree depends, must be kept near the surface by feeding them from above, and thus the inducement for them to penetrate deep in search of food is removed. Hence it is also that I maintain, that by this system of surface cultivation, orchards may be raised on soils comparatively shallow and inferior, if other necessary conditions are favourable. Although, therefore, I would not in the least undervalue the presence of a good soil in every way favourable, I would not despair of success in situations where the natural conditions might seem to be the reverse of favourable. My experience, so far as it goes, is decidedly in favour of strong lands when they are efficiently drained, but if the drainage is neglected, and the subsoil is retentive of water, the trees will go quite as fast to ruin in them as when planted in light and shallow soils on poor bottoms, and left to take their chance.

Drainage, then, will be the first thing to be attended to, when the site is fixed upon whereon to establish an orchard. I have known several orchards where this important operation was not attended to until the lapse of many years after planting, and only then adopted because the trees began to show by cankered wood, and moss and lichen-covered branches, that something was amiss below. Then drains would be opened up the centre between the rows of trees, and if this operation were well and efficiently performed, and means taken to clear the trees of rotten wood and cryptogamic vegetation, good results have followed in cases where the evil was not too far gone; but in many cases it would be too late to restore the trees by any amount of expenditure, and both money and labour might be much more profitably employed in establishing a new orchard on a better system.

I have mentioned the necessity for good and efficient drainage. Now we often learn more from mistakes than from successes, because the latter are often the result of adventitious circumstances, which we cannot understand. I have myself both made and seen others make great mistakes in the drainage of established orchards, the mistake consisting in using only pipes in the bottom of the drains, the consequence of which has been that the roots have very soon penetrated the loosened earth, and, having a natural tendency to follow after running water, have made their way into the draining pipes also, which thus have rapidly become choked up with roots. In one particular instance it took just five years to stop the drainage and restore the former condition of things.

Guided by these and similar experiences, I hold that an orchard should be drained from the outset, and that means should be adopted to obviate the possibility of the drains being choked by the roots. Now there are various ways of effecting this object. I myself advocate the employment of draining pipes in the bottom of the drains, first covering them for 18 inches, or even 2 feet, with broken stones or bricks, and then laying over these the turf sod which was taken off the top, unbroken and with the grass downwards; but I find that many practical men differ from me, and consider the stones or bricks quite enough, and the pipes a useless addition and expenditure. The expenditure I grant, but that does not affect their utility. I consider that a circulation of air forms an important part in the efficiency of drainage, and that this is best secured by a complete system of arterial pipe drainage. At the same time I am bound to allow that stone drains, without pipes, are very durable and efficient. I saw one lately which was laid through a young orchard nearly 50 years ago, and it runs as freely as when first laid in.

As stones and bricks for these purposes are not always easy to be procured, I would recommend, in places where much furnace work is going on, the use of vitrified clinkers, which make very durable and effective drains; but failing these there are yet other means, which I purpose to bring forward in my next. *John Cox.*

NEW ROSES.

NOVELTIES are always looked forward to with anticipations which may, or may not be realised. The number of these for 1864, I am told, will be far greater than those enumerated by me in a preceding article. I do not myself mean to buy many sorts, but an accumulation of those whose colours are most wanted, and which are described as large, full, of good form, and vigorous growers.

Before I mention Roses of 1864, I think that Rosarians will be safe in buying the following of 1863, or such of them as they may want, viz.:—Alfred de Rougemont, Duc de Bassano, Mrs. W. Paul, Mr. W. Paul, Lord Macaulay, Le Rhone, and, subject to hard and cracky opening, Sœur des Anges, sometimes magnificent and superior to its portrait. For growth, foliage, and resistance of blights, even amidst many mildewed and black blighted ones, La Tour de Crouy and Sœur des Anges are the best by far of the Roses (here) of 1863. The former gave no flowers from excess of growth. Its foliage is exactly like that of the Elder tree. Fourteen plants of the two sorts are now transplanted; and I have no doubt they will give greater satisfaction next year.

As regards Roses of 1864, I have decided to buy these:—*André Leroy*, figured in the January Number of the *Florist* of 1863, and highly spoken of by the Rev. H. Helyar, of Pendomer, Somerset; *La Duchesse de Morny*, light but richly shaded rose, with silvery reverse to the petals. Monsieur Eugène Verdier, its raiser, kindly sent me the portrait of it, as figured in the French Journal of Horticulture. It is a most choice and splendid one, as so figured. The painting by Maubert, and the sculpture by Debray, are most masterly. I hope they strictly followed Nature, although Squeers pronounced "Natur" to be a "rum un!" Poets and painters, however, are allowed a little licence. This puts me in mind of a gentleman, who, upon his being asked by the artist, how he would like to be taken, answered "Take me with a Roman nose; posterity will be none the wiser!" *Madame Victor Verdier*, rich brilliant rose-cerise (extra); *Eugène Verdier*, superb dark violet; *Senateur Reveil*, brilliant red crimson, shaded with dark purple (extra); *Madame Macker*, white, very slightly roseated; *Madame Ducamp*, beautiful red purple; *Rev. H. Dombrain*, brilliant carmine, a Bourbon, to which class I am not attached, excepting Malmaison and Acidalie.

This reminds me of what I have observed, viz., that many of the Roses called after distinguished people in England, of English extraction, or of English connection, are scarcely worthy of them. Some, however, of them are grand Roses, viz., Souvenir de la Reine d'Angleterre, Queen Victoria (good only on the Manetti stock), W. Griffiths, Mrs. Rivers (good only on Manetti), Lord Raglan, John Hopper, Mrs. C. Wood, Charles Lawson, General Washington, Souvenir de Leveson Gower. These are the cream. The following are good: Duchess of Norfolk, Duchess of Sutherland, George Peabody; and for pole purposes, Sir J. Paxton. All the others that I have had were either too small, not full enough, or tender and defective growers. Respectively, General Simpson, Reynolds Hole, and Thomas Rivers, and Duke of Cambridge, a very fine Rose in some hands, will illustrate this.

My hope for this year rests on the eight Roses of 1864, the octagon of my anticipations, especially the two first named. It is possible that I may be wrong; still I hope to find in these eight Roses the "remedium efficax et universum"—the true Catholicon and panacea for all griefs. I expect to hear that hundreds of the nobility, gentry, clergy, and commonalty can testify to the value of the "remedium efficax!" I hope to be able to add, "No family should be without the 'remedium efficax.'" In the mean time observe, that a reward of 50*l.* will be given to any informer on the conviction of any offender or offenders who shall try to palm off on a too credulous public a spurious imitation of my "remedium efficax et universum!" *W. F. Radclyffe, Rushton.*

Home Correspondence.

Kitchen Gardening.—I quite agree with the writer of the article at p. 75 that kitchen gardening is the department most disliked by young gardeners, and the one causing the most annoyance to the gardener. During the four years I have been in this place I have had four housekeepers to deal with, and they have had as many different wants. One of the lot liked anything and everything in the shape of a vegetable; therefore, by growing a little of all sorts, I was safe to be right. The next one soon began to remark that master did not like this, and would not eat that, which of course was very annoying, especially as it happened to be in the autumn season of the year. By making a few exchanges with my neighbours, however, I managed tolerably well, and the next year cropped accordingly. Before that year was out I had a duplicate of the last good woman. I have less than half an acre for vegetables, and the requirements are two dishes for dinner and one for lunch, without Potatos. There are eight in the family, exclusive of servants. Now, can any of your readers tell me how to crop to keep up a supply, and follow anything like a rotation? I have managed it up to the present, but not to my satisfaction; therefore any advice will be thankfully received by myself, and no doubt by others. *Wakefield.*

Iron and Glass Houses.—In answer to "L. L.'s" inquiry (p. 102), I beg to say that I have amused myself in making two iron and glass houses. I would advise him to have 1-inch iron sash bars for the uprights, strong and wide in the rabbet, and 1-inch tee bars for the roof, which allows nearly half an inch for glazing and for expansion after fitting. Let them be galvanised; if not allowed to rust, painting every year will preserve them. When zinc gets hot it easily bends and buckles. Iron houses admit plenty of light; they are extremely hot in summer, and, with air drains, warm in winter. *H. S., Muswell Lodge, Hornsey.*

Poinsettia pulcherrima.—I am glad to find that attention is being directed to this plant, for it is an extremely useful one; and having had some practice in its growth, I give you my mode of treatment, which, if followed up, will not fail to produce favourable results. The best way of propagating it is by means of single eyes taken from the hard well-ripened wood of the previous year, inserting them in very sandy peat, and plunging the pot in a brisk bottom heat on a dung bed, where they will soon root freely. Afterwards pot them off into small pots, but still keep them in the frame until they have become well established, after which place them in a stove, keeping them near the glass. From the beginning of June, however, to the end of September they should be kept in a greenhouse and afterwards replaced in the stove. Having received proper attention as regards watering, &c., up to this time, they will very soon push forth their brilliant heads of floral leaves, which will amply repay the little care that has been bestowed on them. As this plant is liable to be attacked by red spider, the under sides of the leaves must be well syringed occasionally, but after the floral heads begin to show colour syringing should cease, as the water will damage their beauty. Old plants do not produce such fine heads as young ones; I would therefore advise cultivators to propagate a few every year, although this Poinsettia may be grown so as to form nice bushes. The way to effect this is not to cut back until the plants are partially dried off, as very little bleeding will then occur. This plant is one which requires good drainage, and the soil should be equal parts light loam, peat, and leaf-mould, well mixed with Reigate sand. *John Cole McArdell.*

Wintering Roses on their own Roots.—In answer to the request of "A. B." (p. 102), I beg to say that the

best way to winter any Rose is to keep the roots dry. It is wet that gives frost power. I find that pot novelties on Manetti winter perfectly well in the baskets in which they are sent, by filling the baskets with dry leaves, and closing the tented matting around them in severe weather. About 50 plants of Mr. and Mrs. W. Paul, and John Hopper, are now so treated, and are quite healthy. Others are planted out in Cucumber frames, and strewed with dry leaves upon their roots. These also are very healthy. The frame should never be closed except in very severe weather. The former is quite as good, if not a better plan, than the last, as the plants are kept more dormant. Your Correspondent will do well to try both plans. Keep water from them in either case. The earth needs to be only moderately moist. If "A. B." leaves his plants *in loco*, he must give them a thick covering of leaves or Wheat straw over the surface. Every plant here on its own roots, or on other stocks, is so covered; and I have lost scarcely anything. Once more, keep things in winter as "dry" as you can. *W. F. Radclyffe, Rushton.*

Rainfall at Dorward's Hall, Witham, in 1863:—

	Ins.		Ins.
January	2.11	Brought forward ..	8.19
February	0.36	July	0.62
March	1.01	August	1.02
April	0.66	September	2.88
May	0.78	October	1.81
June	3.27	November	1.98
		December	0.83
	8.19	Total	17.33

Henry Dixon.

Rainfall at Dorward's Hall, Witham, for 14 *years, from* 1850 *to* 1863 *inclusive*:—

	Ins.		Ins.
1850	17.25	Brought forward	181.79
1851	19 91	1859	24.13
1852	28.49	1860	25.98
1853	23.20	1861	18.83
1854	15 48	1862	21.28
1855	20.34	1863	17.33
1856	17.76		
1857	21.76		14) 289.34
1858	14.70		
		Average per year for 14 years	20.66
	181.79		

Henry Dixon.

Renanthera coccinea.—That the flowering of this plant is somewhat rare there can be no doubt; therefore, in addition to the places named at p. 80, in which this occurrence is reported to have taken place, I may perhaps be allowed to say that it was flowered in 1845 by Mr. Sealby, Gardener to Edward R. Roberts, Esq., Fort Hill, near Barnstaple, Devonshire, and I believe either two or three times since that date. I am not exactly certain, but I have reason to believe that it was also flowered about 14 or 15 years ago, in the Mount Radford Nursery, near Exeter. Mr. Sealby considers that his plant was induced to blossom through sudden exposures to heat and cold. *J. Cole McArdell.*

Notices to the Public in English Gardens.—A few years ago I sent to this Journal a description of some gardens which I had an opportunity of visiting during my travels in China, and amongst those described was one belonged to Howqua, the great tea merchant of Canton, well known in connection with the once celebrated compound called "Howqua's mixture." In this garden there were many things well worthy of notice, and altogether it was a very pretty place. Roses, cultivated in pots and covered with flowers, were there in abundance, and this too at a time when such a thing was considered impossible by practical gardeners in England. Orange trees also were there, some of them of a goodly size, and others only a foot or two feet in height, but all equally under the control of the gardener, and loaded with delicious fruit. In England we have overcome our difficulties as regards pot Roses, and some day soon we hope to be equally successful in the culture of the Orange. Many other kinds of plants remarkable on account of the beauty of their foliage, flowers, or fruit, were also cultivated in this garden. These, with the nicely paved walks, ornamental dwarf walls, halls, summer houses, alcoves, and small lakes or fish ponds for gold and silver fish, had a very pretty appearance, and were very enjoyable. But it is to the public notice boards observed in this garden, which I described at the time, to which I wish to draw especial attention on the present occasion. Howqua, like a true English gentleman, was quite willing that those enjoyments and luxuries which he had created for himself, should, under certain restrictions, be enjoyed by the public, and it was therefore easy for any one to obtain access to his garden. The good people of Canton were not slow to avail themselves of his liberality. During high days and holidays they used to go there in great numbers, and to their credit, let me add, they were as well behaved as those crowds are who now visit our great National Garden at Kew. In these early days of which I write, the working classes in this country were looked upon as wild and mischievous in their habits, and were not considered fit to be trusted in our public gardens. If admitted at all they were watched like so many thieves, and the stoves and greenhouses were carefully kept under lock and key. The writing on the "notice" boards of those days were warnings indeed. To be given into custody, to be fined and imprisoned, or to be prosecuted with the utmost rigour of law, was to be the fate of all those who should walk on the Grass, or touch the flowers or the fruit. Now what were the garden notices like at the other end of the world at this period, amongst a people whom we are accustomed to consider barbarians and uncivilised? Howqua had up notice boards also in his garden for the guidance of the public. But he was evidently of opinion that human nature is not quite so bad as some would have us believe, that there is a chord in the lowest mind which will vibrate if it is properly struck, and that, in short, as we ourselves say, "there is honour among thieves." His garden notices were therefore very different from ours. Here is one or two of them as examples:—"In this garden the plants are intended to delight the eyes of all visitors; a great deal has been expended in planting and in keeping in order, and the garden is now beginning to yield some return. Those who come here to saunter about are earnestly prayed not to pluck the fruit or flowers, in order that the beauty of the place may be preserved. We beg persons who understand this notice to excuse it." On a Leechee tree which was growing on the side of one of the walks, and whose branches were loaded with bunches of scarlet or crimson fruit, there was the following polite notice. "Ramblers here will be excused plucking the fruit of this tree." Another notice "earnestly requests those who chew Betel Nut to spit outside the railings." The notices were all of the same character as those I have quoted; no threatening language was used, but the better part of human nature was appealed to, and certainly the appeal was not made in vain. The visitors were made to feel that they were trusted, that the garden was kept up for their enjoyment, and that they were in honour bound to respect it themselves, and to guard it from being injured in any way by the ill-disposed. This is the way they do things in China, and it is probable the practice had been in existence for a long time previous to the date of my visit to that country. I will not venture to say that the Chinese custom I have described has had any effect upon those who frame the notices which we now see in our English gardens, but a change for the better has certainly taken place since the time to which I have alluded. What are the notices to the public like, which we observe in our gardens now? Take the notice boards at Kew as an example. As we enter this noble National Garden we read something like the following—"Visitors are requested not to touch any of the plants." "As these gardens are for instruction and recreation, smoking idle sports and play are forbidden." At Battersea Park we read that "visitors are requested not to walk on the Grass on this side of the Park." And in the training schools at South Kensington there is a notice stating that, "the protection of the school property is confided to the students:" this is "By order of the Lords of the Committee of Council of Education." I might give many other examples of a like kind which I have met with in various parts of the country, but the above are sufficient to mark the change which has taken place. The examples given are perhaps not quite up to the Chinese mark for politeness, but they are probably as near as could be expected from us "outer barbarians!" These little matters, although at first sight apparently insignificant in themselves, tend to show that we have learned to form a higher opinion of the working classes than we formerly had; we have discovered that they are not quite so bad as we had supposed them to be, and that it is possible to trust them to walk in gardens, amongst trees and green Grass and flowers, under certain restrictions of a very gentle kind. And in addition to this we have also learned a little more of human nature. It is a curious thing that most persons in the world are particularly anxious to do anything which they are desired to leave alone. Tell a child he may eat of all the fruits of the garden except one—the sourest perhaps of them all—and he will not rest until he has tasted the forbidden fruit. And so it is with children of larger growth, from the time of the first gardener's wife until the present day. But there is also a better part of human nature to be worked upon—the part to which I have already alluded as being so well understood and worked upon by the Chinese. In dealing with the working classes, in so far as their admission to our gardens is concerned, two things ought to be kept in view. The better feelings of their nature ought to be called into action, and they ought not to be menaced and tempted by too stringent prohibitions. We are going upon this tack now, and apparently with the most satisfactory results. Look at the open gates of our great National Garden at Kew. See how proudly the people flock into their garden, for they feel that it is a kind of freehold which they can enjoy freely, and which they are bound in honour to protect. That they behave themselves well, and that little damage is ever done to the plants, is satisfactorily shown in Sir Wm. Hooker's reports. *Robert Fortune.*

Woollen Refuse.—In reply to Mr. Rymer's request (see p. 78), I can say that from my own experience of this material as a manure, I am led to consider it valuable for nursery and market garden requirements; where the soil is of a heavy nature, a liberal application of it will soon effect a wonderful change in its texture and temperature. On the other hand, however, where the staple is light, I think that the refuse ought to be used sparingly, and principally as a top dressing, as it decomposes much more rapidly on the surface than under the soil. My kitchen garden is one half light hazel loom, and the other half stiff heavy clay. The last named portion I found principally covered with fruit trees and bushes, and amongst the first things I did after coming here was to thoroughly drain this part of the garden, and to give it liberal applications of woollen waste; this I have continued to do at intervals of 2 or 3 years, and the soil is now as light and friable as a mole hill, and my trees and bushes grow and bear freely. For vegetables, I would not recommend it to be used alone; its slow decomposition prevents it from doing much good the first year after its application. But I find that when mixed with farm-yard dung to the extent of one-half, it is certainly one of the best manures for some purposes I have ever used. I have grown my Celery in a compost of this kind mixed with a little salt, when it is in a state of slight fermentation. I also grow my Potatos in the same mixture, with the exception of the salt, and I can say that for size and quality I have rarely seen finer; I have had many tubers of Haigh's Seedling or Lapstone Kidney weighed, and have found them from ¾ to 1½ lb. in weight, with a skin as smooth as that of the finest Apple. With regard to the effect of this material upon flowers I am unable to speak, as I have made no experiments with it on them; but the foliage of one of my Vines where I have used it freely in the border is so striking as to elicit surprise, even from a casual observer. *J. Thomson, Wortley, near Leeds.*

Spanish Vines.—I have received from a friend, an extensive cultivator of the Grape Vine in Seville, a large quantity of Vine eyes with the following names. He remarks they "are all first-class sorts," a statement which may apply to that part of the world, but I much fear that if grown in this country many of them—perhaps all—would prove "good for nothing;" and it is very vexatious to plant out worthless varieties of Vines when so many really good sorts are already in cultivation. Nevertheless one does not like to commit to the flames sorts that may deserve consideration. Can you, therefore, or any of your Grape-growing correspondents, inform me whether any of the following sorts are at all likely to be worthy of a trial, viz.:—Muscatel, Gracera, Gallegas, Abegeras, Luisis, Garenes, Bebas, Tintella, Cagalonas, Gracera Negra, Teta de Vaca, Mollares, Rabuas, Chipre Gerdo, Chipre fino, Mantuas, Mantuas de la brieno, Garias, De Rey, Curazon de Cabrito, Lubenes, Listanes, Zuracales, and Benitos. *W. S.* [The work in which we expected to find an account of these Vines says nothing about them, so we are obliged to place the letter in the hands of our readers.]

Societies.

ROYAL HORTICULTURAL: *Jan.* 29 (*Fruit Committee*).—Several prizes were awarded on this occasion, both for hardy and tender fruit. Of Adams' Pearmain Apple Mr. Spivey, Hallingbury Place, Bishop's Stortford, was the only exhibitor; but instead of the variety indicated he furnished a dish of Pearson's Plate. Mr. Spivey was also the only exhibitor in the class of Margil Apples, which, though good looking externally, on being cut open proved to be decayed in the centre. For Old Nonpareil a first prize was awarded to Mr. Snow, of Wrest Park, Beds., Mr. Spivey being second. Mr. Snow received a second prize for handsome fruit of Bergamotte Esperen Pears. The best dish of New Black Hamburgh Grapes came from Mr. Budd, gr. to the Earl of Darnley, Cobham Hall, Kent; and Mr. Pearson, gr. to Lord Foley, Worksop Manor, received the second prize. Mr. Budd's bunches were large, well coloured, and excellent. Mr. Tillery, of Welbeck, sent bunches of Black Alicante, Black Tripoli, and a seedling from Barbarossa to compare with the new Black Hamburghs. The Black Tripoli, which is the same as Frankenthal, had large berries, very fleshy, and much shrivelled; the flavour was sweet and delicious. The Black Alicante was a little but not much shrivelled, and the flavour good. The Barbarossa seedling was stated to be better in flavour than the Alicante. The Committee was of opinion that, notwithstanding the sugary flavour of the Black Tripoli, the sorts in question did not possess the fresh vinous flavour of the new Hamburghs. Mr. Fleming, of Cliveden, sent nice bunches of Barbarossa, and of Oldaker's West's St. Peter's. Mr. Sanders, gr. to Sir Henry Meux, at Theobald's Park, sent a very fine bunch of Lady Downes' Grape, which was awarded a Certificate of Commendation. Mr. Williams, Holloway, exhibited the Royal Vineyard Grape, of which we have spoken in favourable terms in former Numbers. Mr. Spivey furnished 33 varieties of Apples, all correctly named, except one called Winter Pearmain, a green Apple, which could not be identified. For this collection a Certificate of Commendation was awarded. Mr. Rivers sent specimens of Red Baldwin, Ladies' Sweeting, Jonathan, and Melon Apples, all American sorts, grown at Sawbridgeworth. The same exhibitor also sent another called Allen's Everlasting, an Irish Apple, a very late keeper, which may doubtless prove useful. Dr. Sankey, of Hanwell, exhibited a seedling kitchen Apple, accompanied by some of the same in a cooked state. The Committee was of opinion that though a good Apple, the fact of its being of a brownish colour when cooked detracted from its merit. The Rev. Mr. Alleyne, of Rickmansworth, sent three sorts of seedling Apples, and Mr. Turner, Slough, a fine large seedling kitchen Apple raised by Mr. Joy, of Roundway Park, Devizes. This last was considered sufficiently good to deserve a First-class Certificate, which was awarded it. Mr. Rivers sent Tangierine Oranges, of the excellence of which it is impossible to speak in too high terms. He also sent some specimens of the Maltese Egg Orange, which, however, were not quite ripe. Mr. John Forbes, gr. to J. C. Pickersgill, Esq., Hooley House, Coulsdon, Surrey, sent a fine dish of forced Tomatos, which were awarded a Certificate of Com-

mendation. From Mr. Budd came specimens of a variety of Beet, which has been grown at Cobham Hall for upwards of 40 years, and which never shows any disposition to degenerate or "sport." The Committee considered it to be the same, or nearly so, as the Castelnaudary.

Linnean: *Jan.* 21.—G. Bentham, Esq., President, in the chair. The following resolution, proposed by J. J. Bennett, Esq., and seconded by Dr. Hooker, was unanimously agreed to:—"That this meeting is desirous of recording at the earliest opportunity the sincere and profound regret with which it has received the announcement of the death of Dr. Francis Boott, whose name during a period of 45 years has been so intimately associated with the affairs and with the progress of the Society. That the meeting is especially desirous of giving expression to its grateful recognition of the advantages which the Society has derived from the soundness of his judgment, from his constant devotion to its best interests, and from his untiring zeal in the discharge of the duties of the several offices of Secretary, Treasurer, and Vice-President, in all of which he has deservedly won the confidence, esteem, and respect of every Fellow of the Society. That the meeting also earnestly desires to express its sincere and respectful condolence with the sorrowing partner of his affections, and to assure her of its deep and heartfelt sympathy in this her irreparable loss." It was further agreed that this resolution should be entered on the minutes of the meeting, and communicated to Mrs. Boott. Captain G. E. Bulger, Julius Haast, Esq.; W. R. Hughes, Esq.; W. Jameson, M.D.; T. C. Jerdon, Esq.; Osbert Salvin, Esq.; J. Smith, Esq.; and W. J. Hawke Spink, Esq., were elected Fellows. The following papers were read:—1. "On Cygnus Passmori, a new American Swan," by the Rev. W. Hincks. This swan was described as resembling the Trumpeter, C. buccinator, in general aspect, having like it, the beak legs and feet black, and a little cinnamon colour on the plumage of the head and upper parts of the neck, but considerably less in bulk, and having the prominence of the forehead between the eyes subangular; the weight of the bird was stated to be 18 lbs., that of a medium specimen of C. buccinator being 30 lbs. ——2. "On a new genus of Teredininæ," by Dr. E. P. Wright.——3. "On Dicellura, a new genus of insects belonging to the stirps Thysanura in the order Neuroptera," by A. H. Haliday, Esq.——4. "Description of a new species of Annelid, belonging to the family Amphinomidæ," by Dr. Baird.——5. "The Bryologia of the Survey of the 49th parallel of latitude," by W. Mitten, Esq. The author stated that comparatively little was yet known of the Moss Flora of British North America, beyond the fact that it was very nearly identical with that of the North of Europe, and, so far as known, having few peculiar species. It was, however, remarked that in herbaria a great gap exists in the almost entire absence of collections from the extensive tract of country between Davis Straits, Hudson's Bay, and Nova Scotia, and as this includes a great extent of region subject to marine influences, it must be expected to produce a very extensive series of species. After referring to the difficulty of discovering defining characters which are not exceptional—as exceptional, it would appear, amongst Mosses as in other classes of plants—Mr. Mitten observed that the mode of growth of the greater number of Mosses was very little understood. The comparison of a number of plants of the more abundant species, such as Hypnum rutabulum, shows that the habit assigned to Rhynchostegium, Eurynchium, and Scleropodium is found in that species as well, and that the stem may be rooting its whole length, or erect and arcuate, or even subdendroid, and as all these are equally fertile states, one cannot be said to be less perfect than the other. In the group Stereodon a number of aquatic species become erect in their mode of growth from, as it would appear, inability to increase in any other direction on account of the crowding of the stems. In all systematic arrangements of Mosses, the peristome has been taken as the chief distinguishing character, and genera have been formed and are maintained upon characters dependent on differences, of which the value, Mr. Mitten thinks, has been greatly over-estimated. Even the straightness or curvature of the capsule has been considered sufficient to constitute a distinct genus; and thus species become removed from the proximity of those to which in every other particular they are so intimately allied as to be in several cases almost undistinguishable. Prominent examples of this were said to occur in the Trichostomæ, in which there occurs a regular ascending series, from Pottia through Anacalypta, into Desmatodon; and as all these stages of development are occasionally found in specimens of the same species, it was argued that the conclusion seemed inevitable that the definition of a single genus should be sufficiently wide to contain them all. It was pointed out that very nearly the same position is occupied by the species of Trichostomum allied to T. flavovirens, in respect to Tortula, taking for the typical species T. tortuosa, the only difference being in the shorter teeth of the peristome, the structure being identical. The same analogies exist in the development of the peristome of the pleurocarpous Mosses, as for example, in the capsule and peristome of the so-called genera Homalothecium and Camptothecium. In the species contained in these genera the resemblance between the plants, without the fruit, is so great that it requires an expert bryologist to distinguish them from each other. The author therefore concluded that a natural group of Mosses can only be defined from the structure of the species in which the highest development is found; habit, ramification, position of the fruit, and form and substance of leaves, in the case of species which present a less development of peristome, being considered only as negative differences and of barely specific value. There would appear, he said, to be no escape from this conclusion among the acrocarpous genera; and as there is no difference in the structure of the peristome in the pleurocarpous, it must be applicable to the whole group of arthrodontoid Mosses. The bulk of the paper consisted of an enumeration of the species collected within the indicated range, and of their habitats, accompanied by descriptions of new species, and figures and dissections of sixteen of the most interesting among them.

Notices of Books.

The Philosophy of Geology. By David Page, F.R.S.E., F.G.S. W. Blackwood & Sons, Edinburgh and London, 1863. Crown 8vo, pp. 160.

The mere fact that Mr. Page's "Introductory Text-Book of Geology," and "Advanced Text-Book of Geology," have respectively attained to their fifth and third edition, abundantly proves that they are appreciated by the public, and adapted to the requirements of a large class of readers. "Debarred," as he says, "from active participation in the labours of the field," Mr. Page has employed his leisure in writing a little work on the "aim, scope, and character of geological inquiry." This work is characterised by great sobriety of view, and is especially intended for the use of the young student.

The writer treats in eloquent terms of the progress of science during the last 60 years, and especially since the establishment of the Geological Society in 1809. "So substantial," he says, "has been the progress of geology, that it now takes equal rank with the other natural sciences, attractive as an intellectual pursuit, and valuable as bearing most intimately on the operations of every-day life. Yet notwithstanding this progress, it behoves us now and then to pause, to see that we comprehend exactly the objects and limits of our inquiry, that we discriminate between the plausibilities of the possible, and the realities of the philosophically attainable. There are some spirits, impatient of research, ever prone to launch on the limitless sea of conjecture," &c.

Mr. Page thinks that there are a multitude of speculations with which the geologist has nothing whatever to do. He objects too, to the introduction of violent cataclysms to account for unusual phenomena, and maintains that geology can only take cognisance of regular laws, and argue from what is taking place around us in the present day to what has taken place in the past. "While accepting the doctrine of uniformity, the philosopher will bear in mind that we are dealing with a world, not only of mutation, but of progress. The wheels revolve at a uniform rate, but they advance at the same time, and every advance carries them forward to new conditions."

In writing of palæontology, Mr. Page deprecates "that multiplication of species which has become the clog and cumbrance of the science," and says that "no sincere worker who knows the inherent difficulties of his subject, will unnecessarily increase them by continuing this practice." There is also a disposition in the present day to push some sciences into an attitude of defiance and of dogmatism, which is utterly repugnant to the spirit of true philosophy. Mr. Page on the contrary, would have every science stand upon its own proper basis; and nobody will suspect him of disloyalty to geology, if he calmly tells us what has already been obtained in that science, and what is still matter of inquiry, and what is the limit beyond which all must ever be mere matter of conjecture and speculation.

Financial Statements. By the Right Hon. W. E. Gladstone. Murray. London, 1863. Pp. 462.

One rises from the perusal of Mr. Gladstone's speeches, deeply impressed with the wonderful power which that statesman possesses, of keeping the attention of his audience chained to his subject, and as it were enchanted, while the orator pours forth his hundred pages (for that is the exact length of the financial statement for 1853), so smoothly, that there is no perceptible hitch in any part; the figures he deals with meanwhile, are at one time so large, that only the trained mind can take in their meaning; while at another, descending to pence and fractions of a farthing, he still holds on his brilliant course, amid the silence and profound attention of the House, till at length he pleasantly remarks:—"I scarcely dare to look at the clock, reminding me, as it must, how shamelessly I have trespassed on the time of the Committee." Nobody has ever doubted the right hon. gentleman's power as a speaker, whatever may have been thought of him as a financier. The financial statement of 1853 is a wonderful production, and deserves any amount of praise. There had been a vast deal of grumbling about that perpetual incubus, that Old Man of the Sea, the income-tax. People said it was unequal in its incidence, and peculiarly unjust to professional men, and a great deal more to its disparagement, and they could not help remembering, that when Sir Robert Peel first revived the obnoxious impost, he only asked for its continuance for three years. In the financial statement of 1853, Mr. Gladstone set himself to show how much the country owed to Mr. Pitt's original income-tax; how, from 1793 to 1798, before the tax was invented, the country was getting further into debt by more than 15 millions every year. Again, when the tax was partially applied, a reduction in the increase of indebtedness immediately took place, though stupendous exertions were being made to carry on the war; and once more, when we had the tax in full force, from 1806 to 1815, the increase of the debt was only about two millions a year, notwithstanding all our difficulties, and the immense burthen of our national debt. Such was the power of the income-tax. The Chancellor of the Exchequer then eloquently commented upon the national importance of such a resource, and contended for the retention of the income-tax in all its integrity, so long as it was necessary to keep it at all. "To relinquish it," he said, "is altogether safe, and when emergencies arise, you may do as your fathers did—take down the weapon from the shelf, and make it serve you again for the ends of honour and of duty;" but he objected most strenuously to nibbling at it, which, he said, would only destroy its utility, and ultimately break it up. He warned the committee that the exemption of one man meant the extra taxation of another, and while actually admitting the injustice of the tax, maintained that a far higher injustice would be inflicted by any scheme of exemptions.

Mr. Gladstone gave, moreover, the most conclusive reasons for extending the tax to incomes between 100*l.* and 150*l.*, and at the same time made provision for its extinction altogether in 1860. The pleasing prospect raised a smile upon the faces of several honourable gentlemen of the House, and we all recollect that within two years thereafter, the tax was raised to 16*d.* in the pound to meet the exigencies of the Russian war. The whole speech is admirable.

The year 1860 witnessed the falling in of the long annuities, but that "good time coming," so long looked for, brought disappointment in its train, for the expenses of our military and naval services had increased so greatly, that we were actually in worse plight financially than before. Then came the French Treaty of Commerce, and the abortive attempt to abolish the paper duty, which however was carried the next year. Of the later speeches it is not our intention to say anything. At all events we can cordially endorse the right hon. gentleman's sentiments when he remarked, "if, as my noble friend once said, with universal applause, this country cannot bear a revolution once a year, I will venture to say in like manner that it cannot bear once a year a reconstruction of the income-tax."

Garden Memoranda.

Basing Park (*Continued from p.* 104.) — The kitchen garden is on the west side of the mansion, close to the pleasure ground. It is surrounded by good walls covered with admirably trained fruit trees, and is very productive. In the borders, espalier Apple and Pear trees are grown and trained to a wire trellis, while over the principal walk in the centre of the garden is an arched trellis covered with Apples and Pears, which has a pleasing effect, and is found to be quite as useful as it is ornamental. Against the north wall is the main range of forcing houses. It is 212 feet in length, divided into seven compartments,—one of which is a Peach house, and the rest are Vineries for forcing in succession. They are heated by hot water in the most efficient manner, so that ripe Grapes may be had at all seasons if required. The Vines were in the best of health, and as for the fruit it was perfection—noble bunches of Hamburghs, with berries like Plums, and as black as Sloes; Muscats equally fine, with the rich amber colour they always have when well grown and thoroughly ripe. Indeed, it would be difficult to find better examples of good Grape-growing than were presented to us in the Vineries here.

Behind the hothouses is a range of buildings comprising apartments for an under gardener and assistant, a fruit room, store and seed rooms, mushroom house, and sheds for holding pots, and potting, &c. The Pineries and Melon ground occupy part of a walled enclosure at the east end of the kitchen garden. They are of recent erection, and consist of four ranges of span and half-span-roofed pits, of the most approved construction as regards the perfect command of heat and moisture, and means for ventilation. Hot-water pipes are carried along one end of the entire range of pits, from which other pipes are laid along the front and back of each pit, as well as into a chamber underneath the bed in which the fruiting Pines are planted. Open troughs are also placed in this chamber, from which steam can be admitted into the pit to moisten the air when necessary; and by means of valves in the pipes the circulation of the water is easily regulated, and the temperature raised or lowered at pleasure. In one of the pits is a bed 4 feet wide, against the back wall, heated by pipes underneath, for the purpose of cultivating a few select Orchids, Ferns, Lycopods, and

similar plants that are remarkable either for their fine flowers or bautiful foliage, and now so much in request for table decoration. We consider these pits among the best that have yet been designed for the culture of Pines and Melons, and in this opinion we are confirmed by the noble specimens we saw cultivated in them of those kinds of fruits, and the healthy appearance of the young plants.

From the Pinery a broad walk, having a gay ribbon-border on each side, brings us back to the large orchard house, in front of which is a noble terrace walk ornamented on either side by fine specimens of trained Hollies, Golden Yews, Portugal Laurels, &c., and large boxes filled with Geraniums and various other showy flowering plants usually employed for such purposes. At the western end of this terrace, the main walk leads us to the Evergreen garden, situated at the southern extremity of the pleasure ground, with which it is connected by a rusticated bridge that crosses one of the approaches to the mansion. This garden is of considerable extent, and laid out in a style remarkable both for its originality and beauty. It contains a fine collection of Coniferous plants, and a variety of other hardy evergreen trees and shrubs, such as Buxus, Cotoneaster, Ilex, Berberis, &c. The walks are so arranged as to sweep in the most graceful manner in various directions, and separate the different sections of Coniferæ from one another. The undergrowth is formed of Laurels thickly planted, and kept very low, while the outline of the edge next the Grass on either side of the walks is tastefully varied and fringed with Berberries, forming altogether an excellent cover for game, and a cheerful promenade at all seasons for those who have a desire to study the peculiarities of form and appearance by which the different species of Firs may be recognised.

From the preceding account it will be evident that, in so far as productive gardens and nicely kept pleasure grounds are conducive to the comfort and enjoyment of a country residence, few places are more to be envied in these respects than Basing Park, with which the name of our esteemed friend Mr. Duncan has been for many years associated as gardener and general superintendent. For this appointment he was eminently qualified both by his active business habits and practical experience, acquired in some of the first horticultural establishments in the kingdom. We believe it is not too much to say that it was mainly through his untiring energy and skill that Basing Park attained the high position it has so long held for the variety and excellence of its horticultural productions; and to his fine taste and knowledge of the art of landscape gardening it is also indebted for much of its beautiful scenery. Like the celebrated improver Kent, "he leaped the fence, saw all nature was a garden," and with the eye of an artist marked out various parts of the domain that were susceptible of improvement, and embellished them with the hand of a master.

Nor has our energetic friend been less successful in his management of the Home Farm, which consists of 500 acres, or in his treatment of the cottages on the estate, which with only one or two exceptions have all been rebuilt or remodelled under his direction, and now form a pleasing feature in the landscape. The style is somewhat of an Elizabethan character, but not overdone with ornament, while their interior arrangement has been carefully studied with a view to comfort and convenience. But the best examples of Mr. Duncan's taste in building are the Parsonage and Almshouses, in the pretty rural village of Privett, with its little church covered with Ivy, which is within the domain, and about a mile from the mansion. The Elizabethan style is also here adopted and beautifully carried out, especially in the Parsonage, which has a very picturesque effect. It was erected at Mr. Martineau's expense, and with the garden and several acres of land presented to the parish.

In the churchyard there is a venerable Yew, which we think is well deserving notice. At 1 foot from the ground, the trunk measures 23 feet in circumference, and at 8 feet high, 21 feet 6 inches. It is not lofty, but very bushy from being crowded with small branches, nearly all of the same size and height. Near the walls enclosing the churchyard are planted specimens of Abies canadensis, A. Douglasii, and A. Pindrow, of Taxodium sempervirens, Araucaria imbricata, and Taxus baccata var. Dovastoni, together with Cypresses and similar evergreens. From this place a delightful prospect is obtained of the rich scenery of Eastern Hampshire, backed by a distant view of the tops of the South Downs; and here are deposited the remains of the late respected owner of Basing Park.

As Mr. Martineau had no family, he directed by his will that the beautiful property in which he had taken so great an interest, and in the improvement of which he had expended so much, should be sold. It was accordingly put up to auction in October last, and realised 67,000*l.*, exclusive of timber, &c., to be taken at a valuation—about twice the amount Mr. Martineau gave for it. The purchaser was John Nicholson, Esq., under whose auspices we hope Basing Park may continue to maintain the high character by which it has been so long distinguished as a country residence.

As Mr. Duncan is about leaving Basing Park, and is as active and energetic as ever, we hope he may shortly meet with a situation in which he may have an opportunity of displaying his talents.

Miscellaneous.

Pinus Peuce.—We have received from Messrs. Haage & Schmidt, of Erfurt, fine specimens of this rare Fir, which is nearly related to Strobus, and by no means to Cembra. It is the πευκη of the Greeks, and grows wild in Macedonia on the sides of Mount Peristeri, on granite soil, to an elevation of near 2000 yards, at which height, however, it becomes a scrubby gnarled tree. Gordon's account of it is a miserable mess of blunders.

The Toi, or Tahitian Chestnut, as it has been called by voyagers (Inocarpus edulis, Forst.), is one of the common trees, and when fully grown has a most venerable aspect. I still see in my mind's eye a fine group on the banks of a rivulet between Wairiki and Somo somo, diffusing a dense shade. Sixty, often 80 feet high, the Toi bears a thick crown of oblong leathery leaves, small white flowers emitting a delicious perfume and kidney-shaped fruits, which contain a kernel, resembling Chestnuts in taste. The kernel is either baked or boiled, and eaten without further preparation, or grated on the mushroom coral (fungia), and made into puddings or bread (madrai). The stem is most singular. When young it is fluted like a Grecian column; when old it has regular buttresses of projecting wood. Ferns, Orchids, and Wax-flowers frequently take up their abode on the soft bark. The roots of old trees appear above the ground, somewhat like those of the Bald Cypress of North America (Taxodium distichum, Rich.). Thousands of seedlings are continually springing up around the old plants, and nothing, save the dense shade of their parents, and the close proximity in which they grow to each other, exercise a check upon their engrossing all the adjacent ground. *Seemann's Mission to Viti.*

Calendar of Operations.

(For the ensuing week.)

Now that brighter weather may be soon expected to set in, see that all insects are removed before growth commences. Such pests as red spider are not so commonly met with in these days as they were 20 years ago, a circumstance doubtless to be attributed more to the fact of a greater degree of humidity being maintained now than formerly, than to any special receipt for its destruction having become of general application. Humidity alone is not, however, sufficient at all times to keep red spider in check; but sulphur rightly applied in conjunction with atmospheric moisture will be found a perfect cure for it. Apply it on an under pipe or on the least heated portion of a flue as thick as paint, and worked up with soft soap to make it stick. Great care must, however, be taken not to use it on any surface that is so warm as to produce inconvenience to the hand when grasping it—a simple but safe rule for the guidance of beginners.

FLOWER GARDEN AND PLANT HOUSES.

The winter has been so favourable for indoor plants generally that comparatively little fuel will have been required in conservatories or greenhouses; a slight increase of warmth may now, however, be indulged in for a couple of hours or so on sunny afternoons; but let the temperature sink at night again to 45° or 50°.

CINERARIAS.—Plants for flowering late may now be re-potted and stopped. Tie out the side shoots of such as are approaching the blooming season, and by means of frequent fumigation endeavour to keep them free from green fly.

FUCHSIAS.—Push forward autumn-struck plants; let them have sufficient pot room, and a moist growing moderately warm atmosphere. Pinch in the young shoots as often as they require it. Old plants may now be shaken out and re-potted, and put in cuttings for blooming late in the autumn.

PELARGONIUMS.—These will now be beginning to grow, and in watering them take care that the soil is well soaked down to the bottom of the pot. Tie out the side shoots as they lengthen, and stop young plants from which late bloom is expected.

VERBENAS.—Cuttings of these put in now will be found to make good plants, either for pot culture or bedding purposes.

FORCING GARDEN.

In addition to the forcing of hardy shrubs for the decoration of the Conservatory or Greenhouse, the keeping up regular supplies of Seakale, Asparagus, and Rhubarb will now require considerable attention. Owing to the changeable character of the weather, night coverings will have to be resorted to, especially in the case of pits, in which an even growing temperature must be maintained. This will diminish the amount of fire heat employed, which should be no more than is absolutely necessary. All glazed frames or pits at work must be kept washed and thoroughly clean; the importance of this in early forcing can never be overrated. Hang mats or other coverings upon rails free from dirt. Keep at all times plenty of leaves and dung well blended, and in a state of high fermentation, ready for new beds, linings, &c.; a portion should be mixed once a week at this period.

CUCUMBERS.—Keep up a temperature of about 70° at night and 75° by day, with an increase by means of sun heat of say 8° or 10°. Train and stop young shoots, and destroy red spider in the way mentioned above. Keep young plants near the glass.

MELONS.—Make a successional sowing of these for fear of disappointment. Any surplus strong plants of the early sowings may be planted in large pots or boxes, and placed in a light part of any warm house; 70° of heat, and abundance of atmospheric moisture night and day, are indispensable.

PEACH HOUSE.—Continue to make slow advances in heat on bright days. Trees in flower should have as much air as possible whenever the weather is favourable.

PINES.—Proceed steadily; if pits are at liberty, and provided with permanent bottom-heat of say 80°, it would be a good plan to shift a small portion of the plants into large pots in the expectation of their producing early fruit. Where a constant succession is required, let the final removal into the fruiting pots take place successively; no doubt this influences in a considerable degree the period of fruiting. Young stock which has thoroughly filled the pots, might also have a liberal shift, provided pit-room is at hand. With young plants an early growth, with a long summer before them, is important. In all potting, use good turfy loam, the newer and the rougher the better; when the soil is in a proper condition, water will pass through precisely where it falls without puddling the surface.

POTATOS.—Some Ash-leaved Kidneys may now be put into pots and placed in heat to bring them forward for planting out into frames and pits when the latter are ready for them.

VINES.—Proceed as before recommended; lessen the atmospheric moisture when the Vines are in blossom, and dispense altogether with syringing for a while; allow plenty of day heat with a lively circulation of air.

HARDY FRUIT AND KITCHEN GARDEN.

Nailing must now be pushed forward with vigour. Get all planting of fruit trees finished, and stake and mulch them. Remember to drain thoroughly. Nowhere is this advice more necessary than in the orchard; although Apples and Pears are fond of adhesive soils, they will never prove profitable where water is allowed to accumulate.

CAULIFLOWERS.—Get hand-glasses ready for such plants as are to be turned out of pots; enrich the stations for them, adding fresh loam also if at hand. Turn out four strong plants—one under each angle of the glass; the soil should be well soaked with liquid manure previously to their being planted.

HORSE-RADISH.—If not already done, this may now be planted; dibble in the sets or crowns in light rich soil from a foot to 15 inches deep.

RHUBARB.—Get both this and Seakale for next year's forcing planted immediately on rich ground, trenched; throw a hillock of old tan, ashes, or sand, round each crown to coax it on through the vicissitudes of the weather during this month and March.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 3, 1864, as observed at the Horticultural Gardens.

January and Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 28	18	30.120	29.884	51	35	43.0	45	44½	N.W.	.00
Friday 29	19	30.488	30.490	39	16	27.5	45	44½	N.E.	.00
Satur. 30	20	30.437	30.428	41	17	29.0	44	44½	S.W.	.00
Sunday 31	21	30.283	30.237	44	19	31.5	44½	43	N.E.	.00
Mon. 1	22	30.180	30.090	49	35	42.0	44½	43	S.	.00
Tues. 2	23	30.121	30.000	51	44	47.5	42	43	S.W.	.00
Wed. 3	24	29.995	29.977	52	28	40.0	43½	44	S.W.	.02
Average.		30.233	30.153	46.7	27.7	37.1	43.2	43.8		.02

Jan. 28—Fine in forenoon; cloudy; overcast.
— 29—Fine; very fine; overcast; cloudy; clear; sharp frost.
— 30—Frosty; hazy clouds; fine; frosty at night.
— 31—Frosty; clear; fine; frosty at night.
Feb. 1—Frosty; fine, very fine; overcast.
— 2—Densely overcast, cloudy; overcast; warm at night.
— 3—Overcast, fine with clouds; showery.
Mean temperature of the week 4·5th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending Feb. 13, 1864.

February	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7..	46·7	33.0	39.9	20	0.29 in.	2	3	4	1	5	13	7	3
Mon. 8..	45.6	32.7	39.2	20	0.47	1	4	4	2	5	14	5	3
Tues. 9..	45.2	31.8	38.5	15	0.40	1	6	4	2	2	15	5	3
Wed. 10..	44.6	29.6	37.6	14	0.52	7	7	3	2	5	10	3	1
Thurs. 11..	44.4	29.9	37.1	16	0.34	9	6	2	—	5	9	2	4
Friday 12..	44.8	29.7	37.3	15	0.26	4	7	1	—	4	11	8	3
Satur. 13..	44.1	29.6	36.8	14	0.37	3	5	5	2	5	10	6	2

The highest temperature during the above period occurred on the 14th, 1831—therm. 65 deg.; and the lowest on the 13th, 1855—therm. 0 deg.

Notices to Correspondents.

BOOKS: *R W T.* Excuse us for expressing our surprise at such trash, although printed, being sent to us for opinion. There is, at least there should be, such a thing as common sense in gardening, and although gardening cannot be conducted by common sense alone, we assure you it cannot be conducted without it. We know nothing about poultry.

NAMES OF PLANTS: *H.* 1, One of the less-divided forms of Asplenium bulbiferum; 2, Pteris hastata macrophylla; 3, Adiantum formosum; 4, Polystichum anguiare.

ROSES: *J W.* Any sudden check might cause the flower-buds of your Roses to turn yellow and never develope themselves; or the fault may lie at the root, which may be water-logged through the drainage being out of order. If the latter should be found to be the case, carefully repot them, and thin the flower buds. What remains may then come to perfection. Too dry an atmosphere is doubtless the cause of thrips attacking your Vines. Sulphur freely, and, if not in flower, give them frequent washings with the garden engine.

THE ROYAL HORTICULTURAL SOCIETY: *Woolwich.* It will be time enough to join in the clamour against the Council when its annual Report shall have been presented, which will be next week. In the meanwhile lovers of fair-play will suspend their judgment.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S LARGE YELLOW GLOBE MANGEL WURZEL. The heaviest and best sort known, price 6*d.* per lb., or 42*s.* per cwt.

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Grass Seeds for all Soils.

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THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

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MANGEL WURZEL from the best selected Stocks, supplied Carriage Free.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

J. BAILEY DENTON, M. Inst. C.E., will LECTURE on DRAINAGE.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

Professor J. MORRIS, F.G.S., will give a COURSE of LECTURES on GEOLOGY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh, will give a COURSE of LECTURES on the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, will LECTURE on CATTLE, SHEEP, PIGS, and POULTRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

JOHN THORNHILL HARRISON, of Frocester Court, near Stroud, will give a COURSE of LECTURES on DAIRY HUSBANDRY.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin, will give a COURSE of LECTURES on FARM LABOUR.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions," will LECTURE on ROTATION of CROPS.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

RICHARD GRIFFITHS WELFORD, Barrister-at-Law, will give a COURSE of LECTURES on LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER, will REOPEN on MONDAY, Feb. 8.

Applications for Admission and for further particulars may be made to the Principal, the Rev. JOHN CONSTABLE.

The Agricultural Gazette.

SATURDAY, FEBRUARY 6, 1864.

IN connection with the paper on the Malt Tax read by Mr. WILLIAMS before the London Farmers' Club last Monday, and reported in another column, we are glad to call attention to the fact that on Thursday evening an announcement was made in the House of Commons, on behalf of the Government, that on Monday a Bill will be introduced for the repeal of the tax in the case of malt used in the feeding of cattle.

FIVE hundred acres of land near Cirencester, Gloucestershire, chiefly on the calcareous stone brash of the Cotswolds, though here and there a stiff calcareous clay, surround an imposing Gothic structure, including accommodation for upwards of 100 residents. There is a house for the Principal, and laboratories, theatre, museum, class-rooms, chapel, and every other provision for the residence and professional education of agricultural students. The Institution stands in the midst of a well-cultivated district, in a healthy country, by a good market town. A clergyman presides over it—able and efficient teachers and professors are engaged in it—a disinterested and public-spirited Council, including men of the highest rank in the agricultural world, hold the final authority over it.

It is the only Institution in Great Britain professing to qualify for what is the most popular profession of the day. Agricultural students are not a very numerous class in the census returns; but they must in reality include a very large number of young men, many of whom expect to have the direction of large amounts of capital upon large farms. They come from almost every social rank. Sons of tradesmen, professional men, of farmers, landowners, and peers, all seek the knowledge and the skill by which agriculturists turn land to profitable account. It is absurd to suppose that one Institution of the kind whose help they need will suffice for all this number.

The Cirencester Agricultural College will no doubt ultimately have many prosperous rivals. Meanwhile it stands alone, and ought to be a most prosperous, as it is a most efficient educational institution.

It is not so prosperous as it ought to be. The number of students seeking instruction in its classes and on its farm is not so great as might fairly be expected. What is the cause of this? We need not, in order to explain it, re-discuss the causes to which recent changes in the professorial staff have been attributed—there is enough to account for it in the fact that confidence in any new arrangements requires years of experience for its thorough re-establishment. But of the efficiency and fitness of the Institution as a school of agriculture there cannot be a doubt. In almost everything which agricultural students seek, the College is very much superior to the private farms which the great majority of pupils still prefer. The one thing in which the arrangements of the public establishment have been hitherto their inferior, was, strange to say, the direct agricultural teaching. This, left exclusively to the farm manager, made him much the hardest worked officer of all the staff. The management of 500 acres of land was of itself enough to occupy his time—the lectures twice a day, in addition, were a labour which under such circumstances one man could not efficiently perform.

The arrangement now, as the advertisement sufficiently declares, secures the services of many separate lecturers, each well known in his own department of farm practice, and the farm manager is left to his field work and field classes exclusively. Of course such an arrangement involves a great annual increase of expenditure—it is, however, an expenditure entirely in accordance with the objects of the Institution. If the arrangements for teaching and illustrating farm practice in an Agricultural College are imperfect, it has no right to the designation it assumes. At present, besides the opportunities for general education necessary in a school to which boys as well as young men are sent, there are mathematics and surveying, chemistry and analysis, botany, geology, and veterinary surgery, all represented by separate teachers and professors. And agriculture, in a course which is completed in two years, is taught in the class room by many separate lecturers, and in the field by Mr. FLETCHER, the very efficient and accomplished farm manager.

During the coming Session, besides occasional lectures on particular branches of farm practice, several distinct courses will be delivered on live stock, labour, and law—the concluding discourses of a series, which, beginning with the cultivation of the soil, has traversed the subject of plant cultivation and the management of live stock, and ends with a discussion of the relations of master and servant, and of landlord and tenant.

Mr. FLETCHER'S field classes are another most important part of the agricultural teaching of the Institution. They are in detail what the farm is on the great scale, a daily illustration of the character of the professional education which the Royal Agricultural College gives. If these and all the other means provided for the students be diligently observed, it is impossible but that the information and the aptitude which is in the course of years acquired by mere residence on a farm must be rapidly and systematically acquired at Cirencester. Cultivation books, indicating the cropping of each field during many past years, and giving room for memoranda during a residence of two years longer, are supplied. The keeping these is made a thing of urgent importance. We have one before us as we write, and it is impossible to doubt that so full a journal of all the operations of the year, recording the circumstances under which each has been performed, and their cost, history, and result, with the illustrations thus given of the influence of soil and weather upon the management, must be both an admirable book of reference in future years, and a capital agent meanwhile in the work of a good professional education.

The extent and variety of the land around the College, its equipment with buildings and with veterinary hospital — its management on the ordinary cropping of the district, together with experimental variations on a small scale from the ordinary rules—its Cotswold flock and breed of Berkshire pigs—its adoption of steam cultivation—the means taken to teach the students in the field from day to day—the detailed journal of farm operations which they are required to keep—the general and systematic discussion of every branch of farm practice by competent lecturers—the instructions in chemistry, botany, and geology, in land surveying, in veterinary surgery—the more general education offered to those who are deficient—all these, the elements of a sound professional education, are combined in

the Royal Agricultural College, and nowhere else in Great Britain. What can hinder its success!

—— THE committee in charge of the Testimonial to Mr. FISHER HOBBS, announce the immediate close of the subscription list. Let us refer once more to the long and useful career of a public-spirited man as most worthily justifying this expression of the esteem in which Mr. FISHER HOBBS's name and services are held.

One of the original Committee of Management, from which the English Agricultural Society has sprung, and ever since upon its Council, no man has worked more earnestly or more persistently towards the splendid result which it now presents as the end of so much unselfish and patriotic effort. Subscriptions towards the Testimonial should be addressed to the Secretary of the Fund, Farmers' Club, Bridge Street, Blackfriars, London.

THE following communication has been addressed to us by the Melplaish (Dorsetshire) Agricultural Society, with a request for its publication:—

Mr. HUSSEY, of Pine Apple Farm, Netherbury, Dorset, sowed the last week in June 5 acres, with seed of his own growth, of Purple-top Swedes in a light, sandy soil. He used 2 cwt. of blood manure, with 16 loads of good farm-yard dung per acre, the land having been previously well manured by his flock having been nightly folded on it. The plant grew rapidly and was for a time very healthy, the roots being regular and of good size. About the latter part of October a disease or decay in several of the roots became visible, commencing just by the neck and gradually spreading over the whole root. This disease has now shown itself in every portion of the field, affecting roots here and there, more than one-fourth of the crop being destroyed. The Melplaish Agricultural Society desire to know of their brother farmers what is the cause of this decay. Is it from the atmosphere, soil, or any cause which science can show means of remedying?

THE NEW HIGHWAY ACT IN NORFOLK.

WE have been more fortunate in Norfolk in resisting the introduction of this "permissive" measure than most other counties. Our Suffolk neighbours, for instance, sent 90 memorials to the Quarter Sessions against the new Act, and the magistrates could only get up three in its favour, and yet by a large majority the "great unpaid" adopted it. The Waywardens when elected showed their sense of this treatment by twice adjourning for three months without transacting any business. What they have since done we don't know, but we understand that one of the proposed amendments of the Bill this session is to prevent the Waywardens from thus making the new Act a dead letter, after it has pleased the magistracy to impose it on a refractory district. But in Norfolk there is a Union so far ahead of other Unions, that it has been for years, for all purposes of the Poor Law, one great parish. This Docking Union, having therefore no silly prejudices in favour of parochial self-government, was of all others the best for the experiment to be tried in Norfolk; and as only three farmers memorialised the Quarter Sessions against the order, the new Act might be considered to have been adopted there by universal consent. With a good chairman, an excellent clerk, and a thoroughly business-like and willing Board of Waywardens, the Act started with everything in its favour. How it has worked the following extracts from a letter addressed to the ratepayers of the Mitford and Launditch Union, by John Calthorp, Esq., of Stanhoe Hall, will show:—

GENTLEMEN,—You have made a determined and I hope a successful stand against the introduction of the New Highway Act into your district. It is a most mistaken piece of legislation.

I was one of the five magistrates who signed the requisition to the Quarter Sessions for its introduction into the Docking Union, most sincerely believing at that time that it would cure a great evil, and produce all the good that we hoped for; but the result is a complete disappointment.

I may add that I not only attached my own name to the requisition, but I canvassed my brother magistrates, and (with some persuasion as to two of them) I got four other names, and then forwarded the requisition to the Clerk of the Peace.

I mention this to show my zeal at that time, and to convince you that it is not a trifle that induces me now to denounce a measure which I then thought so highly of.

We elected as our chairman, Mr. Blyth, of Sussex farm, one of the most energetic, influential, and practical men, who spares neither time nor exertion in promoting its success.

No district can possibly select a better, and very few can hope to select one so good; but with this very great advantage, the working of the Act produces the greatest dissatisfaction. The increase of expense will, I fear, be very heavy, and to the clergy it will be unfairly oppressive.

The surveyor of this district has 37 parishes; most of the work must necessarily be done by the day, and as the farmers are not likely to furnish him with their best men, he is obliged to put up with such as he can get. And how is it possible for any surveyor, however diligent, to superintend labourers of such a description in 37 parishes? If three or four surveyers were appointed they could not properly do it.

It may be argued that Mr. Calthorp's conclusions are premature. It takes some little time to prove the utter impossibility of certain things. The Norfolk farmers knew very well that no one Surveyor could ever hope to superintend 300 or 400 miles of roads, yet it needed that this unfairly worked official should ride a horse or two to death before such excellent magistrates as Mr. Calthorp and Mr. Blyth could discover its impossibility. If the unfortunate Surveyor were blown through the district by the Pneumatic Dispatch Company, he could hardly do his duty. Unless the Waywardens will condescend to become the foremen of the District Surveyor, the Act can never be cheaply worked, or (as we apprehend there are not many Wardens who would act under the orders of a Surveyor, any more than there are guardians who would obey the nod of their relieving officer), there must of necessity be a class of sub-surveyors or contractors and a body of skilled labourers always employed on the roads. What will be the expense of this system time alone will prove. As we have good roads in Norfolk with 2*d.* or 3*d.* surveyor's rates, we hope the experiment will be tried elsewhere before it is inflicted on our county. Mr. Calthorp not only finds fault with the new measure, but tells the Docking ratepayers how they may mend the old Highway Act. His advice is:—

"I would suggest that you should petition to return to the old Act, 5 & 6 William IV., with an additional clause, appointing a surveyor over each district with a salary of 20*l.* or 25*l.* per year, whose only duty should be to examine into any complaint that might be made to him, and to take proceedings before the local magistrates, against any road which might really be out of repair. It is repugnant to the feelings of country gentlemen to act as informers; but, if an inspecting surveyor be appointed with that duty, the farmers would soon put their roads into good condition, in order to save the useless and discreditable expense of an information."

A clause of this sort, if added to the old Highway Act, would render it well nigh perfect. How many of our modern Acts of Parliament would be worse than useless if there was not some public officer to enforce them? "What is everybody's business is nobody's;" and we know that farmers, quite as much as country gentlemen, dislike to act as informers, though they have often more cause to complain of bad bye-roads than the gentry, who very seldom use them. *East Norfolk.*

To the above we add the following letter from Mr. Hastings, of Longham Hall, to the *Norwich Mercury.*

"I feel that the thanks of the ratepayers are due to Mr. Calthorp for his letter which appeared in your paper of last Saturday, on [the subject of the 'New Highway Act.'

"After having been an advocate for its introduction, few men would have had the moral courage to make such a gratuitous public avowal of the mistake into which he has fallen, as Mr. Calthorp has so generously done. By saying that he is now induced 'to denounce a measure which he then thought highly of,' Mr. Calthorp clearly means that he would not have others suffer from the error into which he, in conjunction with others, has been led.

"If the 'New Highway Act' cannot be made to work advantageously in the Docking Union, where it appears that Mr. Blyth has given so much personal attention to it, and where he has had the co operation of so many of the ratepayers, it is quite certain what the result would be if tested in other parts of the county.

"The honourable member for West Norfolk, when seconding the noble Lord Sondes' proposition for rescinding the provisional order for the adoption of the Act in Mitford and Launditch, said that he thought the Government had it in view to make some amendments. Surely, instead of this, it would be better to abolish the new Act altogether. Although, in my opinion, the old Act is quite sufficient, there can be no objection to Mr. Calthorp's suggestion of employing a Surveyor. The roads are in a rapidly progressive state of improvement, the repairing of them is now much better understood, and I may confidently affirm that there is a perfect willingness on the part of the ratepayers generally to do whatever is necessary in order to render them all that can be reasonably expected." *John Hastings, Longham Hall, Norfolk, Jan.* 19, 1864.

The following letter to Mr. Calthorp appeared in last Monday's *Mark Lane Express*:—

"Mr. J. Calthorp states he is a magistrate—I am a tenant farmer; but my experience in road-making has been very considerable, commencing when 'statute duty' was required to be done under 34 Geo. III., c. 74, which was repealed by the 5 & 6 Will. IV., and a great improvement effected by the abolition of the statute duty, and substituting a money payment; but it left the appointment of the parish surveyor from year to year much as before. Now, I take it, the recent Act is intended still further to improve the former system, and, if fairly carried out, will no doubt be an improvement, although it may not be perfect in all its details. I have watched its working in this county (Salop) during the last nine months, and, as a ratepayer, am perfectly satisfied, for notwithstanding the extra charges of salaries to a clerk, surveyor, &c, my payments are reduced and the roads improved. Mr. Calthorp, on the other hand, is much disappointed, and from a zealous promoter is now become an opponent of the measure. What the peculiar circumstances of the 'Docking Union' may be I know not; but Mr. Calthorp's letter rather shows mismanagement by the local authorities than any deficiency in the Act itself. He says they have appointed a surveyor over 37 parishes; but that two or three could not do the work. If so, how can the waywardens and ratepayers expect the duty to be properly performed by one individual? Again, he says, great part of the work must necessarily be done by the day. This is quite contrary to what it ought to be, and to our practice in Shropshire. Most of the work executed under our surveyor is contract, or, as we call it, task-work. The idle habits Mr. C. speaks of, are induced by the day-work system. He also says the farmer will not part with his best men. Why should he The best farm labourer is seldom the best roadmaker. I am aware the prejudice existing has been very strong in many minds; but I feel sure it must eventually give way whenever the new Act is fairly and properly tried.

"I enclose my card, which Mr. Calthorp is welcome to; but prefer subscribing myself *An Old Parish Surveyor, Jan.* 27, 1864

THE DEVON BREED OF CATTLE.

(*Continued from p.* 109.)

[The following is the continuation of the lecture before the Royal Agricultural College given last December by Captain J. T. Davy, Editor of the "Devon Herd Book."]

Marks of the Pure-bred Devon.—Judging from the rude state of agriculture until, we will say, within the last 200 years, it is just possible that our ancestors were not so fastidious about the colour of the nose as we have since become, and did not object to breed from an animal with a "black muzzle." They simply required their cattle for beef, and even that was principally consumed in their own immediate neighbourhood. Owing to the difficulty of transit, and the non-existence of exhibitions up to the beginning of the present century, they were hardly aware of the value of their native breed.

A black, or even a spotty nose, is very much disliked, and a calf so marked is never kept by the best breeders. Now, the wild cattle in Chillingham Park are of a creamy white colour with black muzzles; may not the appearance at rare intervals of these black muzzles, and also of the white, of which I have already spoken, be additional proofs, if any be wanting, that the Devons were originally descended from the wild cattle which were native to these islands?

The outline of a fat Devon very nearly approaches a parallelogram; angular bony projections are, I am happy to say, never found among the best bred ones, but their frame is level from the tops of the shoulders to the tail. The belly is longitudinally straight, and well filled out at the flanks, which should easily be found by the unbent fingers; the breast is wide, and comes out prominently between the fore legs, extending down to within 2 or 3 inches of the knee joint, and towards the udder in rolls of fat. The neck is rather long and thin, increasing towards the shoulder, which is tapered off to meet it, where the neck vein forms a sort of collar in front of the shoulder, connecting the fat of the shoulder with the fat of the breast. In the fore-quarters the Devon excels all breeds, by the shoulders being placed so obliquely that there is no hollow behind them, but the part is well filled out with good flesh and fat; preserving an unbroken line, and promoting a uniform covering of fat throughout every part, commencing at the rump, over the pin bone, edge of the loins, ribs, shoulders, and on to the neck, without patch or excess of any kind. Devon breeders think nothing can compensate for upright shoulders, which are sure to produce a hollowness behind them, and a consequent loss of flesh and fat, besides diminishing the capacity of the chest and width of the breast. In breeding it is most important to get animals with shoulders placed obliquely, for it is found in practice to be much more difficult, and to require a longer time to correct the fore than the hind-quarters; yet how often do we find men who are supposed to be judges disregarding, or at least not observing, faulty fore-quarters. It is a remarkable fact in the form of the best Devons, that their shoulders are so placed and packed that they can, like a similarly formed horse, go up and down our hills (which, as is generally known, are very steep and rugged) with much greater facility than what are called the "large Devons." This well-adapted form, combined with a similar fitness to the climate and pasturage, has secured to the breed the possession of the whole northern division of Devonshire, as instanced by the fact that no other breed of cattle is seen at any of the northern fairs. The covering over the shoulder blades is nearly as full as the ribs, which should project at right angles to the back, preserve the barrel shape, and be broad and deep. The loin is wide and flat, projecting in a line with the pin bone, and is well covered, not only on the top but also on the edge of the bone. The pin bones must not project to break the even line. The rump is long and well filled out, and the tail, set on level, falls perpendicularly from the line of the back. The buttock is moderately full, tapering towards the hock, with a sufficiency of lean flesh, but not too much, for if animals are too heavy here, they are apt to be deficient on the sides, back, and rump.

Formerly the Devons were very much used for working, up to the age of five years, when they were fattened. Latterly, ox labour having been found unequal to the demands of a new system of husbandry, is therefore almost discarded. The question then arises, one of the causes for which Devons were formerly so much sought after having nearly ceased, what are their merits as graziers compared with other breeds; considering they do not make such great weights. My answer is, for feeding purposes they possess every qualification; they will fatten at an early age (their offal is very light), will carry more beef in the most valuable parts than almost any other breed, and may be made quite fit for the butcher at from two to three years old. Mr. Robert Smith, who has had very great experience, and was most successful in breeding and feeding Shorthorns and Leicester sheep in Rutlandshire, as the number and value of the prizes he has gained will show, as well as the large prices his cattle and sheep fetched, but who has resided in the lower part of Somerset for the last 14 or 15 years, during which he has had ample opportunities of seeing a great deal both of the Devons in Somerset and Devonshire, not being what is considered a "Devon breeder," with his experience with various breeds, may justly be considered to give a truthful and unprejudiced opinion Speaking of the Devons, he says:—"As converters of vegetable into animal food—breed against breed, they are found to return as much per acre, or for weight of food consumed, as any other breed." From observation I can most truly endorse this opinion. The most profitable size of animals is a subject on which all breeders like to dilate, and on which we find a great difference of opinion amongst men whose judgment and experience entitle them to great respect, their favourites of course being the only animals fit to be bred and fed, and so forth.

What is meant by a Gold Medal Beast?—Why! that animal which approaches nearest to the form and quality of a North Devon; and if these animals were only placed on useless long legs, they would be no longer designated "little Devons." In speaking of size it must be understood that it is the length, depth, and width, and not the height of a beast which constitutes size; nothing can be more objectionable to the eyesight than a tall overgrown animal without proportionate depth and thickness, and, to use a homely phrase, with too much daylight under his belly. Whilst admitting that Devons do not attain to the great weight which some breeds do, and knowing animals possess no magical power of producing beef but out of the food which they consume, I contend that if the herbage of any given numbers of acres were to be consumed by Devons, although I believe it would take a greater number to consume it, they would produce in the aggregate as much beef as any other breed; indeed, there would be a greater weight of the most valuable beef, of that which sells for the highest price;

at the same time there would be less offal and coarse pieces, which is the reason why the Devons and Scotch cattle command the best prices in Smithfield. On this subject Mr. Robert Smith says, "They (the Devons) sell first in the mornings, and at a higher rate, and why? Because they carry more roasting 9*d.* than 6*d.* boiling beef." I was very much struck in 1862 at the Smithfield Cattle Show, at seeing nearly every one of the Devons sold on the first public day, and chiefly to London butchers, a circumstance of which the larger breeds could not boast, and as far as I and a friend could discover from hearing the prices at which a great many animals were sold, they fetched quite 2*s.* or 2*s.* 6*d.* per score more than the Short-horns, so that a Devon weighing only 64 score lb. sold at 15*s.* a score would realise 10*s.* more than an animal of the larger breed weighing 76 score at 12*s.* 6*d.* a score. Common sense teaches us that it would require a larger quantity of food to produce 76 score than 64 score weight of beef. Two animals may be of the same weight but not of the same value, arising from a difference in the quality of the meat, and from the one carrying a greater preponderance of the most valuable beef over the coarse meat and offal; whilst the other has a much larger quantity of the latter in proportion to the former. The reason why the Devons find so ready a sale is because they rarely if ever disappoint the butcher, and the beef with which they are loaded in those parts commanding the highest prices is so beautifully veined and marbled and eagerly sought after. It is certain that animals which will thrive in cold bleak districts and on ordinary pasture cannot fail to flourish in more favoured situations. Every day observation and experience teach us they will thrive in a rigorous climate, for the larger portion of their native home is, I should say, from 900 to 1200 feet above the sea level, and will and do prosper in any part of England. Thus I have fairly proved my statement that they possess every qualification as graziers, and fully confirm Mr. Robert Smith's opinion as to their making as good a return per acre as any other breed.

It has been asked why Devon bulls do not fetch those fabulous prices which we hear recorded of the Short-horns. The answer is plain; they have not become so fashionable, and until lately were not taken up by noblemen and the large landed proprietors. A few years ago his late Royal Highness the Prince Consort established a herd of Devons; and they have for many years been warmly supported by the late and present Earls Fortescue, the late and present Earls of Leicester and Lord Portman, and I am glad to say the last volume of the Herd Book contains a great many new names of noblemen and gentlemen in different parts of England and Ireland, clearly proving they only want to be known to be valued. But for some years, until within a comparatively recent period, the majority of the principal Devon breeders were tenant farmers, who could not afford to give each other those almost fabulous prices. This is also the reason why many of our breeders do not exhibit so often at the large cattle shows; for on the one hand they do not like the risk of making their best animals barren by the system of over-feeding which is now necessary to be successful, and on the other hand they dislike the expense of such costly training. When looking at a superior animal I have heard the owner reply, on being asked why he did not show it, "She is too valuable to show, I will not run the risk," *i. e.*, of making her barren, and to a certain extent creating disease in her internal organs and inflicting injury to her constitution by the necessary subsequent reduction to a normal state.

(To be concluded next week.)

PORTABLE FARM RAILWAYS.

[At a recent meeting of the Maidstone Farmers' Club Mr. Grant read an interesting paper on this subject, from which we make the following extracts.]

In 1854, letters patent were granted to Mr. Crosskill, of Beverley, for "improvements in the construction of portable railways." Since then, a great many sets of Mr. Crosskill's manufacture have been sold. Of those used in England some have been employed with very great advantage in getting root crops off wet land. Others have been employed in conveying manure, lime, &c., over wet land. It was about two years and a quarter ago when the idea of a portable railway first entered my head, being forced upon me by the difficulty I found in clearing my root crops off, and getting my manure on, my wet fields. I did not then know that such a thing as a portable railway existed anywhere. The rails and trucks which I exhibited at the Battersea Show had never been worked, and were with difficulty completed in time for exhibition. In November following I performed my first work, partly by manual and partly by horse power. It consisted in carrying out dung over a piece of Hop garden, which could only be reached by crossing over another intervening piece. The saving of damage to the ground, particularly to the intervening pieces, was so immense, and the work altogether so successfully performed, that I issued circulars to farmers and others in the neighbourhood, and the editors of the local press, to witness my next operations of getting off my root crops and manuring a field. The work on the whole showed a profit, when the damage which carting would have inflicted upon the soil, in the then wet state of the ground, is taken into account. I soon after cleared off 468 tons of stone lying scattered over a piece of woodland, which Mr. Rayfield recently grubbed, on the further side of his Hop garden at Tovil. I carried them across the Hop garden by manual power, a distance of a quarter of a mile, without a frost, but without injury to the ground, and at a much cheaper rate than carting, to the great satisfaction of Mr. Rayfield, who well knows that the stones must have remained where they were till this winter, had I not moved them, and so enabled him to grow, as I believe he did, a good crop of Potatos on his fresh ground. My trucks next assisted in emptying a great quantity of mud out of the large pond in Mr. Whatman's park, where a great many men with planks and barrows were simultaneously employed at the same work. Nothing could be plainer to a looker on than the immense superiority of the rails and trucks over the planks and barrows, both as regards economy and despatch. The rails were next laid across a meadow to some clay pits, a distance of about a quarter of a mile, where carts would not have been allowed to pass, on account of the damage they would have inflicted, but must have gone upwards of a mile round by the road, which passed over a steep hill; but both distance and hill were avoided by the rails. A large quantity of clay having been thus obtained for repairing the pond, the rails and trucks were next employed in carrying out about 2000 cubic yards of the mud on to a much higher level entirely by manual power, and laying it in small lumps over the Grass land of the park, at convenient distances apart for spreading, after the manner of ordinary field carting. Mr. Whatman directed his horses and carts to work one whole day against the rails, with the view of testing the difference of expense, which was most carefully noted, and was found to be 1½*d.* per load in favour of the rails. The chief advantage to Mr. Whatman, however, was not the saving of expense, but the preservation of the turf. The rails were next employed in carrying out 160 cubic yards of manure over Mr. Dawson's Hop garden, at Bearsted, after the Hops were poled. This work was expeditiously performed by two men only without injury to the bine or the soil, at the moderate charge of 4*d.* per cubic yard. The rails were next employed by Mr. Punnett, at Chart Sutton, in carrying out 300 cubic yards of dung for Turnips, over a 15-acre field, at a time when, from the wet state of the weather, it would have been impracticable to have carted it on the land at all. Having performed the various works I have described satisfactorily to my employers, I took half-a-mile of rails, a number of trucks, and the four men of Kent who beat the horses at up-hill work in Mr. Whatman's park, with me to the Royal Agricultural Society's Show at Worcester, and exerted myself most strenuously, but in vain, to obtain a working trial before the Society.

[The Report by the Society's judges, very favourable to Mr. Grant's invention, was then quoted.]

In reply to a question in the Worcester report, whether my system is not rather a substitute for the barrow than the cart, I appeal to the amount of work done to the displacement of carts both before and since the Worcester Show; and my best answer to the second query, respecting horse-traction, is the fact that the identical rails and trucks which suggested the doubt have, since their return from Worcester, been almost incessantly at work by horse-power. They went straight from Worcester to the Earl of Romney's park, where they remained idle until the end of August, on account of the difficulty of getting men during harvest. They were then employed in carrying out earth by contract over the Grass land, and were worked so successfully by horse-power as to yield me a profit, and also to earn a testimonial from his lordship's agent that the removal of upwards of 1500 yards of earth in the Mote Park proved very satisfactory, and at much less cost to Lord Romney than if the earth had been carted wholly by horses in the usual way.

From the Mote Park the tackle was conveyed to the Kent County Lunatic Asylum, where it was also employed by contract in conveying 550 solid cubic yards of earth a distance of half-a-mile, over arable and meadow land, for the purpose of forming a mound in one of the airing courts of the patients. A small nag horse, worth about 8*l.*, altogether too weak for carting, drew from two to three cubic yards of loose earth up hill, and trotted back with the empty train at the rate of about eight miles an hour. In this instance, at least, I had the satisfaction of finding that time saved is money earned; for, when the work was finished, I found myself the richer by a clear profit of 8*l.* (the value of the horse employed), after paying all expenses, and allowing for wear and tear. By means of the rails, this work was performed at a time when it could not have been done at all by ordinary carting, in consequence of the hard road being broken up by drainage works in progress. From the Asylum the tackle was at once removed to the College Hop gardens, where it is still at work, and has already carried out upwards of 900 cubic yards of earth and mixed dung and earth, up hill, by horse-power, an average distance of nearly half a mile, the coat applied being 30 loads to the acre. I hope that the story of the work done has not wearied you, and that it has convinced you that the employers of the rails have in every instance derived more or less advantage from their use. The wages of the men employed—3*s.* a day—will, I think, bear comparison with the average earnings of farm labourers in this or any other district.

In the course of his address Mr. Grant exhibited one or two recent improvements effected in laying down the rails, and explained the system of laying down the rails, and the simplicity of connecting the various lengths.

A cordial vote of thanks was given to him at the close of his address. *Abridged from the Maidstone Journal.*

IMPROVEMENT OF AGRICULTURAL PLANTS.

The improvement of Cereals is at present attracting the attention of the public. At the recent Birmingham and Midland Counties Exhibition there were 57 samples of grain, and from the interest which they excited the samples are likely to increase next show. Were bundles of ears to accompany the seeds of each variety, the interest of the exhibition would be greater, but this and other improvements will no doubt result from experience.

Fat animals, large vegetables, and fine grains have their respective admirers; and attending such an exhibition affords a good opportunity of extending the knowledge and refining the taste of individuals.

The improvement of Cereals has also lately been discussed in many of our agricultural publications. In that instructive work, "Morton's New Farmer's Almanac for 1864," there is an article on the improvement of plants, either written by Professor Buckman, or some person entertaining the same sentiments. But, instead of being an unbiassed exposition of the modes of agricultural plant-improving, it may justly be regarded as an advertisement of "Hallett's Pedigree Nursery Wheat," and in this respect so hurtful to the progress of agriculture that an attempt to counteract the effects of the article becomes a duty.

Two modes of improvement are noticed—namely, selecting new varieties, and cultivating the best sort already known in the best artificial manner for a number of years.

The selecting of new varieties is noticed, and dismissed in the following short sentence:—"Keep a sharp look out, and when you see in any natural sort or variety the qualities you want, take care of the plant, and multiply it as fast as you can."

In many plants growing in a state of nature, and in all crops of the farm propagated by seeds, new varieties from time to time appear, being often found to be inferior, but also sometimes superior, to the sorts which had been sown, and generally reproduce themselves, but sometimes they are inconstant and completely broken up as varieties. Such plants arise from causes which have not been fully explained; but that they are found, and with care continue to exist, is fully admitted. In this way arose Chidham Wheat, with its heavy, transparent, and beautiful grain, having been selected by Mr. Poslethwaite, of Chidham, Essex, about forty years ago; and Shirreff's Bearded White, which is in no respect inferior to Chidham, is a very recent selection.

The writer considers the second mode of plant-improving at considerable length in something like the following terms:—Select the best sort, and cultivate it in the best manner. Year by year its excellences will increase and become fixed, for there is such a thing as inherited properties in plants as well as in animals. The term "ennobling" has been applied to the process by which flowers and vegetables have been derived from their natural originals. Although there is no history of the progress on record, yet there is history enough on the one side, and analogy enough on the other, to justify the expectation of improving the grains by adopting similar means. It is out of a history and an idea of this kind that Mr. Hallett justifies the term "pedigree," by which he designates the kind of Wheat which he has so industriously advertised of late, and in which we confidently believe.

The danger of reasoning at random from analogy is well illustrated by the effects of castration on some of our domestic animals, the horns of oxen being lengthened and the horns of sheep being shortened by the operation. But it is still more dangerous to reason analogically from the animals to the plants of the farm. There being male and female sexes with animals, the farmer can alter the character of his stock by the selection of breeders. Cereals are hermaphrodite with sexes in the same flower, where their union cannot be controlled. In the breeding of animals the farmer's interference is reasonable and beneficial; but in breeding Cereals it is unnatural, and seldom successful.

There is no reasonable foundation for believing that plants improve from year to year from the effects of cultivation, neither the field nor garden furnishing examples of such change. In the article under consideration it is stated that "we have no actual history of the progress on record;" and, in the absence of history and all tangible evidence the truth of the system is made to rest entirely on "Hallett's Pedigree Nursery Wheat," which, it will be afterwards shown, exists only in name.

Nursery Red Wheat is well known for fine quality of grain, and having been selected as the best of its class to undergo the year by year process of improvement by the fostering hand of Mr. Hallett, he sends it out altered and ennobled under the name of "Hallett's Pedigree Nursery Wheat." This alleged new variety created much disappointment; and instead of the grain being an improvement on Nursery, the sample proved coarse and inferior. This character rests on satisfactory evidence. At the end of last harvest five parcels of Wheat were forwarded by a correspondent to the Editor of the *Agricultural Gazette* for his inspection and opinion. The following is the Editor's account slightly abridged:—"Shirreff's Bearded White.—Very beautiful white Wheat; as good as can be, short-berried, plump, and white. Australian Wheat.—Very good white Wheat; larger berried, horny in appearance. Pringle's Bearded White.—Very beautiful white Wheat, larger and longer berried, horny. Shirreff's Bearded Red.—Good large berried; fine red Wheat. Hallett's Pedigree.—A sample of large and coarse red Wheat." The Editor's opinion was corroborated by the awards at the Birmingham and Midland Counties' Exhibition, where in the class of red Wheats Shirreff's Bearded obtained the first prize, Nursery the second, and Hallett's Pedigree the third.

As bearing on the plants of the former, the following is extracted from the paper recently read before the

Society of Arts by Mr. J. Chalmers Morton, on Agricultural Progress, one of the most interesting and suggestive essays connected with agriculture which has lately appeared:—"Again, we owe our better crops to the selection and adoption of the better sorts of the plants in cultivation. I do not suppose that individual sorts have improved on our hands. Probably, as a general rule, they have deteriorated. But new sorts are being perpetually introduced; and of Wheat, Barley and Oats, Mangel Wurzel, Swedes, Turnips and Potatos, Cabbages and Vetches, a man can grow as good as any, I think probably better, than any that his predecessors have known."

Of the six varieties of Wheat which have been mentioned by name in this communication, the three bearded sorts have recently been selected and raised from single ears, which places the system of improvement of Cereals by selection immeasurably above the year by year mode of progress, which can only lay claim to the doubtful Hallett's Pedigree Nursery Wheat.

What is really the sort of Wheat which has been grown in the neighbourhood of Brighton, and sold by Mr. Hallett? By his own account Nursery was selected, and has been improved by skill and attention into what he has been pleased to call Hallett's Pedigree Nursery—a Wheat which has little or no resemblance to true Nursery. The ear of Nursery is rather close set with white chaff, which stands on the notches at an acute angle with the axis, while the ear of Hallett's is rather wide set, the chaff cream coloured, and often standing at a less acute angle. The grain of Nursery is long, narrow, oval, and small, glossy, smooth, and fine, while the grain of Hallett's is large, wrinkled, and coarse. Mr. Pawlett long since publicly stated that he could see no difference between Quentin's Giant and Hallett's Wheat, and Mr. Mechi at that time seemed to incline to the same opinion. Wheat growers in one of the midland counties, with high powers of observation and ample opportunity of judging, informed me that they can see no difference between Kessingland, Quentin's and Hallett's. After having grown these three sorts contiguous, in the summer of 1863, making sure that each was true to its name, and carefully comparing them at different stages, I have been unable to discover any difference, and believe them to be one and the same variety.

Mr. Hallett's perseverance and ingenuity in calling attention to his Wheat has been not a little remarkable. At our recent International Exhibition he had cases of large ears, and such might have been obtained from other sorts by thin seeding, and he had also plants with immense stools, "showing the vital energy of the seed," and the jurors, fortunately for themselves, passed over both unnoticed. Then followed leading articles in newspapers praising the man and his system of plant improving, and high sounding advertisements, without much meaning. And more lately, Wheat families differing in degrees of improvement, and distinguished by letters of the alphabet. Still, his Wheat is inferior to the true Nursery.

Farmers generally travel slowly the road of improvement, the slightest disappointment creating a pause; and anything like imposition produces a dogged stand-still which too often lasts for life. It is in this way that an over-praised plant injuriously affects the progress of agriculture. The farmer, having been once deceived, avoids new plants in future to his own and the country's loss.

Should Mr. Morton ever be induced to revise his admirable essay, "Progress of Agriculture; its Helps and Hindrances," he would do well to notice amongst the hindrances the frauds of the seed trade, which have been long and severely felt in many distinct departments. Fowler's [qy. Fuller's] Cow Cabbage fraud, memorable in modern times, will merit particular notice, and there are recent ones not likely to prove less injurious. *Patrick Shirreff, Haddington.*

Home Correspondence.

The Consumption of Farm Produce by Farmers.—The importance of this subject will ere long force itself upon the serious consideration of the agricultural public, and ultimately of the Legislature. The quantity of grain consumed as food for stock throughout the kingdom is enormous. It is now estimated to comprise nearly one-third of the entire bulk grown in the country, and supposing Indian Corn and rice to be substituted for home-grown corn, it would fully equal one-third of the actual produce of our farms. Moreover the grain thus consumed is almost always the inferior qualities, particularly those sorts which have received injury from becoming stained or sprouted, and the lean grown and tailing samples. These, if they fail to bring a good price in the market, are ground up for meal for cattle, sheep, and pigs. Now in the present position of the artificial food markets, and the known adulterations which all are subject to, there can no better system be found than to substitute good meal for adulterated cake, or other like cattle food. The practice is widely extending. It is nearly universal in this country. Cake of various kinds, and other advertised foods have had an immense sale thus far, but farmers begin to see that they can grow both cheaper and better food at home in the form of Barley, Beans, Peas, Oats, and Wheat, &c., and they have also learned the right application of them. Few cattle are now fatted in the winter without corn or meal in addition, or in lieu of cake. Sheep have their daily rations of corn or chaff; horses, of course, have Oats in abundance; pigs consume large quantities of Barley or inferior Wheat meal; hence this immense consumption of grain as food for the stock of the farm. This is quite right in itself, and profitable to the farmer, but it also militates against him in some respects; for instance, none of this inferior produce finds its way to market except as meat, or in the animal frame; it does not as grain, consequently it is not returned in the average of "Corn returns." Now as this vast quantity of inferior corn is left out of calculation in the average of corn returns, it is manifest that the prices returned are much higher than they would have been had they been included. This of course fixes or rules the averages at a higher rate by which our rents and tithes, *i. e.* rent-charge, are assessed and paid, which of course again is a direct injustice to the occupier. He ought not to be called upon to pay his rent or tithe rent-charge at a higher valuation than his farm will give, but as he only sells his best qualities of grain, and consumes his inferior qualities, he pays the rate the best qualities alone give, which is wrong. He ought to be permitted to make a return to the corn-returning officer of corn consumed upon the farm at its proper value. This would bring the averages right to what they actually ought to be. The *Agricultural Gazette* has often advocated a scale of farm accounts whereby all the grain grown on the farm and consumed thereon, would be shown as being sold to the stock of the farm. It should be so done, and the returns be given in to the proper inspector. It is not lawful to do it under existing regulations. The returns now come from certain towns having the privilege of "making corn returns," whereby the averages are made up and settled. It is by no means the average prices of the whole country; however these towns would give it near enough were all qualities included, and if all farmers residing in the neighbourhood of these towns were permitted to make their farm consumption returns to the returning officers of these towns respectively. There is therefore no absolute necessity to increase further the number of towns for taking such returns; the present arrangement would do. It is an undoubted fact that corn and corn-meal is becoming a staple article of food for stock throughout the country, and its consumption is vastly on the increase. Another session of Parliament, therefore, should not be allowed to close without a strenuous effort being made to include farmers' returns in the averages, as by so doing the difference would be very considerable, probably from 15*l.* to 25*l.* per cent. This is worth the most earnest consideration on the part of the farmer, who would thereby find his corn-rent and his tithe rent-charge reduced in that proportion. Farmers are, of all classes, slowest to discern and act upon these things. *O. F.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Feb.* 3.—Present, Lord Feversham, President in the chair. The Earl of Powis, Lord Chesham, Lord Eversley, Lord Tredegar. Lord Walsingham, Major-General the Hon. A. N. Hood, Sir A. K. Macdonald, Bart.; Sir Watkin Wynn, Bart., M.P.; Mr. Acland, Mr. Raymond Barker, Mr. Barnett, Mr. Bramston, M.P.; Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Exall, Mr. Brandreth Gibbs, Mr. Hamond, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Hudson, Colonel Kingscote, M.P.; Mr. Lawes, Mr. Lawrence, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Robert Smith, Mr. Torr, Mr. Wallis, Mr. Burch Western, Professor Simonds, and Dr. Voelcker.

The following New Members are elected:—

Aldridge, John, 17, Cadogan Place, London, S.W.
Anderson, James, Jun., Hedley Hall, Gateshead
Angus, John, Whitefield, Morpeth
Biggs, John, Cublington, Leighton Buzzard
Bolam, Harry G., Keverstone, Staindrop, Durham
Browell, Edmund J. J., East Boldon, Gateshead
Browne, Samuel, Brockton, Shiffnal, Salop
Burn, William, Broomhill, Acklington
Burnard, Charles F., Compton Villa, Plymouth
Burrell, John, 3, High Swinburne Place, Newcastle-upon-Tyne
Butler, George Cooper, Stanford Place, Faringdon
Cargey, Gilbert, Kiplin, Catterick, York
Cobb, Frederick, Walton, Warwick
Chittenden, James, Hope All Saints, New Romney
Chittenden, John, Newchurch, New Romney
Denton, J. Bailey, Stevenage, Hertford
Garraway, Edward, Norcott Farm, Wonersh, Guildford
Gibbs, Thomas, Sawndby, Retford
Grey, Charles G., Dilston, Corbridge-on-Tyne
Griffith, John, Jun., Trevorgan, Cardigan
Hawdon, William W., Walkerfield, Staindrop, Durham
Headlam, Rt. Hon. Thomas E., Gilmonby Hall, Barnard Castle
Hedley, Thomas, Cox Lodge, Newcastle-on-Tyne
Hesketh, Sir Thomas George, Bart., M.P., Rufford Hall, Ormskirk, Lancaster
Hett, John, Gainford, Darlington
Hodgson, John Geo., North Dene, Gateshead
Hodgson, R. W., North Dene, Gateshead
Housman, John, M.D., Newcastle-upon-Tyne
Howsin, Daniel, Flintham, Newark, Notts
Hunter, Patrick, Roden, Wellington, Salop
Langdale, Sampson, Newton Red House, Morpeth
Laverack, Samuel, Chapel Haddlesey, Selby, York
Loesch, Heinrich, Cammerswaldan, Hirschberg, Prussia
Loxley, John Dingley, Charlton, Pershore
Marshall, Rev. Charles, Ripley Court, Ripley, Surrey
Mather, William, Hemscott Hill, Morpeth
Morgan, Matthew, North Bondgate, Bishop Auckland
Morrison, Charles, Basildon Park, Reading
Neale, Charles, New Field, Newark
Newton, Thomas H. G., Barrell's Park, Birmingham
Nicholson, William, 4, Sussex Square, Hyde Park, W.
Page, William, jun., Southminster, Maldon
Peck, Edmund, Plas-y-Dinas, Shrewsbury
Phillips, Richard, Brockton Grange, Shiffnal
Plumptre, Charles J., Pedding House, Sandwich
Polwarth, Lord, Mertown House, St. Boswell's, N.B.
Purrott, Charles, 8, Park Street, Croydon, S.
Richardson, John, Alnwick
Robertson, John J. E., The Naish Farm, Christchurch, Hants
Robotham, Ambrose, The Oak Farm, Drayton Bassett, Tamworth
Sharpe, Wm. Barling, Baker's Cross, Cranbrook, Kent
Smith, John, The Hundred, Romsey, Hants
Smith, William, Chimhams, Farningham, Dartford
Smith, William W., Colwood Park, Cuckfield
Stephens, George, Cropthorne, Pershore
Stephenson, Hugh, Throckley House, Newcastle-upon-Tyne
Still, Henry, Chelsham, Croydon, S.
Stott, John, Bothal Barns, Morpeth
Surtees, Wm. Edward, Tainfield House, Taunton
Thomson, Wm. Cunningham, Dilston Haugh, Corbridge, Northumberland
Ware, Rev. Chas. Astwood, Newport Pagnel
Waters, Richard, Broughton, Stockbridge, Southampton

FINANCES.—The Hon. General Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past two months had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on January 31 was 1467*l.* 12*s.* 6*d.* The balance-sheet for the quarter ended December 31, 1863, and the statement of subscriptions and arrears, were laid on the table, the amount of arrears then due being 574*l.* Sixty-nine members have given notice during the past year of their withdrawal from the Society. The sum of 2000*l.* received from Newcastle has been placed on deposit with the Society's bankers.

DISCUSSIONS.—Mr. Holland, M.P., announced that Mr. Lawes would read a paper on Wednesday, the 17th inst., on Salt used as a Manure.

NEWCASTLE MEETING.—The Earl of Powis announced that a Prize List amounting to 410*l.*, and including premiums for Galloway Cattle, Border, Leicester, and Herdwick Sheep; Hunters, Roadsters, Ponies, and Agricultural Horses; Wool, and Butter, had been received. The Council ordered these additions to the Society's Stock Prize Sheet, which may now be obtained complete of the Secretary.

The Committee further reported that an ample supply of the best forage had been secured by Mr. Jacob Wilson. They recommended that the same amount of shedding be ordered as at Leeds. This report was adopted.

Mr. Brandreth Gibbs having moved that in future, after the Council has decided at what city or town the country meeting shall be held, the usual agreement shall not be signed until the stewards of implements or some one authorised by the Council shall have finally inspected and definitely selected the fields to be used for the trials of implements; and that the decision of the Council (at its May meeting) as to the place for the country meeting shall be considered as subject to the above being satisfactorily arranged, it was seconded by Mr. Fisher Hobbs, and carried unanimously.

Mr. Robert Smith moved for a Committee to consider the subject of "dates of calving" for the cattle classes, and was seconded by Mr. Hudson; the motion having been carried, the following committee were appointed. The President, Lord Tredegar, the Hon. Major-General Hood, Mr. Barnett, Mr. Clayden, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P., Mr. Hudson, Mr. Randall, Mr. Sanday, Mr. Torr, Mr. Turner, Professor Simonds, and Mr. Robert Smith.

A letter from the Secretary to the Treasury relative to a collection of sheep for his Highness the Viceroy of Egypt having been read, the Council appointed the President, the Hon. General Hood, and Mr. Holland, M.P., a committee for carrying out the necessary arrangements.

The Council then adjourned.

A Special Council was then held by order of the President, when his lordship having announced the gracious intention of his Royal Highness the Prince of Wales to become a Governor of the Society, over which the lamented Prince Consort had presided with so much ability, his Royal Highness was elected by acclamation.

SOCIETY OF ARTS: *Effects of Smoke on Vegetation.*—Dr. Voelcker lately read a Paper on Smoke and its Effects, before the Society of Arts; and the following is a passage from his lecture which especially interests the agricultural reader:—

"Wheat, Barley, Grass, or Clover, exposed to a smoky atmosphere at an early stage of their growth, are visibly affected in a short time. The tops of these plants turn first red, then yellow, and finally white, and an effect is produced not unlike that caused by frost or excessive drought. Corn crops affected in this manner by smoke may recover to a certain extent, but they never yield well, inasmuch as the development of the plants becomes irregular, and the corn ripens unequally. If cereals are attacked by smoke when in flower, the ears do not fill well, and the grain is of a poor quality.

"Grass and Clover, more or less discoloured or

bleached and damaged by smoke, are disliked by cattle, and often rejected by them altogether. Smoke deteriorates the quality and diminishes the quantity of Grass and Clover crops. Plants with strongly developed leaves, for instance, Mangels, Swedes, Turnips, and other green crops, are less liable to suffer injury from a smoky atmosphere.

"Fruit and ornamental trees, on the other hand, are readily affected by such an atmosphere. The leaves turn yellow, brown, and finally black, and then drop. If the leaves are destroyed two or three years in succession the trees become sickly, and finally die off. Fruit-trees in blossom attacked by smoke yield no fruit, or but a poor sickly crop.

"During the combustion of coal much sulphurous acid is generated, which is carried away by the smoke of the fire. The injurious effects of smoke on vegetation are evidently due to sulphurous acid, a gas which, according to experiments made many years ago by Turner and Christison, causes the leaves of plants to drop when it is present in air merely in the proportion of 1–10,000dth part.

"Recently experiments on the effects of air containing small quantities of sulphurous acid upon vegetation have been made in Germany, by my friend Prof. Stöckhard of Tharand. Young Fir trees exposed twice or three times, for two hours, to air containing only 1–20,000dth, or even 1–80,000dth of sulphurous acid gas, were completely bleached in wet weather, and killed when they were exposed for a longer time to air containing so small a quantity of sulphurous acid.

"In dry weather a much larger quantity of this acid may be present in the air without doing any injury to plants. It is in wet weather that air containing only traces of sulphurous acid is injurious to vegetation. In localities where much coal of inferior quality, generally rich in iron pyrites, is burned, the injury done to vegetation by the sulphurous acid proceeding from such coal may often be seen at a distance of from one to two miles from the place where the smoke is generated.

"Farmers residing in a neighbourhood where brick-kilns and potteries abound, frequently sustain much more injury than they are themselves aware. The quantity of sulphurous acid emanating from open brick-kilns is very considerable, and there cannot be any doubt that, in certain localities, the air is poisoned with sulphurous acid gas to an extent which prevents the healthy growth of Wheat, Barley, or Oats, so that good crops are rarely seen in such localities, and blighted ones are quite the rule.

"By a recent Act of Parliament provision is made for the effectual condensation of muriatic acid gas in alkali works; but, as far as I know, there is no law which prevents brickmakers throwing into the air any quantity of sulphurous acid which they choose, although it is more pernicious to vegetation than even muriatic acid gas. I have had many opportunities of becoming practically acquainted with the injurious effects which a smoky atmosphere produces on our cereal crops, and regard a strong deposition of soot on Wheat and other corn crops quite a sufficient evidence of the more or less complete injury which the crops must have suffered by the sulphurous acid always present in the air in districts where such sooty deposits are seen on plants. The disadvantages of carrying on agricultural pursuits in the Potteries, or in districts where volumes of black smoke discharge enormous quantities of sulphurous acid into the air, are well-known amongst the more intelligent and enterprising farmers. This fact explains to a certain extent the backward condition of agriculture in such localities, and loudly calls for a mitigation of the evils to which farmers are exposed who have the misfortune to occupy land in the immediate neighbourhood of large manufacturing towns, or in localities where immense quantities of inferior coal are consumed by brick and tilemakers and manufacturers of earthen and stoneware, &c. Again, in districts where copper-ore, consisting for the greater part of the sulphurets of copper or iron, are the raw materials from which copper-smelters extract the metal, enormous quantities of sulphurous acid are discharged into the atmosphere.

"The injury done to vegetation by the smoke from copper-works has been traced beyond a distance of 4 miles. It is true that smoke from copper works generally contains appreciable quantities of arsenic, which of course is inimical to the health of plants; but as the arsenical fumes are insignificant in quantity in relation to the large amount of sulphurous acid which is produced in roasting copper ores, and as air containing 1–40,000dth or even 1–800,000dth part of sulphurous acid gas is decidedly injurious to vegetation in wet weather, I think the sulphurous acid of copper smoke does more mischief to the crops in the neighbourhood of the works than the arsenical compounds of the smoke. Just as little as alkali-makers are permitted to discharge muriatic acid into the air, copper-smelters should be allowed to discharge into the air the enormous quantities of sulphurous acid which is produced in roasting certain copper ores. It may perhaps not be possible to condense sulphurous acid so perfectly or as readily as muriatic acid gas, and probably the arrangements for the condensation of the latter will be found altogether inappropriate to effect the condensation of the latter, but attempts to mitigate the evil resulting to vegetation by sulphurous acid fumes should be seriously undertaken.

"It has occurred to me that the sulphurous acid fumes of copper-works might, perhaps, be converted economically into sulphuric acid, or be used for the production of sulphite or hyposulphite of soda; and I do not consider it improbable that one of these days this highly injurious product will cease to be a nuisance to the inhabitants of the country round about the works, and be turned to good economical account.

"As regards the actual quantities of sulphurous acid gas contained in the smoke of brick kilns, we possess no data for our guidance. The quality of the coal used, the construction of the kiln, and the composition of the clay of which the bricks are made, must affect to a great extent the proportion of sulphurous acid in the smoke. Thus a coal, with a high per centage of sulphur, but containing also much mineral matter on burning, may produce less sulphurous acid than another kind of coal, poorer in sulphur and in mineral matter, inasmuch as the greater portion of the sulphur is fixed by the mineral portion of some coals. Again, if the clay contains magnesia or lime, or is purposely mixed with chalk, most of the sulphur of the coal will be fixed by the magnesia or lime.

"The brick-makers in the neighbourhood of London, who use with the clay a considerable proportion of chalk, therefore produce a smoke which contains but very little sulphurous acid, whilst in districts where fire-bricks, tiles, &c., are largely manufactured from clay that does not contain lime or magnesia, or merely insignificant quantities, the air becomes charged with sulphurous acid to an extent which injuriously affects the vegetation for miles round the brick-clamps or kilns."

SCOTTISH METEOROLOGICAL.—At the recent half-yearly general meeting of this Society, Mr. MILNE HOME read the report, which stated that the total number of stations in Scotland which at present sent up monthly schedules to the Society's office was 72. Stations had been formed at Jerusalem and Damascus. Two prizes—one of 10*l.* and the other of 20*l.*—had been offered by the Marquis of Tweeddale for a series of trustworthy observations on the temperature of drained and undrained soil on mountain pasture and on arable land. Two reports of observations carried on for a year had been received by the Council in competition for the prizes, but no decision had yet been given. Another prize of 21*l.*, or a piece of plate of that value, had been offered for the best essay explaining on scientific principles the popular signs or prognostics of the weather collected by Dr. Mitchell, a member of the Council, and published a few months ago.

Sir JOHN FORBES then gave an address on "The Progress of Meteorological Science since the Formation of the Society." He began by noticing recent investigations into the phenomena of the temperature of the air, by the ten aërial voyages of Glaisher and Coxwell, which had proved that the temperature in ascending did not follow a uniform rate of reduction. He also noticed the extraordinary fact that, although the region of moisture did not extend more than two or three miles above the earth, the cirrus clouds at five miles appeared to float as high as ever above them. The ingenious weather charts of Mr. Galton, in his Meteorographica, were explained, as well as the "bulletin" and map with signs, explaining the phenomena communicated daily to Paris by telegram from about 60 stations. He went on to characterise the results of digests of meteorological observations by Glaisher, Symons, and Eaton in various parts of the country, embracing barometric pressure, wind, and rainfall; and then proceeded to touch upon the practical objects which might be subserved by an increased acquaintance with the relations these phenomena had to the statistics of life and health, and the industrial interests of commerce and agriculture. On the subject of agriculture, great regret was expressed that, while its interests as providing for the food of the people, and its liability to damage from bad weather, were admitted at all hands, and Government did so much to provide at the public expense a staff for making information available, not the slightest notice had been taken of this great interest. So careless had they been, that although above two millions sterling had been lent to be invested in drainage, no provision was made for even getting returns of the actual benefits derived by the borrowers; and though the agriculturists themselves came forward to procure information which the Government gave a small sum to collect and publish, even that, on a slight misunderstanding with the Highland Society, had been discontinued, and no effort had been made to re-establish it in any other form. It was earnestly to be hoped that the great benefits of such statistics, not only as a branch of trade, but as embracing the results of the effect of different kinds of seasons, and the test of the advantage of peculiar systems of management, would soon be restored to Scotland. There was no doubt that the same staff of enumerators could easily be reorganised upon fair terms of remuneration, and the simple way to effect its proper working was to put it under the management of the Registrar-General, to whose department it seemed properly to belong. Such a scheme, if influentially pressed upon the Government, from all parts of Scotland, would, he had no doubt, be carried out. In utilising meteorology, by applying it to practical agriculture, no one has shown so much energy, liberality, and judgment as our noble President (the Marquis of Tweeddale). His numerous and valuable premiums have been arranged, not according to fancy, or for popular clap-trap subjects of superficial inquiry, but to throw light upon great questions by well-defined and carefully reported experiments. They have already produced most valuable information, and promise still farther additions to our knowledge on these subjects.

Farmers' Clubs.

LONDON: *Feb.* 1.—*The Malt Tax.*—At the first monthly meeting of this session, Mr. Williams, of Bayden, introduced this subject in an able paper, of which we give the following abridgment.

Mr. WILLIAMS said: In the observations I intend making, I shall confine myself to three points, namely: the hardships the tax inflicts on the working population; the injustice it causes to the occupier of the soil; and the injury the public generally sustain by an augmented price of our national beverage, and in all probability of the animal food they consume. You are all doubtless aware that Sir Fitzroy Kelly has written to the late Chairman of our Club, for all the information that we can give him respecting the result of feeding cattle, sheep, horses, &c., on malt. There is no doubt that, as far as these experiments have gone, they show that it is of the greatest importance to the public at large; and it must not be forgotten that the Chancellor of the Exchequer told the deputation that waited upon him in April last, that if we could produce beef and mutton 1*d.* per lb. less than at present by feeding on malt, that would weigh very much with the Government in favour of its repeal. But, except so far as regards the injustice of this measure in these days of "Free Trade," as it is called, to the British farmer—I look upon this last division of the subject as quite unimportant in comparison with the other two, inasmuch as with the public it is a matter of taxation only, while in the case of the British farmer it is a rank piece of injustice; and as regards the labourer and artisan, it doubly affects them, morally and physically, or in other words, both in body and soul.

(1). With respect to the hardships the labourer and artisan have to contend with, we must look into their cottages and contrast their present condition with what it ought to be, and see if we can lay the charge to the high duty on malt affecting their domestic comforts.

To do this, I will picture what I consider ought to be the happy and comfortable firesides of our cottagers. Fancy the duty abolished. Observe the young man who has just taken a wife: he sees the evil of the past, and wishes to steer for himself a fresh course; he finds, in these days of machinery and steam, that it is worth his while to become a first-class man, as he will thereby earn more money; he hires a cottage, and is about to become a family man; a pig fed from the offal of the cottage and garden, and perhaps from an allotment, and finished with two or three sacks of meal, graces the ceiling in the shape of two sides of bacon. A barrel of good wholesome beer, made from malt and hops only (as it would not pay to adulterate it), and served from the brewer (as it would not answer to brew it at home, and is much better and cheaper when brewed in large quantities), is to be found in the pantry. In the evening, after his day's work, whilst his wife is at her duty mending his clothes, or other work, he reads his Bible and his penny newspaper, smokes his pipe, has a chat with his neighbour, and has got a cup of good ale for himself and his friend, and Saturday night finds him by his own fire-side, making a better preparation for the Sabbath than we can point to under our present circumstances. Contrast this with the existing state of things, and say if such a case can be found, or if it is not an exception to the rule. I happened to form one of the deputation that waited on the Chancellor of the Exchequer last year, and in the observations that I made to him I said it was a serious fact that out of the three classes of society—the higher, the middle, and the lower—the two first having plenty of wine, spirits, and beer at command, it was patent to every one that the lower class, who had none of the necessaries of life at home, in the shape of beer as their national and natural beverage, were those who, as a rule, were most given to intoxication. Surely, it is not their poverty that causes it: as by the retail method they obtain what they have, it costs them more than any one else, and consequently less must fall to their share. But is it not that, lacking the comfort I have described, as natural to us all, they go where it is to be had, namely, to the beershop or publichouse. There, as we all know, they meet their boon companions: one pint calls for another, till this scene too often ends in drunkenness, and quarrelling is the result. Again, at what time does this happen? Generally, as a rule, on the eve of the Sabbath. When the workman takes his weekly pay is the time to settle scores, and to be jolly as I have described. But what a preparation for the next day! Is it any wonder that we find our churches and chapels so ill attended? Who form the bulk of our village population but the poor? and where are the majority of them to be found on the Sabbath day? Certainly not in the House of God.

A "Prize Essay," of 18 years ago, well illustrates the position of the labourer. The following is extracted by it from "Hansard," 1839:—"'Mr. D. W. Harvey, page 845, stated the words of a labourer, James Kershaw, aged 91, examined before the Poor-law Committee. On being asked, 'Do you remember the condition of the labourer during your life?' He said, 'Yes; when I was married, I could have a bushel of malt for 2*s.* 6*d.*, and every poor person had a barrel of beer to drink instead of water, but it soon rose to 3*s.* 6*d.*' The question was put by Mr. Hodges, M.P. for Kent, 'Did the labouring man in former times used to brew as a general thing?'—'Yes.' 'How long have they left it off?'—'Ever since malt got to such a price that they could not buy it.' 'Do you know any poor man who brews his own beer now?'—'Not one.' 'Do you remember the rate of wages when malt was 2*s.* 6*d.* per bushel?'—'Yes, 1*s.* 4*d.* per day, or 8*s.* per week.'" I was truly glad to find such corroborative testimony to the observations I had previously made, although written some 18 years before. The evidence of James Kershaw is most valuable to our cause. If you look at his age (91), and the time his evidence was given (1839), it will show him to have been in the prime of life when the duty, in the year 1803, was at 4*s.* 5$\frac{1}{2}$*d.* per bushel; and he had too much reason to remember the cause of his ceasing to brew his barrel of beer. I will now conclude this part of my paper

by reiterating the charge, that the duty on malt has been the cause of the altered circumstances of our labouring population.

(2) Next, as regards the injustice done by the malt-tax to the British farmer.

(*a*) If we feed our cattle with malt, we have to pay a duty equal to two-fifths of the value of the Barley, or in these glorious days of "free-trade," we are prohibited from using it! I find, on looking at the returns in the *Mark Lane Express*, that in the year ending December 31, 1863, 65,054 quarters of malt were exported. Now, if malt is good as a condiment here, it is so abroad; and on what terms of equality do we stand with the foreigner, who gets the duty on these 65,054 qrs. of malt remitted, and can brew his beer and feed his cattle with malt untaxed, and then come into our markets and sell his corn at 1*s.* duty, and his cattle and sheep duty free? But this is not all. I suppose few people are aware of the quantity of beer that is sent abroad. The following statement will show the quantity exported in the last three years:

Years.	barrels		
1861..	378,461..	at a declared value of	£1,411,205
1862..	464,279..	do. do.	£1,594,308

For 1863, probably 468,845 barrels, value 1,679,126*l.* This shows an increase since 1861 of over a quarter of a million value of beer exported, where no duty is paid; whilst it has been a stationary matter at home ever since I can remember. I will suppose the duty allowed on this 1,679,126*l.*, value exported in the past year, to be one-fourth. The drawback will then amount to 419,781*l.* To this add the drawback on the 65,054 qrs. of malt exported, 70,474*l.*, and you will find 490,255*l.*, or nearly half a million, given to the foreigner, whilst the producer and consumer are obliged to pay the tax.

(*b*) Another glaring injustice is that the duty, not being an *ad valorem* one, confines the manufacture of malt to the best description of Barleys. The present season is well calculated to show to all those farmers who hugged the malt duty as their friend (because, generally growing a fine quality, it gave them a monopoly in the market), the injustice it is to all those who pay tithe, or a corn rent. The harvest of 1863 was, perhaps, one of the most curious ever known. Several farmers in this room can say, "I never had such a beautiful harvest in my life; I never got the produce together so well, and with so little trouble or expense;" whilst others, myself among the number, can say, "I never had (with the exception of 1860) a more dilatory or expensive affair." The effect of such a season is, that while the Midland and Eastern Counties carried their Barley without any rain, the whole of the West of England and the Northern Counties had their Barley very much stained and sprouted. I have taken the trouble to ascertain from the *Gazette* the average price of Barley from the 1st of September to the present time —20 weeks; and I say those farmers who had to contend with adverse weather in getting in their Barley crops will certainly not have much cause to rejoice that the malt duty, which renders their article almost unsaleable, or only to be disposed of at from 20*s.* to 28*s.* per qr., will be the means of their having to pay an average price of 33*s.* 8*d.* per qr. on their tithe, and, where so rented, on their corn rents; in fact, were it not that a very large quantity of the second-rate and inferior Barleys are ground up, and given to cattle and pigs—the glut on the market would be so great that the price would be whatever the buyer choose to offer. This of necessity affects the average price. I have often heard it remarked that the tail Wheat ought always to be sold, to keep down the average; but what is that in comparison with the Barley trade, where not only the tail, but a class of second-rate samples to an immense extent are never sold, and consequently never go into the returns? The result is that we pay tithe, &c., chiefly on the higher-priced Barleys, and the malt duty is the cause of it.

3. The last part of this subject to be considered is the effect which the tax has on the public generally. And this depends chiefly on the view taken as to whether they have to pay an additional price for their meat or their beer through the imposition of this tax.

There is no question as to the price of beer being increased to the public one-third at least; but how does the tax affect them with respect to the price of meat? As a matter of course, and as a rule, the cheaper cattle and sheep can be fed, the less money the public have a right to expect to pay for their meat, and, consequently, there should be no restriction as to the mode of feeding—no law taxing the raw material by which such beef and mutton can be made. Fortunately for the grazier, and unfortunately for the public, meat is now at a high price, and remunerating to those who produce it. But if there was taken into account the amount paid by the British farmers for 188,000 tons of foreign oilseed cakes, annually imported into Great Britain—for a portion of 1,401,603 qrs. of foreign Linseed annually converted into English cake, and for about 3,000,000 qrs. annually of Indian Corn and Maize, to say nothing of Locust Beans, Lentils, and a host of other feeding stuffs—all foreign productions—all this would make a wonderful drawback from the supposed profits of the farmer. The law of free imports has for the last four years, with three bad crops and one very excellent one, kept the price of Wheat so low, that it is become a losing game to grow it to any great extent. The farmer naturally asks himself, what he can plant as a substitute? and looking at the immense sums paid for the foreign productions I have just quoted, he feels satisfied there would be no end of the demand for Barley to any extent that it could be produced, if the malt-tax did not prevent its free and unlimited use. But as it is, he finds the quantity required for malting limited to about 5,000,000 quarters annually. However much the population has increased or may increase, he finds the law checking the sale of his second-rate Barley, by preventing its use for cattle in its most nutritious and profitable form; and whilst he is in this dilemma, the public are paying a most serious price for the beef and mutton they consume. To show that it is no idle supposition that Barley when changed in its nature from starch to sugar is superior to any other feeding stuff when mixed with other food, I will read to you quotations from letters that I have received from several of our most practical farmers who have tried it. In the case of the first letter, I cannot give the name of the writer, as he has requested me not to do so; but I believe you may entirely rely upon what is said.

Mr. Williams then read letters, which we shall give in our next week's paper, from Mr. Hudson, of Castle Acre; Mr. Sanday, of Holme Pierrepoint; Mr. C. Howard, of Bedford; Mr. Raincock, of Ongar; Mr. Mumford, of Needham Market; Mr. Stenning, of Godstone; Captain Davy, of Rose Ash; Mr. Luxton, of Wembworthy; Mr. Hobson, of Brigg, and a number of other gentlemen, stating their experience in the use of malt in feeding cattle and sheep, and he concluded as follows:—

These letters afford conclusive evidence of what the result would be were we at liberty to do "what we like with our own." The writers are most of them known to the agricultural world as practical men, and nothing but this "vile tax" as Mr. Hudson calls it, prevents malt coming into general use. Whereas the amount of English Barley sold during the past year, and entered in the *Gazette*, amounts to 2,487,661 qrs., the amount of foreign Barley imported into Great Britain and Ireland for the same period amounts to 2,058,756 qrs., or within 428,905 qrs. of the whole of the corn returns. Surely, if we have to compete with all this foreign produce we require our markets to be freed from the restriction of this confounded tax. I trust I have said sufficient to prove the damage the Malt-tax has been and is to the welfare of our country. The public at large are vastly injured by it. The occupiers of the soil suffer from its injustice to an extent that no other class in the kingdom would submit to, and there is not the slightest doubt but it has been the means from 1803 (when James Kershaw ceased to brew), of demoralising and corrupting the peasantry of England to an extent that is truly deplorable. And why should it be suffered any longer to exist? There is no man who can justify it, except for revenue; and will the country be so blind as to perpetuate such a blister for the sake of 5,000,000*l.*, which I have no hesitation in saying damages the kingdom to the extent of four times its amount. The loss of revenue was never considered when the customs duty was taken off corn. The revenue took its chance when the duties were reduced on the luxuries of the rich; the revenue was a secondary consideration when upwards of a million per annum duty was thrown off the paper manufacture; and I will venture to assert, that deprive the Chancellor of the Exchequer of the malt duty this session of Parliament, and he will have the ability and the tact to replace it to the satisfaction of the country at large. At all events, we have a duty to perform, and it is a straightforward and easy one if we are only united. We have fired the first shot, we are about to storm and besiege the citadel, and, as Sir Fitzroy Kelly told the Chancellor of the Exchequer, "We don't intend to raise the siege until he has surrendered." The course that we must pursue with our members of Parliament, is to ask them to demand of the Government "the total abolition of the malt-tax." Less than this will be of no use; the whole of the abominations would still remain, and we must tell those members who would represent our interest in the House of Commons, whether it be a Lord John Manners or a Newdegate, two men whom I highly esteem, or any one else, that unless they are prepared to vote that the whole of the tax be repealed, if no other candidate can be found to replace them at the next election, which is not far distant, some gentleman from the Manchester School shall be solicited to go the "whole hog" in "free trade." The county of Berks—in which I am a small freeholder, and therefore consider I have a right to look to its representation—is at present represented by two would-be "freetraders" and one Conservative. Now, strange as it may appear, the only true "freetrader" is the Conservative, Mr. Benyon. I cannot conclude without offering my thanks to Mr. Corbet and the other gentlemen who have written to me on the subject, for the trouble they have taken. I sincerely hope that those who discuss this subject will agree with me, that a partial repeal, although it may add to the consumption of beer, will be of no service whatever to remove the evils which I have mentioned; and therefore, as we have been taught to "agitate," we will do so till we obtain the total abolition of the malt tax.

MELPLAISH, DORSETSHIRE.—At the late monthly meeting of this Society, Mr. COX read an elaborate paper on the uses of science to agriculture, in which he referred to the labours of Mr. Huxtable, Mr. Mechi, and Mr. Wallace Fyfe, and especially to the "New System of Teaching Agriculture in the Face of Nature," a work recently published by the latter gentleman, and which was the lecturer's guide through the many topics presented to the agriculturist by the face of Nature during the successive months of the year. He concluded thus:—"I have had a multiplicity of subjects, but I have only desired to prove the importance of science in connection with agriculture. Either geology, chemistry, physiology, botany, meteorology, hydraulics or mechanics, would of itself form a subject, and therefore I cannot have done justice to either. I ask you now to discuss first—"Is not the system of binding farmers to a course of farming a pernicious one?" "Is it not desirable that in our rural agricultural schools more attention should be paid to the subject of agricultural science?"

On these questions the subsequent discussion turned. Mr. POPE, in answer to Mr. Cox's question, "Is not the system of binding farmers to a prescribed course of cropping a pernicious one?" said he concluded from his experience that it was. With lands in Netherbury, Broadwinsor, or any of the adjoining parishes, a restricted course of cropping could not be carried out profitably. Farmers would not find a return for their outlay as long as their holding of the land was as uncertain as it was at present, he was quite sure. It was remarked by some gentlemen that "they held too much land in proportion to their capital, and it would pay them better to improve the soil they had than to pay rates and taxes on a larger quantity." Perhaps that was correct, but he thought it would not be wise to expend much money on land, unless they could have a more lasting hold on it, so as to get a profit upon their outlay. Of course it was necessary for landlords to have protection. He once held his land of a lawyer, a class of gentlemen reputed to be very acute and sharp on all matters; and when he said to him, on taking the farm, "How about a lease?" his landlord remarked that "farmers never looked at their leases except on entering and leaving a farm." That was, he believed, true; but still that did not affect their holding of the land; and with the many uncertainties of life, such as change of ownership of the property and of stewards, it was very necessary that they should have greater security in the holding of the land than they now possessed. And next had to be considered, "How is this permanent tenure of land to be granted?" He agreed with the Duke of Richmond in objecting to the term "tenant-right," because a tenant had no more right than was given him by his landlord, but thought with him that they should get 21 years lease of their farms if they could. It was necessary for them to apply commercial principles to agricultural pursuits. They should know what per centage they got for their capital. He really thought that as a class farmers had to strain to the utmost to make both ends meet. He hoped they would not consider him egotistical in saying that he occupied two of the most important farms in the West of England, at a rental of from 1200*l.* to 1800*l.* a year; and having had long experience, thought he ought to know what should be the principles to govern men in investing their money in the occupation of land. He had come to the conclusion (he did not mean anything personal) that farmers did not get more than 6 per cent. on the average for the capital they employed. ("Not half of it.") Six per cent. was not enough; they should have more to keep pace with the times. In conclusion, Mr. Pope said that he hoped they should ere long get a better tenure of the land than they now had; they only wanted fair play.

Mr. ELSWOOD thought, in reference to a remark that the landlord required protection, that the landlord of the farmer had a protection no other landlord had, for he could seize everything his tenant possessed. He held that it was not fair to compare the farmer with the manufacturer. With capital a manufacturer could extend his business as much as he pleased; but the farmer with a limited quantity of land could not do that. He coincided with Mr. Cox as to the advantages a knowledge of the various soils they cultivated would give them. By means of such knowledge they could apply that manure to the land best suited for it. A knowledge of chemistry would also be very advantageous. With regard to the steam plough, he remarked they all knew it could not be used in this district to advantage; for instance, it would cost more to get a steam engine to some of his fields than it would to plough them. He contended, in opposition to what Mr. Cox had said, that guano could be obtained at the present time as good and genuine as 25 years ago. At the same time he remarked that in purchasing both guano and seeds they had to depend in a great measure on the honour of the vendor. He confirmed Mr. Cox's statements as to the germination of seeds at stated temperatures. He had known Wheat to grow in a rick at 120° Fahrenheit.

Mr. HUSSEY, of Netherbury, had brought to the meeting several Swede Turnips of the Purple-top description that had become decayed without his being able to assign any cause, and they were shown to the meeting by him, with a view to ascertain it. Reference is made to these Turnips in another part of the paper.

Reviews.

Plans and Estimates for Labourers' Cottages. By Lady Caroline Kerrison. Hatchard & Co.

We have here a dozen large octavo pages of stiff paper tacked together with a single introductory paragraph, giving plans and elevations of single and double cottages and almshouses. There is sufficient material given for an estimate of cost, and in the simple elegance of the designs and well packed arrangement of the accommodation which they give there is sufficient evidence of the thorough fitness of the authoress for the benevolent work she has undertaken. The rough sketches, as the preface describes them, here collected, are "the result of some experience in a country district, and are designed to combine substantial comfort to the tenant with a moderate expense to the landlord. It is hoped that a cost so moderate may both enable and induce a great number of landed proprietors to effect that most desirable and in many cases much needed object—improved accommodation for the labourers on their estates." Nothing can be simpler or in better taste than the style of building here recommended; and an examination of the designs will show that Lady Kerrison has here made a very useful contribution to the efforts now being made to improve the condition of the labourer.

Miscellaneous.

Sour Beer.—In a two-hogshead cask we had about 56 gallons of very stale beer, turned by the thunder last summer, and not fit to drink. I drew it off, washed the cask out, and put in 2 lb. of calcined chalk, and the beer on the chalk. I let it stand three days, then brewed 56 gallons of beer with four bushels of malt and 6 lb. of hops (worked as usual), and put it into the cask with the stale beer. It has been done about a month, and now tastes very soft and pleasant. Master says it is a hogshead of beer gained.

To make Sugar Vinegar.—Put to 10½ gallons of water 10 lb. of brown sugar, boil it gently till no scum is on the surface, taking what does arise off with a skimmer; put it into an open tub or pail to cool, and when quite so add a tea-cupful of yeast, to put it into a fermentation; in three days put it into a cask, filling about two-thirds of it, which will cause it to acidify quicker. Place the cask in the sun with the bung-hole open, covering it with a coarse piece of muslin to prevent flies from getting into the liquor.

Composts.—In whatever way the materials of our dung heaps are gathered together, there is a considerable store accumulated by January; and as, during the frosts of winter, the land is fit for carting on, a good deal is generally carried to the fields this month. When cattle are fed in open yards, the dung may be either carried out now, or left till spring, and then turned over and made fit for application to the land at once. This, however, is a most wasteful practice; for the manure thus suffers the greatest possible exposure both to air and rain water. When cattle are fed in covered yards, such a method is economical and efficient enough; as the dung so made is not then exposed to the washing of rain-water. When stall feeding is adopted, the soiled litter is thrown daily into the yard, either covered or open; or it is carried daily to the heap, and there covered with earth. When box feeding is adopted, the litter accumulates under the cattle, and the boxes are cleaned out only at intervals of months. It is then cut out and carted to the field, and either spread at once and ploughed in, or, if this cannot be done, carted to heaps in the fields where it is to be used. When carted together in January, the carts should be driven over the heap, which should be about 4 feet high. This treading down excludes air, and so checks the rotting process. Later in the season the carts are backed against the heap, which, lying more loosely together, ferments more rapidly, and so the sooner acquires that rotten texture which enables it to be easily buried under the surface, or perfectly mixed with the soil. In any case, in order to the retention both of the volatile and the soluble products of this fermentation, the heap should be laid upon a bed of loamy soil, about 6 inches deep, and covered with a layer of such

soil 3 or 4 inches thick; and when the heap is finally mixed together, before being carted out, this earth, rich with ingredients that would have been lost, should be mingled with the mass."

Calendar of Operations.

FEBRUARY.

WESTER ROSS: *Jan.* 25.—The weather for several weeks has been particularly seasonable. We have had a continuation of severe frost, with a slight covering of snow, which came very opportunely after the protracted wet season we previously had. The manure was comfortably carted from the cattle courts to the fields, the condition of the grain in the stackyard has been much improved, and the upturned soil will be found more friable, and better fitted for the production of another abundant crop. And now the storm has passed away quietly and comfortably, and as there was little rain, the fields are quite dry, and the ploughs are again at work breaking up the leas for Oats and seeds, furrowing the land where the Turnips were eaten off by sheep. The autumn-sown Wheat is well above ground, and appears vigorous and closely planted, and should the weather continue fine as it now is, a considerable addition will be made to the breadth already sown by laying it down after Turnips. The winter having been favourable both sheep and cattle have been making satisfactory progress. It is quite astonishing to mark the improvement a lot of hoggs, when well attended to, make within three or four months after their arrival from their hill grazings. They reach the low country in the month of October, wearied with their journey, and very unpromising in appearance, but for some three weeks thereafter they are allowed a run of the pasture of the whole farm, which greatly strengthens and fits them for being transferred to the Turnip field. On being enclosed they take ill with confinement, a thing with which they had no previous acquaintance, and they are unwilling to take to their strange food, but a few days of want read them a lesson, and by and by Turnips become to them the most delicious food. In the month of March they leave us and return to their native hills, fat, and hale, and hearty; and now and then some of them again return to a second wintering, larger in bone, but not heavier than when they previously left. Our Turnips have been disappearing rapidly, and as a good many have been destroyed by the intensity of the frost, they will be very scarce ere the season of Grass comes. Potatos are abundant here, but they are all but unsaleable. The price is from 27*s.* to 30*s.* per ton, and at this low figure there is scarcely any demand. Grain also continues unusually low—so low, that the farmer who can make both ends meet may well count himself both rare and fortunate.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	4	30.15	48	46	W.	3	0	49	34	55	27	..
Wednesday ..	3	30.03	49	46	W.	2	10	51	46	52	42	0.11
Tuesday ..	2	30.15	48	47	S.W.	2	10	47	38	50	34	0.02
Monday ..	1	30.20	30	33	S.W.	1	0	42	30	47	23	..
Sunday ..	31 Feb.	30.34	36	34	S.W.	1	4	36	28	42	21	..
Saturday ..	30	30.46	35	33	S.W.	1	10	41	23	55	16	..
Friday ..	29	Inch. 30.38	38	36	N.E.	0	10	48	36	57	31	..
Thursday ..	Jan.											

Notices to Correspondents.

ADDRESS: Mr. C. Smithies' letter has been forwarded to Mr. Hoskyns,

POCKET MILKING MACHINE: 142, *High Holborn*. Mr. Taylor's (Mentmore) note states that it does its work well, and that it may become a favourite with amateurs with a cow or two. We should fear, however, that a cow giving its milk by mere gravitation through the orifice of the teat distended for the time by the introduction of a small tube—this being the principle of the invention—will be apt to waste its milk at other times without the aid of the artificial insertion.

TOP DRESSING: *Forester*. Instead of 2 cwt. of guano and 2 cwt. of salt, we should prefer 1 cwt. of guano, 2 cwt. of bone-dust, and 2 cwt. of salt mixed up in mould and soaked with liquid manure and turned repeatedly under cover. The mixture ought to be applied as soon as it has thoroughly heated and rotted. It will benefit Grass and Clovers. For Oats the Peruvian guano without the bones will be preferable.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures. American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY  THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

Glass Tiles.

JAMES PHILLIPS AND CO. beg to hand their Prices of GLASS TILES and SLATES for Farm Buildings, Sheds, &c.

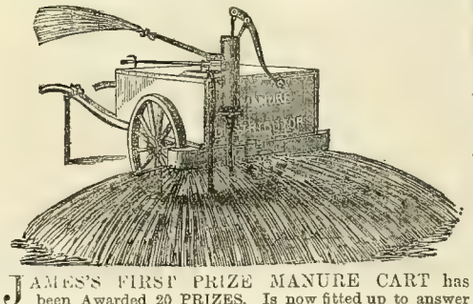
GLASS SLATES.

WITH DRILLED HOLES.	Size.	ROUGH PLATE. ⅛ inch thick.	ROUGH PLATE. 3-16 inch thick.	ROUGH PLATE. ¼ inch thick.	SHEET. 16 oz.	SHEET. 21 oz.	SHEET. 26 oz.	SHEET. 32 oz.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Duchess ..	.. 24 by 12	1 3	1 6	1 9	0 9	1 1	1 4	1 8
Small Imperials ..	20 ,, 14	1 2	1 5	1 8	0 8	1 0	1 3	1 7
Small Duchess ..	22 ,, 12	1 2	1 5	1 8	0 8	1 0	1 3	1 6
Countess ..	.. 20 ,, 10	0 11	1 1	1 3	0 7	0 10	1 0	1 3
Viscountess	.. 18 ,, 10	0 10	1 0	1 1	0 6	0 9	0 11	1 1
Large Ladies	.. 16 ,, 10	0 9	0 11	1 0	0 6	0 8	0 10	1 0
Ladies ..	.. 16 ,, 8	0 8	0 9	0 10	0 5½	0 7	0 8	0 10
Doubles ..	.. 13 ,, 7	0 6	0 7	0 8	0 5	0 6	0 7	0 8

GLASS TILES.

ROUGH PLATE.	Each—s. d.	SHEET.	Each—s. d.
⅛ inch thick	0 10	16 ounce	.. 0 6
3-16 inch thick	0 11	21 ounce	.. 0 8
¼ inch thick	1 0	26 ounce	.. 0 10
5/16 inch thick	1 6	32 ounce	.. 1 0
⅜ inch thick	2 0		

GLASS TILES, quarter of an inch thick,
Packed in Cases containing 50. *1l.* 18*s.* 6*d.* per Case nett.
3-16 inch Case of 60 £2 2 3 | ⅛-inch Case of 60 .. £1 17 6
Cases, 2*s.* each extra, returnable at full price.
Glass Tiles and Slates will be found invaluable for Outhouses, Farm Buildings, Stables, and Factories.
London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.



JAMES'S FIRST PRIZE MANURE CART has been Awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for Supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

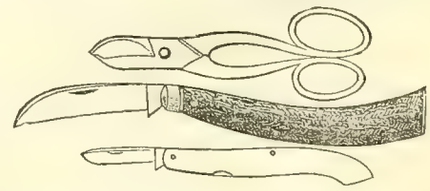
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The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
Address, I. JAMES, Tivoli Works, Cheltenham.

MR. J. KER, ESTATE and HOUSE AGENT, SURVEYOR, and LANDSCAPE GARDENER, undertakes the Management of Property generally, the Collection of Rents, the Planning and Laying-out New Grounds; Planting, Reclaiming, and Draining Land, Erection of Cottages and Farm Buildings, &c. Plans and Specifications for Contracts, &c.
No. 17, Connaught Terrace, Marble Arch, W.

ESTATE IMPROVING.—JOSEPH NEWTON undertakes the General Management of Land, Garden Architecture, Laying-out Grounds, Draining Improvements, &c.
Address for Foreman of Works, reference and terms, 30, Eastbourne Terrace, W.

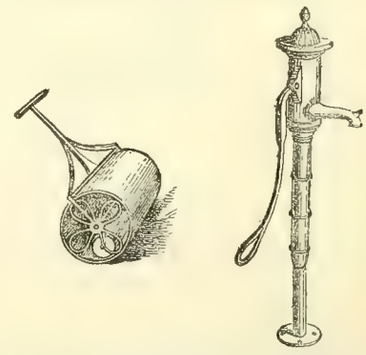
Paxton Works, Sheffield, Established 1738.



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SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

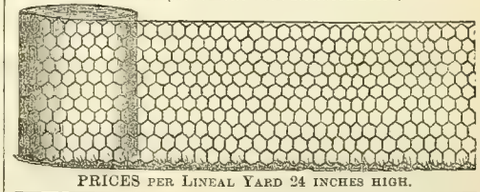
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COTTAM & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.
Illustrated Catalogues free of COTTAM & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

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PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal.	Medium Jap	Medium Gal.	Strong. Jap	Strong. Gal.	Extra Strong. Jap	Extra Strong. Gal.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2¼ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
⅝ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.
Lists Free on application. Every article guaranteed to be satisfactory.
J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

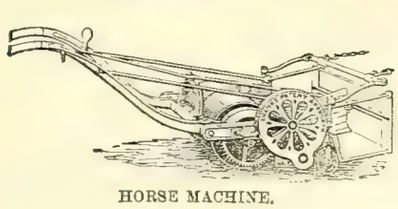
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HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street, E.C., from whom only it can be obtained.

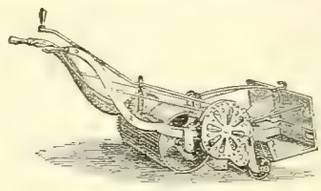
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

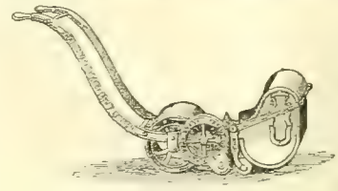
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

Extract from the Letter of Mr. R. GARRETT, Leiston Works, which appeared in the *Gardeners' Chronicle* of 16th January last, on "The Prize System":—

"I have known several good Standard Implements entirely spoiled by the principle being so interfered with in order to make it look a novelty year after year, and to win a prize with it, so long as we could show something different in it, till at last we had to go back to the original Implement, and give up the prize gaining."

ALEXANDER SHANKS & SON can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	... ... 40*s.* extra.
No. 2.—42-inch Machine	26 0 0	... ... 40*s.* „
No. 3.—36-inch Machine	22 0 0	... ... 30*s.* „
No. 4.—30-inch Machine	19 0 0	... ... 30*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine	£15 15 0	... ... 30*s.* extra.
No. 6.—28-inch Machine	14 10 0	... ... 30*s.* „
No. 7.—25-inch Machine	12 10 0	... ... 25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

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No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	6 12 6	*Easily Worked by a Man.*

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
No. 12.—14-inch Machine	£5 10 0	*Easily Worked by a Boy.*
No. 13.—12-inch Machine	4 10 0	*Ditto by a Lady.*
No. 14.—10-inch Machine	3 10 0	

Silent Movement, 4*s.* extra.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
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The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
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The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
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The Right Rev. the Lord Bishop of Killaloe
The Right Hon. Lord Bagot
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The Right Hon. Lord Hatherton
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The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
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The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Elibank
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Binning
The Right Hon. Lord Ashtoun
The Right Hon. Lord Hume
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Crewe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
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The Hon. Captain Drummond
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The Hon. Sir Edward Butler, Bart.
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The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

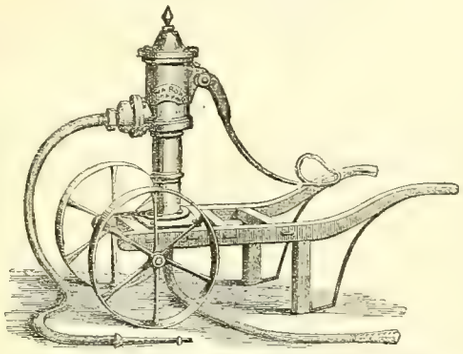
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

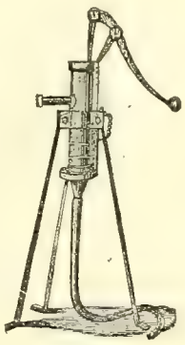
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

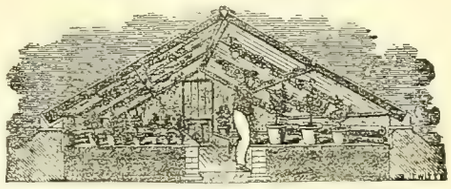
4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. Span-roof Houses, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

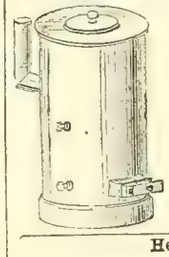
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Card.

SAMUEL N. McGERROW
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

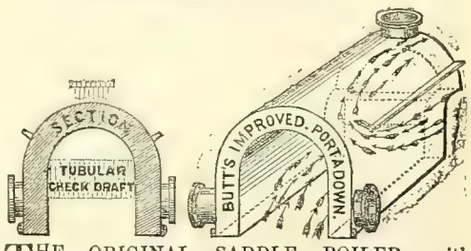
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Heating by Hot-water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.
Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

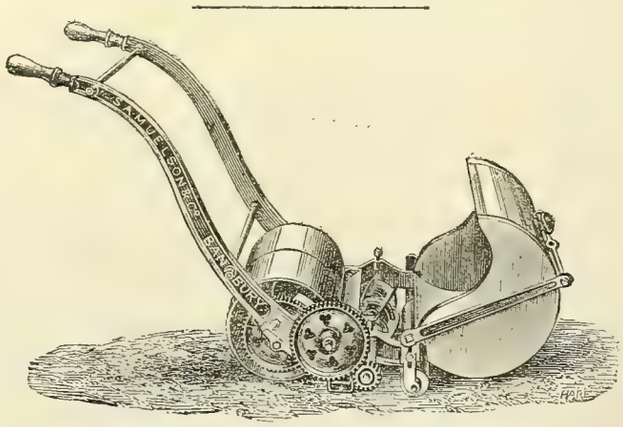
EVERY MACHINE WARRANTED.

PRICES:

MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 12 0
To Cut 16 inches, suitable for One Boy	6 10 0
To Cut 19 inches, suitable for One Man and Boy	7 0 0
To Cut 22 inches, suitable for Two Men	8 0 0
To Cut 25 inches, suitable for Two Men	11 10 0

These Prices include Free Delivery to any Railway Station in Great Britain.



IMPROVED LAWN MOWER.

PRICES:

PONY POWER MACHINES.

To Cut 22 inches	£8 15 0
To Cut 25 inches	11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.

In submitting their NEW PATTERN LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to draw attention to the fact that they do not make annual changes in the principle of construction of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance of appearance, and perfect efficiency under all circumstances of ground and weather.

MANUFACTURED BY

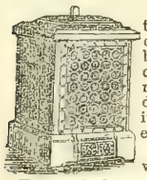
SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.

AND OF ALL SEEDSMEN AND IRONMONGERS.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



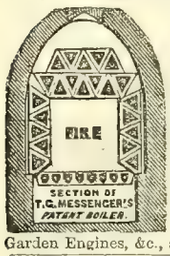
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

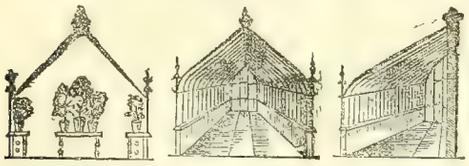


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

Heating by Hot Water.

JOHN TOOLEY, late 21 years with J. WEEKS & Co.—TUBULAR BOILERS, on the most improved principles, VALVES, &c. References in England, Ireland, and Wales.

JOHN TOOLEY, 9, Radnor Street, King's Road, Chelsea.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

A discount to the Trade.

A New Boiler.

THE PATENT UPRIGHT-CELLED BOILER, combining efficiency, economy, durability, and the possibility of cleaning every part.

The Patentee begs to bring to the notice of the public this Boiler, which is new in principle, and is constructed to give the greatest possible amount of heating surface in a given space. It has been in use for some years by amateurs and professional gardeners, as well as for heating large public buildings, and has never failed to give entire satisfaction.

The *cost* (which is less than that of any patent Boiler of equal power yet out) together with the great *saving* it effects, in *fuel*, bring it within the reach of all classes.

Testimonials and particulars as to price, the various sizes, &c. to be had on application to Messrs. CLARKE & HOPE, Horticultural Engineers, Lionel Street, Birmingham.

PAXTON GARDEN ENGINE.—Is portable, easily worked, not liable to get out of order; will throw with Jet 40 feet, and with "Rose" will cover 40 feet across. Price 30*s.* and 40*s.* each.

CROGGON & Co., 2, Dowgate Hill, London, E.C.

PATENT ASPHALTE ROOFING FELT. Rail Carriage Paid. One Penny per Square Foot. Also Inodorous Felt, and Dry Hair Felt for covering Boilers and Steam Pipes.

CROGGON & Co., 2, Dowgate Hill, London, E.C.; and 2, Goree Piazzas, Liverpool.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

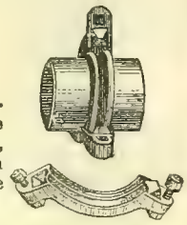
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

AUSTIN'S ARTIFICIAL STONE.

INVENTED BY FELIX AUSTIN, 1826.

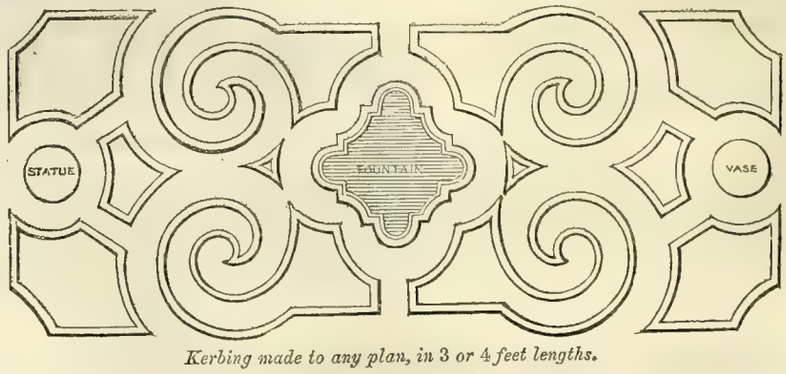
THIS WATERPROOF STONE, improved during a practice of more than 30 years, is the only one to which the chisel can be applied for high finish of ornament.

An immense quantity of work has during the period been executed for WINDSOR, OSBORNE, TRENTHAM, ARUNDEL CASTLE, WOBURN, WREST, and most other residences of the nobility, which in consequence of its close resemblance to Portland Stone, it is generally mistaken for, and therefore brings no credit to the peculiar invention. It thus becomes necessary (now that Portland Cement is obtaining a factitious reputation) to mark the distinction between Mr. AUSTIN'S material and a mere Cement which is as variable in quality and as much abused by workmen as the old Roman Cement.

AUSTIN, SEELEY, & Co. guarantee their work when fixed by themselves; and after so long a series of years they have accumulated a stock of models far exceeding any ever before possessed by a similar establishment. A general idea of it may be conveyed by the following summary:—

246 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at Prices from 10*l.* to 400*l.*
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a GREAT VARIETY of BALUSTRADING and PEDESTALS.

As public specimens of their work, open to the inspection of all persons, they beg to refer to FOUNTAINS erected in the Cities of CANTERBURY and GLOUCESTER, and to the large FLOWER BASINS and KERBS, executed for the ROYAL HORTICULTURAL GARDENS, and the new AVENUE GARDENS, REGENT'S PARK.



Kerbing made to any plan, in 3 or 4 feet lengths.

AUSTIN, SEELEY, AND CO., 369—375, EUSTON ROAD, REGENT'S PARK, N.W.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

The Original Seed Bag Manufactory.
ALEXANDER NICOL AND CO.,
MANUFACTURERS of
SEED BAGS, CORN SACKS, &c.
Chalmers Street Works,
Arbroath, N.B.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

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GARDEN BORDER-EDGING TILES, in great variety of patterns and material.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.
May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

ANDERSON'S ARCHANGEL MATS are the best for the protection of plants from frost; also DUNNAGE MATS, at low prices. Every size of SEED BAGS and SACKS, manufactured from the best materials, and kept in stock. ROPES, LINES, TWINES, &c. Prices sent free on application.
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TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*: 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4. 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
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PRICE'S PATENT
CANDLE COMPANY
(Limited).



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
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BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing
DAY'S EXTRACT and GASEOUS FLUID,
which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as paining in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2*s.* 6*d.* and 7*s.* per bottle; or quarter of dozen in wood box, 7*s.* 6*d.* "Gaseous Fluid," 1*s.* 8*d.* per bottle, or 20*s.* per dozen in wooden box. Plain directions for use given with every Article.
☞ Caution. Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & Co.'s," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"
The "Key to Farriery," free by post for 13 stamps.
SAMPLE MEDICINE CHEST, 16*s.* 6*d.* Carriage paid.
Patrons, 70,000.
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TESTIMONIALS of CUPISS'S CONSTITUTION BALLS, for HORSES and NEAT CATTLE.
Hawking Down House, Wiltshire,
To Mr. F. CUPISS, May 4, 1860.
SIR,—In answer to yours of the 1st, I beg to say you are quite at liberty to publish my opinion of your Constitution Balls, which I very much approve of for getting Horses into fine condition. They are also good for Sheep, especially Lambs when they are in a pining state, by making them into pills about the size of a nut, and giving two or three occasionally; the animal soon becomes strong and healthy.—I remain, yours respectfully, MORALITY RAWLINGS.
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From Capt. H. BURTON, *Grange Farm, Rock Ferry, Cheshire.*
"No Grazier or Horsekeeper ought ever to be without Cupiss's Constitution Balls."
From Mr. PRATT, *King's Arms Hotel, Lancaster.*
"I have found the Constitutional Balls most valuable for horses when taken up from Grass, and very beneficial to give them occasionally to horses when turned out."
The Balls are prepared by FRANCIS CUPISS, Diss, Norfolk Author of the Prize Essay of the Diseases of the Liver of the Horse. And may be had of all Patent Medicine Vendors, in Packets of 3 Balls, 1*s.* 9*d.*; and 6 Balls, 3*s.* 6*d.*; or 4 small Packets, 10*s.* 6*d.*; or 7 large Packets, 21*s.*; with full directions.
Persons using the Balls may consult the Proprietor gratuitously by enclosing a Stamp in a prepaid letter.

Universal Microscope. Price £5 5s.
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**** Catalogues sent on receipt of 6 postage stamps.

SMITH, BECK AND BECK'S New MERCURIAL BAROMETER, very sensitive. Scale, 3 to 8 inches for every inch of variation, compensating tube instead of a reservoir. Price from 35*s.* to 42*s.*
Description sent free by post, or to be had on application at 31, Cornhill, E.C.

THE NEW WEATHER INDICATOR correctly foretells all changes in the Weather, whether for Rain, Wind, or Moisture, 50*s.* THERMOMETER for Cold, registers the Lowest Temperature accurately at all parts of the scale, 4*s.* 6*d.* CASELLA'S Improved Form and Instructions for Registering Observations on the Weather for one year, 4*s.* Full description per post for One Stamp.
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BLOSSOM of FRUIT TREES.—Wool Net, to cover a square yard, 9*d.*, may be had in various widths and lengths; GARDEN TARPAULINGS, 8 ft. by 4 ft., 2*s.* 9*d.* each, 32*s.* per dozen; WATERPROOF CAPES, 3*s.* 6*d.*; POLICE CAPES, 24*s.* and 30*s.* per dozen; WAGGON and CART TARPAULINGS; HORSES' LOIN CLOTHS, 7*s.*; all kinds of GARDEN NETS, SHEEP NETS, FISHING NETS, and RABBIT NETS.
R. RICHARDSON, 99, Euston Road, London, N.W.
N.B.—IRON WIRE NET, 16 gauge, 3½*d.* per yard, 2 feet high, 1 5-8th mesh.

Sussex.
FOR PRIVATE SALE, a Ring-fence ESTATE of 1500 acres, consisting of Marsh, Hop, Meadow, Pasture, Arable, and Wood Lands. Purchase-money 70,000*l.*, including Timber. Or, 900 acres and 600 acres could be sold separately.
Apply, by letter, to E. S. CARR, Esq., Solicitor, 61, Moorgate Street, London, E.C.

Brighton.
TO BE LET on LEASE, for Seven Years from March next, a WALLED-IN GARDEN, about 3½ Acres, in good working order, comprising 6 Vineries, 2 Peach-houses, 1 Cucumber House, large Orange-house, and Cottage for Gardener, conveniently situated at the West End of the Town in an aristocratic neighbourhood.
Apply to EDWARD CARPENTER, Seed Merchant, 96, St. James's Street, Brighton.

Sales by Auction.

1000 Standard Roses from Sussex.

SEVERAL SACKS OF FIRST-RATE SEED POTATOS, HARDY TREES AND SHRUBS FROM SURREY, AND SPLENDID DWARF-TRAINED, DWARF STANDARD, AND PYRAMIDAL PEACH, NECTARINE, APRICOT, PLUM, AND PEAR TREES, FROM FRANCE AND HOLLAND, &c.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent, W.C., on WEDNESDAY, February 10, at half-past 12 o'Clock precisely, a large quantity of HARDY TREES and SHRUBS, consisting of Common and Portugal Laurels, White Mulberries, Magnolias, Berberis, Daphnes, Aralias, Arborvitæ, Spruce, Sycamore, Birch, Hollies, Pyrus, Picea nobilis, Cupressus macrocarpa, Wellingtonia gigantea, Tree Box and Fruit Trees from Surrey. 1000 first-rate STANDARD ROSES from a celebrated Nurseryman in Sussex, several sacks of first-rate Seedling Potatos, and some very Choice Dwarf-trained and Pyramidal Nectarines, Apricot, Peach, Plum, and Pear Trees from France and Holland.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent, and Fruit Trees from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, Feb. 13, at half-past 12 o'Clock precisely, a choice assortment of GREENHOUSE and HARDY PLANTS from Ghent, consisting of beautiful Camellias, Indian Azaleas, Standard Roses, Lilies, Ghent Azaleas, Rhododendrons, and Cannas; also some fine Pyramid Apricots, Pears, and Plum trees from France.
On view the Morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Trustees of Mr. Robert Donald, to submit to an unreserved SALE by AUCTION, unless previously disposed of by Private Contract, the latter end of this MONTH, on the Premises, Goldworth, near Woking, Surrey, about one mile from the Railway Station, the LEASES, together with the whole of the Valuable and Extensive NURSERY STOCK, ranging over 152 Acres, including Evergreens, Conifers and other Shrubs, Fruit, Ornamental and Forest Trees, Greenhouse Plants, Greenhouses, Pits, Frames, and other effects, of which full particulars will be furnished in future advertisements.
American Nurseries, Leytonstone, N.E.

Great Sale of Roses, Fruit Trees, Evergreens, &c.

To GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on WEDNESDAY, Feb. 24, at 12 o'Clock, a splendid assortment of about 1000 first-class STANDARD, HALF-STANDARD, and DWARF ROSES of remarkably fine growth, including the finest varieties in cultivation; handsome Fruit Trees; choice Coniferæ, and other Evergreen Shrubs; selected American Plants; some fine Bulbs of Lilium lancifolium, from a celebrated Belgian grower.
On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Annual Sale of very handsome English-grown Camellias, &c.

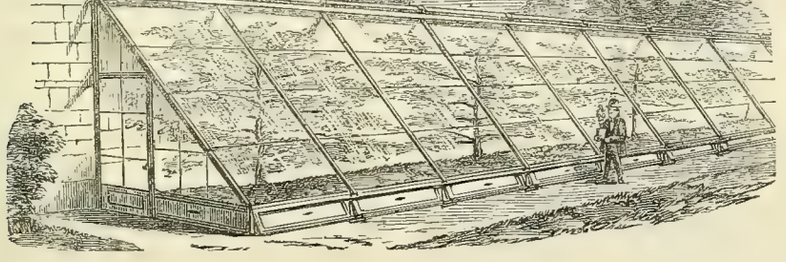
To NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, February 19, at 12 o'Clock, about 200 Choice Double CAMELLIAS, compact plants, 1 to 5 feet,, beautifully furnished with bloom buds; fine AZALEA INDICA, including the most approved kinds; a superb assortment of about 300 very handsome Standard, Half-Standard, and Dwarf ROSES, all selected with straight stems and fine full heads; a fine Collection of AMERICAN PLANTS; choice ERICAS, FUCHSIAS, VERBENAS, DAHLIAS, in dry roots &c.; with some fine bulbs of LILIUM LANCIFOLIUM from celebrated grower in Belgium, &c.
On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

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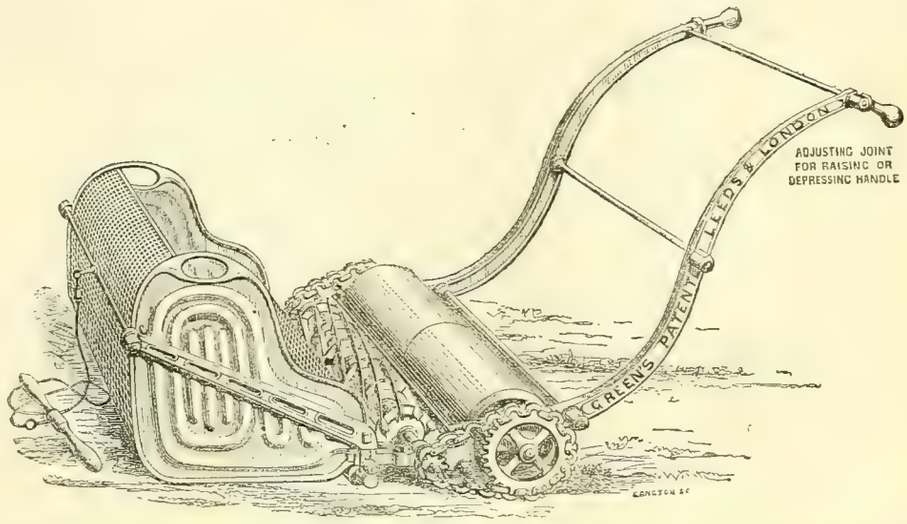
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut	10	inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	...	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18s.	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22s.
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

To Cut	42	inches	...	...	...	£27	0	0	...	...	...	Leather Boots for Horse, 26s.
„	48	„	...	...	...	30	0	0	...	...	...	„ „

The 26 and 28 inches can be easily worked by a donkey or by two men on an even Lawn, the 30 and 36 inches by a pony, and the 42 and 48 inches by a carriage horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening, the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;

and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

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Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, February 6, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 7.—1864.] SATURDAY, FEBRUARY 13. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.—NOTICE is HEREBY GIVEN, that the ADJOURNED ANNUAL MEETING of this Society will be held in the Council Room, at South Kensington, on TUESDAY, February 23, at 1 o'Clock precisely. ANDREW MURRAY, Assistant Secretary.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS. WANTED to PURCHASE, a few Tons of DANDELION Roots. Covent Garden Market, London, W.C.

Good Seeds, Carriage Free.

WILLIAM PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. LANE AND SON. (For particulars, see page 143), The Nurseries, Berkhampstead, Herts.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, SEED, ROSE, and FRUIT CATALOGUES, gratis. 57, Queen Street, Hull.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, has AMALGAMATED with the PLYMOUTH SEED COMPANY, LIMITED. Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The FARM SEED PRICE CURRENT will be ready in a few days, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The COLLECTIONS of GARDEN SEEDS are now Ready. See Advertisement, page 143.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The COLLECTIONS of FLOWER SEEDS are now Ready. See GENERAL PRICE CURRENT.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

COB NUTS: COB NUTS, WEBB'S KENTISH.—A few hundred 3-year-old Seedling Plants to be Sold very cheap. Apply to C. CHESTERMAN, Market Gardener, Reading, Berks.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

German Flower Seeds Fresh Imported.

SUTTON AND SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

To Purchasers of Seeds.

SUTTON'S PRICED LIST of NEW GARDEN and FARM SEEDS and POTATOS is now ready, and will be forwarded Post free on application. Address SUTTON & SONS, Royal Berks Seed Establishment, Reading.

New Roses for 1864.

WM. WOOD AND SON have upwards of 5000 extra fine plants of the NEW ROSES for 1864, which will shortly be ready to send out at moderate prices. Woodlands, Maresfield, Uckfield, Sussex.

New Rose List for 1864.

JOHN KEYNES' NEW LIST is now ready, and will be forwarded on application. His Stock of NEW ROSES for 1864 is very fine. Castle Street Nursery, Salisbury.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants will be ready early in March. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

ROSES.—Superb STANDARDS, 18*s*. per dozen; DWARFS, 12*s*. per doz. NEW ROSES of 1863, 30*s*. per doz. DESCRIPTIVE PRICED LISTS on application. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, NEW and OLD. CATALOGUES NOW READY. A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

To the Trade.

STANDARD and DWARF and CLIMBING ROSES in large or small quantities, at reduced prices. Special Lists on application. Address WM. WOOD & SON, Maresfield, Uckfield, Sussex.

Standard and Dwarf Roses.

PRICE ON APPLICATION.

GEO. JACKMAN AND SON, Woking Nursery, Surrey, have a quantity of the above in known leading varieties and good trees; they are desirous of clearing the ground, and will sell them cheap.

SEEDS of EVERY KIND, and best quality, supplied by HOOPER & Co., Covent Garden Market, London, W.C. CATALOGUES post free.

DOUBLE TUBEROSES, just imported, 3*s*. per dozen. BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

HERBST AND STENGER, Kew Nursery, Kew Road, Richmond, London, S.W., respectfully inform their friends that their SEED CATALOGUE is ready, and will be forwarded Free on application.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application. Highgate Nurseries, London, N.

Vines Black Hamburgh and Muscat of Alexandria.

ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 10*s*. 6*d*. each. The usual discount to the Trade. Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.

JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES. N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application. Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application. PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

STANDARD CHERRIES, Extra Fine.—Price on application to JOHN PERKINS, 52, Market Square, and Drapery, Northampton.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To the Seed Trade.

TO BE DISPOSED OF, a Few Ounces of very superb HOLLYHOCK, home saved. Price on application J. DOBSON & SONS, Seedsmen, Isleworth, W.

WANTED, large Quantities of ASH, SYCAMORE, SCOTCH FIR, SPRUCE and OAKS, 3 feet high. Prices and particulars to KEARSLEY & SONS, Nurserymen, Leeds.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and ill be forwarded on application.—Dorking Nursery.

List of Select Vegetable and Flower Seeds.

WOOD AND INGRAM beg to announce that their New PRICED and DESCRIPTIVE CATALOGUE of the above may be had Post free on application. Huntingdon Nurseries.

Kitchen Garden, Flower, and Agricultural Seeds.

WILLIAM BARNES begs to inform his friends and the Public generally, that his NEW CATALOGUE is now ready, and can be obtained upon application, Post-free. Camden Nursery, Camberwell.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E. SPECIAL LISTS of SEEDS (crop 1863) gratis on application. Prices the lowest consistent with first-class quality.

Genuine Vegetable and Flower Seeds

CARRIAGE AND PACKAGE FREE.

MCRAE AND FRASER, SEED MERCHANTS and NURSERYMEN, Tredegar Nursery, Bow, London, E. PRICED LISTS forwarded Free on application.

SEAKALE, per 100, 5*s*. 6*d*., 7*s*. 6*d*.; Extra Strong, 12*s*. 6*d*.; quotations to the Trade on application. BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CHAMPION of ENGLAND PEA. For Sample and Price apply to Mr. WILLIAM CANT, Seed Grower, Myland Lodge, Colchester.

Hair's Dwarf Mammoth Peas.

E. P. DIXON AND SONS have a Surplus Stock of the above, which they can supply very low. 57, Queen Street, Hull.

HOW to GROW ASPARAGUS.—For the quickest and best method of Cultivating Asparagus see SUTTON'S AMATEUR'S GUIDE, pages 6 and 26, which may be had post free for 6 stamps, or gratis by customers. Royal Berkshire Seed Establishment. Reading.

Broccoli all the Year Round.—See

SUTTON'S AMATEUR'S GUIDE, pages 9 and 10, which will be sent post free on receipt of 6 penny stamps, or gratis to customers. SUTTON & SONS, Seed Growers, Reading, Berks.

Potatos for Planting.

SUTTON'S DESCRIPTIVE LIST, Post Free. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Skerry Blue Potato.

SUTTON AND SONS have a large Stock of this very productive and fine POTATO, which they can sell at low prices in large quantities for Field Planting. Royal Berks Seed Establishment, Reading.

THE BEST EATING POTATO all the year round is EARLY OXFORD. 5*s*. per bushel of 56 lbs. RICHARD SMITH, Seed Merchant, Worcester.

EARLY TEN WEEK POTATOS, price 4*s*. per cwt. Apply to Mr. GEO. H. CANT, Mile End, Colchester.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

True Skerry Blue Potatos.

JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, can supply these at 10*s*. per sack of 16 stones imperial. This stock has never been touched by disease, and the present crop is 10 tons per acre.

SEED POTATOS.—An unsurpassed Stock, including every variety of value, carefully selected. Prices moderate. HOOPER & Co., Covent Garden Market, London, W.C. CATALOGUES Post-free.

SEED POTATOS.—Webb's Imperial Kidney, 10*s*. per cwt.; Gloucestershire Kidney, 12*s*. per cwt.; Daintree's Earliest, 7*s*. 6*d*. per cwt.; Walnut Leaf Kidney, 12*s*. per cwt. Sacks 2*s*. each. Terms Cash. W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

Ashleaf Kidney Seed.

FOR SALE, a quantity of True ASHLEAF KIDNEYS, at a reasonable price. For particulars apply to W. ROBT. ALCHIN, Salesman, Borough Market.

Seed Potatoes.

H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties which they can offer to the Trade at low prices. Seed Growing Establishment. Wisbech.

To the Trade.

SEED POTATOS.—Early Handsworth, Lemon Kidney, Webb's Imperial, Daintree's Seedling, Lapstone, &c., warranted true. PRICED DESCRIPTIVE LIST sent on application to G. & W. YATES, Seed Merchants, Manchester.

ROSES.—Fine DWARF ROSES, still on Sale. A few fine Standards of 1863 yet on hand. Prices on application.
The NEW DAHLIA CATALOGUE now ready.
All the NEW ROSES in April.
JOHN KEYNES, Nurseryman, Salisbury.

Great Reduction in the Price of Roses.

BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.
CATALOGUES, with special Prices, on application to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.
DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Roses, Roses, Roses.

JOHN HARRISON begs to inform his friends in the Trade that he has still left on hand upwards of 20,000 ROSES on the MANETTI STOCK, worked so close to the root that it is difficult to know them from plants on their own roots. They are unsurpassed, if equalled, in England for strength and vigour. Also a fine stock of DWARFS on their own roots, and STANDARDS of unsurpassed excellence. Prices exceedingly low.
CATALOGUES on application.
North of England Rose Nursery, Darlington.

2000 STANDARD ROSES, strong and healthy, of the Choicest sorts; Wholesale Price 2*l.* 15*s.* per 100; Retail, 10*s.* per dozen. 500 RHODODENDRONS (in 96 distinct varieties) 15*s.* per dozen. All other kinds of Shrubs, Plants, or Seeds equally good and cheap. Orders for 20*s.* worth, or above, sent to any Railway Station in England Free.
By H. POTTER, Nurseryman and Seedsman, 65, Farringdon Street, London, E.C.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.
(No grafted plants or any drawn up under glass, which cause the great number to fail every season).
Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

New Roses for 1864.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong Plants of the following NEW ROSES to offer:—

HYBRID PERPETUALS.
Alpaide de Rotalier
Amiral la Feyrouze
Baronne Pelletan de Kinkelin
Bernard Palissy
Eugène Verdier
Gabriel de Peyronney
George Paul
Joseph Fiala
Kate Hausburg
La Duchesse de Morny
La Reine de la Pape
Leopold Hausburg
Leopold 1st, Roi des Belges
Louise Van Houtte
Madame Victor Verdier
,, Soupert

HYBRID PERPETUALS.
Mademoiselle Lobry
Maréchal Souchet (Damaizin)
,, Forey
,, Souchet (Guillot)
Pavillon de Pregny
Paul de Milleray
Senateur Reveil
Triomphe de Villecresnes

BOURBON.
Madame de Stella
Rev. H. Dombrain

TEAS.
Layá
Souvenir de Mdmselle Eugenie Pernet

A PRICED LIST with Descriptions, may be had on application.

A Very Extensive and Well-grown Stock of Roses,
CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—*s.* *d.*
STANDARD HYBRID PERPETUALS ..	18*s.* to 24 0
HALF STANDARD ditto	15*s.* ,, 18 0
DWARF ditto	9*s.* ,, 12 0
STANDARD SUMMER ROSES	18 0
HALF ditto ditto	15 0
DWARF ditto ditto	9 0
DWARF BOURBON and TEA-SCENTED ..	12*s.* ,, 18 0
DWARF CHINA	9*s.* ,, 12 0
DWARF NOISETTE	9*s.* ,, 15 0
CLIMBING ROSES	9*s.* ,, 12 0
CLIMBING ROSES, without names, for covering banks, &c. .. .. .. per 100	30*s.* 4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE	5 0

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

Cheap and Select Nursery Stock.

WM. JACKSON AND CO., Bedale, Yorkshire, beg to refer for particulars of this Advertisement to page 98, the *Gardeners' Chronicle*, 30th January last.
A few duplicate Specimens of the following:—
CŒLOGYNE CRISTATA, var., large perfect specimens, with 70 to 80 blooms. Fifty Guineas each.
VANDA SUAVIS, best kind, 4 to 5 feet, with several breaks, perfect specimens. Fifty Guineas each.
DENDROBIUM DENSIFLORUM, 8 to 10 feet in circumference, fine specimens. Thirty Guineas each.

MR. FREDERICK BREWER has pleasure in offering SEEDS of a New CABBAGE LETTUCE, unequalled for summer, autumn, and winter use, at 1*s.* per packet.
AMARANTHUS MELANCHOLICUS MAJOR, a magenta-shaded Foliage plant for ribbon Borders—the Plant of the year. 1*s.* per packet.
Choice selections of Sporiferous FERNS in 20 varieties for 5*s.*, Post free,
GOOD GARDENERS recommended.
2, Park Place, Carlton Road, London, W.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE AWARDED
IN THE YEAR 1863 TO

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL),

TWENTY-ONE of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

SUPERIOR STANDARDS, 18s. per dozen and upwards.
SUPERIOR DWARFS, 9s. per dozen and upwards.

All the NEW ROSES, including PRINCESS of WALES (W. PAUL), LORD MACAULAY (W. PAUL) and BEAUTY of WALTHAM (W. PAUL), at lowest advertised prices.

PRICED CATALOGUE Free by Post.

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.



CARTER'S

COLLECTIONS of GARDEN SEEDS

for 1864.



FOR the convenience of those of our Customers who have not the time or inclination to make out their own selection of VEGETABLE SEEDS, we submit the undermentioned COLLECTIONS, to which we respectfully invite attention, and we confidently hope that the liberal and judicious manner in which the selections are made, will induce our Customers to favour us with their commands, also their kind recommendations to their Friends. We have bestowed great care in the arrangement of the sorts; none but what we have proved in our Trial Grounds at Dedham to be the very best of its class is included, and those varieties have been chosen that are most calculated to procure a constant SUPPLY of the best kinds of VEGETABLES all the year round.

These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

No. 1, price 10s. 6d.; No. 2, price 21s.; No. 3, price 42s.; No. 4, price 63s.

CARTER'S GARDENER'S AND FARMER'S VADE-MECUM. (Now Ready.)

PART I.—Containing Scientific Description of upwards of 2000 Species and Varieties of FLOWER SEEDS, with Lists of Bulbs and Plants for Early Spring Planting, and a Calendar of Garden and House Operations for every month in the year.

PART II.—Comprising Complete Lists of VEGETABLE and FARM SEEDS, with Cultural Directions and a Calendar of Practical Farm Operations.

PARTS III. and IV. will be published in May and September respectively.

The entire Book will be forwarded in Parts as issued Free of Charge, upon receipt of 12 *Postage Stamps. Gratis to Customers.*

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	Containing 33 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion							£3	3 0
No. 2.	Containing 20 quarts Peas and Beans			ditto		ditto	ditto ...	2	2 0
No. 3.	,,	13	,,	,,	,,	,,	,, ...	1	10 0
No. 4.	,,	10	,,	,,	,,	,,	,, ...	1	1 0

For full particulars, see Catalogue, page 78.

DESCRIPTIVE SEED CATALOGUE for 1864 may be had Free and Post Paid upon application, containing all the new and most approved varieties of FLOWER SEEDS.

To Exhibitors we can strongly recommend our assortments of ASTERS, BALSAMS, CARNATIONS, STOCKS, and other Imported Seeds.

CHEAP PLANTS.—
The following in strong Plants for stock :—

NEW FUCHSIAS, best of 1863, per dozen, 6s.
NEW VERBENAS, ditto, per dozen, 4s.
NEW AGERATUM (PRINCE ALFRED), the best out, per dozen, 6s.
NEW GERANIUMS, (BEDDING), per dozen, 9s.
NEW PETUNIAS, per dozen, 6s.
LOBELIA PAXTONIANA, GORDONIANA, and four others, best of 1863, per dozen, 4s.
NEW TROPÆOLUMS, best of 1863, per dozen, 6s.
NEW HOLLYHOCKS, per dozen, 18s.
NEW ANTIRRHINUMS, per dozen, 4s.
NEW PENTSTEMONS, per dozen, 6s.
NEW MIMULUS (MACULOSUS), per dozen, 4s.
PAMPAS GRASS (ROSEUM), per dozen, 9s.
LONICERA AUREO-RETICULATA, per doz., 6s. to 9s.

Also the following in strong Plants :—

HEPATICAS, of sorts, per dozen, 3s. to 4s.
PRIMROSES, per dozen, 4s, to 9s.
POLYANTHUS, choice mixed, per dozen, 3s.
AURICULAS, border variety, per dozen, 3s.
LILIES OF THE VALLEY, per dozen, 2s.
LAVENDER, per dozen, 3s.
PINKS, finest named, per dozen, 3s. 6d.
VIOLETS, DOUBLE WHITE, PURPLE, and RUSSIAN, 3s.
ŒNOTHERA MISSOURIENSIS, per dozen, 4s.
„ SPLENDENS, per dozen, 4s.
DIELYTRA SPECTABILIS, per dozen, 4s.
PHLOX, fine named, per dozen, 4s.
HOLLYHOCKS, fine seedling, per dozen, from 3s.
GNAPHALIUM LANATUM, per dozen, 4s.
PANSIES, fine named, per dozen, from 3s.
100 CHOICE HARDY HERBACEOUS PLANTS in 50 Varieties, carefully named and packed for 25s.
12 SUPERB STANDARD ROSES, } 24 sorts for 21.
12 ditto DWARF }

☞ Carriage of Parcels amounting to 20s., paid to London.

Post Office Orders payable on Castle Hedingham, to WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Specimen Anæctochili.

JAS. BACKHOUSE AND SON can supply the undermentioned Specimen Plants in vigorous health.

ANÆCTOCHILUS LOWII.—With seven "breaks" and 20 leaves, each 2 to 5 inches long .. .. .. 21*0s.*
A. VEITCHII.—A beautiful plant of this rare species with six leaves, each 2 to 3 inches long .. .. 12*6s.*
A. PETOLA.—Five leaves, 2½ inches long .. .. .. 6*3s.*
A. PETOLA v. CUPRÆA.—This fine variety of A. petola is of very robust habit, and its transverse veins reflect a brilliant copper-coloured lustre. Plant 9 inches high, with four "breaks." Twelve leaves, each 2 to 3 inches long 12*6s*
A. SETACEUS.—Plant 5 inches high, with five leaves, about 2 inches long .. .. 6*3s.*
A. INTERMEDIUS.—Plant 5 inches high, with 9 leaves, 2 inches long.. .. .. 10*5s.*
A. ZANTHOPHYLLUS.—Plant 7 inches high, with ten leaves, 1 to 2½ inches long.. .. .. 6*3s.*

Smaller plants of all the above sorts can be supplied at 31*s.* 6*d.* to 42*s.* each, except A. Veitchii.

York Nurseries.—Feb. 1864.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.

CARRIAGE ARRANGEMENTS.

The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.

CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

HLANE AND SON beg to inform their Patrons that the season is advancing, and that it is quite time intending Planters should examine their CATALOGUES. We beg permission to call their especial attention to our WELL FAMED STOCK, among which will be found great quantities of the following, viz. :—

Abies Douglasii, 3 to 12 feet
„ orientalis, 1 to 3 feet
„ taxifolia, 1 to 3 feet
Azalea indica
„ Ghent
Araucaria imbricata, 2 to 12 ft.
Cedrus Deodara, 3 to 10 feet
„ Libani, 3 to 10 feet
Cupressus Lambertiana, 3 to 6 feet
Cupressus Lawsoniana, to 3 ft.
Fruit Trees of every description
Juniperus, upright, 2 feet
„ chinensis, 1 foot
Picea grandis
„ lasiocarpa
Picea Lowii
„ nobilis, to 4 feet
„ Nordmanniana, to 4 feet
Pinus in sorts
Podocarpus
Retinispora
Roses, strong and fine, second to none
Thuja aurea
„ gigantea
„ Siberian
Thujopsis borealis
„ dolabrata
Wellingtonia, 1 to 4 feet
Yews in variety

which we can supply at most reasonable prices.

CATALOGUES may be had gratis on application at the Nurseries, Berkhampstead, Herts.

Lawn Trees.

LILACS, STANDARDS and PYRAMIDS.—The following interesting varieties of LILACS are offered at 1*s.* 6*d.* each ; the trees are straight and well grown :—

Gloire de Moulins
Triomphe d'Orleans
Charles 10th
New Dark Red
Lilas de Louvain
Valletiana
New Light Blue
Grandiflora rubra
White Siberian
Red Siberian

SIBERIAN TREES, Standards, 5 feet stems.

Caragana jubata (rare) 2*s.* 6*d.*
„ frutescens 2 6
„ arenaria .. 2 6
„ Chamlagu.. 2 6
„ spinosa .. 2 6
Calophaca Wolgarica 2 6
Halimodendron argenteum .. .. .. 2*s.* 6*d.*
Ulmus microphylla pendula, a new small-leaved Weeping Elm 3 6

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6 ft., 7 ft., and 8 ft., 3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft., 6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft., 9*l.* 9*s.* to 10*l.* 10*s.*

Elvaston Nurseries, Derby.

H. AND R. STIRZAKER offer of good quality, 200,000 NORWAY SPRUCE, strong, from 1 to 2½ ft. ; 500,000 LARCH, twice transplanted, from 1 to 2 feet ; 10,000 STANDARD APPLES, 2 to 3 feet stem, from 25*s.* per 100.

The Nurseries, Lancaster.

For Covert Planting.

STRONG BLACK THORNS.
EVERGREEN PRIVET | GORSE or FURZE.
Price on application to
JOHN PERKINS, 52, Market Square, and Drapery, Northampton.

STRONG THORN QUICKS, 2, 3, and 4-year Transplanted ; EVERGREEN PRIVET, 3 to 4 feet ; WHITE GLOBE RASPBERRY, CARTER'S PROLIFIC RASPBERRY.

For Price and Samples, apply to JOHN CARTER, Nursery, Keighley, Yorkshire.

To Nurserymen.

TO BE SOLD, at low prices, about 200,000 3-years old THORN QUICKS, from the Seed beds.

Apply to COOPER & BOLTON, Seed Merchants, 152, Fleet Street, London, E.C.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable ; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength ; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c. ; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

Strong 2-years Transplanted Larch & Native Scotch Fir

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.

CATALOGUES and Samples will be sent free on application.

Seedling and Transplanted Forest Trees.

J. ROY, NURSERYMAN, Aberdeen, has to offer a very Large Stock of the above, comprising several MILLIONS of Seedling and Transplanted LARCH, 2 and 3 year Seedling and Transplanted SPRUCE, and fine Transplanted PINUS AUSTRIACA, 10 to 12 inches.

Special Offers and Samples will be forwarded on application.

2,000,000 Transplanted Thorn Quicks for Sale.

JOHN BUCK, Melbourne, near Derby, in offering the above, begs to say that they are of superior quality, and that he will deliver any quantity free at Derby Station at the following prices :—

3 years old, transplanted .. .. .. 8*s.* 0*d.* per 1000
„ strong, all selected ..10*s.* to 12 0 „
4 years old, very strong, suitable for filling up old fences .. .. .. 16 0 „
GREEN HOLLIES, fine bushy plants with fine roots, from 16 to 20 inches . 10 0 per 100

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
„ HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
„ WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
„ LOMBARDY, 8 to 10, and 10 to 12 feet
„ ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
„ ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, (CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black

Huntingdon Nurseries.

FOR SALE, 30,000 LARCH, 30,000 SCOTCH, 100,000 SPRUCE, and 100,000 extra strong THORNS, all from 2 to 3 feet high ; 3000 DEODARS, splendid plants, to be sold a bargain.

For prices, &c., apply to J. SCOTT, Merriott Nurseries Somerset.

SCOTT'S FRUIT TREE CULTIVATOR, his CONIFEROUS CATALOGUE, his FLOWER GARDEN ANNUAL DIRECTORY, and his SELECT SEED CATALOGUE, ought to be in the hands of every lover of a garden. They are allowed to be the best published on these subjects, and are replete with information. Two Stamps required.

SEEDLING FOREST TREES, &c.

		s.	*d.*
4,000,000	1-year LARCH	per 100,000	100	0
400,000	1-year BIRCH	per 1000	2	0
300,000	1-year ALDER	„	1	6
300,000	1-year SYCAMORE	„	2	0
50,000	1-year MAHONIA AQUIFOLIA ..	„	7	0
1,000,000	2-year SPRUCE FIR	„	1	6
500,000	3-year „ „	„	2	0
300,000	2-year BEDDED SPRUCE FIR ..	„	5	0
600,000	3-year SILVER FIR	„	5	0
50,000	4-year „ „	„	7	6
50,000	2-year PINUS AUSTRIACA ..	„	6	0
300,000	3-year BEECH	„	4	0
2,000,000	2-year ASH	„	2	0
60,000	1-year COMMON LAUREL ..	„	15	0
300,000	Transplanted SPRUCE FIR, 12 to 18 ins.	„	15	0
80,000	Twice Transplanted AMERICAN ARBOR-VITÆ, 6 to 8 inches	„	30	0

The Subscriber begs to call the attention of the Trade to the above, hoping to be favoured with their orders, which shall be executed without delay, and in the best possible manner. All delivered free of expense at Dublin.

Application to MICHAEL BURKE, Drumlargan Nurseries ummerhill, County Meath, Ireland.

GENUINE SEEDS.—CARRIAGE FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to state that his PRICED and DESCRIPTIVE CATALOGUE of FLOWER and VEGETABLE SEEDS can be had Post Free on application. It contains all that is really worth growing amongst Novelties, and carefully selected Lists of indispensable articles. The Prices are quoted as low as possible for the finest samples that are to be procured.

The following are specially recommended :—

	Per packet.—*s.*	*d.*
CUCUMBER, all the best kinds	1	0
MELONS, all the best kinds	1	0
BROCCOLI, SNOW'S WINTER WHITE	1	0
„ GRANGE'S EARLY WHITE CAPE ..	0	6
„ CARTER'S CHAMPION	1	0
„ BACKHOUSE'S WINTER WHITE PROTECTING	2	6
ALMA COS LETTUCE	0	6
MOOR PARK COS LETTUCE	0	6
STANSTEAD CABBAGE LETTUCE	1	0
LITTLE PIXIE CABBAGE	0	6

	Per packet.—*s.*	*d.*
CELERY, WILLIAMS' MATCHLESS RED	1	6
CAULIFLOWER, WALCHEREN	0	6
„ EARLY MAMMOTH	1	0
„ EARLY LONDON	0	6
PARSNIP, THE STUDENT	0	3
PINE APPLE SHORT-TOP BEET	0	3
MELVILLE'S GARNISHING KALE	0	3
COTTAGERS' KALE	0	3
CHUSAN MARROW, a new and distinct variety ..	2	6
IMPROVED DWARF BRUSSELS SPROUTS	0	3

*** *Any of the above can be had Post Free.*

STRONG ASPARAGUS ROOTS for FORCING. DOUBLE TUBEROSES, 3*s.* per dozen.
CHOICE GLADIOLI ROOTS, 4*s.*, 6*s.*, 8*s.*, 10*s.* per dozen.

THE LONDON SEED COMPANY, LIMITED.

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE COMPANY are now sending out their COLLECTIONS of SEEDS, which will be delivered Carriage Free to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1. Complete Collection, sufficient for a Large Garden for One Year's supply £3 0 0
No. 2. Complete Collection for a Moderate Sized Garden 2 0 0
No. 3. Complete Collection, in Smaller Quantities 1 0 0
No. 4. Complete Collection for a Small Garden 0 15 0
No. 5. Complete Collection for „ „ 0 10 6
No. 6. Extra Large Collection, containing Double the Quantities of No. 1 ... 5 0 0

A DETAILED LIST of these COLLECTIONS will be found in the GENERAL PRICE CURRENT, which is now ready, and will be forwarded Gratis and Post Free to any address in the Kingdom.

ADDRESS : 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

Half-standard Apples.

RICHARD SMITH being overstocked, will sell in lots of not less than 50, good Trees of best sorts, and true to name, at 30*s.* per 100; also Half-standard GREEN GAGE PLUMS, very fine, at 50*s.* per 100.

RICHARD SMITH, Nurseries, Worcester.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES. — Beautiful Trees for Garden or Orchard Houses. RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.

LIST of SORTS sent on application.

INGRAM'S PROLIFIC MUSCAT, the most free bearer of all for pot culture; suitable for ordinary Vineries.

FRANKENTHAL, the best of all the Black Hamburghs.

TRUE CHAMPION HAMBURGH, the largest berry, and very fine fruit.

CHAVOUSH, new white; Fruiting Canes, 10*s.* 6*d.* to 21*s.*

Wellington Nursery, St. John's Wood, London, N.W.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First class Certificate was awarded for it by the Fruit Committee on September 10, 1861.

The following is an Extract from the Report:—

"Mr. RIVERS's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."

Fruit large, often measuring 9 inches in circumference.

Young Trees, full of blossom buds, 10*s.* 6*d.* each.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

New Pear, British Queen (Ingram).

CHARLES TURNER has much pleasure in offering this beautiful PEAR. The following description is supplied by Mr. POWELL, of the Royal Gardens, Frogmore:—

"This Queen of Pears was raised by Mr. Ingram, Gardener to Her Majesty at Frogmore, and is considered, by all that have had the opportunity of testing its merits, to be the best Pear ever raised. The late Prince Consort was so pleased with the Fruit, that he characterized it as the best Pear he had ever tasted. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society, in 1861, and since maintained its character by taking the First Prize at the great Autumn Show of the above Society, in 1862. The Fruit is large, pyramidal in form, skin smooth and glossy, of a fine golden yellow, partly spread with cinnamon russet, and often a tinge of lively crimson on the sunny side; flesh yellowish-white, very fine grained, with an abundance of juice, which is saccharine and rich, with a fine aromatic flavour; in beauty and excellence it has no equal; ripe in October and November."

Plants, 10*s.* 6*d.* and 15*s.*

A COLOURED DRAWING may be had, Post Free, for 12 Postage Stamps.

The "Pine Apple" Scarlet-flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

CUCUMBER.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.

A fine Collection of CUCUMBERS and MELONS at 1*s.* per packet. For List see this Paper of Jan. 30, 1864.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

Griffin's ALMA LETTUCE, true, 1*s.* per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement of Jan. 30, 1864, with the exception of General Outram Cucumber, for 3*s.*

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.

W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.

Elvaston Nurseries, Derby.

SKERRY BLUE and FLOUNDER POTATOS.—The Skerry Blue is a very fine, late, table Potato, and the only variety entirely free from disease. The Flounder is as early as the Ashleaf, and very large, and particularly suitable for Market Gardeners. Free on board at Belfast (sacks included). Skerry Blues, 6*s.* per cwt.; Flounders, 10*s.* per cwt. Cash to accompany order.

JOHN E. ANDERSON, Seedsman, Downpatrick, Ireland.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

PURE SEED POTATOS.—The Subscribers have a surplus stock of the following Potatos, grown by themselves specially for seed from the purest stocks, which they will dispose of on reasonable terms, viz.:—Golden Dwarf Globe, Flour Ball, Flukes, Lancashire Early Rough Whites, and British Queen. Price and other particulars on application.

HOGG & WOOD, Seed Merchants, Coldstream, N.B.

Potatos, &c.

H. BROWN has succeeded in purchasing a large quantity of the True Old ASHLEAF KIDNEY POTATO, which he will sell at 12*s.* per cwt. for immediate orders. FLUKES, KEMPS, SEEDLINGS, &c., off the Lancashire Moss and Sand, 5*s.* per cwt., price to the Trade. Also SHALLOTS, GARLIC, POTATO ONIONS, &c., on application.

For Seed Collections, see *Gardeners' Chronicle* of January 30, or PRICED DESCRIPTIVE CATALOGUES.

Seed Warehouse, 4, Commutation Row, Liverpool.

Seed Potatos.

WILLIAM ROSE, SEED POTATO GROWER, Combe Down, Bath, is taking orders for the following varieties of SEED POTATOS, warranted true to their kind—

DALMAHOY, per peck of 20 lbs, at	1*s.* 6*d.*
FLUKES	1*s.* 6*d.*
SKERRY BLUES, the most productive Potato in cultivation	1*s.* 6*d.*

Sacks, 2*s.* each.

Delivered at the Bath Railway Station.

THOMAS AYRES, Biggleswade, Beds, NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863:—

"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."

Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

Seed Potatos, Skerry Blue.

ANDREW G. DALY, Newry, Ireland, has secured from the Antrim Mountains (where first raised) 50 Tons of this enormous producing POTATO, genuine and pure, from the Parent Stock; in Bags, 2½ cwt., at 5*s.* per cwt., or 2*s.* 6*d.* per bushel.

WM. WOOLSEY, Esq., Castle Bellingham, says—"From 1½ cwt. you sent me of your pure hardy seed, I have two tons of sound Potatos, not a diseased one."

BOSTON BLUE-NOSED KIDNEY, raised in Massachusetts, U.S.—This is also an enormous producing Early Potato; 20 Tons of sound, large, well flavoured Potatos have been sold from an acre of ground in July. In Bags, 2½ cwt, at 8*s.* per cwt.; or 4*s.* per bushel; bags, 1*s.* 6*d.* each.

Delivered in Liverpool, Dublin, or Glasgow.

SELECTED SEEDS, CARRIAGE FREE.

PAUL'S SUPERB CRIMSON BEET, 1*s.* per ounce.
PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s.* per packet.
PAUL'S EMPEROR CUCUMBER, 2*s.* 6*d.* per packet.
PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s.* per pkt.
PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s.* per pkt.
PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d.* per pkt.
BROCKET HALL BROWN COS LETTUCE, 1*s.* per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s.* per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s.* per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s.* per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s.* per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL's Collection in 12 distinct named sorts, 5*s.*
,, finest mixed, 1*s.* to 2*s.* 6*d.* per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s.* to 2*s.* 6*d.* per packet.
All other Seeds, separate or in collections, of best quality.
PRICED DESCRIPTIVE CATALOGUE free by post.
Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5*s.* per quart. Per packet—	*s.*	*d.*
DIXON'S New MAMMOTH WHITE CELERY ..	1	0
DIXON'S New CHAMPION GREEN COS LETTUCE	1	0
DIXON'S YORKSHIRE FAVOURITE MELON ..	1	0
DIXON'S YORKSHIRE HERO CUCUMBER	2	0
The EARLY FORCING CAULIFLOWER	1	0
The ROSEBERRY BRUSSELS SPROUTS	0	6
MELVILLE'S VARIEGATED GARNISHING KALE ..	0	6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.

Fulham Nursery, London, S.W.—February 13.

Special offer to the Trade on application.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post-free, 1*s.* per ounce. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the Lists which appeared in *Gardeners' Chronicle* of Nov. 28 and Dec. 19, 1863.

Royal Berks Seed Establishment, Reading.

New Sorts of Peas.

THE ADVANCER, PRINCESS ROYAL, PRINCESS of WALES, and other NEW PEAS, are included in SUTTON'S PRICED SEED LIST, just published, and which may be had, Gratis and Post free, on application addressed

SUTTON & SONS, Seed Growers, Reading, Berks.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—

DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW ,,
WOODFORD'S GREEN MARROW ,,

Fairbeard's Forty-fold Blue Marrow Pea.

J. FAIRBEARD begs to offer to the public in general a large and distinct New BLUE WRINKLED MARROW PEA, as early as Fairbeard's Champion, about the same height, quite equal in flavour, but much more prolific, and remains much longer in a green state for picking. Retail 3*s.* 6*d.* per quart. Trade price upon application. Early orders are requested, as the stock is limited.

J. FAIRBEARD, Nurseryman and Seedsman, Green Street, Sittingbourne, Kent.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s.* 6*d.* per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4*s.* per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4*s.* per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s.* and 2*s.* 6*d.* per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1*s.* each. This Leek can be grown from 4 to 5lbs. weight. None genuine unless in their own sealed packets.

17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—*s.*	*d.*
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..	2	6
,, LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

Hanover Nursery, Peckham, S.E.

IVERY'S NONSUCH LETTUCE, the best Summer variety in Cultivation, 1*s.* per packet. See *Gardeners' Chronicle*, Jan. 30, for further particulars, with names of Seed Merchants and Nurserymen who have received a supply direct from W. I.

SEED CATALOGUES free by Post on application.

The Trade supplied with Mushroom Spawn.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:

Price for Picked Roots, per 100	10*s.*	0*d.*
Do. second size ,, ...	7	6
Also strong for Planting, per 100 .. 5*s.* and	7	6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1*s.* Post free, 14 stamps.

Sonning, near Reading.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

The MANAGER begs to solicit attention to the following Choice GARDEN SEEDS, now being sent out by the Company, full descriptions of which will be found in the GENERAL PRICE CURRENT.

	s.	*d.*
MACLEAN'S HERO PEA, 2 feet .. .. per qt.	5	0
,, NEW DWARF WHITE, 2½ feet .. .. ,,	1	6
ADVANCER, 2 feet .. .. ,,	1	6
WONDERFUL, 2½ feet .. .. ,,	1	6
BECK'S DWARF GEM BEANS, 1 foot .. .. ,,	1	0
VARIEGATED DUN DWARF, 1 foot .. .. ,,	1	6
NUTTING'S fine RED BEET .. .. per oz.	1	0
BACKHOUSE'S WINTER PROTECTING BROCCOLI, per pkt.	1	0
DALMENY WHITE .. .. ,,	1	0
DALMENY SPROUTS .. .. ,,	1	0
FEARNOUGHT CABBAGE .. .. ,,	1	0
TOM THUMB .. .. ,,	1	0
HOOD'S IMPERIAL DWARF RED CELERY .. ,,	1	0
MOORE'S VEGETABLE CREAM .. .. .. ,,	1	0
TOMATO DE LAYE, a new upright growing var. .. ,,	1	0
PRINCESS ALEXANDRA MELON .. .. ,,	2	6
STUDENT PARSNIP .. .. per oz.	1	

CATALOGUES and all other information may be had on application at the Offices, 68, Welbeck Street, Cavendish Square, London, W.

Unadulterated Choice Seeds.

ROBERT PARKER begs to announce he can supply a few pounds of each of the undermentioned, price of which will be forwarded on application:—

CUSTARD VEGETABLE MARROW.
LOBELIA ERINUS SPECIOSA.
LEEK HYBRID PRIZE (HENRY'S), the largest and finest in cultivation.
LETTUCE MOOR PARK, the best Brown Cos in cultivation.

A NEW PRICED and DESCRIPTIVE SEED and PLANT CATALOGUE is published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the Smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10s. and upwards.

Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

Sticks and Tallies.

F. A. HAAGE'S, JUN., PRUSSIAN WOOD GARDEN STICKS and TALLIES, Commended by the Royal Horticultural Society, may be had of all sizes, Wholesale of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C., and Retail of all the Nurserymen and Seedsmen in London and the Provinces.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.

Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

REIGATE SILVER SAND, 7s. 6d. per ton; packed, 16s. per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.

W. SHORT, Sand and Peat Depot, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

SEVERE FROST.

IMPORTANT NOTICE.

IT IS WITH FEELINGS OF CONSIDERABLE PLEASURE, MINGLED WITH A SANGUINE DESIRE TO ADVANCE THE BEST INTERESTS OF THE HORTICULTURAL WORLD, THAT

JOHN WEEKS & COMPANY

EMBRACE THIS SEASONABLE OPPORTUNITY OF CALLING SPECIAL ATTENTION TO THE STORE OF USEFUL AND PRACTICAL INFORMATION TO BE OBTAINED BY PAYING AN EARLY VISIT TO THE UNDERMENTIONED ESTABLISHMENTS, WHERE THEIR MARVELLOUS AND EFFICIENT

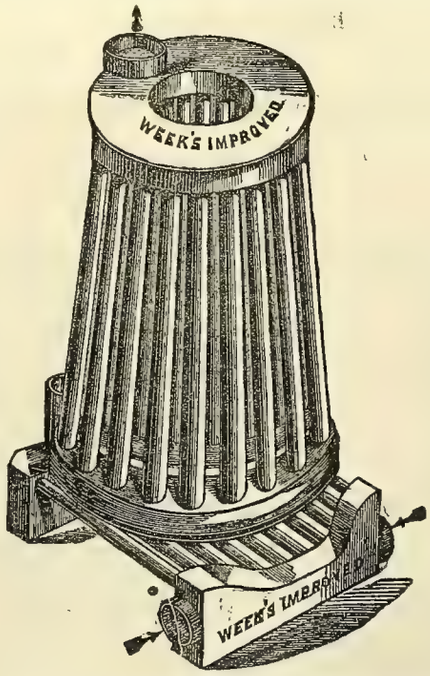
ONE-BOILER SYSTEM of HEATING by HOT-WATER

MAY BE SEEN IN SPLENDID OPERATION.

The number of BOILERS and FURNACES removed from these various Establishments to be substituted by WEEKS'S ONE-BOILER SYSTEM, range from 8 to 22. Thus, in one instance the labour and fuel of 21 fires becomes a complete saving.

The Principal Establishments are:—

THE ROYAL HORTICULTURAL SOCIETY, LONDON
THE ROYAL BOTANIC SOCIETY, REGENT'S PARK, LONDON
THE ROYAL BOTANIC SOCIETY, DUBLIN
THE ROYAL BOTANIC SOCIETY, LIVERPOOL
THE ROYAL ZOOLOGICAL SOCIETY, LONDON
THE CRYSTAL PALACE, SYDENHAM
MESSRS. E. G. HENDERSON AND SON, WELLINGTON ROAD
ARTHUR HENDERSON AND CO., PINE APPLE NURSERY, EDGWARE ROAD
MESSRS. F. AND A. SMITH, DULWICH
MR. WOODROFFE, HARROW ROAD
MONS. LOUIS VAN HOUTTE, GHENT
MESSRS. JAMES DICKSON AND SONS, CHESTER
„ F. AND A. DICKSON AND SONS, CHESTER
„ WOOD AND SONS, UCKFIELD
„ WOOD AND INGRAM, HUNTINGDON
ST. THOMAS'S HOSPITAL, LONDON
WHITECHAPEL UNION
MESSRS. WEEKS'S SHOW ESTABLISHMENT, CHELSEA



J. WEEKS & Co. unhesitatingly aver that for magnitude and efficiency, and heated by one fire, a parallel to the various apparatuses at the above is not to be found in the United Kingdom.

At the CRYSTAL PALACE their New No. 6 BOILER is Heating an equivalent to nearly 20,000 feet of 4-inch piping — a feat hitherto unheard of, and certainly not to be accomplished by any other than WEEKS'S ONE-BOILER SYSTEM.

CATALOGUES, PLANS, AND ESTIMATES FREE.

J. WEEKS AND COMPANY, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, KING'S ROAD, CHELSEA, S.W.

Seeds Carriage Free.

J. DOBSON AND SONS' CATALOGUE for 1864 is now ready, gratis and Post-free.

VEGETABLE SEEDS, best quality, 300 sorts.
FLOWER SEEDS, best quality, 400 varieties.
FARM SEEDS, best quality.

Woodlands Nursery, Isleworth, W.; and High Street, Hounslow, W.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of SEEDS for 1864 is now ready, and contains select lists only of

SEEDS for the KITCHEN GARDEN,
SEEDS for the FLOWER GARDEN,
SEEDS for the FARM.

And will be forwarded, Post-paid, on application.

Nursery and Seed Establishment, Westerham, Kent.

West Riding Seed Establishment, St. John's, Wakefield.

THE PROPRIETORS beg to announce they have received their new supply of VEGETABLE SEEDS, which have been tested, and will be found to be genuine. Their supply of FLOWER SEEDS comprises all the Novelties of the present season.

CATALOGUES will be forwarded free on application to WILLIAM BARRATT.

Vegetable and Flower Seeds

OF THE VERY BEST, INCLUDING MANY NEW VARIETIES.

WM. B. JEFFRIES is now sending out his 21*s.* Collections of VEGETABLE SEEDS, for a whole year's supply, which have given general satisfaction the last 10 years, including 20 packets of choice FLOWER SEEDS, or half the quantities, 10*s.* 6*d.*

CATALOGUES of PLANTS, SEEDS, &c., free for two stamps. Arboretum Nurseries, Ipswich.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

CONIFERÆ.—ARAUCARIA IMBRICATA, 14 ft. high; PICEA PINSAPO, 12 feet high; WELLINGTONIA GIGANTEA, 8 feet high, with about 170 other select species and varieties of all sizes and prices.

W. SHORT, Salesman, Reigate, Surrey.

Dodecatheon elegans.

DOWNIE, LAIRD, AND LAING have to offer 6000 of the above, at 30*s.* per 100. Price to the Trade on application.

17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60*s.*; per doz., 9*s.*, including package.

Elvaston Nurseries, Derby.

BERBERIS DARWINI, Lawn and Cover.—Too much cannot be said of this fine evergreen species; it is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.

W. BARRON can supply strong and well-rooted plants of the above.

1 to 2 feet .. per 100, 20*s.* | 2 to 3 feet .. per 100, 30*s.*

Elvaston Nurseries, Derby.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18*s.* to 30*s.* per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12*s.* per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.

THOMAS AYRES.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

Asters, Stocks, Wallflowers.

JAMES TYNAN'S importation of the above and other Select CONTINENTAL FLOWER SEEDS is now ready, and consists of none but first-class varieties, such as have previously given so much satisfaction to those who have grown them.

An extensive assortment of other ANNUAL and PERENNIAL FLOWER SEEDS, containing all the good and rare kinds. All the above are made up in large or small packets to suit the requirements of purchasers.

VEGETABLE and AGRICULTURAL SEEDS of the very best quality, at moderate prices.

PRICE LISTS free by post on application.

Importer of CONTINENTAL SEEDS.

Seed Warehouse, 68, Great George Street, Liverpool.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.

A trial is respectfully solicited.

PRICED CATALOGUES POST FREE ON APPLICATION.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

SUTTON'S

UNRIVALLED COLLECTIONS of GARDEN SEEDS

FOR ONE YEAR'S SUPPLY, WITH INSTRUCTIONS ON CULTIVATION.

1.	A Complete Collection of Kitchen Garden Seeds for One whole Year's Supply	£3	3	0
2.	A Complete Collection of Kitchen Garden Seeds, proportionately reduced ...	2	2	0
3.	A Complete Collection of Kitchen Garden Seeds ditto ditto ...	1	11	6
4.	A Complete Collection of Kitchen Garden Seeds ditto ditto ...	1	1	0
5.	A Complete Collection of Kitchen Garden Seeds ditto ditto ...	0	15	0
6.	A Complete Collection of Kitchen Garden Seeds for a Small Garden	0	10	6
7.	A Complete Collection of Kitchen Garden Seeds, extra quantities, for a Large Family	5	5	0

FLOWER SEEDS, FREE BY POST.

The best 100 sorts of FLOWER SEEDS, hardy, half hardy, and tender, with instructions ...	£1	1 0
The best 50 sorts ditto, with instructions	0	10 6
The best 36 sorts ditto	0	7 6
The best 24 sorts ditto	0	5 0
The best 50 sorts, all hardy, and very distinct in colour	0	10 6
The best 36 sorts, all hardy, ditto	0	7 6
The best 24 sorts, all hardy, ditto	0	5 0

All Goods Sent Carriage Free by Rail, except very small parcels, and 5 per cent. discount allowed for Cash Payment.

A LIST of the CONTENTS of SUTTON'S COMPLETE COLLECTIONS may be had Post Free on application, as also SUTTON'S SHORT SELECT SEED LIST, which gives the price of every article separately.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.



VEGETABLE SEEDS, amounting to 21*s.*, sent Carriage Paid. SEAKALE ROOTS, per 100, 5*s.* 6*d.*, 7*s.* 6*d.*; Extra Strong, 12*s.* 6*d.*

BARR & SUGDEN'S COLLECTIONS of VEGETABLE SEEDS for 1864.

Embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.

For Particulars see *Gardeners' Chronicle*, January 23, 1864, page 74; or B. & S.'s COMPENDIUM of their GUIDE to KITCHEN GARDEN.

No. 6	contains	33 qt.	of Peas, Beans, and other Seeds in proportion	...	...	for	£3	3	0
No. 5	,,	20 qt.	ditto	ditto	ditto	ditto	...	...	...	2	2	0
No. 4	,,	13½ qt.	ditto	ditto	ditto	ditto	...	...	...	1	10	0
No. 3	,,	10 qt.	ditto	ditto	ditto	ditto	...	...	...	1	1	0
No. 2	,,	13½ pt.	ditto	ditto	ditto	ditto	...	...	...	0	15	6
No. 1	,,	7 pt.	ditto	ditto	ditto	ditto	...	...	...	0	10	6

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

SENT POST PAID,

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS.

ADAPTED TO ANY STYLE OF GARDENING.

For particulars, see *Gardeners' Chronicle*, Feb. 6, p. 118; or B. & S.'s COMPENDIUM of their ILLUSTRATED GUIDE to the FLOWER GARDEN.

HARDY ANNUALS.
HALF-HARDY ANNUALS.
HARDY PERENNIALS.
HALF-HARDY PERENNIALS.
BEST ANNUALS and PERENNIALS for ROCKWORK.
BEST ANNUALS for ROCKWORK.
BEST PERENNIALS for ROCKWORK.
DWARF ANNUALS best ADAPTED for EDGINGS.
SWEET-SCENTED ANNUALS.
EVERLASTING FLOWERS for WINTER BOUQUETS.
ORNAMENTAL-FOLIAGED PLANTS.
ORNAMENTAL-FRUITED PLANTS.
ORNAMENTAL GRASSES.
ORNAMENTAL PRIZE GOURDS.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

Paul's Hollyhock Seed.

COLLECTION OF 12 NAMED VARIETIES, POST-FREE, 5*s.*

PAUL AND SON have now ready the above; they canbe also had of the principal Nurserymen and Seedsmen. Genuine Vegetable and Flower Seeds Carriage Free. List on application.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.

P.S. A large stock of FINE PLANTS now ready.

Nurseries, Saffron Walden.

PELARGONIUMS and CINERARIAS.—Intending Purchasers are respectfully solicited to send for our DESCRIPTIVE CATALOGUE of many hundreds of varieties, at very moderate prices, which will be forwarded Post free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

THOMAS METHVEN begs to intimate that his NEW CATALOGUE of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., for 1864 is now ready, and will be forwarded Post-free on application.

Seed Warehouse, Nursery Gate, Leith Walk, Edinburgh.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb.—Imported GERMAN ASTER, STOCK, WALLFLOWER, Phlox Drummondii, Zinnia, Balsam, Cockscomb, Larkspur, Dianthus, Variegated Poppy, English Saved Calceolaria, Cineraria, Chinese Primula, Mimulus, Rhodanthe, Pansy, Hollyhock, Antirrhinum, Auricula-eyed Sweet William.

Packets, 6*d.* to 1*s.* each.

RICHARD SMITH, Seed Merchant, Worcester.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

New Florist Flower Catalogue.

DOWNIE, LAIRD, AND LAING beg to intimate that their DESCRIPTIVE CATALOGUE of FLORIST FLOWERS, New Garden and Flower Seeds, &c, for 1864, is now ready, and may be had free on application.

17, South Frederick Street, Edinburgh; and at Stanstead Park, Forest Hill, London, S.E.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2*s.* 6*d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

BARKER'S NEW HYBRID TROPÆOLUMS.—Seed of these beautiful Hybrids, which gave so much satisfaction last year, now ready. Some of them have a charming yellow ground, strikingly spotted with dark crimson; others are variously coloured; but all are admitted to be extremely handsome. (See reports in this and other papers.) Price 1*s.* and 2*s.* 6*d.* per packet.

C. J. BARKER, Exotic Nursery, Godalming, Surrey.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS,

NURSERYMAN and SEEDSMAN,

Paradise and Victoria Nurseries, Holloway, London, N.

General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	*s.*	*d.*
50 in 50 choice varieties	2	12	6
25 in 25 ,, ,, ...	1	5	0
12 in 12 ,, ,, ... 5*s.* to	0	12	0
Extra choice mixed, 3*s.* 6*d.* per doz. .. per 100	1	5	0
Fine mixed, 2*s.* 6*d.* per doz. .. .. ,,	0	17	6
GANDAVENSIS, strong roots, 2*s.* 6*d.* per doz. ,,	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3*s.* p. doz. ,,	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz.; 20*s.* per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PANSY, 1*s.*, 2*s.* 6*d.*
DOBSON'S SUPERB SHOW PELARGONIUM, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB FANCY PELARGONIUM, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB BALSAM, 1*s.*, 2*s.*
DOBSON'S SUPERB ANTIRRHINUM, 1*s.*, 2*s.*
DOBSON'S SUPERB LOBELIA SPECIOSA, 1*s.*
DOBSON'S SUPERB HOLLYHOCKS, 1*s.*, 2*s.* 6*d.*, 5*s.*

The Trade supplied on liberal terms.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Good Seeds, Carriage Free.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, can supply every kind of FARM and GARDEN SEEDS of genuine and superior quality.

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment. For particulars apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 13, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, February 18—Linnean .. .. 8 P.M.

IN another column will be found some account of the proceedings of the Royal Horticultural Society at the Anniversary on Tuesday last. The discussion was more than usually animated, and eventually the meeting was adjourned for a fortnight.

We have no space to-day for comment, in consequence of the great length to which the report of the meeting has run. If necessary, however, we shall return to the subject hereafter.

IT has been already announced that the proprietors of the *Gardeners' Chronicle* intend to distribute the sum of 20*l.* in 1864, and a similar sum in 1865, in the form of LADIES' PRIZES, for plants cultivated and shown by lady gardeners at the meetings of the Royal Horticultural Society. The object of offering these prizes is to induce Ladies—many of whom, as we have already remarked, are most excellent gardeners, and also admirable critics of the skill displayed by gardeners at our flower shows—to take a more direct interest than that of mere lookers on, in those great floral displays which have had so potent an influence on the practice of plant culture. The fair critics themselves will be thus invited to take part in the proceedings on such occasions, and to submit their own horticultural attainments to a not unfriendly criticism.

In order that the task imposed may not be too laborious, the objects to be brought into competition for these special prizes are to consist each of a single plant, or at least, of the contents of a single flower-pot. They are to be illustrations of what is called indoor gardening, that is to say, of plant culture, carried on with such aid as is afforded by indoor plant-cases, window ledges, and conveniences of this nature. The competitors are to consist of ladies only. In the present year the prizes will be distributed at the first great show to be held at South Kensington on the 1st and 2d of June. Any kind of drawing-room plant will be admissible. It is understood that the plants which are to be sent in for competition shall have been really cultivated by the ladies by whom they may be exhibited, and not by other persons employed for the purpose; but no further condition as to the production of the plants will be imposed.

We have said that any kind of drawing-room plant will be admissible, by which is to be understood that the prizes are equally open to be competed for by plants which are interesting either on account of their flowers or their foliage, and that in these two series the choice of subjects, for this year at least, is perfectly open. As some sort of guide to indicate the kind of subjects which would be most likely to become available, we may mention of flowering plants, such as Pelargoniums of all kinds, Fuchsias, double and single; China, Fairy, and other Roses, Heliotropes, Gloxinias, Achimenes, cool Orchids, Begonias, Heaths, Azaleas, Statices, Agapanthus, Vallotas, and such like. Of foliage plants there might be Adiantums and other Ferns of various kinds, hardy or tender; Lycopods or Selaginellas of erect and bushy habit; Caladiums, variegated Begonias, Anæctochili, Cephalotus, Myrtles, Coleus Verschaffeltii, trained Ivies with pretty leaves, and so on. In fact, anything pretty, and suitable for drawing-room decoration.

In order to give the utmost possible interest to this competition, two prizes only, of 10*l.* each, will be awarded; so that the winners will really receive some substantial recognition of their skill. The winning subjects however must be dissimilar, and must belong to different competitors. It will be necessary on the part of the exhibitors that notice of the intention to exhibit should be sent to the Garden Superintendent at South Kensington, not later than the 28th of May, in order that suitable space may be provided for the plants; and on the 1st of June the plants must be in their places and ready for adjudication by 10 o'clock in the morning. The usual arrangements will be made to receive and label the several competition plants.

We trust the fair gardeners of England, and especially those of the metropolis and its suburbs, will, in this friendly encounter amongst themselves, fully vindicate the position which has been claimed for them in respect to their horticultural prowess.

WE have just received a well written and highly creditable letter from a person who signs himself "A Young Gardener," respecting an extraordinary failure which has taken place in an establishment of which he is a junior member, though, it may be observed, his inquiry is made with the perfect concurrence of his employer. The letter was accompanied by specimens of the COMPOST in use, and of the dung and soil of which it was composed, together with bulbs of Hyacinths, Tulips, Narcissuses and Crocuses, all of which had failed in a similar manner.

Had the matter been confined to these, we should have thought the fact of their having been ever since October in a shed, enough to account for their condition, but as Eriostemons, Azaleas, Pimeleas, Epacrids, Cinerarias, Primulas, Coronillas, and other plants all suffered in a similar way, we must look in another direction for the solution of the difficulty. Our correspondent, however, shall first speak for himself.

The compost is a mixture of dung and soil in about equal proportions. The dung was procured from some distant stables, and while in a state of fermentation and rather wet, was made into a Mushroom bed in a dry shed in October 1862, and wheeled out in the spring of 1863, and exposed to all weathers. It was always very dark and adhesive, and so retentive of moisture that having been placed in a very dry shed in a small heap for several weeks, it was found difficult to rub it through a riddle of half-inch mesh with the hand.

The soil was cut from a neighbouring pasture in a dry place in the autumn of 1862. The turf was pared off, about 8 inches thick, and the soil removed from where the turf was raised to the depth of 4 or 5 inches, the turf being returned to its old position. Melons were planted in it last summer, but were a total failure. Cinerarias and Primulas dragged out in it a miserable existence where the soil preponderated in the compost. Chrysanthemums refused to flourish. A Coronilla was planted in it to check the growth and cause it to bloom freely, and it would not grow at all till supplied with manure water.

Attention was called to the matter, but without

much effect, till a large quantity of bulbs which were planted in it were in such a dreadful condition that it became imperative to make some inquiry.

We have had no opportunity of seeing any plants except the bulbs. These appear in themselves to be perfectly healthy, and to have sent out at first vigorous roots, but in every case the tips of these have become diseased and discoloured, or a large portion has decayed. In many instances, especially where the roots were in contact with the pots, the outer coat alone has been left, and as there were some minute larvæ in the soil, which, from the specimen sent, appear to belong to some Dipterous insect, it was imagined that they might have something to do with the evil, but there is not the least probability that this is the case.

We do not pretend to have analysed the soil. A quantitative analysis, which is the only one which would be of any use, is an expensive matter.* There seems, however, no reason to imagine that any deleterious matter has been wilfully or accidentally mixed with it, and there is enough we believe to account for the evil without any surmise of the kind. The dung had been used for a Mushroom bed, and was consequently highly impregnated with spawn, and was itself of a peculiarly ungenial nature, such as could be recommended only for very coarse purposes. But in addition, the compost was full of undecayed vegetable matter, such as scraps of Beech mast, all of which are likely to produce spawn. It is very possible, too, that there was something about the dung itself, from its bad, or as cultivators call it, sour condition, which might affect the delicate spongy tips of the roots. It is well known that deleterious matter is not absorbed by roots in any quantity while the tips remain perfect; but when the tips are destroyed the exposed tissues may imbibe a certain quantity. In many cases, the injurious constituents are deposited on the surface, and thus prevent the admission of nutritive matters. The evil has certainly been derived from the compost, for there is no indication of disease except in the lower parts of the roots.

Should this explanation fail to satisfy our Correspondent, an actual analysis may be made; but whatever might be its result, we are quite sure that we cannot caution cultivators in general too strongly against any compost whatever which is either already impregnated with fungous spawn, or likely to generate it. *M. J. B.*

* The charge at the School of Mines for a quantitative analysis of ore is five guineas. A rough analysis may be obtained there for a guinea. The charge for soil would probably be much the same.

—— THE army of Railway Companies, with a distinguished staff of engineers at its head, is again pouring forth from its winter quarters like a swarm of locusts to devour the land; here sweeping away before it every vestige of human habitation, there burrowing larva-like under ground for a season to issue forth again as full-blown snorting plagues. There is to be, as the leading journal puts it, "a great raid of new projectors and ancient schemers; of secretaries with old animosities, and directors with new aspirations; of young engineers just breaking the shell, and old engineers crowing and scratching upon their long-possessed ground; of young barristers whose friends have only just become directors, and of old stagers whose position makes them a necessity; of pushing young firms of solicitors who are aspiring to the dignity of Parliamentary agents, and of the veterans of a hundred committees, and of a thousand reams of bills of costs;" and all are now in earnest preparing for the conflict. The metropolis itself is threatened with some 50 or more invasions, many of them indeed regular sieges, with parallels pushed forward in orthodox fashion, to undermine our houses, our streets, our public squares, and our parks. Against this combined attack truly a strong defence is needed, and also untiring watchfulness so as not to be taken at a disadvantage.

The incursion of the Railway enemy, so far as it relates to our streets and houses, does not come within the province of this Journal: that belongs specially to the public authorities; but we have a word or two to say respecting LONDON SQUARES and PUBLIC PARKS, the railway attacks upon which it is not quite so much in the way of these same authorities to appreciate to their full extent. The Companies themselves, moreover, by concealing these inroads beneath the surface, doubtless hope to pass for the most part unsuspected of any design on the public enjoyment, and the public health. But they cannot be held thus innocent. Only let our tree-adorned parks and gardens, and our gardenesque squares and open spaces be attacked in the way these burrow-mongers have planned out, and then farewell to their picturesque beauty, farewell to their umbrageous shelter, farewell to their oxygenising influence on our carbonised atmosphere. Farewell at least to all those arboreal embellishments that come within their influence or their range; for, as we have shown on former occasions, it is such deep cuttings up of the subsoil beneath us, as these railway companies contemplate — cuttings which drain away all the little moisture that in paved and macadamised and roofed-in London, can possibly find its way into the earth to nourish the vegetation which it is so pleasant to see growing up about our homes—that, more than any other influence brought to bear upon them, destroys our trees, and robs our London parks, and squares and gardens, of their greatest and most natural ornaments.

But what care Railway companies and Railway engineers for such trifles as these? "A park on the line of route," as the *Times* has most truly remarked, "is apparently considered rather a good thing than otherwise, inasmuch as the promoters evidently flatter themselves that they will be allowed to tunnel through such places for nothing." The best of the squares too seem to have been selected for passing through or near, for tunnelling under, or for occupying as stations. The engineer of the Metropolitan Board of Works has reported that Hyde Park, the Green Park, St. James's Park, Kensington Gardens, Newington Park, Hackney Downs, Leyton Grange Park, Trinity Square, Finsbury Circus, Camden Square, Oakley Square, Ampthill Square, Euston Square, and Sloane Square are all proposed to be cut through, and some of them in two or three places, and that the same fate awaits the following commons:—Stoke Newington, Clapham, Tooting (invaded by seven different lines), Acton Back, Acton, Wimbledon, Fulham, and Turnham Green. It is perfectly monstrous that the lungs of London should be thus wantonly cut up.

Let any one but glance at a map of the so-called "improvements" in the shape of Railways, which are proposed to be carried out in the metropolis this year, if the Legislature will but sanction their execution. The engineer of one notable scheme, bearing for its title the "Paddington and Charing Cross railway," but which seems to have failed in completing the necessary preliminaries, actually had the hardihood to propose to bisect Hyde Park diagonally by means of a tunnel passing from the Uxbridge Road to Hyde Park Corner. Is the finest of our London Parks, with its noble trees, to be thus wantonly sacrificed? The propounders of another, called the "Metropolitan Grand Union Railway," ask leave to dash through Kensington Gardens in a tunnel, and after doing immeasurable and irreparable injury to the plantations there, to pass on by way of Exhibition Road and Sloane Square to the Thames Embankment. We trust in the interests of London trees, that this leave will not be granted. Besides, in reference to the Thames Embankment, if railways are to have full play thereon or thereunder, as the Board of Works seems to think almost inevitable —more's the pity—the splendid opportunity which now offers to margin our noble river by as noble an avenue of trees, must be utterly and for ever lost. Then, before it is lost, we ask that it may be well considered by the powers that be, how healthful to the inhabitants, how grateful to the pedestrians, and how great an ornament to our river, would such an avenue be in such a place—the most magnificent thoroughfare in the world, as it has been called. From Hyde Park Corner the before-named Paddington line sought to pass down the side of the Green Park, just beneath where there is now growing a line of thriving young Plane trees; to cross the Mall in front of Buckingham Palace, destroying trees again, and cutting the avenue in twain; and then to pass along beneath St. James's Park, to the damage of the trees now growing there. Surely some Peer or Commoner will step into the breach, as Lord DERBY did last year, and stop such selfish havoc. The Parks do not indeed escape with this amount of damage, if the engineers and companies have their way. There has been a "London Union Railway" projected to run under Hyde Park in a line almost parallel with the road from Kensington to Hyde Park Corner—just where it would damage hundreds of trees; and then to traverse the Green Park, the Mall, and St. James's Park nearly in the same line as that chosen by the Paddington and Charing Cross Company, and of course doing like mischief.

The Regent's Park escapes the hands of the railway Goths, but Euston Square comes in for further despoliation beyond what it has already sustained, one delinquent at least being a Charing Cross extension of the Tottenham and Hampstead Junction line, which also passes through Queen Square on its way to Charing Cross; as if, to quote the *Times* again, every man, woman, and child who once gets into England were seized with an uncontrollable desire to be put down at Charing Cross. But this is not the only attack to be made in that quarter. The "Charing Cross Northern Railway," in making for the same enviable spot, cuts through Red Lion Square; and Bedford Square, Tavistock Square, Russell Square, and Brunswick Square, fall uncomfortably near one or other of the Charing Cross lines. These schemes, which are virtually southward extensions of the northern and midland lines, are to be in open cuttings, which will be as destructive to tree life as though they had been tunnelled.

Further eastward the "Metropolitan Extension" seeks to pass through Finsbury Square in an open cutting, and the Metropolitan District line proposes to pass through Trinity Square in a similar way; and a net-work of competing lines, including the "London Low Level," which seems to have failed in the preliminary forms, the "London Main Trunk," and the "Metropolitan" Railways, threaten the spoliation of Finsbury Circus and its "beautiful garden, which it has required half a century to perfect." The alarmed inhabitants, harassed as they say, year by year, by repeated notices of projected railway schemes invading their retreat, have passed strong resolutions of opposition, and they will be supported by all those who are not railway-mad, or who care to see trees flourishing in the heart of London. The Chairman of their committee, too, Mr. ALFRED SMEE, has addressed a letter to the *Times*, deprecating the reckless attempts to spoliate this Circus, remarking that, "while in Paris every square, however small, is carefully watched and filled with ornamental flowers, the projectors of railroads in London are seeking to take possession of every open space." We can very well commiserate with these Finsbury residents if they are threatened with the loss of only half 50 years' growth of trees in their vicinity. A certain Mr. MANSELL, indeed, coolly remarks of the Low Level scheme, one of the delinquents, that its line is to pass under, "but not destroy," Finsbury Circus. This is adding insult to injury, for what beauty or interest would there be in the spot when made bare and desolate by the destruction of its now flourishing trees?

Passing south of the Thames, Battersea Park is allowed to go unscathed, though with a projected "improvement" on either side of it, to remind it of its narrow escape; but as we have already mentioned, Clapham Common is not so fortunate, for unless rescued from such a fate it is to be bored by some extension of the "London, Brighton, and South Coast Railway;" Tooting Common is to be pierced five times; while attacks are also to be made on various other open spaces more to the westward.

Now there can be no doubt that the execution of these various schemes, involving either the tunnelling or the deep cutting of the earth, must have an injurious influence upon gardens and gardening in the localities through which the lines are intended to be carried; while the trees, especially those of more mature growth, which come within their range must be considered as doomed to pine and die away, just as has happened already where deep sewers have been cut. There can also be no doubt—for the question is a settled one in these days of applied science,—that parks, and squares, and gardens, and trees, and flowers, are amongst the most beneficial provisions of a general kind which can be made for the public health and the public enjoyment. And this being so, we may surely appeal with confidence to the good sense and good offices of the members of the Legislature to prevent the perpetration of so much mischief at the mere bidding of a horde of railway speculators.

—— A GRAND EXHIBITION, to take place in Paris from March 12 to 17, is announced to be held in the rooms of the Imperial Horticultural Society, No. 84, Rue de Grenelle-St. Germain. Prizes varying in value up to 12*l.* sterling are offered for forced vegetables, Camellias, Heaths, Hyacinths, Epacrids, Cyclamens, Cinerarias, and all sorts of forced ornamental plants. For particulars, apply immediately to M. ROUILLARD, 28, Rue de Longchamp, Paris.

—— There will also be a GRAND EXHIBITION AT BRUSSELS from April 24 to May 6. As the list of prizes occupies 27 8vo pages, we can only state that Catalogues and all other information may be obtained of M. EDOUARD MOTTIN, Secretary, Place du Trône, Brussels. Among other things especially interesting, is the offer by her Royal and Imperial Highness the Duchess of BRABANT, of a Great Gold Medal for the best collection of 25 different Exotic Orchids in flower. That ought to come to England. It would look well suspended from the neck of an Essex friend of ours.

—— It may be worth while on behalf of those who may not see Mr. W. THOMPSON'S Seed Catalogue, to transcribe what he says in respect to the GERMINATION OF RHODANTHE SEEDS. He says it is important to know (writing of the seeds of his new Rhodanthes—atro-sanguinea, maculata, and maculata alba—all very desirable plants) that these seeds require to be *freely* watered in order to induce them to germinate quickly. The pot in which they are sown may even be plunged under water for a few seconds with advantage; and the soil being thus saturated will often require no farther watering until the seeds are above ground. If, he adds, the seeds are thus treated and placed in a temperature of 65° to 70°, they will speedily give proof of their vitality, but if insufficiently watered, they will remain dormant for several weeks. This hint may be useful now that the seed-sowing season is coming on.

EXHIBITION PLANTS.

THE INDIAN AZALEA.—No. III.

(*Continued from* p. 101.)

THE principal enemy to the Azalea through the growing season is the black thrips. This pest, if allowed to attack the plants without interference, will assuredly do most serious injury. I have tried many things to destroy the thrips, and with various success. One was the Gishurst Compound, used in the proportion of 2 oz. to a gallon of water. This was made up in larg-

quantities and taken to the houses and pits in tubs, in which the plants were immersed and kept covered for a minute or two, and then taken out and washed with clean water by means of the syringe. On examining the plants, to see what the effect had been upon the thrips, I was delighted to find, as I thought, that they were all destroyed, for many dead ones were found adhering to the plants. I however then tried some further experiments, by taking a few leaves off the plants and placing them in the Gishurst mixture. As soon as the insects came into contact with this, they tried to escape, starting off at full speed, and running a short distance, and then turning round several times as quickly as possible, they made a few struggles and died. I began to think the Compound was a great boon, for having always a large quantity of Azaleas about me, it was a matter of some importance to have discovered a sure remedy against such destructive vermin. I took the precaution, moreover, to place the leaves under a powerful microscope when I took them out of the mixture, and then found that all the perfect insects were killed, but that the eggs deposited close to the ribs of the leaf did not appear to be much affected. However, nothing daunted, I determined to persevere, and set about giving the plants another dipping in about three weeks from the first, when to my surprise I found them completely covered with living black thrips in a perfectly developed condition. It was thus clear that although the solution had destroyed the perfect insects, it had not taken the least effect on their eggs; and as it took three men to do the thing properly—one to take the plants to the dipping tub, one to dip them, and another to syringe with clean water: as moreover after a few days the plants become as bad as ever, I found that the labour would be incessant, and was compelled though reluctantly to abandon the Gishurst, and fall back upon my old plan of thorough fumigation with tobacco paper or rag. This I have found and still find, the only effectual remedy to keep the insect pests in check; and I feel assured that by its use, if I were not to have a fresh supply brought to me upon the plants of new varieties that are constantly being received, I should not have such a thing as the thrips upon my premises.

I have heard many opinions upon the practice of fumigating. Some advocate smoking the plants on three successive nights. This plan I do not approve, having practised it and found its defects. I do not assert that it did not kill all the insects that were alive at the time it was done, but what about the eggs that had been deposited, and had not yet come to life? Why, in three or four days these eggs had hatched and become perfect insects, and the plants were covered again; in three or four days more those of this crop had deposited their eggs; and if the plants were but let alone for 10 days or a fortnight, it would be easy to discover on them a very promising healthy family, including three or four generations of progeny.

The most certain and effectual remedy I could ever find was to fumigate well three or four times—commencing upon any given night, then leaving them for three or four days before giving another strong dose, and then again leaving them for a similar interval before having recourse to the third smoking. I have rarely found any left after the third dose, but should a few stragglers remain, another or fourth smoking three or four days later will, I feel convinced, thoroughly clear the plants. I remember many years ago being terribly annoyed with thrips upon my Azaleas, and from them they got on to the Ixoras, Gardenias, Camellias and Grape Vines, making terrible havoc among them all, and causing every plant attacked to look brown and unsightly—so much so indeed, that things began to get rather serious. At that time I tried many appliances to destroy or keep them in check, such as strong soapsuds, hot water, tobacco water, and sulphur dusted upon the under side of the leaves. These things having all failed, I felt determined to take some more decisive steps, and the first was to give them a thorough fumigation. I had them all removed into my seed room, which was close, so that there was no escape for the smoke except up the chimney, which I stopped with damp mats. I set the plants upon shelves, and empty pots, so that they should be as close to the ceiling as possible, and that the smoke might have every facility to draw up regularly through each plant. Then, to be certain what effect the smoke had had upon them, I placed sheets of white paper over the top of the pots, and set about smoking until the room was completely filled—taking care not to allow the fire to break through the top of the fumigating pot, for this generally injures the plants in their foliage. As soon as the place was full of smoke I took out the fumigating pot and shut the room up close. The next morning the plants were well shaken, and the white paper being taken off, was found almost covered with dead thrips. I was of course very much pleased to find them dead, and carefully collected them from all the papers, and threw them into a furnace, thinking I should never be troubled with such pests again. The plants were fumigated on the two following nights, the papers being again placed over their pots; on the second morning I found but very few, and after the third and final smoking there was not one to be seen. The plants were taken out of the room, well syringed, and returned to their original quarters to finish their growth, with a firm conviction on my part that I should not be troubled with any more of the vermin. But to my surprise I discovered in a few days that the plants were again covered with them. How could this be? The plants appeared thoroughly cleared when smoked before. However, I had them brought back to the seed-room, and thoroughly smoked, the paper laid as on the former occasion, and I found the next morning large quantities of dead insects. I then left them for three days before giving them a second dose, and allowed a like period to elapse before the third and final smoking; this thoroughly cleared them, and I was never troubled with them after that time in sufficient quantity to do any serious injury. This is an important matter, for these insects sometimes make their appearance when least suspected, being brought in with new or fresh plants in the shape of insects or eggs, and from them spreading through a whole collection. Upon a close observation of the plants after a thorough fumigation it will be found that all the perfect full-grown insects are destroyed, and by repeating this, say four times, with three or four nights intervening between each, I firmly believe that an examination after the final fumigation would fully substantiate my assertion as to the efficacy of this plan.

Before leaving the subject of fumigation I wish to offer a few further suggestions. When smoking is necessary it should be done in the evening, as the smoke will continue in the house much longer then than it would during the day. As soon in the afternoon as the sun has lost some of its power, take off the lights if the plants are in pits, or if in the growing house give plenty of air to thoroughly dry the foliage, and withhold the syringe that night. I have seen that fumigating plants of almost any description when they are damp will cause much injury to the foliage, and sometimes cause the leaves to fall off in large quantities, which much disfigures as well as damages them; whilst by having the foliage quite dry, such a disaster need not be feared. I find good tobacco paper or tobacco rag the best article to fumigate with, but care is required in the keeping of either article. As soon as it is received it should be opened and laid out to prevent it from becoming mouldy. I find that both paper and rag if allowed to get mouldy lose their power, and will have but little effect upon the insects; therefore any which may have been allowed at some time to become mouldy, might as well be destroyed, as it will surely lead to disappointment when used for fumigating. *William Barnes, Camden Nursery, Camberwell.*

PATERSON'S SEEDLING POTATOS.

[These Potatos, which we noticed last summer (p. 1013, 1863), have been so favourably reported on by several well-known gardeners and others who have had them under trial, and whose opinions as to their quality are entitled to respect, that we reproduce such portions of their statements as our space will permit.]

MR. J. CAIE, gardener to the Duke of Argyll at Inverary Castle, states that although planted late, the growth and produce of these Potatos was such that he is certain, under field culture, they would prove still more productive, and resist unfavourable weather. Out of 12 varieties planted, 10 were of very excellent quality, and all very productive croppers.

Mr. W. Gray, gardener to the Earl of Dalhousie, at Brechin Castle, reports as follows:—*Victoria:* White, and of a handsome flattish oval; growth vigorous; very hardy constitution; when cooked white and mealy, and rich in flavour; a very good cropper, and well adapted either for field or garden; average produce per plant, 3½ lb. *Napoleon:* First-rate quality; white and dry; an extraordinary strong grower; the tubers hang on strings of four or five, like beads; really a good variety, but more for field than garden culture; average crop per plant, 4 lb. *Goliath Kidney:* Large size, and fine quality; a very good variety for field or garden; average crop per plant, 4½ lb. *Paterson's Red:* The admiration of all who saw it; of first-rate quality; a perfect model in shape, and very hardy; average crop per plant, 5 lb. *Seedling Rock:* Like the old Rock, of very hardy constitution; of good quality, and offers well to be a standard Potato for the country; average produce per plant, 5 lb. *Oval Blues:* Fair size, every one fit for table; requires no picking, and of very fine quality; average crop per plant, 4½ lb. *Seedling Fluke:* A great improvement on our old Fluke; it is much earlier, very hardy, and of good quality; average crop per plant, 2½ lb. *Irish Blues:* a very heavy cropper, and of very hardy constitution; best for field culture; average crops per plant, 5 lb. The varieties all received exactly the same treatment as our general crops, except that they were much later in being planted. The seedlings were not planted till after the 12th April, which Mr. Gray considers too late for planting any Potatos; they appear, he says, to be of hardier constitution, more prolific, and far better disease resisters than any of the old varieties.

Mr. D. Easson, land steward to the Earl of Camperdown at Camperdown, states that the seedling Potatos were planted by him on 6th May in the field. They were uplifted on 7th November, the ground occupied by each lot carefully measured, and produce carefully weighed, viz.:—*Victoria*, from 77 square feet, yielded 56 lb.; *Napoleon*, from 91 square feet, yielded 60 lb.; *Irish Blue*, from 112 square feet, yielded 120 lb.; the first upwards of 14 tons, the second upwards of 12 tons, and the third upwards of 19 tons per imperial acre. Specimens of all were cooked, and proved excellent in flavour; they were wonderfully matured, though so late in being planted, the form and size all that could be wanted. In addition to their vigorous growth they were entirely free from disease, while their neighbours were a good deal diseased.

Mr. Petrie, land steward to the Earl of Southesk, at Kinnaird, gives the results of his trial of the Seedling Potatos planted 9th May, as follows, viz.:—*Victoria*, produced at the rate of 50½ bolls (5 cwt. per boll) per imperial acre, handsome, large size; *Napoleon* produced 51¾ bolls, very handsome; *Paterson's Red* produced 64¾ bolls, fine sample; *Seedling Rock* produced 63 bolls, nice size; *Seedling Fluke* produced 44 bolls, fine sample—all per imperial acre. Had they been planted a month earlier the result would have been a still heavier crop. They were ripe three weeks earlier than others planted at the same time, as well as better matured; very hardy growers, with fine, strong, healthy haulm, and quite free from disease.

Mr. Loney, gardener to Sir Peter Murray Thriepland, Bart., Fingask Castle, reports that he planted several varieties in Fingask Castle Garden about 10th April with these results:—*Victoria:* Very white and mealy; fine flat oval shape; a very free hardy grower and heavy bearer; field or garden. *Napoleon:* Very superior late field variety; fine round oval shape; very strong grower; excellent quality. *Goliath:* White, large size; a very free grower; garden or field. *Paterson's Red:* Very beautiful and large; extraordinary cropper, 75 lb. in 4½ yards. *Buff Kidney:* A wonderful Potato; length of one tuber, 9½ inches by 8¼ circumference; garden or field. *Paterson's Wonder:* White, very numerous middle sized tubers; late grower. *Paterson's Rock:* Very handsome and fine quality; great cropper. *Late Red Kidney:* Stems 6 feet long, like trees bearing quantities of plums; not numerous, but large and handsome. *Irish Blue:* For field culture requires to be planted thin; very hardy vigorous grower, and fine quality.

Dr. Moore, of Glasnevin, reports that the Potatos were planted on 1st April, and dug 11th November 1863. The crop from 5 yards of each, was:—Victoria, 28 lb.; Napoleon, 26 lb.; Seedling Regent, 30 lb.; Paterson's Blue, 35 lb.; Oval Blue, 28 lb. Goliath, 32 lb.; Paterson's White Seedling, 36 lb.; Paterson's Wonder, 34 lb.; Mixed Seedlings, 28 lb. He considers them a very fine series of varieties.

The Rev. James Cæsar, of Panbride Manse, by Carnoustie, in reference to the Irish Blue Seedling, writes:—"I had one stone of seed, which produced 50 stones of good-sized Potatos, of good quality. All the sorts were entirely free from disease;" and Mr. John Bennett, of Sandhill, Adlingfleet, near Goole, considers the Victoria the finest Potato in cultivation; the Irish Blue standing next.

[Samples of 10 varieties of these seedling Potatos, which have been sent to us, quite bear out the descriptions of the foregoing reports, so far as regards the appearance of the tubers. They are, in fact, excellent examples of Potato culture, perfectly clean and healthy.]

Home Correspondence.

The Royal Horticultural Society.—In accordance with what I thought my duty as an old F.H.S., I attended the meeting on Tuesday, the 9th inst., and heard a portion of the vials of wrath poured upon the heads of the Council. In common with most of my confrères I much regretted to hear that the Society is so poor as to be compelled to receive a loan from the Royal Commissioners of 13,000*l.*, and almost angry to find that a part if not all of this loan is to be spent on their estate, so as to have at our expense "an ornamental centre to the main square of the estate" (*vide* their letter of Feb. 6). [Our correspondent is quite mistaken. There is no loan, nor any intention of effecting one.] For some time past, and up to the period of the meeting of the 9th inst., I had entertained a pet idea of taking advantage of the Chiswick Gardens, and of moving that they should at once be made a school of horticulture for the whole empire. The gardens, even as they are, are well managed as to the vital matter of gardening; fruit and fruit trees, vegetables and exotics, are all well cultivated; in short, the school is ready for pupils—why then should it not be at once taken advantage of? I happen to know the great want of the present day—educated gardeners; it is true gardeners, and good ones, are to be found, but we have no good public school to supply a demand which, if gardening progresses as rapidly as it is now doing, and if the prosperity and its attendant luxury continue, must be very far beyond the supply. It was my intention to have moved at the meeting—"that a sum be appropriated by the Council to form a School of Horticulture at Chiswick," but I was so disheartened at all I heard that I promptly gave up my long-cherished scheme. The "11,000*l.* now agreed to be advanced by the Commissioners," will, I presume, all be spent on the Gardens at South Kensington, to make the "ornamental centre" of the Commissioners' estate more valuable, but surely it is in the power of the Council to do something for gardening—something for Chiswick. I can only now suggest a rough outline of what may be most beneficial to Horticulture. Gardeners at present

are educated in the gardens of the nobility and gentry—the head gardener, in some instances, receiving a premium with every youth he receives. This arrangement need not be changed. It is beneficial as far as it goes, but we all know that in such gardens only one routine is followed, so that a youth on leaving a garden perfect in all its appliances, becomes as it were at sea on leaving it; he requires finishing by learning the horticulture of the world, to be taught at Chiswick, which should be the University of Horticulture. Every youth on the termination of his apprenticeship in the provinces, should serve one year at least at Chiswick, and at the end of that term receive a certificate of ability — he should in fact take his degree. As far as I can see, no great expense would attend the opening of the doors of our school. Two or three professors, *i. e.*, good gardeners, would be required to attend to the pupils, who should do the work of the garden, be instructed in pruning and training and general culture, and hear lectures in the different branches of horticulture, as is now the practice in most of the public gardens of France. No premium need be paid, but the pupils should give their work for one year's finishing. All who travel in France well know that as gardeners in a general sense we excel them, but there are many things there worthy of notice, particularly their management of fruit trees in the open air, and also some little matters in vegetable culture. All these deviations from our routine of culture should be taught at Chiswick, and taught economically; for, as far as I can see, the only expense to be incurred is the paying a remunerating stipend to two or three accomplished gardeners, one of whom at least should be a travelled man, so as to give the pupils the advantage of learning something more than the routine of English gardening. I know that Chiswick has educated some of our most accomplished gardeners, but from our London connection being now so expensive, we cannot afford to do things with so high a hand. I have sketched my plan roughly and imperfectly; it may, however, serve as a basis. At any rate let us open the doors of our school at Chiswick, and try to do something for the education of the rising generation of gardeners. A competent person might, at a small expense, go to Rouen and see how that most accomplished cultivator Du Breuil manages his economical school of horticulture. We are poor, and must, therefore, practise economy. *A Very Old F.H.S.*

Rhododendron argenteum.—Perhaps it may not be uninteresting to know that Mr. Cornelius, gardener to William Williams, Esq., of Tregullow, Cornwall, has succeeded in flowering this plant, which, though young, has eight beautiful trusses of blossoms on it now in perfection, each truss measuring about 20 inches in circumference, with 16 to 18 flowers on each truss. The same plant was flowered last year, but not so successfully. *J. T., Feb.* 11.

Renovating Old Trees.—Nine years ago next summer, the Right Hon. T. F. Kennedy, of Dunure, pointed out to me at his seat, Dalquharran Castle, a number of old Lime trees, upon the roots of which he had, a season or two previously, placed a quantity of good soil, with a view to reinvigorate the trees, and most successfully had he succeeded in his object, for the trees were then pictures of health. I have often since surfaced valuable decaying trees, principally Elms, Limes, Chestnuts; and when the operation has not been too long delayed, the trees, as in the case of Mr. Kennedy's, have been quite restored to health. There are numberless valuable old decaying trees—valuable on account of their associations as well as of intrinsic value in contributing to landscape effect, scattered about the parks throughout the land, with roots exposed to the hoofs of cattle, and the baneful influence of a powerful summer sun, which might at small cost be re-invigorated. The present time is a good one in which to perform the operation, and where posts and rails to ward cattle off the roots are objected to, or it is considered not humane to deprive the cattle of the shade the branches afford them in summer, a few large stones placed round the bole of the tree will prevent the hoofs of the cattle doing much harm to its roots. *W. Craw, Enville.*

Oaks.—In your paper (p. 54) your correspondent "Diss" has expressed a wish to know whether the large Oaks in Powis Castle Park are of the species pedunculata or sessiliflora. I believe that they are of both kinds, but until they are again furnished with foliage, I cannot undertake to give a positive reply, believing that by the leaves only can the species be distinguished accurately. I shall have much pleasure in communicating the desired information to the best of my ability, as soon as the trees are again furnished with foliage. *Geo. Brown, Gardens, Powis Castle.*

Renanthera coccinea.—This remarkable Orchid has flowered many times in the establishment of Messrs. Lucombe, Pince, & Co., of the Exeter Nursery. I saw a grand spike of bloom on a plant from 4 to 5 feet high in their show house this last autumn; and during the time I had charge of their collection of Orchids it flowered several times. Since my engagement with Mr. Turner I exhibited at the Manchester Botanical and Horticultural Society's show, about five years since, a splendid specimen with two spikes about 18 inches long, and nearly as much through; but it has not flowered since, owing to its being shaded more than usual. The great points to be observed in blooming Renanthera, are to grow it 6 or 7 feet long, and to give it a thorough exposure to the sun, with very little water at the roots. When it gets well ripened and it has formed its flower buds, keep up a good heat, with plenty of moisture, in fact syringe the plant vigorously two or three times a day, and during hot sunny days a slight shade will be beneficial. I have been told that it will flower well, treated in the way Mr. Daniels flowered his Bougainvilleas so successfully. Any extra trouble taken will be amply repaid in the production of its most glorious flower heads, a colour much wanted amongst Orchids. *G. Toll, Gardener to J. A. Turner, Esq., M.P., Pendlebury, Manchester.*

Orchard-house Trees.—Your correspondent, "J. P. Alton" (p. 102), says, in reference to these, that "they are not in the least pot-bound (*i. e.*, his Peach trees), for I repot them every year in October." Will he have the goodness, for the information of myself and others, to say whether he shakes the earth from the roots and prunes them, or merely yearly gives them a size larger pot? I don't wish at all to open the orchard-house controversy, but merely ask for information on these points. *James Watson, Rotherham.*

Rainfall in Dorsetshire, 1863:—

	In.		In.
August	4.95	Brought forward	17.50
September	5.20	November	2.60
October	7.35	December..	2.97
	17.50	Total	23.07

I., Melbury House.

Oxford Park.—Having just seen your remarks on the laying-out of the ground at Christchurch, Oxford, I beg to suggest the planting of the trees and shrubs in groups of natives of the same place, as Norwegians, British, Spanish, Italians, &c. Hints for the position of the groups might be taken from Mercator's Chart. *Constant Reader.*

Roses on Manetti Stocks.—I have received a letter from H. Taylor, Esq., who lives in the rich vale of Mowbray, Yorkshire, in which he says, "I have planted 200 Manetti stocks. I am getting very partial to the Manetti Roses, having had splendid blooms on them this last season." Mr. John Ford, who lives here, and whose land is strong rich friable loam, told me that the Manetti Roses gave him finer blooms, and were hardier and healthier than Briar Roses, or Roses on their own roots. His place is on the top of a hill, exposed to high winds. I gave my worthy friend nearly all his Roses. *W. F. Radclyffe, Rushton.*

Foreign Correspondence.

SAINT VÉRAN, AVIGNON, *Jan.* 26, 1864.—I have just seen in a newspaper a piece of intelligence which I earnestly hope is not true, but which is stated so circumstantially that I fear there must be some foundation for it. The statement is that the Royal Horticultural Society intends offering three prizes for the three best herbaria of every county in England, and three additional prizes for the three best of these best; the herbaria to be sent to the Society in December next. If this most inconsiderate resolution has really been taken, I am sure it must have been in the absence of those members of the Council who have any real sympathy with British botany. If it be carried into effect, the present year 1864 will be marked in our botanical annals as the date of the extinction of nearly all the rare species in our already so scanty flora. If the extirpation of these rarities had been the direct object of the Society, they could have done nothing more effectual than by inviting, not simply three botanists in every county, but all the dabblers in plant collecting, a race whose selfish rapacity certainly needs no additional stimulation, and all of whom may think they have a chance of one of three prizes, and holding out to them a positive inducement to hunt out all the rare plants in every part of the country, and to carry off all they find, or destroy what they do not carry off, in order that not only they may themselves possess the plants, but that their competitors may not. Already our rare plants are becoming scarce every year; you are, no doubt, aware how rapidly, for example, the rare Kentish Orchids are disappearing. The Royal Horticultural Society is proposing to treat rare plants, as King Alfred treated wolves—and this under the profession of encouraging local botany: as if local botany could be encouraged by destroying that on which it feeds, or as if any one were likely to begin studying the science in hopes of collecting a good local flora in a single summer. All local botanists will be thrown into consternation by this project, and if it is not yet too late I am sure they would all join in entreating you to use your great influence towards stopping so destructive a scheme. *J. S. M.* [Hear, Hear, Hear.]

Societies.

ROYAL HORTICULTURAL: *February* 9 (*Anniversary*).—The chair having been taken by Sir Daniel Cooper, Bart., and the Scrutineers of the Ballot appointed, the ASSISTANT SECRETARY read the Annual Report of the Council, as follows:—

1. After two years of inactivity with the works in the Gardens at South Kensington, occasioned by circumstances over which the Society has had no control, the Council are happy in being able to announce to the Fellows that they have now reason to hope that her Majesty's Commissioners for the Exhibition of 1851 are about to take important steps towards the completion of those works, and also to lend the Council their assistance in carrying out some operations not strictly falling within the landlord's province, which the Council think of importance, but which they could scarcely have undertaken without assistance.

2. The experience which has been acquired since the opening of the Gardens has given rise to various suggestions for the improvement of the original designs, and the Commissioners and the Council have devoted much time to their consideration. Some of these have appeared to them worthy of adoption, and the Council cannot better explain their nature than by laying before the Fellows the letter which they addressed to the Commissioners on the subject.

LETTER FROM THE COUNCIL TO THE COMMISSIONERS FOR THE EXHIBITION OF 1851.

TO EDGAR A. BOWRING, ESQ. C.B. (SECRETARY TO H.M. COMMISSIONERS FOR THE EXHIBITION OF 1851).—Royal Horticultural Society, South Kensington, Dec. 15, 1863.—SIR,—I am directed by the Council of the Royal Horticultural Society to inform you that they have had under their anxious consideration the present state and prospects of the Society's Gardens at South Kensington, especially in connection with those works which are under the control of her Majesty's Commissioners, and that they have arrived at certain conclusions, which they request you to have the kindness to submit to the Commissioners.

1. Since the foundation of the Gardens by H.R.H. the Prince Consort and the Commissioners, many unforeseen circumstances have happened, affecting the fortunes of the Gardens, which neither her Majesty's Commissioners nor the Horticultural Society could have controlled. It is not necessary to enter into an examination of these circumstances, further than to point out that they have kept in abeyance the realisation of the plans upon which the Gardens were projected, and upon the completion of which their success depended, and still depends.
2. Whilst the Council are sensible that it may be difficult for the Commissioners to afford the Council any precise information of their future intentions in completing the original design, particularly as respects the buildings forming the Central Arcades, they cannot hesitate to express to the Commissioners their conviction that the present state of those Arcades has an injurious effect upon the success of the Gardens and the Society. The imperfect decoration of the North Arcades, in like manner, gives an air of poverty and hesitation which is injurious. Moreover, the ground at the east and west sides of the Central Arcades is a waste, which, in any case, requires to be put in decent order; and, certainly, the operation of removing the Great Exhibition buildings, so as to enable the Commissioners to dispose of their land to the Government—an operation which is likely to last during the present season—is not calculated to benefit the Gardens.
3. The Council conceive that a considerable amelioration of these depressing circumstances is possible, and they submit that it is the duty and interest both of the Commissioners and the Society to promote it. They feel confident that the Commissioners will be prepared to discuss the subject in an enlightened public spirit, and with the desire of promoting the eventual accomplishment of the original design in laying out the ground and devoting it to public uses.
4. The Council have applied themselves to the consideration of what it would be best to do at the present time to assure as well the Fellows of the Horticultural Society as the general public, that the Gardens and Arcades are not under a state of permanent paralysis.
5. The Council propose themselves immediately to commence operations in the Gardens, for the purpose of obtaining greater shade, also of providing exhibition space under cover, and generally of adding to the decoration of the Gardens, and making them more attractive.
6. The Council estimate that the cost of these operations will be between 2000*l.* and 3000*l.*, which they propose shall be borne by the Society.
7. But there are other most important works, the expense of which the Council feel would be beyond the means of the Society, and they seem to be works in which her Majesty's Commissioners have equal, or even greater, interest than the Society. The Council strongly recommend that these works should be put in hand immediately, so as to be completed before the 1st May. They are as follows:—
   - *a.* The *North Arcades* should be glazed and plastered, and certain carvings and decorations proceeded with. The Conservatory should be strengthened and improved, and lighted, so that it and the adjoining Arcades may be used for flower shows, &c. These would be permanent works, and would require the chief outlay.
   - *b.* The Middle Arcades should be put into a suitable state of repair, likely to last for three years, and openings should be made between them and the adjacent waste ground. Planting should be done, so as to make the whole an attractive covered way.
   - *c.* The adjacent waste plots of ground should be planted and grassed, and the palings raised. I am directed to observe, that the decorative completion of the North Arcades appears to the Council from a moral, if not a legal, point of view, to be imperative on the Commissioners at some period, at a very large cost, whilst the works in sections *b* and *c* may be considered really in the light of obligations on the part of the landlord, which, for the general value of the property and its appearance, it is the landlord's interest especially to execute.
   - *d.* The entrances and the South Arcades should be made more attractive, and be sufficiently protected against the weather.
8. The Council estimate that these works, exclusive of those in 5, could be properly executed for the sum of 13,000*l.*, and they will undertake that they will ask for no further sum on behalf of them.
9. The Council are satisfied that this expenditure would infuse new life into the Gardens, and give confidence to the public that the Commissioners' plan had not been abandoned. The Council submit that the experience of the next three years would be most valuable both to the Commissioners and the Society, in determining how far the comprehensive plans, as originally designed, should be prosecuted, modified, or given up.

Should the Commissioners be prepared to sanction the outlay of the sum proposed, and advance the money, the Council would be happy that its expenditure should be carried on under the superintendence of the Expenses Committee, which represents the interests both of the Commissioners and the Society.

I have, &c.,
(Signed) ANDREW MURRAY,
Assistant Secretary.

The following is the reply of the Commissioners for 1851, to the letter of the Council of December 15 (see par 2.)

PALACE OF WESTMINSTER: *Feb.* 6, 1864.—I am directed by her Majesty's Commissioners for the Exhibition of 1851 to acknowledge the receipt of your several letters of the 10th December, 1862, 17th November, 1863, and 15th January, 1864, on the subject of the Arcades erected by the Commissioners round the Gardens of the Royal Horticultural Society, and of the position and prospects of those Gardens.

The Commissioners feel that it is only necessary for them to

reply to the last mentioned of these various communications, viz., your letter of the 15th ultimo.

Without admitting the existence of any legal or moral obligation on their parts, her Majesty's Commissioners are willing to allow that the difficulties experienced by the Council of the Society, to which your letter alludes, may be in some measure attributed to the fact, that the funds which the Commissioners were required by their agreement with the Society to expend upon the Gardens, proved to be insufficient to complete the works according to the original design.

Under all the circumstances of the case, Her Majesty's Commissioners direct me to acquaint you, for the information of the Council, that they will be prepared to advance a sum, not exceeding a maximum of 13,000*l.*, for the purposes of the Gardens, to be expended in the manner indicated generally in your letter, such advance to be made out of the balance remaining payable to the Commissioners of Her Majesty's Government on account of the purchase of the site of the Exhibition buildings, and to be subject to such conditions as may be hereafter determined on.

Of the sum of 13,000*l.* in question, a sum, not exceeding a maximum of 2000*l.*, is to be specially applicable to the putting in order of the ground occupied by the two Annexes of the late Exhibition and its temporary appropriation to the purposes of the Society, as suggested by the Council.

It is to be understood, that the Commissioners reserve to themselves the power of resuming possession of either or both of the two Annexe grounds referred to, or any part of them, on giving to the Society six months' clear notice, commencing from any date. The Society will further understand that they will not be entitled to make any claim for compensation on the Commissioners in the event of such resumption.

The remaining sum, not exceeding a maximum of 11,000*l.*, now agreed to be advanced by the Commissioners, will be specially applicable to the other works proposed by the Council to be executed.

Her Majesty's Commissioners consent to the proposal that the supervision of the contemplated outlay shall be entrusted to the Expenses Committee of the Society, in which Committee the interests both of the Commission and of the Society are represented.

It will of course be understood by the Council of the Society, that her Majesty's Commissioners only consent to make this large advance on the distinct understanding that no such appeal as that contained in your letter will again be entertained by them; and they agree with the Council, that the experience of the next three years should be held as sufficient to determine the future of the Gardens, and the advisability, or otherwise, of proceeding with the original plans of laying out the Commissioners' estate, of which plans the maintenance of the Gardens, as an ornamental centre to the main square of the estate, formed a part.

I am directed, in conclusion, to express the hope of her Majesty's Commissioners that the concession now made by them may prove to be the means of ensuring the permanent success of the Horticultural Gardens. They feel convinced that no efforts will be wanting on the part of the Council of the Society to attain that end. *Edgar A. Bowring.*

3. The Council attach considerable importance to the temporary loan to the Society of the ground on which the two Annexes of the Great Exhibition stood. It will not only add to the pleasure-ground of the Society and gave additional room for the recreation of the Fellows at a trifling cost of maintenance, but will enable the Middle Arcades to be opened at intervals, and thus tend to lighten and enliven them. Perhaps it may be possible to arrange for the erection of one or more glass-houses in which a portion of the horticultural operations of the Society may be carried on, and an opportunity afforded to the Fellows and the public to see them without going so far as Chiswick.

4. The chief alterations which the Council propose to make upon the Gardens are increased planting for shade and a greater quantity of Grass. They propose to plant and decorate with flower-beds the walks in the Ante-Garden, &c.

5. Some of the Fellows have proposed to establish independent clubs for croquet and bowls, and the Council readily lend themselves to the proposition, in the expectation of thereby increasing the enjoyments of the Fellows and the attractions of the Gardens.

6. It has also appeared to the Council that increased interest would be given to the Gardens if portions of them were set apart as exhibition grounds of bedding plants, flowers, and shrubs, &c., let out to responsible nurserymen and florists of eminence. They accordingly have invited tenders for filling such spaces during the year 1864. The selection and arrangement are proposed to be left entirely to the taste of the exhibitors, provided that the same be in keeping with the general character of the Gardens. The beds so planted would be kept in order by the parties planting them throughout the season; and the names and addresses of the nurserymen and florists placed upon the beds so filled by them.

7. The object which the Council have had in view in recommending the Commissioners to be at the expense of glazing the Upper Arcades and lighting the Conservatory, has been chiefly to provide a place in which the Society might hold evening meetings. The want of such a place has been felt, and various plans have from time to time been proposed for supplying it. They expect that the work will now be undertaken without delay, and the Council look forward with pleasure to being able to hold occasional evening réunions in the Conservatory during the present season.

8. They trust also, by this means, to be able to have their great Shows open on the evening of the first day of the Show.

9. On no point has the experience of the last three years been more instructive than on the question of the admission of the public to the Gardens. On this point the two extremes have been tried, and neither of them found to answer. In 1862, the public were admitted with as great freedom as was well nigh possible. For the greatest part of the week, during the continuance of the Great Exhibition, the price of admission could scarcely be said to be more than 6*d.* a head; and the Fellows, recognising the exceptional nature of the year, good-naturedly submitted for the time to this practical abrogation of exclusive privileges.

In the following year the Council went to the other extreme, and excluded the public altogether. The new rules were not long in operation before the Council felt that they would not answer. But, although strongly pressed to relax them, the Council adhered to the programme which they had announced, and maintained the exclusive character of the privileges to the end of the year. The experience which they have thus acquired, however, has thoroughly convinced them that the right policy lies between these extremes—namely, in admitting the public at an easy rate on certain days, and virtually excluding them on others. This was the policy originally laid down by H.R.H. the Prince Consort, as President of the Society. It was the footing on which her Majesty's Commissioners entered into their agreement with the Society. This also is the policy which has been found most successful by a society in a very similar position to that of the Horticultural Society, viz., the Zoological Society, and it is the policy which the Council now recommend for the adoption of the Fellows.

10. The Council feel confident that it is quite possible to increase the privileges of the Fellows in the use of the Gardens, and at the same time, through the assistance of the general public, to make them much more remunerative than heretofore, and therefore auxiliary in promoting the scientific objects of the Society.

11. As respects increased privileges of the Fellows, the Council recommend that the evening meetings shall be confined to the Society itself and to other learned societies.

12. They propose that the Fellows shall have the new privilege of purchasing (previous to the day) any number of tickets of admission to each Great Show at half-price, that is, 2*s.* 6*d.* instead of 5*s.*

13. They propose that at each of the minor Shows the Fellows shall have the privilege of purchasing tickets at the door for their friends at 1*s.* instead of 2*s.* 6*d* each (which last price will continue to be charged to the general public).

14. They propose not only that the Fellows shall have the privilege of visiting the Shows at an earlier hour than the general public, but also that they may bring their friends (who have tickets) at an earlier hour, although not so early as the Fellows' hour.

15. They recommend that each Fellow shall have the privilege of admitting two friends, personally or by written order, on Sundays; also on Mondays and Saturdays, on which two days the public will be admitted on payment of one shilling each person; on Tuesdays, Wednesdays, Thursdays, and Fridays, that Fellows shall only be allowed to introduce their friends personally as heretofore, and the public to be admitted by payment of five shillings each person. The privilege of introducing friends personally or by order will not extend to show-days.

16. Another point which has occupied much of the attention of the Council is the publication of the "Proceedings" of the Society. Several Fellows have recommended their more frequent publication. The only objection is the increased expense of delivery. It will be in the recollection of the Fellows that last year, in order to reduce the expense of the "Proceedings," the Council dropped the publication during the four months of the year when most of the Fellows were out of town. A considerable saving was thus effected; and a further saving will this year be effected by the new form of printing in double columns and smaller type, which has been adopted in the month of January. It is not the expense of printing, however, which would deter the Council from complying with the wishes of those Fellows who desire a more frequent publication; it is the expense of delivery which is the most serious obstacle; that is so great as to form an absolute barrier to the proposition, unless it be borne by the individual members themselves. This is done in some other societies. Those Fellows who are willing to pay the postage or expense of delivery receive the publications at once. To those who do not choose to incur that expense they are sent by parcel and at intervals when they have accumulated sufficiently. The Council recommend that in future this plan be adopted, and the "Proceedings" published once a fortnight, if possible.

17. Whilst the Council have thus had much of their attention directed to supporting the material prosperity of the Society, and promoting the general comfort and enjoyment of the Fellows, they have steadily kept in view the primary object for which the Society exists, viz., the advancement of Horticulture.

The operations of the Fruit and Floral Committees have gone on effectively, and the reports of their meetings have been published in the Society's "Proceedings." The results of the experiments at Chiswick during the past year will appear in them without delay. By means of these experiments the most important garden flowers and fruits are by degrees being reported on, and inferior sorts are eliminated from the lists; the Fellows and the public have thus a trustworthy report of the best kinds of each. Experiments have also been made in regard to improvements in heating, and on other Horticultural matters, of which, when desirable, account will be given in the "Proceedings."

18. The collector, Mr. Weir, was last year recalled from South Brazil, that district having been sufficiently explored, and not found very productive; he is now collecting in New Grenada, and already six boxes, collected in the neighbourhood of Mompos, have been received in excellent condition. These will form the subject of ballot during the following season; and as the access to New Granada is easy, it is expected that materials for several ballots will be received.

19. The seeds and plants which he sent home from South Brazil were raised and propagated, and have been distributed by ballot last year among the Fellows; 5059 plants have been so distributed, and a few still remain for ballot during this season.

The total distribution of plants, seeds, &c., during the year has been—8300 plants; 78,065 packets of seeds; 2000 bundles of grafts of fruit trees.

The value of the privilege of obtaining fruit from the Chiswick Gardens at a wholesale price seems to be every year better known and appreciated. The Fellows have availed themselves of it during the past year to a greater extent than they have ever done hitherto. The Garden at Chiswick has, by means of its sales, contributed considerably towards its expense.

20. The Accounts and Balance-sheet of last year have been already published. The different items of expenditure are suggestive of various alterations in the mode of management of the subjects to which they relate. The Council feel that even after three years they are still at the commencement of a large experiment, and they recognise the necessity of making alterations as experience suggests, or necessity demands them.

The efforts of the Council have been chiefly directed to the reduction of expenditure, and this they will continue to keep steadily in view.

The number of Fellows has been increased during the past year by 23. There have been elected 245. But the Society has to lament the loss of 86 by death.

The following is a comparative view of the number of Fellows belonging to the Society at the respective dates noted:—

Fellows at Anniversary.	1 Guinea.	2 Guineas.	3 Guineas.	4 Guineas.	20 Guineas.	40 Guineas.	Total.
May, 1858	..	..	..	..	..	..	978
,, 1859	..	..	..	..	..	..	985
,, 1860	..	..		..	..	..	1416
,, 1861	..	..	..	..	..	..	1752
January, 1862	10	722	25	1130	334	555	2776
,, 1863	10	918	25	1387	386	587	3313
,, 1864	7	945	23	1372	406	583	3336

21. In conclusion, the Council repeat that they look forward with confidence to the increased usefulness of the Society. The progress of Horticulture on the Continent, and the more frequent intercourse resulting from the extension of railways, are silently changing the position of the Society. Numerous Horticultural Societies are now established all over the Continent, and if the Society wishes to maintain its position as the leading exponent of Horticulture in the world, and no to sink into the status of a mere provincial Society, it mus not ignore the steps taken and the progress made by Continental Societies. The Council have therefore paid considerable attention to enlarging the circle of the Societies with which they are in friendly relation, and drawing closer the bonds of sympathy and friendship by which they are united. They are already in communication with 27 foreign and colonial Societies, with which they exchange publications and mutual good offices; and the Council look upon the strengthening of these bonds of union as no unimportant part of their duty, and no small means towards the advancement of Horticulture.

Earl Ducie and Dr. Lindley having resigned, letters from them were read, explaining the cause of their resignations.

The ballot for members of Council and other officers having been opened, the CHAIRMAN proceeded to move the adoption of the Report, and Mr. W. W. SAUNDERS seconded the motion.

The attention of the Council was called to the wretched state in which the Gardens at Chiswick were kept, and an opinion was expressed that they ought to be opened on Sundays. Some dissenting remarks were also made as to the character of some of the proposals before the Society.

The CHAIRMAN said that it was impossible to keep the Gardens at Chiswick in a better state, as the Society had no money in hand with which that could be done.

Mr. BATEMAN observed that it would entail additional expense to open the Gardens in question on Sundays, in consequence of the number of men who would have to be employed.

Mr. HARRY CHESTER deprecated the manner in which the Gardens at Chiswick had been kept. They were, he said, disgraceful, and would call forth the opprobrium of foreigners interested in horticulture who might visit this country. Many improvements were also needed in the Society's Gardens at South Kensington, for at present, he added, they resembled an ill-planned and ill-kept Cemetery.

In this statement, especially that in reference to Chiswick Garden, Mr. Chester was warmly supported by a large number of the Fellows present. A long discussion then ensued, in which it transpired that the Society contemplated giving, at some time not fixed, a series of popular lectures on the science of horticulture. A question was also raised as to whether the 13,000*l.* offered to be "advanced" by the Royal Commissioners of 1851 was on loan or as a gift, and consequently whether or not interest would have to be paid upon it.

Sir WENTWORTH DILKE, in reply to the question, said that he thought a large part would be treated as landlord's assistance, but there might be a slight amount of interest chargeable upon the remainder. He defended the general conduct of the Commissioners, and said that the advance now offered would be of the greatest advantage in furthering the interests of the Society.

Mr. CLUTTON also contended that it had been the desire of the Commissioners to assist the Society. The gardens must be made attractive to be remunerative, and to become attractive there must be some additional outlay, which was now generously offered by the Royal Commissioners, and therefore he thought that the Society should without hesitation accept the offer they had made.

After some further discussion,

Mr. HARRY CHESTER said he thought they could not adopt the Report without knowing the terms upon which the 13,000*l.* was to be granted; and he moved as an amendment that the meeting be adjourned for a fortnight, in order that the Council might obtain information from the Royal Commissioners of 1851 as to the terms upon which the sum of 13,000*l.* would be advanced, whether as a gift or as a loan.

The amendment having been seconded, another long conversation ensued, in the course of which it was observed that the rent of upwards of 2000*l.* payable to the Royal Commissioners was more than the resources of the Society could meet.

Mr. EDGAR BOWRING contended that as between landlord and tenant nothing could be more just and fair than the conduct of the Commissioners. In his opinion, their liberality in making their agreement with the Society as to the payment of rent was most unprecedented.

Mr. KELK reminded the Meeting that the answer of the Commissioners to the Council respecting the 13,000*l.* was only agreed to at their meeting last Saturday, and that the terms of the arrangement were yet to be considered. There was no doubt, he added, that at present the Council had a good bargain, and if there was any internal quarrel about it the Commissioners might feel inclined to hold the matter tightly in their hands, and the result would be that that which was now an advantage to the Society, might be found to be a hard-driven bargain.

At this stage of the proceedings the result of the Ballot was declared to be as follows, viz.:—That Earl Grosvenor, M.P., Lord Henry Gordon Lennox, Mr. Cole, Mr. Bateman, and Major Trevor Clarke had been elected members of Council, in the room of Earl Ducie, Dr. Lindley, Mr. Robert Cooper, Mr. John Fleming, and Mr. James Veitch.

(We learn however that the meeting was far from unanimous in the case of Mr. Henry Cole.)

As officers for the ensuing year, the following gentle

men were elected:—President, the Duke of Buccleuch; Treasurer, Sir Daniel Cooper, Bart.; Secretary, William Wilson Saunders, Esq., F.R.S. Expenses Committee: the Treasurer, the Secretary, and Mr. Henry Cole. Auditors: Messrs. Jonathan Clark, Charles Edmonds, and James Nicholson.

The CHAIRMAN then put the amendment for the adjournment of the meeting for a fortnight, against the original motion for the adoption of the Report, and declared it to be carried by about 40 to 24 hands.

The meeting then adjourned until the 23rd inst.

We may add that an admirable half-length portrait of Prof. Lindley, painted with consummate skill by Eddis, and presented to the Society by the gentlemen at whose expense it had been executed, was placed in the room.

Notices of Books.

The *Botanical Magazine* for February contains figures of the following plants:—*Forrestia hispida*, an Eastern hothouse perennial of the Spiderwort family, known in gardens by the name of Pollia purpurea, under which we believe it was introduced from the continental gardens, but which, according to Sir W. Hooker, by no means belongs to it, as it is certainly "both generically and specifically the same as Forrestia hispida, of Lesson and Richard," which is found in New Guinea, extends to Sumatra and Java, and occurs also on the Indian continent as far north as Sikkim. It is a perennial herb, with slender stems which become creeping and radicant below, and furnished above with obovate-lanceolate caudate-acuminate deep purple leaves (becoming green above, however, in the flowering age, according to the figure); while the small purplish flowers appear in dense clusters from the hairy leaf-sheaths.—*Ipomœa filicaulis*, a slender much-branched trailing scarcely climbing annual plant; said to be found in Asia, Africa, Australia, and the warmer parts of the New World; very graceful and elegant in character, but with blossoms scarcely large enough to become useful for ornamental purposes. The leaves are smooth linear-oblong, frequently somewhat hastate at the base; and the small cream-coloured flowers with a purple eye, are borne in pairs on long slender axillary peduncles. It requires stove culture.—*Gladiolus sericeo-villosus*, a singular species of Cornflag obtained by W. Wilson Saunders, Esq., from the interior of the Cape Colony. It grows three to four feet high with very long linear ensiform leaves, and a spike a foot or more in length, the spathes as well as the tall stem densely clothed with shaggy silky hairs, the flowers themselves being a peculiar yellow-green tinged with brown. Though very distinct and interesting as a botanical plant, the flowers are too small to make it of much importance as a garden flower, the yellow colour too being already present in the larger-flowered varieties we already possess.—*Trichantha minor*, a very striking Gesneraceous plant from Columbia, introduced by Messrs. Veitch: a slender climbing rooting herb with ovate acuminate leaves, and clustered axillary flowers, the limb of which is yellow and the tube striped with blackish purple, the calyx, which is composed of five ciliated fringed segments, being, as well as the stems and pedicels, bright red.—*Canscora Parishii*, a most remarkable species of the Gentian family, sent from Moulmein, by the Rev. C. S. P. Parish. It is an annual of tolerably rapid growth, and the singular leaves and copious white flowers are described as having quite an ornamental character. "The species is very remarkable as having perfectly terete stems and branches, and an equally terete calyx, in no way angled or winged. The leaves are throughout the plant perfectly connato-perfoliate into one exactly orbiculate leaf, with the stem or branch as it were passing through the centre, and the veins all radiating from that point." The flowers and calices remind one of Silene inflata, except that the corolla is four-petaled and less spread out, so that it has a more bell-shaped form.—*Dendrobium ciliatum*, a Moulmein species, with rather slender elongate terete stems, oblong acute leaves, and several erect racemes from the upper axils, the inflorescence having much resemblance to that of some Epidendrum. The flowers consist of oblong spathulate petals of a yellowish green, and a small yellow lip marked with purple lines, and remarkable for the long rather distant clavate bodies which fringe its middle lobe, and which, when minutely examined, are found to be prolongations of the veins, and of a very different character from real hairs.

The *Floral Magazine* figures two *Chrysanthemums* called *Lord Clyde* and *St. Margaret*; *Gladiolus Randle Jackson*; *Eranthemum tuberculatum*; and *Schizostylis coccinea*, much exaggerated—the two last recently noticed as figured in the "Botanical Magazine," and rather odd florists' flowers, to which we had been told the subjects in this work were to be restricted.

In the *Florist and Pomologist* is a capital figure of a fine continental variety of *Magnolia*, called *Lenné*, related to M. conspicua and purpurea, and probably the finest yet obtained of this deciduous race, being remarkable for the size and substance of its flowers, which are of a full reddish purple on the outside and white within. Mr. Barnes, of Bicton, commences an explanation of his mode of cultivating the Pine Apple; Mr. Carr describes the way in which he grew the large bunch of fruits of Musa Cavendishii, exhibited a short time since at South Kensington; and Mr. Tillery recommends the Celosias known as argentea and pyramidalis, as admirable decorative plants for the greenhouse during the autumnal season.

Of Mr. Lowe's excellent *Manual Flora of Madeira*, the third part is before us. It commences with Myrtaceæ, and ends with Araliaceæ. We congratulate our Madeira friends upon their vegetation being investigated by so able and judicious a botanist. The genus Sempervivum is particularly well done, and should be consulted by horticulturists.

The 12th Part of Watts's skilfully managed *Dictionary of Chemistry* (Longmans), contains capital articles on Gas, Gases, and kindred subjects. There is also a very carefully written account of the gastric juice, which all readers will consult with advantage.

Calendar of Operations.

(For the ensuing week.)

THE recent return of frost, accompanied by a little snow, may have put a temporary stop to some of the out-door operations recommended to be done last week, and that being the case, in-door work will doubtless have had additional attention. The potting, training, and cleaning of plants, the tying and dressing of fruit trees in forcing houses, and other matters of that description, if not already done, may now be resorted to with advantage. In favourable weather such work may sometimes be suffered to stand still for a time without much harm, and indeed considerable time is frequently saved by a little judicious management, so that both out-doors and in-doors work may be carried on under circumstances most favourable to each department.

FLOWER GARDEN AND PLANT HOUSES.

Improve as much as possible outlines of every kind. When favourable weather returns, plant fresh masses or groups of shrubs where necessary, and introduce specimen plants where fitting opportunities offer. Much mischief is done by planting single specimen trees in recesses; these should be carefully preserved as a general rule, to give deep shadows, and to throw the prominent features into bold relief.

AURICULAS.—Let these be protected from severe frost; but when the weather shall have become mild, and the plants started into growth, water sufficiently freely to moisten the soil to the bottom of the pots, and then top dress with mould of rich character.

AZALEAS.—Plants that have been kept in heat to bring them into flower will now require pretty liberal supplies of water, and take care to keep them free from cold currents of air. See that young plants are clear of insects and in a healthy growing condition.

CALCEOLARIAS.—Plants of these intended to form fine specimens may soon receive a shift. They like a mild moist heat, and to be kept clear of insects.

CARNATIONS AND PICOTEES.—Soil for these having been prepared at the proper time and well frosted, should now be occasionally turned and kept dry for use when wanted. Take care that it is free from wireworm. As the potting season is fast approaching, keep the plants as hardy as possible.

CINERARIAS.—Give a little air if possible, but avoid frosty draughts. Pick off decaying leaves and keep down mildew by means of sulphur. Thin out superfluous leaves and shoots, and continue to move at intervals a few of the most forward plants into an intermediate house for early display.

DAHLIAS.—Roots of these may now be placed in heat to start them into growth.

FORCING GARDEN.

Notwithstanding that rather severe frost has again visited us, few seasons have been more favourable than this for early forcing, and therefore where anything like proper attention has been paid, most things will now be in a highly satisfactory condition.

CHERRIES.—Advance steadily. Ventilate freely when the weather will permit, and maintain a moist growing temperature.

CUCUMBERS.—Stop and peg down regularly plants sufficiently forward for that purpose. Water frequently between the hills, and round the sides of the frame. Ensure a temperature of 70° night and day, allowing a rise of 5° in the day if possible, and rising to 85° or even 90° during sunshine.

PEACHES.—If the fruit is swelling off, syringing may be again resumed, and should be performed twice a day, viz., in the morning about 9 o'clock, and in the afternoon about 3 o'clock. Shut up early.

PINES.—As a somewhat general shift should take place during this month, let us offer a little advice about soils. Our best Pine-growers adhere in general to loam. What is wanted is not a new description of soil, but good texture. Few people use turf so fresh as they may and ought to do. Proper mechanical texture is the great desideratum, and this may be obtained in perfection in fresh loamy turf; lumps of charcoal and broken bones will add to its porosity, and also to its quality. Turf for Pines should be housed in September in a dry state, and should be chopped into squares, or small pieces when dry. As drainage for pots we would recommend in addition to open crocks, broken bones and charcoal mixed; on this put a layer of fresh turf in lumps, and then the ball of the shifted Pine.

STRAWBERRIES.—To those in bloom near the glass give abundance of air when the weather is at all mild, and thin the fruit where too thick.

VINES.—Difficult setters should be artificially fertilised, choosing the middle of a dry day for the operation; Grapes swelling should be thinned the moment the bunches can be handled. Many exhaust their Vines by deferring too long this important operation. Follow up the close stopping of all superfluous wood, provide plenty of atmospheric moisture, and do not be afraid to indulge in a considerable increase of temperature on the afternoons of bright days, which we may now surely soon expect.

HARDY FRUIT AND KITCHEN GARDEN.

As soon as favourable weather shall have set in, see to the due preparation of ground for crops in general, but beware of carrying on any operations when the soil is in a wet state. Where kitchen gardens are composed of light sandy soil, they are better dug or trenched some weeks before the ground is wanted for cropping.

CAULIFLOWERS.—Look carefully after those in frames and under handglasses while cold weather lasts.

LETTUCES.—Plants of these in frames will also now require attention. See that they are not suffering from undue confinement.

POTATOS.—As soon as the frost shall have broken up, a few Ash-leaved Kidneys may be planted on a dry warm border, and when up protected a little in unfavourable weather.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Feb. 10, 1864, as observed at the Horticultural Garden.

February	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 4	26	30.144	30.060	43	21	32.0	43½	44	N.W.	.00
Friday 5	27	30.215	30.073	33	28	30.5	43½	43½	N.	.00
Satur 6	28	30.156	30.002	37	21	29.0	42	43	N.	.00
Sunday 7	●	29.941	29.826	34	18	26.0	40½	42½	N.E.	.00
Mon. 8	1	29.745	29.656	38	15	26.5	40	41½	N.	.00
Tues. 9	2	29.617	29.506	37	11	24.0	40	41	N.W.	.00
Wed. 10	3	29.510	29.386	41	28	34.5	39½	41	N.W.	.00
Average.		29.901	29.801	37.5	20.3	28.9	41.4	42.3		.00

Feb. 4—Fine, clear and cold, overcast; slight snow; frosty.
— 5—Clear and frosty, clear with cold north wind; overcast.
— 6—Clear and cold, fine but cold; sharp frost.
— 7—Clear and frosty; cold and dry; frosty.
— 8—Uniformly overcast, fine but cold, sharp frost.
— 9—Frosty; overcast, severe frost at night.
— 10—Frosty and foggy; at 10 A.M. a remarkably dense fog of reddish hue; slight frost at night.

Mean temperature of the week 10½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Feb. 20, 1864.

February	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 14	45.4	31.1	38.3	14	0.50 in.	1	5	4	3	3	12	8	2
Mon. 15	46.7	31.1	38.9	13	0.37	4	4	5	—	5	10	7	3
Tues. 16	46.6	30.6	38.6	8	0.23	6	6	4	3	1	9	6	3
Wed. 17	46.7	31.1	38.9	14	0.32	3	5	4	3	5	7	9	2
Thurs. 18	45.2	31.1	38.1	16	0.30	5	3	4	2	5	9	6	4
Friday 19	45.1	31.3	38.2	14	0.50	6	2	5	6	1	10	4	4
Satur. 20	45.6	30.7	38.1	20	0.51	2	4	3	5	4	9	7	4

The highest temperature during the above period occurred on the 16th, 1863—therm. 59 deg.; and the lowest on the 17th, 1853—therm. 2 deg.

Notices to Correspondents.

HOLLIES: *A H W.* It is not unusual for these to put forth blossoms and even sometimes new leaves when placed in water in a warm sitting room.

LABELS FOR ROSE-TREES: *Wellington.* Wood soon decays; white earthenware breaks and mildews. Metal, such as zinc or copper, when painted is far better; but you must take care that the wire by which it is suspended does not cut the label through by friction. Any coppersmith will furnish such things.

MILDEWS: *A H.* The brown specks on Camellia and Veronica are the incipient stage of that on the Citron, which is the common Fumago, a pest that is very prevalent wherever Aphides have been, or where there has been a honey-like exudation on the leaves. Nothing but constant care in sponging and ventilating will prevent it. The white patches are not the Oidium but a minute Sporotrichum which is in too bad a condition to say much about. Sulphur will be of no use as a remedy against the Fumago. *M. J. B.*

MOSS ON LAWNS: *C W F.* Surface applications will be of no use if the evil arises from deficient drainage. Of that you must judge for yourself. If the drainage is satisfactory, the bush-harrowing you propose will be useful, and you may afterwards apply a good top dressing of lime and ashes, or of the ammoniacal lime from gas works; or you may use a top dressing of guano by and by as the season advances; or you may water the Grass with gas-water, that is the refuse ammoniacal water to be obtained at any gas works. We believe these are all successful plans, provided the soil is properly drained.

NAMES OF PLANTS: *E C.* Rhipsalis salicornioides.

OAKS: *Sir J. R.* We are prepared to defend every statement that has appeared in our columns. We *know* that we are right in our opinion of Quercus sessiliflora, as we could demonstrate were it worth while to revive a question that has now been settled in the mind of every forester, except of those who have been napping, for the last ten years.

PINE APPLES: *A Constant Reader.* The disease in some Pine Apples which appear well coloured and moderately well flavoured, but have a blackness through the centre of the fruit of about 2 inches in diameter, is caused by the plants having had too much water and too little good warm ventilation. Reduce the water, and put more faith in sunshine.

TREE SEEDS: *J H L.* Any of the *great* seedsmen may be consulted with advantage.

TYDÆA: *W. Bull.* The variety is a good one, the flowers being large (1¾ inch across), brightly-coloured, and of good form and substance. We do not remember to have seen any like it. The colour is light crimson, marked freely with radiating lines and dots of velvety black, which contrast very effectively with the ground colour. If the habit is good we should think it an acquisition amongst these plants, which are not sufficiently appreciated amongst cultivators, but which are most useful for winter-flowering, if a supply of young plants is kept.

MISC.: *A digested Reason.* Pooh!—*Potato-land.* Your letter has four faults: it is too long and too ill written, and contains many things that are libellous and false.

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THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

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SPRING SESSION 1864.

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Drawing.—JAMES MILLER.

SPECIAL LECTURERS.

J. BAILEY DENTON, M. Inst. C.E.—On DRAINAGE.

Professor J. MORRIS, F.G.S., of University College, London—On GEOLOGY.

JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.

WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.

JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.

JOHN THORNHILL HARRISON, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.

THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.

ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.

RICHARD GRIFFITHS WELFORD, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

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The Agricultural Gazette.

SATURDAY, FEBRUARY 13, 1864.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 17 { Agri. Society of England ... ... Noon (Mr. Lawes on Salt as Manure)

MR. PATRICK SHIRREFF, of East Lothian, to whom we owe many of our best varieties of cultivated plants, last week called attention in this Journal to our means of Plant Improvement; and, referring to a passage on the subject in MORTON'S "New Farmers' Almanac" as having been written either by Professor BUCKMAN, or by some person entertaining the same sentiments, he said of it that "instead of being an unbiassed exposition of the modes of agricultural plant improvement, it may be regarded as an advertisement of HALLETT'S Pedigree Wheat."

Knowing the authorship of the paragraph in question, it was a careless oversight on our part that this reference to Professor BUCKMAN'S name should have been permitted. Whether his sentiments were properly represented in the paragraph or not, it was certainly a mistake to allow his name to appear in a case where he was not responsible, especially in connection with the not very complimentary allusion to the words used, as being an advertisement of Mr. HALLETT'S Wheat.

The article in question is, we believe, defensible against Mr. SHIRREFF'S attack. Certainly it was not written in order to promote the sale of the Pedigree Wheat. A clever tradesman knows the value of perpetual, urgent, and even outrageous advertisement sufficiently well to ensure the sale of his goods, without anything like editorial assistance. This

we have never given to any one unless it were incidentally, and in fact unavoidably. It was unquestionably our duty to inquire into a history professing to illustrate a principle which cannot be denied, under its designation of "*habit* of growth," to have general influence in plant cultivation. But whether Mr. HALLETT or any one else has benefited, or whether his customers have benefited or been injured by the result of our inquiries, is nothing at all to us. The article in question no doubt named Mr. HALLETT, and was so far an advertisement of his proceedings; but that could not be helped. Let us add that it would have been avoided if it could—for we do not carry our admiration of a career beyond the stage of patient and persistent labour during which it has, as we believe, done good agriculture a material service. The intelligence and perseverance which during several years of it have been exhibited are worthy of all praise. The subsequent skill as salesman or as tradesman which it has since displayed—skill in the mere art of money making and turning this intelligence and perseverance to personal account—is of course its own reward, and needs no commendation from us. Certainly we have no desire either to foster a trade which rests upon an extravagant estimate of the influence of the principle which has been established, or to promote the sale of Wheat at seven guineas a quarter!

Leaving, however, now these personal considerations, which have been forced upon us by Mr. P. SHIRREFF'S personal attack, we add a word or two upon the methods of plant improvement, which are referred to in the Almanac.

The writer had said of the plan by mere selection—"Keep a sharp look out, and whenever you see in any natural sort or variety the qualities you want, take care of the plant, and multiply it as fast as you can." And this appears to us to include all that need be said on the subject. Any further elaboration of the idea would have added nothing—it would indeed have rather weakened the influence of the statement. It is however upon the other method—that by cultivation, which Mr. HALLETT has employed—and in describing which the writer had mentioned Mr. HALLETT'S Wheat as an illustrative example, that Mr. SHIRREFF is more especially displeased. Here it had been alleged that the history of plant cultivation united with the analogies of animal life to prove that it was possible by careful attention to successive generations of a particular plant—by the best cultivation continued for many years under the best circumstances—to confer upon it good habits of growth, which become confirmed the longer the process is continued. And this we believe to be a well-founded statement—one to which a very wide-spread and long-established agricultural experience will bear testimony. Whence the idea in favour of change of seed, if there be no foundation for the idea? No one is more able than Mr. SHIRREFF to appeal to the history of plant improvement in proof of his opinion. But we shall be very much astonished if on a review of the whole of that large subject, he finds, as he declares, that the alleged history of HALLETT'S Pedigree Wheat is the only instance which can be quoted in defence of the idea which the word "habit," as applied to the growth of plants, necessarily conveys.

[Since this has been in type, and too late for publication this week, we have received from Mr. HALLETT a long communication on the subject of plant improvement, and on his experience as a Wheat grower, which cannot appear until next week.]

ON Thursday last a Bill was introduced into Parliament by the CHANCELLOR of the EXCHEQUER for enabling the malting of Barley to be used, free of duty, in the feeding of cattle. The safeguard provided by the Bill against any other use of the malt so made is obtained by requiring that the Barley shall be first mixed with not less than one-tenth its weight of Linseed. The effect of this on the article as food will be to make it even more laxative than malt naturally is—so that it will no doubt need to be further mixed with Bean meal or some other astringent addition, when given as food.

The only point of agricultural interest that arose in the course of the debate was the reading of the following letter on the subject from Baron LIEBIG:—

"Munich, July 6, 1863.

"In forming a judgment on the feeding properties of malt, when given to horses, cattle, and sheep, it is obvious that in comparing it with Barley we must not lose sight of the fact that there is a larger amount of nourishment in Barley than in the malt manufactured from it; for in the process of malting Barley suffers a loss in weight amounting to from 7 to 11 per cent. of dry substance. The 'rootlets' constitute 3 to 3½ per cent. of this loss, and as they contain a pretty large quantity of blood-forming (nitrogenous) matter (25 to 30 per cent.), the grain, by their separation from it, undergoes a loss of one of its nutritive elements. Hence it is clear that if in practice the feeding qualities of malt are found to be greater than those of Barley, this can only arise from the circumstance that the nutritive matter contained in malt is present there in a more soluble, more digestible state than in Barley; and that therefore in feeding with Barley more nutritive matter leaves the body in an undigested state than is the case when an equal weight of malt is used as food. There can be no doubt whatever that in malt blood-forming matter is contained in a more soluble form than in Barley; for the process of malting occasions a loosening of the component parts of the grain in so great a degree that 100 volumes of dry Barley yield (notwithstanding the loss of weight) 112 to 114 volumes of dry malt. Such a loosening of the inner parts of the grain, thus enabling the gastric juice in the animal body to penetrate it more easily and thoroughly, is not to be attained in like degree by a mechanical process. The comparative analysis shows finally that the amount of readily soluble blood-forming elements in Barley is 1¼ per cent., and in malt 2.2⅛ per cent. By the process of drying in the kiln, a part of the soluble blood-forming elements is rendered insoluble, and from this it cannot add to the feeding capabilities."

—— THE very elaborate returns of the harvest of 1863, which are given in the *Mark Lane Express* of Monday last, are again a singular confirmation of the accuracy with which the character of the crop can be estimated at the time it is reaped. We have for many years obtained from 200 or 300 correspondents (all over the country) their opinion of the current harvest in the month of August. Our contemporary gathers the opinions of a much larger number of correspondents in the month of January, when a good deal of the crop having been threshed out, a much more confident judgment of its yield may be pronounced. The two estimates are, however, very nearly alike. The following is the result of inquiries by the *Mark Lane Express* as regards the crops of Wheat, Barley, and Oats:—

Reports.	Wheat.	Barley.	Oats.
Under average	5	55	64
Average	96	245	268
Over average	523	261	200
Total	603	561	532

The following are our own returns of the same crops six months ago:—

Reports.	Wheat.	Barley.	Oats.
Under average	1	23	40
Average	60	109	110
Over average	131	58	49
Total	192	190	199

The Barley and Oat crops appear from the late returns to have turned out better than their promise at harvest time. How nearly the Wheat crop has fulfilled its promise, as that was read by our correspondents in August last, is plain from the following table, in which the percentages of the different reports at the two dates are calculated separately.

	Under Average.	Over Average.	Average.	Total.
Mark Lane Express	.32	83.42	15.76	100
Agricultural Gazette	.82	68.23	31.25	100

Here, too, the threshing machine has more than satisfied the anticipations which were formed at harvest time; but these nevertheless have proved exceedingly accurate.

STEPS are being taken—under the auspices of a most influential committee, presided over by Lord PORTMAN, and including many of the first names among leading agriculturists—both landowners and tenant farmers—for the presentation of a testimonial to Mr. JOHN FOWLER, as a public acknowledgment of the indomitable perseverance, untiring energy, and large expenditure of capital which he, as one of the pioneers of steam cultivation, has devoted during many of the best years of his life to an object which must eventually become a national benefit.

Mr. C. CLAY, of Walton, near Wakefield, to whom subscriptions should be sent, is the Hon. Secretary and Treasurer to the fund. The testimonial is to take the form of a full-length life-sized portrait in oil colours of Mr. FOWLER, and subscribers will be presented with an engraving of it, according to the amount of their subscriptions. There needs no additional word from us to declare (on behalf we are sure not more of the managers than of the readers of the *Agricultural Gazette*), how thoroughly such a testimonial has in this case been earned, or how deservedly in their opinion it will be conferred.

—— A LONG correspondence read at the last meeting of the Council of the Royal Agricultural Society has been since published. 1. Messrs. HOWARD (Jan. 21), suggest to Mr. AMOS, C.E., the Consulting Engineer to the Royal Agricultural Society, that he should resign his appointment on the ground, "among other reasons," of the business transactions of his firm in the implement trade. A copy of this letter had been also addressed to Mr. EASTON, the new partner of Mr. AMOS.

2. Mr. EASTON, in his reply (Jan. 23) does not think that there is anything new in the relations which his firm sustain requiring any alteration in the position which they occupy as Consulting Engineers to the Society. They have from the beginning of their association with the Society had large transactions with many of the exhibitors both in buying and selling, and there appears no reason why they should not continue to do so. And Mr. AMOS, in a subsequent letter, delayed by illness, expresses himself to the same effect.

3. Messrs. HOWARD (Jan. 28) intimate that though the facts admitted may not be new, they are new to them. They are persuaded that neither the Council nor the public are aware of the transactions acknowledged in the letter of Jan. 23.

4. Mr. EASTON, in a reply (Jan. 29), enumerates 27 firms, and speaks of several others for whom, as well as for Messrs. HOWARD themselves, his firm had had pleasure in selling implements at various times. He adds:—

"I cannot understand your object for writing such letters to us; you must have forgotten that we are not judges, and that the instruments introduced into the Society by us for testing the various implements are so simple and effective that the exhibitors, as well as the appointed judges, can at once see the most useful machine, and this I am confident has been the means of enabling the makers to advance the quality of their manufacture to the present high pitch of excellence, and of improving the system of agriculture, not only of this country but of all the world, much faster than would have otherwise been the case."

5. To this Messrs. HOWARD reply (Feb. 1) that the transactions alluded to in their original letter had reference more particularly to the large number of pumps supplied for steam ploughing and other engines going to Egypt. One exhibitor, they are assured, has ordered some 50 pumps at about 40*l.* or 50*l.* each. They add—

"You appear to see nothing inconsistent in your position of Consulting Engineers in having these large transactions with the exhibitors. Suppose, for instance, we recommend the pumps of Messrs. GWYNNE, and Mr. FOWLER recommends your pumps, would not the circumstance, however disposed you might be to be uninfluenced, *tend* to place us at a disadvantage; we think so, and so we believe the public would think.

"You refer to transactions you have had with our firm from 1851 to 1860. On reference to our books, we find that during these ten years, a few things have been supplied to your order, but the transactions really were so trivial, that we had well nigh forgotten them; they amount to less than six pounds (6*l.*) a year; we had no idea, and certainly did not infer from these exceptional transactions, that you traded regularly in Agricultural Implements.

"With respect to the testing instruments introduced by you into the Society, whatever may be their merits, you certainly must admit that they have had no part in the perfecting of our productions, and we are inclined to think that the engine builders would no more give you the credit you claim for the improvements in their engines, than would the builders of railway locomotives for the great improvements introduced into their engines during the same period.

"As to your instruments showing 'at once the most useful machine,' you must have written these lines without consideration. Without commenting upon the many mistakes that have been made in the awards, we will simply remark that if your instruments possess the high qualities claimed for them, surely the Society may at once dispense with Judges, Consulting Engineer, and the attendant expenses.

"In conclusion, we have to inform you that we have addressed the President of the Society upon the subject of our objection."

Accordingly the whole correspondence has been laid before the Council of the Society. And it is urged upon them that the Consulting Engineer to the Royal Agricultural Society should have no trade relations with those firms upon whose productions he is called upon to pronounce opinion; he should be one whose business does not make him a rival of any of the manufacturers or engineers who exhibit at the annual meetings of the Society.

THE SARSDEN SALE OF SHORT-HORNS.

ONE of the two great Sales of the ensuing season takes place at Sarsden, near Chipping Norton, Oxon, on March 22d. The late Mr. Langston, always a country gentleman and agriculturist, was many years ago a purchaser of well-bred cows in Northumberland, Durham, and Yorkshire, by the then agent Mr. Tomlinson. On these cows, themselves well bred, pure-bred bulls have been for many generations used. And besides these there are in the herd the descendants of other purchases within the last 12 years, themselves of greater note and better families, on which, as well as on the descendants of the original stock, bulls of the most fashionable blood have been employed. In this way a herd numbering upwards of 100, which stands in the very highest rank for quality and blood, has grown up—to be dispersed by Mr. Strafford's agency on the death of the owner. They have been bred in a high-land district, under such circumstances as the cold and bracing air, middling

pastures, and second-rate soils of the Sarsden farms afford, and thus present all the characters of a hardy constitution—good coats, short legs, deep frames, sufficient bone, regularity in breeding, and freedom from disease.

A written account of a herd can rarely do more than describe genealogies and relationships, and this, with an occasional remark on the individual quality of one or two members of it, is all that can be undertaken in the present account of the Sarsden herd.

It is descended from *Merry* by LOCKSLEY (4240); *Silver* by LOCKSLEY (4240); *Daisy* by BUCEPHALUS (6816); *Juventus* by ALMACKS (7779); *Red Cherry* by PRINCE OF WALES (8432); *Crummy* by STANHOPE (5315); *Roan Crocus* by GENERAL ELLIOTT (10,260); and *Homely* by YOUNG WEATHERCOCK (15,495)—all from separate purchases made many years ago in the North. Besides these there are families descended from Mr. Adkins's *Charmer*, Sir C. Knightley's *Coquelicot*, Earl Ducie's *Chaplet* and *Louisa*, and a few others. We add that heifers and cows in the following statement are named in italics, bulls in capitals—that the dates of birth are given, and that all the animals which are numbered (*e.g.* No. 5, *Cream*) are in the sale.

Let us now take in succession one or two of the original families in illustration of the fecundity of the stock and of the quality of the bulls used.

1. *Roan Crocus*, by GENERAL ELLIOTT (10,266), a calf in '53, was a descendant (through three generations) of HAWTHORN, by STANHOPE (5315), whose dam *Beauty*, by SON OF SIR KENNETH (1450) was bought by Mr. Tomlinson a great many years ago, from Mr. Richmond, of Newton Grange, near Darlington. The following are her descendents :—

Descendants of "Roan Crocus."

1st Generation.	2d Generation.
No. 5. *Cream*, '56, by YOUNG WEATHERCOCK, (15,496)	*Cameo*, '59
RED DUKE, '57	No. 33. *China Aster*, '60, by ARCHDUKE 2d (15,588)
WHITE DUKE, '59	No. 49. *Clematis*, '61, by ROYAL TURK (16,875)
ARCH, '60	No. 60. *Cactus*, '62, by LORD OF HAREM
	No. 21. ROYAL ARCH 11TH, '63, by ROYAL ARCH (18,749)
No. 48. *Royal Crocus*, '61, by ROYAL TURK (16,875)	No. 30. BARRISTER, '63, by ROYAL COUNSELLOR
No. 59. *Grand Crocus*, '62, by GRAND ARCH	
No. 64. *Princess Dagmar*, '63, by ROYAL ARCH	

Besides these, *Clematis No.* 1 has a bull calf, GUY FAUX, by LORD OF THE HAREM, No. 28 in the sale, and *China Aster*, besides a bull calf, ROYAL ARCH 5TH, by ROYAL ARCH (18,749), which is not now in the herd, has just dropped *German Aster*, the latest named in the catalogue, by ROYAL ARCH.

The descendants of *Roan Crocus*, herself, it will be seen, a remarkable breeder, have all done well; they are a good family. The bulls which have been used upon them, as will hereafter appear, are of first-rate descent.

2. *Daisy* by BUCEPHALUS. Take now the descendants of this cow as an illustration of regular and prolific breeding. She was purchased on Tyneside by Mr. Tomlinson. Her descendants in the herd are from her calves of 1847 and '48, viz., *Roan Daisy* and *Dairy Maid*, both by PRINCE OF WALES (8432).

Descendants of "Roan Daisy."

1st Generation.	2nd Generation.
Dinah, '50 by LORD MILTON (10,461).	Steer, '53.
Damsel, '52.	Heifer, '54.
YOUNG WEATHERCOCK, '53, by WEATHERCOCK (9325).	No. 3. *Delightful*, 55, by FIELD MARSHAL (14,545).
Steer, '54.	*Darling*, '55.
	Dewdrop, '57.
	No. 13. *Daucus*, '58. by GLOSTER'S GRAND DUKE (12,944).
	Dewlap, '59.
Twin bulls, '55.	No. 34. *Turk's Pride*, '60, by ROYAL ARCH (16,875).
Twin heifers, '56.	NORMAN ARCH, '61, by ARCHDUKE 2D.
Twin heifers, '57, by FIELD MARSHAL (11,545) viz.,	*Heifer*, '62, by LORD OF HAREM,
No. 9. *Dora.*	*Bull*, '63, by ROYAL ARCH.
and	
No. 10. *Doubtful.*	SAXON ARCH, '62, by ARCHDUKE 2D.
No. 19. *Dandelion*, '58, by GLOSTER'S GRAND DUKE (12,949).	No. 43. *Royal Daisy*, '61, by ROYAL TURK (16,875).

Besides these she had a heifer in '60 and a heifer calf in '61. There are, however, several descendants in the 3d generation. No. 3, *Delightful*, has bred since '59 as follows :—A bull in '59; a Bull, ARCADE, in '60; *Turk's Delight*, No. 40 in the Catalogue, by ROYAL TURK, in '61; *Turk's Darling*, No. 55, by ROYAL TURK, in '62; and ROYAL ARCH 3D, No. 8, in '63.

Daucus, No. 30, has also had MARBLE ARCH, in '60; a steer in '61; CHIEF ARCH, No. 15 in the sale, by ARCHITECT, in '62; and *Dear Me*, by ROYAL ARCH, a heifer calf, No. 77 in the Catalogue, last year.

Roan Daisy has thus proved a most prolific cow. Her sister, *Dairy Maid*, by PRINCE OF WALES, had *Young Dairy Maid* in '52, ADMIRAL in '54, *Lady's Maid* in '55, DAIRY DUKE in '56, DAIRYMAN in '57, another bull in '58, *Maid of Honour* in '59, from none of which are there any descendants in the herd. In 1860 she had *Lady Warwick*, No. 30 in the Catalogue, by ARCHDUKE 2d, 15,588, who had a bull calf in '62, LORD WARWICK, by ROYAL TURK; and a cow calf, No. 80, by LORD OF THE HAREM, both of which are in the sale. In '61 she had *Laundry Maid*, No. 37, by ROYAL TURK, and before the conclusion of the same year she had bred twins, which are not in the sale. Her daughter, *Laundry Maid*, has just had a bull calf, LAWYER, No. 33, by ROYAL ARCH.

There are thus in all 15 of this prolific family in the sale. It will be seen that *Roan Daisy* bred twins 3 years following, and that her sister *Dairymaid* had also twins in 1861. The former bred 13 calves, the latter 11. *Dairymaid* took the prize at Warwick along with *Red Cherry*, for the best pair of dairy cows.

These two instances of the original families in the herd may suffice in illustration of the prolific character of the stock. As regards the others, from *Champion* by VAGABOND (9765) there are 9 descendants in the herd. From *Meretrix* by LORD MILTON (10,461) there are five, from *Red Cherry* six, *Juventus* by ALMACKS five, and from *Merry* by VAGABOND two.

We now come to the subsequent purchases, dating from the Tortworth sale, where Mr. Langston purchased *Chaplet* and *Louisa*, the former by USURER (9763), the latter by CRAMER (6907). The daughter of *Louisa, Lucy Long* '54, by DUKE OF GLOSTER (11,382), No. 2 in the Catalogue, an extraordinary milker, has had a large family, which, with their descendants, are named in the following Table :—

Descendants of "Lucy Long."

1st Generation.	2d Generation.
Linda, '56	—A bull, 1860
No. 12. *Lady Lucy*, '57, by GLOSTER'S GRAND DUKE, 12,949	No. 29. *Lady Best*, '59
No. 17. *Lady Long*, '58, by FITZMILTON, 14,554	Steer, '62
	No. 67. *Lady Leigh*, '63, by ROYAL ARCH, 10,719
No. 22. *Lady Louisa*, '59, by ARCH DUKE 2D, 15,588	No. 65. *Lady Churchill*, '63, by ROYAL COUNSELLOR, 20,725
Steer, '60	
Steer, '61	
Bull, '62	
No. 79. *Alma Mater*, '63, by LORD OF THE HAREM	

In addition to these, *Lady Best*, No. 29, has a calf, ROYAL ARCH 3D, by ROYAL ARCH, 18,749. This, including nine members, is one of the best families in the Sarsden herd.

4. The descendants of the other Tortworth cow, *Chaplet* by USURER, are also tolerably numerous. She was a 4-years cow at the Tortworth sale, and was then bought for 54 guineas. She has had four bulls, among them FITZMILTON, by LORD MILTON, 10,461, and a heifer *Charmer* by 4TH DUKE OF YORK (10,167), a calf in 1854.

From *Charmer* there are the following descendants :—

1st Generation.	2d Generation.
No. 8. *Countess*, '56, by GLOSTER'S GRAND DUKE (12,949)	No. 3. ROYAL ARCH, '58, by ARCHDUKE 2D (15,588)
Heifer, 57	No. 26. *Archduchess*, '59 by ARCHDUKE 2D (15,588)
	No. 54. *Columbine*, '62, by LORD OF THE HAREM
	No. 26. CHURCHWARDEN, '63, by LORD OF THE HAREM
No. 21. *Roan Duchess*, '59, by GLOSTER GRAND DUKE	No. 53. *Woman in White*, by LORD OF THE HAREM
	No. 63. *Blushing Bride*,
	No. 74. *Charming Woman*, by ROYAL ARCH

Besides these, *Charmer* has, since 1859, had *Lady Charmer*, No. 32 in the sale, by ROYAL TURK, in '60; No. 41, *Royal Charmer*, by ROYAL TURK (16,875), in '61; and CHIEF JUSTICE, No. 6, in '62 by LORD OF THE HAREM. And *Lady Charmer* has had ROYAL ARCH 2d, No. 7 in the sale, by ROYAL ARCH.

There are thus 11 of this family in the catalogue, and considering the original breeding of *Chaplet* and the bulls 4TH DUKE OF YORK, GLOSTER'S GRAND DUKE, ARCHDUKE 2D, ROYAL TURK, and LORD OF THE HAREM, used on her and her descendants, there can be no better family in the herd.

5. There is yet another family deserving especial notice—the descendants of *Coquelicot*, by DUKE OF CAMBRIDGE (12,742). She was bought a calf in '56 at Sir Charles Knightley's sale for 90 guineas. She has *Cocoa*, No. 14, by GLOSTER'S GRAND DUKE, *Arch Duchess of Cambridge*, No. 28, by ARCH DUKE 2D, ROYAL COUNSELLOR, No. 4, by ROYAL TURK, THORNDALE GRAND DUKE, No. 10, by 2D DUKE OF THORNDALE, and *Pride of Sarsden*, No. 75, by LORD OF THE HAREM. *Cocoa* again has had CONQUERING HERO, by ROYAL TURK, and she has in the catalogue CHIEF JUDGE, No. 5, by LORD OF THE HAREM, and SIR CHARLES, No. 13, by ROYAL ARCH. The *Arch Duchess of Cambridge* is now in calf by Royal Arch. This very valuable family, containing six members in the catalogue, is interesting as one of the few remaining descendants in this country of this tribe of the Fawsley herd.

One reference more to a single heifer—*The Pet*, No. 46, bought at *Mr. Banks Stanhope's* sale for 45 guineas. She is from *London Pride*, by JANIZARY, a Fawsley cow, by 7TH DUKE OF YORK; and she is in calf by the THORNDALE GRAND DUKE, just named, which is out of *Coquelicot* (another pure Fawsley cow), by 2D DUKE OF THORNDALE, another pure Duchess bull. Her produce will thus be a singularly well balanced cross of Mr. Bates's and Sir C. Knightley's breeds. She is herself a beautiful roan of first-rate quality, symmetry, and substance, and is likely to command a good price.

The bulls used in the herd have been sufficiently named already. It will be seen on reference to the catalogue, that the very best blood in the country has for many years been used. ROYAL TURK (16,875), who has 13 of his immediate offspring in the herd, was bought of Mr. Ambler, for 350 guineas. He took the 1st prize in his class at the Warwick show. He is got by HEART OF OAK (14,683), dam *Princess Royal*, by BARON WARLABY (7812), and further back comes from Lord Spencer's *Zeal*. LORD OF THE HAREM (16,430), who has 21 of his immediate descendants in the Catalogue, a well-known bull, was bought a calf, from Mr. Housman, of Lune Bank; he is by Booth's DUKE OF BUCKINGHAM (14,428), dam *Gulnare*, by GRAND TURK, (12,969). Both of these bulls thus trace from Warlaby. ARCHDUKE 2D (15,588), again, who has 12 of his immediate offspring in the Catalogue is, Captain Gunter's well-known bull by 6TH DUKE OF OXFORD, 12,765, out of *Duchess* 72*d* by 4TH DUKE OF OXFORD, a pure Duchess bull, carrying back his pedigree to Colling's original *Duchess*. He was a red bull and has got a large number of red descendants from cows of all colours, which, moreover, notwithstanding having been put to white and roan bulls subsequently, still in the red offspring which they bring seem to bear testimony to the influence of the original cross.

We do not go more than two or three steps back in the history of most of the animals for sale at Sarsden before coming upon all the best names in the history of the breed—Bates, Booth, Knightley, Fawkes, Tempest, Earl Ducie, Ambler, Housman, Kingscote, Adkins, have all had to do with the formation of the herd. And in Mr. Langston and his farm manager, Mr. Savidge, there has been united good judgment, enterprise, and perseverance sufficient to ensure that the stock now announced for sale are not only well bred, but managed with judicious attention to hardiness and condition.

Mr. Savidge's good management is efficient, not only in the herd but in the field. Nowhere has the steam plough acquired a better reputation than on the Sarsden estates, and this is owing to his able management. Three or four sets of Mr. Fowler's apparatus are at work upon farms all round. It will illustrate the care and good management which have been here observed that one rope now in use has already ploughed or cultivated 3000 acres, and that 25*s.* will cover all the breakage of Mr. Savidge's apparatus during 1863, when 650 acres were ploughed or cultivated. Of the effects upon the land there is ample testimony: Green crops are surer and better; Barley after Wheat is now a certain and productive crop; the land which formerly used to show mildewed and prematurely ripened spots in crops of Wheat at harvest time, now always shows a sound crop throughout—the stiff clay soils of the lower farm have *disappeared*. Clovers are a more certain crop; horse tillage and steam tillage, side by side, present in many instances remarkable contrasts at harvest time—the worms of the soil are everywhere *increasing in size*. All these are quoted by Mr. Smith as proofs of the unquestionable superiority in his experience of steam cultivation.

COTTAGES FOR AGRICULTURAL LABOURERS.

PUBLIC attention has very properly been much drawn of late to the want of better cottages for agricultural labourers in most parts of the kingdom. Let me try to show why there is this want in the country, when the building of small houses is generally found so profitable in towns, viz :—

The reason that good cottages are not more general in the country is, they don't pay to build. The rents they command being much below a moderate rate of interest on the cost of building them, and while this is so it is useless to expect a supply.

The rents of cottages in the country are ruled, not as in towns by the law of supply and demand, but by the practice of land owners allowing labourers to occupy their cottages at merely nominal rents.

Land owners give their cottages to labourers at low rents, thinking, by so doing, they benefit the labourers, where wages are low.

Landowners in giving their cottages to labourers at low rents, in the long run, benefit the employers of the labourers, who regulate their wages accordingly, and not the labourers themselves.

I may make this clearer by instancing what would be the effect of landowners giving labourers their daily bread upon the same principle. Would it not come to this, that the bread given would be of the cheapest kind, and the wages paid be made proportionately less, so that the labourer would be no gainer in money to spend on other necessaries, and would have to put up with the lowest quality of bread. This is exactly what has come to pass with respect to cheap cottages in rural districts. The labourers gain nothing in money by being housed nearly rent free, and they have to put up with the barest accommodation.

Let me add, I have large experience in cottage building, being a Government Inspector under the Inclosure Commissioners by whose sanction so much is

doing in building farm premises and cottages throughout the kingdom, and this has shown me the great improvement to be made in this respect, and, with respect to cottages, the propriety of giving three chambers to each cottage, and of placing one in the roof upon the plan adopted by Colonel Lennard, of Wickham Court, Bromley, Kent, or still better, upon that of Captain Dashwood, of Kirtlington, Oxford, who provides one on the ground-floor. In either of these plans the sexes are more thoroughly separated, and the chambers are not so cramped for space as when the three are upon one floor. Colonel Lennard has also adopted with great success hollow 9-inch brick on edge walls. They are recommended as being drier, warmer, and somewhat cheaper.

A first-class pair of cottages with three chambers may generally be built for 250*l*. The interest on this outlay, at 5 per cent. per annum, is 12*l*. 10*s*, or say 2*s*. 4*d*. per week per cottage; and I have found no difficulty in getting this rent when wages were 11*s*. per week, and may add that I have ever found labourers more ready to give 2*s*. 4*d*. per week for such a cottage than 1*s*. a week for the accommodation that has too long and too often been thought sufficient. *Hewitt Davis, Feb.* 6.

THE DEVON BREED OF CATTLE.

(*Continued from p.* 131.)

[The following is the conclusion of the lecture before the Royal Agricultural College given last December by Captain J. T. Davy, Editor of the "Devon Herd Book."]

The Devon Herd Book.—I had thought for some time previous to publishing the 1st volume in 1851 that the Devons deserved to have their pedigrees recorded, and determined to set about it. Before this there was no published record of their pedigrees, respecting which Mr. Dixon remarks:—"They had no names in those great days, but still Devon breeders were a herd book to themselves, and had attained quite a masonic accuracy in their oral lore before Captain Davy stepped forth and fixed 1820 as the year of memory." The pedigrees of Devons were known to breeders, and communicated to their successors as long ago as the beginning of the last century; and I could have given earlier pedigrees from private notes and information, but thought it unnecessary to go beyond the date of the establishment of agricultural societies and the prize system, from which the public knowledge and interest may be dated. Among the earliest is Forester (46), bred by Mr. Quartly, and his grandsire, bred by my father, the late Mr. Davy, of Rose Ash. The pedigree of Brinsworthy, bred by Mr. Merson, although he was not entered, was perfectly understood, as well as the fact of his being the father of Cambridge (12), who was calved in 1837, and gained the 1st prize at the Royal Agricultural Show at Cambridge in 1840.

The breeders of Devons are so numerous that it would be tedious to enumerate the whole of them; although there were a few who have been breeders of Devons as long as the Quartlys, it must be admitted that the late Mr. Francis Quartly was very instrumental in bringing them to perfection, and with the assistance of his nephews, by exhibiting them, and being so successful at cattle shows in their early days, afforded people an opportunity of testing the superiority of the breed, and for which the public expressed their gratitude by presenting him with a testimonial. The "Herd Book" will prove that the great majority of the prize Devon bulls were descended from Forester (46), bred by Mr. Quartly, who also bred his dam Tulip (451) by a bull bred by my father. He was a "very celebrated bull" as the "Herd Book" truly states; and having been calved in 1827 may fairly be looked upon as the patriarch of the breed in modern days. He took the name of "Forester" from having been sold when young to the late Mr. Knight to run with stock on the moor, and was afterwards repurchased by Mr. Quartly; the great number of prize animals descended from him bears evidence of his value as a stock-getter. Mr. Frank Quartly's nephews, Messrs. John and James Quartly, breed from each other's bulls, and thus a prize gained by one tells equally for the other.

The following bulls, which gained 1st prizes at the Royal Agricultural shows, were bred by Mr. James Quartly:—Baronet (6), Duke of Devonshire (35), Quartly's Prince of Wales (105), Napoleon (259), Duke of York (37), and Warrior (348), whilst Mr. John Quartly bred Hundred Guinea (56), Earl of Exeter (38), Duke of Chester (404), and Sultan (318), and of course both have bred a large number of prize females. His late Royal Highness the Prince Consort established a valuable herd of Devons in May, 1856; his first entries appear in the 3d volume of the Herd Book in 1859, having previously gained the 1st prize at the Royal Agricultural Show Chelmsford, with "Zouave" He was the sire of Prince Alfred, who obtained 1st prizes at the Royal Agricultural shows at Battersea as a bull calf, and at Worcester as a yearling. His own sister, the "Rose of Denmark," was awarded the 1st prize as a calf at Worcester. The 1st prize for the best steer under 3 years and 3 months, also the extra prize of 25*l*. for the best Devon exhibited, were awarded to a steer from the Royal herd at the show at Birmingham the other day. The cows were selected from the herds of Messrs. Mogridge, Turner, and Farthing. Mr. Brebner, the respected bailiff, writes me:—"The prize steer shown last Christmas was sold for 60 guineas, and weighed about 145 stone, or at about 1*s*. 1½*d*. per lb. The Devons fatten well, and the average weight is from 110 to 140 stone (London weight). The present herd of Devons here consists of three bulls, Saracen, Prince Alfred, and Crown Prince, 19 cows in milk and calf, and 23 store and fattening beasts."

The Davy family have been breeders of Devons for the last 150 years. At my grandfather's decease in 1790, his herd was divided among two of his sons; my father, who remained at Rose Ash, and William, who went to Flitton. My father gained many local prizes, but ill health compelled him to give up farming, and with it cattle breeding, about the time the Royal Agricultural Society was established, or doubtless he would have been an exhibitor. Both Taunton (440) and Birthday were prize cows, the latter afterwards so highly valued in the United States; both sprung from this herd, as did the Sire of Tulip (151), the dam of the noted bull Forester. Mayboy (249), the winner of the 1st prize at New York Agricultural States Fair at Saratoga; Richmond (292), a prize bull at the Bath and Exeter Show, and others, were bred by me. The late Mr. William Davy, of Flitton, the friend and compeer of Mr. Francis Quartly, was a very successful breeder, and at his death was succeeded by his son, Mr. James Davy of Flitton, who can claim about an equal number of male and female prizes. The herd first signalised itself at the Royal Shows, almost at their commencement, with the 1st prize bull Oxford (89), who had been previously sold to Mr. Paul Since that time Nelson (83) took the 2d prize at the Royal Agricultural Show at Windsor; Napoleon III. (464), the 1st prize bull at the Royal Agricultural Show at Salisbury; Eclipse (190), a 1st prize bull at the Bath and West of England Show; and the Duke of Flitton, who took the 1st prize and the Gold Medal at the late Royal Agricultural Show at Battersea. The report of the Stewards of Live Stock at the Battersea Show, page 379, says: "The Devons are the best I have ever seen, and I have attended 11 meetings; the cows, heifers, and yearling heifers especially were very superior. Mr. James Davy, of Flitton, sent five animals, and won four 1sts and a 2nd against one of his own, besides taking both Gold Medals with the Duke of Flitton and Temptress" Princess Alice, the 1st prize yearling—also Mr. Davy's—and who had previously won the 1st prize as a calf at Leeds, was drawn out with Temptress for the Gold Medal.

Further on the report says, "Two such yearlings as Mr. Davy's Princess Alice and Young Empress have been seldom seen in one man's possession." Mr. Richard Mogridge, of Molland, bred and sold many valuable animals to the late Prince Consort, including the 1st prize steer at the Smithfield Show in 1854, and brother to his celebrated heifer who gained the first prize in her class, and was reserved for the Gold Medal at Smithfield in December, 1860. He also bred Abd-el Kader, who, when Mr. Turner's property, gained the 1st prize at the Royal Agricultural Show at Lincoln. Mr. George Turner, of Blacon Downs (late of Barton), says:—"I began breeding in 1818, having had some from my father, who had bred them for 30 years. I also purchased the best I could get from the late Mr. Davy, of Rose Ash, Mr. Davy, of Flitton, and the Messrs. Quartly; and up to this time I believe I have won more prizes than any other man. I have now the best herd I ever had, numbering about 70, of various ages." The bulls, Derby (23) at Derby, Turner's Prince of Wales (106) at Southampton, Protection (110) at Newcastle, Duke of York (36) at York and Exeter, Duke of Devon at Gloucester and Paris, and the Zouave, were all 1st prize bulls at the Royal shows. A great number of his females have also won prizes.

Mr. Farthing, of Stowey Court, Bridgwater, has since 1845 been a very successful breeder of Devons; when the present Mr. Walter Farthing induced his uncle to exhibit, and obtained several prizes at the Smithfield, the Royal, the Bath and West of England, and various local shows. The breed has been in the Farthing family for the last 50, and probably nearly 100 years. The late Mr. Farthing, who died in 1854, said they had possessed the breed as long as he could recollect. Since his death Mr. Walter Farthing has been a successful exhibitor, and has gained above 150 prizes. He and his uncle have bred the following 1st prize winners, and at several of the local shows, viz.:—Bulls Baronet (145), Lewes (226), Duke of Leeds (618), and Viscount (746). Females Bessie (534), Lovely (856), Nelly (1512) and Duchess of Leeds (1942). The two 1st prize Devons at Worcester sent from the Royal herd at Windsor were both from a cow bred by me. Mr. Farthing, as well as other breeders, has sent many animals to France, America, and Australia. Mr. Farthing may justly be placed as one of the principal of the Devon breeders in Somerset, and his success to his foresight and correct judgment in uniting the best blood and symmetry of the North Devon with old stock which were of a larger size. "Sir Peregrine," bred by Sir Alexander Hood, and the winner of the 1st prize at the Bath and Exeter Show at Truro, and the Royal Agricultural Show at Warwick, although bred in Somerset, possesses almost entirely Quartly blood, and was used by Mr. Farthing with great success, as was proved by his son "Viscount," the winner of many 1st prizes.

Mr. James Hole, of Knowle, has bred many 1st prize winners at the Royal and other Societies, as also Cecil Smith, Esq., of Bishop's Lydeard, and the Messrs. Gibbs. To the fact of Messrs. Bult & Bond having purchased Hundred Guinea (56), and bringing him into the Vale of Taunton Deane, may be mainly attributed Messrs. Fouracre and Bond's success for some years at the Royal Agricultural Shows; and with Northampton (86) laid the foundation of the great improvement in the breed of Devons in the county of Somerset. Their influence on the stock of the neighbourhood was most marked, and their steers could be picked out at the local fairs for years afterwards.

The late Mr. R. Merson bred Cambridge (12), and Northampton (86), both 1st prize winners, and Sultan (122), who was 2d at York. His brother, Mr. J. Merson, has since his death bred many Royal and Bath and West of England 1st prize winners. Mr. Bodley, of Stockley Pomeroy, is the breeder of a great many prize bulls; he rather objects to fatten females for exhibition. The Earl of Leicester, in Norfolk; Lord Portman, the Earl of Eldon, Mr. Edward Pope, Mr. Paull, and Mr. J. A. Smith, are successful breeders in Dorset; the Messrs. Umbers, in Warwickshire; Mr. Tremayne was one of the earliest breeders in Cornwall. Among the principal in that county are Viscount Falmouth, Mr. Samuel Anstey, Mr. Palmer, Mr. Jas. Tremain, and Mr. Harvey, of Hayle, with a great many others in Devonshire and several other counties.

I have before stated the Devons are extensively bred in America, and it may not be uninteresting to know how some of the best first found their way there. The following extract from a letter, written by Mr. Patterson, of Maryland, United States, to Mr. R. Peters, of Georgia, and by him kindly communicated to me, will throw light on the subject. It runs thus:—

"Sykesville, Maryland, Sept. 3, 1853.

"DEAR SIR,—Your letter of the 29th August has been received. In 1817, Mr. Coke, afterwards Earl of Leicester, of Holkham, England, gave my brother Robert Patterson six Devon heifers and a yearling Devon bull, named by Mr. Coke 'Taurus.' My brother gave three of the heifers to his father-in-law, Richard Caton, the other three he gave to my father, Wm. Patterson; the bull Taurus was the joint property of Caton and my father. Two of the heifers belonging to my father were in calf by a bull of Mr. Coke's, the third heifer was put to Taurus upon their arrival in this country. The three afterwards were bred to Taurus, and the progeny of the whole were bred together. In 1835, after the death of my father, I became possessed of his Devon cattle descended from Taurus, the three heifers before mentioned, and the calves of the two heifers which were in calf before leaving England. Taurus was bred by Mr. Denny, a tenant of Mr. Coke's. Mr. Coke gave 50 guineas for Taurus. In 1820, I saw the dam of Taurus on the farm of Mr. Denny: she made 13 pounds of butter a week. In 1835, I wrote to the Earl of Leicester, that I owned the Devon cattle descended from the stock he had given my brother some years before, and that I was anxious to procure a bull for a cross. He sent me out 'Anchises,' and wrote to me that he had bought him from one of the best dairies in Devonshire for his own use. "Signed, G. PATTERSON."

Since then the breed has spread rapidly, and is highly valued in the United States, which now contains a very large number of animals of the purest descent.

I have traced the breed from the earliest to the present time, and shown how, from being originally confined almost to a portion of one county, gradually and chiefly by the aid of tenant farmers, therefore without the advantages of unlimited means which have been at the command of other breeds, it has spread itself, still retaining its original purity, into almost every civilised country.

The great secret of breeding is to keep animals which are adapted to the soil, pasturage, and climate; and to succeed we must study this: for a breed which is invaluable in some localities may be ill adapted, and consequently unprofitable, in others.

It must be admitted that the Devon breed is particularly valuable in this respect, for experience has shown that they will flourish in any climate, yet perhaps are never seen in greater perfection than among their native hills; where amid the Heather

"At morn the blackcock trims his jetty wing;"

and where bleak stormy winds prevail nearly two-thirds of the year; and through the long winter nights

"The tired ploughman, dry and warm,
Hears, half asleep, the rising storm
Hurling the hail and sleeted rain
Against the casement's tinkling pane;
The sounds that drive wild deer and fox
To shelter in the brake and rocks."

ENFORCEMENT OF OUTFALL.

I AM anxious to obtain, through your columns, an answer from Mr. Bailey Denton to the following question.

What is the date and title of the Act of Parliament by which a landowner is enabled to cut a drain through another landowner's land, either with or without the permission of such other landowner, in order to obtain a proper outfall for the drainage of water from the land of the first-named landowner? and where can such Act be obtained?

I adopt this public mode of asking this information, as I consider the subject of such vast public importance.

I am at this moment anxious to obtain a deeper outfall for drainage off my estate at two points—across a turnpike road. The road authorities have expressed their readiness to deepen the existing old water courses under the road at each point, to any depth I require, as soon as I make the drains on the other side of the road of the necessary depth.

In both cases the owners of the land across the road, have, long ago, stopped up old open water courses (in one case a wall of a building being actually built over it, leaving only a drain under the wall), and have made in lieu thereof drains too small and too shallow to take the water which comes from my land across the road, which therefore stands back even in my ditches. In one case I have received a modified consent to cut a new drain at my own expense, to a brook below. In the other case I have asked for permission to do so. I wish to know what I can do in either or both cases—either with or without the consent of the owners of the land over the road?

I know of no one so well qualified as Mr. Bailey Denton to give this important information, as no one has done so much for the public good in the matter of land drainage as he has. *A Gloucestershire Drainer.*

THE MINERAL THEORY.

[The following communication from Liebig has been sent to us by Mr. Alderman Mechi, "by request of the Baron."]

IN the last number of the Journal of the Royal Agricultural Society of England, there is a paper by Messrs. Lawes & Gilbert, in which old charges against me, personal and others, are revived; and as they have sent an extract from that paper to all the Universities, Agricultural Colleges, and Journals in Germany, as well as duplicates to myself, it is evident that they attach a great value to their statements, and in order to give others the means of judging them correctly, I think it advisable to answer them.

In my Principles of Agricultural Chemistry (p. 90, 1855), I had called Messrs. Lawes & Gilbert's attention to the fact, that their experiments included the proof that farm-yard manure (organic manure) could be entirely replaced by mineral manure (for sulphate of ammonia and sal ammoniac are mineral); and, therefore, so far from refuting my doctrine, they had really substantiated it. To this they replied that ammoniacal salts belonged to the class of organic manure; that I had always considered them as such; and that in falling back on the strictly scientific meaning of the terms mineral and inorganic, I was begging the question; was trying by a manœuvre or ruse to give a new definition to my mineral theory, or rather to substitute for it another which was not my own. Although I tried to convince them by a paper printed in the Journal of the Royal Agricultural Society of England (1856) that I never had considered ammoniacal salts an organic manure, they return to their accusations now, and endeavour to support them by quoting the following passages of my works:—

"But the weight or amount of the crops is in proportion to the quantity of food of both kinds, atmospheric and mineral, which is present in the soil, or conveyed to it in the same time. By manuring with ammoniacal salts a soil rich in available mineral constituents, the crops are augmented in the same way as they would have been if we had increased the proportion of ammonia in the air."—*Principles*, pp. 77-8 (1855).

"The mineral constituents act, as is shown by the produce

of the unmanured land, without any artificial supply of ammonia."

"The ammonia increases the produce only if the mineral constituents be present in the soil in due quantity, and in an available form.

"Ammonia is without effect if the mineral constituents are wanting. Consequently the action of ammonia is limited to the acceleration of the action of the mineral constituents in a given time."—*Principles*, pp. 86-7 (1855).

". . . . . the other is the action of sulphate of ammonia as a solvent for certain important mineral constituents of the soil."—*Ib.*, p. 99 (1855).

"Ammonia, when used as a manure alone, and when there is a want of mineral constituents in the soil, is like the spirits which the labourer takes in order to increase his available labour, power, or imagination; and like that stimulant, its action in this case is followed by a corresponding exhaustion."—*Ib.*, p. 106 (1855).

"A fertile soil must contain in sufficient quantity, and in a form adapted for assimilation, all the inorganic materials indispensable for the growth of plants.

"A field artificially prepared for culture contains a certain amount of these ingredients, and also of ammoniacal salts and decaying vegetable matter."—Fourth Edition, p. 160.

It is scarcely necessary to multiply these citations, as the meaning of them is nearly the same.

The conclusion which is drawn by Mr. Lawes from these passages is the following:—

"These sentences will be sufficient to show whether or not Liebig is justified in now attempting to fall back, in agricultural discussions, upon the more strictly scientific meaning of the terms 'mineral' and 'inorganic,' so as to include within them 'ammonia,' 'ammoniacal salts,' 'atmospheric constituents,' &c., and thus to give a new definition to his mineral theory, or rather substitute at this date for his own theory, which has proved to be erroneous, another not his own."

It is quite true that I have contrasted ammonia with mineral substances; but the meaning of these passages must be obvious to any candid reader of my works. I said (Fourth Edition, p. 50)—

"No conclusion can have a better foundation than this—that it is the ammonia of the atmosphere which furnishes nitrogen to plants."

In my "Principles of Agricultural Chemistry," from which the first passages quoted by Lawes are taken, I said—

"All these substances (phosphoric, sulphuric, silicic, and the alcalic, lime, magnesia, iron, &c.), are included in the term mineral food of plants. Carbonic acid and ammonia are the atmospheric food of vegetables."—(p. 24.)

In my book I had to explain the relation of the atmosphere to the soil in the growth of plants, and to distinguish the elements furnished by the air and those by the soil, and to avoid, by contrasting them, a long tedious enumeration of each of these elements, which all had been stated as inorganic. I divided them in two classes—atmospheric and mineral.

I must admit that some scientific education is required for a man to understand that the word atmospheric, designating gaseous compound, like the word salt (for ammoniacal salts), in whatever connection they may be used, entirely exclude the idea of organic. We speak frequently of salts of organic acids (acids derived from organic compounds), but a salt itself is never called organic, because it is exactly the opposite of organic. As to the term mineral constituents, I showed in the 8th chapter of my book that the constituents of ashes are originally constituents of minerals—thus, potash a constituent of feldspar, phosphoric acid a constituent of agratite, &c.—(See also chapter 9 on formation of arable soil, and chapter 12 on fallow.)

From this it will be understood why I used the word mineral constituent to designate the constituents of ashes, sometimes of soils, but never for ammonia.

Ammonia is a constituent of the atmosphere, but is never a constituent of any mineral; it is mineral and inorganic, but not a mineral constituent.

For a man not versed in scientific language there is some ambiguity in the word mineral—at least in Germany we say sulphate of ammonia is mineral (in its origin), and the mineralogists say sulphate of ammonia is not a mineral (species); but this has nothing to do with Lawes and Gilbert's accusations.

Although the word organic does not occur in any of the sentences quoted from my works, and is never associated with ammonia, although I distinctly stated that the opposite of mineral constituents was atmospheric, they affirm that by atmospheric I understood organic constituents. Their mode of arguing is most simple. They take any passage out of my book, twist their own erroneous idea into it, and then assert that, by contrasting ammonia with mineral constituents, I had regarded it as an organic manure.

The origin of Messrs. Lawes and Gilbert's wonderful statements can scarcely be understood without referring to a definition of manure which Mr. Lawes gave in 1847, and which he is pleased to call his theory. It is the following (Journal of the Royal Agricultural Society of England, vol. i., p. 240):—

"I now come to the action of manures, which are generally divided into two classes—organic and inorganic. Although this distinction is by no means satisfactory, I shall adopt it as being generally understood. Organic manures are those which are capable of yielding to the plant, by decomposition or otherwise, organic matter—carbon, hydrogen, oxygen, and nitrogen — constituents which uncultivated plants derive originally from the atmosphere. Inorganic manures are those substances which contain the mineral ingredients, of which the ash of plants is found to consist."

Before I enter on any discussion of this definition or theory, I must beg to recal the views on the food of plants, which I published in the year 1840, They are contained in the following passage:—

"The elements of nourishment of all green plants are inorganic or mineral substances.

"The plant lives on carbonic acid, ammonia, water, phosphoric acid, sulphuric acid, lime, magnesia, potash, iron; and many, too, require common salt."

As I did not admit the existence of organic food, my theory was called mineral theory. This name was correct, inasmuch as it was directly opposite to another theory, which prevailed before 1840.

According to De Saussure, Sprengel, Thaer, &c., there were two different laws of nourishment, and two kinds of manure, organic and inorganic.

"Uncultivated plants," says De Saussure, "receive their combustible elements from the air, their carbon from carbonic acid; but the products generated from this kind of food possess no value for agricultural purposes. The normal development of cultivated plants, on the other hand, and the amount of produce of arable fields, depends on organic matter in the soil, on residues of fermentation, and decay of animal and vegetable matter.

"Fertile soils contain a mixture of these remains, and their absorption by the roots is a powerful assistance to the food which is contributed by the air and water.

"Plants receive their nitrogen almost entirely by the absorption of the soluble organic substances.

"Mineral substances, marl, gypsum, clay, lime, favour the growth of plants, but take no part in nourishment."—(See Bibliothèque Universelle, t. 36, p. 430; Ann. of Chemistry, t. 42, p. 235.)

This view, it will be seen, is diametrically opposed to my theory, inasmuch as De Saussure maintained the necessity of organic food for cultivated plants, and I denied it altogether.

At first sight the so-called theory of Lawes, or his definition of manure, would seem exactly identical with that of De Saussure. Mr. Lawes assumes the existence of different laws for cultivated and uncultivated plants, and of two classes of manure, organic and inorganic, just as De Saussure and Sprengel maintained; and most certainly Mr. Lawes does not claim this theory as his own, but states that it was generally understood, though by no means satisfactory.

There are, however, two essential differences between Mr. Lawes's so-called theory and that of De Saussure. First, that Mr. Lawes admits the existence of inorganic food or manure, consisting of the substances contained in the ashes of plants. The second, that Mr. Lawes applied the name of organic manure to something very different from what De Saussure meant. For the first, De Saussure kuew nothing of the fact that the ashes of plants were nutritive elements; for he maintained that they (for instance, potash, lime, magnesia), were variable ingredients, changing with the geological formation and character of soils. I think no one can deny that I was the first to point out that the elements of the ashes were really food of plants, and Mr. Lawes has most certainly no claim to this essential part of my theory.

As to the second, by organic manure De Saussure meant genuine organic matter. Mr. Lawes, however, has not the slightest desire to prove that the vegetable mould of Sprengel, or the organic extracts of De Saussure, are necessary ingredients of an efficient manure. On the contrary, all his experiments tend to prove that these substances, which cannot be produced in a manufactory, are not necessary. What then does Mr. Lawes mean by organic manures?

The candid reader will be puzzled to learn that Mr. Lawes's theory, correctly expressed, is exactly the same which I published seven years before his definition of manure: That the action of manure depends on two classes of bodies. The combustible part of plants derive their carbon, hydrogen, nitrogen, and oxygen, from carbonic acid, ammonia, and water; the incombustible parts of plants consist of phosphoric, sulphuric acid, potash, soda, lime, magnesia, silica, iron; that "stable manure, the excrements of men and animals, do not influence vegetable life by means of their organic elements, but indirectly by means of the inorganic compounds which decomposition and slow combustion produce; in consequence therefore of their carbon being changed into carbonic acid and their nitrogen into ammonia. Thus organic manure, consisting of parts or remains of plants or animals, may be replaced by those inorganic compounds into which it resolves itself in the soil."

The difference between Lawes's theory and mine is simply this—that he has borrowed the substance of mine and the terms of De Saussure's theory—that he calls ammonia, carbonic acid, and water, which I had called atmospheric food, organic manures!

There is still a question to be solved: Were these three substances classed by Lawes as organic manure generally understood by that name?

Now it is perfectly certain that neither De Saussure nor Sprengel employed the term organic to denote these three substances, which they knew as inorganic. This denomination can therefore not be referred to them. There exist, moreover, no chemical works published before or after Lawes's definition (1847), in which they are classed as organic food or organic manure. It was consequently not generally understood that ammonia, water, and carbonic acid belong to the class of organic manure. The part of Mr. Lawes's theory which belongs to himself is merely this erroneous nomenclature; I repeat, that the terms of his definition of manure he has taken from De Saussure, the essence of it is simply mine, but the manner in which he has tacked De Saussure's terms on to my meaning is purely his; we must let him have the credit of the invention and a monopoly of the property.

I cannot think that the humblest teacher of chemistry in Great Britain would be content to accept a theory from a man who shows such ignorance of the first elements of chemistry as Mr. Lawes, and yet Mr. Lawes has the conceit to make believe that I had adopted his definition of manure seven years before he gave it, and that although it was by no means satisfactory to himself, it was perfectly satisfactory to a German professor of chemistry.

Mr. Lawes accuses me of a manœuvre and a ruse, and I convict him of trying, by a false definition, to annex a theory which I have the sole right to claim. It is obvious that his definition of manure would be perfectly satisfactory if his word organic were changed into my word atmospheric, and carbonic acid, ammonia, and water included in the term inorganic, to which they are universally assigned. Messrs. Lawes and Gilbert's conclusions belong to that class which goes under the name of Fallacies of Confusion in John Stuart Mill's "System of Logic," and which comprehends, "among others, all those which have their source in language, whether arising from the vagueness of our terms or from casual associations with them, in which no other causes can be assigned for the mistake committed than neglect or inability to state the question properly, and to appreciate the evidence with definiteness and precision."

If the leading idea of my work is borne in mind, as it is stated in the following passage (Fourth Edition, "On Manure," p. 186)—

"A time will come when plants growing upon a field will be supplied with their appropriate manure, prepared in chemical manufactories, when a plant will receive only such substances as actually serve for its food, just as at present a few grains of quinine are given to a patient afflicted with fever instead of the ounce of wood which he was formerly compelled to swallow in addition."

—it will be seen that all my statements and endeavours were directed with a view to oppose the ruling idea that organic manure was necessary to preserve the fertility of fields and to increase the crops. The prejudice in favour of their necessity had grown to be a dogma, and the progress of agriculture depended on the farmers becoming aware of their error.

My whole book may be described as an uninterrupted protest against the existence of organic food of plants, for organic matter cannot in the nature of things be produced by chemical manufactories; and if they were really necessary, chemistry could afford no assistance to agriculture.

If any one will consider the real cause of this 16 years' controversy, he will be aware that it is a false definition of manure. If Messrs. Lawes and Gilbert had not classed ammonia and ammoniacal salts among organic manures, a dispute upon my theory would have had no excuse. There is something so degrading from a scientific point of view at the bottom of this controversy, that those who have taken part against the only scientific doctrine which agriculture possesses, will look back with shame when a few years have elapsed; but there is nothing humiliating to me, although much that is highly annoying, for I am not so proud as to think myself humbled when I am fulfilling the vocation to which I have devoted my life—that is, of instructing others. To suppose that in this controversy I was influenced by personal motives would simply be absurd. When I strenuously endeavoured to make the agriculturists view things rightly it was not for their own sakes, but in order to ward off future evils and the imminent dangers which threaten society at large. Every man of intelligence must see the strongest confirmation of my teaching in all the facts produced in this dispute. Every single experiment of Messrs. Lawes and Gilbert brings new evidence in its favour, and every doubt must disappear by the creation and progress in all countries of Europe of an immense branch of industry—the fabrication of artificial manures from inorganic or mineral substances, which is now extensively employed.

Mr. Lawes's definition of manure, though false in itself, may yet have had, perhaps, a good effect in diffusing more widely these artificial manures, which are all, without exception, mineral manures. The prejudice in favour of organic manure was so strong that many agriculturists accepted under that name artificial manure which they would have refused under the name mineral manure, and Mr. Lawes, acting on his definition, could give, in all conscience, the assurance, that their manure for corn contained the organic constituent which is most efficacious in stable-dung.

Societies.

BATH AND WEST OF ENGLAND: *Feb.* 6.—A meeting of the Council was held at Taunton, Sir J. T. B. Duckworth, Bart., in the chair. *Shropshire Sheep.*—A communication was read from Mr. H. Smith, of Sutton Maddock, Shiffnal, complaining of certain restrictions in the prize sheet for the Bristol meeting, which would prevent his being an exhibitor of Shropshire sheep, for which there is no special class. *Age of Cattle.*—Mr. Fowler, Secretary of the Herefordshire Agricultural Society, communicated a copy of a resolution recently passed by that body, recommending that the 1st January should be adopted as the date of reckoning the age of cattle for exhibition at agricultural shows. The subject was referred to the Stock Prize Committee. *Disqualification of Exhibitors.*—An animal disqualified at a recent exhibition, on account of what was held to be an inaccurate representation of its age, has since been sold, and the *bonâ fide* purchaser now applied to the Council to know if he was at liberty to enter the animal for exhibition. It was decided that as the

disqualification alluded to attached to the exhibitor and not to the animal, there was no rule to prevent the present owner exhibiting under a strictly accurate certificate as to its age, &c. *The Bristol Meeting.*—A report was read from Mr. J. Widdicombe, the director, explaining the steps he proposed to take for securing proper accommodation and shelter for horses at the Bristol meeting.

Herefordshire: *Ages of Cattle from the 1st of January.*—At a special general meeting of the members of this Society, held at Hereford last Wednesday, Mr. Jancy, the Chairman, said:—At a meeting of this Society, held on January 20, Mr. Duckham offered some remarks respecting the different dates fixed upon in different places for the commencement of the breeding year for cattle, and those present unanimously concurred with him that it would be to the advantage of breeders generally if all the principal societies in the kingdom reckoned from one date. But there appeared to be almost as many opinions as to what that date should be, as there were members present at the meeting. It was then resolved to call a meeting of breeders and others interested in the matter, irrespective of members, to take into consideration the best day from which to reckon the age of cattle, and Mr. Fowler, the secretary, has advertised notices in the Hereford papers calling the present meeting. He himself had formed no opinion as to the best day, and he should be glad to hear the gentlemen present express their opinions on the point. He hoped some day would be unanimously agreed upon, so that that day might be recommended to the breeders of cattle generally.

Mr. Duckham proposed "That the opinion of this meeting is that the 1st of January in each year should be adopted as the date of reckoning the age of cattle for exhibition in this and other agricultural shows."

Mr. J. E. Jones thought it highly necessary that some day should be fixed on, and as it seemed to be the opinion of several gentlemen that it should be fixed on the 1st of January, he begged to second the proposition.

A discussion then took place as to the time, some gentlemen being for the 1st of March, others for the 1st of April. Eventually an amendment, which proposed to postpone the decision of the question, was lost, and the original resolution was therefore declared carried.

Farmers' Clubs.

London: *Feb.* 1.—*The Malt Tax.*—The following are some of the letters read by Mr. Williams at this meeting, to which we alluded last week.

1. *From Mr. Hudson, of Castle Acre.*—It is nearly 18 years ago that I tried the experiment of fatting three Highland Scots upon malt, against three of the same lot upon Barley-meal. The three fed on malt were decidedly the best beef when they went to London to be slaughtered. The six were selected from a lot of 20, and were as level as we could select them, and I had them weighed alive when they were first put into boxes, and again when they were sent away to London. I enclose you the letter of the butcher who slaughtered them. "The beasts 4, 5, 6 were of a very much better quality than the others; the grain was finer, and altogether of a superior description, fully bearing out Mr. Collins' opinion with respect to the quality."

2. *From Mr. M. Biddell, of Playford.*—I cannot yet give the particulars, as the experiments are not concluded; but, as I have frequently weighed the animals, as well as all the food that they have consumed, I can state that the result has most satisfactorily proved that a quarter of malt will produce more meat than the same quantity of Barley. I can also add that, in all my experiments, excepting one, the malt-fed animals have been most healthy and regular in their feeding throughout.

3. *From Mr. C. Howard, of Biddenham.*—I have never used any malt, nor do I know any one hereabouts who has; but unfortunately last harvest I had rather a large breadth of Barley very much injured by the rain—in fact, fully one-third of it was sprouted, rendering it unsaleable. I have dried it, at an expense of 2*s.* per qr., and am using it for both cattle and sheep. They are all doing excellently, the latter being entirely on Wurzels. There is sufficient malt to flavour the whole food. I can assure you clean mangers are quite the rule. Of course my consumption of cake is not half what it generally is; and this is what I think farmers require—to be allowed to make the best of their own produce, so that the expensive article of cake need not be nearly so much used.

4. *From Mr. E. Stenning, of Godstone.*—I have a small malting attached to one of my farms; in 1860 I got the duty returned upon 10 quarters of inferior malt; but I was obliged to make an affidavit that I had consumed it, which I did, and I can honestly say my sheep never thrived and fattened so fast as upon that occasion. I can fully testify that malt is more valuable for fattening sheep than any other corn; then again the malt coombs and the ashes are also valuable, the former for feeding, and the latter for manure; wherever I used the ashes I always grew much finer Turnips. I can see to a drill, therefore if we could get rid of this obnoxious tax I fully believe that double the quantity of Barley would be made into malt.

5. *From Mr. W. Hobson, Brigg.*—Some time ago I was making up some sheep; I fed them with oilcake, split Beans, white Peas, bran and Oats, and weighed them every week; they for several weeks gained no weight. I had heard of malt being good for feeding, so I began to give them malt, a quart a-day, and increased it to two quarts. The first week they gained weight. I continued to weigh them every week. They gained weight, and went on uncommonly well.

A discussion ensued on the reading of Mr. Williams's paper, and the following is an abridgment of the several addresses that were delivered.

Mr. Fisher Hobbs related the various steps that had been taken during a previous agitation against the tax, and read the appeal which was then addressed to electors, signed by Mr. Corbet, Secretary to the Anti-Malt Tax Society. He then stated the following as his experience on the use of malt as food. He said:—

I have used it with great advantage. Living in the county of Essex, I bred Southdown sheep. It was supposed that an Essex man would have no chance of obtaining a prize for such sheep from the Royal Agricultural Society; but when that Society held its meeting in Norwich, I showed a pen of Southdowns. I gained the first prize of 40*l.*, beating the Duke of Richmond, a result which was owing mainly, if not entirely, to the circumstance of the animals having been fed upon malt. —Any gentleman who is a sportsman must know that when he has had a long day with the hounds and his horse has seemed very tired, though the animal would not eat his gruel he would readily take a malt mash, and by that means I believe many a horse has been saved. Many years ago I bought a horse of a gentleman residing at Stowmarket, with which I afterwards gained a prize of the Royal Agricultural Society at Shrewsbury. After purchasing the horse, I asked him if he could give me any advice with respect to its management. He replied by letter, as follows:—"My experience in feeding with malt extended only to horses used for covering or getting up for sale quickly; and it is now some years since I left off, on account of the expense, the duty making the article too dear to answer." Surely if we were to take a little trouble, and forward such facts as many do possess as to the value of malt for feeding purposes, it would go further than signatures to a memorial, if well linked together, and placed before a Chancellor of the Exchequer by a deputation. We might plead three things: Let the stock have its untaxed food, the poor their unadulterated beer, and the farmer his right. Let me add, that I hope that if we should be compelled by the Chancellor of the Exchequer to rest the merits of malt on this point, we shall not be placed in the position that we were some years ago, when two Alderney cows were placed in the hands of two scientific men, Dr. Thompson and another, and it was apparently forgotten that in the case of such animals we look for milking qualities and not for fattening ones. The whole country was humbugged by the course pursued by those two gentlemen, who were seeking the advancement of their own profession, and had no feeling for agriculture. If we are obliged to rely upon experiments of that kind, let them not be small ones. I should like to see some 500 quarters at least of malt free of duty placed in the hands of a committee of members of this Club, having a scientific man like Dr. Voelcker to guide them, and I have no doubt that if in that way the merits of malt were honestly and fairly tested, the result would be to show that they are much greater even than farmers generally believed.

Mr. Sidney followed with arguments addressed to the method by which the agitation against the tax was to be conducted. The only way to prove that the agricultural interest are in earnest in the matter is to subscribe some thousands of pounds towards the cost of the opposition to it. A description of a model labourer to be refined and elevated by home-brewed beer is mere cant. Men loved society as well as beer, and that is what takes them to the public-house.

Mr. Punnett, of Chard Sutton, argued that the agitation against the tax would be most effectually conducted, not by noisy and expensive public action, but by a resolution to vote against any one who would not pledge himself to its repeal.

Mr. T. B. Dring, of Claxby, contended that no good would arise to the farmer from the repeal of the tax. He did not approve of exacting pledges from public men—he did not believe malt to be better for feeding purposes than the Barley from which it had been made —nor that if Barley rose in price from the greater consumption, if the duty should be removed, did he think it would continue so, for more would be grown at the expense of other grain. He did not believe that the cheapening of beer to the labouring man would do him any good.

Mr. W. Spearing, of Kennet, maintained, in opposition to Mr. Dring, that the repeal of the law would be a great benefit to the labouring man. He said:—

I believe that the present heavy duty on malt tends to encourage the manufacture of a spurious article, and that, owing to this cause, a vast amount of deleterious matter is thrust down the throats of labouring men, the mischief of which to their health it is almost impossible to exaggerate. There have recently been a number of mechanics, masons and others, at work in my parish, and while the cost of the bread which they consumed has not exceeded 8*d.* per man, some of them have been known to pay on Saturday night, out of 35*s.* a week, as much as 1*l.* for beer and spirits.

Mr. T. Owen, of Clapton, related the following experience in the use of malt as food. He said:—

I am a grower of Barley, and out of 800 or 900 quarters which I have produced, not 100 have been fit for malting. I am also a maltster, and have 200 quarters of malt which I cannot sell. I have had recourse principally to the feeding of 200 or 300 pigs, which I have sold under 6*d.* per lb. As regards the feeding qualities of malt for bullocks and sheep, I would remark that no man living has had fair opportunities of testing them. I have had a little experience in this matter. In the year 1860, I bought 20 quarters of Barley, re-winnowed it, and having reduced it to 16 quarters wetted, and the result was that, it having grown on a cold soil, that Barley never sprouted, and became completely dead on the floor. Before it came to be dried off, I said to the exciseman: "This Barley has not risen at all; what am I to do with it? I cannot mix it with any other malt. May I use it for feeding purposes?" The matter was afterwards mentioned to the supervisor, and the result was that an application was made to the Board of Excise in London, who consented that the article should be used for feeding without paying duty. I used it for feeding eight or ten beasts, mixing it with cake and sliced roots, and the animals ate their food much quicker and with greater benefit than they had ever done before. What I contend is, that if malt will improve the condition of our animals, we ought to be in a position to use it, for there can be no doubt the food must be made more palatable and nutritious by adding malt; and the sooner an animal fills his belly, the more time he has to rest. As regards the labourer, notwithstanding what has fallen from Mr. Dring, I contend that the repeal of the malt tax would have a tendency to keep the labourer at home with his family, and to teach him to find his greatest enjoyments in home comforts, by the side of his wife and children, instead of going to the public-house to get drunk. I am quite sure, too, that there has been for a long period a great falling off in the consumption of beer at farm-houses. As a maltster, I know that many farmers formerly spent as much as 40*l.* a year on malt; but now do not brew at all, leaving their men to drink water, upon which I am sure they cannot do a fair day's work; or to find their own beer, which is only to be obtained at some retailer of brewer's beer.

Mr. Corbet related his experience as Secretary to the former Anti-Malt Tax Association. He said:—

You are all aware that a new Anti-Malt Tax Association, of which Mr. Punnett is the chairman, has been recently formed. I was secretary of the first association, and the result of my experience is that we did not fail for want of money, nor do I believe we shall fail now for want of it. It is men that are wanted to ensure success. I feel sure that the first agitation failed for want of fitting representatives in the House of Commons. My notion is that if the repeal of the malt-tax is to be obtained, it will be done with very little expense —that is to say, it will be through its being made a personal question rather than a public one. Let every man go home determined to speak to his own members in the way that has been suggested this evening, and the object will soon be accomplished. Mr. Sidney implied that the thing could not be done in consequence of the yearly tenure of land; but he contradicted his own statement by telling us that a former member for Berkshire was turned out because he did not represent the opinions of his constituents. If the electors of Berks turned out Mr. Pusey on that ground years ago, why cannot farmers now act in a similar manner in reference to the malt tax? I believe that that tax was never before so great a sore in the House of Commons as it is at this moment, and that certain gentlemen there have a very great dread of it.

Reviews.

The Journal of Agriculture, &c. Jan. 1864. Blackwoods

It is a very good number of this quarterly periodical. Mr. Henry Stephens, than whom no one is a more experienced or trustworthy writer on agricultural subjects, relates the astonishing experience of Scottish farmers, both on manuring and on tillage, showing what safe and profitable scope their soils and climate afford for liberal and enterprising management under both of these heads. An interesting account of William Harley, of Glasgow, and his dairy system; essays on the storing of root crops; on farm crops and cropping; on popular weather prognostics; on cottage building and how to warm it with one fire; with the quarterly *resumé* of news, make up the first part of the volume.

The Transactions of the Highland Society, bound up in the same cover, contain an elaborate and exhaustive essay by Mr. Wilson, of Woodhorn, in which however due credit has not been given by the author to the preceding labours of Mr. Benet Woodcroft, C.E., as the source whence the historical part of the essay has been derived.

Mr. Wilson's essay describes the various machines made by the different manufacturers, and enumerates the performance of each at the different experimental and competitive trials which have been instituted of them. He refers to his own experience during five years in the employment of a machine, and sums up the relative cost of hand and machine labour as follows:—

"With regard to the question of comparison of the expense of reaping grain by the various systems of sickle, scythe, and machine, the writer is able to speak very confidently in favour of the latter, after five years' experience, during which period he has cut with one machine upwards of 1200 acres of different kinds of crops, exclusive of a large quantity cut for his neighbours. Previous to the use of a reaping machine, the cutting of Wheat on this farm cost as follows:—

(Formerly) By hand-labour.

The reaping, binding, and stooking of Wheat, from 11*s.* to 15*s.* per acre.
Mowing, binding, and stooking of Wheat, about 8*s.*

(Now) By machine.

Cutting of Wheat, 1*s.* 6*d.* } 5*s.* 9*d.* per acre, exclusive of
Binding and stooking, 4*s.* 3*d.* } wear and tear, interest on capital, &c.

"The above has reference more particularly to the harvesting of Wheat; hence all other crops cut by hand will be in due proportion. But whilst the cost of cutting Oats by sickle or scythe will be proportionably and considerably less than Wheat, no difference can be made in the cost of cutting these crops by a machine, inasmuch as the same staff is required for the cutting, though, in some cases, Oats may be more expeditiously taken up and stooked than Wheat or Barley. On this farm the corn, which is cut by a swathe-delivery machine, is taken up by women using long-toothed rakes, each of these requiring a boy preceding them to make bands, and a man following to bind and stook, which gang can take up, on an average, 1½ acre per day, at a cost of 4*s.* 3*d.* per acre. It will be evident, however, to every one conversant with the variable kinds of crops with which the reaping machine has to cope, that there must be a necessary and considerable difference in the cost of cutting as well as of taking up the corn—as, for instance, where circumstances admit of a heavy crop being cut in one direction only, one half of the time of both men and horses is wasted by having to return empty. Taking, however, the cost of cutting, binding, and stooking all our grain crops—one with another—at 11*s.* per acre by manual labour, we find a saving at once of from 30 to 40 per cent. by the use of a reaping machine; and this opinion seems to be indorsed by the experience of our leading agricultural authorities on this subject—such as Messrs. Wilson of Edington Mains, Hunter of Thurston, Hope of Fenton Barns, Wilson of Wester Cowden, and others, who have kindly come forward and recorded, for the public benefit, in addition to their valuable opinions, the expenses of their harvest operations. The experience, however, of the writer with regard to the saving accruing from the use of reaping machines would lead him further to observe—

"(*a*) That a swathe-delivery reaper takes the place and does the work of ten good mowers on average corn.

"(*b*) That a manual sheaf-delivery reaper does the work of from sixteen to twenty reapers with sickles.

"(*c*) That a sheaf-delivery reaper with automaton rake does the work of thirty reapers with sickles."

The essay is somewhat deficient as regards the account which might have been collected of the actual

experience of farmers with the various reapers in different parts of the country; and the labours of Mr. Woodcroft, to which the former part of the essay is due, ought not to have been ignored. The other papers in the volume are an essay on the cultivation of the Carrot, and reports of the Veterinary College, and of proceedings in the laboratory. The essay of Mr. Henry Stephens in the Journal, and the report by Dr. Anderson as to the value of bird's dung as manure, will afford material for remark hereafter.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Feb.	Inches.	°	°				°	°	°	°	Inches.
Thursday	11	29.77	34	33	N.	0	10	35	30	51	25	..
Wednesday	10	29.42	31	30	S.E.	0	5	37	18	45	12	..
Tuesday	9	29.04	24	24	N.W.	0	0	34	19	45	14	..
Monday	8	29.79	30	29	N.	2	10	33	26	38	20	..
Sunday	7	29.07	28	27	N.	0	10	37	25	45	22	..
Saturday	6	30.03	32	31	N.	2	6	37	31	45	27	..
Friday	5	30.29	33	31	N.	3	0	42	29	50	24	..
Thursday	..	..	..	..	..	..	..	..	..	..	..	..

Notices to Correspondents.

CLOVER: *A W.* Two quarters of well rotted bonedust per acre applied now to Grass land will promote the growth of Clover.

GRASS MANURES: *Mr. Richardson.* Your letters must go in as advertisements. The principles you urge have been established by Mr. Lawes' experiments, which have been referred to by us as often as the subject seems to require discussion.

MILK PANS: *A H T* asks where he can procure milk pans on Major Gussander's principle, mentioned by Dr. Voelcker in his essay on Milk in the Journal of the Royal Agricultural Society of England.

MUTTON: *Eland.* A fat Cotswold sheep will yield a Smithfield stone of mutton for every imperial stone of live weight, *i. e.*, 8-14ths of their live weight is mutton. If your sheep are short-woolled and in very good condition they will yield more mutton than this.

PIG DISEASE: *County Asylum.* It appears to be a malignant epidemic somewhat of the character of scarlet fever, and it is probably infectious. Separation, cleanliness, ventilation, the free use of chloride of lime, are called for. Give bran and boiled Linseed as a substitute in part for the Barley meal, with free access to a green vegetable diet as well as to water acidulated with acetic acid. Sulphate of magnesia may be given once as a cooling aperient, and nitrate of potash as a diuretic several times—2 drachms of the former, and 10 grains of the latter being sufficient for a four months pig. Yeast may be tried to diminish the tendency to the putrid state, and if tonics are afterwards required, give gentian and sulphate of iron. *W C S.*

RED WATER IN COWS: *An Old Subscriber.* The disease is rather in the liver and digestive organs than the kidneys. Open the bowels by giving sulphate of soda 1 lb., ginger 1 drachm, gentian 1 drachm, and warm water; and next day, powdered alum ½ drachm, nitrate of potash 4 drachms, camphor 1 drachm, spirits of wine 1 drachm, ginger 1 drachm, gentian 1 drachm. To be given with gruel, and repeated the following day. Books—Youatt on Cattle and Pigs, White on Cattle Medicine, Youatt and Spooner on Sheep.

SUBSOIL: *Agricola.* It is impossible to give advice founded upon a mere examination by the eye of a handful of the soil. We can only urge as general truths, that the drainage of land when water stagnates, the marling of sands, the addition of lime when no calcareous matter, or when an excess of organic matter exists, are all profitable operations.

TOLL BARS: *Husbandman.* We are not learned in the law; but it is plain that the spirit of the Act, and of decisions under it, is against the charges you name, viz., for carting the tops of trees (not timber) from one part of a farm to the other, and for the farmer riding his pony from one part of the farm to the other.

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	16-ounce.	21-ounce.
Best	5½*d.*	... 7¼*d.*
Seconds	3½*d.*	... 5*d.*
Thirds	2½*d.*	... 3½*d.*
Fourths	2¼*d.*	... 3¼*d.*

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These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds
				s. d.	*s. d.*	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9				
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10 9	12 3	12 6	14 0
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11 6	13 6	13 6	16 0
19 „ 13	20 „ 13	18 „ 13	..				
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 „ 14	20 „ 14	18 „ 14	..	to the foot.			

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PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

	s.	*d.*
6 by 4 and 6½ by 4½	10	6 per box.
7 „ 5 „ 7½ „ 5½	12	0 „
8 „ 6 „ 8 „ 6½	13	6 „
6 „ 7 „ 9½ „ 7½ and 10 by 8 ...	15	0 „

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Hort cultural Society, and to most of the Nobility, Clergy and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13	Thirds ...	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14	Seconds		English.	English.
20 „ 15	Best		18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

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The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

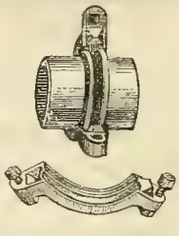
Sizes and Prices on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

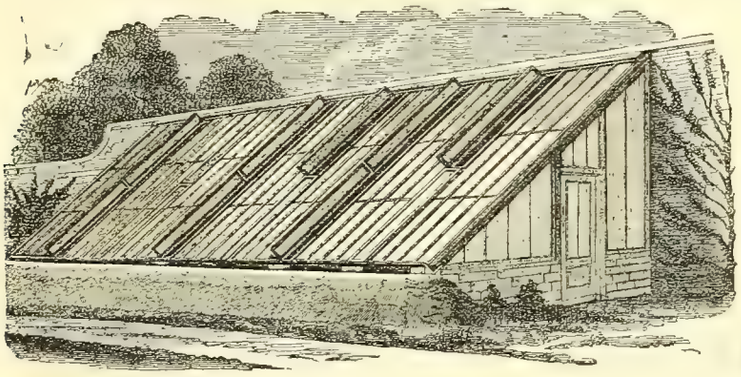
ON THE PRINCIPLE INVENTED AND PATENTED BY

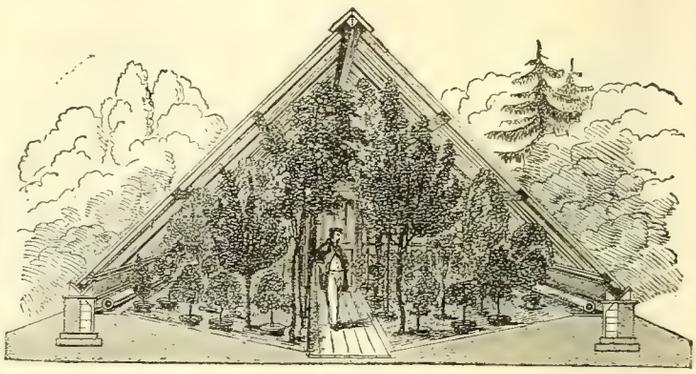
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

MANUFACTURED in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY; in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.





These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick Walls, and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.

When the HOUSES are not required Portable, improved Iron Gutters and Supports are now supplied, rendering the structures most permanent and durable.

TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. HEREMAN." "Yours &c., PORTMAN."

"27, Grosvenor Square, May 14, 1863.

"Sir,—I have much pleasure in reporting to you that I am quite satisfied with the Patent Glass Houses which you furnished in 1861. My gardener at Hackness is of opinion, as far as his experience of them up to this moment goes, that the system of ventilation which you adopt is quite equal, if not superior, to any other system which he has yet tried.

"Mr. S. HEREMAN." "I remain, &c., [Sir] JOHN V. B. JOHNSTONE."

"Woodcote [Newport, Salop], May, 1863.

"Mr. Cotes has much pleasure in stating that he considers the Glass Lights put up by Mr. Hereman to be a great addition to the Woodcote garden, and shall be always ready to testify as to their efficiency."

"Mr. S. HEREMAN, 7, Pall Mall East."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. HEREMAN." "Yours &c., ALFRED ELLIS."

"Johnson Hall, near Eccleshall, Staffordshire, May 11, 1863.

"Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes at an angle of about 50°, the lower or front wall being 3 feet high. Nothing can be more simple than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. HEREMAN." "Yours, &c., EDWARD LYON."

"Shalimar, Acton, N., May 11, 1863.

"Sir,—In reply to your letter of the 9th inst., I am happy to say that I was so very well satisfied with the Lean-to Houses erected by you in my garden three years since, that I had another put up last November.

"Mr. S. HEREMAN." "I remain &c., SAMUEL RICKARDS."

"Wath-upon-Dearne, near Rotherham, May 12, 1863.

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-falling source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market gardeners do not adopt them more generally.

"Mr. SAMUEL HEREMAN." "I remain, &c., G. P. NICHOLSON."

"Norfolk Villa, Eastbourne, May 12, 1863.

"Mrs. Baugh has much pleasure in informing Mr. Hereman that her Orchard House is perfect in every way, and answers admirably for the culture of fruit trees in pots. Mr. Hereman is at liberty to make whatever use he wishes of these few lines, as Mrs. Baugh thinks it a pity these houses should not be more general in this growing place."

"Inverary [Castle] Gardens, May 21, 1863.

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Glass Houses which you erected here for covering in Peach and Fig trees. Although our wall is 17 feet high, the fruit sets regularly over the whole surface, and, with the command of ventilation these houses have, fruit can be forwarded or retarded at pleasure.

"I remain, &c., JOHN CAIE [Gardener to His Grace the Duke of Argyll."]

"Mr. S. HEREMAN."

"The Grove, Stanmore, May 12, 1863.

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers every expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your method of construction so amply secures.

"Mr. S. HEREMAN." "I remain, &c, W. LEWIS" [Gardener to Joseph Gillott, Esq.]

"Nothing can be more easy than to build them—nothing more simple than to remove them."—*Daily News*, May 22, 1862.

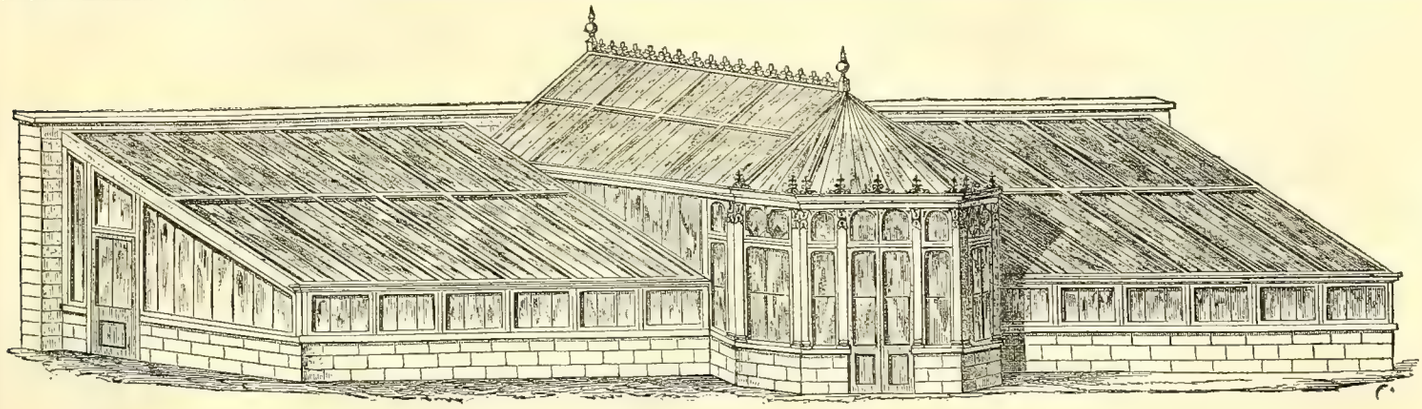
"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit, can be obtained as these 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, is now ready, and may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"We strongly recommend this attractive shilling's worth, conscious that none who purchase it will be disappointed."—*Shirley Hibberd, Esq., in Floral World*, May, 1862.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

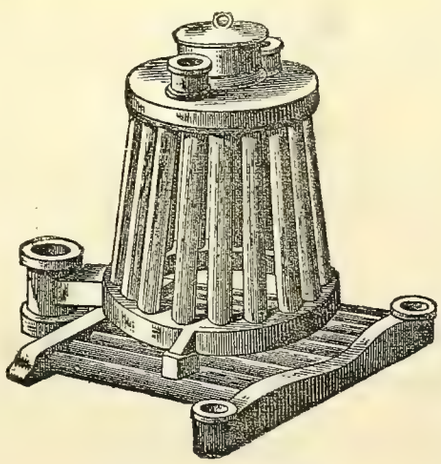
The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

GREEN'S PATENT SILENS MESSOR,

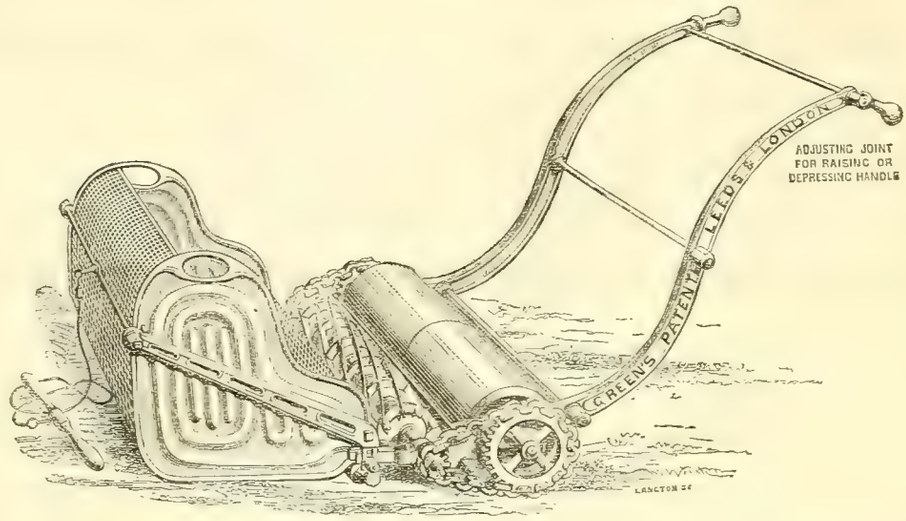
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18s.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22s.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches	...	...	...	£27	0	0	...	...	...	Leather Boots for Horse, 26s.
„ 48 „	...	...	...	30	0	0	...	...	...	„ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes

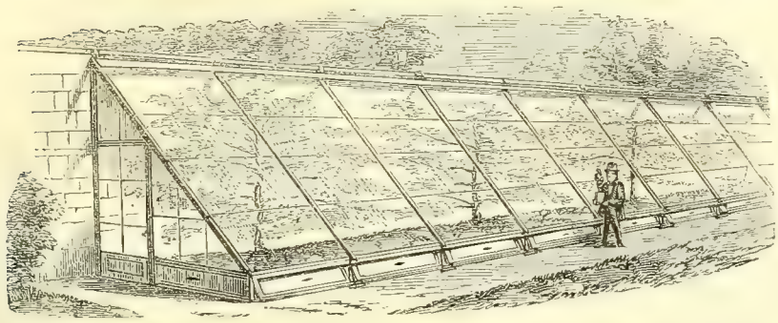
The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA TREET), HOLBORN HILL, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

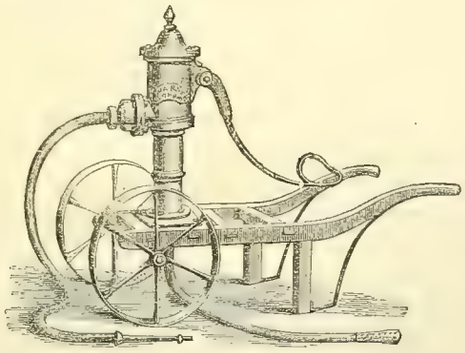
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

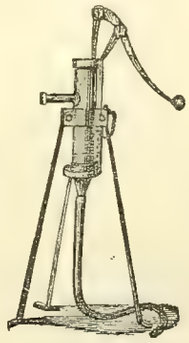
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

SMALL FARM WANTED, of about 50 to 100 Acres of ARABLE and MEADOW, with Homestead and Farm Buildings, within 30 miles of London, and not more than 2 miles from a Station on one of the Southern or South Western Railways.

Address, by letter, stating rent, outgoings, and all other particulars, to Mr. PHILBRICK, Solicitor, Girdlers' Hall, Basinghall Street, London.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Consignment of Plants from Ghent, and Fruit Trees from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, Saturday, February 13, at half-past 12 o'Clock precisely, a choice assortment of GREENHOUSE and HARDY PLANTS from Ghent, consisting of beautiful Camellias, Indian Azaleas, Standard Roses, Lilies, Ghent Azaleas, Rhododendrons, and Cannas. Also 1400 fine Standard and Dwarf Apricot, Pear, Plum, Cherry, and Apple Trees, from France.

On view This Day, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, February 16, at 12 o'Clock precisely, nearly 300 Pens of first-class POULTRY and PIGEONS, from the yards of Mrs. Pattison, Mr. A. Heath, and other well known Fanciers, consisting of first-class Brahmas, and most of the other known varieties, including many Prize Birds, also a first-class assortment of Beards and Almond Tumblers, from Mr. Edwin Archer, and a capital Lot of Carriers from Mr. Everett; Pouters and other varieties from celebrated Breeders.

On view the Morning of Sale, and Catalogues had.

Consignment of Bulbs from Holland, and Rhododendrons

AND FRUIT TREES FROM FRANCE, AND A FEW LOTS OF CAPITAL RUSTIC GARDEN SEATS AND STANDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 17, at half-past 12 o'Clock precisely, an Importation of 300 very choice RHODODENDRONS, named varieties, from France; PYRAMIDAL and DWARF STANDARD APRICOT, PEAR, and other FRUIT TREES, CONIFERS, 40 VINES in pots, STANDARD ROSES, 50 ORANGE TREES in Tubs and under Glass Shades suitable for Fern Cases, varying from 1 to 5 feet high. A consignment of DUTCH BULBS for spring planting, consisting of Ranunculus, Gladiolus, Amaryllis, and Anemones; and about 20 first rate Rustic Garden Seats, Gothic Chairs, and Lawn Baskets from a well known manufacturer.

On view the Morning of Sale, and Catalogues had.

Seeds from India, Japan, and Other Parts,

JUST ARRIVED PER OVERLAND ROUTE IN FIRST-RATE CONDITION, AND LOTTED TO SUIT ALL BUYERS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 18, at half-past 12 o'Clock precisely, Two large Cases containing about 200 lbs. weight of Clean SEED of CEDRUS DEODARA in splendid condition, just arrived per Overland Route ex Pera from Alexandria. Also about 600 Packets of Clean SEEDS, accompanied by Coloured Drawings of the Flowers by Native Artists, just arrived per P. & O. Company's Overland route from Japan. All for Absolute Sale without any Reserve.

On view the Morning of Sale, and Catalogues had.

Roses, Bulbs, and Hardy Trees and Shrubs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 20, at half-past 12 o'clock precisely, a large assortment of STANDARD and DWARF ROSES, 2000 GLADIOLUS BRENCHLEYENSIS, 400 G. GANDAVENSIS, 150 G. RAMOSUS, and a Collection of HARDY TREES and SHRUBS from Surrey.

On view the Morning of Sale, and Catalogues had.

Annual Sale of very handsome English-grown Camellias, &c.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, February 19, at 12 o'Clock, about 200 Choice Double CAMELLIAS, compact plants, 1 to 5 feet, beautifully furnished with bloom buds; fine AZALEA INDICA, including the most approved kinds; a superb assortment of about 300 very handsome Standard, Half-Standard, and Dwarf ROSES, all selected with straight stems and fine full heads; a fine Collection of AMERICAN PLANTS; choice ERICAS, FUCHSIAS, VERBENAS, DAHLIAS, in dry roots, &c.; with some fine bulbs of LILIUM LANCIFOLIUM from a celebrated grower in Belgium, &c.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Great Sale of Roses, Fruit Trees, Evergreens, &c.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on WEDNESDAY, Feb. 24, at 12 o'Clock, a splendid assortment of about 1000 first-class STANDARD, HALF-STANDARD, and DWARF ROSES of remarkably fine growth, including the finest varieties in cultivation; handsome Fruit Trees; choice Coniferæ, and other Evergreen Shrubs; selected American Plants; some fine Bulbs of Lilium lancifolium, from a celebrated Belgian grower.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sarsden, near Chipping Norton, Oxon.

EXTENSIVE AND IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

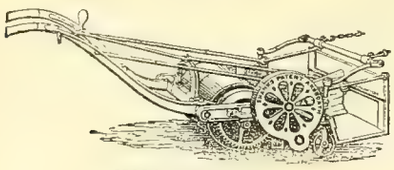
MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late J. H. Langston, Esq., M.P., to SELL by AUCTION, without any Reserve, on TUESDAY, March 22, the entire and far-famed HERD at Sarsden, consisting of about 100 head of BULLS, COWS, and HEIFERS, that have been long and carefully bred from animals purchased in the counties of Durham, Northumberland, and Yorkshire; some choice specimens have since been added from the Tortworth, Fawsley, Milcote, and other famed Herds, whilst Bulls of the highest breeding and character have been used, such as Prince (4772), Locksley (4240), Prince of Wales (8432), Lord Milton (10,461), General Elliott (10,266), &c., and latterly Gloster's Grand Duke (12,949), Archduke 2d (15,588), and Royal Turk (16,875). The young stock are chiefly by Lord of the Harem (16,430), Royal Arch (18,749), and Royal Counsellor (20,725).

Catalogues, with pedigrees, may be had on application to Mr. SAVIDGE, Churchill Mount Farm, Chipping Norton; or of Mr. STRAFFORD, 13, Euston Square, London, N.W.

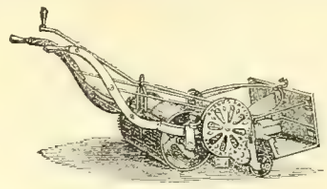
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

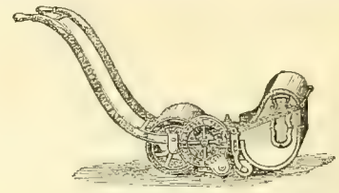
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

Extract from the Letter of Mr. R. GARRETT, Leiston Works, which appeared in the *Gardeners' Chronicle* of 16th January last, on "The Prize System":—

"I have known several good Standard Implements entirely spoiled by the principle being so interfered with in order to make it look a novelty year after year and to win a prize with it, so long as we could show something different in it, till at last we had to go back to the original Implement, and give up the prize gaining."

ALEXANDER SHANKS & SON can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

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SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
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14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

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22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

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SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT HON. LORD PALMERSTON.

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His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
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His Grace the Duke of Roxburgh
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The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
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The Right Hon. the Earl of Shannon
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The Right Hon. the Earl of Hopetoun
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The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
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The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
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Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

Editorial Communications should be addressed to "The Editor:" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, February 13, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 8.—1864.] SATURDAY, FEBRUARY 20. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.
EXHIBITIONS of SPRING FLOWERS:
SATURDAYS, March 19, April 9, and April 30.
GENERAL EXHIBITIONS:
SATURDAYS, May 21, June 11, and July 2.
AMERICAN PLANTS: MONDAYS, June 6, and June 20.
Tickets are now being issued at the Gardens on the Orders of Fellows of the Society. Price: General Exhibitions, 4*s*.; Spring Flowers, 2*s*. 6*d*.

BURTON-UPON-TRENT FLORAL and HORTICULTURAL SOCIETY.
The EXHIBITIONS for 1864 have been fixed for JUNE 22 and AUGUST 24.
For Schedules and other information apply to the Secretary, JAMES ATTERBURY, 81, High Street.

New Rose List for 1864.
JOHN KEYNES' NEW LIST is now ready, and will be forwarded on application.
His Stock of NEW ROSES for 1864 is very fine.
Castle Street Nursery, Salisbury.

New Roses for 1864.
WM. WOOD AND SON have upwards of 5000 extra fine plants of the NEW ROSES for 1864, which will shortly be ready to send out at moderate prices.
Woodlands, Maresfield, Uckfield, Sussex.

NEW ROSE LIST for 1864.—All the new Sorts. CATALOGUES now ready. Apply to
WM. WOOD & SON, Maresfield, Uckfield, Sussex.

New Roses for 1864.
EDWIN HOLLAMBY'S selection of the best of the above will be ready for delivery in March, in fine plants.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

Roses.
EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
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THE NEW ROSES for 1864.—Several Thousands of splendid Plants will be ready early in March. For List of Sorts and Prices, apply to
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ROSES.—Superb STANDARDS, 18*s*. per dozen; DWARFS, 12*s*. per doz. NEW ROSES of 1863, 30*s*. per doz. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, NEW and OLD. CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

To the Trade.
STANDARD and DWARF and CLIMBING ROSES in large or small quantities, at reduced prices. Special Lists on application. Address
WM. WOOD & SON, Maresfield, Uckfield, Sussex.

Standard and Dwarf Roses.
PRICE ON APPLICATION.
GEO. JACKMAN AND SON, Woking Nursery, Surrey, have a quantity of the above in known leading varieties and good trees; they are desirous of clearing the ground, and will sell them cheap.

New Roses for 1864.
HERBST AND STENGER have now ready for delivery several thousands of fine healthy plants, in 25 varieties. Prices on application.
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Genuine Vegetable and Flower Seeds
CARRIAGE AND PACKAGE FREE.
McRAE AND FRASER, SEED MERCHANTS and NURSERYMEN, Tredegar Nursery, Bow, London, E.
PRICED LISTS forwarded Free on application.

WELLINGTONIA GIGANTEA. — Fine healthy well formed plants from Seed, 1½ to 2½ feet high, and nearly as much across, 60*s*. per dozen. Special rates for larger quantities.
JAMES BACKHOUSE & SON, York Nurseries, Feb. 20.

Best Seeds, Carriage Free.
BUTLER AND McCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Good Seeds, Carriage Free.
WILLIAM PAUL (Son and Successor to the late A. PAUL),
Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. LANE AND SON.
(For particulars, see page 168),
The Nurseries, Berkhampstead, Herts.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.
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THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The COLLECTIONS of GARDEN SEEDS are now Ready. See Advertisement, page 166.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. The COLLECTIONS of FLOWER SEEDS are now Ready. See GENERAL PRICE CURRENT.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

DOUBLE TUBEROSES, just imported, 3*s*. per dozen.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

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WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Vines Black Hamburgh and Muscat of Alexandria.
ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 10*s*. 6*d*. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.
JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.
N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

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B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines.
WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

CARTER'S GARDENER'S VADE-MECUM

WHEELER'S LITTLE BOOK on SEEDS.

German Flower Seeds Fresh Imported.
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SEEDS of EVERY KIND, and best quality, supplied by HOOPER & Co., Covent Garden Market, London, W.C. CATALOGUES post free.

SEEDS of PRIMULA SCOTICA. Small Packet for 13 Stamps.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

WANTED, Strong FRUITING PLANTS of the WHITE GENOA FIG, true.
State size and price to DOWNIE, LAIRD, and LAING, Stanstead Park, Forest Hill, London, S.E.

WANTED, 2000 ALDER, 4 feet.
J. C. WHEELER & SON, Nurserymen, Gloucester.

WANTED, BALSAM, First-rate.
Apply, B. C., 25, Bishopsgate Within, E.C.

WANTED, TRANSPLANTED HORNBEAM.
State size, and lowest price, cash.
JOSEPH TREMBLE & SONS, Nurserymen, Penrith.

CUCUMBER SEED.—BLACK SPINE, PRINCE ALBERT, HIGHLAND MARY, LONG GUN, 1*s*. per packet each. Trade supplied by the oz. Best MELONS, 1*s*. MUSHROOM SPAWN, 5*s*., 12 Cakes. Ditto Pamphlet, 1*s*. 1*d*. Mushrooms grown here all the year round.
JAMES CUTHILL, Camberwell, London, S.

SEAKALE, per 100, 5*s*. 6*d*., 7*s*. 6*d*.; Extra Strong, 12*s*. 6*d*.; quotations to the Trade on application.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Hair's Dwarf Mammoth Peas.
E. P. DIXON AND SONS have a Surplus Stock of the above, which they can supply very low.
57, Queen Street, Hull.

BLUE SCIMITAR PEAS.—About Five Quarters for SALE.—Apply to
GEO. BAKER, American Nursery, Bagshot, Surrey.

MCLEAN'S PRINCESS ROYAL PEA.—A very prolific long-podded early variety, of fine sugary flavour, 1 foot high, pods large and well filled, and plenty of them; a prodigious cropper. Price, per quart, 2*s*. 6*d*.
JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

DOUBLE ITALIAN TUBEROSES. Good sound roots at a very low figure.
JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

LENORMAND'S CAULIFLOWER.—A large-headed variety, grown by the market gardeners to supply the markets in Paris. Is much earlier than any English variety. Price, per packet, 1*s*.
JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

Potatos for Planting.
SUTTON'S DESCRIPTIVE LIST, Post Free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Skerry Blue Potato.
SUTTON AND SONS have a large Stock of this very productive and fine POTATO, which they can sell at low prices in large quantities for Field Planting.
Royal Berks Seed Establishment, Reading.

THE BEST EATING POTATO all the year round is EARLY OXFORD. 5*s*. per bushel of 56 lbs.
RICHARD SMITH, Seed Merchant, Worcester.

EARLY TEN WEEK POTATOS, price 4*s*. per cwt.
Apply to Mr. GEO. H. CANT, Mile End, Colchester.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

True Skerry Blue Potatos.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, can supply these at 10*s*. per sack of 16 stones imperial. This stock has never been touched by disease, and the present crop is 10 tons per acre.

SEED POTATOS.—An unsurpassed Stock, including every variety of value, carefully selected. Prices moderate.
HOOPER & Co., Covent Garden Market, London, W.C. CATALOGUES Post-free.

Seed Potatoes.
H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties which they can offer to the Trade at low prices.
Seed Growing Establishment, Wisbech.

To the Trade.
SEED POTATOS.—Early Handsworth, Lemon Kidney, Webb's Imperial, Daintree's Seedling, Lapstone, &c., warranted true.
PRICED DESCRIPTIVE LIST sent on application to G. & W. YATES, Seed Merchants, Manchester.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	s.	d.
50 in 50 choice varieties	2	12	6
25 in 25 „ „	1	5	0
12 in 12 „ „ 5s. to	0	12	0
Extra choice mixed, 3s. 6d. per doz. per 100	1	5	0
Fine mixed, 2s. 6d. per doz. „	0	17	6
GANDAVENSIS, strong roots, 2s. 6d. per doz. „	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3s. p. doz. „	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz. ; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Gladioli.

SUTTON'S LIST, containing the Sorts most worthy of Cultivation, including those to which Prizes were Awarded at the Crystal Palace and other Shows, may be had Gratis and Post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb.—Imported GERMAN ASTER, STOCK, WALLFLOWER, Phlox Drummondii, Zinnia, Balsam, Cockscomb, Larkspur, Dianthus, Variegated Poppy, English Saved Calceolaria, Cineraria, Chinese Primula, Mimulus, Rhodanthe, Pansy, Hollyhock, Antirrhinum, Auricula-eyed Sweet William.

Packets, 6d. to 1s. each.

RICHARD SMITH, Seed Merchant, Worcester.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

Asters, Stocks, Wallflowers.

JAMES TYNAN'S importation of the above and other Select CONTINENTAL FLOWER SEEDS is now ready, and consists of none but first-class varieties, such as have previously given so much satisfaction to those who have grown them. An extensive assortment of other ANNUAL and PERENNIAL FLOWER SEEDS, containing all the good and rare kinds. All the above are made up in large or small packets to suit the requirements of purchasers. VEGETABLE and AGRICULTURAL SEEDS of the very best quality, at moderate prices. PRICE LISTS free by post on application.

Importer of CONTINENTAL SEEDS.

Seed Warehouse, 68, Great George Street, Liverpool.

Specimen Anæctochili.

JAS. BACKHOUSE AND SON can supply the undermentioned Specimen Plants in vigorous health.

ANÆCTOCHILUS LOWII.—With seven "breaks" and 20 leaves, each 2 to 5 inches long .. .. .. 210s.

A. VEITCHII.—A beautiful plant of this rare species with six leaves, each 2 to 3 inches long .. .. 126s.

A. PETOLA.—Five leaves, 2½ inches long .. .. .. 63s.

A. PETOLA v. CUPRÆA.—This fine variety of A. petola is of very robust habit, and its transverse veins reflect a brilliant copper-coloured lustre. Plant 9 inches high, with four "breaks." Twelve leaves, each 2 to 3 inches long 126s

A. SETACEUS.—Plant 5 inches high, with five leaves, about 2 inches long .. .. 63s.

A. INTERMEDIUS.—Plant 5 inches high, with 9 leaves, 2 inches long.. .. .. 105s.

A. ZANTHOPHYLLUS.—Plant 7 inches high, with ten leaves, 1 to 2½ inches long.. .. .. 63s.

Smaller plants of all the above sorts can be supplied at 31s. 6d. to 42s. each, except A. Veitchii.

York Nurseries.—Feb. 1864.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

GROWTH OF 1863.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	**Containing 33 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion**							...	**£3**	**3**	**0**
No. 2.	**Containing 20 quarts Peas and Beans**				**ditto**		**ditto**	...	**2**	**2**	**0**
No. 3.	„	**13**	„	„	„	„	„	...	**1**	**10**	**0**
No. 4.	„	**10**	„	„	„	„	„	...	**1**	**1**	**0**

For full particulars, see Catalogue, page 78.

DESCRIPTIVE SEED CATALOGUE for 1864 may be had Free and Post Paid upon application, containing all the new and most approved varieties of FLOWER SEEDS.

To Exhibitors we can strongly recommend our assortments of ASTERS, BALSAMS, CARNATIONS, STOCKS, and other Imported Seeds.

THE LONDON SEED COMPANY, LIMITED.

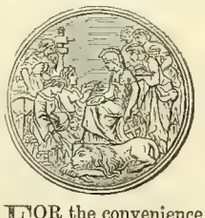
68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE COMPANY are now sending out their COLLECTIONS of SEEDS, which will be delivered Carriage Free to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1.	**Complete Collection, sufficient for a Large Garden for One Year's supply**	**£3**	**0**	**0**
No. 2.	**Complete Collection for a Moderate Sized Garden**	**2**	**0**	**0**
No. 3.	**Complete Collection, in Smaller Quantities**	**1**	**0**	**0**
No. 4.	**Complete Collection for a Small Garden**	**0**	**15**	**0**
No. 5.	**Complete Collection for „ „**	**0**	**10**	**6**
No. 6.	**Extra Large Collection, containing Double the Quantities of No. 1** ...	**5**	**0**	**0**

A DETAILED LIST of these COLLECTIONS will be found in the GENERAL PRICE CURRENT, which is now ready, and will be forwarded Gratis and Post Free to any address in the Kingdom.

ADDRESS : 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.



CARTER'S

COLLECTIONS of GARDEN SEEDS

for 1864.



FOR the convenience of those of our Customers who have not the time or inclination to make out their own selection of VEGETABLE SEEDS, we submit the undermentioned COLLECTIONS, to which we respectfully invite attention, and we confidently hope that the liberal and judicious manner in which the selections are made, will induce our Customers to favour us with their commands, also their kind recommendations to their Friends. We have bestowed great care in the arrangement of the sorts; none but what we have proved in our Trial Grounds at Dedham to be the very best of its class is included, and those varieties have been chosen that are most calculated to procure a constant SUPPLY of the best kinds of VEGETABLES all the year round.

These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

No. 1, price 10s. 6d.; No. 2, price 21s.; No. 3, price 42s.; No. 4, price 63s.

CARTER'S GARDENER'S AND FARMER'S VADE-MECUM. (Now Ready.)

PART I.—Containing Scientific Description of upwards of 2000 Species and Varieties of FLOWER SEEDS, with Lists of Bulbs and Plants for Early Spring Planting, and a Calendar of Garden and House Operations for every month in the year.

PART II.—Comprising Complete Lists of VEGETABLE and FARM SEEDS, with Cultural Directions and a Calendar of Practical Farm Operations.

PARTS III. and IV. will be published in May and September respectively.

The entire Book will be forwarded in Parts as issued Free of Charge, upon receipt of 12 *Postage Stamps. Gratis to Customers.*

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by
SUTTON AND SONS.
A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

New Dahlia Erebus, nearly Black.

GEO. RAWLINGS purposes sending out the above in May at 7*s.* 6*d.* per plant.
"Erebus is the best dark Dahlia yet produced."—*Garden Oracle.*
"I think your Dahlia Erebus a great novelty."—*Chas. Turner, Royal Nurseries, Slough.*
G. R. can still supply a first-rate collection of Pot Roots at 6*s.* per doz.; mixtures 10*s.* per 100.
21, Globe Road, Bethnal Green, N.E.

Pelargoniums.

CHARLES TURNER has fine healthy plants of the much admired New Varieties raised by G. W. Hoyle, Esq., and E. B. Foster, Esq., and which were so successfully exhibited, and so much admired, last season.
Also several superior new FANCY varieties.
The general Collection of SHOW, FRENCH, and FANCY varieties is most extensive, and can be supplied at moderate prices per dozen.
CATALOGUES on application.
The Royal Nurseries, Slough.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.
N.B. Directions for Planting sent with each order.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

CHEAP PLANTS.—
The following in strong Plants for stock:—
NEW FUCHSIAS, best of 1863, per dozen, 6*s.*
NEW VERBENAS, ditto, per dozen, 4*s.*
NEW AGERATUM (PRINCE ALFRED), the best out, per dozen, 6*s.*
NEW GERANIUMS, (BEDDING), per dozen, 9*s.*
NEW PETUNIAS, per dozen, 6*s.*
LOBELIA PAXTONIANA, GORDONIANA, and four others, best of 1863, per dozen, 4*s.*
NEW TROPÆOLUMS, best of 1863, per dozen, 6*s.*
NEW HOLLYHOCKS, per dozen, 18*s.*
NEW ANTIRRHINUMS, per dozen, 4*s.*
NEW PENTSTEMONS, per dozen, 6*s.*
NEW MIMULUS (MACULOSUS), per dozen, 4*s.*
PAMPAS GRASS (ROSEUM), per dozen, 9*s.*
LONICERA AUREO-RETICULATA, per doz., 6*s.* to 9*s.*
Also the following in strong Plants:—
HEPATICAS, of sorts, per dozen, 3*s.* to 4*s.*
PRIMROSES, per dozen, 4*s.* to 9*s.*
POLYANTHUS, choice mixed, per dozen, 3*s.*
AURICULAS, border variety, per dozen, 3*s.*
LILIES OF THE VALLEY, per dozen, 2*s.*
LAVENDER, per dozen, 3*s.*
PINKS, finest named, per dozen, 3*s.* 6*d.*
VIOLETS, DOUBLE WHITE, PURPLE, and RUSSIAN, 3*s.*
ŒNOTHERA MISSOURIENSIS, per dozen, 4*s.*
" SPLENDENS, per dozen, 4*s.*
DIELYTRA SPECTABILIS, per dozen, 4*s.*
PHLOX, fine named, per dozen, 4*s.*
HOLLYHOCKS, fine seedling, per dozen, from 3*s.*
GNAPHALIUM LANATUM, per dozen, 4*s.*
PANSIES, fine named, per dozen, from 3*s.*
100 CHOICE HARDY HERBACEOUS PLANTS in 50 Varieties, carefully named and packed for 25*s.*
12 SUPERB STANDARD ROSES, } 24 sorts for 21.
12 ditto DWARF }
☞ Carriage of Parcels amounting to 20*s.*, paid to London.
Post Office Orders payable on Castle Hedingham, to WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.
Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.
LIST of SORTS sent on application.
INGRAM'S PROLIFIC MUSCAT, the most free bearer of all for pot culture; suitable for ordinary Vineries.
FRANKENTHAL, the best of all the Black Hamburghs.
TRUE CHAMPION HAMBURGH, the largest berry, and very fine fruit.
CHAVOUSH, new white; Fruiting Canes, 10*s.* 6*d.* to 21*s.*
Wellington Nursery, St. John's Wood, London, N.W.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.
They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.
Younger plants, very suitable for planting, 3*s.* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.
Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

STRAWBERRIES.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Oscar, Wizard of the North, 10*s.* per 1000; Alice Maude, Eliza, Prince of Wales, Sir C. Napier, Carolina Superba, Sir Harry, 1*s.* 6*d.* to 2*s.* per 100.
RASPBERRIES, ASPARAGUS, SEAKALE, SEED POTATOS, &c.
GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861.
The following is an Extract from the Report:—
"Mr. RIVERS's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."
Fruit large, often measuring 9 inches in circumference.
Young Trees, full of blossom buds, 10*s.* 6*d.* each.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

New Pear, British Queen (Ingram).

CHARLES TURNER has much pleasure in offering this beautiful PEAR. The following description is supplied by Mr. POWELL, of the Royal Gardens, Frogmore:—
"This Queen of Pears was raised by Mr. Ingram, Gardener to Her Majesty at Frogmore, and is considered, by all that have had the opportunity of testing its merits, to be the best Pear ever raised. The late Prince Consort was so pleased with the Fruit, that he characterized it as the best Pear he had ever tasted. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society, in 1861, and since maintained its character by taking the First Prize at the great Autumn Show of the above Society, in 1862. The Fruit is large, pyramidal in form, skin smooth and glossy, of a fine golden yellow, partly spread with cinnamon russet, and often a tinge of lively crimson on the sunny side; flesh yellowish-white, very fine grained, with an abundance of juice, which is saccharine and rich, with a fine aromatic flavour; in beauty and excellence it has no equal; ripe in October and November."
Plants, 10*s.* 6*d.* and 15*s.*
A COLOURED DRAWING may be had, Post Free, for 12 Postage Stamps
Royal Nurseries, Slough.

The "Pine Apple" Scarlet-flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

CUCUMBER.
GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.
A fine Collection of CUCUMBERS and MELONS at 1*s.* per packet. For List see this Paper of Jan. 30, 1864.
TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet
TILEY'S SOLID WHITE CELERY, 1*s.* per packet.
Griffin's ALMA LETTUCE, true, 1*s.* per packet.
One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement of Jan. 30, 1864, with the exception of General Outram Cucumber, for 3*s.*
Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.
EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

CHEAP BEDDING PLANTS.—
The following are offered, strong Autumn-struck Plants, viz.—GERANIUMS Christine, Rose Queen, Nosegay, Stella, Tom Thumb, Punch, Lamartine, and 50 other sorts of Scarlets, at 2*s.* 6*d.* per dozen. Also Variegated Alma, Bridal Wreath, Bijou, Countess of Warwick, Fairy Nymph, Flower of the Day, Golden Circle, Mrs. Lennox, Perfection, Silver Queen, Shottisham Pet, St. Clair, and 20 others, at 3*s.* 6*d.* per dozen, and CUTTINGS of all the above, at 10*s.* per 100; ditto of CALCEOLARIA aurea floribunda and amplexicaulis, at 10*s.* per 100. Plants of Herbaceous sorts, at 4*s.* per dozen; and Plants out of pots of Variegated Arabis, ditto Daisy, ditto Strawberry, ditto Thyme; also Stachys lanata, Cerastium tomentosum, Nepeta cæsia, Antennaria margaritacea, &c., at 2*s.* per dozen.
Apply to J. SCOTT, Merriott, Somerset.
N.B. No less than 50 of each kind of Cuttings supplied.

FRUIT TREES, ROSES, &c.

E. P. DIXON & SONS

Are still able to supply DWARF-TRAINED PEACHES, NECTARINES, APRICOTS, PLUMS; also APPLES and PEARS of the choicest kinds, in good trees; also fine DWARF and STANDARD ROSES of the choicest varieties. A fine lot of CHOICE SPRING-FLOWERING GREENHOUSE PLANTS of various kinds; together with a general assortment of NURSERY STOCK.

They beg to inform their patrons that they will be in a position to execute Orders for the NEW ROSES of this Season (1864) about the second week in April. Orders respectfully solicited.

CATALOGUES forwarded Free upon application.

"EXOTIC" NURSERY, SCULCOATES, HULL.



VEGETABLE SEEDS, amounting to 21*s.*, sent Carriage Paid. SEAKALE ROOTS, per 100, 5*s.* 6*d.*, 7*s.* 6*d.*; Extra Strong, 12*s.* 6*d.*

BARR & SUGDEN'S COLLECTIONS of VEGETABLE SEEDS for 1864.

Embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.

For Particulars see *Gardeners' Chronicle*, January 23, 1864, page 74; or B. & S.'s COMPENDIUM of their GUIDE to KITCHEN GARDEN.

No. 6	**contains**	**33 qt.**	**of Peas, Beans, and other Seeds in proportion**	...	...	**for**	**£3**	**3**	**0**
No. 5	,,	**20 qt.**	ditto	ditto	ditto	ditto	...	...	...	**2**	**2**	**0**
No. 4	,,	**13½ qt.**	ditto	ditto	ditto	ditto	...	...	...	**1**	**10**	**0**
No. 3	,,	**10 qt.**	ditto	ditto	ditto	ditto	...	...	...	**1**	**1**	**0**
No. 2	,,	**13⅓ pt.**	ditto	ditto	ditto	ditto	...	...	...	**0**	**15**	**6**
No. 1	,,	**7 pt.**	ditto	ditto	ditto	ditto	...	...	...	**0**	**10**	**6**

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

SENT POST PAID,

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS.

ADAPTED TO ANY STYLE OF GARDENING.

For particulars, see *Gardeners' Chronicle*, Feb. 6, p. 118; or B. & S.'s COMPENDIUM of their ILLUSTRATED GUIDE to the FLOWER GARDEN.

HARDY ANNUALS.
HALF-HARDY ANNUALS.
HARDY PERENNIALS.
HALF-HARDY PERENNIALS.
BEST ANNUALS and PERENNIALS for ROCKWORK.
BEST ANNUALS for ROCKWORK.
BEST PERENNIALS for ROCKWORK.
DWARF ANNUALS best ADAPTED for EDGINGS.
SWEET-SCENTED ANNUALS.
EVERLASTING FLOWERS for WINTER BOUQUETS.
ORNAMENTAL-FOLIAGED PLANTS.
ORNAMENTAL-FRUITED PLANTS.
ORNAMENTAL GRASSES.
ORNAMENTAL PRIZE GOURDS.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

ROSES.—Fine DWARF ROSES, still on Sale. A few fine Standards of 1863 yet on hand. Prices on application.
The NEW DAHLIA CATALOGUE now ready.
All the NEW ROSES in April.
JOHN KEYNES, Nurseryman, Salisbury.

Great Reduction in the Price of Roses.

BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.
CATALOGUES, with special Prices, on application to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

A Very Extensive and Well-grown Stock of Roses,
CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—s. d.
STANDARD HYBRID PERPETUALS ..	18s. to 24 0
HALF STANDARD ditto	15s. ,, 18 0
DWARF ditto	9s. ,, 12 0
STANDARD SUMMER ROSES	18 0
HALF ditto ditto	15 0
DWARF ditto ditto	9 0
DWARF BOURBON and TEA-SCENTED ..	12s. ,, 18 0
DWARF CHINA	9s. ,, 12 0
DWARF NOISETTE	9s. ,, 15 0
CLIMBING ROSES	9s. ,, 12 0
CLIMBING ROSES, without names, for covering banks, &c. .. .. .. per 100 30s.	4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE	5 0

Mitchell's Renowned Roses.
PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.
(No grafted plants or any drawn up under glass, which cause the great number to fail every season).
Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

New Roses for 1864.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong Plants of the following NEW ROSES to offer:—

HYBRID PERPETUALS.
Alpaide de Rotalier
Amiral la Feyrouze
Baronne Pelletan de Kinkelin
Bernard Palissy
Eugène Verdier
Gabriel de Peyronney
George Paul
Joseph Fiala
Kate Hausburg
La Duchesse de Morny
La Reine de la Pape
Leopold Hausburg
Leopold 1st, Roi des Belges
Louise Van Houtte
Madame Victor Verdier
,, Soupert

HYBRID PERPETUALS.
Mademoiselle Lobry
Maréchal Souchet (Damaizin)
,, Forey
,, Souchet (Guillot)
Pavillon de Pregny
Paul de Milleray
Senateur Reveil
Triomphe de Villecresnes

BOURBON.
Madame de Stella
Rev. H. Dombrain

TEAS.
Lays
Souvenir de Mdmselle Eugenie Pernet

A PRICED LIST, with Descriptions, may be had on application.

STANDARD and DWARF ROSES of the finest quality.
STANDARD ROSES of the new and finest sorts, 12s. per doz., 80s. per 100.
HALF STANDARD Ditto, ditto, 9s. per doz., 70s. per 100.
DWARF, budded on Manetti, 9s. per doz., 50s. per 100.
Finest Exhibition HOLLYHOCKS to name, 9s., 12s., and 18s. per doz., 50s. per 100.
The best sorts of LANCASHIRE GOOSEBERRIES, 8s. per 100, 60s. per 1000.
CURRANTS, best Red and White sorts, 8s. per 100, 60s. per 1000.
Fine bearing Pyramid trees of PEARS on Quince, 12s. per doz.
CATALOGUES of the above sent post free.
Address HENRY MAY, Hope Nurseries, Bedale, Yorkshire.

2000 STANDARD ROSES, strong and healthy, of the Choicest sorts; Wholesale Price 2l. 15s. per 100; Retail, 10s. per dozen. 500 RHODODENDRONS (in 96 distinct varieties) 15s. per dozen. All other kinds of Shrubs, Plants, or Seeds equally good and cheap. Orders for 20s. worth, or above, sent to any Railway Station in England Free.
By H. POTTER, Nurseryman and Seedsman, 65, Farringdon Street, London, E.C.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.
Tollington Nursery, Hornsey Road, Islington, London, N

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.
CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

SCHIZOSTYLIS COCCINEA.—This beautiful plant was briefly described in our CATALOGUE of last year as a "NEW SCARLET TRITONIA." It proves to be the first representative of a new genus, and is now offered to the public for the first time. It forms spikes of flowers, varying in colour from deep rosy crimson to the vivid scarlet of the "Scarlet Duc Van Thol" Tulip. The flower stems, 2 to 3 feet high, are produced in the greatest profusion from the tufts of Tritonia-like leaves. More than 150 charming spikes of bloom adorned our greenhouses for two to three months during the past autumn and winter, and it is now coming abundantly into bloom again on the shoots formed last summer.
As it never ceases to form offshoots, and these appear to flower as soon as they attain maturity, there is every reason to believe that the plant will bloom thus throughout the greater part of the year, and may thus make an effective Bedding or Ribbon plant. Two plants have been planted in the open ground unprotected during the late severe frosts. They appear uninjured, so that it will be an invaluable addition for the out-door department, as well as for Cold Greenhouses, &c.
Plants will be sent out the first week in May at 5s. each.
JAS. BACKHOUSE & SON, York Nurseries.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.
W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.
Elvaston Nurseries, Derby.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.
6 ft., 7 ft., and 8 ft., 3l. 3s. to 5l. 5s.
9 ft., 10 ft., and 11 ft., 6l. 6s. to 8l. 8s.
12 ft., 13 ft., and 14 ft., 9l. 9s. to 10l. 10s.
Elvaston Nurseries, Derby.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.
For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

Strong 2-years Transplanted Larch & Native Scotch Fir.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.
CATALOGUES and Samples will be sent free on application.

2,000,000 Transplanted Thorn Quicks for Sale.

JOHN BUCK, Melbourne, near Derby, in offering the above, begs to say that they are of superior quality, and that he will deliver any quantity free at Derby Station at the following prices:—

3 years old, transplanted	8s. 0d. per 1000
,, strong, all selected ..	10s. to 12 0 ,,
4 years old, very strong, suitable for filling up old fences	16 0 ,,
GREEN HOLLIES, fine bushy plants with fine roots, from 16 to 20 inches .	10 0 per 100

H. LANE AND SON beg to inform their Patrons that the season is advancing, and that it is quite time intending Planters should examine their CATALOGUES. We beg permission to call their especial attention to our WELL FAMED STOCK, among which will be found great quantities of the following, viz.:—

Abies Douglasii, 3 to 12 feet
,, orientalis, 1 to 3 feet
,, taxifolia, 1 to 3 feet
Azalea indica
,, Ghent
Araucaria imbricata, 2 to 12 ft.
Cedrus Deodara, 3 to 10 feet
,, Libani, 3 to 10 feet
Cupressus Lambertiana, 3 to 6 feet
Cupressus Lawsoniana, to 3 ft.
Fruit Trees of every description
Juniperus, upright, 2 feet
,, chinensis, 1 foot
Picea grandis
,, lasiocarpa
Picea Lowii
,, nobilis, to 4 feet
,, Nordmanniana, to 4 feet
Pinus in sorts
Podocarpus
Retinispora
Roses, strong and fine, second to none
Thuja aurea
,, gigantea
,, Siberian
Thujopsis borealis
,, dolabrata
Wellingtonia, 1 to 4 feet
Yews in variety
which we can supply at most reasonable prices.
CATALOGUES may be had gratis on application at the Nurseries, Berkhampstead, Herts.

Lawn Trees.

LILACS, STANDARDS and PYRAMIDS.—The following interesting varieties of LILACS are offered at 1s. 6d. each; the trees are straight and well grown:—

Gloire de Moulins
Triomphe d'Orleans
Charles 10th
New Dark Red
Lilas de Louvain
Valletiana
New Light Blue
Grandiflora rubra
White Siberian
Red Siberian

SIBERIAN TREES, Standards, 5 feet stems.

Caragana jubata (rare)	2s. 6d.	Halimodendron argenteum	2s. 6d.
,, frutescens	2 6	Ulmus microphylla pendula, a new small-leaved Weeping Elm	3 6
,, arenaria ..	2 6		
,, Chamlagu..	2 6		
,, spinosa ..	2 6		
Calophaca Wolgarica	2 6		

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier
Beech, Common, 3, 4, to 6 feet
Berberis aquifolia, 12 to 18 ins.
,, dulcis, 1, 2, to 3 feet
Briar, Sweet, 2 to 3 feet
Cherries, espalier
,, standard
Cotoneaster microphylla, 9 to 12 inches
Holly, Green, 9 to 12 inches
Laburnum, 6 to 8 feet
Laurel, Common, 2 to 3 feet
,, Portugal, 1 to 2 feet
Mountain Ash, 6 to 9 feet
Oak, English, 2 years seedling
,, Turkey, 3 to 4 feet
Poplars of various kinds, 4 to 6 feet
Privet, 2 to 3 feet
Sycamore, 3, 4, 5, to 6 feet
All the above are strong, healthy, and well rooted.
Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18s. to 30s. per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12s. per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.
THOMAS AYRES.

BERBERIS DARWINI, Lawn and Cover.—Too much cannot be said of this fine evergreen species; it is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.
W. BARRON can supply strong and well-rooted plants of the above.
1 to 2 feet .. per 100, 20s. | 2 to 3 feet .. per 100, 30s.
Elvaston Nurseries, Derby.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.
RICHARD SMITH, Nurseries, Worcester.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.
ELMS, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
,, HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
,, WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
,, LOMBARDY, 8 to 10, and 10 to 12 feet
,, ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
,, ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, (CŒRULEAN and HUNTINGDON 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black
Huntingdon Nurseries.

FOR SALE, 30,000 LARCH, 30,000 SCOTCH, 100,000 SPRUCE, and 100,000 extra strong THORNS, all from 2 to 3 feet high; 3000 DEODARS, splendid plants, to be sold a bargain.
For prices, &c., apply to J. SCOTT, Merriott Nurseries Somerset.
SCOTT'S FRUIT TREE CULTIVATOR, his CONIFEROUS CATALOGUE, his FLOWER GARDEN ANNUAL DIRECTORY, and his SELECT SEED CATALOGUE, ought to be in the hands of every lover of a garden. They are allowed to be the best published on these subjects, and are replete with information. Two Stamps required.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.
The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.
Highgate Nurseries, London, N.

Vegetable and Flower Seeds
OF THE VERY BEST, INCLUDING MANY NEW VARIETIES.

WM. B. JEFFRIES is now sending out his 21s. Collections of VEGETABLE SEEDS, for a whole year's supply, which have given general satisfaction the last 10 years, including 20 packets of choice FLOWER SEEDS, or half the quantities, 10s. 6d.
CATALOGUES of PLANTS, SEEDS, &c., free for two stamps. Arboretum Nurseries, Ipswich.

West Riding Seed Establishment, St. John's, Wakefield.

THE PROPRIETORS beg to announce they have received their new supply of VEGETABLE SEEDS, which have been tested, and will be found to be genuine. Their supply of FLOWER SEEDS comprises all the Novelties of the present season.
CATALOGUES will be forwarded free on application to WILLIAM BARRATT.

Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.
SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.
No. 1, 3l. 3s.; No. 2, 2l. 2s.; No. 3, 1l. 11s. 6d.; No. 4, 1l. 1s.; No. 5, 15s.; No. 6, 10s. 6d.; No. 7, in extra quantities for a large family, 5l. 5s.
Royal Berkshire Seed Establishment, Reading.

Economy in the Garden.
SUTTON'S GUINEA COLLECTION OF KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY. CARRIAGE FREE.

SUTTON AND SONS, SEED GROWERS, Reading, confidently recommend the above as Genuine New Seeds, of the best sorts in cultivation, properly apportioned, and labelled with instructions for sowing, *i.e.*, so as to insure a good succession throughout the year.
A LIST of the contents of this Collection, or a general SEED CATALOGUE, with prices affixed to each kind, may be had Post-free, on application, addressed
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.
Fulham Nursery, London, S.W.—February 13.
Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. per packet. Will be forwarded to any part of England on forwarding 26 postage stamps.
The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.
W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

CARTER'S CHAMPION BROCCOLI.—Dwarf, compact growing, and large-headed, the best late Broccoli in cultivation, spoken of by the *Gardeners' Chronicle* as follows:—

"Very large, not in the least coarse, white rather than cream-coloured, and proved when cooked to be wholly free from the strong taste which spoils so many Broccolis."

MR. ARTHUR HENDERSON, *the eminent Nurseryman, of Pine Apple Place, Edgware Road, says of this Broccoli*:—

"It is a really excellent and compact variety, with large round and close heads, flavour sweet and first-rate, growth equal and alike, as if turned out of a machine. There is no mistake in this being one of the right things; coming in so late is another valuable consideration; it certainly fills up the gap or interval between the Broccoli and Cauliflower." Price, per packet, 1*s*.

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

THE COLESHILL CUCUMBER.—We have much pleasure in drawing attention to this first-class Cucumber; it was raised by Mr H. Eckford, Gardener to the Earl of Radnor, Coleshill, Berks, who speaks of it as follows:—

"The Coleshill Cucumber, which I have grown for several years, is well adapted both for early and late work.

"The fruit grows about 20 inches long, is of uniform girth like a gun-barrel, perfectly round, with a particularly short handsome handle; it is smooth, of light green colour, thickly covered with bloom, an abundant cropper, and of first-rate quality. Specimens I sent to you on two or three occasions were fair examples of it. Twenty inches is about the average length, but I have had it 26 inches, but not when in full bearing, or rather when the plants were fully cropped."

(We have grown it ourselves, and can confidently recommend it.) Price per packet, 1*s*.

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

APPLEBY'S SEEDLING CUCUMBERS.—We have much pleasure in offering the following six varieties of CUCUMBERS, which we received from Mr. APPLEBY, the well-known writer on Horticultural subjects; we have grown them at our Nursery, and can fully endorse Mr. APPLEBY'S description of them, which is as follows:—

EMPEROR, 24 to 26 inches long.—A handsome fruit, with black spines; hardy, a good setter. Well suited for winter culture.

QUEEN, 28 to 30 inches long.—A fine, well-shaped fruit, with black spines; a free bearer, good setter. Suitable for exhibition.

CONQUEROR, 28 inches long.—Handsome in shape, with white spines; a good bearer. Fit for exhibition, very excellent in quality.

ALBION, 24 inches long.—A white-spined well-shaped variety; extra bearer, a good forcer, and bears freely in winter. Qualities excellent, being crisp and well-flavoured.

HAILSTONE.—Blunt white spines in the form of hailstones; a free bearer; handsome and curious.

HAMILTON'S IMPROVED BLACK SPINE.—A well-known excellent variety.

The above collection for 3*s*. 6*d*.

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—

DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW
WOODFORD'S GREEN MARROW "

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5*s*. per quart.

	Per packet—*s.*	*d.*
DIXON'S New MAMMOTH WHITE CELERY ..	1	0
DIXON'S New CHAMPION GREEN COS LETTUCE	1	0
DIXON'S YORKSHIRE FAVOURITE MELON ..	1	0
DIXON'S YORKSHIRE HERO CUCUMBER	2	0
The EARLY FORCING CAULIFLOWER	1	0
The ROSEBERRY BRUSSELS SPROUTS	0	6
MELVILLE'S VARIEGATED GARNISHING KALE ..	0	6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s*. 6*d*. per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4*s*. per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4*s*. per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s*. and 2*s*. 6*d*. per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

CARTER'S SURPRISE PEA.—An improved blue Surprise, larger in sample, larger pods, and more prolific, a good useful Pea for market garden work, and one that will come into general use. Price, per quart, 1*s*. 6*d*.

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

ADVANCER PEA.—A dwarf green wrinkled Marrow, of fine flavour, long pods well filled up, and podding well up the haulm; very prolific, and nearly as early as Daniel O'Rourke. Price, per quart, 1*s*. 6*d*.

"The best wrinkled Marrow in cultivation."—Vide *Gardeners' Chronicle*.

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

WONDER of the WORLD PEA.—Tall white wrinkled, with large, broad, well-filled pods, earlier than British Queen, very prolific, a fine flavour. This Pea might truly be called a "Mammoth," as it is the largest, earliest, and most prolific of the late varieties of tall wrinkled Marrow Peas. Price, per quart, 3*s*. 6*d*.

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

To Seedsmen & Nurserymen.

W. BROOKS, AGRICULTURAL SEED GROWER and NURSERYMAN, Long Sutton, begs to inform the Wholesale Trade that he has about 200 Bushels of SWEDE TURNIP SEED to dispose of, consisting of Purple Top, Skirving's Purple Top, and the Golden Swede, Green Bronzed, also 16 Bushels of WHITE SPANISH ONION SEED, all grown in 1863, will grow 80 per cent., Turnip 90 and upwards. The Advertiser would have no objection to take about one-third of the amount out in Nursery Stock.

Address, W. BROOKS, Seedsman, Long Sutton, Lincolnshire.

Unadulterated Choice Seeds.

ROBERT PARKER begs to announce he can supply a few pounds of each of the undermentioned, price of which will be forwarded on application:—

CUSTARD VEGETABLE MARROW.
LOBELIA ERINUS SPECIOSA.
LEEK HYBRID PRIZE (HENRY'S), the largest and finest in cultivation.
LETTUCE MOOR PARK, the best Brown Cos in cultivation.

A NEW PRICED and DESCRIPTIVE SEED and PLANT CATALOGUE is published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—*s.*	*d.*
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..	2	6
" LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

SELECTED SEEDS, CARRIAGE FREE.

PAUL'S SUPERB CRIMSON BEET, 1*s*. per ounce.
PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s*. per packet.
PAUL'S EMPEROR CUCUMBER, 2*s*. 6*d*. per packet.
PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s*. per pkt.
PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s*. per pkt.
PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d*. per pkt.
BROCKET HALL BROWN COS LETTUCE, 1*s*. per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s*. per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s*. per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s*. per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s*. per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5*s*.
" finest mixed, 1*s*. to 2*s*. 6*d*. per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s*. to 2*s*. 6*d*. per packet.

All other Seeds, separate or in collections, of best quality.

PRICED DESCRIPTIVE CATALOGUE free by post.

Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

New and Choice Seeds, Free through the Post.

EDWARD TAYLOR, SEEDSMAN, Malton, Yorkshire, has pleasure in offering the following varieties of SEEDS, being quite confident they are articles of sterling merit, and are certain to give satisfaction:—

	Per packet—*s.*	*d.*
TAYLOR'S SUPERB SELECT RED CABBAGE ..	1	0
TAYLOR'S DEFIANCE WHITE CELERY	1	0
TAYLOR'S DEFIANCE RED CELERY	2	6
TAYLOR'S SUPERB SUMMER CABBAGE LETTUCE	1	0
DALMENEY SPROUTS	1	0
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The whole of the above carriage free for 21*s*.

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DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l*. per Ton, or 8*s*. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s*. each.

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SKERRY BLUE and FLOUNDER POTATOS.—The Skerry Blue is a very fine, late, table Potato, and the only variety entirely free from disease. The Flounder is as early as the Ashleaf, and very large, and particularly suitable for Market Gardeners. Free on board at Belfast (sacks included). Skerry Blues, 6*s*. per cwt.; Flounders, 10*s*. per cwt. Cash to accompany order.

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EARLY ASH-LEAF	EARLY OXFORD
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Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

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COLLECTION OF 12 NAMED VARIETIES, POST-FREE, 5*s.*

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Genuine Seeds, Carriage Free.

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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
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Ladies' Plant Prizes.

THE PROPRIETORS of the GARDENERS' CHRONICLE offer TWO PRIZES of 10*l.* each, for the best examples of INDOOR or DRAWING ROOM PLANTS, cultivated by Ladies, and exhibited at the Great Show to be held in the Garden of the Royal Horticultural Society at South Kensington, on the 1st and 2d June next.

Any kind of Drawing Room Plants, whether in flower or not, will be admissible. The competition is to be confined to single plants, cultivated without the assistance of professional gardeners by the Ladies who exhibit them.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than the 28th of May. The plants must be placed ready for adjudication by 10 A.M. on the 1st of June, and none can be received at the Garden after 9 o'clock.

The prizes are open for competition amongst all Lady Gardeners.

A similar amount will be offered in 1865, and early intimation will be given of the subjects to be then produced.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 20, 1864.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Feb. 23 { Royal Horticultural (Adjourned Anniversary) at South Kensington 1 P.M.

WE have learned that one of the greatest PUBLIC GARDENS in Europe will shortly be in want of a Curator. The persons who may desire the appointment must bear in mind the following indispensable requirements. The Curator must be about 30 years of age, of good manners, and well acquainted with plants. He must speak English, and some other European language, probably French or German. Moreover he must be a very careful accountant.

Letters upon the subject may be addressed to X. Y. Z., 41, Wellington Street, W.C.

IN the midst of all the outcry which has been raised against the proceedings of the Royal Horticultural Society, it is pleasant to have to award our meed of praise, where that praise appears to be justly due. It will be in the recollection of many of our readers that at the annual meeting of this Society, held in February, 1863, some complaints were made on the absence of SPRING FLOWERS in the Conservatory during the early part of the year. Many of the Fellows were of opinion that more pains should be taken to render the garden attractive at the season when they were in town to enjoy it, and they expressed their opinions somewhat freely upon the subject. It was well enough, they argued, to have the garden gay and attractive during the autumn, when most of them were away from London; but it was necessary for them to have something to see and enjoy when they had the opportunity.

We are glad, therefore, to be able to state that the wishes and suggestions of the Fellows of the Society in this respect have received the attention they deserved. The Conservatory has, this year, been most enjoyable all the winter through, and is now one of the most charming places one can possibly imagine. Beds and circular baskets filled with flowers of gay colours of all hues, and broad masses of green and glossy foliage, having, moreover, a somewhat tropical appearance by being mixed with Tree Ferns and Palms, make up a scene of, what may be called, light and shade, which has a very pleasing effect. Then we have the noble broad walks, with, here and there, examples of sculpture of a very high class, and the air of the house just sufficiently heated to be rendered most agreeable to the feelings of the visitors. As we enter the door we seem to pass from winter into summer, and experience a sensation like that which the voyager feels who leaves the shores of England covered with ice and snow, and after five or six days of sea-sickness—during which time he does not think much of climate—finds himself set on shore at Gibraltar amongst groves of Myrtles and Scarlet Geraniums in full bloom. No one, we are sure, can enter such a place as this Conservatory, at the present time, without experiencing a keen sense of enjoyment, and without wondering that such places are not more common in the wealthy squares of our English towns.

When the complaints to which we have alluded took place, it was argued that the difference between having the garden as it was at that time, and having it gay and attractive as it was proposed that it should be, and as it is now, was simply a matter of expense. And no doubt to a certain extent this was true. But, as was shown by one of the correspondents of this Journal at the time, much may be done to accomplish the end in view, at a trifling cost, by cultivating a number of plants which produce their flowers naturally in midwinter or very early in the year. This has been shown in the South Kensington Conservatory during the present season in a most satisfactory manner. Camellias; beds of Chinese Primroses; Spiræa prunifolia flore-pleno, with its blossoms of snowy whiteness; Jasminum nudiflorum, and Dielytra spectabilis have all been very effective, and have been produced with little expense or labour. And a host of other plants with gay flowers might be named, which have the same habits as to time of flowering as those we have mentioned, and which could be rendered most effective as objects for decorating a conservatory during the dull months of winter and early spring. There is one plant in particular which we may bring prominently forward, and which is well worth more attention than it usually receives. We allude to Luculia gratissima, a native of the Nepaul hills, and a plant which has been many years in cultivation in this country. It blossoms all through the winter, its flowers are deliciously fragrant, and it succeeds admirably when planted out in the border of a conservatory. We remember a specimen of this plant, which, some years ago, used to be in the iron conservatory at Chiswick, where it bloomed profusely every winter, and was admired by all who visited the garden.

The semi-circular trays which are placed at intervals all down the south side of the Conservatory, and at present filled with Hyacinths and other spring flowers, produce a charming effect. To see these only is worth a visit to the garden. Taking the building as a whole, and the way in which it is laid out and adorned, it would be difficult to find its equal, and any of our readers who have half an hour to spare could not spend it more agreeably than in this South Kensington Conservatory.

MOST cultivators must at times have experienced more or less of difficulty in RAISING MINUTE SEEDS. If covered with mould they too often refuse to germinate, and if sprinkled over the surface, unless extreme care be taken, they are apt to be washed away even with a fine rosed water-pan. It is a practice in some establishments to cover them with a layer of Moss, but there are several objections to this method, though we know that Rhododendron seeds will germinate more easily than elsewhere (at least in some situations) amongst the rootlets of Mnium punctatum, and the young seedlings thrive better in this than in any other position.

Whether the practice, however, is more or less advantageous, a method has been suggested in the *Wochenschrift fur Gärtnerei und Pflanzenkunde* for 1858, p. 61, which we do not recollect having noticed before. The pots are filled with mould firmly pressed in, and made perfectly level at the top, leaving the edge projecting above the soil for about half an inch. The seed is then scattered over the mould, and gently pressed with some flat round surface, as the bottom of a flower-pot. A piece of filtering paper is then cut of the size of the pressed surface and pierced with holes, so as to make it pervious to air, and the paper is kept moist from time to time with a fine rose. The surface of the soil in consequence is not disturbed, and the seeds buried, while the paper can easily be lifted

from time to time to see what progress they have made, and may be turned on one side altogether as soon as the seedlings are well rooted. Plants with larger seeds, as for example Stocks, it is said, may be sometimes raised advantageously in this manner. *M. J. B.*

—— AT a recent meeting of the *Société d'Horticulture et de Botanique de L'Hérault*, M. BRAVY, in the course of some remarks on the culture of certain BROMELIACEOUS PLANTS, referred specially to the success he had obtained in the treatment of some of the genera, Æchmea and Tillandsia to wit, by growing them in an epiphytal manner with the aid of Sphagnum moss. So many of the plants of this order are really interesting and ornamental, and yet so little grown, comparatively speaking, in consequence of the limited number of species of other affinities suitable for exhibition purposes, which too generally usurp the whole or nearly the whole of the stove accommodation in a private garden, that we take the opportunity to allude to M. BRAVY's experiment for the purpose of inviting more general attention to the merits of this race as ornamental plants, and their utility as giving considerable variety to a collection of stove plants.

M. BRAVY observes that nearly all the species of Æchmea and Tillandsia, in which latter he includes Vriesia, grow on trees after the manner of epiphytal Orchids; and like them therefore should be grown either on blocks of wood or cork, with their roots enveloped in Moss, or when grown in pots should have provided for their roots a mixture of half-rotten wood, thick fragments of heath soil, and Sphagnum Moss. This mode of culture was tried last spring on several young plants of the two genera just mentioned, and especially on Æchmea fulgens, and Vriesia speciosa, and although the weakly condition of the plants at the time did not permit of the hope that they would yield their inflorescence during that season, yet two months after this treatment was commenced, their flower-stems appeared. M. BRAVY attributes to his mode of culture the precocity of the inflorescence in these two cases; and he proposes to make further trials in the same direction.

We may cite a few of the examples which M. BRAVY adduces in support of the claim he sets up on behalf of certain Bromeliaceous genera as affording plants of a remarkably ornamental character. Thus, of Bromelia he instances two species, B. fastuosa and B. exsudans, which have their flower stems adorned with numerous large floral leaves of a brilliant red; and we may add that B. Sceptrum combines a noble bearing with a brilliant display of colour. Of Æchmea he refers to four species as grown in European gardens: Æ. Mertensii, with purplish bracts and rosy flowers with a yellow cup or calyx; Æ. fulgens, with violet flowers and fine red bracts, pedicels, and cup; Æ. discolor, with a similar inflorescence, but the leaves stained with violet purple beneath; and Æ. suaveolens, which to the elegance of its flowers joins the sweet odour of Violets. Of Billbergia, he rightly states that numerous species offer an elegant and brilliant inflorescence, the magnificent B. rhodocyanea and B. Moreliana being put forward as prominent examples, with their large rose-coloured floral leaves, and their blue or violet flowers, with a cup of lively rose. Of Pitcairnea there are such species as P. flammea, longifolia, and latifolia, with very striking flowers of different shades of red; and P. macrocalyx, with white flowers, having a yellow cup. Puya, a group formed at the expense of Pitcairnea, yields a dozen showy species, amongst them P. Altensteinii and P. macrostachya, of which the splendid inflorescence is borne on tall stems adorned with floral leaves of a fine red, and is composed of a long close spike of bracts of a still more lively red, from amongst which issue flowers of a pure white, or white tipped with yellow. Of Tillandsia, he points out that there are several handsome species, of which T. nitida serves as an example. And then there is Vriesia, separated from the last, and affording V. psittacina and V. speciosa, two brilliant plants with flattened spikes of scarlet bracts, and the latter with finely-marked dark-zoned leaves. We ought to see more of these fine things in our stove collections, and somewhat less of Begonias and Caladiums, which, with other like subjects, are usurping too great a share of our hothouse accommodation.

—— The *Journal of Botany* mentions the DEATH OF M. JACQUES ÉTIENNE GAY, at Paris, on the 16th ult., at the age of 77 years. It is well observed that his loss to science is inestimable; and that those who were honoured with his friendship will feel his absence from amongst us to a very painful degree. Though not a voluminous writer, it would be difficult to name a botanist to whom we are more indebted for advancing the scientific knowledge of European plants.

—— We have also to record the DEATH OF Mr. JOSEPH WOODS, a well known veteran amongst British Botanists, after whom the rare genus Woodsia was named by ROBERT BROWN. He died at Southover, on the 9th of January, having attained the ripe age of 88 years. His earliest botanical essay was a monograph of the British Roses, printed in 1816; and his most important work, the Tourist's Flora, published in 1850. This latter work, embracing a much larger portion of Europe than any recent botanical work of portable size, has become an indispensable handbook for English botanists travelling on the Continent.

New Plants.

269. TRICHANTHA MINOR, *Hooker, Icon. Plant.* t. 666; and *Botanical Magazine*, t. 5428.

Some 20 years since Sir William Hooker published in his *Icones Plantarum* two species of a new genus of Gesneraceæ, gathered by Mr. W. Lobb, in Columbia. These plants were called Trichantha, from the long copious hairs which grew over the surface of the stems and leaves and flowers, both calyx and corolla being thus invested. One of them was the species represented by the annexed figure, and to this the name of Trichantha minor was given; the other, which was altogether a large plant, was called T. major.

Of Trichantha minor living plants have lately been introduced to our gardens from tropical America by Mr. Veitch through his collector, Mr. R. Pearce, and from specimens which flowered with Mr. Veitch, in the course of last autumn, Mr. Fitch has prepared the beautiful figure of the *Botanical Magazine* above quoted as well as our own. The garden plant would seem to be a somewhat less hairy form than that originally figured from Mr. Lobb's dried specimens, but even on this the hairs are rather more obvious than they would appear to be from our woodcut. At any rate it is a very beautiful addition to our small-growing free-flowering stove climbers.

The habit of the plant is described as epiphytal, and the slender stems as scandent and rooting, either smooth or clothed with appressed hairs, and of a bright red colour. The leaves are ovate acuminate, entire, and ciliated, becoming at length smoothish, the upper surface of a full green, while the under surface is strongly marked with a red rib and primary veins; they are opposite, but of each pair one is much smaller than the other. The very hairy flowers are aggregated in the leaf axils, the pedicels and the deeply five-parted calyx, whose divisions are palmately cut into



long linear ciliated segments, being entirely red. The corolla is tubular, a couple of inches long, narrowed at the base, the limb yellow, oblique, four-lobed, and spreading; its upper lobe is bifid, and a singular club-shaped appendage, stellately hairy at the apex, grows from the exterior suface just beneath each sinus. The yellow of the limb is continued in stripes down the tube, the intervening spaces being of a deep chocolate purple, almost black, and the base red.

The varied colours of the flowers—red, yellow, and chocolate purple, each boldly developed, and the very singular fingered hairy coloured calyx, together with the evident profusion in which the flowers are borne in the leaf axils, will make this a most desirable plant for the hothouse. Mr. Pearce indeed describes it as a charming little stove climber, and we can well believe it will prove itself to be so.

ON PRUNING THE PEACH TREE.

IN this climate it is well known that the Peach and likewise the Nectarine tree require the aid of a wall in order that their fruits may be obtained in perfection. Accordingly, many good walls have been built for them. In some cases the trees cover very fairly the spaces respectively allotted to them; but in others, very fine walls are merely disfigured by wretched specimens of trees, which, barely existing, are attached to them. These make perhaps a little growth in the course of the season; but the extent of naked wood is every year on the increase, the consequence of which is that the bare framework of the tree becomes soon out of all proportion to the scanty amount of foliage which the small bits of weak terminal shoots are able to bear. Now it must always be recollected that the existence of the tree solely depends on its foliage, little and inadequate as that may be, in such cases, for the important offices it has to perform. It has to form a layer of alburnum or young wood every year over all those naked pieces of old wood; it has to make what young shoots it is able; it has to contribute to the extension and formation of roots, for although these feed the tree, they themselves are formed, like other solid parts of it, by sap elaborated by the leaves. The foliage has moreover to elaborate sap in a peculiar manner to support the fruit, with its saccharine fleshy pulp: of flesh, indeed, under the circumstances there may be little, but then there is the stone, a hard bony substance, the formation of which tries all the energies of the tree, and sometimes, when the latter is weak, its whole vitality is exhausted in the effort. This sometimes happens when general debility pervades every part of the tree in an equal degree, or nearly so. Generally, however, some branches more vigorous, or at all events less weak than others, continue to exist, whilst the weakest successively die off limb after limb; but still the tree becomes less and less every year, till the only hope is in a young one for replacement. In many cases we are persuaded that such an event may be now easily foreseen; and the most advisable proceeding would be to procure young trees and keep them in training ready for replacements, so that vacancies on the walls might be readily filled up; for Peach trees can be safely moved at any age, even till they more than half cover the height of the wall.

But well-trained healthy trees may be planted in a good soil and situation, and if so they are sure to grow vigorously—often so much so that the difficulty lies in controlling their growth. "Cut out that rank wood," say some; "it will never bear fruit; you must get smaller shoots for that." Before this advice is adopted, however, it should be taken into consideration that if such vigorous shoots do not bear fruit themselves, yet they are far too important to be thrown away, inasmuch as they bear the shoots that do bear the fruit. All the branches of the tree originate, each respectively, from a shoot; a sufficient number of these branches constitute the frame-work of the tree; and in regulating these the aim is to make them radiate like the ribs of a fan. As they diverge from each other in straight lines, like the legs of an angle, the farther they extend the wider they are apart. When they are so far apart as to leave room for another branch, one should accordingly be selected and laid in; and again another, when the extent of divergence will permit. If a shoot be shortened back, the eye or bud immediately below the section will push, as will likewise the next lower in most cases. The shoots from the former will serve for the prolongation of the branches, whilst the others will serve for the origin of the required additional branches. Thus can a sufficient number of leading branches be obtained.

A tree about to be pruned at the present season should exhibit—1st, The main branches above mentioned; 2d, Shoots which grew two summers ago, and which bore or should have borne the fruit last summer; 3d, shoots which pushed last spring, and were grown throughout the season as succession shoots, to bear the fruit in the ensuing summer. All the branches No. 2, which bore the fruit last season, will bear no more, and should, therefore, be cut away in order to make room for their successors No. 3. Presuming then that those branches which bore last season are all removed, there will then only be left No. 1, the leading branches; and No. 3, the one-year-old shoots. The leading branches should have their extremities shortened to make them push a shoot where required, and this is all that need be said respecting them on this occasion, so that we have now only to deal with No. 3, that is, those that were left of last summer's shoots for succession. Their management, however, is of the utmost importance, for on it the fate of the tree mainly depends. They are as yet untouched. What is to be done with them? Shall they be shortened, or shall they be trained in at full length?

The consequences of leaving the summer shoots at full length are well known to be these: handsome looking trees in the first instance, from the training in of fine long shoots; but from their length these shoots are unable to push wood-buds near their base, and consequently no shoots for succession will there appear. Advantage can only be taken of one that breaks high on the shoot, although it be what is technically termed too far from home, that is, too far from the main branch. In its turn this one becomes a bearing shoot, and the succession shoot is still farther removed from near the base than its predecessor was. This system of laying in at full length being still pursued, no succession shoot can be obtained, and only a weak prolongation of the growing point. At last the decision arrived at is, that these useless pieces of naked wood must be cut out; and then the ruin of the tree is in full progress. This is the inevitable consequence of training in successively the shoots of a Peach tree at full length.

The results of judiciously shortening the succession shoots at the winter pruning are very different from the preceding. We have shown that such shoots can

be originated in great abundance, and almost where we please, in a tree that has never been mismanaged—so numerous, indeed, that if each were only to bear a single fruit there would be an abundant crop on an established tree; therefore one need not grieve to see so many thousands of plump blossom buds cut away with the tops of these successional bearing shoots, seeing there are as many left as any tree could nourish, and more. But some fruits may drop in stoning? Not one by this system will part from the branch till pulled off (unless the kernel has been injured by untimely frosts), therefore there is no necessity for making provision against that contingency. Proceed then to shorten every bearing shoot more or less, according to its vigour, to between 6 and 12 inches; by so doing each will be induced to push a young shoot from near its base for a succession. The growth of this succession shoot ought to be encouraged during the summer, so that it may be in condition to bear good fruit in the following season, when it comes to succeed the one that bears the fruit in the present, for the latter must be cut out. These successional shoots will keep the branches in a vigorous state, in consequence of the great amount of healthy foliage which they carry. Shortening the shoots is the only mode by which abundance of healthy leaves can be ensured, and where such exist the branches will not die off. If occasionally one should do so, it will be from some accidental cause, not attributable to the system of pruning, which is a very simple one, consisting, we may again repeat, in providing (1) branches, which should have on them only (2) bearing shoots, and (3) succession ones. The succession shoots are those produced in the summer of, say, 1863. They should now be shortened, so that buds near their base may push in the ensuing spring, and the lowest one of these should be encouraged to form a shoot for succession, to be treated like its predecessor. In other words, shoots that are one year old are now bearing shoots, and should be shortened back; those that are two years old have borne fruit (or should have done so), and ought to be cut entirely away. The main point to be remembered is the shortening. Only do that, and the trees will continue healthy and fruitful, but lay in their shoots at full length, and they will come to ultimate ruin.‖

THE NEW PELARGONIUMS OF 1862—3.

The additions in the shape of novelties which have been made to the varieties of this popular flower during the two preceding seasons have been both numerous and important. The improvement in the form of the flowers, and their increase in size, have been very remarkable. What we now want is a greater variety of colour and marking, combined with good form and a dwarf robust free-blooming habit of growth. Without such qualifications new flowers can never become either popular or useful for exhibition purposes.

I propose here briefly to describe those novelties of 1862-3, which I consider the best and most worthy of general cultivation:—

Achilles (Hoyle).—A dark rich flower of the most striking colours, and of beautiful form; also a profuse and constant bloomer. The ground colour is crimson, clouded with maroon on the lower, and almost entirely maroon on the upper petals; white throat.

Artist (Hoyle).—A fine variety, the colour a deep rose on the lower petals, slightly spotted; the top petals dark maroon, passing to red at the margin; white throat. A first-class flower.

Aimée (Beck).—This is quite new in colour, the top petals being nearly black, with maroon crimson edge; the lower ones dark purple, painted with deep maroon.

Beacon (Hoyle).—A very large and fine crimson flower; dwarf and robust in habit.

Belle of the Ball (Foster).—A very fine variety; light crimson, marbled with maroon crimson; the upper petals very dark maroon; throat pure white, very fine.

Butterfly (Beck).—One of the spotted class; deep carmine rose with black shaded spot; very free.

Colossus (Hoyle).—Very large salmon rose; white throat; fine.

Conflagration (Foster).—Subdued deep rose colour, with dark spot on top petals; good form.

Diadem (Hoyle).—Rosy purple, the lower petals tinted with a deeper shade; rich dark top petals, with a narrow margin of crimson; white centre; very fine. The best flower of 1863.

Lord Eversley (Hoyle).—A free constant flower of excellent quality and rich colours; warm tinted rose lower petals; the upper ones rich maroon, with crimson margin; fine.

Illuminator (Foster).—Bright orange scarlet, very free and fine.

Jewess (Foster).—Deeper and richer than Bacchus, with more white in the eye; free and fine.

Maid of Honour (Beck).—A distinct and pleasing variety, of a purplish lilac colour; an improved Viola.

Peerless (Hoyle).—A rich dark-coloured spotted variety, and a very free bloomer.

Princess Helena (Foster).—A flower of the Topsy class, but of better form; black top, and painted rose lower petals.

Princess of Wales (Beck).—A very striking flower; lower petals marbled with bright maroon on a crimson ground, the upper ones very dark maroon; bright clear white throat

Queen of Whites (Dobson).—Lower petals silvery paper white; upper petals rich crimson carmine. A very fine flower.

Queen Bertha (Beck).—A very large flower, of fine form and substance; the upper petals dark maroon, the lower mottled rose.

Regina Formosa (Beck).—A carmine rose flower with maroon top, of very fine form and quality.

Royalty (Foster).—A very fine flower, of extra quality; lower petals painted rose, the upper black with a margin of rose; white centre.

Royal Albert (Hoyle).—A superb flower of immense size; carmine rose lower petals, and a large blotch shaded with orange on the top ones; very free and constant. The best of its class.

Startler (Dobson).—Scarlet crimson lower petals, black top, vermilion centre; very free and striking.

The Charmer (Beck).—A very effective and constant variety; top petals lively maroon, shaded with carmine; lower petals deep carmine, white centre; large.

The Prince (Hoyle).—Lower petals orange red; upper ones light maroon; throat shaded with purple; very showy.

Of the Fancy class the novelties are less striking, but I may mention the following:—

Belinda (Turner).—Delicate tinted blush, blotched and spotted with lilac carmine; distinct.

Edith (Turner).—Bright carmine and cerise; large and free.

Eleanor (Turner).—A finely-formed rose, suffused with purple; light throat and edges.

Ellen Beck (Turner).—Delicate light carmine; of robust habit, very free, and a fine sort for exhibition.

Godfrey Turner (Turner).—Intense crimson upper petals, the under ones light crimson, with lilac margin; a most beautiful variety.

Lady Towers (Turner).—Bright rosy lake; very fine, and free.

Mrs. Hogg (Turner).—Rich mottled purple, with light throat and edges.

Miss in-her-Teens (Turner).—A charming flower with the colours of Roi des Fantaises.

Mrs. Marnock (Turner).—Crimson and violet; a very large flower.

Mrs. Reynolds Hole (Turner).—Delicate French white; a decided acquisition.

Princess of Prussia (Turner).—A delicate lilac blush, with white throat, and of fine form; a great acquisition.

I have selected the above without reference to their raisers, and I believe they are the cream of the new varieties. I would advise all growers who do not possess any of them, to procure them forthwith. It has been a very favourable season for the growth of this plant, and I wish every cultivator his full share of success. *Henry Bailey, Jun., Shardeloes Gardens, Amersham, Bucks.*

Home Correspondence.

Cool Treatment of Orchids.—[It is now pretty well known that there is no more skilful cultivator of exotic Orchids than Mr. Warner, of Broomfield. For ourselves indeed we may say that we have never seen elsewhere such a diversity of glorious species in such a uniform state of exuberant health. The following letter, with which Mr. Warner has favoured us, will, therefore, be read with very great interest.]—I am glad that the flowers arrived safely, and that you liked them. In answer to your inquiry as to how they have been grown—cool or stewed—I may say that I bought your work when I commenced growing Orchids, and that I never stewed my plants, which would have been contrary to your theory of cultivation. Of course such plants as Cattleyas are grown warmer than Odontoglots, and Aerides &c. are kept warmer still; but I never stew my plants. The houses will not admit of that; in short, they are never so hot as to be uncomfortable to any one, except it might be just in the middle of the day in summer from sun heat, and then I set the doors open to admit as much fresh air as I can. I am not in the habit of growing my Orchids so fast as some do; but I believe that few cultivators, if any, ever flowered their plants better. At the same time, I must admit that some varieties of Saccolabiums do not succeed with me so well as I could wish; but the finest Aerides, viz., Schröderii, and the finest Saccolabium guttatum, viz., Holfordii, do first-rate. The Lycastes, Odontoglots, and Zygopetalum sent were grown cool, but not cold, under the shade of Vines, and I never flowered Arpophyllums, or Barkerias, or Pleione lagenaria well before I grew them under Vines. The latter, thinly trained, furnish a slight shade, but do not prevent the sun from doing good, like a canvas shading—nothing like the sun for ripening bulbs. The fire heat which I employ is very little. From the next number of my work on Orchids, you will see that Odontoglossum citrosmum requires more heat than most others. Cœlogyne cristata I grow in the Cattleya house, cooler than most people do, and I have grown and flowered it well under Vines. The Cattleya maxima sent last time is, I think, a fine variety. The Cattleya Trianæi, or Luddemanni, or Warscewiczii, I shall be glad to know the true name of, when you have time to search it out. No one but yourself knows what the three Cattleyas just mentioned are like, or the differences between them. The Saccolabium violaceum sent was grown in a house put up on purpose for Orchids, but I fear that it is not warmed quite sufficiently for them; I must put a double glass roof on it. To grow Orchids from the East Indies properly, we want houses built so that we could use a steam-engine to pump warm air—sometimes moist, sometimes dry—through them. In a large establishment it could easily be done, and at very little cost. I have taken the liberty of furnishing you with a few flowers this morning, in order to show that I had not exhausted my stock of varieties in flower at this season. They consist of five sorts of Phalænopsis, viz., amabilis, grandiflora, rosea, Schilleriana, and intermedia var. Portei; two of Cattleya, viz., marginata and Warscewiczii delicata; one of Brasavola; one Angræcum eburneum; one Odontoglossum or Oncidium Insleayi (as I suppose); and one Maxillaria or Lycaste venusta, which has been grown under Vines. I have also several Cypripediums in bloom and Ansellia africana; Vanda cœrulea does well in a vinery. Not even Kew Gardens, I imagine, could show as many Orchids in bloom as I now have in beautiful condition. *R. Warner, Broomfield, Feb.* 8, 1864.

Botany Extraordinary.—I have been much interested by the following statement of a botanical fact—if it be a fact—which I have met with in a country paper:—"A remarkably intelligent young botanist of our acquaintance asserts it as his firm conviction, strengthened by his public observation not the less than by his private experience, that plants have a decided influence upon the actions of mankind in general, and of womankind, perhaps, in particular. In illustration of this axiom, he adduces with some shrewdness the indisputable fact that many a delicate young lady who would shrink with maiden modesty from being kissed under the Mistleto, has yet not the slightest objection to that ceremony if it be performed under the Rose." Perhaps, as the Royal Horticultural Society has just taken botany under its protection, as I learn from your columns, and proposes to hold lamp-light meetings in the gardens at South Kensington, it may see its way also to favour the development of the charming science in the direction indicated by the above quotation, if you will allow me to make the suggestion. *Julia.*

Dracæna terminalis.—Having grown quantities of this ornamental-leaved plant for decorative purposes, I have been often amused with such exclamations as "Oh! what beautiful plants, how do you obtain them?" To this question I reply that I can propagate them by the thousand. Nevertheless, I am certain that in many instances the proper cultivation of this plant is not sufficiently known, or at least that it does not receive that amount of attention which it so richly merits. It is a strong-growing shrub from the East Indies, and should be kept in a warm house where it can have bottom heat during its season of growth. Its propagation is easy, and may be effected in various ways. When a few plants only are required, the young shoots or suckers will afford a sufficiency of cuttings, which may be taken off with a sharp knife as soon as they become a little solid at the base, and inserted singly in small pots. Bottom heat should be given them until the roots are formed. If numbers of plants are required as early as possible, and an old plant or two is at command the operator may with certainty proceed in the following manner. Having allowed the plants to get dry, but not so much so as to cause the leaves to flag, cut up the whole stem and fleshy roots into pieces, from 1 to 2 inches in length. Then provide some well drained pans and a compost consisting of equal parts of loam, peat, and silver sand, passed through a quarter-inch meshed riddle, place over the drainage a layer of fibry peat or Moss, then 2 inches of the compost, and on this place the cuttings an inch apart. Cover with the compost to the level of the pieces, slightly cover with sand, and plunge the pans in bottom-heat; if covered with glass to partially exclude air so much the better. Take care that they do not suffer from excess of water. If kept in a moist atmosphere and slightly shaded they will require little or no water until such time as they show signs of growth. They will soon make shoots a few inches in length, and when they have developed two pairs of leaves may be potted singly into small pots, using the soil in a rougher state than that recommended for the cuttings. Plunge the pots in bottom-heat in a nice moist shady atmosphere, and keep up a temperature of 70° at night, with a rise of from 10° to 15° during sunshine. They will make rapid growth, and may be put into larger pots as required. Before removing the plants to the conservatory, care must be taken to have them gradually hardened, as any sudden transition would at once disfigure them. After being well hardened, this and others of the same family will endure even rather rough treatment. I have no doubt that it may be bedded out in sheltered situations in the south of England during the summer months with excellent effect. *G. Westland, Kingston Hall, Derby.*

On Writing Garden Articles.—1. The writer should give his name and address at full length. This will be in some measure a security against mis-direction. Moreover, the name will often carry great weight with it. 2. Personalities should be avoided. The cause is bad when counsel are directed to abuse the plaintiff's attorney. Reflections on motives are not arguments, nor are they facts. 3. Persons should distinguish between hearsay and experience. They should write

only on subjects with which they are conversant. My plan is to open one eye and shut it, and then to open the other eye and shut it, and next to open both eyes at once; and if they agree together for any length of time, I think there must be something in their separate and united testimony. Sight is not necessarily observation; people see a great deal that they do not observe. Observation is particular sight—it is the clairvoyance, or second sight of the intellect. The Psalmist, therefore, in the last verse of the 107th Psalm, says, in reference to the ways of Providence, "Whoso is wise will observe these things." Horticultural and floricultural writers should, before directing the public, exercise "observation." The different modes of vision in olden time were called heteropticks, and were divided into the voluntary and involuntary turn of the eyes, the half and the whole leer, tipping the wink, the circumspective roll, the side peep through a fan, and the broad stare. What we want in the garden is the broad stare. 4. Articles to be useful should be practical—good hard gardening articles; moreover, small details, upon which oftentimes success depends, should not be omitted. Years ago I received a letter from a gardener living with a lady of high degree in the Isle of Wight, thanking me, and saying (I blush to record it), "I wish all writers of articles were like you. You tell us what will do us good. Many now-a-days write learned articles to show off their learning—say about Cinerarias; but they keep back the 'key of the position' for fear that others should have as good as themselves!" Probably this suppression of "the key" is not intentional, but proceeds from the assumption that people will know, or guess these small details, upon some one or more of which success often depends. Let us all then strive to furnish "the key of the position." *W. F. Radclyffe, Rushton.*

Potatos.—The following may be interesting to those of your readers who are Potato growers. Some five or six years ago, after having been cultivating for an early crop the Ash-leaved, both Red and Walnut-leaved, and other much vaunted early sorts, it occurred to me that the Potato well known in Ireland from the time I could recollect as the old "Bangor," or "Banger," was superior to them all. It was a large, long, white kidney of excellent flavour, which it preserved up to, and past Christmas. It used to come in about the middle of June, that is, very nearly as soon as the Red Ashleaf, and yielded a crop double that of any other early kidney which I was cultivating. Not being able to hear anything of this Potato in either North or South Wales, I wrote to a Dublin seedsman, mentioning that I could not find "Bangors" in any part of Wales, and asking him where they were to be had. His answer began, "Strange to say, Bangor Potatos are not known in Wales." He then went on to say that they were known in England by various names; as Cumberland Long Whites (the original name), Lancashire Kidneys, and Halstone Kidneys; in Ireland as Cumberland Bangers, Bangors, &c. He mentioned also that he had the preceding season obtained some Halstone (or Alstone) Kidneys from the south-east of England, "had them grown on bog for seed, and that they were as true Cumberland Bangers as ever he saw in his life." It is as well to state here that Bangor is a mere corruption of the Irish word Banger, a name with which this variety was honoured in Ireland because it was found to bang, or beat, all other Potatos for an early crop. Just about the time the letter from the Dublin seedsman was received, a neighbour and friend of mine got Alstone Kidneys from the south of England as a new thing; and just as might be expected they turned out to be true Bangers. A couple of seasons after this, by which time, it appears, the seller of the Alstone Kidneys had time to appreciate their good qualities, there appeared an attractive advertisement of another new Potato under the name of Gloucestershire Kidneys, the good qualities and productiveness of which were so minutely and truly described that I recognised at once my old friend, the Banger, adopted, rechristened, and advertised at 5*s.* a peck. The very next season, however, after the Banger *alias* Gloucestershire Kidney, was advertised at this high price, it was to be had in the town of Carmarthen for 5*s.* a cwt., to which place a shipload had been imported from France, where it appears that this sort is grown in large quantities. I proved this by planting the French Potatos, and having a crop of true Bangers. What is correct about these Potatos is that they really have all the good qualities ascribed to them, and with the exception of their being a very few days after the Red Ash-leaved, they are equal in every respect to any other early sort, with the advantage of being a heavy cropper. It is a curious fact that this Potato, which 30 years ago was the only one any one thought of planting in Ireland for an early crop, which was grown by fields-full there, and which filled the markets for the first weeks of the season, is now almost out of fashion there. On inquiry of an Irish friend, whether or not they were cultivated to the same extent as formerly, he replied "No: they had been generally given up on account of their liability to disease, and the Red Ashleaved was therefore taking their place with those who could afford it." Now, everyone who knows the Red Ash-leaved knows that they are as liable to disease as any Potato grown, and more so than most kinds; and I who have cultivated both for some years know that the advantage, if any, is on the side of the Banger. It is impossible, therefore, that any benefit in that respect can have been derived from the exchange; but the former are new in Ireland and expensive, and for the latter reason are cultivated in small quantities only, and being early are quickly consumed. The disease, therefore, has not time to make much ravage among them, and so people fancy that they are better off in that respect. If, however, they were to treat the Banger like the Ash-leaved, they would find that it was quite as little affected by disease, besides being better on the whole than the Ash-leaved. The proper way to manage with all very early Potatos is to watch carefully for the first appearance of the disease, and as soon as it shows an inclination to spread over the crop, but before it has done so, have them all up at once—which with a small quantity is easily done; handle them carefully, and pit them solid, that is with dry earth or ashes among them, cover with earth, and thatch the outside. When managed thus, during the worst years of the disease, they have kept sound with me almost to a tuber, when three of every four left three weeks longer in the ground rotted. *A. B., Narberth, South Wales.*

Nets on Walls.—In order to fix these, run a galvanised twisted wire cord along the top, fixed to wall-hooks 6 feet apart; then run a parallel twisted wire a few feet from the wall and 2 feet from the ground, supported by light stakes 6 feet apart. Now fix your nets to the top and bottom wire, and stretch them out with wire guys pegged down to the ground in the same manner in which the roof of a tent is stretched out. When single trees are covered, bring a wire down at each end of the net obliquely to the stake and the ground in order to fasten the ends of the net. The wire is supplied at 1*d.* per yard, and wall-hooks at 1*d.* each. Pegs and stakes are of very little value, and can be easily obtained. The whole cost will not exceed 2½*d.* per yard run of wall. *Anon.*

Gishurst Compound. — Your Correspondent, Mr. Barnes, while giving his valuable experience on the subject of clearing Azaleas from insects, speaks of two ounces to the gallon solutions of Gishurst Compound having been efficacious against living Thrips, but powerless against their eggs. May I be allowed to suggest a trial on a single plant of a stronger solution, say ½ lb. to the gallon, to ascertain the fact whether the eggs would not be destroyed before the foliage was injured. I have tried with success very strong solutions when followed by an almost immediate after-dipping in water. *George Wilson, Weybridge.*

Germination of Fungi.—"M. J. B." remarks (p. 124) "that the spores of Agaricus campestris will not germinate till they have passed into the stomach of some graminivorous animal." Is it not more likely, however, that the situation only quickens germination, in the same way as Haws, Hips, &c., are forwarded a year by feeding ducks with them; and possibly the germination of Coniferous seeds may be promoted in a similar manner. *F. C., Garmons.*

Schizostylis coccinea.—We notice in your reference to the figure of this in the *Floral Magazine* the remark "much exaggerated." Permit us, therefore, in fairness to our plant, to say that in the size and number of the flowers we do not think that it is exaggerated, as we frequently had five blossoms fully expanded on a spike, and quite as large as those alluded to. The colour of the figure given is not materially different from Sir W. J. Hooker's illustration in the *Botanical Magazine.* Probably the idea of exaggeration was derived from the plant we sent to the Royal Horticultural Society's Rooms at South Kensington (too late for exhibition) last winter, which was undoubtedly past its prime. Moreover individual plants do vary in colour—from deep rosy crimson to the scarlet of the "Scarlet Duc Van Thol" Tulip. The colour is also diminished by the influence of shade. We do not fear being able during the ensuing season to satisfy all on this point, as the plants are again coming rapidly into bloom. The drawing in the "Floral Magazine" was not copied from Sir W. J. Hooker's figure, but taken from the plant itself. *Jas. Backhouse, York.* [Our remark, not meant as a depreciation of the plant, but as a criticism of the plate, was founded on the specimen alluded to, which at least bore no indication of producing six expanded flowers at one time on one spike.]

Foreign Correspondence.

Weather in Egypt.—On the 19th, 20th, and 21st of this month, Egypt was visited by an unprecedented hard frost—Negretti and Zambra's self-registering thermometers marking on the above-mentioned dates respectively 5°, 7°, and 21½° Fahr. below freezing point. Previously to the setting in of the frost, high winds from the south had prevailed for several days; these changed to the east, and afterwards to the north.

Ice has been found in some of the ditches on the morning of the 22d inst. fully an inch in thickness, and many of the crops now springing up, especially Wheat, Beans, Clover, and Flax, have suffered severely. It is remarked by old European residents that the climate of Egypt is gradually changing in respect to its winters, which become sharper every year.

The gardens here have suffered severely this year from the late high Nile. Many hundreds of fine trees have already been cleared away, and now to-day I am sorry to say that all the beautiful climbers, which are so well known to beautify the gardens in the East, are all more or less cut off, and many of them quite dead. Stephanotis floribunda and the Ipomœas, which predominate so much, are all killed; also Thunbergias, and the beautiful scarlet Lapageria rosea: in fact all the stove and greenhouse specimens are all more or less destroyed. *Wm. Chapman, Chief Gardener to His Highness Prince Ibrahim Pasha, Choobrah Gardens, Cairo, Egypt, Jan.* 26.

Queensland Fibre.—In your issue of June 27, 1863 (p. 604 *b*), a Correspondent inquires about Queensland fibre. May I ask permission through the medium of your columns to give the information?

The fibre alluded to is produced from Sida retusa, a Malvaceous plant having a wide geographical range. I have found it at Illawarra, to the south of Sydney, and at nearly all the intermediate ports between this and Rockhampton on the north, within the tropics. At Brisbane, Queensland, it grows luxuriantly, covering the ground like a field of cereals, and generally attaining a height of from 4 to 6 feet. In cultivated places it is rather a nuisance, and like all that family of plants seeds profusely; its rapid growth and thick cover at Illawarra, forms the hiding place of the small Wallabi, Halmaturus Thetidis, and it doubtless would, as suggested, make a fine cover if in England.

When being prepared for fibre, it requires some 14 or 16 days maceration in water to get rid of the sap. The fibre is long and silky, and could easily with proper appliances be made an article of export from the colonies. Indeed we have several fibres of great strength, and which are used by the aboriginals for nets, bags, and lines. Urtica gigas, Hibiscus, and two or three Sterculias, yield excellent fibres, which were represented at the late Exhibition.

I send you a specimen of the plant, and will prepare a sample of the fibre from plants growing here for the next mail. *E. S. Hill, Woollahra, Sydney, N. S. Wales, Dec.* 21, 1863.

Notices of Books.

Selecta Fungorum Carpologia. Tomus Secundus, accedunt Tabulæ xxxiv. ære incisæ. Fol. pp. xix. and 320. Junctis studiis ediderunt L. R. Tulasne et C. Tulasne. Parisiis, 1863.

It is two years since we reviewed the first volume of this admirable work, which excited so much interest that we are quite rejoiced to receive another proof of the wonderful sagacity and diligence of the two brothers to whom we are indebted for the opportunity of its perusal. Like the former, it is devoted to the proof of a fact now more or less generally received by mycologists, that a plurality of modes of fructification exists in a large portion of the grand Fungal division of Cryptogamic plants.

Genus after genus of moulds and dot-shaped parasites disappears under the repeated observations of mycologists, till at last it seems a matter of doubt whether any will remain. The task is, however, one of such extreme difficulty, requiring so much time and such unwearied powers of accurate observation, that we can only expect instalments at present, and we must be content with respect to the greater part of these more obscure productions to remain for the time being under a cloud.

As the volume is devoted to the examination of especial genera and species, and does not launch out into many general observations, there is not much to extract which can interest the readers of this journal. We must confine ourselves, therefore, to the consideration of one or two species only.

The first we shall notice is Sphæria herbarum, a species which is produced on the dead stems of all sorts of herbaceous plants, and is extremely common on Pea haulm and Asparagus, but attacks also the harder parts of the fruit occasionally, and even takes up its abode at times on the larger Algæ, when thrown up in heaps by the tide and left to decay. It appears also sometimes to infest animal substances, as dead Aphides, at least under one of its forms. Sphæria herbarum has been described under various names, according as it inhabits various plants; but the peculiar yellow-brown obtuse ovate, or ovate-oblong septate sporidia, which are a beautiful object under the microscope, always distinguish it.

Those who have had an opportunity of inspecting Corda's beautiful volume called "Prachtflora" will not easily forget a pretty mould, Alternaria tenuis, said to be parasitic on Cladosporium herbarum, and consisting of a chain of inverted jointed clubs. From the observations of our authors it appears that not only this, but Cladosporium herbarum itself, and Macrosporium sarcinula, Berk., are three forms of the mycelium of this species, as developed on decaying Gourds, all running into each other and producing reproductive naked spores. But besides these, in addition to the subglobose or ovate perithecia which produce the asci and sporidia, we have distinct papillate or bottle-shaped cysts, which contain naked spores, which, equally with the four bodies above mentioned, are capable of germination. Thus we have five different forms of fruit in the same plant, and it is very possible that as in some allied Fungi there may be cysts containing those minuter bodies called spermatia, which seem to be analogous to the spermatozoids of higher cryptogams, if they do not perform their functions. Cytispora

orbicularis, Berk., which grew on the same Gourd with Macrosporium sarcinula, B., may possibly belong to this category.

We ought, however, to give an example in which these organs all appear, and we cannot find a better one than Dothidea Ribis, one of our most common Fungi, which occurs in the form of little black shields on dead twigs of Currants and Gooseberries. Here we have naked spores (conidia), growing on the external cells of the stroma; we have naked spores of a second kind (stylospores) produced in distinct cysts (pycnides); we have minute bodies of a third kind (spermatia) produced again in distinct cysts, resembling very closely similar bodies in Lichens; and we have a third kind of cysts containing the usual sporidia in sausage-shaped hyaline sacs (asci). Even here, however, we have not done with marvels, for if the stylospores are placed in water, they produce in the course of four-and-twenty hours conidia of a second order exactly analogous to those which arise on the germination of the spores of the rusts and mildews which affect our Cereals and other plants.

We have chosen these as obvious instances, but if we wish for striking examples amongst objects less known, we would refer to the connection of Helminthosporium and Sphæria polytricha, Wallr., where the beautiful mould with its umbels of large septate spores is seen growing from the sides of the thick perithecium and the matrix from which it grows; or the wonderful illustration in the following plate, tab. xxx., of Sphæria Clavariarum, where plant and parasite and conidia are represented in the wildest apparent confusion, yet where every part is perfectly distinct—a prodigy in fact of drawing, which it is scarcely possible to equal, much less to excel.

Much remains still to be done amongst the more fleshy Sphæriæ, and we not only hope that our authors will persevere in the work they have so well begun, but that they will undertake a complete revision of the genus, which at the present moment is in great confusion. We have the arrangement of Fries in his Summa Vegetabilium Scandinaviæ, of Cesati and De Notaris in their lately published volume, and several new genera in the work before us, all differing more or less from each other, and all with many points of merit. Fries, however, and De Notaris and his colleague, have examined the group principally from their own point of view, the former from the vegetation, the latter from the fructification of the plant; and now we have the Tulasnes, who have combined with both of these an investigation of the secondary forms of fruit. It would be a great boon to science if in the next part of their work they would simply give a list, of the European species at least, if not of the exotic, indicating to what genus they believe each species belongs. Without this their labours will not be of the general use which they are calculated to serve. We do not even know what group they propose to keep in the genus Sphæria itself, which certainly ought not to be entirely set aside. We know that there is tempting matter before them amongst the coloured moulds, and the cyst-bearing Mucors, but great as their discoveries may be in that direction, we believe that they can nowhere be more usefully employed than in completing what they have so successfully inaugurated in the volume before us.

Wedgwood: an Address. By the Right Hon. W. E. Gladstone, M.P. Murray.

We are so accustomed to associate Mr. Gladstone's name with the House of Commons and financial statements, that it is somewhat startling to read an address of his, containing no allusion to his usual topics; an address delivered in a distant county on the occasion of the foundation of a local institution, and in honour of a native of that place. But when we perceive that the person thus honoured was Josiah Wedgwood, the apparent incongruity vanishes. For, as Chancellor of the Exchequer, Mr. Gladstone must naturally take a strong interest in the commercial welfare of the country; and there is no doubt that its commerce and prosperity increase in a direct ratio to the excellence of its productions. Viewed in this light, Wedgwood becomes a public benefactor; he, more than any single man, raised the manufacture, to the improvement of which he devoted his life, to such a height as not only to challenge competition with the productions of other nations, but to take the very highest place, whether for beauty or utility, amongst them. Witness the encomiums of a "contemporary Frenchman, M. Faujas Saint Fond, who, in his 'Travels in England,' writes as follows respecting Wedgwood's ware:—'Its excellent workmanship; its solidity; the advantage which it possesses of standing the action of the fire; its fine glaze, impenetrable to acids; the beauty, convenience, and variety of its forms, and its moderate price, have created a commerce so active and so universal, that in travelling from Paris to St. Petersburg, from Amsterdam to the furthest point of Sweden, from Dunkirk to the southern extremity of France, one is served at every inn from English earthenware. The same fine article adorns the tables of Spain, Portugal, and Italy; it provides the cargoes of ships to the East Indies, the West Indies, and America.'"

The means by which Wedgwood attained to such a point of excellence are well worthy of consideration, and Mr. Gladstone has devoted a considerable portion of his address to the elucidation of them. Commencing with a long discussion on the influence of beauty, and the advantages that result from embodying as much of it as possible in every production, however mean, he winds up by showing that in this appreciation of beauty, and in his happy combination of it with utility, lay Wedgwood's chief excellence. "His most signal and characteristic merit lay in the firmness and fulness with which he perceived the true law of what we term industrial art, or in other words, of the application of the higher art to industry; the law which teaches us to aim first at giving to every object the greatest possible degree of fitness and convenience for its purpose, and next at making it the vehicle of the highest degree of beauty which, compatibly with that fitness and convenience, it will bear; which does not, I need hardly say, substitute the secondary for the primary end, but which recognises, as part of the business of production, the study to harmonise the two. To have a strong grasp of this principle, and to work it out to its results in the details of a vast and varied manufacture, is a praise high enough for any man, at any time, and in any place. But it was higher and more peculiar, as I think, in the case of Wedgwood, than in almost any other case it could be. For that truth of art, which he saw so clearly, and which lies at the root of excellence, was one of which England, his country, has not usually had a perception at all corresponding in strength and fulness with her other rare endowments. She has long taken the lead among the nations of Europe for the cheapness of her manufactures; not so for their beauty. And if the day shall ever come, when she shall be as eminent in true taste as she now is in economy of production, my belief is that that result will probably be due to no other single man in so great a degree as to Wedgwood."

At the present day it is too often supposed that the term "Wedgwood ware" applies exclusively to the beautiful vases and other articles, principally of a pale blue colour with white raised ornaments; but exquisite as these productions are, it is not by them that the influence of Wedgwood has been most widely felt; they were his relaxation, the (often expensive) luxuries in which he indulged his taste; and were paid for by the excellence of his more ordinary manufactures, and the consequent extensive demands for them. Some of the latter Mr. Gladstone describes: ordinary water-jugs, "constructed in a simple capacious form of flowing curves, broad at the top, and so well poised that a slight and easy movement of the hand discharges the water;" common sixpenny ink-stands, "so tasteful that they would not disgrace a cabinet, but so plain that they would suit a counting-house." Again: "take, for instance, his common plates, of the value of I know not how few, but certainly a very few, pence each. They fit one another as closely as the cards in a pack. At least I, for one, have never seen plates that fit like the plates of Wedgwood, and become one solid mass. Such accuracy of form must, I apprehend, render them much more safe in carriage." One peculiar excellence of these plates is not noticed, namely, the slightly concave edge on which to deposit the salt; an improvement all must appreciate, who have been annoyed by the common sloping edge, which seems designed on purpose to shoot the salt into the gravy! The great secret of the excellence of these homely articles is the same with them as with everything and everybody—a modest aiming at perfection. "They have no pretension: all Wedgwood's works, from the lowest upwards, abhor pretension."

Perhaps it is scarcely fair to criticise the English of a spoken address; but if its author thinks it of sufficient importance to print and publish, it is surely worth a proper revision; and since this bears evidence of having been somewhat carefully prepared for the press, it is the more unpardonable that so many slip-shod expressions should have been permitted to remain uncorrected. They are the more to be regretted, as the subject is so carefully got up and worked out, that the little pamphlet is quite worthy of a place on our shelves, even without taking into account the three woodcuts with which it is embellished.

Seemann's Journal of Botany, for February, contains a synopsis of the British Æcidiacei, by Mr. M. C. Cooke, illustrated by a plate of new or little known species of *Æcidium*. Forty species are noticed. There is also an account of Mr. Howard's Analysis of Indian Cinchonas. Mr. T. R. A. Briggs communicates a notice of Hypericum undulatum, a recent addition to the British Flora, found in two places near Plymouth, where it grows plentifully in boggy ground and on the margins of streams. It is a plant widely distributed over Southern Europe, Northern Africa, Madeira, and the Azores, and bears the additional names of H. decipiens, H. neapolitanum, and probably also H. bœticum. The Plymouth plant, according to Mr. J. G. Baker, "differs from H. perforatum by its quadrangular stem, broader leaves with network of pellucid veins, broader and blunter sepals, and styles only half as long as the capsule; from H. dubium by its closely dotted leaves and erect sepals; from H. quadrangulum by its less robust and less decidedly winged stem, more dotted leaves, larger petals, and differently shaped sepals; from all three by the much fewer and more distantly placed flowers of its panicle. The Editor gives an account of the Cucurbitaceæ of tropical Polynesia. Dr. H. Schott describes four new species of Aroideæ; according to the writer, who is a high authority on the subject, the plant recently figured in the Belgian publications as Dieffenbachia Verschaffeltii, is the D. irrorata of Martius. A further note from Mr. Carruthers indicates that the new Irish Fucus, found at Kilkee, and referred successively to F. furcatus and F. distichus, proves to be an undescribed species, to which its discoverers, Dr. Harvey and Mr. Ward, give the name of Fucus anceps. Mr. G. C. Churchill mentions the discovery of the American Woodsia glabella in the Tyrol and Carinthia, by Baron Hausmann, in 1860 or 1861, and by himself last year, the specimens having been compared at Berlin and at the British Museum. It would however be desirable to know further, if those who have identified this Swiss plant with the North American species, distinguish Woodsia alpina or not.

The last issue of the *Scottish Gardener*, a cheap horticultural magazine, whose existence has extended over more than a decade of volumes, contains a thoroughly practical article on the Onion crop, one of the series of kitchen gardening papers to which the remarks we recently adverted to were introductory. There are some interesting "stray notes" on Conifers; pleasant reminiscences of Scottish Gardens by Mr. Cramb; brief notes on Grapes grown at Castle Kennedy, by Mr. Fowler; and various other matters.

The *West of Scotland Horticultural Magazine* is of more recent origin than the foregoing, but similar in character. The February number (No. IX.) contains some well written articles on practical horticulture. We may instance, as especially useful, a paper on the culture of the Amaryllis (Hippeastrum), and another on certain Coniferous trees grown at Castle Kennedy.

Amongst other scraps of information in the current number of the penny *Botanist's Chronicle*, we notice an announcement that Mr. W. Pamplin, who for many years had been known as a botanical bookseller, has, in his retirement at Llandderfel in Merionethshire, established the North Wales Central Botanic Garden, which "although no pecuniary speculation, nor commercial enterprise, aims chiefly at utilitarianism, in an endeavour to promote and assist in every possible way a taste for gardening, economic and useful, and that chiefly among the smaller farmers, the cottagers, and the rural population of this part of the principality generally," by means of "a gratuitous distribution of seeds and of plants; by a mutual exchange with those who are able and willing to help in adding to our store; and by advice and assistance in planning and managing the gardens of the small farms and cottages, and in offering such suggestions, hints and information as the circumstances of each particular case may seem to require."

Laurie's Sketches of the English Constitution, and the same author's *Sketches of Political Economy* (Murby, and Simpkin Marshall & Co.) which belong to a series of Reading Books designed to be used either as text books to be amplified by teachers, or for general reading, give a clear and concise account of the leading points of their respective subjects, very useful to those who may not have the time or opportunity to consult more extended treatises.

Books Received.—*Britain's Metal Mines: a Complete Guide to their Laws, Usages, Localities, and Statistics.* By J. R. Pike. 3d edition. 8vo. A pamphlet, without an index.——*The Sugar Question as it affects the Consumer.* By M. B. Dureau. Edited by Joseph Travers and Sons. 8vo. (Longmans) A capital pamphlet.

Garden Memoranda.

Villa Stuart, Nice, the Residence of E. Stuart, Esq.—To this pretty villa is attached more than usual interest on account of its being the place from which many of the novelties which annually grace our English gardens are derived. Its boundary walls are almost washed by the waters of the Mediterranean, so close is it to the shore, and the climate of the charming bay in which it is situated is most delightful. Here Dates, Oranges, Lemons, Olives, Guavas, and Pomegranates ripen in abundance. Indian Azaleas, Abutilons, Passion-flowers, and even Pelargoniums stand the winter unhurt in the open air; and during Christmas week flowers were gathered from the following plants, viz., Banksian, Tea and other Roses, Habrothamnus fasciculatus, yellow Jasmine, Cestrum aurantiacum, Tecoma jasminoides; Acacias, Heliotrope, Cassias, Chænestes lanceolata, and sweet-scented Verbena. Need it therefore be wondered at that seeds which refuse to ripen in England arrive at full maturity in a climate so favourable to healthy vegetation as this is. New Holland plants and all the better descriptions of Pelargoniums are grown here in great profusion, as are also Cuphea eminens, Dracæna terminalis, Ardisias, Carnations, Picotees, and Roses. On terrace walls are plants of what is called Tacsonia ignea, covered during summer with multitudes of dazzling scarlet blossoms; also T. mollissima, Ipomœas, Kennedyas, Mandevillas, Lapageria rosea, Hoyas, and various other climbers.

Under glass are thousands of choice seedling Pelargoniums, of which, as a raiser, Mr. Stuart has a high reputation, and which, when in bloom, make a grand display; also others in the form of specimen plants; the

latter, though large, are unsupported by stakes, and bloom magnificently. In the same collection are also Cinerarias, fringed Chinese Primula, some very fine Begonias, Gloxinias, Achimenes, and Bougainvillea; in short, all that is fashionable in English gardens is grown here in perfection. Mr. Stuart's residence is therefore one which is often resorted to, not only by English visitors to Nice, but also by many foreigners of distinction, who take an interest in floricultural matters.

Miscellaneous.

Danish Gardening.—Soon after my arrival [at Copenhagen] I made my way to the Botanic Garden, which is nearly in the centre of the city. I carried a note of introduction to the Superintendent, M. Agust Weilbach, which I got from Professor Asæmted, whom I met at Upsala. The former gentleman received me with much kindness, and took great pains to show me the garden and fine library. I found a good collection of plants cultivated here, such as are well adapted for teaching purposes, and also many rare ornamental kinds. The conservatories are placed apart from each other, but if connected would make a good range. The principal one is a low Palm house, wherein a considerable number of species are cultivated, along with some good Zamias. I was much interested with one plant I observed there that I had not previously seen, which was named Dioon imbricatum. It differs considerably from the Dioon edule, and, as M. Weilbach showed me, particularly in the fruits preserved in the museum there, which are much larger than those of the latter, though of same sex. They may, however, only be varieties of one species. Another stove contained Orchids and Ferns, among which there were some good specimens, as well as some scarce sorts. Several other small houses for growing South African and Australian plants in during the winter, were filled with flowering annuals, &c., at the time I saw them. The arrangement of herbaceous plants is according to Endlicher's system, and his numbers are attached to the plants. They are divided into general collection, medical collection, and indigenous collection. Among the latter I observed some interesting species, such as Psamma baltica, Iris spuria, Sturmia Lœseli, and Herminum Monorchis. The botanical library is in the garden, and contains a rich collection of books on the science, comprising all the modern standard works, as well as those of the older authors. Some numbers of the new edition of "Flora Danica," in which the plates appeared to be beautifully and faithfully executed, were lying on the table, Many more of our hardy trees stand the winters in Denmark than do in Norway and Sweden. Diospyros Lotus flowers and ripens fruits in the botanic garden; Platanus orientalis and several species of Juglans also grow freely there. At the palace and gardens of Rosenberg there are very large trees of Horse Chestnuts, Purple Beech, Walnut, and other deciduous kinds. Among the ornamental shrubs several kinds of Robinias, Loniceras, Roses, Spiræas, and on a wall Wistaria sinensis was flowering freely. The trees near the esplanade, and on the ramparts round the city walls, consist chiefly of Horse Chestnuts, Elms, Sycamore, and Walnuts (Juglans regia). They are planted in lines on both sides of the broad walks, where in summer they afford pleasant shade, as well as shelter from showers, to the inhabitants of Copenhagen, who so much frequent them. I observed symptoms of considerable improvements in the way of ornamental planting, both in the city and suburbs. In front of the large palace, Charlottenberg, a good deal has already been done, and also in many places outside the city gates. *D. Moore, in Proceedings of Royal Dublin Society.*

Calendar of Operations.

(*For the ensuing week.*)

As open weather has returned, accompanied, we may expect, by increased sunshine, and as many indoor plants will soon require attention in the way of potting, et everything be put at once in readiness for the proper carrying out of that operation. Insects too must now be strictly kept in check, and constant care bestowed upon the timely performance of routine work.

FLOWER GARDEN AND PLANT HOUSES.

As regards the Conservatory and Show-houses, the obtaining spring bulbs and other plants in flower from forcing pits or other houses, and the removing such as have done blooming to other quarters, will now be the kind of work requiring most attention. As these houses will now be the chief resort of the family, it is requisite that the floors, &c., be at all times kept particularly clean and dry. Dryness of atmosphere through fire heat will not, however, keep the plants in that luxuriant health which not only creates a present interest in them, but also furnishes a guarantee for success in the future. Great moderation, therefore, in the use of fire heat is necessary in this department. A temperature in the conservatory of 45° at night, and from 50° to 55° during the day time, is during this time of the year sufficient. Out of doors all Grass lawns should now have a thorough rolling, and all turfing repairs should be completed as soon as possible. The weather having been upon the whole mild, every chance will have been afforded of not only bringing up arrears of autumn business, but of even stealing a march on the coming spring.

Carnations and Picotees.—Planting time with respect to these is now rapidly approaching; therefore bestow great attention on the proper preparation of the soil, as upon that much of the after success depends.

Orchids.—Repot such kinds as require that attention. Many sorts on blocks will have received little water since last autumn, and may be very dry. Occasionally, therefore, soak the blocks for a few minutes in tepid water; and baskets, if dry, will also be benefited by being subjected to the same process. Syringing may now be resorted to early in the afternoon on fine days, and other conditions favourable to growth may more generally be put in force than would have been prudent during duller weather.

Pansies.—Beds for these are best made in the autumn; but where plants have been kept in pots during winter they may now be planted out with their balls entire on richly prepared soil.

Pinks.—These ought now to be carefully gone over, slightly forking up the surface soil and applying a top-dressing of light rich fresh mould to the depth of say half-an-inch all over the bed.

Tulips.—If not already done cover the beds with large meshed nets; when too small the plants are apt to be drawn by them, which should be avoided.

FORCING GARDEN.

During the present changeable weather no precise rules for the guidance of the inexperienced can be given. The operator must therefore in a great measure use his own judgment in applying the directions, so as to make them suit any altered conditions of external temperature that may occur.

Cherries.—Advance the heat cautiously on bright days, falling back to a lower temperature at night.

Cucumbers.—Follow up former directions—regularly stopping and often sprinkling lightly with water round the frame.

Figs.—As soon as the young shoots are four or five joints long, commence stopping them; squeeze them flat between the finger and thumb; this is one of the principal secrets of success in Fig management. Ensure a steady degree of moisture at the roots; Figs are very impatient of drought—a very short period of neglect in this respect may prove fatal to the crop.

Kidney Beans.—Give plenty of liquid manure to these, and make sowings for succession as required.

Melons.—Pot off young plants into pots singly; stop them, and get them strong for succession frames.

Peaches.—As before observed, suffer no gross shoots to push above five or six eyes without stopping; this will do more to equalise the sap than any mode of winter pruning. If the trees are properly attended to in these respects there will be little left for the knife. When the fruit is as large as marbles, commence thinning, only a few at a time. Give air freely when the weather is favourable, and syringe liberally with much force in the afternoon.

Pines.—Do not allow the bottom-heat to rise too suddenly; when much new tan has been added in consequence of recent shiftings or removals this may readily take place. Constant attention to the trial sticks is therefore now necessary, in order to ensure success. For general purposes 80° or 85° will be sufficient. Let atmospheric moisture be in proportion to the natural increase of heat and light, and give air freely early in the day on all favourable occasions, shutting up a good amount of sun-heat whenever a chance of doing so occurs.

Vines.—Attend regularly to the disbudding or stopping of superfluous wood. Take good care of bunches that require shoulder tying. A brisk heat may be permitted on sunny afternoons; but be moderate at night; let 65° at that period be the maximum. Keep up a liberal amount of moisture independent of the syringe. As soon as succession houses are closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of either syringe or evaporating pans.

HARDY FRUIT AND KITCHEN GARDEN.

As the period for sowing seeds of all the more important crops is now at hand, see that everything is in readiness for that purpose; do not sow, however, until the ground is sufficiently dry to bear treading on without disadvantage, and otherwise in proper condition to receive the seed. Much mischief is committed by inattention to these particulars.

Beans.—Sow Early Mazagan and Johnson's Wonderful.

Carrots.—Sow Early Horn on a warm border.

Peas.—Sow successional crops of Dickson's Favourite, Fairbeard's Nonpareil, Champion of England, and other good kinds. Draw up some soil to those now above ground, and stake them if necessary.

Potatos.—Plant Ashleaf Kidneys if the ground is at all dry. If wet, defer the operation until it gets into better condition to receive them.

Wall Trees.—All pruning and nailing must now be brought to a close. Timely preparations for protection must also be made in order that it may be speedily applied when wanted.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Feb. 17, 1864, as observed at the Horticultural Garden.

February	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
		Max.	Min.	Max.	Min.	Mean				
Thurs. 11	4	29.774	29.374	42	28	35.0	39	40½	N.W.	.23
Friday 12	5	29.624	29.327	46	30	38.0	40	40½	S.W.	.18
Satur 13	6	30.078	29.638	55	30	42.5	41	41	S.W.	.00
Sunday 14	7	30.278	30.080	55	38	46.5	42	41½	S.W.	.00
Mon. 15	8	29.922	29.776	54	43	48.5	43	42	S.W.	.05
Tues. 16	9	29.735	29.685	51	29	40.0	43½	42½	W.	.04
Wed. 17	10	30.074	29.882	43	25	34.0	43½	43	N.W.	.03
Average.		29.926	29.680	49.4	31.8	40.6	41.7	41.5		.53

Feb. 11—Frosty and foggy; overcast; frosty; rain.
— 12—Rain; densely overcast; slight frost.
— 13—Boisterous; densely clouded; clear at night.
— 14—Clear; very fine, overcast.
— 15—Densely and uniformly overcast; brisk S.W. wind; rain.
— 16—Drizzly; fine, with clouds; clear at night; rain; slight frost.
— 17—Fine; cloudy and cold; clear, frosty; rain.
Mean temperature of the week 3½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Feb. 27, 1864.

February	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	46.8	32.3	39.5	18	0.20 in.	3	7	4	6	1	10	6	1
Mon. 22	46.5	32.2	39.3	17	0.29	4	3	6	3	1	12	6	3
Tues. 23	47.2	31.8	39.5	13	0.44	4	4	7	2	1	10	7	3
Wed. 24	46.8	32.7	39.8	17	0.60	1	5	6	3	7	6	4	7
Thurs. 25	47.4	32.7	40.1	19	0.92	2	5	7	—	6	10	5	3
Friday 26	47.3	33.4	40.3	20	0.48	4	6	5	1	4	7	8	3
Satur. 27	48.0	33.6	40.8	18	0.40	3	6	4	2	6	8	6	3

The highest temperature during the above period occurred on the 27th, 1848—therm. 62 deg.; and the lowest on the 24th, 1860—therm. 18 deg.

Notices to Correspondents.

Bombyx Cynthia: *A Correspondent* wishes to know where he can refer for information about the mode of getting a supply of cocoons of this insect for the Cape of Good Hope? Can any of our readers assist him?

Books: *L R.* We know of no better hand-book on Timber Trees, with instructions for planting, thinning, &c., than Brown's "Forester."—*British Botanist* cannot do better than procure the new edition of "English Botany," by Mr. Syme, if he can afford it.—*J T.* Standish's Treatise on the Cultivation of American Plants may possibly answer your purpose.

Canker: *W A.* A composition of cowdung and soot, with a little lime and clay to give it body, is sometimes applied with advantage, the diseased parts being first carefully cut away. Our friend Mr. Rivers recommends a biennial removal of the trees, as the only cure for canker.

Cineraria: *E F G.* No satisfactory opinion can be formed from shrivelled flowers as yours were. You should have sent a sprig in a small box with slightly damped Moss. As far as we can see the colour is good—a rich crimson self, and the florets seem broad, smooth, and free from notch, but the blooms appear to have the defect of a grey eye. The question of merit hangs very much on the habit of the plant.

Fish Mould: *T G.* The mould upon your dead fish ova is Saprolegnia ferax, a production which we believe belongs to the Fungi, though it is often associated with Algæ. You will find an account of several of its allies in the Intellectual Observer for April next. *M J B.*

Fungi: *C L Paxtonia.* Your Fungus is Geastrum fimbriatum, as far as we can judge from the sketch. None of the species are common. *M J B.*

Ladies' Prizes: *E A M.* The only condition, as you will see from our remarks last week (p. 147), and an advertisement which appears to-day, is that the plants shall have been fairly produced by the exhibitors. It will, therefore, not be necessary that they should be grown, *i. e.* reared from the seed or cutting-pot, but simply that they should be grown on into shape and size, and in the case of flowering plants brought into blossom. Three months' possession will be ample qualification, but even so much as this is not imposed.

Names of Plants: *Jane.* 1, Adiantum cuneatum; 2, Adiantum Capillus-veneris.—*E H.* 1, Epacris nivalis; 2, Epacris grandiflora; 3, Acacia longifolia.—*J B C.* The common Snowdrop, not Galanthus plicatus.—*W S.* It appears to be nothing but Cyrtomium falcatum.—*W.* 5, Ceterach officinarum; 6, Asplenium Trichomanes; 7 and 8, slightly different forms of Lastrea Filix-mas.—*J B.* Ornithogalum scilloides, the Onion plant of window gardeners.—*T S.* Clematis balearica.

Oak Galls: *G.* Your galls are the same as those described in our volume for 1860, p. 72, where you will find a woodcut illustration of them.

Renovating an Old Garden: *A H.* We cannot advise you so well as would a good practical gardener on the spot. If the soil is full of humus and in the usual condition of old garden soil, the dressing of old lime rubbish you propose would be beneficial; but we do not quite gather that this is the case. The lime dressing would certainly not destroy wireworm: if that is troublesome, we should recommend a good dressing of spirits of tar in autumn. Parsnips and Carrots are apt to grow forked on badly worked ground. You cannot probably do better than have the ground well worked and sweetened by rough trenching in winter; and as the subsoil is clay, take care that it, as well as the upper soil, is well drained. The lime would doubtless be a useful application to the meadow land.

Royal Horticultural Society's Garden: *Windsor.* We wholly disapprove of the recent proposals; but it is not we, it is the Fellows themselves who must stir, if anything is to be done.

Vines: *J W.* If your five-year-old Vines are in health and vigour, as they ought to be if the border is satisfactory, and if moreover, they are of hardy constitutioned sorts, we should advise you to inarch them with the kinds you wish to substitute, in preference to planting young Vines, which would take longer time to become established. You might do one-half this year, and the rest next, with but partial loss of crop. The stems of the inarched Vines might be allowed to bear a moderate crop of fruit, as well as to carry the graft, and the graft itself should become a strong well-ripened cane as long as the rafter by the end of the season, if properly cared for, and might bear moderately the following year. But this depends on the vigour of the plants. You could make up with pot Vines for a couple of seasons.

Water: *Aqua.* The water from your proposed shallow well, containing 26 grains of salts of lime to the gallon, is scarcely more affected in this way than Thames water, which according to Solly contains from 17 to 24 grains in every gallon, of which at least 15 grains consist of the carbonate. Probably that from your stream would not differ materially. Softer water is, of course, preferable for gardening purposes, and if you can secure a supply from rain, collected either from buildings or the ground surface, that will be best of all; but from our experience of Thames water we should say you may use the well water with little inconvenience, especially if it is, as it should be, aërated. It ought not, however, to be used for syringing, as it will leave a deposit on the foliage. The lime will not be precipitated by exposure in a tank.

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J. BAILEY DENTON, M. Inst. C.E.—On DRAINAGE.
Professor J. MORRIS, F.G.S., of University College, London—On GEOLOGY.
JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
JOHN THORNHILL HARRISON, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
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The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.
The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.
The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.
One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.
ALFRED BREWIN, Manager.

Present Prices of Farm Seeds.
THE NEW FARM SEEDS are NOW READY, at Reduced Prices.
PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Good Clover Seeds at Market Prices.
SUTTON AND SONS have now ready, at very moderate prices, fine new RED, YELLOW, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a PRICED LIST of which may be had Post free.
Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ALSIKE HYBRID CLOVER—PERENNIAL RED CLOVER—TRUE PERENNIAL WHITE CLOVER.
The above kinds of CLOVERS will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASS SEEDS for IMPROVING OLD PASTURES.—Many Old Upland Pastures, Parks, and Meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses, in which case we are in the practice of furnishing such sorts only as are wanting. If the Seeds are *sown early in the Season*, the improvement in the Pasture will be very considerable, and at a small expense. *Quantity of Seed required, 8 lbs. to 12 lbs. per Acre. Price 9d. per pound.* Carriage free.
Address SUTTON & SONS, Seed Growers, Reading, Berks.

RICHARD SMITH'S RENOVATING GRASS SEED should Now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
RICHARD SMITH, Seed Merchant, Worcester.

The Agricultural Gazette.

SATURDAY, FEBRUARY 20, 1864.

WE have received from Messrs. JOHN FOWLER & Co., of the Steam Plough Works, Leeds, the following communication referring to the correspondence between Messrs. HOWARD of Bedford and Messrs. EASTON & AMOS, of which the substance was given in last week's *Agricultural Gazette*:—

"In the letters that have passed between Messrs. EASTON, AMOS, & Co. of London, and Messrs J. & F. HOWARD of Bedford, we find that our Firm is especially referred to as being the cause of the controversy. We beg to say that Messrs. J. & F. HOWARD are entirely in error in their assumption, as we have not had any business transactions whatever with Messrs. EASTON, AMOS, & Co. either as a firm or individually."

THE MAINTENANCE of the PRIZE SYSTEM in the machinery department of the Annual Agricultural Show, which was the subject of a recent letter by Mr. GARRETT in these columns, and which had been one of the subjects examined at the meeting last December of the Society of Arts, must, it is plain, be discussed with reference merely to the interests of those who use the machinery in question. No matter what its effect may be upon the manufacturer—entailing, though it should, useless and immense expenditure on the established firms who no longer have to fight their way towards the front—or cheering, it may be, the younger firms who may by its aid be struggling upwards, the system must be maintained or abandoned, according simply to the interest of the farmer. It is for him that the Society exists, and by his interest only must its conduct be regulated. If therefore it can be shown that the award of prizes stimulates or guides the manufacturer to the construction of improved implements, or if it can be shown that the award stimulates or guides the farmer to the purchase of improved implements, then clearly the policy of awarding prizes is defensible as a most serviceable part of the Society's operations. On the other hand, if it should appear on inquiry, that whatever the tendency of the system in former years when the trade was entirely local, and manufacturers did not compete with one another, it now adds nothing to their natural rivalry and competition—does not distinguish the best machines, nor guide purchasers aright—then we imagine that whatever else may be claimed for it the system must be abandoned. It does not answer the purpose for which it was instituted, and some other plan of serving that purpose must be devised.

What then are the facts? And first we must confess that they have already sufficiently instructed us; and our classification of them, therefore, unavoidably takes the form which naturally follows on the lesson which they teach:—

1. First of the examples of implements introduced by manufacturers, and largely bought by farmers, notwithstanding adverse awards.

Of CAMBRIDGE'S roller thousands were sold before its merits were recognised by a prize.

Of BENTALL'S broadshare we understand that many hundred testimonials to its merits were published before it was in any way recognised by the Royal Agricultural Society.

SMYTH'S corn drills are in more general use than those of any other maker; and though always in the background so far as prizes are concerned, he is still, we believe, by far the largest drill maker of the day.

GARDNER'S Turnip-cutter was sold by tens of thousands before receiving a prize.

SMITH'S and HOWARD'S steam cultivators have always been put into the background at Society competitions; but they have made their way nevertheless.

2. Another class of facts illustrative of the small use of prizes as a guide to purchasers, includes the many examples in which the award of prizes has failed to produce a sale. The ULEY cultivator and BIDDELL'S scarifier, rivals in the earlier days of the Society, and both at times successful, have never obtained general adoption. NEWBERRY'S dibbling machine, rewarded more than once, is nowhere. The ULEY spiral chaff cutter, COLEMAN'S expanding harrows, SAMUELSON'S digger, BENTALL'S dibble, GARRETT'S drop drill, FOWLER'S small Leeds steam tackle—all these illustrate the position that those who award the Society's prizes, whether from wrong judgment on their part, or the slight value put on their judgment by the outside public, have had little influence in guiding purchasers. It is also a fact belonging to this class that Messrs. HOWARD, of Bedford, who in 1856 took all four of the first prizes for ploughs at the Chelmsford meeting, have never sold 20 ploughs within a radius of 10 miles of the place. And we are informed that Messrs. RANSOME, who took all the plough prizes at the Southampton meeting, have in like manner never obtained a footing there.

3. The influence of the prize system on the fortunes of competing firms is another point which should illustrate the power and value of it as a guide, both to manufacturers and purchasers. We believe it will, on inquiry, be found that it has had very little influence indeed on the fortunes of competing firms. Certainly there are many who can be named as having succeeded in spite of adverse awards. Messrs. CLAYTON & SHUTTLEWORTH, who make we presume as many agricultural steam-engines as all other makers put together, have hardly ever stood first in the Society's competitions. Messrs. RANSOME and Messrs. GARRETT were great firms long before the annual competitions commenced. The growth of Messrs. HOWARD'S manufacture took place during the time when year after year they were beaten at these meetings. Good work, cheapness, fitness for the operation to be done by it, will, when backed by ENERGY, always sell a machine, whether it be decorated by a prize or not.

What, then, is the reason that so many facts are forthcoming to throw doubt upon the policy of awarding prizes? There can be but one:—*They do not tell the truth.* Here, more than on any other course we know, the prize is earned by the jockey rather than the horse. It is the ploughman as much as the plough; the stoker as much as the engine; the feeder as much as the threshing machine or chaff-cutter, by whom the prize is won. Or if it be the implement whose merits are thus by good jockeyship exhibited, the machine is itself made and *trained* for a racing trial, and not for the ordinary rough usage of the field, the farmyard, or the barn. Farmers know what they want better than the engineers or professional men who record the performance of the machine during a few hours' trial; and they are not likely to be much influenced in their judgment by the result of a short race.

If the Society wish the annual award of prizes to be influential for good, they must take greater pains to be sure that it is truthful. And therein perhaps lies the true solution of the differences between them and the exhibitors.

We do not for an instant dispute the uprightness of the awards—no one doubts the justice of the judges. The point on which doubt has arisen, is the justice of their awards, and that has been owing to the lack of adequate evidence before them on the point in dispute. And no one can suppose that adequate evidence will ever be forthcoming from the short trial of an agricultural machine under one set of circumstances. Let then the evil be remedied by improving the trials on which the judgment is formed. That will be the best possible solution of the difficulty. It is very probable that the leading exhibitors may wish the trials given up altogether. But we naturally look with very great suspicion on their prejudices in such a matter; and if by any extension of the time of

trial, by the substitution of reports for premiums, by an examination of machines upon the farm rather than on the trial ground, trustworthy results can be obtained, we are not likely to listen to any protest from them; nor, indeed, is it probable that any protest from them would then be offered.

Meanwhile it is well to bear in mind that it is not the trials as now conducted that gathers the extraordinary collection of implements and machines every year to the Society's show yard. It is the hope of trade. There never was a greater show than at Battersea, where no prizes were awarded. There had never been such shows of implements at the Bath and West of England Society's as since they gave up their prize list altogether. And lastly, although it is only to one class of implements out of four that the prizes of the Royal Agricultural Society are each year awarded, yet we defy any one, after a mere examination of the show yard, to declare which is the class in question —the other three are always equally represented.

It may amuse our readers to learn how the prize system is regarded by the enterprising promoters of agricultural meetings in some parts of the Continent. An exhibition of farm machinery is to be held at Breslau on the 10th, 11th, and 12th of May. Certainly the offer of a careful adjudication of merit is no part of the inducement offered to English manufacturers to exhibit. Nevertheless, after specifying the conditions on which standing ground will be given to machines, the circular, although intimating that no prizes will be given, declares—"10. If, however, the exhibitors wish for a judgment of the different articles, this will be done by a jury, *and charged for extra!*"

A LONG letter, for which we have not room, has been addressed by Mr. SMITH, of Woolston, to the Council of the Royal Agricultural Society, in which he protests against the trials of steam cultivators, and the consequent award of premiums at previous shows; and intimates that he does not intend to compete at Newcastle. He recommends that the trial at the annual country meeting should have for its effect simply the selection of those machines which may be worth further examination; and that the more serious work of determining the relative merit of these should be adjourned to the Society's "Home Farm," where a year's xperience if necessary could be obtained.

We certainly hope that no such scheme as a home farm under the Society's management will grow out of this suggestion. The Society teaches nothing by example—and a very good thing too — for its best examples would be certainly outvied. It has no home farm—no model stock, or crops, or implements, or schools. It rightly leaves all this in the hands of men "whose business it is." *They* are urged by necessity and rivalry and personal interest—any of them a stronger motive for exertion than any which the Society could bring to bear upon its servants or its representative, if it should adventure teaching by its own example. It therefore wisely confines itself to teaching by mere precept, using, however, as its chief engine the examples of its members in their individual capacity; and adding such stimulant to the ordinary motives here as its offered prizes may supply. It does not breed good stock, but it offers premiums for good stock, and thus stimulates those who do; it does not manufacture implements, but it offers premiums for good machines, and is thus supposed to stimulate those who do; it does not teach veterinary surgery and medicine, but it presents an annual subsidy to the Veterinary College, and this too it is to be hoped stimulates those who do; it does not teach young men how to farm, but—we should be glad if it were here, as in the other instances, in our power to add that it offers scholarships or premiums as a stimulant to those who do. This, however, certainly *it ought to do.*

Meanwhile, as regards the steam plough trials to which Mr. SMITH takes exception—and to which we believe all the other competitors also take exception—it is plain that the real thing of which we want a full report is the behaviour of the several machines, not upon the Society's home farm, but upon the 500 home farms all over the country, where steam cultivation has been adopted, and where an experience, varying from one to six or seven years' exists.

It is a full report of the everyday experience of the steam cultivator, not a record of the behaviour of the rival implements during 10 hours of a high pressure trial, that is desired. This full report we have not got as yet. The weekly agricultural papers have done, and are doing their best to supply the missing information; but the Society has as yet done nothing. Its reports upon the subject hitherto have been little more than a collation of the information already given to the public in the weekly journals. They are thus exceedingly imperfect; and far from an adequate representation of the truth. And they are likely to remain so, for neither weekly papers, nor, as we have every reason to know, a book upon the subject, will bear the brunt of the expenses connected with the preparation of the full report that is required.

It would tend more to stimulate manufacturers —much more to furnish good guidance to agriculturists—if the Society would commission a report of steam cultivation over say 100,000 acres, which might be drawn up from actual inspection during the ensuing spring, than will be done by all its trials and examinations during a few days once a year for the award of a prize, or than can be done by any more elaborate examination on a home farm, as Mr. SMITH suggests.

PLANT IMPROVEMENT.

To your Number of the 6th inst., Mr. Patrick Shirreff, of Haddington, contributed an article entitled "The Improvement of Agricultural Plants," which, however, was in fact, neither more nor less than another attack upon "Hallett's Pedigree Nursery Wheat," and upon Professor Buckman for daring to believe in it.

I do not know whether Professor Buckman did me the honour to write the article in "Morton's New Farmer's Almanack for 1864," which Mr. Shirreff says "may justly be regarded as an advertisement of Hallett's Pedigree Nursery Wheat," and not having seen the article I cannot say if it merits that description, but Mr. Shirreff's article certainly must be regarded as an evident advertisement of his own.

I am not the person nor is this the place to deal with Mr. Shirreff's use of the very serious words "imposition" and "fraud." I pass on at once to really consider the important public question of the improvement of cereals, which he has left entirely untouched.

My system of effecting this is founded upon three facts, which I have had to ascertain for myself. Before stating them let it be borne in mind that the comparative powers of grains can be tested only when they are so planted as to be able fully to develope them.

These three facts, which I am in a position to prove, are:—

1. The grains of cereals differ in their powers of productiveness.
2. Their descendant plants and grains inherit more or less the characteristics of their respective parents.
3. These characteristics may by selection be so often repeated as to become fixed characteristics of the plant.

As no two grains will give precisely equal produce, there must in any given quantity be one best; and, again, among its produce there must annually be one best grain; the "best" grain being that one whose descendant plant and grains most nearly approach the standard fixed upon.

Now, a "pedigree" cereal is one descended from a line of such proved best grains (having started from a single one in each successive year), and its record having been kept, is strictly and literally just as much entitled to the name as is the Duchess family of improved Durham cattle.

I will give an illustration of fact No. 1, the difference in the powers of grains; and to make it stronger, I have chosen one which shows this difference, not among grains from an ordinary sample which might have contained 20 different varieties, but between those of the different ears of the same plant, and even between those in the very same ear.

The grains of a plant of ordinary Wheat, itself grown from a single grain, were planted singly a measured 9 inches apart every way, in such a manner that the grains of each ear were kept separate. The following are some of the results, which illustrate our present proposition as well as if I gave the whole, which covers with a dense mass of figures two sheets quarto.

PARENT, 1862.		PRODUCE, 1863.				
Number of Ear.	Classification.	Ears per Plant.	Grains per Ear.	Grains per Plant.	Weight in Grains Troy. Grains per Plant.	Per 1000 Grains of Wheat.
3	Grains not classified	33½	37	1239	847	684
2	Smallest grains ..	21½	34	730	482	664
	Largest grains ..	22½	33	737	468	635
1	Smallest grains ..	18½	34⅔	636	419	660
	Largest grains ..	27	30	810	572	707

Here the grains of one ear were 50 per cent. more productive than those from either of the others, and 100 per cent. more so than the smallest grains of one of the others, while in the case of ear No. 3 there is a difference of upwards of 30 per cent. between the powers of its two classes of grains.

I may mention that the results are obtained thus:—Each plant is pulled up with the roots and labelled, its ears (in a single plot many thousands) are counted, and their number recorded, their produce threshed and cleaned separately, and the grains produced counted and weighed.

My next case will illustrate "facts No. 1 and No. 2" —the difference in the powers of productiveness in the form of weight per bushel, and the inheritance of superiority.

A plant of Chevalier Barley grown in 1862 from a single grain consisted of 50 ears. The record in 1862 against one of these ears, No. 8, is as follows, after minute descriptions: "An extraordinary ear, all of whose grains are short, plump, thin-skinned, and beautiful, while there is a general tendency in the grains from all the other ears to elongated grains whose colour is not so good, and whose skins are thicker." The grains from the best 10 of the 50 ears and those from the remaining ears were planted separately, making 11 divisions, each of which was divided into two classes at planting, and there were thus 22 divisions in all.

I have a sample grain and ear from each of these 22 divisions placed in open tin boxes arranged together so that the whole can be seen at a glance. There is a great difference between them, scarcely any two being alike. An eminent Barley buyer and maltster upon seeing them selected as the best the sample from Class I., grains of No. 8 ear, the one which had shown such marked superiority in the previous year. The following results give proof of its superiority. All the plants were taken up at the same time under precisely similar conditions, and preserved in zinc cases from every chance of accident.

PARENT, 1862.		PRODUCE, 1863.	
Number of Ear.	Classification.	Description.	Weight per Bushel, Pounds Avoirdupois.
8	Grains, Class 1	Sample just as grown	56.32
All the other Ears	do. do. 1	ditto	54.20
	do. do. 2	ditto	52.50

Showing a superiority of nearly 3 lbs. weight per bushel in the produce of No. 8 over that of the rest of the ears taken together. This is upon a soil usually producing Barley weighing 51 or 52 lbs., and generally cereals grown here weigh 2 or 3 lbs. per bushel less than when grown upon suitable soils of good staple.

The similarity of the Pedigree Wheat in ear and grain in widely different parts of the world, illustrates "fact No. 3." To return to Mr. Shirreff: he seems unable to understand that breeding is anything but the "controlling the union of the sexes," and regards this as the end itself instead of a mere means to that end. He writes:—

"There being male and female sexes with animals, the farmer can alter the character of his stock by the selection of breeders. Cereals are hermaphrodite with sexes in the same flower, where their union cannot be controlled. In the breeding of animals the farmer's interference is reasonable and beneficial; but in breeding cereals it is unnatural and seldom successful."

Now the end is in both cases precisely the same, viz., to obtain the best descendants.

The breeder of cattle employs as a parent an animal having certain "points" in the hope that the progeny will inherit them.

I select the progeny itself, which actually does possess the points required, as a proof of its parent grain having been a good one for my purpose (although when I planted it I did not know it), and I humbly thank Mr. Shirreff's "nature" for having "controlled the union of the sexes" much more successfully than I probably should have managed to do.

The cattle-breeder unites two parents, hopes for the best, and takes the one he gets (or nothing); I plant one parent, take from its thousands of descendants the best one, and throw the rest away. *Frederic F. Hallett, Manor House, Brighton, Feb. 9.*

(To be concluded next week.)

THE VEGETABLE MOULD.

FERTILITY (the existence or production of the higher orders of organic life, vegetable and animal) depends upon the presence of five provisions or accessories: 1st, proper admixture of earths; 2d, vegetable mould; 3d, water; 4th, air; 5th, sun's rays and bottom-heat.

1st. A suitable admixture of those earths required by the plant to build up its structure or frame in sufficient strength, and also to retain the necessary moisture and give a certain amount of adhesiveness to the soil. Of the various earths necessary to plants, silex is essential to strengthen the exterior or rind in the Gramineæ and Cereals, the Equisetaceæ and other families having a soft or open interior of stem, and therefore require a hard exterior. Iron seems also to exert a strengthening power in some families. Argil or clay is required for the preservation of moisture, and to give an adhesion to the soil necessary for many plants. The other abundant earths, lime and magnesia, are especially necessary to Legumes, more especially to Clovers; they also act to repress Fungi and other small parasites, and as a stimulant to bring effete organic matter into operation, their alkali neutralising the preservative acid of peat. The other mineral, or what are termed mineral constituents of plants, chiefly potash, soda, phosphates,

sulphates, &c., may be applied as especial manures to especial plants, known by an analysis of the kind of plant and also of the soil; but of the latter with no great certainty, as the mineral may exist in the soil in such a condition or combination that the plant cannot absorb it. Hitherto the empiric mode, that is actual trial and general experience of the effect, have proved the best guide. In fact, the science of the chemist has done little to forward agriculture. The production and application of small manures has been chiefly empirical, and even the use of these, as generally employed, of doubtful ultimate utility.

2d. An accumulated vegetable mould, consisting of the remains of former organisms and mineral earth. The accumulation of vegetable mould now existing has been going on for unknown periods, ever since the present configuration of the earth's surface, that is, where it has not been washed away by water or exhausted by man's culture, but though of slow formation it can be got rid of in a few years. The exhausted sterile condition of most of the once fertile land in the eastern States of North America, denuded of the vegetable mould by aëration, shows that it is pre-eminently the food of plants. Man may be defined the only vegetable mould-destroying organism, hence ought to be termed *humanus destructor*. Yet he does this in ignorance, that without a vegetable mould, neither man nor the higher animals could have been developed or could continue to exist.*

3d. Water is of the first necessity to organic life, as the chief component, as holding, assisted by an acid, most of the constituents of vegetables in solution, as floating the molecules in their vital courses, and in preventing the organism from withering under the drying atmosphere and sun exhalation. River water, skilfully employed in irrigation under sufficient temperature, with such help as it receives from the soil, seems to supply without manure all the nutriment required by plants. Water constitutes about three-fourths of plants. In the fields of nature, water as well as air is the element or field of life both to plants and animals, in both elements rising from the lowest forms to the mammals. In plants some kinds, the Water Ranunculus for example, have a pliancy of character to both water and air on the same root or even the same branch, with leaves differently formed adapted to the different element. Some animals have also a power of adaptation to either element. This affords a most striking fact in support of the adaptation-development theory. The Ivy leaf, so different on a wall or clinging to any thing, from what it is on a self-supported Ivy branch, affords another example of adaptation. Also in some Australian trees of different kinds grown in this country which rose from the seed with fine pinnate leaves like our Acacias, as the plants got older the pinnate leaf did not expand, though an abortive attempt was often made to do so, but a portion of the leaf-stalk spread out into a large simple leaf, with this peculiarity, that the leaves have both sides the same, and generally stand perpendicular to the horizon.

4th. Purity of atmosphere. This is essential in our climate to the families of plants which supply food to man and to the higher animals. A dank still atmosphere abounding in putrid exhalations, is only suited to the lower order of vegetables, Mosses (Musci), Mushrooms (Fungi), &c. Where such an atmosphere prevails, the cereals and most of the fruits and tubers are much injured or destroyed by these diminutive parasites. The larger Fungi are produced where putrescence is in excess, and taint the atmosphere with unwholesome effluvia; instance the dry rot (Merulius lachrymans), phallus fœtidus, &c.

The atmosphere contains probably a minute quantity of all the minerals in some of their combinations in the gaseous form, often discernible by the sense of smell, though not discoverable in the atmosphere by ordinary chemical tests. The deep deposits of Peat Moss, sometimes it is said 50 feet thick, often covered with bog-iron ore, I think demonstrates this. Moss accumulates in places which do not receive the washings of other grounds, and except from the atmosphere it is rather difficult to say from whence the minerals are derived. It is barely possible that the minerals of the Moss deposit rise from the ground, dissolved in water, by capillary attraction, as the course of water is rather to descend in the Moss.

5th. A supply of the necessary heat, light, and other constituents or impulses of the sun's rays. A considerable exposure to the sun's rays seems necessary to the higher land vegetables and animals. It is said that mothers, passing much of their time in the dark casements of fortresses, have often children with malformation, as if there was a disposition to sink in the grade of life. This leads us to conceive that in former geological eras, from a greater amount of bottom heat, steaming vapour may have greatly abounded, veiling the earth with a dense covering of cloud from much of the sun's rays—hence the earth only fitted to a lower fauna. I have often wished to try the effect of a considerable increase of the sun's light, pure and divided, by means of reflectors, &c., upon vegetables and animals, as a means of producing variation, and many years ago endeavoured to get the late Mr. McNab, of the Experimental Garden, Edinburgh, to experiment upon it.

It is interesting to mark the different types of life which exist in the wilderness from the Polar to the Equatorial regions, caused by the difference in intensity of the sun's rays and heat. This gradual change through the different degrees of latitude, from the hyperborean Mosses, Lichens, Grasses, Willows, Pines, Birches, to the Palms, Cacti, Mimosas, Lianas of the tropics,—the whole series show how strongly circumstances have operated upon organic life. *Patrick Matthew, Gourdie Hall, Feb.* 1, 1864.

* Baron von Liebig will allow me, as an experiment, to skim off (in imagination) the vegetable mould to a depth of 10 inches from the entire of Germany, from the Vistula to the Rhine, and I will guarantee that a civilised people, raising their own food, could not exist in Fatherland—even with the chemical aids which a thousand Liebigs could give. This earth cover of vegetable mould being removed, only a few kinds of forest trees and some Legumes, Heaths, Cudweeds, poisonous Equisetaceæ, Lichens, and the poorest stunted Grasses, could exist for ages to come,—the whole wide region only fitted for a few roaming savages, obliged to eke out a subsistence for a part of the year as of yore, by mollusks (shell fish) procured on the more productive sands of the North Sea. Hereafter, on the Brocken, the summit of the Hartz, on *Walpurgis Nacht*, amongst the scattered masses of the lightning rifted rocks, the begrimed spectres of Liebig and his goblin followers might be seen, by the glare of their lurid fires, labouring with their furnaces and crucibles to prepare pure minerals for the food of the cereal plants. To this penance, for a thousand years, had the Cereal Goddess doomed our presumptuous chemists for *læsa majestas*, for the attempt to subvert her throne, the Vegetable Mould. Baron Liebig will pardon me for this play of fancy—a suitable reply to his Papal infallibility and denouncement of heretics in his letter to me of 10th July last. A considerable portion of the contest betwixt us is one of words. Liebig launched his theory under the name of mineral theory—that minerals alone constituted the food of plants, and when he found this untenable under the usual acceptation of the term "mineral," he now endeavours to protect himself and his theory by terming all the food the plant receives from the soil, even the volatile alkali, as mineral, including my vegetable mould! Now this appears to me to be a shuffle. Sinking this contest of words, the real difference betwixt us is this,—Is it profitable in agriculture to prevent the exhaustion of the vegetable mould, Nature's prepared seed and growth bed, or is it not? Can the supply of food of plants be chemically prepared by man of such a quality and admixture as to raise sufficient food for a dense population, when what is termed the vegetable mould is exhausted, and nothing but pure mineral earth remains? In as far as the work of Nature—of the Creator—surpasses the work of man, so far, I expect, will the vegetable mould prepared by Nature as the seed and growth bed of plants, excel what can be prepared by man. I will revert to this very important subject. *P. M.*

A WEEK UPON THE COTTESWOLDS.

STEAM CULTIVATION ON THE ROYAL AGRICULTURAL COLLEGE FARM:—Fowler's apparatus has been employed here since September, 1861. Including a 10-horse power engine, plough, water cart, ropes, &c., it cost 840*l.* upon the farm. A cultivator has since been purchased, at a cost of 75*l.* The record of its performance is before me, beginning with "20 acres ploughed in 30½ hours during 4½ days," early in October, 1861, with a consumption of 2 tons of coal, and at a cost of 3*l.* 2*s.* for labour, 4*s.* 6*d.* for oil, and 4*l.* for wear and tear (an item charged at the rate of 1*l.* per diem). The expenditure was thus 4*s.* 8*d.* per acre in immediate outgoings, or 8*s.* 6*d.* per acre including wear and tear. The next memorandum is "21 acres ploughed in 4 days" (including the moving of the apparatus), at a cost of 4*s.* 3*d.* per acre, or 7*s.* 7*d.* including wear and tear. These two fields were worked with the aid of accustomed hands from Leeds. During the following five days upon a neighbouring farm only 11 acres were ploughed in 39 hours, at a cost of 5*s.* 2*d.* per acre, or 12*s.* with wear and tear, notwithstanding the coals were provided. And now we read for the first time of accident—anchor "flying out," &c., the result of mismanagement and inexperience. On the same farm another 11-acre field took 40 hours during six days, and costing 9*l.* 5*s.* 6*d.* in all or 17*s.* an acre (coals being paid!). We then read of 18 acres accomplished in 47 hours during eight days, costing 13*l.* 8*s.* 9*d.* for everything, including 1*l.* a day for tear and wear, or 14*s.* 6*d.* per acre.

The record proceeds, showing very fairly continuous work considering the lateness of the season. Ten acres done in 22½ hours in five days, including a removal, for 8*l.* 12*s.*, or 17*s.* an acre; 14 acres ploughed in 29 hours on five days, for 11*l.* 0*s.* 10*d.*, or about 16*s.* an acre; 18 acres ploughed in 29 hours on five days, for 9*l.* 13*s.* 10*d.*, or about 10*s.* an acre; and 12½ acres ploughed in 26½ hours on five days for 8*l.* 2*s.* 3*d.*, or 13*s.* an acre. This was during the last week of 1861, the engine having been employed during every week of the last three months of the year on 48 days, ploughing at various depths 137 acres at a cost, including tear and wear, of about 84*l.*, or 14*s.* 6*d.* per acre. The following are the remarks of the superintendent on the autumn work:—

"In reviewing the history of the steam-plough on the College farm several important facts stand out. Unusual difficulties have been encountered from the rocky nature of the subsoil. The want of uniform depth of soil, even in level fields, will always be a serious impediment to cultivation by steam-power on the Cotswolds. Again, a fertile source of delay has been the want of sufficient strength in some of the working parts of the implement; the plough drum smashed on Mr. Lawrence's farm, and there were frequent breakings in the links of the chain strap. Thirdly, the construction of the anchor is defective, as shown in the frequent draggings of it, causing a most serious and vexatious delay. Lastly, we unwillingly came to the conclusion that our power is unequal to all the work we may have to do. A 12-horse power engine would have been better for us—less coal and less wear and tear would have resulted.

On this it is necessary to remark that the parts referred to as defective in 1861 have since been strengthened, and the faults then pointed out have been remedied; that the flying out of the anchor is a result in general of mismanagement; and that one great source of increased cost is owing to working the apparatus during the short winter days. The following is a specimen of the daily memoranda, partly, no doubt, in consequence of this:—

Nov. 20.—The moving took a long time to-day, consequently we did not start till late. Ploughing 6 inches deep, with four ploughs (ploughed 2 hours). *Nov.* 21.—The ploughing did very well, but owing to the rockiness of the land we broke two skifes and three shares, which delayed us the rest of the time, except an hour lost from mismanagement of the rope on the plough drums. The rope slipped off the drum, and got between the spring and the chain (ploughed 5 hours). *Nov.* 22.—The ploughing, from the rockiness of the ground, was altered to 4 inches, and did very well, except in one place, where there was a little slope, which made it difficult to keep it in its place, as the rain was falling, and made the land very slippery. We were obliged to stop at 12 o'clock, as it continued to rain very heavily. From the carelessness of the porter boy we broke the handles and one wheel of a small porter. We also broke a share. We were delayed putting out the headland rope for the engine, as it got too wet for it to travel by itself (ploughed 4 hours). *Nov.* 23.—Owing to a steep slope in the field we had to change the headland rope of the anchor from drawing it in front, and put it behind to keep it from going too much down hill (ploughed 6½ hours). *Nov.* 25.—The ploughing went on well, though we took some time about it as the time was so short. We broke a share. As soon as we finished we moved into No. 13, but were not able to get the engine quite back in its place, as the linch-pin belonging to the hind wheel broke. We found the spring of one of the little wheels that keep the rope in the clip drum broken."

In these five days 10½ acres were ploughed in 22½ hours, 2*l.* 1*s.* 4½*d.* was paid in wages, 2 tons of coal were consumed, 4*s.* 6*d.* was spent in oil, and 4*l.* 5*s.* was charged for wear and tear. The total cost was thus 8*l.* 12*s.*, or 17*s.* an acre. This, it is plain, was not a profitable operation. Its failure is attributable to some extent, no doubt, to the character of the work, and to the weather of the week, but it was in the main owing to the shortness of winter days and to the inexperience of the hands employed.

The apparatus commenced work again in 1862 on a neighbouring farm on Feb. 14, and made better work than any hitherto quoted, doing 15 acres in three days. Very soon, however, we come upon another illustration of the liabilities which its promoters incur, especially when taking work on hire.

MARCH 15.—Saturday, fine day, roads dry; travelled to Preston; entering gate of field the forewheel caught on post, and swinging round broke one of the discs that keep the rope against the clip drum. After much trouble and sticking got into position and commenced to plough at 2, P.M., but soon stopped, as the anchor would not work. A pin had broken. Got the smith to drill it out. Rain set in on Sunday and continued more or less for three weeks. *April* 4.—Friday. Commenced work, but land too wet. Rain at night, and on Saturday it was worse; stopped again until the 14th, when it began to work pretty well."

This pretty well illustrates the risks and disappointments to which steam cultivation is liable. The whole of the work in 1862 is thus described in the *Agricultural Gazette*, No. 19, of 1863:—"240 acres ploughed and 400 acres grubbed. Wages paid, 104*l.* 11*s.* 2*d.* Coals burned, 94*l.*; oil, 8*l.*; repairs and rope, 83*l.* 3*s.* 3*d.* Total cost about 290*l.* or 9*s.* an acre. This is exclusive of annual sinking fund or interest of capital. An average performance of about 5 acres daily during 1862 was, however, a great improvement upon the average experience of the previous autumn and winter, when short days and inexperience made work both slow and costly.

Of the performance in the spring of 1863 there is no record. Since the 18th of August, 1863, the date on which the new management made their *début*, the apparatus has been at work pretty constantly up till December 11, as follows:—

At Mr. Dewe's farm on 22 days, including removals—or at work 172 hours during these days—ploughing with the digging breasts 40½ acres in 76 hours, and ploughing with the turnfurrows 62 acres in 96 hours. This included 28 acres with the drags on as well. The whole was at a cost of 10*l.* 14*s.* for labour, and a consumption of 12 tons 8 cwt. of coal, and 2 gallons 3 pints of oil. It was 5-inch work. There were five removes; 18*l.* 5*s.* are charged for wear and tear. Mr. Dewe is charged 12*s.* an acre for this work. It was done at the rate of 5 acres a day, with a consumption of about 2⅝ cwt. of coal per acre.

At Mr. Lawrence's farm on seven days the apparatus was at work during 58 hours, and it turned over 27 acres during that time, at a cost of 2*l.* 16*s.* 6*d.* for labour, and with a consumption of 4½ tons of coal and 8½ pints of oil. It was generally a stiff soil, and the work was 11 and 12 inches deep. There were three removes. 6*l.* 7*s.* 6*d.* is charged for wear and tear, and Mr. Lawrence is charged 17*s.* an acre for the work. It was done at the rate of rather less than 4 acres a day, and with a consumption of 3⅓ cwt. of coal per acre.

On the College Farm on 35 days the apparatus was at work during 314 hours, and it turned over 59½ acres with the plough, 57 acres with the digger, and 91 acres with the cultivator—208 acres in all—at a cost of 26*l.* 17*s.* 6*d.* for labour, and with a consumption of 25 tons 7 cwt. of coal, and 7 gallons 6 pints of oil. It included fields of very various texture—light, shallow brash, and deep clay—the ploughing was about 7 inches deep, the digging was 10 and 12 inches deep, and the cultivator worked 5 and 6 inches deep—there were 11 removes—42*l.* is charged for wear and tear. The College Farm is charged 10*s.* an acre for this work.

On the whole 123 acres have been ploughed, 124½ acres have been "dug," 91½ acres have been cultivated—339 acres have been worked in 62 days at a cost of 32*l.* 17*s.* 6*d.* for coals, 40*l.* 8*s.* for labour, 3*l.* 8*s.* 3*d.* for oil, 5*l.* for blacksmith, and 3*l.* for broken fittings, or 84*l.* 13*s.* 9*d.* in all for actual outgoings, being at the

rate of close on 5*s.* an acre, which is a very good average performance. To this must be added 66*l.* 12*s.* 6*d.*, the sum of allowance already named for tear and wear, bringing the whole up to close on 9*s.* an acre. If instead of this we charge 1*s.* an acre for rope, or 17*l.*, together with 135*l.* per annum, being 10 per cent. for depreciation of value and 5 per cent. for interest of money—dividing this 135*l.* on 150 days as the probable yearly employment of the apparatus—then 73*l.* will have to be charged on 339 acres for tear and wear, or about 4*s.* 6*d.* an acre, bringing the cost of steam cultivation up to 9*s.* 6*d.* per acre.

It will be observed that the work is charged to the College at 10*s.* an acre, to Mr. Dewe at 12*s.*, and to Mr. Lawrence at 17*s.* In the case of the College Farm the charge is a mere question of account, and if the object be to keep an account which shall exactly show the value of the steam plough to the College, it is right to charge the price at which it could be done by the horses of the farm. And this, seeing that the work included not only ploughing at 5 and 6 inches but digging and stirring 10 and 12 inches, is probably what has been done. In the other two cases, of course the cost of the operation has nothing whatever to do with the fairness of the price which is charged. That depends solely upon the *value* of the work that was accomplished. Twelve shillings per acre is probably a full price for ordinary ploughing on the Cotswold Hills. Seventeen shillings is certainly a price not likely to be underbid by any rival, either horse or steam, for work 10 and 11 and 12 inches deep on adhesive soil.

The following are some of the memoranda of the autumn work:—

Sept. 11.—One hour occupied in removing the apparatus rather under ¼ a mile, two hours fixing, one hour in preparing the new cultivating implement made: fair work on Pea stubble for Wheat going less than 4 inches deep (1½ acres cultivated). *Sept.* 12.—Accomplished 10 acres in 9 hours, burning 14 cwt. of coals. *Sept.* 14.—Engine and apparatus removed to No. 29, ¾ of a mile, at 6 this morning, tackle fixed, and commenced work by 8.30 A.M., being a summer fallow for Wheat, made splendid work, accomplished 9 acres before night. *Sept.* 15.—Up tackle, and moved this morning ¼ a mile—at work before 8. Implement going magnificently on Turnip ground, preparing the same for Vetches—did 10 acres before night. *Sept.* 17.—Cultivating fallow and breaking up Rape ground behind sheep for Wheat, good work, 9 acres.

(To be concluded next week.)

A SIGNIFICANT QUESTION.

"How much per acre do you get, Mr. Mechi, for your root and green crops after paying for all the purchased food?" and sometimes when this question is asked, I observe a peculiar twinkle of the eye and expression of the countenance of my questioner, which betrays a sort of "nil" expectation.

I reply, "Here are my stock balance sheets for the last two years, and they are as nearly as possible the average of several past years." I sometimes add, "How much do you get for your green and root crops?" and the reply I get from farmers on unimproved soils is too often, "We get from 1*l.* to nothing per acre, after paying for the corn and cake." And perhaps the best confirmation of this is that dealers and others who purchase the feed will rarely give more than 1*l.* to 2*l.* per acre for a crop of Turnips if they give the animals cake, and sometimes they will give no money, only the cake—I speak now of our south and east country, not of Scotland or the north and west, where among high mountains, arresting the clouds as they pass, they have a moist atmosphere suitable to the Turnip crops, which grow there free from mildew and other hindrances of a dry atmosphere.

My brother agriculturists must not expect such results as 5*l.* to 7*l.* per acre on poor land, after paying for 20*l.* worth of purchased food consumed with each acre of green and root crops, unless they adopt a particular mode of feeding, like that recommended and practised by Mr. Horsfall (Royal Agricultural Society's Journal, vol. 18, p. 150). I have also the advantage of irrigating with my farm and house sewage about 12 acres of pasture and Rye-grass. Farmers must learn to consume all their Bean straw, and much of their other straw, and keep their animals well sheltered in bad weather.

All these tend to produce the 5*l.* to 7*l.* per acre for the root and green crops. Thus, the manure from 700*l.*-worth of imported food costs me only the necessary shelter and attendance, &c. The latter would absorb nearly all the balance left for the green and root crops. The food, even if purchased of myself, is always charged at market (not cost) price—say hay at 5*l.* 5*s.* per ton, cake and corn at market price.

With every bushel of roots there are consumed of Rape or Cotton-cake, 4 lb., bran and malt-combs, ¾ of a lb. each, and when approaching fatness some Bean-meal, say from 2 lb. to 7 lb., with more cake and some hay, or in round numbers, 700*l.* worth of purchased food is consumed, with 30 acres of green and root crops, and part of the straw of the farm. As I make farm-yard manure enough for 70 acres annually, each of those acres may be said to receive the manure from 10*l.* worth of purchased food. The 70 acres receive also the manure from the consumption of 30 acres of good root and green crops, and the manure from the cart-horse stable. Such other portions of the farm as need manure, get guano, superphosphate, nitrate of soda, and salt, with irrigation on the Rye-grass and pasture, and occasional folding.

I need hardly say that under such a system, even on my naturally poor soil, the root and green crops are very heavy.

My great object is to grow plenty of corn, of which I have 100 acres annually out of my entire holding of 170 acres.

This abundant season my crops have been heavy—8 acres of Red and 8 acres of White Wheat, sold out of the field, or rather off the stack before thatching, realised near 16*l.* per acre, the produce being 7 quarters 2 bushels per acre, grown after Peas and Beans.

My subsequent threshings from various fields have been 6½ and 6 quarters of Wheat per acre, 6 and 7 quarters of Beans, 6 of Barley, and 10 to 11 of black Oats; of this much is due to season, and much to ample manuring, deep cultivation, and drainage.

My Rivett Wheat produced 6 quarters per acre. It was grown on land which produced last year 5 quarters of Red Wheat per acre. With ample manure at our command, we may take liberties in cropping. Rivett Wheat suits our heavy land better than Barley. *J. J. Mechi.*

TIPTREE HALL.

DR. LIVE STOCK ACCOUNT. CR.

Oct. 31, 1861.				Oct. 31, 1862.			
To valuation ..	£737	18	0	By valuation ..	£749	18	8
To food bought ..	538	13	9	By live stock sold, including wool, dairy produce, and poultry ..	1299	5	9
To live stock bought	534	6	0				
To balance ..	238	6	8				
	£2049	4	5		£2049	4	5
Oct. 31, 1862.				Oct. 31, 1863.			
To valuation ..	£749	18	8	By valuation ..	£817	19	11
To live stock bought	624	0	6	By live stock sold, including wool, dairy produce, and poultry ..	1384	16	3
To food bought ..	645	11	0				
To balance to credit of root and green crops	183	6	0				
	£2202	16	2		£2202	16	2

CROPS CONSUMED (ONE YEAR) 1862-3.

12 acres of Globe Mangel
6 acres of Swedes
12 acres of Italian Rye Grass
1 acre of pasture
4 acres of Tares
The aftermath of
7 acres of Red Clover
4 acres of pasture.

MALT, DUTY FREE, BILL.

THE following is a *resumé* of the Bill brought in by the Chancellor of the Exchequer to allow the making of malt duty free to be used in feeding cattle:—

1. Any person giving security and taking out a license may make malt in a malt-house approved by the Excise for the purpose; and all malt so made and mixed with Linseed cake or Linseed meal as directed shall be free from duty.
2. The security required is a bond to her Majesty, with sureties to the satisfaction of the Excise, not to take from any such malt-house any malt except duly mixed with material prescribed by the Act.
3. The malt-house must be properly named upon its door.
4. All malt made in it shall be deposited in a store room, and shall be conveyed to and from the room upon such notice as the officer of Excise shall appoint.
5. The maltster shall provide secure rooms in his malt-house, to be approved in writing by the supervisor, for grinding the malt made by him in such malt-house, and mixing and storing the same when mixed; and all such rooms shall be properly secured and kept locked by the proper officer of Excise.
6. All malt before removal from the malt-house shall be ground and thoroughly mixed with one-tenth part at the least of its weight of ground Linseed cake or Linseed meal; and ground to such a degree of fineness and in such manner as the Commissioners shall approve, and mixed together in a quantity not less than 40 bushels at a time in the presence of an officer of Excise.
7. The maltster shall keep account of the quantity of all malt mixed as aforesaid which he shall from time to time send out or deliver from his malt-house, with the dates and addresses of the person for whom such mixed malt shall be so sent or delivered.
8. If any person shall attempt to separate any malt from any material with which the same shall have been mixed as aforesaid, or shall use this malt for the brewing of beer or distilling of spirits, he shall forfeit the sum of 200*l.*
9 and 10. The penalties of existing Acts are recited.
11. This Act shall continue and be in force for five years.

ENFORCEMENT OF OUTFALL.

I CANNOT resist the compliment paid me by the "Gloucestershire Drainer," and at once give him the information he requires on the subject of compulsory outfalls.

There are several Acts of Parliament which will give him the power of enforcing the object if he likes to resort to them.

There are the private Drainage Companies' Acts; or "The Land Drainage Act, 1861," and also, under certain conditions, Lord Lincoln's Act, as it is popularly called. By either of these Acts he can effect his purpose if he determines, come what will, to overcome those difficulties which have hitherto acted, as every practical man knew they would, as a complete veto to a fair and reasonable settlement of a proper demand.

The difficulties arise out of the obligation imposed on every applicant for an outfall, not only to pay unavoidable expenses where the object may warrant such costs, but all expenses, let them amount to what they may, in the shape of surveyor's witnesses and lawyer's bills (both his own and his neighbours), which can be shown to be legally "reasonable" for the most trifling easement. These expenses I have known to exceed the fee simple value of the land improved by the outfall.

In the last case in which I acted—the only case, as far as I can learn, of a positive compulsory proceeding under the "Land Drainage Act 1861," the result has been worse than nothing. Arbitration was decided upon, and the case went to an umpire as the cheapest mode of settling it (!).

A surveyor of the highest character as an agriculturist and as a man of business, was selected as the umpire. The applicant in this case had "cleared out," as he considered (and "deepened" as his neighbour thought), a water-way which had always carried the water from certain land which he had drained, under Government inspectors, 4 feet deep; but the ditch in question had hitherto taken the water away at the ordinary depth of rural water-courses, which did not exactly fit the depth of under drainage required by the Inclosure Commissioners without the careful "clearance" it received or "deepening," as the neighbour asserted. Whichever it was, it was so doubtful that the umpire was asked to determine the question, and he had no satisfactory evidence offered him to prove that the ditch had been deepened instead of being cleared. I lay this stress on "deepening" and "clearing" to show that the question in this case (and it is the type of many) was a nominal one.

The umpire has made his award. But no one but himself knows what is in it, for the applicant fearing the costs, which I have explained, refuses to take it up, and so the water way, which had been blocked up by his kindly disposed neighbour, after it was made serviceable, remains in a condition worse than it was originally. Three acres of land is all that is affected, and the applicant is content to bear the evil, and the charge for the drainage under Government, rather than pay more than the fee simple value of the drained land. This is the result of proceeding under the last Act of Parliament for securing outfalls.

This will sound incredible in this draining age; but it is true; and so long as my single voice alone is raised to expose the absurdity, nothing will be done. But the absurdities with respect to outfalls are not more glaring than those relating to underdraining itself. Can anything be worse than the continuance of the present system of parallel drainage to free soils, just as if they were clays requiring aëration and were subject to the same influences.

At this moment, after nearly 20 years experience, we are doing the same as we did in the infancy of our practice, and I hesitate not to affirm that we are irretrievably injuring the water supply of the country, and prejudicially affecting the free soils in the drainage of the land itself.

I will beg the "Gloucestershire Drainer" to join with me in securing an inquiry into the whole question. *J. Bailey Denton, 52, Parliament Street, Westminster, Feb.* 15.

Home Correspondence.

The New Highway Act.—You did me the favour lately to insert a few remarks from a Norfolk magistrate and myself on the working of this new Act in the Docking Union. At the same time you copied from the *Mark Lane Express* a reply to Mr. Calthorpe signed by an "Old Parish Surveyor." Probably Mr. Calthorpe has not seen that letter, but as he has addressed another note to the rate-payers of Norfolk, I think your readers should hear what he says and how he has answered the arguments of the "Old Parish Surveyor." He says:—

In my letter of 13th January I said in reference to the working of this Act in the Docking Union, that I was afraid the increased expense would be heavy, but a complaint has been made by its advocates that I adduced no proof of this; the following, however, is one of my reasons. The roads in this parish are unexceptionably good, and for the last 20 years the expense has not averaged so much as 2*d.* in the pound, but we have already paid under the new Act, a rate of 3½*d.* in the pound, about double. Great part of this sum has not been expended at present, but I feel sure that what has been expended, would have been much more beneficially laid out, had it been in the hands of one of the old surveyors.

It has been said that in that letter I advocated a return to the old Act, with the employment of an "Informer." This is an ill-sounding word, calculated to bring my recommendation into bad odour, and to draw attention from the real question. I advocated the appointment of an Inspector of Highways, similar to the Inspector of Nuisances—an appointment which under the Nuisance Removal Act has worked so well. This Act is also stated by its advocates to have been adopted in many counties with success, but I fear that this statement is incorrect. If we were told in what counties, we could probably gain information by inquiries.

When the Act was adopted in the Docking Union, a majority of the Waywardens met it in the best spirit, and with a wish to carry it out to the best advantage. The Guardians of that Union, who are also Waywardens, are a most intelligent and superior set of men, and when I tell you that notice has been given by the chairman that on Wednesday, 10th February, he will move that a requisition be forwarded to the magistrates, begging them to take measures for dissolving this Highway District, as provided for by 39th sec. of the new Act, and that it is believed that the motion will be carried almost if not quite unanimously, it will be readily conceived that the Act is not working well here.

In conclusion, I will only add, that my remarks have been made solely from a conscientious desire to do good, and to give such information as from a practical experience in road making of more than 50 years, and as a county magistrate of long standing, and therefore familiar with the plans and merits of the old Act, I felt myself in some measure enabled to do.

I might well let this letter suffice as an answer to the "Old Surveyor." But his experience of the new Act in Salop is so different from ours in Norfolk, that we must look to some previous cause for this difference. The "Old Surveyor" says, "Notwithstanding the extra charges of salaries to clerk, surveyor, &c., my payments are reduced and the roads improved." Such being the

case, I do not hesitate to say most emphatically, but most respectfully and with no desire to offend, that the "Old Surveyor," when in office, either did not understand his duty or he sadly neglected it. Who can mend roads so cheaply or so well as the farmer who lives on the spot? and whose interest is it so much as the tenant farmers' to have the best roads at the least expense, for he uses them more than any one, and pays chief part of the highway rate. The "Old Surveyor" says that the best farm labourer is seldom the best road maker (mender I suppose he meant, for surely the roads he has managed have been made long ago, and if kept in good repair don't want remaking), and I contend that it requires no great amount of genius to be a very good parish surveyor. Any farmer who has his wits about him is well qualified for the office, but he must give his attention to the work, and should stick to it for a few years. Carting and breaking stones can be easily done by piece-work, but there are many little matters, such as scraping up mud, raking in ruts, and putting on stones, that are better done by the day. These odd jobs usually find employment for some partially disabled or old labourer, who would otherwise have nothing to do in winter, and who infinitely prefers thus earning from 6*s.* to 8*s.* a week, to receiving parish relief, or passing the winter in the workhouse. It is idle to contend that this class of men would find work under the District Surveyor or his contractor, so we may expect from the new Act a slight increase of the poor rates. In this parish, like Mr. Calthorpe's, we have had for years very good roads with a twopenny rate, although chief part of the stones have to be carted 3 or 4 miles, and we have a fair amount of traffic, being near Norwich. The new Act can't be properly worked without costing the occupier for its machinery nearly 2*d.* in the pound, and I have no desire (being a poor tenant farmer) to have my highway rate doubled or even increased one-half. Supposing, as the "Old Surveyor" proposes, that all the road work is done by the piece, contractors, whether great or small, seldom work long without a profit, and then there is the salary of the surveyor, and perhaps his deputy, that of the clerk and the treasurer, to say nothing of the cost of printing, advertising, and the like, for which we paid nothing under the old Act. I therefore conclude with once more asserting, that if the "Old Parish Surveyor" had properly performed his duties, it is utterly impossible for the new Act to diminish his rates. *East Norfolk.*

Lodgers and Cottagers.—You have lately quoted from the *Times* the following agreement required of his cottagers by Mr. Holland, M.P.:—

"I . . . . agree to take the cottage from Mr. Holland at the yearly rent of upon the following conditions—viz., that the rent shall be paid quarterly, and that I will give up the cottage to Mr. Holland on receiving a quarter's notice to that effect. But if I take in a lodger without Mr. Holland's consent, I render myself liable to quit at any time on one month's notice being given me." (See p. 899, 1863.)

I remember an operative drainer lodging with a byreman with a wife and eight children and a foreigner called a "bondager." That farm is the property of a man who has a seat in the House of Lords, and it is not long since he was a member of the Cabinet. That house or cottage, or hovel, was not more than 20 feet by 16. There were not a sufficient number of joists in it for supporting a flooring for an attic room. The married couple with eight children, and the female bondager, and the Irish labourer, all herded together within the limits of 20 feet by 16 feet. Since I resided a twelvemonth between Tewkesbury and Worcester, I am aware that this barbarous compulsory bondager-contract system does not cross the river Tyne in South Northumberland, nor the Solway Frith in the south-west. But suppose me to get work on any of the farms where that enactment is in force, I might have to walk several miles morning and evening to and from my work, which I have done. I know what it is to kindle a fire to thaw my clogs before I could thrust my feet into them. I cannot explain why walking an hour does a man more injury than working energetically with the pick or spade for an hour. Bachelorhood has sufficient drawbacks without proprietors by such agreements as these adding to its discomforts. *W., Edinburgh.* [Our correspondent supposes that if he got work on Mr. Holland's farm he would in consequence of the agreement have to walk four or five miles to and from his work. Not at all! The effect of the agreement would only be to require any of the cottagers to ask the permission of the landowner before giving him lodging.]

Cotton Seed Cake.—In the *Chronicle* of the 30th ult. is the concluding part of Mr. Coleman's paper, which he read at the London Farmers' Club, on the Meat Manufacture, and in it the following passage occurs relative to Cotton-seed cake:—"The experience of others may differ, and if so I shall be glad to hear that I am wrong, as from its reasonable price it is just the sort of food a farmer would like to use more extensively." In 1860, I purchased a quantity of the best decorticated Cotton-seed cake, which although quite free from bark or husk, contained a little cotton fibre, without which perhaps it cannot be obtained. After breaking it up, I gave it to a lambing flock—to the ewes, 1 lb. per day, and to the lambs *ad libitum* for a short time; both seemed to do well on it, but very soon the lambs' coats became rough, then followed a sharp inflammation, which ended in death in a few hours at the rate of one, two, or three per day, until I had lost nearly the whole of them. After losing several I determined with the assistance of a butcher to examine very minutely the internals of two or three; in each of them we found a number of cotton balls of various sizes, from a common marble to a Walnut, as completely wound by the process of digestion as if done by hand, some of which were fixed in the narrow passages of guts, which were dry, and had the appearance of having been cooked, so fierce had been the inflammation. After having satisfied myself as to the cause, I gave them a good deal of castor and other oils, but did not think any good resulted from their use. The process of digestion did not appear to have changed the cotton, which must have been some time accumulating, and therefore I conclude the ewes would also have fallen had I continued to give the cake to them. As this subject is of very great importance to all who are employed in the manufacture of meat, you will perhaps be good enough to give it a place in your next week's paper. *M. P., Hatfield.*

Short of Summer Food.—Said a Gloucestershire farmer to me the other day, "We were sadly short of food for our stock last summer, had to put out our ewes on tack, and were very much inconvenienced generally." I quietly asked "Had you no Beans?"—"Oh yes—our Beans were 6 feet nigh."—"Well then," said I, "how could you be short of summer food, and what necessity was there for putting out your stock?" A peculiar expression of doubt and uncertainty appeared on my friend's countenance, as he said, "Will they eat green Beans?" I replied, Try them: I always feel quite independent as to green food during July and part of August, so long as I can have recourse to my standing Beans well podded. They are passed through the chaff-cutter, and afford hearty food, taking the place of, and following Mangel. Of course the animals continue to receive their usual allowance of cake, meal, malt combs, and bran. It is astonishing how much food is yielded by an acre of really good Beans. I was dining at St. Andrew's Hall, Norwich, when the Royal Agricultural Society held its meeting there in July, and asked an excellent farmer near me how his Beans were. "Oh! capital," he said; "I am going to put my sheep on them to-morrow. It spares the trouble and expense of harvesting them and bringing back the manure." Acting on the hint, I tried my sheep, much to the astonishment of my bailiff and the sheep too; for in the first small fold they hardly knew what to make of it, but in the third they cleared them off close to the ground. So now we know that if pushed for summer food on very stiff clays, where Grass is usually scarce, or in very dry summers, or light thin soils, we can find a comfortable and profitable substitute in our growing Beans and Peas. I have now about 1½ acre of land, heavily manured, and deeply trench ploughed, ready for young Cattle Cabbage plants, which will shortly (in February if possible) be taken out of their seed-bed and planted, so as to produce ample food in July and August, when other juicy food is scarce. I also plant about 4 acres in June with Cabbage after Tares; first heavily manuring and deeply cultivating the land. *J. J. Mechi.*

Consulting Engineer to the Royal Agricultural Society.—You have given us the substance of some correspondence submitted to the Council of the Royal Agricultural Society by the Messrs. Howard, of Bedford. Since I am somewhat interested in the matter, may I beg space to say a word? Do the Messrs. Howard wish to heap upon the head of Mr. Amos all the inefficient trials and past blunders of the Royal Agricultural Society, and do they suppose that the getting rid of that gentleman will set the prize system in a healthy position? What did Mr. Amos do at Worcester? According to the Society's report, Messrs. Wm. Owen, Engineer, H. B. Caldwell, Chas. Sewell Read, and Jacob Wilson took the steam cultivators; John J. Gooch and D. K. Clark took the portable and fixed engines; William Chalcraft, John Hicken, and G. Martin took the portable and fixed threshing machinery; and G. M. Hipwell and Arthur Rigg took the rest of the machinery, &c. Why then, Mr. Amos appears to have done nothing. Do the Messrs. Howard mean to say that Mr. Amos influenced these gentlemen? It is for them to explain themselves to the public. The mere sale of a few implements cannot have had much to do with it. If the Messrs. Howard think that the tossing Mr. Amos over will put all right, they are vastly deceived, for unless the Society's trials are based upon actual practice, pointed out in the correspondence forwarded by me to you, January 28, 1864, we shall never get satisfactory awards. *William Smith, Woolston, Bletchley Station, Bucks, Feb.* 16.

Diseased Swedes.—In the year 1856 I tried many experiments with various manures on a gravelly soil on 1 acre pieces of ground, and particularly remarked that on the piece dressed with 15 loads of farmyard manure and 2 cwt. of blood manure, the Swedes appeared to ripen early and decay prematurely and almost universally in the autumn, as described by Mr. Hussey in last week's *Agricultural Gazette.* The Swedes on all the other plots at the same time were quite sound, and at the time I attributed the diseased state of the Swedes on the blood manure plot solely to the stimulating effects of that manure. I may add that in the experiments of 1856 the acre of Swedes dressed with 15 loads of farmyard manure and 2 cwt. of superphosphate—Lawes' gave the best results as to quantity for money value of manure. The same was the case in a piece dressed with the same quantity of farm-yard manure, and 2 cwt. of Fothergill's superphosphate. All the other plots dressed with larger quantities of superphosphate, and others with guano and the same quantity of farmyard manure, did not give such advantageous results as to quantity of roots for the value of artificial manure applied as the 2 cwt. of superphosphate dressings. There was no perceptible difference in the Barley and Clover crops in the following years; but of course the extra dressings must have had a slight influence on them. *R. Burniston, Henley-on-Thames.*

The Agricultural College, Cirencester — Education for Young Farmers.—It cannot be too often reiterated that we have in this kingdom one of the best institutions in the world for promoting the business interests of young farmers. It is the Agricultural College at Cirencester, in Gloucestershire. It was originated and is designed to give the best agricultural education that can be obtained in accordance with modern practice. The object is a noble one, and worthy of the times in which we live. Modern agriculture is no doubt satisfactorily progressing, but nevertheless it is much retarded by the ignorance and prejudices still existing. Agricultural societies, the agricultural press, the general reports of meetings, and the many other sources of information are so continually before the world now, that it is impossible to remain altogether ignorant of the value and progress of modern agriculture. But this is far different from finding our young men, our next race of farmers, thoroughly grounded in all that pertains to the best interests of modern farming. It is beginning at the beginning, and agriculture, like most other sciences, has no limit in its practice or to the extent of its knowledge. It is unbounded, but it is only in these latter years that it has become partially developed. The wonder is that more colleges are not founded, and that every young farmer of any standing does not take advantage of them. They will prove the very nurseries of modern practice in connection with the scientific knowledge there taught. The Cirencester College is a noble institution, a high type of its class. The cost of a good agricultural education there may serve to deter many pupils entering, but it is to be observed that its advantages are very great. The students are taught practical agriculture on a farm containing 500 statute acres, and all of it managed upon the best modern principles, and cultivated with the best implements and the best machinery, including steam culture, every result being carefully noted. He is also taught the breeding, care, and management of stock as upon a breeding and fatting farm. Besides this he is taught agricultural chemistry, mechanics, hydraulics, hydrostatics, botany, surveying, mensuration, veterinary practice, anatomy, drawing, &c. These sciences being taught by competent masters and professors, it cannot be expected to be done without rather heavy costs, which, however, are, notwithstanding, moderate. It is highly desirable that every intelligent young farmer should participate in these great advantages, if only for a limited period. A single year might suffice to set an intellectual youth on the right road to acquire such knowledge, to be more or less perfected in future. Objections may be mooted as to the correctness of the courses of culture, and the breeds of stock upon the farm. This is of minor importance; every farmer (and more particularly every one taught at the College) would of course adapt his breeds of cattle and sheep in accordance with the soil and climate with which he has to do. Few Norfolk or Eastern counties farmers would breed Cotswold sheep; nor would the Devon or Herefordshire men breed Short-horns. But a good man of business would soon distinguish the better qualities of the animals he found best adapted for his occupation; he would find no difficulty in thus adapting his stock. The great thing is to bring up our young men to high intelligent union with, and in close combination with, habits of plain practical business. The chief fault is that the intellectual young farmer abhors the petty details of business. It ought not to be so. Many of our greatest men were not above such details. Instances innumerable may be found in every walk of life. Why should young farmers be so exceptional? It may not be very intellectual employment to look after the welfare of the weakly lamb, the puny calf, the tiny suckling pig, or again the mischievous poultry; or again on the farm to the various petty things that so continually require supervision, But when the young aspirant bears in mind that these weakly, puny, tiny animals are from some precious stock, some noted breed, his whole self is interested, he delights to nurse the little stranger. It is in the propagation of excellent profitable stock and their development, and in the successful growth of his corn and root crops, that his prosperity is achieved. His knowledge and acquirements then, if perseveringly and industriously applied, cannot fail to be of essential service in producing this result; and it is thus he proves that "knowledge is power," although applied to that oldest of all occupations—the tillage of the soil. But suppose we go a little further to give him experience before he hazards his property in business. We then come to a popular system of education as carried on by many intelligent farmers, *i. e.*, the reception of agricultural pupils in the farm-house. In connection with a college education this is an admirable continuation. The system taught in the college is one, it may or it may not be the right one for any individual student. He would like, and ought to know, the best system as applied to the farm or district in which

his future lot will be cast. Hence it would be right and proper for him to spend a year or so in gaining experience upon a respectable farm in that district or on a soil and climate analogous to it elsewhere; indeed it is to be preferred, because he will learn the customs of the distant district, which he can adopt or repudiate at his pleasure on entering upon his own business. However admirably the farm business at Cirencester may be carried on, and however well it may suffice for a model of farming for the students, it is not likely that it could in its entirety be adopted on every farm. It would, therefore, appear desirable, if not necessary, that the majority of the students should subsequently locate themselves at one or other of the many farm-houses open for their reception. Neither would it be amiss if intelligent men and clever farmers, resident in different districts, were sought out by the College authorities to whom they might recommend students desiring farm residence. In this way much ultimate good might be done the student, and much loss prevented by his engagement in business prematurely and without matured experience. *O. F.*

Naked Oats and Barley.—Could any of the Correspondents of the *Gazette* inform me where these varieties are to be obtained, and whether they are suitable for this country. I imagine that they would have considerable advantages in being devoid of husk, and thereby more easily convertible to human and animal food. There are, I have no doubt, several varieties, but the kinds I wish to ascertain particulars of are:—1. The Skinless Oat, introduced into Ireland in 1830, by Thomas Dercnzy, Esq., of Clebeman Hall, being originally obtained from Shantag, a remote district in China; its productiveness and nutritious qualities are much praised in Baxter's Agricultural Library. 2. The Barley is the 4 or 6-rowed naked Siberian Barley, sometimes called Hordeum cœleste, from its productiveness; is grown in France and Germany, and greatly praised by Von Thaer and other writers; introduced to Great Britain so early as 1768. As also a somewhat similar variety, though earlier, the Himalaya or Nepaul naked Barley, introduced to England in 1817, and said to grow wild in the Himalaya mountains. These varieties would seem well suited for land that is unfit to produce first-rate malting Barley. But as I am unable to obtain information respecting them from such seedsmen as I am acquainted with, I should be glad if any one of your numerous Correspondents could supply it. *W., Feb.* 2.

Societies.

ROYAL AGRICULTURAL OF IRELAND: *Feb.* 11.—*Improvement of the Breed of Horses in Ireland.*—The report from the committee appointed to inquire into the question of the deterioration of the breed of horses in Ireland was presented.

The following questions had been widely circulated:—

1st. Are there many horses bred in your locality of that class adapted for cavalry remount or chargers, weight-carrying hunters, and road purposes?

2d. Has the breeding of such horses increased or decreased of late years?

3d. What thorough-bred sires exist in your district, and what is your opinion as to their soundness and merit, as also the quality of the stock produced by them?

4th. Would the services of a first-class thorough-bred stallion be appreciated, and what is the maximum price which your stock breeders would be disposed to pay for such service?

And the general nature of the replies to Nos. 1 and 2 went to show that there was a general decrease in the breeding of horses, corresponding with the Registrar-General's return, showing that in 1859 there were 629,000 horses, and in 1863, only 579,000. The replies to No. 3 were to the effect that the thorough-bred sires now in this country for stud purposes are not at all of the class they used to be, and the stock produced by them more weedy and unsound than formerly. The replies to No. 4 state that the general breeding of horses has fallen so much into the hands of those poor farmers, who did not appreciate or understand the value of that class of thorough-bred sire best adapted for getting even troopers, it would be necessary, if such a sire were provided, to give his services, at least for a few years, at a lower rate than would remunerate any private individual. Such a sire, therefore, can only be expected to be provided in some few localities where a large proprietor might be satisfied to do so at a present pecuniary loss, for the future advantage of his tenants.

The committee refer with concern to the evidence accumulated from every reliable quarter, showing distinctly that the number of that valuable class of horses for which this country was long so celebrated bears a very small proportion to a most inferior class of horses, the breeding of which must be a pecuniary loss to the farmer and the community.

The evidence shows that hardly any gentleman now breeds a thorough-bred horse; and the few who do still breed, from having the remains of our superior thorough-bred mares, find a difficulty in procuring that class of sire suited to those mares, and which would perpetuate the good old strain of blood now fast dying out, but for which this country was so celebrated, as combining strength, endurance, and speed. It appears, therefore, almost evident that as the source from which (when their racing days were over) the horse-breeding counties were supplied with thorough-bred sires of blood, bone, and sinew has, to a great extent, ceased, that Government should consider the best mode of now providing that which national taste and the spirit of a by-gone age for generations obtained from private enterprise. A favourable opportunity seems thus to present itself for something definite being at once done in Ireland, which might be for the benefit of the whole kingdom.

In this country weedy and unsound thorough-bred horses, when found deficient in speed as well as in strength and endurance, are sold at a low rate as sires, and then may be the only thorough-bred horse available in the district to which he is taken; and the low average price of the produce, even from a good mare, is so small that the sensible farmers will abstain by degrees from breeding at all, and sell their best mares and fillies to the continental buyers. In order, therefore, to remedy these evils they recommend the Council to call the attention of the Government to the necessity of taking the existing state of horse breeding into their serious consideration.

After some discussion it was resolved that the Secretary should communicate with the Royal Agricultural Societies of England and Scotland on the subject; and that an address should be presented to her Majesty, praying for the issue of a royal commission, and that a deputation be appointed to wait upon his Excellency the Lord-Lieutenant in relation to the subject.

Farmers' Clubs.

KINGSCOTE: *Growing, Storing, and Consuming Root Crops.*—Mr. F. BURNETT lately introduced this subject for discussion. The following are extracts from his paper:—

The Soil.—The expression Turnip soil is a very familiar one, but it may mean anything if we are to believe a statement of Mr. Huxtable, that it is possible to raise a root crop off a deal table. I believe roots can be produced on any soil, and that on arable farms they are indispensable. A good Turnip soil is a brash or sandy loam, with a porous subsoil, which is easy work for two horses to plough, dries quickly after rain, and yet does not burn in dry weather. Swedes will flourish on a heavier soil than Turnips, which is consistent with their slower and firmer texture. Until the last three seasons Mangel has succeeded on almost any soil, except very light sands and gravels. The soils best suited for them are rich loams, clayey loams, and good peat soils. On heavy lands where Swedes and Turnips are uncertain, very large crops are produced. The great secret of all root-crop growing is to hit the season, and this cannot be done unless we are ready for it; therefore no time should be lost after the crops are off, whether light or heavy land, in having the cultivator or paring plough set to work. The former I prefer, going twice over it in different directions. Cultivating or paring answers several useful purposes; it arrests the Couch roots before they have a deep hold of the ground, the want of air keeps the roots near the surface when the corn is growing, and instead of burying them keeps them on the top, ready for the harrows to work. After a few dry days all the rubbish can be raked off and burned in large heaps, and we all know how useful ashes are to mix with artificial manures. The breaking of the surface soil in the autumn is of great advantage to the working of the land in the spring, much less labour being required to produce a fine tilth, and a saving of labour in the spring is of great importance. Our next operation is to have the dung hauled out into small heaps, enough for about two acres. The system of wheeling is to be recommended in all seasons (especially in a wet one), so is the system of having one year's dung in hand. Theory laughs at this, but facts are stubborn things. I need hardly say the sooner the land is ploughed the better. The depth must depend on your soil, although I am an advocate for deep ploughing for root crops, yet to break all the pan, or whatever it may be called, that is between the ordinary depth of furrow and the rock, I do not advise. Experience and the theory of ploughing all soils 10 or 12 inches deep do not agree. Once ploughed, or once cultivated in the spring, will, in most cases, be sufficient, when the land has been left in a good state after autumn cultivation. If much work is required in the spring the moisture will evaporate, the soil become so loose and hollow, or so hard and gnarly, that the crop of roots becomes a decided uncertainty.

Applying the Manure.—In all the most successful root-growing localities the ridge system is invariably adopted, the farmyard dung and part of the artificial manure being put inside, especially when guano is used, that it may not come in contact with the seed. Bones are also better put inside, if not the rooks carry a large quantity of them away. A mixture of farmyard manure and artificials is better than either sort alone themselves. There is also a great advantage in the ridge system enabling the horse hoe to be worked at a much earlier period, whereby the weeds are destroyed and a new surface exposed to the air. The width of the ridges ought to depend on the amount of manure you intend to put. If your object is to grow large roots and a great weight per acre, 28 inches seem to be about the width, where from 28 to 30 tons has been grown.

The system of cultivation I have mentioned only applies to cultivation after a straw crop. Turnips after Sainfoin is a general rule on the Cotswold Hills, and the system of preparing the land is worthy of imitation; although at first sight it may appear very expensive, yet I believe it is the most economical system. Mr. Burnett gave details of the system, and then stated in what cases a green spring crop can be profitably introduced before the root crop. On farms where a large flock of sheep is kept, it is very advisable to have a spring crop, such as Vetches, Rye, or Rape, to supply food after the roots are eaten, and before there is sufficient Grass. This can only be done where the land is perfectly clean, and of a brashy nature.

The Time of Sowing varies with the climate. The further north or the colder the climate, the earlier ought to be the date of sowing. The time for sowing Swedes on the Cotswold Hills is from the middle of May to the middle of June; Turnips from the middle of June to the middle of July. A few Turnips for early use may be sown before the time mentioned. Swedes sown in the middle of May in the vale would, three seasons out of four, be attacked with mildew. The frequent use of the horse hoe is the best check for the disease, or what is called paring in Scotland, that is taking a light furrow from each row. Where large quantities of Turnips are grown it is often difficult to get over the work within the time which is best suited for growing the heaviest crop; it is therefore preferable to commence a little earlier in favourable seasons, as unfavourable weather may set in, and it is of the greatest importance to have a fine seed bed.

The quantity of seed per acre—4 lb. of Swedes and 3 lb. of Turnips. It is advisable to sow much more than would be required, for a thick crop of plants grows the most rapid at first, and gets out of harms' way from the fly. In all cases, whether put in with the drill on the ridges, or on the flat, two cwt. of superphosphate, or some other similar manure, mixed with ashes, should be put in with the drill; this either gives the fly a good supply of food, or drives them on so fast that there is no food at all. On light land a roll should follow the drill. This keeps the moisture in the land; but on heavy land, and especially when rain falls soon after, the compressed surface will not readily admit the water, and the land runs together, and roots seldom do well. When the plants are thick, hoeing must not be deferred too late. First the horse, then the hand hoe, should be applied. I have said nothing about the quantity or the different kinds of artificial manure that it is advisable to use. So much has been said on the subject that I feel inclined to say little; but I am sure the farmers in this neighbourhood lose more from not using a larger quantity than by using too much. I doubt not but there is also a loss in not knowing the right sort to use. All experience has shown that Turnips require four great manuring principles to be successfully developed. 1. Carbonaceous matter, supplied by farmyard manure. 2. Ammoniacal manure, supplied by bones, guano, &c. 3. Phosphatic manure. 4. Sulphuric acid. As I have said before, I believe in a mixture of manure for a root crop, and would advise ten loads of well-made farmyard manure, two cwt. of guano, or eight bushels of bones, and two cwt. of superphosphate, or some other similar manure, with as much soluble phosphates as possible.

Method of Storing.—I think there is no better plan than that adopted in this neighbourhood. Those roots which are to be fed on the land from December to the end of February, are put into pits with only the tops cut off; those for feeding off after that time are put into furrows made by a plough, and another furrow put on them. In March they should be taken out of the furrows and put in heaps, the growth of the shoots being thus checked. By using an extra quantity of manure an extra crop can be produced, whereby the farmer is in a position to have some to haul off to be consumed by cattle. The quantity required should be taken off in strips across the field, that the whole field may have an equal dressing with the sheep; and when taken home they should be put in houses or heaps and thatched.

Method of Consuming.—From what I have said, you will see that I mean the greater portion of the Swedes and Turnips on light soils to be eaten on the land by sheep, and I have no hesitation in saying that the most economical system is to have them cut by Gardner's Turnip cutter. The saving of food and the advantage to the animals from having their food in a prepared state, will amply repay the extra cost. Roots contain a very large quantity of moisture, and the more hay, corn, and cake the sheep eats, the better it will thrive. I believe that no animal pays better for the consumption of corn when on Turnips than sheep. Whatever may be the wants of the body, an animal kept on roots alone can only supply himself with such elements of food as the root contains. Pulping the roots and mixing them with chaff for sheep has been advocated, but I can see but little if any advantage in it, unless one has a large quantity of inferior hay and but few roots. I had the hay cut into chaff for two years, but gave it up, believing it was a step in the wrong direction;

With regard to mashing and cooking roots for cattle, sheep, and horses, I believe no advantage whatever results, and that the labour and fuel are entirely lost. It is only natural to suppose that the powerful digestive organs of these animals are suited for the consumption of roots in a raw state. The pig is altogether a different animal, and it is advantageous to prepare his food; as roots are cheaper than meal there is a decided advantage in using them mixed together. Store pigs will do well on Swedes or Mangel without being boiled or cut. For horses and cattle I know of no better plan than pulping the roots and mixing with chaff. I find I can keep store cattle in good condition with 28 lb. of pulped Swedes, and the same quantity of straw cut in chaff every day.

But the quantity of food required depends very much on the position the animal is in. It is well known that a certain quantity of food is used up in preserving the animal temperature, therefore the colder its position the more heat is abstracted and the more food or fuel is required to maintain it. This is quite in keeping with science that animals thrive better when housed; therefore it is important to have shed room for all the cattle on the farm. I feel sure there are few landlords in this neighbourhood who would object to build extra accommodation where required, the tenant paying a fair interest for the capital invested.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches. 29.40	°	°				°	°	°	°	Inches. 0.40
Thursday	18	30.10	32	31	N.E.	0	10	44	27	60	20	..
Friday	Feb. 12											
Saturday	13	29.79	53	49	S.W.	5	10	53	35	57	34	0.18
Sunday	14	30.33	42	40	S.W.	1	2	50	34	62	28	..
Monday	15	29.92	47	43	S.W.	1	10	51	40	59	39	..
Tuesday	16	29.77	44	44	N.W.	0	10	52	43	52	43	0.04
Wednesday	17	29.98	38	36	N.	4	3	51	32	60	29	0.20
Thursday	18	30.10	32	31	N.E.	0	10	44	27	60	20	..

Notices to Correspondents.

DRAINAGE ACT: *A Herefordshire Drainer* informs a "Gloucestershire Drainer" that the merits of the Drainage Act, 24 and 25 Vict., cap. 133, are due to Mr. Grantham.

PHOSPHO GUANO: *G P Morris.* We believe that the experience of farmers in the South of England declares any ammoniacal addition to the manure for Turnips to be unnecessary. For Wheat and Grasses, however, ammoniacal manures are the best possible. For Clovers they are not needed. Guano is, therefore, better than phospho-guano for Wheat and Grass—phospho-guano is better than guano for Clovers and for Turnips. A good superphosphate is probably better still for the two crops in the South of England, for the ammonia in which the phospho-guano is the superior of the superphosphate is not needed here. In Scotland, however, an addition of ammonia seems beneficial, and thus phospho-guano may be, and probably is, the best possible form of artificial manure for the Turnip crop. For us in the south it presents just the combination in which as an addition to farm manure Mangel Wurzels seem to delight.

SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS: *S A B.* says, "Wishing to connect myself with this Society, will you oblige by giving the name of some officers of that Society with whom I can communicate, in order to attain my object." Perhaps this notice of his requirement may obtain for him the introduction he desires.

TOLLS: *S E.* asks, 1. Am I liable to pay a turnpike whilst carting milk from my farm to the railway station? 2. Am I liable to pay turnpike whilst riding between two parts of my farm distant about a mile, and only accessible, except through the toll bar by a ford through a deep river? [We are not learned in the law; but we imagine "S. E." is liable in the first case, but not in the second. He should however consult his solicitor.]

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FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*
Price 18*s. per bushel, or* 1*s. per pound.* Carriage free.
SUTTON & SONS, Seed Growers, Reading, Berks.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:—

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE .. ..28*s.* to	30	0
Cheaper MIXTURES, omitting certain sorts ..20*s.* to	26	0
Best quality ditto, for Three or Four Years' Lay ..	22	0
Ditto ditto, for One or Two Years' Lay ..14*s.* to	18	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6*s.* to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. ,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October, 1862.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.

MIXTURE for Laying down to PERMANENT PASTURE	25*s.* to 30*s.*
MIXTURE for ORCHARDS or LAND shaded by Trees	24*s.* to 26*s.*
MIXTURE for PARKS and CEMETERIES ..	28*s.* to 50*s.*
MIXTURE for Improving OLD PASTURE ..	6*s.* to 8*s.*
MIXTURE for One, Two, or Three Years' Lay ..	15*s.* to 18*s.*
MIXTURE for Fine LAWNS and BOWLING GREENS .. .. per lb.	1*s.*

PRICED LISTS may be had on application.
RICHARD SMITH, Seed Merchant, Worcester.

Hanover Nursery, Peckham, S.E.

IVERY'S NONSUCH LETTUCE, the best Summer variety in Cultivation, 1*s.* per packet. See *Gardeners' Chronicle*, Jan. 30, for further particulars, with names of Seed Merchants and Nurserymen who have received a supply direct from W. I. SEED CATALOGUES free by Post on application
The Trade supplied with Mushroom Spawn.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1*s.* Post free, 14 stamps.—Sonning, near Reading.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1*s.* each. This Leek can be grown from 4 to 5lbs. weight. None genuine unless in their own sealed packets.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

To Gentlemen, Nurserymen, and Others.

GLOBE ARTICHOKE PLANTS, at 25*s.* per 100; also a quantity of PROVINCE or CABBAGE ROSE PLANTS, at 12*s.* per 100.
A good discount allowed to the Trade.
Post orders payable to JOHN GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

SUTTON'S LARGE YELLOW GLOBE MANGEL WURZEL.—The heaviest and best sort known, price 6*d.* per lb., or cheaper by the cwt.
ORANGE GLOBE and several other sorts, 6*d.* per lb.
Also SUTTON'S CHAMPION SWEDE and other TURNIP SEEDS at very low prices.
PRICED LISTS of FARM SEEDS post-free.
Royal Berkshire Seed Establishment, Reading.

SEED CORN, from the (Cold Chalk) Chiltern Hills, clean, true, and in good sowing condition, a capital change for all other soils. WATERLOO OATS, for early or late sowing, good croppers, in corn and straw, 25*s.* per qr. GOLDEN MELON BARLEY, a selection from Chevalier, 35*s.* per qr. HALLETT'S RED NURSERY WHEAT, having a few white corns in it, at 45*s.* per qr. New Sacks and delivery to Henley Station included in prices. Cash to accompany orders, addressed to
Mr. R. C. M. YOUNG, Hambleden, Henley-on-Thames.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped J. BARSHAM'S Patent.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME £6	6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.
W. SHORT, Sand and Peat Depot, Reigate, Surrey.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.

Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the Smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10*s.* and upwards.
Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide	3*s.* 4*d.* per yard.
An improved make, 2 yards wide,	1*s.* 9*d.* per yard.
An improved make, 3 yards wide,	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run,
ELIEHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering.

GREEN'S PATENT SILENS MESSOR,

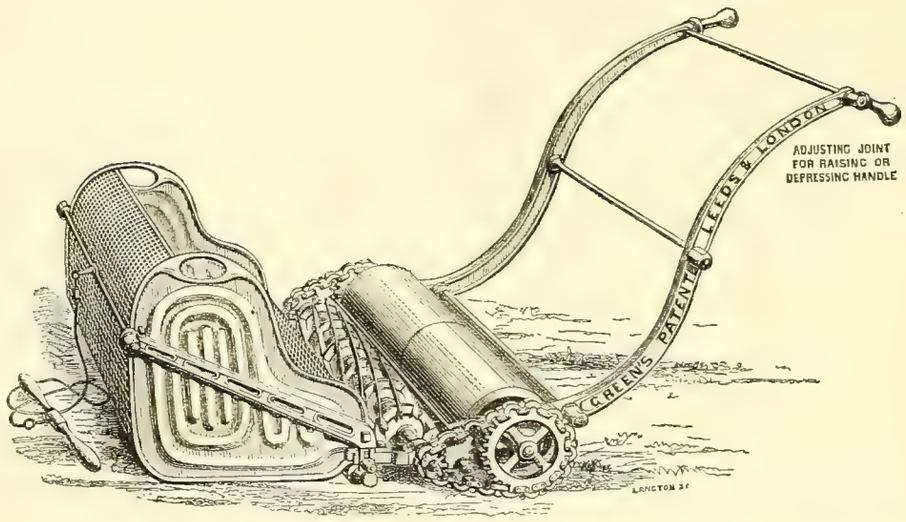
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches	...	...	...	£27	0	0	...	...	...	Leather Boots for Horse, 26*s*.
„ 48 „	...	...	...	30	0	0	...	...	...	„ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes

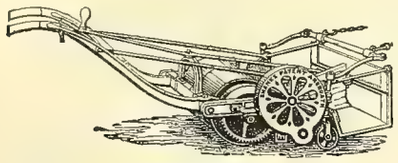
The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

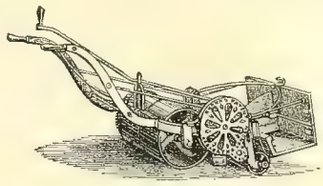
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

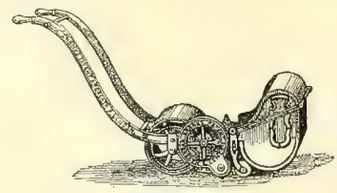
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

Extract from the Letter of Mr. R. GARRETT, Leiston Works, which appeared in the *Gardeners' Chronicle* of 16th January last, on "The Prize System":—

"I have known several good Standard Implements entirely spoiled by the principle being so interfered with in order to make it look a novelty year after year and to win a prize with it, so long as we could show something different in it, till at last we had to go back to the original Implement, and give up the prize gaining."

ALEXANDER SHANKS & SON can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. Viscount Seaham
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle
The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Elibank
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Binning
The Right Hon. Lord Ashtoun
The Right Hon. Lord Hume
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Crewe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
The Hon. Ashley Ponsonby
The Hon. E. Coke
The Hon. Captain Drummond
The Hon. Francis Drummond
The Hon. John Ashley
The Hon. Captain Arbuthnott
The Hon. Sir Edward Butler, Bart.
The Hon. Sydney R. Curzon
The Hon. J. J. Carnegie
The Hon. Wm. Maule
The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

Glass Tiles.

JAMES PHILLIPS AND CO. beg to hand their Prices of GLASS TILES and SLATES for Farm Buildings, Sheds, &c.

GLASS SLATES.

WITH DRILLED HOLES.	Size.	ROUGH PLATE ⅛ inch thick.	ROUGH PLATE 3/16 inch thick.	ROUGH PLATE ¼ inch thick.	SHEET. 16 oz.	SHEET. 21 oz.	SHEET. 26 oz.	SHEET. 32 oz.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Duchess ..	.. 24 by 12	1 3	1 6	1 9	0 9	1 1	1 4	1 8
Small Imperials ..	20 ,, 14	1 2	1 5	1 8	0 8	1 0	1 3	1 7
Small Duchess ..	22 ,, 12	1 2	1 5	1 8	0 8	1 0	1 3	1 6
Countess ..	.. 20 ,, 10	0 11	1 1	1 3	0 7	0 10	1 0	1 3
Viscountess	.. 18 ,, 10	0 10	1 0	1 1	0 6	0 9	0 11	1 1
Large Ladies ..	16 ,, 10	0 9	0 11	1 0	0 6	0 8	0 10	1 0
Ladies ..	.. 16 ,, 8	0 8	0 9	0 10	0 5½	0 7	0 8	0 10
Doubles ..	.. 13 ,, 7	0 6	0 7	0 8	0 5	0 6	0 7	0 8

GLASS TILES.

ROUGH PLATE.	Each—s. d.	SHEET.	Each—s. d.
⅛ inch thick	0 10	16 ounce	0 6
3-16 inch thick	0 11	21 ounce	0 8
¼ inch thick	1 0	26 ounce	0 10
5/16 inch thick	1 6	32 ounce	1 0
⅜ inch thick	2 0		

GLASS TILES, quarter of an inch thick,
Packed in Cases containing 50. 1*l.* 18*s.* 6*d.* per Case nett.
3-16 inch Case of 60 £2 2 3 | ⅛-inch Case of 60 .. £1 17 6
Cases, 2*s.* each extra, returnable at full price.

Glass Tiles and Slates will be found invaluable for Out-houses, Farm Buildings, Stables, and Factories.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

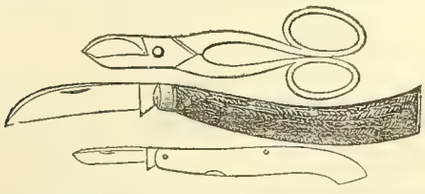
PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Paxton Works, Sheffield, Established 1738.

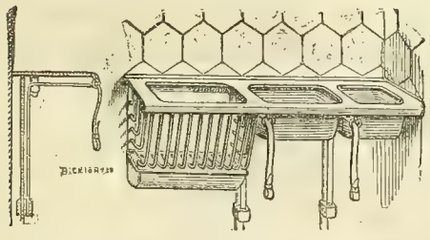


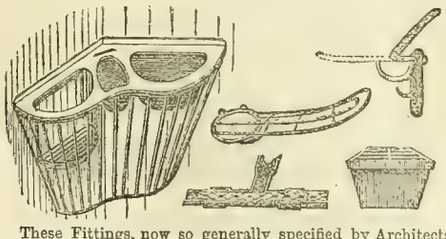
INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.





These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.

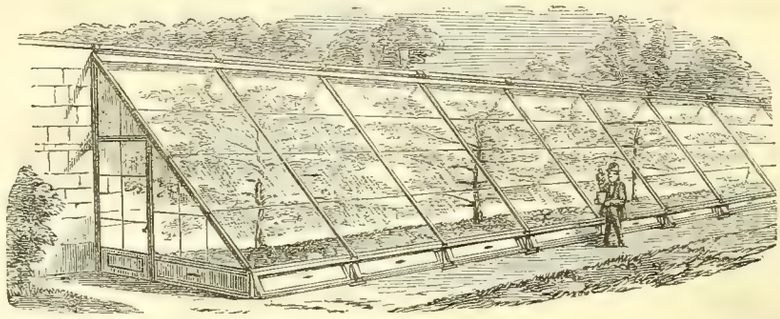
COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.

*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

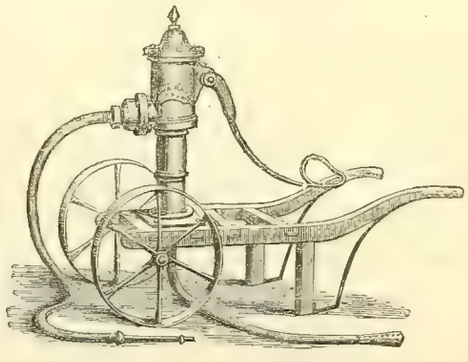
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

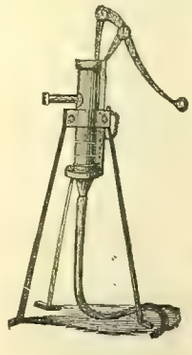
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

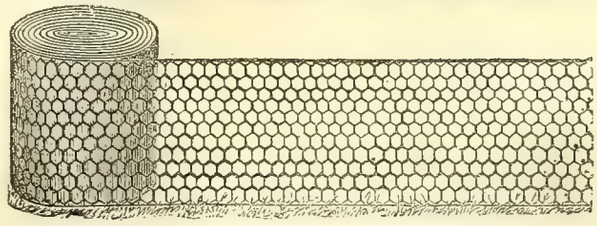
The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2½ inch	Hares, Dogs, Poultry	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits.....	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

AUSTIN'S ARTIFICIAL STONE.

INVENTED BY FELIX AUSTIN, 1826.

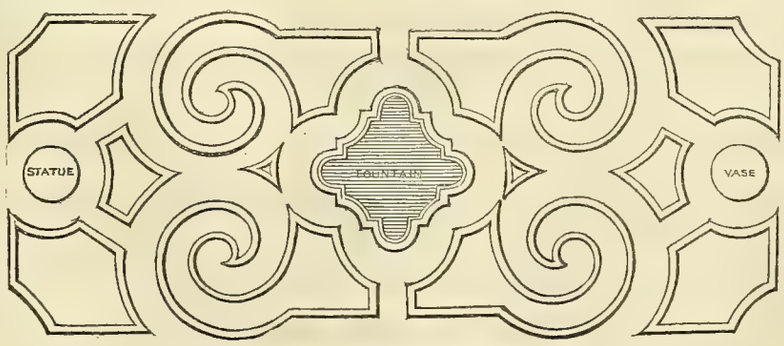
THIS WATERPROOF STONE, improved during a practice of more than 30 years, is the only one to which the chisel can be applied for high finish of ornament.

An immense quantity of work has during the period been executed for WINDSOR, OSBORNE, TRENTHAM, ARUNDEL CASTLE, WOBURN, WREST, and most other residences of the nobility, which in consequence of its close resemblance to Portland Stone, it is generally mistaken for, and therefore brings no credit to the peculiar invention. It thus becomes necessary (now that Portland Cement is obtaining a factitious reputation) to mark the distinction between Mr. AUSTIN'S material and a mere Cement which is as variable in quality and as much abused by workmen as the old Roman Cement.

AUSTIN, SEELEY, & Co. guarantee their work when fixed by themselves; and after so long a series of years they have accumulated a stock of models far exceeding any ever before possessed by a similar establishment. A general idea of it may be conveyed by the following summary:—

246 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at Prices from 10*l.* to 400*l.*
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a GREAT VARIETY of BALUSTRADING and PEDESTALS.

As public specimens of their work, open to the inspection of all persons, they beg to refer to FOUNTAINS erected in the Cities of CANTERBURY and GLOUCESTER, and to the large FLOWER BASINS and KERBS, executed for the ROYAL HORTICULTURAL GARDENS, and the new AVENUE GARDENS, REGENT'S PARK.



Kerbing made to any plan, in 3 or 4 feet lengths.

AUSTIN, SEELEY, AND CO., 369—375, EUSTON ROAD, REGENT'S PARK, N.W.

WANTED, SEA-SHORE PEBBLES.—They must be yellow, white, and black, between 1½ and 3 inches cube each. Persons willing to deliver such Pebbles at any Railway Station are requested to send the price per ton to Mr. EYLES, Royal Horticultural Society's Garden, South Kensington, London, W.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.

May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds, Sausage and Mincing Machine.

Illustrated Catalogue on receipt of 6 stamps. Price Lists free.

BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

Notts.

TO BE LET, with immediate possession, a well-stocked NURSERY, containing about 1½ acre of Land, situate at Mansfield, Notts. Adjoining land (at present arable) can be laid to the above as may be required. The Stock to be taken at a valuation, or otherwise, as may be agreed. There being a good opening for a Seedsman in the town, this is an excellent opportunity for an enterprising man.

Apply to Mr. JOHN PARES, Superintendent of the Cemetery, Mansfield.

TO BE LET, a FARM in Kent, with immediate possession.—About 200 Acres of productive Arable, Pasture, and Meadow Land, with recently erected House and Farm Buildings, Bailiff's and Labourers' Cottages, the whole forming a compact and desirable occupation on a moderate scale. The entire Live and Dead Stock and Modern Implements to be taken by valuation. Capital required about 2000*l.* or 2500*l.*

Apply by letter, addressed FARM, 18, Queen's Road, Regent's Park, N.W.

To Nurserymen, Florists, and Others.

THE LEASE of a First-class NURSERY within five miles of Covent Garden, with a convenient Dwelling House, in a healthy locality, and near two Railway Stations. It occupies about Two Acres of Land, has a very large quantity of Glass, which is completely and economically heated with hot water. Also the Valuable Stock of GREENHOUSE and STOVE PLANTS, together furnishing every facility for carrying on an extensive and first-class business.

For particulars apply to Messrs. PROTHERO & MORRIS, American Nurseries, Leytonstone, Essex.

Lancashire.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE DISPOSED OF, with immediate possession, in consequence of the Proprietor retiring from business, an Old Established NURSERY BUSINESS, situate at Prescot, about eight miles from Liverpool, and about 22 from Manchester, easy of access by Rail or Bus. The Nursery, with about 6 acres of rich Pasture Land, occupies about 22 acres, is in a good state of cultivation, and situate in a highly respectable neighbourhood, which is rapidly improving with Villa Residences, affording a first-rate prospect for a Landscape Gardener and Nurseryman, for which the Nursery possesses every facility for cultivating the most extensive business. The Grounds are well stocked with choice Fruit Trees and ornamental Nursery Stock, including a great variety of first-class Evergreens, Deciduous Trees, and Shrubs. There are five Hothouses filled with Fruiting Vines and Pines, a large Greenhouse containing Vine and other plants, and a Dutch Pit; also several Frames for propagating; the whole containing above 5000 feet of Glass. The whole of the Stock, Fixtures, &c., to be taken at a valuation. The landlord is willing to grant a Lease to an incoming tenant.

For particulars apply to JOHN WHITE, 12, Cases Street, Liverpool; or at the Nursery, Prescot.

Sales by Auction.

Great Sale of Roses, Fruit Trees, Evergreens, &c.

To GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on WEDNESDAY, Feb. 24, at 12 o'Clock, a splendid assortment of about 1000 first-class STANDARD, HALF-STANDARD, and DWARF ROSES of remarkably fine growth, including the finest varieties in cultivation; handsome Fruit Trees; choice Coniferæ, and other Evergreen Shrubs; selected American Plants; some fine Bulbs of Lilium lancifolium, from a celebrated Belgian grower.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

To Noblemen, Gentlemen, Florists, and Others.

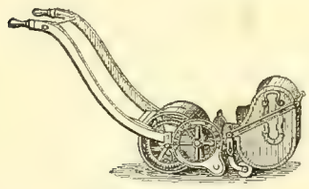
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, February 26, at 12 o'Clock, about 200 Choice Double CAMELLIAS, compact plants, 1 to 5 feet, beautifully furnished with bloom buds; fine AZALEA INDICA, including the most approved kinds; a superb assortment of about 300 very handsome Standard, Half-Standard, and Dwarf ROSES, all selected with straight stems and fine full heads; a fine Collection of AMERICAN PLANTS; choice ERICAS, FUCHSIAS, VERBENAS, DAHLIAS, in dry roots, &c.; with some fine bulbs of LILIUM LANCIFOLIUM from a celebrated grower in Belgium, &c.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

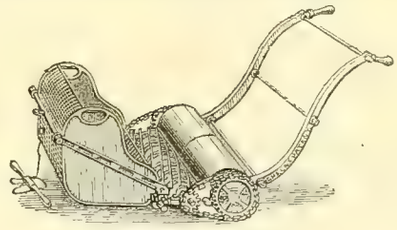
PUBLIC SALE.—At Mans, Sarthe, France, on March 14, 1864, and following days, Collections of RARE and EXOTIC PLANTS, Greenhouse and open air; from the Gardens of M. FOULARD, deceased. Conifers; Wellingtonia gigantea of 6 metres (20 feet); fine specimens of Ornamental Trees and Shrubs, Ilex, Magnolia, Pæonia, Yucca, &c.

Apply for information and Catalogue to M. MOUSSOIR, Agent and Auctioneer, at Mans, France.

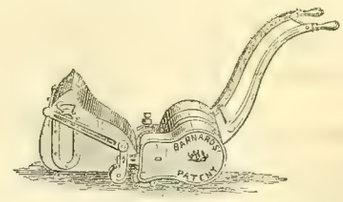
LAWN MOWING MACHINES FOR 1864.



SHANKS' MACHINE.



GREEN'S MACHINE.



BARNARDS' MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. BROWN & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of satisfaction, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success.

J. B. B. AND Co. have resolved not to place before the public at this period of the season any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that gentlemen or gardeners naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All orders thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.*

Orders entrusted to J. B. B. AND Co. for the Machines of any particular maker, will have most careful attention in every respect.

SHANKS' LAWN MOWING MACHINE FOR 1864.

SHANKS' MACHINE has been further improved this season by reducing the weight, and in other respects remodelling it, so that every thing having a tendency to increase draught is carefully avoided. These Machines are still, as they have always been, very durable, simple in construction, and execute their work in a superior manner.

SHANKS' HORSE, PONY and DONKEY MACHINES are believed by the most competent judges, to be the standard or best Machines, and most to be depended on. They are strong, simple in construction, and do their work well.

The Cutter is so constructed that in mowing the closest and finest Turf there is not the smallest appearance of ribbing. The Drums are loose on the Shaft, and are made self-acting, so that in turning, the Machine will mow as well as when going in a straight line. From the position of the Front Pulleys or Rollers, the Machine will mow on the most uneven Lawn, and the Plate at the same time is prevented from injuring the Turf.

PRICES.

SHANKS' HORSE MACHINE.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Delivering Apparatus for Nos. 1 and 2, 40*s.*; for Nos. 3 and 4, 30*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' PONY and DONKEY MACHINE.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Delivering Apparatus for Nos. 5 and 6, 30*s.*; for No. 7, 25*s.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 10*s.* per set.

SHANKS' HAND MACHINE.

The four larger Machines for Pushing or Drawing Separately or Together—the three smaller for Pushing only.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*
No. 11.—16-inch Machine	6 12 6	*Do. by a Man.*

Width of Cutter.		
No. 12.—14-inch Machine	£5 10 0	*Easily Worked by a Boy.*
No. 13.—12-inch Machine	4 10 0	
No. 14.—10-inch Machine	3 10 0	

GREEN'S HAND MACHINE FOR 1864.

GREEN'S MACHINE for this season is made lighter and stronger, also simpler in construction and more durable. This Machine has always had the reputation of being a very light one, and is a great favourite with many, on account of its being very easily worked.

PRICES.

10-inch Machine	£3 10 0	*Easily worked by a Boy.*
12-inch Machine	5 0 0	
14-inch Machine	5 10 0	
16-inch Machine	6 10 0	*Do. by a Man.*
18-inch Machine	£7 10 0	*Easily worked by a Man.*
20 inch Machine	8 0 0	
22-inch Machine	8 10 0	*Do. by two Men.*
24-inch Machine	9 0 0	

BARNARD AND BISHOP'S NEW LAWN MOWER FOR 1864.

This MACHINE differs from all other Lawn Mowers, in being constructed without either gear-wheels, chains, or levers, the power being transmitted to the cutters by a loose intermediate wheel, with an india-rubber tyre which is placed between a plain-faced driving wheel, and pinion. It is quite noiseless, both in its forward and backward action, and works with very little power.

PRICES.

8-inch Machine, for small plots or edgings	£2 10 0	*Easily Worked by a Boy.*
10-inch Machine	3 5 0	
12-inch Machine	£4 10 0	*Easily Worked by a Boy.*
14-inch Machine	5 0 0	

A specimen of each of the above described Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. AND Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *The whole of these Machines quoted above are warranted to give ample satisfaction, and if not approved of may be exchanged for any other size of Machine, or for the Machine of any other maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 9.—1864.] SATURDAY, FEBRUARY 27. {Price Fivepence. {Stamped Edition, 6d.

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ADVERTISEMENTS *must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY'S HYACINTH, or FIRST SPRING SHOW, will be held on WEDNESDAY, March 9, at South Kensington, W. Fellows admitted at 12 o'Clock. Fellows with their friends, (with Tickets, One Shilling each), at 1 o'Clock.
The Public 2s. 6d. each, at 2 o'Clock.
The Show will be in the Council Room and adjoining Arcades.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.
EXHIBITIONS of SPRING FLOWERS:
SATURDAYS, March 19, April 9, and April 30.
GENERAL EXHIBITIONS:
SATURDAYS, May 21, June 11, and July 2.
AMERICAN PLANTS: MONDAYS, June 6, and June 20.
Tickets are now being issued at the Gardens on the Orders of Fellows of the Society. Price: General Exhibitions, 4s.; Spring Flowers, 2s. 6d.

BURTON-UPON-TRENT FLORAL and HORTICULTURAL SOCIETY.
The EXHIBITIONS for 1864 have been fixed for JUNE 22 and AUGUST 24.
For Schedules and other information apply to the Secretary, JAMES ATTERBURY, 81, High Street.

Tunbridge Wells Horticultural Society.
THE ANNUAL EXHIBITION of FRUIT and FLOWERS will take place on FRIDAY, July 8.
The Schedule of Prizes has been extended, will be ready in a few days, and may be had upon application, of
Mr. E. F. LOOF, Secretary, 8, Parade, Tunbridge Wells.

LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. EARL HOWE.
The Exhibitions for the year 1864 will be held on JUNE 28 and 29, and AUGUST 31. At the June Show the sum of 33*l.* will be offered in Prizes for Cut Roses, open to Amateurs, Gentlemen's Gardeners, and Nurserymen; and at the August Show, Extra Prizes, amounting to nearly 30*l.*, will be offered for Collections of Fruit, and Stove and Greenhouse Plants.
Schedules, and any further information may be had of the Secretary, Mr. W. PENN COX, Market Place, Leicester.

NEW ROSE LIST for 1864.—All the new Sorts CATALOGUES now ready. Apply to
WM. WOOD & SON, Maresfield, Uckfield, Sussex.

New Roses for 1864.
WM. WOOD AND SON have upwards of 5000 extra fine plants of the NEW ROSES for 1864, which will shortly be ready to send out at moderate prices.
Woodlands, Maresfield, Uckfield, Sussex.

New Rose List for 1864.
JOHN KEYNES' NEW LIST is now ready, and will be forwarded on application.
His Stock of NEW ROSES for 1864 is very fine.
Castle Street Nursery, Salisbury.

New Roses of 1864.
PAUL AND SON will have ready in good time, their usual fine Plants of the best Novelties of the season.
DESCRIPTIVE LIST now in the Press.
"Old" Cheshunt Nurseries, Herts.

New Roses for 1864.
EDWIN HOLLAMBY'S selection of the best of the above will be ready for delivery in March, in fine plants.
Nursery and Seed Establishment, Tunbridge Wells, and Coomsbridge, Kent.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants will be ready early in March. For of Sorts and Prices, apply to
ENJAMIN R. CANT, St. John's Street Nursery, Colchester.

ROSES.—Superb STANDARDS, 18*s.* per dozen; DWARFS, 12*s.* per doz. NEW ROSES of 1863, 30*s.* per doz.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

To the Trade.
STANDARD and DWARF and CLIMBING ROSES in large or small quantities, at reduced prices. Special lists on application. Address
WM. WOOD & SON, Maresfield, Uckfield, Sussex.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS,
NURSERYMAN and SEEDSMAN,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Good Seeds, Carriage Free.
WILLIAM PAUL (Son and Successor to the late A. PAUL),
Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. LANE AND SON.
(For particulars, see page 193),
The Nurseries, Berkhampstead, Herts.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON AND SONS,
SEED MERCHANTS and NURSERYMEN,
SEED, ROSE, and FRUIT CATALOGUES, gratis.
57, Queen Street, Hull.

Best Seeds, Carriage Free.
BUTLER AND McCULLOCH,
SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FACTORS and MERCHANTS.
89, Seed Market, [illegible] Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square,
London, W.

THE LONDON SEED COMPANY, LIMITED,
has AMALGAMATED with the
PLYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The FARM SEED PRICE CURRENT is now ready, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of GARDEN SEEDS are now Ready.
See Advertisement, page 195.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of FLOWER SEEDS are now Ready.
See GENERAL PRICE CURRENT.

DOUBLE ITALIAN TUBEROSES.
Good sound roots at a very low figure.
JAMES CARTER & CO., Seed Merchants, 237 & 238, High Holborn, London, W.C.

DOUBLE TUBEROSES, just imported, 3*s.* per dozen.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

SEEDS of EVERY KIND, and best quality, supplied by HOOPER & Co., Covent Garden Market, Lond[illegible] W.C.
CATALOGUES post free.

J. IVERY AND SON beg to announce that t[illegible] new PRICED DESCRIPTIVE CATALOGUES of [illegible]LEA INDICA and HARDY BRITISH FERNS are now r[illegible] and will be forwarded on application.—Dorking Nursery.

New Pelargoniums and Cinerarias.
J. DOBSON AND SONS' Sets of the above are now ready at reduced prices. Also a large General Collection, all in the finest health. CATALOGUES free.
Woodlands Nursery, Isleworth, W.

Superb Double Hollyhocks, now ready for Planting.
WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.
See Advertisement on other page.
Address, WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

To the Trade—Golden Chain Geraniums.
WILLIAM HUSSEY begs to offer the above, strong plants struck last summer, and well established in single pots, at 25*s.* per 100, or 10*l.* per 1000.
Horticultural Gardens, Norwich.

To Purchasers of Garden Seeds.
SUTTON'S SHORT LIST of Choice GARDEN SEEDS, with Prices of every article, will be sent Gratis and Post-free on application.
Royal Berkshire Seed Establishment, Reading.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Choice Seeds.
WM. WOOD AND SON'S GUINEA COLLECTION of GARDEN SEEDS for One Year's Supply, Carriage free. Address, Maresfield, near Uckfield, Sussex.

HOLLYHOCK SEED.—A few Ounces of very superb to be disposed of to the Trade. Price on application.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

FINE PLANTS of LOBELIA SPECIOSA, at 12*s.* per 100, can be had of
GEORGE EDWARDS, Clarence Nurseries, York.
A remittance or reference from unknown Correspondents.

SEEDS of PRIMULA SCOTICA.
Small Packet for 13 Stamps.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

STRONG THORN QUICKS, 2, 3, and 4-year Transplanted; EVERGREEN PRIVET, 3 to 4 feet; WHITE GLOBE RASPBERRY, CARTER'S PROLIFIC RASPBERRY.
For Price and Samples, apply to JOHN CARTER, Nursery, Keighley, Yorkshire.

For Covert Planting.
STRONG BLACK THORNS.
EVERGREEN PRIVET | GORSE or FURZE.
Price on application to
JOHN PERKINS, 52, Market Square, and Drapery, Northampton.

Two-Years Seedling Larch.
ONE-YEAR TRANSPLANTED LARCH.
Very hardy plants, the produce of Scotch Seed.
RHODODENDRON PONTICUM, from 4 to 18 inches.
Trade prices on application to HOWDEN BROTHERS, Inverness.

WANTED, WEYMOUTH PINE, 1½ to 2 feet.
Say price per 1000.
JOSEPH TREMBLE & SONS, Nurserymen, Penrith.

WANTED, 100 COMMON YEWS, 4 feet, bushy.
Price and particulars, to
E. P. FRANCIS, Nurseries, Hertford.

Genuine Vegetable and Flower Seeds
CARRIAGE AND PACKAGE FREE.
MCRAE AND FRASER, SEED MERCHANTS and NURSERYMEN, Tredegar Nursery, Bow, London, E.
PRICED LISTS forwarded Free on application.

List of Select Vegetable and Flower Seeds.
WOOD AND INGRAM beg to announce that their New PRICED and DESCRIPTIVE CATALOGUE of the above may be had Post free on application.
Huntingdon Nurseries.

THOMAS METHVEN begs to intimate that his NEW CATALOGUE of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., for 1864 is now ready, and will be forwarded Post-free on application.
Seed Warehouse, Nursery Gate, Leith Walk, Edinburgh.

SEAKALE, per 100, 5*s.* 6*d.*, 7*s.* 6*d.*; Extra Strong, 12*s.* 6*d.*; quotations to the Trade on application.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

SCARLET RUNNERS WANTED.—
Send Sample and Price.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

LENORMAND'S CAULIFLOWER.—A large-headed variety, grown by the market gardeners to supply the markets in Paris. Is much earlier than any English variety. Price, per packet, 1*s.*
JAMES CARTER & CO., Seed Merchants, 237 & 238, High Holborn, London, W.C.

MCLEAN'S PRINCESS ROYAL PEA.—A very prolific long-podded early variety, of fine sugary flavour, 1 foot high, pods large and well filled, and plenty of them; a prodigious cropper. Price, per quart, 2*s.* 6*d.*
JAMES CARTER & CO., Seed Merchants, 237 & 238, High Holborn, London, W.C.

Hair's Dwarf Mammoth Peas.
E. P. DIXON AND SONS have a Surplus Stock of the above, which they can supply very low.
57, Queen Street, Hull.

SEED POTATOS.—Twenty to Thirty Tons of FLUKES (true). Price on application to
JOHN BROWN & Co., American Nurseries, Deptford, Kent.

THE BEST EATING POTATO all the year round is EARLY OXFORD. 5*s.* per bushel [illegible] 56 lbs.
RICHARD SMITH, Seed Merchant, Worcester.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, [illegible] bushel.—Application at the Gardens at Calcot, near Reading.

True Skerry Blue Potatos.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, can supply these at 10*s.* per sack of 16 stones imperial. This stock has never been touched by disease, and the present crop is 10 tons per acre.

ONE NEWSPAPER

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz. ; 20*s.* per 100.
Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Gladiolus, Ranunculus, and Anemones, for Spring Planting.

JAMES FAIRHEAD AND SON have a good supply of the above on offer. ANEMONES—Double and Single Scarlet, and Double and Single Mixed; RANUNCULUS—Scarlet, Citron, and Yellow Turban.
7, Borough Market, London, S.E.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	*s.*	*d.*
50 in 50 choice varieties	2	12	6
25 in 25 ,, ,, ...	1	5	0
12 in 12 ,, ,, ... 5*s.* to	0	12	0
Extra choice mixed, 3*s.* 6*d.* per doz. .. per 100	1	5	0
Fine mixed, 2*s.* 6*d.* per doz. .. .. ,,	0	17	6
GANDAVENSIS, strong roots, 2*s.* 6*d.* per doz. ,,	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3*s.* p. doz. ,,	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

DOBSON'S EXTRA CHOICE SEEDS.
Quality second to none. In sealed Packets.
DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PANSY, 1*s.*, 2*s.* 6*d.*
DOBSON'S SUPERB BALSAM, 1*s.*, 2*s.*
DOBSON'S SUPERB LOBELIA SPECIOSA, 1*s.*
DOBSON'S SUPERB HOLLYHOCKS, 1*s.*, 2*s.* 6*d.*, 5*s.*
The Trade supplied on liberal terms.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.
Knap Hill Nursery, near Woking, Surrey.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.
Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2*s.* 6*d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE AWARDED
IN THE YEAR 1863 TO

WILLIAM PAUL
(SON and SUCCESSOR to the late A. PAUL),

TWENTY-ONE of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

SUPERIOR STANDARDS, 18*s.* per dozen and upwards.
SUPERIOR DWARFS, 9*s.* per dozen and upwards.

All the NEW ROSES, including PRINCESS of WALES (W. PAUL), LORD MACAULAY (W. PAUL), and BEAUTY of WALTHAM (W. PAUL), at lowest advertised prices.

PRICED CATALOGUE Free by Post.

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

VEGETABLE SEEDS, amounting to 21*s.*, sent Carriage Paid. SEAKALE ROOTS, per 100, 5*s.* 6*d.*, 7*s.* 6*d.*; Extra Strong, 12*s.* 6*d.*

BARR & SUGDEN'S COLLECTIONS of VEGETABLE SEEDS for 1864.

Embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.
For Particulars see *Gardeners' Chronicle*, January 23, 1864, page 74; or B. & S.'s COMPENDIUM of their GUIDE to KITCHEN GARDEN.

No. 6 contains 33 qt. of Peas, Beans, and other Seeds in proportion										for	£3	3 0
No. 5	,,	20 qt.	ditto	ditto	ditto	ditto	...	...	...		2	2 0
No. 4	,,	13½ qt.	ditto	ditto	ditto	ditto	...	...	...		1	10 0
No. 3	,,	10 qt.	ditto	ditto	ditto	ditto	...	...	...		1	1 0
No. 2	,,	13⅓ pt.	ditto	ditto	ditto	ditto	...	...	...		0	15 6
No. 1	,,	7 pt.	ditto	ditto	ditto	ditto	...	...	...		0	10 6

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

SENT POST PAID,

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS.

ADAPTED TO ANY STYLE OF GARDENING.

For particulars, see *Gardeners' Chronicle*, Feb. 6, p. 118; or B. & S.'s COMPENDIUM of their ILLUSTRATED GUIDE to the FLOWER GARDEN.

HARDY ANNUALS.
HALF-HARDY ANNUALS.
HARDY PERENNIALS.
HALF-HARDY PERENNIALS.
BEST ANNUALS and PERENNIALS for ROCKWORK.
BEST ANNUALS for ROCKWORK.
BEST PERENNIALS for ROCKWORK.
DWARF ANNUALS best ADAPTED for EDGINGS.
SWEET-SCENTED ANNUALS.
EVERLASTING FLOWERS for WINTER BOUQUETS.
ORNAMENTAL-FOLIAGED PLANTS.
ORNAMENTAL-FRUITED PLANTS.
ORNAMENTAL GRASSES.
ORNAMENTAL PRIZE GOURDS.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET COVENT GARDEN.

GLOUCESTERSHIRE KIDNEY POTATOS.

This most excellent KIDNEY POTATO we can recommend for Earliness, Flavour, Size, and Crop. In comparing it with the Ashleaf we believe it is as early, whilst it produces nearly double the crop, and is altogether superior to that variety.

Price, 4s. per Peck, 15*s.* per Bushel.

Referring to "A. B.'s" Letter in last week's *Gardeners' Chronicle*, we are very pleased to find him speaking so highly of the merits of the GLOUCESTERSHIRE KIDNEY; at the same time we think he is mistaken in confounding this fine early variety with the Alstone Kidney, which latter is perfectly distinct, being later and larger, and not so free from the disease—altogether a distinct variety. Until we saw "A. B.'s" letter, we never heard of the Banger or Bangor, and although the two varieties may be similar and equally good, yet they cannot be exactly the same, as the GLOUCESTERSHIRE KIDNEYS are a Seedling raised in this county. The following extracts from letters we have received will corroborate what we say in their favour.—J. C. WHEELER & SON.

From WM. RODEN, Esq., M.D., and J.P., *Kidderminster.*

"Your Gloucestershire Kidney Potato gave me great satisfaction last year, both as to earliness and crop. I may also remark that it was very free from disease."

From G. CHAMBERLAINE, Esq., *Brecksde Park, near Liverpool.*

"I have much pleasure in adding my small testimony to the excellence of your Gloucestershire Kidney Potato, though grown in a damp soil. My gardener declares them the best he ever saw, and what is more (for the proof of the pudding is in the eating), the ladies affirm the flavour to be far superior to any Kidney or any other Early Potato they ever tasted. Make what use you like of the above."

From the Rev. W. NICKISSON, *Church Aston, Newport, Salop.*

"I have much pleasure in bearing testimony to the superiority of your Gloucestershire Kidney Potato to anything I have yet met with. In the case of a piece of ground planted last spring, partly with your Gloucestershire Kidneys and partly with the Ashleaf Kidneys I could get in this neighbourhood, the difference in favour of the Gloucestershire Kidney in the earliness and vigour of the haulm as it grew was remarkable; it has proved so satisfactory as to yield and soundness, that as long as it retains its present good qualities, I hope I shall never be without it."

Bleddfa.

"Rev. E. POOLE is desirous of bearing witness to the great excellence of the Gloucestershire Kidney and Prince of Wales's Potatos supplied by Messrs. WHEELER & SON; of both the crop has been extraordinary, and both are entirely free from disease. As regards quality both are alike good. Mr. P. has considered it only just to Messrs. WHEELER to give them a testimonial of the excellency of these tubers."

From E. GRIFFITHS, Esq., *New Court, Hereford.*

"The Gloucestershire Kidneys you sent me turned out excellent, and I am much obliged to you for sending them."

From Mr. EDMUNDS, *Langharne.*

"The Gloucestershire Kidney Potato is a most excellent cropper and free from disease. I had an excellent crop from the bushel I had from you last spring."

From the Rev. R. B. ROBINSON, *The Parsonage, Lytham.*

"I can speak favourably of the Gloucestershire Kidney Potato I had from you, they were good croppers and excellent in flavour. All the Garden Seeds proved of excellent quality."

GLOUCESTERSHIRE KIDNEYS may be obtained of
MESSRS. CARTER AND CO., HIGH HOLBORN, W.C.; MESSRS. PETER LAWSON AND SON, KING STREET, CHEAPSIDE, E.C.;
MESSRS. SUTTON AND SONS, READING; and of
J. C. WHEELER AND SON, SEED MERCHANTS, GLOUCESTER.

NEW PLANTS FOR 1864.

TO BE SENT OUT, MAY 1ST.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering for the first time the following NEW and VALUABLE PLANTS, and in doing so assures his Customers and the Public, that each variety will be found good and distinct, and well deserving of special notice.

NEW ACHIMENES.

The following of choice varieties have been selected from a large batch of seedlings raised by Mr. Parsons, of Welwyn. They are distinct in colour, fine shape, medium in size. good habit, and free bloomers; making a good selection between Mauve Queen and Carminata elegans, produced by the same raiser last year, and which gave general satisfaction, and can be recommended as the best selection ever offered.

PURPUREA ELEGANS.—Deep, mulberry, or claret colour; throat light orange with dark spots, quite distinct.

LEOPARD.—Bright magenta rose, with a well spotted throat, good size and form.

MAGNET.—Orange spotted with crimson, deep carmine circle and spotted eye.

SCARLET PERFECTION.—Rich carmine scarlet, orange eye, surrounded with a light ray, red centre.

VIVICANS.—Carmine with crimson eye, shaded round with a blue ray, very distinct.

ECLIPSE.—Bright orange-red eye, beautifully spotted with carmine, good habit and free bloomer.

Price 7*s.* 6*d.* each, or 6 for 42*s.*

COLOURED ILLUSTRATION of the above by ANDREWS for 1*s.* 6*d.*

NEW FUCHSIAS.

The undermentioned Fuchsias are recommended for general excellence, having qualities superior to any yet offered, each possessing good habit and a free blooming character. The double varieties are the production of a well-known raiser in the north of England, and who has already added largely to this beautiful class of flowers.

NEPTUNE.—A large handsome double kind, with a bluish violet shaded corolla, bright crimson tube and sepals, a fine proportioned flower with good branching habit.

QUEEN of BEAUTIES.—Tube and sepals pure white, very broad and of great substance, well recurved, showing a bright rose shaded crimson corolla. The best light Fuchsia yet sent out.

GEM of the NORTH.—This is a remarkable fine flower, tube and sepals shaded crimson, of great width and substance, well reflexed corolla, deep purple shaded with violet, good form and habit. A fine exhibition variety.

MINOTAUR.—Rich glossy carmine sepals, and monstrous double corolla, so formed as to show three corollas in one, lavender blue colour. This is a really distinct and interesting variety.

Price 7*s.* 6*d.* each.

COLOURED ILLUSTRATION of the above by ANDREWS for 1*s.* 6*d.*

NEW PETUNIAS.

The three varieties now offered can be relied upon as being far superior to any hitherto sent out, and will be found valuable additions to the most choice collection. The following comments on New Plants will best recommend them :—

Extract from the *Gardeners' Chronicle*, December 26, 1863, page 1228.

"In speaking of Petunias, the writer remarks :—The two groups to which attention has been invited have been well represented by seedlings of the striped race, exhibited during the past summer. Mr. Holland's Royalty represents the classic model which we recommend should be adopted as the perfection of form in a Florist Petunia, the true Convolvulus pattern with an even margin, very slightly curving outwards."

ROYALTY.—This remarkable flower has fine distinct magenta stripes on a white ground, equally divided, and a true Convolvulus shape, free bloomer, and good habit.

PURPLE PRINCE.—Clear and distinct rosy purple, with a pale lavender eye; form and substance good, with a soft and free habit.

DUCHESS of NORTHUMBERLAND.—This variety has fine rosy purple stripes, club shaped, on a white ground, even and regular, and very distinct.

Price 5*s.* each.

COLOURED ILLUSTRATION of the above by ANDREWS for 1*s.*

NEW ZONALE GERANIUMS.

The three following Geraniums have been selected from a large quantity of seedlings, and can be recommended as being good improvements on all others previously offered, either for pot culture or bedding purposes.

DISPLAY.—Carmine centre, with a white outline about half the size of the flower, large truss, dwarf habit and very free. Zonale foliage ; an excellent variety.

BEAUTY.—Rosy carmine, of the finest form and truss, habit free and good, suitable for all purposes.

ROYALTY.—Bright vivid scarlet with small white eye, unsurpassed for brilliancy of colour. Good Tom Thumb habit.

Price 5*s.* each.

NEW FERN.

GYMNOGRAMMA PERUVIANA LACINIATA.—A neat growing variety, of the form of of argyrophylla, with pinnules from 6 to 9 inches long, unequally jagged and toothed, and the apices of the pinnæ somewhat dilated. Very distinct and beautiful.

Price 21*s.* each.

NEW GRAPE.—ROYAL VINEYARD.

B. S. WILLIAMS begs to intimate that he will distribute this new and valuable LATE WHITE GRAPE in September next. It has been exhibited several times during the past two seasons, receiving a First-class Certificate from the Royal Horticultural Society upon its first appearance before the Fruit Committee, and has fully maintained the high character then given to it on being exhibited before the Fruit Committee on several occasions since.

Orders may now be booked, which will be executed in rotation.

PRICES :

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

FLOWER SEEDS IN PACKETS, FREE BY POST.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

CAN SUPPLY THE FOLLOWING SPECIALITIES AND NOVELTIES, POST FREE.

*** *In ordering any of the following it will be quite sufficient to send the number only attached.*

CHOICE PRIMULA SEED.

Red, White, or Mixed Seed, 2s. and 3s. 6d. per Packet.

No.		Per packet.—*s. d.*
6	ASTER, Chrysanthemum-flowered	0 6
149	,, ditto, White	0 6
8	,, DWARF BOUQUET	0 6
15	,, TRUFFAUT'S PERFECTION	0 6
148	,, Dwarf Pæony-flowered GLOBE	1 0
20	,, NEW GIANT EMPEROR	0 6
24	,, QUILLED GERMAN	0 6
141	,, VICTORIA, a novelty	1 0
135	ACHIMENES, superb new varieties	1 0
136	ALYSSUM SAXATILE COMPACTUM	1 0
137	AMARANTHUS MELANCHOLICUS RUBER	0 6
139	AQUILEGIA SKINNERII	0 6
140	,, VULGARIS CARYOPHYLLOIDES	0 6
301	BALSAM, Camellia-flowered	1 0
30	,, Rose-flowered	0 6
150	BIDENS ATROSANGUINEA	1 0
159	CARNATION, very choice	1 6
153	CALCEOLARIA, Herbaceous	1 6
165	CINERARIA, finest mixed	1 6
160	CELOSIA AUREA PYRAMIDALIS	1 0
161	,, BEAUFLEUR	1 0
162	,, SPICATA ROSEA	1 0
167	CLARKIA INTEGRIPETALA MARGINATA	1 0
168	,, ,, ALBA	1 0
169	,, ,, COMPACTA	1 0
170	,, PULCHELLA FLORE PLENO	1 0
171	,, PULCHERRIMA INTEGRIPETALA	1 0
172	CLIANTHUS DAMPIERII, English saved	2 6
173	CYCLAMEN PERSICUM	1 0
175	CONVOLVULUS MAURITANICUS	1 6
176	CORDYLINE INDIVISA	2 6
177	DELPHINIUM BICOLOR GRANDIFLORUM	1 6
182	FERDINANDIA EMINENS, a novelty	1 0
183	GAILLARDIA BOSSELARII	1 0
184	,, LOESELII	1 0
185	GILIA LACINIATA	1 0
472	GLOXINIA HYBRIDA, finest mixed	1 0
186	,, TUBIFLORA, very fragrant	1 6
187	GODETIA, THE BRIDE	1 0
188	,, ROSEA ALBA, TOM THUMB	1 6
189	,, RUBICUNDA SPLENDENS	1 0
190	HELIANTHUS ARGOPHYLLUS STRATIFLORUS FLORE PLENO	0 6
191	,, MACROPHYLLUS GIGANTEUS	1 0
192	HELIPTERUM SANFORDII, a novelty	1 0
194	HOLLYHOCK, from named flowers	0 6
195	HOVEA CELSII	1 6
196	IPOMŒA CÆLESTINA GRANDIFLORA	1 0
64	JACOBŒA, extra double	0 6
197	LINUM FLAVUM	0 6
198	LOBELIA ALBA SANGUINEA	1 0
199	,, ERINUS SPECIOSA	0 6
200	,, COMPACTA ALBA	0 6
201	,, FULGENS MULTIFLORA	2 6
202	,, PAXTONIANA	2 6
204	MEDICAGO LITTORALIS	1 0
205	MIMULUS CUPREUS	1 0
206	,, MACULOSUS, a novelty	1 6
207	,, TIGRIDIOIDES, a novelty	2 6
208	NEMOPHILA AURICULÆFLORA	1 0
209	,, DISCOIDALIS ELEGANS	1 0
210	,, ATOMARIA OCULATA	1 0
211	ŒNOTHERA CINNABARINA	0 6
213	,, MACROCARPA	0 6
214	,, MEXICANA ROSEA	1 0
215	PANSY SEED, saved from Prize Flowers	1 0
217	PETUNIA, very choice, from named flowers	0 6
218	,, COUNTESS of ELLESMERE	0 6
219	,, QUEEN BERTHA	1 6
220	PHLOX DRUMMONDII, PRINCESS ALEXANDRA	1 0
222	,, ,, TWILIGHT	1 0
223	PICOTEE, very choice	1 0
225	PORTULACA GRANDIFLORA FLORE PLENO	2 6
232	PRIMULA FIMBRIATA KERMESINA SPLENDENS	2 0
233	RHODANTHE ATROSANGUINEA	1 6
234	,, MACULATA, very fine	1 0
235	,, ALBA	1 6
236	RICINUS VARIABILIS SPLENDENS	1 0
237	,, ROSEUS SUPERBUS	1 0
238	SAPONARIA CALABRICA MARGINATA	0 6
239	,, ,, ALBA	0 6
241	SENECIO ELEGANS FLORE PLENO	1 0
242	SOLANUM, PRINCESS BEATRICE	1 6
95	STOCKS, Earliest Autumnal	0 6
198	,, BROMPTON	0 6
104	,, EMPEROR, large flowering	0 6
112	,, Dwarf German Ten Week	0 6
716	,, intermediate scarlet, choice	0 6
246	SWEET WILLIAM, Hunt's superb strain	0 6
247	,, Melville's crimson belted	0 6
245	,, Dean's Auricula-eyed	1 0
248	TAGETES SIGNATA PUMILA	0 6
249	TROPÆOLUM LOBBI, GLORY	0 6
250	,, MAJUS PURPUREUS	1 0
251	VERBENA, saved from extra fine varieties	1 0
253	VISCARIA OCULATA HYBRIDA	1 0
254	ZINNIA ELEGANS FLORE PLENO	0 6
139	WALLFLOWERS, double varieties	0 6

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

BARKER'S NEW HYBRID TROPÆOLUMS.—Seed of these beautiful Hybrids, which gave so much satisfaction last year, now ready. Some of them have a charming yellow ground, strikingly spotted with dark crimson; others are variously coloured; but all are admitted to be extremely handsome. (See reports in this and other papers.) Price 1*s.* and 2*s.* 6*d.* per packet.

C. J. BARKER, Exotic Nursery, Godalming, Surrey.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

Plant from now till March 15.

Choice RANUNCULUSES and ANEMONES are offered by C. TYSO, Florist, Wallingford, Berks. For prices obtain CATALOGUE gratis, or see *Gardeners' Chronicle* for January 23 and 30.

Imported GERMAN SEEDS of first quality in assortments per post, from 1*s.* to 5*s.* each.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb.—Imported GERMAN ASTER, STOCK, WALLFLOWER, Phlox Drummondii, Zinnia, Balsam, Cockscomb, Larkspur, Dianthus, Variegated Poppy, English Saved Calceolaria, Cineraria, Chinese Primula, Mimulus, Rhodanthe, Pansy, Hollyhock, Antirrhinum, Auricula-eyed Sweet William.

Packets, 6*d.* to 1*s.* each.

RICHARD SMITH, Seed Merchant, Worcester.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Double Italian Tuberose Roots, 4*s.* per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

MR. FRED. BREWER has pleasure in offering SEEDS of a New CABBAGE LETTUCE, unequalled for summer, autumn, and winter use, at 1*s.* per packet.

AMARANTHUS MELANCHOLICUS MAJOR, a magenta-shaded Foliage plant for ribbon Borders—the Plant of the year. 1*s.* per packet.

Choice selections of Sporiferous FERNS in 20 varieties for 5*s.*, Post free,

GOOD GARDENERS recommended.
2, Park Place, Carlton Road, London, W.

Roses.

PAUL AND SON beg to offer, from their immense stock of the finest ROOTED and GOOD-HEADED Plants in the country, AUTUMNAL ROSES at the following reasonable rates.

OUR SELECTION.

FINE STANDARDS, 3 to 4 ft., 18*s.* per doz., 6*l.* 10*s.* per 100.
FINE DWARF ditto, 1 to 2 feet, 12*s.* to 15*s.* per doz., 5*l.* per 100.
FINE DWARFS, including TEA, NOISETTE, &c., 9*s.* to 12*s.* per doz., 75*s.* per 100.

PURCHASER'S SELECTION, for large Quantities special prices will be given. They would remind purchasers that with the present late season, Roses may be advantageously removed throughout March.

PRICED CATALOGUE on application.
"Old" Chesbunt Nurseries, Herts.

Standard and Dwarf Roses.

PRICE ON APPLICATION.

GEO. JACKMAN AND SON, Woking Nursery, Surrey, have a quantity of the above in known leading varieties and good trees; they are desirous of clearing the ground, and will sell them cheap.

Roses.

EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.

Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

Great Reduction in the Price of Roses.

BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.

CATALOGUES, with special Prices, on application to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

A Very Extensive and Well-grown Stock of Roses,

CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—*s.*	*d.*
STANDARD HYBRID PERPETUALS	18*s.* to 24	0
HALF STANDARD ditto	15*s.* ,, 18	0
DWARF ditto	9*s.* ,, 12	0
STANDARD SUMMER ROSES	18	0
HALF ditto ditto	15	0
DWARF ditto ditto	9	0
DWARF BOURBON and TEA SCENTED	12*s.* ,, 18	0
DWARF CHINA	9*s.* ,, 12	0
DWARF NOISETTE	9*s.* ,, 15	0
CLIMBING ROSES	9*s.* ,, 12	0
CLIMBING ROSES, without names, for covering banks, &c. per 100	30*s.* 4	0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE	5	0

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

New Roses for 1864.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong Plants of the following NEW ROSES to offer:—

HYBRID PERPETUALS.	HYBRID PERPETUALS.
Alpaide de Rotalier	Mademoiselle Lobry
Amiral la Feyrouze	Maréchal Souchet (Damaizin)
Baronne Pelletan de Kinkelin	,, Forey
Bernard Palissy	,, Souchet (Guillot)
Eugène Verdier	Pavillon de Pregny
Gabriel de Peyronney	Paul de Milleray
George Paul	Senateur Reveil
Joseph Fiala	Triomphe de Villecresnes
Kate Hausburg	BOURBON.
La Duchesse de Morny	Madame de Stella
La Reine de la Pape	Rev. H. Dombrain
Leopold Hausburg	TEAS.
Leopold 1st, Roi des Belges	Lays
Louise Van Houtte	Souvenir de Mdmselle Eugenie Pernet
Madame Victor Verdier	
,, Soupert	

A PRICED LIST, with Descriptions, may be had on application.

ROSES.—Fine DWARF ROSES, still on Sale. A few fine Standards of 1863 yet on hand. Prices on application.

The NEW DAHLIA CATALOGUE now ready.
All the NEW ROSES in April.
JOHN KEYNES, Nurseryman, Salisbury.

STANDARD and DWARF ROSES of the finest quality.

STANDARD ROSES of the new and finest sorts, 12*s.* per doz., 80*s.* per 100.

HALF STANDARD Ditto, ditto, 9*s.* per doz., 70*s.* per 100.

DWARF, budded on Manetti, 9*s.* per doz., 50*s.* per 100.

Finest Exhibition HOLLYHOCKS to name, 9*s.*, 12*s.*, and 18*s.* per doz., 50*s.* per 100.

The best sorts of LANCASHIRE GOOSEBERRIES, 8*s.* per 100, 60*s.* per 1000.

CURRANTS, best Red and White sorts, 8*s.* per 100, 60*s.* per 1000.

Fine bearing Pyramid trees of PEARS on Quince, 12*s.* per doz.

CATALOGUES of the above sent post free.

Address HENRY MAY, Hope Nurseries, Bedale, Yorkshire.

2000 STANDARD ROSES, strong and healthy, of the Choicest sorts; Wholesale Price 2*l.* 15*s.* per 100; Retail, 10*s.* per dozen. 500 RHODODENDRONS (in 96 distinct varieties) 15*s.* per dozen. All other kinds of Shrubs, Plants, or Seeds equally good and cheap. Orders for 20*s.* worth, or above, sent to any Railway Station in England Free,

By H. POTTER, Nurseryman and Seedsman, 65, Farringdon Street, London, E.C.

Pelargoniums.

CHARLES TURNER has fine healthy plants of the much admired New Varieties raised by G. W. Hoyle, Esq., and E. B. Foster, Esq., and which were so successfully exhibited, and so much admired, last season.

Also several superior new FANCY varieties.

The general Collection of SHOW, FRENCH, and FANCY varieties is most extensive, and can be supplied at moderate prices per dozen.

CATALOGUES on application.
The Royal Nurseries, Slough.



FLOWER SEEDS

FREE BY POST.	£	*s.*	*d.*
The best 100 sorts of FLOWER SEEDS, hardy, half-hardy, and tender, with instructions	1	1	0
The best 50 sorts do. do.	0	10	6
The best 36 sorts do. do.	0	7	6
The best 24 sorts do. do.	0	5	0
The best 50 sorts, all hardy and very distinct in colour ..	0	10	6
The best 36 sorts, all hardy and very distinct in colour ..	0	7	6
The best 24 sorts, all hardy and very distinct in colour ..	0	5	0

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that a Plant of this beautiful variety, with 25 heads of Flower, may now be seen in the Horticultural Society's Conservatory at Kensington. Good plants, on their own roots, 21*s.* each.

Exotic Nursery, Tooting, Surrey, S.

To the Trade.

MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering strong Autumn-struck Plants of the following, from Store Pots—

SCARLET GERANIUMS—Tom Thumb, Frogmore's Improved and Finedonensis.

CALCEOLARIA AUREA FLORIBUNDA.

AGERATUM MEXICANUM.

VERBENAS—Purple King, Géant des Batailles, Brilliant de Vaise, Lord Raglan, Mars, General Simpson, and Mrs. Holford.

The above at 8*s.* per 100; 70*s.* per 1000.

N.B. A reference or remittance requested from unknown Correspondents.

Strong Fruiting Vines.

JAMES DICKSON AND SONS can still supply fine strong Fruiting Canes of the undernoted VINES, at 7*s.* 6*d.* and 10*s.* 6*d.* each.

Black Frontignan	Grizzly Frontignan
Black Prince	Ingram's Prolific Muscat
Buckland Sweetwater	Morocco Prince
Cannon Hall Muscat	Muscat Hamburgh
Charlesworth Tokay	Muscat of Alexandria
Chasselas Musqué	White Frontignan
Esperione	West's St. Peter's
Golden Hamburgh	

Price to the Trade upon application.
The Newton Nurseries, Chester.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.

LIST of SORTS sent on application.

INGRAM'S PROLIFIC MUSCAT, the most free bearer of all for pot culture; suitable for ordinary Vineries.

FRANKENTHAL, the best of all the Black Hamburghs.

TRUE CHAMPION HAMBURGH, the largest berry, and very fine fruit.

CHAVOUSH, new white; Fruiting Canes, 10*s.* 6*d.* to 21*s.*

Wellington Nursery, St. John's Wood, London, N.W.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s.* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861.

The following is an Extract from the Report:—

"Mr. RIVERS's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."

Fruit large, often measuring 9 inches in circumference.

Young Trees, full of blossom buds, 10*s.* 6*d.* each.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

The "Pine Apple" Scarlet-flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

CUCUMBER.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.

A fine Collection of CUCUMBERS and MELONS at 1*s.* per packet. For List see this Paper of Jan. 30, 1864.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

Griffin's ALMA LETTUCE, true, 1*s.* per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement of Jan. 30, 1864, with the exception of General Outram Cucumber, for 3*s.*

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

Genuine Seeds.

WILLIAM KER (21 years with W. Skirving), 10, Great Charlotte Street, Liverpool, begs to announce to his customers and friends that they can be supplied at his Establishment as usual with every description of SEEDS, first-class quality, at very moderate prices.

CHEAP PLANTS.—The following in strong Plants:—

	Per doz.—*s. d.*		Per doz.—*s. d.*
New Fuchsias of 1863	.. 6 0	Hepaticas (sorts)	.. .. 4 0
Do. 1862	.. 4 0	Primroses	.. .. 4*s.* to 9 0
Geraniums of 1863 (Bedding var.)	.. .. 9 0	Polyanthus (finest mixed)	3 0
Lobelia Paxtoniana and five others of 1863	.. 4 0	Auriculas (border var.)	.. 3 0
Mimulus of 1863	.. .. 4 0	Lilies of the Valley	.. 2 0
Pentstemons of 1863	.. 6 0	Pinks (finest named)	3*s.*6*d.* .. .. .. and 6 0
Pampas Grass (roseum)	.. 9 0	Cloves (finest mixed)	.. 4 0
Ageratum Prince Alfred	.. 6 0	Violets (sorts)	.. .. 3 0
Lonicera aureo-reticulata	.. .. 6*s.* and 9 0	Gentiana acaulis	.. .. 4 0
Hollyhocks (finest named)	.. .. .. 6*s.* to 9 0	Phlox (fine named)	.. 4 0
		Pansies (fine named)	3*s.* to 6 0
		Dahlias (ground rts.)	9*s.* to 12 0
		Do. (pot)	.. 4*s.* to 6 0

☞ 100 Hardy Herbaceous Plants, in 50 varieties, for 25*s.*

☞ Carriage of Parcels amounting to 20*s.*, paid to London.

Post Office Orders on Castle Hedingham.

WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

West Riding Seed Establishment, St. John's, Wakefield.

THE PROPRIETORS beg to announce they have received their new supply of VEGETABLE SEEDS, which have been tested, and will be found to be genuine. Their supply of FLOWER SEEDS comprises all the Novelties of the present season.

CATALOGUES will be forwarded free on application to WILLIAM BARRATT.

Asters, Stocks, Wallflowers.

JAMES TYNAN'S importation of the above and other Select CONTINENTAL FLOWER SEEDS is now ready, and consists of none but first-class varieties, such as have previously given so much satisfaction to those who have grown them. An extensive assortment of other ANNUAL and PERENNIAL FLOWER SEEDS, containing all the good and rare kinds. All the above are made up in large or small packets to suit the requirements of purchasers. VEGETABLE and AGRICULTURAL SEEDS of the very best quality, at moderate prices. PRICE LISTS free by post on application.

Importer of CONTINENTAL SEEDS.

Seed Warehouse, 68, Great George Street, Liverpool.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.

Seed, saved only from finest varieties, new and very choice, 2*s.* 6*d.* or 5*s.* per packet; Collections of 12 separate named varieties, 4*s.* to 10*s.*; young Seedling plants, from best varieties, 30*s* per 100, or 4*s.* per dozen; Bloomed Seedlings of last year, with colours named, 6*s.* per dozen, or 30*s.* per 100.

Address, W. CHATER, Nurseries, Saffron Walden.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18*s.* to 30*s.* per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12*s.* per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.

THOMAS AYRES.

BERBERIS DARWINI, Lawn and Cover.—Too much cannot be said of this fine evergreen species; it is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.

W. BARRON can supply strong and well-rooted plants of the above.

1 to 2 feet .. per 100, 20*s.* | 2 to 3 feet .. per 100, 30*s.*

Elvaston Nurseries, Derby.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.

W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.

Elvaston Nurseries, Derby.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60*s.*; per doz., 9*s.*, including package.

Elvaston Nurseries, Derby.

CONIFERÆ.—ARAUCARIA IMBRICATA, 14 ft. high; PICEA PINSAPO, 12 feet high; WELLINGTONIA GIGANTEA, 8 feet high, with about 170 other select species and varieties of all sizes and prices.

W. SHORT, Salesman, Reigate, Surrey.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6 ft., 7 ft., and 8 ft., 3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft., 6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft., 9*l.* 9*s.* to 10*l.* 10*s.*

Elvaston Nurseries, Derby.

Strong 2-years Transplanted Larch & Native Scotch Fir.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have a large Stock of the above to offer, of first-rate quality and moderate in price, as well as all other kinds of FOREST and ORNAMENTAL TREES and SHRUBS.

CATALOGUES and Samples will be sent free on application.

Seedling Gorse or Furze, 1 Year, Strong.

G. FROST offers a large quantity, which will be sold cheap, as the ground has to be given up on which it is growing.

Nurseries, Bampton, Devon.

To Nurserymen.

WANTED, 60 LIMES or MAPLES, 16 to 18 feet high, clean stems, and handsome heads. State lowest price delivered to nearest Railway Station to

JOHN BELL, Nurseryman, Norwich.

FOR SALE, about 600 yards of BOX EDGING, bedded out 3 years, and very good, in one lot; or not less than 50 yards, at 7*d.* per yard.

Apply to Manor House, Earle's Court, Old Brompton, S.W.

FOR SALE, 30,000 LARCH, 30,000 SCOTCH, 100,000 SPRUCE, and 100,000 extra strong THORNS, all from 2 to 3 feet high; 3000 DEODARS, splendid plants, to be sold a bargain.

For prices, &c., apply to J. SCOTT, Merriott Nurseries Somerset.

SCOTT'S FRUIT TREE CULTIVATOR, his CONIFEROUS CATALOGUE, his FLOWER GARDEN ANNUAL DIRECTORY, and his SELECT SEED CATALOGUE, ought to be in the hands of every lover of a garden. They are allowed to be the best published on these subjects, and are replete with information. Two Stamps required.

Lawn Trees.

LILACS, STANDARDS and PYRAMIDS.—The following interesting varieties of LILACS are offered at 1*s.* 6*d.* each; the trees are straight and well grown:—

Gloire de Moulins	Valletiana
Triomphe d'Orleans	New Light Blue
Charles 10th	Grandiflora rubra
New Dark Red	White Siberian
Lilas de Louvain	Red Siberian

SIBERIAN TREES, Standards, 5 feet stems.

Caragana jubata (rare)	2*s.* 6*d.*	Halimodendron argenteum	2*s.* 6*d.*
,, frutescens	2 6	Ulmus microphylla pendula, a new small-leaved Weeping Elm	3 6
,, arenaria	2 6		
,, Chamlagu	2 6		
,, spinosa	2 6		
Calophaca Wolgarica	2 6		

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	,, Portugal, 1 to 2 feet
,, dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	,, Turkey, 3 to 4 feet
,, standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

H. LANE AND SON beg to inform their Patrons that the season is advancing, and that it is quite time intending Planters should examine their CATALOGUES. We beg permission to call their especial attention to our WELL FAMED STOCK, among which will be found great quantities of the following, viz.:—

Abies Douglasii, 3 to 12 feet	Picea Lowii
,, orientalis, 1 to 3 feet	,, nobilis, to 4 feet
,, taxifolia, 1 to 3 feet	,, Nordmanniana, to 4 feet
Azalea indica	Pinus in sorts
,, Ghent	Podocarpus
Araucaria imbricata, 2 to 12 ft.	Retinispora
Cedrus Deodara, 3 to 10 feet	Roses, strong and fine, second to none
,, Libani, 3 to 10 feet	Thuja aurea
Cupressus Lambertiana, 3 to 6 feet	,, gigantea
Cupressus Lawsoniana, to 3 ft.	,, Siberian
Fruit Trees of every description	Thujopsis borealis
Juniperus, upright, 2 feet	,, dolabrata
,, chinensis, 1 foot	Wellingtonia, 1 to 4 feet
Picea grandis	Yews in variety
,, lasiocarpa	

which we can supply at most reasonable prices.

CATALOGUES may be had gratis on application at the Nurseries, Berkhampstead, Herts.

STEPHEN SMITH, Tansley, near Matlock, offers the following, at per 1000, viz.:—

WHITE BROOM, 3 to 4 feet, 60*s.*; COTONEASTER MICROPHYLLA, transplanted, 1 foot, 30*s.*; 2 feet, strong, 50*s.*; C. ROTUNDIFOLIA, 1½ to 2 feet, 40*s.*; LABURNUM, 2 to 4 feet, 25*s.*; LAUREL, 2 to 3½ ft., 65*s.*; RIBES SANGUINEUM, 1½ to 2 ft., 15*s.*; 2 to 3 feet, strong, 40*s.*; R. ATROSANGUINEUM, 1½ to 2 feet, 30*s.*; PINUS MARITIMA, 1 foot, 10*s.*; BEECH, 1½ to 2 feet, 15*s.*; SPRUCE FIR, 1½ to 2 feet, 17*s.*; POPLAR, ONTARIO, 1½ to 2 feet, 12*s.*

DECIDUOUS and AMERICAN SHRUBS, in variety, &c.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, HERTFORDSHIRE, true from layers, 3 to 4, 4 t 5, and 5 to 6 feet
,, HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
,, WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
,, LOMBARDY, 8 to 10, and 10 to 12 feet
,, ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
,, ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, CŒRULEAN and HUNTINGDON 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black

Huntingdon Nurseries.

THE FINEST SUMMER LETTUCES in CULTIVATION, each free by Post for Six Stamps.

COS, PARIS WHITE, finest stock.
,, ,, GREY, very large.
,, LONDON WHITE.
CABBAGE, VICTORIA, compact, early.
,, NEAPOLITAN, very large.
,, SILESIAN, very large and tender.
,, EARLIEST FRENCH, best small early.

A Packet of each for 36 Stamps. All saved from unusually fine stocks.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

THE COLESHILL CUCUMBER.—We have much pleasure in drawing attention to this first-class Cucumber; it was raised by Mr H. Eckford, Gardener to the Earl of Radnor, Coleshill, Berks, who speaks of it as follows:—

"The Coleshill Cucumber, which I have grown for several years, is well adapted both for early and late work.

"The fruit grows about 20 inches long, is of uniform girth like a gun-barrel, perfectly round, with a particularly short handsome handle; it is smooth, of light green colour, thickly covered with bloom, an abundant cropper, and of first-rate quality. Specimens I sent to you on two or three occasions were fair examples of it. Twenty inches is about the average length, but I have had it 26 inches, but not when in full bearing, or rather when the plants were fully cropped."

(We have grown it ourselves, and can confidently recommend it.) Price per packet, 1*s.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

APPLEBY'S SEEDLING CUCUMBERS.—We have much pleasure in offering the following six varieties of CUCUMBERS, which we received from Mr. APPLEBY, the well-known writer on Horticultural subjects; we have grown them at our Nursery, and can fully endorse Mr. APPLEBY'S description of them, which is as follows:—

EMPEROR, 24 to 26 inches long.—A handsome fruit, with black spines; hardy, a good setter. Well suited for winter culture.

QUEEN, 28 to 30 inches long.—A fine, well-shaped fruit, with black spines; a free bearer, good setter. Suitable for exhibition.

CONQUEROR, 28 inches long.—Handsome in shape, with white spines; a good bearer. Fit for exhibition, very excellent in quality.

ALBION, 24 inches long.—A white-spined well-shaped variety; extra bearer, a good forcer, and bears freely in winter. Qualities excellent, being crisp and well-flavoured.

HAILSTONE.—Blunt white spines in the form of hailstones; a free bearer; handsome and curious.

HAMILTON'S IMPROVED BLACK SPINE.—A well-known excellent variety.

The above collection for 3*s.* 6*d.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

CARTER'S CHAMPION BROCCOLI.—Dwarf, compact growing, and large-headed, the best late Broccoli in cultivation, spoken of by the *Gardeners' Chronicle* as follows:—

"Very large, not in the least coarse, white rather than cream-coloured, and proved when cooked to be wholly free from the strong taste which spoils so many Broccolis."

MR. ARTHUR HENDERSON, *the eminent Nurseryman, of Pine Apple Place, Edgware Road, says of this Broccoli*:—

"It is a really excellent and compact variety, with large round and close heads, flavour sweet and first-rate, growth equal and alike, as if turned out of a machine. There is no mistake in this being one of the right things; coming in so late is another valuable consideration; it certainly fills up the gap or interval between the Broccoli and Cauliflower." Price, per packet, 1*s.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.

Fulham Nursery, London, S.W.—February 13.

Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2*s.* 6*d.* per packet. Will be forwarded to any part of England on forwarding 30 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

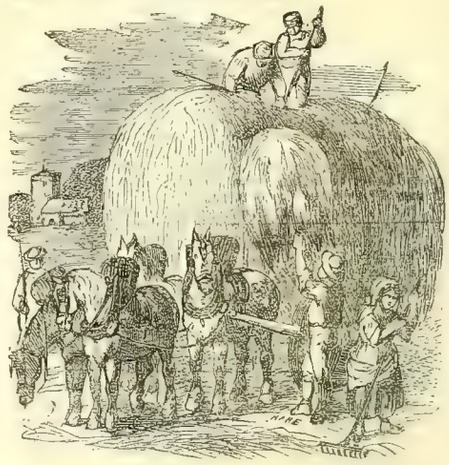
W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

THE ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.



PROPRIETORS,
MARTIN HOPE SUTTON, and ALFRED SUTTON.

UNDER THE DISTINGUISHED PATRONAGE OF
HER MOST GRACIOUS MAJESTY THE QUEEN,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
AND THE PRINCIPAL MEMBERS OF THE
ROYAL AGRICULTURAL SOCIETY OF ENGLAND.



PRICES OF FARM SEEDS

FOR MARCH.

Carriage Free (except very small parcels).

FOR EXTRA LARGE QUANTITIES, SPECIAL CONTRACTS MAY BE MADE.

SUTTON & SONS, SEED GROWERS, READING, BERKS,

OFFER THE UNDERMENTIONED WITH GREAT CONFIDENCE, AS BEING GENUINE NEW SEEDS, WHICH HAVE BEEN PROVED TO GERMINATE WELL.

NEW CLOVER SEEDS, free from Dodder and other Weeds.

COMMON RED, or BROAD CLOVER, extra fine and clean, 7*d.* per lb. Second quality cheaper.

YELLOW TREFOIL (Hop Clover, or Black Medick), 4½*d.* per lb. Second quality cheaper.

WHITE, or DUTCH CLOVER, 9*d.* per lb. Second quality cheaper.

ALSIKE, or HYBRID CLOVER, 10*d.* per lb. Second quality cheaper.

COW GRASS (the true kind), 9*d.* per lb.

MIXED PERENNIAL CLOVERS for PERMANENT PASTURE (Perennial Red, Perennial White, and Alsike), 10*d.* per lb.

MIXED CLOVERS for ALTERNATE HUSBANDRY (Common Red, Alsike, White, and Yellow), 9*d.* per lb.

RIB GRASS, or NARROW-LEAVED PLANTAIN, 6*d.* per lb.

Samples and lowest price per Cwt. may be had on application.

MIXTURES of CLOVERS and RYE-GRASS SEEDS.

TO BE SOWN WITH CORN FOR A CROP OF CLOVER, &c., IN THE FOLLOWING YEAR.

CLOVERS and ITALIAN RYE-GRASS (Seeds), for One Year's Clover, &c., including 14 lbs. Alsike and other Clovers, at 12*s.* 6*d.* per acre.

CLOVERS and COMMON RYE-GRASS, including 14 lbs. Alsike and other Clovers, at 12*s.* 6*d.* per acre.

CLOVER SEEDS WITHOUT RYE-GRASS, at 10*s.* 6*d.* to 12*s.* 6*d.* per acre; according to the sorts and quantities supplied.

SUTTON'S MIXTURES of PERMANENT PASTURE GRASS SEEDS.

The first Prize Medal of the Royal Horticultural Society was awarded to our Collection of Clover and Grass Seeds at the Great International Exhibition of Seeds and Roots in October, 1862. The quantity we usually supply is 2 bushels of light Seeds and 12 lb. heavy Seeds per acre. 30*s.* per acre.

*** *For extra large quantities special contracts may be made.*

CHEAPER PERMANENT MIXTURES, including Clovers and Good Permanent Grass Seeds, but omitting some of the more expensive kinds, 24*s.* to 25*s.* per acre.

MIXTURES for RECLAIMED MARSHES and HEATH LANDS, 20*s.* per acre.

MIXTURES for LAYING DOWN WATER MEADOWS, 25*s.* per acre.

MIXTURES to LAY DOWN NEW PARK LAWNS.—Seeds for this purpose will be 16*s.* per bushel.

MIXTURES for FINE GARDEN LAWNS.—Including only the finest or shortest growing kinds, 18*s.* per bushel. 3 bushels per acre of these fine sorts are required.

MIXTURES of GRASSES, CLOVERS, &c., for 3 or 4 YEARS' PASTURE, HAY, or SOILING.—These we can supply of best quality, at 21*s.* per acre, or if required to remain only 2 years, the price will be only 17*s.* 6*d.* per acre.

EVERGREEN GRASSES for CHURCHYARDS and CEMETERIES.—Price of Seed, 16*s.* per bushel.

MIXTURES for ORCHARDS and PASTURES OVERSHADOWED with TREES, 15*s.* per bushel.

MIXED PERMANENT GRASS SEEDS of COARSE KINDS, for RAILWAY EMBANKMENTS, &c., &c., 3*s.* 6*d.* per bushel, in quantities of not less than 8 bushels.

NATURAL GRASSES contained in MESSRS. SUTTON'S MIXTURES.

(Besides Clovers), and which may be purchased separately in quantities not less than 7 lbs. of either sort at the undermentioned prices.

	Per lb.—*s.*	*d.*
ALOPECURUS PRATENSIS	1	3
ANTHOXANTHUM ODORATUM	1	6
AGROSTIS STOLONIFERA	0	10
CYNOSURUS CRISTATUS	1	0
DACTYLIS GLOMERATA	0	10
FESTUCA DURIUSCULA	0	10
,, ELATIOR	1	0
,, GIGANTEA	1	3
,, HETEROPHYLLA	1	0
,, PRATENSIS	0	10
,, OVINA	0	10
,, RUBRA	0	10
,, TENUIFOLIA	1	0
,, LOLIACEA	0	10
GLYCERIA FLUITANS	1	0
,, AQUATICA	1	0
LOLIUM PERENNE	0	4½
,, ,, STICKNEYANUM	0	4½
,, ,, PACEYANUM	0	4½
,, ,, SEMPERVIRENS	0	4½
,, ,, TENUE	0	5½
PHLEUM PRATENSE	0	6
POA PRATENSIS	1	0
,, TRIVIALIS	1	0
,, NEMORALIS	1	3
,, ANGUSTIFOLIA	1	3
,, FERTILIS	1	3
,, SEMPERVIRENS	1	6

RYE-GRASSES (cheaper in large quantities).

ITALIAN RYE-GRASS, good English seed, 5*s.* 6*d.* per bushel.
FRESH IMPORTED SEED, cleaned, 7*s.* per bushel.
PERENNIAL RYE-GRASS, clean seed, 5*s.* 6*d.* per bushel.
PACEY'S PERENNIAL RYE-GRASS, very fine, 6*s.* 6*d.* per bushel.
EVERGREEN RYE-GRASS, 7*s.* per bushel.
ANNUAL, or COMMON, best quality, 5*s.* 6*d.* per bushel.
Ditto ditto, lighter seed, 4*s.* 6*d.* per bushel.
Samples and lowest price per Quarter may be had on application.

MANGEL WURZEL SEED (cheaper by the Cwt.)

SUTTON'S LARGE YELLOW GLOBE.—The heaviest cropper and hardiest Mangel known. The First Prize Medal at the International Root Show in October, 1862, was awarded to us for this sort. 6*d.* per lb.

SUTTON'S ORANGE GLOBE.—Beautiful shape, with small greens, 6*d.* per lb.

RED GLOBE.—Similar to the above, except in colour, 6*d.* per lb.

LONG RED.—A good old sort, 6*d.* per lb.

LONG YELLOW.—A heavy cropper, of fine texture, 6*d.* per lb.

FISHER HOBBS' ORANGE GLOBE, very fine, 9*d.* per lb.

STRATTON'S RED GLOBE, 9½ per lb.

SUTTON'S ELVETHAM LONG RED.—A new large variety, of superior feeding quality, 8*d.* per lb.

NEW YELLOW INTERMEDIATE, 1*s.* 6*d.* per lb.; NEW RED INTERMEDIATE, 1*s.* per lb.

Lowest price per Cwt. may be had on application.

TURNIP SEEDS.

SUTTON'S CHAMPION SWEDE.—A very large Purple-top Yellow Swede. Gained 12 Silver Cups presented by His late Royal Highness the Prince Consort in six successive years, of 20 Guineas value each, besides numerous other distinguished Prizes in other parts of the Kingdom. 9*d.* per lb.

SKIRVING'S SWEDE (SUTTON'S Selected Stock).—Our stock of this Swede is particularly true, having been grown last summer from transplanted roots carefully selected. 8*d.* per lb.

SUTTON'S HARDY PURPLE-TOP, a fine hardy Swede, 8*d.* per lb.

MARSHALL'S PURPLE TOP, 9*d.* per lb.

HARDY WHITE SWEDE.—Choice stock, excellent for late spring feed, 9*d.* per lb.

YELLOW SCOTCH or BULLOCK TURNIP (Green-top), selected stock, 8*d.* per lb.

SUTTON'S PURPLE-TOP YELLOW HYBRID.—A good substitute for Swedes, 9*d.* per lb.

YELLOW TANKARD, strongly recommended, 9*d.* per lb.

SUTTON'S GREEN-TOP YELLOW HYBRID.—Large and fine, 9*d.* per lb.

LINCOLNSHIRE RED GLOBE, True.—From the original stock presented to us by the late Philip Pusey, Esq., 8*d.* per lb.

SUTTON'S IMPERIAL GREEN ROUND or GLOBE.—Should be sown for the main Winter Crop, instead of the Common Green Round Turnip, being a heavier and more nutritious Turnip, 8*d.* per lb.

OLD HARDY GREEN ROUND, for late Spring Feed, 8*d.* per lb.

POMERANIAN, large White, for early Feed, 8*d.* per lb.

WHITE GLOBE, large sort, well known, fine stock, 8*d.* per lb.

TANKARD, RED, WHITE, or GREEN, for early Feeding only, 9*d.* per lb.

EARLY SIX-WEEKS' STONE, or STUBBLE, for sowing very early or very late, 8*d* per lb.

GREY STONE, or MOTTLED GLOBE.—Fine large new sort, strongly recommended, 9*d.* per lb.

Lowest price per Bushel may be had on application.

CARROT (cheaper by the Cwt.)

WHITE BELGIAN.—Fresh imported Seed; a very heavy cropper, 1*s.* per lb.

LARGE GREEN-TOP YELLOW BELGIAN, similar to White Belgian in size, and more nutritious, 1*s.* 3*d.* per lb.

RED INTERMEDIATE, excellent for Shallow Soils, 1*s.* 6*d.* per lb.

ALTRINGHAM, the largest Red Carrot, 1*s.* 6*d.* per lb.

COW CABBAGE.

EARLY SCOTCH DRUMHEAD.—Sow in March, to Feed in October and Nov., 2*s.* 6*d.* per lb.

LARGE DRUMHEAD, from fine selected plants, 1*s.* 9*d.* per lb.

THOUSAND-HEADED.—Very productive, tall, branching, strongly recommended, 2*s.* 6*d.* p.lb.

ROBINSON'S CHAMPION DRUMHEAD.—Gained First Prizes at Royal Horticultural Society's International Show, and Birmingham; some of the heads weighing 75 lb. each, 3*s.* 6*d.* per lb.

LONDON MARKET, EARLY BATTERSEA, and others, 3*s.* 6*d.* each.

KOHL-RABI, or TURNIP-ROOTED CABBAGE.

LARGE GREEN.—Very large. Prize Medal at International Root Show. 1*s.* 9*d.* per lb.

LARGE PURPLE.—Not quite so large as the preceding, 1*s* 9*d.* per lb.

MISCELLANEOUS.

	Per lb.—*s.*	*d.*
LUPINS, White, Yellow, and Blue. Price fluctuating.		
FURZE, or GORSE (24 lb. per acre)	1	3
LARGE CATTLE PARSNIP (8 lb.)	1	3
MUSTARD (20 lb.)	0	4½
RAPE, or COLE (6 lb.)	0	4
SHEEP PARSLEY	0	10
WHITE SILESIAN SUGAR BEET	0	9
FENUGREEK	0	9
SERADELLA, substitute for Vetches	0	9
LUCERNE (20 lb. per acre)	0	10
LINSEED or FLAX. Price fluctuating.		
BROOM (for Cover)	1	0
BURNET	0	4
CHICORY	2	6
YARROW	3	6
BUCK WHEAT. Price fluctuating.		
EARLY RACEHORSE PEAS ,,	10	6

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SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

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COLLECTIONS of GARDEN SEEDS

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These SEEDS have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth, Essex; we can therefore guarantee them to be of first-rate growth and pure stocks.

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MR. FORTUNE has received from Peking by the Overland Mail, a few SEEDS of this most remarkable and hardy Pine (see p. 776, 1863). They are offered for Sale at 25s. per oz. (free by post on the receipt of Post-office Orders, or crossed checks), by R. FORTUNE, 1, Gilston Road, London, S.W.

COB NUTS: COB NUTS, WEBB'S KENTISH. —A few hundred 3-year-old Seedling Plants to be Sold very cheap.

Apply to C. CHESTERMAN, Market Gardener, Reading, Berks.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

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ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

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Half-standard Apples.

RICHARD SMITH being overstocked, will sell in lots of not less than 50, good Trees of best sorts, and true to name, at 30s. per 100; also Half-standard PLUMS, PEARS, and CHERRIES, at 50s. per 100.

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Pine Plants and Vines.

T. PAPE can supply PROVIDENCE, MONTSERRAT, and other varieties of PINE PLANTS, clean. Also strong VINES for fruiting in pots or planting out.

Undercliffe Gardens, Bradford, Yorkshire.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Vines Black Hamburgh and Muscat of Alexandria.

ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 7s. 6d. each. The usual discount to the Trade.

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JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.

N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

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B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.

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The Gardeners' Chronicle.

SATURDAY, FEBRUARY 27, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, March 3—Linnean .. .. 8 P.M.

CHISWICK, A SCHOOL OF HORTICULTURE! The very idea is refreshing, and the sound of the exclamation musical, after the croakings we have heard of late years to the effect that Chiswick was worn out, Chiswick was obsolete and useless, Chiswick was dead and ought to be dismembered. Dead, indeed! Why it has at this moment more inherent vitality than has the fashionable show garden; witness the scores of voices raised in its defence at the annual meeting of the Society the other day.*

Chiswick useless, indeed! Was it useless, then in the days when BANKS, and KNIGHT, and WEDGWOOD, and SABINE, and BENTHAM, and SOLLY, and LINDLEY were occupied therein, in the development of horticultural science, and familiar-

* We are glad to learn that at the adjourned annual meeting on Tuesday last, it was intimated that the Council had named a committee, consisting mainly of Horticultural Fellows, to consider what could be done to render Chiswick more useful in a horticultural point of view.

ising energetic young men with improvements in the practice of horticulture? When such men as our PAXTONS, and BOOTHS, and DUNCANS, and TRAILLS, and BAILEYS, and WILSONS, and many more were indoctrinated in the scientific practice of modern times; was it useless, that in those days of action, the country gentlemen of England came forward as Fellows of a Society which was worthily working at horticulture, and that for the sake of doing good service in their day and generation, and of upholding so noble and so important a pursuit—which in its reflex influence upon agriculture they well knew was of the utmost importance to our national prosperity? No, no; they knew, did these gentlemen of England, that a good and beneficial work was in progress, and like good men and true, they gave it their hearty and patriotic support. And is there now less cause for carrying on the work so well begun and so nobly carried forward, almost down to the present day? Almost we must say, but not quite, for alas! a change has come over the scene; and because the fashionable crowd won't go to Chiswick now as it once was wont to go, the real work of the Society, that for which it was incorporated, becomes wearisome to the powers that be, and other fields are explored to find some questionable vein of novelty, in order to keep up the flagging interest of a public tired of scenes in which it sees there is no heart or inner life. If, in those days to which we have alluded, there were advances on the practice of former days which required to be demonstrated for the improvement of the then rising generation of gardeners, have we not since then again advanced, yea, have we not advanced much further, and much more rapidly, and does not the present generation of gardeners need as much, nay more than their predecessors, the benefit of the same example set before them, and of the same stimulus to action—in a word, of the same kind of practical teaching. And is it not that this work—legitimate horticultural work—should go on, that so many of the nobility and gentry who take a lively interest in the cultivation of the soil, have continued to support a Society which has been honoured by bearing Chiswick with the emblems of its peaceful conquests emblazoned on its shield? Has not the idea that this work was not abandoned, kept the garden owners of England on the Society's roll, even while it has been passing through the vale of adversity; and is such generous sympathy to be sacrificed for an idea which, whatever it is, is not gardening.

We enter not now on the question of what MIGHT be done at Kensington in the way of reviving and encouraging the taste for horticulture, though we believe that not one of the schemes now in course of being carried out, will have half so much influence upon the public in this direction, as will the revival of day meetings of an interesting character—not the institution of night meetings. We intend to refer rather, to what might be and ought to be done at Chiswick. Since those days when old Chiswick—we love the venerable name—was a school of horticulture, by which we mean as much an exemplification of advanced horticulture, as a seminary for young gardeners, we have gone on acquiring new fruits and new flowers, which have, in fact, accumulated around us. We have gone on, and by the aid of the increasing light of science have improved our practice, till what was advanced practice in the days to which we refer, is now antiquated. There were then no orchard-houses, and practical gardeners at least knew nothing of the cool treatment of Orchids. Many of the races of fashionable flowers whose name is now on the tongue's end of almost every child, were in that not very distant past, as yet quite unknown. But where are we to find the exemplification of all this? Where are we to go as to a fountain of knowledge to become acquainted with such of these matters as we may each be specially interested in? No private garden would, besides carrying on its special private objects, be capacious enough to take in the vast extent of subjects to be illustrated; it must be done in a public garden; and what garden but that of a society chartered for the very object, is it to be expected should be devoted to it?

Then as to our young gardeners, those on whom the owners of private gardens must depend hereafter for the productiveness and much of the comfort of their several garden establishments, is it not now more than ever, a necessity that they should have an opportunity to become acquainted with all these matters, that they may know how to provide and act for the best, when the destinies of a garden establishment are committed to their hands? We unhesitatingly say it is a necessity; it is one of the wants of the age. The decadence of Chiswick as the fountain of horticultural information, is already telling upon the rising generation of gardeners. We willingly admit that there are bright exceptions, but as a whole, the class is not now what it was when it yielded a PAXTON. We hear constant complaints by head gardeners, that the young men who enter the profession are not to the same extent as formerly, industrious, intelligent, and knowledge-seeking. Does this prove Chiswick to be useless? Nay rather, it proves it to be, as we have already said, a necessity of the present as it was of the past; and it is for the sake of keeping up this very influence—reviving it in truth, we now must say, that the class of fellows to which we have more than once alluded, has, if we mistake not the evidence of our own eyes and ears, clung to the Society through all its troubles, in the hope of brighter days returning, and that modern horticulturists have given it their support, to an extent unknown in former times.

Chiswick worn out, indeed! Why even in its worn-out and threadbare state, we are officially told that besides the local visitors there are annually 200 of the extra-local class who enter its gloomy precincts. What are these but so many country residents seeking information, and when they find it bearing away their share, and disseminating it in their respective localities? What are they, in fact, but so many missionaries of horticulture? and if Chiswick were better kept, if it were but kept as it ought to be, if more were to be seen and learned by a visit there, the number of visitants would be more than quintupled at a bound. That visitors could not easily be got there if there were any effort made in the right direction to induce them, we will not believe. Suppose, for example, that during the time the collections of trial flowers and fruits are in their prime, there were one or two special days set apart for a Fellow's promenade there; and suppose that the meritorious and approved subjects, instead of blooming on, unknown at least if not unseen, until some months afterwards a report appeared, were to be marked so that they could be recognised by the Fellows and their friends—would they not go there to see and take some interest in the subject? Undoubtedly they would—some going perhaps to be seen, as well as to see; but that would matter little, for while a portion would be gratified by the information gained, the rest would be gratified by having had a pleasant meeting. And what cost would it be to have the gardens made decent for one or two such visits? It need not be much, and whatever it might be, the sum would be better thus spent than on some other questionable propositions.

At present, however, there is little inducement to those who have not a deep and intense interest in anything horticultural, to undertake a visit there, which it is granted the distance does not favour. But a reasonable inducement would outweigh even the distance with many of those 3000 Fellows who have come in merely to derive pleasure, and who do not look for profit in any sense from their fellowship. Look at the trial Flowers during the past two or three seasons, noble collections, contributed willingly and gratuitously by our nurserymen and florists. Why, they have been parsimoniously crammed into a space not half sufficient for their development, while acres were allowed to lie waste; and it has been impossible, even if the effort had been made, to indicate to the Fellows and visitors the superior varieties, whose very character indeed has been in many cases destroyed by the huddled manner in which they grew. And if Fruits, from their more permanent character, and greater intrinsic value, have fared better in respect to accommodation, they have not fared better in respect to any effort made to indicate their merits to those who would gladly go to acquire the information. What has hindered these things from being done, but the want of interest which has been manifested in the dear old garden. True, the facts which we think should be, and might be made patent to the visitor, appear after the lapse of time as the reports of the Committees, but while these are lying useless in the editorial portfolio, the opportunity for the visitors to make the personal acquaintance many would wish to do with the approved kinds, passes away for ever.

So far then from being not wanted, or being effete, or useless, or dead, Chiswick is at this moment more necessary than ever, and has, we believe, capacity to arise Phœnix-like from its ashes, and to take its proper place at the head of British Horticulture. We propose to show hereafter in more detail, what might be done at Chiswick and in other fields by the Society for the Advancement of Horticulture, in accordance with its charter, and with every prospect of a successful issue; and if in addition to this, the Royal Commissioners would but complete their own share of the Kensington work in accordance with their bargain, and at the same time a wise and proper economy were to be exercised, the horticultural Fellows would be satisfied that things were taking a right course; while the pleasure-seeking body of Fellows might have their own special gratifications, and in twelve months the institution would stand in a very different position from that which it now occupies.

WE have on several occasions noticed the successful progress of the CINCHONA PLANTATIONS in the East Indies; and we are now gratified to learn from a report by Mr. WILSON, dated December, 1863, that the experiments which have been made in respect to the cultivation of this valuable drug-yielding plant in the West Indies promise also to result in a successful issue, under certain conditions of climate.

Mr. WILSON states that seeds of the quinine-yielding Cinchonas were received at the Botanic Garden, Bath, Jamaica, of which he has the charge, in the autumn of 1860, and by the following autumn he had succeeded in rearing upwards of 400 healthy plants, quite ready for planting out. Unfortunately, as in some other first experiments, the selection of a proper site for their final establishment was overlooked, and the consequence of the subsequent treatment the plants had to undergo was the loss of about half their number. However, continues Mr. WILSON, "being wishful to prove by every means in my power, the result of the experiment of testing the adaptability of the plants (constitutional and climatic) for cultivation in the higher altitudes of this island—finding the climate of Bath, as the summer approached, by far too warm—I had the whole of them removed, in small pots, to Cold Spring Coffee plantation, the elevation being about 4000 feet, and placed under artificial treatment. I soon found the climate and soil of that locality to be all I could desire for the plants; and as it afforded every facility for carrying out so valuable an experiment, I at once availed myself of it, and planted out in the Coffee fields on the 16th of November, 1861, several plants of each species, then about 2 or 2½ inches in height. In 12 months after, a plant of the Red Bark, Cinchona succirubra, had attained the height of 44 inches, with leaves measuring 13½ inches long by 8¾ inches broad. The same plant, now two years old, measures 6 feet in height, with 10 branches, having a circumference of stem at the base of 4½ inches. The Grey Barks, Cinchona nitida and C. micrantha, being of more slender growth, have not made such rapid progress. The highest has attained to 5 feet, with three branches; the leaves, however, are larger, and measure 14 inches by 10 inches. So far the experiment has proved eminently successful."

In the months of August and September, 1862, the major part of the plants were, it appears, again removed to Bath. They were now from 18 to 20 months old, a critical age, as Mr. WILSON observes, for forest trees in flower-pots under artificial treatment; and in the uncongenial climate of Bath they would soon have died had they not been shortly afterwards (in October) planted out at Mount Essex, near Bath, at an altitude of 2000 ft. or little more. This site was selected as a temporary one, to save the plants alive, until a better could be obtained, and has so far answered the purpose that the majority are healthy, but their progress has been slow; the soil being too stiff and loamy to admit of the free and rapid escape of the heavy rains which fall in torrents during the greater part of the year, and the altitude being also too low. The Red Bark is, however, found to thrive at a much lower altitude than the others, and is altogether a more robust and hardy tree. Mr. WILSON strongly urges on the authorities the acquisition of an eligible site near the place where his successful experiment was carried out, and the speedy transfer thither of the young trees, which as yet are not too large for removal.

We quite agree with the author of this report,

that the fact thus established, namely that the climate of the higher, and many of the intermediate mountains of Jamaica has been thus found suitable for the cultivation of the most valuable of the quinine-yielding plants, Cinchona succirubra, is a very important one, not only in respect to its bearing upon the prosperity of the island itself, but also in reference to the supply of quinine, which has become one of the necessaries of modern life. We trust the knowledge thus acquired may be speedily, successfully, and profitably applied, so that, as Mr. WILSON remarks, the plants may in a short period extend over the length and breadth of the island, and secure those advantages to the country which they are capable of conferring.

—— We understand that Dr. HOGG has resigned the Secretaryship of the FRUIT COMMITTEE of the Royal Horticultural Society; and that until some more permanent arrangement can be made, Mr. MOORE has been requested to take charge of the Committee.

—— Our readers will observe by an advertisement in our columns to-day, that Mr. FORTUNE has received from Peking by the Overland Mail, a few seeds of the remarkable PINUS BUNGEANA. Inhabiting, as it does, the cold bleak mountains near Peking, it is, of course, perfectly hardy in our climate. For an account of this curious tree, we refer to p. 776, 1863.

HARDY VARIEGATED PLANTS.

WITHIN the last few years these plants have become favourites in gardens, so much so, that they are now considered essential for decorative purposes both indoors and out. It is fortunate that such a class of plants exists, especially in the case of amateur gardeners, who are frequently dependent upon hardy things, not having glass at command to winter the ordinary bedding subjects. These plants, too, are easily managed, being readily increased without fear of losing stock, and, the principal of them at least, are hardy enough to withstand our average winters, if only placed in some sheltered nook. Another inducement to their cultivation is the little attention they require. Most of them are increased by division of the roots in the open ground. Some plants of this class are likewise suitable for cultivation in pots, for stands in windows, and for small vases. I may mention a few of them :—

Dactylis glomerata variegata is an elegant Grass, and forms an effective line for a small ribbon border, while for decorative purposes, grown in pots, it is most graceful; small portions detached from the neck of the plant root readily, and grow rapidly.

Saxifraga umbrosa variegata is a most useful thing for various purposes; it is most at home out doors in a partially shady place, and like the rest of the Saxifragas is propagated by division.

Arabis, of which there are several variegated kinds, yields neat growing plants, all beautiful, and worthy to be more extensively grown, well adapted for small beds, or a dwarf row in a ribbon border. They are increased readily in autumn or spring, small pieces rooting in any common garden soil.

Ajuga reptans variegata is another useful plant hardy enough, and finely marked, the white parts of the leaf being well defined; it is readily increased and grows rapidly.

Scrophularia aquatica variegata [miscalled nodosa in gardens] if grown in good rich soil, rather wet, and kept free from snails, which are apt to riddle its leaves and disfigure it, is most distinct and well marked; a good row of it is very telling; small pieces from the neck of the plant root freely. I fancy this would be more extensively employed than it hitherto has been, if it were better known.

Gnaphalium lanatum is a fast-growing hardy plant, and is propagated rapidly; it requires to be handled pretty freely to keep it within bounds. Pegging down is the readiest and neatest way to manage it.

Tussilago Farfara variegata is admirably adapted for ribbon work; when grown as it ought to be it is an elegant thing, and has a striking appearance; small pieces of the root chopped up, say an inch and a half long, each produce a plant, if covered over slightly with sandy soil.

Achillea Millefolium variegata is a graceful looking thing when kept within bounds; its tendency to bloom, however, is apt to spoil its appearance, and must be prevented by repeated pinching. There is no difficulty in propagating this Yarrow, perhaps more in destroying it.

Ivy, like Vinca, is only suitable for certain purposes. Some of the varieties are beautifully marked, and form very pleasing edgings for large raised beds, and carriage drives. *John Edlington, Crom Castle.*

EXHIBITION PLANTS.

THE INDIAN AZALEA.—No. IV.

(*Concluded from p.* 149.)

PRESUMING that we are now at the end of the season, with all the plants well furnished with bloom buds, what is now required is to give air liberally, to water carefully, and to keep the temperature of the house low, just sufficient to prevent frost from reaching the plants in winter. If any of them are required for forcing to decorate the conservatory, those should be selected that carry the most prominent buds; and these, if introduced into the stove, will soon expand their gay blossoms.

After the blooming season is past, the plants will require to be placed in heat again, and treated precisely in the same manner as they were in the previous season. All long shoots must be stopped, especially where there is a tendency to assume a straggling habit; this topping will cause them to throw out side shoots; and when these are long enough they are to be tied in as required. The roots must be closely examined, and if they are found in a healthy state and the ball well filled with them, the plant may have a larger pot, and should be placed again into comfortable quarters for the season's growth. By attention to the particulars which I have pointed out, the cultivator may have the pleasure of being the possessor of such specimens as those which adorn our exhibitions to the wonder and delight of all who see them.

The following is a selection of the finest Azaleas in cultivation with which I am acquainted :—

Duke of Devonshire	Standard of Perfection
Diadem	Baron de Pret
Holfordi	Queen of Whites
Iveryana Improved	Leopold the First
Ardens	Duchesse Adelaide de Nassau
Juliana	Flower of the Day
Perryana	Souvenir de l'Exposition
Beauty of Reigate	Variegata superba
Symmetry	Sir H. Havelock
Magnet	Perfection
Vesta	President
Maria	Mars
Chelsonii	Kinghornii
Lucens	President Claës
Gledstanesii	Mad. Ambroise Verschaffelt
Glory of Sunning Hill	Ecoile de Gand
Extranii	Carnation
Stanleyana	Tricolor
Admiration	Roi des Doubles
Gem	Brilliant
Criterion	Advance
Magnifica	Dr. Livingstone
Perfecta elegans	Salmonia albo-cincta
Eulalie van Geert	Bernard Handre
Leeana	Reine Blanche
Louis Napoleon	Flag of Truce
Madame Miellez	Elegantissima
Princess Mary of Cambridge	Marie Vervaene
Petuniæflora	Reine des Belges
Roi Leopold	Sinensis lutea
Modèle	Sinensis alba
Rubens	Leviathan

Of these, which are of course too numerous to be all included in any one private collection, I would recommend as the best 12 of varied and distinct colours, the following sorts :—

White.—Queen of Whites, Marie Vervaene.
White with stripes.—Flower of the Day, Madame Miellez.
Rose or Peach.—Standard of Perfection, Kinghornii.
Violet Rose.—Extranii.
Deep Rosy Purple.—Baron de Pret.
Salmon or Pink.—Criterion, Etoile de Gand.
Deep rich Salmon.—Gem.
Rich Orange.—Mars.

These are selected with special reference to their combining the points of freeness and vigour of habit, with abundance of blossom, distinctness of colour, and superiority in the quality of the flowers. They may be regarded as the cream of the Azaleas now in our gardens. Another 12 of about equal merit with respect to the qualities just named, and which might be usefully added where a greater number of varieties was required, will be found in the following selection :—

White.—Reine Blanche.
White with Stripes.—Tricolor, Iveryana Improved, Beauty of Reigate.
Rose or Rosy Peach.—Dr. Livingstone, Modèle.
Salmon or Pink.—Variegata superba, Salmonia albo-cincta.
Orange Scarlet.—Juliana.
Deep Red.—Rubens.
Rosy Salmon.—Magnet.
Rich Rosy Purple.—Halfordiana.

There are many besides these which I have bloomed, or have heard others mention in very high terms, but the above list enumerates all I can confidently recommend at present. Many of those that I have bloomed, though very much praised by some persons, I consider no better than the above, even if they can be reckoned equal to them. Other varieties have not yet bloomed, or have bloomed prematurely in consequence of the severe cutting they have to be subjected to for grafting, and these it would not be just to condemn without further knowledge. Any such that I may consider worth adding to the above selection, I shall be pleased to mention at some future time.

Before closing this paper, I will offer a few hints to amateurs (who may not have already taken advantage of this plan) on the best method of obtaining a large plant of any new or scarce variety in a short time. There are in many places large plants of the original varieties such as Phœnicea, Woodsii, Prince Albert, Rosea Superba, Constantia Rosea, or other robust growers, that may have been discarded on account of the comparative poverty of their flowers. Such a plant then, if obtainable, should be placed in a moist genial temperature, and syringed two or three times a day; the stems should be scrubbed with a hard brush, to remove the accumulations that may have been forming for years, and to open the pores, which will cause the sap to flow more freely and bountifully; all small wood and any weakly branches that may be crowding others should be thinned out, and the wood regulated, so that it may be as equal as possible all through the plant. Any variety, of which a large plant is desired, may now be grafted upon this old stock, distributing the grafts over the whole plant, and of course keeping them on the upper side of the branches. In grafting take off a small piece of the bark of the stock, cut the graft slantingly, and thin at the end, making it fit the place prepared for it, and then tie it down with bast or worsted. If the stock is very large, some hundreds of grafts might be put upon one plant; and these, if preferred, might be of several varieties, if one important point is kept in mind, namely, not to put some strong robust-growing sort on the same stock with other sorts that are more weakly and delicate in habit. If this error is fallen into, the robust ones will soon take the lead, leaving their weaker brethren far behind, and ultimately causing them to perish. Always, therefore, select kinds for this purpose of as nearly the same constitutional vigour as possible. When the stock has been filled in this way with the kinds preferred, place it in a close damp place, and keep it well shaded. I have found cast-iron hand-glasses do make capital enclosures for such plants after grafting, as they can be raised as high as may be required by placing three or four of their square bottoms one upon the other, with one cap upon the top. The plant must be well shaded at first; but when the grafts begin to take hold of the stock, light and air may be admitted, though at first cautiously. The grafts must be well looked after, as their binding will soon decay in so close and moist a place, and fresh ones will be required, otherwise the graft may fall off, and if once loosened it is useless to attempt to replace it except by recurrence to the first process, or making fresh cuts both upon the graft and stock. I would however suggest, that no large plants of the old Indica Alba should be selected as stocks either for this or any other kind of grafting, as I have invariably found that the grafts put upon this sort die in a short time. They may take to the stock, but as it throws its leaves so completely in winter, they will be sure to fail when the season arrives for them to commence their growth and thus not only the trouble of grafting and tending, but the grafts also, will be lost. *William Barnes Camden Nursery, Southampton Street, Camberwell.*

Home Correspondence.

Royal Horticultural Gardens.—I was present at the meeting on the 23d, and think it must be highly satisfactory to Mr. Chester to find that his adjournment has been productive of so much good. All praise to him for his exertions, and for his clear, admirable, and conciliatory remarks. We may also congratulate the Society on the timely concession of the Council to the wishes of every lover of horticulture, by the appointment of a committee of the right kind of men, to see what can be best done to increase the usefulness of Chiswick Gardens. I must confess, that when I first read the annual report I was reminded of Prince Hal's exclamation upon looking over Falstaff's bill, "What, one half-penny worth of bread to all this intolerable deal of sack!" Upwards of 20 paragraphs about the adornment and expensive alterations of the South Kensington Garden, and only one little allusion to poor old Chiswick—the garden to which the Society owes all its fame. For what objects was the Horticultural Society of London originally founded? For the promotion and advancement of Horticulture in all its branches; for the introduction of novelties in plants and seeds for the flower and kitchen garden; and for an authority to test what was good and deserved to be preserved, and what was worthless and only fit for the manure heap. And has that mission been fulfilled? Let the rapid strides—all emanating from the encouragement and example set by the gardens at Chiswick—which horticulture has made within the last 20 years answer the question. Far be it from me to draw disagreeable comparisons. The Apple of Discord is a bitter fruit, which should find no place in our catalogue; but with all admiration for the beautiful design of Mr. Nesfield, and a hearty wish—as it is my interest to have—for the prosperity of the new garden at South Kensington, it is absurd to consider that as the locality (excepting from periodical exhibitions) where one is to look for specimens of horticultural skill. The foreigner who comes over to our Society for information and instruction in horticultural progress, would of course be taken down to the gloriously covered walls, and vineries, and fruit houses, and the unrivalled collection of fruit trees at Chiswick; and if, as the Report says, "the Society wishes to maintain its position as the leading exponent of horticulture in the world, and not to sink to the status of a mere provincial society," it must uphold Chiswick, where what horticulture has done and can do, may be seen. I trust the intelligent men appointed on the committee will develop some scheme which shall prove to the garden-loving public, that Chiswick Garden is something more than what has been insinuated more than once by unthinking Fellows—a mere nursery for the supply of plants to South Kensington! I trust that, with increased railway facilities from the City and Charing Cross, I am not visionary when I look forward to see some day, with

the aid of the large conservatory and an inexpensive neat weather-tight building, something of a revival of the old Exhibition days, or at any rate the setting apart of some promenade days, with a band of music and refreshments, when the gardens are in perfection. The difficulty of access is the present drawback, but this once done away with, I have little doubt that half the new Fellows, who have I verily believe never yet been to Chiswick, would soon give their full share of patronage to a spot, which from the great extent of turf and shade, from fine specimens of interesting shrubs and trees, would be one of the most delightful places of resort in summer. I could have wished that some of the gardening element, as Mr. Chester justly remarked, had been introduced into the Council. It should be a strict rule, that the Council should always be partially composed of men whose business and calling is gardening. They would watch over that, without which the Horticultural Society is nothing; would see that the practical was not swamped in the ornamental; and if, as Sir Wentworth Dilke said, South Kensington is the place for making money, that this money was not all absorbed in the ever craving maw of that great undertaking—in fact, that we should not hear again that there was not sufficient money left to mow the lawns and trim the trees of Chiswick. The new Committee is a step in the right direction. May their fruits prove worthy of an extra Knighto-Banksian gold medal! *Another Old F.H.S. of London.*

Successful and Unsuccessful Garden Practice.—Having often considered that the result of wrongly directed practice is more impressive in the way of caution than the rehearsal of success, I am induced to offer a few remarks on the subject. There must be a kind of sting or dread attending failure, more productive of improvement than any emulative feeling consequent upon success. I hold therefore that if all failures, and the cause or causes that produce them, were truly recorded, much benefit would result, as information of that description would act as a guide to the inexperienced. I imagine however that the majority of your readers would shrink from giving publicity to their own errors, as it is rare to find a sense of public duty so predominant as to induce a man to voluntarily acknowledge his own want of skill. Nevertheless, to a frank and open mind a fair confession would cause no uneasiness, neither would it be any disgrace, as failures will often happen in spite of the greatest care, a fact which is universally admitted. The sooner, therefore, professional mistakes are acknowledged and published the better, because if made in regard to the management of particular flowering plants, shrubs, Vines, wall trees, &c., such as planting too deeply, or placing them too closely together, they are sure to be detected at some time, and perhaps reported by visitors, from whom such reports may come ungracefully. I doubt not that it will be said that if a man writes at all, it will be of some successful achievement of his own, and if truly and minutely described, his report of the matter will answer the same purpose as if he had written an account of an unsuccessful experiment; the latter can easily be inferred from the former. Bad gardening is more easily discovered and made known than imperfect agriculture; because young gardeners are continually passing from one place to another in pursuit of knowledge, and they are most of them reading men. Since horticultural publications have become so plentiful, literary gardeners and improved gardening have been on the increase. Few I think will deny that these publications are serviceable to us; for though their contents are not always new, yet they go far to answer the question that it is as useful to publish unsuccessful as sound practice. Courteous criticism on what is done or left undone by others, often stimulates to healthy action, men who might otherwise remain dormant; therefore every one should exercise his own judgment, and carefully canvass men and measures, exposing error and upholding truth. Such records give periodical publications, whether on arts or sciences, an inquisitorial character, but while they are kept pure from abuse and frivolous petulance, they are raised thereby in the eyes of readers into a kind of tribunal which all are willing to respect. Gardening periodicals in particular have a peculiar value to gardeners, as any mistake that may accidentally creep into one, is almost sure of being corrected in the next or some following issue; and as refutation must be accompanied by some discussion, facts are elicited, and new ideas not unfrequently broached, which but for the first mistake or misstatement, would perhaps have been for ever buried in oblivion. A record of failures therefore has an equal, if not greater, value than that of successful practice. *John Cole M'Ardell, Late Foreman in the Gardens of Sir Watkin Williams Wynn, Bart., M.P., at Llangedwyn Hall, North Wales.*

Renanthera coccinea.—None who have the means should be deterred from growing this charming plant from a belief that it is difficult to bloom. When gardener to the late Mrs. Huskisson, at Eartham, near Chichester, a plant of it flowered with me five times in six years. Once, in the year 1854, it had four beautiful panicles on it, all in perfection at one time. Mr. Webster, now at Gordon Castle, whom I succeeded, flowered the same plant successively for a much greater number of years. To him then belongs the credit of being one of the first, and, as far as I have been able to learn, the very first, to get this plant to bloom with anything like regularity and certainty. A gardener in the same neighbourhood was likewise most successful in flowering it; I have seen him have two quite small plants of it in bloom at the same time. The Eartham plant when under my care was grown on a small trunk of Yew, and except when growing or during very severe weather, it was kept suspended close to the glass in the warmest end of an old house heated by a common flue. While it was growing the temperature never exceeded what is considered ordinary stove heat, with abundance of moisture, but for about eight months in the year it was kept comparatively cool and dry, as may partly be judged from the fact of Strawberries being successfully grown in the same house from the beginning of the year till the end of May. In short, to ensure success, all that is wanted is a strong well grown plant, thoroughly ripened by exposure to the sun, with currents of air at all times, and a rather long season of perfect rest. I have found Dendrobium moschatum and D. Calceolaria, likewise Vanda teres and others, to flower freely, managed in the same way. *Jas. Bell, Bretton Hall, near Wakefield.*—I observe that several places are named in your columns where this fine Chinese epiphyte has flowered, which seems to indicate that its blossoming is still a matter of uncertainty in the hands of some cultivators. Having been successful in flowering it for a number of years by a system of treatment differing from that commonly adopted, perhaps some account of my method may be interesting. I may also state, that I have had as many as four and five spikes all in flower at one time, and that two silver Banksian medals have been awarded to me for flowering it by the Horticultural Society of London—one on Nov. 5, 1844; the other on Nov. 3, 1846. The plant from which these flower spikes were cut, was grown on a mossed block of wood, from 8 to 10 feet in length, the roots being kept to the block as much as possible, which enabled it to be easily transferred from one house to another when required. My plan of management was to grow it in heat in winter, and to rest and ripen it in summer. Preparatory, therefore, to removal, about the beginning of June, the plant had little water given it for a week or two, so as to make the change less felt than otherwise it would be when put into a colder and more airy situation; the most suitable place at command for its reception was a Peach-house that had little fire-heat given it, and in which fruit ripened about the end of July. It was placed at one end of the house about the middle of June, and kept there until the middle of September, receiving very little water during that period. As regards airing and other matters, the house was managed so as to suit the Peaches, just as if there had been nothing besides in the house. The leaves and stem of the Renanthera thus treated assumed a yellowish and ripened hue towards the latter end of this period, but upon being replaced in heat, they soon regained their dark green healthy appearance. On its resuming active growth, flower stems began to make their appearance. In order to have fine large spikes, I found it best to keep the whole plant as nearly parallel to the roof as possible, and the young shoots near the glass. *J. Webster, Gordon Castle.*

Gardeners' Education.—Having seen in your columns a letter from a "Very Old F.H.S.", in which it is set forth that the great want of the present day is educated gardeners, I should like to be informed to what degree a gardener is expected to be educated for the paltry sum of 50*l.* or 60*l.* per annum. Is he expected to be well versed in botany, Latin, chemistry, geometry, drawing, and natural philosophy? If so, better wages must be paid to enable gardeners to send their children to school to learn such things, for they will have very little time to learn them after they have entered a garden, unless they fare a great deal better than myself. I have to be at my work at 6 o'clock in the morning, and very often continue on till 8 at night, and in the winter time am up most of the night tending the fires, all of which I have to do for the sum of 12*s.* per week, nine of which I pay for my board, washing, and lodging; the other three go in finding me a few books and a few clothes—and few they are, I can assure you. *Ignoramus.*

Royal Horticultural Society's Botanical Prizes.—In my dominions grows a plant of Parnassia palustris, and there is one more in the county, the last of its race, watched over by a loving "she," and so tended and hidden by fairer hands than mine. Now, I give fair warning that if I catch any "ruthless botanical pirate" at either of these plants, I will shoot him. I am a humane man, and shall give him what we allow for a dog that runs hare, an ounce of No. 6 at 75 yards, so sure as my name's *Diogenes.*

Grape Setting.—Mr. Nicholson (see p. 102) appears to attribute his success in this matter to the daily syringing of his Vines from the period of starting until the stoning of the fruit. Now there can be no question that gardeners in general are opposed to syringing Vines while they are in flower. In my young days the plan pursued was as follows:—From the first day a Grape-house was shut up, washing was commenced and continued daily until the Vines came into flower; then for two weeks or so the engine ceased working, and during that time the temperature was raised up to from 70° to 85°. The flues were then deluged with water, causing steam to arise, which heightened the temperature to say 95°, producing what was termed "a first-class artificial shower." Unfortunately, however, during these 14 or 16 days red spider not unfrequently established itself on the Vines, and that very much to the damage of the crop. Twenty-five years ago therefore, it occurred to me, that if all out-door fruits set best in a mild temperature with refreshing showers when the trees were in blossom, why should not Grapes also set under similar conditions; and ever since I have continued to syringe my Vines, whether in flower or not, and in four divisions of vineries I have never lost a crop, neither have I ever been troubled with red spider. Muscats I find in fact to set best under the treatment just mentioned at a temperature of not less than from 80° to 85°, but the washing must by no means be continued after the fruit approaches stoning, lest it should interfere with the bloom upon the berries. *Archibald Smart, Fullerton, N.B.*

Labels (see p. 152).—In my experience I have found the best material for these to be sheet lead, on which I stamp the names, and for that purpose I have two sets of types made of iron and tipped with steel; one consisting of capitals, the other lower case letters. My fruit trees of various sorts on walls are labelled with names printed on lead, and though that was done some 10 or 15 years ago the labels are all as legible as on the day on which they were nailed to the wall. A row of Apple trees on a border, kept dwarf for getting buds and grafts from, is also labelled in the same way; but in this case the labels are fastened to the outside branch with circular copper wire, which is capable of being enlarged as the branch swells. I have also a set of figures which are used for numbering young trees on other walls. Although the leads for these are only 1½ inch square, yet a number consisting of three figures may be printed on them. The types are placed in pieces of Oak with three rows of holes in them, deep enough to allow the types to go half way down. *W. S.*

Foreign Correspondence.

VERSAILLES: *Feb.* 16.—*Mould containing Fungus Spawn.*—An interesting article in your Number of the 13 inst. ends with these words:—"We cannot caution cultivators in general too strongly against any compost whatever which is either already impregnated with fungus spawn or likely to generate it." Permit me to give my experience on this subject.

The garden which I cultivate in person, "en amateur," being situated on a southern slope, and the soil "rabbit sand," I of course require a good deal of mulching during our very hot summers, and for that purpose I employ broken up Mushroom beds, which I obtain from the abandoned quarries of Chaville (half way between this and Paris). For 10 or 12 years I have annually covered my whole garden 3 inches deep with this material, and I have never found any bad effects to arise from it; in the autumn it is regularly dug in, and never since using it have I found a single Mushroom to spring up.

I cultivate Peaches and Grapes as wall fruit, Pears in pyramids (quenouilles), and Plums as standards; all the usual run of perennial and annual flowers; greenhouse plants put out in summer, &c.; and moreover a large collection of succulents, which are freely potted from the mould out of this garden, yet I have never found it to produce either "mildew," or "meal," or anything of a "cryptogamous" nature.

The old quarries of Chaville formed in the side of a hill, and from which a good part of western Paris was built, are completely deprived of light, and their temperature never sinks below +6 to +8 degrees centigrade, so that Mushrooms are there grown under the most favourable circumstances for the Paris market.

The sojourn of the manure during a "season" (about six weeks) in these vast caverns, totally deprives any seeds it may contain of their power of germinating, so that a weed never by any chance is brought into my garden by it; the colour is a lightish brown, and the straws about 1 inch long, so that in every way it is a most cleanly and agreeable material to cover a flower garden with. It is of course full of spawn, although the best flakes have been taken out by the "champignoniste" to "lard" his new beds with. The cost is 15 sous the lineal toise of Mushroom bed; 18 of these form a good load for one horse. When I first began employing it, it was only used to make mould of, but at present it is extensively employed for mulching flower beds in all the show places about Paris. *F. Palmer.*

Societies.

ROYAL HORTICULTURAL: *Feb* 23.—(*Adjourned Anniversary.*)—J. J. Blandy, Esq., V.P., in the chair. In opening the proceedings, the CHAIRMAN stated that upon one of the most important points which led to the adjournment, the Council had received a letter from the Royal Commissioners of 1851, which would be submitted to the meeting. He had no doubt that it would be deemed highly satisfactory, as the total increase of interest to be paid was only 38*l.* 5*s.* It had been alleged that it was not the intention of the present members of the Council to carry out the original objects of the Society. That was not correct. In fact, five members of the present Council had themselves on one occasion, before the removal to Kensington, became security for 2000*l.* to save the Society from absolute collapse. They were therefore entitled to some credit for what they had done, instead of having the allegations which had been put forth made against them.

The ASSISTANT SECRETARY then read the following letter from the Commissioners:—

Palace of Westminster, February 13th, 1864.

SIR,—In order to explain the terms upon which her Majesty's Commissioners for the Exhibition of 1851 are willing to make the advance of a sum not exceeding 13,000*l.* for the purposes of the Horticultural Gardens, as announced in my letter of the 6th inst., the Commissioners feel it necessary to revert shortly to the pecuniary relations now existing between themselves and the Royal Horticultural Society.

Under the agreement of July 24th, 1860, her Majesty's Commissioners advanced a sum of 50,000*l.* By the 14th clause of that agreement, a rental of 2145*l.* per annum is reserved to the Commissioners, this sum being the exact amount of interest paid by the Commissioners for the loan of the money laid out under the agreement by them on the Gardens.

In pursuance of a further agreement, dated March 1st, 1861, her Majesty's Commissioners advanced a further sum of 5100*l.*, exclusive of a much larger sum expended by them on the Southern Arcades. By clause four of this agreement, the Commissioners are entitled by way of rent to a sum of 216*l.* 15*s.* per annum, being after the rate of 4¼ per cent., making the total rent or interest now payable to the Commissioners under both agreements amount to 2361*l.* 15*s.*

The above rent is independent of the share of surplus profits secured to the Commissioners.

With respect to the proposed expenditure of a sum not exceeding 13,000*l.*, I am directed to acquaint you, for the information of the Council of the Society, that it is the intention of her Majesty's Commissioners to charge interest by way of rent on the sum of 4900*l.* only.

The Council will observe that this sum of 4,900*l.*, added to the two sums of 50,000*l.* and 5,100*l.* already alluded to, completes the amount of 60,000*l.*, the expenditure of which was contemplated by the above-mentioned agreement.

Her Majesty's Commissioners have now much pleasure in proceeding to inform the Council of the Society that, having been recently enabled to pay off that portion of their mortgage debt which bore 4½ per cent. interest, they are willing to reduce the rent or interest payable to them by the Society to 4 per cent., calculated upon the outlay of 60,000*l.*, being 2400*l.* a year.

The Council will therefore observe that Her Majesty's Commissioners make the advance of 13,000*l.*, with only a nominal addition to the rent at present payable by the Society.

I have the honour to be, Sir,
Your very obedient servant,
EDGAR A. BOWRING.

The Secretary to the Royal Horticultural Society.

Mr. HARRY CHESTER then, in a long and able speech, reverted to the numerous topics which were under discussion at the previous meeting, and said that he had a series of resolutions which he intended to propose. Amongst them was one upon the necessity for making the gardens at Chiswick a school of gardening.

The CHAIRMAN interposed to inform the meeting that the Council had considered that subject, and had just passed the following resolution with respect to it:—"That a Committee be appointed to consider how the present working of the gardens of Chiswick may be made to conduce to the improved education of gardeners, with instructions to frame a scheme, and the estimated cost for carrying it into effect, having reference especially to the experience of the past efforts of the Society in this direction." The names suggested to act on this Committee were Mr. Chester, Sir Wentworth Dilke, Mr. Fortune, Mr. J. Lee, Mr. Moore, Mr. W. Paul, Sir Joseph Paxton, Mr. Rivers, Mr. Veitch, and Mr. Murray, Secretary, with the President, Secretary, and Treasurer as *ex officio* members.

MR. CHESTER expressed his approval of the letter which had been read, and also of the resolution which had been come to. He thought that they were much indebted to the Chairman for his conciliatory address; he wished to see a feeling of amity exist, for without it the Society would never succeed. With regard to the alleged irregularity in the election of Council, he thought that they should have contested the point at the last meeting; but as it had passed over, they should now consider it settled, and ask the Council to make a general revision of the bye-laws, in order that such might not occur again. Having suggested certain improvements in the gardens at Chiswick, and also at South Kensington, he concluded by moving the following resolution:—

"That the report of the Council be adopted, and that they be assured and requested to assure H. M.'s Commissioners of the cordial support of the Fellows in realising as far as possible both at Chiswick and at South Kensington, the comprehensive scheme for the Royal Horticultural Society: which scheme having been proposed by our lamented President the Prince Consort, and accepted by the Commissioners, and by our Society, and embodied in Her Majesty's charter and the agreements founded thereon, has already led to a large expenditure, and has induced great numbers of persons to become Fellows of the Society, Life Fellows, and Debenture Creditors."

Upon reference being made to the annual outlay upon sculpture for the garden, Sir Wentworth DILKE said that some misapprehensions existed. H.M. Commissioners did not require the Council to spend any fixed amount of money in that respect, but the idea emanated from the Council that they should encourage artists to exhibit their works at certain seasons of the year. He ventured to suggest that it would be better if Fellows would speak out, instead of murmuring, and make what suggestions they had to offer, and he assured them they would, where practicable, be adopted.

Mr. CHESTER was glad to hear any explanation, his only object being to benefit the Society.

Mr. HARWOOD HARWOOD seconded the resolution proposed by Mr. Chester.

The Hon. Judge DES BARRES having defended the conduct of the Council; and some criticisms having been offered in respect to the publications of the Society, the resolution was adopted.

Mr. CHESTER then moved the further resolution:—

"That the Council be requested to revise the bye-laws and to submit a draft of amended bye-laws to a general meeting of the Fellows as soon as possible."

Sir ANDREW WAUGH seconded the motion.

Mr. J. SIDNEY SMITH thought that the course suggested would create much unnecessary confusion, and therefore he asked Mr. Chester not to press his resolution.

Mr. CHESTER said he had not that intention in bringing it forward. He wished to assist the Council, and not to throw any hindrance in their way. If the Council felt that the passing of the resolution would create confusion, and expressed a wish to that effect, he would withdraw it.

The Chairman and several of his colleagues said they had no objection to the resolution; which was accordingly put and carried unanimously.

After a few remarks from Mr. STRICKLAND and others, a vote of thanks was passed to the Chairman, and the meeting separated.

ENTOMOLOGICAL: *Feb.* 1.—F. Smith, Esq., in the Chair. The Rev. Hamlet Clark exhibited a collection of the Phytophagous Coleoptera of Australia, formed by Mr. Wilson, of Adelaide; and also the species of those insects collected by Mr. F. Waterhouse during his overland journey. Mr. G. R. Waterhouse exhibited several allied species of Psammodius and Onthophilus, of which he detailed the characters. Mr. Dunning exhibited a portion of a coffee cask from Ceylon, destroyed by the larvæ of some beetle, probably of the genus Anobium. Professor Westwood exhibited a specimen of wild silk from St. Salvador, in Central America, communicated by Mr. Daniel Hanbury, being the produce of a colony of caterpillars of some unknown species of Lepidopterous insects. He also read the descriptions of two remarkable new genera of Carabidæ from the Oxford Museum; and also of a fine Moluris, to which he applied the name of Rowleiana, in honour of the Rev. Henry Rowley, by whom it was collected at the Zambesi. Mr. Smith exhibited a very interesting collection of wasps' nests in various stages of formation, belonging to Mr. S. Stone, who had made holes in banks which the wasps had subsequently adopted for their abodes. Major Parry read a paper entitled "Further Remarks on Mr. Thomson's Catalogue of Lucanidæ." Mr. T. W. Wood exhibited a block of Honduras mahogany, inclosing a number of cells, somewhat resembling the honey-pots of the Bombi, but considerably larger. General Sir J. B. Hearsey exhibited a collection of beetles, chiefly from India and China.

Notices of Books.

A History of the World. By Philip Smith, B.A. In Monthly Parts. Walton & Maberly, 1863.

Following the example of Sir Walter Raleigh, Mr. Smith proposes to write "A History of the World from the Earliest Records to the Present Time," wisely condensing his matter where possible, but "bestowing special care on those periods and nations, the history of which is scarcely to be found in any works accessible to the general reader," and regarding the whole from a common point of view—a view which, he says, may in some cases modify the conclusions drawn by classical partiality and national pride.

In the matter of Biblical Chronology Mr. Smith adheres to the dates given by Archbishop Ussher, as being on the whole the most satisfactory, but subjoins a comparative table of the six chief epochs, from the Creation to the destruction of the Temple, according to Ussher, Petavius, Clinton, Hales, Jackson, and Poole, the most celebrated modern chronologers. In the absence of any other authentic sources of information, Mr. Smith makes bold to take the scriptural accounts as his guide, and often points out as he proceeds, that there is nothing improbable in these earliest records, while they are continually being corroborated by recent discoveries. A notable instance of this, is the discovery of an inscription among the ruins of Birs Nimroud, and deciphered by Oppert, which proves, in Mr. Smith's opinion, that the story of the confusion of tongues is "no mere Hebrew tradition." In discussing the dispersion of the nations, in Chapter 3, the Bible genealogies (which appear in many cases to be also ethnical), are taken for the basis, and a flood of light is thrown upon this difficult subject, from the philological investigations of Professor Max Müller. More treasures will be found in this mine of wealth, as it is worked, for the inquiry here indicated, is only in its infancy.

Chapters VI. and VII. treat of Egypt and its claims to a great antiquity. It seems that Mizraim, the scriptural name of the country, is a dual form, pointing to its division into Upper and Lower Egypt. Mizraim is also the name of a son of Ham; but the circumstance that Egypt is often called "the land of Ham," need not prove more than a remote derivation of its people from the son of Noah. The case is much stronger when we find that the name of the country was actually that of Noah's son. "The name Khem, by which Egypt is denoted on its monuments, is the same as the Hebrew Ham (or rather Cham), and has a kindred signification."

A singular discovery promises to give some clue to the date of the Pyramids. It was found "that the passages which slope inwards from the northern face of these structures are inclined at the very angle which would make them point to what was the pole-star at the epoch of their erection." Sir John Herschel speaks of this "as a circumstance which can hardly be supposed to have been unintentional, and was doubtless connected with the observation of that star, of whose proximity to the pole, at the epoch of the erection of these wonderful structures, we are thus furnished with a monumental record of the most imperishable nature." In the two Parts before us, which will form a third of the first volume, the reader is carried through the Egyptian dynasties, and the history of the Hebrew nation as far as the Babylonish captivity.

We have endeavoured to give a very brief account of the plan of the work, and the principles upon which it is conducted. That the writer is both well informed and trustworthy there can be no doubt, being, as he is, one of the principal contributors to the Dictionaries of Greek and Roman Antiquities, &c.

Notes on Hospitals. By Florence Nightingale. Third Edition. 1863. Longman & Co. Small 4to square. Pp. 187.

The British nation owes a deep and lasting debt of gratitude to Miss Nightingale for her noble self-denying Christian conduct at a time when gloom and sorrow hung like a dark cloud over a multitude of English homes. The state of our hospitals in the East was deplorable, and the miseries endured by our brave soldiers stirred every heart, when this brave and accomplished lady offered her services; which, much to the credit of the authorities, were thankfully accepted. The result speedily manifested itself in the improvement of the military hospitals, and the name of Florence Nightingale is embalmed as a sacred thing in the memory of many an English family, both among rich and poor; and never will it be uttered by British lips but with profound respect and deepest gratitude.

The book before us bears ample evidence of the defective state of hospitals in general, and it is a happy circumstance, that Miss Nightingale has directed her attention and her remarkable abilities to the very important, but very difficult subject, here treated of. We are persuaded that nobody will study these "Notes on Hospitals" without coming to the conclusion, that the volume thus modestly described is a well-arranged, lucidly written, and most valuable treatise, on a subject which appears to have been too much neglected.

It is a startling fact, to commence with, that the mortality in splendid hospitals, where apparently no expense is spared, and the highest skill of the kingdom is employed, should be actually "higher than any calculation founded on the mortality of the same class of diseases among patients treated out of hospital would lead us to expect."

This leads Miss N. to inquire, first, into the sanitary condition of hospitals, and at once we find the difficulty of obtaining accurate statistics, arising from the circumstance, that where "the mortality which has taken place in a hospital is given, no cognizance is usually taken of those cases which are discharged in a hopeless condition, to die immediately afterwards, a practice which is followed to a much greater extent by some hospitals than by others." What a lesson against overcrowding, and in favour of fresh air, is afforded by the following extract:—"In the hospital tents of the Crimea, although the sick were almost without shelter, without blankets, without proper food or medicines, the mortality was not above one-half what it was at Scutari; but these tents had only a few beds in each. Nor was it even so high as this, in the small Balaclava General Hospital, which had part of its sick placed in detached wooden huts. While, in the well-ventilated detached hut of the Castle Hospital, on the heights above Balaclava, exposed to the sea breeze, at a subsequent period, the mortality among the wounded did not reach 3 per cent."

The prime essentials of 1, fresh air, 2, light, 3, ample space, and 4, subdivision of sick into separate buildings, being fully established, the second chapter shows the principal defects in existing hospital plans and construction, arranged in ten heads. We make a small extract from the "defective kitchen" department. "I have often seen the sick unable to eat the messes prepared for them in the name of diets, not so much because they were bad in quality, as because the cook had no clear idea of the class of stomachs for which he or she had to provide. It is singular that, while so much care is taken to provide good medicine properly made up, so little care is bestowed on the cooking of that, which is of more importance than most medicines. The nurse or doctor only finds out, perhaps next day, that the patient has lost appetite, or been sick, or has had a relapse, and nobody suspects that the men or women in the kitchen had occasioned it."

Numerous large plates are given of the plans of celebrated hospitals, and it is gratifying to find that the Herbert Hospital at Woolwich is spoken of in the highest terms of praise. "This, when completed, will be by far the finest hospital establishment in the United Kingdom, or indeed in Europe." The remarks on convalescent hospitals will strike the reader as

being replete with sound sense, and are evidently the result of careful observation and much experience. They are of this kind: "The convalescent hospital should as much as possible resemble a home, and therefore every condition of the sick hospital should, as far as possible, be reversed. We don't want the convalescent to feel, or think, or act, as hospital inmates, but as people who are recovering."

We have received from Messrs. Smith, Beck & Co, 31, Cornhill, Mr. Osbert Salvin's series of *Photographic Views of the Ruins of Copan*, a place in Central America. These views are not merely of antiquarian interest, but give a capital general idea of the exuberant richness of the vegetation of a country that produces many of our finest hothouse plants. For this reason we recommend them to the careful study of our horticultural readers.

Miscellaneous.

Unusual Severity of the Weather in the South of Europe.—It appears from the *Revue Horticole* for the present month, that the cold has been more severe in Italy and the south of France than has been experienced in those countries for the last 34 years. November and December are stated to have been very mild, and formed a remarkable contrast with the severe degree of cold experienced in January; and what is also very remarkable, the frost was more severe in the south than in the north. Throughout the greater part of Italy the thermometer descended unusually low. At Turin it indicated (—20°) Centigrade, or 4° Fahrenheit below zero. In the extreme south of France it is stated to have been equally severe, and very destructive to vegetation, as will be understood by some extracts of a letter from Carcassonne, dated January 22, 1864:—"The cold has set in with frightful intensity in our Department. The frosts on the 2d, 3d, and 4th of January cut up all our vegetables. Our Beans were in flower, our early Peas were green, but nearly all are lost. Our Artichokes, Celery, Cardoons, &c., exhibit only a mass of putrefaction. Our parterres are like deserts; our Anemones and Ranunculuses were commencing to flower; but at present there is left scarcely a trace of them. Our river Aude was in many places completely frozen over, and this has not been the case since the memorable winter of 1830."

Sparassis, a new esculent British Fungus. — The genus Sparassis, the name of which is derived from σπαράττω, I tear or lacerate, with the fleshy consistence of Clavaria and similar esculent characters, has flattened laminæ, which are in every part covered with the fructifying surface, or hymenium. In Thelephora and the closely allied genus Stereum, in which the divisions are often much flattened and expanded, there is not only a leathery consistence, but the hymenium is definite, being confined to the lower surface. In Sparassis the lobes are extremely large and numerous, so as to form a rounded and sometimes hemispherical mass, occasionally a foot or more in diameter, with a height of several inches, which, together with a delicate waxy appearance, render the species most striking objects. The habit is somewhat similar to that of Millepora reticulata, an analogy which is not without example amongst other Lithophytes, in which, as Fries remarks, we find forms which remind us of such genera as Agaricus, Boletus, Hydnum, Clavaria, Peziza, &c. Similar resemblances occur amongst the galls on leaves produced by insects, which accordingly have been confounded by superficial observers, even since the principles of Fungology have been better known, with true Fungi. Sparassis laminosa, which may be considered as the type of the genus, has not yet occurred in this country. It is found on old Oak stumps, or amongst Oak chips, and acquires the size of a large Cauliflower. When pure in colour and young it is excellent, but it soon acquires a yellow tinge and disagreeable smell, and is then wholly unfit for food. The laminæ are very large and broad, springing from a very short stem, and are narrow and wedge-shaped below, but dilated above, and confluent with each other in every direction. Sparassis crispa, though sometimes attaining a considerable size, is on a smaller scale. The laminæ are more rounded and leaf-like, though curled, and folded, and variously lobed and laciniate with a crest-like margin, and springing from a well marked, thick, rooting stem, the greater part of which is sunk in the soil. The hymenium is more or less uneven, and rather wrinkled, or rough, with little wart-like elevations. In decay the margin becomes soft, acquiring first a yellow, then a brownish tinge, and finally the whole forms a loathsome mass. Like all other esculent Fungi, those specimens only are fit for use in which there is not the slightest tendency to decay. Sparassis crispa, which was found [by the Rev. G. H. Sawyer] in a Fir wood in the south-east of Berkshire, between the Asylum for Criminals and the Wellington College, where there is much Fern and Heath, occurs in several parts of Europe. It is rare in Sweden, but more common in Germany, especially about Prague, where it is frequently brought for sale to the market. It also occurs in France, in the provinces bordering on the Rhine, where it is said by Roques to be highly valued. We have not heard of its being used in Hungary, nor does it occur in a large collection of Fungi gathered in the neighbourhood of Schemnitz. It is scarcely probable that it will be found in this country in sufficient quantities to make it an article of food, but in case it should be found plentiful, we subjoin Roques' "indications" for its preparation, which apply equally to true species of Clavaria, to which genus, indeed, it is referred by Roques, in this following Wulfen, who described it in Jacquin's "Miscellanea Austriaca." Schœffer referred it previously to Helvella, with a less correct appreciation of its affinities. "The plant," says Monsieur Roques, "should be well cleaned from any particles of soil which may adhere to it, then washed in warm water and thoroughly drained, after which it should be baked with butter, Parsley, a little Eschallot, or a *soupçon* of Garlic, and seasoned with pepper and salt. When tender, cream and yelks of eggs should be added. While baking, a few spoonfuls of stock or broth may be added occasionally, to make it more tender. In Austria it is simply fried in butter and seasoned with sweet basil." *Rev. M. J. Berkeley, in Intellectual Observer.*

Calendar of Operations.

(For the ensuing week.)

During the present changeable weather great attention will be required in the way of maintaining proper temperatures, and the requisite amount of moisture in stoves and other plant houses. Spare no labour to keep up a gay appearance in Conservatory and other show houses. Cut and train Climbers, and let everything be kept scrupulously neat and clean.

FLOWER GARDEN AND PLANT HOUSES.

If not already done, look over beds of Crocuses and other bulbs to see that they are not thrown out off the ground by frost. Also inspect half-hardy plants that have been closely covered up, in order to see whether or not they are secure from injury, or suffering from confinement. As trying weather may yet be expected, every precaution should be taken to ward off its ill effects.

AURICULAS.—On the first favourable opportunity let these have as much air as possible; they dislike close confinement.

CARNATIONS AND PICOTEES.—Draw the lights off these in the day time when there is no frost, but let them be put on again at night.

PELARGONIUMS.—These will now be growing pretty freely; therefore whenever the weather is fine, let them have as much air as possible, consistent with the proper temperature. Fancy varieties may be kept a little warmer than ordinary kinds.

ROSES.—Another batch of these may now be placed in heat to succeed those coming into bloom. Keep down fly by frequent fumigations, and the Rose maggot by hand picking.

TULIPS.—Place in heat potsful of bulbs to succeed those now in bloom, and see that the latter are not allowed to droop from want of water.

FORCING GARDEN.

High temperatures must still be avoided, or unhealthy growth will be the result. The proper degree of heat to maintain is therefore a matter of the utmost importance, and will, as we have just stated, require at present great attention.

ASPARAGUS.—If not already done, make a bed to succeed that now in cut. On fine days give a little air, to keep the heads from becoming too much drawn.

CHERRIES.—Force slowly while the weather is dull. Syringe the trees occasionally, and keep all floors and other evaporating surfaces moist.

CUCUMBERS.—Worn out plants in houses may now be rooted up, the beds renewed, and their places filled with young plants. Cuthill's Black Spine is as useful as any to plant for ordinary purposes.

MELONS.—Sow now; pot in small pots when strong enough; keep near the glass, and either plant out or pot into large pots, using properly warmed, rather strong turfy soil. Sow for succession at intervals of about a month, until May.

PEACHES.—Admit air freely whenever the weather is mild, and keep the atmosphere moist, maintaining a steady night temperature of about 50°. Early houses in which the fruit is set should be afforded a nice growing temperature, syringing liberally to prevent red spider, and keeping the border in a healthy state as to moisture, to secure a vigorous root action.

PINES.—Young plants growing in beds that have been some time planted will be benefited by having the soil loosened up as deeply as can be done without injuring the roots, giving it a liberal soaking of tepid water if it be found to be too dry. The water should be applied by means of a pot with a rose on it, and not so fast as to flood the surface, for if this is done the soil will be rendered almost as close as before forking up; indeed, careless watering is the great cause of the surface of the soil becoming close and hard, and should be studiously avoided. Endeavour to afford a nice regular bottom-heat, with a thoroughly moist atmosphere, and keep the plants growing as freely as may be consistent with preserving them dwarf and bushy. Have a constant eye to maintaining a succession of fruit, or securing a supply at the season when it may be most wanted, and let the treatment of the plants be regulated according to circumstances; this is a matter which demands considerable forethought, and which can be successfully managed only by careful observation and attention.

STRAWBERRIES.—Put sufficient of these for a second crop into a Peach-house or Vinery, and place them on a shelf near the glass where they will have plenty of light. A fresh supply of plants should be afterwards placed under cover every fortnight or so. Let the temperature be low at first, and even afterwards force gently and give all the air possible, or the flowers will be apt to become "blind."

VINES.—Take advantage of all favourable opportunities to admit fresh air as freely as can be done with safety, and be satisfied with as low a temperature from fire-heat as may be considered safe under the state of the Vines, but shut up early, allowing the thermometer to rise considerably. This will to some extent economise fuel, and will be much more congenial than strong fire-heat. Except where Vines are in flower keep the atmosphere moist, but the foliage should always be allowed to become perfectly dry in the course of the day.

HARDY FRUIT AND KITCHEN GARDEN.

Digging and trenching may still be carried on with activity. All wheeling will, as a matter of course, have been done during the late hard weather.

APPLES.—Pruning and thinning of these must now be completed.

PEARS.—The observation just made in reference to Apples, also applies to these.

PEAS.—If not already done, make a sowing, as soon as the ground is in a fit state to receive the seed, of some early variety, and of the Auvergne to succeed it, following up with some of the kinds mentioned last week.

SPINACH.—This has suffered, we hear, in some places from the late frosts. A sowing to supply early plants should therefore now be made.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Feb. 24, 1864, as observed at the Horticultural Garden.

February	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain
Thurs. 18	11	30.257	30.117	41	24	32.5	41½	42	N.E.	.00
Friday 19	12	30.245	29.993	33	21	27.0	41¼	42	N.E.	.00
Satur 20	13	30.016	29.795	32	24	28.0	41	41½	N.E.	.60
Sunday 21	14	29.696	29.641	34	25	30.0	41	41	N.E.	.00
Mon. 22	○	29.580	29.704	37	16	26.5	39	41	E	.00
Tues. 23	16	29.904	29.839	36	17	26.5	39	40½	N.E.	.00
Wed. 24	17	29.924	29.896	38	26	32.0	39	41	N.E.	.14
Average.		29.988	29.885	35.8	22.0	28.9	40.1	41.3		.14

Feb. 18—Overcast; some snow-flakes; snow-shower; overcast.
— 19—Dry frosty wind, snow-showers; overcast, frosty.
— 20—Frosty; cloudy, not above freezing all day; frosty.
— 21—Overcast; fine but cold; overcast.
— 22—Overcast; densely clouded in large masses; overcast; sharp frost.
— 23—Densely and uniformly overcast; hazy; frosty.
— 24—Frosty; overcast, snow at night.

Mean temperature of the week 10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending March 5, 1864.

February and March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	49.2	33.4	41.3	14	0.81 in.	1	8	5	—	2	9	5	8
Mon. 29..	47.6	31.0	41.3	14	0.62	—	8	2	1	5	11	7	4
Tues. 1..	49.0	35.5	42.2	14	0.45	2	7	5	—	3	13	5	3
Wed. 2..	49.8	32.2	41.0	15	0.22	3	7	5	2	3	9	6	3
Thurs. 3..	49.7	31.2	40.0	11	0.48	3	9	2	4	3	8	6	3
Friday 4..	48.9	31.7	40.3	10	0.40	2	7	3	4	4	9	6	3
Satur. 5..	48.9	32.6	40.2	14	0.25	3	6	4	3	4	8	5	4

The highest temperature during the above period occurred on the 4th, 1860—therm. 70 deg.; and the lowest on the 4th, 1852—therm. 1° deg.

Notices to Correspondents.

TO CORRESPONDENTS.—A few inquiries as to matters which demand some investigation, necessarily stand over till next week.

BOTANICAL COLLECTIONS: *Hontoniensis*. We do not object to the scheme, as a scheme, but as a manifest departure from the purposes for which, and which only, the Royal Horticultural Society was chartered. If prizes are to be given for the best collection of little botanical obscurities, which have nothing to do with Horticulture, prizes may also be given for the best collection of wild birds, or wild animals, or wild mollusks.

DRY ROT: *K K*. Your Fungus is incipient dry-rot. Make a strong aqueous solution of corrosive sublimate, and wash your timbers well with it. This will at any rate relieve you for a season. *M J B*

FLUKE POTATO: *T E*. is desirous of knowing in what year the Fluke Potato was sent out, and by whom. We really do not remember, but perhaps some of our readers may be able to inform him.

JUNGERMANNIA: *Muscus*. The word is pronounced as if written Junghermannia.

NAMES OF FRUITS: *F C*. French Russet.—*S J P*. Your Seedling Apple from the Herefordshire Pearmain will bear no comparison with its parent, and is only fit for kitchen use. It has briskness enough, but wants richness.

NAMES OF PLANTS: *J C*. 1, Acacia verticillata; 2, A. Riceana.—*M A C*. Dendrobium speciosum.—*Constant Reader*. There is very little difference in your Scolopendriums. Nos. 1, 2, 3, 4, 6, 7, and 12 are S. vulgare lobatum; Nos. 5, 10, and 11 a poor form of S. v. multifidum; while Nos 8 and 9 are probably what has been called S. v. lato-multifidum.—*C T*. The New Zealand seeds appear to be those of Clianthus puniceus.

NEW GRAIN: *S S*. The "new grain" referred to in the paragraph from the Carlisle paper, as having been observed in our North American possessions by some gentlemen in her Majesty's Service, who "were struck by the pertinacity with which immense flocks of wild fowl and other game haunted certain localities, where it was found they came to feed on a sort of Rice indigenous to the place," is no doubt the Zizania aquatica or Canadian Rice. It appears that the trial is to be made whether it will naturalise itself in our northern bogs, as food for wild fowl, drainage and improved cultivation having thinned these in localities where they once abounded; and that a considerable quantity of the grain has been obtained for this purpose.

PRESENT PRICES of FARM SEEDS.—See Messrs. SUTTON'S PRICED LIST at page (present Number) of the *Gardeners' Chronicle*.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
GRASS SEEDS of best quality, can now be supplied Carriage Free.

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MIXTURE for Laying down to PERMANENT PASTURE .. .. 25*s.* to 30*s.*
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THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill 2 bushels per acre.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

PRIZE SEED OATS from SCOTLAND.—100 QUARTERS SCOTCH BIRLEY SEED OATS, which have gained for four successive years the First Prize at the "Royal Northern Agricultural Show," Aberdeen.
50 QUARTERS POTATO SEED OATS.—The natural weight of these Oats is 42 lbs. to 44 lbs. per Bushel, and they will be delivered free to London, Hull, or Newcastle in 5 Quarter lots, at 30*s.* per Quarter, cash. Bags, 2*s.* each.
Samples on application to BENJAMIN REID & Co., Seedsmen, Nurserymen, and Implement Makers, 132, Union Street, Aberdeen.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:
Price for Picked Roots, per 100 .. .. .. 10*s.* 0*d.*
Do. second size ,, ... 7 6
Also strong for Planting, per 100 .. 5*s.* and 7 6
Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

To Gentlemen, Nurserymen, and Others.

GLOBE ARTICHOKE PLANTS, at 25*s.* per 100; also a quantity of PROVINCE or CABBAGE ROSE PLANTS, at 12*s.* per 100. A good discount allowed to the Trade.
Post orders payable to JOHN GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

THE LONDON SEED COMPANY, LIMITED, has been established under the Companies' Act of 1862, for the purpose of supplying all kinds of Seeds for the Farm and the Garden.
The Company has amalgamated with the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED, so that the whole of the extensive trade carried on at Plymouth will be transferred to this Company.
The Business at Plymouth was originally confined to the Western Counties, but of late years the Seeds supplied by the Company have been despatched to all parts of the United Kingdom. It has been therefore thought desirable, if not necessary, in order to keep pace with the extensive connection, either to open an Establishment in London, or to amalgamate with another Company having similar objects.
The London Seed Company has therefore been established, and very desirable premises have been taken in the centre of the Metropolis, and within a short distance of Oxford Street and Regent Street.
One of the principal objects to be gained by the removal of the Business to London, will be the facility afforded by the speedy transmission of all Orders by Railways and Steamers to all parts of the United Kingdom; and the Company has made arrangements with all the Railway and Steam Companies for the immediate delivery of all orders.
ALFRED BREWIN, Manager.

Unadulterated Choice Seeds.

ROBERT PARKER begs to announce he can supply a few pounds of each of the undermentioned, price of which will be forwarded on application:—
CUSTARD VEGETABLE MARROW.
LOBELIA ERINUS SPECIOSA.
LEEK HYBRID PRIZE (HENRY'S), the largest and finest in cultivation
LETTUCE MOOR PARK, the best Brown Cos in cultivation.
A NEW PRICED and DESCRIPTIVE SEED and PLANT CATALOGUE is published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Page's Genuine Seeds.

PAGE'S COMPLETE COLLECTIONS for GARDENS, 3*l.*, 1*l.* 10*s.*, 15*s.*
PAGE'S DEEP BLOOD-RED BEET, 9*d.* per oz.
PAGE'S EARLY DWARF CABBAGE, 6*d.* per oz.
PAGE'S GOLIAH PEAS, 1*s.* 6*d.* per quart.
PAGE'S PRODIGY (Earliest Dwarf), do., 1*s.* 6*d.* per quart.
PAGE'S CRYSTAL CELERY, 6*d.* per oz.
BLUNDELL'S CATTLE MELON, and BLUNDELL'S CATTLE MARROW, only a few Packets left, 50 Seeds, 2*s.* 6*d.*; 100 Seeds, 3*s.* 6*d.*; 150 Seeds, 5*s.*
PAGE'S SUPERB HOLLYHOCK, 2*s.* 6*d.* per packet.
PAGE'S SUPERB ANTIRRHINUM, 1*s.* per packet.
Royal South Hants Seed Establishment, Oxford Street, and West End, Southampton.

SELECTED SEEDS, CARRIAGE FREE.

	per oz.	*s.*	*d.*
PAUL'S Superb Crimson BEET, of excellent flavour ..		1	0
,, New Large Green Curled ENDIVE		1	0
,, Extra-Curled Garnishing PARSLEY		0	6
Richmond Cream BROCCOLI (true), the latest		1	6
Hardy Early Herts CAULIFLOWER		2	6
LENORMAND'S and EARLY ERFURT ditto	per pkt.	1	6
SCARLET PERFECTION MELON .. .. ,,		2	6
PAUL'S HOLLYHOCKS, in 12 Varieties .. ,,		5	0
,, ,, mixed .. .. ,,		1	0
,, Imported Collections of ASTERS, STOCKS, per pkt., 1*s.* 6*d.* to		2	6
,, Home-saved QUILLED ASTERS .. per pkt.		2	6

All other SEEDS of first quality. PRICED LIST on application.
PAUL & SON, "Old" Cheshunt Nurseries, N.

SELECTED SEEDS, CARRIAGE FREE.

W. PAUL'S SUPERB CRIMSON BEET, 1*s.* per ounce.
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s.* per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2*s.* 6*d.* per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s.* p. pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s.* p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d* p. pkt
BROCKET HALL BROWN COS LETTUCE, 1*s.* per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s.* per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s.* per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s.* per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s.* per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5*s.*
,, finest mixed, 1*s.* to 2*s.* 6*d.* per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s.* to 2*s.* 6*d.* per packet.
LAPAGERIA ROSEA, 1*s.* to 2*s.* 6*d.* per packet.
All other Seeds, separate or in collections, of best quality.
PRICED DESCRIPTIVE CATALOGUE free by post.
Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The MANAGER begs to solicit attention to the following Choice GARDEN SEEDS, now being sent out by the Company, full descriptions of which will be found in the GENERAL PRICE CURRENT.

		s.	*d.*
MACLEAN'S HERO PEA, 2 feet	per qt.	5	0
,, NEW DWARF WHITE, 2½ feet .. ,,		1	6
ADVANCER, 2 feet .. .. ,,		1	6
WONDERFUL, 2½ feet .. .. ,,		1	6
BECK'S DWARF GEM BEANS, 1 foot .. .. ,,		1	0
VARIEGATED DUN DWARF, 1 foot .. .. ,,		1	6
NUTTING'S fine RED BEET	per oz.	1	0
BACKHOUSE'S WINTER PROTECTING BROCCOLI,	per pkt.	1	0
DALMENY WHITE .. .. ,,		1	0
DALMENY SPROUTS .. .. ,,		1	0
FEARNOUGHT CABBAGE .. .. ,,		1	0
TOM THUMB .. .. ,,		1	0
HOOD'S IMPERIAL DWARF RED CELERY .. ,,		1	0
MOORE'S VEGETABLE CREAM .. .. .. ,,		1	0
TOMATO DE LAYE, a new upright growing var. .. ,,		1	0
PRINCESS ALEXANDRA MELON .. .. ,,		2	6
STUDENT PARSNIP	per oz.	1	0

CATALOGUES and all other information may be had on application at the Offices, 63, Welbeck Street, Cavendish Square, London, W.

SEEDS of SUPERIOR MERIT—Free by Post, except the Peas and Beans.

	per Quart	*s.*	*d.*
PEA, DILLISTONE'S EARLY PROLIFIC, 2 ft., the earliest of all		1	6
,, ADVANCER (McLean's), 2 ft., the best dwarf Pea		1	6
,, PAYNE'S CONQUEROR, 5 ft., the best tall Pea		1	0
BEAN, BECK'S DWARF GREEN GEM		0	8
	per Packet.		
BEET, PINE APPLE, superb crimson		0	6
,, NUTTING'S SUPERB RED		0	6
BROCCOLI, SNOW'S IMPERIAL WINTER WHITE ..		1	0
,, BACKHOUSE'S WINTER WHITE PROTECTING		2	6
BRUSSELS SPROUTS, ROSEBURY		0	6
CAULIFLOWER, LARGE EARLY ERFURT		1	0
CABBAGE, LITTLE PIXIE		0	6
CUCUMBER, SMITH'S FINE LONG FRAME		1	0
CELERY, MAMMOTH WHITE		0	6
,, RED		0	6
MELON, EMPRESS EUGENIE		1	0
LETTUCE, PARIS WHITE COS		0	6
,, ,, GREEN COS		0	6
PARSLEY, extra curled garnishing		0	6
SAVOY, NEW FEATHER-STEMMED		0	6
PARSNIP, THE STUDENT		0	6
TOMATO DE LAYE		0	6
LOBELIA PAXTONIANA, or Crystal Palace var. ..		1	0
TRUFFAUT'S SPLENDID ASTER, 18 vars.		1	0
CHRYSANTHEMUM-FLOWERED ASTER, 12 vars. ..		1	0
IMPORTED LARGE-FLOWERING STOCK, 18 vars. ..		1	0
BALSAM, SPLENDID ROSE-FLOWERED, 12 vars. ..		1	0
AMARANTHUS MELANCHOLICUS RUBER		0	6

The whole of the above carriage free for 21*s.*
RICHARD SMITH, Seed Merchant, Worcester.

CARTER'S IMPROVED GARNISHING KAIL.—This will produce more than 20 varieties, some of which are worthy of a place in a Greenhouse, being quite equal in colour to the new Coleus. The colours vary from rich crimson to white laced and fringed. Price per packet, 1*s.*
JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1*s.* Post free, 14 stamps.—Sonning, near Reading.

Hanover Nursery, Peckham, S.E.

IVERY'S NONSUCH LETTUCE, the best Summer variety in Cultivation, 1*s.* per packet. See *Gardeners' Chronicle*, Jan. 30, for further particulars, with names of Seed Merchants and Nurserymen who have received a supply direct from W. I. SEED CATALOGUES free by Post on application.
The Trade supplied with Mushroom Spawn.

Chemical Analyses.

DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 191, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SPRING SESSION, 1864.
President—The Right Hon. the EARL BATHURST.
Council.
Rt. Hon. the EARL BATHURST. | Rt. Hon. T. H. SOTHERON ESTCOURT, M.P.
Rt. Hon. the EARL DUCIE. | EDWARD HOLLAND, Esq., M.P.
Hon. WILLIAM BATHURST.
Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Coll. Camb.
Farm Manager—J. L. FLETCHER.
Resident Professors.
Chemistry.—ARTHUR H. CHURCH, M.A., Lincoln Coll., Oxon., F.C.S.
Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S.
Botany.—JOHN BAYLDON, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. MURRAY, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. MEREDITH LANE, B.A Scholar of Trin. Coll. Camb.
Drawing.—JAMES MILLER.
SPECIAL LECTURERS.
J. BAILEY DENTON, M. Inst. C.E.—On DRAINAGE.
Professor J. MORRIS, F.G.S., of University College, London—On GEOLOGY.
JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
JOHN THORNHILL HARRISON, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
RICHARD GRIFFITHS WELFORD, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.
Applications for Admission and for further particulars may be made to the Principal.

The Agricultural Gazette.

SATURDAY, FEBRUARY 27, 1864.

WITHIN a pleasant Home Park Farm, near Burnley, Lancashire, once surrounded by as fair a landscape as any countryman could wish to see, but now in the very midst of chimneys, smoke, and cotton manufactories, there has within the past 20 years grown up a small but wonderfully successful herd of pure-bred Short-horns. Originally in the hands of Mr. EASTWOOD—during the past 14 years the property of Lieut.-Colonel TOWNELEY, whose agent Mr. EASTWOOD is—and latterly under the management of Mr. JOSEPH CULSHAW, Colonel TOWNELEY's herdsman—it has won higher and more numerous distinctions at national and provincial competitions—earned more money, medals, cups and prizes—commanded higher prices for individual animals—and, we believe it may be added, achieved a higher reputation for its manager and breeder than has ever in so short a time been earned, commanded, or achieved by any herd in this or any other country.

These cattle are to be sold next month by Mr. STRAFFORD, and the sale will no doubt take its rank among the most noteworthy recorded in the history of the breed.

Since Mr. CULSHAW took the management in 1849, Colonel TOWNELEY has shown at the meetings of the English Agricultural Society every year but '53 and '61, and every year he has won

prizes—490*l.* in all. He has shown every year at the Yorkshire Agricultural Society's meetings, and won prizes every year—607*l.* in all. He has won 473*l.* in prizes at the North Lancashire Agricultural Meetings, 135*l.* at the Irish Agricultural Improvement Society's meetings, 100*l.* at Paris, 105*l.* at Smithfield, and 110*l.* at Birmingham. He has won 22 cups, including two challenge cups, value 100*l.* and 120*l.* respectively, also 26 gold medals, with more than 100 of silver and of bronze, as well as other trophies.

This extraordinary career is no doubt owing to the judgment and the skill displayed by Mr. CULSHAW and his employer. There has been no extravagant outlay of money in costly purchases, no following in the wake of great names by the adoption of "fashionable" strains of blood; but a thoroughly independent course, guided by a natural gift and insight of the kind required, as great, probably, as has been possessed by any one since BAKEWELL'S days. The upshot has been to some extent already stated; the final utterance will be made next month, when prices rivalling any in the history of the Short-horn breed, will no doubt be realised.

During the next few weeks we hope to call particular attention to the five families, separate in their origin but related now by the employment of the same bulls over all the stock, of which the herd consists. In another column a reference is made to the Sockburn Short-horns, and to the mother of them, probably the oldest cow of which any exact account exists. She has nine of her descendants in the Towneley herd—*Roan Duchess*, the 16th generation from *Old Sockburn*, was bought a calf in 1852, by Mr. WETHERELL, who had obtained her grandam *Blanche 5th* through Mr. MAW, of Tetley, from *Kirklevington*. We shall see next month what value Mr. CULSHAW'S genius has impressed upon a family, now second to none in the herd, though descended from a *Blanche*, which having been parted with by Mr. BATES, was no doubt not considered by him to stand in the same rank as his Duchesses.

A second family, including five members, is descended from *Venilia*, bought a calf in 1849 at Sir C. TEMPEST'S sale, herself in the 10th generation from CHARLES COLLINGS' 400 guinea *Countess*.

A third family, including eight of pure "Booth" blood is descended from *Pearly*, bought in 1852 of Mr. JOHN BOOTH, herself a great granddaugher of *Bracelet* by PRIAM (2452), twin sister to *Necklace*, Mr. JOHN BOOTH'S two best cows.

A fourth family, including five members, is descended from *Madaline*, another from the Killerby herd, purchased of Mr. BANNERMAN in 1849.

The principal family in the herd, including no fewer than 29 members, is descended from *Barmpton Rose*, a celebrated cow bred by Mr. WALDY on ROBERT COLLINGS' farm at Barmpton, in 1835. She was bought by Mr. WATSON, of Walkeringham, from Mr. WETHERELL. We shall another week give her descendants so far as they can be traced. They have almost always made high prices. Ten averaged upwards of 100*l.* at Mr. WATSON'S sale in '45; five averaged 91*l.* 11*s.* at Earl DUCIE'S sale in '53; four averaged 66*l.* 3*s.* at Mr. SMITH'S sale (West Rasen) in '52, and other high averages could be quoted.

Mr. EASTWOOD paid 130 guineas for *Buttercup*, one of her daughters, in '45. MASTER BUTTERFLY sold for 1200 guineas at the Chelmsford meeting, was the grandson of this purchase, and his brother, *Royal Butterfly*, is in the sale next month. Another daughter of *Barmpton Rose*, *Princess Royal*, fetched 230 guineas at Mr. WATSON'S sale, bought then by Earl DUCIE. All her daughters were bought at the Tortworth sale by Mr. GRENFELL, of Taplow Court, and purchased again by Colonel TOWNELEY at Mr. GRENFELL'S sale a few years later. From them and from purchases of other descendants, from Mr. SMITH, of West Rasen and others, the largest of the Towneley families, including all the Butterfly tribe, has descended. We hope to give a fuller account of all these families before the date of the sale. Meanwhile we direct attention to the elaborate catalogue issued by Mr. STRAFFORD, from which every information of the breeding of this herd is to be obtained.

If the number of generations through which the excellence of any family is traceable be the true measure of the certainty with which that excellence will be transmitted to their descendants, then there can be no doubt that the Towneley herd can claim as high a character for power to transmit good blood and quality as any herd that can be named.

—— WE are glad to hear of the success of the Steam Plough Company at Wakefield. A capital of 2250*l.* has been raised in 1*l.* shares; and after paying 135*l.* 18*s.* 4*d.* in wages during the past year, and 113*l.* 11*s.* 4*d.* in oil, repairs, and management charges, there remains a balance on the year's receipts of 286*l.* 5*s.* 9*d.* available for a dividend. A dividend of 7½ per cent. has accordingly been declared, leaving 165*l.* 7*s.* 9*d.* in hand, of which 100*l.* will be put aside as the first instalment towards the formation of a reserve fund to provide for the replacement of capital, and to meet unforeseeable liabilities, and 65*l.* 7*s.* 9*d.* will go to the purchase of a new rope, which will no doubt be needed during the next half year. When so many local companies of a similar kind are starting, it is a matter of great public importance that so good an example can be put before them, as has thus brought forth good fruit at Wakefield. Mr. CLAY, the Secretary of the Wakefield Company, has been applied to for information from Whitchurch, Shrewsbury, Leominster, and Nottingham, and several other places, and the publication of his balance sheet will no doubt soon increase their number.

—— It will be remembered that some time since a handsome Testimonial was presented to Professor BUCKMAN, by former students of the Royal Agricultural College. We have much pleasure in now stating that this was part of a general expression by students and others of the esteem in which the whole of the former staff of that Institution is held by them. Dr. VOELCKER has a handsome piece of plate, Professor BROWN a valuable microscope, and Professor COLEMAN a gold watch and chain bearing suitable inscriptions. The Professors in acknowledgment have issued the following joint note to the subscribers:—

London, February 23, 1864.

DEAR SIR,—As we were unable to meet you personally, we take this opportunity of returning you our cordial thanks for the handsome Testimonial we have received. It is peculiarly gratifying as a mark of your esteem, and approval of our conduct as the old Staff of the College. We shall be frequently reminded of the happy years passed at Cirencester, and of the many friends we made there. In conclusion, we heartily re-echo the wish that in the future, opportunities may occur for the renewal of friendly intercourse.

We are, Dear Sir, Yours very faithfully,
AUGUSTUS VOELCKER.
JAMES BUCKMAN.
GEORGE T. BROWN.
JOHN COLEMAN.

—— As we gave this prominence to a note from Messrs. FOWLER & Co., of Leeds, upon the correspondence between Messrs. HOWARD, of Bedford, and the Consulting Engineers of the Royal Agricultural Society, it is right that their reply, addressed to us, should also appear in the leading columns of the *Agricultural Gazette*. They say:—

"We have never stated that Messrs. JOHN FOWLER & Co. were 'the cause of the controversy' between ourselves and Messrs. EASTON & AMOS. Nor have we stated that they 'had any business transactions' with Messrs. EASTON & AMOS. It is not, therefore, we who are 'entirely in error,' but Mr. FOWLER, in *assuming* that we referred to his firm.

"The name of the firm we *did* allude to we are prepared to give should the Council institute an inquiry into the relations of the Consulting Engineers with the implement manufacturers.

"In our last letter to Messrs. EASTON & AMOS we put this case:—'Suppose, for instance, we recommend the pumps of Messrs. GWYNNE, and Mr. FOWLER recommends your pumps, would not the circumstance, however disposed you might be to be uninfluenced, *tend* to place us at a disadvantage?'

Now, although Mr. FOWLER denies having had any business transactions with Messrs. EASTON & AMOS, we are sure he will not attempt to deny that a large number of steam pumps, to be worked by his engines, have been sent abroad by Messrs. EASTON & AMOS through his recommendation.

"We much regret that Mr. FOWLER, evidently through misapprehension, should have thought it necessary to interfere in this dispute. We have no controversy whatever with him; our controversy is with the Consulting Engineers, who, we maintain, occupy a false position—the fact of their being manufacturing engineers and dealers in agricultural machinery, makes them rivals of many of the competing firms.

"If the decisions of the Royal Agricultural Society are to gain the confidence of the public, we submit that above all things it is necessary that those in office should be above suspicion."

PLANT IMPROVEMENT.

(*Concluded from page* 178.)

THE important thing in such a selection is to know exactly what you want, and not to continue any plant which shows a tendency towards what you do not want. If the object is to retain the characteristics of the original sample, all deviation from them must in the selection be avoided; if mere productiveness be the object, as it was in the case of the Pedigree Nursery Wheat, it can be most quickly attained by going for that solely, and I humbly submit that the following facts show that I have been not altogether unsuccessful.

PRODUCE OF PEDIGREE WHEAT.

United Kingdom.		Year.	Produce per Acre.	Weight per Bushel.	Remarks.
			qrs. bus.		
North	Yorkshire	1861	7 4	..	Golden Drop, surrounding, yielded
East	Essex ..	1862	9 0	..	5 qrs. 2 lbs. Sold
West	Ireland ..	1862	7 6	64	to a miller at
South	Devonshire	1863	9 4½	..	43*s.* a quarter.

In your Journal of the 26th of December last, in the reports headed "St. Austell's Farmers' Club," it is said:—"We have this year tried Hallett's Wheat and the dibbling process, and found it answered well; although labour was high we found at harvest there was a saving of 20 per cent.; that is in reckoning the quantity of seed put and the yield per acre, as compared with our former means of putting." There is no reason, however, why the Pedigree Wheat should excel all others, but merely that it should be more prolific than it was before the selection commenced,

From Australia the following report has been sent:—"The English Wheat (Hallett's), sown before I came, produced when drilled 29 bushels per acre; and when dibbled 35 bushels per acre. The average crops about here are under 10; ours were 6; and our neighbour's opposite 4½ bushels per acre. The largest ear produced 113 grains. The greatest number of ears on one stool was 72."

MR. SHIRREFF takes the liberty of adducing the name of Mr. Alderman Mechi as if in his support. I could, if the worthy alderman gave me permission to do so, produce a letter in which he does frank, full, and honourable justice to the importance of the work in which I am engaged; and on the occasion of a subsequent visit to me here, after having carefully gone through the whole subject with me, and seeing practical proofs of the improvement effected in a variety of cereals by selection, he did me the honour, and from such a man I deem it an honour, to say upon leaving me, "I call you the Jonas Webb of Grain." Such is the testimony of a highly honourable man who has really at heart "the improvement of agricultural plants," and is one of the best friends that agriculture has had.

I fear that I have already intruded too long upon your space, but hope you will bear with me while I place side by side extracts from Mr. Shirreff's letter of September 6, 1862, and that of Feb. 6, 1864.

Mr. Shirreff's Report, Sep. 6, 1862.

"Mr. Hallett's Wheat crops (at Brighton) had evidently been sown at widely different periods of the season, but all of them were remarkable for length of ear and levelness of crop, and so genuine that after a careful examination I could only detect two or three spurious plants. The ears being deceptive, and only large in appearance, I failed to discover any improvement which Mr. Hallett had effected on the Wheat plant, and *believe that his Pedigree variety is identical with the common Nursery Wheat of the country.*"

Mr. Shirreff's Letter, Feb. 6, 1864.

"What is really the sort of Wheat which has been grown in the neighbourhood of Brighton and sold by Mr. Hallett? By his own account Nursery was selected, and has been improved by skill and attention into what he has been pleased to call Hallett's Pedigree Nursery—*a Wheat which has little or no resemblance to true Nursery.* The ear of Nursery is rather close set, with a white chaff which stands on the notches, at an acute angle with the axis, while the ear of Hallett's is rather wide set, the chaff cream-coloured, and often standing at a less acute angle."

And then this amusing gentleman, with an acuteness less even than that of the angle of my chaff of which he complains, goes on to describe the difference between the Pedigree and common Nursery Wheats, which he on the 6th September, 1862, with all that polite decision for which he is remarkable, pronounced to be identical. Surely Mr. Shirreff cannot expect to be regarded as an authority upon a subject upon which he can so write.

Mr. Shirreff does not write in a way which really entitles him to notice at my hands. I have however in this instance replied to him. It is not to such as he that I look for countenance and support, but to the men of science and practice in all countries, and I am happy to say that I do not so look in vain.

No man has a right to complain of my advertising the Pedigree Wheat, for to the growers of Wheat in all lands, I at the very outset, in your Number for August 26, 1861, in making fully known the whole system, used these words.

If a farmer wants a good Cabbage, Mangel, or Turnip, his instinct leads him to select a good parent—the same with regard to animals, horses, cattle, or dogs—but the moment he approaches the cereals he no longer adopts the principle which he knows in other cases to be right.

Now all farmers should be continually trying this as a matter of business, employing any kind of Wheat they think likely to suit their purpose. I do not say that my Wheat is the only Wheat that can be thus

improved, far from it. All Wheat may be improved, though not to the same extent.

I then went on to say that if gentlemen would not take the trouble to do it for themselves, they must pay me for doing it for them. I say so now. *Frederic F. Hallett, Manor House, Brighton, Feb. 9.*

THE VEGETABLE MOULD.

The vegetable mould is the natural seed and growth bed prepared for the existing superior order of plants in the course of almost illimitable time. It is composed of disintegrated rock—drift or lacustrine and ocean sediment—chiefly sand, clay, and lime, along with more or less organic matter, consisting of the remains of vegetable and animal life of past ages. And according as these remains are plentiful or deficient, other things being equal, is the productiveness of the soil, excepting where from peculiar circumstances these remains take a peaty character.

This formation of vegetable mould, in most cases, had taken place in the fields of nature before man had appeared as a cultivator, and is found deepest and richest where the rock or mineral deposit had been most favourable for its increase, and where climate and a fair supply of moisture had been propitious for the gradual accumulation. In some places circumstances have been so favourable that this accumulation of the garnered food of plants is so great as almost to defy man's power of exhaustion, but generally it is not deeper, in any estimable richness, than from that of a common plough furrow to three feet.

The vegetable mould is evidently connected with the existence of the higher vegetables and animals. Commencing upon the bare rock or pure mineral earth with an inferior or different order of vegetation, Lichens, Mosses, and deep rooting arborescent Fern and Equisetaceæ, a sufficient vegetable mould has been formed for the higher vegetables upon which the higher animals depend for subsistence. Over the whole earth, wherever this formation is greatest, the product of the food of man is greatest, and can be obtained with less exertion of labour (warm-climate irrigation excepted). But it unluckily happens that man himself is the great destroyer of that which is of the greatest importance to himself—that upon which his existence depends, at least as a civilised dense population has hitherto depended. I believe that no writer has pointed out this fact, perhaps as being universally known. Yet even under the culture of the highest civilised, leading, and most extending race in North America, the Cape, Australia, New Zealand, and even in India, the same exhaustion of the vegetable mould is in progress; and even in Britain itself, where so great facilities are present for its increase, the most reckless destruction is going on. This I will hereafter treat of. Let us at present take the Eastern States of North America as an example of the destruction, which are only similar in this respect to other colonies where land is abundant. In all the best soils and favourable positions of these States, away from the rich deposits of the Mississippi valley and interior on the south side of the lakes, the land by reckless cultivation has been robbed of the vegetable mould. While they had good forest land to fall back upon, no endeavour whatever was made to keep up the natural fertility by manuring, &c. The field was cropped with the most exhausting plants—the cereals, Maize, Tobacco, Cotton—till it would no longer pay to cultivate. Thus nearly the whole of the good land of the Eastern States has been rendered unfit to support a dense population, unless a system of irrigation be introduced along with a judiciously provident system of agriculture directed as well to increase the vegetable mould as to obtain immediate return of crop.

In Europe of late years, and especially in Germany and France, the subject of a decrease in fertility, although the working or tilth of the soil has been greatly improved, has occupied the attention of scientific men. Boussingault, Liebig, and others have been drawn into a consideration of the growth of plants, but none of them, as far as I have learned, were agriculturists, and consequently destitute of the knowledge of innumerable facts which practical experience only can give, and which alone enable the mind to form a correct judgment. Liebig, in particular, an eminent chemist, has devoted much attention to the subject, but unfortunately is more chemist than agriculturist, and naturally, like the man of leather who was to do everything with leather, considered everything accomplishable by chemistry; so having started a new theory of his minerals being the sole food of plants, he ignored the utility of the vegetable mould, and he or his followers went so far as seriously to advise us ignorant farmers to feed the plant rather than load the soil, to treat the latter as a machine and not as a warehouse, as if properly tilled it is unexhaustible of its stores, which are being continually replenished without much help from man! Here the wonder is that these new-light chemists and savans did at all apply to the soil as an instrument or machine for fabricating food, and which they naturally thought would work with more facility when not loaded with useless lumber. Why do they not at once transmute their all-sufficient minerals into roast beef and plum pudding, without being indebted to the old-fashioned half-exploded system of using the soil machine at all?

Seeing the sterilised condition of various regions of the earth from the exhaustion of the vegetable mould, I would strongly recommend to Baron von Liebig and his followers to form a company forthwith, with Johann King of Saxony as Royal President, to take out an extended patent for reconverting those exhausted regions in the Eastern States of North America and elsewhere into highly productive lands, a conversion no doubt not very difficult to effect, as they would not be much discommoded with warehoused loads of vegetable mould. No possible company could enter upon a more favourable field in prospect, and there would be no use to have the company limited as to the liability of shareholders, as the marvellous success of Baron von Liebig in repairing the great exhaustion of much of the lands of Saxony will dispel any doubt of the success of the undertaking. As soon as a prospectus can be got ready and issued, the wise and thoughtful Germans, led by King Johann of Saxony in person, will hasten to enter into the judicious scheme. The money-holding Jews, particularly the Rothschilds, countrymen of the Baron, so acute in money speculations, will no doubt afford funds to any required amount. Baron von Liebig and his followers must pardon me, but really I cannot treat the subject of his mineral theory and the loading the soil with useless warehoused organic remains (vegetable mould) with that respect or reverence which a scientific subject of so great importance merits.—*Patrick Matthew, Gourdie Hill, Errol, Scotland, Feb. 1.*

A WEEK UPON THE COTTESWOLDS.

(*Concluded from* p. 180.)

Steam Cultivation on the Royal Agricultural College Farm.—The following memorandum drawn up by the present farm manager sufficiently describes the experience of the past autumn:—

The extent of the College farm is 500 acres, 450 being arable; the land is very varied in character, and the whole is divided into 20 fields of from 10 to 50 acres each. A considerable portion of the occupation immediately surrounds the buildings, and is easily accessible, being intersected by the turnpike and occupation roads; 100 acres are difficult to approach, present an irregular surface, undulating in character, and naturally of inferior quality. The farm is by itself not capable of affording beyond 70 or 80 days' employment to the steam plough in the year, a breadth insufficient for the profitable working of the apparatus. Under these circumstances work for the implement is sought in the neighbourhood, and it not unfrequently happens that the convenience of the adjacent occupiers is consulted before the wants of the College farm. Our neighbour Mr. Dewe has hitherto been our greatest supporter; since the establishment of the steam plough, two years back, he has found it ample work for six weeks or two months in each year. Although the land on his farm is chiefly light and much of it trashy, the benefits the soil has derived from the thoroughness and depth of the tillage operations by the steam plough have been sufficiently plain. Owing to the shallowness of the surface, the power expended in tilling the soil is reduced at times nearly to its smallest amount; the cost of operating, however, is increased by the frequent breakages of skifes and shares, in consequence of the implement fouling projecting portions of the limestone rock. On the 26th of August we commenced our autumn work by digging at a depth of 4 inches a Wheat stubble for winter Vetches. The implement got over 7 acres per day, with the drag attached, making a splendid seed bed. The consumption of coal was somewhat large, viz., 15 cwt.; our engine being only 10-horse power, the coal is more per horse-power than would be required with a more powerful machine. Our next operation was on a piece of lea ground, required for Wheat, with the turn furrows in the place of the digging breasts. Very fair work was made at a depth of 5 inches. The steam plough leaves a somewhat rougher surface than is desired in a preparation of this nature, and one or two extra strokes with the drag were found necessary to obtain an even seed bed. On the College Farm 208 acres were ploughed, dug, or cultivated at depths varying from 4 to 12 inches. It is in smashing up our stubbles at the latter depth that we find the greatest care is demanded of all those employed with the apparatus. By occasionally removing a skife and turn-furrow, and slackening the speed, the operation proceeds regularly, and the strain on the engine and gear is much lessened. An average of 4½ acres per day was our work with this implement going the depth just named, the consumption of coal being barely 11 cwt. I cannot speak too highly of the quality of the work performed with Fowler's 7-tined cultivator, whether running at a shallow or great depth. This implement, furnished with 7-inch shares, skimmed the surface of our bare fallows and Pea stubbles, and left a first-rate preparation for the Wheat; although the prudence of operating thus on a tenacious soil that had been exposed for so many months to the action of the weather, was questioned, nothing could have answered better; from 10 to 12 acres per day were tilled after this manner. The present appearance of the Wheat plant and firm condition of the soil is the best evidence of the efficiency of the operation with the cultivator on these lands. Our Bean stubbles received similar treatment with this tool; owing to the abundance of surface weeds and a strong stubble, the ground was not so thoroughly moved as it should have been; and I think shares of greater width than those we had on, viz., 7-inch, would be better for paring ground in such condition immediately after harvest. The value of a steam plough on a large farm is never more evident than at that season, I scarcely know what we could have done without this implement. With harvest still about us, and some 100 acres of land to prepare for winter sowing, nothing short of six or eight additional horses could have achieved the thing for us."

Having been over the College farm during a recent week of visits in the Cotswold district, I am able to speak with confidence of the quality of the work thus accomplished on it. The young Wheats after it look uncommonly well: the land treads firmer and better on the steam-cultivated portion than where worked by horses. This is particularly noticeable in a field sown towards the end of October after Rape, the steam cultivation of which did not extend over the whole field. The portion ploughed by horses, though sown the same day, does not now tread so firm, or look so well, as the rest of the field treated otherwise the same.

In another field, where, owing to the ridged form of the land, the steam plough had made indifferent work in turning over seeds for Wheat—by dint of hand labour in properly turning under any small portions that were missed, and rolling with Crosskill's clod crusher and repeated heavy harrowings, the land was brought into capital condition as a seed bed, and now, well water furrowed, for the escape of surface water, and covered with a good plant, it treads satisfactorily and promises well.

The detailed account thus given of the steam cultivation at the Cirencester College farm has been transcribed thus fully, because it is in a record of this kind that the real experience of the steam cultivator is fairly represented. It is to a very large extent, it will be seen, an experience of annoyance, accident, and disappointment, and the cost of the operation on the whole has not been so much less than that of horses as in some more exceptional cases it has proved. The real and ultimate experience, however, is seen in the superior quality of the work thus done. The single operation after harvest being itself more efficient for fallow and tillage purposes than a whole series of ploughings and cultivatings by horse-power, and the rapid accomplishment of it during the short intervals when clay land is fit to work, doubling and tripling the effect.

This notice of the farm has been confined simply to the experience of steam cultivation on it; but there are many features in its management deserving more notice than can be given to it now. The sheep are a good illustration of the Cotswold breed—the swine are a capital illustration of the Berkshire breed — the dairy include a number of well-bred Short-horn cattle. The buildings, though a systematic and elaborate pile, are defective in several particulars, and especially in the want of cottage accommodation for resident labourers. The cultivation of the land is forward, roads and fences are being improved, and the whole—land, labour, stock, and cultivation—appears to be well "in hand" and forms a capital pendant to a great Agricultural College.

Home Correspondence.

Hallett's Wheat.—I quite agree with all that Mr. Shirreff has written respecting this Wheat. There cannot be two opinions as to Mr. Hallett having devoted a great amount of time, care, and attention to the growth of this particular sort, but it is a matter of obscurity and doubt whether he can establish much claim to consideration as a plant improver. In the autumn of 1860 I purchased a bushel of this Wheat with an idea of giving it a trial, having heard and read so much about it, and must confess to my surprise and disappointment at the outset, for on opening the bag, instead of the superfine Nursery which I had fairly been led to expect, worth more per quarter by some shillings, I found a coarse and inferior Red Wheat of some kind or other, faint and weak in colour, and totally unlike the genuine Red Nursery. Having bought the Wheat, however, I determined upon giving it a fair trial upon a rich piece of land, and carefully put it in according to instructions. There was nothing particular about the growth; it tillered very well, certainly, and grew a coarse reedy kind of straw, longer considerably than ordinary kinds of Wheat. But the crop—what was that per acre? Nothing extraordinary—barely 10 sacks per acre; like the parent seed, a coarse grain, weak and faint in colour, a very bad millers' Wheat; and, small as was the quantity, I had much trouble in finding a customer at a low figure. There being nothing particular in the season of 1861 favourable or otherwise to the growth of Wheat, my impression is that any description of Red Wheat planted under similar circumstances would have produced as favourable a result. Did Mr. Hallett when he started commence with a false ear, believing it to be Nursery, or has the Nursery Wheat degenerated under his care and attention? The prolific growth does not amount to much, as I remember 20 years ago a crop of 15 or 16

sacks per acre in the neighbourhood of Chichester, of a coarse brown quality. *W. Simmonds, Guildford.*

The Prize System and Steam Cultivation.—I thank you for your article upon the prize system, and your remarks upon my letter. The evidence in your article is strongly against past awards, but your remark upon my letter—"We certainly hope that no such scheme as a home farm under the Society's management, will grow out of this suggestion; the Society teaches nothing by example,"—puts a wrong construction upon my words: "say by selection after trial at your annual shows to be tried at an appeal court, a kind of House of Lords—a farm of your own on which you must test them year after year." Now, what is the House of Lords? It is our supreme law court, presided over by our greatest law lords of the day. They sit and hear evidence about the doings of other men, and decide as to who is right or who is wrong. They "teach nothing by example" in the sense in which your words would imply. Then take the steam-plough case at Worcester, where Fowler, Howard, and Smith, one and all protested against the award, and let it be tried before my suggested House of Lords. The tackle ought all of it to have been impounded at Worcester, and conveyed, if required, to the appeal court, when 100 acres of land ought to have been allotted to each. "There! Smith, do that 100 acres; farm it as you like, we shall book time and cost in every shape and form, for all the men, steam and horse-power, that you may employ. After harvest we shall know the produce in bushels, and the condition of your land as well as the cost. You must go on for seven years, we shall then be in the yearly possession of facts that we can rely upon. You must submit to this or we will not hear your case, and so must all others who enter this Court." Such a trial as that would be worth ten 100,000 acres reported upon in the way you propose. This I know is but mere opinion, but pray allow me to have an opinion as well as yourself. *William Smith, Woolston, Bletchley Station, Bucks, Feb.* 22. [A report of the behaviour of one hundred acres under steam cultivation and of the behaviour of the steam cultivator upon one hundred acres would in Mr. Smith's opinion be a better guide than a report of the behaviour of ten 100,000 acres under steam cultivation and of the behaviour of the steam cultivator upon ten 100,000 acres!!]

The Potato Disease.—Mr. Alderman Mechi has sent us the following letter to himself for publication:—

"'Old Times,' Peascod Street, Windsor, Jan. 19, 1864.

"Sir,—Knowing you to be one who farms upon chemical principles, I thought I would write to you and explain my ideas upon the Potato disease, with a remedy for the same; if you think it worth your while to try it you are welcome to the information. Although now a publican, I at one time was a chemist in a print works, with Mr. C. Swainland, Crayford, Kent, and afterwards manager at Ravensbury Print Works, Mitcham, Surrey. You are, of course, aware that the Potato contains about 25 per cent. of starch, the rest water and a few chemical salts. Now starch and sugar are composed of the same compounds, viz., oxygen, hydrogen, and carbon, but sugar contains more oxygen than starch. We know an Apple growing upon a tree as it becomes ripe is sweeter than a green one, because it absorbs oxygen from the atmosphere, and converts the starch into sugar; so with the Potato we never have diseased Potatos until we have had a thunder-storm, with rain, &c. During a thunder storm a peculiar gas termed ozone is formed, containing more oxygen than the atmosphere; being ponderous it descends, and having a peculiar chemical affinity for the Potato, it runs down the haulm, and seizing upon the starch in the young Potato, converts the starch into saccharine matter by the addition of oxygen; the rain and heat converts the earth into a kind of oven; the Potato begins to ferment, and the saccharine matter works almost the same as when yeast is added to beer or wine,—you doubtless have noticed that diseased Potatos when cooked are very much sweeter than good ones, which is of course owing to the sugar in them. To prevent the disease, myself and a friend (Mr. Marshall, 6, Brewer Street, Golden Square, London), tried some experiments; we planted 12 rows, six were planted in the usual way, and six as follows:—make a small hole in each Potato, and firmly push a Marrowfat Pea into the incision; drop into the earth carefully, so that the Pea may be upwards if possible; we let the 12 rows be for a month longer than other people were leaving theirs in the ground, and when we dug them up, those rows planted with the Pea were all good, with the exception of one root where the Pea had fallen out and took root in the earth; the other rows were very nearly all diseased, and scarcely a good one amongst them. Now, in the first place, in planting this way the farmer gets two crops at once, and the Pea, from deriving so much nutriment from the Seed Potato as it rots in the ground, produces a much finer crop of Peas. I account for its curing the disease, simply that the Pea contains more saccharine matter than the Potato, and when after thunder the ozone enters into combination with the starch, that the Pea robs the sugar from the bulb; and thereby fattens itself upon it. If you think it worth notice perhaps you will give it a trial, and if it should prove correct, I should only be too glad for you to make it public. *H. Clement.*

Cottages.—It is amusing and instructive to read letters in the public prints, from persons who advocate the cause of the labourer, and take credit to themselves for originating and opening afresh the important subject relating to the improvement of the dwellings of the working classes. However it signifies little, whether the discussion was revived through an *Agricultural Gazette* or a daily journal. The main question is, which will most strenuously support the movement, and expose the weak points of those who view it as a mere £ *s. d.* affair. Many landowners and farmers appear to take their stand on low grounds, and allow a per centage on capital laid out in building cottages to occupy their thoughts, irrespective of the indirect advantages dry, airy, commodious dwellings would bring with them. Supposing the owner of the poor man's improved cottage realised but 4 per cent. in actual cash, he would surely gain largely in having strong, healthy, contented labourers in his employment, who would soon learn to appreciate the blessing of a comfortable house, instead of envying the beasts of the field, which are too often better provided with shelter than the peasants. It may be asked what hope is there of making a favourable impression upon the majority of the adult population, male and female, who have been accustomed—to the disgrace of the United Kingdom—to scenes of vice and profligacy. It must be confessed, the chance of converting to better ways those who have been forced into a state of existence, frightful to contemplate, is small indeed. Yet this is no reason why the rising generation should not be placed in a condition to profit by the instruction they receive. Education is thrown away, if precept alone is the foundation on which the attempt is made to build up a useful member of society. Good examples have no growth in the present dwellings of the poor. Common decency and self respect are strangers, in rooms 12 feet square, into which are crowded every age and sex, to eat by day and sleep by night — the healthy and sick, the dead and the living, indiscriminately mixed together. Not two miles from hence on the third of February, 1864, in a room not so large as the one above mentioned, there were a man, his wife, just recovering from a bad confinement, two living children, and one dead child. The couple were travellers, but such occurrences are not rare amongst resident families. In many parishes, no doubt, clergymen visit portions of their flocks daily, yet seldom meet with those who most require advice and superintendence, the business of the able-bodied men calling them away to the fields and shops, &c., at an early hour in the morning. Thus occupied they have only the Sunday services to look to for instruction, and what do they consist of?—beautiful prayers and lessons from the Bible, often so indistinctly read as to be scarcely audible to two thirds of the congregation, followed by a sermon delivered in language, it may be very classical, but beyond the comprehension of the poorer classes. Those who happen to pick up a few words of excellent teaching in the House of God experience on their return home how utterly impracticable it is to follow what they have heard from the lips of their minister. The good and bad must live together, the sexes are crowded into dens without distinction. The carelessness of how or where the labourers live is short-sighted policy, to say the least of it, and ere long the evil consequences will fall upon the shoulders of the masters. Those who can carry their memories back 30 years must be aware how great a change has come over even the day labourer, who is neither so active nor so willing to give a fair day's work for a fair day's wages as he used to be in former times. The cause of this forgetfulness of duty may be traced also amongst shopkeepers, &c., who assume a position in society they have no right to. Now-a-days, a grocer, stationer, attorney's clerk, shoemaker, &c., is disappointed if "Esq." is not attached to his address on a letter, and not be to behindhand in gentility, the stonemason and carpenter are known as Mr. Smith and Mr. Jones The above innovations amongst tradesmen and labourers may appear of little consequence—what's in a name? A great deal of it leads to vanity and vexation of spirit, and renders men and women unfit for their stations in life. It would be ludicrous to observe the airs of a shopman with a bad cigar in mouth, and the housemaid and shopwoman in crinolines, if wishing to appear what they are not, ended in innocent folly; but the love of finery leads to extravagance which common wages cannot afford, and the consequences are most lamentable. *Falcon.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Salt as a Manure.—At the meeting last week Mr. LAWES read a Paper on the subject.

1. He enumerated the advantages said to be derived from its use:—

It is said to increase the production and improve the quality of grain and straw. It is said to produce great effects on crops which have a marine origin, as Mangel Wurzel. It is said to fix ammonia in the soil and also to convey moisture in dry seasons. Many of the experiments which have been reported certainly could not be accepted in the present day. For instance, Sinclair states, as the result of experiments in 1817, that 45 tons of dung gave between 40 and 50 bushels of Wheat per acre; 6½ bushels of salt gave above 70 bushels of Wheat per acre; and 45 bushels of salt gave above 90 bushels of Wheat per acre.

2. Mr. Lawes then referred to his own experiments on the subject, taking, in order to be perfectly free from any hindrance to a fair comparison, the average of the crops of 3 years ending 1850, and 3 years ending 1853, on two plots A and B of half-an-acre each:—

They both received exactly the same amount of artificial manure, but A, unlike B, received for three years together 3 cwt. of common salt per annum in addition to the other manures. The parallel is exact with that exception. Now if you look (referring to a table) at the mean produce of 1848, 1849, and 1850, the years previous to the application of salt, you will see that the produce was 32¼ or 32½ bushels in each case; showing that the crops of Wheat were extremely alike. There was, in fact, no difference between them. Again, in 1851, 1852, and 1853, the years in which A received 3 cwt. of salt per acre per annum and B did not, the produce of Wheat per acre was almost exactly the same. Then if you take the next 10 years, you will find the produce again nearly alike. The produce of the 16 years was in each case 37½ bushels, showing that in the yield there was no trace whatever of the action of the 9 cwt. of common salt. Some persons, I am aware, think that, although salt may not increase the quantity of produce, yet it improves its quality. Let us see, then, what was the weight of the produce per bushel. In the first three years the weight was a little higher in A than in B; in the three years when the salt was applied—1851, 1852, and 1853—the difference was again slightly in favour of A, though not so much as it was before; and in the next 10 years the weights per bushel were almost exactly alike. It made no difference whatever, you see, whether we used 9 cwt. of common salt or not. I now come to the total produce—a very important matter. The total produce of the first three years was 5988 lb. against 5976 lb.—a difference of only a few pounds. In the three years when salt was used the produce was, as nearly as possible, the same; and in the 10 years after salt was applied, the produce was 7799 lb. against 7811 lb.—again a difference of only a few pounds. In the total produce of the whole period of 16 years the difference was only 12 lb., 7222 lb., against 7234 lb. Salt is supposed to strengthen straw, and to improve its quality. In the first period, before salt was applied, there was 57 lb. and a fraction against 56 lb. of grain to 100 lbs. of straw, therefore A was in that case rather superior to B. In the next period we have 42·6 against 41·7, there being again a slight difference in favour of A. In the next 10 years the case was reversed, and the result was in favour of the land which had no salt, the figures being 49·0 against 54. Again, in the 16 years, the comparison is 49·7 against 49·8, being again a little in favour of B. Practically there is no difference in the proportions of corn and straw, taking the whole period. I must now speak of the proportion of offal corn to 100 lb. of dressed corn. In the first three years A was in this respect slightly superior to B. In the three years in which salt was applied the reverse was the case; that is to say, the offal corn was a little larger in quantity when the salt was used. In the third year of this second period, I may remark the balance was still greater against salt; the offal corn was then 17 to 13, showing that the salt had the effect of injuring the quantity, instead of improving it. In the next 10 years the result was 7·4 in A. to 8·3 in B. If you take the 16 years, you find that the results are almost identical; that is to say, following out the table as far as it goes, we see no result whatever from salt in the case of experiments extending over a great number of years. My desire was to get at the real action of salt, if possible, on the soil. Manures were put on the land with the view of getting the largest obtainable crop, and the general result of the application of salt was that the crop was very much laid indeed. If we could have got any manure that would have made the straw stand up, we should certainly have applied it. The largest crop of Wheat per acre was 7 qrs., and the average was 5 qrs. In fact, our aim has been in every case to produce the largest crop that could be grown.

3. Mr. Lawes then referred to the action of salt on Mangel Wurzel. He said:—

I generally grow from 10 to 15 acres of Mangel Wurze a year; and, following the common custom of agriculture, I have usually applied salt as well as other things to the land. My usual course has been to apply half a dressing of dung in the autumn, and half a dressing in the spring; to put on the top of the dung 2 cwt. of guano, or some other artificial manure, per acre, and 4 cwt. of salt; the salt and artificial manure being strained on the top of the dung and ridged in, and the seed being drilled on the top. As everybody says that salt is good for Mangel Wurzel, I always use it, but I am not satisfied as to its value. I have, in fact, been led to doubt whether the produce resulting from the use of salt has the proper meat-producing qualities; and I intend, therefore, to investigate that subject further. Last year I ordered one acre to be manured with 10 cwt., and another to be left without any salt; the other manures being the same in the three cases. One thing which struck me immediately was, that the salt evidently appeared to check the growth of the Mangel Wurzel. This went on for a good many months, and in time there was a very large difference between the one set of roots and the others The crops were very carefully weighed, and I will give the results. The produce per acre in bulbs without salt was 21 tons 2 cwt.; with the smaller quantity of salt it was 20 tons 10 cwt., a difference of 12 cwt.; and where 10 cwt. of salt was applied there were only 18 tons of bulbs. The result was that where the smaller quantity of salt was used there was more top and less bulb, and where the larger quantity was used, less top and less bulb.

4. A reference was then made to experiments by Mr. Hall Kearey in 1852—4, which were shown to correspond with those just quoted, as proving the inutility of salt as a top-dressing for Wheat. Messrs. Barral's opinion of the inutility of salt as a manure was quoted, and the following were the conclusions reached:—

It may be asked, why should not salt be useful when we find it existing largely in a certain class of plants? There can be no doubt that salt is to be found in a certain class of plants; but the question of the value of salt depends, I think, not so much upon what is found in the plant as upon what is taken from the farm. If you find salt taken out of the land by a plant which circulates it through the farm, as is the case with Mangel Wurzel, you may conclude that there the salt is not exported and therefore does not need to be replaced. As to grain, an analysis of ripe corn will show that it contains little or no salt. There is just a trace of salt, and nothing more. Animals undoubtedly contain salt. I have had a great many animals analysed at different times, and you may take it that, as a general rule, an animal as he stands alive contains about 3 per cent. of mineral matter, and that of this matter about 8 per cent. is salt. Therefore an ox weighing 1000 lbs. contains about 2½ lbs. of salt, and a sheep or a pig weighing 1 cwt. contains about 4 oz of salt. Hence, the amount of salt required by animals is very small indeed. A great many experiments have been made for the purpose of ascertaining the amount of salt which falls on the land through the medium of rain. I do not wish to go into figures, but there can be no doubt that a large quantity of salt does descend in that way upon our soils. In our climate, surrounded as we are by sea, the rainfall of salt is decidedly larger than the amount carried off the land in any shape or way, and consequently, so far as our fields require salt, they obtain it from that source. I would say that the general conclusion at which I have arrived is, that salt does not act very beneficially as a manure, though it has an action of some kind or other; that there are farms which are constantly farmed well that never receive salt, while there are others that do receive it; I am not at all prepared to say that these last are not better farmed, or do not produce better crops, than others. I cannot help thinking, however, that the large amount of money which is expended annually on salt as a manure throughout the British Isles, is not returned in produce. There may be some cases in which it is, but I think that, as a general rule, the outlay of money is not returned in increased production.

A discussion ensued, to which Mr. Dent, M.P., Mr Fisher Hobbs, Dr. Voelcker and Mr. Hooker, of Oatlands, contributed.

Mr. FISHER HOBBS said—In the east of England, where we have a dry climate, we find, especially in the case of marine plants, to which class Mangel belongs, that salt is very beneficial. We also perceive that along the coast, where the air is impregnated with salt, you can grow Mangel Wurzel,

even without farmyard manure, better than in other situations. Not only so, but the quality of the crop is decidedly firmer, and Mangel is generally admitted to contain more saccharine matter there than in parts of the interior where high farming is carried on.

Dr. VOELCKER said:—He had come to the conclusion that on light soils salt was often used with great benefit; while on heavy soils it was attended either with no advantage whatever, or with decided disadvantage. The character of the soil had a great deal to do with the utility with which salt could be used. Amongst the properties of salt there was one which belonged to all very soluble saline matters, the property of retarding the growth of plants. When applied in quantities of above 3 cwt. per acre, salt certainly retards the growth of plants, and for that reason it was of great utility on the lighter soils. It kept the plant for a longer time in good growing condition, and the final result was that there was a larger produce. That was decidedly the case with regard to Mangels. In the eastern counties the moderate use of salt had very materially increased the root crop, and he believed it did so by retarding the growth of the plant. In light soils, when dry weather set in, roots were very apt to dwindle away or to yield only half crops. By applying salt in moderate quantities, provided the land were otherwise well-manured, they prolonged the life of the plant; the Mangel Wurzel crop did not then go off so rapidly, and a larger crop was obtained. But the reverse of this was the case when salt was applied to heavy land. There they ought to use manures like superphosphates, which tended to bring about early maturity. Some years ago he made experiments on Grass land with salt and with nitrate of soda. Now, nitrate of soda pushed on the growth of Grass, and secured a larger produce. Salt, on the other hand, checked it to such an extent that, if they used on stiffish land as much as 10 cwt. per acre, they would get a less crop, even though nitrate of soda were used with it.

Mr. J. HOOKER (Oatlands, Walton-on-Thames) said, having made some experiments with salt, he had put down the results, which did not at all accord with those of Mr. Lawes. He took the land in 1860 in a very foul condition. Ten acres he was obliged to fallow. Four acres by the side of them, and with precisely the same kind of soil, he planted with Mangel, to which crop he applied 4 cwt. of salt per acre at different periods of the year. The soil was a rather stiff clay on the banks of the Thames, resting on a sandy subsoil. In 1862 he sowed these plots with fluff Wheat. The four acres salted gave seven sacks and two bushels per acre of good quality; the 10 acres not salted gave five sacks per acre of tailing quality. The plant was precisely the same over the whole 14 acres. Up to the time of blooming the Wheat all looked remarkably well, and he thought he was going to have a large crop; but the 10 acres which had received no salt entirely broke down, and the crop was very bad. He selected samples of straw to see whether salt or not had anything to do with the result. On examining the ash of the straw on the salted land he found that it gave 83 per cent. of silica, whereas on examining the ash of the straw on the land that was not salted, taking some of the best straw that could be found, he found 78 per cent. of silica. The straw of the 10 acres was by far the most brittle. He agreed with Professor Voelcker that a small quantity of salt was better than a large quantity on stiff land. In the case to which he referred 1½ cwt. of salt was sown broadcast per acre on the 12th of May, 1863. A portion of the land was not sown with salt. The following was the result. The land salted gave a produce of 2475 lb. of Wheat per acre, and the land not salted gave a produce of 2337 lb. per acre, showing an excess of 138 lb. per acre on the salted land. Further, the land salted gave a produce of 3389 lb. of straw per acre, and the land not salted a produce of 3150 lb. per acre, showing 239 lb. per acre extra on the salted land. This showed a large excess of straw in proportion to the Wheat, and that was accounted for by the finer quality of the straw. The straw grown on the salted land contained more mineral matter than the other straw, and consequently had a greater weight.

Mr. LAWES, in replying, said it might be supposed that his land was not favourable for an application of salt, but his experiments with Mangel Wurzel were not carried on upon experimental land, but as part of his ordinary farm practice. The soil was a heavy loam resting on yellow clay. Mr. Kerey's experiments made also part of what was termed farming practice, and though he said that salt was a capital manure, the results which that gentleman gave tended to show the contrary. He agreed with Professor Voelcker that, when salt was applied to grass lands, the herbage looked better, and the cattle seemed more fond of it; nevertheless, he doubted whether the Grass contained the best meat-producing qualities, nor indeed did he think that salt ultimately increased the amount of the produce. He also concurred in the opinion that salt checked the growth of plants; but whether that was an advantage to the farmer was another question. As regarded cattle, they knew that, if cows fed much on Mangel Wurzel, they were apt to have scour. What they ate operated on them like a dose of Epsom salts. Agriculturists did not want to accumulate salt in Mangel Wurzel; what they needed was good feeding qualities; and the question of the value of salt and other manures depended on their influence on the feeding properties of crops. Admitting that salt arrested the growth of plants, the question arose, whether agriculturists really wanted that. Did they wish their crops to be stopped at a particular stage of growth? They all knew in some years crops were too ripe in autumn, and in other years not ripe enough. That was a matter which depended on the seasons. One year there was a hot summer, ripening the crops too early, and next year perhaps the case was reversed; thus a manure like salt might be beneficial at one period and not at another. He did not deny, then, that the use of salt might be advantageous in certain cases; but, speaking generally, he doubted whether the large amount of money now paid for that article by farmers was returned in the produce.

Mr. FISHER HOBBS observed that Mr. Lawes seemed to think the scour in cattle arose in a great degree from the salt present in Mangel Wurzel. In opposition to that he would remark that when sheep had too much vegetable matter, and showed symptoms of scour in consequence, almost the first thing the shepherd did was to give them a handful of salt, and in nine cases out of 10 it proved a corrective.

Mr. LAWES said what he had referred to was an accumulation of salts in Mangel, which gave it a purgative character. He had never grown Mangel Wurzel without salt, but this year having occasion to make experiments in relation to this question, to his surprise he found that the crop seemed much better without salt than with it. He had been as steady a user of salt as any one, and if questioned on the subject he should probably have said that Mangel, being a marine plant, required salt; but after his recent experience he should look a little more carefully to his consumption of salt another year.

Farmers' Clubs.

WINFRITH: *On Grass Lands.*—Mr. LONGMAN read a paper on this subject. He said:—

If we begin by improving our wet land, draining is indispensable, and draining is of little use unless it is done effectually. To do this in strong clay land drains should not be more than seven or eight yards apart; and I think from three to three and a-half feet quite deep enough for land of that description; but if land has a gravel or sandy porous subsoil you may go four feet or even deeper, and from 10 to 15 yards apart. However, as there can be no uniform rule laid down as to depth and distance of drains, the subsoil varying so very much, this point must be left to the discretion of the drainer; but we must not be led away by the theory of book drainers, who tell us if we drain deep we may drain wide apart in any soil. I have known drains put in four and a-half feet deep and 12 yards apart in strong clay land, and in two or three years after, when the clay got close over the drains, they were of very little use indeed. However deep we drain in clay lands we must not go too wide apart. It is highly recommended by experienced drainers to put in air drains where convenient, allowing the upper end of the drain to lead into a ditch or some other open place to admit the air, by which the drains will work more freely, and consequently the land will get dry more quickly. Draining does not only benefit the land by making it drier but by rendering it more porous, so as to allow the rain water to filter through the soil and leave behind the gases and nutritious qualities which it contains. If draining is thoroughly carried out, it secures that degree of porosity in the soil which is best calculated to insure its productiveness. Water meadow is the cheapest land to improve, as the water brings fertilising properties with it, which save the expense of artificial manure, also the cartage of farmyard manure; but this, above all other Grass land, should be kept dry, except when you turn the water over it. If it is capable of getting dry as soon as the hatches are drawn out, the water will do twice as much good when it comes over it again. If it is necessary to drain water meadows, you should be careful that the soil be pressed firm in the drains after the pipes are put in, otherwise the water will run in at the top and wash down the small earth into the pipes and stop them up. They should not be watered the following year after draining, to allow the drains to get firm on the top, when the water will flow over as before. We all know that for a meadow to water well it should be thrown up in narrow beds, so that the water may run swiftly over it, otherwise it will not do half the good, but produce a rough coarse Grass. The water that comes from chalky springs is the best, but this is only obtainable in certain districts; the next best is the thick flood water from the rivers, but that which comes from the heath I think of little use. We should be particular to get the first floods at autumn over our meadows if possible, as the water is then much fuller of manure than afterwards. As, however, water meadows are only possible in certain localities, we must endeavour to improve our other Grass lands, which we all know is a difficulty, because we seem to want all the yard manure we can get to manure the arable land, seeing that it will bring a quicker, but I should say not a surer return. To manure strong and heavy land chalk is a good manure, at from 30 to 40 tons an acre. It will not only fertilise the soil, but will last a number of years. If that is not obtainable by reason of distance, lime is a good substitute, at about three waggon loads per acre, mixed up with the cleaning of ditches, earth by the roadside, and road scrapings, all of which are good manures for heavy lands. Or if lime is applied in a raw state in heaps of about a bushel, and spread abroad as soon as pulverised, it will answer a good purpose. To manure light soils marl is a capital thing. This should be applied at about 40 tons per acre. This, like chalk, will last for a number of years. If this is not obtainable, then the cleaning out of mud ponds, ditches, rivers, or any heavy compost mixed up with yard dung is a good dressing. Where the herbage is rough and coarse, salt, at about 5 cwt. per acre sown broadcast, is recommended. In Staffordshire, a large producing county of butter, and cheese, and cattle, they annually use a large quantity of bones to restore the fertilising qualities taken away. According to a prize essay in the Highland Society's Transactions upon artificial manures as a top dressing for pastures on strong soils, guano, sulphate of ammonia, nitrate of soda, and soot are recommended; on light soils compost of earth, bone dust, cattle urine, salt, seaweed, and fish refuse, are said to be the most suitable. Thousands of meadow and pastures are producing less than half the quantity of hay and feed which the land is capable of, owing to a deficiency of the Grasses which are most productive and most suitable for the soil. In some cases, where the pasture is very foul with weeds and moss, it is advisable to pare and burn the old sward and re-sow the land entirely; but in most cases great improvement can be effected by merely sowing renovating seeds, which should consist of the finest and most nutritive kinds of perennial Grasses and Clovers, in the following manner:—Heavy harrows should be drawn over the old turf early in spring to loosen the soil for the admission of seeds, which, if sown freely, will occupy the numerous small spaces between the Grasses already growing, and supersede the coarse Grasses and noxious weeds. It is a good practice to sow these seeds at the same time as the top dressing, if any, is applied, but this is by no means necessary. The months of February, March, and April, are proper for sowing the seeds; the earlier the better, as the old Grass will protect the young from frost. It is also useful to sow in July and August, immediately after carrying the hay. Should the old turf be very full of Moss, this is generally an indication that draining would be beneficial. The following is, however, an almost infallible remedy for the Moss, not only destroying it but preventing the growth in future:—Mix two cartloads of quick lime with eight cartloads of good light loam, turning the compost several times that it may be well mixed and the lime slaked; spread this quantity per acre over the pasture, dragging the turf well with iron harrows. Cattle should not be allowed to graze at the same season as this dressing is given, or at least not till after one crop of hay is taken from it. As to the poor chalky hills that are now worth but little for feed, I should recommend that they be broken up, by doing which we could get double the amount of feed from Sainfoin and root crops that they produce in the present state, and enough corn between to pay the expenses.

Reviews.

Origin and Pedigrees of the Sockburn Short-horns with Remarks, an Appendix, and a Supplementary Essay: the whole intended to elucidate many points necessary to be known by South Country breeders and amateurs. In Prose and Verse. By John Hutchinson. London: Printed for Evans & Ruffy, 9, Budge Row, by W. Robinson, Stockton. 1822.

A copy of this little pamphlet has lately fallen into our hands; and as it contains probably the oldest published record of any herd in the North of England, it is particularly interesting to the student of Short-horn history.

How far back it goes appears from the date (1822) of the youngest of the herd, whose pedigree is given then through 10 generations, from *Old Sockburn*, the original mother of the herd. She was a large yellow cow, with some white, remarkable for mellow handling. She was the mother of the cow for which Messrs. Collings bid 50 guineas when purchasing Mr. Maynard's cow and heifer for 30 guineas. Her granddaughter, *Old Sall*, is thus described from memory, by Mr. Thomas Hutchinson, of Hindwell (Nov. 13, 1821).

"She was well shaped, almost symmetry! darkish red and white, flecked in equal proportions, but not in large patches; the white portions, not distinctly so, but dappled, or dashed with red, like the leaves of a new bound book. Beautiful lively countenance, fine white horns turning a little upwards, and a great milker. She produced but two calves, both heifers; one was sold to Mr. Luke Seymour, and the other was the premium cow Sall. The premium bull and Old Sall were brother and sister. Their mother was a lightish red and white cow, called Young Sockburn, and got by the Dalton bull. She was a large useful cow, and, as far as I can remember, had nothing very striking about her; but my uncle used to prize her highly. The premium bull and Old Sall were got by Mr. Hill's bull. Premium Sall (or Sockburn Sall, as you have named her), was out of Old Sall, and got by John Coates' bull, bought (I believe) of Robert Thomas, (and not by the Sockburn bull, as you have it). The old cow of all, the mother of Young Sockburn, was a large yellow cow with some white; she was most remarkable for her mellow handling; but as to her pedigree, I am totally ignorant. She might, indeed, have been descended (for anything I know to the contrary) from the old woman's propitious Dun cow found at Durham (some time back now), which directed the monks, attending the remains of St. Cuthbert, to that seat of ease and magnificence. They were nearly of the same colour, I believe, and the old woman's was (as you will find her to be) a short-horned cow, if you take the trouble to examine her effigy upon the west corner tower of the east transept of the cathedral; but whether she was of Dutch extraction or not, I really cannot say. The old yellow cow (do not mistake me—not the old woman's cow) was the dam of Mr. Thomas Scott's cow, which Mr. Colling wished to purchase, and she was likewise dam of the cow, got by her grandson, which was sold, fat, to Mr. Chrisp, weighing 136 stones as she walked. She was a small yellow cow, and *Old Jin* was her daughter, which won the premium for heifers in 1795. My uncle farmed Sockburn long before I went to reside there in 1783."

We presume that the granddam of *Old Sall* is thus the oldest cow of which anything like a particular description exists in the history of the Short-horn breed. Of the merits of this particular strain of the breed, the following description by the owner is sufficient testimony. *Young Sall*, it should be mentioned, was the granddaughter of *Old Sall*.

"When I first became possessed of my brother's cows, I had no more land than was necessary to keep two cows for my family use, and this addition of stock, as soon as Young Sall (No. 6) calved, gave us more milk than we had occasion for, or my dairymaid could well carry home. This happened early in May, 1806. Intending to rear her calf, (the cow Crescent, No. 9), and seeing how promising she was for milking, I went into the market and bought two young calves, purposely for Sall to feed; they were accordingly turned to her, night and morning; and after they had fully, and daily, satisfied themselves, her own calf was set to, to take what was left. In this way I proceeded for twelve weeks (buying a young calf as I sold a fat one); at the end of which time I had bought and fed six calves, which cost me 5*l.* 10*s.*, and which I sold for 18*l.*, clearly paying me for her milk, 12*l.* 10*s.* in twelve weeks, besides rearing her own calf, which was then weaned, turned off altogether, and able to provide for itself; it having, for two months before, had liberty to go at large in the pasture, which the veal calves had not. Though Crescent got the smallest portion of each meal, she certainly got the richest; and to this mode of rearing her (so unusual in this county for heifer calves) do I attribute that very superior touch which this cow possessed, over any cow I almost ever saw. Joseph Farbridge, butcher, of Bishopton, killed all these calves; he is alive to testify the statement.

For breeding and feeding, milk, handling and hair,
Amongst all other cows pick me out such a pair."

An appendix to the pamphlet gives an account of the meetings from 1785, of the Durham Agricultural Society, with the names of the winners—Charles Colling, 1785; F. Walker, of Bradberry, 1786; Thomas Hutchinson, of Sockburn, 1787; R. Colling, of Bampton, 1788; for the best bulls, &c. The Society lasted

till 1814, and then died—the result, Mr. Hutchinson insinuates, of favouritism and mismanagement.

He writes thus of the register of meetings and awards which he had thus collected :—

"In laying the foregoing register before my readers, I present them with the best means of judging of the progressive improvement of the DURHAM SHORT-HORNS, and what they were at the commencement of this Society, when the highest and the lowest breeders contended for the prizes in honest, unsophisticated rivalry ; and every man thought his own stock equal to that of his neighbour. The title of *pure blood* was then unknown in the land, as applicable to horned cattle. That grand discovery was left for Mr. John Bailey ; and which is now become the most undefinable and visionary term in the English language. But he pronounced the words, and they became the death-blow of the Society ; for this noble Institution only survived them four years, as may be seen above. His book was published in 1810, and the partial account of this Society which he has given, shows in the clearest light, from what class of men he had gained all his information, and for what purpose the question had been so blinked. It was to raise up these *pure-blood breeders*, as they wished to be styled, above all others in the county : and to "keep alive an imaginary notion of individual superiority" in blood and origin, to which they had not the smallest pretension ; and which soon enabled them to tread all other stocks in the county underfoot. The Blackwell, and all other contemporary stocks upon the Tees, to whom they owed everything, were for a time forgotten, as though they had never been ; and, to my feeble pen has it fallen, to do them that justice to which they are so fully entitled."

The pamphlet, or rather tract, is written with a good deal of literary ability—witness its description of Sockburn, the farm whose herd is here described :—

"The River Tees, in its meanderings between High Coniscliffe and Park Knowle, near Yarm :—

'———with many a winding bout
Of linked sweetness long drawn out,'

washes several large holms of rich grazing land ; or

'Meadows trim' with king-cups glowing ;

some of them forming complete peninsulæ ; alternately leaving one in Yorkshire and one in Durham — of which latter, SOCKBURN may properly be called the chief—THE PENINSULA—or, poetically, the Queen of the group. Almost encircled by the river, as by a silver girdle, and adorned and protected by Beverley Wood, the situation is delightful ; the soil a rich gravel, warm and dry ; producing heavy crops of Barley and Turnips, and most luxuriant pasturage. Its principal pasture is called the Greens, perhaps the richest in the county ; and which has produced the largest sheep and most excellent cows and oxen."

And again, on the origin of the breed :—

"In that vale of linked peninsulæ, mentioned in my introduction, are situated Newsham, Traffic Hill, Low Middleton, Overdinsdale, Girsby, Worsall, Dinsdale, Nesham, and, in the centre dropping far to the south, SOCKBURN—the brightest emerald on this pendent chain !—Ayreholm, Westfield House, Hurworth, Red-Hall, Rockcliffe, Springfield, Oxenfield, Blackwell, Croft, Barton, Newton-Morrell, Stapleton, Oldbrough, Cleasby, Manfield, Dalton, and Coniscliffe—a small district, which, from time immemorial, I may say, has produced the largest sheep, and the best breed of Short-horned cattle in this island ; clearly superior to any bred formerly in Cleveland ; where, to my recollection, from the year 1783 to 1800, the cows were of the most ill-favoured and ordinary description—notwithstanding all we hear of what the late Sir James Pennyman did, or might have done, to improve them. But now, indeed, the case is altered. By the encouraging example of their landlords, the farmers individually, or joined in parties, have taken bulls, for the last 15 or 16 years, from the most eminent breeders of the county of Durham ; by which means, their stocks have become very excellent, and in great repute. Major Rudd's, in particular, I must not omit to name, because his Short-horns consist altogether of *genuine Kettons* ; —this gentleman having lately sold three cows for 500*l*.—a price, that in all likelihood, may never be again equalled.

"And to this favoured spot did Mr. Charles Colling, in 1785 (when he first turned breeder) repair for the selection of his originals. The Dalton bull, Mr. Hill's, Mr. Barker's, the Sockburn bull, Mr. Robson's, Mr. Jolly's, Mr. Alcock's, that extraordinary bull Hubback, and Mr. Maynard's cow and heifer, where all to be found here. How incredible—what a presumption then is it—to assert, that all the merit of the improved Short-horns rests with Hubback, whose origin is the most doubtful of all !"

On the pedigree of HUBBACK, here referred to, we may hereafter make further extracts. Meanwhile it is plain that Mr. Hutchinson's object was to claim equal rank in the Short-horn lists for the many good herds prevalent over a large district, which nevertheless owed little or nothing to the influence of the so-called pure bred cattle belonging to a few well-known and distinguished names.

Notices to Correspondents.

COARSE HERBAGE : *S H R.* Bone-dust, wood ashes, and salt well mixed tend both to correct coarse growth of Grass and to promote the growth of Clover. Apply 2 quarters of bone-dust rotted in a heap of moistened wood ashes. Give 5 cwt. of ashes and 1 cwt. of salt to each quarter of bones.

FAILED CLOVER LEA : *Wiltshire.* You had better sow Italian Rye-grass—if any Rye-grass at all—as early as possible, in order to a crop at midsummer. But it would in general be better policy, we imagine, to plough it up and put in Vetches.

GAS LIME : *J Smith.* It is a common practice to apply a waggon load of gas lime or even two per acre for Potatos in Gloucestershire. It should be mixed up in compost and turned over and over, or spread thinly over the land for a month or two before the crop is planted.

THE DRIFT : *J T H.* We are informed by Mr. Jenkins, one of the Secretaries of the Geological Society, that no general map of the subject has yet been published, but there is an abundance of papers on the drift, &c., of different districts. The following titles may be of use :—"On the Agricultural Geology of England and Wales," by J. Trimmer, Journal of Royal Agricultural Society, vol. xii., part 2. "On the Diluvial or Northern Drift of the Cambrian Chain," by J. Trimmer, 8vo, Dublin, 1838. Published by P. Dixon Hardy, 3, Cecilia Street, Dublin. "Trimmer's Geology and Mineralogy," 8vo, London, J. W. Parker, 1841, (see pp. 379 *et seq*.). "On the Distribution of the Flint Drift of the South-east of England," by Sir R. I. Murchison, Quarterly Journal of the Geological Society, vol. vii., p. 349, 1851. "On the Geology of Norfolk," by J. Trimmer, Journal Agricultural Society, vol. vii., part 2. "Researches in Newer Pleiocene and Post-Tertiary Geology," by James Smith, Esq., of Jordan Hill. 8vo, Glasgow, 1862. Mr. Mylne's Geological Map of London gives the distribution of the gravels, &c., for that district ; and the Government Surveyors also map them, or, at any rate, they have done so of late years.



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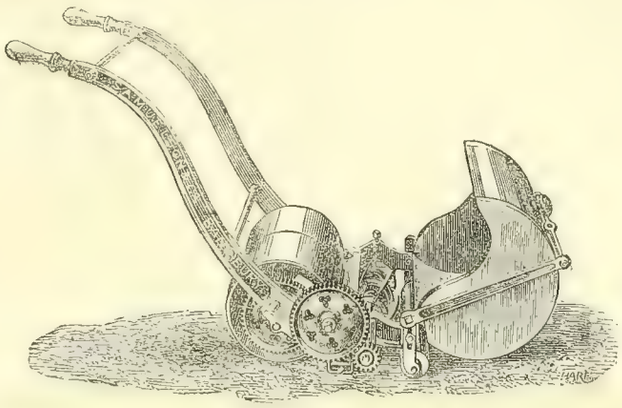
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In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.

AND OF ALL SEEDSMEN AND IRONMONGERS.

SEVERE FROST.

IMPORTANT NOTICE.

IT IS WITH FEELINGS OF CONSIDERABLE PLEASURE, MINGLED WITH A SANGUINE DESIRE TO ADVANCE THE BEST INTERESTS OF THE HORTICULTURAL WORLD, THAT

JOHN WEEKS & COMPANY

EMBRACE THIS SEASONABLE OPPORTUNITY OF CALLING SPECIAL ATTENTION TO THE STORE OF USEFUL AND PRACTICAL INFORMATION TO BE OBTAINED BY PAYING AN EARLY VISIT TO THE UNDERMENTIONED ESTABLISHMENTS, WHERE THEIR MARVELLOUS AND EFFICIENT

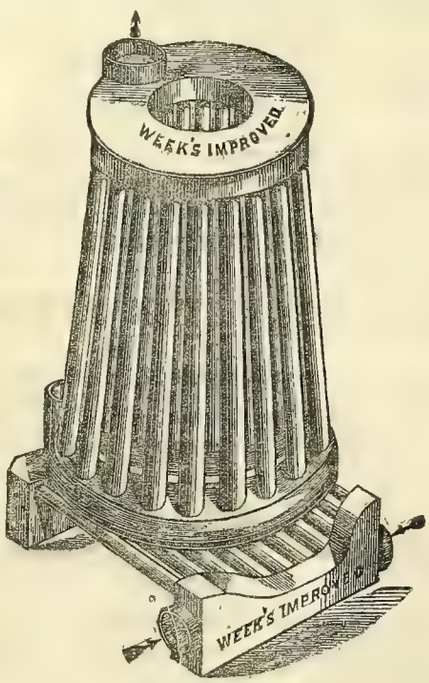
ONE-BOILER SYSTEM of HEATING by HOT-WATER

MAY BE SEEN IN SPLENDID OPERATION.

The number of BOILERS and FURNACES removed from these various Establishments to be substituted by WEEKS'S ONE-BOILER SYSTEM, range from 8 to 22. Thus, in one instance the labour and fuel of 21 fires becomes a complete saving.

The Principal Establishments are:—

THE ROYAL HORTICULTURAL SOCIETY, LONDON
THE ROYAL BOTANIC SOCIETY, REGENT'S PARK, LONDON
THE ROYAL BOTANIC SOCIETY, DUBLIN
THE ROYAL BOTANIC SOCIETY, LIVERPOOL
THE ROYAL ZOOLOGICAL SOCIETY, LONDON
THE CRYSTAL PALACE, SYDENHAM
MESSRS. E. G. HENDERSON AND SON, WELLINGTON ROAD
ARTHUR HENDERSON AND CO., PINE APPLE NURSERY, EDGWARE ROAD
MESSRS. F. AND A. SMITH, DULWICH
MR. WOODROFFE, HARROW ROAD
MONS. LOUIS VAN HOUTTE, GHENT
MESSRS. JAMES DICKSON AND SONS, CHESTER
,, F. AND A. DICKSON AND SONS, CHESTER
,, WOOD AND SONS, UCKFIELD
,, WOOD AND INGRAM, HUNTINGDON
ST. THOMAS'S HOSPITAL, LONDON
WHITECHAPEL UNION
MESSRS. WEEKS'S SHOW ESTABLISHMENT, CHELSEA



J. WEEKS & Co. unhesitatingly aver that for magnitude and efficiency, and heated by one fire, a parallel to the various apparatuses at the above is not to be found in the United Kingdom.

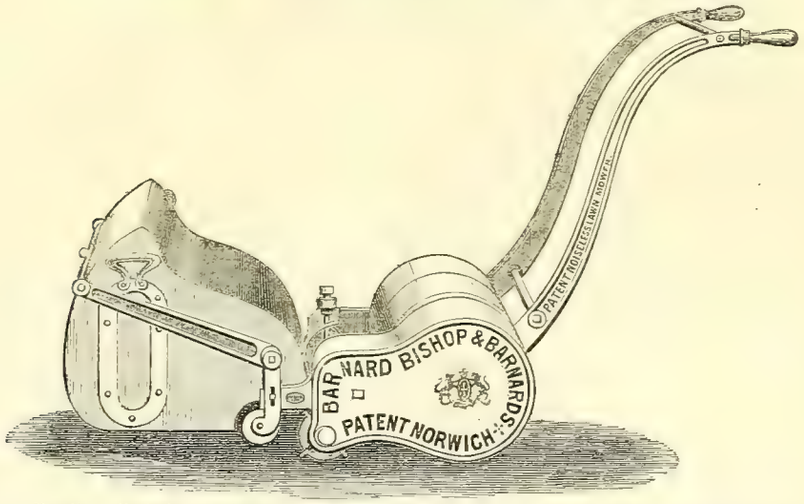
At the CRYSTAL PALACE their New No. 6 BOILER is Heating an equivalent to nearly 20,000 feet of 4-inch piping — a feat hitherto unheard of, and certainly not to be accomplished by any other than WEEKS'S ONE-BOILER SYSTEM.

CATALOGUES, PLANS, AND ESTIMATES FREE.

J. WEEKS AND COMPANY, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, KING'S ROAD, CHELSEA, S.W.

BARNARD, BISHOP, & BARNARDS'

PATENT NOISELESS LAWN MOWER.



THIS MACHINE differs from all other LAWN MOWERS, in being constructed without either Gear-Wheels, Chains, or Levers, the Power being transmitted to the Cutters by a loose Intermediate Wheel, with an India-rubber Tyre which is placed between a Plain Faced Driving Wheel, and Pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the Intermediate Wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber Tyre will last from one to two seasons, and can be replaced at the cost of a few pence. An extra Tyre is sent with each Machine.

The Iron Work of Grass-Box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

THE MINIATURE LAWN MOWER, Cuts 8 inches **£2 10 0**
Suitable for the very Smallest Grass Plots or Edgings; can be Worked with Ease by a Child.

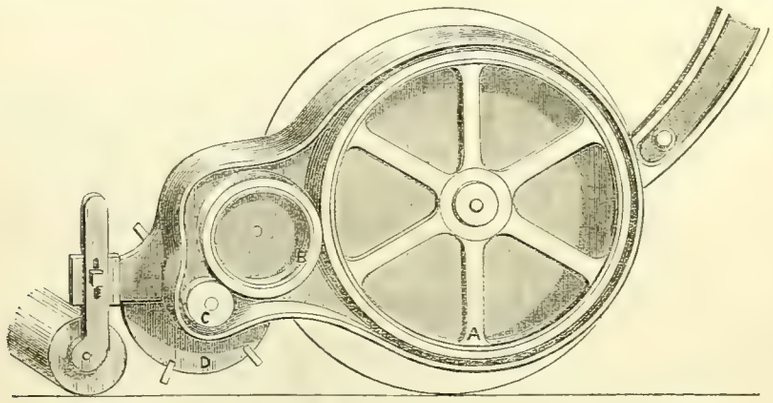
To Cut 10 inches. This can be Worked by a Lady **3 5 0**

To Cut 12 inches. Suitable for One Person **4 10 0**
The 12 inch and all larger sizes have the Drum or Roller divided in two parts, for the convenience of turning.

To Cut 14 inches. Suitable for One Person **5 0 0**

Packed, and Delivered Carriage Free to the principal Railway Stations in England.

GUARANTEED TO GIVE SATISFACTION, AND IF NOT APPROVED, CAN BE RETURNED.



THE ABOVE ENGRAVING SHOWS THE ARRANGEMENT OF WHEELS.

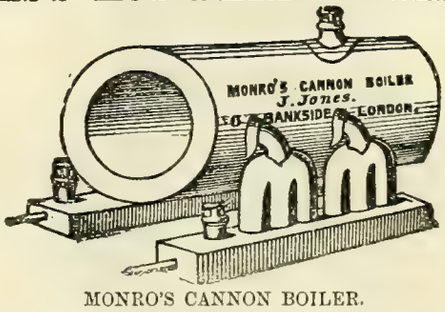
A, Plain-faced Driving Wheel. **B**, Intermediate Wheel, with India-rubber Tyre. **C**, Pinion. **D**, Cutters.

To insure an early delivery of these useful Machines, all Orders should be sent at once to

J. JONES, 6, BANKSIDE, SOUTHWARK, LONDON, S.E.

J. JONES'S HOT-WATER APPARATUS.

	PRICE.
20-inch Wrought Iron	... £3 15 0
24-inch „	... 6 10 0
30-inch „	... 7 10 0
36-inch „	... 8 10 0
48-inch „	... 12 0 0
60-inch „	... 20 0 0
72-inch „	... 25 0 0



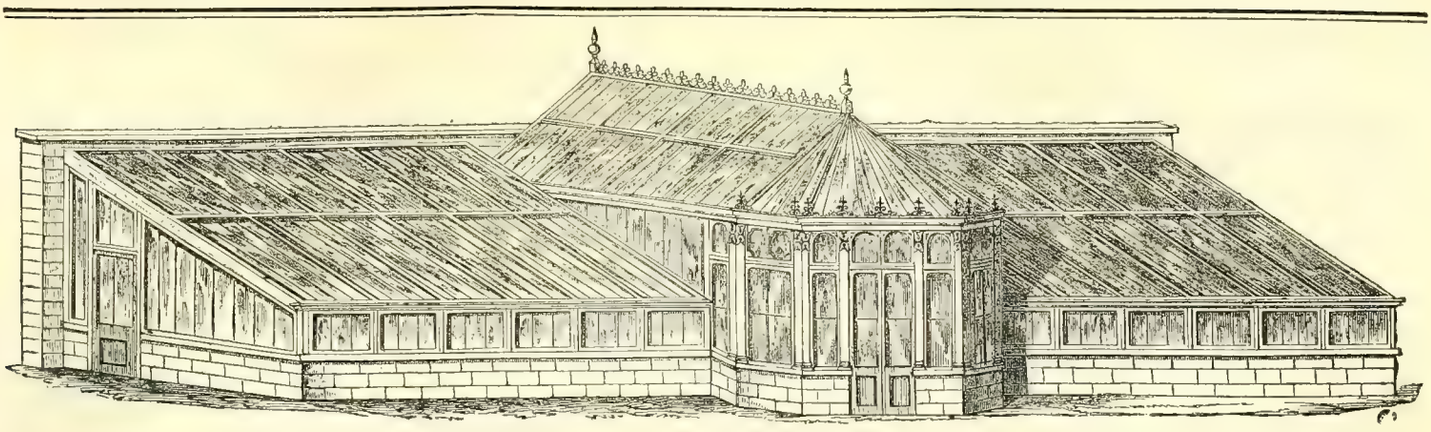
MONRO'S CANNON BOILER.

These Boilers are now acknowledged by all who have used them to be the best Boilers at present invented. They are both economical in their first cost, and also in the consumption of fuel. They require but little space to fix them in, and when set the total height of brickwork need not be more than 3½ feet, consequently they can be fixed in many places where it would be impossible to set an Upright Boiler. These Boilers are now made of various sizes, suitable to heat from 500 feet to 3000 feet of 4-inch pipe, and are kept in stock and sold only by J. JONES, 6, Bankside, Southwark, London, S.E.

Prices for HOT-WATER PIPES, ELBOWS, TEES, SYPHON, VALVES, TROUGH PIPES, ORNAMENTAL COIL CASES, BECK'S PATENT VALVES, &c.; or ESTIMATES for HOT-WATER APPARATUS, delivered Free to any Railway Station, or erected complete in any part of the country, with CANNON, SADDLE, or CYLINDER BOILERS, will be sent, with an ILLUSTRATED CATALOGUE, free on application.

J. JONES,

HOT-WATER APPARATUS MANUFACTORY, 6, BANKSIDE, LONDON, S.E.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

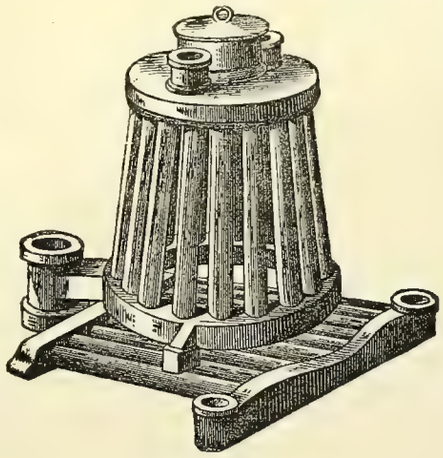
The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the International Exhibition.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

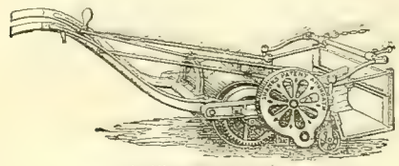
HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

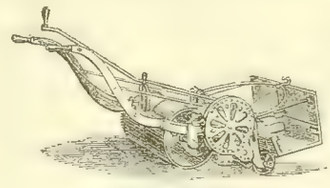
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

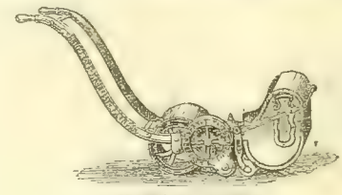
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS & SON can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.				
10-inch Machine	... ...	£3 10 0	} *Easily Worked by a Lady.*	
12-inch Machine	... ...	4 10 0		
14-inch Machine	... ...	5 10 0	*Ditto by a Boy.*	

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.				
16-inch Machine	... ...	£6 12 6	*Easily Worked by a Man.*	
19-inch Machine	... ...	7 12 6	*Ditto by a Man and Boy.*	
22-inch Machine	... ...	8 7 6	} *Easily Worked by Two Men.*	
24-inch Machine	... ...	8 17 6		

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.				If with Patent Delivering Apparatus.
25-inch Machine	... ...	£12 10 0	... ...	25*s.* extra.
28-inch Machine	... ...	14 10 0	... ...	30*s.* ,,
30-inch Machine	... ...	15 15 0	... ...	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.				If with Patent Delivering Apparatus.
30-inch Machine	... ...	£19 0 0	... ...	30*s.* extra.
36-inch Machine	... ...	22 0 0	... ...	30*s.* ,,
42-inch Machine	... ...	26 0 0	... ...	40*s.* ,,
48-inch Machine	... ...	28 0 0	... ...	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH | HIS GRACE THE ARCHBISHOP OF CANTERBURY | HIS EXCELLENCY THE BELGIAN MINISTER
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA | HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND | HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Raufurly
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. Viscount Seaham
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle
The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Elibank
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Binning
The Right Hon. Lord Ashtoun
The Right Hon. Lord Hume
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
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The Right Hon. Lord Crewe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lady M'Taggart
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The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

Seed Potatoes.

H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties which they can offer to the Trade at low prices.

Seed Growing Establishment, Wisbech.

To the Trade.

SEED POTATOS.—Early Handsworth, Lemon Kidney, Webb's Imperial, Daintree's Seedling, Lapstone, &c., warranted true.

PRICED DESCRIPTIVE LIST sent on application to G. & W. YATES, Seed Merchants, Manchester.

SEED POTATOS.—Webb's Imperial Kidney, 10*s.* per cwt.; Gloucestershire Kidney, 12*s.* per cwt.; Daintree's Earliest, 7*s.* 6*d.* per cwt.; Walnut-leaf Kidney, 12*s.* per cwt. Sacks 2*s.* each. Terms Cash.

W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

SEED POTATOS.—FORTY-FOLD (early); DALMAHOY (early); REGENTS (Dunbar); ROCKS; REGENTS (Walker's); FLUKES. The above are grown on fresh land, and are an excellent sample. For price, which is very moderate, apply to

Mr. RIDDELL, Steward, Park Attwood, Bewdley.

SEED POTATOS for SALE.—80 to 100 Tons of REGENT SEED and FLUKES, carefully selected by an extensive Grower, on the light black soil suitable for change to clay or loam lands. Samples to be seen at the Brick Lane Station, Great Eastern Railway, on application to R. B. WEBSTER, Potato Salesman.

Letters to be addressed, 16, Harmar, S.W.

Seed Potatos.

TO BE DISPOSED OF, Cheap, about 10 Sacks of MYATT'S PROLIFIC ASH-LEAF KIDNEYS, 10 Sacks of BLUE-NOSED KIDNEYS (a tremendous cropper), and 10 Sacks of FORTYFOLDS.

For price, &c., apply to THOS. PRITCHARD, Hereford House, Abergavenny.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatos.

WILLIAM ROSE, SEED POTATO GROWER, Combe Down, Bath, is taking orders for the following varieties of SEED POTATOS, warranted true to their kind—

DALMAHOY, per peck of 20 lbs, at .. .. .. 1*s.* 6*d.*
FLUKES .. .. 1*s.* 6*d.*
SKERRY BLUES, the most productive Potato in cultivation .. .. 1*s.* 6*d.*

Sacks, 2*s.* each. Delivered at the Bath Railway Station.

CARTER'S CHAMPION EARLY FORCING POTATO.—The earliest frame Potato in cultivation; described by the *Gardeners' Chronicle* as "an early Kidney frame Potato, earlier than the Ash-leaf, with scarcely any haulm, and therefore very suitable for forcing." Price, per peck, 3*s.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

THOMAS AYRES, Biggleswade, Beds, NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS :—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863 :—

"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."

Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

Splendid New Potato.—The Pink Fluke.

SUTTON AND SONS have great confidence in recommending this fine POTATO. It has hitherto been entirely Free from Disease, and keeps mealy and fine flavour until the succeeding harvest.

The Grower, writing to Messrs. SUTTON, says :—"They are a beautiful Potato, and will astonish your customers. They will keep 12 months and improve in flavour, when all others are getting unpalatable."

Price according to quantity required, which may be had on application to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Potato Seeds.

H. BROWN having on hand an extra large Stock of the following POTATOS, begs to offer them for the present at considerably reduced prices, viz. :—True Early Ash-leaf Kidney, 6*s.* per Imperial Bushel; Myatt's Early Ashleaf Kidney, 5*s.* 6*d.* per Bushel; Early Pink-eyed Kemp, 4*s.* 6*d.* per Bushel; also Dalmahoy, Fortyfold, White Rock, Scotch Down, Flukes, Arrowsmith's Seedling, and other varieties.

Prices for quantities on application. For prices of See ls see Advertisement, January 30, or 44th page of Descriptive Catalogue, Post-free,

4, Commutation Row, Liverpool.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—*s.*	*d.*
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..	2	6
,, LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

Economy in the Garden.

SUTTON'S GUINEA COLLECTION OF KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY. CARRIAGE FREE.

SUTTON AND SONS, SEED GROWERS, Reading, confidently recommend the above as Genuine New Seeds, of the best sorts in cultivation, properly apportioned, and labelled with instructions for sowing, *i.e.*, so as to insure a good succession throughout the year.

A LIST of the contents of this Collection, or a general SEED CATALOGUE, with prices affixed to each kind, may be had Post-free, on application, addressed

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CARTER'S INCOMPARABLE DWARF DARK CRIMSON CELERY.—This variety was selected by us from Turner's Incomparable Dwarf White; it has the same very dwarf habit, and is an exceedingly solid variety, with a fine dark crimson colour. Price, per packet, 1*s.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

CARTER'S SURPRISE PEA.—An improved blue Surprise, larger in sample, larger pods, and more prolific, a good useful Pea for market garden work, and one that will come into general use. Price, per quart, 1*s.* 6*d.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

ADVANCER PEA.—A dwarf green wrinkled Marrow, of fine flavour, long pods well filled up, and podding well up the haulm; very prolific, and nearly as early as Daniel O'Rourke. Price, per quart, 1*s.* 6*d.*

"The best wrinkled Marrow in cultivation."—Vide *Gardeners' Chronicle.*

JAMES CARTER & Co., Seed Merchants, 237 & 238, High Holborn, London, W.C.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application :—

DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW ,,
WOODFORD'S GREEN MARROW ,,

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s.* 6*d.* per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4*s.* per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4*s.* per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s.* and 2*s.* 6*d.* per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5*s.* per quart. Per packet—*s.* *d.*

DIXON'S New MAMMOTH WHITE CELERY ..	1	0
DIXON'S New CHAMPION GREEN COS LETTUCE	1	0
DIXON'S YORKSHIRE FAVOURITE MELON ..	1	0
DIXON'S YORKSHIRE HERO CUCUMBER	2	0
The EARLY FORCING CAULIFLOWER	1	0
The ROSEBERRY BRUSSELS SPROUTS	0	6
MELVILLE'S VARIEGATED GARNISHING KALE ..	0	6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

CARRIAGE ARRANGEMENTS.

The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.

CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

GENTLEMEN who may be going ABROAD or otherwise wishing to LET their GARDENS, with HOT-HOUSES and GREENHOUSES, for a short Term of Years, can communicate with the Advertiser by a line addressed to B. A., *Gardeners' Chronicle* Office, W.C.

TO BE LET on LEASE, a BERKSHIRE FARM, of 400 Acres, close to a Railway Station, about 50 Acres being Grass; small Farm-house, two capital Barns, Stabling, Cart Lodges, Beast House for 20 Oxen, Piggeries, all in good order. Immediate possession. Rent, 500*l.* a year; coming in at a valuation about 1500*l.* for live and dead stock and acts of husbandry.

Apply to Mr. ROBINS, Land Agent, 5, Waterloo Place, Pall Mall, S.W.

To Nurserymen, Florists, and Others.

THE LEASE of a First-class NURSERY within five miles of Covent Garden, with a convenient Dwelling House, in a healthy locality, and near two Railway Stations. It occupies about Two Acres of Land, has a very large quantity of Glass, which is completely and economically heated with hot water. Also the Valuable Stock of GREENHOUSE and STOVE PLANTS, together furnishing every facility for carrying on an extensive and first-class business.

For particulars apply to Messrs. PROTHEROE & MORRIS, American Nurseries, Leytonstone, Essex.

Notts.

TO BE LET, with immediate possession, a well-stocked NURSERY, containing about 1½ acre of Land, situate at Mansfield, Notts. Adjoining land (at present arable) can be laid to the above as may be required. The Stock to be taken at a valuation, or otherwise, as may be agreed. There being a good opening for a Seedsman in the town, this is an excellent opportunity for an enterprising man.

Apply to Mr. JOHN PARKS, Superintendent of the Cemetery, Mansfield.

To Nurserymen, Seedsmen, and Others.

TO BE SOLD, the BUSINESS, STOCK, and PLANT of a NURSERY and SEEDSMAN at North Warnborough, Odiham, Hants.

This Business has been carried on for many years, and has an excellent and extensive Collection.

The Stock (which has been recently reduced) will be Sold under peculiar circumstances at a very great sacrifice, thus affording to a purchaser desirous of entering upon a good old established Business at a small outlay an opportunity very rarely met with.

For further particulars apply to Mr. JAMES CHAUNDLER, North Warnborough, Hants; Mr. GEORGE BAKER, Jun., Windlesham Nursery, Surrey; or to Mr. S. CHANDLER, Solicitor, Basingstoke.

Sales by Auction.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 1, at 12 o'clock precisely, a choice assortment of SPANISH, HAMBURGHS, Game Bantams, Cochins, Dorkings, Brahmas, Bantams, Rouen, Russian, and Aylesbury Ducks, Canaries and Foreign Birds, Himalaya Rabbits, and a splendid lot of PIGEONS from Messrs. Morris, Johnson, Bacchus, Edge, and other well-known Breeders. The Poultry included in this Sale is from the yards of Mrs. H. Fookes, Rev. G. Gilbert, G. Manning, Esq., and several other celebrated Fanciers.

On view the Morning of Sale, and Catalogues had.

Californian Conifer Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., early in MARCH, 3000 Lots of first rate CONIFER SEED, expected to arrive in about a week's time, including Wellingtonia gigantea, about 40 ounces of clean seed; Sequoia sempervirens, Cupressus macrocarpa, and C. McNabiana, Libocedrus decurrens, Pinus Lambertiana, P. ponderosa, P. Monticola, Abies Douglasi, A. Pattoniana, P. amabilis, P. grandis, &c.; also about 20 lbs. of clean seed of PICEA PINSAPO, 3000 Seeds of the beautiful LILIUM GIGANTEUM.

The day of Sale will shortly be announced, and Catalogues ready one week prior.

Roses, Dutch Bulbs, Trees and Shrubs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 2, at half-past 12 o'clock precisely, 4000 GLADIOLUS BULBS, including Brenchleyensis, Gandavensis, ramosus, floribundus, Queen Victoria, and many other choice sorts, 1000 NARCISSUS, 300 LILIUMS, 100 TROPÆOLUMS, 75 HYACINTHS, 300 STANDARD ROSES, 1000 CARNATIONS, PICOTEES and PINKS, &c.

On view the Morning of Sale, and Catalogues had.

Great Sale of Roses, Fruit Trees, Evergreens, &c.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on WEDNESDAY, March 2, at 12 o'Clock, a splendid assortment of about 1000 first-class STANDARD, HALF-STANDARD, and DWARF ROSES of remarkably fine growth, including the finest varieties in cultivation; handsome Fruit Trees; choice Coniferæ, and other Evergreen Shrubs; selected American Plants; some fine Bulbs of Lilium lancifolium, from a celebrated Belgian grower.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

To Noblemen, Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, March 4, at 12 o'Clock, about 200 Choice Double CAMELLIAS, compact plants, 1 to 5 feet, beautifully furnished with bloom buds; fine AZALEA INDICA, including the most approved kinds; a superb assortment of about 300 very handsome Standard, Half-Standard, and Dwarf ROSES, all selected with straight stems and fine full heads; a fine Collection of AMERICAN PLANTS; choice ERICAS, FUCHSIAS, VERBENAS, DAHLIAS, in dry roots, &c.; with some fine bulbs of LILIUM LANCIFOLIUM from a celebrated grower in Belgium, &c.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

To Noblemen, Gentlemen, Nurserymen and Others.

MR. BUCKLEY will SELL by AUCTION, at Sydnope Nursery, near Matlock, Derbyshire, on TUESDAY, WEDNESDAY, and THURSDAY, March 1, 2, and 3, at 11 o'Clock each day, several MILLIONS of FOREST TREES, SHRUBS, AMERICAN PLANTS, FRUIT TREES, THORN QUICK, &c. (fine Specimens, such as are rarely offered for Sale).

Catalogues may be had free from the Auctioneer, and at the following Newspaper Offices six days prior to the Sale :—*Manchester Examiner and Times, Sheffield Independent, Midland Counties Herald, Derby Reporter,* and *Derby Mercury.*

Advertiser Office, Wirksworth, Feb. 27.

To Hothouse Builders, Engineers, & Others.—Chelsea.

MR. GEORGE BERRY will SELL by AUCTION on the Premises, 152, King's Road, Chelsea, on MARCH 2, at 12 for 1 o'Clock, the beneficial Lease of the same, having an area of about 9000 feet, the PLANT and GOODWILL of a PATENT HOT and GREENHOUSE BUILDER; also the Stock in Trade, comprising Conservatory, Greenhouses, Boilers, Pipes (iron and zinc), a Horse and Van; also a PHOTOGRAPHIC BUILDING, fixed at the corner of Granby Street, Hampstead Road.

May be viewed, and Catalogues had, at the place of Sale; and of the Auctioneer, 8A, Motcombe St. Belgrave Square, S.W.

Towneley Park, near Burnley.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD has the honour to announce that he is favoured with instructions from Colonel Towneley to offer for SALE by AUCTION, without reserve, on THURSDAY, March 17, 1864, the entire and far-famed Herd of First-class SHORT-HORNS, bred at Towneley Park, consisting of between 50 and 60 head of Bulls, Cows, and Heifers, which have maintained an unrivalled position in the Short-horned world for the last 14 years; having won during that period upwards of 2000*l.* in money prizes only, at the Royal Agricultural Society of England, the Royal Agricultural Improvement Society of Ireland, the Royal Dublin, the Royal North Lancashire, the Yorkshire, the Birmingham and Smithfield Clubs, and the International Show at Paris, besides 22 Cups, 26 Gold Medals, and more than 100 Silver and Bronze Medals, as well as numerous other Prizes at various local Shows in the counties of Lancashire and Yorkshire.

☞ Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. J. CULSHAW, at Towneley Park, near Burnley.

PUBLIC SALE.—At Mans, Sarthe, France, on March 14, 1864, and following days, Collections of RARE and EXOTIC PLANTS, Greenhouse and open air; from the Gardens of M. FOULARD, deceased. Conifers; Wellingtonia gigantea of 6 metres (20 feet); fine specimens of Ornamental Trees and Shrubs, Ilex, Magnolia, Pæonia, Yucca, &c.

Apply for information and Catalogue to M. MOUSSOIR, Agent and Auctioneer, at Mans, France.

GREEN'S PATENT SILENS MESSOR,

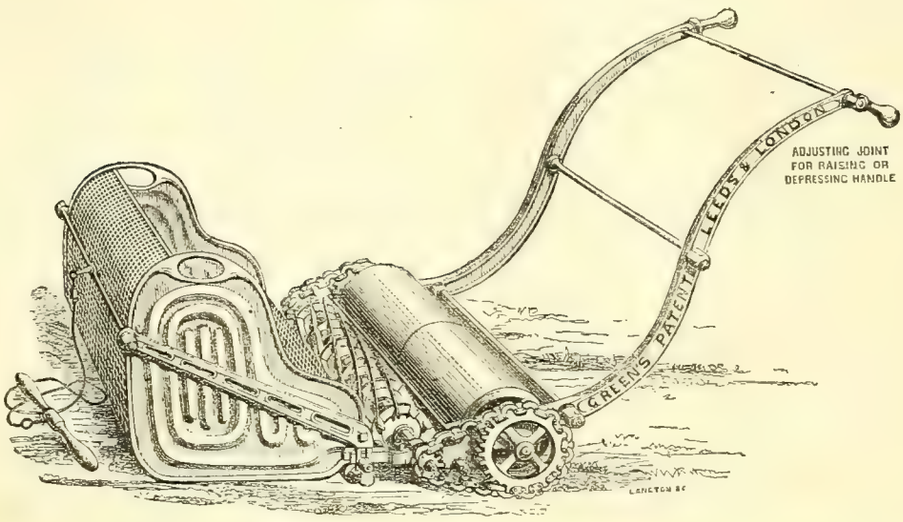
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches	...	...	...	£27	0	0	...	...	... Leather Boots for Horse, 26*s*.
„ 48 „	...	...	...	30	0	0	...	...	... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MOLLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, February 27, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 10.—1864.] SATURDAY, MARCH 5. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY'S HYACINTH, or FIRST SPRING SHOW, will be held on WEDNESDAY, March 9, at South Kensington, W. Fellows admitted at 12 o'Clock. Fellows with their friends, (with Tickets, One Shilling each), at 1 o'Clock.
The Public 2*s*. 6*d*. each, at 2 o'Clock.
The Show will be in the Council Room and adjoining Arcades.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
A MEETING of this COMMITTEE will take place at South Kensington on WEDNESDAY, March 9, at 10 o'Clock, in connection with the Society's First Spring Show. The subjects for examination must be sent in before 9 A.M., in accordance with the general Regulations.
THOS. MOORE, Secretary to the Committee.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.
EXHIBITIONS of SPRING FLOWERS:
SATURDAYS, March 19, April 9, and April 30.
GENERAL EXHIBITIONS:
SATURDAYS, May 21, June 11, and July 2.
AMERICAN PLANTS: MONDAYS, June 6, and June 20.
Tickets are now being issued at the Gardens on the Orders of Fellows of the Society. Price: General Exhibitions, 4*s*.; Spring Flowers, 2*s*. 6*d*.
The NEXT MEETING of FELLOWS for the Election of New Candidates, SATURDAY, March 12.

HORTICULTURAL SOCIETY of LIVERPOOL. The GREAT EXHIBITION of HYACINTHS and SPRING FLOWERS will be held in St. George's Hall, Liverpool, on WEDNESDAY, March 16.
For Schedules of Prizes, &c., apply to ROBT. W. KER, Honorary Secretary, 4, Basnett Street, Liverpool.

LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. EARL HOWE.
The Exhibitions for the year 1864 will be held on JUNE 28 and 29, and AUGUST 31. At the June Show the sum of 33*l*. will be offered in Prizes for CUT ROSES, open to Amateurs, Gentlemen's Gardeners, and Nurserymen; and at the August Show, Extra Prizes, amounting to nearly 30*l*., will be offered for Collections of FRUIT, and STOVE and GREENHOUSE PLANTS.
Schedules, and any further information may be had of the Secretary, Mr. W. PENN COX, Market Place, Leicester.

R. PENGELLY begs to inform the Public and Trade in general that after the 13th of March the AGREEMENT between A. WATT, Florist, of Maida Hill, and himself will TERMINATE.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Amaryllis—Good Sound Bulbs.
BUTLER AND McCULLOCH have a large Stock of the above in excellent condition, at moderate prices. LISTS post free.
Covent Garden Market, London, W.C.

SEEDS of PRIMULA SCOTICA.
Small Packet for 13 Stamps.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

FINE PLANTS of LOBELIA SPECIOSA, at 12*s*. per 100, can be had of
GEORGE EDWARDS, Clarence Nurseries, York.
A remittance or reference from unknown Correspondents.

Two-Years Seedling Larch.
ONE-YEAR TRANSPLANTED LARCH.
Very hardy plants, the produce of Scotch Seed.
RHODODENDRON PONTICUM, from 4 to 18 inches.
Trade prices on application to HOWDEN BROTHERS, Inverness.

TO BE SOLD CHEAP, 40 large ORCHARD HOUSE TREES, in No. 2 Pots, in fine Fruiting condition, consisting of PEACHES, NECTARINES, APRICOTS, and PLUMS.
T. W. DASHWOOD, Queen's Road Nursery, Peckham, S.E.

WANTED, 3000 strong Transplanted ASH, 4 to 5 feet. State Price for Cash to
J. WOODS & SON, Nurseries, Woodbridge, Suffolk.

Conservatory Plants.
WANTED to PURCHASE, 100 or 200 good Plants, and 12 first-class Climbers. State kind and price for cash.
C. FARRANT, Oakfield, Gipsy Hill, Norwood, S.

Good Seeds, Carriage Free.
WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, SEED, ROSE, and FRUIT CATALOGUES, gratis. 57, Queen Street, Hull.

Best Seeds, Carriage Free.
BUTLER AND McCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots. Covent Garden Market, London, W.C.

Genuine Agricultural and Farm Seeds
AT VERY LOW PRICES.
JAMES VEITCH, ROYAL EXOTIC NURSERY, King's Road, Chelsea, London, S.W.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS, NURSERYMAN and SEEDSMAN,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL'S Nurseries, Waltham Cross, N.

New Roses of 1864.
PAUL AND SON will have ready in good time, their usual fine Plants of the best Novelties of the season.
DESCRIPTIVE LIST now in the Press.
"Old" Cheshunt Nurseries, Herts.

New Roses for 1864.
EDWIN HOLLAMBY'S selection of the best of the above will be ready for delivery in March, in fine plants.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

New Roses for 1864.
JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong plants of the above to offer.
A PRICED LIST, with descriptions, may be had on application.

NEW ROSE LIST for 1864.—All the New Sorts.
CATALOGUES now ready. Apply to
WM. WOOD & SON, Maresfield, Uckfield, Sussex.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36*s*.
DESCRIPTIVE LIST, free on application.
RICHARD SMITH, Nurseryman, Worcester.

New Rose List for 1864.
JOHN KEYNES' NEW LIST is now ready, and will be forwarded on application.
His Stock of NEW ROSES for 1864 is very fine.
Castle Street Nursery, Salisbury.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants will be ready early in March. For List of Sorts and Prices, apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

ROSES.—Superb STANDARDS, 18*s*. per dozen; DWARFS, 12*s*. per doz. NEW ROSES of 1863, 30*s*. per doz.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

Standard and Dwarf Roses.
PRICE ON APPLICATION.
GEO. JACKMAN AND SON, Woking Nursery, Surrey, have a quantity of the above in known leading varieties and good trees; they are desirous of clearing the ground, and will sell them cheap.

German Flower Seeds, Fresh Imported.
SUTTON AND SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

HOLLYHOCK SEED.—A few Ounces of very superb to be disposed of to the Trade. Price on application.—J. DOBSON & SONS, Seedsmen, Isleworth, W.

Superb Double Hollyhocks, now ready for Planting.
WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.
See Advertisement on other page.
Address, WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

New Pelargoniums and Cinerarias.
J. DOBSON AND SONS' Sets of the above are now ready at reduced prices. Also a large General Collection, all in the finest health. CATALOGUES free.
Woodlands Nursery, Isleworth, W.

Genuine Vegetable and Flower Seeds
CARRIAGE AND PACKAGE FREE.
McRAE AND FRASER, SEED MERCHANTS and NURSERYMEN, Tredegar Nursery, Bow, London, E.
PRICED LISTS forwarded Free on application.

Choice Seeds.
WM. WOOD AND SON'S GUINEA COLLECTION of GARDEN SEEDS for One Year's Supply. Carriage free. Address, Maresfield, near Uckfield, Sussex.

Genuine Seeds.
WILLIAM KER (21 years with W. SKIRVING), 10, Great Charlotte Street, Liverpool, begs to announce to his customers and friends that they can be supplied at his Establishment as usual with every description of SEEDS, first-class quality, at very moderate prices.

DOUBLE TUBEROSES, just imported, 3*s*. per dozen.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

SEAFORTHIA ELEGANS.—WANTED, a Large Specimen.
Price and size to J. R., *Gardeners' Chronicle* Office, W.C.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, has AMALGAMATED with the PLYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The FARM SEED PRICE CURRENT will be ready in a few days, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of GARDEN SEEDS are now Ready.
See Advertisement, page 195.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of FLOWER SEEDS are now Ready.
See GENERAL PRICE CURRENT.

SCARLET RUNNERS WANTED.—Send Sample and Price.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

SEAKALE, per 100, 5*s*. 6*d*., 7*s*. 6*d*.; Extra Strong, 12*s*. 6*d*.; quotations to the Trade on application.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

The True Ashleaf Kidney Potato.
SUTTON AND SONS can supply the above, very true, and at moderate price, according to the quantity required.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

THE BEST EATING POTATO all the year round is EARLY OXFORD. 5*s*. per bushel of 56 lbs.
RICHARD SMITH, Seed Merchant, Worcester.

SEED POTATOS.—Webb's Imperial Kidney, 7*s*. per cwt.; Gloucestershire Kidney, 10*s*. per cwt.; Daintree's Earliest, 6*s*. per cwt.; Walnut-leaf Kidney, 10*s*. per cwt. Sacks 2*s*. each. Terms Cash.
W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

SEED POTATOS.—TRUE SKERRY BLUES. For quality, productiveness, and freedom from disease, A 1, at 5*l*. per ton. Terms cash.
JOHN E. NELSON, Brockenhurst, Lymington, Hants.

True Skerry Blue Potatos.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, can supply these at 10*s*. per sack of 16 stones imperial. This stock has never been touched by disease, and the present crop is 10 tons per acre.

Roses.

EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

ROSES.—Fine DWARF ROSES, still on Sale. A few fine Standards of 1863 yet on hand. Prices on application.
The NEW DAHLIA CATALOGUE now ready.
All the NEW ROSES in April.
JOHN KEYNES, Nurseryman, Salisbury.

Great Reduction in the Price of Roses.

BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.
CATALOGUES, with special Prices, on application to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.
(No grafted plants or any drawn up under glass, which cause the great number to fail every season).
Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

STANDARD and DWARF ROSES of the finest quality.
STANDARD ROSES of the new and finest sorts, 12*s.* per doz., 80*s.* per 100.
HALF STANDARD Ditto, ditto, 9*s.* per doz., 70*s.* per 100.
DWARF, budded on Manetti, 9*s.* per doz., 50*s.* per 100.
Finest Exhibition HOLLYHOCKS to name, 9*s.*, 12*s.*, and 18*s.* per doz, 50*s.* per 100.
The best sorts of LANCASHIRE GOOSEBERRIES, 8*s.* per 100, 60*s.* per 1000.
CURRANTS, best Red and White sorts, 8*s.* per 100, 60*s.* per 1000.
Fine bearing Pyramid trees of PEARS on Quince, 12*s.* per doz.
CATALOGUES of the above sent post free.
Address HENRY MAY, Hope Nurseries, Bedale, Yorkshire.

A Very Extensive and Well-grown Stock of Roses,

CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—*s.*	*d.*
STANDARD HYBRID PERPETUALS	18*s.* to 24	0
HALF STANDARD ditto	15*s.* ,, 18	0
DWARF ditto	9*s.* ,, 12	0
STANDARD SUMMER ROSES	18	0
HALF ditto ditto	15	0
DWARF ditto ditto	9	0
DWARF BOURBON and TEA-SCENTED	12*s.* ,, 18	0
DWARF CHINA	9*s.* ,, 12	0
DWARF NOISETTE	9*s.* ,, 15	0
CLIMBING ROSES	9*s.* ,, 12	0
CLIMBING ROSES, without names, for covering banks, &c. per 100	30*s.*	4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE		5 0

Roses.

PAUL AND SON beg to offer, from their immense stock of the finest ROOTED and GOOD-HEADED Plants in the country, AUTUMNAL ROSES at the following reasonable rates.

OUR SELECTION.

FINE STANDARDS, 3 to 4 ft., 18*s.* per doz., 6*l.* 10*s.* per 100.
FINE DWARF ditto, 1 to 2½feet, 12*s.* to 15*s.* per doz., 5*l.* per 100.
FINE DWARFS, including TEA, NOISETTE, &c., 9*s.* to 12*s.* per doz , 75*s.* per 100.
PURCHASER'S SELECTION, for large Quantities special prices will be given. They would remind purchasers that with the present late season, Roses may be advantageously removed throughout March.
PRICED CATALOGUE on application.
"Old" Cheshunt Nurseries, Herts.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.
Knap Hill Nursery, near Woking, Surrey.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2*s.* 6*d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to
Mr. WEBB, Calcot Gardens, Reading.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.
N.B. Directions for Planting sent with each order.

FLOWER SEEDS.

FREE BY POST.

	£	*s.*	*d.*
The best 100 sorts of FLOWER SEEDS, hardy, half-hardy, and tender, with instructions	1	1	0
The best 50 sorts do. do.	0	10	6
The best 36 sorts do. do.	0	7	6
The best 24 sorts do. do.	0	5	0
The best 50 sorts, all hardy and very distinct in colour	0	10	6
The best 36 sorts, all hardy and very distinct in colour	0	7	6
The best 24 sorts, all hardy and very distinct in colour	0	5	0

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.
FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.
CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.
CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

DOBSON'S EXTRA CHOICE SEEDS.
Quality second to none. In sealed Packets.
DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PANSY, 1*s.*, 2*s.* 6*d.*
DOBSON'S SUPERB BALSAM, 1*s.*, 2*s.*
DOBSON'S SUPERB LOBELIA SPECIOSA, 1*s.*
DOBSON'S SUPERB HOLLYHOCKS, 1*s.*, 2*s.* 6*d.*, 5*s.*
The Trade supplied on liberal terms.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

FOR SALE, 1000 LAURELS, from 4 to 6 feet, strong, bushy plants; and a Quantity of BOX EDGING; also from 20 to 30 Fruiting QUEEN PINE PLANTS, warranted Clean. Inquire at the Castle Garden, Dorking.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10*s.*; 20 pair of Cuttings of ditto for 5*s.*; 25 pair of fine POMPONS for 10*s.*; 25 pair of Cuttings of ditto for 5*s.*
N.B. To save trouble all orders to be prepaid.

Quilled Globe Aster.

DOWNIE, LAIRD, AND LAING offer the above in 12 distinct colours, their own saving and very fine. Price per ounce on application.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Plant from now till March 15.

Choice RANUNCULUSES and ANEMONES are offered by C. TYSO, FLORIST, Wallingford, Berks. For prices obtain CATALOGUE gratis, or see *Gardeners' Chronicle* for January 23 and 30.
Imported GERMAN SEEDS of first quality in assortments per post, from 1*s.* to 5*s.* each.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.
His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.
☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.
A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60*s.*; per doz., 9*s.*, including package.
Elvaston Nurseries, Derby.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE AWARDED

IN THE YEAR 1863 TO

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL),

TWENTY-ONE of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

SUPERIOR STANDARDS, 18s. per dozen and upwards.
SUPERIOR DWARFS, 9s. per dozen and upwards.

All the NEW ROSES, including PRINCESS of WALES (W. PAUL), LORD MACAULAY (W. PAUL), and BEAUTY of WALTHAM (W. PAUL), at lowest advertised prices.

PRICED CATALOGUE Free by Post.

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

£3 3s., £2 2s., £1 1s., 15s., and 10s. 6d.

These COLLECTIONS contain only SEEDS of first quality—growth 1863—and have been prepared in a most liberal manner. Full particulars as to quantities and varieties included, may be seen at page 78 of our DESCRIPTIVE CATALOGUE. Free per Post, on application.

Orders amounting to 21*s.* and upwards sent Carriage Free, and a Discount of Five per Cent. allowed for prompt cash payments.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.
A trial is respectfully solicited.
PRICED CATALOGUES POST FREE ON APPLICATION.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells; and Groomsbridge, Kent.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb:—Imported Truffaut's Aster, Stock, Wallflower, and Balsam, 1s. per packet; Phlox Drummondii, Zinnia, Cockscomb, Larkspur, Dianthus and Variegated Poppy, 6d. per packet; English saved Calceolaria, Cineraria, and Fringed Primula, 1s. 6d. per packet; Mimulus, Rhodanthe, Lobelia, Pansy, Hollyhock, Petunia, Amaranthus ruber, Antirrhinum and Auricula-eyed Sweet William, 6d. per packet

RICHARD SMITH, Seed Merchant, Worcester.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

West Riding Seed Establishment, St. John's, Wakefield.

THE PROPRIETORS beg to announce they have received their new supply of VEGETABLE SEEDS, which have been tested, and will be found to be genuine. Their supply of FLOWER SEEDS comprises all the Novelties of the present season.

CATALOGUES will be forwarded free on application to WILLIAM BARRATT.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of ctions with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Gladiolus, Ranunculus, and Anemones, for Spring Planting.

JAMES FAIRHEAD AND SON have a good supply of the above on offer. ANEMONES—Double and Single Scarlet, and Double and Single Mixed; RANUNCULUS—Scarlet, Citron, and Yellow Turban.

7, Borough Market, London, S.E.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	s.	d.
50 in 50 choice varieties	2	12	6
25 in 25 " "	1	5	0
12 in 12 " " .. 5s. to	0	12	0
Extra choice mixed, 3s. 6d. per doz. .. per 100	1	5	0
Fine mixed, 2s. 6d. per doz. "	0	17	6
GANDAVENSIS, strong roots, 2s. 6d. per doz. "	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3s. p. doz. "	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

MESSRS. E. G. HENDERSON AND SON will forward postage free on application, their NEW SEED CATALOGUE for 1864.

12 papers of NEW ANNUALS, introduced in 1864 for the first time, for 6s.

The ALBERT STOCK (New Intermediate, rich violet-purple), 1s.

The ALEXANDRA STOCK (new White Intermediate), 1s.

MIMULUS PARDINA (best new Hybrid Mimulus), 6d. and 1s.

PERFECTION SWEET WILLIAM (finest of all known strains). See Coloured Plate; 6d. and 1s.

French blotched FANCY PANSY, 1s. 6d.

PRIMULA SINENSIS, "CRIMSON EMPEROR," new, 2s. 6d.

TROPÆOLUM SPECIOSUM, rich scarlet, flowers and leaves like T. pentaphyllum, 1s.

COTTON PLANT, ornamental, 6d. and 1s.

CLIANTHUS DAMPIERI, 1s. and 2s. 6d.

" " SPLENDENS, 2s. 6d.

TROPÆOLUM "TOM THUMB" MODEL," the best of bedding varieties, 1s.

RHODANTHE ATROSANGUINEA and MACULATA ALBA, 6d. and 1s.

The Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering strong Autumn-struck Plants of the following, from Store Pots—

SCARLET GERANIUMS—Tom Thumb, Frogmore's Improved and Finedonensis.

CALCEOLARIA AUREA FLORIBUNDA.

AGERATUM MEXICANUM.

VERBENAS—Purple King, Géant des Batailles, Brilliant de Vaise, Lord Raglan, Mars, General Simpson, and Mrs. Holford.

The above at 8s. per 100; 70s. per 1000.

N.B. A reference or remittance requested from unknown Correspondents.

New Hybrid Mimulus maculosus.



MR. WILLIAM BULL has much pleasure in offering to the Trade, SEEDS of this beautiful NEW HYBRID, and as it is undoubtedly the most striking and effective Novelty of the season, he recommends it with the greatest confidence.

With each Order a Coloured Drawing by ANDREWS will be presented, and orders of not less than a dozen packets will be supplied.

The *Gardeners' Chronicle* of April 25, 1863, remarks:—

"We have received from Mr. BULL, of Chelsea, a boxful of Mimulus Flowers, the produce of a new cross, the recently introduced Mimulus cupreus being one parent, and a fine large-flowered spotted sort, called Gaiety, the other. The plants resulting from this intermixture are said to be of the same dwarf habit as cupreus itself, while the flowers are full sized (about 2 inches across), and very richly marked; some of the blossoms now before us are exceedingly beautiful, reminding one, in their curious spottings, of the Tydæas, or of some of the handsomely marked Herbaceous Calceolarias, which were seen in the days when Calceolarias were popular. Altogether this may be set down as a remarkably successful cross, and Mr. BULL may be congratulated on having procured for our Gardens some very gay and sparkling Novelties amongst monkey flowers."

Mr. WILLIAM BULL begs to intimate that he does not supply the above Retail; but it can be obtained from any of the undermentioned Seedsmen, all of whom have had a supply direct from him, and therefore can furnish it true to name:—

Aberdeen	Messrs. W. SMITH & SON
Ashford	" J. BUNYARD & SON
Banbury	" R. J. PERRY & Co.
Bath	Mr. W. C. DRUMMOND
"	" E. TILEY
Birmingham	" J. COLE
"	" J. HEWETT
"	" H. POPE
Bradford	" W. DEAN
Braintree	Messrs. CHATER & Co.
Brentwood	Mr. J. MANN
Bristol	" J. F. HARRIS
"	" J. NELSON
Carlisle	Messrs. LITTLE & BALLANTYNE
Cheltenham	Miss CLARK
Chepstow	Mr. J. PILLINGER
Cheshunt	Messrs. PAUL & SON
Chester	" CHIVAS & WEAVER
"	" J. DICKSON & SONS
Chichester	Mr. MCRONALD
Colchester	" B. R. CANT
Cork	" J. B. HARTLAND
Cottingham	Messrs. WITTY & SONS
Dalkeith	" BALLANTYNE & SON
Derby	Mr. E. COOLING
Dorking	Messrs. J. IVERY & SON
"	Mr. A. ROBERTSON
Dublin	Messrs. J. BERRY & SONS
"	" DICKSON, HOGG, & ROBERTSON
"	" W. DRUMMOND & SONS
"	" EDMONDSON BROTHERS
"	" W. URQUHART & SONS
Dundee	"
Dursley	Mr. J. MORSE
Edinburgh	Messrs. CARSTAIRS & SONS
"	" DICKSON & Co.
"	" P. LAWSON & SON
"	Mr. R. T. MACINTOSH
"	" P. ROBERTSON
Exeter	" T. CHARMES
Glasgow	Messrs. A. FOWLER & SONS
"	" SMITH & SIMONS
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"	" J. C. WHEELER & SON
"	Mr. J. BOND
Highgate	Messrs. W. CUTBUSH & SON
Horsham	Mr. F. ALLMAN
Hull	Messrs. E. P. DIXON & SONS
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"	" F. MARTIN
"	Messrs. J. MARTIN & SONS
Huntingdon	" WOOD & INGRAM
Jedburgh	Mr. W. DEANS
Kelso	Messrs. STUART & MEIN
Kilmarnock	" DREGHORN & AITKEN
Leeds	" J. KEARSLEY & SONS
Liverpool	Mr. J. CUTHBERT
"	Messrs. T. DAVIS & Co.
"	Mr. W. SKIRVING
London:—	
Camberwell	Mr. W. BARNES
Covent Garden	Messrs. BARR & SUGDEN
Strand	" BATT, RUTLEY, & SILVERLOCK
Adelphi	" BECK, HENDERSON, & CHILD
King William Street	Mr. T. BRIGDEN
Covent Garden	Messrs. BUTLER & MCCULLOCH
Tavistock Row	" CHARLWOOD & CUMMINS
Brixton	Mr. G. CLARKE
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Fleet Street	" COOPER & BOLTON
Castle Street	Mr. J. DAVIDSON
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Cheapside	Messrs. P. LAWSON & SON
Hammersmith	" J. & C. LEE
Clapton	" H. LOW & Co.
Strand	" MINIER, NASH, & NASH
Barbican	" NUTTING & SONS
Dulwich	" F. & A. SMITH
Welbeck Street	THE LONDON SEED COMPANY
Chelsea	Mr. J. VEITCH
Holloway	" B. S. WILLIAMS
London Bridge	Messrs. J. WRENCH & SON
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Peckham	" W. IVERY
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"	" H. WATKINSON
Montrose	" P. MACDONALD
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MR. WILLIAM BULL'S LIST of AGENTS for the SALE of MIMULUS MACULOSUS.

Continued.

Norwich	Mr. J. BELL
Northampton	Messrs. MARSH & PERKINS
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Sheffield	Messrs. FISHER, HOLMES, & Co.
"	Mr. F. G. GODWIN
Slough	" C. TURNER
Southampton	" W. H. ROGERS
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Sudbury	Mr. S. BROWN
Taunton	Messrs. J. DYER & SON
Tenbury	Mr. W. GROVE
Torquay	" J. MORGAN
Tunbridge Wells	" E. HOLLAMBY
Warminster	" G. WHEELER
Waterford	Messrs. R. FENNESSY & SON
Wells	" G. EDWARDS & SON
Windsor	Mr. J. WHOMES
Wolverhampton	Messrs. R. LOWE & Co.
Woodbridge	Mr. J. JEFFRIES
Worcester	" J. S. HAYWOOD
"	" R. SMITH
"	Messrs. WOOD & Co.
Yeovil	Mr. J. SCOTT
Paris	Messrs. VILMORIN, ANDRIEUX, & Co.

Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

Asters, Stocks, Wallflowers.

JAMES TYNAN'S importation of the above and other Select CONTINENTAL FLOWER SEEDS is now ready, and consists of none but first-class varieties, such as have previously given so much satisfaction to those who have grown them. An extensive assortment of other ANNUAL and PERENNIAL FLOWER SEEDS, containing all the good and rare kinds. All the above are made up in large or small packets to suit the requirements of purchasers. VEGETABLE and AGRICULTURAL SEEDS of the very best quality, at moderate prices. PRICE LISTS free by post on application.

Importer of CONTINENTAL SEEDS.

Seed Warehouse, 68, Great George Street, Liverpool.

MR. FRED. BREWER has pleasure in offering SEEDS of a New CABBAGE LETTUCE, unequalled for summer, autumn, and winter use, at 1s. per packet.

AMARANTHUS MELANCHOLICUS MAJOR, a magenta-shaded Foliage plant for Ribbon Borders—the Plant of the year. 1s. per packet.

Choice selections of Sporiferous FERNS in 20 varieties for 5s., Post free,

GOOD GARDENERS recommended.

2, Park Place, Carlton Road, London, W.

CHEAP PLANTS.—

The following in strong Plants:—

	Per doz.—s. d.		Per doz.—s. d.
New Fuchsias of 1863	6 0	Hepaticas (sorts)	4 0
Do. 1862	4 0	Primroses	4s. to 9 0
Geraniums of 1863 (Bedding var.)	9 0	Polyanthus (finest mixed)	3 0
Lobelia Paxtoniana and five others of 1863	4 0	Auriculas (border var.)	3 0
Mimulus of 1863	4 0	Lilies of the Valley	2 0
Pentstemons of 1863	6 0	Pinks (finest named) 3s. 6d. and	6 0
Pampas Grass (roseum)	9 0	Cloves (finest mixed)	4 0
Ageratum Prince Alfred	6 0	Violets (sorts)	3 0
Lonicera aureo-reticulata 6s. and	9 0	Gentiana acaulis	4 0
Hollyhocks (finest named) 6s. to	9 0	Phlox (fine named)	4 0
		Pansies (fine named) 3s. to	6 0
		Dahlias (ground rts.) 9s. to	12 0
		Do. (pot) 4s. to	6 0

100 Hardy Herbaceous Plants, in 50 varieties, for 25s.

☞ Carriage of Parcels amounting to 20s., paid to London.

Post Office Orders on Castle Hedingham.

WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

CHEAP BEDDING PLANTS.—The following are offered, strong Autumn-struck Plants, viz.—GERANIUMS Christine, Rose Queen, Nosegay, Stella, Tom Thumb, Punch, Lamartine, and 50 other sorts of Scarlets, at 2s. 6d. per dozen. Also Variegated Alma, Bridal Wreath, Bijou, Countess of Warwick, Fairy Nymph, Flower of the Day, Golden Circle, Mrs. Lennox, Perfection, Silver Queen, Shottisham Pet, St. Clair, and 20 others, at 3s. 6d. per dozen, and CUTTINGS of all the above, at 10s. per 100; ditto of CALCEOLARIA aurea floribunda and amplexicaulis, at 10s. per 100. Plants of Herbaceous sorts, at 4s. per dozen; and Plants out of pots of Variegated Arabis, ditto Daisy, ditto Strawberry, ditto Thyme; also Stachys lanata, Cerastium tomentosum, Nepeta cæsia, Antennaria margaritacea, &c., at 2s. per dozen.

Apply to J. SCOTT, Merriott, Somerset.

N.B. No less than 50 of each kind of Cuttings supplied.

SCHIZOSTYLIS COCCINEA.—This beautiful plant was briefly described in our CATALOGUE of last year as a "NEW SCARLET TRITONIA." It proves to be the first representative of a new genus, and is now offered to the public for the first time. It forms spikes of flowers, varying in colour from deep rosy crimson to the vivid scarlet of the "Scarlet Duc Van Thol" Tulip. The flower stems, 2 to 3 feet high, are produced in the greatest profusion from the tufts of Tritonia-like leaves. More than 150 charming spikes of bloom adorned our greenhouses for two to three months during the past autumn and winter, and it is now coming abundantly into bloom again on the shoots formed last summer.

As it never ceases to form offshoots, and these appear to flower as soon as they attain maturity, there is every reason to believe that the plant will bloom thus throughout the greater part of the year, and may thus make an effective Bedding or Ribbon plant. Two plants have been planted in the open ground unprotected during the late severe frosts. They appear uninjured, so that it will be an invaluable addition for the outdoor department, as well as for Cold Greenhouses, &c.

Plants will be sent out the first week in May at 5s. each.

JAS. BACKHOUSE & SON, York Nurseries

Surplus Stock.

MARSH AND PERKINS have pleasure in offering a quantity of Dwarf-trained MAY-DUKE CHERRIES. Prices on application to 42, Drapery, Northampton.

WANTED, FIVE DWARF MAYDUKE CHERRY TREES, with heads of large size regularly trained, and roots fit for successful removal to Scotland.
Send particulars of size and price to BENJAMIN REID & Co., Seedsmen, 132, Union Street, Aberdeen, N.B.

STANDARD CHERRIES.
Extra fine.
STANDARD SPANISH CHESNUTS, extra fine for Avenues, 75*s.* per 100.
RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees
BY THE THOUSAND, HUNDRED, OR DOZEN.
PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.
RICHARD SMITH, Nurseries, Worcester.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES. — Beautiful Trees for Garden or Orchard Houses. RICHARD SMITH, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.
Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.
LIST of SORTS sent on application.
INGRAM'S PROLIFIC MUSCAT, the most free bearer of all for pot culture; suitable for ordinary Vineries.
FRANKENTHAL, the best of all the Black Hamburghs.
TRUE CHAMPION HAMBURGH, the largest berry, and very fine fruit.
CHAVOUSH, new white; Fruiting Canes, 10*s.* 6*d.* to 21*s.*
Wellington Nursery, St. John's Wood, London, N.W.

Strong Fruiting Vines.

JAMES DICKSON AND SONS can still supply fine strong Fruiting Canes of the undernoted VINES, at 7*s.* 6*d.* and 10*s.* 6*d.* each.

Black Frontignan	Grizzly Frontignan
Black Prince	Ingram's Prolific Muscat
Buckland Sweetwater	Morocco Prince
Cannon Hall Muscat	Muscat Hamburgh
Charlesworth Tokay	Muscat of Alexandria
Chasselas Musqué	White Frontignan
Esperione	West's St. Peter's
Golden Hamburgh	

Price to the Trade upon application.
The Newton Nurseries, Chester.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.
They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.
Younger plants, very suitable for planting, 3*s* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.
Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s* 6*d.* each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861.
The following is an Extract from the Report:—
"Mr. RIVERS's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."
Fruit large, often measuring 9 inches in circumference.
Young Trees, full of blossom buds, 10*s.* 6*d.* each.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

STRAWBERRIES.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Oscar, Wizard of the North, Alice Maude, Eliza, Prince of Wales, Sir C. Napier, Carolina Superba, 1*s.* 6*d.* to 2*s.*
GOOSEBERRIES.—Crown Bob, Warrington, Whitesmith, strong Fruiting Trees, 16*s.*
SEAKALE, 6*s.* per 100.
2-year ASPARAGUS, strong, 15*s.* per 1000; Raspberries, &c.
GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

WANTED, by a Nurseryman, some FRUITING and SUCCESSION PINES of the following sorts:—Black Jamaica, Smooth Cayenne, Montserrat, Ripley Queen, good clean stuff. Also CAMELLIA STOCKS fit for working.
Address, in first instance, to A. B., Messrs. COOPER & BOLTON, Seedsmen, 152, Fleet Street, London, E.C., stating lowest price and number to offer.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Flower Seeds. Free per Post.

BUTLER AND McCULLOCH'S unrivalled Assortments:—

HARDY ANNUALS.

100 varieties, 20*s.*	50 varieties, 10*s.*
30 varieties, 5*s.*	15 varieties, 2*s.* 6*d.*

HALF-HARDY ANNUALS.

100 varieties, 30*s.*	50 varieties, 15*s.*
25 varieties, 7*s* 6*d.*	15 varieties, 2*s.* 6*d.*

The varieties included in the above assortments are all distinct and of the brighest colours. Each packet bears a printed description and practical hints on cultivation.
Covent Garden Market, London, W.C.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.
Seed, saved only from finest varieties, new and very choice, 2*s.* 6*d.* or 5*s.* per packet; Collections of 12 separate named varieties, 4*s.* to 10*s.*; young Seedling plants, from best varieties, 30*s* per 100, or 4*s.* per dozen; Bloomed Seedlings of last year, with colours named, 6*s.* per dozen, or 30*s.* per 100.
Address, W. CHATER, Nurseries, Saffron Walden.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.
RICHARD SMITH, Nurseries, Worcester.

TREES and EVERGREEN SHRUBS WANTED viz:—
250 BLACK ITALIAN POPLARS, 14 to 18 feet high.
250 LOMBARDY POPLARS, 14 to 18 feet high.
500 COMMON LAURELS, 3 to 5 feet high.
100 PORTUGAL LAURELS, 4 to 5 feet high.
Also a few YEWS, ARBOR-VITÆS, ARAUCARIAS, and other kinds, if good and cheap, suitable for a Park and immediate effect. Cash on delivery.
Send particulars to THOMAS CLAPHAM, Royal Park, Leeds.

To Persons Engaged in Laying out New Grounds.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, beg to offer the following, of which they have a large and healthy stock, and which they are prepared to dispose of on very reasonable terms. Prices may be had on application.
STANDARD PORTUGAL LAUREL, on strong stems, 3 to 4 feet, with heads 10 to 15 feet in circumference.
STANDARD LAUREL, COLCHICUM, 5 to 6 feet stems, with large well-formed heads. This is hardier than the Common Laurel.
STANDARD HYBRID RHODODENDRONS, 3 to 5 feet stems and good heads.
STANDARD SIBERIAN LILAC, 4 to 5ft. stems, and neat heads
" LILAC NOISETTIANA, 4 to 5 feet.
" GUELDER ROSE, 3 to 4 feet stems.
" GOLDEN-STRIPED YEW, and ELEGANTISSIMA, grafted on Irish Yew, 6 to 8 feet.
SCARLET and YELLOW-FLOWERING HORSE CHESNUTS, 5 to 8 feet.
LABURNUM, ENGLISH and SCOTCH, 6 to 12 feet.
MOUNTAIN ASH, 6, 8, and 10 feet.
POPLARS, LOMBARDY, from 6 to 15 feet.
SERVICE TREE, of sorts, 8, 10, and 12 feet.
TREE BOX, fine dressed specimens.
ENGLISH YEW, pyramidal-shaped plants, 3 to 4 feet.
GRAFTED HOLLIES, of sorts, specimen plants, 2 to 5 feet.
HODGINS' HOLLY, 1½, 2½, and 3½ feet.
GREEN HOLLIES, 2 to 4 feet, planted out in clumps.
EVERGREEN OAK, in pots, 2, 3, and 4 feet.
RHODODENDRONS, fine hardy hybrid sorts, 2, 3, and 4 feet, and as much through.
RHODODENDRON NAPOLEON III.—Deep rosy crimson, beautifully spotted, quite hardy.
HARDY HEATHS.—A fine collection, including 40 distinct named sorts.
An extensive collection of Dwarf hardy AMERICAN SHRUBS

HARDY CONIFERÆ.

ARAUCARIA IMBRICATA, 1½, 2, 2½, and 3 feet.
CEDRUS DEODARA, 3, 4, 5, 6, and 7 feet.
MOUNT ATLAS CEDAR, 2 and 3 feet.
CEDAR of LEBANON, 1 and 2 feet.
ABIES ARCHANGELICA, well furnished, 1 to 1½ foot.
" FINDONENSIS VARIEGATA, 9 inches.
" INVERTA, 9 inches | ABIES PYGMÆA
" ORIENTALIS, 1½, 2, and 3 feet.
HEMLOCK SPRUCE, 2 feet.
LARIX TAMARIX, or AMERICAN LARCH, 5 to 8 feet
BLACK AMERICAN SPRUCE, fine specimens, 3, 4, and 5 ft.
PICEA AMABILIS, 1 foot
" GRANDIS, or LASIOCARPA, 1 and 2 feet.
" FRASERI, 2 to 2½ ft. | PICEA NORDMANNIANA, 1 ft.
PINUS EXCELSA, 2 and 3 feet.
" BENTHAMIANA, 2 to 2½ feet.
" CALABRICA, 2, 4, & 5 ft. | PINUS MACROCARPA, 3&4ft
" CEMBRA, 3 and 4 feet | " TAURICA, 1½ to 2 feet,
" FISCHERI | and 3 to 3½ feet
" HARTWEGII | " PARENAICA, 1½, 2, 3, & 4 ft
" MONTICOLA, 9 to 12 ins. | " UNCINATA, 1½ to 2 feet
WEYMOUTH PINE, 2½ to 3 feet.
CRYPTOMERIA JAPONICA and LOBBII, 2 to 3 & 5 to 6 feet
CUPRESSUS MACROCARPA, 3, 4, and 5 feet.
SEMPERVIRENS, 3 to 4 feet.
JUNIPERUS DUMOSA | JUNIPERUS PROSTRATA
" CRACOVIA, 2 to 3 feet. | " SABINA, 2 to 2½ feet
" TAMARISCIFOLIA
RETINOSPORA ERICOIDES, 1 foot.
RED CEDAR, 2 to 3 feet.
LIBOCEDRUS CHILENSIS, 3, 4, and 5 feet.
AMERICAN ARBOR-VITÆ, 3½ to 4 feet.
CHINESE ARBOR-VITÆ, 2 to 3 feet,
GOLDEN ARBOR-VITÆ, 1 to 1½ foot.

PEARS, in pots, well set with fruit buds.
LARGE PYRAMIDAL PEARS, in a bearing state, 6, 8, and 10 feet, with good fibrous roots.
PEAR STOCKS.
CAMELLIAS.—A number of very fine specimen plants, Double White, and other kinds, in tubs, 6 to 15 feet.
A large collection of Hardy BRITISH and EXOTIC FERNS.

All kinds of FOREST TREES, GREENHOUSE and STOVE PLANTS, AGRICULTURAL, GARDEN, & FLOWER SEEDS, separate CATALOGUES of which can be had on application.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	" Portugal, 1 to 2 feet
" dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	" Turkey, 3 to 4 feet
" standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.
Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

CHARLES DALY AND SON will SELL 2-years Transplanted THORNS, at 6*s.* per 1000; 1-year do., at 4*s.* per 1000; 2-years SEEDLINGS, at 2*s.* 6*d.* per 1000; PORTUGAL LAUREL, 1½ foot, at 4*s.* per 100; IRISH YEWS, 1½ foot, last year transplanted, at 12*s.* per 100; DUTCH CABBAGE SEED, our own saving, 1*s.* per lb., or 5*l.* per cwt. for Cash. PRICED LISTS free on application.
Coleraine.—March 5.

Transplanted and Seedling Larches.

BENJAMIN REID AND CO., NURSERYMEN, Aberdeen, N.B., offer for Sale several Millions of SEEDLING and TRANSPLANTED LARCHES. They are furnished with abundant healthy roots, clean stems, and capital leaders, and being grown in friable soil in an exposed situation are well worth the attention of proprietors and the Trade. CATALOGUES Post Free.
Special Prices and free delivery for large quantities on application.

To the Trade.

THOS. CRIPPS has still on hand a large Stock of fine healthy WELL ROOTED PLANTS of the undermentioned:—Abies Menziesii, 9 to 12 in. to 3 and 4 ft.; A. Albertiana (Californian Hemlock Spruce), all sizes up to 6 and 7 ft.; Araucaria imbricata, 4 to 6 in. to 12 ft.; Cupressus Lawsoniana, 2 to 4 in. to 6 and 7 ft.; C. macrocarpa (Lambertiana), 1 ft. to 10 and 12 ft.; Pinus Benthamiana, 4 to 6 in. to 2 and 3 ft.; P. insignis, 6 to 9 in. to 15 ft.; P. Jeffreyii, 2-years seedlings, to 5 ft.; P. Lambertiana, 3 to 6 in. to 2½ ft.; P. macrocarpa, 12 to 18 in. to 4 and 5 ft.; P. ponderosa, 4 to 6 in. to 6 and 8 ft.; Thuja Lobbii, 2 to 3 ft. to 6 and 8 ft.; Wellingtonia gigantea, fine specimens up to 6 and 8 ft.; Arbutus, 6 to 9 in. to 2 and 3 ft.; Berberis Darwinii, 6 to 9 in. to 3 and 4 ft.; Cotoneaster, Standards and Dwarfs; Laurel, Common, all sizes up to 6 and 7 ft.; Manetti Rose Stocks, fine, for immediate working; Pyracantha, all sizes; Broom, Portugal and Spanish, all sizes up to 3 and 4 ft.; Rhododendrons and Ghent Azaleas, all the leading varieties; Sweet Bays, Standards, with fine heads; Roses, Standards and Dwarfs; Vines from eyes, fruiting plants; Thujopsis dolabrata, per dozen or 100; Apple Trees, Standards and Dwarfs; Quick Thorn of all sizes.
WHOLESALE CATALOGUES post free on application.
The Nurseries, Tunbridge Wells, Kent.

Strong Quicks.

WANTED, 200,000 QUICKS, Three or Four Years old, Transplanted.
Lowest cash price and samples to be sent to
B. WHITHAM, Nurseries, Redlish, near Stockport.
N.B. Those Nurserymen who are advertising Millions of Quicks, and not having the same in stock, need not apply.

Forest Trees.

WANTED, 400 OAK and 400 ASH SAPLINGS. Must stand 5 to 6 feet high, clean stems and freely grown. State lowest price delivered to the Abbey Wood Station, North Kent Railway.
THOS. RENTON, Surveyor's Office, Christ's Hospital, Newgate Street, London, E.C.

FOR SALE, 30,000 LARCH, 30,000 SCOTCH, 100,000 SPRUCE, and 100,000 extra strong THORNS, all from 2 to 3 feet high; 3000 DEODARS, splendid plants, to be sold a bargain.
For prices, &c., apply to J. SCOTT, Merriott Nurseries, Somerset.
SCOTT'S FRUIT TREE CULTIVATOR, his CONIFEROUS CATALOGUE, his FLOWER GARDEN ANNUAL DIRECTORY, and his SELECT SEED CATALOGUE, ought to be in the hands of every lover of a garden. They are allowed to be the best published on these subjects, and are replete with information. Two Stamps required.

WELLINGTONIA GIGANTEA. — Fine healthy well formed plants from Seed, 1½ to 2½ feet high, and nearly as much across, 60*s.* per dozen. Special rates for larger quantities.—JAMES BACKHOUSE & SON, York Nurseries.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6 ft., 7 ft., and 8 ft.,	3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft.,	6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft.,	9*l.* 9*s.* to 10*l.* 10*s.*

Elvaston Nurseries, Derby.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.
W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.
Elvaston Nurseries, Derby.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18*s.* to 30*s.* per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12*s.* per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.
THOMAS AYRES.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.
CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

Seed Potatoes.

H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties, which they can offer to the Trade at low prices.
Seed Growing Establishment, Wisbech.

SEED POTATOS. — FORTY-FOLD (early); DALMAHOY (early); REGENTS (Dunbar); ROCKS; REGENTS (Walker's); FLUKES. The above are grown on fresh land, and are an excellent sample. For price, which is very moderate, apply to
Mr. RIDDELL, Steward, Park Attwood, Bewdley.

To the Trade.

SEED POTATOS.—Early Handsworth, Lemon Kidney, Webb's Imperial, Daintree's Seedling, Lapstone, &c., warranted true.
PRICED DESCRIPTIVE LIST sent on application to G. & W. YATES, Seed Merchants, Manchester.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified by the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

SEED POTATOS for SALE.—80 to 100 Tons of REGENT SEED and FLUKES, carefully selected by an extensive Grower, on the light black soil suitable for change to clay or loam lands. Samples to be seen at the Brick Lane Station, Great Eastern Railway, on application to R. B. WEBSTER, Potato Salesman.
Letters to be addressed, 16, Harmar, S.W.

THOMAS AYRES, Biggleswade, Beds, NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS :—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Potatos.—Seeds.

H. BROWN having on hand an extra large Stock of the following POTATOS, begs to offer them at considerably reduced prices per Imperial Bushel, for present orders, viz. :—True Early Ashleaf Kidney Potatos, 6*s.*; Myatt's Prolific Ashleaf Kidney, 5*s.* 6*d.*; Early Pink, Early Kemps, 4*s.* 6*d.* Also Dalmahoy, Fortyfold, White Rock, Scotch Downs, Flukes, Arrowsmith's Seedlings, and other varieties.
Prices for quantities on application. For SEEDS, see PRICED DESCRIPTIVE 44-page CATALOGUE, post free.
4, Commutation Row, Liverpool.

SEED POTATOS.—PROTESTANTS, 6*s.* per sack of 1½ cwt., delivered at Rye Station, South Eastern Railway; sacks 1*s.*, or new 1*s.* 6*d.* each. Whole sets, size 12 cwt. to plant an acre, will be sent; or, if preferred, large, for cutting. The Grower, after some years' trial against Flukes, Regents, Pink Eyes, and other favourite kinds, has found this to be the most profitable, being an excellent cropper, and least affected by disease—indeed never to any extent, even when other sorts have suffered most severely.
Direct, with instructions and remittance, to Mr. HENRY DENGATE, Bailiff, Flackley Ash, Peasemarsh, Sussex.

THE ROYAL ASH-LEAVED KIDNEY POTATO. —This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863 :—
"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."
Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

New Kidney Potato—The Golden Kidney.

MESSRS. McRAE AND FRASER have much pleasure in offering this decided novelty in the way of POTATOS.
Mr. WM. HORLEY, Toddington, Beds., of whom we purchased it, thus speaks of its merits :—"The tubers under good circumstances run large, there being scarce any seed size; the foliage has a distinct golden edge; it is very white and flowery, the most delicate skin, and eyes not perceptible; very productive, as early as the common Ash-leaf, and first-class for exhibition."
We have but a very limited stock of this remarkable Potato. Purchasers desiring to possess it, are requested to make immediate application. Price per Peck, 6*s.*
Tredegar Nursery, Bow, London, E.

PINK FLUKE POTATO (quite true).—Fine flavour, most prolific, may be said to be literally free from disease; obtains the best market price, will keep 12 months, is in high perfection from January to September, therefore invaluable when others are useless. This Potato is almost unknown except in the vicinity of Pershore and Worcester, where the principal growers have been supplied by the Advertiser, who has grown it with great success for several years, in an increasing extent, to the exclusion of all other kinds, being convinced it yields a profit double that of any other variety; the past season he grew 22 acres. Has 120 tons now to dispose of, which he offers on terms below, assured that e'er long the Pink Fluke will occupy the great bulk of every grower's crop in the kingdom. Price, delivered at Pershore Station, upon receipt of remittance, in new corn sacks (charged 2*s.* each), containing 3 bushels, or 180 lb. nett: one sack, 17*s.* 6*d.*; two, 16*s.* 6*d.* per sack; three, 15*s.* 6*d.* per sack; five, 15*s.* per sack; a discount on larger quantities. The distance from the Station compels a scale of prices.
Apply to FRANCIS JAMES, The Warren, Brockhampton, near Worcester.
N.B.—As the Pink Fluke bears great contrast in its nature, habit, and growth, to other kinds, F. J. will, on receipt of a stamped envelope (addressed), forward a printed description of the same, as also his successful mode of culture.

THE FINEST SUMMER LETTUCES in CULTIVATION, each free by Post for Six Stamps.
COS, PARIS WHITE, finest stock.
" " GREY, very large.
" LONDON WHITE.
CABBAGE, VICTORIA, compact, early.
" NEAPOLITAN, very large.
" SILESIAN, very large and tender.
" EARLIEST FRENCH, best small early.
A Packet of each for 36 Stamps. All saved from unusually fine stocks.
HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.
SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.
No. 1, 3*l.* 3*s.*; No. 2, 2*l.* 2*s.*; No. 3, 1*l.* 11*s.* 6*d.*; No. 4, 1*l.* 1*s.*; No. 5, 15*s.*; No. 6, 10*s.* 6*d.*; No. 7, in extra quantities for a large family, 5*l.* 5*s.*
Royal Berkshire Seed Establishment, Reading.

Splendid Seakale for Forcing.

WILLIAM BARNES has a few hundreds, extra strong crowns, to offer, and feels confident they cannot be surpassed for size or health. He has also some of a second size, which will produce fine heads for table.
Price upon application.
Camden Nursery, Camberwell.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities :
Price for Picked Roots, per 100 .. .. .. 10*s.* 0*d.*
Do. second size " 7 6
Also strong for Planting, per 100 .. 5*s.* and 7 6
Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

SELECTED SEEDS, CARRIAGE FREE.
W. PAUL'S SUPERB CRIMSON BEET, 1*s.* per ounce.
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s.* per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2*s.* 6*d.* per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s.* p. pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s.* p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d.* p. pkt
BROCKET HALL BROWN COS LETTUCE, 1*s.* per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s.* per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s.* per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s.* per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s.* per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5*s.*
" finest mixed, 1*s.* to 2*s.* 6*d.* per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s.* to 2*s.* 6*d.* per packet.
LAPAGERIA ROSEA, 1*s.* to 2*s.* 6*d.* per packet.
All other Seeds, separate or in collections, of best quality.
PRICED DESCRIPTIVE CATALOGUE free by post.
Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

SELECTED SEEDS,
CARRIAGE FREE.

	per oz.—*s.*	*d.*
PAUL'S Superb Crimson BEET, of excellent flavour ..	1	0
" New Large Green Curled ENDIVE	1	0
" Extra-Curled Garnishing PARSLEY	0	6
Richmond Cream BROCCOLI (true), the latest	1	6
Hardy Early Herts CAULIFLOWER	2	6
LENORMAND'S and EARLY ERFURT ditto per pkt.	1	6
SCARLET PERFECTION MELON .. .. "	2	6
PAUL'S HOLLYHOCKS, in 12 Varieties .. "	5	0
" " mixed .. .. "	1	0
" Imported Collections of ASTERS, STOCKS, per pkt., 1*s.* 6*d.* to	2	6
" Home-saved QUILLED ASTERS .. per pkt.	2	6

All other SEEDS of first quality. PRICED LIST on application.
PAUL & SON, "Old" Cheshunt Nurseries, N.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.
Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—*s.*	*d.*
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..	2	6
" LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

A Few Choice Seeds really worth Growing.

WM. WOOD AND SON offer the following, all Carriage paid. Small Seeds post free.
BECK'S DWARF GEM BEAN, 1*s.* per quart.
MINSTER GIANT LONG-POD BEAN, 1*s.* per quart.
PINE-APPLE BEET, 1*s.* per oz.
NUTTING'S SELECTED DWARF RED BEET, 1*s.* per oz.
NEW SEAKALE BEET, 6*d.* and 1*s.* per packet.
CARTER'S CHAMPION BROCCOLI, 1*s.* per packet.
FEARNOUGHT CABBAGE, 6*d.* and 1*s.* per packet.
KEMP'S INCOMPARABLE CABBAGE, 8*d.* per oz.
LITTLE PIXIE CABBAGE, 1*s.* per oz.
CARTER'S DWARF MAMMOTH CAULIFLOWER, 1*s.* p. pkt.
HOOD'S IMPERIAL DWARF RED CELERY, 6*d.* per packet.
INCOMPARABLE WHITE CELERY, 6*d.* per packet.
DALMENY SPROUTS, 1*s.* per packet.
PEARSON'S LONG GUN CUCUMBER, 1*s.* 6*d.* per packet.
THE SENSATION CUCUMBER, 1*s.* 6*d.* per packet.
WOOD'S IMPROVED VARIEGATED KALE, 1*s.* per packet.
MELVILLE'S VARIEGATED GARNISHING KALE, 6*d.* p. pkt
DUNNETT'S GIANT BROWN COS LETTUCE, 1*s.* per pkt.
WHEELER'S TOM THUMB LETTUCE, 1*s.* per packet.
PRINCESS ALEXANDRA MELON, 1*s.* 6*d.* per packet.
PRINCESS LOUIS of HESSE MELON, 1*s.* 6*d.* per packet.
THE STUDENT PARSNIP, 6*d.* and 1*s.* per packet.
PARSNIP CHERVIL (CHÆROPHYLLUM BULBOSUM), 6*d.* and 1*s.* per packet.
CARPENTER'S EXPRESS PEA, TRUE, 3*s.* 6*d.* per quart.
MACLEAN'S PRINCESS ROYAL PEA, 2*s.* 6*d.* per quart.
NEW FEATHER-STEM SAVOY, 6*d.* per packet.
Descriptive CATALOGUES post free on application.
Address Woodlands Nursery, Maresfield, Uckfield, Sussex.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application :—
DANIEL O'ROURKE PEAS (WAITE'S Stock)
EARLY PRIZETAKER MARROW "
WOODFORD'S GREEN MARROW "

To Farmers, Market Gardeners, and Others.

THE BEST SORTS of PEAS to GROW for PICKING GREEN.

Champion of England	Bedman's Dwarf Imperial
Woodford's Dwarf Marrow	Bishop's Longpod

The above can be supplied at Low Prices, in large quantities, by
SUTTON & SONS, Seed Merchants, Reading.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s.* 6*d.* per quart.
The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4*s.* per quart.
The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4*s.* per quart.
The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s.* and 2*s.* 6*d.* per packet.
Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had Post Free on application.
The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend :—
DILLISTONE'S EARLIEST PEAS, 1*s.* 6*d.* per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2*s.* 6*d.* per packet.
BROCCOLI, SNOW'S SUPERB, 2*s.* 6*d.* per ounce.
CUCUMBER KIRKLEES HALL, 1*s.* per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1*s.* per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1*s.* per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1*s.* per pkt.
MELON SCARLET PERFECTION, new, First-class Certificate at Royal Horticultural Society, 2*s.* 6*d.* per packet.
Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1*s.* each. This Leek can be grown from 4 to 5 lbs. weight. None genuine unless in their own sealed packets.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1*s.* Post free, 14 stamps.—Sonning, near Reading.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2*s.* 6*d.* per packet. Will be forwarded to any part of England on forwarding 30 postage stamps.
The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.
W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.
Fulham Nursery, London, S.W.—March 5.
Special offer to the Trade on application.

To Gentlemen, Nurserymen, and Others.

GLOBE ARTICHOKE PLANTS, at 25*s.* per 100; also a quantity of PROVINCE or CABBAGE ROSE PLANTS, at 12*s.* per 100. A good discount allowed to the Trade.
Post orders payable to JOHN GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

SEEDS of SUPERIOR MERIT.—
Free by Post, except the Peas and Beans.

	per Quart—*s.*	*d.*
PEA, DILLISTONE'S EARLY PROLIFIC, 2 ft., the earliest of all	1	6
" ADVANCER (McLean's), 2 ft., the best dwarf Pea	1	6
" PAYNE'S CONQUEROR, 5 ft., the best tall Pea	1	0
BEAN, BECK'S DWARF GREEN GEM	0	8
	per Packet.	
BEET, PINE APPLE, superb crimson	0	6
" NUTTING'S SUPERB RED	0	6
BROCCOLI, SNOW'S IMPERIAL WINTER WHITE ..	1	0
" BACKHOUSE'S WINTER WHITE PROTECTING	2	6
BRUSSELS SPROUTS, ROSEBURY	0	6
CAULIFLOWER, LARGE EARLY ERFURT	1	0
CABBAGE, LITTLE PIXIE	0	6
CUCUMBER, SMITH'S FINE LONG FRAME	1	0
CELERY, MAMMOTH WHITE	0	6
" " RED	0	6
MELON, EMPRESS EUGENIE	1	0
LETTUCE, PARIS WHITE COS	0	6
" " GREEN COS	0	6
PARSLEY, extra curled garnishing	0	6
SAVOY, NEW FEATHER-STEMMED	0	6
PARSNIP, THE STUDENT	0	6
TOMATO DE LAYE	0	6
LOBELIA PAXTONIANA, or Crystal Palace var. ..	1	0
TRUFFAUT'S SPLENDID ASTER, 18 vars.	1	0
CHRYSANTHEMUM-FLOWERED ASTER, 12 vars. ..	1	0
IMPORTED LARGE-FLOWERING STOCK, 18 vars. ..	1	0
BALSAM, SPLENDID ROSE-FLOWERED, 12 vars. ..	1	0
AMARANTHUS MELANCHOLICUS RUBER	0	6

The whole of the above carriage free for 21*s.*
RICHARD SMITH, Seed Merchant, Worcester.

AGRICULTURAL AND FARM SEEDS

SAVED FROM THE MOST GENUINE STOCKS, AND AT VERY LOW PRICES.

JAMES VEITCH

DESIRES TO ANNOUNCE THAT AT THE SOLICITATION AND BY THE ADVICE OF MANY AGRICULTURAL FRIENDS, HE HAS ADDED

AGRICULTURAL SEEDS OF ALL KINDS

TO THE OTHER BRANCHES OF HIS SEED BUSINESS.

J. V. has seen for many years past the terrible effects and losses arising from SOWING BAD SEEDS, either from being BAD STOCKS OR OLD AND MIXED SEEDS AT LOW PRICES. Seeds to be REALLY CHEAP MUST BE REALLY GOOD, and it is his intention to sell nothing but what is of the FINEST POSSIBLE QUALITY.

The Stocks now offered are strongly recommended as being exceedingly select and fine; and J. V. desires to assure all who favour him with their orders that no trouble or labour will be spared to insure punctuality in the despatch and accuracy in the execution of their Orders.

Many of the kinds are of HIS OWN growth, and the remainder are procured from the most respectable Growers, on whom he can depend.

THE TURNIPS

Comprise all the varieties of decided merit, the stocks of some of the kinds being more than usually select.

THE MANGOLDS

Are especially recommended, the YELLOW and ORANGE GLOBE being EXCEEDINGLY FINE and TRUE, the LONG VARIETIES VERY SELECT, and all of the most genuine quality.

GRASSES AND CLOVERS OF FINEST QUALITY, AND FREE FROM WEEDS.

J. V. has paid particular attention to this branch of the business, and guarantees the MIXTURES sold by him to be the VERY BEST. He supplies—

The very finest Mixtures for Permanent Pastures and to suit all Soils.

The very finest Mixtures for Irrigation or Water Meadows.

ditto ditto Park and Field Lawns.

The very finest Mixtures for Sheep Walks.

ditto ditto Reclaimed Marshes or Heath Lands.

ditto ditto Garden Lawns, Pleasure Grounds, Grass Plots, Bowling Greens, &c.

All at the lowest prices, and such as will bear comparison with all respectable houses.

Every kind of Grass can also be supplied separately in large or small quantities.

CLOVERS.

WHITE DUTCH, of finest samples. | ENGLISH RED, very select and good sample.

Also PERENNIAL RED, ALSIKE, YELLOW or TREFOIL, LUCERNE, &c.

All very true and free from weeds.

CATALOGUES are now ready, and will be forwarded Post Free on application.

Where large quantities are required, special prices will be given, and a trial is respectfully requested.

JAMES VEITCH

WILL BE HAPPY TO FORWARD ALSO, POST FREE, ON APPLICATION, HIS CATALOGUE OF

GENUINE SEEDS of all kinds for the VEGETABLE and FLOWER GARDEN.

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The Gardeners' Chronicle.

SATURDAY, MARCH 5, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, March 9 { Royal Horticultural (Floral Committee) at South Kensington .. .. 10 A.M. / HYACINTH, or FIRST SPRING SHOW, at South Kensington .. .. 2 P.M.

IN the course of the experiments which were undertaken at the Jardin des Plantes by Messrs. DECAISNE and NAUDIN, with a view, if possible, to determine the limits of the different kinds of Gourds, comprised under the common names of Pumpkins and Vegetable Marrows, together with a few ornamental hardy kinds as Orange and Pear Gourds, many of which seemed to vary indefinitely, the whole were reduced to four species—Cucurbita maxima, C. Pepo, C. moschata, and C. melanosperma. These alone admitted of accurate definition, and obstinately refused to breed with each other.

This, however, was not the case with some other Cucurbits, which have yielded several valuable contributions towards the history of HYBRIDISATION in general. An account of these hybrids has been lately published in an interesting memoir by M. NAUDIN, some notice of which we propose to give on the present occasion, previously to an abstract of his prize essay on Hybrids in general, which is of too much importance to be neglected.

M. NAUDIN obtained by actual fertilization of different species of Cucurbits, four cases of hybrids, in addition to one which occurred naturally. In all the first four cases he was able to carry on his observations beyond the first generation, though not with equal success, but it is to two of these more especially that we now wish to call attention.

The first relates to Luffa cylindrica, fertilized with the pollen of L. acutangula. The produce of this cross, according to the nomenclature adopted for hybrids, was called L. acutangulo-cylindrica. The seeds which were produced in 1858 proved fertile the next year, and not only were the plants perfectly intermediate, but the fruit had the ribs less prominent than in the father plant, and had entirely lost the black lines and elongated warts which are so remarkable in L. cylindrica.

The earlier male flowers of the hybrids fell off without opening. Of those which expanded the anthers contained but a small quantity of pollen, and this, as it appeared from the weakness of the fruit produced, and the small quantity of fertile grains which it contained, was by no means very perfect. Some of the same seeds were sown in the three following years with similar results.

In 1859 the seeds of the hybrid fertilised with its own pollen were sown. The plants did not differ from those of the first generation, except that the males all opened, and were more rich in pollen, and a large quantity of fruit was obtained. The ribs of the fruit were now much less prominent than before, and the black lines and warts began to reappear.

The seeds of the third generation were sown in 1860, but the weather was so unfavourable that a single fruit only attained the normal size, and that resembled perfectly the fruit of Luffa cylindrica. In

imperfect fruit there were still slight traces of ribs. Though, however, the season was unfavourable for the development of fruit, a singular fact appeared in these plants of the third generation. In the first and second they had been uniformly monœcious, like the two parent species, but in the third, the male flowers in half the plants were transformed into female. The axillary bunches, which in the normal plants are exclusively male, bore male and female flowers intermixed, while some plants were absolutely unisexual.

In the fourth generation, the fruit did not differ at all from L. cylindrica, except in the presence of very slight traces of ribs, while the plants themselves exhibited no difference, except that the inflorescence was androgynous.

We pass over L. amaro-cylindrica and Coccinia Schimpero-indica, because the observations were not extended so far as in the case just mentioned. Both, however, produced fertile fruit, and in both there was a tendency to revert to the parent. In the first the pollen was defective in quantity and quality, but in the second it was abundant, and its perfection was proved by its fecundating the pure Coccinia indica, there being no hybrid plant to operate on, as all proved males.

We now come to Cucumis trigonus fecundated with the pollen of three varieties of the common Melon. All the three fruit proved fertile. The plants to which they gave rise, approached in size those of their male parent, of which they possessed the herbaceous stem without any tendency to become perennial; their leaves however were more like those of C. trigonus. The number of fertile grains of pollen seemed to be about equal to that of those which were effete. The fruit was of two kinds. One was about the size of a goose's egg, and contained a small number of fertile seeds; the other was much smaller, and only twice or thrice as large as that of C. trigonus. In both the flesh was very bitter.

In the second generation the seeds from the larger fruit produced fruit resembling the Melon very closely, and the flesh, though insipid, was free from bitterness. A few seeds only were perfected in each fruit. The seeds of the small fruit succeeded well, and in most cases there was an evident reversion to the Melon, while in one case only, the fruit was nearly that of C. trigonus. It was extremely bitter, and as the seeds were abundant and perfect, there seemed an almost perfect reversion to the female parent.

The natural hybrid between Cucumis Figarei and C. myriocarpus, the former being the female parent, was not examined early enough or carefully enough to yield any reliable results. The fruit of the hybrid which was rough like that of C. myriocarpus, though apparently perfect, was in most cases barren, but in a few instances afforded a single ripe seed, but whether the result of self-fertilization, or of fertilization from the pollen of the pure plants of Cucumis Figarei, amongst which it grew, is uncertain. Two plants only came up from the seed, and one of these was destroyed by an insect, and the other perished prematurely, so that no further information could be obtained.

On the whole then, it appears that though the fertility of the hybrids was not as great as it would have been in plants fertilized with their own pollen, yet the hybrids were really fertile, both as regarded the male and female organs, though the male seemed the first to be more or less impaired; and that in every case there was a manifest tendency, after the first generation, to revert either to the male or female parent. The notion that hybrids, between distinct species, are necessarily sterile can now no longer be maintained, if indeed it could reasonably have been done before, and the stability of hybrids fertilized by their own pollen must equally give way in the face of these observations. *M. J. B.*

All the lovers of flowers in this country are supposed, somehow or other, to have a decided preference for large size and gorgeous colours, and if the plants themselves are unnatural in form, or what are called monstrosities, they are all the more attractive, and all the more likely to sell. Hence we see, not unfrequently, the most exaggerated representations of flowers and fruits upon paper, while they themselves are very different objects, although perhaps to a cultivated taste they may seem far more attractive than the daubs of drawings which are put forth to represent them, and to sell them. "Distinguished foreigners" from the Continent sometimes pay us a visit, and offer us fruit trees which bear fruit of extraordinary size: Oranges growing upon Apple trees, or blue Roses, blue Dahlias, and other most rare and wonderful productions. Those who are silly enough to purchase such "novelties" usually find out, when too late, that they have paid away their money for what turns out to be perfectly worthless.

A very amusing instance of an attempt upon our credulity was exhibited in London a few days ago. This time the attempt was not made by a Frenchman, a Belgian, or a German. The Japanese—sly dogs as they are—have already found out some of our weak points, and it would appear they intend to make a profit out of the discovery. A consignment of flower seeds had been sent from "the land of the rising sun" to Stevens's Auction Rooms, that great emporium for all that is rich and rare in natural productions. This consignment consisted of 600 packets of seeds, and on each packet there was a coloured drawing by a native artist of a plant in full bloom: the drawing, it is presumed, being designed to show what the flowers of each packet of seeds were like, and thus form a guide to the purchaser. Colouring matter would appear to be cheap in that far off country, for in the paintings in question it had been liberally applied. We cannot say much in praise of the talent exhibited in these drawings by the "native artist," but we may fairly give him a good deal of credit for drawing upon his imagination for a number of his sketches, for certainly many of his flowers never had any representatives on the hill sides or gardens of Japan. Some of the drawings however, were evidently meant to represent the flowers of the country. For example, the pretty Lychnis Senno (Siebold), was unmistakeable on some of the papers, while Caprifoliums, bottle Gourds, and a few other plants might be guessed at on others. One sketch in particular attracted our attention, and this was nothing less than a Dielytra spectabilis *with blue flowers*. This we believe was knocked down at the sale for a pound or 25 shillings.

Although we have our doubts—like those gentlemen who attended the sale and who would not give more than 25*s.* for a *blue* Dielytra—that the seeds, if they grow, will turn out as represented on the cover of the packet, yet there is no reason why we should not have a blue Dielytra, and it would certainly be a great acquisition if we had one. We shall therefore be glad to hear that the seed germinates, and that when the flowers are produced they prove to be as blue as those which had been painted by the Japanese artist. Amongst new flowers of the present season—or shall we say the next one, to give more time—a Dielytra spectabilis with blue flowers would certainly be the lion at our flower shows.

We do not like to seem uncharitable, but we strongly suspect this consignment of flower seeds was got up in the following way:—A contract was made with an artist to supply some 600 painted flower bags, and then these were filled, mostly at random, with any seeds which chanced to be at hand at the time. If this supposition prove true, it will probably be found that many of these seeds will turn out to be the common grains of the country, such as Rape, Oily Grain, Egg Apple, Turnips, Radishes, Asters, Poppies, Sunflowers, and such-like plants. There may be some grains of Wheat amongst all this chaff, and we hope there may be, for the sake of the purchasers. Meanwhile we may state for the benefit of all enterprising speculators on our credulity, whether they be from the continent of Europe, or from the far off lands of the rising sun, that we are not so easily gulled as we used to be; experience has made us wise. If they send us anything that is really valuable, we are ready to pay for it, and we will pay handsomely; but if they attempt to palm off rubbish upon us, however nicely glossed over and got up, they will probably find the speculation a losing one.

—— Our readers may be reminded that the First Spring Show of the season takes place at South Kensington on Wednesday next, the 9th inst. The principal feature of the Show is to consist of forced bulbs, as Hyacinths, Tulips, and Crocuses; and it is to be hoped the day may prove bright, in order that the two latter of these flowers may fairly develop their charms. We shall be curious to see what is brought forward in the class of New Hyacinths of 1863-4, our own views concerning which have been already expressed. We are glad to see that the brilliant family of Hippeasters or Amaryllids, which is again engaging the attention it deserves, is not forgotten on this occasion. No doubt, if encouragement is continued to be held out to these noble flowers, a fresh impetus will be given to the production of choice English varieties, which, as far as we have seen, are superior in technical points of excellence to those obtained from abroad. We hope to see several groups of them brought forward on Wednesday. In cut stands of Camellias, too, which really make an admirable display, we trust there will be more competition than took place last year.

—— We learn from Mr. W. B. Simson, of Edinburgh, that the credit of first discovering the Trichomanes radicans in the Scottish Isle of Arran (see 1863, p. 602), is due to a resident there, named Robert Douglas, who is in the habit of collecting Ferns for sale. Mr. Simson states that Douglas, who is very little acquainted with the names of the Ferns he gathers, did not, till he informed him, know either the name or the rarity of the Trichomanes, of the discovery of which he afterwards informed Mr. Combe. So far as it goes, therefore, this may be taken as evidence in favour of the authenticity of the habitat; as at least, if so, the Fern was not planted by the discoverer, as it is sometimes uncharitably suggested may have happened in cases of a like kind.

While referring to this Trichomanes, we may mention that Mr. Backhouse has found the plant in Carnarvonshire, in what he regards as "a truly wild state," and remarkably luxuriant.

—— We learn that an International Horticultural Congress under the auspices of the Federation of the Horticultural Societies of Belgium, is announced to take place at Brussels on the 24th, 25th, and 26th of April next, simultaneously with the opening of the Universal Horticultural Exhibition, for which the Royal Floral Society is making preparations, under the patronage of the Belgian Government.

The Congress will be opened precisely at 3 o'clock, on the 24th of April, at the Ducal Palace, at Brussels. The Federation specially invite to the Congress delegates from horticultural societies, both Belgian and foreign; members of academies, of botanic societies, and of other scientific colleges; professors of botany, and the directors and curators of botanic gardens; directors and editors of botanical and horticultural reviews; members of the jury of the Universal Exhibition of Horticulture; and, without distinction, all botanists and horticulturists who wish to take part in the discussions, and who give notice to that effect before the 13th of April to M. Edouard Morren, Secrétaire-Général, à Liège.

The following are the subjects which it is proposed to submit to the deliberations of the Congress:—

1. Acclimatization, naturalization, and domestication of Vegetables.

2. Hybridization, crossing, and artificial fertilizations in general; characters of hybrids, their sterility, their polymorphism; preservation of pollen, &c.

3. Theory of the variation of species, or of the origin of varieties, and of races. Theories of Van Mons, of Vilmorin and others. Reform in the nomenclature of varieties.

4. Dynamics of plants, and the periodic phenomena of vegetation. Influence of temperature on the germination, leafing, flowering, and fruiting of plants; forcing, retarding, &c.

5. Food of plants: action of the atmosphere, influence of nitrates, ammonia, phosphates; theory of manures, composts, &c.

6. Floral æsthetics: points of excellence in flowers, single and double. Harmony of colours.

7. Coloration of plants. Variegation, is it hereditary by the seed and contagious by the graft?

8. History of horticulture. Historical documents, biographies, explorations, voyages, introductions, rectifications.

9. Humidity, water: are these absorbed directly by the leaves?

10. Vegetable pathology: diseases of plants; remedies.

11. Insects and other destructive animals: their destruction.

12. Garden architecture: characters of its actual or present style.

—— Among the many flowers in the very effectively-decorated conservatory of the Royal Horticultural Society, to which we have already adverted (p. 171), we have been particularly pleased with a specimen of the hybrid Rhododendron Countess of Haddington, sent there by Mr. Parker, of Tooting. This is a first-cross with the Indian R. Dalhousiæ as one of the parents, and is probably one of the most useful hybrids as yet resulting from the introduction to our gardens of the Indian species of this varied genus. The good qualities of the plant, and those in which it differs from other fine-flowered hybrids which have appeared, are its dwarfish moderately vigorous branching habit of growth, and its prolificacy of bloom, every shoot producing a head of four or five large white flowers. These flowers are of the long-tubed character of those of R. Dalhousiæ, with a prettily undulated border, and at all stages of their development have here and there apparent, a pleasing flush of soft rose-colour.

—— Those who are interested in the subject of the cool treatment of Orchids will be glad to learn that Mr. Skinner has just received, by the R.M. steamer Shannon, from his quondam collectors in Guatemala, some splendid examples of Lycaste Skinneri, Odonto glossum grande, Epidendrum vitellinum, &c., fresh

from their native habitats, which they only left on the 22d of January last. These it has been resolved to submit to the public, by auction, next Thursday, the 10th of March, as will be seen from an advertisement in another column. The quantity, we understand, is large, and the specimens never surpassed.

NOTES ON GARDENS.—No. IV.

Backhouse's Nurseries, York.

The nurseries of Messrs. Backhouse & Son lie about a mile to the west of York, on slightly elevated ground, sloping gently to the southward, and affording a varied and extensive view over the rich and fertile district in which they are situated. The warehouses, offices, &c. are very extensive and compactly arranged. Passing them I came to the first main block of glass houses, in four rows, each 70 feet long, including the stoves, tropical and cool fernaries, orchid houses, &c. In front, standing as sentinels at the entrance door, two colossal Tree Fern trunks, perhaps the largest ever imported into Europe—one of them measuring 16½ ft. in height, of prodigious girth, and quite symmetrical, arrest the eye. On the roof of the first house was a fine flowering specimen of Lapageria rosea. The main stove next presented itself. In it was a select collection of tropical plants in the best condition, especially attractive being fine masses of Allamanda Schottii and Passiflora kermesina, depending from the rafters; also a new Dipladenia, said to be a hybrid, with leaves larger than those of D. crassinoda, and flowers of the deep rosy crimson of that species, but nearly as large as those of splendens.

Adjoining this stove is the tropical Fernery, a house filled with sumptuous specimens, and in every way worthy of its object. The most telling plant was a noble specimen of Thamnopteris australasica, with a crest nearly 10 feet across, and fronds 9 to 10 inches wide. Near it was a fine example of the rare Hydroglossum heterodoxum, a climbing Fern from Central America with huge palmate fronds; this had already reached the roof, and formed a pillar-like mass, 11 feet high, of the deepest green. A large and rich assortment of arborescent and other Ferns was also to be seen. Amongst them must be mentioned Adiantum cardiochlæna, with fronds 4 feet wide, on erect wiry stems, black as polished ebony, and exquisitely drooping pinnæ of the tenderest green; A. denticulatum; two varieties of the rare A. pulverulentum; A. hirtum; A. cayennense (?) which has pinnules of a rosy pink when young; and A. Ghiesbreghtii, a species of surpassing beauty and great rarity, allied to the well-known A. tenerum, but with larger, heavier, and much more densely clustered leaflets. Two fine plants of Hymenodium crinitum, in full fructification, had the back of their fronds one mass of black chaff and sori, strangely contrasting with the pale whitish green of the midrib. Two Tree Ferns planted out, Cyathea aurea (?) and C. aspera, promised soon to become objects of great beauty. One more tropical Fern may be named amidst the vast variety of old and new that flourished there—a Lygodium with bronzy rose-coloured fronds, recently introduced from Guiana.

The Orchid house is entered from the tropical Fernery, and contains a large collection of Lælias and Cattleyas, including many very distinct and promising looking unproved species, imported by Messrs. Backhouse from Brazil and New Granada. From the latter country the Messrs. Backhouse first received the beautiful Cattleya Warscewiczii delicata, already known to cultivators. Another, nearly allied, to which they have given the provisional name of C. Wageneri rosea, equals if it does not surpass this in beauty. It is in fact a fine Cattleya Wageneri with white blossoms and richly orange-stained lip, the densely crisped edge of which alone is of the tenderest pink. Here was first flowered, and from here first exhibited, the well-known Lælia purpurata and Cattleya Wageneri; and from here also were supplied to our botanico-horticultural literature the first figures of Lælia elegans, of Lælia xanthina, and of the rare and beautiful Cattleya Schilleriana.

The Anæctochili were growing "like weeds" in this house. There were wonderful plants of A. Lowii and its variety virescens; as also of the charming Macodes Petola, with its fine varieties cuprea, velutina, latifolia, and superba. The habit of the var. cuprea is very diverse from that of the typical form, being taller (6 to 9 inches high), and the veins of a flesh-tinted copper-colour, light at certain angles. The var. velutina has a very dark ground colour, contrasting finely with its network of golden veins. As the name implies, the var. latifolia has very broad, indeed nearly round leaves, and is of vigorous habit. In the var. superba the intersecting golden veins are very numerous, and of an unusually brilliant hue. In addition to these are two other apparently permanent and interesting varieties. One of the specimen pans of this species contained a dozen plants, supporting many score leaves, and producing an indescribably beautiful effect. The rare A. Veitchii and A. setaceus var. cordatus were also in unusual vigour. Along with the Anæctochili, and apparently equally at home, was the brilliant haired Pogonia discolor.



Again passing on, a door was opened and I entered—what? The Messrs. Backhouse's exhibition at Kensington last summer had given me some indication of the vast collection of novelties to expect. I had also a vague notion of great Ferneries and so forth, but was utterly unprepared for such a fascinating imitation of wild Nature as that which stretched for 70 feet before me, and which may be likened to a concentrated New Zealand or Australian Fern ravine, everywhere charmingly diversified and draped with graceful verdure. Ferns large and small, massive and delicate, filmy and arborescent, lend their aid, the latter kinds throwing feathery canopies gracefully aloft, and almost effectually hiding the only surface which indicates art — the roof. The "glen" is 20 feet wide, 70 tons of massive stones having been used in its construction. At one side a small sheet of water, deeply seated among the surrounding "crags," receives a charming little cascade which gushes down the rocks, half hidden among the Ferns that fringe its margin, and grow around in wild profusion. Who would not be charmed by such a scene, and who describe the feelings of a lover of "ferny nature," when feasting on its diversities? Brick "burrs," cement, &c., which are supposed to represent nature in other attempts of this sort, are here unseen, the stone being of one kind only, superimposed in the most artistic and natural manner, the whole combining to form a sight which it would be difficult to persuade a Maori had not been bodily transferred from the Antipodes. The engraving does not show the defile-

like character of the scene, the photograph being taken at its further or upper end; and to some extent the tops of the Tree Ferns have vanished from the picture. To one like myself, fresh from the region where monotony holds almost undisputed sway; where "decided" colours take a too decided lead, and where "every ally" may hopefully look forward to rejoin the society of its fraternal relative, the relief afforded by this exquisite touch of nature, and sudden collapse of pot, bench, and regulation, could only be equalled by a sudden transfer from a Bedfordshire Cucumber field to a Gentian-covered Alps—or some such desirable flight. Tree Ferns were here seen in their real character—trunks 6 to 9 feet high, and crests 10 to 15 or 18 feet across, of great beauty. Conspicuous amongst them was Dicksonia squarrosa from New Zealand, with its slender stem, straight as an arrow, and crowned with a crest of more than 20 fronds of the deepest green. Far larger still in its crest, though as yet only a young plant, is the lovely Cibotium Scheidei, the finest of the Tree Ferns of Mexico. There were also fine crests of the silver Tree Fern of New Zealand, Cyathea dealbata, surmounting tall and massive trunks covered with seedlings of the same and of other species; one of these forms the centre piece of the most distant part of the house and is probably the finest specimen in Europe. Amongst the smaller Ferns in this house a nice effect is produced by the rose-coloured young fronds of Lomaria L'Herminieri; Todea pellucida, and the British Hymenophyllums grow well among the moist rocks; good specimens also of the Sulphur Maidenhair in two varieties, and of A. chilense, may be seen, together with the rare Asplenium auricularium, A. valdivianum, and a fine variety of A. flabellifolium, double the size of the ordinary form, and very pleasing as seen suspended in baskets or drooping from dry crevices of the rocks.

The house devoted to the culture of East Indian Orchids contains a select, though not very large collection of those plants, and amongst them several scarce species. Associated with these is a class of Ferns that can probably be found nowhere else in cultivation, I mean the Lindsæas—remarkably interesting Ferns. They grow quite freely with a high temperature, deep shade, and an atmosphere saturated with moisture. Perhaps the most conspicuous amongst them are Lindsæa trapeziformis, and its variety (?) L. falcata, from their large size and finely curved pinnules. Then there is the delicate L. dubia, like a small semi-transparent Gleichenia; L. reniformis, resembling in the form of its fronds the well known Adiantum reniforme, but of a fine glaucous colour; L. stricta, L. guianensis, and L. crenata, with erect pinnate fronds, very distinct, the last-named having the edges of the pinnæ finely frilled; and L. sagittata, an extremely rare Fern with broadly arrow-shaped fronds. These and many others of this genus, cannot fail to highly interest every lover of Ferns.

Near the habitation of the Lindsæas are the propagating houses, and also a small house occupied by Odontoglossums and other Orchids requiring little or no heat. A new building of considerable size was in course of erection for plants of this class. With the Odontoglossums were two or three species of a genus as yet little known, but likely to become general favourites—Callixene. They are evergreen shrubs with small ovate or oblong leaves, that climb upon trunks of trees in the rich forests of Chili, and bear a profusion of Lily-of-the-Valley like flowers, yielding a delightful fragrance. Here also was Gleichenia cryptocarpa, another plant of great interest, from the probability of its proving hardy in our climate. It is of the same group as Gleichenia flabellata, and forms fronds 1½ to 3 feet high, very rigid, and yet graceful from the delicate texture and colour of its narrow pinnules. This is the second Gleichenia likely to prove quite hardy in England, introduced by Messrs. Backhouse. The other is Gleichenia alpina, a fine specimen of which was exhibited by them at South Kensington last summer. It had already stood a winter in the open air without the slightest injury, even its uncurling fronds not suffering. Along with the Callixenes is a fine specimen of the scarce Dendrobium Hillii, a spring-flowering species; also the large Australian Sundew, Drosera binata, with leaves 10 to 18 inches high, covered with "dew," and with entrapped insects. In the warm propagating house was a very promising-looking Melastomaceous plant, the leaves of which were thickly covered with long soft hairs of a bright rose colour, very distinct, and one which appeared likely to become a fashionable fine-leaved plant. *William Robinson.*

(To be continued.)

Home Correspondence.

Royal Horticultural Society. — Will your Correspondent ("Another Old F.H.S. of London") kindly point out the "good" produced by Mr. Chester's "adjournment" of the annual meeting. I have read the reports of the meeting, and see no mention made of the games referred to at a former meeting. Do the Council purpose introducing bowls, &c.? If so, I feel satisfied it will injure the Society very much, inasmuch as it would be unsound in principle—hostile to the purposes for which the Society was established—and totally opposed to its prosperity. I read, with regret, in the report of the Council, that they would do all in their power to introduce these games: depend upon it, if this is the case, the tone of the institution will be very much lowered [Hear, hear], and a vast number of members will withdraw altogether. And then, again, the stupidity of talking about dancing, tea-drinking, &c. However, this is quite in keeping with the introduction of bowls, croquet, and all the rest of it. My impression is, that if these things are established in the Kensington Garden, the Society will be brought to a dead lock. I have read your excellent leading article in to-day's (Feb. 27) *Gardeners' Chronicle*, and regret that you did not refer to this subject, for, to my mind, it is one full of importance, as far as the Society is concerned. I therefore cannot join with your Correspondent in patting Mr. Chester upon the back, for I believe it is a part of his programme to promote the bowling, &c., in the Gardens. Pray, sir, favour us with your opinion upon the subject. *Another F.R.H.S.* [No one can possibly disapprove of these matters more than we do.] —— When, some years ago, I became a F.H.S., Chiswick was my favourite resort. The watching of the training of the fruit trees, and the sight of the experimental beds, with all that was new, I found as interesting as instructive. I cannot imagine how the giving up of this garden to grow plants to supply Kensington can ever have been thought of. On the introduction of croquet and bowls, I must put my veto. I know that if games are to be allowed, many of the aristocracy and landed gentry will withdraw their names. I shall gladly continue my support to the society while it has for its object the advancement of the science of horticulture. The new garden at South Kensington promises much, but its leading feature is a paucity of floral decoration. Surely the notion of keeping up the Royal Horticultural Society without Chiswick would be like the old joke—the play of "Hamlet" advertised, with the part of *Hamlet* omitted. *A Country F.R.H.S., March* 2.——In connection with a most interesting article in your last week's Number (p. 197) by an old F.H.S., permit me to say a few words. While cordially endorsing his admirable advice to eschew the "apple of discord," I think it may fairly be observed that the "beautiful design" attributed to Mr. Nesfield can only in part be claimed as his; inasmuch as the whole of the water-basins and their arrangement, with the consequently troubled sea of levels that must painfully affect the legs, if not the æsthetic sensibility of the generality of visitors, emanated from others. This much appears to me to be due to Mr. Nesfield's veteran reputation, which rests rather, on the classical compositions at Holkham, Castle Howard, and Witley Court, on the creation of the main features at Kew, and on other numerous works in nearly every county of Great Britain. *Delta.*

The Hydropult.—Will you be good enough to ask some of your Correspondents, who have had the hydropult fairly in everyday use as a garden engine, to favour me through your columns with their opinion of it. I tried one exhibited at Kensington, but thought the labour requisite to work it too great. I want to purchase that or the old garden-engine this spring, and shall be glad of assistance in determining which to adopt. *R. C.*

Orchard House Trees.—Observing in your impression of Feb. 13, p. 154, an inquiry by Mr. Watson as to whether "J. P." shakes the earth from the roots of his fruit trees in pots, or merely gives them a size larger pot, and not seeing any reply to Mr. Watson's inquiries, and having had ten years' practice in the management and cultivation of orchard house trees in pots, I tender my experience in reference thereto. In 1854 I commenced the cultivation of fruit trees in pots, more especially that of Peaches and Nectarines, and my labour has been crowned with success. I have scarcely during the whole time repotted a tree of those with which I first started, unless I have observed the drainage to be defective; in that case I have shaken the stagnant soil from the roots, and returned the tree to the original or a pot of the same size. I allow the pots to stand on a bed of soil, into which the roots are allowed to descend; the pots are not moved till the fruit is ripe. During the time the fruit is swelling, the trees receive liquid manure occasionally, and after the wood is pretty well ripened they are placed out of doors until the approach of winter; the old soil is then gently stirred on the surface, and a little fresh applied. I have exhibited Peach and Nectarine trees in pots at Brighton for several seasons, and have always been a successful competitor. Many of my trees are in as fine health as can be desired, and none are in a bad condition. About the time I commenced the cultivation of fruit trees in pots, a gentleman in this neighbourhood, D. Lyon, Esq., had an orchard house erected and filled with trees in pots. At Mr. Lyon's request I repotted them for him either in 1854 or 1855, and from then until now, not one had been repotted; but the person in charge finding the drainage choked, repotted four or five of them a few weeks back, and the whole house now is without exception the very *beau ideal* of what an orchard house filled with potted trees should be. There is not a shoot or spur that is not covered with blossoms. Therefore Mr. Watson, provided his trees are in sufficiently large pots, may safely allow them to remain in the same pots, and not trouble himself about shaking out or repotting. *Richard Gadd, Salvington, Worthing.*

Wellingtonia gigantea.—I was present the other day at the removal of a large Wellingtonia from Mr. Barron's old nursery at Elvaston to some new ground which he has purchased near the Borrowash station. It was removed on one of his transplanting machines, with about three tons of soil, and there is little doubt that it will do well in its new situation. This, although not the tallest, is perhaps one of the handsomest plants in the country. It is so dense in habit that several people can stand on the opposite side of it without being seen. Its height is 14 feet, the spread of the branches 12 feet, and the circumference of the stem 4 feet 6 inches. *Observer.*

Patent Bituminised Paper Pipes.—About the time of the repeal of the paper duties, much was said of the many useful objects to which the coarse material of paper might be applied, and among them to "pipes" for various purposes, and a company came forward to supply such pipes, with the strongest statements as to their durability. In 1861 I was induced to purchase and lay down a quantity of these pipes, called "Patent Bituminised Pipes," for distribution of liquid manure. I am sorry to say that in 1863 these pipes became useless, and they are still worse now. They seem to have rotted in the ground, not from the internal action of the manure, but the outside action of the water in the soil. I should be glad to hear if any of your correspondents have any experience of these pipes, and whether it be at all similar to mine. They were supplied to me by "The Patent Bituminised Pipe Co., Limited." *J. W.*

Heating by Hot Water.—It would be useful if some of your readers would state their experience as to the quantity and description of fuel consumed during the two months just past, adding of course the sort of boiler used, and the size of it, also the height of the chimney. It will be also necessary to be informed how many feet of 4-inch pipe has been used, the temperature the houses have been kept at, the internal dimensions of the houses, how glazed, and whether standing in exposed or in sheltered situations. *R. W.*

Gnaphalium lanatum.—This is said (see p. 197) to be hardy, a statement which my experience does not confirm, for I find after three years' trial with it that an amount of cold which will kill Calceolarias will also kill this Gnaphalium. It will not even stand in a cool Peach house, as I lost a lot of it during the last frost in such a situation, where there was no fire; and I very much doubt if it will prove hardy even in the Emerald Isle. *G. Fletcher, Picton Castle, Pembrokeshire.*

Prizes for Wild Flowers.—Participating as I do in the feelings of your correspondent "Diogenes," but desiring to save him from the necessity of resorting to the sharp practice which he threatens against "botanical pirates," I have written a letter, of which I subjoin a copy, to the Editor of the *Athenæum*, deprecating the carrying out of the ill-advised offer of premiums for the extirpation of botanical rarities. *W. C. Trevelyan, Bart.* The following is the letter referred to:—*To the Editor of the Athenæum.* Sir,—I trust that, the season for collecting wild plants not having yet commenced, it may not be too late for the Royal Horticultural Society to withdraw their ill-judged offer of prizes for collections of the native plants of various districts of this country, which, if carried out, would inevitably lead to the annihilation of some of the greatest botanical rarities of Britain; some of them occurring in only a single locality, and those often in a very small number, their destruction would be an irremediable loss to all lovers of botany. Such collections, I may remark, have no bearing on the science of horticulture, and any persons who have had an opportunity of observing, can testify with me to the fact, that the mere collecting of plants helps very little the extension of the study of scientific botany. I am, sir, yours truly, *W. C. Trevelyan, Bart., Feb.* 27, 1864.

Societies.

Linnean: *February* 4.—G. Bentham, Esq., President, in the chair. The Rev. T. Cornthwaite, M.A., J. T. Dickson, Esq., and Clements R. Markham, Esq., were elected Fellows. The following papers were read: 1. "Observations on the functions and structure of the Reproductive organs in the Primulaceæ," by Mr. John Scott, of the Edinburgh Botanic Garden; communicated by C. Darwin, Esq. The principal object of this paper was to give an account of some experiments made on several dimorphic and non-dimorphic species of the genus Primula. The more completely to elucidate the subject of dimorphism, a brief account of the structure of a few other genera was prefixed. Hottonia was said to present dimorphic characteristics in its British representative; in the long-styled form of which the pistil was said to be more than twice as long as in the other, projecting far out of the flower; while in the short-styled form, the anthers, not the style, are thus projected; a marked difference also occurs in the size of the pollen grains in the two forms. Experiments on two short styled racemes of Hottonia gave the following results:—12 flowers fertilised with their own pollen yielded five good capsules containing 37 seeds; while eight flowers fertilised with pollen of a long-styled flower gave five good capsules and 154 seeds. The H. inflata of North America was not found to present structurally dimorphic characteristics. It was stated that the genus Primula, along with a great majority of truly dimorphic species, contained others in which one form only—either

long or short-styled, had been observed, and others again in which the stamens and pistils were found to be equal. The dimorphic species recorded were:—P. altaica, amœna, aretioides, Auricula, capitata, carniolica, cortusoides, denticulata, elatior, farinosa, finmarchica, glaucescens, glutinosa, helvetica, hirsuta, integrifolia, involucrata, latifolia, macrocalyx, marginata, minima, Palinuri, pedemontana, petiolaris, pubescens, purpurea, sibirica, sikkimensis, sinensis, Stuartii, stricta, venusta, veris, villosa, viscosa and vulgaris. So far as the author had observed, the following were short-styled, namely P. floribunda, pusilla, rosea, saxifragifolia, rupestris and nivalis; while the long-styled were, P. intermedia, Floerkiana, longifolia, mistassinica, Pallasii and pulverulenta. The non-dimorphic species mentioned were, P. elata, longiflora, mollis, scotica, sibirica β, and verticillata. The author hence concluded that dimorphism of the sexual organs was a very general characteristic in the species of Primula. Gregoria was said to present at least one structurally dimorphic species, G. Vitaliana. Cortusa was mentioned as remarkable in apparently presenting the long-styled structure only, as was the case also with Dodecatheon and Soldanella. The other genera of Primulaceæ which the author had examined, have stamens and pistils of equal length, though occasional specific exceptions occur. A very long and detailed account was then given of a series of experiments on the several dimorphic and non-dimorphic species of Primula, in which the results were tabulated. As to the general structural differences of the two sexual forms, it was explained that the long-styled had the pistils equalling in length the tube of the corolla, the stigmas larger and rougher, the stamens attached below the middle of the corolla tube, whose diameter was thus increased upwards, and the pollen grains generally smaller and more transparent; while in the short-styled forms the pistil did not rise above half way up the corolla-tube, the stigma was generally smoother and depressed at the summit, the stamens were attached to the mouth of the corolla tube, causing an abrupt expansion, and the pollen grains were larger and more opaque. As to function, the pollen of the long stamens was found to be best adapted to fertilise the long pistils, and that of the short stamens the short pistils. By applying the pollen of either form to the stigma of its own flowers, thus effecting a homomorphic union, the degree of fertility was greatly decreased, as compared with the foregoing or heteromorphic union. The usual differences in the fertility of heteromorphic and homomorphic unions were summarily illustrated by the mean results from the respective unions in several species. Thus in respect to the heteromorphic and homomorphic unions in P. Auricula, sikkimensis, cortusoides, involucrata, and farinosa, the mean results gave for every 100 seeds yielded by the heteromorphic unions, only 24 by those of a homomorphic character. The pollen of a distinct species moreover produced a much higher grade of fertility than an ordinary homomorphic union. One of the most remarkable results observed was, that when species usually dimorphic ceased to be dimorphic, their reproductive functions were greatly modified. Thus the Cowslip, which in the ordinary homomorphic union produced about 14, and in the heteromorphic about 24 seeds per capsule, yielded in the form with stamens and pistils of equal length, and fertilised with its own pollen, as many as 34 seeds per capsule. "Whether or not," observed the author in conclusion, "the ultimate tendency of dimorphism is a complete separation of the sexes, I think we have the clearest testimony that dimorphism has not always been a genealogical characteristic, and furthermore that the two forms did not *per saltum* assume these structural and physiological characteristics. I here allude to the evidence afforded by the non-dimorphic Cowslip, namely, the resumption of perfect hermaphrodism, and the occasional production of intermediate stages between this and the normally dimorphic state. These taking us back in the genealogical line, indicate an original non-dimorphic progenitor, and the graduated plan by which it gave rise to a dimorphically characterised race." 2. "Notes on some points in the anatomy of the Rotatoria," by Walter Moxon, M.B.]

February 18.—G. Bentham, Esq., President in the chair. The executors of the late Joseph Woods, Esq., presented a valuable series of local Floras, and other botanical works, which that gentleman had bequeathed to the Society. Dr. Hooker exhibited the fruit of the Chayota (Sechium edule), which is cultivated in the West Indies and the Azores, and has lately been introduced to the south of Europe and India. A communication entitled "Contributions to the Knowledge of the Foraminifera—The rhizopodal Fauna of the Shetlands," by Henry B. Brady, Esq., was read.

Notices of Books.

The Gate of the Pacific. By Commander Bedford Pim, R.N. Lovell Reeve & Co. 1863.

The advantages of a route across the Isthmus of Panama are so evident, that its formation has long been acknowledged to be a necessity; and the best means of accomplishing it have afforded a fertile theme for discussion, and given rise to innumerable schemes. During a long residence in Central America, Capt. Pim became much interested in the subject, and accumulated a mass of information, which he lays before the public in a somewhat diffuse form in this volume. He particularly dwells on the vast importance of such a route, both politically and commercially, were it free to all nations alike; for unfortunately the only existing passage across Panama is an American monopoly. The United States, more alive to their own interests than the Government of Great Britain, turned their attention to the subject many years ago; and in 1848 a company was formed by some American merchants, who concluded a formal treaty with the Government of New Granada, for the exclusive right of constructing a road across the Isthmus of Panama.

The railway was commenced in 1850, and notwithstanding the enormous difficulties of the undertaking, was completed in 1855; since which time the Americans have possessed the monopoly of what Captain Pim emphatically terms "the gate of the Pacific." In consequence of the dilatoriness of our Government, the Americans "lost no time in opening their route; a railroad was built which will ever be a monument of skill and enterprise, and the value of which has far surpassed every calculation. Its political importance to the United States is immense; by means of it the real control of the Pacific commerce falls into the hands of our rivals, and our policy must of necessity be cramped when we reflect that our unscrupulous offspring have the power, in the event of war, to inflict disaster upon our squadron, menace our possessions, cut up our trade, or destroy our cruisers in detail, before we could even inform our countrymen that hostilities had broken out."

Captain Pim proceeds to say, "that the territory of New Granada being closed against any rival to the Panama railway by the terms of its contract, which grants to the citizens of the United States the exclusive privilege of transit, it follows that we must look elsewhere for the means of crossing expeditiously from ocean to ocean." The object therefore of the present volume is to point out the different routes which have been suggested, and to report on their peculiar advantages. As an introduction to the subject, several chapters are devoted to descriptions of the country, geographically, historically, politically, &c., and many interesting details are given as to the aboriginal inhabitants, the climate and productions of the country. These are followed by long extracts from a pamphlet by the present Emperor of the French, on the advantages of one particular transit, viz., that through Nicaragua. This was written in 1847; and shows that, with his usual acuteness, Louis Napoleon had not failed to discover the importance of establishing this great highway.

We next find an account of the various schemes that have from time to time been formed for crossing the Isthmus by a canal. This idea suggested itself at a very early period, when the efforts of the early conquerors to discover a natural passage from sea to sea had failed.

"Fernando Cortes was the first who gave his earnest attention to the search for a practicable route from sea to sea. In his admirable letter to the King of Spain this passage occurs:—'It is the thing above all others in this world I am most desirous of meeting with, on account of the immense utility which I am convinced would result from it.'"

Of the canal schemes Captain Pim says, "That such an idea is a great conception cannot be denied; but in my opinion it would practically be one of the greatest failures of the age; it would in reality be a return to the stage coach travelling of a former period; for time, not distance, has now become the true measure of space; and it must be borne in mind that for a sailing vessel the time occupied from England to India would be longer viâ a canal through Nicaragua than it would be by a voyage round the Cape of Good Hope. My proposal is to connect Realejo and Gorgon Bay by means of the iron road." "To construct a railway from the Atlantic to the Pacific by the route I have designated would require some four or five years to finish, but it would not be necessary to wait until then before a passage from sea to sea could be effected. The completion of the section from the Atlantic to San Miguelito would suffice for the immediate opening of a temporary line, as from there passengers and goods could be conveyed by steamer across the lake of Nicaragua to Virgen Bay, whence a fine macadamised road, 13 miles in length, well bridged, and levelled as much as possible, has already been constructed to San Juan del Sur, on the Pacific."

We are next given a full description of the country through which this railway is projected to pass, and though admitting that in some parts there are considerable difficulties to be surmounted, yet the author says, "I am inclined to think that no engineering impediment of any importance will be met with in the interior; in point of fact, that an easy gradient might be marked out over the whole distance."

"Gorgon Bay, the Atlantic terminus of the new route, would speedily attract a large population to its shores, and I propose to make it a free port; open to the commerce of the whole world, and untrammelled by any narrow regulations calculated to restrict its full usefulness."

With regard to the country through which this railroad is proposed to pass, we are told that it is impossible to exaggerate the value of the land, both of Mosquito and Nicaragua, if only for agricultural purposes. "As regards Mosquito, I do not hesitate to say, that it is, both from position and adaptability, the finest country for the growth of Cotton in the entire world." In addition to so valuable an article of commerce, may be mentioned mahogany, which is to be procured in abundance. These, and numerous other advantages mentioned in this volume, would appear to justify Capt. Pim in his sanguine expectations of the success of his scheme, and the future prosperity of Central America. But we would venture to suggest, that instead of firing off abuse at the British Government in general, and its ministers and officers in particular, he should take the matter in hand himself, and endeavour to form a company to carry out his plans. Our best and most successful enterprises have been accomplished in this way; and if the scheme be really a judicious one, and likely to succeed, we are convinced he will not find it difficult to secure coadjutors.

He has given substantial proof of his own faith in its ultimate success, by purchasing from the King of Mosquito a tract of land surrounding Gorgon Bay, as a site for a future terminus and emporium; whether, however, this fact adds weight to his testimony, or the reverse, we leave to others to determine.

In the December number of M. Verschaffelt's *L'Illustration Horticole* we find portraits of the following plants:—*Diervilla multiflora*, one of the Weigela group, a branching shrub, with ovate-lanceolate acuminate leaves, and deep red funnel-shaped five-lobed regular flowers, growing in pendent umbels of five or six from the tips of the twigs. It appears to be an elegant shrub, and was received from Japan under Siebold and Zuccarini's name of D. floribunda, the identity of which, with its one to three-flowered peduncles, clavate corolla tube, and sub-bilabiate limb, M. Lemaire doubts, and substitutes that of D. multiflora.—*Gloxinia maculata* v. *insignis*, a Brazilian variety.—*Areca alba*, a Mascaren Palm, with elegant pinnated foliage, and known in some gardens as Areca borbonica.—*Rhododendron Baron Osy*, a hardy hybrid, with blush-white flowers, thickly spotted with reddish brown on the upper segments.

The January number contains:—*Dieffenbachia Baraquiniana*, which, according to M. Schott, is the D. humilis, Pœpp. The plant, which is a rather desirable stove Aroid, so much resembles that sent over by M. Verschaffelt to our summer shows under the name of D. Verschaffeltii, that we fail to distinguish them, and at p. 175 were led inadvertently to mention the latter as being the plant figured. We do not, however, find in the text any intimation that the two names belong to one species. It appears from M. Schott's statement, referred to at the page already quoted, that there are in the establishment of M. Verschaffelt three new species of this genus, which M. Lemaire and his coadjutor have respectively named D. grandis, Verschaffeltii, and Baraquiniana. The first of these is the D. cognata, Schott; the second, D. irrorata, Martius; the third, D. humilis, Pœpp. The latter, which is the plant figured in the plate before us, is a caulescent species, with ovate-oblong sparsely white-blotched leaves standing erect, and having the stalks and midribs ivory white. It was discovered in the Brazilian province of Pará by M. Baraquin.——*Dianthus cincinnatus*, a Japanese Pink, stated to be of perennial duration, but having very much the aspect of the laciniate form of D. Heddewigii, only that the petals are more deeply cut into variously branched contorted segments; the colour is a rich deep crimson.——*Deutzia crenata flore-pleno*, a pretty double-flowered Japanese shrub, already noticed by us as having been exhibited by Mr. Standish in the course of the last summer.

A work on laying out *Villa Gardens* and other ornamental grounds of comparatively limited extent, having a considerable reputation on the Continent, is, we understand, about to be published in this country by Mr. Hardwicke, of Piccadilly. It is to be illustrated by 24 coloured plans by Dr. Siebeck of Vienna, and the English letterpress is, we believe, to be supplied by Mr. Newton, of Eastbourne Terrace, Hyde Park.

Miscellaneous.

Zizania, or Wild Rice (see p. 200).—The Water Oats, or Wild Indian Rice, common in many parts of the North American continent, and we believe also in Russia, is a wholesome nourishing article of diet, which deserves to be better known. The plant grows in vast beds, in still waters, in a depth of from 3 to 8 feet, where there is a great deposit of mud and sand. In many places, where there is little current, these beds increase so as materially to fill up the shallow lakes, and impede the progress of boats. The plant is usually 6 feet high or more, and has a panicle with female flowers above and male below. It has been found growing wild in the north-west territory, and in the lakes and streams all over the country. In Minnesota, Illinois, and many other American States, as well as Canada, it is common. When the rice begins to show the tender green blade above the water, the lakes seem to be studded with low verdant islands. It comes into flower in July and August. The leaves attain a great length—some 11 to 13 feet. In the month of September in Canada, and in the North-Western States rather earlier, the grains are fully ripe and withered. They are so loosely enclosed between the bearded husks as to fall out at the slightest puff of wind; hence the

harvest can only be continued for a few days after the maturity of the crop. The stalk and the branches, or ears that have the seed, resemble Oats, both in appearance and manner of growing, the stalks being full of joints, and rising from 2 to 4 feet above the level of the water. The squaws collect the seed by paddling through the Rice beds, with a stick in one hand, and a sort of sharp-edged curved paddle in the other, striking the ripe heads down into the canoe, the ripe grain falling to the bottom. Many bushels are thus collected. An Indian squaw will gather from 5 to 10 bushels per day. Very great quantities grow on all the lakes in the Minnesota territory; the outlets and bays are filled with it. It is the main reliance of the Indians during the winter months. The green Rice is dried in the following manner in Canada:—The Indians make an enclosure or a square area of dry ground, by sticking branches of Pine or Cedar close together, to form a sort of hedge. In the centre of this place they drive in forked sticks in a square of several feet, across which they lay others, and on this rude frame they extend mats of Bass or Cedar, for the manufacture of which the Indian women are renowned. They light a fire beneath this frame, and when reduced to hot glowing embers, the Rice is spread on the mats above the fire; the green enclosure is to keep the heat from escaping; the Rice is kept stirred and turned with a wooden shovel or paddle, and after it is dried the husk is winnowed from it in large open baskets shaken in the wind. Professor Randall, of Cincinnati, and General Verplanck, late Commissioner to the Chippewa Indians, consider it to be superior in taste and far more nutritious than Southern Rice. It is long, narrow, and of an olive-green colour outside. Its flavour is better; for when boiled and stewed and left to cool, it forms a consistent mass like good Wheat bread. Boiled like ordinary Rice it is very palatable. The appearance, however, is not inviting, as the outer skin of the hulled Rice is dark coloured, though the inside is white as the Carolina kind. The parched Indian Rice is heated in pots over a slow fire till it bursts and shows the white floury part within the dark skin. This sort is eaten by the Indians in their soups and stews, which are chiefly made of game, venison, and wild fowl; and often also dry by handfuls when on journeys, as the parched corn of the Israelites. The wild Rice is sold in the stores of Canada at 10*s.* a bushel. The Indians sow it up in mats or coarse birch baskets to keep it. The gathering of wild Rice is rarely practised by the settlers, whose time can be more profitably employed on their farms; but we have thought the description of harvesting it might not be devoid of interest, since men who have gone exploring or "lumbering" on the shores of lonely lakes and rivers, far from the haunts of civilised man, have sometimes been reduced to worse shifts than gathering wild Rice to supply their wants. *Technologist.*

Narcissus, Gr. *ναρκισσος*, from *ναρκαω*, become numb, related to Sanskr. *nark*, hell, so called from the torpidity caused by the odour of the flower as remarked by Plutarch: "Narcissus as blunting the nerves, and causing narcotic heaviness; wherefore also Sophocles called it the ancient chaplet of the Great (that is the Infernal) gods." The passage is quoted from an exquisite chorus of the Œdipus at Colonos where, at l. 682, the original has *μεγαλαιν θεαιν*, the two great goddesses, meaning Ceres and Proserpine. The epithet which the poet here applies to the Narcissus, *καλλιβοτρυς*, finely clustered, suggests that he meant the Hyacinth, a plant that, from its heavy odour and dark colour, was more likely than the one we now call Narcissus to have been consecrated to those deities. Plutarch adds that "those who are numbed with death should very fittingly be crowned with a benumbing flower." The coincidence of the name Narcissus with the Sanskr. *nark*, indicates some very ancient traditionary connexion of Greek with Asiatic mythology. The poets represent it as having been so called after a youth who pined away for love of his own image reflected in a pool of water; an instance among many more, of a legend written to a name; for as an old poet, Pamphilus, remarks, Proserpine was gathering Narcissi long before that youth was born. *Prior's Popular Names of British Plants.*

Calendar of Operations.

(For the ensuing week.)

The season for seed sowing out of doors is now at hand, and as soon as the ground shall have become sufficiently dry to receive them, most kinds of kitchen garden seeds will be committed to the earth. As the too early performance of this operation, however, often ends in disappointment, from the seeds not germinating, we would advise the inexperienced in such matters to wait until the soil is not only sufficiently dry to bear trampling upon without injury, but also until its temperature has been raised a little by means of increased sun heat. Vegetation will then push onwards unchecked, vigorous, and healthy.

FLOWER GARDEN AND PLANT HOUSES.

As soon as favourable weather shall have set in, fill up vacanies in borders, either from the reserve garden or by sowing hardy annuals. Many plants, as for instance Phloxes, Asters, &c., throw up too many flowering shoots; where such is the case thin them out so as to obtain not only fine heads of bloom but increased strength in the remaining shoots, to enable them to stand with less assistance from stakes. Secure all newly-planted trees against strong March winds, and mulch well over the roots. Turn, clean, and roll walks and roll Grass frequently, so as to have it in proper order for the scythe.

Auriculas.—Young growths of these will now be somewhat tender, therefore protect them from frost, and water more frequently, as well as more liberally; weak liquid manure once a week will strengthen the trusses; give plenty of air, and fumigate occasionally; green-fly generally appears with the young growth.

Azaleas.—Give young growing plants liberal shifts; a good fibrous peat with a little white sand suits them admirably, but for stronger growing kinds a small portion of loam may be used with advantage. When potted the plants should be put into a nice moist growing atmosphere, and they should have a temperature of from 55° to 60° by night, and 65° to 70° by day; give air freely in fine weather, and attend regularly to the stopping, thinning, and training of the shoots. Large specimens will now require more water.

Calceolarias.—Any plants struck during the winter should be repotted into 4-inch pots to succeed the first plants. If not so large, they will make compact handsome bushes for purposes of decoration; it is not too late to strike cuttings of the best shrubby kinds for bedding out, such as Aurea floribunda, Prince of Orange, King of Sardinia, Pallida, Beauty of Montreal, Kayi, Dropmore, and Orange Boven.

Carnations and Picotees.—Strong growing varieties may now be put into larger pots. If there is any green fly on the plants, give them a good smoking with tobacco or tobacco-paper before taking them from the pit. The latter end of the month will be soon enough for planting out in borders.

Cinerarias.—Such plants as are intended for exhibition should now have their small leaves and superfluous shoots removed, to admit light and air; tie out as thinly as possible, and keep them as near the glass as may be convenient; fumigate, so as to have them thoroughly clean before coming into flower, and sulphur such as may be affected with mildew. Seedlings will now be coming into flower, and any novelties that may appear, should be watched for selecting for preservation such only as are of first-rate form, and well defined colours.

Dahlias.—March is the best month for propagating the Dahlia; cuttings struck now have time to make fine plants; therefore propagate freely, and when sufficient cuttings have been taken, divide the roots to make a few strong early plants.

FORCING GARDEN.

Cucumbers.—Maintain for these a steady heat of 65° or 70° at night. Give air on every favourable opportunity.

Figs.—Keep the shoots thin so as to expose the foliage to light and air, and persevere in the use of the syringe to prevent red spider. Give air freely on bright days, shutting early in the afternoon after syringing the house.

Peaches.—Proceed gradually with the disbudding of the early house, and where the fruit is very thick a portion should be removed as soon as fairly set.

Pineries.—Look over young stock, occasionally examining and repotting such as is found to be in want of more pot room. The temperature may be slightly advanced as the amount of light increases, but this is a matter in which the state of the plants will be the best guide. Aim at securing strong dwarf plants, with a free habit of growth; and if this is obtained, it is immaterial whether the night temperature is 60° or 70°, and very much will depend upon circumstances as to which will be proper.

Strawberries.—Continue to bring on succession plants very gradually, and afford those in bloom a rather dry atmosphere, with a free circulation of air, as they set their fruit badly in a moist close atmosphere. Plants swelling their fruit must be liberally supplied with clear, rather strong, manure water; and if fine large fruit is expected, thinning must be resorted to immediately the berries are fairly set.

Vineries.—See that Vines starting into growth are tied up in their places before the shoots get so long as to be liable to be broken off in the operation. Syringe frequently until the leaves begin to unfold; but use the syringe sparingly after that time. Where the buds do not promise to break regularly, bend the Vines so as to place those that are backward in the most likely position to catch the sap, and this should be done directly any indications of their not breaking regularly are observed. If any of the bunches in houses where stoning has been finished, look as if they would be improved by a few more berries being cut out, let this be done at once.

HARDY FRUIT AND KITCHEN GARDEN.

Rather than lose a season, we would still plant young fruit trees—that is, if we could get good ones; but there is generally a difficulty in obtaining them at this season, as the best plants always go first: and, after being picked over the whole autumn and winter, nothing very first-rate can be expected now. All pruning and nailing should be brought to a close as soon as possible. Make timely preparations for protecting wall trees. Be sure that everything is in readiness for that purpose, so that the material to be sed can be put up in a short time when it is needed.

Beans.—Sow more Long Pod and Broad Windsor; these like stiff soil best, and need not have the most open quarters selected for them.

Carrots.—A good breadth of Early Horn should be got in about this time, to succeed those sown on heat last month.

Cauliflowers.—When large enough, and the weather has become warmer, these should be carefully pricked out, either in gentle heat, or on a warm sheltered border; if the latter, they will require protection until well rooted.

Leeks.—These should now be sown.

Parsnips.—These should be sown at once, if not done earlier.

Peas.—As soon as the ground is tolerably dry, get in successional crops, commencing with the second early sorts, but where there is ample space, a few of the later sorts, sown at the same time, come in very nicely for succession.

Potatos.—Plant more of these both in frames and in warm borders, making use of the sets which have been carefully sprouted; the general crops should also be got in during seasonable weather.

Turnips.—Sow Early White Dutch on a gentle bottom heat, and also a good supply for succession in a warm border; dress the beds with dry soot and ashes occasionally.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending March 2, 1864, as observed at the Horticultural Garden

February and March,	Month's Age.	Barometer.		Temperature. Of the Air.			Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
		Max.	Min.	Max.	Min.	Mean				
Thurs. 25	18	29.932	29.910	39	30	34.5	39	40½	N.E.	.00
Friday 26	19	29.918	29.851	40	34	37.0	40	40	N.E.	.00
Satur 27	20	29.724	29.635	42	36	39.0	40	40½	E	.02
Sunday 28	21	29.621	29.590	50	30	40.0	41	40½	S.W.	.00
Mon. 29	22	29.651	29.556	48	27	37.5	41	40½	S.	.08
Tues. 1	0	29.785	29.695	50	25	37.5	42	41½	S.E.	.00
Wed. 2	24	29.786	29.662	48	32	40.0	42	42	E.	.00
Average.		29.773	29.706	45.3	30.5	37.9	40.7	40.7		.10

Feb. 25—Hazy; overcast; hazy.
— 26—Overcast throughout.
— 27—Foggy; hazy and cold; overcast; foggy.
— 28—Foggy; fine; overcast.
— 29—Foggy, exceedingly dark, dense fog 10—12 A.M.; slight frost
March 1—Hazy; fine in forenoon; cloudy; slight frost at night.
— 2—Foggy; hazy, foggy at night.
Mean temperature of the week 3 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending March 13, 1864.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7..	49.5	32.7	41.1	14	0.22 in.	4	6	4	1	5	11	4	3
Mon. 8..	49.7	31.7	40.7	14	0.17	3	7	2	3	5	7	4	6
Tues. 9..	49.9	31.2	40.4	10	0.47	3	4	3	2	6	9	6	5
Wed. 10..	50.1	31.7	40.9	14	0.69	4	4	1	4	5	10	4	6
Thurs. 11..	49.4	32.0	40.7	15	0.33	2	5	3	5	3	14	4	2
Friday 12..	50.7	32.3	41.5	19	0.24	1	4	3	4	4	12	5	2
Satur. 13..	50.8	34.2	42.5	14	0.36	2	2	6	3	3	10	6	5

The highest temperature during the above period occurred on the 10th, 1826, 12th 1841, and 15th, 1833—therm. 67 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

Age of Trees: *Subscriber.* The plan of computing the age of a tree, from the examination of a portion of the wood, the diameter of the trunk being known, is not at all to be relied on; this in fact could only be the case if the rate of growth were at all times uniform, and the development of the trunk on all sides equal—neither of which is the case. The Ash tree with a diameter of 60 inches, 7 of which from the bark inwards contain 31 rings, would be about 130 years old, if this mode of reckoning could be trusted, but we have no faith in the exactness of such computations, though in your case they may give an approximation to the truth.

Bitter Potatos: *Inquirer* asks how bitterness in a crop of Potatos may be accounted for. Can any of our correspondents answer the question? He adds:—Would soil recently broken up and on which Fern was previously growing, produce such an effect?

Books: *P B.* We cannot recommend the two first books you mention. Moore's "Handbook of British Ferns" is quite trustworthy, and within the price you name; but its illustrations are woodcuts, and not coloured plates.—*J C.* We advise you to read Fleming's "Spring and Winter Gardening," recently published.—*W M.* The "properties" of flowers and plants, that is to say the standard of excellence adopted by the florists, have been defined in a little shilling volume published by Houlston and Wright. This seems likely to meet your wants.

Cotton Plant: *M M.* The seeds of the Cotton plant require to be sown in heat to induce them to germinate freely. The plants may be treated much in the same way as Balsams, only they are more woody; they may consequently be reared in a hotbed or in a warm propagating frame or pit. They require a good heat and plenty of moisture for their after growth.

Insects: *J J J.* We found not the slightest trace of emmets or any other insect, with a microscope, on your leaves. The glass slides were of course smashed to atoms in the post. *W.*

Jungermannia: *Muscus.* Our reply last week was misprinted. The word is sounded Yungherman'nia.

Names of Plants: *Arran.* 1, appears to be a Swainsona; and 2, a Justicia, but you must send flowers; 3, Siphocampylus bicolor; 4, Diplacus glutinosus, or puniceus if red flowered. —*Buxus.* A long-leaved form of the Common Box, which varies considerably in respect to the outline of its leaves.—*L.* 1 and 4, Blechnum Spicant; 2, Asplenium Adiantum-nigrum; 3, Polypodium vulgare.—*C R.* 1, Diplazium decussatum; 2, Polypodium dreparium; 3, Asplenium umbrosum; 4, Nephrolepis exaltata.—*C Ross.* The fleshy-leaved plant from Bermuda is Peperomia elusiæfolia.

Shifting Camellias: *Ignorance.* July is the time preferred by many good growers for performing this operation. We therefore advise you to allow your plants to complete their growth, and set their buds, before they are repotted or in any way disturbed at the root.

Wood-cutting Machine: *Delta.* The machine used for making very thin slices of wood, &c, for microscopical purposes, referred to by you as having been published in Dr. Lindley's "Elements of Botany," is also figured at p. 120 of our volume for 1847. Its cost is 4*l.* There is, however, a contrivance by Topping, costing only 16*s*, which for most practical purposes is, we believe, equally efficient. A figure of this may be found in Quekett's work on the Microscope.

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WHEAT MANURE for AUTUMN SOWING.
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SUPERPHOSPHATES of LIME, &c.
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MESSRS. WAY and EVANS, Analytical and Consulting Chemists, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

Chemical Analyses.
DR. AUGUSTUS VOELCKER, F.C.S., Consulting Chemist to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 101, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SPRING SESSION, 1864.
President—The Right Hon. the Earl Bathurst.
Council.
Rt. Hon. the Earl Bathurst. | Rt. Hon. T. H. Sotheron Estcourt, M.P.
Rt. Hon. the Earl Ducie. | Edward Holland, Esq., M.P.
Hon. William Bathurst.
Principal—The Rev. John Constable, M.A., Trin. Coll. Camb.
Farm Manager—J. L. Fletcher.
Resident Professors.
Chemistry.—Arthur H. Church, M.A., Lincoln Coll., Oxon., F.C.S.
Assistant to Chemical Professor.—R. Warington, Jun., F.C.S.
Botany.—John Bayldon, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. Murray, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. Meredith Lane, B.A Scholar of Trin. Coll. Camb.
Drawing.—James Miller.
SPECIAL LECTURERS.
J. Bailey Denton, M. Inst. C.E.—On DRAINAGE.
Professor J. Morris, F.G.S., of University College, London—On GEOLOGY.
John Gamgee, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
Willoughby Wood, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
John Algernon Clarke, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
John Thornhill Harrison, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
Thomas Baldwin, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
Robert Russell, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
Richard Griffiths Welford, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.
Applications for Admission and for further particulars may be made to the Principal.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, 1864.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. Hall Dare, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 5, 1864.

MEETING FOR THE ENSUING WEEK.
Monday, March 7—Central Farmers' Club .. .. .. 6 P.M.

We have during the past two numbers of the *Agricultural Gazette*, given Mr. Hallett a capital opportunity of calling attention to the merits of his Pedigree Wheat, and of effectively replying to Mr. Shirreff, who had attacked it. Barring the personal character of the attack, and the need of permitting a personal defence, the only reason why the publication of this long advertisement, or of that by Mr. Shirreff in the previous week, has been permitted, has been because the two rival principles of selection and cultivation in the art of plant improvement which they severally represent, need to be defined as well as to be defended.

At any rate we are glad of the opportunity of defining the degree of acceptance which the latter of these principles appears to us to deserve. Mr. Hallett chooses a promising ear of Wheat—plants all the seeds—takes that plant of the series which is best—chooses its best ear—again plants all *its* seeds—again chooses the best plant, best ear, and best seed—and after a series of harvests thus obtained, during which, as he alleges, the plants and ears have annually improved upon his hands, he takes the ultimate produce as the parents of the

grain which he shall offer for sale, and multiplies it by thin seeding and careful cultivation as fast as he can—and so by and by the "Z family," or some other of long lineage, is offered to the "faithful," for they alone will venture its price, at perhaps one or two guineas a bushel!

In accordance with this practice the improvement of the cereals is alleged to depend upon three facts which Mr. HALLETT declares himself to be in "a condition to prove," viz., (1) that the grains of cereals differ in their powers of productiveness; (2) that the descendant plants and grains inherit more or less the characteristics of their respective parents; and (3) that these characteristics may by selection be so often repeated as to become fixed characteristics of the plant. Now, it appears to us, that there is not one of these "facts" which Mr. SHIRREFF will deny. Of course he admits the first, and in accordance with it he himself offers several varieties of Wheat in the market whose "differences" from other Wheats he has ascertained—and whose descendants he has multiplied for the purpose of sale, confident that they have inherited the properties which he detected in the original plant. The only point to which he might take exception, is, we presume, the third; he might object to Mr. HALLETT taking any credit for the fixed character which his plants at length acquire, and allege that these characters are fixed by Nature in the very origin of the sort.

It is on this third point, and the view of it which Mr. HALLETT and many of his predecessors have held, that the whole possibility of improving plants by cultivation hinges. For, as regards the second, no doubt can exist; and, as to the first, if it is meant to allege that varieties of Wheat and Oats and Barley differing in quality and productiveness exist, there can be but one opinion.

But perhaps Mr. HALLETT means by the grains of cereals the grains of any one ear; it is the differences in their powers of productiveness that he declares himself in a position to prove. We do not think he is. Whether the statement that different powers of productiveness exist be true or not, the mere fact that differences of produce have been observed does not prove it. These may be, and to a certain extent no doubt always are, owing to the different circumstances in which the several grains whose produce has been observed were placed. For, equidistant and covered equally though the grains may be in the experimental bed, it is impossible to ensure that all the incidents and accidents of growth shall be uniform throughout the season. Mr. HALLETT and Mr. SHIRREFF are, in fact, more nearly agreed than either will admit. Both select the best natural origin they can find—both are confident that the progeny will be like the parent—both believe in the fixity of character of the resultant grain; the one however thinking that the character is fixed in the origin, and the other that it is fixed in the successive annual growths of the sort in question.

Whichever of these opinions be the true one, there cannot be a doubt which of these gentlemen has the best quality of Wheat as the result of his experiment and research. The fixity of character, too, of both is so far proved by our own experience of them, that such samples of Mr. HALLETT's Pedigree Wheat as we have seen have always been of remarkably coarse red grain, while such samples of SHIRREFF's bearded white and bearded red Wheats have always been of remarkably fine quality, thin skinned, bright and good. The former has in fact, by, we presume, excessively thin seeding year after year, brought his principle of continuous treatment to bear in fixing the excessive coarseness which thin seeding tends to produce. So that the inferior quality of the grain may be pointed to in proof of the soundness of his theory.

So far as it asserts the existence of habit of growth in cereals as in other plants, and alleges the folly of carelessness in the selection of our seeds, in the soundness of that theory we entirely believe; and with Mr. HALLETT we wonder at farmers, who, when they want a good Cabbage, Mangel, or Turnip, take care to choose a good plant as the parent of the seed they use, yet the moment they approach the cereals they no longer adopt the principle which, in the other instances, they know to be right.

We entirely differ from Mr. HALLETT however in the personal reference which he makes to his opponent Mr. SHIRREFF. It *is* such as he whose confidence and good opinion are to be desired by any one engaged in efforts to improve our plants. Long before Mr. HALLETT was ever heard of as a plant improver, Mr. SHIRREFF had patiently and perseveringly been spreading good grain of Wheat, Oats, and Vetches, and other plants all over the country. His experience in this department is longer than that of any other man we know. Creditable as are the insight, care, and resolution which have been displayed both for many years in the experimental garden at Brighton, and subsequently in the advertising columns of our agricultural papers, we owe a vast deal more as yet to Mr. SHIRREFF than to Mr. HALLETT.

[Since the above has been in type we have received the following communication from Professor CHURCH, of the Royal Agricultural College. He says:—

"I think that some of the readers of the *Agricultural Gazette*, even those who, like myself, do not take part in the discussion as to the merits of HALLETT's Wheat, may yet like to know the following facts, learnt last autumn.

"In making preparations for some experiments which are now being carried out on the College farm, I had occasion to separate, in large and small samples of seed Wheat, the grains according to their specific gravity. I select the following results, in which the finest seed obtainable from Messrs. LAWSONS' was employed. A certain standard specific gravity being assumed, the undermentioned per centages of grains of the three varieties given were found respectively lighter and heavier than that standard.

BROWICK'S	lighter	95·9	per cent.
	heavier	4·1	„
FENTON...	lighter	83·7	„
	heavier	16·3	„
HALLETT'S	lighter	65·2	„
	heavier	34·8	„

"If high density be a measure of goodness in Wheat, the numbers just given need no further explanation. It is however necessary to state that the specific gravity of the whole sample of HALLETT's Wheat was higher than that of any other variety examined."

We understand the specific gravity in this case is the average density of individual grains, not the density or weight per bushel of a bulk of the grain. Of the two sorts with which HALLETT's Wheat is here compared, the first is a coarse prolific Red Wheat, the second one of our best White Wheats; so that there could not be better chosen sorts with which to contrast it; and the result is very remarkable. The value of Wheat per bushel to the miller is however the only test of quality in the market; and that, combined with its productiveness, make up the value of the sort per acre, which is its value in the eyes of the farmer. HALLETT's Wheat has the reputation of being very productive but extremely coarse. It has borne out that reputation in every instance known to ourselves.]

THE correspondence which we have published during the past few weeks bearing on the appointment of Consulting Engineer to the Agricultural Society is we presume closed by the letter which appears in another column from Messrs. HOWARD, as exhibitors before the Royal Agricultural Society and competitors for their awards, to Lord FEVERSHAM, the President of the Society. They point out that in the appointment of judges men have been removed from the list solely on the ground that they traded in machinery; and knowing that Messrs. EASTON & AMOS deal with many exhibitors both in the purchase and sale of machinery, they contend that the same rule ought to be applied to them as consulting engineers as has been applied to other men as judges.

We do not see on what plea the rule which binds the judges should not apply to those who are virtually their umpire, and we can hardly doubt that Messrs. EASTON & AMOS will forestall any inquiry from the Council into the facts of the case by stating exactly how they stand with the exhibiting manufacturers of agricultural machinery, in order to a decision of their official position satisfactory to exhibitors and the public.

THE debate upon THE MALT FOR CATTLE BILL has resulted in certain insignificant amendments; and the measure will no doubt become law essentially the same as it was when originally laid on the table of the House. The privilege which it confers is now generally understood to be of no appreciable value to the farmer. What they want is free malt for man, not free malt for cattle. There is already better material than malt, for feeding sheep and cattle, at a price less than that which the latter will command even when the duty shall have been removed. Those who may go into the manufacture allowed by the Bill (for no one will incur all the expenses imposed by it for his own use only) must demand a price which, repaying them their outlay, will much exceed that of other better mixtures that can be named and have long been used.

Malt and Linseed mucilage, both of them relaxing substances, are to be mixed together. If used to any extent as food they must receive a large addition of Bean meal or other somewhat astringent substance to correct a tendency which will rather check than help the fatting process. While if used merely to induce the saccharine fermentation in other meal which would form the substance of the food administered, the small quantity needed will not be worth the legislation which has been demanded for it. The real object of the existing agitation on the malt tax is seen in the notice given by Mr. MOFFATT, M.P., for Tuesday next, that he will then move that in the opinion of the House the reduction of the malt tax has a permanent claim upon the attention of the Government.

Mr. WILLIAMS's ideal flock which could be fed in France on untaxed English malt, and be brought across the Channel to bring down the price of the mutton at the metropolitan market, fed on English malt on which no drawback had been allowed, may now be replaced by the thousand flocks at home which will for the future compete with one another on the more favourable terms which are now to be allowed. But we very much doubt indeed if there will be much more malt-fed mutton in the market hereafter than there is at present. The point, practically worthless and unimportant, but theoretically indefensible, which was pointed out, and on which the present Bill is founded, has, however, served a valuable purpose by directing attention to the tax upon malt to be used in brewing; and the pressure which the CHANCELLOR of the EXCHEQUER has to some extent encouraged by this Bill, and which is now in almost every county being exerted on the Government, may perhaps ultimately succeed in removing what we believe a demoralising, and, excepting the tenants of good Barley-growing districts whom it benefits, a generally mischievous impost.

—— IT may be mentioned in connection with our account elsewhere of THE TOWNELEY HERD, that the 1st and 2nd prizes in the class of 2-year old heifers at Worcester, which had been awarded to Lady PIGOT's *Rosedale*, and Mr. BOOTH's *Queen of the May 2nd*, have during the past few days been paid to Colonel TOWNELEY, for his *Roan Knight's Butterfly* and *Royal Butterfly's Duchess*, the former animals having failed to qualify. One of the winning heifers is named on the tabular account of the Barmpton Rose tribe below—the other will be referred to next week.

TWO measures for THE PREVENTION OF CATTLE DISEASES have been introduced by the Home Secretary, of which the following are the principal provisions:—

The first (1.) forbids under a penalty of 20*l.*, the turning out of diseased cattle, sheep, &c., into any waste places, or into any imperfectly fenced places, or into any stable or other building without permission of the tenant, or into any market or place of sale, or even (without proper care), into any public road. And if the owner of any animal, suspecting it to be diseased, shall sell it without giving notice of its condition, he shall be deemed guilty of fraud, and liable accordingly.

The term "diseased" means affected with any contagious or infectious diseases as defined by the Act.

2. An Order in Council may forbid the removal of cattle from any specified part of the country—may direct the examination of any cattle, and may direct the purification of infected vehicles, places, &c., and the destruction and burial of diseased cattle, &c.; and any one wilfully obstructing any person acting under that order shall be liable to fine and imprisonment (5*l.* and 2 months).

3. All carriers, railways, canal companies, &c. shall provide cleansed and disinfected carriages (under a liability to 1*l.* penalty for every carriage)—they shall provide water at least once in every 12 hours for cattle *carried*—they may refuse to carry infected stock.

4. Local authorities (named) shall appoint inspectors who shall have power to examine cattle, &c. at fairs and markets and to exclude diseased animals.

The second Bill relates to THE IMPORTATION OF DISEASED CATTLE, AND OF UNWHOLESOME MEAT. The following are its principal provisions:—

1. An Order in Council may direct the examination of imported animals, their subjection to quarantine, the destruction of any that are diseased, also, if necessary, of any parts of animals, provender, &c., and the prohibition of importation from infected ports, &c.

2. An Order in Council may direct the examination of all meat offered for sale, and the destruction of any that is unwholesome.

3. Importers in defiance of these orders shall be liable to a penalty of 100*l.*

Provision is made in both Acts for the payment of salaries and expenses.

In connection with this subject we append a letter from Mr. Holland, M.P., on the relation in which the Royal Agricultural Society stands to it.

THE ROYAL AGRICULTURAL SOCIETY AND THE CATTLE PLAGUE.

In Professor Gamgee's report on the diseases of live stock, published last year (in the 5th report of the medical officer of the Privy Council), the Steppe disease, or Russian cattle plague, is thus referred to:—

"This terrible disease, so peculiar to the ox tribe that the Germans call it 'Rinderpest,' is a very contagious fever. It spreads somewhat slowly, and is not very fatal where it originates as an enzootic; but it is propagated very rapidly, and proves the most fatal of all cattle plagues when it crosses the Russian frontier into central Europe. At the present time the outbreaks of this disease are perhaps more widely distributed over Europe than at any previous period during the present century; but so exclusively is the disease due in spreading to contagion, and so energetic are the Governments of Central Europe in protecting the herds of their people from the disorder, that it is not likely the malady will return to these islands, unless in the event of a general European war."

Fears are now arising that this Russian plague has followed the Austrian army into Schleswig, and if there be foundation for this rumour, steps ought to be taken for the prevention of this fatal cattle disease into this country. It might be supposed that an investigation of the facts connected with the spread of this disease, and of its advance towards this country, together with the consideration of the best means of resisting its progress, would be legitimate business for the Council of our great Royal Agricultural Society. That body, however, cannot stir in the matter; they are debarred by the terms of their charter, which was granted upon the condition "that a principle of its constitution should be the total exclusion of all questions at its meetings or in its proceedings of a political tendency, or having reference to measures pending, or to be brought forward, in either of our Houses of Parliament, which (condition) no resolution, bye law, or other enactment of the said body politic or corporate, shall on any account or pretence whatever be at any time allowed to infringe."

And there being at this moment two most useful Bills introduced into the House of Commons by Government (viz., one for the Amendment of the Law relating to the importation of Diseased Cattle and Unwholesome Meat; and the other to make further Provisions for the Prevention of Infectious Diseases amongst Cattle), the Council of the Royal Agricultural Society are of course debarred from taking any measures for the prevention of the introduction of a new and fatal disease at this juncture.

When will the members of this Great Society insist upon such an alteration of their charter as shall allow of their representatives in Council having power at all times to assist in warding off a national evil, and prevent them from being debarred, as they frequently are at present, from steadily advancing the interests of agriculture. *Ed. Holland, Dumbleton, March* 1.

THE BARMPTON ROSE TRIBE IN COLONEL TOWNELEY'S HERD.

There are 30 descendants of *Barmpton Rose* in the Towneley herd. *Barmpton Rose* was bred by Mr. Waldy of Barmpton. She was by Expectation (1988), and her dam was by Belzoni (1709). Belzoni was from *Cleopatra* by North Star, tracing on both sides immediately from Comet and Favourite.

Expectation was by Young Eryholme (1981) which also traces very soon back to Charles and Robert Colling's stock.

Barmpton Rose was purchased from Mr. Waldy by Mr. Wetherell, and sold by him to Mr. Watson of Walkeringham for 40 guineas. She had *Bessy* by Thick Hock (6601), a cow calf in 1838 when still in Mr. Waldy's hands, *Princess Royal* by Thick Hock (6601), in 1839 when in Mr. Wetherell's hands, and *Buttercup* by Garrick (3863) in 1841, and subsequently *Britannia* by Lord Adolphus Fairfax (4249) and one bull while in Mr. Watson's hands. Of these *Bessy* came into Mr. Watson's hands, as did also *Princess Royal*—so that the whole family of Barmpton Rose was at Walkeringham at the date of the sale. The ten members of which it then consisted sold for 1005*l.* 18*s.*, Mr. Eastwood of Towneley buying *Buttercup* for 130 guineas, Lord Ducie buying *Princess Royal* for 230 guineas, and Mr. Strafford buying *Bessy* for Mr. Downs at 68 guineas, along with four others of the family, two of which went to Mr. Birchall. The descendants of these three cows are given in the following tables, at least so many of them as include the Barmpton Rose tribe now at Towneley. The heifers and bulls which are now in the herd, or through which the herd has descended, are printed in italics and capitals respectively; and the breeding of every animal concerned in the herd is given with them; the numbers in the Catalogue are added to all the names of the stock to be sold next Thursday week.

1. It is from *Briseis*, a daughter of *Bessy* by Thick Hock (6601), that it will be seen most of the Towneley stock is descended. She was repurchased by Mr. Smith, of West Rasen; and her daughter *Rosa*, by Baron of Ravensworth (7811), was purchased from Mr. Smith by Colonel Towneley for 105 guineas. Another daughter, *Rasen Rose*, was 1st in her class at the Royal Agricultural Society's show at York. A third daughter, *Christmas Rose*, by Baron of Ravensworth (7811), bred a daughter, *Rosette*, by Lord John (11,731), which was bought of Mr. Smith through Mr. Hutton, of Gate Burton. There are 13 descendants of *Rosette* and seven descendants of *Rosa* in the Towneley Catalogue. The only notes which it is necessary to make on the descendants of *Bessy* relate to the bull Frederick (11,489). Frederick was originally given away by Col. Towneley to one of his tenants on the moor—but the character of his calves induced Mr. Eastwood to purchase him; and he was had back to the Towneley herd—at a price similar to that which Charles Colling paid for Hubback—8*l.* or thereabouts! He was of a rich roan colour, remarkably fine in head and forequarters—a small underfed animal however when brought back from the moors: and then used more because of the character of the calves he had already got than for any extraordinary promise in himself. His descent, however, of course, strengthened the confidence with which Mr. Eastwood insisted on his being used.

DESCENDANTS OF *BESSY*, DAUGHTER OF *BARMPTON ROSE*, BY THICK HOCK (6601).

1st Generation.	2d Generation.	3d Generation.	4th Generation.	5th Generation.	6th Generation.
Beatrice *c.*, Barrister *b.*, '41					
	Rasen Rose *c.*, '45				
	Rowena *c.*, '48				
	Christmas Rose c., '47, by B. of Ravensworth (7811)	*Rosette*, '50, by Lord John (11,731) bred at West Rasen, sold for 46 guineas to Mr. Hutton, and resold to Col. Towneley	Rosalind *c.*, '54	Baronet *b.* '59	No. 37. *Wharfdale's Ringlet*, '63, by Duke of Wharfdale (19,648)
			Buttercup 2d *c.*, '55	No. 19. *Butterfly's Ringlet*, '61, by Baron Hopewell (14,134)	
			No. 10. *Fred's Ringdove*, '57, by Frederick (11,489)	B. R. B. 13th, '61 dead *b.*, '62	
			Burnley Hopewell *b.*, '58		
			Hopeful *c.*, '59		
			Dead *b.*, '60	No. 12. *Rose of Lancashire*, '58, by M. Butterfly 4th (14,920)	No. 23. *Buttercup Again*, '61, by Fred's Grandson (17,881)
					Bull dead, '60
				No. 16. *Young Butterfly*, '59, by Royal Butterfly (16,862)	No. 29. *Burnley Butterfly*, '62, by F.'s Grandson (17,881)
Briseis, by Raree Show (4874), bought at Mr. Watson's sale for 40 guineas, and sold to Colonel Towneley	Hogarth *b.*, '52		No. 5. *Young Barmpton Rose*, '56, by R. Cœur de Lion (13,590)	B. R. B. 9th, '60	No. 45. Duchess of Towneley, '64, by Duke of Wharfdale (19,648)
	Rembrandt *b.*, '53			No. 26. *Barmpton Butterfly*, '61, by Royal Butterfly (16,862)	
	Miss Butterfly *c.*, '55				
	Fred's Rosa *c.*, '56		Dead *c.*, '58	B. R. B. 14th, '62	
			Fred's Grand-daughter *c*, '59	No. 8. Duke of Towneley, '63, by Duke of Wharfdale (19,648)	
	Rosa, '47, by B. of Ravensworth (7811), bought of Mr. W. Smith, for 105 guineas, by Col. Towneley	Roseleaf *c.*, '51	Rose of Townley *c.*, '55	The Rose *c.*, '58	
Beckingham *b*, '43				Young Rose *c.*, '60	
				Rose's Red *c.*, '61	
	Beeswing has a large number of descendants through *Batwing* & *Honeycomb*, her daughters, in the herds of Dr. Dickinson and Mr. John Bowstead	*Rosemary*, '54, by Gavazzi (11,508)	Rosebloom *c.*, '58		
Beeswing, '45				No. 11. *Butterfly's Hope*, '58, by Baron Hopewell (14,134)	Heifer, '63, died
Bubona *c.*, '45 Battus *b.*, '45			*Paris Butterfly*, '56, by M. Butterfly (13,311)	No. 15. *White Butterfly*, '59, by Butterfly's Nephew (15,714)	No. 25. *Pretty Butterfly*, '61, by F.'s Grandson (17,881)
					Bonny Butterfly, '62
					No. 40. *Baron's Butterfly*, '63, by Baron Hopewell (14,134)
Brennus *b.* Bithon *b.* '46					
Blucher *b.*, '48					
Dotty *c.* Frederick *b* '49				No. 18. *Roan Knight's B.*, '60, by Roan Knight (15,167)	No. 38. Wharfdale's Butterfly, '63, by Duke of Wharfdale (19,648)
Barmaid *c*, '50					

(Besides these, in the 7th generation from *Bessy*, No. 23, *Buttercup Again* has a heifer calf, No. 44, *Wharfdale's Buttercup*, by Duke of Wharfdale; and No. 29, *Burnley Butterfly*, has a bull calf, No. 10, Duke of the Butterflies, by Duke of Wharfdale (19,648); and No. 25, *Pretty Butterfly*, has a cow calf, No. 43, *Duchess' Butterfly*, by Duke of Wharfdale.

2. *Princess Royal.*—We now come to the descendants of *Princess Royal*, the 2d daughter of *Barmpton Rose*. She was bought at Mr. Watson's sale by Earl Ducie for 230 guineas, and brought home to Tortworth Park, where Mr. Grenfell purchased all her descendants (5) at the Tortworth sale for 436 guineas. At his own sale they were eight in number, and fetched only 434 guineas. Mr. Towneley was a buyer at the latter sale, and five of the descendants of the Ducie-Grenfell progeny of *Princess Royal* are now for sale. The table in next page represents nearly all the descendants of this the second daughter of *Barmpton Rose*.

3. *Buttercup*, the third daughter of *Barmpton Rose*, was purchased at Mr. Watson's sale by Mr. Eastwood, and she and her family were handed over to Colonel Towneley when his agent gave up the herd. *Buttercup* bred nearly all bulls. Her only daughter by Jeweller (10,354) was bred by Colonel Towneley in 1849. He called her *Butterfly*, a name which has since become well known in the Shorthorn world. Her son, Master Butterfly, by Frederick (11,489), out of *Bessy*, by Duke, 9832, had an extraordinary career, which is related below. He was sold at Chelmsford to Mr. Ware, of Melbourne, for 1200 guineas. Her second son, Royal Butterfly, by the same sire, now seven years old, was shown at Warwick, and Colonel Towneley then refused 1200 guineas for him. He is in the catalogue of the sale. It will be seen from the list in next page of the family of *Buttercup*, that he is the only descendant of that cow which remains in the herd.

Butterfly was frequently shown. She was in 1850 1st among extra stock at the Yorkshire and at the Royal North Lancashire meetings, and 2d at Glasgow and Northumberland. In 1851 she was first in her class at the Windsor meeting of the Royal Agricultural Society, at the Dublin, the Yorkshire, and the Royal North Lancashire meetings. In 1852 she was first at the Royal Agricultural Society at Lewes, also at the Galway meeting of the Agricultural Improvement Society of Ireland, also at the meetings of the Yorkshire Agricultural Society, and the Royal North Lancashire. In 1853 she was first at the Irish Agricultural Society's meeting at Killarney, winning the challenge cup for the 2d time, also at the Yorkshire and Royal North Lancashire meetings. In 1854 she was 1st at the Royal Agricultural Improvement Society's Armagh meeting, winning the challenge cup finally—having won it three times in succession. She also won the gold and silver medal and challenge cup at the Royal Dublin Society's meeting, and she was the best cow in the yard at Burnley.

Her son, Master Butterfly, next took up the running. He was 1st in his class in '54 at the Royal Agricultural Society's meeting at Lincoln, and at the Royal North Lancashire meeting at Burnley. In 1855 he was first at the Royal Dublin show, and at the Royal Agricultural Society's meeting at Carlisle. In 1856 he was first at Paris and at Chelmsford, there being sold for 1200 guineas for Australia.

Butterfly's second son, Royal Butterfly—the only descendant of *Butterfly* in the herd—was 1st at

Yorkshire and Lancashire in 1858, 1st at the Warwick meeting of the Royal Agricultural Society, and at Yorkshire and Lancashire and Durham in 1859, 1st at Canterbury and Yorkshire and Lancashire in 1860, 1st wherever shown in 1861, and 1st wherever shown in 1862 and 1863, when the challenge cup for the best bull offered by the North Lancashire Society having been won by him three years in succession, became the property of Colonel Towneley. His performances this last year were exceedingly remarkable. 1st at the Royal Dublin show, at Rochdale, at Skipton, at Lancaster, at Halifax, at Keighley, at Wigton, at Clitheroe—not shown at the Worcester meeting nor at Stockton-on-Tees. He won besides money, three silver medals and one gold medal, and five gold and silver cups, meeting Mr. Booth's and Lady Pigot's stock constantly in competition.

We have before us a complete list of the prizes won by Colonel Towneley since 1849, including therefore the history of the herd during 14 years—upwards of 200 1st prizes, besides a great number of inferior distinction. The prizes have amounted to upwards of 2000*l.* in all, besides nearly 200 medals and cups. We shall next week refer to the other families in the herd.

DESCENDANTS OF *PRINCESS ROYAL*, DAUGHTER OF *BARMPTON ROSE*, BY THICK HOCK (6601).

- Dead *c.*, '42
- Bustle *c.*, '43
- Boddice, '49
- Bull, '50
- Richmond *b.*, '51
- Pantaloon *b*, '52
- Bellona *c.*, '44
- *Princess Fairfax*, '45 by Lord A. FAIRFAX (4249)
- Pageant *c*, '47
- Dead bull, '49
- Dead cow, '49
- *Pride*, '52 by 4TH DUKE OF YORK (10,167)
- Prince Duke *b.*, '53
- Protector *b.*, '54
- Plume *c*, '57
- Placid *c*, '56
- No. 14. *Fred's Pride*, '59 by FREDERICK (11,489)
- Prim *c*, '58
- B. R. B. 8th, '60
- No. 22. *Roan Knight's Pride*, '61 by ROAN KNIGHT (15,167)
- Baron Calder *b*, '62
- No. 28. *Butterfly's Pride*, '61 by ROYAL BUTTERFLY (16,862)
- Butterfly's Pride 2d *c*, '62
- No. 42. *Proud Duchess*, '63 by D. OF WHARFDALE (19,648)
- No. 36. *Beautiful Butterfly*, '63 by ROYAL B. 10TH (18,761)
- *Pomp*, '48 by D. OF CORNWALL (5947)
- Prelate *b.*, '51
- Parliament *c.*, '52
- Privilege *b.*, '54
- Pompous *c.*, '57
- *Parade c.*, '53 by D. OF GLOSTER (11,382)
- Patience *c*, '57
- Permit *c*, '58
- Prince Consort *b*, '56
- No. 9. *Pageant*, '57 by COUNT GLOSTER (12,650)
- Precurser *b*, '58
- Master Frederick, *b*, '59
- No. 3. R. B. 10th, '60 by R. BUTTERFLY (16,862)
- Romulus Butterfly *b*, '59
- Remus Butterfly *b*, '59
- No. 4. R B. 11TH, '61 by ROYAL BUTTERFLY (16,862)
- No. 33. ROYAL BUTTERFLY'S PAGEANT '62, by ROYAL BUTTERFLY (16,862)

DESCENDANTS OF *BUTTERCUP*, DAUGHTER OF *BARMPTON ROSE* BY GARRICK (3363).

- Boccaccio *b*, '45
- Dead bull, '46
- Valentine *b*, '47
- Horatio *b*, '48
- *Butterfly c*, '49 by Jeweller (10,354)
- Butterfly 2d *c*, '52
- MASTER BUTTERFLY *b*, '53
- Butterfly 3d *c*, '54
- Butterfly 4th *c*, '55
- No. 2. ROYAL BUTTERFLY *b*, '57 by FREDERICK (11,489)
- Butterfly 5th *c*, '57
- Butterfly 6th *c*, '57
- Butterfly's Grandson *b*, '59
- Butterfly 7th *c*, '60

LIEBIG AND THE "MINERAL THEORY."

[The following extract from a paper by Messrs. Lawes & Gilbert in the 24th volume of the English Agricultural Society's Journal has been sent to us by Dr. Gilbert as being the note to which Baron Liebig's letter given in a recent number of the *Agricultural Gazette* is a reply.]

THE terms "mineral" or "inorganic," as applied to the constituents of manures or crops, are, for convenience, employed throughout this paper to designate the incombustible or "ash constituents," they having been generally employed in this restricted sense by Liebig and most other writers on agricultural chemistry during the last 20 years or more. Yet, in his recent work (Einleitung in die Naturgesetze des Feldbaues, p. 32 *et seq.*) Baron Liebig repudiates and ridicules such a classification as unscientific, claims ammonia and its salts as mineral manures, and accuses Mr. Lawes of setting up, in opposition to his own, a theory according to which mineral or inorganic manures should contain only incombustible or ash constituents. To support this allegation, he gives, in a separate paragraph, and in italics (Sperrschrift), the following sentence as a quotation from Mr. Lawes's paper on "Agricultural Chemistry," vol. viii. p. 240, of the Royal Agricultural Journal :—

"Manures are generally divided into two classes, organic and inorganic: organic manures are those which are capable of yielding to the plant, by decomposition or otherwise, carbon, hydrogen, and nitrogen. Inorganic manures are those substances which contain the mineral ingredients of which the ash of plants is found to consist."—[Translation.]

But the following is the passage as it really stands at the page referred to by Baron Liebig, and the portions given in capitals are those which are omitted by Baron Liebig in his professed quotation :—

"I NOW COME TO THE ACTION OF manures, WHICH are generally divided into two classes—*organic and inorganic*. ALTHOUGH THIS DISTINCTION IS BY NO MEANS SATISFACTORY, I SHALL ADOPT IT AS BEING GENERALLY UNDERSTOOD. Organic manures are those which are capable of yielding to the plant, by decomposition or otherwise, ORGANIC MATTER—carbon, hydrogen, OXYGEN, and nitrogen—CONSTITUENTS WHICH UNCULTIVATED PLANTS DERIVE ORIGINALLY FROM THE ATMOSPHERE. Inorganic manures are those substances which contain the mineral ingredients of which the ash of plants is found to consist."

Here, then, in this which was Mr. Lawes's first paper, the classification which Baron Liebig accuses him of originating is only adopted as being already at that time "generally understood," and with a distinct protest that it is "by no means satisfactory." Yet, in order to fix the origination of the distinction upon Mr. Lawes, Baron Liebig joins together disconnected parts of a passage, and gives them, in a separate paragraph, in italics (Sperrschrift), and between unbroken inverted commas, omitting (besides less material portions) an entire sentence which distinctly disproves the truth of the allegation in support of which the professed quotation is brought forward! Having thus moulded Mr. Lawes's sentence to suit the requirements of his argument, he goes on to say :—

"From this doctrine of the practical man it necessarily followed that a mineral manure must be one which contained *only* the ash-constituents of vegetable products, and from the composition of which ammonia-salts, as belonging to organic manures, are excluded. To be sure, in every chemical manual ammonia and its salts are treated of among inorganic substances, since they are objects of chemical manufacture, whilst organic matters cannot be produced by man; and this fact might well have led to the suspicion that ammonia was not necessarily excluded from an inorganic manure. The agricultural chemistry of the practical man was evidently a peculiar chemistry, which had no connection with ordinary chemistry, and thus *his* theory might well find some justification, but according to *my* theory I obviously took another point of view. Mr. Lawes, indeed, mentions in his paper (p. 21), that my manures smelt of ammonia, and hence contained an ammonia-salt; but he implied that this might be a little artifice, in order to give to my manures an efficacy which, according to his interpretation of my theory, they should not possess."—[Translation.]

The following quotations, taken from several of Baron Liebig's works, will show whether he has not been accustomed to use the terms "mineral" or "inorganic" to designate the incombustible or ash-constituents, and to distinguish these from "ammonia," "ammoniacal salts," "atmospheric constituents," &c. The italicising is our own.

"The *mineral* constituents act, as is shown by the produce of the unmanured land, without any artificial supply of *ammonia*."

"The *ammonia* increases the produce only if the *mineral* constituents be present in the soil in due quantity, and in an available form.

"*Ammonia* is without effect if the *mineral* constituents are wanting. Consequently, the action of *ammonia* is limited to the acceleration of the action of the *mineral* constituents in a given time."—"Principles," pp. 86-7 (1855).

". . . . . the other is the action of *sulphate of ammonia* as a solvent for certain important *mineral* constituents of the soil."—Ib., p. 99 (1855).

"*Ammonia*, when used as a manure alone, and when there is a want of *mineral* constituents in the soil, is like the spirits which the labourer takes in order to increase his available labour, power, or imagination; and, like that stimulant, its action, in this case, is followed by a corresponding exhaustion."—Ib., p. 106 (1855).

"Hence it is quite certain that in our fields the amount of nitrogen in the crops is not at all in proportion to the quantity supplied in the manure, and that the soil cannot be exhausted by the exportation of products containing *nitrogen* (unless these products contain at the same time a large amount of *mineral* ingredients), because the *nitrogen* of vegetation is furnished by the atmosphere, and not by the soil. Hence also we cannot augment the fertility of our fields, or their powers of production, by supplying them with manures rich in *nitrogen*, or with *ammonia salts* alone. The crops on a field diminish or increase in exact proportion to the diminution or increase of the *mineral substances* conveyed to it in manure."—4th Edition, p. 210 (1847?).

"But, at the same time, it is of great importance for agriculture to know with certainty that the supply of *ammonia* is unnecessary for most of our cultivated plants, and that it may be even superfluous, if only the soil contain a sufficient supply of the *mineral* food of plants, when the *ammonia* required for their development will be furnished by the atmosphere."—4th Edition, p. 212 (213).

"A fertile soil must contain in sufficient quantity, and in a form adapted for assimilation, all the *inorganic* materials indispensable for the growth of plants.

"A field artificially prepared for culture contains a certain amount of *these ingredients*, and *also* of *ammoniacal salts* and decaying vegetable matter."—4th Edition, p. 169.

"The meaning of these sentences in my work is this :—'that *ammoniacal salts* alone' have no effect; that, in order to be efficacious, that must be accompanied by the *mineral constituents*, and that the effect is then proportional to the supply—not of *ammonia*, but of the *mineral* substances."—"Principles," p. 55 (1855).

"These two paragraphs are altogether irreconcilable; for if Mr. Lawes admit that the *mineral* constituents are indispensable to plants, how can he maintain that these very *mineral* constituents are replaceable by *ammonia*, that is to say, that by means of ammonia we can altogether dispense with them?"—"Principles," p. 89 (1855).

"It has been mentioned in the preceding part of the chapter, that animal excrements may be replaced in agriculture, by other materials containing their constituents. Now, as the principal action of the former depends upon their amount of *mineral* food so necessary for the growth of cultivated plants, it follows, that we might manure with the *mineral* food of wild plants, or, in other words, WITH THEIR ASHES [the capitals are Baron Liebig's own]; for, these plants are governed by the same laws, in their nutrition and growth, as cultivated plants themselves."—3d Edition, p. 183 (1843).

"But the weight or amount of the crops is in proportion to the quantity of food of both kinds, *atmospheric* and *mineral*, which is present in the soil, or conveyed to it in the same time. By manuring with *ammoniacal salts* a soil rich in available *mineral* constituents, the crops are augmented in the same way as they would have been if we had increased the proportion of *ammonia* in the air."—"Principles," p. 77-8 (1855).

These sentences will be sufficient to show whether or not Liebig is justified in now attempting to fall back, in agricultural discussions, upon the more strictly scientific meaning of the terms "mineral" and "inorganic," so as to include within them "ammonia," "ammoniacal salts," "atmospheric constituents," &c., and thus to give a new definition to his mineral theory, or rather substitute at this date for his own theory, which has proved to be erroneous, another not his own.

Home Correspondence.

Labourers' Cottages.—I think some of the writers on cottages are rather extravagant in their estimates, and particularly Mr. Hewitt Davis (see page 155), where he says "a first-class pair of cottages can be built for 250*l.*" What does he mean by "first-class?" Is it to be decorated and finished off in fine architectural style? If it is, his price may be a reasonable one, but labourers want nothing about their cottages but what is plain and useful—they cannot afford to pay for ornament. If landlords want cottages built in an artistic style, they ought not to charge the labourer interest for the money they spend in outside decoration to please their own taste, any more than they would think of charging them interest on the money they expend in improving their own gardens and pleasure grounds. Then, why should they charge 5 per cent. upon their cottage capital? Can they get it on other good securities? I think not in very few cases. When I look down the Money Market column of a newspaper I find securities there that are paying 5 per cent. are selling at above par. Then, why should cottages be expected to pay a higher rate of interest than other property? [Because of the deductions to be made from the rent for repairs, expenses, and risk of collection, &c.] In nearly all parts of the country a good pair of useful cottages can be built for less than 200*l.*, and in some parts for 150*l.*; and by giving each cottage a little garden (say 20 poles) they could be let for 4*l.* per annum, or at the most 4*l.* 10*s.*, which is as much as a labourer is able to pay. I do not agree with H. D. that the employers of labour, or in other words the tenant-farmers, reap the benefit of cheap cottage rents, as the price of labour is ruled by the demand for it. In this part of the country, where there is a great demand for labour in the coal, iron, and many other employments, the agricultural labourer gets a higher rate of wages than in a regular agricultural district. In the eastern counties the price of labour is ruled by the rate that corn is selling for, but in no part have I heard of the rents of cottages governing the labour market. How, I will ask, in the name of common sense, can a man be expected to pay 2*s.* 4*d.* per week rent, when he only earns 11*s.*? What is his family to live upon?—8*s.* 8*d.* Let any man charging 2*s.* 4*d.* per week for his cottages, ask himself how he would like to live upon 8*s.* 8*d.* per week. I think he will at once return the cottager part of his rent, or advance his pay. I have no doubt that "H. D." has found many willing to pay 2*s.* 4*d.* per week for his cottages rather than 1*s.* per week for their older accommodation, if accommodation it could be called. In my experience of agricultural labourers, I have found many that would pinch and screw in any way to make up the rent for a comfortable cottage to live in, particularly if there was a garden to it—and no cottage ought to be without one. I must also beg to differ with Mr. Davis that the scarcity of cottages in country villages is owing to their not paying; in more cases, it is owing to landlords not liking cottages in the parish belonging to them, but preferring to draw their labour from some place adjoining. Where I have known a scarcity of cottages it has been in parishes all belonging to one. I know parishes in the eastern part of Norfolk where the land is in part owned by small farmers and tradesmen, and

even some labourers have a small allotment. In those parishes there is no scarcity of good four-roomed cottages, and many have been erected in the last few years, and have been let before they were finished at rents varying from 3*l*. 10*s*. to 5*l*. per annum, according to the quantity of land let with them for gardens, and at that rent they are found to pay a good profit to their owners. *J. R. B., Wakefield.*

Enforcement of Outfall.—Referring to the letter of "A Gloucestershire Drainer," in your publication of the 13th inst., and assuming that Mr. Denton's reply will not give the desired information, I beg permission to state in your next Number that the West of England Drainage Company's Act affords every facility to landowners for obtaining the right of outfall through their neighbours' lands; the power is frequently exercised, and in the most simple and inexpensive manner. Pursuant to the wish of "A Gloucestershire Drainer," I have pleasure in furnishing the title of the Act, viz., "Landowners West of England and South Wales Land Drainage and Inclosure Company's Act, 1848." *Fred. Brodie, Secretary of the West of England and South Wales Drainage Company, Exeter, February* 25.

The Consulting Engineer of the Royal Agricultural Society.—The following additional letter has been addressed to the President of the Royal Agricultural Society of England. *Britannia Iron Works, Bedford, February* 26, 1864. My Lord,—On the 29th ult. we ventured to address through your Lordship a communication to the Council of the Royal Agricultural Society of England upon the position of the Consulting Engineers; calling attention to facts which had recently come to our knowledge. The main object of our communication was to urge what we are prepared to prove, viz., that Messrs. Easton & Amos supply a large number of machines of their own manufacture to exhibitors. We submit that this is a graver objection to that firm being in office, and influencing the adjudications, than the fact which Messrs. Easton & Amos admit, viz., that they buy machinery to a large extent from the exhibitors. Although we consider the former objection the stronger one, we would remind the Council that on several occasions during the past few years the names of persons who have acted as judges of implements have been struck off the list of judges, upon the sole ground that they had traded in machinery. We respectfully submit that if this was a valid objection to a judge, surely in the more important office of Consulting Engineer it becomes a still graver objection. We desire also to call the attention of the Council to the fact of Mr. Amos being professionally engaged by more than one of the exhibiting firms, and we are prepared to prove that he, Mr. Amos, has been a zealous and an active partisan when, from his official position, he ought to have been neutral. Being about the oldest exhibitors at the Society's meetings, having exhibited at the first show at Oxford, we hope we shall not be thought obtrusive in thus submitting our views, and asking the Council to institute an inquiry into the subject we have brought before it. We have the honour to be, your lordship's most obedient servants, *James & Frederick Howard. To the Right Hon. Lord Feversham.*

Reports of Steam Culture.—Your note under my letter last week puts the case very fairly so far as a hundred acres supposed to be done by myself, and if multiplied by other competitors who would enter such a court, it would be quite correct; 400 or 500 acres worked for seven years, under the supervision of the Royal Agricultural Society, would, in my opinion, give more substantial evidence than all the hap-hazard working that can be raked up. The reports out give the cost per acre under this and that man's working, and that's about all; a multiplication of them would do but little more. It is very desirable that we should know the price per acre under many circumstances that we have got, and with it some inconsistencies. I say that steam power ought not on an average to go more than once for a crop; in this I am to some extent supported, but there are some who go 10 times for a crop; a thing that cannot pay; many go four and five times, that's too much. The public know what the cost is per acre, they now want to know how to apply the power; that is a point that they do not understand, and until they do they will not buy tackle, neither will they know what cheap farming is. 10*s*. 6*d*. per acre on an average is the cost with me; more than that it will never be so long as I live, and what is more, my farm is always clean and farmed double depth. *William Smith, Woolston, Bletchley Station, Bucks, Feb.* 29.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, March* 2, 1864.—Present—Lord Feversham, President, in the chair. The Earl of Powis; Lord Chesham; Lord Tredegar; The Hon. Major-General Hood; Sir E. C. Kerrison, Bart., M.P.; Sir A. K. Macdonald, Bart.; Sir Matthew Ridley, Bart., M.P.; Sir Watkin W. Wynn, Bart., M.P.; Mr. Acland; Mr. J. H. Arkwright; Mr. Raymond Barker; Mr. Barthropp; Mr. Bramston, M.P.; Mr. Bowly; Mr. Buller, M.P.; Mr. Cantrell; Colonel Challoner; Mr. Clayden; Mr. Druce; Mr. Exall; Mr. Brandreth Gibbs; Mr. Fisher Hobbs; Mr. Wren Hoskyns; Mr. Hudson; Mr. Hutton; Mr. Jonas; Colonel Kingscote, M.P.; Mr. Milward; Mr. Pain; Mr. Rigden; Mr. Sanday; Mr. Shuttleworth; Mr. Thompson, M.P.; Mr. Torr; Mr. Wills; Mr. Frere, and Dr. Voelcker.

The following New Members were elected:—

Angus, John, jun., Whitefield, Morpeth
Armstrong, John A., Bays Leap, Wylam, Northumberland
Askew, Watson, Pallinsburn, Coldstream, Northumberland
Barclay, George Robertson, Keavil, Dunfermline, Fifeshire
Barrass, Matthew, Sen., Killingworth, Newcastle-on-Tyne
Barrass, Matthew, Jun., Killingworth, Newcastle-on-Tyne
Biehl, John, Crowhurst, Battle, Sussex
Blandford, Thomas, Corbridge, Northumberland
Browning, Samuel, Joint Counties Asylum, Abergavenny
Chick, John, Whitwell, York
Clark, James, View Lawn, Longhorsly, Morpeth
Clay, William D., St. Aston House, Lutterworth
Cleasby, R. H., Broomside House, Durham
Cooper, Edward Henry, Markree Castle, Callooney, Sligo
Crawford, Thomas, North Shields
Curtis, Frederick Thos., Elmstone, Sandwich, Kent
Davison, Michael, Long Bank, Alnwick
Dees, James, Whitehaven
Easton, William, 6, Hammet Street, Taunton
Evans, Thomas Sutton, Sawston, Cambridge
Everett, Rev. Charles Henry, Netherton House, Hungerford
Fair, William, Aston-by-Budworth, Northwich, Cheshire
Fawcus, John, South Charlton, Chathill
Fowler, Edward Parsons, Jersey
Garbutt, William, Dunston Lodge, Gateshead
Glanville, Reginald Carew, Sconnor, St. Germans, Cornwall
Grantham, Henry, Scawby, Brigg
Grantham, Richard B., C.E., F.G.S., 7, Great Scotland Yard, London, S.W.
Graves, Anthony Elly, Rosbereon Castle, New Ross, Wexford
Hansell, Thomas, North Shields
Harvey, John James, Statenboro' House, Sandwich, Kent
Hill, Henry, Thornton, Pickering, Yorkshire
Hodgson, Joseph, Blyth, Northumberland
Holmden, James, Edenbridge, Kent
Johnson, Thomas, Ellington, Morpeth
Kingsnorth, Alfred, Great Chart, Ashford, Kent
Leighton, Robert, Thistleyhaugh, Morpeth
Lethbridge, Charles, Eastbrook House, Taunton
Maughaw, Robert, Oxford Street, Newcastle-on-Tyne
Morton, Henry Thomas, Biddick, Fence Houses
Nash, John, Reed Court, Rochester
Ockleston, Wm. Fairhurst, Ingon, Stratford-on-Avon
Page, Henry, Walmer Court, Walmer
Paget, Lewis, Queenborough, Leicester
Pattison, J. M., Norwood, Gateshead
Potter, Addison, Heston Hall, Newcastle-on-Tyne
Price, James, Eye Cottage, Leominster
Radford, William, Beeston, Nottingham
Rea, Charles, Doddington, Wooler, Northumberland
Stable, Charles Leonard, Crayford, S.E.
Swann, John, Bedlington, Morpeth
Swann, William, Bedlington, Morpeth
Taylor, John, jun., Sandycroft Farm, Hawarden, Chester
Usher, George M., Railway Street, Beverley
Wakefield, W. H., Prizet, Kendal
Walker, John L., 71, Oxford Terrace, Hyde Park, London, W.
Walker, William, Beeston, Nottingham
Wealleans, John Dodd, Flotterton, Rothbury, Northumberland
Webbe, Rev. H. Cowperthwaite, 38, Jermyn Street, London, S.W.
Wetton, Geo. Norman, Collington, Northampton
Wilkinson, Henry Etridge, Pilgrim Street, Newcastle-on-Tyne
Wilson, Thomas, Oaklands, Newcastle-on-Tyne
Yates, William, Grindle, Shiffnal

Finances.—The Hon. General Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on February 29 was 1709*l*. 19*s*. 10*d*.

The Committee recommended that the Secretary send the usual circular to Members who have not paid their subscriptions for the current year.

Journal.—Mr. Thompson, M.P., Chairman, reported that in consequence of the resolution of the Council giving the Committee authority to take such measures with reference to the illness of the Editor as they considered necessary, a special meeting of the Committee was held on the 5th ult., when a report was received from the physician attending Mr. Frere which induced the Committee to postpone the publication of the forthcoming number of the Journal from the month of February to the month of March. The Committee had great pleasure in stating further that Mr. Frere yesterday attended a meeting of the Committee and reported himself convalescent and able to resume work.

It was announced that on Wednesday, March 16, there would be a discussion on the Cultivation and Management of Clay Farms, to be opened by Mr. Alfred Hughes, of Thorness, Isle of Wight, to commence at 12 o'clock.

Chemical.—The particulars of Chemical Analyses made for Members of the Society during the year 1863 are as follows:—

Guanos	40
Superphosphates and similar artificial manures	64
Nitrate of soda and ammoniacal salts	25
Refuse manures	29
Bone-dust	24
Limestones and marls	87
Soils	28
Waters	10
Oilcakes	91
Feeding meals and vegetable productions	10
Examinations for poisons	5
	363

The subjects which have been proposed to Professor Voelcker by the Committee, are as follows:—

1. The continuation of the investigations already in hand on the "Causes of Sterility and Fertility in Soils."
2. A series of experiments carried out on soils of different character (light and heavy) on "The influence of Salt in reference to Vegetation."
3. On the Growth of Clover and Grass Seeds, and the comparative nutritive properties of the produce cut at different periods of growth.
4. A series of manurial experiments on Clover.
5. The mechanical and chemical qualities of leaf-mould.

Lectures.—The first Lecture proposed to be given by Professor Voelcker this year will be on "The Nutrition of Plants from the Atmosphere," to be delivered on the second Wednesday in May, at 12 o'clock. The second Lecture will be on "The Chemical Qualities of Water for Economical Purposes," to be delivered on the second Wednesday in June, at 12 o'clock.

The Professor wishes it to be stated that he will be in regular attendance at the Society's House, 12, Hanover Square, every Wednesday.

Newcastle Meeting.—Colonel Challoner reporte that the Committee recommended that the sum of 200*l*. be granted to the Local Committee to secure the fields marked on the Ordnance plan for the purpose of the trial of steam cultivators in addition to the land which had been offered by the Local Committee. The contractor having laid before the Committee a plan of the showyard, they recommended that it be considered as preliminary, that the exact position of the sheds be subject to adjustment to suit the ground, and that the contractor furnish a final plan in accordance with the above for approval by the Council in April. This report was adopted.

On the motion of Mr. Torr, the Council resolved that Herdwick sheep have the same advantage as to clipping as Blackfaced Mountain sheep.

Sheep for the Viceroy of Egypt.—The Secretary reported that the sheep had been safely embarked on board the Pera, which sailed for Alexandria on the 20th ult., and read a letter from the Lords Commissioners of her Majesty's Treasury requesting their acknowledgments might be conveyed to the Council of the Society for the trouble they had taken in carrying out the wishes of her Majesty's Government as regards the sheep and shepherd for the Viceroy of Egypt.

Mr. Acland brought forward the motion, of which Mr. Holland, M.P., who was prevented by indisposition from attending, had given notice, for the appointment of a Committee for the consideration of the measures which ought to be taken "for the improvement of the education of those who depend upon the cultivation of the soil for their support," this being declared by the Charter as the 7th national object to be prosecuted by the Society.

The motion was seconded by Sir Edward Kerrison, and supported by Mr. Thompson, M.P.; when the Council resolved to nominate a Committee at their next meeting to take this subject into consideration.

The Trinidad Agricultural Society having written to express their wish to enter into correspondence with the Royal Agricultural Society of England, and to request information on the subject of steam cultivation, the Earl of Powis moved that a set of the *Journal* be presented to the Trinidad Society; the motion was seconded by Mr. Jonas and carried.

Letters inviting the authorities of Bath, Bristol, Exeter, Plymouth and Taunton, to offer sites for holding the meeting of 1865 in that district, were directed to be sent.

The Council then adjourned.

Smithfield.—A Meeting of the Council was held on March 1, 1864. Present: The Right. Hon. Lord Tredegar, President, in the Chair. Major-General the Hon. A. N. Hood, V.P. Messrs. Buckley, Joseph Druce, Samuel Druce, Brandreth Gibbs (Hon. Sec.), Charles Howard, H. W. Keary, Robert Leeds, R. Milward, E. W. Moore, R. Overman, J. Robinson, W. Rigden, H. Smith, W. Sanday, J. Thompson, H. Thurnall. Messrs. R. H. Ellman and Joseph Druce were elected Stewards of live stock for the ensuing three shows. Messrs. William Torr and O. Wallis were elected Stewards of Implements for the present year. The reports of the Stewards on protests made against certain animals exhibited at the last Show were received and adopted, and the prizes ordered to be paid as awarded by the judges. The Council having considered the date to which the ages of animals exhibited are calculated, determined that no alteration should be made—viz., to remain Dec. 1. being a few days before the Show.

It was resolved that "the members of the Club and exhibitors be admitted to the galleries during the time the judges are adjudicating the prizes, subject to the acquiescence of the Agricultural Hall Company. It was resolved that a Framed Certificate and a Sovereign be presented to the Feeder of the 1st prize animals in the classes—and Mr. Moore and the Hon. Secretary were authorised to select the designs for the same. Directions were given as to advertisements.

The Prize Sheet for 1864 was revised, and the following alterations and additions made, viz.: 1. That in each of the following divisions, viz., Devons, Herefords and Short-horns, there be a new class for Steers under 2 years 6 months old, 1st prize 20*l*., 2nd prize, 10*l*.; also that the class now limited to animals not exceeding 3 years be not exceeding 3 years and 3 months, and that the other class be for animals above 3 years and 3 months. 2. That in the Sussex division there be a new class for heifers not exceeding 4 years old, 1st prize 20*l*., 2d, 15*l*., and that the other class

be for cows above 4 years old. 3d, that in future "Freemartins" be not disqualified for competition in the respective Heifer Classes in the different divisions. 4. That there be a new class for Ryland, Cheviot, Dorset, or any other pure breed of Sheep not otherwise enumerated in the prize sheet; 1st prize, 15*l.*; 2d prize, 10*l.* 5. That the medal for Cross-bred Sheep in extra stock be for Sheep of a Long and Short-woolled cross. 6. That the ages of the Pig classes be arranged as follows:—A class for Pigs not exceeding 6 months old, instead of 4 months, as heretofore; ditto for Pigs above 6 months and not exceeding 9 months; ditto for Pigs above 9 months and not exceeding 12 months; ditto for Pigs above 12 months and not exceeding 18 months. It was resolved that a fine of 10s. for non-exhibition of animals entered be imposed on the same conditions as at the Royal Agricultural Society of England. Also that protests must be delivered in before 6 o'clock, P.M., on the Tuesday of the Show, and that no protest be received after that time. The rules of the prize sheet were revised and amended. It was determined that the entries for implements, &c., shall close on the 1st October as during the last two years. The implement committee was re-appointed; new members were elected. The thanks of the meeting were voted to the President for his able conduct in the chair.

Farmers' Clubs.

HEXHAM.—At the last meeting of this Club, JOHN GREY, Esq. (the Chairman), introduced a gentleman who a few years ago was well known to them, but who had been lately employing his time most profitably at Cirencester College, where he understood that such progress had been made by him that Mr. Wrightson had been awarded a diploma without his going through the usual number of years' probation. He (the Chairman) had had a very short time since a visit from Mr. Constable, the Principal of Cirencester College; and he heard from him with very great pleasure, and, he might say, pride, the high testimony he bore to the character of the north country students.

Mr. JOHN WRIGHTSON, M.R.C.A., F.C.S., then read an interesting paper on *Science in its Relation to Agriculture.* The following is an abstract:—

He first defined theory and science and practice. Practice is synomymous with performance—is content to do what it is told or what it has seen. Theory is the explanation of the cause of a practice. Thus, while practice has found drainage to be beneficial to many soils, theory, investigating the cause of this benefit, finds that the temperature is increased several degrees by the reduction of evaporation, and that the climate of a whole district is much improved. Instead of one stagnant reservoir, the soil becomes a medium through which new supplies of water are constantly percolating and leaving behind them their fertilising elements, viz., nitric acid, ammonia, and even warmth. The object of science is to seek the "reason" for every known phenomenon. Practice tells you that stiff soils must be worked dry, that light soils may be worked wet; that autumn tillage is excellent, or that subsoiling is followed by great results. This is all that practice can tell you. Suppose, now, the question be started, "Mr. A. has found subsoiling answer on his farm. What guarantee have I that I shall find it equally beneficial on mine?" Now, this important question cannot be answered without the aid of science; and the first step to its solution is to find the reason why the operation was so beneficial to Mr. A.'s farm. Having ascertained the "reason why" the operation had proved useful on the first farm, we next proceed to apply the same reasoning to the second, and finding the conditions altogether opposite, we conclude that on no known principle can a similar course of action give similar results. Let me give you an illustration as to how science goes to work in order to find out the cause of phenomena. Practical knowledge finds that Clover should only be sown once in eight years on the same land, because if sown oftener it is apt to fail. Science or scientific men immediately ask, "Why?" and set to work to discover and to bring together every fact bearing on the subject. In the first place they ask whether Clover sickness is a universal sequence of its too frequent culture. If they find a case in which land is free from this evil, they take every condition into account, and seize on those which are peculiar. The next question asked is whether this peculiarity is the cause of the immunity enjoyed in this single instance; and if so, the same conditions are applied to another case. If in this also a similar result is produced, it may be assumed that the explanation is found, and an hypothesis may be built, though it still requires further confirmation. If subsequent facts disprove the former conclusions, the hypothesis is deserted and a new explanation sought for, and when propounded a similar sifting takes place, and ends either in the hypothesis being proved true in every instance, or by a second abandonment and fresh search after truth. Now, this method of procedure is unknown to unscientific men. They have frequently mistaken these hypotheses for settled truths, and building expensive practices upon them, have often been disgusted at their possible failure, and have laid all the evil consequences at the door of science. Nor are scientific men totally free from blame. The very love of their pet idea—their new explanation, causes them frequently to have too much confidence in its truth. In trying to find the present position of science to agriculture, chemistry must take a most important place. Still there are reasons for thinking that this branch of science has been too exclusively applied to agriculture. We cannot read Liebig's newest work on the "Natural Laws of Husbandry" without noticing the important position given to structural botany. When however chemistry was first applied to agriculture, this co-relation of sciences had not taken place. Organic chemistry was hardly touched, and physiologists were working independently of chemists. The plant was considered to live on organised dead and decaying vegetable matter (humus). It was thought to assimilate that which was good for it, and excrete what was bad. The masterly manner in which Liebig showed the impossibility of this explanation of vegetable growth, must be considered admirable by all his readers. Still the fact remains, in spite of all that has been said, that crops are often much improved by the application of salts of ammonia and nitric acid, and farmers will continue to use them so long as this is the case. Liebig strives to explain it as follows:—Phosphates of lime and magnesia, as found in the soil, are insoluble in water, but are much more soluble in water containing carbonic acid, common salt, salts of ammonia or saltpetre. These salts, according to him, then, do not act by directly nourishing the plant, but by dissolving from the soil those constituents which are in an insoluble state, and offering them to the plant in a state in which they can be assimilated. Now it is plain that vegetables cannot grow simply because they are supplied with ammonia, carbonic acid, or any other single constituent, as the experiment of Prince Salm Horstmar and others sufficiently proved that every constituent must be present. It is therefore evident, argues Liebig, that although these salts, by their solvent action, present pabulum to the plant, yet such a system is an exhaustive one for the soil. If there is enough phosphoric acid in the soil to last 100 ordinary crops—and by thus more quickly rendering this phosphoric acid soluble, double crops are obtained—then only 50 such double crops can be grown. These views of Liebig have not, however, passed unchallenged, but have found able opposers in Messrs. Lawes and Gilbert, Dr. Voelcker, and others. These gentlemen seem not so much to fear exhaustion of the soil, and are great advocates for the use of nitrogenous manures. In the eagerness for analyses of soils, and ash of plants, too much faith seems to have been placed in the results of such analyses. One of the most remarkable discoveries bearing upon agricultural science, and which is destined to throw much light upon the nutrition of plants and the effects of manuring, is that of the physical attraction possessed by soils for several substances which give value to manuring agents. Mr. Thompson, of Moat Hall, was the first to observe that arable soil had the power of removing ammonia from its solutions, and Mr. Way shortly afterwards showed that a like power existed of removing not only ammonia but potash, phosphoric acid, and several other substances in a less degree. This property of soil has received the name of surface attraction, and has been compared to a like power in cloth to remove the colouring matter used in dyeing, and to the deodorising and decolourising properties of charcoal. The strength exerted in removing matters seem to depend on the porosity, or, in other words, the largeness of surface possessed by the charcoal or soil. So it is with soils—the more porous they are, the more strongly do they possess this property, and consequently strong pure clays on the one hand and pure sand on the other remove least from such solutions; while well tilled loams containing humus remove the before-mentioned salts most completely. Lastly, it is found that after salts have thus absorbed ammonia, potass, or their salts, water applied in very large quantities is able partially, but never entirely, to wash out the matters so absorbed. This discovery, thus described in the most general terms possible, has had a great effect in modifying the hypothesis of the manner in which plants assimilate their food. Still further, this discovery has caused greater attention to the study of roots, for since it is evident that only a small part of the required mineral matter is brought in solution to the plant, the plant must send out roots in search of food, which by vital force, and most likely by the excretion of carbonic acid, succeed in separating food from the different particles of soil with which they come in contact. I have mentioned this circumstance, and made the few anterior remarks, to show how botany bears upon agricultural science, and would also draw your attention to this branch of science as having much to do with the enabling of the farmer to select good seeds and detect adulterations with other seeds, which cannot be well detected without knowing their botanical characteristics. Botany can also throw light on the question of changing seed, and whether good or bad Wheat being sown makes any difference in the crop; in fact, it seems natural that, to a man who spends a large portion of time in raising certain plants, botany must be an interesting and instructive science. If botany is useful and deeply interesting to the farmer, how much more the knowledge of the much more complex and more easily disarranged animal system? Agriculture is now reaping the benefit of all thinkers upon medicine from Hippocrates to the present day, and the scientific labours of Gamgee, Simonds, and Dick, devoted, as they are, to veterinary medicine, are of inestimable value. In reading their works, however, we cannot but be struck with how completely this branch of science is merely an offshoot from the study of medicine as regards man; and this is another proof how science works for all, patiently turning up fact after fact until something is found which the ingenuity of man turns to his own account. [This is but a short reference to a very able, full, and instructive discourse.]

Reviews.

Sale Catalogue of Mr. Allnutt's Agricultural Library. 200, Fleet Street, London.

We think proper to call attention to a pamphlet containing the Sale Catalogue at 200, Fleet Street, because it is right that agriculturists should know where they can find on view for sale a complete agricultural library, besides a great many other things, maps, philosophical instruments, models, &c., in which agriculturists are interested. Mr. Allnutt's *Estates Gazette* is a well-known medium of connection between buyers and sellers of landed property. In it and in his published diagrams of the selling prices of grain for many years back, and in this agricultural library, he has long and usefully laboured in the service of English agriculture.

Land Surveying and Levelling for Farmers. By J. Tabor. Longmans.

A simple book of instruction in the use of the chain and the theodolite—enabling the careful reader of it to undertake the work of measurement and levelling.

The Principles of Agriculture. By W. Bland, M.R.A.S. Longmans.

This is the second edition of a little volume on the theory of the growth of plants, the action of manures, the rotation of crops, draining, fallowing, &c., by the Hon. Secretary to the Sittingbourne and Milton Farmers' Club. The author treats of a well-cultivated fallow, the application of manures, variety of crops, rest as in Grass, and draining and irrigation as the means of fertilising land. These are the subjects of as many chapters, and the work concludes with a discussion of the cultivation of the several crops of the farm, and with a few remarks on the relation of the tenant to his labourers and his landlord. It is a useful little book.

Fowls: a Plain Familiar Treatise, &c. By John Baily, 113, Mount Street. Hemingham & Hollis, Mount Street, Grosvenor Square.

This is the sixth edition of the simple, clear, explicit, and instructive work by Mr. Baily, well known as the first authority of the day upon its subject.

Miscellaneous.

The Meadow Saffron as a Poison.—It sends up a succession of lilac-coloured, Crocus-like flowers in September and October, after the fading of which nothing more is seen of the plant until the following spring, when its broad leaves begin to peer above the ground on the first advent of warmth. Its effects upon cattle may be gathered from the following report:—"The flowers of the Colchicum have not generally been considered by writers on the subject to be so poisonous to cattle as the leaves, but where the flowers are very thick, it is highly dangerous to allow cattle to graze upon the field. A farmer at Eyeford, near Stow-on-the-Wold, Gloucestershire, had 10 calves killed by eating of the flowers of the Colchicum, and two or three years since three cows were destroyed by this plant in flower in the same neighbourhood; our experience leads to the inference that cattle used to the district are not so liable to eat the Colchicum as strange beasts from a district where the plant does not grow. There can be no doubt that this large-leaved plant which, even if innocuous, must occupy much space, should if possible be eradicated from the pasture. The means to this end are—never to let the plant seed, or indeed mature a single leaf." *Morton's New Farmer's Almanac.*

Calendar of Operations.

MARCH.

WEST SUSSEX: *Feb.* 29.—After a rather sharp week we have now got mild weather, and everything is putting on a spring appearance. I suppose opinions will be rather divided about the character of the winter; we have certainly had some very sharp weather, but of short duration, and upon the whole we may say it has been rather mild. But the cold weather that we have had has not left us so well provided with sheep feed as we thought we were; sharp dry frosts always cause a greater consumption than when it is mild. But sheep have done well, and the lambing of the Down ewes has been good; seldom have the lambs looked healthier, and no doubt there will be a good many ready for the butcher by Easter, though it comes rather early upon us this year. Our market has not been very fully supplied with mutton for some weeks, and prices for all kinds have been high; some have been sold at over 7*s.* per stone of 8 lb., and yet the supply does not increase much; whether it is owing to abundant keep, or want of marketable stock, we don't know, but think it is rather the latter cause; and I do not think that there is more food than will be wanted. Beef commands a good price, and the supply is about as usual, but prices are better. The Wheat plant has stood the changeable weather pretty well; it certainly is not very forward, but spreads itself well for tillering, and the plant is equal on the ground. Work is getting rather behind, but as the frosts have shaken the furrows so well, sowing will go on quickly as soon as the surface is dry. *G. S.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in 24 hours previous on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	Feb. 26	29.96	36	35	N.E.	1	10	37	34	40	31	0.07
Saturday ..	27	29.77	37	36	S.E.	1	10	37	35	40	33	..
Sunday ..	28	29.63	42	42	S.	0	10	42	37	43	35	0.40
Monday ..	29 March 1	29.61	44	43	S.W.	0	10	49	39	60	34	0.40
Tuesday ..	1	29.77	41	40	S.E.	1	10	40	33	53	30	0.10
Wednesday	2	29.79	33	32	N.W.	0	10	46	29	51	26	..
Thursday ..												

Notices to Correspondents.

CABBAGE: *Arvon.* We should prefer Drumhead Cabbage. Do not put them too close together. One of the heaviest crops we ever saw was of plants a yard apart every way in heavy loam well and deeply cultivated, and horse-hoed both ways; the plants being in quincunx order, enabling the tool to take the rows east and west, as well as north and south.

COWS: *W P.* We know nothing for it but leaving the cow and bull together if necessary for a day during her season.

IMPORTATIONS IN 1862 AND 1863: *R.* The following are selected from the published tables. A certain proportion of most of the articles are reexported; but the quantity is practically unimportant.

I.—*Articles Free of Duty.*

Articles.	Importations. 1862.	1863.
Animals, living—Oxen, bulls, and cows .. .. No.	68,818	109,653
Calves .. .. ,,	29,069	41,245
Sheep and lambs .. .. .. ,,	299,472	430,788
Swine and hogs .. .. .. ,,	18,162	27,137
Bones (whether burnt or not, or as animal charcoal) .. .. tons	67,230	77,492
Flax .. .. cwt.	1,798,351	1,458,962
Guano .. .. tons	141,636	233,574
Hemp .. .. cwt	981,765	1,038,159
Hops .. .. cwt.	133,791	147,281
Oil Seed Cakes .. .. .. tons	101,156	88,566
Potatos .. .. cwt.	1,354,636	1,249,360
Provisions—Bacon and hams .. ,,	1,345,694	1,377,813
Beef, salt .. .. ,,	187,640	282,677
Pork, salt .. .. ,,	226,470	168,939
Butter .. .. ,,	1,037,371	986,708
Cheese .. .. ,,	703,909	756,285
Eggs .. .. No.	232,221,200	266,929,680
Lard .. .. cwt.	530,090	530,512
Saltpetre .. .. ,,	443,248	404,515
Cubic nitre .. .. ,,	794,318	539,808
Seeds—Clover .. .. .. ,,	169,974	272,626
Flaxseed and Linseed .. qrs.	1,088,472	1,104,578
Rape .. .. ,,	189,307	313,577
Wool .. .. lbs.	168,836,713	174,094,062
Wool, Alpaca .. .. ,,	3,106,759	3,402,582
Yeast, dried .. .. cwt.	102,202	104,233

II.—*Articles Subject to Duty.*

Articles.	Entered for Home Consumption. 1862.	1863.
Corn—Wheat .. .. qrs.	9,542,363	5,670,809
Barley .. .. ,,	1,863,683	2,078,717
Oats .. .. ,,	1,623,449	2,376,474
Peas .. .. ,,	230,133	304,155
Beans .. .. ,,	479,229	488,438
Indian Corn, or Maize .. ,,	2,751,267	2,980,707
Wheatmeal .. .. .. cwt.	7,314,319	5,265,843
Indian Corn Meal .. .. ,,	9,192	9,702

POULTRY: *Anxious Inquirer.* Rock salt in moderate quantities will do your birds no harm, and will not produce the symptoms described by you, which are rather those of some slow poison. Rock salt is greedily eaten by all fowls, pigeons, &c., when they can get it in pieces small enough; the latter birds will perch on large lumps of it and scrape it with their bills. It has the effect on them of a good tonic, and gives a healthy lustre to the plumage.

TOP-DRESSING FOR WHEAT: *Subscriber.* 1 cwt. of nitrate of soda and 2 cwt. of common salt per acre is as good a dressing as you can use.



SECURED BY
ROYAL LETTERS PATENT.

PRICE 32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanized Wire Strainer, Rose, and Small Jet, Brass Cylinders and Japanned Stirrup. With Copper Stirrup, Two Guineas.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

ROBERT HOGG, LL.D. and F.L.S., SHIRLEY HIBBARD, Esq., F.R.H.S., THOMAS RIVERS, Esq. (the eminent Florist), and other well-known gentlemen recommend the

HYDROPULT

AS AN INVALUABLE GARDEN IMPLEMENT.

CAUTION.—IMPORTANT TO THE PUBLIC.

The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled, manufacturers, who are now palming on the public worthless imitations of the HYDROPULT, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. Their devices resemble in many respects the HYDROPULT in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the HYDROPULT show card.

It has often come to my knowledge that in many instances Ironmongers have actually recommended these devices as equal to, if not superior to, the HYDROPULT, from the fact that I have persistently refused to place the HYDROPULT "on sale," as is the custom of the manufacturers of the HYDROPULT imitations, and I have thereby obtained the enmity of said interested tradesmen, who unscrupulously state that which they know to be untrue. For there is no Pump in existence except the HYDROPULT, weighing but 8 lbs., which will throw 8 gallons of water per minute a distance of 50 feet when worked by the power of one man.

The public should remember that no Machine, Pump, or other Implement PLACED IN A BUCKET is the HYDROPULT.

Prospectus, with Testimonials, sent Free on application.

CHARLES P. BUTTON, PROPRIETOR, HYDROPULT WAREHOUSE and SHOW ROOMS, 27, LEADENHALL STREET, LONDON, E.C.

GREEN'S PATENT SILENS MESSOR,

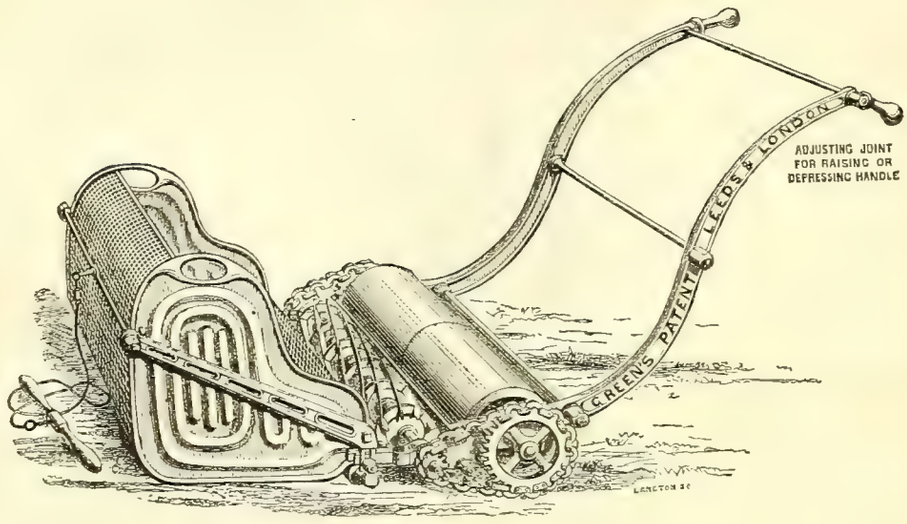
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.		To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.	
„ 12 „	...	...	5	0	0	...	...	„ „		„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.	
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.		„ 22 „	...	...	8	10	0	...	...	„ „	
„ 16 „	...	...	6	10	0	...	...	„ „		„ 24 „	...	...	9	0	0	...	...	„ „	

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.		To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.	
„ 28 „	...	...	14	0	0	...	...	„ „		„ 36 „	...	...	24	0	0	...	...	„ „	

To Cut 42 inches	...	...	...	£27	0	0	...	...	...	Leather Boots for Horse, 26*s*.
„ 48 „	...	...	...	30	0	0	...	...	...	„ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

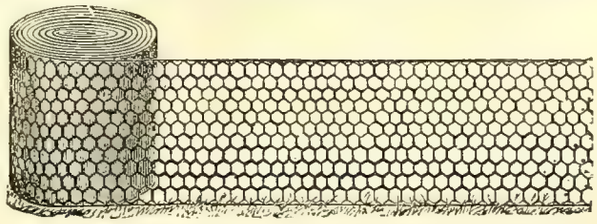
Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3d.	4d.	3⅜d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4⅝d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits.....	5d.	6d.	5⅝d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

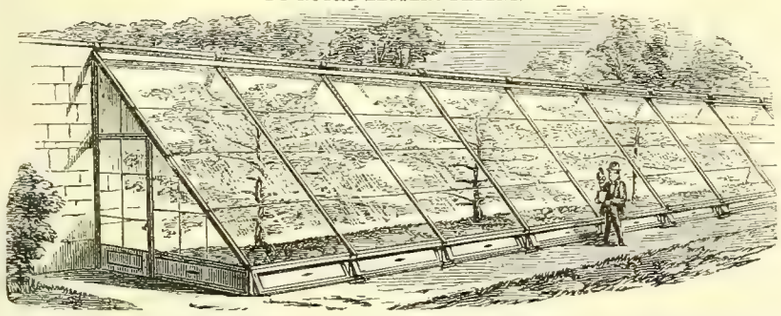
*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of James Scott, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

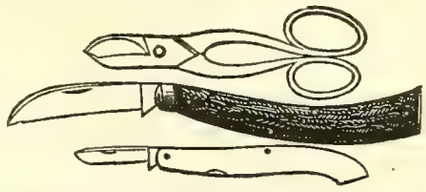
CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

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Every description of IRONWORK. *Lists Free.*

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Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Iron Works.

COTTAM AND CO.,
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Cottam & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.

Illustrated Catalogues free of Cottam & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1s. 8d. per yard run.
Four yards wide .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide, 1s. 9d. per yard.
An improved make, 3 yards wide, 2s. 8d. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering.

SAMUELSON & CO.'S
LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

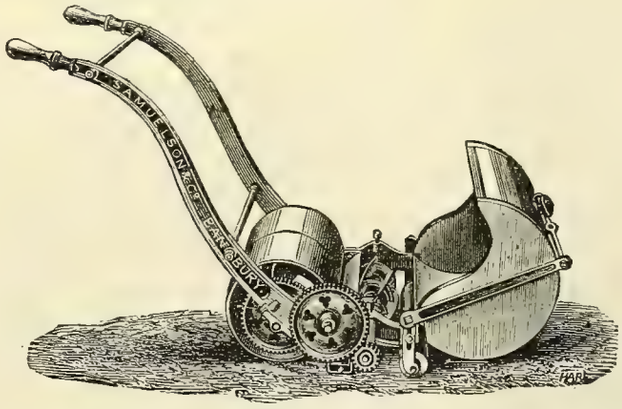
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4	12	0
To Cut 16 inches, suitable for One Boy	6	10	0
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PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8	15	0
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These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

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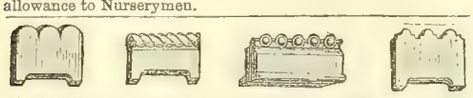
In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. Samuelson & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON and CO., BRITANNIA WORKS, BANBURY. | London Offices: 18, CANNON STREET, E.C.

AND OF ALL SEEDSMEN AND IRONMONGERS.

BLOSSOM of WALL FRUIT TREES.—WOOL NET, an approved and effectual protection, 9*d.* per square yard, in various widths. TANNED NETS, ¾*d.* per yard. All kinds of Garden, Fishing, and Sheep Nets.
N B.—Wire Fencing, 1½ mesh, 4½*d.* per yard.
R. RICHARDSON, 99, Euston Road, London, N.W.

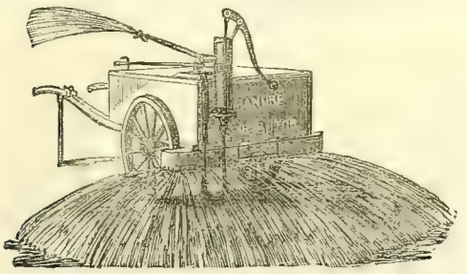
TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expence, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
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Orders forwarded by Railway with despatch.

BEST REIGATE SILVER SAND, 14*s.* per Ton; or 1*s.* 3*d.* per Bushel. For delivery within three miles, 2*s.* per Ton extra. Quantities of 4 Tons 1*s.* per Ton less,
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.
Delivery to any London Railway or Wharf.
F. & G. ROSHER. See Addresses above.



JAMES'S FIRST PRIZE MANURE CART has been Awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for Supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

Washing.

The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
Address, I. JAMES, Tivoli Works, Cheltenham.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From The Right Hon. Lord CAMOYS, *Stonor, Henley-on-Thames*
GENTLEMEN,—In answer to your inquiries whether I like your Black Varnish better than Oil Paint for all out-door purposes. I have no hesitation in saying that I decidedly prefer it. It is very reasonable in price, and any careful labourer can apply it. I use it both for Wood and Iron.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

AUSTIN'S ARTIFICIAL STONE.

INVENTED BY FELIX AUSTIN, 1826.

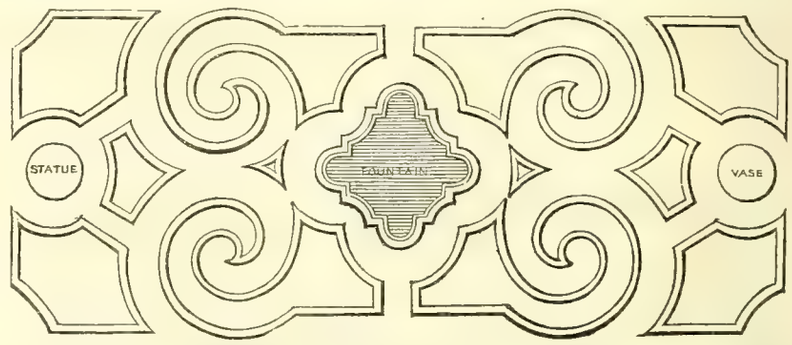
THIS WATERPROOF STONE, improved during a practice of more than 30 years, is the only one to which the chisel can be applied for high finish of ornament.

An immense quantity of work has during the period been executed for WINDSOR, OSBORNE TRENTHAM, ARUNDEL CASTLE, WOBURN, WREST, and most other residences of the nobility, which in consequence of its close resemblance to Portland Stone, it is generally mistaken for, and therefore brings no credit to the peculiar invention. It thus becomes necessary (now that Portland Cement is obtaining a factitious reputation) to mark the distinction between Mr. AUSTIN'S material and a mere Cement which is as variable in quality and as much abused by workmen as the old Roman Cement.

AUSTIN, SEELEY, & Co. guarantee their work when fixed by themselves; and after so long a series of years they have accumulated a stock of models far exceeding any ever before possessed by a similar establishment. A general idea of it may be conveyed by the following summary:—

246 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at Prices from 10*l.* to 400*l.*
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a GREAT VARIETY of BALUSTRADING and PEDESTALS.

As public specimens of their work, open to the inspection of all persons, they beg to refer to FOUNTAINS erected in the Cities of CANTERBURY and GLOUCESTER, and to the large FLOWER BASINS and KERBS, executed for the ROYAL HORTICULTURAL GARDENS, and the new AVENUE GARDENS, REGENT'S PARK.



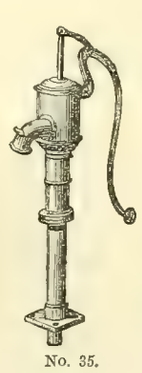
Kerbing made to any plan, in 3 or 4 feet lengths.

AUSTIN, SEELEY, AND CO., 369—375, EUSTON ROAD, REGENT'S PARK, N.W.

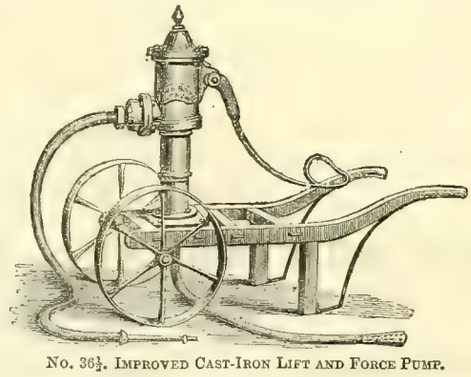
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

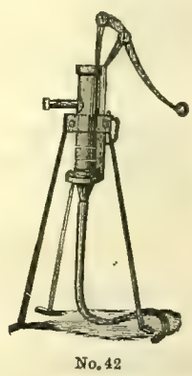
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ...	£1	1	0	2½ inches ... ... 3 feet 3 inches high ...	£1	10	0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing	£2	0	0				
2½ inches long, ditto ditto	2	14	0				

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot	0	1	4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*)	3	0	0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*)	3	10	0

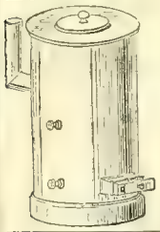
Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.
4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

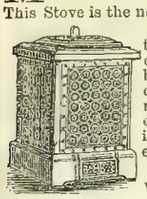
T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



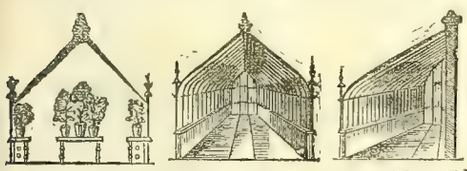
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

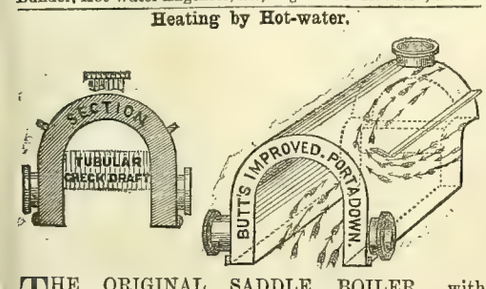
DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.



The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex

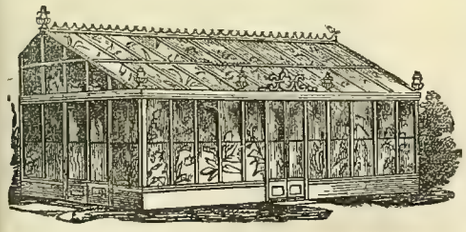
Heating by Hot-water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.

Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOTWATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS.

Glazed and Painted Complete, ready for immediate use, Packed and sent to all parts of the kingdom.

LIGHTS for PITS of all SIZES ready for use, kept in STOCK.

STRONG ZINC HAND GLASSES all sizes.

References to the Nobility, Gentry, and Trade in most of the counties in England.

Heating by Hot Water.



JOHN TOOLEY, late 21 years with J. WEEKS & Co.

TUBULAR BOILERS,

All Sizes on the most Improved Principles, Valves, &c.

References in England, Ireland, and Wales.

JOHN TOOLEY, 9, Radnor Street, King's Road, Chelsea, S.W.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

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JOSEPH SMITH, HORTICULTURAL BUILDER, New Road, Hammersmith, has for Sale:—SPAN-ROOF HOUSE, 27 ft. by 16 ft. 6 in., price 44*l.*; do., 17 ft. by 10 ft., 25*l.*; do. with Shelves and Hot-water Fittings, 17 ft. by 12 ft., 35*l.*; LEAN-TO, 45 ft. 6 in. by 14 ft., 60*l.*; do., 23 ft. by 12 ft., 33*l.* Twenty-five LIGHTS, 2½ thick, 14 ft. by 5 ft., glazed with 21 oz. glass, at 9*d.* per foot, or the lot for 60*l.*; also Ten, 11 ft. 2 in. by 5 ft., 23*l.*; do. Twenty-five, 7 ft. by 4 ft. 3 in., 22*l.* 10*s.*

CUCUMBER and MELON FRAMES, of an improved make, to take apart.

The above are constructed in the best manner as regards ventilation and strength; warranted of good materials. Glass 21 oz. to the square foot.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.

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REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.

W. SHORT, Sand and Peat Depot, Reigate, Surrey.

WANTED IMMEDIATELY, from 12 to 20 Tons of PEAT SOIL, suitable for Rhododendrons.—Lowest Price, delivered at Hatfield Station, per Great Northern Railway.

Address, G. W., Lower Woodside, Hatfield, Herts.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent

ROLL TOBACCO CLOTH.—The best and cheapest for Smoking Greenhouses and Destroying the Fly. Price 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.

Post-office Order payable Fleet Street.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TO BE DISPOSED OF, the LEASE of a 7-Roomed COTTAGE, with large Garden; suitable for a Florist, there being two Greenhouses and a 20-Light Pit on the premises.

Apply to W. E. GASCOYNE, Lower Edmonton, N.

TO BE LET on LEASE, and entered upon immediately, The WHITE HOUSE FARM, in the parish of Woodham Walter, containing about 200 acres of Turnip Land. A Dwelling-house and premises suitable for the occupation will be erected, the Landlord receiving a per centage on the outlay in addition to the rent to be agreed on. The land is tythe free, and about three miles from Maldon. There is a wood of 20 acres on the estate, which the landlords reserve to themselves.

Any further particulars may be known by applying to JOSEPH SMITH, Patteswicke Hall, Braintree.

To Nurserymen, Seedsmen, and Others.

TO BE SOLD, the BUSINESS, STOCK, and PLANT of a NURSERY and SEEDSMAN at North Warnborough, Odiham, Hants.

This Business has been carried on for many years, and has an excellent and extensive connexion.

The Stock (which has been recently reduced) will be Sold under peculiar circumstances at a very great sacrifice, thus affording to a purchaser desirous of entering upon a good old established Business at a small outlay an opportunity very rarely met with.

For further particulars apply to Mr. JAMES CHAUNDLER, North Warnborough, Hants; Mr. GEORGE BAKER, Jun., Windlesham Nursery, Surrey; or to Mr. S. CHANDLER, Solicitor, Basingstoke.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST 12 PRECISELY.

Great Sale of Hardy, Ornamental, and Greenhouse Plants,

From celebrated Nurserymen in Belgium, Holland, France, Sussex, Surrey, Berkshire, Middlesex, and Norfolk, consisting of STANDARD and DWARF ROSES, Indian and Ghent Azaleas, Ferns, Rhododendrons, Cannas, Pæonia, Iris, Carnations, Pinks, and Picotees; Gladiolus Brenchleyensis, ramosus, Gandavensis, and psittacinus; Pyramid, Trained, Standard, and Dwarf Pear, Plum, Apple, Peach, Nectarine, Apricot, Cherry, Gooseberry, Currant, Walnut, and other choice Fruit Trees; Acacias, Magnolias, Laurels, Conifers, &c., and some useful and ornamental Garden Seats and Lawn Baskets from a celebrated manufacturer.

MR. J. C. STEVENS will SELL the above by AUCTION, without Reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 5, at half-past 12 o'Clock punctually.

Catalogues of this important Sale are now ready, and will be forwarded to any address on receipt of a stamped envelope.

1000 Standard Roses from France, and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 9, at half-past 12 o'Clock precisely, 1000 Splendid STANDARD ROSES, bushy heads and first-rate varieties, from several well-known growers. Also a choice Assortment of BULBS from Holland for Spring Planting.—On view the Morning of Sale, and Catalogues had.

Importation of East Indian Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 10, at 2 o'Clock, a SMALL IMPORTATION of ORCHIDS, from the East Indies, just arrived per Overland Mail in capital condition, comprising Phalænopsis sp. nova, Renanthera sp. nova, Saccolabiums, Dendrobiums, Bolbophyllums, &c.

On view the Morning of Sale, and Catalogues had.

An Importation of Orchids

Just received per "Shannon" from Guatemala by Mr. Skinner, suitable for cool temperature treatment.

MR. J. C. STEVENS begs to announce that he has received instructions from Mr. Skinner to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 10, at half-past 12 o'Clock precisely, an assortment comprising the now well-known ORCHIDS suitable for Greenhouse and even Drawing-room Treatment,

LYCASTE SKINNERI, never seen finer,
ODONTOGLOSSUM GRANDE,
EPIDENDRUM VITELLINUM,

with many others, all in the most perfect health, having principally left Guatemala January 22.

On view the Morning of Sale, and Catalogues had.

Seeds.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 10, at half-past 12 o'Clock precisely, an importation just received direct from our well known Californian Correspondent, in the finest possible condition, comprising the following well known sorts, the hardiness of which have been well proved this late severe winter:—

Wellingtonia gigantea	Pinus Lambertiana
Sequoia sempervirens	,, ponderosa
Cupressus macrocarpa	,, monticola
,, McNabiana	Abies Douglasii
Libocedrus decurrens	,, Pattoniana
Picea amabilis	Picea grandis

Also Picea Pinsapo and Lilium giganteum.

On view the Morning of Sale, and Catalogues had.

Eight Cases of Bulbs from Holland,

ROSES FROM FRANCE, AND HARDY PLANTS FROM SURREY.

MR. J. C. STEVENS will SELL, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 12, at half-past 12 o'Clock precisely, a splendid assortment of DAHLIAS, GLADIOLI, ANEMONES, RANUNCULUS, FERRARIAS, and other Bulbs from Holland; some first-rate STANDARD ROSES from France; Pinks, Picotees, and Carnations, and Hardy Trees and Shrubs from Surrey.—On view the Morning of Sale, and Catalogues had.

To Noblemen, Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, March 11, at 12 o'Clock, about 200 Choice Double CAMELLIAS, compact plants, 1 to 5 feet, beautifully furnished with bloom buds; fine AZALEA INDICA, including the most approved kinds; a superb assortment of about 300 very handsome Standard, Half-Standard, and Dwarf ROSES, all selected with straight stems and fine full heads; a fine Collection of AMERICAN PLANTS; choice ERICAS, FUCHSIAS, VERBENAS, DAHLIAS, in dry roots, &c.; with some fine bulbs of LILIUM LANCIFOLIUM from a celebrated grower in Belgium, &c.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Standard, Dwarf, and Climbing Roses, Carnations, Picotees, Pinks, Dahlias, and a variety of other Plants.

MR. J. WILLMER will SELL by AUCTION as above, at the Auction Mart, Bartholomew Lane, E.C., on THURSDAY, March 17, at 12 o'Clock.

Catalogues at the Mart; and of the Auctioneer, Springfield Nursery, Sunbury.

Sarsden, near Chipping Norton, Oxon.

EXTENSIVE AND IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

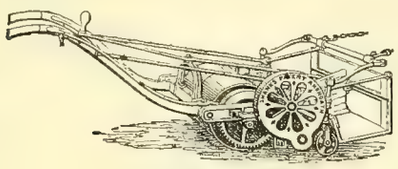
MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late J. H. Langston, Esq., M.P., to SELL by AUCTION, without any Reserve, on TUESDAY, March 22, the entire and far-famed HERD at Sarsden, consisting of about 100 head of BULLS, COWS, and HEIFERS, that have been long and carefully bred from animals purchased in the counties of Durham, Northumberland, and Yorkshire; some choice specimens have since been added from the Tortworth, Fawsley, Milcote, and other famed Herds, whilst Bulls of the highest breeding and character have been used, such as Prince (4772), Locksley (4240), Prince of Wales (8432), Lord Milton (10,461), General Elliott (10,266), &c., and latterly Gloster's Grand Duke (12,949), Archduke 2d (15,588), and Royal Turk (16,875). The young stock are chiefly by Lord of the Harem (16,430), Royal Arch (18,749), and Royal Counsellor (20,725).

Catalogues, with pedigrees, may be had on application to Mr. SAVIDGE, Churchill Mount Farm, Chipping Norton; or of Mr STRAFFORD, 13, Euston Square, London, N.W.

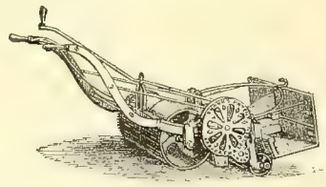
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

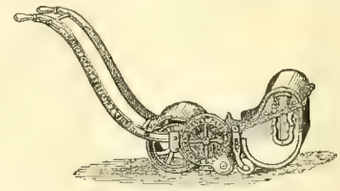
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS & SON can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
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The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
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The Right Hon. the Earl of Airlie
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The Right Hon. the Countess of Stair
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The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
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The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Ebbank
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The Right Hon. Lord Binning
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The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, March 5, 1864.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 11.—1864.] SATURDAY, MARCH 12. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY of LONDON, Regent's Park.
The First SPRING EXHIBITION this season will take place on SATURDAY NEXT, March 19. Tickets to be obtained at the Gardens, by orders from Fellows of the Society, price 2*s*. 6*d*. each. Gates open at 2 o'clock.

CRYSTAL PALACE.—GREAT FLOWER SHOW of the Season, SATURDAY, May 28.
Schedules are now ready, and may be had on application by letter or otherwise to the Secretary of the Crystal Palace, Sydenham, S.E.

HORTICULTURAL SOCIETY of LIVERPOOL.—The GREAT EXHIBITION of HYACINTHS and SPRING FLOWERS will be held in St. George's Hall, Liverpool, on WEDNESDAY, March 16.
For Schedules of Prizes, &c., apply to Robt. W. Kerr, Honorary Secretary, 4, Basnett Street, Liverpool.

Amaryllis—Good Sound Bulbs.
BUTLER and McCULLOCH have a large Stock of the above in excellent condition, at moderate prices. LISTS post free.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD and SON, Nurserymen and Seed Merchants, Maresfield, near Uckfield, Sussex.

Genuine Agricultural and Farm Seeds
at very Low Prices.
JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea, London, S.W.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON and SONS, Seed Growers and Merchants, Royal Berkshire Seed Establishment, Reading.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON and SONS, Seed Merchants and Nurserymen, SEED, ROSE, and FRUIT CATALOGUES, gratis. 57, Queen Street, Hull.

Best Seeds, Carriage Free.
BUTLER and McCULLOCH, Seed Merchants.
WANTED to PURCHASE, a few Tons of DANDELION Roots. Covent Garden Market, London, W.C.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS, Nurseryman and Seedsman, Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Good Seeds, Carriage Free.
WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Dahlias in Pot Roots.
C. E. ALLEN has a few Thousand of the above on hand, which he can supply cheap. Price forwarded on application.
Shacklewell, near London, N.E.

Genuine Vegetable and Flower Seeds
Carriage and Package Free.
McRAE and FRASER, Seed Merchants and Nurserymen, Tredegar Nursery, Bow, London, E.
PRICED LISTS forwarded Free on application.

Superb Double Hollyhocks, now ready for Planting.
WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.
See Advertisement on other page.
Address, William Chater, Nurseries, Saffron Walden, Essex.

New Roses for 1864.
EDWIN HOLLAMBY'S selection of the best of the above will be ready for delivery in March, in fine plants.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

New Roses for 1864.
JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong plants of the above to offer.
A PRICED LIST, with descriptions, may be had on application.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36*s*.
DESCRIPTIVE LIST, free on application.
Richard Smith, Nurseryman, Worcester.

New Rose List for 1864.
JOHN KEYNES' NEW LIST is now ready, and will be forwarded on application.
His Stock of NEW ROSES for 1864 is very fine.
Castle Street Nursery, Salisbury.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants will be ready early in March. For List of Sorts and Prices, apply to
Benjamin R. Cant, St. John's Street Nursery, Colchester.

ROSES.—Superb STANDARDS, 18*s*. per dozen; DWARFS, 12*s*. per doz. NEW ROSES of 1863, 30*s*. per doz.
DESCRIPTIVE PRICED LISTS on application.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
Charles Noble, Sunningdale Nursery, S.W. Rail.

Standard and Dwarf Roses.
Price on Application.
GEO. JACKMAN and SON, Woking Nursery, Surrey, have a quantity of the above in known leading varieties and good trees; they are desirous of clearing the ground, and will sell them cheap.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

NEW ROSES, &c., for 1864.—Splendid plants will be ready for delivery the third week in March.
LISTS of sorts and prices will be sent on application to
J. E. Frewer, Violet Hill Nursery, Stowmarket.

Roses.
EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

HERBST and STENGER, Kew Nursery, Richmond, S.W., have now ready for delivery several thousands of fine healthy plants of NEW ROSES for 1864.
Prices on application.
Genuine GERMAN FLOWER SEEDS, &c. See CATALOGUE.

J. IVERY and SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

Surplus Stock.
MARSH and PERKINS have pleasure in offering a quantity of Dwarf-trained MAY-DUKE CHERRIES.
Prices on application to 42, Drapery, Northampton.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses. Richard Smith, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Vines Black Hamburgh and Muscat of Alexandria.
ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 7*s*. 6*d*. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.
JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.
N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

Grape Vines.
B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

MARY NICHOLSON, Egglescliffe, begs to inform her friends that she still supplies STRAWBERRY PLANTS, but as her supply is limited, to prevent disappointment early application will be necessary.

German Flower Seeds, Fresh Imported.
SUTTON and SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Choice Seeds.
WM. WOOD and SON'S GUINEA COLLECTION of GARDEN SEEDS for One Year's Supply, Carriage free. Address, Maresfield, near Uckfield, Sussex.

EXCELLENCE and ECONOMY.—Before purchasing FARM, GARDEN, or FLOWER SEEDS, or LANCASHIRE POTATOS, see H. Brown's Priced DESCRIPTIVE CATALOGUE, post free.
4, Commutation Row, Liverpool.

DOUBLE TUBEROSES, just imported, 3*s*. per dozen.
Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

SEAFORTHIA ELEGANS.—WANTED, a Large Specimen.
Price and size to J. R., *Gardeners' Chronicle* Office, W.C.

Two-Years Seedling Larch.
ONE-YEAR TRANSPLANTED LARCH.
Very hardy plants, the produce of Scotch Seed.
RHODODENDRON PONTICUM, from 4 to 18 inches.
Trade prices on application to Howden Brothers, Inverness.

To the Trade.
WANTED, 10,000 ALDER, 3 feet, stocky.—State lowest Trade Price for Cash.
Wm. Barron, Sketty Nursery and Seed Farm, Swansea.

WANTED to PURCHASE, 1000 SEEDLING APPLE STOCKS, from Two to Three Years Growth.
Apply, stating price, to J. Gregory, Yardley Gobion, near Stony Stratford, Bucks.

Conservatory Plants.
WANTED to PURCHASE, 100 or 200 good Plants, and 12 first-class CLIMBERS. State kind and price for cash.
C. Farrant, Oakfield, Gipsy Hill, Norwood, S.

New Lucerne Seed (Luzerne de Provence).
SUTTON and SONS have just imported a very fine parcel of New LUCERNE SEED, which they can offer at 10*d*. per lb., or cheaper by the cwt.
(Sow 20 lbs. per acre, in drills.)
Royal Berks Seed Establishment, Reading.

CRESS.—Several Bushels of Cress Seed, the growth of 1862. Warranted to grow. Price 7*s*. per Bushel.
Apply to Mr. Syson, Woodbridge, Suffolk.

SEAKALE, per 100, 5*s*. 6*d*., 7*s*. 6*d*.; Extra Strong, 12*s*. 6*d*.; quotations to the Trade on application.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

SCARLET RUNNERS WANTED.—Send Sample and Price.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

THE BEST EATING POTATO all the year round is EARLY OXFORD. 5*s*. per bushel of 56 lbs.
Richard Smith, Seed Merchant, Worcester.

SEED POTATOS.—WEBB'S IMPERIAL KIDNEY, 7*s*. per cwt.; GLOUCESTERSHIRE KIDNEY, 10*s*. per cwt.; DAINTREE'S EARLIEST, 6*s*. per cwt.; WALNUT-LEAF KIDNEY, 10*s*. per cwt. Sacks 2*s*. each. Terms Cash.
W. Minchin & Son, The Nurseries, Hook Norton, Oxon.

Seed Potatoes.
H. and F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties, which they can offer to the Trade at low prices.
Seed Growing Establishment, Wisbech.

SEED POTATOS.—True SKERRY BLUES.
For quality, productiveness, and freedom from disease, A 1, at 5*l*. per ton. Terms cash.
John E. Nelson, Brockenhurst, Lymington, Hants.

To the Trade.
SEED POTATOS.—EARLY HANDSWORTH, LEMON KIDNEY, WEBB'S IMPERIAL, DAINTREE'S SEEDLING, LAPSTONE, &c., warranted true.
PRICED DESCRIPTIVE LIST sent on application to
G. & W. Yates, Seed Merchants, Manchester.

True Skerry Blue Potatos.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, can supply these at 10*s*. per sack of 16 stones imperial. This stock has never been touched by disease, and the present crop is 10 tons per acre.

SEED POTATOS.—FORTY-FOLD (early); DALMAHOY (early); REGENTS (Dunbar); ROCKS; REGENTS (Walker's); FLUKES. The above are grown on fresh land, and are an excellent sample. For price, which is very moderate, apply to
Mr. Riddell, Steward, Park Attwood, Bewdley.

ONE PENNY NEWSPAPER

Roses.

PAUL AND SON beg to offer, from their immense stock of the finest rooted and GOOD-HEADED Plants in the country, AUTUMNAL ROSES at the following reasonable rates.

OUR SELECTION.

FINE STANDARDS, 3 to 4 ft., 18s. per doz., 6l. 10s. per 100.
FINE DWARF ditto, 1 to 2 feet, 12s. to 15s. per doz., 5l. per 100.
FINE DWARFS, including TEA, NOISETTE, &c., 9s. to 12s. per doz., 75s. per 100.

PURCHASER'S SELECTION, for large Quantities special prices will be given. They would remind purchasers that with the present late season, Roses may be advantageously removed throughout March.

PRICED CATALOGUE on application.
"Old" Cheshunt Nurseries, Herts.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Great Reduction in the Price of Roses.

BENJAMIN R. CANT has still for SALE a fine stock of STANDARD, HALF-STANDARD, and DWARF ROSES. Purchasers of large quantities, either Amateurs or the Trade, will be supplied at extremely low rates. The Plants are very strong and cannot be surpassed.

CATALOGUES, with special Prices, on application to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

A Very Extensive and Well-grown Stock of Roses,

CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—s.	d.
STANDARD HYBRID PERPETUALS ..	18s. to 24	0
HALF STANDARD ditto	15s. ,, 18	0
DWARF ditto	9s. ,, 12	0
STANDARD SUMMER ROSES	18	0
HALF ditto ditto	15	0
DWARF ditto ditto	9	0
DWARF BOURBON and TEA-SCENTED ..	12s. ,, 18	0
DWARF CHINA	9s. ,, 12	0
DWARF NOISETTE	9s. ,, 15	0
CLIMBING ROSES	9s. ,, 12	0
CLIMBING ROSES, without names, for covering banks, &c. .. .. .. per 1 0	30s.	4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE		5 0

STANDARD ROSES. — The above fine healthy plants, from 12s per dozen, and 80s. per 100, all H. P. HALF STANDARD ROSES, H. P., 9s. per dozen, in any quantity, and must be cleared off.

Price to the Trade on application.
A remittance requested from unknown customers.
T. BUNYARD & SONS, Ashford.

High Beech, Essex.

A SELECT COLLECTION of ROSES, STANDARDS, and HALF STANDARDS on the DOG ROSE. DWARFS in Pots on their own Bottoms. Also a fine Collection of HOLLYHOCKS and DAHLIAS, with STOVE and GREENHOUSE PLANTS.

JAMES CRAWFORD.

Roses, Hyacinths, and Camellias.

WM. PAUL respectfully invites attention to his Collections of FORCED ROSES and HYACINTHS, on view during the month of MARCH, the 19th and 30th excepted. Equal FIRST PRIZES for 18 HYACINTHS and a collection of TULIPS, and seven other Prizes were awarded to collections at the Royal Horticultural Society's Exhibition of the 9th inst.

Visitors by Railway can enter the Nurseries from the platform, Waltham Station (Great Eastern Railway), half an hour's ride from London. Admittance free.

Paul's Nurseries, Waltham Cross, N.

CHOICE NEW FLOWER SEEDS.

Free by Post.	Per pkt.—s.	d.
AMARANTHUS MELANCHOLICUS RUBER ..	1	0
CLARKIA INTEGRIPETALA MARGINATA ..	0	6
GODETIA THE BRIDE	0	6
HELIPTERUM SANFORDII	1	0
KAULFUSSIA ATROVIOLACEA	1	0
LEPTOSIPHON HYBRIDUS	0	6
LOBELIA PAXTONIANA	1	0
LUPINUS ALBO-COCCINEUS	1	0
MIMULUS MACULOSUS	1	0
RHODANTHE ATROSANGUINEA	1	0
,, MACULATA ALBA	1	0
TAGETES SIGNATA PUMILA	0	6

For full description of the above choice New Annuals, see SUTTON'S AMATEUR'S GUIDE, which will be sent to any address on receipt of 6 stamps, or gratis to customers.

SUTTON & SONS, Reading, Berks.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1s. 6d., 2s. 6d., 5s.
DOBSON'S SUPERB CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PANSY, 1s., 2s. 6d.
DOBSON'S SUPERB BALSAM, 1s., 2s.
DOBSON'S SUPERB LOBELIA SPECIOSA, 1s.
DOBSON'S SUPERB HOLLYHOCKS, 1s., 2s. 6d., 5s.

The Trade supplied on liberal terms.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

RICHARD SMITH'S SEED CATALOGUE

contains a Calendar of Time for Sowing, particulars of Collections with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

EARLY SPRING FLOWERS, largest Stock in

England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to Mr. WEBB, Calcot Gardens, Reading.

AGRICULTURAL, VEGETABLE, and FLOWER SEEDS.

SAVED FROM THE MOST GENUINE STOCKS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

FULL DETAILED CATALOGUES ARE NOW READY, AND WILL BE FORWARDED POST FREE ON APPLICATION.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.

A trial is respectfully solicited.

PRICED CATALOGUES POST FREE ON APPLICATION.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

WEST RIDING SEED ESTABLISHMENT.

The Proprietors beg to announce they are ready to supply the very best SEEDS, and in consequence of the fine season they are much cheaper.

Mixtures of Grass Seeds for Laying Down Land to Permanent Pasture and Meadow, composed of Selected Natural Grasses, with a proper admixture. 26 lb. of the large and 14 lb. of the smaller allowed to the acre ... ... **per acre 24s. to 28s.**

Irrigation or Water Meadow Mixtures ... ... **per acre, 24s.**

Park and Field-Lawn Mixtures ... ... **per bushel 15s.**

Renovating Mixture for Old Swards, in Fields or Parks ... ... **per lb. 9d.**

Garden-Lawn or Grass-Plot Mixtures, the best that can be had ... ... **per lb 9d. to 1s.**

First-rate references can be given for more than 20 years.

LIST of AGRICULTURAL SEEDS can be had on application to

WILLIAM BARRATT, ST. JOHN'S, WAKEFIELD,

SEEDSMAN (BY SPECIAL APPOINTMENT) TO THE YORKSHIRE AGRICULTURAL SOCIETY.

W. B. obtained from the Yorkshire Society, at York, 1858, A GOLD MEDAL for the BEST COLLECTION of FARM SEEDS; A GOLD MEDAL for the BEST COLLECTION of FARM PLANTS; and the TEN POUNDS PRIZE for the BEST ESSAY on Laying Down Lands to Permanent Grass.

The Essay may be had on application to W. B. Price 1s., *Post Free,* 1s. 1d.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

VEGETABLE SEEDS, amounting to 21s., sent Carriage Paid. FLOWER SEEDS, sent Post Paid.

SEAKALE ROOTS, 5s. 6d. and 7s. 6d. per 100.

ASPARAGUS ROOTS, 2 years old, 3s. 6d. per 100; 3 years old, 5s. 6d.; 4 years old, 7s. 6d.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING.

Hardy Annuals.

			s.	d.				s.	d.
319.	100	Packets of beautiful varieties, including the most effective ...	21	0	324.	100	Packets, including those introduced in 1862, 1863, and 1864 ...	30	0
401.	50	Ditto ditto ditto ditto ..	10	6	405.	50	Ditto ditto ditto ...	15	0
462.	30	Ditto ditto ditto ...	5	6	406.	30	Ditto ditto ditto ...	10	6
403.	21	Ditto ditto ditto ...	3	6	407.	21	Ditto ditto ditto ...	7	6
404.	15	Ditto ditto ditto ...	2	6	408.	15	Ditto ditto ditto ...	5	6

Half-Hardy Annuals.

			s.	d.				s.	d.
409.	100	Packets of the most beautiful varieties	30	0	412.	21	Packets of the most beautiful varieties	5	6
410.	50	Ditto ditto ditto ...	15	0	413.	15	Ditto ditto ditto ...	4	6
411.	30	Ditto ditto ditto ...	10	6	414.	10	Ditto ditto ditto ...	2	6

BARR & SUGDEN'S COLLECTIONS OF VEGETABLE SEEDS for One Year's Supply.

No. 6	contains	33 qt.	of Peas,	Beans,	and other	Seeds in	proportion	...	...	for £3	3	0
No. 5	,,	20 qt.	ditto	ditto	ditto	ditto	...	...	...	2	2	0
No. 4	,,	13½ qt.	ditto	ditto	ditto	ditto	...	...	...	1	10	0
No. 3	,,	10 qt.	ditto	ditto	ditto	ditto	...	...	...	1	1	0
No. 2	,,	13½ pt.	ditto	ditto	ditto	ditto	...	...	...	0	15	6
No. 1	,,	7 pt.	ditto	ditto	ditto	ditto	...	...	...	0	10	6

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

MESSRS. E. G. HENDERSON AND SON will forward postage free on application, their NEW SEED CATALOGUE for 1864.

12 papers of NEW ANNUALS, introduced in 1864 for the first time, for 6s.

The ALBERT STOCK (New Intermediate, rich violet-purple), 1s.

The ALEXANDRA STOCK (new White Intermediate), 1s.

MIMULUS PARDINA (best new Hybrid Mimulus). 6d. and 1s.

PERFECTION SWEET WILLIAM (finest of all known strains). See Coloured Plate; 6d. and 1s.

French blotched FANCY PANSY, 1s. 6d.

PRIMULA SINENSIS, "CRIMSON EMPEROR," new, 2s. 6d.

TROPÆOLUM SPECIOSUM, rich scarlet, flowers and leaves like T. pentaphyllum, 1s.

COTTON PLANT, ornamental, 6d. and 1s.

CLIANTHUS DAMPIERI, 1s. and 2s. 6d.

" " " SPLENDENS, 2s. 6d.

TROPÆOLUM TOM THUMB "MODEL," the best of bedding varieties, 1s.

RHODANTHE ATROSANGUINEA and MACULATA ALBA, 6d. and 1s.

The Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering strong Autumn-struck Plants of the following, from Store Pots—

SCARLET GERANIUMS—Tom Thumb, Frogmore's Improved and Finedonensis.

CALCEOLARIA AUREA FLORIBUNDA.

AGERATUM MEXICANUM.

VERBENAS—Purple King, Géant des Batailles, Brilliant de Vaise, Lord Raglan, Mars, General Simpson, and Mrs. Holford.

The above at 8s. per 100; 70s. per 1000.

N.B. A reference or remittance requested from unknown Correspondents.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c, is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

MR. FRED. BREWER has pleasure in offering SEEDS of a New CABBAGE LETTUCE, unequalled for summer, autumn, and winter use, at 1s. per packet.

AMARANTHUS MELANCHOLICUS MAJOR, a magenta-shaded Foliage plant for Ribbon Borders—the Plant of the year. 1s. per packet.

Choice selections of Sporiferous FERNS in 20 varieties for 5s., Post free,

GOOD GARDENERS recommended.

9, Park Place, Carlton Road, London, W.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb:—Imported Truffaut's Aster, Stock, Wallflower, and Balsam, 1s. per packet; Phlox Drummondii, Zinnia, Cockscomb, Larkspur, Dianthus and Variegated Poppy, 6d. per packet; English saved Calceolaria, Cineraria, and Fringed Primula, 1s. 6d. per packet; Mimulus, Rhodanthe, Lobelia, Pansy, Hollyhock, Petunia, Amaranthus ruber, Antirrhinum and Auricula-eyed Sweet William, 6d. per packet

RICHARD SMITH, Seed Merchant, Worcester.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

CHEAP PLANTS.—

The following in strong Plants:—

	Per doz.—s. d.		Per doz.—s. d.
New Fuchsias of 1863	6 0	Hepaticas (sorts)	4 0
Do. 1862	4 0	Primroses	4s. to 9 0
Geraniums of 1863 (Bedding var.)	9 0	Polyanthus (finest mixed)	3 0
Lobelia Paxtoniana and five others of 1863	4 0	Auriculas (border var.)	3 0
Mimulus of 1863	4 0	Lilies of the Valley	2 0
Pentstemons of 1863	6 0	Pinks (finest named)	3s. 6d.
Pampas Grass (roseum)	9 0		and 6 0
Ageratum Prince Alfred	6 0	Cloves (finest mixed)	4 0
Lonicera aureo-reticulata	6s. and 9 0	Violets (sorts)	3 0
Hollyhocks (finest named)	6s. to 9 0	Gentiana acaulis	4 0
		Phlox (fine named)	4 0
		Pansies (fine named)	3s. to 6 0
		Dahlias (ground rts.)	9s. to 12 0
		Do. (pot)	4s. to 6 0

100 Hardy Herbaceous Plants, in 50 varieties, for 25s.

☞ Carriage of Parcels amounting to 20s., paid to London.

Post Office Orders on Castle Hedingham.

WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 74) for the present Spring is ready, and may be obtained Gratis at

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

RHODODENDRON HYBRID CATAWBIENSE, from 4½ to 7 feet high; thickly set with bloom, 5s. to 7s 6d. each.

RHODODENDRON PONTICUM, 5 to 8 feet, 5s. to 7s. 6d. each.

GREEN HOLLIES, 7 to 10 feet, 7s. 6d. each.

TWO ditto, 20 feet, moved last spring, very handsome, 63s. each.

CEDRUS DEODARA, 10 to 25 feet, very handsome, moved last spring; price on application.

G. BAKER, American Nursery, Bagshot, Surrey.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.

Seed, saved only from finest varieties, new and very choice, 5s. per packet; Collections of 12 separate named varieties, 4s. to 10s.; young Seedling plants, from best varieties 30s per 100, or 4s. per dozen; Bloomed Seedlings of last year with colours named, 6s. per dozen, or 30s. per 100.

Address, W. CHATER, Nurseries, Saffron Walden.

To Noblemen and Gentlemen.

CAMELLIAS.—To be DISPOSED OF, SIX very fine SPECIMEN PLANTS, bushy and in vigorous health (too large for present owner's accommodation). EXIMIA, 12 feet high; FORDII, 10 feet; ECLIPSE, 8 feet; ROSA MUNDI, 8 feet; Parmer's WARATAH, 8 feet; DONKELAARII, 6 feet. Prices, &c., on application.

Address J. ROPER, Esq., Clifton Croft, York.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.

LIST of SORTS sent on application.

INGRAM'S PROLIFIC MUSCAT, the most free bearer of all for pot culture; suitable for ordinary Vineries.

FRANKENTHAL, the best of all the Black Hamburghs.

TRUE CHAMPION HAMBURGH, the largest berry, and very fine fruit.

CHAVOUSH, new white; Fruiting Canes, 10s. 6d. to 21s.

Wellington Nursery, St. John's Wood, London, N.W.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7s. 6d each.

Younger plants, very suitable for planting, 3s 6d. and 5s. each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861.

The following is an Extract from the Report:—

"Mr. RIVERS's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."

Fruit large, often measuring 9 inches in circumference.

Young Trees, full of blossom buds, 10s. 6d. each.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Half-standard Apples.

RICHARD SMITH being overstocked, will sell in lots of not less than 50, good Trees of best sorts, and true to name, at 30s. per 100; also Half-standard PEARS, and CHERRIES, at 50s. per 100.

RICHARD SMITH, Nurseries, Worcester.

STANDARD CHERRIES. Extra fine.

STANDARD SPANISH CHESNUTS, extra fine for Avenues, 75s. per 100.

RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

STRAWBERRY PLANTS.—Early Black Prince, Early Princess Royal, Richard II., Highland Mary, Prince of Wales, and Newton Seedling, all at 5s. per 100. If selected, 7s. 6d. Black Spine, Long Gun, and Prince Albert CUCUMBERS at 1s. per packet each. MELONS, 1s. MUSHROOM SPAWN, 5s. per bushel. Pamphlets on the Mushroom, 1s.; the Strawberry, 1s.; Market Gardening, 1s. 6d.; Prize Essay on the Potato, Seakale, and Asparagus, 4th Edition, 1s. 6d.; on Cucumber and Melon Growing, 1s.; the Vine, 1s.

JAMES CUTHILL, Camberwell, London, S.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

Fine Kentish Cob Nuts and Filberts.

WM. HAMMERTON has still a fine stock of the above at 4s. and 6s. per dozen. Price to the Trade on application.

W. H. has also a few Pecks left of his fine new SEEDLING POTATO (Epps' Glory.) The flattering opinions given of its merits by the Editors of the *Gardeners' Chronicle* and the *Journal of Horticulture*, will be found in the *Gardeners' Chronicle*, page 92. Price on application.

W. H. also begs to offer a splendid stock of HAIR'S DWARF MAMMOTH PEAS, at 12s. per bushel.

High Street, Maidstone.—March 12.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	,, Portugal, 1 to 2 feet
,, dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	,, Turkey, 3 to 4 feet
,, standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

£3 3s., £2 2s., £1 1s., 15s., and 10s. 6d.

These COLLECTIONS contain only SEEDS of first quality—growth 1863—and have been prepared in a most liberal manner. Full particulars as to quantities and varieties included, may be seen at page 78 of our DESCRIPTIVE CATALOGUE. Free per Post, on application.

Orders amounting to 21s. and upwards sent Carriage Free, and a Discount of Five per Cent. allowed for prompt cash payments.



GENUINE FARM SEEDS.

THOMAS KENNEDY & CO.,

NURSERYMEN and SEEDSMEN, DUMFRIES, N.B.,

HAVE A LARGE AND CAREFULLY SELECTED STOCK OF

GENUINE FARM SEEDS

Which they are selling at extremely moderate prices, delivering them Free of Carriage (under certain limitations) at the chief Railway Stations in Great Britain, and principal Steam Ports in Ireland.

The special attention of Agriculturists is directed to their MIXTURES for LAYING DOWN LAND to PERMANENT PASTURE, which continue to give every satisfaction. Price from 20s. to 26s. per imperial acre.

Interesting Notices of the leading varieties of Grass Seeds, comprising these Mixtures, will be found in their PRICED CATALOGUE of AGRICULTURAL SEEDS, &c. for 1864, which will be sent free on application to any address.

"This Establishment may be relied on for the excellence of all the articles it professes to supply."—*The Field.*

PRICED CATALOGUES of FOREST, FRUIT, and ORNAMENTAL TREES, &c.; SELECT VEGETABLE and FLOWER SEEDS, &c., may also be had on application.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.
RICHARD SMITH, Nurseries, Worcester.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 15*s.* to 30*s.* per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12*s.* per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.
THOMAS AYRES.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6 ft., 7 ft., and 8 ft., 3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft., 6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft., 9*l.* 9*s.* to 10*l.* 10*s.*
Elvaston Nurseries, Derby.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.

W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.
Elvaston Nurseries, Derby.

Transplanted and Seedling Larches.

BENJAMIN REID AND CO., NURSERYMEN, Aberdeen, N.B., offer for Sale several Millions of SEEDLING and TRANSPLANTED LARCHES. They are furnished with abundant healthy roots, clean stems, and capital leaders, and being grown in friable soil in an exposed situation are well worth the attention of proprietors and the Trade. CATALOGUES Post Free.
Special Prices and free delivery for large quantities on application.

To Persons Engaged in Laying out New Grounds.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, beg to offer the following, of which they have a large and healthy stock, and which they are prepared to dispose of on very reasonable terms. Prices may be had on application.

STANDARD PORTUGAL LAUREL, on strong stems, 3 to 4 feet, with heads 10 to 15 feet in circumference.
STANDARD LAUREL, COLCHICUM, 5 to 6 feet stems, with large well-formed heads. This is hardier than the Common Laurel.
STANDARD HYBRID RHODODENDRONS, 3 to 5 feet stems and good heads.
STANDARD SIBERIAN LILAC, 4 to 5ft. stems, and neat heads
" LILAC NOISETTIANA, 4 to 5 feet.
" GUELDER ROSE, 3 to 4 feet stems.
" GOLDEN-STRIPED YEW, and ELEGANTISSIMA, grafted on Irish Yew, 6 to 8 feet.
SCARLET and YELLOW-FLOWERING HORSE CHESNUTS, 5 to 8 feet.
LABURNUM, ENGLISH and SCOTCH, 6 to 12 feet.
MOUNTAIN ASH, 6, 8, and 10 feet.
POPLARS, LOMBARDY, from 6 to 15 feet.
SERVICE TREE, of sorts, 8, 10, and 12 feet.
TREE BOX, fine dressed specimens.
ENGLISH YEW, pyramidal-shaped plants, 3 to 4 feet.
GRAFTED HOLLIES, of sorts, specimen plants, 2 to 5 feet.
HODGINS' HOLLY, 1½, 2½, and 3½ feet.
GREEN HOLLIES, 2 to 4 feet, planted out in clumps.
EVERGREEN OAK, in pots, 2, 3, and 4 feet.
RHODODENDRONS, fine hardy hybrid sorts, 2, 3, and 4 feet, and as much through.
RHODODENDRON NAPOLEON III.—Deep rosy crimson, beautifully spotted, quite hardy.
HARDY HEATHS.—A fine collection, including 40 distinct named sorts.
An extensive collection of Dwarf hardy AMERICAN SHRUBS
HARDY CONIFERÆ.
ARAUCARIA IMBRICATA, 1½, 2, 2½, and 3 feet.
CEDRUS DEODARA, 3, 4, 5, 6, and 7 feet.
MOUNT ATLAS CEDAR, 2 and 3 feet.
CEDAR of LEBANON, 1 and 2 feet.
ABIES ARCHANGELICA, well furnished, 1 to 1½ foot.
" FINDONENSIS VARIEGATA, 9 inches.
" INVERTA, 9 inches | ABIES PYGMÆA
" ORIENTALIS, 1½, 2, and 3 feet.
HEMLOCK SPRUCE, 2 feet.
LARIX TAMARIX, or AMERICAN LARCH, 5 to 8 feet
BLACK AMERICAN SPRUCE, fine specimens, 3, 4, and 5 ft.
PICEA AMABILIS, 1 foot
" GRANDIS, or LASIOCARPA, 1 and 2 feet.
" FRASERI, 2 to 2½ ft. | PICEA NORDMANNIANA, 1 ft.
PINUS EXCELSA, 2 and 3 feet.
" BENTHAMIANA, 2 to 2½ feet.
" CALABRICA, 2, 4, & 5 ft. | PINUS MACROCARPA, 3&4ft
" CEMBRA, 3 and 4 feet | " TAURICA, 1½ to 2 feet, and 3 to 3½ feet
" FISCHERI | " PYRENAICA, 1½, 2, 3, & 4 ft
" HARTWEGII | " UNCINATA, 1½ to 2 feet
" MONTICOLA, 9 to 12 ins.
WEYMOUTH PINE, 2½ to 3 feet.
CRYPTOMERIA JAPONICA and LOBBII, 2 to 3 & 5 to 6 feet
CUPRESSUS MACROCARPA, 3, 4, and 5 feet.
" SEMPERVIRENS, 3 to 4 feet.
JUNIPERUS DUMOSA | JUNIPERUS PROSTRATA
" CRACOVIA, 2 to 3 feet. | " SABINA, 2 to 2½ feet
" TAMARISCIFOLIA
RETINOSPORA ERICOIDES, 1 foot.
RED CEDAR, 2 to 3 feet.
LIBOCEDRUS CHILENSIS, 3, 4, and 5 feet.
AMERICAN ARBOR-VITÆ, 3½ to 4 feet.
CHINESE ARBOR-VITÆ, 2 to 3 feet,
GOLDEN ARBOR-VITÆ, 1 to 1½ foot.
PEARS, in pots, well set with fruit buds.
LARGE PYRAMIDAL PEARS, in a bearing state, 6, 8, and 10 feet, with good fibrous roots.
PEAR STOCKS.
CAMELLIAS.—A number of very fine specimen plants, Double White, and other kinds, in tubs, 6 to 15 feet.
A large collection of Hardy BRITISH and EXOTIC FERNS.
All kinds of FOREST TREES, GREENHOUSE and STOVE PLANTS, AGRICULTURAL, GARDEN, & FLOWER SEEDS, separate CATALOGUES of which can be had on application.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square,
London, W.

THE LONDON SEED COMPANY, LIMITED,
has AMALGAMATED with the
PLYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The FARM SEED PRICE CURRENT is now ready, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of GARDEN SEEDS are now Ready.
See Advertisement, page 195.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of FLOWER SEEDS are now Ready.
See GENERAL PRICE CURRENT.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60*s.*; per doz., 9*s.*, including package.
Elvaston Nurseries, Derby.

SURPLUS NURSERY STOCK
On Lands that must be Cleared.

Transplanted Quicks, 3, 4, 5, and 6 years	English Oak, 3 to 4½ feet
Mountain Ash, 3 to 4½ feet	Turkey Oak, 5 to 7 feet
Hazels, 2 to 3½ feet	Poplars, 6, 7, 8, and 9 feet
Service Trees, 4, 5, and 6 feet	Hornbeam, 4 to 6 feet
Privets, 3 to 4 feet	Limes, 6, 7, and 8 feet

Some Extra Strong LIMES suitable for AVENUES.
Price on application. State quantities required.
JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

FOR SALE, 30,000 LARCH, 30,000 SCOTCH, 100,000 SPRUCE, and 100,000 extra strong THORNS, all from 2 to 3 feet high; 3000 DEODARS, splendid plants, to be sold a bargain.
For prices, &c., apply to J. SCOTT, Merriott Nurseries, Somerset.

SCOTT'S FRUIT TREE CULTIVATOR, his CONIFEROUS CATALOGUE, his FLOWER GARDEN ANNUAL DIRECTORY, and his SELECT SEED CATALOGUE, ought to be in the hands of every lover of a garden. They are allowed to be the best published on these subjects, and are replete with information. Two Stamps required.

To the Trade.

THOS. CRIPPS has still on hand a large Stock of fine healthy WELL ROOTED PLANTS of the undermentioned:—Abies Menziesii, 9 to 12 in. to 3 and 4 ft.; A. Albertiana (Californian Hemlock Spruce), all sizes up to 6 and 7 ft.; Araucaria imbricata, 4 to 6 in. to 12 ft.; Cupressus Lawsoniana, 2 to 4 in. to 6 and 7 ft.; C. macrocarpa (Lambertiana), 1 ft. to 10 and 12 ft.; Pinus Benthamiana, 4 to 6 in. to 2 and 3 ft.; P. insignis, 6 to 9 in. to 15 ft.; P. Jeffreyii, 2-years seedlings, to 5 ft.; P. Lambertiana, 3 to 6 in. to 2½ ft.; P. macrocarpa, 12 to 18 in. to 4 and 5 ft.; P. ponderosa, 4 to 6 in. to 6 and 8 ft.; Thuja Lobbii, 2 to 3 ft. to 6 and 8 ft.; Wellingtonia gigantea, fine specimens up to 6 and 8 ft.; Arbutus, 6 to 9 in. to 2 and 3 ft.; Berberis Darwinii, 6 to 9 in. to 3 and 4 ft.; Cotoneaster, Standards and Dwarfs; Laurel, Common, all sizes up to 6 and 7 ft.; Manetti Rose Stocks, fine, for immediate working; Pyracantha, all sizes; Broom, Portugal and Spanish, all sizes up to 3 and 4 ft.; Rhododendrons and Ghent Azaleas, all the leading varieties; Sweet Bays, Standards, with fine heads; Roses, Standards and Dwarfs; Vines from eyes, fruiting plants; Thujopsis dolabrata, per dozen or 100; Apple Trees, Standards and Dwarfs; Quick Thorn of all sizes.
WHOLESALE CATALOGUES post free on application.
The Nurseries, Tunbridge Wells, Kent.



Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.

SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.

No. 1, 3*l.* 3*s.*; No. 2, 2*l.* 2*s.*; No. 3, 1*l.* 11*s.* 6*d.*; No. 4, 1*l.* 1*s.*; No. 5, 15*s.*; No. 6, 10*s.* 6*d.*; No. 7, in extra quantities for a large family, 5*l.* 5*s.*

Royal Berkshire Seed Establishment, Reading.

PRESENT PRICES of CLOVER SEEDS.
CHEAPER BY THE CWT.
RED, or BROAD, best, 7*d.* per lb. Do. 2d quality cheaper.
WHITE or DUTCH, best, 9*d.* per lb. Do. 2d quality cheaper.
COW GRASS, 9*d.* per lb.
ALSIKE, best, 10*d.* per lb. Do. 2d quality cheaper.
YELLOW TREFOIL, best, 4½*d.* per lb. Do. 2d quality cheaper.
FINE MIXED CLOVERS, 9*d.* per lb.
Samples and lowest prices per Cwt. may be had on application.
PRICED LISTS of FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.
Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended. Per oz.—*s. d.*

BROCCOLI, SUPERB WINTER WHITE (Snow's)	2 6
" LATE WHITE (Shearer's)	2 6
CAULIFLOWER, NEW EARLY MAMMOTH	2 6
LEEK, HYBRID PRIZE (Henry's)	2 0
LETTUCE, MOOR PARK	1 6
PEA, ADVANCER (Maclean's)	2 0

Exotic Nursery, Tooting, Surrey, S.

BEST POTATOS for FIELD PLANTING

SKERRY BLUES	NEW PINK FLUKES
FLUKES	DALMAHOY'S (EARLY)
YORK REGENTS	BRITISH QUEEN
NEW RED REGENTS	
DAINTREE'S FIRST EARLY	THE KING

For lowest cash prices, apply, stating quantity required, to SUTTON & SONS, Seed Growers, Reading.

Splendid New Potato.—The Pink Fluke.

SUTTON AND SONS have great confidence in recommending this fine POTATO. It has hitherto been entirely Free from Disease, and keeps mealy and fine flavour until the succeeding harvest.
The Grower, writing to Messrs. SUTTON, says:—"They are a beautiful Potato, and will astonish your customers. They will keep 12 months and improve in flavour, when all others are getting unpalatable."
Price according to quantity required, which may be had on application to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Myatt's Ashleaf Potatos.

T. BUNYARD AND SONS, Ashford, have a fine stock of the above to offer, very cheap. Also OLD ASHLEAF, 1*s.* 6*d.* per peck; COCKNEY and FRAME, 1*s.* 2*d.* per peck; EBRINGTON and PROTESTANTS, 1*s.* 3*d.* per peck. Warranted true to name.

POTATOS.—Handsworth, Ashleaf, Myatt's Prolific, Fortyfold, Dalmahoy, Early Shaw, &c.
GOOSEBERRIES and BLACK CURRANTS, extra strong.
2-Year ASPARAGUS, strong SEAKALE, RASPBERRIES, STRAWBERRIES, DUTCH HONEYSUCKLE, BOX EDGING, &c.
GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

Potatos for Present Planting.

JAMES FAIRHEAD AND SON have on offer a large quantity of all the leading and most approved kinds (Prices on application), including EARLY ASHLEAF, WALNUT LEAF, MYATT'S PROLIFIC, WEBB'S IMPERIAL, EARLY TEN-WEEK (10 days earlier than the Shaw's), SHAW'S DALMAHOYS, REGENTS, FORTYFOLD, PEEP O' DAY KIDNEY, SPENCER'S KING of the KIDNEYS.
7, Borough Market, London, S.E.

GLOUCESTERSHIRE KIDNEY POTATO.—We can spare 6 to 8 Tons of this splendid Potato, more than we require for our own planting, at 8*l.* 10*s.* per ton for the lot, for Cash, warranted true. We have 200 beautiful Plants of MOSCOW QUEEN PINE to offer at 4*s.* each to take them all.
ADAMS & Co., The Horticultural Establishment near Gloucester.

Seed Potatos.

GEORGE SIBBALD, Drumgeath, by Dundee, has for Sale about 40 Tons of the following Potatos, true to name; Early Ashleaf Kidney, Myatt's Prolific Kidney, Lemon Kidney, Poole's King of the Kidneys, Fluke Kidney, Lapstone Kidney, Early Oxford, Cheshire Cluster, Early American, Early Dalmahoy. Also Ashleaf Round, Walker's Early, &c.
Prices very moderate. Apply as above.

THOMAS AYRES, Biggleswade, Beds NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Potatos.—Seeds.

H. BROWN having on hand an extra large Stock of the following POTATOS, begs to offer them at considerably reduced prices per Imperial Bushel, for present orders, viz.:—True Early Ashleaf Kidney Potatos, 6*s.*; Myatt's Prolific Ashleaf Kidney, 5*s.* 6*d.*; Early Pink, Early Kemps, 4*s.* 6*d.* Also Dalmahoy, Fortyfold, White Rock, Scotch Downs, Flukes, Arrowsmith's Seedlings, and other varieties.
Prices for quantities on application. For SEEDS, see PRICED DESCRIPTIVE 44-page CATALOGUE, post free.
4, Commutation Row, Liverpool.

SEED POTATOS.—PROTESTANTS, 6*s.* per sack of 1½ cwt., delivered at Rye Station, South Eastern Railway; sacks 1*s.*, or new 1*s.* 6*d.* each. Whole sets, size 12 cwt. to plant an acre, will be sent; or, if preferred, large, for cutting. The Grower, after some years' trial against Flukes, Regents, Pink Eyes, and other favourite kinds, has found this to be the most profitable, being an excellent cropper, and least affected by disease—indeed never to any extent, even when other sorts have suffered most severely.
Direct, with instructions and remittance, to Mr. HENRY DENGATE, Bailiff, Flackley Ash, Peasemarsh, Sussex.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863:—
"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."
Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

PINK FLUKE POTATO (quite true).—Fine flavour, most prolific, may be said to be literally free from disease; obtains the best market price, will keep 12 months, is in high perfection from January, to September, therefore invaluable when others are useless. This Potato is almost unknown except in the vicinity of Pershore and Worcester, where the principal growers have been supplied by the Advertiser, who has grown it with great success for several years, in an increasing extent, to the exclusion of all other kinds, being convinced it yields a profit double that of any other variety; the past season he grew 22 acres. Has 120 tons now to dispose of, which he offers on terms below, assured that e'er long the Pink Fluke will occupy the great bulk of every grower's crop in the kingdom. Price, delivered at Pershore Station, upon receipt of remittance, in new corn sacks (charged 2*s.* each), containing 3 bushels, or 180 lb. nett: one sack, 17*s.* 6*d.*; two, 16*s.* 6*d.* per sack; three, 15*s.* 6*d.* per sack; five, 15*s.* per sack; a discount on larger quantities. The distance from the Station compels a scale of prices.
Apply to FRANCIS JAMES, The Warren, Brockhampton, near Worcester.
N.B.—As the Pink Fluke bears great contrast in its nature, habit, and growth, to other kinds, F. J. will, on receipt of a stamped envelope (addressed), forward a printed description of the same, as also his successful mode of culture.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.
Fulham Nursery, London, S.W.—March 5.
Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. 6d per packet. Will be forwarded to any part of England on forwarding 30 postage stamps.
The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.
W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

Scrymger's Giant Brussels Sprouts.

G. SCRYMGER has much pleasure in offering Seed of the above superb variety of BRUSSELS SPROUTS, for which he received the First Prize at the Great International Show in 1862; and since pronounced by all who have seen it to be the best variety in cultivation. Seed in packets at 1s. Post free, 14 stamps.—Sonning, near Reading.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1864.
Strong Transplanted SEA KALE, 2s. per doz.
RICHARD SMITH, Nurseryman, Worcester.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1s. each. This Leek can be grown from 4 to 5 lbs. weight. None genuine unless in their own sealed packets.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Splendid Seakale for Forcing.

WILLIAM BARNES has a few hundreds, extra strong crowns, to offer, and feels confident they cannot be surpassed for size or health. He has also some of a second size, which will produce fine heads for table.
Price upon application.
Camden Nursery, Camberwell.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:

Price for Picked Roots, per 100	.. ..	10s. 0d.
Do. second size	,, ...	7 6
Also strong for Planting, per 100	.. 5s. and	7 6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

To Gentlemen, Nurserymen, and Others.

GLOBE ARTICHOKE PLANTS, at 25s. per 100; also a quantity of PROVINCE or CABBAGE ROSE PLANTS, at 12s. per 100. A good discount allowed to the Trade.
Post orders payable to JOHN GAINES. Herbalist and Seedsman, Covent Garden Market, London, W.C.

SEEDS of SELECT QUALITY,
FREE BY POST.

IMPROVED RABY CASTLE BEET, warranted one of the finest Beets grown, half ounce pkts., 1s.
NE PLUS ULTRA CAULIFLOWER, has every good property, and sure to please, per pkt., 1s.
CRISTATA PARSLEY for garnishing, not to be equalled, per pkt., 6d.
CINERARIA, from the finest named Collection, no inferior sorts grown, per pkt., 1s.
LOBELIA SPECIOSA, true, fine quality, large pkt., 1s.
SWEET WILLIAM (HUNT'S), per pkt., 6d.; ditto DEAN'S AURICULA-EYED, per pkt., 6d.
BELGIAN PANSY (DEAN'S), per pkt., 6d.
TROPÆOLUM CRYSTAL PALACE SCARLET, 6d. per pkt.; ditto GEM, per pkt., 6d.
AMARANTHUS MELANCHOLICUS RUBER, per pkt., 6d.
All other FLOWER and GARDEN SEEDS of the finest quality.
HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—

DANIEL O'ROURKE PEAS
EARLY PRIZETAKER MARROW

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2s. 6d. per quart.
The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4s. per quart.
The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4s. per quart.
The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1s. and 2s. 6d. per packet.
Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had Post Free on application.
The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend:—
DILLISTONE'S EARLIEST PEAS, 1s. 6d. per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2s. 6d. per packet.
BROCCOLI, SNOW'S SUPERB, 2s. 6d. per ounce.
CUCUMBER KIRKLEES HALL, 1s. per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1s. per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1s. per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1s. per pkt.
MELON SCARLET PERFECTION, new, First-class Certificate at Royal Horticultural Society, 2s. 6d. per packet.
Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E.; and Edinburgh.



MANGEL WURZEL SEED,
CHEAPER BY THE CWT.

	Per lb.—s.	d.
LARGE YELLOW GLOBE ..	0	6
ORANGE GLOBE	0	6
RED GLOBE	0	6
LONG RED	0	6
LONG YELLOW	0	6

NEW SORTS of MANGEL WURZEL.

NEW YELLOW INTERMEDIATE, very fine shape, free from roots	1	6
NEW RED INTERMEDIATE, similar in shape and quality ..	1	0
SELECTED LONG YELLOW, a heavy cropper of fine texture ..	0	8
SUTTON'S ELVETHAM LONG RED, of superior feeding quality	0	8
FISHER HOBBS' ORANGE GLOBE, a fine sort, already very popular	0	9
STRATTON'S RED GLOBE, a superior variety selected by Mr. Stratton	0	9

PRICED LISTS of other FARM SEEDS Gratis and Post Free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



NEW SORTS of SWEDE SEED, 10d. per lb., or cheaper by the Bushel.

KING of SWEDES (Mr. Skirving's New Sort).
JOSLING'S ST. ALBANS.
HALL'S IMPROVED PURPLE-TOP.
SHEPPARD'S GOLDEN GLOBE.
NEW GIANT TANKARD.
JEFFRIES' SUSSEX.

From Mr. THOS. HARLAND, *Copt Hewick.*
"The Giant Tankard Swede I got from you last year answerod exceedingly well."

From Mr. G. BIRKETT, *Bailiff to* Lord TREDEGAR, *Tredegar Park.*
"Your Giant Swede did remarkably well. They were a tremendous size, and we have scarcely one rotten at this date (April 10, 1863)."

SUTTON'S CHAMPION SWEDE.—New Seed from selected Roots at 9d. per lb., or cheaper by the Bushel.

From R. MILWARD, Esq., *Southwell.*
"Your Champion Swede proved most excellent."

From J. W. J. BARTRAM, Esq., *Little Weedon.*
"Your Champion Swede has been a splendid crop, and kept well through the severe frosts."

From Mr. THOMAS EDWARD WRIGHTON, *Bradninch.*
"My crop of Champion Swedes was the best in the neighbourhood, and kept well; also the Mangel."

From Capt. DALTON, *Ripon.*
"My crop of Champion Swede from your seed is the best I ever had.'

From J. STRATTON, Esq., *Broad Hinton.*
"With your Champion Swedes I won a prize of £10 last year."

From Mr. THOS B. PALMER, *Escrick.*
"Your Champion Swedes are as sound and as good in colour as the day I got them up; I have sufficient to last till the 12th of May."

From Mr. H. HAMMOND, *Market Place, Masham.*
"Your Champion Swede obtained the First Prize at the Masham Show, the 10th of September last."

From Mr. JOHN COLEMAN, *East Kennett.*
"Send Champion Swede Seed as I never intend to grow any other sort while I can get yours."

From Mr. J. B. REECE, *Harpswood.*
"I took the Shropshire Challenge Cup, likewise the Bridgenorth District Cup, with your Champion Swedes."

From WM. SADLER, Esq., *Ferrygate, Drem.*
"The Champion Swede is cutting out everything here."

The Editor of the *Agricultural Gazette*, at page 1192, Dec. 12, 1863, referring to the Islington Cattle Show, says:—
"Messrs. SUTTON, of Reading, make a very remarkable display. In particular, we may refer to the extraordinary Swedish Turnips on their Stand—probably the heaviest that were ever grown. They weigh upwards of 28 lb. a piece."
These enormous Swedes, measuring about 3 feet in circumference, were SUTTON'S Champion. They were grown by Henry Crawshay, Esq., of Oaklands Park, Gloucestershire, who informs us that he obtained the enormous crop of 60 tons per acre. This Swede has never, or very rarely, been known to mildew.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

SELECTED SEEDS,
CARRIAGE FREE.

	per oz.—s.	d.
PAUL'S Superb Crimson BEET, of excellent flavour ..	1	0
,, New Large Green Curled ENDIVE	1	0
,, Extra-Curled Garnishing PARSLEY	0	6
Richmond Cream BROCCOLI (true), the latest	1	6
Hardy Early Herts CAULIFLOWER	2	6
LENORMAND'S and EARLY ERFURT ditto per pkt.	1	6
SCARLET PERFECTION MELON .. .. ,,	2	6
PAUL'S HOLLYHOCKS, in 12 Varieties .. ,,	5	0
,, ,, mixed .. .. ,,	1	0
,, Imported Collections of ASTERS, STOCKS, per pkt., 1s. 6d. to	2	6
,, Home-saved QUILLED ASTERS .. per pkt.	2	6

All other SEEDS of first quality. PRICED LIST on application.
PAUL & SON, "Old" Cheshunt Nurseries, N.

SELECTED SEEDS,
CARRIAGE FREE.

W. PAUL'S SUPERB CRIMSON BEET, 1s. per ounce.
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1s. per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2s. 6d. per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1s. per pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1s. p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6d p. pkt
BROCKET HALL BROWN COS LETTUCE, 1s. per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1s. per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1s. per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1s per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1s. per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5s.
,, finest mixed, 1s. to 2s. 6d. per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1s. to 2s. 6d. per packet.
LAPAGERIA ROSEA, 1s. to 2s. 6d. per packet.
All other Seeds, separate or in collections, of best quality.
PRICED DESCRIPTIVE CATALOGUE free by post.
Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

Unadulterated Choice Seeds.

ROBERT PARKER begs to announce he can supply a few pounds of each of the undermentioned, price of which will be forwarded on application:—
CUSTARD VEGETABLE MARROW,
LOBELIA ERINUS SPECIOSA.
LEEK HYBRID PRIZE (HENRY'S), the largest and finest in cultivation.
LETTUCE MOOR PARK, the best Brown Cos in cultivation.
A NEW PRICED and DESCRIPTIVE SEED and PLANT CATALOGUE is published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

A Few Choice Seeds really worth Growing.

WM. WOOD AND SON offer the following, all Carriage paid. Small Seeds post free.
BECK'S DWARF GEM BEAN, 1s. per quart.
MINSTER GIANT LONG-POD BEAN, 1s. per quart.
PINE-APPLE BEET, 1s. per oz.
NUTTING'S SELECTED DWARF RED BEET, 1s. per oz.
NEW SEAKALE BEET, 6d. and 1s. per packet.
CARTER'S CHAMPION BROCCOLI, 1s. per packet.
FEARNOUGHT CABBAGE, 6d. and 1s. per packet.
KEMP'S INCOMPARABLE CABBAGE, 8d. per oz.
LITTLE PIXIE CABBAGE, 1s. per oz.
CARTER'S DWARF MAMMOTH CAULIFLOWER, 1s. p. pkt.
HOOD'S IMPERIAL DWARF RED CELERY, 6d. per packet.
INCOMPARABLE WHITE CELERY, 6d. per packet.
DALMENY SPROUTS, 1s. per packet.
PEARSON'S LONG GUN CUCUMBER, 1s. 6d. per packet.
THE SENSATION CUCUMBER, 1s. 6d. per packet.
WOOD'S IMPROVED VARIEGATED KALE, 1s. per packet.
MELVILLE'S VARIEGATED GARNISHING KALE, 6d. p. pkt
DUNNETT'S GIANT BROWN COS LETTUCE, 1s. per pkt.
WHEELER'S TOM THUMB LETTUCE, 1s. per packet.
PRINCESS ALEXANDRA MELON, 1s. 6d. per packet.
PRINCESS LOUIS of HESSE MELON, 1s. 6d. per packet.
THE STUDENT PARSNIP, 6d. and 1s. per packet.
PARSNIP CHERVIL (CHÆROPHYLLUM BULBOSUM), 6d. and 1s. per packet.
CARPENTER'S EXPRESS PEA, TRUE, 3s. 6d. per quart.
MACLEAN'S PRINCESS ROYAL PEA, 2s. 6d. per quart.
NEW FEATHER-STEM SAVOY, 6d. per packet.
Descriptive CATALOGUES post free on application.
Address Woodlands Nursery, Maresfield, Uckfield, Sussex.

SEEDS of SUPERIOR MERIT.—
Free by Post, except the Peas and Beans.

	per Quart—s.	d.
PEA, DILLISTONE'S EARLY PROLIFIC, 2 ft., the earliest of all	1	6
,, ADVANCER (McLean's), 2 ft., the best dwarf Pea	1	6
,, PAYNE'S CONQUEROR, 5 ft., the best tall Pea	1	0
BEAN, BECK'S DWARF GREEN GEM	0	8
	per Packet.	
BEET, PINE APPLE, superb crimson	0	6
,, NUTTING'S SUPERB RED	0	6
BROCCOLI, SNOW'S IMPERIAL WINTER WHITE ..	1	0
,, BACKHOUSE'S WINTER WHITE PROTECTING	2	6
BRUSSELS SPROUTS, ROSEBURY	0	6
CAULIFLOWER, LARGE EARLY ERFURT	1	0
CABBAGE, LITTLE PIXIE	0	6
CUCUMBER, SMITH'S FINE LONG FRAME	1	0
CELERY, MAMMOTH WHITE	0	6
,, RED	0	6
MELON, EMPRESS EUGENIE	1	0
LETTUCE, PARIS WHITE COS	0	6
,, GREEN COS	0	6
PARSLEY, extra curled garnishing	0	6
SAVOY, NEW FEATHER-STEMMED	0	6
PARSNIP, THE STUDENT	0	6
TOMATO DE LAYE	0	6
LOBELIA PAXTONIANA, or Crystal Palace var. ..	1	0
TRUFFAUT'S SPLENDID ASTER, 18 vars.	1	0
CHRYSANTHEMUM-FLOWERED ASTER, 12 vars. ..	1	0
IMPORTED LARGE-FLOWERING STOCK, 18 vars..	1	0
BALSAM, SPLENDID ROSE-FLOWERED, 12 vars..	1	0
AMARANTHUS MELANCHOLICUS RUBER	0	6

The whole of the above carriage free for 21s.
RICHARD SMITH, Seed Merchant, Worcester.

Reliable Seeds.

ROBERT P. KER, 4, Basnett Street, Liverpool (late Manager for Mr. William Skirving), has now large supplies of SKIRVING'S IMPROVED SWEDE TURNIP, WELSH and ENGLISH RED CLOVERS, TRUE ALSIKE CLOVER, COW-GRASS, WHITE CLOVER, TREFOIL, &c., PERENNIAL and ITALIAN RYE-GRASSES.
All extra fine Samples, at lowest Market prices.
First Prize of 10l. awarded to R. P. KER by the Manchester and Liverpool Agricultural Society, for AGRICULTURAL SEEDS, September, 1863.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Genuine Seeds.

WILLIAM KER (21 years with W. SKIRVING), 10, Great Charlotte Street, Liverpool, begs to announce to his customers and friends that they can be supplied at his Establishment as usual with every description of SEEDS, first-class quality, at very moderate prices.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS can supply any quantity of New Seed of this useful plant, which is now so extensively cultivated. New Seed, 1s. 3d. per lb.; or cheaper by the cwt. (Sow 24 lbs. per Acre for Feeding purposes).
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.
CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

REIGATE SILVER SAND, 7s. 6d. per ton; packed, 16s. per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.
W. SHORT, Sand and Peat Depot, Reigate, Surrey.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly Price 1s. 4d. per lb.; over 10 lb., 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.



ONLY PRIZE MEDAL AWARDED FOR SEEDS, INTERNATIONAL EXHIBITION 1862.



CARTER'S

SPECIAL LIST of FARM SEEDS for MARCH and APRIL,

IS NOW READY, AND WILL BE FORWARDED GRATIS AND POST FREE ON APPLICATION.

AGRICULTURAL SEEDS.

We again respectfully invite the attention of our Customers and the Public generally to this Branch of our Business, to which we are devoting the most careful attention: all the SEEDS are unadulterated and of the present season's harvest, and being our own growth, we can confidently recommend the stocks, both for purity and as being carefully selected. The TURNIPS and MANGELS are saved from large Transplanted Bulbs.

The GRASS SEEDS contain the best sorts only, carefully mixed by ourselves, and thoroughly cleansed.

The past Autumn has been particularly favourable for the harvesting of FARM SEEDS, and consequently the Seeds are of superior quality, and the prices are much lower than usual.

Special quotations of Prices at a reduced rate will be given where large quantities are required, on application.

Carter's Improved Orange Globe Mangel Wurzel.

Saved from large transplanted roots of good shape and a fine dark orange colour. Can be recommended as the best Mangel in cultivation.
Price per lb. 6*d.*

New Swede.—Carter's Imperial Purple-top Swede Turnip.

The hardiest and best keeping Swede in cultivation.
*** This Swede was raised by an eminent Kentish agriculturist, and carefully selected by him until he has succeeded in producing the perfection of Swedes. Price per lb. 1*s.*

JAMES CARTER & Co. have much pleasure in calling attention to the undermentioned unsolicited notices from some of the leading Newspapers of their STAND of ROOTS and SEEDS exhibited by them at the SMITHFIELD CLUB SHOW in December last:—

Extract from THE TIMES, Dec. 9, 1863.

"The Seedsmen have done themselves credit by their splendid assortments of Vegetable produce.....Messrs. CARTER'S stand is very interesting."

Extract from THE DAILY TELEGRAPH, Dec. 9, 1863.

"This is the colossal display furnished by Messrs. JAS. CARTER & Co., who have a wider range of objects exemplifying the results of scientific farming than can elsewhere be found in the entire Show. Of course it is only by deep cultivation and by the use of the richest manures that such paragons of vegetable growth as we here remark can be obtained. The Jersey Turnip, which looks like a cross between a Common Turnip and a Parsnip, is one of Messrs. CARTER & Co.'s specialities, and another is the long Surrey Carrot, both roots being suitable for the table. A curiously variegated Kail, which might serve as a decoration, is also a feature on their well-arranged stall."

Extract from THE MARK LANE EXPRESS, Dec. 21, 1863.

"JAMES CARTER & Co., 237, High Holborn, London, made a very good show indeed of roots. We were particularly struck with their varieties of the Imperial Purple Top Swede, Elvetham Long Red Mangel, Orange Globe Mangel (of prodigious size), Jersey Navet (an early sort), Orange Globe Turnip and Grey Stone. There were beautiful specimens of American Pampas Grass, now used as an ornament for lawns,—the flowers when dyed of various hues, forming pretty ornaments for the room or hall. There were specimens of Jersey Kail, 10 feet in height; a beautiful case of Wheat, Oats, and Barley in ear; two samples of Garden Seeds; and at each end of the Stand a specimen of the Phormium tenax, or New Zealand Flax, which is used, like Cocoa-Nut fibre, for coarse Webs and Ropes, &c."

Extract from BELL'S WEEKLY MESSENGER, Dec. 21, 1863.

"Messrs. J. CARTER & Co., 237, High Holborn, London, exhibit a collection of dried specimens of Natural Grasses, including all the well known and most useful varieties for laying down permanent pastures and lawns; a collection of samples of mixed Grass seeds for permanent pastures, parks, lawns, uplands, chalky sheep walks, and water meadows, and the distinct varieties of which these are composed, and a collection of pots showing the growth of these samples. In addition to these the Messrs. CARTER exhibit a collection of samples of about 300 kinds of Agricultural and Garden Seeds, including every variety of Mangel Wurzel, Swedes, Hybrid and other Turnips, Clovers, Tares, Kohl Rabi, Parsnips, Carrots, Cabbages, Peas, and Beans, also pots showing the growth of these samples, and lastly a collection of roots of the different kinds of Mangel Wurzel, Swedes, Turnips, and Kohl Rabi. The greater portion of these seeds are Messrs. CARTER'S own growth, and are well deserving of attention."

Communication received from the EDITOR *of the Agricultural portion of* THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE, Dec. 28, 1863.

We have received a communication from the Editor of the Agricultural portion of this Paper, stating that the omission of our Stand in his report of the roots exhibited at the Smithfield Club was entirely accidental.

Report of Seeds supplied by us to the CRYSTAL PALACE COMPANY, *from* Mr. J. A. GORDON, *Garden Superintendent.* "Jan. 6, 1864.

"GENTLEMEN,—The Grass Seeds and Clovers supplied by you to the Crystal Palace Company in the spring of 1863 have proved of excellent growth, are perfectly free from weeds and coarse Grasses, and have already formed a fine sward. The Grass Seed you supplied the Company with in 1862 is now as solid as Turf. I was very much pleased with the Flower Seeds; the French and African Marigolds, Bunnett's Crimson Candytuft, the Indian Pinks, and Larkspurs, were particularly fine.—I am, Gentlemen, your obedient Servant,

"J. A. GORDON, Garden Superintendent at the Crystal Palace.

"Messrs. JAMES CARTER & Co."

JAMES CARTER & CO.'S NOVELTIES for 1864.

Mimulus tigridioides.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

A new, very beautiful, and distinct strain, obtained by hybridizing the Mimulus cupreus with the best named varieties of Mimulus. We have much pleasure in offering these collections of unique, blotched, and spotted varieties, selected from more than 200 seedlings, for their dwarf, compact habit, beauty, diversity of colour and marking, and free-blooming qualities. The dwarf habit and freedom of growth of these desirable novelties render them great acquisitions for flower-garden bedding; and for Greenhouse and Conservatory decoration they are invaluable, equalling the finest Herbaceous Calceolarias in the variety of their brilliant colours. Price, per packet, 1*s.*

Tropæolum majus purpureum.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

This is a valuable addition to the interesting class of Nasturtiums, of which it possesses all the merits, viz., immense profusion of bloom, well thrown up above the foliage; flowers large, and great duration in blossom; colour, rich plum, verging towards purple: very desirable. Price, per packet, 6*d.*

Lupinus albo-coccineus.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

Of the many brilliant varieties of Lupine that we have had the pleasure of introducing, this is by far the finest, and must undoubtedly be reckoned as an essential to every Annual Garden; the blossom spike is 6 inches in length; colour, rich rosy red halfway up the spike, from thence to the apex pure white; the general effect is very striking.
Price, per packet, 1*s.*

Godetia roseo-alba, Tom Thumb.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

The original Godetia roseo-alba is well known as one of the prettiest of the so-called "Californian Annuals;" its only demerit consisting in its being hardly sufficiently dwarf. This objection is overcome by the Tom Thumb variety now offered; the colour of the flower is pure white, with a brilliant rose blotch at the base of each petal; height 1 foot, and blooms in profusion. Price, per packet, 1*s.*

Clarkia pulcherrima integripetala.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

An entire-petaled variety of C. pulcherrima, but much superior to it in colour and form, and decidedly the most brilliant and showy of all the Clarkias, the size of the petals far exceeding that of any other variety. Colour, rich magenta rose; strongly recommended.
Price, per packet, 1*s.*

Swainsonia splendens.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

Of this plant we received seed from Australia some time since under the name of a new "Clianthus," but which has proved to be a Swainsonia of great beauty, and must ultimately become an invaluable adjunct to every Greenhouse and Conservatory; it is rapid in growth and profuse in bloom; it blossoms in racemes of pea shaped flowers; colour, vivid rose, with a sharply cut blotch in the centre of pure white; extremely handsome.
Price, per packet, 1*s.*

Gilia laciniata.

(CARTER'S FLORAL ILLUSTRATIONS, Plate 14.)

The stock of this we received a few years since from our Collector in Texas, but have not been able until the present year to save sufficient seed to enable us to offer it in our List of Novelties; it is a very desirable addition to the pretty tribe of Gilias, and is quite distinct from any of the other varieties in cultivation; it blooms very freely in the corymbose form. Colour, lavender blue; height, ½ foot.
Price, per packet, 1*s.*

Lobelia Paxtoniana.

This valuable acquisition to our Summer Gardens was raised by Mr. Gordon, the indefatigable Superintendent of the Crystal Palace Gardens, and named Paxtoniana by desire of Sir Joseph Paxton, in whose gardens (as well as the Crystal Palace Gardens) its merit has been proved. It is a seedling from the well-known true Crystal variety of Lobelia speciosa, quite as robust as its parent, with a much more compact habit. The individual flowers are much larger, with a pure white centre or eye; the other margin or prevailing colour (blue) more nearly resembling in tint that of the pretty annual. Nemophila insignis, than any other flower with which we are acquainted. It forms a very effective contrast and companion plant with its parent in the decoration of the summer garden, and has been largely used at the Crystal Palace during the past season.
Price, per packet, 1*s.*

Lupinus venustus tricolor.

A very pretty new Lupine, possessing the well-known, compact, handsome deep green foliage of L. venustus, with bloom of the much admired L. tricolor elegans. Colour, purple white and blue, height 2 feet. Price, per packet, 6*d.*

Scabiosa candidissima.

An entirely new variety of Sweet Scabious, and being pure white, is very desirable for a contrast with the other kinds in such very general cultivation.
Price, per packet, 6*d.*

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, and ST. OSYTH, ESSEX.
NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10s.; 20 pair of Cuttings of ditto for 5s.; 25 pair of fine POMPONS for 10s.; 25 pair of Cuttings of ditto for 5s.

N.B. To save trouble all orders to be prepaid.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	s.	d.
50 in 50 choice varieties	2	12	6
25 in 25 ,, ,, ...	1	5	0
12 in 12 ,, ,, ... 5s. to	0	12	0
Extra choice mixed, 3s. 6d. per doz. .. per 100	1	5	0
Fine mixed. 2s. 6d. per doz. .. .. ,,	0	17	6
GANDAVENSIS, strong roots, 2s. 6d. per doz. ,,	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3s. p. doz. ,,	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

West Riding Seed Establishment, St. John's, Wakefield.

THE PROPRIETORS beg to announce they have received their new supply of VEGETABLE SEEDS, which have been tested, and will be found to be genuine. Their supply of FLOWER SEEDS comprises all the Novelties of the present season.

CATALOGUES will be forwarded free on application to WILLIAM BARRATT.

Major's Half Shrubby Calceolaria Seed for 1864.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is prepared to supply the above as usual, in packets at 2s. 6d. each, or three for 5s., post free. The seed is very select, having been saved from large and strikingly beautiful flowers. Postage stamps in payment.

N.B.—To suit parties not raising their own Seedlings, Mr. H. M. will have nice young plants ready to send out in April, in parcels of 20 for 6s., or three for 15s., post free.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he can supply good healthy Plants on their own roots of this beautiful variety, at 21s. each.

For description, see *Gardeners' Chronicle* of March 5, p. 220. Plants may now be seen in flower at the Nursery.

Exotic Nursery, Tooting, Surrey, S.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells; and Groomsbridge, Kent.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.



FLOWER SEEDS

FREE BY POST.

	£	s.	d.
The best 100 sorts of FLOWER SEEDS, hardy, half hardy, and tender, with instructions ..	1	1	0
The best 50 sorts do. do.	0	10	6
The best 36 sorts do. do.	0	7	6
The best 24 sorts do. do.	0	5	0
The best 50 sorts, all hardy and very distinct in colour	0	10	6
The best 36 sorts, all hardy and very distinct in colour	0	7	6
The best 24 sorts, all hardy and very distinct in colour	0	5	0

SUTTON & SONS, Royal Berkshire Seed Establishment, Readng.

SUTTON'S FINE LAWN GRASS SEEDS for making New or Improving Old Garden Lawns, price 1s. per lb.; 2s. 3d. per gallon; or 18s. per bushel.

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

From Mr. JAS. ALBOROUGH, *Gardener to* Mrs. POPHAM, *Trevarno*, Jan. 15, 1863.

"The seeds which I had of you last season for laying a fine piece of Grass Lawn down proved to exceed all others. It is most wonderful to see such a fine piece of turf in one season."

From A. W. ENGLISH, Esq., *Aisleby Lodge, Whitby*, April 1, 1863.

"The Lawn seed I had of you last spring was quite a success. It was sown in May, and by the end of October we had mown it several times, and at a short distance from it I could hardly distinguish the new from the old lawn adjoining."

From the Rev. G. JORDAN, *Sungrove, East Woodhay*, May 5, 1863.

"Some Grass Seed which you sent me in the spring of 1859 for two acres answered thoroughly."

From Mr. J. JENNINGS, *Gardener to the* Earl of DERBY, *Knowsley Park.*

"The Lawn Grass Seeds were very good indeed."

From the Rev. F. KITSON, *Hemyock Rectory, Wellington.*

"The fine Grass Seed for Lawns which Messrs. SUTTON sent in the spring has given great satisfaction."

From Mr. HENRY GADD, *Gardener to the* Right Hon. Lord MIDDLETON, *Wollaton Hall, Notts*, March 22, 1862.

"I am pleased to inform you that the Grass Seeds you supplied last season have given the greatest satisfaction, they being so remarkably clean and free from all coarse Grasses."

From E. J. P. BASTARD, Esq., *Kitley, Yealmpton, Devon*, April 7, 1862.

"The Grass Seeds with which you supplied me last spring were remarkably clean and well selected, and the result produced upon three acres of new garden lawn then laid down was highly satisfactory, and perfectly uniform throughout."

From the Rev. G. P. GRIFFITHS, *Hillfield, Cheltenham*, Nov. 4, 1862.

"The Turf Seed which you sent me in the spring has come up admirably both in the churchyard and on my lawn, and does you great credit in both places."

QUANTITY OF SEED REQUIRED.—These Grasses being of small neat growth, not spreading so much as other kinds, it is necessary they should be sown thickly. For forming New Lawns, 3 bushels or 60lb. is the quantity required per acre; or 1 gallon to 6 rods (or perches of land).

FOR CEMETERIES, BOWLING GREENS, PARK LAWNS, &c., where the very finest kinds are not required, another Mixture is prepared, of which 2½ bushels per acre will be found sufficient, and the price will be 16s. per bushel.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Flower Seeds. Free per Post.

BUTLER AND MCCULLOCH'S unrivalled Assortments:—

HARDY ANNUALS.

100 varieties, 20s. | 50 varieties, 10s.
30 varieties, 5s. | 15 varieties, 2s. 6d.

HALF-HARDY ANNUALS.

100 varieties, 30s. | 50 varieties, 15s.
25 varieties, 7s. 6d. | 15 varieties, 2s. 6d.

The varieties included in the above assortments are all distinct and of the brightest colours. Each packet bears a printed description and practical hints on cultivation.

Covent Garden Market, London, W.C.

Flower Seeds, free per post.

WM. WOOD AND SON'S splendid COLLECTIONS as under:—

HARDY ANNUALS.

100 varieties.. .. 20s. 0d. | 25 varieties .. .. 5s. 0d.
50 do. .. .. 10 0 | 12 do. 2 6

HALF-HARDY ANNUALS.

100 varieties .. .. 25s. 0d. | 25 varieties .. .. 7s. 0d.
50 do. .. .. 12 6 | 12 do. 3 6

GERMAN FLOWER SEEDS as imported in original sealed packets on lowest terms.

CATALOGUES on application.

Woodlands Nursery and Seed Warehouse, Maresfield, Uckfield, Sussex.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, March 9, 1864.

FIRST-CLASS CERTIFICATE.

AUCUBA JAPONICA (in Fruit), from Mr. Standish, Ascot. Recommended for a Medal.

GYMNOGRAMMA SP. Chili, from Messrs. Veitch & Son, Exeter and Chelsea.

HYACINTH LORD PALMERSTON, from Mr. W. Paul, Waltham Cross.

HYACINTH ROBERT FORTUNE, from Messrs. Cutbush & Son, Highgate.

SECOND-CLASS CERTIFICATE.

HYACINTH HENRIETTA ELIZABETH, from Messrs. Cutbush & Son.

HYACINTH JOSEPHINE, from Messrs. Cutbush & Son.

LYCIOPLESIUM PUBIFLORUM, from Messrs. Veitch & Son.

COMMENDATION.

AZALEA LORD DERBY, from Mr. Todman, Cladham.

RHODODENDRON SP. Moulmein, from Messrs. Veitch & Son.

The next MEETING will take place on the day of the SPRING CAMELLIA SHOW.

THOMAS MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.

SHOW of HYACINTHS and other SPRING FLOWERS, WEDNESDAY, March 9.

AWARDS of the JUDGES.

CLASS 1.—18 HYACINTHS, distinct kinds. (Nurserymen.)
1st Prize, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*
Equal 1st, Mr. Wm. Paul, Waltham Cross, N., 1*l.* 10*s.*
3d, Mr. W. H. Treen, Victoria Nursery, Rugby, 10*s.*

CLASS 2.—12 HYACINTHS, 6 kinds. (Amateurs.)
1st, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 2*l.*
2d, Mr. Carr, Gr. to B. Noakes, Esq., Highgate, N., 1*l.*
3d, Mr. Geo. Taylor, Gr. to C. A. Hanbury, Esq., East Barnet, 10*s.*

CLASS 3.—6 HYACINTHS, 6 kinds. (Open.)
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.*
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, N., 15*s.*
3d, Mr. Wm. Paul, Waltham Cross, N., 10*s.*

CLASS 4.—6 HYACINTHS, 6 kinds, grown in Windows in Pots or Glasses. (Amateurs.)
1st, Mr. B. Noakes, Hope Cottage, North Hill, Highgate, N., 1*l.*
2d, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, N., 15*s.*
3d, Miss Fortune, 1, Gilstone Road, Brompton, S.W., 10*s.*

CLASS 5.—6 HYACINTHS, new kinds of 1863-4. (Open.)
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.*
2d, Mr. Wm. Paul, Waltham Cross, N., 15*s.*
3d, Messrs. Barr & Sugden, 12, King Street, Covent Garden, 10*s.*

CLASS 6.—12 Pots of TULIPS, 6 kinds. (Nurserymen.)
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*
2d, Mr. Wm. Paul, Waltham Cross, N., 1*l.*

CLASS 7.—12 Pots of TULIPS, 4 kinds. (Amateurs.)
1st, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 1*l.* 10*s.*
2d, Mr Geo. Taylor, Gr. to C. A. Hanbury, Esq., East Barnet, Herts, 1*l.*
3d, Mr. A. Carr, Gr. to B. Noakes, Esq., North Hill, Highgate, 15*s.*

CLASS 8.—CROCUSES, Collection of. (Nurserymen.)
1st, Messrs. W. Cutbush & Son, Highgate, N., 15*s.*
2d, Mr. Wm. Paul, Waltham Cross, N., 10*s.*

CLASS 9.—CROCUSES, 12 Pots. (Amateurs.)
1st, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 15*s.*

CLASS 10.—Collection of 12 FORCED FLOWERS, various (Open.—No Competition.)

CLASS 11.—Collection of 6 AMARYLLIS, distinct kinds. (Open.—No Competition.)

CLASS 12.—3 AMARYLLIS, distinct kinds. (Open).
1st, Mr. Robert Parker, Exotic Nursery, Tooting, S., 15*s.*

CLASS 13.—6 EPACRIS, not less than 3 Colours. (Open). (No Competition.)

CLASS 14.—6 Pots of LILIES of the VALLEY. (Open).
1st, Mr. Wm. Bartlett, Shaftesbury Road, Hammersmith, W., 1*l.*

CLASS 15.—6 PRIMULAS, various colours. (Open).
1st, Mr. Thos. Todman, Gr. to R. Hudson, Esq., Clapham Common, S., 15*s.*
2d, Messrs. J. Dobson & Son, Woodlands Nursery, Isleworth, W., 10*s.*
3d, Mr. Geo. Taylor, Gr. to C. A. Hanbury, Esq., East Barnet, 5*s.*

CLASS 16.—6 DOUBLE CHINESE PRIMROSES.—(Open) (No Competition.)

CLASS 17.—3 CAMELLIAS, distinct kinds. (Open.) (No Competition.)

CLASS 18.—12 CAMELLIAS, cut blooms, distinct kinds. (Open.)
1st, Mr. Wm. Paul, Waltham Cross, N., 1*l.*
2d, Mr. W. H. Treen, Victoria Nursery, Rugby, 15*s.*

CLASS 19.—MISCELLANEOUS. (Open.)
Extra 1st, Messrs. W. Cutbush & Son, for a Collection of Hyacinths, 2*l.* 10*s.*
Extra 2d, Mr. Wm. Paul, for a Collection of Hyacinths, 2*l.*
Extra, Mr. Wm. Bull, for a Collection of New and Rare Plants, 2*l.*
Extra, Messrs. W. Cutbush & Son, for a Collection of Tulips, 1*l.* 10*s.*
Extra, Mr. Thos. Todman, for a Collection of Azaleas, 1*l.* 10*s.*
Extra, Mr. Wm. Paul, for a Collection of Tulips, 1*l.* 10*s.*
Extra, Messrs. W. Cutbush & Son, for a Collection of Narcissus, 1*l.*
Extra, Messrs, Paul & Son, for a Collection of Roses in Pots, 1*l.*

The Gardeners' Chronicle.

SATURDAY, MARCH 12, 1864.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, March 17—Linnean .. .. 8 P.M.
SATURDAY, — 19—{Royal Botanic (First Spring Exhibition) .. .. .. 2 P.M.

AFTER an acquaintance with the blotched-leaved form of AUCUBA JAPONICA extending over more than three quarters of a century, British horticulturists have at last, thanks to Mr. FORTUNE, had an opportunity of forming some notion of the true merits of this invaluable hardy evergreen, in its normal condition. It is no exaggeration to say that the plant exhibited by Mr. STANDISH at South Kensington on Wednesday last, was alone worth a pilgrimage through the pitiless snow-storm of that luckless day. It is a glorious shrub, seen, as it was in this case, laden with bunches of its large oblong berries of the brightest coral red; nothing in the way of hardy evergreen shrubs already familiar to us at all compares with it; and to have been the means of presenting it before the gardening community is an honour of which both the introducer and the cultivator may well be proud. The recommendation which we saw appended to the plant, that some special mark of approbation in the shape of a medal should be conferred, was nobly merited.

How it has come to pass that we have not seen berried Aucubas before now, may be thus explained. The Aucuba is a dioecious plant, that is to say, some of its individuals produce only male and others only female flowers. The blotched-leaved plants we are all so familiar with, springing doubtless from a single original, are all females, and

there being no anther-bearing plants within reach there could be no berries—no complete development of even isolated fruits, much less of a crop of full-grown perfect brightly-coloured ones, lighting up the whole bush. When wandering in the East, Mr. Fortune sent to England that form of the normal or green-leaved plant which bears female flowers; one small specimen of the plant bearing antheriferous flowers, was also got to England alive, and last spring this blossomed, for the first time, we believe, in Europe, with Mr. Standish. The materials being thus at hand, the mother plant was fertilized, and the result was the very beautiful and important exhibition to which we have referred—an exhibition which places the Aucuba in the very forefront of cultivated evergreens. As the male plant becomes distributed, we may therefore look forward to seeing berry-laden Aucubas common amongst our choicer shrubs, those with plain green unspotted leaves yielding the most agreeable contrast with the coral berries.

There are few if any subjects relating to the physiology of plants on which vouchers may not be found for the most contrary opinions, and both equally professing to be founded on facts. The subject of hybridization is no exception. We pointed out last week the important facts adduced by Monsieur Naudin to show that fertile hybrids may arise from the union of two distinct species, a fact which has been more than once controverted; and now it appears from the essay which Monsieur Godron sent in for the prize proposed by the French Academy, to determine some important points respecting hybridization, that he has arrived at a conviction that self-fertilized hybrids cannot arise from two distinct species, though they may be fertilized with the pollen of one of the parents. Something of course will depend upon the point from which species are viewed, but not to mention the various facts adduced by M. Naudin, M. Godron's own examples of Nicotiana alato-Langsdorffii, and N. angustifolio-auriculata, as pointed out by the reporter M. Duchartre, prove the contrary. The seeds of these hybrids, communicated the one by Alexander Braun, the other by Monsieur Naudin, produced plants which when perfectly isolated yielded perfect seed.

The question proposed by the Academy was *to study hybrids with respect to their fertility, and the constancy or inconstancy of their characters.* "The production," it was remarked, "of hybrids between plants of different species of the same genus, is an established fact, but precise researches are still wanting to resolve the following questions, which are of equal interest as regards physiology in general, and the determination of the limits of species, together with the extent of their variation.

"1. In what cases are hybrids self-fertilizable? Is their fertility proportional to external resemblances of the species from whence they are derived, or does it indicate a special affinity in regard of generation, as has been remarked with respect to the facility of the production of hybrids themselves.

"2. Do hybrids which are sterile when isolated, always owe their sterility to the imperfection of their pollen? Are the pistil and ovules always capable of being fertilized by the pollen of some strange plant properly chosen? Is there an appreciable state of imperfection in the pistil and ovules?

"3. Do self-fertilized hybrids sometimes retain their characters without variation through many generations, and can they become the type of constant races—or do they always, on the contrary, return to the form of one of their ancestors after a number of generations, as recent observations seem to indicate."

Now the experiments of which we gave some account at p. 219, and still more the numerous additional observations recorded in M. Naudin's prize essay, show decidedly that hybrids from two different species, when left to themselves, without the possibility of access of any strange pollen, are by no means absolutely barren, but in many cases produce seeds capable of germinating. But of the hybrids which M. Naudin raised in the course of his observations only about a fourth were sterile. The degree of fertility was not the same in every case, but it appeared to be proportioned to the number of good pollen grains which were contained in the anthers. It appeared, moreover, that self-fertilized hybrids have a decided tendency to revert to one of their parents, and that after a few generations the reversion is complete. There can therefore be no justice in the supposition that an infinite variety of species can arise by means of hybridization, though peculiarities which have once arisen, without the crossing of two species, may be propagated indefinitely, and thus give rise to a distinct race.

The only apparent exception to this tendency with which M. Naudin has at present, met is that of an Ægilops, supposed to be a hybrid between Æ. ovata and some variety of Wheat. The hybrid origin of this plant is however doubtful, but supposing the observations respecting the gradual conversion of Æ. ovata into Wheat to be correct, we have either a distinct set of phenomena, or if the pollen of Wheat enter into the question, we have a pure case of reversion. If, however, the Wheat-like Ægilops (Æ. speltæformis, Jord.) be really a hybrid, it is a singular exception to what appears to be a very general rule.

As regards the third question, it appears from M. Naudin's observations that though species which resemble each other closely, are in general more apt to intermix than those which are decidedly different, still there are instances in which species which scarcely differ from each other refuse to intermix, while on the contrary species of extremely different character will sometimes yield with great facility fertile hybrids.

As regards the condition of the male and female organs, M. Naudin confirms former observations as to the comparative imperfection of the pollen, but he has not been able to determine anything positively with regard to the female organs, which as far as his observations go seem to be perfect, though he fancies that the ovules may present imperfections if closely examined. This is clearly a matter of extreme delicacy, and could only be profitably studied by those who have already great experience regarding the normal development of the embryo. M. Naudin has confessedly not had time or opportunity to follow this up, and we may be well content for the present with the conclusions at which he has so carefully and logically arrived.

As regards those cases in which the characters of the two parent plants are not entirely blended together, but appear distinctly represented in different parts of the hybrid, as for example where a hybrid is formed between two species, one of which has a rough, the other a smooth capsule, the capsule of the hybrid is in parts rough and in parts smooth, his explanation that it arises from the presence of two specific essences in the same plant which tend to separate from each other in different degrees, is ingenious enough, though it does not bring conviction with it, especially when he attributes the reversion to one particular parent rather than to the other, to this cause. The notion is metaphysical, and can at present be regarded as mere theory. We believe, moreover, that Cytisus Adami, to which he refers under this head, was not a hybrid, but a variety arising from some admixture of Cytisus Laburnum and Cytisus purpureus in grafting.

An important point still remains to be noticed, as it is contrary to received notions on the subject, viz., that the same stigma is capable of being fertilized at once or in succession with two kinds of pollen, its own and that of a stranger, so that the same fruit may contain pure and hybrid seeds. Still we believe that this is of rare occurrence, though the stigma of many a plant is more fertile with regard to strange pollen than that contained in its own anthers, as Mr. Darwin has so cleverly pointed out in Primula and Linum. One of the most curious facts, however, in this direction which we recollect meeting with, is that which occurred to Mr. Thwaites in a hybrid between two Fuchsias, where a seed which contained a double embryo produced two distinct varieties, partaking separately of the peculiarities of either parent. We are not aware whether the fact was recorded by him at the time, but we feel quite certain of it from his great accuracy and love of truth. In this case we can scarcely account for the difference without supposing that two pollen tubes from grains of different origin must have penetrated the embryo sac.

A portion only of M. Naudin's memoir is at present published, and we shall look for its appearance in a perfect form, accompanied by its numerous illustrations, with great interest. *M.J.B.*

— We have received from Mr. G. H. Pearce, drawings and a description of what he calls his Patent Hotwater Apparatus, the peculiar feature of which, so far as we gather from the materials before us, consists in the flue being carried along the centre of the hotwater flow pipe, instead of being carried up out of the house in the usual way in the form of a chimney, so that it is in fact a combination of flue and hotwater pipe. The boiler used is a conical one, placed inside the house and left quite exposed in order that advantage may be taken of the heat radiating from its surface. The fire, which is fed by a slanting opening from the outside, occupies the centre of the boiler, from the dome-like top of which the flue pipe passes out. The water-space of the sides of the boiler is carried over the dome, and then contracts to the size of a large pipe encircling the flue pipe, which thus becomes surrounded by water. The boiler is placed at one end of the house, and the flue pipe, with its enveloping hotwater pipe, is carried straight forward in the manner described, to the opposite end, at which point the former passes out through the wall, and communicates with a perpendicular chimney pipe of the usual character, the hotwater-pipe being returned, minus the flue, within the house.

There is no reason to doubt the practicability of this scheme, or to question the advantage of thus utilising the heat which would otherwise pass off directly from the furnace through the chimney, but which must, according to Mr. Pearce's arrangement, in a greater or less degree, be absorbed by the water which comes directly in contact with the flue pipe. The flue pipe, placed where it is, is in fact an indefinite extension of the boiler surface, and the apparatus must, therefore, be both rapid and powerful in its action. We understand, indeed, that it has been applied with very decided success in the nursery of Mr. E. Pearce, of Yeovil, where it may be seen at work. The objection might perhaps be put forward that a flue pipe, such as that above described, would be liable to become choked with soot, and being in the centre of the water pipe would not easily be got at for cleaning; but it would appear that the sharp elbow at the top of the boiler comes in such close contact with the burning fuel, that it may be assumed the pipe will clear itself at this point, while being carried straight through the wall at the opposite end, an opportunity, which is taken advantage of, is afforded of making provision there for cleaning out the remaining portion as often as may be required.

New Plants.

270. Phalænopsis intermedia, *var.* Portei, *Rchb. fil., Bot. Zeit.* No. 15, 1863, p. 128.

The flower of this variety resembles a small flower of Phalænopsis Aphrodite (amabilis, Lindl.); it is of a snowy whiteness, with a purple lip, the centre of which is yellow, as well as the callosity, which is marked by blackish purple spots; the lateral sepals and petals are free from spots at their base. M. Marius Porte found but one single specimen of this plant during his long stay at the Philippines. Neither does he appear to have found more than one plant of Phalænopsis intermedia, Lindl. (Lobbii Hort.), which appears to accord with M. Reichenbach's statement, that there it is a hybrid, the issue of Phalænopsis Aphrodite and equestris, Rchb. (rosea, Lindl.) It ought, therefore, according to the rules adopted for naming hybrids, to be called Phalænopsis Aphroditi-equestris. The only plant that is known of this remarkable variety or hybrid belongs to Mr. Robert Warner, of Broomfield, a distinguished amateur, in whose house there is a plant of Phalænopsis Schilleriana which has lately produced 80 flowers. *Journal de la Société Imp. et Centr. d'Horticulture.*

ORCHARD MANAGEMENT.—No. III.

Another means of providing for the efficiency of drains in orchards, by securing them as much as possible against being obstructed by the roots of the trees (see p. 125), is to cover the drain pipes with Blackthorn bushes, trimmed up and laid in very straight, so that they may be pressed down into a close compass over the pipes. These bush drains are very much used in some parts, particularly in the west of England; and instances have been brought to my notice where the wood has been found quite sound after the lapse of 40 years. For the reasons before mentioned I would use pipes in addition, although for the mere carrying off of the water the bush drains are very durable and efficient. I met with one a short time ago, which was apparently formed of Alder wood; it was surrounded by timber trees and underwood, yet it was running freely, and was probably laid in previous to 1808. I can also recommend for very strong wet land the use of long faggots of green Willow wood bound up very tight, and laid over drain pipes. The depth of these, and also of the Thorn bushes, when pressed down close over the pipes, should not be less than a foot, and to prevent the loose earth from settling down amongst them, the turf sod from the top should be used, turned over on them as before recommended.

And now with regard to the distances of the drains apart. In established orchards this must of necessity be regulated by the distances of the rows of trees, but in opening out a set of drains in new ground, the distances may approximate to the absolute requirements of the ground, and the quantity of water present in the soil. As a rule, in very wet and stiff soils, they must be nearer together than in such as are naturally more porous and dry, and 24 feet may be safely taken as a medium distance, to be increased or lessened according as water is present in greater or lesser quantity, or perhaps I should say, as the soil is more or less retentive of water.

The depth to which the drains should be dug out will mostly depend on the inclination of the ground, whether level or sloping, and also on the facility for

obtaining a good outfall. If the situation is on an easy slope, the drains may be laid in at a uniform depth of 5 feet; but if level, it will then be necessary to start with a depth that will allow a sufficient fall to the outlet. In no case however would I start with a depth of less than 4 feet, if I could avoid it. There are yet many who stoutly maintain that 2 feet drainage is the utmost that ought to be practised in strong wet lands, and that all below that depth is useless expense. This is a perfect fallacy; the shallow drains may certainly at first appear to act quicker upon the soil, but this is only temporary, and very far from effecting a permanent amelioration of the condition of the soil. I can cite an instance quite to the point. Twenty years ago a tenant of my employer's drained a large meadow within view from the mansion; it was at the time full of Rushes, and although on a gentle slope, the surface water in winter laid so deep in places, that one was obliged to make considerable detours to get across it. The tenant, a stout opposer of deep drains, laid in his drains at 2 ft. deep, and although some of the higher parts were laid drier, the Rushes still flourished, and the water kept on the surface in the winter. Five years after it was very little the better for the expenditure, and at that time it came back into the landlord's hands. He immediately had it well and deeply drained, and now the Rushes are all gone, the herbage is vastly improved, and rabbits burrow where formerly you could not walk without getting wet in the feet.

I trust that I have urged this question enough to impress on the minds of young practitioners, that drainage to be effectual must be deep; and in the case of orchards to be durable as well as effectual must not be formed of pipes alone.

The next important operation will be the preparation of the soil for planting. There are many persons who consider this sufficiently attended to by digging out to the depth of 2 ft., a hole of 6, 8, 10, or even 12 feet in diameter, according as their ideas are enlarged or narrow, pulverising the soil, returning a portion to the hole, and then planting the tree, taking care to give it some good compost about the roots in addition to the natural soil. This indeed, taken in its most liberal sense, is very excellent practice compared with some I have seen, where a hole has been taken out but little larger than the spread of the roots, the tree stuck in, the roots covered, the soil trampled down, the turf relaid, and the tree staked and tied. The picture may be finished by imagining the operator resting from his labour, with his foot on the spade, and wiping his forehead, while he dreams of the bushels of rosy or golden fruit in due time to be produced. Alas! in such a case the result is very seldom at all commensurate with the expectations of the operator, nor is it likely indeed that any, except the most hardy and vigorous growing trees, should ever fight their way out of such adverse circumstances.

I mention this latter because it is a practice to be altogether repudiated, as being contrary to reason and common sense; and although the first-named practice —the formation of large holes and the addition of new compost, is no inconsiderable advance upon the second, yet there is too much of the old leaven in it, and I should never consider myself justified in recommending it to any one in the planting of a new orchard. But it may be adopted in cases where it may be desirable to replace with better kinds any ill-conditioned trees or inferior sorts in an established orchard, in which case it is imperative that the whole of the soil to the depth of 2 feet, and to a diameter of not less than 12 feet in each case, should be carted away, and its place supplied with good compost, mainly composed of soil which has not been previously exhausted by the roots of trees. I advise the absolute removal of the old soil, because it is a well known fact that no kind of fruit tree will make a satisfactory progress when planted in the soil and place where one of the same kind has previously been growing. The success also will be proportionate to the size of the excavation, and the amount of new soil. It will be found excellent practice for the first few years after such planting, to take out (in October) a trench 2 feet deep, and a spit or so wide, all round the outside of the excavation, this operation being intended to cut off the roots, which will ramify from the older trees into the new soil in all directions. This soil may be left on the surface for a time to ameliorate, and then be returned to the trench. Care must be taken to dig out the trench of the following year outside that of the previous one, and so on *ad libitum*.

This, however, is only applicable to the establishment of isolated trees to replenish old orchards, but in the case of establishing a new orchard, I have no hesitation in recommending that the whole of the ground should be trenched over a good two spits deep, believing it to be absolutely necessary to the success of all future operations; first, because all the superstrata to that depth being turned over, every part is equally, and, therefore beneficially, affected by the drainage (and in order that this may act still more beneficially, I would recommend that the bottom of each trench should be turned over and broken up, but not brought to the surface); and, secondly, that for the same reason the roots being placed in a medium not overcharged with moisture, are enabled to extend laterally and equally in all directions, which is very different to being checked by the consolidated earth at the sides of a hole; and being thus unchecked in their ramifications, they are much more likely to lay the foundation for a strong and vigorous aftergrowth, which is the true foundation of success, and much more important than most persons conceive at first sight. It is one of those points in practice which require to be imperatively carried out, in order that success may follow on future operations which depend on its being efficiently performed; but as I purpose to revert to this idea under another section of my subject, I will resume my remarks on the benefits to be derived from a thorough moving the whole of the soil to a certain depth. This will become more apparent, when we consider likewise, that the mere act of turning the soil over, and throwing it about, exposes it to atmospherical influences, which, we find from our every day practice, are most beneficial to the soil, and may be considered as equivalent to the addition of a considerable amount of fertilising materials, aërated and disintegrated soil, being more capable of retaining the fertilising matter which falls from the clouds. In short, first drainage, and then trenching, are entirely dependent upon each other for thorough efficiency, and the following them out may be considered as the only certain way of obtaining a perfect condition of fitness for the object in view.

It will of course require a considerable outlay to bring the land up to the point and into the condition at which we have now arrived, but as the old adage hath it, "whatever is worth doing at all is worth doing well," and as in this case the object is to lay the foundation for profitable production for many years, it is obviously very questionable economy to be niggardly in the application of means to attain that result.

The proper time to plant the trees will be either late in October or early in November, and on no consideration would I plant after that time, if I could avoid it. Well then, presuming that the ground has been drained and trenched during autumn and winter, which is the time when labour can best be spared for the purpose, it would not be desirable to leave it unemployed all the summer, and therefore it should be cropped with Potatos, marking out the rows at least 3 feet apart, so that the spaces may be freely cultivated, which will still further tend to the amelioration of the soil, and the bringing it into a better condition for planting the trees in the autumn, whilst the Potatos, if tolerably successful, and they generally are in newly trenched maiden soil of reasonable quality, will afford a very fair return for the outlay up to this point. *John Cox.*

Home Correspondence.

Royal Horticultural Society. — The handsome manner in which her Majesty's Commissioners for the Exhibition of 1851 have met the Council of the Society, and the conciliatory and praiseworthy way in which the Council has acted towards the Fellows, by considering and endeavouring to act on the leading propositions suggested at the annual meeting, must be a source of satisfaction to the Fellows, and to horticulturists generally. As, however, the Fellows have been requested to "speak out instead of murmuring," and to make what suggestions they have to offer, with the assurance that where practicable they will be adopted, I ask permission to do so through your columns. My object is not to cavil, but to mention a few things which seem to require consideration. The first point I wish to notice is the way in which the Council is elected. I believe it ought to be by an election from the Fellows, but it certainly now is so only nominally, the Council holding the nomination in its own hands; for at the meeting on Feb. 9, the Chairman (by mistake, no doubt) objected to any other names than the nominees of the Council being proposed, on the ground that it would not then be a ballot. But if so, how could it be a ballot in the case of the names announced publicly by the Council itself? especially, too, when only five names were submitted for filling five vacancies. Can it be a ballot to propose only sufficient names to fill the vacancies, and not allow any others to be put to the meeting? My motive in asking this is not to throw down a stumbling block in the way. I am glad to see the Society occupying so eminent a position that upwards of 3000 of the *élite* of the country are Fellows of it, and that the majority of them interest themselves in so elevating and enjoyable a pursuit as horticulture; but I also believe that with conciliatory management and well-developed resources, worked out with a view to horticultural advancement, the number of Fellows might be doubled. May that day not be far distant! In England there is positive need of a society whose avowed object should be the encouragement and development of everything conducive to horticultural interests, and to the distribution of horticultural knowledge. There is a very strong feeling, and desire in the country to make the Horticultural Society such a body, if it will but fulfil its mission. In no other country, indeed, is horticulture so successfully practised as in this. We have only to look at our horticultural shows for the evidence. In short, I never feel so proud of the horticultural pre-eminence of England as when witnessing horticultural exhibitions abroad. The first and perhaps natural inquiry then made of an Englishman is, "What do you think of our show?" My rejoinder invariably is, "Magnifique; mais avez-vous vu une exposition des fleurs en Londres?" I should, however, have been very sorry to have applied this remark to the so-called Grand Show held last July, for a more sorry attempt at a grand show has not of late years been seen in the metropolis. I was frequently asked by visitors, where is this class of plants? and where that? and could only reply, "there are no prizes offered, and so they are not represented." Is it not a mistake for the Society with the patronage it has, and its large number of Fellows, to have grand shows unless they are made worthy of the name? The shows ought to be superior to any others in or around London, instead of which (last year especially), they suffer by comparison. And this brings me to a subject deserving more of the attention of the Council than it appears to receive, viz., the more liberal awarding of prizes to meritorious New Plants—for I cannot give honorary awards that title. That new plants are the most interesting and attractive features at horticultural shows, no one with any knowledge of the subject can doubt. The first inquiry with most visitors, and with all having any horticultural taste or knowledge, is, What is there new? Let me ask what part of the exhibition is most crowded during the whole time it continues open? I have before alluded to this subject (p. 990, 1863), and have now to remark that the prizes for new plants in this year's schedule are even more vaguely worded than before. This year, at the two grand shows, 167*l.* is offered in prizes for Orchids, 144*l.* for stove and greenhouse plants, 129*l.* for Geraniums, and so on—sums not too high, for productions requiring great horticultural skill ought to be well rewarded; but how much is there for new plants? and whatever sum may be meant, why is the amount not stated? I happen to know something about this matter, for last year at the Society's great exhibitions I was awarded one silver Knightian medal, four silver Banksian medals, and four bronze medals, besides no end of honorary awards, for all which at the end of the year, I was sent the sum of 5*l.* 6*s.* Although interested in the matter, let it not be supposed that I wish a class of prizes to be made for myself. Such is not the case. I press the point in the interest of horticulture, and with a desire to see the money value offered in prizes by the Society, fairly distributed in the encouragement of those objects in which the horticultural public takes the most interest. There was a time when the Horticultural Society very liberally rewarded new introductions of a deserving character; and this it seems to me is one of its most legitimate objects. I know it has been mooted that the notoriety attached to exhibiting new plants is a sufficient recompense, but it might as well be said that a similar recompense would be sufficient for any other attractive object. The withholding of substantial prizes for new plants is already detracting considerable interest from our exhibitions, inasmuch as foreign novelties have ceased to be sent over. At the first show held at Kensington a great many new plants were sent to me to exhibit for foreign horticulturists, and no less than six prizes went from that show to the continent. Last year, however, I received but one for exhibition, and it obtained the highest award it could have, viz., a First-class Certificate. My correspondent wrote to know its value, and when I explained, that although a very high distinction, it was merely honorary, he requested me immediately to return the plant by express, evidently with some feeling akin to disgust. It is much to be regretted that the plan of giving honorary awards is becoming so much adopted at horticultural exhibitions, for they carry little or no weight with them. An award should represent something; but at present a First-class Certificate, or Certificate of Merit, only means a prettily ornamented card. In other words, the best offering made to a horticulturist, for the introduction of a meritorious novelty, is a valueless card! In the provinces I know novelties are frequently kept back, simply because the encouragement is not sufficiently inducive. This is scarcely as it should be, and I think the subject is one which the Council might advantageously entertain. If its members think otherwise, I bow to their decision, for however desirous they may be to carry out the wishes or suggestions of Fellows, it would, doubtless, be impossible to acquiesce in every alteration suggested. *William Bull, March* 2.

The Rising Generation of Gardeners.—As you seem to take a lively interest in our future welfare, perhaps you may induce some of our "superiors" to develope the secret of what has placed us in our present condition. I trust they will do so with singleness of eye, and purity of motive. Have our accusers used every endeavour to prevent this coming catastrophe to the gardening community, or have they been the means of bringing it on? These are grave questions, and ought to have been thoroughly investigated before such an injurious imputation was circulated. We are now branded with the reproach of being negligent, and unable to occupy the position of our predecessors. Has this outcry been made without any selfish motive? It may, but while these men were young and prosperous they quite overlooked the necessity of training their pupils properly, and now, when declining years are gathering round them they are aware that "misspent opportunities scarce ever return," and to vindicate themselves, they say the fault lies with the rising generation. Had our interest ever been their study, we should not, now, have to deplore our present degenerated condition. They have made one effort to

deprive us of our "bread and cheese," and it is to be hoped they will make another to reclaim us, so that we can earn salt for our "porridge." Young gardeners, one and all, let us bestir ourselves, and not be disheartened at what has been imputed against us; rather let it determine us to disprove the charges which have been made. *A Young Gardener, in a Midland County.* [We endorse the good advice to his comrades with which "A Young Gardener" concludes his remarks; though he certainly misapprehends the discussion on this question, so far at least as it has gone in our columns. Those amongst the rising generation of gardeners who do "strive" are sure of their reward, and on such as these, friendly criticism will act only as a legitimate stimulus to further effort. Whenever such criticisms are felt to be censures, it is a certain indication that they are not without some foundation in fact. Those moreover, who sit down resignedly, and expect their "superiors" to cram them with the information necessary to their successful progress in their profession, may depend upon it that in the end they will find themselves deficient; they will just know what they will take the trouble to learn, and most of this knowledge must of necessity come from observation of daily practice; but so far as our experience goes they will not find their "superiors" backward in helping them by imparting information, when they really show a disposition to profit by it.]

Royal Garden, Kew.—Having been absent from England upwards of five years, I was much pleased upon a visit to Kew the other day, though at so unfavourable a season, to find that numerous improvements had been made in the Garden, more especially as regards the general health of its vast collection of plants under glass; and in no department was greater advancement observable than in that devoted to Orchids, notwithstanding that the houses are ill adapted for their culture. When I last saw these plants they were certainly in a deplorable condition, and being a great lover of them I was the more grieved when I considered that Loddiges' collection was dispersed, and that I could see no reason to hope to ever behold many of the species which were then dying out at Kew. Now, however, the Director may point with pride to the many fine specimens of Orchids at Kew, which bid fair to surpass what they formerly were in that establishment when associated with the Ferns in another part of the Garden. Many a day have I spent among them at that time; I have inspected most of the collections on the Continent, and I feel sure that that at Kew is only surpassed in number by one or two, and in general health and vigour by none. Most growers of Orchids confine themselves to the cultivation of a few good species and varieties, which make a great display certainly when grouped together, but here the arrangement is as it should be—the showy ones are to be found among their more humble but not less interesting congeners. It is needless for me to point to particularly fine specimens or to those which were new to me, but I may just mention that even at this dull season I counted numbers in bloom, and many others will soon be in a similarly interesting condition. Leaving the Orchids, I turned my steps to the Palm house, and there I also found that great changes for the better had taken place. The first objects which met my eye were some noble stems of Caryota urens lying on the floor; they had recently been cut down for want of head room. I was told that this house had been considerably thinned of plants in order to furnish the large winter garden—an operation which will be of benefit, as it will let in more light and air to the plants remaining in it. Why however, let me ask, is the winter garden closed to the public? To see it was one of my principal reasons for visiting Kew. I may add, that the general keeping of the garden is good; and it is, I consider, highly creditable to the authorities that whilst giving ample enjoyment to the public, the usefulness to the botanist of the different collections of plants has not been overlooked. In no other garden have I seen enjoyment and scientific aid so happily combined as at Kew. *Norman Elliott.*

Gardeners' Education.—Having seen at page 198 the reply of "Ignoramus" to the letter of "A very old F.H.S.," I am induced to state my own case, which I have every reason to believe is similar to that of other young men, who have been turned out like myself when about 16 years of age, with a very slender stock of clothes, and a still more scanty supply of money. In my own case the latter was considerably under a pound; and I was sent to a place where I received 9*s.* per week. In a former place I had fires to attend to constantly, without any assistance from the foreman or any other person. In my last place I had three fires to attend to—these half a mile from the bothy, and in frosty weather I had to go to them at least four times after dark. What time had I to study, even supposing my wages would have furnished me with means? "F.H.S." proposes that Chiswick should become a sort of finishing school for young gardeners, who should give their work for one year's finishing; but where is the money to come from to keep them, if their parents—as is often the case—are not in circumstances to assist them? I am satisfied they cannot save money out of such wages as are ordinarily paid to our class. *A Young Gardener.*

Admission to Flower Shows.—There has been at different times a great deal written and said about under gardeners; but comparatively little has been done for their benefit that I am aware of. Now, cannot the prices of admission to the London flower shows be reduced so as to give young gardeners an opportunity of seeing the finest shows in Britain. I have seen flower shows in the North, and two or three in London, and I am sure the sight acts as a stimulus in regard to our calling. It is my belief that every young gardener in or near London would avail himself of the opportunity if the price were lowered, so that he could meet the payment without wanting his dinner next day. I hope some friend will help *A Young Man.* [The facilities already afforded to young gardeners who wish to see the London shows are considerable. They are admitted at the Regent's Park and Kensington in the morning, without charge, on application through a proper channel; and the admission at the latter place on the second day of the shows is fixed at 1*s.* Besides which a certain regulated number of free admissions are distributed amongst the exhibitors. What more does our correspondent wish for?]

Callirrhoë verticillata.—Some weeks since you kindly inserted a few lines from me with reference to the plant figured under this name in the "Revue Horticole" for May, 1862, and which I believed to be nothing but the C. involucrata. Having obtained a copy of the "Revue" I ventured to forward it to Professor Gray, requesting his opinion as to the correctness of my belief, and I beg to hand you his reply, which settles the question conclusively, though I must confess that, from my knowledge of the tenacity with which a section of the horticultural world adheres to any name, when once given, let it be ever so absurd, I have not much hope that even the decision of the authority best qualified to judge will meet with much respect. *W. Thompson.*——"As to the Callirrhoë verticillata of Nuttall, so called in the "Revue Horticole," 1862, I have only to remark, that—1. I see no reason to doubt that it is merely a form of C. involucrata, with unusually large flowers. These ordinarily are of about the size they are figured in *Botanical Magazine*, t. 4681; but the colour of the corolla is with us nearly as deep and rich as in the figure of the C. verticillata. 2. I find nowhere published, nor in herbaria, any indication of verticillata of Nuttall; I suppose this name was a lapsus of involucrata. 3. I do not believe that this species is indigenous to California. It abounds on the plains up to the Rocky Mountains, but surely has not been found so far beyond them as California. The seeds received at the Jardin des Plants, or their parent seeds, were probably collected in the Nebraska Territory, on the overland journey to California. 4. All the species of the genus, at least all that have been cultivated (*i.e.* C. involucrata, pedata, digitata, and Papaver), are so handsome and so neat, that I cannot see how they could ever have been said to be weedy. *A. Gray.*"

Laying out Gardens.—I have not yet had the pleasure of seeing "the classical compositions at Holkham, Castle Howard, and Witley Court," but have been startled to find the creation of the main features at Kew adduced by "Delta" (p. 222), as a proof of ability in a great landscape gardener. Kew is immeasurably the greatest garden in the world, but none of its fame is derived from its general arrangement, system of planting, &c. Indeed the only apparent and consistently pursued plan seems to have been the planting of a tree wherever there happened to be an open space. The laying out of Kew is, in my opinion, a disgrace to the country which boasts the priceless treasure of London's literature, and has had such a magnificent lesson from Paxton at Sydenham. I need only instance the splendid new Conservatory at Kew, with its end, and very harsh end too, first presented to the visitor. What a noble feature it would have made, if properly placed in such a glorious garden. *Iris persica.*

Zizania aquatica.—With reference to this plant, some of your readers may be interested in knowing that there is no need to send to British Columbia for its seeds, as I have observed them in the catalogues of some of the German seedsmen, and presume therefore it may be procured without much difficulty. *W. T.* [But will the seeds grow unless kept in water?]

A Gardener recommended.—I have so often heard my poor father mention your name in connection with his favourite pursuit of horticulture, that I venture to bring to your notice, that in consequence of my being obliged to reduce the scale of the gardens here, the head gardener is in want of a situation, and it occurs to me, that you could perhaps recommend him to some one who is in want of a first-rate gardener, thoroughly experienced in all branches of gardening, respectable and trustworthy. He is about 50 years of age, but is still vigorous and hard-working himself; he has a 19 years character, and is quite competent to undertake any large place. Roses, Ferns, Bulbs, Stove plants, and Vineries, have been his especial care for many years, and he has also considerable taste in landscape gardening. I have so high an opinion of him, that I regret much being obliged from circumstances to lose his services. *J. H. S.* [No doubt a capital man, trained in an excellent school, once famous for first-rate cultivation.]

Roses: the Bud Rule.—On inquiring of Mr. Eyles whether the bud rule would be enforced, he writes:—"The rule forbidding disbudding Roses is erased as quite useless. We say any addition to the truss will disqualify; and although we do not wish to encourage disbudding, we do not forbid it. It is not against our rule. We left it open on the principle that what is a rule is an annoyance, without being a preventive, the sooner it is discontinued the better. I am an advocate for letting exhibitions be as free as possible, and having only such rules as are absolutely necessary." I quite concur. *W. F. Radclyffe, Rushton, March* 1.

The Hydropult (see p. 222).—In answer to "R. C.," regarding the efficiency of the "hydropult" as a garden engine, I beg to state that I was induced to procure one, but two or three trials of its powers were sufficient, and I discarded it for the following reasons:—It is much too hard work for one man; it does not throw the water in a continuous stream, and the jerking intermittent action is anything but desirable; the operator is subject to a liberal wetting, which falls on the foot when placed on the stirrup of the machine; and lastly because a common hand syringe, costing only 10*s.* or 12*s.*, is infinitely superior. *Veritas.*

Hybrid Cucurbitaceæ.—To Monsieur Naudin's list may be added a cross from the Green-fleshed Melon by the pollen of Cucumis flexuosus, a long-shaped, fragrant, uneatable fruit, obtained by me before M. Naudin began his experiments. Also between a Melon and C. Osmocarpus by Herbert some 20 years before that. The black-seeded Citrouille perfected a fruit by the pollen of a Green-fleshed Melon, but the produce was not tested. The Custard Gourd (Patisson) was most carefully crossed with the Large Potiron jaune, but the produce does not warrant the efficiency of the cross. *R. T. C.*

Shelter for Wall Trees.—In the *Revue Horticole* for Feb. 1864, a mode of protecting wall trees from the effects of frost in spring is described by M. Bouscasse, of Rochelle, who states that he has practised it, and finds it very inexpensive. He stretches a stout wire immediately under the coping, fixing it to iron pins at each end, and then using the pins to strain the wire sufficiently, by turning them round. Another wire is similarly secured parallel to the first, but lower, and distant from the wall as much as the width of the protecting material. This is fixed by wire to Oak shingles inserted in the soil. These being made of split Oak (*Chêne de refend*) may bend but will not readily break. On these two wires, thus fixed horizontally, the shelter is placed. This consists of *paillassons* made with strips of Oak and Rye straw, and secured by strong wire hasps. When the danger of frost is over, all is removed except the wire fixed immediately below the coping. [We notice this mode because it may furnish some hint for improvement, as regards the employment of wire; but we do not think it would be so cheap in this country as it may prove in France. In the first place, the Oak would be expensive; and so would be the labour of making the paillassons or mats by those unaccustomed to the process.]

Societies.

Royal Horticultural: *March* 9 (*First Spring Show*).—This was accommodated partly in the entrance hall in the Exhibition Road, which has been altered so as to render it suitable for such a purpose, and partly in the adjoining Council Room and the arcade in connection with it, all three compartments being well filled with charming collections of spring-flowering bulbs and other plants. The weather was unfortunately most unfavourable, snow falling heavily all day.

Hyacinths.—These were in all respects excellent, and produced in sufficient abundance to be highly attractive. In the Nurserymen's class of large groups, finely grown plants came from Mr. Cutbush, who showed among *Reds* well-flowered examples of Queen of Hyacinths, Von Schiller, Lady Sale, Macaulay, Pelissier, Victoria Alexandrina, Madame Hodgson, Howard, and Lina. Of *Blues*, the collection contained Charles Dickens, Laurens Koster, an old but still excellent variety; Baron von Tuyll, Couronne de Celle, Prince of Saxe Weimar, Leonidas, Bleu Mourant, Grand Lilas, and last but not least Argus, a deep blue with a white eye. Of *Plum* or *Mauve*-coloured kinds the best was Haydn. *Black-Purples* were well represented by Prince Albert. Among *White* varieties the most conspicuous were Madame Van der Hoop, Mont Blanc, Prince of Waterloo, Alba maxima, Voltaire, Snowball, Mirandoline, and Queen of the Netherlands. *Blush* or *Delicate Pinks* consisted of Gigantea, Tubiflora, a large-flowered kind; and Lord Wellington. *Buffs* were confined to Koning van Holland. From Mr. Wm. Paul, who furnished another collection, came among *Blues* Sir Colin Campbell, Van Speyk, Orondates, Grand Lilas, Charles Dickens, Baron von Tuyll, Mimosa, Regulus, and charming plants of Argus. Among *Reds* the most conspicuous were Macaulay, of which very fine specimens were shown; Von Schiller, Mrs. Becher Stowe, Solfaterre, Queen of Hyacinths, Howard, Madame Hodgson, a sort prettily striped with white, as were also Queen Victoria, Le Prophète, Duchess of Richmond, and Princess Charlotte. Of *Buffs striped with red* the best was Duc de Malakoff, a truly beautiful sort, and shown in good condition. Among *Whites* the best were Orondates, Mont Blanc, Miss Burdett Coutts, and Grandeur à Merveille. *Blushes* were confined to Duke of Wellington.

Awards.—1, Mr. Cutbush; 2, Mr. Wm. Paul.

Hyacinths in Eighteens.—In this class beautifully flowered plants came from both Mr. Wm. Paul and Mr. Cutbush. Those from the former consisted of Grand Lilas, Feruck Khan, deep porcelain blue; Queen

of the Netherlands, Macaulay, Baron von Schiller; General Havelock, a fine deep blue sort; Chas. Dickens; Mimosa, bright deep blue; Mirandoline, white; Howard, salmon; Duc de Malakoff; Argus, with an unusually fine spike of charming white-eyed blue flowers; Marie, blue; Princess Clothilde, red striped with white; Ida, yellow; Snowball, King of Blues, and Baron von Tuyll. From Mr. Cutbush came Laurens Koster; Grandeur à Merveille, creamy white; Mimosa, Haydu, Baron von Schiller, crimson striped with white; Duke of Wellington, double white flushed with pink; Mont Blanc, C. Dickens, Amiable, Macaulay; Seraphine, white; Gigantea, Florence Nightingale, white striped and flushed with red; Argus; Queen of the Netherlands; Princess Clothilde, red striped with white; and Ida, bearing a noble spike of yellow blossoms.

Awards.—Equal 1, Mr. Wm. Paul and Mr. Cutbush; 3, Mr. Treen.

Hyacinths in Twelves (Amateurs).—This Class was also well supported with finely grown plants, among which we did not recognise anything different from those just named.

Awards.—1, Mr. Young; 2, Mr. Carr; 3, Mr. Taylor.

Hyacinths in Sixes.—In this class were some charming specimens, especially in the group from Mr. Cutbush, who furnished Baron von Schiller, Grandeur à Merveille, Princess Charlotte, Florence Nightingale, General Havelock, and Ida.

Awards.—1, Mr. Cutbush; 2, Mr. Young; 3, Mr. Wm. Paul.

Hyacinths in Sixes, grown in Windows.—Most of the exhibitions in this class did credit to those who produced them. The following sorts in glasses came from Miss Fortune, of Gilston Road, Brompton, viz., Lord Wellington, Sultan's Favourite, white and red striped; Prince of Waterloo, double white; La Tour d'Auvergne, double white; Grand Vainqueur and Bloksberg. Those to which the 1st prize was given were grown in pots.

Awards.—1, Mrs. Noakes; 2, Mr. Young; 3, Miss Fortune.

Hyacinths of 1863-4, *in Sixes.*—Mr. Cutbush showed the following, viz., Josephine, bright deep glossy orange crimson; Schwarzwald, deep porcelain blue; Queen of Denmark, striped crimson; Henrietta Elizabeth, pale lilac; Robert Fortune, mauve with darker stripes; Die Jung Frau, white. From Mr. Wm. Paul came King of Blues, Emma Livry, yellow; L'Or d'Australie, yellow; Lord Palmerston, blue with a white centre, in the way of Argus; Sir C. Napier, blue and white striped; Alba nova, white. Messrs. Barr & Sugden contributed Lord Shaftesbury, white flushed with pink; Dr. Lindley, mauve; King of the Blues, Lady Morgan, deep crimson; Flag of Truce, striped crimson; Queen of Beauty, white. From Mr. Young came Leonidas, President, mauve and white; Philomèle, white, slightly striped and flushed with delicate pink; Horace Vernet, in the way of Argus; Bouquet Constante, striped red; and Mr. Gladstone, creamy white. Of these the best were admitted to be Lord Palmerston, Robert Fortune, Henrietta Elizabeth (which is new in colour), and Josephine.

Awards.—1, Mr. Cutbush; 2, Mr. Wm. Paul; 3, Messrs. Barr & Sugden.

Tulips.—These were numerous; and, if the day had been sufficiently favourable to induce them to open, they would doubtless have made a good display. The following are the names of a few of the most attractive of them, viz.:—Couleur de Cardinal, scarlet; Duc d'Aremberg, brown bordered with yellow; Molière, purple with a yellow base; White Pottebakker; Proserpine, rich glossy rose; Bizard Pronkert, yellow and red; Roi Pepin, white and crimson; Monument, bright crimson; La Metelas, deep rose; Keizer Kroon, yellow and red; Grand Duc, bright yellow; Fabiola, purple and white, together with Vermilion Brilliant, Rex Rubrorum, Tournesol.

Awards.—1, Mr. Cutbush; 2, Mr. Wm. Paul. *Amateurs.*—1, Mr. Young; 2, Mr. Taylor; 3, Mr. Carr.

Crocuses.—These were plentiful, but owing to want of sunshine their flowers did not open. The following were of good quality, viz., Versicolor, Sir Walter Scott, Prince Albert, New Giant Yellow, Ne Plus Ultra, Marie Stuart, La Majestueuse, Elfride, David Rizzio, Calypso, Bride of Abydos, white, and Albion.

Awards.—1, Mr. Cutbush; 2, Mr. Wm. Paul. *Amateurs.*—1, Mr. Young.

Narcissi.—A collection of these, well grown and finely bloomed, was furnished by Mr. Cutbush.

Camellias.—These were confined to two stands of cut blooms—one from Mr. Wm. Paul, the other from Mr. Treen, of Rugby. Mr. Paul's varieties consisted of Old Double White, Teutonia, Reine des Fleurs, Princess Bacciocchi, Alexina, a pretty carnation-striped sort; Eximia, Caryophylloides, Rubens, Catherine Loughi, Jubilee, La Reine, and Mathotiana.

Chinese Primulas.—Of these several well-grown collections were produced, consisting wholly of single white and pink sorts.

Awards.—1, Mr. Todman; 2, Messrs. Dobson.

Lily of the Valley.—A few plants of this were contributed in tolerably good condition by Mr. Bartlett, of Hammersmith.

Roses in Pots.—A small group, well-bloomed for the season, came from Messrs. Paul & Son. Among them were Géant des Batailles, Madame Willermoz, Paul Ricaut, Devoniensis, Souvenir d'un Ami, Anna Alexieff, Triomphe de l'Exposition, Triomphe de Paris, L'Enfant Trouvé, and Marquise de Foucault.

Amaryllis.—These were confined to one small exhibition from Mr. Parker, in which there was a superb velvety crimson kind called Ackermanni pulcherrima.

Subjects belonging to the department of the Floral Committee were by no means numerous. Foremost among them was the magnificent example of the true female Aucuba, loaded with orange-scarlet fruit, from Mr. Standish, of which separate notice will be found in another column. This received a First-class Certificate, as did also Messrs. Veitch for a Gymnogramma, from Chili, with very finely cut quadripinnate fronds; a Second-class Certificate was also awarded to the latter exhibitors for Lycioplesium pubiflorum, of which a full account will be found at p. 388 (1863); and a large white blossomed Rhododendron from Moulmein, related apparently to Veitchii, from the same establishment, was Commended. A pretty bright-looking rosy pink Azalea named Lord Derby, from Mr. Todman of Clapham, was also Commended. From Mr. Shortt, of Clewer Park, came a delicate blue-flowered plant called Pycnostachys urticifolia, and Mr. Standish sent a singular looking Azalea from Japan, with long narrow pink petals, from which the leaves were scarcely distinguishable except by their colour.

A collection of New and Rare Plants came from Mr. Bull, who showed among other things handsome examples of Lomaria cycadifolia, Aspidium pinnatum, a well grown specimen of Cephalotus follicularis, the orange-blossomed Imantophyllum miniatum, Camellias, the handsome-leaved Anthurium leuconeurum, Palms, variegated and other plants, for all of which an extra prize was awarded. The same exhibitor also showed a tastefully-filled example of Miss Maling's plant case. Mr. Todman sent a small but well flowered collection of Azaleas.

Destruction of Glass.—On the day on which this exhibition took place, the heavy wet half-melted snow in sliding off the upper ridge of the Society's Conservatory on to the projecting lower part of the same roof broke between 40 and 50 panes of glass in its descent, letting in the frozen snow on the plants beneath that portion of the roof. It is evident, therefore, that stouter glass should have been employed in that part of the building, and to prevent such a catastrophe in future let us hope that in all that portion on which snow fell, better glass may be put in than that which has just given way, under by no means unusually trying circumstances.

Botanical of Edinburgh: *February* 11.—Professor Balfour, President, in the chair. Various donations were announced. The following communications were read:—"On Displostemonous Flowers, with some remarks on the position of the Carpels in the Malvaceæ." By Dr. Alex. Dickson. The author described two principal forms of diplostemony.—1. Where the younger stamens are the more internal, the carpels, when of the same number, being superposed to the older stamens, as in Coriaria, Agrostemma, &c. In this case there seem to be two true whorls of stamens. 2. Where the younger stamens are the more external, the carpels, when of the same number, being superposed to the younger stamens, as in Geranium, Erica, &c. This was considered to be a merely apparent diplostemony. With regard to the Malvaceæ, it was observed that as with Hermannia and the Dombeyaceæ, the carpels, when of the same number, are superposed to the sepals. An apparent exception to this occurs in Urena, where they are superposed to the petals. In this plant, however, there are 10 styles, so that, as Payer has found in Pavonia, there are 10 carpels, five fertile and five barren. It is a very remarkable circumstance regarding these two genera that in Pavonia the fertile carpels are superposed to the sepals, while in Urena they are superposed to the petals.——2. "On the Cinchona Plantations in connection with the Botanical Garden at Bath, Jamaica." By Nathaniel Wilson, Curator of the Garden. Communicated by Dr. Lauder Lindsay. The principal facts comprised in this report have been already referred to at page 196.——3. "Notice of the Occurrence of Woodsia alpina (hyperborea) in Gaspé, Canada East." By Dr. Lawson, Professor of Chemistry, Dalhousie College, Halifax, Nova Scotia. Professor Lawson stated that this rare Fern (Woodsia alpina) had not been found by any recent collector in Canada, and no one knew where to look for it. He had recently described, however, in connection with Woodsia glabella, and under the name of var. Belli, a remarkable Woodsia found in Gaspé, on the Dartmouth River, 20 miles from its mouth, by his former pupil, Mr. John Bell. This plant on further examination turned out to be the Woodsia alpina.——4. "Remarks on Myrica cerifera, or Candleberry Myrtle." By Professor Lawson. I found Myrica cerifera a few days ago in some quantity on a hillside near Halifax, with small birds feeding on the berries. It is variously called Wax Myrtle, Candleberry tree, and Tallow shrub, in reference to the wax with which its berries are coated. The wax is yellowish green, emitting a fragrant balsamic odour not so unctuous as bees' wax, nor so brittle as resin, sinking in water, whereas bees' wax swims; sp. gr. 1.015; fusing point, 110°. The wax is obtained by boiling the berries in water. The plant is common all over the hills overlooking the innumerable bays and harbours of the Nova Scotian coast, but I do not know that the product has been made an object of commerce here. Some years ago Professor Simmonds called attention to the desirability of encouraging the production of Myrtle wax, and gave (Pharm. Jour., xiii., 418) very full details respecting the wax-yielding Myrtles of South Africa, and the mode of manufacturing the product. The species which is cultivated at the Cape as the best South African one, is Myrica cordifolia. Professor Simmonds speaks of our American Myrtle wax (M. cerifera) as identical commercially with that produced at the Cape. A consignment of Cape wax (2561 lb.) yielded a clear profit of 54*l.* 4*s.* 5*d.*, after payment of all expenses, collecting, shipping, &c. Should any manufacturer in Britain feel an interest in the matter, I will be happy to furnish such additional information as may be procurable here. It is stated that the European Myrica Gale yields a little wax. The Myrica cerifera, like its African congener, is a coast plant. I never saw it in Upper Canada; but Professor Gray gives a station on Lake Erie. On the Halifax hills it is a small spreading bush 3 or 4 feet high, forming a close brush.——5. "Note on the leaves of Ulex (Whin)." By Professor Lawson. The seedling Ulex has at first no spines. The young stem is clothed with leaves—from 12 to 20 in number; these are shortly petiolate and trifoliate, consisting each of three small elliptical hairy articulated leaflets. When the stem becomes 5 or 6 inches in length (usually) the trifoliate leaves cease to be developed, and spines are then produced. Ulex is truly a plant with compound trifoliate leaves, not simple-leaved, as stated in many works.——6. "Notice of Mosses found in the neighbourhood of the Burn, near Brechin, Forfarshire." By Mrs. M'Inroy. Communicated by Mr. John Sadler. The list contained 144 species.——Mr. W. J. Haig, Dollarfield, sent a specimen of a plant just received from a friend in the Banda Oriental, Republic of Uraguay, who writes, "I should be glad if you could get a scientific opinion on the following case:—It has long been a known fact here that sheep removed from the province of Buenos Ayres to the Banda Oriental, or imported from Europe, are liable to die in great numbers during the first fortnight after arriving. I saw an instance myself last week. At an estancia about five leagues from here, the owner had just received from Buenos Ayres 60 rams and ewes freshly imported from Europe, which cost 15*l.* per head: of these 14 died in five days. It is believed that the mortality arises from the sheep eating a plant called 'Min-min,' peculiar to this province. I enclose a twig of it. It grows in patches about the size of one's hand. The stomach and intestines after death are found much inflamed, and in some cases the under side of the skin is quite red with effused blood. I may add that sheep born here, or acclimatised, are in no way injured by the plant, in fact, they almost entirely avoid it." It was suggested that the only way to avoid the danger would be to put the animals in an enclosure cleared of the plant, for the first week or two, by which time desire for green food would be somewhat abated, and they would, like the native born, become more discriminating. The specimen sent was a mere twig without flowers or fruit, and not sufficient for the identification of the plant.——A note was read from N. B. Ward, Esq., in which he stated that the Fucus discovered by Professor Harvey and himself at Kilkee, which was first published as Fucus furcatus, and then as F. distichus, turns out to be neither the one nor the other, but a new species, proposed to be called F. anceps.——James Backhouse, Esq., presented specimens of Trichomanes radicans, accompanied by the following note:—"I have much pleasure in forwarding herewith specimens of Trichomanes radicans, found by my father and myself in a truly wild state, in Carnarvonshire. The plant was remarkably luxuriant."——Mr. J. S. Stewart Hepburn, Colquhalzie, near Crieff, presented the stock of a Larch tree which had continued to grow for a number of years after the tree had been cut down. Professor Balfour suggested that this might be owing to its roots being connected with those of a neighbouring tree, by natural grafting.——Mr. M'Nab recorded the flowering of the following plants in the Botanic Garden:—Jan. 26. Nordmannia cordifolia; Feb. 2. Galanthus plicatus; Feb. 4. Leucojum vernum.

Notices of Books.

Passages of a Working Life. Vol. I. By Charles Knight. Pp. 346. 1864. Bradbury & Evans.

The name of Charles Knight is associated in most minds with certain well directed and successful efforts which were made some 36 years ago, for the promotion of education among the masses; and many will remember with gratitude those marvellously attractive, excellent, and cheap publications, the "Penny Magazine" and the "Penny Cyclopædia," which marked a new era in the literature of the country, and for which we were indebted to the skill and enterprise of Mr. Knight; as also for the publication of those well known but more strictly scientific treatises of the Society for the Diffusion of Useful Knowledge. Passages from the life of such a man can hardy fail to be both interesting and instructive, especially as from early days, young Knight seems to have possessed quick powers of observation, and the times were very critical,

and his profession soon brought him into contact with persons of celebrity.

Naturally enough he loves to dwell upon the incidents of his boyhood, which was passed at Windsor, and this of course leads him to tell us a little about the singularities—as they may without offence be called—of the Court of George the Third. As a boy our author was an enthusiastic admirer of the beauties of nature, and delights in the recollection of the hours which he spent amid the beautiful scenery of the river, in fishing, even when there was scarcely a nibble to reward his pains.

As he grew older the state of the Continent, and the intolerable abuses which reigned in England, stirred his soul within him. He saw the deplorable condition of affairs at home and abroad, and even at that early period conceived the idea that the simple and natural remedy lay in the proper education of the people. At this time his strong sense of religion was shocked with the way in which his confirmation was conducted; and on the other hand he was greatly impressed with a prayer which, while making a catalogue of her library, he found written in the Princess Amelia's prayer book, in her own hand-writing.

After serving his apprenticeship with his father, young Knight, disgusted with the coarseness of manners in the people around him, and pining for literary and intellectual improvement, became a resident in London for a short time in 1812, and occasionally helped his father's friend Mr. Lane in reporting the speeches made in the House of Commons for the *Globe*, and another newspaper. After a few weeks he returned to Windsor, a wiser, a more tolerant, and a more hopeful man. He writes at this time, "some are afraid to educate the poor, some are afraid of distributing Bibles, and the greater part are afraid of Popery." He did not despair of his country, or doubt of its ultimate destiny.

August 1st, 1812, saw young Knight established as proprietor with his father in the *Windsor and Eton Express*, and entrusted with its responsible Editorship, at the age of 21. The difficulties of journalism at that period are feelingly pourtrayed. There was the four-penny newspaper stamp; 3*s.*, and subsequently 3*s.* 6*d.* was the duty charged for every advertisement. There was so little postal accommodation that the distribution of the newspaper when printed, was a work of difficulty and labour. A copy of the *London Gazette* with the latest news was sent down to Windsor by courier, but when it was delayed, and that was often, a leading article had to be written *impromptu*. Lastly the Government was most jealous of criticism, and foolishly severe in punishing anything which they considered a reflection on the powers that be.

Stirring and troublous times were these for the country, and not easy times for the journalist. The condition of the labouring classes was deplorable, and the soundest political economists were overwhelmed with the difficulty of the problem before them. Grim colliers were marching towards London in solemn silence, bearing a placard on which was inscribed, "Willing to work, but none of us will beg." The old poor laws were shockingly administered. The gulf between rich and poor seemed ever widening. Dissatisfaction was visible everywhere, and the Queen's trial drew forth the expression of much bitter feeling.

Observing the influence which Cobbett and such writers had obtained over the labouring classes, Mr. Knight thought that a lesson might be learnt from the enemy, and that, if the intellectual wants of the masses were attended to, the new power of the Press might be employed in supplying healthful food, which would ultimately supersede that which was deleterious; and with this view he published a periodical called "The Plain Englishman," in conjunction with Mr. Locker. One of the first contributors was Dr. John Bird Sumner, the future venerable Archbishop of Canterbury. The publication closed in December 1822, on the completion of the third yearly volume. A little before this time Mr. Knight had become proprietor of a London paper called the "Guardian," and thus made himself acquainted with the London publishing trade.

In 1820, at the request of some young Etonians, he became the editor of the "Quarterly Magazine," and had the privilege of being associated in terms of intimacy with some of our most brilliant writers. We find the names of Walter Blunt, Praed, Sidney Walker, a fellow of Trinity College, Moultrie, Derwent and H. N. Coleridge, Malden, Macaulay, and De Quincey. He dwells with evident pleasure upon the friendship of these distinguished men, sometimes giving a brief account of their several contributions, occasionally remarking that some of the gems of these pieces are not to be found in the collected remains of the authors, and often telling us very pleasantly of characteristic and amusing anecdotes and events which took place during the continuance of this intimacy. And thus Mr. Knight brings us to the end of Vol. I. of "Passages of a Working Man's Life," which is well worth reading, and of which we have endeavoured to give our readers a brief sketch, hoping to return to the subject when Vols. II. and III. are published.

Miscellaneous.

Clavaria.—Most of our readers are acquainted with the little tufts of white, cylindrical bodies, which occur in profusion on our close-shaved lawns in autumn, looking like little bundles of wax tapers. They belong to Clavaria vermicularis, one of the simplest forms of the genus Clavaria, which contains a large number of esculent species, amongst which the little candles, though small, are not to be despised when dressed in little fagots, like bundles of Asparagus. Other species of the genus are simple and club-shaped, others branched, and some to such a degree that they look like little shrubs divested of their leaves. Some are even, and some much wrinkled, and a few are slightly compressed, though a neighbouring genus, once confounded with it, but distinguished by its more leathery consistence, departs from the cylindrical type. They exhibit the most various hues, as white, golden yellow, rose, amethyst, grey, orange, with many intermediate tints. *Rev. M. J. Berkeley, in Intellectual Observer.*

Gooseberry [Ribes Grossularia, L.], a name of obscure and disputed origin. It seems to have come to us through the Fr. *groseille*, corrupted to *gozel*, and this word *groseille* from the Germ. *kraüselbeere*, uva crispa, frizzle-berry, a name that seems absurd enough when applied to the Gooseberry, and one that could only have arisen from that common source of blunders in the popular names of plants, the mistranslation of a foreign word. The origin of it is clearly the Du. *kruis-bezie*, cross berry, from the triple spine assuming the form of a cross, and which has been mistaken for *kroes-bezie*, frizzle-berry, and so translated into German and herbalist Latin. In Matthioli, however (ed. Frankf., 1586) it is given correctly *creutzbeer*. *Groseille* has been usually derived through *grossularia*, from *grossula*, dim. of Lat. *grossus*, a small immature Fig. But as the fruit was unknown to the ancients in its cultivated state, and like so many other productions of the garden, was introduced by the Netherlanders, it is to the language of these latter that we should refer for its name. The derivation of it given in some popular works of reference, from *gost*, a furze-bush, probably a misspelling of the MS. for *gorst*, and that of Patrick Blair and some other herbalists, who say that it was called so "because when the green geese begin to be eatable 'tis frequently used as a sauce to them," is undeserving of any serious attention. *Prior's Popular Names of British Plants.*

Calendar of Operations.

(For the ensuing week.)

The weather is still extremely changeable; nevertheless, if not already done, a collection of the best hardy annuals may still be sown; they are of most service and most esteemed before Verbenas, Pelargoniums, and other bedding plants, come to perfection. Where a frame or pit is at liberty we would recommend their being sown in small pots in loamy soil, and not turned out until they are slightly pot-bound; the flower then gains the predominance, and the great proportion of this above the leaf constitutes the chief beauty of most annuals.

FLOWER GARDEN AND PLANT HOUSES.

Crocuses in pots have blossomed unusually well this year, and out of doors a fine display may doubtless also be expected. Among yellows, lilacs, and whites are some very large and showy kinds, which when planted in parallel rows close together, have a striking effect, a point that should not be forgotten at next planting season. Of some of the more showy kinds a list will be found at p. 247.

Fuchsias.—Where fine specimens of these are required, a moist atmosphere, with a slight amount of shading, will cause the shy sorts to make wood by retarding the flowering principle. Those wintered in outhouses or cellars should now be brought forth and potted, if possible, to give them a start for the decoration of lawns or the flower-garden.

Hyacinths.—These should not have too much heat; they lose much of their effect when the bells are too far asunder, through too much excitement in proportion to light.

New Holland Plants.—Now is a good time to shift such as require more pot room.

Orchids.—These will be pushing vigorously, and many on blocks and baskets will require careful attention in the way of watering, which should be done on sunny mornings early, and air given freely for a couple of hours in order to prevent moisture from lodging amongst the buds and tender shoots.

Roses.—Keep these free from insects, and water those in the forcing pit occasionally with weak liquid manure.

FORCING GARDEN.

Cucumbers.—Make it a point to turn one or more of the linings frequently until May. See that they are in good condition as regards moisture, and take care that no burning extends into the bed. Do not object to turning out old plants in preference to young ones, provided they have not received any check.

Figs.—Provide against red spider by copious syringings, and the application of sulphur on the pipes. Be sure to follow up stopping.

Kidney Beans.—Secure abundance of atmospheric moisture to these, and water them continually with clear manure water.

Peaches.—Trees on which fruit is swelling will now begin to enjoy a little liquid manure; guano water, clear and weak, will be found of great service. Gross shoots need scarcely be feared with this application, provided all luxuriant wood is stopped as soon as it is 5 or 6 inches long.

Pines.—It should be at all times understood that a sudden check of any kind whatever is at variance with the whole economy of Pine growing. In shifting in spring this frequently happens if the plants are allowed to stand unplunged in a temperature of 50°, whilst the tan bed from which they were taken has probably been 85°. Such a great discrepancy is found to be followed by pernicious effects. Attend well to atmospheric moisture; rest assured that as far as the Pine alone is concerned, it is not easy to overdo it at this period. Shut in sun heat whenever it can be done. Do not be afraid of a thermometer of 90° at 3 o'clock on a sunny afternoon.

Strawberries.—Continue to force Keens' Seedling for succession crops to those of last month.

Vines.—Look well to the bottom-heat outside. Endeavour to keep your fermenting material to 80° or 90°. When material of this kind is suffered to become inactive at this period, it is worse than useless. Early Grapes now about stoning should be run over once more with the scissors; let the shoulders be well set out. Keep up an agreeable warm atmosphere on all ordinary occasions, but allow the heat to rise to 85° or 90° early in the afternoon of bright days, which we may now expect soon to get, sinking to 65° at night.

HARDY FRUIT AND KITCHEN GARDEN.

Finish planting of all sorts of fruit trees and bushes, and mulch newly planted trees with half rotten dung. Grafting of Apples and Pears may now be proceeded with, following in the order in which the buds break. Protect fruit blossom by all possible means. Straw-ropes, mats, canvas, bunting, nets, Fir boughs, and fronds of Fern, should all, or any of them, be in requisition. As soon as nailing Peach trees is finished, mix sulphur and soap water to the thickness of paint, and draw a band of the mixture between the shoots, in all directions; this once done, and that well, will tend to secure the trees from red spider.

Broccoli.—As soon as the ground is in a proper state to receive the seed, sow a little of the Purple Sprouting sort.

Cauliflower.—If not already done, a small sowing may still be made upon a slight hot-bed, or better perhaps early next month upon an open border.

Celery.—To secure fine heads prepare a slight hot-bed, covered with 2 or 3 inches of light rich soil, and protected by a hand-glass or frame, on which sow the seed now, covering it lightly with sifted soil; when the plants appear, water sparingly, and give abundance of air to prevent damp.

Herbs.—Sweet Marjoram and Basil may now be sown in heat.

Tomatos.—If not already done, these should now be sown, and raised in a Cucumber frame.

Turnips.—If not yet done, lose no time in getting in a little seed of the White Dutch on a warm border.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending March 9, 1864, as observed at the Horticultural Garden.

March.	Month's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 3	24	29.662	29.489	54	37	46.5	42	42	E.	.51
Friday 4	25	29.5 9	29.489	57	31	44.0	43	42	S.	.00
Satur. 5	26	29.409	29.227	48	38	43.0	44	42½	E.	.47
Sunday 6	27	29.102	29.047	54	39	46.5	44½	43	S.W.	.08
Mon. 7	28	29.165	28.911	53	39	46.0	45	44	S.W.	.20
Tues. 8	29	29.2 0	28.988	47	30	38.5	45½	44	N.	.18
Wed. 9	1	29.261	29.079	35	25	30.0	43	45	N E.	.10
Average.		29 329	29 180	49.7	34.4	42.0	43.8	43.5		1.85

March 3—Foggy; rain; heavy rain at night.
— 4—Hazy and mild; very fine; clear at night.
— 5—Foggy, very fine; heavy rain at night.
— 6—Rain, cloudy; overcast; showery.
— 7—Cloudy; rain; strong wind; overcast; rain; barometer very low.
— 8—Foggy; rain; overcast.
— 9—Cold rain; sleet and snow all day, with cold N.E. wind.
Mean temperature of the week 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending March 13, 1864.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13..	50.8	34.2	42.5	14	0.26 in.	2	2	0	3	20	7	5	
Mon. 14..	51.2	34.8	43.0	17	0.70	—	0	5	—	15	0	2	
Tues. 15..	51.0	34.4	42.7	18	0.27	3	5	4	1	5	7	4	
Wed. 16..	51.5	34.7	43.1	13	0.65	—	1	7	—	11	3	3	
Thurs. 17..	49.9	32.2	41.6	12	0.37	5	8	3	—	5	7	3	
Friday 18..	51.4	33.5	41.9	11	0.24	3	8	2	2	6	12	3	
Satur. 19..	51.5	33.8	42.6	13	0.33	5	5	2	1	20	7		

The highest temperature during the above period occurred on the 15th, 1825, and 16th, 1836—therm. 67 deg.; and the lowest on the 17th, 1845—therm. 17 deg.

Notices to Correspondents.

Ferns: *A Devonian.* Berkeley's British Mosses. If you want a more complete series of figures, the volume of English Botany, small edition, containing the Mosses, might be a help; but it will not render the first superfluous.

Insects: *J P D.* The white spots on your Pine leaves have been produced by Scale. If you take a magnifier you will see hundreds of the insect Coccus still adhering to the leaves.

Names of Fruits: *T B H.* No. 2, Scarlet Nonpareil.—*C R.* 2, a very austere mealy Apple not known; 4, Scarlet Nonpareil, very good.

Names of Plants: *R J., Dub.* 1, Arabis alpina; 2, Galanthus plicatus; 3, Cornus mas; 4, Laurus nobilis.—*M T M.* 1, Disandra prostrata; 2, Pelebodium aureum; 3, Arthropodium paniculatum; 4, Lastrea augescens.—*Arran.* 5, not recognisable; 6, Habrothamnus elegans; 7, Nephrolepis tuberosa; 8, Blechnum occidentale, var. minor.—*P D.* 1, Eranthemum nervosum; 2, Goldfussia isophylla; 3, Ardisia crenulata; 4, Solanum capsicastrum.—*J. Quercus coccifera.*

Woods and Forests: *Dub.* "The Right Hon. the First Commissioner of Woods and Forests, Whitehall, London." Better send through some Member of Parliament.

Agricultural Seeds.—Carriage Free.

SAVED FROM THE MOST GENUINE STOCKS, AND AT PRICES NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WILLIAM WOOD AND SON beg to intimate that they have for many years supplied their customers with PURE, GENUINE, UNADULTERATED FARM SEEDS, in consequence of which this branch of their business has so increased, that they have been compelled to extend their premises, and are now in a position to supply the largest orders with promptitude and despatch.

W. W. & S. will be happy to send samples and lowest prices of CLOVERS, RYE-GRASS, NATURAL GRASSES for Permanent Pasture, CABBAGE, CARROT, MANGEL WURZEL, PARSNIP, TURNIPS, and all other Agricultural Seeds.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.—Carriage Free.

WM. WOOD AND SON are prepared to supply from their immense stock the following pure and genuine Seeds:—

First Quality GRASSES and CLOVERS for Laying down Permanent Pasture, 28s. to 30s. per acre.

Second Quality for Ditto, 20s. to 26s. per acre.

CLOVERS and GRASSES for Renovating Pastures, 6s. to 9s. per acre.

LAWN GRASS, best quality, 18s. per bushel.

Ditto for Parks, 16s. per bushel.

MANGEL WURZEL SEED. Special reduced prices will be given for large quantities.—IMPROVED YELLOW GLOBE (very pure stock), 6d. per lb.; IMPROVED ORANGE GLOBE (extra fine), 6d. per lb.; RED GLOBE, 6d. per lb.; LONG RED (very superior stock), 6d. per lb; LONG YELLOW, 6d. per lb.; ELVETHAM LONG RED (highly recommended), 8d. per lb.

SWEDE and TURNIPS, RAPE, MUSTARD, DRUMHEAD CABBAGE, CLOVERS &c., at lowest prices.

PRICED CATALOGUES Free on application.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY

RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 80 Seed Market, Mark Lane.

WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.

Samples and Prices post free on application.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill 2 bushels per acre.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

Alsike Hybrid Clover.

THE LONDON SEED COMPANY, LIMITED, can supply SEED of this valuable CLOVER, at 9d., 10d., and 1s. per lb., or 82s., 88s., 94s., and 100s. per cwt. Carriage free. Samples fine.

68, Welbeck Street, Cavendish Square, W.

THE ALSIKE CLOVER for CLOVER-SICK LAND.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lbs. per Acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year.

SUTTON & SONS have now the satisfaction of offering very fine new Seed at the greatly reduced price of 10d. per lb, or cheaper by the cwt., and strongly recommend this Clover to more general cultivation.

Royal Berkshire Seed Establishment, Reading.

RICHARD SMITH'S RENOVATING GRASS SEED should Now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.

RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil.

	Per Acre.
MIXTURE for Laying down to PERMANENT PASTURE	25s. to 30s.
MIXTURE for ORCHARDS or LAND shaded by Trees	24s. to 26s.
MIXTURE for PARKS and CEMETERIES	28s. to 30s.
MIXTURE for Improving OLD PASTURE	6s. to 8s.
MIXTURE for One, Two, or Three Years' Lay	15s. to 18s.
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1s.

PRICED LISTS may be had on application.

RICHARD SMITH, Seed Merchant, Worcester.

SUTTON'S ITALIAN RYE-GRASS SEED, cheaper in large quantities.

	per bush.—s. d.
ITALIAN RYE GRASS, good English seed	5 6
SUTTON'S IMPROVED ITALIAN RYE-GRASS, extra fine	6 6
FRESH IMPORTED SEED, extra well cleaned	7 0
Ditto in BALES, as imported	6 6

Sow 3 or 4 bushels per acre alone. It will thrive in any soil, and may be sown any time between February and September, with a certainty of success. Italian Rye-grass is also very useful for sowing with Clovers instead of Common Rye-grass; it rises early in the spring above the Clover, and protecting it from frost, brings the crop forwarder and heavier.

ENGLISH AND SCOTCH RYE-GRASSES, CHEAPER IN LARGE QUANTITIES.

	per bush.—s. d.
PERENNIAL RYE-GRASS, good clean seed	5 6
PACEY'S PERENNIAL RYE GRASS, very fine heavy do.	6 6
EVERGREEN RYE-GRASS, or PERENNIAL DEVON LEAVER	7 0
ANNUAL, or COMMON, for alternate husbandry, best quality	5 6
Ditto ditto lighter seed, but clean	4 6

Samples and lowest price per quarter may be had on application to

SUTTON & SONS, Seed Merchants, Reading.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS

To be sown with Corn for a crop of Clover, &c., in the following year.

In the Mixtures of Clovers and Rye-grass described below, we generally give 14 lbs. of Clovers (principally Red and Alsike) and 1 peck of Rye-grass per acre, but if more Rye-grass should be desired it can be supplied without altering the price by omitting a pound or two of Clovers. Should one sort of Clover only be required, it is only necessary to state this in giving the order.

CLOVERS and ITALIAN RYE-GRASS, for One Year's Clover Hay, at 12s. 6d. per acre.

CLOVERS and COMMON RYE-GRASS, for One Year's Clover Hay, at 12s. 6d. per acre.

If Rye-grass Seeds are not desired, the following will answer well—

CLOVER SEEDS WITHOUT RYE-GRASS, at 10s. 6d. to 12s. 6d. per acre, according to sorts and quantities supplied.

*** Gentlemen requiring "Seeds" to sow with Corn for One Year's Clover Lay will save themselves trouble, and ensure a proper mixture for their soil, by ordering the above-named Mixtures for the number of acres to be sown.

SUTTON'S MIXTURES for 2, 3, or 4 Years' Lay.

GRASSES, CLOVERS, &c., for 3 or 4 years' Pasture, Hay, or Soiling (2 bushels per acre), 21s. per acre.

GRASSES, CLOVERS, &c., for 2 years' Pasture, Hay, or Soiling, (weighing about 30 lbs., containing a large proportion of Clover Seeds), at 17s. 6d. per acre.

ITALIAN RYE-GRASS and ALSIKE CLOVER, for 2 or 3 years' Hay and Soiling, which may be cut three times a year (2 bushels per acre), 21s. per acre.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading, Berks.



SUTTON'S GRASS SEEDS for all SOILS. The following Letter has been received, besides many more to the same effect from other customers:—

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

MIXTURES for LAYING DOWN LAND to PERMANENT MEADOW or PASTURE.

The quantity per Acre is 2 bushels large light Seeds and 12 pounds small heavy Seeds, for best Permanent Pasture. If required for three or four years' lay only, cheaper mixtures will be supplied.

			Per Acre. s. d.	s. d.
1.	BEST MIXED PERMANENT GRASS and CLOVER SEEDS, for good Loamy Soil of medium texture			30 0
2.	Cheaper	ditto ditto, for similar Soil	21 0 to 25	0
3.	Best	ditto for Heavy Loam		30 0
4.	Cheaper	ditto ditto	21 0 to 25	0
5.	Best	ditto for Stiff Clay		30 0
6.	Cheaper	ditto ditto	21 0 to 25	0
7.	Best	ditto for Light Sandy Soil		30 0
8.	Cheaper	ditto ditto	21 0 to 25	0
9.	Best	ditto for Sharp Gravelly Soil		30 0
10.	Cheaper	ditto ditto	21 0 to 25	0
11.	Best	ditto for good Black Peaty Soil		30 0
12.	Cheaper	ditto ditto	21 0 to 25	0
13.	Best	ditto for Chalky Soil		30 0
14.	Cheaper	ditto ditto	21 0 to 25	0
15.	Best	ditto for Dry Uplands and Sheep Downs		30 0
16.	Cheaper	ditto ditto	21 0 to 25	0
17.	Best	ditto for Parks, Field Lawns, and Cemeteries	30 0 to 36	0
18.	Best	ditto for Water-Meadows		25 0
19.	Best	ditto for Orchards and Pastures overshadowed with Trees		30 0
20.	Best	ditto for Reclaimed Marsh Lands		20 0
21.	Best	ditto for Poor Heath Lands		20 0

22. FINE LAWN GRASS SEEDS, for making New, or improving Old, Garden Lawns. Price 1s. per lb.; 2s. 3d. per gallon, or 18s. per bushel. (3 bushels or 60 lbs. per acre.)

23. RENOVATING MIXTURE for improving Old Pastures, consisting of the finest Grasses and Perennial Clovers. Seed required, 8 to 12 lbs. per acre. Price 9d. per lb., or 80s. per cwt. Sow in March and April, or after hay-cart at Midsummer.

24. MIXED GRASS SEEDS of coarse kinds, for Railway Embankments, Game Cover, &c., &c., 3s. 6d. per bushel.

N.B.—Gentlemen possessing Perennial Clover Seeds, &c., can be supplied with a proper mixture of Grasses to sow with them, as under:—

25. MIXED FESCUES, COCKSFOOT, LOLIUMS, POAS, SWEET VERNAL, &c., best sorts for Permanent Pasture (omitting Clovers, &c.), 10s. per bushel, (20s. per acre).

Two Bushels of the above, and 12 lbs. of mixed Clovers, will be the proper quantities per acre for Permanent Pasture.

A copy of Mr. MARTIN SUTTON'S ESSAY on PASTURES, containing complete instructions on sowing and management, is supplied with each parcel of Grass Seeds.

SUTTON'S LIST of PRESENT PRICES of other AGRICULTURAL SEEDS, may be had Post Free.

Goods delivered Carriage Free, except very Small Parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. GRASS SEEDS of best quality can now be supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. CLOVER SEEDS of best quality, supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. TURNIP SEEDS from best selected Roots supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. MANGEL WURZEL from the best selected Stocks, supplied Carriage Free.

THE SECOND INTERNATIONAL DOG SHOW at the AGRICULTURAL HALL, ISLINGTON.

Several important Exhibitors having represented that the days first fixed, viz., May 13, 16, 17, and 18, would be inconveniently early, the Directors of the Agricultural Hall have decided on deferring the Show to FRIDAY, May 27, and the following SATURDAY, MONDAY, TUESDAY, and WEDNESDAY. Prize Lists and conditions will be ready on the 14th inst.

By order, S. SIDNEY, Secretary,
Agricultural Hall Company (Limited).

Offices, Barford Street, Islington, March 3, 1864.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. ESTABLISHED 1777.

Patron—H. R. H. The PRINCE OF WALES, K.G.

BRISTOL MEETING, 1864.

President—The RIGHT HON. EARL FORTESCUE.

The ANNUAL MEETING, 1864, will be held at BRISTOL, on JUNE 13, 14, 15, 16, and 17.

ENTRIES Close as follows:—STOCK and POULTRY, April 9; IMPLEMENTS, April 11; ARTS, April 16.

Applications to be made for STOCK and IMPLEMENTS to the Secretary; for POULTRY, to Mr. S. PITMAN, Taunton; for ARTS, to Mr. R. R. M. DAW, Exeter; for HORTICULTURE, to Mr. JONATHAN GRAY, Bath.

A SUPPLEMENTARY LIST of PRIZES, offered by the Local Committee, and the Society of Merchants of the City of Bristol, for Cattle, Shropshire Sheep, Long and Short Wool Couples, and Cart Stallions, is now ready. Entries to Close on April 16. By Order of the Council,

HENRY ST. JOHN MAULE, Secretary.

2, Wood Street, Bath.—March 12.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MEETING at NEWCASTLE-ON-TYNE, 1864.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

H. HALL DARE, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 12, 1864.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, March 16 { Agri. Society of England.. .. .. Noon (Mr. HUGHES on Clay Land Cultivation.)

IT will be seen from our Parliamentary report that the "Cattle Diseases" Bills, mentioned last week, were on Thursday evening read a second time, and ordered to be referred to a Select Committee.

The following estimates and facts were quoted during the debate. It appears that we have about 3,500,000 cattle in England, 3,250,000 in Ireland, and 1,000,000 in Scotland. The total number of sheep is about 40,000,000, that of pigs about 4,300,000. The value of our live stock is estimated at 121,000,000*l.* The annual mortality is 5 per cent. of cattle, 4 per cent. of sheep, and of pigs 10 per cent. in Ireland, less in England and Scotland. The loss by death is of course only part of the mischief done by disease—loss of condition is another material injury—and the bad quality of much of our meat is a third. On the third point many medical authorities were quoted, which appear to establish the fact that diseased meat is more or less poisonous.

It is believed that the Bills now before Parliament will, if they pass into law, check the progress of all the contagious diseases to which our live stock are liable, and so diminish all these evils consequent upon them.

THE history given last week of the *Barmpton Rose* tribe at Towneley, with the short account in another page of the four remaining families of which this celebrated herd consists, will suffice for the information of our readers about the stock which will on Thursday next, March 17, be finally disposed of.

We must however make an addition to the list of prizes named last week as taken by the cow *Butterfly*. In 1850 her wonderfully successful career commenced at the Exeter Show of the Royal Agricultural Society, where, as well as at the shows of the Yorkshire and North Lancashire societies, she was that year first in the class of yearling heifers to which she then belonged. And as no event of late years in the history of Short-horns has excited anything like the interest which the

approaching sale of the Towneley herd now commands, we publish the following account of it by a good and well known judge who has paid a recent visit to it. He says:

"I had indeed a great treat yesterday in looking over Colonel Towneley's magnificent herd. Nothing can be more splendid in condition and health, and there is scarcely an animal undeserving of the highest praise. I really think there has been nothing like it in my time, save perhaps to some extent Lord Ducie's great sale, where grand figures were realised. I particularly noticed Lot 9, *Pageant*, a remarkably nice cow, an extraordinary breeder, and as it seems to me, breeding so entirely after the bull she is in calf to. This in horse breeding is invaluable, and it must be good in cows also, whether Short-horns or not. Lot 7, *Pearl*, takes my fancy very much, and Lot 18, *Roan Knight's Butterfly*, also. Her daughter (38), *Wharfdale's Butterfly*, is a lovely heifer. Lot 26 is a fine specimen; Lot 30 is a wonderfully good one, and probably the best; and 31 is a grand heifer. *Violante* is a great and grand cow and a good breeder. Her calf, Lot 9, B.C., must make a most useful bull. Lot 33, heifer out of Lot 9, is a wonderfully curiously marked, but a very smart one indeed, and will be much fancied. Altogether it is impossible to conceive a grander show than the whole makes, and no herd can ever possibly be exhibited in finer health and condition.

"ROYAL BUTTERFLY looks as gay and lively and aristocratic as ever. BUTTERFLY 11TH is a remarkably good one, and has gone on wonderfully since the Worcester meeting. BARON HOPEWELL is a bull that bears looking at, but his first impression is not very striking. I saw the DUKE OF WHARFDALE. He is a wonderful young bull, though not in health just now, but the hope is he will soon be right. I hardly know whether we ever had a more promising young bull for every useful purpose. Grandeur and size and quality of hair—great substance—all combined."

As the time of year approaches when one thinks of spring chickens and Asparagus, and ducklings and green Peas, and as one considers what a number of chickens must be consumed during the bustling, driving time of the London season, the question constantly presents itself—where do they all come from? If properly and statistically answered, many who live in our agricultural districts, with every means and appliance at hand for the profitable rearing of poultry, would stand amazed at the idea that eggs can be sold, and chickens also, at prices so low, and yet leave a good profit to the importer here, the exporter abroad, the peasant or farmer who is the producer, and to all of them after the payment of freight and commission. On the other hand, what farmer will not be inclined to doubt his eyesight, when in about six weeks from this date he reads (as he will do in any Paper that gives the weekly return of London markets)—"best Surrey fowls, 10*s*. to 12*s*. per couple, and chickens, 8*s*. to 10*s*."

Many a man who now looks on the feathered denizens of his farmyard with certainly a feeling nearly akin to disgust, and who tolerates them only out of kindness to one indoors, would be induced to pay attention to the production of them in perfection could he but feel satisfied that his exertions would bring him a fair return. Many who read this will say, as has been often said before, "These fine prices are all very well on paper, but who gets them in reality?" In reply it can only be said that between this present time and the first week in June, numbers of accounts will be returned to the different feeders, breeders, and higglers of Surrey, Sussex, and some parts of Kent, presenting an average equal to the prices quoted above, and in some instances exceeding them. Essex, Cambridgeshire, Lincolnshire, and some parts of Bedfordshire all take large sums of money from London for fowls. One reason why hitherto the farmer has cared little for his fowls is that the return he really has obtained for them has been but nominal. This may easily be remedied by taking them under his own supervision, as he would any other part of his stock.

Take an ordinary homestead in almost any part of England: you ask the owner if he keeps fowls, the answer is, "There are some about—more trouble than they are worth—but the mistress likes a chicken on the table when we have a friend." It is very often the case that the birds which form the breeding stock are some that are old, worn out, and degenerate; no care is taken to introduce fresh blood, or in the selection of breeding stock; and then, when the hens come off with weakly and small clutches, and the pullets lay badly, it is said that fowls are more bother than they are worth. Very often the produce is sold to a travelling higgler, who from lack of competition pays what he likes for the chickens, but this would not be tolerated with any other part of the farm produce. Imagine a farmer allowing a pig-jobber to take away a litter of pigs and return what he liked for them! The early lamb and pork is sent direct to London or some large market town. What a pity that the poultry produce is not equally cared for! Consider the many intermediate expenses which might nearly all be avoided by its being sent direct from the producer to the London or other large market. The higgler who purchases the chicken at the farm house, takes it home, kills, plucks, packs, and sends it to market. If the producer sent it direct to the market, how much more satisfactory would the return be. Young, well fed, and carefully killed fowls, sent to Leadenhall or Newgate markets, will always sell well, except just in the hot dull months of August and September. Chickens that are ready for market in April, May, and June, will always well repay the care and extra pains taken in feeding them.

Open competition has done a great deal for all sorts and branches of trade. The quantity of fowls, turkeys, ducks, geese, and eggs imported into this country in the course of the year is immense, and although the price fetched by the foreign produce is in every case below that of the native, yet so well does it answer that every season brings new names and new firms into the trade from abroad, and the quantity imported is constantly on the increase. It is very gratifying to find in the catalogues and prize lists of the principal Poultry Shows the names of many landed proprietors and farmers as exhibitors. It is to be hoped that the number of them may yet be doubled, and that by their good example the poultry yard, which hitherto has not played its part, may take its place in a good position on the right side of the farmer's balance-sheet. *B*.

FOR the correction of exaggeration on the subject of prevalent cattle diseases Professor SIMONDS has addressed a letter to the *Times*, from which we make the following extract:—

"Within the last week my attention was directed to a statement in one of the leading agricultural papers to the effect that the 'lung disease' was on the increase in the London dairies, and that 'in the fertile vale of Aylesbury the disease has'—I quote the entire sentence—'for three months been extremely prevalent, and the cases are generally of a severe and fatal character.'

"Feeling that these statements might have considerable weight just now, and believing from my previous information that they did not fairly represent the facts, I put myself in communication with several farmers, cattle-dealers, veterinary surgeons, dairymen, and others in London and its immediate neighbourhood; and I also wrote to the veterinary surgeon to the Vale of Aylesbury Cattle Association. The results are now before me, and I have the satisfaction of saying that my informants from the London district are almost unanimous in stating that the lung disease has not prevailed to any serious extent for several months, and that in many establishments it has had no existence at all; and, further, that in the isolated instances in which it has been present its virulence has been considerably diminished.

"My information from Aylesbury is even more conclusive on the point. My correspondent thus writes:—'With respect to pleuro-pneumonia—lung disease—possibly I cannot do better than give you extracts from my case-book, and forward with these a copy of the rules of our association, at the end of which you will find a list of the members with the numbers of the cattle insured within a radius of 10 miles of the town of Aylesbury, no very inconsiderable number to form a conclusion as to the extent of disease of any kind.' 'Of cases of pleuro-pneumonia we had in May, 1863—3; June, 2; July, 12; August, 9; September, 15; Oct., 3; November, 4; December, 1; January, 1864, 2; February, 0; making in all 51 cases in 10 months, but only 10 during the last five months.'

"On referring to the list alluded to I find no less than 11,310 beasts insured, and 150 calves, making a total of 11,460, among which, as we see, there have been only 51 cases of lung disease during ten months; or, speaking in general terms, only five cases a month in this large number of animals.

"I trust that these facts may tend to place the matter of cattle diseases in its true light, and somewhat allay the excitement in the public mind on this question."

WE learn from the *Mark Lane Express* what ought to have appeared in the official report of the proceedings at the last Council Meeting of the English Agricultural Society, that the letter of Messrs. HOWARD, of Bedford, on the office of Consulting Engineer to the Society, was read, and on a division referred by a large majority to a committee who were to inquire into the circumstances and report. At the Smithfield Club Council meeting, also officially reported in our last week's paper, we now learn that Mr. CORBET suggested that "the Members of the Club should have admission to the Agricultural Hall during the time the judges were making their awards;" and Mr. MOORE "that the servants in attendance on the principal prize animals should receive some gratuity or reward, either in the form of money to the amount of a sovereign, or a medal." Mr. H. CORBET'S proposition for admitting the members of the Club to the galleries of the Hall during the time the Judges are engaged in making their awards, having been duly moved and seconded, was carried unanimously. This is the more noticeable, as at the last Council Meeting, in December, a similar proposal was negatived by 11 to 6. Mr. CORBET, however, had further given notice that in the event of the Council not entertaining his suggestion, he should bring it as a substantive motion before the next general meeting. "Mr. MOORE'S considerate and politic proposal was also carried, so that for the future the man as well as the master will have his share in all the glory of winning in London."

—— We have had a large mass of Shorthorn papers placed in our hands for examination, and during the next few weeks it is intended to make extracts for publication of such portions as are of historical interest in connection with the breed.

TALE OF A LANDLORD.

To Wind-ward!

IN an old-fashioned Book-room, long and lofty, but very narrow, and rendered, almost spitefully, narrower by rows of deep bookshelves ranged along both sides, so deep indeed that when you wanted to persuade a volume out of its ancient nest, you had to dive in, arm-deep, as if you were drawing a rabbit out of his hole,—whence after the labour of extraction there followed such a general resurrection of long-laid dust and dead spiders that you must rest the book upon the ledge and turn away for breath till the hurly-burly had subsided,—in this mortuary chamber of departed volumes, which I shall not describe any further because I think the state of the bookshelves will stand sponsor for all the rest—the antiquated furniture, the carpet of extinct pattern reduced to its thread-skeleton of woof and warp;—in this room, lighted by a single glass door opening into a quadrangular court, when there was any daylight to come in, but at present in a more artificial manner,—there hung one winter's morning a tall Map nearly six feet high partially illuminated by a candle, which also revealed, dimly enough, the face and form of the inquisitor who was holding it and applying its rays from time to time over the different portions of the landscape, if so it may be called, which this ancient Survey recalled to modern view in the state in which it existed a hundred and fifty years ago.

The very sight of it was a history: a wilderness of waste and warren and wold, and wood, and water; the last article apparently in its state of primeval freedom, not yet finally separated from the dry land: indeed there was some artistic merit in the way this circumstance was suggested to the eye, by a sort of hazy shadowing off in faded colour that conveyed no boundary or outline, but left imagination to wander freely from 'the old pool' to 'Snipe marsh,' and thence to 'The Osiers' and 'the Alder-Leasowes,' which gradually darkened into 'the New Coppice.' Then came some arable pieces rather carefully, I may say pompously denoted; for you could count the ridge and furrow; and a large figure marked upon each field bore reference to its order in the ancient 'terrier' annexed. Then came a Paddock, indicated in a brownish bluish hue that had once been green. A good many things had been green and turned to something else, alas! since that was in its pristine verdure! But when you had arrived so far into the bowels of the land, and got beyond the paddock, you came to something not quite so reducible to modern ideas as all the rest. Instead of a grand assemblage of Farm-house, Offices, Outbuildings, and Yards, in all the pride and magnitude of modern holdings, you descried a small dwelling, and a barn with its cattle-shed and strawyard, and underneath this modest homestead the words "Gwilliam's Living," or "Pulford's living," or "Franklin's living," or somebody else's 'living,' in multiform repetition sprinkled over the map between the less numerous larger holdings which bore the ambitious title of "The Abbot's Grange," or "The New Farm," or other pretentious indication of broader acreage. On referring for information to the 'Terrier,' you would find these small holdings to vary from about 30 up to 60 acres, and in a few cases rather more. Variety of extent seemed to be the rule; large and small holdings adjoining, and grouping with each other in picturesque proportion.

But there must have been something very picturesque indeed or very thought-compelling in the contemplation of this record of 'a hundred and fifty years ago,' for you might see upon the countenance that was so busily scrutinising it with the candle in one hand, and the other raised up in the two-fold capacity of eye-shade and reflector, various expressions come and go that surely were not all the mere effect of light and shadow. Presently the examination apparently at an end,

replacing the light upon the table, down sat our scrutineer, and if thought can be written on an attitude it was not ill pourtrayed upon his figure as it flung itself down in the musing mood of early leisure, the face half buried in the hand, while the cold iron-grey dawn began to peep obtrusively into the room disputing with the candlelight, as if illustrating the quality and conflict of the thoughts that had possession of its solitary occupant.

"A hundred and fifty years ago! Small holdings—small enclosures; the first stage—the babyhood of recovery from Nature's Wide Encampment! 'Gwilliam's Living'—'Franklin's *Living*.'—If Gwilliam or Franklin could awake up now he might search a good while for his 'Living'! he might walk again and again over Mr. Squitchall's farm and not know that his foot had been upon the site of his own hearth-stone of former days! What a round it is, if human life was but long enough to trace it! First Nature's wide fields, the biggest farmer of all; then small enclosures coaxed and bitten away scrap by scrap from the boundless common;—now a cottage is built,—a barn, a strawyard, and a cow-pen added; and behold Fulford has a 'Living,' and there for *generations* dwells a family! Anon, times change, the plough must have more room, down goes a hedge or two,—Fulford is extinct, even the very name, and the space it filled and lived on, knows neither him nor even itself any more; it turns into a couple of arable fields—two fields only of Mr. Newbody's farm of two or three hundred acres. And does *that* remain? No! Even Mr. Newbody with his wooden ploughs of wonderful and weighty pattern has to give way. More room, more room for the new and improved machinery; away go even his enclosures: a dozen of Fulford's 'closes' have leapt into one, and behold presently the Steam-plough will enter the wide gap and commenced operations. What will it come to? Was Nature after all then right at first, and all the enclosures a mistake? Truly it begins to look like it!

But we are anticipating, not to say anachronising, as time often makes us do, when we are telling of bygone things and thoughts; for it is no easy task to recall, in the smallness of their true limits, even our most ambitious projects of a former day, so rapidly does Time, "*the greatest of all revolutionists*," (quoth Bacon,) overtake our utmost plans, and turn to our own laughter the mimic proportions we once thought so vast.

In truth the Student of estate-geography whom the contemplation of that ancient Survey had thrown into such a deep reverie on the changes which the agricultural tenure of land had since undergone, was one of those in whose mind the almost romantic feeling for the past could co-exist with schemes of improvement, as great in point of change, and—in the future sense—as remote from the present. Is there anything really singular in this? Do not most of us exemplify it? Even while we are adding to the pressure that is ever bringing in the tide of modern changes, we indulge an eye of fondness and fancied reverence for days and things gone by, and picture to ourselves a sort of innocent and blessed antiquity "when every rood of land maintained its man."

This careful examination and perusal of the features of the old map was a sort of leave-taking; for in a very modern and suspicious-looking deal box of oblong proportions lay as yet unpacked in that very room above described the result of Mr. Dumper's dreary but persevering winter's task—a nine-chain-to-the-inch Survey of the same identical lands. There was presently a most elaborate lifting of the lid, which with true carpenter-like 'high-finish' had been screwed and glued and fastened down, as if it was a mummy-case made to last some thirty centuries, and keep in the very soul as well as body of the little occupant.

At length it came forth, looking very like the fresh and lively grandchild of the ancient 3-inch Survey that hung against the book case close by. It was indeed a wonderfully reduced edition, small enough to carry about with you in an ordinary walk,—a point of some convenience and consequence where much has to be undertaken and accomplished.

It is a charming piece of handy-work, a really accurate and well-drawn Map. But who could have recognised in the monotonous sameness of two-or-three-hundred-acre Farms which in dull uniformity of extent monopolised the surface, that picturesque family-group, that pleasant variety of 'great and small' that had found room in the olden time for Fulford's and Gwilliam's 'livings'? They indeed were swept away; but in their place there had appeared a novelty *unknown to* the elder Survey, — no less a novelty than actual Roads! utter Roads! and of both denominations, 'Parish' and 'Turnpike'! For in that '*orbis veteribus notus*' seen in the old map, the world seemed common to mankind in general, the occupied portions being only divided here and there by long and wide unmeasured-looking spaces, over which you might gallop, it was said, nearly twenty miles straight-a-head over the wild Turf and Gorse and Ling and Heath;—and this not in mountainous Scotland or peaty Ireland or hilly Wales, but all on the level, nearly in the heart of merry England! As the encroachments had spread, these great land-estuaries had narrowed and narrowed towards a central line which had formed itself haphazard; as neighbouring towns had grown, Traffic increased, wheel carriages succeeded to the Pack-horse and the Pillion; and in that central-line the turf had disappeared,—hard work had made it *bald*, (as it has a playful way of doing with hard-worked surfaces,) and behold the result in Roads—not made, but *grown*; yet with such an ample breadth of margin left on either side, as might well suggest to an ambitious owner of such a district to set up at once as king of all the Gipsies.

Don't say that I have dwelt too long upon the Maps! Believe rather, if you can, on such poor evidence as the feeble efforts of written description can convey, that the pen of a Fielding or a Richardson could hardly pourtray a more vivid picture of the olden time, than the comparison of these two Surveys—veritable land-pictures, aye and life-pictures presented to the eye, of *the interval*, and what had happened in it, of a century and a quarter, between 1713 and 1838. There they lay before the eye, the old world and the new brought into direct comparison. Nor was it a barren morning's work, that mute and thoughtful hour of contemplation; for it suggested a Beginning; and "Well begun is work half done," the proverb says.

"*Stare super antiquas vias*"! Never surely before was such an application of the maxim, which literally expresses the resolve which followed. "Yes! I will take my stand upon the Roads!" quoth he; on those wide-margined driftways above described, stretching away North and South, East and West, to every point of the compass over that wide windswept world of flatness and coldness. These at least were in a manner 'No man's land:' and there he resolved to lay his first 'approaches,' to begin his trench-work, and make Dame Nature countermine herself.

It is said to be the highest art "out of the worst to make the best." These broad strips of *un*-enclosure, through which the roads threaded their way, were the weirdest, wildest, most forbidding features of the landscape; without a tree or shrub to break the rushing wind or the wide horizon, their surface chequered only by deep gravel pits, gaping marl-pits, where every one had come and taken what he wanted, from depth or surface, of soil or turf, sand or stone; and left nothing behind—but *the holes!*

Excellent things in their way are Air, and Water. But then, where crops are to be grown and ripened the first should be kept quiet and the second kept moving. And here they each did the opposite: that was all. The trees, nay the very hedges showed the tyranny overhead, by a suspicious inclination all in one direction, as if they were paying low homage to the spirit of the terrible North-East; for, cruel as is that breath which is "neither good for man nor beast," it is its fierce antagonist the South-Wester which leaves the mark of its permanent yoke and sway, upon the trees and hedges.

Yes! sovereign as the necessity and benefit of Drainage, there are districts where an element more fatal than even stagnant water has first to be done battle with. No time was to be lost, for Spring would soon be on the Earth. Before that morning's fast was broken, a summons had gone forth for a meeting of professors, the most skilful which the neighbourhood afforded—to wit of the Spade and Mattock. These shall be the gipsies thought our Map-student of the morning, and I will be their king; and we will encamp upon those broad margins; and before ten years are over, every one of those shall be a running belt of rich Plantation, and the Larch, and the Thorn, and the Sycamore, and Birch, and Elm shall wake up lazy Winter with their delicious livery of early green, and the Beech and Spanish-Chesnut and Oak, and the still lazier toilet of the Ash shall follow, gilding the latter Autumn with their varied and retentive hues, and the Scotch and Spruce shall stand sentry outside the nursery-doors to guard the growing family from the cutting North-East and the driving storms of the South-West: and the sparkling Holly shall peep and laugh inside and underneath, and reflect inexplicable rays of light at all sorts of impossible angles, under a shade and drip that would suffocate any creature of less prickly spirit and stubborn temper. If I cannot, like King Æolus, shut them up in a cave, I may yet do something to curb and check those devastating winds that scour like Macbeth's Fury-witches over the plain, blighting the very earth they traverse. And the night-Mail shall trot along, and the leader's bars shall rattle their pleasant music between the warm Plantations; and the guard shall no longer draw on his thickest capes, and swear through his chattering teeth that "Blest if this ain't enough to cut a man's head off! it's the freezingest stage, sir, over Win'uld here, and alliz was, from the time yere 'off the stones' o' London, down to Holyhead!" *T.*

NOTES ON CELEBRATED SHORT-HORNS.—No. I.

The following memoranda by the late Mr. Bates of Kirkleavington, and other distinguished breeders, are extracted from correspondence which has been kindly placed in our hands for examination.

1.—Sir Thomas Fairfax:—He is thus described in the Herd Book:—

(5196) *Roan*, calved April 13, 1837, bred by Mr. Whittaker, the property of Mr. Parkinson, of Leyfield, near Newark: got by Norfolk (2377) d. (Miss Fairfax) by Fairfax (1023), g. d. (Lily) by young Warlaby (5598), grgd. by Young Dimple (971), gggd by Snowball (2648), ggggd by Layton (2190), a son of Mr. Charge's Grey Bull (892).

The following is a letter from Mr. Bates, dated *Kirkleavington near Yarm, York*, August 12, 1840, addressed to *John Bolden, Esq., Hyming, near Lancaster*.

It describes with great precision the arrangements made for shipping cattle of Mr. Bolden's to London, on their way to Australia, and proceeds as follows:—

"I hope with the above arrangements all will be safely and effectually done till the cattle reach London, when you must have proper persons to attend to them there till shipped for Australia, and I hope they will have a prosperous voyage and repay all your attention, care, and judgment.

"I thank you for your hints and information. You have properly declined Sir Thomas Fairfax—he is not worth 5*l.* to breed from. I told Earl Spencer that no two bulls could be found so likely to throw discredit on the Short-horned breed of cattle as Sir Thomas, and Raine's coarse-headed bull; and that to give premiums to such was a disgrace to any agricultural society, and I also said 'your lordship may now see why the regulation was made at Leeds to prohibit any better bull appearing than Sir Thomas,' and that no society had till now offered a premium of 30*l.*, and a penalty of 50*l.*, if any one showed for the 30*l.* premium,' but one class of persons who had the judges of their own appointing.

"If you intend your sons in Australia to use any sons of Magnum Bonum to their own cows, you will bring discredit upon the whole concern. The cow Mr. Lax's bull is of may be very good, but no cow, however good, can breed a bull fit for getting bulls by Magnum. Did any bulls ever show such coarse bad horns, eyes sunk in head, and a horrible countenance, like Raine's bull shown at Northallerton by Magnum Bonum? I told Earl Spencer I would not put the cows to him if he would give me a thousand pounds. Now this is my decided opinion. He may (Mr. Lax's bull) be fine looking, and every way to please the eye, &c., but it will come out in his produce, sooner or later. Consider, if you ever saw Mr. Stephenson's stock, what an error he committed in sending the grandam of Belvedere to *Baron*, bull of Lord Faversham's by Comet. He was good looking and pleased the eye, but he ruined Stephenson's stock, and though the produce put to Waterloo, and then to Belvedere, yet they can never be restored to what they were before the cross with *Baron*. Do, I entreat you, attend to what I have said. Put Mr. Booth's cows and mine that went out, and my tenant's cow to Mr. Robert Jobson's bull your son got in the spring, and not to Mr. Lax's bull by Magnum Bonum. Sell the latter on his arrival at Port Phillip—he will please the eye, I suppose—and get quit of him, but do not use him to the best cows, or those for bull breeding again, or you will entail sure destruction on the offspring, and lose all character as breeders,—sooner or later it will be sure to happen."

THE TOWNELEY HERD.

We add a few words about the four smaller families which, with the *Barmpton Rose* tribe described last week, make up this celebrated herd.

1. The following table gives the descendants of No. 1 in the Catalogue, *Roan Duchess* 2d.

Descendants of (1.) *Roan Duchess* 2d, by Frederick (11,489).

- S. *Violante*, 1857, by Valiant (10,989)
  - 27. *Another Roan Duchess*, '61, by Master Frederick (18,348)
  - 34. *Violante's Butterfly*, '62, by Royal Butterfly (16,862)
- 17. *La Fille de Frederick*, '59, by Frederick (11,489)
  - 9. Valiant Duke, '63, by Duke of Wharfdale (19,648)
- 21. *Royal Butterfly's Duchess*, '61, by Royal Butterfly, (16,862)
  - 39. *Butterfly's White Duchess*, '63, by Duke of Wharfdale (19,648)
- 32. *Red Duchess*, '62, by Baron Hopewell (14,134)

Roan Duchess 2d, is the 16th generation from *Old Sockburn*, Mr. Hutchinson's original old cow. She is from a Kirklevington family, numbering 2d Cleveland Lad, Duke of Northumberland, Norfolk, and Belvedere, among her progenitors. She has been several times shown, and has succeeded in winning many prizes; 1st as a heifer calf at York in '53; 1st as yearling heifer at Lincoln, at Burnley, and at Ripon in '54; 1st at the Royal Dublin Society, and at the Royal Agricultural Society at Carlisle as 2-year-old heifer in '55; 1st in the cow class at the Royal Agricultural Society at Chelmsford in '56, and winning repeatedly in after years. Her daughter, *Royal Butterfly's Duchess*, has just had the Worcester prize awarded to her, owing to the failure of her competitors there.

2. We now turn to the family of *Madaline*, purchased from the Killerby herd in 1849, including No. 6, *Alice Butterfly*, and her descendants. There are four of this tribe in the herd, as follows:—

Descendants of Alice 2d by Duke of Athol (10,150)

- 6. *Alice Butterfly*, '56, by Master Butterfly (13,311)
  - 30. *Double Butterfly*, '62, by Royal Butterfly (16,862)
    - 47. *Phœbus Butterfly*, '64, by Duke of Wharfdale (19,6)
  - 41. *Alice Wharfdale*, '63, by Duke of Wharfdale (19,648)
- 5. Royal Butterfly 15th, '62, by Royal Butterfly (16,862)

Alice 2d, the dam of No. 6, was shown at the North

Durham show, and stood 2d in her class in 1858. Her grand-daughter *Double Butterfly* was second in her class at the Royal Dublin Show in 1863, and with *Perfume* took the 1st prize in their class at the Worcester meeting last year, and then helped, as one of three, to win the Challenge Cup at Keighley in '63. It will be seen from our correspondent's letter in another column, that he regards her as one of the best animals in the herd.

3. We come now to the descendants of *Pearly*, a cow of pure Booth descent, which are classed in the following Table:—

Descendants of Pearly, by ROYAL BUCK (10,750.)

3. *Pride*, '54, by VALIANT (12,253) — 31. *Perfume*, '62, by BARON HOPEWELL (14,134); 6. PROUD BARON, '63, by BARON HOPEWELL (14,134)

4. *Frederick's Bracelet*, '55, by FREDERICK (11,489)

7. *Pearl*, '56, by R. CŒUR DE LION (13,590) — 20. *Pearled*, '61, by BROAD BACK (15,696).

13. *Precious Stone*, '58 by MASTER BUTTERFLY 4TH, (14,920) — 11. PRINCE OF TOWNELEY, '64, by BARON HOPEWELL (14,134).

Pearly (purchased at the Killerby sale in 1852), was the best old cow at Burnley in '54. Her daughter *Pearl* was 2nd in the class of 2-year-old heifers at Warwick, and again 2nd at the Yorkshire Agricultural Society's meeting in the same year. She was 2nd at the Yorkshire meeting in 1860. The family includes seven members, and it will be seen that bulls of Warlaby breeding have latterly been exclusively used upon them. *Perfume*, named above, was successful at Worcester last year.

4. The last family to be noticed includes the descendants of *Venilia*, a cow bought as a calf in 1849 at Sir C. Tempest's sale. The following are the members of the family now in the herd:—

Descendants of Venilia by TOM OF LINCOLN (8714).

2. Vestris 3d, '54, by VALIANT (12,253) — 24. *Frederick's Farewell*, '61, by FREDERICK (11,489); 35. *Venus's Butterfly*, '62, by ROYAL BUTTERFLY (16,862); 7. ROYAL BUTTERFLY 17TH '63, by ROYAL BUTTERFLY (16,862)

Of this it may suffice to mention that *Frederick's Farewell*, a two-year old heifer, was last year unusually successful. She had been 1st in her class at the Yorkshire and at Preston in '62, and in '63 she was 2d at Worcester, and 1st at Rochdale, Ulverton, Skipton, Lancaster, Halifax, Stockton-on-Tees, and Clitheroe, and produced last month a red and white heifer calf 46 *Duchess of Lancaster*, by DUKE OF WHARFDALE (19,648).

A concluding word on the prospects of the sale and general character of the herd will be found among our leading paragraphs.

Home Correspondence.

Vegetable Mould.—If I understand rightly the communications of Mr. Patrick Matthew, their meaning is, that organised vegetation formed from atmospheric and terrestrial inorganic materials, is, when disorganised, or decomposed into inorganic elements, suitable food for a new vegetation. This is, in my opinion, an exact confirmation of Leibig's great theory, except that the Baron begins at the beginning, viz., not with the ready made plant, but with the elements of which it is formed. Every farmer knows that if he can get plenteous and varied vegetation, it will, after decomposition, produce a new and abundant crop. But the Baron tells us where the first crop is to come from, and that is the question that concerns us, who have to deal with a soil from which, by repeated cultivation, the available ingredients have been abstracted——naked clay, rock, sand, the slates or tiles on roofs, originally destitute of vegetable, or rather organic, matter, become, after long exposure to atmospheric influences, covered with vegetable growth—whence are derived the combustible elements of this vegetable growth? Certainly not from the mineral or earthy foundation on which it has been established, but from the atmosphere. When I observe the bulky, burning logs on my hearth gradually disappearing, leaving nothing to my view but an insignificant heap of ashes, I ask myself, can any one, seeing this, doubt Liebig's great theory? Where are the logs gone to? To the atmosphere, from which their bulk was derived as invisible gases condensed in the structure of the plant. Looking at the spontaneous gigantic primeval forests resting on once bare rock, grown without the aid of man, can we for a moment disbelieve Liebig's theory that this vast combustible mass (nineteen-twentieths of whose bulk would disappear by combustion), must have been derived from atmospheric elements, and not from the soil? We need no other evidence than this to convince us that Nature provides in the air an abundant supply of elements, which, combining in the structure of the plant with the earthy or mineral substances, form ponderable and tangible masses. There is a natural affinity or affection between the terrestrial and atmospheric kingdom. We see it on our walls, our public monuments, and other masses of mineral or earthy matter. The hand of time, as it is called, unites the combustible with the incombustible. The grandest and most durable monuments of ancient times succumb to this immutable law, crumbling to dust under atmospheric influence, and ultimately giving up to vegetation such of its parts as are suitable for vegetable growth. How admirable and all-wise is this everlasting round of composition and decomposition! The lovely monuments of ancient Rome give unmistakeable evidence in this matter; more than 400 varieties of flowers thrive on those colossal walls within whose compass gladiatorial and other combats excited and delighted the Roman people. We should all rejoice in the possession of what is called new or virgin soil, where the atmospheric operations of ages and the vital action of plants have rendered abundantly available the necessary earthy or mineral constituents—but, in this sea-girt isle, we have used up most of the store so provided, without making a due return. It is in our power to prevent the extension of this exhaustive system if we will it—but so long as we are content to see flowing wastefully down our sewers and streams the very vitality of the nation, so long may we sigh in vain for virgin soil or decayed vegetation. We have emptied the purse, and must therefore replenish it either by costly artificial manures, or by the more natural and cheaper return of the elements of our food. *J. J. Mechi.*

Wind Engines.—They do answer for the purposes named. If "T. B. M." will write to Mr. E. Wortley, Ridlington, Uppingham, he will give him all the information he can on the subject. *Ridlington.*

Diseased Turnips.—In your Paper of February 6, the Melplaish Agricultural Society expresses a wish to know the cause of decay of Mr. Hussey's Swedes. In Berwickshire, where sheep are folded on the fallow break in spring and getting cut Turnips, we invariably find that the following Turnip crop is subject to rot. The reason might be difficult to find, but the fact is so firmly believed in, that we always sow White Turnips (for early use) on any small piece that may unavoidably be treated as Mr. Hussey's was. *J. T., March* 5.

Farmers' Clubs.

LONDON: *March 7.—The Chemistry of Food.*—Professor VOELCKER, after some prefatory remarks, said:—

Mr. Chairman and Gentlemen, if we examine the body of an animal we shall find that the preponderating constituent is water. Of this I need not speak any further. In the solid portion of animals we shall find, first the substance of muscle or lean flesh, in which there is a large quantity of nitrogen; then we have the fat, which is mixed intimately with the muscle or fibre, and which is deposited in certain parts of the body, or is purposely laid on, as in the fattening of stock; and thirdly, we have the bones, and the saline matters which enter into the composition of the blood, and serve various animal uses. The muscle of animals closely resembles in its composition the epidermal matters, such as the skin, hair, horns, and hoofs of animals. Now, these various constituents of the animal frame must necessarily be supplied by food, in order to keep the animal in vigorous health; for every animal sustains loss through the waste to which every part of the body is subject. But, over and above this daily waste, in order to maintain a uniform temperature in the body, a considerable quantity of food is required; and food of a particular character also is needed to maintain what is called the animal heat. According to Boussingault, a horse consumes between 4 and 5 lb. of carbon in the course of the day, merely in supplying animal heat to the body. In other words, food is required to maintain respiration and to maintain sufficient animal heat in the bodily system. Now, in any food we should require constituents which supply the muscle of animals; we should require also constituents which were well adapted to produce fat and to feed respiration; and thirdly, we should require constituents containing bone material and the mineral and saline matters which enter into the composition of blood and serve various animal uses. No food is well adapted for maintaining vigorous health that contains too much of any of the three classes of food which I have just mentioned. But as regards the proper admixture in which we should have these constituents—the flesh-forming, the heat maintaining, and the bone-producing constituents—no general rule can be laid down; because the wants of different kinds of animals, like the wants of animals of different ages, are so very various. In young animals we require a different admixture of the nitrogenous and non-nitrogenous, the heat-giving and the fat-producing constituents, from that which is required in order to fatten animals with the greatest profit. Fattening animals require food which is less nitrogenous and which is more abundant in flesh-forming constituents, as nitrogenous matters have been called, than that which is desirable for young growing stock. Again, for the successful production of milk and the maintaining of dairy stock in good health and condition, we require food richer in nitrogenous matter than that which is calculated to keep full-grown fattening animals in good thriving condition. The cause of this is, that there is a great drain of nitrogenous matter in the curd, the albumen, and the milk, as well as a great drain of phosphoric matter: for I need hardly remind you that a large quantity of phosphate of lime, as well as a large quantity of nitrogen, enters into the composition of milk. Passing now from these preliminary observations to the more practical part of my subject, I would first direct your attention to what is known in practical farming life under the name of concentrated food. The most concentrated food that farmers are in the habit of using is, unquestionably, oilcake.

After some remarks on Linseed, Cotton, and other cakes, Professor Voelcker observed;—

The chemical constitution of food I hold to be very material to the proper use of food; but, after all, we must appeal to practical experience. We must institute feeding experiments; and in order that we may institute proper feeding experiments the dictates or suggestions of science should not be disregarded; but, on the other hand, the final appeal to the practical feeder must not be disregarded. We ought not to say this food must be good because it contains such and such things, but we ought rather to say that it must be good if there be no practical impediments, in the shape perhaps of some unlooked-for injurious substance, present perhaps in such small quantities that we cannot detect it with our most delicate agents, or some condition which renders the food indigestible. So far as practical experience goes, it tends to show that lentils are a very nutritious description of food, particularly for sheep. Indeed, they are too nutritious if by the term "nutritious" we mean rich in flesh-forming material. A mixture of lentils with food which is poor in flesh-forming constituents—for example, with Indian Corn or Barley-meal in equal proportions—will be found a most useful description of food for sheep, as well as for dairy cows, and for bullocks. The leguminous seeds, Peas, Beans, and Lentils, contain on an average about 25 per cent. of flesh-forming materials. They are, therefore, considerably richer in vegetable matters than cereal seeds, Wheat, Oats, Barley, or Indian Corn. In these feeding materials, especially in Barley-meal, the proportions of nitrogenous to non-nitrogenous matter are more nicely adjusted than in any other description of food to the requirements of fattening animals. Barley-meal, therefore, is justly valued as a fattening food for pigs, and as a finishing food for every description of stock. It is rich in starch, which, as all of you are no doubt aware, is changed into fat in the animal economy. Wheat when cheap is perhaps still more valuable than Barley-meal. It contains about the same quantity of nitrogenous or flesh-forming, and a larger proportion of fattening material; and on the whole, therefore, it is a more valuable feeding substance than even Barley-meal. Indian Corn, on the other hand, is not so rich in flesh-forming constituents as Barley-meal or Wheat, and for this reason it is an exceedingly good mixture for such food as cake or Peas, or Beans, or Lentils, which are rich in flesh forming materials. Animals fed on Indian Corn exclusively get fat very quickly; but the substance of which the cells or cellular tissues in which the fat is deposited consists, not being supplied by Indian Corn in sufficient quantity, is insufficiently formed, and the result is that the fat which is deposited in pigs or other stock is too soft. Bacon fries out, runs to waste, and becomes flabby. You can meet this practical inconvenience by mixing Indian Corn with Pea-meal or Bean-meal. A mixture of these two kinds of food produces very good bacon. Bean-meal or Pea-meal alone produces a bacon which is rather too hard and is not sufficiently fat; while Indian Corn on the other hand, produces bacon which runs to waste. Thus we have here an example showing that the inductions of science may be used with advantage by practical experience in the feeding of stock. Rice dust is, I must say, but a poor kind of food, notwithstanding that it has been occasionally recommended. It is vastly inferior to Barley-meal. I have in my hand a paper in which Rice-meal is stated to be a superior food to Barley-meal; but on looking at the results I find that the composition of Rice-meal, as compared with Barley-meal, was ascertained by a chemist who lived some 100 years ago, when analytical processes were as yet in their infancy. Rice-meal is an inferior description of food, and is not nearly so valuable as Barley-meal. It is deficient in flesh-forming materials, it is also deficient in bone-producing materials, and as generally obtained in the market contains a large quantity of innutritious, indigestible fibre. I have hardly time to speak in detail of hay. Still, one or two observations on the quality of hay may perhaps not be out of place. More especially would I introduce one observation that I have to make. We have the pleasure, and I trust the benefit, of Alderman Mechi's presence with us to-night. I have on several occasion expressed the opinion that hay and Grass from irrigated meadows (I do not think much hay is made from irrigated pastures) is inferior in point of nutrition to Grass from old pasture or herbage which is grown more slowly. I still adhere to that opinion. A larger proportion of nitrogenous matter is found in the produce of irrigated meadows; but it is very questionable whether the nitrogen that occurs in the produce of irrigated meadows really exists in the form of albumen. I cannot help thinking that the nitrogen which is obtained by analysis of a quant of such produce does not exist at all in the shape of albumen or casein, or similar albuminous compounds applicable to the animal economy for the purpose of producing flesh. I know as a fact, that in irrigated meadow lands some of the nitrogen exists in the shape of ammoniacal salts and other saline matters, which when taken by an animal constantly produce a relaxation of bowels. In all animal produce I find ammoniacal salts. The nitrogen is not always present as flesh-producing matter, some of it consisting in the shape of ammoniacal salts, and there are other compounds which are not assimilated by animals and do not produce flesh. I would here appeal to the practical experience of those who have fatted stock on old pasture, of those who have fatted stock not only upon irrigated meadow Grass, but upon every description of food which is grown rapidly, whether injury is not sometimes done in spring by keeping cattle on seeds, which have been too highly manured. When the spring gets warm, and Clover seeds spring up rapidly, if you put on your sheep they are sure to scour. The remedy is to take them off as soon as possible and put them on a piece of Sainfoin or old pasture. Notwithstanding the high per centage of nitrogen that occurs in irrigated meadow Grass, and in all forced produce, I believe that food of that description is inferior to Grass and green food of every description which is grown more slowly, and is not so rich in nitrogenous matter.

I add a few words here on the feeding qualities of straw, which is not so universally used as food as it deserves to be. In the opinion of some, straw is only fit to be trodden into manure, but well-harvested straw is a very useful feeding material indeed. It is especially useful when it is not allowed to get over ripe. Oat straw is in this respect a most valuable description of food. It is wonderful how much further concentrated food and a limited supply of roots may be made to go by giving along with the pulped and sliced roots and Linseed-cake, broken up into small bits, or made into a jelly, a due proportion of well-harvested straw, cut sufficiently fine into chaff. Oat straw is the most valuable description of straw among the cereals, but it is surpassed in nutritive power by Pea straw, and perhaps also by Bean straw. Now, Bean straw may be exceedingly good or exceedingly bad; it is entirely a question of harvesting. If the Beans are allowed to become perfectly mature, if the plant gets over ripe, we then find Bean straw very hard and indigestible; but if the farmer is compelled, as is often the case in late seasons, to harvest his Beans before they are perfectly ripe in the pod, then Bean straw will be found very useful. I mention this in order that you may not entertain the opinion that in every county, and in every season one kind of straw, for example Oat straw, is more valuable than another description of straw. You cannot lay down any such rule; it depends entirely upon the condition in which the straw is harvested, and upon what the season was. Thus you may sometimes find Wheat straw better than Barley or Oat straw, or you may find the reverse. But, taking everything into account, perhaps we are not far wrong in saying that Pea straw is the most valuable, next to that Bean straw under ripe, then Oat straw, Wheat straw, Barley straw, and lastly, perhaps, Bean straw over ripe. Thus, you find that Bean straw occurs in two places, second on the list and last. After adverting to the use of succulent food or green crops, Prof. V. said: In a general way I am not an advocate for the use of condiments, at all events not the use of purchased condiments. If farmers want condiments, let them make them for themselves.

WINFRITH: *Food for Stock.*—The following is an extract from a recent address by Mr. W. C. SPOONER:—The starch, the gum, and the sugar are the principles employed in providing the means of respiration, or rather for the support of the animal heat. The albuminous part of food contains to a large extent that which will preserve the heat of the body as well as

the material which makes up for the waste of the muscular system. Thus flesh will support life because it supplies the waste of the tissues and also preserves heat.

If we take as examples various kinds of food we shall find great difference in the albuminous properties of some as compared with others. Beans contain nearly one-fourth, or 24 per cent., of albuminous matter, whilst Wheat contains only 12 per cent., but this is sufficient for our system. Beans we could not endure, although they have about double the power of supplying the waste of the tissues as compared with Wheat. Peas contain somewhere about 23 per cent.; Barley, about 13 per cent.; Oats, 13 per cent.; Maize, or Indian Corn, 11 per cent.; Linseed-cake, about 26 per cent.; and Rape-cake rather more, about 29 per cent.; whilst Linseed itself contains only 20 per cent. Locust Beans contain only a very small per centage, not above 3 per cent., but about 50 per cent. of sugar. Swedes contain less than 2 per cent., and Turnips about 1.2; whilst the starch, gum, and sugar, including oil—that is, the carbonaceous matter—is 11 per cent. Thus it is that roots will support life far better than make fat. In many districts they are quite incapable of putting on fat, although they will preserve existence; in other districts they are more nutritive if given in sufficient quantities; but if we feed on roots alone we must give three or four times the quantity of water that is necessary; therefore it is far better to give a less quantity of roots, and substitute other more nutritious dry food. Again, in albuminous food we find that the starch, gum, and sugar in Beans is 48 per cent.; in Wheat it is 57, and thus Wheat is 10 per cent. richer in starch than Beans and Peas or Pulse; in Barley 56 per cent. or almost equal to Wheat; in Oats, 46; Maize 64; Locust Beans, 50, consisting almost entirely of sugar; Rape cake, 23; Linseed cake, 27; Linseed, 20. And then we come to oil or fat, which is a most important property, for it was stated just now that it contained double the quantity of carbon to what sugar contains, and nearly double to what starch contains, therefore we cannot be surprised at its being so readily converted into fat.

There was an experiment related by Mr. Lawes some short time since, in which his object was to ascertain what quantity of food in different forms would produce so much flesh and fat, and he found that it took about four times the quantity of dry substance to make an equal quantity of food when he used dry stuff alone to what it did when he had succulent food, in addition to cake and corn; and he found the addition of Barley to these had a greater effect than the addition of Beans; but when he used Linseed oil mixed with the Beans it was found to have a greater effect than either; and the oil that was used had a considerably greater effect than when double the quantity of Beans were employed, showing that the animals pined after a certain quantity of nourishment in the form of oil, which thus relieved the system of extra exertion, for it was converted with little trouble into fat itself. We find then that Oats contain about 5 per cent. of oil or fat; Maize, 8 per cent.; Rape-cake, 11; Linseed-cake, 12; while Linseed itself contains 34 per cent. of oil.

We have next on the list vegetable fibre, which in Beans is 10 per cent.; Peas, 10; Wheat, 12; Barley, 13; Oats no less than 20; Linseed Cake, 14; Linseed, 10; Swedes nearly 4; and Turnips somewhat more than 3 per cent. There has been some considerable doubt whether vegetable fibre must be considered as entirely devoid of nutriment or not. The term chemists give to vegetable fibre is cellulose. There had recently been experiments made, which some might have seen in the *Agricultural Gazette*, where a certain quantity of food was analysed and the quantity of vegetable fibre ascertained, and then the excrement was analysed likewise, and it has been found that there has not been anything near so much vegetable fibre in the excrement as in the food, plainly showing that a certain portion is taken up in the system. Hence, if we preserve straw for fodder, we should cut it as young as possible, because, when vegetable fibre is in a state of cellulose it is much more digestible.

We have thus glanced at the various constituents of food. It takes something like 150 lbs. of Turnips to make 1 lb. of mutton, if fed in the open air, but when housed in sheds under favourable conditions 100 lbs. have succeeded in making the same quantity of mutton, therefore 100 lbs. and 150 lbs. may be considered the extremes. I do not mean to say that in all cases 100 lbs. given in sheds will produce the same effect as 150 lbs. given out of doors, because sometimes those given out of doors will produce a better effect than the others; but it is well known that in a succession of four or five wet days the animals make little or no increase. This proportion of 150 lbs. of roots to 1 lb. of mutton is derived from a number of experiments made by different people, and is as near the fact as we can arrive. It is interesting, because it enables us to ascertain what is the value of a given quantity of roots, and what really is their feeding value; thus you may put what you like as the price of mutton, 6*d.*, 7*d.*, or 8*d.* per pound, and if it takes 150 lbs. of roots to make 1 lb. of mutton, or one ton to make 14 lbs., the price of which is the value of the roots. It has been found by accurate observers that the sheep will economise food better than the ox. Sheep, if fed on nutritious food, will make 1¾ per cent. in live weight, whilst in the ox not more than 1 per cent. is made. In the pig a much greater amount of food is turned into flesh and fat, but then there is this drawback, that we are obliged to keep the pig on much more expensive diet, and it brings the result perhaps pretty nearly the same. In some other experiments it has been found that to make 100 lbs. of mutton, 170 lbs. of oilcake and 876 lbs. of Swedes were used; in another, 321 lbs. of oilcake and 1103 lbs. of Swedes; and Linseed was found not to present any more advantages than cake. In a trial between Barley and Beans it was found that 1 lb. of Barley had as much effect on the animal as 1 lb. of Beans, but then, as we have noticed, Barley contains a considerably less quantity of nitrogen, a less quantity of nitrogenous matter; and although it proved sufficient for the animal, yet as nearly all the value of the manure resides in the albuminous matter, it shows at once that the value of that from Beans, or cake, or other nitrogenous substances, will be double that left behind by Barley, Oats, or even Wheat. The quantity of food required by various kinds of sheep varies according to the different circumstances to which they are subjected. It has been found that the Cotswolds require least, next the Leicesters, next a cross-bred; next to them the Hampshire downs, and then the Sussex downs, which required the greater quantity of food. The Cotswolds required 802 lb. of dry substance to make 100 lb. of flesh, and the Sussex downs 877 lbs., but the last was the more valuable per pound. These experiments showed that it was very essential that animals should have a certain portion of food of various kinds, but inasmuch as roots consist so largely of carbonaceous matter and so little of nitrogenous matter, it is better to make up this by cake, unless grain can be got at much less expense. Whilst Linseed cake produced a greater effect than Peas or Beans—that is to say, 6 lbs. of cake produced something like the effect of 7 lbs. of Beans or Peas, yet the mixture of Linseed-cake and Beans in the winter or Linseed-cake and Peas in the summer produced a considerably greater effect on the feeding properties than when either one or the other was given separately.

Reviews.

Rules of the Penrith Farmers' Club: with a List of Subscribers, &c., and a Summary of its Proceedings since its Establishment in March, 1851. B. T. Sweeten, "Advertiser" Office, Penrith.

We cannot do better than recommend the perusal of this little pamphlet to any who may be disposed to start a farmers' club, and who want, therefore, a good set of rules, a good way of introducing the subject to the farmers of the locality, and a good history, by way of stimulant, of what has been actually accomplished by a local club, under wise and vigorous management.

Our history of the Penrith Club is abridged from the extremely interesting report of it which the Honorary Secretary has been good enough to draw up for our information.

In Cumberland and Westmoreland the arable farms are, on the average, much smaller than those in most of the southern counties. Those of 300 or 400 acres of good land, are considered large; of course there are many much larger, but the majority are below that average. One hundred acres of good arable land may be considered the average.

The farmers themselves, though celebrated, like their neighbours over the Border, for their shrewdness and intelligence, are more primitive in their customs than their brethren of the south, who, renting their 1000 or 1200 acres, hunt in scarlet, and drive to market in well appointed carriages.

Moreover, many of them are Yeomen, or as they are locally called, Statesmen, occupying their own land, from 50 to 100 acres and upwards. Though plain and unostentatious in their manners, they will generally be found to be sensible, well informed, energetic men, ready to appreciate and avail themselves of modern improvements, and march with the times. With a view to the convenience and advantage of the farmers and others frequenting Penrith Market, the Club was established in the spring of 1851, the project of its formation having been appropriately introduced at one of the principal market ordinaries, the town and district being peculiarly adapted for it, as exclusively agricultural. The committee of management, anxious to induce thorough practical farmers to join and assist in promoting the usefulness of the Club, wisely fixed the subscription at a low sum, as it was desirable also, by making it accessible to every class of farmers, to do away with any suspicion of exclusiveness, and the committee, by the economy of their arrangements, have amply fulfilled the intention.

A good President and Vice-President were fortunately obtained. The formation of a library was a great object, and liberal donations of both books and money were made by gentlemen of the neighbourhood, to which we are continually adding, as far as our funds will allow, as well as by frequent contributions. Our Club Room, situate in a central part of the town, and supplied with the leading agricultural and other newspapers and magazines, is a great convenience to those members who wish to avail themselves of such advantages.

The Club, very soon after it was established, seemed, by the rapid accession of members, to be well appreciated. And though essentially a Farmers' Club, there are amongst the subscribers, men of all grades and professions — magistrates, barristers, clergymen, physicians, &c., all of whom contribute valuable information at the meetings.

On referring to the minute book it appears that during the first year, there were discussions on 'Manure; and the Waste of it;' on 'The Cultivation of Turnips;' on 'Lime and its Application;' and on 'The Rotation of Crops.' During the harvest a discussion on 'The comparative advantages of the Scythe and the Sickle or Hook in Cutting Corn,' which resulted in a trial of them in the field, and although in that trial the sickle had the advantage, the scythe has come more into use, and is now almost superseding the hook or sickle. The reaping machine, though used by many of the larger farmers, cannot be so successfully worked in the more hilly districts. Discussions on 'Drainage,' on 'Storing Turnips,' an essay on 'Rot in Sheep,' read by a veterinary member, and one on 'The Cultivation of Flax,' were the last subjects brought before the Club during the first year.

1852.—The year 1852 commenced with a discussion on 'Linseed Cake in connection with Flax Growing.' There was next a discussion on 'The Management of Ewes during the Lambing Season.' Then followed 'The advantages or disadvantages of encouraging the Breed of Hares and Rabbits,' a paper on 'The Diseases of Turnips,' and another on 'Unexhausted Improvements.'

1853.—The proceedings of this year included papers on 'The Management of Hedges and Roads,' the "Diseases of Sheep;" and a resolution was passed "That it is expedient that the Rural Police be introduced into the district.'

1854.—'The propriety of Farmers not engaging Servants without a Character from their last Master' was the subject introduced at the first meeting of this year. An alteration in the hours of opening the Corn Market in Penrith, was effected by the Club. A lecture on 'Agriculture' was printed for distribution among the members; and a member read a paper on 'The Feeding of Cattle in that County, for the Supply of the London Market.'

1855.—This year discussions were held on 'Deep and Shallow Tillage,' on 'The Effect of Cross-breeding on the System of the Dam,' and on 'The Cottage System.'

In subsequent years the value and importance of the Club to the farmers of the district increased and was much appreciated. In illustration of this we quote the proceedings of the last two years.

In 1861 correspondence was held with the Central Farmers' Club, on the 'Uniformity of Weights and Measures,' and an offer to co-operate with this Club in any measure for the promotion of that object. Discussions on 'The Parochial Assessment and Irremovable Poor Bills,' and 'Reports of the Committee on the Highways' Bill' were among the business of the session. In the course of this year the Club established Wool Fairs, much to the convenience of the farmers and wool buyers. After a paper on 'Common of Pasture,' a subject of great importance in these counties, where there are so many thousands of acres of unenclosed land, it was resolved that the law relating to the enclosure of Commons, as it at present stands, is not satisfactory. Numerous letters and complaints were received from this and various other counties, as to the present state of the law. Some correspondence with the Enclosure Commissioners followed, but they declared their inability to afford redress.

1862.—Finding the present law inefficient for the satisfactory arrangement of Common rights, the Club presented a petition to Parliament praying for amendment. A statement of the result of experiments in the application of special manures to cereal crops was presented to the Club, and a paper on 'The Management of Meadow Land.' Sir Stuart Donaldson gave the members a most interesting lecture on 'Australian Sheep Farming and Wool Growing.'

Although there were many warm discussions, and many adverse opinions given in reference to the New Highway Act, a petition to Parliament was prepared and signed by a majority of the members, praying that it may be made compulsory. Subsequently a memorial was presented to the Magistrates in Quarter Sessions of Cumberland and Westmoreland, urging them to adopt the provisions of the Act.

From this meagre sketch of the proceedings, it may be seen that the Club has effected much good since its institution. The report concludes with the following account of recent agricultural improvements in the district. Its proceedings are now regularly published, and it has obtained an influence that could scarcely have been hoped for. That the agriculture of Cumberland and its sister county, Westmoreland, has much improved during that period, is unmistakeable. This may be noticed in the breed of all kinds of stock, from horse to hen, as well as in the management of soil. From the want of statistics it is impossible to state what may have been the increase of the produce of the two counties, but that it is very considerable cannot be denied, and it may be attributable not only to the improved quality of the stock, but to the extension of the means of keeping them in greater numbers and better condition. The extensive drainage that has

taken place during the last 10 or 12 years (many hundreds of miles having been laid down upon the most approved system, the old shallow stone drains being now superseded by pipe and collar at a greater depth), and the introduction and liberal use of guano and other special manures, having enabled the farmers to bring into cultivation and raise crops of Turnips upon lands that are almost inaccessible to heavy dung carts. Thus, as the food increases, so does the stock, and the number of sheep brought to consume the large breadth of Turnips produces its effects on the after crops of Corn and Grass. On account of these improvements, the large sums expended in drainage, the renovation and extension of farm buildings, the advantages afforded by the railways, both to buyers and sellers, in the carriage of stock and produce, the great competition, especially for the smaller class of farms, and from other causes, the value of land has been steadily on the increase for some years, and rents of course in proportion, in some instances having more than doubled, though such cases are exceptional, but upon an average rents may be quoted at about 15 per cent. higher than they were 20 years since.

Employment in the carrying out of the above mentioned improvements, the formation of railways, &c., has had the effect of raising the wages, both of the hired servant living in the house, and of the cottager or day labourer, the wages of the former having during the last 10 years or so increased from 9*l.* to 12*l.* the half-year, those of the latter from an average of 12*s.* to 15*s.*, and in some cases to even 16*s.* a week, or about 30 per cent.

In noticing the improvements in this district, the Secretary adds, "I cannot resist claiming credit for the Penrith Farmers' Club, as having conduced to them in some slight degree, by the diffusion of useful agricultural information, and as our example has been followed at Kendal, in Westmoreland, and at Wigton, in this county, by the establishment of flourishing clubs (from which probably you will have received communications), I trust those districts may reap the same advantages."

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Reading of Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	March	Inches.	°	°				°	°	°	°	Inches.
Friday	4	....	..	..	S.W.	0	10	..	..	..	..	..
Saturday	5	....	..	..	S.W.	0	10	55	..	64	..	..
Sunday	6	29.12	48	43	S.W.	1	10	..	32	..	30	1.00
Monday	7	28.92	..	..	W.	2	9	..	..	..	..	..
Tuesday	8	29 02	44	43	N.	1	10	53	33	61	30	0.41
Wednesday	9	29 13	..	..	N.W.	1	10	..	..	..	..	..*
Thursday	10	29 06	36	34	S.	2	0	43	24	61	31	

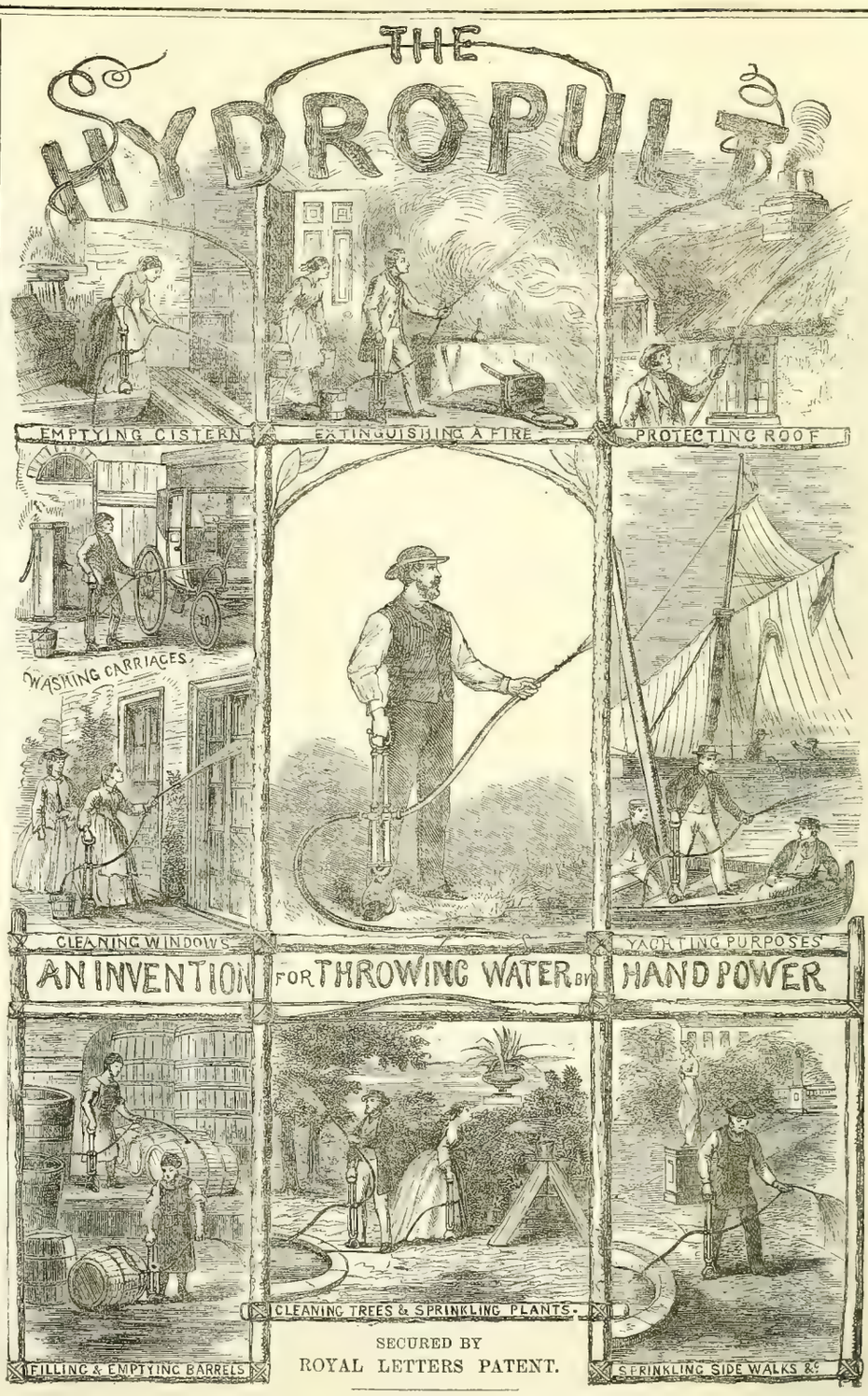
* Deep snow.

Notices to Correspondents.

Analysis of Soils: *Agricola.* Read the late Mr. Rham's Essay on this subject in Vol. 1 of the Journal of the Agricultural Society. No book will teach you to perform such an analysis as you require. You must pay a large fee and spend two years in the laboratory of a professional analyst before you will acquire the skill. But if you want to know if a soil is fertile, look at the crops it bears—that is a better indication than any weight in the pan of a chemist's scales can be.

Cow-Milking Machine: *Q. Y.* The Company can be addressed at the Lacteal Works, Birmingham. We should be glad to obtain information for you; but it is not our business to advertise their wares.

The Agricultural College: *A. Z. Worcester.* You should append your name. The more your subject is *openly* discussed the better.



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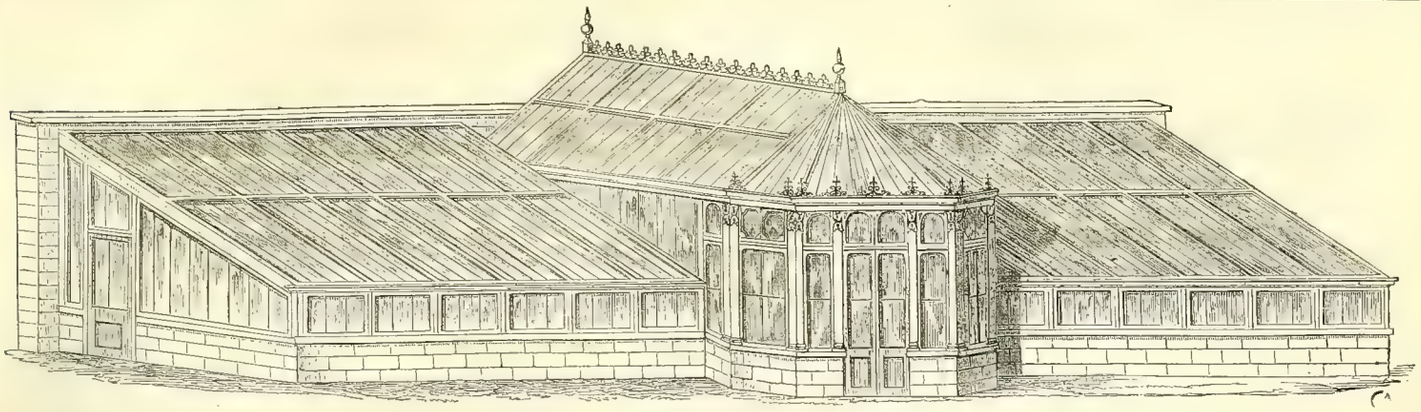
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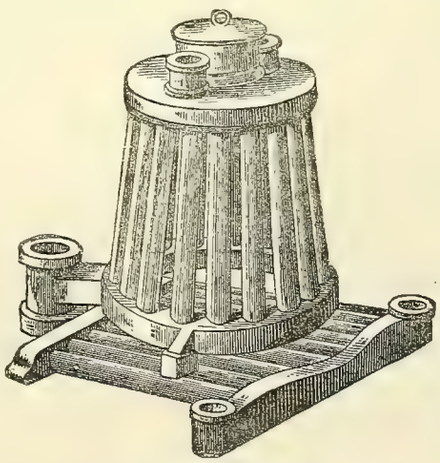
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VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

GREEN'S PATENT SILENS MESSOR,

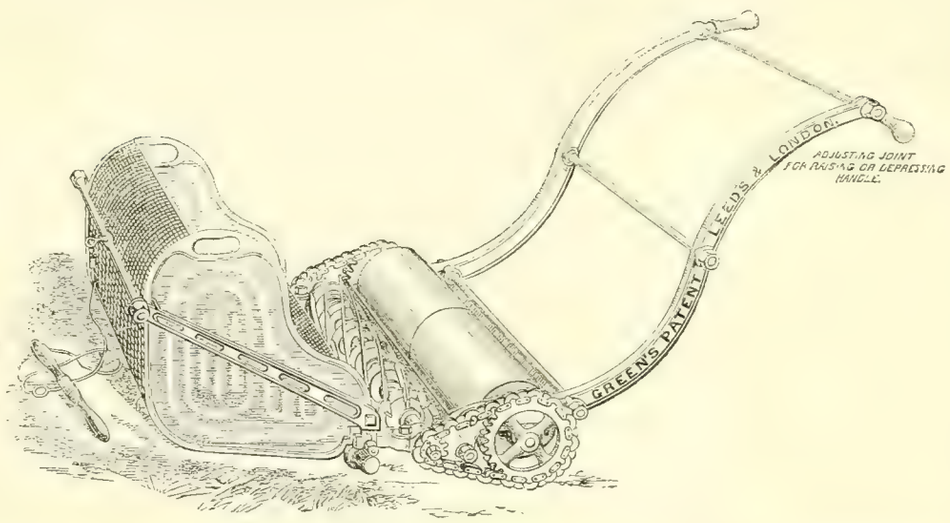
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.
HAMBURG
INTERNATIONAL
EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18s.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22s.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches	...	...	...	£27	0	0	...	...	... Leather Boots for Horse, 26s.
„ 48 „	...	...	...	30	0	0	...	...	... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

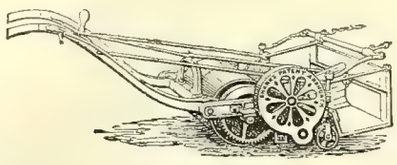
The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

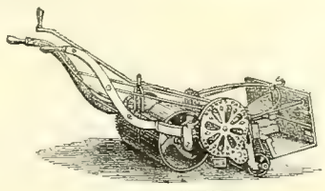
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

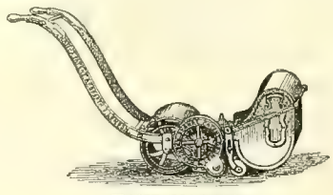
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

Alexander Shanks & Son can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & Son have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & Son have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA

HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND

HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT HON. LORD PALMERSTON.

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His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
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The Right Hon. the Earl of Airlie
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The Right Hon. Lord Bagot
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The Right Hon. Lord Braybrooke
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Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

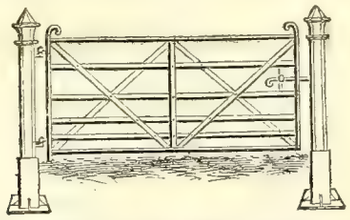
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ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

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A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ENTRANCE GATES, either in Wrought Iron or Cast and Wrought Iron combined, ranging from the ordinary Field Gate to those of the most elaborate design.



IRON RAILING of various designs. FENCING of every description. All kinds of HURDLES, &c.

Drawings and Prices free on application to COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS.—Manufacturers of Portable and Fixed Steam Engines, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.

Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and GEGENÜBER DEM BAHNHOF, Pesth.

Descriptive, Illustrated, and Priced Catalogues, Free per Post. Special Drawings when required.

[*The best Steam Thrashing Machinery made*]

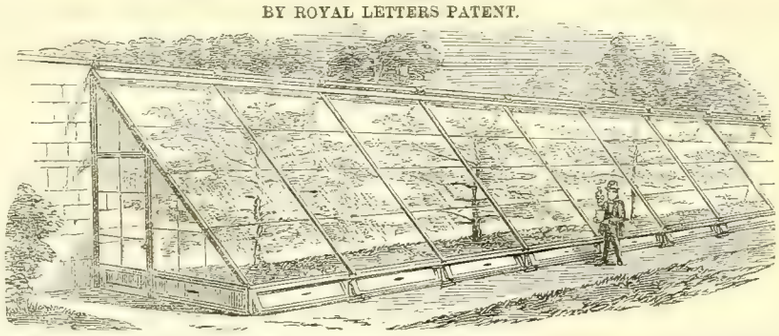
AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds, Sausage and Mincing Machine. Illustrated Catalogue on receipt of 6 stamps. Price Lists free.

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Works: Brentwood, Essex.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

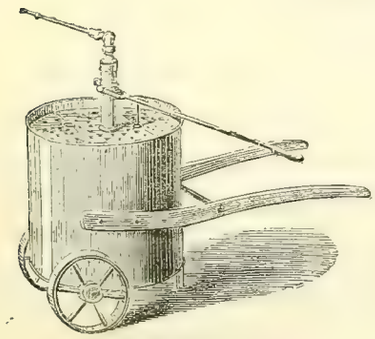
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Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'
GALVANISED IRON GARDEN ENGINE.

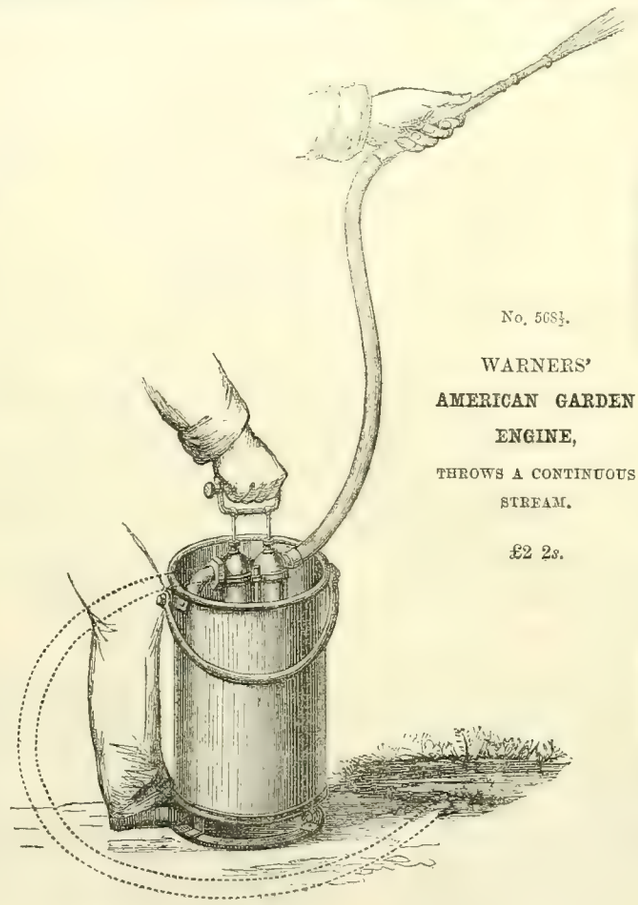
10 gallons ... ... £2 15*s.*
16 „ ... ... 3 15*s.*



No. 35.

PATENT
CAST-IRON PUMP.

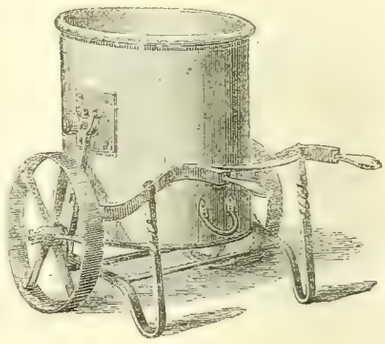
2½ inch ... ... £1 10*s.*
2½ inch, with short barrel ... } 1 1*s.*



No. 508¾.

WARNERS'
AMERICAN GARDEN
ENGINE,
THROWS A CONTINUOUS STREAM.

£2 2*s.*



No. 579½.

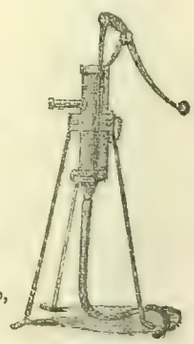
WARNERS'
SWING WATER BARROW.

20 gallons ... ... £2 0*s.*
35 „ ... ... 2 10*s.*

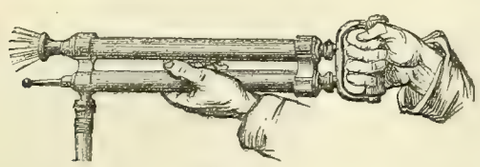
PORTABLE
LIQUID MANURE
PUMP,
WITH LEGS,
£2 15*s.*

Do. for fixing to cart,
£2 5*s.*

Suction Pipe for Pump,
2*s.* 5*d.* per foot.



No. 42.



No. 367½.

WARNERS' PATENT DOUBLE ACTION SYRINGE,
with 5 feet of Suction, 21*s.*

Will draw water from a pail or other vessel, and all stooping is avoided.



No. 590.



No. 557A.

WARNERS' NEW DISC-VALVE SYRINGE. 9*s.*

Fountain designs in great variety. Can be supplied from a cistern or main.

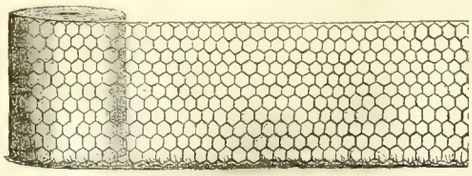
BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal.	Medium Jap	Medium Gal.	Strong. Jap	Strong. Gal.	Extra Strong. Jap	Extra Strong. Gal.
2½ in.	Hares, Dogs, Poultry	s. d. 0 3	s. d. 0 4	s. d. 0 3½	s. d. 0 5	s. d. 0 4½	s. d. 0 6	s. d. 0 5½	s. d. 0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c	0 4	0 4⅝	0 4⅝	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.

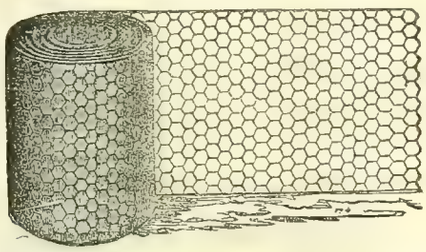
Lists Free on application. Every article guaranteed to be satisfactory.

J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

BARNARD, BISHOP, AND BARNARDS,

Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

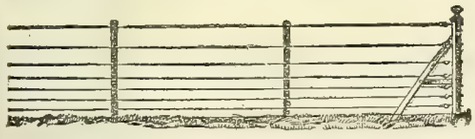


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide ..	No. 19	.. 4½d.	.. 3½d.
2-inch ,, ,, ,, .. ,,	18	.. 5	.. 4
2-inch ,, ,, ,, .. ,,	17	.. 6½	.. 5
2-inch ,, ,, ,, .. ,,	16	.. 8	.. 6½
1⅝-inch ,, ,, ,, .. ,,	19	.. 4½	.. 4
1⅝-inch ,, ,, ,, .. ,,	18	.. 6	.. 4⅝
1⅝-inch ,, ,, ,, .. ,,	17	.. 7	.. 5½
1⅝-inch ,, ,, ,, .. ,,	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide. Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



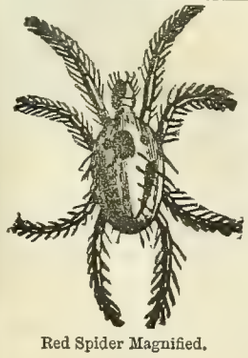
Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.

The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped J. BARSHAM'S Patent

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.

Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.

Particulars of these Standard Manures may be obtained at the Offices.

C. T. MACADAM, Secretary, or of the local Agents.

Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

To Nurserymen, Gardeners, and Others.

TO BE LET, PARK END NURSERY, 1 mile from Macclesfield, Cheshire.

Apply to Mr. POOLE, Fallowfield, Manchester; and No. 8, Duke Street, Portland Place, London, W.

TO BE LET, HOTHOUSES, GARDENS, &c., on advantageous terms, within 80 miles of London; the proprietor being unable longer to attend to them personally. The Houses are nearly 300 feet long by 16 ft. wide, heated with Tubular Boiler, recently erected; and are well stocked with Vines, Pines, Cucumbers, Peaches, Bedding Plants, &c. The Stock can either be taken or guarantee given for its preservation or value. A good Churchman preferred.

Address, T. C. D., Mr. Waistell's, 40, Lime Street, London.

Land and Residence.

TO BE LET or SOLD, a PLOT of Superior LAND (nearly two acres) very suitable for NURSERY purposes, together with an excellent RESIDENCE, containing Dining and Drawing Rooms, two Kitchens, five Bed Rooms, W. C., and every other convenience. There is an enclosed yard with Stable, Coach-house, Cow-house, and other outbuildings; Vinery, &c., situate at Nuneaton, within three minutes' walk of a first-class station on the London and North-Western Railway.

Apply to THOS. HOLLICK, Nuneaton.

TO BE LET on LEASE, and entered upon immediately, The WHITE HOUSE FARM, in the parish of Woodham Walter, containing about 200 acres of Turnip Land. A Dwelling-house and premises suitable for the occupation will be erected, the Landlord receiving a per centage on the outlay in addition to the rent to be agreed on. The land is tythe free, and about three miles from Maldon. There is a wood of 20 acres on the estate, which the landlords reserve to themselves.

Any further particulars may be known by applying to JOSEPH SMITH, Patteswicke Hall, Braintree.

To Nurserymen, Seedsmen, and Others.

TO BE SOLD, the BUSINESS, STOCK, and PLANT of a NURSERY and SEEDSMAN at North Warnborough, Odiham, Hants.

This Business has been carried on for many years, and has an excellent and extensive connexion.

The Stock (which has been recently reduced) will be Sold under peculiar circumstances at a very great sacrifice, thus affording to a purchaser desirous of entering upon a good old established Business at a small outlay an opportunity very rarely met with.

For further particulars apply to Mr. JAMES CHAUNDLER, North Warnborough, Hants; Mr. GEORGE BAKER, Jun., Windlesham Nursery, Surrey; or to Mr. S. CHANDLER, Solicitor, Basingstoke.

Sales by Auction.

Standard, Dwarf, and Climbing Roses, Carnations, Picotees, Pinks, Dahlias, and a variety of other Plants.

MR. J. WILLMER will SELL by AUCTION as above, at the Auction Mart, Bartholomew Lane, E.C., on THURSDAY, March 17, at 12 o'Clock.

Catalogues at the Mart; and of the Auctioneer, Sprifingeld Nursery, Sunbury.

Eight Cases of Bulbs from Holland,

ROSES FROM FRANCE, AND HARDY PLANTS FROM SURREY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 12, at half-past 12 o'Clock precisely, a splendid assortment of DAHLIAS, GLADIOLI, ANEMONES, RANUNCULUS, FERRARIAS, and other Bulbs from Holland; some first-rate STANDARD ROSES from France; Pinks, Picotees, and Carnations, and Hardy Trees and Shrubs from Surrey.—On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C, on TUESDAY, March 15, at half-past 12 o'clock precisely, a choice Assortment of SPANISH, POLANDS, COCHINS, BRAHMAS, GAME, DORKINGS, BANTAMS, HAMBURGHS, AYLESBURY DUCKS, &c., from the Yards of the Rev. G. Gilbert, Mrs. Pattison, Mr. Atlee, R. Gilbert, Esq., and other celebrated Breeders; several valuable DOGS, and some capital Pouters, Carriers, Barbs, Tumblers, Baldheads, Fantails, Runts, and other varieties, from Messrs. Bacchus, Green, and several other well known Fanciers.

On view the Morning of Sale, and Catalogues had.

Choice Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 16, at half past 12 o'Clock precisely, 1000 choice CARNATIONS, PINKS, and PICOTEES; 2000 GLADIOLI, various sorts; Fruit Trees. Conifers, Dahlias, Phloxes, Dianthus, Aucubas, Laurels, Roses, Poplars, Strawberries, Vines, Laburnums, Thorns, Berberis, Privet, &c.

On view the Morning of Sale, and Catalogues had.

Indian, Californian, and Grecian Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 17, at half-past 12 o'clock precisely, 35 lb. of Seed of CEDRUS DEODARA, just arrived per overland mail in capital condition, 40 oz. of WELLINGTONIA GIGANTEA, and several pounds of PICEA PINSAPO, Cupressus Macnabiana; Abies amabilis, Douglasii, grandis, and Mertensiana; Pinus contorta, P. Peuce, P. Coulteri. P. ponderosa, Thuja gigantea, T. Craigiana, Picea cephalonica, Apollinis, Nordmanniana, Cedrus atlantica, and many other choice sorts.—On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 19, at half-past 12 o'clock precisely, a splendid assortment of DWARF-TRAINED, STANDARD, HALF-STANDARD, PYRAMIDAL, and DWARF CHERRY, Apricot, Peach, Pear, and Plum Trees, Standard Roses, Hollies, Laurels, Conifers, Ilex, Grapes, Currants, Gooseberries, Rhododendrons, &c.

On view the Morning of Sale, and Catalogues had.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, March 18, at 1 o'clock precisely, 1000 handsome STANDARD, HALF-STANDARD, DWARF, and CLIMBING ROSES, also a first-rate collection of Carnations, Picotees, and Pinks, the surplus stock of a [celebrated Grower; selected Fruit Trees, a rich assortment of Hardy American Plants, Lilium lancifolium, together with choice Double Camellias, Azalea indica, Ericas, Epacris, Cinerarias, and other plants in bloom, Verbenas, Fuchsias, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Towneley Park, near Burnley.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD has the honour to announce that he is favoured with instructions from Colonel Towneley to offer for SALE by AUCTION, without reserve, on THURSDAY, March 17, 1864, the entire and far-famed Herd of First-class SHORT-HORNS, bred at Towneley Park, consisting of between 50 and 60 head of Bulls, Cows, and Heifers, which have maintained an unrivalled position in the Short-horned world for the last 14 years; having won during that period upwards of 2000*l.* in money prizes only, at the Royal Agricultural Society of England, the Royal Agricultural Improvement Society of Ireland, the Royal Dublin, the Royal North Lancashire, the Yorkshire, the Birmingham and Smithfield Clubs, and the International Show at Paris, besides 22 Cups, 26 Gold Medals, and more than 100 Silver and Bronze Medals, as well as numerous other Prizes at various local Shows in the counties of Lancashire and Yorkshire.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. J. CULSHAW, at Towneley Park, near Burnley.

Heath Road Nursery, Leighton Buzzard.

MR. GOTTO is directed by the Proprietor to SELL by PUBLIC AUCTION on the Premises, on FRIDAY, March 18, and following Day, at 10 for 11 o'Clock each day, the whole of the NURSERY STOCK of Mr. Wilfred Woods (who is leaving), consisting of 100,000 Trees and Shrubs, about 1000 dozens of Bedding Plants of every variety, Hothouse Ferns and Plants of every description, a quantity of Garden Seeds, 200 bushels of Potatos, principally Ash and Walnut-leaf; Carts, Barrows, Tools, Implements, and Utensils of Trade, and the Erection of Forcing and Cold Pits, with Frames and Lights.

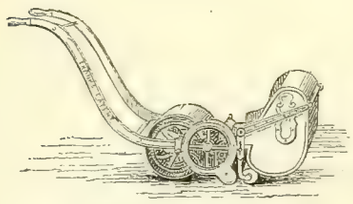
May be viewed the day previous, and Catalogues obtained a week previous to the Sale, on application to Mr. WOODS, or Mr. GOTTO, Land and Estate Agent, "The Cross," Leighton Buzzard, Beds.

To Gentlemen, Nurserymen, and Others.

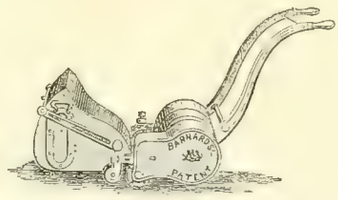
MESSRS. WATERER AND SONS will SELL by AUCTION, on MONDAY, March 21, and following Days, at 10 o'Clock, on the premises, near Pervese's Bridge, Byfleet, Surrey, by order of the Proprietor, a Valuable NURSERY STOCK, comprising 6000 Standard and Half Standard Roses, of the best sorts, named; 7000 Rhododendrons, good varieties, from 9 inches to 2½ feet high; a quantity of Rhododendron ponticum and hybrids; 5000 2-year bedded Hollies, 2000 common Laurels, 2 to 3 feet; 150 variegated Hollies, 400 Conifers, including Douglasii, Deodaras, austriaca, Araucaria, Cupressus Lawsoniana and others; a large quantity of Shrubs, including Irish Junipers, common and Irish Yews, Laurustinus, and others; 20 lots of choice mixed Shrubs, from 2 to 5 feet, well worth the attention of gentlemen making an Ornamental Plantation. The whole of the above to be Sold without Reserve, and are in a most perfect condition for removing. About two miles from the Woking and Weybridge Stations, on the South-Western Line.

May be viewed One Week previous to the Sale, and Catalogues had upon the Premises; and of Messrs. WATERER & SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by post.

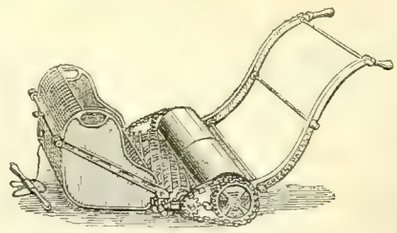
LAWN MOWING MACHINES FOR 1864.



SHANKS' MACHINE.



BARNARDS' MACHINE.



GREEN'S MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. BROWN & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of satisfaction, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success.

J. B. B. AND Co. have resolved not to place before the public at this period of the season any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that gentlemen or gardeners naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All orders thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.*

Orders entrusted to J. B. B. AND Co. for the Machines of any particular maker, will have most careful attention in every respect.

SHANKS' LAWN MOWING MACHINE FOR 1864.

SHANKS' MACHINE has been further improved this season by reducing the weight, and in other respects remodelling it, so that every thing having a tendency to increase draught is carefully avoided. These Machines are still, as they have always been, very durable, simple in construction, and execute their work in a superior manner.

PRICES.

SHANKS' HORSE MACHINE.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Delivering Apparatus for Nos. 1 and 2, 40*s.*; for Nos. 3 and 4, 30*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' PONY and DONKEY MACHINE.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Delivering Apparatus for Nos. 5 and 6, 30*s.*; for No. 7, 25*s.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 10*s.* per set.

SHANKS' HAND MACHINE.

The four larger Machines for Pushing or Drawing Separately or Together—the three smaller for Pushing only.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*
No. 11.—16-inch Machine	6 12 6	*Do. by a Man.*

Width of Cutter.		
No. 12.—14-inch Machine	£5 10 0	*Easily Worked by a Boy.*
No. 13.—12-inch Machine	4 10 0	
No. 14.—10-inch Machine	3 10 0	

BARNARD AND BISHOPS' NEW LAWN MOWER FOR 1864.

This MACHINE differs from all other Lawn Mowers, in being constructed without either gear-wheels, chains, or levers, the power being transmitted to the cutters by a loose intermediate wheel, with an india-rubber tyre which is placed between a plain-faced driving wheel and pinion. It is quite noiseless, both in its forward and backward action, and works with very little power.

PRICES.

8-inch Machine, for small plots or edgings	£2 10 0	*Easily Worked by a Boy.*
10-inch Machine	3 5 0	
12-inch Machine	£4 10 0	*Easily Worked by a Boy.*
14-inch Machine	5 0 0	

GREEN'S HAND MACHINE FOR 1864.

GREEN'S MACHINE for this season is made lighter and stronger, also simpler in construction and more durable. This Machine has always had the reputation of being a very light one, and is a great favourite with many, on account of its being very easily worked.

PRICES.

10-inch Machine	£3 10 0	*Easily worked by a Boy.*
12-inch Machine	5 0 0	
14-inch Machine	5 10 0	
16-inch Machine	6 10 0	*Do. by a Man.*
18-inch Machine	£7 10 0	*Easily worked by a Man.*
20-inch Machine	8 0 0	*Do. by two Men.*
22-inch Machine	8 10 0	
24-inch Machine	9 0 0	

A specimen of each of the above described Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. AND Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

THE NEW MACHINES ARE NOW QUITE READY FOR DELIVERY.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

☞ Messrs. BROWN & Co. beg to make the announcement, so important to all those who use MOWING MACHINES, that they now EXECUTE REPAIRS of all MACHINES in LONDON; thus obviating the serious delay and expense of sending to Scotland or other great distances.

All REPAIRS and ADJUSTMENTS of MACHINES promptly executed at moderate fixed rates.

NEW IMPROVED HORSE, PONY, and DONKEY BOOTS made in the best style, WHOLLY of LEATHER, delivered free at prices as quoted above.

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

Editorial Communications should be addressed to "The Editor:" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, March 12, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 12.—1864.] SATURDAY, MARCH 19. {Price Fivepence. / Stamped Edition, 6d.

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Open to All England.

NORTHAMPTON FLORAL and HORTICULTURAL FÊTE, to be holden in connection with the Northamptonshire Agricultural Society's Meeting, on THURSDAY, July 14, when about £200 will be distributed in Prizes.

Treasurer—MARK DORMAN, Esq., Mayor.
Mr. T. L. CORDEUX, Mr. PICKERING PHIPPS } Secretaries.
,, WM. HILL, ,, WM. ROBERTS }
The Schedules and Rules are now ready, and may be obtained of the Treasurer, or either of the Secretaries.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.—The ANNUAL EXHIBITION of the above Society will be held in Auckland Park on FRIDAY, September 9, 1864. Schedules of Prizes may be had on application to the Secretary. J. REED.

Grand Exhibition of Hyacinths, &c.

WM. CUTBUSH AND SON'S GRAND EXHIBITION of HYACINTHS, &c. will be held at their NURSERIES from MONDAY, March 21, till SATURDAY, April 2, both days inclusive.
ADMISSION FREE on presentation of address card, from 10 A.M. till 6 P.M., Good Friday and Sunday excepted.
Highgate Nurseries, London, N.

New Roses for 1864.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong plants of the above to offer.
A PRICED LIST, with descriptions, may be had on application.

ALL the NEW ROSES for 1864 Now Ready to send out, in Extra Strong Plants.
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

NOW READY, the NEW ROSES of 1864. 12 of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
RICHARD SMITH, Nurseryman, Worcester.

New Rose List for 1864.

JOHN KEYNES' NEW LIST is now ready, and will be forwarded on application.
His Stock of NEW ROSES for 1864 is very fine.
Castle Street Nursery, Salisbury.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready fine healthy plants, 36s. per dozen.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

The New Roses for 1864.

SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

ROSES.—Superb STANDARDS, 18s. per dozen; DWARFS, 12s. per doz. NEW ROSES of 1863, 30s. per doz.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL's Nurseries, Waltham Cross, N.

NEW ROSES, &c., for 1864.—Splendid plants will be ready for delivery the third week in March.
LISTS of sorts and prices will be sent on application to
J. E. FREWER, Violet Hill Nursery, Stowmarket.

Roses.

EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

HERBST AND STENGER, Kew Nursery, Richmond, S.W., have now ready for delivery several thousands of fine healthy plants of NEW ROSES for 1864.
Prices on application.
Genuine GERMAN FLOWER SEEDS, &c. See CATALOGUE.

WANTED, 500 Pairs of first-class CARNATIONS
State lowest price for Cash.
Apply to PROTHEROE & MORRIS, American Nurseries, Leytonstone.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN,
SEED, ROSE, and FRUIT CATALOGUES, gratis.
57, Queen Street, Hull.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS, NURSERYMAN and SEEDSMAN,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Good Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Genuine Vegetable and Flower Seeds
CARRIAGE AND PACKAGE FREE.

McRAE AND FRASER, SEED MERCHANTS and NURSERYMEN, Tredegar Nursery, Bow, London, E.
PRICED LISTS forwarded Free on application.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

Cob Nuts, Cob Nuts, Cob Nuts.

WEBB'S KENTISH SEEDLING TREES, 3 years old, must be SOLD. Cash price 10s. per 100.
Apply to C. CHESTERMAN, Market Gardener, Reading, Berks.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses. RICHARD SMITH, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

MARY NICHOLSON, Egglescliffe, begs to inform her friends that she still supplies STRAWBERRY PLANTS, but as her supply is limited, to prevent disappointment early application will be necessary.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above.
Wellington Nursery, St. John's Wood, London, N.W.

Vines Black Hamburgh and Muscat of Alexandria.

ROBERT PARKER begs to state that he can supply fine FRUITING CANES, well ripened, of the above, at 7s. 6d. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Late Grape Vines.

JOSEPH MEREDITH has still some VINES of the true B. ALICANTE left; also of LADY DOWNES.
N.B. Beautiful Bunches of the above sorts may be seen at J. M.'s Vineyard, Garston, near Liverpool.

Grape Vines from Eyes.

S. GLENDINNING AND SONS (Successors to the late R. GLENDINNING), have still some good CANES of the best varieties, both for Fruiting in pots and for Planting out. PRICED LIST on application,
Chiswick Nursery, London, W.

Grape Vines.

TO BE SOLD CHEAP, a large quantity of fine VINES for planting out.
Apply to R. HUTCHIN, at the Horticultural Works, Stamford Hill, N.

WANTED, FRUITING PINE PLANTS.—Please state number, sorts, condition, and price. This is addressed to gentlemen or nurserymen. No gentleman's Gardener need reply to
A. B., Mr. Jones, 26, Bride Lane, Fleet Street, London, E.C.

German Flower Seeds, Fresh Imported.

SUTTON AND SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, has AMALGAMATED with the PLYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The FARM SEED PRICE CURRENT is now ready, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of GARDEN SEEDS are now Ready.
See Advertisement, page 195.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of FLOWER SEEDS are now Ready.
See GENERAL PRICE CURRENT.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

Superb Double Hollyhocks, now ready for Planting.

WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.
See Advertisement on other page.
Address, WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Verbenas, Verbenas.

S. PERKINS AND SONS have now ready Strong Plants of all the leading Varieties.
List of Sorts and Price per dozen or hundred post free on application to the Park Nursery, Coventry.

Choice Seeds.

WM. WOOD AND SON'S GUINEA COLLECTION of GARDEN SEEDS for One Year's Supply, Carriage free. Address, Maresfield, near Uckfield, Sussex.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application.
The Royal Nurseries, Slough.

Amaryllis—Good Sound Bulbs.

BUTLER AND McCULLOCH have a large Stock of the above in excellent condition, at moderate prices.
LISTS post free.
Covent Garden Market, London, W.C.

WELLINGTONIA GIGANTEA.—Fine healthy well formed plants from Seed, 1½ to 2½ feet high, and nearly as much across, 60s. per dozen. Special rates for larger quantities.—JAMES BACKHOUSE & SON, York Nurseries.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

English-grown Rape Seed.

CHARLES SHARPE AND CO., Sleaford, have a fine clean Sample of the above to offer for Sowing.
Price on application.

Broccoli all the Year Round.—See

SUTTON'S AMATEUR'S GUIDE, pages 9 and 10, which will be sent post free on receipt of 6 penny stamps, or gratis to customers.
SUTTON & SONS, Seed Growers, Reading, Berks.

SEAKALE, per 100, 5s. 6d., 7s. 6d.; Extra Strong, 12s. 6d.; quotations to the Trade on application.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

POTATOS.—A fine crop of SKERRY BLUES, 5s. per cwt.
Address Mr. WM. DAVIES, Cilhendne Farm, Chirk.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

THE BEST EATING POTATO all the year round is EARLY OXFORD. 5s. per bushel of 56 lbs.
RICHARD SMITH, Seed Merchant, Worcester.

KING of the POTATO, from the Original Stock.—Price per Cwt. or Ton on application to
JAMES DICKSON & SONS, Seed Merchants, 102, Eastgate Street, Chester.

SEED POTATOS.—A few sacks of each of the following fine Potatos:—BLUE-NOSED KIDNEYS, MYATT'S EARLY ASHLEAF and SKERRY BLUES, all in first rate condition, to be sold cheap.
Apply to THOS. PRITCHARD, Hereford House, Abergavenny.

Flower Seeds, free per post.

WM. WOOD AND SON'S splendid COLLECTIONS as under :—

HARDY ANNUALS

100 varieties.. ..	20s. 0d.	25 varieties . ..	5s. 0d.
50 do.	10 0	12 do.	2 6

HALF-HARDY ANNUALS.

100 varieties	25s. 0d.	25 varieties	7s. 0d.
50 do.	12 6	12 do.	3 6

GERMAN FLOWER SEEDS as imported in original sealed packets on lowest terms.

CATALOGUES on application.

Woodlands Nursery and Seed Warehouse, Maresfield, Uckfield, Sussex.

Flower Seeds. Free per Post.

BUTLER AND McCULLOCH'S unrivalled Assortments :—

HARDY ANNUALS.

100 varieties, 20s.	50 varieties, 10s.
30 varieties, 5s.	15 varieties, 2s. 6d.

HALF-HARDY ANNUALS.

100 varieties, 30s.	50 varieties, 15s.
25 varieties, 7s. 6d.	15 varieties, 2s. 6d.

The varieties included in the above assortments are all distinct and of the brightest colours. Each packet bears a printed description and practical hints on cultivation.

Covent Garden Market, London, W.C.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

NEW VARIEGATED-LEAVED FUCHSIA "CLOTH of GOLD."—A sport of Souvenir de Chiswick, retaining all its fine properties, with beautiful golden variegated leaves in way of Golden Chain and Cloth of Gold Geraniums. Strong Old Plants in March at 21s., or Small Plants in May at 5s. each. Usual discount to Trade.

S. STAFFORD, Nurseries, Hyde, Manchester.

GENUINE SEEDS.—CARRIAGE PAID.

(FLOWER SEEDS IN PACKETS POST FREE.)

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

OFFERS

COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS,

10s. 6d., 21s., 42s., and 63s. each.

CHOICE FLOWER SEEDS.

	Per packet—s. d.		Per packet—s. d.
PRIMULA, very fine, red, white, or mixed	2s. and 3 6	PANSY, from named flowers	1 0
CALCEOLARIA, very choice	1s. 6d. and 2 6	STOCK, SCARLET INTERMEDIATE, the true Covent Garden variety	0 6
CINERARIA, from named flowers	1s. 6d. and 2 6	ASTER, Chrysanthemum-flowered	0 6
CLIANTHUS DAMPIERI, English saved	1 0	,, Truffaut's Pæony-flowered Perfection	0 6
BALSAM, Camellia-flowered, very fine	1 0	,, Double Quilled German	0 6
CORDYLINE INDIVISA	2 6	SWEET WILLIAM	0 6
SENECIO ELEGANS FLORE PLENO	1 0	CACTUS, fine varieties	1 0
CARNATION and PICOTEE	1 0	MIMULUS MACULOSUS	1 6
ACHIMENES, very choice	1 0	HOLLYHOCK, from named flowers	0 6

GERMAN AND OTHER FLOWER SEEDS IN COLLECTIONS.

See *Gardeners' Chronicle*, February 20, page 170.

WILLIAMS'S MATCHLESS RED CELERY, 1s. 6d. per packet.

J. C. WHEELER & SON,

SEED GROWERS,

GLOUCESTER,

Offer SEEDS of finest quality at the extremely moderate prices quoted below :—

CLOVER and GRASS SEEDS.

GRASSES and CLOVERS, of finest quality, for 1 year's Hay and 2 years' Pasture, at 17s. 6d. per acre.

GRASSES and CLOVERS, of finest quality, for 1 year's Hay and 1 year's Pasture, at 16s. per acre.

GRASSES and CLOVERS for 1 year's Hay and Pasture, at 12s. 5d. per acre.

GRASS SEEDS for LAWNS, of the choicest varieties, to form a rich thick Turf, at 1s. per lb. 50 lb. will be required per acre.

RYE-GRASS.

ITALIAN (imported seed), best quality, at 6s. 6d. per bushel.

ITALIAN do., extra cleaned, 6d. per bushel extra.

ITALIAN, home-grown, good, 5s. 6d. per bushel.

PACEY'S PERENNIAL, fine heavy seed, remarkably clean and free from weeds, at 6s. 6d. per bushel.

PACEY'S do., extra fine, 7s. per bushel.

EVERGREEN, good quality, at 6s. per bushel.

,, rather lighter, at 5s. per bushel.

RENOVATING MIXTURE.

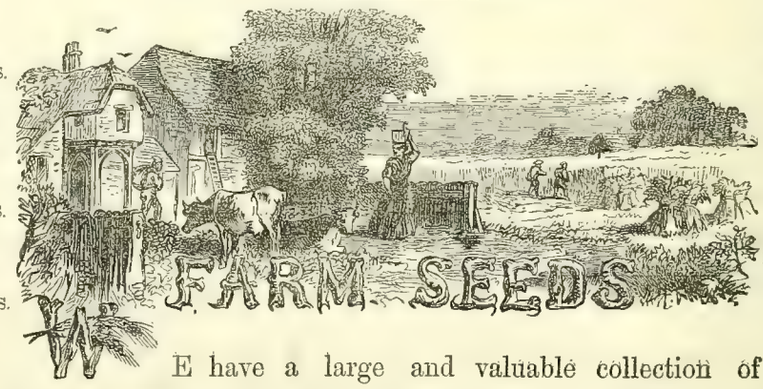
RENOVATING GRASS SEEDS for OLD PASTURE, most carefully selected (10 lb. per acre will be ample), 9d. per lb., 80s. per cwt.

J. C. WHEELER AND SON deliver FARM SEEDS Free by Rail, excepting Small Parcels.

J. C. WHEELER & SON,

SEED GROWERS, GLOUCESTER.

RYE GRASS.
CLOVERS.
TREFOIL.
COW GRASS.
ALSIKE.
LAWN GRASS.



WHEELERS' IMPERIAL SWEDE.
TURNIP.
MANGOLD.
BUCKWHEAT.
WHITE CARROT.

WE have a large and valuable collection of

Grass Seeds for Permanent Pasture,

of the finest quality, which we can offer at 30s. per acre—all the varieties of Grasses and Clovers are named and described in our "LITTLE BOOK ON GRASSES," a copy of which will be sent gratis with every order, or post-free on application.

Our mixture of Grasses and Clovers for Permanent Pasture, at 30s. per acre—IS OF THE FINEST QUALITY—**and comprises the choicest varieties in cultivation.**—In executing orders for Grasses—we exercise the most scrupulous care and attention in adapting and varying the mixture—as the different circumstances and peculiarities in each case render it desirable—taking into consideration the nature and quality of the soil which is intended to be laid down.

—The following extracts from letters received from Gentlemen to whom we have supplied mixtures for Permanent Pasture, may perhaps be considered interesting :—

"I had a gentleman enquiring of me where I purchased the Permanent Pasture Seeds which I laid down at Ness. It is the best piece for miles round.—I told him I had it from you, and that it was a mixture you recommended for the purpose."—Thomas Williams, Allastone Court, Lydney.

"The Permanent Pasture Grass and Clover Seeds have grown well; they are very good sorts, and suit our land well."—E. Richings, Farm Bailiff to John Rolt, Esq., Q.C., M.P., Ozleworth Park.

"I have a very good stock of Clover from your Seed, whilst many who bought their Seed elsewhere have almost a failure."—Richard Smith, Birdsend Farm, Tibberton.

"His Lordship was much pleased with the Permanent Pasture Grasses you supplied us with; they are of excellent quality and very luxuriant."—A. Paterson, Steward to the Right Hon. the Earl of Ellenborough.

"I am much pleased with the fourteen acres of the Permanent Pasture I laid down with your Seeds; nothing could have done better. I hope to lay down some more next season."—R. G. Tamplin, Moraston Court, Hoarwithy, Ross.

"You know what sorts of Grass Seeds will suit me—better than I can tell you; what I had from you last year was excellent."—John Thomas, Penpompren, Llanwnen, Carmarthenshire.

"I laid down eight acres of the poorest land in our parish with your Permanent Pasture Grasses. Before I laid it down it wasn't, to rent, worth 5s. an acre, and now there is a very fair sward. I am very well pleased, and cannot speak too highly of the mixture you sent me."—William Hawkins, Lintridge, Dymock.

J. C. WHEELER AND SON, SEED GROWERS, GLOUCESTER.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

£3 3s., £2 2s., £1 1s., 15s., and 10s. 6d.

These COLLECTIONS contain only SEEDS of first quality—growth 1863—and have been prepared in a most liberal manner. Full particulars as to quantities and varieties included, may be seen at page 78 of our DESCRIPTIVE CATALOGUE. Free per Post, on application.

Orders amounting to 21s. and upwards sent Carriage Free, and a Discount of Five per Cent. allowed for prompt cash payments.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

ORCHIDS ADAPTED FOR COOL TREATMENT.

HUGH LOW & CO.

HAVE PLEASURE IN ANNOUNCING THE ARRIVAL BY ROYAL MAIL STEAM SHIP *LA PLATA*,

OF A CONSIGNMENT OF

TWENTY-ONE CASES OF ORCHIDS FROM GUATEMALA,

Sent by their Collector in that Country. The Plants are in the finest possible condition, and HUGH LOW & CO. will have pleasure in showing them to gentlemen interested in Orchid Culture.

Prices will be extremely moderate.

CLAPTON NURSERY, LONDON, N.E.



THE ONLY PRIZE MEDAL AWARDED for SEEDS, INTERNATIONAL EXHIBITION 1862.



CARTER'S

SPECIAL LIST of FARM SEEDS for MARCH and APRIL

IS NOW READY, AND WILL BE FORWARDED GRATIS AND POST FREE ON APPLICATION.

JAMES CARTER AND CO.,

SEED MERCHANTS and NURSERYMEN, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, and ST. OSYTH, ESSEX.

NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

JAMES CARTER & CO.'S NOVELTIES for 1864.

Larkspur, Dwarf Striped, Hyacinth-flowered.

An extremely pretty striped double variety of Larkspur, similar in colour to the well-known L. tricolor elegans, viz., purple, rose and white striped, but dwarf; height about 1 foot.
Price, per packet, 6*d*.

Nemophila discoidalis elegans punctata.

A variety from N. discoidalis elegans (a novelty sent out last season for the first time). Colour, light chocolate marbled, with pure white border.
Price, per packet, 6*d*.

Petunia "Queen Bertha."

A very pretty variety of this much admired fragrant flower; profuse bloomer. Colour, silver grey, with dark striped throat.
Price, per packet, 6*d*.

Lupinus Dunnetti atroviolaceus.

A fine noble-looking Lupine, possessing all the merits of L. Dunnetti (its progenitor), but distinct in colour, the blue of the former being in this variety changed to a fine dark violet; very handsome.
Price, per packet, 1*s*.

Clianthus Dampieri splendens.

This is a beautiful variety of Clianthus, received by us from a correspondent, who informs us that the seed was gathered during one of the recent expeditions in Australia under Government auspices, and that its habitat is in Central Australia. It is much hardier, freer, and more robust in growth than the old Dampieri; is also brighter in colour, larger in bloom, and the black boss on the petals is more brilliant and of superior size. We think it is deserving of being considered as a new species.
Price, per packet of 3 seeds, 5*s*.

Armeria splendens.

Splendid hardy perennial, with large corymbs 4 and 5 inches in circumference, of brilliant rosy carmine flowers; makes a splendid cut flower for bouquets.
Price, per packet, 1*s*.

Celosia pyramidalis, La Pucelle.

A beautiful white variety of this much admired class of Greenhouse and Conservatory Plants, forming an admirable contrast to the golden and crimson varieties.
Price, per packet, 1*s*.

Cobœa scandens variegata.

This is a beautiful golden variegated foliaged Greenhouse and Conservatory Climber, of extremely rapid growth, with the fine large blooms of the old C. scandens, and will reproduce itself from seeds: strongly recommended.
Price, per packet, 1*s*.

Convolvulus mauritanicus.

This much-admired flower has hitherto been obtained in plants only, but now we have the pleasure of offering good well-ripened seed. For rockwork, baskets, pots, &c., this is a most charming plant, and well deserves its high reputation.
Price, per packet, 1*s*.

Datura chlorantha atroviolacea fl. pl.

Superb plant recently imported from Cochin China. It grows to about 3 feet in height, with dark violet stems; each branch terminates in immense flowers, of a dark violet colour on the exterior and rather paler within; the bloom consists of several rows of petals overlapping each other, in similar form to the well-known Datura chlorantha. It is altogether a plant which can be highly recommended.
Price, per packet, 1*s*.

JAMES CARTER AND CO.,

SEED MERCHANTS and NURSERYMEN, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, and ST. OSYTH, ESSEX.

NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

High Beech, Essex.

A SELECT COLLECTION of ROSES, STANDARDS, and HALF STANDARDS on the DOG ROSE. DWARFS in Pots on their own Bottoms. Also a fine Collection of HOLLYHOCKS and DAHLIAS, with STOVE and GREENHOUSE PLANTS.

JAMES CRAWFORD.

STANDARD ROSES. — The above fine healthy plants, from 12*s* per dozen, and 80*s*. per 100, all H. P. HALF STANDARD ROSES, H. P., 9*s*. per dozeu, in any quantity, and must be cleared off.

Price to the Trade on application.

A remittance requested from unknown customers.

T. BUNYARD & SONS, Ashford.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates. (No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

A Very Extensive and Well-grown Stock of Roses,

CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—*s.*	*d.*
STANDARD HYBRID PERPETUALS ..	18*s*. to 24	0
HALF STANDARD ditto	15*s*. ,, 18	0
DWARF ditto	9*s*. ,, 12	0
STANDARD SUMMER ROSES	18	0
HALF ditto ditto	15	0
DWARF ditto ditto	9	0
DWARF BOURBON and TEA-SCENTED ..	12*s*. to 18	0
DWARF CHINA	9*s*. ,, 12	0
DWARF NOISETTE	9*s*. ,, 15	0
CLIMBING ROSES	9*s*. ,, 12	0
CLIMBING ROSES, without names, for covering banks, &c. .. .. .. per 100	30*s*.	4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE		5 0

Roses.

PAUL AND SON beg to offer, from their immense stock of the finest ROOTED and GOOD-HEADED Plants in the country, AUTUMNAL ROSES at the following reasonable rates.

OUR SELECTION.

FINE STANDARDS, 3 to 4 ft., 18*s*. per doz., 6*l*. 10*s*. per 100.
FINE DWARF ditto, 1 to 2 feet, 12*s*. to 15*s*. per doz., 5*l*. per 100.
FINE DWARFS, including TEA, NOISETTE, &c., 9*s*. to 12*s*. per doz., 75*s*. per 100.

PURCHASER'S SELECTION, for large Quantities special prices will be given. They would remind purchasers that with the present late season, Roses may be advantageously removed throughout March.

PRICED CATALOGUE on application.

"Old" Cheshunt Nurseries, Herts.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s*. per doz. ; 20*s*. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	*s.*	*d.*
50in 50 choice varieties	2	12	6
5 in 25 ,, ,, ...	1	5	0
12 in 12 ,, ,, ... 5*s*. to	0	12	0
Extra choice mixed, 3*s*. 6*d*. per doz. .. per 100	1	5	0
Fine mixed, 2*s*. 6*d*. per doz. .. .. ,,	0	17	6
GANDAVENSIS, strong roots, 2*s*. 6*d*. per doz. ,,	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3*s*. p. doz. ,,	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2*s*. 6*d*. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S. ; and 4, Windsor Terrace, Pimlico, S.W.

SCHIZOSTYLIS COCCINEA.—This beautiful plant was briefly described in our CATALOGUE of last year as a "NEW SCARLET TRITONIA." It proves to be the first representative of a new genus, and is now offered to the public for the first time. It forms spikes of flowers, varying in colour from deep rosy crimson to the vivid scarlet of the "Scarlet Duc Van Thol" Tulip. The flower stems, 2 to 3 feet high, are produced in the greatest profusion from the tufts of Tritonia-like leaves. More than 150 charming spikes of bloom adorned our greenhouses for two to three months during the past autumn and winter, and it is now coming abundantly into bloom again on the shoots formed last summer.

As it never ceases to form offshoots, and these appear to flower as soon as they attain maturity, there is every reason to believe that the plant will bloom thus throughout the greater part of the year, and may thus make an effective Bedding or Ribbon plant. Two plants have been planted in the open ground unprotected during the late severe frosts. They appear uninjured, so that it will be an invaluable addition for the outdoor department, as well as for Cold Greenhouses, &c.

Plants will be sent out the first week in May at 5*s*. each.

JAS. BACKHOUSE & SON, York Nurseries

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE AWARDED IN THE YEAR 1863 TO

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL),

TWENTY-ONE of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

SUPERIOR STANDARDS, 18s. per dozen and upwards.
SUPERIOR DWARFS, 9s. per dozen and upwards.

All the NEW ROSES, including PRINCESS of WALES (W. PAUL), LORD MACAULAY (W. PAUL), and BEAUTY of WALTHAM (W. PAUL), at lowest advertised prices.

PRICED CATALOGUE Free by Post.

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.
A trial is respectfully solicited.

PRICED CATALOGUES Post Free on application.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

GENUINE GRASS SEEDS.

PERFECTLY FREE FROM WEEDS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.,

Directs the special attention of intending purchasers to the following VERY FINE MIXTURES, which HE GUARANTEES are not to be surpassed in quality and selection.

In ordering Grasses a description of the land to be laid down is very necessary, that a suitable Mixture may be supplied.

MIXTURES for PERMANENT PASTURES and MEADOW LANDS.
Containing only the finest suitable Grasses and Clovers.
24*s*. to 30*s*. per acre.

MIXTURES for IRRIGATION or WATER MEADOWS.
Specially prepared from those kinds of Grasses most suitable for moist situations.
25*s*. per acre.

MIXTURES for PARK and FIELD LAWNS.
16*s*. per bushel.

MIXTURES SUITABLE for SHEEP WALKS.
Being composed only of kinds which thrive on poor soils.
24*s*. to 30*s*. per acre.

MIXTURES for RECLAIMED MARSHES or HEATH LANDS.
20*s*. per acre.

MIXTURES for GARDEN LAWNS, PLEASURE GROUNDS, GRASS PLOTS, BOWLING GREENS, &c.
18*s*. per bushel, 1*s*. per lb.
This Mixture has been most carefully prepared from the finest growing kinds, and cannot fail to give satisfaction.

MIXTURES for RENOVATING OLD PASTURES.
(Sow 10 to 12 lbs. per acre). Price per lb., 9*d*.

MIXTURES for ALTERNATE HUSBANDRY.
These Mixtures are formed of the best Clovers, Fescues, Rye-grasses, &c., &c., according to requirement, for either One, Two, or Three Years' Pasture or Hay.
16*s*., 18*s*., and 20*s*. per acre.
In ordering this Mixture it should be stated whether it is required for 1, 2, or 3 years' lay.

Where large quantities are required, J. V. will feel pleasure in quoting special prices.
Each kind of Grass and Clover Seed supplied separately if required.

Full DETAILED CATALOGUES of AGRICULTURAL SEEDS will be forwarded (Post Free) on application.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c, is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

RICHARD SMITH'S SEED of the following is to direct from the Growers, and most superb:—Imported Truffaut's Aster, Stock, Wallflower, and Balsam, 1s. per packet; Phlox Drummondii, Zinnia, Cockscomb, Larkspur, Dianthus and Variegated Poppy, 6d. per packet; English saved Calceolaria, Cineraria, and Fringed Primula, 1s. 6d. per packet; Mimulus, Rhodanthe, Lobelia, Pansy, Hollyhock, Petunia, Amaranthus ruber, Antirrhinum and Auricula-eyed Sweet William, 6d. per packet

Richard Smith, Seed Merchant, Worcester.

MESSRS. E. G. HENDERSON and SON will forward postage free on application, their NEW SEED CATALOGUE for 1864.

12 papers of NEW ANNUALS, introduced in 1864 for the first time, for 6s.
The ALBERT STOCK (New Intermediate, rich violet-purple), 1s.
The ALEXANDRA STOCK (new White Intermediate), 1s.
MIMULUS PARDINA (best new Hybrid Mimulus), 6d. and 1s.
PERFECTION SWEET WILLIAM (finest of all known strains). See Coloured Plate; 6d. and 1s.
French blotched FANCY PANSY, 1s. 6d.
PRIMULA SINENSIS, "CRIMSON EMPEROR," new, 2s. 6d.
TROPÆOLUM SPECIOSUM, rich scarlet, flowers and leaves like T. pentaphyllum, 1s.
COTTON PLANT, ornamental, 6d and 1s.
CLIANTHUS DAMPIERI, 1s. and 2s. 6d.
" " SPLENDENS, 2s. 6d.
TROPÆOLUM " TOM THUMB "MODEL," the best of bedding varieties, 1s.
RHODANTHE ATROSANGUINEA and MACULATA ALBA, 6d. and 1s.

The Wellington Nursery, St. John's Wood, London, N.W.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. Robert Fortune; the greatest novelty ever offered. Strong plants now ready from 18s. to 30s. per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12s. per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.

Thomas Ayres.

West Riding Seed Establishment, St. John's, Wakefield.

THE PROPRIETORS beg to announce they have received their new supply of VEGETABLE SEEDS, which have been tested, and will be found to be genuine. Their supply of FLOWER SEEDS comprises all the Novelties of the present season.

CATALOGUES will be forwarded free on application to William Barratt.

Grass Seeds for all Soils.



SUTTON and SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others: *From* Professor Lindley, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Present Prices are—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts ..20s. to	26	0
Best quality ditto, for Three or Four Years' Lay ..	21	0
Ditto ditto, for One or Two Years' Lay 12s. 6d. to	17	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6s. to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. "	16	0

The First Prize Medal was awarded to Sutton & Sons for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. Martin Sutton's "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing Sutton's LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*

Price 18s. per bushel, or 1s. per pound.

Quantities of not less than one bushel will be sent carriage free.

Sutton & Sons, Seed Growers, Reading, Berks.

Furze or Gorse (Ulex europæus).

SUTTON and SONS can supply any quantity of New Seed of this useful plant, which is now so extensively cultivated. New Seed, 1s. 3d. per lb.; or cheaper by the cwt. (Sow 24 lbs. per Acre for Feeding purposes).

Sutton & Sons, Royal Berks Seed Establishment, Reading.

New Lucerne Seed (Luzerne de Provence).

SUTTON and SONS have just imported a very fine parcel of New LUCERNE SEED, which they can offer at 10d. per lb., or cheaper by the cwt.

(Sow 20 lbs. per acre, in drills.)

Royal Berks Seed Establishment, Reading.

To the Trade.

MARSH and PERKINS, 42, Drapery, Northampton, have great pleasure in offering strong Autumn-struck Plants of the following, from Store Pots—

SCARLET GERANIUMS—Tom Thumb, Frogmore's Improved and Finedonensis.
AGERATUM MEXICANUM.
VERBENAS—Purple King, Géant des Batailles, Brilliant de Vaise, Lord Raglan, General Simpson, and Mrs. Holford.

The above at 8s. per 100; 70s. per 1000.

N.B. A reference or remittance requested from unknown Correspondents.

NEW PLANTS of 1863.
In strong healthy Plants.

NEW GERANIUMS, 24s. per doz. | New FUCHSIAS, 6s. p. doz.
" ZONALE, 12s. per doz. | " PETUNIAS, 6s. "
" CINERARIAS, 12s. per doz. | " VERBENAS, 4s. "
LONICERA AUREO-RETICULATA, 4s. to 9s.

H. Walton, Edgend Marsden, near Burnley.

CATALOGUES on application for one stamp.

CHEAP BEDDING PLANTS.—Autumn-struck GERANIUMS, Scarlet, White, Rose, Pink, Cerise, &c., in 100 sorts, 2s. 6d. per dozen; Variegated kinds, 3s. 6d. per dozen. CALCEOLARIAS, LOBELIA SPECIOSA, CERASTIUM, KONIGA, SALVIAS, and many others, all at 2s. 6d. per dozen. Copies of CATALOGUE for 1863 still to be had, and the Edition for 1864, enlarged and nearly all rewritten, being in fact a useful Flower Garden Manual, will be ready about the first week in April. I need hardly say that my Collection of these plants is second to none—the fact is patent. Cuttings supplied at 10s. per 100, in not less than 10 of a sort.

Apply to J. Scott, Merriott, Somerset. Post Office Orders on Crewkerne.

CHEAP PLANTS.—The following in strong Plants:—

	Per doz.—s.	d.		Per doz.—s.	d.
New Fuchsias of 1863 ..	6	0	Hepaticas (sorts)	4	0
Do. 1862 ..	4	0	Primroses .. .. 4s. to	9	0
Geraniums of 1863 (Bedding var.)	9	0	Polyanthus (finest mixed)	3	0
Lobelia Paxtoniana and five others of 1863 ..	4	0	Auriculas (border var.) ..	3	0
Mimulus of 1863	4	0	Lilies of the Valley ..	2	0
Pentstemons of 1863 ..	6	0	Pinks (finest named) 3s 6d. .. .. .. and	6	0
Pampas Grass (roseum) ..	9	0	Cloves (finest mixed) ..	4	0
Ageratum Prince Alfred..	6	0	Violets (sorts)	3	0
Lonicera aureo-reticulata .. .. 6s. and	9	0	Gentiana acaulis	4	0
Hollyhocks (finest named) .. .. .. 6s. to	9	0	Phlox (fine named) ..	4	0
			Pansies (fine named) 3s. to	6	0
			Dahlias (ground rts.) 9s. to	12	0
			Do. (pot) .. 4s. to	6	0

100 Hardy Herbaceous Plants, in 50 varieties, for 25s.
☞ Carriage of Parcels amounting to 20s., paid to London.
Post Office Orders on Castle Hedingham.

William Dillistone, Munro Nursery, Sible Hedingham, Essex.

Major's Half Shrubby Calceolaria Seed for 1864.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is prepared to supply the above as usual, in packets at 2s. 6d. each, or three for 5s., post free. The seed is very select, having been saved from large and strikingly beautiful flowers. Postage stamps in payment.

N.B.—To suit parties not raising their own Seedlings, Mr. H. M. will have nice young plants ready to send out in April, in parcels of 20 for 6s., or three for 15s., post free.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.

Seed, saved only from finest varieties, new and very choice, 2s. 6d. or 5s. per packet; Collections of 12 separate named varieties, 4s. to 10s.; young Seedling plants, from best varieties, 30s per 100, or 4s. per dozen; Bloomed Seedlings of last year, with colours named, 6s. per dozen, or 30s. per 100.

Address, W. Chater, Nurseries, Saffron Walden.

To the Trade.

J. NUNN has a Surplus of the following Spring-struck Plants in Store Pots to offer at 10s. 6d. per 100, viz.—VERBENAS, FUCHSIAS, DAHLIAS, TROPÆOLUMS, AGERATUMS, HELIOTROPES, LOBELIA SPECIOSA, JACOBŒAS, Purple, PYRETHRUMS, PETUNIAS Single and Double; well rooted plants, now fit for Potting. Payments in three months from date of Invoice, or 5 per cent. discount for Cash. First-class PRIMULA SEED, 1863, 2s. per packet.

J. Nunn, St. Augustine's Nursery, Norwich.

SEAFORTHIA ELEGANS.—WANTED, a Large Specimen. Price and size to J. R., *Gardeners' Chronicle* Office, W.C.

The Letters in answer to this Advertisement having been lost in the Post, their repetition is requested.

WANTED, Large TRAINED PEACHES and NECTARINES.—The undersigned require four PEACHES and three NECTARINES to furnish a Peach House. Must be large, handsome, well-trained trees in a bearing state. State kinds, diameter, and all particulars to

Francis & Arthur Dickson & Sons, The "Upton" Nurseries, Chester.

300 TONS SEED POTATOS.

The above are from a well-known selected stock, the quality of which has been established for several years. They have been grown upon Moss Soil, and are of fine appearance. They are warranted genuine, and entire confidence may be placed in the purity of the stock. The sorts are

DALMAHOY and RED BOG, earliest. | WALKER'S REGENT.

For Price and further information apply to

SMITH and SIMONS, SEED MERCHANTS, GLASGOW.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

VEGETABLE SEEDS, amounting to 21s., sent Carriage Paid. FLOWER SEEDS, sent Post Paid.
SEAKALE ROOTS, 5s. 6d. and 7s. 6d. per 100.
ASPARAGUS ROOTS, 2 years old, 3s. 6d. per 100; 3 years old, 5s. 6d.; 4 years old, 7s. 6d.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING.

Hardy Annuals.

			s.	d.				s.	d.
319.	100	Packets of beautiful varieties, including the most effective ...	21	0	324.	100	Packets, including those introduced in 1862, 1863, and 1864 ...	30	0
401.	50	Ditto ditto ditto ..	10	6	405.	50	Ditto ditto ditto ...	15	0
462.	30	Ditto ditto ditto ...	5	6	406.	30	Ditto ditto ditto ...	10	6
403.	21	Ditto ditto ditto ...	3	6	407.	21	Ditto ditto ditto ...	7	6
404.	15	Ditto ditto ditto ...	2	6	408.	15	Ditto ditto ditto ...	5	6

Half-Hardy Annuals.

			s.	d.				s.	d.
409.	100	Packets of the most beautiful varieties	30	0	412.	21	Packets of the most beautiful varieties	5	6
410.	50	Ditto ditto ditto ...	15	0	413.	15	Ditto ditto ditto ...	4	6
411.	30	Ditto ditto ditto ...	10	6	414.	10	Ditto ditto ditto ...	2	6

BARR & SUGDEN'S COLLECTIONS OF VEGETABLE SEEDS for One Year's Supply.

								£	s.	d.
No. 6	contains 33 qt. of	Peas, Beans, and other Seeds in proportion					for	£3	3	0
No. 5	"	20 qt.	ditto	ditto	ditto	ditto		2	2	0
No. 4	"	13½ qt.	ditto	ditto	ditto	ditto		1	10	0
No. 3	"	10 qt.	ditto	ditto	ditto	ditto		1	1	0
No. 2	"	13⅓ pt.	ditto	ditto	ditto	ditto		0	15	6
No. 1	"	7 pt.	ditto	ditto	ditto	ditto		0	10	6

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

BARR and SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

AGRICULTURAL SEEDS (Delivered Carriage Free),

OFFERED BY

THE LONDON SEED COMPANY, LIMITED,

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE DIRECTORS of the COMPANY beg to call the attention of the Public to their STOCK of AGRICULTURAL SEEDS, which has been grown especially for the Company by Growers of the highest reputation.

Mixtures of Grasses can be supplied for Permanent Pasture, allowing 2 bushels of Grass Seed and 12 lb. of Clovers per acre ... ... per acre 24s. to 30s.	**Mixture for Hay in Orchards ... ... per acre 24s.**
	Mixture for Heathy or Moory Lands ... ... per acre 24s.
	Mixture for Uplands and Sheep Walks per acre 24s. to 30s.
Mixture for Laying Down Permanent Lawns, per bushel 16s., per lb. 1s.	**Mixture for Water Meadows ... ... per acre 24s.**
	Mixture for Renovating Old Pastures ... ... per lb. 9d.

In giving Orders for the above Selections, it is respectfully requested that the quality of the Soil be given for which the Seed is required.

Perennial Rye-grass ... ... per bushel 5s., 6s., and 7s.	**Foreign Red Clover ... ... per cwt. 50s. to 60s.**
Italian Rye-grass ... ... per bushel 5s. and 6s.	**Cow Grass ... ... ,, 60s. to 80s.**
	White Dutch ... ... ,, 70s. to 90s.
English Red Clover ... ... per cwt. 56s. to 65s.	**Trefoil ... ... ,, 30s. to 36s.**

Alsyke.—The Company possess a very fine stock of English saved Seed of this most valuable Clover, which can be supplied at the reduced price of 84*s.* to 90*s.* per cwt.

TURNIPS.

LONDON PURPLE-TOP SWEDE .. . per lb. 0*s.* 9*d.*	PURPLE-TOP SCOTCH . .. . per lb. 9*d.*	LINCOLNSHIRE RED .. .. per lb. 8*d.*
PLYMOUTH SWEDE .. .. ,, 1 0	GREEN TOP SCOTCH .. .. ,, 9*d.*	GREEN NORFOLK .. .. ,, 8*d.*
MARSHALL'S SWEDE .. .. ,, 0 9	STUBBLE .. .. ,, 9*d.*	TANKARDS in Varieties .. .. .. ,, 9*d.*
GRANT'S PINE-APPLE SWEDE .. . ,, 1 0	CORNISH HOLDFAST .. .. ,, 9*d.*	DALE'S HYBRID .. .. ,, 9*d.*
EAST LOTHIAN SWEDE .. .. .. ,, 0 9	GREY STONE .. .. ,, 9*d.*	
SKIRVING'S SWEDE .. .. ,, 0 9	POMERANIAN WHITE GLOBE .. .. ,, 8*d.*	ORANGE JELLY .. .. ,, 9*d.*

CARROTS.

LARGE WHITE BELGIAN .. .. .. per lb. 1*s.* 0*d.*	LARGE RED ALTRINGHAM .. .. .. per lb. 1*s.* 6*d.*	LARGE YELLOW BELGIAN .. .. .. per lb. 1*s.* 0*d.*

MANGEL WURZEL.

HAMBLINGS DEAN PRIOR LONG RED .. per lb. 1*s.* 0*d.*	LONG YELLOW .. .. per lb. 6*d.*	YELLOW or ORANGE .. .. per lb. 0*s.* 6*d.*
LONG RED .. .. ,, 0 6	RED GLOBE .. .. ,, 6*d.*	FISHER HOBBS', fine stock .. .. .. ,, 1 0

PARSNIP, LARGE CATTLE ... ... per lb. 1*s.*

CABBAGE.

LARGE DRUMHEAD .. .. per lb. 2*s.*	THOUSAND-HEADED .. .. per lb. 2*s.*	DWARF FLAT POLE .. .. per lb. 2*s.*

SAVOY, LARGE DRUMHEAD, per lb. 2*s.* 6*d.* KOHL RABI, GREEN and PURPLE TOP, per lb. 2*s.*

Special quotations will be given for large quantities of Agricultural Seeds.

THE GENERAL FARM DIRECTORY AND PRICE CURRENT,

WITH FULL INSTRUCTIONS FOR THE MANAGEMENT OF A FARM FOR EVERY MONTH IN THE YEAR,

WILL BE FORWARDED GRATIS AND POST FREE TO ANY ADDRESS IN THE UNITED KINGDOM.

COLLECTIONS of GARDEN SEEDS, 10s. 6d., 15s, 20s., 30s., 40s., 60s. carriage free. **COLLECTIONS of FLOWER SEEDS**, 3s., 6s., 12s., 20s. postage free. *See* GENERAL PRICE CURRENT.

All Seeds delivered Carriage Free.

CATALOGUES and every information will be given on application at the Offices,

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s.* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S. ; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861.

The following is an Extract from the Report:—

"Mr. RIVERS's greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."

Fruit large, often measuring 9 inches in circumference.

Young Trees, full of blossom buds, 10*s.* 6*d.* each.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Half-standard Apples.

RICHARD SMITH being overstocked, will sell in lots of not less than 50, good Trees of best sorts, and true to name, at 30*s.* per 100; also Half-standard PEARS, and CHERRIES, at 50*s.* per 100.

RICHARD SMITH, Nurseries, Worcester.

STANDARD CHERRIES.

Extra fine.

STANDARD SPANISH CHESNUTS, extra fine for Avenues, 75*s.* per 100.

RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

PINE PLANTS.—The Subscribers have on Sale the following fine healthy young PINE PLANTS, free from insects:—

8 SMOOTH CAYENNE PINES, strong plants.
12 Do. do. do. smaller do.
100 QUEEN PINES, Succession plants.

Price on application.

THOMAS KENNEDY & Co., Nursery and Seed Establishment, Dumfries.—March 19.

EXTRA strong bushy PRIVET, adapted for making a thick Hedge soon, 8*s.* per 100, or 60*s.* per 1000.

50 very strong Fruiting RED CURRANTS.
25 " " " BLACK NAPLES CURRANTS.
50 best sorts of GOOSEBERRIES, in 6 varieties.

The above collection for 30*s.*

CHAS. SOUTHBY, Nurseryman, Clapham, S.

WM. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	" Portugal, 1 to 2 feet
" dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	" Turkey, 3 to 4 feet
" standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

WILLIAM BARRON'S SELECT PRICED CATALOGUE of HARDY CONIFEROUS and other ORNAMENTAL PLANTS for 1864, with Supplement of valuable Importations from Japan, is now ready, and may be had Post free on application.

W. B. begs to call attention to his magnificent Specimens of the Rarer CONIFERS, many of which are not to be elsewhere met with. Gentlemen wishing for a fine plant, well grown, are respectfully invited to inspect the Elvaston Nursery, which is only one mile from the Borrowash Station on the Derby and Nottingham Railway.

Elvaston Nurseries, Derby.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0

SUTTON'S CATALOGUE of SEEDS will be sent post free.

SUTTON & SONS, Seed Growers, Reading, Berks.



FLOWER SEEDS

FREE BY POST.	£	s.	d.
The best 100 sorts of FLOWER SEEDS, hardy, half hardy, and tender, with instructions ..	1	1	0
The best 50 sorts do. do.	0	10	6
The best 36 sorts do. do.	0	7	6
The best 24 sorts do. do.	0	5	0
The best 50 sorts, all hardy and very distinct in colour	0	10	6
The best 36 sorts, all hardy and very distinct in colour	0	7	6
The best 24 sorts, all hardy and very distinct in colour	0	5	0

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHOICE NEW FLOWER SEEDS.

Free by Post.	Per pkt.—s.	d.
AMARANTHUS MELANCHOLICUS RUBER ..	1	0
CLARKIA INTEGRIPETALA MARGINATA ..	0	6
GODETIA THE BRIDE	0	6
HELIPTERUM SANFORDII	1	0
KAULFUSSIA ATROVIOLACEA	1	0
LEPTOSIPHON HYBRIDUS	0	6
LOBELIA PAXTONIANA	1	0
LUPINUS ALBO-COCCINEUS	1	0
MIMULUS MACULOSUS	1	0
RHODANTHE ATROSANGUINEA	1	0
" MACULATA ALBA	1	0
TAGETES SIGNATA PUMILA	0	6

For full description of the above choice New Annuals, see SUTTON'S AMATEUR'S GUIDE, which will be sent to any address on receipt of 6 stamps, or gratis to customers.

SUTTON & SONS, Reading, Berks.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
DOBSON'S SUPERB PANSY, 1*s.*, 2*s.* 6*d.*
DOBSON'S SUPERB BALSAM, 1*s.*, 2*s.*
DOBSON'S SUPERB LOBELIA SPECIOSA, 1*s.*
DOBSON'S SUPERB HOLLYHOCKS, 1*s.*, 2*s.* 6*d.*, 5*s.*

The Trade supplied on liberal terms.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

JOHN KERNAN, SEEDSMAN, 4, Russell Street, Covent Garden, W.C., has now on Sale an excellent Assortment of VEGETABLE and FLOWER SEEDS of the choicest description, selected, regardless of expense, from Growers pre-eminent for the superiority of their Stocks, as J. K. always considers that 100 seeds warranted to grow are far cheaper than 1000 whereof not 10 will germinate.

PEAS. Per quart—	s.	d.
Daniel O'Rourke	1	0
Sangster's No. 1	1	0
Early Emperor	1	0
Climax or Napoleon ..	1	0
Champion of England ..	1	0
Scimetar	0	9
Ne Plus Ultra	1	0
Fairbeard's Surprise ..	1	0
Knight's Dwarf Green Marrow	1	0
Matchless Marrow ..	1	0
Hair's Dwarf Mammoth .	1	0
British Queen	1	0
And all other varieties.		

BEANS.		
Early Mazagan	0	6
Early Longpod	0	6
Johnson's Wonderful ..	0	8
Taylor's Broad Windsor .	0	8
Green Windsor	0	8
Dwarf Fan or Bog ..	0	9
Scarlet Runners	1	6
Painted Lady do	1	6
Dwarf French do. ..	1	6
And all the best varieties.		

BEET. Per oz.		
Dwarf Red	0	6
Pine Apple	0	6

BROCCOLI.		
Early White	1	0
Late White	1	0
And all other varieties.		

CABBAGE.		
Early Nonpareil	0	6
Ne Plus Ultra	0	6
And all the choicest varieties in cultivation.		

CARROT. Per oz.		
Early Short Horn for forcing	0	6
Early Scarlet Horn ..	0	4
James's Intermediate and other varieties.		

CRESS. Per pint.		
Curled	1	0
Plain	0	6

LETTUCE. Per oz.		
Finest varieties of White and Brown Cos ..	1	0
Cabbage of every sort ..	1	0

MUSTARD .. per pint	0	6

ONION. per oz.		
White Spanish	0	6
James' Long Keeping ..	0	6
Silver Skin for pickling	0	9
Tripoli and other choice varieties.		

RADISH. per pint		
Scarlet Olive shaped ..	1	6
Long Scarlet	1	6
Turnip, red and white ..	1	6

RAPE .. per quart	1	0
SPINACH, round, pr pint	0	6

TURNIP, per oz.		
Early Dutch	0	3
Early Six-week	0	3
Orange Jelly	0	3
American Stone	0	3
Teltoe, for stewing ..	0	3
And all other varieties.		
Asparagus and Seakale Plants, Garlic and Shallots, Russian Mats, Cuba Bass, Japan Flax, Chinese Grass, Peruvian Guano, Fumigators, &c.		

COLLECTIONS of HARDY, HALF-HARDY, and TENDER FLOWER SEEDS, including the Newest introductions up to the present time, in 30 varieties, 5*s.* Imported German Asters, Stocks, Larkspurs, Wallflowers, New Large-flowered Mignonette, Balsams, Double and Single Zinnias, Petunias, Geraniums, Calceolarias, Cineraria, Phlox, &c.

AGRICULTURAL SEEDS.

Carrot, Altringham	Turnip, Skirving's Swede
" White Belgian	" Yellow Bullock, and other approved sorts
Mangel Wurzel, Long Red	RYE-GRASS, Perennial and Italian. CLOVER, Red, White, and Alsike.
" Yellow Globe	
Parsley, Plain	
Turnip, White Globe	

COLLECTIONS of VEGETABLE SEEDS for Ordinary-sized Gardens, 20*s.*; for small ditto, 10*s.*, warranted to give satisfaction to parties, who are required to name in their order the articles of which they would prefer the largest quantity.

Gladiolus, Ixias, Double and Single Anemones, Ranunculus, Lilies, &c., should be planted now up to the middle of April.

J. K. offers his services in securing Ornamental Trees and Shrubs, Standard and Dwarf Roses, Orchideous and other rare plants, which are frequently sold by Auction in this neighbourhood at much lower prices than they can be procured from Nurserymen.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 74) for the present Spring is ready, and may be obtained Gratis at

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well-rooted Seedling Plants of this lovely FIR, from 2 to 4 inches, in store pots. Per 100, 60*s.*; per doz., 9*s.*, including package.

Elvaston Nurseries, Derby.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

RHODODENDRON HYBRID CATAWBIENSE, from 4½ to 7 feet high; thickly set with bloom, 5*s.*, to 7*s.* 6*d.* each.

RHODODENDRON PONTICUM, 5 to 8 feet, 5*s.* to 7*s.* 6*d.* each.

GREEN HOLLIES, 7 to 10 feet, 7*s.* 6*d.* each.

Two ditto, 20 feet, moved last spring, very handsome, 63*s.* each.

CEDRUS DEODARA, 10 to 25 feet, very handsome, moved last spring; price on application.

G. BAKER, American Nursery, Bagshot, Surrey.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he can supply good healthy Plants on their own roots of this beautiful variety, at 21*s.* each.

For description, see *Gardeners' Chronicle* of March 5, p. 220. Plants may now be seen in flower at the Nursery.

Exotic Nursery, Tooting, Surrey, S.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10*s.*; 20 pair of Cuttings of ditto for 5*s.*; 25 pair of fine POMPONS for 10*s.*; 25 pair of Cuttings of ditto for 5*s.*

N.B. To save trouble all orders to be prepaid.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of New CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c., for 1864, is now ready, and will be sent post free on receipt of Two Stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is HEREBY GIVEN, that an ELECTION of THREE PENSIONERS on the Funds of this Institution, will take place in JULY NEXT.

All persons desirous of becoming Candidates will be required to send in their certificates and testimonials to the Committee on or before April 25, after which day they will not be received.

Preference will be given to those Candidates who may have subscribed for 15 years and upwards. Should there not be sufficient of this class, then the claims of those who have not subscribed so long or not at all, will be considered.

Printed forms of application may be obtained of the Secretary. EDWARD R. CUTLER, Secretary.

14, Tavistock Row, W.C.—March 19.

The Gardeners' Chronicle.

SATURDAY, MARCH 19, 1864.

IN continuation of our remarks at page 196, on the HORTICULTURAL GARDEN AT CHISWICK, we propose to offer a few further observations on the changes in a legitimate direction, which might be carried out there with good prospect of success, and which would tend in every way towards the improvement and advancement of Horticultural science.

Chiswick, it has been suggested, should become again a school of horticulture, and in becoming this, it should be rendered efficient by becoming also an exemplification of modern gardening in

every department. Now this is just what is wanted, and if the Council of the Society will but facilitate the realisation of this object, uninfluenced by foregone conclusions, the horticultural Fellows will not only be satisfied for themselves, but will be content that the non-horticultural Fellows should have their legitimate, and even, if need be, their illegitimate objects of amusement provided nearer home. And with less than this, we are confident that neither the horticulturists themselves, nor the country patrons of gardening, will be content.

What then is to be done? To provide for the improved education of young gardeners, so far as the means can be found, is one fixed idea which must not be separated from the future of Chiswick. Whatever, therefore, is attempted to render the garden more horticulturally attractive to the scientific body of Fellows, must be consistent with this idea. We see no difficulty in the way of combining the two, nor any objection to the combination. For both purposes we want and we must have all the departments of horticulture fully represented by an exemplification of the culture of all the principal subjects which belong to it, and by the most complete collections which it is possible to keep up, of the different varieties of each—the collections being as much a necessity as the demonstration of culture. A garden manager requires to be taught not only *how* to cultivate, but *what* to cultivate; and the garden owner and scientific horticulturist require to see and thus to become acquainted with the best kinds of the different cultivated plants, whether fruits, vegetables, or flowers, as well as to learn the utility or otherwise of new modes of practice, and of novel appliances. All this must be shown at Chiswick, before the garden can be considered to supply the wants of the present day, and of the present race of gardeners and garden owners.

When we look at the subject a little more in detail, it will soon become evident that the perfect condition of the practical department at Chiswick, in which some of our friends affect to believe, is in fact very far from being as yet realised. Taking Fruits first, as being a most important department, we shall find that Grapes are well represented, better, perhaps, than ever has been done previously in any one place, and we have also very successful Grape growing; but Chiswick still wants, before it can be regarded as reasonably complete even in respect to Grapes, a well-constructed house in which pot Vines could be grown, so that an extensive series of sorts could be fruited together, and after being fruited, the Fellows could fairly get to see them; and then, this being done, we want the complete utilisation of the whole, which has never been attempted, if it has ever been dreamed of. The way we would horticulturally utilise the splendid collection of Vines now at Chiswick would be—having a house in which pot Vines could be seen as well as produced—to grow the whole series of sorts in pots and fruit them simultaneously, and then to invite the Fellows to a Grape Promenade. It could not perhaps be possible that the Fellows should taste the varieties, but at least they could all be legibly named, and the merits and adaptabilities of the better and more useful sorts, decided on the authority of the Fruit Committee, could be indicated. A Grape Promenade would be very enjoyable if a fine day were to be selected; we have, however, more yet to say on this subject of summer promenades at Chiswick.

But these matters by no means exhaust the interest existing, and to be excited amongst fruits; and if, as we thus see, Chiswick is even yet deficient in respect to its strongest point—Grapes, what shall be said with respect to many other choice fruits, the deficiency in which is still more palpable? Look at Pine-apples, for example: not one, as far as our eyes have discovered, is to be found within the boundaries. Now all the good sorts of Pine-apples at least—and there are some quite new amongst them — should be grown there, in order that the garden students might learn to know their peculiarities and their merits. A house, as we have said, ought to be provided for pot Grapes, and the pits in which pot Vines are now so well grown, but rendered so utterly inaccessible to visitors generally, would then be liberated for the Pine-apples. Then as to Peaches: though there is a fine Peach wall, we question if good examples of all the best Peaches could be found upon it. Peach house there is none; and though this might be supplied by one division of a genuine orchard house, if it existed, yet, as a matter of fact, the genuine orchard house does not exist there. Strawberries, though a tolerably full collection, are, we believe, by no means complete; yet even the materials already existing in the garden would form a good foundation for a Strawberry promenade, in which tasting might doubtless be made part of the programme, the appearance of the sorts being shown to good advantage by a pot-grown plant or two of each. For the display of such things as these the great conservatory would serve admirably. And as the Society has announced a Strawberry fête during the present year, where can so fitting a place to hold it be found, as in the immediate neighbourhood of the beds of Strawberries at Chiswick—where there might be some chance of getting at the proper flavour of the fruit, as well as of feasting the eye upon its external charms, the former a thing impossible at the end of a second day's show in London? Then a real orchard house—with or without heat, as the disputants on this knotty point may settle to be the proper thing—might be made full of interest by means of Apples, Pears, Plums, Cherries, &c., in pots or otherwise as most convenient; the plants would show the appearance of the several kinds, and information might easily be appended to them respecting those which were known to be of good quality. Such a series as this would add increased interest to the proposed promenade in the Grape season, even though some of them were not themselves fully matured. Of the hardy winter fruits, too, a fine display of samples might be and ought to be made in some more accessible place than the dark and confined fruit room. Even this by no means exhausts what might be accomplished with fruits in the way of teaching—the learners being not only young gardeners, but also their elders.

To a certain extent the same principle of growing, in their proper season, the different vegetable crops, and of illustrating the choice of varieties, should be carried on, announcements being made in the Society's Journal as to when particular crops would be in a state for examination by those interested in them. The bulk of the produce might be, as now, utilised by being sent to market. We, however, pass on to flowers.

As with fruits, so with flowering plants, there should be in a school of horticulture examples of all the departments of flower culture, and of all the usual flowers met with in gardens. There should be, that is, a selection of horticulturally useful stove plants, and of greenhouse plants; there should be samples of the most useful Orchids properly grown, and when a subject like that of the cool treatment of Orchids is occupying public attention, it should be shown in practical operation at the head-quarters of British gardening; there should be the best kinds of the popular decorative plants, as Pelargoniums, Fuchsias, Calceolarias, &c.; there should be conservatory spring flowers and conservatory autumn flowers, so managed that the student might learn how to keep up a supply of these necessities of a first-class garden. And all these flowers and plants might be so managed as to serve the double purpose of instructing both the public and the pupils in the respective matters on which they need information, and at the same time of aiding in the ornamentation of the town garden at South Kensington.

Out-door flowers—summer plants and perennials—should be largely grown at Chiswick, as samples of the materials available for garden decoration at all seasons. Good collections, as complete as circumstances will permit, should be maintained and planted out with some regard to effect, in order that Fellows and their gardeners, when they want to introduce any novel elements into their flower-gardens, may see by glancing at a full series, what kinds will best suit their purpose. Some persons, we know, entertain the notion that these things could be done as well at Kensington, but this only shows how the want of practical knowledge may lead well-intentioned men astray; for leaving aside the question of climate and situation, which in itself is enough to negative such a proposal, there remains the insuperable objections that Kensington is or ought to be planted with a limited number of appropriately fitting colours, and that the medley of a trial ground would be utterly out of place there. No, this proving of garden flowers is horticultural work, and Chiswick is the proper place for it. At Chiswick it has indeed been carried on with considerable success; but this brings us to a point we have previously hinted at, namely, that improvement is needed to make the trial of garden flowers there, what it should be.

When the trials of summer flowers were commenced some few years ago, a space of enclosed ground, long accustomed to be occupied by beds of flowers, was given up for the purpose. But the liberal contributions of the growers and raisers of this class of plants more than filled the allotted space, and certain subjects, as Stocks and Asters, and subsequently Hollyhocks and Dahlias, were banished to other parts of the garden, the original space being still crammed to repletion. Now what should be done with these flowers is to give up to them a site, where they might be disposed with some regard to effect, and with full regard to the space required by each to develop its proper character. The ground hitherto used is not only worn out for the purpose, but it is too limited, besides being too close and confined. It so happens, however, that to the eastward of the great conservatory, there is an unoccupied space which would exactly suit this purpose, and where the plants would be seen to very much greater advantage than in any other spot in the garden. A flat surface of Grass flanks both sides of a broad gravel path, and here on the Grass they might be located, in a series of suitable beds, with ample space for each to be properly seen, and for the superior kinds to be distinctly labelled as soon as the Committee had completed their examination. Shortly after this has been accomplished, we hold that there should be a Floral promenade, to give the public a pleasant excuse for going to examine the flowers, and this would supply both instruction and gratification to a large number of that body of the Fellows who have gardens, and who therefore desire to see the gardening status of the Society maintained in its integrity.

Besides these things, such matters as geothermal culture ought to be exemplified in our national horticultural garden; and there is no reason why hybridisation should not be carried on, and a series of useful novelties obtained for the Fellows' use. Let no narrow minded person say that this would injure trade, and so object to it. On the contrary it would arouse interest in, and give an impetus to gardening pursuits, which would be highly beneficial to all, whether in trade or not.

We must leave other matters for the present, merely remarking that Chiswick ought to have next summer at least its Strawberry Promenade, its Floral Promenade, and its Grape Promenade, not as a source of revenue, but for the information of the Fellows.†

IT has been often remarked, that whilst the FLOWER SHOWS in Paris and other parts of France are inferior in respect to the flowers, and plants, and fruits exhibited, they are much better arranged, and produce a much more decorative general effect than our own. Somehow there seems to be a prejudice in the British exhibitors for flat surfaces covered with shabby green baize, ranged in long monotonous lines, and at every flower show a critical observer may remark the want of neatness in the details. Nevertheless like the seats in an amphitheatre, which display the spectators to the best advantage, there is no doubt that plants and flowers are seen much better upon stages of different heights.

It may be difficult to provide a uniform system of stages to suit exhibitions of all kinds of things, but the result could be easily obtained if the exhibitors themselves would come prepared to make their own arrangements. At the last Hyacinth show at the Royal Horticultural Gardens, some flowers were shown on flat tables and some on stages, and the difference of effect was remarkable. Again, our neighbours on the continent are accustomed to find shrubs and Mosses as backgrounds and fore-grounds for their collections. It was pleasant to see at the late Hyacinth show that many exhibitors had decorated their pots with Mosses. The idea might be carried by them much further than it is at present, with good effect. In their very admirable display Messrs. CUTBUSH had caused each pot to be ticketed with the name of the flower in a much neater fashion than is usually done, but as the label was white and affixed close to the stem of the flower, it attracted the eye in the first instance more than the flower itself. If the ticket were of a neutral sage-coloured tint, or, better still, of a neutral tint, affixed to the pot itself, the flower, and not the ticket, would become the principal object in view.

Something was done at the last Horticultural Show to make the exhibiting space secure from the weather. There is no doubt the arrangements could be carried much further, and instead of a wet day deterring people from visiting the shows, it might be made to render them all the more attractive, by presenting the exhibition to the public as a beautiful and comfortable retreat, altogether independent of the elements. With

the great amount of covered space at command, the Horticultural Society has the opportunity, if it will but use it, of making its shows altogether independent of our capricious climate.

New Plants.

271. Cattleya quadricolor, *Lindl. in Paxton's Flower Garden*, i. p. 6.

C. caulibus angustis compressis monophyllis pedunculis 1–2 floris, sepalis oblongo-lanceolatis obtusis, petalis spathulatis 3-plo latioribus, labello indiviso cucullato haud dilatato margine anteriore subcrispo.

Habitat in regno Novo-Granatensi. *Rucker.*

Stems narrow, compressed, 6 or 8 inches high, often as long as the leaves, which are more erect than in other species of the genus. Peduncles usually bearing two flowers, which are not quite 4 inches across; these, with the exception of the lip, are of the purest white. The lip itself is rolled round the column, and trumpet-shaped (not spreading out in front, like many Cattleyas), and adorned with three colours: a rich purple transverse blotch forming its upper extremity, to which succeeds a band of yellow, which is itself succeeded by large patches of pale rosy lilac, fading away as they approach the base of the column.

This beautiful Cattleya is quite distinct from every previously known species of this genus. A single plant of it was introduced many years ago by Mr. Rucker from New Grenada, and to his kindness I am indebted for the specimen that is now (March 1) flowering at Knypersley, and from which the above description has been drawn up. It exactly accords with a sketch that I remember having seen in Dr. Lindley's herbarium, taken from a flower communicated by Mr. Rucker himself, and to which the name of quadricolor was assigned—no doubt because the pure white of the sepals and petals, with the purple, yellow, and lilac of the lip, made up the sum of four colours. I do not think the plant relishes as much heat even as other Cattleyas do, but as it is as yet exceedingly rare, it has not been possible to ascertain this or the contrary by experiment, and unfortunately we have no precise information as to the elevation or climate of the locality whence it was originally brought to Europe.

This is the only genuine white Cattleya with which I am acquainted, for the so-called C. crispa is a Lælia, and C. Wageneri and C. candida are mere varieties of C. Mossiæ and C. Harrisonii.

While on the subject of Cattleyas I may mention that a plant of C. pallida that I received many years since from the Horticultural Society, and which was sent from Mexico by Hartweg, is now flowering with me for the first time. It is clearly, as Reichenbach suspected, the C. Warscewiczii delicata of Mr. Warner's book. C. Trianæi is another variety of the same species; indeed I much doubt whether the true C. Warscewiczii is at present to be met with in this country, a circumstance that is greatly to be regretted, as, judging from the specimens in Dr. Lindley's herbarium, it must be a superlatively beautiful thing.

272. Dendrobium luteolum (*Bateman*).

D. caulibus erectis (?) foliosis ramosis, foliis lanceolatis apice obliquis acutis racemis lateralibus 2-4 floris subæqualibus, sepalis ovato-lanceolatis obtusis lateralibus in mento longe producto incurvo connatis, petalis conformibus, labelli trilobi lobis lateralibus erectis rotundatis intermedio majore integro oblongo convexo emarginato disco tomentoso.

Habitat in Moulmein. *Parish.*

With the exception of a few reddish streaks on the lip, the flowers of this new Dendrobium are of a uniform pale primrose tint. Indeed, I should have called it D. primulinum, if that name had not been already appropriated to another and totally different species. The mentum (or spur) is about the length of the ovary, and is curved inwards. The flowers are about 2 inches across, and are remarkable for their straight margins or edges, which are not waved or curled, as in most Dendrobia; they are borne in short lateral racemes that come forth towards the upper (not the end) portion of the stems. With me these racemes are two-flowered; but in a much finer specimen from Clapton, of which a drawing has been prepared for the "Botanical Magazine," as many as four flowers appeared together, and possibly this number may be exceeded when the plant—which is of the easiest culture—has been longer established. Even now it is very ornamental. Its nearest affinity is with D. rhombeum.

Moulmein seems to be inexhaustible in new Dendrobia; Messrs. Hugh Low & Co. can already boast of having introduced nearly a dozen species that were previously unknown, among which the present is one of the most distinct.

273. Dendrobium infundibulum (*supra*, p. 1194, 1862).

This beautiful species is now finely in bloom at Knypersley, but the stems and flowers are very different from those of the specimen that flowered with Mr. Rucker, and to which my description referred. The stems of my plant are long and grassy, those of Mr. Rucker's short and clavate, and while with Mr. Rucker the markings of the labellum were a rich Roman red, with me they are deep orange. No doubt the species will prove to be variable, but all the varieties promise to be admirably beautiful, while their flowers retain their freshness for weeks.

274. Dendrobium Fytchianum (*Bateman*), *supra*, p. 100.

I find that I was mistaken in supposing this plant to be altogether new. I am now satisfied that in reality it is a variety of D. barbatulum (*Paxton's Fl. Gard.* iii., p. 113), but as that species is represented as having its sepals and petals nearly equal, and as in my specimens the petals were thrice as broad as the sepals, I was at first disposed to consider the Moulmein plant to be quite distinct. Many Indian Dendrobia are especially prone to vary and run into each other, as poor Griffiths long ago remarked, and hence there is great difficulty in settling specific distinctions until after the examination of a large number of specimens. *J. B., Biddulph Grange.*

NOTES ON GARDENS.—No. V.

Backhouse's Nurseries, York. (*Second Notice.*)

Leaving the first group of houses, a short glazed verandah conducts to a range 160 feet long, chiefly occupied by a general collection of greenhouse plants, Vines, succulents, &c. In a large house devoted to the raising and culture of Vines, a fine stock of Schizostylis coccinea, the first representative of a new genus imported by Messrs. Backhouse under the name of a "new scarlet Tritoma," and recently figured in the Botanical Magazine, was coming rapidly forward. If it should prove hardy, which was confidently expected, it will be a great acquisition to the outdoor as well as indoor department, flowering as it does at a time when brilliant things are scarce or absent. Here also were many fine flowering bulbs of Gastronema sanguineum, a new and handsome bulb from South Africa, with orange-red or scarlet blossoms 3 to 4 inches across. Another house, used for Vines during the early part of the year, contained a lot of Agaves, Yuccas, and such plants, amongst them a fine specimen of Yucca filamentosa variegata, with Yucca tricolor, quadricolor, and others, Agave schidigera and filifera, &c., the whole mixed up and contrasting well with the commoner forms of vegetation. The greenhouses were filled with Ericas, Geraniums, &c., clean and well done, but with nothing among them claiming special notice, except perhaps a lot of fine specimens of the Shanghae Palm interspersed. This is an interesting plant, from the strong probability of its adding the Palm to the garden landscapes of Britain. If living in the contumacious clay of north-western London for the past four years without a rag of protection of any kind, be a proof of hardiness, Chamærops Fortuni is certainly so. A young plant survived with the Messrs. Backhouse, when the thermometer fell nearly to zero several years ago, but was killed the following year by being "protected" with Spruce Fir boughs: not being able to bear the moisture and cold combined, though the temperature was not so low by 10 or 12°.

Having "passed on" through the principal houses, the next movement was in a downward direction; along a winding passage terminated by a rustic doorway, and opening into the subterranean glen or partly filled crevasse, known as the "Trichomanes house," which from its unique design and arrangements, and the wondrous collection of Trichomanes and Hymenophyllums cultivated therein, is without doubt the most remarkable and interesting garden structure in England at the present moment; 120 tons of rough sandstone were used in its construction; and though in many parts the huge rocks overhang—though every variety of inclination is presented by them—though the whole thing is of recent origin—yet, without the aid of bricks or cement, so naturally and safely are they placed, that one fancies the scene a mountain rent through which the water had trickled for ages. The rocks reminded me of those under which I had crept years ago on the shattered sides of the Scalp Mountain in Wicklow, and one can fancy some such "covered way" being found there, were the opposing sides of that curious mountain to meet from depression.

The ground plan is in the form of an irregular horse-shoe, one limb being for the species of Trichomanes and Hymenophyllums from cool regions, and the other for tropical species. The two divisions are not separated by any door, but a huge stone drops across and forms a a low rude rocky arch, which is so placed that its summit is only a few inches higher than the ascending floor at the further extremity of the warm division, thus preventing the escape of the heated atmosphere till the whole of that portion has been charged with it. A still more remarkable effect is produced by this arch in generating atmospheric currents—and not more remarkable than valuable; for to this cause must be attributed the great success of the house. It will at once be seen that two atmospheres of different temperatures and degrees of moisture cannot remain quiescent. The warm and moist air admitted from a heated tank (thoroughly concealed) at the furthest extremity of the warm division, rapidly passes towards the arch, filling that division from its roof downwards. A cool current admitted from the open arch continually passes underneath the other, in the opposite direction. This in passing condenses the vapour of the upper warm current in so remarkable a manner, that everything within the range of that current is incessantly covered with dew. And such dew! every Fern, nay every pinnule, and every particle of moss was radiant with tiny drops that glistened like polished diamonds and emeralds, for the reflection of light—now green, now gold—on these living gems was wonderful. And yet this moisture, incessant day and night, scarcely touches them. They would not bear it, so delicate is their texture. It stands upon their tiny hairs, hardly touching the real substance of the frond. Even the sprinkling of the finest watering pan or the thinnest misty spray is too much, so admirably are their delicate forms fitted by the hand of the great Creator to be nurtured by evening dews, and defended by the deep recesses and intense shade of tropical forests from the storms and tempests which abundantly assail the elevated and robust forms of vegetation. In this house they have "a little world of their own," with its "equatorial and polar currents" constant in their operation. Close the arch with a door and the spell would be broken; atmospheric motion, always so valuable to vegetation, would be stopped, and the grand condensing process ruined.

As before stated, the entire structure is underground, 9 to 10 feet deep and very narrow, the cooler division being in some places considerably deeper and lower than the warmer. Iron bars span the chasm, bearing the large slabs of thick glass which form the roof. The top is of course the only surface exposed to the influence of frost, and that danger is obviated by the introduction, just under the glass roof, of a common drain pipe, connected with the open air space round the boiler, by which means a thin and slightly warmed stratum of air is diffused just under the only place where frost could otherwise enter. The floor is formed of rough slabs of stone, and is always moist from the percolation of water by natural drainage among its fissures. In rainy weather the whole house filters water from its rocky sides, and the floor becomes a veritable watercourse, clean and pure-looking as a mountain streamlet. Abundant moisture in the atmosphere, and but little variation of temperature, are the natural results, and produce just the effect the Ferns desire, to judge from their appearance.

Some large and gloomy looking rocks surrounding a pool of clear water near the entrance are appropriated to the varieties of Trichomanes radicans, which here fruits abundantly. Opposite to and rivalling it in size and beauty was Hymenophyllum scabrum, from New Zealand, remarkable for the chaffy hairs that clothe its stalks. Further on were sheets of Hymenophyllum tunbridgense and Wilsoni; the former especially in wonderful luxuriance. Among them were fine plants of the beautiful Trichomanes reniforme and Hymenophyllum pulcherrimum, both New Zealanders; the latter with tripinnatifid fronds, 15 to 18 inches long, of the palest green. Next came two magnificent masses of Hymenophyllum demissum in two varieties, with more than 100 fronds, above 18 inches high, and covered with the minutest drops of "golden" dew. Near these the rare Hymenophyllum caudiculatum bid fair to put all others into the shade; nothing can exceed the beauty of its transparent fronds as they curve over the mossy rocks. Closely associated with them, and at the same time rivals to them, were H. cruentum and Trichomanes exsectum, the former with entire wavy fronds, 3 to 12 inches long, exquisitely veined, and so thinly transparent that I could easily read small print through the young ones; the latter like the finest highly divided green seaweed, 6 to 12 inches long, and pendent. In its own land this is said to hang from the roof of dripping caverns, and seems to luxuriate in any amount of water. Fringing the rocky arch, on the warm side, with myriads of its attenuated pendent glistening fronds, is Hymenophyllum valvatum, from the West Indies; and near it fine plants of Trichomanes Luschnathianum, a species that climbs 10 to 20 feet up the trees in Brazilian forests, throwing off sessile, highly divided fronds 18 inches long. Further on is a ledge from which droops the lovely Hymenophyllum interruptum, with linear pinnated fronds, covered with tawny hairs, and along with it Hymenophyllum sericeum in a young and small state. On another ledge was the noble Trichomanes maximum, recently introduced from Java. It resembles the Killarney Fern in having a thick creeping hairy rhizome, but has paler fronds nearly 3 feet in height when fully developed. In another shady and humid nook, climbing upon the trunks of young Tree Ferns, &c., are fine plants of Trichomanes scandens, with silky branched fronds 18 inches long, that shone like satin. Near these another ledge, covered with tufts of T. alatum, radiant with dew-drops; also the elegant T. trichoideum, running its slender rhizomes among a host of other species, and throwing off its fronds—like diffuse bottle-brushes of veins alone, so slender are its hair-like pinnules; and T. Zollingeri, a handsome species, closely allied to T. javanicum, which accompanied it. There was also the rigid, yet membranaceous T. Kaulfussii, 15 or 18 inches high; and likewise the curious Trichomanes membranaceum, with its round sessile fronds, sticking like Ivy to the rocks and decaying wood. T. plumosum is a most charming species, allied to T. crispum, densely clothed everywhere with the softest white pubescence, which, studded as it was with minute pearly drops, looked like a perpetual mantle of hoar frost, and contrasted finely with the golden lustre of the prostrate fronds of Hymenophyllum Plumieri. It is useless, however, to attempt to describe fully when there are above 80 living species. Two more and I have done. One of these is T. floribundum, with pinnated fronds 6 to 24 inches high, of which the pinnæ are broad, finely serrulate,

and so thin that they remind one of the texture of a fly's wing slightly tinted with green. The other is T. superbum, a new and most noble species, imported by Messrs. Low & Co. of Clapton, from Borneo; it has highly divided fronds of very large size (said to become nearly 3 feet high, and 18 inches to 2 feet wide), with broadly winged stipes. There are many others from Java, Guiana, and other countries, of great beauty, and perhaps in some instances surpassing any I have attempted to describe.

Accustomed to see but very few species of these rare plants in gardens generally, and a scarcity of them even in the very best places, small wonder it is that an ordinary son of Adam should feel an alarming gushing up of ignorance in the midst of the delights of such a scene and from being for the first surrounded by so much novelty. In fact, few but a Smith, a Moore, or a Hooker, could fully value and appreciate the collection, though the lovely varied dew-tipped and pellucid masses of verdure could not fail to charm even those who would hesitate not to class the Hemlock with the Bracken. A considerable number of species from the hottest regions are grown in a small low-roofed house, attached to the stove, where they can be accommodated with a high temperature—70° in winter. They are grown in pots on a warm tank, and have no glasses over them, being kept constantly saturated with moisture.

Some species require to be grown on the living stems of young tropical trees, and here some were to be seen in that state. I remember being particularly struck with one, Trichomanes brachypus, which healthfully twined round a young simple-stemmed plant of the bitter Quassia, canopied over by a graceful tuft of its handsome leaves.

Many acres of these nurseries are devoted to the cultivation of fruit trees; and single quarters with from 5000 to 10,000 young Apple trees formed to me an interesting and by no means common sight. A sandy and yet not poor soil prevails. In some parts the ground is composed of mingled clay and gravel; in others acres together are very sandy, ripening well horticultural seeds of various kinds; and in others again is peat, filling natural hollows to the depth of 10 feet or more—a rare combination of soils admirably adapted by nature for the purpose to which it is devoted. A somewhat humid climate characterises the district, and gives great richness to the verdure. Judging from the state of the tiniest and most fastidious hardy plants, no air could be more to their taste. I noticed one very well feathered Wellingtonia, 12 feet high, or thereabouts, and adjacent to it a specimen of Picea nobilis 15 or 16 feet high, dense and luxuriant —a grafted tree, moreover, and yet its last leading shoot was more than 3 feet in length. A seedling could scarcely have made a better plant. I understood it had rooted freely from the base of the scion for some years. Pinus grandis, a beautiful species, with foliage nearly a foot in length, appears to be perfectly hardy, having stood the great frost of 1860. This bids fair to be the finest long-leaved hardy Pine introduced. *Wm. Robinson.*

(To be continued.)

Home Correspondence.

The Royal Horticultural Society and Gardeners.—I observe with much interest the movement by which, I trust, the gardening world will profit—I mean the resolution lately passed by the Society to form the gardens at Chiswick into a finishing school for young gardeners. One difficulty seems to arise—can the Society afford to pay a competent director to be a constant resident at Chiswick, in addition to the salary paid to the present competent manager of both the gardens? Another will be, I fear, the difficulty of finding a well-educated gardener ready and willing to take so responsible a situation. I can only hope and trust that a commencement, even in a humble way, will be promptly made. I have for a long time thought that gardeners as a body—a most intelligent class of men, ministering largely to our enjoyments—have been placed in an unfavourable position, and all lovers of horticulture should in my opinion endeavour to make it more favourable, more independent. I learn that the present custom (which, by the way, it seems has existed for many years), is for a gardener when he is out of a situation to apply to a nurseryman or seedsman for one. If his character be satisfactory, his name is placed on a register, and when a situation offers for which he is thought adapted, he is recommended to obtain it; this is obligation No 1 which he incurs. If he be poor and unable to wait till his turn arises, he is probably offered work in the nursery, where he will receive 12*s.* or 14*s.* a week, till a situation offers. This is obligation No. 2. Now, although this seems perfectly fair and above-board, the gardener's independence is gone; he feels indebted to his recommender, and of course wishes to repay him, which I suppose is done by sending an order. I have such faith in the majority of our modern horticultural tradesmen, that I believe the gardeners they recommend are left perfectly free to send their orders to whomsoever their employers please, but there is the obligation looking them in the face, and the dread in case of dismissal of not being again placed on the register because they have not sent their annual seed order. Now although this system may have worked well for many years, and in honourable hands may have never been abused, still it is open to abuse; and all well-wishers to gardeners must wish to see established something that will assist and save them from incurring obligations to individuals, which in some cases—I trust few and far between—may be very irksome to an honest man. To illustrate this, I may mention an anecdote which I used to hear many years ago of firms long since passed away. The principal would be perhaps a keen man of business, and always have a long list of gardeners waiting for situations on his register. The *on dit* was, that as soon as one "turned up," and the gardener received his *congé* to take possession, the hand-shake (if a very grand place this was the whole hand; if moderate, two fingers; if small and only a faint hope of an order, it was one finger, called by the gardeners the pump-handle shake) was accompanied by a sort of masonic intimation that a good order was expected. Now this "good order" in the hands of a weak-minded man would swell something in this way; if 2 ounces say of Cauliflower seed was the real requirement of a garden, six or eight ounces were sent, and so on in proportion with other seeds. Thanks to the present mode of conducting the seed trade, and to the excellent catalogues published, things like this, even if they ever occurred, are scarcely possible, and not at all probable. I merely mention the anecdote to illustrate my proposition that the present system is open to abuse; and we may perhaps contribute to the comfort of gardeners if some project like the following is carried out. Suppose, then, that in addition to the proposed school at Chiswick where young gardeners may receive one year's finishing education, a general register be kept, open to all the Fellows, something after the following mode:—A gardener of mature age, out of place, on receiving testimonials of character from his last employer, and a recommendation say from one or two Fellows, should make his appearance at Chiswick, and, if thought proper, should undergo a *viva voce* examination by the Director, so as to ascertain to a certain extent, at least, his capabilities; he should then have his name placed on the register, as fit to take a first, second or third-class situation. By some such method as this the Royal Horticultural Society would, in conjunction with the Chiswick school, be the centre of the horticulture of the empire, and the numerous Fellows of the Society would, without incurring any obligation to individuals—for how often is a gardening amateur applied to by numerous friends something after this way: "Can you recommend me a good gardener?"—know where to make an application, and have their want supplied. This is, I am well aware, a mere crude suggestion, but I have some faint hope that it may be realised. In mentioning three classes of gardeners, I think I am going with the times, for villas, with simply a greenhouse vinery, and a few garden frames, are rising daily, and offer comfortable and improving situations for young men, at say 21*s.* per week. Other places with more pretensions may require a man with more experience—say at 30*s.* a week; we will call the former a third-class place, the latter a second-class; in both the wages should be placed to the applicant's name. The first-class man should have this matter left open, for first-class places differ much in their requirements, and the wages required should be given in confidence to the Director. I have reason to believe that if something like what I have thus roughly suggested could be carried out, it would lead to a large addition to the number of Fellows—for how gladly would hundreds of amateurs go to a safe central office for a gardener; it would also be of great benefit to a very large number of deserving men. *Hortulanus.*——A correspondent, signing himself "Another F.R.H.S.," asks me in your number of the 5th March "to point out the good produced by Mr. Chester's adjournment of the Annual Meeting?" In reply I beg to assure him that in my opinion, as well as in that of many others, had it not been for the time given by the adjournment for the Council to reflect upon the strong demonstration in favour of poor old Chiswick at the Annual Meeting, the committee for developing the usefulness of the real Horticultural Gardens would never have been appointed. The motion that Mr. Chester was speaking to, and was about to make with regard to the old gardens, was forestalled by the Chairman politely interrupting him to inform him that the required committee had already been decided upon. This was no little "good" produced by Mr. Chester's adjournment. For the present Council, albeit "all honourable men," are with three, or at most four exceptions, I fear, more the Council for the gardens at South Kensington than for the gardens at Chiswick; and unless looked very sharply after they will not weep very bitterly if the latter is swamped, provided that its more showy, extravagant, and fashionable consort can live out its prescribed time. On the newly appointed Committee I know there is one gentleman whom I heard at the last meeting speak most despairingly of Chiswick, and another who stated that he knew nothing about gardening. These may be very good Fellows, but the "gardening element" of the Committee must keep them "up to the traces," and see that they stick to their appointed work. The conciliatory nature of Mr. Chester's speech, when a very little spark might have created a blaze, was, I apprehend, another "good" produced; and although I may not have agreed with Mr. Chester in all that he said, still there were matters he alluded to which were sensible and serviceable. Again, "Another F.R.H.S." is mistaken in believing that it was "a part of Mr. Chester's programme to promote bowls," &c., as I know that he is, like any sensible man, strongly opposed to such misplaced amusements. The "Report of the Council," as "F.R.H.S" elsewhere states, is answerable for this idea. From what little I know of Mr. Chester (who is perfectly able to defend himself: far better than I can, indeed), I believe that he, "Another F.R.H.S," and I have all pretty much the same object in view. I would merely ask one question for the consideration of the new committee, which is: Why should not plants supplied by Chiswick to South Kensington be charged to the account of the latter? The extra expense is incurred for the latter's benefit, and it should pay for it in all fairness, to the amount I believe of some 300*l.* or 400*l.* or more per annum. [There ought to be no mystery or secresy as to the objects on which money is expended, in either establishment.] I beg to thank "Delta" for his compliment and kind correction, and should grieve in any way unintentionally to detract from Mr. Nesfield's well-earned fame. *Another Old F.H.S. of London.*

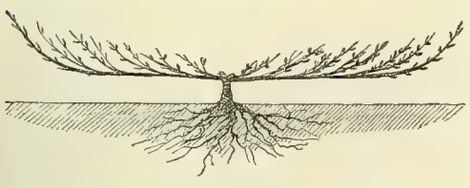
Hydropult.—I have had one of these contrivances in use here since last June, and in cases where a garden engine is too cumbrous, and a common syringe too tedious, I have found it very efficient. Your correspondent "Veritas" complains of its intermittent action, which it certainly has; but, if properly worked, not more so than a garden engine; less by a great deal than a common syringe; and, if used with the single jet, and regulated by the forefinger, it has none at all. If "Veritas" got his foot wet, his instrument must have been out of order, for all the joints are packed with leather, screwed tightly together and water-tight. As regards the capabilities of the common syringe in that respect, I have certain unpleasant memories of cold water trickling down my arm and side within my clothes when using it against high walls, &c. I do not find using the hydropult to be hard work. I can empty six pots of water with it right off, and I am only a man of ordinary strength. I think however that a lady would find it very hard work indeed. *D. Hendry, Mount Clare, Roehampton.*——We have had one of these implements in constant use here for upwards of 12 months, and it gives perfect satisfaction. On reading your correspondent's article, I questioned my man as to the hard work complained of in using it, and he directly told me that he greatly prefers it to the syringe, both on account of its continuous stream of water, and the small amount of time taken in wetting a long range of Peach houses and Vineries with it. As to the foot getting wet, that is easily remedied by putting a little stopping occasionally on the caps. Any man who complains that the hydropult is hard to work, is in my opinion of no use in a garden. *Geo. Bond, Walcot Garden.*

New Hyacinths.—In the *Florist and Pomologist* for December last, Mr. William Paul, of Waltham Cross, thus comments on the schedule of prizes for the current year, just then issued by the Royal Horticultural Society:—"It is with regret that I see the alteration in the Royal Horticultural Society's prize schedule for next spring, wherein the new Hyacinths are restricted to the production of a single year. I fear, but the sequel will prove, that by thus qualifying a term, the Society is placed on the horns of a dilemma. Six Hyacinths of the current year will no doubt be shown, and the best six the year produces; but it is barely probable that they will in the aggregate surpass those already under cultivation. Should the judges withhold the prizes on the ground of indifferent quality, it will amount to a censure on the rule; if they award it, to a premium on retrogression." Mr. Paul here forcibly describes the two difficulties that would inevitably result from the operation of this rule, and that did result at South Kensington on Wednesday, the 9th inst. The "horns of the dilemma" were presented to the judges, and on the last of them were they fixed. The aggregate quality of the new Hyacinths was much below the aggregate quality of those forming the best collections in the several other classes, and, yet they were awarded prizes according to the quality of the stands. It was a "premium on retrogression." In the four stands of "six new Hyacinths of 1863-4," 23 varieties were staged, and had 18 of the best of them been selected to come into competition with the collections in the class for a similar number of varieties, the new flowers would indeed have suffered by contrast. The Floral Committee selected one flower from Mr. Cutbush's stand, and one from Mr. Paul's, to which they awarded First-class Certificates. These unquestionably were acquisitions, being both novel in colour, and having handsome spikes. Two others in the group from Mr. Cutbush were awarded Certificates of the 2d Class; and what shall be said of the remainder? It is very doubtful indeed if ever they will be seen again, unless another season's culture should develope qualities at present undiscovered. On such a shifting quicksand of questionable policy does the subject of "New Hyacinths" at present ride at anchor. Here is seen the large majority of new Hyacinths distanced by those already in cultivation, presenting an anomalous spectacle not to be met with in connection with any other class of plants. Newness, without corresponding quality, is valueless where progression is required, unless something startlingly novel should be presented and cultivated, though requiring corresponding qualities of form, symmetry, &c. I would

suggest that the class for six new hyacinths, in the form in which it appeared in the schedule of the Horticultural Society, should be withdrawn. It is both unsatisfactory and misleading. Instead thereof, let there be a class of new Hyacinths in which certificates of money value shall be awarded to such of the flowers as are deemed worthy of the distinction, If they are not decided advances on existing known varieties they should nevertheless be of average quality. It would be better to see only two really good flowers in such a class than to gaze on the ill-conditioned crew that were to be seen at the South Kensington Show. This regulation would act as a sufficient inducement for our growers to search out the best that can be obtained, inasmuch as such a course would be the more commended to at least two of them, from a consideration of this fact, that, so closely have Mr. Cutbush and Mr. Paul approached each other's perfection of culture, that henceforth the supremacy will have to be decided by the quality, and not least. the novelty, to be found in the competing stands. *Quo.*

Prizes for New Plants.—I think you have very fairly stated at p. 915, 1863, the points that may be set up against the plan of giving prizes of intrinsic value to new plants. They are almost without exception the property of tradesmen, whose business it is to show them, and make them known. There can, however, be no reasonable objection to the exhibitors in this or any other class being fairly paid for their risk and trouble; and adhering as I do to the opinion that new plants ought not to receive money prizes, I would suggest that for the purpose of the aforesaid payment, the Certificates should bear a graduated money value, which may meet the exhibitors' expenses. This would probably be done if a First-class Certificate carried also an allowance of 10*s.*, a Second-class Certificate of 7*s.* 6*d.*, and a Third-class of 5*s.*, the award to the plant being still, not the money, but the Certificate. Cannot you induce the managers of our shows to give this suggestion a trial? What say the exhibitors generally, and the managers, and the treasurers? *X.*——I confess that I differ from Mr. Bull (see p. 245). In my opinion a Certificate is the reward which should be made for the introduction of a new plant. Mr. Bull seems to me to lose sight of this important point: a new plant is introduced for the sake of making money by its introduction. It would be introduced if there were no horticultural societies. A First-class Certificate, declaring it to be a novelty and worthy of cultivation, is of money value to the introducer or importer. It is not a question of cultivation—it competes with no other plants. It is simply the result of good commercial arrangements. The value of the Certificate is seen in the weekly appearance in the *Gardeners' Chronicle* of advertisements announcing that "Perseverance & Co." have obtained from the Royal Horticultural Society a First-class Certificate for the new-plant energy just shown by them. *D.*

Training Plum Trees.—I send you a sketch of a tree of Denyer's Victoria Plum, which has been planted four years. As the mode of pruning and training which has been followed is, I think, well suited for low walls or fences, a brief description may prove interesting. After the tree had been planted, every branch was cut away but the two bottom leaders, which were left a foot long, and trained in a horizontal direction with the points a little raised. After the tree had broken, and the buds were about an inch long, thumb and finger pruning commenced. Two shoots were left on each leader, one as near the base as possible, the other at the point; the latter was allowed to run in an upward direction and stopped when about 24 inches long, while the shoot near the base was stopped when a foot long. In the second year's pruning the leaders, which were



36 inches long, were pruned back to 30 inches, and trained horizontally, the points being a little raised; the subordinate shoots were pruned back to 9 inches, and trained in a line with the leader. At the time of disbudding three shoots were left on the leader and two on the subordinates; the end shoot on the leader was allowed to grow in an upward direction, and not stopped; and the shoots on the subordinates were stopped, the one nearest the base when a foot long, the other when 18 inches. The third year's management was similar to the preceding. *Charles Squires, Heywood, Westbury, Wilts.*

Royal Horticultural Society.—Time was when this was in reality what its name implies—a Horticultural Society, and when Chiswick was in all respects a school of horticulture. In those memorable days the Society possessed a large and valuable collection of plants, even including Orchids, now unfortunately all dispersed. The proving and naming of fruits then formed a subject of much interest and instruction, as did also the carrying out of different systems of pruning and training. The chemistry of vegetation too was not overlooked; on the contrary this department was skilfully conducted by Prof. Solly, the experimental garden, as it was called, being consigned to him as a field for his operations. The kitchen garden was then well stocked with all the best esculents of the period; and the arboretum could boast of a well varied and extensive collection of hardy trees and ornamental shrubs. In short the garden was replete with subjects of the greatest possible importance to horticulturists. Need it therefore be wondered at that young gardeners flocked to an establishment like this, in which materials for improving their knowledge in the profession they had chosen were so abundant, and that on the Society's books were long lists of names of young aspirants for honours for whom room could not be found in the garden. Then Chiswick took of gardening a truly parental care; its young devotees were subjected to periodical examinations in their art by Prof. Lindley, who moreover delivered lectures to them on botany and matters connected with the theory of horticulture, in the winter evenings. Under such able tuition scientific horticulture became in its way a perfect giant, and its stronghold was admitted on all hands to be Chiswick. The prosperity of Chiswick had, however, about this time reached its height; unhealthy action soon afterwards began to manifest itself; and to escape ruin the whole of the Society's energies were directed towards its Shows, which sometimes were successful in the way of replenishing its partially empty treasury, and at other times were a failure. Thus, as far as financial matters were concerned, the Society was playing a "game of speculation." To subvert such a state of things one gentleman strove long and manfully, but, over-ruled at last, he was obliged to sail with the stream, which ultimately transferred the head-quarters of horticulture from Chiswick to South Kensington. Here a handsome Conservatory, embroidered parterres, and unsightly brick arcades for a time seized hold of people's affections, and the aged parent of horticulture, Chiswick, was permitted to fall asleep, until Mr. Chester the other day took upon himself the task of awakening her. But times are changed. Like another Rip van Winkle she awakes, I am afraid, too late—or at all events, far behind the requirements of the present day. Endearing expressions are now bestowed upon her; the Prodigal is about to return, and the fatted calf is to be killed, but where are the means to be obtained with which to provide the feast? Without money, and that in no inconsiderable sum, the standard of horticulture can never be hoisted at Chiswick so as to be seen and recognised by the outer world. Young men will not now seek to crowd her courts as in days gone by, even though led on with promises, too flattering, I am afraid, to be fully realised. Nevertheless, if money is obtainable, doubtless Chiswick may again be looked up to with pride by horticulturists, both old and young. Let us hope, therefore, that the tide which has set in in her favour may not ebb until all is accomplished that is predicted in the present movement. There is as much want of reformation now in many matters connected with gardening as in days gone by. The Society's committees at present in existence will therefore find work sufficient for them to do. I would suggest that to that devoted to arboriculture should be set apart the arboretum as a field for its experiments. In this way new interest might be infused into this now least instructive portion of the Garden. Above all, let us have an improved set of Transactions. The Journal now published is a most unfit store-house for the valuable information that may be expected to result from reformed horticulture, such as we all trust to see carried out at Chiswick. And in order to induce the public once more to tread her soft green lawns, under the shade of trees worthy of the name, enlivened by sweet music from military bands, let a June show be held in the gardens now under notice, this summer. Is the experiment unworthy of trial? Of the garden at South Kensington, I at present say nothing beyond expressing a hope that the scanty vegetation which it now contains may be improved, and that means may be taken to render the arcades not only more attractive in appearance, but also more comfortable, especially in winter. *Joseph Newton, 30, Eastbourne Terrace, Hyde Park.*

Notices of Books.

Dr. Harvey's *Thesaurus Capensis*, consisting of useful illustrations of South African plants, has reached the second part of the second volume. Among the plants figured in this issue is a curious new genus called *Heteropyxis*, which the learned author describes as combining some of the prominent features of the Myrsineæ and Lythrariceæ, as well as presenting some of the characters of Rhamneæ. There is also a figure of the rare and odd-looking *Eriosphæra Oculus Cati*, with white woolly dark-spotted flower heads; and of *Lasiopogon micropoides*, which a good deal resembles it. These illustrations with their descriptions are of great use to those interested in South African vegetation; and in association with the invaluable Flora Capensis by the same author, assisted by Dr. Sonder, now in course of publication as one of a series of Colonial Floras, will greatly facilitate the inquiries of succeeding botanists who may enter on this field of inquiry. So many Cape plants find their way to our gardens, that publications like these are necessary in every good garden library.

The Illustrated Bouquet, Parts XVI. and XVII., are capital numbers, with extremely good letterpress. Part XVI. has figures of the following: *Primula prænitens atrorosea plena*, but why the coxcombical name of prænitens, instead of sinensis, should have been adopted, we cannot divine; three *Fuchsias;* three bedding *Pelargoniums:* some *Dwarf Dahlias;* and two new *Ixoras.* Part XVII. contains *Alocasia Lowii*, unskilfully drawn; *Early-flowering bedding Tulips*, very coarsely and unartistically represented; two *Methonicas*; a white *Agapanthus umbellatus*, not worth a figure; and *Dipladenia Houtteana*, a really beautiful thing. May this fine work, to gardeners very precious, go on and prosper.

Verschaffelt's *L'Illustration Horticole* devotes a plate to the pretty little stove herb *Stenogastra concinna*, and the somewhat larger *S. multiflora*, the latter a hybrid raised by Messrs. Veitch & Son between S. concinna and the pretty Mandirola or Scheeria lanata; another to the *Victoria Nectarine*, copied from the Florist; and a third to *Camellia Ninfa del Tebro*, or Nymph of the Tiber, an Italian variety, with imbricated cerise rose flowers, having the petals longitudinally tipped by a band of white.

The *Botanical Magazine* (March) has representations of the following new plants:—*Helichrysum Mannii*, a stout erect simple-stemmed herb, 2 feet or upwards in height, with copious lanceolate half-clasping subdecurrent leaves, woolly beneath, and a large terminal corymb of globose showy flower-heads, an inch across, white with an orange-yellow disk. It does not appear to be known whether it is an annual, or a plant of longer duration. This was found by Mr. Mann on the Peak of Fernando Po, and on the Cameroon Mountains. —*Quamoclit Nationis*, a fine Peruvian climber, cultivated at Lima, but a native of the Cordillera. It is a perennial, with large tubers, smooth twining stems, cordate leaves, and salver-shaped flowers, having a long whitish tube, and a five-lobed limb 2 inches across, of a rich orange-scarlet colour.—*Saccolabium Harrisonianum*, a fine white-flowered fragrant species, imported by Messrs. Low & Co. from Pulo Copang, in the Chinese seas. The small specimen figured appears to have flowered on the voyage home, but withered specimens show the racemes to be from 20 to 24 inches long, and one of the imported plants had borne seven spikes. Sir W. Hooker seems to have at one time considered it a white variety of S. violaceum, which it resembles in general structure, except that the five lines on the lip, which are conspicuous in that plant, are wanting.—*Begonia Mannii*, an weedy-looking erect simple fleshy-stemmed species from Fernando Po, having ovate-acuminate leaves, "scarcely perceptibly unequal-sided," and short-stalked fascicles of small rose-coloured flowers in their axils.—*Ada aurantiaca*, of which an account has already been given at p. 1228, 1863. Though they do not expand, the drooping spikes of clear orange-coloured flowers, (which somewhat resemble as to form those of a Blue-bell with elongated perianth segments), must be effective on a well-grown specimen. It is to be hoped that this plant may not be forgotten amongst the more fashionable Odontoglots for which collectors seem to be scouring its native country, New Grenada; but that a good supply may be obtained for general distribution.

The *Floral Magazine* has a good figure of Mr. Veitch's fine variety of *Barkeria Skinneri* called *superba;* a group of *Pompon Chrysanthemums*, among them *Lizzie Holmes*, which we have already mentioned as one of the acquisitions of last season; *Coccocypselum repens* in the berry-bearing state, with the new name of Coccosypsilon discolor; and three varieties of *Dianthus hybridus multiflorus*, one of the most useful of flowers both for the border and for beds, as well as for the greenhouse and forcing-pit—here indeed spoken of as though belonging to the old-fashioned Mule Pinks, but in truth of a very different and much more desirable character. The varieties are *Marie Paré*, a pure white; *Rosette*, a salmon pink; and *striatiflorus*, a flaked rosy-pink.

The illustrations in the *Florist and Pomologist* consist of two first-class large-flowered *Chrysanthemums*—*Princess of Wales*, and *General Bainbrigge*, which latter, by some oversight, bears the name of Prince Alfred. The letterpress is, as usual, interesting and varied.

Trade Lists Received.—Louis Van Houtte's *Catalogue de Plantes de Serres et de Plein Air*, is a very full list, admirably arranged, and with much useful information scattered through its century of pages. The article 'Gesnériacées," for example, pp. 30—35, is quite a garden monograph of this interesting family. ——Vilmorin-Andrieux et Cie.'s *Supplement aux Catalogues pour l'Année* 1864 is a useful descriptive list of the best novelties amongst flowers, fruits, and vegetables, some of which are illustrated by means of woodcuts.——John Salter's *Catalogue of Chrysanthemums, &c.*, contains a very complete list of these flowers, both old and new, and the most perfect list of hardy variegated plants of which we have any knowledge.——William Bull's *Retail List of New Beautiful and Rare Plants* contains an assortment of interesting novelties; we may especially mention Pentstemons, Phloxes, and Bedding Pelargoniums. Of the former the collection is said to far eclipse any that have preceded them.——Charles Turner's *General Spring Catalogue* is very full in every department, the new Pelargoniums of Messrs. Hoyle and Foster occupying a prominent position, as well as new Pinks, Dahlias, and Verbenas.——Robert Sim's *Descriptive Catalogue of British and Exotic Ferns* is much more than a catalogue. Part 1, already issued, is in fact a very faithful account of the principal varieties of British Ferns. We shall notice it more fully when the portion relating to Exotic Ferns makes its appearance.——Paul & Son's *New Roses of* 1864 briefly describes some 40 new varieties of this popular flower.

Of Seed Lists which have accumulated on our table we may mention the following:—William Thompson's *Descriptive Catalogue of Flower Seeds* is very select and well arranged, and contains several interesting Australian novelties.——William Paul's *Select List of Vegetable, Flower, and Agricultural Seeds* is an epitome of the best of everything in these several departments; among other things a superb Crimson Beet is highly spoken of.——Charles Turner's *Catalogue of Seeds* contains Dr. Maclean's new Peas — Wonderful, Advancer, and The Little Gem; also "Premier, a new Pea of great excellence, now offered for the first time."——William Cutbush & Son's *Catalogue*, and Robert Parker's *Catalogue;* may all be usefully consulted for the descriptive and cultural hints appended to the lists of flower, vegetable, or farm seeds respectively.——Charlwood & Cummins' *List of Seeds* contains, besides vegetables and flowers, a useful list of seeds of trees and shrubs which can be supplied.——E. G. Henderson & Son's *Seed List* of 96 pages with several

pages of illustrations, is very full of subjects, and amongst other matters comprises some "golden rules for amateur gardeners."——BARR & SUGDEN'S *Select List* has grown into a folio of some 20 pages, all filled to the very margin!

Miscellaneous.

Gardeners' Benevolent Institution.—From the report of the Committee, which has just been printed, it appears that during the year 1863, five pensioners have died, and four have been elected, besides a further election of three on the 14th of January in the present year. At the last election there were eight candidates all duly qualified to have been placed on the pension list without the trouble and expense of an election, if the funds had permitted it. The committee announce an increase in all sources of revenue, which they attribute to the articles which have from time to time appeared in our columns, to the success of the anniversary festival, and to an appeal which was made in the early portion of the year by circular to a large body of gardeners, "whom the committee believe were totally ignorant of the existence of the Institution." It is announced that the Duke of Buccleuch has consented to become Patron in the room of the late Prince Consort. The balance-sheet shows that the amount of stock in the 3 per Cent. Consols is 5500*l.*; that the receipts of the year have amounted to 1284*l.* 0*s.* 6*d.*, of which 471*l.* 13*s.* were received at or in consequence of the annual dinner; and that the balance in hand is 377*l.* 11*s.* 5*d.* The ensuing anniversary dinner is to be presided over by the Right Hon. Charles Lawson, Lord Provost of Edinburgh. As one of their fraternity, we trust that Mr. Lawson will be heartily supported by the gardeners of the three kingdoms, both amateur and professional, and that not only by their presence on this occasion, but also by their liberal donations, and above all by a steady and earnest support of the Institution.

Shamrock [Trifolium repens, L.] from an Irish word, *seamrog*, which seems to be compounded of *seamar ogh*, holy Trefoil, and is apparently the same as the Celtic name of Clover given by Marcellus of Bordeaux, physician to Theodosius the Great, *visumarus*, from *vi*, sheep, and *sumar*. It is usually taken to be the Dutch Clover, and this is regarded by the Irish themselves as the right Shamrock. Mr. Bicheno, however, in a paper, of which there is an abstract in the Philosophical Magazine for 1830, p. 288, has maintained that the Wood Sorrel is entitled to this honour, on the ground that the Shamrock is represented as having been eaten by the Irish, and a sour plant; that it is abundant in early spring before the White Clover is in blossom; and that it is called Shamrog by the older herbalists; while the Clover is not esculent, is not sour, and was not common until it was introduced for cultivation in the 17th century, and not in blossom on St. Patrick's day, the 17th March. Unfortunately, in the short abstract given of his paper, there are no references to the Herbals where the Wood Sorrel is called Shamrog, or to the works in which this is said to be sour. Nares quotes from Taylor:—

"Whilst all the Hibernian Kernes in multitudes
Did feast with Shamerags stew'd in usquebaugh."

And from Wythers:—

"And for my clothing in a mantle goe,
And feast on Shamroots as the Irish doe."

But such sarcastic allusions as these prove nothing. It is further to be remembered that, as it was upon the leaf of the plant and not its flower that St. Patrick explained the Trinity, it is nothing to the purpose that the White or Dutch Clover is not in blossom on his day. Any Trefoil would have served his turn equally well. It is scarcely possible that Mr. Bicheno really found the name assigned in old Herbals to the Wood Sorrel, for neither in our English works, nor in Keogh's Botanologia Hibernica, is this the case. There is therefore no ground whatever for admitting this change, and the Shamrock may remain as before, the White Clover. *Prior's Popular Names of British Plants.*

Scandinavian Fences.—The sort of fence in general use along the road sides is of a peculiar kind, differing from what is generally in use for that purpose in middle Europe. It consists of Spruce Fir trees, split up roughly into triangular pieces, which are placed at about an angle of 45°, with one end sunk slightly in the ground, and so close as to prevent hogs or lambs from getting through them. The whole is then bound with two or three lines of withes, of twisted Spruce Fir, Birch, or Willows, at certain heights from the ground; and in this way a formidable fence is constructed, difficult to get over, as well as sufficiently open to permit the snow to blow through it. *D. Moore, in Proceedings of Royal Dublin Society.*

Calendar of Operations.

(*For the ensuing week.*)

FLOWER GARDEN AND PLANT HOUSES.

Keep up a lively circulation of air all the early part of the day in mixed plant houses, and dispense with fire-heat as much as possible. Where houses of this character have stove as well as common greenhouse plants in them, a climate superior in point of heat to that of an ordinary greenhouse must be maintained; and in order to do as little mischief as possible through the compromise necessary, let all advances in point of extra warmth be made during the day time when there is light. Therefore practise early shutting up; and on such occasions take care that the fire has been very low, or out for an hour or two previously. The heat thus secured for the evening, if accompanied by sufficient atmospheric moisture, will establish a healthy and short-jointed growth. Climbers in Conservatories and other show houses will now want attention at least once a week. Prune off superfluous shoots, stop or pinch the points of over luxuriant leaders to induce a flowering habit in such kinds as produce blossoms from the axils of their leaves, and keep them neatly tied and trained. As regards the out-door department, see that rolling, mowing, &c., proceed in due order. Now is the period to lay the foundation of a fine lawn. Let all fresh turfing be completed forthwith. Early herbaceous plants overgrown may now be divided, the exterior portions of the stools should be reserved and the interior rejected. Be sure in planting them again to introduce fresh soil. If not already done, cut in all coarse evergreens or shrubs before the bud becomes too much advanced; Holly hedges may also yet be cut.

ANNUALS.—Make a sowing of tender sorts if not already done. Pot off Balsams, Cockscombs, &c.; these things will do better, however, in a frame, with fermenting materials, close to the glass, and well matted up at night.

BEDDING PLANTS.—Continue potting off stock for out-door decoration; also making cuttings of Verbenas, Fuchsias, Petunias, Calceolarias, Geraniums, &c.; they will all be wanted. Shade newly-potted plants, and remember that in making cuttings the leaf should not be first allowed to flag, and then an attempt made to restore it by abundance of water; foliage should never be allowed to droop.

DAHLIAS.—Repot the most forward cuttings; and put in others. It is very desirable to have extra strong plants for mixed borders and the shrubbery. These can be obtained by dividing and potting the old roots, after sufficient cuttings have been taken from them.

ORCHIDS.—Those growing in stoves should now be carefully shaded for two or three hours on bright days, more especially those which have been disturbed at the root; these, if convenient, should be removed to a house or pit by themselves, as established plants which have remained undisturbed will enjoy more sunshine.

TULIPS.—Keep the foliage dry so long as we are in danger of spring frosts. If a watering is necessary, either from a continuance of dry weather, or from the soil being light, it can be done between the rows, without watering the plants over head. Protect from hail on all occasions, and rain also, if the weather is cold.

FORCING GARDEN.

CHERRIES.—These should have free syringings, with abundance of air early. The syringing, however, must cease the moment any change of colour in the fruit is perceived.

FIGS.—Follow up stopping; give manure-water very freely.

MUSHROOMS.—A late bed may now be made.

PEACH HOUSES.—Persist in stopping at all times every gross shoot on all the upper parts of the tree—allowing such, however, to ramble when they grow towards the extremities of the lower parts; this is the best way of equalising the sap. Syringe freely—especially in the afternoon—and at that period endeavour to create atmospheric moisture for the night, by sprinkling all available surfaces, except flues or pipes.

PINERY.—Little new can be added at present. Give air freely to growing successions in dung-pits; induce them to grow more in bulk than in length.

STRAWBERRIES.—Keep up successions; do not suffer those on which fruit is swelling to get dry; use plenty of liquid manure according to former directions, viz., constantly clear and weak.

VINERIES.—Endeavour to avoid the consequences of indulging in too much atmospheric moisture in the day time. Many berries are doubtless scalded, as well as leaves injured, by a surplus of atmospheric moisture in the morning, or too early in the afternoon, in an endeavour to accelerate forcing by shutting up unreasonably early. Night is the period established in the order of nature for copious dews. See that late Vines which have been laying out all the latter part of the winter are now introduced. If they bleed, scrape and dry the wounds, and apply the late Mr. Knight's plaster, which is scraped cheese and powdered oyster-shells, kneaded into a fine paste, or some of the grafting wax elsewhere mentioned.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to protect blossoms, and to eradicate insects by all possible means. See that all winter and early spring work amongst fruit trees is brought to a close forthwith.

CABBAGES.—Earth up plantations of the largest plants, and keep them free from weeds. Sow also seeds of two or more sorts which will succeed each other.

CARROTS.—Look sharply after crops of Early Horn, to prevent slugs from eating them. Nothing is better, perhaps, than cinder-ashes riddled extremely fine, and the mere dust taken out; these sown thickly over the ground present such a sharp macadamised kind of surface, that snails and slugs are at the last point of starvation before they will venture on them.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending March 16, 1864, as observed at the Horticultural Garden

March,	Hours Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 10	2	29.633	29.619	46	30	38.0	43½	44½	S.	.05
Friday 11	3	29.589	29.595	54	40	47.0	44	44	S.W.	.08
Satur. 12	4	30.170	30.040	53	29	41.0	44	43½	W.	.10
Sunday 13	5	30.268	30.063	53	40	46.5	45	44	S.W.	.00
Mon. 14	6	30.425	29.956	57	44	50.5	45	44	W.	.02
Tues. 15	7	29.902	29.788	52	29	40.5	45	44½	W.	.04
Wed. 16	8	30.145	30.041	53	28	40.5	46	45	E	.00
Average.		29.853	29.853	52.5	34.3	43.4	44.8	44.2		.20

March 10—Clear: fine, clouds in strata moving in different directions; clear.
— 11—Low clouds in strata, boisterous and showery; thunder and lightning in the evening.
— 12—Clear, fine with sun, clear at night; slight frost.
— 13—Clear, fine, overcast.
— 14—Fine; flying clouds; clear; fine, overcast.
— 15—Rain; cloudy; overcast, slight frost.
— 16—Foggy, slight haze, fine at night, clear; slight frost,
Mean temperature of the week, 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 35 years, for the ensuing Week, ending March 26, 1864.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	51.7	34.3	43.0	15	1.11 fn.	3	4	3	2	—	14	6	6
Mon. 21	51.1	32.7	41.9	17	0.21	9	8	3	3	4	2	7	2
Tues. 22	50.7	31.6	42.8	13	0.44	7	3	4	2	4	8	5	5
Wed. 23	50.8	33.7	42.8	16	0.60	6	7	11	2	1	12	5	4
Thurs. 24	48.5	32.2	40.3	13	0.13	4	5	4	—	4	7	8	6
Friday 25	51.1	32.9	42.0	13	0.50	3	10	5	—	2	5	7	6
Satur. 26	52.1	32.4	42.2	14	0.17	—	7	4	2	5	6	7	7

The highest temperature during the above period occurred on the 25th, 1863,—therm. 69 deg.; and the lowest on the 25th, 1850—therm. 14 deg.

Notices to Correspondents.

BOURNEMOUTH: *Camberwell.* This is a very nice place, with a nice climate and extensive plantations of Scotch Fir and Pinaster, of the management of which the less said the better.

CALCEOLARIAS: *W H T.* We already have in gardens all the best species for garden purposes.

CAMELLIAS: *Old Subscriber.* You cannot do wrong to take any of the following:—Alba plena, candidissima, fimbriata alba, ochroleuca, Duchesse de Berri, Pearl, all useful whites; De la Reine, Countess of Derby, Countess of Orkney, Contessa Lavinia Maggi, Jubilee, amœna, Princess Frederic William, Countess of Ellesmere, Filippo Parlatore, variously striped; Carlotta Papudoff, Chandleri, optima, Baron de Vriere, blotched; Reine des Beautés, Bicolor de la Reine, pale rose and flesh tints; Saccoi, Storyi, imbricata, Valle Vareda, Sarah Frost, shades of rose; corallina, punicea, Bealii, Mathotiana, crimson. Duchesse de Berri, Countess of Derby, Contessa Lavinia Maggi, Reine des Beautés, Saccoi, Sarah Frost, and punicea, are exceedingly fine flowers.

FUNGI: *W Belfield.* Your mould is a very curious one and quite new, belonging to the genus Rhinotrichum. Would you kindly send a few specimens directed "Rev. M. J. B., King's Cliffe, Wansford." It is not likely to hurt your Vines, but if it spreads it may prove a great annoyance to Lycopods and other plants. Your only chance of getting rid of it is to dust it with sulphur, and if this does not succeed you must turn out of the house every plant which it has attacked. *M. J. B.*

GRAFTING WAX: *G Grey.* There are several kinds of grafting wax. The best is perhaps that composed of equal parts bees' wax, resin, and tallow. This is pliable, yet impervious to air and moisture. Another kind is made up of pitch 5 parts, resin 1 part, yellow wax 1 part, tallow 1 part, with a little fine brickdust to give it consistence; but we prefer that without the pitch. In some compositions turpentine is introduced, but that is decidedly objectionable.

HYACINTHS: *W. G.* If *sufficiently* covered with ashes after potting, they certainly do not require the shelter of a frame, though in the event of continued heavy rains it may be beneficial to use temporarily such a covering as may throw off the wet. The ash covering should not be less than six inches in thickness.

KEW HERBARIUM: *Buckland.* Apply by letter to the Director, Royal Botanic Garden, Kew, Surrey.

NAMES OF PLANTS: *R P C.* Prof. Oliver, Royal Botanic Garden, Kew—*Ellen R.* We assure you, you are mistaken. The plant you suppose yours to be is as different from what you call it as an ox from a sheep; and more so—*O L.* 3, Phalus grandifolius. The other specimens are insufficient.—*Novice.* 1, Asplenium Adiantum-nigrum; 2, Polypodium vulgare; 3, Scolopendrium vulgare; 4, An Adiantum of some sort, probably formosum.—*M T M.* 5, Pteris serrulata; 6, Selaginella Martensii.—*J. M.* Scilla bifolia.—*Sir E. D.* 1, Pinus Cembra; 2. Pinus longifolia; 3, Abies cephalonica; 4, Chimonanthus fragrans, just forming its leathery fruits.—*F D.* Lastrea dilatata.

PELARGONIUMS: *W W.* The name of the disease in your Pelargoniums is Chlorosis. Its treatment will depend upon the cause, which cannot be ascertained from the leaves only. Examine the roots, and if they are in good condition water with a *weak* solution of sulphate of iron. Try, however, only one or two plants at first. If the roots are withered, you must take means to obtain a supply of healthy roots by fresh potting in good soil. *M. J. B.*

PRESERVING FERNS: *Old Subscriber.* A tourist may keep the larger sorts of Ferns alive for two or three weeks, while wandering from place to place, if the caudices and roots are tied up in slightly damped Moss, the plants, kept in the botanical box, being taken out at intervals of a few days and lightly sprinkled in the evening, leaving them open in a cool place all night. The fronds should not be wet when confined, nor should they be kept without opening more than three or four days at a time. They may survive with rougher treatment, but they may not.

ROYAL HORTICULTURAL SOCIETY: *Red Hand.* Dr. Lindley has now nothing to do officially with the Society, and consequently is in no way responsible for the late vitreous smash. *Palmam qui meruit ferat;* it is for the Fellows to look to that.

VINES: *An Anxious One.* We do not believe that your Vines are unhealthy. The leaves have probably either been scorched by day, or withered from the dry state of the air at night consequent on radiation. It is, however, very difficult to judge accurately from one or two crushed and half-decayed leaves. If we are right as to the cause, a slight awning at night or when the sun is very bright, would probably assist you. The awning is, however most requisite at night to prevent radiation, or to protect from severe external cold. *M. J. B.*

MISC.: *H N.* Some iodine or some closely related chemical substance must accidentally have fallen upon your paste; perhaps iodide of potassium. We have examined it under the microscope and can arrive at no other conclusion. *M. J. B.*

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.

LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W.

The GENERAL FARM SEED PRICE CURRENT, containing instructions for the Management of the Farm for every month in the year, is now ready, and can be had gratis and post free.

Italian Rye-grass.

JOSEPH DIXON, SEED FACTOR, Kendal, is selling the above Seed (to the Trade), at 21s. to 23s. per Quarter, as per lots, for Cash. Apply early for samples.

Agricultural Seeds.—Carriage Free.

SAVED FROM THE MOST GENUINE STOCKS, AND AT PRICES NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WILLIAM WOOD AND SON beg to intimate that they have for many years supplied their customers with PURE, GENUINE, UNADULTERATED FARM SEEDS, in consequence of which this branch of their business has so increased, that they have been compelled to extend their premises, and are now in a position to supply the largest orders with promptitude and despatch.

W. W. & S. will be happy to send samples and lowest prices of CLOVERS, RYE-GRASS, NATURAL GRASSES for Permanent Pasture, CABBAGE, CARROT, MANGEL WURZEL, PARSNIP, TURNIPS, and all other Agricultural Seeds.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.—Carriage Free.

WM. WOOD AND SON are prepared to supply from their immense stock the following pure and genuine Seeds:—

First Quality GRASSES and CLOVERS for Laying down Permanent Pasture, 28s. to 30s. per acre.

Second Quality for Ditto, 20s. to 26s. per acre.

CLOVERS and GRASSES for Renovating Pastures, 6s. to 9s. per acre.

LAWN GRASS, best quality, 18s. per bushel.

Ditto for Parks, 16s. per bushel.

MANGEL WURZEL SEED. Special reduced prices will be given for large quantities.—IMPROVED YELLOW GLOBE (very pure stock), 6d. per lb.; IMPROVED ORANGE GLOBE (extra fine), 6d. per lb.; RED GLOBE, 6d. per lb.; LONG RED (very superior stock), 6d. per lb; LONG YELLOW, 6d. per lb.; ELVETHAM LONG RED (highly recommended), 8d. per lb.

SWEDE and TURNIPS, RAPE, MUSTARD, DRUMHEAD CABBAGE, CLOVERS, &c., at lowest prices.

PRICED CATALOGUES Free on application.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY

RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.

WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.

Samples and Prices post free on application.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

THE BEST SPRING WHEAT KNOWN.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In the Spring drill 2 bushels per acre.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

PRESENT PRICES of CLOVER SEEDS. CHEAPER BY THE CWT.

RED, or BROAD, best, 7d. per lb. Do. 2d quality cheaper.
WHITE or DUTCH, best, 9d. per lb. Do. 2d quality cheaper.
COW GRASS, 9d. per lb.
ALSIKE, best, 10d. per lb. Do. 2d quality cheaper.
YELLOW TREFOIL, best, 4½d. per lb. Do. 2d quality cheaper.
FINE MIXED CLOVERS, 9d. per lb.

Samples and lowest prices per Cwt. may be had on application.

PRICED LISTS of FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Grass Seeds for Exportation.

SUTTON AND SONS have now ready for delivery New Seeds of all the most desirable kinds of GRASSES for PERMANENT PASTURE, and are packing the same in the execution of orders for Australia, New Zealand, and other Foreign parts. Prices, &c., will be sent post free on application. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

IMPROVEMENT of OLD PASTURES, PARKS, and MEADOWS, by sowing the most suitable kinds of GRASS and CLOVER SEEDS.

SUTTON'S RENOVATING MIXTURES.—Quantity of Seed required, 8 to 12 lb. per acre. Price 9d. per lb., or 80s. per cwt.

From the Rev. CANON GUTHRIE, *Vicarage, Calne.*

"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."

From Mr. G. NORRINGTON, *Rectory Farm, Paglow.*

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."

Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.

Our RENOVATING MIXTURE consists of the Finest GRASSES and PERENNIAL CLOVERS. If the Seeds are sown *early in the season*, the improvement in the Pasture will be very great, and at a small expense.

Royal Berkshire Seed Establishment, Reading.

SUTTON'S ITALIAN RYE-GRASS SEED, cheaper in large quantities.

	per bush.	
	s.	*d.*
ITALIAN RYE GRASS, good English seed	5	6
SUTTON'S IMPROVED ITALIAN RYE-GRASS, extra fine	6	6
FRESH IMPORTED SEED, extra well cleaned	7	0
Ditto in BALES, as imported	6	6

Sow 3 or 4 bushels per acre alone. It will thrive in any soil, and may be sown any time between February and September, with a certainty of success. Italian Rye-grass is also very useful for sowing with Clovers instead of Common Rye-grass; it rises early in the spring above the Clover, and protecting it from frost, brings the crop forwarder and heavier.

ENGLISH AND SCOTCH RYE-GRASSES, CHEAPER IN LARGE QUANTITIES.

	per bush.	
	s.	*d.*
PERENNIAL RYE-GRASS good clean seed	5	6
PACEY'S PERENNIAL RYE-GRASS, very fine heavy do.	6	6
EVERGREEN RYE-GRASS, or PERENNIAL DEVON EAVER	7	0
ANNUAL, or COMMON, for alternate husbandry, best quality .. .. ,,	5	6
Ditto ditto lighter seed, but clean	4	6

Samples and lowest price per quarter may be had on application to

SUTTON & SONS, Seed Merchants, Reading.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE (all carefully and thoroughly cleaned).

The Seeds of each sort separate may be seen in large quantities in Messrs. SUTTON'S Warehouses, and growing specimens of these and many others in their sample grounds.

All the best and most suitable of them are contained (together with Alsike, Perennial White, and Perennial Red Clovers), in Messrs. SUTTON'S Mixtures for Permanent Pastures.

	Per lb above 7 lb.		Per Bush.	
	s.	*d.*	*s.*	*d.*
ALOPECURUS PRATENSIS	1	3	9	0
ANTHOXANTHUM ODORATUM	1	6	20	0
AGROSTIS STOLONIFERA	0	10	9	0
BRACHYPODIUM SYLVATICUM	1	0	15	0
CYNOSURUS CRISTATUS	1	0	20	0
DACTYLIS GLOMERATA	0	10	6	6
FESTUCA DURIUSCULA	0	10	7	6
,, ELATIOR	1	0	12	0
,, GIGANTEA	1	3	14	0
,, HETEROPHYLLA	1	0	12	0
,, PRATENSIS	0	10	12	0
,, OVINA	0	10	8	0
,, RUBRA	0	10	8	0
,, TENUIFOLIA	1	0	12	0
,, LOLIACEA	0	10	14	0
GLYCERIA FLUITANS	1	0	14	0
,, AQUATICA	1	0	10	0
HOLCUS AVENACEUS	0	10	7	0
LOLIUM ITALICUM	0	7½	6	6
,, PERENNE	0	4½	5	6
,, ,, PACEYANUM	0	4½	6	6
,, ,, SEMPERVIRENS ..	0	4½	7	0
,, ,, TENUE	0	5½	10	0
PHLEUM PRATENSE	0	6	21	0
POA PRATENSIS	1	0	21	0
,, TRIVIALIS	1	0	21	0
,, NEMORALIS	1	3	28	0
,, FERTILIS	1	3	28	0
,, SEMPERVIRENS	1	6	30	0
,, AQUATICA	0	10	12	0
PLANTAGO LANCEOLATA	0	5	25	0

From Prof. LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

A Copy of Mr. M. H. SUTTON'S Essay on Laying Down Land to Permanent Pasture, from the "Journal of the Royal Agricultural Society," will be sent with every parcel of Grass Seed.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, Seedsmen to the Gloucestershire Agricultural Society, offer the following SEEDS of finest quality, at the prices annexed. Carriage Free by Rail, and will allow 5 per cent. discount for cash.

PERMANENT PASTURE.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium loamy soil, at 30s. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium clay soil, at 30s. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for heavy clay soil, at 28s. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for light brashy land, at 27s. 6d. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for Orchards, at 30s. per acre.

GRASSES AND CLOVERS, rather rough and coarse: for game covert, at 18s. per acre.

JERUSALEM ARTICHOKES, for planting in game coverts, at 6s. per bushel.

J. C. WHEELER & SON, Seed Growers, Gloucester.

RICHARD SMITH'S RENOVATING GRASS SEED should Now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.

RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.

MIXTURE for Laying down to PERMANENT PASTURE .. .. 25s. to 30s.
MIXTURE for ORCHARDS or LAND shaded by Trees .. .. 24s. to 26s.
MIXTURE for PARKS and CEMETERIES .. 28s. to 30s.
MIXTURE for Improving OLD PASTURE .. 6s. to 8s.
MIXTURE for One, Two, or Three Years' Lay .. 15s. to 18s.
MIXTURE for Fine LAWNS and BOWLING GREENS .. .. per lb. 1s.

PRICED LISTS may be had on application,
RICHARD SMITH, Seed Merchant, Worcester.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells; and Groomsbridge, Kent.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

GRASS SEEDS of best quality can now be supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

CLOVER SEEDS of best quality, supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

TURNIP SEEDS from best selected Roots supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

MANGEL WURZEL from the best selected Stocks, supplied Carriage Free.

Agricultural Seeds.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W. See large Advertisement, page 266.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. ESTABLISHED 1777.

Patron—H. R. H. The PRINCE OF WALES, K.G.

BRISTOL MEETING, 1864.

President—The RIGHT HON. EARL FORTESCUE.

The ANNUAL MEETING, 1864, will be held at BRISTOL, on JUNE 13, 14, 15, 16, and 17.

ENTRIES Close as follows:—STOCK and POULTRY, April 9; IMPLEMENTS, April 11; ARTS, April 16.

Applications to be made for STOCK and IMPLEMENTS to the Secretary; for POULTRY, to Mr. S. PITMAN, Taunton; for ARTS, to Mr. R. R. M. DAW, Exeter; for HORTICULTURE, to Mr. JONATHAN GRAY, Bath.

A SUPPLEMENTARY LIST of PRIZES, offered by the Local Committee, and the Society of Merchants of the City of Bristol, for Cattle, Shropshire Sheep, Long and Short Wool Couples, and Cart Stallions, is now ready. Entries to Close on April 16. By Order of the Council,

HENRY ST. JOHN MAULE, Secretary.

2, Wood Street, Bath.—March 12.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MEETING at NEWCASTLE-ON-TYNE, 1864.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

H. HALL DARE, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 19, 1864.

ON Thursday Mr. STRAFFORD disposed by auction of Colonel TOWNELEY'S celebrated herd of pure bred Short-horns. Receiving a despatch from our reporter just as we go to press, we are unable this week to give a full account of the sale; it must suffice for the present to announce the principal results of it. Twenty-eight animals of the *Barmpton Rose* tribe realised 3409*l.*, or 122*l.* apiece. Nine members of the *Roan Duchess* tribe fetched 1618*l.*, or 180*l.* apiece. Five members of the *Venilia* tribe made 519*l.*, or 104*l.* apiece. Eight members of the *Pearly* tribe made 815*l.*, or 106*l.* each. Five descendants from *Madaline* realised 693*l.*, or 138*l.* apiece.

In the whole 46 cows and heifers and heifer calves made 5702*l.*, or 124*l.* each; and 10 bulls and bull calves made 1487*l.*, or 148*l.* each.

The following are among the most noted prices realised for individual animals:—

No. 21. *Royal Butterfly's Duchess*, a 3-year old heifer, was sold to Mr. E. L. BETTS for 500 guineas.

No. 26. *Barmpton Butterfly*, 2½ years old, was bought for 350 guineas by Mr. EASTWOOD.

No. 33. *Royal Butterfly's Pageant* fetched 590 guineas, bought by Mr. EASTWOOD: and—

No. 4. ROYAL BUTTERFLY 11TH, a 3-year old bull, fetched 400 guineas: he was purchased by Mr. STIRLING, M.P.

A very large company were present, and the prices reached are the result of purely British competition. None of the animals have been sold to leave this country.

We are requested to state, for the convenience of parties attending the sale of the late Mr. LANGSTON'S herd of Short-horns at Sarsden, on the 22d inst., that the up express train from Worcester at 7.15 A.M., will call on the morning of sale at Honeybourne and Chipping Norton Junction Stations.

TEN AND A HALF POUNDS OF COAL per horse-power per hour formed the average consumption of fuel of the ordinary portable engines exhibited at last year's Worcester Show. Certain of these engines even burnt something like 13 lb. or 14 lb. hourly for every horse-power. So much for the truth of the common notion about the economy of fuel of the portable engine.

It will, however, have been partly seen by the tables we published after the Worcester Show, that the average consumption of the "racers" was only 4½ lb. of good Welsh coal per horse-power per hour.

The quadrennial publication of these trials is thus the origination of the popular notions about these

engines. It will perhaps be remembered that we mildly tried to dispel these agreeable delusions. Perhaps we may some day hear of the Royal Agricultural Society swelling the sound of our own still small voice by publishing the amount of fuel consumed by all the engines shown at work—"racers" and cart-horses. It might even happen that our little suggestion may come to the aid of a not unnatural repugnance of the Royal Agricultural Society against being indirectly used to puff badly designed engine work. But in the meantime cannot we find some happy medium between the rude voraciousness of the steam cart-horses and the fragile and lady-like want of appetite of the "racers?" Some of the ingenious gentlemen who provide agriculturists with steam machinery are accustomed to assert that only the simplest form of engine can be sent to a farm. Cannot simplicity and economy be united? Cannot we have some improvement on the rude combination of cylinder, piston, crank, and slide-valve, which seems to be the highest ideal of the sages of our agricultural engineering establishments?

Some time in last October we pointed to the urgent necessity for economy of fuel in an engine used for what we might term perambulating or peripatetic purposes, such as traction engines and ploughing engines generally. In some by no means very out of the way cases the cost of the carting of water and coal makes up nearly one-half of the cost of steam ploughing.

We also mentioned Mr. WENHAM'S engine, with its two cylinders and interheater, as being very likely to meet the increasing demand for an engine uniting the two grand qualities of simplicity and economy. A compound portable engine on Mr. WENHAM'S interesting principle was exhibited at the Smithfield Show. It appeared to attract some attention. We do not know whether any more solid results ensued. At the new Foreign Offices being built in Downing Street, there is now working a portable engine designed upon a very elegant and ingenious principle for saving fuel. Its leading idea is similar to one of those embodied in Mr. WENHAM'S, viz:—that of taking steam at a high pressure to get a full stroke of piston from it, and then conducting the steam away in its expanded state, to do duty for another half of the full stroke.

Arrangements thus relying upon general construction, instead of upon valve gearing, for getting full expansion from steam, are evidently safer in the hands of unskilled labour;—they cannot be tampered with, and the engine cannot be forced to do an undue amount of work by simply altering its valve gear, or by at once taking the extra valve away, as has been the fate with many agricultural engines designed expressly with a view to economy of fuel. At first sight the engine appears like an ordinary portable. It will, however, be noticed that the cylinder is double the stroke of the crank. In the centre of this long cylinder is a partition; substantially there are thus two cylinders, placed end to end. Each of these two cylinders has a piston, and these two pistons are united by what is termed a "trunk," which is, in this case, simply a cylindrical connection, acting as what we may call a pistons' rod. From one of the pistons proceeds an ordinary rod as usual. It will now be seen that between each side of the partition in the centre and the two pistons there exists respectively an annular space. Steam at a high pressure as it leaves the boiler is admitted into one of these annular spaces, thus driving before it the two pistons. By the time it gets to the end of the stroke its pressure is somewhat fallen, and it is then conducted to the full side of the piston in its cylinder. The steam at full boiler pressure is now let into the other annular spaces of what may be termed the other cylinder. We have thus the precise action of a compound double cylinder engine, by the use, however, of only one. It is evident that this arrangement gives all the uniformity and regularity of two cylinders.

It will at once appear that the weak point in this engine is the partition in the centre. In the first place, the cylinder cover and a piston must be taken off in order to get at it, and any leakage is not seen; and besides this, a packing of this kind is difficult and expensive. We do not see, however, that there is any necessity for an adjustable packing in the centre. The wear would be taken up by the two adjustable pistons and stuffing-box, and a white metal bearing might be probably sufficient. Any leakage, moreover, would not be a dead loss, as the steam could be used on the full area of the piston. It is evident that one of these cylinders could be very easily applied to an old engine. We have seen some excellent indicator diagrams taken off the Foreign Office specimen. The general result also of some of its performances on the brake gave, under favourable circumstances, an evaporation of 8 lb. of water with 1 lb. of coal, and one dynamometrical horse-power was obtained by a consumption of from 4½ to 4¾ lb. of small or "smith's" coal. The temperature of the feed water was 150° and of the smokebox about 300°. Its slide valves, of which there are necessarily two—in one casting however—are balanced against the steam pressure on their backs. We are informed that this increased the brake power by more than ¾ of a horse-power in a 10 horse (nominal) engine. The experiments were taken at a steam pressure of 50 lb., and at a speed varying from 125 to 135 revolutions per minute. It would thus appear, although we do not at present vouch for the explanation, that with such a low pressure as 50 lb., there is not that film of steam between the valve and the ports, which undoubtedly to a great extent diminishes the necessity for balancing the steam valves of, for instance, locomotives, which work at a pressure of from 100 to 150 lb. on the square inch. This appears to be an advantage attendant on high pressure steam, and it is evident that the whole results of this particular engine would have been better with a higher pressure.

It is a rather surprising thing that the makers of this engine have not thought fit to steam-case the cylinder covers—the more so, as they are so careful to put the cylinder itself inside the fire-box. This is another remnant of the unfortunate prejudice among *soi-disant* practical men against "steam jacketting," or completely casing the cylinder and steam ports in a steam envelope. It is said that WATT, after using a steam jacket to his engines, rejected the practice for some time, as he reflected that a steam jacket must necessarily increase the radiating surface of his cylinder. Having found, however, that his engines did much less duty without the jacket, he resumed the plan. Such is the case with the best practice of the day. Steam jackets, after being put on one side for some years—so entirely so, indeed, that we saw the other day M. EUGENE FLACHAT, the eminent French engineer, alluding to steam jacketing as a new plan—are now being used on the best marine engines and locomotives. The several phenomena of conduction and radiation of the iron cylinder, and of the absorption of heat during the expansion of steam are too complex to be here examined. But it may perhaps be sufficient to remind ourselves of the fact that on the first admission of steam into an ordinary cylinder, the steam is condensed with an amount of water that would knock out the covers if the "mud-cocks" were not opened. The cooling action of the exhaust steam on communication with the air is carried on twice for every revolution of the crank, and, radiation also going on unimpeded from the cylinder or the covers, the fresh steam as it enters has to give up its heat and force to the chilled iron of the cylinder—and iron, as it will be remembered, has nine times more capacity for heat than water.

A strict comparison between Mr. F. H. WENHAM'S and Mr. E. E. ALLEN'S engine would take us too far out of our way. We may however notice that the economical results of Mr. WENHAM'S engine would be probably the most favourable, although Mr. ALLEN'S possesses advantages that will doubtless lead to wider success on the farm. The one cylinder renders a system of interheating scarcely applicable.

When also the hot high pressure steam has only to enter one cylinder, it cannot be partially condensed and weakened through the chill given to the cylinder by the exhaust steam's communication with the atmosphere. Mr. E. E. ALLEN'S mechanical arrangement, however, has that simple elegance which always gives much pleasure to the beholder. *P.*

THE DIETARY OF THE AGRICULTURAL LABOURER,

WITH OTHER STATISTICS OF HIS EXPENDITURE.

[The following paper on this important subject was lately read by the Rev. J. Slatter, of Streatley, Berks, before the Ashmolean Society, Oxford.]

THE subject on which it was proposed to me to contribute some remarks is the Dietary of the Agricultural Labourer, with such other statistics as might seem generally to show the way in which his wages are expended in these southern and midland counties of England. To do full justice to the subject the investigation ought to have been pursued over a more extended area than has been the case, and an endeavour was made to procure information from various places, but the results of inquiries made elsewhere for the most part have not reached me, and accordingly I am obliged to content myself with the more humble task of representing to you the condition of things as I find it in my own parish in Berkshire, which probably is not an unfair specimen of what is the general state of the case in this part of England.

WAGES.—The present rate of wages is 9*s.* or 10*s.* a week, which may occasionally at this time of year, and more frequently during other seasons, be raised to 12*s.* by piece-work; and at other times, especially during the few weeks of harvest, is considerably increased. Families which have boys above the age of 10 have also from 2*s.* to 10*s.* more, and are enabled in consequence to live in somewhat greater comfort; but the crucial question is how to keep house with a family of five or six children, especially if the eldest happen to be girls, or the family has sprung up too fast to allow of the boys being old enough to be at work, upon, we will say, 10*s.* per week, or in the case of an old person on parish allowance, upon 2*s.* 6*d.* per week. I may say at once that it is impossible without starvation (lingering starvation possibly), but yet starvation on the one hand, or debt on the other.

The first great difficulty to be encountered in this inquiry arises from the fact that the poor keep no accounts. It is much to be regretted, as such a practice would of itself be no inconsiderable step in thrift and economy; but in their minds the need for accounting seems superseded by their carrying the coin as so many counters to the shopkeeper, which are paid away as the representatives of their wants, and happy enough they consider themselves if that entirely clears the transaction. It may be doubted if they can ever be persuaded to economise, in the strict or useful sense of the word, until they have obtained a sum in hand, so as to be able to forecast their wants and buy many articles on a somewhat larger scale than they are in the habit of doing.

I am informed that some time ago a benevolent gentleman advertised a reward of 5*l.* to the labouring man who should show the clearest statement of a year's expenditure. After repeating the advertisement several times, at intervals, he met with one claimant who certainly well deserved the prize from the accurate and faithful manner in which his annual expenditure had been detailed; but this man seems to have been superior to the class about whom we are now inquiring. In fact, if much pressed on the point, the poor will tell you that they really do not know themselves how their money is spent. I do not mean those who have any desire to conceal the information, but those who are honest and true and on such good terms with one that they will readily communicate the best answer in their power; and then if statements are canvassed, from a desire to see how they can be reconciled, you find there is no more to be learnt. In a few cases only then have I been able to analyse the expenditure fully; and in order to arrive at some conclusion worthy of dependence on that point of the subject which is of the greatest interest, the question of diet—the inquiry was principally confined to the quantities of the various articles of food consumed in each family.

And here I may most fitly acknowledge how greatly I am indebted to a most valuable paper published by Dr. E. Smith, in the 5th report of the medical officer of the Privy Council "on the Economics of Diet," relative to the inquiry he was directed to make in the manufacturing districts when the recent distress began to be felt. The assistance I have been able to derive from this paper has enabled me to translate—so to say—the bare statistics collected, and thus offer you the conclusions to be made from them as to great extent reliable statements and not the mere vague expression of opinion.

BREAD.—It need hardly be said that bread constitutes the bulk of the food consumed by the agricultural poor; it contributes fully 90 per cent. of the carbon supplied to the system, and a much larger proportion of the nitrogen, in some cases as much as 98 per cent. Upon the whole this article of food is generally bought as bread: though the more thrifty housekeepers buy the flour and make their own bread. What is called a gallon loaf costs about as much as a gallon, *i. e.* 7 lbs. weight, of flour. The loaf which goes by the same name weighs 8 lbs., but 7 lbs. of flour will make considerably more than 8 lbs. of bread, according to Dr. Smith, 9¾ lbs, which agrees very closely with my own experience. The present price of bread is about 1½*d.* per lb. It is pleasant to find that the universal demand among the poor for the finer sorts of flour is not a mere luxurious taste, but is supported by reason on good physiological grounds, and it seems tolerably evident that the contrary opinion of the greater wholesomeness as well as economy of the undressed sorts of flour is founded upon reasons which have reference only to the really luxurious and superabundant diet of the rich.

OATMEAL.—It is a matter of regret that the habits of the people in this part of the country are so opposed to the use of oatmeal, which furnishes all the necessary ingredients of food in a much more compact form than Wheat flour.

FLESH.—To come next to that which by common consent forms the next important article of diet, flesh. In the form of fresh meat it may be wholly excluded from notice. It is never tasted except as a charitable gift at Christmas or some festival, or during sickness. Almost all that is consumed under this head is in the shape of bacon. There are two sources of supply

Home-cured, that is English or Irish bacon, which is 8*d.* per lb., and American, which is 4*d.* or 5*d.* This latter is, however, in no favour. The taste is occasionally so offensive that the most hungry stomachs refuse it, and it is very apt, to use the technical expression, to "boil out." Its chief use appears to be to keep down the price of the better and more acceptable sort. The amount of bacon consumed in each family is extremely various, and depends entirely on the income. The main staple is bread, and the diet is enriched by as much bacon as can be afforded in addition.

Butter and Sugar.—The next things to consider are what may properly be called the accessories of diet—butter or lard and sugar. These are consumed in very various proportions, according to the tastes and habits; the chief amount of the former goes to the women and children, but the men have the latter in a greater degree when they take, as some do, tea with every meal.

Cheese.—Cheese is sparingly used, and is very much a matter of taste.

Potatos and Vegetables are also not a regular part of a diet, and are taken in such varying quantities that it is hardly possible to estimate what effect they have as contributing to the available amount of nutriment. When they are to be had they appear to be used to the saving of bread, and except perhaps as a variation, which would probably have a good tendency in respect of general health, their absence is not to be regarded as a loss. At the present season there is little to be had besides Potatos, and these are used by most families in very small quantities, probably not more than 10 lb. in the whole week.

Milk is to be had to a certain extent at a cheap rate, viz., skimmed, at ½*d.* per pint, and if there were a sufficient amount of this it would be a most valuable accession, especially to the diet of the children; as it is, it is merely added to the tea, and in such small quantities that it is impossible to take it into account. Herrings are referred to by Dr. Smith as a valuable source of nitrogenous elements; they are not used largely enough to come under our consideration here.

(*To be concluded next week.*)

NOTES ON CELEBRATED SHORT-HORNS.

No. II.

Second Cleveland Lad.—The following is a letter from Mr. Bates, of Kirkleavington, dated Jan. 1, 1848, and addressed to an eminent Short-horn breeder:—

"I shall be glad to see your brother here on his return from Northumberland. If you or your brother do not like 2d Cleveland Lad, both *Easter* and *Euclid* are by him; but he can see both, as well as the two Duchess bulls. 2d Earl of Beverley was by Duke of Northumberland and his dam, sister in blood to the Duke of Northumberland dam.

"3d Duke of York is by 4th Duke of Northumberland, dam (Duchess 51st) by 1st Cleveland Lad, and dam own sister to Short-tail (the sire of both Cleveland Lads, and their sister, 2d Oxford). Therefore, having Cleveland Lady's blood in the brother to 2d Cleveland Lad, you would perhaps prefer 2d Earl of Beverley. I name this that you may inform your brother, and you had better write to him here.

"2d Cleveland Lad is a great favourite with me, as he is a bull of greater growth than I ever knew any bull; very superior to Favourite bull, Mr. Charles Collings's favourite. He came here the 6th of June, 1843, then turned 5 years old, and in 54 days he increased 24 stone in weight, weighed at the weigh-house both times; which was above 6 lbs. per day, above 42 lbs. per week, or 3 stone of 14 lbs. I had known 2 stone per week gain, but never more. When he had been here 29 days (on the 5th of July), Mr. Burnett saw him, and he could scarcely believe his own eyes. I considered him much increased, but seeing him daily, it was not so striking as to Mr. Burnett, who had not seen him for 29 days. And it was on his way to Beverley that he was again weighed, both times by my old man, without saying anything to me, and when he gave me the two certificates I was astonished at the increase—160 stone was the first and 184 stone the second weighing. He keeps his condition on the worst keep I ever knew any bull retain his condition with, and he is a ready buller, now in his 10th year, and his brother is the same, now turned 11 years old. They have their great growth from my Short-tail, whose dam had two crosses of my 2d Hubback, and he had his great growth from Yarborough a bull of Mr. Charles Collings, being used in 1810 by Mr. Hustler and his tenants, and came from them to be sold at the Ketton sale in 1810, and was a superior bull to Comet, sold the same day at 1000 guineas; but my 2d Hubback's dam was a far superior cow to any one by Comet. I name these facts for your consideration, and giving you my reasons for approving of 2d Cleveland Lad. Your brother will see his calves—five heifer calves from one tribe, of sisters or half sisters, and all got by 2d Cleveland Lad. *Euclid's* dam was by Duke of Northumberland, and from Mr. Edward's Foggothorpe I bought in 1839. Your brother will see a brother in blood to *Euclid*, of his dam's own sister, and by 2d Cleveland Lad, a bull calf this last autum.

"I have a heifer calf also of 2d Oxford's daughter (Oxford 5th, by Duke of Northumberland), and by her mother's own brother, 2d Cleveland Lad, so that these facts speak for themselves."

AGRICULTURAL PUPILS.

We can seldom in the present day take up a Paper of any repute connected with agriculture without finding one or more advertisements headed "Agricultural Pupils," "Agricultural Pupil Wanted," "Mr. J. Smith, of ——, is open to receive one or two Agricultural Pupils," "Agricultural Pupils desirous of becoming acquainted with the best system of Scotch Farming may hear of a suitable situation on application to X. Y. Z., Stirling." "Mr. David Macgregor has a vacancy for one or two Agricultural Pupils." "The best modern system of Scotch farming practised," and very many similar announcements, many of which are intended to be very attractive and alluring to the young noviciate in farming. We have "Northumberland Farming," "The Norfolk System," "Kentish Agriculture," "Lincolnshire Farming," "Scotch Farming," "Light Land Farming," "Heavy Land Farming," &c., so that the young farmer has plenty of choice. Now we have no wish to depreciate all this—we care not how well or how rapidly modern systems of farming are made to progress, or how many teachers of it the wants of the farming public may bring forth; but we do care to know that these professed teachers of modern British agriculture are qualified for the high responsibility they undertake. It is to be feared that many of these advertisers, these teachers of modern farming, are looking far more to the half-yearly payments than the progress of their pupils. A young friend of the writer of this paragraph lately advertised in our leading agricultural papers for a situation with a good practical farmer; he had upwards of 30 replies in a few days, coming from all parts of England, and some from Scotland, offering terms the most advantageous, varying from 50*l.* to 200 guineas per annum, and facilities unbounded; steam cultivation upon divers systems—Fowler's here, Smith's there, Howard's not quite everywhere, &c. Cotswold sheep, and Short-horn cattle kept, says one; a Down flock and four-course shift, says another; Longwools, Short-horn cattle and horses bred, and many pigs fatted, with the best arable farming on a loamy soil, says another; half-bred Leicester and Downs flock, with the best Norfolk farming, says another. Again, the fox-hounds close at hand; another, the harriers in the parish; another, the fox-hounds and the beagles close by; a fine hunting country, plenty of coursing, says another; with many kindred specimens of like attraction. Some of the epistles are homely enough, and rather outraging "the Queen's English," but possibly from first-class men of business. Others, again, quite aristocratical, both farm and homes duly designated. Then the attractions of home are peculiarly enticing. "Wife and two daughters," "separate sitting and bed rooms." "hunter kept," "quite one of the family," "decided Churchman," "charming situation in a good county." One says "farm small, but plenty of good farms for observation all around;" and one or two give little family histories. My young friend is in great perplexity amidst all these eligible situations, knowing not which to choose; so I recommend him to take time and visit all, unless he can positively decide before he gets round, for I tell him he will undoubtedly meet with a ready welcome, more particularly where he will find the daughters. Well, leaving this little playfulness, we must look at the matter seriously. It is of the highest importance that our young farmers should be properly taught the best principles and practice of modern agriculture, otherwise safe progress is by no means advanced, but rather retarded.

It is not to be wondered at, that in these days of agricultural colleges (colleges for scientific and practical agriculture, colleges of agricultural chemistry, &c.) that the respectable farmers of this country should not take advantage of this desire of the farming public to have their sons more highly educated in all that pertains to agriculture, and open their houses for the reception of young farmers, or those likely to be landowners. It is a help to many a needy farmer in bad times. What is really wanted is some test as to their ability and proper qualification for undertaking this duty, and that their respective farms are well adapted to show the best practice carried out. For this purpose it might be desirable for these teachers to produce testimonials from their respective districts as to their fitness, respectability, and standing, or from former pupils or their friends, or such persons might put themselves into communication with our leading Societies and Colleges through their officers or secretaries. The authorities of the Cirencester College for instance, ought to be in possession of the names of several eligible places in different parts of the United Kingdom, to which they could with confidence recommend their students for further practical improvement upon quitting College. The Secretaries of many provincial Societies are often applied to for information on these matters. It would be no difficult thing to furnish terms and necessary particulars to such officers, and it might be extended to some of our large public schools, such as the King Edward's Schools, Christ Church Schools, Westminster School, Rugby School, Harrow, Winchester, City of London, or any similar institutions. If the authorities in these schools decline to retain names submitted to them, they are done with, but if they retain others upon good inquiry, it is high testimony; and all students desiring practical instruction in agriculture to these places, let them be recommended. This is one efficient way of preserving the student from any untoward course. He leaves his college or his school, enters upon practical agriculture under an intelligent and able master, and thus obtains a full insight into the management and capabilities of the various soils with which he may come in contact. This is far better than wasting time with incompetent farmers, to say nothing of the many inconveniences to be met with in the homes of strangers, and the distaste it may altogether give the student for agricultural study. It may be urged that we are taking too high ground; that practical farming after all is but a low, dull, grovelling employment, full of petty details, which no student of powerful mind could endure. We grant that to a certain extent this is true, but we are looking forward to a much higher order of agriculture; to a much greater development of the powers of the soil; the knowledge of and successful growth of all the farm crops—the breeding, management, and prosperity of all the farm stock. In this there is scope enough for any mind, however comprehensive it may be. Take the varieties of cereals—the 1000 varieties of Wheat, for instance. It is not to be expected that a farmer shall cultivate all these varieties to prove them; no, it is a subject for study. The root crops again, how numerous the varieties and the manures they best appropriate; here again is scope enough. Herbage and medicinal plants, how little is known of their culture. Then the stock of the farm, their habits, their management, their diseases, their progress, requires the nicest and most discriminating study. The hardest student may find a field large enough for his widest range and brightest thoughts. *O. F.*

Home Correspondence.

Vitality of the Dock.—I send a sketch of a common enemy found in a Wheat field a few days since. The complete inversion of the last year's position of the root has by no means injured its vitality, the roots still grow downwards and the leaf upwards; and had I not arrested its course a fine healthy Dock would have been the result. Few cultivated plants would bear this Antipodean position and grow, I trow! *Peter Dryland.*

Beans for Summer Food.—I quite agree with Mr. J. J. Mechi that no farmer need be short of summer food the time Beans are growing. I had never used or heard of their being used for sheep till I saw his article at page 181, and should I have to do with stock again I shall not fail to adopt it. For horses, store pigs, and breeding sows I have seen them used to great advantage. Some farms that I know are usually very short of keep in summer, owing to there being no meadow or pasture land attached to them. Such was the one I was brought up on, occupied by my grandfather, whose practice it was to plant a quantity of Beans at different times in the spring, often in the stack-yard and other odd corners that occurred close to the homestead. With those we used to keep our horses and pigs through part of July, August, and part of September, and well they used to do with them. The horses did not know what to make of them at first, but they soon took to them, eating all up clean while they were green, and did remarkably well with them. The pigs lived on them till they were done or harvest was over, when they were turned on the stubbles. By adopting that system with the horses we could let most of our Clovers go for a second crop, thereby increasing our supply of hay for winter and early spring, which we were in general short of till we adopted the Bean feeding for horses, besides allowing cows and other stock better keep in the same months. I think if others placed in like circumstances will give it a trial, they will be obliged to Mr. Mechi for giving the hint. *J. R. B., Wakefield.*

Foreign Correspondence.

An Agricultural Sketch: Salzmünde, Wurtemburg.

To my great disappointment I have been hitherto unable to send you the continuation of the agricultural sketch on Salzmünde, which appeared last year in Nos. 27 and 28 of your Paper, and if it should not be too late I will now venture to finish my description of one of the most interesting farms of Germany. In the first part of my sketch I gave you, as you will remember perhaps, some details on the size, administration, and crops of Salzmünde, and as the season is just now more adapted for indoor work, I may perhaps be permitted to add some words on the live and dead stock, and on the industrial or technical establishments of this place.

1st. The live stock of Salzmünde consists of about 140 head of heavy plough horses; 20 head of carriage and riding horses; 360 to 400 head of working oxen; 150 head of milk cows; 60 head of rearing cattle; 100 head of feeding pigs; 3500 to 4000 head of sheep.

According to these numbers, there are 17 to 18 acres of arable land to every head of working cattle, which is rather a high proportion, and only explicable by the extensive carriage of Beetroots, Potatos, clay and coals, and the large distances to and from the central points.

Of cattle in general, there are seven heads to

1 Prussian acre of land, (the whole area is 9000 acres =5700 English acres), and certainly this would be a good proportion too for the fertility of the farms, if so much of the good animal manure was not spoiled. The working horses are mostly of Danish breed, and worth about 80*l.* per pair. Fifteen horses are sold out yearly, so that on the average they are 9 years in use. Through the whole of the year the horses are fed daily with 10 lbs. of Oats, 10 lbs. of bruised Barley, and 10 lb. of Clover hay, a food by which they keep themselves very well, notwithstanding their hard work. The working oxen are of the Voigtland breed, occasionally they are imported from Bavaria. The purchase as well as the sale of these beasts is done by their live weight only, and the dealer who usually takes care of the former, gets for the cwt. of lean beasts as much as he has to pay for the cwt. of fat beasts. During late years the prices were from 27*s.* to 30*s.* per 100 lb. of butcher's meat. The oxen are mostly fed with the refuse of the sugar manufactory and distillery, which lasts nearly for the whole year. The working oxen get daily per head:—40 quarts of draff, 25 lb. of pressed Beetroots, 2 lb. of Rape cake, and 2 lb. of hay. The fattening oxen get each: 40 quarts of draff, 50 lb. of pressed Beetroots, 4 lb. of Rape cake, and 3 lb. of hay, and straw and litter *ad libitum*. The fattening season of the latter is always in winter, and lasts about 4 months, during which time they increase from 250 to 350 lb. per head. The milk cows are throughout of the Dutch breed, and 20 to 25 heifers from one-half to three-quarters of a year old, are imported yearly from Holland, and reared up until they are 1½ year old, when they are put to the bull. The calves are all sold to the butcher, and by this kind of supply a pure breed is always kept up. Much care is bestowed here on the attendance and cleanliness of these beasts, which, excepting in the winter time, are driven daily to the river Saale. For the prevention of pleuro-pneumonia, which is not uncommon in this district, all cows and all beasts in general are vaccinated here with much success. The cows get each daily, 70 quarts of draff, [Is our correspondent right as to his measure?] 2 lb. of oilcake, 3 lb. of hay, and straw and litter *ad libitum*. On the average of 10 years they produce each daily (taking the whole year) 7½ quarts of milk. All horned cattle are stable-fed, and pastures are not known here; they get mostly as dry a food as possible, but plenty of fresh water to drink. The milk is mostly made to butter after the Swedish system of Gussander, which in so far proves preferable here, as only a sixth part of the fatty substance remains in the churned milk, whilst with the old systems mostly one-fourth part of it is remaining. The milk, as is usual from cows fed on draff and oilcake, is very watery and poor of fat. Dr. Gouven never found more than 3 per cent. of butter fat, whilst the milk from cows fed on pastures contains fully 4 per cent. For this reason 15 quarts of milk are required here on the average for one pound of butter. The latter is almost entirely consumed on the farm, and only in winter some of it is sold. The churned milk is made into cheese for the servants, and the last refuse given to the feeding pigs. Pigs are bred only for the wants of the place, and fattened quickly with the refuse of the mill and the dairy. The pure English breed is used exclusively there, as having the best fattening qualities, and when the so fed pigs are one year old, they reach an average weight of 4 cwt., and are mostly killed at this age.

Sheep likewise are reduced to stable feeding, and only when the Beetroot crop is secured are they driven on the Beetroot fields, where they find ample food in the cut-off shaws and heads of the Beetroots. In winter time the hogs get each:—4 lbs. of pressed Beetroots or cut-off heads, ½ lb. of hay, and 1½ lb. of straw. The fattening sheep get however 6 lbs. of pressed Beetroots or cut-off heads, 1½ lb. of hay, and 1 lb. of straw, and 1-fifth pound of Rape-cake. 500 to 600 fat sheep are sold yearly at an average weight of 145 lbs., and last year 10 thalers or about 30*s.* were got per head. The breeding of sheep is carried on at the Inspection of Schochwitz, where we find a flock of about 1000 heads of fine Spanish sheep. As is mostly the case in Germany, the sheep are bred also there chiefly for the production of wool, from which they clip 3 to 3½ lbs. per head at a price of from 2*s.* 4*d.* to 2*s.* 6*d.* per lb.

At the public sale of the late Mr. Webb in 1861, a small flock of Southdown sheep, 20 ewes and 2 rams, were bought by Mr. Zimmermann, and were doing very well at my visit there in 1862.

Of workmen, considering the extensive culture of roots, and the variety of Salzmünde's husbandry, it is not easy to say how many hands are employed in each branch of the latter, so we must confine ourselves to saying that in winter about 1000 and in summer about 2000 people are employed there. According to the work, fixed yearly wages are given, or the former is paid by the piece, or, as usually, by the day. The ploughmen or carters earn for example 45 thalers, or 6*l.* 12*s.*, and their food, consisting mostly of soup and meal dishes, besides the following weekly appendages:—1½ lb. of butter, 3 lb. of small "hand cheese," 3 lb. of fresh beef or pork, 14 lb. of rye bread, and Sundays, ½ lb. of sausages. Their cottages are spacious and healthy. As the working powers of this district are not sufficient, many people come periodically from other countries; they are housed in barracks built especially for their purpose. One part of them returns home at winter time, whilst the other part remains there for working at the sugar manufactory. For the numerous workers of the manufactories, Mr. B. has founded a special victualling-house, the keeper of which is supported by the proprietors, and therefore obliged to give to each workman a quart of warm soup or vegetables, besides a piece of meat, at the fixed price of about 1½*d.* For feeding the other people of the place the following quantities of food are required yearly:—About 250 quarters of Pearl Barley, 600 quarters of Rye and Wheat for bread, 40 heads of oxen averaging 900 lb. of butcher meat, 60 head of pigs averaging 350 lb. of butcher meat, 150 head of sheep averaging 85 lb. of butcher meat, 25 head of calves averaging 70 lb. of butcher meat; and finally the dairy produce of 100 cows at the least.

The workmen of the manufactories get from 9*d.* to 1*s.* 8*d.*, and the labourers of the farm 6*d.* to 1*s.* daily. Those of the latter, who are exclusively employed for the Beetroot culture (about 1000 heads) live in the adjoining villages, and bring their food with them. I have still to mention the extensive body of handicraftsmen, who, in about 10 to 12 different workshops are supplying all the wants of the farm and the manufactories.

The live and dead stock of Salzmünde is taxed to a value of 23,000 to 25,000 thalers. Besides the cattle and horses, we find a large number of agricultural machinery and implements, such as harrows, grubbers, root-slicers, chaff-cutting and bruising machines, 200 heavy (Magdeburg) Beetroot ploughs, 170 heavy Beetroot waggons, holding 70 cwt. each; 6 Strasburg machines with horse-gears, 6 large English drilling machines, 2 hay-tedding machines, 2 sowing machines, and 4 manure distributors, &c.

Having described to you now the agricultural part of Salzmünde's husbandry, some words yet remain to say on the industrial and other establishments of Salzmünde, which are all in close connection with the former. I begin with the most important, viz., the sugar manufactory. It was erected in 1847, and works the Beetroots after the pulping and pressing system. There are 18 large hydraulic presses, and about 100 tons of Beetroots may be worked daily. More than 20,000 tons of Beetroots are converted to sugar, and nearly 20,000*l.* are paid yearly for their duty. The produce of sugar is fluctuating, according to the influence of the weather—between 8 to 9 lbs. of raw sugar per 100 lbs. of Beetroots. In the season of 1861 about 1800 tons of raw sugar were sold, at prices ranging from 11 to 12 thalers per cwt. Refined sugar is only made for the wants of the household, and the raw sugar is sold to adjoining refineries. About 500 people are employed there during the manufacturing season, which often lasts until the end of April.

The distillery was built seven years ago, and is said to be a model in every respect. It was constructed for the purpose of distilling molasses at the same time as Potatos, which latter are, however, chiefly used. The raw spirit is got by means of excellent distilling apparatus to a strength of 85 to 90 per cent., and is sold mostly in this quality. The distillery is working through the whole year, and when the Potatos are done with at the beginning of summer, newly centrifugated molasses are distilled, which latter are supplied by neighbouring raw-sugar manufactories. During the last season 4250 tons of Potatos, 370 tons of malt, and 500 tons of molasses were distilled, and produced altogether 3640 oxhoft (about 180,000 gallons) of spirit at 14.400 per cent. Tralles. The Government tax for distilled Potatos amounted alone to 23,482 thalers. The draff, as well from molasses as from Potatos, serves as cattle food, and is consumed not only by the stock of Salzmünde, but carted to the remotest farm station.

The production of steam for the sugar manufactory and the distillery is effected by nine steam-engines with 81 horse-power, and 13 double and two simple boilers, which consume yearly about 130,000 tons (?) of peat, got out of Mr. Boltze's peat bog, at Bennstedt.

The corn, oil, and sawing mill is put in motion by two turbines or a large water-wheel, and in the want of water by a steam-engine of 24 horse-power.

The tilery is very considerable, and more than 20,000 tons of clay are worked yearly there. In connection with the former is a mechanism for cleaning or washing out porcelain clay, 800 to 1000 tons of which are prepared yearly, and sold to northern countries at 1*s.* 2*d.* to 2*s.* per cwt. Besides the ordinary building stones—porphyry and sandstone—large quantities of peat, iron-free sand for glass and porcelain manufactories, chalk-stones, and especially different qualities of clay, are won at Salzmünde, and an extensive trade is carried on with all these articles. The carriage of goods, and the intercourse with remote places, is favoured highly by the navigation of two rivers, on which Mr. Boltze has 25 to 30 barks in constant circulation.

To add details on some benevolent institutions, which Mr. Boltze has founded with great liberality, such as a savings bank for economic and sick workmen, an infirmary, an institution for the improvement of boys of 14 years, a school, church, and poor-house, &c., would lead us too far, and so we must confine ourselves to a few remarks on the experimental stations and a few other topics. The experimental station has been founded by the Central Agricultural Society of the province of Saxony and removed to Salzmünde, because there could not be found a more convenient place, and also because Mr. B. had promised a warm reception to this establishment.

Dr. Grouven, to whom I owe the most of these notes, is the director of this institution; he is seconded by three chemical assistants, and very useful and interesting experiments and analyses are made there on various practical and scientific questions referring to agriculture. All the buildings of Salzmunde are insured by several companies to a value of 500,000 thalers. The duties and taxes amount yearly to 125,000 or 130,000 thalers. More than a million and a half thalers are put in circulation there, and a pretty rent or net produce may be supposed to be got out of so extensive a business.

In conclusion, I have yet to mention that at my visit in October, 1862, I met with several gentlemen from different countries at the pretty inn, who were there partly as agricultural students, partly as passing visitors. The agricultural students or pupils live at the inn of Salzmünde, where they pay also for their board and lodging (about 250 to 300 thalers each). By the kindness of the proprietors they are allowed to inspect and see everything they like, as well at home as on the farms, and much opportunity is offered there for the improvement of young enterprising agriculturists. I regretted I was not introduced to Mr. Zimmermann, the head of the agricultural department, but considering the numerous confluence of visitors from all countries, it is a matter of course, to expect this only by special introduction.

J. R., O., near Stuttgart, January 30, 1864.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Cultivation of Clay Lands.—At the ordinary meeting of the Royal Agricultural Society of England, held in Hanover Square on Wednesday last, under the presidency of Mr. Raymond, a lecture was delivered by Mr. Alfred Hughes, of Thorness, Isle of Wight, explanatory of a seven years' rotation adapted for the maintenance of sheep on a clay farm.

Mr. Hughes observed at the outset that his plan was something more than idea, for he had had it in work two years, and he should not have ventured to talk about it were he not satisfied of its usefulness. He prefaced his explanations by laying down one or two conditions as to the real character of the soil with which he proposed to deal. There were, he said, all kinds of clay farms, but the class for which he had adopted the rotation was that which was not adapted for the four-course shift, but land that would grow valuable roots, but which defied the farmer to make a profitable use of them after they were there—land that was not kind to Barley. These conditions deprived the farmer of two of the most profitable sources of income open to him, namely the production of a large quantity and useful quality of malting Barley, and the production on the land itself of a large quantity and good description of mutton. The system of management set forth applied only to land of that kind, and those whose lot was cast upon soil not subject to the same conditions would find nothing in the scheme that would assist them. His object had been to discover a course of cropping suited to this soil to relieve it from the difficulties and heavy burdens besetting its tillage, and to find a means of profitably consuming the greater part of the root crops on the land. Managers of clay lands well knew what the difficulties were, where the spring corn was to follow the root crop in a climate like this, and the effect upon Barley, the most valuable, most sensitive, most delicate of our plants. Then again, in taking Wheat after Clover in such land, when they came to plough, the soil came up so stiff and stubborn that the Wheat could only be cut in by force and buried in water-tight drills, and the work was looked forward to with dread every year. If the season was not favourable the Wheat was not in till winter came, for although Wheat liked a firm bottom, the seed of Wheat, like all other seeds, did not like to be locked up in water-tight compartments, If the soil was naturally tough and binding, the farmer must adopt a mode of preparation for the reception of the seed which would afford as much as possible a kindly bed, and their seed must fall into a condition of soil which would secure a rapid development. With regard to Mangel Wurzel, if grown after Wheat, the summer was so far gone that they did not get either the weight or quality that the land was capable of producing if exposed to a mid-summer sun. By the system he had adopted these difficulties were met; a season was afforded for each crop, while at the same time ample time was allowed for the profitable consumption on the land by sheep of a very large amount of green crop, thus enabling the heavy-land farmer to participate in the advantages of sheep farming, which rendered the farm self-fertilising. In this way, too, the haulage of the root crops home was avoided by growing for the most part roots that would store on the land; and by taking no corn crop in the spring, ample time was afforded to consume the root crops with advantage to the sheep and to the land. The distribution of the crops also was such as to remove the repetition of each course to

seven years, and the subdivision of the crops in each course afforded the opportunity of removing the more sensitive, such as Clover, to 14 and 21 years. Another advantage accruing by this arrangement, of saving a great deal of horse labour, was the time allowed for the preparation of the seed bed for each crop, especially the three with which, under the four-course system, they had the greatest difficulty, namely, Wheat, Barley, and Mangel Wurzel, the latter getting a summer as well as a winter fallow, thus affording a weather-made surface. One of the greatest blunders they all made in farming was, that when they ought to be putting the seed in and giving it a fair start they were rending and tearing the surface to pieces by force. Another collateral advantage arising out of this septennial division was the severance of the periods of sowing into small tasks, so that none were likely if begun in good time to be protracted to an awkward season, to the detriment of the crop itself, and the hindrance of all the work of the farm. The summer preparation for the Wheat rendered it perhaps the latest seed time of the season affording the best opportunity for thin and early sowing, and the leas remaining unbroken through the latter part of the winter gave a firm and healthy run and feeding ground for the sheep when the ploughed lands would not bear them. A good supply of roots should be stored at some convenient spot, so as to supply the sheep with as little cartage as possible when they were driven from the Clover lands to the Turnip lands. He considered his system peculiarly adapted to the requirements of a flock of ewes, and Dorsets in particular. Having got in in September, the sheep took the run of the stubbles, and came upon the land intended for Winter Beans. Directly that land became too wet for them he removed them to the old Italian Rye-grass, and when that got short he sent them to the early white Turnips. If wet set in they were brought off to the fold on the old lea ground, and there supplied from the store drawn for the purpose till they could be got again on the Turnip land. All the labour bestowed on the sheep was well bestowed, for their own value, and also as saving the hauling of roots home, and in the dunging of the land. He proceeded to take the crops year by year. He commenced with Wheat, deferring, however, the preparation for Wheat, thinking that would come better when he explained the nature of the preceding crop. But, supposing the Wheat stubble to be on the land, he found he could grow a very much better quality, and, taking the average of seasons, a very much larger quantity, of Barley upon such land as he was speaking of on the stubble than after Turnips or any roots. After Wheat ample time was afforded to get the land into perfect condition for Barley, and the preparation itself was such that there was no fear of the crop not being clean. In harvesting the Wheat he left 6 inches of stubble on the land, and then before Christmas the soil was turned in for the reception of the Barley. He used at one time to turn in the Wheat stubble in the autumn and leave it the whole winter, but he found the land healthier and sounder by the other course. He ploughed the stubble in a week before Christmas with three horses, and once in the first dry time in February broke the top by harrowing. He then used a cultivator, constructed especially for the purpose, a very light implement, by which the soil was lifted completely up as deep as it had been ploughed. The effect of this, as far as his experience went, was to produce the finest preparation for Barley on clay lands. He twice cultivated with this cultivator with four horses, twice harrowed, drilled 14 rows of 8 feet with three horses, and light harrowed afterwards. The total cost of the preparation for Barley, taking all the expenses of horse and hand labour from the beginning to the end over 9 acres, was 10*l.* 15*s.*, or 1*l.* 4*s.* 3*d.* per acre. He had good land for his horses—salt marsh—which considerably lessened the cost. The first year he took Wheat, the second Barley, and the third Beans and Peas. For the third crop he carted a good dressing of farm-yard dung. He divided this course into three different classes—that was to say he grew winter Beans, spring Beans, and an early description of Pea. By this division they got different periods of sowing and smaller tasks, and this was an advantage with land like his, as it gave more certainty of getting through the work. The total expenses in preparing for winter [Beans over 8 acres, was 12*l.* 0*s.* 4*d.*; for spring Beans and Peas over 12 acres, including mucking, was 24*l.* 17*s.* 7*d.*, or 2*l.* 1*s.* 6*d.* an acre. The next course was the Oat course—the fourth year. He seeded down the Oat crop in October, but he divided this also into three divisions—a winter portion, getting some in in the autumn to make sure, then Black Tartarean Oats, a rarely productive description for the spring, and some Canadian Oats; and he placed the winter Oats upon the spring Bean land. The expense in this case for 8 acres, including dunging, was 15*l.* 10*s.* 2*d.*, or 1*l.* 18*s.* 9*d.* per acre. The spring Oats followed the other two divisions of the Bean crop, but for this he merely scarified and cleaned, but did not break the land. The expenses, including carting the muck, were 12*l.* 2*s.* 9*d.* over 8 acres, or 1*l.* 17*s.* 10*d.* per acre. In the fifth year came the first green crop, and for this he used the improved Italian Rye-grass and clean Clover, and seeded the rest down with a mixture adapted to the soil. The old Clover leas remained unbroken till the Spring, giving a fair run to the sheep. He used a mixture of Trefoil, Dutch Clover, and Italian Grass. The cost of seeding this land, not of course calculating the cost of the seed, was 1*l.* 8*s.* on 10 acres, or 2*s.* 9½*d.* per acre. The next course was roots and Mangel Wurzel, and he reserved for the Mangel the land which in the previous year was in Tares. The Tares were cut for the use of the horses, the manure was carted on at once, and ploughed in as deep as possible, and often as early as May the land was under summer fallow for Mangel. He used for this 18 loads of long manure, good farmyard dung, and the cost of carting, spreading, harrowing, and preparing 8 acres for Mangel after Tares was 20*l.* 7*s.* 6*d.*, or 2*l.* 10*s.* 11*d.* per acre. The second division of the seeded land was the Clover land, which was now intended for Swedes and hardy Turnips. The land was ploughed deep in March or April, and the expense (artificial manure was used for the root crops) amounted over eight acres for Swedes and hardy Turnips, including storing, to 8*l.* 15*s.* 9*d.*, or 1*l.* 2*s.* on an acre. The third division, in preparation for roots, was that laid down in Italian Rye-grass in the spring. This was an astonishing plant for vigour; it was sold by Sutton, of Reading. In preparing this division for roots the tillage was a little more expensive than in the other divisions, as the land was apt to be tough and stubborn; the total cost upon eight acres was 16*l.* 0*s.* 4*d.*, or 2*l.* 0*s.* 0½*d.* upon one acre. The seventh course was the green fallow. After the Mangels were removed he ploughed as early as possible, and put in winter Tares if likely to be required, but in the land he farmed the soil was so exceedingly stiff that sometimes in an awkward bit or two he did not put in the roots at all, for he had found it better to get it up at once, and let it remain without a crop all the winter. The whole of the root-course was now prepared and put in order for the summer green crop as soon as possible, and the most profitable he found was Rape with the same manure as for Turnips. The Mangel land was put in at once with the new green crop for summer consumption. He did not plough after the Turnips. The whole of the expense of preparing for the green fallow after the Mangel was 6*l.* 12*s.* 4*d.* for 8 acres, or 16*s.* 6½*d.* per acre. The expense of preparing after Swedes and Turnips was 4*l.* 11*s.* 3*d.* over 8 acres, or 11*s.* 5*d.* per acre—the cost in this case being lessened by the fact that the work was done in the spring, when the land worked easier. The next point was with respect to pieces of land that had not been cropped at all, a bare winter fallow that was ploughed at a convenient season of the winter, and put in winter Tares in February, and cultivated as for Rape, the cost being 7*l.* 13*s.* on 8 acres, or 19*s.* 1½*d.* per acre. The average cost of tillage in the three preparations after the root crop was 1*l.* 17*s.* 8*d.* per acre. The process of feeding off the summer green crop was the preparation of course for the first year's crop of Wheat, and the tillage and preparation of the land for the Wheat crop was only 10*l.* 15*s.* on 9 acres, or 1*l.* 4*s.* 3*d.* per acre. This was a very important item in the reduction of the expenses of heavy land farms. The principal features of his system were that time was allowed for the preparation of the seed beds for each description of crop, and that they followed on each other in such a way that sufficient time was allowed for a good weather-made surface for the seed which was to come. The next most important was that ample time was afforded for the profitable consumption at a convenient time of the root crop, by which much expense was saved. Upon the old system they had the spring corn hanging over their heads that must be got in at a certain time, and consequently the roots must be got rid of; they must be "muddled off," or "puddled on" the land. By his plan the weather was allowed to do a great deal that otherwise cart horses and implements would have to do, and it afforded ample time for the consumption of the green crop at that period when the land would best bear the sheep.

The Chairman asked in what locality the farm was situated.

Mr. Hughes. On the north side of the Isle of Wight, near to Cowes—the stiffest clay in the world, I should think.

Mr. Hughes (replying to Lord Berners), stated that he commenced drilling Rape in April and went on to June. The Rape he grew after Turnips last year with the same manure as for common Turnips produced such an enormous crop that he had to give over feeding it, and to cut the whole into chaff for the sheep. He mixed the Rape with Mustard, which was useful for sheep. He paid for labour 10*s.* a week to labourers, 11*s.* and 12*s.* to horsemen, and 8*d.* a day to women.

Mr. Howard thought if the lecturer got a steam cultivator on his land he would find some advantage in breaking up in autumn.

Mr. Hughes thought that if Mr. Howard's experience had been in the Hampshire hills he would abandon his idea of employing the steam cultivator. He should be glad if he could work it with advantage.

Mr. Howard should be sorry for it to go forth that hilly ground was unsuited to the steam cultivator, which could be profitably worked on any description of land—it could work, in fact, upon a perpendicular.

Mr. Hughes was glad to hear this was the case. He had had no experience in the matter himself; he had only seen the steam cultivator in operation where it was worked successfully.

Lord Berners, in proposing a vote of thanks to Mr. Hughes for his lecture, endorsed from an experience Mr. Howard's view as to the value of the steam cultivator.

The vote was passed unanimously, and the proceedings terminated.

Reviews.

A Lecture on the Breeding and Management of Sheep. Delivered before the Wayland Agricultural Association. By H. Woods, Agent to the Right Hon. Lord Walsingham. Ridgway & Co., Piccadilly.

This remarkably instructive lecture, which has been published in most of the agricultural journals, has been in type for some time, and is waiting for publication in our own. It will appear as soon as room can be found for it, and in the meantime it is published in a separate form along with additional matter; and we are glad to name it here as one of the very best addresses on its subject that have ever been delivered.

Calendar of Operations.

MARCH.

Chatteris, Isle of Ely: *March* 10.—At last we have an abundance of rain. During the last two months of the old year we had great drought, and the dust was blowing in the streets and on the highways like March or April. During the last fortnight we have had weather resembling that usually looked for in November, viz., continued fogs followed by heavy rains and snow. The last week, especially, has been wet; the Ouse has overflowed, and the Huntingdonshire meadows are all inundated, and the waters are pouring down the Wash from Earith to Sutton, Messel, and Welney, to empty themselves through Welmore Lake Sluice, again into the Ouse, and away to sea by Lynn and the Norfolk estuary cut. We have not had so heavy a flood for a long time. Low-lying fen lands are quite wet enough, and all the Fen engines, whether steam or wind, are busily employed day and night in pumping the waters into the large drains to be conveyed to 'old Ocean" as speedily as possible. The Middle Level syphons erected across the main drain just after the calamity of the 4th of May, 1862, when the outlet sluice gave way and such fearful disasters ensued, will now be fairly tested, and from the experience of the last two or three days we are inclined to think Mr. Hawkshaw's anticipations will be fully realised. We have also had a good share of frost as well as downfall since the new year came in. In January we had several severe nights, with the ground uncovered, but no perceptible injury was sustained by the growing crops; indeed, the Wheats only appeared to have received a salutary check; whilst all stiff, tenacious soils designed for spring crops were thoroughly pulverised and disintegrated, and a better seed-bed than they afterwards made could not have been desired. This weather was soon followed by a fall of snow which covered the ground for some days, and appeared to revive the Wheat plant and do good service to all vegetation. The snow, however, had scarcely disappeared when frost again returned, and the land was locked up for some days in its embrace, and farmers became anxious for suitable weather for putting in their Beans and Peas. Their anxieties were soon relieved, and a few fine days enabled them to get these crops safely deposited in the ground; but scarcely was this work completed and the Barley and Oat seeding commenced than fog and wet weather set in, and all sowing operations must now be suspended for some time. Yesterday from dawn to dark it snowed without intermission, and was followed by a severe frost, with the thermometer marking 23°. To-day it has been thawing again, and the wind has veered into the S.W. The fogs and humid atmosphere have improved the appearance of the growing Wheats; else, after the second frost with the land uncovered they were looking cut, and in some instances sickly, and there appeared reason to apprehend a partial failure. We have sown 62 acres of Beans, 18 of Peas, 10 of Barley, and 7 of Oats. We also commenced steam cultivating for Barley ten days ago, but only succeeded in getting one day's work done ere the weather changed, and we have before us a gloomy future for this work. We have between 50 and 60 acres to cultivate once over yet, preparatory to sowing the Barley; 17 acres, part of this is yet Wheat stubble, the other was cultivated once over in the autumn. All our other lands for spring corn are ploughed and ready for the drill as soon as the weather becomes again favourable. We still have upwards of 430 sheep in yards; we give them, namely the hoggets, cut Mangels, Bean and Wheat-straw, ¼th lb. cake, ¼th pint of Peas, and ¼th pint condimental food (the latter being home-made). The shearling sheep get everything the same, except a double quantity of cake. The sheep generally are very healthy; in one yard of 90 put in during Christmas week there were 90 living this morning. In another of 80 only one is missing, which died by getting on his back in the night; in another of 173, three are missing, these are the hoggets. In the 96 shearlings one went dizzy and one died from inflammation of the lungs. The loss, therefore, has been inconsiderable, and not one single case of lameness have we yet discovered. What this rain may do remains to be seen. We have besides these 76 Scots which are treading straw into manure, eating cake and corn. The present wet weather is making sad work with straw stacks, and even then cattle can scarcely be kept comfortable. Our horses are all idle, and men not much better. Work is very scarce. *A. R.*

Wester Ross: *March* 7.—We are again in the midst of a pretty severe snow storm, which, driven with a boisterous wind, has filled up hedge and ditch. Some three weeks ago an intense frost arrested the plough, and although a thaw set in about ten days thereafter a cold easterly wind continued to blow, accompanied with frost at night; and except on fields well exposed to the sun, the frost had not quite relaxed its hold when this new storm set in. A few days, no doubt, will clear the fields again, and prepare the way for the plough, but at this advanced season, and with so much yet to do, a few days even are of great importance. At this time last year a considerable breadth of Oats was sown in excellent condition; but with the best weather now, and on the driest farms, the seed time must be a considerable way off. Our Turnips were in the way of being consumed quite fast enough without any extra aid, but intense and long-continued frost, accompanied with snow quite insufficient to afford any protection, so assisted the consumption that the few patches now to let for sheep are in great demand at prices much advanced. Many of the sheep now in the low country will have to return to their grazings, previous to their usual time, and were it not that our Potatos are unsaleable even at 27*s.* per ton, and will have to be consumed on the farm, many of the cattle also would have to be disposed of sooner than was anticipated. Cattle in good condition have been selling well; our lately opened railways affording facilities to southern butchers and dealers to visit our markets, and

rendering the transit of our stock to the south a greatly simpler matter than it hitherto was. Grain has been, and is still selling at a figure so unremuneratingly low that many farmers have commenced a rotation of cropping by which a full half of their farms will always be under Grass, whilst many more seem satisfied that a change of some sort is needed, but are not over certain what that change ought to be. We have been busy of late in doing up all odds and ends of work, so that the ordinary labour of the farm may not be interrupted when favourable weather sets in. Nearly all our ground for Barley and Oats is yet to plough, and a more busy spring than this must now be, we have not had for many years.

Berwickshire, Merse Farm: *March* 7.—The weather of February was decidedly wintry, though quite different from the keen black frost of the new year. Two distinct snow-storms are to be noted, lying some 8 inches deep, in the low country; and the air temperature fell to 10° on the 8th, and nearly as low on the 20th. Between these two storms we were visited on the 13th by a sustained gale from the west, which stripped roofs, and kept straw flying across the country for two whole days. Up to the close of the month we registered but 1¼ inches of downfall, but since that we have 2 inches more of rain and sleet; the land is in pools, and the snow is beginning to lie white to-night. Our streams being but slightly swollen, indicates hard snow on the hills. After struggling through mud for a week, we have been compelled temporarily to remove all our sheep stock from the Turnip-break to such small Grass fields as we can spare. This was easily done in November, and with complete success; but it is not without difficulty we can do it now; for all the lea is ploughed, and the seeds are strictly reserved for ewes just about to lamb. Hoggs have thriven remarkably, where care was taken to have their meat stored fresh and clean; and if they suffer from this wet, it will be their first check. There are to be found instances of folk having to go a-field, fair or foul, for the day's supply; but that system is not now, as it was formerly, the rule. Swedes are plenty to last all next month, and the longer we can keep off the young Grass the better, for the plant is exceedingly poor and weak. Early stored roots are coming out in fine condition, but those exposed to the last frost are going fast. With a large reserve of unsaleable Potatos, cattle will need little oilcake to bring them to market. Wheat is not far above ground yet, nor can it be called green; but there seems to be plenty of plants. We believe there has been little sown since December, and it needs some faith to sow Wheat in the middle of March; but the price is so low compared with that of Barley, that we need not regret the hindrances of the weather. Mr. Gladstone's scheme will benefit no one, unless (as we may hope), it lead him a step towards a reduction of the malt duty. Rather a considerable portion of the crop remains in stack: for, while low prices have urged threshing, the dry season on the other hand has retarded the disposal of straw; and straw stacks are a deformity, and a source of confusion when the wind blows. The absence of Red Clover will prevent the soiling of cattle, which might have helped away with the surplus. *J. T.*

Meteorological Observations—Berkshire.

By the Rev. J. Slatter, Strentley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	March	Inches. 29.55	°	°				°	°	°	°	Inches. 0.70*
Friday	11	30.10	45	41	S.W.	3	5	51	38	59	31	0.03
Saturday	12	30.24	48	44	N.W.	1	5	50	38	59	31	..
Sunday	13	30.06	48	46	W.	2	10	54	43	68	37	0.01
Monday	14	29.82	50	47	S.W.	3	10	55	45	64	41	..
Tuesday	15	30.09	43	41	S.E.	2	1	53	34	56	29	0.10
Wednesday	16	30.14	39	38	S.E.	2	10	53	33	56	29	..
Thursday	17											

* Melted Snow of the 9th, and Rain of the 10th.

Notices to Correspondents.

Ashes *Eversley.* "Small cinders from a furnace" are not a good thing to mix with guano. Use any ordinary loam.

Books: *Agrestis.* Hand-book of Dairy Husbandry, 1s. 6d. (Longmans).

Cottage Accommodation: *Agricola.* Landowners can borrow money of the Land Improvement Companies, giving a rent charge on their estates for a period long enough for the repayment of principal and interest.

Cows: *Anon.* Tie the cow up until she has become accustomed to the calf.

Lambing Fold: *N.* A low shed erected round three sides of a sunny sheltered yard, open to the south. Perhaps some of our correspondents may give their experience on the best plan and material for its formation.

Poultry: *G B O.* Next week.

Wheats: *Triticum,* Many thanks. Next week.



SECURED BY
ROYAL LETTERS PATENT.

PRICE 32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanized Wire Strainer, Rose, and Small Jet, Brass Cylinders and Japanned Stirrup. With Copper Stirrup, Two Guineas.
Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Robert Hogg, LL.D. and F.L.S., Shirley Hibbard, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen recommend the

HYDROPULT

AS AN INVALUABLE GARDEN IMPLEMENT.

A CARD.

It may not be known to the Public generally, that *interested parties,* unable legitimately to prevent an extensive sale of a new, efficient, and valuable invention, which, by its merited success, has superseded other devices of the kind, have resource *through their friends* to the now too frequent practice of writing anonymous communications to journals of large circulation, *requesting answers* as to the merits and efficiency of the invention in question. These questions and the answers, previously concocted by the interested parties aforesaid, duly appear; and are so worded as to have the desired effect. Thus are the Public misled and deceived by *malicious* and *envious* inuendos, the tendency of which is to bring into bad repute an article of utility, which has received the unqualified approval of thousands of well-known gentlemen, who, in a spirit of kindness, forward to the inventor gratuitous testimonials, as a token of their appreciation of his invention.

Parties unknown to me, have from motives best known to themselves, in this manner criticised the efficiency of the "Hydropult." I have no answer to make to them: to the Public I would say that I will cheerfully forward, on application, a prospectus, containing testimonials from gentlemen well known throughout the United Kingdom.

CHARLES P. BUTTON.

CHARLES P. BUTTON, Proprietor, HYDROPULT WAREHOUSE and SHOW ROOMS,
27, LEADENHALL STREET, LONDON, E.C.

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS.

To be sown with Corn for a crop of Clover, &c., in the following year.

In the Mixtures of Clovers and Rye-grass described below, we generally give 14 lbs. of Clovers (principally Red and Alsike) and 1 peck of Rye-grass per acre, but if more Rye-grass should be desired it can be supplied without altering the price by omitting a pound or two of Clovers. Should one sort of Clover only be required, it is only necessary to state this in giving the order.

CLOVERS and ITALIAN RYE-GRASS, for One Year's Clover Hay, at 12*s.* 6*d.* per acre.

CLOVERS and COMMON RYE-GRASS, for One Year's Clover Hay, at 12*s.* 6*d.* per acre.

If Rye-grass Seeds are not desired, the following will answer well—

CLOVER SEEDS WITHOUT RYE-GRASS, at 10*s.* 6*d.* to 12*s.* 6*d.* per acre, according to sorts and quantities supplied.

*** Gentlemen requiring "Seeds" to sow with Corn for One Year's Clover Lay will save themselves trouble, and ensure a proper mixture for their soil, by ordering the above-named Mixtures for the number of acres to be sown.

SUTTON'S MIXTURES for 2, 3, or 4 Years' Lay.

GRASSES, CLOVERS, &c., for 3 or 4 years' Pasture, Hay, or Soiling (2 bushels per acre), 21*s.* per acre.

GRASSES, CLOVERS, &c., for 2 years' Pasture, Hay, or Soiling, (weighing about 30 lbs., containing a large proportion of Clover Seeds), at 17*s.* 6*d.* per acre.

ITALIAN RYE-GRASS and ALSIKE CLOVER, for 2 or 3 years' Hay and Soiling, which may be cut three times a year (2 bushels per acre), 21*s.* per acre.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading, Berks.



MANGEL WURZEL SEED.

CHEAPER BY THE CWT.

	Per lb.—*s.*	*d.*
LARGE YELLOW GLOBE ..	0	6
ORANGE GLOBE	0	6
RED GLOBE	0	6
LONG RED	0	6
LONG YELLOW	0	6

NEW SORTS of MANGEL WURZEL.

NEW YELLOW INTERMEDIATE, very fine shape, free from roots	1	6
NEW RED INTERMEDIATE, similar in shape and quality ..	1	0
SELECTED LONG YELLOW, a heavy cropper of fine texture ..	0	8
SUTTON'S ELVETHAM LONG RED, of superior feeding quality	0	8
FISHER HOBBS' ORANGE GLOBE, a fine sort, already very popular	0	9
STRATTON'S RED GLOBE, a superior variety selected by Mr. Stratton	0	9

PRICED LISTS of other FARM SEEDS Gratis and Post Free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.

JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.

N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

To Gentlemen, Nurserymen, and Others.

GLOBE ARTICHOKE PLANTS, at 25*s.* per 100; also a quantity of PROVINCE or CABBAGE ROSE PLANTS, at 12*s.* per 100. A good discount allowed to the Trade.

Post orders payable to JOHN GAINES. Herbalist and Seedsman, Covent Garden Market, London, W.C.

SELECTED SEEDS

CARRIAGE FREE.

	per oz.—*s.*	*d*
PAUL'S Superb Crimson BEET, of excellent flavour ..	1	0
„ New Large Green Curled ENDIVE	1	0
„ Extra-Curled Garnishing PARSLEY	0	6
Richmond Cream BROCCOLI (true), the latest	1	6
Hardy Early Herts CAULIFLOWER	2	6
LENORMAND'S and EARLY ERFURT ditto per pkt.	1	6
SCARLET PERFECTION MELON .. .. „	2	6
PAUL'S HOLLYHOCKS, in 12 Varieties .. „	5	0
„ „ mixed .. .. „	1	0
„ Imported Collections of ASTERS, STOCKS, per pkt., 1*s.* 6*d.* to	2	6'
„ Home-saved QUILLED ASTERS .. per pkt.	2	6

All other SEEDS of first quality. PRICED LIST on application.

PAUL & SON, "Old" Cheshunt Nurseries, N.

SEEDS of SELECT QUALITY

FREE BY POST.

IMPROVED RABY CASTLE BEET, warranted one of the finest Beets grown, half ounce pkts., 1*s.*

NE PLUS ULTRA CAULIFLOWER, has every good property, and sure to please, per pkt., 1*s.*

CRISTATA PARSLEY for garnishing, not to be equalled, per pkt., 6*d.*

CINERARIA, from the finest named Collection, no inferior sorts grown, per pkt., 1*s.*

LOBELIA SPECIOSA, true, fine quality, large pkt., 1*s.*

SWEET WILLIAM (HUNT'S), per pkt., 6*d.*; ditto DEAN'S AURICULA-EYED, per pkt., 6*d.*

BELGIAN PANSY (DEAN'S), per pkt., 6*d.*

TROPÆOLUM CRYSTAL PALACE SCARLET, 6*d.* per pkt.; ditto GEM, per pkt., 6*d.*

AMARANTHUS MELANCHOLICUS RUBER, per pkt., 6*d.*

All other FLOWER and GARDEN SEEDS of the finest quality.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

DAINTREE'S SEEDLING, 7*s.* per cwt., 5*l.* 10*s.* per ton.

	Per cwt.		Per ton.	
WEBB'S IMPERIAL KIDNEYS ..	7*s.*	0*d.*	£6	0 0
DALMAHOYS	4	0	3	10 0
FORTYFOLDS	5	0	4	0 0
PINK-EYED REGENTS	3	0	2	10 0
PENTON FLUKES	5	0	4	0 0
MYATT'S PROLIFIC	9	0	8	0 0
WHITE ROCKS	3	0	2	10 0

Sacks 2*s.* each.

YELLOW GLOBE MANGEL ..	28	0	22	0 0
RED GLOBE DO.	28	0	24	0 0
	Per stone.		Per cwt.	
LONG RED	4	0	1	8 0
LONG YELLOW	4	0	1	8 0
ENGLEFIELD YELLOW	8	0	3	0 0

Bags, 1*s.* 6*d.* each.

Remittances to accompany orders.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterborough.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

CARRIAGE ARRANGEMENTS.

The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.

CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

Alsike Hybrid Clover.

THE LONDON SEED COMPANY, LIMITED, can supply SEED of this valuable CLOVER, at 9*d.*, 10*d.*, and 1*s.* per lb., or 82*s.*, 88*s.*, 94*s.*, and 100*s.* per cwt. Carriage free. Samples fine.

68, Welbeck Street, Cavendish Square, W.

Reliable Seeds.

ROBERT P. KER, 4, Basnett Street, Liverpool (late Manager for Mr. William Skirving), has now large supplies of SKIRVING'S IMPROVED SWEDE TURNIP, WELSH and ENGLISH RED CLOVERS, TRUE ALSIKE CLOVER, COW-GRASS, WHITE CLOVER, TREFOIL, &c., PERENNIAL and ITALIAN RYE-GRASSES.

All extra fine Samples, at lowest Market prices.

First Prize of 10*l.* awarded to R. P. KER by the Manchester and Liverpool Agricultural Society, for AGRICULTURAL SEEDS, September, 1863.

Unadulterated Choice Seeds.

ROBERT PARKER begs to announce he can supply a few pounds of each of the undermentioned, price of which will be forwarded on application:—

CUSTARD VEGETABLE MARROW.

LOBELIA ERINUS SPECIOSA.

LEEK HYBRID PRIZE (HENRY'S), the largest and finest in cultivation.

LETTUCE MOOR PARK, the best Brown Cos in cultivation.

A NEW PRICED and DESCRIPTIVE SEED and PLANT CATALOGUE is published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Select Catalogue of Seeds and Plants.

ROBERT PARKER begs to announce that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, FLOWER SEEDS, &c., with Supplementary Descriptive and Priced Lists of Good and New Plants, is now published, and will be forwarded to applicants. All Seeds are warranted to be of the finest possible quality.

Intending purchasers are requested to compare the prices with those of other houses. The following are specially recommended.

	Per oz.—*s.*	*d.*
BROCCOLI, SUPERB WINTER WHITE (Snow's) ..	2	6
„ LATE WHITE (Shearer's)	2	6
CAULIFLOWER, NEW EARLY MAMMOTH	2	6
LEEK, HYBRID PRIZE (Henry's)	2	0
LETTUCE, MOOR PARK	1	6
PEA, ADVANCER (Maclean's)	2	0

Exotic Nursery, Tooting, Surrey, S.

GIANT ASPARAGUS ROOTS, 2*s.* 6*d.* per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1864.

Strong Transplanted SEAKALE, 2*s.* per doz,

RICHARD SMITH, Nurseryman, Worcester.

Splendid Seakale for Forcing.

WILLIAM BARNES has a few hundreds, extra strong crowns, to offer, and feels confident they cannot be surpassed for size or health. He has also some of a second size, which will produce fine heads for table.

Price upon application.

Camden Nursery, Camberwell.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:

Price for Picked Roots, per 100	10*s.*	0*d.*
Do. second size „	7	6
Also strong for Planting, per 100 .. 5*s.* and	7	6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

SEEDS of SUPERIOR MERIT.—Free by Post, except the Peas and Beans.

	per Quart—*s.*	*d.*
PEA, DILLISTONE'S EARLY PROLIFIC, 2 ft., the earliest of all	1	6
„ ADVANCER (McLean's), 2 ft., the best dwarf Pea	1	6
„ PAYNE'S CONQUEROR, 5 ft., the best tall Pea	1	0
BEAN, BECK'S DWARF GREEN GEM	0	8
	per Packet.	
BEET, PINE APPLE, superb crimson	0	6
„ NUTTING'S SUPERB RED	0	6
BROCCOLI, SNOW'S IMPERIAL WINTER WHITE ..	1	0
„ BACKHOUSE'S WINTER WHITE PROTECTING	2	6
BRUSSELS SPROUTS, ROSEBURY	0	6
CAULIFLOWER, LARGE EARLY ERFURT	1	0
CABBAGE, LITTLE PIXIE	0	6
CUCUMBER, SMITH'S FINE LONG FRAME	1	0
CELERY, MAMMOTH WHITE	0	6
„ RED	0	6
MELON, EMPRESS EUGENIE	1	0
LETTUCE, PARIS WHITE COS	0	6
„ „ GREEN COS	0	6
PARSLEY, extra curled garnishing	0	6
SAVOY, NEW FEATHER-STEMMED	0	6
PARSNIP, THE STUDENT	0	6
TOMATO DE LAYE	0	6
LOBELIA PAXTONIANA, or Crystal Palace var. ..	1	0
TRUFFAUT'S SPLENDID ASTER, 18 vars.	1	0
CHRYSANTHEMUM-FLOWERED ASTER, 12 vars. ..	1	0
IMPORTED LARGE-FLOWERING STOCK, 18 vars...	1	0
BALSAM, SPLENDID ROSE-FLOWERED, 12 vars...	1	0
AMARANTHUS MELANCHOLICUS RUBER	0	6

The whole of the above carriage free for 21*s.*

RICHARD SMITH, Seed Merchant, Worcester.

Seed Potatos.

WOOD AND INGRAM have to offer a quantity of the following kinds of their own growth, and which may be relied upon as true to name, at a very cheap rate, according to the quantity taken:—Ashleaved Kidney, Myatt's Kidney, Robinson's Golden Kidney, Jackson's Kidney, Lapstone Fluke, Webb's Imperial, Dalmahoy, Early Handsworth, Early Oxford, Martin's Globe, and York Regent.

Price on application.

Nurseries, Huntingdon.

Seed Potatoes.

H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties, which they can offer to the Trade at low prices.

Seed Growing Establishment, Wisbech.

Seed Potatos.

WEBB'S IMPERIAL KIDNEY 7*s.* per cwt.; GLOUCESTERSHIRE KIDNEY, 10*s.* per cwt.; DAINTREE'S EARLIEST, 6*s.* per cwt.; WALNUT-LEAF KIDNEY, 10*s.* per cwt. Sacks 2*s.* each. Terms Cash.

W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

To the Trade.

SEED POTATOS.—EARLY HANDSWORTH, LEMON KIDNEY, WEBB'S IMPERIAL, DAINTREE'S SEEDLING, LAPSTONE, &c., warranted true.

PRICED DESCRIPTIVE LIST sent on application to G. & W. YATES, Seed Merchants, Manchester.

Myatt's Ashleaf Potatos.

T. BUNYARD AND SONS, Ashford, have a fine stock of the above to offer, very cheap. Also OLD ASHLEAF, 1*s.* 6*d.* per peck; COCKNEY and FRAME, 1*s.* 3*d.* per peck; EBRINGTON and PROTESTANTS, 1*s.* 3*d.* per peck. Warranted true to name.

Seed Potatos.

PROTHEROE AND MORRIS beg to offer the undermentioned POTATOS, grown on their new grounds, adjoining the Forest, and free from disease:—

SCOTCH REGENTS	WEBB'S IMPERIAL KIDNEY
TRUE EARLY SHAW'S	MARTIN'S EARLY GLOBE, &c.

American Nurseries, Leytonstone, E.C.

BEST POTATOS for FIELD PLANTING.

SKERRY BLUES	NEW PINK FLUKES
FLUKES	DALMAHOYS (EARLY)
YORK REGENTS	BRITISH QUEEN
NEW RED REGENTS	THE KING
DAINTREE'S FIRST EARLY	

For lowest cash prices, apply, stating quantity required, to SUTTON & SONS, Seed Growers, Reading.

Seed Potatos.

GEORGE SIBBALD, Drumgeath, by Dundee, N.B., has for Sale about 40 Tons of the following POTATOS, true to name:—Early Ashleaf Kidney, Myatt's Prolific Kidney, Lemon Kidney, Poole's King of the Kidneys, Fluke Kidney, Lapstone Kidney, Early Oxford, Cheshire Cluster, Early American, Early Dalmahoy; also Ashleaf Round, Walker's Early, &c. Prices very moderate. Apply as above.

Shipping rates to London, Hull, and other Ports very low,

POTATOS.—Handsworth, Ashleaf, Myatt's Prolific, Fortyfold, Dalmahoy, Early Shaw. &c.

GOOSEBERRIES and BLACK CURRANTS, extra strong.

2-Year ASPARAGUS, strong SEAKALE. RASPBERRIES, STRAWBERRIES, DUTCH HONEYSUCKLE, BOX EDGING, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

THOMAS AYRES, Biggleswade, Beds. NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Potatos for Present Planting.

JAMES FAIRHEAD AND SON have on offer a large quantity of all the leading and most approved kinds (Prices on application), including EARLY ASHLEAF, WALNUT LEAF, MYATT'S PROLIFIC, WEBB'S IMPERIAL, EARLY TEN-WEEK (10 days earlier than the Shaw's), SHAW'S DALMAHOYS, REGENTS, FORTYFOLD, PEEP O' DAY KIDNEY, SPENCER'S KING of the KIDNEYS.

7, Borough Market, London, S.E.

Potatos.—Seeds.

H. BROWN having on hand an extra large Stock of the following POTATOS, begs to offer them at considerably reduced prices per Imperial Bushel, for present orders, viz.:—True Early Ashleaf Kidney Potatos, 6*s.*; Myatt's Prolific Ashleaf Kidney, 5*s.* 6*d.*; Early Pink, Early Kemps, 4*s.* 6*d.* Also Dalmahoy, Fortyfold, White Rock, Scotch Downs, Flukes, Arrowsmith's Seedlings, and other varieties.

Prices for quantities on application. For SEEDS, see PRICED DESCRIPTIVE 44-page CATALOGUE, post free.

4, Commutation Row, Liverpool.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863:—

"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."

Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

PINK FLUKE POTATO (quite true).—Fine flavour, most prolific, may be said to be literally free from disease; obtains the best market price, will keep 12 months, is in high perfection from January, to September, therefore invaluable when others are useless. This Potato is almost unknown except in the vicinity of Pershore and Worcester, where the principal growers have been supplied by the Advertiser, who has grown it with great success for several years, in an increasing extent, to the exclusion of all other kinds, being convinced it yields a profit double that of any other variety; the past season he grew 22 acres. Has 120 tons now to dispose of, which he offers on terms below, assured that e'er long the Pink Fluke will occupy the great bulk of every grower's crop in the kingdom. Price, delivered at Pershore Station, upon receipt of remittance, in new corn sacks (charged 2*s.* each), containing 3 bushels, or 180 lb. nett: one sack, 16*s.*; two, 15*s.* per sack; three, 14*s.* per sack; five, 13*s.* 6*d.* per sack; a discount on larger quantities. The distance from the Station compels a scale of prices.

Apply to FRANCIS JAMES, The Warren, Brockhampton, near Worcester.

N.B.—As the Pink Fluke bears great contrast in its nature, habit, and growth, to other kinds, F. J. will, on receipt of a stamped envelope (addressed), forward a printed description of the same, as also his successful mode of culture.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application :—

DANIEL O'ROURKE PEAS
EARLY PRIZETAKER MARROW

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2s. 6d. per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM ; height, 8 or 9 feet. 4s. per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO ; height, 2½ feet. 4s. per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1s. and 2s. 6d. per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

Henry's Prize Hybrid Leek (True).

DOWNIE, LAIRD, AND LAING, having secured the entire Stock of the above from Mr. Henry, are now sending it out in packets, at 1s. each. This Leek can be grown from 4 to 5 lbs. weight. None genuine unless in their own sealed packets.

17, Frederick Street, Edinburgh ; and Stanstead Park, Forest Hill, London, S.E.

List of Select Vegetable Seeds, &c.

DOWNIE, LAIRD, AND LAING beg to announce their new PRICED LIST of the above is now ready, and may be had Post Free on application.

The Seeds are from the most carefully selected Stocks, and are of the finest quality. The following sorts we particularly recommend :—

DILLISTONE'S EARLIEST PEAS, 1s. 6d. per quart.
BROCCOLI, OSBORN'S NEW WINTER, 2s. 6d. per packet.
BROCCOLI, SNOW'S SUPERB, 2s. 6d. per ounce.
CUCUMBER KIRKLEES HALL, 1s. per packet.
Ditto DONALD BEATON, new hybrid ridge, very fine, 1s. per packet.
LEEK HYBRID PRIZE (seed saved by Henry), 1s. per pkt.
LETTUCE STANSTEAD WINTER CABBAGE, 1s. per pkt.
MELON SCARLET PERFECTION, new, First-class Certificate at Royal Horticultural Society, 2s. 6d. per packet.

Nursery and Seed Establishment, Stanstead Park, Forest Hill, S.E. ; and Edinburgh.

To Persons Engaged in Laying out New Grounds.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, beg to offer the following, of which they have a large and healthy stock, and which they are prepared to dispose of on very reasonable terms. Prices may be had on application.

STANDARD PORTUGAL LAUREL, on strong stems, 3 to 4 feet, with heads 10 to 15 feet in circumference.
STANDARD LAUREL, COLCHICUM, 5 to 6 feet stems, with large well-formed heads. This is hardier than the Common Laurel.
STANDARD HYBRID RHODODENDRONS, 3 to 5 feet stems and good heads.
STANDARD SIBERIAN LILAC, 4 to 5ft. stems, and neat heads
,, LILAC NOISETTIANA, 4 to 5 feet.
,, GUELDER ROSE, 3 to 4 feet stems.
,, GOLDEN-STRIPED YEW, and ELEGANTISSIMA, grafted on Irish Yew, 6 to 8 feet.
SCARLET and YELLOW-FLOWERING HORSE CHESNUTS, 5 to 8 feet.
LABURNUM, ENGLISH and SCOTCH, 6 to 12 feet.
MOUNTAIN ASH, 6, 8, and 10 feet.
POPLARS, LOMBARDY, from 6 to 15 feet.
SERVICE TREE, of sorts, 8, 10, and 12 feet.
TREE BOX, fine dressed specimens.
ENGLISH YEW, pyramidal-shaped plants, 3 to 4 feet.
GRAFTED HOLLIES, of sorts, specimen plants, 2 to 5 feet.
HODGINS' HOLLY, 1½, 2½, and 3½ feet.
GREEN HOLLIES, 2 to 4 feet, planted out in clumps.
EVERGREEN OAK, in pots, 2, 3, and 4 feet.
RHODODENDRONS, fine hardy hybrid sorts, 2, 3, and 4 feet, and as much through.
RHODODENDRON NAPOLEON III.—Deep rosy crimson, beautifully spotted, quite hardy.
HARDY HEATHS.—A fine collection, including 40 distinct named sorts.
An extensive collection of Dwarf hardy AMERICAN SHRUBS
HARDY CONIFERÆ.
ARAUCARIA IMBRICATA, 1½, 2, 2½, and 3 feet.
CEDRUS DEODARA, 3, 4, 5, 6, and 7 feet.
MOUNT ATLAS CEDAR, 2 and 3 feet.
CEDAR of LEBANON, 1 and 2 feet.
ABIES ARCHANGELICA, well furnished, 1 to 1½ foot.
,, FINDONENSIS VARIEGATA, 9 inches.
,, INVERTA, 9 inches | ABIES PYGMÆA
,, ORIENTALIS, 1½, 2, and 3 feet.
HEMLOCK SPRUCE, 2 feet.
LARIX TAMARIX, or AMERICAN LARCH, 5 to 8 feet
BLACK AMERICAN SPRUCE, fine specimens, 3, 4, and 5 ft.
PICEA AMABILIS, 1 foot
,, GRANDIS, or LASIOCARPA, 1 and 2 feet.
,, FRASERI, 2 to 2½ ft. | PICEA NORDMANNIANA, 1 ft.
PINUS EXCELSA, 2 and 3 feet.
,, BENTHAMIANA, 2 to 2½ feet.
,, CALABRICA, 2, 4, & 5 ft. | PINUS MACROCARPA, 3&4ft
,, CEMBRA, 3 and 4 feet | ,, TAURICA, 1½ to 2 feet, and 3 to 3½ feet
,, FISCHERI | ,, PYRENAICA, 1½, 2, 3, & 4 ft
,, HARTWEGII | ,, UNCINATA, 1½ to 2 feet
,, MONTICOLA, 9 to 12 ins.
WEYMOUTH PINE, 2½ to 3 feet.
CRYPTOMERIA JAPONICA and LOBBII, 2 to 3 & 5 to 6 feet
CUPRESSUS MACROCARPA, 3, 4, and 5 feet.
,, SEMPERVIRENS, 3 to 4 feet.
JUNIPERUS DUMOSA | JUNIPERUS PROSTRATA
,, CRACOVIA, 2 to 3 feet. | ,, SABINA, 2 to 2½ feet
,, TAMARISCIFOLIA
RETINOSPORA ERICOIDES, 1 foot.
RED CEDAR, 2 to 3 feet.
LIBOCEDRUS CHILENSIS, 3, 4, and 5 feet.
AMERICAN ARBOR-VITÆ, 3½ to 4 feet.
CHINESE ARBOR-VITÆ, 2 to 3 feet,
GOLDEN ARBOR-VITÆ, 1 to 1½ foot.
PEARS, in pots, well set with fruit buds.
LARGE PYRAMIDAL PEARS, in a bearing state, 6, 8, and 10 feet, with good fibrous roots.
PEAR STOCKS.
CAMELLIAS.—A number of very fine specimen plants, Double White, and other kinds, in tubs, 6 to 15 feet.

A large collection of Hardy BRITISH and EXOTIC FERNS.

All kinds of FOREST TREES, GREENHOUSE and STOVE PLANTS, AGRICULTURAL, GARDEN, & FLOWER SEEDS, separate CATALOGUES of which can be had on application.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation ; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.

Fulham Nursery, London, S.W.—March 5.

Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. 6d. per packet. Will be forwarded to any part of England on forwarding 30 postage stamps.

The habit and quality of the above Broccoli is of the very best ; very large head, sits close to the ground ; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents : HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C. ; and J. BACKHOUSE & SON, York Nurseries.

To the Trade.

TO BE SOLD CHEAP, a very large quantity of LILACS, of all sorts and sizes ; LIMES, Balsam Poplars, Birch, Scarlet Thorns, Laburnums, Euonymus, Aucubas, Althæa frutex, Laurels, Guelder Rose, Ribes sanguineum, Magnolias of sorts, Ivies, Clematis, Periploca, Menispermum, Glycine, Pyrus japonica ; very fine Dwarf-trained Apples, Pears, Plums, Moorpark Apricots and Morella Cherries ; large Standard-trained Pears and Plums, Grape Vines, Figs, Gooseberries, Red and Black Currants, &c.

JOSEPH FRYER, Clarendon Nurseries, Camberwell New Road.

MESSRS. BROWN AND CO. offer the following CHOICE PLANTS :—

	s.	d.
25 AZALEAS, hardy Belgian varieties, with buds, one of a sort, by name	20	0
25 AZALEAS, do. do. American varieties	16	0
12 Hardy RHODODENDRONS, including Scarlet, Rose and White, one of a sort	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
STANDARD and HALF STANDARD ROSES, ,, 10s. to	12	0
DWARF and CLIMBING ROSES .. .. per doz.	6	0
Greenhouse AZALEAS, best sorts .. per doz. 10s. to	12	0
CAMELLIAS, with buds .. .. .. per doz.	28	0
CARNATIONS and PICOTEES, choice sorts ,,	6	0
Choice PINKS and CLOVES .. .. ,,	3	0
Hardy FERNS, of sorts .. .. ,,	4	0

FLOWER SEEDS of all kinds cheap.

American Nursery, near Farnham, Surrey.

Transplanted and Seedling Larches.

BENJAMIN REID AND CO., NURSERYMEN, Aberdeen, N.B., offer for Sale several Millions of SEEDLING and TRANSPLANTED LARCHES. They are furnished with abundant healthy roots, clean stems, and capital leaders, and being grown in friable soil in an exposed situation are well worth the attention of proprietors and the Trade. CATALOGUES Post Free.

Special Prices and free delivery for large quantities on application.

ANDROMEDA FORMOSA (TRUE).—Strong Plants of this beautiful hardy Evergreen Shrub, about 1 foot, 50s. per 100 ; 1½ to 2 feet, 12s. per dozen ; and extra strong selected bushy specimens, 2s. 6d. each.

A CATALOGUE of one of the finest Nursery Stocks in the kingdom, extending over 60 acres, forwarded on application.

W. H. ROGERS, Red Lodge Nursery, Southampton.

PHOSPHO GUANO.

Company's Trade Mark.

Contractors' Trade Mark.

THE PHOSPHO GUANO, in its natural state, is found on trap-rock islets within the tropics. It was discovered in 1854 ; and its existence was made known in August, 1856, by Dr. VOELCKER, who read a paper at the Cheltenham meeting of the British Association for the Advancement of Science, "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly concentrated phosphatic manure.

Its valuable and peculiar qualities immediately attracted the attention of the leading Agricultural Chemists, who pronounced it at once to be greatly superior to all other Guanos as a manurial agent. The result of careful experiments in the field having fully established this superiority, the consumption has increased year by year ; and at the close of the seventh season, 1863, it has attained a position second only in consumption to that of Peruvian Guano.

The Baron LIEBIG, in the course of his investigations, discovered potash in the raw Guano, a discovery since confirmed by Dr. VOELCKER and other Chemists. To the presence of this substance (which is not found in any mineral phosphate) is attributable, in some degree, the great superiority of the PHOSPHO GUANO when compared with other phosphatic manures made from coprolites, apatite, Sombrero Guano, &c.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared ; and LIEBIG states that by using PHOSPHO GUANO, the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime ; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other manure ; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

All Chemists of standing have ceased to place a money value on manures submitted by them to analysis, as tending to lead to erroneous conclusions, owing to the disingenuous manner in which such values are paraded before the public eye by dealers ; but for the information of those farmers who still have faith in this test, the money value of the PHOSPHO GUANO, calculated by the data hitherto in use, is, according to the mean average of Dr. VOELCKER'S analyses, 13*l.* 18*s.* 2*d.* per ton ; and of Baron LIEBIG'S analyses, 14*l.* 18*s.* 4*d.* per ton.

Peruvian Guano and PHOSPHO GUANO are respectively the representatives, in the highest degree, of the two most important manurial substances, ammonia and phosphoric acid. In Peruvian Guano there is 13.61 per cent. of nitrogen, yielding 7.0 of actual ammonia and 10.0 latent—and the latent, in the opinion of Dr. VOELCKER, is as available or nearly so as the actual ammonia—together with 3.0 per cent. phosphoric acid in soluble state. In PHOSPHO GUANO there are 18.027 per cent. of phosphoric acid in soluble state, and 3.50 per cent. actual ammonia.

As Peruvian Guano is acknowledged to be a cheap source of ammonia, so likewise PHOSPHO GUANO must be considered as a cheap source of phosphoric acid—much to be preferred to bones, superphosphates, coprolites, apatite, Sombrero and other inferior Guanos ; while the proportion of 3.50 per cent. of actual ammonia constitutes it the best-balanced manure in the market.

If the results of practical experience were required to recommend the PHOSPHO GUANO, testimonials from many of the most eminent Agriculturists in the kingdom could be adduced ; but the reader of this advertisement is particularly referred to the most recent of these, published in the last number of the *Quarterly Journal of Agriculture* (Jan. 1864), by Mr. HENRY STEPHENS, author of the "Book of the Farm," detailing the experiments made by the MARQUIS OF TWEEDDALE, with their successful results.

Pamphlets, containing a full description of the PHOSPHO GUANO, its History, Nature, Properties, &c., may be obtained on application.

PRICES AND TERMS.

The Cash Prices, including the cost of bags, Carriage Free at any railway station or shipping port in the kingdom, are as follows :—

For 10 tons and upwards, £11 10s. per ton. | For smaller quantities, £11 15s. per ton.

For full cargoes, direct to any port, special rates will be quoted.

CREDIT RATES.—Should the Consumer require credit, the price is increased at the rate of 2*s.* per ton per month.

To prevent fraud, all casks and bags are branded with the PHOSPHO GUANO COMPANY'S Trade Mark, as well as that of the Contractors, copies of which appear at the head of this advertisement.

There are Authorized Agents appointed for the sale of PHOSPHO GUANO in all the principal towns and villages in the United Kingdom ; but where any difficulty exists in procuring supplies, orders may be sent direct to

PETER LAWSON & SON,

GEORGE IV. BRIDGE, EDINBURGH ; or, 28, KING ST., CHEAPSIDE, LONDON, E.C.

PETER LAWSON AND SON, *Contractors.*
WILLIAM DIXON AND CO., *General Agents.*
GEORGE SEAGRAVE AND CO., *Brokers.*

Two-Years Seedling Larch.

ONE-YEAR TRANSPLANTED LARCH.
Very hardy plants, the produce of Scotch Seed.
RHODODENDRON PONTICUM, from 4 to 18 inches.
Trade prices on application to HOWDEN BROTHERS, Inverness.

SPRUCE FIRS for HEDGES and BEDDING. From 400 to 500,000, 9 to 12 inches in height, at 5*s.* per 1000, in quantities not less than 10,000. Carriage paid to London.
Apply to Mr. WM. CLARKE, Seedsman, 25, Bishopsgate Street, London, E.C., where a sample may be seen.

SURPLUS NURSERY STOCK
On Lands that must be Cleared.

Transplanted Quicks, 3, 4, 5, and 6 years	Wych Elms, 2 to 3 feet
Mountain Ash, 3 to 4½ feet	Chesnut, Horse, 1½ to 2 feet
Hazels, 2 to 3½ feet	Poplar, Black Italian, 4 to 6 ft
Service Trees, 4, 5, and 6 feet	Poplars, Lombardy, 4 to 6 feet
Privets, 3 to 4 feet	Pear Stocks, 2 to 3 feet
English Oak, 3 to 4½ feet	Apple Stocks, 2 to 3 feet
Turkey Oak, 5 to 7 feet	Manetti Stocks, strong
Poplars, 6, 7, 8, and 9 feet	Mountain Ash, 3, 4, and 5 feet
Hornbeam, 4 to 6 feet	Horse Chesnuts, 7 to 9 feet
Limes, 6, 7, and 8 feet	Grafted Elms, 7 to 9 feet

Some Extra Strong LIMES suitable for AVENUES.
Price on application. State quantities required.
JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an Avenue or Group of the above, WILLIAM BARRON begs to offer a number of splendid SPECIMENS, from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6 ft., 7 ft., and 8 ft., 3*l.* 3*s.* to 5*l.* 5*s.*
9 ft., 10 ft., and 11 ft., 6*l.* 6*s.* to 8*l.* 8*s.*
12 ft., 13 ft., and 14 ft., 9*l.* 9*s.* to 10*l.* 10*s.*
Elvaston Nurseries, Derby.

To the Trade.

THOS. CRIPPS has still on hand a large Stock of fine healthy WELL ROOTED PLANTS of the undermentioned:—Abies Menziesii, 9 to 12 in. to 3 and 4 ft.; A. Albertiana (Californian Hemlock Spruce), all sizes up to 6 and 7 ft.; Araucaria imbricata, 4 to 6 in. to 12 ft.; Cupressus Lawsoniana, 2 to 4 in. to 6 and 7 ft.; C. macrocarpa (Lambertiana), 1 ft. to 10 and 12 ft.; Pinus Benthamiana, 4 to 6 in. to 2 and 3 ft.; P. insignis, 6 to 9 in. to 15 ft.; P. Jeffreyii, 2-years seedlings, to 5 ft.; P. Lambertiana, 3 to 6 in. to 2½ ft.; P. macrocarpa, 12 to 18 in. to 4 and 5 ft.; P. ponderosa, 4 to 6 in. to 6 and 8 ft.; Thuja Lobbii, 2 to 3 ft. to 6 and 8 ft.; Wellingtonia gigantea, fine specimens up to 6 and 8 ft.; Arbutus, 6 to 9 in. to 2 and 3 ft.; Berberis Darwinii, 6 to 9 in. to 3 and 4 ft.; Cotoneaster, Standards and Dwarfs; Laurel, Common, all sizes up to 6 and 7 ft.; Manetti Rose Stocks, fine, for immediate working; Pyracantha, all sizes; Broom, Portugal and Spanish, all sizes up to 3 and 4 ft.; Rhododendrons and Ghent Azaleas, all the leading varieties; Sweet Bays, Standards, with fine heads; Roses, Standards and Dwarfs; Vines from eyes, fruiting plants; Thujopsis dolabrata, per dozen or 100; Apple Trees, Standards and Dwarfs; Quick Thorn of all sizes.
WHOLESALE CATALOGUES post free on application.
The Nurseries, Tunbridge Wells, Kent.

Agricultural Seeds.

J. F. PIKE having a large Stock of the undermentioned, can supply:—
NEW ENGLISH RED CLOVER, first Quality, 54*s.* per cwt., 6*d.* per lb.
NEW ENGLISH RED CLOVER, second Quality, 50*s.* per cwt., 5½*d.* per lb.
MARL or COW, first Quality, 60*s.* per cwt., 7*d.* per lb.
TREFOIL or HOP, 28*s.* per cwt., 3½*d.* per lb.
WHITE DUTCH, 8*d.* per lb.
PERMANENT MEADOW GRASS, 7*s.* per bushel.
PERENNIAL RYE, 30*s.* and 36*s.* per Quarter.
ITALIAN FOREIGN, 30*s.* per cwt., 5*s.* 6*d.* per bushel.
SPRING TARES, 44*s.* per quarter.
YELLOW GLOBE MANGELS, 30*s.* per cwt.; 4*d.* per lb.
SACKS, 1*s.* 6*d.* each; BALES, 1*s.* 2*d.* each.
The above prices are for cash, and a remittance must accompany all orders.
Seed and Corn Establishment, 52, Walcot Street, Bath.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY THE PATENT
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value.
E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

VISIT to R. S. YATES'S NURSERY.
[See *Journal of Horticulture*, Jan. 17, 1862.
"The blooms were protected by a covering of BRITTAIN'S THREE-FOLD NETTING, which shaded them from the sun, kept the bees out, and sheltered them from heavy rains and strong winds. Mr. Yates remarked that this Netting was better than any other covering he had tried, the wind having less hold of it than either canvas or tiffany."
NETTING: No. 1, 5*d.*; 2, 6*d.*; 3, 7*d.* the Square Yard.
PIECES, 30 Yards long, 1½ wide.

Card.
SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

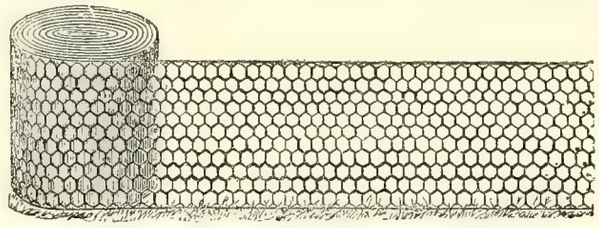
SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

WOODEN FENCING.—The cheapest, lasting TALLOW STAVES, 6*s.* per 100, at
PRICE'S Patent Candle Company, Limited, Belmont, Vauxhall, London, S.

BROWN'S FLORAL SHADING, sold by most respectable Nurserymen and Seedsmen, in pieces:—
No. 1, 20 yards long, 38 inches wide, at 7*s.* 8*d.* per piece.
2, do. do. 8*s.* 0*d.* do.
3, extra stout, 18 yards long, 39 inches wide, at 10*s.*
Samples on application to CHARLES BROWN, Greenheys, Manchester.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2½ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

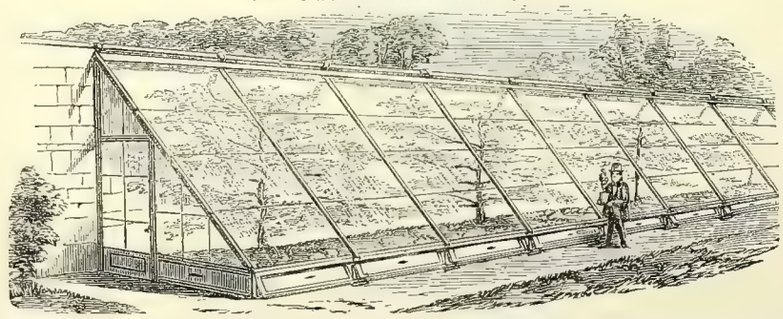
Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,
OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

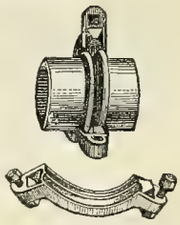
PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

PORTABLE HOT-WATER APPARATUS,
WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

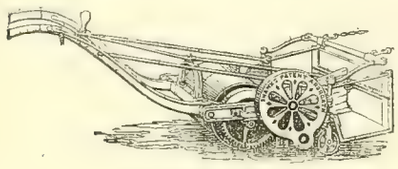
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

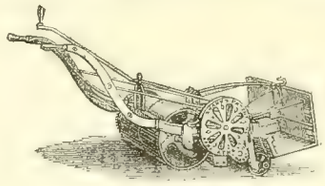
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

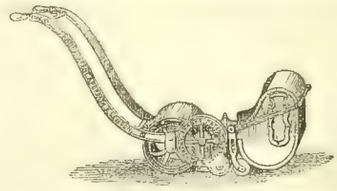
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS & SON can only attribute the universal satisfaction and complete success which has attended the introduction of their PATENT LAWN MOWERS, to their strict adherence to practical utility and simplicity of construction in the design and manufacture of their celebrated Machines.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington

The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie

The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. Viscount Seaham
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle
The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Hallburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Elibank

The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Binning
The Right Hon. Lord Ashtoun
The Right Hon. Lord Hume
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Crewe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Hon. C. L. Butler
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The Hon. Captain Drummond
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The Hon. Sir Edward Butler, Bart.
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The Hon. J. J. Carnegie
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The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

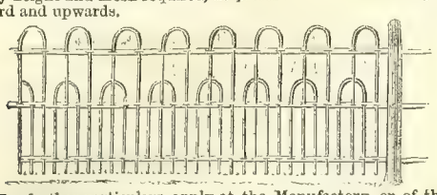
Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

JOHN GEDDES, late

H. J. MORTON AND CO.'S, CORRUGATED GALVANISED IRON ROOFING,
for Farm Buildings and other Roofs; the cheapest, most durable, and neatest roofing in use; also Spouting at 10½*d.* per yard.

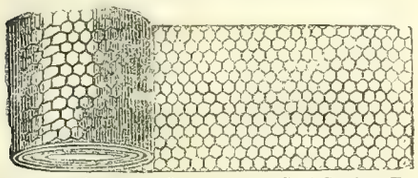
GALVANISED WIRE STRAND CABLE FENCING.



(Formed of twisted wires like a rope or cable), the strongest, cheapest, and neatest fence in use; will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Five lines of Galvanised Strand, Iron Main Posts, and Pronged Standards. 2000 miles supplied.
Price 1*s.* per yard.

This Fence is far cheaper than posts and rails, or any kind of iron fencing, and possesses four times the strength of solid bars.
(Will not rust nor corrode.)

IMPROVED GALVANISED WIRE NETTING.



PRICES OF NETTING 24 INCHES HIGH.—Sent Carriage Free.

Size of Mesh.	Proof against.	Per Yard.	Per Yard.	Per Yard.	Per Yard.
2½ inch.	Hares, Dogs, Poultry, &c.	4*d.*	5*d.*	6*d.*	7*d.*
2 inch.	All kinds of Game.. ..	4½*d.*	5*d.*	6½*d.*	8*d.*
1⅝ inch.	Small Rabbits, Hares, &c.	4¾*d.*	6*d.*	7*d.*	9*d.*
1½ inch.	Ditto ditto..	6*d.*	7*d.*	9*d.*	11*d.*

JAPANNED NETTING supplied at considerably less prices. Made any width up to 6 feet at proportionate prices. For other sizes see Illustrated Catalogue.

VINERIES and GREENHOUSES WIRED.

HURDLES, GATES, and IRON and WIRE FENCING of all kinds.

GALVANISED IRON WATER CISTERNS for Cottage Houses, &c., to contain about 50 gallons, 26*s.*; 80 gallons, 31*s.*; and 140 gallons, 37*s.*, with Lid and Brass Tap; will not rust nor corrode.

GALVANISED IRON PUMPS for Liquid Manure or Domestic Use, 3 inches diameter, 25*s.* and 30*s.* each. Tail Pipe for same at from 10*d.* per foot.

GALVANISED IRON SWING WATER BARROWS for Garden or Farm use, to hold about 20 gallons. 35*s.* and 40*s.* each.

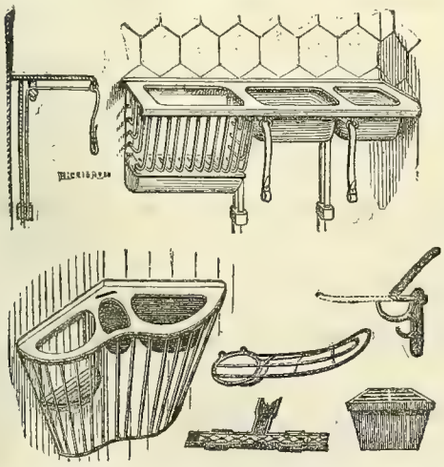
BUCKETS, CORN SKIPS, BATHS, HAND BOWLS, &c.

PATENT LAWN MOWING MACHINES, from 70*s.* each.

ASPHALTE ROOFING FELT, 1*d.* per square foot.

Illustrated Catalogues and Estimates sent on application.
12, Great George Street; and 2, Basinghall Buildings, Leeds.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.



These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.

COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.

*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Glass for Garden Purposes.

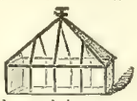
JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



	Each—*s.*	*d.*		Each—*s.*	*d.*
2 inches in diameter..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each—*s.*	*d.*		Each—*s.*	*d.*
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1*s.*; 9 inches, 1*s.* 6*d.*; 12 inches, 2*s.* 6*d.*

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz, 2*s.* 6*d.* | Improved shape, p. doz., 4*s.* 6*d.*
Patent shape, per dozen, 6*s.* 6*d.*

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

Oil Paint no longer Necessary.

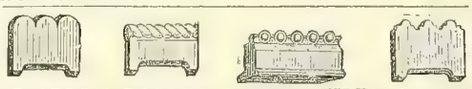
HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From Sir JOHN BOILEAU, Bart., *Ketteringham Park, Norfolk.*

"Sir John Boileau has much pleasure in stating, in reply to the inquiries of Messrs. Hill & Smith, that he has found their Black Varnish a very useful substitute for paint for all out-door purposes, on wood or iron, and he has found their Heating Barrow a very convenient article for many purposes."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C. from whom only it can be obtained.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expence, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality) of F. & G. ROSHER, at the Addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.

From E. ENSOR, Esq., *Woodville, near Burton-on-Trent.*

"The Sand is very good; when we want more we will write you."

W. SHORT, Sand and Peat Depot, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped J. BARSHAM'S Patent

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly Price 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

To Nurserymen, Gardeners, and Others.

TO BE LET, PARK END NURSERY, 1 mile from Macclesfield, Cheshire.

Apply to Mr. POOLE, Fallowfield, Manchester; and No. 8, Duke Street, Portland Place, London, W.

Sales by Auction.

Sarsden, near Chipping Norton, Oxon.

EXTENSIVE AND IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late J. H. Langston, Esq., M.P., to SELL by AUCTION, without any Reserve, on TUESDAY, March 22, the entire and far-famed HERD at Sarsden, consisting of about 100 head of BULLS, COWS, and HEIFERS, that have been long and carefully bred from animals purchased in the counties of Durham, Northumberland, and Yorkshire; some choice specimens have since been added from the Tortworth, Fawsley, Milcote, and other famed Herds, whilst Bulls of the highest breeding and character have been used, such as Prince (4772), Locksley (4240), Prince of Wales (8432), Lord Milton (10,461), General Elliott (10,266), &c., and latterly Gloster's Grand Duke (12,949), Archduke 2d (15,588), and Royal Turk (16,875). The young stock are chiefly by Lord of the Harem (16,430), Royal Arch (13,749), and Royal Counsellor (20,725).

Catalogues, with pedigrees, may be had on application to Mr. SAVIDGE, Churchill Mount Farm, Chipping Norton; or of Mr STRAFFORD, 13, Euston Square, London, N.W.

Standard, Dwarf, and Climbing Roses, Carnations, Picotees, Pinks, Dahlias, and a variety of other Plants.

MR. J. WILLMER will SELL by AUCTION as above, at the Auction Mart, Bartholomew Lane, E.C., on THURSDAY, March 23, at 12 o'Clock.

Catalogues at the Mart; and of the Auctioneer, Springfield Nursery, Sunbury.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on THURSDAY, March 24, at 1 o'clock precisely, 1000 handsome STANDARD, HALF-STANDARD, DWARF, and CLIMBING ROSES, also a first-rate collection of Carnations, Picotees, and Pinks, the surplus stock of a celebrated Grower; selected Fruit Trees, a rich assortment of Hardy American Plants, Lilium lancifolium, together with choice Double Camellias, Azalea indica, Ericas, Epacris, Cinerarias, and other plants in bloom, Verbenas, Fuchsias, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

To Gentlemen, Nurserymen, and Others.

MESSRS. WATERER AND SONS will SELL by AUCTION, on MONDAY, March 21, and following Days, at 10 o'Clock, on the Premises, near Pervese's Bridge, Byfleet, Surrey, by order of the Proprietor, a Valuable NURSERY STOCK, comprising 6000 Standard and Half Standard Roses, of the best sorts, named; 7000 Rhododendrons, good varieties, from 9 inches to 2½ feet high; a quantity of Rhododendron ponticum and hybrids; 5000 2-year bedded Hollies, 2000 common Laurels, 2 to 3 feet; 150 variegated Hollies, 400 Conifers, including Douglasii, Deodaras, austriaca, Araucaria, Cupressus Lawsoniana and others; a large quantity of Shrubs, including Irish Junipers, common and Irish Yews, Laurustinus, and others; 20 lots of choice mixed Shrubs, from 2 to 5 feet, well worth the attention of gentlemen making an Ornamental Plantation. The whole of the above to be Sold without Reserve, and are in a most perfect condition for removing. About two miles from the Woking and Weybridge Stations, on the South-Western Line.

May be viewed One Week previous to the Sale, and Catalogues had upon the Premises; and of Messrs. WATERER & SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by post.

SALE by AUCTION, on APRIL 27, 28, and 29 (under the direction of Mr. AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium), of the rich and splendid Collection of AGAVE, YUCCA, BONAPARTEA, &c., the property of E. Vandervinnen, Esq., Brussels, Belgium.

Catalogues may be obtained free of Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.
Orders may be sent to Mr. A. VERSCHAFFELT.

Chatteris, Isle of Ely.

IMPORTANT AGRICULTURAL SALE.

MESSRS. NEWTON AND BROOKS will SELL by AUCTION (in consequence of the Farm being Let), on THURSDAY, March 31, on the Premises, the property of Thomas Richardson, Esq., at Chatteris, in the Isle of Ely, and County of Cambridge, 233 LONG-WOOLLED SHEEP; 40 superior CART and NAG HORSES, worthy the attention of Dealers; 36 very good SHORT-HORNED BEASTS; a general assortment of first-class Agricultural Implements; a Set of Steam-Cultivating Apparatus, all complete, with 1600 yards of the best Steel Rope; a Four-furrow Steam Plough, fitted with bodies for Deep Ploughing, by Howard; a 10-Horse Double Cylinder Engine, by Clayton & Shuttleworth, the whole of the Apparatus new last year.

Catalogues are preparing, and will be posted on application to the AUCTIONEERS, Chatteris.

GREEN'S PATENT SILENS MESSOR,

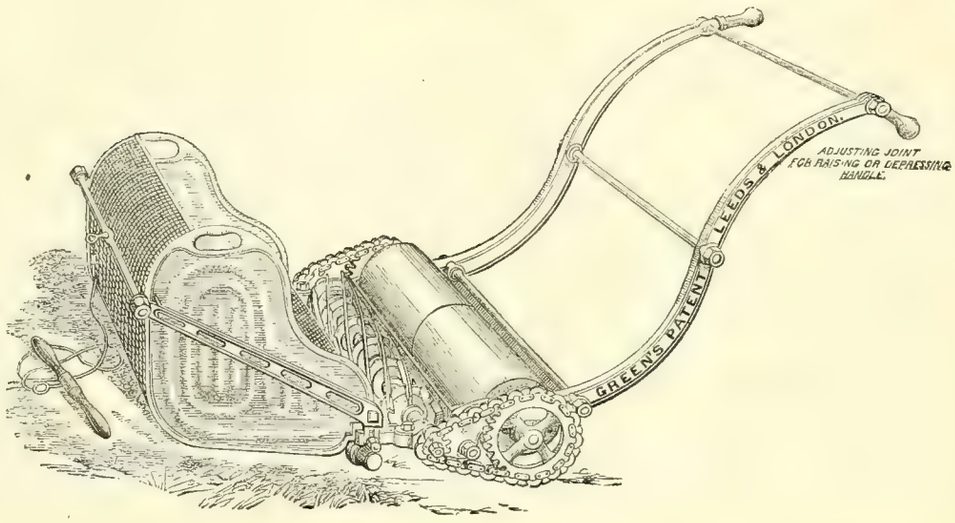
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches ... ... £27 0 0 ... ... Leather Boots for Horse, 26*s*.
„ 48 „ ... ... 30 0 0 ... ... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1864.] SATURDAY, MARCH 26. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY'S CAMELLIA SHOW will be held on WEDNESDAY NEXT, March 30, at South Kensington.

Fellows admitted at 12 o'clock. Fellows with their friends (with Tickets, 1s. each) at 1 o'clock. The Public 2s. 6d. each, at 2 o'clock. The Show will be in the Council Room. The Band will play in the Conservatory, from 2 o'clock.

ROYAL HORTICULTURAL SOCIETY. FLORAL COMMITTEE.

The next Meeting of this Committee will take place on WEDNESDAY, March 30, at 10 o'clock, in connection with the SPRING AZALEA SHOW. The subjects for examination must be sent in before 9 A.M., in accordance with the general regulations. Thos. Moore, Secretary to the Committee.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.

EXHIBITIONS of SPRING FLOWERS:
SATURDAYS, April 9 and 30.
GENERAL EXHIBITIONS:
SATURDAYS, May 21, June 11, and July 2.
AMERICAN PLANTS: MONDAYS, June 6 and 20.

Tickets to be obtained at the Gardens on the orders of Fellows of the Society. Price, General Exhibitions, 4s.; Spring Flowers, 2s. 6d.

The next Meeting of Fellows for the Election of New Candidates, SATURDAY, April 9.

ALEXANDRA PARK COMPANY, LIMITED.—A GRAND FLOWER and FRUIT SHOW will be held at the Alexandra Park on the 22d and 23d days of JUNE next.

Total amount of Prizes, 700*l*.

Schedules and all particulars may be had at the Company's Offices; and of Mr. McKenzie, the Superintendent Gardener, at the Park. By order, F. K. Parkinson, Secretary.
12, Tokenhouse Yard, London, E.C.

STAMFORD HORTICULTURAL SOCIETY.—The ROSE SHOW and Summer Exhibition of this Society will take place on TUESDAY, July 5.

Schedules of Prizes with Rules will shortly be ready, and may be obtained of
Messrs. Laxton & Hewitt, Hon. Secs., Stamford.

Grand Exhibition of Hyacinths, &c.

WM. CUTBUSH AND SON'S GRAND EXHIBITION of HYACINTHS, &c. will be held at their NURSERIES from MONDAY, March 21, till SATURDAY, April 2, both days inclusive.

Admission Free on presentation of address card, from 10 A.M. till 6 P.M., Good Friday and Sunday excepted.
Highgate Nurseries, London, N.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square,
London, W.

THE LONDON SEED COMPANY, LIMITED,
has amalgamated with the
LYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be forwarded gratis and post free on application.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The FARM SEED PRICE CURRENT is now ready, and will be forwarded gratis and post free.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of GARDEN SEEDS are now Ready.
See Advertisement, page 195.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The COLLECTIONS of FLOWER SEEDS are now Ready.
See GENERAL PRICE CURRENT.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

Asparagus.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—
1-year GIANT ASPARAGUS, 1s. 9d. per 100.
2-year GIANT ASPARAGUS, 2s. 6d. per 100.
Royal Nurseries, Great Yarmouth.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS,
Seed Merchants and Nurserymen,
SEED, ROSE, and FRUIT CATALOGUES, gratis.
57, Queen Street, Hull.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
Seed Merchants.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS,
Nurseryman and Seedsman,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for
"Excellent Seed Corn and Seeds."

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
Nurserymen and Seed Merchants,
Maresfield, near Uckfield, Sussex.

Good Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. Paul),
Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

Verbenas, Verbenas.

S. PERKINS AND SONS have now ready Strong Plants of all the leading Varieties.
List of Sorts and Price per dozen or hundred post free on application to the Park Nursery, Coventry.

New Roses, &c.

F. AND A. SMITH'S first SPRING CATALOGUE of ROSES and other New Plants, free by post on application. Dulwich, Surrey, S.

ALL the NEW ROSES for 1864 Now Ready to send out, in Extra Strong Plants.
Wm. Wood & Son, Maresfield, near Uckfield, Sussex.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
Richard Smith, Nurseryman, Worcester.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per dozen.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

The New Roses for 1864.

SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to
Benjamin R. Cant, St. John's Street Nursery, Colchester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
Charles Noble, Sunningdale Nursery, S.W. Rail.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

NEW ROSES, &c., for 1864.—Splendid plants will be ready for delivery the third week in March.
LISTS of sorts and prices will be sent on application to
J. E. Frewer, Violet Hill Nursery, Stowmarket.

Roses.

EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

HERBST AND STENGER, Kew Nursery, Richmond, S.W., have now ready for delivery several thousands of fine healthy plants of NEW ROSES for 1864.
Prices on application.
Genuine GERMAN FLOWER SEEDS, &c. See CATALOGUE.

New Roses for 1864.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that he has now strong plants of the above to offer.
A PRICED LIST, with descriptions, may be had on application.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above.
Wellington Nursery, St. John's Wood, London, N.W.

Vine Black Hamburgh.

ROBERT PARKER begs to announce that he can supply well ripened FRUITING CANES from Eyes of the above, at 5s. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Grape Vines from Eyes.

S. GLENDINNING AND SONS (Successors to the late R. Glendinning), have still some good CANES of the best varieties, both for Fruiting in pots and for Planting out. PRICED LIST on application,
Chiswick Nursery, London, W.

Grape Vines.

TO BE SOLD CHEAP, a large quantity of fine VINES for planting out.
Apply to R. Hutchin, at the Horticultural Works, Stamford Hill, N.

Melon Seeds.

MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6d.
Joseph Meredith, Vineyard, Garston, near Liverpool.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the Great Exhibition of 1862, and for which a Certificate of Honourable Mention was given. Trees of the above can be had on application to Mr. Webb, Calcot Gardens, Reading.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses. Richard Smith, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

MARY NICHOLSON, Egglescliffe, begs to inform her friends that she still supplies STRAWBERRY PLANTS, but as her supply is limited, to prevent disappointment early application will be necessary.

German Flower Seeds, Fresh Imported.

SUTTON AND SONS have imported a superior assortment of New GERMAN FLOWER SEEDS, a PRICED LIST of which may be had post free.—Reading.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application.
The Royal Nurseries, Slough.

Choice Seeds.

WM. WOOD AND SON'S GUINEA COLLECTION of GARDEN SEEDS for One Year's Supply, Carriage free. Address, Maresfield, near Uckfield, Sussex.

Paradise Stocks.

WANTED, by the Subscribers, Strong Plants for present working.
Edward Sang & Sons, Nurserymen, Kirkcaldy.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5s. 6d. p. oz.
James Woods, Florist, Harwich, Essex.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application.
Frampton Park Nursery, Hackney.

Broccoli all the Year Round.—See

SUTTON'S AMATEUR'S GUIDE, pages 9 and 10, which will be sent post free on receipt of 6 penny stamps, or gratis to customers.
Sutton & Sons, Seed Growers, Reading, Berks.

SEAKALE, per 100, 5s. 6d., 7s. 6d.; Extra Strong, 12s. 6d.; quotations to the Trade on application.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

True Skerry Blue Potatos.

JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire, is now supplying these at 10s. per sack of 16 stones imperial, sack included. This stock has never been touched by disease, and the present crop is 10 tons per acre.

POTATOS.—A fine crop of SKERRY BLUES, 5s. per cwt.
Address Mr. Wm. Davies, Cilhendne Farm, Chirk.

KING of the POTATO, from the Original Stock.—Price per Cwt. or Ton on application to
James Dickson & Sons, Seed Merchants, 102, Eastgate Street, Chester.

Italian Rye-grass.

JOSEPH DIXON, Seed Factor, Kendal, is selling the above Seed (to the Trade), at 21s. to 23s. per Quarter, as per lots, for Cash. Apply early for samples.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 4Ss. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

Economy in the Garden.

SUTTON'S GUINEA COLLECTION of KITCHEN GARDEN SEEDS, for One Year's Supply. Carriage Free.

Sutton & Sons, Seed Growers, Reading, confidently recommend the above as Genuine New Seeds of the best sorts in cultivation, properly apportioned, and labelled with instructions for Sowing, *i. e.*, so as to ensure a good succession throughout the year

A List of the Contents of this Collection, or a GENERAL SEED CATALOGUE, with Prices affixed to each kind, may be had Post-free on application, addressed

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.



Sutton's Lawn Grass Seeds,

At the Crystal Palace, and at the People's Park, Halifax.

SUTTON AND SONS have had the honour of supplying the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham, and at the People's Park, Halifax.

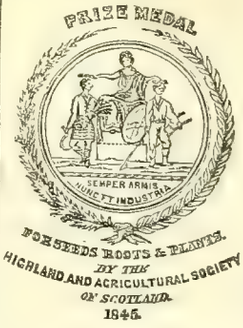
The following letter has been received, besides many others :—

From Professor Lindley, *Horticultural Society, London.*

"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1*s.* per lb.; 2*s.* 6*d.* per gallon; or 18*s.* per bushel. Quantity required for forming new Garden Lawns, 3 bushels, or 60 lbs.

Address, Sutton & Sons, Royal Berkshire Seed Establishment, Reading.



GENUINE FARM SEEDS.

THOMAS KENNEDY & CO.,

NURSERYMEN and SEEDSMEN, DUMFRIES, N.B.,

HAVE A LARGE AND CAREFULLY SELECTED STOCK OF

GENUINE FARM SEEDS

Which they are selling at extremely moderate prices, delivering them Free of Carriage (under certain limitations) at the chief Railway Stations in Great Britain, and principal Steam Ports in Ireland.

The special attention of Agriculturists is directed to their MIXTURES for LAYING DOWN LAND to PERMANENT PASTURE, which continue to give every satisfaction. Price from 20*s.* to 26*s.* per imperial acre.

Interesting Notices of the leading varieties of Grass Seeds, comprising these Mixtures, will be found in their PRICED CATALOGUE of AGRICULTURAL SEEDS, &c. for 1864, which will be sent free on application to any address.

"This Establishment may be relied on for the excellence of all the articles it professes to supply."—*The Field.*

PRICED CATALOGUES of FOREST, FRUIT, and ORNAMENTAL TREES, &c.; SELECT VEGETABLE and FLOWER SEEDS, &c., may also be had on application.



THE ONLY PRIZE MEDAL AWARDED for SEEDS, INTERNATIONAL EXHIBITION 1862.



CARTER'S

SPECIAL LIST of FARM SEEDS for MARCH and APRIL

IS NOW READY, AND WILL BE FORWARDED GRATIS AND POST FREE ON APPLICATION.

JAMES CARTER and CO.,

SEED MERCHANTS and NURSERYMEN, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, and ST. OSYTH, ESSEX.

NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

J. C. WHEELER & SON,

SEED GROWERS,

GLOUCESTER,

Offer SEEDS of finest quality at the extremely moderate prices quoted below:—

CLOVER and GRASS SEEDS.

GRASSES and CLOVERS, of finest quality, for 1 year's Hay and 2 years' Pasture, at 17*s.* 6*d.* per acre.

GRASSES and CLOVERS, of finest quality, for 1 year's Hay and 1 year's Pasture, at 16*s.* per acre.

GRASSES and CLOVERS for 1 year's Hay and Pasture, at 12*s.* 5*d.* per acre.

GRASS SEEDS for LAWNS, of the choicest varieties, to form a rich thick Turf, at 1*s.* per lb. 50 lb. will be required per acre.

RYE-GRASS.

ITALIAN (imported seed), best quality, at 6*s.* 6*d.* per bushel.

ITALIAN do., extra cleaned, 6*d.* per bushel extra.

ITALIAN, home-grown, good, 5*s.* 6*d.* per bushel.

PACEY'S PERENNIAL, fine heavy seed, remarkably clean and free from weeds, at 6*s.* 6*d.* per bushel.

PACEY'S do., extra fine, 7*s.* per bushel.

EVERGREEN, good quality, at 6*s.* per bushel.

„ rather lighter, at 5*s.* per bushel.

RENOVATING MIXTURE.

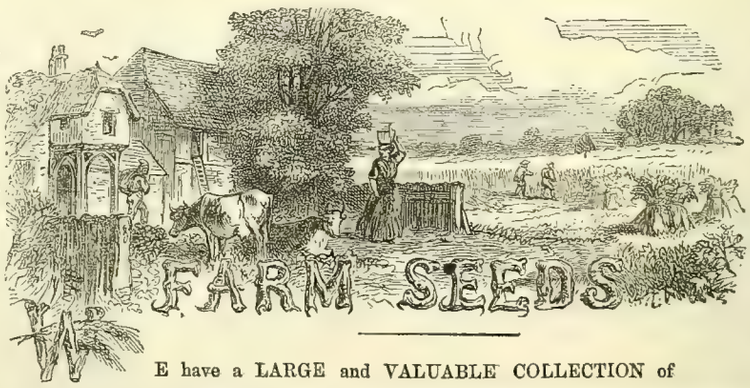
RENOVATING GRASS SEEDS for OLD PASTURE, most carefully selected (10 lb. per acre will be ample), 9*d.* per lb., 80*s.* per cwt.

J. C. WHEELER and SON deliver FARM SEEDS Free by Rail, excepting Small Parcels.

J. C. WHEELER & SON,

SEED GROWERS, GLOUCESTER.

RYE-GRASS.
CLOVERS.
TREFOIL.
COW GRASS
ALSIKE.
LAWN GRASS.



WHEELER'S IMPERIAL SWEDE.
TURNIP.
MANGOLD
BUCK-WHEAT.
WHITE CARROT.

E have a LARGE and VALUABLE COLLECTION of

GRASS SEEDS for PERMANENT PASTURE,

OF THE FINEST QUALITY, WHICH WE CAN OFFER AT 30*s.* PER ACRE.

All the varieties of GRASSES and CLOVERS are named and described in our "LITTLE BOOK on GRASSES," a Copy of which will be sent gratis with every order, or post free on application.

Our MIXTURE of GRASSES and CLOVERS for PERMANENT PASTURE, at 30*s.* per acre, is of the finest quality, and comprises the choicest varieties in cultivation. In executing orders for Grasses, we exercise the most scrupulous care and attention in adapting and varying the Mixture—as the different circumstances and peculiarities in each case render it desirable—taking into consideration the nature and quality of the soil which is intended to be laid down.

The following Extracts from Letters received from Gentlemen to whom we have supplied Mixtures for Permanent Pasture, may perhaps be considered interesting:—

"I had a gentleman inquiring of me where I purchased the Permanent Pasture Seeds which I laid down at Ness. It is the best piece for miles round. I told him I had it from you, and that it was a Mixture you recommended for the purpose."—Thomas Williams, *Allastone Court, Lydney.*

"The Permanent Pasture Grass and Clover Seeds have grown well; they are very good sorts, and suit our land well."—E. Richings, *Farm Bailiff to* John Rolt, Esq., Q.C., M.P., *Ozleworth Park.*

"I have a very good stock of Clover from your Seed, whilst many who bought their Seed elsewhere have almost a failure."—Richard Smith, *Birdsend Farm, Tibberton.*

"His lordship was much pleased with the Permanent Pasture Grasses you supplied us with; they are of excellent quality and very luxuriant."—A. Paterson, *Steward to the* Right Hon. the Earl of Ellenborough.

"I am much pleased with the 14 acres of the Permanent Pasture I laid down with your Seeds; nothing could have done better. I hope to lay down some more next season."—R. G. Tamplin, *Moraston Court, Hoarwithy, Ross.*

"You know what sorts of Grass Seeds will suit me—better than I can tell you. What I had from you last year was excellent."—John Thomas, *Penpompren, Llanwnen, Carmarthenshire.*

"I laid down 8 acres of the poorest land in our parish with your Permanent Pasture Grasses. Before I laid it down it was not, to rent, worth 5*s.* an acre, and now there is a very fair sward. I am very well pleased, and cannot speak too highly of the Mixture you sent me."—William Hawkins, *Lintridge, Dymock.*

J. C. WHEELER and SON, SEED GROWERS, GLOUCESTER.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

£3 3s., £2 2s., £1 1s., 15s., and 10s. 6d.

These COLLECTIONS contain only SEEDS of first quality—growth 1863—and have been prepared in a most liberal manner. Full particulars as to quantities and varieties included, may be seen at page 78 of our DESCRIPTIVE CATALOGUE. Free per Post, on application.

Orders amounting to 21s. and upwards sent Carriage Free, and a Discount of Five per Cent. allowed for prompt cash payments.

GENUINE SEEDS.—CARRIAGE PAID.

(FLOWER SEEDS IN PACKETS POST FREE.)

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

OFFERS

COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS,

10s. 6d., 21s., 42s., and 63s. each.

CHOICE FLOWER SEEDS.

	Per packet—s. d.		Per packet—s. d.
PRIMULA, very fine, red, white, or mixed	.. 2s. and 3 6	PANSY, from named flowers	1 0
CALCEOLARIA, very choice	1s. 6d. and 2 6	STOCK, SCARLET INTERMEDIATE, the true Covent Garden variety	0 6
CINERARIA, from named flowers	1s. 6d. and 2 6	ASTER, Chrysanthemum-flowered	0 6
CLIANTHUS DAMPIERI, English saved	2 6	,, Truffaut's Pæony-flowered Perfection ..	0 6
BALSAM, Camellia-flowered, very fine	1 0	,, Double Quilled German	0 6
CORDYLINE INDIVISA	2 6	SWEET WILLIAM	0 6
SENECIO ELEGANS FLORE PLENO	1 0	CACTUS, fine varieties	1 0
CARNATION and PICOTEE	1 0	MIMULUS MACULOSUS	1 6
ACHIMENES, very choice	1 0	HOLLYHOCK, from named flowers	0 6

GERMAN AND OTHER FLOWER SEEDS IN COLLECTIONS.

See *Gardeners' Chronicle*, February 20, page 170.

WILLIAMS'S MATCHLESS RED CELERY, 1s. 6d. per packet.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

VEGETABLE SEEDS, amounting to 21s., sent Carriage Paid. FLOWER SEEDS, sent Post Paid.
SEAKALE ROOTS, 5s. 6d. and 7s. 6d. per 100.
ASPARAGUS ROOTS, 2 years old, 3s. 6d. per 100; 3 years old, 5s. 6d.; 4 years old, 7s. 6d.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING.

Hardy Annuals.

			s.	d.				s.	d.
319.	100	Packets of beautiful varieties, including the most effective ...	21	0	324.	100	Packets, including those introduced in 1862, 1863, and 1864 ...	30	0
401.	50	Ditto ditto ditto ..	10	6	405.	50	Ditto ditto ditto ...	15	0
402.	30	Ditto ditto ditto ...	5	6	406.	30	Ditto ditto ditto ...	10	6
403.	21	Ditto ditto ditto ...	3	6	407.	21	Ditto ditto ditto ...	7	6
404.	15	Ditto ditto ditto ...	2	6	408.	15	Ditto ditto ditto ...	5	6

Half-Hardy Annuals.

			s.	d.				s.	d.
409.	100	Packets of the most beautiful varieties	30	0	412.	21	Packets of the most beautiful varieties	5	6
410.	50	Ditto ditto ditto ...	15	0	413.	15	Ditto ditto ditto ...	4	6
411.	30	Ditto ditto ditto ...	10	6	414.	10	Ditto ditto ditto ...	2	6

BARR & SUGDEN'S COLLECTIONS OF VEGETABLE SEEDS for One Year's Supply.

No. 6	contains 33 qt. of Peas, Beans, and other Seeds in proportion							for	£3	3	0
No. 5	,,	20 qt.	ditto	ditto	ditto	ditto	...	...	...	2	2	0
No. 4	,,	13½ qt.	ditto	ditto	ditto	ditto	...	...	...	1	10	0
No. 3	,,	10 qt.	ditto	ditto	ditto	ditto	...	...	...	1	1	0
No. 2	,,	13½ pt.	ditto	ditto	ditto	ditto	...	...	...	0	15	6
No. 1	,,	7 pt.	ditto	ditto	ditto	ditto	...	...	...	0	10	6

SEEDS SELECTED AND PACKED FOR ALL CLIMATES.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

New Chrysanthemum, Fuchsia, &c.

E. G. HENDERSON AND SON are now prepared to supply Plants of the NEW CHRYSANTHEMUM EMPRESS of INDIA, the Stock of which they purchased of Mr. Bird, Stoke Newington. It is a beautiful sport or variety from the "Queen of England," pure white, three-quarters globe in shape, with a full centre. 5s. each, or four for three, with Trade discount.

Also, EMPEROR of the FUCHSIAS, best white corolla, 2s. 6d. and 3s. 6d.

PRIMULA SINENSIS CARMINATA RUBRA, new carmine-coloured Primula, 1s. 6d. and 2s. 6d. each.

NEW FERN-LEAVED PRIMULA SINENSIS FIMBRIATA.

TIGRIDIA PAVONIA.—Very beautiful half-hardy or cool greenhouse Mexican bulbs, growing well in all good light garden soils, and suitable either for groups in the flower garden, or for pot culture in cool conservatories or frames. The remarkably large and brilliant orange or flamed-scarlet flowers, picturesquely spotted, render them exceedingly attractive during the summer months.

FUCHSIA RIFLEMAN and NORTHERN LIGHT, both of distinct style, with pale blue corolla, 2s. 6d. and 3s. 6d. each.

FUCHSIA PILLAR of GOLD, 3s. 6d. each.

Wellington Nursery, St. John's Wood, London, N.W.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.

Seed, saved only from finest varieties, new and very choice, 2s. 6d. or 5s. per packet; Collections of 12 separate named varieties, 4s. to 10s.; young Seedling plants, from best varieties, 30s. per 100, or 4s. per dozen; Bloomed Seedlings of last year, with colours named, 6s. per dozen, or 30s. per 100.

Address, W. CHATER, Nurseries, Saffron Walden.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1s.

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—s. d.
CALCEOLARIA, HERBACEOUS, finest mixed	2 6
CARNATION, PERPETUAL, finest mixed	2 6
CINERARIA CRUENTA, finest mixed	2 6
PICOTEE, PERPETUAL, finest mixed	2 6
PRIMULA SINENSIS FIMBRIATA, finest mixed ..	2 6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2 6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

ANDROMEDA FORMOSA (TRUE).—Strong Plants of this beautiful hardy Evergreen Shrub, about 1 foot, 50s. per 100; 1½ to 2 feet, 12s. per dozen; and extra strong selected bushy specimens, 2s. 6d. each.

A CATALOGUE of one of the finest Nursery Stocks in the kingdom, extending over 60 acres, forwarded on application.

W. H. ROGERS, Red Lodge Nursery, Southampton.

Two-Years Seedling Larch.

ONE-YEAR TRANSPLANTED LARCH.

Very hardy plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 4 to 18 inches.

Trade prices on application to HOWDEN BROTHERS, Inverness.

SPRUCE FIRS for HEDGES and BEDDING. From 400 to 500,000, 9 to 12 inches in height, at 5s. per 1000, in quantities not less than 10,000. Carriage paid to London.

Apply to Mr. WM. CLARKE, Seedsman, 25, Bishopsgate Street, London, E.C., where a sample may be seen.

SURPLUS NURSERY STOCK

On Lands that must be Cleared.

Transplanted Quicks, 3, 4, 5, and 6 years	Wych Elms, 2 to 3 feet
Mountain Ash, 3 to 4½ feet	Chesnut, Horse, 1½ to 2 feet
Hazels, 2 to 3½ feet	Poplar, Black Italian, 4 to 6 ft
Service Trees, 4, 5, and 6 feet	Poplars, Lombardy, 4 to 6 feet
Privets, 3 to 4 feet	Pear Stocks, 2 to 3 feet
English Oak, 3 to 4½ feet	Apple Stocks, 2 to 3 feet
Turkey Oak, 5 to 7 feet	Manetti Stocks, strong
Poplars, 6, 7, 8, and 9 feet	Mountain Ash, 3, 4, and 5 feet
Hornbeam, 4 to 6 feet	Horse Chesnuts, 7 to 9 feet
Limes, 6, 7, and 8 feet	Grafted Elms, 7 to 9 feet

Some Extra Strong LIMES suitable for AVENUES.

Price on application. State quantities required.

JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.

Fulham Nursery, London, S.W.—March 26.

Special offer to the Trade on application.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. 6d. per packet. Will be forwarded to any part of England on forwarding 30 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown, will be 14 lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 39, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities:

Price for Picked Roots, per 100 .. .. 10s. 0d.
Do. second size ,, ... 7 6
Also strong for Planting, per 100 .. 5s. and 7 6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

BEST POTATOS for FIELD PLANTING.

SKERRY BLUES	NEW PINK FLUKES
FLUKES	DALMAHOYS (EARLY)
YORK REGENTS	BRITISH QUEEN
NEW RED REGENTS	
DAINTREE'S FIRST EARLY	THE KING

For lowest cash prices, apply, stating quantity required, to
SUTTON & SONS, Seed Growers, Reading.

Seed Potatoes.

H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties, which they can offer to the Trade at low prices.
Seed Growing Establishment. Wisbech.

To the Trade.

SEED POTATOS.—EARLY HANDSWORTH, LEMON KIDNEY, WEBB'S IMPERIAL, DAINTREE'S SEEDLING, LAPSTONE, &c., warranted true.
PRICED DESCRIPTIVE LIST sent on application to
G. & W. YATES, Seed Merchants, Manchester.

SEED POTATOS.—FORTY-FOLD (early); DALMAHOY (early); REGENTS (Dunbar); ROCKS; REGENTS (Walker's); FLUKES. The above are grown on fresh land, and are an excellent sample. For price, which is very moderate, apply to
Mr. RIDDELL, Steward, Park Attwood, Bewdley.

Potatos for Present Planting.

JAMES FAIRHEAD AND SON have on offer a large quantity of all the leading and most approved kinds (Prices on application), including EARLY ASHLEAF, WALNUT LEAF, MYATT'S PROLIFIC, WEBB'S IMPERIAL, EARLY TEN-WEEK (10 days earlier than the Shaw's), SHAWS, DALMAHOYS, REGENTS, FORTYFOLD, PEEP O' DAY KIDNEY, SPENCER'S KING of the KIDNEYS.
7, Borough Market, London, S.E.

Seed Potatos.

WOOD AND INGRAM have to offer a quantity of the following kinds of their own growth, and which may be relied upon as true to name, at a very cheap rate, according to the quantity taken:—Ashleaved Kidney, Myatt's Kidney, Robinson's Golden Kidney, Jackson's Kidney, Lapstone Fluke, Webb's Imperial, Dalmahoy, Early Handsworth, Early Oxford, Martin's Globe, and York Regent.
Price on application.
Nurseries, Huntingdon.

Seed Potatos.

GEORGE SIBBALD, Drumgeath, by Dundee, N.B., has for Sale about 40 Tons of the following POTATOS, true to name:—Early Ashleaf Kidney, Myatt's Prolific Kidney, Lemon Kidney, Poole's King of the Kidneys, Fluke Kidney, Lapstone Kidney, Early Oxford, Cheshire Cluster, Early American, Early Dalmahoy; also Ashleaf Round, Walker's Early, &c. Prices very moderate. Apply as above.
Shipping rates to London, Hull, and other Ports very low.

THOMAS AYRES, Biggleswade, Beds. NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This is the most productive of all the early Kidney Potatos. The following is extracted from a letter received from F. C. Steggall, Esq., of Weymouth, dated Oct. 5, 1863:—
"I have no hesitation in saying that the Royal Ash-leaved Kidney is a most valuable variety. I tried it by the side of the best early varieties known; it beats every one by at least a fortnight, and moreover its flavour is delicious, far superior to the old Ash-leaved."
Sold Wholesale by Messrs. RIVERS & SON, Sawbridgeworth; and Retail by Messrs. WRENCH & SON, Seedsmen, London Bridge; by Messrs. SUTTON & SONS, Reading; and other respectable houses.

Potatos.—Seeds.

H. BROWN having on hand an extra large Stock of the following POTATOS, begs to offer them at considerably reduced prices per Imperial Bushel, for present orders, viz.:—True Early Ashleaf Kidney Potatos, 6*s.*; Myatt's Prolific Ashleaf Kidney, 5*s.* 6*d.*; Early Pink, Early Kemps, 4*s.* 6*d.* Also Dalmahoy, Fortyfold, White Rock, Scotch Downs, Flukes, Arrowsmith's Seedlings, and other varieties.
Prices for quantities on application. For SEEDS, see PRICED DESCRIPTIVE 44-page CATALOGUE, post free.
4, Commutation Row, Liverpool.

To Gentlemen, Nurserymen, and Others.

GLOBE ARTICHOKE PLANTS, at 25*s.* per 100; also a quantity of PROVINCE or CABBAGE ROSE PLANTS, at 12*s.* per 100. A good discount allowed to the Trade.
Post orders payable to JOHN GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

GIANT ASPARAGUS ROOTS, 2*s.* 6*d.* per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1864.
Strong Transplanted SEAKALE, 2*s.* per doz.
RICHARD SMITH, Nurseryman, Worcester.

GIANT ASPARAGUS ROOTS (2 years), 1*s.* 6*d.* per 100, 12*s.* 6*d.* per 1000.
JERUSALEM ARTICHOKES, 7*s.* per cwt.
Superior TOBACCO PAPER, wholesale and retail. Price on application to
EDWARD TAYLOR, Nurseryman, Malton, Yorkshire.

Stove Plants, &c.

FOR SALE, by PRIVATE TREATY, a very large and choice collection of STOVE PLANTS, amongst which will be found many valuable and rare Specimen and Exhibition Plants, including a good collection of Orchids and Tropical Ferns.
This collection has been 15 years in forming; the plants are clean, in good health, and well grown.
Also, three dozen fine specimen plants of Bhotan and Sikkim Rhododendrons.
All will be sold at very moderate prices, taking into account the size and training of the plants.
Also, a large quantity of Bedding Plants, in great variety, will be disposed of in May.
For particulars as to Catalogues apply to the Rev. Fred. Fitzpatrick, Cloon Rectory, Mohill. Cloon Rectory is within a short distance of railway communication to all parts of Ireland.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE AWARDED

IN THE YEAR 1863 TO

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL),

TWENTY-ONE of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

SUPERIOR STANDARDS, 18s. per dozen and upwards.
SUPERIOR DWARFS, 9s. per dozen and upwards.

All the NEW ROSES, including PRINCESS of WALES (W. PAUL), LORD MACAULAY (W. PAUL), and BEAUTY of WALTHAM (W. PAUL), at lowest advertised prices.

PRICED CATALOGUE Free by Post.

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.

ROSES.

PAUL & SON,

As the season for the removal of ROSES is drawing to a close, beg to call the attention of purchasers, unable previously to complete their arrangements, to their large stock of Plants fit for planting during April and May.

DWARF ROSES in Pots, from 9s. to 30s. per doz.
NEW ROSES of 1864, 3s. 6d. to 5s. each.

TWENTY-SIX FIRST PRIZES during 1863; EXTRA PRIZE, POT ROSES, Royal Horticultural Society, March 9, 1864; SILVER MEDAL, POT ROSES, and EXTRA PRIZE, CUT ROSES, Royal Botanic Society, March 20, 1864; were awarded to their Collections.

A continued EXHIBITION of FORCED ROSES will be held at their Establishment until the end of May.

"OLD" CHESHUNT NURSERIES, N.
One Mile from the Cheshunt Station, Great Eastern Railway.

JAMES VEITCH

HAS VERY SELECT STOCKS OF THE FOLLOWING

TURNIPS, MANGELS, &c.

And solicits a trial, which he feels confident must give satisfaction.

Turnips.

VEITCH'S IMPROVED PURPLE-TOP SWEDE, 9*d.* per lb.	DALE'S HYBRID, 9*d.* per lb.
SKIRVING'S IMPROVED SWEDE, 8*d.* per lb.	ORANGE JELLY, or GOLDEN BALL, 10*d.* per lb.
EAST LOTHIAN PURPLE-TOP SWEDE, 8*d.* per lb.	LARGE YELLOW STONE, 9*d.* per lb.
GREEN-TOP SWEDE, 10*d.* per lb.	YELLOW TANKARD, 9*d.* per lb.
LAING'S PURPLE-TOP SWEDE, 10*d.* per lb.	POMERANIAN WHITE GLOBE, 8*d.* per lb.
RIVERS' STUBBLE, 9*d.* per lb.	LINCOLNSHIRE RED GLOBE, 8*d.* per lb.
IMPROVED PURPLE-TOPPED ABERDEEN, 9*d.* per lb.	GREEN ROUND or GLOBE, 8*d.* per lb.
IMPROVED GREEN-TOPPED ABERDEEN, [9*d.* per lb.	WHITE GLOBE, 8*d.* per lb.
	EARLY STONE or STUBBLE, 8*d.* per lb.
	GREY STONE, 9*d.* per lb.

Mangel Wurzel.

LONG RED, 6*d.* per lb.	YELLOW GLOBE, 6*d.* per lb.
LONG YELLOW, 6*d.* per lb.	RED GLOBE, 6*d.* per lb.
ORANGE GLOBE, 6*d.* per lb.	OVAL-SHAPED YELLOW, 9*d.* per lb.

Carrot.

IMPROVED ALTRINGHAM, 1*s.* 6*d.* per lb.	WHITE BELGIAN, 1*s.* per lb.
LONG RED SURREY, 1*s.* 6*d.* per lb.	YELLOW BELGIAN, 1*s.* per lb.

SCARLET INTERMEDIATE, 1*s.* 6*d.* per lb.

Cabbage.

LARGE DRUMHEAD, 1*s.* 9*d.* per lb.	THOUSAND-HEADED, 3*s.* 6*d.* per lb.
" EARLY YORK, 3*s.* 6*d.* per lb.	DRUMHEAD SAVOY, 3*s.* per lb.

KOHL RABI, Purple and Green, 1*s.* 9*d.* per lb.

For GRASS SEED MIXTURES of best quality, see Advertisement in *Gardeners' Chronicle* of March 19.

Full Detailed Catalogues now ready, and will be forwarded Post Free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application :—

DANIEL O'ROURKE PEAS
EARLY PRIZETAKER MARROW.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2*s.* 6*d.* per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM ; height, 8 or 9 feet. 4*s.* per quart.
The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO ; height, 2½ feet. 4*s.* per quart.
The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1*s.* and 2*s.* 6*d.* per packet.
Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

SEEDS of SUPERIOR MERIT.—Free by Post, except the Peas and Beans.

	per Quart—s.	d.
PEA, DILLISTONE'S EARLY PROLIFIC, 2 ft., the earliest of all	1	6
„ ADVANCER (McLean's), 2 ft., the best dwarf Pea	1	6
„ PAYNE'S CONQUEROR, 5 ft., the best tall Pea	1	0
BEAN, BECK'S DWARF GREEN GEM	0	8
	per Packet.	
BEET, PINE APPLE, superb crimson	0	6
„ NUTTING'S SUPERB RED	0	6
BROCCOLI, SNOW'S IMPERIAL WINTER WHITE	1	0
„ BACKHOUSE'S WINTER WHITE PROTECTING	2	6
BRUSSELS SPROUTS, ROSEBURY	0	6
CAULIFLOWER, LARGE EARLY ERFURT	1	0
CABBAGE, LITTLE PIXIE	0	6
CUCUMBER, SMITH'S FINE LONG FRAME	1	0
CELERY, MAMMOTH WHITE	0	6
„ RED	0	6
MELON, EMPRESS EUGENIE	1	0
LETTUCE, PARIS WHITE COS	0	6
„ „ GREEN COS	0	6
PARSLEY, extra curled garnishing	0	6
SAVOY, NEW FEATHER-STEMMED	0	6
PARSNIP, THE STUDENT	0	6
TOMATO DE LAYE	0	6
LOBELIA PAXTONIANA, or Crystal Palace var.	1	0
TRUFFAUT'S SPLENDID ASTER, 18 vars.	1	0
CHRYSANTHEMUM-FLOWERED ASTER, 12 vars.	1	0
IMPORTED LARGE-FLOWERING STOCK, 18 vars.	1	0
BALSAM, SPLENDID ROSE-FLOWERED, 12 vars.	1	0
AMARANTHUS MELANCHOLICUS RUBER	0	6

The whole of the above carriage free for 21*s.*
RICHARD SMITH, Seed Merchant, Worcester.

SELECTED SEEDS, CARRIAGE FREE.

W. PAUL'S SUPERB CRIMSON BEET, 1*s.* per ounce.
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s.* per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2*s.* 6*d.* per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s.* p. pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s.* p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d* p. pkt
BROCKET HALL BROWN COS LETTUCE, 1*s.* per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s.* per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s.* per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s.* per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s.* per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5*s.*
„ finest mixed, 1*s.* to 2*s.* 6*d.* per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s.* to 2*s.* 6*d.* per packet.
LAPAGERIA ROSEA, 1*s.* to 2*s.* 6*d.* per packet.
All other Seeds, separate or in collections, of best quality.
PRICED DESCRIPTIVE CATALOGUE free by post.
Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

PRESENT PRICES of CLOVER SEEDS. CHEAPER BY THE CWT.

RED, or BROAD, best, 7*d.* per lb. Do. 2d quality cheaper.
WHITE or DUTCH, best, 9*d.* per lb. Do. 2d quality cheaper.
COW GRASS, 9*d.* per lb.
ALSIKE, best, 10*d.* per lb. Do. 2d quality cheaper.
YELLOW TREFOIL, best, 4½*d.* per lb. Do. 2d quality cheaper.
FINE MIXED CLOVERS, 9*d.* per lb.
Samples and lowest prices per Cwt. may be had on application.
PRICED LISTS of FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LAND.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lbs. per Acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year.
SUTTON & SONS have now the satisfaction of offering very fine new Seed at the greatly reduced price of 10*d.* per lb., or cheaper by the cwt., and strongly recommend this Clover to more general cultivation.
Royal Berkshire Seed Establishment, Reading.

Alsike Hybrid Clover.

THE LONDON SEED COMPANY, LIMITED, can supply SEED of this valuable CLOVER, at 9*d.*, 10*d.*, and 1*s.* per lb., or 82*s.*, 88*s.*, 94*s.*, and 100*s.* per cwt. Carriage free. Samples fine.
68, Welbeck Street, Cavendish Square, W.

To Flock Farmers on Chalk and Light Lands.

ANTHYLLIS VULNERARIA, or KIDNEY VETCH, a newly-cultivated Forage plant.—It is not only excellent as Green Food for Sheep, but it makes the most nutritious and valuable Hay ; both Sheep and Horses are very fond of it. It is very productive ; as unfavourable as last season was, it produced nearly 2½ tons per acre. That it may be generally used, the price this year is reduced to 1*s.* per lb. To be sowed with the Barley, 16 lb. to the acre of seed.
1*s.* 6*d.* each for sacks.
Address, Mr. H. STEBBING, Slow Bedon Hall, Attleborough, Norfolk.

The following are Testimonials from gentlemen in the neighbourhood :— (Copy.)

"Barnham, Thetford, Norfolk, Dec. 24, 1863.

"Dear Sir,—It gives me great pleasure to report favourably from my experience in the growth of the plant Anthyllis vulneraria. I have now grown it three years, increasing the extent each year. I had 20 acres last spring, which I fed constantly with my ewes and lambs till the last week in May ; from that time I saved 12 acres to mow, had a good two loads per acre, and that on very poor land. The Sheep are remarkably fond of it, and I believe it to be a most valuable plant. I have just received the following testimonial from Mr. G. Kersey Cooper.—I am, dear Sir, yours very truly,
"GEORGE TURNER.

"P.S.—My first piece laid down in 1860 was only 1¼ acre, which is still very productive."

"Euston, Thetford, Norfolk, Dec. 24, 1863.

"Dear Sir,—I am happy to add my testimony to the value of the plant you call Anthyllis vulneraria (better known to me as Kidney Vetch), as feed for sheep on poor sandy soils. I have particularly watched the growth of that grown by you at Barnham, and I have never seen so much food produced from any plant as this, on very poor land.—I am, dear Sir, yours respectfully, "G. KERSEY COOPER.
"To Mr. Turner, Barnham."

"Swaffham, Norfolk, Feb. 18, 1864.

"To Mr. HENRY STEBBING.—Dear Sir,—The Kidney Vetch I had from you produced 5 loads per acre, much to my astonishment, as in the early part of the spring there appeared to be nothing of it.—Yours very truly, "JACOB FINCH."

"Langford, Brandon, March 8, 1864.

"I bought 1 bushel of Kidney Vetch seed of Mr. STEBBING in 1862, with which I sowed 4 acres of very poor sandy land, the subsoil chalk, and near the surface. I consider the plant well adapted to give a good crop of Hay on the poorest soil.
"F. E. CALDWELL."

Splendid Seakale for Forcing.

WILLIAM BARNES has a few hundreds, extra strong crowns, to offer, and feels confident they cannot be surpassed for size or health. He has also some of a second size, which will produce fine heads for table.
Price upon application.
Camden Nursery, Camberwell.

SURPLUS STOCKS.—
PEAS, CHAMPION of ENGLAND.
„ PRIZETAKERS (BECK'S).
„ WOODFORD'S MARROWS.
CARROT, ALTRINGHAM.
JOHN SHARPE, Bardney Manor, Lincoln, March 26.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.
New Seed now Ready, 9*d.* per lb., or cheaper by the bushel, carriage free.
Royal Berkshire Seed Establishment, Reading.

Mangel Wurzel and Turnip Seed.

KING'S CHAMPION ORANGE GLOBE WURZEL, superior to any other.
Fine YELLOW GLOBE. | Fine RED GLOBE.
Do. ELVETHAM LONG RED.
Do. LONG YELLOW, from roots, many of them 3 feet long ; a heavy cropper.
SKIRVING'S and PURPLE-TOP SWEDE TURNIP SEED.
All the above are saved from none but the best Stocks.
PRICED LISTS with testimonials sent post free.
JOHN K. KING, Seed Grower, Coggeshall, Essex.
Established 1793.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds with the exception of heavy articles, such as Grain, Tares, &c., CARRIAGE FREE to any Railway Station in England and Wales, or to any Steam Port in England and Wales, Ireland or Scotland, Guernsey, and Jersey.
CATALOGUES can be obtained, and every information given on application at the Company's Offices, 68, Welbeck Street, Cavendish Square, London, W.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton ; packed, 16*s.* per ton ; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.
From E. ENSOR, Esq., *Woodville, near Burton-on-Trent.*
"The Sand is very good ; when we want more we will write you."
W. SHORT, Sand and Peat Depot, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863 ; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane ; or Basingstoke.
Samples and prices on application.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY  THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman : JOHN CLAYDEN, Littlebury, Essex.
Managing Director : JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
Offices : 109, Fenchurch Street, London, E.C. Manufactory : Plaistow, Essex.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices :—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers ; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C. ; and 22, Eden Quay, Dublin.

GENUINE NEW GARDEN SEEDS.

CARRIAGE FREE.

COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY IN PROPORTIONATE QUANTITIES FOR LARGE AND SMALL GARDENS,

£3 3s., £2 2s., £1 1s., and 10s. 6d.

Including none but the best and most useful varieties, and only Seeds of First-class quality.
A trial is respectfully solicited.

PRICED CATALOGUES Post Free on application.

WM. WOOD AND SON, SEED MERCHANTS, MARESFIELD, NEAR UCKFIELD.

SEEDS FOR PERMANENT PASTURE.

A liberal supply of Seeds, consisting of from 12 to 14 varieties of Clover and Grasses, assorted to suit the various soils, the quantities and kinds of which are given in detail, may be had at a cost not exceeding 23*s.* to 25*s.* per acre from

W. DRUMMOND & SONS, SEEDSMEN,

STIRLING,

Whose experience in Laying Down Land to Permanent Pasture has extended over many years, during which they have supplied their Assortments to numbers of the leading Proprietors and Farmers throughout the kingdom. The quality of their Seeds is well known, and they respectfully assure intending purchasers that this year they are UNUSUALLY GOOD, and so moderate in price that the above cost will secure the best article that can be grown.

PRICED CATALOGUES of every description of Farm Seeds may be had Post Free on application.

SEED WAREHOUSE, STIRLING.

*** Stirling is most favourably placed in point of Railway accommodation, there being direct and constant traffic to all the principal Stations in Scotland and England, and by Steamers (*viâ* Glasgow), almost daily to the chief ports in Ireland, thereby ensuring a speedy delivery of Goods, all of which (with certain limitations) are forwarded CARRIAGE PAID.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

A Very Extensive and Well-grown Stock of Roses,

CONSISTING OF MANY THOUSANDS OF STANDARDS AND DWARFS, OFFERED BY

WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

	Per doz.—s. d.
STANDARD HYBRID PERPETUALS	18s. to 24 0
HALF STANDARD ditto	15s. ,, 18 0
DWARF ditto	9s. ,, 12 0
STANDARD SUMMER ROSES	18 0
HALF ditto ditto	15 0
DWARF ditto ditto	9 0
DWARF BOURBON and TEA-SCENTED	12s. to 18 0
DWARF CHINA	9s. ,, 12 0
DWARF NOISETTE	9s. ,, 15 0
CLIMBING ROSES	9s. ,, 12 0
CLIMBING ROSES, without names, for covering banks, &c. per 100	30s. 4 0
COMMON CHINA, CRIMSON CHINA, COMMON MOSS, and PROVENCE CABBAGE	5 0

Roses, Hyacinths, and Camellias.

WM. PAUL respectfully invites attention to his Collections of FORCED ROSES and HYACINTHS, on view during the month of MARCH, the 19th and 30th excepted. Equal FIRST PRIZES for 18 HYACINTHS and a collection of TULIPS, and seven other Prizes were awarded to collections at the Royal Horticultural Society's Exhibition of the 9th inst.

Visitors by Railway can enter the Nurseries from the platform, Waltham Station (Great Eastern Railway), half an hour's ride from London. Admittance free.

Paul's Nurseries, Waltham Cross, N.

NEW PLANTS of 1863.

In strong healthy Plants.

NEW GERANIUMS, 24s. per doz.	New FUCHSIAS, 6s. p. doz.
,, ZONALE, 12s. per doz.	,, PETUNIAS, 6s. ,,
,, CINERARIAS, 12s. per doz.	,, VERBENAS, 4s. ,,

LONICERA AUREO-RETICULATA, 4s. to 9s.

H. WALTON, Edgend Marsden, near Burnley.

CATALOGUES on application for one stamp.

Van Houtte's Nursery.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN.

LOUIS VAN HOUTTE'S PRICE LISTS, Nos. 99, 100, and 102—STOVE, GREENHOUSE, HARDY PLANTS and SEEDS.

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb:—Imported Truffaut's Aster, Stock, Wallflower, and Balsam, 1s. per packet; Phlox Drummondii, Zinnia, Cockscomb, Larkspur, Dianthus and Variegated Poppy, 6d. per packet; English saved Calceolaria, Cineraria, and Fringed Primula, 1s. 6d. per packet; Mimulus, Rhodanthe, Lobelia, Pansy, Hollyhock, Petunia, Amaranthus ruber, Antirrhinum and Auricula-eyed Sweet William, 6d. per packet

RICHARD SMITH, Seed Merchant, Worcester.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

The "Pine Apple" Scarlet-flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2s. 6d. per packet.

CUCUMBER.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2s. 6d. per packet.

A fine Collection of CUCUMBERS and MELONS at 1s. per packet. For List see this Paper of Jan. 30, 1864.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1s. per packet

TILEY'S SOLID WHITE CELERY, 1s. per packet.

Griffin's ALMA LETTUCE, true, 1s. per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement of Jan. 30, 1864, with the exception of General Outram Cucumber, for 3s.

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7s. 6d. each.

Younger plants, very suitable for planting, 3s. 6d. and 5s. each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

The Victoria Nectarine.

THIS is undoubtedly the FINEST NECTARINE known. A First-class Certificate was awarded for it by the Fruit Committee on September 10, 1861.

The following is an Extract from the Report:—

"MR. RIVERS'S greatest triumph is the production of a seedling Nectarine, which has all the merits of the Stanwick Nectarine without any of its defects. It was raised from the Violette Hâtive Nectarine impregnated by the Stanwick. It is a month earlier than the Stanwick, and a fortnight later than the Violette Hâtive."

Fruit large, often measuring 9 inches in circumference.

Young Trees, full of blossom buds, 10s. 6d. each.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

PINE PLANTS.—The Subscribers have on Sale the following fine healthy young PINE PLANTS, free from insects:—

8 SMOOTH CAYENNE PINES, strong plants.
12 Do. do. do. smaller do.
100 QUEEN PINES, Succession plants.

Price on application.

THOMAS KENNEDY & Co., Nursery and Seed Establishment, Dumfries.—March 26.

STANDARD CHERRIES.

Extra fine.

STANDARD SPANISH CHESNUTS, extra fine for Avenues, 75s. per 100.

RICHARD SMITH, Nurseries, Worcester.

Apples, Pears, and Plums.

JOHN ADAMS AND CO. have a surplus Stock of the above as Pyramids, Dwarf Maiden and Dwarf-trained.

Also Dwarf Maiden PEACHES, NECTARINES, and APRICOTS.

A lot of fine worked ENGLISH ELMS, 8 to 10 feet.

Prices, &c., on application.

Mentford, March 26.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	,, Portugal, 1 to 2 feet
,, dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	,, Turkey, 3 to 4 feet
,, standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

STRAWBERRIES.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Wizard of the North, Alice Maude, Eliza, Prince of Wales, Sir C. Napier, Carolina superba, 1s. 6d. to 2s. per 100.

2-year ASPARAGUS, strong, 15s. per 1000; SEAKALE, &c.

POTATOS.—Handsworth, Ashleaf, Myatt's Prolific, Forty-fold, Dalmahoy, Shaw, &c., very cheap.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

The Japanese Nurseries, Biggleswade, Beds.

DEUTZIA CRENATA.—This magnificent Double Red Deutzia, just imported from Japan by Mr. ROBERT FORTUNE; the greatest novelty ever offered. Strong plants now ready from 18s. to 30s. per dozen. Also all the new JAPANESE CHRYSANTHEMUMS. Strong plants ready March 1, from 12s. per dozen. Catalogues of all the Novelties from Japan, gratis, now ready.

THOMAS AYRES.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.

For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS can supply any quantity of New Seed of this useful plant, which is now so extensively cultivated. New Seed, 1s. 3d. per lb.; or cheaper by the cwt. (Sow 24 lbs. per Acre for Feeding purposes).

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells; and Groomsbridge, Kent.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

CHEAP BEDDING PLANTS.—Autumn-struck GERANIUMS, Scarlet, White, Rose, Pink, Cerise, &c., in 100 sorts, 2s. 6d. per dozen; Variegated kinds, 3s. 6d. per dozen. CALCEOLARIAS, LOBELIA SPECIOSA, CERASTIUM, KONIGA, SALVIAS, and many others, all at 2s. 6d. per dozen. Copies of CATALOGUE for 1863 still to be had, and the Edition for 1864, enlarged and nearly all rewritten, being in fact a useful Flower Garden Manual, will be ready about the first week in April. I need hardly say that my Collection of these plants is second to none—the fact is patent. Cuttings supplied at 10s. per 100, in not less than 10 of a sort.

Apply to J. SCOTT, Merriott, Somerset. Post Office Orders on Crewkerne.

Choice Tricolor Geraniums for Pot Culture.

ALFRED FRYER offers the following 12 Choice Tricolor, Gold and Silver-leaved varieties for 21s. Basket and package included.

Mrs. Pollock	Rainbow	Glowworm
Sunset	Argus	Fontainbleau
Mrs. Milford	Picturata	Golden Harkaway
Golden Tom Thumb	Burning Bush	Silver Nosegay

All the best kinds of VARIEGATED and SCARLET GERANIUMS for bedding out, 2s. 6d. per doz., in 200 varieties, fine autumn-struck plants; including Cloth of Gold, Golden Fleece, Golden Chain, Reine d'Or, Flower of Spring, Bijou, Madame Vaucher, Rose Queen, Blackheath Beauty, &c.

Remittances requested from unknown correspondents.

Address, ALFRED FRYER, Chatteris, Cambridgeshire.

MESSRS. E. G. HENDERSON AND SON will forward postage free on application, their NEW SEED CATALOGUE for 1864.

12 papers of NEW ANNUALS, introduced in 1864 for the first time, for 6s.

The ALBERT STOCK (New Intermediate, rich violet-purple), 1s.

The ALEXANDRA STOCK (new White Intermediate), 1s.

MIMULUS PARDINA (best new Hybrid Mimulus), 6d. and 1s.

PERFECTION SWEET WILLIAM (finest of all known strains). See Coloured Plate; 6d. and 1s.

French blotched FANCY PANSY, 1s. 6d.

PRIMULA SINENSIS, "CRIMSON EMPEROR," new, 2s. 6d.

TROPÆOLUM SPECIOSUM, rich scarlet, flowers and leaves like T. pentaphyllum, 1s.

COTTON PLANT, ornamental, 6d and 1s.

CLIANTHUS DAMPIERI, 1s. and 2s. 6d.

,, SPLENDENS, 2s. 6d.

TROPÆOLUM TOM THUMB "MODEL," the best of bedding varieties, 1s.

RHODANTHE ATROSANGUINEA and MACULATA ALBA, 6d. and 1s.

The Wellington Nursery, St. John's Wood, London, N.W.

GEO. SMITH begs respectfully to offer to the Trade and public generally his well-known SEEDLINGS, believing that they will take a high stand amongst the Floral Novelties of the present season, viz.:—

FUCHSIA.

GRAND DUKE.—Tube and sepals bright crimson, well reflexed, corolla violet purple; very double, and of large size, smooth, and a most abundant bloomer; constant, and of fine compact habit. Extra. 10s. 6d.

ZONALE GERANIUMS.

LORD OF THE ISLES.—A beautiful cerise flower; very stout, large, and of exquisite shade; new in colour, and the finest Zonale ever offered. Awarded a First-Class Certificate by the Floral Committee of the Horticultural Society, for its general fine qualities. 5s. each.

ORANGE GLOBE.—Brilliant orange scarlet; truss large, of fine shape, and habit; a bold and conspicuous flower. 5s.

PETUNIA.

PRINCESS ALEXANDRA.—Dark puce, with pure white stripes; flowers good size and form; habit most dense; foliage small and bright. This will be found the most beautiful of all the Single Petunias yet offered, and will form a constant and fine acquisition to its class. Received First-Class Certificates at Wellington, Bath, and Highgate Horticultural Societies. 5s.

SEEDLING VERBENAS.

BLACK DIAMOND.—This is a most remarkable rich dark maroon, of fine shape and size, and will prove one of the best and most distinct Verbenas in cultivation.

FANTASTIC.—Pure white, with conspicuous rosy-purple centre; fine shape and truss; a first-class light variety.

GRAND DUCHESS.—White, with bright cherry centre; large truss, and fine for exhibition and other purposes.

LORD CLIFDEN.—Dark crimson scarlet; the pips much larger than a shilling; larger and finer than Lord Leigh or Foxhunter.

EMBLEM.—Rosy pink eye, white pip, and truss very large; fine shape; a first-class flower.

CHIEFTAIN.—Crimson scarlet; very vivid, and a remarkably free bloomer; fine for all purposes.

SCINTILLA.—Ruby rose; conspicuous white eye; fine show flower.

PLENIPO.—Rosy scarlet, with crimson-scarlet centre; free, and fine shape.

5s. each, or the set of eight for 30s.

G. S. will be prepared to send out after the 20th April, in good plants, the above mentioned, and begs to solicit early orders for the same.

*** Coloured Illustrations of Geranium Lord of the Isles, or Petunia Princess Alexandra, free by post, in exchange for six Postage Stamps each.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of New CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c., for 1864, is now ready, and will be sent post free on receipt of Two Stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10s.; 20 pair of Cuttings of ditto for 5s.; 25 pair of fine POMPONS for 10s.; 25 pair of Cuttings of ditto for 5s.

N.B. To save trouble all orders to be prepaid.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

Superb Double Hollyhocks, now ready for Planting.

WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.

See Advertisement on other page.

Address, WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of the above that will flower well this season.

A DESCRIPTIVE LIST of sorts may be had on application.

FOREMAN at the Nurseries, Sawbridgeworth, Herts.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 74) for the present Spring is ready, and may be obtained Gratis at

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

	£	s.	d.
50 in 50 choice varieties	2	12	6
in 25 " "	1	5	0
12 in 12 " "	0	12	0
Extra choice mixed, 3s. 6d. per doz. per 100	1	5	0
Fine mixed, 2s. 6d. per doz. "	0	17	6
GANDAVENSIS, strong roots, 2s. 6d. per doz. "	0	15	0
BRENCHLEYENSIS, ext. strong roots, 3s. p. doz. "	1	0	0

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

RHODANTHE MACULATA, 6d. per packet.
RHODANTHE MACULATA ALBA, 1s. per packet.
RHODANTHE ATROSANGUINEA, 1s. per packet.
HELIPTERUM SANFORDII, 6d. per packet.

W. THOMPSON, Tavern Street, Ipswich, begs to offer Seed of the above-named beautiful Novelties, introduced by him from Australia, at the annexed prices, with instructions for cultivation. Also,

CLIANTHUS DAMPIERI (received from Australia by last mail), packet of 10 seeds, 2s. 6d.

TRITOMA UVARIA GLAUCESCENS, 6d. and 1s. per pkt.

W. T.'s DESCRIPTIVE CATALOGUE for 1864, of more than 1200 Flower Seeds, may be had on post paid application.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

To the Trade.

MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering strong Autumn-struck Plants of the following, from Store Pots—

SCARLET GERANIUMS—Tom Thumb, Frogmore's Improved and Finedonensis.
AGERATUM MEXICANUM.
VERBENAS—Purple King, Géant des Batailles, Brilliant de Vaise, Lord Raglan, General Simpson, and Mrs. Holford.

The above at 8s. per 100; 70s. per 1000.

N.B. A reference or remittance requested from unknown Correspondents.

To the Trade.

J. NUNN has a Surplus of the following Spring-struck Plants in Store Pots to offer at 10s. 6d. per 100, viz.—VERBENAS, FUCHSIAS, DAHLIAS, TROPÆOLUMS, AGERATUMS, HELIOTROPES, LOBELIA SPECIOSA, JACOBŒAS, Purple, PYRETHRUMS, PETUNIAS Single and Double; well rooted plants, now fit for Potting. Payments in three months from date of Invoice, or 5 per cent. discount for Cash. First-class PRIMULA SEED, 1863, 2s. per packet.

J. NUNN, St. Augustine's Nursery, Norwich.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

DOBSON'S EXTRA CHOICE SEEDS.

Quality second to none. In sealed Packets.

DOBSON'S SUPERB CALCEOLARIA, 1s. 6d., 2s. 6d., 5s.
DOBSON'S SUPERB CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PANSY, 1s., 2s. 6d.
DOBSON'S SUPERB BALSAM, 1s., 2s.
DOBSON'S SUPERB LOBELIA SPECIOSA, 1s.
DOBSON'S SUPERB HOLLYHOCKS, 1s., 2s. 6d., 5s.

The Trade supplied on liberal terms.
SEED and PLANT LISTS post free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Flower Seeds, free per post.

WM. WOOD AND SON'S splendid COLLECTIONS as under:—

HARDY ANNUALS.

100 varieties	20s. 0d.	25 varieties	5s. 0d.
50 do.	10 0	12 do.	2 6

HALF-HARDY ANNUALS.

100 varieties	25s. 0d.	25 varieties	7s. 0d.
50 do.	12 6	12 do.	3 6

GERMAN FLOWER SEEDS as imported in original sealed packets on lowest terms.

CATALOGUES on application.

Woodlands Nursery and Seed Warehouse, Maresfield, Uckfield, Sussex.

Flower Seeds. Free per Post.

BUTLER AND MCCULLOCH'S unrivalled Assortments:—

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100 varieties, 20s.	50 varieties, 10s.
30 varieties, 5s.	15 varieties, 2s. 6d.

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100 varieties, 30s.	50 varieties, 15s.
25 varieties, 7s. 6d.	15 varieties, 2s. 6d.

The varieties included in the above assortments are all distinct and of the brightest colours. Each packet bears a printed description and practical hints on cultivation.

Covent Garden Market, London, W.C.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections with prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers, the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

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Foot's Cray Nursery, S.E.

Ferns.

WANTED, FERNS in quantities, both Hardy and Exotic Varieties.—Persons having young Plants to dispose of, are invited to send List of sorts, quantity of each kind, and cash price, to

X., Care of Mr. Clark, 25, Bishopsgate Street Within, E.C.

MR. WILLIAM BULL can recommend the following NEW HERBACEOUS PLANT.

TRICYRTIS HIRTA. — The credit of introducing this beautiful plant is due to that distinguished traveller, Mr. ROBERT FORTUNE, and is one of the treasures collected by him on his last visit to Japan. It grows 4 to 5 feet high, and the copious blossoms which appear on the axils of the leaves are of a pearly white, dotted with clear purple, rendering it as singular looking as it is beautiful. 7s. 6d.

PHLOX ADMIRATION.—The entire stock of this exquisite variety was purchased from that eminent Phlox cultivator, M. LIERVAL, of Paris. It only grows about a foot high, and has immense Hydrangea-like heads of blossom; the flowers individually are large, and of the most perfect form, colour bright red or carmine, with glowing crimson centre. The best Phlox ever offered. 1s. 6d. each; 12s. per dozen.

Other good varieties, 12s., 18s., and 20s. per dozen.

NEW BEDDING DAHLIA.

Now ready, in pot roots fit for spring propagation, at 7s. 6d.

GEM of the DWARFS.—"Of Bedding Dahlias, a variety which is to be called 'Gem of the Dwarfs,' and which is in the hands of Mr. Dean, of Shipley, appears likely to be an acquisition in its way. It is a crimson red tipped with white, and is said to be the dwarfest bedding variety yet seen, the plants never exceeding and seldom attaining so much as 18 inches in height. The variety has proved constant to this habit for three seasons, and is described as a most profuse bloomer, looking amazingly bright and showy in a bed. The blooms we have seen lead us to believe that it really deserves this good character."—*Extract from Gardeners' Chronicle*, Nov. 8, 1862, *vide* page 1050.

The above having been so strongly recommended, Mr. WILLIAM BULL purchased the entire stock.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by

SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10s. 6d.
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0

SUTTON'S CATALOGUE of SEEDS will be sent post free.

SUTTON & SONS, Seed Growers, Reading, Berks.

CHOICE NEW FLOWER SEEDS.

Free by Post.	Per pkt.—s.	d.
AMARANTHUS MELANCHOLICUS RUBER	1	0
CLARKIA INTEGRIPETALA MARGINATA	0	6
GODETIA THE BRIDE	0	6
HELIPTERUM SANFORDII	1	0
KAULFUSSIA ATROVIOLACEA	1	0
LEPTOSIPHON HYBRIDUS	0	6
LOBELIA PAXTONIANA	1	0
LUPINUS ALBO-COCCINEUS	1	0
MIMULUS MACULOSUS	1	0
RHODANTHE ATROSANGUINEA	1	0
" MACULATA ALBA	1	0
TAGETES SIGNATA PUMILA	0	6

For full description of the above choice New Annuals, see SUTTON'S AMATEUR'S GUIDE, which will be sent to any address on receipt of 6 stamps, or gratis to customers.

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ROYAL BOTANIC SOCIETY of LONDON,
REGENT'S PARK.

THE FIRST SPRING EXHIBITION.

LIST of AWARDS, March 19, 1864.

12 HYACINTHS. (Amateurs.)

1st Prize, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate
2d, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate

12 HYACINTHS. (Nurserymen.)

1st, Mr. W. Paul, Waltham Cross
2d, Messrs. W. Cutbush & Son, Highgate
3d, Messrs. Barr & Sugden, King Street, Covent Garden

CUTBUSH'S SPECIAL PRIZE for 12 HYACINTHS.

1st, Mr. W. Young, Gr.
2d, Mr. A. Carr, Gr.

6 CAMELLIAS in Pots. (Amateurs.)

2d, Mr. W. Young, Gr.

12 CAMELLIAS, cut blooms. (Amateurs.)

1st, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common

12 CAMELLIAS, cut blooms. (Nurserymen.)

1st, Mr. W. Paul
2d, Mr. W. H. Treen, Rugby, Warwickshire

12 CYCLAMENS.

1st, Mr. J. Holland, Gr. to R. W. Peake, Esq., Spring Grove, Isleworth
2d, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth

12 CHINESE PRIMROSES.

1st, Mr. T. Todman, Gr.
2d, Messrs. J. Dobson & Son, Nurserymen, Isleworth

6 MISCELLANEOUS PLANTS.

1st, Mr. W. Bull, Nurseryman, King's Road, Chelsea
2d, Mr. W. H. Treen, Nurseryman, Rugby
3d, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park

NEW PLANTS and SEEDLINGS.

First-class Certificate of Merit to Mr. W. Bull, for Camellia Comte de Gomer
Ditto, Messrs. J. Veitch, for Azalea indica Stella
Second-class Certificate of Merit to Messrs. J. Veitch, for Rhododendron sp. nova
Ditto, Mr. W. Bull, for Chameranthemum Beyrichii variegatum
Ditto, Messrs. F. & A. Smith, for Cineraria Eliza
Ditto, Messrs. F. & A. Smith, for Cineraria Flower of the Day
Ditto, Mr. J. Wiggins, Gr., for Cineraria Nonpareil

MISCELLANEOUS.

Silver Medal to Mr. W. Hill, Gr. to R. Sneyd, Esq., for Old and New Grapes
Ditto, Mr. W. Paul, Nurseryman, for Collection of Hyacinths
Ditto, Messrs. Paul & Son, Nurserymen, for Collection of Roses in Pots
Small Silver Medal to Messrs. W. Cutbush & Sons, for Collection of Hyacinths
Ditto, Mr. W. Howard, Gr. to J. Brand, Esq., for 24 Pots of Lily of the Valley
Bronze Medal to Messrs. Cutbush & Son, for Collection of Tulips
Ditto, Messrs. E. G. Henderson & Son, for Collection of Cyclamens
Ditto, Messrs. E. G. Henderson & Son, for Collection of Chinese Primroses
Small Bronze Medal to Mr. W. Young, Gr., for Collection of Tulips
Ditto, Messrs. Paul & Son, for Box of Cut Roses
Ditto, Mr. W. Paul, for Collection of Tulips
Ditto, Mr. W. Paul, for Collection of Crocus
Ditto, Mr. R. Parker, Nurseryman, for 6 Amaryllis

The Gardeners' Chronicle.

SATURDAY, MARCH 26, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, March 30 { Royal Horticultural (Floral Committee) at South Kensington .. .. .. 10 A.M. / Royal Horticultural (CAMELLIA SHOW), at South Kensington .. .. 2 P.M.

IT has often been matter of surprise that in Russia and some other countries of Eastern Europe FUNGI seem to be preserved almost indiscriminately without regard to their presumed wholesome or deleterious qualities. It has generally been supposed that the vinegar in which they are preserved neutralises the poisonous qualities of the amanitine, or whatever other noxious principle may enter into their composition. Monsieur GERARD, in an article contained in the *Journal de Médecine et de Chimie Pratique*, vol. xxxiii., p. 465, confirms this notion. He informs us that poisonous Fungi may be eaten with impunity if steeped for two hours in water acidulated with vinegar in the proportion of one or two fluid ounces to two pints of water, or in brine. The

Fungi are then to be well washed and boiled for 20 or 30 minutes, and then washed again. We have no exact information as to the method adopted in Russia for the winter preservation of Fungi, but from the specimens we have seen, we suspect that after being salted they are stored away in tolerably strong vinegar. Whether this method would succeed with such dangerous species as Agaricus muscarius is uncertain. Even a single specimen mixed with wholesome species is sufficient to produce fatal effects.

A case is reported by Mr. Mangin in the *Bulletin de Thérapeutique*, vol. lxi., in which two deaths occurred in a family of six, four of whom were affected after partaking of a stew made of the common Chantarelle (Cantharellus cibarius), with which a specimen of the Fly Agaric had unfortunately been intermixed. The fatal effects took place in two children out of four who were attacked in the inverse order of their years, the youngest child of three years escaping only from profuse vomiting.

Lallemand and Chevret, in the same volume of the journal above mentioned, inform us that five persons were killed by the Fly Agaric, which had been served up to the mess of an infantry regiment instead of the true Orouge, which is said to be the most excellent of all Fungi, but unhappily sometimes confounded with the Fly Agaric.

While on the subject of poisonous Fungi, it may not be uninteresting to notice the dreadful effects which are produced by a species of black rust which attacks the large South of Europe Reed, Arundo Donax. This is, in all probability, the same species with that which attacks Arundo Phragmites in this country, the spores of which produce violent headaches, and other disorders amongst the labourers who cut the Reeds for thatching. M. Michel informs us that the spores from the parasite on Arundo Donax, either inhaled or injected, produce violent papular eruption on the face, attended with great swelling, and a variety of alarming symptoms which it is unnecessary to particularise in various parts of the body. This is probably not the only case in which the spores of parasitic Fungi when abundant, produce deleterious effects. We have heard an unfavourable report of the spores of Uredo Rubigo vera, the red Rust of agriculturists, but founded only on very imperfect observations.

The above cases are taken from the admirable Year Books for 1861 and 1862, published by the New Sydenham Society, which, apart from other valuable publications, would alone render it deserving of support. *M. J. B.*

There is scarcely a plant in cultivation—perhaps none—which as an object of out-door embellishment equals the Tritoma, or as some would now call it the Kniphofia, with its glow of brilliant colouring, lightening up as it were our out-door gardens at a season when they show more or less evident symptoms of dulness and exhaustion. Not even the Chrysanthemum itself, with all its variety of form and colouring, and with all its beauty too, can boast of so much thorough effectiveness out of doors during the late autumn and winter months as the late Tritomas; and we must go to our brilliant-berried shrubs to find something of a parallel. There is a peculiar grandeur about a fine well-flowered mass of the Tritoma; and in the south of England at least our national botanic garden at Kew has done much to render it popular. But like other plants, Tritomas vary in their quality, the variety no doubt being attributable to their seedling origin. And they not only vary in the colouring and quality of their flowers, but also in respect of their habit, some of them blooming early, and some late in the autumn.

In a letter now before us from a gentleman who has employed the Tritoma very extensively for decorative purposes, the notion entertained by some persons that these plants reproduce themselves true from seed is altogether exploded. I have at least proved, he writes, that the best variety of T. Uvaria does not do so, and that from a packet of seed many varieties may be obtained, few, if any, being at all equal to the original. This best variety of T. Uvaria is the one which has become so well known in consequence of having been brought into notice at Kew. It differs from all others in its much more glaucous leaves, and from the other earlier sorts in its brighter and richer coloured flowers. For the sake of distinction it is now known in gardens under the name of T. Uvaria glaucescens. It is no doubt one of the two finest forms of this noble autumn flower which are at present to be met with in our gardens, but it is an early bloomer, and is in its best condition in the months of August and September. Our informant describes a row of it nearly 50 yards in length, with upwards of 850 spikes of flowers developed at one time, as a floral picture of the most gorgeous character, not easily to be forgotten.

The value as a decorative plant, of the variety to which we have just referred, is on all hands admitted, but it appears that there is in gardens another very distinct variety of equal beauty, and having the very useful quality of blooming late in autumn, and in favourable seasons continuing in a fresh and very effective state quite through the winter. Such a plant deserves prominent notice as a real acquisition for our flower gardens. This is grown sometimes as T. Rooperi; but from the examination of a boxful of flowers sent to us about New Year's Day by Mr. Parker, of Tooting, who is cultivating it extensively, we are inclined to question its relationship to T. Rooperi, which, at least in the typical form, is an early summer flowerer, and appears besides to have some structural differences.

The provisional name of Tritoma grandis, which it seems well to deserve, has in consequence been adopted in gardens for this late-blooming plant, of which we shall now proceed to record such particulars as have become known to us. The leaves have the broad base and recurving habit of those of the true T. Rooperi; indeed it is probable that this similarity of aspect in the foliage may have led to the use of that name. The plants come into bloom towards the end of September or in October, and a succession of flower-spikes is produced all through the winter, if the weather continues at all mild—in such seasons as the past for instance, continuing in full beauty quite into the new year, and in those of milder character, lasting on till February. The stems grow to a height of six or sometimes seven feet, more than half of their length being clothed with flowers, and smaller lateral blossom-spikes are also sometimes produced from the main stems. We are informed that the flower-spikes themselves last in flower twice as long as do those of the other kinds, and that the plant is a much stronger grower. When fully developed the flowers are quite equal in colour and effect to those of T. Uvaria glaucescens. The winter-blooming habit of this Tritoma grandis sufficiently distinguishes it from the variety just mentioned; its foliage distinguishes it from the other recognised varieties of T. Uvaria, such as serotina; while certain points relating to the bracts and the flowers separate it from T. Rooperi, so far as there is any evidence of what that plant is: besides which, the latter blooms in the month of May.

But what are all these reputed species of Tritoma—Uvaria, Burchellii, Rooperi, &c.—so very imperfectly distinguished and so difficult to distinguish by botanists, and yet so different in a horticultural point of view? The inference which may be drawn from our present knowledge of the variability of T. Uvaria when originated from seeds, is that they are wild varieties of one and the same species, somewhat modified by the conditions under which they have been grown, or perhaps cross-bred varieties of aboriginal origin. We hope during this season to notice more exactly the characteristics presented by T. Rooperi, which may throw some light upon the subject.

Reverting to the more strictly horticultural question, we may say that the two plants we have alluded to under the names they bear in gardens, T. Uvaria glaucescens and T. grandis, are both of them really grand subjects for garden decoration, and that by planting the two alternately a fine display of their brilliant flowers may generally be had for five months at least in succession. They are telling objects as isolated specimens dotted about the pleasure-ground, but still more so if possible, when used as a back row for a ribbon or other flower border. We may add moreover, that there is no finer plant than this T. grandis, for the decoration of a cool greenhouse or conservatory in the autumn and early winter months, for which purpose the plants may either be grown in pots or lifted from the borders when they are commencing to flower, which latter may be done without appreciable detriment to them if they are afterwards kept shaded for a few days.

—— The following paragraph which lately appeared in the *Athenæum* contains a hint that might be beneficially taken by vestries and other local boards which have the control over streets and roads, whether in London and its environs, or in other cities and towns throughout the country, wherever the opportunity is afforded to plant trees in public thoroughfares:—"It is the intention of the Department of Science and Art to plant a line of trees extending from the students' entrance to the schools of the department in the Exhibition Road, South Kensington, to the south-western angle of that road, opposite the south-eastern entrance of the Exhibition building, and in an eastern direction along the Cromwell Road as far as the public entrance to the South Kensington Museum. We hope the parish authorities in charge of the Brompton Road will not fail to follow this excellent example." The example, so far as regards the idea of Tree Planting, deserves to be very widely followed; it should, however, be done with better taste and with less disregard to practical tree culture than in the instance in question.

New Plants.

275. Epidendrum (Spathium) cnemidophorum, *Lindl. Folia Orchidacea.*

At the time this plant was described in the "Folia," dried specimens only had been examined, and from these no idea could have been formed of the imposing habit of the plant. Mr. Skinner, its original discoverer, spoke in high terms of its stately appearance, and again and again attempted to introduce it into the collections of this country; but, with the solitary exception of the young plant that was placed last year under Mr. Veitch's care, all his efforts to do so had hitherto proved abortive. At length however his persevering energy has been rewarded by the receipt of a dozen or more live specimens in the most robust health, and which more closely resemble Arundo Donax, as to their stems and leaves, than any Orchid with which we are acquainted. Being found wild at a great elevation in Guatemala, they will require to be treated as among the coolest of the many cool Orchids that are now so rapidly coming into vogue.

In the "Folia" the raceme is described as "short," but from a model executed by some ladies in Guatemala, and which is now, through Mr. Skinner's kindness, in our possession, it would appear to be at least a foot long, drooping gracefully, and studded with innumerable flowers arranged spirally like the leaves on the stem of a Screw-pine. These flowers are gaily spotted, about an inch and a half across, and supported on white pedicels of twice their own length. The name of the species was suggested by the numerous spathes that, like greaves (κνημαι), protect the raceme as it bursts forth from the end of the stem.

As we are yet in the dark as to the exact elevation and the conditions under which this remarkable plant is found in its native haunts, we much wish that Mr. Skinner would kindly favour us with a little additional information on these points.

NOTES ON THE AUCUBAS OF JAPAN.

The readers of this Journal will have observed by a leading article at page 243, that the first fruits of the introduction of the male plant of Aucuba japonica were exhibited to the public at the last meeting of the Royal Horticultural Society. Mr. Standish had a plant at that meeting, loaded with berries of the brightest coral-red, which was admired by everybody. It was the new green-leaved kind known as A. japonica vera, which was exhibited on this occasion, but as the male plant becomes common enough to be planted out in our gardens, we may expect the old garden variety to produce fruit in the same way, and to be equally ornamental.

Now that the value of the introduction of the male plant of Aucuba has been shown in such a satisfactory way, it may be worth while to make a few remarks on this favourite garden shrub. Most of the flowering plants in the vegetable kingdom produce their stamens and pistils, that is their male and female organs, in one and the same flower. Some, however, produce them in separate flowers although upon the same plant, as the Melon for example; while a third class has always the male flowers on one plant, and the female ones on another. The Aucuba belongs to the third class I have named, the flowers on one plant having stamens only, while those on other plants have pistils only.

The Aucuba of our gardens, that Laurel-looking bush with variegated leaves, which is so common in our London squares, and which flourishes under the smoke of our large towns better than almost any other evergreen we possess, appears to have been introduced to Europe in 1783. Thunberg's "Flora Japonica," published in 1784, has two figures, one showing a branch with male flowers, and the other meant, I suppose, to represent the plant in fruit. The male flowers are well shown in the figure, but if the fruit is really meant to be represented, the artist could not have seen the plant with fruit upon it, or he had seen only an abortive specimen. Kæmpfer describes it more accurately when he informs us that "the fruit is a red oblong drupe, like a Laurel berry, with a white sweetish pulp, and a kernel with a bitter taste."

The female plant only of the Aucuba had been introduced to Europe previous to my visit to Japan in 1860. The plants which grew in our gardens produced nothing but female flowers, and hence we never had an opportunity of seeing those clusters of rich coral-coloured berries which were so much admired at South Kensington on the occasion referred to. I have often wondered how

it came to pass that all our plants were of this description, and I can account for the circumstance in one way only. It is probable that the first plant, and perhaps the only one, that ever came to Europe from 1783 to 1861, was a female, and from this plant all our gardens have been stocked. A person buying an Aucuba in a Japanese garden is much more likely to get a female plant than a male one, and for the following simple reason — the Japanese appreciate the beauty of the berries of the plant, and consequently the female is more frequently found in their gardens than the other kind which does not bear berries. Oftentimes they dig up the wild plants in the woods or on the hill sides, and carry them home to plant in their gardens, where they can have them at hand to enjoy the beauty of the ripening fruit. This will account for the introduction of the female plant to our gardens without its mate. The first plant imported we will suppose had been picked up in some garden where it had been cultivated for the sake of its berries. There being no male plants in the country to which it came, it ceased to bear any more fruit. From this plant, then, all those have sprung which have been adorning our gardens for 80 years—sprung not by reproduction, but by division. Such is my theory; I may be wrong, but the matter is not of much importance.

I will now make a few remarks on the discovery and introduction of the male Aucuba. Being fully aware of all the circumstances I have related above previous to my visit to Japan, I lost no time after my arrival in that country in looking out for the individual from whom the plant in our gardens had been divorced so long. It was found at last in a garden near Yedo. In outward appearance, that is, in so far as the leaves, stems, and size are concerned, the male plant does not differ from the female. It is only by the flowers or fruit that they can be distinguished. As the flower buds were only forming when I first saw them, it was impossible to tell whether my plant was a male or a female. But long before they were fully formed or expanded, I had discovered, with the aid of a penknife and pocket-glass, the little anthers in the undeveloped buds, and that was all I wanted. The plant was immediately secured, put in a Ward's case and shipped for England. It reached this country in the early part of 1861, and flowered last year; and the pollen of its flowers was used to fertilise the flowers of the female plant which Mr. Standish exhibited at the late meeting of the Royal Horticultural Society.

The reason why the Aucuba of our gardens never had any berries upon it, or at most only a few abortive ones, will now be evident. I was somewhat amused by a version of the story which was given in an excellent review of my recent book on Japan. It was gravely stated that the female Aucuba "is, of course, unfruitful," and that "the male plant is covered with a profusion of great crimson berries." Well, this, to be sure, was rather reversing the order of things, but luckily the writer was in error. It was not that the female plant we cultivate does not produce berries, but its nonproductiveness was simply owing to the absence of the pollen which is naturally shed by the male blossoms.

In conclusion I may allude to another fallacy which has taken possession of some individuals, namely, that the green-leaved Aucuba is the true berry-bearing kind. This is not quite correct. All the varieties, whether the leaves be green or variegated, bear berries when the male plant is present. The berries add greatly to the beauty of the plant in the Japanese woods and hedges, where it grows wild; and when our shrubs in this country are covered with coral fruit, their value in an ornamental point of view will be greatly increased.

There are many varieties of the Aucuba in Japan. The green-leaved one already named would seem to be the original parent or species. In the woods many forms of variegation are met with—indeed scarcely any two plants are exactly alike. The green-leaved I look upon as the most valuable of them all. It forms excellent dwarf hedges, and its glossy evergreen foliage is very ornamental, particularly during the spring months, when the rich coral-coloured berries may be seen peeping out from amongst the leaves. I am glad to hear that this plant and many of our other Japanese importations have passed through the late severe frosts, without protection, unharmed. *Robert Fortune.*

STRAWBERRIES.

The time of year—the best time here (unless runners can be got in June)—for making new plantations of Strawberries is come. Notwithstanding what has been said against depriving Strawberry plants of their runners, I advise your readers to plant now, and deprive the plants of flowers and runners. When the plants have got very strong a few plants may be taken. In my opinion young plantations are ruined by being fruited and allowed to run before the plants have become strong. This may not be the experience of those who have rich, friable, deep loam.

My two spring plantations (1863) of Rivers' Eliza, one of Trollope's Victoria, one of Wonderful, disfruited last year and deprived of runners, have wintered without protection unscathed, and are full of crowns. The fruited plantations of Rivers' Eliza and Marguerite —two iron Strawberry plants—now coming to their second year's bearing, have wintered the best, and unscathed. The worked plants of Wonderful have not wintered so well; I think the plants suffer from inordinate cropping. The best plants, planted after fruiting time last year, are President, a fine Strawberry of good flavour, and of excellent constitution. Its flavour is good, and besides this it will fruit well as a plantling.

The worked plantation of Frogmore Pines—the most valuable of all new sorts—have wintered next best of the worked sorts. The runners have suffered much. The hardiest of all the first-class Strawberries of extra flavour—the flavour of the old Pine—is the Scarlet Pine. Both old and young plants of this sort have wintered perfectly well without protection.

The plants of Empress Eugenie, both old and young, have suffered by the winter. I have never yet been able to get a regular plantation of this fine sort. Eliza is the type of a plant, and gains favour fast in this part of the country; Wonderful also. I strongly recommend your readers to buy constitutional Strawberries, and to plant now, and try my plan of deprivation of fruit and runners through this summer.

Buy these, or some of them: — Royal Hautbois, Marguerite, very early; Rivers's Eliza, Wonderful, Trollope's Victoria, Empress Eugenie, Bicton White Pine, Scarlet Pine, Frogmore Late Pine, and I will venture to add President. Here are ten good sorts, of good habit and constitution; and if these fail, you will have no chance with others; nor can you bring 10 more in their lines to match them in their many good qualities.

I will append a few useful observations.

1. *Liquid Manure.*—This should be put on now, not into the line of the plants, but into the centre space between the ranks. Supposing the ranks to be 2 feet apart, soak well the centre foot of this space, either with liquid manure or with guano water. The rootlets in fruiting time will run out into this, and your crop will be greatly increased. Beware of strong liquids. I have seen great damage done by putting these into the line of the plants.

2. *Soot.*—Soot may be sown over the plants with great advantage. It is a sure cure for red spider and slugs, and also a good manure. Kitley's Goliath is subject to red spider more than any other sort, but I never had any trouble after a good sooting. It is a fine and good Strawberry; and I should say that Wonderful and this were the two best hardy representatives of the Queen. Both are subject to white tips; they are respectively wedge-coned and obtuse-coned.

3. *Curiosities.*—Fragaria viridis, lately spoken of in the *Gardeners' Chronicle*, is worthless in itself; but it might be valuable for hybridization. Fragaria lucida, with polished shining leaves, is also a curiosity, but worthless except for the above purpose. The stems are too short, and the fruit is small and worthless. I have had a few years ago a fine polished-leaved hybrid of this and Eleanor here, raised by the late Mr. Nicholson. I did not consider it sufficiently meritorious to keep it. Mrs. Nicholson can supply, I believe, both the above curiosities.

4. *What is wanted.*—We want not only good Strawberries, but better than we have got; or rather we want Strawberries, that being hardy, are also distinctive in flavour, or more successional. If the Queen could be got on to the plant of Eliza there would be perfection. The standards are still the Queen, Carolina superba, and Filbert Pine, but they cannot be grown successfully in all lands. I doubt whether they can be depended upon year after year in any land.

I have these on trial—Lucie, Napoleon the Third, John Powell; and the following seedlings by Mrs. Clements, of Warleggan Rectory, Cornwall: Favourite, Punch, Treasure, Sabreur, Kate, Robin Hood, and Gweniver. *W. F. Radclyffe, Rushton, March* 15.

Home Correspondence.

Japanese Plant Impostors.—When reading your remarks on the frauds practised on our countrymen by foreign dealers, I was irresistibly reminded of what happened to myself last year. A kind neighbour shared with me a present he had received from a connexion in the East, and which consisted of at least a hundred packets of Japanese seeds, done up in as many gay covers. On these were portrayed a variety of singular and beautiful forms, naturally enough supposed to represent the flowers which in due time would be the progeny of the seeds within; you may, therefore, imagine how much I felt annoyed when I found myself rewarded with a crop of the very commonest Convolvuli, Œnotheras, and even Spinach and Sorrel! *James Stanton, Gardener to James Bateman, Esq., Biddulph Grange, Congleton.*

Gardeners' Education.—As the subject of gardeners' education is now being ventilated in your columns, permit me to draw attention to the means adopted at Maidstone towards this desirable end. The Gardeners' Mutual Improvement Association was formed by Mr. S. Bunyard, Mr. Thos. Frost, Mr. Robson, and other local professionals, in order that by meeting once a month, knowledge might be imparted and experience gained. The society has not been in existence six months, and numbers some 200 members, while the exhibition and conversazione just held has been a grand success, and is so chronicled by our local papers. It appears to me this mutual instruction system would serve the purposes of such as your correspondents "A Young Gardener," and "A Midland County Young Gardener." Our subscriptions are merely nominal, and will be reduced as soon as honorary members join in sufficient numbers. I shall be happy to give further information on the subject if it is desired. *Thomas Bunyard, Jun., Nursery, Ashford.*

[These Gardeners' Mutual Instruction Societies are excellent, if well managed, but their success depends a good deal on the presence of one or two active leading judicious members.]

Rainfall at Ayr.—The following table shows the rainfall at Auchendrane House, 4 miles S.S.E. from Ayr, Scotland. Lat. 56° 11′ N.; Long. 5° 14′ W. Rain gauge 2 feet 3 inches above level of the ground, and 94 feet above the sea. Observations taken daily at 9.30 A.M.

Mean of the eight years, 44.784.

Year.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	Mean.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
January ..	2.39	3.65	4.98	5.74	6.420	4.870	3.130	6.550	4.717
February ..	3.67	2.77	1.21	6.05	3.800	3.180	2.673	5.149	3.561
March ..	none.	3.22	2.47	5.55	4.300	6.300	3.287	1.282	3.306
April ..	0.85	2.05	2.55	4.35	1.620	0.610	4.151	4.228	2.551
May	4.76	1.31	4.43	0.12	3.080	1.370	4.917	3.174	2.898
June	6.89	3.88	4.16	1.79	4.530	3.843	3.331	4.753	4.153
July	3.01	2.53	5.30	4.00	1.715	2.727	4.076	0.922	2.946
August ..	5.09	1.64	2.49	5.89	3.955	6.400	3.623	3.215	4.037
September ..	2.52	2.96	5.50	5.01	1.745	4.984	2.884	5.824	4.003
October ..	1.71	2.99	4.01	3.03	6.740	3.802	8.245	4.500	4.499
November ..	1.90	3.97	1.11	3.82	1.645	7.720	3.546	4.611	3.540
December ..	0.35	4.98	3.83	3.62	2.320	3.399	6.230	6.874	4.569
Yearly Total	39.14	37.24	42.05	49.58	41.930	49.215	50.173	49.951	44.784

The three last years, 1861, 1862, and 1863, have been disastrous years to the gardens, orchards, and farms in this district. *E. C.*

Plantago lanceolata. — Perhaps it is because this plant is never spoken of except as a weed by horticulturists that I took a fancy for it; we are always discussing the best mode of exterminating it, and it may be, that was why I took it into my head to discover the means by which Nature frustrates all our plans. I don't want to deny that the plant is a weed—an unmitigated weed, but there is no doubt it has its use in the world, as everything else has; and even in the life of a weed there may be something worthy of study. The first fact that came under my notice in examining this plant is that its ovules are not fertilised with the pollen produced by the same flowers. Look at the first spike you find in flower, and you will see that the stigmas of the lower flowers are protruded first; they make their appearance half way up the spike, and the lower ones are quite shrivelled up before the stamens of even the lowest flowers issue forth from the protection of the floral envelopes. Finding this to be the case, I covered a spike or two with fine netting; though this kept all insects away, it could not prevent pollen getting through to the stigmas. With every puff of wind I saw the pollen coming through the netting from the spike contained within it, and of course the rule would work equally well the reverse way. In fact I found that I had failed. I then tried double netting, and having left it on until the spike was quite out of flower, I removed it, and found that only a very few of the flowers had set their seeds. On the average only one flower in 20 produced seeds, and these were all upon that side of the spike facing the centre of the plant, where I had left one or two uncovered spikes in order to examine them in their natural condition. As this was the result observed from three spikes which had all been treated in the same way, we may presume that the few seeds which were perfected were fertilised with pollen obtained from the outer uncovered spikes, which had been wafted to them by the wind. The more closely we examine plants the more numerous shall we find those species which are never fertilised with their own pollen; they are far greater in number than most of us think, I believe. Insect agency does a great deal, as has been so fully explained with regard to Orchids, and the agency of the wind, in which we formerly put considerable faith, has been shown to be confined within more limited a sphere than was generally believed. Still I am inclined to think that it is to the wind, and not to the help of insects, that we must look as the agent which insures such perfect fertility in this common weed. If you examine a flower spike in its natural state, you will hardly find a single blossom that has not produced its

full complement of seeds. In the first place there is nothing to attract insects to it—no perfume, no honey, no brightly coloured corolla. On the other hand there are many circumstances so admirably adapting this plant for fertilization by the help of the wind, that we cannot doubt that that is the agency by which it is effected. The stigmas are exserted, that is, project considerably beyond the reflexed petals; they are also plumose—both circumstances fitting them for collecting any pollen grains which may be floating in the air. The anthers, too, are hung upon long slender projecting filaments, every breath of wind carrying away a puff of pollen from those newly thrust forth. This process is so rapidly and completely carried out that the anthers which have only been pushed forth an hour or two are entirely emptied of their pollen. I believe that the same plan of operation obtains also in the four other British species of this genus, as well as in a number of South European and other foreign species of Plantago. We find the anthers perfect before the stigmas are ready to receive the pollen in a much larger number of plants, than we do the reverse order of things, as in Plantago; and as in these days the most trifling circumstances connected with the biology of plants is considered of interest,¶ I have thought that even these few notes upon one of our commonest weeds might not be unworthy of a place in your columns. I mentioned the fact to Mr. C. Darwin, and he was good enough to call my attention to the difference in size of the pollen grains in most specimens. Having examined a considerable number of individuals of P. lanceolata, I found there was a decided tendency towards a separation of the sexes among them. Some few individuals I found which were decidedly females; the stigmas were developed to double the size of those in the normal form, while the stamens were entirely abortive, not a single anther in the spike being properly developed. Intermediate forms are quite common, but as yet I have not succeeded in finding an individual in which the stamens are perfect and the stigmas abortive, though it seems probable from analogy that such a form may exist. This tendency towards a separation of the sexes has been observed among the American species of Plantago by Dr. Asa Gray, and made the groundwork upon which the species found growing in North America are arranged; but P. lanceolata is put into a division of which "Flowers all perfect alike" is one of the distinctive marks. I should be glad to know if P. virginica, in which this tendency seems to be most fully developed, is in cultivation in this country. P. patagonica also shows this peculiarity to some extent, but I have not been able to detect it in any other of the 18 or 20 species I have examined. *C. W. C.*

Societies.

Royal Botanic: *March* 19 (*First Spring Show*).—This was held in a small tent in the rear of the conservatory, and the day being fortunately fine there was a fair attendance of visitors.

Hyacinths.—Of these there was a good display, consisting chiefly of sorts enumerated at p. 246. Among them were one or two fine examples of the new kinds—Lord Palmerston and Josephine, the latter a bright deep glossy orange scarlet, the former in some respects resembling Argus, but possessing a new and pleasing shade of colour. Among older kinds Queen of the Netherlands and Snowball rank among the best whites; Miss Burdett Coutts is also good. Among single pale blues none beat Grand Lilas; and Ida is decidedly the best yellow. Among dark, nearly black sorts, Prince Albert stands in the front rank; and of dark reds few are better than Pelissier. Among mauves, Haydn stood conspicuous; as did also Duc de Malakoff among buffs; when in perfection, however, the last is generally beautifully striped with bright red. The best double blue is perhaps Van Speyke, a charming pale-tinted sort which no collection should be without.

Awards.—12 varieties: 1. Mr. Wm. Paul; 2, Messrs. Cutbush; 3, Messrs. Barr & Sugden. *Amateurs.*—1, Mr. Young; 2, Mr. Carr. For Messrs. Cutbush's prize: 1, Mr. Young; 2, Mr. Carr.

Tulips.—Of these there was a fair display. Among the most attractive varieties were Keizer Kroon, bright red strikingly edged with clear yellow; Roi Pepin, striped crimson and white; New Yellow Tournesol, conspicuous on account of its large size; the ordinary Tournesol, and Vermilion Brilliant.

Awards.—1, Messrs. Cutbush; 2, Mr. Wm. Paul. *Amateurs.*—1, Mr. Young;

Amaryllis.—From Mr. Parker came a small collection, in which the handsome A. Ackermanni pulcherrima was by far the best. Next in point of merit was Holfordii, a crimson-scarlet streaked with white.

Chinese Primulas.—Groups of single purple and white sorts, well grown and flowered, were contributed by Mr. Todman and Messrs. Dobson. Small plants of the red and white Fern-leaved varieties, which have large showy fringed flowers, were also shown by Messrs. E. G. Henderson.

Cyclamens.—Collections of these charming plants, beautifully in blossom, came from Mr. Holland, gr. to R. W. Peake, Esq., and from Mr. Wiggins, gr. to Walter Beck, Esq. They consisted wholly of different varieties of C. persicum, of which also a charming specimen was shown by Mr. Holland. Messrs. E. G. Henderson furnished an interesting group of various-coloured varieties of persicum and the pretty small-growing sort called C. Atkinsii.

Camellias.—A collection of plants in pots was shown by Mr. Young, gr. to R. Barclay, Esq., of Highgate; and boxes of cut blooms were contributed by Mr. Wm. Paul, Mr. Treen, and Mr. Todman. A new striped variety named Comte de Gomer, to which a First-class Certificate was awarded, was also shown by Mr. Bull.

Roses.—A group of dwarf plants in pots was exhibited by Messrs. Paul & Son, who also sent a box of cut blooms. Among the latter were François Lacharme, Prof. Koch, Lord Canning, Vicomtesse Decazes, Devoniensis, Anna Alexieff, and other well-known kinds, all excellent considering the season.

Crocuses.—Mr. Wm. Paul furnished a collection, in which the following were unusually fine, viz: of striped sorts, Albion, Ida Pfeiffer, and Sir Walter Scott; of yellows, Large Golden; of whites, Queen Victoria and Mammoth; and of violets, David Rizzio and Prince of Wales, the last large and showy.

Stove and Greenhouse Plants.—Of these one or two collections were shown, in which were the ample bright green-leaved Anthurium acaule, Palms, Ferns, Cordylines, variegated-leaved Begonias, Maranta zebrina, and a variegated-leaved variety of Screw Pine. Among plants in flower were Rhododendrons, Epacris Mrs. Pymm, a white-tipped bright rosy-flowered sort; Azaleas of various kinds, Deutzia gracilis, Imantophyllum miniatum, Hebeclinium atrorubens, and Pourretia pungens, the last a bromeliaceous plant with long narrow leaves and bearing a fine spike of orange-scarlet blossoms. This came from Messrs. Smith of Dulwich. Mr. Howard, gr. to J. Brand, Esq., showed two dozen nicely flowered plants of Lily of the Valley.

Awards.—1, Mr. Bull; 2, Mr. Treen; 3, Mr. Cross.

Novelties.—Foremost among these were the blush bright rosy striped Camellia Comte de Gomer, from Mr. Bull, mentioned above as having received a First-class Certificate; and Azalea Stella, a very fine orange-scarlet sort, to which a similar award was made. The last came from Messrs. Veitch, who also received a Second-class Certificate for their white-blossomed Rhododendron from Moulmein. Similar awards were likewise made to Messrs. Smith, of Dulwich, for Cineraria Eliza, a showy sort with a dark centre, surrounded by a broad ring of pure white, and edged with deep crimson; and for Cineraria Flower of the Day, a kind with a pale centre surrounded by a ring of crimson, exterior to which is a broad margin of deep mulberry. Mr. Wiggins also received a Second-class Certificate for Cineraria Nonpariel, a variety with a pale centre and bright crimson edge; and to Mr. Bull was assigned a similar award for the prettily variegated-leaved Chameranthemum Beyrichii variegatum.

Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, showed capitally retarded last year's bunches of Lady Downes' and Barbarossa Grapes, without a shrivelled footstalk; and finely swelled and well coloured examples of Black Hamburgh and West's St. Peter's, both the latter of this season's produce.

Linnean: *March* 3.—G. Bentham, Esq., President, in the Chair. C. W. Villiers Bradford, Esq., and Bernard Ed. Brodhurst, Esq., were elected Fellows. On the proposition of Dr. Hooker it was unanimously resolved, that the following memorial be addressed to his Excellency the Governor of the Mauritius:—"The Linnean Society of London begs to call the attention of His Excellency the Governor of the Mauritius and Seychelles Islands, to a statement of Mr. Ward, Civil Commissioner of these Islands, relating to the wanton destruction of the sea Cocoa-nut tree, threatening its total extinction; and to express a confident hope that His Excellency will see the expediency of taking some steps towards the preservation of a tree of such high scientific interest, independently of its practical importance." The following papers were read:—1. "On the Identity of Pinus Peuce of Macedonia, with the P. excelsa of the Himalayan Mountains." By Dr. Hooker. This tree was discovered in 1839 by Dr. Grisebach in the eastern part of Macedonia, forming an interrupted wood of distant trees, between the elevations of 2400 and 5800 feet (German). It was at first regarded as a variety of P. Cembra, but subsequently Dr. Grisebach, in his "Spicilegium Floræ Roumeliæ," describes it as a new species under the name of P. Peuce. Nothing further seems to have been known about it till recently Mr. Orphanides, late Curator of the Royal Gardens at Athens, gathered it in the same forest that Dr. Grisebach discovered, and branches with ripe cones from this source, sent to Kew by Messrs. Haage and Schmidt, of Erfurt, proved to be identical with the Indian P. excelsa. The plant has been found nowhere between Macedonia long. 21° E., and Affghanistan, long. 70° E., an extent of upwards of 2200 miles. It was observed that the bearing of this fact in geographical distribution upon our modern speculations as to the origin and migration of existing species was indeed most suggestive. "That a plant so well marked, should have ceased to exist over an area of 2000 miles, and yet have retained its characters unaltered, during the ages that have elapsed in the interval represented by this extinction, and regardless of the vast geographical and climatal changes that must have determined its present limitation, are amongst the most interesting problems that have ever been unfolded to us by the history of one European tree."——2. "On the Double Cocoa-nut of the Seychelles, Lodoicea seychellarum," by Swinburn Ward, Esq., Civil Commissioner; communicated by Sir W. Hooker. This Palm, it appears, is found only in two small islands belonging to the Seychelles group, named Praslin and Curieuse, lying in juxtaposition between 4—5° S. lat., and 55°—56° E. long. The tree requires a great length of time to arrive at maturity. The shortest period before it puts forth its flower buds is 30 years, and 100 years must elapse before it has attained its full growth. No one can tell how long it will last, or how old some of the gigantic specimens may be. No Nuts planted since the British came into possession have arrived at their full growth; one in the garden at Government House, planted 15 years ago, is quite in its infancy, about 16 feet high, with no stem yet visible, the long leaves shooting from the earth like the Traveller's Palm (Urania speciosa), and resembling them in shape, only much larger. From the age of 15 to 25 the tree is in its greatest beauty, and the leaves at this period are much larger than they are subsequently. The stem grows quite upright, straight as an iron pillar, and in the male trees frequently attains 100 feet in height, the females being somewhat shorter. At the age of 30 it first puts forth its blossoms, the males forming enormous catkins about 3 feet in length and 3 inches in diameter, the females set on a strong zigzag stalk. Sometimes 11 nuts, averaging about 40 lb. weight each, hang from the stalk, but four or five is a more usual number. From fructification to full maturity a period of nearly 10 years elapses, the full size of the fruit being attained in about four years, when it is soft and full of a semi-transparent jelly-like substance. The arrangement provided by nature for the roots of the trees was described to be of a most peculiar kind, quite distinct from that met with in any other known tree. The base of the stem is rounded, and fits into a natural bowl or socket about 2½ feet in diameter and 18 inches in depth; this bowl is pierced with hundreds of small oval holes about the size of a thimble, with hollow tubes corresponding on the outside, through which the roots penetrate the ground on all sides, never however becoming attached to the bowl, their partial elasticity affording an almost imperceptible, but very necessary "play" to the parent stem when struggling against the force of violent gales. This bowl is of the same substance as the shell of the nut, only much thicker. As far as can be ascertained, it never rots or wears out. It has been found quite perfect and entire in every respect 60 years after the tree has been cut down. Mr. Ward remarked that the high price of the nuts would ultimately lead to the complete extinction of the trees. Their growth being so slow no one can expect to reap where he has sown, and the people therefore never take the trouble to plant, but ruthlessly destroy the existing trees for the sake of their nuts; so that not many years can elapse before the Coco de Mer will become in reality as rare as was supposed by the voyagers who picked up the first-known specimens of the nuts floating on the sea.——3. "On Frerea, a new genus of Asclepiadeæ," by N. A. Dalzell, Esq., Superintendent of the Botanic Garden, Bombay; communicated by Dr. Thomson. This genus was said to come nearest to Boucerosia in the structure of its flowers, but in habit to approach the Euphorbias, having a miniature resemblance to E. Nivulia barring the thorns.——4. "Description of Brandisia, a new genus of Scrophularineæ from Martaban," by Drs. Hooker and Thomson. B. discolor was described as a scandent shrub, very little like the Scrophulariaceæ in appearance, but with much of the aspect of the Verbenaceæ; and probably ranking in the former order among the Chelonеæ, the only tribe in which large woody climbing plants occur.——5. "Notes on the Fecundation of Orchids and their Morphology," by Dr. H. Crüger, Director of the Botanic Garden, Trinidad; communicated by C. Darwin, Esq. The author stated that in Trinidad, Catasetum tridentatum shows two extreme forms, which he does not hesitate to call male and female, though very frequently intermediate forms may be seen, the latter always sterile. He then described various observations, from which it appeared to him evident that the fertilization of the female flower must take place by means of the pollen of the male flower, as in other plants with distinct sexes; and as fruit was extremely common it was impossible to attribute this to any other agency than that of insects—in respect to which he observed that he had had occasion to verify the supposition of Darwin to its fullest extent. After a detailed statement of his observations on this part of the subject, Dr. Crüger concluded by some remarks on the morphology of the Orchid flower.——6. "Observations on a peculiar mode of fructification in Chionyphe Carteri, Berk.," by the Rev. M. J. Berkeley.——7. "Descriptions of new species of Dipterous Insects of New Guinea," and 8, "Description of new species of Diptercus Insects from the Island of Salwatly, near New Guinea," both by F. Walker, Esq.

March 17.—George Bentham, Esq., in the chair. The Rev. G. Henslow, M.A., and Gervase F. Mathews, Esq., were elected Fellows. The following paper was read:—"On the Phenomena of Variation and Geographical Distribution, as illustrated by the Papilionidæ of the Malayan region," by Alfred R. Wallace, Esq.

Notices of Books.

Skin Diseases of Parasitic Origin, their Nature and Treatment. By W. Tilbury Fox, M.D. London. 8vo. 1863. Pp. vii., and 210. Tab. 5.

Leçons Théoriques et Cliniques sur les Affections Cutanées parasitaires professées par le Docteur Bazin, rédigées et publiées par Alfred Pouquet. Paris. 8vo. 1862. (Deuxième édition.) Pp. 15 and 292. Tab. 5.

Though these two works treat of the same subject, and in some respects resemble each other, they look upon it generally from a different point of view, the prevailing characteristic of the former being an attempt to determine the relations of the parasites to which the skin affections in question are due, while that of the latter looks more especially to a mode of treatment which Dr. Bazin has followed with great success, the fungous origin meanwhile being kept constantly in view. Nothing can be clearer than Dr. Bazin's style of lecturing, and the lectures themselves are very clearly reported by a young student, Monsieur Pouquet, who has added some interesting notes. Dr. Bazin makes an especial distinction between affections and diseases; and one of some importance. The latter arise from constitutional derangement, the former from external agents, and though these agents require a particular condition of the matrix to establish themselves, it is absolutely necessary to distinguish them from diseases which are somewhat similar in outward characters, as the treatment requisite is totally different. One especial point then of the lectures is to indicate these distinguishing characters of both, a matter of great consequence, not only as regards treatment, but because the skin diseases of fungous origin are essentially contagious.

The following interesting note of Monsieur Pouquet shows that they may be communicated by contact with animals as well as by intimate social intercourse.

"None of the authors who have written on the *tinea favosa*, seem to have observed this affection except on the human subject, and in consequence have not spoken of its communication by means of animals to man. M. Bazin himself has not noticed the fact.

"Nevertheless, in the course of last winter, Mr. Draper, a very distinguished young practitioner at New York, assured me, that, in his country at least, the favus was not rare amongst animals, and that he himself had observed it more than once amongst rats.

"In the course of 1854, many members of a family, amongst whom was a young physician, remarked that several mice caught in a trap were affected with a singular malady. Yellow crusts, more or less raised above the parts which remained healthy, of a rather deep tint and a tolerably regular circular form, existed on the head and anterior members. A manifest depression, moreover, was seen in the centre of each of these crusts, exactly as in *porrigo favosa*, and where these had fallen off, there were ulcers which seemed to have completely destroyed the skin. These diseased mice were given to a cat, who some time afterwards had a crust above the eye similar to that with which the mice were affected. At a later period two of the children, who played with the cat, were successively attacked. Yellow circular crusts appeared on the shoulders, face, and thighs, which were pronounced to be the formidable *porrigo favosa*, which, however, yielded to acetate of copper and hyposulphite of soda."

Dr. Bazin's book is illustrated with good figures of the Fungi which always accompany these affections, and of their mode of action on the bulbs and lower parts of the hairs on which they mainly depend. He does not, however, attempt to consider their relations amongst each other, or with extraneous Fungi. Dr. Fox, on the other hand, enters expressly on this part of the subject, a circumstance which alone justifies the notice of matters in this Journal in other respects so purely medical. His theory is that though each affection is accompanied by a peculiar form of Fungus, so distinct that it may always be recognised, and to which an especial name has been assigned, the several supposed species are mere modifications of one. This view he supports by numerous arguments, some of which certainly would not pass muster with a committee of experts.

We know indeed that the same Fungus may appear under a variety of forms, and produce two or more kinds of fruit, but no one has yet shown that Penicillium, Aspergillus, and Mucor are mere forms of one genus, nor is there reason to believe they are. The figures which Dr. Fox has given do not tend to the establishment of such a view, nor indeed does he seem to have very definite views as to the structure of these genera. He supports his argument by a supposed admission by Mr. Berkeley that the Chionyphe of the Fungus foot of India may take its origin from the Mucors. On reading over Mr. Berkeley's paper in the "Intellectual Observer," we can find no such admission. We suppose that the mistake must have arisen from the word "mucors" being used in contradistinction to moulds, to designate the whole tribe of moulds, which, like Mucor and Chionyphe, produce their spores in cysts. We would not, however, assert that the same spawn or mycelium may not produce two different kinds of fruit, the one of which is that of a true Mucor, the other of a Chionyphe, but at present there is not a particle of evidence to show that this is the case, prepared as we may be for almost any amount of wonder amongst the Fungi.

Dr. Fox's book, however, is a step in the right direction, as it tends to upset the whole botanical distinctions of the Fungi which produce or wait upon these skin affections. Physicians in general have not time for minute botanical investigations, and in consequence nothing can be more unsatisfactory than the scattered accounts of these moulds. They are assigned to different genera, often without a particle of reason, and on grounds which could not possibly be recognised by mycologists. Not content with making species of Puccinia grow on human integuments, a genus essentially confined to living vegetables, organisms which are clearly fungal are assigned to Algæ, and mere mycelia are elevated to the rank of genera and species.

The truth probably is that they are particular conditions of common moulds, analogous to yeast, the vinegar plant and similar matters. The exact state of the case however can never be demonstrated till some competent mycologist obtains the perfect development of the plant due to each variety. For this end individual spores must be isolated, for it is very possible that as in the yeast several kinds of Fungi may arise from the same mass. The distinctive spores must, therefore, be isolated to obtain a trustworthy result. We wish very much that Mr. Currey would take up the subject, as he is the only botanist perhaps, in this country, who from local circumstances and especial endowments is competent for the task.

We do not, indeed, wish to depreciate the labours of Dr. Fox, in whose work, notwithstanding some botanical inaccuracies, several highly suggestive matters may be found, amongst which we would call especial attention to his remarks on Sarcina.

Unless we adopt the views which were once so prevalent of equivocal or spontaneous generation, the notion of Fungi peculiar to the human frame seems *à priori* untenable, and we thank Dr. Fox most cordially for what he has done towards its extinction.

Warners' Select Orchidaceous Plants, Part 7. (Lovell Reeve & Co.)

This is a glorious number, filled with superb things, admirably drawn for the most part by Fitch; the fine Odontoglossums—Pescatorei, and citrosmum roseum, with Cymbidium eburneum are from the pencil of that skilful artist; the fourth—the large variety of Dendrobium macrophyllum, by another hand, is overcoloured and shows less artistic talent.

We must find room for an extract from Mr. Williams' practical remarks on the cultivation of Odontoglossum Pescatorei:—

"We are indebted to Mr. Linden not only for the importation of this, but also of many other Odontoglossums; and as their culture is now better understood than formerly, we may look forward to their being preserved in our collections. Cultivators have found by experience that a cool temperature suits these plants best, and that under other conditions they will not thrive.

"Odontoglossum Pescatorei is a distinct evergreen species, with the pseudo-bulbs 2 or 3 inches high, supporting light green strap-shaped leaves, of a foot in length. The branching panicles are produced from the side of the bulbs, and bear a large number of the showy flowers, which are nearly 3 inches across, the sepals and petals white with a stain of pink, and the lip white with a yellow stain and red markings near the base. It blooms in March, April, and May, the flowers continuing for several weeks, especially if the plant is strong and vigorous. A plant which exists in the collection of T. Dawson, Esq., of Meadowbank, would, on account of its luxuriance, quite puzzle any one who was not familiar with the species, the pseudo-bulbs being 3 inches high, and as much in breadth; it has borne branched flower spikes with fifty flowers. The bulbs are of a different colour from those usually seen, being of a dark-brown, a tint which indicates great strength and vigour. Mr. Anderson, the gardener at Meadowbank, grows several other Odontoglossums remarkably fine. Thus O. cordatum, a rare species, is a wonderful specimen, nearly two feet in diameter; this has had 14 spikes, bearing 10 flowers each; the plant while in bloom is placed in a greenhouse, and afterwards removed back to the growing house. There also may be seen a splendid plant of O. citrosmum with 25 bulbs; and of O. grande several large specimens, some of the bulbs producing 18 flowers of large size—truly a grand sight; while O. nævium, O. nebulosum, and O. Karwinskii are all equally well grown. These were all bought when small plants, and have been grown to their present state in a few years. We are not therefore without hope that we may see them grown still finer, for the plants improve year after year. The leading point of their treatment is this: they are grown in a cool and light span-roofed house with little shade, and as near the glass as possible; the great secret of all in the cultivation of this class of plants being to get well-ripening and thoroughly-matured bulbs, such as have some strength to produce flowers and foliage. These three conditions being supplied, any one may grow them with success. There are many other fine Orchids that may be advantageously treated in the same way; that is to say, they must have cool treatment, and unless they get it there is no hope of their thriving. They grow naturally where the temperature is not high, most of them on the mountains, and consequently they will bear cold much better than they will bear fire heat; sun heat, however, will do them good at any time, provided they have a free circulation of air, applied with caution indeed in cold weather, and being made to pass between hot-water pipes, so that it may become slightly warmed."

Similar matter, invaluable to the grower, accompanies the other plates.

Garden Memoranda.

Messrs. Cutbush's Exhibition of Hyacinths at Highgate.—This has been open to the public during the past week, and, judging by the freshness and beauty of the flowers, it may, doubtless, yet be inspected for some time to come. Seldom have the plants been finer than they are this year, or the bloom more perfect. Many hundreds of varieties of all shades of colour—reds, blues, blacks, whites, and yellows—are effectively arranged in a lean-to show-house, which at present may be said to be literally a blaze of flower. So favourable an opportunity of seeing these and other early-flowering plants in perfection should therefore not be overlooked.

Hart Hill, Pendleton, Manchester, the Winter Residence of J. Dugdale, Esq.—This fine property came into the possession of Mr. Dugdale little more than five years ago, and he has since that time greatly improved it. The house stands upon high ground, and the views from it are numerous and extensive, embracing some fine scenery. The gardens are well laid out, no expense having been spared to render them attractive. On entering the conservatory, the tessellated tiles with which the floor is paved, tend much to produce a good effect. In the centre is a large double white Camellia with upwards of 1400 blooms and buds upon it. The plant is about 24 feet in circumference, and from 12 to 14 feet high, well feathered to the base, and extremely symmetrical. Associated with it is also another large double white Camellia, and numerous other examples of all the leading varieties in cultivation. In the stove are many fine Begonias, Marantas, Crotons, Cyperus alternifolius variegatus, and numerous Ferns. The back wall is well covered with creepers of various sorts. In the Vineries are some strong young Vines, some of which have Grapes upon them, although leafless. The plant-houses, eight in number, two of which are about 120 feet long, contain numbers of Roses in pots for forcing, and some fine specimen plants of Azaleas and Heaths; conspicuous amongst the latter were Erica ventricosa coccinea minor, Cavendishiana, Hartnelli, and tricolor elegans, all of which were in beautiful condition. In the pleasure grounds are some fine Deodars, Araucarias, and Rhododendrons; many of the latter could not measure less than from 6 to 8 yards through. A Holly hedge divides the kitchen garden from the pleasure grounds. The whole place is kept in excellent order by Mr. Grange, the gardener, and for the information of such as may wish to visit it, I may add that it is only three miles from the Manchester Exchange, on the Eccles Road. *J. S.*

Miscellaneous.

The Cultivation of Humea elegans.—There are few plants whose beauty is so much augmented by cultivation as that of this, which, when really well done, forms one of the finest ornaments of the flower garden; and when seen as it is usually done, is a poor, weedy, shabby thing. We remember many years ago going to Whiteknights, then the seat of the great gardening Duke of Marlborough, and seeing there such plants of Humea as could hardly be conceived. They were from 10 to 12 feet in height, perfectly bushy, 8 feet in diameter at the base, from which they tapered to the top, presenting to the spectator a fountain-like mass of the most elegant auburn colour; and, when agitated by the wind, spreading an agreeable and aromatic odour—an odour which I have heard pronounced very agreeable by connoisseurs in scents. It is a Chinese plant, and was named after Sir Abraham Hume, late of Wormleybury, Herts. It is a biennial; and as it flowers the second year, it is most important to cultivate it most vigorously during the first season. It should be sown in February in pots, in a gentle heat. The soil should be sandy loam and peat. When it has come up it should be pricked off into 60-pots, and from them to sizes larger and larger as required. About the end of July it may be hardened to stand out of doors; and here its growth will be very rapid, if shifted according to its rooting. At the time of housing—say the early part of October—they will be fine plants; and as it will be prudent to grow some supernumeraries, the best plants should be chosen and housed; giving them a slight shift to carry them on through the winter. This shift I regard as most important to the future progress; they keep forming roots slowly, and it prevents their forming weak and premature flower stems. Their treatment at this time is of importance; they must not be huddled together at the back of other plants, but should be placed near the glass, with plenty of air and space all round them.

There is a peculiar disease they are subject to—the damping and rotting of the leaves, something like the rot in Geraniums. To prevent this, the plants should be kept free from the syringe in winter, and every specked leaf removed as it appears. I have seen fine plants wholly spoiled by this disease. We will now suppose that the plants have passed through the winter, and it is the middle of February. Some very large pots must be procured, and the plants shifted into a good compost of peat and loam. They must now be set growing, for which a Vinery just started will do very well; and as the temperature is increased they can be moved into another succession-house. They may now be duly syringed, and the heat and moisture will soon force them into luxuriant growth. By the beginning of June they will be fit to harden off in a cooler house. This must be carefully done with shading, so as not to injure the luxuriant and ample foliage, which has been making itself in the Vinery. When brought entirely out they must be inured to the rays of the sun by degrees. If all this is well and properly managed they will be magnificent plants, and the person who has the charge of them will not grudge the trouble which has been bestowed upon them. Having now detailed the progress of cultivation, we would make a few observations as to the situations proper for the stations of such plants in the flower garden. In all large gardens certain episodes of peculiar character may occur, without detracting at all from the general expression of the place as a whole; and I know of no plant more fit to give a marked and peculiar character to such spots than Humea elegans. I have seen plants of it stuck out on terraces, with weak slender stems, looking most miserable, and inviting one's pity—indeed, scarcely have I ever seen them placed with proper effect. What could be more lovely than in the midst of charming pleasure grounds to come suddenly upon a small nook or terrace decked out with these fine Humeas to give it character, and filled with specimen pots of Japanese Lilies, blue Hydrangeas, Lobelias, and other plants from the far East? Several of these spots might be made in a place; and we think that the charming interest they would create would be felt and acknowledged—the whole being of different characters. We could write a great deal more on this subject, but feel that we are approaching the limits of our space. It is often contended that intricacy destroys breadth. But we do not assent to this; we think that there may be the most perfect intricacy, with all due respect to the latter quality. In writing this paper, I will conclude by assuring my brother horticulturists that I have penned nothing but what I have seen and practised; and I hope that my humble endeavours may be useful in rescuing a fine plant from a state of obscurity. *Henry Bailey, C.M.R.H.S., Amersham, in the Florist and Pomologist.*

The Larch.—The oldest Larch trees on Killerton, the property of Sir Thomas Dyke Acland, Bart., near Exeter, were planted about 85 years since, but they appear very much older; the tops are broken, and the growth has been but trifling for the last 30 years. The first planting of late years was in 1800, on the side of a hill facing the south-west, about 250 feet above the sea; soil about 9 inches of loam, lying on broken trap on volcanic trap rock. There are 17 of them left at distances from each other of from 20 to 30 feet: those made good growth for 55 years; since which time the tops have been much broken with the wind, and they have the appearance of trees much older. The best of them measures at 4 feet from the ground, 7 ft. 1 in. in circumference, 41 ft. to the first branch, and the extreme height is 92 ft. 4 in. One was taken down on September 8th; at four feet from the ground 6 ft. 3 in., at 35 feet 4 ft. 3 in., at 54 feet 6 in. 2 ft. 8 in. in circumference, the extreme height 74 ft. 6 in, and perfectly sound. About 300 yards to the east there were planted in 1809 some Larch and Scotch Fir as nurses for Oak over a considerable quantity of ground. The Scotch Fir and Larch have been taken away as soon as they interfered with the growth of the Oak, and there are but few left. About five years ago there were some taken down, and three of them were discovered slightly tainted in the bottom. On Sept. 8th there were five cut; three of them were sound, one slightly, and one very much decayed; it was taken into the timber yard and a centre cut made through it; the decayed part ran up 17 feet from the bottom, and it was worth but little. It does not appear that the disease begins in the centre, as this tree was sounder in the centre than some of 10 or 15 years' growth apart from it, and the one slightly decayed showed three spots in different parts, and had the appearance of the commencement of dry rot. There are no particular appearances to show whilst standing which are sound or unsound, as in most other timber; and the measurement of the trees is nearly alike, the one decayed being at 4 feet from the bottom 5 feet 7 inches, at 29 feet 4 feet 4 inches, at 49 feet 2 feet 10 inches in circumference, and the extreme height 69 feet. One perfectly sound, at 4 feet from the bottom 5 feet 7 inches, at 32 feet 4 feet 1 inch, at 53 feet 2 feet, and the extreme height 69 feet. In 1818 about 56 acres were planted with Larch, Scotch Fir, Oak, and Ash on a gravel and clay subsoil, with less than 6 inches of loam, facing the south, about 400 feet above the level of the sea. The Scotch Fir and Larch have been regularly thinned about every third year to give room to the Oak. The greater part are now Oak; the Larch has grown very well, and not an unsound one has been discovered. In 1829, 1830, and 1831, about 200 acres were planted, principally on clay, and clay and gravel subsoil, with Oak, Ash, Scotch Fir, and Larch, and since kept regularly thinned to give room to Oak and Ash, and none has been cut unsound. We find the thinnings valuable. The first thinnings make good trellis work for cottage garden fences; and when the poles get about 4 inches in diameter, they are cut for park palings; after that for rafters for thatched cottages; and as soon as large enough, for rafters for slate roofs; but care must be taken in fastening them to prevent twisting. The oldest when seasoned may be used instead of imported deals for any building purposes. *W. Birmingham, in Proc. Roy. Hort. Soc.*

Calendar of Operations.

(*For the ensuing week.*)

The frost at night and cold north-easterly winds during the day time with which we have been visited of late, will have afforded good cause for self-congratulation in cases where timely means have been taken for guarding from injury the unfolding blossom-buds of fruit trees. Those who have neglected such precautions will do well at once to put them in practice, lest worse weather should yet set in, and that when the trees are still less able to endure it. Plenty of mats, canvas, and other covering materials for all purposes of protection should therefore always be at hand, in order that they may be ready in cases of emergency.

FLOWER GARDEN AND PLANT HOUSES.

The conservatory and other show houses should now be gay with Camellias, spring bulbs, and other early flowering plants. Stock exhausted by forcing should be placed in a pit or frame by itself to regain its lost vigour. A bottom heat of 80° with frequent syringings will in due time restore it to perfect health and put it in proper order for another season.

Camellias.—Keep such as are making growth well syringed; they should not have much air given them at present. Should black-fly appear on the young shoots, which sometimes will happen, a good syringing with tobacco water will soon destroy it.

Cinerarias.— As many of these will now be in blossom, a little shade during the middle of the day will be necessary in order to prolong their season of flowering; remove to a cool shady house such as are required for later display. Weak liquid manure may now be given liberally, say two or three times a week. Look well to seedlings, and select such as have the most circular outline and well defined colours, and place them apart from the more common kinds for seed.

Pelargoniums.—A slight shade may soon be necessary for a few hours on bright days; green-fly is occasionally very injurious to them at this season, and therefore the plants should often be fumigated; tie and regulate the shoots according to previous instructions. June and late flowering plants, and also seedlings, will now require attention; let each shoot be tied to its proper place, and everything in the way of crowding the plants should be avoided.

Pinks.—The effect of the late frosty winds is already in some instances becoming disagreeably apparent. The plants having been firmly pressed in the soil, and the beds top-dressed, little remains to be done for some time. If, however, the weather continues dry, a good watering on a mild morning will assist the plants in making their spring growth.

Tulips.— Protect the best bed with canvas, frigi domo, or mats, whenever there is frost or excessive rain, but as a rule keep it covered as little as possible, a doing so obviously excites weakly growth. Stir the surface between the bulbs as soon as it is in the best state for the operation, *i.e.* between wet and dry.

FORCING GARDEN.

In disbudding, do not remove all at once; on the contrary, go frequently over the trees, removing a few each time. When the fruit is set, the trees should be syringed in the early part of the day; water regularly, and ventilate freely when the state of the weather will permit.

Cucumbers.—Get out successional crops, if not done. Take every precaution to avoid burning at the roots. To this end, when making the hills for them, form a hole three parts the depth of the bed in the centre of each light; half fill it with raw turf chopped slightly and on this place the compost for the hills. Never finally soil over the beds until all danger from burning is past, and then only half at a time, taking care that the linings are in good order at that period, or an injurious depression of the temperature will suddenly take place. Melons may receive similar treatment.

Figs.—More Figs are lost through drought than by any other evil. A constantly moist state of the soil is indispensable to their success, when confined in boxes or pots. They succeed admirably when a pit of leaves in a state of fermentation can be given up to them. Plunged in a bottom-heat of 70° or 75°, in this way, and allowed to ramble at the root, with close stopping in the wood, and a humid atmosphere of 65° or 70° they will be everything that can be desired.

Peaches.—Early fruit will in many cases be stoning. Remember that this process will not bear pushing. See that young wood is carefully trained. No plant requires more sunlight than the Peach, and abortive blossoms commonly spring from inattention to summe training.

Strawberries.—Introduce sufficient plants every fortnight to meet the demands; keep them near the glass; give them all the air possible while in flower; when sufficient are set for a crop, pinch all the rest of the blooms off. Plants that are swelling fruit should be well supplied with manure water.

Vines.—Thinning and shoulder-tying being finished in early Vineries, little is necessary to be done, except to pursue an even course in regard to heat and atmospheric moisture. See that all the principal leaves, on which so much depends, have fair play as to a free exposure to light, and endeavour to prevent their coming in contact with the glass. Follow up stopping, more especially with the grosser shoots, and allow lower branches to ramble a little, to equalise the sap. Late Vines as before; keep the wood moistened at least twice a day.

HARDY FRUIT AND KITCHEN GARDEN.

Asparagus.—In planting this it is of the utmost importance to give every attention to a proper rotation of crops. Where Celery is grown in what are called Scotch beds, the latter make capital Asparagus ground. The preparation consists in trenching it much deeper than the rest, and in burying a considerable quantity of raw vegetable matter in the bottom of the trench: old refuse, vegetables, Cabbage stalks, weeds, or what is very good (if it can be obtained), half-rotten leaves with which some little manure has been blended for linings in the previous year. The upper part of the beds has some rotten manure of course for the Celery. In taking up the Celery for use, the bed is broken up to a great depth, and the alleys with it, and thrown into a ridge, which ridge remains fallow until planting time, when it is merely levelled down. It should not be planted until the early part of next month.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending March 23, 1864, as observed at the Horticultural Garden

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 17	9	30.109	30.074	51	20	35.5	45	45	E	.00
Friday 18	10	30.132	29.682	53	27	40.0	45	44½	E.	.09
Satur 19	11	29.957	29.598	58	23	40.5	44	44½	E.	.60
Sunday 20	12	29.662	29.595	60	31	45.5	44½	44	E.	.00
Mon. 21	13	29.647	29.809	51	33	43.5	44½	44	N.E.	.00
Tues. 22	14	29.816	29.685	48	35	41.5	44½	44½	N.E.	.00
Wed. 23	○	29.987	29.869	51	19	35.0	45	44	N.E.	.00
Average.		29.869	29.723	53.1	27.3	40.2	44.5	44.2		.60

March 17—Fine throughout; frosty at night.
— 18—Hazy, fine; dry haze; slight frost at night.
— 19—Slight fog; very fine; frosty.
— 20—Slight fog; fine; very fine; clear and fine at night.
— 21—Uniformly overcast; fine but cold; overcast at night.
— 22—Overcast and cold; overcast at night.
— 23—Overcast; fine with sun, sharp frost at night.
Mean temperature of the week, 2 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending April 2, 1864

March and April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27..	54.1	34.7	44.4	13	0.37 in	2	7	4	2	3	7	11	2
Mon. 28..	53.3	34.3	43.8	15	0.68	4	7	6	2	2	6	8	3
Tues. 29..	53.9	33.9	43.9	12	0.33	1	5	5	3	2	7	8	3
Wed. 30..	53.8	34.9	43.4	16	0.50	3	5	6	1	6	9	6	3
Thurs. 31..	54.8	34.0	44.4	16	0.40	3	7	3	3	9	5	5	3
Friday 1..	54.9	34.6	44.8	21	0.76	3	8	4	3	5	10	1	4
Satur. 2..	55.5	33.6	44.5	20	1.19	4	5	4	3	4	12	3	3

The highest temperature during the above period occurred on the 27th, 1833—therm. 75 deg.; and the lowest on the 1st. 1838—therm. 16 deg.

Notices to Correspondents.

To Correspondents.—In consequence of the absence of the Editor through ill health, replies to one or two enquiries are this week unavoidably postponed.

Auricula Show: *Delta.* The National Auricula Show is to take place at the spring meeting of the Royal Botanic Society on the 30th of April. The Secretary is Mr. Douglas, of York, of whom particulars may be had.

Fern-leaved Primulas: *B Scott.* They are increased, like the common form, by seeds; and we believe are quite constant to their peculiar character. They are good-looking plants even when out of flower, and quite as good as other Primulas when in bloom.

Fuchsias: *W Allen.* We have all along contended for young plants; and if properly handled even a spring cutting will make a good plant by the flowering season. Cuttings of last year may be admissible for larger specimens, but we object to plants older than this—not that good gardeners cannot bring them out in a presentable condition, but that the rule is one which has been and will be abused by bad gardeners, and is therefore better avoided.

Hyacinth Prizes: *B N.* The class should be better defined, certainly, another year, for there can be no fair competition between glass-grown and pot-grown, nor between room-grown and conservatory-grown plants, all which were admitted under the present year's regulations. Conservatory-grown plants should be excluded from the ladies' class, and the others separated, if indeed both are desirable.

Names of Plants: *T G.* 1, Ranunculus Ficaria; 2, Caltha radicans; 3, Salix aurita; 4, Salix phylicifolia; 5, Gagea lutea—if wild a rarity.—*Pdys.* We cannot explain why the name Douglas Fir has been exchanged for Douglas Pine; for a Pine the tree is not.—*E J D.* We are unacquainted with Alobra viridiflora, Acacia Leakeana, or Solanum citrullifolium; Alobra viridiflora is a Cucurbit.—*C D* The Nottingham spring-flowered Crocus is *C vernus*.—*Mary.* 1, Adiantum Capillus-veneris; 2, *A. cuneatum* If you observe you will find the two are very different in habit.

Plane Tree Seeds: *L E R* will be much obliged to any one who will inform him where he can procure seeds of Platanus occidentalis and orientalis; he has tried at several large houses and failed.

Rhubarb: *Inquisitor.* Your Rhubarb arrived in a state of hopeless corruption, covered with mould, and looking very much as it would have done had it been dipped in boiling water. Is it possible that a pan of boiling water has been poured over it? This would account best for its condition. We have never seen a case at all like it before. *M. J. B.*

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY

RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.

WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.

Samples and Prices post free on application.

Agricultural Seeds.

J. F. PIKE having a large Stock of the undermentioned, can supply:—

NEW ENGLISH RED CLOVER, first Quality, 54s. per cwt., 6d. per lb.

NEW ENGLISH RED CLOVER, second Quality, 50s. per cwt., 5½d. per lb.

MARL or COW, first Quality, 60s. per cwt., 7d. per lb.

TREFOIL or HOP, 28s. per cwt., 3¼d. per lb.

WHITE DUTCH, 8d. per lb.

PERMANENT MEADOW GRASS, 7s. per bushel.

PERENNIAL RYE, 30s. and 36s. per Quarter.

ITALIAN FOREIGN, 30s. per cwt., 5s. 6d. per bushel.

SPRING TARES, 44s. per quarter.

YELLOW GLOBE MANGELS, 30s. per cwt.; 4d. per lb.

SACKS, 1s. 6d. each; BALES, 1s. 2d. each.

The above prices are for cash, and a remittance must accompany all orders.

Seed and Corn Establishment, 52, Walcot Street, Bath.

Agricultural Seeds.—Carriage Free.

WM. WOOD AND SON are prepared to supply from their immense stock the following pure and genuine Seeds:—

First Quality GRASSES and CLOVERS for Laying down Permanent Pasture, 28s. to 30s. per acre.

Second Quality for Ditto, 20s. to 26s. per acre.

CLOVERS and GRASSES for Renovating Pastures, 6s. to 9s. per acre.

LAWN GRASS, best quality, 18s. per bushel.

Ditto for Parks, 16s. per bushel.

MANGEL WURZEL SEED. Special reduced prices will be given for large quantities.—IMPROVED YELLOW GLOBE (very pure stock), 6d. per lb.; IMPROVED ORANGE GLOBE (extra fine), 6d. per lb.; RED GLOBE, 6d. per lb.; LONG RED (very superior stock), 6d. per lb; LONG YELLOW, 6d. per lb.; ELVETHAM LONG RED (highly recommended), 8d. per lb.

SWEDE and TURNIPS, RAPE, MUSTARD, DRUMHEAD CABBAGE, CLOVERS, &c., at lowest prices.

PRICED CATALOGUES Free on application.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.



MANGEL WURZEL SEED,

CHEAPER BY THE CWT.

	Per lb.—s.	d.
LARGE YELLOW GLOBE	0	6
ORANGE GLOBE	0	6
RED GLOBE	0	6
LONG RED	0	6
LONG YELLOW	0	6

NEW SORTS of MANGEL WURZEL.

NEW YELLOW INTERMEDIATE, very fine shape, free from roots	1	6
NEW RED INTERMEDIATE, similar in shape and quality	1	0
SELECTED LONG YELLOW, a heavy cropper of fine texture	0	8
SUTTON'S ELVETHAM LONG RED, of superior feeding quality	0	8
FISHER HOBBS' ORANGE GLOBE, a fine sort, already very popular	0	9
STRATTON'S RED GLOBE, a superior variety selected by Mr. Stratton	0	9

PRICED LISTS of other FARM SEEDS Gratis and Post Free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.

JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.

N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

RICHARD SMITH'S RENOVATING GRASS SEED should Now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.

RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil.

	Per Acre.
MIXTURE for Laying down to PERMANENT PASTURE	25s. to 30s.
MIXTURE for ORCHARDS or LAND shaded by Trees	24s. to 26s.
MIXTURE for PARKS and CEMETERIES	28s. to 30s.
MIXTURE for Improving OLD PASTURE	6s. to 8s.
MIXTURE for One, Two, or Three Years' Lay	15s. to 18s.
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1s.

PRICED LISTS may be had on application.

RICHARD SMITH, Seed Merchant, Worcester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, Seedsmen to the Gloucestershire Agricultural Society, offer the following SEEDS of finest quality, at the prices annexed. Carriage Free by Rail, and will allow 5 per cent. discount for cash.

PERMANENT PASTURE.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium loamy soil, at 30s. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium clay soil, at 30s. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for heavy clay soil, at 28s. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for light brashy land, at 27s. 6d. per acre.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for Orchards, at 30s. per acre.

GRASSES AND CLOVERS, rather rough and coarse: for game covert, at 18s. per acre.

JERUSALEM ARTICHOKES, for planting in game coverts, at 6s. per bushel.

J. C. WHEELER & SON, Seed Growers, Gloucester.

IMPROVEMENT of OLD PASTURES, PARKS, and MEADOWS, by sowing the most suitable kinds of GRASS and CLOVER SEEDS.

SUTTON'S RENOVATING MIXTURES.—Quantity of Seed required, 8 to 12 lb. per acre. Price 9d. per lb., or 80s. per cwt.

From the Rev. CANON GUTHRIE, *Vicarage, Calne.*

"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."

Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.

Our RENOVATING MIXTURE consists of the Finest GRASSES and PERENNIAL CLOVERS. If the Seeds are sown *early in the season*, the improvement in the Pasture will be very great, and at a small expense.

Royal Berkshire Seed Establishment, Reading.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE (all carefully and thoroughly cleaned).

The Seeds of each sort separate may be seen in large quantities in Messrs. SUTTON'S Warehouses, and growing specimens of these and many others in their sample grounds.

All the best and most suitable of them are contained (together with Alsike, Perennial White, and Perennial Red Clovers), in Messrs. SUTTON'S Mixtures for Permanent Pastures.

	Per lb above 7 lb.	Per Bush.
	s. d.	s. d.
ALOPECURUS PRATENSIS	1 3	9 0
ANTHOXANTHUM ODORATUM	1 6	20 0
AGROSTIS STOLONIFERA	0 10	9 0
BRACHYPODIUM SYLVATICUM	1 0	15 0
CYNOSURUS CRISTATUS	1 0	20 0
DACTYLIS GLOMERATA	0 10	6 6
FESTUCA DURIUSCULA	0 10	7 6
,, ELATIOR	1 0	12 0
,, GIGANTEA	1 3	14 0
,, HETEROPHYLLA	1 0	12 0
,, PRATENSIS	0 10	12 0
,, OVINA	0 10	8 0
,, RUBRA	0 10	8 0
,, TENUIFOLIA	1 0	12 0
,, LOLIACEA	0 10	14 0
GLYCERIA FLUITANS	1 0	14 0
,, AQUATICA	1 0	10 0
HOLCUS AVENACEUS	0 10	7 0
LOLIUM ITALICUM	0 7½	6 6
,, PERENNE	0 4½	5 6
,, ,, PACEYANUM	0 4½	6 6
,, ,, SEMPERVIRENS	0 4½	7 0
,, ,, TENUE	0 5½	10 0
PHLEUM PRATENSE	0 6	21 0
POA PRATENSIS	1 0	21 0
,, TRIVIALIS	1 0	21 0
,, NEMORALIS	1 3	28 0
,, FERTILIS	1 3	28 0
,, SEMPERVIRENS	1 6	30 0
,, AQUATICA	0 10	12 0
PLANTAGO LANCEOLATA	0 5	25 0

From Prof. LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

A Copy of Mr. M. H. SUTTON'S Essay on Laying Down Land to Permanent Pasture, from the "Journal of the Royal Agricultural Society," will be sent with every parcel of Grass Seed.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Grass Seeds for all Soils.



SUTTON AND SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts ..20s. to	26	0
Best quality ditto, for Three or Four Years' Lay	21	0
Ditto ditto, for One or Two Years' Lay 12s. 6d. to	17	6
CLOVERS and fine GRASSES for Renovating Old Pastures 6s. to	9	0
Finest LAWN GRASS SEEDS per bushel	18	0
PARK LAWN GRASS SEEDS ,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. GRASS SEEDS of best quality can now be supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. CLOVER SEEDS of best quality, supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. TURNIP SEEDS from best selected Roots supplied Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. MANGEL WURZEL from the best selected Stocks, supplied Carriage Free.

Agricultural Seeds.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W. See large Advertisement, page 266.

Agricultural Seeds.

LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W.

The GENERAL FARM SEED PRICE CURRENT, containing instructions for the Management of the Farm for every month in the year, is now ready, and can be had gratis and post free.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. ESTABLISHED 1777.

Patron—H. R. H. The PRINCE OF WALES, K.G.

BRISTOL MEETING, 1864.

President—The RIGHT HON. EARL FORTESCUE.

The ANNUAL MEETING, 1864, will be held at BRISTOL, on JUNE 13, 14, 15, 16, and 17.

ENTRIES Close as follows:—STOCK and POULTRY, April 9; IMPLEMENTS, April 11; ARTS, April 16.

Applications to be made for STOCK and IMPLEMENTS to the Secretary; for POULTRY, to Mr. S. PITMAN, Taunton; for ARTS, to Mr. R. R. M. DAW, Exeter; for HORTICULTURE, to Mr. JONATHAN GRAY, Bath.

A SUPPLEMENTARY LIST of PRIZES, offered by the Local Committee, and the Society of Merchants of the City of Bristol, for Cattle, Shropshire Sheep, Long and Short Wool Couples, and Cart Stallions, is now ready. Entries to Close on April 16. By Order of the Council,

HENRY ST. JOHN MAULE, Secretary.

2, Wood Street, Bath.—March 12.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MEETING at NEWCASTLE-ON-TYNE, 1864.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

H. HALL DARE, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 26, 1864.

To the other great Short-horn sales of the last few days we have now to add that of Sarsden, which took place on Tuesday last, when 121 animals—32 of them calves—realised an average price just exceeding 42 guineas. This, considering the large number offered on one day, and following the large sales at Towneley and at Otley, must be considered a satisfactory average price.

Among the prices given were 76 guineas for a wonderfully fine white cow, *Dandelion*, of the *Daisy* tribe, purchased by Mr. ANDERSON, of Waterford; 80, 82, and 100 guineas, for *Archduchess of Cambridge*, *Lady Best*, and *Lady Warwick*, bought respectively by Mr. BOYD, Mr. DAVIES, and Mr. E. L. BETTS. Several of the *Charmer* tribe, which fetched so high a price at Mr. ADKINS' sale at Milcote, here also realised great sums. *Cornelian*, one of this tribe, was bought for 80 guineas by Mr. GRAHAM. Some of the descendants of Lord DUCIE'S *Chaff* and *Chaplet*, also fetched high prices. *Roan Duchess*, one of these, was bought by Colonel LOYD LINDSAY for 96 guineas; and Lady Charmer, a 4-year-old cow, was bought by Mr. RICH, of Didmarton, for 71 guineas.

The bulls and bull calves did not realise quite the average price made by the cows and heifer calves. The LORD OF THE HAREM, which has been one of the best bulls in the country, and is now only in his sixth year, was knocked down for only 65 guineas. The younger bulls fetched relatively much higher prices.

The sales of the last few days quite maintain the market value of first-rate Short-horn stock. The following are the average prices realised at the greatest sales on record:—

At C. COLLING'S	47 made 7304*l.*, or 155*l.* 8*s.* 1*d.*	
At Lord DUCIE'S	62 made close upon 151*l.* 0*s.* 0*d.*	
At Col. TOWNELEY'S	56 made 7189*l.* 7*s.*, or 128*l.* 7*s.* 7*d.*	
At R. COLLING'S	61 made 7774*l.* 4*s.*, or 127*l.* 8*s.* 0*d.*	

—— MR. HOWARD of Bedford complains of our short reference to his remarks on steam cultivation at last week's lecture before the Royal Agricultural Society. What he said was that Mr. HUGHES was mistaken in supposing the steam cultivator to be unsuited to hilly land—on the

contrary, it had greater advantages over horse power on such land than on flat land; and wherever horses could go—indeed, where they could not go, owing to the steepness—the steam cultivator could work. On one of his fields, the acclivity was one in seven, and there was not the slightest difficulty in working it. He also said that he considered the weak point in Mr. Hughes's plan of culture was that he had little for his horses to do in autumn, leaving, as he did, nearly all his work for the spring.

In another column will be found a report of experiments by a known correspondent with various Wheats. The samples which he has forwarded for our inspection were opened and laid side by side for examination before reading the account which our correspondent gives of them; and the following results of this examination were penned in ignorance of the names of the several sorts described.

No. 1. A large and long-berried white Wheat, of somewhat horny and translucent appearance, uniformly good; 137 grains weigh 100 grs.

No. 2. A very large and long-berried white Wheat, slightly wrinkled transversely as if somewhat shrunken in drying; 104 grains = 100 grs.

No. 3. Coarse brown-red Wheat, the grains individually particoloured, and the sample uneven, some of the grains being somewhat shrivelled and horny and others full and brown; 120 grains = 100 grs.

No. 4. Large and long true-red Wheat, semi-translucent; the grains of uniform size and good quality; 132 grains = 100 grs.

No. 5. Larger and longer berried true-red Wheat, very uniform, translucent; a beautiful sample; 124 grains = 100 grs.

No. 6. White Wheat, horny, somewhat ricy; not so large as Nos. 1 and 2, but otherwise like them; 145 grains = 100 grs.

No. 7. Large berried white Wheat, somewhat shrunken, very much resembling No. 6; 149 grains = 100 grs.

No. 8. Large white Wheat, horny, very fine, and though not of such uniform quality, its larger grains hardly distinguishable from No. 2; 127 grains = 100 grs.

No. 9. Remarkably fine sample of true-red Wheat, very uniform, translucent; grains large and even; 137 grains = 100 grs.

No. 10. Coarse brown-red Wheat resembling No. 3, but not so large, and less even; a good many small and shrivelled grains; 135 grains = 100 grs.

No. 11. A sample of coarse and exceedingly large true-red Wheat, shrunken; 111 grains = 100 grs.

No. 12. A brown-red Wheat, somewhat coarse; some of the grain shrunken in drying; 124 grains = 100 grs.

No. 13. A sample of short, round-berried true white Wheat, of extraordinary uniformity and beauty; 136 grains = 100 grs.

No. 14. A fine sample of true white Wheat, but of inferior quality to No. 13, with occasional faulty grains, and hardly of such perfect colour or form; 145 grains = 100 grs.

Those who are curious on this subject may refer to the "Comparison of Wheats" in another column, and find from it the names which attach to these numbers: and they may also compare our independent description of the numbered samples with our correspondent's original descriptions of the named sorts. We have only to add that we retain the samples in case our account of them should be called in question. It may be added that the sample of Hallett's Wheat which accompanied the paragraph by "E. B." in another page, is a specimen of a smaller, fuller, and apparently more starchy grain than those of Hallett's Wheat, which we have received from "Triticum."

It is also proper to add that the character of a sample, depending as it does materially on its cultivation, may mislead any inquirer into the real value of any sort; and therefore the histories given of the cultivation of these sorts must be carefully read along with the accounts of the samples that have been sent to us.

The Cattle Diseases Prevention Bill now before a Select Committee of the House of Commons is exciting the angry opposition of agriculturists and cattle dealers. At the last meeting of the London Farmers' Club, both Mr. Giblett and Prof. Simonds protested against the foot and mouth disease being included in the list of contagious disorders, any one of which is to render cattle liable to the preventive measures which the Bill proposes to enact. The disease in question was declared to be not in the least injurious to meat; and on the other hand, it is so prevalent, that to interfere with the sale of animals affected by it would be to put a stop to cattle dealing. A committee was appointed to watch the progress of the Bill and to take such steps as might be deemed fit.

The Highland and Agricultural Society, which appears to be free from the conditions under which the charter of the English Agricultural Society has been granted, and thus at liberty to discuss measures brought before Parliament, has also held a meeting, at which it was resolved to petition against the Bill in its present shape. It was resolved—

1st. "That, whilst this meeting feel that it is most desirable that proper precautions should be taken to prevent the spread of infectious diseases amongst cattle, they decidedly object to committing to the servants of shipping and to railway companies, or to inspectors appointed by local authorities, the power to take such precautions, which appears to be at present more satisfactorily and constitutionally exercised by her Majesty's Council."

2d. "That, while this meeting are of opinion that the law should prohibit all traffic in animals suffering under acute and infectious disease, they are of opinion that it would be most inexpedient to extend such prohibition to animals affected by murrain, which disease is of a temporary nature, and seldom fatal."

3d. "This meeting therefore strongly disapprove of a Bill recently introduced into Parliament, entitled 'The Cattle Diseases Prevention Bill,' and that a petition be presented to the House of Commons against it being passed into law in its present shape, and that the Chairman be authorised to sign the same."

Mr. Melvin, of Bonnington, thought that in place of the Bill being called "The Cattle Diseases Prevention Bill," it ought to be called "The Cattle Trade Stoppage Bill." He did not see how they could, under these Bills, dispose of their stock at all, when epidemic or epizootic diseases existed in the country. The fines were so large, and the results that would follow from carrying out the provisions of the Bill were so serious, that he did not see how it would be possible to hold such markets as those of Dalkeith, the Falkirk Tryst, and Hallow Fair under such a system as this Bill would introduce.

Mr. McLagan, of Pumpherston, recommended that they should not be too rash in condemning the Bill *in toto*; there were many things in it of which he strongly approved, such as the provisions for preventing over crowding of trucks and steam boats. The existing loss to farmers he believed to be greater than the penalties to which the measure would render them liable.

Professor Gamgee said that since 1842 the mortality in this country had doubled, tripled, quadrupled; he declared that 50 per cent. of that mortality is due to contagious and preventible diseases. "We are in this position; disease has entered into our stock, and we refuse to adopt any measures to prevent it. We say, 'I will not be the loser, at all events, for I will sell them to my neighbours to lose by them.' If, as an agricultural association, we stand forward to consider how human food is to be kept untarnished, we shall then meet the country in a proper temper; but if we stand up for no inquiry, no prevention of disease, no legislation, the Society will be placing itself in a false position."

Sir John Don Wauchope thought that legislation on these subjects was necessary, and he could quite corroborate what Mr. McLagan had said about the injury done to dairy stock by the murrain, and he thought it would be a very great pity were the Highland and Agricultural Society to go forward and petition against these bills without proposing something in lieu of them.

Mr. J. B. Nicolson discussed the existing law relating to the prevention of cattle diseases, and the effect of the proposed measures if they should be enacted, pointing out the enormous powers which the Bill confers upon any station master or even any railway porter—who would be able to refuse conveyance of live stock, though entirely unqualified to pronounce on their condition as to health or disease.

It was resolved to petition against the Bill in its present state.

Lord Rosslyn, who presided, submitted the following resolution on the subject of the Cattle Importation Bill:—

"That this meeting is of opinion that the Bill recently introduced into Parliament for the purpose of regulating the importation of diseased cattle into the United Kingdom is quite unnecessary, and should be withdrawn, the existing Act, 11 and 12 Vict., c. 105, being amply sufficient for that purpose; that a petition against the Bill be presented to the House of Commons; and that the Chairman be authorised to sign the same."

A COMPARISON OF WHEATS.

In compliance with promise you have herewith a few samples of Wheats (ears and grain) grown by us with many others. Before proceeding with the particulars, it may perhaps be as well to state that the descriptions and remarks are perfectly free from any personal motive or party feeling, and given regardless of pleasing or displeasing any one. The experiments are conducted with extreme care, the principal motive being to arrive at satisfactory conclusions respecting quality, productiveness, and many other particulars of a practical nature, and not with a view to produce sensation specimens by employing means that cannot be adopted in ordinary agriculture. To render the descriptions as short as possible, we have omitted all minor detail and exact produce of each sort. The soil on which the Wheats were grown is a good loam, deep and friable.

No. 1. *Pringle's Bearded White.*—Planted Sept. 2, 1862, single seeds one foot apart each way. Not more than one grain to the hundred failed in giving fine healthy plants, which tillered remarkably well, and produced a perfect mass of fine, large, clean ears, very uniform in size; straw rather short and very hard; grain white with red tinge, quality unequalled, not perhaps so white as some others tried, but thinner-skinned and much stronger in quality. This fine variety is well adapted for sowing late in the season, being of rapid growth, and ripening early; the sample of grain is just as it was threshed, the chaff being only removed; none of the corns are bad or coarse. Produce A 1.

[The four following sorts, No. 2, 3, 4, and 5, were grown alongside each other, planted Oct. 8th, 1862, single seeds 9 inches apart each way.]

No. 2. *First-prize South Australian.*—Nearly every seed germinated, and produced healthy plants, which tillered moderately. Straw long, hard, and erect; ears long, thin, and tapering; grain very large, white, rather inclined to be flinty and rough, but a great improvement on last season's (1862) crop; produce fair average; ripened very early—first of any.

No. 3. *Hallett's Pedigree.*—Second season's produce starting with the large ears mentioned to you in the autumn of 1862. Germinated below average; plants healthy and strong, tillered well, but many of the stems failed to produce ears; the ears irregular in size, some very large, but not ripening altogether on the same plant (a fault common to all tender-strawed Wheats when sown thin on rich land); chaff large, coarse, and of a dull creamy white, or light brown; straw long, thick, and soft, very subject to mildew; grain large, pale yellowish red, coarse and very weak in quality, so much so that when used alone the bread is of the most inferior description. Produce of grain—average.

No. 4. *Lammas Red.*—Germinated over average; plants very healthy, tillered well, and produced ears regular in size, long and somewhat thin; straw very long and slender; grain fine bright red, rather large and of very superior quality; produce good, exceeding No. 3. The sample of this variety is just as it was threshed, and sent for comparing with 3 and 5.

No. 5. *Shirreff's Bearded Red.*—Germinated over average; plants very healthy (the plants of this variety during the winter appear small and weak, but in the spring they grow and tiller in the most amazing manner), tillered abundantly; straw long, very hard, rather slender and erect, pale reddish purple when reaching maturity; ears long, uniform in size and shape; grain clear red, thin-skinned, large, and finer in quality than any other red Wheat tried; produce very much above any other red variety: this is unquestionably the best of its class.

[Eighty-six varieties separated 2, 3, 4, and 5 on the ground from 6, 7, 8, 9, 10, 11, and 12; these last were planted November 1, 1862; single seeds 9 by 6 inches apart.]

No. 6 *Trump Wheat* (?).—Germinated well; plants very healthy, tillered well; straw long and thickish, but tough; ears rather thin, not long, but uniform in size; grain medium size, white and good quality; produce, fair average.

No. 7. *Essex Rough Chaff.*—Germinated well, good strong healthy plants, tillered moderately; straw very short and regular in length, stout, hard and erect; ears short and thick, chaff woolly; grain medium size, reddish white and rather rough; good in quality; produce average.

No. 8. *Burghfield Early White.*—Germinated below average, tillered moderately; straw very long, thick, and tender; ears rather long and thick; grain large, flat, and uneven, reddish white; moderate quality, produce average. The ears of this variety have some resemblance to Kessingland, but with whiter chaff; it is not earlier than most other sorts.

No. 9. *Nursery Red* (true).—Germinated over average; plants healthy, tillered moderately; straw short, very thin and hard; chaff clear silvery white; grain bright polished red, small, very regular in size and of superior quality; produce good average; the sample of grain is just as it was threshed, and sent for comparing with 3 and 10.

No. 10. *Hallett's Pedigree,* grown from seed sent out by Mr. Hallett in 1862; the description appended to No. 3 is equally applicable here; after the most minute examinations during the growing season, and at harvest, we are bound to admit our inability to detect

any material alteration in appearance, or improvement in quantity or quality to No. 3 sample.

No. 11. *Wrench's Wheat.*—Germinated well, extra strong plants, tillered moderately; straw remarkably long and thick; ears very long, thick and coarse; grain red, large, flat, rough, irregular, and very inferior quality.

No. 12. *Quentin's Giant.*—See description given to No. 3, which need not be repeated here; this sample is sent for comparing with 3 and 10; these three, with Kessingland, are identical in every material point, no matter how the so-called varieties may have been obtained.

No. 13. *Shirreff's Bearded White.*—Grown on a strong free working loam overlaying a hard red clay. 4 acres were drilled on September 17th, 1862, 1 peck of seed per acre, which germinated unusually well, and produced a grand crop, ripening very early; straw rather long, medium thickness, very hard and tough, habit erect; ears longish of the sort, and uniform in size; grain plump, remarkably regular in size and shape (none coarse or bad); transparent white, very thin skinned, and extremely fine in quality. Sixty-nine pounds per imperial bushel, and was sold that weight to an eminent corn miller, who declared it to be the best Wheat he had ever ground, producing an extraordinary quantity of flour of superfine quality.

No. 14. *First-prize Victoria (Australian).*—Grown on land similar to 13; sown broadcast October 24, 1862, at the rate of eight pecks of seed per acre; germinated uncommonly well, tillered only very moderately (a natural consequence when seeded so wastefully and injuriously thick); straw rather short, very thin, and hard; ears rather irregular in size, some very small, none large; grain plump and uniform in size, white, some much more so than others, quality fine, produce above average. This is a prime Wheat for strong rich loamy soil, but not so well adapted for poor or sandy soils.

No. 15. *Marked Sport from Nursery Wheat.*—We are fully aware of the impropriety of using the word "sport;" but it will perhaps serve for want of a better. The facts are as follows. A certain quantity of seeds of Nursery Red Wheat, all separately and carefully examined, were planted (see No. 9) during the growing season. One plant only, from which the enclosed ear has been taken, was observed to differ altogether from the original. At harvest we were rather surprised to find it closely resembling "Hallett's Pedigree;" the straw perhaps rather shorter. The ears are about the same length and shape, with chaff of the same colour, and similar in every respect, except the semiaristate appendages being slightly elongated. Seeds from one of the ears so obtained have been planted, and the result remains to be seen, being yet in what may be termed a state of transition. It would not be safe to make any positive declaration, but in all probability it will throw some light on the origin of Hallett's Wheat.

Permit us to direct your attention to samples Nos. 1, 4, 5, 9 and 13, which are the produce of thin seeding, and to a certain extent proves that the system under proper management does not injure the quality, but has a tendency to improve it. As an illustration we may mention that five acres were drilled with Shirreff's Bearded White, four pecks of seed per acre, on land similar and contiguous to that on which No. 13 grew, and yet the produce of the comparatively thick seeded was not equal in quantity, and 1 lb. per bushel lighter weight than 13.

We have many other things to say, but for the present must let this communication (already much too long) suffice.—*Triticum & Co.*

THE TOWNELEY SALE.

WE add to our last week's notice the following list of the cattle sold, and of the purchasers:—

Lot	COWS AND HEIFERS.	Gs.
1.	Roan Duchess 2d, calved Sept. 3, 1852; Mr. Reeve, Brentwood	55
2.	Vestris 3d, calved March 12, 1854; Rev. W. Beever, South Wales	40
3.	Pride, calved Sept. 29, 1854; T. E. Pawlett, Beeston	135
4.	Frederick's Bracelet, calved Nov. 22, 1855; T. Statter, Bury	50
5.	Young Barmpton Rose, calved June 21, 1856; (13,590)—C. Naylor, Preston	71
6.	Alice Butterfly, calved Aug. 1, 1856; J. How, Broughton	100
7.	Pearl, calved Nov. 23, 1856; T. E. Pawlett	110
8.	Violante, calved May 20, 1857; Viscount Strathallan, Perth	85
9.	Pageant, calved March 23, 1857; E. L. Betts, Preston Hall, Kent	50
10.	Frederick's Ringdove, calved June 21, 1857; T. Greetham, Stainfield Hall	43
11.	Butterfly's Hope, calved Aug. 19, 1858; T. H. Parker, Warwick Hall	45
12.	Rose of Lancashire, calved July 26, 1858; T. Crisp, Butley Abbey	13
13.	Precious Stone, calved Feb. 28, 1858; R. Burton, Whitehaven	43
14.	Frederick's Pride, calved April 14, 1859; Duke of Devonshire	80
15.	White Butterfly, calved June 28, 1859; C. W. Packe, M.P., Prestwold	70
16.	Young Butterfly, calved July 19, 1859; T. Crisp, Butley Abbey	125
17.	La Fille de Frederick, calved Dec. 8, 1859; J. Platt, Bangor	61
18.	Roan Knight's Butterfly, calved Aug. 6, 1860; Duke of Sutherland	175
19.	Butterfly's Ringlet, calved Jan. 19, 1861; (ill, not offered)	
20.	Pearled, calved Feb. 23, 1861; A. & A. Mitchell, Alloa	61
21.	Royal Butterfly's Duchess, calved March 1, 1861; E. S. Betts, Kent	500
22.	Roan Knight's Pride, calved March 15, 1861; J. Platt	71
23.	Buttercup Again, calved July 17, 1861; B. B. Colvin, Pishiobury Park	57
24.	Frederick's Farewell, calved Oct. 9, 1861; Mr. Reeve, Brentwood	150
25.	Pretty Butterfly, calved Nov. 1, 1861; C. W. Brierley, Rochdale	77
26.	Barmpton Butterfly, calved Nov. 7, 1861; R. Eastwood, Whitewell	350
27.	Another Roan Duchess, calved Nov. 29, 1861; W. Stirling, M.P., Keir	225
28.	Butterfly's Pride, calved Dec. 6, 1861; A. Cruickshank, Sittyton	62
29.	Burnley Butterfly, calved Jan. 15, 1862; A. Dugdale, Burnley	52
30.	Double Butterfly, calved Jan. 21, 1862; R. Eastwood	300
31.	Perfume, calved April 23, 1862; H. C. Pole Gell, Barton Fields	190
32.	Red Duchess, calved June 5, 1862; Lord Sudeley, Toddington	170
33.	Royal Butterfly's Pageant, calved Aug. 6, 1862; R. Eastwood	590
34.	Violante's Butterfly, calved Nov. 17, 1862; Hon. Col. Pennant, M.P.	205
35.	Venus's Butterfly, calved Nov. 27, 1862; J. Platt	75
36.	Beautiful Butterfly, calved May 29, 1863; E. L. Betts	150
37.	Wharfdale's Ringlet, calved July 12, 1863; G. Roper, Latham House	43
38.	Wharfdale's Butterfly, calved July 13, 1863; C. W. Packe, M.P.	86
39.	Butterfly's White Duchess, calved Sept. 30, 1863; E. L. Betts	170
40.	Baron's Butterfly, calved Oct. 11, 1863; Callen, Ireland	46
41.	Alice Wharfdale, calved Dec. 16, 1863; Lady Pigot, Branches Park	50
42.	Proud Duchess, calved Dec. 28, 1863; G. F. Frere, Roydon Hall	35
43.	Duchess' Butterfly, calved Jan. 21, 1864; G. Roper	33
44.	Wharfdale's Buttercup, calved Jan 23, 1864; G. Roper	36
45.	Duchess of Towneley, calved Feb. 13, 1864; G. Roper	100
46.	Duchess of Lancaster, calved Feb. 19, 1864; Capt. Tennant, Scracroft Lodge	29
47.	Phœbus Butterfly, calved Feb. 29, 1864; G. Roper	50

BULLS.

1.	Baron Hopewell (14,134), calved Aug. 12, 1856; E. W. M. Waldo, Stonewall Park, Kent	100
2.	Royal Butterfly (16,862), calved Aug. 12, 1857; reserve 1200 guineas. No bid	
3.	Royal Butterfly 10th (18,761), calved Oct. 6, 1860; Joseph Whitworth, Standcliffe Hall	115
4.	Royal Butterfly 11th (29,719), calved July 4, 1861; W. Sterling, M.P., Keir	400
5.	Royal Butterfly 15th (20,723), calved Dec. 8, 1862; Duke of Sutherland	160
6.	Proud Baron, calved April 10, 1863; Duke of Newcastle	145
7.	Royal Butterfly 17th, calved Oct. 13, 1863; Rev. W. Beever	200
8.	Duke of Towneley, calved Nov. 7, 1863; C. Patrick, Rossendale	55
9.	Valiant Duke, calved Dec. 17, 1863; T. H. Parker	70
10.	Duke of the Butterflies, calved Feb. 12, 1864; R. Eastwood	100
11.	Prince of Towneley, calved Feb. 13, 1864; W. Fox, St Bees Abbey	71

SUMMARY.

46 cows and heifers	£5702	11	0
Average	£123	19	4
10 bulls	1486	16	0
Average	148	13	7
Total sale	7189	7	0
Average 56 head	128	7	7½

TRIBES.				Average.		
9 Roan Duchesses	£1618	1	0	179	15	8
5 Alices	693	0	0	138	12	0
28 Butterflies	3409	7	0	121	15	3
8 Pearls	855	5	5	105	13	1½
5 Vestrises	518	14	0	103	14	9
Baron Hopewell	105	0	0			
Total	7189	7	0			

The average is just below that of Robert Colling's sale in 1818 at Barmpton, which exceeded it by a few shillings.

THE DIETARY OF THE AGRICULTURAL LABOURER,

WITH OTHER STATISTICS OF HIS EXPENDITURE.

[The following is the remainder of the paper on this subject lately read by the Rev. J. Slatter, of Streatley, before the Ashmolean Society at Oxford, the former part of which appeared last week.]

RESULTS OF INQUIRY.—I now proceed to give the results of my investigation:—1st, as to the amounts consumed, and the quantity of carbon and nitrogen therein contained.

I give first for comparison with the results of the same sort of inquiry in the manufacturing districts, the average amount consumed by each head in the family—in three cases—which I select as those which I believe live the most hard in the parish.

1. Man and Wife, Seven Children and Baby, reckoned as nine persons.

	lbs.	Carbon. Grains.	Nitrogen. Grains.
Bread	56	110,200	5,152
Bacon	1	4,750	96
Butter	1	4,589	....
Sugar	1½	4,035	....
		123,565	5,248
Potatos, say	10	7,600	240
		9) 131,165	5,488
		7) 14,570	609*
		2,080	87†

* Weekly average. † Daily average.

2. Man and Wife and Six Children, eight heads.

	lbs.	Carb.	Nitrog.
Bread	56		
Bacon	1½		
Butter	1	2,380	98
Sugar	2		
Potatos	10		

3. Man, Wife, and Six Children (1 baby)=seven heads.

	lbs.	Carb.	Nitrog.
Bread	48		
Bacon	2½		
Butter	1½	2,580	99
Sugar	2		
Potatoes	10		

Now, in Dr. Smith's tables, p. 364, Table 41, he gives these specimens:—

		Carb.	Nitrog.	
Number	58	3,193	180	Much Oatmeal.
,,	59	2,945	111	Young children.
,,	60	2,275	85	Exceedingly low; young children.
,,	65	2,792	111	Young children.
,,	66	2,849	112	

The first three are man and wife and six children, the last two man and wife and seven children. We must conclude, then, that he would have judged the diet of the three families I have exhibited above as very low, and insufficient. But this mode of judging by the average consumption of all ages is unsatisfactory; it might be that one part of the family suffered at the expense of another, and it would be extremely desirable to ascertain how far this is likely to be the case.

It has been attempted in the following way:—Taking about 20 families, their condition is so various as to the number and ages of children, that it occurred to me that, throwing the consumption of each in the form of an equation, it might be possible, without attempting a rigorous solution, to ascertain the respective shares of the man and wife, and the older and younger children.

It appears then that the average consumption in bread of a child between 10 and 12 is 8 lbs., and under 10 the average is 4 lbs. Now, it is said that children need an abundance of the nitrogenous element in their food, and it is greatly to be regretted that there is not a sufficient supply of skim milk to constitute it a regular and considerable article of children's diet.

Let us see however what the actual supply of nutriment for the children amounts to. The way of life at present is about this: a piece of bacon (when the allowance is small—the whole) is cooked for Sunday's dinner; whilst it is hot all dine off it with what vegetables they can get—generally about 7 lb. weight of Potatos; the children have upon their bread a tiny portion generally (not always), about say ½ oz at the outside. The rest is put by to be eked out cold for the man's dinner in the field as long as it will last. All the rest of the week the children, and generally the women, have no more animal food except by accident. I ascertained from a little girl about 9 or 10 years old that she had four slices of bread per day. I weighed the quantity indicated by her, and found that her allowance would be about 12 oz., perhaps 14 oz. The butter is in such small quantity that it is hardly to be rated as more than a condiment. But taking the allowance as stated at the average of 8 lb. for a child 10 or 12 years old, we have the week's allowance as follows:—

	Carbon.	Nitrogen.
Bread, 8 lb.	15,750	736
Bacon, ½ oz.	150	3
Butter, ½ oz. × 21 meals 3½ oz.	1,020	—
Sugar, say 3 oz.	540	—
	17,460	739*
	2,494	105½†

* Weekly average. † Daily average.

Without reckoning Potatos extra.* This, according to the amount of nutriment per lb. weight of bodies required in the case of adults, would suffice for one weighing 100 lbs., but children require a larger rate of the nitrogenous element owing to their growth. In the case of the little girl mentioned above, weighing about 80 lb, the daily average would be 1650 carbon, 66 nitrogen, a quantity greatly under the mark, and I entertain little doubt that in many cases it is so: that the children and the old are underfed, and that the lion's share goes to the father, and perhaps rightly so, as the least grievous of two cruel alternatives.

Proceeding by the method already mentioned, the joint amount of the husband and wife's consumption can be found, but there is no means of separating accurately between the two, as the only data within reach that give either separately refer to aged persons. The proportion adopted has been derived from Dr. Smith's paper, where a man's to a woman's allowance is nearly as four to three. It appears, and with a degree of uniformity which gives great certainty to the result, that the joint consumption of husband and wife is from 24 to 28 lbs. of bread per week with scanty bacon, and from 16 to 18, where there is a larger allowance of bacon.

In the former case, where the diet is almost confined to bread, the man's share being from 14 lbs. to 16 lbs. per week, with 2 ounces of bacon daily, it would seem that his daily consumption would give from 4500 to 5100 grains of carbon and from 196 to 220 grains of nitrogen; the average amount required for an adult weighing 150 lbs. is 4300 carbon and 200 nitrogen; † but, singularly enough, the result is altogether different when we take the case where a full amount of bacon is obtained, which we should *à priori* pronounce to be the better diet. We then find a much lower amount of nutriment supplied. When a man gets about 4 ounces of bacon per day his allowance sinks to 9 or 10 lbs. of bread instead of 14 to 16, and the result is, with the higher amount of bacon, only 4000 carbon, and 155 nitrogen; it is very possible that, with easier means, other comforts in food are attainable, which here are not brought to account, but it is difficult to say whence a larger supply of nitrogen is to be gained—it is possibly made up by cheese.

To come next to the case of persons living on parish allowance; the intention of the Board of Guardians is to give them 2*s.* 6*d.* per week, partly in money and partly in kind. The allowance is for a single woman half a gallon of bread—that is 4 lb., 1 oz. of tea, ½ lb of sugar, and 1*s.* 8½*d.* One case which I have examined adds to this ½ lb. of bacon, ½ lb. of butter, and ½ lb. of sugar; and this is all she is able to provide herself; it amounts to a daily quantity of less than 2000 carbon and 60 nitrogen—in fact, unless she were largely assisted by private

* If used the quantity of bread is diminished.

† In a paper lately read before the Society of Arts, Dr. Smith, referring to his former paper, says that he estimated this as the average quantity required by a man making a moderate amount of exertion. In the earlier paper the result of his own experience as required under considerable labour, viz., 5000 grains carbon and 230 nitrogen, was overlooked—and a statement (page 325)—"whilst therefore there is some diversity in the conditions both in ordinary and present times, it may be affirmed that their ordinary and present occupations induce but little comparative increase in the work of the body," being misapprehended, led to the assumption that the quantity here mentioned was sufficient for a man under the ordinary circumstances of labour. Such would hardly seem to be the case. It must be borne in mind at least, that this is a low estimate.

charity she could not live. The case of two single women living together presents a slightly better aspect, because one cottage and one fire do for both; their allowance rises to 2466 carbon and 81 nitrogen. Another case which I have carefully watched, of two old persons living together; their sustenance procurable with parish allowance gave them, with their good management, 2275 carbon and 81 nitrogen. With this amount they were enfeebled and pining away; an increased allowance of 2 lb. of mutton weekly, raising their daily nutriment to 2400 carbon, and 100 nitrogen, just sufficed to keep them in as fair health as can be expected to be enjoyed by persons verging on 80 years of age, though probably still below what would have been desirable.

The conclusion then as regards this part of the subject may be stated thus:—1. That the parish allowance is not sufficient for what it is intended and professes to do, viz. supply a bare maintenance; it is only accidentally and when supplemented from other sources that it can at all be said to be enough, and this will appear more clearly presently. 2. That on the whole children seem to have scarcely sufficient food, and there are cases where they suffer greatly and probably have the seeds of future diseases sown in the system. 3. We are met with the unexpected result that the men for the most part who chiefly feed on bread with a very small proportion of animal food, according to theory at least, appear to receive more nutriment than those who live more largely on animal food, and this accords with the opinion that animal diet is by no means necessary. Indeed it may be remembered that in the case of the maximum allowance of bread, the quantity of nutriment considerably exceeded what was deemed the minimum allowance.

On this point it may be doubted whether, in so great bulk, a considerable portion may not pass through the system without assimilation. And here seems the place to notice the great absence of variety in diet, which unless health is in perfect vigour is so severely felt, and the great expenditure of vital force which must arise from almost all the food being taken cold into the stomach. Any expedient which might meet the one of these evils would tend to mitigate the other. The greatest obstacle to improvement here exists in the habits of the poor themselves. Attempts that have been made in this direction to ameliorate their condition have proved in vain, and it is some consolation to think that fair health and a life passed in the open air, enable their possessor to thrive under a dietary which in the close atmosphere of a factory might speedily enervate him.

Nothing has yet been said of the labourer's beverage. Coffee is comparatively little used. Tea is very general. We are taught to regard these not so much as nutrients in the strict sense of the word, but as stimulants of vital action, and facilitating thereby the transformation of other food. Beer can hardly be called a part of the labourer's dietary; they can rarely or ever afford to drink it. Some make a very wholesome small beer for drinking in harvest time; but for the most part it is only consumed under circumstances that are injurious alike to health and morals, and it need not be said that when 2*s.* or 3*s* go on the Saturday and Sunday in this way at the public house, in almost every case the wife and children suffer correspondingly in their allowance of food.

It is necessary now to furnish the concluding proof to show that the parish allowance or the ordinary wages are not enough to keep house upon without encountering privation, or the other alternative—debt.

1. The case of two old people on the parish allowance of 5*s.*:—

a.			*b.*		
Bread	1*s.*	0*d.*	Bread	1*s.*	3*d.*
Mutton	0	9	Bacon	0	6
Butter	0	6½	Butter	0	4
Tea	0	5	Sugar	0	5
Sugar	0	5	Tea	0	5
Soap	0	1	Soap	0	1½
Candles	0	1½	Candles	0	3½
Rent	1	3	Rent	1	0
	4	7		4	3¾
Leaving a balance of 5*d.* for Clothes, Shoes, and Fuel.			Leaving a balance of 7¼*d.* for Clothes, &c.		

2. The case of a single woman on parish allowance of 2*s.* 6*d.*:—

Bread	0*s.* 5*d.*
Bacon	0 4
Butter	0 2¼
Sugar	0 7½
Candles	0 3½
Soap	0 0½
Tea	0 5
	2 4

Leaving a balance of 2*d.* for Clothes, &c., and Rent, which is 5*d.*

These are the cases noticed above as illustrating a miserably low diet, and withal making plain besides that to exist at all they must be dependent on other sources than the parish allowance.

3. To take next the case of a man who through illness could not do piece-work, and was forced to take light work at ordinary wages.

Flour	4*s.* 7*d.*
Bacon	1 8
Butter	1 4½
Tea	0 5
Sugar	0 11
Soap—say	0 3
Candles—say	0 3¼
Rent	1 3
	10 9

i. e. 9*d.* above the wages, and nothing for fuel, clothes, shoes, club, or schooling.

In such a case debt is being incurred, to be wiped off during the summer if possible, thus causing a diminution of the fund which is generally expected to provide shoes and clothing. The shoes for a large family, without giving all a new pair, cost (with mending the old), from 3*l.* to 4*l.*; if not taken out of the harvest money, at least 1*s.* 6*d.* a week ought to be laid by for this alone. Very little clothing is bought: little is procured except by the clothing club and charitable gifts of one kind or another.

Fuel during three parts of the year averages about 1*s.* per week. The money representing the wants of the family that are omitted above, is, therefore, as follows. At the least:—

Fuel	1*s.* 0*d.*
Women's club	0 3
Children's club	0 3
Children's schools	0 3
Shoes	1 0
	2 9

Which, added to the sum above, gives 13*s.* 6*d.* as the weekly necessary cost of the family. Well might the mother reply, when asked whether the children's portion satisfied them:—"They know they must take what is given them, and that it is no use to ask for more."

It would be foreign to the immediate subject of this paper to inquire what means might avail to ameliorate the condition of the agricultural labourer. The improvement of their dwellings is just now, and very rightly, attracting public attention, and indirectly no doubt it will affect their condition generally. At present it is by no means popular with the labourers themselves. No great improvement of the houses on a large scale can take place without an adequate return for capital expended; and if an increased rent is demanded without corresponding increase of wages, the improver, at present at least, will receive small thanks for meddling. But in one way it is likely to open the way to the improvement by taking the cottage rent out of the hands of the farmer as a middleman; according to the general sytem, though nominally free to move, the labourer is virtually as he was described in Domesday Book 800 years ago, when it was said of this parish IBI VII FERVI.

The introduction of machinery, which is becoming necessary to the farmer, is working also in the same direction; and attempts to elevate the agricultural labourer will be mere palliatives, until all unnatural restrictions are removed which now prevent him from carrying his labour to the best market.

NOTES ON CELEBRATED SHORT-HORNS.

No. III.

Lord Hardinge.—The following is a letter from Mr. Bates, dated Kirkleavington, near Yarm, August 25, 1848, addressed to an eminent Short-horn breeder:—

"Mr. Thos. Bell has just brought me the produce of Harriot Cow, the dam of your Lord Hardinge—she gave 15½ pints of milk in the morning, and 16½ pints in the evening—on Grass only—no hand food, and the produce in butter for the day was 32 ounces, being just 3 ounces per quart of milk.

	Per week—*s.*	*d.*
The butter here at present (16 oz. per lb.) is 11*d.* per lb or	12	10
The old milk, if sold at 1*d.* per quart, or	9	4
	22	2

"Mr. Bell's pasture after calving was bare, and I told him to put her into my cows, and she has been very unsettled, breaking out to get to her old companions, or might have given more milk.

"Old Duchess 34th when she last calved, with two paps only in milk, gave 9 quarts per meal, and each quart yielded 2¼ ounces of butter.

"My first Duchess, bought in 1804, calved on Grass, June 7, 1807, and gave 14 quarts per meal twice a day for several months in the summer, and each quart yielded 1½ oz. of butter, or 21 oz. of butter per meal; and then our Newcastle weight was 21 oz. per lb., and sold at 2*s.* per lb., making 28*s.* per week in butter; and milk at 1*d.* per quart was 16*s.* 4*d.* per week, or 2*l.* 4*s.* 4*d.*—there would be a little loss in quantity by creaming, or about two guineas per week—and went into a pasture with 19 other cows at Halton.

"The generality of Short-horned cows used to yield 1 oz. of butter per quart in my dairy at Halton Castle, near Corbridge, in Northumberland, and my West Highland cows yielded 2 ounces per quart of milk, going in the same pasture; and those bred from West Highland cows by my old Halton bull, yielded as much butter per quart as the West Highland cows, and gave a vast increased quantity of milk over the Highland cows. So that now, with several crosses of my own bulls—all of the Duchess tribe—they yield as much butter per quart as the West Highland Kyloes I kept at Halton; but those West Highland cows exceeded any I ever saw, and I could never again obtain such after the years 1800 and 1801. I got 20, each of those years, and they kept increasing in produce till I had one year 99 in calf; but by an unfortunate cross by the bull St. John, belonging to the late Christopher Mason, he communicated disease into my herd of mixed Highland blood, and I could not recover their constitutions again, and was obliged to part with that valuable herd in 1826, and have not had any Highland blood since then. The third and fourth crosses got to as much weight as the Short-horns, and were once an invaluable breed, being far less consumers of food than the generality of Short-horns—24 lb. per day, cows in milk, when on hay only—while in most large dairies of Short-horns the consumption is 56 lb. per day of hay. I remember Mr. McKenzie weighing to a lot of cows bought of my next neighbour, and they consumed 52¾ lb. per day of hay, but were good milkers, and made 8*l.* per ton of the hay—butter then high, in the late war in 1812.

"I tried the consumption of hay by Duchess 34th—in different years—and it was 24 lb. per day, not more than West Highlanders; and I doubt not that Lord Hardinge's dam is a small consumer of hay, when in milk, if tried in winter.

"I was no little surprised on learning that the two judges of Short-horned bulls never handled any of them at York; but only looked at them. This accounts for their strange decisions, and it is a disgrace to the Society to employ such men. Had Mr. Stokes been suffered to cast his eyes over the decisions I doubt not they would all have been reversed.

"Thomas Bell has sent the *pedigree of Lord Hardinge*—Roan colour, calved Sept. 6, 1846. Got by 2d Duke of Oxford; d. Harriott, by 4th Duke of Northampton (3649); gd. Hilpa (sold to Mr. Vail, of Troy, in America, and obtained the highest premium at their great State Show last autumn, as the best cow in America, and universally so admitted) by Cleveland Lad (3407); gr. gd. Hawkey, by Red Rose bull (2493); gr. gr. gd. Hart, by Rex (1375). This last I bought, and let Messrs. Bell have her; and I went a few years after to see the cattle from which she came. They were all roan colours, and they had had the predecessors for above 30 years, being all good milkers, and a roan colour; they were cleanly neat cattle, and they had used the best bulls in their district, but kept no pedigrees. Rex was a neighbouring bull that got good stock, and highly spoke of by all who had used him.

"2d Duke of Oxford has not been entered in Herd Book, and I have not seen any Herd Book since G. Coates', jun., death. 2d Duke of Oxford was by Duke of Northumberland (1940); dam 2*d Oxford Cow*, by Short Tail (2621); gd. Matchless Cow (4414), I bought at Mr. Brown's sale in 1831.

"2*d Oxford Cow—her two sons* (shown also at York), and *Lord Hardinge* (her grandson), and *her two daughters*—six in all, were shown at the Scarborough meeting of the Yorkshire County Society in August, 1847, and each obtained a premium. Lord Hardinge, highest premium as a bull calf; his sire, 2d Duke of Oxford, highest premium as an aged bull; 3d Duke of Oxford, second premium; and his own sister highest premium as a heifer calf. 2d Oxford Cow, second premium as an aged cow; her daughter, own sister to 2d Duke of Oxford, second premium as a 2-year old; so that there were three first premiums, and three second premiums. But the judges candidly owned to me that there ought to have been more first premiums; but they well knew that they would have given great offence by reversing the decisions at the Northampton meeting. And certainly they (the judges) were most unfairly treated for setting Captain Shaftoe second, when he ought properly to have been left out without any premium. There were many better bulls at Scarborough than Captain Shaftoe's. I think the above will give you a full account of Lord Hardinge and his predecessors."

Home Correspondence.

The Sheffield Accident: Bursting of the Bradford Reservoir.—It is possible this accident has arisen from a change that all earthen embankments made to hold water are liable to after being similarly exposed. These embankments are made principally of clay, a substance that freely loses moisture on exposure to air, and shrinks and cracks in all directions in so doing. I may, in proof of this, instance the cracked state of clay land in autumn, and its porosity after draining; or the difference of size in a brick fresh from the mould and one after exposure in the clamp, which will often amount to an eighth. The soil in making embankments to hold water is necessarily put together in a wet state, approaching to that of a brick fresh from the mould; it is then impervious to air and water, and so remains all the time that it is so kept, but will so continue only while in this condition. Now the amount of rain fallen in the midland counties during the last autumn and winter, up to the last three weeks, has been remarkably small, and the land has been singularly dry; this has been so much the case, that in many parts the ponds, usually overflowing, have not been filled, landsprings have not risen, wells have continued dry that were never before known to fail at this season. The consequence of this has doubtless been to greatly reduce the contents of the reservoir and expose the lower part of the embankment to the evaporating action of the air, the soil has lost moisture, and consequently shrunk and cracked, fissures have opened, and while in this state the late heavy rains have fallen; the water has suddenly risen many feet in the reservoir, the fissures have been filled under great pressure, and the cracked bank, unable to resist the strong hydraulic force so brought to bear on it, has been blown out. I use the word *blown*, for really when one considers the power of water acting upon an open body, as I must consider the bank to have been after the drought, no other word so well expresses its force, so strongly exemplified in its destructive course. *Hewitt Davis, March* 21.

Hallett's Wheat.—In the *Agricultural Gazette* of March 5 the above Wheat is described as extremely coarse. In the autumn of 1862, I purchased of Mr. Hallett a bushel of it for 2*l.* 2*s.*, and dibbed it at the rate of a peck to the acre, one seed in a hole. Herewith I beg to send you a sample of the produce from which the chaff only has been blown. Winnowed, the bushel weighs 65 lbs. It is not, I think, coarser than the other Red Wheats grown in this neighbourhood, and makes good bread. Last October Mr. Saunderson, the miller, offered me 26*s.* per load of 5 bushels for it, which was at that time his highest price for Red Wheat. I have this year grown a bushel of the Z family, for which I paid 1*l.* 1*s.* Should you wish for a sample I shall be happy to send it after harvest.

E. B. [Thanks; will you give us a full history of the produce in the two cases?]

Extraordinary Fecundity in a Sheep.—A small Welsh ewe of the Llyn breed, belonging to Mr. Wilbraham, of Rode Hall, Cheshire, produced for 12 consecutive years three lambs, which she reared and brought to maturity, making a total of 36 lambs. Last year she had four lambs, one of which died; the other three she reared. This year she would have given birth to five had she not died of old age and exhaustion a few days before her time of yearning, thus making altogether in 14 years 45 lambs, 39 of which she reared. She was in the habit of being fed with new milk morning and evening for some weeks after the birth of her lambs, of which she partook freely from a bottle. *W. P., March* 19.

Garden Manures.—Sanitary subjects are attracting much attention, and if you do not think the matter too trivial for your columns, may I beg to suggest a very simple and inexpensive improvement in cottage conveniences, which I do not remember to have seen practised exactly in the manner I propose. It is of course founded upon the Rev. Mr. Moule's little pamphlets on useful and sanitary subjects, which are very excellent, and based upon a perfectly right principle; but I think it must be admitted that his plan requires an amount of constant attention and trouble, which, though not laborious, is yet so contrary to the usual habits of country cottagers, that I fear it is not likely to be generally adopted. Besides which I cannot but think that there would occur in practice various difficulties and objections not necessary to particularise. Neither do I exactly approve of Mr. Moule's plan of throwing Cabbage leaves, &c., among growing crops. They would harbour slugs, be blown about by the wind, and encourage a habit of untidyness. As Mr. Moule truly observes, "In God's Providence there is no waste." The principle of nature, according to its Maker's arrangement, is in few words, this:—The dung of all animals, as well as all other offal matters and dead vegetable substances, become food for living plants by means of the earth (or mould) they grow in; and the point he urges on his readers is, that the sooner offensive matter is covered over and mixed with earth the better, as earth has, by its own natural properties, the power of combining with itself the substances required for the growth of the "herb of the field," and all plants necessary for the support of man. The smell of anything is only a certain part of it that is carried away by the surrounding air, which air is thereby made not only disagreeable but very unwholesome, and it is moreover very wasteful for man's purposes, as it is just so much of its strength lost. In furtherance of Mr. Moule's benevolent objects, allow me to offer a plan for cottage privies, that would, I think, by the application of his principle to a rather different arrangement, make it likely to meet with more general favour, and suit better with the habits and requirements of country labourers. It is as follows:—Instead of the usual flat-bottomed pit or vault under the seat, I would have it made in form like a trough, falling from all sides towards an arched opening through the back or side into the ash-pit, which should also be made in like manner, falling from each side towards another arched opening placed a little below the level of the ground, and leading to a third small pit, having a flat bottom, and of a size to contain not more than about half a barrowful of earth; this last pit, which I will call the emptying pit, should be walled round just up to the level of the surrounding ground. All these pits must be built with good solid walls, well mortared together and cemented, to prevent as much as possible any liquid from oozing through. By their construction the contents will be constantly pressing forward towards the smallest, or emptying pit. This emptying pit should be kept always full of earth to receive the drainage from the ash-pit and the privy. Into the ash-pit should be thrown all the kitchen refuse and garden rubbish, and it will also receive gradually the contents of the privy. The ashes from the fire should be distributed both in the privy and over the contents of the ash-pit, so that they may be at once mingled together. Besides the ashes a small quantity of earth should be thrown down the seat every day. If the seat were made so as to lift up, by having hinges at the back, it would make it easier to throw in the slops, fire ashes and earth, as often as necessary without causing rubbish on the seat, and would also enable the under side of it to be kept clean and in good order. The work required would then be as follows each day: throw the ashes or part of them down the seat, and also the house slops and soapsuds from washing, and once every day or oftener, throw down also half a spadeful of garden earth; this will prevent almost or quite entirely the usual unwholesome smell which too often comes up such places; and not seldomer than once a week, take away in a barrow the contents of the emptying pit, both the earth that was put in the week before, and as much more of the general contents of the ash-pit as will come out easily by the spade or shovel, through the opening. Make a heap of it in some convenient part of the garden, and refill the pit with earth collected as before from any vacant place. So much of the top of the earth in the pit as is dry and unmixed with the other contents, may be used again. By these means you will soon have a good heap of manure and no waste, with really very little trouble, surely not more than any working man could easily give after his day's work for his master is ended. It is sad to see what a great deal of useful material for making manure is constantly wasted! How large an amount of soap-suds and house-slops of all sorts are let to run into the ditch for the benefit of the nettles and other coarse weeds, instead of being turned to good account. I have said above that the garden rubbish should be thrown in the ash-pit, but of course I do not mean large quantities of Potato stalks and such like, which should be burned, and the ashes taken to the garden heap, and be mixed with the rest. Whatever of this kind is put into the ash pit should be cut with a knife or spade into short pieces; they will mix better with the rest and come out more easily than if left long and awkward. The above remarks apply chiefly to cottages and small country establishments, but improvement is needed in houses of a larger kind in respect of waste, as in general the only object sought for is to get rid of offensive matters and drain them away, not to apply them to use. About two years ago you gave some excellent articles on the late Prince Consort's farms, and among other subjects the system of drainage at Osborne was touched upon, but I think there was not a perpendicular section; if I am mistaken will you kindly direct attention to it. *Rusticus.*

Use of Malt.—As the Chancellor of the Exchequer proposes to bring in a Bill to remit the duty on malt when used for feeding purposes, it is very desirable that information should be collected that bears on this point. Mr. Williams, with an industry that does him credit, obtained the opinions of many leading feeders, and read to the Farmers' Club a great number of letters, all speaking favourably of the limited use of malt, but in no instance have we anything approaching accurate experience as resulting from a carefully conducted experiment. The comparative feeding effects of a given quantity of Barley, and the same when converted into malt, accurately noted, would be more to the point than any number of general statements. If malt is really so superior to Barley, and can be substituted for it, the boon will not be slight; and as it is after all doubtful whether the abolition of the tax would result in a much higher, though possibly a more average price, as the duty is paid more by the consumer than the producer, it may be wise to accept a part, since there is little prospect of obtaining the whole. But is malt so superior to Barley? In the absence of actual experiments we can only hazard an opinion. Mr. Dring told the Club, that two tons of malt made, duty free, would cost as much as three tons of Barley; consequently, to be profitable, it should possess one-third more feeding property. Many of those who think highly of malt argue, we think illogically, when they suppose that because a small quantity largely mixed with other food is found very feeding, a large amount would have the same effect. Experience in the use of the Carob Bean has shown that it is easy to supply too much saccharine matter. In such cases the appetite becomes affected, and possibly acidity might result. The animal refuses other food which is necessary for proper feeding. Used in moderate quantities, and well mixed with other food, malt would doubtless be useful; but it is a question whether the same effect may not be obtained at a cheaper rate. Most of the cattle foods which are still in extensive use, contain a large percentage of the Carob Bean, and this appetising effect is partly attributable to the agreeable taste thus communicated to the food. Why should not the farmer make a proper mixture of different feeding substances, using home-grown and foreign according to relative prices; thus—Barley, Indian Corn, Lentils, Peas or Beans, and Wheat, with a small percentage of the Carob Bean, mixed and well ground, would make an excellent food; which would possibly be found more valuable for the general purposes of feeding than the use of a large quantity of malt. *John Coleman, Wandsworth.*

Enforced Outfall.—I beg to thank Mr. Bailey Denton for his answer to my question, although it is not quite so satisfactory a one as I had hoped to have received. I should be very glad to join with him, and to assist him, if I could, to obtain a more simple remedy; but what can I do? I am not in Parliament; and both the chairman and vice-chairman of his company are influential men in Parliament; and either of them might, with Mr. B. Denton's assistance, bring in a short Bill to provide some simple and speedy tribunal—such as the Court of Petty Sessions, before not less than two or three Justices, who should view the ground in question, and who might be empowered, on satisfactory evidence being put before them—in addition to a view—to order the required outfall to be made through any person's land at the expense of the applicant, and specially providing that no damage be done to the owner or occupier of such land. Such is quite roughly an outline of a measure which Mr. B. Denton could easily put into shape. If I can assist him in any way I shall be most happy to do so if he will only point out how; or if he will come here to see me and confer on the matter I shall be most happy to see him (he knows my address); or if he will get up a landowner's meeting in London or elsewhere to discuss this matter I shall be most happy to attend it. I hope that this important subject may not be lost sight of, for that the importance of it is daily increasing I have no doubt whatever. *A Gloucestershire Drainer.*

Foreign Correspondence.

The accompanying letter may be interesting to some of your readers. Here we see the old error of exhausting fertile soils, neglecting and undervaluing manures, and believing in perpetual fertility. The same sentiments prevail extensively in the United States, where manure is too often thrown into rivers or accumulates unused for a long period of years. *J. J. Mechi.*]

Rockwood, Appin: *January* 20, 1864.—Having read with much interest, and I think with no little advantage, your treatise on agriculture, published in 1859, I now take the liberty of addressing you on the subject. I would not thus so boldly act, did I not observe in the pages of your book the strongest desire to promote the cause of agriculture, and thereby confer the greatest boon on mankind.

The farmers in this country have fallen into the self-same errors which you have alluded to in your book. For instance, never changing their crop, sowing Wheat on the same land for upwards of 30 years; the land badly tilled at about 4 or 5 inches depth; never thinking of returning one vestige of manure to the land to atone for the perpetual cropping; burning the stubbles, should they be thick enough for the purpose, with numerous other absurdities. The consequence is, these lands now produce from 8 to 12 bushels per acre, while in their virgin state (I learn from reliable authority) 35 and 40 bushels was the usual return. In glancing at these statements you will naturally conclude that the farmers are the poorest people of the community, and your surmise would be correct, as they most decidedly are.

There are lands in this country worth from 8*l.* to 10*l.* per acre, but these are alluvial flats, possessing I might almost say an inexhaustible amount of vegetable deposit, and are the exceptions, but the land in general is not worth more than from 30*s.* to 60*s.* per acre. Of course I am referring to land bordering the different settlements, the land in the far interior being used exclusively for grazing purposes, and the price merely nominal. I will give you the average value of farm produce here, as accurately as it lies in my power, say for the last 5 years, as the markets have been in a somewhat temperate or even low state during these years. In all cases I will give you good qualities. Wheat from 4*s.* to 7*s.* 6*d.* per bushel; Oats, 5*s.* to 7*s.* 6*d.*; Barley, 4*s.* to 5*s.*; Indian Maize, 3*s.* to 6*s.*; other cereals little grown. Potatos, from 4*s.* to 10*s.* per cwt.; Onions, 14*s.* to 20*s.* per cwt.; Beef from 1*d.* to 3*d.* per lb.; Mutton, 2*d.* to 5*d.*; Bacon, 7*d.* to 1*s.* 3*d.*; Butter, 6*d.* to 1*s.* 3*d.*; other produce at proportionate prices.

Farm labourers' wages range from 35*l.* to 40*l.* per annum, with board and lodging. I must candidly admit that the rate of wages is high, and the greatest drawback to profitable farming, but to balance this, we have many advantages in this country: for instance no land taxes to pay as yet; fuel costs us little or nothing, and many other things in our favour. Still farming is the pursuit least remunerated in the colony, all owing I affirm to the low, miserable style of cultivation. Were you to witness the operations of us farmers for one year, it would take a good deal of persuasion to convince you of our sanity. Since reading your book I have reduced the extent of my cultivation one-third, worked the land better, and used as much manure as came within my reach; my neighbours allowing me to remove it from their farms gratis, where in some places it had been accumulating for years, they asserting that it was good riddance of bad rubbish.

Unfortunately, since I have somewhat altered my mode of cultivation, guided by your valued book, the seasons have been most unfavourable, thereby preventing me from properly estimating the value of the additional cultivation, &c. The only year that my Wheat arrived at maturity since I followed a somewhat better style, it was cut to the earth by a severe hailstorm. I, however, had cut about 3 acres before the storm, which nevertheless got knocked about in the stooks, but still turned out 23 bushels per acre, and weighed 63 lbs. to the imperial bushel. I calculated that I more than doubled my produce per acre, with comparatively little additional expense. This year my Wheat has again failed, being completely destroyed by the rust. I have, however, 40 bushels of Oats per acre, and I may safely say double the Oaten hay per acre in comparison with my neighbours.

I am sure it cannot fail to gratify you to learn that your "work" has reached this far distant country, and likely in all probability to be of much benefit to us. I saw in the *Sydney Morning Herald* a few days since a return of your last Wheat crop, where you mention having in the one case 58 bushels, and in the others 52 bushels per acre, weighing respectively 66 and 64 lbs. per bushel. This immense produce I pointed out to some of my friends, but they only heaved a deep sigh and said "It can't be accomplished here," but this I cannot help thinking is most ridiculous.

In conclusion, may I ask as a very great favour a brief description of your farm. That is to say, its extent at present, number of acres under each crop, a few of the most prominent improvements that you look upon as indispensable to good farming. *An Australian.*

Societies.

BATH AND WEST OF ENGLAND.

At the last monthly meeting of the Council the Secretary reported that the Local Committee

of the city of Bristol had paid to the Society's Treasurer the whole of the sum of 1000*l.* promised towards the expenses of the meeting in June next.

Bristol Meeting: *Local Prizes.*—A letter was read from Mr. Proctor Baker, honorary secretary to the Bristol Local Committee for receiving the Society in June next, announcing that they had voted the following amounts to be given as special local prizes, subject to such conditions as the Council might see fit to enforce:—

Cattle.—For the best bull, cow, and offspring, the calf not to exceed six months in age, 15*l.*; 2d ditto, 10*l.* For the best bull-calf of any breed, above five months and under twelve months old, 10*l.*; 2d 5*l.* For the best heifer-calf, ditto, 10*l.*; 2d 5*l.* *Shropshire Down Sheep.*—For the best yearling ram, 10*l.*; 2d 5*l.* For the best ram of any other age, 5*l.*; 2d 3*l.* For the best pen of five two-tooth ewes of the same flock, 5*l.*; 2d 3*l.* *Other Classes.*—For the best ten long wool couples in the wool, of the same flock, 10*l.*; 2d 5*l.* For the best ten short-wool couples, ditto, 10*l.*; 2d 5*l.* *Entire Horses.*—The Society of Merchants, at the request of the Committee, have offered 50*l.* for the best cart stallion, not of the Suffolk breed, to cover in the season of 1865, in the district, within twelve miles of Bristol, and to attend in Bristol every alternate Thursday, the fee not to exceed two guineas for each mare.

Mr. R. H. Bush, in allusion to the foregoing offer of 50*l.* by the Society of Merchants, expressed a hope on the part of those giving the prizes, that there would be good competition among the Clydesdale stallions; an animal of that breed being much wanted in the neighbourhood.

Commencement of the Breeding Year.—Mr. Knollys called attention to a letter on this subject by Mr. Duckham, editor of the Hereford Herd Book, and considering as he (Mr. Knollys) did, that unanimity of practice was desirable, wherever it could be agreed upon by different societies, he gave notice that on an early day he should call the attention of the Council to the propriety of considering in what way a uniform system of calculating the age of animals could be adopted by the various societies, so as best to promote the interests of agriculture.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6.	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	March 18	Inch. 29.85	° 33	° 33	S.E.	1	0	° 49	° 30	° 56	° 20	Inches.
Thursday	24	30.02	41	38	E.	0	0	48	25	64	17	.
Friday	25	29.90	39	37	N.E.	2	10	45	36	64	34	.
Saturday	26	29.67	43	40	N.E.	1	10	50	37	65	33	.
Sunday	27	29.61	47	43	E.	0	0	59	35	68	30	.
Monday	28	29.66	42	40	E.	0	10	59	30	64	23	.
Tuesday	29	29.67	43	40	N.E.	1	10	50	37	65	33	.
Wednesday	30	29.90	39	37	N.E.	2	10	45	36	64	34	.
Thursday	31	30.02	41	38	E.	0	0	48	25	64	17	.

Notices to Correspondents.

Mustard: *A D E.* Sow about 1 peck of seed broadcast on any soil in good tilth. If sown in May, it will be fit in six or seven weeks—but it is slower of growth when sown as late as August or September. The sheep are put on in time to finish it before the blossom opens.

Skinless Barley: If our Correspondent "W," (see *Agricultural Gazette*, of Feb. 20, 1864, page 182), has not obtained the naked or skinless Barley, we should be glad to procure for him two or three ears and a few seeds if he will send us his address.



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PRICE 32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanized Wire Strainer, Rose, and Small Jet, Brass Cylinders and Japanned Stirrup. With Copper Stirrup, Two Guineas.

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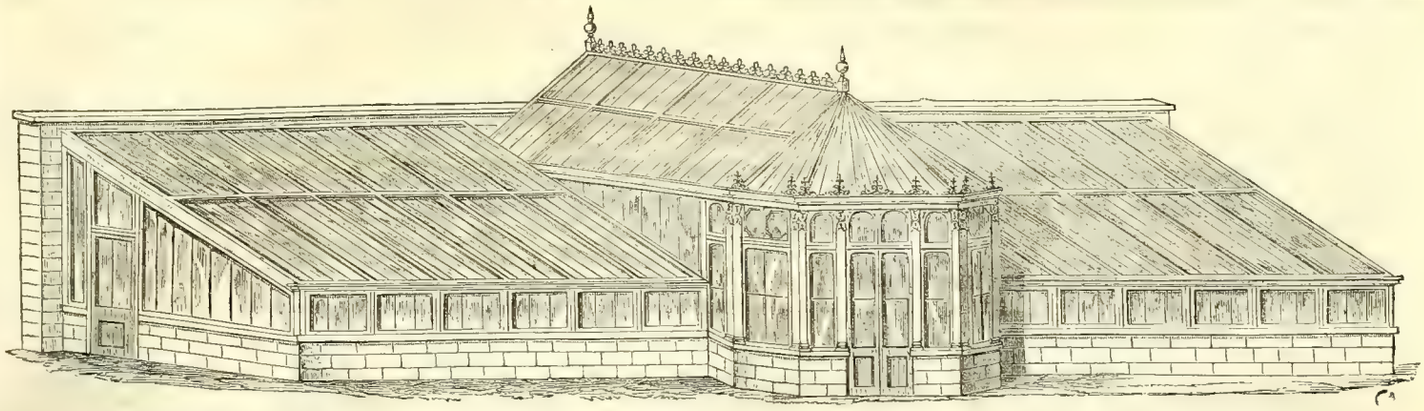
A CARD.

It may not be known to the Public generally, that *interested parties*, unable legitimately to prevent an extensive sale of a new, efficient, and valuable invention, which, by its merited success, has superseded other devices of the kind, have recourse *through their friends* to the now too frequent practice of writing anonymous communications to journals of large circulation, *requesting answers* as to the merits and efficiency of the invention in question. These questions and the answers, previously concocted by the interested parties aforesaid, duly appear; and are so worded as to have the desired effect. Thus are the Public misled and deceived by *malicious* and *envious* inuendos, the tendency of which is to bring into bad repute an article of utility, which has received the unqualified approval of thousands of well-known gentlemen, who, in a spirit of kindness, forward to the inventor gratuitous testimonials, as a token of their appreciation of his invention.

Parties unknown to me, have, from motives best known to themselves, in this manner criticised the efficiency of the "Hydropult." I have no answer to make to them: to the Public I would say that I will cheerfully forward, on application, a prospectus, containing testimonials from gentlemen well known throughout the United Kingdom.

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H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

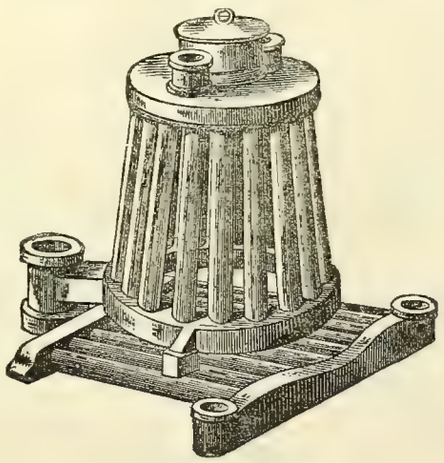
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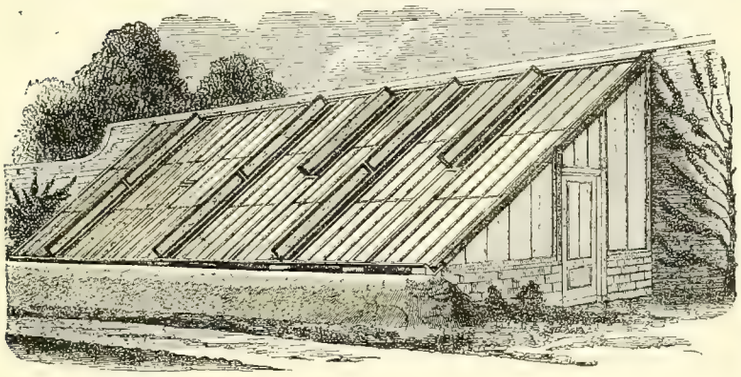
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.



MANUFACTURED for the AGENT, in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY ONLY; in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.





These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick Walls, and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.

When the HOUSES are not required Portable, improved Iron Gutters and Supports are now supplied, rendering the structures most permanent and durable.

TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. HEREMAN." "Yours &c., PORTMAN."

"27, Grosvenor Square, May 14, 1863.

"Sir,—I have much pleasure in reporting to you that I am quite satisfied with the Patent Glass Houses which you furnished in 1861. My gardener at Hackness is of opinion, as far as his experience of them up to this moment goes, that the system of ventilation which you adopt is quite equal, if not superior, to any other system which he has yet tried.

"Mr. S. HEREMAN." "I remain, &c., [Sir] JOHN V. B. JOHNSTONE."

"Woodcote [Newport, Salop], May, 1863.

"Mr. Cotes has much pleasure in stating that he considers the Glass Lights put up by Mr. Hereman to be a great addition to the Woodcote garden, and shall be always ready to testify as to their efficiency."

"Mr. S. HEREMAN, 7, Pall Mall East."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. HEREMAN." "Yours &c., ALFRED ELLIS."

"Johnson Hall, near Eccleshall, Staffordshire. May 11, 1863.

"Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes at an angle of about 50°, the lower or front wall being 3 feet high. Nothing can be more simple than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. HEREMAN." "Yours, &c., EDWARD LYON."

"Shalimar, Acton, N., May 11, 1863.

"Sir,—In reply to your letter of the 9th inst., I am happy to say that I was so very well satisfied with the Lean-to Houses erected by you in my garden three years since, that I had another put up last November.

"Mr. S. HEREMAN." "I remain &c., SAMUEL RICKARDS."

"Wath-upon-Dearne, near Rotherham, May 12, 1863.

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-falling source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market gardeners do not adopt them more generally.

"Mr. SAMUEL HEREMAN." "I remain, &c., G. P. NICHOLSON."

"Norfolk Villa, Eastbourne, May 12, 1863.

"Mrs. Baugh has much pleasure in informing Mr. Hereman that her Orchard House is perfect in every way, and answers admirably for the culture of fruit trees in pots. Mr. Hereman is at liberty to make whatever use he wishes of these few lines, as Mrs. Baugh thinks it a pity these houses should not be more general in this growing place."

"Inverary [Castle] Gardens, May 21, 1863.

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Glass Houses which you erected here for covering in Peach and Fig trees. Although our wall is 17 feet high, the fruit sets regularly over the whole surface, and, with the command of ventilation these houses have, fruit can be forwarded or retarded at pleasure.

"I remain, &c., JOHN CAIE [Gardener to His Grace the Duke of Argyll."]

"Mr. S. HEREMAN."

"The Grove, Stanmore, May 12, 1863.

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers every expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your method of construction so amply secures.

"Mr. S. HEREMAN." "I remain, &c, W. LEWIS" [Gardener to Joseph Gillott, Esq.]

"Nothing can be more easy than to build them—nothing more simple than to remove them."—*Daily News*, May 22, 1862.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit, can be obtained as these 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., can be had on application to

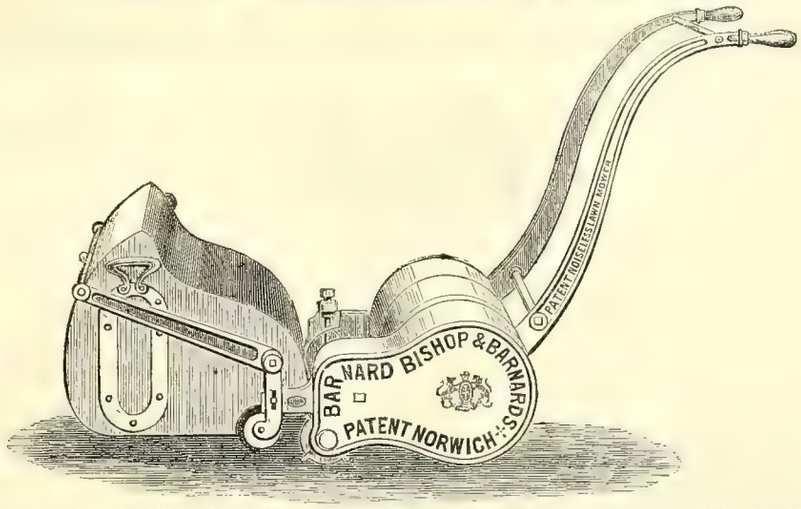
SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Cottage Gardener*, October 6, 1863.

BARNARD, BISHOP, & BARNARDS'

PATENT NOISELESS LAWN MOWER.



THIS MACHINE differs from all other LAWN MOWERS, in being constructed without either Gear-Wheels, Chains, or Levers, the Power being transmitted to the Cutters by a loose Intermediate Wheel, with an India-rubber Tyre which is placed between a Plain Faced Driving Wheel, and Pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the Intermediate Wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber Tyre will last from one to two seasons, and can be replaced at the cost of a few pence. An extra Tyre is sent with each Machine.

The Iron Work of Grass-Box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

THE MINIATURE LAWN MOWER, Cuts 8 inches **£2 10 0**
Suitable for the very Smallest Grass Plots or Edgings; can be Worked with Ease by a Child.

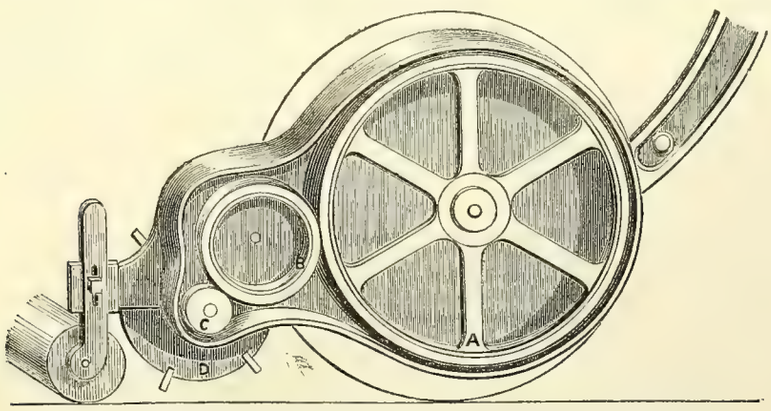
To Cut 10 inches. This can be Worked by a Lady **3 5 0**

To Cut 12 inches. Suitable for One Person **4 10 0**
The 12 inch and all larger sizes have the Drum or Roller divided in two parts, for the convenience of turning.

To Cut 14 inches. Suitable for One Person **5 0 0**

Packed, and Delivered Carriage Free to the principal Railway Stations in England.

GUARANTEED TO GIVE SATISFACTION, AND IF NOT APPROVED, CAN BE RETURNED.



THE ABOVE ENGRAVING SHOWS THE ARRANGEMENT OF WHEELS.

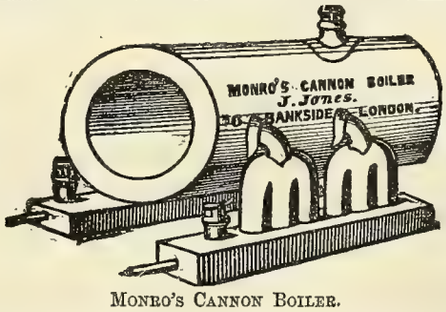
A, Plain-faced Driving Wheel. **B,** Intermediate Wheel, with India-rubber Tyre. **C,** Pinion. **D,** Cutters.

To insure an early delivery of these useful Machines, all Orders should be sent at once to

J. JONES, 6, BANKSIDE, SOUTHWARK, LONDON, S.E.

J. JONES'S HOT-WATER APPARATUS.

	PRICE.
20-inch Wrought Iron	£3 15 0
24-inch „	6 10 0
30-inch „	7 10 0
36-inch „	8 10 0
48-inch „	12 0 0
60-inch „	20 0 0
72-inch „	25 0 0



MONRO'S CANNON BOILER.

These Boilers are now acknowledged by all who have used them to be the best Boilers at present invented. They are both economical in their first cost, and also in the consumption of fuel. They require but little space to fix them in, and when set the total height of brickwork need not be more than 3½ feet, consequently they can be fixed in many places where it would be impossible to set an Upright Boiler. These Boilers are now made of various sizes, suitable to heat from 500 feet to 3000 feet of 4-inch pipe, and are kept in stock and sold only by J. JONES, 6, Bankside, Southwark, London, S.E.

Prices for HOT-WATER PIPES, ELBOWS, TEES, SYPHON, VALVES, TROUGH PIPES, ORNAMENTAL COIL CASES, BECK'S PATENT VALVES, &c.; or ESTIMATES for HOT-WATER APPARATUS, delivered Free to any Railway Station, or erected complete in any part of the country, with CANNON, SADDLE, or CYLINDER BOILERS, will be sent, with an ILLUSTRATED CATALOGUE, free on application.

J. JONES,
HOT-WATER APPARATUS MANUFACTORY, 6, BANKSIDE, LONDON, S.E.

GREEN'S PATENT SILENS MESSOR,

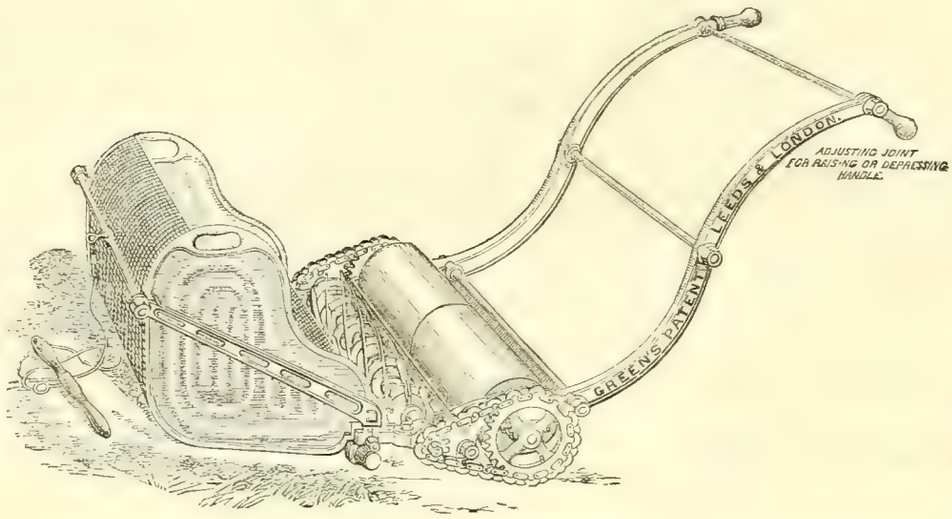
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches	...	...	...	£27	0	0	...	...	... Leather Boots for Horse, 26*s*.
„ 48 „	...	...	...	30	0	0	...	...	... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

WOOD STICKS and TALLIES, Commended by the Royal Horticultural Society, can now be had of all sizes, Wholesale, of
BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C., and Retail of any Seedsman in London or the Provinces.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.


Red Spider Magnified.

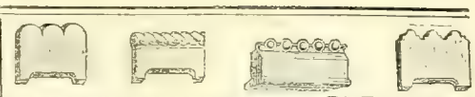
GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

TO BE SOLD CHEAP, a large quantity of SHELLS, suitable for Grottoes.
Apply at 12 and 13, Minories.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE; admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price, (varying from 6d. to 1s. 6d. per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop; London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From The Hon. EDWARD SWINFEN JERVIS, *Little Aston Hall, Staffordshire.*
"Gentlemen,—I have much pleasure in adding my testimony to the cheapness and efficiency of your Black Varnish as a substitute for paint for all out-door purposes on wood or iron. I can also speak to the excellence of your Heating Barrows, as affording a cheap and expeditious mode of covering existing lines of fencing.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C. from whom only it can be obtained.


GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expence, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality) of F. & G. ROSHER, at the Addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1s. 4d. per lb.; over 10 lb., 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.

WANTED, a COTTAGE to RENT, with option of Purchase, in a good situation, not where building is going on, with some Garden-ground attached to it, either made or to make, and a small Paddock or Poultry-yard. There must be some trees, and it must be near a Station for Victoria or Paddington.
Miss MALING, 16, Brompton Crescent, S.W.

TO BE LET, with immediate possession, a capital ARABLE and PASTURE FARM of 270 ACRES, in a high state of Cultivation, situate in Middlesex, 13 miles from London, close to the Railway Station, with a gentlemanly DWELLING HOUSE, and fit for the occupation of a London gentleman.—Apply to Mr. HUMBERT, Land Agent and Engineering Surveyor, Watford, Herts.

PHOSPHO GUANO.



Company's Trade Mark.



Contractors' Trade Mark.

THE PHOSPHO GUANO, in its natural state, is found on trap-rock islets within the tropics. It was discovered in 1854; and its existence was made known in August, 1856, by Dr. VOELCKER, who read a paper at the Cheltenham meeting of the British Association for the Advancement of Science, "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly concentrated phosphatic manure.

Its valuable and peculiar qualities immediately attracted the attention of the leading Agricultural Chemists, who pronounced it at once to be greatly superior to all other Guanos as a manurial agent. The result of careful experiments in the field having fully established this superiority, the consumption has increased year by year; and at the close of the seventh season, 1863, it has attained a position second only in consumption to that of Peruvian Guano.

The Baron LIEBIG, in the course of his investigations, discovered potash in the raw Guano, a discovery since confirmed by Dr. VOELCKER and other Chemists. To the presence of this substance (which is not found in any mineral phosphate) is attributable, in some degree, the great superiority of the PHOSPHO GUANO when compared with other phosphatic manures made from coprolites, apatite, Sombrero Guano, &c.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared; and LIEBIG states that by using PHOSPHO GUANO, the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other manure; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

All Chemists of standing have ceased to place a money value on manures submitted by them to analysis, as tending to lead to erroneous conclusions, owing to the disingenuous manner in which such values are paraded before the public eye by dealers; but for the information of those farmers who still have faith in this test, the money value of the PHOSPHO GUANO, calculated by the data hitherto in use, is, according to the mean average of Dr. VOELCKER's analyses, 13*l.* 18*s.* 2*d.* per ton; and of Baron LIEBIG's analyses, 14*l.* 18*s.* 4*d.* per ton.

Peruvian Guano and PHOSPHO GUANO are respectively the representatives, in the highest degree, of the two most important manurial substances, ammonia and phosphoric acid. In Peruvian Guano there is 13.61 per cent. of nitrogen, yielding 7.0 of actual ammonia and 10.0 latent—and the latent, in the opinion of Dr. VOELCKER, is as available or nearly so as the actual ammonia—together with 3.0 per cent. phosphoric acid in soluble state. In PHOSPHO GUANO there are 18.027 per cent. of phosphoric acid in soluble state, and 3.50 per cent. actual ammonia.

As Peruvian Guano is acknowledged to be a cheap source of ammonia, so likewise PHOSPHO GUANO must be considered as a cheap source of phosphoric acid—much to be preferred to bones, superphosphates, coprolites, apatite, Sombrero and other inferior Guanos; while the proportion of 3.50 per cent. of actual ammonia constitutes it the best-balanced manure in the market.

If the results of practical experience were required to recommend the PHOSPHO GUANO, testimonials from many of the most eminent Agriculturists in the kingdom could be adduced; but the reader of this advertisement is particularly referred to the most recent of these, published in the last number of the *Quarterly Journal of Agriculture* (Jan. 1864), by Mr. HENRY STEPHENS, author of the "Book of the Farm," detailing the experiments made by the MARQUIS OF TWEEDDALE, with their successful results.

Pamphlets, containing a full description of the PHOSPHO GUANO, its History, Nature, Properties, &c., may be obtained on application.

PRICES AND TERMS.

The Cash Prices, including the cost of bags, Carriage Free at any railway station or shipping port in the kingdom, are as follows:—

For 10 tons and upwards, £11 10s. per ton. | For smaller quantities, £11 15s. per ton.

For full cargoes, direct to any port, special rates will be quoted.

CREDIT RATES.—Should the Consumer require credit, the price is increased at the rate of 2*s.* per ton per month.

To prevent fraud, all casks and bags are branded with the PHOSPHO GUANO COMPANY'S Trade Mark, as well as that of the Contractors, copies of which appear at the head of this advertisement.

There are Authorized Agents appointed for the sale of PHOSPHO GUANO in all the principal towns and villages in the United Kingdom; but where any difficulty exists in procuring supplies, orders may be sent direct to

PETER LAWSON & SON,
GEORGE IV. BRIDGE, EDINBURGH; or, 28, KING ST., CHEAPSIDE, LONDON, E.C.

PETER LAWSON AND SON, *Contractors.*
WILLIAM DIXON AND CO., *General Agents.*
GEORGE SEAGRAVE AND CO., *Brokers.*

Sales by Auction.

Great Sale of Standard and Dwarf Roses, 300 Liliums, Picotees, Carnations, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart on FRIDAY, April 1, at 12 o'Clock, a splendid assortment of about 1000 handsome STANDARD, HALF-STANDARD, and DWARF ROSES; first-class Carnations, Picotees, and Pinks; selected Fruit Trees; a choice assortment of American Plants, 300 Lilium lancifolium rubrum and album from Belgium; fine Double Camellias, Azalea indica, Ericas, Epacris, and other plants in bloom, with choice Verbenas, Fuchsias, Dahlias in dry roots, &c.
On view the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nurseries, Leytonstone, N.E.

Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 2, a consignment of SEEDS from the Cape, also a quantity of seed of PICEA PINSAPO, LILIUM GIGANTEUM, L. CORDIFOLIUM, ABIES FRASERI, PINUS STROBUS, &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 2, at half-past 12 o'Clock precisely, a splendid assortment of PLANTS, consisting of Azaleas, Genistas, Ribes, Syringas, Spiræas, Berberis, Euonymus, Loniceras, Deutzias, Liriodendrons, Junipers, Yews, Acers, Standard and Trained Fruit Trees, Rhododendrons, Cryptomerias, Taxodiums, Robinias, Forsythias, Ptelias, Colletias, Jasminums, Ilex, Clematis, Laurels, Roses, Vines, Aucubas, &c., from a celebrated Nurseryman in Holland.
On view the Morning of Sale and Catalogues had.

Standard, Dwarf, and Climbing Roses, Carnations, Picotees, Pinks, Dahlias, and a variety of other Plants.

MR. J. WILLMER will SELL by AUCTION as above, at the Auction Mart, Bartholomew Lane, E.C., on THURSDAY, March 31, at 12 o'Clock.
Catalogues at the Mart; and of the Auctioneer, Springfield Nursery, Sunbury.

Chatteris, Isle of Ely.

IMPORTANT AGRICULTURAL SALE.

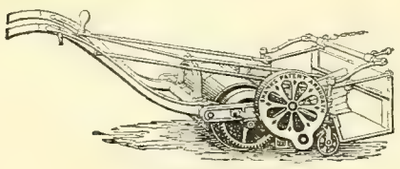
MESSRS. NEWTON AND BROOKS will SELL by AUCTION (in consequence of the Farm being Let), on THURSDAY, March 31, on the Premises, the property of Thomas Richardson, Esq., at Chatteris, in the Isle of Ely, and County of Cambridge, 233 LONG-WOOLLED SHEEP; 40 superior CART and NAG HORSES, worthy the attention of Dealers; 36 very good SHORT-HORNED BEASTS; a general assortment of first-class Agricultural Implements; a Set of Steam-Cultivating Apparatus, all complete, with 1600 yards of the best Steel Rope; a Four-furrow Steam Plough, fitted with bodies for Deep Ploughing, by Howard; a 10-Horse Double Cylinder Engine, by Clayton & Shuttleworth, the whole of the Apparatus new last year.
Catalogues are preparin , and will be posted on application to the AUCTIONEERS, Chatteris

SALE by AUCTION, on APRIL 27, 28, and 29 (under the direction of Mr. AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium), of the rich and splendid Collection of AGAVE, YUCCA, BONAPARTEA, &c., the property of E. Vandervinnen, Esq., Brussels, Belgium.
Catalogues may be obtained free of Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.
Orders may be sent to Mr. A. VERSCHAFFELT.

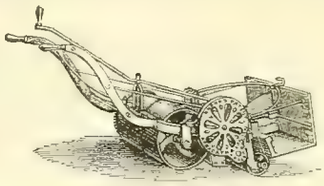
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

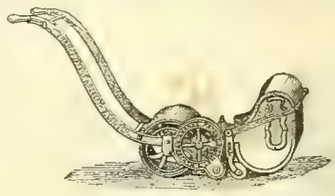
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS & SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.				
10-inch Machine	...	...	... £3 10 0	*Easily Worked by a Lady.*
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14-inch Machine	...	...	... 5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

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22-inch Machine	...	...	... 8 7 6	*Easily Worked by Two Men.*
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Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.				If with Patent Delivering Apparatus.
25-inch Machine	...	...	... £12 10 0	... ... 25*s.* extra.
28-inch Machine	...	...	... 14 10 0	... ... 30*s.* „
30-inch Machine	...	...	... 15 15 0	... ... 30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.				If with Patent Delivering Apparatus.
30-inch Machine	...	...	... £19 0 0	... ... 30*s.* extra.
36-inch Machine	...	...	... 22 0 0	... ... 30*s.* „
42-inch Machine	...	...	... 26 0 0	... ... 40*s.* „
48-inch Machine	...	...	... 28 0 0	... ... 40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
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The Right Hon. the Earl of Aberdeen
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The Right Hon. the Earl of Cawdor
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The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
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The Right Hon. the Earl of Selkirk
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The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
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The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
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The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
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Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

CIRCULARS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1864.] SATURDAY, APRIL 2. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY.
NOTICE TO FELLOWS.
A LECTURE on the HYACINTH, illustrated by Drawings, Plants, &c., will be given by Mr. W. PAUL, on TUESDAY NEXT, April 5, in the Council Room, at South Kensington, W. To commence at 3 o'clock.
A Meeting for the ELECTION of FELLOWS will also be held.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.
The Second EXHIBITION of SPRING FLOWERS will take place on SATURDAY NEXT, April 9. Tickets to be obtained at the Gardens, on the orders of Fellows of Society, price 2s. 6d. each. Band will play from half-past 2 to half-past 5.
GENERAL EXHIBITIONS, SATURDAYS, May 21, June 11, and July 2.
AMERICAN PLANTS, MONDAY, June 6 and 20.

ALEXANDRA PARK COMPANY, LIMITED.—A GRAND FLOWER and FRUIT SHOW will be held at the Alexandra Park on the 22d and 23d days of JUNE next. Total amount of PRIZES, 700l.
Schedules and all particulars may be had at the Company's Offices; and of Mr. MCKENZIE, the Superintendent Gardener, at the Park. By order, F. K. PARKINSON, Secretary.
12, Tokenhouse Yard, London, E.C.

STAMFORD HORTICULTURAL SOCIETY.—The ROSE SHOW and Summer Exhibition of this Society will take place on TUESDAY, July 5.
Schedules of Prizes, with Rules, will shortly be ready, and may be obtained of
Messrs. LAXTON & HEWITT, Hon. Secs, Stamford.

GLADIOLI.
See BARR & SUGDEN'S large Advertisement, page 312.

HARDY and HALF HARDY ANNUALS.
See BARR & SUGDEN'S large Advertisement, page 312.

STRONG CANNA ROOTS.
See BARR & SUGDEN'S large Advertisement, page 312.

WOODLAND WALKS or WILDERNESS DECORATION.
See BARR & SUGDEN'S large Advertisement, page 312.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED,
has AMALGAMATED with the
PLYMOUTH SEED COMPANY, LIMITED.
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SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON AND SONS,
SEED MERCHANTS and NURSERYMEN,
SEED, ROSE, and FRUIT CATALOGUES, gratis.
57, Queen Street, Hull.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS,
NURSERYMAN and SEEDSMAN,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Good Seeds, Carriage Free.
WM. PAUL (Son and Successor to the late A. PAUL),
Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
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Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Genuine Agricultural and Farm Seeds
JAMES VEITCH,
ROYAL EXOTIC NURSERY,
King's Road, Chelsea, London, S.W.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Vine Black Hamburgh.
ROBERT PARKER begs to announce that he can supply well ripened FRUITING CANES from Eyes of the above, at 5s. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

Grape Vines from Eyes.
S. GLENDINNING AND SONS (Successors to the late R. GLENDINNING), have still some good CANES of the best varieties, both for Fruiting in pots and for Planting out. PRICED LIST on application,
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B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
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FRANCIS AND ARTHUR DICKSON AND SONS, "Upton" Nurseries, Chester, can still supply fine strong short-jointed well-ripened Canes of BLACK HAMBURGH VINES, and a few of other kinds, such as TOKAYS, MUSCATS, &c., at 5s. to 7s. 6d. each.

LANE AND SON, Great Berkhamsted, have still for SALE, strong short jointed VINES, with well ripened wood, from 3s. 6d. to 5s. each.

Grape Vines.
TO BE SOLD CHEAP, a large quantity of fine VINES for planting out.
Apply to R. HUTCHIN, at the Horticultural Works, Stamford Hill, N.

Melon Seeds.
MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6d.
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MARY NICHOLSON, Egglescliffe, begs to inform her friends that she still supplies STRAWBERRY PLANTS, but as her supply is limited, to prevent disappointment early application will be necessary.

STRAWBERRY PLANTS.—The Early Black Prince, Early Princess Royal, Highland Mary, Richard II., Prince of Wales, and Newton Seedling, 3s. per 100. Selected, 7s. 6d. Best Cucumber and Melon Seeds, 1s. per packet. Mushroom Spawn, 5s. per bushel.
JAMES CUTHILL, Camberwell, London, S.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses. RICHARD SMITH, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

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RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

THE ORCHARD HOUSE.—25 strong Trees of PEACHES, NECTARINES, APRICOTS, PLUMS, and CHERRIES, 2-years established, in large pots, full of fruit buds. Have never been forced. For Price, &c., apply
CHARLES SOUTHBY, Nurseryman, Clapham, S.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application.
The Royal Nurseries, Slough.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5s. 6d. p. oz.
JAMES WOODS, Florist, Harwich, Essex.

Paradise Stocks.
WANTED, by the Subscribers, Strong Plants for present working.
EDWARD SANG & SONS, Nurserymen, Kirkcaldy.

Verbenas, Verbenas.
S. PERKINS AND SONS have now ready Strong Plants of all the leading Varieties.
List of Sorts and Price per dozen or hundred post free on application to the Park Nursery, Coventry.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1864, forwarded free on application.
Seed of CLIANTHUS DAMPIERI, in 1s. and 2s. 6d. packets.
Seed of CLIANTHUS DAMPIERI SPLENDENS, 2s. 6d., and three seeds for 5s.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Two-Years Seedling Larch.
ONE-YEAR TRANSPLANTED LARCH.
Very hardy plants, the produce of Scotch Seed.
RHODODENDRON PONTICUM, from 4 to 18 inches.
Trade prices on application to HOWDEN BROTHERS, Inverness.

SPRUCE FIRS for HEDGES and BEDDING. From 400 to 500,000, 9 to 12 inches in height, at 5s. per 1000, in quantities not less than 10,000. Carriage paid to London.
Apply to Mr. WM. CLARKE, Seedsman, 25, Bishopsgate Street, London, E.C., where a sample may be seen.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Roses.
EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

ALL the NEW ROSES for 1864 Now Ready to send out, in Extra Strong Plants.
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

NOW READY, the NEW ROSES of 1864. 12 of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
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New Roses for 1864.
H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per dozen.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL'S Nurseries, Waltham Cross, N.

The New Roses for 1864.
SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Roses of 1864, &c.
F. AND A. SMITH'S FIRST SPRING LIST of the above and other New Plants may now be had free on application.
FUCHSIA PILLAR of GOLD, very strong plants, 7s.; second size, 5s.; small plants, 3s. 6d. each.
Dulwich, Surrey, S.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application.
Fra[illegible]on Park Nursery, Hackney.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 28s. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

RICHARD SMITH'S RENOVATING GRASS SEED should Now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
RICHARD SMITH, Seed Merchant, Worcester.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

KING of the POTATO, from the Original Stock.—Price per Cwt. or Ton on application to
JAMES DICKSON & SONS, Seed Merchants, 102, Eastgate Street, Chester.

Seed Potatoes.
H. AND F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties, which they can offer to the Trade at low prices.
Seed Growing Establishment, Wisbech.

2-Year Asparagus Wanted.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, are in want of the above. Any one having the same to offer to write, stating quantity and price,
JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

Asparagus.
YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—
1-year GIANT ASPARAGUS, 1s. 9d. per 100.
2-year GIANT ASPARAGUS, 2s. 6d. per 100.
Royal Nurseries, Great Yarmouth.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1864.
Strong Transplanted SEAKALE, 2s. per doz.
RICHARD SMITH, Nurseryman, Worcester.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses, Hyacinths, and Camellias.

WM. PAUL respectfully invites attention to his Collections of FORCED ROSES and HYACINTHS, on view during the month of MARCH, the 19th and 30th excepted. Equal FIRST PRIZES for 18 HYACINTHS and a collection of TULIPS, and seven other Prizes were awarded to collections at the Royal Horticultural Society's Exhibition of the 9th inst.

Visitors by Railway can enter the Nurseries from the platform, Waltham Station (Great Eastern Railway), half an hour's ride from London. Admittance free.

Paul's Nurseries, Waltham Cross, N.

LANE AND SON, Great Berkhamsted, can supply the New Varieties of ROSES for the season of 1864, at 36s. per dozen. Also of the popular older sorts as follows:—

STANDARDS, HARDY PERPETUALS, TEAS, NOISETTES, at 18s. to 24s. per dozen.

DWARF STANDARDS, ditto, at 9s. to 18s. per dozen.

DWARFS of the SUMMER ROSES, 3s. to 6s. per dozen.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.

Seed, saved only from finest varieties, new and very choice, 2s. 6d. or 5s. per packet; Collections of 12 separate named varieties, 4s. to 10s.; young Seedling plants, from best varieties, 30s. per 100, or 4s. per dozen; Bloomed Seedlings of last year, with colours named, 6s. per dozen, or 30s. per 100.

Address, W. CHATER, Nurseries, Saffron Walden.

PRESENT PRICES of CLOVER SEEDS.
CHEAPER BY THE CWT.

RED, or BROAD, best, 7d. per lb. Do. 2d quality cheaper.
WHITE or DUTCH, best, 9d. per lb. Do. 2d quality cheaper.
COW GRASS, 9d. per lb.
ALSIKE, best, 10d. per lb. Do. 2d quality cheaper.
YELLOW TREFOIL, best, 4½d. per lb. Do. 2d quality cheaper.
FINE MIXED CLOVERS, 9d. per lb.

Samples and lowest prices per Cwt. may be had on application.

PRICED LISTS of FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LAND.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lbs. per Acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year.

SUTTON & SONS have now the satisfaction of offering very fine new Seed at the greatly reduced price of 10d. per lb., or cheaper by the cwt., and strongly recommend this Clover to more general cultivation.

Royal Berkshire Seed Establishment, Reading.

ROSES.

PAUL & SON,

As the season for the removal of ROSES is drawing to a close, beg to call the attention of purchasers, unable previously to complete their arrangements, to their large stock of Plants fit for planting during April and May,

DWARF ROSES in Pots, from 9s. to 30s. per doz.
NEW ROSES of 1864, 3s. 6d. to 5s. each.

TWENTY-SIX FIRST PRIZES during 1863; EXTRA PRIZE, POT ROSES, Royal Horticultural Society, March 9, 1864; SILVER MEDAL, POT ROSES, and EXTRA PRIZE, CUT ROSES, Royal Botanic Society, March 20, 1864; were awarded to their Collections.

A continued EXHIBITION of FORCED ROSES will be held at their Establishment until the end of May.

"OLD" CHESHUNT NURSERIES, N.

One Mile from the Cheshunt Station, Great Eastern Railway.

GENUINE SEEDS.—CARRIAGE PAID.

(FLOWER SEEDS IN PACKETS POST FREE.)

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

OFFERS

COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS,

10s. 6d., 21s., 42s., and 63s. each.

CHOICE FLOWER SEEDS.

	Per packet—s. d.		Per packet—s. d.
PRIMULA, very fine, red, white, or mixed	2s. and 3 6	PANSY, from named flowers	1 0
CALCEOLARIA, very choice	1s. 6d. and 2 6	STOCK, SCARLET INTERMEDIATE, the true Covent Garden variety	0 6
CINERARIA, from named flowers	1s. 6d. and 2 6	ASTER, Chrysanthemum-flowered	0 6
CLIANTHUS DAMPIERI, English saved	2 6	,, Truffaut's Pæony-flowered Perfection	0 6
BALSAM, Camellia-flowered, very fine	1 0	,, Double Quilled German	0 6
CORDYLINE INDIVISA	2 6	SWEET WILLIAM	0 6
SENECIO ELEGANS FLORE PLENO	1 0	CACTUS, fine varieties	1 0
CARNATION and PICOTEE	1 0	MIMULUS MACULOSUS	1 6
ACHIMENES, very choice	1 0	HOLLYHOCK, from named flowers	0 6

GERMAN AND OTHER FLOWER SEEDS IN COLLECTIONS.

See *Gardeners' Chronicle*, February 20, page 170.

WILLIAMS'S MATCHLESS RED CELERY, 1s. 6d. per packet.

THE ONLY PRIZE MEDAL AWARDED for SEEDS, INTERNATIONAL EXHIBITION 1862.

CARTER'S PERMANENT GRASS SEEDS.

We recommend a proportionate Mixture of the undermentioned according to soil, averaging about 2 bushels light seed and 12 lb. heavy seed (Clovers) to the acre.

Price, per acre, 24s. to 30s.

COCKSFOOT HARD FESCUE FESTUCA ELATIOR	FESTUCA PRATENSIS ,, RUBRA ,, OVINA	MEADOW FOXTAIL TALL OAT GRASS POA NEMORALIS	POA PRATENSIS ,, TRIVIALIS SWEET VERNAL	ITALIAN RYE-GRASS PERENNIAL RYE-GRASS TREFOIL	WHITE CLOVER COW GRASS

SUNDRY MIXED GRASS SEEDS.

Grass Seed for Park Lawns, 1s. per lb.; 16s. per bushel
Grass Seed for Renovating Old Grass Lands, 10s. per bushel
Grass Seed for Chalky Uplands and Sheep Walks, 12s. per bushel.
Grass Seed for Wet Lands, 10s. per bushel.
Mixed Clovers for Permanent Pasture, 1s. per lb.

GRASS SEED FOR FINE LAWNS.

This is really a splendid Mixture, containing proportionate quantities of the following:—

CRESTED DOG'S-TAIL HARD FESCUE SHEEP'S FESCUE	MEADOW FESCUE FESTUCA TENUIFOLIA POA NEMORALIS	POA PRATENSIS WHITE CLOVER SUCKLING

Price, per bushel, 18s.; per lb., 1s.

Report of Seeds supplied by us to the Crystal Palace Company, from Mr. J. A. GORDON, *Garden Superintendent.*

"January 6, 1864.

"GENTLEMEN,—The Grass Seeds and Clovers supplied by you to the Crystal Palace Company in the spring of 1863 have proved of excellent growth, are perfectly free from weeds and coarse Grasses, and have already formed a fine sward. The Grass Seed you supplied the Company with in 1862 is now as solid as turf. I was very much pleased with the Flower seeds; the French and African Marigolds, Dunnett's Crimson Candytuft, the Indian Pinks, and Larkspurs, were particularly fine.—I am, Gentlemen, your obedient Servant,

"Messrs. JAMES CARTER & Co. "J. A. GORDON, Garden Superintendent at the Crystal Palace."

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN.

OFFICES and SEED WAREHOUSES, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, ESSEX, and the SEED FARM, ST. OSYTH, ESSEX.

NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

SUTTON'S PRICED LIST

OF

MANGEL WURZEL SEED.

CHEAPER BY THE CWT.

	Per lb.—s.	d.
SUTTON'S LARGE YELLOW GLOBE; saved from large roots, selected for their solidity and excellence of shape. A very heavy cropper, and thrives in all soils. This is also the hardiest Mangel known. (*The first Prize Medal was awarded to us for this sort at the Great International Exhibition of Roots and Cereals in October*, 1862)	0	6
SUTTON'S ORANGE GLOBE; beautiful shape, with smaller greens than other sorts	0	6
RED GLOBE; similar to the above, except in colour	0	6
LONG RED; a good old sort	0	6
LONG YELLOW	0	6

IMPROVED SORTS OF MANGEL WURZEL.

NEW YELLOW INTERMEDIATE; very fine shape, free from roots	1	6
NEW RED INTERMEDIATE; similar in shape	1	0

The above two sorts are great favourites with those who have grown them. We are anxious that our customers should try them in limited quantities this season. Next year we hope to have plenty of Seed to offer at a moderate price.

SELECTED LONG YELLOW; this is a heavy cropper, and of fine texture. (*A special Prize Medal was awarded to us for this at the International Root Show*)	0	8
SUTTON'S ELVETHAM LONG RED; of superior feeding quality, large	0	8
PEARSON'S TANKARD; a fine new Olive-shaped Yellow	1	6
FISHER HOBBS' ORANGE GLOBE; a fine sort, already very popular	0	9
ENGLEFIELD YELLOW GLOBE; a fine variety, raised originally on the estate of R. Benyon, Esq., M.P.	0	9
STRATTON'S RED GLOBE; a superior variety selected by Mr. Stratton.		

Price per Cwt. on application.

Sutton's Mangel Wurzel Seed is Saved Exclusively from Fully Developed Roots,

The advantages of which have been proved for several years past,

(SEE THE FOLLOWING LETTERS.)

These are not mere Testimonials in the ordinary acceptation of that term, but show distinctly that the Seeds which Messrs. SUTTON have had grown from large selected Bulbs are altogether superior in germinating properties, and in the quality and trueness of their produce, to the Seed raised in the usual manner.

P. H. Frere, Esq., *Cambridge, Editor of the Royal Agricultural Society's Journal.*

"I write to say how well satisfied I am with the Mangel seed that you furnished me with in the late trying season. It was tried on one-half of two fields, the one strong, the other light land, the other portions being sown with seed bought of a respectable local dealer. On the strong land your seed gave me a decidedly better plant—on the light land three or four times as many plants as the other dealer's seed."

From Mr. Gray, *Bailiff to* G. Rawlins, Esq., *Bullington House.*

"I believe we had one of the finest lots of Mangels and Swedes in the country. We had not quite enough of your seed of Mangel, and *sent elsewhere for some to finish the field, and though sown the same day and with exactly similar treatment, we had not so much weight by one third as on the part sown with your seed.*

Mr. Wm. Jones, *Bailiff to* Colonel Bowyer, *Beech Tree Farm, Steeple Aston.*

"All the seeds you sent last year were excellent. The Mangels and Champion Swede produced splendid crops, and are now as fresh and sound out of pits as when pitted."

Mr. John Tyacke, *Merthen.*

"Some of my friends are so pleased with the Mangels I grew from your seed last season, that they requested me to get some of the same sort for them."

From the Right Hon. Lord Berwick, *Cronkhill.*

"Let me have the same Globe Mangel as last year, which has given me the best crop I ever grew; good both as to bulk of crop, and also in the fineness of roots and freedom from fangs and irregular growth; when pulled, the roots were nearly as clean and free from fibre as a Globe Turnip, and I had 50 loads per acre and more."

From George Beaumont, Esq., *Bridgeford Hill, near Nottingham.*

"We have had 4 acres of Mangel (Yellow Globe), three of which were sown with your seed, and one acre with seed grown in this neighbourhood. I am quite sure your seed produced from 8 to 10 tons per acre more than the other. I had nearly an acre weighed (from your seed), and found we had 55½ tons per acre.

Mr. Wm. Bide, *Yeovil.*

"Last season I bought of you the Englefield Mangel, and won by the crop the First Prize given by the Yeovil Agricultural Society. My crop weighed some 52 tons per acre, the next to mine being about 40 tons per acre."

The Rev. B. G. Goodrich, *Hardmead Rectory.*

"I am glad to say that my Mangel and Champion Swede, purchased from you, look better than any I have seen this year."

Many PRIZES at Birmingham and other Shows throughout the Kingdom have been taken by Messrs. SUTTON'S Customers, both for MANGEL and for SWEDES.

PRICED LISTS of other kinds of MANGEL, SWEDES, TURNIPS, GRASSES, &c., will be sent gratis and post free.

☞ *Carriage Free to all parts, except small parcels.*

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

SEEDS FOR PERMANENT PASTURE.

A liberal supply of Seeds, consisting of from 12 to 14 varieties of Clover and Grasses, assorted to suit the various soils, the quantities and kinds of which are given in detail, may be had at a cost not exceeding 23*s.* to 25*s.* per acre from

W. DRUMMOND & SONS, SEEDSMEN,

STIRLING,

Whose experience in Laying Down Land to Permanent Pasture has extended over many years, during which they have supplied their Assortments to numbers of the leading Proprietors and Farmers throughout the kingdom. The quality of their Seeds is well known, and they respectfully assure intending purchasers that this year they are UNUSUALLY GOOD, and so moderate in price that the above cost will secure the best article that can be grown.

PRICED CATALOGUES of every description of Farm Seeds may be had Post Free on application.

SEED WAREHOUSE, STIRLING.

*** Stirling is most favourably placed in point of Railway accommodation, there being direct and constant traffic to all the principal Stations in Scotland and England, and by Steamers (*viâ* Glasgow), almost daily to the chief ports in Ireland, thereby ensuring a speedy delivery of Goods, all of which (with certain limitations) are forwarded CARRIAGE PAID.

New Azaleas (indica).

Queen of Beauties.

MR. WILLIAM BULL begs to announce that he has purchased from M. Ambroise Verschaffelt the sole right of supplying this exquisite variety in the United Kingdom.

Description.—Salmon pink margined with white and flaked with carmine, densely and very richly spotted with crimson; flowers large, of good shape and substance; one of the best Azaleas ever offered. Price 21*s.*

SOUVENIR DU PRINCE ALBERT.—A most distinct and beautiful double-flowered variety, colour a warm peach-rose margined with pure white; a great novelty. 21*s.*

WILLIAM BULL.—This variety was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom was purchased. The flowers individually are of unusual size and substance, double and well formed; colour crimson and violet. Price 15*s.*

Having a very large stock of the following FERNS, W. B. can offer at the following low prices:—

GYMNOGRAMMA LAUCHEANA, the best of all the Golden Ferns, 30*s.* per doz.

The rare ADIANTOPSIS RADIATA, 30*s.* per doz.

The new GYMNOGRAMMA WETENHALLIANA, 30*s.* per doz.

The Variegated { PTERIS ARGYRÆA, „ CRETICA ALBO LINEATA } 9*s.* per doz.

SILVER and GOLD FERNS, 30*s.* per doz.

The new ASPIDIUM PINNATUM, 30*s.* per doz

The Golden NOTHOCHLÆNA CHRYSOPHYLLA, 18*s.* per doz.

The scarce BLECHNUM CARTILAGINEUM, 30*s.* per doz.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

CHEAP BEDDING PLANTS.—Autumn-struck GERANIUMS, Scarlet, White, Rose, Pink, Cerise, &c., in 100 sorts, 2*s.* 6*d.* per dozen; Variegated kinds, 3*s.* 6*d.* per dozen. CALCEOLARIAS, LOBELIA SPECIOSA, CERASTIUM, KONIGA, SALVIAS, and many others, all at 2*s.* 6*d.* per dozen. Copies of CATALOGUE for 1863 still to be had, and the Edition for 1864, enlarged and nearly all rewritten, being in fact a useful Flower Garden Manual, will be ready about the first week in April. I need hardly say that my Collection of these plants is second to none—the fact is patent. Cuttings supplied at 10*s.* per 100, in not less than 10 of a sort.

Apply to J. Scott, Merriott, Somerset. Post Office Orders on Crewkerne.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS can supply any quantity of New Seed of this useful plant, which is now so extensively cultivated. New Seed, 1*s.* 3*d.* per lb.; or cheaper by the cwt. (Sow 24 lbs. per Acre for Feeding purposes).

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

MESSRS. BROWN AND CO. offer the following CHOICE PLANTS:—

	s.	d.
25 AZALEAS, hardy Belgian varieties, with buds, one of a sort, by name	20	0
25 AZALEAS, do. do. American varieties	16	0
12 Hardy RHODODENDRONS, including Scarlet, Rose and White, one of a sort	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
STANDARD and HALF STANDARD ROSES, „ 10*s.* to	12	0
DWARF and CLIMBING ROSES per doz.	6	0
Greenhouse AZALEAS, best sorts [per doz. 10*s.* to	12	0
CAMELLIAS, with buds per doz.	28	0
CARNATIONS and PICOTEES, choice sorts „	6	0
Choice PINKS and CLOVES „	3	0
Hardy FERNS, of sorts „	4	0

FLOWER SEEDS of all kinds cheap.

American Nursery, near Farnham, Surrey.

GEO. SMITH begs respectfully to offer to the Trade and public generally his well-known SEEDLINGS, believing that they will take a high stand amongst the Floral Novelties of the present season, viz.:—

FUCHSIA.

GRAND DUKE.—Tube and sepals bright crimson, well reflexed, corolla violet purple; very double, and of large size, smooth, and a most abundant bloomer; constant, and of fine compact habit. Extra. 10*s.* 6*d.*

ZONALE GERANIUMS.

LORD OF THE ISLES.—A beautiful cerise flower; very stout, large, and of exquisite shade; new in colour, and the finest Zonale ever offered. Awarded a First-Class Certificate by the Floral Committee of the Horticultural Society, for its general fine qualities. 5*s.* each.

ORANGE GLOBE.—Brilliant orange scarlet; truss large, of fine shape, and habit; a bold and conspicuous flower. 5*s.*

PETUNIA.

PRINCESS ALEXANDRA.—Dark puce, with pure white stripes; flowers good size and form; habit most dense; foliage small and bright. This will be found the most beautiful of all the Single Petunias yet offered, and will form a constant and fine acquisition to its class. Received First-Class Certificates at Wellington, Bath, and Highgate Horticultural Societies. 5*s.*

SEEDLING VERBENAS.

BLACK DIAMOND.—This is a most remarkable rich dark maroon, of fine shape and size, and will prove one of the best and most distinct Verbenas in cultivation.

FANTASTIC.—Pure white, with conspicuous rosy-purple centre; fine shape and truss; a first-class light variety.

GRAND DUCHESS.—White, with bright cherry centre; large truss, and fine for exhibition and other purposes.

LORD CLIFDEN.—Dark crimson scarlet; the pips much larger than a shilling; larger and finer than Lord Leigh or Foxhunter.

EMBLEM.—Rosy pink eye, white pip, and truss very large; fine shape; a first-class flower.

CHIEFTAIN.—Crimson scarlet; very vivid, and a remarkably free bloomer; fine for all purposes.

SCINTILLA.—Ruby rose; conspicuous white eye; fine show flower.

PLENIPO.—Rosy scarlet, with crimson-scarlet centre; free, and fine shape.

5*s.* each, or the set of eight for 30*s.*

G. S. will be prepared to send out after the 20th April, in good plants, the above mentioned, and begs to solicit early orders for the same.

*** Coloured Illustrations of Geranium Lord of the Isles, or Petunia Princess Alexandra, free by post, in exchange for six Postage Stamps each.

Tollington Nursery, Hornsey Road, Islington, N.

For Present Sowing.

THE HEAVIEST CARROT AND MOST CERTAIN CROPPER IS THE GREEN-TOP YELLOW BELGIAN.

SUTTON AND SONS have some fine fresh imported Seed now selling at 1*s.* 3*d.* per lb., or cheaper in large quantities.

(8 lb. Seed per acre is abundance.)

SUTTON & SONS,
Seed Growers, Reading.

LANE AND SON, Great Berkhamsted, beg to offer a fine collection of Large and Small CONIFERS, such as Araucaria imbricata, Abies Douglasii, Cedrus Deodara, C. Libani, Pinus excelsa, &c.

For particulars of which see CATALOGUES, which may be had upon application at the Nurseries.

Japanese Nurseries, Biggleswade, Beds.

RETINOSPORA PISIFERA.—This beautiful hardy evergreen Conifer, just introduced by Mr. ROBERT FORTUNE, plants from 2*s.* 6*d.* to 31*s.* 6*d.* each, varying from 3 to 18 inches high in pots; fine specimens, the most beautiful of its species. Also all the JAPANESE NOVELTIES, see CATALOGUE gratis.

THOMAS AYRES.

Continental Novelties, &c.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, at Ghent, Belgium, begs to advertise his PRICE LISTS, No. 99, 100 and 102, containing the STOVE, GREENHOUSE, HARDY PLANTS, and SEEDS.

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

Splendid New Fuchsia, one of the gems of the season, "Lord of the Manor."

GEORGE FRY, 2, Durham Place, High Road; and Manor Nursery, Manor Lane, Lee, S.E., is now prepared to send out this noble variety. The habit is excellent, and a most profuse bloomer, producing three and four flowers at a joint, of immense size, double, and completely reflexed.

Mr. Shirley Hibberd, in speaking of the new Fuchsias in the *Gardeners' Weekly Magazine*, says—"We can now, however, select one from among the new Double Fuchsias as superexcellent,—'Lord of the Manor.' This is a flower of immense size, well proportioned, and unusually attractive in colour and habit, quite reflexed, unquestionably one of the best Fuchsias yet produced."—*Vide Gardener's Magazine, October 17th*, 1863.

"The Fuchsia is a most extraordinary flower, and the double corolla exceedingly showy."—*Mr. George Glenny.*

"The flowers are very fine."—*Mr. C. Turner, Royal Nurseries, Slough.*

"Your seedling Fuchsia, 'Lord of the Manor,' is a very large double variety, and no doubt exceedingly showy."—*Gardeners' Chronicle.*

"The best Double Fuchsia of the season; and, owing to its great size and the extra length of the flower-stems, remarkably distinct. Marvellously grand when well grown."—*The Garden Oracle*, 1864.

Plants 7*s.* 6*d.* each. The usual Discount to the Trade.

A more detailed description sent on application.

SCHIZOSTYLIS COCCINEA.—This beautiful plant was briefly described in our CATALOGUE of last year as a "NEW SCARLET TRITONIA." It proves to be the first representative of a new genus, and is now offered to the public for the first time. It forms spikes of flowers, varying in colour from deep rosy crimson to the vivid scarlet of the "Scarlet Duc Van Thol" Tulip. The flower stems, 2 to 3 feet high, are produced in the greatest profusion from the tufts of Tritonia-like leaves. More than 150 charming spikes of bloom adorned our greenhouses for two to three months during the past autumn and winter, and it is now coming abundantly into bloom again on the shoots formed last summer.

As it never ceases to form offshoots, and these appear to flower as soon as they attain maturity, there is every reason to believe that the plant will bloom thus throughout the greater part of the year, and may thus make an effective Bedding or Ribbon plant. Two plants have been planted in the open ground unprotected during the late severe frosts. They appear uninjured, so that it will be an invaluable addition for the outdoor department, as well as for Cold Greenhouses, &c.

Plants will be sent out the first week in May at 5*s.* each.

JAS. BACKHOUSE & SON, York Nurseries

New Seedling Verbenas.

J. JEFFRIES AND SON, SEEDSMEN and FLORISTS, Woodbridge, Suffolk, beg to announce their intention of offering the following, which possess all the requisite properties, viz., size, form, and colour:—

DUKE OF CAMBRIDGE.—A very bright rich orange scarlet; straw-coloured eye, with a large and well-formed truss; pip large and very smooth; very free bloomer and excellent habit. Four First-class Certificates.

LIEUT.-COL. SCHREIBER.—Bright crimson scarlet, with a large and perfectly round white eye—best white eye of any Verbena out; very smooth pip, and medium size truss; good grower. Two First-class Certificates.

LADY RENDLESHAM.—Light, bright, rosy purple, perfectly new, and distinct in colour; large and well-formed truss and pip, dark eye, fine form, and free bloomer; a perfect gem—no stand can be complete without it.

BEAUTE PARFAIT.—Bright rosy carmine, with a large black disc; white eye; well-formed truss and pip; free bloomer:—a very striking variety—beautiful!

BLACK-EYED SUSAN.—A first-rate bedding variety or show flower; a very rich crimson carmine, with a large and well-defined black eye; large truss; first-rate bloomer, and habit by far the best of the black-eyed:—the more sun the brighter the colour.

3*s.* 6*d.* per Plant, or the Set for 10*s.* 6*d.*, to the Trade only.

The above have been selected from a bed of Seedlings raised and grown by Mr. J. CULLINGFORD, who has put them into our hands for disposal. They will be duly advertised.

Good plants of the above will be ready in the first week of May, and for which we beg to solicit early orders.

A remittance respectfully requested from unknown Correspondents.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

ASPARAGUS ROOTS, 2 years old, 3*s.* 6*d.* per 100; 3 years old, 5*s.* 6*d.*; 4 years old, 7*s.* 6*d.*
Post paid.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,
ADAPTED TO ANY STYLE OF GARDENING.

Hardy Annuals.
2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, &c. Including those introduced in 1862, 1863, and 1864, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 30*s.*, &c.

Half-Hardy Annuals.
2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 21*s.*, 30*s.*, &c.

Hardy Perennials.
2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 20*s.*, 30*s.*, &c.

BARR & SUGDEN'S COLLECTIONS OF VEGETABLE SEEDS
for One Year's Supply. 10s. 6d., 15s. 6d., 21s., 30s., 42s., and 63s.

GLADIOLI, Splendid Named Sorts, 4*s.* 6*d.*, 6*s.*, 9*s.*, 12*s.*, 18*s.*, 24*s.*, and 30*s.* per dozen.
GLADIOLI, Brilliant Colours for Massing, 3*s.* to 4*s.* per dozen, and 21*s.* to 30*s.* per 100.
MIXED COLOURS, 3*s.* per dozen, 21*s.* per 100.
LILIUM LANCIFOLIUM RUBRUM, ROSEUM, and ALBUM, 12*s.* to 18*s.* per dozen.
TIGRIDIA PAVONIA, 1*s.* 6*d.* per dozen, 7*s.* 6*d.* per 100.
Strong CANNA ROOTS, consisting of the most striking foliage varieties, 12*s.*, 18*s.*, and 24*s.* per dozen, or 80*s.* to 120*s.* per 100.
WOODLAND WALK or WILDERNESS DECORATION.—Mixed Flower Seeds for the above, 5*s.* 6*d.* per lb.

GENUINE GRASS SEEDS.

PERFECTLY FREE FROM WEEDS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.,

Directs the special attention of intending purchasers to the following VERY FINE MIXTURES, which HE GUARANTEES are not to be surpassed in quality and selection.

In ordering Grasses a description of the land to be laid down is very necessary, that a suitable Mixture may be supplied.

MIXTURES for PERMANENT PASTURES and MEADOW LANDS.
Containing only the finest suitable Grasses and Clovers.
24*s.* to 30*s.* per acre.

MIXTURES for IRRIGATION or WATER MEADOWS.
Specially prepared from those kinds of Grasses most suitable for moist situations.
25*s.* per acre.

MIXTURES for PARK and FIELD LAWNS.
16*s.* per bushel.

MIXTURES SUITABLE for SHEEP WALKS.
Being composed only of kinds which thrive on poor soils.
24*s.* to 30*s.* per acre.

MIXTURES for RECLAIMED MARSHES or HEATH LANDS.
20*s.* per acre.

MIXTURES for GARDEN LAWNS, PLEASURE GROUNDS, GRASS PLOTS, BOWLING GREENS, &c.
18*s.* per bushel, 1*s.* per lb.
This Mixture has been most carefully prepared from the finest growing kinds, and cannot fail to give satisfaction.

MIXTURES for RENOVATING OLD PASTURES.
(Sow 10 to 12 lbs. per acre). Price per lb., 9*d.*

MIXTURES for ALTERNATE HUSBANDRY.
These Mixtures are formed of the best Clovers, Fescues, Rye-grasses, &c., &c., according to requirement, for either One, Two, or Three Years' Pasture or Hay.
16*s.*, 18*s.*, and 20*s.* per acre.
In ordering this Mixture it should be stated whether it is required for 1, 2, or 3 years' lay.

Where large quantities are required, J. V. will feel pleasure in quoting special prices.
Each kind of Grass and Clover Seed supplied separately if required.

Full DETAILED CATALOGUES of AGRICULTURAL SEEDS will be forwarded (Post Free) on application.

CHOICE ORCHIDS.

HUGH LOW & CO.

HAVE PLEASURE IN ANNOUNCING THE ARRIVAL BY ROYAL MAIL STEAM SHIP *ATRATO*,

OF A CONSIGNMENT OF

ORCHIDS FROM THEIR COLLECTOR IN NEW GRENADA;

ALSO, BY SAME STEAMER,

CATTLEYAS FROM VENEZUELA,

AND BY RECENT STEAMERS OF P. & O. Co.,

MANY NOVELTIES FROM MOULMEIN.

Hugh Low & Co. will be pleased to show the whole to gentlemen interested in the Culture of Orchids.

CLAPTON NURSERY, LONDON, N.E.



THE ONLY PRIZE MEDAL AWARDED for SEEDS, INTERNATIONAL EXHIBITION 1862.



CARTER'S

SPECIAL LIST of FARM SEEDS for MARCH and APRIL

IS NOW READY, AND WILL BE FORWARDED GRATIS AND POST FREE ON APPLICATION.

JAMES CARTER AND CO.,

SEED MERCHANTS and NURSERYMEN, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, and ST. OSYTH, ESSEX.

NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

J. C. WHEELER & SON,

SEED GROWERS,

GLOUCESTER,

Offer SEEDS of finest quality at the extremely moderate prices quoted below:—

CLOVER and GRASS SEEDS.

GRASSES and CLOVERS, of finest quality, for 1 year's Hay and 2 years' Pasture, at 17*s.* 6*d.* per acre.

GRASSES and CLOVERS, of finest quality, for 1 year's Hay and 1 year's Pasture, at 16*s.* per acre.

GRASSES and CLOVERS for 1 year's Hay and Pasture, at 12*s.* 5*d.* per acre.

GRASS SEEDS for LAWNS, of the choicest varieties, to form a rich thick Turf, at 1*s.* per lb. 50 lb. will be required per acre.

RYE-GRASS.

ITALIAN (imported seed), best quality, at 6*s.* 6*d.* per bushel.

ITALIAN do., extra cleaned, 6*d.* per bushel extra.

ITALIAN, home-grown, good, 5*s.* 6*d.* per bushel.

PACEY'S PERENNIAL, fine heavy seed, remarkably clean and free from weeds, at 6*s.* 6*d.* per bushel.

PACEY'S do., extra fine, 7*s.* per bushel.

EVERGREEN, good quality, at 6*s.* per bushel.

„ rather lighter, at 5*s.* per bushel.

RENOVATING MIXTURE.

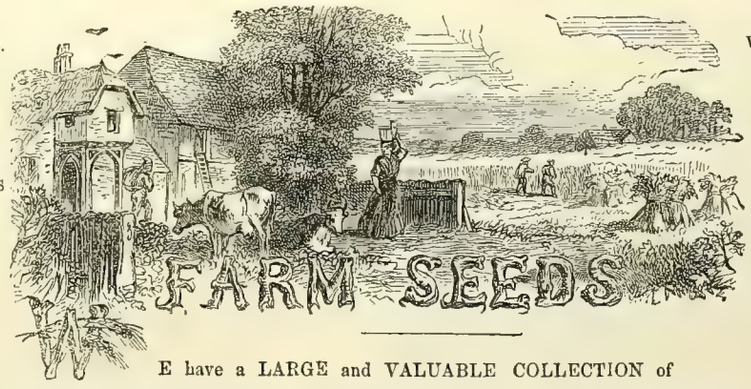
RENOVATING GRASS SEEDS for OLD PASTURE, most carefully selected (10 lb. per acre will be ample), 9*d.* per lb., 80*s.* per cwt.

J. C. WHEELER AND SON deliver FARM SEEDS Free by Rail, excepting Small Parcels.

J. C. WHEELER & SON,

SEED GROWERS, GLOUCESTER.

RYE-GRASS.
CLOVERS.
TREFOIL.
COW GRASS
ALSIKE.
LAWN GRASS.



WHEELER'S IMPERIAL SWEDE.
TURNIP.
MANGOLD
BUCK-WHEAT.
WHITE CARROT.

E have a LARGE and VALUABLE COLLECTION of

GRASS SEEDS for PERMANENT PASTURE,

OF THE FINEST QUALITY, WHICH WE CAN OFFER AT 30*s.* PER ACRE.

All the varieties of GRASSES and CLOVERS are named and described in our "LITTLE BOOK on GRASSES," a Copy of which will be sent gratis with every order, or post free on application.

Our MIXTURE of GRASSES and CLOVERS for PERMANENT PASTURE, at 30*s.* per acre, is of the finest quality, and comprises the choicest varieties in cultivation. In executing orders for Grasses, we exercise the most scrupulous care and attention in adapting and varying the Mixture—as the different circumstances and peculiarities in each case render it desirable—taking into consideration the nature and quality of the soil which is intended to be laid down.

The following EXTRACTS from Letters received from Gentlemen to whom we have supplied Mixtures for Permanent Pasture, may perhaps be considered interesting:—

"I had a gentleman inquiring of me where I purchased the Permanent Pasture Seeds which I laid down at Ness. It is the best piece for miles round. I told him I had it from you, and that it was a Mixture you recommended for the purpose."—THOMAS WILLIAMS, *Allastone Court, Lydney.*

"The Permanent Pasture Grass and Clover Seeds have grown well; they are very good sorts, and suit our land well."—E. RICHINGS, *Farm Bailiff to* JOHN ROLT, Esq., Q.C., M.P., *Ockeworth Park.*

"I have a very good stock of Clover from your Seed, whilst many who bought their Seed elsewhere have almost a failure."—RICHARD SMITH, *Birdsend Farm, Tibberton.*

"His lordship was much pleased with the Permanent Pasture Grasses you supplied us with; they are of excellent quality and very luxuriant."—A. PATERSON, *Steward to the* Right Hon. the Earl of ELLENBOROUGH.

"I am much pleased with the 14 acres of the Permanent Pasture I laid down with your Seeds; nothing could have done better. I hope to lay down some more next season."—R. G. TAMPLIN, *Moraston Court, Hoarwithy, Ross.*

"You know what sorts of Grass Seeds will suit me—better than I can tell you. What I had from you last year was excellent."—JOHN THOMAS, *Penpompren, Llanwnen, Carmarthenshire.*

"I laid down 8 acres of the poorest land in our parish with your Permanent Pasture Grasses. Before I laid it down it was not, to rent, worth 5*s.* an acre, and now there is a very fair sward. I am very well pleased, and cannot speak too highly of the Mixture you sent me."—WILLIAM HAWKINS, *Lintridge, Dymock.*

J. C. WHEELER AND SON, SEED GROWERS, GLOUCESTER.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

PINE PLANTS.—The Subscribers have on Sale the following fine healthy young PINE PLANTS, free from insects:—

8 SMOOTH CAYENNE PINES, strong plants.
12 Do. do. do. smaller do.
100 QUEEN PINES, Succession plants.

Price on application.

THOMAS KENNEDY & Co., Nursery and Seed Establishment, Dumfries.—April 2.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s.* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

STRAWBERRIES.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Wizard of the North, Alice Maude, Eliza, Prince of Wales, Sir C. Napier, Carolina Superba, 1*s.* 6*d.* to 2*s.* per 100. JERUSALEM ARTICHOKES, 7*s.* per cwt, SEA-KALE, &c. POTATOS: Handsworth, Ashleaf, Myatt's Prolific, Fortyfold, Dalmahoy, Early Shaw, &c., very cheap.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

Apples, Pears, and Plums.

JOHN ADAMS AND CO. have a surplus Stock of the above as Pyramids, Dwarf Maiden and Dwarf-trained.

Also Dwarf Maiden PEACHES, NECTARINES, and APRICOTS.

A lot of fine worked ENGLISH ELMS, 8 to 10 feet.

Prices, &c., on application.

Brentford, April 2.

STANDARD CHERRIES.

Extra fine.

STANDARD SPANISH CHESNUTS, extra fine for Avenues, 75*s.* per 100.

RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

The "Pine Apple" Scarlet-flesh Melon.

EDWARD TILEY can now offer Seeds of the above NEW MELON, which has been grown by him for several years in competition with the best varieties already sent out, and has proved superior to any. It will ripen in a frame without bottom heat, or in pots in the greenhouse, where it has been found to do admirably well, the fruit containing all that lusciousness for which the Melon is so highly prized. The fruit is thin skinned, of a light amber colour, beautifully netted, shape round, slightly ribbed; flesh very thick and juicy, the fruit containing few seeds, a free setter and an abundant bearer, weight from 3½ to 4½ lb., the flavour approaching to that of the Pine Apple. This Melon was submitted to the opinion of many first-class judges, and pronounced by all to be the finest they had ever tasted. This has proved a fine variety for preserving. Price 2*s.* 6*d.* per packet.

CUCUMBER.

GENERAL OUTRAM, the finest show Cucumber ever yet sent out. 2*s.* 6*d.* per packet.

A fine Collection of CUCUMBERS and MELONS at 1*s* per packet. For List see this Paper of Jan. 30, 1864.

TILEY'S EMPEROR RED CELERY, the best in cultivation, 1*s.* per packet

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

Griffin's ALMA LETTUCE, true, 1*s.* per packet.

One Packet of PINE APPLE MELON, with a packet of any variety of CUCUMBER or MELON in the Advertisement of Jan. 30, 1864, with the exception of General Outram Cucumber, for 3*s.*

Penny Postage Stamps or Post-office Orders must accompany all orders, which will be sent per return of post.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	,, Portugal, 1 to 2 feet
,, dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	,, Turkey, 3 to 4 feet
,, standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

To the Trade.

MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering strong Autumn-struck Plants of the following, from Store Pots—

SCARLET GERANIUMS—Tom Thumb, Frogmore's Improved and Finedonensis.

AGERATUM MEXICANUM.

VERBENAS—Purple King, Géant des Batailles, Brilliant de Vaise, Lord Raglan, General Simpson, and Mrs. Holford.

The above at 8*s.* per 100; 70*s.* per 1000.

N.B. A reference or remittance requested from unknown Correspondents.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Myatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, April 2.

New Plant Catalogues.

WM. RUMLEY AND SONS' GENERAL DESCRIPTIVE CATALOGUES of the newest and best Fuchsias, Verbenas, Geraniums, Cinerarias, Petunias, Dahlias, Pansies, Chrysanthemums, Hollyhocks, Phloxes, Calceolarias, Mimulus, Antirrhinums, Tropæolums, Stove, Greenhouse, Bedding and Hardy Plants at very reduced prices, is now ready, and may be had on application.

Gilling, near Richmond, Yorkshire.

TRICYRTIS HIRTA (HOOK.)—See *Botanical Magazine*, tab. 5355, and *Flore des Serres*, xv. p. 79.

See also VAN HOUTTE'S PRICE LIST, No. 102, page 81.

☞ 12*s.* the dozen (for STRONG PLANTS), quite hardy.

VAN HOUTTE'S Royal Nursery, at Ghent (Belgium).

Choice Tricolor Geraniums for Pot Culture.

ALFRED FRYER offers the following 12 Choice Tricolor, Gold and Silver-leaved varieties for 21*s.*

Basket and package included.

Mrs. Pollock	Rainbow	Glowworm
Sunset	Argus	Fontainbleau
Mrs. Milford	Picturata	Golden Harkaway
Golden Tom Thumb	Burning Bush	Silver Nosegay

All the best kinds of VARIEGATED and SCARLET GERANIUMS for bedding out, 2*s.* 6*d.* per doz., in 200 varieties, fine autumn-struck plants; including Cloth of Gold, Golden Fleece, Golden Chain, Reine d'Or, Flower of Spring, Bijou, Madame Vaucher, Rose Queen, Blackheath Beauty, &c.

Remittances requested from unknown correspondents.

Address, ALFRED FRYER, Chatteris, Cambridgeshire.

NEW DWARF BEDDING SCARLET GERANIUM,

LADY COWPER.

E. P. FRANCIS

Has great pleasure in announcing that he will be prepared to send out the above beautiful GERANIUM the first week in MAY.

This Geranium is most remarkable for its compact and Dwarf-growing habit, never attaining above 4 to 6 inches in height, also for throwing its flower stems well up above the foliage. The flowers are of a bright light scarlet, with a clear white eye, and are of the most perfect shape; the truss is also good. It has received a Second-class Certificate from the Royal Horticultural Society, and is thus described:—

"A variety of very Dwarf, bushy habit, with small, bright green foliage, and producing bright, light scarlet flowers. Commended for its Dwarf habit, and its useful decorative purposes."

For small and ornamental bedding purposes it will be found invaluable. It has been seen growing in the Nurseries, in a bed, by several Noblemen's and Gentlemen's Gardeners, who have declared it to be the most useful Dwarf variety ever sent out. Early Orders are solicited, as they will be forwarded in strict rotation.

Price, Good Plants, 3s. 6d. each, or 30s. per dozen.

THE NURSERIES, HERTFORD, HERTS.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to intimate that he has secured the stock of this new and valuable LATE WHITE GRAPE, which has been exhibited several times during the past two seasons, receiving a First-class Certificate from the R.H.S. upon its first appearance before the Fruit Committee there, and has fully maintained the high character then given to it on being exhibited before the Fruit Committee on two occasions since. It was also exhibited at the Flower Show held in the Agricultural Hall, Islington, and was awarded a First-class Certificate. The different reports in its favour, as given below, will give convincing proof of its excellence. B. S. W., to meet an extensive demand, has prepared a large stock, which will be ready for distribution in September. Orders may now be booked, and will be executed in strict rotation.

PRICES.

Strong Planting Canes ... 21s. each. | Strong Fruiting Canes ... 42s. each.

REPORTS EXTRACTED FROM HORTICULTURAL WORKS.

From the GARDENERS' CHRONICLE, 1862.

"Among Grapes was a novelty of considerable promise, from Mr. Sanders, of Cheshunt; it is stated to be a cross between the Syrian and Muscat of Alexandria. The form of the bunch is handsome, and the berries full-sized with a fine glossy appearance, but though excellent, possessing no trace of Muscat flavour. It was named Royal Vineyard Muscat, and was awarded a First-class Certificate."

From the JOURNAL OF HORTICULTURE, 1862.

"A Seedling Grape was sent by Mr. Sanders, of Cheshunt, and which was said to be a Muscat; it is called the Royal Vineyard. The bunch is large and well set; ovate, not long, tapering, or cylindrical; the berries are large, ovate; the skin white and somewhat transparent, showing the texture of the flesh through it; the flesh is firm and somewhat crackling, very juicy, and with a fine Sweet-water flavour. From the thickness of the stalks and of the berry stalks it has all the appearance of being a late hanging sort; and the quality, coupled with its admirable flavour, will doubtless recommend it. The Committee unanimously awarded it a First-class Certificate as a valuable late white Grape."

From the GARDENERS' CHRONICLE, *Nov.* 14, 1862.

"From Mr. Williams, of Holloway, came a handsome bunch of new Royal Vineyard, a White Grape, of which we have spoken in favourable terms on former occasions."

From the JOURNAL OF HORTICULTURE, *Oct.* 10, 1863.

"Mr. B. S. Williams, of Holloway, sent a splendid bunch of the Royal Vineyard Grape, which received a First-class Certificate at the November meeting in 1862. The bunch exhibited on this occasion was much finer than that shown last year, and was about 15 inches long, tapering like that of the Black Prince. The berries were large, quite round, and of a pearly look, the skin is so thin, and the flesh so hard and crackly, that it is eaten like a Bigarreau Cherry, skin and all. This is said to be a late hanging Grape, and if so it will be a very valuable one."

From the GARDENERS' WEEKLY MAGAZINE, *Nov.* 14, 1863.

"Mr. B. S. Williams, of Paradise Nursery, Holloway, exhibited a new Grape of very high merit; this is called 'Royal Vineyard.' The berry is large, oval, colour deep amber, thin skin, flesh tolerably sweet, exceedingly rich, not juicy, and with a fine bouquet. The bunch shown had a very tapering outline, and was moderately shouldered, but it appeared to have undergone considerable change since first cut, by the removal of berries for tasting."

From the GARDENERS' CHRONICLE, *Oct.* 17, 1863.

"Here we had an opportunity of seeing Mr. Williams' new Royal Vineyard Grape, growing side by side with Muscat of Alexandria, which it somewhat resembles in appearance but not in taste, being altogether devoid of Muscat flavour. So highly, however, did it stand in favour with the Fruit Committee, when it was first shown at South Kensington, that they awarded it a First-class Certificate, and we must add that in general appearance it is one of the handsomest Grapes in cultivation; a bunch of it reproduced at South Kensington the other day for further inspection measured no less than 14 inches in length, and was well spoken of by all who tasted it. It may therefore be regarded as one of the most valuable of the new Grapes about to be brought under public notice."

Dr. HOGG'S *Report in the* GARDENERS' YEAR BOOK *for* 1864.

"ROYAL VINEYARD.—Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh—so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 postage Stamps.

Rhododendrons.

Crimson, White, Purple, and Scarlet.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

American Plants.

WATERER and GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of New CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c., for 1864, is now ready, and will be sent post free on receipt of Two Stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., Nurseryman, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10s.; 20 pair of Cuttings of ditto for 5s.; 25 pair of fine POMPONS for 10s.; 25 pair of Cuttings of ditto for 5s.

N.B. To save trouble all orders to be prepaid.

New Chrysanthemum, Empress of India.

E. G. HENDERSON and SON are now prepared to supply plants of the above. It is a beautiful variety from the "C. Queen of England;" pure white, three quarters globe in shape, with a full centre, in size one of the largest. 5s. each; or four for three, with Trade Discount.

Wellington Nursery, St. John's Wood, London, N.W.

Superb Double Hollyhocks, now ready for Planting.

WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.

See Advertisement on other page.

Address, William Chater, Nurseries, Saffron Walden, Essex.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of the above that will flower well this season.

A DESCRIPTIVE LIST of sorts may be had on application.

Foreman at the Nurseries, Sawbridgeworth, Herts.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells; and Groomsbridge, Kent.

Seeds, Carriage Free.

WILLIAM CUTBUSH and SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

Geo. Clarke, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

RICHARD SMITH'S SEED of the following is direct from the Growers, and most superb:—Imported Truffaut's Aster, Stock, Wallflower, and Balsam, 1s. per packet; Phlox Drummondii, Zinnia, Cockscomb, Larkspur, Dianthus and Variegated Poppy, 6d. per packet; English saved Calceolaria, Cineraria, and Fringed Primula, 1s. 6d. per packet; Mimulus, Rhodanthe, Lobelia, Pansy, Hollyhock, Petunia, Amaranthus ruber, Antirrhinum and Auricula-eyed Sweet William, 6d. per packet

Richard Smith, Seed Merchant, Worcester.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*

Price 18s. per bushel, or 1s. per pound.

Quantities of not less than one bushel will be sent carriage free.

Sutton & Sons, Seed Growers, Reading, Berks.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON and SONS.

A COLLECTION of the best 50 sorts known .. 10s. 6d.
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0

SUTTON'S CATALOGUE of SEEDS will be sent post free.

Sutton & Sons, Seed Growers, Reading, Berks.

Flower Seeds, Free per Post.

WM. WOOD and SON'S splendid COLLECTIONS as under:—

HARDY ANNUALS.

100 varieties, 20s. | 25 varieties, 5s.
50 varieties, 10s. | 12 varieties, 2s. 6d.

HALF-HARDY ANNUALS.

100 varieties, 25s. | 25 varieties, 7s.
50 varieties, 12s. 6d. | 12 varieties, 3s. 6d.

GERMAN FLOWER SEEDS as imported in original sealed packets on lowest terms.

CATALOGUES on application.

Woodlands Nursery and Seed Warehouse, Maresfield, Uckfield, Sussex.

Flower Seeds, Postage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

COLLECTIONS of FLOWER SEEDS, 100 Packets, 20s.
" " " 50 " 12s.
" " " 25 " 6s.
" " " 12 " 3s.

SEEDS WORTH GROWING.

Dobson's PRIZE CALCEOLARIA, unequalled, 1s. 6d., 2s. 6d., 5s.
Dobson's PRIZE CINERARIA, ex. ex., 1s., 2s. 6d., 5s.
Dobson's PRIZE PRIMULA, splendid, 1s., 2s. 6d., 5s.

Sealed packets, Post free. Trade supplied.

J. Dobson & Sons, Seedsmen, Isleworth, W.

Herbaceous Calceolarias.

E. G. HENDERSON and SON offer these, of splendid varieties, in healthy fine plants for conservatory decoration, being now in most suitable order for travelling. 12s and 18s. per dozen.

TIGRIDIA PAVONIA.—Very beautiful for groups in the flower garden, or for pot culture. The remarkably large and brilliant orange-scarlet flowers, picturesquely spotted, render them exceedingly attractive during the summer months. 1s. 6d. per doz.

Wellington Nursery, St. John's Wood, London, N.W.

NEW PLANTS of 1863.

In strong healthy Plants.

NEW GERANIUMS, 24s per doz | New FUCHSIAS, 6s. p. doz.
" ZONALE, 12s. per doz. | " PETUNIAS, 6s. "
" CINERARIAS, 12s. per doz. | " VERBENAS, 4s. "
LONICERA AUREO-RETICULATA, 4s. to 9s.

H. Walton, Edgend Marsden, near Burnley.

CATALOGUES on application for one stamp.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

Thomas Jackson & Son, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

ANDROMEDA FORMOSA (true).—Strong Plants of this beautiful hardy Evergreen Shrub, about 1 foot, 50s. per 100; 1½ to 2 feet, 12s. per dozen; and extra strong selected bushy specimens, 2s. 6d. each.

A CATALOGUE of one of the finest Nursery Stocks in the kingdom, extending over 60 acres, forwarded on application.

W. H. Rogers, Red Lodge Nursery, Southampton.

Gladiolus Brenchleyensis.

YOUELL and CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1s.

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—s. d.
CALCEOLARIA, HERBACEOUS, finest mixed	2 6
CARNATION, PERPETUAL, finest mixed	2 6
CINERARIA CRUENTA, finest mixed	2 6
PICOTEE, PERPETUAL, finest mixed	2 6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2 6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2 6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

60,000 3-YEAR SEEDLING SILVER FIR, 4s. per 1000.

60,000 3-year Seedling SPRUCE FIR, 3s. per 1000.
60 PINUS EXCELSA (fine), 8 to 10 feet, 5s. each.
200 TRITOMA UVARIA GLAUCESCENS, true.
12 cwt. new FURZE SEED, at moderate prices.

WANTED, 2-year SEEDLING SCOTCH FIR.

R. Fennessy & Son, Waterford.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, Foreign Warehouse, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, March 30, 1864.

First-Class Certificate.

Asplenium ferulaceum, from Mr. W. Bull, Chelsea.
Chamærops stauracantha, from Mr. W. Bull.
Hyacinth King of the Blues, from Mr. W. Paul, Waltham Cross
Phormium tenax variegatum, from Mr. Williams, Holloway,

Second-class Certificate.

Anæctochilus speciosus, from Mr. W. Bull.
Forsythia sp., from Mr. Standish, Ascot.
Lastrea varia, from Mr. W. Bull.

Commendation.

Begonia Digswelliensis, from Mr. Earley, Gr. to F. Pryor, Esq., Digswell.

Special Certificate.

Sarracenia Drummondii, from Mr. Williams, Holloway.

The next Meeting will take place on the day of the AZALEA SPRING SHOW, April 20.

Thomas Moore, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.

CAMELLIA and RHODODENDRON SHOW,

WEDNESDAY, March 30, 1864.

AWARDS of the JUDGES.

Class 1.—6 CAMELLIAS in flower, distinct kinds. (Nurserymen.) No competition.

Class 2.—6 CAMELLIAS in flower, distinct kinds. (Amateurs.)
1st prize, withheld.
2d, Mr. Wm. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, 2*l*.

Class 3.—4 CAMELLIAS in flower, distinct kinds. (Open.) No competition.

Class 4.—6 RHODODENDRONS, 6 kinds. (Nurserymen.) No competition.

Class 5.—4 RHODODENDRONS, 4 kinds. (Amateurs.)
1st, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 1*l*. 10*s*.

Class 6.—6 ROSES in Pots, distinct kinds. (Open).
1st, Mr. C. Turner, the Royal Nurseries, Slough, 1*l*. 10*s*.
2d, Messrs. Paul & Son, Old Nurseries, Cheshunt, 1*l*.

Class 7.—24 HYACINTHS, distinct kinds. (Nurserymen).
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, 2*l*.
2d, Mr. Wm. Paul, Waltham Cross, 1*l*. 10*s*.
3d, Messrs. Barr & Sugden, 12, King Street, Covent Gardon, 1*l*.

Class 8.—12 HYACINTHS, distinct kinds. (Amateurs.)
1st, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 2*l*.
2d, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, 1*l*. 10*s*.
3d, Mr. J. Masters, Gr. to W. H. Bodkin, Esq., Highgate, 1*l*.

Class 9.—12 Pots of TULIPS, 4 kinds. (Open.)
Equal 1st, Messrs. W. Cutbush & Son, Highgate Nurseries, 1*l*. 10*s*.
Equal 1st, Mr. Wm. Paul, Paul's Nurseries, Waltham Cross, 1*l*. 10*s*.
2d. Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 1*l*.
3d, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, 15*s*.

Class 10.—Collection of 18 FORCED FLOWERS, various. (Open.)
1st, Mr. W. H. Treen, Victoria Nursery, Rugby, 2*l*.
2d, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 1*l*. 10*s*.

Class 11.—6 GERANIUMS, forced, distinct kinds. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 1*l*, 10*s*.

Class 12.—12 RHODODENDRONS, cut blooms, distinct. (Open.) No competition.

Class 13.—12 CAMELLIAS, cut blooms. (Nurserymen.)
1st, Mr. W. H. Treen, Victoria Nursery, Rugby, 10*s*.

Class 14.—6 CAMELLIAS, cut blooms, distinct kinds. (Amateurs.)
1st, Mr. Thos. Todman, Gr. to R. Hudson, Esq., Clapham Common, 10*s*.

Class 15.—6 Pots of LILIES of the VALLEY. (Open.)
1st, Mr. W. Howard, Gr. to James Brand, Esq., Bedford Hill House, Balham, 1*l*.
2d, Mr. Wm. Bartlett, Shaftesbury Road, Hammersmith, 15*s*.

Class 16.—MISCELLANEOUS COLLECTIONS. Plants in Flower. (Open.)
Extra, Mr. Wm. Bull, for a Collection of New and Rare Plants, 2*l*.
Extra, Messrs. Paul & Son, for a Collection of Roses in Pots, 2*l*.
Extra, Mr. Wm. Paul, for a Collection of Hyacinths, 2*l*.
Extra, Messrs. W. Cutbush & Son, for a Collection of Hyacinths, 2*l*.
Extra, Mr. Wm. Paul, for a Collection of Cut Roses, 1*l*. 10*s*.
Extra, Mr. Wm. Bull, for a Collection of 6 Azaleas, 1*l*. 10*s*.
Extra, Messrs. Paul & Son, for a Collection of Cut Roses, 1*l*.
Extra, Mr. W. Howard, Gr. to James Brand, Esq., Bedford Hill House, Balham, S., for a Collection of 24 Lilies of the Valley, 1*l*.
Extra, Mr. T. Todman, for a Collection of Primulas, 15*s*.
Extra, Mr. Wm. Paul, for a Collection of Tulips, 15*s*.
Extra, Mr. Wm. Bull, for Plant Case filled with Plants, 10*s*.
Extra, Mr. C. Turner, for 4 Plants of Bougainvillea speciosa, 10*s*.

The Gardeners' Chronicle.

SATURDAY, APRIL 2, 1864.

MEETINGS FOR THE ENSUING WEEK.

Thursday, April 7—Linnean .. .. 8 P.M.
Saturday, — 9 { Royal Botanic (Second Spring Exhibition) .. .. .. 2 P.M.

At this season of the year, some of our readers may find it useful to be reminded of certain considerations which bear upon the operation of Seed Sowing, which they have now to put in practice.

A seed planted in the earth germinates under the combined influences of heat and moisture, and the process is all the more active when these agencies are accompanied by the exclusion of light. The practical means employed to secure the latter condition, namely a covering of earth, is indeed also favourable to the action of the two former, by closing in and sheltering the seed from the vicissitudes of temperature to which it would otherwise be exposed, and by serving to retain in the soil immediately surrounding it a more uniform condition of moisture than could readily be secured if it were exposed. When seeds are sown therefore, the conditions under which they are placed should

secure for them darkness, and moisture, and warmth.

The seeds of different plants require different degrees of warmth in the soil, in order to enable them to carry on the germinating process, and hence no very general rule on this point can be laid down for the guidance of the uninitiated. Some seeds, those of the Chickweed and other common weeds for example, will germinate when the soil is but little above the freezing point, but practically the influence of the sun and of warm rains is necessary to bring the earth into a state fit to receive the germs of all our cultivated crops. Some of them, indeed, the Onion for example, will do with a smaller amount than others of this acquired warmth, and such as these are always the better, in certain soils at least, for being sown early, in order that their roots may become well established before hot parching summer weather sets in. Some again, such as the Umbellifers, take a much longer time than others for effecting the germinating process; and for the same reason, namely, that they may have the advantage of getting well established and forwarded during the moist genial weather of spring and early summer, these also are the better for being sown as early as circumstances will permit. The great heats and droughts of summer, without abundant feeding is resorted to—more abundant than is often possible—tend to check the vegetative development of our crops in the same degree as they tend to forward the production and development of blossoms. Hence it is that as a rule the main vegetable crops in which succulent leafy development is desired—and this is desired in the early stages of all crops, as well as also in the mature stages of some—should be sown as early in the season as circumstances and the peculiar character of particular seasons and situations will permit. Succession cropping is another matter, and has to be regulated by the supply needed. It is indeed often little better than a struggle between horticultural skill on the one hand, and the adverse conditions of an unfavourable period for the respective operations on the other; and therefore may be excluded from the present argument.

We have already mentioned the covering of earth as one of the conditions to be considered as practically necessary to the healthy germination of seeds. The covering must indeed be greatly varied to suit the various kinds of seeds, those of minute size needing the merest sprinkling of the finest soil to be placed over them, and others admitting, in a ratio exactly proportionate to their bulk, of a covering of one-eighth, one-fourth, or half of an inch, or even of 1, 2, or 3 inches, or more as the case may be. There is however one condition especially obvious, if we confine our attention for a moment to indoor seed-sowing, or the sowing of the small seeds of choice plants, which is doubtless often overlooked, but which has a decided influence on the result that is expected to follow: this influence being moreover, from the very nature of things, in an inverse ratio to the bulk of the seed. We allude to the watering of the soil. An experienced cultivator will, however, understand that other conditions and considerations here intervene: for instance, the soil must be of a proper mechanical texture to allow the moisture to drain away freely; there must (in the case of all ordinary terrestrial plants) be no approach to a water-logged condition, and heavy soils being more liable to this defect than light ones, will require less abundant applications of water than others; but allowing for all this, as well as for the varied requirements of individual species, there remains the fact that constant moisture—in plenty, but not in excess—is from first to last necessary to germination. We know how rapidly seeds will germinate after a warm shower, especially if they have been a short time in the soil, so as to have gradually absorbed therefrom just that quota of moisture which is necessary to have brought the germ which lies hidden within them, into a state to be influenced by a further supply. We also know how sluggish a seed will lie in its bed if the earth happens to continue to be in a parched dusty condition after sowing. Now this, in principle, illustrates the whole question, but what may we often see in practice? Why, scared by the bugbear of "rotting the seed," an unskilful cultivator will be found sowing the seed of some choice plant, and then suffering it to lie parched in the unmoistened soil; or, with some like phantom before him, he will be found careful above all things to provide that the soil should be allowed to "dry" between each application of water. This is no doubt an error of practice; and the smaller the seed the more forcibly it tells upon it. In the former of the two supposed cases, the moisture which is necessary for the germinating process—a truly chemical process, which we need not here stay to explain—not being present, germination is, to say the least, retarded; and in the second case, that of an alternating condition of moisture and drought, the germ is first excited, and then checked or shrivelled, and the chances are that such of the seeds as are so acted on will be killed outright; indeed, but for the surplus to be attributed to the accidental inequalities of development attendant on what is in itself another error—thick sowing, the whole crop in cases like this would often be lost.

But this avoidance of watering has a further adverse influence in the case of small seeds especially, which is not at first sight so apparent. It leaves the particles of soil so open, that as far as regards all shallow coverings at least, the light can penetrate through them even down to the very seeds themselves. We have already mentioned that one of the conditions favourable to germination, is darkness; and it will be evident that the act of watering the surface of the soil after sowing must produce this condition by closing the soil around and upon the seed. Hence we regard the advice sometimes found in books of garden instruction, that the operation of sowing should be finished off by watering the surface with a pot having a finely-pierced rose to its spout, as being perfectly sound in theory and beneficial in practice. It might, indeed, be thought that there would be some advantage in leaving the soil after sowing, for a day or two without water, on the ground that the moisture in the unexposed portion of the soil would suffice for the requirements of the seed in the first process of germination, and this indeed may often be so; but in the case of very fine seeds our own experience is that a surface of earth thus left exposed is apt to become so thoroughly dry that it does not absorb water readily when the latter is applied, and the consequence of this is that in the case of such seeds as those alluded to, necessarily thinly covered, the earthy particles settle down, and the seeds being lighter than they, float on the water, and on its subsiding are deposited *on* instead of *beneath* the surface of earth. Such seeds are consequently left fully exposed to light, and are by no means placed under the most favourable conditions to promote germination.

Such considerations as these, indeed, apply mainly to choice seeds sown in pots and on carefully prepared seed beds, and to the finer seeds sown outdoors, whether in the flower or kitchen garden. They also apply strongly to seeds sown in heat, under conditions which favour the drying of the surface of the soil. And they apply still more forcibly in the case of all these, if it so happens that sunny weather occurs just after sowing; for this sunshine, by causing rapid evaporation, brings about more rapidly the parched condition to which we have referred. There are of course other means besides watering which may be adopted to secure a uniformly moist condition of the soil in which seeds are sown; and these are especially valuable when the seeds are of a kind in which germination is sluggish, and where consequently if the applications of water were frequent and repeated, they would tend to consolidate the soil, or reduce it to a soddened condition. The most important of such auxiliary means, is that of shading during hot sunshine. This, by preventing, to a certain extent, the drying of the surface, may indeed be regarded as a negative instead of positive means of keeping it moistened; but after all, there will remain the necessity for the first watering, and for such subsequent supplies, fewer or more numerous as circumstances may demand, as will keep both soil and seeds damped until germination has taken place.

The more bulky crops of the kitchen garden, from the depth at which their seeds are deposited, are, at the usual seed-time, when spring showers are plentiful, in little risk of being exposed to light until growth has set in, and from the same cause they are much less likely than those we have been considering, to be in danger of suffering from actual lack of moisture; but as every gardener well knows, attention to this moistening process becomes absolutely necessary in the case of those succession crops of kitchen garden produce, which have to be sown during periods of drought in summer.

The Postmaster-General has given orders that on the 1st of April next, and thenceforward, patterns of merchandise, similar to those already transmissible by post between any places in the United Kingdom, at reduced rates, may be transmitted by post between England and the East Indies, either *viâ* Southampton, or *viâ* Marseilles, at the following rates of postage, which must in all cases be prepaid by means of postage stamps, viz.—*viâ Southampton:* for a packet not exceeding 4 oz., 4*d.*; not exceeding ½ lb., 8*d.*; not exceeding 1 lb., 1*s.* 4*d.*; not exceeding 1½ lb., 2*s.*, and so on, every additional ½ lb. being charged 8*d.* *Viâ Marseilles:* For a packet not exceeding 4 oz., 6*d.*; not exceeding ½ lb., 1*s.*; not exceeding 1 lb., 2*s.*; every additional ½ lb. being 1*s.* Samples of seeds, drugs, and so forth, which cannot be sent in open covers, may be enclosed in bags of linen or other material, tied at the neck; but bags so closed that they cannot be readily opened, even though they be transparent, must not be used for this purpose.

Such is the announcement which was made a few days ago by the Postmaster-General. The latter portion of the new regulations, namely, that relating to the importation and exportation of samples of seeds, will be very acceptable to many of the readers of this Journal. All horticulturists who have friends in the East, have an interest in any measure which faciiltates the transmission of seeds. How many of those of our countrymen who have settled down on the far off slopes of the Himalayas to cultivate Tea or Cinchona will be gladdened with the sight of a parcel of seeds from their friends at home, delivered fresh and in good order with their bi-monthly mail. And with what pleasure will the same individuals ransack the forests of their adopted country to procure the seeds of the Deodar and other ornamental and useful trees to send back in exchange for those seeds sent to them from their "old home." All honour, then, to the authorities of the Post Office for this new boon. We doubt not it will prove a real benefit to all lovers of horticulture, and at the same time a success as regards the revenue of the Post Office—as successful, indeed, as those great measures which have preceded it, namely, penny postage, and the pattern and book post. Our great horticultural and botanical societies throughout Great Britain and Ireland had better wake up, otherwise the Postmaster-General will have done more than them all for the advancement of horticulture.

We shall return to this subject on a future occasion, and endeavour to give some practical instructions how to select seeds for exportation, and how to prepare them and pack them. We shall also point out what kinds are usually most acceptable to our friends in foreign countries.

—— As it may be useful to many of our readers who are interested about Bedding Pelargoniums to know the result of the Chiswick examinations of these flowers last season, which results have recently been made public, we propose here to give a brief summary of the decisions which were arrived at.

The plain-leaved series of Scarlet Pelargoniums, which is considered superior to the zonate series for bedding purposes, yielded a dwarfish variety, called Little Major, of the highest degree of merit, though singularly enough, in former years, this same variety had not proved to be a telling one—a fact which will no doubt furnish an argument in favour of the use of old plants of bedding Pelargoniums, especially in the case of those of dwarf habit. To this variety must be added Trentham Scarlet, Stella, and Punch, selected in previous years, as furnishing the most highly approved of the plain-leaved Scarlets of different shades of colour, and of varying habit, Punch being the larger growing, and Little Major the dwarfer of the four sorts. Among the plain-leaved cerise-coloured sorts, Lady Rokeby and Lord John Russell proved themselves to be highly meritorious, taking rank with Lady Middleton, which was considered the best of this colour in former years. None better than Christina and Rose Queen have been found as yet among the rosy-pinks, though some of the novelties closely approached them in merit.

To the zonate-leaved series with scarlet flowers was added with a high character, Roi d'Italie, a dwarfish kind, with salmony-scarlet blossoms; Volcano and Cheshire Hero, too, both with orange-scarlet flowers, were determined to be useful acquisitions. To these must be added as already approved:—Attraction, Vivid, Adonis, Victor Emmanuel, Martin Gireau, and Scarlet Globe. Of those with cerise-scarlet flowers, the first place was given to Herald of Spring, which was closely followed by François Chardine and Paul Labbé. Of those with salmon-coloured flowers, Aurora and Blackheath Beauty, formerly selected, continue the best; as do Amy and Minnie amongst the rosy pink series; while Prince of Hesse, which is bright salmon with a deeper eye, was found every way commendable in its class. There are however some fine varieties with these dark-eyed flowers which have not yet been submitted to trial, some of which are certainly acquisitions as conservatory plants, if not in the garden. Madame Vaucher remains the best proved white. We of course here leave out of the question sundry novelties of which rumour speaks well, but which have yet to be fully tested.

Of the marbled-leaved zonate series Sheen Rival,

Empress of the French, and Cerise Unique, continue to be the most useful sorts.

To the class of Nosegays we hear of grand additions as forthcoming or just distributed; but confining our attention here to sorts already proved, we must mention Stella as having won a front rank position amongst bedding plants, its rich deep scarlet flowers and floriferous habit rendering it very attractive; while Merrimac with cerise flowers, and Lord Palmerston with a rosy-flushed crimson, are acquisitions to this much maligned but certainly very effective group.

The variegated-leaved is now a very extensive as well as a very useful class of bedding Pelargoniums, and there is ample choice of varieties in most of its sections. The silver-variegated series yields of highly approved sorts:—Flower of Spring, Venus, Koh-i-Noor, and Meteor, with creamy white margin; Jane, Bijou, Mary Ellen, and Mrs. Lenox, with purer white margin; and Argus, Fontainebleau, Burning Bush, and Countess of Warwick, with silver margin and red zone. The golden-variegated series is more limited in extent, but still affords room for choice, the undermentioned being highly approved sorts:—Golden Chain, Cloth of Gold, and Golden Harkaway, with golden margin; and Mrs. Pollock, Mrs. Benyon, Lucy Grieve, and Sunset, with golden margin and red zone.

Though much has been done in the way of improving this race of Pelargoniums for flower garden purposes, and also for the conservatory, there is much more to be accomplished, and much too, no doubt, is now in progress or already just attained, of which the precise results can hardly be as yet estimated. Those kinds with golden red-zoned leaves, and those with pale dark-eyed flowers may be mentioned as being more especially in a progressive state; and to these, if report speaks correctly, may also be added the Nosegays.

As certain of these Pelargoniums are so admirably suited for pot-culture and the decoration of conservatories, we hope to see them produced in a respectable manner at the ensuing summer shows, especially as liberal prizes are offered for their production. Nothing can be more charming than some of those with rosy-tinted, salmon-coloured, or dark-eyed flowers; nothing more beautiful than some of those with red-zoned leaves.

NOTES ON GARDENS.—No. VI.

Backhouse's Nurseries, York. (*Third Notice.*)

The presence of a Tree Fern or rare Trichomanes is not always indicative of choice things in the hardy way, nor are rare tropical Orchids frequently an index that their fine hardy N. American and Siberian relatives are near at hand; so that when one finds much skill and labour bestowed indoors, sanguine expectations of rarity or interest in the outdoor department are rarely indulged in. With a feeling that the interest was exhausted, and the sands of my admiration run out, I left the Ferneries, &c., already described, and wandered about the finely kept grounds, here and there coming upon little sheltered squares in the midst of the larger nursery stuff, filled with thousands of the Aucuba-leaved Daisy, Calandrinia umbellata, and such plants. These suggested an incidental wish to see something good in the alpine or herbaceous way; which was gratified by my being taken to the frame ground, &c., where I first encountered quite a bedding-out stock of the rare and beautiful English Ladies' Slipper, Cypripedium Calceolus, strong and healthy plants in 48's, a rare sight indeed. Then a fine lot of Gentiana verna, and between 2000 and 3000 plants of Linaria alpina, a beautiful and continuously blooming plant, its corymbs of bluish-lilac flowers being "set off" with an orange centre, and contrasting admirably with the silver hue of its leaves and branches. It flowers the first year from seed, but gains its full strength and beauty when two or three years old. Along with these was a large stock of many fine hardy plants, grown in pots plunged to the rim in beds of sand, and in such a glossy, clean, and healthy state that one could at once see they were paid as much attention to as any plants in the nursery. In a mixed group of recently received things, I noticed Ranunculus glacialis with its leaves of icy smoothness and large and handsome white blossoms, brought from just below the summer snow line on the mountains of Norway and Switzerland; also Diapensia lapponica, recently had from Norway with the Ranunculus. Here too, were fine specimens of Gleichenia alpina.

From the neighbourhood of the houses a glimpse is caught of a varied craggy mass, rising among the trees at about 100 yards distance. It is the Alpine Rockery, and is reached by a winding path, near the margin of which were fine specimens of Wellingtonia and of the graceful Picea lasiocarpa. The "rockwork" is best described as the facsimile of a very charming and well selected little bit of Wales or Cumberland, with its cliffs and ravine, little lake, rocky island, and gloomy gorge complete. It is utterly unlike and infinitely superior to any of the compositions known as "rockwork" that I have ever seen. Four hundred tons of "crag" rise in the most varied and rugged forms to 20 or 25 feet in height, surrounding and hemming in a placid sheet of water, and presenting every sort of nook, aspect, fissure, soil, shade, or shelter, that one could wish for the numerous and in many cases not easily to be pleased gems that flourish on the rockwork, from the water-overhanging slab under which the Killarney Fern looks at home, to the exposed ledge where the Alpine Forget-me-Not thrives as if on its native Ben Lawers. Standing on one ledge, on which the lovely Dianthus alpinus was quite the master of the "struggle," one could look over the water to the inhabitants of Southern Europe and Madeira—Mesembryanthemums and Cyclamens, while beneath, on cool and shady spots, were plants from the Arctic regions, from Spitzbergen and Melville Island, which in a wild state rejoice in incessant cold and moisture. On the one hand was a carpet of Gentiana verna, beside a little chalky bed of the Bee Orchis; on the other Primula farinosa in fruit, with scapes 16 inches high, along with its congener P. scotica; and below, cropping out vigorously from under large stones on the little island, the beautiful hardy North American and Siberian Cypripedium spectabile, pubescens, and macranthum, all seeming to thoroughly enjoy the delightful spot so skilfully adapted to their various tastes. Andromeda hypnoides formed a dense moss-like tuft on a moist and cool shelf, a treasure in itself, especially so when exhibiting its lovely little white bells. Gleichenia alpina, Asplenium lætum, Adiantum Capillus-veneris, Asplenium palmatum, Cheilanthes tomentosa, the noble Lomaria magellanica, and many other Ferns usually supposed to require protection from frost, live here without any, some of them in cavernous recesses. The last named stood a temperature of 6°. Along with these was Lygodium palmatum, a beautiful and perfectly hardy Fern from North America, with creeping rhizomes and Ivy-like fronds. Many rare British plants were to be seen in fine condition, such as Goodyera repens, Ophrys arachnites, Orchis laxiflora, Trientalis europæa, Viola arenaria recently discovered in Teesdale, Eriophorum alpinum, Pinguicula grandiflora, Hierochloa borealis, and many others. Running along dry fissures, Calandrinia umbellata formed dense tufty lines, almost as compact as masses of Silene acaulis. In its own class of colour there is nothing equal to this plant. Many thousands of it were "getting up" in various parts of the nursery, indicating its being speedily disseminated as much as it deserves.

To enumerate all the interesting plants on this noble rockwork would require a catalogue, but those must be mentioned that are not likely to be found elsewhere, with many very rare ones, some new to the country, and others reintroduced by the Messrs. Backhouse. I can fancy that many will be delighted to hear of the existence in cultivation of some of these. So, to begin with hardy Orchids—in addition to those already mentioned there is Orchis cornuta from South Europe, closely allied to our British Spider Orchis; Cypripedium acaule, a fine North American species, usually with a single pair of leaves, and Cypripedium parviflorum; Orchis Robertiana from Sicily; Chamæorchis alpina; Goodyera pubescens with reticulated Anæctochilus-like leaves; with Orchis papilionacea, Ophrys lutea and picta, Serapias parviflora, and others of more frequent occurrence. The existence of such a collection during the present famine of interest in the hardy plant way, is of itself a hopeful sign. Now for the other most remarkable plants:—Sisyrinchium multiflorum, bearing a profusion of pale blue flowers about the size of a florin; Geranium argenteum, a fine silvery-leaved hardy Geranium, whose "home" is, I believe, at Comely Bank; Oxytropis montana and cyanea; Astragalus purpureus and vaginatus; Vicia argentea; Ranunculus pyrenæus, rutæfolius, and alpestris, all white-flowered species; not forgetting R. glacialis, which Ruskin admired so much in its stony icy resorts; Pyrola maculata from N. America, its leaves beautifully marbled with white, and several other Pyrolas; Gentiana Fortuni, a fine species, proved to be a perfectly hardy perennial; also G. Gebleri, imbricata, brachyphylla, ciliata with large finely fringed azure blue flowers, and excisa, with many commoner kinds; while G. bavarica, the species which adorns the high passes in Swiss mountains, a little below the line of perpetual snow, with tufts of deep and dazzling blue, is mixed up here and there with Gentiana verna, and known from it by having rounded Box-like leaves. It is said to be a more rapid grower than G. verna, and is considered by the Messrs. Backhouse more beautiful than it, which is saying a great deal. Myosotis montana, a lovely plant with flowers twice as large as those of the wood Forget-me-not, and of a much brighter blue, flowering too with the Snowdrop, and even with the Aconite. Mr. Atkins, who collected this plant on the Swiss Alps, sent me a few plants of it in flower last spring, perfect masses of the loveliest blue, and I shall not readily forget their "first appearance;" I believe it to be the best Myosotis for general work, as Myosotis alpestris cannot be grown everywhere. Here were Saxifraga biflora, a new and interesting species recently received by the Messrs. Backhouse from the lofty mountains around Zermalt in Switzerland, of the S. oppositifolia group, and like that species having trailing "mossy" shoots and rose-coloured flowers; here, too, Saxifraga cæsia and other neat ones were present; also S. cernua, and rarer still, S. Seguieri and S. glacialis; Primula minima, an inch high, and with flowers of the same width, a perfect gem; P. spectabilis, longiflora, and Floerkeana, all very rare species, recently had from the Alps, the last not in a hopeful state; P. glumacea, erosa, and another, with shaded lemon and purple flowers; P. amœna from the Caucasus, with soft hairy leaves, and very large dense heads of the tenderest pale purple flowers, which open with the earliest dawn of the year, sometimes even expanding under the snow—an extremely rare species; P. Fortuni, and a host of equally beautiful but better known Primulas; Androsace obtusifolia, pubescens, coronopifolia, lactea, Chamæjasme, and the rare A. glacialis, also a fine lot of Androsace lanuginosa; Anemone baldensis, like a dwarf alpina, A. vernalis, and all the good hardy Anemones. The rare and beautiful Dianthus glacialis had been received, but in a dying state, and there were D. Simsii, and a lot of others. Then Hepatica angulosa, a fine plant which the Messrs. Backhouse have been very fortunate to import, a true Hepatica, with flowers more than double the size of the common single blue Hepatica, and of a clear sky blue, 6 to 12 inches high, well above the large five-lobed leaves; Iris reticulata; Crocus Aucheri, Boryi, Sieberi, and marathonisius, all from the mountains of Greece—the three last named being autumn and winter flowering kinds, blooming from November to January; Fritillaria tristis; Colchicum alpinum received during the summer from the Alps; C. lingulatum, neapolitanum, and montanum, from the mountains of Greece, which flowers in December, and forms with the Crocuses above mentioned a fine addition to the few midwinter flowering things we cultivate; Gnaphalium Leontopodium; Senecio incanus, a dwarf hoary perennial, likely to prove useful as an edging plant, or in other words, in ameliorating the vulgarities of the colour-culturist—we want a new name, and I think the foregoing very defensible. Then came Senecio carniolicus; Campanula cenisia; Silene Elizabethæ, likely to become a general favourite; Allium alpinum from Lapland; Lychnis pyrenaica, a very pleasing perennial; Trifolium alpinum, a new and remarkable plant found on high alpine pastures; it is a matted tufted perennial, with heads composed of few very large rose-coloured flowers, more like a dwarf Lupin than a Clover. Next came Lycopodium dendroideum, a perfectly hardy and erect Canadian species, which I had thought was confined in this country to the gardens at Wimbledon House, where there is a fine bed of it, like a fairy Pine wood; and L. lucidulum, another erect Canadian with glossy leaves; Rigidella immaculata and R. flammea; Linum alpinum; Arctostaphylos alpina, rarely seen in cultivation; Acæna novæ-zelandiæ; Aster tanacetifolius, a dwarf branching species with bright purple flowers; Cerastium suffruticosum; Rhododendron Chamæcistus, and R. lapponicum, just arrived, and in a very doubtful state; Meconopsis, an imposing species from the Himalayas, with large lemon-coloured flowers on spikes 5 feet high; Eritrichium nanum, another gem of unusual interest and beauty, found only on the highest and most exposed ridges of the Swiss Alps, and closely allied to the Forget-me-Nots, but having very minute tufts of silky leaves and dense heads of bright blue flowers, large for a very small plant, on hairy stalks about 2 inches high. Great as is the collection of rare plants, familiar ones of first-rate merit find plenty of space amongst them; such things as Anemone apennina and Scilla sibirica being freely planted, and very justly appreciated as much as any of their neighbours; while ranging between the extremes of novelty and familiarity, scores of first-rate plants might be mentioned.

So exquisitely natural looking and picturesque is the spot, that were it only clothed with the native plants of the neighbourhood, a journey would be well repaid by seeing it. Indeed, pilgrimages after hardy plants are often made to natural and other scenes, not yielding one-tenth of its interest. And so, surprised and delighted to a degree previously unknown to me, I took leave of the York Nurseries, more than ever thinking with the author of "Guesses at Truth," that "Nature will never be bettered by any art, till that art becomes Nature." Often since have I concluded that were the famous "wishing carpet" at my service, I should frequently during the coming spring and summer have a "rapid ride to York," and spend an hour amongst the delicately beautiful "transparencies of the tropical Fernery," but for a real feast of interest I should settle down amidst the "heaven kissing" gems of the great Alpine Rockery there. *William Robinson.*

NEW FRUITS.

Apple: Schiebler's Taubenapfel (Oberdieck). — Messrs. Schiebler and Son, of Celle, Hanover, announce a new Apple, named as above (or in English, Schiebler's Pigeon Apple), by Superintendent Oberdieck, one of the best German pomologists. Of this new variety, they publish the following account, accompanied with an engraving. After several years' experience of this Apple we can with confidence recommend it as a first-rate table fruit. It is of medium size, and pyramidal in shape. At first it is greenish, afterwards becoming citron yellow, and sometimes, but rarely, exhibiting a tinge of red. The flesh is snow-white, very fine and tender, juicy, with an aromatic vinous flavour, surpassing in this respect the Pigeon Blanc Apple, and not so apt to speck as that is. The fruit sets mostly in threes together. It is a table fruit of the first rank, becoming fit for use in the end of December, and

keeping good till Easter. The tree forms a spreading head, and bears abundantly.

Pear: Hélène Grégoire.—An October Pear, which with the two following, is very highly spoken of and figured in one of the lists of novelties put forth by M. Vilmorin-Andrieux et Cie. of Paris. It is said to form a vigorous and very fertile tree, and to make a fine pyramid. The fruit is described as of moderate size, obovate, of a light green changing to straw yellow, and having a melting flesh of the first quality.

Pear: Madame Treyve.—This appears from the representation to be a very large Pear, and is described as being ripe at the end of August and the beginning of September. The fruit is in fact extra-sized, broadly and bluntly turbinate, pale green in colour, changing to yellow, and dashed with flesh-colour; the texture is said to be fine, melting, and juicy, with a sugary aromatic flavour. The tree is vigorous and very fertile.

Pear: Nouvelle Fulvie. A variety which yields large pyriform fruit, remarkably bossed or uneven on the surface, the colour a yellowish green spotted with grayish-red and flushed with bright red on the side exposed to the sun; the flesh is said to be yellowish-white, very fine and buttery in texture, melting, with a delicious flavour. The fruit is in season from November to January, and is produced on a tree of vigorous and prolific habit.

STANDARD EPIPHYLLUMS.

Now that plants have come largely into requisition for the decoration of the dinner table, I know of none that can be recommended as more suitable for the purpose during the winter months than the Epiphyllum truncatum and E. Russellianum with their varieties. These plants can be had in flower from November until March. In November, 1862, I grafted many varieties on stems of Pereskia aculeata from 12 to 24 inches high; and in the following November, 1863, many of them began to flower, and continued flowering until March, 1864.

The following are the sorts I am growing:—

E. Russellianum.
E. R. Snowii.
E. R. rubrum; tube pink, petals deep red, large and fine.
E. R. superbum; tube pinkish violet, petals deep violet purple, large and fine.
E. truncatum.
E. t. Bridgesii; tube violet, petals deep violet purple, fine.
E. t. cruentum; tube purplish crimson, petals deep crimson, large and fine.
E. t. magnificum; tube rosy violet, petals deep red, large and fine.
E. t. spectabile; tube white, petals white, deeply margined with violet, large and fine.
E. t. salmoneum.
E. t. Morelianum.
E. t. Ruckerianum.

The six sorts which I have briefly described are beautiful varieties; and there are many others, of which I have not seen sufficient to judge whether they are distinct from those named. I find that the varieties of E. truncatum flower first, while those of E. Russellianum are later, and by exciting a few of the former in autumn and retarding a few of the latter, I am confident they can be had in flower for a much longer period than I have named above.

My plants were repotted from 60 to 48 size or 4½ in. pots, in the spring of 1863, and the heads of many of them were by the autumn 12 inches in diameter. When in flower they formed beautiful objects. I have just repotted some of the largest in 6½ inch pots, and I anticipate that by the autumn there will be many of them not easily surpassed as flowering plants either for the decoration of the dinner-table or for the conservatory, in which latter, mixed with Camellias, forced Hyacinths and other bulbs, Azaleas, Rhododendrons, &c., they form a beautiful contrast.

The pots should be well drained. The soil should be very fibrous sandy loam, having a small quantity of potsherds broken small mixed with it, sufficient to keep it porous. The house most suitable to their growth is an intermediate one, such as would be suitable to many of the Orchids that require cool treatment, or the warmest end of the conservatory. The temperature in winter should range from 40° to 50° by night, and from 50° to 60° by day. They should be kept rather dry during the winter, but not allowed to shrivel, the quantity of water being increased as the season advances, giving a higher temperature and plenty of air, particularly in hot weather, sufficient water being thrown about the house to keep up a humid atmosphere. They should not have too much shade. When they are required for the table, some neat creeper should be twined round the stem to hide it. *Thomas Brown, Exotic Nursery, Tooting.*

Home Correspondence.

The Fluke Potato.—"T. E." (see p. 200) asks for information respecting the origin of this Potato. John Turner, a hand-loom weaver, and occasionally a farm labourer, of Birch, near Middleton, Lancashire, first raised the Fluke from a "seed apple," taken indiscriminately from a field of Potatos grown on the Langley Hall farm, near his residence in 1841. He sowed the seed in his own small garden, and it produced 12 plants, one of which was the Fluke; the others, being of little value, were thrown away. He grew the Fluke for several years, and occasionally made presents of tubers of it to his friends. Amongst others he gave some to a neighbouring farmer, who has sold large quantities of it; but Turner himself never made one farthing by it in the way of trade. In 1852 a subscription was got up for him, chiefly through the exertions of Oswald Dicken, Esq., surgeon of Middleton, and Mr. John Lancashire, farmer, of Little Heaton, to which the Earl of Derby subscribed 10*l.*, and the Earl of Wilton 5*l.*; the amount raised was 115*l.*, with which a life annuity was purchased for him, but this he only enjoyed for a very short time, as he died on the 28th of February, 1854, aged 72 years. I have spoken more fully of the Fluke in former volumes of your Paper, especially in that of the year 1856. *Ed. Bennett, Osberton Hall, Worksop.*

Duchess of Buccleuch Grape.—Being in Dalkeith a few days ago, and having an hour to spare, I called at the Palace Gardens there. I was fortunate in finding Mr. Thomson at home, and still more so in seeing this new variety of Grape in an early stage of growth. I was shown into a lean-to house where there are numbers of plants of it fruiting in pots. There are also some Black Hamburghs in the same house, but they are entirely eclipsed by the Duchess. On entering the house I was astonished at the profusion of bunches showing upon quite young Vines. The rods are about 8 feet long, good stout canes, though not extra strong, having been grown under the shade of Vines last year; consequently they are not so well ripened as they would have been under more favourable circumstances. Nevertheless many of the shoots are producing large bunches at the third, and on to the fifth leaf, proving to a certainty its free-bearing character as an early Grape. I had the curiosity to measure some of the bunches which (though not yet in flower) were 14 inches in length, excluding the stalk. It may therefore be judged what they will be when fully grown; and this, be it recollected, from pot Vines started on the 1st of January. I had also the pleasure of seeing it in another house a stage later, planted out. The flavour of this new Grape resembles that of Chasselas Musqué, which is one of the parents, but the seedling is free from the cracking propensity of that sort. It was exhibited last year at Kelso, where it carried off the first prize for the best flavoured Grape. Among the many Grapes of recent introduction I am convinced that the Duchess will occupy a place in the foremost rank. *A. Anderson, Oxenford Castle.*

Orchard-House Trees.—I beg to apologise to Mr. Watson, of Rotherham, for not answering his letter (p. 150) before, but it so happened that I did not read the number of your Paper in which it appeared. When I re-pot, I reduce the ball about an inch all round, and about 4 or 5 inches at the bottom; I then cut away all the large roots that I can get at. The pot is cleaned out, and the tree put in it again; the earth is then rammed tight all round with a flat rammer. The trees are all gone over in this way, the border is dug and every pot is set in order, and in that state they remain till the next October. I give them now and then a good watering, and occasionally a good syringing. They do not receive any check, but go on as if nothing had happened, and they get well established in their pots in about a fortnight or three weeks after the operation. The reason why I repot so early is because all such trees make fresh roots as the sap descends, just as they make young shoots in spring when the sap ascends. So, if I delay repotting till the trees are quite at rest, it would be of no use to do it till the spring, and then they have got every thing to do, which I think is very unfavourable for the ensuing crop. To guard against all creeping insects, such as earwigs, woodlice, and ants, I tie narrow strips of brown paper about two inches wide round the trees, and form a ring of tar, mixed with a little lard to keep it moist; this is done just before the fruit gets ripe. These remain till the next February, and they form a nice trap for the red spider; they must therefore be taken off very carefully and burned. I never fumigate, and I think it is useful to know how to do without it. When I begin to water in spring, I now and then give the trees a good syringing till they come into bloom, and again directly the bloom begins to fade. *J. P., Alton.*

Blight.—Few things are less understood than blight, which is generally attributed to some mysterious condition of the air or winds, rendering them capable of generating myriads of insects, or at least of carrying them about over the face of the earth, doing sad mischief in their course. By some, blight has been described as having the appearance of a haze or blue mist or a sultry purplish or orange tinge, while others entertain certain fancies in regard to it equally unfounded and ridiculous. These notions too are not confined to the lower classes; they have even found their way into books. It is now some time since I noticed in one of these the following passage, or words having a similar meaning. In "singular collapsions and accumulations called a blight, the air becomes filled for miles with millions of animalculæ never before seen, and of sudden spontaneous formation." If this was merely a fancy unconnected with practice, it might be left to the care of theorists without remark, but as it is not so, and likely to lead many into error, perhaps I may be allowed to say that as far as insects are concerned, all ordinary accounts of blight can be nothing else than mistakes, though there is not the least doubt that cold northerly or easterly winds will produce shrivelling and browning of the leaves of trees and hedges, as may also sometimes sultry, thundering weather. It has been proved that insects are invariably hatched from eggs deposited by parents similar to the produce; therefore it is impossible for them to be generated by any particular state of the air. It is also unlikely that the eggs of insects are floating about on blighting winds, for insects, with few exceptions, glue their eggs tightly upon whatever they may be deposited on. The fact is, these insects are all hatched from eggs which had been laid the preceding autumn or very early in spring, and if believers in blight had been on the look out they might have discovered a great quantity of the eggs, minute though they be, and by destroying them might have saved a large portion of their crops. It is, however, probable, that the sudden appearance at one time of so many insects may have given some plausibility to popular errors respecting blight, but this occurs from the eggs being all hatched at once, or at least within a very short time of each other. In consequence of their minuteness, and the peculiar places in which they are concealed, it is difficult to find some insect eggs, but it is easy to find those of others, such as leaf-rolling caterpillars and the kinds which make such havoc on Oaks and Currant trees; these are readily discovered in little greyish patches, about the breadth of a card-wafer, firmly glued to the bark. If these were scraped off during winter no blighting wind of any description would be able to generate a single insect of that kind, any more than it could produce a covey of skylarks. To check the progress of these insects the foliage attacked should be washed over and under with tobacco-water or pure lime-water; this will destroy the pests in question, and also clean the leaves. I have washed the foliage of plants with clear water only, and cleaned them perfectly; but this has to be repeated several times, while once, or at most twice, applying the wash just mentioned, will suffice. *John Cole McArdell.*

Wood Ashes.—It is well known that these are a valuable manure for almost every description of crop; but in the absence of loppings and prunings, they are not easily procurable. They are valuable, I presume, chiefly on account of the potash which they contain, in the form of sub-carbonate; and it has occurred to me that, as the potash of ammonia is not very costly, it might be used on a moderate scale, as a substitute. I have accordingly procured a quantity of potash, intending to apply it to a Vine border, provided that can be done with safety. It appears to me however that, in its present state, the salt is by far too caustic, and would probably do more harm than good, even if diluted with 200 or 300 times its weight of water. I have consulted Liebig, Thomson, Davy, and several other authorities, but they say little or nothing upon the subject. Perhaps you can refer me to some other source of information, or some of your Correspondents might favour me with the result of their experience in the use of the salt in question. *An Amateur, Clapham.*

Societies.

Royal Horticultural: *March* 8 (*Election of Fellows*).—J. J. Blandy, Esq., V.P., in the Chair. The following Candidates were duly elected, viz.:—

The Archbishop of Armagh, Mrs. Wm. Atkinson, Mrs. F. Barrow, Mrs. Edward L. Betts, Miss Boardman, Mrs. Collyer, Mrs. A. K. Corfield, Mrs. Ralph Disraeli, H. Dugdale, Esq.; Miss Emily Fielder, Mrs. C. W. Graham, Mrs. Harrington, Mrs. T. E. Harrison, Mrs. R. Nugent, The Lady Panmure, G. Pirie, Esq.; M. B. Power, Esq.; G. Tanner, Esq.; Lieut.-Colonel F. C. Tombs, and A. G. Yeates, Esq.

March 30 (*Second Spring Show*).—This was held, as on the last occasion, in the Entrance Hall, the Council Room, and the adjoining Arcade, all of which were well filled with spring flowering shrubs, Hyacinths, Tulips, and other plants in blossom. Her Majesty, accompanied by H.R.H. the Princess Helena, honoured the exhibition with their presence just as it was being thrown open to the Fellows.

Hyacinths.—Charming collections of these were furnished by Messrs. Paul, Cutbush, Young, and others; the sorts, however, being in no way different from those noticed in our last report, it is unnecessary again to record their names. To King of the Blues, a fine kind in Mr. Wm. Paul's group of 24, a First-class Certificate was given by the Floral Committee. A similar award was made to Thorwaldsen, a blue with large bells, from Messrs. Cutbush.

Awards—24: 1st, Mr. Cutbush; 2d, Mr. Wm. Paul; 3d, Messrs. Barr & Sugden. *Amateurs.*—1st, Mr. Young; 2d, Mr. Carr; 3d, Mr. Masters.

Roses.—These, both cut and in pots, considering the season, were excellent, the foliage being remarkably clean and healthy, and the blooms large and finely coloured. Conspicuous among them were Lord Clyde, John Hopper, Lord Raglan, Chas. Lawson, Beauty of Waltham, Madame Boutin, Victor Verdier, Maurice Bernardin, Senateur Vaisse, François Lacharme, and Madame Julie Daran. Among yellows, Celine Forestier was greatly admired, as was also the promising white Hybrid Perpetual, Louise Darzens. Of the bronzy buff-coloured Madame Falcot there were one or two nice-looking buds.

Awards—6 in pots: 1st, Mr. Turner; 2d, Messrs. Paul & Son. Cut blooms: extra, Mr. Wm. Paul and Paul & Son.

Azaleas.—Of these Mr. Bull contributed a small collection, in which Queen Victoria, a white kind, striped with pink, attracted especial notice; other

sorts, though well covered with blossoms, were less remarkable.

Camellias.—Of these a collection of 6 plants in pots was shown by Mr. Young, gr. to R. Barclay, Esq., of Highgate; and of cut blooms we noticed one or two boxfuls, the best of which came from Mr. Todman of Clapham.

Collections of Forced Flowers.—These consisted of Hyacinths, Tulips, Lily of the Valley, Pimeleas, Lilacs, Acacias, broad-leaved Kalmias, Rhododendrons, Azaleas both Indian and hardy, Polygonatum vulgare, Deutzia gracilis, Cinerarias, Roses, Dielytra, and Cytisus racemosus.

Awards.—1, Mr. Treen; 2, Mr. Young.

Lily of the Valley.—Charmingly-bloomed potfuls of this universal favourite were shown by Mr. Howard; and from Mr. Bartlett also came six well-flowered plants of it. Of these Mr. Howard's exhibition well deserved a first prize, which was awarded it.

Tulips.—These, being tolerably numerous and in good condition, made a gay display. The kinds did not differ from those produced on the last occasion. Foremost among them stood Vermilion Brilliant and Keizer Kroon, the last bright red, boldly edged with yellow, a most useful kind for out-door decoration.

Awards.—12 pots: 1, Mr. Wm. Paul; 2, Mr. Young.

Plant Cases.—Two of these were exhibited. In one were suspended two nice plants of the little scarlet-flowered Orchid, Sophronitis grandiflora, and associated with them were variegated-leaved Coleus, Dielytra spectabilis, Solanum Capsicastrum in fruit, and Lily of the Valley. The other, which was noticed in our last report (see p. 247) came from Mr. Bull, King's Road, Chelsea.

Forced Pelargoniums.—One small group of these came from Mr. Turner, of Slough. It contained Phœbe and Clarissa, two light kinds; Dr. André, Pamela, Pescatore, and Sir C. Campbell, the last a dark velvety kind with white eye.

Chinese Primulas.—Of these a collection of well-grown plants came from Mr. Todman, of Clapham. They consisted wholly of single white and pink sorts.

Rhododendrons.—Mr. Young furnished well bloomed examples of Columbus, lucidum, Barclayanum, and maculatum.

New Plants.—Among subjects submitted to the inspection of the Floral Committee were a prettily variegated-leaved variety of New Zealand Flax, to which a First-class Certificate was awarded; and the singular-looking Sarracenia Drummondii in flower, to which was given a Special Certificate. Both of these came from Mr. Williams of Holloway. Mr. Bull, of King's Road, Chelsea, received a First-class Certificate for Chamærops stauracantha, a Palm remarkable for its handsome foliage; and Second-class Certificates for Anœctochilus speciosus and Lastrea varia, both good additions to their respective genera. To a Japanese Forsythia from Mr. Standish, stated to be different from suspensa, a Second-class Certificate was assigned; and to Mr. Earley was awarded a Commendation for a deep bright rosy-flowered Begonia called Digswelliensis. Last, but by no means least, was the charming Asplenium ferulaceum, of which a full account has been given in a former number (p. 1108, 1863). This came from Mr. Bull, and received, as it well deserved, a First-class Certificate.

Miscellaneous Plants.—Of these interesting collections came from Mr. Williams, Mr. Bull, and Mr. Moss. They consisted of Cordylines, a vigorous growing Lindsæa from Trinidad, Gleichenias, Todea pellucida and other Ferns, the large bronzy-leaved Alocasia metallica, Palms, variegated Yuccas, the Bornean Sphærostema marmoratum, Chameranthemum Beyrichii variegatum, the showy orange-blossomed Imantophyllum miniatum, and different varieties of Amaryllis.

Of Bougainvillæa speciosa, some well-flowered plants in small pots were exhibited by Mr. Turner, of Slough. Of the way in which these are managed, some account will be found at p. 388 of our last year's volume.

Entomological: *March* 7.—F. Smith, Esq., in the chair. F. Pascoe, Esq., F.L.S., was unanimously elected President of the Society. Printed copies of the annual address delivered by the Chairman at the Anniversary Meeting in January, were distributed. Mr. G. R. Waterhouse exhibited specimens of two small beetles belonging to the genus Aleochara, new to this country. Professor Westwood exhibited both sexes of the splendid Ramphorhina Petersiana, belonging to the family of the Goliath beetles, brought from the Zambesi by the Rev. H. Rowley; also various Lepidoptera from the same gentleman, including a new Charaxes, which he described under the name of C. Argynnides. He also read descriptions of a remarkable Papilio from Borneo, to which he applied the name of P. Hewitsonii; and of two curious new beetles, one belonging to the genus Apatetica, and the other forming a new genus of Trogositides, from India. He also exhibited the larvæ and cases of a common English moth (Tinea sarcitella), the former of which had eaten a number of holes in a carpet newly laid down; and also specimens of Ptinus hololeucus, a small beetle which had caused considerable damage by gnawing the binding of books. Mr. S. Stevens exhibited a case of Coleoptera recently received from Old Calabar. Some observations were made by Mr. J. Young on the effects of Dumont's Insect Destroying Powder. The Chairman stated that the introduction of the minute house ant into London might partially at least be attributed to the large cargoes of Pine Apples, now annually brought to this country, he having noticed a stall in Oxford Street, on which the fruits were placed, swarming with these troublesome little insects. Mr. Baly read the commencement of a memoir on the species of tortoise beetles (Cassididæ) captured by Mr. Alfred R. Wallace in the Eastern Archipelago. The first part of a memoir by Mr. Pascoe on the Longicorn beetles, from the same regions, was also read; and Mr. Waterhouse read an elaborate memoir on the structure of the cells of bees, which he considered were normally cylindrical in form.

Notices of Books.

A History of the World. By Philip Smith, B.A. Part 3.

This Part commences with the history of the Chaldæan, Assyrian, and Babylonian monarchy, and carries on the Medo-Persian empire to the conquest of Egypt. Though the fragments of Berosus embrace an unmistakeably mythical period, we find that where other evidence exists there is much that is confirmatory of his statements. These fragments, then, studied in the light of the cuneiform inscriptions, which the investigations of Sir Henry Rawlinson and the discoveries of Layard and others afford, serve to clear up many difficulties, and throw a flood of new interest upon the points of contrast between these great empires and the Jewish nation. The Biblical student is much indebted to Mr. P. Smith. The story of Chedorlaomer and his quadruple alliance with the three kings, acquires fresh interest, if, as there seems reason to suppose, "the nations led by Tidal, king of nations, were the Turanian or Scythian nomad tribes, by whom the country was first peopled; the Semites were established at Babylon, under Amraphel, king of Shinar; Arioch, king of Ellasar, was the head of the Aryan population; while the Hamite race was represented by Chedorlaomer himself. All this agrees with the name *Kiprath-arbat* (four nations or tongues) which is given in the cuneiform inscriptions to the subjects of this dynasty."

Mr. Smith mentions the curious coincidence that whereas "the Medo-Persian Kings found it necessary to publish their edicts in the three chief forms of language—their own, which is Aryan, the Assyrian, which is Semitic, and the Scythic or Turanian;" at this day, "the valley having fallen again under the dominion of a Turanian race, public documents are now issued in Turkish, which is Turanian; Persian, which is Aryan; and Arabic, which is Semitic."

It may be interesting to know that the cuneiform inscriptions are partly on bricks and partly on tablets; the former bear royal inscriptions only, the latter are real books, and the whole body of them forms a vast library, the characters being as fine and the lines as close as those of an ordinary octavo page. The means taken to secure the writing from injury are equally curious and effectual. After the inscribed clay had been burnt to a terra cotta, far more durable than most sorts of stone, it was coated with another layer, on which the inscription was repeated, and the whole was again fired, so that the interior writing might be brought to light long after the exterior was effaced. The writing of the inscriptions is from right to left.

On our Knowledge of the Causes of the Phenomena of Organic Nature. By Professor Huxley, F.R.S. R. Hardwicke, 1863.

In this little volume we have, as it were, a digest of Mr. Darwin's "Origin of Species," rendered into simple, even homely language for the comprehension of working men. Mr. Huxley's name is so well known in connection with the controversies on this subject, that few can be ignorant that he is a believer in Mr. Darwin's theory, nor that he has not adopted these views hastily, but upon mature examination and conviction; and we believe that the number is rapidly increasing of those who can heartily echo his concluding words, that "Mr. Darwin's work is the greatest contribution which has been made to biological science since the publication of the '*Règne Animal*' of Cuvier, and since that of the 'History of Development' of Von Baer. I believe that if you strip it of its theoretical part, it still remains one of the greatest encyclopædias of biological doctrine that any one man ever brought forth; and I believe that, if you take it as the embodiment of an hypothesis, it is destined to be the guide of biological and psychological speculation for the next three or four generations."

Such being the case, Mr. Huxley has done good service by throwing together in a popular form the facts upon which Mr. Darwin's theory is founded; educating, as it were, the mind of the non-naturalist to appreciate the full force of the arguments used, not only for, but against it: for, like his leader, Mr. Huxley by no means shrinks from facing the facts that tell against him.

With this aim, he begins by selecting an animal with which all are familiar, namely, the horse; giving a rapid sketch of its organisation, and its dependence on the vegetable, and through that on the inorganic world, and its final return to the latter, "thus coming to the conclusion, strange at first sight, that the matter constituting the living world is identical with that which forms the inorganic world." The processes of reproduction are next dwelt on, and finally "Geographical Distribution;" and it is shown how little functional difference there is between animals and plants. "For we shall find that, distinct as those plans are, whether it be a porpoise, or man, or lobster, or any of those other kinds I have mentioned, every one begins its existence with one and the same primitive form, that of the egg, consisting, as we have seen, of a nitrogenous substance, having a small particle or nucleus in the centre of it. Furthermore, the earlier changes of each are substantially the same, and it is in this that lies that true unity of organisation of the animal kingdom, which has been guessed at and fancied for many years, but which it has been left to the present time to be demonstrated by the careful study of development. But is it possible to go another step further still, and to show that in the same way the whole of the organic world is reducible to one primitive condition of form? Is there among the plants the same primitive form of organisation, and is that identical with that of the animal kingdom? The reply to that question, too, is not uncertain or doubtful. It is now proved that every plant begins its existence under the same form; that is to say, in that of a cell—a particle of nitrogenous matter having substantially the same conditions. So that if you trace back the Oak to its first germ, or a man, or a horse, or a lobster, or oyster, or any other animal you choose to name, you shall find each and all of these commencing their existence in forms essentially similar to each other; and, furthermore, that the first processes of growth, and many of the subsequent modifications, are essentially the same in principle in almost all."

Having laid this foundation, and devoted one lecture to describing the results of geology, Mr. Huxley proceeds to discuss the origination and perpetuation of living beings, with hereditary transmission and variation, the latter of which he shows to be a necessity, "for inasmuch as the thing propagated proceeds from two organisms of different sexes and different makes and temperaments, and as the offspring is to be either of one sex or the other, it is quite clear that it cannot be an exact diagonal of the two, or it would be of no sex at all; it cannot be an exact intermediate form between that of each of its parents—it must deviate to one side or the other."

Many curious and interesting notices are given of instances of variation which have been recorded; and Professor Huxley then touches on the difficult point of the sterility of hybrids, the one objection to the Darwinian hypothesis which he considers of any value. However, though he admits that "at present, so far as experiments have gone, it has not been found possible to produce this complete physiological divergence by selective breeding;" yet that "when we see how capricious and uncertain this sterility is, how unknown the conditions on which it depends, I say that we have no right to affirm that those conditions will not be better understood by and by, and we have no ground for supposing that we may not be able to experiment so as to obtain that crucial result which I mentioned just now. So that, though Mr. Darwin's hypothesis does not completely extricate us from this difficulty at present, we have not the least right to say it will not do so."

We have only to add that these lectures are written in a most concise and yet lucid style, and are admirably adapted to their object—that of rendering their subject clear to non-scientific persons.

Miscellaneous.

Pyrethrum Powder.—All the Anthemidæ of this group, as for instance, Chrysanthemums, Chamomiles, &c., possess in the sexual parts of the flower a singular narcotic matter, which has a great effect upon insects, and even kills small ones in a short time. In Pyrethrum roseum and P. carneum (just within the disk), this matter is found in the largest quantity. In order to prepare this powder to advantage, only the centre of the flowers must be used, and these must be cut before the seeds are quite formed. It is also very essential to dry them in the shade. The Spaniards, to keep off the gnats, burn the centres of the flowers of the Chrysanthemum Leucanthemum. It is stated that the flowers of Anacyclus valentinus and A. clavatus produce nearly the same effect as the powder of the Pyrethrum. M. Duchartre has used the powder of the wild Chamomile (Anthemis Cotula) to destroy insects. The country people fasten this same plant to the branches where swarms of bees have settled (after having secured them), in order to prevent the bees from leaving the hive. The Mahometans and the Tartars have long employed the powder of the Pyrethrum against all insects indiscriminately. To destroy flies, gnats, and bugs, they burn it on an iron plate, which they slowly heat in order to produce more smoke. But in this country adulteration has also taken place, and it is very difficult to procure the powder pure, doubtless arising from its commercial importance during some few years. They are beginning to use to some extent the Anthemis nigrescens. *E. J. Bedinghaus, in Belgique Horticole.*

Scandinavian Vegetation.—It was on the morning of the 20th [of June] the "Scandinavian" sailed from Hull

for Christiania, and, after a fine passage across the North Sea, we reached Christiansand early on the morning of the 22nd. On learning that the vessel would remain here a couple of hours or more, we went on shore, and had a ramble over the rocks, which rise in a picturesque manner around the beautiful harbour, and also over the town. Among the first plants picked up were the following—Linnæa borealis, Ajuga pyramidalis, Trientalis europæa, Cornus suecica, Silene rupestris, and Asplenium septentrionale. Syringa vulgaris, which had been a month out of flower before we left England, was still in full flower here. Sycamore, Lime, and Horse Chestnut trees appeared to thrive sufficiently well in the little gardens near the town, but the great mass of wood which covered nearly the whole face of the country consisted of Spruce and Scotch Firs. After a short stay on terra firma, we were again summoned on board, when the steamer started for Christiania. On leaving the harbour we passed numerous boats sailing up to the town with mackerel, which were all managed by women, who appeared expert sailors. The fishermen, who have their houses on the coast near the harbour, go out to fish at night, and the women are ready to take charge of the boats in the morning to bring them up to Christiansand to sell the fish, thus allowing the men to get rest and sleep. During the whole day we skirted along the coast within a short distance of it, which enabled the passengers to get a good view of the beautiful scenery it presents. The low rugged hills were everywhere covered with dense black Pine forests, which came close down to the sea, whilst farther in the distance mountains of much greater elevation were visible, with black patches of forest only reaching partly up their sides. At 9 o'clock in the evening we passed the light-house at the entrance of the Christiania fiord, when the twilight kind of darkness which occurred a short time before and after midnight prevented our seeing the scenery on the shores of this fiord. It was, however, sufficiently light again between 1 and 2 o'clock next morning, when we went on deck and enjoyed the fine scenery until the ship reached Christiania at 4 o'clock. After breakfast we waited on the British Consul, Mr. Crowe, who received us with his well-known urbanity of manner, and, on learning the route we intended following, he kindly offered letters of introduction to my two friends, who were going to Hammerfest, with the intention to cross over Lapland to the Gulf of Bothnia. Various circumstances prevented me from making so long a journey; hence I only proposed to accompany them to Trondhjem. Whilst my friends were making preparations I went to the Botanic Garden, which is about an English mile from the town. Soon after arriving there I met the active practical superintendent, M. Moe, who conducted me over the establishment, and enabled me to make a good list of desiderata. Professor Schubeler was not at home when I called, consequently I did not see him. The Botanic Garden is beautifully situated on an eminence which overlooks the harbour, and ships are constantly entering and leaving during the summer months. It joins the park in which the Royal palace stands, and can be easily reached by walking through the park. It is laid out more to suit the piece of ground on which it rests than it is to any regular plan. The range of conservatories is not extensive; and only affords an inferior kind of accommodation for plants in the different divisions. Those cultivated consist principally of South African and Australian kinds, among which are a good many Mesembryanthemums, Aloes, Sempervivums, &c. The herbaceous plants out of doors are arranged in classes and orders, according to the system of De Candolle, and contain among them a large assortment of well-named kinds. Cyperaceæ and Gramineæ were favourite families with the late Professor Blytt, and M. Moe is well up in them also. Besides, the Flora of Norway is peculiarly rich in Carices; and the climate is favourable for their cultivation, hence the best collection I have seen in any European garden is to be found at Christiania. I was able to select about 50 species for the present collection at Glasnevin, which has hitherto been considered a pretty full one. The Grasses contained among them a number of rare alpine kinds, which I have long been anxious to get, but never could lay hold of before. The Coniferous plants, so beautiful in English gardens, are cultivated at Christiania in pots, and moved into the conservatory during winter; the Common Laurel and Laurustinus are treated similarly. The Arbor-vitæ, Thuja orientalis, with one or two of the hardier kinds, have stood out three years, and seem to thrive very well in sheltered spots, which leads me to think there are a good many more now under cultivation in Britain sufficiently hardy to grow in the south of Norway. A large Horse Chestnut, which must be a very aged tree, stands at the entrance gate. Rows of deciduous trees are planted along the sides of the walks and drives through the park, in which the Royal palace stands, consisting principally of Lime, Ash, Oak, and Sycamore. They produce a good effect among the groups of natural Spruce and Scotch Firs, which are still standing in some places, besides affording a desirable shade in summer, when it is sometimes very hot. During two days when I was in Christiania, Fahrenheit's thermometer reached 75° and 80° in the shade, between 12 and 2 o'clock. The shrubs generally cultivated are species of Spiræa, Philadelphus, Viburnum, Robinia, Rubus, and Rosa, which flower much better and more profusely than they do in England. Spiræa Lindleyana becomes a magnificent plant there! The old-fashioned yellow Austrian Rose made a fine appearance in shrubberies. Light, and also heat, but especially the former, being greater there during the summer months than with us, favour the production of blossoms, which appeared to me to be brighter in colour, and also stronger in perfume. But the seasons are too short for most of our fruits ripening. Cherries, with some of the hardier kinds of Apples and Pears, are cultivated near Christiania, but, so far as I could learn, do not arrive at great perfection. The Strawberries offered for sale in the market were the fruit of the common wood kind, Fragaria vesca. Potatos, Peas, and some other sorts of vegetables, were very good. Most of our half hardy bedding-out plants, grow well, and flower abundantly. Pelargoniums, Petunias, Calceolarias, Dahlias, Balsams, Carnations, &c., made beautiful beds in the park, and also in front of some of the houses in the suburbs of Christiania. *D. Moore, in Proceedings of Royal Dublin Society.*

Calendar of Operations.

(For the ensuing week.)

Recently transplanted trees and shrubs will now and during the early summer months require some attention; for failure is often caused by sudden bursts of hot weather or by cold drying winds, when these occur before the plants have had sufficient time to replace their lost roots. Occasional waterings should therefore be given in dry weather, and to maintain a more uniform state of moisture about the tender newly formed fibres, spread, where it can be done, a thick mulching of rotten leaves or dung over the ground as far as the roots extend. This, if objectionable on account of its appearance, might be hid by a covering of Moss. When the plants are very valuable they might be sheltered from drying winds, and even shaded from hot sunshine, by a temporary screen of mats or other suitable material. It need scarcely be added that large trees which have been recently planted should be firmly secured against wind-waving, in order that they may not be displaced, or their roots strained or broken.

FLOWER GARDEN AND PLANT HOUSES.

Auriculas.—Weak liquid manure now once a week will strengthen the trusses; give plenty of air, and fumigate occasionally.

Azaleas.—Give young growing plants liberal shifts; a good fibrous peat with a little white sand suits them admirably, but for stronger growing kinds a small portion of loam may be used with advantage. Give air freely in fine weather, and attend regularly to the stopping, thinning, and training of the shoots. Large specimens will now require more water.

Calceolarias. — Any plants struck during the winter should be repotted into 4-inch pots to succeed the first plants. If not so large, they will make compact handsome bushes for purposes of decoration.

Carnations and Picotees.—If there is any green fly on the plants, give them a good smoking with tobacco or tobacco-paper before taking them from the pit in which they have been wintered.

Cinerarias.—Plants intended for exhibition should now be kept as near the glass as may be convenient; fumigate, so as to have them thoroughly clean before coming into flower, and sulphur such as may be affected with mildew.

Dahlias.—Cuttings struck now will be found to make fine plants; therefore propagate freely, and when sufficient cuttings have been taken, divide the roots to make a few extra strong plants.

FORCING GARDEN.

Cucumbers.—See that the plants do not get overcrowded with wood and foliage, and by no means allow them to bear heavy crops at one time. If you wish them to continue in a bearing state for any length of time, give them a good watering occasionally with liquid manure. Sow some Short Prickly for Gherkins.

Peaches.—The night temperature should not exceed 60° in the early house, until the "stoning" of the fruit is completed.

Pineries.—Secure good linings to plants in dung-pits. Young stock will now be in rapid growth; take care to give air freely night and day, if the thermometer can be kept above 60°. In the afternoon, however, syringe and shut up at 90°, if possible, for a couple of hours. Pines swelling will, of course, now require liberal waterings of warm liquid manure. Those who can find time should syringe the surface of their tan slightly, both morning and evening. It is impossible to keep up too much atmospheric humidity in Pine stoves at this period.

Vineries.—Those who started early will now or soon have Grapes in their last stage of swelling. A mistaken notion prevails with many, that in order to produce well-coloured Grapes, the laterals, at a given period, should be reduced so as to admit the sun to shine on the berries. The most powerful sunshine will not colour Grapes in perfection, unless the Vines possess a proper proportion of leaves and healthy roots. Some of the blackest Grapes we have ever seen, and possessing the finest bloom, were in situations in which we might almost say the sun's rays never shone on them.

HARDY FRUIT AND KITCHEN GARDEN.

See that fruit trees are well covered at night, and during hail and snow storms. The covering should be removed during the daytime, unless in very severe weather. It is a good practice to thin the flowers and young fruit; also keep down insects. The young shoots of Peach and Nectarine trees are very subject to attacks of green-fly, which, if allowed to get ahead, seriously injure them. Syringing occasionally with tobacco-water is the best remedy. If the weather continues dry, all newly planted trees should be well watered, and then have a good mulching of rotten dung.

Beans.—Earth up transplanted ones, and put in another crop if those last sown are fairly up.

Celery.—That sown early in boxes will soon want pricking out. The old plan is very good, viz., to put some very rotten and mellow dung, on a firm bottom. On this, the plants, pricked 3 inches apart, will produce many fibres, and will remove with the trowel, in balls, with the most trifling amount of check. The chief reason why Celery runs, is that luxuriance of growth is succeeded by a sudden check. The buttoning of the Cauliflower is also traceable to the same cause, as is likewise premature fructification in many other plants.

Cauliflowers.—Sow for an early autumn supply.

Mustard and Cress.—Sow at the foot of a south wall.

Potatos.—Continue to plant as the winter crops of Borecole, Brussels Sprouts, and other greens are cleared away.

Spinach.—Hoe between the rows of autumn crops. If the ground is poor, a good soaking of manure-water will increase and prolong its produce.

Strawberries.—Get beds and borders of these weeded and otherwise cleaned before the plants have grown much. Where appearances do not require to be studied, a thin mulching of long stable litter will be found to protect them from cutting winds, and to encourage and strengthen their growth.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending March 30, 1864, as observed at the Horticultural Garden

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 24	16	29.887	29.853	50	20	35.0	45	44	N.E.	.00
Friday 25	17	29.741	29.529	52	28	39.0	43½	44	N.E.	.01
Satur 26	18	29.522	29.518	42	27	34.5	43½	43½	N.	.00
Sunday 27	19	29.563	29.560	50	27	38.5	43	43½	N.E.	.00
Mon. 28	20	29.485	29.681	59	30	44.0	43½	44	W.	.12
Tues. 29	21	29.502	29.151	48	24	36.0	43½	43½	N.	.01
Wed. 30	22	29.667	29.409	50	25	32.5	43	43	N.W.	.00
Average.		29.626	29.434	48.8	25.5	37.1	43.5	43.6		.1

March 24—Frosty; dry haze; sharp frost at night.
— 25—Dense fog, overcast, slight frost.
— 26—Fine; overcast and cold; slight frost at night.
— 27—Fine throughout, slight frost.
— 28—Fine; cloudy and cold with dry air; fine at night.
— 29—Cold, cloudy and windy, clouds low in snow-like masses; overcast, frosty.
— 30—Heavy fall of snow in broad flakes, commenced 5—6 A.M.; cloudy and showery.

Mean temperature of the week, 6 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending April 9, 1864.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3..	56.8	35.2	46.0	19	1.19 in.	4	4	5	3	4	12	3	3
Mon. 4..	56.5	36.1	46.3	14	0.30	5	3	3	1	3	12	6	5
Tues. 5..	56.9	36.5	46.7	17	0.30	2	6	4	2	3	7	12	2
Wed. 6..	59.1	34.7	46.9	14	0.30	2	9	4	2	4	13	2	1
Thurs. 7..	59.4	36.9	48.1	18	0.50	2	8	4	2	2	12	7	1
Friday 8..	55.7	33.8	45.8	21	0.69	2	6	7	1	6	8	6	2
Satur. 9..	54.5	35.5	45.0	19	0.73	2	7	7	1	5	6	6	1

The highest temperature during the above period occurred on the 7th, 1859—therm. 79 deg.; and the lowest on the 10th, 1860—therm. 20 deg.

Notices to Correspondents.

Ailanthus Silk Worm: *W P.* We do not know who deals in its eggs. You might enquire of Mr. Hooper, Central Avenue, Covent Garden, who can probably procure them if he does not keep them for sale.

Aucubas: *John G.* We presume the male Aucuba is at present only to be obtained in the Ascot Nursery; but of course, amongst the many seedlings which have been raised, males may be expected to appear by and by.

Climbing Roses: *M M E.* You cannot do wrong in planting Amadis, Ruga, Splendens, Thoresbyana, Adelaide d'Orleans, Félicité Perpétue, Celine Forestier, Myrianthes Rénoncule, Gloire de Dijon, Homer; and if you are sheltered enough, you may add Russelliana, Cloth of Gold, Jaune Desprez, La Biche, Ophirie, Lamarque, and Solfaterre. Paul's "Rose Garden" is a trustworthy guide.

New Hyacinths: *J R.* The best of those which have appeared in public, are King of the Blues, very fine, Lord Palmerston, also a fine lilac-blue, with a white eye; Thorwaldsen, a blue with large bells and flat segments; and Robert Fortune, a reddish mauve. They are all acquisitions.

Names of Plants: *P B.* 1, Scilla sibirica; 2, S. præcox; 3, S. bifolia.—*J M.* Helleborus fœtidus.—*Ellen.* The finely-cut Fern shown by Mr. Bull the other day, was Asplenium ferulaceum.—*R S.* 1, Primula denticulata; 2, P. nivalis.

Pruning: *A Young Gardener.* The Apricot, Plum, and Cherry, although ranked among *stone fruits* like the Peach and Nectarine, should not, however, be pruned in the same way as the two last mentioned These require to have their young shoots shortened in the winter following that summer in which they are produced, for the reasons stated in the article to which you refer. But as regards the Apricot, Plum, and Cherry, it is not necessary to cut out the wood that has once borne, because, unlike that of the Peach, it will bear again, and on spurs for many years, without danger of the branches becoming naked. Their shoots may be laid in at full length, unless they be weak at the points and badly ripened; then these weak points should be cut off. Or, if the shoots are very long, and in consequence are not likely to push their buds near the base, they should likewise be shortened to make them do so. They may also be cut back to the point where it is desirable to originate another leading branch.

Unusual Plants: *T D.* The common things can be had any where, as you are aware. As to the others, you had better apply to the Curators or Superintendents of such Botanic Gardens as are within your reach—Glasnevin for example—or Kew in case of need. The Newtown Pippin may be had at any of the great nurseries.

CARTER'S FARMER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

THE LONDON SEED COMPANY, LIMITED'
68, Welbeck Street, Cavendish Square, London, W.
The GENERAL FARM SEED DIRECTORY, with full Instructions for the Management of a Farm for every Month in the Year, will be forwarded Gratis and Post Free to any address in the kingdom.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
Purchasers of Large Quantities of AGRICULTURAL SEEDS will be dealt liberally with.
All Seeds Carriage Free.

Mangel Wurzel and Turnip Seed.

KING'S CHAMPION ORANGE GLOBE WURZEL, superior to any other.
Fine YELLOW GLOBE. | Fine RED GLOBE.
Do. ELVETHAM LONG RED.
Do. LONG YELLOW, from roots, many of them 3 feet long; a heavy cropper.
SKIRVING'S and PURPLE-TOP SWEDE TURNIP SEED.
All the above are saved from none but the best Stocks.
PRICED LISTS with testimonials sent post free.
JOHN K. KING, Seed Grower, Coggeshall, Essex.
Established 1793.

To Flock Farmers on Chalk and Light Lands.

ANTHYLLIS VULNERARIA, or KIDNEY VETCH, a newly-cultivated Forage plant.—It is not only excellent as Green Food for Sheep, but it makes the most nutritious and valuable Hay; both Sheep and Horses are very fond of it. It is very productive; as unfavourable as last season was, it produced nearly 2½ tons per acre. That it may be generally used, the price this year is reduced to 1s. per lb. To be sowed with the Barley, 16 lb. to the acre of seed.
1s. 6d. each for sacks.

Address, Mr. H. STEBBING, Slow Bedon Hall, Attleborough, Norfolk.

The following are Testimonials from gentlemen in the neighbourhood:— (Copy.)

"Barnham, Thetford, Norfolk, Dec. 24, 1863.

"Dear Sir,—It gives me great pleasure to report favourably from my experience in the growth of the plant Anthyllis vulneraria. I have now grown it three years, increasing the extent each year. I had 20 acres last spring, which I fed constantly with my ewes and lambs till the last week in May; from that time I saved 12 acres to mow, had a good two loads per acre, and that on very poor land. The Sheep are remarkably fond of it, and I believe it to be a most valuable plant. I have just received the following testimonial from Mr. G. Kersey Cooper.—I am, dear Sir, yours very truly,
"GEORGE TURNER.

"P.S.—My first piece laid down in 1860 was only 1¼ acre, which is still very productive."

"Euston, Thetford, Norfolk, Dec. 24, 1863.

"Dear Sir,—I am happy to add my testimony to the value of the plant you call Anthyllis vulneraria (better known to me as Kidney Vetch), as feed for sheep on poor sandy soils. I have particularly watched the growth of that grown by you at Barnham, and I have never seen so much food produced from any plant as this, on very poor land.—I am, dear Sir, yours respectfully, "G. KERSEY COOPER.
"To Mr. Turner, Barnham."

"Swaffham, Norfolk, Feb. 18, 1864.

"To Mr. HENRY STEBBING.—Dear Sir,—The Kidney Vetch I had from you produced 5 loads per acre, much to my astonishment, as in the early part of the spring there appeared to be nothing of it.—Yours very truly, "JACOB FINCH."

"Langford, Brandon, March 8, 1864.

"I bought 1 bushel of Kidney Vetch seed of Mr. STEBBING in 1862, with which I sowed 4 acres of very poor sandy land, the subsoil chalk, and near the surface. I consider the plant well adapted to give a good crop of Hay on the poorest soil.
"F. E. CALDWELL."

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, Seedsmen to the Gloucestershire Agricultural Society, offer the following SEEDS of finest quality, at the prices annexed. Carriage Free by Rail, and will allow 5 per cent. discount for cash.

PERMANENT PASTURE.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium loamy soil, at 30s. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium clay soil, at 30s. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for heavy clay soil, at 28s. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for light brashy land, at 27s. 6d. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for Orchards, at 30s. per acre.

GRASSES and CLOVERS, rather rough and coarse: for game covert, at 18s. per acre.
JERUSALEM ARTICHOKES, for planting in game coverts, at 6s. per bushel.

J. C. WHEELER & SON, Seed Growers, Gloucester.

SELECTED SEEDS, CARRIAGE FREE.
W. PAUL'S SUPERB CRIMSON BEET, 1s. per ounce.
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1s. per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2s. 6d. per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1s. p. pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1s. p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6d p. pkt
BROCKET HALL BROWN COS LETTUCE, 1s. per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1s. per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1s. per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1s. per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1s. per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5s.
" finest mixed, 1s. to 2s. 6d. per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1s. to 2s. 6d. per packet.
LAPAGERIA ROSEA, 1s. to 2s. 6d. per packet.
All other Seeds, separate or in collections, of best quality.
PRICED DESCRIPTIVE CATALOGUE free by post.
Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

Grass Seeds for all Soils.



SUTTON AND SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:
From Professor LINDLEY, *Royal Horticultural Society, London.*
"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre.
	s. d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30 0
Cheaper MIXTURES, omitting certain sorts .. 20s. to	26 0
Best quality ditto, for Three or Four Years' Lay ..	21 0
Ditto ditto, for One or Two Years' Lay 12s. 6d. to	17 6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6s. to	9 0
Finest LAWN GRASS SEEDS .. .. per bushel	18 0
PARK LAWN GRASS SEEDS .. .. "	16 0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October 1862.
A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.
Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.
PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At the meeting of the Royal Agricultural Society on the 16th March, in a Lecture delivered by ALFRED HUGHES, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger* and the *Mark Lane Express*, Mr. Hughes says:—
"I always reserve a portion of Oat Land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable Plant I have come across for some years for ewes and lambs in the spring. When I tell you that I put it in in the spring and dressed it after harvest with guano, and that in the autumn when my sheep fed it off it was up to their knees, and that I fed it off again this spring with ewes and lambs, I think you will agree that it is a crop of very great value. This Italian Rye-grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed I never saw anything to equal it in the course of my experience."
Mr. W. CARDWELL, of *Nunnery Farm, near Sheffield*, in a letter to Messrs. SUTTON, dated April 9, 1863, says:—
"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."
Messrs. SUTTON have also been favoured with the following on the same subject:—
Mr. R. STURT, *Pilming, September* 14, 1863.
"The SUTTON'S Improved Italian Rye-grass seed I had from you last year was very good; I think every seed came up. I have a beautiful plant, and have cut four good crops from it since the 30th of March last. It surprises my neighbours very much.
From JOHN BALDWIN, ESQ, *Luddington, April* 11, 1859.
"It is certainly delightful to witness the sheep up to their knees in your beautiful Italian Rye-grass."
From FREDERICK H. HALLETT, Esq, *The Manor House, Brighton.*
"I mowed some of your Italian Rye-grass at Christmas, 1856; again April 12, 1857; three times since in same year, and am mowing it again now, March 15, 1858. The cut on April 12 was four feet high, and a perfect mass of grass."
From J. H. FOWLER, Esq., *Eastleach, May* 16, 1862.
"I seeded some Rye-grass this last year, the seed of which I had from you, and sold it for 6s. per quarter more than any other sample in the market, in consequence of its very superior quality. Your Turnip and Swede seed also produced the best roots I ever saw. They were universally admired in this neighbourhood. Your Champion Swede is, I am satisfied, the best that can be sown—mine lasted and were quite juicy to the end of March, and none went rotten."
SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass. Present price 6s. 6d. per bushel, carriage free in quantities of 8 bushels and upwards.
Quantity required per acre if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

Farm Seeds.

RICHARD SMITH is now prepared to supply the following SEEDS, all of which have been selected with the greatest care, and are of very superior quality:—
CLOVER, BROAD ENGLISH RED, 58s.—62s. per cwt.
" PERENNIAL or COW GRASS, 68s.—75s. per cwt.
" WHITE or DUTCH, 62s.—70s. per cwt.
" YELLOW or TREFOIL, 30s.—34s. per cwt.
" ALSIKE or HYBRID, 76s.—84s. per cwt.
RYE-GRASS, Finest PERENNIAL, 6s.—6s. 6d. per bushel.
" ITALIAN EXTRA, 5s. 6d.—6s. per bushel.
SWEDE, SMITH'S WORCESTERSHIRE, 9d. per lb.
" KING OF THE SWEDE, 8d. per lb.
MANGEL WURZEL, ORANGE GLOBE, 6d. per lb.
" " RED and YELLOW, 6d. per lb.
" " LONG RED and YELLOW, 6d. per lb.
" RICHARD SMITH, Seed Merchant, Worcester.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.
PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Clovers and Rye-grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-grass, at 12s. 6d. per acre; or Clovers without Rye-grass at 10s. 6d. to 12s. 6d. per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 to 16 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—
From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.
"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."
In ordering it is only necessary to state that "Clovers and Italian Rye-grass," or "Clovers and Common Rye-grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.
Royal Berkshire Seed Establishment, Reading.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO
SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.
New Seed now ready, 9d. per lb., or cheaper by the bushel, carriage free.
Royal Berkshire Seed Establishment, Reading.

IMPROVEMENT of OLD PASTURES, PARKS, and MEADOWS, by sowing the most suitable kinds of GRASS and CLOVER SEEDS.
SUTTON'S RENOVATING MIXTURES.—Quantity of Seed required, 8 to 12 lb. per acre. Price 9d. per lb., or 80s. per cwt.
From the Rev. CANON GUTHRIE, *Vicarage, Calne.*
"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."
From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*
"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."
Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.
Our RENOVATING MIXTURE consists of the Finest GRASSES and PERENNIAL CLOVERS. If the Seeds are sown *early in the season*, the improvement in the Pasture will be very great, and at a small expense.
Royal Berkshire Seed Establishment, Reading.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.
JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.
N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, 1864.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, APRIL 2, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	April 4	Central Farmers' Club .. .. .. (Mr. Dumbrell on the New Assessment Act.)	6 P.M.
WEDNESDAY,	—	6—Royal Agri. Society of England ..	Noon

THE variations to which cultivated or induced varieties of plants are liable is a matter so full of interest that we make no apology for again publishing our notes on so important an agricultural subject.

We have been accustomed to speak of the different sorts of any cultivated species as *derivative forms*, which have been attained either as the result of accident or more generally of selection.

Now it seems clear that inasmuch as such new forms can in the latter case be obtained only by great care in the selection of individuals that are to be reared for the growth of seed, so this care must be exercised to keep any derived form up to the mark arrived at. If this care be not exercised,

the specimen reverts from its attained status and becomes degenerate.

This, then, is exactly what is taking place, and more rapidly than is by some supposed, with the Swede crop. The Swede is a derived plant, and our experiments lead us to suppose it a hybrid of some form of common Turnip with a plant of Rape; but without theorising as to how a Swede has been created, it may be described in its best specimens as a *globe* of succulent vegetable tissues, the lower part of which tapers into a tap root, while the upper part has its crown surrounded by large leaves; and when well formed it is not forked in the root on the one hand, not necked or multiheaded on the other.

Such a specimen then may be safely chosen to plant for "seed from selected bulbs." Such examples, however, are so rare that he who rigidly chooses or selects them for seed, will we are certain produce seed so good as to be worthy of a large increase of price.

But let us examine into this myth of selected bulbs! If we may judge from the samples which usually carry away the prizes at root shows, even the judges of roots do not quite understand the physiology of a good root, as most frequently the prize will be given to the largest series, regardless of forked roots or branched tops, and so again for the best crop the prize is awarded to the greatest weight per acre.

Now in estimating the value of these two points, we would direct attention to a piece of Swedes on our own farm of about 5 acres; these we estimate at about 17 tons per acre, which is perhaps a little beyond the average of prize fields.

In this field many of the roots were as much as 24 inches in circumference, and yet if we had conscientiously selected examples for seeding, we should consider only about 10 per cent. as properly adapted for seed growing; the following being an analysis of 500 average roots taken just as they were lying side by side for topping and tailing.

Analysis of Golden Globe Swede.

1. Root and top sufficiently well formed for seeding ..	54
2. Necky and multiheaded	44
3. Necky or finger-and-toe, or both	402
	500

Here then we had to deal with a crop by no means deficient in weight, and yet, how malformed, *i. e.*, for the purpose of propagation! In fact this field presented all forms intermediate between a good globular succulent root and an entire absence of fleshy roots, but in their stead branched woody roots like those of Cabbages, whilst the single crown, which is the usual attendant of a well formed root, had become branched into stems and side branches of more than a foot in length.

In order to an estimate of the real value of these changes, we took pains to measure a series of representative examples, and we would recommend a careful study of the following table as showing the progress of degeneracy; and as, in the present day, there are few large fields of Swedes that would not afford the like example, so an estimate of the proportionals of our three divisions will give the amount of the resulting degeneracy.

Table representing the Declension of Swedes:—

	Number.	Circumference of Bulb (inches).	Length of Bulb.	Circumference of Neck.	Length of Neck or Stem.	
I. Good Swedes.	1	22½	7	6	2	Tolerably well formed bulboid roots, with small, short, more or less well formed necks, having only a single crown.
	2	18½	6	4½	1½	
	3	22	7½	6½	3	
	4	18	8	4½	1½	
II. Degenerate Swedes.	5	13	8	9	12	Much forked in the root. Stems long, woody, and more or less branched, some of the side shoots being many inches in length.
	6	11	10	5	12	
	7	11	4	9	8	In these the root is rather a collection of fleshy forks than a bulb, whilst the stem is more that of a branched "green."
	8	13	4½	9	11	
III. Bastard Rape.	9	6	5	6	19	Root-stock graduating into hard woody forks (not fleshy). Stem more or less branched with woody Rape-like stems
	10	Woody root stock.	Branched.	A collection of stems.	10	
	11				8	
	12				20	

This table shows the nature of the progress to degeneracy in Swedes, and to such an extent is this plant degenerating, that at present there are few fields in which a large majority of at least the second group may not be found. As regards the group 3, this will be less or greater in numbers according to the care with which the seed has been grown, and the skill employed in its cultivation, for our own experiments show in the clearest manner that the use of degenerate forms of roots for seeding purposes results in even a lower formed progeny, so that if we were to seed this bastard Rape—for be it remembered these rough-looking branched examples are not true Rape—we should expect such seed to produce tops, but not bulbs; and when we look at the large size of these bastards, and calculate the amount of green crop they are likely to bear, all cross or mixed breeds having a tendency to produce size, it is not improbable that in the Rape-like plant we should find a useful crop.

These remarks, then, show how important it is that we should select our plants in growing seed; and so fully is this recognised that people buy Turnip seed all the more readily that purports to be from selected bulbs, and hence seedsmen profess to sell "seeds from selected bulbs;" but let any man look about the country and he will conclude that not a fiftieth part of the seeding patches that will come under his observation is grown from even shifted bulbs, to say nothing of *selected ones.* Seedsmen will sometimes grow from transplanted bulbs, but generally speaking the breadth so occupied is not anything like proportionate to the extent of their trade.

We take it then to be true that there is a tendency to degeneracy in cultivated plants if their seed be not grown with great care, and consequently we should be prepared to pay for the exercise of care and judgment. If, however, seeds are sold under the assertion that this has been done when it has not, of which we have had notable examples in our own experience, it is justly a matter for condemnation; and if then we apply this to the great development of bastard Rape we occasionally meet with in a Swede crop, we have no hesitation in saying that it is the result of growing degenerate seed, wherever the fault of doing so may rest.

We shall here be met with the assertion that the same seed behaves very differently in different positions. This we admit. It is quite true that even a degenerating sample will not show its downward tendency in so marked a manner when the seed is sown in a different climate, leaving a colder for a warmer position, or with good cultivation; but that it will be there we are assured by the results of careful experiment and extensive observation; and we are as certain that a bad strain will result in a degeneracy of crop as that a carefully grown seed will produce, other things being equal, not only a better form, but even a larger produce.

Mr. Du Boulay has announced "the still, warm, dry, but not productive summer, of 1864." The equinoctial week was still and dry, but some degrees below the average temperature of the period, so that we hardly understand the consistency of this prediction with the indications on which we understand it to be built. The following, however, is his account of the ensuing season in detail:—

"I certainly think that the season will be fine—in fact, too fine, and that want of water from above may probably curtail, below the average, the amount which the soil might otherwise produce, of every variety of spring-sown crop, including Grass and forage plants, Oats, Barley, Beans, Peas, and root-crops generally—Potatos, Mangel, Turnips. I do not mean that these crops are going to fail altogether, because I think the summer itself will be in its own nature in many respects a genial one, and that the dews of Heaven will do much to keep all vegetation going throughout; but I do think that all these productions may eventually come short, and that even Wheat, favourable as is a dry season to it, will not be superabundant, like last year; for a very little disposition to premature ripening, when not dissipated without delay, by an immediate change of weather, will very easily curtail that also.

"I do not think, therefore, that the season will eventually be called a productive one, though it probably will be called a very fine one; and comparatively backward as the spring now seems to be, I believe the harvest will be an early and not a late one. I believe that May, June, July, August, and September will, in the aggregate, be superior as regards warmth and inferior as regards rainfall to the average of seasons; and that the summer cannot possibly be tempestuous, promising, as it does, to be the exact opposite to that of 1860."

The summer "cannot possibly be tempestuous," because the equinoctial week was calm—but the week following the equinoctial week has been unusually boisterous. And there is not the smallest reason to suppose that the week, 18th—24th of March, has any greater influence on the coming weather than the week, 25th—31st. There is not the slightest probability that any one will allow a prediction of this kind to influence his business arrangements; or we might take pains to show its utter baselessness. Its author's only chance of obtaining a hearing for it would be to show from meteorological records how often his so-called rule connecting the equinoctial week with the subsequent summer, has been observed. Instead of this, however, he condemns the whole affair by entering the lists on equal terms with an "astro-meteorologist;" and the planetary and equinoctial theories are thus placed by himself in equal rank on the scale of folly and absurdity.

CATTLE IMPORTATION BILL 1864.

At a recent meeting of salesmen and others interested in the importation of foreign cattle, the following resolutions were adopted, viz:—

1. That any measure calculated to diminish the fatality of the diseases of cattle will be a great boon to agriculturists and the public. That having considered two Bills now before Parliament, entitled respectively "A Bill to prevent Infectious Diseases among Cattle," and "A Bill for the Amendment of the Law relating to the Importation of Diseased Cattle and Meat," this meeting is of opinion that certain sanitary clauses therein proposed may be productive of much benefit, but that other clauses directed to the same end will tend to aggravate the evil, and cause heavy loss to all classes connected with the trade in cattle.

2. That the foot-and-mouth complaint is general among cattle brought to the London market, and has existed without intermission for a period of more than 25 years, and before the importation of foreign cattle; that it attacks no vital part of the body, and that the flesh of animals suffering from it is not thereby rendered an unwholesome article of food, and that a prohibition of the sale of cattle with the foot-and-mouth complaint will occasion immense loss to the owners of stock, and greatly diminish the supply of food to the public, and also greatly enhance the price of butchers' meat, and ultimately deter agriculturists from sending their stock to market.

3. That it is desirable that a schedule be added to the "Cattle Importation Bill," specifying what diseases shall be considered as infectious and contagious.

4. That the unsoundness of cattle is a subject with respect to which an error of judgment on the part of the Government Inspectors may occasion great loss and injustice to the importer, and that, therefore, it is desirable that a power of appeal be allowed to importers, or their agents, who may be dissatisfied with the decisions arrived at by the Government Inspectors, and this meeting is of opinion that the Royal Veterinary College will be a fit authority to constitute in London for the purpose.

5. That it is highly desirable, owing to the great suffering and fatigue which cattle endure on their voyage from foreign ports, that the animals on their arrival in this country be immediately inspected and passed without delay, in order that they may be supplied with the necessary food, and allowed that rest so beneficial to their well-being, previous to the exposure for sale.

6. That the disinfecting or otherwise purifying any quay on which animals with an infectious disease may be landed, should form a part of the business of the wharfinger, as is now the case with the cleansing of cattle ships and cattle trucks by shipowners and railway carriers.

7. That as the importers of cattle and meat are, with very rare exceptions, residents in foreign parts, upon whom the penalty of 100*l.* proposed by this Bill for the importation of diseased cattle and meat cannot be enforced, and that as the importers' agents, or salesmen, have no control over the shipments consigned to their care, and are in nowise responsible for the health of the animals at the time of arrival in this country, the destruction of any diseased imported animals or meat is the only preventive measure that can be reasonably enforced.

8. That a committee be appointed to prepare a petition, praying that the Bills now before Parliament respecting the cattle trade be amended to meet the exigencies of the trade, and to adopt such measures in reference to the inquiry which is about to take place before a select committee of the House of Commons as may be needful.

A WEEK UPON THE COTSWOLDS.

Having lately enjoyed a visit to the farm of Mr. Stiles Rich, of Didmarton, on which during the last 18 or 20 years a herd of pure-bred Short-horns has been established, a short account of it may not be uninteresting to our readers. The farm is also interesting

as having preserved records of its produce since so far back as 1774, when the average produce of Wheat during several years was about 17 bushels per acre; of Barley, 25 bushels; and of Oats, 30 bushels. The crop now averages 30 bushels of Wheat, 4 quarters of Barley, and 36 to 38 bushels of Poland Oats. Nothing is more clearly made out from these figures than the increasing fertility of the Cotswold district, of which this is a specimen farm.

The farm is about 680 acres in extent, 400 acres arable, and 280 acres pasture. The labour force of the farm includes 23 men, 7 boys, and 10 women; and 12 horses besides 2 ox teams. Extra hands are also sometimes employed, as during hay and corn harvest, and at Turnip-hoeing time. The cropping includes 170 acres in corn, 170 acres in Clover and Grass seeds and Sainfoin, and about 60 acres in Turnips. The rotation is 1, Wheat; 2, Oats or Barley; 3, Turnips; 4, Barley, or spring Wheat; 5, Clover, kept down a second year; and one-seventh of the land is generally in Sainfoin. A good deal of paring and burning is carried on upon the farm, and in the neighbourhood generally the old Sainfoin is thus broken up for green crop of some kind. The practice of stifle burning, by which a larger quantity of soil in proportion to the fuel is exposed to heat than by any other way, is also carried out to some extent, though not so extensively as it used to be.

It is, however, the herd of pure bred Short-horns upon his farm that distinguishes Mr. Rich in a district which is generally well cultivated. The farm has always been to some extent a dairy farm, the Long-horns having been originally the sort adopted, but now by gradual purchases at well-known sales during the past 20 years, and by the employment of first-class bulls, a herd including members of some of the most fashionable strains of pure Short-horn blood has been collected.

Thus at the sale of Mr. Glass, of Worton, near Devizes, in 1847, three pure bred Short-horn cows were obtained, which have several descendants now in the Didmarton herd. About 1852 a good cow of Lord Ducie's, "Ursula," by "Usurer," was obtained from Tortworth, and she has eleven female descendants at Didmarton. Another "Usurer" cow ("Flourish") was bought at the Tortworth sale, and she has eight descendants. Old "Splendour," a cow bred by the Hon. Noel Hill, and bought at Mr. Dickenson's sale 9 or 10 years ago, has four female descendants. "Sweetbread," another cow bought at Mr. Dickenson's sale, has eight female descendants at Didmarton. Captain Gunter's cow "Phœbe," descended from Sir C. Tempest's blood, has four female descendants at Didmarton, one of which is by "6th Duke of Oxford." From "Florentine," bought of Mr. Sainsbury, of Corsham, there are several female descendants. "Oak-leaf," bought at Mr. Harvey Combe's sale, has four female descendants; and there are three heifers from another cow "Kathleen," directly descended from the Tortworth herd. In 1859 there were bought at Mr. Tracey's sale in the county of Kent, "Snowberry," her daughter "Clusterberry," and "Carolina 2d." And of Lady Pigott, "Belvoir Lady" and "Belvoir Duchess," a calf by the "6th Duke of Oxford," were purchased, A red cow "Libel," bred by Mr. Bolden, of Lancaster, and almost entirely of Warlaby blood, has also been added to the stock, by purchase from Mr. Strafford. Waterloo 28th, bred by Mr. C. S. Bolden, bought at Mr. Hale's sale, has just had a heifer calf by "7th Duke of York." Mr. Rich was the purchaser at the Sarsden sale of Lady Charmer, a cow of the celebrated *Chaplet* family; also of Alma Mater, a cow calf of the Louisa tribe, both descended from the well known Tortworth herd, which will no doubt add materially to the future value of his herd.

The bulls employed on this herd have been as follows:—"Old Strickland" (11,870), bred by Miss Strickland so long as 1837 or 1838; "Ned Poins" (6241), bred by the late Mr. Cotterell of Congresby in 1842; "Berkeley"(7830) bought a calf at Lord Ducie's sale in 1845; "White Helicon" (13,999), bred by Lord Ducie, and bought in 1843; "Saturn" (12,051), bred by Mr. Woodward in 1846; "Douglass" (12,715), a grandson of Bates's "Duke of Northumberland;" "Valentine" (13,932), bred by Lord Ducie, calved in 1852; "Duke of Ulster" (12,774), bred from "Ursula," by "4th Duke of York," calved in 1853; "Koh-i-noor" (11,642), bred by Lord Ducie, also by "4th Duke of York," calved in 1851, was used four years; "Cupid" (14,359), bred by Mr. Sainsbury in 1856, by "4th Duke of Oxford," out of "Darlington 6th," the latter being bought by Mr. Thorne, America, at 300 guineas: and latterly the magnificent white bull 7th Duke of York (17,754), bred by Captain Gunter, which is now at Didmarton, and has already a lot of produce there of first-rate character. Among the young bulls and bull calves by him now for sale is Heir of York, a rich roan, calved last October, bred from a daughter of *Snowberry*, named above. Conrad, a red and white bull, now 9 months old, got by 3d Duke of Lancaster (19,624), also out of a daughter of Snowberry. Prince Royal, rich roan, 12 months old, by Duke of Clarence (19,611), out of a granddaughter of Captain Gunter's cow *Phœbe*, named above.

Earl of Elgin, roan, 6 months old, got by 7th Duke of York, from a granddaughter of *Kathleen*, named above. And Frank Fairlegh, by Earl Howe (a bull by Captain Gunter's Grand Duke of Oxford), out of a daughter of Lord Ducie's *Flourish*.

The above account of their breeding is enough to guide any one likely to become a purchaser.

The farm is, however, interesting, not only for the first-class herd which has been by Mr. Rich's enterprise and judgment, and patient resolution, grown up upon it, but, as already stated, also for its ordinary arable management, and for the records of its produce, kept through many years, which prove the gradual and constant increase of its fertility.

AGRICULTURAL PLANT IMPROVEMENT.

While treating of the rival principles of cultivation and selection, in your Leading Article of the 5th March, you have neither correctly defined nor defended my views on agricultural plant improvement; I therefore ask space for explanation in your valuable paper.

Of the three "alleged facts," none of which you think I will venture to deny, I take exception to all of them. Commencing with the first postulate, namely, "that the grains of cereals differ in their powers of productiveness." In discussing this subject you seem in doubt whether Mr. Hallett means the grains of different varieties or of a single ear, and you sometimes adopt the one view and sometimes the other. It is, however, evident that the grains of a single ear is meant, as the system he advocates is based upon it, and which you explain as selecting the best ear for successive generations. In ears of a fixed variety of Wheat, and more especially large ears, seeds are often found different in size, form, quality, and sometimes also in colour, but all the descendant plants are equally productive when grown under a parity of circumstances. It is space, nourishment, soil, climate, &c., which causes inequality in the productiveness of Wheat plants of the same variety, and not inherent properties of the seeds. The diversity of seeds and uniformity in type of plants proceeding from them are known to every observant cultivator. Farmers do not attribute inequality in the size of Turnips of a variety grown in the same field to anything but space and nourishment surrounding the plants.

The second postulate, "that the descendant plants and grains inherit more or less the characteristics of their respective parents, is true only in a restricted sense, there being anomalies with Wheat. From seeds of varieties with fixity of type descend plants identical in character, and unless this is the case the term variety is perhaps misapplied, but the seeds have nothing in common beyond the germs giving life to new plants. Some anomalies are known as sports, which often prove fixed varieties, differing widely from the parent plant. Other anomalies arise from the pollen of one floret coming in contact with the style of another, and are sometimes called hybrids, which often, but not always, prove inconstant on reproduction from seed. An ear of this description, and its seeds which came into my possession produced 13 plants, and 5 of them had characteristics of chaff distinct from each other, and all different from the original ear, and the diversity goes on increasing from year to year. With sporting Wheats, and there are several of them from different origins, I have not succeeded by repeated selection to fix any type, but perseverance may effect this object. I am not without hope that my sporting Wheats may give rise to new and valuable varieties; but whether the expected kinds are to be fixed by repeated selections, or to arise fixed by nature, can only be determined by experience.

On the fixity of characteristics Mr. Hallett's sentiments differ widely from mine. He believes them changeable, and capable of being fixed by yearly selection, while I consider them fixed in ther origin, and unalterable by cultivation. But while contending for fixity by nature, sports and hybrids are exempted. We are perhaps agreed that selection is the best, if not the only way of improvement, while we pursue different modes of attaining the desired object. Mr. Hallett begins with a grain—one of the most minute, uncertain, and mysterious parts of a dead plant, while my foundation is a living object, with all its characteristics and properties fully displayed. The results of the systems brought out form a striking contrast. The bearded varieties bearing my name are new in their field characteristics, with beautiful grain yielding flour of the finest quality. Hallett's Pedigree Nursery variety has a strong resemblance to Kessingland in the field, as well as in a corn exchange, and yielding flour best suited for the dusting purpose of the bakehouse.

The three alleged "facts" which have been enunciated, approved, and defended in the editorial columns of the *Agricultural Gazette*, have so damaged the system of Wheat improving by the yearly selection of ears and grains, that it cannot now be successfully maintained. If the first selection was an ear of Nursery, which is a fixed variety, Mr. Hallett and the "faithful" ought to explain how it was made to alter from year to year, and how the ears and grains change while the other parts of the plant remain fixed. They also ought to point out the yearly rate of change, the length of time requisite to bring about the maximum increase, and if the present generation may expect to see Hallett's Pedigree Nursery Wheat with ears as long as the handle of a pitchfork and grains larger than a quartern loaf.

The second alleged "fact" is also seriously damaging to the yearly system of plant improving. If it is true without exceptions—and none have been mentioned—"that descendant plants and grains inherit more or less the characteristics of their respective parents," it is difficult to see how any change whatever can take place. This postulate is obscure, and the words "more or less" may have been inserted to provide an escape from error if anything of the kind should be detected. The expressions best plant, best ear, and best grain, leave no doubt that magnitude is the leading property desired. Now, if largeness of a single grain can be inherited, so can every gradation of size, and this leads to the monstrous conclusion that grains which have been reduced to little better than mere skins will transmit their shrivelled conditions to the grains of the succeeding generation. But although exemption may perhaps be claimed for such visitations, still enough may be gleaned to condemn the postulate. In the case previously noticed, where out of the grains from one ear there were five plants out of 13 unlike the parent ear, which was discovered in my own nursery, and was not influenced by human agency, there was an undeniable departure from the characteristics of the parent plant. But I had another illustration while investigating the origin of sports. I fecundated a floret of Shirreff's Bearded White, with pollen from another floret of the same ear, and in the following year the operation was repeated on three florets of an ear of the resultant plant. One of the grains obtained in this manner produced a plant with bearded white chaff, a second plant had bald white chaff, and a third had chaff white, bald, and semi-woolly (pubescens). I also fecundated a floret on the same ear with pollen from Talavera, and the descendant plant was bald, with grain bell-shaped, and nearly as high coloured as red Wheat. None of these Wheats proved fixed on reproduction in the second year, and diversity of characteristics often extended to the grains.

But by far the most damaging part of the leading article in question is a paragraph treating of fixity of characteristics, where the writer says:—"The former (Hallett) has in fact by, we presume, excessive thin seeding year after year, brought his principles of continuous treatment to bear in fixing the excessive coarseness which thin seeding tends to produce. So that the inferior quality of the grain may be pointed to in proof of the soundness of his theory." This extract is a full and clear admission that Hallett's system of plant improvement, so extravagantly lauded at home and abroad, has resulted in producing Wheat of "excessive coarseness;" so that the system has not only failed to improve, but has produced great deterioration. I have long been anxious to break down this system, hurtful by misleading agriculturists in plant improving, and I rejoice at the most effective aid lately received through the columns of the *Agricultural Gazette*.

Before concluding allow me to notice part of a letter from Mr. Hallett in your paper of the 5th instant, and contained in parallel columns. The matter in the left-hand column was written on September 6, 1862, and afterwards corrected in your Paper in a letter dated the 29th of the same month, as follows. "A mistake shall be corrected which I made by stating that Pedigree Nursery Wheat was identical with the common Nursery Wheat of the country. At the time of my visit none of the crop had been reaped, and from the immature state of the seeds it was difficult to determine the variety." This rash and foolish opinion, given by me, has been adroitly used by Mr. Hallett, and if he himself and all the "faithful" will as readily confess their errors, their system of plant improving will henceforth be harmless. *Patrick Shirreff, Haddington, March* 19, 1864.

THE VEGETABLE MOULD.

There is a great similarity in the components of vegetables, and also of animals subsisting directly or indirectly upon vegetables.* There is, however, in vegetables a considerable difference in the relative amount of the components betwixt one family or genus and another, in one more of lime, &c., in another more of potash, &c., and so on. It is also noticed that the same species or variety in different soils differs a little in the amount of each ingredient, owing to the difference of supply from a difference in the soil. It is thus that in the fields of Nature we find a connection betwixt the plant and the soil, and can determine of the kind of soil from the kind of plant. We also notice a great difference in the size of plants of one family or even species, according as the soil is rich or poor in vegetable mould and other provisions of fertility, or under the culture of man as the plant is suited to climate and soil. This being patent to all, we notice further that the flora and fauna of former eras have been much different from the present. Here we observe that the difference is nearly in the ratio of the recession backwards, and at the same time taking a comprehensive view of all, that in both kingdoms, from the highest antiquity we have indices of a gradual approach to the present forms and progressive rise of being in the higher organisms up to the present era —the era of the Cereals, rose-flowering fruits, mam-

* In animalcule life, and especially in sea animalcule life, where animal and vegetable seem to unite, some varieties of animals appear to subsist like vegetables upon the elements alone.

mals and of man, as if predestined and effected by a gradual provision for superior life,—that life itself is endowed by virtue of a variation power, to rise *pari passu*, as its field of life, the vegetable mould, becomes improved.*

We are yet ignorant of the nature of the power which the rootlets possess so far, of the selection of food—that in the same soil plants of different genera, growing side by side, absorb to some extent different ingredients, or of the same ingredients, different quantities: as there appears to be no stomach to divide the useful from what is not useful a more accurate selection is required here than in animals. We are almost equally ignorant of the functions of the leaves, in assimilating the substances which the roots or the leaves absorb; we only know that both root and leaf selected absorption takes place. Yet it seems probable that the matter absorbed, both by roots and leaves, may be either in a state of chemical solution in water, or aërial, or in very minute division physically (not chemically) in the water or air. The fact that plants absorb the germs of fungi or musci by the rootlets, renders it likely that matter in fine division and moist, without being in chemical solution, and even deleterious, can be absorbed. We are also ignorant whether the rootlets and leaves have or have not a power of attracting what is required from some little distance. This is not altogether improbable, from some observed facts not otherwise easy to account for—that not having the power of locomotion or locomotive members like hands, or tongues, or proboscis, they may have a compensating magnetic attractive power extending minute distances. If such a power does not exist, and suppose the selection to be only from the substances dissolved in the water the plant drinks up—how are the dissolved substances not suited left out? The power of selection shows why a mixture of different kinds of plants is more productive than one kind only, and why a succession of different kinds of crops is also more productive. It is I believe admitted that the matter selected or absorbed by each kind of plant may vary a little, and that one alkaline or acid substance sometimes supplies the place of another. The nature of the attraction we cannot comprehend, but it seems to some extent magnetic. It has been thought that there is a difference in the magnetic influence upon organic life in the southern hemisphere, at least in the southern temperate zone from the northern. The advancement of the fauna in the southern is behind the northern. The ancient-era organisms are predominant in Australia, New Zealand, &c.,—the Tree Fern (Felices), the Equisetum tree, the want of rose-flowered fruit-trees, the prevalence of marsupials in mammals, this last a provision against an unstable world and precarious food supply. It is not improbable that the changes of life in the different geological periods may be connected with a change in the terrestrial magnetism, and that animal magnetism, capable of being so far brought under man's control, may not be baseless conjecture. The purpose of magnetism as an agent in Nature remains yet undiscovered.

Animals have a large mouth to receive and a stomach to digest organic matter without change from its natural form,—instance the negro savage with large projecting mouth, great jaws, large incisors to divide and molars to grind the food, *in transitu*, downwards to the digestive organ; instance the civilised man with his quern or large corn mill, when his jaws and teeth, not so much in request, become smaller and the mouth rather retiring; instance the bird without incisors or molars, and only a forceps to seize, but with a natural mill and millstones internal, driven by muscular power, a gizzard worked to reduce the more obdurate portion of their food. In plants the digestive organ is wanting; they have no large mouth nor molars, nor mills, nor digestive stomach; but must have their food in much the same condition as that supplied by the digestive organs of animals, from which an organ absorbs the chyme and chyle in the animal. Their food, organic and mineral, must be supplied, in a manner digested, the mineral portion by the solvent digestive action of the organic portion, perhaps assisted by the vital power, the whole thus reduced and rendered of a mild nature, free from putrefactive acridity and the acid and alkaline ingredients nearly balanced.† Such is the vegetable mould, the digested food of plants, ready like the chyme for absorption by the rootlets and for assimilation. And it is this provision (a portion of the progressive scheme of Nature) so gradually prepared in the course of innumerable ages for the support of a higher order of organisms, the very means of his own creation and continued existence, that man by his, I may say, wilful ignorance, obstinate blindness, has been destroying. It is to open the eyes of the British landlords, in regard to this destruction in progress, that I am trying to effect, as their best friend, but with no great hope of success.

The whole dry land surface of the earth, wherever organic life exists, is a great stomach digesting food for the vegetable creation, and the organic remains of every kind, as they escape from life, mixed with the minerals of the soil, is the food that is being digested; in the case of peat formation we have only a little local indigestion produced by cold and wet feet which drainage and a little lime powder will cure. In this wide digestive organ or field, animals (for whom in the scheme of vital existence vegetables seem formed) by consuming a great portion of the crop of vegetables, act in some measure to assist in the digestion. I have years ago strongly pointed out that man by his ignorant and mischievous hand-to-mouth system of agriculture, comes in to exhaust this digested supply, trusting, as in the case of the British landlords, that Liebig, or rather his presumptuous followers, will supply the food of plants concocted by chemical art to supersede the natural concocted food, the vegetable mould, but which (ignorantly applied it is true) has only tended to accelerate its destruction by upsetting the natural balance of ingredients which this provision, formed of decayed organisms, must generally possess. Hitherto in Britain, under the mischievous system of destruction of the vegetable mould necessarily resulting from the want of protection to capital and skill vested by the farmer in preserving and improving the mould, the effect of these small manures has been to hasten the exhaustion. So much has this extended, that crops cannot be obtained without a gradual increase of these artificial manures; and under the present low prices of grain—of grain raised abroad from land where the vegetable mould is not exhausted—the cost of the increased and increasing quantity of small manures necessary to raise crops will soon amount to the whole rent which the land was once capable of paying. This the landlords of Britain will find is a little more true than the smooth comforting flattery they so willingly listen to from their chemist advisers.

Nothing shows the wise disposition and provision of nature more than the vegetable mould. Here the digestion of plant food, to which I have alluded—the slow chemical fermentation or corruption, if you choose to term it so, is carried on with the utmost sweetness and freshness. This is necessary for the health and existence of the higher organisms, animal as well as vegetable, otherwise none but the lower orders, the carrion animals, the foul-feeding fungi and musci which batten on corruption, could bear the putrid fluids and gases which would result. For, be it remembered, the most nauseous and poisonous materials are here mingled together and sweetly and harmlessly arranged; sulphur, carbonic acid, phosphorus, chlorine, animal and vegetable compounds, &c., are all held mixed together, rendered innocent by the wholesome deodorising power of the mould imbibing and neutralising what is hurtful. How wisely this is directed can best be felt by the chemist.*

Liebig and his followers will encounter something in the above for their mental organ to digest. They will not find it soup maigre. I hope their digestion will be free from bile and acridity—sweet and salubrious as Nature's digestion of the Vegetable Mould.

Patrick Matthew, Gourdie Hill, Errol, Feb. 25.

* To this conception of a gradual accommodation of life to circumstances, and other rather abstruse phenomena, I have given the key in the solution of the problem of species, by the variation power of organic life and by the law of competitive selection published more than 33 years ago, a time when the prejudices of the age could not brook progress in the higher fields of science.

† It is not always that animals and vegetables are built up like a neutral salt. In the Wood Sorrel, ant, centipede, &c., the fluids are often strongly acid. When I first went to school, and playing by the way turning over stones, a large black centipede was unkenneled, and taking up a stone in my hand I chopped at the poor creature as it ran, and striking it, the juice of its body squirted upon the back of my little hand, burning the skin of the portion touched as by a mineral acid. I believed my hand poisoned, and it set my young mind a thinking. I could not then distinguish between mere chemical erosion by an acid, and that strange unaccountable power which the venom of the snake, scorpion, tse-tse fly, &c., have, or the juice of the sumach, poison Vine, &c., of which Curare is made, and in which the Bodejesman of the Cape dips his slight reed arrow, the scratch of which on even the little finger of man or on the toe of the lion or elephant puts a stop to the action of the vital machine. Here the chemistry of the savage has outstripped that of the savant.

THE INFLUENCE OF SEASON ON THE PRODUCE OF WHEAT.

It is proverbial that the weather exerts a very powerful influence on the produce of our fields. The accounts of the condition of the crops about the time of harvest, which are collected with much care by some of the agricultural papers, give, under the terms average, above average, below average, good, bad, &c., the opinions of individuals as to the probable yield of the most important crops in many different localities. In other words, they sum up, in general terms, the probable effects of the weather of the particular season on the quantity and quality of its produce. But they at the same time necessarily take into account a great many influences besides those of the weather alone. Indeed, even were it possible to reduce these general terms to figures, and it were attempted to state numerically the proportion which the produce of one season bears to that of another, or to the average of any number of seasons, the figures would not show the comparative effects of the seasons alone, unless the crops reported on were grown under otherwise the same conditions year after year in the same locality. It would be necessary to this end that the character of the land should be the same; and that the tillage operations, the previous course of cropping, and the manuring, should also have been very nearly the same each year. But we know that these conditions do not remain the same.

In a field at Rothamsted in which Wheat has been grown on some plots without manure, and on others with different descriptions of manure, for 20 successive years, the tillage operations having been, as far as the seasons would allow, the same year after year, the essential conditions for comparing the productive characters of one season with that of another are perhaps better fulfilled than in the case of most records of ordinary farm practice. Unfortunately, none of the plots have been dressed with exactly the same description and quantity of manure every year since the commencement, excepting the one with farm-yard dung; and owing to the great accumulation of almost every important constituent that must take place within the soil when a large quantity of this manure is annually employed, it is obvious that the difference in the amount of produce yielded by it year after year, cannot be taken as simply due to the comparative effects of the different seasons. Many of the plots have, however, been supplied with artificial mineral manures alone, or with mineral manures and ammonia salts together, without any material change either in the description or the amount employed, for the last 12 or 15 years; and as there is sufficient evidence that the influence of these manures upon the crop of the succeeding year is comparatively limited, I propose to compare the produce and increase obtained by the application of some of these artificial mixtures in the remarkable season of 1863, with the average result yielded by the same manures over the last 12 years.

Many years ago, in a paper published in the "Journal of the Royal Agricultural Society of England," it was stated, as the result of the experiments now under consideration so far as they had then proceeded, that the farmer might assume for practical purposes that he would, on the average of seasons, get one bushel of increased produce of Wheat with its proportion of straw, for every 5 lb. of ammonia applied as manure for the crop, provided the soil were not deficient in the necessary mineral constituents. This statement met with much ridicule from Baron Liebig, who said that it was "a mere stroke of fancy." Whether the statement in question, or this condemnation of it, partakes most of "a mere stroke of fancy," may be judged by the following record of facts relating to it.

On one of the experimental plots a complex mineral manure has been applied every year for the last 12 years, and on another the same mineral manure, with an amount of ammonia salts containing 50 lb. of ammonia, has been annually applied. The average annual produce of Wheat over the last 12 years has been:—

With mineral manure and 50 lb. of ammonia ..	28½ bush.
With mineral manure alone	18½ ,,
Increase by the use of 50 lb. of ammonia ..	10 ,,

Taking the average of 12 years, therefore, we have in this experiment an increase of exactly 1 bushel of Wheat, with its proportion of straw, for every 5 lb. of ammonia. I propose, then, to consider this as the yield in a season of average productiveness; and, adopting this standard, to consider a season good or bad in proportion as it gave more or less increase than 1 bushel of Wheat and its proportion of straw for every 5 lb. of ammonia used as manure.

In 1863 the same mixture of mineral manure and ammonia salts gave a produce of 39½ bushels, or an increase of 21 bushels over the average produce with the mineral manure alone. In this experiment, therefore, 5 lb. of ammonia has given, in the season of 1863, an increase of more than 2 bushels of Wheat and its equivalent of straw, or more than 100 per cent. above the average effect.

On another plot, with the same mineral manure, but with the large amount of 100 lb. of ammonia annually applied, the average result over 12 years was as follows:—

With mineral manure and 100 lb. of ammonia .	36½ bush.
With mineral manure alone	18½ ,,
Increase by the use of 100 lb. of ammonia ..	18 ,,

There is, then, even with this comparatively heavy dressing, an average of nine-tenths of a bushel of increase of Wheat, and its proportion of straw, for every 5 lb. of ammonia employed in the manure. In 1863 this plot gave 53½ bushels, or an increase of 35 bushels over the average produce with the mineral manure alone; that is, again very nearly 100 per cent. over the average result.

On another plot, where, in addition to the mineral manure, a still larger amount of ammonia was annually employed, the produce amounted in 1863 to nearly 1 ton 13 cwt. of grain, and more than 3 tons of straw per acre. Large as this produce is, it would doubtless have been larger, had not the heavy storms of June laid the crop completely flat, in which condition it remained up to the time of harvest.

Throughout the 20 years of the experiments no season has yielded a crop at all equal to that of 1863. In 1847, 1857, and especially in 1854, the produce was

* When a little boy, I remember of gathering together such articles as I could collect, the resin from the Fir tree, gum from the Gean, charcoal, the honey of wasps, and a number of the most curious minerals I could find, and put them into an iron pot on the kitchen fire without water. The result was that everybody had to run out of the house, myself among the rest, from the insupportable odour and fumes. This escapade put me out of conceit of chemistry for a time. The chemistry of nature is better conducted.

very large, and in both 1854 and 1857 that obtained by the mineral manure alone even exceeded that by the same manure in 1863. But owing to some peculiar meteorological influences in 1863 (which deserve a careful study), the increase of crop was, in every instance where ammonia salt or nitrate of soda was employed, very much greater in that year than under like conditions in any preceding season. It was about 100 per cent. over the average of the last 12 years, and in many cases about 400 per cent. over that of the worst of those 12 seasons. In fact, the results of the whole set of experiments are perfectly consistent with those of the individual cases that have been quoted, in showing the extraordinary productiveness of 1863, compared with that of any of the other years under consideration, whenever ammonia, or nitrogen in some other available form, was liberally supplied in the manure.

There is no doubt that the Wheat crop of 1863 has been pretty generally a large one. But it would be fallacious to conclude from the results above referred to, that it has been over any very extensive area so much above the average as in the case of the experiments quoted. The season might possibly be too dry for Wheat growing on many of the lighter descriptions of soil. And as the experimental plots manured with the mineral manure without ammonia, gave a less crop in 1863 than in either 1854 or 1857, it may perhaps be judged that the past season would not be unusually favourable for the crop on lands deficiently supplied with nitrogenous manure.

At any rate the effect of ammonia on the crop was, at Rothamsted, much greater in 1863 than in any preceding year of the experiments. And the fact that, by its use, the crop was increased from 18½ bushels (the average produce by the mineral manure alone) to 56½ bushels, in the 20th year of the growth of Wheat on the same land, is surely a very significant one, and well worthy the careful consideration of those who maintain that the atmosphere is a sufficient source of ammonia (or nitrogen in some other available form) for cultivated crops, and that it is of little value or importance as a constituent of manures. *J. B. Lawes.*

Home Correspondence.

The Skerry Blue Potato.—As the Skerry Blue Potato appears to be growing into popularity, it may not be amiss to offer a few remarks upon the variety. I have for the past two years grown the sort very successfully, and feel some confidence in naming its peculiarities. How it came to be called the Skerry Blue Potato I don't know; it was accidentally introduced into Ireland a very few years ago, from whence it derived its name. As it proved to be impenetrable to the Potato disease, it was soon sought after, and extensively grown in many districts. The great fact being ascertained that the variety has never been tainted with the disease gives it a predominance over every other kind, and renders it worthy of extensive cultivation. Why it should be called blue I can't say. It certainly is a red Potato. It is in form what is commonly called "apple shaped." It grows to a good size, but not large; the eyes are rather numerous and large, but not very deeply indented, and they have a slight tinge of blue around their sockets. It is a good cropper, the tubers are floury and of good flavour, and may be used for table at any season; but I think they pay best for keeping of any variety, as they retain their flavour up to midsummer. In planting them caution should be observed. The eyes are strong, and if many sound eyes are set, the quantity of haulm is very great, hence the sets should be reduced to three eyes at most. I don't know a variety that grows with greater vigour, so that three eyes will give abundance of tops or stalks. Their tendency also is to throw out very many tubers, which, if not guarded against, detracts from the value of the sample, because of the quantity of small ones. Of course, in proportion to the number of sound eyes planted wide depend the number of stalks and quantity of tubers, therefore I say three eyes are amply sufficient to ensure a crop, and that a far more satisfactory one, as the tubers will be proportionately larger, and make "good ware." I was unwise enough in planting my first crop, to use a great many whole tubers, and surely such a crop of haulm was never seen. The soil was in high condition; a good loam manured with foldyard dung, and the planting was put in with one and a-half cwt. of Peruvian guano sown along the ridge. The number of tubers was enormous but small, and the haulm a compact mat of interwoven stalks of great length, amounting in weight to several tons per acre. My last year's crop would yield more than ten tons per acre, and not a diseased one to be found; the quantity of haulm much too heavy. This season I propose setting the tubers at a greater distance in the rows; the rows being 30 inches apart. (My impression is that Skerry Blues should be planted in rows 30 inches apart, and the sets 15 inches asunder.) They are ready for harvesting about the usual time, being an average variety as to maturity, but as their skins are somewhat slow to set, it is wise to stay till the haulm is dead. Mine have kept remarkably well this season, while very many graves throughout the district have sadly rotted. I have no hesitation in saying that they are a very useful and serviceable kind, and being untainted by disease ought to be grown in every district where the disease is prevalent. There is a foolish prejudice in the London market against them on account of their colour. The white kinds have now so long had the run of the market, and had a place on every family table, that a red one seems now to be quite an interloper, although a few years ago it was quite the reverse. It ought to be borne in mind that colour has but little to do with flavour and quality. The red Regents are exceedingly good in size and quality. The old Red Ruffs never were excelled in flavour. The Poor Man's Profits and the Forty-folds, although reds, have but few equals. Why then this prejudice in favour of whites? Housekeepers should look out for themselves and not depend so much upon the salesmen's recommendation. *O. F.*

The Vegetable Mould.—I noticed in the *Agricultural Gazette* lately, some observations by Mr. J. J. Mechi regarding the vegetable mould, where he expresses some doubt of understanding my recent statements respecting it, but thinks that they afford "an exact confirmation of Liebig's great theory." Here I must say, that if he sees no difference betwixt Liebig's ideas and mine, he has not paid much attention to our statements. Liebig, with his mineral predilections, has studied inanimate matter in the crucible and retort, while my observations and conclusions have been made and come to in the fields of living nature, and the theories partake of the difference of their origin. Besides, what I have said has been clear and consistent, while Liebig has shifted his ground and the sense of terms he employs as he has found necessary or convenient in twisting his mineral theory in some degree to approach to what I have good right to call my theory—of the vegetable mould being the natural parent of fertility—published years ago, and that in our improvements we should go hand in hand with nature. Liebig's theory leads to the application of small manures in the mineral form, the continued unguarded use of which under the present hand to mouth system of agriculture has proved exhaustive, and he and his followers have studiously ignored the vegetable mould and its improvement; while my theory inculcates its improvement by large manures as of the first importance. Let me not be misunderstood here. I do not contemn the use of small manures, I use them myself. I commenced using them before I heard that Liebig existed; but I do so with care and caution, and especially as a means of producing large manures for continued application. I would ask Mr. Mechi,—"Does he quite understand all this? and if he does, has he shown an honest impartiality?" Mr. Mechi is a clever man, and expatiates upon "the admirable and allwise everlasting round of composition and decomposition." Whether these emotions are most referrible to Baron v. Liebig's description of the scheme of nature, or to mine, I leave the reader of both to determine. With regard to the amount of Liebig's discoveries, taking a general view of them, it did not require a Solomon to find out that the vegetable kingdom is formed of earth, air, and water, not did it require a second Solomon to tell us, as Mr. Mechi has done, that Liebig had made that great discovery. This few will deny who do not admit of miracles, the admission of which would upset all science, render wisdom an absurdity, for what is science, what is wisdom, but a knowledge of the immutable laws of nature? It is the system of operation, the giving existence to an almost infinity of varied being, vegetable and animal, of progress in development and in providing a field of life and food for every select variety, all conducted by general law, by nature's infallible truth—it is this which gives us a conception of the wisdom and grandeur of the scheme of nature. I endeavoured some time ago, prefatory to my recent description of the vegetable mould, to give a more extended explanation of the scheme of nature, but it was said to be too lengthy for the abridged space in the *Agricultural Gazette*. Should the Editor desire it I will again forward the manuscript, divided into two portions. In it the reader may find, not a beginning, but something like a basement and progression of past and present known forms of organic life, regulated by general law. I cannot close this without expressing a strong sense of our obligations to Mr. Mechi. It is with much pleasure that I have perused, in the *Gardeners' Chronicle*, his observations on agricultural science and account of his practice. These prove him to be a man of superior intellect and industry. The means he has employed and the greatly increased productiveness of his farm give evidence of this, more especially as he has not had the usual breeding and training, or the early experience of an agriculturist. But we must remember that his position as a prospering merchant enables him to lay out capital in improvement of the soil fearlessly—even though it were lost the *éclat* of his industrial improvements would more than compensate him. Were the capital of the farmer laid out on the improvement of the soil protected, we would not have only one Mechi, but many. His improvements have been made in spite of mischievous social regulations. *Patrick Matthew, Gourdie Hill, March* 18, 1864.

The Pedigree Wheat.—The correspondence in the *Agricultural Gazette* relating to the Pedigree Wheat shows that the seed is not worth one guinea a bushel to the farmer. It appears to be coarse in the grain, and long and strong in the straw; the first not suiting the miller, the second taking too much out of the soil, and not so valuable for cutting chaff as a finer description of stem. However prolific the seed might prove when first obtained at eight guineas a quarter, it would be almost impossible to preserve a sample similar to the original without hand picking, at a cost which would not remunerate the farmer for the trouble and expense. Nevertheless agriculturists are indebted to any one who will try experiments with a view of increasing the yield of either cereals or roots. Experience points out the great advantage of selecting the finest seed for sowing—that which has attained mature growth, and ripened well before harvesting. This practice holds good, not only with regard to Wheat, but with everything else in the farm and garden. There is difficulty in obtaining true and sound seed even from respectable firms, which may be attributed to the extraordinary competition in the trade, reducing the price below the fair value, and thus encouraging adulteration amongst wholesale vendors. Scarcely any disappointment exceeds that of watching growing crops, planted with every attention to soil and situation, which promise fair till the period of fruiting and seeding, and then turn out worthless, too late to supply a substitute. The money loss is a trifle compared to the 12 months patience required before the evil can be remedied. *F.*

Societies.

Royal Dublin: *March* 30.—The Spring Cattle Show opened this day with an unusually large number of entries—430 in all, of cattle, sheep, and pigs.

The head prize and the *Farmer's Gazette* Challenge Cup for the best bull has been won by Soubadar for Mr. Butler. The cup has now, we understand, been won three years in succession, and is the property of that gentleman. The Ganley Cup offered in the yearling bull class is won for Mr. Crosbie, of Ardfert; and the Railway Challenge Cup by Dr. McHale the 2nd (19,577), the property of Mr. T. Barnes, of Westland. The show in the Short-horn classes is exceedingly good—that of Kerries is also good—the sheep classes and pig classes are well filled; and there is a large show of implements.

Reviews.

The Journal of Agriculture. No. 84. March 1864. Blackwoods.

From the current number of the "Quarterly Journal of Agriculture," with which are printed the Transactions of the Highland Society of Scotland, we quote the substance of Mr. Scot Skirving's prize report on the relative effects of manure made in the yard and under cover respectively.

"The experiments, an account of which follows were made during the years 1860 and 1861, upon a field which was cropped the first of these seasons with Potatos, and the second with Wheat.

"The soil upon which the experiment was made is a lightish loam of good quality, with a considerable slope towards the north. Previous to the Potato crop of 1860 it had carried Oats, following two years' pasture. The experimenter's first business was to secure good dung, which had been made in every respect in the same manner, with the exception of the circumstance of cover. For this purpose a shed and court were selected, in which a lot of six cattle had been fed off upon Turnips, oil-cake having been added during the last six weeks they were there. As the one portion was entirely exposed to rain, whilst the other was perfectly excluded from it, and as the litter used and the food consumed were identical, the necessary conditions were satisfactorily obtained. Besides the two acres devoted to the experiment, a third was added for the sake of further comparison, which was manured with half the weight of dung and with 5 cwt. of portable manure, which consisted of guano and dissolved bones in equal quantities. The dung used on this acre was from the open court. The ground experimented on was as equal in quality as could be desired; and it would be difficult to assign a superiority to any one of the three acres. The Potatos used were Regents, which were planted on the 12th of April—a long winter and a backward spring having delayed all the operations of seed time. The dung, which was in good condition, was applied at the period of planting. The three lots were manured in the following manner:—

Lot 1.—20 tons of dung per imperial acre, from open court.
Lot 2—20 tons of dung per imperial acre, from covered sheds.
Lot 3.—10 tons dung from open court, and a mixture of 2½ cwt. Peruvian guano and 2½ cwt. dissolved bones."

The treatment of the crop having otherwise been exactly the same, the results may be attributed to difference of manure alone.

"The crop was carefully lifted with the fork, and the produce of each acre accurately measured, with the following results:—

	tons	cwt.	qr.	st.	lbs.	
Lot 1.—Open court ..	6	6	0	0	0	per imp. acre.
Lot 2.—Covered shed..	7	8	2	1	10	,,
Lot 3.—Mixed manure	7	9	1	1	6	,,

These weights represent the total produce per imperial acre.

"It will be seen from the above that the dung made under cover produced 1 ton, 2 cwt., 2 qrs., 1 st., 10 lb. more Potatos per imperial acre than that made in the open court; whilst the acre manured with dung and guano, &c., while it produced a crop slightly in excess of the covered-shed lot in the first instance, lost that small superiority in the process of sorting for market,

and may, for all practical purposes, be accounted of equal value."

Wheat followed Potatos, but unfortunately an accidental injury, to which a portion of the experimental crop was subjected by a partial "throwing out" of the plant, interfered with the uniformity of the circumstances under which alone could the results be considered trustworthy. Mr. Skirving thus relates these results:—

"The Wheat was stooked separately, and, shortly after being 'carried,' was threshed, weighed, and measured. The following are the results:—

	Bush.	p.	gall.	qt.	pt.	gills.
Weight.						lbs.
Weight of open-court lot per bushel						60½
Weight of covered-shed lot per do.						61
Weight of mixed-manure lot per do.						60¾
Quantity—per Imperial Acre.						
No. 1.—Open court, good grain	29	0	0	0	1	2
" " grey do.	1	3	1	3	1	2
	31	0	0	0	1	0
No. 2.—Covered shed, good grain	33	0	0	2	1	2
" " grey do.	2	2	0	3	1	2
	35	2	1	2	1	0
No. 3.—Mixed manure, good grain	30	1	1	0	1	0
" " grey do	1	3	1	3	1	2
	32	1	1	0	0	2

"I cannot give any trustworthy estimate of how much the open-court acre was damaged by the 'throwing out;' but my opinion is, that but for that circumstance it would have been little inferior to the other; and the experiment seemed to indicate, contrary to my expectation when the Wheat was sown, that a second season had tended to equalise in a great degree the power of the two lots of dung."

So far as the second year is concerned, there is no definite lesson given us by this experiment; but the lesson is plain enough, so far as the first year's crop is concerned; and cannot fail to give an impetus to the progress of good management.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Reading of Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	March	Inches.	°	°				°	°	°	°	Inches.
Friday	25	29.74	36	36	S.E.	0	0	52	25	65	19	..
Saturday	26	29.55	40	38	N.	2	10	55	35	66	28	..
Sunday	27	29.62	37	35	N.	3	10	42	30	45	26	0.08
Monday	28	29.43	43	43	N.W.	4	6	48	33	56	28	..
Tuesday	29	29.25	41	39	N.W.	4	10	40	35	57	28	0.17
Wednesday	30	29.49	45	43	N.W.	4	7	47	34	57	28	0.13
Thursday	31	29.79	48	45	S.W.	1	10	46	31	60	20	0.01

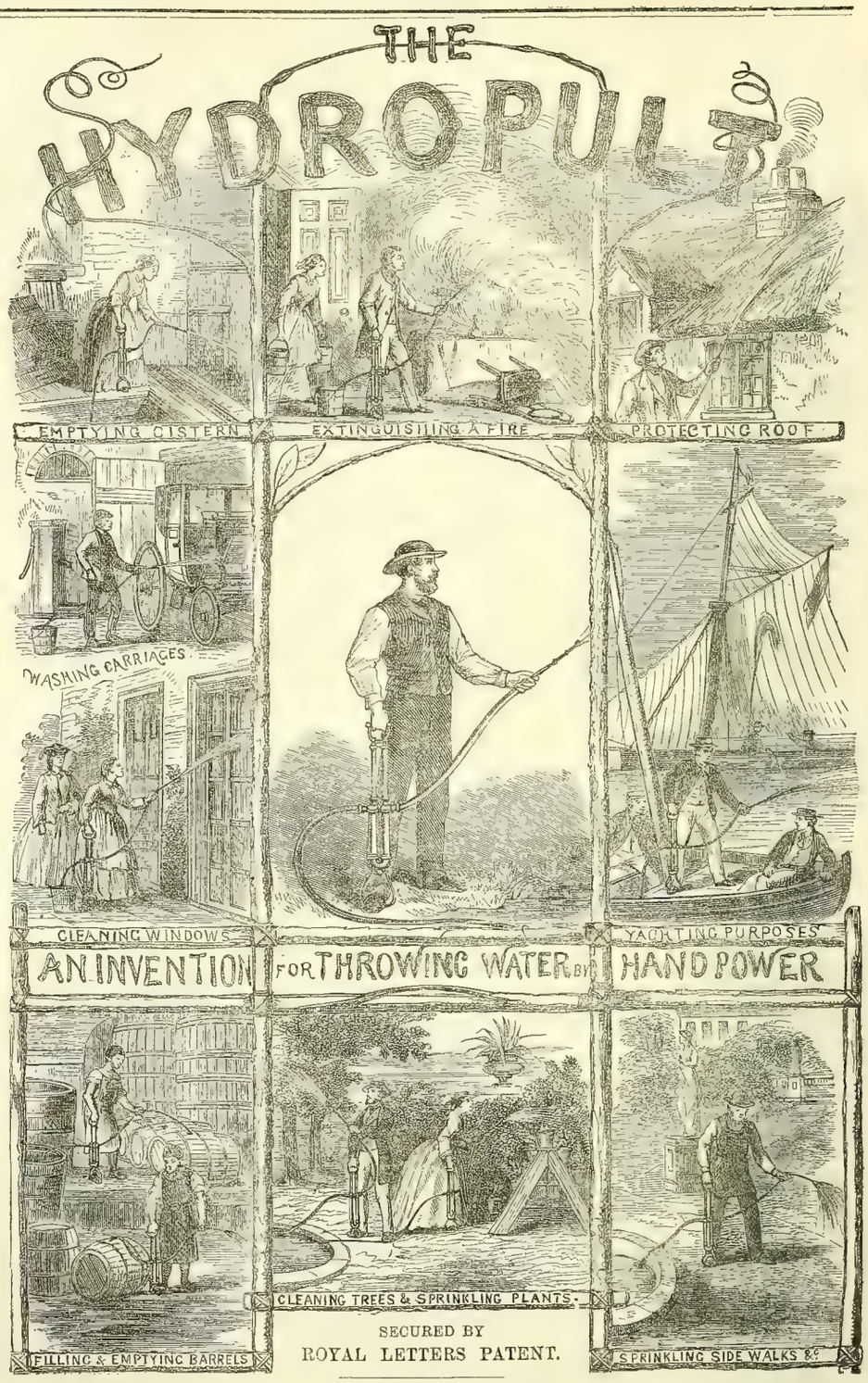
Notices to Correspondents.

Poultry: *G E O.* The Spanish Cock is suffering from a disease that was prevalent among birds of that breed a few years since, but which is not much heard of now. The bodily health of the bird will not be affected, and he suffers in appearance only. The best and simplest remedy is compound sulphur ointment constantly rubbed on the parts affected. Should the cock seem to suffer, it would be well to touch the edges of the scab with caustic, to prevent its spreading.

Sarsden Sale: *R.* 86 cows and heifer calves fetched 3835*l.* 13*s.*, averaging 44*l.* 12*s.*; 35 bulls and bull calves fetched 1353*l.* 14*s.*, averaging 38*l.* 16*s.* 5*d.* The total sale included the 121 head of stock, which averaged 42*l.*; 18*s.* 6*d.* and realised 5194*l.* 7*s.* The highest price was 100 guineas, for *Lady Louisa*, bought by Mr. Betts. Among the several families included in the herd—

8 descendants of Lord Ducie's *Louisa* averaged .. 54*l.* 4*s.*
13 " " " *Chaplet* " .. 60*l.* 5*s.*
5 " " Mr. Adkin's *Charmer* " .. 53*l.* 11*s.*

Erratum.—In p. 300, col. *b.*, for IBI VII. FERVI, read IBI VII SERVI.



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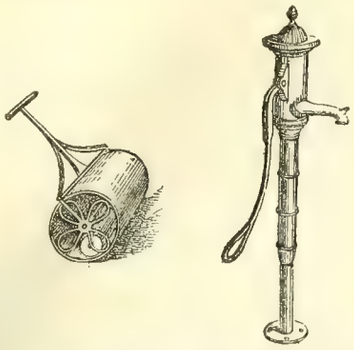
Parties unknown to me, have, from motives best known to themselves, in this manner criticised the efficiency of the "Hydropult." I have no answer to make to them: to the Public I would say that I will cheerfully forward, on application, a prospectus, containing testimonials from gentlemen well known throughou the United Kingdom.

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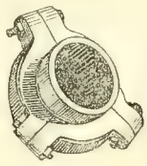


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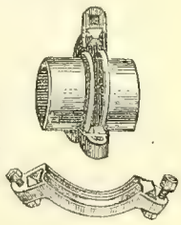
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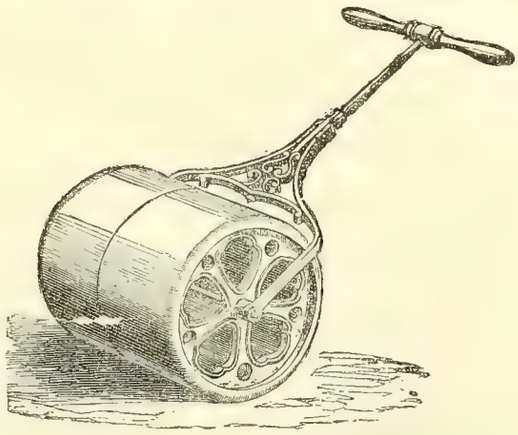
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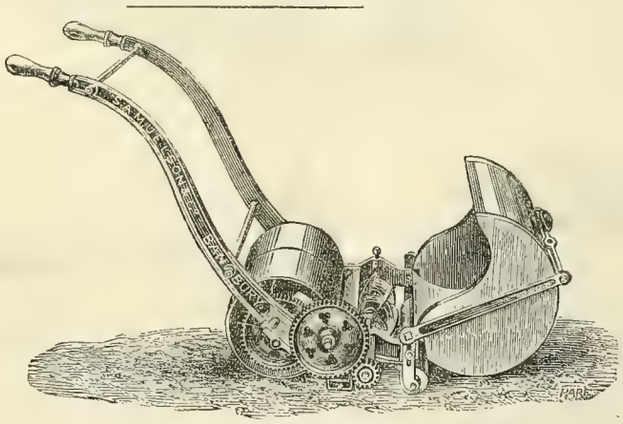
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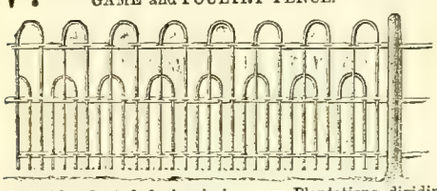
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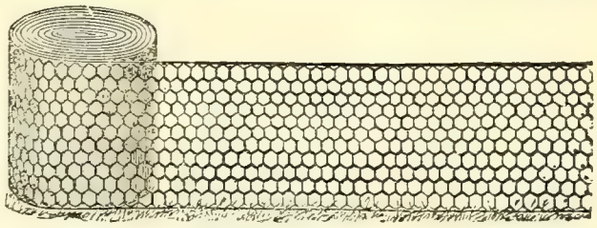


Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6*d.* to 1*s.* 6*d.* per yard and upwards), neat in appearance, strong and durable.

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NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4¼*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

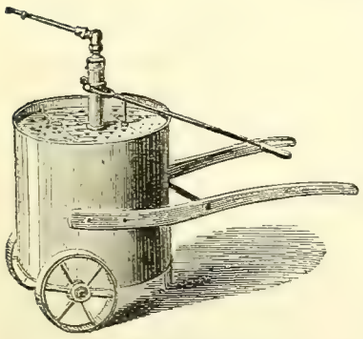
Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½

WARNERS'

GALVANISED IRON GARDEN ENGINE,

WITH REGISTERED SPREADER.

10 gallons	...	...	£2 15*s.*
16 „	...	...	3 15*s.*
24 „	...	...	5 0*s.*



No. 35.

WARNERS'

PATENT IRON PUMPS.

2½ inch	...	...	£1 10*s.*
3 „	...	...	2 4*s.*
3½ „	...	...	2 9*s.*
4 „	...	...	2 18*s.*
2½ inch, with short barrel	...	...	1 1*s.*

No. 568¼.

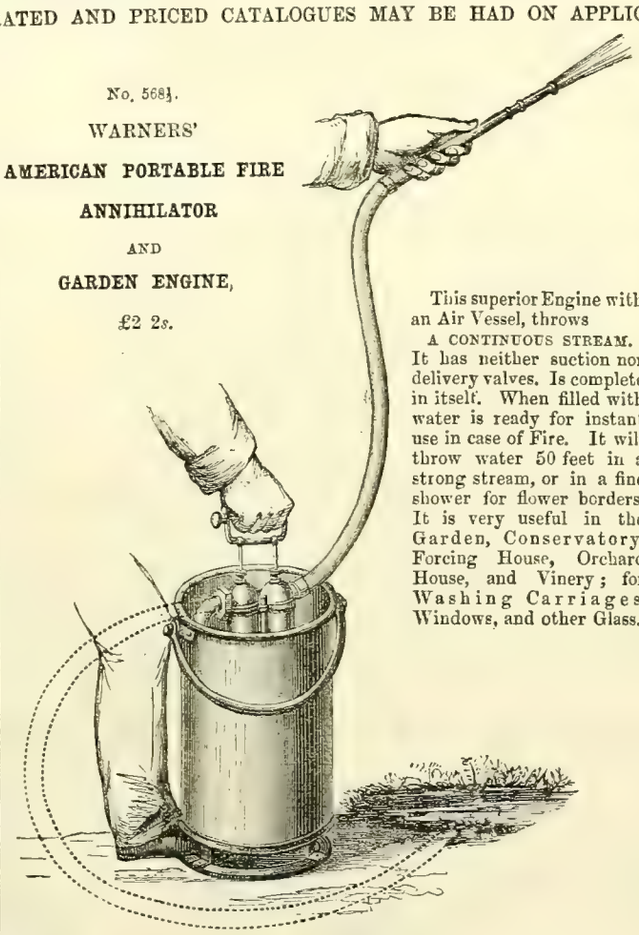
WARNERS'

AMERICAN PORTABLE FIRE ANNIHILATOR

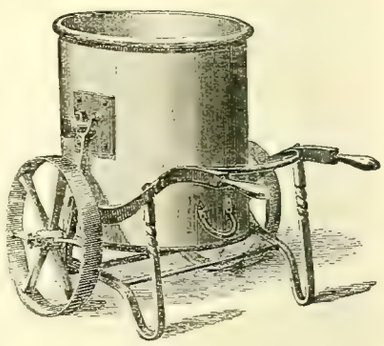
AND

GARDEN ENGINE,

£2 2*s.*



This superior Engine with an Air Vessel, throws A CONTINUOUS STREAM. It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'

SWING WATER BARROW.

20 gallons	...	...	£2 0*s.*
35 „	...	...	2 10*s.*

Saves a gardener's time when used with the water pot.

WARNERS'

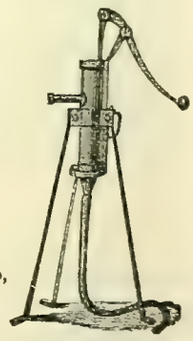
PORTABLE LIQUID MANURE PUMP,

WITH LEGS,

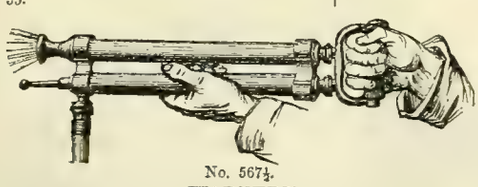
£2 15*s.*

Do. for fixing to cart, £2 5*s.*

Suction Pipe for Pump, 2*s.* 5*d.* per foot.



No. 42.



No. 567½.

WARNERS'

IMPROVED PATENT DOUBLE ACTION SYRINGE,

with 5 feet of flexible Suction Pipe, 21*s.*

Is much improved since last season.

It economises a gardener's time.

To draw from a water-pot, pail, or other vessel.



No. 590.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*

Fountain designs in great variety. Can be supplied from a cistern or main.



No. 557A.

WARNERS' REGISTERED DISC-VALVE SYRINGE. 9*s.*

FILLS QUICKLY AND EASILY.

It is well adapted for the gardener or amateur.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

GREEN'S PATENT SILENS MESSOR,

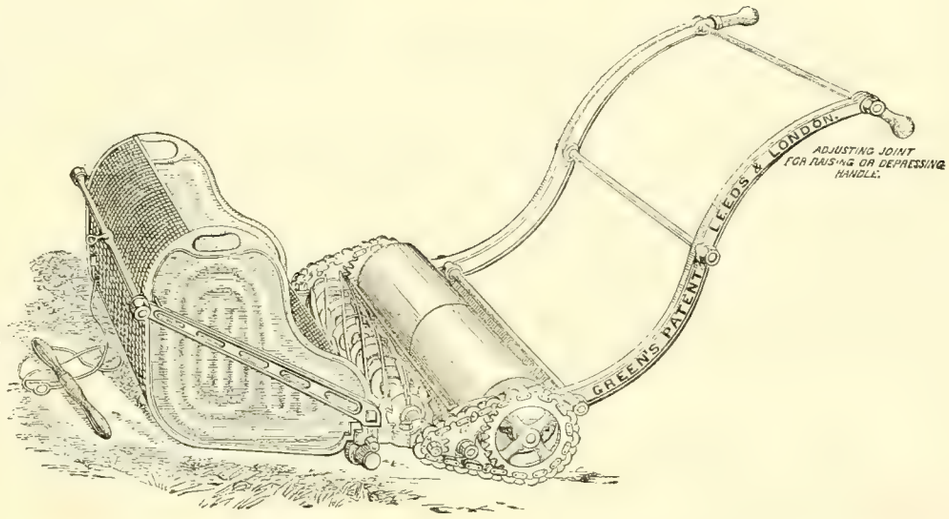
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861, 1862, & 1863.
LAEKEN, 1862.
HAMBURG INTERNATIONAL EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut	10	inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	...	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s.*	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s.*
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

To Cut	42	inches	...	...	...	£27	0	0	...	...	...	Leather Boots for Horse, 26*s.*
„	48	„	...	...	...	30	0	0	...	...	...	„ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

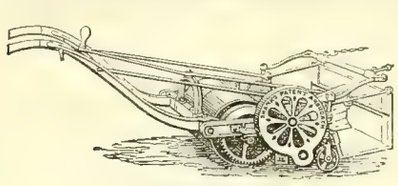
The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

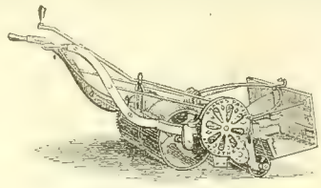
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

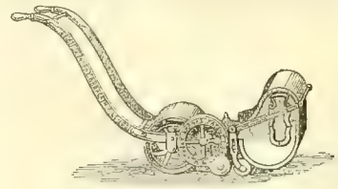
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. Viscount Seaham
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle
The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Elibank
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Bluning
The Right Hon. Lord Ashtoun
The Right Hon. Lord Hume
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Crewe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
The Hon. Ashley Ponsonby
The Hon. E. Coke
The Hon. Captain Drummond
The Hon. Francis Drummond
The Hon. John Ashley
The Hon. Captain Arbuthnott
The Hon. Sir Edward Butler, Bart.
The Hon. Sydney R. Curzon
The Hon. J. J. Carnegie
The Hon. Wm. Maule
The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

CIRCULARS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

Potatos.—Seeds.

H. BROWN having on hand an extra large Stock of the following POTATOS, begs to offer them at considerably reduced prices per Imperial Bushel, for present orders, viz.:—True Early Ashleaf Kidney Potatos, 6s.; Myatt's Prolific Ashleaf Kidney, 5s. 6d.; Early Pink, Early Kemps, 4s. 6d. Also Dalmahoy, Fortyfold, White Rock, Scotch Downs, Flukes, Arrowsmith's Seedlings, and other varieties.

Prices for quantities on application. For SEEDS, see PRICED DESCRIPTIVE 44-page CATALOGUE, post free.

4, Commutation Row, Liverpool.

SEED POTATOS.—FORTY-FOLD (early); DALMAHOY (early); REGENTS (Dunbar); ROCKS; REGENTS (Walker's); FLUKES. The above are grown on fresh land, and are an excellent sample. For price, which is very moderate, apply to

Mr. RIDDELL, Steward, Park Attwood, Bewdley.

THOMAS AYRES, NURSERYMAN and SEED GROWER, Biggleswade, Beds. has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Seed Potatos—clearing out Offer.

WOOD AND INGRAM offer the following kinds of their own growth, true to name, at the CASH prices annexed, per bushel of 56 lb.:—Ashleaved Kidneys, 3s.; Myatt's Kidney, 3s.; Robinson's Golden Kidney, 3s. 6d.; Jackson's Kidney, 3s.; Lapstones, 2s 6d.; Flukes, 2s. 6d.; Webb's Imperial, 3s.; Dalmahoy, 2s. 3d.; Early Handsworth, 3s. 6d.; Early Oxford, 2s. 3d.; Martin's Globe, 2s. 3d., and York Regent, 2s.

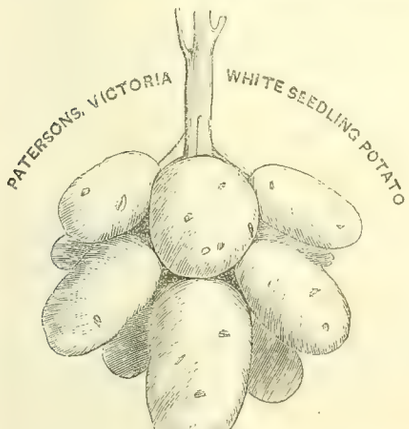
Nurseries, Huntingdon.

New Belgian Potato, Chardon.

JOHN PALMER AND SON, NURSERYMEN, Annan, Dumfriesshire, N.B., beg leave to intimate to the Trade, and Agriculturists generally, that they grew a considerable breadth of this Potato last Season, and now offer the produce for Sale, at 5s. per imperial bushel.

This Potato is quite sound, and of good quality for the table. The produce per acre is perfectly extraordinary, being over 15 tons. J. P. & Son believe that this new and valuable Variety will be a boon to Agriculturists.

Paterson's Victoria White Seedling Potato.



PATERSON'S NEW SEEDLING POTATOS.—WM. PATERSON & SON, having had an extraordinary demand for their Seedlings, are now sold out of Victoria, and getting fast through with their stock of the other varieties. The kinds they had the largest breadth of and heaviest crop, viz., Paterson's Regent, ditto Early, ditto Red, and ditto Irish Blue, they still hold in quantity, and will be glad to receive orders for them at once. For particulars see circular, reports, &c. Apply to W. P. & SON, Dundee, direct, or any of their Agents.

PINK FLUKE POTATO (quite true).—Fine flavour, most prolific, may be said to be literally free from disease; obtains the best market price, will keep 12 months, is in high perfection from January to September, therefore invaluable when others are useless. This Potato is almost unknown except in the vicinity of Pershore and Worcester, where the principal growers have been supplied by the Advertiser, who has grown it with great success for several years, in an increasing extent, to the exclusion of all other kinds, being convinced it yields a profit double that of any other variety; the past season he grew 22 acres. Has 120 tons now to dispose of, which he offers on terms below, assured that e'er long the Pink Fluke will occupy the great bulk of every grower's crop in the kingdom. Price, delivered at Pershore Station, upon receipt of remittance, in new corn sacks (charged 2s. each), containing 3 bushels, or 180 lb. nett: one sack, 16s.; two, 15s. per sack; three, 14s. per sack; five, 13s. 6d. per sack; a discount on larger quantities. The distance from the Station compels a scale of prices.

Apply to FRANCIS JAMES, The Warren, Brockhampton, near Worcester.

N.B.—As the Pink Fluke bears great contrast in its nature, habit, and growth, to other kinds, F. J. will, on receipt of a stamped envelope (addressed), forward a printed description of the same, as also his successful mode of culture.

To the Seed Trade.

H. AND F. SHARPE can now make special offers of the following SEEDS, grown by them last season, from the finest selected bulbs. They are of fine quality, and free from adulteration:—

Long Red Mangel Wurzel	Purple Top Swede Turnip
Long Yellow ,, ,,	Sharpe's Improved Swede Do.
Red Globe ,, ,,	Liverpool Swede Do.
Yellow Globe ,, ,,	Improved Green Top Yellow Do.
Orange Globe ,, ,,	Fosterton Hybrid Do.
Long Red Surrey Carrot	Green Top Swede Do.
,, ,, Altringham Carrot	Pomeranian White Globe Do.
James's Scarlet Intermediate Carrot	Green Globe Do.
Early Cabbage of sorts	Red Globe Do.

Prices on application.

Seed Growing Establishment, Wisbech.

SURPLUS STOCKS.

PEAS, CHAMPION of ENGLAND.
,, PRIZETAKERS (BECK'S).
,, WOODFORD'S MARROWS.
CARROT, ALTRINGHAM.

JOHN SHARPE, Bardney Manor, Lincoln, March 26.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—

DANIEL O'ROURKE PEAS
EARLY PRIZETAKER MARROW.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered last season on May 7. 2s. 6d. per quart.

The Largest and Best TALL WRINKLED PEA is CARPENTER'S MAGNUM BONUM; height, 8 or 9 feet. 4s. per quart.

The Best DWARF WRINKLED PEA is CARPENTER'S MULTUM IN PARVO; height, 2½ feet. 4s. per quart.

The Largest and Best LETTUCES are CARPENTER'S MONSTROUS GREEN COS and CARPENTER'S MONSTROUS WHITE COS. 1s. and 2s. 6d. per packet.

Either of the above to be had of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities

Price for Picked Roots, per 100 .. .. 10s. 0d.
Do. second size ,, ... 7 6
Also strong for Planting, per 100 .. 5s. and 7 6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY

RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.

WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.

Samples and Prices post free on application.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.

MIXTURE for Laying down to PERMANENT PASTURE .. .. 25s. to 30s.
MIXTURE for ORCHARDS or LAND shaded by Trees .. .. 24s. to 26s.
MIXTURE for PARKS and CEMETERIES .. 28s. to 30s.
MIXTURE for Improving OLD PASTURE .. 6s. to 8s.
MIXTURE for One, Two, or Three Years' Lay .. 15s. to 18s.
MIXTURE for Fine LAWNS and BOWLING GREENS .. .. per lb. 1s.

PRICED LISTS may be had on application.

RICHARD SMITH, Seed Merchant, Worcester.

Agricultural Seeds Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

See GENERAL FARM SEED DIRECTORY, now ready.

MIXTURES of GRASSES to suit any oil, 20s. per acre (with Clovers).
RED, WHITE, and COW CLOVERS, 6d. to 10d. per lb.
ALSIKE CLOVER, fine sample, 80s. per cwt.
SWEDISH TURNIPS, 8d. to 1s. per lb.
COMMON DO. 8d. to 9d. per lb.
MANGEL WURZEL, in varieties, 6d. per lb.
WHITE BELGIAN CARROT, 1s. per lb.
YELLOW BELGIAN CARROT, 1s. per lb.
Large DRUMHEAD CABBAGE, 2s. per lb.
CATTLE PARSNIP, 1s. per lb.

All other Agricultural Seeds, at moderate prices.

Address, LONDON SEED COMPANY (Limited), 68, Welbeck Street, Cavendish Square, London, W.

Good Seeds.—Excellence and Economy.

HENRY BROWN is prepared to supply the following and other SEEDS, at very moderate prices (samples sent if required:—

English Red Clover 6d. per lb.		Cowgrass	8d. per lb.
Welsh Red Clover 7d. ,,		Trefoil	3d. ,,
Alsike(extra) Clover 8d. ,,		Ribgrass	4d. ,,
White Dutch Clover 8d. ,,			

Perennial Rye-grass, per bushel, 3s. to 5s.
Italian Rye-grass ,, 5s.

PERMANENT and other MIXED GRASS and CLOVERS, 12s. to 28s. per statute acre.

BROWN'S DWARF-TOP BRONZE SWEDE, allowed by those who have grown it to be the best in cultivation, very large and hardy, and the flesh very superior. It has taken first prize each time exhibited for competition. Six roots taken out of the ground last September, weighed 143 lb. when trimmed.

J. C. HUNTER, Esq., of Straid, Arran, near Londonderry, writes on April 16, 1863:—"Your Dwarf-top Swede gives as much more juice at this period, when pulped, as any Turnip I have ever grown. I would recommend every agriculturist to give it a trial." 1s. per lb.

All kinds of good AGRICULTURAL, GARDEN, and FLOWER SEEDS, moderate.

Priced DESCRIPTIVE CATALOGUE (containing much information), post free, on application at the Wholesale and Retail Seed Warehouse, 4, Commutation Row, Liverpool.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped J. BARSHAM'S Patent

REIGATE SILVER SAND, 7s. 6d. per ton; packed, 16s. per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.

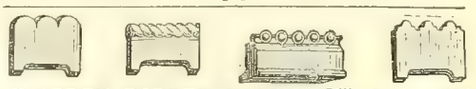
From E. ENSOR, Esq., *Woodville, near Burton-on-Trent.*

"The Sand is very good; when we want more we will write you."

W. SHORT, Sand and Peat Depot, Reigate, Surrey.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1s. 4d. per lb.; over 10 lb., 1s. 1d.

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expence, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above. Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality) of F. & G. ROSHER, at the Addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

TO BE DISPOSED OF, the LEASE, 38 years unexpired, of a NURSERY about four miles from the London Markets, five Greenhouses, about 150 feet run of Pit Lights, and all conveniences for carrying on an extensive trade. It is on the high road close to the New Railways.

Apply on the Premises, to R. CHILDS, Rye Lane, Peckham, Surrey, S.

TO BE LET, HOTHOUSES, GARDENS, &c., on advantageous terms, within 80 miles of London; the proprietor being unable longer to attend to them personally. The Houses are nearly 300 ft. long by 16 ft. wide, heated with Tubular Boiler, recently erected; and are well stocked with Vines, Pines, Cucumbers, Peaches, Bedding Plants, &c. The Stock can either be taken or guarantee given for its preservation or value. A good Churchman preferred.

Address, T. C. D., Mr. Waistell's, 40, Lime Street, London.

TO BE LET, a NURSERY, with or without the Stock, within four miles of Covent Garden Market. Large quantity of Glass. Established 20 years. Several Vineries in full bearing. N.B. This is a chance seldom met with.

For further particulars apply to Mr. J. H. BIRD, Nurseryman, Green Lanes, Stoke Newington.

Sales by Auction.

Hardy and Ornamental Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 6, at half-past 12 o'clock precisely, an assortment of PLANTS, consisting of Conifers, Weigelas, Laurels, Berberis, Cotoneasters, Privets, Rhododendrons, Laurels, Hollies, Clematis, Lilacs, Laburnums, Thorns, Roses, Fruit Trees, Pentstemons, Carnations, Picotees and Pinks, Delphiniums, Vines, Gladioli, Phloxes, &c.

On view the Morning of Sale, and Catalogues had.

Importation of Rare Orchids.

JUST ARRIVED PER LAST WEST INDIAN MAIL STEAMER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 7, at half-past 12 o'Clock precisely, an importation of rare ODONTOGLOSSUMS, EPIDENDRUMS, &c., suitable for Greenhouse treatment; also will be included in the same Sale by order of Mr. Skinner, the very rare and valuable Epidendrum cnemidophorum, and a few Epidendrum vitellinum, &c., which arrived in the steamer of the 15th of March.

On view the Morning of Sale, and Catalogues had.

HARDY TREE FERNS from Van Diemen's Land.—J. C. STEVENS will also have the pleasure to offer 42 fine TREE FERNS, from 1 foot to 6 feet high; and 40 XANTHORRHŒAS, fine growing Plants, on the same day as the ORCHIDS—THURSDAY, April 7.

Great Sale of Standard and Dwarf Roses, 300 Liliums, Picotees, Carnations, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, April 8, at 12 o'Clock, a splendid assortment of about 1000 handsome STANDARD, HALF-STANDARD and DWARF ROSES; first-class Carnations, Picotees, and Pinks; selected Fruit Trees; a choice assortment of American Plants, 300 Lilium lancifolium rubrum and album from Belgium; fine Azalea indica, Ericas, Geraniums, and other plants in bloom, with choice Flower Seeds from Germany, Verbenas, Fuchsias, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nurseries, Leytonstone, N.E.

To Greenhouse Builders, Nurserymen, Country Gentlemen and Others.

MESSRS. LEREW AND LEREW will SELL by AUCTION on the Premises, Camden Terrace, Camden Town, near the Old Eagle, on MONDAY, April 11, a SPAN GREENHOUSE, having 12 new and complete Lights about 18 feet 8 inches by 12 feet 6 inches, with door and two double Flower Stands.

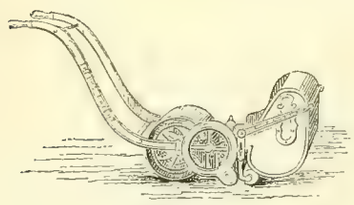
Auctioneer's Offices, Cardington Street, Hampstead Road.

SALE by AUCTION, on APRIL 27, 28, and 29 (under the direction of Mr. AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium), of the rich and splendid Collection of AGAVE, YUCCA, BONAPARTEA, &c., the property of E. Vandervinnen, Esq., Brussels, Belgium.

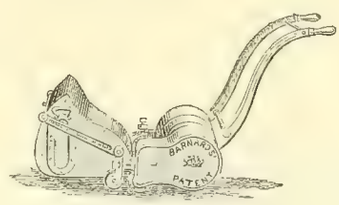
Catalogues may be obtained free of Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Orders may be sent to Mr. A. VERSCHAFFELT.

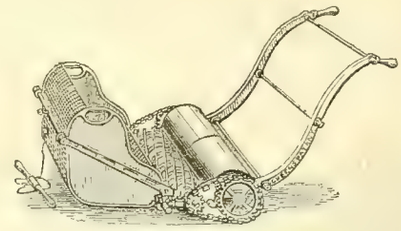
LAWN MOWING MACHINES FOR 1864.



SHANKS' MACHINE.



BARNARDS' MACHINE.



GREEN'S MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. Brown & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of satisfaction, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success.

J. B. B. and Co. have resolved not to place before the public at this period of the season any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that gentlemen or gardeners naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All orders thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.*

Orders entrusted to J. B. B. and Co. for the Machines of any particular maker, will have most careful attention in every respect.

SHANKS' LAWN MOWING MACHINE FOR 1864.

SHANKS' MACHINE has been further improved this season by reducing the weight, and in other respects remodelling it, so that every thing having a tendency to increase draught is carefully avoided. These Machines are still, as they have always been, very durable, simple in construction, and execute their work in a superior manner.

PRICES.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

BARNARD AND BISHOPS' NEW PATENT LAWN MOWER FOR 1864.

This MACHINE differs from all other Lawn Mowers, in being constructed without either gear-wheels, chains, or levers, the power being transmitted to the cutters by a loose intermediate wheel, with an india-rubber tyre which is placed between a plain-faced driving wheel and pinion. It is very certain in action and at the same time so simple that it cannot be deranged. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward It is quite noiseless, both in its forward and backward action, and works with very little power.

PRICES.

8-inch Machine, for small plots or edgings	£2 10 0	*Easily Worked by a Boy.*	
10-inch Machine	3 5 0		
12-inch Machine	£4 10 0	*Easily Worked by a Boy.*	
14-inch Machine	5 0 0		

GREEN'S PATENT HAND MACHINE FOR 1864.

GREEN'S MACHINE for this season is made lighter and stronger, also simpler in construction and more durable. This Machine has always had the reputation of being a very light one, and is a great favourite with many, on account of its being very easily worked.

PRICES.

10-inch Machine	£3 10 0	*Easily worked by a Boy.*	
12-inch Machine	5 0 0		
14-inch Machine	5 10 0		
16-inch Machine	6 10 0	*Do. by a Man.*	
18-inch Machine	£7 10 0	*Easily worked by a Man.*	
20 inch Machine	8 0 0	*Do. by two Men.*	
22-inch Machine	8 10 0		
24-inch Machine	9 0 0		

A specimen of each of the above described Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. and Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

THE NEW MACHINES ARE NOW QUITE READY FOR DELIVERY.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

☞ Messrs. Brown & Co. beg to make the announcement, so important to all those who use MOWING MACHINES, that they now EXECUTE REPAIRS of all MACHINES in LONDON; thus obviating the serious delay and expense of sending to Scotland or other great distances.

All REPAIRS and ADJUSTMENTS of MACHINES promptly executed at moderate fixed rates.

NEW IMPROVED HORSE, PONY, and DONKEY BOOTS made in the best style, WHOLLY of LEATHER, delivered free at prices as quoted above.

J. B. BROWN and CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

Editorial Communications should be addressed to "The Editor:" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 15.—1864.] SATURDAY, APRIL 9. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.
EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, SATURDAYS, May 21, June 11, and July 2; AMERICAN PLANTS, MONDAYS, June 6 and 20. Tickets to be obtained at the Gardens, on the Orders of Fellows of the Society, price on or before SATURDAY, May 7, 4s.; after that day 5s., or on the Exhibition Day, 7s. 6d. each. The next MEETING of Fellows for the Election of new Candidates, SATURDAY, April 23. The large INDIAN RHODODENDRONS are now in flower in the Conservatory.

RUGBY ROSE SHOW.—A GRAND EXHIBITION of ROSES will be held at Rugby on TUESDAY, June 21.
Schedules and all particulars can be obtained on application to Mr. W. H. Treen, Hon. Sec., Victoria Nursery, Rugby.

Grape Vines from Eyes.
S. GLENDINNING and SONS (Successors to the late R. Glendinning), have still some good CANES of the best varieties, both for Fruiting in pots and for Planting out. PRICED LIST on application,
Chiswick Nursery, London, W.

Strong Vines.
FRANCIS and ARTHUR DICKSON and SONS, "Upton" Nurseries, Chester, can still supply fine strong short-jointed well-ripened Canes of BLACK HAMBURGH VINES, and a few of other kinds, such as TOKAYS, MUSCATS, &c., at 5s. to 7s. 6d. each.

Grape Vines.
TO BE SOLD CHEAP, a large quantity of fine VINES for planting out.
Apply to R. Hutchin, at the Horticultural Works, Stamford Hill, N.

Vine Black Hamburgh.
ROBERT PARKER begs to announce that he can supply well ripened FRUITING CANES from Eyes of the above, at 5s. each. The usual discount to the Trade.
Exotic Nursery, Tooting, Surrey, S.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

MARY NICHOLSON, Egglescliffe, begs to inform her friends that she still supplies STRAWBERRY PLANTS, but as her supply is limited, to prevent disappointment early application will be necessary.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the Great Exhibition of 1862, and for which a Certificate of Honourable Mention was given. Trees of the above can be had on application to Mr. Webb, Calcot Gardens, Reading.

Melon Seeds.
MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6d.
Joseph Meredith, Vineyard, Garston, near Liverpool.

The Princess of Wales Petunia.
E. G. HENDERSON and SON are now booking orders for this splendid variety.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5s. 6d. p. oz.
James Woods, Florist, Harwich, Essex.

J. IVERY and SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.—Dorking Nursery.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application.
Frampton Park Nursery, Hackney.

SEEDS WORTH GROWING.
Dobson's PRIZE CALCEOLARIA, unequalled, 1s.6d., 2s.6d., 5s.
Dobson's PRIZE CINERARIA, ex. ex., 1s., 2s. 6d., 5s.
Dobson's PRIZE PRIMULA, splendid, 1s., 2s. 6d., 5s.
Sealed packets, Post free. Trade supplied.
J. Dobson & Sons, Seedsmen, Isleworth, W.

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON and SONS, Seed Merchants and Nurserymen, SEED, ROSE, and FRUIT CATALOGUES, gratis.
57, Queen Street, Hull.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS, Nurseryman and Seedsman, Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Good Seeds, Carriage Free.
WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.
PRICED CATALOGUE free by Post.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON and SONS, Seed Growers and Merchants, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, has amalgamated with the PLYMOUTH SEED COMPANY, LIMITED.
Offices, 68, Welbeck Street, Cavendish Square, London, W.

Superb Double Hollyhocks, now ready for Planting.
WILLIAM CHATER has a large stock of fine healthy plants, which he can supply on liberal terms.
See Advertisement on other page.
Address, William Chater, Nurseries, Saffron Walden, Essex.

GLADIOLI.
See Barr & Sugden's large Advertisement, page 334.

HARDY and HALF HARDY ANNUALS.
See Barr & Sugden's large Advertisement, page 334.

STRONG CANNA ROOTS.
See Barr & Sugden's large Advertisement, page 334.

WOODLAND WALKS or WILDERNESS DECORATION.
See Barr & Sugden's large Advertisement, page 334.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application.
The Royal Nurseries, Slough.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
Richard Smith, Nurseryman, Worcester.

New Roses for 1864.
H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per dozen.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
Charles Noble, Sunningdale Nursery, S.W. Rail.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

The New Roses for 1864.
SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to
Benjamin R. Cant, St. John's Street Nursery, Colchester.

Roses.
EDWIN HOLLAMBY'S Collection of STANDARD and DWARF and CLIMBING ROSES, fine plants and best kinds at low prices. CATALOGUES Free by Post.
Nursery and Seed Establishment, Tunbridge Wells, and Groomsbridge, Kent.

New Roses of 1864.
F. and A. SMITH'S first SPRING LIST of the above and other Novelties of the season, may now be had free on application.
Dulwich, Surrey, S.

40,000 Dwarf Roses in Pots for Bedding.
WM. WOOD and SON having a magnificent Stock of fine healthy PLANTS of the above, are determined to offer them on the lowest terms.
CATALOGUES and all particulars on application,
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by Sutton & Sons.
For prices apply (stating quantity required) to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

CARTER'S SPECIAL LIST of FARM SEEDS for MARCH and APRIL is now ready, and will be forwarded Gratis and Post Free on application.
237, 238, and 261, High Holborn, London, W.C.

Seeds, Carriage Free.
WILLIAM CUTBUSH and SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.
The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.
Highgate Nurseries, London, N.

E. G. HENDERSON and SON'S SEED CATALOGUE for 1864, forwarded free on application.
Seed of CLIANTHUS DAMPIERI, in 1s. and 2s. 6d. packets.
Seed of CLIANTHUS DAMPIERI SPLENDENS, 2s. 6d., and three seeds for 5s.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.
J. SCOTT'S FLOWER GARDEN DIRECTORY, and CATALOGUE of CHOICE BEDDING PLANTS, will be ready about the 10th of April, price 6d. Copies will be forwarded free to all his friends and customers as soon as out.
Merriott, Crewkerne, Somerset.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Select Double Hollyhocks.
WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of the above that will flower well this season.
A DESCRIPTIVE LIST of sorts may be had on application.
Foreman at the Nurseries, Sawbridgeworth, Herts.

Fuchsia Pillar of Gold.
F. and A. SMITH are now sending out healthy Plants of this superior and beautiful variety. Very strong plants, 7s.; second size, 5s.; small plants, 3s. 6d. each.
Now Ready, the NEW BEDDING LIST; free on application.
Dulwich, Surrey, S.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to announce that he has just published a SUPPLEMENT to his CATALOGUE, containing many interesting New Plants. May be had, gratis, on application to his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

Two-Years Seedling Larch.
ONE-YEAR TRANSPLANTED LARCH.
Very hardy plants, the produce of Scotch Seed.
Trade prices on application to Howden Brothers, Inverness.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see Richard Smith's SEED LIST for 1864.
Strong Transplanted SEAKALE, 2s. per doz.
Richard Smith, Nurseryman, Worcester.

Asparagus.
YOUELL and CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—
1-year GIANT ASPARAGUS, 1s. 9d. per 100.
2-year GIANT ASPARAGUS, 2s. 6d. per 100.
Royal Nurseries, Great Yarmouth.

CHARLES SHARPE and CO., Seed Merchants, Sleaford, have a Surplus Stock of the under-named PEAS to offer to the Trade, and will be glad to forward samples and prices on application:—
DANIEL O'ROURKE PEAS
EARLY PRIZETAKER MARROW.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

KING of the POTATO, from the Original Stock.—Price per Cwt. or Ton on application to
James Dickson & Sons, Seed Merchants, 102, Eastgate Street, Chester.

Seed Potatoes.
H. and F. SHARPE have splendid stocks of MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY (round), and other early varieties, which they can offer to the Trade at low prices.
Seed Growing Establishment, Wisbech.

SEED POTATOS, EARLY and LATE.—Ten of the very best kinds, grown on old sod, sound and true to name. Sorts and price (low) on application.
James Dickson & Sons, The "Newton" Nurseries, Chester.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

RICHARD SMITH'S RENOVATING GRASS SEED should Now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
Richard Smith, Seed Merchant, Worcester.

Japanese Nurseries, Biggleswade, Beds.

RETINOSPORA PISIFERA.—This beautiful hardy evergreen Conifer, just introduced by Mr. Robert Fortune, plants from 2s. 6d. to 31s. 6d. each, varying from 3 to 18 inches high in pots; fine specimens, the most beautiful of its species. Also all the JAPANESE NOVELTIES, see CATALOGUE gratis.

Thomas Ayres.

New Seedling Verbenas.

J. JEFFRIES and SON, Seedsmen and Florists, Woodbridge, Suffolk, beg to announce their intention of offering the following, which possess all the requisite properties, viz., size, form, and colour:—

DUKE OF CAMBRIDGE.—A very bright rich orange scarlet; straw-coloured eye, with a large and well-formed truss; pip large and very smooth; very free bloomer and excellent habit. Four First-class Certificates.

LIEUT.-COL. SCHREIBER.—Bright crimson scarlet, with a large and perfectly round white eye—best white eye of any Verbena out; very smooth pip, and medium size truss; good grower. Two First-class Certificates.

LADY RENDLESHAM.—Light, bright, rosy purple, perfectly new, and distinct in colour; large and well-formed truss and pip, dark eye, fine form, and free bloomer; a perfect gem—no stand can be complete without it.

BEAUTÉ PARFAIT.—Bright rosy carmine, with a large black disc; white eye; well-formed truss and pip; free bloomer:—a very striking variety—beautiful!

BLACK-EYED SUSAN.—A first-rate bedding variety or show flower; a very rich crimson carmine, with a large and well-defined black eye; large truss; first-rate bloomer, and habit by far the best of the black-eyed:—the more sun the brighter the colour.

2s. 6d. per Plant, or the Set for *10s. 6d.*, to the Trade only.

The above have been selected from a bed of Seedlings raised and grown by Mr. J. Cullingford, who has put them into our hands for disposal.

Good plants of the above will be ready in the first week of May, and for which we beg to solicit early orders.

A remittance respectfully requested from unknown Correspondents.

JOHN WATSON, New Zealand Nursery, St. Alban's, Herts, has much pleasure in recommending his new SEEDLING CALCEOLARIAS to his Patrons and the Trade in general. As Bedding Plants they are unequalled, being of dwarf, compact habit, thoroughly shrubby, and the high coloured varieties are of the most brilliant description. They will be sent out the first week in May, 1864, at *30s.* the dozen, the usual allowance to the Trade. Delivered free in London when six or more are taken.

CALCEOLARIA BIJOU.—A beautiful brilliant crimson, very shrubby and very dwarf, not more than 10 inches high, and warranted equally hardy with our old yellow varieties. Received First-class Certificate from the Royal Botanic Society, June 3, 1863; also Second Prize from Royal Horticultural Society, June 17, 1863; and First-class Certificate from Floral Committee, July 21, 1863. This is undoubtedly the best crimson Calceolaria ever offered, forming the most compact, brilliant, and effective bed of any Calceolaria extant.

CALCEOLARIA GENERAL TOM THUMB.—Colour deep yellow; exhibited at the Royal Botanic Society's Show, 1862, received First-class Certificate. The plant exhibited was 24 inches across, 10 inches high, from 6 to 8 inches in beds; the most dwarf and compact kind ever offered, suitable for edgings or small beds, thoroughly shrubby, and of beautifully compact growth.

CALCEOLARIA BEAUTY of HERTS.—Fine dwarf habit, flowers large and close in the mouth, colour clear amber, 12 inches high, suitable either for bedding purposes or for decoration, a new colour in Calceolarias. Beautiful as a greenhouse plant.

CALCEOLARIA STARLIGHT.—Colour bright red; a most desirable variety, similar in colour to Victor Emmanuel, but much more dwarf and woody; forms a fine effective bed. The flowers are large, close in the mouth, and the plant of unexceptionable habit.

Orders are solicited at the earliest opportunity, as the plants will be sent out in strict rotation.

GEO. SMITH begs respectfully to offer to the Trade and public generally his well-known SEEDLINGS, believing that they will take a high stand amongst the Floral Novelties of the present season, viz.:—

Fuchsia.

GRAND DUKE.—Tube and sepals bright crimson, well reflexed, corolla violet purple; very double, and of large size, smooth, and a most abundant bloomer; constant, and of fine compact habit. Extra. *10s. 6d.*

Zonale Geraniums.

LORD OF THE ISLES.—A beautiful cerise flower; very stout, large, and of exquisite shade; new in colour, and the finest Zonale ever offered. Awarded a First-Class Certificate by the Floral Committee of the Horticultural Society, for its general fine qualities. *5s.* each.

ORANGE GLOBE.—Brilliant orange scarlet; truss large, of fine shape and habit; a bold and conspicuous flower. *5s.*

Petunia.

PRINCESS ALEXANDRA.—Dark puce, with pure white stripes; flowers good size and form; habit most dense; foliage small and bright. This will be found the most beautiful of all the Single Petunias yet offered, and will form a constant and fine acquisition to its class. Received First-class Certificates at Wellington, Bath, and Highgate Horticultural Societies. *5s.*

Seedling Verbenas.

BLACK DIAMOND.—This is a most remarkable rich dark maroon, of fine shape and size, and will prove one of the best and most distinct Verbenas in cultivation.

FANTASTIC.—Pure white, with conspicuous rosy-purple centre; fine shape and truss; a first-class light variety.

GRAND DUCHESS.—White, with bright cherry centre; large truss, and fine for exhibition and other purposes.

LORD CLIFDEN.—Dark crimson scarlet; the pips much larger than a shilling; larger and finer than Lord Leigh or Foxhunter.

EMBLEM.—Rosy pink eye, white pip, and truss very large; fine shape; a first-class flower.

CHIEFTAIN.—Crimson scarlet; very vivid, and a remarkably free bloomer; fine for all purposes.

SCINTILLA.—Ruby rose; conspicuous white eye; fine show flower.

PLENIPO.—Rosy scarlet, with crimson-scarlet centre; free, and fine shape.

5s. each, or the set of eight for *30s.*

G. S. will be prepared to send out after the 20th April, in good plants, the above mentioned, and begs to solicit early orders for the same.

*** Coloured Illustrations of Geranium Lord of the Isles, or Petunia Princess Alexandra, free by post, in exchange for six Postage Stamps each.

Tollington Nursery, Hornsey Road, Islington, N.

SPLENDID ARAUCARIA IMBRICATA.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.,

Having a MAGNIFICENT STOCK of the above (perhaps by far the finest in the country), is enabled to offer them at the following very low prices:—

Largest Size, 6 to 8 feet, from 42s. to 105s. each.
Second Size, 4 to 5 feet, from 21s. to 42s. each.
Third Size, 3 to 4 feet, from 10s. 6d. to 21s. each.
Fourth Size, 2 to 3 feet, from 3s. 6d. to 10s. 6d. each.
Smallest Size, 1 to 2 feet, from 2s. to 3s. 6d. each.

The Prices vary according to the Selection in each size.

The Plants are well formed, have been frequently transplanted, with excellent roots.

The present is the most favourable season for their removal. The usual allowance to the Trade.

N.B. When a number are taken, plants will be put over to compensate for long carriage.

CHELSEA.—April 9, 1864.

BARR & SUGDEN 12 KING ST. COVENT GARDEN

ASPARAGUS ROOTS, 2 years old, *3s. 6d.* per 100; 3 years old, *5s. 6d.*; 4 years old, *7s. 6d.* *Post paid.*

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING.

Hardy Annuals.

2s. 6d., *3s. 6d.*, *5s. 6d.*, *10s. 6d.*, *21s.*, &c. Including those introduced in 1862, 1863, and 1864, *5s. 6d.*, *7s. 6d.*, *10s. 6d.*, *15s.*, *30s.*, &c.

Half-hardy Annuals.

2s. 6d., *3s. 6d.*, *5s. 6d.*, *10s. 6d.*, *15s.*, *21s.*, *30s.*, &c.

Hardy Perennials.

2s. 6d., *3s. 6d.*, *5s. 6d.*, *7s. 6d.*, *10s. 6d.*, *15s.*, *20s.*, *30s.*, &c.

BARR & SUGDEN'S COLLECTIONS OF VEGETABLE SEEDS for One Year's Supply. 10s. 6d., 15s. 6d., 21s., 30s., 42s., and 63s.

GLADIOLI, Splendid Named Sorts, *4s. 6d.*, *6s.*, *9s.*, *12s.*, *18s.*, *24s.*, and *30s.* per dozen.
GLADIOLI, Brilliant Colours for Massing, *3s.* to *4s.* per dozen, and *21s.* to *30s.* per 100.
MIXED COLOURS, *3s.* per dozen, *21s.* per 100.
LILIUM LANCIFOLIUM RUBRUM, ROSEUM, and ALBUM, *12s.* to *18s.* per dozen.
TIGRIDIA PAVONIA, *1s. 6d.* per dozen, *7s. 6d.* per 100.
Strong CANNA ROOTS, consisting of the most striking foliage varieties, *12s.*, *18s.*, and *24s.* per dozen, or *80s.* to *120s.* per 100.
WOODLAND WALK or WILDERNESS DECORATION.—Mixed Flower Seeds for the above, *5s. 6d.* per lb.

PRIZE MEDAL FOR SEEDS ROOTS & PLANTS BY THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND. 1846.

GENUINE FARM SEEDS.

THOMAS KENNEDY & CO.,

NURSERYMEN and SEEDSMEN, DUMFRIES, N.B.,

HAVE A LARGE AND CAREFULLY SELECTED STOCK OF

GENUINE FARM SEEDS,

Which they are selling at extremely moderate prices, delivering them Free of Carriage (under certain limitations) at the chief Railway Stations in Great Britain, and principal Steam Ports in Ireland.

The special attention of Agriculturists is directed to their MIXTURES for LAYING DOWN LAND to PERMANENT PASTURE, which continue to give every satisfaction. Price from 20s. to 26s. per imperial acre.

Interesting Notices of the leading varieties of Grass Seeds, comprising these Mixtures, will be found in their PRICED CATALOGUE of AGRICULTURAL SEEDS, &c. for 1864, which will be sent free on application to any address.

"This Establishment may be relied on for the excellence of all the articles it professes to supply."—*The Field.*

PRICED CATALOGUES of FOREST, FRUIT, and ORNAMENTAL TREES, &c.; SELECT VEGETABLE and FLOWER SEEDS, &c., may also be had on application.

SUTTON'S

SELECTED MANGEL WURZEL SEED,

6d. per pound, or cheaper by the cwt.

PRICE OF WHICH MAY BE HAD ON APPLICATION.

	Per lb.—s.	d.
SUTTON'S LARGE YELLOW GLOBE; saved from large roots, selected for their solidity and excellence of shape. A very heavy cropper, and thrives in all soils. This is also the hardiest Mangel known. (*The first Prize Medal was awarded to us for this sort at the Great International Exhibition of Roots and Cereals in October*, 1862)	0	6

Presuming that this superior Yellow Globe Mangel will generally be preferred for the main crop, we invariably send this sort, unless the Common Yellow (see above), or one of the kinds described below, is mentioned.

SUTTON'S ORANGE GLOBE; beautiful shape, with smaller greens than other sorts	0	6
RED GLOBE; similar to the above, except in colour	0	6
LONG RED; a good old sort	0	6
LONG YELLOW	0	6

Sutton's Mangel Wurzel Seed is Saved Exclusively from Fully Developed Roots,

The advantages of which have been proved for several years past,

(SEE THE FOLLOWING LETTERS.)

These are not mere Testimonials in the ordinary acceptation of that term, but show distinctly that the Seeds which Messrs. SUTTON have had grown from large selected Bulbs are altogether superior in germinating properties, and in the quality and trueness of their produce, to the Seed raised in the usual manner.

P. H. Frere, Esq., *Cambridge, Editor of the Royal Agricultural Society's Journal.*

"I write to say how well satisfied I am with the Mangel seed that you furnished me with in the late trying season. It was tried on one-half of two fields, the one strong, the other light land, the other portions being sown with seed bought of a respectable local dealer. On the strong land your seed gave me a decidedly better plant—on the light land three or four times as many plants as the other dealer's seed."

From Mr. Gray, *Bailiff to* G. Rawlins, Esq., *Bullington House.*

"I believe we had one of the finest lots of Mangels and Swedes in the country. We had not quite enough of your seed of Mangel, and *sent elsewhere for some to finish the field, and though sown the same day and with exactly similar treatment, we had not so much weight by one third as on the part sown with your seed.*

From the Right Hon. Lord Berwick, *Cronkhill.*

"Let me have the same Globe Mangel as last year, which has given me the best crop I ever grew; good both as to bulk of crop, and also in the fineness of roots and freedom from fangs and irregular growth; when pulled, the roots were nearly as clean and free from fibre as a Globe Turnip, and I had 50 loads per acre and more."

From George Beaumont, Esq., *Bridgeford Hill, near Nottingham.*

"We have had 4 acres of Mangel (Yellow Globe), three of which were sown with your seed, and one acre with seed grown in this neighbourhood. I am quite sure your seed produced from 8 to 10 tons per acre more than the other. I had nearly an acre weighed (from your seed), and found we had 55¼ tons per acre.

Many PRIZES at Birmingham and other Shows throughout the Kingdom have been taken by Messrs. SUTTON'S Customers, both for MANGEL and for SWEDES.

PRICED LISTS of other kinds of MANGEL, SWEDES, TURNIPS, GRASSES, &c., will be sent gratis and post free.

☞ *Carriage Free to all parts, except small parcels.*

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to intimate that he has secured the stock of this new and valuable LATE WHITE GRAPE, which has been exhibited several times during the past two seasons, receiving a First-class Certificate from the R.H.S. upon its first appearance before the Fruit Committee there, and has fully maintained the high character then given to it on being exhibited before the Fruit Committee on two occasions since. It was also exhibited at the Flower Show held in the Agricultural Hall, Islington, and was awarded a First-class Certificate. The different reports in its favour, as given below, will give convincing proof of its excellence. B. S. W., to meet an extensive demand, has prepared a large stock, which will be ready for distribution in September. Orders may now be booked, and will be executed in strict rotation.

PRICES.

Strong Planting Canes ... 21s. each. | Strong Fruiting Canes ... 42s. each.

REPORTS EXTRACTED FROM HORTICULTURAL WORKS.

From the Gardeners' Chronicle, 1862.

"Among Grapes was a novelty of considerable promise, from Mr. Sanders, of Cheshunt; it is stated to be a cross between the Syrian and Muscat of Alexandria. The form of the bunch is handsome, and the berries full-sized with a fine glossy appearance, but though excellent, possessing no trace of Muscat flavour. It was named Royal Vineyard Muscat, and was awarded a First-class Certificate."

From the Journal of Horticulture, 1862.

"A Seedling Grape was sent by Mr. Sanders, of Cheshunt, and which was said to be a Muscat; it is called the Royal Vineyard. The bunch is large and well set; ovate, not long, tapering, or cylindrical; the berries are large, ovate; the skin white and somewhat transparent, showing the texture of the flesh through it; the flesh is firm and somewhat crackling, very juicy, and with a fine Sweet-water flavour. From the thickness of the stalks and of the berry stalks it has all the appearance of being a late hanging sort; and the quality, coupled with its admirable flavour, will doubtless recommend it. The Committee unanimously awarded it a First-class Certificate as a valuable late white Grape."

From the Gardeners' Chronicle, *Nov.* 14, 1862.

"From Mr. Williams, of Holloway, came a handsome bunch of new Royal Vineyard, a White Grape, of which we have spoken in favourable terms on former occasions."

From the Journal of Horticulture, *Oct.* 10. 1863.

"Mr. B. S. Williams, of Holloway, sent a splendid bunch of the Royal Vineyard Grape, which received a First-class Certificate at the November meeting in 1862. The bunch exhibited on this occasion was much finer than that shown last year, and was about 15 inches long, tapering like that of the Black Prince. The berries were large, quite round, and of a pearly look, the skin is so thin, and the flesh so hard and crackly, that it is eaten like a Bigarreau Cherry, skin and all. This is said to be a late hanging Grape, and if so it will be a very valuable one."

From the Gardeners' Weekly Magazine, *Nov.* 14, 1863.

"Mr. B. S. Williams, of Paradise Nursery, Holloway, exhibited a new Grape of very high merit; this is called 'Royal Vineyard.' The berry is large, oval, colour deep amber, thin skin, flesh tolerably sweet, exceedingly rich, not juicy, and with a fine bouquet. The bunch shown had a very tapering outline, and was moderately shouldered, but it appeared to have undergone considerable change since first cut, by the removal of berries for tasting."

From the Gardeners' Chronicle, *Oct.* 17, 1863.

"Here we had an opportunity of seeing Mr. Williams' new Royal Vineyard Grape, growing side by side with Muscat of Alexandria, which it somewhat resembles in appearance but not in taste, being altogether devoid of Muscat flavour. So highly, however, did it stand in favour with the Fruit Committee, when it was first shown at South Kensington, that they awarded it a First-class Certificate, and we must add that in general appearance it is one of the handsomest Grapes in cultivation; a bunch of it reproduced at South Kensington the other day for further inspection measured no less than 14 inches in length, and was well spoken of by all who tasted it. It may therefore be regarded as one of the most valuable of the new Grapes about to be brought under public notice."

Dr. Hogg's *Report in the* Gardeners' Year Book *for* 1864.

"ROYAL VINEYARD.—Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh—so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

A correct COLOURED ILLUSTRATION by Andrews will be sent in exchange for 12 postage Stamps.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s.* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by John Standish, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	,, Portugal, 1 to 2 feet
,, dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	,, Turkey, 3 to 4 feet
,, standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

NEW PLANTS of 1863.

In strong healthy Plants.

NEW GERANIUMS, 24*s* per doz.	New FUCHSIAS, 6*s.* p.doz.
,, ZONALE, 12*s.* per doz.	,, PETUNIAS, 6*s.* ,,
,, CINERARIAS, 12*s.* per doz.	,, VERBENAS, 4*s.* ,,

LONICERA AUREO-RETICULATA, 4*s.* to 9*s.*

H. Walton, Edgend Marsden, near Burnley.

CATALOGUES on application for one stamp.

Continental Novelties, &c.

LOUIS VAN HOUTTE, Nurseryman and Seedsman, at Ghent, Belgium, begs to advertise his PRICE LISTS, No. 99, 100 and 102, containing the STOVE, GREENHOUSE, HARDY PLANTS, and SEEDS.

Agents in London: Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, Foreign Warehouse, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

Choice Tricolor Geraniums for Pot Culture.

ALFRED FRYER offers the following 12 Choice Tricolor, Gold and Silver-leaved varieties for 21*s.*

Basket and package included.

Mrs. Pollock	Golden Vase	Glowworm
Sunset	Argus	Silver Chain
Mrs. Milford	Emily Domville	Golden Harkaway
Golden Tom Thumb	Burning Bush	Silver Nosegay

All the best kinds of VARIEGATED and SCARLET GERANIUMS for bedding out, 2*s.* 6*d.* per doz., in 200 varieties, fine autumn-struck plants; including Cloth of Gold, Golden Fleece, Golden Chain, Reine d'Or, Flower of Spring, Bijou, Madame Vaucher, Rose Queen, Blackheath Beauty, &c.

Remittances requested from unknown correspondents.

Address, Alfred Fryer, Chatteris, Cambridgeshire.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1*s.*

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—s.	d.
CALCEOLARIA, HERBACEOUS, finest mixed	2	6
CARNATION, PERPETUAL, finest mixed	2	6
CINERARIA CRUENTA, finest mixed	2	6
PICOTEE, PERPETUAL, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA, finest mixed ..	2	6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2	6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf
CALCEOLARIA BEAUTY of HERTS, clear amber
CALCEOLARIA GENERAL TOM THUMB, deep yellow
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30*s.* per dozen; the usual allowance to the Trade where six or more are taken.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2*s.* each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5*s.* to 7*s.* 6*d.* each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, finely formed, and altogether of first rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7*s.* 6*d.* each.

PRINCESS of WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7*s.* 6*d.* each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2*s.* 6*d.*

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H. P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36*s.* to 42*s.* per dozen.
Fine vigorous plants of the old and popular sorts, 9*s.* to 18*s.* per dozen.

PAUL'S Nurseries, Waltham Cross, N.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0

SUTTON'S CATALOGUE of SEEDS will be sent post free.

SUTTON & SONS, Seed Growers, Reading, Berks.

FLOWER SEEDS.—Choice Imported French and German ASTERS and STOCKS of extra quality. Collections in separate varieties at 3*s*, 2*s.* 6*d.*, 1*s.* 6*d.* and 1*s.* 3*d.*

HARDY ANNUALS, of our own growth, in great variety. Selections, 1*s.*, 1*s.* 6*d.*, 2*s.*, 2*s.* 6*d.*, 3*s.*, 4*s*, 5*s.*, 10*s.*, 20*s*, and upwards.

TAGETES SIGNATA PUMILA, a first-class variety for dwarf beds or borders; flowers deep yellow, centre orange; leaves finely cut and remarkably pretty; blooms profusely all the summer. In packets of 1000 seeds for 1*s.*

The above packets Post free.

For other Novelties, see J. SLATER & SONS' SPECIAL LIST, Post free on application.

J. SLATER & SONS, Seedsmen, &c., Malton, Yorkshire.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Wyatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, April 9.

FOR SALE, for half their value, the following PLANTS, the property of a Gentleman. They are particularly well-grown, in full bloom, and fit to send to a show as specimen plants, and to be seen within an hour's journey of London.

ACACIA LONGIFOLIA MAGNIFICA, 8 feet by 4 feet.
ERIOSTEMON NERIIFOLIUM, 4 feet by 4 feet.
" LINIFOLIUM, 3 feet 6 in. by 3 feet 6 in.
" SCABRUM, 3 feet by 4 feet.
EUTAXIA MYRTIFOLIA, 6 feet by 4 feet.
HOVEA CELSI, 4 feet by 2 feet 6 inches.
CHOROZEMA ILICIFOLIUM, 4 feet by 4 fee .
DAVIESIA FRAZERI, 3 feet 6 inches by 2 feet.
PIMELEA DIOSMIFOLIA, 3 feet by 3 feet.
CHOROZEMA CORDATUM SPLENDENS, 4 feet by 4 ft.
LEPTOSPERMUM BULLATUM, 5 feet by 4 feet.
BOSSIÆA DISTICHA PLUMOSA, 3 feet by 3 feet.
(——?) MACROPHYLLA, 6 feet by 3 feet.
DIOSMA CAPITATA, 2 feet by 3 feet.

Apply to Mr. L., care of Mr. Goodman, News Agent, 1, Commercial Street, Shoreditch, N.E.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Choice Flower Seeds, Post-free.

OFFERED BY

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

PRIMULA, very fine, red, white, or mixed, 2*s.* and 3*s.* 6*d.* per pkt.
CALCEOLARIA, very choice, 1*s.* 6*d.* and 3*s.* 6*d.* per pkt.
CINERARIA, from named flowers, 1*s.* 6*d.* and 2*s.* 6*d.* per pkt.
CLIANTHUS DAMPIERI, English saved, 1*s.* 6*d.* and 2*s.* 6*d.* per pkt.
BALSAM, Camellia-flowered, very fine, 1*s.* per pkt.
CORDYLINE INDIVISA, 2*s.* 6*d.* per pkt.
SENECIO ELEGANS FLORE PLENO, 1*s.* per pkt.
CARNATION and PICOTEE, 1*s.* per pkt.
ACHIMENES, very choice, 1*s.* per pkt.
PANSY, from named flowers, 1*s.* per pkt.
STOCK, SCARLET INTERMEDIATE, the true Covent Garden variety, 6*d.* per pkt.
ASTER, Chrysanthemum-flowered, 6*d.* per pkt.
" Truffaut's Pæony-flowered perfection, 6*d.* per pkt.
" Double-quilled German, 6*d.* per pkt.
SWEET WILLIAM, 6*d.* per pkt.
CACTUS, fine varieties, 1*s.* per pkt.
MIMULUS MACULOSUS, 1*s.* 6*d.* per pkt.
HOLLYHOCK, from named flowers.
WILLIAMS' MATCHLESS RED CELERY, 1*s.* 6*d.* per pkt.

FLOWER SEEDS.—The following choice collection sent post free for 20*s.*, by MCRAE & FRASER, Tredegar Nursery, Bow, London, E.:—

PRIMULA SINENSIS, choice fringed, finest quality.
CALCEOLARIA, finest hybrid spotted.
CINERARIA, from choice named flowers
STOCK, GERMAN, large flowered, very fine.
ASTER, Dwarf Chrysanthemum-flowered, mixed.
" Truffaut's Pæony Perfection, mixed.
HOLLYHOCK, from finest prize varieties.
HELICHRYSUM (Everlastings), fine mixed.
AURICULA, finest prize.
POLYANTHUS, extra choice.
MIMULUS CUPREUS NOVUS } Splendid new varieties.
" TIGRIDIOIDES }
SWEET WILLIAM (HUNT'S superb mixed).
BALSAM, Rose-flowered, mixed, very choice.
CARNATION and PICOTEE, carefully saved from choicest kinds.
WALLFLOWER (German Tree), splendid mixed.
ZINNIA ELEGANS, double choice mixed.
RHODANTHE MACULATA.
TROPÆOLUM LOBBIANUM, splendid mixed.
LINUM FLAVUM.
IPOMŒA RUBRA CŒRULEA.
DIANTHUS HEDDEWIGII SUPERBUS, very choice.
HEARTSEASE, Extra Choice.
GOURDS, ORNAMENTAL, 12 varieties, mixed.
ANTIRRHINUM, 12 superb varieties, mixed
CELOSIA AUREA PYRAMIDALIS (Golden-feathered Cockscomb.)
CELOSIA COCCINEA PYRAMIDALIS (Crimson-feathered Cockscomb.)

CHARLES CLARKE, Windmill Hill Nursery, Gravesend, Kent, has a surplus Stock of the following, to be sold very reasonable, viz., large Forest Trees, as LIMES, POPLARS, MAPLES, SYCAMORES, BIRCH, ALDERS, FIRS, &c., from 10 to 12 feet high; Strong QUICK, bolls of WILLOWS, large specimen YEWS, BOX EDGING, RASPBERRY, pricked out, STRAWBERRY, and SEA KAIL Plants, &c.

EDGING PLANT.—The best for Walks, Beds, &c., is FESTUCA GLAUCA, price 8*s.* 100 strong plants.
Fine named PINKS, 4*s.* per dozen.
" PANSIES, 4*s.* and 6*s.* do.
Bedding and Border plants of every description cheap and good.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Agricultural, Vegetable, and Flower Seeds.

EDWIN HOLLAMBY begs to inform his friends and the public, that his NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded post free to all applicants.

Nursery and Seed Establishment, Tunbridge Wells; and Groomsbridge, Kent.

PRESENT PRICES of CLOVER SEEDS,
CARRIAGE FREE, EXCEPT SMALL PARCELS.

SUTTON'S BEST QUALITY of COMMON RED CLOVER, 7*d.* per lb., or cheaper by the cwt. Second quality cheaper.
BEST WHITE CLOVER, 9*d.* per lb. Second quality cheaper.
BEST ALSIKE CLOVER, 10*d.* per lb. Second quality cheaper.
BEST COW GRASS, 9*d.* per lb. Second quality cheaper.
BEST YELLOW TREFOIL, 4½*d.* per lb.
BEST MIXED CLOVERS and RYE-GRASS, 12*s.* 6*d.* per acre.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LAND.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lbs. per Acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year.

SUTTON & SONS have now the satisfaction of offering very fine new Seed at the greatly reduced price of 10*d.* per lb., or cheaper by the cwt., and strongly recommend this Clover to more general cultivation.

Royal Berkshire Seed Establishment, Reading.

IMPROVEMENT of OLD PASTURES, PARKS, and MEADOWS, by sowing the most suitable kinds of GRASS and CLOVER SEEDS.

SUTTON'S RENOVATING MIXTURES.—Quantity of Seed required, 8 to 12 lb. per acre. Price 9*d.* per lb., or 80*s.* per cwt.

From the Rev. CANON GUTHRIE, *Vicarage, Calne.*

"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."

Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.

Our RENOVATING MIXTURE consists of the Finest GRASSES and PERENNIAL CLOVERS. If the Seeds are sown *early in the season*, the improvement in the Pasture will be very great, and at a small expense.

Royal Berkshire Seed Establishment, Reading.

THOMAS AYRES, Biggleswade, Beds. NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Seed Potatos—clearing out Offer.

WOOD AND INGRAM offer the following kinds of their own growth, true to name, at the CASH prices annexed, per bushel of 56 lb.:—Ashleaved Kidneys, 3*s.*; Myatt's Kidney, 3*s.*; Robinson's Golden Kidney, 3*s.* 6*d.*; Jackson's Kidney, 3*s.*; Lapstones, 2*s.* 6*d.*; Flukes, 2*s.* 6*d.*; Webb's Imperial, 3*s.*; Dalmahoy, 2*s.* 3*d.*; Early Handsworth, 3*s.* 6*d.*; Early Oxford, 2*s.* 3*d.*; Martin's Globe, 2*s.* 3*d.*, and York Regent, 2*s.*

Nurseries, Huntingdon.

New Belgian Potato, Chardon.

JOHN PALMER AND SON, NURSERYMEN, Annan, Dumfriesshire, N.B., beg leave to intimate to the Trade, and Agriculturists generally, that they grew a considerable breadth of this Potato last Season, and now offer the produce for Sale, at 5*s.* per imperial bushel.

This Potato is quite sound, and of good quality for the table. The produce per acre is perfectly extraordinary, being over 15 tons. J. P. & Son believe that this new and valuable Variety will be a boon to Agriculturists.

PRINCE OF WALES KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. The following Testimonials will be sufficient for the most sceptical.

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq., Editor of the *Gardeners' Weekly Magazine.*

"The Seedling Potato (Prince of Wales). I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

The Prince of Wales Potato may be had of Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & CO., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price, 12*s.* per bushel.

N.B. They may be planted up to the end of May.

SELECTED SEEDS,
CARRIAGE FREE.

W. PAUL'S SUPERB CRIMSON BEET, 1*s.* per ounce.
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s.* per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2*s.* 6*d.* per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s.* p. pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s.* p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d* p. pkt
BROCKET HALL BROWN COS LETTUCE, 1*s.* per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s.* per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s.* per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s.* per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s.* per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—WM. PAUL'S Collection in 12 distinct named sorts, 5*s.*
" finest mixed, 1*s.* to 2*s.* 6*d.* per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s.* to 2*s.* 6*d.* per packet.
LAPAGERIA ROSEA, 1*s.* to 2*s.* 6*d.* per packet.

All other Seeds, separate or in collections, of best quality.

PRICED DESCRIPTIVE CATALOGUE free by post.

Address WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, Seedsmen to the Gloucestershire Agricultural Society, offer the following SEEDS of finest quality, at the prices annexed. Carriage Free by Rail, and will allow 5 per cent. discount for cash.

PERMANENT PASTURE.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium loamy soil, at 30*s.* per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected; for medium clay soil, at 30*s.* per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for heavy clay soil, at 28*s.* per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for light brashy land, at 27*s.* 6*d.* per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for Orchards, at 30*s.* per acre.
GRASSES and CLOVERS, rather rough and coarse: for game covert, at 18*s.* per acre.
JERUSALEM ARTICHOKES, for planting in game coverts, at 6*s.* per bushel.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Good Seeds.—Excellence and Economy.

HENRY BROWN is prepared to supply the following and other SEEDS, at very moderate prices (samples sent if required:—

English Red Clover	6*d.* per lb.	Cowgrass	8*d.* per lb.
Welsh Red Clover	7*d.* "	Trefoil	3*d.* "
Alsike(extra) Clover	8*d.* "	Ribgrass	4*d.* "
White Dutch Clover	8*d.* "		

Perennial Rye-grass, per bushel, 3*s.* to 5*s.*
Italian Rye-grass " 5*s.*

PERMANENT and other MIXED GRASS and CLOVERS, 12*s.* to 28*s.* per statute acre.

BROWN'S DWARF-TOP BRONZE SWEDE, allowed by those who have grown it to be the best in cultivation, very large and hardy, and the flesh very superior. It has taken first prize each time exhibited for competition. Six roots taken out of the ground last September, weighed 143 lb. when trimmed.

J. C. HUNTER, Esq., of Straid, Arran, near Londonderry, writes on April 16, 1863:—"Your Dwarf-top Swede gives as much more juice at this period, when pulped, as any Turnip I have ever grown. I would recommend every agriculturist to give it a trial." 1*s.* per lb.

All kinds of good AGRICULTURAL, GARDEN, and FLOWER SEEDS, moderate.

Priced DESCRIPTIVE CATALOGUE (containing much information), post free, on application at the Wholesale and Retail Seed Warehouse, 4, Commutation Row, Liverpool.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities
Price for Picked Roots, per 100 .. .. 10*s.* 0*d.*
Do. second size ,, ... 7 6
Also strong for Planting, per 100 .. 5*s.* and 7 6
Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

Farm Seeds.

RICHARD SMITH is now prepared to supply the following SEEDS, all of which have been selected with the greatest care, and are of very superior quality:—
CLOVER, BROAD ENGLISH RED, 58*s.*—62*s.* per cwt.
,, PERENNIAL or COW GRASS, 68*s.*—75*s.* per cwt.
,, WHITE or DUTCH, 62*s.*—70*s.* per cwt.
,, YELLOW or TREFOIL, 30*s.*—34*s.* per cwt.
,, ALSIKE or HYBRID, 76*s.*—84*s.* per cwt.
RYE-GRASS, Finest PERENNIAL, 6*s.*—6*s.* 6*d.* per bushel.
,, ITALIAN EXTRA, 7*s.* 6*d.*—8*s.* per bushel.
SWEDE, SMITH'S WORCESTERSHIRE, 9*d.* per lb.
,, KING OF THE SWEDE, 8*d.* per lb.
MANGEL WURZEL, ORANGE GLOBE, 6*d.* per lb.
,, ,, RED and YELLOW, 6*d.* per lb.
,, ,, LONG RED and YELLOW, 6*d.* per lb.
RICHARD SMITH, Seed Merchant, Worcester.

To the Seed Trade.

H. and F. SHARPE can now make special offers of the following SEEDS, grown by them last season, from the finest selected bulbs. They are of fine quality, and free from adulteration;—

Long Red Mangel Wurzel	Purple Top Swede Turnip
Long Yellow ,, ,,	Sharpe's Improved Swede Do.
Red Globe ,, ,,	Liverpool Swede Do.
Yellow Globe ,, ,,	Improved Green Top Yellow Do.
Orange Globe ,, ,,	Fosterton Hybrid Do.
Long Red Surrey Carrot	Green Top Swede Do.
,, ,, Altringham Carrot	Pomeranian White Globe Do.
James's Scarlet Intermediate Carrot	Green Globe Do.
Early Cabbage of sorts	Red Globe Do.

Prices on application.
Seed Growing Establishment, Wisbech.

Mangel Wurzel and Turnip Seed.

KING'S CHAMPION ORANGE GLOBE WURZEL, superior to any other.
Fine YELLOW GLOBE. | Fine RED GLOBE.
Do. ELVETHAM LONG RED.
Do. LONG YELLOW, from roots, many of them 3 feet long; a heavy cropper.
SKIRVING'S and PURPLE-TOP SWEDE TURNIP SEED.
All the above are saved from none but the best Stocks.
PRICED LISTS with testimonials sent post free.
JOHN K. KING, Seed Grower, Coggeshall, Essex.
Established 1793.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.
MIXTURE for Laying down to PERMANENT PASTURE .. .. 25*s.* to 30*s.*
MIXTURE for ORCHARDS or LAND shaded by Trees .. .. 24*s.* to 26*s.*
MIXTURE for PARKS and CEMETERIES .. 28*s.* to 30*s.*
MIXTURE for Improving OLD PASTURE .. 6*s.* to 8*s.*
MIXTURE for One, Two, or Three Years' Lay .. 15*s.* to 18*s.*
MIXTURE for Fine LAWNS and BOWLING GREENS .. .. per lb. 1*s.*
PRICED LISTS may be had on application.
RICHARD SMITH, Seed Merchant, Worcester.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE (all carefully and thoroughly cleaned).

The Seeds of each sort separate may be seen in large quantities in Messrs. SUTTON'S Warehouses, and growing specimens of these and many others in their sample grounds.

All the best and most suitable of them are contained (together with Alsike, Perennial White, and Perennial Red Clovers), in Messrs. SUTTON'S Mixtures for Permanent Pastures.

	Per lb above 7 lb.	Per Bush.
	s. d.	*s. d.*
ALOPECURUS PRATENSIS	1 3	9 0
ANTHOXANTHUM ODORATUM	1 6	20 0
AGROSTIS STOLONIFERA	0 10	9 0
BRACHYPODIUM SYLVATICUM	1 0	15 0
CYNOSURUS CRISTATUS	1 0	20 0
DACTYLIS GLOMERATA	0 10	6 6
FESTUCA DURIUSCULA	0 10	7 6
,, ELATIOR	1 0	12 0
,, GIGANTEA	1 3	14 0
,, HETEROPHYLLA	1 0	12 0
,, PRATENSIS	0 10	12 0
,, OVINA	0 10	8 0
,, RUBRA	0 10	8 0
,, TENUIFOLIA	1 0	12 0
,, LOLIACEA	0 10	14 0
GLYCERIA FLUITANS	1 0	14 0
,, AQUATICA	1 0	10 0
HOLCUS AVENACEUS	0 10	7 0
LOLIUM ITALICUM	0 7½	6 6
,, PERENNE	0 4½	5 6
,, ,, PACEYANUM	0 4½	6 6
,, ,, SEMPERVIRENS ..	0 4½	7 0
,, ,, TENUE	0 5½	10 0
PHLEUM PRATENSE	0 6	21 0
POA PRATENSIS	1 0	21 0
,, TRIVIALIS	1 0	21 0
,, NEMORALIS	1 3	28 0
,, FERTILIS	1 3	28 0
,, SEMPERVIRENS	1 6	30 0
,, AQUATICA	0 10	12 0
PLANTAGO LANCEOLATA	0 5	25 0

From Prof. LINDLEY, *Royal Horticultural Society, London.*
"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

A Copy of Mr. M. H. SUTTON'S Essay on Laying Down Land to Permanent Pasture, from the "Journal of the Royal Agricultural Society," will be sent with every parcel of Grass Seed.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
The GENERAL FARM SEED DIRECTORY, with full Instructions for the Management of a Farm for every Month in the Year, will be forwarded Gratis and Post Free to any address in the kingdom.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
Purchasers of Large Quantities of AGRICULTURAL SEEDS will be dealt liberally with.
All Seeds Carriage Free.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES OF WHEAT, BARLEY AND OATS, SUPPLIED BY
RAYNBIRD, CALDECOTT, AND BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.
WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.
Samples and Prices post free on application.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.

From E. ENSOR, Esq., *Woodville, near Burton-on-Trent.*
"The Sand is very good; when we want more we will write you."
W. SHORT, Sand and Peat Depot, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.

Important Discovery.

JULIUS MULLER'S FERTILISING POWDER for Promoting the Growth of Flowers, Shrubs, Fruit Trees, &c. Wholesale only at 21, Chapel Street, Finsbury. THEODORE TOBIAS, Manager, and Retail by all respectable Seed Merchants and Chemists in the United Kingdom. In Canisters, 5*s.* 6*d.* and 10*s.* 6*d.* each. The following is one of the many testimonials in the hands of the Proprietor:—

J. CUTHBERT, Esq., Clayton Square, Liverpool, says in his Testimonial deposited with Sir Joseph Paxton, Devonshire House, Piccadilly, London, that flowers cultivated with Mr. Muller's Fertilising Powder, were the best he ever had seen.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.



F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality) of F. & G. ROSHER, at the Addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

FARM SEEDS.—CARRIAGE FREE.

GRASSES and CLOVERS, mixed for Permanent Pasture, and adapted to any description of soil.
ALSIKE, RED WELSH, and other CLOVERS. Pure samples.
PACEY'S PERENNIAL, IMPORTED ITALIAN and other RYE-GRASSES. Extra cleaned.
TURNIPS, DICKSON'S PRIZE SWEDE, and others saved from picked transplanted bulbs.
MANGEL WURZEL, Select YELLOW GLOBE, OVAL, &c.
☞ *All of the very best description, and Carriage Free.*
A DESCRIPTIVE PRICED CATALOGUE upon application to
JAMES DICKSON AND SONS, 102, EASTGATE STREET, CHESTER.

SEEDS FOR PERMANENT PASTURE.

A liberal supply of Seeds, consisting of from 12 to 14 varieties of Clover and Grasses, assorted to suit the various soils, the quantities and kinds of which are given in detail, may be had at a cost not exceeding 23*s.* to 25*s.* per acre from

W. DRUMMOND & SONS, SEEDSMEN,
STIRLING,

Whose experience in Laying Down Land to Permanent Pasture has extended over many years, during which they have supplied their Assortments to numbers of the leading Proprietors and Farmers throughout the kingdom. The quality of their Seeds is well known, and they respectfully assure intending purchasers that this year they are UNUSUALLY GOOD, and so moderate in price that the above cost will secure the best article that can be grown.

PRICED CATALOGUES of every description of Farm Seeds may be had Post Free on application.

SEED WAREHOUSE, STIRLING.

*** Stirling is most favourably placed in point of Railway accommodation, there being direct and constant traffic to all the principal Stations in Scotland and England, and by Steamers (*viâ* Glasgow) almost daily to the chief pots in Ireland, thereby ensuring a speedy delivery of Goods, all of which (with certain limitations) are forwardred CARRIAGE PAID.

GRASS SEEDS FOR ALL SOILS.



SUTTON & SONS

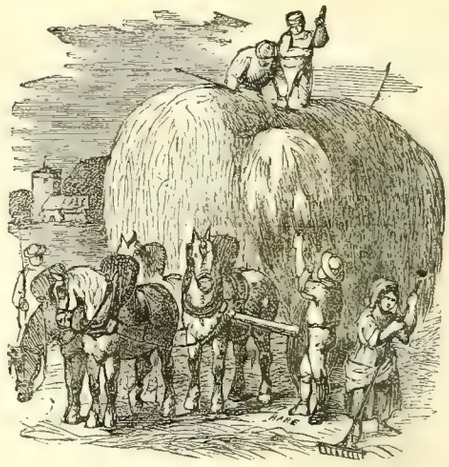
HAVE ONE OF THE

LARGEST STOCKS IN EUROPE

OF THE

PERMANENT NATURAL GRASS AND CLOVER SEEDS,

WHICH THEY MIX EXPRESSLY TO SUIT THE SOIL FOR WHICH THEY ARE REQUIRED.



The following letter has been received, besides many others:

From Professor LINDLEY, *Royal Horticultural Society, London.*
"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—

Best quality Mixtures for Laying Down to Permanent Pasture, 30s. per acre.

Cheaper Mixtures, omitting certain sorts, 20s. to 26s. per acre.

Best quality Mixtures, for Three or Four Years' Lay, 21s. per acre.

Best quality Mixtures, for One or Two Years' Lay, 12s. 6d. to 17s. 6d. per acre.

Clovers and Fine Grasses for Renovating Old Pastures, 6s. to 9s. per acre.

Finest Lawn Grass Seeds, 18s. per bushel.

Park Lawn Grass Seeds, 16s. per bushel.

The FIRST PRIZE MEDAL was awarded to SUTTON & SONS for their GRASS and CLOVER SEEDS at the Great International Exhibition of Roots and Cereals at South Kensington in October 1862.

A Copy of Mr. MARTIN SUTTON'S "ESSAY on PASTURES" is sent with each lot of Grass Seeds.

Seeds sent Carriage Free to all parts of the kingdom. Export Orders Delivered Free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS Gratis and Post Free.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

THE ONLY PRIZE MEDAL AWARDED for SEEDS, INTERNATIONAL EXHIBITION 1862.



CARTER'S PERMANENT GRASS SEEDS.



We recommend a proportionate Mixture of the undermentioned according to soil, averaging about 2 bushels light seed and 12 lb. heavy seed (Clovers) to the acre.

Price, per acre, 24s. to 30s.

COCKSFOOT HARD FESCUE FESTUCA ELATIOR	FESTUCA PRATENSIS " RUBRA " OVINA	MEADOW FOXTAIL TALL OAT GRASS POA NEMORALIS	POA PRATENSIS " TRIVIALIS SWEET VERNAL	ITALIAN RYE-GRASS PERENNIAL RYE-GRASS TREFOIL	WHITE CLOVER COW GRASS

SUNDRY MIXED GRASS SEEDS.

Grass Seed for Park Lawns, 1s. per lb.; 16s. per bushel
Grass Seed for Renovating Old Grass Lands, 10s. per bushel
Grass Seed for Chalky Uplands and Sheep Walks, 12s. per bushel
Grass Seed for Wet Lands, 10s. per bushel.

Mixed Clovers for Permanent Pasture, 1s. per lb.

GRASS SEED FOR FINE LAWNS.

This is really a splendid Mixture, containing proportionate quantities of the following:—

CRESTED DOG'S-TAIL HARD FESCUE SHEEP'S FESCUE	MEADOW FESCUE FESTUCA TENUIFOLIA POA NEMORALIS	POA PRATENSIS WHITE CLOVER SUCKLING

Price, per bushel, 18s.; per lb., 1s.

Report of Seeds supplied by us to the Crystal Palace Company, from Mr. J. A. GORDON, *Garden Superintendent.*

"January 6, 1864.

"GENTLEMEN,—The Grass Seeds and Clovers supplied by you to the Crystal Palace Company in the spring of 1863 have proved of excellent growth, are perfectly free from weeds and coarse Grasses, and have already formed a fine sward. The Grass Seed you supplied the Company with in 1862 is now as solid as turf. I was very much pleased with the Flower seeds; the French and African Marigolds, Dunnett's Crimson Candytuft, the Indian Pinks, and Larkspurs, were particularly fine.—I am, Gentlemen, your obedient Servant,

"Messrs. JAMES CARTER & Co." "J. A. GORDON, Garden Superintendent at the Crystal Palace."

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN.

OFFICES and SEED WAREHOUSES, 237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS—EAST HOUSE FARM, DEDHAM, ESSEX, and the SEED FARM, ST. OSYTH, ESSEX.

NURSERY—CRYSTAL PALACE NURSERY, FOREST HILL, SYDENHAM, S.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Rhododendrons.

Crimson, White, Purple, and Scarlet.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

American Plants.

WATERER and GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., Nurseryman, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10s.; 20 pair of Cuttings of ditto for 5s.; 25 pair of fine POMPONS for 10s.; 25 pair of Cuttings of ditto for 5s.

N.B. To save trouble all orders to be prepaid.

New Chrysanthemum, Empress of India.

E. G. HENDERSON and SON are now prepared to supply plants of the above. It is a beautiful variety from the "C. Queen of England;" pure white, three quarters globe in shape, with a full centre, in size one of the largest. 5s. each; or four for three, with Trade Discount.

Wellington Nursery, St. John's Wood, London, N.W.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of New CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c., for 1864, is now ready, and will be sent post free on receipt of Two Stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

The Best New Dwarf Bedding Scarlet Geranium of the Season is "Lady Cowper."

E. P. FRANCIS will send out the above GERANIUM the first week in May. For description, see *Gardeners' Chronicle* of April 2.

Price: Good plants, 3s. 6d. each; or 30s. per dozen.

The Nurseries, Hertford, Herts.

Golden Chain Geranium.

To Nurserymen, Florists, &c.

TO BE DISPOSED OF, 100 Dozen of the GOLDEN CHAIN GERANIUM.

Application by letter, stating the price given per dozen. To be delivered, well packed, at the Lincoln Railway Station.

A. Jones, The Gardens, Coleby, near Lincoln.

50 SUPERB PHLOXES for 30s.—All the New and Superb PHLOXES of the season, at 12s., 15s., 18s. per dozen; Older, but approved kinds, 4s., 6s., 9s. per dozen.

DESCRIPTIVE CATALOGUES post free.

Address Wm. Wood & Son, Woodlands, Maresfield, Uckfield, Sussex.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

Geo. Clarke, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this flower that for those who wish to insure a fine bloom this season, the proper time has now arrived for planting it out. CATALOGUES, with proper instructions for its cultivation, also prices of plants per dozen, 100, or 1000, may be had on application.

Seed, saved only from finest varieties, new and very choice, 2s. 6d. or 5s. per packet; Collections of 12 separate named varieties, 4s. to 10s.; young Seedling plants, from best varieties, 30s per 100, or 4s. per dozen: Bloomed Seedlings of last year, with colours named, 6s. per dozen, or 30s. per 100.

Address, W. Chater, Nurseries, Saffron Walden.



Sutton's Lawn Grass Seeds,

At the Crystal Palace, and at the People's Park, Halifax.

SUTTON and SONS have had the honour of supplying the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham, and at the People's Park, Halifax.

The following letter has been received, besides many others:—

From Professor Lindley, *Horticultural Society, London.*

"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1s. per lb.; 2s. 6d. per gallon; or 18s. per bushel. Quantity required for forming new Garden Lawns, 3 bushels, or 60 lbs.

Address, Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Flower Seeds, Postage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

COLLECTIONS of FLOWER SEEDS, 100 Packets, 20s.
" " " 50 " 12s.
" " " 25 " 6s.
" " " 12 " 3s.

Herbaceous Calceolarias.

E. G. HENDERSON and SON offer these, of splendid varieties, in healthy fine plants for conservatory decoration, being now in most suitable order for travelling. 12s and 18s. per dozen.

TIGRIDIA PAVONIA.—Very beautiful for groups in the flower garden, or for pot culture. The remarkably large and brilliant orange-scarlet flowers, picturesquely spotted, render them exceedingly attractive during the summer months. 1s. 6d. per doz.

Wellington Nursery, St. John's Wood, London, N.W.

Gladiolus Brenchleyensis.

VOUELL and CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

In the LIST of AWARDS at p. 315, the following was accidentally omitted:—

First-class Certificate.

Hyacinth Thorwaldsen, from Messrs. Cutbush & Son, Highgate. Thomas Moore, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, APRIL 9, 1864.

The subject of radiation, though one of great importance, is too often neglected by gardeners. We have on more than one occasion called their notice to the injurious effect which it has in drying the air in conservatories, where there is no power of interposing a screen, especially where a high temperature is kept up at night.

It is not however to this part of the subject that we wish to allude at present, but to its effect in the open ground. It is radiation which makes it difficult to cultivate plants like the Sikkim Rhododendrons, which come from a country where there is so frequently a veil of clouds; it is radiation again which has frequently so fatal an effect in spring on the blossoms of our wall fruits, to prevent which some temporary coping to the walls is often applied with great benefit by good cultivators. So great indeed is the effect of radiation, that if it were not for the moisture of the air and some absorbent power in the air itself, cultivation would be impossible, and a single bright night would reduce everything to ice.

There is a passage bearing on this point in a paper lately read by Professor Tyndall, which is highly deserving of notice, as it shows that an additional provision is made by Nature to ward off injury. Dr. Tyndall had before shown the enormous differences which exist between gaseous bodies, both as regards their power of absorbing and emitting radiant heat. It was a point of interest however to determine whether, when reduced to a liquid form, they exhibited a deportment altogether different from that of the vapour from which they were derived.

Accordingly he examined 12 different liquids, and then the same liquids in a state of vapour, and he found that for heat of the same quality the order of absorption of liquids and their vapours are identical. If then the conditions of a liquid are determined, that of its vapour may be assumed. The conditions of water and steam, consequently, ought to be similar. Water, indeed, as a radiant and absorber exceeds all liquids with which it has been compared. A lamina of water an inch in thickness absorbs 81 per cent., and only allows 19 per cent. of the radiation to pass through it. And as we may assume that its vapour is equally energetic, we may infer with certainty, had no single experiment ever been made with the vapour of water, that, weight for weight, this vapour transcends all others in the power of absorbing radiant heat.

"The part then played by aqueous vapour in the economy of nature is far more wonderful than hitherto supposed. To nourish the vegetation of the earth, the actinic and luminous rays of the sun must penetrate our atmosphere; and to such rays aqueous vapour is eminently transparent. The violet and extra-violet rays pass throughit with freedom. To protect vegetation from destructive chills, the terrestrial rays must be checked in their transit towards stellar space, and this is accomplished by the aqueous vapour diffused through the air. This substance is the great moderator of the earth's temperature, bringing its extremes into proximity and obviating contrasts between day and night, which would render life insupportable. But we can advance beyond this general statement, now that we know the radiation from aqueous vapour is intercepted in a special degree by water, and reciprocally the radiation from water by aqueous vapour; for it follows from this, that the very act of nocturnal refrigeration which produces the condensation of aqueous vapour upon the surface of the earth—giving as it were a varnish of liquid water to that surface—imparts to terrestrial radiation that peculiar character which disqualifies it from passing through the earth's atmosphere and losing itself in space."

Our account of Dr. Tyndall's paper read before the Royal Society on the 17th of March, is taken from the *Reader* of March 26. It is scarcely possible to exaggerate the importance of it as regards cultivation, every drop of dew formed on a leaf, or on the panes of a hothouse, acting thus as a protection against serious evil, while the same water in a state of vapour will act as a most efficient blind to prevent a needless or injurious waste. It is obvious, too, that it may have an important bearing on the theory of steaming and syringing, and may prove of unexpected consequence in many questions where artificial heating is concerned. *M. J. B.*

In drawing the attention of our readers to the new postal regulations by which samples of seeds can now be sent through the Post Office to the East Indies at a small cost (p. 316), we promised to return to the subject in order to give some practical directions (1) how to select seeds for exportation; (2) how to prepare and pack them; and (3) to point out what kinds are most acceptable to friends in foreign countries. We will now endeavour to fulfil our promise. And, first of all, in the selection of seeds, it is of the greatest importance to take care that they are all new and fresh, that is, all lately gathered and not mixed up with old ones of a former season. It may be well enough to mix old seeds with new ones for home sowing, but this should never be done when the seeds are to be sent abroad. Old seeds, which would probably vegetate if sown in England, in many instances lose their vitality during a long sea voyage, and are perfectly worthless when they arrive at their destination in a foreign country. To illustrate the importance of selecting new seeds only for exportation, we may relate what happened in a case in which we ourselves were concerned a few years ago. A friend who had a garden, some 16,000 miles from where we are now writing, wrote to us complaining that he was very unfortunate in getting his seeds to vegetate, and begged our assistance. The late Mr. Catleugh, the well-known florist, who was then alive, offered to procure an assortment of new fresh seeds from his friend Mr. Charlwood, of Covent Garden. Mr. Charlwood, to whom the object in view was explained, took an interest in making the selection; all the seeds were consequently those which had ripened the same season, and now mark the result. When sown, after their long journey, they vegetated so thickly, and with such vigour, as to remind our correspondent of the way in which such seeds used to grow in his garden in England. Fresh seeds are therefore of the first importance, and they ought always to be secured for exportation. During a long sea voyage to the East, they are subjected to great changes of temperature, and unless the vital principle be strong and vigorous, it is almost certain to be injured or destroyed. Any respectable seedsman will supply seeds of this description, and will give information when such seeds are ripe and fit for exportation. All who have gardens of their own, can make sure of having seeds in this condition by gathering them for themselves.

Having procured the seeds in the condition we have described, the next question which presents

itself is how to prepare and pack them. The preparation of seeds for exportation is perhaps of more importance than the manner in which they are afterwards packed. In the first place they ought to be dried very carefully, so that all signs of moisture may be evaporated and driven off. If this is not attended to, the moisture is apt to induce them to vegetate while passing through warm latitudes, and their vitality is thus injured or destroyed. This important matter being attended to, they may be packed in almost any of the ways which are usually employed; they may even be put in bottles and sealed up, although this is a system of packing which has oftentimes been objected to, and is one which we do not recommend.

We mention the system of putting up seed in bottles merely to show the importance we attach to the seeds being carefully dried before they are put up. Some years ago Messrs. Wrench & Sons, of King William Street, London Bridge, were requested by the Horticultural Society of London to put up a collection of seeds in different ways for exportation, as an experiment. Some of these seeds were put in bottles and sealed up, others were put in different kinds of paper, and others again in canvas bags. They were sent to China round the Cape of Good Hope, and the voyage occupied about four months. When the seeds were sown, they all vegetated in a most satisfactory way; those packed in bottles grew quite as well as any of the others, nor could any preference be given to any one mode of packing over another. But then, it must be remembered that these seeds were carefully dried before they were put up. Had this part of the operation not been attended to, the result would probably have been very different; those packed in bottles would have perished, while those in brown paper and canvas bags might have survived. In availing ourselves of the pattern post which is now offered to us for the transmission of samples of seeds, there is only one mode of packing allowed, and luckily that mode is usually considered the best one. "Samples of seeds, &c., which cannot be sent in open covers, may be inclosed in bags of linen or other material, tied at the neck." Had the Postmaster-General studied the mode of preserving the vitality of seeds during a long voyage, he could not have suggested a better plan.

As to the kinds of seeds which are likely to prove most acceptable to friends in foreign countries, we may remark that common well-known things are more appreciated than anything else. Useful vegetables are always welcome, and common flowers, such, for example, as Mignonette, Wallflowers, Stocks, Geraniums, Primroses, and plants of that class, are more highly prized than floral novelties with high-sounding names. Anything which recalls to the mind the flowers and home of childhood and youth has an irresistible charm for those whose lot is to sojourn in countries far away from home.

There is a class of seeds which retain their vitality for a very short period unless they are sown in the earth, and therefore it is useless to attempt to send such things abroad in paper or canvas bags. Acorns, Chestnuts, and seeds of a like kind belong to this class. If we wish to send these to a country as distant as the East Indies, they must be sown in earth in Ward's cases, and in this condition they will vegetate during the voyage. The seeds of some of the Conifers, such as Abies Kæmpferi for example, are very short-lived if they are kept long out of the ground. If the seeds of this species are cut open when they are ripe, the little germ will be observed already in a green and growing condition, and this circumstance will readily account for the difficulty which is felt in getting home seed of this fine species in good order. It is stated, and we believe on good authority, that the seed of some of the Conifers which are so difficult to get home without having their vitality destroyed, ought to be gathered before it is quite ripe.

In conclusion, we congratulate our readers on the new boon which has been conferred by the postal authorities of England on all those who may choose to send samples of seeds to their friends in the East, or who may wish to receive oriental things suitable to our English parks and gardens.

A correspondent asks for further information on the following points respecting the Ladies' Prizes offered at the exhibition of the Royal Horticultural Society on the 1st of June, by the Proprietors of this Journal. As there seems to exist some uncertainty respecting the questions which are thus mooted, we may usefully devote a small space to some further explanations supplementary to those already offered, which will be found at p. 146. The questions which have been now put to us are these:—

1. What length of time is it necessary that the plants should be *grown* in the drawing-room? Where there is a large establishment it would be very easy for one of the ladies to obtain, we will say, an Orchid just coming into flower, and to grow it for two or three weeks; would that come within the terms of the prize?

2. In the competition, suppose a good plant of a Fern, and a good plant of a flowering plant were exhibited; would the flowering plant take the prize in preference?

3. Is it necessary that they should be grown in pots? or would a plant in a hanging basket, for instance, be admissible? It would be a pity that the objects of the promoters should be thwarted by their wishes not being understood.

We have already stated that it was not our intention to impose any conditions on the exhibitors, beyond this, that the competing plants should be drawing-room plants, that is, drawing-room grown plants, actually cultivated by the lady exhibitors themselves. The foregoing inquiries, however, and others which have been addressed to us, seem to indicate that the competition, if left in this way, may be misunderstood. The subjoined explanations will, it is hoped, prevent this from being the case.

To the first inquiry our reply is, that a plant just coming into flower, brought into a room from a frame or plant house ready to expand its blossoms, would not have been grown in a room in the sense we intend, and should therefore be excluded by the judges. It is clever indoor culture which we desire to encourage. The most satisfactory way to clear up this point will be to require that the exhibited plants shall have been kept in a room for at least six weeks previous to the show.

To the second inquiry we reply, that if the judges give the awards to the two plants which display the greatest skill in culture, whether Fern or flower, we shall be satisfied. Our object in offering the rewards will then have been gained. As there are two prizes, it is scarcely within the limits of probability that any difficulty will be found in selecting the two best dissimilar subjects.

To the third inquiry we reply, that undoubtedly a basket plant—not however a basket of plants—will be eligible if grown indoors for the requisite period, and so would a water plant grown in an aquarium, if it met this requirement. We say that any kind of plant, grown in any manner, will be admissible, provided it is fairly grown indoors under the care of a lady gardener, not a professional.

We hope our correspondent will now have no difficulty in setting his friends to work; and that others may go and do likewise.

—— We observe that one of the plants which the Horticultural Society's Floral Committee has approved, in its last year's report on the experimental plants grown at Chiswick, is the Athanasia annua, an old-fashioned annual, which it is stated was very effective for a considerable period during the summer months. We saw these plants, and can bear testimony that such was the case. The subject is mentioned here for the sake of pointing out that the effectiveness of this Athanasia was, as is the case in so many other instances that could be named, owing entirely to good cultivation. Sown thickly on poor soil, as is the lot of too many of our annual flowers, the Athanasia is a mere weed; but here, transplanted singly into good soil, it formed a close mass, adorned with a profusion of its bright yellow flower-heads. The branching habit which the plant assumes under such treatment is highly favourable to the production of a succession of flowers. In the instance referred to, the individual plants formed dwarfish freely-branched tufts of about a foot in height, the ends of all the branches being decorated with a corymb of the peculiar rayless flower-heads. These are, as gardeners would say, all "eye," wanting entirely the ray-florets which in general give their beauty to composite flowers; in point of fact, they very much resemble those of the Tansy, but from their bright yellow colour, they are very showy when produced abundantly.

NEW GARDEN FERN.

Gymnogramma Pearcii, *M.*

Fronds erectly arching, membranaceous, bright transparent green, quite smooth and glossy, deltoid, quadripinnate (lamina about 1 ft. long and 1 ft. broad at base); primary pinnæ ovato-pyramidal or elongately triangular acuminate (6–8 inches long), the lowest somewhat unequal-sided, the posterior pinnules being longest; pinnules ovato-pyramidal (2-2½ inches), the secondary ones of the same form (½-¾ inch) deflexed; ultimate pinnulets ovate divided at the base into forked and at the apex into simple minute linear blunt segments, consisting of a midrib and narrow membranaceous border; sori irregular, forming unequal usually forked oligocarpous lines along the basal part of the vein of the ultimate segments; caudex short erect, its crown and the base of stipes only clothed with white farinose powder; stipes terete, nearly a foot long, bright chestnut brown, clothed with a few light brown lanceolate entire scales on the powdery base, otherwise smooth and polished; secondary rachides chestnut-coloured at the base.

This is one of the most elegant additions which have recently been made to our collections of garden Ferns. The plant has a strong *prima facie* resemblance to Asplenium feruloceum, noticed at p. 1108, 1863, having like it tall triangular bright green fronds very finely cut into small narrow segments, but the fructification is totally different, being that of a genuine Gymnogramma, and consisting of sparse usually forking lines of naked spore-cases lying along the centre of the minute and narrow segments into which the frond is cut up. The lower part of the stipes, as well as the crown of the caudex, has a covering of white powder similar to that common on some species of this genus, but this is confined to about a couple of inches at the very base, the remaining part of the stipes, as well as the lamina of the frond, being quite smooth and shining.

The plant has been introduced by Messrs. Veitch & Son, from Chili, through their collector, Mr. Pearce, and proves to be a free-growing greenhouse evergreen Fern, of such exquisite beauty that it must be welcomed by all Fern growers. A very nicely grown example was exhibited at South Kensington on the occasion of the late Hyacinth show, and then received the First-class Certificate of the Floral Committee. It perhaps comes nearest to the curious zigzag-stemmed Gymnogramma flexuosa of tropical America, that being also three or four times pinnate, and having small linear segments; but the two plants are nevertheless very different—obviously so, indeed, in the peculiarly flexuose rachis which has suggested the name of the latter species, and in the refracted position of its primary pinnæ. No other described species known to us approaches it even so nearly as this. *T. M.*

DIES ORCHIDIANÆ.—No. XI.

(*Continued from p.* 1228, 1863.)

Messrs. Veitch and Son, Exotic Nursery, King's Road, Chelsea.—This enterprising firm although somewhat late in entering the lists as Orchid growers, soon fought their way into the front ranks, when once the matter was fairly taken up. No other establishment has made greater efforts to obtain a continuous supply of new Orchids from all parts of the world, and none have been at greater pains to make their hard-earned treasures thoroughly at home.

As you enter their vast establishment from the King's Road, you proceed along an extensive gallery with gay plants arranged on either side, until you come to an open quadrangle surrounded on all sides by glass structures. Here you may be almost said to

"Survey the (Orchid) world from China to Peru,"

for here you have a miniature world arranged according to "Mercator's Projection," the houses on your right being devoted to the denizens of the old or eastern hemisphere, whilst the natives of the new or western hemisphere are provided for in a corresponding range of houses on your left; and as the Orchids of Africa and the East Indies for the most part affect a higher temperature than their transatlantic cousins, these their constitutional peculiarities have not been overlooked in Mr. Veitch's arrangement, for the houses on the right, where the true air plants are collected, are always kept much warmer than the houses on the left, where Cattleyas, Lycastes, &c., predominate. Some years since there was yet another subdivision, several Odontoglossa, &c., being then massed in a little narrow house facing the north, and here it was that I first saw what we now call 'cool treatment' in actual operation. It seemed to answer admirably, and Mr. Veitch, believing that little more was requisite to ensure the health of a large number of hitherto unmanageable plants than to keep down the temperature of the house in which they were grown, proceeded to apply the principle to one of his larger Orchid houses, into which the Odontoglossa, &c., were removed—and where indeed they are still—but they have not succeeded so well as in their first abode, chiefly as I conceive because the house in question faced the north, which their present house does not. But Mr. Veitch talks of restoring them to their old quarters, and I hope he will.

Ere long I apprehend that there will neither be a London nursery nor a provincial chateau, in which a cool Orchid-house does not form a part of the ménage. But it is time to take a systematic walk round this attractive Orchid region, and as we were speaking of cool-country plants we had perhaps best begin with the first house on the left, in which the temperature is comparatively low. Here were (in pots) ample stores of Lycaste Skinneri and (on blocks) Epidendrum vitellinum,* and Barkeria Skinneri. The latter was in luxuriant health, as indeed was the Lycaste, of which many striking varieties were in bloom at the time of my visit (November), and I doubt not an equal number of equally fine varieties are in bloom still (March). In fact, with a little manœuvring you may have the Lycaste in flower for at least six months in the year, and when it is over, Epidendrum vitellinum will be ready to take its place, and keep up a succession of its sparkling blossoms till Lycaste Skinneri comes again.*

* I wonder whether your fair readers are sufficiently

In the same house with the Lycaste were a few fine specimens of certain rare Odontoglossa, such as O. nævium, O. Pescatorei, and O. Phalænopsis, which had only been kept in their places by putting prohibitory prices on their heads.* Here likewise, and finely in flower, was O. Uro-Skinneri, a Guatemala plant of most imposing presence when well grown. From the same country another great rarity was pointed out—Epidendrum cnemidophorum to wit—of which, at the time of my visit, there was only this one living specimen in Europe, although others, I was happy to hear, were shortly expected. Passing on to the Cattleya house—where the temperature undergoes a moderate rise—I found all the popular favourites mustered in great force; among which, however, I must not be supposed to include some of the hybrid triumphs of Mr. Dominy's misplaced ingenuity, *e.g.*, C. Dominii and so forth. Hybridise everything else if you will, but spare—oh, spare—the Orchids.

When the door of the Cattleya house is closed we bid adieu to the Orchids of the new world, and must now prepare to face the much greater degree of heat and moisture to which the old E. Indians still lay claim. We now in fact enter the houses on the right of the quadrangle, and which are all but exclusively devoted to the Orchids of the Eastern hemisphere, including of course Africa, Continental India, and the Eastern Archipelago. As to the first and last of these there is I fear little hope that they can ever be induced to grow in other than a high temperature; but with respect to those from central India many have already proved to be almost as impatient of heat as the Epidendra and Odontoglossa of New Grenada, and some of these Mr. Veitch had placed in one of his cool houses, in which at the time of my visit there was no heat in the pipes, although the out-of-door thermometer indicated 2° of frost! As yet it would be premature to give a list of "cool" East Indians, but it will be forthcoming in due time, and meanwhile I trust "growers" who have the means and opportunity of making experiments, will not fail to institute them. As an encouragement, I may mention that many of the loveliest Cœlogynes and Pleiones, and even some of the varieties of Aërides affine, have been found to succeed perfectly well under "cool treatment." But there is this difference between such treatment as applied to American and East Indian subjects; the former for the most part grow leisurely during the whole year, whereas the last make a short and sharp "burst" during their growing season, and then sink into a state of profound repose. But there is no such repose to be expected in the house through which we are now passing, and in which many magnificent Vandas and Angræca are found in a state of ceaseless activity. Conspicuous among these were noble specimens of A. eburneum and the very rare A. sesquipedale, of which last Mr. Veitch has at length succeeded in obtaining a small reinforcement from Madagascar, though not without such repeated failures and disappointments as would have gone far to break a less resolute spirit. With the Angræca came also a few other most extraordinary forms that were perfectly new to me. One of these may possibly be Grammatophyllum Ellisii (on which Reichenbach founds his new genus Grammangis); but what can we say of another, the pseudo-bulbs of which might almost be supposed to have once belonged to Oncidium ampliatum, and to have then been passed and flattened under a mangle. It had a strong rhizome with its strange flat bulbs at distant intervals, and the remains of very stout upright flower stems issuing from their base. As there is no trace of any such plant in the work—exhaustive as it was supposed to be—of Du Petit Thouars, we may reasonably hope that other extraordinary forms remain to be discovered in the interior forests of this vast island of Madagascar. Mr. Veitch's enterprise and perseverance had also been rewarded by the receipt of a copious supply of what had long been the rarest and most costly of Orchids—Vanda Batemanni, to wit. More imposing even than this last, was a glorious specimen of V. Lowii, which, though at another season of the year, I was once fortunate enough to see in flower. Though the flower-spikes were shorter than those of Mr. Rucker's plant, it was still a wonderful and beautiful sight, and I only regret that neither here nor when it flowered at Wandsworth, was there a drawing prepared for any of our botanical works! While on the subject of new and extraordinary forms, I must not neglect to notice an Orchid, supposed to come from the East Indies, which had purplish leaves and pseudo-bulbs on a straggling rhizome, and which, if it be referable to any known genus, may perhaps prove to be a gigantic Cirrhopetalum. There were other houses devoted to Air plants, in which some gigantic specimens of Saccolabium præmorsum (var.) deserve honourable mention; as do also some half-dozen unimpeachable plants, with leaves more than a foot long, of the charming Phalænopsis Schilleriana. But I must not linger too long even here, or my 'Dies' will be unduly prolonged; let me, however, before I conclude, call special attention to the goodly array of Cypripediums that Mr. Veitch has succeeded in bringing together. Besides the ordinary kinds (*e. g.*, C. insigne, C. venustum, C. purpuratum, C. barbatum, C. javanicum, and their varieties,) I observed the following, all more or less rare, and all perfectly distinct; *e.g.*, C. villosum, C. Fairieanum, C. hirsutissimum, C. Hookeræ, C. Lowii, C. superbiens (*alias* C. Veitchii), C. Stonei, C. Schlimii, and C. caudatum, of which last there were two varieties that will, I expect, ultimately take specific rank. In addition to these were plants of an entirely new E. Indian species, discovered by Mr. Veitch, jun., on the spot where Vanda Batemanni grew (indeed it was actually settled on its roots); and another still more unique form—with grassy leaves and a travelling rhizome—just imported from Peru. Notwithstanding these recent additions, I believe that as yet we have not in cultivation more than a moiety of the species of this wonderful genus, which, even as at present represented, forms a truly distinct, very manageable, and most enjoyable group. It would form a nice subject for a "Monograph."

Serapias.

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alive to the value of these two Orchids for bouquets, or to wear in the hair? For the latter the Epideudrum is invaluable, while for the former nothing can surpass the Lycaste, and—which cannot be said of any other flowers whatever—they may both be made to do duty for several nights in succession! What a popular ballot might there be at S. Kensington, if either or both of these plants could be distributed in any quantity!

* The prices at which "cool" Orchids are now assessed, bid fair to eclipse all former extravagances in the same line. Mr. Bull told me that he not long since bid (and bid in vain, too,) 80 guineas for what could hardly be called a large plant of Odontoglossum Phalænopsis! A living plant of O. crispum (much finer than O. Pescatorei) or O. Warscewiczii, would be worth a king's ransom in these phil-Orchid days!

WILD PLANTS, AND THE ROYAL HORTICULTURAL SOCIETY'S PRIZES FOR DESTROYING THEM.

We understand that the following "remonstrance" has been addressed to the Council of the Royal Horticultural Society:—

"*April*, 1864.

"We beg respectfully to represent to the Council of the Royal Horticultural Society that serious injury will be caused to the native plants of England by the prizes recently offered by the Society for collections of wild specimens of English plants. But, at the same time, we desire to thank the Society for having shown a wish to promote a knowledge of scientific Botany.

"The value of land, and the advanced state of agriculture consequent therefrom, has caused many wild plants to be now confined to few or even to single localities, often of small extent. It is feared that such species will be extirpated by collectors for prize herbaria, who are desirous of obtaining every plant known to grow in their county, and are greatly tempted to destroy what they do not gather, in order to prevent other candidates from finding as many species. The plants liable to be thus destroyed are mostly not such as gardeners would wish to obtain for cultivation: they possess no beauty nor interest to the common eye, but are of much value in the estimation of scientific botanists. There is scarcely a county in England in which one or more plants will not be in danger of extirpation by the collectors for these prizes. Neither will the prizes promote scientific botany amongst the class for whose benefit they are intended, for there is nothing to ensure the recipient of a prize himself knowing the names or localities of the plants in his collection, or that he has examined a single botanical book, gathered any of the specimens, or even seen any of them. But supposing the case not to be so bad as this, the objection will probably apply, in some degree, to every collection sent to the Society; for no attempt is made (indeed, it would be next to impossible) to ensure the collection being really formed, named, mounted, and arranged by the candidate himself, without the help of other persons.

"As it seems nearly certain that these prizes cannot be of much use in promoting scientific Botany, and must seriously threaten the rare, curious, and botanically interesting plants with extirpation, we venture to express our hope that the Council may be induced to withdraw them before the season has arrived for the destruction to commence.

"We have the honour to be, Gentlemen,

"Your most obedient Servants,

"A., B., C., D., &c."

What ignorant and evil adviser can have led the Horticultural Council to attempt such a mischievous operation? The *Botanists' Chronicle*, a useful little periodical just struggling into existence, expresses itself as follows:—

"It has been announced in the newspapers that the Horticultural Society, with the laudable design of encouraging the study of local botany, has determined to offer prizes for the three best herbaria of every county in Great Britain, with further prizes for the three absolutely best of the entire number—a measure which, though the Society do not intend it, amounts to offering two or three hundred prizes for the extirpation of all the rare plants in the British Islands. Every genuine lover of botany already laments the growing tendency to the extinction of our botanical rarities, through the selfish greed, not of real botanists (who greatly regret the loss of even a single species, and are generally careful to leave enough for their successors), but of the race of mere collectors, who have no true interest, either in plants or in science. If, even now, the known habitats of many of our plants are rapidly becoming exhausted, what have we not to fear if one of the great botanical societies, to whom we look for the protection, not the destruction, of our botanical treasures, should let loose all the idle dilettanti in the country to search out and pillage all the localities of rare plants, giving them, moreover, a direct interest in taking or destroying every specimen they can find, that what they do not themselves want may be made inaccessible to their competitors? If this resolution be persevered in, the year 1864 will be remembered as the last year of the existence of most of the rare plants in the British Flora—especially in the Southern counties—anywhere but in the Horticultural Society's series of herbaria; and the 'local botany' which the Society seeks to encourage, will, by the annihilation of its materials, become a record only of the things that were."

We also learn with very great satisfaction that a memorial has been addressed by Sir W. Hooker, and the chief authorities at Kew, to the Council of the Royal Horticultural Society, earnestly requesting a reconsideration of this proposal to give prizes for collections of indigenous plants; for the very obvious and excellent reason, that whilst such prizes can do no good whatever, they will certainly lead to the extirpation of some of our rarest and most interesting native plants.

It has been already pointed out that this disposal of the funds of the Society is quite beside its legitimate purposes and functions, and we have only to repeat that we cordially approve of the course taken by the learned Director of the Royal Gardens, in thus protesting against it.

We must however, before quitting the subject, express our regret and surprise that so important a public document as this "remonstrance" should have been drawn up in so confused and ungrammatical a style.

RECIPROCAL INFLUENCE OF THE STOCK AND GRAFT, AS REGARDS FRUIT TREES.

As this is a subject of considerable importance, and apparently yet unsettled, the following extracts from a communication by M. Jules Liron d'Airoles, which appeared in the "Revue Horticole" for March, 1864, may not be without interest. He says, that "for our own part, we are of opinion that in the union of graft and stock, made between the same species or between species closely allied, such as that between different Pears on wild Pears raised from seed, the quality of the fruit of the graft ought to be very little changed. What supports this assertion is the continual reproduction of the same variety with the same flavour, the same sweet or sharp quality, the same nature, whether breaking or melting, throughout centuries. Everybody knows that of late years the greater number of our stocks are taken from the forests; and these stocks certainly come for the most part from the seeds of the small wild astringent Pear, which is more wild and primitive in its nature than our perry Pears that have been cultivated for many years. We ought also to take into account the alternate grafting on the Quince and Pear stocks. All things taken into consideration, one must come to this conclusion—that the sap of the stock is to the graft what the juices of the soil are to the root, or rather that the stock only transmits to the graft the principle of life drawn up by the roots. From this it follows that the quality of the fruit is affected more by the quality of the soil than by the influence of the stock. In support of this opinion we may mention the fact, well known in Vine countries, that manured Vines bear larger bunches and more abundantly than others not so treated, but the wine made from them is correspondingly impaired in quality."

M. Breitling, in the *Annales de la Société Centrale d'Horticulture de France*, says, "There has been much discussion on the reciprocal action of the stock and graft; this important question is, however, so far from being definitely settled, that even in this year (1860), the Federation of Sociétés Horticoles de Belgique has offered a prize for the best memoir relative to this subject, and has cited some facts difficult to reconcile with each other, and many almost contradictory. There is a general agreement in regarding the influence of the stock upon the graft as positive; but that of the graft on the stock is estimated as nil, or very doubtful."

In France, continues M. Liron d'Airoles, it is very seldom that we work the Apricot on the Apricot coming from the stone, but almost invariably on the Plum stock, and consequently the fruits produced by the trees are good or indifferent according to the soil, aspect, or season. However the affinity of the Apricot to the Plum appears to us somewhat improper; and we regret that nurserymen do not work trees on stocks raised from the stones of Apricots, and of good varieties of Plums, which trees they might give to the planter with the indication that they are on free stocks raised from the stones of the same varieties as those ordered [for example, a Greengage worked on a stock raised from the stone of a Greengage. What says Mr. Rivers?] There is a chance of such a tree producing better fruit; and moreover it is likely to be longer lived. For certainly the interruption which the flow of sap undergoes when a strong-growing tree is made to support a weak-growing one, must have a great influence on its organisation, sometimes causing death, or at least occasioning gum, to which stone fruits are so liable.

It is not so with the Pear and Apple. As is remarked by the German author, we have little to apprehend from the influence of the stock on the

graft; and, as we have endeavoured to show, that influence is almost inappreciable.

In the case of Pears the sap circulates freely in all the varieties worked on the Pear or free stock. The only exception is in the case of weak and debilitated kinds which require an immediate Pear graft of a less vigorous habit than the wild Pear, but at the same time more vigorous than the Quince.

As regards the influence of the stock on the fruit, it appears logical to conclude that owing to the sap passing with less force through the tissues of the Quince than through the more open tissues of the Pear, the tree which is nourished by the former, having a more limited supply of crude sap, its fruit will contain less water, and secrete more sugar, and consequently may be better. But the difference which we observe after paying the utmost attention to the production of trees grafted on both stocks, chiefly arises, in our opinion, from the nature of the seasons and the quality of the soil in which the trees are planted. In a year neither too wet nor too dry, it is very difficult to discover the least perceptible difference in the fruits from trees worked on either of these stocks. Under contrary conditions [in cold wet seasons], the fruit from the Quince proves better than that from trees on the Pear stock. Such, says Jules Liron d'Airoles, is our opinion.‖

Home Correspondence.

New Hyacinths.—Where are the mystifications in the matter of New Hyacinths to end? In the report of the Royal Horticultural Society's Show in your paper of the 12th ult., we find that in his collection of six novelties, Mr. Wm. Paul exhibited Lord Palmerston, a lilac blue, with white centre, in the style of Argus. From the announcement in p. 243 we learn that for this variety the Floral Committee awarded him a First-class Certificate. This Hyacinth is no novelty here, and was included in the prize lot exhibited by us at South Kensington last season, and specially noticed in your report of the March Show. If any award for novelties be given to exhibitors, not raisers, it scarcely seems in this instance to have reached its proper destination. Another of Mr. Paul's novelties, Sir Charles Napier, a single blue, with white stripe, has been repeatedly exhibited in Edinburgh, but is now discarded, owing to the smallness of the spike. Mr. Paul, in the *Florist* for December, says, he fears that the prizes offered will be a premium on retrogression. Certainly, in more ways than one, they have already proved to be so. Surely, by this time it must be apparent that the keenness of competition, and the interest of the trade in encouraging the adoption of new and consequently more expensive varieties, afford a better guarantee for the introduction of every really desirable novelty, than is to be found in a system of awards, void of any definable standard, and producing such equivocal results. *Carstairs & Sons, Warriston Nurseries, Edinburgh.*

Parasitic Skin Fungi.—Will you allow me, in justice to myself, to say one word in reference to the notice of my work on Parasitic Diseases, which appeared at p. 295; otherwise I may appear to have exhibited carelessness, and laxity of observation. The reviewer does not quite comprehend my position. (1). He states correctly enough that "no one has as yet shown that Penicillium, Aspergillus, and Mucor are mere forms of one genus," and adds: "Nor does he (Dr. Fox) seem to have very definite views of the structure of these genera." Well, I never thought to deal with Fungi in a wide sense, but merely attempted to show that those forms of Fungi found upon the human body, and which have been described, amid great difference of opinion (among authorities), as forms of Aspergillus, Penicillium, and Mucor, are not distinct, but merely varieties of one species, *ergo* erroneously named and described. The point noted by the reviewer remains untouched. (2.) The reviewer writes: "he supports his arguments by a supposed admission by Mr. Berkeley that the Chionyphe of the Fungus foot of India may take its origin from the Mucors. On reading over Mr. Berkeley's paper in the 'Intellectual Observer,' we can find no such admission. We suppose the mistake must have arisen from the word 'mucors' being used in contradistinction to moulds." My reply is: Mr. Berkeley, at p. 250, line 26—28, Intellectual Observer, Nov. 1862, says: —"The Fungus resembles closely the genus Mucor, but there is no columella in the sporangium, a character which accords with Chionyphe rather than Mucor;" line 4-5, the germination "gave rise to a peculiar mould which it can scarcely be doubted is the perfect condition of the species;" and at p. 255 says there is "great reason . . . . for looking to the origin amongst the Mucors," &c. Hence I can scarcely be said either to have confounded the terms "mould and Mucors," or to have misstated as to the origin of Chionyphe Carteri, especially since I find the following remarks at p. xxvii., appendix to the No. VIII. N.S. of the Trans. of the Med. and Phys. Society of Bombay (1862), from Dr. V. Carter's own pen: "Mr. Berkeley is not inclined to agree with the views I formerly [illegible]ed as to the possible connection of the fungus of My[illegible]a, with the rusts and mildew infesting many [illegible]ts; and as just intimated, I now think it is rat[illegible]mongst the moulds (Mucor) we must look for the [illegible]t of the former. He considers the facts already [illegible]known warrant the specific distinction of the [illegible]ould, which, although closely resembling Mucor—identical I should myself say—is yet more like the genus Chionyphe, whence his proposed name and definition, &c." *W. Tilbury Fox, 15, Old Cavendish Street.*

[In reply to the above observations, we beg to state that we formed our judgment as to what is mentioned in the paragraph No. 1 from pp. 164, 165. The absolute differences described in books (at least in books written by competent authorities) are easy enough to recognise where true specimens of Aspergillus, Penicillium, and Mucor are examined. We at least have never found any difficulty about it. The distinguishing character of Mucor is the columella, which Dr. Fox does not notice. As regards paragraph 2, Mr. Berkeley distinctly states that the Fungus resembles closely the genus Mucor, but there is no columella in the sporangium. He does not say that the Chionyphe may take its origin from the Mucor. The assertion that the germination of the black fungous masses gave rise to a peculiar mould, does not intimate that Chionyphe and Mucor are the same thing, the word mould being used in its popular sense. Mr. Berkeley is not answerable for the sense in which Dr. V. Carter may have used the word Mucor, or for his opinion that Chionyphe does not differ from Mucor. It is quite certain that Mr. Berkeley has not said a single word which implies a belief that Chionyphe is a form of Mucor, though he might be very unwilling to assert dogmatically the impossibility of such a connection. We beg to add that the notice was written in no unfriendly spirit, though we thought it absolutely necessary to point out that Mr. Berkeley did not think the Chionyphe might take its origin from the Mucors (p. 62).]

The Hydropult (see p. 270).—I have had one of these contrivances in use here for these last 12 months, and I consider it to be one of the best things in its way ever made for the gardener. It can be used either indoors or out, and with any amount of force. I have a large Peach-house here upwards of 100 feet in length, and I think I may safely say that there was not an insect in it all last summer; this I attribute in a great measure to the free use of the hydropult, and I may add that what would take me an hour with a common syringe I can now do comfortably in about a quarter of that time, and much more effectually; as to an occasional drop of water falling on one's foot, what gardener cares for that? I have however as yet no reason to complain even of this inconvenience. *David Uphill, Moreton Gardens, Dorchester.*

New Plants for Distribution amongst Fellows of the Horticultural Society.—I submit to the Council of the Society, and to those of the trade who employ collectors abroad, whether it would not be in the interest of both parties to come to some arrangement as to new plants. I think it would repay the Horticultural Society if it made an arrangement with introducers of new plants to purchase for distribution 50 or 100 specimens of every novelty brought over by private firms before they were issued to the public. I am sure it would repay the trade to let the Society have them at a very low price, with the condition that they should not be issued for six months; the Council agreeing, as it would be bound to do, to announce when the ballot was about to take place—"This plant was introduced by Messrs. ——, and 50 of them purchased from those gentlemen by the Society for ballot amongst the Fellows. Messrs. —— will issue them to the public next year." For three years after the date of the ballot a list should be published in every Journal of the plants which have been thus issued by the Society, and to each should be attached "Obtained from Messrs. ——, and on sale by that firm." This announcement would be the best of trade advertisements. Every person wishing for good specimens would assuredly apply to that firm, even if rivals were dishonest enough to try and strike layers, and sell them cheaper. *D.*

Societies.

Royal Horticultural.—A meeting of this Society was held in the Council Room, South Kensington, on Tuesday last, when a number of new Fellows were elected, a list of whose names will be given next week. After the election the following lecture on the Hyacinth was delivered by Mr. Wm. Paul, of Waltham Cross, and it was illustrated by a beautiful assemblage of these favourite flowers:—

The Hyacinth (Hyacinthus orientalis) is a native of the Levant, whence it was introduced to England in 1596. The derivation of the word Hyacinth is uncertain; it is of very ancient date; some derive it from Hyacinthus, the beautiful boy, who was killed by Zephyrus, and from whose blood the flower sprang into existence by the command of Apollo.

The plant belongs to the Natural Order Liliaceæ or Lily-worts, to which also belong the Tulip, the Fritillaria, the Lily, the Tritoma, the Aloe, the Yucca, the Squill, and many other genera, some of which, if less attractive, are scarcely less useful and interesting. The plant is bulbous, and produces an annual stem or stems, adorned with rows of beautiful flowers, red, white, blue, and yellow, of varied and distinct shades, pointing in all directions. In the climate of England, if planted in November, and left permanently in the ground, the flower-stems and leaves rise in March, flower in April, decay in June, and the bulb remains hidden in the ground till the following spring. I have said the plant was introduced from the Levant in 1596, but it was known to Dioscorides, who wrote about the time of Vespasian. Gerarde, in his Herbal, published at the close of the 16th century, enumerates four varieties, the single and double blue, the purple, and the violet.

In that valuable old book on gardening, "Paradisi in Sole Paradisus terrestris," published by John Parkinson in 1629, there are mentioned and described eight different varieties. He tells us, some are pure white, another is almost white, but having a show of blueness, especially at the brims and bottoms of the flowers; others again are of a very faint blush; some are of as deep a purple as a Violet; others of a purple tending to redness, and some of a paler purple. Some again are of a fair blue, others more watchet, and some so pale a blue, as if it were more white than blue: after the flowers are past there rise up great three-square heads, bearing round black seed, great and shining. So wrote Parkinson in 1629, and before you are sketches of the Hyacinth of his day, single and double.

Here then is the type of those splendid Eastern flowers which decorate our halls, our conservatories, our parterres, with their gay and varied colours, and load the air with their delicious perfumes at a time when winter still lingers upon our northern shores. It is interesting to compare the Hyacinths of that epoch (1629) with those of 1864, and to mark the improvement. Two hundred and thirty-five years have elapsed since then, and this simple flower serves well to illustrate the great fact that the original forms of nature do not remain fixed and stationary, at least when brought under cultivation. While looking at the extremes, we must not however forget that there are intermediate stages which are for the most part lost to us. Nature will sometimes indulge itself with a leap, but as a rule her march is slow and gradual. It were idle to speculate as to how far these results are due to the inherent capacity of the flower for improvement, and how far to the intelligence and industry of man. I care not to adjust such a balance; man's intelligence and industry would have been but wasted had the flower been created incapable of improvement; the flower would probably have remained but little changed, but for man's labour. Were not man and plants created by the same beneficent hand?—and what more cheering prospect in protracted labour, what higher recompense for toil, than the knowledge that the objects we deal with are capable of improvement, and that by their cultivation we are adding to the useful and the beautiful in this kingdom of Nature? The Horticulturist once in possession of the wild forms, finds it his business to cultivate and improve them. In order to accomplish this, he has in his mind an ideal of beauty, for the realisation of which he works with head and hand. Now, while I do not claim for the horticulturist an immunity from the errors common to the labourer in other fields of art and science, I yet believe that his profession rests on a broad basis of experiment and fact. His object is to extend and beautify the useful and the beautiful. Without entering into the abstract question, as to whether beauty is the result of mere habit and association, or whether there is an innate standard by which the senses are influenced, I am ready to admit that association, if merely an influence, is the strongest of all influences, if not equivalent to all other influences. It is certain that, in the cultivation and improvement of flowers, our ideal is not fixed and unalterable, but is constantly exalted as we advance. Show me the most beautiful flower, and I will presently conceive one still more beautiful. The ideal of to-day, once accomplished, leads only to a higher standard in the future.

Among the numerous varieties of Hyacinths at present cultivated, are found not only various shades of colour, but also flowers and spikes of different forms and proportions. Without presuming to define the exact height or breadth to which a good Hyacinth should be restricted, I may perhaps be permitted to state that I have on several occasions taken the dimensions of that part of a spike covered with flowers which has pleased me by its symmetry, and I have invariably found 6 inches in length and 8 inches in circumference, or similar proportions, to be the result. Such a spike is here singled out and placed before you. Am I asked, "Is this flower really improved, or only varied?' I answer, both;—if varied, improved, but improved also in other respects beside the increase in variety. The flowers, originally narrow, wrinkled, and pointed, are now broad, smooth, and round; the breadth and length of the spike and the size of the individual flowers are also increased; the colours are intensified. By the increase in size, the plant has become more highly decorative; the broader, smoother, and rounder petals also give a finish and brilliancy to the whole. To put these views in an exacter form:—

The original spike was short and narrow.
The improved spike is long and broad.

The original spike was feeble, drooping, and loose.
The improved spike is strong, erect, and compact.

The original form of the flower was square or polygonal and crumpled.
The improved form of the flower is round, or almost round, and smooth.

The original substance was flimsy and transient.
The improved substance is solid and durable.

The original colours were few, undecided, and dull.
The improved colours are many, decided, and clear.

These changes, then, are the work of the horticulturist, and if they be fairly and impartially considered, I think none will deny that he has reason to rejoice over the fruits of his labour. I claim for him no creative power, but merely the intelligent use of the powers given to him by his Creator, whereby he exercises a dominion, more or less, over all created things.

In advocating these views I have no wish to depreciate the flowers of Nature. We may admire their simple beauty; we may wonder at their adaptability to the situations they naturally affect; we may have revelled amid their pleasant and fascinating associations; but we must remember that as horticulturists we are looking at the question from the horticultural point of view. Returning to the days of Parkinson, and following the stream of time, we find by the writings of successive authors on gardening that the culture and improvement of the Hyacinth steadily advanced. In the 17th century Holland contained the principal manufactories and storehouses of all that was rare and beautiful in gardening. The florimania, as it has been termed, raged in Holland about the middle of the 17th century, when as much as 200*l.* was given for a single Hyacinth, and more than 600*l.* for the Semper Augustus Tulip. Loudon observes, "Many noted instances are on record of the extravagant sums given for flowers possessing certain qualities agreed on by florists as *desiderata*, and established about this time as canons of beauty. Hirschfield states that in the register of the city of Alkmaar, it is recorded, that in the year 1637, they sold publicly, for the benefit of the Orphan Hospital, 120 Tulips with their offsets for 9000 florins; and that one of those flowers, named the Viceroy, was sold for 4203 florins. When we consider the value of money at this remote period, these sums appear enormous, a florin at that time in Holland being the representative of nearly an English bushel of Wheat." These recorded facts lend at least the appearance of truth to some of the traditions of the Dutch horticulturists; one of these which I met with at Haarlem was, that 1000*l.* were offered and refused for a single Tulip, and only accepted when the purchaser agreed to throw his new carriage and four horses into the bargain. This I receive as a mere satire on the proceedings of those times; but one thing is certain—to such a height was this species of gambling carried, that the legislature thought fit to interfere, and enacted that no Tulip or other flower root should be sold for any sum exceeding about 50*l.* sterling.

About the middle of the last century (1753) was published in England a Treatise on the Hyacinth, being a translation from the Dutch, by Bartholomew Rocque, a florist at Walham Green. About this time also the practice of growing bulbs in water first obtained, and that prince of gardeners, Philip.

Miller, wrote a treatise on the subject. The importance of this branch of national industry, and the fortunes realised in its pursuit in Holland, induced men of talent and capital to engage in it, and as a consequence improvement went on more rapidly. Miller tells us, that in the early part of the last century, the Haarlem florists distinguished 2000 sorts. Since that period the number of sorts has probably decreased rather than increased; it is true that new kinds come forth every year, but their number is few, and certain of the old ones have disappeared before the severe tests of quality and fashion. In the most extensive bulb garden at Haarlem I found last year only 700 sorts, and probably not more than 200 of these are subjects of extensive commerce.

The multiplication and growth of Hyacinths for sale, is principally carried on out-of-doors in the vicinity of Haarlem in Holland. The sandy soil, and moisture of both soil and climate in that country, is peculiarly favourable to the growth of the Hyacinth. In the month of June, at which time the bulbs are ripening, the earth heat appears to me greater than in any soil of which I have had experience in England. Hundreds of acres are there devoted to the culture of these and kindred plants, and the Haarlem Gardens are a gay sight from the present season of the year till far on in summer. The flowers of spring are principally Crocuses, Hyacinths, and Tulips; those of summer, Ranunculuses, Anemones, Ixias, Iris, and others. Large warehouses are erected, with tables rising tier above tier, on which the bulbs are laid to dry when taken from the ground in summer.

I have already stated, in the description of this plant, that no branches are formed, and therefore the process of multiplication is carried on by sowing the seeds, or by taking offsets from the parent bulb. By seeds new varieties only are obtained; it is by offsets the already known and valued kinds are increased. The latter process takes place naturally, of which here is an example: but in Holland, where this plant is principally increased, man steps in to the aid of Nature, and, by skilful manipulation, quadruples or quintuples the produce that would naturally arise. The bulbs are cut crosswise, and sprinkled with sand to absorb any superfluous moisture that may exude from the incisions. After a time they are planted in the earth, when numerous small bulbs are formed on the edges of these incisions. At the expiration of one season they are again lifted from the ground, and the numerous small bulbs, still only partially developed, are separated from the parent root and planted out *again* and *again* year after year for three or four years before they become flowering bulbs of fine market quality.

But let me turn to the culture of this flower in our own country. Here the subject seems to fall naturally under two heads—out-of door, and in-door culture. When grown out-of-doors, the bulbs should be put in the ground late in October or early in November. The crown of the bulb should be placed 4 inches below the surface of the soil, and 2 or 3 inches of litter or manure should be strewed thereon as a protection against frost. The litter may be removed early in spring, so soon as the leaves have pushed fairly through the earth. It may be placed on again at night during frosty weather. A sandy loam is the soil in which these bulbs seem to grow and flower best, and if such is not the natural soil of the spot they are intended to occupy and adorn, it is well worth while to provide such as an artificial soil. If during the season of flowering, a slight shading be provided, the quality and durability of the flowers will be increased. Hyacinths out of doors require no water, as the soil is sufficiently moist in their season of growth and flowering. When the flowering is over and the leaves show signs of decay, the bulbs may be taken up and laid by for a fortnight, embedded in the surface soil, after which time they may be gathered up, deprived of their roots and leaves, and placed away in a cool dry shed or storehouse.

The indoor culture of the Hyacinth in pots, rustic baskets, bowls and glasses, is largely carried out in this country. Indeed, our conservatories and halls would be shorn of their brightest and sweetest floral embellishments in winter and early spring were the Hyacinth and the Tulip withheld. Hyacinths potted in September may be brought into good condition of bloom before Christmas; and by potting fresh bulbs at intervals of a fortnight till the end of the year, a succession of flowers may be obtained till the middle or end of April, when other flowers will be bursting upon us from every nook and cranny of the well-stored plant-house. The best soil for Hyacinths in pots is also sandy loam, enriched by the usual cool and solid fertilisers. Guano I have heard recommended under this head, and I am not sure that I have not in former times included it among permissible fertilisers. My later experience, however, is not in accordance with this view, as I have found it develope the leaf rather than the flower. When placing the bulb in the pot, the crown or apex should be just above the soil. The pots should be placed on the level soil, out of doors, and surrounded and covered over with a thick layer, say 6 inches, of cinder ashes, as an efficient protection against frost. They should not be left more than two months in this position, by which time the leaves and flower spikes will be pushing into life. Remove them then to a cold pit, greenhouse, or forcing house, according to the date at which they are wanted to flower. Deluge the soil with water, which repeat at brief intervals till the flowers are on the wane. Place the plants close to the glass, and admit abundance of air that the leaves may not be developed out of proportion. It may be well to bear in mind that the long slatternly leaves and attenuated stems sometimes met with in Hyacinths, are due to the want of air and light. It is however necessary to say that the Hyacinth, however skilfully grown, requires an artificial support for the flower stem, owing to the succulent and supple nature of the latter. For this purpose a piece of wire bent zigzag fashion, is the best contrivance I have hitherto been able to apply.

Hyacinths do not succeed well a second year in pots or glasses, but if planted out of doors they become highly decorative in the flower garden.

The cultivation of Hyacinths in glasses is a delightful recreation, and so accessible to rich and poor, young and old, and fraught with so many pleasing incidents and associations, that I am not surprised to find this beautiful branch of in-door gardening very generally practised. Nothing is easier than to grow good Hyacinths in glasses, provided the cultivator possesses himself of good sound bulbs. Nothing can be more interesting than to watch the development of root and leaf and flower. The springing up of the leaves in winter when the vegetable world without is in a state of rest, is a refreshing harbinger of returning spring. The rapid rise of the flower-spike is hardly a trial of patience to the least patient, and the flush of blossoms places in his hands a chaste and finished object of beauty:—

Well they reward the toil,
he sight is pleased, the scent regaled,
Each opening blossom freely breathes abroad
Its gratitude; and thanks him with its sweets.

I shall conclude this paper with a few short simple rules relating to Hyacinths grown in glasses. These rules may be learnt in five minutes, and if followed, will, I am persuaded, be attended with satisfactory results.

1. If you choose your own bulbs, look for weight as well as size: be sure also that the base of the bulb is sound.
2. Use the single kinds only because they are earlier, hardier, and generally preferable for glasses.
3. Set the bulb in the glass so that the lower end is almost but not quite in contact with the water.
4. Use rain or pond-water.
5. Do not change the water, but keep a small lump of charcoal at the bottom of the glass.
6. Fill up the glasses with water, as the level sinks by the feeding of the roots and by evaporation.
7. When the bulb is placed, put the glass in a cool dark cupboard or in any place where light is excluded, there to remain for about six weeks, as the roots feed more freely in the dark.
8. When the roots are freely developed and the flower spike is pushing into life, (which will be in about six weeks), remove by degrees to full light and air.
9. The more light and air given from the time the flowers show colour, the shorter will be the leaves and spike, and the brighter the colours of the flowers.

The lecture, which was repeatedly cheered, occupied about 20 minutes in the delivery.

A paper by James Bateman, Esq., F.R.S., of Biddulph Grange, on the cultivation of the dwarf Banana, Musa Cavendishii, was next read; a large bunch of the fruit was exhibited, and was broken up and distributed among the audience. A ballot afterwards took place for the possession of a fine specimen of Dendrobium nobile, presented to the Fellows at the meeting by Mr. Bateman, which was won by Miss Nicoll, of Hyde Park Gardens.

Notices of Books.

The Story of the Guns. By Sir J. Emerson Tennent. Small 8vo. Pp. 364. Longmans.

The worthy armourer who first welded together iron bars, secured them with iron hoops, and fashioned them into a cannon for the battle of Creçy some 500 years ago, would be rather amazed if he could now peep into the Royal Gun Factory at Woolwich, and see the cannon manufactured there. Surely there is nothing in the annals of mechanical skill comparable to the result at which this branch of ordnance construction has arrived. By ordnance, we mean small arms as well as heavy guns. This history of the successive improvements is excellently told by Sir Emerson Tennent, for he has not looked at the matter with a merely military eye, but as a sportsman, and we advise our deerstalking friends to study him attentively.

It is no part of the business of a peaceful newspaper to discuss such subjects. Our duty is confined to announcing them; and we think that in doing so it will be enough to extract the following statement, after reading which a good idea will be formed of the immense importance of the matter included in the little volume before us.

One of the most unexpected results of Whitworth's mode of construction was the range of his shot, that is the distance to which his cannon could throw it. In some firing in Lancashire—

"The experiments were so arranged as to exhibit not only the range of the new ordnance but the accurate flight of the projectiles. The smallest of the guns, the 3-pounder weighing only 208 lbs., fired at an elevation of 35°, threw a shot to the distance of 9688 yards, or a little more than *five miles and a half.*"

"Mr. Whitworth has since surpassed the startling performance of 1860; his 12-pounder gun having sent a ball 10,300 yards, or very little short of *six miles.*"

This notice, brief as it necessarily is, will show the immense importance of the new principle of constructing ordnance with which Mr. Whitworth's name has become imperishably associated.

Books Received.—A temporary illness has caused the Editor to overlook the following works, viz.:—

1. *Croquet*, by John Jaques (Longmans), a sixpenny pamphlet on this game.

2. *A Descriptive List of Ceylon Timber Trees*, by W. Ferguson, F.L.S., Ceylon Civil Service (a pamphlet published at Colombo), All who are interested in our Eastern Colonies must appreciate a work of so much labour and accurate observation as this. It is a pity that the wealth of Ceylon in trees fit for the finest cabinet work, should be so utterly neglected for want of an official Curator. Some of the most valuable trees are becoming fast extinct there!

3. *Samuelson & Co.'s Improved Machines for Lawn and Garden* (18, Cannon Street, City)—a useful priced Catalogue.

4. *Ambr. Verschaffelt* (Ghent), Catalogue No. 74, for the Spring and Summer of 1864, offers a great many new things well deserving trial.

5. *Vilmorin & Co.* (Paris), the usual Catalogues for 1864, with a Supplement, and good useful woodcuts of some of the novelties, among which the following Pears are strongly recommended, viz.:—Hélène Grégoire, Madame Treyve, Nouvelle Fulvie—all autumn and winter melting sorts.

6. *Flore des Serres*, Vol. V., Part 6, is occupied chiefly by Roses, and such Roses! admirably figured. The sorts are Bernard Palissy, Charles Lefebvre, Empereur de Maroc, François Arago, General Washington (Granger), and John Hopper.

7. *A Dictionary of the Bible*, Parts XII. and XIII. (Murray) contain capital articles on the first and second books of Kings, Knife, &c., &c. We select, by way of confirming our opinion, the article on Leeks.

"*Leeks* (חָצִיר, *châtsîr*: τὰ πράσα βοτάνη, χλόη, χόρτος, χλωρός: *herba, porrus, foenum, pratum*). The word *châtsîr*, which in Num. xi. 5 is translated *Leeks*, occurs twenty times in the Hebrew text. In 1 K. xviii. 5; Job xl. 15; Ps. civ. 14, cxlvii. 8, cxxix. 6, xxxvii. 2, xc. 5, ciii. 15; Is. xxxvii. 27, xl. 6, 7, 8, xliv. 4, li. 12, it is rendered *Grass;* in Job viii. 12, it is rendered *herb;* in Prov. xxvii. 25, Is. xv. 6, it is erroneously translated *hay;* in Is. xxxiv. 14, the A. V. has *court* (see note). The word *Leeks* occurs in the A. V. only in Num. xi. 5; it is there mentioned as one of the good things of Egypt for which the Israelites longed in their journey through the desert, just before the terrible plague at Kibroth-hattaavah, "the Cucumbers, and the Melons, and the Leeks, and the Onions, and the Garlic." The Hebrew term, which properly denotes *Grass*, is derived from a root signifying "to be green," and may therefore stand in this passage for any green food, Lettuce, Endive, &c., as Ludolf and Maillet have conjectured; it would thus be applied somewhat in the same manner as we use the term "greens," yet as the *châtsîr* is mentioned together with Onions and Garlick in the text, and as the most ancient versions, Onkelos, the LXX., and the Vulgate, together with the Syriac and the Arabic of Saadias, unanimously understand *Leeks* by the Hebrew word, we may be satisfied with our own translation. Moreover, *châtsîr* would apply to the *Leek* appropriately enough, both from its green colour and the Grass-like form of the leaves.

"There is, however, another and a very ingenious interpretation of *châtsîr*, first proposed by Hengstenberg, and received by Dr. Kitto (*Pictor. Bible*, Num. xi. 5), which adopts a more literal translation of the original word, for, says Dr. Kitto, 'among the wonders in the natural history of Egypt, it is mentioned by travellers that the common people there eat with special relish a kind of *Grass similar to Clover.*' Mayer (*Reise nach Aegyptien*, p. 226), says of this plant (whose scientific name is *Trigonella Fœnum Græcum*, belonging to the natural order *Leguminosæ*), that it is similar to Clover, but its leaves more pointed, and that great quantities of it are eaten by the people. Forskål mentions the *Trigonella* as being grown in the gardens at Cairo; its native name is *Halbeh* (*Flor. Aegypt.* p. 81).

"Sonnini (*Voyage*, i. 379) says, 'In this fertile country, the Egyptians themselves eat the *fenu-grec* so largely, that it may be properly called the food of man. In the month of November they cry 'green halbeh for sale!' in the streets of the town; it is tied up in large bunches, which the inhabitants purchase at a low price, and which they eat with incredible greediness without any kind of seasoning.'

"The seeds of this plant, which is also cultivated in Greece, are often used; they are eaten boiled or raw, mixed with honey. Forskal includes it in the Materia Medica of Egypt (*Mat. Med. Kahir.* p. 155). However plausible may be this theory of Hengstenburg, there does not appear sufficient reason for ignoring the old versions, which seem all agreed that the *Leek* is the plant denoted by *châtsîr*, a vegetable from the earliest times a great favourite with the Egyptians, as both a nourishing and savoury food. Some have objected that, as the Egyptians held the *Leek, Onion, &c.*, sacred, they would abstain from eating these vegetables themselves, and would not allow the Israelites to use them. We have, however, the testimony of Herodotus (ii. 125) to show that *Onions* were eaten by the Egyptian poor, for he says that on one of the pyramids is shown an inscription, which was explained to him by an interpreter, showing how much money was spent in providing *Radishes, Onions*, and *Garlic* for the workmen. The priests were not allowed to eat these things, and Plutarch (*De Is. et Osir.* ii. p. 353) tells us the reasons. The Welshman reverences his Leek, and wears one on St. David's Day—he *eats the Leek* nevertheless; and doubtless the Egyptians were not over-scrupulous (*Scrip. Herbal.* p. 230). The *Leek* is too well-known to need description. Its botanical name is *Allium Porrum*; it belongs to the order *Liliaceæ.*

Garden Memoranda.

Mr. Williams's Victoria Nursery, at Highgate.—Those who may have the opportunity of paying a visit to this nursery in the course of the next week or two, may expect to feast their eyes upon a sight which would repay a much longer pilgrimage. A few day since we saw there a magnificent plant of Rhododendron Nuttallii, which is the most magnificent of all the Indian Rhododendrons. This plant, standing some 10 feet high, and a picture of sturdy health, had its branches crowned by some dozen and a-half of the great scaly buds which are the precursors of flower trusses. The immense white bell-shaped blossoms of such a plant when perfectly developed must form a very grand picture.

Swyncombe Park, near Henley-on-Thames.—The beautiful Bougainvillea is again in full bloom at Swyncombe. In addition to the original plant of B. spectabilis now many inches thick in the stem, and covering an extensive roof of glass with its long clusters of amethystine bloom, Mr. Daniells has two other species coming into blossom, viz., B. speciosa, in which the coloured bracts are smaller and of a deep rose tint, and the smooth leaved B. glabra. Neither of these, however is likely to take the place of the larger, more luxuriant, and much freer blooming B. spectabilis. A large extent of glass, providing a profusion of early blossom and early fruit, and several acres of garden ground kept in admirable order, equally with the successful cultivation of stove and greenhouse plants,

attests the great professional skill which is here engaged; as for the Bougainvilleas they are here in matchless perfection.

Miscellaneous.

Lapland Vegetation.—My friends having completed the necessary arrangements for their Lapland journey, we started from Christiania by rail to Eidsvold, 42 English miles. On this line we passed a good deal of cultivated land, Bere and Rye, with Potatos, being the prevailing crops. The number of cattle seemed to be disproportionate to the state of the country, and their lean appearance betokened that they had not been over well wintered. The Norwegian breed of cattle is something between the Ayrshire and Alderney, and they are both hardy and good milkers. At Eidsvold we got the steamer which sails on the beautiful lake Miosen to Lillehammar, a distance of 62 English miles. To those who can relish the beautiful mixed with the sublime in nature, a sail on this lake is no ordinary treat—the scenery ever changing on both sides, now verdant with cultivated fields, and cattle grazing, again the rugged rocks rising to considerable elevations, and covered with dark towering Pine forests, down to the edge of the water. The change of costume among the peasantry as they came on board and left occasionally at the little villages along the shores, was not less remarkable. They all appeared comfortably clad, though their garments in some instances were of a homely description. It was near 12 o'clock at night before the boat reached Lillehammar, yet the landing place was crowded with parties waiting the arrival of their friends, such as we frequently see in England at 12 o'clock, noon. At 6 o'clock next morning we commenced our journey up the beautiful and highly picturesque Gudsbrandsdalen, the first stage or two in a four-wheeled waggon machine, and the remaind er on the singular carrioles of the country. Nothing can surpass the beauty of some parts of this extensive valley, shut in between lofty mountains, with those in the background covered with snow at the time we passed up. The scenery appeared to me intermediate between that which occurs in many parts of Switzerland and that of some deep highland glens in Scotland. The mountains not so lofty or so rugged as they are in the former case—more lofty and rugged than in the latter. Besides, many of the houses are perched high on the mountain sides, and, being all constructed of timber, they much resemble the Swiss chalets. The Norway Maple (Acer platanoides) was first seen by us in its wild state, growing on the sides of this valley, where it becomes a large and handsome tree. The wayside plants were mostly of the subalpine type, and among them the following were conspicuous: Aconitum septentrionale, Cardamine amara, Geranium sanguineum, Geranium sylvaticum, Plantago media, Anchusa officinalis, Polygonum viviparum, Maianthemum bifolium, Linnæa borealis, Vaccinium Vitis idæa, Vaccinium uliginosum, Struthiopteris germanica, &c. In the evening we reached the station Viig, where we remained a day. On entering the room in the hotel, a bouquet of native flowers stood on the table, among which we observed Astragalus alpinus, Androsace septentrionalis, Asperugo procumbens, Galium boreale, Lychnis Viscaria, &c. Next day we rambled round the station, and ascended to the tops of some of the mountains. On this excursion the following, along with other plants, were collected:—Astragalus alpinus, very abundantly; Menziesia cœrulea, Arbutus alpinus, Cerastium alpinum, Saxifraga oppositifolia, Saxifraga Cotyledon, Pyrola uniflora, Juncus trifidus, Juncus biglumis, Carex atrata, Carex Vahlii, Carex rupestris, &c.; Woodsia hyperborea, Woodsia ilvensis, Equisetum scirpoides, Betula nana, and Salix lapponica. The tops of the mountains were in some places covered with Cetraria islandica, Cetraria nivalis, Solorina crocea, and Nephroma arctica. Among the Mosses were Hypnum abietinum and Orthotrichum speciosum. At Jerkin on the Dovrefjeld, I remained 10 days, and during that time I botanised over the mountain sides and valleys. On the Dovrefjeld, as far as Drivstuc, I was much too early for getting many plants in flower; for, although now the first week in July, nearly all the surrounding mountains and deep valleys were still covered with snow. The Birch and Willows were only expanding their leaves, so that I enjoyed two springs in the year 1863. It is, however, impossible for those who have not had experience of it, to form anything like a just conception of the rapidity at which vegetation advances in northern latitudes, after the snow is removed. No sooner is this winter covering gone, than the plants are in bloom; and with nearly constant light during the 24 hours, and a warm sun during the day, they get rapidly into seed, and thus go through their annual cycle much quicker than the same kinds of plants do in more southern climes. Close up to this mountain station, many of the rare alpine plants grew in profusion. Arbutus alpina, Azalea procumbens, Menziesia cœrulea, Primula farinosa, Primula stricta, Lychnis alpina, Cerastium alpinum, Viola biflora, Silene acaulis, Anemone vernalis, Potentilla opaca Potentilla nivea, Thalictrum alpinum, Sibbaldia procumbens, Astragalus alpinus, Phaca alpina, Luzula spicata, Luzula hyperborea, Erigeron uniflorum, Erigeron alpinum, Bartsia alpina, Pedicularis lapponica, Pedicularis hirsuta, Juncus Hostii, Juncus trifidus, Juncus triglumis, Elyna spicata, Arenaria rubella, with many more equally rare, were growing on this plateau of the mountain. The surface of the ground was in many places white with Cetraria nivalis; Cetraria juniperina and Cetraria islandica were also very abundant, whilst every damp rock was more or less covered with Gyrophoræ. The dwarf Birch (Betula nana), with rare Alpine Willows, covered large portions of the country, among which were Salix lanata, Salix lapponica, Salix reticulata, Salix polaris, &c. Menziesia cœrulea held the place the Calluna vulgaris holds on the mountains in Britain. I did not observe any Ferns at this elevation, but when I crossed over the mountain and got into the valley of the Driv River, Cystopteris alpina and Cystopteris fragilis were seen on rocks near the road side, along with Saxifraga cernua, Saxifraga nivalis, &c., &c. *D. Moore, in Proceedings of Royal Dublin Society.*

We learn that Mr. W. H. Rogers, of the Red Lodge Nursery, Southampton, has been appointed Nurseryman to her Majesty the Queen, for Osborne.

Calendar of Operations.

(For the ensuing week.)

Great care should always, but especially at this season, be bestowed on the operation of watering. Too much, too little, or an injudicious mode of appliance, are equally fatal to high cultivation. Many plants are seriously injured at the periods of shifting or potting off, by improper watering. It is the fashion to recommend what is termed a thorough soaking to newly potted stock, and we fear that in this very act the foundation of what is technically termed "sourness" is frequently laid. A very fine rosed pot, and slight applications of water, at intervals, close on the heels of potting, is the best way, as a general rule, to penetrate the mass, and to cause the particles of soil so to arrange themselves that atmospheric influence shall be somewhat modified, but by no means intercepted. This advice has reference chiefly to newly potted stock in pots; but equal attention must be paid to ordinary conservatory specimen plants. Shrubs newly put out in beds will now require careful watering. Specimens in tubs must also have a little supply, provided the drainage is in perfect order, as it should be. This is the period too for the free use of liquid manure, but take care that it is perfectly clear, and not too strong.

FLOWER GARDEN AND PLANT HOUSES.

Azaleas.—Young plants will now be growing rapidly; syringe them daily, water when necessary, stop and tie shoots, turn the plants occasionally, and do not let them stand too closely together; give air freely in mild weather, and fumigate when necessary.

Oranges.—Large trees will now enjoy copious applications of clear weak manure water. Where these trees produce gross wood, disbud or remove it altogether, and let the lower shoots take its place.

Orchids.—Growing plants should now have abundance of atmospheric moisture, with a liberal circulation of air early in the morning, shutting up close betimes, and taking care to observe moderation in the use of fire heat, in order that a pure atmosphere may be inclosed for the night. See that growing Dendrobiums have liberal supplies of water, and plants on blocks frequent syringings.

Pelargoniums.—Plants intended for early blooming will now want watering freely; be careful that enough is given at a time to penetrate the ball. Sufficient artificial heat must be used to admit of air being given freely every day. In bright weather maintain a moist growing atmosphere by sprinkling the paths and floor of the house two or three times a day. Attend regularly to the tying and training of the shoots as they progress. Some of the autumn potted plants may be stopped for late flowering. The surface of the soil should be kept clean, the plants kept free free from decayed leaves, and above all things keep a diligent watch for green fly.

FORCING GARDEN.

Cucumbers and Melons.—Follow up successions. This is a good time to sow for a crop of autumn Melons; at least with those who have nothing but dung beds to grow them in.

Mushroom House.—Take care to provide a humid atmosphere. Beds made after this, should possess more moisture in the manure.

Pineries.—Attend to regulating the air, heat, and atmospheric moisture, as directed last week. Fruiting houses or pits should now average 80° by day, and about 70° at night; 85° or 90° may be allowed, however, from 3 o'clock to 5 in the afternoon. Dung pits must not be so warm by 5°, as the plants in them are more liable to become drawn.

Strawberries.—In order to get fine fruit, pick off all flowers as soon as two or three are set on each plant, which will be enough. Place them near the glass and give plenty of liquid manure; also keep up a moist warm growing atmosphere until the fruit begins to colour. There will be no difficulty in getting fruit set after this, if the plants are kept near the glass, and are allowed on all favourable occasions abundance of air.

Vineries.—Where crowded, some of the laterals may be removed in the earliest house, where the Grapes are beginning to ripen; not, however, to throw sunlight immediately on the berry, but in order to promote a perfect secretion in the principal leaves, with a view to heighten the flavour of the fruit, and to organise plump buds for the ensuing year.

HARDY FRUIT AND KITCHEN GARDEN.

Asparagus.—As soon as young plants are from 3 to 6 inches high, let new plantations be made.

Potatos.—A full crop may now be planted. Kidneys, with well-protected sprouts, or any other early kinds planted now, will be little later than those put in in February. This, however, requires some extra care; the sets should be placed in baskets, a single layer thick, on damp litter, and carefully handled; they should by no means be planted during either sunshine or wind. Those with sprouts 2 or 3 inches long, if managed thus, and covered at night until the second week in May, will closely succeed those in frames.

Winter Greens.—See that plenty of Kales, Savoys, Brussels Sprouts, Leeks, &c., are got in without delay.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the Week ending April 6, 1864, as observed at the Horticultural Garden

March and April.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
		Max.	Min	Max.	Min.	Mean				
Thurs. 31	23	29.773	29.601	55	36	45.5	45	44	W.	.09
Friday 1	24	29.691	29.633	54	31	42.5	45	44	S.W.	.00
Satur 2	25	29.936	29.855	53	36	44.5	46	44½	W.	.00
Sunday 3	26	29.943	29.895	61	44	52.5	46	44½	S.W.	.03
Mon. 4	27	29.998	29.845	64	34	49.0	46½	46	N.W.	.18
Tues. 5	28	30.217	30.159	45	34	39.6	47	45½	E.	.54
Wed. 6	●	30.260	30.178	50	39	44.5	46½	46	E.	.00
Average.		29.985	29.886	54.5	36.2	45.4	45.8	44.8		.84

March 31—Fine; cloudy; overcast; rain.
April 1—Clear; fine; clear at night.
" 2—Clear, cold and dry; fine; clear at night.
" 3—Uniformly overcast; rain; overcast.
" 4—Overcast, warm south-west wind in the morning; rain.
" 5—Cold rain, mixed with hail and sleet; rain till night.
" 6—Densely overcast throughout.
Mean temperature of the week, ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending April 16, 1864

April,	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 10..	55.4	33.6	44.5	15	0.27 (in.	2	6	8	3	4	6	6	3
Mon. 11..	55.3	35.6	45.4	19	0.51	3	8	5	1	2	12	2	6
Tues. 12..	55.6	36.6	46.1	25	0.56	8	7	3	3	3	6	7	1
Wed. 13..	55.4	33.7	44.5	15	0.45	8	6	4	3	3	6	7	1
Thurs. 14..	59.0	36.4	47.2	14	0.36	4	8	3	3	3	6	2	9
Friday 15..	59.8	37.6	48.7	19	0.47	1	9	5	1	5	8	2	6
Satur. 16..	59.2	36.3	47.7	16	0.63	7	9	5	2	3	5	3	4

The highest temperature during the above period occurred on the 14th, 1852—therm. 73 deg.; and the lowest on the 10th, 1860, 16th, 1847, and 15th, 1862—therm. 2) deg.

Notices to Correspondents.

Books: *G E.* The best book on British Wild Flowers for a young beginner is Lindley's Synopsis of the British Flora.—*E C.* Chambers' Practical Mathematics.—*J S.* may order what he wants of any country bookseller, who will also give him the price.

Cinerarias: *M N.* If the sorts are good enough to be worth keeping, let them stand in a greenhouse pit for a short time after the flowers are over, and then cut them down, and as soon as the young suckers are large enough divide these and pot them. They should be kept as sturdy as possible up to the time of housing. In their winter quarters they must be free from frost. For mere decorative purposes you will probably do quite as well, if not better, by depending on a pinch of good seed, sown as soon as ripe.

Dioscorea Batatas: *E T.* What this plant wants is a deep open soil, which should be thrown up in ridges, so as to give the tubers increased depth. Though quite hardy, it does best in our hot summers.

Hautbois Strawberry: *H R.* Some of the plants bear only male flowers, and these are necessarily barren; others have stamens and pistils combined, and are therefore fertile. The former should be treated as weeds. The Prolific Hautbois is nearly free from this defect.

Horticultural Degrees: *A Young Gardener* has sent us a gross libel upon his brother gardeners, which it would be disgraceful to us to admit into our columns. Considering that the *Gardeners' Chronicle* is a Paper for gentlemen—we don't mean great people, but men of good taste and proper feeling—we are surprised at receiving such a libel.

Hybrid Pinks: *D D.* We believe they are all of continental origin. The original red one, now getting common, is very handsome and very useful. No doubt the new pure white variety called Maria Pare will be equally so. The red one is a capital bedding plant, and a good forcer if not too freely stimulated.

Names of Plants: *Jas. Hodges.* It is we presume a fine form of Cattleya elegans.—*Oswestry.* Conifers cannot in general be named in the absence of cones. Your specimen looks like a bit of Strobus, or some allied species. Illness must be our excuse for not having answered sooner.—*Emily.* The magnificent new Clematis Fortuni. Permit us to congratulate you on so glorious an acquisition.—*P F.* Nobody can undertake to name plants by their leaves alone. 1, a morsel of some Pteris; 2, possibly some Tradescantia; 3—?; 4, a Selaginella, perhaps atroviridis. This is the worst lot of plants to name we ever received.

Nectarines: *W Sherrard.* We never heard of Nectarines from healthy trees, in good soil, and in the South of England, becoming dry and fleshy as you describe. It could not be for want of water, for in that case the trees would not be in good health. Have you not got firm-fleshed Clingstone varieties instead of melting ones? And are their flowers large or small? It would be desirable to know this in the first place. ‖

Pruning Evergreens: *J T.* Laurels and other evergreens may be pruned with advantage now, or any time during the month.

Tropæolums: *J. Barker.* Your seedlings, varying as they do from bright yellow to rich crimson scarlet, and beautifully spotted, are charming additions to the class to which they belong. Your Mimulus, named Amazon, is also large and showy; it is bright yellow, bordered with rich velvety maroon, and spotted in the throat with the same colour.

Misc: *H H.* The marks you inquire about are all explained in Lindley's "Introduction to Botany." Study the market gardens of Fulham and Greenwich. As much Latin as suffices for a third form boy is all that you will require.

Erratum. In our report of the Royal Horticultural Society's Show, at p. 319, we find that we have omitted to state that for twelve Tulips a 1st Prize was awarded to Messrs. Cutbush, as well as to Mr. Wm. Paul.

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N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

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THE PHOSPO GUANO, in its natural state, is found on trap-rock islets within the tropics. It was discovered in 1854; and its existence was made known in August, 1856, by Dr. VOELCKER, who read a paper at the Cheltenham meeting of the British Association for the Advancement of Science, "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly concentrated phosphatic manure.

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The Baron LIEBIG, in the course of his investigations, discovered potash in the raw Guano, a discovery since confirmed by Dr. VOELCKER and other Chemists. To the presence of this substance (which is not found in any mineral phosphate) is attributable, in some degree, the great superiority of the PHOSPHO GUANO when compared with other phosphatic manures made from coprolites, apatite, Sombrero Guano, &c.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared; and LIEBIG states that by using PHOSPHO GUANO, the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other manure; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

All Chemists of standing have ceased to place a money value on manures submitted by them to analysis, as tending to lead to erroneous conclusions, owing to the disingenuous manner in which such values are paraded before the public eye by dealers; but for the information of those farmers who still have faith in this test, the money value of the PHOSPHO GUANO, calculated by the data hitherto in use, is, according to the mean average of Dr. VOELCKER's analyses, 13*l*. 18*s*. 2*d*. per ton; and of Baron LIEBIG'S analyses, 14*l*. 18*s*. 4*d*. per ton.

Peruvian Guano and PHOSPHO GUANO are respectively the representatives, in the highest degree, of the two most important manurial substances, ammonia and phosphoric acid. In Peruvian Guano there is 13.61 per cent. of nitrogen, yielding 7.0 of actual ammonia and 10.0 latent—and the latent, in the opinion of Dr. VOELCKER, is as available or nearly so as the actual ammonia—together with 3.0 per cent. phosphoric acid in soluble state. In PHOSPHO GUANO there are 18.027 per cent. of phosphoric acid in soluble state, and 3.50 per cent. actual ammonia.

As Peruvian Guano is acknowledged to be a cheap source of ammonia, so likewise PHOSPHO GUANO must be considered as a cheap source of phosphoric acid—much to be preferred to bones, superphosphates, coprolites, apatite, Sombrero and other inferior Guanos; while the proportion of 3.50 per cent. of actual ammonia constitutes it the best-balanced manure in the market.

If the results of practical experience were required to recommend the PHOSPHO GUANO, testimonials from many of the most eminent Agriculturists in the kingdom could be adduced; but the reader of this advertisement is particularly referred to the most recent of these, published in the last number of the *Quarterly Journal of Agriculture* (Jan. 1864), by Mr. HENRY STEPHENS, author of the "Book of the Farm," detailing the experiments made by the MARQUIS OF TWEEDDALE, with their successful results.

Pamphlets, containing a full description of the PHOSPHO GUANO, its History, Nature, Properties, &c., may be obtained on application.

PRICES AND TERMS.

The Cash Prices, including the cost of bags, Carriage Free at any railway station or shipping port in the kingdom, are as follows:—

For 10 tons and upwards, £11 10s. per ton. | For smaller quantities, £11 15s. per ton.

For full cargoes, direct to any port, special rates will be quoted.

CREDIT RATES.—Should the Consumer require credit, the price is increased at the rate of 2*s*. per ton per month.

To prevent fraud, all casks and bags are branded with the PHOSPHO GUANO COMPANY'S Trade Mark, as well as that of the Contractors, copies of which appear at the head of this advertisement.

There are Authorized Agents appointed for the sale of PHOSPHO GUANO in all the principal towns and villages in the United Kingdom; but where any difficulty exists in procuring supplies, orders may be sent direct to

PETER LAWSON & SON,
GEORGE IV. BRIDGE, EDINBURGH; or, 28, KING ST., CHEAPSIDE, LONDON, E.C.

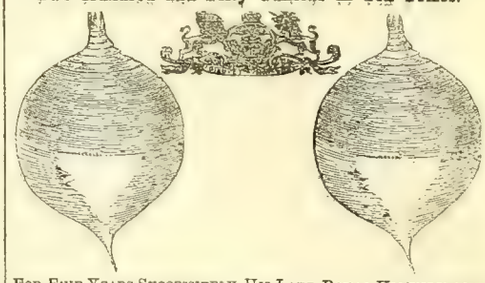
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Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 9*d*. per lb., or cheaper by the bushel carriage free.

Royal Berkshire Seed Establishment, Reading.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At the MEETING of the ROYAL AGRICULTURAL SOCIETY on the 16th March, in a LECTURE delivered by ALFRED HUGHES, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger* and the *Mark Lane Express*, Mr. Hughes says:

"I always reserve a portion of Oat Land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable Plant I have come across for some years for ewes and lambs in the spring. When I tell you that I put it in in the spring and dressed it after harvest with guano, and that in the autumn when my sheep fed it off it was up to their knees, and that I fed it off again this spring with ewes and lambs, I think you will agree that it is a crop of very great value. This Italian Rye-grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed I never saw anything to equal it in the course of my experience."

From JOHN BALDWIN, ESQ., *Luddington, April* 11, 1859.
"It is certainly delightful to witness the sheep up to their knees in your beautiful Italian Rye-grass."

From FREDERICK H. HALLETT, Esq, *The Manor House, Brighton.*
"I mowed some of your Italian Rye-grass at Christmas, 1856; again April 12, 1857; three times since in same year, and am mowing it again now, March 15, 1858. The cut on April 12 was four feet high, and a perfect mass of grass."

SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass. Present price 6*s*. 6*d*. per bushel, carriage free in quantities of 8 bushels and upwards.

Quantity required per acre if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
See GENERAL FARM SEED DIRECTORY, now ready.
MIXTURES of GRASSES to suit any soil, 20*s*. to 30*s*. per acre (with Clovers).
RED, WHITE, and COW CLOVERS, 6*d*. to 10*d*. per lb.
ALSIKE CLOVER, fine sample, 80*s*. per cwt.
SWEDISH TURNIPS, 8*d*. to 1*s*. per lb.
COMMON DO. 8*d*. to 9*d*. per lb.
MANGEL WURZEL, in varieties, 6*d*. per lb.
WHITE BELGIAN CARROT, 1*s*. per lb.
YELLOW BELGIAN CARROT, 1*s*. per lb.
Large DRUMHEAD CABBAGE, 2*s*. per lb.
CATTLE PARSNIP, 1*s*. per lb.
All other Agricultural Seeds, at moderate prices.
Address, LONDON SEED COMPANY (Limited), 68, Welbeck Street, Cavendish Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, 1864.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 9, 1864.

WE have to announce a new green crop, yielding 40 tons per acre of a food especially adapted for milch cows, as, being void of all aromatic flavour, it communicates none to milk. The Cattle Melon, a sort of Gourd, grown like Mangel Wurzel, but at wider intervals, appears in Mr. BLUNDELL'S hands to have furnished a solid and substantial food, good for fattening bullocks, as well as for cows, and sheep, and pigs. Dr. VOELCKER'S report of its composition is favourable. And there is every reason to recommend our readers to give it a trial. The following is Mr. BLUNDELL'S account of it:—

"This variety of the Gourd tribe seems to have been hitherto overlooked, and not considered as adapted for cattle-feeding. My attention, however, was called to it a few years ago by a friend of mine in America in the State of Indiana, who grows them extensively for feeding his cattle, and believes that a much larger and heavier produce of them per acre can be obtained for cattle feeding than of any known vegetable production used for that purpose. I believe that ideas have prevailed in this country that our climate in the open air was unfavourable to their production, and indeed hitherto they have been usually grown for

fancy purposes by the aid of artificial heat and large quantities of manure, in which case most of the varieties I have noticed when thus treated are very hollow and worthless for feeding animals. Not so however with the varieties as selected and grown by myself for some years past; for when cultivated in the open air with a moderate amount of manure (in fact the same quantity as required for other vegetable produce in field culture) they are very solid and weighty, and possess considerable feeding value (equal to the common White Turnip), and are especially adapted for the feeding of Milch cows at the time of year when Grass is usually short and scarce, and before Turnips, &c., are ripe and fit for feeding in the months of August, September, and October. During the past season I had fed the milch cows with them, and from the circumstance of the fruit being so very agreeable, and so completely void of any peculiar flavour like Turnips, and most other vegetable produce, it does not affect the flavour of the butter injuriously; but on the contrary, I have never made butter, or tasted any made from cows fed on vegetables or roots, equal in quality to that made when the animals have been fed on the Cattle Melon. The cultivation may be carried out upon land usually appropriated to root culture, and particularly in the southern and eastern counties; they will flourish and produce very large crops per acre under ordinary culture such as may be required for Mangel Wurzel, Swedes, Carrots, &c., which the following experiment will prove:—

"On my own farm at Bursledon, near Southampton, a field prepared for Mangel as usual, the land being sandy loam on a brick earth, was ridged 2 feet apart, manured with 20 tons of box-dung and 1 cwt. Peruvian guano per acre, Mangel seed dibbled on the ridge, May 15. A ridge 4 feet wide, extending the whole length of the field, was dibbled May 15, with Cattle Melon seed, and the same quantity of manure applied as for the like space of Mangel. The crop of Melons was removed on the 28th September at the rate of 40 tons per acre, there being 37 fruit per pole, weighing 560 lbs., and the Yellow Globe Mangel crop removed on the 3d of November at the rate of 22 tons per acre.

"The expenses attending the cultivation of each crop were exactly the same. The Melon plants being 4 feet apart give ample space either for the plough or cultivator, and the growth of the plant is so slow in the early stage that the cultivation may be continued for five weeks after dibbling the seed. When the plants begin to spread, the growth is so rapid that all the land is covered with foliage in about 17 or 18 days, and at the end of five weeks after the blossom the fruit will weigh 30 lbs. and upwards.

"Having for two seasons fed my fatting bullocks upon the Melon, and the animals having fattened beyond my expectation, yet I wished to know the feeding value by analysis, and for that purpose forwarded to Dr. Voelcker part of a fruit which weighed 16 lb.

"Composition of Cattle Melon.

"*First General Composition.*

Water	92.030
Organic matters	7.350
Mineral matters (ash)	.620
	100.000

"*Second Detailed Composition.*

Water	92.030
† Soluble Albuminous Compounds	.619
* Insoluble Albuminous Compounds	.156
Sugar and Mucilage	4.661
Woody Fibre (crude)	1.914
Soluble Mineral Matters	.540
Insoluble Mineral Matters	.080
	100.000
† Containing Nitrogen	.099
* Ditto Ditto.	.025
Total Nitrogen	.124
Equal to Albuminous Compounds (flesh-forming matters	.775

"My conclusions are as follow:—The Cattle Melon is now known to possess valuable feeding properties, and is readily eaten by cattle, sheep, and pigs. It is easy of cultivation, exhausts the land less than any root crop, being less time in the ground, and deriving so much nutriment from the atmosphere through the large and luxuriant foliage, it is more certain to plant than root crops, having fewer enemies, and may be cultivated upon all soils suitable for root crops."

Several important Short-horn sales take place during the next fortnight. On Wednesday next (April 13) Mr. Strafford will dispose of Mr. Robinson's herd at Clifton Pastures, near Olney. On the following day he sells the herd of the late Mr. Lawford at Southcote, Leighton Buzzard, and on the Thursday of the following week the Short-horn herd of the Hon. H. Noel Hill, at Cronkhill, near Shrewsbury, will be sold.

The very large number of pure bred stock which have been and are to be thus distributed, does not seem to satiate the demand; and nothing is more remarkable than the very high prices which really good stock continues to command. A herd of 120 head of all ages, averaging 40 guineas immediately after the disposal of another which averaged close on 130*l.* apiece, proves what a large demand exists. And how different are the circumstances from those of 30 or 40 years ago, when, as we read in a contemporary, a well-bred herd of 28 cows, 8 heifers, and 2 bulls made less than 15*l.* apiece. "Bordeber, 3 years old, was then bought by Mr. Fox, of St. Bees, for 15*l.*; and Mr. Fox's son bought the last bull in the Towneley list the other day, a calf 33 days old, for 74*l.* 11*s.*"—"This speaks volumes," says Mr. Drewry, writing from the neighbourhood of the earlier sale, "for the rise in value of Short-horns during the last 36 years."

The sale next Wednesday of Mr. Robinson's herd, will, we doubt not, illustrate these remarks. The stock comprises 29 cows, 26 heifers and heifer calves, and 14 bulls and bull calves. There are 13 descendants from *Foggathorpe*, a cow purchased by Mr. Bates, and the origin of a small tribe which at his sale averaged about 50*l.* apiece. It was from *Jemima*, a daughter of *Foggathorpe*, bought a calf for 105*l.* at the Castle Howard sale, that her family at Clifton Pastures has descended. There are seven descendants of the celebrated cow *Sylph*, by Sir Walter, including several direct descendants from Mr. Adkins' *Charmer*, which will no doubt realise long prices. Several *Gwynnes*, descendants of the celebrated cow *Princess*, by Favourite; and others descended from cows of Fawsley, Wiseton, and Warlaby origin. And on these and their descendants first-class bulls have for many years been used, "containing the purest blood of Kirklevington and Warlaby; among the former may be mentioned Short Tail (2621), Third Duke of Oxford (9047), and Second Duke of Thorndale (17,748); and of the latter will be found Highthorn (13,028), British Prince (14,197), and Duke of Leinster (17,724), whilst in May Duke (13,320), these two celebrated tribes are united, and the bulls Second Duke of Airdrie (19,600), and Grand Duke 5th (19,875), of the same sort are now being used. The animals, which will be sold without any reserve, are in fine health and condition, and their dispersion affords an excellent opportunity to purchasers of first-class stock."

Clifton Pastures is nine miles from Wolverton, 12 from Bletchley, and 10 from Bedford. These are the nearest railway stations.

Many arguments, advanced with much earnestness and eloquence, never suffer so much as when real statistics are brought to bear on them; but in all probability there are few articles that have so little to fear and so much to gain by a thorough ventilation as poultry. Could the number of fowls and chickens consumed in the metropolis during the year be mentioned, it would astonish many, and to these we have to add turkeys, geese, ducks, pigeons, &c.; and then comes a startling item in the shape of eggs, both English and imported. The "Quarterly Review," writing many years ago on the Commissariat Supply of London, declared the following quantities of birds, hares, and rabbits, as the annual consumption of London:—"Fowls, 2,000,000; ducks, 350,000; geese, 100,000; wild ducks, 200,000; turkeys, 104,000; pigeons, 400,000; grouse, 100,000; partridges, 125,000; pheasants, 70,000; hares, 100,000; rabbits, 1,300,000. But these numbers would not now fairly represent the quantities of the different varieties of birds brought into London for consumption. Since the time when they were published, railroads have penetrated into districts where they were never expected, and have afforded the means of sending goods to London easily. Steamers and coasting vessels bring tons weight of this sort of produce from France, Belgium, and Holland, and yet the demand increases. So profitable is the sending of poultry to London (from abroad), that even from Northern Prussia men are found anxious to send at very low rates, paying very heavy charges for the transport of their goods. Many deep thinking and clever men have long had an idea that poultry may be produced for market on a large scale at a cost that will ensure a fair profit. In America we read that the farmer takes it into fair consideration as part of his stock. In France the far-famed establishment of M. de Sorg has long enjoyed a European reputation. Not far behind was the poultry-yard of his Highness the Prince of Tour and Taxis, whose stock numbered 3000 breeding hens. These large establishments have all, we are told, done well, and are not without their effect in England. Last spring there was a question raised as to the practicability of forming a Poultry Company, but whether it was carried out we know not. It is certain that the stone has been set rolling which will do much to develope our own resources in the production of poultry for consumption, and we may fairly hope to see it take a better position among the agriculturists of Great Britain, when they find at how trifling an outlay of money and time it may really be made to contribute its fair proportion to the farmer's income.

Mr. R. Haward, of Mells Hill, Halesworth, calls our attention to the relation in which the farmer stands to the income tax; and to an alteration of practice on the part of the Commissioners which will in many cases be an annoyance, if not a direct interference with justice. He says:—

Farmers have now the right of appealing against their assessment under Schedule B. in case they can prove that they had made no profits by their farming during the past year. As the great majority of farmers who keep correct accounts balance their accounts yearly to Michaelmas, when their tenancies commence and terminate, application was made to the Board of Inland Revenue for permission to produce the balance-sheets made up to Michaelmas, instead of to April as directed by the Act.

This privilege was conceded, and farmers have accordingly always possessed it from the date of Mr. Haward's application to the present time. It has now, however, been withdrawn, as may be seen by the following letter, which Mr. Haward received a few days since.

17th March, 1864, Inland Revenue, Somerset House, London, W.C.

Sir,—The Board of Inland Revenue have had before them your further letter of the 7th inst., with reference to the requirement of the Commissioners for general purposes of the Income Tax Act for the Division of Blything, that you and the other Farmers in the Division, when appealing under the 3d section of the Act, 14 Vict. Cap. 12, with a view to obtain relief in regard to the Assessment under schedule B of the Act 5 and 6 Vict., cap. 35, should produce a balance sheet made up from April to April, instead of from Michaelmas to Michaelmas as heretofore.

In reply, I am directed to acquaint you that the Commissioners in the course they have taken are acting according to law, and that this Board has no power to interfere with their decision. I am, Sir, Your obedient servant, J. Sargent.

The result of this decision will be that a great proportion of farmers will be hereafter prevented from appealing against their assessment under Schedule B.; and however adverse the seasons, and however unprofitable their business, the Act 14 & 15 Vict. cap. 12, which gives them this appeal, will be to them a dead letter. Mr. Haward adds:—"As far as I and many others are concerned, we shall never be able again to appeal, as as any account we could produce drawn from April to April would be made by cutting two years' accounts in half, and must necessarily be only approximate. When I have appealed, I have always carried such an account as I could verify upon oath, and I should decline presenting any other.

"The withdrawal of this privilege from the British farmer at the present moment is a most paltry and contemptible movement on the part of the Government, and I suppose is intended as a set-off against the presumed *advantages* we are to obtain by the new Bill, which will enable us to feed our cattle with malt that has paid no duty."

NOTES ON CELEBRATED SHORT-HORNS.

No. IV.

Sir Thomas Fairfax.—The following additional criticism on this bull is taken from a letter by Mr. Bates to the *Farmers' Journal* of Nov. 25, 1844, in which he replies to the charge of a "Correspondent," that having expressed himself strongly against Cramer by Sir Thomas Fairfax, he had nevertheless refused to back his judgment by showing his own stock against that of Mr. Parkinson, the breeder of Cramer. In his rejoinder he declares that he had always declined challenges, and had never given an opinion except for the good of those he spoke to. He added as follows:—

"If the parties, under the signature of 'Correspondent, wish to have the demerits of the blood of 'Cramer,' I can furnish them with plenty, to the heart's content. In the room where this is written a breeder from the same blood I object to in this animal declared to me he had lost more than 10,000*l.* by breeding Short-horns, and he began with one of the best tribes of Short-horns then in existence, before Mr. Robert Colling went to Barmpton, and he was some years at Barmpton before he, and his brother Charles, began to breed Short-horns;

and the Short-horns at Barmpton, before Mr. R. Colling's day, were better than any he ever bred.

"Now this instance is not a solitary one, for two near neighbours of mine, when I lived at Halton Castle, in Northumberland, had the hardiest and best constitutioned stock of Short-Lorns, and they were two very large herds, and very prolific up to 1811, and the one lost all his calves, but two, and from the same blood as 'Cramer,' and it was for two years in succession. The other breeder's Short-horns all lived, but the former always said he was the greatest gainer of the two, for the latter person's stock became the most delicate, disthriving cattle, that I ever saw, and continued so for above 10 years, till they at last, many of them, died out, or would have done so, had they not been slaughtered, and till this cross no stock could be more hardy than they were, and such has been the case wherever I have known that blood enter any well-descended herd of Short-horns. With inferior coarse ill-bred cattle such may go on; and many breeders, having this same blood, have resorted to coarse ill-bred Short-horned cattle to try to restore their delicate constitutions—and this has filled the country with the very worst breed of cattle, called improved Short-horns, which now so generally prevails, and has brought—justly—a discredit upon Short-horns; for it is such as these that have ruined many breeders, and destroyed many a valuable herd; and I might fill all the columns of your Paper by reciting instances—such as the blood of 'Cramer on his dam's side. I shall now state my objections to the sire of "Cramer," Sir Thomas Fairfax (5196). When I saw at Mr. Whittaker's his bull, called Fairfax (1023), the predecessor of Sir Thomas Fairfax, I asked him if he had ever used that bull, and he clenched his fist, turned round to me, and with great vehemence said, 'Do you think I would use a bull of a tribe that do not give a drop of milk; I have never used him, nor ever will to my herd of Short-horns?' Mr. Whittaker further told me that the great grand-dam of Fairfax bull was a cow between a blue and a black colour, that she was bought for him by a jobber, who said that he had bought her at Stockton, and Mr. Whittaker desired me at different times to try to make out her pedigree, if she had one. I made many inquiries, for many years, but no person ever heard of this blue-black cow: I was repeatedly told that she could not have been a Short-horn, for they never knew a Short-horn of that colour. Let Mr. Whittaker deny these facts if he dare!

"On Sir Thomas Fairfax being knocked down to Mr. Parkinson at a public sale, he said afterwards to me 'You don't approve of this blood I know,' and I replied, 'Certainly not;" and when Mr. Booth told me he had sold his half of Sir Thomas Fairfax to Mr. Parkinson, sen., I congratulated him thereon; he was not offended no more than Mr. Parkinson sen.; and they must thank 'Correspondent' in your Journal for this disclosure I now make."

NITRATE OF SODA AND COMMON SALT.

We have ample evidence that in certain cases these salts pay well by the increased produce. In other cases they had failed to be remunerative. To Baron Liebig we are indebted for a clear explanation of this apparent phenomenon.

In his profound work "On Modern Agriculture," page 63, "Solution of Earthy Phosphates," he says, "It is quite conclusive from these facts that water containing a very small quantity of common salt, nitrate of soda, or a salt of ammonia, acquires thereby the power (which alone it does not possess, or only in a slight degree) of dissolving phosphoric acid, in the form of earthy phosphates. These feeble solutions, therefore, react towards earthy phosphates like solutions of carbonic acid in water. * * * Direct experiments prove that a very dilute solution of the same salts take up phosphoric acid from a soil which contains earthy phosphates in excess, and that this dissolved acid is again given up by this solution to other portions of the soil which are not saturated with phosphoric acid."

Page 65, "Like the salts of ammonia, or a watery solution of carbonic acid produced by the decay of organic matter in manures, a solution of these salts, wherever they come in contact with spots containing accumulations of earthy phosphates not fixed by the soil, must become saturated with these phosphates, and thus convert them into a condition in which they can be diffused through the ground. If the earthy phosphates, when thus diffused in solution, come in contact with other portions of soil not yet saturated with these salts, those portions absorb and fix these earthy phosphates. * * * When we consider how much the fertilising effect of bone earth is increased by the greater solubility and capability of distribution in the soil communicated by the action of sulphuric acid, we cannot too highly estimate the significance of the properties, just described, of the salts of ammonia, chloride of sodium, and Chili saltpetre.

"The most abundant application of earthy phosphates in coarse powder can in its effects bear no comparison with a much smaller quantity which, in an infinite state of division, is dispersed through every portion of soil.

"A rootlet requires at the spot where it touches the soil a most minute amount of food; but it is necessary to its functions and its very existence that this minimum be found exactly at this spot; for if the food of plants be not soluble in water, then is any excess at any other spot as valueless to the function of nutrition as if it did not exist in the soil. Now the salts of which we have been speaking possess the property of carrying these elements of food from the spot in which they exist in superabundance to others in which there is a deficiency; and even though their elements contributed in no way directly to the process of nutrition, yet these salts must nevertheless exercise a marked influence on the increase of produce. * * * We can now understand why these salts exercise a favourable action in cultivation only on certain soils, and why on a second or third application of them the same effect is only partially, or not at all reproduced."

Every word of this valuable chapter should be read by those who desire to know the importance of the infinite sub-divisibility and solution of phosphate of lime, These remarks suggest the propriety of mixing bone dust with our farm-yard dung where carbonic acid and ammonia will act in dissolving it.

It is quite clear that where there is no bone earth in the soil, we shall get no result from applying nitrate of soda or common salt, and it is equally certain that the continued application of these salts will ultimately exhaust the most fertile soil.

Liebig says (page 83), "If by a more thorough mechanical preparation of the ground, or by chemical means, such as Chili saltpetre, common salt, and salts of ammonia, the action of the available mineral food be accelerated, the field will perhaps yield in 50 years as much grain and straw as it would have done in 100 years without these means, and in half the time it would be exhausted for the cultivation of Wheat."

I am induced to enlarge upon this subject to put landlords upon their guard against permitting cereals to be grown every year in succession by such means. I know of one instance of 200 acres where the whole of the farm has been cropped for eight or nine years with only cereal crops, dressed with 25*s.* worth of nitrate of soda and no other manure. The crops have been ample; the whole with their straw have been sold and carried off the farm without any apparent exhaustion. This process is, of course, most remunerative, as no cattle are required.

The system is spreading, and I hear of 2000 to 3000 acres being hired by one person with unrestricted leave as to cropping. On applying to Baron Liebig for his opinion, he replies to me under date March 14. "The theory of manuring is very little understood in England, and this by the so-called practical teaching of Mr. Lawes and his associate.

"The best advice you could give to the respectable but very ignorant gentleman who grows Wheat every year merely by manuring with nitrate of soda is, to continue if he wants a proof of the truth of my theory. In a few years he will be aware that he has perfectly ruined his fields, very rich in earthy phosphates, which by the means of the nitrate are simply dissolved and diffused, as you observe yourself in your letter."

The Cheshire cheese pastures give unmistakeable evidence of the evils of exhausting the phosphates, and of the advantage of restoring them by boning. *J. J. Mechi, March*, 1864.

A LIFETIME ON THE COTSWOLDS.

[The following paper was read by Mr. J. Chalmers Morton, at the late monthly meeting of the Kingscote Farmers' Club.]

The materials from which the following paper has been prepared are a set of annual diaries kept between 1766 and 1793 by Mr. John Smith, then of Bowldown and Lasbro' in this neighbourhood; copies of several letters written by the same Mr. John Smith about 80 years ago; and a most elaborate set of annual records of the produce of the Didmarton and Oldbury farms, from 1774 down to the present time, kept by successive tenants of those farms. It is to Mr. Rich, of Didmarton, that I am indebted for the use of all these documents. The series together form a most complete agricultural history—descriptive, we may suppose, with more or less accuracy, of a whole district. Add to them Mr. Rudge's report of the agriculture of Gloucestershire, published in 1813; Mr. Bravender's report of Gloucestershire, published in the Journal of the Agricultural Society in 1852; and the very explicit and instructive comparison of Cotswold and Hampshire farming by Mr. Drew, read last year before this Club; and we have almost unequalled means of arriving, certainly at a very confident opinion—indeed I might almost say at an exact knowledge of the progress which has during all these years been exhibited in Cotswold farming. You will understand, then, that although I am glad to be able to lighten my story by a number of personal memoranda relating probably to individuals known either personally or by reputation to some of the gentlemen present, yet it is not intended to attempt any single biography. My "Lifetime on the Cotswolds" will refer generally to the period of the past 90 or 100 years, and it is intended not so much to bring out personal character, as to establish the fact of general agricultural progress.

Gentlemen, it will I believe be generally felt that it is impossible for any one to speak or write on any agricultural subject with any local serviceableness or utility if he be not himself personally acquainted with the circumstances out of which the farm practice of the locality has arisen. Although I have known some farms on the Cotswolds for more than 20 years, and have long had a general acquaintance with the district, yet I cannot pretend to anything like that detailed agricultural knowledge of the Cotswold district which only the tenant of a Cotswold farm after many years acquires, and therefore it may at once be said to me:—"You have no right to be talking to a Cotswold Farmers' Club."

There are however two ways in which an agricultural discussion may be usefully opened by even an entire stranger to the district. He may omit from his discussion those local circumstances which give a local colouring to farm management, and referring only to the general laws of Nature which are in operation everywhere he may confine himself to the leading truths regarding the soil, the rain, the air and the light—regarding the seed and the future plant, regarding the breeding, rearing, feeding of the animal—truths which constitute the theory of agriculture, which are in operation everywhere, and the force of which *makes* the success of the good farmer, who, whether he knows it or not, is using and directing them; the force of which, too, *mars* the operations of the bad farmer, who, whether he knows it or not, is opposing them, fighting against them, and being inevitably beaten by them.

This is the way in which a man unacquainted with a locality, not even possessed of knowledge by experience of farm practice anywhere, but taking his knowledge of agriculture at second-hand, may nevertheless usefully lead an agricultural discussion. It is in this way that Dr. Voelcker, Professor Way, Liebig, and scientific men in general, are able to hold confident and well-founded opinions on the policy of this, that, and the other point of farm management, and are able to throw good and useful light on farm practice generally.

And there is another way in which an outsider not having local knowledge may usefully lead the discussion at a Farmers' Club, and that is by simply making himself the mouthpiece of those who have this knowledge.

It is to some extent in both of these ways that I have ventured to accept the invitation of your Secretary, and as a Gloucestershire man take my turn in opening a discussion before this the leading Gloucestershire Farmers' Club.

What I have to do is in the first place to call attention to such biographical details as will I believe interest any one of this district whose family has been long resident in it. They will throw light on the character of the witnesses whose evidence I have to bring before you. In the second place I have to collect this evidence into such a form as will bring out the fact of the extraordinary agricultural progress which this Cotswold district has made within the present century—a progress which I believe to be unexcelled anywhere. In the third place I wish to contrast the facts which I shall have proved with the confident assertions on one side of certain scientific men regarding the inevitable failure and decadence of English strength, and in fact of England, through its faulty agriculture; and on the other side with the equally confident assertions of some of Liebig's opponents regarding the necessity of preserving the so-called vegetable mould on which they believe fertility to depend. And, lastly, I wish to bring the whole discussion to bear on the present condition of the dairy farms of the Vale district of Gloucestershire, which have generally, I believe, been as stationary in their produce as the hill farms have been progressive.

I. Biographical.

I am certain that you will agree with me that the position of any district on the agricultural scale—whether it be high or low, on a comparison with other parts of the country—does not depend alone upon the quantity of produce which the cultivators of that district extract from it. It does not even depend alone upon the quantity of food per acre which is extracted from it, as compared with the natural fertility of the land. The *personal character* for intelligence and worth of the tenant farmers of the district has a great deal to do with the reputation which, agriculturally and professionally, any district will command. And nothing has appeared to me on reading the papers which Mr. Rich has been good enough to give me—not even the evidence which they give of the increased quantity of produce which is now obtained from this district, nor even that of the large produce of food per acre which is extracted from it in spite of a low natural fertility—nothing has appeared to me in these papers more noteworthy and interesting than the evidence which they give of the intelligence, the neighbourliness, the mutual helpfulness, and the shrewd individuality of character which in the case of Mr. John Smith and his friends, and in the case of his immediate successors the late Mr. Stiles Rich and his friends, these papers so strikingly illustrate. It may be a hard matter in a few minutes to lay all these sufficiently before you—but the impression which these papers have made on me in that respect, is as definite and clear as possible.

The late Mr. John Smith was, I gather from them, born in 1722, in the neighbourhood of Chipping Norton. In 1744, his father and he came to Bowldown Farm. He had when just of age then written out for private use, as he says, what he repeatedly calls his system of farm management, which in the letters of his which I have seen addressed to his friend Major Ogilvie, of Montrose, he strongly advocates, and which was adopted by the late Mr. Stiles Rich, of Didmarton, who expressly says that he abandons the plan he had hitherto followed for that of Mr. John Smith, of Bowldown. It consisted essentially in the six-course rotation of crops, an extension of the ordinary four-course by keeping the seeds down a second year, and by taking Oats after Wheat. Mr. Smith returned to the neighbourhood of Chipping Norton about 1790, and I presume did not live many years afterwards. He was a large hearted and intelligent man. In his annual memorandum books, containing an entry for every day of the year (every day of his life), the private domestic and public character of the man is plainly to be read.

A constant attendant on divine worship, the text of every sermon that every week he heard is duly recorded. A most social and warm-hearted friend—every week records hospitable and friendly meetings with his

neighbours at his own home and at theirs. And journeyings, consultations, labours in behalf of friends either needing help or else requiring guidance and advice, are perpetually mentioned. Almost everybody, male or female, is mentioned by the Christian name—and many a good picture is unconsciously drawn of the style and character of the grandfathers of persons, both squires and tenant farmers, whose names belonging to this district I have known all my days.

Mr. Smith was a resolute, confident, and altogether vigorous character, with not only a warm heart for a friend, but with powers of fight and opposition too when the exercise of them was needed.

He was a public-spirited and travelled man. His Journals record the public events of the time, and describe also his annual excursions to distant counties, to Hants, Lincoln, Nottingham, Somerset, &c.

In his letters he declares his want of education, and with characteristic shrewdness he adds that he does not as a farmer particularly lament it. Yet there is evidence enough that he was a remarkably well educated man. His Journals, with their copious daily entries, are written in good and vigorous English—he is never guilty of false spelling—never ungrammatical, nor even slipshod and careless in his style. He speaks in the very way, using the same colloquial phrases, in which a good hearty well-educated Englishman would speak and write at present. And whether he is enjoying the society of his friends, relating the incidents of village life, recording angry dealings with an impracticable neighbour, describing what he sees upon his journeys, or writing down his impression of what he has been reading—he speaks and writes just as a first-rate sort of fellow would feel and express his feelings at the present day. I read entries about "this most glorious rain" which has succeeded the drought—about a visit to Portsmouth, and to a mansion he had seen which was "more like the work of a God than of a man," —about his Majesty's first-rater, the Britannia, being the "grandest sight in the world." One sees him perpetually in a room full of friends with the most hospitable spread and hearty talk with which he entertained them. And withal, on one or two occasions you read, from month to month, and week to week, entries showing the rise, growth, and at length the happy termination of a quarrel with a neighbour. His anger sometimes broke out unrestrainedly, and I come on one occasion on the following entry. "This day kicked J—— B—— and gave him two slaps." The whole journal is a genuine picture of country life. His earlier days are full of business and occasional sport, and journeyings to and fro—then again, as he gets on in life, his references are to the society, the characters and the deaths of friends. He begins to record gifts of venison, Pines, Cucumbers, old wine and good living generally, and latterly he comes to recipes for this, that, and the other medicine, castor oil, pills, and so forth, until at length he disappears. Throughout all, his reverence for the Sabbath day and for divine service, and for the Bible, are all pleasantly characteristic. I read such an entry as the following. He says:—

"I don't find the word *blight* in any part of the Bible, but the words *blast* and *mildew* occur in one or two places, from which I think the blight in corn is rather mismanagement on the part of the farmer than from the immediate hand of God."

This, whatever may be thought of his biblical criticism, does I think illustrate the originality and individuality of the man. His letters still more clearly show this. I have two of his letters to Major Ogilvie. In one he recommends his friend to adopt six-field course of rotation and speaks of the advantages of paring and burning. He says:—

"When Grass-land is broken up in the common way, with horse-ploughs, the sward being a vegetable, and mixing with the earth, never fails producing fermentation, which throws the corn out of the ground, for the earth being mother to what she brings forth herself, and only step-mother to what we plant, she never fails to revenge the deed, sooner or later, unless the vegetable part is destroyed by fire!"

The following is the special advice given to his friend:—

"Never farm at too great an expense, but sit down and count the cost, for nothing can be an improvement unless it puts some money in the farmer's pocket. Industry, with a common share of understanding, will do more to make a man comfortable than all the high-flying notions in agriculture. In servants and workmen's idleness is a great tax; therefore I have always done with as few as possible!"

He concludes—

"The thing is to farm well at the least expense possible, and bring the annual produce of your estate to market as good as you can. I believe it not impossible to make you a good farmer, for that tyrant 'prejudice' can have no footing in your breast. Yes! and I will undertake to make 20 good farmers before I can mend one bad one."

Mr. Smith's second letter in my possession was written three years later. It is a similar illustration with the former one of the shrewd and quaint character of the man. He begins:—

"I never knew a learned man who was a good farmer, and, therefore, I never lamented the want of an education. The time of life to make men scholars is the time for observation in the farming line, and it rarely happens that a man can be a proficient in that business unless he is trained to it from his youth. I would take a man that can neither read nor write to make a farmer sooner than I would the most learned man. The former has no knowledge but what comes from Nature and of good natural parts—the later prides himself upon his reading and education, by which he thinks of putting Nature out of its course, and so out-doing everybody."

There are in this second letter a number of very shrewd and clever remarks. He says:—

"It is not those that are possest with the greatest number of acres who have always the most sense; and what is still worse, they often employ those that have less. This is, and will be, an eternal bar to improvement. Several instances I know of, and I believe there are many others, where the tenants are shackled with covenants in their leases not to pare and burn. What a curst vexation must it be to an ingenious farmer, that perhaps has 10 times more sense than either his landlord or steward, not to be able to do what he knows to be a real improvement to the estate he occupies. For it is not the paring and burning that injures the soil, but the ill use made of it. The expense of paring and burning, I have shown in a former letter, is generally from 16s. to a guinea per acre; and an ignorant farmer thinks that as he has laid out a deal of money, he must as soon as possible reap the benefit, and sows the land three or four crops one after another without rest; thereby making the land in a much worse condition than when he burnt it. On the contrary, the landlord should oblige the tenant when he breaks up a piece of land to pare and burn for Turnips—after that Barley and Grass seeds—and let it go in the course of husbandry that I have recommended. By these means lands may be kept fresh and in good heart for a man's life, or to the end of time. On the contrary, by sowing too often, lands will become like a tired horse, you may whip and spur, but will not be able to get him on; but give him rest, and the horse will recover his vigour, and go on as well as ever. I am sure I have known that 5*l.* per acre, I may say 10*l.*, has been lost by breaking up old land without burning. The reason is plain, if people will but think; for the earth is mother to the sward, and if the land be first broke up with horse plows, the sward mixing with the earth will cause fermentation and rottenness in the particles, that they will not adhere, and vegetation will be interrupted till the land has been Turniped and Clovered, and has lain still two years at least."

Then he goes on to talk of the Georgics of Virgil. He says:—

"There is more sterling sense in the Georgies than in all the books I ever read upon agriculture. I am sure that Virgil was bred to a country life, otherwise he could not have known it so well. I never could read a single page in any other book before without being soured, because of the vast expense recommended in the management of lands, and generally said by the author to be an improvement. All expensive improvements will defeat themselves, unless it be draining of lands; and then people should be careful not to throw away their money. I have often wondered that our great men don't make agriculture a part of their pleasure—it would yield them more satisfaction than all the gaiety of life: for besides health to the body, it gives pleasure to the mind. If at any time whilst I was in business I could not tell what to do with myself by staying too long at home, I had nothing to do but to mount my horse, and all went well; and it was ten to one before I had rode a mile but I rose to a song. I say if gentlemen would but make the improvement of their estates a part of their pleasure, they would know how to value merit; and I believe none are more happy and healthy than those that contemplate the beauties of nature, for it generally adds cheerfulness and serenity to the mind, which many of those in high life are strangers to."

Well, gentlemen, though I fear I am occupying too much of our time with this account of Mr. Smith, I am sure you will agree with me that he deserves a much fuller biography if we could get at it.

Mr. Smith is succeeded in these papers by Mr. Stiles Rich, the uncle of the late Mr. Rich of Didmarton. And the mantle of the one seems to have fallen very much upon the other. The late Mr. Stiles Rich was in the habit of recording accurately the circumstances and produce of his farm. From 1774 down to the present time, the actual produce both total and per acre of Wheat, Barley, Oats, Peas, and other corn, of cows and sheep, and pigs upon that farm—the payments to landlord, parish, and labourer, are all recorded, and I don't know anywhere a more interesting agricultural history than is thus afforded. To the lessons which they teach us about the progress of agriculture on the Cotswolds I shall immediately refer. It is to the personal character of the men whom I call as witnesses that I am now referring.

We have in these papers a history of the early difficulties which Mr. Rich encountered—an account of the changes of management adopted, from dairying to sheep (both a breeding flock and a dry flock). There are references to the profits of ram selling—to the losses consequent on "the goggles" (brain disease) among his sheep—illustrations of the genuine honesty displayed in the way in which at a great personal loss he at length got rid of his diseased flock—illustrations, too, of the confidence, and as it proved, the trustworthy confidence with which he turned for advice to his "two worthy friends, Mr. Brooks of Wilsby and Mr. Brooks of Higham." All this in a very interesting manner displays both the character of the man and the character of the tenant farmers of that day in this neighbourhood. He says that when he first entered on the farm he was advised by Mr. Cornelius Robins to work the arable land on a 5-field course of husbandry, which he did for seven years or better. But when he found himself so awkwardly placed by his sheep losses, he "made the best observations in his power upon different methods of farming, and then found that the 6-field system which was practised by Mr. John Smith before he left Bowldown would make a better return" for his trouble than any other; and notwithstanding he had practised the 6-field system for 25 years since then, he had not as yet found any other method to beat it for poor Cotswold lands.

The proofs of progress which I shall by and by quote from the experience of this farm describe the increase of its fertility under the six-course system, for it has been ever since maintained upon this farm. And I suppose that these figures will therefore be at least equalled by those which should give the general increase of the district, which is more generally farmed, I understand from Mr. Drew's paper under the less severe cropping of the five or even of the four-course rotation.

Mr. Stiles Rich was, I gather from his papers, a man of great shrewdness, humour, and observation. There is a clever sketch among them, in which "Mr. Jack Ploughshare" has to answer before the Court on a charge by "Mr. Community-at-Large," that he has failed in his duty. Jack of course gets off with flying colours, and if the judge could have foreseen what he has since done in the way of meeting the wants of Mr. Community-at-Large, I doubt not that an action for malicious prosecution would have lain against the latter. There are also among these papers observations on threshing by machine or hand; on the relation between the live and dead weight of sheep; and calculations of cost concerning almost every agricultural operation. There is a long account of an attempt to introduce a number of Scotch tenants on the property of a late Earl of Suffolk—the former tenants being displaced by Scottish farmers, by whom much land was broken up and professedly improved, but after remaining some few years, so it is said, and paying scarcely any rent, they were nearly all ruined, and left their farms, which were relet to Englishmen. This was 50 years ago.

Mr. Stiles Rich was succeeded by his nephew the late Mr. E. W. Rich of Didmarton, and among these papers are many showing that he inherited the personal shrewdness and possessed the intelligence and public spirit of his predecessors. He was doubtless known to many gentlemen present, and it hardly becomes me therefore, with a much smaller acquaintance with him, to refer to his agricultural career and personal and professional character. I have always heard of him from my father and others as one of the leading and characteristic tenant farmers of the Cotswold country; and when, 24 years ago, I walked over several of the Cotswold farms for my personal instruction, I remember very well the friendly reception, and the wealth of agricultural information which I received from him.

I have now brought these personal references to the present time. And I doubt not that to you, long acquainted with the present generation of tenant farmers in this district, I have not been drawing any strange or unrecognisable picture, but that the same style and character of man exists in many instances—generally indeed, upon these hills at present. To this I can to some extent bear personal testimony. And it is doubtless to this personal character and professional ability of the tenant farmer of the district, far more than to the natural circumstances of soil or climate, that the general agricultural progress which I have now to show that it has witnessed has been due.

(To be concluded next week.)

Home Correspondence.

The Summer of 1864.—I much wish that I and the *Gardeners' Chronicle* stood on better terms, and that the *Agricultural Gazette* more highly appreciated my endeavours to enlighten the agricultural and commercial community as to the probable general character of the approaching summer. I know that you and Sir J. Herschel, and perhaps some others, are of opinion that not in any particular can the coming weather be discerned for more than 48 hours in advance, even with the aid of the telegraph; and that any man must be mad who would alter his business arrangements in the slightest particular, on account of any special prediction of the general character of a coming summer. But I have addressed myself in a special manner to the mercantile community comprehended in the general term Mark Lane—from them, I know, I have obtained a hearing, and I have the full and unalterable purpose to convince that very capable and sane body of merchants, that there is a reasonable probability that my expressed views of a summer shall be correct, and that it shall not be unreasonable in them to alter their business arrangements in the slightest particular, in consequence of forecasts founded on my principles. With what other design could I write on the coming summer weather at all, always referring as I do, to its probable effects on the crops? I refer you back for consideration, to the published records and forecasts of the last four summers. Three at least of those summers and harvests were remarkable, and each in a diverse manner. I allude to 1860, 1862, 1863, and the leading features of each were exactly seized on in each forecast—and it at least was a curious incidence, if each were simply a lucky hit. What is there at this moment to show the least probability that the coming harvest shall be early, hastened by dryness, or that many crops may probably rather come short of an average than be in excess, like last year, from the operation of the same principle? The spring is quite backward, the land in beautiful order, and the seeding committed to a ground which seems and is full of strength. But, though I am not sure, I do certainly think that the summer will be too dry; and I think also, that if I am correct again, you will hardly be justified in repeating the cry "another lucky hit." If you do, you will perhaps allow at the same time that my luck is greater than yours. It is quite true that I can make nothing certain out of the general meteorological records of a long series of past years, so as to exemplify and in that way establish the principle of my own forecasting. But the records themselves are not perfect, and I could not really ascertain from them what summer inference I should have drawn from any particular equinox, in

the same way that I might have done had I witnessed it personally myself in a locality whose weather signs I was well acquainted with. You think my views are condemned because I seem to put them on a par with astro-meteorology. I have no reason to think, any more than you, that the planets have any sensible influence at all on our atmosphere, but neither do I consider that a courteous bearing to an opponent, whether he be an astro-meteorologist or any thing else, can have any sensible influence in lowering my views in the eyes of sensible people. *Thomas Du Boulay, Sandgate, April* 6

Slugs.—I think it well to inform you that slugs, wire-worm, snails, and the Turnip-fly can be entirely destroyed by using powdered glass, and the only place I know of where it can be had in large quantities is at the Phœnix Glass Bottle Works in Bristol. They grind and sift it ready for use. I have heard they have a house in London in Endell Street. Are you aware the slugs must be limed three times before you burn them, whereas one bit of glass does the thing. *R., a very Old Subscriber to your Gardeners' Chronicle.* P.S. If you find the glass kills your slugs as it does mine, perhaps you will write an article upon, and sign it R., as I am only a tenant farmer.

Vitality of the Dock.—So "Peter Dryland" has just crept out of his shell to tell us that he "sent a sketch of a common enemy found in a Wheat field a few days since. The complete inversion of the last year's position of the root has by no means injured its vitality. The roots still grow downwards and the leaves upwards, and had I not arrested its course a fine healthy Dock would have been the result." When he tells us that "Few cultivated plants would bear this antipodean position and grow," he proves that it is only just his nose that has had a peep at daylight. The question is what are "cultivated plants?" According to "Peter Dryland's" doctrine a Dock is, when the old roll over plough has "completely inverted its last year's position." Why, then, so is a Thistle. Yes, Thistles of various kinds, so are Crowfoot and Coltsfoot, and so are no end of other plants when rolled over by that same old plough. If "Peter Dryland" will give me his address I will supply him with a number of specimens. It is the old roll-over plough that is at fault, for had that Dock that we are now hearing about been cultivated out instead of turned down it would have died. *William Smith, Woolston, Bletchley Station, Bucks, March* 21.

Enormous Egg.—The egg I send herewith appears to be so extraordinary as to be worth notice. It is from a small half-bred Spanish fowl, and measures in girth 6½ inches and lengthwise 8 inches. Its weight is one quarter of a pound. *W. R. Perry, Crouch Hill, Hornsey.* [The egg reached us broken.]

Steam Plough Companies.—You gave a short account in your columns some three or four weeks ago of the signal success of the Wakefield Steam Plough Company. As there are several other societies just ready to start into life, but still hanging fire for want of a few more subscribers, would it not be worth while for you to communicate with the secretary of the above-named Company, requesting him to furnish you with all the details. If there is nothing special in the circumstances under which the Wakefield Company have flourished, why should not other parties do the same? If we could reckon on a dividend of 7½ per cent., with a large surplus, steam ploughing must become general. The points to be inquired into are: 1st, the nature of the soil and its geological character; 2d, the size of the fields; 3d, the number of acres ploughed in the year; 4th, the average depth of the cultivation; 5th, the kind of apparatus employed, and its cost, &c. Perhaps Mr. Fowler, who I think furnished the machinery, would help you; it would obviously be for his interest to do so. *Philo Vapor.* [Will Mr. C. Clay, of Wakefield, kindly respond to this appeal?]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, April* 6.—Present: Lord Feversham, President, in the chair; Lord Walsingham, the Hon. A. H. Vernon, Sir J. J. B. Johnstone, Bart., M.P.; Sir E. C. Kerrison, Bart., M.P.; Sir A. K. Macdonald, Bart.; Sir Matthew White Ridley, Bart., M.P.; Sir J. V. Shelley, Bart., M.P.; Mr. Raymond Barker, Mr. Barthropp, Mr. Bowly, Mr. Bramston, M.P.; Mr. Cantrell, Col. Challoner, Mr. Claydon, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Hutton, Mr. Jonas, Colonel Kingscote, M.P.; Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Rigden, Mr. Shuttleworth, Mr. Robert Smith, Mr. Thompson, M.P.; Mr. Torr, Mr. Wallis, Mr. Wells, Professor Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

The following new members were elected:—

Alington, Henry, Little Barford, St. Neots]
Appleby, William, Smalburn, Longhorsley, Northumberland
Armstrong, Charles, Hawthorn Terrace, Newcastle-upon-Tyne
Ashwin, Henry, Guiting Power, Winchcombe
Ayton, J. Featherstone, Hindley, Stocksfield, Northumberland
Baker, Robert, Garnston, East Retford
Barrett, Alfred, Reading
Beale, Joseph, Boro' Fields, Walton, Burton-on-Trent
Berners, The Right Hon. Lady, Keythorpe Hall, Leicester
Bugg, Walter, Milborne Wick, Sherborne
Cholmondeley, Colonel the Hon. Thos. Grenville, Abbott's Moss, Northwich
Clarke, J. Goff, Brackley, Northampton
Collisson, William, Beverley
Coulman, John, Red House, Thorne
Cuningham, Captain, 3, Great Stanhope Street, W.
Davie, J. Thornton, Hepscott Red House, Morpeth
Davison, John, Tritlington, Morpeth
Dinning, Joseph, Langley Hill Top, Haydon Bridge
Doneraile, Viscount, Doneraile Court, Co. Cork
Donkin, Samuel, Bywell, Felton, Northumberland
Dunn, Wm. H., Inglewood, Hungerford
Fenwick, John C., Manor House, Riding Mill, Northumberland
Gambles, Herbert E., Nocton, Lincoln
Gamgee, Professor John, New Veterinary College, Edinburgh
Garbutt, Cornelius, Dunston Lodge, Gateshead
Gibbs, Philip H., Eckington, Worcester
Gilpin, James, Roseworth Villa, Newcastle-upon-Tyne
Gray, John C., King's Grange, Castle Douglas, N.B.
Halewood, Edward, Great Crosby, Lancaster
Hall, Charles, Croydon, S.
Harrison, J. F., Caterham Court, Redhill
Hawthorn, William, Benwell, Newcastle-upon-Tyne
Heath, Thomas, Little Benton, Long Benton
Henderson, William, Fowberry Maines, Belford, Northumberland
Hunter, William, Moor Lodge, Newcastle-upon-Tyne
Innes, William, Field Place, Warnham, Horsham
Large, William, Taywell House, Goudhurst
Levett, William, Glassenburg, Cranbrook
Lightfoot, F. L., University College, Oxford
Lyne, Robert L., Oddington, Stow-on-the-Wold
McLaren, Henry, Hylton Castle, Sunderland
Massey, Hugh M., Kidnall, Malpas
Myers, Christopher, Dunston, Gateshead
Parker, Henry, Low Elswick, Newcastle-upon-Tyne
Pollard, George, Dilston, Corbridge
Pollock, Geo. D., 27, Grosvenor Street, W.
Porter, James, Corney Bury, Buntingford
Potts, John, Gateshead
Ronaldson, J. T., 4, Victoria Terrace, Newcastle-upon-Tyne
Row, Edward, Moulas Haugh, Acklington
Shiell, John, Kenton, Newcastle-upon-Tyne
Smith, T. Fenton, Ilsworth, Gateshead
Spencer, James, Jun., Newcastle-upon-Tyne
Spencer, William, Team Villa, Gateshead
Surtees, Villiers C. V., Benridge House, Newcastle-upon-Tyne
Swan, Joseph, High House, Morpeth
Thompson, Captain F. W., Willow Lodge, Finchley
Trotter, William, South Acomb, Stocksfield
Walker, Thomas S., Maunby Hall, Thirsk
Watson, Robert H., Bolton Park, Wigton
Williamson, Sir Hedworth, Bart., Whitburn Hall, Sunderland
Wilson, Joseph, Manor House, Woodhorn, Morpeth
Wood, Charles A., 25, Chesham Place, London, S.W.
Woodhouse, John, Skerton, Lancaster
Wrightson, John, Spring House, Ladberge, Durham
Young, John, Kenley House, Coulsdon, Croydon, S.

Finances.—Mr. Bramston, M.P., presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on March 31 was 2295*l.* 1*s.* 10*d.* The balance-sheet for the quarter ended March 31, 1864, and the statement of subscriptions and arrears were laid on the table, the amount of arrears then due being 554*l.* The Committee recommended that a further sum of 1000*l.* be placed on deposit with the Society's bankers.

Discussions.—Mr. Holland, M.P., announced that he would read a paper on Agricultural Education on Wednesday, April 20, at 12 o'clock. Professor Voelcker will deliver a lecture on the Atmospheric Food of Plants on May 11.

Implements.—Colonel Challoner, Chairman of the Committee, reported their recommendation that a special meeting of the Committee shall be held in February each year to report to the Council on the quantity of trial land and other requirements to be provided by authorities of the localities inviting the Society to hold its country meeting in the following year. That Messrs. Easton & Amos be requested to report on Mr. Fowler's suggestion that there should be one dynamometer equal to about three tons and two equal to about 12 cwt., also one break which will register the power given off by ploughing engines; together with the cost of providing what may be necessary. That the trials of steam cultivators be triennial. This report was adopted.

Newcastle Meeting.—Colonel Challoner reported that the plan of the Showyard had been finally settled; that Mr. Jacob Wilson had secured 34 acres of land in two fields for the trial of steam cultivators, contiguous to the land already provided by the local Committee for the purpose, who also placed an additional 40 acres at the disposal of the Council on the condition that it be used exclusively for the trial of steam cultivators. Mr. Jacob Wilson had been requested to accept the office of Steward of Forage, and the Committee recommended that he be allowed an assistant at the rate of not exceding 5*l.* per week. The Committee further resolved that Lonk sheep are not qualified to compete in the Black-faced Mountain Classes. A discussion ensued on this resolution, which was ultimately carried by 16 ayes to 9 noes. The report was adopted.

Dates of Calving.—The President reported that the Committee having fully considered this question, were unanimously of opinion that any alteration in the date of calving would be inconvenient and thus unadvisible.

A committee consisting of the Earl of Powis, Sir Ed. Kerrison, Bart.; Sir J. Johnstone, Bart., M.P.; Col. Kingscote, Mr. Acland, Mr. Barthropp, Mr. Druce, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Thompson, M.P.; Mr. Owen Willis, and Professor Wilson, was appointed to consider the measures which ought to be taken "for the improvement of the education of those who depend upon the cultivation of the soil for their support," this being declared by the Charter as the 7th National Object to be prosecuted by the Society.

The following Committee was appointed to consider a report from the Horse-breeding Committee of the Royal Agricultural Society of Ireland, viz., The Earl of Powis, Lord Berners, Lord Tredegar, Hon. Col. Cotton, Hon. General Hood, Sir E. Kerrison, Bart.; Sir Watkin Wms. Wynn, Bart.; Col. Kingscote, M.P.; Mr. Burnett, Mr. Dent, M.P.; Mr. Fisher Hobbs, Mr. Milward, Mr. Pain, and Mr. Torr.

The appointment of a Committee to consider a letter addressed by Messrs. Howard to the President relative to the office of Consulting-Engineer to the Society, having been moved by Mr. Fisher Hobbs and seconded by Mr. Clayden, an amendment was brought forward by Mr. Milward, that as the facts are admitted, there would be no advantage in appointing a Committee. After a full discussion by the Council, the amendment was carried by 18 ayes to 8 votes for the original motion.

Meeting of 1865.—Memorials with plans and section, signed by the Mayors and Town Clerks of Exeter and Plymouth, were presented, soliciting the Council to hold the Society's Country Meeting at those places in the year 1865, and a Committee, consisting of Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Pain, Mr. Randall, and Mr. Torr was appointed to inspect the various sites offered for showyard and trials, and to report to the Council on the 4th May. The Secretary having announced a vacancy in the Council by the decease of the Right Hon. Lord Ashburton, Vice-President, gave notice that the election to fill this vacancy would take place on the 4th May.

Farmers' Clubs.

Central: *April* 4.—Mr. T. Congreve in the Chair. The subject appointed for consideration on this occasion was, "The New Assessment Act," the introducer being Mr. J. Dumbrell, of Ditchling, Hurstpierpoint. After a few remarks by way of introduction, Mr. Dumbrell said:—

For many years past, and probably ever since the Parochial Assessment Act came into operation, much difference of opinion and great discrepancy of practice have prevailed as to the mode of arriving at a proper valuation of rateable hereditaments. The words of the Parochial Assessment Act 6 & 7 Wm. IV., Cap. 96, s. 1, enacted that rates were to be made "upon an estimate of the net annual value of the several hereditaments rated thereunto, that is to say, of the rent at which the same might reasonably be expected to let from year to year," &c. These words have given rise to endless controversy, to a vast number of legal decisions. In spite, however, of all the experience gained, and all the legal lore accumulated upon the subject, differences of opinion and anomalies of principle have continued to spring up, and parishes and ratepayers have submitted to assessments rather in the spirit of compromise, and for the sake of peace and quietness (and that often after much expensive litigation), than from any real satisfaction with results obtained or intelligent appreciation of the principles acted upon. Now it is obvious that to get rid of the prevailing anomalies, the appointment of some officer or tribunal exercising the functions of an official valuer was needed; and although the main object of the recent Act was to give the means of a fair adjustment of taxation for county and union purposes between parish and parish, another important object was to get rid of the existing difficulties of ascertaining rateable value by appointing official valuers; not, indeed, the expensive highly paid gentlemen exercising that profession, but a cheap, because unpaid body, who should really exert their united judgment to value the properties subject to assessment, and who were not intended blindly to follow rigid and narrow rules to absurd consequences. If we can imagine a body of professional valuers constantly sitting to settle the fair and just value of rateable properties, irrespective of such actual rentals as are not unfrequently created by the greed of landlords, the folly of tenants, or the vagaries of both, we should have just such an assessment committee as it seems the Legislature intended to establish by the Act of 1862, only less costly, because not composed of professional and highly paid men. The Act gives them every possible assistance; for by the 13th section it enables them to call for and obtain the production of all sorts of documents and records relating to rates, taxes, and valuation—not indeed that they may become fetters to their common sense, but simply as aids to their judgment. It is to the consideration of the best means for carrying out the spirit of the Act that I would direct your attention, for we must admit that the objects desired are fair and reasonable. The first great point to be considered is, How shall the value of a property be estimated? There are three modes of doing this—either by taking actual rent as the guide, or property tax return, or by taking comparative value. The Acts says the value shall be determined at the rent a property may "reasonably be expected to let for from year to year;" not the actual rent from year to year. Actual rent is, of course, in many cases—in fact in a majority of cases—a very fair guide of annual value; but there will be exceptional cases. For instance, where land is let below its value, and it frequently does happen that a large district, it may be a whole parish, belonging to a large proprietor, is by no means fairly represented in the union assessment by taking its actual rent as a criterion. Again, another instance: From accidental causes properties may be hired at a rent above their actual value. A tenant for accommodation or fancy may be willing to pay more than the legitimate rent; is it just that because a man pays too much rent that he should also be saddled with too much taxes? It may be argued, a property is worth what it will fetch in the market. Granted; but where is the farm, however dearly rented, that would not command a higher rent if brought into the market to-morrow? The occupier of too highly rented land naturally inquires, when he finds his assessment above that of his neighbours, why land of equal value, and similar situation to his own, should not be placed on equal terms as regards assessment for taxation? To assess land, therefore, at actual rent, there are these difficulties—you ease the burden of taxation from the shoulder of him who is already lightly rented; you add an additional weight to him who is already over-weighted, and you run the risk of bringing all properties in a parish up to a high standard. The next mode of arriving at an estimate of actual value is by taking property tax as the guide. The great difficulty here applies, not so much to occupiers, as to owners occupying their own properties. In the case of mere occupation, property tax and rent should be represented by the same figures. Now we all know (and it is a singular fact) that although in this country we are perfectly used to the visit of the tax collector, yet every man does endeavour to evade taxation as much as possible; and although occasional notices in the *Times* do announce that A. B. has sent the half of a 5*l.* note to the Chancellor of the Exchequer on account of unpaid income tax,

it may be taken as a rule that no owner of property, being occupier, makes his return under Schedule B too favourably to the revenue; and I appeal to all members of assessment committees if their experience does not lead them to the conclusion that cases of properties held by owners are inadequately represented in the union assessments by property-tax returns Besides all which, it is a well-known fact that the returns to the property-tax are made very loosely or inaccurately, and in many cases, whether purposely or carelessly, no returns are made to the assessor at all, and that officer makes his own guess at the value; and many persons are exempt from income tax, in which case neither they nor the revenue officers care anything about a correct assessment. In my own and two neighbouring parishes, out of 290 assessments, there are 96, or nearly one-third, which make no return. Another argument against taking actual rent or property-tax return—or rather, another argument against the mode of working the Act, if these criteria are taken—is that there can be no need for the cumbersome machinery of parochial committees to make out valuation lists, or assessment committees to sit in judgment upon them, because any overseer or ordinary clerk could compare the whole of the lists with property-tax returns, and there would be an end of the matter. Of course it is a much easier plan to adopt some simple rule which shall do for all cases than to judge every case on its own merits; and if assessment committees can find such a rule, and can avoid the exercise of independent judgment, they will be saved from much thinking, and escape a vast amount of trouble; but then they, in fact, abdicate their functions, and leave the Quarter Sessions to do their work for them. If the above views are sound, it follows that assessment committees should boldly and really value the properties to be assessed, exercising a conscientious judgment to the best of their ability. By so doing, they would, no doubt, carry out the spirit of the Act, and become efficient and valuable tribunals; but if they do otherwise, and tie themselves down by rules to adopt as invaluable criteria of value either actual rentals, property-tax assessments, or other standards, which always ought to be right, but which are often very wrong, they will, of course, reproduce all the old evils, and instead of litigation being diminished it will be greatly increased. We now come to the third proposed mode, viz., of taking comparative value of property—in other words, of revaluing the whole of the parishes in a union. This is to do no more or less than what has been done before; with this difference, that, as before, the only object in view was to obtain equality of rating between individuals in a parish, equality among parishes is now also indispensable. It is not to be supposed that even this plan could give entire satisfaction; but if the whole of a union was valued at one time and on one basis, the probability is that a more uniform system of rating would be arrived at. One other objection to this plan is on the score of expense, but this would be a secondary consideration if the object desired were gained. I have now endeavoured, as briefly as I can, to point out the three plans by which the object of the Act may be attained, and a uniformity of rating established. Our next question is the mode of appeal in cases where dissatisfaction has been given. As you all know, the first appeal is the assessment committee; but experience leads me to the belief that an appellant seldom finds redress there, and as a last resort he is driven to appeal to Quarter Sessions. And who are the judges? The very men who are probably chairmen of most of the assessment committees in the county, and who, in spite of all the evidence that may be brought before them, adhere strictly to the principles they have laid down to their respective boards of guardians or assessment committees, and this is one of the most unjust parts of this Act. We all know that in some boards of guardians the weight of *ex officio* influence is very heavy, and the views of these guns of large calibre in a great measure guide the opinions of less independent members; and yet, as I said before, a court composed of these very *ex officio* members of boards of guardians is the last appeal for a dissatisfied ratepayer.

After relating his experience in his own parish as to the working of this Act in the matter of appeals, Mr. Dumbrell adds, "I venture to think that this case proves the justness of my premises, viz., that no absolute rule based on actual rent or property tax return can possibly be laid down, in estimating the value of property for the purpose of assessment; and where such rule has been adopted, much injustice must necessarily follow, and the object of the Act be altogether defeated. In conclusion, I would observe, that whilst the ends sought by this new Assessment Act are perfectly fair, the means to attain them are as yet very indistinctly understood; and, if care be not taken, far from giving satisfaction by the equalisation of assessments, this Act will be a fire-brand thrown amongst parishes and ratepayers, leading to no end of ill-feeling and litigation."

Reviews.

The Quarterly Journal of Science, No. 2. April, 1864. J. Churchill & Son, New Burlington Street.

The second number of this Quarterly Journal is even more interesting agriculturally than its predecessor. Among the principal topics, zoological, astronomical, mechanical, geological, and physiological, which occupy the body of the work, there is an elaborate report by Dr. Voelcker, on the chemistry of milk and on the considerations which ought to affect dairy arrangements. And among the chronicles of progress, agriculture figures along with botany, chemistry, zoology, and all the other sciences.

From Dr. Voelcker's paper we make the following extracts:—

1. *The Effect of Food and of Season of the Year on the Milk.*—"In the spring and early part of summer milk is abundant, and of good flavour. As the season advances the supply is diminished, but becomes richer in butter. The same quantity of milk which in August scarcely yielded 3 per cent. of pure butter and 3 per cent. of curd, in November produced 4½ per cent. of butter and 3½ per cent. of curd.

"A series of observations, made for the purpose of ascertaining the variations in the quality of the milk on the same farm throughout the year, convinced me that the supply of food was chiefly concerned, the richness or poverty of the diet being in all cases represented by the quality of the milk yielded.

"In November and December the cows had meal-nut oil given to them, which is the refuse left after pressing ground kernels of the Palm Nut. This substance, when of good quality, not too hardly pressed, is very nutritious and rich in fat, and was found to exercise a decided influence upon the proportion of butter in the milk.

"Brewers' grains are generally considered to possess a peculiarly stimulating effect upon the formation of the mammary gland. M. Struckman, of Wartburg in Germany, in 1855, published some feeding experiments, the results of which are of such practical importance as to justify an analysis of them here.

"Four good and four bad cows were selected, and the diet included brewers' grains, Mangels, Oat-straw, and Rape-cake.

"'Most milk was produced by 5½ lb. of Rape-cake, 36 lb. of Mangels, and 25 lb. of Oat-straw daily to each animal.'

"A reduction of 9-10ths lb. of Rape-cake led to a decrease of 6.55 litres per cow daily; thus 1 lb. of Rape-cake represents an average of 1½ lb. of milk. A diminution of 6 lb. of grains was followed by a reduction of 6.72 litres of milk; thus 1 lb. of grains appears to have produced ¼ lb. of milk.

"When 18 lbs. of brewers' grains were replaced by 4½ lbs of Rape-cake, the yield of milk was nearly the same; accordingly, 1 lb. of Rape-cake was equal to 4 lb. of grains, in its power of producing milk.

"Rape-cake produced milk richer in butter; grains, however, produced butter of more delicate flavour.

"During the experiments, the superior cows were found to be most influenced by the changes of food. In the inferior animals the yield was tolerably uniform, notwithstanding they were subjected to the same dietetic changes."

2. *The Influence of Breed on the Yield of Milk.*—"The Yorkshire cow, essentially a Shorthorn, is the favourite of cowkeepers in London and other large towns, surpassing all others in the quantity of its yield, although the quality loses by comparison with that of smaller breeds.

"If breeders would make it an object to cultivate both the feeding and milking qualities, there is nothing in previous experience opposed to a successful result.

"Small breeds, or small individuals of large breeds, usually give a better quality of milk from the same food than large ones. The larger animals giving a better return in quantity, and furnishing more meat for the butcher, are, however, more profitable.

"Where good quality is the main object, Alderneys perhaps will give most satisfaction, for they give richer cream than any other breed in common use in this country. The small Kerry cow, and the miniature Breton, produce extremely rich milk in quantity proportioned to their size.

"For dairy purposes in cheese districts the Ayrshire are justly celebrated; indeed they seem to possess more completely than other breeds the power of converting the elements of food into cheese and butter; they do not, on the other hand, lay on fat and flesh well.

"A cow of this breed bought by the Duke of Atholl from Mr. Wallace, Kirklandholm, produced from April 11, 1860, to April 11, 1861, 13,456 lb., or about 1305 gallons of milk, which at 8*d.* per gallon would be worth 43*l.* 10*s.*

"For general dairy purposes Shorthorns are probably the most useful. The dairy farmer will naturally select those that are more distinguished for milking qualities than for their tendency to fatten, at the same time not losing sight of the latter qualification, which will tell when the animals are no longer profitable for his dairy."

The agricultural chemist commences thus:—"Almost every department of farm management is in active operation during the first months of the year. Land drainage and autumnal tillage have put the fallows in the best condition for deriving fertility from the atmosphere. The direct application of manures to the crop becomes useful and economical as the season of growth commences. Seed time brings under discussion the various methods at our command for plant improvement. The continuance of stall-feeding on winter food keeps the whole subject of the meat manufacture before the mind of the farmer. And the lambing and calving season recalls for his consideration all those points on which the theory and practice of the improvement of his live-stock depend."

And it is in the order of the several departments of farm practice that the agricultural record of the first three months of 1864 is written. The Journal bids well for the attention and interest of the agriculturist. We hope it will obtain the large country circulation which it deserves.

Miscellaneous.

Sheep Dips and Salves.—The following account of experiments, undertaken in different counties, has been handed to us for publication. The smearing composition (Reid's) is composed of—No. 1, tallow (refined), castor oil, and butter; No. 2, tallow (refined), whale oil, and butter: in proper proportions to laying on.

General Average of Weight, and Price of Cheviot Hill Fleece, in Roxburghshire, Ayrshire, Argyleshire, Inverness-shire, Sutherland, and Caithness, for Clip of 1863, where the sheep has been prepared for winter with the undermentioned applications, viz.—Reid's vegetable oil bathing mixture, smear of tar and butter, preparation from arsenic, and Reid's white smear:—

UNWASHED FLEECE WOOL.

		s.	d.
Oil dip.	6 fleeces required to make one stone of 24 lb. or 4 lb. per fleece. Cheviot hogg wool sold at 20½*d.* per lb.	6	9
	Deduct expense of bathing	0	3
		6	6
Tar and Butter Smear.	4 fleeces required to make one stone of 24 lb., or 6 lb. per fleece. Cheviot hogg wool sold at 14*d.*	7	0
	Deduct expense of smearing ..	0	9
		6	3
	3*d.* per sheep in favour of an oil dip	0	3
Arsenic Dip.	3½ lb. fleece Cheviot hogg wool sold at 20½*d.* per lb.	5	10
	Deduct expense of dipping	0	0½
		5	9½
Reid's White Smear.	4 fleeces required to make one stone of 24 lb., 6 lb. per fleece. Cheviot hogg wool sold at 18*d.* per lb. ..	9	0
	Deduct expense of smearing ..	1	0
		8	0
	2*s.* 2½*d.* in favour of white smear	2	2½

EXAMPLE OF WASHED CHEVIOT.

Hogg wool from Morvern, prepared with Reid's white smear, 5 lb. per fleece, sold at 22*d.* per lb.	9	2
Deduct expense of smearing	1	0
	8	2
Cheviot hogg wool, smeared with tar and butter from Sutherland, 5 lb. per fleece, sold at 16½*d.* per lb.	6	10½
Deduct expense of smearing	0	9
	6	1½
2*s.* 0½*d.* in favour of white smear	2	0½
Example of Balnagown Clip of Half-bred Ewe Stock Hoggs prepared with Reid's smear, made an average throughout of 7 lb. per fleece, sold at June sale, at 21¾*d.* per lb.	12	8¼
Deduct expense of smearing	1	0
	11	8¼
Example of Balnagown Clip of Half-bred Wedder Stock Hoggs prepared with usual dip, made an average throughout of 5 lb. per fleece, sold at June sale at 23½*d.* per lb.	9	4½
Deduct expense of dip	0	1½
	9	3
2*s.* 5½*d.* in favour of smear	2	5½

North British Agriculturist.

The Treatment and Feeding of Cattle.—Mr. Archibald Macdonald, of Bowood House, Calne, has addressed the following remarks on the above subject to the *Morning Post*:—1.—Treatment.—The constitution of cattle is often ruined by their being kept out in the fields during the inclement months of winter. A cow should never be caught in a cold night, for a certain consequence is an immediate depreciation of the quality of the milk, and an injury to the cow, and if suckling the calf, to that also. But, I may be asked, is it not their nature to be out at night? It was; but by the improvements in breeding (which has made them less hardy), and the artificial Grasses they eat, it is no longer so. A Highland cow eats the natural herbage of the hills, and knows for hours before a storm is coming, and will feed on for a considerable distance, till it reaches a place of shelter from the cold. Bring that same cow from its natural Grass, feed it on ours, confine it in a field where it cannot obtain shelter, and it will soon be in a worse condition than when brought here. It must be housed at night, in a building completely enclosed and properly ventilated. Another most reprehensible plan is to allow (as is done in thousands of cases) animals to have calves before they are two years old. The constitution of the mother is thereby seriously impaired, and the stock is weakly in consequence. If we get an epidemic among our stock, the loss from this system will be fearful. They should never have a calf till three years old. I have noticed in many parts of the country that fattening bullocks (those stall-fed excepted) are never housed at night. This is a most improper plan. There should be a covered shed for these erected at one side of the field, closed at the back and ends, but open in front, and divided into compartments for each bullock. Give at night to each a few handfuls of hay, and two ordinary-sized Turnips, sliced just previous to being given. I adopted this method with the worst half of some Highland bullocks, allowing the better half to lie out at night. At the end of five months those housed were pronounced by competent judges to be worth 3*l.* per head more than the others. A steward to a noble lord writes me—"I adopted your plan with a part of my bullocks, and now, at the end of one month, I consider those housed are worth 1*l.* more than the others. In future, I shall take care to house all my cattle." A gentleman, writing to the *Times*, spoke of a number of cattle which had been infected with the "foot and mouth disease," through travelling in a filthy railway truck. He stated that when taken out into the park they were perfectly wild, and would do nothing for days but drink water, which resulted in lung disease, and he was obliged to kill a great number of them. Access to water was a great evil. They should, if possible, have been confined till the sensation of railway travelling had gone off, and had a little hay, and a very little water in a tepid state given to them. The disease would then have been cured. 2. Feeding.—It is the custom to give milch cows as much food as they can eat—in fact, more than they can consume. Thus a two-fold evil results—viz., a loss of food, and a decided injury to the animal. Never give, therefore, as much as it can eat. Water.—Cows are allowed to drink far too much, the consequence being

a great deterioration in the quality of the milk. It is a well-known fact that the London milkman does not require to add water to his milk, simply because he waters the food of his cows, and gives them large quantities to drink before milking them. He thus obtains quantity, not quality. Cows in milk should have but little water, and in the mornings should be obliged to walk from their house some distance before drinking. They will then eat as they walk, and on arriving at the water will drink much less than they otherwise would do. The result of this treatment will be cream like mine, of such a consistency that a spoon would stand perpendicularly in it in the middle of winter. By this method I have obtained from 12 cows 5 lbs. more butter per week, and of a far better quality than was before got by the old plan of feeding. Many of the aristocracy have frequently asked me how I produced such excellent cream and butter; and I have as invariably attributed the result to the way in which the cows were fed and housed at night. Cows with calves should be still further attended to in this respect. There is a great analogy between a woman with a child and a cow with a calf. How many are the restrictions laid upon a woman by a medical man if she is nursing a gentleman's son! He knows that what is injurious to the elder will be alike to the younger. It is exactly so with a cow; it is injured by being allowed to eat improper and too large quantities of food, and drink too much water; the milk is impoverished and unwholesome, and the calf, if it lives, is of a weak, debilitated constitution. Give, therefore, less food and less water, and you will have healthier stock, and far better milk and cream.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level. Reading at 9 A.M., Railway Time.	Thermometer. Reading at 9 A.M., Railway Time. Dry Bulb.	Thermometer. Reading at 9 A.M., Railway Time. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Reading of Self-Registering Thermometers. In Shade. Min.	Reading of Self-Registering Thermometers. Max. in Sun.	Reading of Self-Registering Thermometers. Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
Friday ..	April. 1	Inches. 29.67	48°	43°	N.W.	4	5	52°	38°	58°	31°	Inches. 0.03
Saturday ..	2	29.91	45	41	N.W.	3	3	2	35	65	28	0.02
Sunday ..	3	29.94	45	44	S.W.	1	10	53	38	63	33	0.03
Monday ..	4	29.86	53	50	N.W.	1	10	57	43	62	43	0.06
Tuesday ..	5	30.20	50	38	E.	1	10	64	38	75	38	0.18
Wednesday ..	6	30.21	47	39	S.	2	10	59	35	40	31	0.23
Thursday ..	7	30.28	44	42	S.W.	1	10	47	30	53	30	0.01

Notices to Correspondents.

Gas Water: *Marcus.* It is worth as much to the farmer if the carriage be not great, as the gas works can get from any other customer. What its actual worth may be depends on the proportion of ammonia which it contains, which varies with the coal and the process. We should apply it direct after a dilution the quantity of which must be ascertained by experiment with a watering pot on the lawn, and put it with the water cart on Grass land. Gas lime should be bought months before used and turned over in compost with other material before application to any Grass crop, or it may be applied on stubble and spread at once and left exposed to the air, by which its causticity is destroyed, and it becomes a mixture of lime and gypsum. It is worth at the gas works as much as lime is worth at the kiln, but it generally sells for less.

Grass Land: *Cor.* Drainage, foddering cattle, feeding sheep on Turnips in the field, and bone-dust, say 16 bushels per acre, well crushed, are good means for the improvement of Grass land. Further information another week.

Grass Seeds.—Consult the Index of the Journal of the Agricultural Society.

Kohl Rabi: *C. J.* It will keep clamped in heaps like Mangel Wurzel; but it will stand frost better than any other root in the open.

Skerry Blues: *W Crossman.* We see they are advertised by Mr. Clarke, of Long Sutton, Lincolnshire.



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It may not be known to the Public generally, that *interested parties*, unable legitimately to prevent an extensive sale of a new, efficient, and valuable invention, which, by its merited success, has superseded other devices of the kind, have recourse *through their friends* to the now too frequent practice of writing anonymous communications to journals of large circulation, *requesting answers* as to the merits and efficiency of the invention in question. These questions and the answers, PREVIOUSLY CONCOCTED by the interested parties aforesaid, duly appear; and are so worded as to have the desired effect. Thus are the Public misled and deceived by *malicious* and *envious* inuendos, the tendency of which is to bring into bad repute an article of utility, which has received the unqualified approval of thousands of well-known gentlemen, who, in a spirit of kindness, forward to the inventor gratuitous testimonials, as a token of their appreciation of his invention.

Parties unknown to me, have, from motives best known to themselves, in this manner criticised the efficiency of the "Hydropult." I have no answer to make to them: to the Public I would say that I will cheerfully forward, on application, a prospectus, containing testimonials from gentlemen well known throughout the United Kingdom.

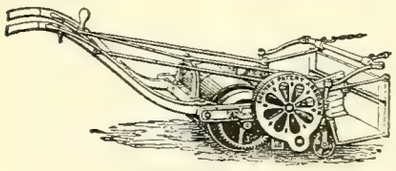
CHARLES P. BUTTON.

CHARLES P. BUTTON, Proprietor, HYDROPULT WAREHOUSE and SHOW ROOMS, 27, LEADENHALL STREET, LONDON, E.C.

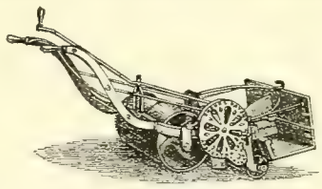
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

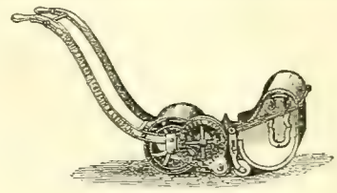
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS and SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & Son have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & Son have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

ALEXANDER SHANKS and SON regret they find it necessary for the protection of their interests to call the attention of their numerous friends to the following assertions of Messrs. Thomas Green & Son in their advertisement of LAWN MOWERS which has this year appeared in the *Gardeners' Chronicle* and other newspapers. A. S. & Son also particularly request attention to the following letters, in answer to these assertions:—

Messrs. Green have the following statement in their advertisement: "*By special appointment Sole Manufacturers to Her Most Gracious Majesty the Queen.*" In answer to this A. S. & Son subjoin the following letter from Edward M. Browell, Esq., Secretary to the Lord Steward of Her Majesty's Household:—

"Board of Green Cloth, Buckingham Palace, February 27, 1864.

"Sirs,—In reply to your request that I should write you a letter for publication, stating that Messrs. Green & Son had no appointment whatever, nor had any liberty or title to say that they had one, I can only repeat what I told the Gentleman who represented himself as your Agent when he called to ascertain how you could get the appointment of Manufacturers of Mowing Machines to Her Majesty, that no Warrant had been granted for about 10 years, and that *Messrs. Green had not one*, although they had lately supplied Her Majesty's Gardens, &c., with several of their Lawn Mowing Machines.

"I am, Sirs, your obedient Servant, (Signed) Edward M. Browell."

Messrs. Green also give a list of "Foreign Medals awarded to them for their Patent Lawn Mowers." Amongst the number is one from the "Hamburg International Exhibition, 1863." A. S. & Son subjoin the following letter from the Secretary to the Committee of the International Exhibition at Hamburg, translated into English:—

"Messrs. Peter Smith & Co., Hamburg. (Agents for A. S. & Son.)

"Sirs,—In answer to your favour of yesterday, I beg to inform you that, after having looked myself over the list of awards during the last year's International Agricultural Exhibition, Green's Machine for Lawn Mowing *did not receive* a Medal, whereas T. Green & Son (Leeds) were awarded with the small Silver Medal for a combined Steam-Engine with standing Boiler.

"Most respectfully, (Signed) Gerhard Nachmann, Dr.,

"Hamburg, February 12, 1864." "As Secretary of the former Executing Committee of the International Agricultural Exhibition at Hamburg, 1863."

A. S. & Son beg to state that they are making inquiry of the Secretaries of the other Societies where Messrs. Green state they have received Medals, and as soon as they are able will publish the result.

Messrs. Green & Son also state that their "Patent Lawn Mowers are the only Machines in constant use at the Royal Gardens, Windsor, the Royal Horticultural Society's Gardens, South Kensington, the Crystal Palace Company's Gardens, Sydenham, and other places.

A. S. & Son beg to state that for many years their Lawn Mowers have been in successful operation in the Royal Gardens at Windsor; and further, *only a few week ago they had the honour to receive Orders for their newly Improved Machine for the same Gardens.* The following letters from Mr. Eyles, Superintendent of the Royal Horticultural Society's Gardens, and from Mr. Gordon, Superintendent of the Crystal Palace Company's Gardens, are amply sufficient to satisfy any one that Messrs. Green & Son's statements on this point are also incorrect.

"Royal Horticultural Society, South Kensington, March 3, 1864.

"My Dear Sirs,—In answer to your inquiry, I beg to say that your Machines have been almost in constant use here during the Mowing season ever since the formation of the Gardens.

"I am, yours very truly, (Signed) George Eyles."

"Crystal Palace, Sydenham, S.E., March 29, 1864.

"Gentlemen,—In reply to your inquiry respecting the Mowing Machines supplied by you, I am pleased to say both the Horse and Hand Machines were in constant use during the whole of the last season, and have given great satisfaction to me and many others who saw the Machines at work. The self-acting Apparatus for delivering the Grass being a great acquisition.

"I am, Gentlemen, yours, (Signed) J. A. Gordon."

A. SHANKS and SON feel it altogether unnecessary to make any remarks on these proceedings. The letters they have been authorised to publish are amply sufficient to convince any one that Messrs. Green have used incorrect statements in their Circulars and Advertisements. These statements are calculated to mislead parties in selecting LAWN MOWERS, and consequently to some extent must be prejudicial to the interests of A. S. & Son as Manufacturers.

Dens Iron Works, Arbroath, April 2, 1864.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

GREEN'S PATENT SILENS MESSOR,

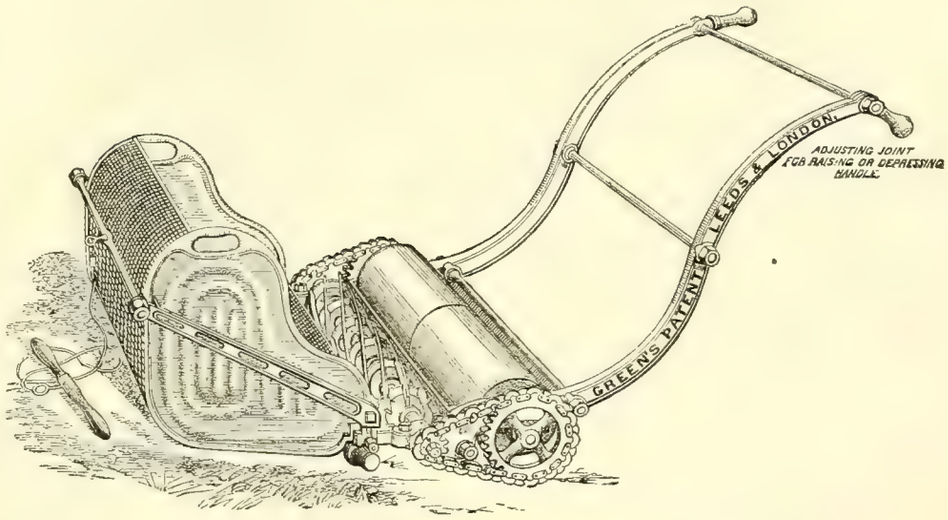
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.
HAMBURG
INTERNATIONAL
EXHIBITION, 1863.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut	10	inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	...	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

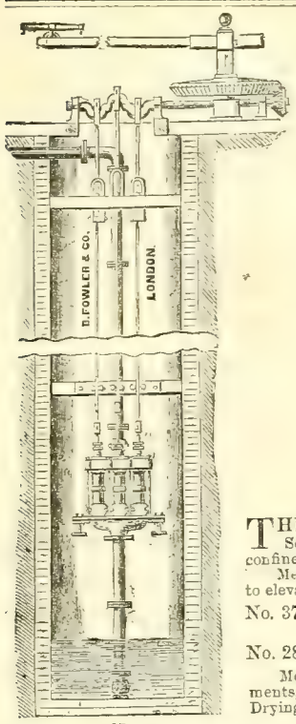
To Cut	42	inches	...	...	...	£27	0	0	...	...	...	Leather Boots for Horse, 26*s*.							
„	48	„	...	...	...	30	0	0	...	...	...	„ „							

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.



37.

CLINTON & OWENS,

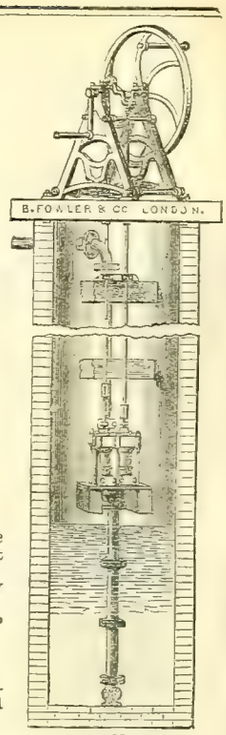
(LATE BENJAMIN FOWLER & CO.),

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





28.

THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for raising water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

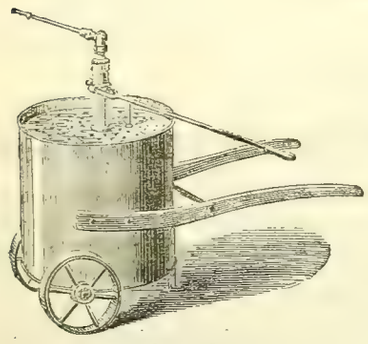
No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c., free on application.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.


No. 554½

WARNERS'

GALVANISED IRON GARDEN ENGINE,

WITH REGISTERED SPREADER.

10 gallons	...	... £2 15*s.*
16 „	...	... 3 15*s.*
24 „	...	... 5 0*s.*


No. 35.

WARNERS'

PATENT IRON PUMPS.

2½ inch	...	... £1 10*s.*
3 „	...	... 2 4*s.*
3½ „	...	... 2 9*s.*
4 „	...	... 2 18*s.*
2½ inch, with short barrel	...	1 1*s.*

No. 5691.

WARNERS'

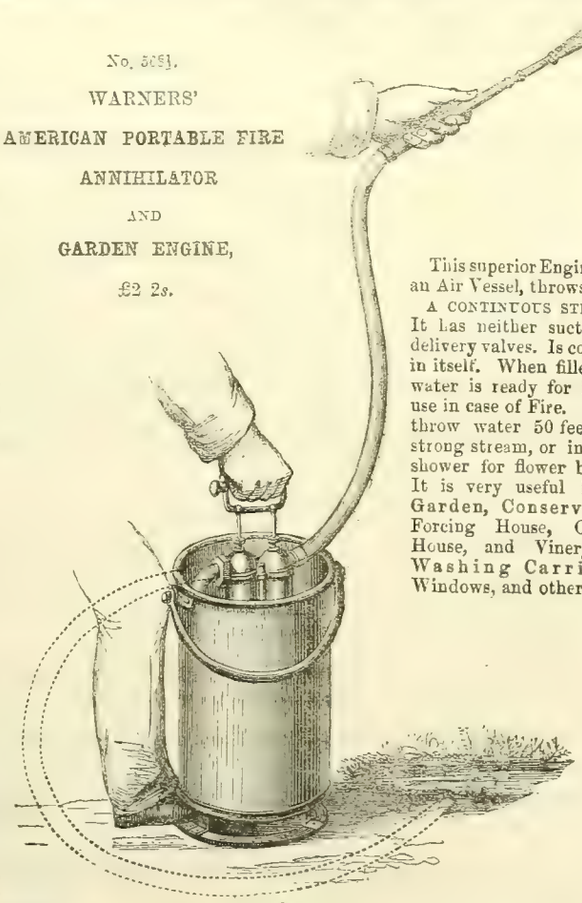
AMERICAN PORTABLE FIRE

ANNIHILATOR

AND

GARDEN ENGINE,

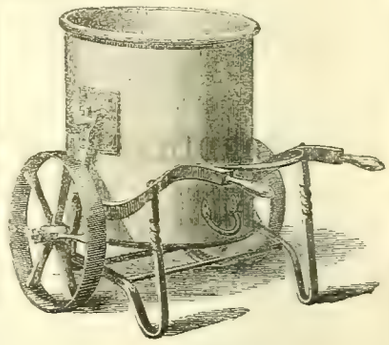
£2 2*s.*



This superior Engine with an Air Vessel, throws

A CONTINUOUS STREAM.

It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.


No. 579½.

WARNERS'

SWING WATER BARROW.

20 gallons	...	... £2 0*s.*
35 „	...	... 2 10*s.*

Saves a gardener's time when used with the water pot.

WARNERS'

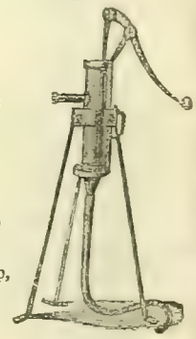
PORTABLE LIQUID MANURE PUMP,

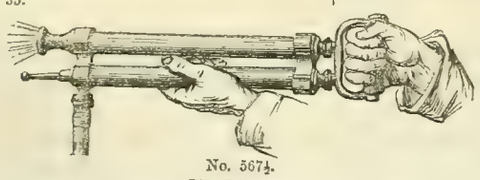
WITH LEGS,

£2 15*s.*

Do. for fixing to cart, £2 5*s.*

Suction Pipe for Pump, 2*s.* 5*d.* per foot.


No. 42.


No. 567½.

WARNERS'

IMPROVED PATENT DOUBLE ACTION SYRINGE,

with 5 feet of flexible Suction Pipe, 21*s.*

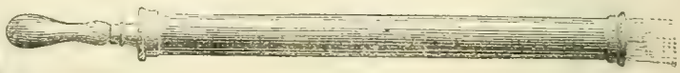
Is much improved since last season.

It economises a gardener's time.

To draw from a water-pot, pail, or other vessel.


No. 590.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*


No. 557A.

WARNERS' REGISTERED DISC-VALVE SYRINGE. 9*s.*

FILLS QUICKLY AND EASILY.

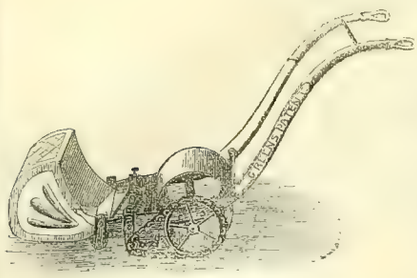
It is well adapted for the gardener or amateur.

Fountain designs in great variety. Can be supplied from a cistern or main.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 50*s*., 70*s*., 90*s*., 140*s*.
GARDEN ENGINES, Galvanised Iron. Prices 55*s*., 65*s*., 78*s*., 90*s*., 100*s*., 110*s*.
GARDEN ENGINES, Wood, 90*s*., 110*s*., 138*s*.
GARDEN ROLLERS, 1*l*. 14*s*. 6*d*., 2*l*., 2*l*. 12*s*., 3*l*. 3*s*. 3*l*. 18*s*., 4*l*. 13*s*., 5*l*. 12*s*., 7*l*. 10*s*.
GALVANIZED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s*.
GREENHOUSE SYRINGES, 8*s*., 10*s*., 18*s*. 6*d*.
BOYD'S SELF-ADJUSTING SCYTHE, 10*s*. 6*d*.
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

LAWN MOWERS.

GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT

Every Implement for Garden use on the lowest terms.

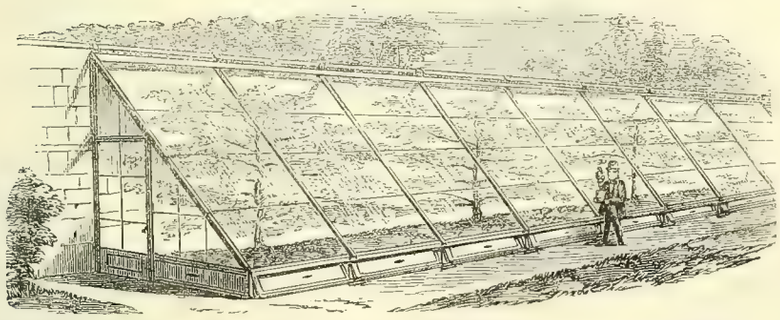
DEANE'S NEW ILLUSTRATED HORTICULTURAL CATALOGUE POST FREE ON APPLICATION.

ESTABLISHED A.D. 1700.

DEANE AND CO. 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

ST. PANCRAS IRON WORK COMPANY,
OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

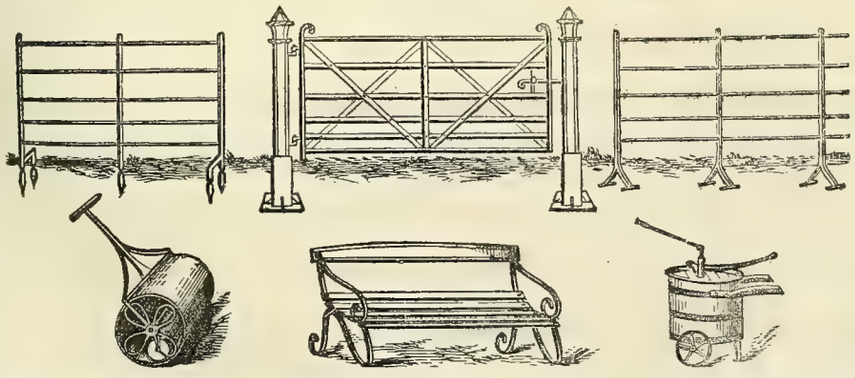
PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.
PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,
IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM AND CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

Lawn Mowers—Green's New Pattern.

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To Nurserymen, Market Gardeners, &c.

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The DOWLAND NURSERY GROUNDS, long and successfully conducted by the late Mr. CAMERON, are beautifully situated in the outskirts of the town of Uckfield, and are much resorted to by residents and visitors. The town is rapidly increasing under the influence of the existing Railway accommodation; a new line to Tonbridge Wells is in the course of construction, and the Ouse Valley Line projected by the Brighton Railway Company from their Main Line to Uckfield and Hastings will no doubt be shortly made.
The proposed Sale will include the Stock and Plant and Goodwill of the Business, together with the neat and well placed Residence, and some Freehold Garden Ground, and arrangements can be made with a purchaser in reference to other Lands now held therewith.
The Grounds may be viewed at any time by application on the Premises, and further information obtained by letter or personally from Mr. A. CHEALE, Uckfield; or from MESSRS. HUNT, CURREY, & HOPER, of Lewes, Solicitors for the Executrix.

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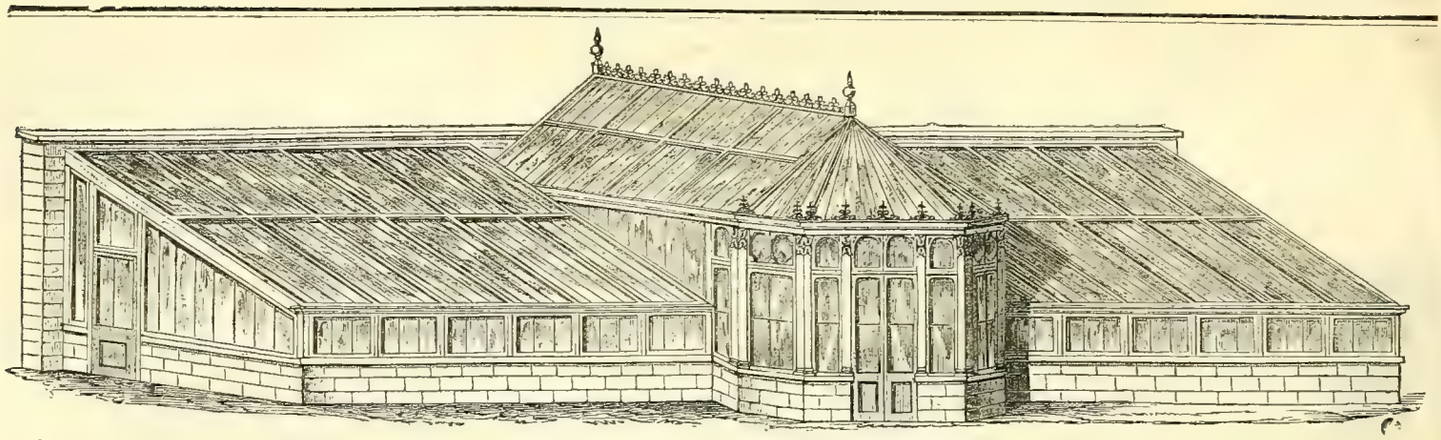
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 13, at half-past 12 o'Clock precisely, choice CARNATIONS, PINKS, and PICOTEES; ARBOR VITÆ, Aucubas, Cedars, Laurels, Privet, Berberis, Cotoneasters, Rhododendrons, Roses, Gladioli, Dahlias, Pentstemons, Fuchsias, Yews, Delphiniums, Phloxes, Araucarias, Clematis, Currants, Geraniums, Dianthus, Azaleas, Strawberries, &c. Also a quantity of Rustic Garden Seats, Tables, Chairs, Geranium and Lawn Baskets, Stools, Vases, &c. And a first-class BLACK RETRIEVER DOG, well-trained.
On view the Morning of Sale, and Catalogues had.

Orchids, Imported and Established.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY and FRIDAY, April 14 and 15, at half-past 12 o'Clock precisely each day, a consignment of INDIAN ORCHIDS, just arrived, in good condition, comprising fine masses of Vanda cristata, Saccolabium guttatum, Saccolabium species, &c.; also an importation of Schomburgkia tibicinis, Cypripedium species, Dendrobium secundum, Dendrobium species, Lælia purpurata, Odontoglossum grande, Odontoglossum hastilabium, &c.; also a few Established Plants, including Odontoglossum nævium, O. Insleyii, O. pulchellum, Saccolabium Blumei majus, Dayii and guttatum; Cattleya Aclandiæ and Trianæ; Cymbidium eburneum, Cypripedium caudatum, Aerides nobile, Phalænopsis amabilis, &c.; 100 lbs. of clean seed of Abies cephalonica and Abies Nordmanniana. Also will be included in the same Sale, if received from the Docks in time, 50 very fine TREE FERNS, just arrived ex "Essex" from Melbourne, comprising 12 splendid plants, 8 feet or more in height; 12 do., 7 feet, and 26 do., 6 feet.
On view the Morning of Sale, and Catalogues had.

Great Sale of Standard and Dwarf Roses, 300 Liliums, Picotees, Carnations, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, April 15, at 12 o'Clock, a splendid assortment of about 1000 handsome STANDARD, HALF-STANDARD and DWARF ROSES; first-class Carnations, Picotees, and Pinks; selected Fruit Trees; a choice assortment of American Plants, 300 Lilium lancifolium rubrum and album from Belgium; fine Azalea indica, Ericas, Geraniums, and other plants in bloom, with choice Flower Seeds from Germany, Verbenas, Fuchsias, Dahlias in dry roots, &c.
On view the Morning of Sale. Catalogues had at the Mart and of the Auctioneers, American Nurseries, Leytonstone, N.E



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

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Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

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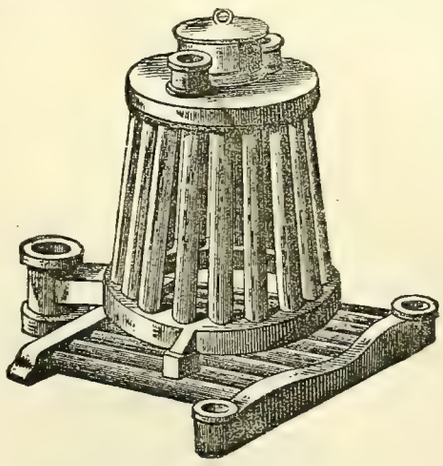
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FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the International Exhibition.

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PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the only Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which no Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE
AND
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A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1864.] SATURDAY, APRIL 16. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY'S AZALEA and ROSE SHOW, at South Kensington, on WEDNESDAY NEXT, April 20. Band at 2 o'Clock, Open to Fellows at 12. Admission by priyileged Tickets purchased by Fellows (admitting at 1 o'Clock), 1s. each, or 2s. 6d. to the Public at 2 o'Clock.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
The next MEETING of this COMMITTEE will take place on WEDNESDAY, April 20, at 10 o'clock, in connection with the SPRING AZALEA SHOW. The Subjects for Examination must be sent in before 8.30 A.M., in accordance with the general regulations. THOS. MOORE, Secretary to the Committee.

ROYAL BOTANIC SOCIETY'S GARDENS,
REGENT'S PARK.
EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, SATURDAYS, May 21, June 11, and July 2; AMERICAN PLANTS, MONDAYS, June 6 and 20. Tickets to be obtained at the Gardens, on the Orders of Fellows of the Society, price on or before SATURDAY, May 7, 4s.; after that day 5s., or on the Exhibition Day, 7s. 6d. each. The last SPRING EXHIBITION will take place on SATURDAY, April 30.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
RICHARD SMITH, Nurseryman, Worcester.

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A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
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WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
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FRANCIS AND ARTHUR DICKSON AND SONS, "Upton" Nurseries, Chester, can still supply fine strong short-jointed well-ripened Canes of BLACK HAMBURGH VINES, and a few of other kinds, such as TOKAYS, MUSCATS, &c., at 5s. to 7s. 6d. each.

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B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

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CARTER'S GARDENER'S VADE-MECUM.

GLADIOLI.
See BARR & SUGDEN'S large Advertisement, page 363.

HARDY and HALF HARDY ANNUALS.
See BARR & SUGDEN'S large Advertisement, page 363.

STRONG CANNA ROOTS.
See BARR & SUGDEN'S large Advertisement, page 363.

WOODLAND WALKS or WILDERNESS DECORATION.
See BARR & SUGDEN'S large Advertisement, page 363.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application.
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Dahlias, &c.
C. E. ALLEN'S ANNUAL CATALOGUE of the above is now ready, and can be had on application.
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" PANSIES, 4s. and 6s. do.
Bedding and Border plants of every description cheap and good.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Select Double Hollyhocks.
WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of the above that will flower well this season.
A DESCRIPTIVE LIST of sorts may be had on application.
FOREMAN at the Nurseries, Sawbridgeworth, Herts.

Picea Nordmanniana Seed.
THOMAS METHVEN has to offer a lot of fine fresh Seed of the above direct from the Crimea. Price per lb. or oz. on application.
Seed Warehouse, Nursery Gate, LeithWalk, Edinburgh.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium begs to announce that he has just published a SUPPLEMENT to his CATALOGUE, containing many interesting New Plants. May be had, gratis, on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

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TIGRIDIA PAVONIA.—Very beautiful for groups in the flower garden, or for pot culture. The remarkably large and brilliant orange-scarlet flowers, picturesquely spotted, render them exceedingly attractive during the summer months. 1s. 6d. per doz.

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CALCEOLARIA GENERAL TOM THUMB, deep yellow
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30s. per dozen; the usual allowance to the Trade where six or more are taken.

To the Trade.

JOHN KEARSLEY AND SONS beg to offer as below, all very fine stuff:—

CARNATIONS and PICOTEES, fine, per 100 pairs, 60s.
LOBELIA FULGENS and FEU DE ROI, per 100, 25s.
ARABIS VARIEGATA, per 100, 25s.
PYRACANTHAS, Red and White, per 100, 20s.
WHITE BROOM, in pots, per 100, 30s.
CHINESE ARBOR-VITÆS, very fine, per 100, 25s.
PRIMULA, Double White, per 100, 60s.
GERANIUM, CLOTH of GOLD, per 100, 25s.

Nursery and Seed Establishment, 44, Vicar Lane, Leeds.

MESSRS. BROWN AND CO. offer the following CHOICE PLANTS:—

	s.	d.
25 AZALEAS, hardy Belgian varieties, with buds, one of a sort, by name	20	0
25 AZALEAS, do. do American varieties	16	0
12 Hardy RHODODENDRONS, including Scarlet, Rose and White, one of a sort	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
STANDARD and HALF STANDARD ROSES, 10s. to	12	0
DWARF and CLIMBING ROSES per doz.	6	0
Greenhouse AZALEAS, best sorts per doz. 10s. to	12	0
CAMELLIAS, with buds per doz.	28	0
CARNATIONS and PICOTEES, choice sorts ,,	6	0
Choice PINKS and CLOVES ,,	3	0
Hardy FERNS, of sorts ,,	4	0

FLOWER SEEDS of all kinds cheap.

American Nursery, near Farnham, Surrey.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1s.

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—s.	d.
CALCEOLARIA, HERBACEOUS, finest mixed	2	6
CARNATION, PERPETUAL, finest mixed	2	6
CINERARIA CRUENTA, finest mixed	2	6
PICOTEE, PERPETUAL, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2	6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Continental Novelties, &c.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, at Ghent, Belgium, begs to advertise his PRICE LISTS, No. 99, 100 and 102, containing the STOVE, GREENHOUSE, HARDY PLANTS, and SEEDS.

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

SCHIZOSTYLIS COCCINEA.—This beautiful plant was briefly described in our CATALOGUE of last year as a "NEW SCARLET TRITONIA." It proves to be the first representative of a new genus, and is now offered to the public for the first time. It forms spikes of flowers, varying in colour from deep rosy crimson to the vivid scarlet of the "Scarlet Duc Van Thol" Tulip. The flower stems, 2 to 3 feet high, are produced in the greatest profusion from the tufts of Tritonia-like leaves. More than 150 charming spikes of bloom adorned our greenhouses for two to three months during the past autumn and winter, and it is now coming abundantly into bloom again on the shoots formed last summer.

As it never ceases to form offshoots, and these appear to flower as soon as they attain maturity, there is every reason to believe that the plant will bloom thus throughout the greater part of the year, and may thus make an effective Bedding or Ribbon plant. Two plants have been planted in the open ground unprotected during the late severe frosts. They appear uninjured, so that it will be an invaluable addition for the out-door department, as well as for Cold Greenhouses, &c.

Plants will be sent out the first week in May at 5s. each.

JAS. BACKHOUSE & SON, York Nurseries.

FLOWER SEEDS.

CHOICE IMPORTED FRENCH and GERMAN ASTERS and STOCKS of extra quality. Collections in separate varieties at 3s., 2s. 6d., 1s. 6d., and 1s. 3d.

HARDY ANNUALS, of our own growth, in great variety. Selections, 1s., 1s. 6d., 2s., 2s. 6d., 3s., 4s., 5s., 10s., 20s., and upwards.

TAGETES SIGNATA PUMILA, a first-class variety for Dwarf Beds or Borders; flowers deep yellow, centre orange; leaves finely cut and remarkably pretty; blooms profusely all the summer. In packets of 1000 seeds for 1s.

The above Packets Post Free.

For other Novelties, see J. SLATER & SONS' SPECIAL LIST, Post Free on application.

J. SLATER AND SONS, SEEDSMEN, &c., MALTON, YORKSHIRE.

NEW PLANTS FOR 1864,

TO BE SENT OUT, MAY 1.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering for the first time the following NEW and VALUABLE PLANTS, and in doing so assures his Customers and the Public that each variety will be found good and distinct, and well deserving of special notice.

NEW ACHIMENES.

The following choice varieties have been selected from a large batch of seedlings raised by Mr. Parsons, of Welwyn. They are distinct in colour, fine shape, medium in size, good habit, and free bloomers; making a good selection between Mauve Queen and Carminata elegans, produced by the same raiser last year, and which gave general satisfaction, and can be recommended as the best selection ever offered.

PURPUREA ELEGANS.—Deep mulberry, or claret colour; throat light orange with dark spots, quite distinct.

LEOPARD.—Bright magenta rose, with a well spotted throat, good size and form.

MAGNET.—Orange spotted with crimson, deep carmine circle and spotted eye.

SCARLET PERFECTION.—Rich carmine scarlet, orange eye, surrounded with a light ray, red centre.

VIVICANS.—Carmine with crimson eye, shaded round with a blue ray, very distinct.

ECLIPSE.—Bright orange-red eye, beautifully spotted with carmine, good habit and free bloomer.

Price 7s. 6d. each, or 6 for 42s.

COLOURED ILLUSTRATION of the above by ANDREWS for 1s. 6d.

NEW FUCHSIAS.

The undermentioned Fuchsias are recommended for general excellence, having qualities superior to any yet offered, each possessing good habit and a free blooming character. The double varieties are the production of a well-known raiser in the north of England, and who has already added largely to this beautiful class of flowers.

NEPTUNE.—A large handsome double kind, with a bluish violet shaded corolla, bright crimson tube and sepals, a fine proportioned flower with good branching habit.

QUEEN of BEAUTIES.—Tube and sepals pure white, very broad and of great substance, well recurved, showing a bright rose shaded crimson corolla. The best light Fuchsia yet sent out.

GEM of the NORTH.—This is a remarkably fine flower, tube and sepals shaded crimson, of great width and substance, well reflexed corolla, deep purple shaded with violet, good form and habit. A fine exhibition variety.

MINOTAUR.—Rich glossy carmine sepals, and monstrous double corolla, so formed as to show three corollas in one, lavender blue colour. This is a really distinct and interesting variety.

Price 7s. 6d. each.

COLOURED ILLUSTRATION of the above by ANDREWS for 1s. 6d.

NEW PETUNIAS.

The three varieties now offered can be relied upon as being far superior to any hitherto sent out, and will be found valuable additions to the most choice collection. The following comments on New Plants will best recommend them:—

Extract from the *Gardeners' Chronicle*, December 26, 1863, page 1228.

"In speaking of Petunias, the writer remarks:—The two groups to which attention has been invited have been well represented by seedlings of the striped race, exhibited during the past summer. Mr. Holland's Royalty represents the classic model which we recommend should be adopted as the perfection of form in a Florist Petunia, the true Convolvulus pattern with an even margin, very slightly curving outwards."

ROYALTY.—This remarkable flower has fine distinct magenta stripes on a white ground, equally divided, and a true Convolvulus shape, free bloomer, and good habit.

PURPLE PRINCE.—Clear and distinct rosy purple, with a pale lavender eye; form and substance good, with a soft and free habit.

DUCHESS of NORTHUMBERLAND.—This variety has fine rosy purple stripes, club shaped, on a white ground, even and regular, and very distinct.

Price 5s. each.

COLOURED ILLUSTRATION of the above by ANDREWS for 1s.

NEW ZONALE GERANIUMS.

The three following Geraniums have been selected from a large quantity of seedlings, and can be recommended as being good improvements on all others previously offered, either for pot culture or bedding purposes.

DISPLAY.—Carmine centre, with a white outline about half the size of the flower, large truss, dwarf habit, and very free. Zonale foliage; an excellent variety.

BEAUTY.—Rosy carmine, of the finest form and truss, habit free and good, suitable for all purposes.

ROYALTY.—Bright vivid scarlet with small white eye, unsurpassed for brilliancy of colour. Good Tom Thumb habit.

Price 5s. each.

NEW FERN.

GYMNOGRAMMA PERUVIANA LACINIATA.—A neat growing variety, of the form of argyrophylla, with pinnules from 6 to 9 inches long, unequally jagged and toothed, and the apices of the pinnæ somewhat dilated. Very distinct and beautiful.

Price 21s. each.

A DESCRIPTIVE CATALOGUE of NEW PLANTS will be published in a few days and forwarded to all Customers and applicants. It will contain Lists of Novelties offered for the first time, with selected Lists of Rare and Beautiful Plants, including BECK'S CHOICE PELARGONIUMS.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS begs to intimate that he will distribute this new and valuable LATE WHITE GRAPE in September next. It has been exhibited several times during the past two seasons, receiving a First-class Certificate from the Royal Horticultural Society upon its first appearance before the Fruit Committee, and has fully maintained the high character then given to it on being exhibited before the Fruit Committee on several occasions since. Orders may now be booked, which will be executed in rotation.

PRICES.

Strong Planting Canes ... 21s. each. | Strong Fruiting Canes ... 42s. each.

From the GARDENERS' CHRONICLE, *Oct.* 17, 1863.

"Here we had an opportunity of seeing Mr. Williams's new Royal Vineyard Grape, growing side by side with Muscat of Alexandria, which it somewhat resembles in appearance but not in taste, being altogether devoid of Muscat flavour. So highly, however, did it stand in favour with the Fruit Committee, when it was first shown at South Kensington, that they awarded it a First-class Certificate, and we must add that in general appearance it is one of the handsomest Grapes in cultivation; a bunch of it reproduced at South Kensington the other day for further inspection measured no less than 14 inches in length, and was well spoken of by all who tasted it. It may therefore be regarded as one of the most valuable of the new Grapes about to be brought under public notice."

Dr. HOGG'S *Report in the* GARDENERS' YEAR BOOK *for* 1864.

"ROYAL VINEYARD.—Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh—so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For further reports, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 postage Stamps.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of New CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c., for 1864, is now ready, and will be sent post free on receipt of Two Stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10s.; 20 pair of Cuttings of ditto for 5s.; 25 pair of fine POMPONS for 10s.; 25 pair of Cuttings of ditto for 5s.

N.B. To save trouble all orders to be prepaid.

New Chrysanthemum, Empress of India.

E. G. HENDERSON AND SON are now prepared to supply plants of the above. It is a beautiful variety from the "C. Queen of England;" pure white, three quarters globe in shape, with a full centre, in size one of the largest. 5s. each; or four for three, with Trade Discount.

Wellington Nursery, St. John's Wood, London, N.W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

BEDDING and BORDER PLANTS.—CALCEOLARIAS, CARNATIONS, CHRYSANTHEMUMS, CLEMATIS, DAHLIAS, FUCHSIAS, GERANIUMS, PETUNIAS, ROSES, and VERBENAS.

The choicest kinds of each at the lowest prices, at Mr. TOWNSEND'S, St. Mary's Nursery, adjoining the Compasses, Hornsey, a few minutes' walk from the Hornsey Railway Station. Dealers supplied on liberal terms.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

New Seedling Petunias (Single).

THOMAS BARNES will send out on the 20th inst. the under named, which were selected last season from several thousand, and can with confidence be recommended.

DANE CROFT BEAUTY.—A deep-veined variety, of exquisite beauty; the flowers are large, round, and so stout and free from indentation that the perfect outline remains till the fading of the blooms. Colours: deep violet crimson, on a blush ground. Per plant, 5s.

GAIETY.—Deep crimson, margined with pure white; great improvement on Flower of the Day. Per plant, 5s.

RHONA.—Mauve lilac, blotched with pure white, very delicate. Per plant, 5s.

CATALOGUE of DAHLIAS, VERBENAS, &c., on application.

Dane Croft Nursery, Stowmarket.

GEO. SMITH begs respectfully to offer to the Trade and public generally his well-known SEEDLINGS, believing that they will take a high stand amongst the Floral Novelties of the present season, viz.:—

FUCHSIA.

GRAND DUKE.—Tube and sepals bright crimson, well reflexed, corolla violet purple; very double, and of large size, smooth, and a most abundant bloomer; constant, and of fine compact habit. Extra. 10s. 6d.

ZONALE GERANIUMS.

LORD OF THE ISLES.—A beautiful cerise flower; very stout, large, and of exquisite shade; new in colour, and the finest Zonale ever offered. Awarded a First-Class Certificate by the Floral Committee of the Horticultural Society, for its general fine qualities. 5s. each.

ORANGE GLOBE.—Brilliant orange scarlet; truss large, of fine shape and habit; a bold and conspicuous flower. 5s.

PETUNIA.

PRINCESS ALEXANDRA.—Dark puce, with pure white stripes; flowers good size and form; habit most dense; foliage small and bright. This will be found the most beautiful of all the Single Petunias yet offered, and will form a constant and fine acquisition to its class. Received First-class Certificates at Wellington, Bath, and Highgate Horticultural Societies. 5s.

SEEDLING VERBENAS.

BLACK DIAMOND.—This is a most remarkable rich dark maroon, of fine shape and size, and will prove one of the best and most distinct Verbenas in cultivation.

FANTASTIC.—Pure white, with conspicuous rosy-purple centre; fine shape and truss; a first-class light variety.

GRAND DUCHESS.—White, with bright cherry centre; large truss, and fine for exhibition and other purposes.

LORD CLIFDEN.—Dark crimson scarlet; the pips much larger than a shilling; larger and finer than Lord Leigh or Foxhunter.

EMBLEM.—Rosy pink eye, white pip, and truss very large; fine shape; a first-class flower.

CHIEFTAIN.—Crimson scarlet; very vivid, and a remarkably free bloomer; fine for all purposes.

SCINTILLA.—Ruby rose; conspicuous white eye; fine show flower.

PLENIPO.—Rosy scarlet, with crimson-scarlet centre; free, and fine shape.

5s. each, or the set of eight for 30s.

G. S. will be prepared to send out after the 20th April, in good plants, the above mentioned, and begs to solicit early orders for the same.

*** Coloured Illustrations of Geranium Lord of the Isles, or Petunia Princess Alexandra, free by post, in exchange for six Postage Stamps each.

Tollington Nursery, Hornsey Road, Islington, N.

Flower Seeds, Postage Free.

THE LONDON SEED COMPANY, LIMITED, 6S, Welbeck Street, Cavendish Square, London, W.

COLLECTIONS of FLOWER SEEDS, 100 Packets, 20s.
" " " 50 " 12s.
" " " 25 " 6s.
" " " 12 " 3s.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

New Dahlias.

HENRY LEGGE intends sending out early in May the following NEW DAHLIAS, the leading flowers of the year. Received 30 Certificates at all the leading Shows and Meetings last season.

ENCHANTRESS, pale yellow, tipped crimson.
WHITE PERFECTION, pure white.
NONSUCH, shaded orange.
THE BRIDE, white, shaded crimson.
BLACK DOCTOR, darkest maroon.
ROUNDHEAD, dark crimson.
CRIMSON PERFECTION, ruby crimson.
FAME, scarlet crimson.
FORMIDABLE, red, tipped white.
NIGGER, blush, striped and spotted crimson.
FANCY BOY, buff, striped crimson.

A List with full descriptions can be had on application.

Lower Edmonton, N.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Wyatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, April 16.

Cheap Bedding Geraniums.

ALFRED FRYER offers 48 varieties of first-class BEDDING GERANIUMS for 21s., basket and packing included. Amongst other popular kinds the collection will contain the following:—

Mrs. Pollock	Snowflake	Blackheath Beauty
Cloth of Gold	Eva	Madame Vaucher
Golden Fleece	Jane	Magenta
Reine d'Or	Julia	Pink Pearl
Sulphurea marginata	Flower of Spring	Woodwardiana
Scintillatum	Bijou	Hendersoni Nana
	Aurora	Paul Labbé

Remittances requested from unknown correspondents.

Post-office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 feet
Beech, Common, 3, 4, to 6 feet	Laurel, Common, 2 to 3 feet
Berberis aquifolia, 12 to 18 ins.	" Portugal, 1 to 2 feet
" dulcis, 1, 2, to 3 feet	Mountain Ash, 6 to 9 feet
Briar, Sweet, 2 to 3 feet	Oak, English, 2 years seedling
Cherries, espalier	" Turkey, 3 to 4 feet
" standard	Poplars of various kinds, 4 to 6 feet
Cotoneaster microphylla, 9 to 12 inches	Privet, 2 to 3 feet
Holly, Green, 9 to 12 inches	Sycamore, 3, 4, 5, to 6 feet

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

New Seedling Verbenas.

J. JEFFRIES AND SON, SEEDSMEN and FLORISTS, Woodbridge, Suffolk, beg to announce their intention of offering the following, which possess all the requisite properties, viz., size, form, and colour:—

DUKE OF CAMBRIDGE.—A very bright rich orange scarlet; straw-coloured eye, with a large and well-formed truss; pip large and very smooth; very free bloomer and excellent habit. Four First-class Certificates.

LIEUT.-COL. SCHREIBER.—Bright crimson scarlet, with a large and perfectly round white eye—best white eye of any Verbena out; very smooth pip, and medium size truss; good grower. Two First-class Certificates.

LADY RENDLESHAM.—Light, bright, rosy purple, perfectly new, and distinct in colour; large and well-formed truss and pip, dark eye, fine form, and free bloomer; a perfect gem—no stand can be complete without it.

BEAUTÉ PARFAIT.—Bright rosy carmine, with a large black disc; white eye; well-formed truss and pip; free bloomer:—a very striking variety—beautiful!

BLACK-EYED SUSAN.—A first-rate bedding variety or show flower; a very rich crimson carmine, with a large and well-defined black eye; large truss; first-rate bloomer, and habit by far the best of the black-eyed:—the more sun the brighter the colour.

3s. 6d. per Plant, or the Set for 10s. 6d., to the Trade only.

The above have been selected from a bed of Seedlings raised and grown by Mr. J. CULLINGFORD, who has put them into our hands for disposal.

Good plants of the above will be ready in the first week of May, and for which we beg to solicit early orders.

A remittance respectfully requested from unknown Correspondents.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

MR. WM. MASTERS begs to announce to those seeking Plants that he has a very large general collection for sale, and is especially rich in the varieties of RHODODENDRONS and such like plants.

His stock of HARDY and HOUSE FERNS is also unusually varied; and he is prepared to execute largely orders for the best kinds of BEDDING PLANTS.

Exotic Nursery, Canterbury.—April 16.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Choice Flower Seeds, Post-free.

OFFERED BY

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

PRIMULA, very fine, red, white, or mixed, 2s. and 3s. 6d. per pkt.
CALCEOLARIA, very choice, 1s. 6d. and 3s. 6d. per pkt.
CINERARIA, from named flowers, 1s. 6d. and 2s. 6d. per pkt.
CLIANTHUS DAMPIERI, English saved, 1s. 6d. and 2s. 6d. per pkt.
BALSAM, Camellia-flowered, very fine, 1s. per pkt.
CORDYLINE INDIVISA, 2s. 6d. per pkt.
SENECIO ELEGANS FLORE PLENO, 1s. per pkt.
CARNATION and PICOTEE, 1s. per pkt.
ACHIMENES, very choice, 1s. per pkt.
PANSY, from named flowers, 1s. per pkt.
STOCK, SCARLET INTERMEDIATE, the true Covent Garden variety, 6d. per pkt.
ASTER, Chrysanthemum-flowered, 6d. per pkt.
" Truffaut's Pæony-flowered perfection, 6d. per pkt.
" Double-quilled German, 6d. per pkt.
SWEET WILLIAM, 6d. per pkt.
CACTUS, fine varieties, 1s. per pkt.
MIMULUS MACULOSUS, 1s. 6d. per pkt.
HOLLYHOCK, from named flowers.
WILLIAMS' MATCHLESS RED CELERY, 1s. 6d. per pkt.

HOLLIES and AUCUBA JAPONICA.

HOLLIES, 1 foot Transplanted, fine, 8s. per 100.
" 1½ " " " 15s. " 100.
" 2 to 2½ feet, very fine, 35s. per 100.
AUCUBA, 1 foot Transplanted, fine bushy plants, 30s. per 100.
" 1 foot to 1½ feet, by 1 to 1½ feet, twice Transplanted, very fine, 75s. per 100.

The above are all fine plants, and remarkably well rooted. A remittance or reference from unknown Correspondents is respectfully requested.

J. & W. FIELD, Boughton Nursery, Chester.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, finely formed, and altogether of first rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS of WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2s. 6d.

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H. P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

PAUL'S Nurseries, Waltham Cross, N.

STRAWBERRIES.

President (Green)	General Havelock (Tiley)
J. Powell	Keen's Seedling
Black Prince (Cuthill)	Le Constant
British Queen (Myatt)	Marguerite (Lebreton)
Carolina superba (Kitley)	Newton's Seedling
Crimson Queen (Myatt)	Oscar
Comte de Paris	Prince Arthur (Ingram)
Elton Pine (Knight)	Prince of Wales (Ingram)
Eliza (Rivers)	Princess Alice Maud
Eliza (Myatt)	Sir C. Napier (Smith)
Eleanor (Myatt)	Victoria (Trollope)
Eclipse (Reeves)	Wonderful (Jeyes)
Filbert Pine (Myatt)	

Charles Turner can still supply good Plants of the above.
The Royal Nurseries, Slough.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishement.

Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by John Standish, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Seed Potatos—clearing out Offer.

WOOD and INGRAM offer the following kinds of their own growth, true to name, at the cash prices annexed, per bushel of 56 lb.:—Ashleaved Kidneys, 3*s.*; Robinson's Golden Kidney, 3*s.* 6*d.*; Lapstones, 2*s.* 6*d.*; Early Handsworth, 3*s.* 6*d.*; Early Oxford, 2*s.* 3*d.*; Martin's Globe, 2*s.* 3*d.*, York Regent, 2*s.*; and Fortyfolds, 2*s.* 3*d.*

Nurseries, Huntingdon.

FLUKES and SHAWS for PLANTING.—From 15 to 20 tons FLUKE SEED; the best stock in England. Also about 8 tons SHAWS, true stock, very prolific, and early cropers.

Price and particulars, apply to Robert Arnold, Spitalfields Market, N.E.; or, to Mr. Wm. Clark, Seedsman, Bishopsgate Within, E C.—April 16.

A Boon to the World.

PRINCE of WALES KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor Lindley (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From Shirley Hibberd, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.; Downie, Laird & Co., Forest Hill, S.E.; James Carter & Co., 237, High Holborn, W.C.; Sutton & Sons, Reading. Price, 12*s.* per bushel.

N.B. They may be planted up to the end of May.

THOMAS AYRES, Biggleswade, Beds. Nurseryman and Seed Grower, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

PAGE, Seed Merchant, Sole Agent for Blundell's CATTLE MELON and CATTLE MARROW. See *Gardeners' Chronicle*, April 9, 1864, p. 345.

50 Seeds Cattle Melon	2*s.*	6*d.*		50 Seeds Cattle Marrow	2*s.*	6*d.*	
100 " " "	3	6		100 " " "	3	6	
150 " " "	5	0		150 " " "	5	9	

PAGE'S IMPERIAL ORANGE GLOBE MANGEL, 6*d.* per pound, the largest and finest sort grown, and has been exhibited at Smithfield weighing 44 lb.

LIST of AGRICULTURAL SEEDS on appplication.

Royal South Hants Seed Establishment, 37 and 38, Oxford Street; and West End, Southampton.



For Present Sowing.

The Heaviest Carrot and most Certain Cropper is

THE GREEN-TOP YELLOW BELGIAN

SUTTON and SONS have some fine fresh imported Seed now selling at 1*s.* 3*d.* per lb., or cheaper by the cwt.

(8 lbs. of seed per acre is abundance.)

Sutton & Sons, Seed Growers,
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Two Hundred and Fifty Guineas in Ten Prizes.



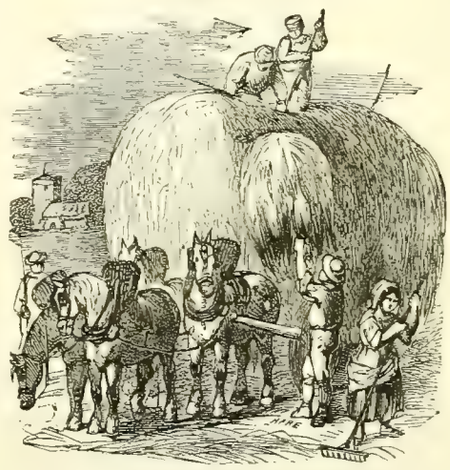
For Five Years Successively His Late Royal Highness the Prince Consort's Prize Cups have been Awarded to

SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 9*d.* per lb., or cheaper by the bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

Grass Seeds for all Soils.



SUTTON and SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:

From Professor Lindley, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Present Prices are—	Per Acre. *s.*	*d.*
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts .. 20*s.* to	26	0
Best quality ditto, for Three or Four Years' Lay	21	0
Ditto ditto, for One or Two Years' Lay 12*s.* 6*d.* to	17	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. 6*s.* to	9	0
Finest LAWN GRASS SEEDS .. per bushel	18	0
PARK LAWN GRASS SEEDS .. "	16	0

The First Prize Medal was awarded to Sutton & Sons for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October 1862.

A Copy of Mr. Martin Sutton's "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S FARMER'S VADE-MECUM.

Mangel Wurzel and Turnip Seed.

KING'S CHAMPION ORANGE GLOBE WURZEL, superior to any other.

Fine YELLOW GLOBE. | Fine RED GLOBE.
Do. ELVETHAM LONG RED.
Do. LONG YELLOW, from roots, many of them 3 feet long; a heavy cropper.

SKIRVING'S and PURPLE-TOP SWEDE TURNIP SEED.

All the above are saved from none but the best Stocks.

PRICED LISTS with testimonials sent post free.

John K. King, Seed Grower, Coggeshall, Essex.
Established 1793.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.

James Fairhead & Son, Seed Growers and Merchants, 7, Borough Market, London, S.

N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

Farm Seeds.

RICHARD SMITH is now prepared to supply the following SEEDS, all of which have been selected with the greatest care, and are of very superior quality:—

CLOVER, BROAD ENGLISH RED, 58*s.*—62*s.* per cwt.
" PERENNIAL or COW GRASS, 68*s.*—75*s.* per cwt.
" WHITE or DUTCH, 62*s.*—70*s.* per cwt.
" YELLOW or TREFOIL, 30*s.*—34*s.* per cwt.
" ALSIKE or HYBRID, 76*s.*—84*s.* per cwt.
RYE-GRASS, Finest PERENNIAL, 6*s.*—6*s.* 6*d.* per bushel.
" ITALIAN EXTRA, 5*s.* 6*d.*—6*s.* per bushel.
SWEDE, SMITH'S WORCESTERSHIRE, 9*d.* per lb.
" KING OF THE SWEDE, 8*d.* per lb.
MANGEL WURZEL, ORANGE GLOBE, 6*d.* per lb.
" " RED and YELLOW, 6*d.* per lb.
" " LONG RED and YELLOW, 6*d.* per lb.

Richard Smith, Seed Merchant, Worcester.

To the Seed Trade.

H. and F. SHARPE can now make special offers of the following SEEDS, grown by them last season, from the finest selected bulbs. They are of fine quality, and free from adulteration:—

Long Red Mangel Wurzel	Purple Top Swede Turnip
Long Yellow " "	Sharpe's Improved Swede Do.
Red Globe " "	Liverpool Swede Do.
Yellow Globe " "	Improved Green Top Yellow Do.
Orange Globe " "	Fosterton Hybrid Do.
Long Red Surrey Carrot	Green Top Swede Do.
" " Altringham Carrot	Pomeranian White Globe Do.
James's Scarlet Intermediate Carrot	Green Globe Do.
Early Cabbage of sorts	Red Globe Do.

Prices on application.
Seed Growing Establishment, Wisbech.

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RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.

MIXTURE for Laying down to PERMANENT PASTURE .. .. 25*s.* to 30*s.*
MIXTURE for ORCHARDS or LAND shaded by Trees .. .. 24*s.* to 26*s.*
MIXTURE for PARKS and CEMETERIES .. 28*s.* to 50*s.*
MIXTURE for Improving OLD PASTURE .. 6*s.* to 8*s.*
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MIXTURE for Fine LAWNS and BOWLING GREENS .. .. per lb. 1*s.*

PRICED LISTS may be had on application.
Richard Smith, Seed Merchant, Worcester.

J. C. WHEELER and SON, Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society, offer the following SEEDS of finest quality, at the prices annexed. Carriage Free by Rail, and will allow 5 per cent. discount for cash.

Permanent Pasture.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium loamy soil, at 30*s.* per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium clay soil, at 30*s.* per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for heavy clay soil, at 28*s.* per acre.
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GRASSES and CLOVERS, rather rough and coarse: for game covert, at 18*s.* per acre.
JERUSALEM ARTICHOKES, for planting in game coverts, at 6*s.* per bushel.

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FARM SEEDS.—CARRIAGE FREE.

GRASSES and CLOVERS, mixed for Permanent Pasture, and adapted to any description of soil.

ALSIKE, RED WELSH, and other CLOVERS. Pure samples.

PACEY'S PERENNIAL, IMPORTED ITALIAN and other RYE-GRASSES. Extra cleaned.

TURNIPS, DICKSON'S PRIZE SWEDE, and others saved from picked transplanted bulbs.

MANGEL WURZEL, Select YELLOW GLOBE, OVAL, &c.

☞ *All of the very best description, and Carriage Free.*

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JAMES DICKSON and SONS, 102, EASTGATE STREET, CHESTER.

THE ALSIKE CLOVER for CLOVER-SICK LAND.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lbs. per Acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year.

Sutton & Sons have now the satisfaction of offering very fine new Seed at the greatly reduced price of 10*d.* per lb., or cheaper by the cwt., and strongly recommend this Clover to more general cultivation.

Royal Berkshire Seed Establishment, Reading.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities

Price for Picked Roots, per 100 .. .. 10*s.* 0*d.*
Do. second size ,, ... 7 6
Also strong for Planting, per 100 .. 5*s.* and 7 6

Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

SELECTED SEEDS,

Carriage Free.

W. PAUL'S SUPERB CRIMSON BEET, 1*s.* per ounce
W. PAUL'S WALTHAM BRUSSELS SPROUTS, 1*s.* per pkt.
W. PAUL'S EMPEROR CUCUMBER, 2*s.* 6*d.* per packet.
W. PAUL'S IMPROVED TELEGRAPH CUCUMBER, 1*s* p. pkt
W. PAUL'S WALTHAM GREEN CURLED ENDIVE, 1*s.* p. pkt
W. PAUL'S SELECTED EXTRA CURLED PARSLEY, 6*d* p. pkt
BROCKET HALL BROWN COS LETTUCE, 1*s.* per packet.
IMPROVED JACKSON'S LATE CURLED KALE, 1*s.* per oz.
SNOW'S WINTER WHITE BROCCOLI (True), 1*s.* per packet.
SUPERB DWARF HERTFORDSHIRE CAULIFLOWER, 1*s* per packet.
GODFREY'S WHITE SPINE CUCUMBER (True), 1*s.* per pkt.
ASTERS, STOCKS, BALSAMS, ZINNIAS, LARKSPURS, &c., in collections from the very first sources.
HOLLYHOCK.—Wm. Paul's Collection in 12 distinct named sorts, 5*s.*
,, finest mixed, 1*s.* to 2*s.* 6*d.* per packet.
CALCEOLARIA, CINERARIA, PRIMULA, PETUNIA, SWEET WILLIAM, finest strains, 1*s.* to 2*s.* 6*d.* per packet.
LAPAGERIA ROSEA, 1*s.* to 2*s* 6*d.* per packet.
All other Seeds, separate or in collections, of best quality.
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Address William Paul, Paul's Nurseries, Waltham Cross, N.

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All the most approved Varieties of Wheat, Barley and Oats, supplied by

RAYNBIRD, CALDECOTT, and BAWTREE, Address, Basingstoke; or 89, Seed Market, Mark Lane.

WINTER and SPRING TARES, SAINFOIN, and all other kinds of AGRICULTURAL SEEDS.

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All Seeds Carriage Free.

Agricultural Seeds, Carriage Free.

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MIXTURES of GRASSES to suit any soil, 20*s.* to 30*s.* per acre (with Clovers).
RED, WHITE, and COW CLOVERS, 6*d.* to 10*d.* per lb.
ALSIKE CLOVER, fine sample, 80*s.* per cwt.
SWEDISH TURNIPS, 8*d.* to 1*s.* per lb.
COMMON DO. 8*d.* to 9*d.* per lb.
MANGEL WURZEL, in varieties, 6*d.* per lb.
WHITE BELGIAN CARROT, 1*s.* per lb.
YELLOW BELGIAN CARROT, 1*s.* per lb.
Large DRUMHEAD CABBAGE, 2*s.* per lb.
CATTLE PARSNIP, 1*s.* per lb.

All other Agricultural Seeds, at moderate prices.

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REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.

From E. Ensor, Esq., *Woodville, near Burton-on-Trent.*

"The Sand is very good; when we want more we will write you."

W. Short, Sand and Peat Depot, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped J. Barsham's Patent



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

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ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*

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BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the Smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10*s.* and upwards.

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HOWARD'S NEW CHAIN or FLEXIBLE HARROW.—This Patent Harrow is much more effective and durable than the ordinary Chain Harrows. It is composed of a series of steel links connecting tripod-shaped tines, which have case hardened points on each side, and its construction is so simple that a new link can be put into the Harrow in the field.

J. & F. Howard, having had the above Harrows at work on their own farms for the past year, can with great confidence recommend them. £ *s. d.*

Price, for one horse, to cover 6½ feet, marked F 1 .. 2 15 0
Price, for two horses, to cover 8 feet, marked F 2 .. 4 0 0

Full particulars may be had of their Agents throughout the kingdom, or will be sent free on application to

James & Frederick Howard, Britannia Iron Works, Bedford.

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Triangle, Hackney, N.E.—Good substantially-made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* A handsome CONSERVATORY, 46 feet by 19 feet, for Sale, price 130*l.* A large assortment kept. Estimates given for any branch in Wood or Iron.

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

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LAWN MOWERS made in a superior manner, and at reduced prices.

S. Smith, Engineer, 204, High Holdorn.

Lawn Mowers—Green's New Pattern.

DRAY, TAYLOR and CO, London Agents.—Immense Stock—Every Make on View. Garden Arches, Engines, Wheelbarrows, Rollers, Tables, Seats, Pea Trainers; the best Stock of Horticultural Tools and Agricultural Implements in London.

Send for lists, 4, Adelaide Place, London Bridge.

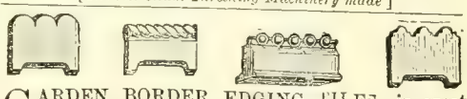
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Special Drawings when required.

[*The best Steam Threshing Machinery made.*]



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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c, as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

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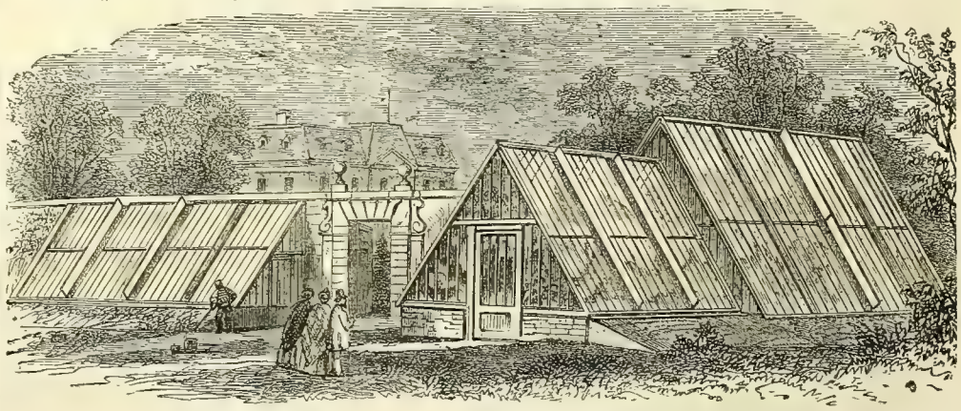
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Ft.	In.		8 ft. Lights	10 ft. Lights	Ft.	In.		12 ft. Lights	14 ft. Lights	16 ft. Lights
20	7	in length	£12 0 0	£16 0 0	20	11	in length	£21 18 0	£28 10 0	£34 5 0
31	3	in length	16 10 0	21 2 6	31	9	in length	29 6 0	37 12 0	45 16 0
41	11	in length	20 18 0	26 18 6	42	7	in length	36 16 0	46 14 0	57 7 0
63	3	in length	30 6 0	38 10 0	64	3	in length	51 14 0	64 18 0	80 10 0
84	7	in length	39 6 0	49 11 6	85	11	in length	66 12 0	83 2 0	103 11 0
105	11	in length	48 17 6	60 12 6	107	7	in length	81 10 0	101 10 0	126 13 0

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SUTTON'S BEST QUALITY of COMMON RED CLOVER, 7*d.* per lb., or cheaper by the cwt. Second quality cheaper.
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BEST ALSIKE CLOVER, 10*d.* per lb. Second quality cheaper.
BEST COW GRASS, 9*d.* per lb. Second quality cheaper.
BEST YELLOW TREFOIL, 4½*d.* per lb.
BEST MIXED CLOVERS and RYE-GRASS, 12*s.* 6*d.* per acre.

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SUTTON'S RENOVATING MIXTURES.—Quantity of Seed required, 8 to 12 lb. per acre. Price 9*d.* per lb., or 80*s.* per cwt.

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"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."

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"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."

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A liberal supply of Seeds, consisting of from 12 to 14 varieties of Clover and Grasses, assorted to suit the various soils, the quantities and kinds of which are given in detail, may be had at a cost not exceeding 23*s.* to 25*s.* per acre from

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Whose experience in Laying Down Land to Permanent Pasture has extended over many years, during which they have supplied their Assortments to numbers of the leading Proprietors and Farmers throughout the kingdom. The quality of their Seeds is well known, and they respectfully assure intending purchasers that this year they are unusually good, and so moderate in price that the above cost will secure the best article that can be grown.

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B. S. WILLIAMS

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NEW LARGE SHOW CONSERVATORY

Is now completed, and is furnished with a fine and rare collection of handsome GREENHOUSE, FLOWERING, and ORNAMENTAL FOLIAGED PLANTS. Especially noticeable is the magnificent INDIAN RHODODENDRON NUTTALLII now in full flower (editorial notice of which was given in page 343 of the *Gardeners' Chronicle*, April 9, 1864). The plant stands 10 feet high, and is 7 feet in diameter, showing at the present time 18 noble trusses of bloom, producing 90 of its most fragrant bell-shaped flowers of great substance and size, each flower measuring over 6 inches across and 5 inches in depth. Colour blush white, shaded with lemon. This alone is well worthy of a visit.

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We recommend a proportionate Mixture of the undermentioned according to soil, averaging about 2 bushels light seed and 12 lb. heavy seed (Clovers) to the acre.

Price, per acre, 24s. to 30s.

COCKSFOOT HARD FESCUE FESTUCA ELATIOR	FESTUCA PRATENSIS ,, RUBRA ,, OVINA	MEADOW FOXTAIL TALL OAT GRASS POA NEMORALIS	POA PRATENSIS ,, TRIVIALIS SWEET VERNAL	ITALIAN RYE-GRASS PERENNIAL RYE-GRASS TREFOIL	WHITE CLOVER COW GRASS

CARTER'S IMPROVED ORANGE GLOBE MANGEL WURZEL.

Saved from large transplanted roots of good shape and a fine dark orange colour. Can be recommended as the best Mangel in cultivation.

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The hardiest and best-keeping Swede in cultivation.

*** This Swede was raised by an eminent Kentish agriculturist, and carefully selected by him until he has succeeded in producing the Perfection of Swedes.

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Special quotations of prices at a reduced rate will be given where large quantities are required, on application.

Report of Seeds supplied by us to the Crystal Palace Company, from Mr. J. A. Gordon, *Garden Superintendent.*

"January 6, 1864.

"Gentlemen,—The Grass Seeds and Clovers supplied by you to the Crystal Palace Company in the spring of 1863 have proved of excellent growth, are perfectly free from weeds and coarse Grasses, and have already formed a fine swar l. The Grass Seed you supplied the Company with in 1862 is now as solid as turf. I was very much pleased with the Flower seeds; th French and African Marigolds, Dunnett's Crimson Candytuft, the Indian Pinks, and Larkspurs, were particularly fine.—I am, Gentlemen, your obedient Servant,

"Messrs. James Carter & Co. "J. A. Gordon, Garden Superintendent at the Crystal Palace.'

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GENUINE GRASS SEEDS.

PERFECTLY FREE FROM WEEDS.

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HIS VERY FINE MIXTURES,

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SELECTED MANGEL WURZEL SEED,

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PRICE OF WHICH MAY BE HAD ON APPLICATION.

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SUTTON'S LARGE YELLOW GLOBE; saved from large roots, selected for their solidity and excellence of shape. A very heavy cropper, and thrives in all soils. This is also the hardiest Mangel known. (*The first Prize Medal was awarded to us for this sort at the Great International Exhibition of Roots and Cereals in October*, 1862)	0	6

Presuming that this superior Yellow Globe Mangel will generally be preferred for the main crop, we invariably send this sort, unless the Common Yellow (see above), or one of the kinds described below, is mentioned.

SUTTON'S ORANGE GLOBE; beautiful shape, with smaller greens than other sorts	0	6
RED GLOBE; similar to the above, except in colour	0	6
LONG RED; a good old sort	0	6
LONG YELLOW	0	6

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The advantages of which have been proved for several years past.

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PRICED LISTS of other kinds of MANGEL, SWEDES, TURNIPS, GRASSES, &c., will be sent gratis and post free.

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ASPARAGUS ROOTS, 2 years old, 3*s.* 6*d.* per 100; 3 years old, 5*s.* 6*d.*; 4 years old, 7*s.* 6*d.*
Post paid.

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ADAPTED TO ANY STYLE OF GARDENING.

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Half-hardy Annuals.

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GLADIOLI, Brilliant Colours for Massing, 3*s.* to 4*s.* per dozen, and 21*s.* to 30*s.* per 100.
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LILIUM LANCIFOLIUM RUBRUM, ROSEUM, and ALBUM, 12*s.* to 18*s.* per dozen.
TIGRIDIA PAVONIA, 1*s.* 6*d.* per dozen, 7*s.* 6*d.* per 100.
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WOODLAND WALK or WILDERNESS DECORATION.—Mixed Flower Seeds for the above, 5*s.* 6*d.* per lb.

ROYAL BOTANIC SOCIETY of LONDON,

REGENT'S PARK.

THE SECOND SPRING EXHIBITION.

LIST of AWARDS, April 9, 1864.

6 AZALEAS. (Amateurs.)

1st Prize, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park
2d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common
3d, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate

6 AZALEAS. (Nurserymen.)

1st, Mr. C. Turner, Slough, Bucks
2d, Messrs. H. Lane & Son, Great Berkhampstead, Herts
3d, Mr. W. Bull, King's Road, Chelsea

3 NEW AZALEAS.

1st, Mr. C. Turner
2d, Messrs. H. Lane & Son
2d, Mr. T. Todman, Gr.
3d, Messrs. F. & A. Smith, Nurserymen, Dulwich

6 CINERARIAS. (Amateurs.)

1st, Mr. J. James, Gr. to W. F. Watson, Esq, Isleworth
2d, Mr. R. Marcham, Gr. to E. Oates, Esq., Bydorp House, Hanwell
3d, Mr. W. Lacey, Gr. to C. Mortimer, Esq, Morden Park, Morden, Surrey

6 AMARYLLIS.

1st, Mr. B. S. Williams, Nurseryman, Holloway

6 BEGONIAS.

1st, Mr. J. Cross, Gr.
2d. Mr. W. Young, Gr.

6 MISCELLANEOUS PLANTS.

1st, Mr. B. S. Williams
1st, Messrs. A. Henderson, Nurserymen, Edgeware Road
2d, Mr. W. Bull
3d, Mr. J. Cross, Gr.
3d, Mr. W. Young, Gr.
4th, Mr. W. H. Treen, Nurseryman, Rugby

MISCELLANEOUS.

Silver Gilt Medal to Messrs. Paul & Son, Herts, for Collection of Roses in Pots
Silver Medal to Messrs. W. Cutbush & Son, Highgate, for Collection of 100 Hyacinths
Ditto, Messrs. Paul & Son, Herts, for Boxes of Cut Roses
Ditto, Mr. W. Paul, Waltham Cross, for Boxes of Cut Roses
Ditto, Mr. W. Paul, Waltham Cross, for Collection of 100 Hyacinths
Ditto, Mr. B. S. Williams, for Collection of New and Rare Plants
Ditto, Mr. C. Turner, for Collection of Azaleas
Ditto, Mr. C. Turner, for Collection of Pelargoniums
Small Silver Medal to Messrs. H. Lane & Son, for Collection of Azaleas
Bronze Medal to Mr. W. Howard, Gr. to J. Brand, Esq., for Lily of the Valley
Ditto, Mr. W. Paul, for Collection of Tulips
Ditto, Messrs. W. Cutbush & Son, for Collection of Tulips

NEW PLANTS and SEEDLINGS.

First-class Certificate to Mr. B. S. Williams, for Phormium tenax variegata
Ditto, Mr. B. S. Williams, for Sarracenia Drummondi
Ditto, Messrs. F. & A. Smith, for Azalea Excelsior
Ditto, Messrs. F. & A. Smith, for Cineraria Rembrandt
Ditto, Messrs. J. Ivery & Son, for Azalea Fascination
Ditto, Mr. W. Bull, for Gymnostachyum Verschaffeiti
Second-class Certificate to Mr. W. Bull, for Lilac Dr. Lindley
Ditto, Mr. W. Bull, for Lastrea varia
Ditto, Mr. W. Bull, for Anœctochilus zebrinus
Ditto, Messrs. H. Low & Co., for Erica Halfordiana
Ditto, Mr. W. Lacey, Gr. to C. Mortimer, Esq., for Cineraria Satisfaction
Ditto, A. Potts, Esq., Hoole Hall, Chester, for Cineraria magnifica

The Gardeners' Chronicle.

SATURDAY, APRIL 16, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 20—Royal Horticultural (Floral Committee) at South Kensington .. .. .. 10 A.M.
Royal Horticultural (AZALEA AND ROSE Show), at South Kensington .. 2 P.M.
THURSDAY, — 21—Linnean .. .. 8 P.M.

SINCE more especial attention has been called to the DISEASES OF PLANTS, it is quite astonishing what a number of curious maladies was brought before our notice, which appear to have been hitherto entirely neglected. We have this week received specimens of diseased Black Currant shoots which are very strangely affected. It is not an uncommon thing to find portions of Black Currant trees, especially towards the centre, die off suddenly; and without any proper examination, we have supposed that some portion of the stem had been excavated by the larva of some species of Ægeria, as in other Currants, in consequence of which the supply of nutriment was cut off, and the upper portions died.

Here, however, we have something very different, as is indicated by the condition of the buds. In our common species of Ribes, and possibly in all, the buds, at least in spring, are not sessile, but supported by a short stalk, which from the compression of the petiole of the leaf is sometimes slightly flattened. In the specimens before us there is often an abnormal development of this peduncle, which is flattened as much as the stags-horn shoots which so often occur upon the Ash, and in several instances the peduncle has become a branchlet with buds at its base and on its surface, and frequently in greater number than on healthy plants. The buds when examined are more or less defective, and sometimes there is nothing more when the scales are removed than a broad disc studded with very imperfect and extremely minute flower buds. Occasionally the force of vegetation is sufficient to develope something like a raceme, and if so the fruit is not a fourth part of the usual size.

On close examination it appears that the

flattened bases of the buds consist sometimes of two confluent individuals, but we do not find this to be always the case. Occasionally these bases are fan-shaped, with numerous more or less confluent buds arranged along the upper margin.

The shoots, it should be observed, are remarkably vigorous, and as far as the specimens before us show, there is no indication of decay about them. The case seems rather one of abnormal development, the cause of which in all probability it may be difficult to detect.

A first impression was that it was due to the peculiarity of the last season, and it was supposed that when the drench of wet came after the long drought, the buds in the axils of the leaves pushed, and were unable to form healthy buds before winter. But this is contradicted by the history of the case. The affection has been observed for three years, and is on the increase. It appeared at first on a single bush only, but when this was rooted up, and another put in to supply its place, three neighbouring bushes in the following year were similarly affected. These also were removed and the soil taken out, and now there is scarcely a tree in the garden which is not more or less diseased, the greater part being quite useless. The new plant which replaced the first which was diseased, showed no symptoms of being affected the first year, but this year it is quite as bad as any tree in the garden.

All this seems to indicate that something must have been brought into the garden as manure, which does not agree with the trees. Should this be the case, it is not certain, even were the noxious matter ascertained, that the health of the trees would be recovered by the withholding of the particular ingredient in the manure, or that cuttings from them would not exhibit the same affection. We shall keep our eye upon the case, and with a view to doing so, we have planted those of the specimens which seem to retain the greatest degree of vitality, and if they take root, we shall hope to make our report next year. *M. J. B.*

—— THE HYACINTH bloom of the present season has been a very satisfactory one, if we may judge from the displays of this flower which have taken place at the metropolitan spring shows, with a result which places the two champion growers pretty much on a par. The favourite varieties of the past few seasons have kept up their character, and, as we have formerly observed, show clearly that there is an advance both in quality and variety going on even in this slow-paced flower—for slow-paced we must call it, when novelties take years before they can be bred in sufficient quantity to supply the demand which exists for them.

The season has contributed a fair quota of novelty, and although the institution of special classes for new sorts at the exhibitions, at least in their present restricted form, must be regarded as a failure, so far as regards forming a guide to the public in the selection of choice varieties, yet we are free to confess that good has, as it were, come out of the evil, by the drawing together of a considerable number of the newest sorts, such as might not otherwise have been seen, and certainly not in each other's company, and thus affording an opportunity for some competent tribunal—the Floral Committee for example—to pronounce an opinion upon their individual merits. It is when this opinion has been pronounced, not before, that the public get to learn how far the novelties of the year are acquisitions; and with this addition, we gladly accept the class as it now stands. We observe with satisfaction that at the recent shows the Floral Committee has gone a little out of its ordinary course, to pass judgment in this way upon the novelties brought together, and to mark the most deserving of them by some special award.

There is one thing however not to be overlooked in dealing with this question of new Hyacinths, namely, that if the individual plants submitted to examination—these being in the case of new sorts not very plentiful of course—are not quite up to the mark in respect to the age and stamina of the bulbs, there will be a corresponding falling off in the quality of the flowers which have to be adjudicated on. We think the fair inference from this is, that novelties which have not as yet come up to the required standard of merit, ought not to be entirely condemned until another opportunity at least of winning honours has been afforded to them.

With this consideration before us, we have to remark that the blooming season of 1864 has introduced to English gardens four varieties which may be pronounced to be of first-class character. We include in this number that named Lord Palmerston, although it was seen in 1863, for the subject of new Hyacinths had not then attracted much attention, and the variety was overlooked by many visitors to the shows. It proves, however, to be one of the best in cultivation—a veritable premier, the colour a sort of grayish blue shaded with purple, and having a light centre or eye, the spike at the same time being bold and well-proportioned, and the pips of fair size and of good form. Robert Fortune is another of the first-class sorts, not perhaps so perfect in respect to form and surface as the former, but of a perfectly new colour, and of more than average quality withal, the spike being well furnished, and the colour a kind of reddish pucy mauve, each segment of the flower having a darker stripe down its centre. Then King of the Blues must be regarded as a decided acquisition amongst the full deep clear blues, in which class there has long been room for some additions; it is bolder in character than Baron Von Tuyll, which, though a common sort, is one of the most generally useful blues we have; it is also a shade deeper in colour than that sort, altogether forming a very showy variety, which may be expected to take a prominent position hereafter. Another novelty, Thorwaldsen, has been placed in the first rank on somewhat different grounds; it is one of those with large bells in the style of Pieneman, and like all this race has a rather thin open spike, but then the flowers themselves compensate by their size and quality for their lack of numbers, and the segments are so smooth and broad that on these grounds alone it must be considered worthy of the honours accorded to it; the colour is a light and bright or azurean blue. To our mind some of these varieties with large well-proportioned pendent bells hanging somewhat thinly, not scantily, on the stem, have a more graceful and pleasing character than those in which the spike is crowded with showing bells indistinctly—though doubtless the well-filled spike is a necessity in the florist's view of the matter. To the foregoing must be added a couple of sorts which have been adjudged worthy to stand in the second rank, namely, Henrietta Elizabeth and Josephine. The first is a decided novelty, the colour being a delicate lilac, totally different from any of the colours with which we have been so long familiar in the Hyacinth family; the spike, as we have seen it, is but of moderate size, and the pips wanting both in size and breadth; but notwithstanding these drawbacks, we welcome it for the sake of the variety afforded by its colour. Josephine, too, is mainly desirable for its colour, which is one of the rich crimsons with which we have of late years become familiar; only in this the tube has a brilliant orange glow, which makes it specially attractive. Its defect so far has been thinness in the spike, but this may be from want of age and vigour. These half dozen new flowers form decided acquisitions.

Some few others which we have seen we regard as giving promise that they may improve on further acquaintance when older and stronger bulbs are procurable. Of these we may name Schwarzwald, a purple with pale centre; Die Jung Frau, a large-belled white; Lady Morgan, a glowing red; Dr. Lindley, a light lilac purple; Goertruida, a small flowered lilac; and Fanny, a reddish lilac with a bluish-lilac tube. We shall look out for these or some of them another year.

A little observation of an extensive collection of Hyacinths, such for instance as that of MR. CUTBUSH, which we have been enabled to inspect leisurely within the last week or two will show that there are two divisions in which the varieties may be ranged, namely, those in which the flowers are smooth and even on the surface, and the parts more or less flat; and those in which the segments are pinched in and crumpled, more especially towards their tips. The quality of flatness is not indeed always equally marked, nor are all the smooth-surfaced flowers equally marked for the breadth of their segments, but more or less of flatness and of breadth are to be seen in not a few of the varieties. Now, although these peculiarities may sometimes be the result of external conditions, there can be no doubt that to a great extent they are inherent, and that, as in all other improved or improving flowers, the broader, the flatter, and the smoother the surface of their parts within certain limits, the more effective will they become. Instead, therefore, of inspecting MR. CUTBUSH'S collection with the object of picking out for commendation the newest sorts, or the brightest and most telling colours, which has been done before, we sought amongst the legion of varieties in bloom with the special object of selecting those with the smoothest and broadest limb-segments. Any one doing this would have found that the varieties having these features were much to be preferred to others in which they were wanting. Such features were found more or less strongly marked in the following sorts, which we therefore recommend to the attention of growers, namely:—Von Schiller, deep red, striped; Cavaignac, pink, striped; Le Prophète, pink, with dark stripe; Florence Nightingale, delicate pink, striped; Sultan's Favourite, delicate blush-pink, striped; Princess Charlotte, rose pink, with green tips; Macaulay, deep rose pink, pale centre; Ida, clear palish yellow; Charles Dickens, light porcelain blue, pale centre; Bleu Mourant, violet blue; General Havelock, dark violet purple—these being of the ordinary full-spiked medium-flowered series. We must add to them the following from amongst the large-flowered series in which the same desirable features were apparent, namely:—Pieneman, light azurean blue with paler edges; Leonidas, azurean blue with darker stripe; Thorwaldsen, light azurean blue; Grand Lilas and Couronne de Celle, light grayish blue; Madame Van der Hoop, Fair Maid of Denmark, and Queen of the Netherlands, pure white; and Elfrida and Voltaire, blush-white. As an illustration of the difference in the two series of varieties, we may instance Queen of the Netherlands and Paix de l'Europe, both of which appear at a distant glance to be pure white flowers of the finest quality, but while the former has smooth expanding bells, the latter has the segments incurving and crumpled, and is consequently less effective. Many of the older small pinched-up crumpled flowers might very well be dispensed with at once. And there is another series, represented by Seraphine, consisting of narrow-petaled ineffective flowers, which should follow them to the open borders if not to the refuse heap, for they are not worth growing in pots, least of all for exhibition purposes. We must reform our list of Hyacinths, and the materials for doing so are abundant.

—— WE understand that in consequence of the expiration of the three years' agreement between Mr. STANDISH and Mr. FORTUNE, the remaining portion of the valuable new JAPANESE PLANTS introduced by the latter gentleman, will shortly be disposed of at STEVENS'S Auction Rooms. Amongst them, we are told, will be included some of the most important novelties which have of late years been introduced to our gardens. Clematis Fortuni, the magnificent species with huge double white fragrant blossoms, represented in our last year's volume, is to be one of them. Clematis Standishii, too, which, with its profusion of deep rich violet purple flowers, Mr. FORTUNE describes as even finer than the other, is another of these rarities. Then there are the new Skimmias, fine free growing hardy evergreen bushes, taller in growth and more ample in foliage than the Skimmia of China with which we are now so familiar—one of them with great oblate red berries double the size of those of the common plant, and with broad laurel-like leaves and more conspicuous clear white fragrant flowers; the other even freer in habit though with somewhat narrower leaves, and greenish-white flowers sweet as Mignonette, but (the genus being polygamous) a male and unmated. Both of these are first-class evergreen shrubs independent of berries, which the first however produces freely. There are, too, several forms of Osmanthus ilicifolius, Holly-like bushes which during two winters have proved perfectly hardy, and are freer to grow than most of the Hollies themselves. Two or three green-leaved forms of this plant and as many with the leaves variegated will be welcome additions to our borders of choice shrubs. Then there is the stock of the male Aucuba, a plant which has attracted so much attention of late; and the new Forsythia Fortuni from Peking. But perhaps the most striking of all is Lastrea Standishii, certainly one of the very finest of all hardy Ferns—and we venture to call it hardy, for we learn it has endured without injury some 10 or 12 degrees of frost under glass. This Fern has large spreading fronds, much divided, and until they become aged, of a most charming pea-green colour; remarkable, moreover, for having its little pinnules themselves concave, while they are so singularly deflexed from the rachis that the branches of the fronds are quite convex.

These then are a few of the treasures which the auctioneer's hammer is shortly to disperse. There are many things of great horticultural interest besides those we have mentioned, all which, as well as the time of the sales, will no doubt be duly announced.

New Plants.

276. RHODODENDRON LINDLEYI, *Moore.*

A shrub apparently of dwarfish habit, with stiff erect branches; leaves (3½ by 1½ in.) elliptic oblong, retuso-mucronate, somewhat narrowed and decurrent at the base, rigid almost coriaceous, slightly revolute, dark green opaque, and rugose without hairs above, glaucous and lepidoto-punctate with the nerves prominent beneath; flowers 5—6 in a terminal umbel, pure white, and of remarkably stout wax-like texture, with a strong aromatic and very enduring perfume; calyx divided almost to the base into five nearly equal membranaceous segments ciliated with fine twisted hairs, the two upper ones ovate-oblong, obtuse, and slightly larger, the rest oblong obtuse; corolla funnel-shaped, the broad tube (2½ in. long) 5-angled and deeply 5-pitted at the base, the limb (3 in. broad) of five rounded spreading lobes; stamens 10 about as long as the tube, the filaments hairy at the base, the anthers oblong; ovary 5-celled; style longer than the tube, with a large hemispherical obsoletely quinquangular stigma.

This very beautiful Rhododendron, which is now flowering for the first time with Mr. Standish, of Ascot, was raised by him from Bhotan seeds—a stray plant which has all along been observed to differ from other species now familiar to cultivators. It is evidently most nearly allied to R. Dalhousiæ, but differs in its altogether smaller habit, its smaller retuse foliage, and its smaller flowers, which are nevertheless about 3 inches across, and wondrously beautiful on account of the pure white waxy character of their corollas, which are entirely without stain except at the very base of the tube, out of sight, where there is a slight tinge of dull yellow. The flowers are also deliciously and most powerfully fragrant, the aromatic odour being very durable, and partaking of that of Lemons and Nutmegs. Combined with the neat habit above referred to, the large trusses containing some half dozen of such flowers, are very charming; indeed amongst all the fine additions made during the few last years to this noble genus, we have met with none more truly beautiful or promising to be more generally useful to cultivators, than that which forms the subject of this brief notice. *T. M.*

Epidendrum cnemidophorum (p. 292).—On the subject of this plant we have been favoured with the following com-

munication from Mr. Skinner:—"E. cnemidophorum is found at a very considerable elevation in the province of Quesaltenango. I met with it on the slopes of a deep ravine, growing amid a profusion of Ferns and Moss, and there attaining the height of 6 feet or more, but in cultivation it did not exceed 3½ feet. In this condition, however, it produced its finest flowers; some of the racemes borne by a plant in the garden of Donna Rafaela Jauregui de Machado (a great florist in Guatemala, to whom I gave it) not being less than half a yard in length! It was the gem of gems in my eyes, but the plant that flowered in the Donna Rafaela's garden, and from which the model was made, was not finer than the specimens just imported, and all of which are happily doing well."

ORCHARD MANAGEMENT.—No. IV.

The remarks at p. 245, in which it is recommended to plant the newly trenched ground with Potatos the first summer, are based on the supposition that it is intended eventually to lay the orchard down in Grass; but for the first few years after planting, it will be more desirable and profitable to crop the intervals at a certain distance from the stems of the trees, say for example, five feet to commence with, that distance to be increased a foot or so every year, until it is finally laid down. If the orchard is attached to the garden, the gardener will find these spaces useful for almost any kind of kitchen garden crop, which will come very fine in a fresh soil if the quality is pretty good. On the other hand the tenant farmer may crop the intervening spaces with Carrots, Mangel Wurzel, Onions, Turnips, or Potatos, each and all in rotation; but on no consideration would I sow corn or Pulse, unless the distances between the trees were very wide indeed, so that ample space around each tree might be left uncropped.

I must further observe that my object in recommending this course of cropping is because both in the farm and garden these latter crops require a most liberal supply of manure, and constant and careful cultivation, to obtain a remunerative produce; and if this cannot be afforded it would be better to sow Grass seeds after the second year, because to crop longer than that without returning ample supplies of manure to the soil would deprive it of a large amount of nutritive matter, which would tell very much against the welfare of the trees in after years, and require an infinitely greater amount of top-dressing than would otherwise be necessary. But when good cultivation and liberal manuring are combined, the land can very well afford to throw up a superior produce, and at the same time leave the soil in a fine condition for the ingress of the roots of the orchard trees as soon as they are strong enough to take advantage of it, which under liberal treatment will generally be in the fifth or at the most the sixth year after planting. This indeed is quite as long as such a system of manuring ought to go on, otherwise the soil will become assimilated to the condition of old garden soil, which is not particularly favourable to the healthy growth of fruit trees. At the end of that time, therefore, it will be advisable to level the soil perfectly, afterwards to roll it down firmly, and at the proper season, say the end of March or early in April, to sow the finer kinds of meadow Grasses, which may be slightly raked or harrowed in, the surface being again rolled down firm—very firm; for I have often observed that Grass seeds appear to come up stronger and become established much sooner on firm ground than on that which is left looser; an idea which any intelligent practitioner may apply to more cases than that of Grass seeds.

I have followed out this train of reasoning up to this point because it is all connected with the management of the soil; but I must now return to that point where the soil was prepared for planting the trees, about which I have something more to say. Before, however, we can plant, we must have trees to plant; and this opens up some questions of very great importance in the culture of fruit trees of all sorts on free stocks, and in which a vigorous and healthy development is the object aimed at. These questions are, first, the preparation of the stocks for grafting, and secondly, after grafting, the preparation of the trees for planting. In the first case the roots are the parts subjected to control, direction, and encouragement; and in the next, the stem and branches.

Now as these two operations are a work of time, it will be necessary for all who desire to have for planting such trees as ought only to be planted in orchards where the expense has been incurred of carrying out the above routine of preparation of the soil, to commence the preparation of them some six or seven years before they will be required.

This is a subject which I am strongly inclined to believe receives but very indifferent attention on the part of the great majority of those who are supposed to supply orchard fruit trees eligible for planting. They of course are not to blame for crowding as many trees on their ground as they can possibly get to grow, and find a sale for, such as they are. The fault lies with the planter who does not demand a superior and highly finished article, being willing to give a correspondingly higher price for it, rather than rest satisfied with an inferior tree at a lower price. For example, a purchaser considers himself very well treated if he gets four fine healthy-looking young standard Apple trees for 10*s*., and yet, looking at the treatment which such trees are unavoidably subjected to, it would answer his purpose far better, and be infinitely cheaper in the end, for him to give 10*s*. or even 12*s*. for one tree, carefully prepared for the object in view, and requiring very little after management in the development of the branches. In the former case—that of four trees for the money—they are like young cubs, and have to be cut, and hacked, and tutored into shape, which is a work of time, and would be far better performed on other ground than that where they are to be permanently fixed. Most persons when planting an orchard of Apples make up their minds to wait some years before they can obtain a remunerative crop; but if by a more rational and careful management of the trees, that interval can be considerably shortened, it is obviously very bad economy not to take the extra care necessary. If they are neither able nor willing to undertake the labour of preparing their own trees, I have no doubt but those whose proper business it is, would be only too glad to do so, if only there was a demand, which, as I before observed, depends upon the planter.

In the mode of preparation to which I am now about to draw attention, the foundation of all is emphatically the stock, and on its careful selection and treatment future success depends. In the case of the Apple, to which I am now more particularly alluding, it is necessary that the stock should be of a vigorous habit both in root and branch. The best are those which are grown from the pips of Apples, either taken from the hardiest and strongest growing garden varieties, or the more vigorous of our common English wild Apples. These should be sown in beds, in a similar manner to beds of Thorn Quick, and not too thickly, so that they may be allowed to stand in these beds until they develop their character—that is, till a goodly number of sturdy fellows take the lead, and thus keep the weaker ones in the background. These sturdy plants are the stocks to be selected for future operations. After their removal, some of the weaker ones may grow out to be eligible for another season, but as a general rule the first will always be best for large orchard trees, and the remainder will be most suitable for dwarfs and espaliers, which, having less space to fill up and being necessarily restricted in their growth, will require less manipulation when worked upon slow growing stocks.

In this early stage of preparation of the stocks, the leading shoot should be shortened to about a foot in length, after which the branches should be left to develop themselves freely, in order to encourage both the constant formation of roots, and a rapid increase in the size of the stem. At this stage also it is highly important that the operator should pay particular attention to the roots, because it is quite as important that endeavour should be made to cause them to radiate equally from the stem, as it is to cultivate a nicely balanced head; and it is at this stage of transplanting from the seed bed that this operation must be commenced by cutting off the tap root (straight through, not transversely) at that part where a number of small rootlets spring out from the upper part of the main root just below the surface of the ground. It is necessary to be very particular in this; however tempting the rootlets below may appear, or however unpromising those around the collar, the latter must be retained and encouraged, and the former ruthlessly removed by a clear horizontal cut through the main root.

It will be readily perceived by any practical operator, that the object is to give a lateral direction to the future root stems—if I may so designate those large roots which spring from the collar of the plant, and which are the channels through which the reciprocal action between the roots and branches is to be carried on; and as these should be equally distributed around the stem, and at the same time kept as near the surface as possible, the present is the time in their growth when the foundation should be laid for that object, by following out the above practice. I do not say but that it may be done later, but then the loss of much time, which is bad economy, is entailed.

The stocks thus prepared should be planted in beds, in rows three feet apart, and the plants two feet apart in the row, and placed quincunx fashion. The beds should be prepared by previous trenching and pulverisation, and then trodden down firmly and raked level; the plants should then be taken and placed in position, care being exercised to spread the young rootlets out equally on the flat surface, and then the whole should be covered to the necessary depth with a friable loamy compost, which should have been previously prepared. This mode of planting is infinitely preferable to that of digging out small holes and "sticking the plants in," as it is called. *John Cox.*

THE ROSE BALL.

The Senateur Vaisse sent out his cards
For a grand Rose ball one summer night.
Thousands of glow-worms far and near
Silver'd the Grass with their mellow light,
Where throng'd sweet Roses of every hue,
Hardy and delicate, old and new.
The splendid General Jacquéminot
Was clad in his richest scarlet coat,
Gem of the garden and King of the show;
His state and bearing his rank denote,
And his faint sweet breath seemed ever to sigh,
Is there any here so handsome as I?
There was the Géant, bright and true,
And brave Lord Raglan's matchless leaf,
Eugène Appert with his rich, false bloom,
Marengo vivid, but all too brief;
Prince Léon, stately and passing gay,
And the splendid Glory of Santenay.
With a mincing air came Chabrillant,
And the ample skirts of pale Vidot,
The powder'd and rouged De Malmaison
Exhaling an odour of Rotten Row—
And sweeter and comelier far than these
The pink complexion of fair Louise,
Acidalie—"call her fair, not pale,"
With the handsome face of Paul's Victoire,
Miss Gray, who is hoarding her wealth of gold,
And the weather-beaten but glorious Gloire,
Niphetos, as white as a ghost in her pall,
And Devoniensis, the best of all,
The sweet Furtado, as good as sweet,
Patrizzi, brown'd with the sun's hot stroke.
The fainting Virginal trembled there,
And dark Prince Noir in his velvet cloak,
Bold Anna Diesbach with her robe thrown loose,
And Anna Alexieff prim and spruce.
But one in a corner by chance I spied,
Blushing apart from the beauties gay,
The rain drops coursed down her glowing cheeks,
And no one was near to wipe them away—
Yet loveliness clearer from fault or flaw
Nor poet can sing nor artist draw,
Those nestling charms—that deepening hue—
From the pale clear lips to the rich bright bloom,
Where its innermost glory is hidden close
In the secret haunt of its fresh perfume—
And the delicate stooping graceful form
That shakes in the stillness and bends in the storm!
"Oh! tell me," I cried, "what sorrow is this—
That far from the sisterhood here you pine,
Wasting away, in your lonely grief,
Charms so tender, and shape so fine?
In vain would sympathy hazard a guess
At the secret cause of this strange distress."
"Stranger," she murmured—her voice was low,
Like the soft west wind on the growing Grass;
"My race and its glories have passed away,
For life is cruel and fame must pass.
Few, ah, how few! of a numerous band,
Poor perishing outcasts, the time withstand.
Poor Magna Rosa has left us now,
We shall see her no more on the dewy walk.
Blairi, Brennus, and Paul Ricaut,
Of their new successors they daily talk.
And of me, too, soon they will laugh and say,
We have found us a better than Coupe d'Hébé.
To sleep the sleep where my sisters lie,
Is a better chance than to linger here,
A gazing stock for the curious eye,
And a target for envious taunt and sneer.
For Beauty is slighted where fashion goes,
And I—I am only a Summer Rose!"

Think of it, think of it, maidens fair,
Just shooting up into womanly grace;
And feeling the strength of the charm that lies
In the mute appeal of a lovely face.
The tide that has turn'd ne'er backward flows,
And beauty is only a Summer Rose!

W. P. L.

NOTES ON GARDENS.—No. VII.

Dalkeith.

The visit to Edinburgh of a professional son of Adam—no matter what his specialty—without having a look at Dalkeith, would too much resemble the rustic's day at "the house that Fowke built," minus a gaze down the nave from Minton's fountain. And so on a brilliant afternoon I popped out to Dalkeith on a very ricketty sort of railway, found the guiding mind from home, and began a rapid walk round the place, beginning at Mr. Thomson's house. The gardening visitor does not proceed far from that point ere he halts, as a view more interesting to him than the bay of Dublin, the bay of Naples, or any such famous scene, is stretched before him. It is the horticultural wealth of Dalkeith nearly all pictured on one page, with its rich and deep margin of well-arranged colour—streets of glass with brilliant and nobly diversified surroundings, which, again drawing on the "International" for a simile, I may compare from a horticultural point of view, to the scene which spread out from beneath the great dome. Range after range of symmetrical and bright perfect-looking houses, furnish glass enough to justify the comparison, while the colour was "all there" and no mistake, produced by 50,000 little dyers, and arranged by Mr. Thomson with all the skill of a Crace. Having concluded my wondering gaze, I descended into the great "square" kitchen garden, began the houses, and, there being nearly a mile of them to do, the examination was a quick one.

The first house passed through was one devoted to Apricots, more than 200 feet long and about 8 wide, the trees being trained on wires against the back wall, and a row of Pears in pots plunged in the border in front, with a cast-iron path within 18 inches of the back wall. Ventilation is given at the top by a short sash moved by a lever, and in front a small upright sash is instantaneously moved by the same means. The house seemed to be comparatively new, and very perfect in all respects. In it good crops of Apricots are obtained a month earlier than they are ripe out of doors. The covered Peach wall is of similar construction to the last mentioned, and the trees are also trained on the back wall; but Plum, Peach, and Cherry trees are trained up the front as high as they can be without intercepting the sun's rays from those on the back wall. No fire heat is used in either of these fine houses. I learnt that more than 200 dozen Peaches and Nectarines were gathered from the last-mentioned house during the season.

I passed on through the Vineries used for early work—houses of Black Hamburghs, Muscats, and of mixed kinds, having their borders heated and aërated, into a large stove, where Musa Cavendishii is regularly fruited for table; and from it proceeded onwards through the New Holland and three Peach houses, into a Vinery 110 feet long and 11 wide, chiefly planted with Lady

Downes' Grape, bearing a very heavy crop, but having also Vines of Snow's Muscat Hamburgh, inarched on the Black Hamburgh, and bearing bunches weighing nearly 6 lb. each. On again through an aquatic house with the Victoria, into an orchard house 70 feet long and 22 feet wide, well filled with healthy plants; and from that into a ridge-and-furrow Camellia house, 66 feet long and 24 wide, the plants large and in fine condition. Next, the Heath house, a large half-span structure, with a collection of big Heaths, very creditably done. A new half-span Pine pit was in course of erection, with all the best appliances, and about 200 feet long.

The remainder of the Vineries, Pineries, French Bean and Strawberry houses, Cucumber, Melon pits, &c., I had only time to cast a glance over before going to a distant part of the demesne to see the "Circular Conservatory," an elaborately ornamented and costly structure, containing Palms, medicinal plants, and a mixed collection of stove things, thence returning to make a few notes on the ribbon borders. These were certainly more effective than any I had seen elsewhere, and presented a very desirable deviation from the ordinary mode of "ribboning" by the judicious use of that fine plant, Centaurea ragusina, which I believe Mr. Thomson was the first to bed out extensively, about 200 plants of it having been annually used in the bedding out at Dalkeith for the past five years. There is strictly speaking no flower garden, though the vast borders which run along the sides of the "square" garden, and in front of the great ranges of glass, make a display of the fashionable stamp which it would be difficult to parallel in the greatest bedding-out places. But the beauties of the bedding system as seen at Dalkeith, do not arise from the opposition of the primitive colours; only one large border being given up to the red, blue and yellow, and that border was in my opinion the least beautiful of the lot. Some very conspicuous spots about London are planted year after year with the primitive colours, but I am convinced that were one of Mr. Thomson's displays seen in juxtaposition, a change would soon result. The system of ribboning at Dalkeith may be now well known and used in the North, though on a smaller scale, yet it may be useful to the Southerner if I describe some of the more important borders; first noting that some of the squares in and beyond the central kitchen garden were margined with a broad belt of Mignonette, and beyond it a strip of Red Beet, which did its work well as a fine-leaved plant. There were borders shaded and "shot," looking very pleasing, but perhaps the most effective display of all was in front of a range of glass 420 feet long, running its whole length, and planted in the following manner. Between the glass and first row of plants was a strip several feet wide, unplanted; then two rows of Scarlet Pelargoniums, the first Shrubland Rose, and second Sutton's Dwarf Scarlet; the next and third row was Purple King Verbena; the fourth, Alyssum maritimum, and then came a grand panel running the whole length, and—speaking from memory—about 8 feet wide, planted with Lobelia speciosa and Gazania, mixed up, one plant of the latter to three of the former; and along the centre of the panel, at about 10 feet apart, fine single plants of Centaurea ragusina; then another line of Alyssum as at the back of the panel; in front of this a wide strip of Lady Victoria Scott Verbena, one mass of crimson scarlet; and between it and the Box edging 6 inches of Cerastium tomentosum. Lady Victoria Scott is a fine Verbena, used with great effect in most of the compositions at Dalkeith.

On the other side of the wide walk fronting this grand border was another vast ribbon of equal length, and nearly equal breadth. It began with a line of Cerastium, then a broad belt of Purple King Verbena, nearly as wide as the opposite one of Gazania, Lobelia, and Centaurea, and along the centre a line of little squares of Calceolaria aurantia multiflora, about 3 feet across and 10 apart in the line, opposite the single plants of Centaurea on the other side. Behind this a row of Alma Variegated Pelargonium, followed by one of Commander-in-Chief Pelargonium, then a line of Standard Roses and Gladioli mixed, and backed by a dwarf Box hedge to shut out the vegetable ground.

Another fine border, 460 feet long, had single plants of Centaurea at intervals along the centre, surrounded by a band of Lobelia speciosa, encircled by a chain of white gravel walks, the intermediate space on the side of the houses being filled with Pelargoniums, shaded off from Trentham Rose to Brilliant, and in front Lady Victoria Scott, with a line of Cerastium between it and the walk. Again, another great Centaurea-varied border, beginning with Variegated Mint, backed by a great belt of Miss Hamilton Scarlet Verbena, with plants of Centaurea along the centre; and further on a row of Purple King, then one of Calceolaria aurantia multiflora, backed by a line of Dahlia Zelinda and Calceolaria amplexicaulis, planted alternately.

The mixture of Gazania and Lobelia in the first described border, aided by the bold outline of the Centaureas, which quite relieved the picture from any appearance of monotony, was the most pleasing bedding composition I have yet seen. Had time permitted it, I would have much enjoyed a ramble through the large fruit and kitchen gardens, with a dive into the Mushroom houses and forcing recesses; but so much has been told of Dalkeith in the "Book of the Garden," and "Thomson on the Vine" has so fully informed the gardening world of the Grape culture so largely and successfully pursued there, that probably any notes I might have collected would have been twice told. Indoors and out, every spot of the place which I saw, was in the most perfect keeping possible. *Wm. Robinson.*

Home Correspondence.

Two Days' Shows.—In consequence of the intention of the Royal Horticultural Society to hold a two days' show consecutively, the exhibitors have thought it necessary to petition against that intention. The exhibitors think it necessary for the information of all interested in the shows, that the petition should be published in your Paper, if you would kindly oblige them. *Geo. Baker.*

"To the Council of the Royal Horticultural Society of London.

"We, your petitioners, most humbly beg to inform you that in consequence of the schedule of the Royal Horticultural Society containing two days' Exhibition consecutively, we regret we cannot, out of justice to our respective employers, advise that their plants should be shown, our former experience having convinced us that the exposure on the second day materially injures the plants, especially those of the Orchids and stove plants generally. That the time occupied by the second day doubly detracts from our daily pursuits consequent to our employment; that the expenses attendant upon taking our productions to and from the exhibitions, coupled with our personal expenses, are double those of one day's show. We therefore pray that you will take these our grievances (which are obvious to every practical exhibitor (into your serious consideration, and rescind your second day's show. It having come to our knowledge that you purpose lighting the conservatory with gas, we beg most respectfully to inform you that after one day's exposure in a dry hot atmosphere, the vapour from gas would be decidedly injurious to plants. (Signed) Geo. Baker, Gr. to A. Basset, Esq, Stamford Hill; J. Wheeler, Gr. to J. Phillpot, Esq., Stamford Hill; C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park; J. Cross, Gr. to Sir F. Goldsmid, Regent's Park; B. Peed, Gr. to Mrs. Tredwell, Lower Norwood; T. Page, Gr. to W. Leaf, Esq., Streatham Common; C. Smith, Gr. to A. Anderson, Esq., Norwood Grove; J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam; H. Chilman, Gr. to Mrs. Smith, Ashtead House; W. Kaile, Gr. to Earl Lovelace, East Horsley Towers; R. Baxendine, Guildford, Surrey; J. Wiggins, Gr. to W. Beck, Esq., Isleworth; J. Smith, Gr. to his Grace the Duke of Northumberland; W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate; W. Young, Gr. to R. Barclay, Esq., West Hill House, Highgate; J. Weir, Gr. to Mrs Hodgson, The Elms, Hampstead; W. Milford, Gr. to E. McMorland, Esq., Hampstead; T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham; J. May, Gr. to J. Butt, Esq., Arle Court, Cheltenham; R. Bullen, Gr. to A. Turner, Esq., Bow Bridge House, Leicester; W. May, Gr. to J. Spode, Esq., Hawksyard Park, Rugeley, Staffordshire."

Wild Plant Distributing.—I have read with much interest the remarks of your Correspondents respecting prizes for collecting wild flowers. All of them condemn the practice—and seem agreed in thinking that our flora is in some particulars scanty. If that therefore is the case, cannot we do something towards increasing it? Why should every crevice in our old chalk pits not teem with flowers of the beautiful Centranthus ruber and its white variety, and Echium vulgare, and dry and sandy places have a plentiful supply of White and Purple Foxglove? Other places too might be furnished with the flowers of Medicago lupulina, M. sativa, Stellaria Holostea, Prunella vulgaris alba, and scores of other things not less beautiful. All that is needed to accomplish this, is simply for lovers of wild flowers who reside in different parts of the country to correspond one with another, and circulate lists of such plants as may grow in their particular districts. For example, suppose I was to receive such a list from some one 150 miles away, and learned from it that no Foxgloves grew there. What would be easier than for me to gather a few hundred seeds and send them through the post for a penny? Further, what could prevent him or her, as the case might be, from sowing them in some waste place, and returning seeds of anything that did not grow in my district, care always being taken to sow the seeds where they would do no harm to crops, hedges, or the like? Should you be disposed to favour this scheme I will forward you my name and address, furnish a list of plants to any applicant, and send and receive seeds in the way just indicated. *Vide, Hull.*

Exhibiting Orchids.—As the time for exhibiting these is at hand, I beg to offer a few remarks upon the way in which we often see them shown. I allude to the practice of making up specimens by putting a number of plants of any particular variety in the same pot merely for the occasion. Any one acquainted with those matters must have noticed at many of the principal shows, both in London and other places, that this practice is frequently resorted to, and I consider it anything but fair. An exhibitor doing the same thing with any other class of plants would be sure to be disqualified as soon as detected, and deservedly so. I maintain, therefore, that the same rule ought to be applied to Orchids. I fancy I hear some of the make up gentlemen say, "Oh, but you can't make the rule absolute with regard to Orchids; for some growers run the knife through their plants, to induce the back bulbs to break without further disturbing the plants; and in that case a number of plants in the same pot is the result." I do not, however, find fault with this so long as all have been grown in the same pot, and this is easily discovered by any one experienced in Orchid culture. What I allude to is the practice of making up specimens a few weeks or in many cases a few days before exhibiting them; in that case, instead of rewarding the best grower, the prize goes to the man who commands the longest purse. *T. Baines, Gr. to H. L. Micholls, Esq., Summer Field, Bowdon, Cheshire.*

Lily of the Valley.—I beg to forward a couple of pots of this favourite Lily, of which I have had similar plants in flower ever since the third week in January. Those started in November pushed flowers only, and few of them. My employer is of opinion that Neapolitan Violets, Mignonette, Roses, Lilies of the Valley, and Stocks, as pot plants, are a class of things much neglected by gardeners in general, and he hopes to see prizes offered for them by our great metropolitan societies. I had 32 pots of Lily of the Valley at the Regent's Park show on Saturday last, similar to those now sent, and the Judges awarded them a Bronze Medal, which did not clear my expenses in taking them there. *W. Howard, Gardener to James Brand, Esq., Bedford Hill House, Balham.* [The plants sent were beautiful examples of skilful cultivation, charmingly bloomed, and deliciously fragrant.]

Influence of the Moon.—I shall esteem it a favour if you will allow me to say that I shall be greatly obliged to any of your readers who may furnish me with information relative to any real or supposed influence exercised by the moon on vegetation. *G. L.*, 13, *Roman Road, Barnsbury, London.*

Death of Mr. Andrew Stewart.—I desire, with your permission, to inform your readers of the departure from amongst us of a highly successful gardener, and a very worthy man. Mr. Andrew Stewart, who died at Chatsworth on Sunday last, was, I doubt not, well known to many of your readers, and I cannot let this event pass without expressing my personal respect for his character. He came to Chatsworth about 37 years ago, and had charge of the kitchen gardens under my direction for many years. He was most successful in the cultivation of fruit, which was so well known that he has been invited for some years to officiate as a judge of fruit at the best London Shows, and he was much respected by everyone acquainted with him. Since the death of the late Duke of Devonshire, Mr. Stewart had sole charge of the Chatsworth fruit and kitchen gardens, which he has maintained in the high state of efficiency so well known. He understood and spoke the French language, and had visited some of the best gardens on the Continent. His strictly moral habits and extensive reading eminently qualified him for taking up new ideas and improving upon the art of gardening as practised in his youth. My regard and esteem for his integrity has constantly increased with my knowledge of him, and I am sure all who knew him will feel with me the loss to the gardening world of a man so exemplary in every relation of life. *Joseph Paxton.*

Societies.

Royal Horticultural: *April* 5. — W. Wilson Saunders, Esq., F.R.S., in the chair. On this occasion the following candidates were elected Fellows, viz.:—Miss Anstey, D. Copland, Esq.; A. Cowan, Esq.; Mrs. Crawford, Mrs. Flockton, Mrs. Hadfield, J. Haig, Esq.; R. Hall, Esq.; C. Mohr, Esq.; W. Nicol, Esq., M.P.; G. Plucknett, Esq.; Mrs. G. Robinson, W. Shairp, Esq.; Earl of Sheffield, Mrs. Stephens, Madame Richard de Valmency, Mrs. Watts, Mrs. Manuel, and Mrs. George Seymour.

Royal Botanic: *April* 9 (*Second Spring Show*).—Hyacinths and Tulips were plentiful on this occasion, and there was also a capital display of other early flowering plants.

Azaleas.—Of these some finely flowered examples were shown, especially by Mr. Turner, who furnished neatly trained pyramidal specimens of Criterion, Coronata, Prince Jerome, Beauty of Reigate, Illustris alba, and General Williams. Among other kinds from the same exhibitor, were also Queen Victoria, Sir J. Outram, and Duc de Nassau.

Of New Varieties Mr. Turner had President, rosy salmon; President Claeys, pale salmon with white margin; and Perfection, rosy crimson spotted. Messrs. Lane had Reine des Blanches, white; Comte de Hainault, rosy salmon, much spotted; and President Claeys. Messrs. Smith sent Flag of Truce, one of the best double whites; Prince of Orange, glowing salmon scarlet; Prince Albert Victor, semi-double red; and Excelsior, a finely-shaped deep rose; the last receiving a First-class Certificate. From Mr. Bull came Hortense Vervaene, delicate salmon spotted with crimson; and Alexander II., a good white. A First-class Certificate was awarded to Messrs. Ivery for Fascination, a charming rosy-pink kind, spotted on the upper segments and boldly edged with white, quite a novelty.

Awards.—6: 1, Mr. Cross; 2, Mr. Todman; 3, Mr. Young. *Nurserymen.*—6: 1, Mr. Turner; 2, Messrs. Lane; 3, Mr. Bull. *New Kinds.*—1, Mr. Turner; equal 2, Mr. Todman and Messrs. Lane; 3, Messrs. Smith.

Cinerarias.—Conspicuous among these were Lord Elgin, Duke of Cambridge, and Perfection. Rembrandt, a mulberry-crimson seedling from Messrs. Smith, received a First-class Certificate; and A. Potts, Esq., Hoole Hall, Cheshire, had a Second-class Certificate for Magnifica, a very large crimson. A similar award was also made to Satisfaction, a white kind with dark centre, and broad edging of rich crimson, from Mr. Lacey.

Awards.—1, Mr. James; 2, Mr. Marcham; 3, Mr. Lacy.

Amaryllis.—A small group of these, finely in flower, came from Mr. Williams, of Holloway.

Begonias. — These consisted wholly of variegated-leaved kinds, among which little novelty was observable.

Dutch Flowering Bulbs.—Large collections of these were again furnished by Messrs. Cutbush and Mr.

Wm. Paul, to both of whom 1st prizes were awarded for Hyacinths and Tulips. The day being bright the latter opened rather too freely.

Miscellaneous Plants.—Among these were Boronia pinnata, Eriostemons, one or two Camellias, Azaleas, Maranta zebrina, Pandanus variegatus and elegantissimus, Latania borbonica, Gleichenia Speluncæ, and Dicksonia antarctica; also Vanda suavis and Crotons. Thirty-two potfuls of Lily of the Valley, finely grown and beautifully flowered, were shown by Mr. Howard, gr. to J. Brand, Esq., of Balham, and received a Bronze Medal.

Awards.—Equal 1, Mr. Williams and Messrs. A. Henderson; 2, Mr. Bull; equal 3, Mr. Cross and Mr. Young; 4, Mr. Treen.

Roses.—These, both cut and in pots, were in excellent condition. Among them were charming examples of John Hopper, Lord Clyde, Senateur Vaisse, and Celine Forestier, the last very attractive on account of its clear yellow colour.

New Plants.—Among these was the variegated variety of New Zealand Flax from Mr. Williams, who received a First-class Certificate for it; and from the same exhibitor were plants of Sarracenia Drummondi, flava, and purpurea; Cypripedium Lowii, and other plants. Mr. Bull also sent a collection, in which, besides plants referred to in previous reports, were Gymnostachyum Verschaffelti, a pretty red-veined leaved plant, to which a First-class Certificate was awarded, as it proves decidedly different from Eranthemum rubronervium, with which it had been thought to be identical; and Lilac Dr. Lindley, a new continental variety with large almost white flowers, which received a Second-class Certificate. Genista Everestiana, certificated a year or two since, came from Messrs. Low, of Clapton, who also sent Erica Halfordiana, a pretty salmon rose-coloured kind of the aristata set, which received a Second-class Certificate.

A plant of the Australian Grass Tree, just received from the colony, is flourishing in the Conservatory; and a fine specimen of Agave yuccæfolia is showing flower.

Botanical of Edinburgh: *March* 10.—Prof. Balfour in the chair. Various donations to the Library and Herbarium were laid on the table. Mr. James Williamson was elected a resident Fellow. The following communications were read:—1. "Researches on Hybridity in Plants," by M. Ch. Naudin; translated from the French, and communicated by Mr. Geo. May Lowe. This communication was a continuation of one read at a former meeting. The subjects considered were—1. The return of hybrids to the specific forms of the producing species, and the cause which determines this return. 2. Exceptions to the law of return of hybrids to the parent forms. Do certain hybrids become fixed and give rise to new species? 3. Is there any precise limit between hybrids and crosses? 4. What is a species, race, and variety? 5. Can artificial hybridisation furnish a mark to determine what it is proper to distinguish as a species?——2. "On the Chemical and Natural History of Lupuline," by M. Personne; translated by George Lawson, LL.D. Dr. Lawson remarked that, considering the great importance of the Hop in an economical point of view, we might expect our scientific and manufacturing works to contain a somewhat satisfactory statement of the chemical products of the Hop, and of the nature and development of the remarkable organ by which these products are secreted. This, however, was far from being the case. "I have therefore," he remarked, "thought that a translation of M. Personne's Memoir might not be without its use. In some of its bearings, the subject is of much interest in a strictly scientific point of view. It is obvious, likewise, that an acquaintance with the chemical properties of lupuline is important, not only to the brewer, but to the Hop grower, the exporter, the manufacturer of Hop-extract, and indeed to every one who has to handle an article so prone to change its character, and consequently its commercial value, from apparently trifling causes. The Canadian brewers having a favourable grain market, and an unlimited supply of excellent water in the great lakes, almost entirely devoid of organic matter, have the means of manufacturing excellent beer. But much of the Hops used requires to be imported from England. Canadian Hops are grown to some slight extent at Kingston, more abundantly about Picton and Belleville, C. W., and especially farther to the westward; but the best qualities of Hops are always imported." According to M. Personne the cones of the Hop employed in therapeutics, and especially in the manufacture of beer, owe their properties to a multitude of yellow corpuscles, resinous and odorous, which are separated very freely in bruising the ripe and dry cones. These small bodies have been successively called by the names of lupulin, lupuline, and lupulite. It is to these that the Hop owes its bitter and aromatic flavour; for if the scales and the fruit are deprived of this yellow powder, the cones lose those properties on account of which they are sought after. In 1822, MM. Payen and Chevalier made the most complete chemical analysis which we have of this substance. They demonstrated the complex nature of lupuline, and, consequently, the error of Planche; but the small quantity of substance upon which these chemists worked did not permit them to study sufficiently well the bodies which they had obtained from it. Lastly, in 1827 M. Raspail published, on the organisation of lupuline, the unique work which exists on this subject. That author sought to demonstrate the analogy of this body with the pollen, as much by the investigation of its structure as by that of the action which the various solvents and chemical reagents exercise upon it. He designated it under the name of pollen of the foliaceous organs, "because its office," said he, "is to fecundate the bud, just as that of the pollen of flowers is to fecundate the ovary." (!) Dr. Lawson then considered the structure and development of lupuline and its chemical history, noticing the volatile acid, the volatile oil, and resinous matter of lupuline, and gave a full account of their chemical qualities. The paper was illustrated by drawings of lupuline, and a series of specimens from the Industrial Museum, exhibited by Professor Archer.——3. "Remarks on the Sexuality of the Higher Cryptogams, with a notice of a Hybrid Selaginella," by Mr. John Scott. In this very curious paper the author details a series of experiments made in the Botanic Garden of Edinburgh with species of Selaginella, in which he endeavours to show that a hybrid form was produced between S. Martensii and S. Danielsiana by applying the microspores of the one to the macrospores of the other. He found that the macrospores did not germinate unless the microspores had been applied. Specimens of the hybrid form, as well as of the parent species in a living state, were exhibited.——4. "Abstract of a paper on Gymnospermous flowers." By A. W. Eichler; communicated by Prof. Balfour.——5. "List of Fossil Plants found in the Tertiary Strata in the South-east of France," by Gaston de Saporta; communicated by Prof. Balfour.——6. "Notice of Plants at present in flower in the open air at the Royal Botanic Garden," by Mr. M'Nab. Of the 35 species and varieties of spring flowering plants recorded at a former meeting as being in bloom during the month of December, 1863, only 15 are now to be found in flower—viz., Eranthis hiemalis, Helleborus abchasicus, (abascius, A.Br.) olympicus, and purpurascens, Hepatica triloba, Arabis albida, Petasites nivea, Erica herbacea, Gentiana acaulis, Primula elatior (var.), and vulgaris, Corylus Avellana, Sisyrinchium grandiflorum, Galanthus nivalis, and Crocus susianus. From 1st January to this date, four species have only been added to the list, viz.:—Nordmannia cordifolia, Galanthus plicatus, Leucojum vernum, and Crocus vernus, making in all 19 species in flower at this time. Out of the 19, only 9 species are in full bloom—viz., Eranthis hiemalis, Helleborus abchasicus, olympicus, and purpurascens, Corylus Avellana, Sisyrinchium grandiflorum, Galanthus nivalis and plicatus and Crocus susianus. The first blooms of the Snowdrop were open at the end of December, 1863. It has been much retarded by the late inclement weather, and it is only now that we see the plant in full flower. This remark is also applicable to the Crocus susianus, which opened its first blooms towards the end of December. The Crocus vernus and its varieties are only now showing flower buds, except in warm sheltered borders, where the flowers opened on the 16th of February. Last year the first flowers of the Ribes sanguineum were open on March 2; at this time it has scarcely commenced bursting its buds. The Narcissus pumilus was in flower on March 8; it is only now pushing through the ground. The Erythronium Dens-canis was in bloom on 4th March; it is only now breaking the surface soil. The same remark applies to Puschkinia scilloides, which was in flower last year on 9th March. The Crown Imperial was in flower last year on 22d March, the flower-stems being then 3 feet high; it is only 4 inches through the ground at this date.——A specimen was exhibited from Dr. Bowen, of what the natives of Peru call Huanarpo. It was gathered on the sides of the Andes, and is said to be a strengthening and stimulating plant well known to the natives. Dr. Bowen believes it to be Jatropha podagrica. It is found in Lima, New Grenada, and Peru, and belongs to the natural order Euphorbiaceæ. The stem of the plant has remarkable discoid pith.——Dr. Richard de Gambleton Daunt sent specimens of a plant called at San Paulo, Brazil, Perovinha do Campo, which is used there as an article of materia medica. Professor Oliver has compared it with specimens in the Kew Herbarium, and finds it to be Pterolobium elegans of Vogel, a leguminous plant belonging to the Cæsalpinieæ. It has a remarkably corky bark.——Professor Balfour noticed a prize offered by the Royal Academy of Science of Prussia for an essay on the mode in which the two kinds of silicic acid contribute to the nourishment of plants. The prize to be awarded in 1866, and the essays to be in German, Latin, or French.——Printed copies of the conditions of prizes offered by the Royal Horticultural Society, South Kensington, for county collections of dried plants, were laid on the table.

Reviews.

Species Filicum: being Descriptions of all known Ferns. Illustrated with Plates. By Sir William Jackson Hooker, K.H. London: Dulau & Co. Part XVII.

Of this most valuable aid to the student of Ferns, the first part of the fifth volume, or the 17th part of the entire work, has lately appeared. Commenced so long since as 1844, it is a matter of congratulation that the health and faculties of the estimable author should have been thus spared to bring to a close so herculean a task—for we learn that the following part, which is to be a double one, and to complete the work, is just ready. Indeed, if we are not misinformed, it has for some time been out of the author's hands.

This first instalment of the fifth volume commences with the netted-veined species of Polypodium, forming the genera Goniopteris, Goniophlebium, Phlebodium, Campyloneurum, Niphobolus, Phymatodes, Drynaria, &c., of some modern authors, groups which Sir W. Hooker treats as sections of Polypodium. These run through the 96 pages of letter-press of which this first part is composed, some 170 species being therein described and localised. When the wide geographical range taken by some species of Ferns is considered, and the heaps upon heaps of specimens from all quarters which have to be examined, and referred to their respective positions, are taken into account, some idea may be formed of the labour of preparing such a work as this, extending through five thick octavo volumes. The species, indeed, in many other hands would have risen to a much higher number; and if the author has erred at all, we think it has been in omitting to distinguish plants which to the eyes of other pteridologists both in this country and on the continent appear to be abundantly different. On this question, however, that of the limits of species, it seems hopeless to expect unanimity of opinion; and therefore, without dwelling on such objections, all real students of Ferns will, we are sure, be grateful to Sir W. Hooker for the much he has done to elucidate the objects of their study.

There are 16 capital plates by Fitch, giving figures of some score of species, mostly new. †

A Flora of Ulster, and Botanist's Guide to the North of Ireland. By G. Dickie, A.M., M.D., Professor of Botany in the University of Aberdeen. Belfast, Aitchison; London: Reeve & Co. 12mo., pp. 176.

The district to which this Guide refers, may be stated generally to lie to the north of the 54th parallel of latitude, including the whole of Ulster (excepting the most northern portion of Monaghan and Cavan), comprehending also the northern portions of Leitrim, Sligo, and Mayo, belonging to Connaught. The coast line is very irregular, owing to the branches of the Atlantic—the Loughs of Strangford, Belfast, Foyle, and Swilly, and the Bays of Donegal, Sligo, and Killala, each of which receives the drainage of a river basin of greater or less extent. The geological formations include Silurian rocks, granite, basalt, chalk, greensand, oolite, carboniferous limestone, and Devonian rocks. And there are high mountains chiefly grouped in the east, north-west and west, the highest points being Slieve Donard in Down, 2796 feet; Muckish and Erigal in Donegal, 2190 and 2460 feet respectively; and Nephin in Mayo, 2646 feet high.

This variety of outline and soil, and the peculiarly mild and moist climate which prevails, have their influence on the vegetation of the district, the Flora of which, according to Dr. Dickie's enumeration, comprises 570 dicotyledonous, and 172 monocotyledonous plants, and 43 Ferns and Fern allies, making a total of 805 species at present known to occur. Among other peculiarities Dr. Dickie notices that in the north of Ireland, a decided fall of the upper limit of some species occurs in passing from the north or north-east to south-west. Thus Euphrasia officinalis, which in the north-east of Scotland finds its upper limit at 3400 feet, on Muckish does not ascend higher than 2000 feet, on Erigal 2400 feet, and on Nephin 1700 feet; Melampyrum pratense, which reaches in Scotland 3000 feet, only attains 2200 feet on Erigal, and 1900 feet on Nephin; while Pinguicula vulgaris, reaching in Scotland 2800 feet, only attains 2000 feet on Erigal, and 800 feet on Nephin. Various other instances of similar modifications in respect to altitude are recorded.

The species are arranged according to natural families, and under each is given besides the habitats, which are more or less precisely recorded according to the rarity or interest of the plant, a statement of its duration, its flowering season, its type according to Mr. Watson's plan of distribution, its range in Britain as to temperature, and an indication of its range in other parts of Ireland. It will be found to be a very useful guide, and seems carefully prepared. Dr. Dickie's residence in Belfast for many years as Professor in Queen's College, and his excursions with students must have given him good opportunities for collecting this kind of information, at which he is an expert; and this, with the additional facts obtained through friends and correspondents, has doubtless left comparatively little to be added hereafter.

The *Botanical Magazine* for this month has excellent figures of some charming garden plants, *e.g.* Reidia glaucescens, Dendrobium luteolum, and Scutellaria costaricana. The first figure represents *Miltonia Regnelli*, a Brazilian epiphyte, with foliage and pseudobulbs resembling M. spectabilis, but with a racemose inflorescence, the flowers five or six on the peduncle; they are however smaller than in that plant, and less highly-coloured, blush-white, with a rosy-tinted subpandurate lip.—*Reidia glaucescens* is a graceful habited stove Euphorbiaceous shrub, with regularly distichous obliquely oblong leaves, glaucous beneath

and numerous small green flowers with fimbriate sepals, hanging down from the under side of the branches by slender red pedicels; the flowers remain for a very long time, and are stained with red about the centre: this has been introduced from Siam.—*Vieussieuxia fugax*, one of the pretty but fugacious-flowered bulbs of South Africa, with elegant pale lilac flowers, the three petals marked with a bright orange blotch.—*Scutellaria costaricana*, a very showy stove plant, with ovate-acuminate serrato-dentate leaves, and a terminal subsecund close raceme of scarlet and yellow flowers; "its beauty consists in the great size and the colouring of the numerous flowers; these measure 2½ inches in length, of a rich golden-scarlet colour, with the faux or inside of the lips a deep yellow; it is a native of Costa Rica."—*Eranthemum crenulatum* var. *grandiflorum*; from Moulmein, a stove plant with a loose raceme of pinkish flowers having a long white curved tube, and not very attractive.—*Dendrobium luteolum*, a beautiful Moulmein epiphyte, with abundant and highly ornamental primrose-coloured flowers; it has been already fully noticed at p. 269.

The *Florist and Pomologist* for April contains a fine figure of *Lychnis Senno*, an introduction by Mr. Fortune, as brilliant in colour as the old Scarlet Lychnis, and far more handsome in form. It is one of the many handsome border flowers, which may be heartily commended to the notice of those who are getting tired of the monotony of the parterre gardening of the present day. Mr. Barnes continues his remarks on Pine culture; there is also an illustrated article on the Cordon or linear system of training fruit trees, by J. F.; and some sensible remarks by Mr. Bailey on the renovation of fruit trees by means of transplantation.

In the *Floral Magazine* are figures, in the usual style, of Messrs. Carter's "*Godetia rosea alba* var. *Tom Thumb*;" of three *Verbenas* raised by Mr. Nichols, of Hunslet, and to be let out by Messrs. Low; of *Dahlia Alexandra*, one of Mr. Perry's seedlings; and of one of the many forms of *Lycaste Skinneri*, from the collection of Messrs. Veitch.

Seemann's Journal of Botany figures, in its March number, *Gentiana germanica*, a plant supposed to be distinct from G. Amarella. It is said to have larger and more decidedly funnel-shaped flowers, with the germens stalked instead of sessile. Dr. Grisebach, the greatest living authority on the Gentianaceæ, considers most of our English plants to belong to this G. germanica, and not to G. Amarella. In the April number is a figure of *Hypericum undulatum*, the new British species recently found near Plymouth. This plant, which has a host of synonyms, has also a very extensive range, being found in Algeria, Italy, Sicily, Spain, Portugal, Madeira, Azores, and south-western England. It has a good deal of resemblance to H. quadrangulare. Among the papers in these numbers, occur some further remarks on Raphides by Prof. Gulliver, who finds that whilst the Onagraceæ abound in these needle-shaped crystals, the allied orders have so far been found entirely destitute of them; Balsaminaceæ is raphid-bearing, while in the surrounding orders they are not found; there are raphid-bearing Ficoids, standing between House-leeks and Indian Figs which are without raphides; and the Hydrocharidaceæ, with Water Plantains, and Pondweeds are destitute of them, while in the surrounding orders they abound. Dr. Daniel reports that the leaves of Jamaica-grown Cinchona succirubra yield from .75 to 1.00 per cent. of alkaloids. Mr. A. H. Church describes a peculiar opening which he had met with in the pods of some Leguminosæ, and which he proposes to call aëropyle; the functions of this aëropyle remain to be determined. Prof. Babington has some further remarks on the inutility and mischievous tendency of the Royal Horticultural Society's prizes for wild plants.

Miscellaneous.

The Past Winter.—In the contrast presented by the mild temperature of November and December with the severe cold of January, the most remarkable fact is that the south has suffered more from frost than the north. In many parts of Italy the thermometer fell extraordinarily low; at Turin 20° were registered. In the extreme south of France also the cold has been exceptionally intense; and from a correspondent at Carcassonne we learn that the Peas, Beans, Artichokes, Cauliflowers, Celery, &c., have been entirely destroyed; while many cereals, such as Oats and Barley, have greatly suffered. He adds, "Our flower beds, lately so gay, are now bare; our Ranunculuses and Anemones were just coming into flower, but at present scarcely a trace of them remains. Our young shrubs, such as Veronicas, Fuchsias, Verbenas, &c., have met with the same fate. The river Aude was in many places frozen entirely across, an event which has not occurred since the memorable winter of 1830. Some Orange trees have also lost their leaves in the Orangery." Nevertheless there have been favoured spots which have escaped the effects of this severe season. The extreme mildness of last November and December formed the subject of a memoir communicated by Professor Balfour, of Edinburgh, to the Royal Society of London. This gentleman has during 1863 systematically observed the hanges in the plants of the botanic garden in the cotch capital. We had not expected to find our advice followed at the very moment when it was given, by one so learned in natural physics. It is with much pleasure that we have also to report that the period of the flowering and fruiting of wild plants ranks first among the observations to be made by the correspondents of the Smithsonian Institute at Washington. On the same subject we may also quote a new memoir by M. Dove, which has appeared in the last volume of the "Mémoires de l'Académie de Berlin." This learned physicist has deduced from a large number of observations the mean temperatures of several towns throughout the year, dividing it into 73 periods of 5 days. Other tables show the variations occurring in the different years, and explain what may be called "thermic anomalies." A similar work was executed by Delambre at the beginning of the century. Variations of temperature do not appear to follow a regular course, even when the means are founded on an increasing number of observations; but hitherto it has been very difficult to ascertain the causes which regulate them. *Revue Horticole.*

Calendar of Operations.

(*For the ensuing week.*)

The weather, though bright during the day, still continues cold and even frosty at night; be in no hurry therefore to remove protecting materials wholly from plants out of doors. Even Calceolarias pricked out in turf pits to harden must still be covered up at night. Any protection that may have been afforded to fine specimens of Standard Laurustinus, should however now be at once removed.

FLOWER GARDEN AND PLANT HOUSES.

Thorough-dress all beds and borders; prepare stations on lawns for extraordinary specimens of ornamental plants, as large Fuchsias, &c., putting drainage in the bottom, and good turfy and mellow compost above. Trim and prune all climbers on out-door trellises, or conservative walls; and prepare stations for plants to fill up blanks. Indoors keep up a proper system of cultivation by means of sweet and healthful soils, and skilful potting, together with complete drainage, and the constant use of weak and clear liquid manure, during the growing seasen. Cold pits will now be occupied with some of the early struck or potted off stock, hardening for the flower garden.

Annuals.—Half hardy sorts should now receive attention. The best method of raising them is to sow them in pans or boxes now, or in a bed about 3 inches thick, of light soil, placed on a gentle bottom-heat furnished by means of stable manure or vegetable refuse, and protected with a frame. Water sparingly, and give plenty of air when the plants appear; thin out or prick off in small pots, and be careful to get the plants well inured to the weather previous to planting in the open border, and also to give water as may be necessary, after planting, until they become established.

Azaleas.—Specimens now in full blossom must be shaded from bright sunshine. Plants that have been kept in heat, to bring them into flower, will now require pretty liberal supplies of water. Great attention should be paid to ventilation, particularly in guarding against cold currents of wind. Young plants will grow rapidly if shifted and placed in a moist warm temperature; see that they are clear of insects.

Calceolarias.—Those intended to make large specimens will have received their final shift. As the season advances, so must the grower be more watchful to keep down insects. A very mild moist temperature is the best suited for the Calceolaria at this season.

Camellias.—Plants that have done blooming should be placed in heat to make their growth; shift any that require it; syringe them daily. Water freely plants now in bloom, and occasionally with weak liquid manure.

Cinerarias.—These should now have all the air possible on every favourable opportunity, avoiding cold draughts. Pick off decaying leaves and blooms, and look well to mildew.

FORCING GARDEN.

Figs.—As the season advances gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Melons and Cucumbers.—Effect a second sowing of ridge Cucumbers; get the earliest sown hardened forthwith, preparatory to turning out, and let trenches be prepared for them. A trench thrown out 3 feet wide and 2 feet deep, and filled to a foot above the ground level with such materials as litter, Grass mowings, or leaves, with a little hot manure, all thoroughly blended, will make an excellent bed. When completed, raise mounds of soil 3 or 4 feet apart, to receive the hand glasses, leaving the residue uncovered with soil for the present.

Peaches and Nectarines.—Continue to keep the shoots well tied-in in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base. When a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the paths, borders, &c.

Pines.—See that good mellow turfy soil is ready under cover for the shifting process; also materials for thorough drainage, such as broken crocks, rough bones, charcoal, &c. Use clear liquid manure to swelling fruit, when necessary; and keep up a lively heat, with plenty of atmospheric moisture.

Vines.—Late Grapes, such as West's St. Peter's, Lady Downes' Seedling, Black Damascus, Muscats, &c., will now be breaking fast. Let disbudding, tying, stopping, &c., be duly attended to, according to principles laid down for the earlier houses.

HARDY FRUIT AND KITCHEN GARDEN.

Lime is well known to be useful for destroying snails and slugs; it is, however, not always at hand in a quick state. Cinder ashes riddled to the size of Radish seeds, all dust being excluded, will therefore be found a good substitute. These strewed over young crops when just emerging from the ground will be found to be an efficient protection. A handful of good Peruvian guano, blended minutely with these ashes, would also prove to be a ready mode of manuring a weak seed bed.

Raspberries.—If not already done, thin suckers from these, leaving four or five to each stool.

Spinach.—Sow some round Spinach for succession in a cool aspect.

Strawberries.—A sloping bank should now be prepared, and planted with nice runners of the Alpine varieties, for fruiting in September and October; plant three in a patch, at intervals of 15 inches; the ground between should be covered with slates when the plants are established.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending April 13, 1864, as observed at the Horticultural Gardens

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 7	0	30.250	30.208	53	36	44.5	47	46	S.E.	.00
Friday 8	1	30.339	30.253	59	35	47.0	47	46	S.E.	.00
Satur 9	2	30.263	30.159	61	47	54.0	47	46	W.	.00
Sunday 10	3	30.117	30.097	63	40	51.5	50	47	N.	.00
Mon. 11	4	30.018	30.001	70	38	53.0	50½	47½	E.	.00
Tues. 12	5	30.039	30.019	61	25	43.0	5 ½	48	N.E.	.00
Wed. 13	6	30.036	30.002	59	29	44.0	50½	49	N.	.00
Average.		30.156	30.114	60.8	35.4	48.1	53.2	47.1		.00

April 7—Uniformly overcast; overcast throughout.
— 8—Overcast throughout
— 9—Partially overcast, fine; overcast and warm.
— 10—Very fine throughout; overcast.
— 11—Uniformly overcast; very fine, overcast.
— 12—Fine, exceedingly fine, frost at night.
— 13—Fine, hot sun; clear and slight frost at night.
Mean temperature of the week, 2½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending April 23, 1864

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17	59.5	36.1	47.8	14	0.32 in.	8	7	6	2	1	7	4	3
Mon. 18	60.3	35.8	48.1	15	0.49	6	8	7	1	4	4	7	3
Tues. 19	60.3	34.9	47.6	8	0.45	6	12	3	3	1	7	6	—
Wed. 20	61.8	34.7	48.3	14	0.39	5	7	5	2	—	9	8	3
Thurs. 21	60.7	37.3	49.0	14	0.28	4	6	6	3	2	6	8	3
Friday 22	60.4	37.5	48.9	20	0.32	5	8	5	3	1	5	8	3
Satur 23	60.3	36.7	48.5	20	0.52	2	8	5	1	4	6	5	7

The highest temperature during the above period occurred on the 19th, 1834—therm. 77 deg.; and the lowest on the 17th, 1847—therm. 22 deg.

Notices to Correspondents.

Chrysanthemums: *Rus in Urbe.* Shift now the strong young plants from suckers parted last autumn; and shift at once into the blooming pots. The plants will then break uniformly, and can hardly fail to form good well-balanced specimens. Consult Mr. Holmes' instructions at p. 1180 of our last year's volume.

Diseased Conifers: *H W C.* There is no fungus on your Wellingtonia. In a very large collection of Wellingtonias, one of the largest in England, we have occasionally seen shoots similar to those you send, and, as in similarly affected shoots of Araucaria, we have always supposed the partial death attributable to cold. Young plants suffer more in general than those which are well established. Sometimes, however, Conifers become unhealthy from being planted amongst old roots, and you would do well to consider whether this may be your case, and if so, the old roots must be grubbed out carefully. *M J B.*

Fungi: *J H.* The little seed-like bodies covering the surface of your pots are the winter state of some Fungus, derived in all probability from leaf-mould. We will try to make it vegetate, and in the course of a few weeks we may be able to tell you what it produces. In its present state it would be called by older Mycologists *Sclerotium* semen. *M J B.*

Grafting Wax: *John R.* One of the best forms of grafting wax is the Mastic Lhomme-Lefort, of which an account was given by us last year. It does not require heating, and continues pliable and elastic, which are its chief advantages. It is especially suitable for grafting Vines under glass.

Names of Plants: *Blue Apron.* No; nor has it the least resemblance, except that both are Mosses.—*J B H.* 1. Jasminum nudiflorum; 2. Andromeda calyculata.—*B F., Manchester.* 1. Oncidium hastatum; 2. Epidendrum altissimum.—*C B.* 1. Deutzia parviflora; 2. *D. scabra.*—*Ennis.* We are of exactly the opposite opinion.—*G B., Stamford.* We really cannot undertake to give private advice.—*W T T.* We believe Notylia bicolor.

Salsify: *W West.* By all means try the plan of sowing in poor light land, well manured in the under stratum, some 7 or 8 inches beneath the surface. If all goes well, you will get good clean succulent roots by this mode of culture.

Scarborough Lily: *Amici.* What is called the Scarborough Lily is Vallota purpurea.

Misc.: *Ayr.* We are wholly unacquainted with the "swarthy" gentleman, whose reference to one who knows nothing about him is by no means a satisfactory proof that he deserves employment.

LAWES'S MANURES.
The Manures manufactured by J. B. Lawes for the present season of 1864 are now ready for delivery at his Factories, at the following prices:— Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME £6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES .. 5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES 8 0
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots.
URATE,
MANGOLD MANURE, &c., &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

WOOLLEN REFUSE MANURE, in any Quantity, from a Quarter of a Ton upwards.
For particulars, Post-free, address Procter Bros., Manwood, Leeds.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
Manufactured by The Patent
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: John Clayden, Littlebury, Essex.
Managing Director: James Odams.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. Macadam, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

Manures and Feeding Stuffs.
RAYNBIRD, CALDECOTT, and BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Drainage, &c.
MR. J. BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22 Parliament Street, Westminster, S.W.

Land Drainage, and other Agricultural Improvements.
MR. BAILEY DENTON, C.E., maintains a large Staff for the execution of Land Improvements by a commission of 5s. per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

Drainage of Land.
MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5s. per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

RICHARD SMITH'S RENOVATING GRASS SEED should now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
Richard Smith, Seed Merchant, Worcester.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SPRING SESSION, 1864.
President—The Right Hon. the Earl Bathurst.
Council.
Rt. Hon. the Earl Bathurst. | Rt. Hon. T. H. Sotheron Estcourt, M.P.
Rt. Hon. the Earl Ducie. | Hon. William Bathurst. | Edward Holland, Esq., M.P.
Principal—The Rev. John Constable, M.A., Trin. Coll. Camb.
Farm Manager—J. L. Fletcher.
Resident Professors.
Chemistry.—Arthur H. Church, M.A., Lincoln Coll., Oxon., F.C.S.
Assistant to Chemical Professor.—R. Warington, Jun., F.C.S.
Botany.—John Bayldon, M.B, Lond. B. Sc.
Veterinary Surgery.—A. J. Murray, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. Meredith Lane, B.A Scholar of Trin. Coll. Camb.
Drawing.—James Miller.
SPECIAL LECTURERS.
J. Bailey Denton, M. Inst. C.E.—On DRAINAGE.
Professor J. Morris, F.G.S., of University College, London—On GEOLOGY.
John Gamgee, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
Willoughby Wood, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
John Algernon Clarke, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
John Thornhill Harrison, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
Thomas Baldwin, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
Robert Russell, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
Richard Griffiths Welford, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.
Applications for Admission and for further particulars may be made to the Principal.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, 1864.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. Hall Dare, Secretary.
12, Hanover Square, London, W.

PHOSPHO GUANO.



Company's Trade Mark.



Contractors' Trade Mark.

THE PHOSPHO GUANO, in its natural state, is found on trap-rock islets within the tropics. It was discovered in 1854; and its existence was made known in August, 1856, by Dr. Voelcker, who read a paper at the Cheltenham meeting of the British Association for the Advancement of Science, "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly concentrated phosphatic manure.

Its valuable and peculiar qualities immediately attracted the attention of the leading Agricultural Chemists, who pronounced it at once to be greatly superior to all other Guanos as a manurial agent. The result of careful experiments in the field having fully established this superiority, the consumption has increased year by year; and at the close of the seventh season, 1863, it has attained a position second only in consumption to that of Peruvian Guano.

The Baron Liebig, in the course of his investigations, discovered potash in the raw Guano, a discovery since confirmed by Dr. Voelcker and other Chemists. To the presence of this substance (which is not found in any mineral phosphate) is attributable, in some degree, the great superiority of the PHOSPHO GUANO when compared with other phosphatic manures made from coprolites, apatite, Sombrero Guano, &c.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared; and Liebig states that by using PHOSPHO GUANO, the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other manure; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

All Chemists of standing have ceased to place a money value on manures submitted by them to analysis, as tending to lead to erroneous conclusions, owing to the disingenuous manner in which such values are paraded before the public eye by dealers; but for the information of those farmers who still have faith in this test, the money value of the PHOSPHO GUANO, calculated by the data hitherto in use, is, according to the mean average of Dr. Voelcker's analyses, 13*l.* 18*s.* 2*d.* per ton; and of Baron Liebig's analyses, 14*l.* 18*s.* 4*d.* per ton.

Peruvian Guano and PHOSPHO GUANO are respectively the representatives, in the highest degree, of the two most important manurial substances, ammonia and phosphoric acid. In Peruvian Guano there is 13.61 per cent. of nitrogen, yielding 7.0 of actual ammonia and 10.0 latent—and the latent, in the opinion of Dr. Voelcker, is as available or nearly so as the actual ammonia—together with 3.0 per cent. phosphoric acid in soluble state. In PHOSPHO GUANO there are 18.027 per cent. of phosphoric acid in soluble state, and 3.50 per cent. actual ammonia.

As Peruvian Guano is acknowledged to be a cheap source of ammonia, so likewise PHOSPHO GUANO must be considered as a cheap source of phosphoric acid—much to be preferred to bones, superphosphates, coprolites, apatite, Sombrero and other inferior Guanos; while the proportion of 3.50 per cent. of actual ammonia constitutes it the best-balanced manure in the market.

If the results of practical experience were required to recommend the PHOSPHO GUANO, testimonials from many of the most eminent Agriculturists in the kingdom could be adduced; but the reader of this advertisement is particularly referred to the most recent of these, published in the last number of the *Quarterly Journal of Agriculture* (Jan. 1864), by Mr. Henry Stephens, author of the "Book of the Farm," detailing the experiments made by the Marquis of Tweeddale, with their successful results.

Pamphlets, containing a full description of the PHOSPHO GUANO, its History, Nature, Properties, &c., may be obtained on application.

PRICES AND TERMS.

The Cash Prices, including the cost of bags, Carriage Free at any railway station or shipping port in the kingdom, are as follows:—

For 10 tons and upwards, £11 10s. per ton. | For smaller quantities, £11 15s. per ton.

For full cargoes, direct to any port, special rates will be quoted.

Credit Rates.—Should the Consumer require credit, the price is increased at the rate of 2*s.* per ton per month.

To prevent fraud, all casks and bags are branded with the PHOSPHO GUANO COMPANY'S Trade Mark, as well as that of the Contractors, copies of which appear at the head of this advertisement.

There are Authorized Agents appointed for the sale of PHOSPHO GUANO in all the principal towns and villages in the United Kingdom; but where any difficulty exists in procuring supplies, orders may be sent direct to

PETER LAWSON & SON,
GEORGE IV. BRIDGE, EDINBURGH; or, 28, KING ST., CHEAPSIDE, LONDON, E.C.

PETER LAWSON and SON, *Contractors.*
WILLIAM DIXON and CO., *General Agents.*
GEORGE SEAGRAVE and CO., *Brokers.*

The Agricultural Gazette.

SATURDAY, APRIL 16, 1864.

MEETING FOR THE ENSUING WEEK.

Wednesday, April 20 { Royal Agri. Society of England .. Noon (Mr. Holland, M.P., on Agricultural Education.)

A Committee comprising many of the leading members of the Council of the Royal Agricultural Society of England, has been appointed to consider in what way Agricultural Education—the seventh object for which, according to its charter, the Society was incorporated—may be best promoted. And next Wednesday Mr. Holland, M.P., who has, these many years, done more than any other man in this country for the promotion of agricultural education, will read a paper in which we hope he will declare the results of the discussion before this Committee.

It would not be difficult to prove that this subject has been hitherto singularly neglected by the Agricultural Society. The improvement of the various breeds of our domesticated animals, and of our agricultural machinery—the promotion of better veterinary education—the condition of the agricultural labourer—the application of scientific knowledge and discovery, have all occupied its attention; but nothing has yet been done for the professional education of those who live by the cultivation of the land. It is no denial of this assertion to declare that the Journal, the annual show, and the occasional discussions which the Society holds are all of them educational, and thus a discharge of its obligation in this particular. These are all separately specified in its charter as among the objects and purposes of its incorporation, and *in addition to them* it is declared that it is to take measures for the promotion of agricultural education. As the fact at present stands, these and other objects have engaged its attention and its labours, but *in addition to them* nothing whatever has yet been

done by it for the promotion of agricultural education. There is thus an *un*fulfilled duty belonging to it—an obligation still resting on it, and remaining to be discharged. And the business of the Committee no doubt is to determine in what way this duty may be best discharged.

We shall not at present discuss the various methods which will at once occur to any thoughtful person, by which agricultural education may be promoted by the Society. Our reference to the Committee which has been appointed for its consideration, is simply that it may be understood that the Committee do not meet to determine whether or not it may be advisable to act in this matter, but what it may be advisable to do. The duty of action in this matter is inevitable—as plain as any other condition which the charter of incorporation imposes. And while this charter is occasionally appealed to by men who seek for precedent and guidance "how not to do it," we hope it will be as urgently upheld now that it is being quoted in a case where its direction of active effort is as clear as possible.

On Wednesday last Mr. Strafford sold the Short-horn herd of Mr. Robinson, at Clifton Pastures, near Olney. The average price realised was 58*l*. apiece, or 4175*l*. 17*s*. in all, for 72 head. Of the several families of which the herd consisted, the Foggathorpes, numbering 12, realised 741*l*., or about 65*l*. apiece; three Gwynnes fetched 226 guineas; and the descendants from *Sylph* by Sir Walter, 5 in number, made upwards of 60*l*. apiece. The following were among the highest prices realised:—125 guineas for *Specimen*, by Mameluke, bought by Mr. G. C. Adkins, one of his "Charmer" tribe; 120 guineas for *Forest Queen*, a descendant of *Foggathorpe*, bought for Sweden; 125 guineas for *Revelry*, by Second Duke of Thorndale, bought by Mr. Forster, of Cumberland; 110 guineas for *Golden Gwynne*, bought by Mr. C. Howard; and 200 guineas for Grand Duke 5th, a pure Duchess bull, 2½ years old, also bought by Mr. Charles Howard, of Biddenham.

It is satisfactory to find in a recent judgment that the Lord Chancellor has manfully set his face against that loose manner of drawing Patent Specifications, which has been the cause of so many law-suits.

We refer to the judgment delivered on the 9th of March, in the case of *Foxwell* v. *Bostock and others*, which concerns a sewing machine. The patent was taken out for an improved arrangement or combination of machinery for sewing or stitching by a needle and shuttle. The specification was accompanied by drawings and descriptions of the drawings, which contain but do not point out the improved arrangement patented. On this ground the patent was called in question, because it virtually claimed machinery which had been previously invented and protected by others, and was used to produce the result specially required. It was contended by the plaintiff's counsel that "a patent for a new machine would be good if the specification contained nothing but clear drawings of the machine and a description of them."

At one stage of this trial, however, certain distinct inventions were disclaimed, and the judgment now under consideration refers to an amended specification, in which, strange to say, passages were allowed to remain which became a description of the working of part of that machine, and of drawings and descriptions, which had been disclaimed. His Lordship decided that although the inventions had been disclaimed, the drawings and descriptions having been allowed to remain, they must be taken as part of the combination of machinery for which the patent is claimed in the amended specification. The words in the latter document state the patent to be for "the combination and arrangement of the various parts of machinery for sewing and stitching with the use of a needle and shuttle," which his lordship decided, "by reason of their unlimited extent, would render the patent void, unless they were construed as necessarily meaning the *aforesaid* combination and arrangement of the *aforesaid* various parts of machinery; and if they are so construed they then necessarily denote and comprise all the various parts of machinery which are thereinbefore described, and include the parts which belonged originally to the three separate disclaimed inventions."

This is the necessary result of the plaintiff's view of the amended specification, and of the fact that the patent is for a combination of machinery, and that there is no other description in the amended specification of that combination, than what is afforded by the drawings and the descriptions thereof, nor anything which denotes that the patented combination is to consist of certain portions only of that machinery which is delineated and described. Unless the whole of the drawings and descriptions be taken, there is nothing, as the Lord Chancellor said, to show where the description of the invention begins and where it ends.

It is further shown that the patent is for improvements in machinery or apparatus for sewing or stitching, and the specification describes the invention as consisting in an improved arrangement and combination of machinery for stitching by a needle and shuttle. The words "improved arrangement," or "improved combination," indicate the nature of the invention. This improvement is nowhere specified. The plaintiff's counsel contended that it was expressed in the drawings. These drawings exhibit an entire machine, the composition and working of its several parts, but do not indicate where the improvement lies, or in what it consists. To this objection it is replied that the invention lies in the whole arrangement.

His Lordship very properly demurs entirely to this. He will not allow that words are to be used to darken and hide meaning as in diplomacy: he maintains that "the law requires that a specification should be intelligible to a workman of ordinary skill and information on the subject," and that he should not be supposed to possess an accurate knowledge of the construction of all needle and shuttle machines which were known and used in England at the date of this patent, before he can discover the differences and novelties that existed in the improved combination.

It seems that there was no difficulty in describing the arrangement for which the claim of utility was sought to be established. The plaintiff's counsel stated that it consisted in an arrangement of three cams on one shaft, by the direct action of which the three principal movements in a needle and shuttle machine are effected, and though these cams and shaft appear in the drawings, nothing in the specification confines attention to their addition as constituting the special novelty.

His Lordship then proceeds to state his opinion *that a patentee is bound to show in what the improvement consists*, not in ambiguous but *in clear precise terms*, and that this obligation is not discharged by a description of the entire machine, which embodies but does not distinguish the improvement, and thereby renders it undiscoverable, except upon minute comparison and collation of all existing combinations with the new combination that is claimed. The rule followed in these terms:—"I must therefore lay down a rule which is consistent with and in reality a mere sequence from the decided cases, that in a patent for an improved arrangement or new combination of machinery the specification must describe the improvement and define the novelty, otherwise and in a more specific form than by the general description of the entire machine. It must, to use a logical phrase, assign the *differentia* of the new combination. This obligation flows directly from the condition of the patent. It is part of the condition of the patent that the specification shall particularly describe and ascertain the invention. With that condition the specification, in my judgment, fails to comply."

It will be at once obvious to all who are concerned in patenting inventions of agricultural and other machinery why we call attention to this decision. Latterly many important trials have occurred, owing to the loose drawing of specifications, and it is very necessary that this tendency should be checked. Not a few of those who are recognised agents in this branch of business were gaining a character for wording their specifications so doubtfully as to conceal false representations, and yet so as to avoid attack. Their practice was encouraged for a time by certain judgments from the bench, and there really seemed as little chance of obtaining precision in patent law as in theology. Now, however, the highest authority in the land has spoken out in favour of honest declaration of intention; and this being the fact, it is to be hoped that the law courts will be cleared of cases which have grown out of vague descriptions, and leave an open path for inventors who feared pitfalls and ambuscades at every turn, and were prevented from making public their ideas because of the danger and perplexity which attended their protection.

The rule made by the Lord Chancellor is certainly in favour of the public, as it is of all men who honestly seek to patent their own invention, without claiming those which do not belong to them. Those who, under cover of ambiguous language, have been in the habit of disguising doubtful claims to originality and utility on behalf of their clients, will not thank his lordship for spoiling their little game. *H. R.*

AGRICULTURAL PLANT IMPROVEMENT.

Under the above heading Mr. Shirreff contributed to a recent number of your Paper an article in which he takes exception to my three "facts" given in your Number of February 20th last. Had he done no more than this, I should have been quite content to keep silence, but in professing to describe my system and opinions he so utterly misstates them, that I must ask you to accord me space to state them for myself—I fear necessarily at some length.

Mr. Shirreff says:—"Mr. Hallett begins with a grain, one of the most minute, uncertain, and mysterious parts of a dead plant, while my foundation is a living object, with all its characteristics and properties fully displayed . . . . The expressions best plant, best ear, best grain, leave no doubt that magnitude is the leading property desired. Now, if largeness of a single grain can be inherited, so can every gradation of size, and this leads to the monstrous conclusion," &c.

The following concise statement of my mode of procedure, defining clearly what I mean by best plant, &c., was printed more than a year ago; thousands of copies were circulated, and it was last autumn reprinted in the *Agricultural Gazette*, and several leading English journals:—

In every plant of Wheat, Barley, or Oats, there is always one best ear, and in every ear there is always one best grain, which is that one found at the following harvest to produce the best plant, all the grains having been planted in competition with each other. The best of all the competing plants of any "family" of a cereal, is ascertained by the most studious comparison of the good qualities they visibly present, and of the notes of the peculiarities exhibited by each during the whole course of its growth, such as:—the rapidity with which the parent seed germinates: the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the toughness of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

The very article in which Mr. Shirreff found my "facts" contains sufficient to show him that my principle of selection is not limited to any single property, and certainly nothing in it or in anything I have ever written or said can give the slightest ground for supposing that I attach importance to the size of the grain.

On the contrary, I had occasion last November, in commenting upon two letters, one of them from Mr. Alderman Mechi, which appeared in a leading London journal, to make the following statement of my opinion on the subject of the mere appearance of grains (apart from their parents):—

"Grains divided into two classes, either 'largest' and 'smallest,' or 'best' and 'worst,' give in numerous instances very conflicting results. The true principle as to such a classification can be educed only from a very extended series of experiments such as I am now carrying on. I can only say that I find nothing whatever to countenance the principle which 'Wheatsheaf' lays down so boldly ('if you wish to reap a first-rate article you must sow a second-rate article'), but much in support of the Alderman ('I attach as much importance to a heavy well-developed seed as to a perfect animal'), indeed, everything in his support, had he only explained that the 'perfect animal,' to which he would attach importance, would be one the result of long-continued selection (or breeding), not an accidentally good animal of no breed whatever, whose perfections, suddenly developed, would in its descendants as suddenly disappear amid the reproduced imperfections of its mongrel ancestors."

Mr. Shirreff says:—

"If it is true that (my Fact No. 2), 'descendant plants and grains inherit more or less the characteristics of their respective parents,' it is difficult to see how any change whatever can take place."

Whatever difficulty, if any, he may feel upon this point, I fear he will experience a far greater one in answering the question which I am about to put to him, viz.:—How does Mr. Shirreff account for his own varieties being, as he says, "new in their field characteristics," when in the very same paragraph he contends that the characteristics of Wheat are "fixed in their origin and unalterable by cultivation," and upon what ground he claims any credit whatever for his services in improving agricultural plants? It is quite true that he goes on to say, "But while contending for fixity by Nature, sports and hybrids are exempted," but he does not leave himself even this loophole, for of his "sports" he had unfortunately said just before "I have not succeeded by repeated selection in fixing any type," and directly after, with equal ill luck, of his "hybrids" he says:—"None of these Wheats proved fixed or reproductive in the second year." So much for Mr. Shirreff's Wheat; now just one word in defence of my own.

Mr. Shirreff ingeniously treats you as a thick and thin supporter of my system, in order to give the value of an "admission" to your statement that my Pedigree Wheat is "very productive but extremely coarse." There is not a single fact in existence in support of this statement. Indeed if "coarseness" means that the Wheat contains an undue proportion of "offal," what facts we have are quite the other way. To give one only—Professor Church says that the Pedigree Wheat was of higher specific gravity than any other variety (which

he examined). But all kinds of "offal" are of less specific gravity than the fine flour—how then is "coarseness" consistent with high specific gravity? It surely cannot be difficult to obtain something like the truth upon this point. I fearlessly challenge my Wheat, not a bad sample of it, but such a specimen as that grown by Alderman Mechi last year, and weighing 65¼ lbs. a bushel, against any half-a-dozen other varieties of Red Wheat of equal weight. The trial to be conducted by any one whose impartiality is beyond doubt, and the results in flour, offal, and 4 lb. loaves of bread to be published. If Mr. Alderman Mechi would undertake such an experiment, the public would soon learn the truth of the matter.

In any case it is always to be borne in mind that the miller, unless also a farmer, has no interest whatever in the produce per acre; and that he seldom, if ever, uses any kind of Wheat alone.

I will only say in conclusion that I have no need to have recourse to such an article as this for purposes of advertisement, and that in all discussions upon "Agricultural Plant Improvement," in which I take part, I should greatly prefer to leave my Wheat unnoticed.

Fred. F. Hallett, The Manor House, Brighton, April 4.

A LIFETIME ON THE COTSWOLDS.

The following is the conclusion of Mr. J. C. Morton's Paper lately read before the Kingscote Farmers' Club, of which the first portion was given last week]

II. Statistical.

I shall now try to prove this agricultural progress by reference to facts recorded in these papers about the rent of lands—about the sums paid to labourers—about the enterprise and increased liberality of farm management, and the consequent increase of farm produce. This is the second part of my paper.

1. *Of Rent.*—I was yesterday told by Mr. John Lane, of Cirencester, that his great grandfather 100 years ago rented almost all the lands at Stratton, near Cirencester, for 5*s.* an acre. They are now let, so I understood him, for 30*s.* to 40*s.* an acre. Wheat was formerly taken on these lands once perhaps in four or five or six years—it is now taken every other year. On Jan. 12th, 1771, there is an entry in Mr. John Smith's diary, "Parry called to tell me that the farm of Bowldown and Lasbro' is to be 10*s.* an acre." This was a proposed rise of rent, for on the 15th I see that he records as follows:—"Went to Shipton and bid 100*l.* a year more for Bowldown and Lasbro', but was not heard,"—so that the rent had, up till then, been less than 10*s.* an acre by more than 100*l.* a year. What the rent is now perhaps the present tenant can inform us. At all events it has since then been doubled. In 1774 I see, "Took Mobro' field, in Ozleworth, 10½ acres, at 5*l.* a year for seven years." That field is no doubt still known by its former name. Again, in 1780, "Called on Farmer White, at Kingscote, to hear the former rent of land in Bagpath. He told me the old rent was 5*s*, an acre, and 1*s.* tythe, field measure." There, again, you who know the district, have a means of estimating the advance in the value of land.

In the year 1780 there is an entry: "To Wotton in the morning, and took the glebe land of Mr. Clissold for 8*s.* an acre."

Now for the Didmarton farms, then as now of about 680 acres. From 1774 to 1784, the rent was 356*l.*—about 10*s.* an acre. In 1785, 1786, and 1787, it rose year by year to 371*l.*, 380*l.*, and 413*l.* From 1789 to 1800, it stood at 434*l.* From 1800 to 1805, it was 457*l.*, about 14*s.* an acre.

What these lands are let at now I do not know. But everybody will gather from these figures that during the past 100 years, rent has risen in the district from 5*s.* to 8*s.*, 10*s.*, and probably now to 20*s.*, and 22*s.* and 24*s.* per annum.

2. *Of Labour.*—On this point I have only the Didmarton figures. Here on 680 acres, the wages averaged 260*l.* a year, from 1774 to 1780, or 8*s.* per acre; from 1780 to 1787, 272*l.* were paid, not much more than 8*s.* an acre. During 1787, and seven years after, the sum paid for labour averaged 357*l.*, or about 10*s.* 6*d.* an acre. During seven years after 1794, it averaged 448*l.*, or 13*s.* an acre.

During the past 10 years the annual labour of that same farm has cost 900*l.*, exclusive of beer, or at least 30*s.* an acre.

It is plain therefore both that rents have doubled during the past 50 years, and that the wages paid for labour have nearly tripled during the same time. Well! rent and labour are voluntary payments by the tenant farmer. I may say so, although of course there is a sense in which they may be said to be involuntary and enforced. No man *can* get land or labour under the market price; but the market price arises out of the *mutual* competition of men bidding of their own free will against one another. And the fact that under these circumstances such enormously increased outgoings per acre should in this district have arisen, proves conclusively how largely the agricultural produce of this district has increased.

3. *Of Produce.*—But this increased produce need not be merely inferred: it can be proved. The Didmarton figures, Mr. Rudge's figures, and your own knowledge of the present produce, will sufficiently prove it. The average produce of Wheat during seven years up to 1794 was, on these farms, 17¾ bushels per acre, and during the next 7 years 16¾ bushels. Of Barley, during the first 7 years, it was 26 bushels, and during the second seven years it was about the same. Of Oats, during the same period, it was about 30 bushels per acre. These were the 14 years ending 1801. Take now the average of the years 1860, 61, and 62, three exceptionally bad years throughout the country generally, though what they were on the Cotswold district particularly I do not know:—

Produce per Acre.

	Wheat.	Barley.	Oats.
	Bushels.	Bushels.	Bushels.
In 1860 ..	30	35½	37
„ 1861 ..	36	33	37
„ 1862 ..	{ 37* } { 21† }	30	36

* Autumn sown. † Spring sown.

These figures contrast remarkably with 17 bushels of Wheat, 26 of Barley, and 30 bushels of Oats yielded during the 14th year up to 1801. And the annual corn books of the early part of the century show that the increase has been constant and gradual throughout, though most rapid during the past 15 years.

Now refer to the returns from sheep. During 21 years ending 1801, when a dry flock was kept, 5328 sheep had been bought for 6619*l.*, averaging 260 per annum at 24*s.* 6*d.* a-piece. During the same years 4843 were sold, leaving I presume 260 on the farm, and losing about 200 during the 21 years. The sheep were sold, wool and all, for 13,960*l.*, or about 54*s.* a head, returning therefore 29*s.* per head per annum. This is considerably more than Mr. Rich, and his "two worthy friends the Messrs. Brooks" had estimated as the return from a dry flock, for they had put it at probably 20*s.* per head per annum. But I presume it will at once be felt that this is nothing like the annual return now obtained from a Cotswold sheep. That is now I expect nearer 40*s.* to 49*s.* than 20*s.* to 29*s.* per head per annum.

Taking, however, the return per acre, it was less than I have named. This return is from a flock of 260 sheep, kept on nearly 700 acres of land. I suppose that now the return is pretty nearly from one sheep per acre all over the Cotswold district, so that if the produce was about 10*s.* per acre for sheep then, it is vastly exceeded now.

Mr. Rudge speaks in 1813 of the Cotswold sheep as coming then to 22 lbs. or thereabouts per quarter at three years old. This weight is now obtained at 12 to 15 months. He also speaks of Wheat producing about 15 bushels per acre on the Cotswolds, and Barley 25, and Oats 40 bushels per acre. I dare say Wheat would not now be generally put at less than 26 bushels; Barley at 32 to 36, and Oats at more than 40.

Of course all this is the result of a very different style of agriculture. Large quantities of cake and corn are used in sheep feeding. The Swede and Turnip crops have greatly increased, and are grown with the aid of guano, superphosphate, and bonedust, and the manure of the farm goes on the Clover and seed before breaking them up for Wheat.

The expenses of agriculture in this district have enormously increased in labour, manure, and cattle food, and the upshot is that there is a double crop of Wheat within the past 50 years; there is a produce of Barley not so much, but still materially increased; there is—where the six-fold course of crop prevails, and Oats follow Wheat—a rather larger, but not materially larger produce of Oats; and there is a four-fold yield of mutton.

I believe that the Cotswold district has well done its part towards maintaining our increasing population.

Well now, we have all heard of the declaration of the great German chemist that our agriculture is on the road to ruin. Baron Liebig foretells the exhaustion of English soil from what he considers our reckless agricultural mismanagement. Certainly his predictions clash grotesquely enough with our actual agricultural history. What a contrast is presented by the island generally now and a century or two ago! That which literally was a wilderness has become literally a garden. For forest, moor, and wold, with wild inhabitants, we now have waving fields of corn and flocks of sheep and herds of "horned cattle" of quite another sort. And nowhere is the contrast greater than in the Cotswold district, where, if anywhere, Liebig's prophecies might have been expected to have been fulfilled. For where should we expect to see land going back rather than progressing in fertility, if not in a country of free and open soil spread thinly over a hollow rock.

The *chemist* comes to his study of agriculture, knowing that plants feed, so far as the soil is concerned, on solutions of the substances existing there. He comes from his laboratory where he has watched and patiently superintended the washing of precipitates spread thinly over filter paper until all soluble substances had disappeared. And here he finds a district where the material, on which, so far as it is soluble, plants feed, spread thinly over as good a filter bed as anywhere exists, and there washed annually by six or seven times its bulk of rain-water, as powerful a solvent as any he employs. How is he to explain the increase of fertility, in spite of the great *natural* waste of soluble matters from the soil, which must be more or less experienced in this case. He finds here a district from which during the past—say, 64 years, off each and every acre, 10 tons weight of Wheat, as much Barley, and probably nearly one ton of mutton, have been actually grown and made and sold. How is he to explain the growing fertility of the soil under the direct *artificial* robbery and waste of the very material of the soil which has been thus occasioned. If this puzzles him it is because he forgets that agriculture is something more than a material art dealing with mineral dead atoms. Our fertility depends upon the wit, and energy, and mind which are brought to bear upon our land, as much as it does on bones and guano and the dung cart.

The man of science who considers the fertility of land merely as a question of the addition or subtraction of more or less of mineral atoms to or from a definite quantity, neither more nor less, which Nature has provided—the man too who believes that fertility depends on the maintenance of the so called vegetable mould in our soils—both of these might well expect that on these Cotswold soils, under perpetual arable culture, there would be exhibited a state of gradually diminishing fertility, while the pasture lands of the Vale, richly stored by Nature, would be in a state of gradually increasing fertility. The facts are just the reverse of their anticipations. The thin arable lands of the Cotswold district have largely increased in fertility—paying more rent, more labour, yielding more produce than ever they have done. The pasture lands of the Vale are stationary—I believe as nearly as possible stationary. It is arable culture which gives the most scope for applying artificial aid to the natural growth of plants—which, in short, gives the most scope to mind; and it is from this accordingly that not only do we get largely increased produce of bread and malt, but in a fourfold ratio largely increased produce also of meat and wool.

Certainly I do not believe in the soundness of the outcry that has latterly arisen among agricultural writers and speakers for the laying down of land to Grass. We can, I believe, generally grow nearly as much cattle food upon 100 acres of arable land as we can on 100 acres of Grass land; and we get the grain to boot. It is to this contrast between the arable and Grass lands of Gloucestershire that I have in the last place to call attention. Landowners do not willingly give leave to break up old Grass, and they are wise not to do it on any such scale in any district as would alter the general style of industry and the general character of farm management under which the labourers and tenants of that district have through many generations grown up. But it is worth while for them to recollect that the Grass lands which, as being less injureable, they so tenaciously retain in Grass, are at the best stationary and stop the way in agriculture, and that the arable lands of which, as being liable to injury, they fear the extension, are the really progressive part of English agriculture. It is these whose rents have increased—*they* have given the labourer his wages, and *they* have fed the population. I believe, if any one will inquire into the circumstances of the dairy farms of the Vale, they will find no more cheese or butter made per acre now, than was made 40 years ago. I have the figures (not by me unfortunately) of 13 dairy farms in Tortworth and Wickwar parishes, collected in 1830 by my father. There were then about 23 cows per 100 acres kept upon those farms, and there are not more now. And some statistics which Mr. Harrison gave me a few weeks ago, about the stock on richer farms in Frocester and Coaley parishes, seem to bear out the assertion that the dairy farming of the Vale is in very remarkable contrast to the arable farming on the hills in all that is for the interests of landlord, labourer, and population. I expressly forbear to give any opinion as to how the interests of the tenant farmer have been served by the progress on the hill. But it may reasonably be supposed that the competition for land here, as elsewhere, reduces the profits of the farmer to pretty much an even level wherever you go.

The main point on which I should be glad that any remarks made this evening should rest, is the safety to all classes of good arable farming—certainly the safety of it to the landlord. I believe that more cheese and butter will be cheaper made per acre on a dairy farm, when 25 acres out of every hundred are under the plough—than, as now, when a very scanty allowance of arable land exists. And it would be a very satisfactory result of this discussion if landlords in the Vale district should be induced by it to regard more favourably than they do the request which often reaches them for permission to break up a field or two upon the dairy farm more than is at present under cultivation.

During the discussion which ensued, Mr. Thomas, of Lasbro', Mr. Drew, of Calcot, and others declared that it was becoming annually more difficult to maintain the increasing fertility of the Cotswold lands. And it was urged by Mr. Harrison, of Frocester Court, the President of the Club, that the large and increasing amount of tenant's capital invested in their cultivation ought to be under the protection of a lease. Colonel Kingscote called attention to instances within his own knowledge of the improvements in Grass lands on which Mr. Morton had expressed his doubts. The following resolutions were adopted:—

"That the great improvement in Cotswold farming is due to greater care in cleaning the land, and to the extended use of artificial manures and cattle foods.

"That to maintain this improved condition it is increasingly necessary to continue the use of these means.

"That were they discontinued the land would rapidly revert to its former inferior condition.

"That the improvement being thus dependent on the tenants' energy and expenditure of capital, it is due to them that leases should be general.

"That the breaking up of a large proportion of the Grass lands on the dairy farms of the Vale would greatly stimulate improvement there."

SEWAGE IRRIGATION.

THE time is gradually approaching when thinking men who now know something of the natural laws and chemistry of agriculture will no longer abhor their own excreta, but will look upon them as the only reliable means for producing their future food. With the existing sentiments on this question, every man who dares to shock the false delicacy of the public by an appeal to their reason and common sense must expect to incur a certain amount of obloquy, ridicule, censure, contempt, or pity—but a stern sense of public duty and general welfare will give him courage and support. I feel convinced that the time will come and is coming when we shall be compelled to educate our children to regard their excreta as a treasure worth preserving, and too precious to be wasted. This is the practice in Japan and China, where as a consequence the people have increased and endured beyond any nation on earth. The reason is obvious. With them increase of population brings increase of manure, and consequently increase of food, without recourse to foreign imports of either corn or manure. Cause and effect thus follow each other in logical sequence.

The population of China is estimated at 412 millions (nearly half the world's population); of Japan, I believe, 30 millions. In Great Britain, owing to our neglect and waste of human excreta, increased population does not bring increased food; on the contrary, we become annually more and more dependent on foreign supplies, not only of food but of costly manures. We pay millions annually for Peruvian birds' dung, and throw away our own at our own doors. Is this reasonable or consistent with true commercial principles?

What should we say if our farmers, who depend for the production of their crops on the droppings from their 40 millions of sheep, were to divert all these droppings to the nearest stream or rivulet; and yet the waste of the excreta from our 30 millions of population is as great a folly, I had almost said as great a crime. That profound and rare philosopher Baron Liebig, has, in his never to be sufficiently appreciated works, unveiled and exhibited to us for the first time the natural laws of agriculture, and if we believe in those laws and listen to his advice there will soon be an end to that cruel waste of man's vitality, which flows in golden streams through our sewers to pollute our rivers.

It is curious to observe the amount of pertinacious disbelief and opposition that have been created by the enunciation of that great man's theories, but it ought not to surprise us when we remember that every new truth has had to pass through the same ordeal—Galileo, Harvey, Jenner, and a hundred other good and great men, in ancient and modern times, have all felt the force of ignorance and prejudice, but truth has ultimately prevailed. So it will be with what is called the sewage question.

The great dilution of our sewage is looked upon as a fatal objection to its economic use. There never was a greater error. Has not science revealed to us that the earth can and does abstract and arrest from the filtering fluid all those portions of it that are suited for the growth of plants? The potash, phosphate of lime, and ammonia, forsake the sewage water, and cling affectionately to those earthy granules from which men and animals, by an all-wise Providence, obtain their food. Sixty or 70 years ago we had no sewage or sewers, nor steam-power to avail of, but now mighty steam makes child's play of draining a swamp or emptying a sewer.

Sewage croakers who plead expense as an objection to the economical use of sewage should learn, if they do not know, that 112 lbs. of coal, value 1*s.*, will, in a Cornish engine, so multiply its weight or power, that it will lift or raise 105,000,000 lbs. of sewage or water 1 foot high. This is the ordinary duty performance of our water companies' best pumping engines, and thus we have the question settled so far as one important expense goes. There only remains the laying down pipes to convey it to the land, so soon as people can be brought to believe that town sewage is the very best of manure, and well worth paying for. To instil this belief into the agricultural mind is the most difficult part of the affair; witness the apathy in regard to the wasteful washings of farm-yard manure, the strong tea going unheeded down the brooks after heavy rains.

In order to give town sewage its full value, we have only to add to it as much superphosphate of lime as is contained in the bones which we do not eat, and which, therefore, do not go into our sewers. This was clearly explained by Baron Liebig in his recently published letter, giving the value of town sewage with phosphates at 4*d.* per ton, without phosphates only 1½*d.* per ton. The want of phosphate of lime in sewage or manure is like the want of water in house building—all the other elements or materials present are, by its absence, rendered unavailable. This is another of Liebig's great theories and truths.

We have all heard of the sewaged meadows of Edinburgh, which, owing to the heavy dressings of town sewage, are now let on an average at 27*l.* per acre per annum, and we know that the great cow-keeping firm in Glasgow, acting upon the advice of that good friend to agriculture, the late James Smith, of Deanston, pump the sewage from their cows to their farm out of town, but I will now proceed to detail a very important instance of the value and profit of town sewage.

This undertaking, being so recent, so accessible (only nine miles by rail from London), and so cheaply and effectively carried out, is likely, as an example, to have a great influence on the sewage question.

On the 23d of June, 1863 (by the kind permission of Mr. Marriage), I devoted some hours to a close inspection of the Beddington Meadows (300 acres), which receive continually, night and day, winter and summer, over a portion of their area, the sewage from 18,000 of the inhabitants of Croydon. The fœcal matters of this population are diluted by a water supply of more than a million of gallons daily, often increased by springs and rainfall to 2,000,000 gallons. The conditions on which it is granted are that the sewage shall leave Mr. Marriage's farm nearly as clear and bright as spring water. This actually takes place.

This application of town sewage to the land arose from no voluntary desire to benefit the soil, but from stern compulsion. In the first instance the Board of Health turned it into the river, the beautiful and pellucid little Wandle, a trout stream.

Law and Chancery suits were instituted at an enormous cost. A gentleman who holds a mill on the stream told me that he alone had expended 7000*l.* in law, and ultimately the Board of Health were compelled to hire 300 acres of land at 4*l.* per acre, the previous rental having been only 30*s.* They then let it at an increased rental for a term of years to the present occupier, Mr. Marriage, an Essex farmer, who has expended some 6*l.* or more per acre in pulling down 40 acres of wood, grubbing an immense area of rough old banks and fences, levelling, cutting carriers and gutters, and otherwise preparing the land to receive the sewage. Out of this sum the Board of Health have allowed him 3*l.* per acre. The land is favourably situated, being tolerably level, falling as the river falls. It is also very light and loose, resting on gravel, and self-drained. Mr. Marriage flooded the wood with sewage, and then pulled down the trees with a steam engine, the chain being attached to the tree about 18 feet from the ground. This flooding destroyed the numerous rabbits that infested the farm. Mr. Marriage, who is a judicious as well as enterprising man, entered upon this occupation in 1861, and has now laid nearly the whole 300 acres under sewage. This has been no easy task, but the work is done most economically and efficiently.

An open ditch of small dimension, with stops or sluices, communicates with carriers along the head of each field; from this carrier the sewage flows into open gutters, 12 inches deep, and 8 or 9 inches wide, 50 feet from each other, and running from top to bottom of the field. One man attends to the whole, placing the boards or stops at proper intervals to divert the sewage equally over the soil. From 30 to 40 acres are always under irrigation, the cost of attendance being 1*d.* per acre for labour for each irrigation. Sometimes the Rye-grass is flooded again when 18 inches to 2 or 3 feet high, if it appears to require it. It grows very strong and green near the gutters, and this guides one or rather warns one where to step over them. Those who see great difficulties about sewage would be surprised at the simplicity of the operation. The sewage flows from the town down to the Board of Health sewage works, where the solid is separated from the fluid by passing through perforated plates and gravel beds. The fluid then comes to Mr. Marriage's farm in an open cutting. There is nothing to shock a farmer's nerves, and although the weather was warm there was only a faint and slightly disagreeable smell on those fields from which the sewage had been recently withdrawn.

The arable land was in a wretchedly neglected condition, covered with Docks, Couch Grass, and other pernicious weeds, which Mr. Marriage naturally concluded would impede the growth of his young Italian Grass. To his surprise and joy, however, the rapidly-growing Rye-grass, under the influence of sewage, first smothered and then ate up all its opponents. No other vegetation can exist under the dense mass of this Italian Rye-Grass, looking like a solid and impenetrable wall from 3 to 4 feet 6 inches high. The second cut (from April 22 to June 22) was of that height, and at least 9 to 10 tons per acre. In the hot and dry month of July the crop grew much less vigorously, showing a desire to run to seed.

With more cloudy weather and shorter days its strength returns. The first cutting takes place in March—the last in November. The total cuttings yield from 25 to 30 tons per acre, according to season. This, if converted into hay, would give 10 to 12 tons per acre. During the spring months enough is sold daily to feed about 900 cows, in addition to a great number of cattle and horses grazed on the farm. This large supply affects the London hay market. The spring growth is so rapid and simultaneous that it becomes necessary to make some into hay, although this is rendered a difficult operation, owing to the great crop, and also to the rapid growth of the following crop.

The price received on the field is 17*s.* per ton for the green Grass. About 25 horses are employed in carting to London, where it is sold at 25*s.* per ton. Cowkeepers and others from many miles around, come to the farm for supplies. The Grasses are of a very fattening quality, as evidenced by the peculiar glossy coats and healthy appearance and well-filled outlines of the numerous grazing animals ready for the butcher. No other food is given but Grass, and they eat it quite bare before the irrigation is turned on. Pasture and Italian Grass benefit alike by the sewage, the former being rendered a rich and close sward by the application of sewage. Many head of cattle are grazed on the pastures during winter, and do well. Forty acres of Mangel Wurzel are grown annually.

On the whole this undertaking gives unmistakeable evidence of the value of town sewage, and although, after passing over Mr. Marriage's land, the sewage appears to be water, I imagine that it must still be of considerable value if applied to other land.

I cannot conclude this paper without thanking Mr. Marriage for his public spirit and kindness in permitting an inspection of his operations. *J. J. Mechi, Tiptree Hall, March*, 1864.

P.S. I may add that the sanitary condition of the neighbourhood of the farm is good, and that the alarm originally existing has now passed away. I would remark that from experience I find that when farm-yard manure is converted into sewage by being very largely diluted and applied like rain, its effect on the growth of plants is much more rapid, and the return for the quantity of manure applied is more immediate, than the slow action of what is called solid manure.

It is the solubility and divisibility of guano that tends to produce a quick return. The same principle holds good with sewage.

I annex Mr. Marriage's letter to me, just received—

"Grassmere, near Mitcham, Surrey,
March 12, 1864.

"Dear Sir,—In answer to your queries, I may inform you that 17*s.* per ton is the price I obtain for my Grass in the field.

"I charge 25*s.* per ton, delivered in London; but as so much of this is made up with the expense of cartage, &c., therefore the most correct estimate, and the one that most fairly states the value, is as above, viz., 17*s.* per ton in the field.

"You know that I have hired about 300 acres of land, and apply the sewage of Croydon to it; that it is a great stimulant to the growth of vegetation, especially to Grass, producing a crop much earlier in the season than any other method, and continuing on much later, also through the autumn; that Grass so produced possesses great feeding qualities; that sewage-water so passed over the land is rendered not only clear and free from feculant matter, but will not create a nuisance if the land is situated not immediately in the neighbourhood of habitations. This latter remark I make purely on the ground that under any circumstances the application of the purest water to the soil, will of necessity produce a dampness in the earth, and perhaps influence the air, and would not be conducive to health.

"I remain, dear Sir, yours very truly,
"JOHN MARRIAGE."

The following facts, which I ascertained from reliable sources, settle the question of the practicability of applying town sewage to the soil:—

"An iron pipe of 4 feet in diameter, having a fall of 5 feet per mile, conveys from Loch Katrine to Glasgow (40 miles), 22½ million gallons of water every 24 hours. The cost of the 4-feet pipes, including bridges and other necessary works, was 10*l.* 18*s.* per yard. This was carried out for the Corporation Water Works, Glasgow."

The largest daily water supply to London is 100 millions of gallons during summer. Much of this is wasted and evaporated by street watering, boiling, steaming, &c. Therefore four of the Glasgow pipes would reconvey all the water and sewage to the country. Oh! but then there is the rainfall! Well, Mr. Bazalgette, in a paper read in January, 1857, says that in 1855 there were

226	dry days in the year
90	days fraction to 1-10th of an inch of rain
21	days 1-10th to 1-5th of an inch
28	days heavy rainfalls.
365	

Ancient Rome, with its seven millions of inhabitants, also had its great sewer, the celebrated Cloaca Maxima, which still exists. What was the result of their wasting their excreta in the Tiber instead of applying it to the soil?

Liebig tells us at pages 229 and 242 of his "Modern Agriculture:"—"The sewers of the immense metropolis of the ancient world engulphed, in the course of centuries, the prosperity of the Roman peasant (farmer); and when the fields of the latter would no longer yield the means of feeding her population, these same sewers devoured the wealth of Sicily, Sardinia, and the fertile lands on the coast of Africa. * * * The land was in the end not able to bear the heavy taxation, and as the history of the first three centuries of our era informs us, there ensued a condition of the population the most calamitous and frightful into which a nation can fall. It is true that many causes co operated in producing this result, but assuredly one of these was the exhaustion of the soil by the spoliation system of agriculture then pursued."

Surely the almost depopulation of that once great city should warn us in time to avert our own catastrophe.

Purchased food and bought manures, rendered necessary by the non-return to the soil of our own excreta, cost the farmers of this country probably not less than 10 to 12 millions annually, and are almost to this extent an abstraction from their profits. Every new sewer made, and every old cesspool abolished,

are further abstractions from the farmer's manurial resources, and render necessary a further outlay.

Liebig says, p. 184, "Natural Laws of Husbandry," —"Of the large amount of mineral substances which man consumes in his food during a lifetime, but a small fraction remains in his body. * * * Chemical analysis demonstrates that the excrements of man contain the ash-constituents of bread and flesh very nearly in the same quantity as they exist in the food."

THE VEGETABLE MOULD.

In previous Numbers of the *Agricultural Gazette*, I have brought out some important original views of the agency of the Vegetable Mould in the economy of Nature—as an accumulated provision necessary for the origin and continued existence of the higher order of vegetables and animals, and of man himself. It now remains to point out the most efficient means of maintaining, improving, increasing this mould. This is the highest, the most important object of all to man —that upon which his own existence, at least the amount of population which the earth is capable of supporting, depends; the capacity of doubling and quadrupling, or halving and quartering the present number, being according as this provision is increased or diminished. Yet strange, this highest, most important art that man is master of attaining, has been unheeded, unmentioned, even ignored, unthought of by Liebig. But previous to entering upon the subject of improvement, it is proper, though in part a repetition, to point out the highly efficient means to effect its destruction which man has adopted.

In the reduction of the wilderness, especially the forest land in North America, the business of the settler would almost seem to be to get rid of the vegetable mould. In cutting down and burning the forest trees, he throws all the valuable components of the vast mass of vegetable matter, Liebig's minerals excepted, into the atmosphere. He then by aration exposes to the parching hot atmosphere and sun's rays the black and brown vegetable mould under the most exhausting crops. Often, in order to get rid of the manure which the consumption by cattle of these crops produces, he drives it out upon the river ice, if he has a convenient river near; and in the absence of this conveniency, reckless of its economical management and application as a manure, it is seldom made use of in a manner to retain the fertility of the soil, which would require the utmost care and leniency in cropping, as the vegetable mould of the forest, from having accumulated under shade and shelter from sun and wind, is much more volatile when exposed than mould accumulated under different circumstances. Its preservation is however no great object to the settler. He crops it till it is reduced to pure mineral earth, yellow or white sand or clay—quite the mineralogist fancy. He then subjects a new portion of the forest land to the same course of exhaustion.

In another colony of this highest enlightened race of man, the Cape, where the farms are extensive, the country only partially wooded, and flocks and herds the chief product, owing to the danger from destructive wild animals the cattle are brought home, and pass the night in enclosures close to the people's dwellings, defended by large dogs. Here the manure accumulates in mounds around the homestead to such an amount as to render necessary its removal to a distance, leaving the mounds "to waste their fragrance on the desert air." The exhaustion of the pastures from this cause, and the destruction of the wood by the sheep and cattle browsing upon the young tree plants, must tend to sterilise and parch up the country, which though like Australia subject every few years to an excessive rain flooding, most seasons suffers from aridity. The browsing of cattle and gnawing of sheep must diminish the wood, and the resulting aridity may react to destroy the wood altogether in the drier sandy districts. Subjected to great drought a wooded country ceases to be wooded.

In Australia much the same exhaustion of the vegetable mould is in progress as at the Cape. The nibbling and gnawing of the sheep not only destroys the young tree plant, but also the thin tufted Grass is bitten down into the root knot and dies out, leaving the ground comparatively naked to what it was in the state of nature, open to the parching sun and wind to reduce the vegetable mould to the chemist's wish—to its more fixed mineral constituents, almost as if subjected to torrefaction in his crucible; hence the gradual decrease of the fertility of much of the Australian pastures. The great disadvantage of these countries, both Australia and the Cape, is that the rainfall is not distributed regularly over the year, and also not regularly from year to year. A course of seasons occur of nearly the same rainfall, followed by one or even two seasons of excessive drought, or by an excessive rainfall, flooding the rivers of steep banks 80 or 90 feet perpendicular, and laying the low inland country, where the banks are low, deep under water.

Passing northward to British India, we meet with a country under very different circumstances—a land of the olden time, still densely peopled, perhaps the cradle of the human race. Here we find vestiges of very ancient civilisation—strata of broken bricks and earthenware, a number of feet in thickness and miles on miles of extent, such as London would furnish, trampled down by an earthquake, but not swallowed up, again and again reconstructed, and at length buried in the dust of time. Here we find a people suffering from excess of social order, fallen into a system of social, political, and religious slavery—so chained together by impassable social barriers, so fettered body and mind by the system of caste, and by crushing forms, ordinances and usages, as to be inextricable by any effort of their own, a state of society as definitely fixed and binding, though not so wisely ordered, as that of the instinctively guided bee-hive.

In the ancient civilised countries of the East, where in the great plains despot rule and tyrant custom have reduced man into abject slaves, liberty, physical and mental strength, has retired to the mountain fastnesses. In the open country of India, physical and mental slavery, and consequent degeneracy of race is complete, and has left the people a prey to foreign thrall, luckily for them to the most improving race that has ever appeared upon the earth. Whether under the rule of this race the Hindoos may be recoverable from the chains which have been rivetting upon them for thousands of years, is a question which time only can solve. Unfitted, themselves, by the climate to become colonists, and make a clearance like the Jews of old, we shall see whether these modern masters of India, after manumitting their slaves in the West Indies, have only done so to increase them a hundredfold in the East, only changing the form of slavery from the individual slaveholder system to the political and social phase—what I have termed indirect slavery.

In India the land tenure system, as regards improvement and the well-being of those who are the farmer cultivators, is perhaps the worst that could be contrived—worse even than that of Britain. In India the Government proprietorship of the land is an actual reality, practically carried out, and not merely a theoretical form as in Britain. The Government farms out the land, in the same manner as the taxes were wont to be in some of the European countries, first in large districts to first-class middlemen, who again in their turn farm it out in smaller divisions to second-class middlemen, who parcel it out to the farmer cultivator on the most grinding and destructive system of yearly tenure, exacting three-fourths of the produce as rent; an amount exceeding what I have ever heard of in Europe, when one half of the estimated produce is the highest rental for land under aration that I have known. This system retains the tenant in abject poverty, and necessarily produces a hand-to-mouth system of cropping exhaustive of the vegetable mould.

It would seem that continental countries deprived of forest and a fertile vegetable mould fall more into extremes of drought and rain—a long period or season of parching drought followed by an excessive flooding. Such great alternations occur in India, while the vegetable mould in most places is much exhausted, and the Hindoo race nearly in the same ratio degenerate, and exposed to destructive famines, now perishing by hundreds of thousands where the ancient works of irrigation have been allowed to go to decay. Why do the British rulers allow such a state of things to exist? Surely there are plenty of labourers in India. What would the labour that constructed the useless Egyptian pyramids, or the labour of the present standing armies of Europe not be capable of, if directed to works of utility? As the aids of steam and machinery come to operate, a vast amount of human labour power is set free. One half the human labour can perform the usual agricultural work, and less than one-third the work of textile clothing and other articles necessary to human comfort. This leaves an enormous amount of human power unemployed. Is it to minister to the debasing luxury and pride of the few? Is it to go to keep up enormous standing armies and war navies? Or is it to be directed to grand works of future human advancement, of which irrigation in warm countries is the foremost?

I will defer the account of the destruction of the vegetable mould going on in Britain, notwithstanding the unprecedented means we possess of increasing it, till I come to treat of the improvement of the vegetable mould in cooler regions.

In hot climates irrigation in a great degree compensates for and with judgment and industry can be worked to furnish a rich vegetable mould to the portion of the land not irrigated, the irrigated portion requiring little manure and giving much material to form it. Irrigation has long been practised profitably in Egypt and other places, where the water from insufficient fountain level had to be raised by human power alone. In the South of Spain, during the political calm of the Roman rule irrigation was extensively carried out, and where necessary the water raised by ass and mule power, giving a vast increase to the population, raising it to treble what it now is, as 1 lb. of coal is able were there no loss of power by friction, &c., to raise 1 ton of water 1 mile in height, that is about 50 tons, 100 feet. How much more easily and effectually by means of steam power, can the increase of irrigation, and vast increase of a well fed population be carried out. Man has it now in his power to raise every spot of the warmer climates, the unmanageable mountains excepted, to the highest state of fertility. To effect this, the industrious man must be protected in the property he creates, facilities for the creation of real property—the enrichment of the Vegetable Mould—afforded, the fetters which repress reproductive industry and promote misery removed.

In order to compass means for the repair of the waste of the vegetable mould which man has effected, it is well to look at the processes of Nature where its greatest depth has accumulated. The reedy shores of rivers and shallow lakes in climates of sufficient temperature are the natural laboratories of those deep formations of vegetable mould which we find in low countries, such as the south of Russia, the black soil of India, the north of China, and some other places, where great fresh water lakes and rivers, with shallow shores, had gradually retired and left the reed and sedge-formed vegetable remains of great thickness. This formation is gradually built up of the roots and fallen down stem and leaves along with a little mud till it rise above the water, or in case of the slowly retiring water of shallow lakes (a not uncommon occurrence) there is built up of these materials along the shallow border a deep formation of vegetable mould, extending in width as the water retires. Artificial irrigation, wisely conducted, can be worked to act in the same manner as Nature does, where the temperature is sufficient, that is for about 40° on each side of the equator. I speak here of what is within the power of highly civilised man to effect, aided by rapidly extending science, under protection to capital and skill invested in improvement of the soil.

With irrigation there is a luxuriant and rapid growth, so that two, or even three crops can in warm climates be grown in the year. It is rather difficult to understand how the necessary materials are obtained. No doubt the water, different from rain water, in containing more minerals, supplies a portion, and the increased vigour of the vital attraction in a luxuriant plant is abler to overcome the existing material attractions which withhold the mineral and other components of the soil, or, perhaps to widen the sphere of the plant's attractions, to draw from a deeper or more distant source, whether in the soil or atmosphere. Here not improbably the metamorphic power of electro-magnetism which carries metallic substances and deposits them in rock veins may act here, more especially through the conduction of water. Supposing one half of each farm to be under irrigation, whether producing man's food, or that of beasts, cut and given them in stalls, the quantity of manure produced will be adequate to raise the other half to as high a pitch of fertility as land not irrigated could well reach. In the irrigated portion it might be profitable now and then to take a flying crop without irrigation. This may be found expedient in order to expose the soil to aeration, thus to give it an opportunity of imbibing a large quantity of air, and to render it of a more crumbly character. The fertilising effects of aeration I have yet to treat of.

In effecting the proposed improvements which extending science points out, railways will facilitate the conveyance of the necessary coals from their natural depots, scattered over most regions, though perhaps not so plentiful within 30° of the equator (this demands examination, as no peat deposit takes place except at very high altitudes within this lat.) The steam elevator of water and steam plough, along with steam conveyance, are destined to revolutionise the earth's surface and the condition of man, morally as well as physically. In warm countries these aids of human labour, doing all the heavier more laborious work, will be much more felt and their advantage more appreciated than in cooler regions, where heavy labour is not so burthensome. These aids will render man more a superintendent of labouring machines than a labour drudge, and the business of superintendent or conductor, a charge of trust requiring intelligence, will be found too important an occupation for any but freemen—hence the slave's and slave-driver's occupation will be gone.

I have here redeemed my promise, so far, of proposing a practical scheme of vastly improving the vegetable mould in more than four-fifths of the habitable globe, and which intelligence and industry under the present and coming unexampled advance of science and extension of the arts of life over every land will enable man to effect. The means of improving the vegetable mould and greatly increasing production in cooler climes remains to be treated of. *Patrick Matthew, Gourdie Hill, Errol, Scotland, March.*

Home Correspondence.

Agricultural Plant Improvement.—Since writing to you on the 19th ultimo, your leader of the 13th February came under my notice for the first time, and although late I offer a few remarks in reply to what you have said in connection with my name. The following extract from the leader in question does not fairly meet the question at issue:—"No one is more able than Mr. Shirreff to appeal to the history of plant improvement in proof of his opinion. But we shall be very much astonished if, on a review of the whole of that large subject, he finds as he declares that the alleged history of Hallett's Pedigree Wheat is the only instance which can be quoted in defence of the idea which the word habit, as applied to the growth of plants, necessarily conveys." In replying to this I shall leave out of consideration the import of the words "idea" and "habit," and substitute the term cultivation as used in my communication of 6th January last. On the widest review of plant improving, embracing my experience in the farm and garden, I am unable to name a single instance of a variety having been improved by cultivation. Being aware of my deficiencies in botanical knowledge, I consulted by letter a practical person of considerable attainments, and received the following answer. "I have not yet seen nor even heard of any trustworthy exemplification, nor do I believe it possible to improve, strictly speaking, any plant through the effects of cultivation. I am aware that a variety under different circumstances may have various aspects, but not improved or deteriorated thereby. Habit of growth is quite foreign to the subject." As our opinions on this subject are so different, I beg you will favour me with a list of the varieties which you think have been improved by cultivation. Can there be anything in the origin and nature of Hallett's Wheat to render it an exception with respect to improvement by cultivation? I think not; but let this subject be examined. Mr. Hallett says he commenced with an ear of Nursery, which he improved by cultivation. But there is overwhelming evidence establishing that the Wheat is not Nursery at all, and many of your correspondents have stated that it is similar, perhaps identical, with Quentin's Giant. But, Mr. Editor, you have recently been supplied by "Triticum" with evidence to judge for yourself, and as you retain the samples in case your account of them should be called in question, it is not too late to let your readers know your opinion. I therefore venture to ask you to re-examine "Triticum's" samples—No. 3 (Hallett's Pedigree), No. 10 (Hallett's Pedigree), sent out in 1862, and No. 12 (Quentin's Giant)—and tell your readers if they are different varieties. I also ask you to compare these samples with No. 9 (Nursery Red), and say if it is the same variety with either No. 3 or No. 10. Hallett's Pedigree Nursery Wheat must either be fact or fiction, and your reply to the requests which have been made may go far to establish or annihilate the year by year system of plant improving. *Patrick Shirreff, Haddington, April* 11.

Hallett's Wheat.—You were good enough to insert in the *Agricultural Gazette* of March 26 my letter respecting the quality of Hallett's and other Wheats grown in this parish, adding, "Will you give us a full history of the produce in the two cases?" The state of the farms in this parish varies so much that I fear no

useful conclusion can be drawn from a comparison of the produce on one with that on another. Our soil is gault, underlying the Biggleswade green sand, mostly very tenacious, but occasionally gravelly or sandy. Some of the land is drained 4 feet deep with pipes, some with bushes, 2 or 2½ feet deep, some not drained at all; some has been steam-ploughed, some exhausted by former bad tenants and full of weeds, some in a high, some in a creditable state of cultivation. As might be expected under such varying circumstances, the produce greatly varies. Last harvest some of the land produced 17 bushels to the acre, some not less than 50 bushels, and in one case more. The deep drained land, which is the best cultivated as it happens, produced the greatest crop, the undrained the least. To make a comparison between the productiveness of Hallett's and another Wheat both should be grown under the same conditions of cultivation, and this has not been done here yet. I took my land into my own hands at Michaelmas 1861, when it was the most exhausted and foulest in the parish. I dibbed the Wheat called Tibbald's Wonder at the rate of a bushel to the acre, and in the spring sowed on it 1½ cwt. of guano to the acre; the produce was 11 bushels to the acre of very coarse Wheat. In the autumn of 1862, having drained the land, I dibbed, after a poor crop of Trefoil, Hallett's Wheat at the rate of 1 peck to the acre, and during the winter and spring top-dressed it with dung and 1½ cwt. of Peruvian guano. The plant, in consequence of the poverty of the soil, the falling away of the moved earth in the drains, and my omission to resow where the seed failed, came up patchy, in some places nearly enough, others half, a quarter enough, or scarcely any; the crop produced on an average 25 bushels to the acre, but in places there were, I have no doubt, 40 bushels. In reference to "Triticum's" remarks, numbered "3" in the same paper, Hallett's Wheat "when used alone makes bread of the most inferior description," mine makes excellent bread. The true explanation of the discrepancies in the various accounts of this Wheat is to be found in your leading article on the subject at p. 298, namely, in the differences of climate, elevation, soil, slope, latitude, and cultivation. My land is situated about 52°, at a very moderate elevation, somewhat gravelly clay, gently sloping to the south, and above all, deep-drained. In proof that this is the cause, and that our soil will produce Wheat of a better quality than another from the same seed, both I and my neighbour noticed that the Wheat which I grew was perceptibly better than the seed which I sowed. *E. B., Hatley Cockayne Rectory, St. Neot's, April* 9.

Garden Manures.—The paper of "Rusticus" in the *Agricultural Gazette* of the 26th of March on utilizing human excreta is valuable, as every attempt to stop the waste of the most valuable of all manures. Having for many years, indeed ever since Mr. Way, the eminent chemist, proved that clay effectually deodorised fœcal matter, and preserved it for the gradual use of plants by their roots, I have brought the system into practice, doing away with all sinks in out-door closets. A tray on the level of the ground is used instead, containing dry earth, clay, or earth containing clay, but not siliceous earth, which does not absorb and lock up like clay, or what answers well and is very convenient, the sifted ashes from the house fires; thus provided, a shovel and a brush are all that are requisite, and a shovelful of earth or ashes thrown in every time before leaving the closet effectually deodorises. Then, as often as necessary, the contents of the box or tray are removed, one side or the back being made to open, to enable a person to shovel out and carry away the contents, which is only like taking away so much earth or ashes, so effectual is the deodorisation. You will see how inexpensive and applicable this plan is for all out-door closets. As for indoor, I have used Smith's apparatus (of Glasgow), which is a chair to which is attached a receptacle for ashes, and a little mechanism to make it self-acting every time it is used. I believe this would answer as well as water-closets in a well regulated family, where the supply of earth and the removal of the contents of the box is properly attended to; and I believe the Rev. Mr. Moule's apparatus is something of the same kind. My plan is applicable to all towns, and might be carried out by a system of day scavengers, and would preserve manure now lost, and of the value of millions a year, as well as prevent the defilement of water in wells, and thus doubly contribute to the health and happiness of man. *Thos. C. Brown, Further Barton, Cirencester.*

Societies.

Bath and West of England Agricultural: *April.*—At the usual monthly meeting of the Council of this body, it was resolved that the Right Hon. Lord Fortescue be requested to put himself in communication with the authorities of the city of Bristol for the purpose of inviting H.R.H. the Prince of Wales, the Patron of this Society, to honour the approaching Exhibition with his presence.

Selection of Judges for the Bristol Meeting.—On the motion of Mr. Knollys it was resolved that the Secretary be desired to apply to the Secretaries of the National and County Agricultural Societies (named in the resolution), requesting them to furnish lists of gentlemen qualified to act as judges for the several descriptions of stock for which prizes are offered by this Society.

The Open Judging of Stock at Bristol.—A code of rules for the regulation of the open judging at the Bristol meeting was brought up by Mr. H. Fookes, and carried unanimously. It was among other things resolved that the judging shall commence at 10 o'clock on Monday morning, at which hour the public will be admitted to the show yard; and it may be stated in general terms, that the rules for judging are with very slight modifications the same as those adopted at the Worcester meeting of the Royal Agricultural Society.—On the motion of Mr. John Gray, seconded by Mr. Knollys, it was resolved that in the event of an animal to which a prize has been awarded being disqualified, the animal next in merit (unless disqualified), shall succeed to the vacant prize, unless certified by the judges to be of insufficient merit for a higher prize than that which has been assigned to it; and that the judges be requested to hand in one or more "reserved numbers" of animals which shall succeed in like manner. It was further resolved that the Veterinary Inspector do accompany the judges, when the classes of horses are judged, and advise the judges, before they make their awards, of any disqualification affecting the animals selected for prizes, and that in all other classes he be sent for by the judges, before they award the prizes in any case of doubt.

The Entrance Fee for Horses in Classes 39 to 50 inclusive, was fixed at 1*l.*

Farmers' Clubs

Oxford.—On "*The English Labourer and his Cottage Home.*" Mr. E. W. Moore, of Coleshill, Wilts, Agent to the Earl of Radnor, read a paper on this subject. The Rev. J. C. Clutterbuck presided.

His title to speak on labourers' cottages consisted in a 24 years' practical acquaintance with the subject, during which period he had erected close upon a hundred dwellings. After acknowledging the improvement which had been made within the last 30 years, and noticing the provisions made by the late Prince Consort on the Royal farms, Mr. Moore mentioned that Mr. Tucker had procured returns of the cottage accommodation throughout the Faringdon Union, and, on the whole, the results were most distressing. After remarking that the dwellings of the poor in London and our large cities were equally disgraceful, and that the remedy was to be sought, not so much in legislation as in awaking the consciences of owners, the lecturer proceeded to notice the question of wages, giving it as his opinion that, instead of a uniform standard, each man should be recompensed according to his diligence and ability, due regard being paid to trustworthiness and length of service. He read a number of letters which he had received from agriculturists and agents in various parts of the country, the general effect of them being that more labour might be profitably laid out by farmers, and that the labourers in the north, being better paid, better housed, and better fed, were far superior in physique and endurance to those of the southern counties; one gentleman attributing the difference to the former laying out more money on animal food and less on beer. Mr. Moore then expressed his opinion that the abolition of the law of settlement would be a great boon to the working classes, giving instances of the harshness of its operation, and remarking that union rating must follow or precede the change. He next touched on beer houses, deprecating the present law, by which they were virtually brought to every man's door, and assigning the prevalence of drunkenness mainly to the discomfort of the labourer's home. He should prefer the throwing open of the trade to the present system, but thought brewers should encourage the supply of wholesome beer in small casks, to meet the wants of the working man. The evil of indiscriminate charity was next alluded to, Mr. Moore's belief being that nothing so much demoralised and degraded the poor in rural parishes. He then referred to education, pointing out the need of infant schools, children being so early taken to work, and the propriety of a practical, religious, and industrial education, which would fit boys to become good ploughmen, shepherds, and herdsmen. Those who were capable of a higher position in life would find this no hindrance. In conclusion, he dwelt on the influence possessed by landowners, clergymen, and farmers, and the good which might be effected for the labourer by their example, sympathy, and kindness.

The President expressed the cordial thanks of the members to Mr. Moore for his most instructive and admirable lecture. There was one point on which he had not touched—the state of the cottages in the holdings of the colleges. He (Mr. Clutterbuck) was sorry to believe that they were in a very deplorable condition, many being a disgrace to the country, and this arose from the very nature of their tenure, being under long leases in the hands of the farm tenants, who had no permanent interest in them, and had very often to pay for their own improvements on the renewal of their leases. The sooner that system was amended the better. He quite concurred with Mr. Moore as to wages, a subject which required much consideration; and the great disproportion in the relative value of piece-work and day labour in the north and south showed that a low weekly scale of wages was as expensive as a higher one.

Reviews.

The Theory of Under Draining (a Lecture delivered at the Royal Agricultural College).

This is an unpublished pamphlet, containing a lecture by Mr. Bailey Denton, lately delivered before the Royal Agricultural College at Cirencester. He has been good enough to place it at our disposal; and we had hoped to have laid it entire before our readers in the same fulness as a former lecture by the same gentleman had been given in these columns. The pressure upon our limited space is however so great that we have to be satisfied with an abridgment in place of a full report.

The lecturer here discusses the theory of under-drainage in reference to the texture, the composition, and the temperature of four classes of soils, which he denominates free, clay, peaty, and mixed soils respectively. The water in land is derived from the rain, and is then called surface water—or from springs, when it is called "effluent" water—or from pressure, rising to the surface of free soils in the lower grounds, when it may be called "diffluent" water.

"1. *As to the Mechanical Effects of Under-drainage.*—Each description of soil has its appropriate mode of drainage, and each character of wetness commands a special mode of removal; but the atmosphere takes such a prominent part in bringing about the desired mechanical changes in clays, which are retentive soils, that it is positively necessary to regard the art of draining them as distinctly different from that of draining free soils, which are not retentive.

"The surcharged free and peaty soils being naturally 'percolative,' are only wet from position, and they require just sufficient outlet for the water pent up within them to turn stagnation into motion, and to create, in point of fact, a sub-irrigation for the benefit of the roots of vegetation. You have observed, no doubt, the effects of moving water on the surface of our irrigated meadows, and have seen that it is not wetness that is wanted, for these meadows are generally too wet before the water is turned on, but that it is motion; and so it is with the under-drainage of our free soils. In them the true art of draining is in doing as little as will attain this object. When once drained they possess the same capabilities as those which are naturally dry, and they are equally susceptible of absorption, the only difference being the depth of the subterranean water level, which, in the case of the high and dry lands, sinks beyond the reach of evaporation; while, in the case of drained lands, though sunk lower than before by the operation of draining, it still remains within reach of the atmosphere.

"The clays, on the contrary, though rendered capable of 'permeation' by under-drainage, still hold their peculiar powers of retention and expansion, which limit their capabilities of absorption, and cause them to resist, when the surface is not properly and deeply cultivated, the admission of falling rain. The clays are the 'conservatives' of the soil. They hold the moisture they seize, and give it out gradually except on occasions of heavy downfalls, after their own capacity for retention has been satisfied, when they readily discharge the excess. These soils cannot be aërated too much, as it is only by aëration that their retentive nature can be held in subjection. In clay lands, the more perfectly the aërating action of the drains tells upon the mass of soil between them, the quicker and more uniform the passage of surplus water through it, and the only limit to the number of drains to produce this result is the cost. The true art of draining is not confined to ejecting surplus water, but extends to the complete aëration of the soil drained. You must bear in mind that all the drainage in the world will not alter the constituents of clays; it merely alters their condition. There are persons who think that if clays are drained they become as ductile as free soils, but it is a mistake; they still retain their peculiar properties, and when fitly treated are as grateful as any; when abused they become the *noli me tangere* of soils."

The discussion of the chemical effects of under-drainage, and of its influence on the temperature of soils, occupies the latter part of the lecture, and to this we shall recur next week.

A Guide to Geology. By John Phillips, M.A., LL.D., F.R.S., F.G.S., &c., Professor of Geology in the University of Oxford. Pp. 314. Small 8vo. Longman & Co., 1864. Fifth Edition.

Professor Phillips reminds us in his preface, that about 30 years ago, when his Guide to Geology was first given to the public, many persons were surprised with the revelations of that science, and their minds received a shock. To this feeling, he says, an almost easy faith in the wonders of geology has succeeded; but, if we would retain this confidence, we must persevere in the methods which have won it, carefully shunning speculations without data, &c. The reader will find that throughout this little work the Professor does not transgress these just limits which he here prescribes for himself.

The "Guide to Geology" is written for three classes of readers.

1. For those who desire to know what geologists have settled with regard to our globe.

2. For those who wish to know how they arrived at their conclusions.

3. For such as wish to add to the facts, and to take their place among the discoverers of new truths in geology.

As to the laws which are recognised in this science, while geologists allow that no single feature of earth, sea, or air, no single mountain, river, or lake, remains as it was in primeval times, they find no traces of phenomena inconsistent with those genera laws which now prevail; nothing to require the supposition of any other forces than those known to be now in operation. As to a progression in the systems of animal nature, it seems that the forms and combinations of forms once passed recur no more; in this point of view Nature has no backward steps. Yet

that there must have been a beginning of life on the earth will be admitted by all who allow that our globe "was once in a state quite incompatible with the presence of animals and vegetables—in fact a globe of melted matter enveloped in a vast misty expansion, in which the water was suspended which now fills the ocean." Ordinary folks, who are thus driven, by the nature of the case, to allow that there must have been a beginning of animal and vegetable life upon the earth, do not see much difficulty in what the Professor calls "an enrichment by new creations added from time to time to an original stock," but the Professor does not seem to think there is any necessity for stating what are his own opinions on matters of this kind.

In considering the movements in the crust of the globe, and the internal fluidity of the globe, Mr. Hopkins's Researches in Physical Geology, printed in the Cambridge Philosophical Transactions, are referred to with much and deserved commendation. In chapter 5, on Series of Life, Professor Phillips tells us, "Between recent and fossil organic beings, we find a general analogy of system, frequent agreement in important points, but almost universal distinction of minute organisation. Thus, of 10,000 fossil species well examined, not more than 200 or 300 are identical with living species. Again, "on placing together primary fossils and recent shells of zoophyta, the difference is striking and total; but on comparing tertiary and living forms, it is the resemblance which arrests our attention. In one case we see at a glance the most obvious and complete discordance; in the other it requires careful scrutiny to assure ourselves that they are not identical. Viewed in this manner, the whole living and fossil world of existence, as far as relates to the inferior, and especially marine tribes, seems to be almost united into one vast chain of being, which has derived from the Creator, in all past times, the same fundamental laws of relation to the conditions, of the world, but which shows itself in various forms, because these conditions were made to change. What a lofty view of the superintending care and providence of God, through all periods of past time, is thus opened to our minds!"

The chapter on "Succession of Rocks in the crust of the globe," and "Lithology," are very full, and most excellent; the latter being illustrated by nearly 40 diagrams of crystals and minerals, which will be very useful to the student. We expected to find the mineralogical department well illustrated, and we are not disappointed. There are also four plates, of which that placed as a frontispiece is a geological view of the Isle of Wight.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	At 9 A.M., Railway Time. Reading of Thermometer.		Wind.		Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers.				Rain fallen in previous 24 hours on the Ground.
			Dry Bulb.	Wet Bulb.	Direction.	Force, 0—6		In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	
Friday ..	April. 8	Inches. 30.35	° 45	° 42	S.W.	1	10	° 52	° 40	° 59	° 38	Inches.
Saturday ..	9	30 27	48	45	N.W.	1	10	53	42	61	39	
Sunday ..	10	30.1	54	53	N.W.	0	10	56	40	64	37	
Monday ..	11	30.08	60	55	S.W.	0	7	59	48	69	41	
Tuesday ..	12	..	..	..	N.W.	..	..	..	..	..	..	..
Wednesday ..	13	..	..	..	E.	..	..	..	..	..	..	..
Thursday ..	14	29.95	51	47	S.E.	3	0	63	37	77	29	..

Notices to Correspondents.

Clover Dodder: *R J.* It occurs in patches in light Clover fields, and when these are seeded; its seeds are mixed in the bulk. They can be separated by sieves.



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Parties unknown to me, have, from motives best known to themselves, in this manner criticised the efficiency of the "Hydropult." I have no answer to make to them: to the Public I would say that I will cheerfully forward, on application, a prospectus, containing testimonials from gentlemen well known throughout the United Kingdom.

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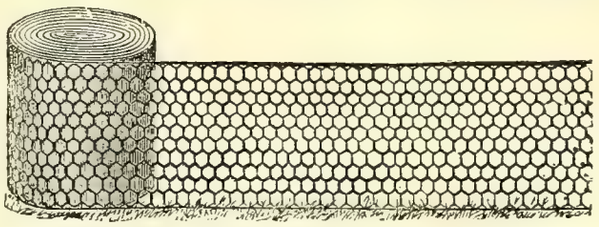
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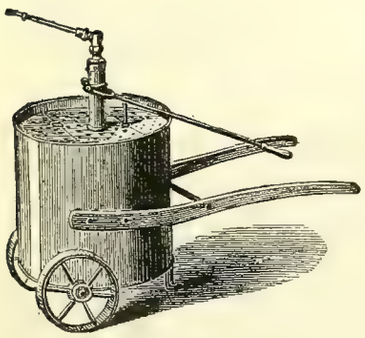
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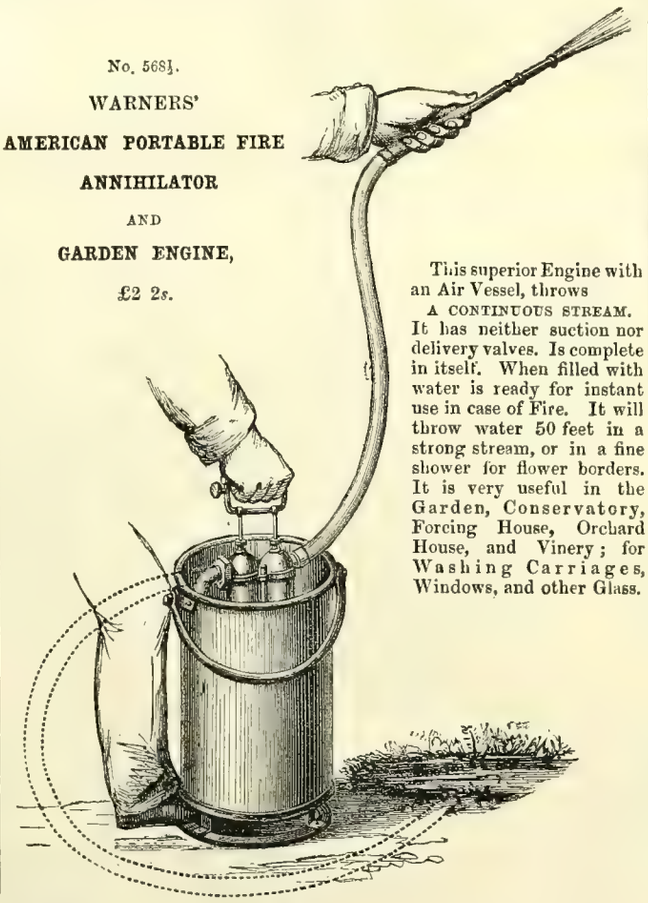
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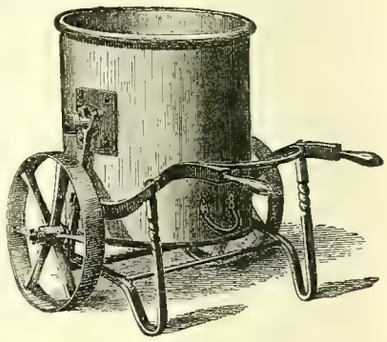
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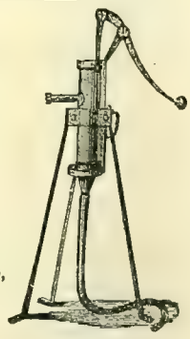
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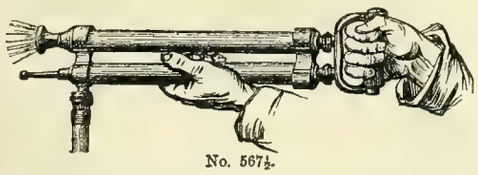
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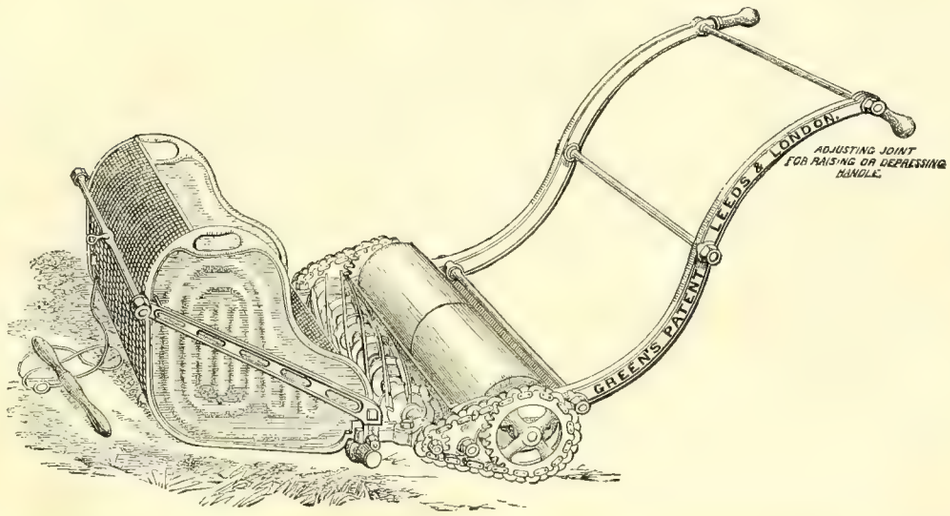
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In reply to what has been said by Messrs. Shanks in their Advertisement of last week, we beg to state—Our Machines have carried off every prize that has been given in all cases of competition, and that fair play and an impartial decision have been given by the Judges on all occasions, and this, coupled with our present improvements, is the reason why the principal places in England adopt our Machines in preference to any others; they being lighter and more durable, and warranted to last for years without getting out of repair; they do not require two-thirds the amount of power to work them of any other machines extant, and are unequalled for keeping Lawns in the highest state of perfection.

Now we do not wish to say anything that would have a tendency to raise the ire of Messrs. Shanks, or to produce a paper war, but if they doubt the above, we are willing once more to come to a trial, when the merits of both Machines can be fairly tested. We are surprised after so many objectionable things had been stated in Messrs. Shanks' Advertisements that any annoyance should be felt at what we state, viz., with regard to the words Special Appointment. In reply, we say, by virtue of the progress we have made, and the acknowledgments from the principal places we have received to others' exclusion, we were induced to use the words Specially Appointed, and the first remark inserted by Messrs. Shanks speaks but little for them, when the Public are told through their medium that Messrs. Green & Son have lately supplied Her Majesty's Gardens with several of their Machines. With regard to the Hamburg Medal, had we have known it was for Steam Engines we should have long since advertised it as such, which would have done us a much greater service than has our clerical error, for the information of which we beg Messrs. Shanks will accept our thanks.

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PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

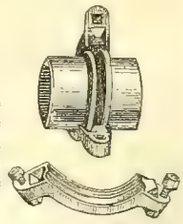
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

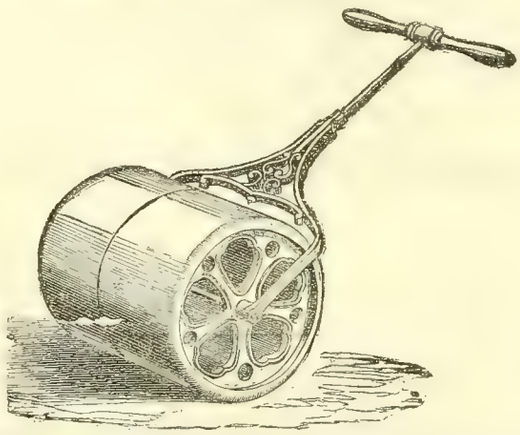
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter 30 inches;	length 32 inches	£7 10 0
„ 24 „	„ 26 „	4 10 0
„ 20 „	„ 22 „	3 10 0
„ 17 „	„ 16 „	2 15 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

Diameter 30 inches;	length 32 inches	£10 0 0
„ 30 „	„ 36 „	10 15 0
„ 30 „	„ 42 „	11 15 0
„ 30 „	„ 48 „	13 10 0
„ 30 „	„ 60 „	15 10 0
„ 30 „	„ 72 „	17 10 0
„ 30 „	„ 84 „	19 10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

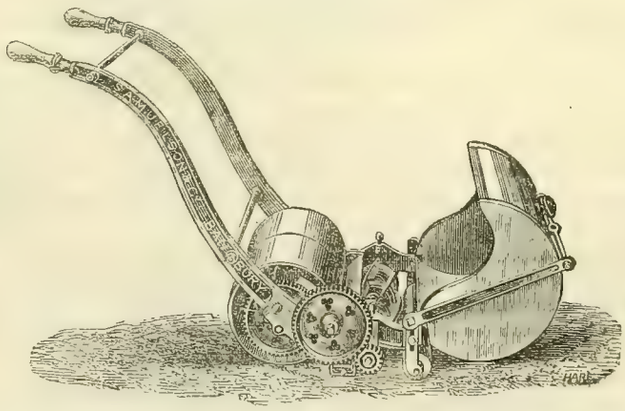
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady ...	£4 12 0
To Cut 16 inches, suitable for One Boy ...	6 10 0
To Cut 19 inches, suitable for One Man & Boy	7 0 0
To Cut 22 inches, suitable for Two Men ...	8 0 0
To Cut 25 inches, suitable for Two Men ...	11 10 0

PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8 15 0
To Cut 25 inches	11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.,
AND OF ALL SEEDSMEN AND IRONMONGERS.

SHAW'S TIFFANY.
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

BROWN'S FLORAL SHADING, sold by most respectable Nurserymen and Seedsmen, in pieces :—
No. 1, 20 yards long, 38 inches wide, at 7s. 8d. per piece.
2, do. do. 8s. 0d. do.
3, extra stout, 18 yards long, 39 inches wide, at 10s.
Samples on application to Charles Brown, Greenheys, Manchester.

TREES COMING into BLOOM will be protected from Frost, Hail, &c., by using Haythorn's HEXAGON and CHISWICK GARDEN NETS. These Nets will secure the Fruit from Wasps, Flies, Birds, &c. They are recommended by most Gardeners.
For patterns, prices, and testimonials, free by post, please direct Mr. Haythorn, Nottingham.

TANNED NETTING, for the Protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh-sown Seeds, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. WOOL NETTING, COTTON NETTING, SCRIM CANVAS, GARDEN MATS, TULIP COVERS, GREENHOUSE SHADES, &c.
John Edgington & Co., 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W. Manufactory, 108, Old Kent Road, S.E.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c, 2 yards wide, 3d. per yard; or 100 yards, 20s.; 4 yards wide, 6d. per yard; or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.
Can be had in any quantity of Eaton & Deller, 6 and 7, Crooked Lane, London Bridge, E.C.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run, in any quantity, may be had at Chas. Wright's, 376, Strand, W.C.
VARNISHED FLOWER STICKS :—1 foot, 3d.; 1½, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen :—3 feet, 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable; 200 square yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.
Edgington's RICK CLOTHS for 59 years have maintained their celebrity as the best.
Edgington's MARQUEES and TENTS are the prettiest.
Edgington's MARQUEES for hire are the most elegant and capacious.
Samples of material free on application. Be particular—Frederick Edgington & Co., Thomas Street, Old Kent Road, London, S.E.
A liberal Discount to the Trade.
INTERNATIONAL EXHIBITION, 1862, Class XIX.
Honourable Mention.

Glass for Garden Purposes.

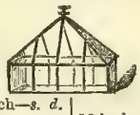
JAMES PHILLIPS and CO. beg to submit their prices as follows :—

PROPAGATING GLASSES.



	Each—s.	d.		Each—s.	d.
2 inches in diameter..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

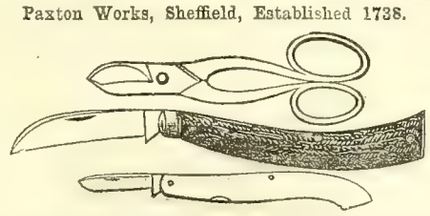
Painted and Glazed with 16 oz. Sheet Glass.
HYACINTH and FLOWER DISHES.
6 inches diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.
Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.
HYACINTH GLASSES.
Common shape, p. doz., 2s. 6d. | Improved shape, p. doz., 4s. 6d.
Patent shape, per dozen, 6s. 6d.
London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London. E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1s. 8d. per yard run.
Four yards wide .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide, 1s. 9d. per yard.
An improved make, 3 yards wide, 2s. 8d. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering.

To Seed Merchants and Nurserymen.

SAYNOR and COOKE, Pruning and Budding Knife Manufacturers, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

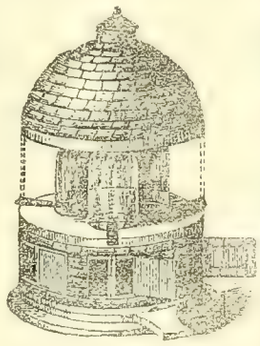
Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.
SAYNOR and COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

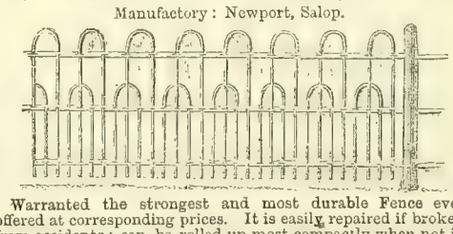
Bee Hives.

Prize Medal and Honourable Mention awarded to G. N. and Sons, for Bee Hives and Honey at the various Exhibitions.



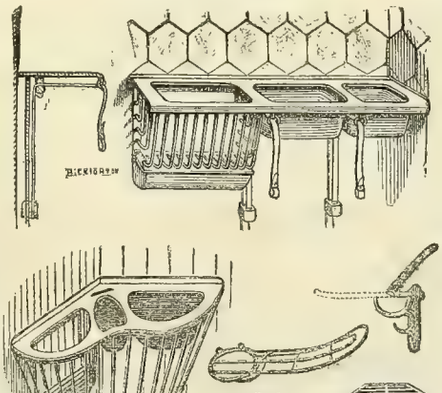
NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, three glasses, and thermometer, price 35s., securely packed for the country.
Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21s.; with window, 25s. Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.
Address, George Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, W.
Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.
Agents.—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: J. Edmondson & Co., 61, Dame Street. Glasgow: Austin & McAslan, 186, Trongate.

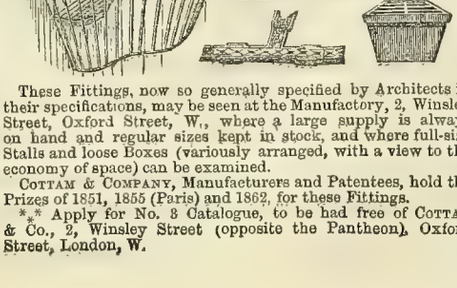
W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.



Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.
For further particulars apply at the Manufactory, or of the London Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.





These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
Cottam & Company, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
*** Apply for No. 3 Catalogue, to be had free of Cottam & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Notice.

SIMPSON'S FARINACEOUS FOOD for CATTLE.—The Goodwill of the Business of Alexander Simpson, and of Simpson & Blundell, has been sold to me by their Assignees, with the sanction of the Commissioner of the Birmingham Court of Bankruptcy, and I shall continue, as heretofore, to Manufacture and Sell the Farinaceous Food; but to prevent imposition or mistake, I shall henceforth call it "BEACH'S FARINACEOUS FOOD," and every bag will be so marked. Joseph Beach.
Steam Mills, Dudley.
We the undersigned, Blundell & Co., of 27, Snow Hill, Birmingham, have given Mr. BEACH our undertaking, to discontinue the Manufacture and Sale of the above Food; and we hereby inform the Public that he alone has the right to Manufacture and Sell the same, and to use all Trade Marks and Designations relating thereto. (Signed) Blundell & Co.
The above FARINACEOUS FOOD for CATTLE, and Beach's CONDIMENT for HORSES, 25s. per cwt., delivered carriage paid to any Railway Station.
Cash required from unknown Correspondents.
One first-class Agent wanted in each Town where not already appointed.

FOR SALE, Five Handsome Pure-bred AYRSHIRE HEIFERS; will Calve in a month. Price 13l. each.
Apply to Gardener, Crouch Hall, Hornsey, N.

KERRY COWS (down Calving).—A gentleman will have a small lot of the above in London on April 22.
Apply personally to Mr. F. T., at the Euston Hotel, between 8 and 9 o'clock on the morning of the 22d, when he will accompany intending purchasers to view the cattle. Prices from 11l. to 13l.

TO BE DISPOSED OF, the LEASE, 38 years unexpired, of a NURSERY about four miles from the London Markets, five Greenhouses, about 150 feet run of Pit Lights, and all conveniences for carrying on an extensive trade. It is on the high road close to the New Railways.
Apply on the Premises, to R. Childs, Rye Lane, Peckham, Surrey, S.

To Strawberry Growers.

TO BE SOLD, 8 ACRES of LAND, singularly suited for the growth of STRAWBERRIES, for which there is a great and increasing demand in the neighbourhood, and communication with London nearly 40 times daily.
Apply to Messrs. Allsop, 3, Union Court, E.C.; or Mr. T. Allsop, Dorking.

TO BE LET, a NURSERY GROUND, with Pits, Greenhouses, and some Bedding Stock on the Premises, with an entrance in Acre Lane, Brixton, and Show House in Bedford Road, Clapham. Rent 40l. per annum.
Apply to Mr. Cobb, 15, Clarendon Road North, Notting Hill; or to Mr. Wright, Builder, Bedford Road, Clapham, S., who will show the Premises.

TO BE LET, a NURSERY, with or without the Stock, within four miles of Covent Garden Market. Large quantity of Glass. Established 20 years. Several Vineries in full bearing. N.B. This is a chance seldom met with.
For further particulars apply to Mr. J. H. Bird, Nurseryman, Green Lanes, Stoke Newington.

Sales by Auction.

Lily Bulbs from Japan.

MR. J. C. STEVENS begs to announce that the long expected LILY BULBS have just arrived from Japan. Further particulars in next week's Paper.
Catalogues will be ready in a day or two, and will be forwarded to any address on application to Mr. J. C. Stevens, 38, King Street, Covent Garden, W.C.

Seeds.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 23, at half-past 12 o'Clock precisely, 30 oz. of WELLINGTONIA GIGANTEA, 20 oz. of SEQUOIA SEMPERVIRENS, 280 oz. of Pinus Fremontiana, 300 oz. of Pinus Sabiniana, 50 oz. of Pinus Coulteri, 1000 seeds of the new Juniperus gigantea. 50 oz. of Cupressus macrocarpa, 25,000 seeds of Thuja gigantea. Also a quantity of seed of Araucaria imbricata, &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of New Plants.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. Standish and Fortune having nearly terminated) to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 11, at half-past 12 o'Clock precisely, a splendid assortment of NEW HARDY PLANTS, never yet been offered to the public, comprising—

Clematis Fortuni and Standishii	Weigela hortensis nivea
Lastrea Standishii	Camellia japonica variegata
Selaginella involvens	Thujopsis Standishii
Tricyrtis grandiflora	Maples (many curious and distinct varieties)

As well as a number of choice and rare Plants.
More detailed Particulars in the Catalogues.

Sale of First-class Carnations, Picotees and Pinks, Standard Roses, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, E.C., on FRIDAY, April 22, at 12 o'clock, a First-class Collection of CARNATIONS, PICOTEES, PINKS, and CLOVES, Choice Azalea indica, Pelargoniums, Scarlet and Variegated Geraniums, and other Plants in Bloom, fine Lilium lancifolium from Ghent, a choice Assortment of American Plants, Standard and Dwarf Roses, Selected Flower Seeds from Germany, with useful Ornamental Plants for Bedding, &c.
On view the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

SALE by AUCTION, on APRIL 27, 28, and 29 (under the direction of Mr. Ambroise Verschaffelt, Nurseryman, Ghent, Belgium), of the rich and splendid Collection of AGAVE, YUCCA, BONAPARTEA, &c., the property of E. Vandervinnep, Esq., Brussels, Belgium.
Catalogues may be obtained free of Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.
Orders may be sent to Mr. A. Verschaffelt.

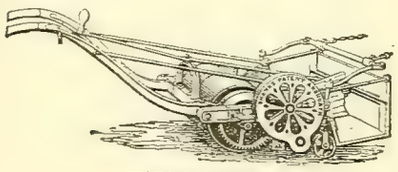
English Wool Sales in London.

BRADBURY and COOK, Wool Brokers, 17, Basinghall Street, London, E.C., contemplate having a SALE of ENGLISH WOOL by PUBLIC AUCTION, at an early period. Parties intending to send wool are requested to communicate with them as soon as possible. Sheets will be supplied free of charge.

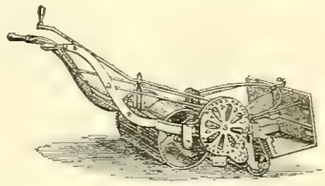
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

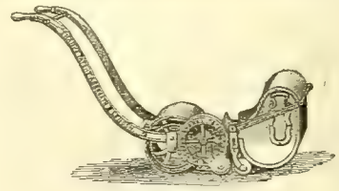
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

ALEXANDER SHANKS AND SON regret they find it necessary for the protection of their interests to call the attention of their numerous friends to the following assertions of Messrs. THOMAS GREEN & SON in their advertisement of LAWN MOWERS which has this year appeared in the *Gardeners' Chronicle* and other newspapers. A. S. & SON also particularly request attention to the following letters, in answer to these assertions:—

Messrs. GREEN have the following statement in their advertisement: "*By special appointment Sole Manufacturers to Her Most Gracious Majesty the Queen.*" In answer to this A. S. & SON subjoin the following letter from EDWARD M. BROWELL, Esq., Secretary to the Lord Steward of Her Majesty's Household:—

"Board of Green Cloth, Buckingham Palace, February 27, 1864.

"SIRS,—In reply to your request that I should write you a letter for publication, stating that Messrs. GREEN & SON had no appointment whatever, nor had any liberty or title to say that they had one, I can only repeat what I told the Gentleman who represented himself as your Agent when he called to ascertain how you could get the appointment of Manufacturers of Mowing Machines to Her Majesty, that no Warrant had been granted for about 10 years, and that *Messrs. Green had not one*, although they had lately supplied Her Majesty's Gardens, &c., with several of their Lawn Mowing Machines.

"I am, Sirs, your obedient Servant, (Signed) EDWARD M. BROWELL."

Messrs. GREEN also give a list of "Foreign Medals awarded to them for their Patent Lawn Mowers." Amongst the number is one from the "Hamburg International Exhibition, 1863." A. S. & SON subjoin the following letter from the Secretary to the Committee of the International Exhibition at Hamburg, translated into English:—

"Messrs. PETER SMITH & Co., Hamburg. (Agents for A. S. & SON.)

"SIRS,—In answer to your favour of yesterday, I beg to inform you that, after having looked myself over the list of awards during the last year's International Agricultural Exhibition, GREEN'S Machine for Lawn Mowing *did not receive* a Medal, whereas T. GREEN & SON (Leeds) were awarded with the small Silver Medal for a combined Steam-Engine with standing Boiler.

"Most respectfully, (Signed) GERHARD NACHMANN, Dr.,

"Hamburg, February 12, 1864." "As Secretary of the former Executing Committee of the International Agricultural Exhibition at Hamburg, 1863."

A. S. & SON beg to state that they are making inquiry of the Secretaries of the other Societies where Messrs. GREEN state they have received Medals, and as soon as they are able will publish the result.

Messrs. GREEN & SON also state that their "Patent Lawn Mowers are the only Machines in constant use at the Royal Gardens, Windsor, the Royal Horticultural Society's Gardens, South Kensington, the Crystal Palace Company's Gardens, Sydenham, and other places.

A. S. & SON beg to state that for many years their Lawn Mowers have been in successful operation in the Royal Gardens at Windsor; and further, *only a few week ago they had the honour to receive Orders for their newly Improved Machine for the same Gardens.* The following letters from Mr. EYLES, Superintendent of the Royal Horticultural Society's Gardens, and from Mr. GORDON, Superintendent of the Crystal Palace Company's Gardens, are amply sufficient to satisfy any one that Messrs. GREEN & SON'S statements on this point are also incorrect.

"Royal Horticultural Society, South Kensington, March 3, 1864.

"MY DEAR SIRS,—In answer to your inquiry, I beg to say that your Machines have been almost in constant use here during the Mowing season ever since the formation of the Gardens.

"I am, yours very truly, (Signed) GEORGE EYLES."

"Crystal Palace, Sydenham, S.E., March 29, 1864.

"GENTLEMEN,—In reply to your inquiry respecting the Mowing Machines supplied by you, I am pleased to say both the Horse and Hand Machines were in constant use during the whole of the last season, and have given great satisfaction to me and many others who saw the Machines at work. The self-acting Apparatus for delivering the Grass being a great acquisition.

"I am, Gentlemen, yours, (Signed) J. A. GORDON."

A. SHANKS AND SON feel it altogether unnecessary to make any remarks on these proceedings. The letters they have been authorised to publish are amply sufficient to convince any one that Messrs. GREEN have used incorrect statements in their Circulars and Advertisements. These statements are calculated to mislead parties in selecting LAWN MOWERS, and consequently to some extent must be prejudicial to the interests of A. S. & SON as Manufacturers.

DENS IRON WORKS, ARBROATH, April 2, 1864.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

Editorial Communications should be addressed to "The Editor:" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1864.] SATURDAY, APRIL 23. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON.

A FÊTE will take place on the QUEEN'S BIRTHDAY, TUESDAY, May 24, when will take place an EXHIBITION of the various USES of FLOWERS in decorating Halls, Drawing Rooms, Balconies, Churches, and Buildings generally. Also for Dinner and Supper Tables, and for Bouquets, &c. Cultivated, Wild, and Artificial Flowers in pots or cut may be used. Prizes and Certificates will be awarded. Military Bands will perform. The Cascades and Minton's Majolica Fountain from the Exhibition of 1862 will play. Admission 1s., from 12 to 7.

For further information and application for space to exhibit, apply by letter to the Assistant Secretary.

By order of the Council, A. MURRAY.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.

The LAST SPRING EXHIBITION this season will take place on SATURDAY NEXT, April 30. Tickets to be obtained at the Gardens, on orders from Fellows of the Society, price 2s. 6d. each. The Gates open at 2 o'clock.

Band will play from half-past 2 to half-past 5.

The PLANTS of the NATIONAL AURICULA SOCIETY will be Exhibited at the same time.

ESTATE of Mr. STEPHEN SHILLING, of North Warnborough, Hants.—All persons having claims against this Estate, who have not already sent the particulars thereof to me, are requested to do so on or before the 4th day of MAY next, otherwise they will be excluded from all benefit of the Dividend. S. CHANDLER,

Basingstoke, April 22, 1864. *Solicitor to the Trustees.*

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Grape Vines.

TO BE SOLD CHEAP, a large quantity of fine VINES for planting out.

Apply to R. HUTCHIN, at the Horticultural Works, Stamford Hill, N.

Melon Seeds.

MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 1S Seeds, for 2s. 6d.

JOSEPH MEREDITH. Vineyard, Garston, near Liverpool.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.

PAUL's Nurseries, Waltham Cross, N.

The New Roses for 1864.

SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 30s. per dozen.

A DESCRIPTIVE LIST on application, enclosing Stamp.

Edgend Marsden, near Burnley, Lancashire.

NOW READY, the NEW ROSES of 1864. 12 of the newest and most vigorous for 36s. DESCRIPTIVE LIST, free on application.

RICHARD SMITH, Nurseryman, Worcester.

New Roses of 1864.

ROYAL HORTICULTURAL SOCIETY'S 1ST PRIZE, WEDNESDAY LAST.

PAUL AND SON have now ready Fine Plants of the above, fit to travel.

DESCRIPTIVE PRICED LIST on application.

"Old" Cheshunt Nurseries, N.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, SEED, ROSE, and FRUIT CATALOGUES, gratis. 57, Queen Street, Hull.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS, NURSERYMAN and SEEDSMAN, Paradise and Victoria Nurseries, Holloway, London, N. General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, has AMALGAMATED with the PLYMOUTH SEED COMPANY, LIMITED. Offices, 68, Welbeck Street, Cavendish Square, London, W.

PLANTS and PLANT CASES for TABLE DECORATION. BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

SURPLUS STOCK of GLADIOLI. See BARR & SUGDEN'S large Advertisement, page 382.

CHEAP GLADIOLI for BEDDING, MASSING, or CLUMPING. See BARR & SUGDEN'S large Advertisement, page 382.

NEW GLADIOLI. See BARR & SUGDEN'S large Advertisement, page 382.

MIXED FLOWER SEEDS, for WOODLAND WALKS, WILDERNESS DECORATION, ROCKERIES, ROOTERIES, &c. See BARR & SUGDEN'S large Advertisement, page 382.

VELVET CUSHION VERBENA, hybridised with Verbena venosa, large truss, effective variety, with hardy constitution. E. G. HENDERSON & SON.

GARIBALDI PINK, in May.—A richer coloured and dwarfer Plant than the well-known Anne Bulleyn Pink. E. G. HENDERSON & SON.

NEW VARIEGATED GERANIUMS.—UNITED ITALY, foliage Red, White, and Green. MRS. BENYON, foliage colour of Mrs. Pollock; flowers dazzling Scarlet; quantity of bloom like Tom Thumb. E. G. HENDERSON & SON.

E. G. HENDERSON AND SON in May will offer this Scarlet-flowered Bedding Dahlia, SCARLET GEM DAHLIA.

TOM THUMB DAHLIA (12 inches) will be sent out in MAY. E. G. HENDERSON & SON.

WHITE TOM THUMB GERANIUM. Best of its class for Pots or Bedding. E. G. HENDERSON & SON.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Dahlias and Bedding Plants.

JAMES FAIRHEAD AND SON beg to state their CATALOGUE of the above is now ready, and can be had post free on application.

7, Borough Market, London, S.E.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5s. 6d. p. oz.

JAMES WOODS, Florist, Harwich, Essex.

WILLIAM ROLLISSON AND SONS beg respectfully to announce, that their CATALOGUE of NEW, BEAUTIFUL, and RARE PLANTS for 1864, is now published, and will be forwarded, on application, pre-paid.

The Nurseries, Tooting, London.

Geranium Purple Unique.

T. E. BARTLETT begs to announce that he has to offer a very large quantity of the above beautiful decorative plant.

Application for prices, &c, Pulteney Road, Bath.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application.

Frampton Park Nursery, Hackney.

New Lucerne Seed (Luzerne de Provence).

SUTTON AND SONS have just imported a very fine parcel of New LUCERNE SEED, which they can offer at 10d. per lb., or cheaper by the cwt.

(Sow 20 lbs. per acre, in drills.)

Royal Berkshire Seed Establishment, Reading.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS can supply any quantity of New Seed of this useful plant, which is now so extensively cultivated. New Seed, 1s. 3d. per lb.; or cheaper by the cwt. (Sow 24 lbs. per Acre for Feeding purposes).

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

GOOD CLEAN RYE GRASSES AT MODERATE PRICES.

Samples and Prices may be had of SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

RICHARD SMITH'S RENOVATING GRASS SEED should now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.

RICHARD SMITH, Seed Merchant, Worcester.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

BROAD-LEAVED RAPE SEED for SOWING. FINE WHITE MUSTARD for SOWING.

Clean good-coloured samples of the above may be had of H. & F. SHARPE, Seed Growers, Wisbech. Price and Samples on application.

Sowing Rape Seed.

CHARLES SHARPE AND CO., Sleaford, have a fine clean sample of the above to offer to the Trade. Price on application.

CARTER'S SPECIAL LIST of FARM SEEDS for MARCH and APRIL is now ready, and will be forwarded Gratis and Post Free on application.

237, 238, and 261, High Holborn, London, W.C.

WANTED, VANILLA BEANS. — Must be warranted to germinate, State Price per dozen or 100 to HENRY BARWELL, Esq., Colney Hatch, N.

For Present Sowing—White Belgian Carrot.

SUTTON AND SONS have some very fine fresh imported SEED, now selling at 1s. per lb., or cheaper by the cwt.

SUTTON & SONS, Seed Growers, Reading.

KING of the POTATO, from the Original Stock.—Price per Cwt. or Ton on application to JAMES DICKSON & SONS, Seed Merchants, 102, Eastgate Street, Chester.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1864.

Strong Transplanted SEAKALE, 2s. per doz.

RICHARD SMITH, Nurseryman, Worcester.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application. The Royal Nurseries, Slough.

The Princess of Wales Petunia.

E. G. HENDERSON AND SON are now booking orders for this splendid variety.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1864, forwarded free on application. Seed of CLIANTHUS DAMPIERI, in 1s. and 2s. 6d. packets. Seed of CLIANTHUS DAMPIERI SPLENDENS, 2s. 6d., and three seeds for 5s.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Cyclamen persicum rubrum.

WM. MAULE AND SONS beg to offer strong BULBS of this beautiful variety of CYCLAMEN, now in full bloom, at 42s. per dozen. A few extra strong Bulbs at 5s. each.

The Nurseries, Bristol, April 23.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.

J. SCOTT'S FLOWER GARDEN DIRECTORY, 88 pages, is replete with information on Summer, Autumn, Winter, and Spring Gardening. Copious LISTS of all the best Flowers suitable for each season are given, price 6d.

Merriott, Crewkerne, Somerset.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, is now sending out from his great Stock of the above:—20 pairs of fine varieties of LARGE CHRYSANTHEMUMS for 10*s.*; 20 pair of Cuttings of ditto for 5*s.*; 25 pair of fine POMPONS for 10*s.*; 25 pair of Cuttings of ditto for 5*s.*

N.B. To save trouble all orders to be prepaid.

New Chrysanthemum, Empress of India.

E. G. HENDERSON AND SON are now prepared to supply plants of the above. It is a beautiful variety from the "C. Queen of England;" pure white, three quarters globe in shape, with a full centre, in size one of the largest. 5*s.* each; or four for three, with Trade Discount.

Wellington Nursery, St. John's Wood, London, N.W.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of New CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c., for 1864, is now ready, and will be sent post free on receipt of Two Stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Japanese Nurseries, Biggleswade, Beds.

RETINOSPORA PISIFERA.—This beautiful hardy evergreen Conifer, just introduced by Mr. ROBERT FORTUNE, plants from 2*s.* 6*d.* to 31*s.* 6*d.* each, varying from 3 to 18 inches high in pots; fine specimens, the most beautiful of its species. Also all the JAPANESE NOVELTIES, see CATALOGUE gratis.

THOMAS AYRES.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2*s.* each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5*s.* to 7*s.* 6*d.* each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, finely formed, and altogether of first rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7*s.* 6*d.* each.

PRINCESS of WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7*s.* 6*d.* each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2*s.* 6*d.*

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H. P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36*s.* to 42*s.* per dozen. Fine vigorous plants of the old and popular sorts, 9*s.* to 18*s.* per dozen.

PAUL'S Nurseries, Waltham Cross, N.

GEO. SMITH begs respectfully to offer to the Trade and public generally his well-known SEEDLINGS, believing that they will take a high stand amongst the Floral Novelties of the present season, viz.:—

FUCHSIA.

GRAND DUKE.—Tube and sepals bright crimson, well reflexed, corolla violet purple; very double, and of large size, smooth, and a most abundant bloomer; constant, and of fine compact habit. Extra. 10*s.* 6*d.*

ZONALE GERANIUMS.

LORD OF THE ISLES.—A beautiful cerise flower; very stout, large, and of exquisite shade; new in colour, and the finest Zonale ever offered. Awarded a First-Class Certificate by the Floral Committee of the Horticultural Society, for its general fine qualities. 5*s.* each.

ORANGE GLOBE.—Brilliant orange scarlet; truss large, of fine shape and habit; a bold and conspicuous flower. 5*s.*

PETUNIA.

PRINCESS ALEXANDRA.—Dark puce, with pure white stripes; flowers good size and form; habit most dense; foliage small and bright. This will be found the most beautiful of all the Single Petunias yet offered, and will form a constant and fine acquisition to its class. Received First-class Certificates at Wellington, Bath, and Highgate Horticultural Societies. 5*s.*

SEEDLING VERBENAS.

BLACK DIAMOND.—This is a most remarkable rich dark maroon, of fine shape and size, and will prove one of the best and most distinct Verbenas in cultivation.

FANTASTIC.—Pure white, with conspicuous rosy-purple centre; fine shape and truss; a first-class light variety.

GRAND DUCHESS.—White, with bright cherry centre; large truss, and fine for exhibition and other purposes.

LORD CLIFDEN.—Dark crimson scarlet; the pips much larger than a shilling; larger and finer than Lord Leigh or Foxhunter.

EMBLEM.—Rosy pink eye, white pip, and truss very large; fine shape; a first-class flower.

CHIEFTAIN.—Crimson scarlet; very vivid, and a remarkably free bloomer; fine for all purposes.

SCINTILLA.—Ruby rose; conspicuous white eye; fine show flower.

PLENIPO.—Rosy scarlet, with crimson-scarlet centre; free, and fine shape.

5*s.* each, or the set of eight for 30*s.*

G. S. will be prepared to send out after the 20th April, in good plants, the above mentioned, and begs to solicit early orders for the same.

*** Coloured Illustrations of Geranium Lord of the Isles, or Petunia Princess Alexandra, free by post, in exchange for six Postage Stamps each.

Tollington Nursery, Hornsey Road, Islington, N.



CARTER'S

LIST of NEW PLANTS for 1864.



PART III. OF

CARTER'S GARDENER'S VADE MECUM,

CONTAINING

FULL LISTS of STOVE, GREENHOUSE, and BEDDING PLANTS,

Will be ready in a few days, and forwarded Post Free on application.

JAMES CARTER AND CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.



FARM SEEDS.—CARRIAGE FREE.

GRASSES and CLOVERS, mixed for Permanent Pasture, and adapted to any description of soil.

ALSIKE, RED WELSH, and other CLOVERS. Pure samples.

PACEY'S PERENNIAL, IMPORTED ITALIAN and other RYE-GRASSES. Extra cleaned.

TURNIPS, DICKSON'S PRIZE SWEDE, and others saved from picked transplanted bulbs.

MANGEL WURZEL, Select YELLOW GLOBE, OVAL, &c.

☞ *All of the very best description, and Carriage Free.*

A DESCRIPTIVE PRICED CATALOGUE upon application to

JAMES DICKSON AND SONS, 102, EASTGATE STREET, CHESTER.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Orders amounting to 21s. sent Carriage paid.

Surplus Stock of Gladioli.

2*s.* 6*d.*, 3*s.* 6*d.*, 4*s.* 6*d.*, 6*s.*, 9*s.*, 12*s.*, and 18*s.* per dozen.
15*s.*, 21*s.*, 30*s.*, 50*s.*, 60*s.*, 70*s.*, 80*s.*, and 100*s.* per 100.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING, SENT POST PAID.

HARDY ANNUALS.—2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, &c. Including those introduced in 1862, 1863, and 1864, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 30*s.*, &c.

HALF HARDY ANNUALS.—2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 21*s.*, 30*s.*, &c.

HARDY PERENNIALS.—2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 20*s.*, 30*s.*, &c.

Barr & Sugden's Collections of Vegetable Seeds for One Year's Supply.

10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*

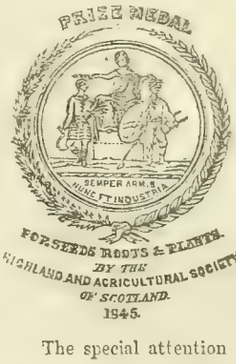
MIXED FLOWER SEEDS for WOODLAND WALK, WILDERNESS DECORATION, ROCKERIES, ROOTERIES, &c., 5*s.* 6*d.* per lb.; or 9*d.* per oz.

LILIUM LANCIFOLIUM (JAPAN LILIES), three varieties, 12*s.* to 18*s.* per dozen.

TIGRIDIA PAVONIA, 1*s.* 6*d.* per dozen, 7*s.* 6*d.* per 100.

PLANTS and PLANT CASES for TABLE DECORATION.

BARR & SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.



GENUINE FARM SEEDS.

THOMAS KENNEDY & CO.,

NURSERYMEN and SEEDSMEN, DUMFRIES, N.B.,

HAVE A LARGE AND CAREFULLY SELECTED STOCK OF

GENUINE FARM SEEDS,

Which they are selling at extremely moderate prices, delivering them Free of Carriage (under certain limitations) at the chief Railway Stations in Great Britain, and principal Steam Ports in Ireland.

The special attention of Agriculturists is directed to their MIXTURES for LAYING DOWN LAND to PERMANENT PASTURE, which continue to give every satisfaction. Price from 20*s.* to 26*s.* per imperial acre.

Interesting Notices of the leading varieties of Grass Seeds, comprising these Mixtures, will be found in their PRICED CATALOGUE of AGRICULTURAL SEEDS, &c. for 1864, which will be sent free on application to any address.

"This Establishment may be relied on for the excellence of all the articles it professes to supply."—*The Field.*

PRICED CATALOGUES of FOREST, FRUIT, and ORNAMENTAL TREES, &c.; SELECT VEGETABLE and FLOWER SEEDS, &c., may also be had on application.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz. ; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Splendid New Double Fuchsia, Lord of the Manor.

GEORGE FRY is now sending out this noble variety, a full description of which, with an Engraving, may be had on application.

A LIST of some of the leading Men in the Trade who have ordered, and can Supply the above, will appear anon.

Manor Nursery, Manor Lane, Lee, Kent.

New Seedling Petunias (Single).

THOMAS BARNES will send out on the 20th inst. the under named, which were selected last season from several thousand, and can with confidence be recommended.

DANE CROFT BEAUTY.—A deep-veined variety, of exquisite beauty; the flowers are large, round, and so stout and free from indentation that the perfect outline remains till the fading of the blooms. Colours: deep violet crimson, on a blush ground. Per plant, 5s.

GAIETY.—Deep crimson, margined with pure white; great improvement on Flower of the Day. Per plant, 5s.

RHONA.—Mauve lilac, blotched with pure white, very delicate. Per plant, 5s.

CATALOGUE of DAHLIAS, VERBENAS, &c., on application

Dane Croft Nursery, Stowmarket.

BULBS FREE from WASTE in NECK or ROOT. —MANGEL WURZEL from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts 6d. per lb.

WORCESTERSHIRE SWEDE, not to be beaten, 9d. per lb. ; other kinds, 8d. per lb.

PRICED LISTS on application.

RICHARD SMITH, Seed Merchant, Worcester.

MANGEL WURZEL SEED,

CHEAPER BY THE CWT.

LARGE YELLOW GLOBE, 6d. per lb.	RED GLOBE, 6d. per lb.
ORANGE GLOBE, 6d. per lb.	LONG RED, 6d. per lb.
	LONG YELLOW, 6d. per lb.

PRICED LISTS of other FARM SEEDS Gratis and Post Free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

Mangel Wurzel and Turnip Seed.

KING'S CHAMPION ORANGE GLOBE WURZEL, superior to any other.

Fine YELLOW GLOBE. | Fine RED GLOBE.
Do. ELVETHAM LONG RED.
Do. LONG YELLOW, from roots, many of them 3 feet long; a heavy cropper.

SKIRVING'S and PURPLE-TOP SWEDE TURNIP SEED.

All the above are saved from none but the best Stocks.

PRICED LISTS with testimonials sent post free.

JOHN K. KING, Seed Grower, Coggeshall, Essex.
Established 1793.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.

JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.

N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS. —At the MEETING of the ROYAL AGRICULTURAL SOCIETY on the 16th March, in a LECTURE delivered by ALFRED HUGHES, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger* and the *Mark Lane Express*, Mr. Hughes says:

"I always reserve a portion of Oat Land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable Plant I have come across for some years for ewes and lambs in the spring. When I tell you that I put it in in the spring and dressed it after harvest with guano, and that in the autumn when my sheep fed it off it was up to their knees, and that I fed it off again this spring with ewes and lambs, I think you will agree that it is a crop of very great value. This Italian Rye-grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed I never saw anything to equal it in the course of my experience."

From JOHN BALDWIN, ESQ., *Luddington, April* 11, 1859.

"It is certainly delightful to witness the sheep up to their knees in your beautiful Italian Rye-grass."

From FREDERICK H. HALLETT, Esq., *The Manor House, Brighton.*

"I mowed some of your Italian Rye-grass at Christmas, 1856; again April 12, 1857; three times since in same year, and am mowing it again now, March 15, 1858. The cut on April 12 was four feet high, and a perfect mass of grass."

SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass. Present price 6s. 6d. per bushel, carriage free in quantities of 8 bushels and upwards.

Quantity required per acre if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASS SEEDS SHOULD NOW be SOWN.

IMPROVEMENT of OLD PASTURES, PARKS and MEADOWS, by sowing the most suitable kinds of GRASS and CLOVER SEEDS.

SUTTON'S RENOVATING MIXTURES.—Quantity of Seed required, 8 to 12 lb. per acre. Price 9d. per lb., or 80s. per cwt.

From the Rev. CANON GUTHRIE, *Vicarage, Colne.*

"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."

Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.

SUTTON'S RENOVATING MIXTURE consists of the Finest GRASSES and PERENNIAL CLOVERS. If the Seeds are sown *early in the season*, the improvement in the Pasture will be very great, and at a small expense.

Royal Berkshire Seed Establishment, Reading.

Clovers and Rye-grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-grass, at 12s. 6d. per acre; or Clovers without Rye-grass at 10s. 6d. to 12s. 6d. per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 to 16 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-grass," or "Clovers and Common Rye-grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.

Royal Berkshire Seed Establishment, Reading.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE (all carefully and thoroughly cleaned).

The Seeds of each sort separate may be seen in large quantities in Messrs. SUTTON'S Warehouses, and growing specimens of these and many others in their sample grounds.

All the best and most suitable of them are contained (together with Alsike, Perennial White, and Perennial Red Clovers), in Messrs. SUTTON'S Mixtures for Permanent Pastures.

SUTTON'S CLEAN SEEDS.	Per lb above 7 lb.	Per Bush.
	s. d.	s. d.
ALOPECURUS PRATENSIS	1 3	9 0
ANTHOXANTHUM ODORATUM	1 6	20 0
AGROSTIS STOLONIFERA	0 10	9 0
BRACHYPODIUM SYLVATICUM	1 0	15 0
CYNOSURUS CRISTATUS	1 0	20 0
DACTYLIS GLOMERATA	0 10	6 6
FESTUCA DURIUSCULA	0 10	7 6
" ELATIOR	1 0	12 0
" GIGANTEA	1 3	14 0
" HETEROPHYLLA	1 0	12 0
" PRATENSIS	0 10	12 0
" OVINA	0 10	8 0
" RUBRA	0 10	8 0
" TENUIFOLIA	1 0	12 0
" LOLIACEA	0 10	14 0
GLYCERIA FLUITANS	1 0	14 0
" AQUATICA	1 0	10 0
HOLCUS AVENACEUS	0 10	7 0
LOLIUM ITALICUM	0 7½	6 6
" PERENNE	0 4½	5 6
" " PACEYANUM	0 4½	6 6
" " SEMPERVIRENS	0 4½	7 0
" " TENUE	0 5½	10 0
PHLEUM PRATENSE	0 6	21 0
POA PRATENSIS	1 0	21 0
" TRIVIALIS	1 0	21 0
" NEMORALIS	1 3	28 0
" FERTILIS	1 3	28 0
" SEMPERVIRENS	1 6	30 0
" AQUATICA	0 10	12 0
PLANTAGO LANCEOLATA	0 5	25 0

From Prof. LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

A Copy of Mr. M. H. SUTTON'S Essay on Laying Down Land to Permanent Pasture, from the "Journal of the Royal Agricultural Society," will be sent with every parcel of Grass Seed.

SUTTON & SONS, Royal Berks Seed Establishment, Reading,

New Swede Turnip Seeds.—April 1864.

HOW ARE YOUR SWEDES KEEPING? IS A QUESTION FREQUENTLY ASKED BY FARMERS.

WM. JACKSON AND CO., NURSERYMEN and SEED GROWERS, Bedale, Yorkshire, have the largest growing kinds of SWEDES, and the best keepers.

PRICED DESCRIPTIVE CATALOGUES of Seeds will be forwarded free by post on application.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

The GENERAL FARM SEED DIRECTORY, with full Instructions for the Management of a Farm for every Month in the Year, will be forwarded Gratis and Post Free to any address in the kingdom.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

Purchasers of Large Quantities of AGRICULTURAL SEEDS will be dealt liberally with.

All Seeds Carriage Free.

Agricultural Seeds, Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

See GENERAL FARM SEED DIRECTORY, now ready.

MIXTURES of GRASSES to suit any soil, 20s. to 30s. per acre (with Clovers).

RED, WHITE, and COW CLOVERS, 6d. to 10d. per lb,
ALSIKE CLOVER, fine sample, 80s. per cwt.
SWEDISH TURNIPS, 8d. to 1s. per lb.
COMMON DO. 8d. to 9d. per lb.
MANGEL WURZEL, in varieties, 6d. per lb.
WHITE BELGIAN CARROT, 1s. per lb.
YELLOW BELGIAN CARROT, 1s. per lb.
Large DRUMHEAD CABBAGE, 2s. per lb.
CATTLE PARSNIP, 1s. per lb.

All other Agricultural Seeds, at moderate prices.

Address, LONDON SEED COMPANY (Limited), 68, Welbeck Street, Cavendish Square, London, W.

CARTER'S FARMER'S VADE-MECUM!

WHEELER'S LITTLE BOOK on SEEDS.

Farm Seeds.

RICHARD SMITH is now prepared to supply the following SEEDS, all of which have been selected with the greatest care, and are of very superior quality:—

CLOVER, BROAD ENGLISH RED, 58s.—62s. per cwt.
" PERENNIAL or COW GRASS, 68s.—75s. per cwt.
" WHITE or DUTCH, 62s.—70s. per cwt.
" YELLOW or TREFOIL, 30s.—34s. per cwt.
" ALSIKE or HYBRID, 76s.—84s. per cwt.
RYE-GRASS, Finest PERENNIAL, 6s.—6s. 6d. per bushel.
" ITALIAN EXTRA, 5s. 6d.—6s. per bushel.
SWEDE, SMITH'S WORCESTERSHIRE, 9d. per lb.
" KING OF THE SWEDE, 8d. per lb.
MANGEL WURZEL, ORANGE GLOBE, 6d. per lb.
" " RED and YELLOW, 6d. per lb.
" " LONG RED and YELLOW, 6d. per lb.

RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil.

	Per Acre.
MIXTURE for Laying down to PERMANENT PASTURE	25s. to 30s.
MIXTURE for ORCHARDS or LAND shaded by Trees	24s. to 26.
MIXTURE for PARKS and CEMETERIES	28s. to 30s.
MIXTURE for Improving OLD PASTURE	6s. to 8s.
MIXTURE for One, Two, or Three Years' Lay	15s. to 18s.
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1s.

PRICED LISTS may be had on application.

RICHARD SMITH, Seed Merchant, Worcester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, Seedsmen to the Gloucestershire Agricultural Society, offer the following SEEDS of finest quality, at the prices annexed. Carriage Free by Rail, and will allow 5 per cent. discount for cash.

PERMANENT PASTURE.

PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium loamy soil, at 30s. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for medium clay soil, at 30s. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for heavy clay soil, at 28s. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for light brashy land, at 27s. 6d. per acre.
PERMANENT PASTURE GRASSES and CLOVERS, of finest quality, very carefully selected: for Orchards, at 30s. per acre.
GRASSES and CLOVERS, rather rough and coarse: for game covert, at 18s. per acre.
JERUSALEM ARTICHOKES, for planting in game coverts, at 6s. per bushel.

J. C. WHEELER & SON, Seed Growers, Gloucester.

THOMAS AYRES, Biggleswade, Beds. NURSERYMAN and SEED GROWER, has to offer 50 Tons of SEED POTATOS:—

EARLY ASH-LEAF	EARLY OXFORD
MYATT'S PROLIFIC	EARLY SHAW
EARLY HANDSWORTH	FLUKE
OXFORD KIDNEY	YORK REGENT.

Also strong 3-year old ASPARAGUS PLANTS, WHITE SPANISH ONION SEED, and ENGLISH SCARLET RUNNER BEANS. Prices on application.

Seed Potatos—clearing out Offer.

WOOD AND INGRAM offer the following kinds of their own growth, true to name, at the CASH prices annexed, per bushel of 56 lb.:—Ashleaved Kidneys, 3s.; Robinson's Golden Kidney, 3s. 6d.; Lapstones, 2s. 6d.; Early Handsworth, 3s. 6d.; Early Oxford, 2s. 3d.; Martin's Globe, 2s. 3d., York Regent, 2s.; and Fortyfolds, 2s. 3d.

Nurseries, Huntingdon.

A Boon to the World.

PRINCE of WALES KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & CO., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C.; SUTTON & SONS, Reading. Price, 12s. per bushel.

N.B. They may be planted up to the end of May.

GRASS SEEDS,

AGRICULTURAL SEEDS,

KITCHEN-GARDEN SEEDS,

FLOWER SEEDS,

of all descriptions.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND. APPOINTED APR. 3, 1844. THE SEEDSMEN. THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London.

DETAIL CATALOGUES AND PRICED LISTS forwarded free on application.

Thomas Gibbs & Co.

CORNER OF HALF-MOON St. PICCADILLY, LONDON, W.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Extra Fine Seakale.

GEORGE CLARKE has plenty of clean stout Roots, which cannot be surpassed for Forcing qualities
Price for Picked Roots, per 100 .. .. 10*s.* 0*d.*
Do. second size ,, ... 7 6
Also strong for Planting, per 100 .. 5*s.* and 7 6
Nursery, Streatham Place, Brixton Hill, near London; and 4, Windsor Terrace, Pimlico, S.W.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; delivered to Reigate Railway Station. PEAT SOIL of various kinds, LOAM, BOG MOULD, &c. N.B.—Loaded trucks can be sent on all the principal Railways, and to Angerstein Wharf, Thames.
From E. ENSOR, Esq., *Woodville, near Burton-on-Trent.*
"The Sand is very good; when we want more we will write you."
W. SHORT, Sand and Peat Depot, Reigate, Surrey.

PALM-NUT MEAL.—Manufactured by ALEXANDER M. SMITH & Co., Liverpool, delivered to Rail or Boat, at Liverpool, in bags of 2 cwt. each.

Marked A.M.S. L. Price £7 a ton.

Analysis and Report by Dr. Augustus Voelcker:—

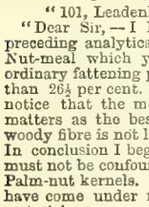
Moisture	6.91
Fatty matters	26 50
*Albuminous compounds (flesh-forming matters)	14 93
Gum, starch, sugar, and digestible fibre	31.20
Woody fibre (Cellulose)	16.13
†Mineral matters (Ash)	4.33
	100.00

* Containing nitrogen, 2.39. † Containing silica and sand, 1.07.

"101, Leadenhall Street, London, E.C.—April 15, 1864.
"Dear Sir,—I have much pleasure in sending you the preceding analytical results, for they show that the sample of Nut-meal which you gave me for analysis possesses extraordinary fattening properties, in as much as it contains no less than 26½ per cent. of a beautiful butter like fat. You will notice that the meal contains about as much flesh-forming matters as the best Barley meal, and that the proportion of woody fibre is not large. The condition of the meal is excellent. In conclusion I beg to say that this valuable fattening meal must not be confounded with a description of cake made from Palm-nut kernels. The samples of Palm-nut kernel cake that have come under my notice were all quite inferior feeding materials. "AUGUSTUS VOELCKER, Ph.D.
"Consulting Chemist to the Royal Agri. Soc."
"To John Coleman, Esq."
Having been appointed by Messrs. SMITH, Agent for the sale of Palm-nut Meal, I shall be happy to supply samples and further information as to this valuable feeding material.
JOHN COLEMAN, 150, Leadenhall Street, E.C.

TOBACCO PAPER, extra strong. To the Trade or Retail. Sample and price on application.
H. BROWN, 4, Commutation Row, Liverpool.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years trial."
"February 24, 1864."
Mr. E. SAGE, *Gardener to* Lord HOWE, *says:*—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed JOHN MORLEY, HENRY DREW, HENRY SHEERMAN, GEORGE ISAACS."
"July 13, 1863."
Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.
BLUNDELL'S NEW CATTLE MELON, 2*s.* 6*d.* per pkt.
The NEW OSBORNE MANGEL, 1*s.* per lb.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Glass Tiles.

JAMES PHILLIPS AND CO. beg to hand their Prices of GLASS TILES and SLATES for Farm Buildings, Sheds, &c.

GLASS SLATES.

WITH DRILLED HOLES.	ROUGH PLATE.			SHEET.			
	¼ inch thick.	3-16 inch thick.	⅛ inch thick.	16 oz.	21 oz.	26 oz.	32 oz.
Size.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Duchess .. .. 24 by 12	1 3	1 6	1 9	0 9	1 1	1 4	1 8
Small Imperials .. 20 ,, 14	1 2	1 5	1 8	0 8	1 0	1 3	1 7
Small Duchess .. 22 ,, 12	1 2	1 5	1 8	0 8	1 0	1 3	1 6
Countess .. .. 20 ,, 10	0 11	1 1	1 3	0 7	0 10	1 0	1 3
Viscountess .. 18 ,, 10	0 10	1 0	1 1	0 6	0 9	0 11	1 1
Large Ladies .. 16 ,, 10	0 9	0 11	1 0	0 6	0 8	0 10	1 0
Ladies .. .. 16 ,, 8	0 8	0 9	0 10	0 5	0 7	0 8	0 10
Doubles .. .. 13 ,, 7	0 6	0 7	0 8	0 5	0 6	0 7	0 8

GLASS TILES.

ROUGH PLATE. Each—	*s. d.*	SHEET. Each—	*s. d.*
¼ inch thick	0 10	16 ounce	.. 0 6
3-16 inch thick	0 11	21 ounce	.. 0 8
¼ inch thick	1 0	26 ounce	.. 0 10
⅜ inch thick	1 6		
½ inch thick	2 0	32 ounce	.. 1 0

GLASS TILES, quarter of an inch thick.
Packed in Cases containing 50. 1*l.* 18*s.* 6*d.* per Case nett.
3-16 inch Case of 60 £2 2 3 | ¼-inch Case of 60 .. £1 17 6
Cases, 2*s.* each extra, returnable at full price.
Glass Tiles and Slates will be found invaluable for Outhouses, Farm Buildings, Stables, and Factories.
London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.


Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	
£5 0 0	£5 12 0	


Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0

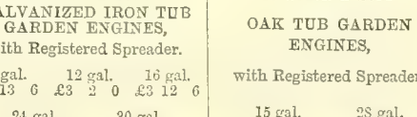
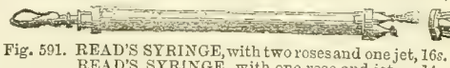

Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

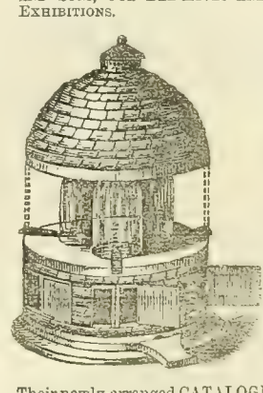

Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10*s.* 6*d.* each.
,, 589. Middle Ditto ditto .. 9 6 ,,
,, 588. Small Ditto ditto .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 6 9 ,,


Fig. 591. READ'S SYRINGE, with two roses and one jet, 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 14 0
,, 592. Improved ditto ditto large 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

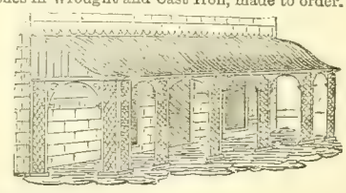
Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. AND SONS, FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.
Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.
Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.
Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.
Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: J. EDMONDSON & Co., 61, Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

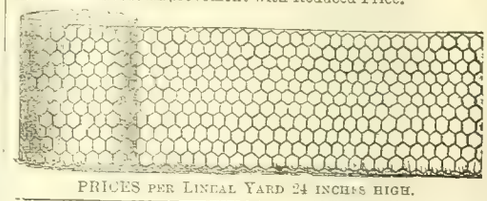
VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, (Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.
Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6*d.* to 1*s.* 6*d.* per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop; London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.

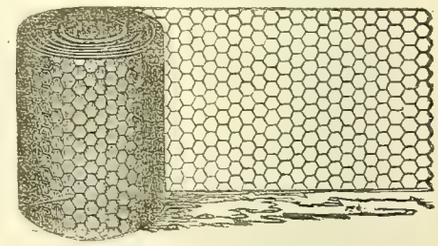


PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal.	Medium Jap	Medium Gal.	Strong. Jap	Strong. Gal.	Extra Strong Jap	Extra Strong Gal.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2½ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4⅝	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
½ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.
Lists Free on application. Every article guaranteed to be satisfactory.
J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

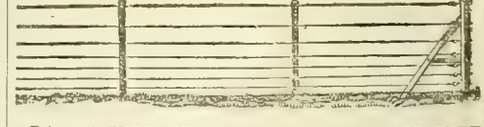
BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.



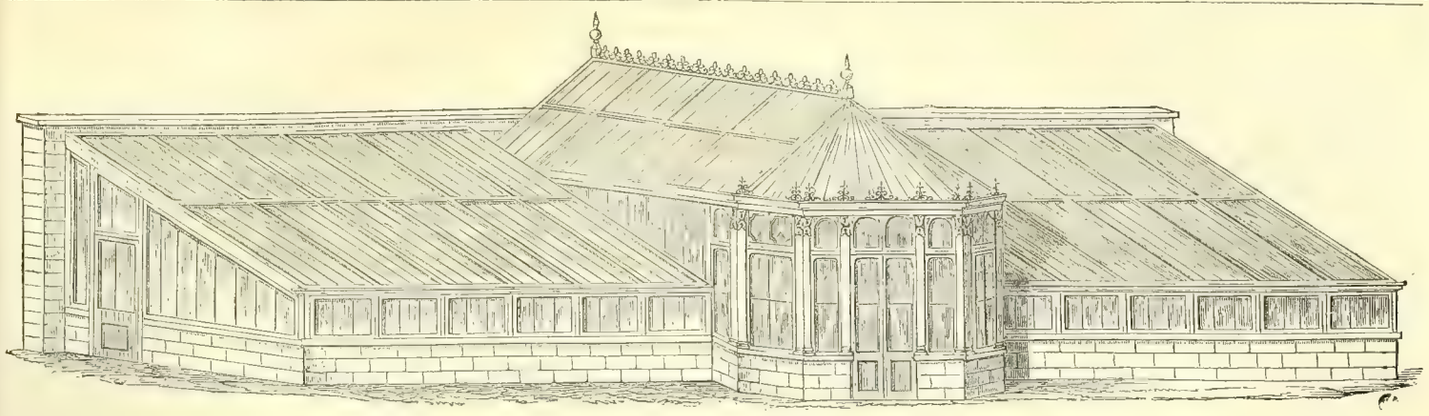
BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide ..	No. 19	4½*d.*	3½*d.*
2-inch ,, ,, ,, .. ,,	18	5	4
2-inch ,, ,, ,, .. ,,	17	6½	5
2-inch ,, ,, ,, .. ,,	16	8	6½
1⅝-inch ,, ,, ,, .. ,,	19	4½	4
1⅝-inch ,, ,, ,, .. ,,	18	6	4½
1⅜-inch ,, ,, ,, .. ,,	17	7	5½
1⅜-inch ,, ,, ,, .. ,,	16	9	7

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide. Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.
The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard.
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY,

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

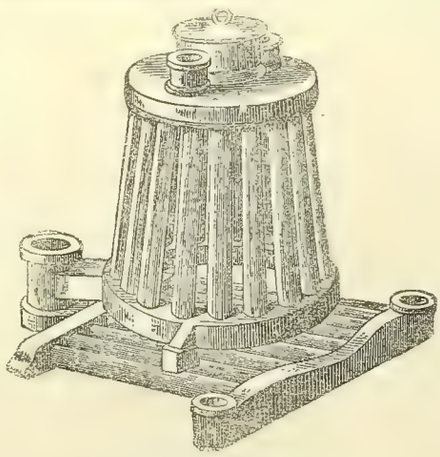
The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the International Exhibition.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

The Premier Strawberry.

WM. PAUL has still good Plants of this superb STRAWBERRY, price 12*s.* per 100, or 2*s.* 6*d.* per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keens' Seedling and Elton Pine, without the acid of the latter. Ripens three days later than Keens' Seedling, and remains in season a fortnight after that variety is over. The plant is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; the fruit carries well, and retains its flavour long after gathered.

"Large and handsome."—*Gardeners' Chronicle.*

"The flavour is very good."—*Journal of Horticulture.*

PAUL'S Nurseries, Waltham Cross, N.

STRAWBERRIES.

President (Green)	General Havelock (Tiley)
J. Powell	Keen's Seedling
Black Prince (Cuthill)	Le Constant
British Queen (Myatt)	Marguerite (Lebreton)
Carolina superba (Kitley)	Newton's Seedling
Crimson Queen (Myatt)	Oscar
Comte de Paris	Prince Arthur (Ingram)
Elton Pine (Knight)	Prince of Wales (Ingram)
Eliza (Rivers)	Princess Alice Maud
Eliza (Myatt)	Sir C. Napier (Smith)
Eleanor (Myatt)	Victoria (Trollope)
Eclipse (Reeves)	Wonderful (Jeyes)
Filbert Pine (Myatt)	

CHARLES TURNER can still supply good Plants of the above.

The Royal Nurseries, Slough.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

Vines in Magnificent Condition for Forcing or Planting.

GEO. CLARKE offers a large stock, which has been rarely equalled for their adaptability to the requirements of intending purchasers.

They are all from Eyes, well ripened, and short-jointed, and in an admirable state for Fruiting this season. The prices of this sized plants are 7*s.* 6*d.* each.

Younger plants, very suitable for planting, 3*s.* 6*d.* and 5*s.* each. Names of the varieties, which include all the new and popular kinds, furnished on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Flower Seeds, Postage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

COLLECTIONS of FLOWER SEEDS,	100	Packets,	20*s.*		
"	"	"	50	"	12*s.*
"	"	"	25	"	6*s.*
"	"	"	12	"	3*s.*

NEW DAHLIA EREBUS, NEARLY BLACK.

"Erebus is the best dark Dahlia yet produced."—*Garden Oracle.*

"Andrew Dodd looks pale and weak beside it."—*Gardeners' Weekly Magazine.*

"I think your Dahlia Erebus a great novelty."—*Charles Turner, Royal Nurseries, Slough.*

Plants of the above, 7*s.* 6*d.* each.

GEORGE RAWLINGS, 21, Globe Road, Bethnal Green, N.E.

New Dahlias.

HENRY LEGGE intends sending out early in May the following NEW DAHLIAS, the leading flowers of the year. Received 30 Certificates at all the leading Shows and Meetings last season.

ENCHANTRESS, pale yellow, tipped crimson.
WHITE PERFECTION, pure white.
NONSUCH, shaded orange.
THE BRIDE, white, shaded crimson.
BLACK DOCTOR, darkest maroon.
ROUNDHEAD, dark crimson.
CRIMSON PERFECTION, ruby crimson.
FAME, scarlet crimson.
FORMIDABLE, red, tipped white.
NIGGER, blush, striped and spotted crimson.
FANCY BOY, buff, striped crimson.

A List with full descriptions can be had on application.

Lower Edmonton, N.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Wyatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, April 23.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the ROYAL EAST BERKS and SOUTH BUCKS AGRICULTURAL SOCIETIES, and many other valuable Prizes in various PARTS of the Kingdom.

EXTRACTS from LETTERS received:—

R. MILWARD, Esq., *Southwell.*

"Your Champion Swede proved most excellent."

J. W. J. BARTRAM, Esq., *Little Weedon.*

"Your Champion Swede has given great satisfaction, having been a splendid crop, and kept well through the severe frosts."

Mr. THOMAS EDWARD WRIGHTON, *Bradninch.*

"My crop of Champion Swedes was the best in the neighbourhood, and kept well; also the Mangel."

Mr. JOHN ALLEN, *Farningham.*

"I was awarded the Prize for your Champion Swede at the Dartford Agricultural Meeting. The competition was good, being contested by some of our largest growers and best farmers, and I have no doubt there will be a good demand for your seed in this district next spring."

Mr. F. S. GUNTON, *North Mimms.*

"I have sown Sutton's Champion Swede for the last three years from the seed I had of you, and I believe them to be the best sort of Swedes grown. I grew about 400 tons of them last year, and had many much heavier and finer than any I saw on your stand at the Smithfield Show. I was only sorry I did not send you some of them."

J. STRATTON, Esq., *Broad Hinton.*

"With your Champion Swedes I won a prize of 10*l.* last year."

Mr. THOS. B. PALMER, *Escrick.*

"Your Champion Swedes are as sound and as good in colour as the day I got them up; I have sufficient to last till the 12th of May."

Mr. G. PARLETT, *Bury, Petworth.*

"The Champion Swede Seed I had of you last year turned out first-rate—the best piece of Swedes I ever grew, which has induced my neighbours to buy some this year."

Mr. H. HAMMOND, *Market Place, Masham.*

"Your Champion Swede obtained the first prize at the Masham Show, the 10th of September last."

Mr. JOHN COLEMAN, *East Kennett.*

"Please send the same quantity of your Champion Swede Seed, as I never intend to grow any other sort while I can get yours."

Mr. J. B. REECE, *Harpswood.*

"I took the Shropshire Challenge Cup, likewise the Bridgnorth District Cup, with your Champion Swedes."

WM. SADLER, Esq., *Ferrygate, Dron.*

"The Champion Swede is cutting out everything here."

New Seed from Selected Roots at 9*d.* per pound, or cheaper by the bushel.

Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1*s.*

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—*s.*	*d.*
CALCEOLARIA, HERBACEOUS, finest mixed	2	6
CARNATION, PERPETUAL, finest mixed	2	6
CINERARIA CRUENTA, finest mixed	2	6
PICOTEE, PERPETUAL, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2	6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Seedling Verbenas.

JEFFRIES AND SON, SEEDSMEN and FLORISTS, Woodbridge, Suffolk, beg to announce their intention of offering the following, which possess all the requisite properties, viz., size, form, and colour:—

DUKE OF CAMBRIDGE.—A very bright rich orange scarlet; straw-coloured eye, with a large and well-formed truss; pip large and very smooth; very free bloomer and excellent habit. Four First-class Certificates.

LIEUT.-COL. SCHREIBER.—Bright crimson scarlet, with a large and perfectly round white eye—best white eye of any Verbena out; very smooth pip, and medium size truss; good grower. Two First-class Certificates.

LADY RENDLESHAM.—Light, bright, rosy purple, perfectly new, and distinct in colour; large and well-formed truss and pip, dark eye, fine form, and free bloomer; a perfect gem—no stand can be complete without it.

BEAUTÉ PARFAIT.—Bright rosy carmine, with a large black disc; white eye; well-formed truss and pip; free bloomer:—a very striking variety—beautiful!

BLACK-EYED SUSAN.—A first-rate bedding variety or show flower; a very rich crimson carmine, with a large and well-defined black eye; large truss; first-rate bloomer, and habit by far the best of the black-eyed:—the more sun the brighter the colour.

3*s.* 6*d.* per Plant, or the Set for 10*s.* 6*d.*, to the Trade only.

The above have been selected from a bed of Seedlings raised and grown by Mr. J. CULLINGFORD, who has put them into our hands for disposal.

Good plants of the above will be ready in the first week of May, and for which we beg to solicit early orders.

A remittance respectfully requested from unknown Correspondents.

To the Trade.

PRIMULA SEED.—By the Ounce or Pound.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Seeds worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. Superbly Fringed. In sealed packets. 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf
CALCEOLARIA BEAUTY of HERTS, clear amber
CALCEOLARIA GENERAL TOM THUMB, deep yellow
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30*s.* per dozen; the usual allowance to the Trade where six or more are taken.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

MR. WM. MASTERS begs to announce to those seeking Plants that he has a very large general collection for sale, and is especially rich in the varieties of RHODODENDRONS and such like plants.

His stock of HARDY and HOUSE FERNS is also unusually varied; and he is prepared to execute largely orders for the best kinds of BEDDING PLANTS.

Exotic Nursery, Canterbury.—April 23.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Cheap Bedding Geraniums.

ALFRED FRYER offers 48 varieties of first-class BEDDING GERANIUMS for 21*s.*, basket and packing included. Amongst other popular kinds the collection will contain the following:—

Mrs. Pollock	Snowflake	Blackheath Beauty
Cloth of Gold	Eva	Madame Vaucher
Golden Fleece	Jane	Magenta
Reine d'Or	Julia	Pink Pearl
Sulphurea marginata	Flower of Spring	Woodwardiana
Scintillatum	Bijou	Hendersoni Nana
	Aurora	Paul Labbé

Remittances requested from unknown correspondents.

Post-office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

PRESENT PRICES of CLOVER SEEDS, CARRIAGE FREE, EXCEPT SMALL PARCELS.

SUTTON'S BEST QUALITY of COMMON RED CLOVER, 7*d.* per lb., or cheaper by the cwt. Second quality cheaper.
BEST WHITE CLOVER, 9*d.* per lb. Second quality cheaper.
BEST ALSIKE CLOVER, 10*d.* per lb. Second quality cheaper.
BEST COW GRASS, 9*d.* per lb. Second quality cheaper.
BEST YELLOW TREFOIL, 4½*d.* per lb.
BEST MIXED CLOVERS and RYE-GRASS, 12*s.* 6*d.* per acre.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Important to Gardeners and Botanists.

FRED. Y. BROCAS (being desirous of raising a Fund for the purpose of improving his prospects), is now selling off his entire Stock of DRIED PLANTS at the lowest possible prices, previous to entering more commodious business premises. F. Y. BROCAS can therefore offer Sets of FERNS, GRASSES, &c., and Miscellaneous Plants, from 2*s.* 6*d.* upwards; and hopes all who wish to avail themselves of so favourable an opportunity to procure cheap collections will make early application.

FRED. Y. BROCAS, Botanist, 25, Hart Street, Bloomsbury, W.C.

Continental Novelties, &c.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to advertise his PRICE LISTS, No. 99, 100 and 102, containing the STOVE, GREENHOUSE, HARDY PLANTS, and SEEDS.

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to announce that he has just published a SUPPLEMENT to his CATALOGUE, containing many interesting New Plants. May be had, gratis, on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Coleus marmoratus, the prettiest Novelty of the day.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer strong Plants of this very desirable new COLEUS MARMORATUS; it is of dwarf habit and rich colour, with large velvet green leaves, edged with clear amaranth, very distinct and superior to C. Verschaffeltii.

1 Strong Plant for 7*s.* 6*d.*	12 Strong Plants for 70*s.*
6 Strong Plants for 42*s.*	25 Strong Plants for 120*s.*

Early orders will be punctually attended to.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Tower Street, London, E.C.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Rhododendrons.

Crimson, White, Purple, and Scarlet.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

NEW VARIEGATED-LEAVED FUCHSIA "CLOTH of GOLD."—A sport of Souvenir de Chiswick, retaining all its fine properties, with beautiful golden variegated leaves in way of Golden Chain and Cloth of Gold Geraniums. Strong Old Plants in March at 21s., or Small Plants in May at 5s. each. Usual discount to Trade.
S. Stafford, Nurseries, Hyde, Manchester.

New Hollyhocks.

WM. PAUL respectfully announces that he is now sending out Two first-rate NEW HOLLYHOCKS, selected from many thousands of Seedlings, namely:—

BEAUTY of WALTHAM.—Flowers pale silvery peach, large in size, perfect in form, and closely set on a large handsome spike: one of the finest ever raised.

RED GAUNTLET.—Very fine blood crimson, unsurpassed in colour and form, spike magnificent.

Strong healthy autumn-rooted plants, calculated to flower well this summer, 10s. 6d. each.
Paul's Nurseries, Waltham Cross, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, Miscellaneous STOVE and GREENHOUSE PLANTS, Variegated and Ornamental FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE, with a list of Beck's New and Choice PELARGONIUMS, Post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

Herbaceous Calceolarias.

E. G. HENDERSON and SON offer these, of splendid varieties, in healthy fine plants for conservatory decoration, being now in most suitable order for travelling. 12s. and 18s. per dozen.

TIGRIDIA PAVONIA.—Very beautiful for groups in the flower garden, or for pot culture. The remarkably large and brilliant orange-scarlet flowers, picturesquely spotted, render them exceedingly attractive during the summer months. 1s. 6d. per doz.
Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

JOHN KEARSLEY and SONS beg to offer as below, all very fine stuff:—

CARNATIONS and PICOTEES, fine, per 100 pairs, 60s.
LOBELIA FULGENS and FEU DE ROI, per 100, 25s.
ARABIS VARIEGATA, per 100, 25s.
PYRACANTHAS, Red and White, per 100, 20s.
WHITE BROOM, in pots, per 100, 30s.
CHINESE ARBOR-VITÆS, very fine, per 100, 25s.
PRIMULA, Double White, per 100, 60s.
GERANIUM, CLOTH of GOLD, per 100, 25s.
Nursery and Seed Establishment, 44, Vicar Lane, Leeds.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.
Geo. Clarke, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Seeds, Carriage Free.

WILLIAM CUTBUSH and SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.
Highgate Nurseries, London, N.

The Best New Dwarf Bedding Scarlet Geranium of the Season is "Lady Cowper."

E. P. FRANCIS will send out the above GERANIUM the first week in May. For description, see *Gardeners' Chronicle* of April 2.

Price: good plants, 3s. 6d. each; or 30s. per dozen.
The Nurseries, Hertford, Herts.

Choice Flower Seeds, Post-free.

Offered by

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

PRIMULA, very fine, red, white, or mixed, 2s. and 3s. 6d. per pkt.
CALCEOLARIA, very choice, 1s. 6d. and 3s. 6d. per pkt.
CINERARIA, from named flowers, 1s. 6d. and 2s. 6d. per pkt.
CLIANTHUS DAMPIERI, English saved, 1s. 6d. and 2s. 6d. per pkt.
BALSAM, Camellia-flowered, very fine, 1s. per pkt.
CORDYLINE INDIVISA, 2s. 6d. per pkt.
SENECIO ELEGANS FLORE PLENO, 1s. per pkt.
CARNATION and PICOTEE, 1s. per pkt.
ACHIMENES, very choice, 1s. per pkt.
PANSY, from named flowers, 1s. per pkt.
STOCK, SCARLET INTERMEDIATE, the true Covent Garden variety, 6d. per pkt.
ASTER, Chrysanthemum-flowered, 6d. per pkt.
" Truffaut's Pæony-flowered perfection, 6d. per pkt.
" Double-quilled German, 6d. per pkt.
SWEET WILLIAM, 6d. per pkt.
CACTUS, fine varieties, 1s. per pkt.
MIMULUS MACULOSUS, 1s. 6d. per pkt.
HOLLYHOCK, from named flowers.
WILLIAMS' MATCHLESS RED CELERY, 1s. 6d. per pkt.

Grass Seeds for all Soils.



SUTTON and SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:

From Professor Lindley, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Present Prices are—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts ..20s. to	26	0
Best quality ditto, for Three or Four Years' Lay ..	21	0
Ditto ditto, for One or Two Years' Lay 12s. 6d. to	17	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6s. to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. "	16	0

The First Prize Medal was awarded to Sutton & Sons for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October 1862.

A Copy of Mr. Martin Sutton's "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

BEDDING and BORDER PLANTS.—CALCEOLARIAS, CARNATIONS, CHRYSANTHEMUMS, CLEMATIS, DAHLIAS, FUCHSIAS, GERANIUMS, PETUNIAS, ROSES, and VERBENAS.

The choicest kinds of each at the lowest prices, at Mr. Townsend's, St. Mary's Nursery, adjoining the Compasses, Hornsey, a few minutes' walk from the Hornsey Railway Station. Dealers supplied on liberal terms.

GREEN HOLLIES and all EVERGREENS.—This is a good time to remove all Evergreens—our stock of which is very large and of prime quality—of all sizes, from 1 foot and upwards. Low prices on application, especially to large buyers.

James Dickson & Sons. The "Newton" Nurseries, Chester.

HOLLIES and AUCUBA JAPONICA.

HOLLIES, 1 foot Transplanted, fine, 8s. per 100.
" 1½ " " " 15s. " 100.
" 2 to 2½ feet, very fine, 35s. per 100.
AUCUBA, 1 foot Transplanted, fine bushy plants, 30s. per 100.
" 1 foot to 1½ feet, by 1 to 1½ feet, twice Transplanted, very fine, 75s. per 100.

The above are all fine plants, and remarkably well rooted. A remittance or reference from unknown Correspondents is respectfully requested.

J. & W. Field, Boughton Nursery, Chester.

Green Hollies.

Brereton Nursery, Rugeley, Staffordshire.

CORNELIUS WHITEHOUSE has pleasure in offering, from one of the largest Stocks in the Trade, 200,000 Transplanted HOLLIES, from 4 inches to 4 and 5 feet, which are well known to be extra good, rooted from this soil, are very healthy, stout, well furnished, and clean grown; a very large portion moved last May. Can supply the Trade from 4 inches to 2 feet. Cash or reference is respectfully requested from unknown correspondents.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST of AWARDS, April 20, 1864.

First-Class Certificates.

Azalea indica Stella, from Messrs. Veitch and Son, Exeter and Chelsea
Azalea indica Roi des Doubles, from Mr. Bull, Chelsea
Dendrobium Dayanum, from Mr. Williams, Holloway
Dracæna Cooperi, from Messrs. Veitch & Son
Franciscea calycina major, from Messrs. Veitch & Son
Gymnostachyum Verschaffeltii, from Mr. Bull
Phalænopsis Ruckeri, from Mr. Bull
Rhododendron Nuttallii, from Mr. Williams
Trichopilia crispa, from Messrs. Veitch & Son
Xanthorrhœa australis (?) from Mr. Williams

Second-class Certificates.

Auricula (Alpine) Shakspere, from Mr. C. Turner, Slough
Azalea indica Meteor, from Mr. Kinghorn, Richmond
Azalea indica Bellona, from Messrs. F. & A. Smith, Dulwich
Genista prostrata, from Messrs. E. G. Henderson & Son, St. John's Wood
Primula cortusoides amœna, from Messrs. Veitch & Son

Commendation.

Collinsia verna, from Mr. Thompson, Ipswich

The next Meeting of the Committee will take place on May 3, at noon.

Thomas Moore, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.

AZALEA and ROSE SHOW.

WEDNESDAY, April 20.

AWARDS of the JUDGES.

SPECIAL PRIZE.

PLANT CASE filled with SPRING PLANTS. for Drawing-room. (No Competition.)

Class 1.—9 AZALEAS, distinct kinds. (Nurserymen.)
1st Prize, Mr. C. Turner, Slough, 2*l.*
2d, Messrs. H. Lane & Son, Great Berkhampstead, 1*l.* 10*s.*

Class 2.—9 AZALEAS, distinct kinds. (Amateurs.)
1st, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, 2*l.*

Class 3.—6 AZALEAS, distinct kinds. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 1*l.* 10*s.*
2d, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, 1*l.*
3d, Messrs. J. Dobson & Son, Woodlands Nursery, Isleworth, 15*s.*

Class 4.—9 ROSES, distinct kinds. (Nurserymen.)
1st, Mr. C. Turner, Slough, 2*l.*
2d, Mr. Wm. Paul, Waltham Cross, 1*l.* 10*s.*
3d, Messrs. Paul & Son, Cheshunt, 1*l.*
Extra, Mr. E. P. Francis, Hertford, 15*s.*
Extra, Mr. W. H. Treen, Rugby, 10*s.*

Class 5.—6 ROSES, distinct kinds. (Amateurs.) (No competition.)

Class 6.—Collection of NEW ROSES, 1863-4, 6 kinds. (Open.)
1st, Messrs. Paul & Son, Old Nurseries, Cheshunt, 2*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.* 10*s.*
3d, Mr. Wm. Paul, Paul's Nurseries, Waltham Cross, 1*l.*

Class 7.—6 CINERARIAS, distinct kinds. (Open.)
1st, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 1*l.* 10*s.*
2d, Mr. R. Marcham, Gr. to E. Oats, Esq., Hanwell, 1*l.*

Class 8.—4 CINERARIAS, distinct kinds. (Amateurs.)
1st, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 1*l.*
2d, Mr. R. Marcham, Gr. to E. Oats, Esq., Hanwell, 15*s.*
3d, Mr. Wm. Lucey, Gr. to C. Mortimer, Esq., Morden, Surrey, 10*s.*

Class 9.—12 AURICULAS, 3 of each kind, viz: 3 Grey edged, 3 White edged, 3 Green edged, and 3 selfs, distinct kinds. (Nurserymen.)
1st, Mr. C. Turner, Slough, 1*l.* 10*s.*

Class 10.—8 AURICULAS, 2 of each kind, distinct (Amateurs.)
1st, Mr. Thomas Potts, 35, Glengall Grove, Old Kent Road, 1*l.* 10*s.*
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 1*l.*
3d, Mr. J. Butcher, 1, South Street, Camberwell, 15*s.*

Class 11.—6 ALPINE AURICULAS, distinct kinds. (Open.)
1st, Mr. C. Turner, Slough, 1*l.*

Class 12.—6 POLYANTHUS, distinct kinds. (Open.)
1st, Mr C. Turner, Royal Nurseries, Slough, 1*l.*
2d, Mr. J. Butcher, South Street, Camberwell, 15*s.*

Class 13.—4 CYCLAMENS, distinct kinds. (Amateurs) (No Competition.)

Class 14.—24 PANSIES, Cut Blooms, 12 distinct kinds. (Open.)
1st, Mr. Wm. Bragg, Star Nursery, Slough, 10*s.*
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 5*s.*

Class 15.—8 PANSIES, Fancies, in Pots, distinct kinds. (Open.)
1st, Mr. Wm. Bragg, Star Nursery, Slough, 15*s.*

Class 16.—MISCELLANEOUS COLLECTION of PLANTS in FLOWER. (Open.)
1st, Messrs. J. Veitch & Son, Miscellaneous Collection of Plants in Flower, 1*l.* 10*s.*
Extra, Mr. Wm. Bull, Collection of New and Rare Plants, 2*l.*
Extra, Messrs. H. Lane & Son, Collection of Azaleas, 2*l.*
Extra, Mr. Wm. Paul, Collection of 8 boxes of Cut Roses 2*l.*
Extra, Messrs. Paul & Son, Collection of 6 boxes of Cut Roses, 1*l.* 10*s.*
Extra, Mr. Chas. Turner, Collection of Geraniums, 1*l.* 10*s.*
Extra, Mr. B. S. Williams, Collection of New and Rare Plants, 1*l.* 10*s.*
Extra, Mr. Wm. Bull, Plant Case filled with Plants, 15*s.*
Extra, Mr. Robert Parker, 3 Rhododendrons, Countess of Haddington, 10*s.*
Extra, Mr. George Batley, Box of Cut Roses, 10*s.*
Extra, Messrs. J. Dobson & Son, Collection of 6 Pansies in pots, 10*s.*

The Gardeners' Chronicle.

SATURDAY, APRIL 23, 1864.

MEETING FOR THE ENSUING WEEK.

Saturday, April 30 { Royal Botanic (Third Spring Exhibition) .. .. .. 2 P.M.

Monsieur Dehérain has been lately conducting some very important experiments to show in what manner the absorption of potash by plants is really effected. The experiments are in fact so important that we hasten to give them all publicity in our power.

In the first part of these researches the author points out how and for what crops the farmer and the gardener may apply gypsum with great advantage; and, on the other hand, how they may be at the expense of applying it with no advantage at all. This, therefore, is an important matter, deserving of serious consideration. We need not enter into all the minute details of the elaborate and carefully-conducted chemical analyses and experiments by which the author arrives at his conclusions; but we shall state sufficient to call attention to the subject.

Farmers (says M. Dehérain) have long been aware of the remarkable effects produced by gypsum on artificial meadows; they admit that it increases by one-third or even by one-half the crops of Clover, Lucerne, and Sainfoin; but what distinguishes this substance from others that are employed for promoting vegetation is its great effect on leguminous plants, and its having none

whatever on cereals. M. Dehérain's experiments proved—

That gypsum applied to arable land does not assist nitrification: no nitric acid being formed in consequence of its application.

That moreover it does not promote the formation of ammonia.

But that it does promote the solubility of potash buried in the soil.

If we examine, in the first place, what plants are benefited by gypsum, we shall find that they are such as are rich in potash, namely leguminous plants, especially Clover, Sainfoin, and Lucerne; and the Vine, which takes up a considerable quantity of potash from the soil, is also manured with gypsum in some countries.

An old observation of Schwertz is very much in accordance with this view of the subject. That agriculturist asserted that gypsum cannot promote the growth of Clover on certain stiff soils; but he adds, that its unsuitability is frequently overcome by manuring with ashes. Gypsum, in fact, does not create potash, it can only set it at liberty, and render it soluble; and if the potash is entirely absent the gypsum has no effect; but ashes themselves contain potash, and give to the soil the element without which leguminous plants could not grow.

Some experiments have shown that the potash becomes soluble almost immediately after the gypsum has been applied. This explains why agriculturists recommend the application of gypsum to the growing crop rather than to the soil before sowing. In either case, it seems that gypsum acts only on the soil; but if it liberate or render soluble the potash whilst there are no plants to take the latter up, it may be carried off by rains and lost; but if, on the contrary, the plants are in a growing state, potash will be absorbed by them as it becomes dissolved under the influence of the gypsum.

"I have stated," says M. Dehérain, "that gypsum produces little or no effect on cereals. If we examine the composition of the ashes of those plants, we find that they contain considerable quantities of phosphates and large quantities of silica, and we know that nitrogenous manures are absolutely necessary for them. Now, we have seen that gypsum neither promotes the formation of ammonia nor that of nitric acid, and we have stated that the solubility of the phosphates in weak acids is not increased by gypsum; whilst experiments prove that the latter acts with far less energy than lime in rendering silica soluble. It thus appears that none of the elements of cereals is rendered more soluble by gypsum.

"Nitric acid, soda, chlorine, and sulphuric acid are but little retained by arable land. They are chiefly found in the water that runs off by the surface, and in that of the drains in well manured land; but potash, ammonia, and phosphoric acid are retained in the soil. Gypsum and lime are employed to dissolve the last three elements, and although the actions of these have some points in common, yet in others they are widely different.

"The object of supplying gypsum to arable land is to liquefy the soluble salts which the soil usually retains, and permit them to be dissolved from the soil by water, so that they can be absorbed by plants. In this way, to use an expression now usually adopted, we may consider gypsum as an assimilating agent.

"The action of lime is not entirely similar. It attacks insoluble matters and transforms them. I still uphold what I stated some years ago on the effects which it exercises on the insoluble phosphates. M. Boussingault has likewise shown that lime attacks insoluble nitrogenous matters, and renders them capable of assuming the form of ammonia; lime, then, is also an assimilating agent, but its action extends to insoluble matters. It acts by chemically decomposing certain substances, and causing them to take a different form. Gypsum, on the contrary, seems to act physically by setting free soluble substances that are shut up in the soil. As lime is the assimilating agent of the phosphates and of nitrogen in the state of ammonia, so gypsum is the assimilating agent of potash."

To us it seems that these very curious statements are of at least as much interest to the gardener as the farmer.

—— We have received from Mr. Melville, of Dalmeny Park, samples of a hybrid form of the Cabbage family, which he names the Albert Sprout, and the parent of which, he informs us, was the Drumhead Savoy, which had been crossed several times with the Brussels Sprout. The samples, as they have come to us, appear to indicate a very useful late hardy winter green. They had moderate sized hearting heads like a small Savoy, perhaps as big as one's fist, and the stems were completely clothed with somewhat loosely hearting sprouts, neither the head nor the sprouts showing the least indication of running to seed. With them were sent samples of Henderson's Feather-stemmed Savoy and of the common Brussels Sprout, sown on the same day as the Albert Sprout, and both these, the former especially, were far advanced towards flowering.

"The Feather-stemmed Savoy," Mr. Melville remarks, "produces scarcely any head, and will not be in a fit state for use nearly so late as my variety, for it is now far run for seed, and the common Brussels Sprout is likewise sending out its flowering shoots, while my sprouting Savoy will keep good and be fit for cooking for five weeks to come. I gathered some last year as late as the middle of May. I therefore think it is a variety of vegetable that will be invaluable as coming in when other vegetables are scarce, and all other sorts of Sprouts are over. It is much hardier, too, than the common Brussels Sprout, the latter being this season very much browned, while the new Sprout is fresh and green. As it comes in at a different time from all others, and will be valuable, I shall call it the Albert Sprout."

The flavour after cooking, was all that could be desired, being mild and mellow, without any kind of coarseness.

—— With regard to Two Days' Shows, the following is the reply which has been sent by the Council of the Royal Horticultural Society to the remonstrance by Exhibitors against the second day's Shows, which we published last week. The Assistant Secretary says:—

"Your letter, remonstrating against the proposed second day's Show, was read to the Council at their meeting to-day, being the first meeting which they have held since its receipt.

"I am directed by them to inform you that they have received it with regret, and that they are sorry to learn that you consider the arrangements inimical to your interests, which certainly was not intended.

"In explanation of the proposed arrangement, I am to point out to you that for some years past it has been found that the Flower Shows have not been on the whole remunerative, and are very riskful owing to bad weather; consequently, the question in which exhibitors are especially interested, has resolved itself into this, that if the shows are to continue to be held at all, they must either be carried on at a loss and in jeopardy, or some change be tried in the arrangements, which may lead to a favourable result.

"It has been thought that a second day's show and an evening exhibition might have this effect, and as compensation for the additional risk and trouble which these will impose upon the exhibitors, a large proportion of the second day's receipts has been set apart for them.

"The Council were and are prepared to make any necessary arrangements for carefully preserving the plants, and would lend every assistance to the exhibitors in doing so. The new buildings which will be used afford ample facilities for protection, and the Council invite you to inspect them. To enable suitable arrangements to be made, it will be requisite to have information of the general nature of the plants proposed to be exhibited and the space they will occupy. For this time and subsequently printed forms will be prepared and must be filled up.

"As respects the lighting, the subject has received the most careful attention of the most experienced persons, scientific and otherwise, who all are unanimously agreed that it is simply a question of proper ventilation, and the ventilation provided by the Society will be ample. Gas is used quite harmlessly at the fine conservatory at Bentley Priory, Stanmore, and in other conservatories.

"The Council had hoped that the arrangements made for dividing the receipts of the second day would have much more than covered any increased expenses caused to the exhibitors by the plants remaining over a second day. If it be a question of expense, they would be prepared to consider any proposal for converting the exhibitor's anticipated share of the second day's receipts into a fixed sum, or to guarantee that such share should not be less than a sum to be decided on; and should you desire it, the Secretary would be glad to see a deputation of your body to endeavour to arrive at some satisfactory solution of this point, if you make an appointment.

"The evening show will probably be the most attractive part of the exhibition, but if after these explanations you should still be of opinion that you would desire only to show your plants for one day, arrangements will be made to meet your wishes by arranging your plants apart, so that you may remove them at the close of the first day's exhibition.

"The Council will be glad to hear specifically from each individual, which of the different arrangements he has a preference for, in order that they may prepare accordingly."

—— It appears that Mr. Thomson's new Grape Duchess of Buccleuch, is not, as has been stated, a seedling of the Chasselas Musqué, nor a cross from the Royal Muscadine. As it is desirable there should be no mistakes or mysteries in questions of this kind, Mr. Thomson has very judiciously cleared up the matter by stating that it was raised from seed taken out of a Muscat berry crossed with the Chasselas Musqué.

THE HIMALAYAN SPRUCE FIR.

[In answer to some inquiries respecting Grafted Conifers, we reprint the following remarks from the *Scottish Gardener*.]

Abies Smithiana, or A. Morinda, as it is commonly called in gardens, was raised for the first time in Europe at Hopetoun House by the late Mr. James Smith, gardener there, from seeds received from Dr. Govan in 1818. It was called Pinus Khutrow by Royle and Endlicher, from one of its names common in the Himalayas, of which it is a native. The designation A. Morinda, as will be seen from a subsequent extract, is also borrowed from a native name.

Several of the trees growing in the pleasure grounds at Hopetoun House have attained a considerable size. The following dimensions of the three largest have been supplied by Mr. A. Niven, the able and obliging gardener there:—

No. I. On its own roots, 48 feet high, and 5 feet 10 inches in girth, at 6 feet above the ground.

No. II. Grafted, 47 feet high, and 4 feet 6 inches in girth at the same height from the ground.

No. III. grafted, 37 feet high, and 3 feet 3 inches in girth.

Nos. II. and III., with a few others, were grafted in 1827 by Mr. Charles Smith, then a youth in Hopetoun Gardens, and afterwards landscape gardener in Edinburgh. The stocks were the common Spruce, as is seen by a tier of branches of that species still remaining. The grafts were inserted in the leading shoots, by the operation called herbaceous grafting, about 4 feet from the ground. In No. II. there is a swelling at the point of union; and the stem is rather thicker above than below the graft. The grafted trees however, have grown with great vigour and beauty; and are considerably larger than one of the original batch on its own roots, recently removed to make way for a magnificent tree of A. Douglasii, to which it was in too close vicinity. The latter, it may be noted in passing, though perhaps not the largest, is one of the finest in Britain, being 61 feet in height, 4 feet 4 inches in girth, and feathered in the most exquisite style with branches to the ground.

In the present day grafted Conifers are by no means rare; but few perhaps have prospered so much as those above described. At one time the grafting of Pines was deemed a thing incredible. A military cadet of the noble house of Hopetoun, having met with the late Dr. Wallich, thought it might interest the old Indian botanist to tell him of the grafted Himalayan Spruces. The learned doctor avowed his disbelief of the facts, and offered to eat up all such grafted trees that could be produced to him. Fortunately Dr. Wallich never came to Hopetoun House, otherwise he might have had harder work to do than ancient Pistol had with his Leek. The story shows that even wise men may err in *à priori* judgments.

The climate of the grounds at Hopetoun House seems singularly propitious to the Himalayan Spruce. Nos. I. and II. grow within the garden, near the bottom of a bank sloping gently towards the north, at the height of 70 or 80 feet above the level of the sea, well sheltered from the east, and slightly screened in winter from the direct rays of the sun. They have never been nipped or even browned by the spring frosts, as the species often is in many places. The large tree in the Royal Botanic Gardens, Edinburgh, which was one of the original Hopetoun seedlings, was considerably injured by the terrible frost of Christmas, 1860. We observe that Endlicher, deriving his information probably from Royle, estimates the height of the Himalayan Spruce at 50 feet; and, if this be accurate, the Hopetoun trees have nearly attained their maximum, of which, however, they give no indications in themselves. Another Indian traveller, the author of "A Summer Ramble in the Himalayas," gives a different view of the subject. He says:—

"The Morinda Pine is, I believe, peculiar to the Himalayas, and grows in the middle higher regions from an elevation of 6000 feet to near the limits of the forest. In the great Oak forest of the middle ranges it occurs at intervals, sometimes singly, sometimes in clusters, and its very dark foliage and spire-like top towering above the other forest trees make it a conspicuous object. On some of the hills nearer the snow, where Pine is the prevailing wood, it almost monopolises the forest. The Morinda is a large and very handsome tree, the trunk perfectly straight, often upwards of 20 feet in circumference at the base, and sometimes reaching a height of between 150 to 200 feet. The branches, which in a large tree commence about 20 feet from the ground, are very short, in some cases not extending more than a few feet from the trunk, and are very regular all the way up, which adds to the apparent height of the tree. The wood is of little use except for indoor work, as when exposed to the atmosphere it soon decays."

With the exception of the tint of the foliage, which is rather dull glaucous green than dark, the above description is perfectly adapted to the trees at Hopetoun. The trunks are straight as an arrow, and

appear as if turned in a lathe. The writer does not notice the graceful droop of the annual shoots.* The magnitude of the Indian trees suggests the hope that in this country the species will live long and attain a considerable size. It is only a presumption, however, which must be confirmed by experience. The Hemlock Spruce and Weymouth Pine, which are giants in America, are only dwarf scrubby trees in Scotland. The great Cedars in the grounds at Hopetoun House, which are only 150 years old, are showing unmistakeable signs of decay, while on Lebanon and Taurus it is said there are Cedars from 1000 to 1500 years old.

It may be added that there must be many trees of A. Smithiana in this country grown from cuttings, as the late Mr. Cunningham, of Comely Bank, Edinburgh, used to propagate numbers in that way. The writer of these notes planted a tree of this species in a churchyard near him, which was originally a cutting. Growing at the height of 350 feet above the level of the sea, and exposed to the full rays of the sun, it has been sometimes spring-nipped, yet it is now healthy, though rather slender, and is about 13 feet in height. In the same churchyard grows a seedling A. cephalonica, a younger plant, which is 9 feet high, flourishing most vigorously, and evidently as hardy as the common Silver Fir. There is also a fine Deodar, which stands all kinds of weather. These and several other Conifers seem admirably adapted for the adornment of cemeteries and churchyards. *J. S., Ecclesmachan Manse.*

REPLACEMENT OF SPECIES IN THE COLONIES AND ELSEWHERE.

By J. D. Hooker, M.D., F.R.S., &c.

Among the most interesting phenomena connected with the distribution of plants, are those that concern the rapidity with which some species of one country will, when introduced into another, rapidly displace the aborigines and replace them. The Cardoon in the Argentine Provinces is one conspicuous example, the Anacharis in our own rivers is another, but neither of these cases is more remarkable than some that our colonies present. In Australia and New Zealand, for instance, the noisy train of English emigration is not more surely doing its work, than the stealthy tide of English weeds, which are creeping over the surface of the waste cultivated and virgin soil, in annually increasing numbers of genera, species, and individuals. Apropos of this subject, a correspondent, W. T. Locke Travers, Esq., F.L.S., a most active New Zealand botanist, writing from Canterbury, says, "You would be surprised at the rapid spread of European and other foreign plants in this country. All along the sides of the main lines of road through the plains, a Polygonum (aviculare), called Cow-grass, grows most luxuriantly, the roots sometimes 2 feet in depth, and the plants spreading over an area from 4 to 5 feet in diameter. The Dock (Rumex obtusifolius or R. crispus) is to be found in every river bed, extending into the valleys of the mountain rivers, until these become mere torrents. The Sow Thistle† is spread all over the country, growing luxuriantly nearly up to 6000 feet. The Water Cress increases in our still rivers to such an extent, as to threaten to choke them altogether; in fact, in the Avon, a still deep stream running through Christ Church, the annual cost of keeping the river free for boat navigation and for purposes of drainage, exceeds 300*l*. I have measured stems 12 feet long and ¾ inch in diameter. In some of the mountain districts, where the soil is loose, the white Clover is completely displacing the native Grasses, forming a close sward. Foreign trees are also very luxuriant in growth. The Gum trees of Australia, the Poplars and Willows, particularly, grow most rapidly. In fact, the young native vegetation appears to shrink from competition with these more vigorous intruders."

I have urged upon various Colonial correspondents the great importance of systematically collecting and recording facts upon this curious subject, but hitherto without success. The same spirit which prompts us to subscribe more for the heathen of Africa than of St. Giles, seems to animate the collectors in our colonies, and yet this department of botany is most interesting and important. Directly, every problem of the geographical distribution of plants is interfered with by these intruders, and, indirectly, the zoology of the colonies is even more materially affected. Hitherto but one author has had the boldness to inquire into the rationale of this "replacement;" to grapple with the startling fact that plants are thus proved to be located by nature, not necessarily under the conditions best suited to their development; and this is Mr. Darwin. This great naturalist informs me that he believes that the facts hitherto observed favour the supposition, that in the struggle for life between the denizens of the Old Continents and the New, the former are prepotent; and he attributes this to the longer period they have been engaged in strife, and the consequent vigour they have acquired. European weeds have established themselves abundantly in America and Australia, but comparatively very few plants of these countries have become weeds in England. We may hence infer why it is that the indigenous vegetations of St. Helena and Madeira show no tendency to increase, whilst European and African trees, shrubs, and herbs are rapidly covering those islands.

On the other hand, there are many reasons why a whole population of Old World plants should become established in the New World and in the colonies, before any symptoms of a return emigration can be detected. The export of garden and field-crop seeds, as well as of European animals and merchandise, favours the rapid introduction of emigrant plants into the colonies, but there is no such import of materials to Europe; it is also to be observed, that the processes of agriculture, conducted through many centuries, have resulted in a European population of sturdy weeds (the tramps of our Flora), and that there can be nothing of the kind in the colonies, till these are as long cultivated by ourselves or others. It is therefore conceivable that, had New Zealand been cultivated for a thousand years, there might have resulted races of its native Dock, Speedwells, Polygona, &c., which would, on being introduced into England, displace some of those very Docks and Polygona now establishing themselves in New Zealand; and that something of this sort is going on may be argued from the rapidity with which the Impatiens fulva, Galinsoga, Erigeron canadense, Claytonia perfoliata, and other American plants are spreading in Europe, of which some are *bonâ fide* weeds with us, and may perhaps at a future period be re-introduced into America as more intrusive forms of the species than that continent now possesses. So too, I am given to understand, various Australian Acaciæ, Eucalypti and other Myrtaceæ are established and spreading spontaneously in the peninsula of India: which is the case of the plants of an assumed new continent displacing those of one much older.

The rapid propagation of European animals is no less remarkable than that of plants. J. Haast, Esq., Government Geologist, Canterbury, writes as follows to Mr. Darwin, in a letter which the latter has kindly communicated to me, transferring to me the author's permission to make any use of the facts recorded:—

"The native (Maori) saying is, 'as the white man's rat has driven away the native rat, so the European fly drives away our own, and the Clover kills our Fern, so will the Maoris disappear before the white man himself.' It is wonderful to behold the botanical and zoological changes which have taken place since first Captain Cook set foot in New Zealand. Some pigs which he and other navigators left with the natives have increased and run wild in such a way that it is impossible to destroy them. There are large tracts of country where they reign supreme. The soil looks as if ploughed by their burrowing. Some station holders of 100,000 acres have had to make contracts for killing them at 6*d*. per tail, and as many as 22,000 on a single run have been killed by adventurous parties without any diminution being discernible. Not only are they obnoxious by occupying the ground which the sheep farmer needs for his flocks, but they assiduously follow the ewes when lambing, and devour the poor lambs as soon as they make their appearance. They do not exist on the western side of the Alps, and only on the lower grounds on the eastern side where snow seldom falls, so that the explorer has not the advantage of profiting by their existence, where food is scarcest. The boars are sometimes very large, covered with long black bristles, and have enormous tusks, resembling closely the wild boar of the Ardennes, and they are equally savage and courageous.

"Another interesting fact is the appearance of the Norwegian rat; it has thoroughly extirpated the native rat, and is to be found everywhere, even in the very heart of the Alps, growing to a very large size. The European mouse follows it closely, and what is more surprising, where it makes its appearance, it drives, to a great degree, the Norway rat away. Amongst other quadrupeds, cattle, dogs, and cats are found in a wild state, but not abundantly.

"The European house-fly is another importation. When it arrives, it repels the blue-bottle of New Zealand, which seems to shun its company. But the spread of the European insect goes on very slowly, so that settlers, knowing its utility, have carried it in boxes and bottles to their new inland stations."

It must be long before facts enough to theorize upon can be collected. Meanwhile, the inquiry appears to be perhaps the most interesting and important in all Biology, and as such it is most earnestly to be desired that all who are favourably circumstanced to pursue it, will do so both systematically and very carefully. *Natural History Review.*

* Dr. Hooker, who met with this tree in the Lachen Valley, describes it in his "Himalayan Journals" as much resembling the Norway Spruce in general appearance, but with longer pendulous branches. The wood is white, and considered indifferent, though readily cleft into planks. It is employed for posts and beams.

† Sonchus arvensis is wild in New Zealand, and was eaten by the aborigines; but the cultivated form is far more abundant than the aboriginal.

THE LARGE YELLOW GOURD (POTIRON JAUNE GROS).

This is the largest known variety of Gourd. We have frequently heard of its being grown to weigh upwards of 200 lbs.; but it appears from the *Journal de la Société Impériale et Centrale d'Horticulture* that M. Fournier produced one which weighed fully 330 lbs. It may be interesting to some of our readers to know the mode of cultivation he adopted, and this he explains in the following note on the subject:—

"The primary cause of the indifference of market gardeners to the cultivation of the Potiron is doubtless the extent of ground which it requires; for, in order to obtain such results as I have done for many years, it is necessary to allow the plant to grow at full freedom until such time as the fruit has attained the size of an Orange; it is found that premature amputations or prunings interfere with the circulation of the sap. The fruit intended to be preserved ought to be left upon the main shoot or stem, and not on the laterals. When this fruit is fairly set, the shoot is pruned to three or four leaves above the fruit, and the extremities of all the lateral branches are pinched off. At the same time the young fruit should be turned so that the eye may be uppermost. This must be done very carefully; and as the fruit has a tendency to regain its natural position, that of lying on its side, this tendency must be guarded against by gradually turning it to the desired position (which is on its base; for when it rests on its side, the latter becomes flattened, and the Gourd consequently is not symmetrical). In doing this, care must be taken not to strain the fibres of the stalk. Twenty-four hours after the pinching of the shoots, the fruit will swell with extraordinary rapidity; luxuriant shoots which appear in the axils of the leaves must then be checked; and male flowers, which will show themselves in great profusion near the base of the plant, must be removed.

"One of the indispensable conditions for success is very abundant watering, and so true is this, that in 1860, notwithstanding that it was a rainy season, I submerged my Potirons, and they enlarged 3 or 4 inches every 24 hours. All the family of Cucurbitaceæ are susceptible of the above mode of cultivation."

It may be remarked that the soil and climate of France being hotter in summer than ours, more water will be there required. Still it must be borne in mind that the very great surface of foliage which the Gourd tribe presents for evaporation, must drain a large amount of moisture from the soil in the latter; and when that is exhausted, the foliage becomes unhealthy, and mildew invariably ensues. On the other hand, whilst it appears that the plants may be flooded with advantage in a warm climate, yet being natives of countries where the soil is warm, it is certain that their roots would be chilled and growth checked by watering so copiously from ordinary sources here. Cold spring water ought unquestionably to be avoided; and if we determine to obtain the fullest possible success, we must give water of a temperature not lower than 65°.‖

Home Correspondence.

The Moon's Influence.—At p. 366, your correspondent "G. L." asks your readers if there is any real or supposed influence exercised by the moon on vegetation. In a word, I say there is none really, but there is a supposed one, the result of want of better information. The moon's action on this globe is confined to the waters and the heads of men, in both cases by attraction. It draws the waters into a heap, and is one of the causes of tidal action; in the case of lunacy, I suppose it acts by drawing more blood into the head than the vessels can conveniently discharge. As regards vegetation, it has no influence whatever. The moon has no atmosphere, or, if it has one, it is so rare, that it is with difficulty that it refracts light. Its days and nights are equal, and it has no variety of seasons. The moon is not a luminous body, but shines by the borrowed light of the sun. The rays we get are the feeble reflections of the sun. And yet superstition attributes to this perfectly innocuous moon all the ills of vegetation which are attributable solely to radiation. When, in April or May, the most dangerous months of radiation, the moon shines brightly, of course the atmosphere is clear. As there is no obstructing cloud to reflect the heat, or pen it back, the heat taken in by day is given out and diffused into infinite space. There is no radiation on a cloudy night, and hence no damage. The matter then stands thus: the moon, having no atmosphere or a very rare one, having no calorific powers, and no chemical properties, is accused of doing vegetation mischief which is solely attributable to radiation, which is greatest when the moon shines brightest. The moon of course shines brightest on a clear night, when there is no cloud to obstruct radiation; and hence, as I have said, through want of better information, it has been made the cause of all the miseries of the vegetable kingdom; but still "Luna est innocua!" In fine, we see effects, and attribute them to wrong causation. Effects we feel; causation we do not see; or rather, won't see! *W. F. Radcliffe, Rushton.*

Dog Manure.—Some little time before I came here, a large heap of soil had been carted together for garden purposes, principally for potting, and it contained among other things the top spit from the neighbourhood of a kennel yard, where hounds (thirty couple) were in the habit of running about for exercise during a period of nearly six years; I think, therefore, that the soil had become impregnated with the urine and manure from the hounds, as I find that many things after being potted in it succeed very badly; it is a stiff poor loam. If any of your correspondents would give

me their opinion on the subject they would greatly oblige me. *F. B.*

Parasitic Skin Fungi.—I am sure your readers must have noticed the inconsistency of the remarks appended to my letter (p. 342). The reviewer, in the face of the quotation given from Mr. Berkeley, "great reason . . . for looking to the origin among the Mucors," concludes thus: "we thought it absolutely necessary to point out that Mr. B. did not think Chionyphe might take its origin from the Mucors. I don't use the word Mucor attributed to me, but Mucors. The other observations do not appreciate in the least the explanation my letter contained as to Aspergillus, Penicillium, and Mucor. I hope soon to be enabled to ventilate this subject effectually. *W. Tilbury Fox.* [We think enough has been said on this subject. *Among* and *from* are not synonymous.]

Rhododendron Thomsoni.—This fine Sikkim species has recently flowered, for the first time, in the American Garden at Combe Royal, South Devon; it is a truly good thing, and being perfectly hardy is a very valuable addition to any collection. The flowers were rather larger and deeper coloured than the figure in Dr. Hooker's work represents them, but the species may be identified by its orbicular leaves, which are very distinct, and its prominent calyx. The blood-red flowers are of a wax-like texture. *A Devonian, April* 18

Ants.—Can you inform me of any means that will destroy ants in stoves and Orchid houses. My houses are over-run with these pests. I tried a paste of arsenic and honey, with which sticks were smeared. Unfortunately the mixture touched several valuable plants, among others an Aerides virens, and a Vanda insignis showing flower; and every plant the paste touched rotted off as if scalded. I then tried a receipt mentioned by Henshall in his work on "Orchidaceous Plants," viz., melting spermaceti and arsenic together, and dipping twigs in the mixture, and when cold sticking them into the pots. I find however that the ants touch and eat everything, except this bait, which they carefully avoid. I have also sprinkled turpentine and guano on their tracks, but they seem to be as numerous as ever. Perhaps some of your readers can suggest some efficacious remedy against these plagues. *M. D.*

Woodlice.—My frames and houses have lately been infested by woodlice, (or as we call them here "sow-bugs"), which have proved very destructive to Cucumbers and young cuttings; so much so indeed, that the saving of any considerable number of the latter appears almost hopeless. I was recommended to employ pieces of Potato to attract the pests together, in order that they might be killed in numbers, and for a time this did pretty well, but at last, when food became more abundant, the Potato was deserted, and the young plants consumed. The only remedy that I have found as yet, is to place a quantity of the strongest Scotch snuff round the place to be protected, forming in this way a barrier, which, so far as I have been able to observe, the woodlice will not cross. This is evidently impracticable in many cases, and therefore I apply to your Correspondents to know whether others suffer in the same way, and if so, what is the best thing to do. *W. G. A.* [In the case of Cucumber frames, Mr. Cuthill recommends pouring boiling water round the walls inside; but in such a way as not to injure the roots of the plants. This, he says, repeated as often as may be necessary, keeps his frames clear of woodlice. A toad or two placed among them, also helps to thin their numbers.]

Floral Exhibitions.—Will you allow me to express the satisfaction which it is but natural to feel in the prospect now opening for ladies to compete for distinction in a department so appropriate as that of the floral exhibitions? Will you also allow me to offer a few remarks upon these exhibitions—remarks arising out of no careless study of what is beautiful both in nature and art? These remarks refer especially to the arrangement of stove and greenhouse plants for exhibition. We have long seen these exhibited under a fixed form—round, or cone-shaped, and presenting an even surface, with all the flowers brought to the outside. Now when we consider that beauty—the attainment of the most perfect and the highest order of beauty—is really the object of our floral exhibitions, it becomes important that year by year there should be some perceptible progress towards this end. Beauty, considered under its most perfect aspect, always comprehends form as well as colour; and the form of a sugar loaf or a pyramid, with an even surface, especially with a sameness of colour, is one never found in nature. We hear sometimes the name of "sugar-loaf mountain," and now and then we see a massive and formal tree approaching to this shape; but neither would be introduced into a picture by any one acquainted with true art. In fact both would look unnatural, and would offend the eye. Comparison with another art will perhaps most clearly show whereabouts we are, and what we should do well to aim at in this. A gentleman remarkable for eloquence once described to me the three stages through which successful students in public speaking are supposed to pass. The first stage, crude, and awkward, may be said to be marked by the simplicity of rudeness. The next has no simplicity at all. It is florid, artificial, and redundant, bearing no resemblance to nature, nor indeed aiming at what is natural. In the third and finished stage the student comes back to Nature—studies Nature as his true pattern, and thus he arrives again at the simplicity of Nature, but of Nature in its highest and purest forms. It is not straining this simile too far, I think, to say that our exhibitions are at present at the florid, artificial stage, presenting only flowers, and as a whole bearing little resemblance to what is most beautiful in nature. A few steps further in the attainment of a true and perfect taste, and we shall see plants as they really grow. The eye will then be relieved, the desire for beauty gratified, and at the same time a prospect opened for further progress in the right way. When once that crust of flower, for I can call it nothing else — that solid surface of equal colour, which we never behold in nature, is broken up, we shall have the light spray, the deep hollow, the refreshing green, the half hidden flower, with all the charming variety of nature which never tires the eye; and which, instead of lessening the beauty of any individual flower, serves rather to throw the best into clearer and stronger prominence by the half tints, shadows, and varied outlines which are so abundant in nature, and so essential to beauty of the highest order. Pardon these remarks from one who believes that our flower shows might be made the means of forming a purer taste than we have yet attained, and of promoting a higher ambition in the cultivation of what is truly beautiful. *S. S. Ellis, Rose Hill, Hoddesdon.*

Societies.

Royal Horticultural: *April* 20 (*Third Spring Show*).—Azaleas and Roses, which were numerous and fine, made an effective display on this occasion, and there was also a large assemblage of other plants, many of which were new and extremely interesting.

Azaleas.—Of these, charmingly-flowered pyramidal bushes were furnished by Mr. Turner, of Slough, among whose varieties the following were conspicuous, viz:—Stanleyana, Gladstanesi, Fielderi, Trotteriana, Rosalie, Broughtoni, Standard of Perfection, Duc de Nassau, Mary, Model, Gem, Holfordii, a fine rich semi-double pink; Criterion, and two kinds, a red and a white worked together on the same stock, so as to form a handsome union of variously coloured flowers. Messrs. Lane and others also contributed collections, in which were some skilfully grown and beautifully flowered plants.

Awards.—9: 1, Mr Turner; 2, Messrs. Lane. *Amateurs.*—9: 1, Mr. Todman.—6: 1, Mr. Turner; 2, Messrs. Lane; 3, Messrs. Dobson.

Roses.—Nine plants in pots of these came from Mr. Turner; nothing in their way could well be handsomer, the blooms being large and fine, and the foliage not only free from speck or blemish, but of that ample character and deep green hue which unmistakably indicates perfect health. The sorts were Senateur Vaisse, Comtesse Ouvaroff, Baronne Prevost, General Jacquéminot, Charles Lawson, Souvenir d'un Ami, Madame Boll, Souvenir de Malmaison, and Victor Verdier. Another group from Mr. Wm. Paul, also contained good examples of President, the yellow Tea Rose Marquise de Foucault, Empereur de Maroc, Madame Willermoz, and Triomphe d'Alençon. Messrs. Francis and Treen also furnished collections. Foremost among new varieties, which were unusually numerous, were Le Rhone (H.P.), a bright velvety crimson; Alba rosa (Tea), white; Pierre Notting (H.P.), handsome shaded crimson; Alfred de Rougemont (H.P.), very dark velvety crimson; Madame Alfred Rougemont (H.P.), blush; Baronne Adolphe de Rothschild, crimson; Lords Clyde and Canning, and John Hopper. Some of these and others we hope to see again in better condition when the season is further advanced. Cut blooms from Mr. W. Paul, Messrs. Paul & Son, and others, were plentiful and greatly admired, and to most of the collections extra prizes were awarded.

Awards.—9 *Plants in Pots:* 1st, Mr. Turner; 2d, Mr. Wm. Paul; 3d, Messrs. Paul & Son. Extra, Mr. Francis and Mr. Treen. *New Varieties:* 1st, Messrs. Paul & Son; 2d, Mr. Turner; 3d, Mr. Wm. Paul.

Stove and Greenhouse Plants.—Of these Messrs. Veitch had an interesting collection, in which were handsome specimens of Azaleas, including the pretty A. petuniæflora, Eriostemons, of different sorts Pimelea Neippergiana; a well-bloomed and striking example of the sweet-scented Rhododendron Gibsoni, Acacia grandis, Boronia tetrandra, and other early flowering shrubs. Mr. Bull and Mr. Williams also furnished admirable collections, in which we noticed various pale-flowered varieties of Rhododendron, Azaleas of different sorts, Palms, Ferns, the singular dark-brown leaved Pogonia discolor from Java, the yellow Dendrobium densiflorum, and the rare D. infundibulum; also Cypripedium Lowii, and various Side-saddle plants. The last, together with the Orchids, came from Mr. Williams.

New Plants.—From Mr. Thompson, of Ipswich, came several examples of Collinsia verna, an old-fashioned free-blooming annual, which was Commended. Genista Everestiana, certificated a year or two ago, was again shown by Messrs. Low. From Mr. Williams came a cut specimen of the glorious white-blossomed Rhododendron Nuttallii, of which a tree now magnificently in bloom, may be seen in his new nursery at Highgate. For this a First-class Certificate was deservedly awarded; and a similar award was also made to the same excellent cultivator for Dendrobium Dayanum, a fine kind in the way of D. macrophyllum. To Mr. Bull were awarded First-class Certificates for the rare Phalænopsis Ruckeri, a white species with a yellow lip; and for the red-veined Gymnostachyum Verschaffelti, to which we have alluded in former reports. From Messrs. Veitch came Dracæna Cooperi, a gracefully drooping red-leaved sort, to which a First-class Certificate was awarded. Similar awards were also made to the same eminent firm for a large-flowered variety of Franciscea calycina, and for Trichopilia crispa; and a Second-class Certificate for Primula cortusoides amœna, a large purple-flowered showy variety. To Mr. Turner was awarded a Second-class Certificate for an Alpine Auricula, named Shakspere, with a bold deep violet-purple-shaded edge. Foremost among new Azaleas was Stella, a brilliant orange-scarlet sort, spotted and flushed with violet on the upper segment, from Messrs. Veitch, who received a First-class Certificate for it. To Meteor, from Mr. Kinghorn, a variety brighter in colour than even Mars itself, a Second-class Certificate was awarded; and Mr. Bull received a First-class Certificate for Roi des Doubles, a rosy-pink sort, with flowers nearly as large and double as those of an Oleander. To Azalea Bellona, from Messrs. Smith, a semi-double bright rose, a Certificate was also given.

Cinerarias.—Of these several collections were shown, in which Duke of Cambridge, a dark crimson self; Adam Bede, rosy purple self; Admiral of the Blues; Regulator, pale blue; Fair Helen, white with a dark centre; Viola, white with dark centre and violet edge; and several of the white, crimson bordered sorts, were conspicuous.

Awards.—6: 1, Mr. James; 2, Mr. Marcham; 4: 1, Mr. James; 2, Mr. Marcham; 3, Mr. Lacey.

Pansies.—A few well-flowered plants in pots came from Messrs. Dobson, whose sorts were Canary, Rev. Joshua Dix, British Queen, and Alexander McNab. We also noticed one or two pans of cut blooms from Mr. Bragg and Mr. James, which suffered greatly from the heat of the day. Among Fancies, a yellow and brown sort, named Vesuvius, from Mr. Bragg, was greatly admired on account of its bright and striking colour.

Auriculas.—In small groups of these, from Mr. Potts, Mr. Turner, and others, we noticed the following in good condition, viz.: Lord Yarborough, Fletcher's Mary Ann, Maggie Lauder, Warris's Union, and Syke's Complete. Of other well-known kinds there were also some good examples.

Polyanthuses.—In one or two small groups of these the following were conspicuous, viz, Lady Milner, Lady Abingdon, Warrior, Santarara, Highland Mary, and Defiance, all of which in their way were extremely pretty. In no class of plants, however, is variety more wanted than among Polyanthuses.

Awards.—6: 1, Mr. Turner; 2, Mr. Butcher.

Miscellaneous Plants.—Among these, the greatest curiosity was perhaps a specimen of the Australian Grass Tree (Xanthorrhœa australis), from Mr. Williams, a singular production with a stout black-looking stem, like that of a Tree Fern, and bearing a noble head of bright green Rush-like foliage. From Messrs. E. G. Henderson came the old-fashioned Genista prostrata; and Mr. Parker, of Tooting, furnished a well-flowered plant of Rhododendron Countess of Haddington, described by us in favourable terms at p. 220. From Mr. Turner came a small collection of Pelargoniums, the names of most of which have been given in former reports.

Finally, in a nice group of small plants from Jas. Bateman, Esq., we observed examples of Thibaudia elliptica, loaded with bright orange tubular blossoms, and a cut specimen of Psammisia sarcantha, a shrub with ample pale green leaves and short waxy tubular pale green and red flowers: both very good things. We also observed on the table the handsome silver epergne which some Fellows of the Royal Horticultural Society had caused to be prepared as a mark of their regard for Dr. Lindley.

Linnean: *April* 7.—G. Bentham, Esq., President, in the chair. W. Eassie, Esq., was elected a Fellow. Dr. H. J. Carter exhibited leaves of Ficus glomerata, in which a double foliaceous development had formed along some of the secondary veins on the under surface of the leaf, recalling the indusium of Ferns. The following communications were read:—1. "On the Garcinia yielding Gamboge in Siam," by Daniel Hanbury, Esq.; with remarks on the structure of the anther in the section Hebradendron of the genus Garcinia, by Prof. Oliver.——2. "Dimorphism in the Flowers of Monochoria vaginalis," by J. Kirk, M.D., communicated by the President. This plant, which is found in the shallow lagoons of the Zambesi, was described as presenting two very distinct forms in its mode of flowering. The usual inflorescence was said to consist of a spike of three or four inches long, with a membranous spathe at its base arising from the sheathing petiole; this spike rises above the water at the time of flowering, but again descends to mature its fruit. The other form of inflorescence consists of a solitary almost sessile flower, produced at the base of the leaf stalk, and included in its sheath; this is never raised above the water. Each of these flowers is protected by a short sac, formed of the membranous spathe without any opening, within which flowering and fecundation go on, the sac not becoming ruptured till after the capsule has become enlarged. Both forms produce capsules containing many perfect seeds.

Notices of Books.

Elements of Physics, or Natural Philosophy. By Neil Arnott, M.D., F.R.S., &c. Sixth Edition. Part I. Longmans, 1864. Pp. 400, 8vo.

This is really a scientific work, though written in plain or non-technical language. The Part now published comprises Mechanics, Hydrostatics, Hydraulics, Pneumatics, Acoustics, and Animal Mechanics, thoroughly revised from the former editions (which had an immense sale, and were translated into the principal languages of Europe, and were largely reprinted in America), and brought up to the present time. The Second Part, which is to be published in the course of the year, treats of Heat, Light, Electricity, Magnetism, and Astronomy. Dr. Arnott seems always to have enjoyed a considerable reputation as a man of science, and when the London University was founded he was appointed a member of the Senate, a dignity which he still holds, and it seems always to have been one of the great aims of his life to popularise science, and to inculcate upon a reluctant world the importance of studying Natural Philosophy "for all who in the present day pretend to have a moderately good education." In taking a survey of the progress of mankind and human knowledge, Dr. Arnott says, "There is a change going on in the world connected closely with the progress of science, yet distinct from it, and not less important than many of the scientific discoveries themselves—it is the diffusion of existing knowledge among the mass of mankind. Formerly knowledge was shut up in convents and universities, and in books written in the dead languages, or in books which, if in the living languages, were so abstruse and artificial that only a few persons had access to their meaning," &c.

This and the following passage will serve as a key to explain the author's object in writing the work before us.

"Bacon truly calls Physics or Natural Philosophy, 'the root of the sciences and arts.' That its importance has not been marked, by the place which it has held in common places of education, is owing chiefly to two causes, 1st, the misconception, that a deep knowledge of technical mathematics, which only few have leisure to acquire, was a necessary preliminary; and 2nd, to an opinion that the degree of acquaintance with physics, which persons almost unavoidably acquire by common experience in the world, is sufficient for common purposes." Accordingly the Doctor sets to work to disabuse men's minds of these misconceptions, and with most marked success; for he has written most clearly and intelligibly on subjects of no ordinary difficulty. Moreover he has introduced a multitude of curious facts, apt illustrations, and other matters of interest; such as we do not remember to have met with in any scientific treatise whatever.

As a medical man himself, Dr. Arnott very properly insists upon the importance of a knowledge of physical science to the medical practitioner, and most sensible people will endorse the opinions set forth in the chapter on the Mechanism of the Human Skeleton.

"There is scarcely a part of the animal body, or an action which it performs, or an accident that befals it, or a piece of professional assistance which can be given to it, that has not close relation to the truths of natural philosophy here set forth. It follows, that every individual who has such a complex and delicate body to care for, should understand its nature to a certain degree; and that those who embrace the profession of which the object is to guard the public health, and to cure or mitigate evils which befal it, should have that knowledge as complete as is attainable."

A traveller possessing moderate powers of observation is often enabled to enliven his subject by illustrations of what he has witnessed in foreign lands. Dr. Arnott does more than this, for he also shows a fertility of invention and a rare ingenuity in the application of known principles to the subject that he would elucidate.

Perhaps one of the most ingenious and useful of his inventions is that of the hydrostatic bed, which has contributed so much to the resources of the medical profession, and the comfort of the helpless invalid. The doctor gives a graphic account of how he came to devise this simple apparatus; how the carpenter made the trough part of it in the night, and at 6 o'clock the patient was placed in it, carefully, but not in the position that had been intended: but she said "Do not touch me, for I am quite at ease." She soon fell into a calm sleep, which lasted for nearly four hours, awoke singularly refreshed, and took nourishment, and from that time her complete recovery commenced. Dr. Arnott attributes the little favour that has been shown to his invention, 1st, to the common misconception, that a water pillow is a nearly equivalent substitute for the floating bed; 2d, the want of a clear notion of hydrostatic support or floating, and the common erroneous belief that the weight of a person resting on the bed was supported partly by the strength and tension of the caoutchouc sheet; 3d, the considerable cost and bulk of the complete bed, which induced people to adopt any cheaper and smaller apparatus which was thought to answer in a degree the same purposes. "Before reflection," he says, "a person readily supposes a resemblance to exist between the hydrostatic bed, and an air bed or cushion, and calls it a water bed or cushion; but the principles of the two are very distinct, not to say opposite. An air pillow supports altogether by the tension of the surface which incloses the air, and is therefore somewhat like a naked hammock, and really may be a very hard pillow; but in the hydrostatic bed there is no tense surface or web at all; the patient is floating upon the water, on which a loose sheet, partly in folds, is lying between him and it, merely to keep the mattress dry, and every point of his body is supported by the water immediately beneath it. Even Sir Astley Cooper, on first conversing with Dr. Arnott about his invention, expressed a wish to lie down upon a bed then before him, but feared that his great bulk might burst it, and laughed when he saw the mistake that he had made.

A Dictionary of Chemistry, Part XIII. (Longmans), extends from Eugetic Acid to Glucose, and completes the second volume of what we think will stand at the head of this class of chemical books. Those who doubt, if any, should read the article on Gutta Percha.

The Popular Science Review, No. 11 (Hardwicke), has a capital popular article on the *Rusts of Plants*, by Mr. Cooke; and on *Printing Telegraphs*, by Mr. Culley. An excellent number.

The Natural History Review, Nos. 13 and 14 (Williams & Norgate) have good articles (*inter alia*) on Huxley's Darwinian Lectures; Salter's monstrous Passionflowers (very curious); on the Replacement of Species, by Dr. Hooker (this we publish elsewhere); Vegetable Hybridity; European and Oriental Oaks, and the Parasitism of the Miselto.

The Rod, the Net, and the Public, by Sir John Stewart Richardson (Blackwood); a very curious and instructive pamphlet on regulating the Times and Seasons of the Salmon Fisheries of Scotland, evidently the work of one who knows what he writes about.

The place in the literature of floriculture lately vacated by "Gossip of the Garden," has been occupied by a periodical of similar character, called the *Midland and Northern Florist's Guide*, which appears under the management of Mr. W. Dean of Shipley. For eight years past, the promoters observe, "Gossip" had well supplied the wants of a large section of ardent florists and amateurs, who take quite as much interest in the cultivation of a few florists' flowers, as the more opulent do in the higher productions of their gardens; and the new "Guide" has been projected to minister to the wants of the same class of readers. Two numbers have appeared, and if we may form an estimate from these, the new publication will worthily occupy the field it has chosen. In the first number are practical papers on Roses, Gladioli, and Hollyhocks; as well as some keenly critical remarks on the Dahlias sent out in 1863, which are said to have not added much to the raiser's credit. In the north it would appear that Lord Dundreary proved the best flower of the year. The second number, that for April, has more information on Roses and Gladioli; a good paper on Pelargoniums; some Auricula lore, and such like matters. In a report of a spring show at Liverpool, there is a record of some remarkably fine Mignonette plants from Mr. Reid, gardener to the Earl of Balcarres, "superbly grown pyramids, each 4 feet high, on 1 foot stems." A plan of exhibiting Hyacinths in green boxes, wide enough and deep enough to take the 24 pots in angles, and with the surface covered by fresh green Moss, is recommended as effective, and as enabling the exhibitor to arrange his plants at home, and leave nothing to be done at the show but to lift the boxes from the van at once to the exhibition table. If not crowded, and protected by paper or other removable material, they travel well in this way. As to dressing, it is observed that the stem should be kept in an upright position whilst growing, so as to get a perfectly straight spike; then, on the morning of the exhibition, and occasionally before, the bells should be gently lifted with a pencil or some such implement, commencing at the top of the spike and going regularly over them to the bottom. This obviates looseness and irregularity in the spike, which will then have, what it ought to possess, a symmetrical form.

In the *West of Scotland Horticultural Magazine* for March and April are useful papers on the growth and propagation of the Hollyhock; a sketch of orchard house management, as compared with the old house system and the glazed wall system; Peach growing on walls; the Gooseberry caterpillar, &c. In reference to the last, Mr. Fowler strongly recommends the removal of three or four inches of the surface soil from beneath the bushes, and the burying of it in a deep trench, fresh soil being added in the place of that removed. This, if carefully done, need not be repeated oftener than every third or fourth year. Twenty years' experience, he says, has proved this to be a very reasonable and successful method of escaping the ravages of Gooseberry caterpillars.

The *Scottish Gardener* comments on Flower shows, and states a patent fact, namely, that—"However fond one may be of plants, it is really no treat to go to Regent's Park, the Palace, or even to the new garden at Kensington, after one has for four or five years visited every exhibition of the season." The writer suggests a more tasteful arrangement, and intimates that the public don't go to see whose productions are best, but to see the display—the general effect of the whole. This exhibition question is one which the managers of shows must soon take in hand seriously. There are sound and full practical articles on Cauliflower and Asparagus culture, and on the management of Figs; besides a variety of articles on other gardening matters.

Books Received.—*Transactions of the Scottish Arboricultural Society* (Vol. III., Part 1.) contains papers on Mixed Fir Plantations, by W. Gilchrist; Plantation Roads and Walks, by Robert E. Brown; Reading-rooms and Libraries for Working-Men on Landed Estates, by the same; an Abstract of the Accounts for 1862-63; the List of Members, corrected to March, 1864; Prize Essays, &c.

Garden Memoranda.

Royal Horticultural Society's Garden, South Kensington.—Great changes are going on here, as will be seen from the following description.

As regards entrances, that in the Kensington Road is about to be closed, and instead of it two new ones are being made,—one in Prince Albert's Road, the other in Exhibition Road, both in a line with the statue of H.R.H. the late Prince Consort. Between the Arcades and the public roads in question, these entrances are to be covered with glass, so as to form span-roofed houses some 200 feet in length and about 12 feet in height in the centre. Through them a central walk is to be carried, and on either side of it orchard-house trees intermixed with Roses and other ornamental shrubs are to be planted out or kept in pots, while over the roof creepers of different kinds are to be trained. Of the alterations which have been made in the principal entrance near the Exhibition building, notice has already been taken in our columns on the occasion of the Society's first spring show (see p. 246). We have therefore merely now to remark that the opaque roof of the Arcade in the rear of the Council room has been partly glazed, so as to put plants placed under it in a better light. On the right of this a portion of the Arcades is being fitted up for exhibitions of implements, to which we understand it is to be permanently devoted. In reference to other compartments of the Arcades, we may remark that those on the terrace right and left of the Conservatory are being put into good repair and glazed in front so as to make them if necessary fit for holding floral exhibitions in, or suitable receptacles for statuary, intermixed with Orange trees in tubs or plants of that description. The Conservatory itself is also being newly painted and decorated, and we understand that a covered pathway 8 feet in width is to be constructed on a level with the galleries on the north side of it, in order to facilitate the passage of visitors from one gallery to the other, and to avoid the necessity of descending and ascending flights of stairs in order to reach the elevations in question. Means have also been employed not only for lighting the Conservatory with gas, but like wise the Arcades in connection with it, and the latter are to be warmed with hot water in 4-inch pipes.

To the improvement of the annexes especial attention is also being directed. That on the west side between the orchard house entrance above alluded to, and the late Exhibition Building, is already nearly put in order. The ground has been levelled so as to be laid down in Grass, through which walks of a winding character are carried—generally on a level with the surrounding surface, but in one instance through a dell to be planted with Ferns under the shade of trees. Next the boundary fence, a bank planted with trees and shrubs has been thrown up, and the back wall of the Arcade is to receive some temporary leafy covering, so as to take off in some degree its present bald appearance. To the Eastern Annexe is to be committed the charge of holding Messrs. Waterer and Godfrey's forthcoming American plant show, and already a space of ground 300 feet in length and 120 feet in width, is being laid out in the shape of raised banks, interspersed with walks for that purpose. The area just named is to be covered with a tent supported on two huge wrought iron masts or columns some 60 feet in height, now in course of erection, and the peat earth in which the plants are to be placed is also being got in. The remaining portion of this annexe is likewise we believe at once to be trenched and otherwise put in order for decorative purposes.

Mr. Nesfield's plan laid down in the body of the garden has, we find, not escaped alteration. On the contrary, walks are being taken up, especially that connecting the two band houses; and the main features of the design are partially cut off from view, so that now they are in danger of being overlooked, especially by persons not having a previous knowledge of their existence or location. In the ante garden hedges of Rhododendrons elevated on steep narrow banks enclose compartments to which it is at first sight difficult to find an entrance; we are curious to see the effect of growing these swamp shrubs on dry banks. Is the experiment intended for the instruction of the Department of Science and Art? And if so what has the Royal Horticultural Society to do with that? The triangular Box tracery ornamentations formerly conspicuous from the great central walk have been shut out by means of Yew hedges, while fences of Poplar and Laurel traverse the compartments in their

neighbourhood in other directions, so as to form little grassy avenues about 60 yards in length and 5 yards in width. Along the sides of the walks, near the straight pieces of ornamental water, in the lower portions of the garden, are likewise planted hedges of Laurel and Poplar, and iron trellises in one instance are being put up, over which Lombardy Poplars are to be led so as to overcanopy the walks close to the water in a horizontal direction for a space of 6 feet. Covered ways are also to be formed in other parts of the garden, if we may judge from preparations being made apparently for that purpose. The great central walk, too, has been narrowed, and out of beds and borders taken from its sides, rise lofty Poplars, which form, as it were, an avenue leading from Minton's fountain, which is being erected at the lower end of it, in the direction of the Conservatory to the north of the garden. Young plants of Abele Poplar have been planted 10 feet apart close to the sides of the walks in the neighbourhood of the fountain just named, which is moreover, we understand, to be surrounded by beds of flowering plants.

To the north of Minton's fountain, which excited so much interest in the late Great Exhibition, and in the central walk, has been placed the French marble monolith, from the Jura Mountains, presented by M. P. de Tinseau, St. Ylie, Jura, France. A bronze statue, probably a copy of John of Bologna's "Mercury," will surmount the column. One side of the base will record the facts of the late Great Exhibition. On the other side will be a sun-dial.

Examples of Arbor-vitæ hedges from Mr. Sharpe Nurseryman, Wisbeach, have been planted in different parts of the ground; and there are others of Laburnum along the edge of banks in front of the Arcades, from Messrs. Lee, of Hammersmith. In the latter, the shoots cross each other obliquely, so as to form diamond-shaped lattice-work, and, occupying as they do little room, fences of this description seem well adapted for purposes where thin screens are required.

Trellis-work, to be ornamented with creepers, has also been put up along the tops of some of the terrace walls; and surmounting the stone work on each side of the flight of steps leading from the garden to the Council Room deep narrow boxfulls of Cupressus macrocarpa have been placed for evergreen screens. Poles connected together at top by means of loose chains, along which climbers are to be led, have also been put up at the sides of the main walk opposite Mr. Nesfield's floral device in front of the large central piece of water.

As regards the ornamental water, the different ponds and basins are to be stocked with fish now being hatched in the garden under the superintendence of Mr. Frank Buckland. The hatching apparatus, which is at work in a corner near the Council room, consists of rustic pottery boxes arranged one above another, like a series of steps, so that the water runs in a zigzag manner through the whole of them from top to bottom. Labels are attached to each box, so that visitors may see what kind of fishes the boxes contain.

To other changes also in contemplation, we may advert on another occasion.

Miscellaneous.

Curatorship of the Royal Botanic Garden, Kew.—We learn with great satisfaction that this important post has been given by Government to Mr. John Smith, now Gardener at Syon, who has been in the very kindest manner encouraged by the Duke of Northumberland to accept it. Mr. Smith is one of the best practical gardeners now alive, and we warmly congratulate Mr. Cowper upon his having secured the services of so thoroughly efficient a Curator.

Garden Allotments to Soldiers.—In the House of Commons Mr. W. Ewart asked the Under-Secretary of State for War what steps had been taken, or were about to be taken, to enable soldiers in camp (or elsewhere, where it is possible) to employ themselves in the cultivation of gardens. The Marquis of Hartington had very little to add to, and he did not think he had anything to retract in, the answer which he gave to the hon. gentleman on this question some time since. He then stated that Lord de Grey had every disposition to afford facilities to soldiers desiring to employ themselves in the cultivation of gardens, and that a commencement had been made in the matter, and would be extended as much as possible. The Horse Guards had received a report from the officer commanding the Artillery at Aldershot that two batteries of artillery had been for some time cultivating grounds as gardens, and that the very best results had followed. Occupation had been afforded to the men, and their comfort greatly increased by the production of vegetables for their mess. The land had also been allotted for that purpose for the Military Train at Aldershot, but owing to a question having arisen as to the payment of rates by the soldiers, it had not yet been cultivated. At Warley three acres had been allotted for that object. In the south-eastern division, in the neighbourhood of Brighton and Dover, some of the troops had had allotments made to them. In Woolwich also some allotments were in existence, and more were being provided. At Colchester arrangements of a similar nature were in progress. No general rule could be laid down on that subject, and each case must be dealt with as it arose. In some places land was easily procured, and in others not so easily, and it became a question, of course, whether the soldiers were not to pay rent for land taken out of occupation; but he could assure the hon. member that every representation made by the generals commanding at the different stations would be taken into consideration by the War Office, and that every disposition existed to encourage this system. *Times.*

Calendar of Operations.

(For the ensuing week.)

THE bright sunny weather which we are now experiencing will render additional attention to watering, both in doors and out, necessary, and great care will be required in its application to plants recently put out or newly potted, in order to keep the soil from becoming soddened and soured. When any plant is observed to be in that state, it should be shaken out, repotted in fresh soil, and more carefully watered for the future. But if this operation is to be of any service in any particular case, it must be performed without delay, as roots are speedily injured and destroyed if allowed to remain in contact with unwholesome soil.

FLOWER GARDEN AND PLANT HOUSES.

In conservatories and other show houses, Azaleas will now be in full bloom, and every attention must be paid to keep them in beauty as long as possible. By judicious arrangement both borders and shelves may now be rendered extremely gay with flowering plants, and if a few red and white coloured Azaleas in the shape of standards are introduced among dwarf plants, either of the same or of other kinds, the general appearance of the house will be greatly improved. Standard plants of Deutzia gracilis, now in full blossom, as well as Cinerarias, and things of that description, will likewise be found useful for purposes of decoration, as will also forced Roses, which are flowering unusually well this season. Out of doors let manuring and dressing proceed as required. Highly dressed ground should be mown at least once a week after this period, for a well kept lawn is always a pleasing object.

CAMELLIAS.—Keep such as are making growth well syringed. Should black-fly appear on the young shoots, which sometimes will happen, a good washing with tobacco water will soon destroy it.

CINERARIAS.—As these will now be in blossom, a little shade during the middle of the day will be necessary in order to prolong their season of flowering; remove to a cool shady house such as are required for a later display. Weak liquid manure may now be given liberally, say two or three times a week. Look well to seedlings, and select such as have the most circular outline and well defined colours, and place them apart from the more common kinds for seed.

PELARGONIUMS.—A slight shade will now be necessary for a few hours on bright days; green-fly is occasionally very injurious to them at this season, and therefore the plants should often be fumigated; tie and regulate the shoots according to previous instructions.

PINKS.—If the weather continues dry, these will require careful attention in the way of watering.

TULIPS.—Protect the best bed, if not already done, with canvas. Stir the surface between the bulbs when it is in the best state for the operation, *i. e.* between wet and dry.

FORCING GARDEN.

PINES.—Early potted suckers or young succession plants will soon have filled their pots with roots. Where such is the case, give them a liberal shift. When dry they had better be watered occasionally with weak liquid manure, *i. e.*, after the plants shall have become sufficiently established to enable them to receive it with advantage.

STRAWBERRIES. — These will want abundance of water. They must not be allowed to flag by any means, and if the weather continues bright, they may be removed to a cooler and somewhat shady shelf.

VINES.—In most places early Grapes will now be ripe. Let it, therefore, be remembered that a tolerable amount of dryness in the atmosphere is necessary, in order to obtain good flavour. A free and wholesome circulation of air early in the morning and continued until evening, will be found to increase both colour and flavour. Be very moderate in fire-heat until late Vines approach the period of blossoming. Keep the syringe employed morning and evening until the flowers begin to open; after that it must be discontinued.

HARDY FRUIT AND KITCHEN GARDEN.

Disbudding wall trees will be the principal work in hand in this department during the next few weeks. In the final regulation of the shoots do not allow more to push into wood than can be conveniently trained in. When working at wall trees avoid treading upon the soil; a plank and a few bricks moved along as the work proceeds will obviate the evil just named, and will yield more comfort to the workman.

BEANS.—Put in successions of these as required. A few French ones may also now be sown on a warm border.

LEEKS.—These are fond of moisture, the ground, therefore, for this crop should be double dug 18 or 20 inches deep, and the manure laid into the bottom of the trench, which should be previously loosened with a fork.

LETTUCES.—After this time it is best to sow these where they are to remain. Drills for them should be drawn 10 or 12 inches apart, and a few seeds dropped in at intervals of about 8 inches asunder; as soon as the plants are fairly up these patches should be thinned to one plant.

PEAS.—Sow for succession to those now coming into bearing.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending April 20, 1864, as observed at the Horticultural Garden

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 14	7	29.923	29.738	63	27	45.0	50	49	E.	.00
Friday 15	8	29.891	29.653	70	32	56.0	50	49	S.E.	.00
Satur. 16	9	29.769	29.708	50	38	44.0	51	49	N.E.	.62
Sunday 17	10	30.000	29.881	64	27	45.5	50	49	E.	.00
Mon. 18	11	30.040	30.017	67	27	47.0	50	49	S.W.	.00
Tues. 19	12	29.969	29.901	69	30	49.5	50	49	S.	.00
Wed. 20	13	29.917	29.902	75	32	53.5	51	49½	E.	.00
Average.		29.893	29.829	65.4	31.8	48.6	50.3	49.1		.02

April 14—Fine; very fine; clear; slight frost at night.
— 15—Dry haze; exceedingly fine throughout; air very dry.
— 16—Slight drizzle; drizzling rain; overcast.
— 17—Cloudy; fine; very fine; slight frost.
— 18—Clear; very fine; hot sun; slight frost.
— 19—Clear, very dry air, and quite cloudless; fine.
— 20—Very fine throughout.
Mean temperature of the week, ¼ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending April 30, 1864.

April,	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 24	60 2	35.7	48.0	15	0.80 in.	5	6	5	5	2	8	4	3
Mon. 25	61.3	37.3	48.3	16	1.40	5	7	5	3	7	5	3	3
Tues. 26	61.7	35.7	48.7	16	0.53	4	8	3	3	1	10	3	6
Wed. 27	56.6	35.3	45.5	16	0.14	11	2	8	2	5	5	4	1
Thurs. 28	62.2	35.8	49.0	15	0.64	4	6	6	4	5	5	5	3
Friday 29	62.8	37.7	50.2	13	0.75	4	4	8	2	4	8	1	7
Satur. 30	63.3	39.8	51.6	16	0.31	6	3	8	2	3	7	4	5

The highest temperature during the above period occurred on the 28th, 1840—therm. 81 deg.; and the lowest on the 24th, 1851, and 29th, 1861—therm. 18 deg.

Notices to Correspondents.

CHINESE PRIMROSES: *C C.* The double sorts are to be strongly recommended, especially some of the more recent of them; but you will probably find the ordinary fringed varieties, raised from a good strain, as the growers say, more generally useful. The sowings for winter and spring bloom should be early in April and late in May. They should be raised in a close warm frame, and afterwards grown on through the summer in a common cold frame, shading freely in hot weather. The earliest should have their final shift about September. Cow-dung is a good ingredient in the compost; and they should always be grown close to the glass. The new Fern-leaved sorts come true from seed, and are quite as handsome as the others, besides making a nice variety.

CHRYSANTHEMUM BLOOMS: *J T.* The large specimen blooms seen at the shows are produced by disbudding and by high feeding. The young plants should be shifted on from time to time, using pots gradually larger, and aiming at getting the shoots well ripened. Use healthy loamy soil, but apply no strong stimulants till the buds are formed; then stimulate gently till the buds show colour. Several shoots may be grown from the stem, but only one bud on each branch. Some sorts develop the terminal bud best, others a lateral one. Of course all extra side shoots, if there be any, are to be removed when the buds appear.

CLIVIA NOBILIS: *Kirby.* This is a stove plant, and should have plenty of pot room for its thick fleshy roots, and a rich loamy soil. When growing freely it needs plenty of water. Well managed it is a fine thing.

FUNGI: *An Inquirer.* Both Pæony and Tulip are alike attacked by some Fungus which must come from the soil. Do you mix anything with the top-dressing, which is likely to encourage the growth of Fungi? The evil in all probability arises from some injudicious admixture, which you alone can ascertain. If in future you use nothing but loam, sand, and peat, your bulbs will probably be safe, provided no Fungus spawn is left in the beds. *M. J. B.*

GARDENERS' PLACES: *J G.* Pray do not apply to us for that or any other place. We have nothing to do with advertisements, except to give them currency. You, and every one else, should apply to the advertiser—and to no one else.

MUSAS: *M G.* To regulate a supply of the fruits for the table, it is customary in some of the countries where Musas are freely grown—Egypt for example—to cut the full-grown clusters while green, dividing them into pieces and placing them in large boxes with alternate layers of chopped straw. They are then pressed by means of a heavy weight, and the pressure causing the straw to heat, they ripen in a few days. The coarse-grained are more wholesome than the fine-grained varieties.

NAMES OF FRUITS: *T S T.* Your Apple is perhaps Dumelow's Seedling, but cannot be certain in its present state; if it is you will find the bark of the shoots more spotted than that of almost any other variety.‖

NAMES OF PLANTS: *G T.* Every one of the names given you by your young friend is erroneous. We really cannot sit down to correct puerilities.—*W D F.* We see no reason why it should not be a sport from Narcissus odorus; but it is impossible to speak with certainty on such materials.—*A C.* Some Bifrenaria, near B. Harrisoniæ; Oncidium ascendens; some Dendrobium crushed by the letter stamper, but apparently moschatum.—*S S S.* There is no such plant. We fear you have been sadly imposed upon. Five guineas is a long price for O——. *F C.* Dendrobium fuscatum; and Aerides cornutum.—*G.* Blue. Some Mertensia; perhaps M. virginica: specimen insufficient; the other, Chryso-plenium oppositifolium.—*R T.* Osmanthus ilicifolius and Ligustrum japonicum.—*S Y.* Berberis Darwinii.—*Redux.* Calycotome candida, Hebenstreitia hamulosa, Mystroxylon filiforme, Amyris inæqualis.—*C B.* Some Psoralea, perhaps P. glabra, from Natal.—*C L M.* The Fungus next week.

ORCHIDS: *W B.* Next week; a most welcome paper.

RED SPIDER ON IVY: *R E.* The pest on your Ivy is probably attributable to poor soil, and a hot dry situation, as you say the aspect is south-east. Give the plants several thorough good waterings at the root; and in addition, syringe the leaves and stems repeatedly with a strong solution of Gishurst compound, allowing it to settle before using, or, if necessary, washing it off with a drenching of clean water before it dries. The applications both to the roots and leaves must be thorough; and if the ground is poor use manure-water.

RUSTIC BRIDGES: *C. Parker, Isle of Wight,* is anxious to obtain plans of these, and also of rockwork. The simpler they are the better. The place where they are to be constructed is in the Isle of Wight. Can any of our readers kindly inform him where he will be able to procure them?

LAWES'S MANURES.
The Manures manufactured by J. B. Lawes for the present season of 1864 are now ready for delivery at his Factories, at the following prices:— Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME £6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES .. 5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES 8 0
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots.
URATE,
MANGOLD MANURE, &c., &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

WOOLLEN REFUSE MANURE, in any Quantity, from a Quarter of a Ton upwards.
For particulars, Post-free, address Procter Bros., Manwood, Leeds.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
Manufactured by The Patent
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: John Clayden, Littlebury, Essex.
Managing Director: James Odams.
Particulars of these Standard Manures may be obtained at the Offices.
C. T. Macadam, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

Manures and Feeding Stuffs.
RAYNBIRD, CALDECOTT, and BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Drainage of Land.
MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

MESSRS. WAY and EVANS, Analytical and Consulting Chemists, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

Drainage, &c.
MR. J. BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22 Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To Landowners, the Clergy, Estate Agents, Surveyors, &c. in England and Wales and in Scotland.
The Company advances money, unlimited in amount, the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster S.W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
NEWCASTLE MEETING.
LAST DAY for ENTRY of IMPLEMENTS, MAY 1.
All Certificates received after that date will be returned to the senders. H. Hall Dare, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, 1864.
STOCK and IMPLEMENT PRIZE SHEETS are now ready and will be forwarded on application to
H. Hall Dare, Secretary.
12, Hanover Square, London, W.

PHOSPHO GUANO.

Company's Trade Mark.

Contractors' Trade Mark.

THE PHOSPHO GUANO, in its natural state, is found on trap-rock islets within the tropics. It was discovered in 1854; and its existence was made known in August, 1856, by Dr. Voelcker, who read a paper at the Cheltenham meeting of the British Association for the Advancement of Science, "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly concentrated phosphatic manure.

Its valuable and peculiar qualities immediately attracted the attention of the leading Agricultural Chemists, who pronounced it at once to be greatly superior to all other Guanos as a manurial agent. The result of careful experiments in the field having fully established this superiority, the consumption has increased year by year; and at the close of the seventh season, 1863, it has attained a position second only in consumption to that of Peruvian Guano.

The Baron Liebig, in the course of his investigations, discovered potash in the raw Guano, a discovery since confirmed by Dr. Voelcker and other Chemists. To the presence of this substance (which is not found in any mineral phosphate) is attributable, in some degree, the great superiority of the PHOSPHO GUANO when compared with other phosphatic manures made from coprolites, apatite, Sombrero Guano, &c.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared; and Liebig states that by using PHOSPHO GUANO, the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other manure; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

All Chemists of standing have ceased to place a money value on manures submitted by them to analysis, as tending to lead to erroneous conclusions, owing to the disingenuous manner in which such values are paraded before the public eye by dealers; but for the information of those farmers who still have faith in this test, the money value of the PHOSPHO GUANO, calculated by the data hitherto in use, is, according to the mean average of Dr. Voelcker's analyses, 13*l.* 18*s.* 2*d.* per ton; and of Baron Liebig's analyses, 14*l.* 18*s.* 4*d.* per ton.

Peruvian Guano and PHOSPHO GUANO are respectively the representatives, in the highest degree, of the two most important manurial substances, ammonia and phosphoric acid. In Peruvian Guano there is 13.61 per cent. of nitrogen, yielding 7.0 of actual ammonia and 10.0 latent—and the latent, in the opinion of Dr. Voelcker, is as available or nearly so as the actual ammonia—together with 3.0 per cent. phosphoric acid in soluble state. In PHOSPHO GUANO there are 18.027 per cent. of phosphoric acid in soluble state, and 3.50 per cent. actual ammonia.

As Peruvian Guano is acknowledged to be a cheap source of ammonia, so likewise PHOSPHO GUANO must be considered as a cheap source of phosphoric acid—much to be preferred to bones, superphosphates, coprolites, apatite, Sombrero and other inferior Guanos; while the proportion of 3.50 per cent. of actual ammonia constitutes it the best-balanced manure in the market.

If the results of practical experience were required to recommend the PHOSPHO GUANO, testimonials from many of the most eminent Agriculturists in the kingdom could be adduced; but the reader of this advertisement is particularly referred to the most recent of these, published in the last number of the *Quarterly Journal of Agriculture* (Jan. 1864), by Mr. Henry Stephens, author of the "Book of the Farm," detailing the experiments made by the Marquis of Tweeddale, with their successful results.

Pamphlets, containing a full description of the PHOSPHO GUANO, its History, Nature, Properties, &c., may be obtained on application.

PRICES AND TERMS.

The Cash Prices, including the cost of bags, Carriage Free at any railway station or shipping port in the kingdom, are as follows:—

For 10 tons and upwards, £11 10s. per ton. | For smaller quantities, £11 15s. per ton.

For full cargoes, direct to any port, special rates will be quoted.

Credit Rates.—Should the Consumer require credit, the price is increased at the rate of 2*s.* per ton per month.

To prevent fraud, all casks and bags are branded with the PHOSPHO GUANO COMPANY'S Trade Mark, as well as that of the Contractors, copies of which appear at the head of this advertisement.

There are Authorized Agents appointed for the sale of PHOSPHO GUANO in all the principal towns and villages in the United Kingdom; but where any difficulty exists in procuring supplies, orders may be sent direct to

PETER LAWSON & SON,
GEORGE IV. BRIDGE, EDINBURGH; or, 28, KING ST., CHEAPSIDE, LONDON, E.C.

PETER LAWSON and SON, *Contractors.*
WILLIAM DIXON and CO., *General Agents.*
GEORGE SEAGRAVE and CO., *Brokers.*

The Agricultural Gazette.

SATURDAY, APRIL 23, 1864.

The large numbers of pure bred Short-horns which have during the past few weeks been offered for sale by public auction do not seem to have more than satisfied the demand. The *Mark Lane Express* speaks of 253 sold within eight days, averaging 61*l.* 7*s.* apiece; and of 161 sold at three sales during last week for 7,879*l.* 4*s.*, or 48*l.* 18*s.* 6*d.* each. To that of the Clifton Pastures herd named in our last Number, we have now to add Mr. Strafford's sale of the herd at Southcott, the property of the late Mr. E. Lawford, which took place on Thursday of last week. Eighty-nine head sold for 3,703*l.*, or 41*l.* 12*s.* apiece. Among the principal prices were 240 guineas for *Seraphina* 13*th*, bought by Mr. Barclay, of Keavil; 160 guineas for *Seraphina* 15*th*, bought by Lord Sudeley, and 300 guineas for Imperial Oxford by Second Grand Duke from *Oxford* 13*th*, bought by Mr. Hegan.

How to Improve a Piece of Unproductive Pasture?—This is the question which all England of a certain class is asking. Our pasture lands, which are the pride of our island, have nevertheless been justly declared the disgrace of our agriculture. Their fertility is stationary or retrograde, while that of our plough lands is almost universally advancing. Yielding the natural produce, every artificial assistance ought to be especially profitable in the case of our pastures. Manures applied to them go to the furtherance of a crop for which all the other circumstances are in their case naturally adapted: whereas, applied to the crop which has been sown on plough land by the cultivator, their influence may be neutralised by unfitness of climate or of soil for the crop which he has selected. Whether, however, or not, it be because Nature has done so much for our natural pasturage, that agriculture has done so little, it is nevertheless certain that it is generally in a poor and impoverished condition; so that multitudes

are in the condition of our Correspondent "Armiger," who describes his case as follows:—

"The land in question forms part of a park, and cannot be ploughed up; the Grass is such as is found on cold wet clay, and in its present state cannot be worth above 20*s.* per acre. A year ago it was tile-drained, but further measures are necessary. My steward recommends a dressing in autumn with lime. I suggested, as recommended by Messrs. Sutton, harrowing the surface, sowing with Grass seeds, top-dressing with the mixture of guano, dissolved bones, and salt recommended by Professor Voelcker, and cutting for hay instead of grazing during the first summer. I am answered that Professor Voelcker's mixture will cost 3*l.* per acre; that the land will not repay such an outlay; and that to cut hay on land already too poor would prove injurious. What should be done?"

The answer to this question must be based upon the undoubted but neglected truth, that the Grasses, like the other crops we grow, are dependent for their productiveness upon the fitness of the soil as regards both texture and composition to the plants grown on it. The unproductiveness of a pasture is just a case of ordinary infertility, to be explained by the soil not containing the food of the crop in question, or at any rate not yielding it. In such a case, the seeds of the crop will be sown in vain; and thus, on the face of it, there appears but little reasonableness in the recommended practice of sowing upon poor Grass lands what are called renovating mixtures. We are told to harrow out the Mosses which have encroached upon the Grasses, and perhaps to spread abroad some earthy compost over the surface, and thereafter bush-harrow in a couple of bushels per acre or thereabout of some mixture of good Grass seeds. These seeds, or some of them, may grow, and for a year or two they may result in a partial renovation of the pasture; but it is certain that the land will ultimately revert to its former condition, unless some essential change be effected in the circumstances out of which that condition originally arose.

Land which does not contain the food of Grasses will revert to Moss, in spite both of harrowing and seed; and land which, water-logged, will not yield the food of Grasses whether it be present there or not, will continue to yield Sedge and Rush in spite of every effort that may be made. The first step to its improvement undoubtedly is that which our correspondent has already taken. The land must be drained, and thus be at once unlocked and fertilised. "Dame Nature's top-dressings," to which we see a veteran agricultural writer is directing attention in the columns of a contemporary, would thus have a chance of entering the soil. The rain water which brings them would be their carrier to, instead of from, the plants they are intended for; and it would also be the carrier of other food which may then be applied with some chance of its answering its purpose.

The Bailiff is quite right in his proposal to apply a lime compost after drainage. This will help to bring into use whatever natural supplies of food for plants the soil contains. In addition to this other food may now be artificially applied with a better chance of its accomplishing its intended end.

Eight or twelve bushels of bone dust rotted in several times its bulk of damp ashes may be applied per acre. This will tend to promote the growth of Clovers, the increase of which in a natural pasture is the best evidence that exists of increasing fertility.

Add to this the gradual process of foddering sheep and cattle on the land; and you have then all the means in operation for its ultimate renovation. We agree with the bailiff in preferring grazing to mowing in such a case; and though we have very little faith in renovating mixtures of Grass seeds, as often used, yet by-and-by, it may be well to apply as bulky an earthen compost as can be had, spread it abroad, and thereafter bush-harrow in some good seeds—if after a few years of the influence of drainage, liming, boning, and diligent foddering on the Grass it shall still appear to be required.

Wool at 3*l.* 10*s.* per tod, and mutton without the wool at 7*d.* per lb.; while Wheat, Barley, and Oats stand at 5*s.*, 4*s.*, and half a crown per bushel, present an extraordinary combination of prices. What will be the effect of them, if they should continue, upon the character of English agriculture?

It is at the seed time of the year that the influence of the market demand for any particular produce must operate, if at all. What is the influence of these extraordinary prices effecting now? Has there been a greater demand for Grass seeds, Vetches, Mangel Wurzel, Rape, and Turnip seed than usual? Our operations hinge so much on one another that alterations of management are extremely slow; so that possibly but little change of cropping may be noticeable at once. And in addition to this it is no longer green crops only on which we depend for the maintenance of a flock or herd. Much Barley has found its best market during the past winter in pig feeding—and Peas and Beans and other grain at the present low prices may be profitably given to fatting sheep, while wool and mutton maintain their present market value.

These prices must, however, ultimately tend to an increase of the supply. In the records of the Didmarton farms referred to by Mr. Morton the other day at Kingscote, we see that from 1822 to 1830, when the price of wool ranged between 19*s.* 6*d.* and 27*s.* per tod, about 600 fleeces were cut annually. During the years 1831 to 1839 the price of wool ranged between 40*s.* and 50*s.* per tod, and 700 fleeces were cut per annum. In like manner, no doubt, every effort will now be made to increase the sheep stock of the country, and to this end more sheep food must be provided. Greater efforts will no doubt be made to secure a good seed bed for the Turnip crop, greater liberality in the manuring, and greater energy in the cultivation of the crop will be displayed. Other crops, too, will be more liberally treated. Top-dressings of Grass land will pay under such circumstances as the present. And green food will be eked out and saved by an increased consumption of grain and cake, as well as of hay and straw along with it. Rye and Vetches, Clovers, Grasses, early Turnips, Rape, Mustard, Swedes, stubble Turnips, Mangel Wurzel, hay and straw, all of them may be thus increased in quantity, and some of them in acreage, and made to support the larger flock which we hope will be maintained. We should be glad to see the prices of lamb and mutton rising, and thus proving that a larger number of sheep and lambs than usual are being kept over to another season.

IS FARMING A BUSINESS?

IF NOT, WHAT IS IT?

For my own part I look upon it as something undertaken to make a living by, and although Nature causes it to be slowly profitable, I can see nothing to withdraw it from the rules and customs that regulate other business transactions non-agricultural.

In ordinary undertakings capital is attracted and flows more freely into channels where its course is free and unobstructed, and it is naturally diverted from those encumbered by obstructions. That rule, in my opinion, holds good equally for agriculture.

Filling the British stomach is in my opinion the most important of all trades and manufactures, and in order that it should alike benefit all parties concerned, it ought to be especially conducted upon the most intelligent and recognised systems of commercial equity. But is it so managed? In my opinion certainly not. There is no free trade in it, but it is almost smothered in the swaddling clothes of old feudal customs and practices. Can I wonder then that agriculture is poor, and comparatively unremunerative. I am constantly told by landlords that it is very difficult to obtain men of sufficient capital to give full development to the powers of the soil. I will leave out of the question for the present the game preserves and the power over men's political consciences, and take the mere question of tenure. In this respect I can see no cause for difference between town and country.

If you let a house in a town to a trader or manufacturer on yearly tenure, depending in fact on the will of the landlord, you may rest well assured that that tenant will do nothing to alter or improve the landlord's property. But suppose you grant him a lease; do you suppose that he would accept of that lease unless he had the power to transfer or dispose of it? I don't know of such an instance in all my town knowledge.

Take my own case, and I could multiply it by thousands. I hold both my places of business on lease, and have expended on them in permanent and other improvements over 20,000*l.* Should I have done so without the power of sale or transfer? One of these leases is held under the Corporation of London, and they reserve to themselves the approval of the incoming tenant, but they were never known to object to a suitable tenant, and consequently their houses and lands are always sought after by men of capital, who invest freely. Moreover, although it is well known and calculated, that at the expiration of leases the Corporation will take increased rentals and participate (as they ought to do), in the general enhanced value of the property caused by efflux of time and the tenant's own improvements—the tenant in possession almost invariably commands a preference, if willing to give the price, or near the price, equitably affixed by the Corporation surveyor.

No tenant is ejected on political or religious grounds or from personal feeling, for the City of London is the cradle of civil, religious, and personal liberty, and yet there is no place in the world more loyal and orderly, nor where life and property are more secure. The result is that capital flows amply into our good old city, which the late Baron Rothschild, in his examination before the Lords' committee, named the financial heart of the world.

But why should not a tenant have the right to sell or transfer his lease? The human mind is active and variable. An enterprising man may desire to exchange or improve his investment, as is so frequently done in the trading, commercial and financial world. This activity and progress is the very soul of business, but agriculture is inactive and unenterprising, because it is tied down by a narrow and suicidal policy in fixed and slowly alterable trammels. To deprive the widow or orphan of the beneficial interest in a lease arising from a tenant's improvements, is a positive cruelty and injustice, and few men of capital will expose their families to such a risk.

Altogether farming is so embarrassed and fettered by antiquated and semi-paternal customs that it cannot rank in enterprise or progress with our general manufacturing, commercial, or other interests. The fear of loss of political influence is really a mistake, for that influence is exercised now by both parties, and so it would be then, for you cannot make men all think one way.

It requires no calculator to predict that the greater freedom of action in agriculture would do what it has done in towns—enhance the value of property greatly to the landlord's benefit. It has been stated on reliable authority, that the mere facility of ready transfer of land would add 10 per cent. to its value. I am quite sure that it would attract to it many improvements; just as we see new enterprising tenants in towns.

Under the circumstances I have mentioned, our good old City of London is being actually rebuilt; convenient, elegant, and substantial business palaces rear their heads on the site of old antiquated dilapidatories, and the land on which they stand has advanced in value from 100 to 500 per cent. A good deal of it about the Exchange is now worth 1,500,000*l.* per acre, and a site about the size of a nobleman's drawing-room would, if near the Royal Exchange, command a ground rental of 1000*l.* per annum, equal to the rental of a thousand-acre farm.

I know of many estates that could be enormously increased in value both to the owner and to the country at large by such means as I have indicated. The humility of poverty and subserviency would be exchanged for a respectful but wealthy and independent action, not at all inconsistent with the best and most kindly feelings as between man and man. *J. J. Mechi, April*, 1864.

P.S. The following truthful letter addressed to me by a lady in Worcestershire makes a suggestion which is worthy of consideration. Certainly, if yearly tenure is to continue, capital will not flow as it should do, unless in some way secured.

"Sir,—I have waited, but in vain, to find how the proposed tenant right would be forwarded; it will, you know, come to nothing. How many tenant farmers dare press the question when only holding land from year to year? They must hold their tongues and be thankful, for how many are there watching with eager eyes for the time when old So-and-so shall drop off, or poor young Tryhard have spent his last sixpence in bringing his land round. Trade of every class and profession, indeed, can protect itself, and they do wisely do so. But what have we farmers done? Do we not toil on and on sowing our money, and little knowing if we shall see it again. I could tell you a tale that would make all English blood boil of my personal wrong, but being only personal, I can get no redress by law. I could have exposed false men, but have further robbed my children; a sweeping dire calamity one would, in England, get ready help from; but for personal loss few think about it, and yet how many hundred farmers in England are yearly turned adrift for a pique of the agents, or a higher bidder, or a more eligible neighbour, and he, poor devil, singly, can get no help; he must go, and let seasons be what they may, sell stock, &c. Ah, well you must know, to make farming pay there must be money sunk in venture that no six months could see out again. Could you not be a director or proposer of a scheme of insurance to protect farmers against this sudden ejectment? A farm, though taken yearly, is taken in good faith of holding for years; to insure all permanent improvements could not be more open to imposition than any other insurance effected; and surely now a man almost holds his farm as his life, it is a most light tenure. Of course a properly digested scheme would alone bring it to bear, but I do think it very feasible; even those holding leases would then avail themselves of it, because it is well known not to pay to run land out, and landlords could say nothing against it; you ask nothing from them, and you can see your way in your outlay. A man who has made great outlay often has to endure very much, because the agent knows he may say and do as he pleases, grind here and pinch there, for he cannot afford to go; this would be checked then; indeed I could point out so many benefits to be derived from this insurance that I really think, if brought to bear, John Bull would leave off grumbling. I often read with delight your spirited enterprise in bringing forward schemes of improvement; believe me, farms and farmers would improve rapidly, and, may be, rents (but don't hint at that).

"Now, there is a good Alderman, do not have another dinner till you have thought this over; you may laugh if you like at it, but think at the same time; it might be done and relieve hundreds of brow-beaten young farmers, and give competence to us poor wives. I am one of them."

STEAM CULTIVATION COMPANIES.

Having had my attention drawn to your appeals for information respecting the working of our "West Riding Steam Ploughing, Cultivating, and Threshing Company," I gladly respond thereto, and shall always

have pleasure in giving information to your numerous correspondents, and any assistance in my power with a view to the introduction of Steam-power Cultivating Companies into those districts requiring such assistance.

Your friend "Philo Vapor" seems to imagine that there may have been some "special circumstances" favourable to the working of such a company in this neighbourhood. I can however assure him that the facts are quite the reverse. The farms here are necessarily small—averaging not more than 150 to 170 acres, which is partly owing to this being the threshold, as it were, between the agricultural and the manufacturing districts. The soil varies exceedingly in some parts, as for instance, between Ackworth and Askern, we have a fair field for our operations on a strong loam soil, but in others we have fields in which at one end there is only 3 inches of soil upon the surface of the hard sandstone rock, while at the other end there will be a tenacious clay subsoil 4 or 5 feet deep. Some fields are so full of large loose stones as to defy all attempts to work them by steam-power, while the adjoining inclosure is so soft and swampy as to be unable to support the weight of the engines even upon the headlands. The engines weigh about 13 tons when filled with water and coals. The fields are generally small and most irregularly shaped, the average size not exceeding 10 to 12 acres. We have in a few instances ploughed 6 acres, but in such cases always charge for eight.

It will be readily admitted that with such "special circumstances," coupled with the prejudice against and the great want of faith in the undertaking, the original promoters had no light task in hand, and it was these difficulties which induced us at the onset to select the double engine system. My own opinion has always been strongly in favour of that system, and I hold that no one engine method can ever compete with the double engines on the system of hire. The varying character of the work, the irregularity of the fields, the absolute necessity of always having sufficient power to convey all the implement and apparatus upon the road without any horse power assistance, places the single engine out of the question entirely.

The formation of a company in this district (which has occupied my attention in conjunction with a few friends more or less since 1859) would have been attempted long ago, but the double engine plan was not in such a practical working condition as to satisfy us, and it was not until Mr. Fowler introduced to my notice the peculiar and clever contrivance for coiling the rope on to the horizontal drum of his engines that we could see anything like a clear course towards overcoming our numerous difficulties, and meeting the requirements of this part of the country. That being done, this company was formed after much struggling, and for the encouragement of those who are "still hanging fire" I may state that we commenced working before the whole of the first capital, only 1500*l.*, was subscribed for, and we claim to be the first to demonstrate that the double engine system is the best for hiring out, and we certainly are the first to declare a dividend (7½ per cent.) and put away a handsome sum as well towards a reserve fund, the result of the first year's operations.

In answer to your other questions, the total amount paid to Mr. Fowler for the two field engines, with one four-furrow plough, one cultivator, 800 yards of steel rope, and 10 rope porters, was 1292*l.*, and with the cost of a third self-transporting road engine, with a threshing machine and other expenses on the capital account, we have a total outlay of 2158*l.* 6*s.* 6*d.* up to Christmas, 1863. The number of acres ploughed and digged over is 393 acres 1 rood, and the quantity cultivated is 925 acres 2 roods, making a total of 1318 acres 3 roods worked over during the year, 1863, the depth varying from 6 to 11 inches for digging, and from 8 to 16 inches for cultivating.

Had I not already troubled you with so many details I might have enlarged on the improvement now to be seen in the land worked by our tackle, and also on the direct benefit to the farmers, who in some instances are already dispensing with two horses and one man each, thereby saving twice the amount paid to this Company for doing their work far more efficiently. I might also point out that this Company is desirous of largely extending its operations, and increasing its capital, and is only waiting patiently for the turn in favour of such undertakings as a purely commercial matter, which must undoubtedly come about in time, when we shall be prepared to supply any district in England (where 1500*l.* can be raised) with the proper ploughing tackle — taking all the responsibility of the management—giving all the advantages to be derived from our past experience (no small matter in itself, as every new beginner will find out) and be enabled by such extension to work at much less cost per acre, and to supply the machinery far more certainly when required by the farmers than it will be possible for any small company or a host of small companies with limited means to accomplish. I take, however, a shorter course, and send you by post a copy of our last half-year's report, wherein you may perhaps find further particulars worthy of your notice, and if any of your correspondents or large circle of readers require more I shall be glad to give answers to any direct questions sent me, either through your columns or by post. On receipt of six stamps I can also furnish the report above mentioned to any one wishing to have one. *Chas. Clay, Secretary, Corn Exchange, Wakefield.*

Home Correspondence.

Dynamometers and Steam Cultivation.—You have kindly laid before us the Royal Agricultural Society's request to the Messrs. Easton & Amos to report upon Mr. Fowler's suggested dynamometers, &c. It cannot make much difference to me as to what these dynamometers are, since I shall not be in for this year's "scramble" at Newcastle, but I should be glad if Mr. Fowler, or some other kind friend, would give us some information about them as to the use of them. The three ton one may do very well to test Mr. Fowler's over-worked engine. Three ton is equivalent to 40 horse power, thus implying that Mr. Fowler works his 14 horse engine up to something like that power. Who is the rope maker who can make durable ropes worked under such a pressure, and who are the farmers who can afford to throw ropes away with something like three tons pull in them? Is that a best application that requires some 30 or 40 horse power to pull its implements about, to dash its ropes and machinery to atoms, and to empty the farmers pockets? Let the Royals reflect before they adopt such a test, for assuredly England never will be farmed by such wasteful machinery. Mr. Clay, the head of the Wakefield Company, may give us his flaming accounts and large per centages for the first year, but we have yet the Gloucester Company as well as Mr. Moscrop's prize essay to look to that will require some reconciling; besides that, does Mr. Fowler know how to practically apply steam power to the cultivation of the soil? What are his operations per crop, and what are their cost? It is that that the practical farmer must look to to guide him; a dynamometer experiment is mere trash; nothing short of a "scramble" engine can be made to stand any push. Now for the two 12 cwt. dynamometers. They are of no use to test Mr. Fowler's implements with, for he has nothing of so light a draught; 12 cwt. is equivalent to 8-horse power. Neither I myself, Fowler, Howard, or any one else "scrambled" with so light a power at Worcester. Then they are not worth talking about. I am pleased to see that the Council have set at naught the attack upon Mr. Amos, their consulting engineer. Mr. Amos may not always have been right in his advice to the Council, but it seems that the Council, and I am quite certain that the general public, place the most implicit confidence in him as an honourable man. *William Smith, Woolston, Bletchley Station, Bucks, April* 12. [We have given almost numberless examples of unquestionable profit and success attending the use of Mr. Smith's steam cultivating apparatus—attending the use of Mr. Howard's apparatus—attending the use of Mr. Fowler's apparatus. And we shall by and by report the result of another year's experience of all three. It is, we believe, an entire mistake to suppose that the correspondence with the Council of the Agricultural Society about their Consulting Engineer, was intended as a personal attack on Mr. Amos.]

Societies.

Royal Agricultural: At the Annual Meeting on *Wednesday, April* 20, Lord Faversham in the chair, Mr. Holland, M.P., delivered a lecture on Agricultural Education. After referring to the dryness of the subject, and the general admission that something was necessary in the way of education for the agricultural classes, he observed that the subjects for discussion had usually taken three different phases, according to the nature of the land, the climate, and the latitude, and in practice there were different views arising out of these circumstances, but in all these cases there was the difficulty in regard to education that they had no regular educational system as connected with the agricultural interest. But the growth of civilisation and the force of competition required that no class which had to make its way in a free country should be backward in the acquirements of the age. An engineer of some repute connected with the Society, when asked how a lad should be brought up who was intended for the engineering profession, replied, "Send him to King's College or some similar public school;" and when it was further asked, "What do they teach of engineering there?" the answer was, "Never mind, do not think at present of the boy's future profession, but only of giving a large ground-work—a good basis of general education." This was the rule which should be followed with the early education of the agriculturist. With our ancestors education was not absolutely necessary for the general purposes of life, as with us, and a man became educated or not according as his tastes led one way or the other. But with us and with our sons education was a necessity, and the question was, how that necessity should be met. The first thing to consider was, what was education? It had been quaintly described to be the placing of the growing human creature in such circumstances of direction or of restraint as might make the most of him. It was the machinery for furnishing him with such information as would be practically serviceable to him in his future life. In considering this matter in connection with the farmer and the agriculturist, it must be remembered that there were three classes connected with the land: the landlord, the labourer, and the intermediate class—the occupier. Now the reports of different public offices in this country tended to show that this intermediate class had been greatly neglected. Mr. Bellaires, one of the Inspectors of the Privy Council for Education, said, "I am afraid that in my district (Gloucestershire, Worcestershire, and Warwickshire) there are few instances of schools for farmers, small tradesmen, artisans, and others of that class, and yet it would be difficult to mention any description of school that is more important—there is no class of society so imperfectly educated, or whose opinions are so crudely formed. Again, Prebendary Brereton, of Exeter, the author of several interesting papers on Middle-class Education, said, "The comparative deficiencies of middle class education in England may be attributed to the single fact that neither in the development during this century of the higher system,"—that was, the system of public schools, colleges, and universities for the wealthier classes,—"nor in the establishment of the lower,"—which had reference to the education given to the poorer classes, of which, be it remembered, the large body of occupiers of land as well as the middle classes were the chief supporters, through having to pay the rates,—"has there as yet been provision made for the large intermediate class who can neither aspire to the former, nor condescend to the latter. There are, indeed, many advocates for so extending these two systems as to embrace all the upper middle class in the educational system of the gentry, and to absorb the remainder in that form by the help of the State for the labourer. It is also still an open question, though not likely long to be so, whether public opinion will acquiesce in the permanent establishment of those subsidising examinations which the universities have recently undertaken for the middle class, or whether it will adopt the proposal to establish in connection with the different counties a new educational system with its own public schools, colleges and university." The more wealthy of the intermediate class, he might assume, took advantage of the colleges and universities established for the rich, and in the same way the poorest of the occupiers who were included in the same class would probably take advantage of the schools established through State influence for the poor; but the great mass of the middle class were without any means of obtaining an education commensurate with their wants. Speaking of this Mr. Brereton added, "In either case we may hope that a standard will be gradually fixed both for general knowledge and for special studies, which will remove existing uncertainty of object and irregularity of method, which are equally injurious to the teacher and taught;" and alluding particularly to farmers, for Mr. Brereton's pamphlet from which he was quoting was entitled, "Education as connected with Agriculture," he went on to say, "the effects of such a definite standard upon the English farmer's family can hardly be overrated. Whenever it becomes recognised as a rule that all the sons of a family should complete their education by obtaining a degree, the habits of a household would be regulated accordingly, and the mere necessary arrangements for study would open in the seclusion and frequent leisure of the family home, prospects of domestic order and happiness hitherto almost unknown. Such an object alone, without reference to the means of its attainment, would ensure this. For equally the holidays of the school-boy, the vacation of the collegian, or the daily pursuits of the home student would have this effect, extending also indirectly to the female members of the family. Such was the connection which the farmer has with the large middle class, and the section of that class to which immediate reference was now made was the agricultural section, in dealing with which there came in the great difficulty that they hardly knew whether there existed machinery for bringing into play all that was requisite in as quick and speedy a manner as the present generation required. That there was a demand for it there could be no doubt, but the question was—how was the demand of this section of the great middle class to be met? During the period they were at school general education of a public nature was all that was required. The difference between a public and a private educational system was that a public system being, as it were, public property, was open to the approbation or disapprobation of the class which required it for its own benefit, and at the same time there was in it the certainty of stimulus given in the shape of scholarships, prizes, or some particular mode in which honours were bestowed, and which gave to the individual a certain status in his class, a certain position amongst his fellow-students; and if the examiners were what they ought to be, an opportunity of displaying what there was in him. For this was the peculiar meaning of the word "education,"—it was very different from the meaning of the word "instruction." Instruction might be giving a certain amount of learning, but education was the bringing out what there was in the individual. His own view was that the education ought to be public, like that of the children of the other sections of the middle classes, but after public school or college more was wanted for the agriculturist. Even while the connection between the boy and the college still existed, there ought to be some bearing in the education on the practical working of land, and the future occupation of the student. And

in this was one of the difficulties with which they had to contend. Here in the education of the farmer it was necessary to leave the mass of the great middle class, and go to the individual section of that class. A great authority on this question, Mr. Grey, of Bilston, in a speech he made in the north some time ago, said, "The time has gone by with too many of us to profit by the improved education which the present state of society requires and affords, but allow me to remind such of you as have the responsibility of being parents, of the duty incumbent upon you to educate your families so as to fit them for taking a respectable position in life. It is the best patrimony you can bestow upon them. A liberal and judicious course of education is a foundation of future acquirement. It opens up sources of knowledge, and gives vigour and opportunity of expansion to every peculiar tendency of intellect which the mind is disposed to. Without it no man need expect to keep pace with the onward movement of society, or to make his way in either manufactures or agriculture, in which some knowledge of chemistry and the natural sciences is indispensable." Then, having done with the education connected with agriculture, they had to consider the matter of agricultural education as based upon the broad foundation of general education, which was to be obtained at the public institutions, of which he hoped, through the exertions of Mr. Brereton and others, and the examples set in the county of Devon, we should soon see many more scattered over the country. Mr. Wilson, of Edington Mains, the author of "British Farming," had given his opinion with regard to the rising young farmer in the following terms: "The mere possession of capital does not qualify a man for being a farmer, nor is there any virtue inherent in a lease to insure his success; to these must be added probity, knowledge of his business, and diligence in prosecuting it. These qualifications are the fruits of a good education in the fullest sense of that term, and are no more to be looked for without it than good crops without good husbandry." "But a great difficulty at present lies in finding appropriate occupations for such youths between their 15th and 20th years. In many ways sons of farmers are during that period put to farm labour; if they are kept steadily at it and are made proficient in every kind of work performed on a farm, it is a good professional training as far as it goes. The more common one, at least as regards the sons of the larger class of farmers, which consists of loitering about, without any stated occupation, attending fairs and markets, and probably the race course and hunting field, is about the most absurd that can well be imagined. Such youths are really to be pitied, for they are neither inured to bodily labour nor afforded the benefits of a liberal education. It need not surprise any one that such hapless lads often prove incompetent for the struggles of life, and have to yield their places to more vigorous men who have enjoyed the benefit of bearing the yoke in their youth. Unless young men are kept at labour, either of mind or of body, until continuous exertion during stated hours, confinement to one place, and prompt obedience to their superiors, have ceased to be irksome, there is little hope of their either prospering in business or distinguishing themselves in their profession. Owing to the altered habits of society there is no less likelihood than heretofore, of such young persons as we are referring to, being subjected to that arduous training to bodily labour, which was once the universal practice, and hence the necessity of an appropriate course of study to take its place." — "It is also common for such youths to be sent to Edinburgh for a winter or two to attend a class of agriculture and perhaps also of chemistry and the veterinary college. This is well enough in its way, but yet there is wanting in it an adequate guarantee that there is real study—the actual performance of early mental work."—"After acquiring the benefits of such a course of training as we have here indicated, young men would be in circumstances to derive real advantage from a residence with some experienced and practical farmer, or from a tour through the best cultivated districts of the country." These were Mr. Wilson's views, and Mr. Morton, in a lecture which he delivered at the Royal Agricultural College, laid down these three points as essential to the practical farmer:—1st, that he should have practical skill; 2d, that he should have business tact; and 3d, that he should have a liberal and scientific education.

Now in taking these three points into consideration, Mr. Morton showed that if a man had mere practical skill, he was very little better than a labourer, and if he had business tact he might not only be a labourer but become the manager of a farm, but that without having in addition to his capital a liberal and scientific education he was not fitted for holding a large farm in the present day. In this he (the lecturer) perfectly agreed, but the difficulty was to induce the farmer to spare his sons for additional education after they had left school, and the only way to encourage him to do so was the wholesome one of the having a portion of the expenditure on the lad repaid him by his obtaining a scholarship or some prize which would partly support him, either at the same establishment or in connection with some large farm. There was a want of all this, and that was one of the reasons why a Committee of the Society had been lately appointed. But the duties of that Committee were limited to an inquiry into the manner in which the Royal Agricultural Society of England could assist those who were employed in obtaining their living, and it could not take up the question of education as they could do in a discussion in that room. The discussion, therefore, would have nothing to do with the operations of the Committee, although, for what he knew of the members of it, he thought they were likely to take the view he was advocating, and be glad to be made acquainted with the operations of those present. His (the lecturer's) views were these: that following the example set in Devonshire they ought to do their utmost, not as a society, but as members of the agricultural class, to establish a system of public schools throughout the country as opportunity offered; that whilst the farmer's son was reaping the advantage to be obtained from this system, they ought to show him that if he would exert himself to bring out and develope his talents, he would gain honours and attain a status. And they ought to follow that up by enabling those who gained such honours, further to make themselves perfect in their profession by means of a scientific education, or the practical study of agriculture on a farm. Only in this way could the agricultural body wish, until the time came, as he hoped and trusted it would come, when from the benefits that would have accrued to the sons of the occupiers of land from a better education supplied in the way he had suggested, the agriculturists themselves would come forward to join in the great work of improving the educational condition of the farming class.

Sir Edward Kerrison, M.P., thanked Mr. Holland for bringing forward the subject, which he thought ought to have received more attention from the Society than it had yet done. He bore testimony to the value of Mr. Brereton's exertions in the cause of agricultural education, and having visited that gentleman's school, bore testimony to the efficiency of the system pursued, and the very reasonable charge at which the sons of agriculturists were there maintained and instructed, observing that it was within the means of any farmer. He was decidedly in favour of the public school system, and suggested that the Society should forward papers on agricultural subjects to such schools, contribute prizes, or better still, found a scholarship. He referred to the middle class school at Lancing, the new one now forming at Balcombe, where 1000 boys would be maintained and educated at 14*l*. 14*s*. a year each, and another large school in Suffolk, where the cost would be 24*l*. each, as suitable for agricultural pupils.

The Rev. Prebendary Brereton gave a detailed account of the progress of his own school, which now contained 60 boys, the terms being 23*l*. a-year for boys under 13, and 25*l*. a-year for those above that age, and showed that after meeting all expenses these charges left a profit of 3 per cent. upon the capital. He entered into statistics, proving that such schools might be safely established on the self-supporting principle.

Dr. Voelcker, as one who had been practically engaged in the education of agriculturists, warned those interested in the subject to avoid the rock upon which many promising schemes had split, viz, that of attaching farms to the schools, the practical education necessarily given on the farms of the small tenants to the farmers now being infinitely preferable to that upon any school farm.

Some further discussion ensued, in which Professor Coleman, Mr. Wren Hoskyns, and other gentlemen, took part, and a vote of thanks was given to Mr. Holland, which terminated the proceedings.

Farmers' Clubs.

Dublin: *April* 16.—*The National Horse Show.*—This very important meeting was held in the premises of the Royal Dublin Society. Taken as a whole, the show was a most important one, were it for no other reason than that by means of it our weak points have been indicated, so that attention may be given to their amendment. This was the object which Lord St. Lawrence and the other promoters of the show had in view, when they first thought of bringing the different classes of saddle horses together; and we feel convinced that if their exertions are continued, and annual shows held at a better time of the year, the result will ultimately be most beneficial to the country; for it will let people understand what kind of horse is expected, and that unless they can come up to the mark they must be content with having their horses put aside. This can only be effected by regularly established exhibitions, and a liberal scale of prizes.

We have said that the show should be held at a better time of the year, and the period which has unavoidably been fixed for the first meeting told most in the case of the first section of Class A; that is, the section of thorough-bred stud horses; for the engagements of several well-known sires of high character prevented them from being present. This is a very important section; for much of the future character of Irish horses depends upon it. The first prize horse Wild Irishman, belonging to Mr. Dillon, is a lengthy horse, with good legs, a beautiful neck and shoulder, and great quarters, but rather plain in the rib. Lord Powerscourt's Schamyl bay horse is a very powerful animal, and Mr. Moon's Stepping-stone, which was put third, though a little hollow-backed, caused, no doubt, by age, is a very pretty horse, with great loin and quarter, and very nice walking action. The sires shown in the second section—that of sires got by a thorough-bred horse, or out of a thorough-bred mare; or thorough-bred horses for covering half-bred mares, calculated to get troopers or riding horses—were but a middling lot. In the section of weight-carrying hunters, equal to 14½ stone and upwards, there were 39 entries, and, as might be expected, there was a great deal of interest exhibited by spectators while this and the next two sections were under the attention of the judges. Those gentlemen, however, could not find it in their hearts to give a prize to any of the horses exhibited in the section—a severe lesson, under which some winced when the result was known; but a very convincing proof, nevertheless, of the necessity for such a movement as that in which this same national horse show has originated.

The next section—that of hunters equal to from 13 stone to 14½ stone—fared better, being generally commended. The section was headed by Captain Coddington's gray gelding Rust, followed by Lieut.-Colonel Brown's bay mare Weazel, and a high commendation to Mr. H. Murray's wonderful old hunter Frank. There were some fair horses in the third section—that of hunters up to 12 and 13 stone—but not many promising three-year-old colts and fillies.

Of ladies' horses, park horses, and cobs there were 47 entries in the first section, and 40 in the second—that of weight-carrying cobs. In the latter there were several very middling animals, and at the same time some particularly good ones, especially the aged cob belonging to Sir George Brown. This is a very useful section, and one which requires to be looked after; for really good weight-carrying cobs, from 14 to 15 hands, have become much scarcer than they were at one time.

In carriage horses his Excellency the Lord Lieutenant was the leading exhibitor; and the entry of brougham horses was only limited. There were not many officers' chargers; and in the class of horses calculated for troopers there was one animal entered in each of the three sections of which the class consisted—a poor turn-out, indeed, considering that this country has always been looked upon as the nursery for cavalry remounts, and another evidence of the necessity which existed for such an exhibition.

There were some good brood mares, while several shown in the sections included in this class were by no means fitted to improve the breed of horses in the country. Mr. Thomas, Holles Street, Dublin, had one of the handsomest ponies we have seen for a long time, with which he got not only the first prize in his section—that of ponies from 12 to 13 hands—but both the medals, given respectively for action and merit. Mr. Taaffe's pony under 12 hands was also an extraordinarily good one. Mr. Metge's entire chesnut pony Bob, a perfect gem in his way, and standing only 8 hands high, got the medal as being the smallest pony exhibited. *Dublin Farmers' Gazette.*

Reviews.

The Theory of Under Drainage: one of a Short Series of Lectures on Agricultural Drainage delivered at the Royal Agricultural College, Cirencester, by Mr. Bailey Denton.

A former lecture was published some months ago in these columns, in which Mr. Denton called the attention of agricultural students to the bearing of the great geological features of the island upon the practice of the land drainer, and upon those particulars in which the future use of our water supply are liable to be affected by land drainage. Last week we referred to the first part of this second lecture, in which the details of the art are described, and its relations to fertility are discussed. A passage was extracted upon the mechanical effects of under-drainage; the following series of short extracts illustrate the corresponding chemical effects of it.

"Every one of you must have observed how our cultivated plants, our crops, and trees, dislike stagnant water; and how their roots travel along its surface underground directly they reach it. The existence of stagnant water implies the absence of air, which is as essential to the development of vegetable growth in the soil as it is to our existence above the surface, and therefore we can readily understand how essential it is to render the depth of soil which our plants require for their perfect development, percolative or permeable, free or active. This is not only required because roots will not penetrate a bed of stagnant water, and will prosper in a deeper feeding ground, but because there are in soils, in a saturated state, organic and inorganic ingredients which require amelioration, only to be gained by the absorption of oxygen from the atmosphere. By drainage you not only afford to plants the deeper bed to sustain them, at the rate of 100 tons per acre for every inch of depth gained, but you correct the injurious elements of the soil, and, what is more, you carry into the deepened bed those fertilising ingredients which are constantly associated with fresh air and moving water."

Chemical Effects of Comminution.—"The benefit derived from disintegration, *i.e.*, the comminution or minute division of soils, will be readily understood by those who have studied the views of Jethro Tull, who went so far as to maintain that land deeply and frequently stirred gathered sufficient fertility from the atmosphere to keep up its inherent powers; and by those who have visited Mr. Smith, of Lois Weedon, who, in his treatment of land, has adopted the same theory. I do not advocate these extreme views as capable of general adoption in farming, but I do not hesitate to say that the principle of aëration is a sound one, and that we should recognise in the atmosphere a source of fertility to surface soils by deep cultivating, and to subsoils by deep draining. Dr. Madden, in an admirable paper published in the Transactions of the Highland Society in the year 1846, thus explains the effects of disintegration:—

"'When water is added to perfectly dry soil, it, of course, in the first instance, fills the interstitial canals, and from these enters the pores of each particle; and if the supply of water be not too great, the canals speedily become empty, so that the whole of the fluid is taken up by the pores: this, we have already seen, is the healthy condition of the soil. If, however, the supply of water be too great, as is the case when a spring gains admission into the soil, or when the sinking of the fluid through the canals to a sufficient depth below the surface is prevented, it is clear that these also must get filled with water so soon as the pores have become saturated. This, then, is the condition of undrained soil.

"'Not only are the pores filled, but the interstitial canals are likewise full; and the consequence is, that the whole process of the germination and growth of vegetables is materially interfered with. We shall here, therefore, briefly state the injurious effects of an excess of water, for the purpose of impressing more strongly on your minds the necessity of thorough draining as the first and most essential step towards the improvement of your soil.

"'The first great effect of an excess of water is, that it produces a corresponding diminution of the amount of air beneath the surface, which air is of the greatest possible consequence in the nutrition of plants; in fact, if entirely excluded, germination could not take place, and the seen sown would, of course, either decay or lie dormant.

"'Secondly, an excess of water is most hurtful, by reducing considerably the temperature of the soil: this I find, by

careful experiment, to be to the extent of six and a-half degrees at Fahrenheit in summer, which amount is equivalent to an elevation above the level of the sea of 1950 feet.

"'These are the two chief injuries of an excess of water in soil which affect the soil itself. There are very many others affecting the climate, &c.; but these not so connected with the subject in hand as to call for an explanation here.

"'Of course, all these injurious effects are at once overcome by thorough-draining, the result of which is, to establish a direct communication between the interstitial canals and the drains, by which means it follows, that no water can remain any length of time in these canals without, by its gravitation, finding its way into the drains.

"'Lest any one should suppose that the contents of these interstitial canals must be so minute that their whole amount can be of but little consequence, I may here notice the fact, that, in moderately well pulverised soil, they amount to no less than one-fourth of the whole bulk of the soil itself; for example, 100 cubic inches of moist soil (that is, of soil in which the pores are filled with water while the canals are filled with air) contain no less than 25 cubic inches of air. According to this calculation, in a field pulverised to the depth of 8 inches—a depth perfectly attainable on most soils by careful tillage—every imperial acre will retain beneath its surface no less than 12,545,280 cubic inches of air. And, to take one more element into the calculation, supposing the soil were not properly drained, the sufficient pulverising of an additional inch in depth would increase the escape of water from the surface by upwards of 100 gallons a-day.'"

Mr. Bailey Denton's last subject is the influence of Drainage upon the temperature of the soil. He gives the results of a series of experiments illustrative of the differing absorbent and retentive qualities of various clays. While the drift clay will absorb one-half its bulk of water, expending six-tenths of its bulk in the process, another will absorb two-fifths of water and expanding hardly more than one-fifth its bulk. He adds:—

"We may be content to believe that if under-drainage maintains the level of saturation at an adequate depth below the surface of the soil, the line of moisture supported by attraction must be further from the direct and prejudicial influence of the sun and wind in drained soils than in those undrained, and that land in a saturated state is in a more effective condition to yield to evaporation than land in the modified condition of healthy moisture.

"When we see the under-drains of surcharged free soils discharging sometimes as much as 10 times the quantity of water that falls on their surface in the shape of rain, and the drains of clay soils discharging as much as from one-fifth to one-sixth of the rainfall, we have the tangible satisfaction of knowing that these copious discharges must first replenish our rivers before it can replenish the rainfall; and when we frequently find that by the action of under-draining we establish a constant flow of water from lands which have never given out water in the shape of springs before, we have the additional consolation that we have entrapped an enemy, and made him a friend, for we have not only prevented his coming to the surface and chilling the land by evaporation, but we have created a permanent addition to the water supply of the country.

"Every one knows that the only way for surplus water, which does not infiltrate to a subterranean level, to escape from land, is by exhalation into vapour; and, though perhaps not equally well known, it is equally true, that heat disappears or becomes latent by the conversion of water into vapour. It is this effect on the moistened skin that produces cold in human beings when they expose themselves to the action of the air, and precisely the same evil attends the exposure of the moist soil to the sun and wind. An application of this homely bit of philosophy has led to the manufacture of ice in the hottest climates; and I once convinced a doubtful farmer of the chilling effect of evaporation on his land by hanging a bottle of his port wine clothed in wet flannel before a kitchen fire.

"To reduce the effect of evaporation to tangible figures, I may state that every gallon of water carried off from the soil by evaporation robs the soil of as much heat—heat, remember, which is beneficial to vegetation—as would raise 5⅓ gallons of water from freezing to boiling point. You cannot be surprised, therefore, that saturated lands should be called "cold" as well as wet.

"Heat will not pass downwards in water, and, if the soil is saturated, the warmth of the atmosphere cannot penetrate it. Heat is propagated in water by circulation, that is, by the upward movement of the heated particles, and the downward movement of the colder ones to take their place. Heat is conveyed to a soil by the circulation of the air and water through its recesses, and this fact, considered in relation to what I have before said, will help to explain how it is that water occupying the interstices of the subsoil by attraction, is forced downwards by descending rain which is warmer than itself."

These extracts are followed in the pamphlet by passages from the writings of Mr. Gisburne in the "Quarterly Review," and of Judge French, an American writer, on the subjects of radiation, evaporation, and dew.

We hope that these hitherto unpublished lectures will be collected and added to the number of the author's published works.

Farm Memoranda.

Eyemouth School Gardens.—The following is a report on small plots of ground cultivated by the boys attending one of our ordinary parish schools. The amount of the produce surprised me so much that I was led to test the accuracy of the returns. The teacher sent with his report the account current or diary kept by one of the boys (Edington) showing how and when his different crops had been disposed of. I found from it that his plot had yielded 128 Cabbages, 13 Savoys, 12 dozen of Greens, 13 stones of Potatos, besides Leeks and Onions. I therefore wrote to the teacher to measure the extent of the ground on which these 128 Cabbages grew. His answer is subjoined. It seems to me to give a satisfactory explanation, and also some useful information on other points. I may mention that the Eyemouth School Gardens were instituted by me some years ago, after seeing the same thing in a school at Alnwick, supported by the Duke of Northumberland, and in consequence of hearing from the clergyman there that the system was very advantageous, not only by affording amusement and useful instruction to the boys, but by inducing their parents to allow them to remain longer at school for the sake of possessing these gardens. The experiment at Eyemouth has fully justified this testimony. In looking back to the yearly reports which have been sent to me, I observe that the value of the crop was as follows:—

Year.	Profit.
1861	£5 12 2½
1862	7 3 9½
1863	8 10 9½

These yearly returns show the earnestness and increasing skill of the boys; whilst their ages, as stated in the table below, which are above what is usual at our parish schools, also countenance the idea that they have remained longer at school for the sake of their little gardens. The inducements are considerable. The profits realised on almost all the plots exceed the school fees—a result which removes one objection on the part of their parents to their getting more school instruction. Moreover, the boys are not only kept out of mischief during their play hours and holidays by spending them in their gardens, but are acquiring habits of industry, as well as manual dexterity in the use of implements. The very accounts which they keep—and which is made a condition, showing the number of vegetables reared, and how they have been disposed of—form also a useful lesson. As the teacher refers to the rate of 48*l.* 1*s.* per acre, as "the amount of profits," it is right to prevent any exaggeration or misapprehension on this point by observing that no account has been taken by him for the following items:—

1. Rent for the land—which, when let, yields from 4*l.* to 5*l.* per acre.
2. Value of the boys' labour.
3. Cost of the manure applied.

It is, however, not the amount of produce realised which appears to me of importance. It is the moral benefit to the boys which is derived from the harmless enjoyment, useful training, and prolonged school instruction afforded and secured to them by means of these garden plots. Of course, the culture of them is not allowed to interfere in any degree with the indoor instruction, which occupies the usual period of six hours daily. But if the recent views on the subject of elementary education are to be adopted, which advocate an abbreviation of the indoor lessons for the sake of some systematic bodily exercises in the open air, spade work in a garden, under the eye of the teacher, seems to afford one method of obtaining that object. Were heritors in parishes to appropriate a small bit of ground to the use of the parish school, to be cultivated by the oldest and best-behaved boys, I am sure they would feel amply rewarded for sacrificing the paltry rent for the land, and for awarding a few shillings in prizes yearly, by the consciousness of the moral good they are doing, and of the innocent pleasure they afford to young people. *David Milne Home, Edinburgh, March* 19, 1864, *in North British Agriculturist.*

I. Alex. Edington, age 12 years, has had a garden two years:—Potatos—cost of seed, 10*d.*; produce, 9*s.* 8½*d.*; profit, 8*s.* 10½*d.* Cabbage—cost of seed, 6*d.*; produce, 5*s.* 4*d.*; profit, 4*s.* 10*d.* Greens—cost of seed, 2½*d.*; produce, 4*s.*; profit, 3*s.* 9½*d.* Onions—cost of seed, 3*d.*; produce, 1*s.* 0½*d.*; profit, 9½*d.* Leeks—cost of seed, 1*s.* 1½*d.*; produce, 2*s.* 10*d.*; profit, 1*s.* 8½*d.* Shallots—cost of seed (Savoys), 2*d.*: produce, 1*s.* 5*d.*; profit, 1*s.* 3*d.* Total—cost of seed, 3*s.* 1*d.*; produce, 1*l.* 4*s.* 4*d.*; profit, 1*l.* 1*s.* 3*d.* Well manured a year ago with refuse of fish. Exposure fair. Very well kept.

II. John Jerdan, age 11½ years, has had a garden one year;—Potatos—cost of seed, 10*d.*; produce, 4*s.*; profit, 3*s.* 2*d.* Cabbage—cost of seed, 9*d.*; produce, 6*s.* 6*d.*; profit, 5*s.* 9*d.* Onions—cost of seed, 1*s.*; produce, 2*s.* 6*d.*; profit, 1*s.* 6*d.* Leeks—cost of seed, 9*d.*; produce, 2*s.*; profit, 1*s.* 3*d.* Total—cost of seed, 3*s.* 4*d.*; produce, 15*s.*; profit, 11*s.* 8*d.* Five barrowfulls manure (horses'.) Exposure fair. Very well kept.

III. William Paterson, age 15 years, has had a garden five years:—Cabbage—cost of seeds, 1*s.* 3*d.*; produce, 11*s.* 6*d.*; profit, 10*s.* 3*d.* Greens—cost of seed, 2*d.*; produce, 1*s.* 6*d.*; profit, 1*s.* 4*d.* Onions—cost of seed, 6*d.*; produce, 2*s.* 6*d.*; profit, 2*s.* Leeks—cost of seed, 6*d.*; produce, 2*s.* 9*d.*; profit, 2*s.* 3*d.* Total—cost of seed, 2*s.* 5*d.*; produce, 18*s.* 3*d.*; profit, 15*s.* 10*d.* Eight barrowfulls of manure (pigs'.) Exposure fair. Carelessly kept.

There are three specimens out of 10 reported, of which the total profits are declared to have been 8*l.* 10*s.* 0½*d.* The following are extracts from a letter of the schoolmaster:—

(1). The total area of ground laid off for gardens is 1066 square yards, of which 216 are occupied by walks and flower-borders, and 850 divided into 10 allotments are available for crops. Each allotment, therefore, contains nearly 85 square yards. The total amount of profits for 1862 was 7*l.* 3*s.* 9½*d.*, which is at the rate of 40*l.* 8*s.* 9*d.* per acre. The amount of profits for 1863 is 8*l.* 18*s.* 0½*d.*, or 48*l.* 1*s.* per acre. From this report you will see that the past year's report is even more favourable than that of 1862. This increase of profits is owing to a more diligent cultivation by the boys. I am also better able to judge than formerly of the character of the boys to whom gardens may be given. It is of little use to give one to a boy who has not proved regular and steady in his attendance at school, or whose parents will not give encouragement in laying out a few shillings for seeds. At the season for letting them I have always a sufficient number of eager petitioners.

(2). As to the number of square feet of ground occupied by the 128 Cabbages on Edington's plot, I have to state that it was 15 feet long by 13 feet broad—that is, 195 square feet. Now, early sorts are planted 18 inches from row to row, and 12 inches asunder. The length of 15 feet would therefore give 10 rows, with 13 Cabbages in each. I caused the ground of two other boys to be measured, and the proportion was nearly the same. The remainder of this boy's plot, 560 square yards, was occupied by Potatos and an Onion bed. Each of the boys cultivated an Onion bed. These beds varied in size from 6 to 8 square yards. They all yielded a small profit. None of them attempted to rear Carrots, garden Turnips, Strawberries, or Peas, as these are crops that unprincipled boys are sure to plunder. I asked Edington and several other boys how they had disposed of their crops. They told me what they had told me often, that they had used a portion of them at home and sold the rest. Few families in Eyemouth have gardens, and there is always a ready market, particularly during the herring fishing season. If the Cabbages are any size, they sell freely at ½*d.* In 1862, a boy received 2*d.* for one. When they take a Cabbage, therefore, for home use, they put down the value at ½*d.* Edington says he sold all his winter crop of Greens, and received 4*s.* for it. Greens of a fair size are sold at two stocks for ½*d.*; of small, three. The Leeks, another portion of the winter crop, are sold at three for ½*d.*, if ordinary sized. Edington planted about 260; these, at four for ½*d.*, would nearly produce his return. The gardens are early, and the boys are frequently digging new Potatos when they are selling at 1½*d.* per lb. This raises the value of the Potato crop materially. *James Cox.*

Miscellaneous.

New Method of Curing Meat.—The animal is killed in the usual manner by a blow on the head, causing instantaneous death. It is then turned on the back, the chest opened, the bag or pericardium, containing the heart, opened. The right side of the heart, into which all the venous or returning blood enters, is seen distended; the ear or right auricular tip, as most convenient, is opened, or its tip cut off, or an incision made into the right ventricle, another also directly into the left. The animal is turned on the side to let the blood run out. A pipe, furnished with a stop-cock and coupling at the outer end, is now introduced into the incision made in the left ventricle, and makes its way at once into the aorta. The fingers, holding a piece of stout cord, are now passed round the aorta, close to the heart (including at the same time the pulmonary artery), and the cord is tied strongly over both, so that the pipe is fixed in the aorta firmly. To the outer end a coupling, connected with an india-rubber or other tube, three-fourths of an inch in diameter, 18 to 20 feet long, joins this to a vessel or tank elevated to the height of the length of the tube; brine of ordinary strength, with a little saltpetre dissolved in it, is let on; it directly (under 15 seconds in most cases) rushes out at the incision made either in the right auricle or ventricle, before mentioned. About five gallons will suffice. This clears the smaller vessels for the next stage, which is the essential one. The brine so used can be recovered if desired by adding a little old brine and heating. The materials to be ultimately used are now put into the tank, taking care that they are strained, and a stout clip or clamp is put on the incision in the right side of the heart. The fluid is then turned on and directly makes its way to the right side, as before, but its exit being now prevented, and its admission into the smaller vessels being secured by the first process of clearing these vessels, as mentioned, the fluid, by the pressure and the capillary attraction of minute vessels and muscular fibre percolates through every particle of the animal, and can be seen at the moment diffusing itself in any part, by making incisions in the hide, horn, bone, and flesh, or any other parts. The quantity I use is about one gallon of brine to the cwt., a quarter to half a pound of nitre, two pounds of sugar, a little spice, sauce, &c., to taste; also ½ oz. of the mono-phosphoric acid, which, having the power of coagulating albumen and forming a compound with it, retains this very desirable element in the flesh, and gives an extra supply of phosphoric acid, which is of course at present denied the sailor, as above stated. The use of boiling brine in the second stage I also advocate, as it coagulates the albumen or gives a set (as it is called by cooks) to the meat. It is needless to remark that the entire animal is cured almost instantaneously. I would now draw attention to the further treatment of the flesh, referring to

1st. The method scientifically used;
2d. The advantages attained;
3d. The mechanical advantages.

If we now consider the first part of the process complete: the animal is in a few hours cut up into the 8 lb. pieces required by the navy, and is ready for casking in the usual way, or in dry salt (all expense of preparing being done away), or for drying by being tranferred to a drying-house (as in the specimens for inspection). It is obvious that it loses none of those materials abstracted by the present method of salting, so that the meat is absolutely perfect, as in fresh meat without water, having, as I hold, the additional advantages of salt, which the weight of authority is in favour of rather than against, and of sugar, now issued to the navy, along with the lemon juice; the use of sugar Liebig shows plainly is for the formation of lactic acid (which, as mentioned before, he has found abstracted by the brine), and a most essential compound not only of muscle juice, but of gastric juice, as well as an important

respiratory food. I would suggest the use of "sauer kraut," or some other vegetable product containing lactic acid, or lactic acid itself. Sugar is, in an economic point of view, specially advantageous, as it is about two-thirds the price of meat, or less, while it improves the flavour and keeps soft the flesh, aiding also in the preservation. *Professor Morgan's Lecture before the Society of Arts, published in their Journal April* 15.

Garibaldi at Bedford (*Friday, April* 15).—A very significant incident occurred immediately on the illustrious stranger's arrival at the Britannia Works, where, being formally introduced to Mr. James Howard, Garibaldi met the presentation with the remark that he knew Mr. Howard very well. On the latter expressing his doubts as to ever having previously had the honour of seeing the General, the rejoinder was, "But I have your portrait in the Farmer's Magazine," a work to which, it appears, Garibaldi is a regular subscriber; a fact that shows how sedulously he has cultivated alike the arts of peace and war. His criticism on the work made by the pair-horse plough and the champion man George Brown, was much to the purpose. Admitting that the performance was very good, the General went on to say that the horse-ploughing in England was too shallow for hot countries, where they were compelled to go very deep, or all the moisture would be carried off by evaporation. With the steam ploughing, or more particularly the cultivating, he was much pleased, quickly comprehending the mechanical action of the system, as well as the advantages of increased depth and the way in which the weeds were left on the surface. The land selected for operation was a stiff heavy clay of three or four inclosures recently thrown into one, and altogether a rough and trying job; but the cultivator was more than equal to the occasion. Garibaldi is manifestly well up in all farming matters, and evinced a deal of interest in the stock on Mr. James Howard's farm, where improved Shorthorns, Clydesdale horses, and Yorkshire pigs, all in turn received due commendation; while he made very "good work," as he expressed himself determined to do, in planting his tree; and left his name not only in Messrs. Howard's album, but under a red letter heading in the visitor's book of the firm. Many a welcome as Garibaldi will have in England, we question whether there will be anything more after his own heart than this day in the well cultivated lands of Bedfordshire. *Mark Lane Express.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	April.	Inches.	°	°				°	°	°	°	Inches.
Thursday	15	29.68	55	50	S.S.E.	2	5	60	42	77	33	.
Wednesday	16	29.73	45	45	N.W.	1	10	67	44	78	42	0.05
Tuesday	17	29.92	48	46	N.W.	2	9	48	40	54	40	1.12
Monday	18	30.07	57	54	S.W.	1	0	60	38	70	29	.
Sunday	17											
Saturday	16											
Friday	15											

Notices to Correspondents.

CATTLE MELON: *C Langley.* See our account of it two weeks ago, and apply to Mr. Blundell, of Bursledon, Southampton.

GARDEN MANURE: *Cotswold.* Mr. T. C. Brown mentions "Smith's Apparatus of Glasgow" for indoor closets. Can any of our readers tell us the probable expense of this apparatus, and where it can be obtained.

ROYAL ARCH 2D: *B K.* This bull was sold at the Sarsden sale to Mr. Cradock, of North Leach, for 66 guineas.



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Parties unknown to me, have, from motives best known to themselves, in this manner criticised the efficiency of the "Hydropult." I have no answer to make to them: to the Public I would say that I will cheerfully forward, on application, a prospectus, containing testimonials from gentlemen well known throughout the United Kingdom.

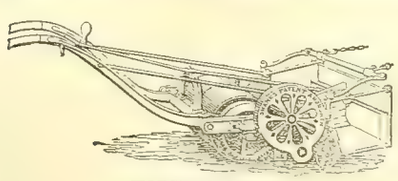
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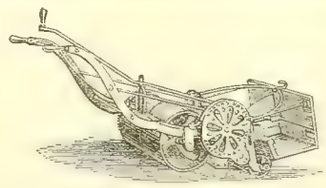
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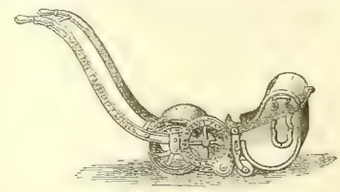
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Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

ALEXANDER SHANKS AND SON regret they find it necessary for the protection of their interests to call the attention of their numerous friends to the following assertions of Messrs. THOMAS GREEN & SON in their advertisement of LAWN MOWERS which has this year appeared in the *Gardeners' Chronicle* and other newspapers. A. S. & SON also particularly request attention to the following letters, in answer to these assertions:—

Messrs. GREEN have the following statement in their advertisement: "*By special appointment Sole Manufacturers to Her Most Gracious Majesty the Queen.*" In answer to this A. S. & SON subjoin the following letter from EDWARD M. BROWELL, Esq., Secretary to the Lord Steward of Her Majesty's Household:—

"Board of Green Cloth, Buckingham Palace, February 27, 1864.

"SIRS,—In reply to your request that I should write you a letter for publication, stating that Messrs. GREEN & SON had no appointment whatever, nor had any liberty or title to say that they had one, I can only repeat what I told the Gentleman who represented himself as your Agent when he called to ascertain how you could get the appointment of Manufacturers of Mowing Machines to Her Majesty, that no Warrant had been granted for about 10 years, and that *Messrs. Green had not one*, although they had lately supplied Her Majesty's Gardens, &c., with several of their Lawn Mowing Machines. "I am, Sirs, your obedient Servant, (Signed) EDWARD M. BROWELL."

Messrs. GREEN also give a list of "Foreign Medals awarded to them for their Patent Lawn Mowers." Amongst the number is one from the "Hamburg International Exhibition, 1863." A. S. & SON subjoin the following letter from the Secretary to the Committee of the International Exhibition at Hamburg, translated into English:—

"Messrs. PETER SMITH & Co., Hamburg, (Agents for A. S. & SON.)

"SIRS,—In answer to your favour of yesterday, I beg to inform you that, after having looked myself over the list of awards during the last year's International Agricultural Exhibition, GREEN's Machine for Lawn Mowing *did not receive* a Medal, whereas T. GREEN & SON (Leeds) were awarded with the small Silver Medal for a combined Steam-Engine with standing Boiler.
"Most respectfully, (Signed) GERHARD NACHMANN, Dr.,
"Hamburg, February 12, 1864." "As Secretary of the former Executing Committee of the International Agricultural Exhibition at Hamburg, 1863."

A. S. & SON beg to state that they are making inquiry of the Secretaries of the other Societies where Messrs. GREEN state they have received Medals, and as soon as they are able will publish the result.

Messrs. GREEN & SON also state that their "Patent Lawn Mowers are the only Machines in constant use at the Royal Gardens, Windsor, the Royal Horticultural Society's Gardens, South Kensington, the Crystal Palace Company's Gardens, Sydenham, and other places.

A. S. & SON beg to state that for many years their Lawn Mowers have been in successful operation in the Royal Gardens at Windsor; and further, *only a few week ago they had the honour to receive Orders for their newly Improved Machine for the same Gardens.* The following letters from Mr. EYLES, Superintendent of the Royal Horticultural Society's Gardens, and from Mr. GORDON, Superintendent of the Crystal Palace Company's Gardens, are amply sufficient to satisfy any one that Messrs. GREEN & SON'S statements on this point are also incorrect.

"Royal Horticultural Society, South Kensington, March 3, 1864.

"MY DEAR SIRS,—In answer to your inquiry, I beg to say that your Machines have been almost in constant use here during the Mowing season ever since the formation of the Gardens. "I am, yours very truly, (Signed) GEORGE EYLES."

"Crystal Palace, Sydenham, S.E., March 29, 1864.

"GENTLEMEN,—In reply to your inquiry respecting the Mowing Machines supplied by you, I am pleased to say both the Horse and Hand Machines were in constant use during the whole of the last season, and have given great satisfaction to me and many others who saw the Machines at work. The self-acting Apparatus for delivering the Grass being a great acquisition.
"I am, Gentlemen, yours, (Signed) J. A. GORDON."

A. SHANKS AND SON feel it altogether unnecessary to make any remarks on these proceedings. The letters they have been authorised to publish are amply sufficient to convince any one that Messrs. GREEN have used incorrect statements in their Circulars and Advertisements. These statements are calculated to mislead parties in selecting LAWN MOWERS, and consequently to some extent must be prejudicial to the interests of A. S. & SON as Manufacturers.

DENS IRON WORKS, ARBROATH, April 2, 1864.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

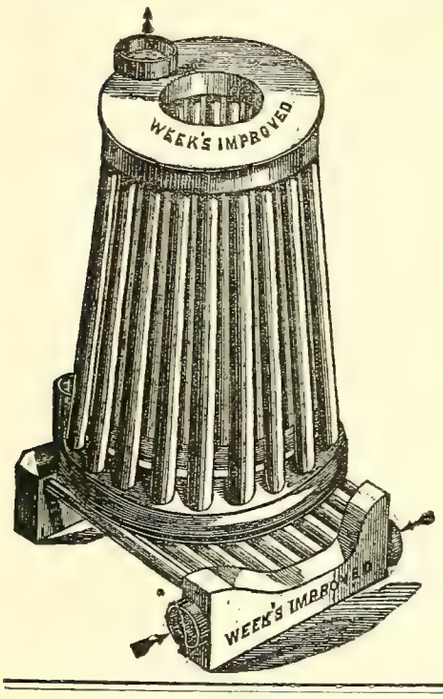
A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

JOHN WEEKS & COMPANY,

HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, S.W.

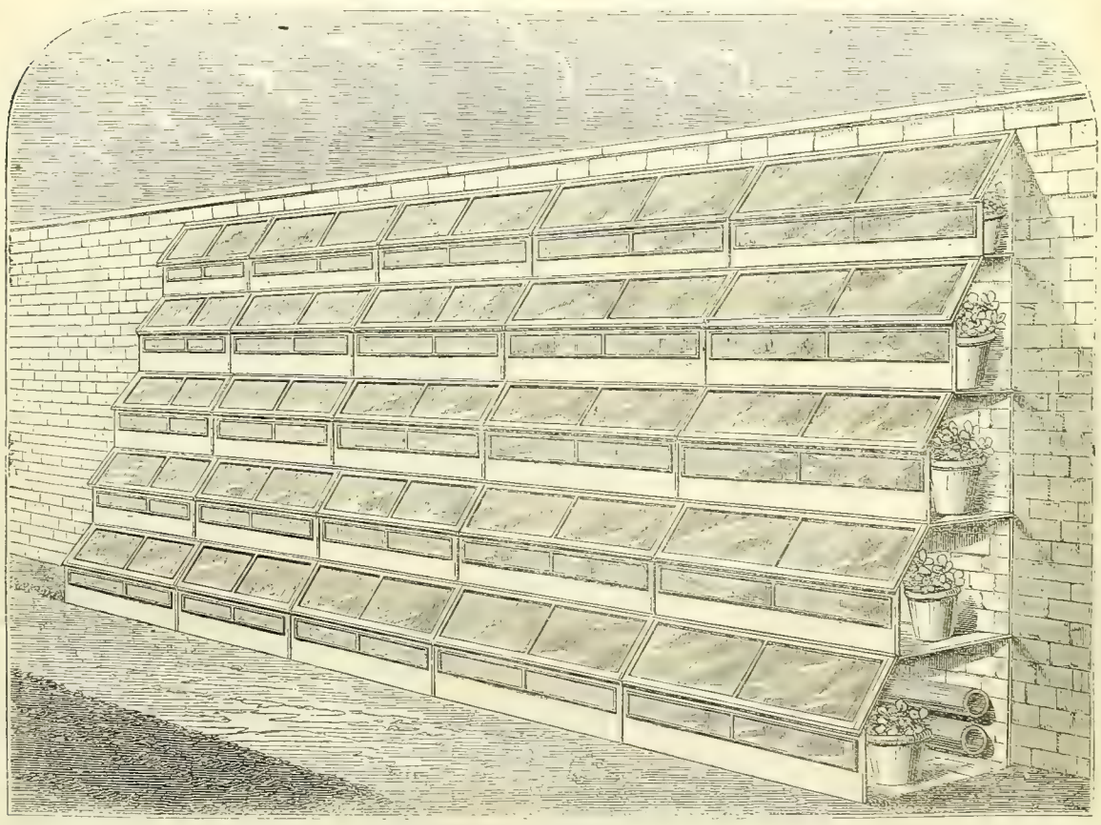


WEEKS'S No. 1 BOILER will heat 200 feet of 4-inch piping.
WEEKS'S No. 2 BOILER „ „ 300 „ „ „
WEEKS'S No. 3 BOILER „ „ 600 „ „ „
WEEKS'S No. 4 BOILER „ „ 1,500 „ „ „
WEEKS'S No. 5 BOILER „ „ 4,000 „ „ „
WEEKS'S No. 6 BOILER „ „ 10,000 „ „ „

WEEKS'S No. 6A BOILER is heating nearly 20,000 feet of 4-inch piping, and can be seen in operation on application to

J. WEEKS AND COMPANY, CHELSEA, S.W.

INGRAM'S IMPROVED STRAWBERRY HOUSE.



THIS HOUSE is specially adapted for FORCING STRAWBERRIES, possessing as it does, every qualification essential for the perfect cultivation of this highly important fruit. The special advantages of the invention may be enumerated as follows:—The HOUSE is constructed upon the CAST-IRON BRACKET PRINCIPLE, and requires no permanent fixing; is easily removed, and can be adjusted to any existing wall. It admits an abundance of light and fresh air to the plant, while imparting shade and moisture to the pot. Each plant has the benefit of being placed close to the glass, while a considerable saving of labour is effected by the small amount of attention required compared with the old system.

It will also be invaluable for the Summer Culture of Plants requiring similar treatment. This HOUSE being only adapted for walls, it is our intention immediately to extend the same principle to ground culture. *See* future Advertisement.

[Every information as to Construction, Price, &c., can be obtained of

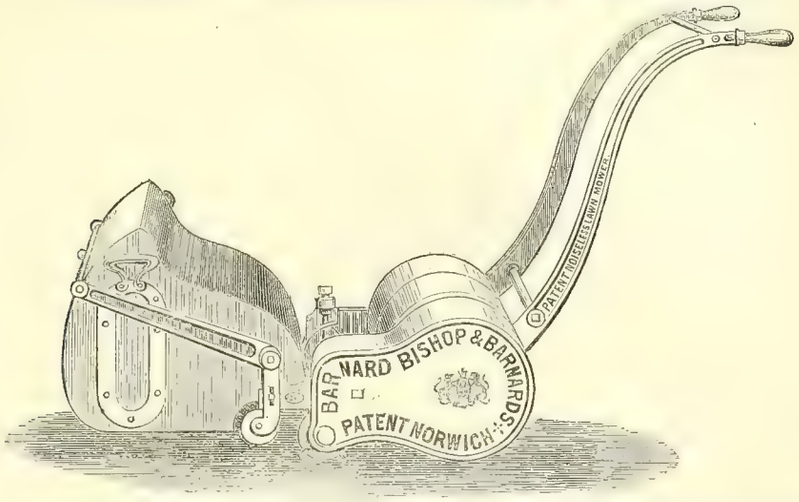
J. WEEKS AND COMPANY,

HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS, KING'S ROAD, CHELSEA, S.W.

Plans, Estimates, and Illustrated Catalogues on application.

BARNARD, BISHOP, & BARNARDS'

PATENT NOISELESS LAWN MOWER.



THIS MACHINE differs from all other LAWN MOWERS, in being constructed without either Gear-Wheels, Chains, or Levers, the Power being transmitted to the Cutters by a loose Intermediate Wheel, with an India-rubber Tyre which is placed between a Plain Faced Driving Wheel, and Pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the Intermediate Wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber Tyre will last from one to two seasons, and can be replaced at the cost of a few pence. An extra Tyre is sent with each Machine.

The Iron Work of Grass-Box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

THE MINIATURE LAWN MOWER, Cuts 8 inches **£2 10 0**

Suitable for the very Smallest Grass Plots or Edgings; can be Worked with Ease by a Child.

To Cut 10 inches. This can be Worked by a Lady **3 5 0**

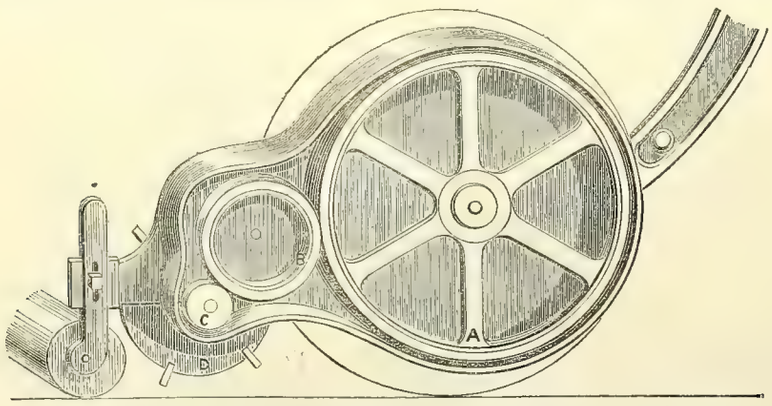
To Cut 12 inches. Suitable for One Person **4 10 0**

The 12 inch and all larger sizes have the Drum or Roller divided in two parts, for the convenience of turning.

To Cut 14 inches. Suitable for One Person **5 0 0**

Packed, and Delivered Carriage Free to the principal Railway Stations in England.

GUARANTEED TO GIVE SATISFACTION, AND IF NOT APPROVED, CAN BE RETURNED.



THE ABOVE ENGRAVING SHOWS THE ARRANGEMENT OF WHEELS.

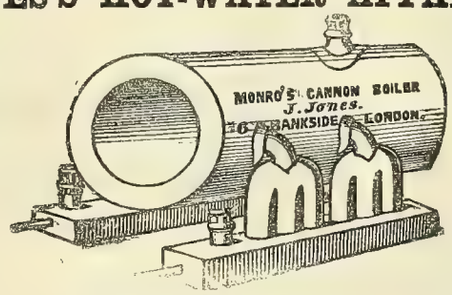
A, Plain-faced Driving Wheel. **B**, Intermediate Wheel, with India-rubber Tyre. **C**, Pinion. **D**, Cutters.

To insure an early delivery of these useful Machines, all Orders should be sent at once to

J. JONES, 6, BANKSIDE, SOUTHWARK, LONDON, S.E.

J. JONES'S HOT-WATER APPARATUS.

	PRICE.
20-inch Wrought Iron	... £3 15 0
24-inch „	... 6 10 0
30-inch „	... 7 10 0
36-inch „	... 8 10 0
48-inch „	... 12 0 0
60-inch „	... 20 0 0
72-inch „	... 25 0 0



MONRO'S CANNON BOILER.

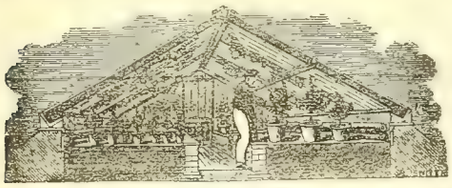
These Boilers are now acknowledged by all who have used them to be the best Boilers at present invented. They are both economical in their first cost, and also in the consumption of fuel. They require but little space to fix them in, and when set the total height of brickwork need not be more than 3½ feet, consequently they can be fixed in many places where it would be impossible to set an Upright Boiler. These Boilers are now made of various sizes, suitable to heat from 500 feet to 3000 feet of 4-inch pipe, and are kept in stock and sold only by J. JONES, 6, Bankside, Southwark, London, S.E.

Prices for HOT-WATER PIPES, ELBOWS, TEES, SYPHON, VALVES, TROUGH PIPES, ORNAMENTAL COIL CASES, BECK'S PATENT VALVES &c.; or ESTIMATES for HOT-WATER APPARATUS, delivered Free to any Railway Station, or erected complete in any part of the country, with CANNON SADDLE, or CYLINDER BOILERS, will be sent, with an ILLUSTRATED CATALOGUE, free on application.

J. JONES,

HOT-WATER APPARATUS MANUFACTORY, 6, BANKSIDE, LONDON, S.E.

Exhibition Prize Medal, 1862.

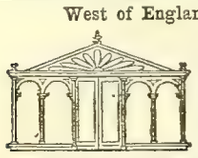


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. Span-roof Houses, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

West of England, Ireland, and Wales.

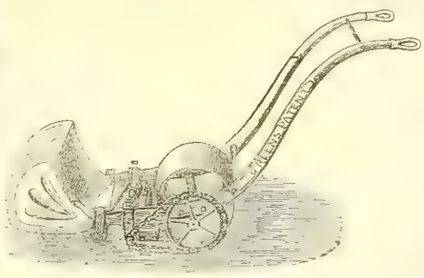


VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER



SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 50*s.*, 70*s.*, 90*s.*, 140*s.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*
GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.* 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*
GALVANIZED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s.*
GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*
BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

LAWN MOWERS.
GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT

Every Implement for Garden use on the lowest terms.

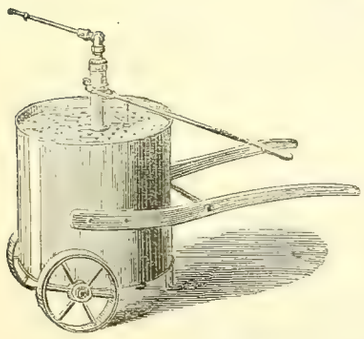
DEANE'S NEW ILLUSTRATED HORTICULTURAL CATALOGUE POST FREE ON APPLICATION.

ESTABLISHED A D. 1700.

DEANE AND CO. 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'
GALVANISED IRON GARDEN ENGINE,
WITH REGISTERED SPREADER.

10 gallons	...	... £2 15*s.*
16 „	...	... 3 15*s.*
24 „	...	... 5 0*s.*



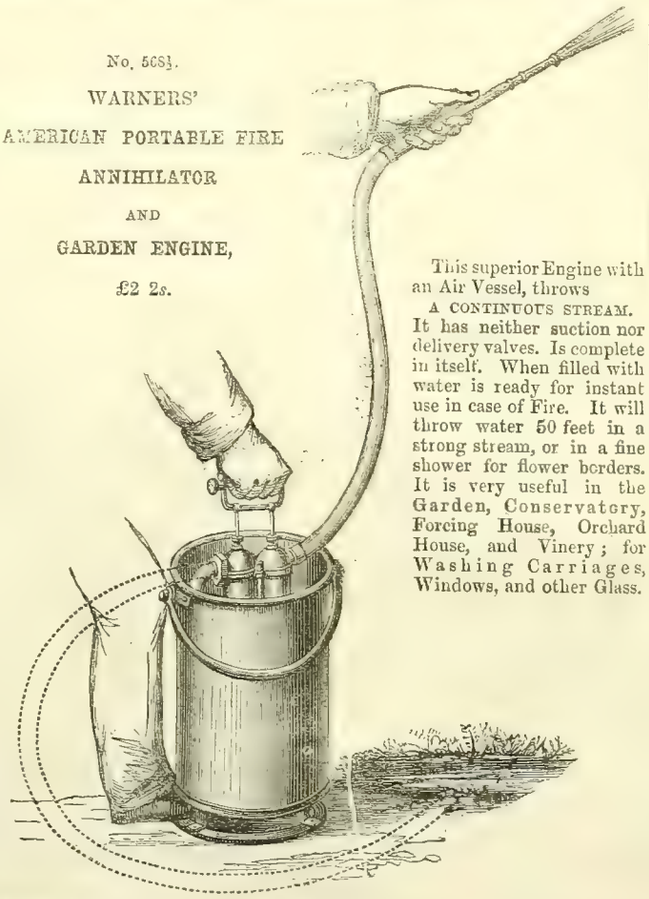
No. 35.

WARNERS'
PATENT IRON PUMPS.

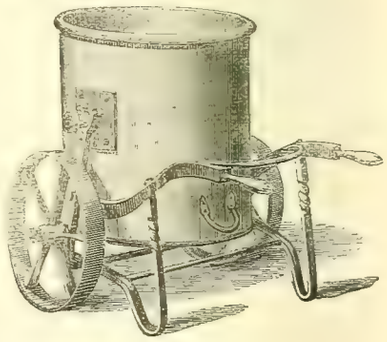
2½ inch	...	... £1 10*s.*
3 „	...	... 2 4*s.*
3½ „	...	... 2 9*s.*
4 „	...	... 2 18*s.*
2½ inch, with short barrel	...	1 1*s.*

No. 563½.

WARNERS'
AMERICAN PORTABLE FIRE
ANNIHILATOR
AND
GARDEN ENGINE,
£2 2*s.*



This superior Engine with an Air Vessel, throws
A CONTINUOUS STREAM.
It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'
SWING WATER BARROW.

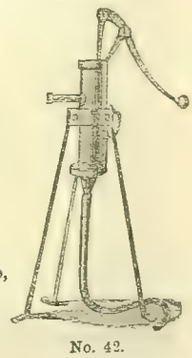
20 gallons	...	... £2 0*s.*
35 „	...	... 2 10*s.*

Saves a gardener's time when used with the water pot.

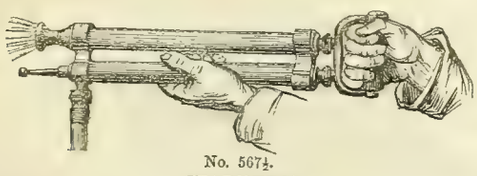
WARNERS'
PORTABLE LIQUID
MANURE PUMP,
WITH LEGS,
£2 15*s.*

Do. for fixing to cart, £2 5*s.*

Suction Pipe for Pump, 2*s.* 5*d.* per foot.



No. 42.



No. 567½.

WARNERS'
IMPROVED PATENT DOUBLE ACTION SYRINGE,
with 5 feet of flexible Suction Pipe, 21*s.*
Is much improved since last season.
It economises a gardener's time.
To draw from a water-pot, pail, or other vessel.



No. 590.



No. 557A.

WARNERS' REGISTERED DISC-VALVE SYRINGE. 9*s.*
FILLS QUICKLY AND EASILY.
It is well adapted for the gardener or amateur.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*

Fountain designs in great variety. Can be supplied from a cistern or main.

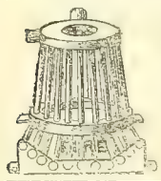
May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Card.

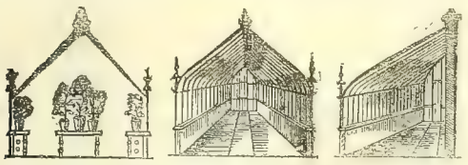
SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.



JOHN TOOLEY, late 21 years with J. Weeks & Co.
TUBULAR BOILERS,
All Sizes on the most Improved Principles, Valves, &c.
References in England, Ireland, and Wales.
John Tooley, 9, Radnor Street, King's Road, Chelsea, S.W.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

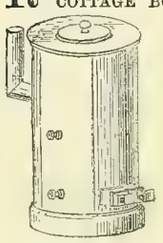


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P Dennis, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

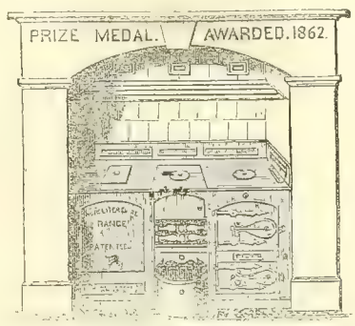


Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. Lynch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole Heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.
"International Exhibition, Class 31.
"Of the most recent inventions it should be said that Messrs. Jones & Rowe's Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side;* and the ROASTER is constantly replenished with fresh air."
Inventors and Manufacturers, Jones & Rowe, Worcester.
Agents for London: Barron, Son, & Wilson, 436, Strand, W.C.
Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

W. J. HOLLANDS, Iron Merchant 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.
A discount to the Trade.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Triangle, Hackney, N.E.—Good substantially-made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* A handsome CONSERVATORY, 46 feet by 19 feet, for Sale, price 130*l.* A large assortment kept. Estimates given for any branch in Wood or Iron.

FOR SALE, a CONSERVATORY (Second-hand), about 65 feet long by 22 feet wide, and 10 feet high in the front, with span roof; to be sold a Bargain. Also a PAIR of GLASS FOLDING DOORS, with fittings complete, the whole to be seen in the neighbourhood of Stroud, Gloucestershire.
For further particulars, apply to John Weeks & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London, S.W.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. Barsham & Co.
Barsham's BRUSHES and MATS are sold in every town.
Caution.—Every Brush is stamped. J. Barsham's Patent

To Nurserymen, Gardeners, and Others.

TO BE LET, PARK END NURSERY, one mile from Macclesfield, Cheshire.
Apply to Mr. Poole, Fallowfield, Manchester; and No. 8, Duke Street, Portland Place, London, W.

TO BE LET, a NURSERY, with or without the Stock, within four miles of Covent Garden Market. Large quantity of Glass. Established 20 years. Several Vineries in full bearing. N.B. This is a chance seldom met with.
For further particulars apply to Mr. J. H. Bird, Nurseryman, Green Lanes, Stoke Newington.

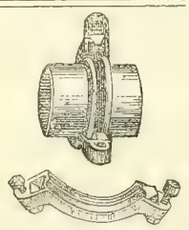
To Strawberry Growers.

TO BE SOLD, 8 ACRES of LAND, singularly suited for the growth of STRAWBERRIES, for which there is a great and increasing demand in the neighbourhood, and communication with London nearly 40 times daily.
Apply to Messrs. Allsop, 3, Union Court, E.C.; or Mr. T Allsop, Dorking.

TO BE DISPOSED OF, an OLD ESTABLISHED SEED and NURSERY TRADE, with an extensive connection in a good and increasing Market Town, on a line of Railway in the Eastern Counties. The Nursery, with Greenhouses and Pits, stocked with the Choicest Fruit Trees, Ornamental Trees, Greenhouse and Bedding Plants, &c., offers an advantageous opportunity to any practical industrious person, with a small capital, and will be disposed of either separately or with the Seed Business.
N.B. An advantageous opening for doing a good Corn Trade, in connection with the Seed Trade.
Apply to Messrs. Hurst & Son, 6, Leadenhall Street, London.



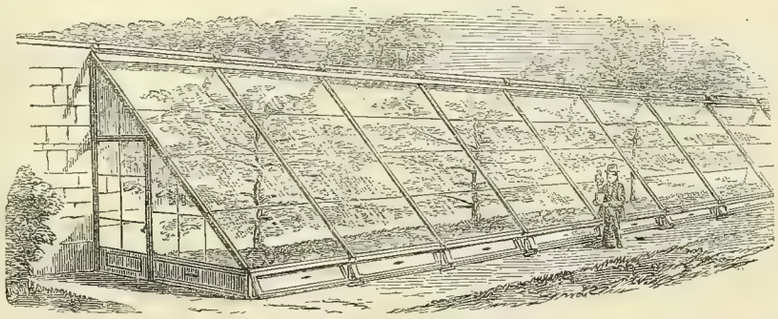
HOT-WATER APPARATUS,
WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,
53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.
These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.
For a few prices see last week's advertisement.
ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,
OLD ST. PANCRAS ROAD, LONDON, N.W.
BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of James Scott, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. *Lists Free.*
ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

Sales by Auction.

Lily Bulbs from Japan.

MR. J. C. STEVENS begs to announce that the long-expected LILY BULBS have arrived, and that the Day of Sale is fixed for MONDAY, May 2, at half-past 12 o'Clock precisely, at his Great Rooms, 38, King Street, Covent Garden, W.C. It is presumed the greater part of the consignment will consist of that most superb variety AURATUM.
Catalogues will be ready in a few days, and may be had on application.

Important Sale of New Plants.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. Standish and Fortune having nearly terminated) to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 11, at half-past 12 o'Clock precisely, a splendid assortment of NEW HARDY PLANTS, never yet been offered to the public, comprising—

Clematis Fortuni and Standishii	Weigela hortensis nivea
Lastrea Standishii	Camellia japonica variegata
Selaginella involvens	Thujopsis Standishii
Tricyrtis grandiflora	Maples (many curious and distinct varieties)

As well as a number of choice and rare Plants.
More detailed Particulars in the Catalogues.

Sale of First-class Carnations, Picotees, Pinks, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, E.C., on FRIDAY, April 29, at 12 o'clock, a First-class Collection of CARNATIONS, PICOTEES, PINKS, and CLOVES, Choice Azalea indica, Pelargoniums, Scarlet and Variegated Geraniums, and other Plants in Bloom, a choice assortment of American Plants, Selected Flower Seeds from Germany, with useful Ornamental Plants for Bedding, Roses, &c.
On view the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

English Wool Sales in London.

BRADBURY AND COOK, Wool Brokers, 17, Basinghall Street, London, E.C., contemplate having a SALE of ENGLISH WOOL by PUBLIC AUCTION, at an early period. Parties intending to send wool are requested to communicate with them as soon as possible. Sheets will be supplied free of charge.

GREEN'S PATENT SILENS MESSOR,

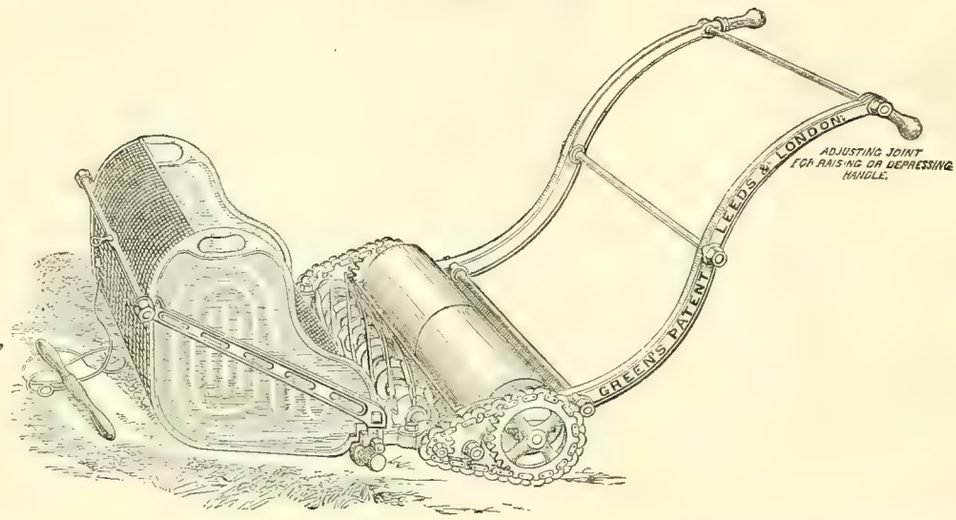
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

PRICES OF HAND MACHINES.

To Cut 10 inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut 18 inches	...	...	£7	10	0	...	...	Suitable for One Person.
„ 12 „	...	...	5	0	0	...	...	„ „	„ 20 „	...	...	8	0	0	...	...	Suitable for Two Persons.
„ 14 „	...	...	5	10	0	...	...	Suitable for One Person.	„ 22 „	...	...	8	10	0	...	...	„ „
„ 16 „	...	...	6	10	0	...	...	„ „	„ 24 „	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut 30 inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„ 28 „	...	...	14	0	0	...	...	„ „	„ 36 „	...	...	24	0	0	...	...	„ „

To Cut 42 inches ... ... £27 0 0 ... ... Leather Boots for Horse, 26*s*.
„ 48 „ ... ... 30 0 0 ... ... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

REPLY TO MESSRS. SHANKS' ADVERTISEMENT OF LAST WEEK.

In reply to what has been said by Messrs. Shanks in their Advertisement of last week, we beg to state—Our Machines have carried off every prize that has been given in all cases of competition, and that fair play and an impartial decision have been given by the Judges on all occasions, and this, coupled with our present improvements, is the reason why the principal places in England adopt our Machines in preference to any others; they being lighter and more durable, and warranted to last for years without getting out of repair; they do not require two-thirds the amount of power to work them of any other machines extant, and are unequalled for keeping Lawns in the highest state of perfection.

Now we do not wish to say anything that would have a tendency to raise the ire of Messrs. Shanks, or to produce a paper war, but if they doubt the above, we are willing once more to come to a trial, when the merits of both Machines can be fairly tested. We are surprised after so many objectionable things had been stated in Messrs. Shanks' Advertisements that any annoyance should be felt at what we state, viz., with regard to the words Special Appointment. In reply, we say, by virtue of the progress we have made, and the acknowledgments from the principal places we have received to others' exclusion, we were induced to use the words Specially Appointed, and the first remark inserted by Messrs. Shanks speaks but little for them, when the Public are told through their medium that Messrs. Green & Son have lately supplied Her Majesty's Gardens with several of their Machines. With regard to the Hamburg Medal, had we have known it was for Steam Engines we should have long since advertised it as such, which would have done us a much greater service than has our clerical error, for the information of which we beg Messrs. Shanks will accept our thanks.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1864.] SATURDAY, APRIL 30. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON.

A FÊTE will take place on the QUEEN'S BIRTHDAY, TUESDAY, May 24, when will take place an EXHIBITION of the various USES of FLOWERS in decorating Halls, Drawing Rooms, Balconies, Churches, and Buildings generally. Also for Dinner and Supper Tables, and for Bouquets, &c. Cultivated, Wild, and Artificial Flowers in pots or cut may be used. Prizes and Certificates will be awarded. Military Bands will perform. The Cascades and Minton's Majolica Fountain from the Exhibition of 1862 will play. Admission 1s., from 12 to 7.

For further information and application for space to exhibit, apply by letter to the Assistant Secretary.

By order of the Council, A. MURRAY.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

In consequence of the announcement that the Queen's Drawing Room will be held on May 3, the MEETING of the Society at which MR. BATEMAN'S LECTURE on COOL ORCHIDS is to be given will be held on WEDNESDAY, May 4, at 3 o'clock, instead of on Tuesday, May 3. An Election of Fellows will take place on the same day.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, SATURDAYS, May 21, June 11, and July 2.

AMERICAN PLANTS, MONDAYS, June 6 and 20.

Saturday next, May 7, is the last day for the 4s. Tickets, and the Fellows' Five Guinea packets.

RUGBY ROSE SHOW.—10l., 6l., 5l., 4l., 3l., and 2l. PRIZES are offered, besides others for CUT ROSES, single blooms.

Schedules sent on application to the Honorary Secretary, Mr. W. H. TREEN, Victoria Nursery, Rugby.

Exhibition day, TUESDAY, June 21.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.—ANNUAL EXHIBITION of FRUIT and FLOWERS, July 8, 1864. Prizes open to all England.

Schedules may be obtained of the Secretary, Mr. E. F. LOOF, 8, Parade.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

Melon Seeds.

MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6d.

JOSEPH MEREDITH, Vineyard, Garston, near Liverpool.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

The Best New Dwarf Bedding Scarlet Geranium of the Season is "Lady Cowper."

E. P. FRANCIS will send out the above GERANIUM the first week in May. For description, see *Gardeners' Chronicle* of April 2.

Price: good plants, 3s. 6d. each; or 30s. per dozen.

The Nurseries, Hertford, Herts.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one stamp.

W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

MESSRS. DILLISTONE AND CO., of the Sturmer and Woodlands Nurseries, Essex, beg to inform their patrons that their CATALOGUE (44 pages) for the Spring and Autumn of 1864, of BEDDING [and other PLANTS, can be had gratis, and to new applicants upon receipt of one stamp.—April 30.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, SEED, ROSE, and FRUIT CATALOGUES, gratis. 57, Queen Street, Hull.

Genuine Seeds, Carriage Free.

B. S. WILLIAMS, NURSERYMAN and SEEDSMAN, Paradise and Victoria Nurseries, Holloway, London, N. General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED, has AMALGAMATED with the PLYMOUTH SEED COMPANY, LIMITED. Offices, 68, Welbeck Street, Cavendish Square, London, W.

PLANTS and PLANT CASES for TABLE DECORATION. BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

SURPLUS STOCK of GLADIOLI. See BARR & SUGDEN'S large Advertisement, page 407.

CHEAP GLADIOLI for BEDDING, MASSING, or CLUMPING. See BARR & SUGDEN'S large Advertisement, page 467.

NEW GLADIOLI. See BARR & SUGDEN'S large Advertisement, page 407.

MIXED FLOWER SEEDS, for WOODLAND WALKS, WILDERNESS DECORATION, ROCKERIES, ROOTERIES, &c. See BARR & SUGDEN'S large Advertisement, page 407.

CENTAUREA RAGUSINA (C. CANDIDISSIMA), 1s. each, special prices per 100 or 1000 on application. E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

CHARLES TURNER'S SPRING PLANT CATALOGUE is now ready, and may be had on application. The Royal Nurseries, Slough.

Dahlias and Bedding Plants.

JAMES FAIRHEAD AND SON beg to state their CATALOGUE of the above is now ready, and can be had post free on application.

7, Borough Market, London, S.E.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5s. 6d. p. oz. JAMES WOODS, Florist, Harwich, Essex.

WILLIAM ROLLISSON AND SONS beg respectfully to announce, that their CATALOGUE of NEW, BEAUTIFUL, and RARE PLANTS for 1864, is now published, and will be forwarded, on application, pre-paid. The Nurseries, Tooting, London.

Golden Chain Geraniums,

WILLIAM HUSSEY begs to offer the above at 21s. per 100; also TOM THUMB and other Scarlets in sorts, at 14s. per 100, fine plants. Horticultural Gardens, Norwich.

Geranium Purple Unique.

T. E. BARTLETT begs to announce that he has to offer a very large quantity of the above beautiful decorative plant. Application for prices, &c., Pulteney Road, Bath.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application. Frampton Park Nursery, Hackney.

TO BE SOLD, large GARDENIA PLANTS (INTERMEDIA), in 12-size pots, and smaller ones in 32's, well set with bloom buds. They are perfectly clean. Apply at WARREN'S Gardens, Isleworth, W.

WANTED, to PURCHASE, a Quantity of COMMON YEWS, 4, 5, and 6 feet high. Any one having the above to dispose of will please communicate with Mr. W. BARRON, Elvaston Nurseries, Derby; stating size, price, and when last removed.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.

PAUL'S Nurseries, Waltham Cross, N.

The New Roses for 1864.

SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per dozen.

A DESCRIPTIVE LIST on application, enclosing Stamp. Edgend Marsden, near Burnley, Lancashire.

NOW READY, the NEW ROSES of 1864. 12 of the newest and most vigorous for 36s. DESCRIPTIVE LIST, free on application. RICHARD SMITH, Nurseryman, Worcester.

New Roses of 1864.

ROYAL HORTICULTURAL SOCIETY'S 1ST PRIZE, WEDNESDAY LAST.

PAUL AND SON have now ready Fine Plants of the above, fit to travel. DESCRIPTIVE PRICED LIST on application. "Old" Cheshunt Nurseries, N.

ROSES, NEW and OLD. CATALOGUES NOW READY. A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

Scarlet Geraniums and Double Rose Stocks.

FOR SALE, a large quantity of the above, fine Dwarf healthy Plants, also the Christinas. H. HAWKINS & BENNETT, Market Gardeners, Fruiterers, and Florists, Twickenham, S.W.

HOLLAND AND BAYLEY can still supply good strong plants of the undernamed, well assorted, viz:—

12 pairs fine Show CARNATIONS and PICOTEES.
6 pairs fine Show PINKS. 12 fine Show PANSIES.
3 pairs superb Yellow-ground PICOTEES. Hamper and packing included for 1l.

Bradshaw Gardens, Chadderton, Manchester.

New Seedling Verbenas.

J. JEFFRIES AND SON are now sending out Strong Plants of the above, 3s. 6d. per Plant, or the set for 10s. 6d., to the Trade only. For description, see *Gardeners' Chronicle*, April 23.

Woodbridge, Suffolk.

JIVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1864.

Strong Transplanted SEAKALE, 2s. per doz. RICHARD SMITH, Nurseryman, Worcester.

Cauliflower Plants, True London Market.

Strong, 3s. per 100, or 28s. per 1000.

JAMES FAIRHEAD AND SON offer the above; remittance requested from unknown Correspondents. 7, Borough Market, London, S.E.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

Dalmahoy Seed Potatos, True.

DOWNIE, LAIRD, AND LAING have a few Tons of the above for SALE, and will Dispose of them at a low figure. Price on application. 17, South Frederick Street, Edinburgh.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp. RICHARD SMITH, Seed Merchant, Worcester.

RICHARD SMITH'S RENOVATING GRASS SEED should now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover. RICHARD SMITH, Seed Merchant, Worcester.

SUTTON'S RENOVATING GRASS SEEDS SHOULD NOW BE SOWN. Quantity required to be sown per acre, 9 to 12 pounds. Price 9d. per lb, or 80s. per cwt. Carriage free. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GOOD CLEAN RYE GRASSES AT MODERATE PRICES. Samples and Prices may be had of SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

Sowing Rape Seed.

CHARLES SHARPE AND CO., Sleaford, have a fine clean sample of the above to offer to the Trade. Price on application.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

The Premier Strawberry.

WM. PAUL has still good Plants of this superb STRAWBERRY, price 12*s.* per 100, or 2*s.* 6*d.* per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keens' Seedling and Elton Pine, without the acid of the latter. Ripens three days later than Keens' Seedling, and remains in season a fortnight after that variety is over. The plant is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; the fruit carries well, and retains its flavour long after gathered.

"Large and handsome."—*Gardeners' Chronicle.*

"The flavour is very good."—*Journal of Horticulture.*

PAUL'S Nurseries, Waltham Cross, N.

Camden Nursery, Grafton Road, Kentish Town, London.

THOMAS ANSELL having established his Nursery as above (in consequence of the expiration of the Lease of his former one), begs to acquaint the Trade and the public generally, that his CATALOGUE for 1864 is now ready, and may be had on application; it will be found to contain a first-class Collection of DAHLIAS, GERANIUMS, CHRYSANTHEMUMS, FUCHSIAS, VERBENAS, Choice PETUNIAS, and Select AZALEA INDICA, &c.; also a very large Stock and assortment of General BEDDING PLANTS, for which he begs to solicit the favour of early orders, which shall receive his best attention, be carefully packed and forwarded to any part of the Kingdom.

DAHLIAS in sound pot roots, in great variety, expressly adapted for exportation, kept in stock throughout the autumnal, winter, and early spring months.

References required from unknown correspondents, and Post-office Orders to be made payable at the Post Office, Brecknock Place, Camden Town, N.W.

SCHIZOSTYLIS COCCINEA.—This beautiful plant was briefly described in our CATALOGUE of last year as a "NEW SCARLET TRITONIA." It proves to be the first representative of a new genus, and is now offered to the public for the first time. It forms spikes of flowers, varying in colour from deep rosy crimson to the vivid scarlet of the "Scarlet Duc Van Thol" Tulip. The flower stems, 2 to 3 feet high, are produced in the greatest profusion from the tufts of Tritonia-like leaves. More than 150 charming spikes of bloom adorned our greenhouses for two to three months during the past autumn and winter, and it is now coming abundantly into bloom again on the shoots formed last summer.

As it never ceases to form offshoots, and these appear to flower as soon as they attain maturity, there is every reason to believe that the plant will bloom thus throughout the greater part of the year, and may thus make an effective Bedding or Ribbon plant. Two plants have been planted in the open ground unprotected during the late severe frosts. They appear uninjured, so that it will be an invaluable addition for the out-door department, as well as for Cold Greenhouses, &c.

Plants will be sent out the first week in May at 5*s.* each.

JAS. BACKHOUSE & SON, York Nurseries.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, begs to announce that his eight NEW DAHLIAS, five NEW FUCHSIAS, and DELPHINIUM ALOPECUROIDES are now ready to send out. A DESCRIPTIVE LIST of all the above can be obtained free on application, and a plate of the Larkspur for 12 postage stamps.

The Description of Delphinium alopecuroides (Wheeler's).—This distinct and perfectly unique garden variety of Larkspur is in every respect first-rate. It withstood the severe frost of Christmas, 1860, quite unprotected in the open border, without sustaining the slightest injury; its habit is robust and healthy, growing freely in the open border, blooming in June and July; the spikes of bloom are generally 2 feet in length, and when well grown the tip of the spike rises from 3 to 4 feet from the ground, densely clothed with very full and compact double flowers; the ground is of a creamy white, therefore in reality a blue-edged flower, though from its fulness it presents the appearance of a bright blue self, paler and somewhat shaded towards the centre. It is figured in No. 17, for the May number for 1863, of the "Florist and Pomologist." As some admirers of the plant were very anxious it should be distributed this season, it was requested to be figured when the bloom was almost past, consequently only small loose spikes could be obtained for the Artist, which accounts for the short spike in the plate, though the character of the individual blooms is quite correct.

The following remarks are taken from the "Florist and Pomologist:—"We, therefore, have no hesitation in recommending both the subject of our plate and the class of plants to which it belongs, to the notice of all lovers of their gardens.

"This variety of Double Larkspur, which the raiser has called Alopecuroides, doubtless from the close brush-like form of the principal part of the spike, was shown at a Meeting of the Royal Horticultural Society's Floral Committee in July, 1861, and was then awarded a First-class Certificate. The Specimens exhibited on that occasion were over 2 feet in length, furnished below with palmatifidly-lobed leaves, having incised segments and a ciliated margin, and terminated in a flower spike or raceme, slightly branched below and densely covered with small double flowers of a bright blue, paler and reddish-tinted towards the centre. It was regarded as a most desirable and very ornamental hardy plant."

It is propagated by dividing the Roots, not having hitherto produced Seeds.

Price 7*s.* 6*d.* each.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A list of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

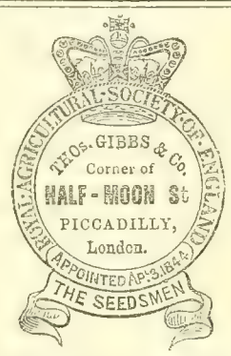
GRASS SEEDS,

AGRICULTURAL SEEDS,

KITCHEN-GARDEN SEEDS,

FLOWER SEEDS,

of all descriptions.



DETAIL CATALOGUES

AND

PRICED LISTS

forwarded free on application.

Thomas Gibbs & Co.

CORNER OF

HALF-MOON St.

PICCADILLY, LONDON, W.

NEW ALPINE PLANTS, &c.

JAMES BACKHOUSE & SON

CAN NOW SUPPLY

THE ALPINE GENTIAN (G. BAVARICA).—Intensely vivid blue, deeper than in G. verna; growth more free and dense; leaves all rounded. 5*s.* each; extra strong tufts, 7*s.* 6*d.* to 10*s.* 6*d.*

GENTIANA FORTUNI.—A rare and fine hardy perennial Gentian, from China. Vivid blue, in clusters. 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.*

G. LUTEA (YELLOW ALPINE GENTIAN).—Very strong flowering roots, 5*s.* to 7*s.* 6*d.* each; smaller, 1*s.* 6*d.* and 2*s.* 6*d.*

G. VERNA.—1*s.* 6*d.*; extra, 2*s.* 6*d.* to 5*s.*

MYOSOTIS ALPICOLA.—The most dense, dwarf, and brilliant of Forget-me-Nots. A true perennial, and exquisitely beautiful. Flowering plants, 1*s.* each; 9*s.* per dozen, or 50*s.* per 100.

MYOSOTIS MONTANA (the SPRING FORGET-ME-NOT).—Blooms with the Snowdrop and Aconite. Larger and brighter than M. sylvatica. 9*d.* each; 6*s.* per dozen.

HEPATICA ANGULOSA.—A new and extremely fine species. Flowers sky blue, twice as large as the largest "Single Blue." Leaves 5-lobed, hairy. 3*s.* 6*d.* each

ANEMONE STELLATA (HORTENSIS).—Brilliant purple variety; strong blooming, 1*s.* each; scarlet variety, equally strong, 1*s.* each.

ANEMONE SULPHUREA.—A rare and striking species, of robust habit, from the Alps, with large clear sulphur flowers. 2*s.* 6*d.* to 5*s.*

ADONIS VERNALIS.—Vivid yellow Anemone-like blossoms, 2 to 3 inches across, from dense tufts, 9 inches high, perennial, fine for masses in spring. Strong, 9*d.*; 6*s.* per dozen.

LINARIA ALPINA.—Lilac and fiery orange, from prostrate silvery tufts. 4*s.* per dozen; 25*s.* per 100; 15*s.* for 50.

CALANDRINIA UMBELLATA.—Dazzling magenta crimson, in tufts, 2 to 4 inches high, perennial. 4*s.* per dozen; 25*s.* per 100.

LYCHNIS (AGROSTEMMA) CORONARIA.—Large corymbs of purple crimson flowers, from silvery tufts, strong blooming masses. 4*s.* per dozen, 25*s.* per 100.

ANDROSACE CORONOPIFOLIA.—Snow-white, 4 to 6 ins. 1*s.* each, 6*s.* per dozen.

ANDROSACE CARNEA.—A rare and lovely Alpine. 5*s.* each.

GOLD NETTED DAISY.—Very rich and effective for many months, in dense masses, fine high coloured plants. 4*s.* per dozen, 25*s.* per 100.

VERONICA CANDIDA.—Extremely silvery foliage, spikes of deep blue purple, perennial. 1*s.* each, 9*s.* per dozen.

PYROLA ROTUNDIFOLIA.—Lily of the Valley-like spikes of white bells. 1*s.* 6*d.*; extra strong tufts, 2*s.* 6*d.* to 3*s.* 6*d.*

GOLD-NETTED JAPANESE HONEYSUCKLE.—30*s.* per 100, 6*s.* per dozen.

SCHIZOSTYLIS COCCINEA.—(See Advertisements.) Plants now ready, 5*s.* each.

GASTRONEMA SANGUINEUM.—Fine blooming plants. 7*s.* 6*d.* each.

LOBELIA FULGENS ST. CLAIR.—Large and brilliant scarlet, 42*s.* per 100, 6*s.* to 9*s.* per dozen.

THE GOLDEN BALM.—Very effective during the spring and summer months; not permanent in colour in autumn; a strong hardy perennial. 4*s.* per dozen, 15*s.* for 50, 25*s.* per 100.

AQUILEGIA ALPINA (the ALPINE COLUMBINE).—A rare and charming species, nearly as large as A. glandulosa, and of similar colour, but, like the common Columbine, will grow anywhere; perennial. 1*s.* 6*d.* each.

LINUM MONOGYNUM.—Large pure white, 1 foot high; PERENNIAL.

LYTHRUM ROSEUM SUPERBUM.—Very ornamental during summer; noble branching spikes of rosy crimson; a hardy perennial, splendid for beds or ribbons. 6*s.* per dozen, 35*s.* per 100.

SILVER-STRIPED AGAPANTHUS, 1*s.* 6*d.*

LILIUM COLCHICUM.—Large pale sulphur flowers in the style of L. longiflorum. 3*s.* 6*d.* and upwards.

ERINUS ALPINUS.—Tufts of pink; will grow anywhere in dry sunny places; strong. 6*s.* per dozen.

E. ALPINUS v. ROSEUS.—Flowers paler and larger. 6*s.* per dozen.

ACÆNA NOVÆ-ZELANDIÆ, 1*s.*
ANDROSACE CHAMÆJASME, 1*s.* 6*d.* to 3*s.* 6*d.*
" GLACIALIS, new and rare, 3*s.* 6*d.* to 5*s.*
" LANUGINOSA, 9*d.* to 2*s.* 6*d.*
ANEMONE PALMATA, 2*s.* 6*d.*
ASTER TANACETIFOLIUS, 9 ins., 1*s.*
CENTAUREA MONTANA, 1*s.* 6*d.*
CERASTIUM TOMENTOSUM, 21*s.* p.100
CRIMEAN SNOWDROP, 1*s.*
GENTIANA CATESBÆI, 1*s.* 6*d.*
" CRUCIATA, 1*s.*
GNAPHALIUM LEONTOPODIUM, 2*s.* 6*d.*
LINNÆA BOREALIS, 9*d.*
PAPAVER ALPINUM, 1*s.* to 2*s.* 6*d.*
PRIMULA MINIMA, 2*s.* 6*d.* to 3*s.* 6*d.*
PYROLA SECUNDA, 2*s.* 6*d.*
" MINOR, 1*s.* 6*d.*
RANUNCULUS GLACIALIS, true, rare, and fine, 5*s.*
" PARNASSIFOLIUS, 2*s.* 6*d.*
" PYRENÆUS, 2*s.* 6*d.*
" ALPESTRIS, 1*s.* 5*d.*
" AMPLEXICAULIS, 2*s.* 6*d.*,
Above 5 all white-flowered Alpine species.
RHODODENDRON CHAMÆCISTUS 2*s.* 6*d.* to 5*s.*
SAPONARIA OCYMOIDES, 21*s.* per 100
GOODYERA PUBESCENS.—Anæctochilus-like netted leaves, hardy, 2*s.* 6*d.*
DOUBLE LILY of the VALLEY, fine, 1*s.* 6*d.*
Large-flowered hardy PINK CONVOLVULUS, 9*d.*
DELPHINIUM BELLA DONNA, sky-blue, 1*s.* 6*d.* and 2*s.* 6*d.*
GNAPHALIUM LANATUM, 35*s.* per 100
ASTER ALPINUS, 1*s.*

YORK NURSERIES.—April 30.

SUTTON'S

SELECTED MANGEL WURZEL SEED,

8d. per pound, or cheaper by the cwt.

SUTTON'S LARGE YELLOW GLOBE; saved from large roots, selected for their solidity and excellence of shape. A very heavy cropper, and thrives in all soils. This is also the hardiest Mangel known. (*The first Prize Medal was awarded to us for this sort at the Great International Exhibition of Roots and Cereals in October*, 1862) 8d. per lb.

	Per lb.—s.	d.
SUTTON'S ORANGE GLOBE; beautiful shape, with smaller greens than other sorts	0	8
RED GLOBE; similar to the above, except in colour	0	8
LONG RED; a good old sort	0	8
LONG YELLOW, of fine texture	0	8

Presuming that this superior Yellow Globe Mangel will generally be preferred for the main crop, we invariably send this sort, unless the Common Yellow (see above), or one of the kinds described below, is mentioned.

LOWEST PRICE PER CWT. ON APPLICATION.

Sutton's Mangel Wurzel Seed is Saved Exclusively from Fully Developed Roots,

The advantages of which have been proved for several years past.

(SEE THE FOLLOWING LETTERS.)

These are not mere Testimonials in the ordinary acceptation of that term, but show distinctly that the Seeds which Messrs. SUTTON have had grown from large selected Bulbs are altogether superior in germinating properties, and in the quality and trueness of their produce, to the Seed raised in the usual manner.

P. H. Freke, Esq., *Cambridge, Editor of the Royal Agricultural Society's Journal.*

"I write to say how well satisfied I am with the Mangel seed that you furnished me with. It was tried on one-half of two fields, the one strong, the other light land, the other portions being sown with seed bought of a respectable local dealer. On the strong land your seed gave me a decidedly better plant—on the light land three or four times as many plants as the other dealer's seed."

Mr. John Tyacke, *Merthen.*

"My Mangels this season are the best quality I have grown, and those who have seen them, and not previously had your seed, intend to give you an order next year."

From Mr. Gray, *Bailiff to* G. Rawlins, Esq., *Bullington House.*

"I believe we had one of the finest lots of Mangels and Swedes in the country. We had not quite enough of your seed of Mangel, and *sent elsewhere for some to finish the field, and though sown the same day and with exactly similar treatment, we had not so much weight by one third as on the part sown with your seed.*"

From George Beaumont, Esq., *Bridgford Hill, near Nottingham.*

"We have had 4 acres of Mangel (Yellow Globe), three of which were sown with your seed, and one acre with seed grown in this neighbourhood. I am quite sure your seed produced from 8 to 10 tons per acre more than the other. I had nearly an acre weighed (from your seed), and found we had 55¼ tons per acre."

Many PRIZES at Birmingham and other Shows throughout the Kingdom have been taken by Messrs. SUTTON'S Customers, both for MANGEL and for SWEDES.

PRICED LISTS of other kinds of MANGEL, SWEDES, TURNIPS, GRASSES, &c., will be sent gratis and post free.

☞ *Carriage Free to all parts, except small parcels.*

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

FARM SEEDS.—CARRIAGE FREE.

GRASSES and CLOVERS, mixed for Permanent Pasture, and adapted to any description of soil.

ALSIKE, RED WELSH, and other CLOVERS. Pure samples.

PACEY'S PERENNIAL, IMPORTED ITALIAN and other RYE-GRASSES. Extra cleaned.

TURNIPS, DICKSON'S PRIZE SWEDE, and others saved from picked transplanted bulbs.

MANGEL WURZEL, Select YELLOW GLOBE, OVAL, &c.

☞ *All of the very best description, and Carriage Free.*

A DESCRIPTIVE PRICED CATALOGUE upon application to

JAMES DICKSON AND SONS, 102, EASTGATE STREET, CHESTER.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent Carriage paid.

Surplus Stock of Gladioli.

2s. 6d., 3s. 6d., 4s. 6d., 6s., 9s., 12s., and 18s. per dozen.
15s., 21s., 30s., 50s., 60s., 70s., 80s., and 100s. per 100.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING, SENT POST PAID.

HARDY ANNUALS.—2s. 6d., 3s. 6d., 5s. 6d., 10s. 6d., 21s., &c. Including those introduced in 1862, 1863, and 1864, 5s. 6d., 7s. 6d., 10s. 6d., 15s., 30s., &c.
HALF HARDY ANNUALS.—2s. 6d., 3s. 6d., 5s. 6d., 10s. 6d., 15s., 21s., 30s., &c.
HARDY PERENNIALS.—2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 20s., 30s., &c.

Barr & Sugden's Collections of Vegetable Seeds for One Year's Supply.

10s. 6d., 15s. 6d., 21s., 30s., 42s., and 63s.

MIXED FLOWER SEEDS for WOODLAND WALK, WILDERNESS DECORATION, ROCKERIES, ROOTERIES, &c., 5s. 6d. per lb.; or 9d. per oz.
LILIUM LANCIFOLIUM (JAPAN LILIES), three varieties, 12s. to 18s. per dozen.
TIGRIDIA PAVONIA, 1s. 6d. per dozen, 7s. 6d. per 100.

PLANTS and PLANT CASES for TABLE DECORATION.

BARR & SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

To the Seed Trade.

MESSRS. VEITCH AND SON, of Exeter, have yet to offer a limited quantity of Seed of the charming little Annual FENZLIA DIANTHIFLORA (which is not sufficiently known to be properly appreciated).

FENZLIA DIANTHIFLORA.—This lovely Annual is of a beautiful rosy lilac colour, having five dark blood-coloured spots surrounding an orange-coloured eye in the centre of each flower; it is of very dwarf and compact habit, producing blossoms in profusion: it blooms through the summer months, and continues long in flower if sufficiently supplied with moisture.

It has a beautiful effect in small beds, and is also well adapted for growing in pots or boxes for Greenhouse decoration, and if sown any time in May will soon bloom, and continue until frost sets in.

It is figured in Curtis's "Botanical Magazine," October, 1855. Price on application.

Seed Warehouse, 54, High Street, Exeter.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Spring Catalogue.

WOOD AND INGRAM'S New PRICED and DESCRIPTIVE CATALOGUE of Dahlias, Pelargoniums, Zonale and Variegated Geraniums, Fuchsias, Cinerarias, Verbenas, Chrysanthemums, Petunias, Hardy and Tender Ferns, Stove, Greenhouse and Bedding Plants, &c., is now ready, and will be sent free on application.

Huntingdon Nurseries.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, finely formed, and altogether of first rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS of WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2s. 6d.

Opinions of the Press.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. Paul exhibited cut specimens of a Seedling H. P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

Paul's Nurseries, Waltham Cross, N.

GEO. SMITH begs respectfully to offer to the Trade and public generally his well-known SEEDLINGS, believing that they will take a high stand amongst the Floral Novelties of the present season, viz.:—

Fuchsia.

GRAND DUKE.—Tube and sepals bright crimson, well reflexed, corolla violet purple; very double, and of large size, smooth, and a most abundant bloomer; constant, and of fine compact habit. Extra. 10s. 6d.

Zonale Geraniums.

LORD OF THE ISLES.—A beautiful cerise flower; very stout, large, and of exquisite shade; new in colour, and the finest Zonale ever offered. Awarded a First-Class Certificate by the Floral Committee of the Horticultural Society, for its general fine qualities. 5s. each.

ORANGE GLOBE.—Brilliant orange scarlet; truss large, of fine shape and habit; a bold and conspicuous flower. 5s.

Petunia.

PRINCESS ALEXANDRA.—Dark puce, with pure white stripes; flowers good size and form; habit most dense; foliage small and bright. This will be found the most beautiful of all the Single Petunias yet offered, and will form a constant and fine acquisition to its class. Received First-class Certificates at Wellington, Bath, and Highgate Horticultural Societies. 5s.

Seedling Verbenas.

BLACK DIAMOND.—This is a most remarkable rich dark maroon, of fine shape and size, and will prove one of the best and most distinct Verbenas in cultivation.

FANTASTIC.—Pure white, with conspicuous rosy-purple centre; fine shape and truss; a first-class light variety.

GRAND DUCHESS.—White, with bright cherry centre; large truss, and fine for exhibition and other purposes.

LORD CLIFDEN.—Dark crimson scarlet; the pips much larger than a shilling; larger and finer than Lord Leigh or Foxhunter.

EMBLEM.—Rosy pink eye, white pip, and truss very large; fine shape; a first-class flower.

CHIEFTAIN.—Crimson scarlet; very vivid, and a remarkably free bloomer; fine for all purposes.

SCINTILLA.—Ruby rose; conspicuous white eye; fine show flower.

PLENIPO.—Rosy scarlet, with crimson-scarlet centre; free, and fine shape.

5s. each, or the set of eight for 30s.

G. S. will be prepared to send out after the 20th April, in good plants, the above mentioned, and begs to solicit early orders for the same.

*** Coloured Illustrations of Geranium Lord of the Isles, or Petunia Princess Alexandra, free by post, in exchange for six Postage Stamps each.

Tollington Nursery, Hornsey Road, Islington, N.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz. ; 20*s.* per 100.

Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.

J. SCOTT'S FLOWER GARDEN DIRECTORY, 88 pages, is replete with information on Summer, Autumn, Winter, and Spring Gardening. Copious LISTS of all the best Flowers suitable for each season are given, price 6*d.*

Merriott, Crewkerne, Somerset.

Seeds, Carriage Free.

WILLIAM CUTBUSH AND SON'S PRICED CATALOGUE of GARDEN and FARM SEEDS is ready, Post-free, on application.

The name their house has obtained during many years past, is a sufficient guarantee for the quality of the goods offered.

Highgate Nurseries, London, N.

A Boon to the World.

PRINCE of WALES KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials :—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C. ; DOWNIE, LAIRD & CO., Forest Hill, S.E. ; JAMES CARTER & CO., 237, High Holborn, W.C. ; SUTTON & SONS, Reading. Price, 12*s.* per bushel.

N.B. They may be planted up to the end of May.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

The GENERAL FARM SEED DIRECTORY, with full Instructions for the Management of a Farm for every Month in the Year, will be forwarded Gratis and Post Free to any address in the kingdom.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

Purchasers of Large Quantities of AGRICULTURAL SEEDS will be dealt liberally with.

All Seeds Carriage Free.

Agricultural Seeds, Carriage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

See GENERAL FARM SEED DIRECTORY, now ready.

MIXTURES of GRASSES to suit any soil, 20*s.* to 30*s.* per acre (with Clovers).
RED, WHITE, and COW CLOVERS, 6*d.* to 10*d.* per lb.
ALSIKE CLOVER, fine sample, 80*s.* per cwt.
SWEDISH TURNIPS, 8*d.* to 1*s.* per lb.
COMMON DO. 8*d.* to 9*d.* per lb.
MANGEL WURZEL, in varieties, 6*d.* per lb.
WHITE BELGIAN CARROT, 1*s.* per lb.
YELLOW BELGIAN CARROT, 1*s.* per lb.
Large DRUMHEAD CABBAGE, 2*s.* per lb.
CATTLE PARSNIP, 1*s.* per lb.

All other Agricultural Seeds, at moderate prices.

Address, LONDON SEED COMPANY (Limited), 68, Welbeck Street, Cavendish Square, London, W.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts 6*d.* per lb.

WORCESTERSHIRE SWEDE, not to be beaten, 9*d.* per lb. ; other kinds, 8*d.* per lb.

PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

Mangel Wurzel and Turnip Seed.

KING'S CHAMPION ORANGE GLOBE WURZEL, superior to any other.

Fine YELLOW GLOBE. | Fine RED GLOBE.
Do. ELVETHAM LONG RED.
Do. LONG YELLOW, from roots, many of them 3 feet long ; a heavy cropper.
SKIRVING'S and PURPLE-TOP SWEDE TURNIP SEED.

All the above are saved from none but the best Stocks.

PRICED LISTS with testimonials sent post free.

JOHN K. KING, Seed Grower, Coggeshall, Essex.
Established 1793.

Cheap Grass Seeds for Hill Sides and Railway Banks.

ROUGH GRASSES, SAINFOIN, SIFTINGS, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke ; and 89, Seed Market, Mark Lane, E.C.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil.

	Per Acre.
MIXTURE for Laying down to PERMANENT PASTURE	25*s.* to 30*s.*
MIXTURE for ORCHARDS or LAND shaded by Trees	24*s.* to 26*s.*
MIXTURE for PARKS and CEMETERIES	28*s.* to 30*s.*
MIXTURE for Improving OLD PASTURE	6*s.* to 8*s.*
MIXTURE for One, Two, or Three Years' Lay	15*s.* to 18*s.*
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1*s.*

PRICED LISTS may be had on application.
RICHARD SMITH, Seed Merchant, Worcester.

Farm Seeds.

RICHARD SMITH is now prepared to supply the following SEEDS, all of which have been selected with the greatest care, and are of very superior quality :—

CLOVER, BROAD ENGLISH RED, 58*s.*—62*s.* per cwt.
" PERENNIAL or COW GRASS, 68*s.*—75*s.* per cwt.
" WHITE or DUTCH, 62*s.*—70*s.* per cwt.
" YELLOW or TREFOIL, 30*s.*—34*s.* per cwt.
" ALSIKE or HYBRID, 76*s.*—84*s.* per cwt.
RYE-GRASS, Finest PERENNIAL, 6*s.*—6*s.* 6*d.* per bushel.
" ITALIAN EXTRA, 5*s.* 6*d.*—6*s.* per bushel.
SWEDE, SMITH'S WORCESTERSHIRE, 9*d.* per lb.
" KING OF THE SWEDE, 8*d.* per lb.
MANGEL WURZEL, ORANGE GLOBE, 6*d.* per lb.
" " RED and YELLOW, 6*d.* per lb.
" " LONG RED and YELLOW, 6*d.* per lb.

RICHARD SMITH, Seed Merchant, Worcester.

Clovers and Rye-grass Seeds.



SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-grass, at 12*s.* 6*d.* per acre ; or Clovers without Rye-grass at 10*s.* 6*d.* to 12*s.* 6*d.* per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 to 16 lb. per acre).

The great produce of the above-named Mixture is shown by the following :—

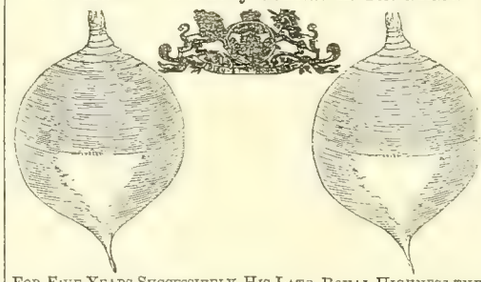
From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-grass," or "Clovers and Common Rye-grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.

Royal Berkshire Seed Establishment, Reading.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the ROYAL EAST BERKS and SOUTH BUCKS AGRICULTURAL SOCIETIES, and many other valuable Prizes in various PARTS of the Kingdom.

EXTRACTS from LETTERS received :—

R. MILWARD, Esq., *Southwell.*

"Your Champion Swede proved most excellent."

J. W. J. BARTRAM, Esq, *Little Weedon.*

"Your Champion Swede has given great satisfaction, having been a splendid crop, and kept well through the severe frosts."

Mr. THOMAS EDWARD WRIGHTON, *Bradninch.*

"My crop of Champion Swedes was the best in the neighbourhood, and kept well ; also the Mangel."

Mr. JOHN ALLEN, *Farningham.*

"I was awarded the Prize for your Champion Swede at the Dartford Agricultural Meeting. The competition was good, being contested by some of our largest growers and best farmers, and I have no doubt there will be a good demand for your seed in this district next spring."

Mr. F. S. GUNTON, *North Mimms.*

"I have sown Sutton's Champion Swede for the last three years from the seed I had of you, and I believe them to be the best sort of Swedes grown. I grew about 400 tons of them last year, and had many much heavier and finer than any I saw on your stand at the Smithfield Show. I was only sorry I did not send you some of them."

J. STRATTON, Esq., *Broad Hinton.*

"With your Champion Swedes I won a prize of 10*l.* last year."

Mr. THOS. B. PALMER, *Escrick.*

"Your Champion Swedes are as sound and as good in colour as the day I got them up ; I have sufficient to last till the 12th of May."

Mr. G. PARLETT, *Bury, Petworth.*

"The Champion Swede Seed I had of you last year turned out first-rate—the best piece of Swedes I ever grew, which has induced my neighbours to buy some this year."

Mr. H. HAMMOND, *Market Place, Masham.*

"Your Champion Swede obtained the first prize at the Masham Show, the 10th of September last."

Mr. JOHN COLEMAN, *East Kennett.*

"Please send the same quantity of your Champion Swede Seed, as I never intend to grow any other sort while I can get yours."

Mr. J. B. REECE, *Harpswood.*

"I took the Shropshire Challenge Cup, likewise the Bridgnorth District Cup, with your Champion Swedes."

WM. SADLER, Esq., *Ferrygate, Drem.*

"The Champion Swede is cutting out everything here."

This celebrated variety still maintains its high character for hardiness, symmetry of form, and great weight per acre.

New Seed from Selected Roots now ready, 10*d.* per pound or cheaper by the bushel, prices of which may be had on application, Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment Reading.

New Swede Turnip Seeds.—April 1864.

HOW ARE YOUR SWEDES KEEPING? IS A QUESTION FREQUENTLY ASKED BY FARMERS.

WM. JACKSON AND CO., NURSERYMEN and SEED GROWERS, Bedale, Yorkshire, have the largest growing kinds of SWEDES, and the best keepers.

PRICED DESCRIPTIVE CATALOGUES of Seeds will be forwarded free by post on application.

NEW HARDY WHITE SWEDE, the favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills.—Grows rather coarse on some soils or when sown early ; but it is very productive, hardy, and is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor lands. Seed 9*d.* per lb. or 35*s.* per bushel, supplied by

RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke ; and 89, Seed Market, Mark Lane, E.C.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.

JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.

N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season ; one report states of them : "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

Blundell's Cattle Melon and Cattle Marrow.

SOLE AGENT,

B. PAGE, SEED MERCHANT, Southampton.

Dr. Voelcker's analysis forwarded free by post.

PAGE'S BLIGHT COMPOSITION, introduced by him in 1848. See Leading Article in *Gardeners' Chronicle and Agricultural Gazette*, October 25, 1856, showing upwards of 192 testimonials of its value. None genuine except that sent from this Establishment.

37 and 38, Oxford Street, and West End, Southampton.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S FARMER'S VADE-MECUM.

REIGATE SILVER SANDS, PEAT SOILS, LOAMS, &c., on Sale.

W. SHORT, Sand and Peat Dépôt, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863 ; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & CO.

BARSHAM'S BRUSHES and MATS are sold in every town.

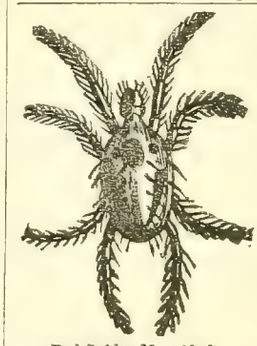
CAUTION.—Every Brush is stamped J. BARSHAM'S Patent

TOBACCO PAPER, extra strong. To the Trade or Retail. Sample and price on application.

H. BROWN, 4, Commutation Row, Liverpool.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1*s.* 4*d.* per lb. ; over 10 lb., 1*s.* 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants ; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).





GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S. ; Queen's Road West, Chelsea, S.W. ; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality) of F. & G. ROSHER, at the Addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 8*d.* per yard run.
Four yards wide .. .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide, 1*s.* 9*d.* per yard.
An improved make, 3 yards wide, 2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

GREEN'S PATENT SILENS MESSOR,

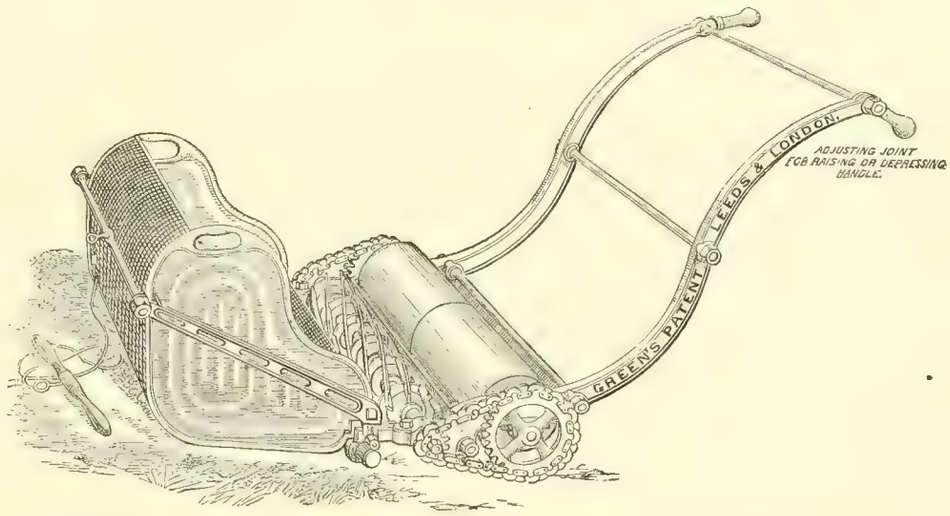
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

PRICES OF HAND MACHINES.

To Cut	10	inches	...	...	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	...	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

To Cut 42 inches ... ... £27 0 0 ... ... Leather Boots for Horse, 26*s*.
„ 48 „ ... ... 30 0 0 ... ... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

REPLY TO MESSRS. SHANKS' ADVERTISEMENT OF LAST WEEK.

In reply to what has been said by Messrs. Shanks in their Advertisement of last week, we beg to state—Our Machines have carried off every prize that has been given in all cases of competition, and that fair play and an impartial decision have been given by the Judges on all occasions, and this, coupled with our present improvements, is the reason why the principal places in England adopt our Machines in preference to any others; they being lighter and more durable, and warranted to last for years without getting out of repair; they do not require two-thirds the amount of power to work them of any other machines extant, and are unequalled for keeping Lawns in the highest state of perfection.

Now we do not wish to say anything that would have a tendency to raise the ire of Messrs. Shanks, or to produce a paper war, but if they doubt the above, we are willing once more to come to a trial, when the merits of both Machines can be fairly tested. We are surprised after so many objectionable things had been stated in Messrs. Shanks' Advertisements that any annoyance should be felt at what we state, viz., with regard to the words Special Appointment. In reply, we say, by virtue of the progress we have made, and the acknowledgments from the principal places we have received to others' exclusion, we were induced to use the words Specially Appointed, and the first remark inserted by Messrs. Shanks speaks but little for them, when the Public are told through their medium that Messrs. Green & Son have lately supplied Her Majesty's Gardens with several of their Machines. With regard to the Hamburg Medal, had we have known it was for Steam Engines we should have long since advertised it as such, which would have done us a much greater service than has our clerical error, for the information of which we beg Messrs. Shanks will accept our thanks.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151 for 1863.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Splendid New Double Fuchsia, Lord of the Manor.

GEORGE FRY is now sending out this noble variety, a full description of which, with an Engraving, may be had on application.

A LIST of some of the leading Men in the Trade who have ordered, and can Supply the above, will appear anon.

Manor Nursery, Manor Lane, Lee, Kent.

Unbloomed Seedling Calceolarias.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is prepared to supply nice young plants of the above in parcels of 20 at 6s. per parcel, or 3 parcels for 15s., post free. They are raised from seed saved from his unrivalled collection.

Mr. M. has a few Packets of his choice CALCEOLARIA SEED still on hand, at 2s. 6d. per Packet.

Postage Stamps in payment.

Green Hollies.

BRERETON NURSERY, RUGELEY, STAFFORDSHIRE.

CORNELIUS WHITEHOUSE has pleasure in offering, from one of the largest Stocks in the Trade, 200,000 Transplanted HOLLIES, from 4 inches to 4 and 5 feet, which are well known to be extra good, rooted from this soil, are very healthy, stout, well furnished, and clean grown; a very large portion moved last May. Can supply the Trade from 4 inches to 2 feet. Cash or reference is respectfully requested from unknown correspondents.

BEDDING and BORDER PLANTS.—CALCEOLARIAS, CARNATIONS, CHRYSANTHEMUMS, CLEMATIS, DAHLIAS, FUCHSIAS, GERANIUMS, PETUNIAS, ROSES, and VERBENAS.

The choicest kinds of each at the lowest prices, at Mr. TOWNSEND'S, St. Mary's Nursery, adjoining the Compasses, Hornsey, a few minutes' walk from the Hornsey Railway Station. Dealers supplied on liberal terms.

Hollyhocks and Dahlias.

JOHN HARRISON having on hand a large stock of several thousands of fine plants of the above, all properly hardened off, and now fully exposed to the air, begs to offer them to his friends in the Trade by the hundred or thousand on the most liberal terms. Amateurs dealt with liberally. Catalogues free on application.

Nursery, Darlington.

New Hollyhocks.

WM. PAUL respectfully announces that he is now sending out Two first-rate NEW HOLLYHOCKS, selected from many thousands of Seedlings, namely:—

BEAUTY of WALTHAM.—Flowers pale silvery peach, large in size, perfect in form, and closely set on a large handsome spike: one of the finest ever raised.

RED GAUNTLET.—Very fine blood crimson, unsurpassed in colour and form, spike magnificent.

Strong healthy autumn-rooted plants, calculated to flower well this summer, 10s. 6d. each.

PAUL'S Nurseries, Waltham Cross, N.

MR. JEAN VERSCHAFFELT, Ghent, begs to announce that his NEW SUPPLEMENTAL CATALOGUE is now ready, and contains a great many novelties for the season. The Catalogue may be had free on application to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent (Belgium).

Agents in London: Messrs R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Continental Novelties, &c.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to advertise his PRICE LISTS, No. 99, 100 and 102, containing the STOVE, GREENHOUSE, HARDY PLANTS, and SEEDS.

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1s.

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

Per packet—	s.	d.
CALCEOLARIA, HERBACEOUS, finest mixed	2	6
CARNATION, PERPETUAL, finest mixed	2	6
CINERARIA CRUENTA, finest mixed	2	6
PICOTEE, PERPETUAL, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2	6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Sutton's Lawn Grass Seeds,

AT THE CRYSTAL PALACE, AND AT THE PEOPLE'S PARK, HALIFAX.

SUTTON AND SONS have had the honour of supplying the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham, and at the People's Park, Halifax.

The following letter has been received, besides many others:—

From Professor LINDLEY, *Horticultural Society, London.*

"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1s. per lb.; 2s. 3d. per gallon; or 18s. per bushel. Quantity required for forming new Garden Lawns, 3 bushels, or 60 lbs.

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The following letter has been received, besides many others:

From Professor LINDLEY, *Royal Horticultural Society, London.*

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PRESENT PRICES ARE—	Per Acre.	s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE		30	0
Cheaper MIXTURES, omitting certain sorts	20s. to	26	0
Best quality ditto, for Three or Four Years' Lay		21	0
Ditto ditto, for One or Two Years' Lay	12s. 6d. to	17	6
CLOVERS and fine GRASSES for Renovating Old Pastures	6s. to	9	0
Finest LAWN GRASS SEEDS	per bushel	18	0
PARK LAWN GRASS SEEDS	,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October 1862.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

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PRIMULA SEED.—By the Ounce or Pound.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

Seeds worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. Superbly Fringed. In sealed packets. 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

New Plants for 1864.

B. S. WILLIAMS has much pleasure in offering the following Novelties for the first time, descriptions of which will be found in previous advertisements, and in his NEW PLANT CATALOGUE, post free to all applicants.

NEW ACHIMENES.
Purpurea elegans, Leopard, Magnet, Scarlet Perfection, Vivicans, Eclipse — 7s. 6d. each, or the 6 for 42s.

NEW SINGLE PETUNIAS.
Royalty, Purple Prince, Duchess of Northumberland — 5s. each

NEW FUCHSIAS.
Neptune, Queen of Beauties, Gem of the North, Minotaur — 7s. 6d. each

NEW ZONALE GERANIUMS.
Display, Beauty, Royalty — 5s. each

Paradise and Victoria Nurseries, Holloway, London, N.

Coleus marmoratus, the prettiest Novelty of the day.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer strong Plants of this very desirable new COLEUS MARMORATUS; it is of dwarf habit and rich colour, with large velvet green leaves, edged with clear amaranth, very distinct and superior to C. Verschaffeltii.

1 Strong Plant for 7s. 6d. | 12 Strong Plants for 70s.
6 Strong Plants for 42s. | 25 Strong Plants for 120s.

Early orders will be punctually attended to.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Tower Street, London, E.C.

Flower Seeds, Postage Free.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

COLLECTIONS of FLOWER SEEDS, 100 Packets, 20s.
,, ,, ,, 50 ,, 12s.
,, ,, ,, 25 ,, 6s.
,, ,, ,, 12 ,, 3s.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

E. G. HENDERSON AND SON'S NOVELTIES for 1864, now ready.

VELVET CUSHION VERBENA, hybridised with Verbena venosa, large truss, effective variety, with hardy constitution—fine bedder.

GARIBALDI PINK.—A richer coloured and dwarfer plant than Anne Bulleyn.

SCARLET GEM DAHLIA.—Best bedding Dahlia in its colour.

TOM THUMB DAHLIA—Rich crimson, 12 inches in height.

WHITE TOM THUMB GERANIUM.—Best of its class for pots or bedding.

UNITED ITALY VARIEGATED GERANIUM.—Foliage red, white, and green.

MRS. BENYON VARIEGATED GERANIUM.—Like Mrs. Pollock, best in its style.

PRINCESS OF WALES PETUNIA.—Most beautiful of any.

CHRYSANTHEMUM EMPRESS of INDIA, pure white, large, and beautiful.

Wellington Nursery, St. John's Wood, London, N.W.

F. AND A. SMITH, The Nurseries, Dulwich, Surrey, S., beg to intimate that they are now prepared to supply the following Novelties:—

FUCHSIA PILLAR of GOLD.—The best variegated variety out. Strong plants, 7s.; 2d Size, 5s.; Small Plants, 3s. 6d. each.

NEW BEDDING LOBELIAS.—Raised by Mr. Gordon at the Crystal Palace, and superior to any heretofore offered. 2s. each, or 10s. 6d. the set of 12 varieties.

NEW ROSES of 1864.—All the best and most beautiful varieties.

BEDDING PLANTS, in great variety, including many novelties of merit, at moderate prices.

CATALOGUES of the above are now ready, and will be forwarded Post-free on application.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf
CALCEOLARIA BEAUTY of HERTS, clear amber
CALCEOLARIA GENERAL TOM THUMB, deep yellow
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p 334. Price 30s. per dozen; the usual allowance to the Trade where six or more are taken.

Cheap Bedding Geraniums.

ALFRED FRYER offers 48 varieties of first-class BEDDING GERANIUMS for 21s., basket and packing included. Amongst other popular kinds the collection will contain the following:—

Mrs. Pollock	Snowflake	Blackheath Beauty
Cloth of Gold	Eva	Madame Vaucher
Golden Fleece	Jane	Magenta
Reine d'Or	Julia	Pink Pearl
Sulphureum marginatum	Flower of Spring	Woodwardiana
	Bijou	Hendersoni Nana
Scintillatum	Aurora	Paul Labbé

Remittances requested from unknown correspondents.

Post-office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Wyatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, April 23.

New Dahlias.

HENRY LEGGE intends sending out early in May the following NEW DAHLIAS, the leading flowers of the year. Received 30 Certificates at all the leading Shows and Meetings last season.

ENCHANTRESS, pale yellow, tipped crimson.
WHITE PERFECTION, pure white.
NONSUCH, shaded orange.
THE BRIDE, white, shaded crimson.
BLACK DOCTOR, darkest maroon.
ROUNDHEAD, dark crimson.
CRIMSON PERFECTION, ruby crimson.
FAME, scarlet crimson.
FORMIDABLE, red, tipped white.
NIGGER, blush, striped and spotted crimson.
FANCY BOY, buff, striped crimson.

A List with full descriptions can be had on application.

Lower Edmonton, N.

New Plants.



MR. WILLIAM BULL begs to announce that he is now sending out his
Collection of NEW VERBENAS for 1864
" FUCHSIAS for 1864
" SINGLE PETUNIAS for 1864
" DOUBLE PETUNIAS for 1864
" PENTSTEMONS for 1864
" BEDDING GERANIUMS for 1864
" ENGLISH SPOTTED PELARGONIUMS for 1864
" FRENCH SPOTTED PELARGONIUMS for 1864
" FANCY SPOTTED PELARGONIUMS for 1864
" DROOPING GLOXINIAS for 1864
" ERECT GLOXINIAS for 1864
For full particulars and prices, see, SPRING LIST of NOVELTIES, which can be had on application.
Mr. W. B. also begs to announce that his NEW PLANTS from Brazil, Central America, Australia, Bombay, Java, New Caledonia and Guatemala, are now ready for delivery, an inspection of which is invited.
New Bedding Plant, COLEUS MARMORATUS, 10*s.* 6*d.* each.
New Ornamental Plant, GYNERIUM ARGENTEUM fol. VARIEGATUM, 31*s.* 6*d.* each.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.

SATURDAY, APRIL 30, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 4 { Royal Horticultural (Election of Fellows at South Kensington .. 1 P.M. Lecture on Cool Orchids, by Mr. Bateman .. .. .. 3 P.M.
THURSDAY. — 5—Linnean .. .. 8 P.M.

The EXPOSITION UNIVERSELLE D'HORTICULTURE now open at Brussels, which was inaugurated by his Majesty the KING of the BELGIANS on Sunday last, may be chronicled as a decided success. As an exhibition it is altogether unlike our own in respect to the arrangements, and in great measure also in respect to the peculiar character of the plants exhibited. There are none, or almost none, of the immense specimens of which we have so many, and there are none, at least in the principal departments of the exhibition, of those endless lines of tall stages which elevate our monster specimens so much, that it almost breaks one's neck to look up at them. On the other hand there are magnificent "foliage" plants—Palms especially—such as we never see exhibited in England, and various noble forms of the Screw Pine and Yucca race enter largely into the composition of the show; there are flowers on moderate-sized bushes which, when distributed as they are in this case, are quite sufficient to lighten up the scene without dazzling the eyes of the lookers-on; and both variety and taste are displayed in the distribution of the materials brought together. There is also one other thing we were highly gratified to see, and that is that horticulturists take in Brussels their proper place in conducting their KING to view the horticultural exhibition, which is held under his Majesty's auspices.

The particular features of the show will be gleaned from the very ample report which appears elsewhere (p. 412). Generally, it may be stated that such subjects as Palms and Cycads were plentiful and grand, and contributed very largely to the general effect. Ferns were plentiful, and as a considerable number of them were of arborescent habit, their charming fronds, here and there thrown overhead by the elevation of the plants to a convenient height, entirely effaced that appearance of baldness and stiffness which our own dense and interminable pyramids of bright colour, almost if not quite without relief, and set up in long straight lines, invariably produce. Standard Azaleas of small size, with stems of from 1 to 2 feet in height, were plentiful, and contributed largely to the colouring elements of the show; they were almost always placed so as to spread out a varied field of colour beneath the eye, and were backed up and flanked by such green as that of the Ferns, and foliage plants like Theophrastas, Rhopalas, Aralias, &c. Yuccas, and plants of Yucca-like habit, the Littæas and Beaucarneas and Dasylirions of botanists, were quite a feature of the display. The same remark applies to Agaves, of which many species, common and oft-repeated objects in the show, are scarcely known to the generality of plant-growers in our own country. Camellias were not so good as we expected to see them. Large plants of them were few, and not particularly well furnished; the smaller ones appeared to have been spoiled by travelling, and altogether this element of the show failed to be very effective. Good use was made of the race of hardy hybrid Rhododendrons, of which there was a fine display, the plants being mostly dwarf, and set on the floor. Hardy variegated plants, both of the shrubby and herbaceous order, were plentiful, and, introduced here and there in suitable contrast, they had a very good effect, Another set of plants, of which we ourselves use but few, namely, the Hippeastrums, furnished several very telling groups, the pots being set on the floor and the blossoms brought nearly on a level, the latter ones being placed at the back, or in the centre, according to the requirements of the position they occupied. Hardy trees and shrubs, either mixed up together, as the Conifers, or in distinct families, as the Hollies, were extremely interesting objects, the plants being specimens of considerable size, and apparently not treated as back-grounds and make-weights, but as constituent parts of the whole. Roses were decidedly inferior, both in respect to the appearance of the plants and the quality of the flowers, to those produced at our London early shows.

So much for some of the principal subjects exhibited. As to their arrangement, we have already mentioned that there were no straight, formal, lofty, expensive stages, and we might almost say in respect to the greater part of the space occupied, that there was no staging at all. The floor is the stage, save and except that along the back-bone of the central group a few specimens were set up where necessary, not on stages, but individuals on stools or pedestals, so as to suit the peculiarities of each case, and the same plan has been adopted in arranging the central portion of the great masses which occupy the sides of the hall. Neither in the one case nor the other is there a level line of plants, but they stand, here high, there low, here advancing, there receding, just as may best minister to the effect. In all this, and also in the plan of arranging broad masses beneath the level of the eye, the disposition of the plants is much better than our own. The only drawback to this mode of arrangement is the want of space and consequent crowding of the visitors at certain points, but even though there was considerable crowding we did not see that any serious damage was done, the flexible trellis-work which formed the boundary of the groups acting as a very efficient protection. If we may take a lesson from our neighbours as to the arrangement of the plants, we may also give one which would save much of the confusion at which we have hinted—it is that of keeping the visitors moving as much as possible, and, above all, moving in one direction.

The Congrès International d'Horticulture, held contemporaneously with the flower show, was well attended by botanical and horticultural celebrities from all parts of Europe; and several sittings were held for the discussion of the subjects named in the programme.

We understand that it is in contemplation to hold a similar International Flower Show and Horticultural Congress in London in 1866, if possible under the auspices of the Royal Horticultural Society.

IN our last Number (17), it was announced that at the Third Spring Show of the Royal Horticultural Society at South Kensington "from Mr. THOMPSON, of Ipswich, came several examples of COLLINSIA VERNA, an old-fashioned free blooming annual, *which was commended.*" Upon this subject Mr. THOMPSON sends us the following letter:—

"The atmosphere of South Kensington being apparently unfavourable to some of my plants, if I may judge from the verdict given there, I hope I need not apologize for sending you two or three of the Collinsia verna exhibited by me on Wednesday, that you may judge how far that verdict was just and impartial. If the committee who damned my plant with such faint praise as a Commendation could come and see my plants growing, two beds, each 100 feet or more long, they would surely be visited with compunction for their inadequate award. I now send you materials for the formation of an opinion. They are all potted up from the open ground this afternoon, and may perhaps flag a little, but I preferred sending them immediately for several reasons. A few hours' shading will put them right. In masses it is most beautiful. There is nothing that I can call to mind for spring blooming to equal it. What blue flower, annual or perennial, except the Squills, can be had in bloom in April?—I have grown it for several years, and at first was inclined to give it up, as I found it so untractable. But having at last succeeded in its management, which not even NUTTALL himself seems to have done, and certainly no one else, I hope I shall find some encouragement and reward for my labour a little more exhilarating than the Commendatory card of the South Kensington judges."

A further communication on the same matter will be found in to-day's Home Correspondence.

We do not generally take part in disputes of this nature, nor should we do so now were it not that a question of some horticultural and botanical importance is involved, and that the Committee have, very unintentionally we know, and not unnaturally, mistaken the value of Mr. THOMPSON'S most beautiful annual. In the first place, then, no doubt can exist that it is the real *C. verna* of NUTTALL. That being ascertained, the idea of its being "old-fashioned" must clearly be abandoned, for nobody saw it alive in this country before 1855 or 1856, in which last year an excellent figure was published in the "Botanical Magazine." There is indeed a notion abroad that it is only *C. bicolor*, a plant figured in the "Botanical Register" in January 1835; and we ourselves must admit that at first sight it appeared as if *C. verna* and *bicolor* might be mere varieties of each other, bright blue being substituted in the first for the lilac in the second. We now however wholly reject the supposition for the following reasons, for many of which we have to thank the experience of Mr. THOMPSON, whose seed came from Dr. SHORT of Kentucky, through Dr. ASA GRAY. Mr. THOMPSON says reasonably enough, that as C. bicolor did not grow wild in Kentueky, that must count for something; adding that the behaviour of his C. verna under cultivation, is totally different from that of C. bicolor. The latter may be sown at any time. C. verna will only grow if sown in autumn, and that is why everybody has failed with it, while C. bicolor may be grown by a child, and is grown everywhere. Again the seed of C. verna is twice as large as that of bicolor. The capsules of verna contain from three to four, five, and very rarely six seeds. Those of C. bicolor, a score or more. The capsules of verna open before seed is ripe, exposing it in a greenish state, and I have to pick each capsule off singly just after they split, to make sure of the seed. The spike of C. verna is at first corymbose and lengthens out greatly—lower seeds ripe, while top flowers are in bloom. The capsules of bicolor never open till the seed is ripe, and the whole spike may be cut at once. Who ever saw the latter of a blue colour? I never saw any but lilac. The C. verna is of a pure blue (in the beds), varying from pale porcelain blue to the deepest imaginable blue, and here and there a plant with violet flowers.*

We cannot doubt that these facts are conclusive on the side of Mr. THOMPSON, who, although not the introducer (for the first plants blossomed in a cool frame at Kew in 1856) has certainly the merit of first bringing this, the most charming of all vernal hardy annuals, under the observation of the whole floral world. In our opinion the resolution with which he has held his own in the controversy does him honour, and we presume to thank him in the name of the Horticulturists of Europe. May he reap the reward he so richly merits.

THIS is the age of LECTURES. From the Royal Institution in Albemarle Street to the smallest school-room of the most quiet parish in the most remote county the sound of lecturing fills the air! All the sciences have their trained lecturers, so has every political creed, and so too every phase of error or belief. In this general *furore* for lecturing, horticulture and botany have hitherto perhaps had less than their rightful share, and therefore we are not sorry to see that at South Kensington a series of lectures has been commenced that promise to be both popular and useful. Mr. PAUL had the honour of delivering the first on the list a fortnight ago, and our readers who had not the opportunity of being present will have gathered from our report how much of interest and novelty he threw into his theme. The second was given on Tuesday last by Mr. BATES, who—as the readers of his interesting book are aware—has been hunting insects for 12 of the best years of his life on the different affluents of the Amazon.

A report of Mr. BATES's lecture appears in our columns to-day, and will we hope attract the attention of botanists to some of the localities that he visited, for where there is so much of novelty in the *fauna* of a district, the *flora* may be reasonably expected to prove equally rich. It is thought indeed that it is from some of the regions visited by Mr. BATES, and from the eastern slopes of the vast chain of mountains whence the tributaries of the mighty Amazon descend, that the greatest harvest of new plants is to be sought.

None of course will be quite hardy, though but few will require that insufferable amount of heat

* Let us add, as a peculiar feature of this plant, that as the seed does not grow when kept till spring, it must only be sown in autumn; a very important fact. With no other species is this precaution necessary.

which we usually associate with what is called the "stove.' Multitudes of beautiful Thibaudias and other Vaccineæ will be found in these localities, which as their cultivation comes to be better understood, cannot fail to be general favourites. Here too exist the richest mines of 'cool Orchids,' the cultivation of which has given a fresh impulse to the Orchid-mania; but with these matters we shall leave Mr. BATEMAN to deal, as they fall naturally within the range of the subject that he has chosen for his lecture on Wednesday next.

Often as we have felt compelled of late to question the wisdom of some of the acts of the present Cabinet at South Kensington, we are the better pleased when, as in the case of the series of lectures now in progress, we can heartily sympathise with their proceedings and wish them every success. At all events these lectures aim at the advancement of horticulture in a legitimate way, and that is saying a good deal at a time when idle people are endeavouring to disgrace it by lawn billiards, croquet, and similar fashionable trash.

—— Mr. BATEMAN'S LECTURE ON COOL ORCHIDS. In consequence of a Drawing Room being announced to be held on Tuesday next—the day originally fixed for Mr. BATEMAN'S lecture at South Kensington—the lecture is postponed till the following day. It will be illustrated by coloured prints and original drawings of Orchids adapted for cool treatment, as well as by a large number of living specimens.

NOTE ON A NEW FORSYTHIA FROM PEKING.

FORSYTHIA VIRIDISSIMA, a shrub introduced to this country from China about 20 years ago by the Horticultural Society of London, is at this period of the year in full blossom, and in that state it is very ornamental in our parks and gardens. In Battersea Park, for example, where it has been extensively planted, it has been in perfection, and certainly produces a most striking and agreeable effect at a time when few other shrubs are in bloom in the open air. This shrub is well worth the attention of all who wish to make their gardens attractive during the month of April. Then it has the advantage of being very hardy, is of easy cultivation, and produces its blossoms in great profusion.

Another species of Forsythia has been recently introduced from the country near Peking, which is even of greater importance as an ornamental plant than the one above named. The history of the discovery and introduction of the new species is, I think, worthy of being recorded in the *Gardeners' Chronicle*. When I visited the Chinese capital in the autumn of 1861, I fully expected to find many new plants of a hardy nature well suited to our English climate. Peking is several hundred miles further north than those parts of China I had formerly explored, and it was not unnatural to suppose that many new forms of ornamental plants might be met with in its vicinity, particularly as it is a well ascertained fact that all that is rich and rare usually finds its way to the capital of a country. I may give London as one example of this, and if another were wanted a little further away, I may mention Yedo, the capital of Japan. In so far as Peking is concerned, however, my expectations were doomed to be disappointed. There was no scarcity of plants, for here, as in other parts of the country, the people exhibit an ardent love for flowers, but most of those in cultivation had been brought from the more southern parts of the empire, and were already in Europe. The productions of Canton, Foo-chow, and Shanghae were fully represented, and were apparently highly prized by the natives. Sweet-scented Jasmines, Pomegranates, Olea fragrans, Oranges, Citrons, together with Apples and Pears, were in abundance, and all cultivated in pots, so that those that were tender could be protected in winter. As I looked eagerly into every hole and corner in quest of something new, something indigenous to that part of the country, the good-natured Chinamen were evidently greatly puzzled. "Had I not come for flowers? Well, here were plenty of the finest which could be had; why did I not take some of them?" It was a difficult task to make them believe that all the things which they admired so much, had been long in cultivation in Europe.

My explorations, however, were not altogether fruitless. A new Forsythia was discovered, which now proves to be a great acquisition to our spring-flowering shrubs. As it was in the autumn when I first met with it, I had no opportunity of seeing its flowers, and therefore could only form an opinion of it by its foliage. I had no difficulty in recognising the genus to which my plant belonged, and as its leaves differed in form and appearance from the old species, there as little doubt that it would prove new to science and to our gardens. The leaves of F. viridissima, as every one knows, are oblong or oblong-lanceolate, in form while those of the Peking plant are broadly ovate. Some of them, if my memory does not fail me, are slightly lobed, and they are all of a dark green colour —much darker than the old species; they have more substance, and are very glossy on the surface. The flowers, as we now see by the plants which have bloomed at Bagshot, are also larger in size and of a brighter yellow than F. viridissima. There are also many other botanical distinctions between them. Altogether the new plant is the most ornamental of the two, and I have no doubt it will prove a very important acquisition to our collections. It will be perfectly hardy in our climate, and is a shrub which, when once planted, will take care of itself. *Robert Fortune.* [We shall ourselves return to this species on an early occasion. In the meanwhile it will most deservedly bear the name of its very able and enterprising discoverer, and will be called FORSYTHIA FORTUNI.]

Home Correspondence.

Collinsia verna, Nutt., v. *The Floral Committee of Royal Horticultural Society.*—Having succeeded after several years' experience in bringing under cultivation the above beautiful little plant, all previous introducers having entirely failed to preserve it, I was induced to forward a few specimens to the last exhibition of the Royal Horticultural Society, believing that its great merit could not fail to be recognised, and that they would afford considerable gratification to the visitors to the Show. I was in due form apprised that my plants reached the show, and had received from the Floral Committee the award of—happy man that I am —a Commendation! For this signal honour, I regret to say, I cannot pretend to have felt any gratitude whatever. But, though quite as much puzzled to account for this want of justice, as I was annoyed, I should not have asked permission to occupy your space but for an unlooked for revelation of the apparent motive of that award, which I find in your report of the exhibition. Your reporter states that I exhibited several examples of Collinsia verna, "an old-fashioned annual." In this not over complimentary phrase the secret of the liberality of the Committee leaks out. It is evident that these gentlemen assumed I had furbished up some veteran of the borders, and presented it for their approval, though had I done so, it strikes me I should have merited less their commendation than their severest reprobation. So far, however, from the Collinsia verna being old-fashioned, I beg to state for the information of the committee and all whom it may concern, that it has never yet had a chance of being even new-fashioned, for the very simple reason that it has never before been cultivated! The C. grandiflora, often erroneously sold under the name of verna, has evidently been mistaken for it, though a very small amount of attention would have been sufficient to dispel this conclusion. But without enlarging on that point, at present permit me to state that the Collinsia verna was first introduced to this country, though long previously known to botanists, by its original discoverer, the late Mr. Nuttall, in 1855, and by him plants were sent to Kew Gardens, where they bloomed early in the spring of 1856. It was figured in the Botanical Magazine the same year, t. 4927, and Sir W. J. Hooker, no mean authority surely on this subject, commences his description by the following words:—"This lovely annual is entirely new to our gardens," and quotes further a letter of Mr. Nuttall, who styles it the most beautiful of the genus. Mr. Nuttall failed in perpetuating the plant, and the same ill-success followed at Kew. Having hit upon the right mode of treatment, and grown it from small beginnings till I am at length able to show beds of about 8000 plants, thus securing it I hope to our gardens, your readers can judge for themselves whether I have any legitimate grounds for protesting both against the award of the Floral Committee, and the statement of your reporter. And now let me add that my beds of this beautiful plant, even those entirely unprotected, were in bloom some days before the 15th of April, a period at which no other Collinsia, and, so far as I can recal, no other annual whatever, blooms naturally; and that the effect of so large a mass of pure azure blue and white is such that could the public at large (and I heartily wish they could) witness this display of vernal beauty, the misjudgment of the Committee would meet with a unanimous reversal. *W. Thompson, Ipswich.*

Injury to Wellingtonia gigantea.—Some years ago I planted an avenue of Deodars, but finding that many suffered in spring from the east winds, which did not appear to affect Wellingtonias in other parts of the grounds, I took up every alternate Deodar and planted Wellingtonias instead. For two seasons the latter succeeded perfectly, but this spring they are all considerably injured on their eastern side, whereas the Deodars are not affected in the slightest degree. To me the circumstance is perfectly inexplicable; can any of your readers throw any light upon it? *J. B., Biddulph Grange.*

Ivy and Red Spider.—Having read in your columns (p. 392) a notice relating to red spider on Ivy, I beg to furnish you with the result of my experience in the matter. For more than 10 years I have grown Ivy inside a window, and though the plants have never been renewed it is still green and pretty, but I have many times feared I should lose it, and once from red spider; in my trouble I asked all my friends what to do, and followed all their advice with no effect, until I was told to try what shifting it from the ornamental pots to the common red earthenware ones would do. This I did, and in a few weeks my Ivy was clear from its red intruders, and I never have seen any since. The pots were MADE OF ZINC, and painted very prettily with green stripes of two shades. From this experiment I conclude that the roots will not bear being confined in anything water-tight, but require that there should be the means of evaporation; I find that my Ivy keeps very green with merely drenching it once a week with rain water; and every two years changing the soil. *B.*

Horticultural Society's Garden at South Kensington. —Will no horticultural Sir Richard Mayne put a stop to the Poplar demonstrations which are being got up here? Within the quiet precincts of this so-called Arcadia stand these plebeians, rank and file, in true warlike order, already fully equipped and Laurel bedecked. Has Mr. Nesfield been consulted on the subject? Surely he never can permit his beautiful Italian garden to be converted into a drill ground. Notwithstanding the unsightly barricades that have been placed along the top of terrace walls, on grassy banks, and even on stone balustrades, these aspiring gentlemen still appear to advance, and already occupy some of the most prominent places in the garden. If the fastening of them tightly down on horizontal wire work, as is now being practised by the side of the water, does not have the desired effect of checking further incursions, I would not hesitate to recommend even harsher measures being at once adopted with them. Pray use your own powerful influence in the matter. As the old proverb says, "What cures Sancho makes Martha sick." *Joseph Newton*, 30, *Eastbourne Terrace.* [We have no voice in this absurd matter, as we hoped everybody would have seen.]

Royal Horticultural Judges.—On what principle does the Horticultural Society's Floral Committee give Certificates to such plants as Genista prostrata, Collinsia verna, or the Australian Grass tree, all of which nearly equal the age of the "oldest inhabitant." Will some of the Committee explain? *Flora.* [As to Collinsia "verna," that is noticed editorially elsewhere.]

Foreign Correspondence.

EXHIBITION OF THE SOCIÉTÉ ROYALE DE FLORE.—The "Exposition Universelle d'Horticulture" of this Society, held at Brussels, under the auspices of the Belgian Government, was opened on the 24th instant. The exhibition, which is of the most extensive character, continues open till the 6th of May. Our limits do not admit of giving so complete a report as the merits of the show would have justified, as will be evident from the fact that a bare enumeration of the subjects brought forward, and of the prizes awarded to them, occupies an octavo pamphlet of 149 pages. We propose, therefore, the rather to give a general description of the exhibition as it appeared when ready to be thrown open, noticing a few of the most remarkable and interesting of the plants as we proceed.

The show took place in the Place du Trône, in a lofty but temporary wooden building, some 200 feet or more in length, and 80 feet in width, and having a glazed roof; a portion of the space at the north end being shut off so as to be kept warmer to suit the more tender of the plants. In this latter division the plants were arranged on tables after the manner adopted at our English exhibitions, but in the larger portion the arrangement was altogether different, the majority of the plants being set on the floor in groups of varying outline, protected at the margin by a removable trellis-work border, the hindermost of them and a few of the finer specimens only being elevated. An irregular pathway, here broader, there narrower, divided the central group from those which covered the sides of the building.

Commencing with this central group, there stood immediately in front of the entrance a monster specimen of Livistonia Biro, exhibited by Madame Legrelle d'Hanis, of Antwerp. This plant, which was not less than 20 feet in height, and as much in diameter, formed one of the finest features of the show. In front of it stood a group of dwarf standard Azaleas of all colours, the plants being on stems of from one to two feet high. Right and left came collections of Ferns, continued to the right by a fine series of larger Azaleas, forming the northern termination of the central mass. The dwarf Azaleas were continued on the left in company with Rhododendrons, the bank being broken up by a group of broad-leaved foliage plants, and small Roses. Amongst the dwarf standard Azaleas, which consisted of very nicely grown plants, mostly of good varieties, the best were Gloire de Belgique, white, finely striped with red; Hortense Vervaene, with large flesh-coloured flowers, masqued with white; Rubens, a magnificent orange-scarlet of large size and fine form; Alexander, a fringed white with stripes; mirabilis, a telling bright rose; Lorlei, a large white, flaked moderately with rose purple; Roi des Doubles, a fine showy double rose; and Roi des Blancs, a fine pure white. At this point came a silvered globe, elevated to about the level of the eye, and reflecting all the surrounding features. Then came a few tall Tree Ferns set up on stands; a new Camellia, and a fine group of large leaved plants. The Camellia was Comte de Flandres, a full-sized delicate rose-coloured sort, with imbricated petals and good foliage. Of the large-leaved plants, the most noticeable were Theophrasta macrophylla and imperialis, Crescentia regalis, Gustavia Leopoldi, Botryodendron macrophyllum, and Bæo-

botrys trichotoma, all having ample simple leaves of an elongated elliptic or broad lanceolate form; Theophrasta angustifolia having large narrow lanceolate leaves; Coccoloba pubescens, about five feet high, with five of its great round sessile stem-clasping horizontal rugose leaves; Oreopanax dactylifolium, a handsome plant, with long-stalked palmatifid leaves, of which the segments are lobed, and the stem covered with rust-coloured pubescence; with Stadmannia cordifolia, and Simaruba grandis, each having good pinnate leaves.

The continuation of this central mass was made up with a centre of large plants of Angiopteris, Palms, &c., and in front of these were Azaleas, edged by variegated Pelargoniums, with a fine elevated example of Alsophila contaminans, a Philippine Island Fern, with abundance of narrow white scales about its crown, purplish prickly stipes and a glaucous undersurface. In the large group were:—Cycas Ruminiana, with a stem three inches in diameter, and a foot long, clothed with shining leaves, like Fern fronds, the leaflets of which are long lanceolate and acuminate; Ceratozamia mexicana, with a stem six inches through by nine inches high; Angiopteris, with shining fronds; Areca Verschaffelti, a fine stiff-fronded pinnate Palm; Ceroxylon audicola, a fine young plant; Chamædorea Ernesti Augusti, with broad two-lobed leaves and smooth stem; and Astrocaryum aureo-pictum, with broad two-lobed serrated leaves, and prickly stem. Then came another silvered globe, with a group of Camellias in front, edged with Pansies. Camellia Bononicana in this group was a beautiful cupped blush-white, with well-defined red stripes, and a fine outline; there was also the small double Sasanqua rosea; Madame Strukalof, a distinct light rose pink with white bars down the centre of the petals; and Valtevaredo, a fine imbricated cerise rose. Then came more high Ferns as a centre, and in front a Rhododendron Nuttallii, also tall, with five heads of flowers, and a fine specimen three feet by three of Erica elegans; then a bank of Hippeasters edged with Cinerarias, and finally, at the south extremity, a pyramidal Rhododendron ten feet high, called Arboreum Beurgravianum, a delicate rose slightly spotted and well flowered. Of the Hippeasters, Cleopatra, a deep red with clear white stripes broken off abruptly an inch from the end of the segments; Christophe Colomb, a brighter red with similar white stripes, but narrower segments; Boelensii, a large red with green star; and Marie Henriette, white striped with red, fine at the edges, were the best.

On the west side came first a fine group of Azaleas, dwarf standards and dwarfs; a fine green-leaved Dracæna, eight feet high; and a pretty well-flowered small plant of Azalea Souvenir du Prince Albert, with the flowers really effective. Next a group of large Ferns, in which was a fine young plant of Cibotium princeps, and a stemless plant in a magnificent state of Cyathea medullaris. Then a capital standard Coleus Verschaffelti, with a dense head a yard across; followed by a mixed group of flowering plants. Succeeding these came a nice group of Dracænas, in which those marked angustifolia, punctata, mauritiana, Rumphii, callicoma, and lineata were narrow-leaved forms; and guatemalensis, fragrantissima, and fragrans latifolia broad ones; umbraculifera, of which there was a fine dense plant, being narrowish; and cannæfolia, with long-stalked glaucous leaves, being very broad. This was followed by a large flat mass of Azaleas, intersected by Rhododendrons, and backed by Ferns. The most effective of the Rhododendrons were—Bylsianum, a bright carmine with white centre; Queen Amélie, a large bright rose with good trusses and well spotted; Souvenir de Jean Byls, a lovely rose with paler centre, and a greenish-yellow blotch; and Etendard de Flandres, a large rosy-lilac, heavily spotted with chocolate.

Coming opposite the great Livistonia, was a bank of Roses, poor plants, as were most of the Roses shown; then a flat group of Rhododendrons, edged by hardy Ferns; finishing off with the Azaleas referred to at the commencement, these latter being edged with Verbenas.

At the north end, between the two entrances to the enclosed warmer portion, was a noble group of large Palms, among which Chamærops excelsa, Corypha australis, Sabal Blackburniana, and Areca sapida were remarkable; as also was a pretty Latania rubra, three feet high. At the north-west angle was placed a group of mixed flowering plants, with Phœnix humilis, set up on a high support; and a beautifully symmetrical plant of Cyathea dealbata followed, set up over a small bank of Rhododendrons. Then along the side of the building came a fine set of Palms and Cycads, followed by a set of Anthuriums. Here were Encephalartos Altensteinii with a stem 15 inches thick and three feet high, bearing long bright green fronds; Chamærops argentea, with the leaves silvery; Areca Verschaffeltii, six feet high; Ceroxylon, 12 feet high; and Geonoma paniculigerum, a slender habited plant with few broad pinnæ.

Opposite the entrance, and the Livistonia already mentioned, came a piece of water, backed by three fine sheets of plate glass set up at intervals, the two side ones being anglewise, so that they reflected a great part of the exhibition at this point. The central plate, over which dashed a waterfall, was surmounted by a statue, backed and overhung by Cocos plumosa, and having Dion in front. The back ground of the small lake, in which were two small bronze fountains, was filled out by a rock border planted with Caladiums, Cannas, Heliconias, and plants of similar character; while the front was made up of an irregular border, also of rock-work, with Cinerarias, other flowering plants, and a well-placed Caladium Chantinii, &c. In a projection in front of the water was placed a very gay bed of Hippeasters. Beyond the basin was a similar set of large Palms, Cycads, Anthuriums, &c., and amongst them the broad-leaved Anthurium Hookeri, with stalked oblanceolate pale green leaves measuring three feet by one; Zamia Lehmanni with a stem two feet broad by one in height, and an erect tuft of young glaucous fronds; Wallichia caryotoides, ten feet high, with fine broad pinnæ, brownish stems and silvered under surface; Areca Verschaffelti, eight feet high; Seaforthia robusta, six feet high; Stephensonia grandifolia, a Palm with broad bilobed leaves serrated at the upper edge and armed with needle-shaped black spines on the stalks; Latania Jenkinsonii, with ferocious-looking hooked spines on the stalks of its orbicular palmatifid leaves; and two smaller Latanias, Verschaffelti, with orange-coloured margin to the stalk and leaflets, and L. rubra, with these parts red.

After these came a group of three or four Tree Ferns and large-foliaged plants, edged by Cinerarias in flower. There were Theophrasta imperialis, ten feet high; a large spreading Cyathea medullaris, with a stem three feet high; a good Cyathea dealbata also three feet high; and Yucca pendula with recurved glaucous leaves. Here also intervened another elevated silvered globe, presenting to the eye of the spectator a miniature picture of the contiguous portions of the scene. A tall group of mixed greenhouse plants in flower followed; then a dwarfer group of mixed hardy flowering plants, with a fine specimen of Cyathea medullaris, ten feet wide on a four feet stem, set up over them on a pedestal. Again a miscellaneous group with Camellias at the back; a Rhododendron group with a tall Cibotium princeps over it, and in the south-west corner a large group of fine foliaged plants, such as Pandanus latissimus, having long pointed pale green leaves four or five inches wide; Agave Schiedigera and A. filifera, both stiff-leaved sorts, the former with the edges as if hung with carpenter's shavings, the latter as if hung with mantua-makers' tacking threads; a fine Alocasia zebrina and a good Cordyline australis; Pandanus Blancoi, an elegant tall narrow-leaved sort of a glaucous green colour; Yucca canaliculata with long narrow thread-margined leaves, Bonapartea stricta and many others. The south end, which formed the communication with the hardy division of the show, was unoccupied by plants, an aquarium being set in the centre.

At the south-east angle was a grand collection of large Palms, Yuccas, and plants of like character, among which we especially noted a Beaucarnea 5 ft. high, with the bulb-like base a foot in diameter; Oreodoxa Sanchona, a slender-stemmed plant with pinnate leaves, like a miniature Seaforthia; Cocos australis; a Seaforthia elegans, 20 ft. high; Plectocomia spectabilis, 20 ft.; Caryota javanica, 10 ft.; Zamia horrida, in fruit; Agave xylinacantha, a fine species, with the leaves edged by coarse recurved hooked spines; Agave Rumphii, with long narrowish glaucous leaves edged by small spines; a beautiful Dasylirion junceum, with a globular trunk nearly a foot in diameter, and a magnificent crown, some ten feet across, of its long rush-like leaves; Beaucarnea glauca, a grand specimen with the bulb a foot and a half through, from which the 4 ft. stem tapered upwards and bore a head some six feet across of narrow glaucous leaves; Dasylirion serratifolium, with twisted glaucous spiny leaves, six feet long, this plant accompanied by a dead flower-stem of about ten feet high. Elevated in the front rank of this fine group was a very handsome Yucca Parmentieri, with a stem two feet long, bearing glaucous thread-edged leaves. Next came Cyathea Beyrichiana, with a thickish 5 ft. stem, standing over a bed of Roses; then Cyathea mexicana, with a slender 5 ft. stem, elevated in the midst of a group of dwarf standard Azaleas,—the fronds of both these Ferns forming a graceful canopy above the flowers. Then came a group of mixed flowering plants, with three Tree Ferns disposed so as to overshadow them; a group of Rhopalas, Aralias, &c.; more Palms and Ferns, intermixed with fine samples of Pandanus and margined with Dwarf Roses and hardy variegated plants. Then, standing out as one of the most noble features of the whole show, was a magnificent specimen of Cibotium princeps from Mr. Linden; this plant had a stem about 5 feet high, bearing five noble fronds some 15 feet or more in length each with about a dozen pairs of pinnæ, and having the thick stipites clothed with abundance of pallid scales. Beneath the Ferns came more Roses; and then a group of mixed plants, amongst them Beschcorneria yuccoides in flower, terminated the arrangement up to the entrance doors.

To the right of the entrance was another grand group of Palms and Cycads, in the centre of which stood a magnificent Seaforthia robusta with a stem about 3 feet high, and fronds fully 15 feet long. This group was bordered on the one side by Aralias and Rhopalas, among the former of which were Aralia Lindeni, a palmate-leaved sort with serrated elliptic leaflets, and a very well-marked Aralia japonica variegata; and on the other side by Azaleas, amongst which Gloire de Belgique and Roi Leopold were prominent by their merit; the latter is a large smooth light red with violet stain on the upper segments. Then came Roses, more Azaleas, and a dwarf set of Bromelias, over which last stood a tall Alsophila australis placed upon a stand. Finally, in the north-eastern corner was a miscellaneous group of large flowering plants, in which was a capital Richardia æthiopica, dwarf and sturdy, in a small pot, but with half a dozen finely-developed flowers.

Passing into the enclosed warmer part of the building already referred to, a space some 50 feet by 80 feet, the new plants and Orchids became the chief subjects of attention. On the right commenced a group of novelties from M. A. Verschaffelt, containing several of the beautiful Japanese Maples—Acer japonicum jucundum with palmate leaves of a very lively pale green colour; A. j. sanguineum with bronzy-red palmate leaves; A. j. princeps with finely dissected leaves coloured bronze and pink; and A. j. Frederici Gulielmi, with dissected leaves wholly of a bronzy red; also Ficus Porteana, a tall plant with oblong leaves 18 inches long, here and there slightly lobed or becoming sinuated; Aspidium Ghiesbreghti, having the segments notched with a few sharp teeth; a triangular quadripinnate Fern; Dieffenbachia Baraquiniana, a fine Brazilian Arad, with ivory-white stalks and midribs to its green slightly blotched leaves; Phrynium Vanden Heckii, a beautiful dwarf Marantad with dark green leaves, having a central and two lateral feathery bands of grey-green, and the under surface stained with purplish red; Gymnostachyum Verschaffelti, a fine plant; Calamus Imperatrice Marie, a slender pinnate Palm with spiny rachids and stalks. Then on the east side more new plants; a group of Orchids containing the Dendrobium Farmeri, Odontoglossum nævium and O. Pescatorei beautifully coloured, Phalænopsis amabilis and grandiflora, Lælia purpurata; and the Cypripediums Hookeri, Lowii, and barbatum majus. Near these stood a fine specimen of the curious Tacca pinnatifida, with its tall pedately lobed leaves and taller flowering stems; and as a still finer example of cultivation a capital Campylobotrys Verschaffeltii, three feet high, with square four-winged stems, plentifully furnished with leaves a foot and a half long, and really handsome. Then a group of Pandanus; with Cattleya Brabantiæ, one of Mr. Veitch's dwarf hybrids, standing in front. This Cattleya, one of the race of dwarfs, had terete stems, a pair of ligulate-oblong leaves, and large flowers, the sepals and petals being black thickly spotted with rose, and the lip with a retuso-reniform front lobe of a Magenta rose colour, and white lateral lobes curved over the broad rose-coloured column.

Along the north end came first a group of Orchids containing several Vandas; Phalænopsis Schilleriana, with eight large flowers on a smallish plant; and two forms of the handsome Dendrobium infundibulum, one with a stain of deep orange in the partially rolled-up lip: another with the stain of a paler orange-yellow. Then a dozen extremely well-grown Anæctochils, consisting of argenteus and argenteus pictus, intermedius, Lowii and Lowii virescens, Petola, querceticola, speciosus, setaceus, Veitchii, and zebrinus. Then a collection of new Palms, the most interesting of which were, Areca Verschaffelti, which differs from A. aurea in the orange-coloured line at the back of the rachis; Pinanga maculata, a spotted sort, beautifully bronzy when young; Chamærops Ghiesbreghtii; Stephensonia grandifolia; Brahea nitida, an uncommon Fan Palm; and Latania Verschaffelti and glaucophylla. To these succeeded the best group of Orchids in the exhibition, that which won the Duchesse de Brabant's gold medal. This came from Mr. Linden, and included Vanda Cathcarti, a curious species, the sepals and petals thickly cross-lined with cinnamon-red, and the free calciform lip white with one or two red lines down the centre, having a yellow frilled edge. The collection contained several other Vandas, as well as Phaius maculatus, with its spotted leaves and lively yellow flowers, a plant not often seen at our English shows. In a group of new Ferns which succeeded was Asplenium alatum, looking like a thin-leaved A. marinum with a winged rachis; Lomatia pteropus, remarkable for its abruptly contracted lower pinnæ; and Litobrochia (Doryopteris) Alcyonis, a Fern which when well-grown, as it occurred in more than one collection in the exhibition, proves sufficiently distinct, having a long terminal and two long lateral lobes, and shorter posterior ones at the base of the latter. Here also were more new Palms; a group of poor Orchids; a set of Screw Pines; and then a fine collection of Arads, of which the most noticeable were Alocasia zebrina, Colocasia macrorhiza variegata, and C. albo-violacea; Caladium Veitchii and C. Lowii, the latter much the finer of the two.

These were fronted with dwarf Cacti. Passing over one of the centre tables to follow up this outer series, we come upon a large group of Marantas, containing 23 species, along with a Heliconia and a Thalia. Then a group of Anthuriums, Philodendrons, &c., brings us to the western opening communicating with the larger exhibition hall.

Between the two openings for ingress and egress in this party wall was a side table full of novelties. Of Ferns, there was Cibotium regale from Mexico, with a thick, very shaggy, soft stem, and long arching fronds, nearly related to Schiedei; a splendid example of Todea (or as innovators now affect to call it, Leptopteris) superba; Pteris serrulata crispa; Gymnogramma Pearcii, and others. Of Palms there were, Regelia (?) majestica, from Madagascar, a fine looking plant in the young state, having needle-spined stems, and very broad bilobed leaves in the way of Stephensonia, but only erosodentate at the edge. Here also were Dieffenbachia spectabilis, with green stems and leaf-stalks, and green leaf-blades, dabbed here and there with gray, and blotched with yellow-green; D. gigantea, with green stems, spotted stalks, and green leaves marked more especially in the central part with mixed angular spots of cream-colour and pale yellow; D. grandis, with green stems, spotted stalks, and green leaf-blades; Caladium Leopoldi, a handsome sort, with broad almost cordate leaves, marbled and mottled with red, and scattered over with pinkish blotches; C. Rongieri, also broad-leaved, with red ribs in the pale green centre, and outwardly dark green with angular white spots; Amorphophallus nivosa, from Brazil, an extremely odd-looking plant with the marbled stem of its one leaf three inches thick at the base, and six feet high, perfectly upright, and bearing at top a pedate compoundly pinnatifid horizontal head of leaflets; Maranta splendida, a long-stalked Mexican species, with large leaf-blades dark green, marked with a broad continuous band of yellow-green towards the margin; Maranta Veitchii, probably a Phrynium, but a very handsome plant, with tallish leaf-stalks, broadly oblong ovate leaf-blades, which are beautifully marked with dark green and gray, and are also deep red behind, and quite transparent in the paler parts. Here also was Dracæna Cooperi, the new Caledonian species, coloured like terminalis, but with recurving leaves; and a very dwarf Philippine Island Maranta, very freely striped with creamy white.

The two centre tables in this division were a good deal taken up by collections of officinal and fruit-bearing plants from some of the Belgian Botanic Gardens, and the collections of the leading nurserymen. A very good plant of Myristica was among them, and there was Quassia amara in flower. Here also were placed most of the specimen Orchids, one of which, from Mr. Veitch, a Cypripedium villosum, carried off the first prize. There were besides some good Vandas, and one or two collections of Anæctochils, some in pots, others placed in a large glass case, the latter having the surface covered with Berlin wool of different shades of green intermixed; the wool had been worked up and afterwards unravelled, and would have passed well for green moss; the advantage of using it, however, being not to supply the place of moss so much as to keep down the condensation of vapour on the glass. There were here also collections of Nepenths, Caladiums, Begonias, erect Gloxinias, Screw Pines, Marantas, Bromelias, Lycopods, and in one set seven species of Campylobotrys, not forming an attractive group, the colours being too heavy.

Exterior to the building already described, occupying the southern end, and extending partly along the eastern side, was what may be called the hardy Annex, containing various exhibitions of hardy subjects, with some overflowings from the central building. This was a frame-work of wood covered with canvas, and communicated with the glazed building, at the southern end of the latter. This southern part contained a large detached mass, the centre of which was made up of Palms and Cycads: the margin consisted of a set of hardy bulbs in pots; then a very handsome specimen of Dracæna Draco, about six feet high, and beautifully clothed, standing out from the rest; then a fine collection of varieties of the Holly, mostly pyramidal plants of from three to four feet in height, shown by M. Rosseels, of Louvain, and consisting of about 50 kinds; next a group of Conifers; then Mushrooms growing out of a round-headed heap of earth, about three feet across at the base; then forced hardy plants, comprising a good Rose Acacia—one of the neglected plants of the present day; next some poor Acacias; and finally another group of Conifers.

Commencing on the western side of this division, the right-hand corner was filled out with standard Rhododendron arboreum, of various colours, flanked with large hardy flowering shrubs, as Magnolias, Cherries, Pæonies, Azaleas, &c., and finished off with Roses, Hollies, and hardy variegated shrubs. At the southern end, the table was devoted to vegetables and fruit, many of the former growing in pots, as well as gathered; among them were good Lettuces and Dwarf Peas, fine Asparagus, middling Strawberries, some Pine Apples, a few Grapes, and a good many Apples and Pears; some samples of the latter kinds of fruit being very good in quality. Beyond these were seedling Azaleas, a few of which appeared worth attention. The best were Octave Van der Cruyssen, a very large cerise-rose, with dense violet-rose spotting; Triomphe de l'Exposition Universelle, a very large white, striped with rose and carmine, and stained with greenish spots, but not good in shape; Madame Van der Cruyssen, a fine deep violet-rose, of excellent form, and very rich in colour, also large, bold, and well spotted; Madame Vervaene, a deep blush, with purple spots disposed in about four somewhat radiating series on the upper segments, the margins being white; Guillaume III., a large wavy-margined light brick-red, slightly spotted, and distinct in colour; Roi des Belges, a showy, deep rose, finely spotted, but reflexing; and Madame de Cannart d'Hamale, a large white, with greenish blotch, and sometimes slightly striped. Further on were groups of Camellias, evidently the worse for travelling; the new Lastrea Standishii; various forms of Bouquets, with a front rank of variegated Pelargoniums; and a few Hyacinths and Tulips. Then came some lots of Von Siebold's Japanese plants, in one of which were 20 sorts of Maples, many of them with beautiful foliage. The most charming was one which Siebold calls A. dissectum fol. pinnatifidis viridibus with finely cut leaves of a beautiful delicate green; A. septemlobum had green leaves, with serrated segments, and A. septemlobum bicolor had the tips of all the pale green segments bronze-red; A. digitatum had narrow segments entirely bronze-red; and A. Meikets had leaves considerably broader than any of the rest, green, and palmatifid. Among some hardy variegated plants which followed were finely marked examples of the variegated Quercus Cerris, and of the Cratægus Oxyacantha. The northern end was filled out by a group of large Bays and Hollies in one corner, with miscellaneous flowering plants and Auriculas in front, and a group of standard round-headed Bays, Myrtles, Myoporum lætum, Laurustinus, Clethras, Pomegranates, Eugenia australis, and other things, margined with some two dozen kinds of Ivy in pots, in the opposite corner. Between these two groups was a well-placed set of fine Dracænas, with variegated Pelargoniums and Anemones as a margin. Then followed along the western side, and open to the principal building, various collections of Agaves, of mixed flowers, of large Conifers, and of hardy variegated trees, the last group being one set of fine, healthy-looking Conifers, with a border of a light variety of hardy Rhododendrons. Of the hardy variegated trees, the most remarkable were, a white variegated Common Ash, finely marked; a golden-striped Maple; both silver and golden variegated Horsechestnuts; and good forms of Althæa frutex, Cornus sanguinea, and Cornus Mascula; all with cream-coloured variegation.

The centre of this eastern annex was occupied by a large irregular mass of various kinds of plants. Commencing opposite the Conifers just named, and retracing our steps, we find in succession a bed of French and another of zonate Pelargoniums; a second fine set of pyramidal Hollies in great variety; one of the silvered globes effectively placed for reflection; a Rose bank; a monster group of hardy Rhododendrons, with a border of variegated herbaceous plants; a group of Rhopalas and Aralias, with zonate Pelargoniums, and some good Mignonette in front; and a 6-feet flat basket full of flowers; some Palms and Agaves; a bank of Roses; more Azaleas, Roses, and Conifers; some large Palms and Cycads, with Dasylirions, &c., extending into the background, and variegated plants in front; more Agaves, Yuccas, and Rhopalas; a fine group of Hippeasters not named; Acacias almost out of blossom; Agaves, Roulinias, and Yuccas, repeated; a bed of Roses, with variegated Pelargoniums in front; Agaves, Dracœnas, Yuccas, &c., again; a group of flowering plants; more vegetables, including Finochio; some large Conifers, with a pyramid of Strawberries in pots in front; then a patch of light-coloured Rhododendrons extending to the French spotted Pelargoniums already mentioned.

A few good plants, including some remarkable specimens of Grevillea longifolia, and a collection of Hollies, were placed outside, where were also examples of Fruit-tree-training and various Horticultural appliances.

The exhibitors who contributed most extensively were the following:—M. Beaucarne, of Eenaeme; MM. Bruylant Frères of Schaerbeck; M. De Cock, of Ghent; M. De Smet, of Ghent; Madame Legrelle d'Hanis, of Antwerp; M. Linden, of Brussels; Baron Osy, of Antwerp; M. Rosseels, of Louvain; M. Vanden Hecke, of Ghent; M. Vanden Ouwelant, of Laeken; M. Vandermaelen, of Molenbeek-St.-Jean; M. Aug. Van Geert, of Ghent; Mr. Veitch, of London; M. Amb. Verschaffelt, of Ghent; M. Jean Verschaffelt, of Ghent; and M. Von Siebold, of Leyden.

The following is a list of the principal prizes awarded:—

75 plants in flower.—1 (Large Gold Medal, given by the Duc de Brabant), M. Amb. Verschaffelt, Ghent; 2, M. de Koster, Brussels.

50 plants in flower.—1, M. Van der Ouwelant, Laeken; 2, M. Van Kiel, Brussels.

25 plants in flower (Amateurs).—1, Madame Tertzweil-Boucqué, of Ghent. (Nurserymanj: 1, M. Dallière, of Ghent; 2, M. Rosseels, ainé, of Louvain.

12 New Plants, introduced to Europe by the exhibitor, not in commerce.—1 (Gold Medal), Mr. Veitch, of London; 2, M. Amb. Verschaffelt, of Ghent

25 New Plants, not introduced to Europe before 1865.—1 (Gold Medal), M. Amb. Verschaffelt; 2, M. Linden, of Brussels.

3 New Plants, shown for the first time in flower.—1, Mr. Veitch.

Exotic Plants, in flower, newly introduced to Europe.—1, M. Von Siebold, of Leyden, for Cerasus pseudo-cerasus fl. roseo plena; 2, Mr. Veitch, for Anthurium Scherzerianum.

Exotic Plants not in flower, newly introduced to Europe.—1, Mr. Veitch, for Maranta Veitchii; 2, M. Amb. Verschaffelt, by acclamation, for Dieffenbachia Baraquiniana.

Plant from Seed, presented in flower for the first time.—1, Mr. Veitch, for Cattleya Brabantiæ; 2, Mr. Parker, for Rhododendron Countess of Haddington.

The most remarkable Plant in flower (Orchids excepted).—1, M. Aug. Van Geert, for Rhododendron Nuttallii; 2, Mr. Veitch, for Rhododendron jasminiflorum.

The most remarkable Plant for good culture, in or out of flower.—1, Mr Veitch, for Erica elegans; 2, M. Kegeljan, for Campylobotrys Verschaffeltii.

50 Ornamental Plants of large size.—1 (Gold Medal), M. Amb. Verschaffelt; 2d, M. le Baron Osy.

10 Ornamental Plants of large size (Amateurs).—1, M. Allard, of Brussels; 2, M. Beaucarne, of Eenaeme. (Nurserymen): 1, M. Van Riet, of Brussels; 2, M. Lubbers, of Ixelles.

20 Dracænas, &c., (Amateurs)—1, Madame Legrelle-D'Hanis, of Antwerp; 2, M. Vandermaelen, of Brussels. (Nurserymen): 1, M. J. Verschaffelt, of Ghent; 2, M. de Beukelaer, of Schaerbeek.

25 Exotic Orchids in flower, unique prize: (Large Gold Medal given by the Duchesse de Brabant).—M. Linden of Brussels.

15 Exotic Orchids in flower.—1 (Gold Medal), Mr. Veitch, of London; 2, M. Beaucarne.

The best Orchid in flower.—1, Mr Veitch, for Cypripedium villosum; 2, Madame de Cannart d'Hamale, for Vanda suavis.

25 Palms, Pandanus and Cycads of large size.—1, (Gold Medal), M. Amb. Verschaffelt; 2, M. Vandermaelen, and M. Linden.

20 Palms, Cycads and Cyclanths.—1, M. Vanden Hecke; 2, M. Vanden Ouwelant.

25 Palms of recent introduction.—1, M. A. Verschaffelt; 2, M. Linden.

25 Stove and Greenhouse Plants, with ornamental foliage.—1 (Gold Medal), M. Linden; 2, Madame Legrelle-d'Hanis.

10 species of Pandanus, (Amateurs).—1, M. Beaucarne; 2, Madame Legrelle-d'Hanis. (Nurserymen): 1, M. Linden; 2, M. Aug. Van Geert.

12 Tree Ferns.—1 (Gold Medal) M. Linden.

6 Tree Ferns (Amateurs).—1, M. Vanden Hecke. (Nurserymen): 1, M. Linden.

The best Tree Fern.—1, M. Linden, for Cibotium princeps; 2, M. Amb. Verschaffelt, for Cyathea dealbata.

30 Exotic Ferns (Amateurs).—1, Madame Legrelle d'Hanis; 2, M. Vanden Hecke. (Nurserymen): 1, M. Linden.

12 New Exotic Ferns.—1, M. Linden; 2, M. Aug. Van Geert.

Collection of Lycopodiums.—1, Vanden Hecke; 2, Madame Legrelle d'Hanis.

Collection of Rhopalas and Araliaceæ (Amateurs).—1, M. le Baron Osy; 2, Madame Legrelle d'Hanis. (Nurserymen): 1, M. Linden.

Collection of Nepenthes.—1, Mr. Veitch.

Collection of Bromeliaceæ in flower or not (Amateurs).—1, M. Beaucarne; 2, Madame Legrelle d'Hanis. (Nurserymen): 1, Linden.

Collection of Aroïdeæ.—Madame Legrelle d'Hanis.

25 Large Variegated Plants (Amateurs).—1, Madame Legrelle d'Hanis and M. Vanden Hecke. (Nurserymen): 2, M. Linden.

25 Variegated Plants.—1, Madame Legrelle d'Hanis; 2, M. Vanden Hecke.

Collection of Marantas (Amateurs)—1, Madame Legrelle-d'Hanis; 2d, Madame Legrelle-d'Hanis. (Nurserymen): 1, M. Linden.

20 Caladiums (Amateurs).—1, M. Kegeljan; 2, Madame Legrelle d'Hanis and M. Lemoinier, of Lille. (Nurserymen): 1, M. Amb. Verschaffelt.

Collection of Alocasia and Colocasia (Amateurs).—1, Madame Legrelle-d'Hanis. (Nurserymen): 1, M. Linden.

Collection of Anæctochilus.—1, M. Amb. Verschaffelt; 2, Madame Legrelle-d'Hanis.

Collection of Officinal or useful Exotic Plants.—1, M. Linden; 2, M. Von Siebold.

Collection of Tropical Fruit Trees—1, M. Linden.

30 Begonias—1, M Barbanson.

Collection of Cacti in flower or not.—1, M. Dedeyn, of Ninove.

Collection of Amaryllis in flower (Amateurs).—1, M. Beaucarne; 2, M. Vanden Bossche. (Nurserymen): 1, M. Boelens; 2, M. Vandriessche.

50 Camellias in flower.—1 (Gold Medal), M. Van den Ouwelant; 2, M. Jean Verschaffelt.

25 Camellias in flower (Amateurs).—1, M. Beaucarne; 2, M. Carolus, of Louvain. (Nurserymen): 1, MM. Vervaene, of Ghent.

6 Camellias in flower.—1 and 2, M. Vervaene père, of Ghent.

75 Rhododendrons.—1 (Gold Medal), M. Decraet-Bracq, of Ghent.

50 Rhododendrons.—1, M. Byls.

25 Rhododendrons (Amateurs)—1, M. De Neuf and M. Vanden Ouwelant (Nurserymen): 1, M. Jacob Makoy and M Amb. Verschaffelt; 2, M. Coen, of Laeken.

50 Azalea indica—1 (Gold Medal, given by the Comte de Flandres), M. Amb. Verschaffelt; 2, Madame Legrelle-d'Hanis, and M. Vanden Hecke.

30 Azalea indica (Amateurs).—2, M. Vanden Ouwelant (Nurserymen): 1, M. Vander Meulen, of Ghent; 2, MM. J. Vervaene et Fils.

15 Azalea indica (Amateurs).—1, M. Vanden Ouwelant. (Nurserymen): 1, M Vander Meulen; 2, M Bruylant

6 New Azalea indica.—1, M. Vander Cruysse; 2, M. Vervaene père.

Collection of Liliaceæ, Amaryllideæ and Irideæ in flower.—1, M. Vander Linden of Antwerp.

20 Yuccas (Amateurs).—1, M. Vandermaelen; 2, Madame Ch. Verbulst. (Nurserymen): 1, M. Jean Verschaffelt; 2, M. de Beukelaer.

20 Agaves, Bonaparteas, Aloes, &c. (Amateurs)—1, M. Beaucarne; 2, Madame Legrelle d'Hanis. (Nurserymen): 1, M. Jean Verschaffelt; 2, M. de Beukelaer.

100 Roses in pots (Gold Medal).—1, M. Peeters, of Saint-Gilles; 2, M. Marest, of Paris.

50 Roses in pots (Amateurs).—2, M. Vanden Ouwelant. (Nurserymen): 1, M. Renaud, of Versailles; 2, M. Peeters, and M. Albeerdienst, of Ghent.

25 Roses in pots.—1, M. Humann, of Mayence; 2, M. Vanden Ouwelant.

20 Ericas and Epacris.—1, M. Dallière.

15 New Holland Acacias.—1 and 2, M. Jean Verschaffelt.

75 Hyacinths in flower.—1, M. Vander Linden.

100 Tulips and Narcissus.—1, M. Vander Linden.

25 or more Hollies.—1, M. Rosseels; 2, M. Douchet.

25 Forced Plants in flower.—1, M. Medaer.

12 Forced Plants in flower.—1, Madame Tertzweil-Boucqué.

Collection of large Oranges, Bays, Myrtles, &c.—1, M. Vanden Ouwelant; 2, M. Van Riet.

30 Large Conifers.—1 (Gold Medal), M. Vanden Ouwelant; 2, M. Van Geert, père

20 Conifers.—1, M. Aug. Van Geert; 2, M Gaujard.

10 or more New Conifers.—1, Mr. Veitch; 2, M. Aug. Van Geert.

35 Variegated Trees or Shrubs.—1, M. Desmet; 2, M. Rosseels.

50 Pelargoniums.—2, Madame Halkin

50 Pelargonium Inquinans and Zonale.—1, Madame Halkin, of Brussels; 2, M. Barbanson.

30 Variegated Pelargoniums.—1, M. Dallière, of Ghent; 2, M. Delobel, of Loos.

80 Hardy Herbaceous Plants in pots.—1, M. Medaer, of Saint-Gilles.

30 Hardy Variegated Herbaceous plants.—1, M. De Smet; 2, M. Vanden Ouwelant.

30 Hardy Ferns in pots.—1, M. Stelzner, of Ghent; 2, Madame Ch. Verhulst, of Stalle.

Forced Grapes (Amateurs).—1, M. de Wauthier, of Brussels; 2, M. Vander Plas. (Nurserymen): 1, M. D. Goes, of Schaerbeek.

6 Pine Apples.—1, M. le Comte Meeus, of Brussels; 2, M. Vander Plas.

Strawberries.—1, M. Vander Plas; 2, M. Baron de Vinck.

Collection of Pears and Apples of 1863.—1, M. le Comte de Ribaucourt, and M. de Biseau d'Hauteville, of Birche; 2, M. de Jonghe, of Brussels; and M. Capeinick, of Ghent.

10 Fruit Trees in pots, boxes, &c.—1, MM. Jamin et Durand, of Paris.

Collection of Forced Vegetables, 30 sorts or more.—1 (Gold Medal), M. Jacqmotte, of Brussels.

Collection of Salads.—1, M. Allard, of Brussels; 2, M. Jacqmotte.

Mushrooms.—1, M. Mortier, of Schaerbeek.

The Medals of Honour offered by the King were awarded: that for foreigners to Mr. Veitch; and that for Belgians between Madame Legrelle d'Hanis, M. Linden, and M. Amb. Verschaffelt.

Societies.

Royal Horticultural: *April* 26 (*Election of Fellows*).—On this occasion the following candidates were elected Fellows:—

C. P. Allen, Esq.; Tye Bainbridge, Esq.; H. Blackburn, Esq.; Mrs. Brooking; R. Chadwick, Esq.; Mrs. Clutterbuck, Mrs. C. Colville, Mrs. Davis, Mrs. Edwards, Mrs. E. Elliot, Mr. Gibson, E. Hackett, Esq.; H. B. Kent, Esq.; James Lord, Esq.; R. Lowenthal, Esq.; Captain Martin, Mrs. Maxwell, Hon. Mrs. David Murray, Miss Parkin, J. Parkinson, Esq; Lady G. Paulet, W. C. Pickersgill, Esq.; Mrs. Praed, Mrs. Scrimgeour, G. Shepherd, Esq.; G. Simpson, Esq.; Mrs. Somerset, Lord Stratford de Redcliffe, Mrs. Walkinshaw, Mrs. W. C. Wentworth, J. E. Williams, Esq.; and Miss Orby Wombell.

After the Candidates just named had been elected, Mr. Bates, to whom allusion is made in another column, proceeded to deliver a lecture on the "Vegetation and Insect Life of the Amazons," from which the following are extracts. He said:—

Of the three great river-plains of South America, namely those of the Orinoco, the Amazons and the Plata, the central and largest, or that of the Amazons, is the only one that is clothed with the rich primæval forest so distinctive of this splendid continent. A crowded and luxuriant wilderness of lofty trees covers the whole of the banks of the great steam, from the slopes of the Andes to its embouchure in the Atlantic: so that the traveller, in ascending from the sea-port of Pará to the terminus of navigation—a distance of 2600 miles—sees no break in the serried mass of jungle that forms the water-frontage. The general features of the vegetation are similar to those which characterise the virgin forests of Southern Brazil, namely great picturesqueness in combination and grandeur, beauty and excessive multiplicity of specific forms. There are, however, many points of difference: the region is traversed throughout its whole length by the equator, and permeated by numerous broad streams; the high and uniform temperature and abundant moisture hence resulting, stimulate a much loftier growth of trees, and favour the existence of many noble forms of vegetation unknown in Southern Brazil or other parts of tropical America. But the forest-clothing of the Amazons valley is by no means uniform: differences of soil, climate and hydrographical conditions exist, which, although apparently small, have a powerful influence on the nature of the vegetation. The great plain, indeed, may be divided into three parts, each of which has much that is peculiar to itself. First, there is what may be called the Delta region of the river; secondly, the valley of the Lower Amazons, a district about 200 miles long and from 30 to 80 miles wide; and the third and last division of the country is the great plain of the Upper Amazons.

Mr. Bates next proceeded to examine a few of the more interesting features of the vegetation in each of the three districts just alluded to; beginning with the Delta region, or that lying nearest the Atlantic.

The land (he said), in this portion of the plain, as I have before mentioned, is of small elevation, and the innumerable channels which intersect it as well as the broad rivers, have not the nature of streams, although wholly of fresh water, but of creeks, ebbing and flowing with the tide. These conditions determine, to a great extent, the character of the forest. I will not speak of the Mangrove woods which fringe the banks of all the creeks near the mouth of the river, but carrying you a few miles towards the interior dwell awhile on other features more peculiar to the region. A traveller, embarked in one of the palm-thatched canoes of the country, may wander for weeks along these narrow, silent channels, away from the broad reaches of the main river. The water-frontage, every step of the way, is formed of lofty walls of greenery, the forest is without paths, and all communication between the scattered houses and villages is by means of canoes. As there are no powerful currents to tear away the earthy banks, the luxuriant masses of foliage seem to rest on the surface of the water. For long distances the green walls are draped with a profusion of beautiful-leaved climbing plants (Ipomœas, Convolvuli, Bignonias, Paullinias, Passion flowers, and so forth), concealing, as with an artistically-designed leafy curtain, the trunks of the trees. They even climb up the lianas or bush-ropes which hang obliquely from the boughs of the taller trees, and decorate the boughs themselves with festoons and garlands. Out of breaks in the rich mantle peep the feathery crowns of Palms, which are again hung with strings of creepers; and in many places the whole is beautified to the highest degree by spikes of pink and crimson blossom, or the yellow, trumpet-shaped flowers of the Bignonia or scarlet stars of a large species of Passion flower. In some of the channels this wonderful drapery is much more scanty, and then glimpses are obtained into the interior of the wilderness. The trees are seen to be of endless variety, and the spaces between them filled with a serried growth of Heliconias, Marantas, and wild Bananas; plants, some of them 12 to 15 feet high, which, by the great length and breadth of their glossy light green leaf-blades form a striking addition to the richness of the sylvan picture.

The most peculiar feature of the forests in the Delta region is the very large proportion of Palms, and of the broad-leaved plants already alluded to, of the Banana and Arum types. These occur in most parts, intermingled with the dense growth of ordinary-looking exogenous trees. For scores of miles the ground-work of the forest-picture is formed of the rounded shapes of these trees, having the same general outline as our Oaks, Elms, and so forth; the plumy heads of Palms, in great diversity of form, serving merely as fringe-work or decoration. But in other places Palms predominate, and it is not uncommon to see a dozen or more species, beautifully diversified in shape of leaves, crowns, and stems, growing partly in small groups, partly intermingled for miles without much mixture of exogenous trees. In such places the channels are lined with rows of thick-stemmed arborescent Arums or Caladiums, rising like palisades to a height of 15 feet, with heads of large and glossy heart-shaped leaves.

The ordinary forest trees have an average height of about 80 or 100 feet, but at intervals of a furlong or so a veritable colossus towers up and expands its dome-shaped crown far above the rest. These loftier trees generally belong to the silk-cotton order, the grandest and commonest species of which is the Eriodendron Samauma, whose large woody fruit-capsules inclose a mass of silky fibres enveloping the seed. Another kind is the Bombax Monguba, which has a huge tapering trunk, with dark green bark streaked with yellow. Its flowers, before opening, form large red balls studding the branches, and in æstivation shed their masses of thick heavy stamens, which fall heavily to the ground. India-rubber trees grow in large quantities in these same low-lying districts, and the localities are visited annually in the dry season by collectors, the gathering and exporting of this important material constituting a great part of the industry and trade of the country. The trees have no resemblance whatever to the well-known Caoutchouc plant (Ficus elastica), which we are accustomed in England to regard as the producer of India-rubber, but belong to a quite different order of plants.

After describing some of the more remarkable Palms of the Delta region, Mr. Bates next passed on to the vegetation of the second division of the country, namely, the narrow plains of the Lower Amazons.

We find here (he remarked), a sylvan landscape, entirely different from that just adverted to. As before mentioned, the forest in many parts is limited to a narrow belt of wood along the banks of the streams; the interior of the land being a sandy campo region, covered with a growth of coarse hairy Grasses. These grassy plains, however, have by no means a desert aspect. They are varied with Leguminous bushes having brilliant blossoms, and with scattered trees, many of which, such as the Sucu-uba (Plumieria phagedænica), the Muruxi (Byrsomina), and the Barbatemon (Stryphnodendron), have beautifully glossy foliage, and a profusion of flowers of a white, yellow, or tender blue colour. The plains are also varied with numerous, small, isolated patches of wood, standing in the midst of the grassy level, like copses on a lawn in an English landscape. The hills which limit these plains both on the north and south are generally bare of trees, but one is often surprised to see, rising by the side of a naked hill, another of similar form and height, richly wooded to the summit; the neighbourhood of water seeming to determine the absence or presence of forest.

The general appearance of these limited woods is not greatly different from that of woods in temperate climates. Broad-leaved plants and Palm trees are not externally visible, but only masses of ordinary-looking forest trees having a rounded outline and moderate height. On penetrating, however, into the dense thickets of which they are composed, it is found that the composition of the woods is essentially tropical. The trees are often small species of the same genera which produce loftier kinds in the more luxuriant forests of the alluvial lands; their stems and branches are loaded with similar forms of epiphytous plants and woody climbers, or bush ropes bind the whole together. Palms are plentiful in the thickets, but instead of being of large growth consist of slender dwarf species, most frequently covered with spines (Bactris). One extremely beautiful species, the Attalea spectabilis, peculiar to this sandy district, has no stem at all, but radiates its rigid, elegantly pinnate leaves directly from its root in the earth. Large species of Agaves, Bromeliaceæ, including the wild Pine Apple, whose fruit though small is pleasant eating, and Cacti, are also more plentiful here than in other parts of the country, giving a peculiar character to the general vegetation.

Leaving the varied and picturesque valley of the Lower Amazons, we journey onward to the boundless wooded plains of the Upper River. The traveller, once embarked on the Solimoens, as the Upper Amazons is called by the natives, soon finds that he has entered a region quite different from those bordering the lower course of the stream. He is now in the centre of the continent, remote from the influence of the sea breezes. The river, three miles broad, rolls onward its turbid current through a profound solitude, between broken, clayey, timber-strewn shores, bearing on its surface a continuous line of uprooted trees, islets of marsh plants and other *débris* torn from the land. A stagnant cloudy atmosphere, varied by intervals of burning sunshine and sudden hurricanes, are the chief features of the climate. The forest is loftier, the vegetation more riotous, and, as far as trees are concerned, much more varied than in other portions of the country. And this kind of country continues without interruption in a straight line for 1200 miles! It would occupy the lifetime of a multitude of botanists to investigate the vegetation of so extensive a region; yet, as far as I am aware, no professed botanist has yet paid it more than a passing visit. It may be imagined, therefore, what a fine field lies here for future travellers. The time I spent in this wilderness—four years and a half—was almost wholly occupied in collecting and observing the animal tenants of the region; the few notes I made on the vegetation were only of a general nature. I could not, however, fail of remarking how many of the most conspicuous trees of the forest—the wild fruit trees, for instance, which are extremely numerous, yield delicious fruit, and are mostly unknown to science—were peculiar to this part of the Amazons valley.

Tall Grasses are a striking feature in the scenery; they grow to the height of about 20 feet, their leaves being arranged in the form of a fan, and their long flower stalks terminating in elegant plume-like flowers of a gray colour. The flower stems are of great length and straightness, furnishing the Indians with excellent shafts for their arrows. In some places the Ururucurí Palm (Attalea excelsa) grows by thousands; their smooth columnar stems are all of nearly equal height (40 or 50 feet), and their broad finely-pinnated leaves interlock above and form arches and woven canopies of elegant and diversified shapes. Almost every individual Palm has beneath its crown a bouquet of epiphytous plants, a few glossy leaves of Pothos, varied with pendent fronds of Ferns, and interlaced strings of graceful creepers, all nourished on the decaying matter of the bases of the old broken leaves; this ornamental leaf-work gives an indescribable charm to the interior of the wilderness. The plant which I have termed Wild Banana grows here in vast abundance. The Urania amazonica is one of the grandest and most characteristic trees of the Amazonian forests. Its average height is about 30 feet, and its leaves, as long as those of the Banana, but broader, and more erect and entire, have the same silky surface, varying in shade of green with the play of light. It is called by the Indians Pacova sororóca, that is, Banana thatch-house, or supplying leaves with which houses are thatched, half-a-dozen of the leaves being sufficient to cover an ordinary Indian hut. The flower stem is stout and erect, having a number of large boat-shaped spathes, and the fruit bears a number of largish mealy seeds, which are roasted and eaten by the natives.

As regards the interior of the wilderness, Mr. Bates said:—

The only means of penetrating with ease into the great forest in any part of the Amazons region is to follow the narrow paths which the inhabitants have made in the neighbourhood of their scattered settlements. Near the larger towns these paths are sometimes broad enough to admit a wheeled vehicle, and penetrate a long distance into the interior, but in the vicinity of the smaller places they are simply narrow tracks, made chiefly by hunters, and seldom go farther than a few miles. To wander from them, except in the company of Indians, is to lose one's way in the inhospitable jungle, and perish helplessly. The roads lie wholly under shade, the crowns of the lofty trees on each side meeting overhead, and the damp ground beneath, unwarmed by the sun, is covered with a vast accumulation of dead leaves, and rotting trunks and branches, on which grow plentiful crops of Fungi. A cool moist air and a smell of dead mouldering vegetation accompany the pedestrian in whatever part he treads. There is no carpet of verdure in the denser parts, the pathways alone having a border of shrubs, generally Sedges or Lycopodiums, whose fronds, sometimes of great length and elegance, trail over the humid soil. No flowers are seen, and not much foliage, for the growing, budding, and reproducing life of the forest is carried on in the leafy chaos which closes in 100 feet or more above our heads. In some places, however, especially on the banks of the cool rivulets which flow through every little valley, there is more diversity. In such situations many species of Ferns are sure to be seen growing in great abundance on the ground, climbing the trunks of trees, or hanging from the branches in company with elegant tufts of grey Tillandsiæ—Bromelia-like Air-plants. In the undulating parts of the plains of the Upper Amazons two or three arborescent species of Fern are always met with in these situations; their widely spread heads of elegantly-divided fronds, reared on stems 7 or 8 feet high, forming a great addition to the sylvan scene. It is only on the banks of these streams that Orchids are conspicuous objects; they are found either seated in the forks of the larger boughs which stretch over the water courses, or clothing the trunks of trees near the water's edge, where the rare sight may be sometimes enjoyed of a whole row of broad stems covered with the green blades, varied with masses of white, yellow, or rose-coloured blossom.

The animal life of the forest next engaged attention.

The traveller, said Mr. Bates, would be disappointed who expected to find in these interminable shades a display of the higher classes of animals commensurate with the teeming abundance of vegetable forms. Nothing is more striking than the stillness and absence of life which reign in the heart of the wilderness. (There are here no herds of elephants, buffaloes, deer, or antelopes, such as are met with in the woods and plains of the old world or of North America; two or three species of pachyderms (tapirs and wild hogs), and two small deer inhabit these forests, but like the jaguar and puma they are shy of men and rarely ever seen). As the pedestrian wanders along the narrow silent paths he hears at most the twittering of flocks of monkeys in the tree tops. The wary animals are sure to perceive him before he is aware of their presence; the noises are the notes of alarm, and a crash amongst the boughs overhead announces their flight from the spot. It is only seldom that a break in the dense canopy of foliage permits the flock to be seen, scampering in hot haste along the larger boughs of taking flying leaps from tree to tree. Birds are rather more numerous, and some of those that live in the heart of the forest surprise by the melancholy sweetness of their notes. The best way to see birds, is to choose a place near wild fruit-trees on the banks of the picturesque rivulets which wind through the shades, and remain quietly seated for a time on the trunk of some fallen tree. Numbers of richly-plumaged creatures may then be observed as they come successively to plunder the abundant harvest. Occasionally a troop of scarlet and blue macaws will be descried feeding on the fruits of tall Palm trees, and looking like a cluster of gaudy banners beneath the dark green crown; or flocks of scarlet tanagers lighting up the foliage of Cecropia trees with the flame-coloured liveries.

But these sights are rare, and as ingredients in the woodland scenery are not to be compared with those presented by much more lowly order of creatures—I mean the butterflies. This class of insects is universally allowed to reach its highest degree of perfection and beauty in form and colour in the tropical forests of America. They are, throughout their whole existence, more closely associated with, and dependent on, the vegetable kingdom than any other group of animals. It is not surprising, therefore, that in a region where vegetable forms are so richly developed, their satellites, the butterflies, should make a corresponding show. It is not too much to say that the absence of flowers in the forest, especially in the less dense portions, is compensated by the abundance of these brightly-coloured insects. The most remarkable group in this respect is the Heliconidæ—a family quite peculiar to tropical America—and represented by a large number of species, each of which swarms in individuals. These insects are of slow flight, and being always seen sailing about the bushes or lower trees, their showy colours, black, white, yellow and crimson, are a charming set off to the monotony of the green foliage. Some of them are often seen associated in pairs or little groups, performing a kind of slow dance, moving with expanded wings slowly towards and away from each other, sometimes for an hour together. Another group, the Morphos, are also unfailing ingredients in every sylvan scene. The large satiny blue species (M. Menelaus Nestiu), and the blue and black species (Achilles and Deidamia) are the most common. They choose the narrow alleys, open spaces, and margins of shady rivulets, along which they move with heavy undulating flight. The blue lustre of one of the species (Rhetener) is of surpassing richness, and dazzles the eyes when the insect flaps its wings in the gleams of sunlight. Several other kinds have a more lofty flight, and although very abundant, are almost unattainable prizes; their habit being to sail with outstretched wings (half a foot in expanse) to and fro across sunny spaces between the crowns of trees. The lazy, gliding flight of these gigantic insects in the heat of noonday remains always associated in the memory with the most beautiful scenes of these luxuriant forests.

Every part of the forest is tenanted by its peculiar species of these insects. The dry, scanty woods of the sandy valley of the Lower Amazons yields two of the most handsome kinds of the whole country. One of these is the Sapphire butterfly (Callithea Sapphira), which abounds to such an extent in an otherwise barren wood near the mouth of the Tapagis that the leafy glades seem to blossom with winged flowers. The sunny skirts of the forest in every part have their own frequenters which never enter the shades; these are generally of less brilliant hues than the denizens of the forest, although showy enough in their hues of yellow and orange, and some of them are of most graceful shapes (swallow tails). The open groves and

Orange orchards near villages again are tenanted by peculiar forms which one never fails of finding in such places, and there only. Amongst them are the Ageronia, which settle with expanded wings on the trunks of trees, and in sporting together make a singular noise with their wings, like the cracking of a whip. In the reeking Palm-swamps several characteristic kinds occur, such as the Epicalia ancea, velvety black with bands of blue and orange. These delight to settle on the broad glossy leaves of the wild Plaintains, where rays of sunlight penetrate the shade. But it is in the shadiest parts of the forest that the bulk of the handsome species are exclusively found; although the males of a great number of them emerge on calm warm days to sport in sunny places sheltered from the wind, returning in the afternoon by troops to their partners in the tree tops (such are the Catagramma, the Eunicæ, and others). Numerous groups of species live entirely in the heart of the forest, some of these are not a whit less rich in colour than those which spend part of their lives in the sun (such are the Papilios of Æneas group. Zeonia, &c. Other shade lovers have transparent glossy wings. In many parts of the forest these are found in large flocks, and when they have a portion of colour in their wings form conspicuous subjects amongst the scanty herbage. Two of the most beautiful are the Hetæra Aurora and Esmeralda, the bright rosy and violet patches on whose wings deceiving one in the dark places where they fly by their resemblance to the petals of flowers.

A vote of thanks was given to Mr. Bates for his admirable lecture, after which Mr. Wilson Saunders made a few interesting remarks on Root Parasites. On the table in front of the lecturer were cases containing magnificent examples of the insects above alluded to; also a few living plants illustrative of the vegetation of the Amazons, and some Orchids and charming cut blooms of Tree Pæonies from Mr. Bateman.

Notices of Books.

Lawson's Pinetum Britannicum.—No. 5 of this superb work is before us, containing magnificent figures of *Picea Apollinis* and *Pinus Jeffreyi*, together with an abundance of useful woodcuts. To the first of these Mr. Lawson has very judiciously referred, as mere varieties, *P. Reginæ Amaliæ* and *P. Peloponesica*; and we should have thanked him in the name of true botanists if he had reduced the whole of them to the ranks of *P. cephalonica*. If he has not done this he has at least stated with fairness and impartiality the differences supposed to exist among them.——As to *Pinus Jeffreyi*, so called after poor little Jeffrey who found it, and who has probably perished in some botanical adventure, all we need say is that it is one of the glorious race of three-leaved Pines, admirably illustrated by the skilful pencil of Mr. Robert Black.

Miscellaneous.

A New Garden Pest.—The large water-tanks of the hothouses at the Garden of Plants are at present peopled with a race of obstinate enemies to plants, which the greatest care and caution have as yet been unable to extirpate. These enemies are no other than the Oscillaria utriculata, a sort of cryptogamous plant of wonderful fecundity, and which was hitherto only known to thrive in hot mineral waters; it seems, however, that it grows and multiplies admirably in any water of a sufficient temperature. Its shape is somewhat like that of a small Mushroom with its stalk turned upwards. Examining it with attention we perceive round its centre a circle of a light green hue, which renders it distinguishable from the general colour of the plant, which is dark green. From this circle other Oscillarias are constantly emerging, which literally grow in size under the very eyes of the observer, and which immediately begin in their turn to give birth to other Oscillarias. Untold generations are thus produced in the course of 24 hours; a few minutes are quite sufficient to infect the water of a tank. The numerous red fish which people the reservoirs of the hothouses and purge the water of all noxious principles seem to be powerless against this new invader, whose misdeeds we have not yet half enumerated. When the Oscillaria has at length exhausted its whole reproductive power (for everything must have an end), it suddenly goes and joins its fellows, whereby a fibrous sort of film, or rather sheet, is formed, which assumes the appearance of felt, then rapidly becomes black, and increases in weight by some unaccountable process, until it sinks to the bottom of the tank. This looks as if the plant were dead, but it is nothing of the kind; in this dormant state it sticks to and envelopes the roots of the aquatic plants it finds, and corrodes them so as soon to kill them. Another evolution is still to come; after doing as much mischief as possible under water, the sheet of felt again acquires sufficient lightness to return to the surface; it loses its blackness, becomes green again, then separates once more into a thousand little individual Oscillarias, which recommence the sort of life already described. No remedy has hitherto been found against these marauders that have found their way into the reservoirs by some unaccountable accident; they require a temperature of from 40 to 75 degrees Centigrade (104 to 167° Fahr.) for their existence. They might therefore be got rid of by lowering the temperature, but that would injure the valuable plants as well. *Galignani, in the Times.*

Ivy (Hedera Helix, *L.*) in MS. Sloane, No. 3489, 3, spelt Ivyne, Ang. Sax. ifig, a word strangely mixed up with the names of the Yew tree, Old High Germ. ebah, from which, according to Grimm, arose ëbowe, ëbhowe, ëbihowe, ephou, epheu, and in Alsace epphau. It seems to have originated with the Lat. abiga, used by Pliny as the name of the plant called in Greek Chamæpitys, and miswritten by some copyist ajuga, which was further corrupted to the Med. Lat. iva. Looking at the names of the two trees, the Ivy and the Yew, in the different languages of Europe, we cannot doubt that they are in reality the same word. Indeed in Höfer's "Wörterbuch der in Oberdeutschland üblichen Mundart," we find that Ive, or Iven-baum, belongs equally to one or the other. In English we get Ivy from iva, and Yew from the same word, written ina. The source of the confusion seems to have been this. The Chamæpitys of Pliny, as we learn from Parkinson, Th. Bot. p. 284, was "called in English Ground-pine and Ground-ivie, after the Latin word Iva." But this name Ground-ivy had been assigned to another plant, which was called in Latin Hedera terrestris; and thus Ivy and Hedera came to be regarded as equivalent terms. But there was again another plant that was also called Hedera terrestris, viz., the creeping form of Hedera Helix, and as Ivy had become the equivalent of Hedera in the former case, so it did in this too, and eventually was appropriated to the full grown evergreen shrub so well known. *Prior's Popular Names of British Plants.*

Calendar of Operations.

(For the ensuing week.)

Proceed with potting all stove or greenhouse plants which require it, in order that they may have the advantage of the next two months in which to produce a vigorous growth; and have plenty of time for ripening it before winter. Many free growing plants which were potted early in the season will now require larger pots, with which they should be immediately supplied, unless it is wished to flower them in their present sizes, and somewhat earlier than their usual season. In the latter case occasional waterings of liquid manure of moderate strength will be useful, both in maintaining the present vigour of the plants, and in assisting the future development of their flowers.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors work up arrears with all possible speed while the weather is at all favourable. Rolling and mowing should be proceeded with unremittingly. Newly laid turf should be levelled and rolled whenever the ground is at all damp, in order that an even surface may be obtained.

Azaleas.—Specimens now in full blossom must be shaded from bright sunshine. Plants that have been kept in heat to bring them into flower will now require pretty liberal supplies of water. Great attention should be paid to ventilation, particularly in guarding against cold currents of wind. Young plants will grow rapidly if shifted and placed in a moist warm temperature; see that they are clear of insects.

Bedding Plants.—In order that half-hardy plants may be induced to make rapid progress when planted out, it is absolutely necessary that those taken from indoor protection should undergo a hardening process for at least a week. In no case is the old adage of "The more haste the worse speed" more applicable than in this affair. To be well established in their pots, and well hardened, is to insure success. Many, however, cannot command frame or pit room sufficient to receive a host of potted off Verbenas, Calceolarias, Heliotropes, Petunias, Fuchsias, Pelargoniums, &c.; such, therefore, cannot put off stock singly. The next best plan is to prepare some raised beds in the kitchen garden with old vegetable mould (light and sandy), and to transplant, or, as gardeners term it, prick out the struck cuttings from their store pots into these beds, about 3 inches apart—in fact, so that they can be taken up by a trowel, with a ball of earth; they must have hoops and mats, or some good covering every night, and in bad weather perhaps all day. In the second or third week in May they may be transferred to their destination, removing with good balls of earth.

Chrysanthemums.—Shift now the strong young plants from suckers parted last autumn; and shift at once into the blooming pots. The plants will then break uniformly, and can hardly fail to form good well-balanced specimens.

FORCING GARDEN.

Figs.—As the season advances, gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Melons.—If there be any room to spare on kerbs or over back flues of houses "at work," some of the finer Melons may be placed thereon in pots or boxes. These, however, should be roomy and filled with mellow turfy loam, out of which the loose soil has been separated.

Peaches and Nectarines.—Continue to keep the shoots well tied in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base. Where a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the paths, borders, &c. Attend to the disbudding and thinning of the fruit in the second house.

Pines.—Let shifting take place as soon as the plants have filled their pots. Give air freely to all growing stock, and above all plenty of atmospheric moisture.

Vines.—Let late Vines now breaking have every attention in regard to disbudding, &c. The litter or dung covering should now be removed from all borders, whether early or late. Litter in an unfermenting state keeps the soil cool instead of imparting warmth in the early part of summer.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to disbud wall trees, and to keep them free from insects; also see that the blossoms of Peach and Nectarine trees are carefully attended to in the way of protection.

Broccoli.—If not already done, sowings of the best kinds may now be made. Ward's Superb, a late form of Knight's Protecting, is found to be one of the best late spring whites. Snow's Superb, as a winter white, and Mitchinson's Penzance for early spring, are also exceedingly good. The true Autumn Whites, like Grange's, seem to have got scarce; and there is now little to fill up the gap between Walcheren at the end of August, and Snow's Superb at the beginning of December.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending April 27, 1864, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 21	14	30.063	29.960	71	33	52.0	51	49¼	E.	.00
Friday 22	○	30.156	30.122	65	26	45.5	51	49¼	N.E.	.00
Satur 23	16	30.210	30.182	69	37	53.0	51	49½	E.	.00
Sunday 24	17	30.232	30.148	60	34	47.0	50	49½	E.	.00
Mon. 25	18	30.148	30.089	61	35	48.0	51	50	N.E.	.00
Tues. 26	19	30.117	30.114	57	41	49.0	51	50	N E	.01
Wed. 27	20	30.152	30.119	61	40	51.0	51	50	N.E.	.00
Average.		30.154	30.105	63.4	35.1	43.3	51	49.7		.01

April 21—Very fine; cloudless; excessively dry air; fine at night.
— 22—Very fine throughout; slight frost at night.
— 23—Slight haze; very fine; dry easterly wind.
— 24—Hazy, overcast; fine at night.
— 26—Fine; uniformly overcast; fine; slight rain.
— 27—Overcast; dry cold air; uniformly overcast; fine but cold.
Mean temperature of the week, 2 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending May 7, 1864

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	61 6	39.5	50.0	13	0.31 in.	3	7	7	4	5	7	4	1
Mon. 2	62.5	39.1	50.3	13	0.72	4	9	10	1	6	6	2	2
Tues. 3	61.8	40.2	51.0	17	0.88	2	7	10	1	4	6	2	6
Wed. 4	62.4	38.4	50.4	13	0.70	6	10	8	—	6	4	3	1
Thurs. 5	62.5	39.0	51.2	20	1.26	5	11	4	3	8	5	1	1
Friday 6	61.3	38.9	50.1	14	0.68	—	11	5	4	4	6	5	3
Satur. 7	59.1	40.0	49.5	16	0.80	0	6	6	2	6	7	3	2

The highest temperature occurred on the 6th, 1842—therm. 84 deg.; and the lowest on the 2d, 1855—therm. 20 deg.

Notices to Correspondents.

Aucuba Himalaica, *Hook. f. and Thomson: G.* This is figured and described in Dr. Hooker's "Illustrations of Himalayan Plants," plate XII. It is strictly dioecious, and differs from A. japonica in the much narrower, longer, more attenuate leaves, and in the long acuminate tips of the petals of the flowers of both sexes. The flowers are small, of a red-purple colour.

Fungi: *C L M.* Your Fungus is the common Morelle, one of the best and most wholesome of Fungi. The best way of dressing them is to stuff them with minced veal or chicken ham, with a minute portion of garlic. *M. J. B.*

Glass: *Z S.* It is of no consequence whose glass you use; it would not be a bad plan to take such as Hartley's rough 21 oz. for the sloping roof, and some other kind, of similar weight, for the uprights.

Insects: *J A B.* The grubs which had attacked the stems and branches of your Apple trees are the caterpillars of the wood leopard moth, Zeuzera Æsculi. The moths, which appear in the middle of summer, are very conspicuous, being white with many steel-blue spots on the wings. They should be sought for on the bark of the trees and destroyed. Tobacco-smoke blown into the burrows of the caterpillars will dislodge them. *W.*

Lily of the Valley: *A Subscriber.* No roots are better than such as grow in our good English woods. Plant them a few inches deep in rich loam or loamy clay, and if below turf it will not matter. The Lilies will beat the Grass. The most vigorous plants will produce the finest flowers; that's all.

Names of Plants: *A C.* Dendrobium amœnum.—*G G G.* You are in bad hands; every name is wrong.—*Arthur King.* None of the genus are handsome enough for cultivation where striking beauty is required.—*Youngster* must consult his Ainsworth's Latin Dictionary.—*A R K.* Next week.

Roses: *W V.* states that the buds on his Standard Roses (especially the newly planted ones) and the dormant buds which were put in last year, have in numerous instances been eaten away down to the wood and entirely destroyed. He wishes, therefore, to know by what insect the mischief is done, and whether there is any preventive. Perhaps some of our readers will kindly furnish the information required.

The Curatorship referred to on the 20th of February, has been given away, as we have already partly announced.

The Hydropult: A paper on this overrated machine is in type, and will appear next week. We have no room left this week.

Verbena: *A P.* Large and very handsome; send it to the next meeting of the Royal Horticultural Society's Floral Committee.

Vineries: *W.* No better Vineries are known than such as are made of iron. If you want proof go to the old Horticultural Garden at Chiswick, and look at the great iron Vinery there. Your informant can have no practical knowledge of the subject.

Misc.: *B.* There is no known fossil Orchid.—*A Z.* We never answer legal questions. You will rely on the opinion of a solicitor, if you are wise, *and upon that of no one else.*

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Fatty matters	26.50
*Albuminous compounds (flesh-forming matters)	14.93
Gum, starch, sugar, and digestible fibre	31.20
Woody fibre (Cellulose)	16.13
†Mineral matters (Ash)	4.33
	100.00

* Containing nitrogen, 2.39. † Containing silica and sand, 1.07.

"101, Leadenhall Street, London, E.C.—April 15, 1864.

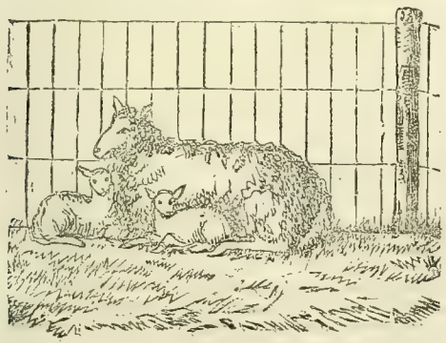
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"To John Coleman, Esq."

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1864.

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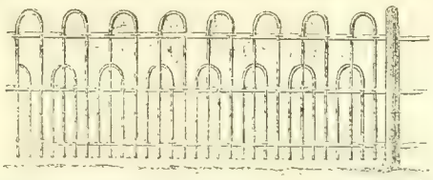
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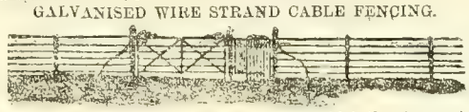
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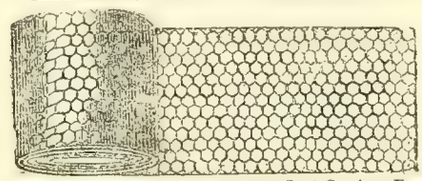


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THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.

ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.

RICHARD GRIFFITHS WELFORD, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

Applications for Admission and for further particulars may be made to the Principal.

The Agricultural Gazette.

SATURDAY, APRIL 30, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, May 2—Central Farmers' Club .. .. 6 P.M.
WEDNESDAY, — 4 { Agricultural Society of England .. Noon / Torrington.

"THE practical education which is given on the farm to the agricultural student is better given in the home and on the farm of a practical tenant farmer than on the farm attached to an agricultural college."

This is the substance of Dr. VOELCKER's remark the other day on direct agricultural teaching, during the discussion which ensued upon Mr. HOLLAND's excellent lecture on Agricultural Education. We presume that most people will acquiesce in his opinion. His former colleague, Professor COLEMAN, agreed with him, though not entirely—believing that whatever the difficulty of commanding the attention of a large field class, it might be overcome. But why is it that the practical teaching upon the College farm is so confidently asserted and so readily admitted to be less efficient than it is upon a private farm? We imagine that it is simply because this practical teaching is not, as it should be, made the aim and end of the Institution. It is a monstrous failure

indeed that is confessed, when an Institution equipped to the utmost for the very purpose of agricultural education, with special instructors for every branch of it, is admitted to be beaten by the ordinary practical farmer, who takes a pupil merely for the sake of an addition to his income, and, in nine cases out of ten, leaves him to seek his agricultural knowledge for himself.

The Royal Agricultural College has Principal, and Professors, laboratories, lecture-rooms, and museums: an apparatus costing some thousands of pounds per annum. There is no better school of chemistry or of botany—a man shall acquire at Cirencester the skill to analyse a soil or dissect a plant as rapidly and perfectly as anywhere. But of what use to him is this if he be sent out unable to cultivate the one or grow the other profitably. Let the Institution drop its distinguishing title altogether, if it cannot compete with the ordinary practical farmer in the work of practical agricultural education.

However good a school of chemistry, of botany, of geology, and of other branches of a scientific education, it may be, there are schools as good elsewhere. We are very unwilling to believe that they are equally deserving of agricultural patronage, but that is simply because of the agricultural object which is professedly kept in view at Cirencester. We don't believe that the English Agricultural Society will be obeying the instructions of its charter if it strives merely to promote general and scientific education. Nor do we believe that it can properly do anything to stimulate and help the Royal Agricultural College, except in so far as that Institution is agricultural.

The intentions of the original promoters of the Institution are plainly to be seen in the existence of the College farm as a necessary part of the establishment, which seems to us a necessary part of every agricultural school, and which ought to be at least as profitable there as it is in the hands of an ordinary business man. How far the intentions of the promoters of the Cirencester College have been obeyed in its subsequent management is also to be seen, not merely in the great expenditure of effort on particular departments to the comparative neglect of others; but also in the relative rank and reputation which those departments respectively hold amongst the pupils; for this has arisen, of course, out of the estimation in which they are severally held by their superiors.

What is the history of agricultural teaching at Cirencester? Professor Coleman, as able and efficient a teacher as could be desired, had the management and marketing of 500 acres of land upon his shoulders, he lectured once and sometimes twice daily in the theatre, superintended daily field classes also, and was, we presume, the hardest worked as he was the worst paid officer in the place. One hundred students were provided in this way with all of agricultural instruction they received. How was it possible that Dr. Voelcker, the witness of all this, should avoid the conclusion that a private farm is better than the College one for instruction in farm practice; or that this opinion should command such universal acquiescence?

More attention certainly, or at least more labour, is being given now to the practical teaching on the farm than has hitherto been possible. The farm manager now undertakes only field classes in addition to his special duties; and a succession of lecturers are now engaged on the different sections of the general agricultural field for the full demonstration of each in the theatre. But if the teaching of farm practice had the place which it ought to have in the general scheme of education at the Agricultural College, no students ought to be received who could not prove on examination that they had already acquired all that an ordinary "middle class" education confers—twice or thrice the time for practical instruction that is now allotted daily ought to be allowed—twice or thrice the number therefore of practical instructors ought to be at work—instructions in the mysteries of chemical analysis, and laboratory work in general, ought to be altogether abandoned—and the scientific teaching ought to be conducted not for the purpose of making chemists and botanists and geologists, but for the purpose of making farmers.

Let the Agricultural Society *then* come in and declare that young men from this or any other establishment in the country where there are at least 20 students engaged after the fashion thus indicated, are welcome to come and contend before it at an annual examination in the principles and details of farm practice, for prizes of 40*l*., 50*l*., and 60*l*. per annum, to be held a second year if won a second year; and the nature of the examination which would be prescribed, with the direct spur of so handsome a reward, would both guide and stimulate agricultural education so as it has never been guided and stimulated in this country hitherto.

—— Our former correspondent Mr. J. H. Dickson, who has for many years in this and other Journals urged the increased cultivation of Flax, must be greatly gratified by the very largely extended growth of the crop in Ireland, which recent statistical returns announce. He is now endeavouring to introduce into cotton mills the fibre not only of Flax but of Hemp and Rheea and New Zealand Flax, as prepared by his patent process.

Of this we will merely say that the samples we have seen of fine soft short and flossy fibre, prepared by his method, seem to us as capable of being dealt with by cotton machinery, as is the Cotton fibre itself. Except, however, as every additional facility for working up so valuable a produce of the land as Flax, must tend to the promotion of its cultivation—the particular topic to which Mr. Dickson is now drawing public attention is not of direct agricultural interest—and we are therefore unable to reproduce here the discussions which in other journals he has been of late conducting. We can merely express the hope that he may succeed in his attempt to interest the large, wealthy, and energetic body of Lancashire manufacturers in his schemes for the benefit of Irish and other Flax-growing districts.

—— In addition to Mr. Blundell's former remarks on the cultivation of the Cattle Melon, we have to add, as a reply to many inquiries, that the Gourds so called cannot when ripe be pitted as Swedes or Mangel Wurzels are. They must be hung up or placed separately on a floor for use. They would not generally be required beyond the autumn months, as Mangels and Carrots and other roots adapted for Cow-feeding come into use in general during the winter and spring. More, therefore, should not be grown than may be consumed in September, October, and November. And these must be housed before the first frosts either by laying them on a sheltered floor or by stringing them up and hanging them in a sheltered room or shed.

—— There is now in progress, and will continue all the ensuing week, a steam cultivation competition at Roanne (Loire—France), which is being held during the ordinary annual agricultural gathering of that district. Prizes of 100*l*., 80*l*., and 40*l*. respectively are to be awarded by a jury, of which Messrs. Fisher Hobbs, Jacob Wilson, and T. J. Thackeray are the English members.

NOTES ON CELEBRATED SHORT-HORNS.

No. V.

THE DUKE OF NORTHUMBERLAND.

[The following letter by the late Mr. Bates, of Kirklevington, appeared on Nov. 14, 1842, in the *New Farmers' Journal*.]

Sir.—Herewith I send you the pedigree of my Short-horn bull "Duke of Northumberland," as described in the "Herd Book" (1940, in 3d vol.), and which is as follows:—

Colour roan, calved Oct. 15th, 1835; got by Belvidere (1706), dam (Duchess 34th, page 356 of vol. 3d of "Herd Book") by Belvidere (1706, g d (Duchess 29th) by second Hubback (1423), gr g d (Duchess 20th), by the Earl (1511), gr gr g d (Duchess 8th) by Marske (418). gr gr gr g d (Duchess 2d) by Ketton 1st (709), gr gr gr gr g d Duchess 1st, bred by Mr. Charles Colling) by Comet (155). [This cow was bought by me at Mr. C. Colling's sale, at Ketton, near Darlington, in 1810.] Gr gr gr gr gr g d by Favourite (252), gr gr gr gr gr gr g d by Daisy Bull (186). [This cow was also bought of Mr. C. Colling, by me, in 1804.] Gr gr gr gr gr gr g d by Favourite (252), gr gr gr gr gr gr gr gr g d by Hubback (319), gr gr gr gr gr gr gr gr g d [bought by Mr. C. Colling, from Stanwix, in 1784, of the late Duke of Northumberland's agent] by Mr. James Brown's old red bull, (97).

The *whole* of this family of Short-horns are *alone* in my possession—having purchased my original cow of this tribe of cattle of the late Charles Colling, Esq., then of Ketton, near Darlington, 38 years ago; they had been in the possession of Mr. C. Colling 20 years, who purchased his original cow, from Stanwix, of the agent of the late Duke of Northumberland, and Mr. C. Colling named her "Duchess" (which name I have continued), and when the first "Herd Book" was prepared, I called the Duchess by Comet (155) No. 1. The Duke's dam, Duchess 34th, is the oldest cow I have of the family, and "The Duke" was her first calf; she has had eight calves, and is (I hope) again in calf to "*The Duke*," her eldest son. She was calved September 14th, 1832, and in her tenth year she obtained the highest prize at the Yorkshire Society's late exhibition, at York, in August last, as the best cow of any age, the only time she was ever exhibited. Her daughter, Duchess 43d, obtained the premium as the best year-old heifer at the Oxford meeting of the Royal Agricultural Society of England, in 1839. Her eldest brother, "*The Duke*," obtaining at the same meeting the premium as the best bull of any age, being then three years and eight months old; and the sister in blood to the Duke's dam obtained at the same time the premium as the best heifer in calf, though then only a year old; the Duke's own sister was then also in calf. And these same two heifers were awarded the first and second premiums at the Yorkshire Society's exhibition at Hull in August, 1841, as the best three-year old cows. "The Duke" also obtained the highest premium as the best two years old bull, at the Yorkshire Society's first exhibition at York in 1838; and premiums likewise at Stockton and Darlington, the same year (1838), as the best bull of any age, and obtained the highest premium as the best bull of any age, at the late York meeting in August last. He never has been exhibited but upon the above five occasions.

I named this bull "Duke of Northumberland," to perpetuate the commemoration, that it is to the judgment and attention of the ancestors of the present Duke of Northumberland that this country, and the world, are indebted for a tribe of cattle which Mr. C. Colling repeatedly assured me *was the best he ever had, or ever saw*, and that his first cow of this tribe was better than any he could produce from her, though put to his best bulls, which improved all other cattle. And *this tribe* of Short-horns was in the possession of the ancestors of the present Duke for two centuries; and Sir Hugh Smythson, the grandfather of the present Duke, kept up the celebrity of this tribe of cattle, by paying the greatest attention to their breeding—he used, a century ago, regularly to weigh his cattle and the food they ate, so as to *ascertain the improvement made in proportion to the food consumed*. This was before Mr. Bakewell was known as a superior breeder of stock, and this system I adopted above 50 years ago, not knowing that it had been previously done, and it was from the knowledge thus acquired by weighing the food consumed, and ascertaining the improvement made, that I became enabled to judge of the *real merits of animals by their external characters*, and in my experience as a breeder I have never found it to fail. From that knowledge thus acquired I selected *this tribe* of Short-horns, as superior to all other cattle, not only as small consumers, but as great growers and quick graziers, with the finest quality of beef. Mr. C. Colling exhibited at Darlington, in the spring of 1799, his two first calves by his bull Favourite (252), a heifer and a steer (afterwards known as the Durham ox, and exhibited for six years by Mr. John Day)—these each three years old. The heifer was of this Duchess family, and she was larger than the steer, and exceeded him in every point, and on being slaughtered the following week weighed above 100 stones, of 14 lb. per stone; but her great excellence consisted in the superior quality of her beef. She was uniformly covered with fat on every part. Mr. Robert Thompson, then of Chillingham Barns, in Northumberland (whose superior judgment in Short-horns and Leicestershire sheep no one ever questioned) was at Darlington that day, and we repeatedly met each other at this heifer, both agreeing that she far exceeded any animal we had ever seen at her age. Finding that tribe of cattle were equally extraordinary as great milkers, induced me afterwards to purchase my first Duchess, then in-calf by Favourite of my bull Ketton 1st, and her daughter, and afterwards at the sale in 1840 the granddaughter. My first Duchess calved at Halton Castle, in Northumberland, June 7th, 1807; she was kept on grass only, in a pasture with 19 other cows, and made in butter and milk for some months above *two guineas* per week, or 42*s*. English money.

As a proof that this tribe of Short-horns have improved under my care, I may mention that "Duke of Northumberland's" dam consumes one-third less food than my first Duchess (purchased in 1804), and her milk yields one-third more butter for each quart of milk; and, whilst the consumption of food is one-third less, and the milk yields one-third more butter, there is also a greater growth of carcase, and an increased aptitude to fatten.—"*The Duke's*" dam, Duchess 34th, was found with her right leg broken below the knee, when on grass, before she was a year old, and was (in consequence) confined in the house, and was not able to bear her weight on this leg for near nine months afterwards—thus preventing any improvement for that length of time—and is a cow that never has been indulged at any period—for some years scarce ever tasting a Turnip in the winter months—and yet preserving her condition, and breeding regularly.

It is now above 60 years since I became impressed with the importance of selecting the very best animals to breed from, and for 25 years afterwards lost no opportunity of ascertaining the merits of the various tribes of Short-horns—and it was *only then* that this could be done, as there is scarce a vestige remaining of the many excellent cattle that were then in existence. I have never used any bull that had not Duchess blood, since I became possessed of this tribe, without perceiving, immediately, the error—except Belvidere (1706), and he was the last bull of a long race of well-descended Short-horns, whose blood (in the Princess, cow) went direct from Hubback (319) to Favourite (252)—as in the Duchess tribe, and in Yarborough's dam (second Hubback's blood, 1423)—and these are the only *three tribes of Short-horns* that were so bred as females (and

Mr. R. Colling's white bull the only male, being of the Princess family)—and all these three tribes, so bred, are united in the dam of the Duke of Northumberland—and there are no other Short-horns so bred.—The superiority of the stock of Mr. R. Colling's white bull over Favourite's stock (252), his sire, was evident to me in 1804—and was admitted by Mr. C. Colling—and I would gladly have then given 100 guineas to have had my first Duchess bulled by him, but I could not obtain it on any terms, and it was 27 years afterwards before I obtained the same blood in Belvidere (1706), the last pure blood of that tribe of Short-horns. For the last 35 years I have paid little attention to the subject, but the matter was as perfectly fixed in my remembrance as that of the pence or multiplication tables; nor have I had cause to alter any opinion I then formed, and each revolving year has given me additional proofs that the judgment I formed 35 years ago was correct in every particular. From 1805, when the Tynedale Ward Agricultural Society was formed, till 1812, I exhibited cattle at their Ovingham shows, and my success, even with inferior animals of my breeding, is yet well remembered, but I never showed my first Duchess, nor her son, Ketton 1st; and from 1812 till the York first meeting, in 1838, I never showed any cattle at public exhibitions (26 years between); and it was with great reluctance that I again did so, well knowing what I had seen practised at public meetings; but I consented, at the urgent request of a then stranger, who happened unintentionally to have seen my cattle when buying horses of my tenants, and I exhibited seven Short-horns for eight premiums at York, in 1838, and though five premiums were awarded to them, the three best animals were rejected; and then I sent the next year to the Royal English Agricultural Society's first meeting at Oxford, expecting those placed before them at York would have again made their appearance at that exhibition; but none of those appeared, and all my three rejected at York obtained the highest premiums; the fourth (the cow) I there obtained the premium for was placed second at York, as a three years old, to one of my own, which got her thigh broke in the field, or she would have gone to Oxford instead of the one I did send.

I have entered thus into detail to answer objections by quoting facts, to prove that this tribe of cattle have not had a recent origin; and though the best cow then in existence when I purchased my first Duchess, I have yet improved upon her, while all other Short-horns then in existence have been getting worse and worse year by year.

Impressed with the importance of the subject of improving the live stock from my attention to it, I addressed a printed letter in 1807 to the Board of Agriculture, and all other agricultural societies; but I met with the most violent opposition. I trust that the spirit of inquiry is at length awakened by the formation of the Royal English Agricultural Society, and that thus the large landed proprietors of the United Kingdoms will direct that attention to the subject which it deserves, and which their own interest so evidently requires. It is only by the amelioration of the live stock that expensive improvements can be prudently undertaken; this once made evident, the increase of green crops to rear and fatten the live stock furnishes the manure that increases the produce of grain crops, and adds not only to the increased wealth of the nation, and to its increased population, rendering these kingdoms thereby independent of a foreign supply of the necessaries of life, and of those great fluctuations in price which inevitably have ever followed a foreign supply, increasing the wealth of the importers for a time, and generally ending in their ruin, whenever a kind Providence sends a fruitful season.

As the post hour draws near I must conclude, to enable you to print this letter in the same paper in which you purpose inserting the portraits of "The Duke" and his dam.

I do not expect any artist can do them justice. They must be seen, and the more they are examined, the more their excellence will appear to a true connoisseur; but there are few good judges—hundreds of men may be found to make a Prime Minister, for one fit to judge of the real merits of animals.—In great haste I remain, yours truly, Thomas Bates.

Kirklevington, near Yarm, Yorkshire, Nov. 11, 1842.

SCAB IN SHEEP.

This disease is produced by a small insect furnished with legs, having at their extremities trumpet-like appendages and suckers by means of which they maintain their hold of the animal, soon perforating the cuticle and the membrane which is the principal seat of sensation. It burrows itself in this pulpy substance, producing a degree of irritation quite unbearable to the animal. The itch in man and the mange in horses are analogous diseases to the scab in sheep, and like it are also produced by an insect. When once the insects get fairly rooted in a flock, unless prompt and effective measures are used, a great loss to the flockmaster is the result. The writer has frequently known flocks to suffer from scab for years without ever having been fairly eradicated, and that entirely from inattention and the want of proper ingredients for effecting a cure.

From 10 to 15 days after the sheep has received the infection, supposing that it has been contracted by coming in contact with animals suffering from this disease, it begins to rub on every bank stone or other object of resistance which may happen to come within its reach. At the same time it is constantly kicking with its hind feet and gnawing itself with its teeth, particularly when the insects are at work within reach of those members; hard knots or pimples are soon formed on the parts where the acari have found a footing, the continued rubbing, kicking, and gnawing, soon breaks the pustules, which exude a hot acrid fluid; this fluid when discharged forms a scab on the skin, destroying the cuticle or scarf skin; it then affects the true skin in which the wool is rooted, and from which it derives its nourishment. Still the rubbing continues, but this time the scab when displaced carries with it a part of the wool, leaving an open sore; if this state of things is allowed to continue, the excessive irritation and constant exertion of rubbing soon reduces the animal to a state of great emaciation and prostration of strength. The wool also becomes dead, and if suffered still to remain unchecked, the violent rubbing and discharge from the sores often causes it to peel off in a hard caky mass; and as is frequently the case at this stage of the disease, death puts an end to the animal and its sufferings.

The scab in all animals is seldom found to originate where the inhabitants are comfortably lodged and liberally fed. Like many other diseases it is fostered and propagated by a diseased and weakened system; the blood becomes poor and unfit to support the body in a healthy state; hence we invariably find the first attacks of scab to originate amongst the starveling flocks pastured on the roadsides and commons, or amongst the sheep on some exposed and barren mountain top, where an insufficient quantity of rough innutritious food affords a scanty subsistence for those denizens of the wilderness. I doubt not the disease is caused by the sheep grazing on exposed situations being hunted and overheated by the use, or rather we may say abuse, of the shepherd's faithful servant the dog, when in the hands of careless and inexperienced servants. The sheep when in this heated state being exposed to the inclement elements on some bare mountain side, frequently become affected with diseases of the skin. An experience of twenty years in the management of large sheep flocks, partly gained amongst the Cheviot and Blackfaced sheep of the West of Scotland, the Downs and cross breds of the South, and the Leicesters and long wools of the Midland counties of England, confirms the opinion that the scab rarely originates in well managed well kept flocks; in fact in all my experience I never knew a flock suffer from scab under those circumstances, except from infection, contracted most frequently by coming in contact with infected animals, or in many cases from being pastured on land where sheep suffering from the disease have been recently lying on uninclosed sheep walks, where a right of road exists, as is the case in many parts of the country, the droves passing to and from fairs and markets frequently leave the disease amongst the native flocks. Another common cause of the transmission of the scab to clean flocks is from sheep being sent to fairs and markets, and the trade not being equal to the farmer's anticipations they are brought home again and mixed with the regular flock to await the next fair or market, and not unlikely in the interval may have come in contact with sheep suffering from scab; in this way many a clean flock has been polluted, to the great annoyance and loss of the owner.

Preventives. — Formerly, in most sheep grazing districts of the north, the whole of the flocks were dressed about the end of October or early part of November with a mixture of tar and grease, "butter or palm oil," which undoubtedly in all wet and exposed situations was advantageous to the health and comfort of the animal; at the same time the wool was greatly reduced in value to the manufacturer; this dressing was said to prevent the attacks and kill the acari and other insects which attack the sheep. For some years the system has been on the decline, and in most districts of the lowlands is nearly discontinued, and pouring or dipping with arsenical preparations, extract of tobacco, and other materials is now extensively used; all preparations of tobacco, Macdougal's and Long's specifics, are not injurious to the health of the animal, neither do they injure the quality or lessen the quantity of the fleece, and are therefore greatly to be preferred to any of the arsenical preparations generally used. The use of arsenic for dipping or dressing sheep invariably exercises a deteriorating effect on the quantity and value of the wool; its use is also very injurious to the health of the animal. I have frequently known flockmasters to suffer great losses from its use, particularly among lambs when dipped in the autumn, if, as is often the case at this season, they are suffering from hoose or cold; when in this state I have sometimes known the loss to be from four to five per cent. Many also cast their wool, and should they live require great care and attention, and frequently do not fully recover from its effects before the following summer. It is likewise attended with considerable danger to those persons employed in using it on the sheep; we have frequently seen cases of men having the whole of the skin peel off their arms and hands, and even the nails from their fingers, when using it in a strong form for several successive days; a case recently happened where several persons were poisoned by an arsenical preparation used for dipping sheep having become mixed with the food of the family, it having been placed in a cupboard and mistaken for something else. As far as my practical experience extends, I think the use of all preparations for sheep dressing containing arsenic cannot be too highly condemned. Both for the prevention of scab, and for destroying the tick and other insects, I know of nothing better than the common sheep ointment, mercury and lard, in the proportion of one of the former to five of the latter; it can be purchased of most chemists at 1*s.* 4*d.* per lb.; for several years I have used it on large flocks, dressing all my stock ewes and lambs during the month of October or beginning of November, the ewes with three, and the lambs with two and a-half lbs. per score, or a total cost, inclusive of ointment, of 2¾*d.* per sheep; this outlay is doubly repaid in the increased quantity of wool. The general health of the sheep is also improved when properly dressed with ointment, all insects are destroyed, the sheep rest much better, consequently the same quantity of food produces a greater quantity of mutton. In dressing with mercurial ointment, the operator turns the sheep on its back, parting the wool down the throat and neck to the brisket, holding the wool open with the left hand, with the two first fingers of the right hand a small quantity of ointment is closely laid to the skin the whole length of the parting, he then proceeds by opening the wool down the middle and sides of the belly, and applying a portion of the ointment; the operator then turns the sheep on its side, and parts the wool from the ear to the hip, putting two long dressings along each side and one on the back, with two or three short ones on the hips and shoulders; a small quantity rubbed on the skin of the flank and fore-arm complete the operation. Care should be taken that the ointment is closely laid to the skin, as on proper attention to this point mainly depends the success of the operation; the warmth of the body soon causes the ointment to spread over the whole surface of the skin. The shepherd or man employed in dressing carries the ointment in the wide end of a bullock's horn, the small end being cut off and corked with a piece of wood, this is attached to the wrist of the left hand by a strap and buckle fastened to the top of the horn; this horn should be made to contain a fixed quantity (ours are made to hold a pound and a half), so that the operator has no difficulty in knowing the quantity he is using per score.

Remedial Treatment.—Sheep suffering from scab, either in its earlier or more advanced stages, require prompt treatment in order to check its inroads. Various mixtures have been recommended and used for this purpose, the most efficacious of any with which we are acquainted is Long's specific, as dipping or pouring preparation, and the mercurial ointment as a salve. The former contains a mixture of tobacco and other vegetable poisons, is perfectly harmless in its nature, both to the health of the sheep and the growth and quality of the wool, and may be safely used in any quantity or of any degree of strength. An extensive practical experience fully convinces us that mercurial ointment is the most certain cure for scab in sheep of any mixture at present used for that purpose, at the same time we must not disguise the fact that great mortality often takes place in the flocks on which it has been used; whenever this happens it is entirely due to the imprudent and extravagant mode of using it. When applied in too large quantities salivation and intestinal irritation is the result; when this is the case the animal is sometimes seized with a violent and continuous purging, which soon reduces it to a complete skeleton, when it generally succumbs to the disease; in the most violent form of scab 2½ to 3 lb. per score is an ample dressing when properly applied; used at this rate it is quite harmless as regards the health of the sheep. Much depends on the way it is put on; it should be laid on the skin and not on the wool, as is too often the case; we frequently see sheep dressed many times with mercurial ointment without producing any abatement of the evil, entirely because the remedy never reaches the seat of the disease. When the wool becomes caked and hard, as it frequently does when the disease has been of long standing, and scab rises in a hard crust from the skin, it should then be parted with a sharp knife and the ointment well rubbed in till it reaches the seat of the disease; about ten days or a fortnight after the first dressing they should again be looked over and carefully examined, and all those showing any symptoms of live scab upon them should again be dressed, but this time only on the knots or affected parts; in this way they should be regularly and carefully gone through for six weeks or two months, when, if the dressing has been properly performed and a sufficient degree of attention exercised afterwards, a perfect cure will be found to have been effected; if the sheep are kept well during and for some time after dressing, it will be advantageous in hastening the cure, as the wool grows more quickly, carrying with it the scab from the skin, when the insects have been killed with the ointment.

In 1856 the writer purchased, of a dealer, 80 Gloucester wethers, which were suffering severely from scab; he got them considerably under their value had they been clean. He had them dressed immediately with mercurial ointment at the rate of three pounds per

score, they were well attended to afterwards, and in less than two months were perfectly clean; many of them had cast the greater part of their wool, it being the first week of August when he bought them, their wool grew again before winter, he put them to Turnips, and sold them the 26th of January, 1857, and never remembers to have had a lot of sheep pay so much per week for their keep.

In conclusion, I am fully convinced that scab in sheep may be completely eradicated from any flock by the use of mercurial ointment when properly applied and carefully followed up, and that without either risk or injury to the health of the flock. *G. Murray, Overstone.*

THE BREEDING AND REARING OF SHEEP.

[We have lately given full reports of lectures on cattle, sheep, and other branches of farm management delivered before the Royal Agricultural College, Cirencester. We now publish a most elaborate and admirable lecture by Mr. Woods, Lord Walsingham's agent, of Merton, near Thetford, recently given before the Wayland Agricultural Association.]

Mr. WOODS said—In starting upon this subject, I may say that it is so comprehensive, and contains so much matter, that I felt, in making an extempore address, considerable difficulty to know where to begin and where to end. I, therefore, consulted with Mr. Barton, who, with that intelligence, that readiness to assist, and that kindness with which he always assists his neighbours, at once lent me his aid, and we agreed to discuss the matter under the following heads:—

1. The ewes to breed from.
2. The rams to use; how to use them; and when to put them to the ewes.
3. Treatment of ewes during pregnancy; abortion, its causes and effects.
4. Treatment of ewes during the lambing season.
5. Management of lambs when on the ewes, and when weaned.
6. Hoggets—their treatment from July to Michaelmas.
7. When on Turnips, and their treatment thereon.
8. Whether most profitable to sell in or out of their wool.

Pure Breeds.—As you all know that I have strong partialities for the pure breeds of sheep, I shall only ask you to allow me for a minute or two to say that I believe the pure breeds of sheep to be the foundation from which all good crosses must spring.

I do feel that every person who may be induced to put down his flock of pure breds does a national injury, and one that every farmer and every cross-breeder of sheep must deeply regret. I would ask, "From what came originally the numerous breeds that have now sprung up?" What did Shropshires spring from? What did the Oxford Downs spring from? What did many others that are called "Downs" spring from? I will leave that question for others to answer. Having asked you one or two questions, I shall sink the pure breed of sheep altogether, and the remarks which fall from me this evening shall be made upon what I may call "the Norfolk flock-masters' question;" that is, as to the animals from which we shall breed cross bred lambs.

The Ewes to Breed from.—The first question I would suggest for your consideration is:—"Which do you consider the best for ewes for flock for breeding cross-bred lambs? Do you think the black-faces, the brown-faces, the Hampshires, or half-bred ewes the best?"

I have no doubt some gentlemen present will tell me why they prefer one sort to another. But there is one thing upon which I think, as we pass on, many gentlemen must agree with me. That point is this—that whetever kind of ewe you may prefer to breed from, there is very great difficulty in getting the sort you require. There is a gentleman in this room (and a very excellent breeder he has proved himself) who told me that last autumn he rode miles and miles in endeavouring to find such ewes as he wished to put in his flock. Generally he was unable to do so, and when he did so the price was extravagantly high. This, I think, arises from the fact that the price is always according to the demand. A great many people want the good ewes, and, consequently, the sellers put the price on tolerably stiff; and I don't blame them for it. But what I say is this—that there is not sufficient attention paid by those gentlemen who breed your flock ewes; they pay little attention to the shape and make of the animals they breed, or to the quality of their wool, because many persons, I am sorry to say, make a point of getting a sheep because it is a cheap one. I think that is very poor economy, because I hold that sheep to be the cheapest which will produce you the lamb that shall pay you the most money, whether you sell it or whether you graze it. I hold that the production of a better class of flock sheep depends very much upon the farmers themselves; because if they would make up their minds to buy only those animals which should be considered by good practical judges to be suitable for breeding good cross-bred lambs, those gentlemen in the south-east would breed better ewes. I remember crossing an adjacent county last autumn, and seeing a very large flock of sheep, the black-faces being tupped by black-faced rams. I was driving with as good a judge of sheep as any man in the kingdom, and the remark he made was, "Now, can it be wondered at that there are so few good ewes bred, when we see here 500 or 600 ewes, possessing no peculiar merit, tupped by rams even still worse?" I know this is a difficult question; but I believe that if the farmers of this county were once to set the example, and say they would only have ewes which possessed the merit necessary for the breeding good lambs—I believe they would get them. If they were to say, "We will have none of your bare-polled ewes, with little or no wool on the belly or neck, and no wool under their tails; but we will have those that possess wool, and of a quality of flesh which shall produce us good mutton; if not we will not have them at all," those gentlemen of the south-east would produce them, because they would know that they could not sell bad ones.

The Lambs we Breed.—Now comes another question with respect to the lambs we breed. I have often looked upon the management of the breeding of cross-bred lambs as one which deserves as much attention and as much care as the breeding of pure-bred Downs or Leicesters, and I base my opinions upon the following fact:—If gentlemen have well-bred lambs, they always have a demand for them.

I know it from practical experience. It is not only so on our own estate, but it is the case with gentlemen in the neigh bourhood; they breed lambs that everybody is glad to get hold of; they have no running about to seek for customers; they have plenty of customers on hand, because the dealers, the farmers, and other people who purchase hoggets or lambs for feeding are sure to turn their attention in the first place to the well-bred ones. Now, I ask you to compare that with gentlemen who go upon the haphazard style of breeding—who put a ram to a ewe because it is a ram, and not because it possesses any particular merit—who say that a ram's a ram, and he's sure to get a lamb. Many people do that, and what is the result? The lamb bred from that careless system of breeding is sure to hang upon hand; no dealers run after that gentleman's lambs; they don't care to buy them, for they know they are bred to sell; and they only take them when they cannot get lambs from other people. Supposing, however, that that person does sell them, the buyer will not come to him a second time. The very act of trying to graze them has proved that they have no feeding properties, but the reverse, as I know for a positive fact. Gentlemen who have fed well-bred lambs from this estate have desired to come again and again, and they have done so; every year the value of these lambs is increasing. Then there is another point which has frequently struck me as a very important one, and one which must have struck home to the heart of every man who goes on Norwich Hill. Go there in the lamb or the hogget season, and you see a group of people here, and a group of people there; perhaps you see a third group, but it is a rare circumstance. How is it? There is a good lot of lambs or hoggets, and everybody is rushing to see them, showing that it is the exception, and not the rule, to have a good lot. Now, instead of seeing a few pens of hoggets or lambs which possess far more merit than others, I wish to see them all good alike. I don't think I ever shall see that; but I do trust that we shall see a considerable advance in the breeding of sheep.

Good and Bad Breeding.—Well, we have in this neighbourhood some most extraordinary instances of breeding; we have both good and bad. I will first give you an instance of the good, and then an instance of the bad.

We have gentlemen in the neighbourhood who breed with care—who buy the best ewes they can lay their hands on—who select them for certain points (which they know them to possess) for breeding good lambs. Not satisfied with that, they go and hire or buy a ram also possessing peculiar merits, and well adapted for the ewes they are intended to serve; they put those two together, and there is no fear whatever as to what the result will be. There is no chance in breeding. Breeding good animals is no matter of accident. You might as well attempt to breed a pure-bred Short-horn from an Alderley bull as endeavour to breed good lambs from ordinary parents. Well, the result is this: those gentlemen can sell their lambs at from 28*s.* to 30*s.* each, while other people, breeding in a different way, sell at something like 18*s.* or 20*s.* Then we have another extraordinary case in this neighbourhood, and the reverse of what I have named before. A farmer of the old school, living not three miles south of this town, has all sorts of mongrel bred ewes on his farm, and a sorry lot they are; and the lambs they breed are such as no man who cares for his credit or his pocket would ever try to fatten. Usage has, as it were, so acclimatised his ewes that he has actually got them to breed nearly all the year round. He runs the rams with them all the year round, and says, "Poor things, they know what's the best; nature taught them." I merely give these as illustrations of two systems.

The Rams to be Used.—After getting good ewes, the next most important step is to get good rams. I am one of those who fancy it is not ill-spent money to give an extra 5*l.* for a ram. I think it is far better to give a fair price than a low one.

The profit, I do believe, will be greater upon breeding good lambs than bad ones, and you will never breed good lambs from bad rams. Now, we know that in the breeding of cross-breds there is great diversity of opinion. Some gentlemen like Cotswold sheep; some like Cotswold crosses, or Cotswold crossed—(I am not in the mysteries of these crosses)—with something of a Leicester; and some people like a large Leicester, with a dash of Lincoln in it. It is not for me to say which will best answer a farmer's purpose. I can only venture to make suggestions. Allow me then, to say that I think the adaptation of the rams to the ewes, and their selection with judgment, ought to rest in the discretion of the flockmaster who is going to use them. But I have an opinion of my own with respect to the sort of ram which I think ought to be used to short-woolled ewes for breeding cross bred lambs. I have an idea that he ought to possess merits peculiar to himself; that is to say, he ought to have a good masculine countenance; he ought to have his neck neither too long nor too short, and placed upon his body as though it formed part and parcel of him. His breast ought to be well thrown out in front, and be wide and expansive between his fore legs. There is one thing which is being lost sight of in many pure breeds of sheep—the important point of the shoulders; because I hold that all male animals ought to be so constructed as to have the right power of locomotion. Now, what I do say of many of the pure breeds of sheep, and alas! of many others, is, that the shoulders are placed upon their bodies as though they were pieces of wax-work—as if the body was made first and the shoulder had been a second thought, and stuck on after the body had got cold. Well, if we could get their shoulders right I should like to have wide and expanded loins. I should like his tail placed well upon his rump, and well surrounded with mutton; his backbone should be straight, but better a little arched rather than the other way. I should like to see what I call "legs of mutton," deep, full, and weighty. Then I do not want to see them too long upon the legs, because if they are too long upon the legs they cannot travel. Another great and important point is to see that the wool is of the right character, and plenty of it, and that you get a skin not blue, but of that nice cherry hue that every farmer acquainted with breeding knows must propagate good stock, and stock which will graze.

How Rams ought to be used.—I am not going to start a theory, but I am going to ask you to bear with me for a few minutes while I say how I consider rams ought to be used.

We will suppose that some of those gentlemen who do breed those very good lambs give 7 guineas for one ram, 10 guineas for a second, and 15 guineas for a third. Well, it is very proper: I have no doubt they have done wisely in giving 15 guineas. But they turn all the rams into the flock together. Now, let me ask whether it is not within the range of possibility that the 7 guinea ram should tup the ewe intended for the 15 guinea ram; and the 15 guinea ram the ewe naturally belonging to the 7 guinea ram, while the 10 guinea ram takes his choice of both? I hold that, after giving those prices for your rams, the way to get a level crop of lambs is to select the ewes for the rams. You have got some ewes with glaring faults which you can see, but which the 15 guinea ram would materially correct. I will go to the other extreme. You have got some ewes that show very well in some points in which the seven guinea ram is a little deficient. Now, I believe if you were to go upon the principle of selecting the ewes for the rams you would be more likely to breed a level lot of lambs, because you would breed them with corrected points, which you could not do otherwise. I am aware that you will tell me that this is a very difficult matter. It is a difficult matter even in an enclosed country, and in an open country you will find it still more difficult. It will take a great number of hurdles, it will require more attention, and altogether involve considerable trouble. But what great success has ever yet been achieved without trouble? The object of almost all our cross-breeding is to get as many lambs as we can; because, looking at the prices of wool and mutton and corn, it becomes an important consideration. My experience tells me that if we want to produce plenty of lambs, and if we desire the single ones to come strong and healthy, it is very much within our own control, and it is by these means—that is, flush your ewes two or three weeks before the rams go to them, and continue that for two or three weeks afterwards; I will answer for the result. Now I will give you my own experience last year. We were rather deficient in early Turnips. I tupped some upon layers, some upon the park, and gave them a certain quantity of cake, and one lot upon Turnips, and no cake at all. We had 25 per cent, more twins from those on Turnips than from those on the new layer, or with cake besides. As we don't wish to have failures with our rams, there are one or two little points upon which it has occurred to me to speak to you this evening. Rams, in my opinion, travel a great deal too far on our flock farms. The principle is, in a great measure, to let the rams run with the ewes indiscriminately. They run with them into the fold at night; they go out with them the next day, and they thus travel a considerable distance. I think you thus destroy very much of their vigour. What I advise you to do is to let the ewes go out on the heath, the fields, or wherever you think well; but keep the ram at home, and give him a little cake and fresh food. I am quite sure you will be well repaid by an alteration of your present system. Again, I believe it to be a most important matter, when you put the ram to the ewes, to notice how the ewes are running. If you do not use ochre, how can you tell when their time has elapsed? If you go upon the principle of using red ochre at a certain period, blue ochre at another period, and yellow ochre afterwards, you can tell to a dead certainty how your ewes will lamb, that is to say, when you may expect a number of lambs, and when you may not. I hold it to be a matter of considerable importance, and I wish that every flockmaster paid attention to it; and if you adopt my recommendation of selecting the ewes to the ram, you will see if the rams are seasoning your ewes. Here let me ask do you make it a rule to examine certain parts of your rams when you buy them, or before you turn them with your ewes? for, depend upon it, if a certain peculiar construction of his generative organs, which is, or ought to be, well understood by every flockmaster or shepherd, is not perfect, he will never produce a lamb; and you thus not only experience much disappointment, but lose several weeks of the best part of the season."

When to put the Ram to the Ewes.—Now, the last point under this heading is one which those gentlemen who have cross-breds will understand better than I do; that is—when ought the rams to be put to the ewes?

I think this is a matter which is very much affected by localities, or by the situation of the farm upon which the flocks are placed. If a gentleman is in an enclosed country; if he is well provided with spring food, and is well able to carry along his lambs when they come at an early time, then the ram may go in by the end of September; but as a general principle, where lambs fall in an open country, I would certainly advise Michaelmas as the best time, considering that they would then drop about the 7th of March, and follow from that time. My experience tells me that it is not always the forward lambs that make the heaviest sheep. I can state that as practical information. In our own system of breeding we mark the ears of lambs for the first month, and after the month has expired we have no mark at all. Now let me tell you a fact worth relating at a meeting of this kind. At the last Birmingham exhibition there was one sheep which was said to be the largest Southdown shearling ever exhibited at the Birmingham exhibition, of which you can form an opinion yourselves when I tell you that it weighed 17 stones (imperial) live weight. That wether had no ear mark, proving that he was one month at least younger than the first lamb which was dropped. I merely mention this to show you that Michaelmas Day is not a very bad time.

Treatment of Ewes during Pregnancy.—Now we are coming to another important subject, and one which, I think, must claim the attention of every breeder: that is, "The treatment of ewes during pregnancy," and "Abortion—its causes and effect."

I am going to deal with this as a plain matter-of-fact question. The first thing, and the most important thing, too, I think, is the feeding of our sheep. I believe this to be the crowning point of our success, or the reverse—abundance of lambs or the reverse. The question is—"How are our ewes to be fed?" Many of you have been longer in the county, and have had a great deal more experience than I have had; but yet I will ask you one question—"Taking it as a general rule, have you ever seen these two things together in Norfolk, viz., a good crop of Turnips and a good crop of lambs in the same year?" I think you will find in nine cases out of ten that the reverse has been the case. The simple fact is, I believe, we are too free in the use of our Turnips. There is another question, upon which, however, I do not profess to give an opinion myself, because my experience has not carried me to that, but it is a question upon which many gentlemen may be able to give us some practical opinion. It is this:—"Is it right to allow the ewes to follow the hoggets when on Turnips?" that is to say—"Is it right to allow the ewes to feed upon the refuse food of the hoggets?" My opinion is that it is not—that it is not only a barbarous custom, but also a dangerous one. I do believe that by placing the ewes to follow the hoggets, they not only get a great amount of indigestible food, but they take up a great amount of silt, which must act as an irritant to the bowels. My experience tells me that abortion is probably produced by two causes, and comes at two periods of the pregnancy of the ewes. The first time generally happens between the 25th of December and the 6th of January; then, I fancy, it is produced by food that is too stimulating to the generative organs, and which thus acts on the uterus, and causes it to expel its contents. The next stage, and I believe the most dangerous one, happens about February, which I believe to be produced by the great amount of indigestible food which the ewes have taken up between those periods. You have all witnessed a great amount of fever in the system, which produces an inflammatory action over the whole system of the animal, and abortion is the result. You have it shown to you by the effect the fever produces afterwards, because at that time of the year seldom do you get a case of abortion without the ewe losing its wool, and I would ask in how many cases its life also? Now, how are we to alter this? I hold that it is—I will not say entirely

within our own control, but if experience is worth anything, and I will give you that experience, it tells us that it is almost within our own control. Let me give you one or two sterling facts, and facts that I defy any man to get over. Up to 1853 the Merton flock of sheep was known to be as unhealthy as regards abortion as any flock of sheep in the county. In that year we had something like 110 cases of abortion, and we lost 80 ewes. I felt that the time was come when a change was necessary, and that to go on in that way was stamping those who had to do with the sheep with a want of that intelligence, care, and discretion that ought to be thrown into the management of so valuable a flock. I, therefore, entirely altered the system which was then in use, and I determined that never again, after a certain time of the year should they have another Turnip until nearly the time of the lambing, and the system I followed out was this: we put our ewes on Turnips for tupping, and kept them on for six weeks; we got abundance of lambs by that means. I brought them back again on the park. By taking them off in the autumn months the Grass grew a good deal. There was a great amount of food which would last them very well in an open season until the end of December or the beginning of January. Then I gave bran and chaff until about a fortnight before the time for the first lambs to fall. I then placed them upon Turnips, taking care to give very few at a time, and with good allowance of chaff. Now it is a fact, that from that day we have not had a single case of abortion on the farm, and our averge number of ewes lost has never, up to the present year, exceeded five.

Treatment of Hoggets.—Now I come to the sixth heading, which is the treatment of hoggets from July to Michaelmas.

This is a question with which gentlemen of large experience are well acquainted, and it will perhaps be necessary for me to say that a frequent change of pasture is desirable. We have always found that to give bran with cake has done more towards the growing our hoggets successfully up to the time when we wish them to be put on to the Turnips than anything else; in fact, it keeps them healthy. In other things we have bought experience once or twice. By too suddenly flushing our hoggets with too much highly stimulating food we have produced a great amount of fever; but when we have done so, we have been fortunate enough to hit upon a remedy, which has very much corrected it. If we find we have been unfortunate enough to get into that dilemma, we give to each a decoction of half an ounce of senna leaves and an ounce of salts, frequently followed by a second dose in the course of a fortnight. We have rarely failed to carry off the fever, and our hoggets go on satisfactorily afterwards. I believe it also to be very important to dip our lambs in July or August. I merely make this remark to say that I have tried most of the compositions of note which have come under my notice, and I have no hesitation whatever in saying I have found none so good for ticks, or lice, or any other insect that can affect a sheep, as the composition by Allen, of Lynn. Of course we always take great care in giving our hoggets Turnips on the pastures for some three weeks, or they have gone on as long as a month before putting them wholly on Turnips, and I have found they do not then suffer.

Home Correspondence.

Skinless Oats and Barley: Salt as a Manure.—A Correspondent in a late number of the *Gazette* having made inquiry of your contributors how far from experience many or any of them approved of cultivating skinless Oats and Barley, being one of your numerous readers who has for a long time obtained much valuable information through your pages, supplied by Correspondents as well as by yourself, I feel bound to give a mite or two in return. I have repeatedly, for experimental purposes, grown both skinless Oats and Barley on a great variety of soils in various parts of Ireland, and in every case found both the one and the other to fall far short in value in juxtaposition with their congeners. I had the skinless Oats from the late Mr. De Renzey alluded to by your correspondent, the first year after its introduction, and the results of my attempts to cultivate it with profit were very abortive; nor do I think there had been a single plant of it grown in the locality of Clobemon Hall for many years; indeed I doubt much if there be many there who even remember its name. The skinless Barley I first had from a distillery establishment at Middleton, near Cork, and subsequently in Kerry, in a collection of cereals from Messrs. Lawson, of Edinburgh, and, as already said, I gave up its extended culture.* It is a fact which may have been ascertained by some of your readers in other parts of the United Kingdom, that almost every good variety of Barley becomes partially, in many cases wholly skinless, and invariably free from awns when grown on the coast of Wexford, and for some miles inland, which I have never known to be the case in any other part of Ireland; and it is also a fact that seed Barley thus grown, when sown farther inland produces better crops than are obtained from the same variety of seed, whether of home growth or imported. Are such things common on any of the sea coasts in England or Scotland? And this brings me to the second part of my heading—"Salt as a manure." I cannot agree with Mr. Lawes in the conclusions he has come to, as lately published in the *Agricultural Gazette*. I have been using salt for many years for general and experimental purposes in the growth of many plants, and speaking now as a practical man, I believe salt to be indispensably necessary on many rich loamy soils to give strength to the straw, and preventing the laying, or, as we say in Ireland, the "lodging" of the crops of cereals when grown on such soils. It may be great presumption on my part to question the correctness of the analyses alluded to by Mr. Lawes, when he says he found so little salt in the grain of crops grown on land so highly manured. Here, again, I will fall back on the coast of Wexford, where I have been for several years superintending the reclamation of the vast mudlands of the Wexford Harbour Embankment Company. On these lands, when but partially reclaimed, there were extensive crops of various kinds grown for general purposes, but of Wheats more especially, and to such an extent was salt found to exist in the Wheat-grains, which were in all other respects of the finest samples, that some of the millers objected to buy the same, alleging as a reason that their customers the bakers at first found a difficulty in making the bread sufficiently free from salt to satisfy their customers. But by a little more practice they found they could dispense in a great measure with the usual quantity of salt used in making ordinary bread. I could give you many examples also of the value of salt in the growth of Mangel Wurzels far from the seashore, and especially in peat bogs. But I quite agree in opinion with all who have spoken on the subject on the occasion I am alluding to, that salt, if used at all extensively on heavy, wet, or unlrained lands, will prove injurious to most crops in their early growth, especially during cold wet seasons. When I say this, let me not be supposed as arguing against the use of salt even on such lands when properly drained and aerated. In proof of this I could give you many examples in the case even of leguminous crops as well as of green crops and cereals. *Edward Carroll, Demtaheen, Fermoy.*

* The Barley I found most profitable for cattle feeding, milch cows especially, was the common Bere or Bigg. This when cooked, and its product used in a liquid shape, produced extraordinary effects, the more especially when having been previously malted, as somehow has been done "under the rose.'

Foreign Correspondence.

Berlin: *March.*—The Agricultural Society and German Association of Posen, of which I am a member, are preparing a Cattle Show for the 19th and 20th of May, and horse races for May 21. Do you think anything could be done by advertising or by writing letters to the clubs or societies to induce English people to induce English people to come over or to send a reporter. They would be hospitably received, and might at the same time see a little of the war, or of Polish life and manners. It is a good opportunity to see this part of the world. *A German Member of the Central Farmers' Club.*

Farmers' Clubs.

Kingscote.—At a recent monthly meeting of this Association, Mr. J. T. Harrison, the President of the Association, read a paper "On Climate," from which we extract the following passages:—

The subject which I have the pleasure of bringing under your notice this evening, may not appear so practically useful to you as many of those we have discussed at these our quiet social meetings; it is one, however, very full of interest, will well repay study, and be surely found one of the most engaging departments of natural science. We will first consider the sources of heat. These are, 1st, the heat of the earth; 2d, that of the sun—I might add, chemical action in the soil.

1st. *The Heat of the Earth.*—In any latitude, at a depth which is small compared to the earth's radius, the temperature is permanent throughout the year; the effects of solar radiation being confined to a superficial stratum of inconsiderable thickness.

The temperature increases rapidly as we descend into the earth. I have myself been down one of the deepest pits in the North of England, where the thermometer stood at 90°. From careful observations there is now little doubt that the interior of our earth is in a molten state, and that the solid crust encompassing it is considerably less than 100 miles in thickness. Time was, no doubt, when this internal heat played a very important part in the earth's vegetation, and it is very probable that that most extraordinary vegetation which in the shape of coal is so much conducing to our comfort this evening, was stimulated in its growth by the internal heat of the earth rather than by the sun. This subject has been well argued by Dr. McCausland, in his interesting little book, "Sermons on Stones."

One peculiarity of the vegetation of the great coal formation is the entire absence of season rings, those marked signs of the sun's influence. In fossil trees of a later geological date, these season rings become marked features, evidencing the sun's predominating influence. The earth, no doubt, is still gradually cooling down, and thus there is probably a constant supply of heat to the earth's surface from within it. This seems in some measure borne out by some observations made by Mr. Backhouse, at York, on the 7th of January, during the severe frost.—(See *Times*, January 16, Letter from Admiral Fitzroy.)—Mr. B. found that a thermometer placed upon the bare ground indicated 10 degrees, whilst one 7 feet distant, separated from the earth by a Russia mat and a thin board, stood at 3 degrees, or 7 degrees lower than the naked earth.

2. *The Radiation of the Sun.*—The sun is constantly sending out in every direction rays of light and heat. When we consider the effect of the few rays that fall upon our comparatively little world at the great distance it is off—how it surpasses our limited means of conception to grasp any definite idea of the intensity and immensity of the heat given off by it in all directions! These are the source of heat more directly affecting climate. Now these rays can fall perpendicularly only upon a limited area of the earth's surface at once. This area is daily extended into a band or girdle round the earth by means of its daily rotation on its axis, and to a still wider girdle in the course of the year, or during its revolution round the sun. This extended girdle, receiving during the year the sun's perpendicular rays, is in consequence of the axis of the earth's rotation not being at right angles to the plane of its revolution. (Illustrated with a Turnip and lamp.) This band or girdle extends for about 23½° on either side of the equator. This beautiful provision is the cause of our seasons, as you are no doubt aware, spring and autumn corresponding with the period when the sun's rays strike perpendicularly on the equator, when the days and nights are equal—midsummer with us, when the rays fell perpendicularly on 23½° of north latitude; midwinter when they fall on 23½° of south latitude; in the southern hemisphere summer and winter being exactly reversed. Upon all the rest of the earth's surface except this band of which I have spoken, which is the tropical region, the sun's rays must fall more or less obliquely. The more obliquely, the greater the surface over which the rays are spread, and consequently the less the warming effects produced. Thus the temperature gradually diminishes from the equator towards the poles.

There is, however, a compensating element which materially affects the result, namely, the comparative length of the day and night. All places within the tropics have nearly 12 hours of day and 12 hours of night throughout the year, but as we recede from these tropical regions, we find that during summer the days gradually get longer as we travel towads the poles and the nights shorter, till in the polar regions there is one long continuing day of six months, and a six months' night. The effect of this modifies the climate of the north very much, and the long summer's days enable the corn in Norway and Sweden to ripen, which would otherwise be impossible. Indeed, it has been calculated by eminent mathematicians, that considering the length of time that the sun is shining without intermission in the northern regions, the heat of summer ought to be greater at the poles than at the equator. Though this is not the case, yet, when the rays of the sun are allowed their full effect, they have been known to set fire to forests in Norway and Sweden; and during Sir John Franklin's expedition the heat was sufficient to melt the pitch from the ships in latitude 67°.

So far as the ripening of grain is concerned, however, the mean temperature of a place is not of so much consequence as the maximum, and it so happens that this considerable decrease in the mean temperature in the high latitudes arises, not so much from diminished summer's heat as from the intense winter's cold. The maximum temperature of Moscow, for instance, is only 12° below that at the equator, whilst the cold of winter is greater by 70°, consequently Wheat and other cereals are grown there during the short summers and brought to perfection—and Barley ripens in Lapland so far north as 70°.

Mr. Harrison here offered some observations on the effect of altitude and aspect on temperature, and quoted from a paper read by Mr. Simpson to the Royal Agricultural Society. He then proceeded to consider the influence of the ocean and of ocean currents in moderating the effects of solar radiation upon the earth's surface.

One of these ocean currents, the *Gulf Stream*, is especially valuable to these, our islands, its influence extending to the north of Scotland and Norway.

The effect of it upon our British Isles is most marked; to it chiefly, Ireland owes its name of Emerald, and that the following peculiarity in England must be attributed, viz.:—that although the average temperature decreases towards the north from 52° at Penzance to 50°.36 at London, 47°.84 at Edinburgh, and to 42° in the north of Scotland; yet, this decrease is almost entirely owing to the greater heat of summer in the south and south-eastern parts. For instance, the temperature of the summer months in London is 63°.14, and in Edinburgh 58°.28; and whereas London is colder than the Orkney Islands in winter, it is full 20° warmer in the summer. Yet the lines of equal winter temperature instead of lying east and west across the Island, run nearly north and south; so that you might travel from Dover through London to Worcester, Liverpool, Lancaster, to the Western Isles of Scotland, and find very little difference throughout in the temperature. Or again, from Hull, through York, Newcastle, and Edinburgh, through the western part of Scotland to the Orkneys and Shetland in the depth of winter, and not experience any very great difference in the temperature.

After remarks on icebergs, and their influence on the climate and character of particular seasons, Mr. Harrison referred to the influence of the atmosphere:—

Atmosphere.—The effect of the warm or cool water of the ocean would be comparatively inappreciable, were there no medium of communication between them and the land. We know from experience that in perfectly calm weather we can stand a very severe degree of cold, but let the air begin to move, and a brisk wind drive past us, we find it necessary to protect ourselves with impervious non-conducting clothing, or to take violent exercise so as to apply to the surface of our bodies heat sufficient to meet the demand of the chilling blast. To this atmosphere, as the vehicle of conveying warmth and moisture from the ocean to the land, I beg next to draw your attention.

When from any cause the temperature of the air is lowered beyond a certain point, that moisture becomes visible, forming what we call mist. A remarkable instance of this occurs at the time I am preparing this paper—Jan. 13, 1864. During the week ending January 9 we experienced a most severe frost, followed by a rapid thaw, with westerly winds, so warm on the evening of the 12th that it seemed like summer. During the night the wind changed, and, without violence, we have to day a mixture of warm air brought during the last few days from the ocean, with the cold easterly borne air; the consequence is a dense fog all the day, the mixed air being cooled down, and unable to maintain in an invisible form the moisture with which the warmer air was charged.

Such a mixture of opposing currents of air in the sky gives rise to the formation of the clouds, which are, as it were, suspended fogs. Various causes have been assigned for the particles of the cloud collecting and falling to the ground in the form of rain, such as electricity, &c. The subject is now under careful scientific examination, and will no doubt have a good deal of light thrown upon it by Mr. Glaisher.

After considering the causes of motion in the air, the principal of which, he said, was heat, the lecturer went on to consider the effects of atmospheric currents thus produced.

You must understand (he observed) that the atmosphere, though it is apparently quite free and without intimate connection with the earth, is not so in reality, but that as the earth turns round upon its axis the atmosphere is carried along with it—if it were otherwise there would be such a wind on the earth's surface in a direction opposite to its motion that nothing could stand upon it. Now, as the earth's rotatory motion is greatest at the Equator and nothing at the Poles, so is that of the atmosphere that surrounds it—but this motion can neither be given suddenly nor stopped suddenly—the consequence is that the air passing from the North Pole where it has no lateral motion towards the Equator where the earth has rapid lateral motion from west to east, seems to lag behind or to blow from the east, and this, combined with its motion from the Pole, produces a north-east wind. On the other hand the air passing from the Equator where it has rapid motion with the earth from west to east towards the North Pole where the earth has no lateral motion is constantly moving faster towards the east than the earth as it moves northward; the effect is a south-west wind.

We know pretty well from experience that these are the two winds to which we are most accustomed, varying slightly on one side or the other, the wind but for a comparatively short time remaining steadily in any other quarter.

After a full discussion of this subject and of the influence of movements in the air in our insular climate, Mr. Harrison brought the facts and laws he had illus-

trated, to bear upon the agricultural management of land. He said:—

Climate depends very much upon the fitness of the earth's surface to retain the sun's rays, and upon what becomes of the water that falls upon it. Let me mention that there is no worse conductor of heat than water. You may apply heat for a long time to the top of a kettle before you can make it boil; evaporation would go on from the surface, but the water below would remain comparatively cold. In the case of ordinary boiling, by heat applied to the bottom, the heat is not communicated to the mass of water by conduction, but by the heated particles expanding and floating up to the top, the colder ones falling down and in turn becoming heated.

From this you will see why the effect of the sun's rays should not be great on wet undrained land, the water lying on the surface is heated and evaporates, but every gallon thus carried off requires as much heat as would raise 5½ gallons of water from the freezing to the boiling point, thus the earth is frequently cake l on the surface and damp and cold below. Again the cold dry easterly winds of spring rob such land of the surface moisture and of the heat required to evaporate it, chilling the plants and giving rise to the sickly yellow appearance of the Wheat, so common at that season of the year. The effect is frequently a difference of 10° to 15° of temperature between fields that are drained and those undrained, though similar in other respects. This undrained ground, again, being thus cooled, has a tendency to chill the air adjoining it below the temperature at which it can retain its moisture in an insensible state. Thus we see such land subject to fogs, hurtful to man and animals, and by intercepting the rays of the sun further prejudicial to vegetation. Observe the opposite effect on well drained land: Observe first that as the water evaporates from the ocean, it, in the state of vapour, contains a much larger quantity of heat than it did as water, this heat becoming what is called latent or not sensible; this heat, when it again assumes the liqui l form and falls as rain, becomes sensible, so that in the atmosphere charged with vapour, we have, as it were, bottled up in an invisible state both rain and heat. The rain thus warmed falling upon the earth and passing freely through it, imparts not only moisture but warmth. Of this warmth as well as moisture well drained land can take advantage, whilst to ill-drained land the former is soon lost and the latter is an enemy. Now it seems to me that by your endeavour to consolidate the pan under your thin soils, you are trying what you can to reduce your soil to the condition of undrained land, and that you must thereby encourage surface evaporation and consequent cooling. If it were possible, the more desirable system would seem to be, to deepen the soil by mixing this pan with some of the brash below, and so allow the heavy rains to which we are subject, to percolate freely, leaving warmth and moisture behind them.

There are three variable qualities of the atmosphere, from which result variations in the weather; these are, its weight, temperature, and moisture; and, by a careful observation of these, it is possible frequently to predicate the weather we are likely to have. It is well to bear in mind that in the months of May and June, when the advantage of a moist atmosphere is so important to the success of the Turnip crop, if the dew point is not more than five or six degrees below the temperature of the atmosphere, Turnips may safely be sown, for though rain may not fall, yet the soil will imbibe sufficient moisture from the air for the successful germination of the plants. In November and December, the air is much more saturated with moisture than in the months of February and March. The subject is so extensive, that it would afford materials for several, instead of one paper only. My endeavour has been to open the subject to you as simply as I could, and so as to induce some of our younger members especially to follow it up, and I promise them they will find it a path of abundant interest and enjoyment. The following signs of rain, given by the celebrated Dr. Jenner, are amusing, and, being founded on experience, trustworthy:—

The hollow winds begin to blow,
The clouds look black, the glass is low;
The soot falls down, the spaniels sleep,
The spiders from their cobwebs peep;
Last night the sun went pale to bed,
The moon in halos hid her head;
The boding shepherd heaves a sigh,
For see a rainbow spans the sky;
The walls are damp, the ditches smell,
Closed is the pink-eyed pimpernel.
Hark, how the chairs and tables crack!
Old Betty's bones are on the rack;
Loud quack the ducks, the peacocks cry,
The distant hills are seeming nigh;
How restless are the snorting swine,
The busy flies disturb the kine;
Low o'er the Grass the swallow wings,
The cricket, too, how sharp he sings;
Puss on the hearth, with velvet paws,
Sits wiping o'er her whiskered j ws;
Through the clear stream the fishes rise,
And nimbly catch the incautious flies;
The glowworms, numerous and bright,
Illumed the dewy dell last night;
At dusk the squalid toad was seen
Hopping and crawling o'er the green;
The whirling wind the dust obeys,
And in the rapid eddy plays;
The frog has changed his yellow vest,
And in a russet coat is drest;
Though June, the air is cold, and still,
The mellow blackbird's voice is shrill;
My dog, so altered in his taste,
Quits mutton bones, on Grass to feast;
And see yon rooks, how odd their flight,
They imitate the gliding kite,
And seem precipitate to fall.
As if they felt the piercing ball:—
'Twill surely rain, I see with sorrow,
Our jaunt shall be put off to-morrow.

A cordial vote of thanks to Mr. Harrison, and another to the Chairman, terminated the proceedings.

Reviews.

Journal of Proceedings of the Manchester and Liverpool Agricultural Society. Secretary, T. B. Ryder, 57A, Church Street, Liverpool.

Laying Down Land to Permanent Pasture. By Martin H. Sutton, Reading.

We couple these two pamphlets together for the sake of that which they have in common—instruction in the art of laying down a permanent pasture. The Society's Journal records the circumstances of competitions for premiums which are offered in it for the best cultivated farm, for works of irrigation, for the making of fences, for laying down pastures, and for many other agricultural operations, and it describes the methods employed by the several competitors, with the results which have attended their efforts. We shall make many extracts and publish them hereafter.

Mr. Sutton's paper, taken from the Journal of the Agricultural Society of England, describes in full detail the plan which he has found successful. We have already more than once extracted from its pages.

The following are passages descriptive of the experience of Cheshire farmers, taken from the former of these pamphlets:—

1. *On Mr. Atherton's farm at Chapel House, Speke.*—"This claimant's farm is 168 acres, and he claims for laying down 36 acres. The land is a good loam. Last year the land was mown twice, it has been drained with tiles. The seeds sown in April, 1861, quantity and variety sown were—10 lb. Red Clover, 3 lb. Alsike, 3 lb. White Clover, 3 lb. Trefoil, 3 lb. Rib Grass, 1 bushel perennial Rye-grass, 3 lb. meadow Fescue, 3 lb. root stalked meadow Fescue, 3 lb. smooth stalked ditto, 2 lb. Crested Dogstail and 2 lb. of Foxtail. The 36 acres of laying down in this case is in two fields, and claimant stated that one field had been pastured with stock until the middle of April; it was then dressed with guano and nitrate mixed, and 3 cwt. of this mixture applied to the acre. The crop on this field was tall and thick on the land, the bottom well set with nearly all the Grasses sown, and altogether a first-class laying down. Number 2 field was top-dressed with similar mixture and about the same time as No. 1. It was equal to No. 1 in quality and thickness of plant, and somewhat of greater length. Both fields quite superior. and we very rarely see any so good."

2. *On Mrs. S. Jenkinson's farm at Speke.*—"This claimant's farm is 189 acres, and claims for laying down 27½ acres of rather a good strong loam land, the seeds were sown under Barley in 1861. The land has been drained, quantity and variety of seeds sown were—130 lb. meadow Fescue, 130 lb. Poa trivialis, 104 lb. Crested Dogstail, 130 lb. hard Fescue, 104 Poa pratensis, 140 lb. Rib Grass, 160 lb. Red Clover, 80 lb. White Clover, 70 lb. Trefoil, 70 lb. Cow Grass, and 18 bushels Perennial Rye-grass. The crop inspected June 9, and was equal in variety of Grasses to the best seen this year. It had been top-dressed with 2½ tons of the best guano to the acre. Seeing such close competition in this case for the same premium, the crop was walked through carefully in different parts, and found fully as good as the other competing for the same premium."

3. *On Mr. G. Halsall's farm at Halebank, near Warrington.*—"This claimant's farm is 132 acres, and he claims for laying down 18 acres. The soil is strong loam on clay. The seeds were sown under Oats in 1861. The Oats following Wheat; the land has been drained, and manured this year with 2½ cwt. of guano to the acre. Quantity and variety of seeds sown per acre—3 lb. Red Clover, 3 lb. Cow Grass, 2½ lb. White Clover, 2½ lb. Alsike Clover, 2½ lb. Rib Grass, 2½ lb. Crested Dogstail, 3 lb. Poa pratensis, 3 lb. Poa trivialis, 1 peck meadow Fescue, 1 peck hard Fescue, ½ peck Cocksfoot, ½ bushel Italian Rye-grass, ½ bushel perennial Rye-grass. This claimant's crop was tall and thick, seeds having succeeded well. Red Clover, Cow Grass, Alsike Clover, White Clover, Dogstail Grass, and Fescue all plentiful on the land, forming one of the best turfs for new laid down seen this year."

M'Lean and Hope's Descriptive Catalogue and Price List of Feeding Stuffs, Manures, &c.

We notice this capital trade list, which contains a great deal of useful agricultural information, for the purpose of extracting from its pages the following notice by Mr. M'Lagan, of Pumpherston, of his experience in the improvement of Grass lands to which we alluded last week:—

"Mr. M'Lagan, of Pumpherston, has shown us how Grass-fields can be kept in heart and even improved. He says:—'We have been successful in having good and improving pastures in soils of both the above descriptions [*i. e.*, land worth 15*s.* and 50*s.* per acre respectively] for more than four years; in one instance, the field, worth about 50*s.* per acre, has been pastured for 10 years. In this case, cake and grain were consumed by sheep on the field for the first two years after it was sown out, and the Grass became so luxuriant that it was considered advisable to discontinue the use of extra feeding. In four or five years after, there was an evident deterioration of the Grass, which became 'fogged.' As a remedy, cake was again resorted to, and in two months in spring, when there was a scarcity of Grass, half-bred ewes and lambs were allowed at the rate of 1 lb. of rape-cake and 1 lb. of linseed-cake for each ewe per day. The first year there was an immense improvement in the Grass; the increased profit from the ewes paid for the extra feeding, and the improved pasture was got into the bargain. While we advocate more land being in pasture, we would insist upon the pasture being made to keep more stock. We have indicated the mode of doing this by giving the stock cake, or other auxiliary food, on the Grass. When this practice is pursued judiciously, there can be no doubt that it is remunerative, both from the increased value of the stock and the improved condition of the soil. So long as the relative prices of stock and feeding stuffs continue as they are, it will be found profitable to use the latter on Grass, more particularly for stock in condition. We would, however, recommend the use of feeding stuffs with caution for lean stock, particularly those in low condition. The same profit would certainly not be derived from them as from the others. The great desideratum at present is cakes of various qualities to be given to stock of different degrees of condition. To economise the Grass so as to enable it to keep more stock, we should have a cake which combines bulk with nutrition; that is, if we wished to give a certain amount of nourishing matter to an ox, we should have it in our power to give it say in 6 lb. daily, rather than in the more concentrated form of 3 lb. . . . One great advantage in using cake on the Grass is the keeping of the Grass always in a progressive state.'"

Lays for the Cottage. By Jeptha Young, King's Stanley, Stonehouse, Gloucestershire.

The author is a handloom weaver, well known to us as a worthy labouring man, who is often disabled by disease, and during his frequent illnesses, chronicles in rhyme the events of his neighbourhood, eking out the scanty earnings of his loom by the sale of his songs in penny broadsheets to his neighbours.

A former collection of these verses was noticed some years ago in these columns, and Jeptha informs us that the readers of that notice purchased an entire edition of his sixpenny pamphlet at that time.

He has now sent us a collection of the pieces which have since accumulated. Though they are for the most part mere rhymes, yet among the stanzas are many which indicate both greater natural powers, and much greater effort and resolution in the laborious work of self education than are commonly displayed.

We quote a single verse in illustration of the ability of the author, from one of his longer religious pieces, descriptive of the Journey of Life. In this he very effectively sums up his argument as follows:—

"The sunny South, the frozen North,
Send their long trains of travellers forth,
And thousands press from East to West
To one Great Terminus of Rest."

These rhymes cannot claim of right more than the local interest which they have hitherto excited. We name them here nevertheless, feeling sure that if any one shall send seven stamps to the address of the author (which is given above), he may feel repaid, if not by the pamphlet which will be sent to him in return, at least by the certainty that a charitable contribution has been well bestowed.

Homes Without Hands. By the Rev. T. G. Wood.

Part III. contains an interesting account of the Stormy Petrel, the Woodpecker, the Starling, the Toucan, the Swift, and some other birds which either make their home by burrowing or by taking possession of holes already made. A short chapter is devoted to burrowing reptiles, and another to burrowing invertebrates, land crabs, and other crustaceous creatures. There are five nice woodcuts to enliven the 30 pages of letterpress, which is written in a popular style for young people,

Farm Memoranda.

Liscard Hall, near Birkenhead.—Mr. Littledale, a Liverpool merchant, here owns "400 acres, and the extent of land irrigated is 65 acres, in the last season. Iron pipes are laid for operating over 115 acres, and liquid was thrown over the 65 acres named three times in the season. A portion of the land watered is strong loam on clay, the other portion is sandy loam on free-stone rock. There are over two miles of iron pipes laid under ground about three inches in diameter. Taps are fitted to the iron piping at various places, so as to accommodate about 8 acres by one tap. Gutta percha piping is attached to a tap at such a point of the land where irrigation or showering the surface is intended, and the gutta percha piping is worked by two men, one at the extreme end of the piping (where a rose is attached) directs the water evenly on the surface of the land, and the other man moves the gutta piping as the surface is dressed. Water for irrigating is obtained at any season, which is directed into two tanks, these tanks will contain about 100,000 gallons of liquid. All liquids from the farmhouse, yard, and cattle standing, piggeries, &c. run into the tanks, and from there is raised by a steam-engine of 10-horse power, and forced into such of the main iron pipes as accommodate the land to be watered. The piping cost about 300*l.*, and the tanks (both of which are built of brick and made water tight) cost 300*l.* The cow and horse stock on this farm are mainly supported in stalls during summer, the Grass, Clover, &c. being cut and carted daily as the stock requires it; the number of cattle and horse stock is generally about 100 heads, and besides that stock a large number of pigs are kept. The system as here detailed economises most completely all the liquids from the stock and farmyard. The inspectors have not been furnished with statements showing in cash amount the comparative merits of this system to that of the ordinary mode of keeping dairy and other stock on their pastures during summer months."

Miscellaneous.

Statistics of Cheese Farms.—1. Alfred Buck's Vernon, Oneida County.—Number of cows, 470 for six months; 145,695 lb. cheese made; 10.1 lb. milk made 1 lb. dry cheese; cheese sold for 13 cents per lb.; the cost of boxes, bandage, salt, &c., 40¼ cents for 100 lb.; price charged by cheesemaker for making cheese, 1 dol.

per 100 lb.—making whole cost, 1 dol. 40¼ cents. 2. Williams, Adams, & Dewey's, Hampton, Oneida County.—Number of cows, 350; pounds of milk, 976,378; pounds of cured cheese, 95,959, sold for 12,279 dols. 73 cents; 10 lb. 2 oz. milk made 1 lb. cheese; price of making cheese, at 1 dol. per 100 lb., 959 dols. 59 cents; incidental expenses, 386 dols. 92 cents: total, 1346 dols. 51 cents. 3. Whitesburo', Oneida County.—Number of cows, 650, eight months milking; number of pounds of milk was 2,122,855; number of pounds of cheese, 207,313; sold for 12 cents and 88-100 per lb. Thirty cords of wood used, costing 90 dols.; 3 tons of coal, costing 24 dols. Expense of bandage, salt, boxes, &c., 45 cents per 100 lb.; shrinkage of cheese 4 per cent. 4. Clark's, Vernon, Oneida County.—Number of cows not reported; pounds of milk, 955,915 for four months; number of pounds of cured cheese, 101,694; number of pounds of green cheese, 107,083; 9399 lb. of milk for 1 lb. of cured cheese; expense of boxes, &c., 40 cents per 100 lb. of cheese. 5. Miller's, Constableville, Lewis County.—290 cows; 971,515 lb. milk; 100,089 lb. cured cheese. Nett sales of cheese, 11,011 dols. 64 cents; 9 7-10 lb. of milk for 1 lb. of cured cheese—the amount of shrinkage was 6 17-100 per cwt. 6. Deerfield and Marcy, Oneida County.—700 cows; 1,949,215 lb. of milk; 193,335 lb. cheese; 1082 lb. of milk, 1 lb. of cheese; cheese sold for 13 611-1000 cents. per lb., delivered at Utica. 7. Lowvills, Lewis County.—600 cows; 1,763,934 lb. milk; 172,162 lb. dry cheese; shrinkage 8754 lb.; cheese sold for 13 7-10 cents per lb.; cost of bandage, boxes, &c., 43 cents. 8. Georgetown, Madison County.—435 cows; 1,538,204 lb. of milk; 156,911 lb. of cheese; 9⅘ lb. of milk for 1 lb. of cheese; shrinkage 3½ per cent.; cheese sold for 12½ cents per lb. *Albany Country Gentleman.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	April	Inches.	°	°				°	°	°	°	Inches.
Thursday	21	30.13	46	43	N.E.	0	10	57	42	67	42	0.01
Friday	22	..	..	..	..	1	0	69	34	77	30	..
Saturday	23	30.24	56	50	E.	0	0	..	32	..	28	..
Sunday	24	30.25	44	43	N.E.	0	10	65	37	78	30	..
Monday	25	30.16	52	47	N.E.	0	8	57	38	71	34	..
Tuesday	26	30.13	51	49	N.W.	0	10	60	42	72	37	..
Wednesday	27	30.17	51	48	N.E.	0	10	56	44	64	40	..
Thursday	28	..	..	..	..	..	..	..	..	..	..	..

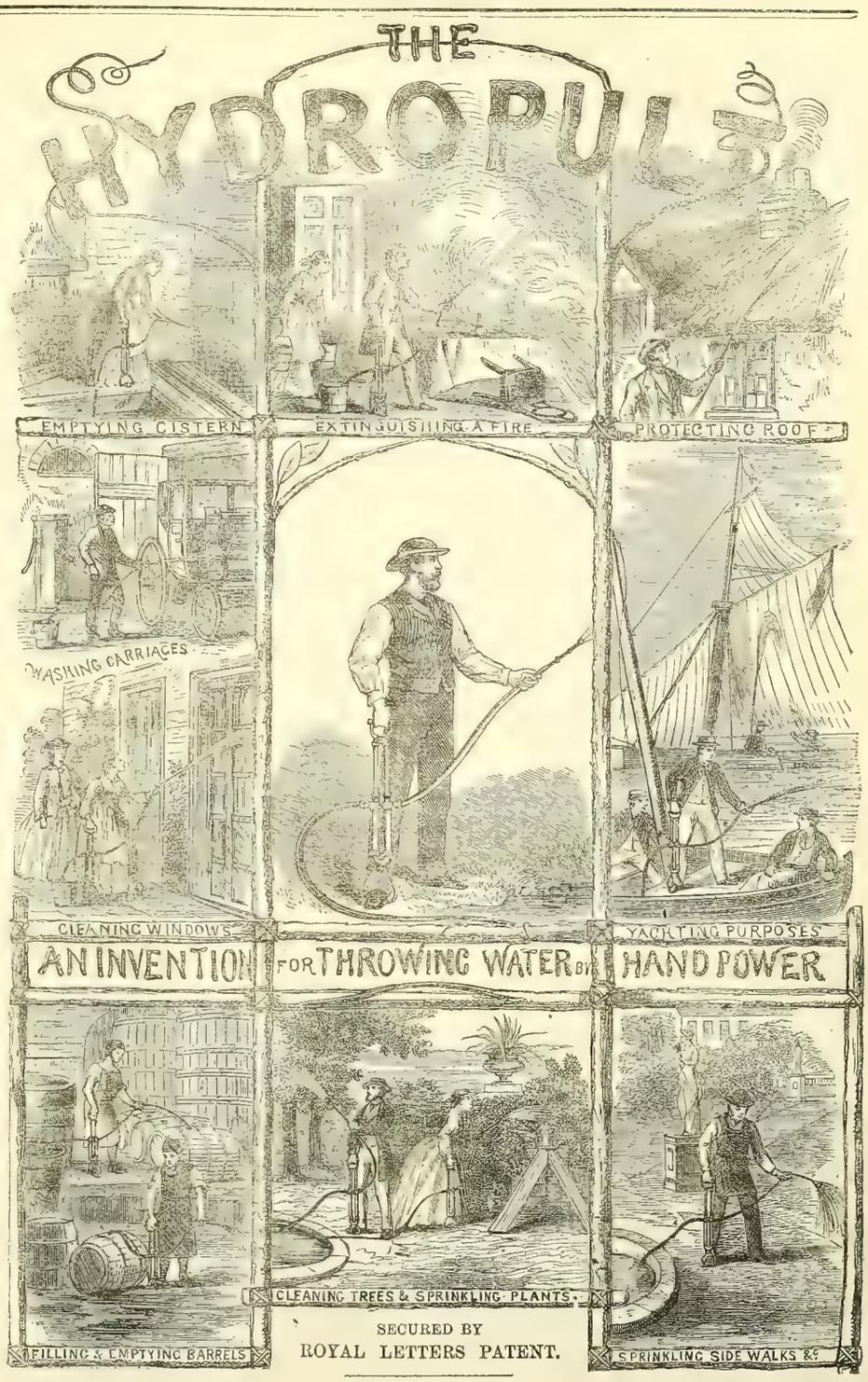
Notices o Correspondents.

Books: *A G.* How much Arthur Young's "Farmer's Calendar" differs from its original may be gathered from the opening sentence of its preface, which we here transcribe:—"So much of the original work has been cancelled that the editor has to apologise for his title-page. The serial publication of the book was begun before he had realised how much of the 'Farmer's Calendar,' written more than half a century ago, is obsolete. And the name of Arthur Young has been thus committed to an almost entirely new book, not one-twentieth part of which is his own.

Carbolic Acid: *Phœnix.* It is the characteristic and efficient agent in McDougall's disinfectant; perhaps this notice may procure an intimation of where you can obtain it in quantity.

Egyptian Lentils: *Hingham,* Apply to Messrs. Booker, Mark Lane.

Leather: *Agricola.* We can find no information on the composition of leather clippings. But it is doubtless rich in nitrogenous matter. In the conversion of skin into leather there is, however, such an insolubility and fixity of character conferred upon it, that it is rendered useless as manure, except after such a tedious process of rotting and disintegration as will practically render it valueless.



SECURED BY
ROYAL LETTERS PATENT.

PRICE 32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanized Wire Strainer, Rose, and Small Jet, Brass Cylinders and Japanned Stirrup. With Copper Stirrup, Two Guineas.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Robert Hogg, LL.D. and F.L.S., Shirley Hibberd, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen recommend the

HYDROPULT

AS AN INVALUABLE GARDEN IMPLEMENT.

CAUTION.—IMPORTANT TO THE PUBLIC

The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled manufacturers, who are now palming on the public worthless imitations of the HYDROPULT, and through their connections are enabled to place said devices on exhibition and for sale in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. Their devices resemble in many respects the HYDROPULT in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the HYDROPULT show card.

It has often come to my knowledge that in many instances Ironmongers have actually recommended these devices as equal to, if not superior to, the HYDROPULT, from the fact that I have persistently refused to place the HYDROPULT "on sale," as is the custom of the manufacturers of the HYDROPULT imitations, and I have thereby obtained the enmity of said interested tradesmen, who unscrupulously state that which they know to be untrue; for there is no Pump in existence except the HYDROPULT, weighing but 8 lb., which will throw 8 Gallons of Water per minute a distance of 50 feet when worked by the power of one man.

The Public should remember that no Machine, Pump, or other Implement PLACED IN A BUCKET is the HYDROPULT.

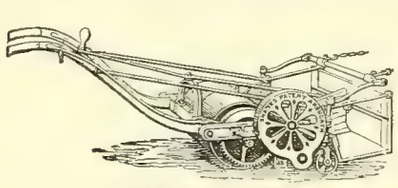
Prospectus, with Testimonials, sent Free on application.

CHARLES P. BUTTON, Proprietor, HYDROPULT WAREHOUSE and SHOW ROOMS,
27, LEADENHALL STREET, LONDON, E.C.

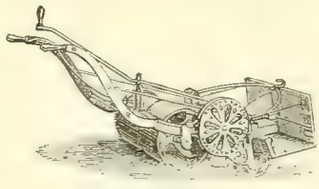
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	... ... £3 10 0	*Easily Worked by a Lady.*
12-inch Machine	... ... 4 10 0	
14-inch Machine	... ... 5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	... ... £6 12 6	*Easily Worked by a Man.*
19-inch Machine	... ... 7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	... ... 8 7 6	*Easily Worked by Two Men.*
24-inch Machine	... ... 8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	... . £12 10 0	... ... 25*s.* extra.
28-inch Machine	... ... 14 10 0	... ... 30*s.* „
30-inch Machine	... ... 15 15 0	... ... 30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	... ... £19 0 0	... ... 30*s.* extra.
36-inch Machine	... ... 22 0 0	... ... 30*s.* „
42-inch Machine	... ... 26 0 0	... ... 40*s.* „
48-inch Machine	... ... 28 0 0	... ... 40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

ALEXANDER SHANKS AND SON regret they find it necessary for the protection of their interests to call the attention of their numerous friends to the following assertions of Messrs. THOMAS GREEN & SON in their advertisement of LAWN MOWERS which has this year appeared in the *Gardeners' Chronicle* and other newspapers. A. S. & SON also particularly request attention to the following letters, in answer to these assertions:—

Messrs. GREEN have the following statement in their advertisement: "*By special appointment Sole Manufacturers to Her Most Gracious Majesty the Queen.*" In answer to this A. S. & SON subjoin the following letter from EDWARD M. BROWELL, Esq., Secretary to the Lord Steward of Her Majesty's Household:—

"Board of Green Cloth, Buckingham Palace, February 27, 1864.

"SIRS,—In reply to your request that I should write you a letter for publication, stating that Messrs. GREEN & SON had no appointment whatever, nor had any liberty or title to say that they had one, I can only repeat what I told the Gentleman who represented himself as your Agent when he called to ascertain how you could get the appointment of Manufacturers of Mowing Machines to Her Majesty, that no Warrant had been granted for about 10 years, and that *Messrs. Green had not one*, although they had lately supplied Her Majesty's Gardens, &c., with several of their Lawn Mowing Machines.

"I am, Sirs, your obedient Servant, (Signed) EDWARD M. BROWELL."

Messrs. GREEN also give a list of "Foreign Medals awarded to them for their Patent Lawn Mowers." Amongst the number is one from the "Hamburg International Exhibition, 1863." A. S. & SON subjoin the following letter from the Secretary to the Committee of the International Exhibition at Hamburg, translated into English:—

"Messrs. PETER SMITH & Co., Hamburg. (Agents for A. S. & SON.)

"SIRS,—In answer to your favour of yesterday, I beg to inform you that, after having looked myself over the list of awards during the last year's International Agricultural Exhibition, GREEN'S Machine for Lawn Mowing *did not receive* a Medal, whereas T. GREEN & SON (Leeds) were awarded with the small Silver Medal for a combined Steam-Engine with standing Boiler.

"Most respectfully, (Signed) GERHARD NACHMANN, Dr.,

"Hamburg, February 12, 1864." "As Secretary of the former Executing Committee of the International Agricultural Exhibition at Hamburg, 1863."

A. S. & SON beg to state that they are making inquiry of the Secretaries of the other Societies where Messrs. GREEN state they have received Medals, and as soon as they are able will publish the result.

Messrs. GREEN & SON also state that their "Patent Lawn Mowers are the only Machines in constant use at the Royal Gardens, Windsor, the Royal Horticultural Society's Gardens, South Kensington, the Crystal Palace Company's Gardens, Sydenham, and other places.

A. S. & SON beg to state that for many years their Lawn Mowers have been in successful operation in the Royal Gardens at Windsor; and further, *only a few week ago they had the honour to receive Orders for their newly Improved Machine for the same Gardens.* The following letters from Mr. EYLES, Superintendent of the Royal Horticultural Society's Gardens, and from Mr. GORDON, Superintendent of the Crystal Palace Company's Gardens, are amply sufficient to satisfy any one that Messrs. GREEN & SON'S statements on this point are also incorrect.

"Royal Horticultural Society, South Kensington, March 3, 1864.

"MY DEAR SIRS,—In answer to your inquiry, I beg to say that your Machines have been almost in constant use here during the Mowing season ever since the formation of the Gardens.

"I am, yours very truly, (Signed) GEORGE EYLES."

"Crystal Palace, Sydenham, S.E., March 29, 1864.

"GENTLEMEN,—In reply to your inquiry respecting the Mowing Machines supplied by you, I am pleased to say both the Horse and Hand Machines were in constant use during the whole of the last season, and have given great satisfaction to me and many others who saw the Machines at work. The self-acting Apparatus for delivering the Grass being a great acquisition.

"I am, Gentlemen, yours, (Signed) J. A. GORDON."

A. SHANKS AND SON feel it altogether unnecessary to make any remarks on these proceedings. The letters they have been authorised to publish are amply sufficient to convince any one that Messrs. GREEN have used incorrect statements in their Circulars and Advertisements. These statements are calculated to mislead parties in selecting LAWN MOWERS, and consequently to some extent must be prejudicial to the interests of A. S. & SON as Manufacturers.

DENS IRON WORKS, ARBROATH, April 2, 1864.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to

Messrs. Amies & Barford, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

CLAYTON, SHUTTLEWORTH, and CO., Engineers.—Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.

Stamp End Works, Lincoln, and 78, Lombard Street, London; also at Lowengasse, No. 44, Landstrasse, Vienna; and Gegenuber dem Bahnhof, Pesth.

Descriptive, Illustrated, and Priced Catalogues, Free per Post. Special Drawings when required.

[*The best Steam Threshing Machinery made.*]

LAWN MOWERS made in a superior manner, and at reduced prices.

S. Smith, Engineer, 204, High Holborn, W.C.

CHEAP LAWN MOWERS, all Warranted. Reduced Price Lists sent free on application to

Grimmond, Laird & Co., 15, Cannon Street West, London.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

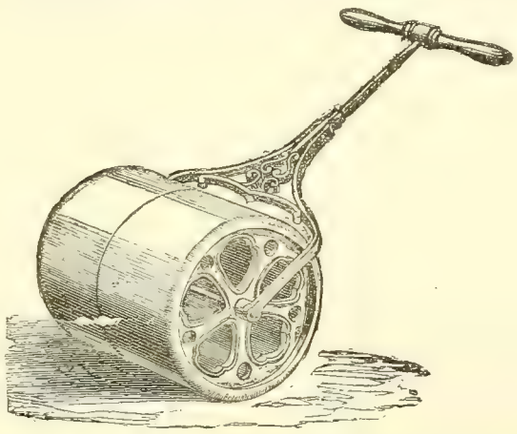
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter 30 inches;	length 32 inches	£7	10	0
„ 24 „	„ 26 „	4	10	0
„ 20 „	„ 22 „	3	10	0
„ 17 „	„ 16 „	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

Diameter 30 inches;	length 32 inches	£10	0	0
„ 30 „	„ 36 „	10	15	0
„ 30 „	„ 42 „	11	15	0
„ 30 „	„ 48 „	13	10	0
„ 30 „	„ 60 „	15	10	0
„ 30 „	„ 72 „	17	10	0
„ 30 „	„ 84 „	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN and SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

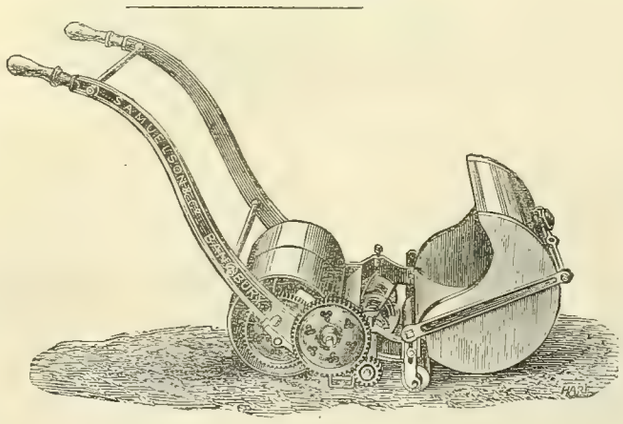
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady ...	£4	12	0
To Cut 16 inches, suitable for One Boy ...	6	10	0
To Cut 19 inches, suitable for One Man & Boy	7	0	0
To Cut 22 inches, suitable for Two Men ...	8	0	0
To Cut 25 inches, suitable for Two Men ...	11	10	0

PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8	15	0
To Cut 25 inches	11	10	0
To Cut 30 inches	14	14	0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. Samuelson & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON and CO., BRITANNIA WORKS, BANBURY. London Offices: 18, CANNON STREET, E.C.,

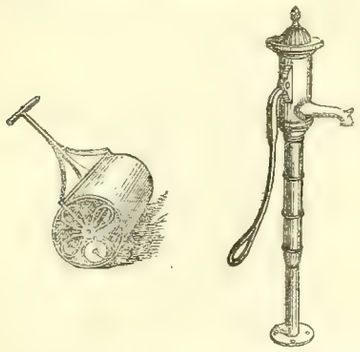
AND OF ALL SEEDSMEN AND IRONMONGERS.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

Iron Works.

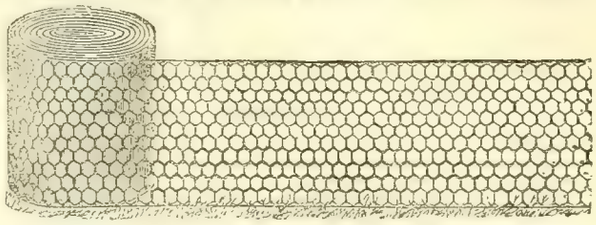
COTTAM AND CO.,
2, Winsley Street, Oxford Street, London, W.



COTTAM & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.
Illustrated Catalogues free of COTTAM & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits.....	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

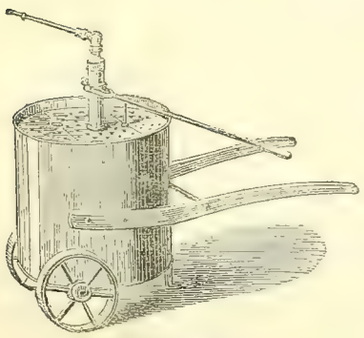
Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'
GALVANISED IRON GARDEN ENGINE,
WITH REGISTERED SPREADER.

10 gallons ... ... £2 15s.
16 „ ... ... 3 15s.
24 „ ... ... 5 0s.



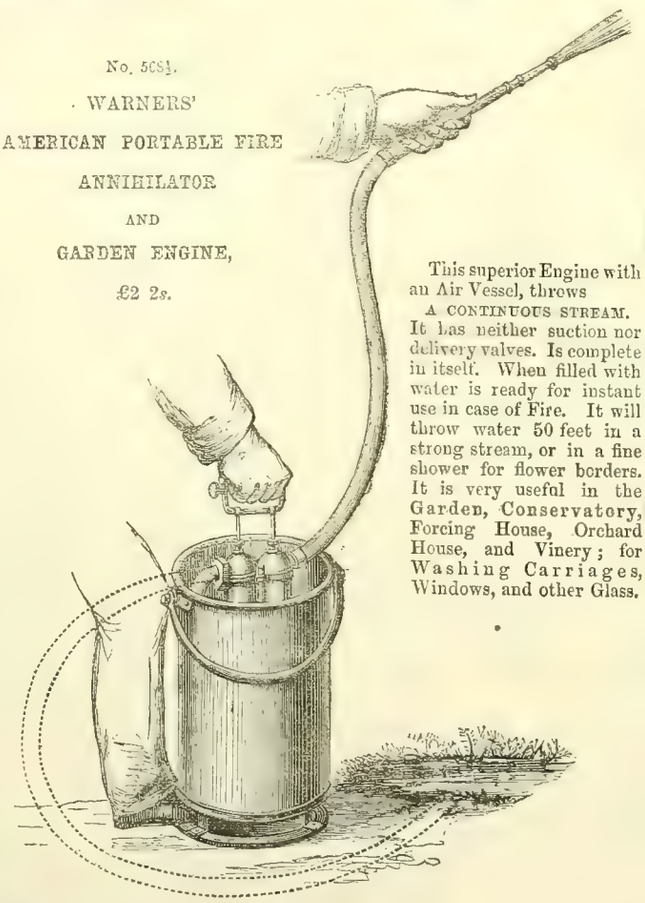
WARNERS'
PATENT IRON PUMPS.

2½ inch ... ... £1 10s.
3 „ ... ... 2 4s.
3½ „ ... ... 2 9s.
4 „ ... ... 2 18s.
2½ inch, with short barrel ... } 1 1s.

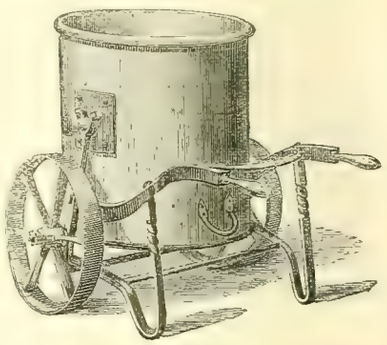
No. 35.

No. 563½.

WARNERS'
AMERICAN PORTABLE FIRE ANNIHILATOR AND GARDEN ENGINE,
£2 2s.



This superior Engine with an Air Vessel, throws A CONTINUOUS STREAM. It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'
SWING WATER BARROW.

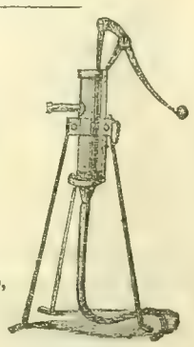
20 gallons ... ... £2 0s.
35 „ ... ... 2 10s.

Saves a gardener's time when used with the water pot.

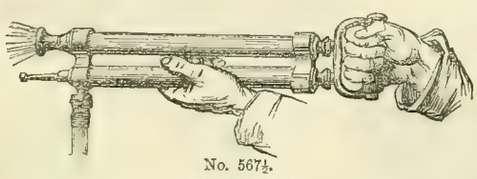
WARNERS'
PORTABLE LIQUID MANURE PUMP,
WITH LEGS,
£2 15s.

Do. for fixing to cart, £2 5s.

Suction Pipe for Pump, 2s. 5d. per foot.



No. 42.

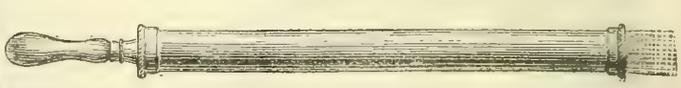


No. 567½.

WARNERS'
IMPROVED PATENT DOUBLE ACTION SYRINGE,
with 5 feet of flexible Suction Pipe, 21s.
Is much improved since last season.
It economises a gardener's time.
To draw from a water-pot, pail, or other vessel.



No. 590.



No. 557A.

WARNERS' REGISTERED DISC-VALVE SYRINGE. 9s.
FILLS QUICKLY AND EASILY.
It is well adapted for the gardener or amateur.

BARKER'S MILL, Large, 25s.; Small, 8s. 6d.
Fountain designs in great variety. Can be supplied from a cistern or main.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable; 200 square yards, 11s.; 500 yards, 30s.; 1000 yards, 50s.

EDGINGTON'S RICK CLOTHS for 59 years have maintained their celebrity as the best.

EDGINGTON'S MARQUEES and TENTS are the prettiest.

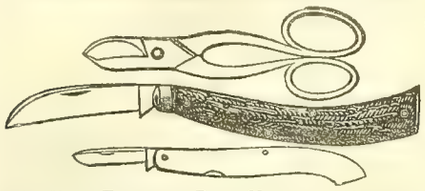
EDGINGTON'S MARQUEES for hire are the most elegant and capacious.

Samples of material free on application. Be particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E.

A liberal Discount to the Trade.

INTERNATIONAL EXHIBITION, 1862, Class X Honourable Mention.

Paxton Works, Sheffield, Established 1738.



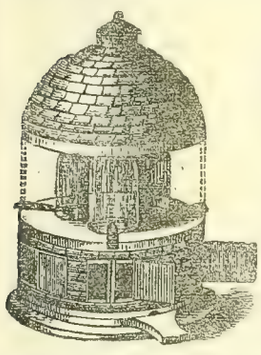
INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. AND SONS, FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21s.; with window, 25s. Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.

Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.

Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: J. EDMONDSON & Co., 61 Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'

GALVANIZED IRON TUB GARDEN ENGINES,

with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6

24 gal.	30 gal.
£5 0 0	£5 12 0



Fig. 571.

J. TYLOR & SONS'

OAK TUB GARDEN ENGINES,

with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0

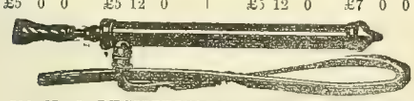


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10s. 6d. each.
,, 589. Middle Ditto ditto .. 9 6 ,,
,, 588. Small Ditto ditto .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 6 9 ,,

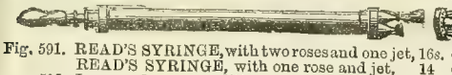


Fig. 591. READ'S SYRINGE, with two roses and one jet, 16s. 6d.
READ'S SYRINGE, with one rose and jet, 14 0
,, 592. Improved ditto ditto large 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

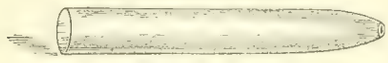
PROPAGATING  GLASSES.

	Each—s.	d.		Each—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

BEE GLASSES.

	Each—s.	d.		Each—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 ,, ,, ..	0	8	10 ,, ,, ..	2	0
6 ,, ,, ..	0	10	11 ,, ,, ..	2	6
7 ,, ,, ..	1	1	12 ,, ,, ..	3	0
8 ,, ,, ..	1	4			

Not made above 12 inches.



CUCUMBER GLASSES.

	Each—s.	d.		Each—s.	d.
24 inches long	2	0	16 inches long	1	4
22 ,, ,, ...	1	10	14 ,, ,, ...	1	2
20 ,, ,, ...	1	8	12 ,, ,, ...	1	0
18 ,, ,, ...	1	6	Made to any length.		

HAND GLASSES,  WITH OPEN TOPS.

	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

"RECONNOITRER" GLASS, 10s. 10d. post free, shows distinctly windows and doors of houses 10 miles off; JUPITER'S MOONS, &c. For Landscape is valuable for 25 miles, is guaranteed equal to others at 3l. 3s., the enormous sales allowing division of labour to an extent hitherto quite unknown. "The Reconnoit'rer is very good."—*Marquis of Carmarthen.* "It gives me complete satisfaction, and is wonderfully good."—*Sir Digby Cayley.* "I never met an article so completely answering its maker's recommendation."—*F. H. Fawkes, of Farnley, Esq.* "An indispensable companion to a pleasure trip."—*Notes and Queries.* "We have found it fully equal to others more than four times its price."—*Field.* "I have found it effective on the 1000 yards range." *Capt. Sendey, Royal Small Arms Factory, Enfield.*—The "Hythe" Glass shows bullet marks at 1000 yards, and men at three miles; 31s. 6d. Only to be had direct from SALOM & Co., 98, Princes Street, Edinburgh. No Agents.

Pretty Flowers—Pretty Flowers.

INDIA RUBBER HOSE and all necessary Fittings for Watering Gardens.

G. R. WOOLGAR & Co., St. Paul's India-rubber Establishment, 16, Ludgate Street, E.C.

SHOOTING WANTED.—The Advertiser will be glad to take the HARE SHOOTING of any one who may care for the Birds only. He would not require many Hares to be on the Estate, as he does not go out often, and would have no objection to turn a few down; or he would take the whole of a Shooting, with or without Cottage.

Address K., *The Field* Office, Strand, W.C.

To Nurserymen, Market Gardeners, &c.

TO BE SOLD, 20,000 NEW ARCHANGEL CARGO MATS. Price for 100 to 300, 90s.; from 300 to 1000, 87s. 6d.; 1000, upwards, 85s., less 2½ per cent. for cash. As they are a bargain, buyers are respectfully solicited to purchase at once, as after these are disposed of there will be no more under 97s. 6d. Thick edged Mats for covering, 65s., 75s., and 77s. 6d., best. Other Mats for packing, from 30s. up to 50s.

Address to the Russia Mat Stores, 133, Minories, E.C.

For Sale.

E. DENCH having Sold his business to Mr. DENNIS, of Chelmsford, has left on hand THREE CONSERVATORIES, of a very handsome design, and for which no reasonable offer will be refused.

Address, E. DENCH, Pomfret Villa, Penge.

FOR SALE, a CONSERVATORY (Second-hand), about 65 feet long by 22 feet wide, and 10 feet high in the front, with span roof; to be sold a Bargain. Also a PAIR of GLASS FOLDING DOORS, with fittings complete, the whole to be seen in the neighbourhood of Stroud, Gloucestershire.

For further particulars, apply to JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London, S.W.

Oatlands Park.

FOR SALE, the CONSERVATORY adjoining the Villa of G. VIRTUE, Esq. This exceedingly well built and substantial Erection (now about to be removed to clear the site for a larger building), is especially suited to be used as a Vinery, Vinery and Greenhouse combined, or as an early Peach House. It could be removed and re-erected at a moderate cost. May be seen up to and including the 3rd of May, by applying to the Gardener.

The price and all further particulars to be obtained on application to Mr. WM. HILL, Surveyor and Builder, Brixton Hill, S.

Dimensions on plan, 25 ft. 6 in. by 16 ft. 6 in.

Farms to be Let in Hants.

MR. J. BLUNDELL, LAND AGENT, &c., Bursledon, Southampton, has on offer several good CORN and STOCK FARMS, varying in extent from 130 to 470 Acres. Good references required, and particulars on application to parties stating size of farm required.

Romford, Essex.

TO BE SOLD or LET, that valuable FREEHOLD PROPERTY, known as "THOMPSON'S NURSERY," very desirably situate close to the Market Place of the town of Romford, advantageously commanding the right of way from the Western Road to the Market Place, well stocked with Fruit Trees and possessing Hothouses, Greenhouses, Pits, Frames, Sheds, &c, and every requisite necessary for the cultivation of a Nursery Ground, together with Five Plots of eligible Building Land, presenting a capital frontage of 150 feet to the Western Road, the whole embracing about 2a. 2r. 25p. Possession at Michaelmas next.

Further particulars may be obtained of Mr. C. HARVEY, Romford.

Sales by Auction.

Lilies from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 2, at half-past 12 o'Clock precisely, 10 CASES of LILY BULBS just received from Japan in the finest possible condition, amongst which will be found in abundance, sound flowering bulbs of that most splendid variety L. AURATUM, also a small Importation of INDIAN ORCHIDS.

On view Morning of Sale, and Catalogues had.

Poultry, Pigeons, and Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 3, at 12 o'Clock precisely, a few good lots of POULTRY, amongst which will be found first-rate Cochins, Dorkings, Brahmas, Hamburghs, &c., from celebrated Breeders; and a few Carriers and other Pigeons, from several first-rate lofts; also about 150 lots of CARNATIONS, PINKS, PICOTEES, and other plants from an old established Nursery.

On view the Morning of Sale, and Catalogues had.

Important Sale of New Plants.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. STANDISH and FORTUNE having nearly terminated) to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 11, at half-past 12 o'Clock precisely, a splendid assortment of NEW HARDY PLANTS, never yet been offered to the public, comprising—

Clematis Fortuni and Standishii	Weigela hortensis nivea
Lastrea Standishii	Camellia japonica variegata
Selaginella involvens	Thujopsis Standishii
Tricyrtis grandiflora	Maples (many curious and distinct varieties)

As well as a number of choice and rare Plants.

More detailed Particulars in the Catalogues.

Woolwich.

STOVE, GREENHOUSE, AND ORNAMENTAL PLANTS, HORTICULTURAL BUILDINGS, &c., THE PROPERTY OF THE LATE DR. BUTLER.

MR. J. C. STEVENS begs to announce that he has received instructions from the Executrix and Trustees of the late Dr. Butler, to SELL by AUCTION, on the Premises, 49, Rectory Place, Woolwich, on THURSDAY, May 12, at half past 12 o'Clock precisely, the Choice COLLECTION of STOVE and GREENHOUSE PLANTS, including Camellias, Azaleas, Fuchsias, Pelargoniums, Liliums, and a variety of other Plants, together with several Stove and Greenhouses and other Horticultural Buildings.

On view the day before the Sale. Catalogues had on the Premises, and of the Auctioneer, 38, King Street, Covent Garden, London, W.C.

Sale of First-class Carnations, Picotees, Pinks, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, E.C., on FRIDAY, May 6, at 12 o'clock, a First-class Collection of CARNATIONS, PICOTEES, PINKS, and CLOVES, Choice Azalea indica, Pelargoniums, Scarlet and Variegated Geraniums, and other Plants in Bloom, a choice assortment of American Plants, Selected Flower Seeds from Germany, with useful Ornamental Plants for Bedding, Roses, &c.

On view the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of 25,000 Bedding Plants.

HORNSEY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on WEDNESDAY, May 18, at 12 for 1 o'Clock precisely, at St. Mary's Nursery, adjoining the Compasses, Hornsey, and a few minutes walk from the Railway Station, 25,000 BEDDING PLANTS, CLIMBERS, &c., all of the newest and choicest kinds.

Catalogues of Sale may be obtained at the Nursery; at the principal firms in the neighbourhood; of the Auctioneers, at the American Nurseries, Leytonstone, Essex; and will be sent free by post on application to Mr. TOWNSEND, at the Nursery.

Walworth.

TO TULIP GROWERS AND OTHERS.

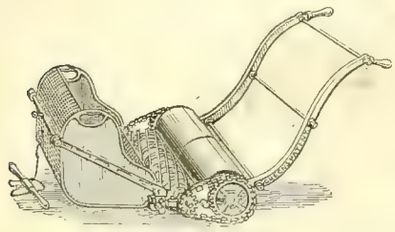
MR. J. WILLMER begs to announce that he is instructed by Mr. J. Cook to SELL by AUCTION on the Premises, 43, Amelia Street, Walworth, S., on TUESDAY, May 17, at 12 o'clock, a Choice and Valuable Collection of TULIPS, comprising all the leading flowers of the day.

Catalogues ready after May 5, and may be had on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury, S.W.

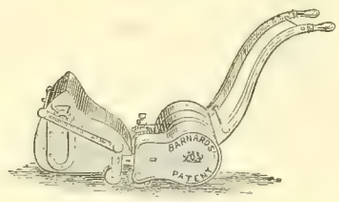
Preliminary Notice of Sale.

J. H. BIRD, NURSERYMAN, of Stoke Newington, begs to inform the Trade and the Public that having LET his Premises and given up Business, the whole of his STOCK of PLANTS will be SOLD by Messrs. PROTHEROE AND MORRIS about the 18th and 19th of May next, without the least reserve. The Stock consists of many thousands of Tom Thumb, Variegated, and other Geraniums; 10,000 Cyclamen persicum, 1000 Passifloras of sorts; Vallota purpurea; all kinds of Bedding-out Plants, Honeysuckles, and Climbing Roses in Pots; Acacias, Deutzias, Begonias, Ficus elastica; 150 dozen of the old English Cloves in Pots; 500 Arbor-vitæ, 3 feet high, with many thousands of young ditto for planting out; several hundreds of strong Lilium lancifolium rubrum, in pots; a large stock of Chrysanthemums and Pompons, in pots; several hundred cast of Pots; 1000 fine Double Camellias, amongst which will be found some very fine young specimens of Double White, imbricata, and other leading sorts; Azaleas; together with a capital seven-year old Cob Horse, handsome and fast, with a nearly new Market Van, capital Dog Cart, Tumbril Cart, Spring Cart, three sets of good Harness; also a well known Pony, with Chaise and Harness; Water-pots, Wheel-barrows, &c.

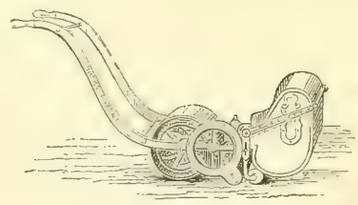
LAWN MOWING MACHINES FOR 1864.



GREEN'S MACHINE.



BARNARDS' MACHINE.



SHANKS' MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. BROWN & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of gratification, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success.

J. B. B. AND Co. have resolved not to place before the public at present any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that all those naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All business thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.* Orders entrusted to J. B. B. AND Co. for the Machines of any particular maker, will have most careful attention in every respect.

*** Owing to the pressing demand already, and increasing as the season advances, for the New Mowing Machines, J. B. B. AND Co. would esteem it a great favour could orders be forwarded to them with as little delay as possible.

GREEN'S HAND MACHINE.

Size.	Easily Worked	Price.	Size.	Easily Worked	Price.
10-inch 12-inch	*By a Boy* ...	£3 10 0 5 0 0	18-inch ...	*By a Man* ...	£7 10 0
14-inch		5 10 0	20 inch 22-inch	*By two Men*	8 0 0 8 10 0
16-inch ...	*By a Man* ...	6 10 0	24-inch		9 0 0

BARNARD'S MACHINE.

Size.	Easily Worked	Price.	Size.	Easily Worked	Price.
8-inch ...	*By a Child* ...	£2 10 0	16-inch 18 inch	*By a Man* ...	£6 0 0 6 10 0
10-inch ...	*By a Lady* ...	3 5 0	20-inch ...	*Man and Boy* ...	7 0 0
12-inch 14-inch	*By a Boy* ...	4 10 0 5 0 0	22-inch ...	*Two Men* ...	7 10 0

SHANKS' HAND MACHINE.

(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked	Price.	Size.	Easily Worked	Price.
		£ *s.* *d.*			£ *s.* *d.*
10-in. 12-in.	*By a Lady*	3 10 0 4 10 0	19-in. ...	*Man and Boy*	7 12 6
14-in. ...	*By a Boy* ...	5 10 0	22-in.	*By Two Men*	8 7 6
16-in. ...	*By a Man* ...	6 12 6	24-in.		8 17 6

SHANKS' PONY and DONKEY MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for
	£ *s.*	*s.*	*s.* *d.*	
25-in.	12 10	25	12 6	*Donkey*, 16*s.*
28-in.	14 10	30	12 6	*Pony*, 21*s.*
30-in.	15 15	30	12 6	

SHANKS' HORSE MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for Horses.
	£	*s.*	*s.*	*s.*
30-in.	19	30	20	24
36-in.	22	30	20	24
42-in.	26	40	20	24
48-in.	28	40	20	24

J. B. BROWN & Co., have had the honour of supplying LAWN MOWING MACHINES, not only in every part of the United Kingdom, but throughout Europe, and also in India, Australia, America, and other countries. Among their numerous distinguished and well-known patrons for these Machines, may be mentioned:—

HER MOST GRACIOUS MAJESTY THE QUEEN, for the Royal Gardens
His Majesty the Emperor of the French
His Royal Highness the Prince of Prussia
His Royal Highness the Viceroy of Egypt
His Royal Highness Halim Pasha
His Excellency the Belgian Minister
His Excellency the Count de Tasca, Italy
His Excellency the Count Papadopoli, Italy
His Grace the Duc de Praslin, France
His Grace the Duke of Devonshire
His Grace the Duke of Portland
His Grace the Duke of Buckingham & Chandos
The Most Hon. the Marchioness of Londonderry
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Winchelsea
The Right Hon. the Earl of Lindsay
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmorland
The Rt. Hon. the Dowager Countess Granville
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The Right Hon. Lord Hatherton
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The Right Hon. Lord John Chichester
The Right Hon. Lord Tredegar
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Rokeby
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The Right Hon. Lord Harris
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The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon Sir J. T. Coleridge
The Hon. C. L. Butler
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The Right Hon. Lady Alice Peel
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Sir John Kirkland, Bart.
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Sir John M. Burgoyne, Bart.
Sir Edward Colebroke, Bart.
Sir Philip Duncombe, Bart.
Sir Archibald MacDonald, Bart.
Sir Edward Walker, Bart.
Sir James Duke, Bart., M.P.
Baron de Wœlmont, Holland
The Count Harrach, Hungary
Baron von de Dicker, Germany
Baron Meyer Rothschild
Admiral Sir Phipps Hornby
Major-General Huyshe, C.B.
Col. the Hon. Heley Hutchinson
Captain Polhill Turner
Captain Bowyer
Mr. Alderman Mechi, Tiptree Hall
Professor Owen, Sheen Lodge, Richmond Park
Dr. Ferguson
Colonel Davidson, Resident at Hyderabad, India
John Spencer, Esq., Bowood
Michael Thomas Bass, Esq., M.P.
W. S. Lindsay, Esq., M.P.
M. Digby Wyatt, Esq.

BESIDES NUMBERS OF OTHER WELL KNOWN AND DISTINGUISHED PERSONS BOTH IN THIS COUNTRY AND ABROAD.

A specimen of each of the best Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. AND Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1864.] SATURDAY, MAY 7. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.
FIRST EXHIBITION of PLANTS, FLOWERS, and FRUIT this Season, SATURDAY, May 21. Tickets to be obtained at the Gardens only by Orders from Fellows of the Society, price 5s., or on the day of Exhibition, 7s 6d. each. Wax and other Models of Flowers will be exhibited at the same time.
Gates open at 2 o'Clock.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40l. will be awarded for Cut Roses in the various classes.
For Particulars, apply to the Secretary, Mr. Wm. Penn Cox, 37, Market Place, Leicester.

Notice.
JOHN WATERER'S EXHIBITION of RHODODENDRONS, &c., will be on view at the Royal Botanic Gardens, Regent's Park, throughout the month of June. American Nursery, Bagshot, Surrey.

Hybrid Perpetual Rose, Lord Clyde.
PAUL AND SON have much pleasure in recommending this ROSE, it having proved itself to be very fine during the past spring. See reports of Exhibitions. Strong plants, 5s. each. Old Cheshunt Nurseries, N.

The New Roses for 1864.
SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

New Roses for 1864.
H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per dozen.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
Richard Smith, Nurseryman, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
Charles Noble, Sunningdale Nursery, S.W. Rail.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

New Roses of 1864.
Royal Horticultural Society's 1st Prize.
PAUL AND SON have now ready Fine Plants of the above, fit to travel.
DESCRIPTIVE PRICED LIST on application.
"Old" Cheshunt Nurseries, N.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5s. 6d. p. oz.
James Woods, Florist, Harwich, Essex.

Geranium Purple Unique.
T. E. BARTLETT begs to announce that he has to offer a very large quantity of the above beautiful decorative plant.
Application for prices, &c, Pulteney Road, Bath.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application.
Frampton Park Nursery, Hackney.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.
J. SCOTT'S FLOWER GARDEN DIRECTORY, 88 pages, is replete with information on Summer, Autumn, Winter, and Spring Gardening. Copious LISTS of all the best Flowers suitable for each season are given, price 6d.
Merriott, Crewkerne, Somerset.

FOR SALE, 100,000 well-grown PLANTS, from 3s. per dozen, at Clifton Nursery.
C. Elwin & Co., 5a, Clifton Villas, Maida Hill, W.

TO BE DISPOSED OF, by a gentleman making alterations in his Conservatories, a number of CHOICE CAMELLIAS, ranging from 3 to 7 feet in height, and also some STOVE PLANTS.
Apply by letter to G. H., Post Office, Macclesfield.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Yorkshire Seed Establishment.
EDMUND PHILIP DIXON and SONS, Seed Merchants and Nurserymen,
SEED, ROSE, and FRUIT CATALOGUES, gratis.
57, Queen Street, Hull.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS, Nurseryman and Seedsman,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON and SONS, Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

Established 1800.
Ripon and Clare Seed Establishment.
WILLIAM MORTON, Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

PLANTS and PLANT CASES for TABLE DECORATION.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

SURPLUS STOCK of GLADIOLI.
See Barr & Sugden's large Advertisement, page 432.

CHEAP GLADIOLI for BEDDING, MASSING, or CLUMPING.
See Barr & Sugden's large Advertisement, page 432.

NEW GLADIOLI.
See Barr & Sugden's large Advertisement, page 432.

MIXED FLOWER SEEDS, for WOODLAND WALKS, WILDERNESS DECORATION, ROCKERIES, ROOTERIES, &c.
See Barr & Sugden's large Advertisement, page 432.

CENTAUREA RAGUSINA (C. candidissima), 1s. each, special prices per 100 or 1000 on application.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

HOLLAND and BAYLEY can still supply good strong plants of the undernamed, well assorted, viz:—
12 pairs fine Show CARNATIONS and PICOTEES.
6 pairs fine Show PINKS. 12 fine Show PANSIES.
3 pairs superb Yellow-ground PICOTEES. Hamper and packing included for 1l.
Bradshaw Gardens, Chadderton, Manchester.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one stamp.
W. Dillistone, Munro Nursery, Sible Hedingham, Essex.

MESSRS. DILLISTONE and CO., of the Sturmer and Woodlands Nurseries, Essex, beg to inform their patrons that their CATALOGUE (44 pages) for the Spring and Autumn of 1864, of BEDDING and other PLANTS, can be had gratis, and to new applicants upon receipt of one stamp.—May 7.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES.
Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Melon Seeds.
MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6d.
Joseph Meredith, Vineyard, Garston, near Liverpool.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the Great Exhibition of 1862, and for which a Certificate of Honourable Mention was given. Trees of the above can be had on application to Mr. Webb, Calcot Gardens, Reading.

Good Clover Seeds at Market Prices.
SUTTON and SONS can still supply fine new CLOVER SEEDS of all kinds, at the low prices quoted in their Catalogue.
Royal Berkshire Seed Establishment, Reading.

GOOD CLEAN RYE GRASSES at Moderate Prices.
Samples and Prices may be had of
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment. New Park, Lymington, Hants.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

RICHARD SMITH'S RENOVATING GRASS SEED should now be Sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
Richard Smith, Seed Merchant, Worcester.

Cheap Grass Seeds for Hill Sides and Railway Banks.
ROUGH GRASSES, SAINFOIN, SIFTINGS, &c., suitable for the above purpose, at 2s. per bushel and 3d. per lb.
Address Raynbird, Caldecott, & Bawtree, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Sowing Rape Seed.
CHARLES SHARPE and CO., Sleaford, have a fine clean sample of the above to offer to the Trade.
Price on application.

To Gentlemen, Nurserymen, and Others.
J. GAINES begs to offer GREEN GLOBE ARTICHOKE PLANTS, at 25s. per 100. A good discount to the Trade.
All Orders must be accompanied with Post Orders payable to John Gaines, Herbalist, Covent Garden Market, London.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

Dalmahoy Seed Potatos, True.
DOWNIE, LAIRD, and LAING have a few Tons of the above for SALE, and will Dispose of them at a low figure. Price on application.
17, South Frederick Street, Edinburgh.

200,000 GOLDRING'S SUPERB BROWN COS LETTUCE PLANT, 3s. per 1000, for cash only; sown in February in an open field, consequently very sturdy.
S. Evans, Florist, &c, 75, North Street, Chichester.
N.B. A fine Stock of BEDDING PLANTS, &c., very cheap.

For Present Sowing—White Belgian Carrot.
SUTTON and SONS have some very fine fresh imported SEED, now selling at 1s. per lb., or cheaper by the cwt.—Sutton & Sons, Seed Growers, Reading.

Skirving's Swede. Sutton's Selected Stock.
Price 8d. per lb., or cheaper in large quantities.
SUTTON and SONS have a Choice Stock of SKIRVING'S SWEDE SEED, growth of 1863, which they can strongly recommend.
Royal Berkshire Seed Establishment, Reading.

Turnip Seeds Direct from the Growers.
CHARLES SHARPE and CO., Seed Growers, Sleaford, have to offer superior Stocks of TURNIP and SWEDE SEED, the produce of their own Seed farms, and saved from fully developed roots.
Price to the Trade on application.

WANTED to PURCHASE, a few Cwts. of SUTTON'S IMPROVED YELLOW GLOBE MANGEL, Pure Stock.
Address, with price, S T., *Gardeners' Chronicle* Office, W C.

WILLIAM ROLLISSON and SONS beg respectfully to announce, that their CATALOGUE of NEW, BEAUTIFUL, and RARE PLANTS for 1864, is now published, and will be forwarded, on application, pre-paid.
The Nurseries, Tooting, London.

Dahlias and Bedding Plants.
JAMES FAIRHEAD and SON beg to state that their CATALOGUE of the above is now ready, and can be had post free on application.
7, Borough Market, London, S.E.

ADONIS.—The Best Scarlet Horse-Shoe Geranium out, either for Bedding or Pot Culture, is now offered in stocky autumn-struck plants for 18s. per dozen, with the usual allowance to the Trade by the raiser.
J. Hally, Nurseryman and Florist, Blackheath.

New Seedling Verbenas.
J. JEFFRIES and SON are now sending out Strong Plants of the above, 3s. 6d. per Plant, or the Set for 10s. 6d., to the Trade only. For description, see *Gardeners' Chronicle*, April 23.—Woodbridge, Suffolk.

Gladiolus Brenchleyensis.
YOUELL and CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.
Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

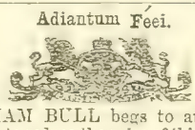
GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Adiantum Feei.



MR. WILLIAM BULL begs to announce that he is now able to reduce the price of this distinct species to 31s. 6d. each.

Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS of WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2s. 6d.

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H. P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

PAUL's Nurseries, Waltham Cross, N.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, begs to announce that his eight NEW DAHLIAS, five NEW FUCHSIAS, and DELPHINIUM ALOPECUROIDES are now ready to send out. A DESCRIPTIVE LIST of all the above can be obtained free on application, and a plate of the Larkspur for 12 postage stamps.

The Description of Delphinium alopecuroides (Wheeler's).—This distinct and perfectly unique garden variety of Larkspur is in every respect first-rate. It withstood the severe frost of Christmas, 1860, quite unprotected in the open border, without sustaining the slightest injury; its habit is robust and healthy, growing freely in the open border, blooming in June and July; the spikes of bloom are generally 2 feet in length, and when well grown the tip of the spike rises from 3 to 4 feet from the ground, densely clothed with very full and compact double flowers; the ground is of a creamy white, therefore in reality a blue-edged flower, though from its fulness it presents the appearance of a bright blue self, paler and somewhat shaded towards the centre. It is figured in No. 17, or the May number for 1863, of the "Florist and Pomologist." As some admirers of the plant were very anxious it should be distributed this season, it was requested to be figured when the bloom was almost past, consequently only small loose spikes could be obtained for the Artist, which accounts for the short spike in the plate, though the character of the individual blooms is quite correct.

The following remarks are taken from the "Florist and Pomologist":—"We, therefore, have no hesitation in recommending both the subject of our plate and the class of plants to which it belongs, to the notice of all lovers of their gardens.

"This variety of Double Larkspur, which the raiser has called Alopecuroides, doubtless from the close brush-like form of the principal part of the spike, was shown at a Meeting of the Royal Horticultural Society's Floral Committee in July, 1861, and was then awarded a First-class Certificate. The Specimens exhibited on that occasion were over 2 feet in length, furnished below with palmatifidly-lobed leaves, having incised segments and a ciliated margin, and terminated in a flower spike or raceme, slightly branched below and densely covered with small double flowers of a bright blue, paler and reddish-tinted towards the centre. It was regarded as a most desirable and very ornamental hardy plant."

It is propagated by dividing the Roots, not having hitherto produced Seeds.

Price 7s. 6d. each.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A list of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG's *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

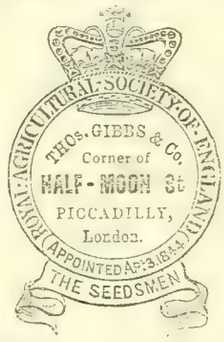
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NEW ALPINE PLANTS, &c.

JAMES BACKHOUSE & SON

CAN NOW SUPPLY

THE ALPINE GENTIAN (G. BAVARICA).—Intensely vivid blue, deeper than in G. verna; growth more free and dense; leaves all rounded. 5s. each; extra strong tufts, 7s. 6d. to 10s. 6d.

GENTIANA FORTUNI.—A rare and fine hardy perennial Gentian, from China. Vivid blue, in clusters. 5s., 7s. 6d., and 10s. 6d.

G. LUTEA (YELLOW ALPINE GENTIAN).—Very strong flowering roots, 5s. to 7s. 6d. each; smaller, 1s. 6d. and 2s. 6d.

G. VERNA.—1s. 6d.; extra, 2s. 6d. to 5s.

MYOSOTIS ALPICOLA.—The most dense, dwarf, and brilliant of Forget-me-Nots. A true perennial, and exquisitely beautiful. Flowering plants, 1s. each; 9s. per dozen, or 50s. per 100.

MYOSOTIS MONTANA (the SPRING FORGET-ME-NOT)—Blooms with the Snowdrop and Aconite. Larger and brighter than M. sylvatica. 9d. each; 6s. per dozen.

HEPATICA ANGULOSA.—A new and extremely fine species. Flowers sky blue, twice as large as the largest "Single Blue." Leaves 5-lobed, hairy. 3s. 6d. each

ANEMONE STELLATA (HORTENSIS).—Brilliant purple variety; strong blooming, 1s. each; scarlet variety, equally strong, 1s. each.

ANEMONE SULPHUREA.—A rare and striking species, of robust habit, from the Alps, with large clear sulphur flowers. 2s. 6d. to 5s.

ADONIS VERNALIS.—Vivid yellow Anemone-like blossoms, 2 to 3 inches across, from dense tufts, 9 inches high, perennial, fine for masses in spring. Strong, 9d.; 6s. per dozen.

LINARIA ALPINA.—Lilac and fiery orange, from prostrate silvery tufts. 4s. per dozen; 25s. per 100; 15s. for 50.

CALANDRINIA UMBELLATA.—Dazzling magenta crimson, in tufts, 2 to 4 inches high, perennial. 4s. per dozen; 25s. per 100.

LYCHNIS (AGROSTEMMA) CORONARIA.—Large corymbs of purple crimson flowers, from silvery tufts, strong blooming masses. 4s. per dozen, 25s. per 100.

ANDROSACE CORONOPIFOLIA.—Snow-white, 4 to 6 ins. 1s. each, 6s. per dozen.

ANDROSACE CARNEA.—A rare and lovely Alpine. 5s. each.

GOLD NETTED DAISY.—Very rich and effective for many months, in dense masses, fine high coloured plants. 4s. per dozen, 25s. per 100.

VERONICA CANDIDA.—Extremely silvery foliage, spikes of deep blue purple, perennial. 1s. each. 9s. per dozen.

PYROLA ROTUNDIFOLIA.—Lily of the Valley-like spikes of white bells. 1s. 6d.; extra strong tufts, 2s. 6d. to 3s. 6d.

GOLD-NETTED JAPANESE HONEYSUCKLE.—30s. per 100, 6s. per dozen.

SCHIZOSTYLIS COCCINEA.—(See Advertisements.) Plants now ready, 5s. each.

GASTRONEMA SANGUINEUM.—Fine blooming plants, 7s. 6d. each.

LOBELIA FULGENS ST. CLAIR.—Large and brilliant scarlet. 42s. per 100, 6s. to 9s. per dozen.

THE GOLDEN BALM.—Very effective during the spring and summer months; not permanent in colour in autumn; a strong hardy perennial. 4s. per dozen, 15s. for 50, 25s. per 100.

AQUILEGIA ALPINA (the ALPINE COLUMBINE).—A rare and charming species, nearly as large as A. glandulosa, and of similar colour, but, like the common Columbine, will grow anywhere; perennial. 1s. 6d. each.

LINUM MONOGYNUM.—Large pure white, 1 foot high; PERENNIAL.

LYTHRUM ROSEUM SUPERBUM.—Very ornamental during summer; noble branching spikes of rosy crimson; a hardy perennial, splendid for beds or ribbons. 6s. per dozen, 35s. per 100.

SILVER-STRIPED AGAPANTHUS, 1s. 6d.

LILIUM COLCHICUM.—Large pale sulphur flowers in the style of L. longiflorum. 3s. 6d. and upwards.

ERINUS ALPINUS.—Tufts of pink; will grow anywhere in dry sunny places; strong. 6s. per dozen.

E. ALPINUS v. ROSEUS.—Flowers paler and larger. 6s. per dozen.

ACÆNA NOVÆ-ZELANDIÆ, 1s.
ANDROSACE CHAMÆJASME, 1s. 6d. to 3s. 6d.
" GLACIALIS, new and rare, 3s. 6d. to 5s.
" LANUGINOSA, 9d. to 2s. 6d.
ANEMONE PALMATA, 2s. 6d.
ASTER TANACETIFOLIUS, 9 ins., 1s.
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CERASTIUM TOMENTOSUM, 21s. p.100
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GENTIANA CATESBÆI, 1s. 6d.
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GNAPHALIUM LEONTOPODIUM, 2s. 6d.
LINNÆA BOREALIS, 9d.
PAPAVER ALPINUM, 1s. to 2s. 6d.
PRIMULA MINIMA, 2s. 6d. to 3s. 6d.
PYROLA SECUNDA, 2s. 6d.
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RANUNCULUS GLACIALIS, true, rare, and fine, 5s.
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Above 5 all white-flowered Alpine species.
RHODODENDRON CHAMÆCISTUS, 2s. 6d. to 5s.
SAPONARIA OCYMOIDES, 21s. per 100
GOODYERA PUBESCENS.—Anæctochilus-like netted leaves, hardy, 2s. 6d.
DOUBLE LILY of the VALLEY, fine, 1s. 6d.
Large-flowered hardy PINK CONVOLVULUS, 9d.
DELPHINIUM BELLA DONNA, sky-blue, 1s. 6d. and 2s. 6d.
GNAPHALIUM LANATUM, 35s. per 100
ASTER ALPINUS, 1s.

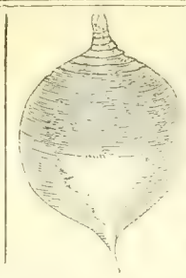
YORK NURSERIES.—May 7.

The Heaviest Cropping Mangel Wurzel is

SUTTON'S LARGE YELLOW GLOBE.

SUTTON & SONS can still supply good new seed of the above at 8*d.* per lb., or cheaper in large quantities (carriage free).

Royal Berkshire Seed Establishment, Reading.



SUTTON'S CHAMPION SWEDE is ONE of the HARDIEST SORTS in CULTIVATION.

The Champion Swede being of quick growth never suffers from mildew, and does not require to be sown so early as other Swedes.

PRESENT PRICE 10*d.* per lb., or cheaper by the bushel. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW PLANTS for 1864.

E. G. HENDERSON & SON

will forward their NEW DESCRIPTIVE SPRING CATALOGUE on application, and have much pleasure in calling the attention of Amateur cultivators and others to Novelties possessing great merit in the following families, and which will prove as valuable acquisitions for the Flower Garden as many others they have previously sent out. Among the eminent raisers from whom they have purchased the property or stock of each are the following, many of whom stand foremost in their special attention to the individual flowers to which their names are prefixed, and are sufficiently known to cultivators generally to inspire a reliant confidence in their respective merits.

FUCHSIAS.—EDWARD BANKS, Esq., Deal.
VERBENAS.—Mr. WILLS and E. BANKS, Esq.
VARIEGATED GERANIUMS.—Mr. GRIEVES, Culford Hall Gardens.
PETUNIAS.—Mr. GRIEVES, Culford Hall Gardens, and others.
ZONALE GERANIUMS.—Messrs. WHEELER, WILLS, GRIEVES, and M. RABOUILLARD.
TROPÆOLUMS.—Mr. WILLS, Tarporley Park Gardens.
EARLY FLOWERING or FORCING GERANIUMS.—SPARY and CAMPBELL.
CHRYSANTHEMUMS.—Mr. BIRD.
GLOXINIAS.—Mr. BREEZE.
DIANTHUS or HYBRID PINK.—Mr. CLARK, Norwich.
BEDDING DAHLIAS.—Mr. RAWLINGS and Mr. BRAGG.

NEW FUCHSIAS for 1864.

Messrs. E. G. HENDERSON & SON have renewed pleasure in being enabled to offer a selection of FUCHSIAS, unequalled by any previous collection for the leading purposes of decoration and competition.

The most remarkable advance apparent in the present group is the larger size of the flowers, which attracted special notice at the Royal Horticultural Exhibition. The more essential properties of substance, outline and colour are equally combined in the present selection then exhibited. These varieties being the usual proved growth of two seasons, is a guarantee for their permanent merit, apart from being produced by that most eminent raiser, EDWARD BANKS, Esq.

The Report of the Royal Horticultural Society's Exhibition given in the "Cottage Gardener" of Sept. 15 states that these Fuchsias "were extremely beautiful, and decidedly in advance of the Fuchsias of the present day."

VERBENA, VELVET CUSHION.—This is a remarkable and highly interesting novelty, possessing fine properties as a bedding plant, being a hybrid between the hardy herbaceous species, V. venosa, and one of the garden varieties. The style of growth is neat and sub-erect, with a more suffruticose habit at the base than is common to the show flowers. It is closer jointed, more dwarf, and densely branched, with smaller leaves. The flower trusses are as large as the generality of the bedding varieties, and the blossoms, which at first are somewhat tubular, open to a full salver-shaped outline of the richest velvety-tinted purple-magenta colour, forming a fine relief ground for pure white, lilac, or rose, in beds or ribbon rows. The dwarf and densely-branched sub-perennial habit yields a long continued succession of bloom through the summer. Its alliance with the perennial species has imparted a hardier constitution and somewhat wiry growth (naturally calculated to resist damp and cold in the winter months), with a free tendency to form a latent autumnal growth from the root, so much so, that of plants, bare of soil, taken from the flower beds at Tarporley Park last autumn, from which the upper growth was freely cut off, the remaining shoots threw out numerous buds of great vigour, and it was from this incipient after-growth the present stock has been derived. The suffruticose habit of root-stems in this variety will, it is probable, originate a new feature in the bedding class of Verbenas, by which a hardier constitution will be obtained, with a proportionate longer season of display, without excess of summer foliage or exhaustion by autumn growth. This plant was raised by Mr. WILLS, at Tarporley Gardens, where, last summer, an entire bed attracted great attention by its especially neat and distinct densely-branched dwarf growth, and profusion of rich velvety-hued magenta-coloured bloom.

DAHLIA IMPERIALIS (ROEZL).—This exceedingly novel and interesting new plant was discovered by Mr. Roezl on the mountainous heights of Mexico, and is described by him as having a majestic pyramidal habit of growth, with elegantly feathered or pinnated leaves, and numerous large, conspicuous, drooping, white, lily-like flowers in the summer and autumn months. Mr. Roezl considers this the finest plant he has hitherto discovered in Mexico, and it is found specially valuable by its adaptation for planting as single specimens in the flower borders of villa gardens, or as groups in the decoration of pleasure grounds. The remarkable roots of this species differ from others in the tribe by each separate fang or tuber being attached to the centre crown by a long narrowed thread-like neck, which appears to diverge in a somewhat horizontal direction from the centre union.

CHRYSANTHEMUM, EMPRESS of INDIA.—A beautiful variety from C. Queen of England, pure white, three-quarters globe in shape, full in centre; a fine addition to competition trays and conservatory groups.

BOUVARDIA GRANDIFLORA.—A neat dwarf sub-evergreen greenhouse plant, with pure white, sweet, trumpet-shaped flower tubes, longer in the tube than B. longiflora, and petals as large as B. Humboldti; an early spring-flowering plant.

GARIBALDI PINK.—A beautiful dwarf free flowering variety, in Anna Boleyn style, with a richer colour, and a darker violet or purple crimson centre; flowers large and full, with well-formed pods, not subject to burst; of neat erect growth, and adapted for forcing; height 12 inches. Illustrated by Miss Sowerby.

CYTISUS RACEMOSUS ELEGANS.—An improvement upon the well-known species C. racemosus, with a similar habit of growth, and gracefully acuminate or lengthened flower spikes of rich golden yellow, forming a valuable addition to early summer flowering greenhouse plants.

DIANTHUS ROSETTE.—This plant is the fourth variety of the perpetual-flowering Mule Pink, as figured in the "Illustrated Bouquet," and possessing the same free bushy style of growth, which is much superior to that of the old Mule Pink; and its peculiar tendency to produce successive flower spikes until the late autumn months, after which period the plants may be re-potted from the ground to mature their bloom in the frame, greenhouse, or conservatory. It forms large corymbose trusses of light salmon-rose coloured flowers, and is a valuable addition to summer and autumn flowering plants for medium-sized groups and beds.

PYCNOSTACHYS URTICIFOLIA.—A very valuable winter-flowering hothouse shrub, having ovately-acuminate leaves, with deep narrow tooth-like lobes, and numerous terminal dense trusses of sky-blue Salvia-like blossoms throughout the winter months. Its vigorous growth, free bloom, and beautiful colour, so rare in winter bouquets, will commend it to all lovers of cut flowers for portable vases, baskets, or groups for the drawing-room or warm conservatory. 3*s.* 6*d.*

CLEMATIS HYBRIDA SPLENDENS.—Large-flowered hybrid variety, between C. lanuginosa and C. viticella grandiflora. 5*s.*

SCHIZOSTYLIS COCCINEA, a new scarlet-flowered Tritonia-like Cape bulb. 7*s.* 6*d.* each.

PHLOX LOUISE GRELL.—The most beautiful pure white, with red-crimson flaked flower, fine bedding plant.

COLEUS MARMORATA.—A new picturesque leaved variety, resembling C. Verschaffelti in growth.

VERBENA HENRIETTE (Syn. Le Grand Boule de Neige).—The best white bedding Verbena, 9*d.* each; or 6*s.* per doz.

VERBENA PALLAVICINI DI BRESCIA.—The most perfect form, and beautiful colour. 1*s.* 6*d.*

VERBENA NOBILE CAROLINA FRANZINA.—White and blood-red striped flower.

VERBENA MADAME LEFEVRE.—Beautiful variety of unequalled bedding habit; flowers red, shaded with violet. 1*s.* 6*d.* each; 9*s.* per doz.

VERBENA MELINDRES SPLENDENS.—Unequalled in its style, foliage, and colour, the most dazzling of all scarlets, Lord Leigh, Defiance, or any other. 9*d.* each; 6*s.* per doz.

GERANIUMS MRS. POLLOCK, SUNSET, besides many other beautiful varieties, of which we only possess the stock.

GAZANIA SPLENDENS, with several new varieties, 1*s.* and 1*s.* 6*d.*

IMATOPHYLLUM MINIATUM, and I. CYRTANTHIFLORUM, 5*s.* to 21*s.* each. Unique early spring and summer-flowering plants,

GLOXINIA PUNCTATA.—The most distinct and elegant variety. See illustration in the above Catalogue.

CLIANTHUS DAMPIERI SPLENDENS, 3*s.* 6*d.* and 5*s.* each.

FORTUNE'S NEW JAPAN CHRYSANTHEMUMS, striped, fimbriated, &c., 7 varieties for 5*s.*

ROSES, the new varieties of 1864.—Strong healthy plants, 2 to 3 feet high.

HEDERA JAPONICA FOL. VARIEGATA.—The new Japanese Ivy, with 40 other gold and silver-leaved varieties.

YELLOW RHODODENDRONS.—A fine collection on own roots, the only way they should be grown to flower splendidly.

ARUNDO DONAX FOL. VARIEGATA.—The most noble of variegated Grasses; 3*s.* 6*d.* each.

GYNERIUM ARGENTEUM ELEGANS.—Pure white, plume-like trusses. 3*s.* 6*d.* each.

ERANTHEMUM RUBRO-VENIUM.—One of the most beautiful variegated leaved Plants of dwarf growth. 3*s.* 6*d.* and 5*s.* each.

LAPAGERIA ROSEA SPLENDENS.—The finest variety as a cool Conservatory Climber, with large carmine-rose bell flowers. 3*s.* 6*d.* to 7*s.* 6*d.*

SARRACENIA PURPUREA.—Large North American Pitcher-plant. 3*s.* each.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

New Chrysanthemums.

JOHN SALTER is now sending out his NEW CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c.

A DESCRIPTIVE CATALOGUE will be sent on receipt of two postage stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

BEDDING and BORDER PLANTS.—CALCEOLARIAS, CARNATIONS, CHRYSANTHEMUMS, CLEMATIS, DAHLIAS, FUCHSIAS, GERANIUMS, PETUNIAS, ROSES, and VERBENAS.

The choicest kinds of each at the lowest prices, at Mr. TOWNSEND'S, St. Mary's Nursery, adjoining the Compasses, Hornsey, a few minutes' walk from the Hornsey Railway Station. Dealers supplied on liberal terms.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

New Plants.



MR. WILLIAM BULL begs to announce that he is now sending out his

Collection of NEW VERBENAS for 1864
" FUCHSIAS for 1864
" SINGLE PETUNIAS for 1864
" DOUBLE PETUNIAS for 1864
" PENTSTEMONS for 1864
" BEDDING GERANIUMS for 1864
" ENGLISH SPOTTED PELARGONIUMS for 1864
" FRENCH SPOTTED PELARGONIUMS for 1864
" FANCY SPOTTED PELARGONIUMS for 1864
" DROOPING GLOXINIAS for 1864
" ERECT GLOXINIAS for 1864

For full particulars and prices, see SPRING LIST of NOVELTIES, which can be had on application.

Mr. W. B. also begs to announce that his NEW PLANTS from Brazil, Central America, Australia, Bombay, Java, New Caledonia and Guatemala, are now ready for delivery, an inspection of which is invited.

New Bedding Plant, COLEUS MARMORATUS, 10*s.* 6*d.* each.

New Ornamental Plant, GYNERIUM ARGENTEUM fol. VARIEGATUM, 31*s.* 6*d.* each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Green Hollies.

BRERETON NURSERY, RUGELEY, STAFFORDSHIRE.

CORNELIUS WHITEHOUSE has pleasure in offering, from one of the largest Stocks in the Trade, 200,000 Transplanted HOLLIES, from 4 inches to 4 and 5 feet, which are well known to be extra good, rooted from this soil, are very healthy, stout, well furnished, and clean grown; a very large portion moved last May. Can supply the Trade from 4 inches to 2 feet. Cash or reference is respectfully requested from unknown correspondents.

Camden Nursery, Grafton Road, Kentish Town, London.

THOMAS ANSELL having established his Nursery as above (in consequence of the expiration of the Lease of his former one), begs to acquaint the Trade and the public generally, that his CATALOGUE for 1864 is now ready, and may be had on application; it will be found to contain a first-class Collection of DAHLIAS, GERANIUMS, CHRYSANTHEMUMS, FUCHSIAS, VERBENAS, Choice PETUNIAS, and Select AZALEA INDICA, &c.; also a very large Stock and assortment of General BEDDING PLANTS, for which he begs to solicit the favour of early orders, which shall receive his best attention, be carefully packed and forwarded to any part of the Kingdom.

DAHLIAS in sound pot roots, in great variety, expressly adapted for exportation, kept in stock throughout the autumnal, winter, and early spring months.

References required from unknown correspondents, and Post-office Orders to be made payable at the Post Office, Brecknock Place, Camden Town, N.W.

HERBACEOUS CALCEOLARIA, &c., SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*

CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes superb strain. Sealed Packets, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*

HUNT'S SWEET WILLIAM.—Sealed Packets, 6*d.* and 1*s.*

SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1*s.* and 2*s.* 6*d.*

PANSY.—From best named varieties. Sealed Packets, 1*s.* and 2*s.* 6*d.*

And every other first-class Seeds. See CATALOGUE, post free.
WM. CUTBUSH & SON, Highgate Nurseries, London, N.

Indian Azaleas.

WILLIAM BARNES has the largest and most healthy stock of the above favourite plants to offer for sale, comprising the finest specimens, suitable for exhibition in this or any other country, as well as many thousands of smaller dimensions, from three-quarter and half specimens down to small plants, all properly shaped to form symmetrical specimens, and finely set with bloom. Any person forming a collection or increasing their present one will do well to visit this Nursery, where every variety up to the present date worth cultivating will be found, the whole grafted upon the stock that W. B. has proved so admirably adapted to them, after many years close observation.

PRICED LIST will be forwarded upon application post free.
Camden Nursery, Camberwell, S.—May 7.

MANGEL WURZEL SEED, 8*d.* PER POUND; OR CHEAPER BY THE CWT.

LARGE YELLOW GLOBE. | RED GLOBE.
ORANGE GLOBE. | LONG RED.
LONG YELLOW.

PRICED LISTS of other FARM SEEDS Gratis and Post Free
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TURNIP, MANGEL WURZEL, and AGRICULTURAL SEEDS.—The undersigned offer as above, of first-class selected Stocks and prime Samples, crop 1863, at lowest prices. Terms on application.

JAMES FAIRHEAD & SON, Seed Growers and Merchant 7, Borough Market, London, S.

N.B. Our LEWISHAM SWEDE again obtained First Prizes at several Root Shows this last season; one report states of them: "These Turnips were the admiration of all who saw them, being also a very even crop, although some bulbs were of immense size."

BARR & SUGDEN
12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent Carriage paid.

Surplus Stock of Gladioli.

2*s.* 6*d.*, 3*s.* 6*d.*, 4*s.* 6*d.*, 6*s.*, 9*s.*, 12*s.*, and 18*s.* per dozen.
15*s.*, 21*s.*, 30*s.*, 50*s.*, 60*s.*, 70*s.*, 80*s.*, and 100*s.* per 100.

BARR & SUGDEN'S PAXTONIAN COLLECTIONS OF FLOWER SEEDS,

ADAPTED TO ANY STYLE OF GARDENING, SENT POST PAID.

HARDY ANNUALS.—2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, &c. Including those introduced in 1862, 1863, and 1864, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 30*s.*, &c.
HALF HARDY ANNUALS.—2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 21*s.*, 30*s.*, &c.
HARDY PERENNIALS.—2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 20*s.*, 30*s.*, &c.

Barr & Sugden's Collections of Vegetable Seeds for One Year's Supply.

10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*

MIXED FLOWER SEEDS for WOODLAND WALK, WILDERNESS DECORATION, ROCKERIES, ROOTERIES, &c., 5*s.* 6*d.* per lb.; or 9*d.* per oz.
LILIUM LANCIFOLIUM (JAPAN LILIES), three varieties, 12*s.* to 18*s.* per dozen.
TIGRIDIA PAVONIA, 1*s.* 6*d.* per dozen, 7*s.* 6*d.* per 100.

PLANTS and PLANT CASES for TABLE DECORATION.

BARR & SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

CHESTER AND MANCHESTER J&D

FARM SEEDS.—CARRIAGE FREE.

GRASSES and CLOVERS, mixed for Permanent Pasture, and adapted to any description of soil.
ALSIKE, RED WELSH, and other CLOVERS. Pure samples.
PACEY'S PERENNIAL, IMPORTED ITALIAN and other RYE-GRASSES. Extra cleaned.
TURNIPS, DICKSON'S PRIZE SWEDE, and others saved from picked transplanted bulbs.
MANGEL WURZEL, Select YELLOW GLOBE, OVAL, &c.

☞ *All of the very best description, and Carriage Free.*

A DESCRIPTIVE PRICED CATALOGUE upon application to

JAMES DICKSON AND SONS, 102, EASTGATE STREET, CHESTER.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large bulbs of the Hardy Green-topped Swede, at 9*d.* per lb.; and his large FOSTERTON HYBRID, 8*d.* per lb. Price List Free.

Mixtures of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (3d edition) Free by Post.

RIPON and CLARE SEED ESTABLISHMENT, RIPON, YORKSHIRE.

CARTER'S FARMER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Wyatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, May 7.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf
CALCEOLARIA BEAUTY of HERTS, clear amber
CALCEOLARIA GENERAL TOM THUMB, deep yellow
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30*s.* per dozen; the usual allowance to the Trade where six or more are taken.

NEW and IMPROVED VARIETIES of PENTSTEMONS and ANTIRRHINUMS for 1864.

PENTSTEMONS.

GEORGE SMITH, 3*s.* 6*d.*; SIGNET, 2*s.* 6*d.*; GARIBALDII, 3*s.* 6*d.*; BEAUTY, a dwarf bedding variety, deep rose pink, pure white, open throat, 2*s.* 6*d.*

These four varieties are selected as the best of several Seedlings which were submitted to the West of Scotland, "Hort. Magazine," October 1863, and noticed as "altogether a superior lot, and deserving of place in the most select collections of this favourite flower."

ANTIRRHINUMS.

GERTRUDE. 2*s.* 6*d.*; NANNETTE, 2*s.* 6*d.*; CONSTANCE, 2*s.* 6*d.* The above three varieties are selected from a large number of Seedlings, which are mentioned in the October Number of West of Scotland Magazine, as "superior and distinct Seedlings, the colours being different from any we have seen." See also "Gossip of the Garden" for October, 1863.

PENTSTEMONS, by name, 6*s.* to 9*s.* per dozen.
PENTSTEMON COMPACTUM NANUM. — Brilliant deep crimson, compact habit, 12 inches, fine bedder, 6*s.* per dozen. Awarded Certificate by the Floral Committee, 1862.
ANTIRRHINUMS, by name, 6*s.* to 9*s.* per dozen.
Usual discount to the Trade.
DESCRIPTIVE LIST on application.
STUART & MEIN, Nurserymen, Kelso, N.B.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.

SUTTON AND SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 8*d.* per pound, or 30*s.* per bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS Post Free.
Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED HARDY WHITE SWEDE.

This fine WHITE SWEDE is invaluable as late spring keep for Ewes and Lambs, and will thrive on any soil. It is not so coarse as the Old White Swede, unless sown too early.

Price 9*d.* per lb., or cheaper by the bushel. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW HARDY WHITE SWEDE, the favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills.—Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor lands. Seed 9d. per lb. or 35*s.* per bushel, supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts 6*d.* per lb.

WORCESTERSHIRE SWEDE, not to be beaten, 9*d.* per lb.; other kinds, 8*d.* per lb.

PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

CHOICE ORCHIDS.

HUGH LOW & CO.

Have recently received very extensive Consignments of ORCHIDS from their Collectors and Correspondents in various Countries. Amongst them are many Novelties, the names of a few of which are appended, and gentlemen are respectfully invited to inspect them as well as the General Collection, which is of unusual extent, the Plants being cultivated in eight span-roofed houses.

ANGULOAS, from New Granada.
AERIDES DASYCARPUM.
BOLBOPHYLLUM RAMOSUM.
„ AURICOMUM.
CIRRHOPETALUM DISTANS.
CYMBIDIUM TIGRINUM.
CATTLEYAS, several unnamed Brazilian species.
CŒLOGYNE CONFERTA.
„ RHODEANA.
CŒLOGYNE, several unnamed new species.
CYPRIPEDIUM CONCOLOR.
„ species from Mount Ophir.
DENDROBIUM ALBOVIRIDE, very fragrant.
„ INFUNDIBULUM.
„ LUTEOLUM.
„ MARGINATUM.
„ OCHROLEUCUM.
„ PARISHI.
„ XANTHOPHLEBIUM.
EPIDENDRUM ATROPURPUREUM, from New Granada, as figured in Pescatorea.
„ from Guatemala.
„ species, North Brazil, very fine.
ERIA, three species, all sweet-scented.
ERIOPSIS species, New Granada.
HUNTLEYA, 21 species from New Granada.
LEPTOTES TENUE.
LIMATODES ROSEA VESTALIS, pure white.
LYCASTE, several species from New Granada.
MILTONIA PINELI.
„ ROSEA
„ several unnamed Brazilian species.
ODONTOGLOSSUM, unnamed species from New Granada.
ONCIDIUM, supposed to be O. longipes.
WARREA, species, New Granada. Probably W. bidentata, or the best variety of W. tricolor.

Large supplies have recently arrived in the finest possible condition of CATTLEYA ACLANDIÆ, MOSSIÆA, BICOLOR, MARGINATA, HARRISONIÆ, SKINNERI; ODONTOGLOSSUM GRANDE and HASTILABIUM; ONCIDIUM BICALLOSUM, CAVENDISHI, PULCHELLUM, true; all of which are on ale at very moderate prices.

CLAPTON NURSERY, LONDON, N.E.

E. G. HENDERSON AND SON'S NOVELTIES for 1864, now ready.
VELVET CUSHION VERBENA, hybridised with Verbena venosa, large truss, effective variety, with hardy constitution—fine bedder.
GARIBALDI PINK.—A richer coloured and dwarfer plant than Anne Bulleyn.
SCARLET GEM DAHLIA.—Best bedding Dahlia in its colour.
TOM THUMB DAHLIA.—Rich crimson, 12 inches in height.
WHITE TOM THUMB GERANIUM.—Best of its class for pots or bedding.
UNITED ITALY VARIEGATED GERANIUM.—Foliage red, white, and green.
MRS. BENYON VARIEGATED GERANIUM.—Like Mrs. Pollock, best in its style.
PRINCESS OF WALES PETUNIA.—Most beautiful of any.
CHRYSANTHEMUM EMPRESS of INDIA, pure white, large, and beautiful.
Wellington Nursery, St. John's Wood, London, N.W.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.

MIXTURE for Laying down to PERMANENT PASTURE	25s. to 30s.
MIXTURE for ORCHARDS or LAND shaded by Trees	24s. to 26s.
MIXTURE for PARKS and CEMETERIES	28s. to 30s.
MIXTURE for Improving OLD PASTURE	6s. to 8s.
MIXTURE for One, Two, or Three Years' Lay	15s. to 18s.
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1s.

PRICED LISTS may be had on application.
RICHARD SMITH, Seed Merchant, Worcester.

Permanent Pasture Grass Seeds.

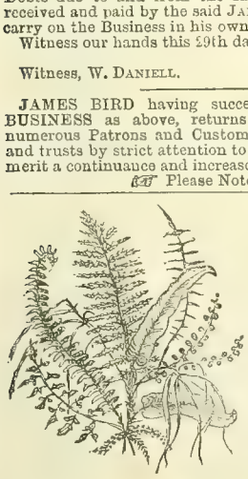


SUTTON AND SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore.
Royal Berkshire Seed Establishment, Reading.

American Nurseries, Downham Market.

DISSOLUTION of PARTNERSHIP.—Notice is hereby given, that the PARTNERSHIP heretofore existing between CHARLES GODFREY, of Romford, Essex, High Bailiff, and JAMES BIRD, of Downham Market, Norfolk, Nurseryman, under the style or Firm of "JOHN BROWN & Co.," at Downham Market aforesaid, as Nurserymen and Seedsmen, was this day dissolved by mutual consent. All Debts due to and from the said Firm will be respectively received and paid by the said JAMES BIRD, who will in future carry on the Business in his own name.
Witness our hands this 29th day of April, 1864.
CHARLES GODFREY.
Witness, W. DANIELL. JAMES BIRD.

JAMES BIRD having succeeded to the whole of the BUSINESS as above, returns his sincere thanks to the numerous Patrons and Customers for their liberal support, and trusts by strict attention to all orders confided to him, to merit a continuance and increase of the same.
☞ Please Note the Address.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

REIGATE SILVER SANDS, PEAT SOILS, LOAMS, &c., on Sale.
W. SHORT, Sand and Peat Dépôt, Reigate, Surrey.

TOBACCO PAPER, extra strong. To the Trade or Retail. Sample and price on application.
H. BROWN, 4, Commutation Row, Liverpool.

ROLL TOBACCO CLOTH.—The best and cheapest article for Smoking Greenhouses and Destroying the Fly. Price 1s. 4d. per lb.; over 10 lb., 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post-office Order payable Fleet Street.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality) of F. & G. ROSHER, at the Addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	
£5 0 0	£5 12 0	



Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0

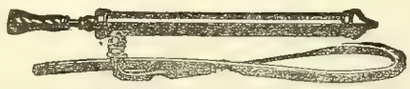


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

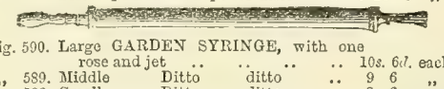


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10s. 6d. each.
,, 589. Middle Ditto ditto .. 9 6 ,,
,, 588. Small Ditto ditto .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 6 9 ,,

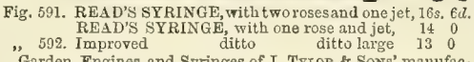


Fig. 591. READ'S SYRINGE, with two roses and one jet, 16s. 6d.
READ'S SYRINGE, with one rose and jet, 14 0
,, 592. Improved ditto ditto large 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1s. 8d. per yard run.
Four yards wide .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide, 1s. 9d. per yard.
An improved make, 3 yards wide, 2s. 8d. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

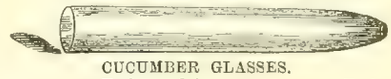
PROPAGATING  GLASSES.

Each—	s.	d.	Each—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

BEE GLASSES.

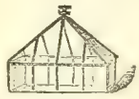
Each—	s.	d.	Each—	s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 ,, ,, ..	0	8	10 ,, ,, ..	2	0
6 ,, ,, ..	0	10	11 ,, ,, ..	2	6
7 ,, ,, ..	1	1	12 ,, ,, ..	3	0
8 ,, ,, ..	1	4			

Not made above 12 inches.



CUCUMBER GLASSES.

Each—	s.	d.	Each—	s.	d.
24 inches long	2	0	16 inches long	1	4
22 ,, ,, ...	1	10	14 ,, ,, ...	1	2
20 ,, ,, ...	1	8	12 ,, ,, ...	1	0
18 ,, ,, ...	1	6	Made to any length.		

HAND GLASSES,  WITH OPEN TOPS.

Each—	s.	d.	Each—	s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.
London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

"RECONNOIT'RER" GLASS, 10s. 10d. post free, shows distinctly windows and doors of houses 10 miles off; JUPITER'S MOONS, &c. For Landscape is valuable for 25 miles, is guaranteed equal to others at 3l. 3s., the enormous sales allowing division of labour to an extent hitherto quite unknown. "The Reconnoit'rer is very good."—*Marquis of Carmarthen.* "It gives me complete satisfaction, and is wonderfully good."—*Sir Digby Cayley.* "I never met an article so completely answering its maker's recommendation."—*F. H. Fawkes, of Farnley, Esq.* "An indispensable companion to a pleasure trip."—*Notes and Queries.* "We have found it fully equal to others more than four times its price."—*Field.* "I have found it effective on the 1000 yards range." *Capt. Sendey, Royal Small Arms Factory, Enfield.*—The "Hythe" Glass shows bullet marks at 1000 yards, and men at three miles; 31s. 6d. Only to be had direct from SALOM & Co., 98, Princes Street, Edinburgh. No Agents.

SMITH, BECK, AND BECK'S New MERCURIAL BAROMETER, very sensitive. Scale, 3 to 8 inches for every inch of variation, compensating tube instead of a reservoir. Price from 35s. to 42s.
Description sent free by post, or to be had on application at 31, Cornhill, E.C.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS.—Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and GEGENUBER DEM BAHNHOF, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C. from whom only it can be obtained.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.



BEDDING AND OTHER PLANTS.

THE BEST HARDENED OFF STOCK IN THE KINGDOM.



JAMES CARTER & CO.,

SEED MERCHANTS AND NURSERYMEN,

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

PART III. OF CARTER'S GARDENER'S AND FARMER'S VADE MECUM,

CONTAINING LISTS OF PLANTS OF ALL KINDS AT VERY MODERATE PRICES, WITH COMPLETE CULTURAL DIRECTIONS,

Forwarded Post Free on application.

FIRST-CLASS NEW BEDDING GERANIUMS,

Which they are now prepared to send out.

THE LATE MR. DONALD BEATON'S GERANIUMS.

It is with sincere regret that we announce the demise of the above-named highly-esteemed gentleman, whose place in the World of Horticulture we believe cannot easily be supplied. For 20 years he was looked to by all as the genius of the Gardening World, and it is admitted that his Seedling Geraniums alone will immortalise his name among the Floral public.

Ten days prior to his death, he concluded a contract with us for all the Geraniums sold by him last season to Nurserymen, for distribution in 1864, and the whole of the varieties we offer he proved in his experimental garden as Surbiton, and from a large collection these kinds alone were selected.

The Set of Mr. Beaton's Geraniums, 1 strong plant of each, for 15s.

CYBISTER (Beaton).

This Mr. Beeton considered the best Nosegay Geranium he had raised, and we may observe that for two successive years it was exhibited in the most prominent beds at South Kensington and the Crystal Palace Gardens, and universally admired. The colour of the flowers is vivid scarlet; the trusses are immense, with sometimes 200 flowers and pips on a truss; its habit is excellent, and it is altogether a first-class plant.

Price 3s. 6d. each.

LADY COLUM (Beaton).

This is the first and only Nosegay Geranium of the Christine colour, viz, delicate rose; the blooms are well thrown up above the foliage, which is slightly zonale; the flower trusses are very large, and freely produced. During the last season at the Crystal Palace it was grown in the circular basins surrounding the Crystal Fountain, where it was very effective; it is also well adapted for Greenhouse or Conservatory culture.

Price 5s. each.

BEATON'S PET (Beaton).

This was a great favourite with the late Mr. Beaton; it is a minimum in growth, rarely exceeding 6 or 8 inches in height; it is also a most profuse bloomer, with a peculiar crimson lake colour, exceedingly rich and glowing; for ribanding and general bedding purposes it will be found marvellously effective.

Price 5s. each.

MRS. WHITTY (Beaton).

We last season introduced Helen Lindsay, which was universally admitted to be much superior to the general favourite, Christine. We have now the pleasure of offering a still finer variety in Mrs. Whitty. It has a beautiful deep rose colour, with a large white eye; blossoms in profusion; foliage slightly zonale. Last season a bed of it at the Crystal Palace Gardens, planted at the special request of Mr. Beaton, produced a magnificent effect, and continued in bloom until the frost.

Price 3s. 6d. each; 36s. per dozen.

MONITOR (Beaton).

This is a remarkably fine variety, from which Mr. Beaton hoped ultimately to produce a yellow Geranium, a colour hitherto unknown in this tribe of plants; colour a deep orange scarlet; bloom freely produced, and well thrown up above the foliage.

Price 3s. 6d. each.

SNOWBALL (Keeler).

A new pure White Bedding Geranium, raised by Mr. Keeler, of Wood House, Dulwich, and who has placed the entire stock in our hands for distribution. Of the same type as Madame Vaucher, but in every respect superior; fine large truss, well up in the centre, giving a flat even surface, and both in form and colour almost equal to the old Double White Camellia. Petals pure white, good form, and of great substance. Habit very robust and compact. Foliage rich green, with dark zone; will form a most desirable pot plant for Conservatory, and is without doubt a valuable acquisition for general bedding purposes. It is the opinion of Mr. Keeler, the raiser, that it is superior to anything yet introduced to the notice of the public, and the best White Geranium ever raised by him.

Price 5s. each.

BEL DEMONIO (Keeler).

A bright lively salmon colour, of dwarf, compact, but very robust habit of growth. The free blooming habit of this variety will make it most desirable for planting in large masses or extensive riband lines. The trusses are very large, individual flowers large and of uncommon substance in petal, and blooms well up above the foliage. This variety resists the effect of sun and rain better than any before offered of this class, and was raised at the same place as the preceding splendid White variety.

Price 2s. 6d. each.

HIBBERD'S PET (Hibberd).

This we received from Mr. Shirley Hibberd, the well-known writer on Horticulture, with the following description:—"You may recommend this as the best scarlet Horse-shoe Geranium in cultivation: it is a strong grower, and throws up large trusses of bloom, slightly darker in colour than Cottage Maid." Having seen it in bloom, we can fully corroborate Mr. Hibberd's statements.

Price 2s. 6d. each.

CALCEOLARIA, PRIMULA, AND CINERARIA,

SAVED FROM THE BEST NAMED SORTS ONLY.

Price per packet, 2s. 6d.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

NEW DAHLIA EREBUS, NEARLY BLACK.

"Erebus is the best dark Dahlia yet produced."—*Garden Oracle.*

"Andrew Dodd looks pale and weak beside it."—*Gardeners' Weekly Magazine.*

"I think your Dahlia Erebus a great novelty."—*Charles Turner, Royal Nurseries, Slough.*

Plants of the above, 7*s.* 6*d.* each.

GEORGE RAWLINGS, 21, Globe Road, Bethnal Green, N.E.

F. AND A. SMITH, The Nurseries, Dulwich, Surrey, S., beg to intimate that they are now prepared to supply the following Novelties :—

FUCHSIA PILLAR of GOLD.—The best variegated variety out. Strong plants, 7*s.*; 2d Size, 5*s.*; Small Plants, 3*s.* 6*d.* each.

NEW BEDDING LOBELIAS.—Raised by Mr. Gordon at the Crystal Palace, and superior to any heretofore offered. 2*s.* each, or the set of 6 varieties 10*s.* 6*d.*

NEW ROSES of 1864.—All the best and most beautiful varieties.

BEDDING PLANTS, in great variety, including many novelties of merit, at moderate prices.

CATALOGUES of the above are now ready, and will be forwarded Post-free on application.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2*s.* 6*d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to Mr. WEBB, Calcot Gardens, Reading.

New Hollyhocks.

WM. PAUL respectfully announces that he is now sending out Two first-rate NEW HOLLYHOCKS, selected from many thousands of Seedlings, namely :—

BEAUTY of WALTHAM.—Flowers pale silvery peach, large in size, perfect in form, and closely set on a large handsome spike : one of the finest ever raised.

RED GAUNTLET.—Very fine blood crimson, unsurpassed in colour and form, spike magnificent.

Strong healthy autumn-rooted plants, calculated to flower well this summer, 10*s.* 6*d.* each.

PAUL's Nurseries, Waltham Cross, N.

Spring Catalogue.

WOOD AND INGRAM'S New PRICED and DESCRIPTIVE CATALOGUE of Dahlias, Pelargoniums, Zonale and Variegated Geraniums, Fuchsias, Cinerarias, Verbenas, Chrysanthemums, Petunias, Hardy and Tender Ferns, Stove, Greenhouse and Bedding Plants, &c., is now ready, and will be sent free on application.

Huntingdon Nurseries.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

MR. JEAN VERSCHAFFELT, Ghent, begs to announce that his NEW SUPPLEMENTAL CATALOGUE is now ready, and contains a great many novelties for the season. The Catalogue may be had free on application to

JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent (Belgium).

Agents in London : Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Continental Novelties, &c.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to advertise his PRICE LISTS, No. 99, 100 and 102, containing the STOVE, GREENHOUSE, HARDY PLANTS, and SEEDS.

Agents in London : Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1*s.*

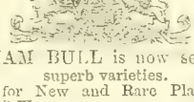
The following Choice SEEDS are also specially recommended, having been selected with the greatest care :—

	Per packet—*s.* *d.*
CALCEOLARIA, HERBACEOUS, finest mixed	2 6
CARNATION, PERPETUAL, finest mixed	2 6
CINERARIA CRUENTA, finest mixed	2 6
PICOTEE, PERPETUAL, finest mixed	2 6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2 6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2 6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Fuchsias Blue Beauty and Lord Palmerston.



MR. WILLIAM BULL is now sending out these superb varieties.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Sutton's Lawn Grass Seeds,

AT THE CRYSTAL PALACE, AND AT THE PEOPLE'S PARK, HALIFAX.



SUTTON AND SONS have had the honour of supplying the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham, and at the People's Park, Halifax.

The following letter has been received, besides many others :—

From Professor LINDLEY, *Horticultural Society, London.*

"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1*s.* per lb.; 2*s.* 3*d.* per gallon; or 18*s.* per bushel. Quantity required for forming new Garden Lawns, 3 bushels, or 60 lbs.

Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Seeds worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. Superbly Fringed. In sealed packets. 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Cheap Bedding Geraniums.

ALFRED FRYER offers 48 varieties of first-class BEDDING GERANIUMS for 21*s.*, basket and packing included. Amongst other popular kinds the collection will contain the following :—

Mrs. Pollock	Snowflake	Blackheath Beauty
Cloth of Gold	Eva	Madame Vaucher
Golden Fleece	Jane	Magenta
Reine d'Or	Julia	Pink Pearl
Sulphureum marginatum	Flower of Spring	Woodwardiana
	Bijou	Henderson Nana
Sciutillatum	Aurora	Paul Labbé

Remittances requested from unknown correspondents.

Post-office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

New Plants for 1864.

B. S. WILLIAMS has much pleasure in offering the following Novelties for the first time, descriptions of which will be found in previous advertisements, and in his NEW PLANT CATALOGUE, post free to all applicants.

NEW ACHIMENES.

Purpurea elegans, Leopard, Magnet, Scarlet Perfection, Vivicans, Eclipse — 7*s.* 6*d.* each, or the 6 for 42*s.*

NEW FUCHSIAS.

Neptune, Queen of Beauties, Gem of the North, Minotaur — 7*s.* 6*d.* each

NEW SINGLE PETUNIAS.

Royalty, Purple Prince, Duchess of Northumberland — 5*s.* each

NEW ZONALE GERANIUMS.

Display, Beauty, Royalty — 5*s.* each

Paradise and Victoria Nurseries, Holloway, London, N.

New Bedding Plants.

MESSRS. JOHN AND CHARLES LEE are now prepared to offer the following Novelties, which they have proved to be distinct and good :—

TROPÆOLUM COOPER'S DEFIANCE.—Is very dwarf, short jointed, slightly trailing, small leaved, and an immense bloomer. Flowers bright scarlet. A first-rate Bedder. Price 2*s.* 6*d.* each; 18*s.* per dozen; 5*l.* per 100.

GERANIUM VARIEGATED LITTLE DAVID.—Is a very pretty white-edged sport of the well-known favourite, "Little David," so useful for Edging. Price 5*s.* each.

VARIEGATED GERANIUM THE BRIDE.—This interesting novelty is adapted for small beds in conjunction with Lobelia speciosa. The habit is very dwarf, the margin of the leaves pure white, and the flowers are also pure white. A very elegant little plant. Price 7*s* 6*d.* each.

Royal Vineyard Nursery, Hammersmith, London, W.

NEW VERBENA, LORD CLIFDEN (BUNYARD'S). Colour: rosy scarlet, with a very large and clearly defined white eye; each single flower flat and clean edged; truss large and well shaped. Habit good and free, a capital bedder. Autumn struck: price for 12, 2*l.* 10*s.*; 6, 1*l.* 7*s.* 6*d.*; each, 5*s.* Spring struck: per dozen, 24*s.*, or 2*s.* 6*d.* each, package included.

Improved TOM THUMB SCARLET NASTURTIUM, 1*s.* per packet, the best bedding Annual offered.

THOMAS BUNYARD & SONS, The Old Established Nurseries, Maidstone and Ashford, Kent.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST of AWARDS, MAY 4, 1864.

FIRST-CLASS CERTIFICATES.

ASTROCARYUM MEXICANUM, from Mr. Bull, Chelsea

AURICULA BUCKSTONE, from Mr. Turner, Slough

BERBERIS HANDSWORTHIENSIS, from Messrs. Fisher Holmes & Co., Sheffield

SEDUM SIEBOLDII FOL. MEDIO-VARIEGATIS, from Mr. Salter, Hammersmith.

SECOND-CLASS CERTIFICATES.

MIMULUS UNIQUE, from Mr. Bull

PANSY (fancy) MRS. H. DOMBRAIN, from Messrs. Downie & Co., Sydenham

RANUNCULUS REPENS FOL. ALBO-VARIEGATIS, from Mr. Salter

SPECIAL CERTIFICATE.

To Mr. Stone, Gr. to J. Day, Esq., for ODONTOGLOSSUM NÆVIUM, and O. PESCATOREI

The NEXT MEETING will take place on May 17.

THOMAS MOORE, Secretary to the Committee.

ROYAL BOTANIC SOCIETY.

THIRD SPRING SHOW, April 30,

AWARD of PRIZES.

6 ROSES. (Amateurs.)

1st Prize, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park

6 ROSES. (Nurserymen.)

1st, Mr. C. Turner, Slough, Bucks
1st, Messrs. H. Lane & Son, Great Berkhampstead, Herts
2d, Mr. W. Paul, Waltham Cross
3d, Messrs. Paul & Son, Cheshunt, Herts

24 ROSES. (Cut Blooms.)

1st, Mr. W. Paul
2d, Messrs. Paul & Son

COLLECTIONS of CUT ROSES.

1st, Mr. W. Paul
2d, Messrs. Paul & Son

6 PELARGONIUMS. (Amateurs).

1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth
2d, Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead
3d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common

6 PELARGONIUMS. (Nurserymen.)

1st, Mr. C. Turner

6 AURICULAS. (Amateurs.)

1st, Mr. F. Potts, 35, Glengall Grove, Old Kent Road
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth
3d, Mr. J. Butcher, 1, South Street, Camberwell

6 AURICULAS. (Nurserymen.)

1st, Mr. C. Turner

6 AURICULAS. (Amateurs.)

1st, Mr. J. James, Gr. to W. F. Watson, Esq.
2d, Mr. W. Bragg, Nurserymen, Slough, Bucks

16 MISCELLANEOUS PLANTS.

1st, Mr. B. S. Williams, Nurseryman, Holloway
2d, Messrs. A. Henderson & Co., Nurserymen, Edgeware Road
3d, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate
4th, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bt.

HANGING BASKETS and ORNAMENTAL STANDS.

1st, Messrs. A. Henderson & Co.
2d, Mr. W. Young, Gr. to R. Barclay, Esq.

MISCELLANEOUS.

Silver Medal, Mr. C. Turner, for Collection of Roses in Pots
Ditto, Mr. C. Turner, for Collection of Azaleas
Small Silver Medal, Messrs. J. Dobson & Sons, Isleworth, for Collection of Azaleas
Ditto, Messrs. H. Lane & Son, for Collection of Azaleas
Ditto, Mr. W. Bull, Nurseryman, Chelsea, for Collection of New and Rare Plants
Bronze Medal to Mr. C. Turner, for Collection of Auriculas
Ditto, Mr. B. S. Williams, for Collection of New and Rare Plants
Ditto, Messrs. J. Dobson, for 9 Cinerarias
Small Bronze Medal to Mr. J. James, Gr. to W. F. Watson, Esq., for 6 Cinerarias
Ditto, Mr. W. Bragg, for Pansies in pots
Ditto, Messrs. J. Dobson & Sons, for Pansies in pots
Ditto, Mr. W. Young, Gr. to B. Barclay, Esq., for 6 Exotic Ferns
Ditto, Mr. C. Turner, for Bougainvillea speciosa
Ditto, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., for 8 Begonias

NEW PLANTS and SEEDLINGS.

First-class Certificate of Merit to Messrs. J. Veitch & Son, for Clematis Reginæ
Ditto, Messrs. J. Veitch & Son, for Franciscea calycina major
Ditto, Messrs. J. Veitch & Son, for Dracæna Cooperi
Ditto, Messrs. J. Veitch & Son, for Primula cortusoides amœna
Ditto, Mr. B. S. Williams, for Dendrobium Dayanum
Ditto, Mr. B. S. Williams, for Dendrobium Dalhousianum superbum
Ditto, Mr. B. S. Williams, for Xanthorrhœa australis
Ditto, Mr. B. S. Williams, for Rhododendron Nuttallii
Ditto, Mr. C. Turner, for Auricula Buckstone
Second-class Certificate to Mr. C. Turner, for Cineraria Herbert
Ditto, Mr. W. Bull, for Pelargonium Eve
Ditto, Mr. W. Bull, for Astrocaryum mexicanum
Ditto, Mr. W. Thompson, Ipswich, for Collinsia verna
Ditto, Messrs. Fisher & Holmes, Sheffield, for Berberis handsworthiensis

The Gardeners' Chronicle.

SATURDAY, MAY 7, 1864.

IN continuation of our previous remarks (p. 411) on the great HORTICULTURAL EXHIBITION IN BRUSSELS, we are happy to be able to announce, that amongst the decorations conferred by the KING, on the occasion of the distribution of the prizes which took place last Sunday, that of a Knight of the Order of Leopold was bestowed upon our countryman, Mr. JAMES VEITCH, of Chelsea, who, as will be seen from the recurrence of his name in the prize list we printed last week (p. 414), was a very large and very successful contributor to the exhibition. The distinction was most honourably won, and we hope will long be worn.

Recurring for a moment to the composition of this great flower show, and comparing it with that of our own, we may point out some of its well marked features, which may be broadly stated thus. Taking novelties first, as being the most interesting department, we find the display to have been both more extensive and more varied than at our own shows. Besides the numerous select contributions of Mr. VEITCH, the Belgian nurserymen themselves, especially M. AMBROISE VERSCHAFFELT and M. LINDEN, exhibited largely; and although some of the principal prizes will find their way to England, there was very much more of interest in the home collections than could be noticed in the brief space we were able to devote to them. We have therefore recorded, in a supplementary report (p. 438) the whole of the plants exhibited under this head. Then in respect to Palms, Tree Ferns, Cycads, Dracænas, and other large-sized plants of ornamental habit, our own shows

furnish nothing which approaches either in quantity, in variety, or in size, to what was to be seen at Brussels. The noble character presented by these and similar objects, and the relief afforded to the eye by such profuse masses of elegant foliage, as a set off to the less prominent masses of flowers, combined to render them the great charms of the exhibition, taking in a general view of the whole display. The overarching isolated specimens of Tree Ferns were perhaps the most lovely features of all, and rather suggested that one was walking in some magnificent plant stove, like the Palm house at Kew, than in a temporary exhibition, of which the objects were so soon to be dispersed. A third prominent feature, almost foreign to our English shows, was to be found in the collections of hardy shrubs. Rhododendrons of manageable size, just brought into flower, formed one of the most striking of the colouring elements of the show. Hollies in great variety, not scrubby bushes, but well-shaped pyramidal specimens, and the choicer Conifers, grown in many cases in large tubs, made a grateful variety—and after all, anything which imparts a pleasing variety, and does away with the element of monotony, is to be regarded as most desirable in such a gathering as a flower show.

The Rhododendrons just adverted to, with the short-stemmed Azaleas alluded to last week, were something analogous in their effect to the Pelargoiums of our summer shows; but there were at Brussels no such Azaleas as those with which Messrs. Veitch and Turner have made us familiar at home; nor any specimens of flowering plants like those which go to make up our "great collections." And here, in our very strength, lies our weakness so far as regards working up an agreeable picture out of our "grand shows." Almost every plant brought to our meetings is a specimen, fit to be isolated, and the consequence is that the grandeur of the grandest of our plants is lost, utterly lost, by their being smothered and hemmed in by others nearly or quite as effective as themselves. We want smaller and less formal flowering plants as a foil to the grand specimens, and more foliage as a contrast to the whole.

These—that is, the kind of plants to be got up, and the better arrangement of them when got up—are the problems we must solve if we would make our shows more attractive and less wearisome to the visitors: of that, both the producing parties—the Societies and the exhibitors—may rest assured. The public are tiring of the present arrangements, and begin to care less for the exhibition of flowers on these occasions than for that of crinolines. How, indeed, can it be otherwise, when with some eight or ten gatherings in the short season of summer, in different parts of London, it is "ditto, ditto" all through—the same plants (regarding the productions at contiguous shows), the same formal stuck-up tables or stages, and the same incongruity of setting up. We see a group of pigmies set side by side with a group of giants, the tables suiting the pigmies moderately well, but the giants not at all; the latter probably are marshalled in two uneven ranks, and are apparently toppling over from repletion, their perpendicularity being disturbed in order to bring them a little within reach of the eye: in short, they are first set up too high, and are then pulled partly over to bring them again within sight. The end view of such a group, as one slowly advances with the crowd towards it, is anything but picturesque, from the prominence which is given to the broken flower pots and blocks and chips of wood, by which alone the plants are prevented, sometimes indeed scarcely restrained, from affectionately throwing themselves into the arms of the admiring spectators. This is all wrong. We want something very different from arrangements like these; and unless plant-exhibitors wish to see their occupation gone they must be willing to fall in with the best plan, adapted to our English customs, which can be found to supersede them. No doubt the best plan we have in England is that adopted at the Regent's Park, but even that is very defective by the test we would apply, in respect to hiding unpleasant back and side views, to relieving the eye, and to producing something like congruity in the grouping and sequence of the plants.

Winter has passed away, and if we except what injury may yet be accomplished by a few nights of spring frost, it has done its worst in so far as our out-door collections of trees and shrubs are concerned. And although this winter has been far less severe than some which we can remember, such for example as that of 1837-8, when the thermometer went down to 4° below zero, and in some situations even lower than that, yet it has been on more than one occasion extremely cold and trying to those things which are not perfectly hardy. The meteorological tables of this Journal record the thermometer (Fahr.) so low as 8° and 7° on the nights of the 5th and 6th of January, and the mean temperature of the week was 12° below the average. Again, on the 9th of February it went down to 11°, the mean temperature of that week being 10½° below the average. And we must also bear in mind that we had this severity of weather without any snow upon the ground acting as a protection to those plants which were exposed to it. Taking into consideration the severity of the frost, and the circumstances under which it was encountered, we may fairly congratulate ourselves, if, on the one hand, our losses or injuries from frost have been inconsiderable, or, on the other, if we can point to some acquisitions of hardy plants among those introductions from foreign countries which, of late years, have been unusually numerous and important.

It may be necessary that the season should be somewhat further advanced before we can be quite certain as to the amount of our losses or gains in the matter to which we have just alluded, but we are enabled already to announce that some very important trees and shrubs of recent introduction have passed through the late winter without showing the slightest sign of being affected by the cold. On paying a visit to the Bagshot Nursery a few days ago, we observed specimens of some of the new Japanese things growing in a bleak unsheltered situation, where they appeared perfectly healthy and vigorous, looking as if the sharp frost had rather been beneficial to them than otherwise. An imported plant of the Umbrella Pine (Sciadopitys verticillata) was amongst them, and not a leaf of it appeared to be injured. The different varieties of Osmanthus ilicifolius, plants looking like Holly bushes but related to the Olive, together with the variegated forms of Euonymus radicans and Elæagnus japonicus, appear to be as hardy as our common English Furze. Ilex crenata, a new Holly with small shining leaves, which will prove an excellent plant for evergreen hedges, was also uninjured. And, lastly, we have the very great satisfaction of stating that the green-leaved Aucuba appears to be quite as hardy as the variety which has been so long in our gardens. Not a leaf of this fine plant has been injured in the smallest degree, and we may safely put it down in the list of hardy shrubs, to which it is a most important addition. Lonicera aureo-reticulata and Lilium auratum may also be added to our list of hardy plants. The former has been out all winter in the open border in Mr. Jackson's nursery at Kingston-on-Thames, and has not been injured. Indeed, a plant of this pretty climber has been standing in a pot all the winter, in our own garden, in an exposed situation, and has now pushed out its new leaves, evidently unharmed.

Such, then, is our experience about London, as to the hardiness of the plants we have named. Doubtless Mr. Veitch and Mr. Standish could add many more names to the list we have given, such, for example, as the two Retinosporas (R. pisifera and obtusa, both quite hardy. Ed.) and some of the Pines. Many of these Japanese plants having been distributed over the country, we shall be glad to learn some particulars about them from our correspondents who may have had them in the open air during the late winter. Any other information on the effects of the late severe frosts will, no doubt, be most acceptable to our readers.

Amongst the large number of new plants which are yearly introduced to this country from foreign parts, many, of course, prove unsuitable for our climate. Fashion, or a prejudice in their favour, may keep them in cultivation for a time, but they ultimately disappear and give place to others. Even these, however, do a certain amount of good. They give us a glimpse, as it were, of the productions of other lands, and afford a certain amount of gratification while we make pets of them and cultivate them. Putting these however on one side, there are many of our introductions which prove themselves to be of real value, and highly ornamental. Amongst the loads of chaff which reach us from other countries, there are always some grains of corn, which, falling on good ground, yield the most satisfactory results, and produce a marked effect upon our gardens and landscapes. We can scarcely imagine the blank which would be left in our parks and gardens, if the productions which have been introduced from foreign countries, were removed from amongst us. On this account, we gladly welcome every addition to our list of hardy plants, and express our gratification when we find that many of the late introductions from Japan are likely to prove suitable to the climate of England.

We regret to find that the late winter has done considerable damage to the Wellingtonia gigantea which was planted in the Garden of the Royal Horticultural Society by His Royal Highness the late Prince Consort. The small shoots at the ends of the branches are nearly all destroyed. The tree of the same species planted in the Garden by Her Majesty the Queen is also injured, although not to the same extent as the other. Luckily the leader, in both instances, is apparently safe, as well as the main stems and larger branches, so that we may expect fresh branchlets and leaves to be formed in the spring and summer. Should this be the case, and we see no reason to doubt it, these interesting trees will soon become green again, and will then show no traces of the severe nip they have had by the frosts of last winter. We rejoice to add that in other places near London the Wellingtonias are perfectly untouched.

We print the following description of the Banquet to the Jurors, on the occasion of the late exhibition in Brussels, to show how very different from what exists at home, is the relation between the cultivators of the soil and the powers that be, in that country of gardeners and gardening. The description is from *L'Echo de Bruxelles*.

The Société Royale de Flore gave a splendid banquet to the members of the Jury of the Exposition Universelle d'Horticulture, and to the learned foreigners who had assisted at the Congrès International d'Horticulture organised by the federation of the Horticultural Societies of Belgium. The Comte de Ribaucourt, senator, and Vice-President of the Society, presided; and at the table of honour were placed Baron Hugel, the Austrian Minister; Frère-Orban, Minister of Finance; Rogier, Minister of Foreign Affairs; Vanderpeereboom, Minister of the Interior; Vanderstichelen, Minister of Public Works; Dubois-Thorn, Governor of Brabant; De Cannart d'Hamale, senator, President of the Royal Society of Horticulture of Malines, Vice-President of the Federation, and President of the Congrès; Comte de Lambertye; Thomas Moore, Director of the Botanic Garden, Chelsea; Von Siebold; De Kerchove de Limon, member of the Chamber of Representatives, burgomaster of Ghent; Dumortier, President of the Royal Society of Belgium; Vanden Hecke de Lembeke, President of the Royal Agricultural and Botanical Society of Ghent; Herry, Burgomaster of Laeken, administrator of the Société Royale de Flore; Reichenbach, Director of the Botanic Garden, Hamburgh; Planchon, Professor of Botany at Montpelier; Brongniart, Member of the Institute, Professor of the Museum of Natural History at Paris; Linden, Director of the Royal Zoological Gardens at Brussels; Fée, Professor of Botany to the Faculty of Medicine of Strasbourg; Piré, Secretary to the Royal Botanical Society of Belgium, and Secretary to the Congress, &c., &c. Several Members of the Senate, and of the Chamber of Representatives were present.

The first toast proposed by the President, was, To the King and Royal family, who by their generous co-operation have powerfully contributed to the success of the exhibition. The toast was received with enthusiastic bravos, amidst the enlivening strains of the Brabançonne executed by the excellent band of the Guides.

M. Herry, in the name of the Société Royale de Flore, proposed the next toast, as an act of gratitude of the Society towards the Ministers of the King, who by divers measures which they had taken had ensured the success of the exhibition:—To the Minister of Foreign Affairs, whose solicitude for this enterprise had been manifested by numerous acts; to M. Vanderpeereboom, Minister of the Interior; and to their honourable colleagues. The toast was received with applause.

M. Vanderpeereboom thanked the assembly in the name of the Government. The Belgian Government, he said, which encourages all the sciences, could not remain deaf to the appeal of the Société Royale de Flore, and its co-operation must needs be had by this Society and by the Federation of the Horticultural Societies of Belgium, in instituting an universal exhibition, and an international congress. The Government has given numerous proofs of its sympathy with horticulture and botany. It has instituted schools where these sciences are taught—one of them situated at the gates of this town, which has an universal horticultural reputation. Ghent is justly named the Flora of Belgium. Thanks to the efforts of the Government, horticulture is, I do not fear to proclaim it, one of the glories of our country. But these efforts would have been unfruitful if they had not met with co-operation on the part of the particular societies. The Minister, after having recalled the origin of horticultural societies, and given homage to the numerous learned men who had responded to the invitation addressed to them, finished by proposing

as a toast—To the prosperity of foreign and Belgian Horticultural and Botanical Societies, especially the Société Royale de Flore, and the Federation of the Horticultural Societies of Belgium, who have organised this Congress and this splendid Exhibition, which will be inscribed in the historical records of botany.

The toast was duly honoured, as were also the following:—To the members of the Jury, proposed by M. Linden and responded to by Baron Hugel. To the learned, illustrious and courageous travellers who have not feared to brave the greatest dangers, and to traverse the world in order to endow Europe with these fine horticultural productions, to the rare intelligence which propagates these wonders, to the illustrious men we have the honour of seeing amongst us, and to those who do not forget that position and wealth carry with them the obligation to afford aid to science, proposed by M. de Kerchove de Limon, in the name of Belgian horticulture. To all the members of the Congress, the learned botanists and distinguished horticulturists who have aided the Congress by their knowledge, proposed by M. Cannart d'Hamale. To the organising societies for the cordial and sympathising reception given to all foreigners, by M. Brongniart, who addressed his thanks to them, both as a member of the jury and a member of the Congress. To the exhibitors, by M. Ronnberg. To Belgian horticulturists, by M. Vanden Hecke.

The guests lingered long in the saloons and in the garden, engaged in intimate conversation and discussion. The dinner itself was excellent, the wines exquisite, and the service perfect.

—— We understand that Mr. John Smith, of Kew, who has been superannuated on account of his failing sight, retires from his post as Curator of the Royal Gardens on the 16th inst. His long period of active service, extending over 44 years, has, we are told, been handsomely acknowledged in the amount of his superannuation allowance. We have already intimated that Mr. Smith's successor is Mr. John Smith, of Syon Gardens—a singular coincidence of name.

—— Mr. Bull has sent us flowers of another strain of Mimulus, which he calls Unique, quite different from the cross which attracted so much attention last year. In the samples sent to us the ground colour of the flowers is that of M. cupreus; the limb segments are quite unspotted, the throat only being yellow, and on its lower side richly spotted with crimson. The flowers are intermediate in size between cupreus and the large spotted varieties.

THE PEACH TREE AND ITS FRUIT.

A Peach, I believe, ranks next to a Pine Apple, the king of fruits; and yet how few people obtain out of doors a full crop of this most delicious fruit. I have a full crop, grown out of doors by the river side, in a hoar-frosty valley, this year. The trees are very old and very vigorous; and there is not a blighted or curled leaf upon either of them. Mr. Sturt and Lady Charlotte, my old and kind friends, have paid me a visit this week (April 21), and have reviewed the few things in my garden that I take an interest in, namely, Roses, Strawberries, Raspberries, Pears on the Quince stock, and Peaches. Of this last fruit, Mr. Sturt took away specimen leaves to show his gardener. There was not to be seen a single specimen of blister, curl, blight, or other defect on my three Peach trees. This seemed to astonish him. I cover annually with a sheet, which is a better anti-radiator than a cloud, inasmuch as it keeps the blossoms dry, and also stops back radiation. Last year I saved and brought to net 348 Peaches from these three trees. The average netted in the six previous years was 517 per annum. I have disfruited the trees this year, and taken off 1823 fruit, leaving on for the present 847 Peaches. I propose to disfruit them yet further, so as to net from 500 to 600 fruit. Of course allowance must be made for "dropping," which, I believe, proceeds from various causes, viz., from immature wood, from previous over-cropping, from hypertrophy, from hydropathy, from want of water at stoning time, from leaving on too many fruit, or from general ill health of the tree, arising from the outward violations of the weather during winter, or afterwards, either by the elements, or the hand of man, or by his neglects. Ill health often arises from destruction of the foliage by aphides.

I do not hold the doctrine of "impossibility." I remember what Napoleon I. said, "Impossible is not French." I also say it is not English, though I often hear it. On hiring a gardener, the first thing to do is to examine his dictionary, and if he has not scratched out the word "impossible," don't hire him. I bar Yorkshire, Lancashire, and Scotland, as I do not know the severity of their spring frosts after the blossoms are unsealed; but in Dorset, even in a place as exposed to wind as the Eddystone lighthouse, and otherwise a wretched situation, the results show me that "impossible" is not English at Rushton. Your readers are welcome to come and see. My heart will hold more than my house, but they shall have a good reception. I am soon going to invite to a horticultural re-union the head gardeners of the neighbourhood. Salmon and saddle of mutton always promote "unanimity."

My chief object now is to cause a greater and more sure growth of Peaches. I will therefore endeavour to say briefly what I believe is essential:—

1. If trees are old (I know nothing of young trees—mine are from 28 to nearly 45 years of age; and two are the strongest trees that I ever saw) they must be cut down; their radial and perpendicular roots must be cut off, the former to about 30 inches from the stump, the latter close. The ground must be renewed with strong loam and dung, and the trees must be let up again. Give me an old tree and a sound stump.

2. Peaches like stiff, well drained ground. Mine is light, but I water and tread it till it is as hard as a pavement. I only open the ground in a 30-inch radius round the stump. There only do I manure. Round this radius Peach trees should be mulched, both winter and summer.

3. Two or three inches of the top mould all over the border should be taken away every third year, and new maiden mould should replace it in November. If the soil is of a light character, the whole border should be rammed, to prevent quick growth. If young trees are planted, and the wood is sound, don't cut them; but, as the tops are usually unripe, do not cut off more than one-third. The harder you cut, the longer you will have to wait for a crop.

4. Beware of the barbarous act of disbudding. The foreshoots may be taken off, or spurred; and after cropping they may be removed. I firmly believe that the removal of leaves produces ill health, bare limbs, superannuation, a few Peaches under the copings, blister on the leaves, a fit of gum (aided by rind violation from the weather) and death!

Mr. Rust, of Fulham, has told you a great Peach truth—"keep the blossoms dry!" I will tell you another—you must never allow the tree in winter, or the leaves in summer, to be "violated." My sheets are put on in winter, when the weather is bad, long before blossoming time. In summer the leaves are protected by the sheets from gales of wind, to which I am exposed. Good leaves are good lungs, and good lungs are "good health."

5. If you cover with sheets, you must make up for the loss of dews by giving water at the stump. Water the stump (in hot weather, even if the nights are cold) on Monday, and, omitting the stump, water the whole surface on Thursday. If you can, take off the chill, then water the stump, and the surface may be watered at the same time. By surface, I do not mean superficial. No watering does good unless it touches all the points of the roots.

6. I thank Mr. Thompson for his late excellent article on "Peach Pruning," I have rectified my trees, as far as I can, by his advice. Fan-fashion is the best as a rule; but I grow, as case may be, Peaches on spurs, fan-fashion, or zig zags. My object is to spread the Peaches equi-distant, four or six per foot, all over the trees; they are so spread over this year.

7. Peach growing is dependent on attention to the tree all the year round, especially to managing the shoots in the summer. Instead of disbudding, spur the shoots and leave the others for training. The best Peaches grow on spurs—they are nearer "home."

Finally, don't forget the salmon and saddle of mutton, and come and see. In the natural world seeing is believing.

I may add, my three trees are 9 feet high and 54 feet in width. Two of them are as healthy, strong, and fine trees as any in Europe. My Peaches are pronounced by a gardener to be the Royal George. The sheets are put on at 1 o'clock in the afternoon, and taken off at 10 o'clock A.M. If the weather is bad they are left on all day. My Pear trees on the Quince stock, of which I will give a future account, are also covered at night. *W. F. Radclyffe, Rushton, April* 23.

COOL-HOUSE ORCHIDS.

Accidental circumstances led me some years ago to attempt to cultivate Orchids in a comparatively cool temperature, and as so many people seem now directing their attention to the same object, perhaps the details of my experience may be of some interest. To grow Orchids from such a country as New Granada I would recommend a span-roofed house, the floor of which is sunk 18 inches or 2 feet below the ground level. I think the house ought to be very small. I would divide a narrow span-roof house into divisions of not more than 12 feet long, and ventilate by air drains under the floor, so that the air would enter under the hot-water pipes. Houses facing the north may answer well, but I find a well shaded span-roof better. Such a house imitates the shady moist ravines in which these Orchids grow. At least, judging from the growth of my own plants, I flatter myself that I have imitated pretty closely the natural conditions under which they flourish in their native country.

In growing these Orchids, from the beginning of April to the end of October I hardly give any fire-heat, except what comes from an adjoining Pine pit worked with the same boiler, and from which the valves do not quite check the flow of hot water.

The following is the list of Odontoglossums I have cultivated in such a house:—

O. Pescatorei	O. grande
O. hastilabium	O. Reichenheimei
O. Insleayi	O. membranaceum
O. pulchellum	O. Ehrenbergii
O. anceps	O. Uroskinneri

All the New Granada Odontoglossums have grown splendidly in the cool house; the four last in my list are Guatemala and Mexican species, and like a little more heat. I generally remove them during the early months of the year to the Cattleya house. I imagine that the district where the Odontoglossums grow in New Granada has no very distinct dry season, and these plants never go to rest and harden their bulbs like a Cattleya.

The finest species, O. Pescatorei, crispum, odoratum, and gloriosum, have soft watery bulbs, and make several growths in a year. It is this which makes them so difficult to import, as some of our most enterprising nurserymen have lately found. Their watery bulbs rot with the heat of the coast country through which they must pass.

Continuing my list of cool-house Orchids, I would next mention the Indian Cœlogynes and the closely allied Pleiones. Cœlogyne cristata, and two unnamed kinds I have from Central India, grow well in a cool house. I have had the first, with its curious bulbs as big as bantam's eggs, and spikes of flowers with nine blossoms on them.

I believe the Pleiones grow at a higher elevation than any other Orchid. To grow them well they must be in a cool house, and as in their native country they sometimes get 30 inches of rain in 24 hours, it need surprise no one to learn that they can hardly have enough water when growing.

The Pleiones are too little known in collections. Though dwarf in growth they have most beautiful flowers, which spring up from their curious leafless bulbs in January. When well grown they flower as thick as a pot of Crocuses. Being deciduous plants they of course like a season of rest. Pleione lagenaria, Wallichii, humilis, and maculata are all well deserving of cultivation.

Next I must mention Lycaste Skinneri, whose merits and cultivation are so well known and understood that I need say nothing about them. Lycaste cruenta and Heynderyxii are also nice free-growing plan s although very inferior to L. Skinneri.

Maxillaria venusta and aromatica, and one or two unnamed species I have from New Granada, grow well in a cool house. Epidendrum aurantiacum succeeds, but it can be considered only a second-rate plant; but there are three other Epidendrums which must be ranked with Odontoglossums and Lycaste Skinneri, namely, E. vitellinum, a variety of macrochilum, and cinnabarinum. The first of these is now well known, and when nicely flowered can hardly be too much admired. E. macrochilum is a beautiful free-flowering plant, with a scent somewhat resembling that of Luculia gratissima. The white variety requires an ordinary Orchid-house. E. macrochilum roseum will grow in a cool house, but the hardiest variety is one with leaves tinted with dark crimson, which I received from Mr. Schiller's collection, and which appears to be identical with plants lately imported by Mr. Low. I think this variety has also been sold by Mr. Linden under the name of Epidendrum atropurpureum.

Epidendrum cinnabarinum is an old introduction which appears to have gone out of favour. I have certainly seen long straggling specimens of this plant in hothouses which were somewhat unsightly, but grown in a cool house near the glass it is as manageable as Dendrobium nobile, and its peculiarly coloured flowers, with beautifully fringed labellum, make it a conspicuous object in a house. I believe this plant is still to be found in old collections, and I recommend it to the notice of the possessors of cool Orchid houses. This and the variety of macrochilum will I think be found among the best of cool-house Orchids, and they both have the advantage of remaining five or six weeks in flower.

All Anguloas show a preference for cool houses by making much finer growth when placed there. I grow A. Clowesii, Ruckeri, and uniflora, of which I consider the last the hardiest. I have had the pseudo-bulbs of A. Clowesii 7 inches long in a cool house. I have a plant now showing four flowers from one bulb.

I have grown Barkeria Skinneri and spectabilis in a cool house, and very beautiful Orchids they are, but I have certainly seen them do better in a warmer place. Dendrobium speciosum and Phaius albus are quite cool-house Orchids. Both I believe bear several degrees of frost in their native countries.

Cypripedium caudatum will succeed without much heat; its variety called Uropedium Lindeni is even hardier, and will grow with the Orchids already named.

I have now enumerated all the Orchids which, as far as my experience goes, can be considered cool-house plants. There are others which grow and flower better in a much more moderate degree of heat than is generally given to them, and during their season of growth and most of the year I have successfully cultivated the following in my cool house, viz., Aerides affine roseum, A. crispum and Warneri, and an Aerides called rubrum, which I think Mr. Veitch imported from Central India. Also Lælia cinnabarina and purpurata.

These Aerides make short stout growth in a cool house, and flower finely the following season. Lælia purpurata has made the finest growths I ever saw in my cool house. Still I cannot count them as cool-house Orchids, for it does not answer to keep them in such a house as I have described during our winter months. The decrease of light is not natural to them; and they require a drier atmosphere to keep them in health. Although I would from choice place the

Aerides and Lælias I have named in a cool house from April to November, I always find it necessary to take them to a warmer and more airy house during January, February, and March.

The same treatment I find suits Sophronitis grandiflora. To flower this plant well it must be kept damp and shaded, but have plenty of air.

That many fine Orchids can be grown at small expense as to houses and fuel is a fact no longer to be doubted, but I see advertisements of Orchids to be grown in greenhouses and drawing-rooms. Disa grandiflora and the North American Cypripediums will grow in a Geranium house, but these are terrestrial Orchids.

I think the buyers of New Granada or Guatemala Orchids will be disappointed, if they expect them to grow in greenhouses or drawing rooms. Tropical Orchids generally have to endure a dry season, but they are dormant in the dry season. Being plants with no roots penetrating the ground by which they can take up moisture, Nature has provided them with pseudobulbs, in which enough moisture is stored up to keep them alive for many months, even under a tropical sun. This fact enables them, perhaps better than any other plants, to endure the dry air of a sitting room, but they will not grow in it, and must be removed to a moist atmosphere before they can make their growth.

Lycaste Skinneri will root more strongly in peat than almost any other epiphytal Orchid I know, and it is therefore possible that it might be induced to make some sort of growth in a dry room, but I think there would be a poor chance of flowers in the following season. Moisture is essential to the growth of epiphytal Orchids, and until I see an Orchid grown in a drawing room, I shall disbelieve that such a thing is possible. *W. W. B., Strete Ralegh.*

Home Correspondence.

Floral Committee Awards.—Two letters in your last week's impression seem to require a word or two in reply from me. I will take the last first; and I beg to inform "Flora," that as it has been found impracticable to adopt any definition of a new plant which could be applied with precision, the rule of the Committee has consequently been to receive and adjudicate upon any plant brought before it, to which it has not previously made an award of the first-class, and which is at the same time not common in gardens. This rule sometimes admits an old and little known subject which some exhibitor may show to be useful, and thus now and then resuscitates as it were some forgotten or very partially known plant—perhaps reintroduced after having been lost to cultivation, or perhaps merely existing in some few out of the way gardens. This explanation may account for the awards to the Genista and the Grass-tree. As to Collinsia verna, that is not an old plant. In reference to Mr. Thompson's complaint, I have to say, that if it were not possible but that the award to the Collinsia may have disturbed his bile, at least he might have saved his long tirade if he had not so impetuously jumped at a conclusion. He may rest assured that it was not from any misconception of the age of his bantling that the award in question was made, but on view of its merits as set before the Committee. In arriving at the conclusion he has drawn as to the "revelation of the motive of the award," Mr. Thompson has simply found a mare's nest. The "reporter" and the "Committee" are not synonymous, nor have they any relation to each other, and Mr. Thompson's assumption to that effect is therefore quite unwarranted. It is not my object to argue that the plant itself is not worth more than a third-class award, for probably it is, but merely to state that as shown to us it was not worth more, though the exhibitor modestly asked that it might have, not a certificate, but a medal. We have however a custom of regulating our awards by what we see, without drawing upon the imagination. [Quite right. *Ed.*] It is the exhibitor's business to put his flowers in their best dress, and he has no ground of complaint if, failing to do this, his exhibition, whatever it may be, is not appreciated. Doubtless, if we had seen Mr. Thompson's "beds of 8000 plants" we might have been converts to his opinion, but as instead of viewing them, only a few ragged samples dug up from these same "beds," and very moderately bloomed, were produced, our estimate of the plant was correspondingly moderate. As far as could be seen, this Collinsia, pretty as are its colours, has the inherent defect of spreading its two upper petals and twisting them, so that when the blue lower petals are in full view the upper ones present little more than their edges, and *vice versâ*. It was therefore held to be, as a decorative plant, inferior to C. bicolor, which has not this defect. The plants since exhibited at the Regent's Park with a parade of the "erroneous judgment" at South Kensington, were little better than those which have brought down such a weight of obloquy on our heads. As you have rather patted Mr. Thompson on the back, perhaps you will allow me to make this statement of the facts, and to add that as one of the Committee I can take no blame for having so "faintly praised" so ill-conditioned an exhibition. *Thomas Moore, Secretary to the Floral Committee.*

Gardeners' Royal Benevolent Institution.—A complaint has often been made that gardeners were not aware of the existence of this Society. To remedy this in some degree, the Committee have during the last month caused a List of the Subscribers, together with some accompanying papers, to be sent to upwards of 1000 gardeners, mostly resident in England. It was anticipated that upon this appeal being made, many would enrol themselves, and that a fresh impetus would be given to the Society. I regret to say that the result has as yet been very unsatisfactory, only six having responded favourably: not enough to pay expenses. What can be the cause of this apathy it is hard to understand, but I believe it arises more from carelessness than from any other cause. It is much to be regretted that gardeners do not more readily support their own Society, for if they did I feel sure many employers would do so too. In soliciting gentlemen to subscribe, I am frequently met with this answer—"I should be very happy to support your Society, but as I do not see my gardener's name on the list, I must decline." I am aware that there are many gardeners who cannot afford to subscribe, but there is a vast number filling first-class situations, to whom the one guinea annually cannot be an object. As you have on all occasions strenuously advocated the cause of the Society, I have addressed you on the subject, feeling sure that a few lines from you in an early Number of your Journal would be productive of good result. *Edward R. Cutler, Secretary.* [We would refer to what was said editorially on this subject in our columns of Dec. 6, 1862. There may be personal antipathy to some ill-judging officer of the Society—and we believe there is.]

Wasps.—It may be worth stating that bottles baited now with beer and sugar, or anything that will drown the queen wasps, will catch them readily. I have tried it, and hang them everywhere. The wasps frequent Ivy walls, or any place where there is honey dew. In one day the bottles produced nearly 40 wasps, and I had only three bottles in use then. *W. B.*

Ants.—These pests first made their appearance in my stove, in which they ate holes in all the young leaves. Some recommended flowers of sulphur as a cure, others guano strewn in their tracks, but all without success. At last I tried snuff, which I put in a common pepper box and sprinkled on the ants, and in a few minutes all subjected to its influence died. Afterwards I procured a larger quantity of the best Scotch snuff, and dusted both plants and flowers with it; it killed the ants in great numbers. I have also dusted with it Peach trees affected by ants when in full bloom, so as to prevent them from eating the anthers out of the flowers. The application did not interfere with the setting of the fruit in the least. Another method of destroying them, with less expense, was to allow them to form a colony, and seizing the opportunity of a bright sunny day to keep my stove shut up close; the heat brought the ants out of their hiding places in quantities sufficient to blacken the floor. I then took a small watering pot full of boiling water, and poured it upon them, which killed them instantly. I have repeated this twice since, and now very few ants infest my house. *J. D. B., Bristol.*

Woodlice in Frames.—Your Correspondent, "W. G. A.," may possibly like to try a plan with regard to woodlice in frames, which I have adopted during the last few weeks, and which at present succeeds well:—It is to take some pieces of tolerably strong wire, sufficiently long to form rings round the plants to be protected, sew lists, or paper, or any flexible material about an inch in width along these wires, then (having just turned the ends back, that they may hook into each other) soak the lists or rag in any liquid which may be annoying to the woodlice without injuring the plant, and hook the wires round it, of course taking care that they should lie on the ground so as not to allow passage for the woodlice. I have used carbolic acid myself, but this cannot be recommended in all cases, on account of the danger to the person using it, unless the bottle is only entrusted to careful hands, and the injury to the plant if the acid touches it. Should any of your Correspondents, not accustomed to the use of carbolic acid, be tempted to try it, perhaps it may save them some trouble to mention that sweet oil applied at once in case of the acid being spilt on the fingers much alleviates the pain and injury of the burn. *E. O.*

Garden Rules.—I find the following rules in force in a situation in which I lately engaged as head gardener:—First, the men, five in number, are allowed to come to their work when they please, that is to say, if they feel to want a day's holiday, they take it without consulting me, or in any way apprising me of their intentions to stay away; or if in the morning they feel disposed to repose upon their pillow for an hour or two longer, they do so, and in such cases make their appearance after breakfast, at half-past 8 o'clock. Secondly, on Saturdays, every man leaves work at 4 o'clock P.M. Fires are therefore started, houses are shut up, pits and frames are covered up, and the watering hurried over, so that every man may be ready to leave on the first sound of the bell. Under such circumstances can any man conduct a garden in a way that would be creditable to himself or to his employer? *J. C. C., Dover.*

Rhododendron Thomsoni.—Having observed in your last impression that this Sikkim Rhododendron has been flowered for the first time at Combe Royal, in Devonshire, I beg to say that it may now be seen in full bloom in the American ground here; it has been visited by several gardeners in this district, who have been unanimous in pronouncing it a very fine specimen of this beautiful plant. I may add that I have been very successful in flowering several species of these plants. *John Cornelius, Gardener to William Williams, Esq., Tregullow, Cornwall.*

Rhododendron Falconeri.—A grafted plant of this Rhododendron is now in flower in my garden, for the first time since it was planted, about ten years ago. I understand that the flowering of this kind is very rare. *B. A., Dorking.*

The Hydropult.—Mr. Button cannot pretend that I am an "interested party," neither shall he be able to say that I write anonymously. Two years since I purposely went to his office in Leadenhall Street, tried the hydropult there, was pleased with it, and ordered one. But I took the precaution of deferring payment. When I tried it in my orchard-house I was bitterly disappointed; it flung little spits of water, not so far as a 12*s.* syringe would; it flooded my boot immediately—in a word it was worse than useless. Then I tried it out of doors, with full strength upon it. At its greatest energy it threw the water 2 yards less than half the distance advertised. Hereupon I returned it, and confess that Mr. Button or his agents behaved most fairly and honourably. I have no ill-will against them, in fact I was pleased with them; I think indeed that in time the machine may succeed, but unless the hydropult differs utterly from what it was two years ago, it is a mere water pop-gun, with a leak at the butt of the ram-rod. *Richard D. Blackmore, Teddington.*

Foreign Correspondence.

Russian Eatable Fungi.—At p. 291 you express a regret at not knowing the Russian method of preparing Fungi for eating. Allow me to state that the Fungi most eaten in Russia, are: Agaricus integer, Ag. Russula, Ag. melleus, Ag. deliciosus, Ag. Georgii; Boletus edulis, B. luridus, and B. aurantiacus. Fungi are eaten in two different ways in Russia, either prepared or not prepared. All the above named Fungi, with the exception of Agaricus integer and Ag. Georgii, are grilled with butter, or oil; but those two are cured with salt and eaten after four or five months pickling, with or without vinegar, according to taste. Ag. deliciosus, Boletus edulis, luridus and aurantiacus, are boiled in water, and then kept in highly peppered vinegar, and not eaten until they are well impregnated with it. The most common method of all, especially with Boletus edulis and luridus, is simply to dry them in an oven, without preparing them at all. Fungi dried in this way are in great request by strict Catholics during Christmas time and Easter. Boletus edulis is the most recherché when grilled, or when preserved; Ag. Russula and Ag. Georgii, only when preserved. *P. Wolkenstein, Secretary of the Russian Horticultural Society, St. Petersburg.*

Exhibition of the Société Royale de Flore.—The length to which our report of the general features of this Exhibition extended, prevented us last week from going into details as to the contributions of different exhibitors; and indeed the arrangements of the show by which the collections are broken up and distributed for effect as soon as the awards are given in, rendered it impossible to do this with anything like precision. It may serve, however, as a useful record, if we give a brief resumé of the novelties shown, taking them in the order in which they appear in the official catalogue.

M. de Smet, Ghent:—*Seedlings:* Rhododendrons Rubis, Empereur de Mexique, Roi de Portugal.—*New Conifers:* Cryptomeria elegans, Japan, 1864; Cupressus Lindleyana argentea var. 1864; Retinospora obtusa aurea, Japan, 1864; R. pisifera aurea, Japan, 1864, and R. pisifera argenteo-variegata, Japan, 1864; Thuja Warreana fol. elegans var. California, 1864; Thuja pygmæa, 1863; Thujopsis dolabrata fol. var., Japan, 1863, T. dolabrata elegans, 1864, and T. lætevirens, Japan, 1864; Juniperus rigidus, Japan, 1864; Abies firma, Japan, 1863; A. polita, Japan, 1864; and A. amabilis fol. elegans var., California, 1864.

M. Esser, Aix-la-Chapelle:—*New plants not introduced to Europe previous to* 1863: Archyrorchis javanica, Java; Livistonia altissima, Sumatra; Salauma mutabilis, Sumatra, and undetermined species of Aralia, Calamus, Ficus, Kentia, Martinezia, Stadmannia, Zalacca, &c.

M. Linden, Brussels:—*New plants introduced by the exhibitor and not in commerce:* Asplenium alatum, St. Catherine; Cissus amazonica, Para; Crescentia Liboniana, Brasil; Mappa fastuosa, Philippines; Maranta picturata, Rio Purus, and M. transparens, Rio Negro; Medinilla parasitica, Philippines; Phrynium majesticum, Rio Purus; Philodendron amazonicum, Para; Rhopala elegantissima, Parana; Sphærogyne cinnamomea, Costa Rica. *New plants not introduced previous to* 1863: Alocasia zebrina, Philippines; Araucaria glauca, New Caledonia; Arundo conspicua, New Zealand; Asplenium myriophyllum, Chiapas; Ceratostemma coronarium, New Grenada; Coccoloba gigas, Brasil; Coccocypselum cupreum, Guiana; Crinum japonicum var., Japan; Cyanophyllum glaucovirens, St. Catherine; Dammara hypoleuca, Solomon Isles; Dieffenbachia pulchella, Para; Doryopteris Alcyonis, St. Catherine; Gymnostachyum

Verschaffeltii, Para; Kingia australis, Australia; Magnolia Thompsoni, Assam; Maranta picturata, Rio Purus; Oreopanax umbraculifera; Phrynium majesticum, Rio Purus; Ruellia marmorea; Rhopala nitida; Saurauja sarapiquensis; Sphærogyne latifolia; Sterculia Blancoi, &c. *New Ferns:* Asplenium myriophyllum and alatum; Alsophila denticulata, elegantissima, and gigantea; Balantium Sellowianum; Doryopteris Alcyonis and nobilis (grandis); Lomaria cycadifolia, gibba, and fluviatilis.

Mr. Parker, Tooting:— *Seedling:* Rhododendron Countess of Haddington.

M. Rodigas, St. Trond:—*Seedlings:* Sedum Rodigasii; Lilium speciosum, fol. aur. marg.; Pæonia arborea fol. cocc. var.

M. Aug. Van Geert, Ghent:—*New plants not introduced previous to* 1863: Laportea Teysmanniana, and L. stimulans, Java; Dracæna terminalis latifolia pendula, Philippines, and D. phrynioides, Madagascar; Ficus Porteana, Philippines; Saxifraga Fortuni tricolor, Japan; Dammara hypoleuca; Drosera pinnata, Australia; Miconia pulverulenta and M. Verschaffelti, Brazil; Artanthe cordifolia, Brazil; Jambosa magnifica, and J. densiflora, Sumatra; Amaryllis procera, Brazil; Fagræa imperialis, Sumatra; Climocandra obovata, Sumatra; Cycas Ruminiana, Philippines, &c. *New Ferns:* Cyathea Smithii and Lowii; Alsophila contaminans, umbrosa, and Van Geertii; Lomaria cycadifolia, gibba, and fluviatilis; Dicksonia M'Arthuri, and squarrosa; Lastrea patens; Angiopteris hypoleuca. *New Conifers:* Podocarpus Fortuni fol. var., and nubigena; Araucaria Rulei and humilis; Biota Sieboldii and elegantissima; Thujopsis Standishii, and lætevirens; Thuja Vervaeneana and pygmæa, &c., &c.

Mr. Veitch, London:—*New plants introduced by the exhibitor and not in commerce*: Maranta Veitchii, Peru; Dracæna Cooperi, New Caledonia; Gymnogramma Pearcii, Peru; Retinospora Veitchii, Japan; Primula cortusoides amœna, Japan; Eranthemum tuberculatum, New Caledonia; Pteris serrulata crispa, Japan; Marattia Cooperi, New Caledonia, &c. *Other New Plants*: Eranthemum rubronervium, Peru; Miconia pulverulenta, Peru; Dracæna sp., New Caledonia; Alocasia zebrina, Philippines; Caladium Veitchii, Borneo; Hibiscus Cooperi, New Caledonia; Sarmienta repens; Primula cortusoides alba, Japan; Dracophyllum sp. n. *Seedlings*: Rhododendron Princess Alice; Cattleya Brabantiæ; Goodyera Veitchii and Dominiana. *New Conifers*: Sciadopitys verticillata, Cryptomeria elegans; Abies firma, Alcoquiana, and microsperma; Juniperus rigida; Thujopsis dolabrata, lætevirens and Standishii; Retinospora obtusa, pisifera, lycopodioides, squarrosa, and pyramidalis; Thuja pygmæa and falcata; and Pinus densifolia—all from Japan; Abies nobilis robusta, California; Libocedrus tetragona, Patagonia; Prumnopitys elegans, Chili; &c.

M. Amb. Verschaffelt, Ghent:—*New plants introduced by the exhibitor and not in commerce*: Achyranthus Verschaffeltii, Mexico, 1864; Amaranthus versicolor, Mexico, 1864; Dieffenbachia Baraquiniana, Brazil, 1863, D. spectabilis, Brazil, 1864; and D. gigantea, Brazil, 1864; Phrynium Vanden Heckii, Para, 1863; Maranta splendida, Brazil, 1864; Caladium Leopoldii, Para, 1863, and C. albo-conspersum, Para, 1863; Amorphophallus nivosa, Brazil, 1864; Cibotium regale, Mexico, 1864; Regelia? majestica, Madagascar, 1864. *New plants not introduced previous to* 1863: Gymnostachyum Verschaffeltii, Para, 1863; Ficus Porteana, Philippines, 1863; Aspidium Ghiesbreghtii, Mexico, 1864; Zamia Baraquiniana, Brazil, 1864; Sphærogyne latifolia, India, 1863; Calamus Imperatrice Marie, Philippines, 1863; Acer japonicum—jucundum, sanguineum, princeps, and Frederici-Gulielmi, Japan, 1863; Dracæna lentiginosa, New Zealand; Smilax maculata macrophylla, Mexico, 1864, and S. lancifolia, Brazil, 1864; Caladium Duc de Nassau, Para, 1864, and C. Rougierii, Para, 1864; Saxifraga japonica tricolor, Japan, 1863; Thrinax grandis, Cuba, 1863; Asplenium ferulaceum, Cent. Amer. 1864; Amaranthus amœnus, Brazil, 1864.

M. Jean Verschaffelt, Ghent:—*New plants not introduced before* 1863: Pinanga colorata, Ceylon, 1864; Jambosa magnifica, Java, 1864; Laportea stimulans, Java, 1864; Alsophila latebrosa, Java, 1864; Chamærops multifida xanthacantha, and C. multifida melanocantha, Africa, 1864; Sedum Sieboldi medio-variegatum Japan, 1863; Echeveria agavoides, Mexico, 1863, &c.

M. Von Siebold, Leyden:—*New plants introduced by the exhibitor, and not in commerce:* Aralia japonica undulata; Aucuba japonica maculata mas., angustifolia aureo-variegata fœm., and medio-variegata; Cerasus Pseudo-cerasus flor. semiplenis albis, flor. plenis roseis, and flor. virescentibus; Cerasus pendula flor. roseis; Cinnamomum pedunculatum fol. var.; Distylum racemosum fol. pictis; Rhodea japonica cristata, and zebrina; Stuartia grandiflora; Citrus Daidai; Clethra barbinervis; Cleyera japonica; Damnacanthus indicus variegata; Desmodium racemosum yedöense; Diervilla grandiflora arborescens; Hydrangea Eugeniæ à fleurs bleues, and H. Thunbergii; Ilex crenata, and umbellata; Nandina domestica fruct. albis; Machilus Thunbergii; Meistera cernua; Osmanthus Aquifolium reticulatus; Pittosporum Tobira lanceolatum; Sedum Sieboldii aureum; Stachyurus præcox; Viburnum plicatum variegatum; Xylosteum Philomelæ. *New plants not introduced before* 1863: Ardisia japonica picta, 1863; Aucuba japonica pygmæa mas., 1863; Camphora officinarum longifolia, 1863. 22 *species and varieties of Japanese Maples, mostly new:* Acer dissectum fol. pinnatifidis viridibus, and fol. pinnatifidis rubris; A. japonicum petiolis viridibus, and petiolis roseis; A. Meikets; A. palmatum sanguineum fol. incisis, rubrum, carneum, reticulatum, and roseo-marginatum; A. digitatum fol. integris rubescentibus; A. septemlobum pubescens, roseo-versicolor, bicolor, argenteo-maculatum, and sponte crescens fol. viridibus; A. pictum verum, and carneum; A. atropurpureum.

Societies.

Royal Botanic: *April* 30 (*Third Spring Show*).—The National Auricula exhibition being held here on this occasion, there was a fair display of that spring favourite; and of other kinds of plants there were good collections.

Roses.—These were excellent, especially those from Mr. Turner, the distinguishing characteristics of whose plants were unusual freshness and vigour. In the different groups were admirable examples of Souvenir de Malmaison, General Jacqueminot, Victor Verdier, Senateur Vaisse, Souvenir du Comte Cavour, Charles Lawson, Gloire de Santenay, Madame Charles Wood, Comtesse Prevost, Madame Damazin, and Madame Cambacérès.

Awards.—Equal 1, Mr. Turner and Messrs. Lane; 2, Mr. Wm. Paul; 3, Messrs. Paul & Son. *Amateurs*: 3, Mr. Cross. 24 *Cut Blooms*: 1, Mr. Wm. Paul; 2, Messrs. Paul & Son. *Collections of ditto*: 1, Mr. Wm. Paul; 2, Messrs. Paul & Sons.

Pelargoniums.—Of these Mr. Turner contributed some well-grown plants, as did also Messrs. Wiggins, Weir, and Todman. The varieties did not appear to differ much from kinds named in former reports.

Awards.—6: 1, Mr. Turner. *Amateurs.*—6: 1, Mr. Wiggins; 2, Mr. Weir; 3, Mr. Todman.

Auriculas.—These were tolerably numerous, but very unequal both as regards growth and bloom. Among *Green-edged* kinds the best were Hudson's Apollo, Campbell's Admiral Napier, Page's Champion, Traill's General Neill, Oliver's Lovely Ann, and Lightbody's Sir John Moore. Conspicuous among *Grey-edged* sorts were Dickson's Duke of Cambridge, Turner's Ensign, Cheetham's Lancashire Hero, Chapman's Maria, Lightbody's Richard Headly, and Headly's Stapleford Hero. The best among *White-edges* were Smith's Ann Smith, Lee's Bright Venus, Cheetham's Countess of Wilton, Low's Maggie Lauder, Campbell's Robert Burns, and Hepworth's True Briton. Finally, among *Selfs* the best seemed to be Spalding's Blackbird, Smith's Formosa, Lightbody's Meteor Flag, Spalding's Metropolitan, Martin's Mrs. Sturrock, and Netherwood's Othello. Of *Novelties*, the best came from Mr. Turner, who furnished Buckstone (Grey edge) to which the premier prize, and a First-class Certificate were awarded; and Miss Giddings and Shakspere, to both of which Second-class Certificates were given.

Awards.—6: 1, Mr. Turner; *Amateurs*, 6: 1, Mr. Potts; 2, Mr. James; 3, Mr. Butcher. In the National Exhibition the principal prize takers were Mr. Stewart, York; Mr. Turner, of Slough; Mr. Pohlman, of Hull; Mr. Headly, of Stapleford; Mr. Wilson, of Halifax and Mr. Douglas, of York.

Stove and Greenhouse Plants.—Good collections of these were contributed by Mr. Williams, Messrs. A. Henderson & Co., Mr. Young and Mr. Cross; and of Azaleas Mr. Turner sent a handsome group, as did also Messrs. Lane and Dobson. Of the varieties shown on this occasion ample notice has been taken in former reports.

Awards.—16: 1, Mr. Williams; 2, Messrs. A. Henderson & Co.; 3, Mr. Young. 4. Mr. Cross.

Hanging Baskets.—Messrs. A. Henderson and Mr. Young exhibited tastefully filled examples of these, and we also noticed some very pretty specimens of ornamental plant stands, to which separate allusion may be made hereafter.

Awards.—1, Messrs. A. Henderson & Co.; 2, Mr. Young.

New Plants.—Foremost among these were Clematis Reginæ, a charming cross between C. lanuginosa and C. azurea grandiflora; the large variety of Franciscea calycina, Dracæna Cooperi, and the beautiful Primula cortusoides amœna—all from Messrs. Veitch. Mr. Williams furnished Dendrobium Dayanum, and a variety of the rare D. Dalhousianum, the Australian Grass tree formerly noticed, and a cut specimen of the glorious Rhododendron Nuttalli, now in blossom in his new nursery at Highgate. To all the above were awarded First-class Certificates. Mr. Turner received a Second-class Certificate for Cineraria Herbert, a white-ground variety, dark in the centre, and edged with bright purplish blue; and similar awards were given to Mr. Bull for Pelargonium Eve and Astrocaryum mexicanum; to Messrs. Fisher, Holmes, & Co., for a small yellow-blossomed Berberis named handsworthiensis; and to Mr. Thompson, of Ipswich, for his Collinsia verna, noticed in our columns last week.

Miscellaneous Plants.—Among these were groups of Cinerarias from Messrs. Dobson and Mr. James; Pansies in pots, from Messrs. Dobson and Mr. Bragg; Exotic Ferns, in excellent condition, from Mr. Young; variegated-leaved Begonias, from Mr. Cross; and small plants of Bougainvillea speciosa, from Mr. Turner. Many interesting plants were also contributed by Messrs. Williams and Bull.

Royal Horticultural: *May* 4 (*Election of Fellows*).—The following Candidates were elected Fellows, viz.:—

R. S. Begbie, Esq., Mrs. W. Brett, Miss C. Brown, Mrs. J. Cassell, Wm. Graham, Esq.; Miss Henry, Mrs. S. Hodgson, Mr. H. A. Hunt, Mrs. Leash, Mr. J. Levesque, Mr. J. J. Lowndes, Miss E. A. Maling, Mrs. G. Moore, Mrs. Nathan, Henry Edward Pellew, Esq.; R. C. Roosmalecocq, Esq.; E. Tyer, Esq.; Sir T. T. Tyrell, Bart.; and Mrs. Willis.

After the election of the Fellows just named, J. Bateman, Esq., of Biddulph Grange, Congleton, delivered an extremely interesting lecture on cool Orchids, for a report of which we hope to find room next week. At the conclusion of the lecture a vote of thanks was given to Mr. Bateman, who was also highly complimented in a short address from the Bishop of Winchester. The lecture was amply illustrated both by living specimens of Orchids and also by drawings. [The Editor much regrets that illness prevented his being present on this occasion. The reader will however of course consult Mr. Bateman's most useful, and practical, "Guide to Cool-Orchid Growing," which has just been published by Reeve & Co.]

Conspicuous among plants submitted to the inspection of the Floral Committee, who held a meeting on this occasion, was a noble specimen of Rhododendron Nuttallii, finely in flower, from Mr. Rucker. Mr. Bull sent Astrocaryum mexicanum, for which a First-class Certificate was awarded; and certificates were also given to Messrs. Fisher, Holmes and Co., for their Berberis handsworthiensis; to Mr. Turner, for his Auricula Buckstone; to Mr. Bull, for Mimulus Unique, mentioned in another column; to Mr. Salter for variegated varieties of Sedum Sieboldii and Ranunculus repens, both useful hardy plants; and to Mr. Day for the charming Odontoglossums, nævium and Pescatorei. Mr. Bateman furnished some handsome blooms of Moutans, among which a white one named Odorata rosea is really what its name implies—sweet-scented.

Garden Memoranda.

Bentley Priory, Stanmore, the Seat of J. Kelk, Esq.—This charming place, beautiful at all seasons of the year, is, as may be imagined, unusually interesting at the present time, when the young foliage, just escaped from its winter covering, presents a freshness and cheerfulness of aspect which is truly delightful. Never, in short, have the woods, especially those in the immediate neighbourhood of the mansion, appeared in better condition than they do at the present time, well thinned, as they have been this spring, so as to give the finer kinds of timber trees ample breathing room, and cleared, as they at the same time have been, of superfluous undergrowth. Woodland walks, too, so enjoyable during the heat of summer, and of which so many exist here, have also been greatly improved in appearance by means of a judicious pruning in of the evergreens with which they are bordered. A new square bowling green has been formed to the west of the fine terrace garden in front of the mansion; a green carriage drive through the woods is just being completed; and not only the mansion itself, but indeed the whole place, has lately undergone great alteration for the better.

To the tastefully finished rockwork, with its Fern-clad archway, miniature ruin, and shady glen, in connection with the little flower garden on the north front of the house, we have adverted in a former notice, and also to the extreme gaiety during summer of the principal flower garden. We have, therefore, now only to add that in the park, in front of the terrace wall of the latter, has been planted a row of brilliant crimson Rhododendrons, which, looked down upon, when in bloom, from the terrace must have a striking and excellent effect.

Under glass too things are managed with equal skill. At few places are Grapes grown in greater perfection than they are here under the care of Mr. Tillyard, Mr. Kelk's excellent gardener, who has not only succeeded in making old and new crops of them "shake hands," but in causing them to keep company for a period of at least six weeks, during the winter season. The admirable bunches of Muscat which he showed on the occasion of the "battle of the Grapes" (see p. 77, 1863) must still be fresh in the recollection of many, and not less remarkable, both as regards size and colour, have been specimens of the same variety which he has produced this last winter, and which have not been all cut till about a month ago. To be exact, the last bunch was severed from the leafless shoot on which it hung, little shrivelled and otherwise in comparatively sound condition, on the 31st of March. So much for retarded Grapes. As regards new ones, the crop in the first Vinery, consisting of Black Hamburgh, finely coloured, and covered with a beautiful bloom, was ripe about the middle of January, and is now nearly all cut. It will therefore be apparent that here at least no difficulty is experienced in having Grapes fit for table all the year round, and that at no particularly great expense or unusual trouble.

The chief points to be observed in keeping Grapes in good condition on Vines after they are ripe, are having the borders, both outside and in, in a dry state, and in having the wood of the Vines perfectly ripe and hard. As regards outside borders, they are covered here with asphalte shutters, which are applied when the Grapes are approaching maturity, and kept on until the whole of the fruit is cut.

In other Vineries are also excellent crops, all progressing towards maturity.

Peach and Nectarine houses are well filled with trees in fine bearing condition; as are also Fig and Plum houses. In the latter are the Green Gage, Jefferson,

and Victoria, the last one of the most useful varieties in cultivation; under glass it is sweeter than out of doors.

Melons and Cucumbers are grown in great profusion and perfection, and nothing could well exceed the health and luxuriance of the Pines with which several houses are filled.

In Stoves, intermixed with other plants, are Orchids, Ferns, Poinsettia pulcherrima, Euphorbia jacquiniflora; Thyrsacanthus rutilans, an extremely useful winter and early spring-flowering plant; and Musa Cavendishii, the last producing a noble bunch of fruit. The Poinsettia Mr. Tillyard finds to be one of the most valuable of all plants for conservatory decoration, and he grows it extensively for that purpose, striking it from eyes from May until July in the manner in which Vines are struck, and growing it rapidly in pits heated with fermenting material. As regards the Euphorbia, 10 and 12 plants are put into a pot, and, placed thus closely together, they make when in bloom an admirable display, producing gracefully drooping flower spikes some 2 feet in length.

The elegant Conservatory attached to the mansion is full of rich and varied vegetation, consisting of noble Tree Ferns, Camellias, Azaleas, and other plants, overhung with a charming drapery of creepers. Among the latter are Passion-flowers, Clematises, Tropæolums, Kennedyas, and Tacsonias. Means exist for lighting this house, when desired, during the winter evenings, with gas, and although as many as 160 burners are often in full operation in it at one time, yet no injury as regards the plants is experienced.

Out-of-doors fruit trees are now in full bloom, and there is every appearance of excellent crops both on walls and standards. Bush fruits are also equally satisfactory. The pruning of the latter is always deferred here until late in the spring, in order that small birds, which are numerous, and eat the buds, may have the chance of seizing upon shoots to be removed, and in that way save the buds on the branches to be retained.

As regards vegetables, comparatively tender sorts are more forward than in most places, a circumstance which Mr. Tillyard attributes to his plan of strewing long clean straw thinly over them in spring, so as in some measure to ward off cold east winds, and otherwise guard the young and tender leaf at a time when it most wants protection. The use of straw or long litter in this way is therefore worth attention.

Miscellaneous.

Tasmanian Tree Ferns.—In the midst of a damp forest of Gum-trees of various species, and among trees of the genera Pomaderris, Pittosporum, Eurybia, &c., are to be found many Fern trees of the genus Dicksonia—the Dicksonia antarctica being the species growing there. Many of them have more than one crown; but there is one Fern tree in particular, round the circumference of whose top I counted no fewer than 19 crowns, and I calculated that within the circumference there must be half as many more, making about 28 or 29 crowns in all. I considered this the most wonderful Fern tree in the world when I first saw it, and roughly estimated the number of crowns at 15 or 16. Now I am satisfied that it is one of the wonders of the world. Well do I remember the smile of incredulity with which many Fellows of the Linnean Society at one of the meetings received my statement that I had seen a Fern tree with 10 crowns (for I heartily dislike exaggeration); but I hope that my excellent friend your son will take an opportunity of confirming my statement by my account written on the spot. Strange to say, there is another Fern tree of the same species near the former one, round the circumference of whose top I counted, just the other day, 17 crowns, which would give a total of 25. There are also two others within 20 or 30 yards of it, the one with seven and the other with six crowns. The Fern tree with 25 crowns is a very singular one; for it seems to have been originally about 16 feet high, and to have fallen, and broken at a height of 9 feet from the ground, and then to have shot up straight from the fracture. It now stands about 8 or 9 feet high. *W. Archer in Proc. Linn. Soc.*

Vegetation of the Cliffs of Kilkee.—I send a brief account of the vegetation of the Cliffs of Kilkee and its neighbourhood. We visited Loophead at the mouth of the Shannon, and an intermediate portion of the cliffs on which Baltard Castle is situated. Five days were spent at Kilkee, one at Baltard Castle, and one at Loophead. The vegetation at the three places was so perfectly identical as to lead us to the conclusion that the same geological structure prevailed throughout, consisting of hard grits, shales, &c., a conclusion which was confirmed by a subsequent visit to Mr. Jukes of Dublin. Kilkee is situated on the west coast of Ireland exposed to the tide force of 2000 miles of unbroken seas, the waves of which roll in with such power as to furnish abundant food to periwinkles, located on rocks 200 feet above high water-mark, and to supply the wants of marine plants which cover the summits of cliffs varying in height from 150 to 400 feet. That physiological law by which plants under adverse circumstances, produce their flower and fruit, if they can do nothing else, is here strikingly exemplified. Looking at the stunted character of the vegetation, one might imagine oneself in a high alpine region, many species not attaining more than a tenth or twelfth of their usual size. Thus we find here a number of plants simulating the appearance of the inhabitants of alpine regions—*e. g.*, Aster Tripolium, in full flower, from half an inch to an inch and a-half in height; and equally stunted, not starved, forms of Samolus Valerandi, Euphrasia officinalis, Jasione montana, Erythræa Centaurium, Ranunculus Flammula, &c. The higher portions of the cliffs are cushioned by continuous tufts of the common thrift, Armeria maritima, which, when in full flower, must be exceedingly beautiful. The lower grounds are carpeted by Anagallis tenella, Ranunculus Flammula, Hydrocotyle vulgaris, &c., whilst the hill sides are dotted with generally solitary plants of Erythræa Centaurium, the broad-leaved variety; the little ridges towards the sea are lined with Glaux maritima, the drier spots being covered with Radiola Millegrana, &c. The following is a list of all the plants which were seen in flower:—Ranunculus Flammula, in great abundance in wet places, towards the lower portion of the cliffs, in company with Anagallis tenella, Juncus bufonius, &c.; Silene maritima, Spergularia rubra, var. marina; Radiola Millegrana on little elevated ridges; Polygala vulgaris, Potentilla Tormentilla, P. anserina, Sedum anglicum, the great ornament of exposed and bare rocks here and in many other parts of Ireland from the beauty of its flower and the rich decaying tints of its foliage; Aster Tripolium, many specimens in full flower, not an inch in height; Bellis perennis, Achillæa Millefolium, Senecio Jacobæa, Carduus pratensis, Leontodon autumnale, Calluna vulgaris, very sparingly; E. Tetralix, very sparingly; Jasione montana, Campanula rotundifolia, Glaux maritima, coating the seaward face of the high ridges; Anagallis tenella, everywhere in moist places; Samolus Valerandi, Euphrasia officinalis, rarely exceeding half an inch in height; Erythræa Centaurium, Thymus Serpyllum, Armeria maritima cushioning the whole of the upper surface of the cliffs; Plantago maritima, P. Coronopus, Juncus bufonius, Luzula campestris Carex flava, Aira caryophyllea, withered; Melica cœrulea, very sparingly. The paucity of Grasses was remarkable. *N. B. Ward, in Trans. Botanical Society of Edinburgh.*

Calendar of Operations.

(*For the ensuing week.*)

THE nights being still cold, the exposure of half hardy plants to the open air must be done with caution. Now is a good time for raising Vegetable Marrows, which might be profitably cultivated in many places which would otherwise be unproductive, as for instance on the tops of sloping banks and similar situations where little else could be grown. They should be planted about a yard apart on the summit of the banks, and allowed to grow with their heads downwards. Stations might now be prepared for them, in order that they might be planted out in about 8 or 10 days hence when all danger from frost is over.

FLOWER GARDEN AND PLANT HOUSES.

Conservatories should be gay with Azaleas and other showy plants, of which there ought to be now no scarcity. Out of doors let borders be dug, lawns kept closely mown, walks cleaned and rolled, and edgings put into proper repair for the season.

CAMELLIAS.—Keep such as are making growth well syringed. Should black-fly appear on the young shoots, which sometimes will happen, a good washing with tobacco water will soon destroy it.

CINERARIAS.—A little shade during the middle of the day will be necessary in order to prolong the season of flowering. Weak liquid manure may now be given liberally, say two or three times a week. Look well to seedlings, and select such as have the most circular outline and well defined colours, and place them apart from the more common kinds for seed.

PELARGONIUMS.—A slight shade will now be necessary for a few hours on bright days; green fly is occasionally very injurious to them at this season, and therefore the plants should often be fumigated; tie and regulate the shoots according to previous instructions.

PINKS.—After this time, if the weather continues dry, these will require careful attention in the way of watering.

TULIPS.—Protect the best bed carefully with canvas.

FORCING GARDEN.

CUCUMBERS.—Stop, thin, and water freely. See that the ball of earth, in such as are newly put out, is well soaked with water previous to planting.

MELONS.—Encourage those newly planted out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful growth. Keep the shoots thin and regular, pinching out any that are not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the thermometer rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom-heat of about 80°, and keep the soil in a healthy state as to moisture. See to providing young plants for succession crops.

PEACHES.—If red spider should make its appearance wash repeatedly with the engine until it becomes thoroughly eradicated. Thin the fruit immediately the crop is stoned, leaving no more on than the trees can bring to perfection; any other course will only end in the production of small worthless fruit. Give air freely to houses in which the crop is ripening; but at the same time exclude if possible cold winds.

PINES.—Attend carefully to the bottom-heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is apt to do after fresh materials have been added, either during bright weather or where there are pipes under the bed. Where much fire heat is used, it requires some experience to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare those in bloom while syringing. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up regular successions.

VINES.—See that houses in which Vines are not yet started are properly cleansed, the Vines painted with the usual composition of soft soap, sulphur, &c., and everything put into proper working order: also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary, in succession houses, and see that inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this, and do not be afraid of giving too much of it to Vines in pots.

HARDY FRUIT AND KITCHEN GARDEN.

KIDNEY BEANS.—Full crops of these may now be sown, and also of Scarlet Runners.

LEEKS.—These may be transplanted as soon as they are large enough for that purpose. Let the rows be 18 inches apart, and the plants 9 inches asunder in the rows.

LETTUCES.—Keep up successional sowings

PEAS.—Let these be earthed up and sticked as they may require it, and others sown for succession. The latter need not be sown so thickly as those for earlier crops.

POTATOS.—As soon as the young plants are fairly above ground fork up the soil between the rows, which will not only be of benefit to the Potatos, but will help to keep down weeds.

ROOT CROPS.—If young plants of these are attacked by snails or slugs, give the ground about them a good dose of soot and lime. The best time for doing this is either at dusk in the evening or early in the morning.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending May 4, 1864, as observed at the Horticultural Gardens.

April and May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 28	21	30.136	30.076	61	10	50.5	51	50	N.E.	.00
Friday 29	22	30.171	30.014	66	38	52.0	51	50	S.W.	.00
Satur 30	23	30.095	30.011	62	38	50.0	52	50¼	W.	.00
Sunday 1	24	30.159	30.011	67	47	57.0	52	50¾	N.	.09
Mon. 2	25	29.828	29.742	66	50	58.0	53	52	W.	.18
Tues. 3	26	29.881	29.679	60	44	52.0	54	52	N.E.	.13
Wed. 4	27	29.831	29.705	54	42	48.0	54	51½	S.E.	.09
Average.		30.023	29.904	62.4	42.7	52.5	52.4	50.9		.48

April 28—Uniformly overcast; fine.
— 29—Very fine throughout.
— 30—Cloudy; fine at night.
May 1—Cloudless and very fine; rain at night.
— 2—Densely overcast; cloudy; rain.
— 3—Densely overcast; cloudy; overcast; rain.
— 4—Drizzly; rain; overcast and cold; rain at night.
Mean temperature of the week, 2¼ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending May 14, 1864

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	58.9	30.0	48.9	16	0.62 in.	2	6	8	1	6	6	6	4
Mon. 9	61.8	33.5	50.1	15	0.60	3	9	8	1	4	11	2	—
Tues. 10	62.0	39.8	50.1	16	0.33	6	8	5	2	5	3	3	2
Wed. 11	62.4	41.7	51.0	16	0.52	6	7	8	1	5	5	3	3
Thurs. 12	63.0	41.3	52.1	18	1.14	2	10	6	2	3	8	4	3
Friday 13	63.6	39.0	51.3	18	0.66	3	8	8	1	4	8	4	2
Satur. 14	63 3	40.9	52.1	15	0.46	4	10	3	2	8	8	2	1

The highest temperature during the above period occurred on the 12th, 1833—therm. 81 deg.; and the lowest on the 8th, 1859—therm. 21 deg.

Notices to Correspondents.

ERRATA: In the Report of the exhibition of the Société Royal de Flore of Brussels, in our last Number, the following misprints occur:—P. 413, col. *a*. Camellia Bononicana should be C. Bonomiana, and C. Madame Strukaloff should be C. Madame Strykaloff; col. *b*. Agave Schiedigera should be A. schidigera; col. *c*. Campylobotrys Verschaffeltii should be C. Ghiesbreghtii, and Lomatia pteropus should be Lomaria pteropus; p. 414, col. *a*. Caladium Rongieri should be C. Rougieri.

MIMULUS: *C. Boxall.* Large and showy, but presenting no novelty of character.

NAMES OF PLANTS: *G. T. R.* We advise you to consult Mr. Gordon about the names of your Conifers, with which he is, to say the least of it, as well acquainted practically as any man living.—*G. I.* Lastrea glabella.

RHODODENDRON: *A. F.* Your plant raised from Indian seeds appears to be one of the forms related to R. cinnamomeum. It is too early a bloomer, we fear, to become useful as a shrubbery plant; and the flowers want the rich spotting to be found in some of the hybrids raised in this country.

VINEGAR PLANT: *R. J. M.* This is Penicillium glaucum. It may be obtained in Covent Garden Market. A portion of the "plant" only requires to be put into water sweetened with sugar or treacle, and kept in a warm room, till the liquor is acetified.

MISC.: *Mr. Newcomb's* Catalogue is placed in the Reading Room of the Royal Horticultural Society.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY  THE PATENT

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Chairman: JOHN CLAYDEN, Littlebury, Essex.
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Particulars of these Standard Manures may be obtained at the Offices.
C. T. MACADAM, Secretary, or of the local Agents.
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THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
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BLOOD MANURE for Barley and Roots,
URATE,
MANGOLD MANURE, &c., &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
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LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

PALM-NUT MEAL.—Manufactured by ALEXANDER M. SMITH & Co., Liverpool, delivered to Rail or Boat, at Liverpool, in bags of 2 cwt. each.

Marked A.M.S. L. Price £6 a ton.

Analysis and Report by Dr. Augustus Voelcker:—

Moisture	6.91
Fatty matters	26.50
*Albuminous compounds (flesh-forming matters) ..	14.93
Gum, starch, sugar, and digestible fibre	31.20
Woody fibre (Cellulose)	16.13
†Mineral matters (Ash) .. .. ,,	4.33
	100.00

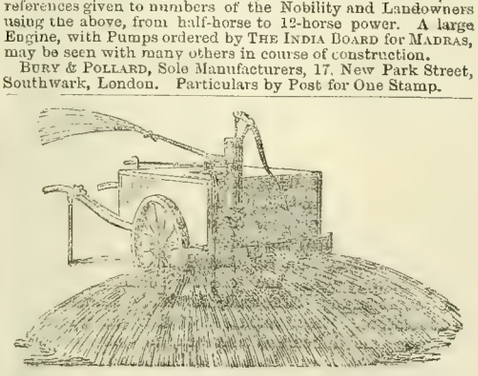
* Containing nitrogen, 2.39. † Containing silica and sand, 1.07.

"101, Leadenhall Street, London, E.C.—April 15, 1864.
"Dear Sir,—I have much pleasure in sending you the preceding analytical results, for they show that the sample of Nut-meal which you gave me for analysis possesses extraordinary fattening properties, in as much as it contains no less than 26½ per cent. of a beautiful butter like fat. You will notice that the meal contains about as much flesh-forming matters as the best Barley meal, and that the proportion of woody fibre is not large. The condition of the meal is excellent. In conclusion I beg to say that this valuable fattening meal must not be confounded with a description of cake made from Palm-nut kernels. The samples of Palm-nut kernel cake that have come under my notice were all quite inferior feeding materials. "AUGUSTUS VOELCKER, Ph.D.
"Consulting Chemist to the Royal Agri. Soc."
"To John Coleman, Esq."

Having been appointed by Messrs. SMITH, Agent for the sale of Palm-nut Meal, I shall be happy to supply samples and further information as to this valuable feeding material.
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THE PATENT WIND ENGINE (or WIND MILL) can be seen in operation daily at the Works as under, and references given to numbers of the Nobility and Landowners using the above, from half-horse to 12-horse power. A large Engine, with Pumps ordered by THE INDIA BOARD for MADRAS, may be seen with many others in course of construction.
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TANNED NETTING, for the Protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh-sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* WOOL NETTING, COTTON NETTING, SCRIM CANVAS, GARDEN MATS, TULIP COVERS, GREENHOUSE SHADES, &c.
JOHN EDGINTON & Co., 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W. Manufactory, 108, Old Kent Road, S.E.

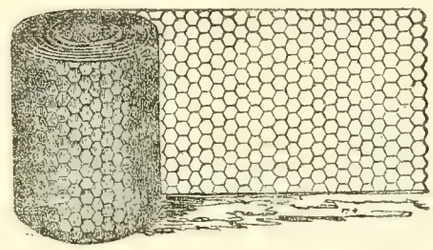
TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard; or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard; or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ½-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

RICK CLOTHS, with Poles, Pulleys, and Lines complete. A large quantity of SECOND-HAND RICK CLOTHS, left over from fêtes last season, to be sold at reasonable prices.
NETTING and SCRIMS for the Protection of Fruit Trees.
Apply early to BENJAMIN EDGINTON, Marquee, Tent, Rick Cloth, and Flag Manufacturer, by special appointment to Her Majesty, 2, Duke Street, London Bridge, S.E.
No other Establishment.

BARNARD, BISHOP, AND BARNARDS, Norwich.

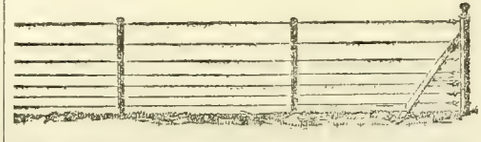
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BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide ..	No. 19	.. 4½*d.*	.. 3½*d.*
2-inch ,, ,, ,, .. ,,	18	.. 5	.. 4
2-inch ,, ,, ,, .. ,,	17	.. 6½	.. 5
2-inch ,, ,, ,, .. ,,	16	.. 8	.. 6½
1⅝-inch ,, ,, ,, .. ,,	19	.. 4¾	.. 4
1⅝-inch ,, ,, ,, .. ,,	18	.. 6	.. 4¾
1⅝-inch ,, ,, ,, .. ,,	17	.. 7	.. 5½
1⅝-inch ,, ,, ,, .. ,,	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide. Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



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Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.
The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22 Parliament Street, Westminster, S.W.

LAND DRAINAGE.—WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY, on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.
Repayment may be made by the Landowner as successive portions of the Works are completed, or the outlay and expenses may be charged on the estate by way of rent charge created for such a term of years as the Landowner shall determine will best adapt the annual payment to the circumstances of the tenants.
No investigation of title being required, or notices given to reversioners or mortgagees, no legal expenses are incurred.
Works of irrigation, enclosing, wood grubbing, road-making, and farm buildings are executed in a similar manner.
Landowners desirous to execute any of the improvements by their own agents, and charge the outlay and expenses on the Estate, may obtain loans for the purpose.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

DOG SHOW—AGRICULTURAL HALL.—Notice to Exhibitors in Classes 27, 28, 29, 30, and 35 to 54 inclusive. Entrance Fee 5*s.*
Prize Lists on application to the Secretary, Agricultural Hall, London, N.

Dog Show.

SECOND INTERNATIONAL SHOW of FOX-HOUNDS, HARRIERS, DEERHOUNDS, GREYHOUNDS, BLOODHOUNDS, POINTERS, SETTERS, RETRIEVERS, SPANIELS, MASTIFFS, and all kinds of BRITISH and FOREIGN WATCH-DOGS, VERMIN KILLERS, and PETS, to be held at the Agricultural Hall, Islington, N., on FRIDAY, SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, May 27, 28, 30, 31, and June 1, 1864. Entries close May 14.
Prize Lists may be obtained on application to the Secretary, Agricultural Hall, Islington, N.

AGRICULTURAL HALL, ISLINGTON.—The HORSE SHOW will open JULY 1. Entries close on JUNE 13.
Prize Lists are now ready, and may be obtained on application to S. SIDNEY, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
A LECTURE, by Dr. VOELCKER, on the "NUTRITION of PLANTS from the ATMOSPHERE," will be delivered to the Members at the Society's House, 12, Hanover Square, London, at 12 o'clock on WEDNESDAY NEXT, May 11.—By order of the Council. H. HALL DARE, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, July, 1864.
LAST DAY for Entry of Stock, Wool, and Butter, 1st June.
All Certificates received after that date will be returned to the senders.
Prize Sheets and Certificates will be forwarded on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 7, 1864.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, May 11 { Agricultural Society of England., (Dr. Voelcker on Atmospheric Nutrition of Plants.) Noon

THE objects for which the Royal Agricultural Society was incorporated are stated in its charter to have been:—(1). To republish such information given in existing books as experience has proved trustworthy. (2). To correspond with other agricultural societies, and select for publication any useful information thus acquired. (3). To bear the cost of experiments which it may direct on farms. (4). To direct attention to the improvement of implements and cottages and farm buildings, to encourage the application of chemistry, and to discourage the growth of weeds, and the spread of mischievous insects—(a strange medley, this). (5). To promote the discovery of new sorts of grain and other vegetables. (6). To collect information on arboriculture and on "every other subject connected with rural improvement." (7). "To take measures for the improvement of the education of those who depend upon the cultivation of the soil for their support." (8). To improve the veterinary art. (9). To encourage, by the distribution of prizes at its meetings, good cultivation and the breed of live stock. And (10) to promote the welfare of labourers and the improved management of their cottages and gardens.

It is to the 4th, 8th, and 9th of these objects that the attention of the Society has hitherto been mainly directed. The earliest volumes of the Society's Journal, however, indicate the guidance which this programme was throughout originally

believed to furnish; and many instances can be quoted of attention in consequence to all of them except the 7th. If any person thinks that the seventh object of the Society's Charter—the promotion of better education among farmers—is sufficiently attended to by the publication of the Society's Journal, it is sufficient to point out to him that the publication of the Journal is in obedience especially to the 1st, 2d, 3d, 4th, and 6th specified objects of the Charter—that indeed none of them could be properly attended to without some organ of communication between the directors of the Society and the agricultural world; and that the word "education" here evidently refers to the equipment and instruction of young men who are to become farmers, not to the guidance or information of those who are already tenants of the land. The interests of the tenant farmer in actual business as well as of all dependent on him are fully considered in all the objects named by the charter—information wherever it exists is to collected for him—further knowledge is to be obtained by experiment—the cultivation of the land and the improvement of our live stock are especially to be investigated and promoted, for his behoof—farm buildings and machinery are to be improved, the facts and principles ascertained by the chemist, the entomologist, the physiologist, the botanist and geologist are to be applied for his benefit—his labourers are to be better housed, and attention is to be directed to their comfort—the tenant farmer and agriculturist in actual business is considered throughout. The Society has well carried out almost all the objects which were contemplated for it by its founders. No one can say that the vast progress which in every branch of it English agriculture has experienced, has not been very much promoted, facilitated, suggested, and in many cases actually effected by the operations of the National Society. There is, indeed, but one of the ten objects specified in the charter of incorporation which has not received a fair degree of its effort and attention. That one object is "the improvement of the education of those who depend upon the cultivation of the soil for their support."

Now that attention is being directed to the singular neglect which has hitherto been chargeable upon it in this particular, discussion will no doubt arise as to the precise meaning of the words thus quoted, in which its duty is declared. Who are those "who depend upon the cultivation of the soil for their support"?—and what is that education of them, the improvement of which is one of the objects for which the Society was incorporated?

Of course the labourer, the tenant-farmer, and the landowner, all depend on the cultivation of the land for their support—and their education includes every influence which is brought to bear on them between childhood and manhood. But it is hardly likely that either the education or the class were meant in a sense so large by those who drew the Charter. It is no doubt the tenant-farmer who is specially indicated, and it is the professional education of the tenant-farmer that is referred to. And the point in the career of the future agriculturist, where we believe that the Society is bound to interfere for the improvement of his education, is that period which elapses in the life of every agriculturist between the school time of his boyhood and the time when he enters into business for himself—the period when his professional skill, knowledge, and ability are acquired. How the Society may act so as to improve the education of this kind which is now open to those who depend on the cultivation of the land for their support, is we hope the subject to which the recently appointed Committee of the Society is directing its attention.

Farmers ought to be upon their guard against the fraudulent attempts of Correspondents—members of the so-called "long firm"—writing from Manchester, Westminster, and elsewhere, who with neither cash nor character, nor reference for either, answer advertisements, and propose to buy seed corn, cattle, well-bred stock of any kind, &c. We know of cases in which pedigree Short-horns have been despatched in answer to orders from these scoundrels, and others in which live-stock has been actually shipped in obedience to their instructions, and saved from their clutches only at the last moment by the telegraph. On inquiry at the addresses given, it is ascertained that the letters sent are applied for at the local post office; and, further traced, they have been taken to the lowest haunts of a low neighbourhood where nobody answers to his name.

The following are extracts from a correspondence which luckily failed of its object, and which we publish as a warning:—

No. 1. "Broadway, Westminster, March 21, 1864.

"Sir.—I shall feel obliged by your informing me if you have a bull to dispose of similar to the one at Battersea—rich roan—in his prime and in good condition—2 or 3 years old, or upwards, to match the cow and heiffers he is intended to serve, and consists of first-class animals, roan and white. Your reply by return, with all particulars and price delivered on board steamer or by rail, which you may think best to send, will oblige Yours respectfully, P. R."

No. 2. "Broadway, Westminster, April 13.

"Sir,—I duly received yours of the 25th ult., in answer to my enquiry respecting a bull; the price is more than I should give for one. As I stated before, I do not breed for show, but with an improvement of stock. I might purchase, should you be enabled to recommend me one about two or three years old, either roan or red and white—price from 40 to 50 guineas, what you would consider well-bred for the money.

"Should you have one or two good looking dairy cows and heifers to offer, roan or red and white, that have had their 2d or 3d calf, I shall feel obliged by your informing me, and writing me every particular respecting them, stating age, colour, &c., and price for one or two delivered here or f. o. b. steamer, as business may prevent my personal inspection. Your attention will oblige, &c., &c.

No. 3. "Broadway, April 22, 1862.

"Sir,—I have yours of the 15th inst., with pedigree of a bull and cow. I am in possession of the Herd Book, and have by that means full reference to your stock as well as my private knowledge, therefore I have no occasion to refer to any one, at the same time thanking you for your remarks and kind intentions—and that you intend the best for mutual satisfaction and future dealings. I have decided to take the bull and "*Trip the Daisy*" before calving at the prices named in yours—50 and 33 guineas—both of which you may send off as early as convenient, and in the best manner for their safe conveyance here, to be entirely at my risk after you have caused them to be safely delivered at your end, addressed 'to await my orders here,'" &c.

Mr. R—— further proposes to take "*Sprightly the 2d*" after calving, and engages his correspondent to hold her on his account. He further hopes to hear soon, with an account of all charges, and he will immediately send a cheque on his bankers for the whole amount. Fortunately the letters, clever as one or two of them are (notwithstanding a slip or two as to what constitutes a "heiffer," &c.,) failed to deceive the breeder of "*Sprightly the 2d*," and she and her companions are therefore still safe at home. It is plain, however, from this and many other examples which could be named, that these rogues aim confidently and well; and it is right to call attention to the risk that is thus incurred.

TALE OF A LANDLORD.

Subterranean Nomenclature.

In the present day, when Estate-drainage and improvements of every description are advertised and undertaken by rival Companies, and a busy Metropolitan Contractor at a few days' notice pours an army of workmen upon the land from the nearest Railway Station, there is something almost ludicrously small in the picture brought to mind by the 'Works and Days' of early and individual effort made only by the Few, and under discouragement and drawback hardly credible, indeed not quite easy to make intelligible to modern ideas. But happily, our minds are so constituted that the interest of a thing is by no means proportioned to its magnitude of scale: indeed, the very opposite of this seems to suggest itself sometimes, when on looking back to the small and modest beginning—the first step that led on to a wider field of operations—we see it in the far retrospect, as we did *not* see it then, pregnant with all its after-results. It is under some such feeling that I recall a certain dark gusty morning late in November; a wild unenclosed broken stretch of—can I venture to call it—*land*, running for two or three miles, the broad wild margin on either side of a once well-beaten mail-road that threaded through it. Viewed as you travelled along, its drear aspect was such as to ordinary minded mortals communicates an involuntary shudder. Man is a part of Nature, and his feelings respond to her countenance, obey her frowns and smiles, without any formal bidding, and we cannot detach from the mind that enjoys it, any more than from the eye that takes it in, the joys or the pains of Scenery. The charm of cultivation—the delicious aspect of a well-tilled field—gladdens to the very heart's core: and its opposite does the opposite. A rugged uncouth surface, yawning gravel-pits—sand-pits—marl-pits—turf-pits, pitfalls of every kind, with the heaps of their own refuse piled alongside, grown over by the rank weed that roots itself with ease—its name is legion and its aspect diabolic—such was the scene that I recall, under the threatening drizzle of that November day.

But early as I was, before I reached the scene the battle had begun, and in earnest too. Four stout spadesmen had already broken ground; and a straight deep trench nearly a yard wide, reaching right across from side to side, with a small patch already double-dug and levelled, shewed signs of a careful beginning. The maintenance, throughout the work, of a broad trench is one of the best securities of honest double-digging: it is a condition that cannot be evaded, because its evasion cannot be concealed. In truth, its preservation is a necessity of all good cultivation whether of spade or plough, not half sufficiently kept in view: such at least was the conclusion forced upon my mind by the most impressive piece of cultivation I ever witnessed, far away in a land of Vineyards, where the Grape (—an exotic notwithstanding—) has a tendency to deteriorate, from the want of alkali in the soil, and the excessive cost of lime, which has to be brought some hundred miles, by sea. To remedy as far as possible this defect, from the home resources of a too charily compounded soil, the land is periodically dug (can I so call it?) to no less a depth than five or six feet. The workmen stand in the trench, sunk thus deeply, and throw the soil as high as their own heads from one side to the other to make the bed for the young Vine plants. Imagine a tilth six feet deep, every spadeful separately moved and aërated! Yet such is the process to which the once famous Buál and *Sercidl* are indebted, for the maintenance of undegenerated quality and flavour, even for a seven years' occupancy of the ground.

To see is to believe, and in some cases never to forget: and this was one of them; it remained by me, a permanent type, a classic memory, a gigantic fragment of cultivation truly 'Cyclopean.' Under the cloudless sky of the finest climate in the world, one drowsy afternoon, I watched this process, to be afterwards imitated in model—eighteen inches for six feet—under the drip of English November. The gods delight in contrast: life runs over with it.

Down went the rank grass and weeds into the bottom of the trench; and up rose the obstinate subsoil, sometimes hard and intractable to the pickaxe, sometimes clinging to the spade. Scarcely one square yard was like another in texture or in colour. As the light drizzling rain fell upon the levelled and divided surface, a sort of steam appeared to rise in exhalation from the sudden contact, as if a newly awakened action had already commenced between the raw fresh-exposed earth and the wholesome elements of heaven! Chemical science may describe in detail the mystic process to its audience, but no technical language that was ever coined can express the mental satisfaction with which the eye contemplates the first salutary union between things that were *meant* to meet but have never met before—the breaking up of land that has lain literally waste—*never* before upturned to the daylight and "the moist influences of the Pleiades" descending on it and into it.

But not to every mind alike does the problem present itself by any means. I soon had cause to be aware of this. As I stood and looked on, the first muttering reached my ear of a coming storm that I was little aware of having brewed. "It *is* no use I tell ye! just turn the top over, and the things 'll grow well enough at Win'uld uthout all this 'ere *double*-digging." Such was the opinion I overheard confidentially asserted between my by no means grave diggers. "Well, 'twarnt so however at the fust 'nclosure, time back: I 'elped to double-dig the Luglands plantation, as the' calls it now,—the piece as was 'lotted to Squire Grezzle, and I never thought it 'ud a beared nothing, as I turned up the motherstone and craplash, and all the rubbitch to the top, as never saw no daylight afore, *nor didn't ought*, I sez. Well, sez I, its no hodds sa lung as yere appy! for he *'ould* 'ave it done 'is own way. And the Parish 'ad theirs, *theirn*; only just the top turned over a bit: it was for all the world like a trying of 'xperiences. Well, I likes to see em: I 'avent no objection to trying of experiences, not I. And, you just see 'em now; *both* on 'em; and *mind* this; every bit o' the fencing o' the *second* 'nclosure we cut from the Squires 'llotment. What a sight o' straight well-growwd poles we had out, to be sure! and the Parish lot aint come to the *fust* cutting, not *now!*"

This was encouraging: it came from an old man whose bent form had in early youth stood six-feet-two, and who still appeared to handle the spade like a child's plaything. What a leverage there was in his arm and foot as they tore up the stubborn spadesful from the bottom, and lifted and dashed them forward. I had stood near to watch it, not without reason; and was rewarded by this passage from his 'experiences.'

"What are '*Motherstone* and *Craplash?*'" said I, minded to improve the occasion," but in a kind of meek *sotto voce*, adapted for the depth of my ignorance. The ruddy weather-beaten face raised itself from over the spade, with a compassionate reproof already gathering upon it, about to reply to the twin-question; when the heavy trot of a horse suddenly coming up behind me, but so visibly to my instructor about-to-be as to draw all his attention, nipped my lesson in the bud.

It is commonly thought that Geologists have drawn pretty heavily upon the possible forms and sounds that orthography can take, in *their* underground nomenclature. Their excuse is that if the words are rather long, and difficult to heave up, they suit the depths they belong to, both literal, *i.e.*, subterranean,—and chronological. But I venture to think a careful collector could furnish a small duodecimo volume of words of a comparatively superficial character—that is, not requiring above two spades' depth to get at them; a mere alluvial vocabulary, in fact, without quite a life's labour. Like other archæological relics they suffer by delay; for every year is helping to obliterate; a cogent argument for early collection. I tried to make a mental note, having already made my query, but I had little time for reflection, for a loud well-

remembered voice roared a morning salutation, as if a speaking-trumpet was pointed at me, adding, still in the same sort of hurricane—

"What, 'making the Wilderness blossom like the Rose,' eh, Sir? or" added the rider coming nearer, and looking into the trench, "laying a foundation perhaps?"

"Yes! metaphorically."

"Met a *what*! *Who* did you say? I left my Greek and Hebrew at home. Please interpret? tell me what you are making."

"A Plantation."

"I don't see any holes?"

"A plantation of *trees*: not rabbits: trees don't appear to me to live in holes."

"Well, ah! you're right" he rejoined, laughing: "at any rate they *die* in them sometimes! Mine do, at least, let me water them, and strike them, and protect them as carefully as I will. *Your's* will, here, anyhow, plant what you may, and how you may; Soils to' cold for 'em. What are you going to plant?"

"Larch, and Scotch and Spruce Fir, for nurses, with Chestnut, Oak, and Ash, to remain."

"Oh, ho, ho!—and Palms, and Sugar-canes, and Bananas!" shouted he in a sort of roulade of laughter: "'grow about as much, here! I know the land—I've tried 'em all—planted 'em, years ago."

"Ah, *in holes*, ready cut and waterlogged; each in his clay jar, like the Forty Thieves; and then you 'filled them up'—like Morgiana."

"Well, they *were* planted in holes certainly: Why not? tell me, why not?"

"Nay, you need not ask me! I have learnt the reason already from you. You 'tubbed' them, in clay, a little tub of clay to each; and they died—— became dead men all! and you know who has said, or sung

'O! a pit of clay for to be made
For such a guest is meet!'

"Ah, well! but trenching is expensive work, after all, especially in such a soil as this" replied he, after a few moments' silence; but I shall watch how your plan answers: and if your trees grow better than mine did, I'll"—— and here a meaning smile checked the half-uttered purpose. How often has such a smile, and the thought that suggested and suggests it, passed between man and man! If your Wheat-crop was ill planted this year you may sow it better next,—and next,—and next. But an error in the husbandry of the crop that counts its growth by decades and by centuries! Surely it is worth the discounting beforehand, by a little study of that underground life which the roots of the Forest will be living, long after the hand that planted it, is even with *their* pasturage, as they wander freely through the easy tracks and cleavage of the under soil, once uppermost, which the spade has made for them, (at an expense how light in its once for all execution compared with the *annual* preparation for an 'Annual'!) instead of leaving *them* to deal with the Subterranean mysteries of 'Mother-stone and Craplash', and struggle for years in vain at the work which the spade can do for them in a few well remunerated hours. *T.*

THE FARM LABOURER.

I HAVE long since said that good work cannot be done without proper tools, and these tools in good condition. So it is with our labourers. The Almighty gives mind, man can only give example and education. The natural minds in men are like the natural fields in agriculture. There is every degree of fertility, but they will all grow noxious weeds unless cultivated and cared for.

There can be no doubt that education has been strangely neglected in this country, and that in this respect we are sadly behind our brethren in the United States and other foreign nations. I speak now of the literature of education, for it cannot be denied that our farm labourers' children are very early instructed in the practice of agriculture. The scarecrow at 2*d.* per day passes in gradation to the management of a donkey and donkey-cart, "drives away" monster horses in dung-carts, or harvest-carts with immense piles of sheaves. It is amusing to mark his growing importance and dignity as he dictates to the leading plough-horse, or remonstrates authoritatively with an unruly pig, or admonishes unwieldy oxen to get out of his way, as his diminutive form, with a basket of food or litter, is scarcely descernible among the herd. From cleaning roots and feeding stock he rises to the hoe, the drill, or the plough, and at 21 he can take a very accurate estimate of his master's condition, and tell you whether his style of farming is leading him to prosperity or adversity. There is scarcely a man on my farm who cannot work my steam engine, drain, hedge, and ditch, thatch, and do any work on a farm, but then they have been with me during 23 years through the whole process of agricultural amendment—and yet not one of them can read fluently. They lament the want of education, and are rejoiced that our new school in connection with our new church on the heath, just got into working order, will give to their children a better chance than their parents have had before them. The penny press, the penny post (all honour to Sir Rowland Hill), and railway communication have opened up the world to the agricultural labourer, and have stimulated in him a desire for education and knowledge.

It is in the long winter evenings that the necessity for intellectual occupation presents itself. I annex some statistics of what America has done and is doing for the cause of education, but we can never hope to attain to so much here. The reasons are obvious. In the United States the agricultural labourer has always received 4*s.* 2*d.* per day as wages, and very often rations or lodging. Wheat, Maize, and meat sell in the agricultural districts at 50 per cent. less than in this country, and thus cause his wages to represent in reality 6*s.* per day, or three times the amount paid in England. We see, at once, that he is under no need to send his children at a very early age into the field instead of to the school.

It is highly creditable to the people of the United States, that while they have the strongest possible objection to general imposts, they tax themselves freely for the purposes of education. I am glad to see that we are at length moving in this matter.

Our Scotch friends have always been before us in education, owing to the law compelling the heritor or landowner to contribute to a school. Hence our southern use of Scotch gardeners and stewards.

I see by statistics that the United States had, before the rupture, 1000 million (!) acres of land still to dispose of. Our United Kingdom covers an area of about 56 millions of available soil. America is evidently the working man's country.

The land granted by the States in America for the endowment of schools amounts to 50 millions of acres, nearly equal to the whole available area of Great Britain. The United States had in 1850 nearly 90,000 public schools, academies, and colleges, with school libraries conjoined, possessing 4,000,000 of volumes. Fifteen of the principal States have school funds amounting to 6,000,000*l.* The annual school expenditure in the single State of New York was for 1861, 768,454*l.* The Government expenditure for the whole kingdom of Great Britain in 1856 was only 423,633*l.*

It is estimated that at the present time there are 120,000 public schools, academies, and colleges in the United States, at which 5,000,000 of the whole population are educated (about 1 in 5 of the population), at an annual public cost of less than 1*l.* per head, as follows:—

Public schools	£0	12	0	per head
Academies	4	0	0	,,
Colleges	15	0	0	,,

Independent of private cost.

In 1850 there were—

Public schools	80,078
Academies	6,085
Colleges	239

Now increased in number to 120,000.

The schools in the States are very rarely opened more than half the year, owing to the scarcity of labour. Those who desire ample statistics of American education should read Mr. Walford's recent paper read before the British Association. *J. J. Mechi.*

THE VEGETABLE MOULD.

AËRATION of clayey soil in former times was carried out more effectually than it now is. About 65 years ago, when a boy, being in company with my father and an old agriculturist, I heard them conversing of the heavy labour under the old system of dyking the summer fallow of the Carse of Gowrie (an old lacustrine mud), that is forming the soil into low walls or high drills, a work which was commenced in the autumn and carried on at any spare time. In speaking with my father about it at that time, my impression was that the whole surface, plough-fur deep, was thrown up into these dykes, and after being exposed to the winter frost and summer drought and well aërated, thrown down by the plough and prepared by repeated working and July rains for the seed. In forming the dykes, two very heavy plough furrows were laid together as a foundation, say every 4 or 5 feet separate, and the dyke completed by spade work, as high as the clay would build. I can easily see the importance of this system of aëration. Here the potash in the soil would absorb nitrogen from the atmosphere and form nitre. The practice is exactly similar to the trenching the soil in the old city grounds of Paris, Madrid, &c., rich in potash, to obtain nitre. There the soil is formed into similar dykes, turned over every two or three years, exposed to the putrid city atmosphere, and washed for nitre every seven or eight years. The Carse of Gowrie, a silt lacustrine formation of the mud washed out of the basin of the Tay, and deposited at the river mouth, contains a large proportion of organic matter of which potash forms a part, and no doubt the air is not quite so pure as that of the mountain, yet there is no proof that an impure atmosphere is necessary to this formation of nitre, as nitrogen is abundant over all, only an abundance of potash seems necessary. This system of dyking—of aëration exposed to the winter frost and summer drought and heat—would soon exhaust the potash in the soil; it would absorb nitrogen, form nitre, which though highly nutritive to the Wheat crop, would soon become exhausted by the crops or washed away, before another round of dyking took place, and without a large addition of manure containing potash, the dyking would cease to be so advantageous. It was perhaps this that put a stop to this nitre bed system of fallowing.

I have found the clay walls of old houses in the Carse of Gowrie so strong a manure that, spread over a portion of a field which was afterwards sown of Turnips, these grew excessively to leaves, almost without bulbs. The Turnips found so much food in the ground through which their roots extended, that they seem instinctively to have thought it unnecessary to lay up a store of nourishment, as bulbs, to form a provision supply for the period of reproduction. I do not attribute the high fertilising effect of the old dry walls to nitre alone; the long aëration and dryness seems to have digested other components of the walls, and rendered them suited for plant absorption.

We old farmers have experienced the great fertilising effect of a summer fallow upon clayey and loamy soils. This operated in several ways: destroyed weeds, aërated the soil, rendering it more friable and crumbly, brought effete or dormant organic matter into action—to act chemically upon minerals so as to render both fit for absorption by plants, in other words, digested, and causing the soil to absorb a large quantity of air in an unknown state of combination, very favourable to plants; also where any considerable quantity of loose potash existed in the soil, combining with that alkali and forming nitre, one of the most active aids to vegetation. As an example of this the writer once caused soot to be spread in February over a ploughed field of alluvial clay; the man spreading it out of the cart thinly with a shovel did not make the shovel-spreads meet, leaving the ground what we call stepped, black and brown alternately. In about three weeks the black portion became white—whitened over as if by lime—from the formation of nitre, the potash of the soot combining with nitrogen from the atmosphere, and in a few weeks more (the field being for Turnips and remaining unstirred) the white portion became green from the braird and strong growth of wild Mustard (Sinapis nigra), while the interstices without soot remained brown as at first, the natural colour of the soil, the braird of Mustard on these spaces being so puny and brown as not to be visible at a little distance. So little were they visible that it would seem the nitre had stimulated the seeds dormant in the soil, to vegetate in the soot spaces. In the culture of Turnips, Beet, Potatos, by drill husbandry and repeated stirring of the soil, the effects of aëration are similar in generating nitre, though in a less degree to bare fallow.

In certain soils the summer fallowing under the usual round of ploughing and working, rendered the ground very friable and loose. This was found to be unsuited for the autumn-sown Wheat, the loose soil imbibed and held too much water during the winter, and the water in freezing, generally took a crystalline open arrangement termed honeycombed. At the commencement of the frost the stem of the plant at the surface became frozen to the soil, and thus fixed, the great enlargement by freezing of the soil underneath, but above the primary root, necessarily draw up the under rootage or fractured the stem a little below the surface. A repetition of the frost thus accomplished the complete uprooting of the plants, laying them loose on the surface. About 56 years ago, having fallowed land thus liable to throw the Wheat, immediately before sowing I made a half-loaded cart be driven along the ridges, beginning at one side and advancing at each turn about 9 inches, thus pressing the ground twice with the wheels and kneading it with the horses. The last offside rut of the wheel left the ground to look almost as if it had been ploughed, and it took about the same time thus to kneed it as to plough, but it proved effectual, perhaps the first and the best plan of firming the soil for Wheat ever adopted. Some 20 years afterwards the fluting pressing roller, taking in about a yard of breadth, was introduced, more expeditious, but less effectual in loose ground. Of course after the cart pressing, only as much harrowing was used as covered the seed, and best with the harrows turned back foremost.

In Scotland, sowing the Wheat when the ground is rather moist and late in the autumn prevents throwing out. Being worked in a moist state prevents the soil taking the honeycomb crystalline arrangement in freezing, and with late sowing, the primary root remains stronger during the winter. With earlier sowing, the primary rooting will have begun to rot away, while the secondary rooting will not have been well established, and the plant more easily thrown out. In the case of Autumn Wheat, a portion ploughed down and the other sown above in the same field and same day, the ploughed down seed gave a tall slender braird above ground, and the sown above a broad-leaved stronger short braird, and I should think the latter hardier to stand the winter. In spring the secondary rooting was in both equally superficial, the root tendrils from both proceeding from the knot at the surface of the ground, while the primary rots away. In the case of spring sowing I have found in rough cloddy ground the secondary rooting proceed not from one knot alone at the surface, but also from several points downwards below it. These several stories of roots is very rare in cereals, and only when the ground is rough and open to the air downwards.

Deep stirring and aëration would seem by Mr. Smith's experiment at Lois Weedon to have rather important effects. His process, cultivating Wheat in drills a yard wide in the seeded row and a yard wide in the deep stirred row, alternately changed every season for 15 or 16 years, and giving a return of about 36 bushels of Wheat average per acre without manure,

may seem a little strange if the measure comprise the whole ground; but if only the stripes of a yard wide in which the seeds were sown, that is, only half of the ground, the produce, only 18 bushels per acre, is nothing remarkable (even as a continued crop we must take the whole ground into account), as when the Wheat plants obtain size, the stems and ears as well as the roots spread over the whole space. It is only wide drilled Wheat, well worked between the drills, with a change of drills every crop. This system to be successful would require a good subsoil and soil a heavy loam, both containing a favourable mixture of the necessary mineral components of Wheat, the roots and probably a very rough stubble affording the necessary organic matter, assisted by the aëration and deep digging to digest the mineral. I hope Mr. Smith will resolve my doubt about the measure. This experiment, if an average of 36 bushels per acre, taking in the whole ground, has been produced, is of the highest importance; and if it can be continued it will show either that there is a magnetic attraction in the living plant extending to earth and air, and that what we are accustomed to term minerals are more diffused through the atmosphere than has been believed, or that what I have alluded to in a former letter, that plants in a healthy condition and position may receive minerals or other components by electro-magnetic currents, in a similar manner to what takes place in the transport of minerals, and especially metals which we find in veins or in crystallized spiculi and nodules in the metamorphic rock, so situated that we cannot conceive that water alone has been the transporting power. The small pendants of silver which are said to be found attached to the root tendrils of plants, in localities where silver is abundant, demand examination as bearing upon this question. Has it been rejected from the water imbibed by the plant? Has it been in solution by the water, or by the air in the soil, or has it been carried or formed by electro-magnetic currents? The formation of crystals of silver upon an old saddle hung up and forgotten for a long time in a mine, mentioned by Humboldt, would rather incline us to conclude that water was not the medium of transport. In the case of acids and alkali being reciprocally transported by electric currents along or through wires of conduction, it would seem that matter can exist in a condition of which we can form no conception, or that matter is merely aggregates of electric points of attraction and repulsion, subject to infinite modification; that these can be modified by electric impulse, and that the transmutation of metals is not an impossibility, or that acid and alkali are conditions something similar to plus and negative electricity. We cannot suppose that matter, such as we regard it, can be carried through a wire.

Here we are obliged to have recourse to the unreal or glamour conception of matter—that it is only electric points of attraction and repulsion varying infinitely in their repellent and attractive powers as acted upon physically and vitally—that what we regard the forms of things, corpuscular matter, is built up of electric groups of these points, the only real entities. We have no knowledge of what we term matter but by our senses: that of touch is only repellent; that of sight is not of the object itself but of what it repels. What conception can we have of an animal or lump of inanimate matter from receiving a rebound blow from certain of the pellets of light which had been thrown against it, those pellets which did not enter its skin or surface? This is the only information we receive from sight of the entity before us—actually no knowledge at all, but that it exists and repels certain bodies or impulses which strike against it. We weigh this entity and find that it attracts and is attracted by a large mass of the same (the earth), or is attracted or repelled by another entity as it is in an opposite or in the same condition of electricity with the other. This is a very vague knowledge, but it is all we know of matter, of the real or rather unreal character of the external world. What can we know of a ship from the spray of the wave which rebounds from its side? This is not Berkeley's ideal theory, but the actual proven fact of all we know of matter.

In the case of the mutual transmutation of the so-called matter in jars placed at some distance by an electric current through a connecting wire, it is not difficult to conceive that the flow or conveyed impulse or power of electricity might accomplish the change, the matter in the jars being of electric composition, the electric impulse only changing the electric state from acid to alkali, and *vice versâ*, in the two jars; but it is rather difficult, as I have said, to conceive the matter (matter as we regard it) to be carried on the wings of electricity through the dense body of the iron or copper wire.

To return to our subject. In the case of the Lois Weedon experiment — the continued production of Wheat—surely any good chemist might ascertain if the soil of what has been producing full crops of Wheat for some 16 years has sustained any great diminution of phosphorus, &c., as compared with the land around it, which has not been subject to this drain, or at least has been manured under the drain of production. At any rate the amount of phosphorus in the ground under trial ought to be very accurately ascertained, and kept in view for trial some years hence. What is the use of chemists, if they only present us with absurd theories, and do not solve most important matter of fact questions like this? I hope there can be no deception here, no "guano" arising from the land having been an old burial ground or ancient site of priest-residence, attracting the fat of the land towards it. I may mention, that in digging drains in the Carse of Gowrie (lacustrine clay) immediately after a full and clean crop of Wheat, I found the roots of plants fine as hair (I conceived the Wheat roots) in great abundance down in the cracks of the ground, at least 5 feet deep. This was after a dry summer, and I conceived this deep rooting was in quest of moisture. I see no reason for believing as Baron von Liebig does, that root crops such as Turnips, or even most of the Clovers, go down deeper than Wheat in dry seasons in search of food or moisture. There are many perennial plants that forage at considerable depth, Thistles, Tussilago, Marestail, Fern, Sonchus arvensis. These generally forage deeper than annuals; the Oak and Pear root the deepest among trees in this country. *Patrick Matthew, Gourdie Hill, Errol, March* 25.

NOTES ON CELEBRATED SHORT-HORNS.

No. VI.

[The following notes on Hubback's pedigree, collected from different authorities, are extracted from Mr. Hutchinson's pamphlet on the Sockburn Short-horns, reviewed some time ago in these columns.]

Hubback. — The quantity, then, that has been written about Hubback's pedigree, proves nothing, but rather tends to throw disbelief on every thing that has been said from the first. Messrs. Colling undoubtedly gave Mr. Rudd all his information, and therefore he cannot be blamed. But, in point of fact, I do not believe any thing that has been said either about this bull or Snowdon's bull. Mr. George Snowdon came to Hurworth in 1774; and admitting that his bull was then only one year old (an extreme case against my argument) it would have been 1780 before he could have begot Hubback, who was rising five years old in October, 1785, when Mr. C. Colling became possessed of him, on his first commencing breeder. Mr. Snowdon's bull, therefore, would be, at least, six or seven years old when he begot Hubback—a most unlikely circumstance truly; seeing that, in those days, bulls were all suffered to range at large, and generally, of consequence, became so dangerous at three or four years old, that they were seldom permitted to live longer. So much for the credibility of George Snowdon having brought this bull with him out of Cleveland—and of his being descended from the stock of the late Sir James Pennyman!—And further, as the mother of Hubback always went in the lanes, after she came to Hurworth,—who, I ask, can pretend to say—whose bull was the happy Sire?—*Dic mihi, magnus Apollo?* The using of Hubback was certainly a lucky hit of Mr. C. Colling—a random shaft, picked up and parted with at random—who himself did not know the real value of the bull, or would he have parted with him, after scarcely two years' use, for 30*l.* without keeping one of his begetting? Surely not.

Hubback's Pedigree. From the best authorities.

1. Major Rudd, Anno 1816.

"The bull Hubback was descended from the stock of Sir James Pennyman, Bart., of Ormsby, in Cleveland, Yorkshire, who, about the year 1770, paid much attention to the improvement of the short-horned cattle, and purchased the best bulls and cows which he could procure. He purchased several cows of Sir W. St. Quintin, of Scampston, who was then celebrated for his breed of short-horned cattle. It is probable that Hubback may have been descended from this breed, but the fact cannot be ascertained."

2. The late Mr. Robert Colling, Anno 1818, thus gives the pedigree of the cow Juno, No. 3, in his catalogue.

"Her Grandam by Hubback. G. Great Grandam by Sire of Hubbock. G. G. G. Grandam by Sir James Pennyman's bull, descended from the stock of the late Sir W. St. Quintin, of Scampton." And this is all we have from either this gentleman or his brother, directly or indirectly on the subject of Hubback's pedigree. They however, were Major Rudd's authorities for what he published in 1816.

3. Major Rudd, Anno 1821.

"I am in possession of evidence which establishes the fact that the dam of Hubback owed her propensity to fatten to an admixture of kyloe blood, and perhaps this letter will, for the first time, communicate publicly that the sire of Hubback had an intermixture of Alderney or Norman blood; Hubback, therefore, who was the *main root* of the improved short-horns, united three crosses, viz. the Dutch or old Short-horn breed, the Kyloe, and the Norman or Alderney. The sire of Hubback was descended from the stock of Sir William St. Quintin. I was intimately acquainted with Sir James Pennyman's Steward; who has repeatedly assured me that Sir James told him that this breed was a cross between the old Short-horns and the Alderney. Such then being the pedigree of Hubback, it follows that all the *improved* Short-horns are a *mixed* breed, the result of judicious crossing."

4. Major Rudd, Anno 1821.

"The sire of Hubback belonged to Mr. George Snowdon, who had been a tenant of Sir James Pennyman, and by that means derived his bull. It is certain that the late Mr. Robert Colling *believed* the descent of that bull to be from the stock of Sir J. Pennyman and Sir W. St. Quintin; for in his catalogue of his stock in 1818, he deduces the pedigrees from their stock. Of these proofs I was not apprised when my (former) Notes were published."

5. George Baker, Esq., November 9th, 1821.

"Attempts have been made, by hearsay evidence and otherwise, to question the blood of Hubback, I send you his pedigree. I have the authority of Mr. Charles Colling, to say, he always considered him a thorough-bred Short horned Bull. Mr. John Hunter, of Hurworth, who sold his dam, with Hubback at her foot, to Mr. Basnett, of Darlington, says, his father bought her of Mr. Stephenson, of Ketton, and that she was a pure-bred Short-horn. Mr. Alexander Hall, of Sheraton-hill Top, who lived in that neighbourhood, and remembers her and the calf perfectly well; says she was a beautiful colour and handler; and when she got on to good land near Darlington, she got so fat she would not breed again. Hubback, he says, was got by Mr. Snowdon's bull, a son of Mr. Robson's bull, of Dinsdale, who was bred by old Mr. Waistell, of Burdon, a very noted breeder, and got by Mr. James Masterman's bull, of Coatham, near Darlington, and was a true-bred Short-horn.—The above gentleman will attest the same, if necessary.

"I consider the name of improved Short-horn to come from the breed of Hubback, and Mr. Maynard's cows, which, from time and judicious crossing, have brought them to their superior excellence. No cow or bull can ever be called a Short-horn with a cross of Scotch blood; for I would just as soon put the Duke of Grafton's Penelope to a Scotch pony, to breed a racer, as a cow to the grandson of Bolingbroke, out of a Galloway cow, to breed a Short-horn."

6. "*To J. Hutchinson, Esq., Stockton.*

Stockton, November 30th, 1821.

"Sir,—According to your request, I called on the 22d instant, on John Hunter, bricklayer, of Hurworth, who informed me that his father was a tenant under Madam Bland. About fifty years ago, as near as he could recollect, he left off farming and came to Hurworth, having sold off all his cattle except one beautiful little Short-horned cow, which he brought along with him. She went ever after in the lanes, he having no land. On calving to a bull belonging to Mr. George Snowdon, of Hurworth, a bull calf, she and her calf were taken to Darlington, and sold to a Quaker, who, the same day, resold her and her calf to a Mr. Basnett, Timber Merchant. He further said that a great number of gentlemen had lately made the same inquiries and had received the same answers; Mr. Baker being the last.

"I am, Sir, your humble Servant,

"Christopher Foss."

How absurd the attempt to establish any thing as *proof* or *fact*, upon such scanty, contradictory records as these! *From Mr. Hutchinson's Origin and Pedigrees of the Sockburn Short-horns*, 1822.

Home Correspondence.

The Bondage System.—I often wonder at intelligent farmers persisting in adhering to this degrading and oppressive system, which ought to be summarily abolished by the proprietors; and this could be done without raising the labour bill above the average in those districts where it does not exist. Some farmers try to ease their consciences by referring to the fact that a good many ploughmen have daughters fit for acting as bondagers. I avail myself of that fact as an additional argument for its abolition. For instance, a good many hinds have to pay their daughters the current rates of hired bondagers' wages. I have seen the eldest daughters dressed as gay as possible on Sabbath, and the younger brothers and sisters in rags. Were the farmers to abolish the practice of compelling hinds to provide field labourers, it would be a great boon even to those hinds who have grown-up families. Although my father was not bound to keep a bondager, his family worked as if they had been bondagers; but my sisters had not any claim upon my father for wages. I deduct 15*l.* 12*s.*, or 6*s.* a week, from the total wages for the bondager's board, lodging, and washing, and incidental losses through the boudager not working full time, and the bondager's wages, say nearly 13*l.* per annum. Although 28*l.* 12*s.* is not an overcharge for the cost of the bondager's contract, farmers could provide the food for much less. Had each farmer sufficient accommodation for the females who required to be imported, farmers could provide the food for much less than my estimated cost of the bondager to the hind, 6*s.* a week exclusive of the wages, say 12*l.* or 13*l.* per ann. A native of Wiltshire told me in 1859 that he and his wife were as comfortable on the Wiltshire wages as they were in Buckinghamshire on 14*s.* a-week. Of course he had a free house, and a large garden free of rent, and other perquisites in Wiltshire, whereas he had to pay house-rent off the 14*s.* a-week in Bucks. I send you a copy of my letter in the Edinburgh *Caledonian Mercury*, which shows that Northumbrian farmers had the services of two able-bodied labourers—a hind and a bondager—for the 52 weeks ending May, 1850, for 36*l.* 6*s.* 10*d.*, and a house and garden free, and the cartage of coals. I have deducted 3*l.* from the 9*l.* for the cow's keep, 2*l.* for the cartage of the coals, and the 3*l.* for the rental of the hovel. It required these sums to make a hind's wages equal to 31*l.* 3*s.* in

1850, as given at p. 742 of the second volume of Stephens's "Book of the Farm." Treating the one-room cottage and the cartage of the coals as perquisites, and putting 6*l.* instead of 9*l.* against the hind as a substitute for a cow's keep, my letter in the *Mercury* shows that a hind's wages were only 23*l.* 3*s.* and these perquisites. This 23*l.* 3*s.*, and the house and garden free of rent, and the cartage of coals, and the earnings of the bondager at 10*d.* a-day in summer and 8*d.* a-day in winter—in all 36*l.* 6*s.* 10*d.*—and the house and garden free, and cartage of coals, was all that a hind had for his own wages and for the expenses of the bondager-contract. The gross total has risen from 36*l.* 6*s.* 10*d.* and these perquisites to 57*l.* 15*s.* 10*d.* and perquisites of a house and garden free and the cartage of coals, for 1863. In an article recently published I showed that 39*l.* 19*s.* 10*d.*, and as perquisites, the liberty to feed a pig and the cartage of 6 and 7 loads of coals, was the gross total paid to a Roxburghshire hind for the 52 weeks ending May, 1854. The gross total in Roxburghshire has risen as high as 45*l.* 14*s.* 8½*d.* to 51*l.* 10*s.* 6*d.* and perquisites of house and garden free, the cartage of coals, and the liberty to feed a pig. Contrasting the different rates shows that the gross total in South Northumberland is 8*l.* and 9*l.* higher than it is in Roxburghshire. As a general rule, the majority of English ploughmen are located in houses which are grouped together as villages by men who have no interest in ploughmen, barring the punctual collection of the rent once a week or fortnightly. The condition of English ploughmen will not be what it ought to be until each farmer has his regular labourers housed at a convenient nearness to the farm steading. Winking at the compulsory bondager system in the south-east of Scotland, and in Northumberland—which is an unnecessary appendage or excrescence which ought to be abolished, and could be done without adding to the labour-bill—I like the system of management in the bondager district better than any I have seen in the counties of Worcester, Gloucester, Buckingham, Kent, and Surrey, in England. As for the condition of hinds in the Edinburgh district, the farmers might increase their wages and add to their comforts without paying a higher rate of wages. My present fellow-lodger was telling me he lodged with a hind whose wife had as much refuse as would nearly feed a pig, but the ploughmen are not allowed to keep pigs. Can you, Mr. Editor, inform me if the houses built by the late Duke of Bedford, are built at a convenient nearness to the farm steadings; or are they grouped together as villages? The building of houses on each farm in England would be an antidote for the habit of having "a pint and screw" every night. I cannot identify myself with Dr. Begg and Mr. Scot Skirving and others, who advocate each farmer having a great many cottages as a cure for the social evil peculiar to rural districts. My motto is one house for every man employed throughout the year. That implies one house for every 50 acres of arable land in Northumberland, and in the counties of Roxburgh and Berwick, and two houses for every 50 acres of arable land in East Lothian, which is let at a rental of 4*l.* per imperial acre. Mr. Morton stated in 1859, at a meeting of the Society of Arts, that some farmers in England employ one man for every 10 and 12 acres of arable land.—*Agricultural Gazette*, 1859, Dec. 10. One house for each man employed regularly throughout the year, will be a useful guide for proprietors in England. The building a greater number would ruin the vested interests in English villages, and would prompt some "red-hot agitators" to imitate Dr. Begg at Liverpool in 1858. Were such a numbe of men located at each farm steading in England, and each had a cow kept on his employer's farm, and liberty to feed a pig, as they do on Tweedside, there would not be such demands for beer and cider. Neither would there be any need for "sick clubs." A good many of my late fellow workmen on Tweedside are Odd-fellows and Foresters, but I do not know of a "sick club." *W.*

Pedigree Wheat.—Upon referring to Mr. Mechi's letter in the *Mark Lane Express* of Nov. 2, 1863, I see he states that my Wheat weighed 58½ lbs. instead of 58 lbs. as I had supposed. Will you be so good as to alter this in my letter, or in challenging it against other Wheat of 58 lbs., I might seem to wish for some advantage, whereas I have no other object but the simple truth. The Pedigree Wheat has been grown in Northamptonshire to weigh 66½ lbs. the imperial bushel. *Fred. Hallett.*

Friendly Societies.—It was not without ample reason that in a recently published letter the Chancellor of the Exchequer declared all benefit societies in "danger" which held their periodical meetings at public-houses. Several such local clubs have been known to me; one or two of them throughout the whole period of their existence—for they are not generally long-lived. The rules of some of them are now before me, and declare plainly enough the demoralising tendency of the places in which their meetings are held:—"Friendly societies will be in danger when, with the idea and theory of self-government, they allow their affairs to be in the hands of managers at a distance, whom the members can no more control than the electoral body of the country could, without the House of Commons, control the Queen's Government. They will be in danger, when their rules and tables have not been beyond all doubt ascertained by competent and instructed authority to be, not merely legal, but wise and prudent. Lastly, I fear they will very often be in danger when they transact their business at the public-house." This is what Mr. Gladstone says; and that he speaks the truth upon the last point is plain from the rules which in self-protection such Societies have laid down. I have before me the "rules and orders" of three such societies, meeting, or which used to meet, respectively, at the Swan Inn, Thornbury; at the Ship Inn, Alveston; and at the New Inn, Cromhall—all in Gloucestershire. What do these rules declare of the tendencies and risks which such places involve, and which in such places are incurred. In the book of the Thornbury Swan Inn Club, it is declared as its 28th rule that:—

"Should any member offer to lay wagers in club hours, in the club room, he shall forfeit 6*d.*; and further, on feast day or on any club night, should any member fight or strip to fight in club hours, or on the way home, on the same being proved, the offender shall forfeit 2*s.* 6*d.*, or be excluded."

Again, in the book of the Alveston Club, the 35th rule declares that

"Any member during the quarterly or anniversary meetings, who before the close of business shall get noisy, quarrelsome, or intoxicated, or who shall curse, swear, or use any abusive or indecent language, or shall refuse to keep silence after being requested to do so by the clerk or either of the stewards, shall be fined 1*s.*"

And lastly, the following is among the rules of the Cromhall Club:—

"That if any member during Society hours and in the Society room be disguised in liquor, give the lie, take the name of God in vain, curse, game, offer to lay any wager or sing, for such offence he shall be fined 3*d.*; or if he shall challenge, collar, strike, use threatening language, &c."

This is a FRIENDLY Society!—which protects its members from one another in this way! It is plain that the circumstances which make such rules necessary, are fatal to the professed character of the Society; and that as Mr. Gladstone says, and as the authors of these rules confess, those Friendly Societies which meet at public houses ere in "danger." *J. C. M.*

Improvement of Grass.—In your Paper of the 23d ult., you ask—how shall we improve a price of unproductive pasture? If I had a piece such as your Correspondent speaks of, and there was depth of soil, I should plough a 3-inch thick furrow by about 9-inches broad, then I would subsoil plough it 6 or 8-inches deep immediately after the furrow is turned up; this would loosen and lift the soil; then I would top-dress it with nitro-phosphate or superphosphate mixed with guano. After the land had been ploughed about a week I would then turn the furrow back, the Grass side upwards, and then sow fresh Grass seeds; I would then bush-harrow and roll it, and I think you will have permanently improved your pasture. *An Experimentalist.*

[Will you point out any instance of the success of this management?]

Common Salt in Wheat Grain.—In last week's *Gazette* your correspondent, Mr. Edward Carroll, expresses surprise that I find so little common salt in Wheat. He cannot feel more than I do at his statement, that on the mud-lands of the Wexford Harbour Embankment Company, "when but partially reclaimed, there were extensive crops of various kinds grown for general purposes, but of Wheats more especially, and to such an extent was salt found to exist in the Wheat grains, which were in all other respects of the finest samples, that some of the millers objected to buy the same, alleging as a reason that their customers the bakers at first found the difficulty in making the bread sufficiently free from salt to satisfy their customers. But by a little more practice they found they could dispense in a great measure with the usual quantity of salt used in making ordinary bread." If samples of the Wheat in question can be procured and forwarded to me, I shall be very glad to submit them to chemical examination. A great many analyses of Wheat-grain and its ash have been made in my laboratory at Rothamsted. The amount of soda found is always very small, and it is as a rule the less, the riper the grain and the better its quality. Of chlorine again the quantity found is seldom more than what is called a trace. In 100 lb. of fine wheaten flour there is altogether not more than 12 or 13 oz. of mineral matter; and if this were all common salt it would be considerably less than the quantity which bakers are in the habit of mixing with flour in the process of bread making. *J. B. Lawes, Rothamsted.*

The Summer of 1864.—I beg to present for your acceptance a copy of a pamphlet entitled as above. It is my intention to advertise that pamphlet and the season to be expected, and I trust that this summer will bring to a climax the controversy between us, as to the existence of a substantial basis for my predictions. I quite concede that it was legitimate enough for the *Gardeners' Chronicle* at their origin in 1860, and for some time afterwards, to insist that inferences drawn from an inspection of the tabulated records of the past could alone entitle any theory or practice of summer forecasts six months in advance to attention. But the case is altered when four successive summers have passed, each in its leading features successfully foretold, and distinctly and practically enough also, to have obtained both a hearing and attention in Mark Lane and elsewhere. The answer to Sir J. Herschel's published opinion, that no man in his senses would think of altering his conduct in the slightest particular, in consequence of any special prediction of a dry or cold, or warm or wet summer or winter, is met and answered by the fact, that some merchants do so, and on a large scale also, and that they have written to me to say so, in reply to my sending them, at their own request, an early statement of my views. I do trust therefore that if this season should on the whole result in an injurious drought throughout all or the greater part of the countries I have especially named, viz, north of France, Belgium, Holland, and a part of Germany adjacent, southern, eastern, and central England, the *Gardeners' Chronicle* will give me a fair and open encouragement to go on and endeavour to establish by successive practice, the truth of views, which I undoubtedly cannot demonstrate from an examination of the records of the past. As to those, I will even say, that an examination of them simply serves to confuse and bewilder me, and almost to make me mistrust the power which I feel I possess, of understanding in a great degree the habits of the climate under which I live. The *Gardeners' Chronicle* has been a bitter opponent—would it not now be just, that, to the extent I have named, it should be a sincere friend, if this season's prediction should turn out correct? It is to be recollected, that it is a most unusual thing that a dry season in Great Britain should be otherwise than a prolific one. It is therefore a fearless step on my part to take, to proclaim the summer now at hand to be a dry but not productive one. But if I have risked something in publishing such an opinion, I must remind you that you have, in my view, taken upon yourself the serious responsibility of telling your numerous readers, that they need fear no drought, that they may increase their highly paying stock of sheep and cattle to any extent without fear of coming difficulty, and that they may cultivate vegetables precisely in the same manner, and to the same extent as usual, and expect the same return. My views would tend to make them pause a little in this natural career. *Thomas Du Boulay, Sandgate, April* 28.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, May* 4, 1864.—Present: Lord Feversham, President, in the Chair; Earl Cathcart, the Earl of Powis, Viscount Eversley, Lord Berners, Lord Chesham, Lord Portman, Lord Tredegar, Lord Walsingham, Sir E. C. Kerrison, Bart., M.P.; Sir J. V. B. Johnstone, Bart., M.P.; Sir Matthew White Ridley, Bart., M.P.; Mr. Acland, Mr. Raymond Barker, Mr. Barthropp, Mr. Bowly, Mr. Bramston, M.P.; Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Hudson, Mr. Humberston, M.P.; Mr. Hutton, Mr. Jonas, Colonel Kingscote, M.P.; Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Robert Smith, Mr. Thompson, M.P.; Mr. Torr, Mr. Turner, Mr. Burch Western, Mr. Wells, Professor Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

The following New Members were elected:—

Avery, William Howard, Stockton Grange, Shiffnal
Barton, Rev. Joseph, East Leigh, Havant
Barrass, James, Cramlington, Northumberland
Bell, William, Cramlington, Northumberland
Berrington, Arthur Davies, Pant y Goitre, Newport, Monmouthshire
Blenkinsop, Samuel, Lobley Hill, Gateshead
Bolam, Charles G., Bentinck Terrace, Newcastle-on-Tyne
Bolam, William Thos., Bentinck Terrace, Newcastle-on-Tyne
Bouverie, Philip Pleydell, Brymore, Bridgewater
Cochrane, Archibald, Langton Grange, Gainford, Darlington
Coulman, Edward, The Levels, Thorne, Yorkshire
Cowen, Joseph, Stella Hall, Blaydon-on-Tyne
Davison, Joseph, Greencroft, Durham
Ethrick, Anthony, North Hylton, Sunderland
Gamon, William, The Green, Thornton-le-Moor, Chester
Garbutt, Cornelius Durham, Gateshead
Haines, John Poole, Dauntisbourne House, Cirencester
Hanny, Robert, Springfield, Ulverston
Henderson, William, Harton, South Shields
Horrell, John, Stevington, Bedford
Lee, John Bunting, Stocksfield Hall, Stocksfield on-Tyne
Melvain, Henry, jun., 26, Elswick Villas, Newcastle-on-Tyne
Newcombe, Frederick, Ravensworth, Gateshead
Nicholson, George, Winlaton, Blaydon-on-Tyne
Palmer, Charles Mark, Whitley Park, Newcastle-on-Tyne
Rayne, Charles, Newcastle-on-Tyne
Ravensworth, Lord, Ravensworth Castle, Gateshead
Ranger, Josiah, Ashdown Park, East Grinstead
Rayne, Septimus William, Newcastle-on-Tyne
Robson, John, Sunniside, Newcastle-on-Tyne
Rowlandson, Samuel, Newton Morrell, Darlington
Rose, Christopher, Zeals Green, Mere, Wiltshire
Schneider, Henry Wm., Lightburne House, Ulverston
Thompson, Thos. H., Cavil Head, Acklington
Veitch, Harry James, King's Road, Chelsea, London, S.W.
Walker, Richard C., Middlesex Grange, West Hartlepool
Waldy, William, Great Burdon, Darlington
Webster, Samuel, Wadworth Hall, Doncaster
Webb, Lankester, Combs Tannery, Stowmarket
Wilkin, Joseph, Chowden Hall, Gateshead-on-Tyne
Wood, Rowland, Clapton, Thrapston

Major-General the Hon. A. Nelson Hood was unanimously elected a Vice-President of the Society in the room of the late Lord Ashburton, on the nomination of Mr. Bramston, M.P., seconded by Colonel Challoner.

FINANCES.—Mr. Bramston, M.P., presented the report of the Committee, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on April 30 was 2,836*l.*, 6*s.* 6*d.*

JOURNAL.—Mr. Thompson, M.P., Chairman, reported the following arrangements for the Weekly Meetings of the Council: Wednesday, May 11, Professor Voelcker will deliver a lecture on the Nutrition of Plants by the Atmosphere; June 8, Professor Simonds on Small-pox in Sheep.

NEWCASTLE MEETING.—Sir Matthew White Ridley, Bart., M.P., reported that the Committee had settled the programme, which would be forwarded to every member of the Society. Arrangements had been entered into with two respectable local tradesmen for an efficient supply of refreshments in the Show-yard. This report was adopted.

COUNTRY MEETING OF 1865.—The report of the Committee appointed to inspect the various sites offered to the Society at Exeter and Plymouth having been read, the Council were favoured by the attendance of the following deputations:—

Deputation from Exeter and its neighbourhood.—The Right Worshipful the Mayor of Exeter, The Right Hon. the Earl of

Devon, The Right Hon. Lord Clifford, the Right Hon. Lord Poltimore, the Hon. C. Trefusis, M.P.; Sir Stafford H. Northcote, Bart., C.B., M.P.; Sir John Duckworth, Bart.; Sir John Duntze, Bart.; R. S. Gard, Esq., M.P. for Exeter; Colonel Davie, and R. Brembridge, Esq., M.P.'s for Barnstaple; Henry Hooper, Esq., Deputy Mayor and the Hon. Treasurer; Wm. Barnes, Esq., Ex-Mayor, J.P. for Devon; J. H. Holly, Esq., J.P. for Devon; J. C. M. Stevens, Esq., J.P. for Devon; J. Daw, Esq.; E. Osmond, Esq.; Dr. Brent (Chairman of the Exeter and Exmouth Railway Company. R. R. M. Daw, and Henry Drew, Hon. Secs. to the Local Committee.

Plymouth Deputation.—The Earl of St. Germans, Viscount Falmouth, Lord Churston, Mayor of Plymouth; The Solicitor-General and Walter Morrison, Esq., M.P.'s for Plymouth; Mayor of Devonport; Sir Arthur Buller and Wm. Ferrand, Esq., M.P.'s for Devonport; T. J. A. Robartes, Esq., N. Kendall, Esq., John St. Aubyn, Esq., and Richard Davey, Esq., M.P.'s for Cornwall; Sir John Trelawny, Bart., and Arthur Russell, Esq., M.P.'s for Tavistock; Sir Massey Lopes, Bart., M.P., Chairman of Local Committee; John Tremayne, Esq., and Wm. Derry, Esq., Vice-Chairmen; Edward Archer, Esq. Local Committee; T. Woollcombe, Chairman South Devon—Vice-Chairman Cornwall Railway; Henry Brown, Director of Ditto; John Wm. Woollcombe, Secretary of Local Committee.

These gentlemen having communicated to the Council the fullest local information connected with their respective districts, and having answered satisfactorily the inquiries made of them by the Council, the President expressed to them the best thanks of himself and the Council for their kindness in having attended the meeting that day, and for the deep interest they had evinced in promoting the objects of the Society.

The Deputations having withdrawn, the Council proceeded to the consideration of the particular locality best suited, under all circumstances, for holding the Country Meeting next year; and after some discussion of the respective advantages of each position to which their attention had been called, it was decided in favour of Plymouth by 24 votes to 10.

House List.—Agreeably with the bye-laws the Council arranged by ballot the following election list to be recommended by them for adoption at the ensuing General Meeting on the 23rd inst:

NAMES.	ATTENDANCES. (From the rising of the Battersea Meeting in 1862, to the present time.)				
	Monthly Councils. Total, 16.	Special Councils. Total, 3.	Weekly Councils. Total, 19.	Committees. No. of Meetings.	Committees. Attendances.
Amos, Charles Edwards, 5, Cedars Road, Clapham Common, Surrey	4	2	4	7	4
Arkwright, J. Hungerford, Hampton Court, Leominster, Herefordshire	3	2	3	19	6
Barthropp, Nathaniel George, Hacheston, Wickham Market, Suffolk	8	2	3	3	3
Bowly, Edward, Siddington House, Cirencester, Gloucestershire	6	0	0	0	0
Chesham, Lord, Latimer, Chesham, Bucks	12	3	6	33	16
Druce, Joseph, Eynsham, Oxford	11	2	1	3	1
Fortescue, Earl, Castle Hill, Southmolton, Devon	0	0	0	0	0
Gibbs, B. T. Brandreth, Halfmoon Street, Piccadilly, London, W.	16	3	3	46	37
Holland, Edward, M.P., Dumbleton Hall, Evesham, Worcestershire	11	2	11	43	23
Hoskyns, Chandos Wren, Harewood, Ross, Herefordshire	8	0	3	47	22
Hutton, William, Gate Burton, Gainsborough, Lincolnshire	4	0	0	0	0
Jonas, Samuel, Chrishall Grange, Saffron Walden, Essex	9	2	3	3	1
Kerrison, Sir Edward, Bart., M.P., Brome Hall, Scole, Suffolk	8	1	12	16	6
Lawes, John Bennett, Rothamsted, St. Alban's, Herts	7	0	1	5	1
Lawrence, Charles, Cirencester, Gloucestershire	6	1	0	0	0
Leigh, Lord, Stoneleigh Abbey, Warwickshire	1	0	0	12	0
Macdonald, Sir Archibald K., Bart., Woolmer Lodge, Liphook, Hants	11	2	4	23	7
Randell, Charles, Chadbury, Evesham, Worcestershire	14	1	1	22	14
Sanday, William, Holmepierrepont, Notts.	6	1	0	0	0
Shrewsbury and Talbot, Earl of, Ingestre Hall, Stafford	0	0	0	0	0
Shuttleworth, Joseph, Hartsholme Hall, Lincoln	12	1	0	26	13
Smith, Robert, Emmett's Grange, Southmolton, Devon	4	1	1	3	0
Towneley, Lieut.-Col. Charles, Towneley Park, Blackburn, Lancashire	3	0	0	0	0
Tredegar, Lord, Tredegar, Newport, Monmouthshire	7	1	2	0	0
Wells, William, Holmewood, Peterborough, Northamptonshire	10	0	3	21	5

Lord Walsingham having moved that the Society hold their Country Meeting for 1866 in the district comprising the counties of Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, Norfolk, and Suffolk, it was seconded by Mr. Bramston, M.P., and adopted.

Mr. Clayden having moved that in the opinion of the Council it is undesirable that the Consulting Engineer of the Society should have business transactions with the competing firms, the motion was seconded by Mr. Druce, but an amendment having been moved by Mr. Pain that "the Council has every confidence in the Consulting Engineers, and has no reason to alter the present arrangement," a division was taken, when three votes were given for the original motion, and 34 for the amendment.

The Council then adjourned to their Weekly Meeting on the 11th inst.

Farmers' Clubs.

Central: *May 2. The Mode of Taking the Corn Averages.*—Mr. Chandler read a paper on this subject, from which we make the following extracts:—

1. The return of corn sold is made by the buyer only.

The purchasers of corn are the millers, factors, &c., who pay, if any, only a small proportion of tithes, and have therefore little or no inducement to make the required returns. The local millers have a more direct interest in recording the highest priced corn they buy, and forgetting to enter the low priced, so that on returning from their respective markets they may inform their customers, from the best authority, the average prices; leaving them to draw their own conclusions as to the value of the Wheat which would be required to supply the quality of flour they were in the habit of purchasing. This remark applies also to the maltsters and factors. There is another glaring inconsistency in this system. In such a season as the last harvest, the quality of the corn, especially Barley, varies to a great extent. In situations where the corn was early ripe, and got in before the wet weather, the prices of Barley have ranged very high—nearly double the price of that lying on the ground and sprouted. The best Barley being very scarce, has in many instances passed through several hands, and has been returned two or three times, with the addition, at each sale, of the cost of transit and the factor's profit. Speculators seldom invest their capital on inferior corn. It is only the best and driest that can be depended on for storing, either in bins or in sack. They therefore purchase the samples that command the highest prices in the market, and ought, under the provisions of the Corn Returns Act, to make a proper entry of it for the corn inspector. This is resold when a satisfactory profit presents itself, and is again returned by the second purchaser. These, I have reason for believing, are by no means isolated cases, and must consequently influence the averages very unjustly.

2. The secret manner in which the return papers are conducted, prevents, in a great measure, the detection of those persons who may neglect to comply with the terms of the Act.

If a seller of corn goes to the inspector, and asks him if the person (whose name he gives him as the purchaser) has given him an account of such sale, he (the inspector) tells the seller that his office is only to add up the totals, strike the average, and send it to the comptroller, politely declining to give him any further information. In looking through the list of markets at which the corn returns are taken, as published in the *London Gazette* of January last, I was struck with the insignificant quantity of corn sold in many of them. Out of the 297 markets, there are 74 in which there is no Wheat returned, and 12 others in which there is not more than 25 quarters; while of Barley, 100 have made no return, and 43 of the remainder do not exceed 50 quarters. Of Oats the returns are merely nominal. There are no returns of that grain from 163 markets, and 67 more of not more than 50 quarters; and the total sold in England and Wales is stated as under 10,000 quarters. These statistics demonstrate clearly that a small portion only is returned.

3. Before the repeal of the Corn-laws, the principal remunerative item grown on a farm was supposed to be corn, and more especially Wheat.

The experience of nearly 20 years has dispelled that delusion, and now the universal opinion is in favour of stock-breeding and feeding. The high price of meat, and its increasing consumption, demands the greatest exertions from the agriculturists to furnish a corresponding supply; and with the present commercial prosperity of this country, we may naturally conclude that it will be some years before that demand will decrease. To stock-rearing and feeding, then, the farmer will devote his energies, as the chief means by which to make his rent. I should suppose that in no previous year has there been so large a quantity of corn consumed by stock as in this. The low price of all kinds of grain, and the difficulty of finding a better market for it, has been an inducement to feed cattle with it, thereby saving the expenses connected with it in cartage, &c. There can be no doubt that it was intended by the Tithe Commutation Act to ascertain, as correctly as practicable, the average price of a bushel of Wheat, Barley, and Oats during the year. As it stands at present—this year in particular—nearly every farmer is feeding some portion of his stock with his inferior corn, sending to market that only that would command the highest price. And there is another feature in connection with this part of the subject which I had nearly overlooked. Since the introduction of improved threshing and winnowing machinery, all sorts of corn are much better separated than formerly, thereby increasing the weight of the sample, and consequently obtaining a higher price in the market, leaving more second grain to be disposed of amongst the stock at home. Incidents such as these, trifling as some may think them, have a tendency to operate unfairly in taking the averages.

4. I trust I have laid before you sufficient facts to prove that the returns should not be made by the buyer alone. I have no hesitation in saying it should be by the seller.

I will venture to suggest the following scheme, although I know that in doing so I shall lay myself open to criticism. I would propose: 1. that every grower of corn shall make a return, within —— days from the time of delivery, of all Wheat, Barley, and Oats which had been grown and sold by him, with the date of such sale, the name and address of the purchaser, and the price at which sold. 2. That districts shall be formed throughout England and Wales, similar to the Rides or Divisions of the Inland Revenue Officers. 3. That a local inspector shall be appointed for each district. 4. That the local inspector shall ascertain the names of all growers of corn within his district; to enable him to do which, he shall have a right to inspect the overseer's book in each parish for that purpose. 5. That the inspector shall, on first entering on his office, send to each of the growers of corn a printed form, with headings for the entries before mentioned; and at the bottom a declaration, that the several entries in their respective columns were correct returns of all Wheat, Barley, and Oats grown by him, sold since the date of the return he last sent to the inspector. 6. That, in addition to the return papers, envelopes with this printed direction, "To the Inspector of Corn Return, —— Division," shall be sent by the inspector to the grower. 7. That every post-office shall be the receiving place for the corn returns of each parish or hamlet in which it is situate: and that on —— day in every week the postmasters at their respective offices shall forward the corn returns received at their offices to the inspector appointed to their particular Division. 8. That every grower of corn, who shall neglect to send their corn returns, either directly to the corn inspector of his district or to his (the grower's) usual post-office, agreeably to the form before mentioned, shall be subject to a penalty not exceeding 40*s.* 9. That half the above penalties shall, on conviction of the offender or offenders, be given to the informer.

5. There is one of the evils I have alluded to, that of the non-entry of corn of home growth consumed on the farm, which I have not attempted to devise any plan to correct, for the simple reason that I could not find one that would efficiently meet it.

The difficulty is to know in what way the real value of the corn which is not taken to market can be ascertained, in order that the inspector, and through him the parties interested in it, may be satisfied of its correctness. This is a part of the subject which should not be lightly passed over, as without these returns the averages would still be very incomplete. The consumption of corn by stock, owing to the high price of meat, will undoubtedly largely increase for many years to come, which renders it more particularly requisite to make a provision to secure a proper return of it. Certainly these returns, affecting the averages to ever so small an amount on a total so large as the tithes of England and Wales, producing last year no less a sum than four millions sterling, deserve to be carefully looked after, even if the expenses of collecting them should be considerably more than they are under the present unsatisfactory manner of taking them. The average of the last 28 years was 101*l.* 1*s.* 7½*d.* It were better to have no returns at all, and pay a fixed yearly amount for tithes, rather than be subject to such variations as the present imperfect machinery produces. It is now 20 years since the introduction of the corn returns, during which time it has remained *in statu quo*—no inquiry has been made by the Legislature as to its merits or demerits. Surely it cannot be that it is so complete in its working that it requires no amendment, nor is it a defect but recently discovered. The Journal of this Club will show, that as far back as 1854, and again in 1856, the same complaints were brought against them as have been mentioned this evening, and that the Board of Trade were made cognisant of it through the deputation that waited on that honourable Board.

Reviews.

Nesbit's Practical Land-Surveying. Eleventh Edition, edited by William Burness, F.R.A.S. Longmans.

A new edition of this standard work has just been issued, re-written to some extent and re-edited throughout by Mr. W. Burness. It is an extremely comprehensive and elaborate work—the practical instructions which are given and illustrated in great detail are prefaced in every case by a discussion of the theorems on which they are founded—so that both the science and practice of surveying and of computation as applied to both the quantity and value of land, are very fully given.

Mr. Burness has done good work as editor, re-writing, correcting, and supplementing as was occasionally required, and fully justifying the reputation which as a veteran agricultural writer he had already in many ways acquired.

Farm Memoranda.

Hale Hall, near Warrington.—Mr. J. I. Blackburn's farm contains 242 acres—namely 48 acres in pasture, 86 acres meadow and Clover mown, 32 acres Wheat after root crops, 33 acres Oats, 10 acres Barley, 2 acres Vetches for stall feeding, 15 acres Potatos, 3½ acres Turnips, 4½ acres Mangel, garden 1 acre, homestead, occupation roads, and plantations. Customary rotation—1st, Oats; 2d, root crops; 3d, Wheat; 4th Barley, with seeds for lying two or more years. Live stock consists of 10 horses, 4 colts, 15 dairy cows, 7 heifers, 300 sheep and lambs, 30 pigs, and 4 rearing calves; total, 370.

About 250 tons of manure made annually at home, and purchase annually about 250 tons of horse and cow manure, and 70 of night soil, 11 tons of Peruvian guano, and 1 ton of prepared bone manure. Little draining has been required since the last prize was awarded for this farm.

This farm lies in a very early district; is a deep good sandy loam, very suitable for producing root crops. The surface is nearly level, with good roads through it. Lies within the range of first-class markets for disposing of produce, and of procuring manure in return. The fields are large, of proper shape, and well arranged, with good gates and posts to each. Most of the permanent improvements had been made previous to obtaining a premium for the farm some years back, but the cultivation, in many respects, is much improved. The root crops could not look more healthy or vigorous, and perfectly clean, except a small extent of early Potatos. There had been 10 acres of these; but, when inspected, the produce of 4 acres had gone to market, and the land planted with Mangels. The operation of taking up the Potatos and replanting the land were proceeding day by day then; the weight of produce and the quality very good.

The Oats and Barley very superior crops, both in height, thickness, and uniformity. Oats near 5 feet high, 27 acres of these were on a lay furrow, and, we were told, had been harrowed when 4 inches high, and had produced a good effect. 27 acres of Wheat a heavy crop, of good colour, and then stood well. A 5-acre lot of many new varieties, most of which were heavy crops. A small portion of "Hallett's Pedigree" was well headed, but thin on the ground, but the heads not so large as that represented in the supplement of the *Mark Lane Express*.

The Clover and seeds of 1st, 2d, and 3d years' lying, and mown, showed evidence of heavy produce of good herbage. The old pasture productive, and without weeds. The homestead in good keeping, with a very respectable stack-yard of new and old hay. The same

may be said of the implements and live stock, the same being of a useful description. We have no doubt but the cultivation and management of this farm is remunerative, both as to rent and profits, the manager being a man of both perseverance and judgment.—*Manchester and Liverpool Agricultural Society's Journal.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	April. 29	30.10	49	46	N.	0	8	49	37	55	31	..
Saturday ..	30	30.14	51	47	N.W.	1	10	62	42	76	37	..
Sunday ..	May 1	30.10	53	52	N.W.	1	0	58	42	68	29	..
Monday ..	2	29.84	58	56	W.	2	10	63	51	76	49	0.09
Tuesday ..	3	29.72	60	56	N.W.	4	6	64	53	70	49	0.01
Wednesday	4	29.82	50	49	S.E.	1	10	62	47	74	46	0.19
Thursday ..	5	29.92	50	49	S.W.	1	10	53	46	59	45	0.06

Calendar of Operations.

MAY.

West Sussex: *April* 26.—Corn sowing is all over, and the earlier sown up and looking well; and so is the Wheat generally, though much of it is too thick, and with dry weather in May will get very much checked. We have not been able to get through with the spring work so lightly as we expected, as much of our heavy land got so close together that the harrows took little impression on it, and the heavier ones had to be used. The fallow land works well, and though work has been rather behind, we are likely to get all up before root sowing commences. It is now time to sow Mangel, but we find that nothing is gained by sowing sooner, as the land is cold, and the seed lies long in the ground, and perhaps the first week in May is sufficiently early; we do not think that there will be so great a breadth sown, as it rather loses in favour, though it is more convenient for keeping in store than any other root, yet we begin to think that except as a reserve for hard weather or about lambing time, and perhaps for the ewes and lambs just before they go on the Clovers for a fortnight, we need not have more. It is a heavy job to cart off in the autumn, and sometimes the land, being wet, is very much cut up with it, and corn crops do not succeed well after it generally, especially where it has come on the same land a second time; and we are disposed to depend more on Swedes and Turnips as the mainstay. We have had a fine shower to day that was much wanted, and the pastures will soon be fit to turn cut upon; they are backward, and so are the Clovers, which are not generally a good plant, especially on the richer lands, for it is usual to get a better plant on stiff clay land than is got on superior rich land. Sheep have done pretty well, and lambs till lately were dear, but they now come rather fast for our demand, and they will have to be sent to London pretty freely. The quality is generally good, and the prices range from 32*s.* to 40*s.* for lambs; a great many of the fat sheep are now sold out of their wool. The market is well supplied with cattle, both fat and lean, and prices are high; and there is no doubt but the new "cattle disease" bill will be useful, and it is high time to have it, for matters were got so bad that we were afraid to send healthy stock to market, lest not being able to sell we should bring home disease, and the same was the case in purchasing, it being very common to get home disease among them. And now there will be more care taken of cattle by dealers, and they will be offered to us in better condition and healthy, and though we shall have to buy dearer, they will be worth more, and so I think it will be better for all parties. *G. S.*

Notices to Correspondents.

Cow: *J A.* An answer to your letter has been delayed by illness, and we have not yet had Mr. Spooner's advice. If you will send your full address to the Editor at Streatly, Reading, he will forward it as soon as received. In the meantime we may say the calomel and opium seem indicated by the failure of the simpler remedy.

Fences: *W.* Wooden fencing as protection to Quicks during the first five or six years of their growth is we presume in the long run still the most satisfactory fence.

Yorkshire and Chinese Breeds of Pigs: *Civis* asks where a boar of the former and sows of the latter kind are to be had near London.

THE HYDROPULT,

THE HYDROPULT
Is invaluable for use in the
GARDEN
FOR
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
ETC., ETC.



THE HYDROPULT
Is desirable in every
HOUSEHOLD
FOR
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
ETC., ETC.

AN INVENTION FOR THROWING WATER BY HAND POWER.

SECURED BY ROYAL LETTERS PATENT.

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR, **32s. 6d.**

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanized Wire Strainer, Rose, and Small Jet. Complete as above, with Copper Stirrup, TWO GUINEAS. Packing Case, 1*s.* extra.

Weighs but 8 lbs.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

There are among Amateurs and Professors of Horticulture, differences of opinion as to the excellency and applicability of Gardening Implements. Some adhere to old devices, bitterly denouncing any innovations on ancient customs; and either from MALICE or prejudice, when governed by a spirit of EGOTISTICAL CONCEIT, criticize in a most unfair and unjust manner an Implement, the merits of which they are not capable of appreciating. In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited editorials from gentlemen, whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerable more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only eight pounds, and can be worked by a boy of moderate strength for some hours in succession without fatigue. The mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measures 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

The Hydropult has been recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain. Ordered by the War Department as Fire Engines.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

Prospectus, with Testimonials, sent Free on application.

CHARLES P. BUTTON, PROPRIETOR,
HYDROPULT SHOW ROOM, 27, LEADENHALL STREET, LONDON, E.C.

GREEN'S PATENT SILENS MESSOR,

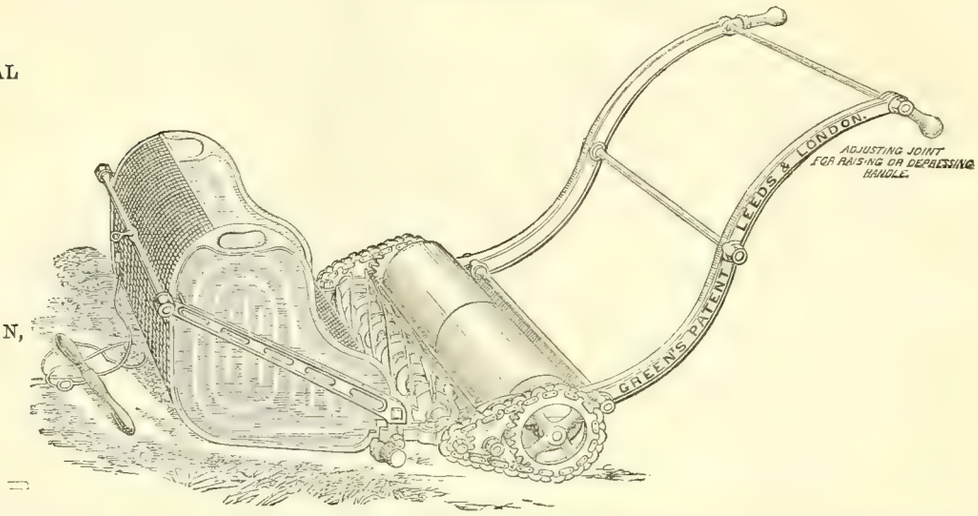
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

To Cut	10	inches	...	Price	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	Price	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

To Cut 42 inches ... ... £27 0 0 ... ... Leather Boots for Horse, 26*s*.
„ 48 „ ... ... 30 0 0 ... ... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

With regard to Messrs. SHANKS & SON'S attack upon us, we beg respectfully to refer them to our reply, which has appeared several times in this Paper.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

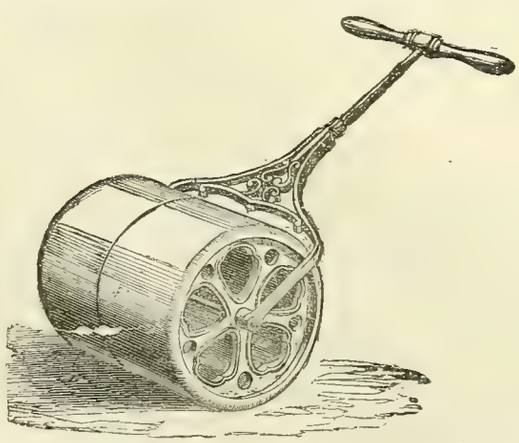
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter	30	inches;	length	32	inches	£7	10	0
„	24	„	„	26	„	4	10	0
„	20	„	„	22	„	3	10	0
„	17	„	„	16	„	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

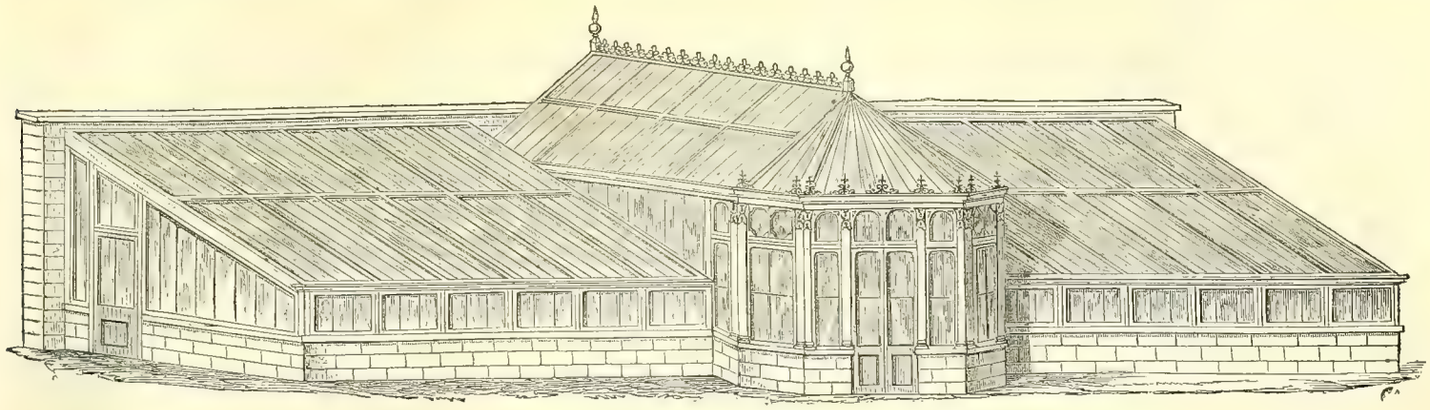
SUITABLE FOR PONY OR HORSE POWER.

Diameter	30	inches;	length	32	inches	£10	0	0
„	30	„	„	36	„	10	15	0
„	30	„	„	42	„	11	15	0
„	30	„	„	48	„	13	10	0
„	30	„	„	60	„	15	10	0
„	30	„	„	72	„	17	10	0
„	30	„	„	84	„	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

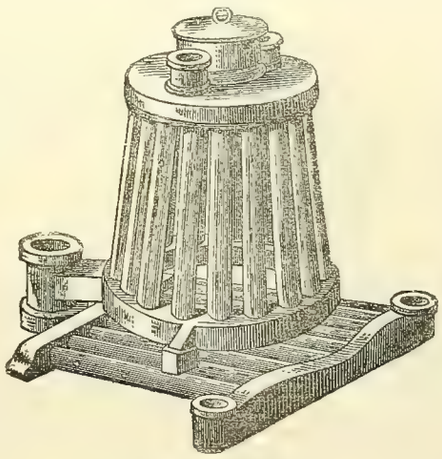
The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION,





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

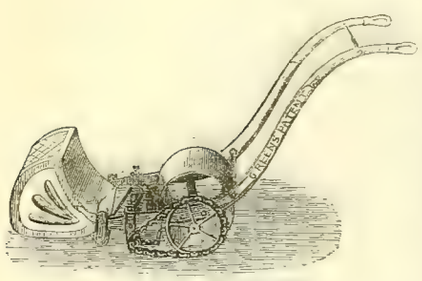
Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 50*s.*, 70*s.*, 90*s.*, 110*s.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*
GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.* 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*
GALVANIZED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s.*
GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*
BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

LAWN MOWERS.
GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT

Every Implement for Garden use on the lowest terms.

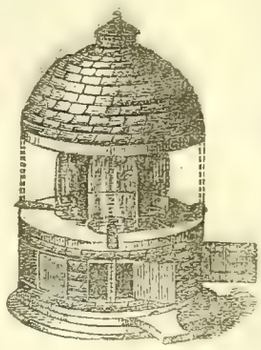
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ESTABLISHED A.D. 1700.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Bee Hives.
PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. AND SONS, FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.

Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.

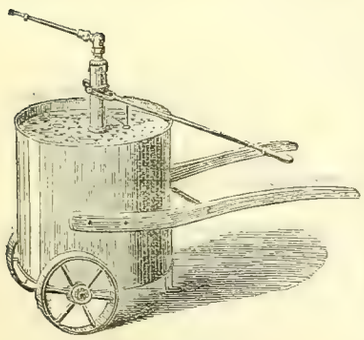
Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.

Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.

Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square, Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: J. EDMONDSON & Co., 61 Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'
GALVANISED IRON GARDEN ENGINE,
WITH REGISTERED SPREADER.

10 gallons	...	... £2 15*s.*
16 „	...	... 3 15*s.*
24 „	...	... 5 0*s.*



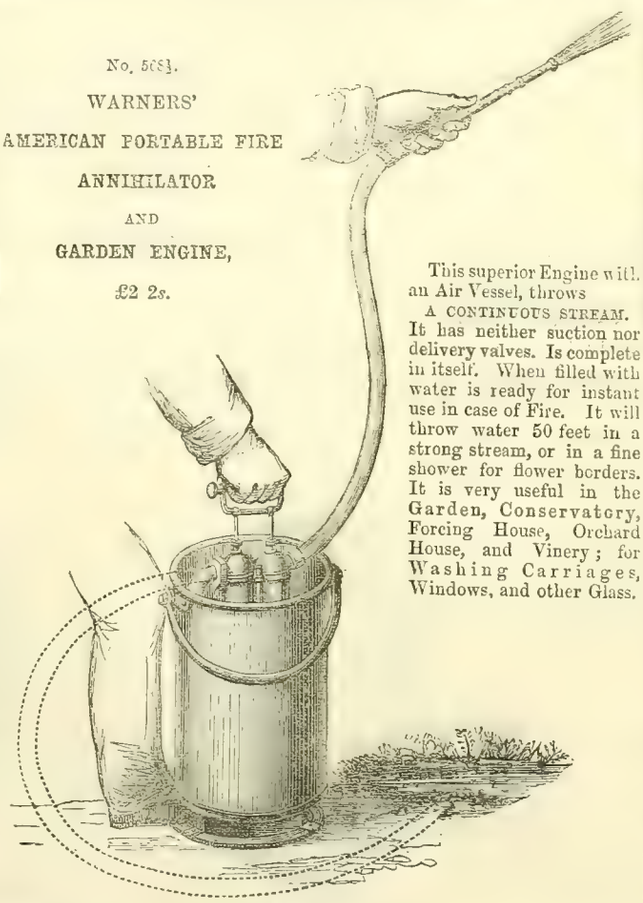
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WARNERS'
PATENT IRON PUMPS.

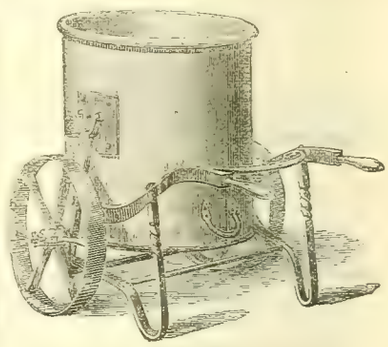
2½ inch	...	... £1 10*s.*
3 „	...	... 2 4*s.*
3½ „	...	... 2 9*s.*
4 „	...	... 2 18*s.*
2½ inch, with short barrel	...	1 1*s.*

No. 568½.

WARNERS'
AMERICAN PORTABLE FIRE
ANNIHILATOR
AND
GARDEN ENGINE,
£2 2*s.*



This superior Engine with an Air Vessel, throws
A CONTINUOUS STREAM.
It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 570½.

WARNERS'
SWING WATER BARROW.

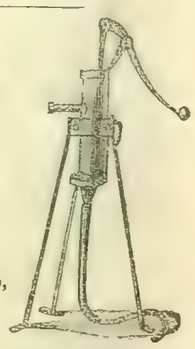
20 gallons	...	... £2 0*s.*
35 „	...	... 2 10*s.*

Saves a gardener's time when used with the water pot.

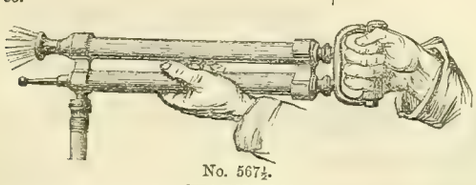
WARNERS'
PORTABLE LIQUID
MANURE PUMP,
WITH LEGS,
£2 15*s.*

Do. for fixing to cart,
£2 5*s.*

Suction Pipe for Pump,
2*s.* 5*d.* per foot.



No. 42.



No. 567½.

WARNERS'
IMPROVED PATENT DOUBLE ACTION SYRINGE,
with 5 feet of flexible Suction Pipe, 21*s.*
Is much improved since last season.
It economises a gardener's time.
To draw from a water-pot, pail, or other vessel.



No. 590.



No. 557A.

WARNERS' REGISTERED DISC-VALVE SYRINGE. 9*s.*
FILLS QUICKLY AND EASILY.
It is well adapted for the gardener or amateur.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*

Fountain designs in great variety. Can be supplied from a cistern or main.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

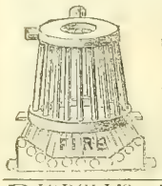
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to

Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

Heating by Hot Water.



JOHN TOOLEY, late 21 years with J. WEEKS & Co.

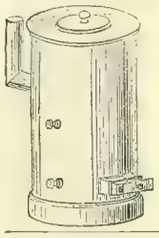
TUBULAR BOILERS,

All Sizes on the most Improved Principles, Valves, &c.

References in England, Ireland, and Wales.

JOHN TOOLEY, 9, Radnor Street, King's Road, Chelsea, S.W.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2 inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

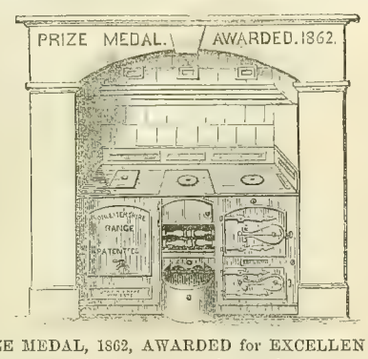


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLEN CE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole Heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

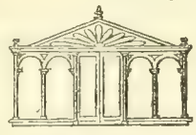
Extracted from the *London Daily Telegraph*, May 19, 1862.

"INTERNATIONAL EXHIBITION, Class 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side*; and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester. Agents for London: BARRON, SON, & WILSON, 436, Strand, W.C. Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

West of England, Ireland, and Wales.



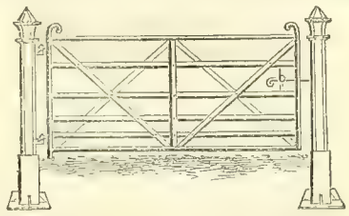
VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER



SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

ENTRANCE GATES, either in Wrought Iron or Cast and Wrought Iron combined, ranging from the ordinary Field Gate to the most elaborate design.



IRON RAILING of various designs. FENCING of every description. All kinds of HURDLES, &c.

Drawings and Prices free on application to COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Residence and 200 Acres of Land.

TO BE SOLD, by Private Treaty, a Gentleman's RESIDENCE, in the West of Ireland, with 200 acres of Land, situate about 5 miles from a first-class Railway Station. The House is a modern stone building, and affords good accommodation for a family. The Furniture, which is ample, will be included in the Sale. The neighbourhood affords good Sporting and Fishing, and Fox Hounds and Harriers are within a short distance. To any Person desirous of settling in Ireland, this affords a favourable opportunity.

Particulars and price to be had of Mr. VIGERS, Land Agent and Surveyor, 3, Fredericks Place, Old Jewry, London, E.C.

TO BE DISPOSED OF, an OLD ESTABLISHED SEED and NURSERY TRADE, with an extensive connection in a good and increasing Market Town, on a line of Railway in the Eastern Counties. The Nursery, with Greenhouses and Pits, stocked with the Choicest Fruit Trees, Ornamental Trees, Greenhouse and Bedding Plants, &c., offers an advantageous opportunity to any practical industrious person, with a small capital, and will be disposed of either separately or with the Seed Business.

N.B. An advantageous opening for doing a good Corn Trade, in connection with the Seed Trade.

Apply to Messrs. HURST & SON, 6, Leadenhall Street, London.

Park Nurseries, Singleton Brook,
HIGHER BROMPTON, MANCHESTER.

TO BE LET, on LEASE, these well-known NURSERIES, established upwards of 70 years, belonging to the Executors of the late William Lodge, and situated in the best part of Manchester, containing Hothouses, Greenhouses, Propagating, Specimen and Show-houses, covering upwards of 5000 square feet of Glass (exclusive of Pits and Frames), the greater part Heated by Hotwater on an improved principle. The Plant Stages are built on brick arches, with the Hot-water Pipes going through them, and are well adapted for Forcing Mushrooms, Rhubarb, Seakale, &c., which find a ready sale. There is also a good SEED SHOP, well fitted up with Drawers, Mahogany Counter, &c.; Private Office, Packing and Potting Sheds, and Cottage for a Foreman. The premises are well supplied with Water, and well stocked with Trees, Shrubs, and a good collection of Stove, Greenhouse, and Herbaceous Plants, which may be taken at a valuation at the option of the Tenant.

For further particulars apply to JAMES LODGE, 2, Union Street, Church Street, Manchester.

Sales by Auction.

Important Sale of New Plants.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. STANDISH and FORTUNE having nearly terminated) to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 11, at half-past 12 o'Clock precisely, a splendid assortment of NEW HARDY PLANTS, never yet been offered to the public, comprising—

Clematis Fortuni and Standishii	Weigela hortensis nivea
Lastrea Standishii	Camellia japonica variegata
Selaginella involvens	Thujopsis Standishii
Tricyrtis grandiflora	Maples (many curious and distinct varieties)

As well as a number of choice and rare Plants.
More detailed Particulars in the Catalogues.

Woolwich.

STOVE, GREENHOUSE, AND ORNAMENTAL PLANTS, HORTICULTURAL BUILDINGS, &c., THE PROPERTY OF THE LATE DR. BUTLER.

MR. J. C. STEVENS begs to announce that he has received instructions from the Executrix and Trustees of the late Dr. Butler, to SELL by AUCTION, on the Premises, 49, Rectory Place, Woolwich, on WEDNESDAY, May 18, at half past 12 o'Clock precisely, the Choice COLLECTION of STOVE and GREENHOUSE PLANTS, including Camellias, Azaleas, Fuchsias, Pelargoniums, Liliums, and a variety of other Plants, together with several Stove and Greenhouses and other Horticultural Buildings.

On view the day before the Sale. Catalogues had on the Premises, and of the Auctioneer, 38, King Street, Covent Garden, London, W.C.

Walworth.

TO TULIP GROWERS AND OTHERS.

MR. J. WILLMER begs to announce that he is instructed by Mr. J. Cook to SELL by AUCTION on the Premises, 43, Amelia Street, Walworth, S., on TUESDAY, May 17, at 12 o'clock, a Choice and Valuable Collection of TULIPS, comprising all the leading flowers of the day.

Catalogues ready after May 5, and may be had on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury, S.W.

Mile End Nursery.

ANNUAL SALE OF 10,000 BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION on the Premises, Mile End Nursery, Bow Road, Middlesex, E., from THURSDAY, May 12, to THURSDAY, the 19th, at 12 o'clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of handsome Show, Scarlet and Variegated Geraniums, Azalea indica, Herbaceous and Shrubby Calceolarias, Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Cuphea, Pyrethrum, Gazania, Perilla, Alyssum, Ageratum, Phlox, Œnothera, Senecio, Mimulus, Intermediate Stocks, Cobœas, Antirrhinum, Tropœolum, Eccremocarpus, Lophospermums, Maurandyas, Chrysanthemums, Climbing and other Roses, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

First-class Carnations, Picotees, Bedding Plants, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, May 13, at 12 o'Clock, First-class CARNATIONS and PICOTEES, Show, Fancy, and Scarlet GERANIUMS, AZALEA INDICA, CALCEOLARIAS, and other Plants in bloom, with a large and choice assortment of Ornamental Plants for Bedding out.

May be viewed the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Clearance Sale, Stoke Newington Road.

40,000 BEDDING AND GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Eden Nursery, Stoke Newington Road, N., about 10 minutes walk from Kingsland Railway Station, on TUESDAY, May 17, at 12 o'Clock precisely without reserve, by order of Mr. Seabrook, the ground being immediately required for Building purposes, the whole of the valuable Stock, consisting of upwards of 40,000 BEDDING and GREENHOUSE PLANTS; viz., 12,000 Lobelia speciosa, 2000 Choice Fuchsias, 4000 Verbenas, Scarlet and Variegated Geraniums, 8000 Calceolarias aurea floribunda and others, Heliotropes, Petunias, &c., Show and French Pelargoniums, Cytisus, and other Plants in bloom, 1000 fine Cyclamen, Passiflora and Honeysuckles, Lophospermum, Ecremocarpus, &c.

May be viewed four days prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of 25,000 Bedding Plants.
HORNSEY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on WEDNESDAY, May 18, at 12 for 1 o'Clock precisely, at St. Mary's Nursery, adjoining the Compasses, Hornsey, and a few minutes walk from the Railway Station, 25,000 BEDDING PLANTS, CLIMBERS, &c., all of the newest and choicest kinds.

Catalogues of Sale may be obtained at the Nursery; at the principal firms in the neighbourhood; of the Auctioneers, at the American Nurseries, Leytonstone, Essex; and will be sent free by post on application to Mr. TOWNSEND, at the Nursery.

Mile End Nursery.

ANNUAL SALE OF 10,000 FIRST CLASS BEDDING & OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will submit to PUBLIC COMPETITION by AUCTION, on the Premises, Mile End Nursery, Bow Road, Middlesex, E, and within five minutes walk of the Bow Railway Station on the North London Line, on THURSDAY, May 19, at 12 o'Clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of very handsome Show, Scarlet, and Variegated Geraniums, Azalea indica, Herbaceous and Shrubby Calceolarias, Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Cupheas, Pyrethrum, Gazania splendens, Perilla nankinensis, Nierembergia, Variegated Alyssum, Ageratum mexicanum, Phlox Drummondi and Leopoldii Œnothera, Senecio, Intermediate Stocks, Climbers, &c.; together with some Ornamental Rustic Seats, Gothic Chairs, Tables, Lawn Baskets, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Eagle, Snaresbrook; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Camberwell.

26,000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. G. Wells to SELL by AUCTION, on the Premises, Grove Nursery, 9, Grove Place, Coleman Street, near St. George's Church, Camberwell, S., on SATURDAY, May 21, at 12 o'clock, about 26,000 GREENHOUSE and BEDDING PLANTS, including 6000 fine Show, Fancy, and French Pelargoniums, 6000 Scarlet and Variegated Geraniums, Herbaceous Calceolarias, Acacia Mimosa, Oleanders, Cytisus, Calla æthiopica, Hydrangeas, and other Plants in bloom; also 10,000 of the best Varieties of Verbenas, 1000 Heliotropes, Fuchsias, Cupheas, Gazanias, Petunias, Shrubby Calceolarias, Climbing Plants various, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Stoke Newington.—Important Sale.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

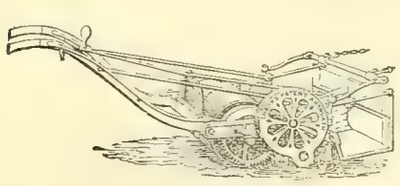
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. H. Bird, having Let his Premises, to Submit for Unreserved SALE by AUCTION, on the Premises, The Nursery, Green Lane, Stoke Newington, N.E., on MONDAY and TUESDAY, May 23 and 24, at 11 o'Clock each day, the whole of the valuable Stock of GREENHOUSE PLANTS, consisting of many thousands of Tom Thumb, Variegated, and other Geraniums; 10,000 Cyclamen persicum; 1000 Passifloras of sorts; Vallota purpurea; all kinds of Bedding-out Plants in considerable quantities; well-grown Honeysuckles and Climbing Roses in Pots; Acacias, Deutzias, Ficus elastica; 150 dozen of the old English Cloves in Pots; 500 Arbor-vitæ, 3 feet high, with many thousands of smaller ditto for planting out; several hundreds of strong Lilium lancifolium rubrum, in pots. Also the entire Collection of Large-flowering and Pompon CHRYSANTHEMUMS, in pots, embracing all the leading kinds, for which this Nursery has been so long celebrated; 1000 fine Double CAMELLIAS, beautifully grown, including fine young specimens of Double White, imbricata, and other leading sorts; Azaleas, &c.; together with several hundred cast of Garden Pots; a useful Cob Horse, seven years old, handsome and fast; a nearly new Market Van, capital Dog Cart, Tumbril Cart, three sets of good Harness; a well-known Pony, with Chaise and Harness; Water-pots, Wheelbarrows, and other effects.

May be viewed prior to the Sale. Catalogues may be had 6*d.* each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

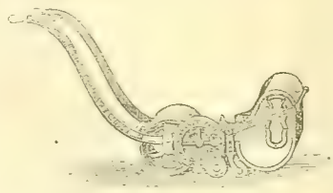
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & Son have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & Son have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY
HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK

THE RIGHT. HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
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The Right Hon. Countess de Morella
The Right Hon. Viscount Seaham
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Duncan
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The Right Hon. Lord Monck
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The Right Hon. Lord Kinnaird
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The Hon. Percy Barrington

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1864.] SATURDAY, MAY 14. { Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
A MEETING of this COMMITTEE will take place on TUESDAY, May 17, at 12 o'clock. The Subjects for Examination must be at the Meeting Room by 11 o'clock, A.M.
THOS. MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY,
SOUTH KENSINGTON.
LECTURE on TUESDAY NEXT, May 17, on FERNS, by Mr. MOORE, to commence at Three o'Clock.

ROYAL BOTANIC SOCIETY'S GARDENS,
REGENT'S PARK.
FIRST EXHIBITION of PLANTS, FLOWERS, and FRUIT this Season, SATURDAY NEXT, May 21. Tickets to be obtained at the Gardens only by Orders from Fellows of the Society, price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each. Wax and other Models of Flowers and Fruit will be exhibited at the same time. The Gates open at 2 o'Clock.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40*l*. will be awarded for Cut Roses in the various classes.
For Particulars, apply to the Secretary, Mr. WM. PENN COX, 37, Market Place, Leicester.

Notice.
JOHN WATERER'S EXHIBITION of RHODODENDRONS, &c., will be on view at the Royal Botanic Gardens, Regent's Park, throughout the month of June. American Nursery, Bagshot, Surrey.

Notice.
JOHN WATERER has great pleasure in announcing that his COLLECTION of Hardy Scarlet and other RHODODENDRONS is now coming finely into BLOOM. (The earlier varieties are just now in great beauty). Admittance gratis; Sundays excepted.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, S. W. R.

J. IVERY AND SON beg to announce that their fine collection of AZALEA INDICA is NOW in BLOOM; also that their collection of HARDY FERNS will be found very interesting. An inspection is respectfully solicited.
Dorking Nursery.—May 14.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

VINES.—Strong planting CANES of all the leading varieties, at 3*s*. 6*d*. each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, and to be the finest in cultivation.
Also a fine stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Melon Seeds.
MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2*s*. 6*d*.
JOSEPH MEREDITH, Vineyard, Garston, near Liverpool.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

Plants and Plant Cases for Table Decoration.
BARR AND SUGDEN'S KEW, MEXICAN, and HORTICULTURAL PRIZE CASES, elegantly filled with Assorted Plants, 10*s*. 6*d*. to 105*s*.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

WM. POLLARD has for Sale a large quantity of fine 1-year old JUNIPERUS COMMUNIS at 2*s*. per 100, or 15*s*. per 1000; also a few hundreds of ARABIS VARIEGATA, at 12*s*. per 100, good plants.
Ferrybridge Nursery, York.

Genuine Seeds, Carriage Free.
B. S. WILLIAMS,
NURSERYMAN and SEEDSMAN,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

ESTABLISHED 1800.
Ripon and Claro Seed Establishment.
WILLIAM MORTON, Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Hybrid Perpetual Rose, Lord Clyde.
PAUL AND SON have much pleasure in recommending this ROSE, it having proved itself to be very fine during the past spring. See reports of Exhibitions. Strong plants, 5*s*. each. Old Cheshunt Nurseries, N.

The New Roses for 1864.
SEVERAL THOUSANDS of splendid PLANTS now ready. For List of Sorts and Prices, apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Roses for 1864.
H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36*s*. per dozen.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

NOW READY, the NEW ROSES of 1864.
12 of the newest and most vigorous for 36*s*.
DESCRIPTIVE LIST, free on application.
RICHARD SMITH, Nurseryman, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL'S Nurseries, Waltham Cross, N.

New Roses of 1864.
ROYAL HORTICULTURAL SOCIETY'S FIRST PRIZE.
PAUL AND SON have now ready Fine Plants of the above, fit to travel.
DESCRIPTIVE PRICED LIST on application.
"Old" Cheshunt Nurseries, N.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 5*s*. 6*d*. p. oz.
JAMES WOODS, Florist, Harwich, Essex.

CENTAUREA RAGUSINA (C. CANDIDISSIMA), 1*s*. each, special prices per 100 or 1000 on application.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Dahlias, &c.
C. E. ALLEN has a large Stock of the above, fit for immediate planting, at low prices. CATALOGUES on application.
Shacklewell, near London, N.E.

GLEICHENIA HECISTOPHYLLA.—Good strong Plants of this fine Fern, 1½ to 2 feet high, 31*s*. 6*d*. to 42*s*. and 63*s*. each.
SCHIZOSTYLIS COCCINEA.—Now ready, 5*s*.
GASTRONEMA SANGUINEUM, 7*s*. 6*d*.
JAMES BACKHOUSE & SON, York Nurseries.

Extra fine Bedding and Other Plants.
EDWIN COOLING begs to call attention to his stock of the above, which is unusually fine. The CATALOGUE, containing full particulars of height, colour of flower, price, &c., free on application.
Mile Ash Nurseries, Derby.

Dahlias and Bedding Plants.
JAMES FAIRHEAD AND SON beg to state that their CATALOGUE of the above is now ready, and can be had post free on application.
7, Borough Market, London, S.E.

New Seedling Verbenas.
J. JEFFRIES AND SON are now sending out Strong Plants of the above, 3*s*. 6*d*. per Plant, or the set for 10*s*. 6*d*., to the Trade only. For description, see *Gardeners' Chronicle*, April 23.—Woodbridge, Suffolk.

W. HOLMES'S CATALOGUE of CHRYSANTHEMUMS, DAHLIAS, GERANIUMS, FUCHSIAS, PETUNIAS, VERBENAS, ANTIRRHINUMS, &c., is now ready, and can be had upon application.
Frampton Park Nursery, Hackney.

Skirving's Swede. Sutton's Selected Stock.
Price 8*d*. per lb., or cheaper in large quantities.
SUTTON AND SONS have a Choice Stock of SKIRVING'S SWEDE SEED, growth of 1863, which they can strongly recommend.
Royal Berkshire Seed Establishment, Reading.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON AND SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 8*d*. per pound, or 30*s*. per bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS Post Free.
Royal Berkshire Seed Establishment, Reading.

Turnip Seeds Direct from the Growers.
CHARLES SHARPE AND CO., SEED GROWERS, Sleaford, have to offer superior Stocks of TURNIP and SWEDE SEED, the produce of their own Seed farms, and saved from fully developed roots.
Price to the Trade on application.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. DIXON & SONS, 57, Queen Street, Hull.

IMPROVED SCOTCH GREEN-TOP YELLOW TURNIP.—100 bushels splendid Stock. No objection to exchange a few Bushels for the DEVONSHIRE GRAY-STONE TURNIP.
Apply to E. P. DIXON & SONS, 57, Queen Street, Hull.

WANTED, SCOTCH CABBAGE PLANTS.—State Price, &c., to JOSEPH GREEN, Nursery, &c., Garforth, near Leeds, Yorkshire.

To Gentlemen, Nurserymen, and Others.
J. GAINES begs to offer GREEN GLOBE ARTICHOKE PLANTS, at 25*s*. per 100. A good discount to the Trade.
All Orders must be accompanied with Post Orders payable to JOHN GAINES, Herbalist, Covent Garden Market, London.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

RICHARD SMITH'S RENOVATING GRASS SEED should now be Sown, at a cost of 6*s*. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
RICHARD SMITH, Seed Merchant, Worcester.

Cheap Grass Seeds for Hill Sides and Railway Banks.
ROUGH GRASSES, SAINFOIN, SIFTINGS, &c., suitable for the above purpose, at 2*s*. per bushel and 3*d*. per lb.
Address RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

FOR SALE, 100,000 well-grown PLANTS, from 2*s*. per dozen, at Clifton Nursery.
C. ELWIN & Co., 5*a*, Clifton Villas, Maida Hill, W.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2*s*. 6*d*.; 15 do., 3*s*. 6*d*.; 25 do., 5*s*. 6*d*.; 50 do., 15*s*.; 100 do., 30*s*.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one stamp.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

HENRY COOK, FLORIST, &c., Woodhouse, near Sheffield.—CATALOGUE of DAHLIAS, FUCHSIAS, VERBENAS, GERANIUMS, and PANSIES, and other Bedding Plants. is now ready, and will be forwarded on application.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.
J. SCOTT'S FLOWER GARDEN DIRECTORY, 88 pages, is replete with information on Summer, Autumn, Winter, and Spring Gardening. Copious LISTS of all the best Flowers suitable for each season are given, price 6*d*.
Merriott, Crewkerne, Somerset.

MESSRS. DILLISTONE AND CO., of the Sturmer and Woodlands Nurseries, Essex, beg to inform their patrons that their CATALOGUE (44 pages) for the Spring and Autumn of 1864, of BEDDING and other PLANTS, can be had gratis, and to new applicants upon receipt of one stamp.—May 7.

New Chrysanthemums.
JOHN SALTER is now sending out his NEW CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c.
A DESCRIPTIVE CATALOGUE will be sent on receipt of two postage stamps.
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

NEWSPAPER

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

HERBACEOUS CALCEOLARIA, &c., SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*

CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes superb strain. Sealed Packets, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*

HUNT'S SWEET WILLIAM.—Sealed Packets, 6*d.* and 1*s.*

SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1*s.* and 2*s.* 6*d.*

PANSY.—From best named varieties. Sealed Packets, 1*s.* and 2*s.* 6*d.*

And every other first-class Seeds. See CATALOGUE, post free.

WM. CUTBUSH & SON, Highgate Nurseries, London, N.

Indian Azaleas.

WILLIAM BARNES has the largest and most healthy stock of the above favourite plants to offer for sale, comprising the finest specimens, suitable for exhibition in this or any other country, as well as many thousands of smaller dimensions, from three-quarter and half specimens down to small plants, all properly shaped to form symmetrical specimens, and finely set with bloom. Any person forming a collection or increasing their present one will do well to visit this Nursery, where every variety up to the present date worth cultivating will be found, the whole grafted upon the stock that W. B. has proved so admirably adapted to them, after many years close observation.

PRICED LIST will be forwarded upon application post free.

Camden Nursery, Camberwell, S.—May 7.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S FARMER'S VADE-MECUM.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2*s.* each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5*s.* to 7*s.* 6*d.* each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7*s.* 6*d.* each.

PRINCESS of WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7*s.* 6*d.* each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2*s.* 6*d.*

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H. P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36*s.* to 42*s.* per dozen. Fine vigorous plants of the old and popular sorts, 9*s.* to 18*s.* per dozen.

PAUL'S Nurseries, Waltham Cross, N.

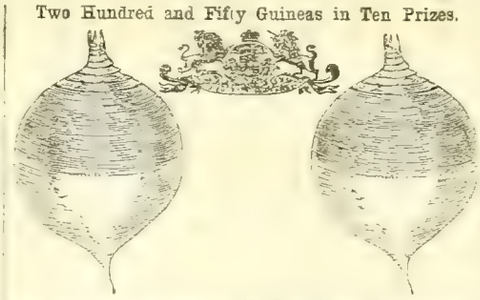
Camden Nursery, Grafton Road, Kentish Town, London.

THOMAS ANSELL having established his Nursery as above (in consequence of the expiration of the Lease of his former one), begs to acquaint the Trade and the public generally, that his CATALOGUE for 1864 is now ready, and may be had on application; it will be found to contain a first-class Collection of DAHLIAS, GERANIUMS, CHRYSANTHEMUMS, FUCHSIAS, VERBENAS, Choice PETUNIAS, and Select AZALEA INDICA, &c.; also a very large Stock and assortment of General BEDDING PLANTS, for which he begs to solicit the favour of early orders, which shall receive his best attention, be carefully packed and forwarded to any part of the Kingdom.

DAHLIAS in sound pot roots, in great variety, expressly adapted for exportation, kept in stock throughout the autumnal, winter, and early spring months.

References required from unknown correspondents, and Post-office Orders to be made payable at the Post Office, Brecknock Place, Camden Town, N.W.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the ROYAL EAST BERKS and SOUTH BUCKS AGRICULTURAL SOCIETIES, and many other valuable Prizes in various PARTS of the Kingdom.

EXTRACTS from LETTERS received:—

R. MILWARD, Esq., *Southwell.*

"Your Champion Swede proved most excellent."

J. W. J. BARTRAM, Esq., *Little Weedon.*

"Your Champion Swede has given great satisfaction, having been a splendid crop, and kept well through the severe frosts."

Mr. THOMAS EDWARD WRIGHTON, *Bradninch*

"My crop of Champion Swedes was the best in the neighbourhood, and kept well; also the Mangel."

Mr. JOHN ALLEN, *Faringham.*

"I was awarded the Prize for your Champion Swede at the Dartford Agricultural Meeting. The competition was good, being contested by some of our largest growers and best farmers, and I have no doubt there will be a good demand for your seed in this district next spring."

Mr. F. S. GUNTON, *North Mimms.*

"I have sown Sutton's Champion Swede for the last three years from the seed I had of you, and I believe them to be the best sort of Swedes grown. I grew about 400 tons of them last year, and had many much heavier and finer than any I saw on your stand at the Smithfield Show. I was only sorry I did not send you some of them."

J. STRATTON, Esq., *Broad Hinton.*

"With your Champion Swedes I won a prize of 10*l.* last year."

Mr. THOS. B. PALMER, *Escrick.*

"Your Champion Swedes are as sound and as good in colour as the day I got them up; I have sufficient to last till the 12th of May."

Mr. G. PARLETT, *Bury, Petworth.*

"The Champion Swede Seed I had of you last year turned out first-rate—the best piece of Swedes I ever grew, which has induced my neighbours to buy some this year."

Mr. H. HAMMOND, *Market Place, Masham.*

"Your Champion Swede obtained the first prize at the Masham Show, the 10th of September last."

Mr. JOHN COLEMAN, *East Kennett.*

"Please send the same quantity of your Champion Swede Seed, as I never intend to grow any other sort while I can get yours."

Mr. J. B. REECE, *Harpswood.*

"I took the Shropshire Challenge Cup, likewise the Bridgnorth District Cup, with your Champion Swedes."

WM. SADLER, Esq., *Ferrygate, Drem.*

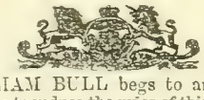
"The Champion Swede is cutting out everything here."

This celebrated variety still maintains its high character for hardiness, symmetry of form, and great weight per acre.

New Seed from Selected Roots now ready, 10*d.* per pound, or cheaper by the bushel, prices of which may be had on application. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Adiantum Feei.



MR. WILLIAM BULL begs to announce that he is now able to reduce the price of this distinct species to 31*s.* 6*d.* each.

Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

MYOSOTIS ALPICOLA, the ALPINE PERENNIAL FORGET-ME-NOT.—Far more dwarf and brilliant in colour than any other species. Forms "cushions of vivid blue," 2 to 3 inches high. Charming tufts just coming into bloom; 9*s.* per dozen; 50*s.* per 100.

PINGUICULA GRANDIFLORA (The Large Butterwort) true, 1*s.* each.

MYOSOTIS MONTANA, Early Spring Forget-me-Not; 6*s.* per dozen.

LINARIA ALPINA.—Lilac and fiery orange corymbs from prostrate silvery tufts. Blooming plants in pots, 4*s.* per dozen; 15*s.* for 50; 21*s.* per 100.

CALANDRINIA UMBELLATA.—Vivid magenta crimson, 3 to 4 inches. Flowering plants in pots, 4*s.* per dozen; 25*s.* per 100.

GOLD NETTED DAISY.—Fine high-coloured tufts; 4*s.* per dozen; 25*s.* per 100.

JAMES BACKHOUSE & SON, York Nurseries.

NEW and IMPROVED VARIETIES of PENTSTEMONS and ANTIRRHINUMS for 1864.

PENTSTEMONS.

GEORGE SMITH, 3*s.* 6*d.*; SIGNET, 2*s.* 6*d.*; GARIBALDII, 3*s.* 6*d.*; BEAUTY, a dwarf bedding variety, deep rose pink, pure white, open throat, 2*s.* 6*d.*

These four varieties are selected as the best of several Seedlings which were submitted to the West of Scotland, "Hort. Magazine," October 1863, and noticed as "altogether a superior lot, and deserving of place in the most select collections of this favourite flower."

ANTIRRHINUMS.

GERTRUDE, 2*s.* 6*d.*; NANNETTE, 2*s.* 6*d.*; CONSTANCE, 2*s.* 6*d.* The above three varieties are selected from a large number of Seedlings, which are mentioned in the October Number of West of Scotland Magazine, as "superior and distinct Seedlings, the colours being different from any we have seen." See also "Gossip of the Garden" for October, 1863.

PENTSTEMONS, by name, 6*s.* to 9*s.* per dozen.

PENTSTEMON COMPACTUM NANUM.—Brilliant deep crimson, compact habit, 12 inches, fine bedder, 6*s.* per dozen. Awarded Certificate by the Floral Committee, 1862.

ANTIRRHINUMS, by name, 6*s.* to 9*s.* per dozen.

Usual discount to the Trade.

DESCRIPTIVE LIST on application.

STUART & MEIN, Nurserymen, Kelso, N.B.

New Bedding Plant.



COLEUS MARMORATUS, one of the best and most distinct Novelties of the season, 10*s.* 6*d.* each, or Four Guineas per dozen.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New Plants for 1864.

B. S. WILLIAMS has much pleasure in offering the following Novelties for the first time, descriptions of which will be found in previous advertisements, and in his NEW PLANT CATALOGUE, post free to all applicants.

NEW ACHIMENES.

Purpurea elegans
Leopard
Magnet
Scarlet Perfection
Vivicans
Eclipse
} 7*s.* 6*d.* each, or the 6 for 42*s.*

NEW FUCHSIAS.

Neptune
Queen of Beauties
Gem of the North
Minotaur
} 7*s.* 6*d.* each

NEW SINGLE PETUNIAS.

Royalty
Purple Prince
Duchess of Northumberland
} 5*s.* each

NEW ZONALE GERANIUMS.

Display
Beauty
Royalty
} 5*s.* each

Paradise and Victoria Nurseries, Holloway, London, N.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1*s.*

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—*s.*	*d.*
CALCEOLARIA, HERBACEOUS, finest mixed	2	6
CARNATION, PERPETUAL FLOWERING, finest mixed	2	6
CINERARIA CRUENTA, finest mixed	2	6
PICOTEE, PERPETUAL FLOWERING, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2	6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil.

	Per Acre.
MIXTURE for Laying down to PERMANENT PASTURE	25*s.* to 30*s.*
MIXTURE for ORCHARDS or LAND shaded by Trees	24*s.* to 26*s.*
MIXTURE for PARKS and CEMETERIES	28*s.* to 30*s.*
MIXTURE for Improving OLD PASTURE	6*s.* to 8*s.*
MIXTURE for One, Two, or Three Years' Lay	15*s.* to 18*s.*
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1*s.*

PRICED LISTS may be had on application.

RICHARD SMITH, Seed Merchant, Worcester.

New Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury, begs to recommend the following splendid additions of New and First-class DAHLIAS, which have at all the Great Exhibitions excited such universal admiration, they having obtained 39 First-class and other Certificates. They were all raised by J. KEYNES, and are the produce of 45,000 Seedlings; have been substantially proved, and warranted the best collection ever yet sent out by one grower.

Purchasers will be liberally dealt with, and CATALOGUES with full description sent where required.

Anna Keynes (Keynes)	Hon. Miss Herbert (Keynes)
Fanny Purchase (Keynes)	Willie Austin (Keynes)
Edward Purchase (Keynes)	Magpie (Keynes)
John Wyatt (Keynes)	Sam Bartlett (Keynes)
Earl of Pembroke (Keynes)	Regularity (Keynes)
Lady Lilian Paulett (Keynes)	Polly Fawcett (Keynes)

Salisbury, May 14.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, begs to announce that his eight NEW DAHLIAS, five NEW FUCHSIAS, and DELPHINIUM ALOPECUROIDES are now ready to send out. A DESCRIPTIVE LIST of all the above can be obtained free on application, and a plate of the Larkspur for 12 postage stamps.

The Description of Delphinium alopecuroides (Wheeler's).—This distinct and perfectly unique garden variety of Larkspur is in every respect first-rate. It withstood the severe frost of Christmas, 1860, quite unprotected in the open border, without sustaining the slightest injury; its habit is robust and healthy, growing freely in the open border, blooming in June and July; the spikes of bloom are generally 2 feet in length, and when well grown the tip of the spike rises from 3 to 4 feet from the ground, densely clothed with very full and compact double flowers; the ground is of a creamy white, therefore in reality a blue-edged flower, though from its fulness it presents the appearance of a bright blue self, paler and somewhat shaded towards the centre. It is figured in No. 17, or the May number for 1863, of the "Florist and Pomologist." As some admirers of the plant were very anxious it should be distributed this season, it was requested to be figured when the bloom was almost past, consequently only small loose spikes could be obtained for the Artist, which accounts for the short spike in the plate, though the character of the individual blooms is quite correct.

The following remarks are taken from the "Florist and Pomologist":—"We, therefore, have no hesitation in recommending both the subject of our plate and the class of plants to which it belongs, to the notice of all lovers of their gardens.

"This variety of Double Larkspur, which the raiser has called Alopecuroides, doubtless from the close brush-like form of the principal part of the spike, was shown at a Meeting of the Royal Horticultural Society's Floral Committee in July, 1861, and was then awarded a First-class Certificate. The Specimens exhibited on that occasion were over 2 feet in length, furnished below with palmatifidly-lobed leaves, having incised segments and a ciliated margin, and terminated in a flower spike or raceme, slightly branched below and densely covered with small double flowers of a bright blue, paler and reddish-tinted towards the centre. It was regarded as a most desirable and very ornamental hardy plant."

It is propagated by dividing the Roots, not having hitherto produced Seeds.

Price 7*s.* 6*d.* each.

To the Seed Trade.

MESSRS. VEITCH AND SON, of Exeter, have yet to offer a limited quantity of Seed of the charming little Annual FENZLIA DIANTHIFLORA (which is not sufficiently known to be properly appreciated).

FENZLIA DIANTHIFLORA.—This lovely Annual is of a beautiful rosy lilac colour, having five dark blood-coloured spots surrounding an orange-coloured eye in the centre of each flower; it is of very dwarf and compact habit, producing blossoms in profusion: it blooms through the summer months, and continues long in flower if sufficiently supplied with moisture.

It has a beautiful effect in small beds, and is also well adapted for growing in pots or boxes for Greenhouse decoration, and if sown any time in May will soon bloom, and continue until frost sets in.

It is figured in Curtis's "Botanical Magazine," October, 1855. Price on application.

Seed Warehouse, 54, High Street, Exeter.

SUTTON'S CHAMPION SWEDE is ONE of the HARDIEST SORTS in CULTIVATION.

The Champion Swede being of quick growth never suffers from mildew, and does not require to be sown so early as other Swedes. PRESENT PRICE 10*d.* per lb., or cheaper by the bushel. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Fern, Lastrea Standishi.



MR. WILLIAM BULL is now offering this beautiful new Greenhouse (and probably hardy) JAPANESE FERN, at 7*s.* 6*d.* each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

NEW PLANTS FOR 1864.

E. G. HENDERSON & SON

RESPECTFULLY OFFER THEIR

NEW DESCRIPTIVE SPRING CATALOGUE OF PLANTS FOR THE FLOWER GARDEN AND CONSERVATORY,

on application.

For a portion of the Novelties quoted from the Catalogue, see the *Gardeners' Chronicle* of May 7.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

GRASS SEEDS,

AGRICULTURAL SEEDS,

KITCHEN-GARDEN SEEDS,

FLOWER SEEDS,

of all descriptions.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND. THOS. GIBBS & Co. Corner of HALF-MOON St. PICCADILLY, London. APPOINTED APR. 3, 1844. THE SEEDSMEN

DETAILED CATALOGUES AND PRICED LISTS forwarded free on application.

Thomas Gibbs & Co.

CORNER OF HALF-MOON St. PICCADILLY, LONDON, W.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large bulbs of the Hardy Green-topped Swede, at 9*d.* per lb.; and his large FOSTERTON HYBRID, 8*d.* per lb. Price List Free.

Mixtures of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (3d edition) Free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A list of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

Bedding Plants.

W. WITTY AND SON have to offer fine strong VERBENAS, AGERATUMS, LOBELIAS, CALCEOLARIAS, Heliotropes, Petunias, Geraniums, Fuchsias, Salvias, Pentstemons, Pinks, Carnations and Picotees, &c., at very moderate prices.

W. WITTY & SON, Cottingham Nurseries, near Hull.

Lord of the Manor,

SPLENDID NEW DOUBLE FUCHSIA.

GEORGE FRY, Manor Nursery, Manor Lane, Lee, Kent, is now sending out this noble variety. For description, opinion of eminent Journalists, and Engraving, *vide* Circular, &c., sent on application.

A LIST of some of the leading men of the town, of whom the above may be obtained, will be advertised anon.

Scarlet Geraniums and Double Rose Stocks.

TO NURSERYMEN AND OTHERS.

HAWKINS AND BENNETT, FRUITERERS, FLORISTS, &c., beg respectfully to invite an inspection of their splendid stock of fine-grown Dwarf SCARLET GERANIUMS, consisting of Tom Thumbs, Sutton's Perfection, and Christinas, in large and small pots. Also their DOUBLE ROSE STOCKS, in beautiful condition, and now ready for sending out.

Price per post on application to HAWKINS & BENNETT, Fruiterers and Florists, Twickenham, S.W.

NEW HARDY WHITE SWEDE, the favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills.—Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor lands. Seed 9d. per lb. or 35*s.* per bushel, supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to Mr. WEBB, Calcot Gardens, Reading.

Fuchsias Blue Beauty and Lord Palmerston.



MR. WILLIAM BULL is now sending out these superb varieties.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.



The Heaviest Cropping Mangel Wurzel is

SUTTON'S LARGE YELLOW GLOBE.

SUTTON & SONS can still supply good new seed of the above at 8*d.* per lb., or cheaper in large quantities (carriage free).

Royal Berkshire Seed Establishment, Reading.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts, 6*d.* per lb.

WORCESTERSHIRE SWEDE, not to be tbeaen, 9*d.* per lb.; other kinds, 8*d.* per lb.

PRICED LISTS on application.

RICHARD SMITH, Seed Merchant, Worcester.

American Nurseries, Downham Market.

DISSOLUTION of PARTNERSHIP.—Notice is hereby given, that the PARTNERSHIP heretofore existing between CHARLES GODFREY, of Romford, Essex, High Bailiff, and JAMES BIRD, of Downham Market, Norfolk, Nurseryman, under the style or Firm of "JOHN BROWN & Co.," at Downham Market aforesaid, as Nurserymen and Seedsmen, was this day dissolved by mutual consent. All Debts due to and from the said Firm will be respectively received and paid by the said JAMES BIRD, who will in future carry on the Business in his own name.

Witness our hands this 29th day of April, 1864.

CHARLES GODFREY.

Witness, W. DANIELL. JAMES BIRD.

JAMES BIRD having succeeded to the whole of the BUSINESS as above, returns his sincere thanks to the numerous Patrons and Customers for their liberal support, and trusts by strict attention to all orders confided to him, to merit a continuance and increase of the same.

☞ Please Note the Address.

REIGATE SILVER SANDS, PEAT SOILS, LOAMS, &c., on Sale.

W. SHORT, Sand and Peat Depot, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).

Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped J. BARSHAM'S Patent

TOBACCO PAPER, extra strong. To the Trade or Retail. Sample and price on application.
H. BROWN, 4, Commutation Row, Liverpool.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6*d*., 1*s*., and 2*s*. each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5*s*. value and upwards.
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s*., 3*s*., and 10*s*. 6*d*. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gisburst does. This is our experience after 10 years trial."
"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gisburst' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."
"July 13, 1863."
Extra strong, 3*s*. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

LAWN MOWERS made in a superior manner, and at reduced prices.
S. SMITH, Engineer, 204, High Holborn, W.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1*s*. 8*d*. per yard run.
Four yards wide .. .. .. 3*s*. 4*d*. per yard.
An improved make, 2 yards wide, 1*s*. 9*d*. per yard.
An improved make, 3 yards wide, 2*s*. 8*d*. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s*. 6*d*. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

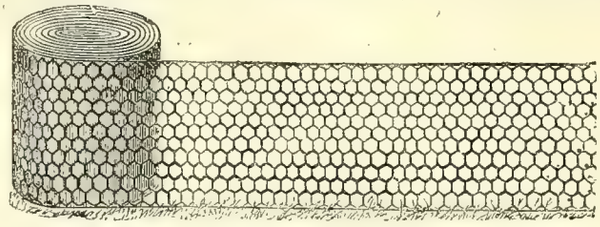
To Nurserymen, Market Gardeners, &c.

TO BE SOLD, 20,000 NEW ARCHANGEL CARGO MATS. Price for 100 to 300, 90*s*.; from 300 to 1000, 87*s*. 6*d*.; 1000, upwards, 85*s*., less 2½ per cent. for cash. As they are a bargain, buyers are respectfully solicited to purchase at once, as after these are disposed of there will be no more under 97*s*. 6*d*. Thick edged Mats for covering, 65*s*., 75*s*., and 77*s*. 6*d*., best. Other Mats for packing, from 30*s*. up to 50*s*.
Address to the Russia Mat Stores, 133, Minories, E.C.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d*.	4*d*.	3½*d*.	5*d*.	4½*d*.	6*d*.	5½*d*.	7*d*.
2 inch	Game or Poultry Netting	3½*d*.	4½*d*.	4*d*.	5*d*.	5*d*.	6½*d*.	6½*d*.	8*d*.
1⅝ inch	Small Rabbits, Hares, &c.	4*d*.	4¾*d*.	4½*d*.	6*d*.	5½*d*.	7*d*.	7*d*.	9*d*.
1½ inch	Smallest Rabbits.....	5*d*.	6*d*.	5¾*d*.	7*d*.	7*d*.	9*d*.	9*d*.	11*d*.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

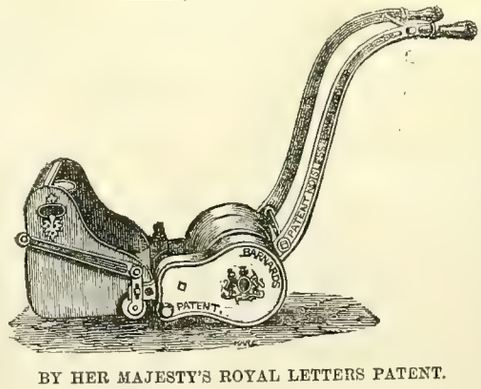
acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BARNARD'S NOISELESS LAWN MOWER.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

This MACHINE differs from all other Lawn Mowers, in being constructed without either Gear-wheels, Chains, or Levers, the power being transmitted to the Cutters by a loose intermediate wheel, with an India-rubber tyre, which is placed between a plain-faced driving wheel and pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.
When the MACHINE is drawn back, the intermediate wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.
The India-rubber tyre will last from one to two seasons, and can be replaced at a cost of a few pence. An extra tyre is sent with each Machine.

The iron work of Grass-box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

		£	*s*.	*d*.
The Miniature Lawn Mower, Cuts 8 inches ... ... Suitable for the very smallest grass plots or edgings.		2	10	0
To Cut 10 inches.	This can be worked by a Lady	3	5	0
To Cut 12 inches.	Suitable for one person	4	10	0
The 12 inch and all larger sizes have the drum or roller divided in two parts for the convenience of turning.				
To Cut 14 inches.	Suitable for One Man	5	0	0
To Cut 16 inches.	Suitable for One Man	6	0	0
To Cut 18 inches.	Suitable for Man and Boy	6	10	0
To Cut 20 inches.	Suitable for Man and Boy	7	0	0
To Cut 22 inches.	Suitable for Two Men	7	10	0

Packed and Delivered Carriage Free to the principal Railway Stations in England.

Guaranteed to give satisfaction, and if not approved, can be returned.

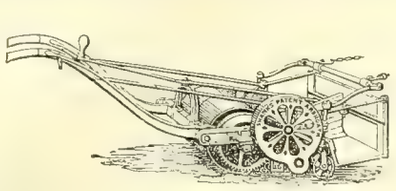
The above are kept in Stock and can be forwarded immediately. Also, CAST-IRON VASES, CHAIRS, SEATS, TABLES, ROLLERS, WIRE NETTING, &c.

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER,
6, BANKSIDE, SOUTHWARK, LONDON, S.E.

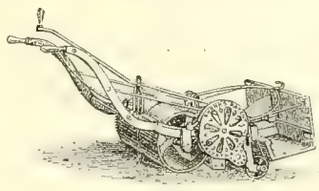
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

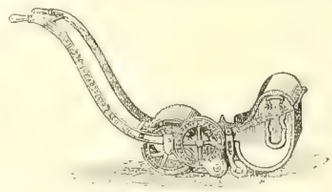
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to again furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction. A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horses' Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH | HIS GRACE THE ARCHBISHOP OF CANTERBURY | HIS EXCELLENCY THE BELGIAN MINISTER
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA | HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND | HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT. HON. LORD PALMERSTON.

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Atholl
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburgh
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Winchester
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The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
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The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. Viscount Seaham
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The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. the Earl of Milltown
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
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The Right Hon. Lord Blantyre
The Right Hon. Lord Hallyburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulton
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Ebbank
The Right Hon. Lord Inchiquin
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The Hon. Major Murray
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Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.



BEDDING AND OTHER PLANTS.

THE BEST HARDENED OFF STOCK IN THE KINGDOM.



JAMES CARTER & CO.,

SEED MERCHANTS AND NURSERYMEN,

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

PART III. OF CARTER'S GARDENER'S AND FARMER'S VADE MECUM,

CONTAINING LISTS OF PLANTS OF ALL KINDS AT VERY MODERATE PRICES, WITH COMPLETE CULTURAL DIRECTIONS,

Forwarded Post Free on application.

FIRST-CLASS NEW BEDDING GERANIUMS,

Which they are now prepared to send out.

THE LATE MR. DONALD BEATON'S GERANIUMS.

It is with sincere regret that we announce the demise of the above-named highly-esteemed gentleman, whose place in the World of Horticulture we believe cannot easily be supplied. For 20 years he was looked to by all as the genius of the Gardening World, and it is admitted that his Seedling Geraniums alone will immortalise his name among the Floral public.

Ten days prior to his death, he concluded a contract with us for all the Geraniums sold by him last season to Nurserymen, for distribution in 1864, and the whole of the varieties we offer he proved in his experimental garden as Surbiton, and from a large collection these kinds alone were selected.

The Set of Mr. Beaton's Geraniums, 1 strong plant of each, for 15s.

CYBISTER (Beaton).

This Mr. Beeton considered the best Nosegay Geranium he had raised, and we may observe that for two successive years it was exhibited in the most prominent beds at South Kensington and the Crystal Palace Gardens, and universally admired. The colour of the flowers is vivid scarlet; the trusses are immense, with sometimes 200 flowers and pips on a truss; its habit is excellent, and it is altogether a first-class plant.

Price 3*s.* 6*d.* each.

LADY COLUM (Beaton).

This is the first and only Nosegay Geranium of the Christine colour, viz, delicate rose; the blooms are well thrown up above the foliage, which is slightly zonale; the flower trusses are very large, and freely produced. During the last season at the Crystal Palace it was grown in the circular basins surrounding the Crystal Fountain, where it was very effective; it is also well adapted for Greenhouse or Conservatory culture.

Price 5*s.* each.

BEATON'S PET (Beaton).

This was a great favourite with the late Mr. Beaton; it is a minimum in growth, rarely exceeding 6 or 8 inches in height; it is also a most profuse bloomer, with a peculiar crimson lake colour, exceedingly rich and glowing; for ribanding and general bedding purposes it will be found marvellously effective.

Price 5*s.* each.

MRS. WHITTY (Beaton).

We last season introduced Helen Lindsay, which was universally admitted to be much superior to the general favourite, Christine. We have now the pleasure of offering a still finer variety in Mrs. Whitty. It has a beautiful deep rose colour, with a large white eye; blossoms in profusion; foliage slightly zonale. Last season a bed of it at the Crystal Palace Gardens, planted at the special request of Mr. Beaton, produced a magnificent effect, and continued in bloom until the frost.

Price 3*s.* 6*d.* each; 36*s.* per dozen.

MONITOR (Beaton).

This is a remarkably fine variety, from which Mr. Beaton hoped ultimately to produce a yellow Geranium, a colour hitherto unknown in this tribe of plants; colour a deep orange scarlet; bloom freely produced, and well thrown up above the foliage.

Price 3*s.* 6*d.* each.

SNOWBALL (Keeler).

A new pure White Bedding Geranium, raised by Mr. Keeler, of Wood House, Dulwich, and who has placed the entire stock in our hands for distribution. Of the same type as Madame Vaucher, but in every respect superior; fine large truss, well up in the centre, giving a flat even surface, and both in form and colour almost equal to the old Double White Camellia. Petals pure white, good form, and of great substance. Habit very robust and compact. Foliage rich green, with dark zone; will form a most desirable pot plant for Conservatory, and is without doubt a valuable acquisition for general bedding purposes. It is the opinion of Mr. Keeler, the raiser, that it is superior to anything yet introduced to the notice of the public, and the best White Geranium ever raised by him.

Price 5*s.* each.

BEL DEMONIO (Keeler).

A bright lively salmon colour, of dwarf, compact, but very robust habit of growth. The free blooming habit of this variety will make it most desirable for planting in large masses or extensive riband lines. The trusses are very large, individual flowers large and of uncommon substance in petal, and blooms well up above the foliage. This variety resists the effect of sun and rain better than any before offered of this class, and was raised at the same place as the preceding splendid White variety.

Price 2*s.* 6*d.* each.

HIBBERD'S PET (Hibberd).

This we received from Mr. Shirley Hibberd, the well-known writer on Horticulture, with the following description:—"You may recommend this as the best scarlet Horse-shoe Geranium in cultivation: it is a strong grower, and throws up large trusses of bloom, slightly darker in colour than Cottage Maid." Having seen it in bloom, we can fully corroborate Mr. Hibberd's statements.

Price 2*s.* 6*d.* each.

CALCEOLARIA, PRIMULA, and CINERARIA, saved from the best named sorts only. Price per packet, 2*s.* 6*d.*

ADDITIONAL NEW PLANTS.

SWAINSONIA SPLENDENS, each, 3*s.* 6*d.*
GOLDEN VARIEGATED BALM, per dozen, 6*s.*
CLIANTHUS DAMPIERI SPLENDENS, each 5*s.*
COLEUS MARMORATUS, each, 7*s.* 6*d.*

NOVELTIES of 1863.

NOSEGAY GERANIUMS.

LORD PALMERSTON
SPREAD EAGLE
MERRIMAC
MISS PARFITT
HELEN LINDSAY
RUBEN'S IMPROVED

The Set for 5*s.*

FUCHSIA, CARTER'S METEOR, each, 1*s.*
CERASTIUM BIEBERSTEINI, per dozen, 6*s.*
LOBELIA PAXTONIANA, per dozen, 6*s.*
,, SPECIOSA ALBA, per dozen, 6*s*
LOBELIA GORDONIANA, per dozen, 6*s.*
ECHEVERIA METALLICA, each, 3*s.* 6*d.*
STREPTOCARPUS SAUNDERSI, each, 2*s.* 6*d.*

Carter's Original Collections of Plants from 12*s.* 6*d.* to £4 10*s.*

☞ SPECIAL LIST of AGRICULTURAL SEEDS forwarded gratis on application.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

BEDDING and BORDER PLANTS.—CALCEOLARIAS, CARNATIONS, CHRYSANTHEMUMS, CLEMATIS, DAHLIAS, FUCHSIAS, GERANIUMS, PETUNIAS, ROSES, and VERBENAS.

The choicest kinds of each at the lowest prices, at Mr. TOWNSEND'S, St. Mary's Nursery, adjoining the Compasses, Hornsey, a few minutes' walk from the Hornsey Railway Station. Dealers supplied on liberal terms.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2*s.* 6*d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c, is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

NEW VERBENA, LORD CLIFDEN (BUNYARD'S). Colour: rosy scarlet, with a very large and clearly defined white eye; each single flower flat and clean edged; truss large and well shaped. Habit good and free, a capital bedder. Autumn struck: price for 12, 2*l.* 10*s.*; 6, 1*l.* 7*s.* 6*d.*; each, 5*s.* Spring struck: per dozen, 24*s.*, or 2*s.* 6*d.* each, package included.

Improved TOM THUMB SCARLET NASTURTIUM, 1*s.* per packet, the best bedding Annual offered.

THOMAS BUNYARD & SONS, The Old Established Nurseries, Maidstone and Ashford, Kent.

New Bedding Geraniums.



MR. WILLIAM BULL begs to announce that a great many of his New BEDDING (ZONALE) GERANIUMS are now in blossom. An inspection is invited.

Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

E. G. HENDERSON AND SON'S NOVELTIES for 1864, now ready.

VELVET CUSHION VERBENA, hybridised with Verbena venosa, large truss, effective variety, with hardy constitution—fine bedder.

GARIBALDI PINK.—A richer coloured and dwarfer plant than Anne Bulleyn.

SCARLET GEM DAHLIA.—Best bedding Dahlia in its colour.

TOM THUMB DAHLIA—Rich crimson, 12 inches in height.

WHITE TOM THUMB GERANIUM.—Best of its class for pots or bedding.

UNITED ITALY VARIEGATED GERANIUM.—Foliage red, white, and green.

MRS. BENYON VARIEGATED GERANIUM.—Like Mrs. Pollock, best in its style.

PRINCESS OF WALES PETUNIA.—Most beautiful of any.

CHRYSANTHEMUM EMPRESS of INDIA, pure white, large, and beautiful.

Wellington Nursery, St. John's Wood, London, N.W.

New Bedding Plants.

MESSRS. JOHN AND CHARLES LEE are now prepared to offer the following Novelties, which they have proved to be distinct and good:—

TROPÆOLUM COOPER'S DEFIANCE.—Is very dwarf, short jointed, slightly trailing, small leaved, and an immense bloomer. Flowers bright scarlet. A first-rate Bedder. Price 2*s.* 6*d.* each; 18*s.* per dozen; 5*l.* per 100.

GERANIUM VARIEGATED LITTLE DAVID.—Is a very pretty white-edged sport of the well-known favourite, "Little David," so useful for Edging. Price 5*s.* each.

VARIEGATED GERANIUM THE BRIDE.—This interesting novelty is adapted for small beds in conjunction with Lobelia speciosa. The habit is very dwarf, the margin of the leaves pure white, and the flowers are also pure white. A very elegant little plant. Price 7*s* 6*d.* each.

Royal Vineyard Nursery, Hammersmith, London, W.

New Hollyhocks.

WM. PAUL respectfully announces that he is now sending out Two first-rate NEW HOLLYHOCKS, selected from many thousands of Seedlings, namely:—

BEAUTY of WALTHAM.—Flowers pale silvery peach, large in size, perfect in form, and closely set on a large handsome spike: one of the finest ever raised.

RED GAUNTLET.—Very fine blood crimson, unsurpassed in colour and form, spike magnificent.

Strong healthy autumn-rooted plants, calculated to flower well this summer, 10*s.* 6*d.* each.

PAUL'S Nurseries, Waltham Cross, N.

Cheap Bedding Geraniums.

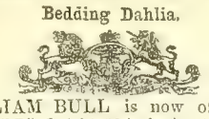
ALFRED FRYER offers 48 varieties of first-class BEDDING GERANIUMS for 21*s.*, basket and packing included. Amongst other popular kinds the collection will contain the following:—

Mrs. Pollock	Snowflake	Blackheath Beauty
Cloth of Gold	Eva	Madame Vaucher
Golden Fleece	Jane	Magenta
Reine d'Or	Julia	Pink Pearl
Sulphureum marginatum	Flower of Spring	Woodwardiana
Scintillatum	Bijou	Hendersoni Nana
	Aurora	Paul Labbé

Remittances requested from unknown correspondents.

Post-office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

Bedding Dahlia.



MR. WILLIAM BULL is now offering GEM of the DWARFS (height 18 inches), at 5*s.* each, 42*s.* per dozen, or £10 per 100.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

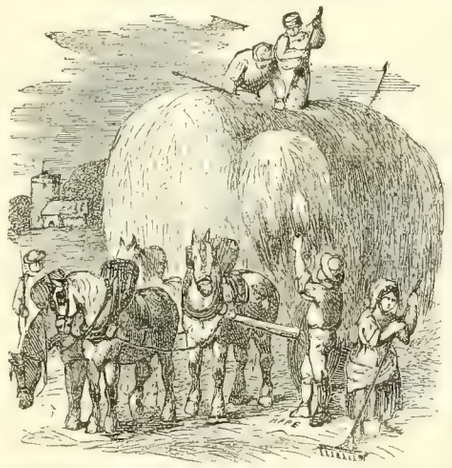
SUTTON'S IMPROVED HARDY WHITE SWEDE.

This fine WHITE SWEDE is invaluable as late spring keep for Ewes and Lambs, and will thrive on any soil. It is not so coarse as the Old White Swede, unless sown too early.

Price 9*d.* per lb., or cheaper by the bushel. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Permanent Pasture Grass Seeds.



SUTTON AND SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore.

Royal Berkshire Seed Establishment, Reading.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS,

Seeds worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. Superbly Fringed. In sealed packets. 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.

HERBACEOUS CALCEOLARIA, 2*s.* 6*d.* per packet.
HALF SHRUBBY CALCEOLARIA, 2*s.* 6*d.* per packet.
CINERARIA, 2*s.* 6*d.* per packet.
CARNATION, Self, Flakes and Bizarres, 2*s.* 6*d.* per packet.
PICOTEE, White and Yellow grounds, 2*s.* 6*d.* per packet.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf
CALCEOLARIA BEAUTY of HERTS, clear amber
CALCEOLARIA GENERAL TOM THUMB, deep yellow
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30*s.* per dozen; the usual allowance to the Trade where six or more are taken.

Spring Catalogue.

WOOD AND INGRAM'S New PRICED and DESCRIPTIVE CATALOGUE of Dahlias, Pelargoniums, Zonale and Variegated Geraniums, Fuchsias, Cinerarias, Verbenas, Chrysanthemums, Petunias, Hardy and Tender Ferns, Stove, Greenhouse and Bedding Plants, &c., is now ready, and will be sent free on application.

Huntingdon Nurseries.

GARDENERS' BENEVOLENT INSTITUTION.—At the MONTHLY MEETING of the COMMITTEE held on the 9th May, 1864, it was resolved:—

"That the Committee have read with great surprise a paragraph in the *Gardeners' Chronicle*, in which it is insinuated that 'personal antipathy to some ill-judging officer of the Society' retards its progress.

"That whilst it appears incredible to the Committee that so low and degrading a feeling as "personal antipathy" should hinder any one from assisting the unfortunate—they feel it their duty to remind the friends of the Institution, that the Treasurer, the Auditors, the Secretary, and the Committee are elected yearly at the General Meeting of the Subscribers.

"That at the General Meeting in January last all the officers were elected unanimously, and votes of thanks were passed to the Treasurer, Robt. Wrench, Esq., and to the Secretary, Mr. Cutler, who was re-elected for the 22d year, and whose zeal and activity in behalf of the interests of the Institution are gratefully acknowledged by all who have taken an interest in its welfare."

A list of the Office Bearers for the present year is published in the report, and may be had on application to the Secretary, 14, Tavistock Row, Covent Garden.

By order of the Committee,
JAMES GRAY, Chairman.

ROYAL HORTICULTURAL SOCIETY.
CELEBRATION of the QUEEN'S BIRTHDAY.

The Council have resolved that on the Queen's Birthday, Tuesday, May 24, 1864:—

1. The Gardens at South Kensington shall be opened to the public from 12 to 6, admission 1*s.* Fellows may obtain any number of Tickets at 6*d.* each.

2. An Exhibition shall be held, showing the various uses of Flowers for the Decoration of Halls, Drawing-rooms, Balconies, Churches, and Buildings generally, &c., also Dinner and Supper Tables; Hand Bouquets, Garlands, and Floral Devices of all kinds, for which Prizes will be awarded.

3 Provided a sufficient number of works of merit are sent in competition, One Prize of 5*l.*, Three Prizes each of 3*l.*, Six Prizes each of 2*l.*, Twelve Prizes each of 1*l.*, and Twenty Prizes each of 10*s.*, with an unlimited number of Honorary Certificates, will be given. Lady Amateur Artists and Royal Academicians will be associated with the judges.

4. Spaces for large decorations will be assigned to each exhibitor who fills up a printed application before the 15th of May. The objects must remain for two days on exhibition.

5. The Swags, Wreaths, Devices, and Garlands may be composed of Cultivated or Wild Flowers, Sprays or Leaves, or branches of any description, separate or combined. The Swags or Garlands must not be less than 8 feet long.

6. Artificial Flowers for Bouquets, &c., may be used, and with these there is no restriction as to size, and separate Certificates will be given.

7. All objects must be delivered carriage free to the Gardens; those composed of Artificial Flowers on the 23d, all others before 9 A.M. on the 24th.

8. All the Cascades and Fountains, and Minton's Majolica Fountain from the International Exhibition of 1862, will be played.

9. Three Military Bands will perform during the day, and assemble to play "God save the Queen" at 6 P.M.

NOTICES TO EXHIBITORS ON THE QUEEN'S BIRTHDAY, TUESDAY, MAY 24

The Council have appointed the following Sub-Committees to organise the various exhibitions:—

1. FOR FLORAL DECORATIONS OF BUILDINGS, HALLS, DRAWING ROOMS, CONSERVATORIES, &C.—The Duchess of Marlborough, Lady Constance Grosvenor, Lady Caroline Kerrison, Lord Henry G. Lennox, Mr. Bateman, Mr. Bull, Mr. Kelk, Mr. Fleming, Mr. Lee, Mr. R. Redgrave, Mr. Standish, Mr. C. Turner, Mr. Veitch, and Mr. Wilson Saunders.

2. FOR THE DECORATIONS OF CHURCHES.—Lady Marion Alford, Miss Burdett Coutts, Bishop of London, Bishop of Winchester, Mr. Blandy, Mr. Mould, Mr. Harry Chester, Captain Fowke, Mr. Beresford Hope, Rev. Dr. Irons.

3. FOR BALCONIES AND WINDOWS.—Rev. E. Bailey, M.A., Mr. James Bateman, Mr. John Bell, Mr. S. Haden, Mr. Henderson, Mr. Hopgood, Rev. — Parkes, M.A., Mr. F. Smith, Mr. John G. Veitch.

4. FOR DECORATIONS OF DINNER AND SUPPER TABLES.—The Marchioness of Waterford, Lady Holmesdale, Miss Challoner Miss Chalfield, Mrs. John Clutton, Mrs. Cubitt, Mrs. Kelk, Sir C. W. Dilke, Bart.

5. FOR HAND-BOUQUETS FOR WEDDING PARTIES, THE OPERA, &C.—The Marchioness of Aylesbury, The Countess of Aylesford, Lady Cecilia Bingham, Lady Dorothy Neville, Mrs. Johnson, Mr. Buck, Mr. Harding, Mr. Lucking, Mr. Harry Veitch.

6. FOR GARLANDS AND MISCELLANEOUS WORKS.—Viscountess Combermere, Lady Rokeby, Lady Augusta Sturt, Baroness L. de Rothschild, Miss Eden, Mrs. Coffin, Miss Moffatt, Mrs. Poynder, Sir Joseph Paxton, Mr. Fraser, Mr. S. Redgrave.

7. FOR ARTIFICIAL FLOWERS FOR THE PERSON.—The Duchess of Buccleuch, the Duchess of Manchester, the Countess of Tankerville, Lady Taunton, Lady Sandford, Mrs. Harry Chester.

Colonel Fisher, C.B., R.A.; Dr. Thos. Thompson; Mr. R. Thompson, and Mr. P. C. 'Owen, have kindly undertaken to act as an Executive Committee for arranging the Exhibition.

Forms of application for space may be obtained from the Assistant-Secretary.

The Gardeners' Chronicle.

SATURDAY, MAY 14, 1864.

MEETING FOR THE ENSUING WEEK.

TUESDAY, May 17 { Royal Horticultural (Election of Fellows) at South Kensington .. 1 P.M. / Lecture on Ferns, by Mr. Moore .. .. 3 P.M.

ABOUT two years ago mycologists were almost startled out of their propriety by the announcement that the curious plants belonging to the order MYXOGASTRES, distinguished by their creamy consistence when young, and the dusty contents of their fruit when old, were no longer to be referred to the vegetable kingdom, as their spores when germinating could scarcely be distinguished from the infusorial animalcules referred by authors to the genus Amœba or its allies.

The conclusion was however rather a hasty one, and was at once contradicted by the facts that the spores of some species germinate like those of other Fungi, and that there are spores resembling other infusorials in Saprolegnia and its allies, which, to say the least, were very doubtful Algæ.

DE BARY himself discovered spores similar to the swarming spores of Saprolegnia both in the mould of the Potato murrain (Peronospora infestans) and in the white rust (Cystopus) of Cabbages, and some other plants. These observations, which were communicated to the Berlin Academy in 1860, and which have already been recorded in this Journal, so far as the latter genus is concerned, were confirmatory of those made by PRÉVOST so early as 1807; as regards the former they were perfectly original, and in a memoir of considerable interest lately published in "Annales des Sciences Naturelles," series 4, vol. 20, they are greatly extended, and show at once that while infusorioid spores are not strange to Fungi, Saprolegnia and its relatives may now safely be excluded from Algæ, notwithstanding their aquatic mode of life.

Important, however, as are DE BARY'S observations respecting the swarming spores in the genera

Cystopus and Peronospora, those which relate to the resting spores in the same genera are scarcely less interesting. Caspary some time since pointed out the production of large reticulated spores amongst the cells of the leaf, amongst which the spawn of Peronospora runs in every direction. The analogy between these and the resting spores of certain Algæ was at once apparent. The swarming spores were necessary for immediate propagation of the species; the resting spores, on the contrary, might remain months without vegetation, and so could be ready for germination in the following season. But if De Bary's observations are completely to be depended upon, there is besides a striking resemblance between the mode of their development in Cystopus and Peronospora. The swarming spores arise apparently from a mere differentiation of the contents of certain cells, without any impregnation; while on the contrary the resting spores are due to the action of the contents of antheridia, which rest upon their surface at a certain stage of growth, and occasionally, as in Saprolegnia, penetrate the outer integument by means of a little tube. In Cystopus candidus, however, the germination of these resting spores consists in the protrusion of a sac filled with infusorioid bodies closely resembling the swarming spores. These observations in some respects require confirmation, but they are beyond doubt of immense importance.

Some subordinate points are mentioned in the same memoir. One is that the spawn of Cystopus and of most species of Peronospora, though not the Potato mould, throws out at intervals little glandiform suckers by means of which it imbibes the juices of the plant on which they are parasites. In Peronospora calotheca, which grows on the common Woodruff (Asperula odorata) the suckers are curiously ramified, a bunch going into each cell of the parenchyma by which the main threads of the spawn pass.

Another matter of importance consists in his observations upon the manner in which these parasites gain admission into the plants on which they prey. In Cystopus, Peronospora, Uromyces, Æcidium, Endophyllum, and Puccinia, &c., he has seen the germinating spores obtain admission directly by means of the stomates, the spawn often thickening very considerably immediately after the admission of the delicate germinating thread. In all these genera, and in others allied to them, the conditions which determine the germination appear to be the same. We must remember, however, that in the several genera formerly referred to Uredo and Puccinia, there are several modes of fructification. First, little cysts, called spermogones, which produce a multitude of minute bodies at the tips of little threads; these bodies, called spermatia, from a conjecture that they are the male organs, have never been known to germinate. Secondly, bodies called stylospores, either single or in necklace-like rows, which accompany or precede the true spores, differing from them in form. Thirdly, the true spores, which are often more complicated in structure. Fourthly, bodies which are produced upon the germinating threads of the spores, called sporidia, of one or more orders, which do not seem to penetrate immediately into the plant on which they are parasitic. This is not the case with the stylospores, which readily germinate, but the more readily the more recent they are, though they are able to preserve the power for some weeks, or even for some months. If, however, they are kept dry during the winter they appear to lose their vitality, except in a very few instances, if, indeed, those are beyond doubt. De Bary has never seen the spawn of these perforate the walls of the cells. The admission is always by means of the stomates, and if the nature of the subjacent tissue is not congenial, they perish. They will germinate, indeed, on plants which are incapable of affording them the proper nutriment; and we saw last year that spores might germinate on the stigmatic surface of Barley, and produce spawn to such an extent as to induce the abortion of the germen.

On the contrary, he found that the sporidia produced upon the germinating threads of the perfect spores, when germinating in their turn, did not obtain access by way of the stomates, but by piercing the cells themselves by means of their threads. This portion, however, of De Bary's memoir will require a separate notice. *M. J. B.*

——Without professing to have any very strong affection for the Dahlia as an ornamental flower-garden plant, we are yet ready to admit that there are varieties of what are called Bedding Dahlias, which come in very useful amongst the larger plants which are required to carry out the present system of parterre gardening. In admitting this we may add, that Bedding Dahlias are now very different objects from what they once were. Time was when the brightly-coloured sorts which were found useful in flower-beds on account of their colours, had to be pegged down to the earth to hide their gawkiness, and the display they produced was confined to such as might be yielded by a thicket of branches. Now, however, the perseverance of florists, who have forestalled the Darwinian system of natural selection by themselves selecting and breeding from the varieties which most nearly meet their wants, has secured for the flower garden a race of varieties which, while displaying florid masses of colour, present these colour masses in something approaching to a definite and symmetrical form. As the season is now again approaching for providing materials for Dahlia beds, we venture to direct attention to a few of the best sorts we fell in with last season, our memoranda being chiefly gleaned from the Chiswick collection.

Taking into account the various desirable qualities of dwarfness, gracefulness of habit—that is, neither too much stiffness nor laxity in the disposition of the 'blooms,' and fulness or quality in the 'blooms' themselves, we must give the preference to the following half dozen varieties, namely:—1, Dwarf Queen, a 3-feet plant, very free, and yielding a fine head of blossoms, the colour being amaranth tipped with white; this is a very showy Dahlia, and exceedingly effective. 2, Little Wonder, growing 3 feet high, free and showy, and every way adapted for beds; the colour a light bright red-scarlet, not quite brilliant enough to be called a true scarlet, but yet a telling colour. 3, Joy, a 3-feet plant, blush-white tipped with purple, free, and altogether the best of the light tipped sorts. 4, Queen of Summer, 3 feet high, a showy white, heavily laced with rose-purple. 5, King of Dwarfs, a 2-feet plant of capital habit, the blooms good, and of a showy purple or deep amaranth colour. 6, Pluton, 2 feet high, with large, well-formed, clear yellow 'blooms,' and a habit in every way adapted for bedding purposes. The last two sorts were perhaps hardly so much advanced as could have been wished, but their indications were all in the right direction.

A grade lower in merit, come the following half-dozen:—1, Alba floribunda nana, 3 feet, clear white, with an open eye, but good in habit; 2, Royal Purple, 2½ feet, purple, a fine variety; 3, Sunlight, 2½ feet, showy, dark red scarlet; 4, Duke of Newcastle, 3 feet, large bright pure yellow; 5, Lilac Lilliput, 2 feet, remarkably bushy and branching in growth, with large late lilac flower-heads; 6, Variegata, 3 feet, with the leaves distinctly margined with cream colour.

Of a stiff dwarf habit, only 2 feet high, and with huge 'blooms' on short stalks set down closely amongst the leaves, the flower-heads being of a glowing crimson-red, Prince Arthur must not be overlooked in glancing over the better sorts of bedding varieties, for stiff and ungainly as is its growth, we have seen it in favourable seasons more effective than any other Dahlia used in the flower garden. Of the same habit, but also very effective in certain positions, the old purple-flowered Zelinda yet claims honourable mention; and the same may be said of the dwarf and brightly-coloured, but otherwise indifferent Crystal Palace Scarlet. Then Meteor, which was blooming well, though only a foot and half high as we saw it, was of a good clear yellow, and must not be lost sight of; nor must a very dwarf white, of about the same height as the last, called Empress of the Whites, a variety clear in colour and promising in character, but as it came under our notice, hardly enough developed to admit of a positive opinion being formed respecting it.

From amongst the foregoing, may be selected varieties adapted for all purposes where dwarf or bedding Dahlias are required—varieties which will alike give satisfaction in regard to the quality of the blossoms, and their habit of growth. But dwarf as are many of these, the process of dwarfing by selection will doubtless yet go on—certainly if a demand for dwarfer varieties is kept up. We hope to see this process judiciously applied to the Pompons.

—— At p. 147 of this Journal for the present year, we have published the statement of a Young Gardener respecting the unaccountable decay of plants belonging to various natural orders. Specimens of different bulbs which had failed were transmitted to us, and also a quantity of the soil. We are now in a condition to state that the soil itself was perfectly harmless. We have Onions thriving in it without a symptom of disease. But not only is this the case, but the bulbs, which were undoubtedly partially exhausted by the decay of the first roots which they had developed, when planted in the common soil of a border succeeded perfectly, one of them producing one of the most beautiful Hyacinths we ever saw, and all throwing up good flowers. Our correspondent therefore may be assured that the fault is to be attributed neither to improper soil nor to any disease in the plants themselves; and if he is certain that there was no neglect in watering, or any other great error in cultivation, his suspicion that they were tampered with in some way, either by the admixture of some noxious substance in the water, or by the application of water at too high a temperature, is not without probable grounds. *M. J. B.*

New Plants.

We have received from Messrs. Fisher, Holmes, & Co., of Sheffield, some new plants of sufficient merit to deserve especial notice.

The first is an Abies of such singularly dwarf habit that it might almost be compared with a Heath; leaves very dark green, with a white streak beneath, rough at the edge, and no bigger than those of Menziesia polifolia. It is no doubt some sport of *Abies canadensis*, and may possibly be included in some catalogues under the name of *Abies canadensis nana*, but the leaves are much smaller than in the plants which we have seen bearing that name. We propose to call it *A. canadensis microphylla*. Messrs. Fisher & Co. raised it from seed imported from Canada, and they have found it much more hardy than *canadensis* itself, it not having suffered in the severe winter two years ago when so many Conifers were injured.

We have also received five *very nice* varieties of the *common Yew*, seedlings raised at Handsworth, viz., 1, a variegated Irish specimen; 2, what they call there *pyramidalis variegata*; 3, a "berry-bearing" *variegata*; 4, a slender green variety; and 5, a very distinct sort with the habit of an *Epacris*.

But far more important than any of these is a very hardy hybrid *Berberis* between *Darwinii* and *empetrifolia*, which promises to be one of the best evergreen shrubs in cultivation. We call it *B. stenophylla*. The branches are hairy; the spines 3-parted; the leaves very dark green, about ½ inch long, pale beneath, tipped with a short spine, and rolled backward at the edge, so as not to appear flat, but to look almost cylindrical. The flowers are of the same charming apricot colour as that which renders *Darwinii* so ornamental, but they are smaller. We are informed that in the autumn the branches are "completely covered with berries of large size," and that the plant "will grow in any exposed situation without injury, and as it strikes readily from cuttings is likely to make capital cover for game." We shall be much mistaken if the variety does not become a universal favourite. Of course it cannot be allowed to bear the barbarous name of Handsworthensis, under which it has been exhibited.

THE HORTICULTURAL CONGRESS AT BRUSSELS.

The International Congress of the Federation of the Horticultural Societies of Belgium was opened on Sunday, the 24th of April, at 3 P.M., under the Presidency of M. de Cannart d'Hamale, President of the Royal Horticultural Society of Malines, Vice-President of the Federation, supported by the Provisional Committee, composed of M. Van den Hecke, President of the Royal Agricultural and Botanical Society of Ghent, Vice-President; M. Ronnberg, Chief of the Agricultural Department of the Ministry of the Interior, Deputy of the Government; M. Linden, Honorary Director of the Royal Zoological Garden at Brussels; M. Kegeljan, Secretary of the Royal Horticultural Society of the province of Namur, treasurer; M. Piré, Secretary of the Royal Botanic Society of Belgium, Secretary, in the place of M. Morren, who was prevented from attending by illness; M. Barlet, Librarian of the Royal Horticultural Society of Liege, Assistant-Secretary. After the names of those who had signified their intention of being present had been called, and M. Wesmael had been named second Assistant-Secretary, the President delivered the following address:—

The Federation of the Horticultural Societies of Belgium, strong in the support of the Government, has seized with eagerness the occasion of the fête which the Société Royale de Flore has organised with so much success, to bring into one focus the intelligence of all those who professionally or for amusement engage in the pursuit of our art and science. Thanks to the help which these mutually render to each other, practice may shine in contact with science, and in the result, precise and useful data may be obtained for the advancement of horticulture.

The appeal of the Société Royale de Flore has been understood; and that of the Federation has not been less comprehended. Both have been responded to in a brilliant and generous manner. The Société has seen the richest and rarest plants enter its saloons. The Federation, in its turn, has received nearly 500 adhesions to the Congress; and amongst them we are happy to count so many distinguished men, who have devoted either their learning or their practical life to the progress of the science which to us is so dear. And if the Société de Flore is made happy with the riches without end which have poured in from all parts of Europe, we salute with pleasure the learned men from all countries, and the distinguished representatives of foreign horticulture, who have come amongst us. Thanks then, to the zealous and devoted individuals who have consecrated themselves to the progress of agriculture; thanks especially to you, the botanists, who have desired to give éclat to our modest Congress by associating yourselves with our labours, and who have not disdained to offer us a friendly hand, and by your hints and useful lessons to guide us to that improvement of which horticulture is susceptible. Your debates, sirs, will be ours in this sense, that we shall gather fruits, which I am convinced will germinate in all soils, and principally in that of our fine country, the cradle of the culture of flowers, a love of which is innate in the heart of the Belgians,

and is a precious inheritance from our ancestors, the glorious remembrances of which are closely bound up with the love of our country, and of the independence and liberty for which our fathers so generously shed their blood.

Gentlemen, horticulture is no longer what it formerly was, that is to say, a blind practice turning constantly in a single circle, composed of Auriculas and Tulips, and Anemones and Pinks, and such like. The circle is greatly enlarged now; it is so vast and so extended, and comprises so many different genera of plants, and so many plants from different countries and different latitudes, that the art of gardening rests upon a basis essentially scientific. In reality all the sciences, physical and chemical, as well as natural, come to its aid, but that which rules all the others by its essential qualities, that which is the basis of all culture, is in reality, the science of Botany, with its theories, its facts, its hypotheses, and its laws. It is upon the observation of physiological facts that horticultural science is based. To claim in our days the rank of a true amateur of flowers, it is necessary to understand wonders: to know the familiar structure of the organs of plants and their functions, to possess some idea of the mechanism of their life, and of their nutrition and fecundation, to be able to account for the phenomena of respiration, and of the sleeping and awaking of plants, and lastly, to know something of their stations and habitations, and of the laws according to which they are distributed in the different regions of the earth.

Gentlemen, these few words will suffice, I hope, to make it understood that botany has now become an indispensable science for cultivating with intelligence and success the numerous plants imported into Europe from all parts of the world. Botany has, besides, many attractions, and acquires every day a new importance by its numerous relations with the philosophy of the man of nature. Let us then be thankful to the many distinguished botanists who, notwithstanding the distance and fatigue of the journey, have not feared to come to us, to initiate us in the mysteries of vegetation. Let us address to them a sincere and cordial welcome; let us congratulate them, or it would be better to say let us congratulate ourselves on seeing them among us, for they come to establish between horticulture and botany an intimate and indissoluble bond.

In the name of the Federation of Belgian societies I address to you all, with all the gratitude of my heart, an affectionate and hospitable welcome; and in the name of the horticulturists here present, I address sentiments not less affectionate and grateful to you, the botanists, who have come to guide and enlighten us by the torch of science.

This address was received with prolonged applause. The President then proposed to proceed to the final construction of the committee. A suggestion of one of the members to confirm the provisional committee in their office was carried by acclamation; and on the proposition of another member of the assembly, the following learned foreigners were invited to take a place in the committee in the quality of Vice Presidents:—M. Brongniart, Member of the Institute, Professor to the Museum of Natural History at Paris; Baron Hügel, Deputy Extraordinary and Plenipotentiary Minister of Austria; M. Fée, Professor of Botany to the Faculty of Medicine at Strasbourg; M. Santo-Garovaglio, Professor and Director of the Botanic Garden of Pavia; M. Koch, Professor to the University of Berlin, Secretary of the Society for the Encouragement of Horticulture in the Prussian States; M. Lecoq, Vice-President of the Horticultural and Agricultural Society of Andenne, Horticulturist at Seilles; Mr. Thos. Moore, Director of the Botanic Garden, Chelsea, London; Mr. Murray, Assistant Secretary and Delegate of the Royal Horticultural Society of London; M. Planchon, Professor of Botany at Montpellier; M. Regel, Director of the Imperial Gardens, Secretary of the Imperial Horticultural Society, and Deputy of the Horticultural Society of St. Petersburg, Editor of the *Gartenflora*; M. Von Siebold and Professor Reichenbach, Director of the Botanic Garden at Hamburg.

The Congress met on the 25th of April at 10 A.M. Among the communications submitted for discussion was a memoir from M. Bastin on the necessity of establishing a uniform nomenclature for kitchen garden plants. The author of the memoir proposed to establish a Latin nomenclature with the view of rendering it universal. After a debate, in which many members took part, the proposition was referred to a commission composed of MM. Van Hulle, Rodigas père et fils, Selys-Longchamps, Planchon, Pynaert, and the Count de Lambertye.

The assembly then proceeded to discuss the first question of the programme:—"Acclimatization, naturalization, and domestication of vegetables."

Mr. Cordier, Vice-President of the Botanic Society of France, made some remarks on the possibility and utility of acclimatizing several species of Mushroom.—M. Planchon protested against the term acclimatization, and would substitute that of naturalization.—M. Von Siebold agreed with the opinion of M. Planchon. He cited in support thereof the introduction of certain plants from Japan, which have been "acclimatized" in the country only because they have found the conditions of culture advantageous.—M. Lecoq asked M. Cordier if he knew any certain means for the culture of Mushrooms; he himself had made some beds which had not given good results.—M. Cordier did not know any certain means, but indicated the systems followed in England, in Italy, &c.—M. Planchon combated the abuse of thermometrical means as the expression of the temperature, in relation to vegetation.—Prof. Hoffmann, Director of the Botanic Garden at Giessen (Hesse Darmstadt), spoke of the advantages of making use of thermometrical means.—M. Regel explained the sense in which he understood the term acclimatization. He could not agree with the observations of M. Planchon.—M. Planchon admitted partly the observations of M. Regel, and acknowledged that there was such a thing as acclimatization by selection, and acclimatization by adoption.—Baron Hugel agreed with the opinions expressed by M. Regel.—The arguments invoked by M. Planchon as to the abuse of thermometrical means were opposed by M. Donckier, and defended by M. Barral, Editor of the *Revue Horticole*.—M. Schneider explained his astrometeorological theory—that of the influence of the stars on vegetation.—M. Baltet, delegate of the Society of Agriculture, of Sciences, and Belle-Lettres de l'Aube, read a memoir on the productions of the fruit garden, which he regarded as likely to acquire considerable importance in the culture and the commerce of the fruits.

The Congress reassembled at 3 P.M. The Ministers of Foreign Affairs and of the Interior, and the Governor of Brabant were present. Professor Santo-Garovaglio, Director of the Botanic Garden of Pavia, offered some remarks on the vegetation of the north of Italy, and on the Culture of Mushrooms. He explained the different observations he had made in the north of Italy, and especially in the town of Carlotta on the Lake of Como, where his studies were principally directed towards the Coniferæ.—M. Fée, Professor of Botany at Strasbourg, made some remarks relating to acclimatization and naturalization.

In reference to the second question of the programme, viz:—"Hybridization, crossing, and artificial fertilizations in general; characters of Hybrids, their sterility, their polymorphism; preservation of Pollen, &c.," M. Wesmael, Assistant-Secretary, read a letter from M. Belhomme, communicating some details relating to the preservation of Pollen. This communication gave rise to some critical observations on the part of M. Fée. The writer, he observed, did not explain how he had been able to preserve the pollen for a long time, and to verify its vitality. He had himself operated on pollen which might have passed for being completely effete or atrophied, and which had yet given some results. He was of opinion that the pollen did not act solely by the more or less normal development of the pollen tube, but that it might act equally without this, and also without the intervention of the stigma.

The 3d and 4th questions:—"Theory of the variation of species; of the origin of varieties, and of races, &c." "Dynamics of plants, and the periodic phenomena of vegetation; influence of temperature on the germination, leafing, flowering, and fruiting of plants, &c.," elicited no discussion. On the 5th question:—"Food of plants, action of the atmosphere, influence of nitrates, ammonia, phosphates; theory of manures, composts, &c.", M. Pynaert, Professor at the School of Gentbrugge, Ghent, read a long paper on the fabrication, composition, action, and use of peat earth. On the 6th question:—"Floral æsthetics; points of excellence in flowers, single and double; harmony of colours, &c.," M. Koch, Professor of the University of Berlin, editor of the *Wochenschrift*, explained his theory of the beautiful in Nature.

The 7th question:—"Coloration of plants; variegation, is it hereditary by the seed and contagious by the graft?" led to considerable discussion.

M. Von Siebold explained the observations he had been able to make during a stay of 12 years in Japan, which country, he said, had yielded more variegated plants than any other. He described its geographical and meteorological conditions; and from the fact of the exposed northern latitude (*latitude franchement boréale*) of Japan, laid down the principle that variegation was a disease. In proof of this opinion, he stated that under the tropics one could not find the same species at once green and variegated; neither in Siberia were the plants variegated. The variegation was an affection which marked the leaves of those plants that were transported out of their normal climate. "I will present to you," observed M. Von Siebold, "a work representing 800 variegated plants, found only in Japan. From whence comes this multiplicity? From a very simple fact, namely, that in Japan horticulture is millennary, whilst at home it is as yet only centenary. That explains why our normal native plants are still so little varied." M. Von Siebold then related that from among the large number of Japanese plants he had introduced, he had himself "made" three which were variegated. Each one of these had arisen from a plant with the leaves of a plain green colour, and which having suffered accidentally, became variegated. Amongst others this was the case with Sedum Sieboldi medio-variegatum, which had been brought into commerce, and had been thought a variegated plant from Japan, although in reality the fact was not so. "This Sedum does not," he observed, "come from Japan, since it was I who made it." There was yet another fact to be mentioned, viz., that the variegation was not produced directly by disease of the seeds, but by that of the plant while exposed to air and sun. To sum up: the mother plants were healthy and green, the variegated plants were chlorotic. "These," remarked M. Von Siebold, in conclusion, "are the observations I have made during my travels, and I will continue to apply them with success in the manufacture of variegated flowers." (Laughter and applause).

The theory developed by M. Von Siebold raised a very animated discussion, in which several members took part; amongst others MM. Planchon, Reichenbach, Regel, Baron Hügel, Hoffmann, Rodigas, Andre, Kolle B. Dumortier, &c.

(To be continued.)

TOWN WINDOW GARDENS.

No one can ever have been concerned at all in town gardening without being struck constantly by the persevering efforts made, under circumstances always unfavourable and often almost hopeless, for rearing a few plants and having a few green leaves to cheer the monotonous row of windows. Here one sees just inside, a pot of Musk or Primroses; there perhaps some adventurer has set up a tiny rail and ventured some pot outside, with its short-lived Creeper or its yellow and sickly Mignonette. But, unhappy as the plants often look, we meet sometimes with bright exceptions, and I can now remember in different parts of England—speaking of towns always—various lovely masses of flowers grown outside windows.

I must say that in all cases the same plan has been adopted—the method different, but the end gained the same. A box or tray of some kind has held the sunken pots, while the contents of this tray have sheltered and fed the roots contained.

But to have such a box or tray is not always an easy thing. Wood, with age will decay, and then a downfall is imminent. Tile boxes are expensive, supposing them to be handsome, and there is the fixing up, which is to so many a difficulty because they do not know how to set about it. Still, those who have once seen such window gardens desire to see them multiplied; and it was therefore a real delight to me when the kindness of their projector invited me, now some months ago, to see an experimental garden that he had just set up.

The idea had occurred to him of making some inexpensive and cut and dried plan, so to speak—something that would be plain sailing, that most working men could afford to buy, and that any would know how to set up. The invention has now been brought out by the Coalbrookdale Iron Company, and here I will quote a few sentences from the prospectus they have just issued, as it will enable me to explain more clearly afterwards what I think will be found the best way of using it.

"By producing the registered iron window gardens in iron, capacious, strong, light, lasting, and easily affixed at the outside of windows, the Coalbrookdale Company trust to meet the wishes of those who love flowers, and this down to prices that will allow the mechanic in the populous parts of London this luxury, as well as those who live in larger houses. In this way a semi-circular iron flower bed, 4 feet in width by 2 feet of projection, and 9 inches in depth, receives, besides the broken crocks, &c, for drainage, two barrowfuls of the garden mould, affording (even in cities, especially at upper windows, where the stratum of air is purer), the production of large groups of flowers in great perfection of bloom. The almost universal love of flowers, even under the most unfavourable circumstances, in London, is evident in a variety of inefficient expedients; and the Company are in hopes, therefore, that the iron window-gardens which they now offer, of great variety of size pattern and price, will meet a public want.

"Also, they submit these window gardens as affording great safety at nursery windows, a little light wiring for creeping plants being in addition, if desired, affixed at and above the outer circle of the gardens. The durability of these window gardens is insured by their being made of the best iron, either galvanised or treated with an anti-corrosive material, and the Company desire to call attention to their safety and easy mode of fixing.

"The wrought-iron bent bar supporting the window bed is first put into the wall by two holes, and fixed by cement, which is done without scaffold and from ladders, and remains to set without weight being put on it; and next day the garden bed can be lifted in from the windows on to this, no bolts being requisite.

"This done, the bed may at once receive the crocks and garden mould, and the flowers be planted.

"It is suggested that the window garden be first offered up in its place by being hung over the window sill, when the line for the wrought-iron bar to be put into the brickwork is marked underneath by the workman. The window garden is then removed until the wrought-iron bar is put in and fixed to the depth in the wall as marked on it. This should be done by a level, so as to ensure the window garden being level when placed on it.

"In the cases of the sills being part of a string course, or in any other case in which the strap of iron over the sill is inapplicable, the Company have other modes of modifying these parts, so as to meet all circumstances, and will be happy to attend to them, on sketches and dimensions being forwarded to them. In all cases however, the main support depends on the

wrought-iron bar beneath let in the wall, which forms the registered principle of support.

"The wrought-iron support is warranted in all cases equal to four times the weight of the window garden filled."

I thought it best to quote so far, as the mysteries of fixing iron things are altogether beyond my head, but I think as to the gardening in them I may perhaps say something, the same style of window-garden having been such a favourite with me.

First, then, we must remember the incalculable advantage to all town and London grown plants of being lifted up from the ground. The first time I tried the plan myself it was that there was a back garden, deep down and well-like, in which not a thing would grow. A little breakfast-room window looked out upon this "dampery," and there I got my boxes fixed, raised above the level of the surrounding walls, the plants enjoying the free current of air that now passed round them.

The way in which that garden throve attached me for life to this plan. The soot and smoke may be bad in towns, but that I don't think is the real grievance. It can after all be washed off; it is the stagnant air, or the no light in some cases—the scorching sun in others—that kills and stunts town plants. All these worst of evils, because those beyond our own remedy, it seems to me are removed by the registered iron window gardens. The one that I saw in use was filled with spring bulbs and flowers, and these, as I understood, were planted in the soil.

But I shall advise all gardeners on setting up these contrivances to use abundant charcoal drainage, and then above it a layer of cocoa-nut fibre or else dry moss or grass. The same padding I think may well extend round the front rim. The plants can then be kept in their own pots by all means, and Clematis, Cobœa scandens, and Sweet Pea, Canariensis and Ipomœa, Ivy and Convolvulus, I know will flourish luxuriantly.

Roses I have had flower well, but not in a very smoky place; Stocks, Mignonette, Lobelias, Geraniums, and Heliotropes, Arums and Fuchsias have also grown and flowered well. It is chiefly, I imagine, because they can be well watered, and because they have the great benefit of free air.

And then what a benefit they are to our little dull-looking breakfast rooms or studies, and what a very great pleasure they will give to the London artisans, than whom few are more hearty flower lovers or more interested gardeners, if they can have for their parlour window such a country-like bed of sweet flowers. *E. A. M.*

Home Correspondence.

Floral Illustrations.—I think it a pity that nurserymen and others who issue plates of the novelties they intend sending out, should not be more careful to see that these illustrations are correct. They are so often overdrawn and over-coloured that I have long ceased to have any faith in them; and if I show one to a friend, he says: "Very beautiful: if the original is only half as good, it will be an acquisition." It seems to be taken for granted that the thing itself will not be so good as represented. I have been led to make these remarks by seeing a plate of the Rose "Princess of Wales," issued by Mr. Wm. Paul, which so far as regards colour might pass for any one of the 50 new Roses lately sent out, quite as well as for the Princess of Wales, whose flowers are of a very deep crimson in the living plant, while the plate is coloured a bright vermilion scarlet. I do not say that in this instance the plate is exaggerated, but it is certainly incorrect. *Antihumbug.* [In this matter nurserymen have to depend very much on the skill of the artists they employ; moreover the colours of flowers are for the most part inimitable by the pigments of flower painters. We agree that for the sake of their own interests all possible care should be taken by those who in this manner advertise their novelties; but we do not admit that there is any intention to deceive.]

Collinsia verna.—Though Mr. W. Thompson, of Ipswich, complains in no measured terms of the award made by the Floral Committee to the plants of Collinsia verna sent for their inspection, his own remarks go far to prove the justice of that award, for he says, had the large masses of this flower in full perfection in his own grounds been seen, the "misjudgment" would have met with "an unanimous reversal." Does not Mr. Thompson perceive that the Committee can only judge of plants that are placed before their eyes; and if annuals or any other plants are sent for examination, the result will be arrived at from the condition the plants are in when examined. It is self-evident that if plants are sent not fully in bloom their true merits cannot be seen; and this was unquestionably the case with the Collinsia verna; the flower spikes were not developed, and the habit of the plant was undefined. I am sure that myself and others will be ready to admit the beauty of this flower, and to admire it; and if its habit is equal to, or even resembles that of my old favourite Collinsia bicolor, I am willing to allow that it is an annual of first-rate qualities. Probably all this may be very evident at Ipswich, but as the Committee are not gifted with long sight, and could not see so many miles from South Kensington, it is surely unfair and unjust, on such premises, to question, in the way Mr. Thompson has done, the opinion at which they arrived. *One of the Committee.*

The Hydropult.—I can say a little more in favour of the hydropult than your Correspondent, Mr. Blackmore, p. 438. I have had one in almost daily use for more than 12 months, and it has turned out very satisfactory; in fact, I have never had the least fault to find with it. We have put it out of working order just now through not knowing the construction of it. I was not aware that the valves are made of india-rubber, and having used them with rather warm water, I caused them to curl up slightly, so that the machine does not discharge the water with the same regularity which it did. For indoor work it is better liked by me and my men than anything I have had before. The temporary use of the common syringe now appears very tedious. With the hydropult I can syringe a house 40 feet by 16 feet thoroughly without making a move, and I never found a drop of water escape from it except by the proper channel. So far, therefore, it appears I have been fortunate. *Henry Joyce, Brantridge Park, Balcombe, Sussex.*——I am of the same opinion as "Veritas," (see p. 246), respecting the Hydropult, and I endorse his remarks in every respect. In consequence of the flattering advertisements I saw regarding it, I made a trial of one of the machines, and after using it three times I put it away, for the very same reason as that mentioned by "Veritas." I have since substituted one of Warner's American Garden Engines, which in my opinion is far superior to the much overrated Hydropult. My men are much pleased with the American machine, but the Hydropult they despise. I have no wish to run the implement down, I may have had a bad one, but it is certainly inferior to Warner's; it may do in a small villa garden, but it is of little use in large establishments. There is one thing I certainly object to, and that is, persons not giving their names and addresses when criticising important subjects like that now under notice. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.*——I am indebted to this, and feel anxious to pay my good word honourably. I have no wish to over-rate—a course that has brought it, and brings everything so treated, into trouble at last; still less do I wish to give faint praise. I find it far more useful than a syringe; the discharge is copious, and so quickly repeated as to be almost continuous. The green flies lose their legs and are gone before they can find them again. No syringe can deliver the same quantity of water in the same time; water cannot be thrown so lightly to a distance from a syringe; nor is the jet of any syringe equal to that of the Hydropult for searching corners, and rebounding water on the under surface of the leaves of climbers; tender shoots at a distance will bear a stroke of nearly the full force of this jet without hurt, and with much benefit; it is also very easy to aim this stroke. It does not supersede syringes, but for a general house wetting none are equal to it. My gardener is a dwarf, having been burnt when a child; yet he works it with ease; the foot gets a little wet at times, and it would be an improvement if this were obviated. Still it is but slight, and less annoying than a wet shirt sleeve. It beats the syringe also in this respect—you can bathe your plants to your wish without any labour whatever to yourself, by guiding the stream from your man's working. I have had mine one year, and shall buy another when it is worn out. *Henry Cavendish Browne, Dungarvan, Co. Waterford.*

Rhododendron Thomsoni.—A beautiful plant of this Sikkim species was in full flower a short time ago at Fairlawn, near Sevenoaks, the seat of J. Ridgway, Esq.; between 40 and 50 heads of bloom were fully out on it, and although the plant was surrounded by the choicest kinds of hybrids, it stood out from among them in bold relief, and undoubtedly possessed merits to which none of them could lay claim. The colour of the flowers is rich carmine, the substance of the tube firm and leathery, and undeniably the florets are large and handsome. The plant, I believe, has flowered before at Fairlawn, but of this I am not certain. The situation is one fully exposed to the south and east. A few high shrubs shelter it from the west, and in the distance a belt of Yews might screen it a little from the north. R. Wallichianum had also flowered in the same border, but less satisfactorily; R. Edgworthii and others are also under trial out of doors. A fine plant of Desfontainea spinosa was pointed out to me as having flowered beautifully for several years, while under glass the noble R. Dalhousiæ has flowered splendidly this season. *J. R.*

Eucalyptus globosa.—A fine plant of this is now in bloom in a large conservatory here. As it has been in the same situation many years, and never previously flowered, I shall be glad to know if this is an unusual occurrence. The flowers grow singly, except one cluster of four. *J. B. T., Barton Seagrave, May 10.*

Foreign Correspondence.

THE WINTER ON THE RIVIERA: THE SPRING IN NORTH ITALY.—The winter which has just passed has been one of the most severe, if not the most severe, of the present century in the south of Europe. Snow has fallen at Malta, and ice has been seen at Alexandria, at Cairo, and even at Suez. Some of your readers may feel an interest in the state of the temperature in the Riviera, the Undercliff of Western Europe, and I therefore trouble you with the following details.

The mountain chains of Switzerland and Savoy reach the Mediterranean between Genoa and Nice or Cannes under the name of the Maritime Alps. On the shore at their feet is a ledge of habitable country, which may be compared to the Undercliff of the Isle of Wight, and is known under the name of the Western Riviera. Exposed to the direct rays of the southern sun, and protected from the northern winds by mountains many thousand feet high, it enjoys a very exceptional winter climate. Indeed Palermo, which is 6° more south, must be reached to find as warm a region as the more favoured parts of the Riviera, such as Mentone and St. Remo. My excursion to Sicily, of which the details were given this time last year in your Journal, proves that such is really the case. Mentone, more especially, is the region of the Riviera where the vegetation indicates the greatest amount of winter warmth and the greatest protection from winter cold. In no other part are seen such extensive groves of Lemon trees; nor do they only occupy very sheltered ravines, or orchards protected by single walls, as in the other favoured regions of the Riviera. In the eastern bay may be seen quite a forest of Lemon trees creeping up the side of the mountain, and extending from the sea shore. Several winters passed at Mentone had familiarised me with the usually mild climate of the locality, and had led me to believe that severe cold would be fatal to its vegetation. I have been therefore quite taken by surprise to find how little real damage a very exceptional amount of cold has done.

On the 6th of February snow began to fall, with an east or north-east wind, and covered the ground an inch deep. Although the clouds dispersed and the sun shone forth the next day as usual, the temperature remained unusually low The thermometer went down to the freezing point every night, and on the sea-shore and at the mouth of ravines leading up to the higher mountains, where they are down draughts, to four, six, or eight degrees below freezing. The snow remained on the ground on the shore, and in north aspects behind the houses, for nearly a week, a circumstance which I had never witnessed during the previous winters, and which the educated inhabitants state had not occurred for more than a quarter of a century. The results of such severe weather on the peculiar vegetation of this region are interesting.

The Olive trees which cover the mountain sides, magnificent in size, and of a hoary old age, and which constitute the chief arboreal feature of the country, were not injured in the least by the exceptional cold. This fact tallies with the extreme age of these trees; no cold ever experienced in the Riviera, even once in a century, can damage them. Many were, however, greatly injured by the unusual fall of snow. The branches of the Olive tree are generally given off near the ground, two, three, or four in number, and extend, at an acute angle, some 20, 30, or 40 feet. These branches have no pliability or elasticity; indeed, they are nearly as rigid as metal. The foliage being terminal, as in most evergreen trees, the snow which falls rests on their extremity, acting on the branch like a weight at the end of a long lever. Hence numbers of immense branches, hundreds of years old, were torn off from the parent stem and strewed the ground, occasioning great loss to the proprietors. This devastation clearly shows that Olive trees are not made to bear the weight of large masses of snow, and that such a fall must be considered a very unusual, indeed unnatural, circumstance. The Coniferæ which inhabit snowy regions have mostly branches which do not radiate far from the parent stem; these branches also, being full of turpentine, and of an elastic structure, can bend under their winter load of snow without breaking, and can thus either shake it off or give way beneath it without injury. This is another manifestation of the admirable manner in which trees are adapted by nature to the atmospheric phenomena of the region where they are destined to exist. Even could Olive trees grow and flourish in a northern climate, they would soon be despoiled of all their branches by the mere weight of the winter snows.

The Lemon trees certainly showed a more vigorous constitution than the inhabitants of the South of Europe give them credit for. Those that were only exposed to two or three degrees of frost were not injured in the least. A degree or two more killed the young shoots at the circumference of the tree, but it was only in the lower part of the coldest ravines or torrents leading up to the highest mountains that the trees were destroyed. In some such regions, however, entire orchards were killed. Although individual proprietors were thus injured by the loss of their Lemon trees, the district as a whole was not materially damaged, the immense majority of the trees having escaped. Indeed it struck me that the destruction, where it occurred, is to be explained by the proprietors having been tempted by the great profit attending the culture of Lemon trees to extend it to exposed unsheltered regions, which do not give them the protection they require in exceptional years, even on the Riviera. The fruit was destroyed in many places where the trees were uninjured, or only the small shoots nipped. I presume that two or three degrees of frost really has this effect.

In other respects the only effect of the unusual cold was to retard spring. The Roses, Stocks, Marigolds, Salvias, Anemones, Violets, Pansies, Verbenas, &c., continue to flower as usual in sheltered gardens throughout the winter, showing how slight the cold must have been a few miles from the ground, and how great the influence of the sun in protected localities. Where the Lemon trees were killed, on the contrary, every flower was destroyed to the ground.

On the 8th of April, when I left Mentone for a town in the Italian lakes, summer had regularly commenced in the Riviera. The spring flowers were passing away, and those of early June had made their appearance; the days were warm and cloudless, the nights cool and pleasant, the thermometer never going below 50°. The mountain sides were clothed in verdure, and perfumed with wild Thyme, Rosemary, and mountain Lavender; the Willows and Poplars were in full foliage. On leaving Genoa, and passing the protection of the Apennine chain, a great change was seen. Winter still reigned in the plains of Lombardy; the trees were leafless, the hedges and ground bare. Indeed, the spring was not more advanced than it usually is in England at the same time, owing evidently to exposure to the north winds. Nothing can be more dreary and monotonous than the fertile plains between Turin and Milan as I have recently seen them. They are perfectly flat, and merely divided by ditches or small canals bordered with Pollard Willows, or Poplars still devoid of foliage. Along the line of railroad these plains are principally cultivated with Rice, and the spring operations were in full operation. Part of the country was under water from artificial irrigation. The process seems to be, firstly to plough the fallow land, to divide it into sections of from 10 to 20 acres by banks of mould 1 foot high, and to let in water so as to thoroughly saturate the ground. The water is then let off, the Rice sown, and later the field is again covered with water to the depth of two or three inches.

The Italian lakes, Iseo, Como, Lugano, &c., are immediately surrounded on the north, north-east, and north-west by very high mountains, and thereby obtain that protection from the north which appears to exercise so much influence on climate Thus summer appeared again to have been reached. The gardens were full of early summer flowers, the Hazel, Willows, Poplars in full foliage, Camellias, Azaleas, and Rhododendrons growing and flowering in the open soil; the former were 20 feet high or more and large in proportion, and covered with myriads of beautiful flowers. The temperature was about 64° all day in a north room; indeed the more I have studied the climate of the south of Europe the more convinced have I become that protection from the north and north-east has much more influence in securing a mild temperature and southern vegetation than mere latitude. *Henry Bennet, Bellaggio, Lake Como, April 17.*

Societies.

Linnean: *May* 5.—G. Bentham, Esq., President, in the Chair. Dr. J. Kirk was elected a Fellow; and Prof. Moris and Prof. Steenstrup, Foreign Members. The following Papers were read:—1. "Note on Cœnurus," by Dr. Cobbold.——2. "On four new genera of plants of Western Tropical Africa belonging to the natural orders Anonaceæ, Olacaceæ, Loganiaceæ, and Thymelaceæ, and on a new species of Paropsia," by Prof. Oliver. The names of the new genera were Piptostigma (Anonaceæ), two species; Rhaptopetalum (Olacaceæ), one species; Leptocladus (Loganiaceæ), one species; and Octolepis (Thymelaceæ), one species.——3. "On Walleria, a new genus of Conantheræ," by Dr. J. Kirk. Two species were described, W. nutans and W. Mackenzii, both discovered in the mountains of Eastern Tropical Africa, at an elevation of 4000 feet, and not far from the mission station of the late Bishop Mackenzie, by Mr. Horace Waller, "one of the few survivors of the ill-fated mission to which we owe many additions to the flora of that region." The Conantheræ, it was remarked, differ from other Liliaceæ in the semi-adherent ovary, and in the anthers not being versatile, and opening by pores. The amount of adhesion, however, varies, and in one of the genera the anthers open by longitudinal valves. The characters of the group were stated to be most fully represented in Conanthera and Cumingia, which differ from each other in the perianth of the one being 6-parted, of the other campanulate; in these the stamens were described as united near the apex in the manner of Solanum. Zephyra has two of its stamens abortive, and represented by curved filaments, whilst the fertile anthers are spurred at the base. Cyanella has not only the habit but the structure of this group, the ovary being half immersed in the stalk, and the stamens opening at the apices. In Pasithea the ovary is semi-adherent, but the stamens open by longitudinal valves, thus offering a transition to the ordinary structure of the Anthericeæ. Walleria likewise connects the two groups, for while retaining the staminal arrangement of Conantheræ, it has the ovary of Anthericeæ.——4. "On a Species of Chætopterus from North Wales," by J. Williams, Esq., in a letter to Dr. Baird.——5. "Note on Cygnus Passmori," by the Rev. W. Hincks.

Entomological: *April* 4.—F. Pascoe, Esq., F.L.S., in the Chair. Mr. F. Smith gave some further evidence on the supposed luminosity of Fulgora candelaria, known in China under the name of the Star of Confucius, as he had been informed by Sir John Barrow. Mr. Bates on the contrary stated that he had kept the F. lanternaria alive, but he had never found it to be luminous, nor did any tradition or rumour exist among the native Indians as to its emitting light. Mr. Butler exhibited a number of insects imbedded in amber and gum animé, of which some description was given by Mr. Newman. Mr. Pascoe made a further communication on the Longicorn beetles of New Holland, of which he described 40 new species, in addition to those comprised in a previous memoir. He also made some observations on the characters to be obtained from the structure of the underside of the body of those insects. Mr. A. R. Wallace exhibited a remarkable series of species of Papilio, collected by himself in the Eastern Archipelago, presenting some singular instances of dimorphism, trimorphism, and even polymorphism in the females of certain species of which the males appeared only under a single form. This was especially the case with Papilio Pammon, P. Memnon, and P. Ormenus. Professor Westwood exhibited a very fine Papilio from Ceram, recently received by the Museum of Oxford from the Museum of Leyden, which he considered to be a large local form of P. Peranthus, but which Mr. Wallace regarded as a distinct species. He also read descriptions of a new species of walking leaf insect from the Fee-jee Islands, and a gigantic new Heteropteryx, to which he applied the name of H. Hopei. The Rev. Hamlet Clark read some extracts from letters received from Mr. John Gray, who was collecting insects in the Cape de Verd Islands. Mr. Douglas Timins forwarded some notes on the insects observed by him during the winter months in the neighbourhood of Cannes. General Sir J. B. Hearsey exhibited a volume of drawings of the Transformations of the Lepidoptera of India, executed by one of his daughters. Mr. S. Stevens exhibited a variety of insects recently forwarded by Mr. Diggles from Moreton Bay. Mr. F. Smith read a Memoir on the Construction of the Nests of Wasps and Bees, in which he opposed the theory of Mr. G. R. Waterhouse developed in a paper read before the Society at a previous meeting.

Notices of Books.

The Summer of 1864 *: founded on the Vernal Equinox. With Observations on the Summers of England, coupled with Remarks on the Locality and Meteorology of Great Britain.* By Thomas Du Boulay.

In a pamphlet of scarcely seven pages, it cannot be expected that the subjects mentioned in the title just quoted, can be deeply entered into. In the first place the author gives the forecast of the coming season. The summer of 1864 in England promising, from the character of the Vernal Equinox, to be a remarkable one, it was considered desirable, at as early a period as was possible, to record publicly the general character of what was expected. Accordingly, in the *Mark Lane Express* of March 28, appeared the following:—"The still, warm, dry, but not productive summer of 1864." We do not see that the stillness and warmness of the season, has much to do with unproductiveness. The sum and substance of the "Forecast" is, that owing to dryness, most agricultural crops may be below the average.

The author bases his predictions on the character of the equinoctial week, or from the 18th to the 25th of March. "An ordinary equinox is followed by an ordinary summer, and predicts it; and an extraordinary equinox predicts, and is followed by an extraordinary summer, and one like it in character." Such may happen to be the case occasionally, but our author gives us no facts or figures to prove that it is generally so, either on the present occasion or in former years. In 1862 he directed attention to the numerous weather tables which had been published. We referred to a series of these, taking a portion of about 10 years, and found that the equinoctial period of 1851 was, certainly a remarkable period, 1½ inch of rain having fallen in the week. The months of May, June, July, August, September, which that period should typify, according to the author, ought to have been excessively wet; but on the contrary, the weather on the whole was fine, and the quantity of rain was less than usual. In that year the precarious basis of the "forecast" completely gave way; but that year may have been an exceptional one. Then let us take the next year, 1852. March of that year was remarkably dry, for in the whole month there fell only ¼ inch of rain, and in the equinoctial week, not one drop. Surely then the author would have predicted a very dry summer, and consequently a short crop, as he has done under similar circumstances in the present season. But what followed: in June there were only four dry days, the amount of rain for that month being nearly 5 inches; in July the supply was ample; in August and September the quantity was again much above the average; and altogether the five months typified to be dry proved exceedingly wet. The summer which the preceding equinox typified to be very wet, proved drier than usual; whilst that which the next equinox typified to be very dry proved excessively wet. Taking these facts into consideration, all that can be said of the predictions in the pamphlet before us as to the summer of 1864 is, that instead of being correct they are just as likely to prove the contrary, and are of no value whatever. ||

Of the *Useful Knowledge Society's Family Atlas* (Stanford), in our opinion the best of these valuable works now in course of publication, Parts III., IV., V., VI., and VII., are before us, and they fully maintain its high reputation. The whole work will be comprised in 20 parts in imperial 4to, at the extraordinarily low price of 2*s.* 6*d.* each coloured. What a charming present for young people!

Garden Memoranda.

Messrs. Carter & Co.'s Nursery, Forest Hill.—There is now in full bloom here quantities of the showy early flowering bulb, Ornithogalum thyrsoides, the great conical-shaped snow-white flower heads of which, borne well up as they are on stout stems, are conspicuous even at a distance, and, intermixed with other plants on a greenhouse shelf, have a fine effect. Among Pelargoniums of the zonate class in bloom Snowball stood in the first rank; it is of the same type as Madame Vaucher, but superior to that variety; it bears a fine large truss of flowers, the petals of which are pure white and of great substance. The habit is compact, the foliage rich green with a well marked dark zone on it, and altogether it must be considered an acquisition either for out or in-door decoration. Cybister is a good scarlet of the Nosegay breed; and among delicate rose kinds none were superior to Lady Cullum. Bel Demonio, Monitor, Mrs. Whitty, and Beaton's Pet, are also worthy of attention, possessing as they do bright lively colours and a good habit. Among bedding plants, of which Messrs. Carter have many thousands now out of doors hardening off for flower garden decoration, consisting of variegated and other Pelargoniums, Lobelia speciosa, Verbenas, Gazanias, Calceolarias, &c., was a golden variegated Balm which in the formation of ribbons cannot fail to be useful; it is very hardy, and in some situations might be quite as effective as Golden Chain Pelargonium. Under glass are good collections of both stove and greenhouse plants, and even of Ferns, some charming baskets of which were suspended from the roof of a house almost wholly devoted to them. These may also be seen in the window of Messrs. Carter's shop in Holborn, where, being cheap, they meet with a ready sale. Of Grape Vines a long house is crammed full, and we also noticed fine plants of all the leading varieties of them out of doors—the latter in excellent condition for fruiting. Of Clianthus Dampieri, the brilliant scarlet kind, with a large black boss in the flowers, there is here said to be an improved variety called splendens. This, however, we did not see in flower. A variegated Cobœa scandens adorned the roof of one house with interesting leafy drapery, under the shade of which Swainsona violacea, and a large collection of half hardy plants of similar description, appeared to be growing with unusual activity under the skilful management of Mr. Boston, Messrs. Carter's cultivator. Out of doors a new trial ground is being formed, which in summer will be kept gay with bedding plants. It is laid out in long straight beds, separated from each other by means of gravel walks edged with Spergula. Here new bedding plants are every season to be proved; visitors therefore will have an opportunity of forming an opinion respecting their comparative merits for purposes of out-door decoration.

Messrs. E. G. Henderson's Nursery, Wellington Road, *May* 6.—The fine display of hardy early bedding Tulips, for which this place has long been famous, was never better, if ever so good as at present. Time has enabled the Messrs. Henderson to perfect the selection; the steady weather of the past few weeks has allowed both the plants and their blossoms to fully develope themselves, and blanks being totally absent, the great extent occupied by the plants, nearly 300 feet by 50, affords a wondrous treat, whether gazed at as a whole or examined bed by bed. When people come from long distances to see this display, he must be rather a cold-hearted Marylebonian, who hearing of its unusual perfection, as we did, could resist the temptation to go and see. But there are more things in the Wellington Nursery, excluding the better known departments, than "are dreamt of in the philosophy" of gentlemen who tell you that the days of good hardy alpine and herbaceous plants are past, for the collection of these under the management of Mr. Jennings—than whom no man loves, grows or propagates them better, and who also does the Tulips and Florists flowers—is truly a magnificent one, taking the fashion of the day, and the ungenial air and soil of the neighbourhood into consideration. The existence of such a vast and increasing collection in a nursery which takes such a lead in the distribution of new varieties of bedding plants, is certainly indicative of a change in the public taste—a change which has indeed already set in.

Walking along the Tulip ground we passed, on the one hand, a fine border of Dodecatheon Meadia gigantea; on the other, a charming batch of Myosotis sylvatica in full beauty—a pleasant sight in St. John's Wood; whilst the space at the end of the Tulip ground is occupied by a large stock of the very best things carefully attended to, and all grown in pots, which of course prevents the attainment by the nobler species of the perfection which they attain when at full liberty in a congenial soil. But the Sedums, Saxifrages, and such little things are quite at home; and though the Irises, Aquilegias, &c., may not reward with all their charms the spirited proprietors, yet they are in the best condition to do so when planted out. In this quarter we particularly admired Dodecatheon splendida and integrifolia; a deeply-coloured new variety of Aubrietia, quickly being increased for sending out; a dark violet form of Iris pumila; Lithospermum fruticosum, of an almost unrivalled blue; with the golden-lined and silver-edged forms of Lily of the Valley; Thalictrum anemonoides fl. pl., an exquisite little thing among double flowers; and a fine collection of Trollius coming well into bloom, though in 48-pots.

Turning a corner for the purpose of devoting a few more minutes to the planted-out division of the herbaceous plants, a spot of deep dark blue was observable a little way off, which on closer inspection proved to be Gentiana verna in all its beauty—a delightful discovery, and perhaps an amusing one to those who may be able easily to grow it in some sweet country spot, where the sparrows are not black. Some fascinated customer had bought nearly the whole of it. Curiosities and pretty little doubles, such as Sagina apetala fl. pl.; the double Ficarias, white and yellow; Hose in Hose and other curious Primroses, were more abundant than we have seen them elsewhere. Pæonias in great diversity monopolise a large portion of the ground devoted to the very largest herbaceous plants and bulbs. P. tenuifolia flore pleno, with very finely cut Fennel-like leaves, was in great force, and coming into flower in a very dwarf state, some indeed beginning to open at 4 inches high, though many were larger; Ranunculus bullatus flore pleno, a very large and choice double yellow, was in flower here, as was Narcissus bicolor, perhaps second to none of its genus.

The hardy Cypripediums are now planted out and grown at the Wellington Nursery very successfully. Several yards of a border devoted to C. spectabile reminded us of an Asparagus bed, so strong were the young shoots pushing up. C. acaule was well above ground, and very plentiful, as was C. Calceolus. These when in flower will afford a treat not easily to be had elsewhere. In one of the large "cradles" devoted to variegated and singular-leaved plants was a large but rapidly dispersing batch of Chamæpeuce diacantha, a fine plant, flanked on one side by several hundred of Diotis maritima, on the other by the fine new variegated Comfrey, and in front Achillea ægyptiaca and A. Clavennæ, two plants admirably suited for planting out in summer. Among hardy variegated plants, which are always to be found here in abundance, Phytolacca decandra looked a well marked thing; but the most strikingly so of the new variegated plants was Cheiranthus Marshallii variegatus, which is quite a gem. *W. R.*

Miscellaneous.

Stocks for Vines.—Shortly after the introduction of Snow's Muscat Hamburgh, a great many gardeners, and myself among the number, prophesied that it would soon slip out of cultivation, even that its excellent quality would not sustain it, owing to constitutional debility; and judging from the ordinary way in which Grapes are grown, there existed cogent reasons for the supposition. The result of my experience, after having grown it for three consecutive years, is, that I could never produce a sound bunch; more than three parts constantly shanked, while many of the berries not unfrequently remained green to the last: not grown on its own bottom, but grafted in a shoot of the Golden Hamburgh. What staggered me, and set at defiance every attempt to solve the problem, no shanking ever occurred with the Golden Hamburgh; many of the bunches exceeded 3 lb. in weight, and many of the berries were 3½ inches in circumference. We would naturally suppose, under such circumstances, the Muscat Hamburgh could find no excuse for shanking, unless under the plea of pertinacity; however, its unsatisfactory proceedings eventually led to its expulsion. Three years next June I went to see Mr. Snow, of Wrest Park, who, I am informed, stands sponsor to this Grape; and here it failed to exhibit itself to much better advantage than elsewhere. It also may be noticed, that I have never seen it produced at our metropolitan or provincial shows, in a state to deserve attention, till entering the exhibition rooms of the Edinburgh Horticultural Society last September, my eye caught the noble bunches produced by Mr. Fowler, gardener at Castle Kennedy. While telling Mr. Thomson of my unsuccessful efforts, he at once said—"Graft it on the Black Hamburgh and your troubles will cease." So, without one word more, off we started to see his performance. Judge of my surprise to find ordinary sized canes, the produce of grafts put on in 1862, each carrying six bunches, many of them considerably over 5 lb. in weight, without a shanked or deformed berry. This utilitarian stroke, if I may use the expression, at once convinced me that Mr. Thomson's experiment was a decided success, and I at once resolved to put it into execution. While discussing this matter, the conversation turned over to the question, "What is the best stock on which to work delicate growing Vines?" when Mr. Thomson at once introduced the Black Hamburgh as the best qualified for every purpose; nor does our present knowledge allow us to impugn the validity of his statement, more particularly when looking at what he has accomplished in the case of the Muscat Hamburgh. But, said he, "the Barbarossa is the worst—no Grape is found to do well on it." This I know, to my extreme regret, to be experimentally true. When this useless variety was first introduced I planted nearly the whole of our late Vinery with it, but ultimately, owing to its bad flavour, I found it necessary to cut it down, and had it grafted with the following kinds:—White Muscat of Alexandria, Golden Hamburgh, Black Hamburgh, and Lady Downes' Seedling, neither of which, with every care and attention, could be made to produce more than half a crop, and that of so miserable a description as to induce me to keep every one out of the house unless upon business. The bunches were long and straggling, the berries set imperfectly. I have nothing to complain of in the way of shanking, but the stems yearly shrivelled, and the skin became as tough as Morocco leather. The border cannot be charged with any defect, as in the same house West's St. Peter's yearly produces excellent crops. In one of our early Vineries the Barbarossa has been used as a stock for the Buckland Sweetwater, and although the effect is not so decided as in the former case, the inferior condition of the fruit fully testifies that the deteriorating influence is at work. The above detail has caused me to wander somewhat out of my way. I can only claim the liberty of having done so in my anxiety to prevent others running into the same mistake, and to support with praccal testimony the truth of Mr. Thomson's assertion. *A. Cramb, in Scottish Gardener.*

Calendar of Operations.

(*For the ensuing week.*)

Should the weather set in dry, as has been predicted by some, it may be well to state that in flower gardens, and other ornamental grounds, artificial waterings will be often required; but where mulching cannot be used, if high keeping is desired, it will be of importance to stir the ground where it can be done before the water is administered, and in applying the latter be sure to do it effectually. Continued soaking must not, however, be practised; on the contrary, the cultivator must exercise his own judgment in determining when plants are suffering from drought, and when the soil is in a fit condition to receive an artificial supply of moisture. If the weather is hot, rapidly growing plants may be watered abundantly with impunity in the afternoon or evening of most days; but in the case of more delicate things, sufficient time ought to be be given for them to absorb the moisture thus applied, or the air to dry it up, for unless air as well as water reaches the roots, vegetation will not thrive, and the labour expended in watering will be thrown away.

FLOWER GARDEN AND PLANT HOUSES.

The great abundance of plants which will be in flower this season, will render conservatories and show houses very gay and attractive; great care should therefore be used to keep everything neat and clean. Insects at this season must have incessant war waged against them, for if they are allowed to accumulate the consequences will be serious. Examine the state of the borders in which permanent plants are growing, and if it appear necessary dig them over and remove some of the old soil, replacing it with fresh compost. Give Oranges and Camellias, as well as any other free-growing plants which require to be pushed on, an occasional dose of clear manure water. Plant rooted runners of Neapolitan, Russian, and Tree Violets, in beds previously prepared by the addition of fresh compost, at from 7 to 9 inches apart, and take care during the season to give them abundance of water; propagate also spring-flowering plants, such as Alyssum, Iberis, Arabis, Wallflowers, &c., to be planted in the reserve garden when rooted.

Bedding Plants.—These may now be put out; begin with the hardiest and best hardened plants, such as Verbenas and Calceolarias, leaving tenderer sorts, such as Heliotropes, Petunias, Salvias, and others likely to suffer from even a slight frost, for another week or 10 days yet. Tender Annuals may also now or soon be planted; choose dull days for the operation, and water through a fine rose, to settle the soil about the roots.

Ranunculuses.—Seedlings will now require particular attention; every means should be adopted to ensure luxuriant growth, for according to the stoutness and vigour of the foliage will be the size of the roots, and if they take up well a good bloom may be expected from them the succeeding season. Those in beds should be kept clean, removing weeds, if any, at an early period, before their roots get entangled among those of the Ranunculuses.

Roses.—These should now have plenty of liquid manure, and occasionally a good syringing with clean water over head.

Tulips.—Protect choice kinds from drenching rains should they occur, and from other vicissitudes of weather.

FORCING GARDEN.

Cucumbers.—Stop, thin, and water freely. See that the ball of earth, in plants newly put out, is well soaked with water previous to planting.

Melons.—Encourage those newly planted out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are fairly established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful wood. Keep the shoots thin and regular, pinching out any not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the thermometer rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom-heat of about 80° or 85°, and keep the soil in a healthy state as to moisture. See to providing young plants for succession crops.

Pines.—Attend carefully to the bottom-heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is apt to do after fresh materials have been added, either during bright weather or where there are pipes under the bed. Where much fire heat is used it requires some experience to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare the flowers of those in bloom in syringing. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up regular successions.

Vines.—Put everything into proper working order in late houses; also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary, in succession houses, and see that inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this.

HARDY FRUIT AND KITCHEN GARDEN.

Disbudding wall-fruit trees will now be occupying attention, and is an operation so important that we would call particular attention to it; for, by following it up carefully and judiciously during this and next month, scarcely any winter pruning will be necessary, which is of great advantage, more particularly to stone fruits, which are in general impatient of the knife; all over luxuriant shoots should be timely and entirely removed, unless they are required for filling up blanks, in which case they must be kept stopped, so as to throw strength into the weaker branches; let this process of disbudding be followed at each manipulation by powerful syringings with the garden engine for the dislodgment of insects and cleansing the trees; clean soft water will answer for most purposes, but if aphides are numerous, a solution of tobacco water must be added. If the weather is dry, water and mulch newly planted fruit trees.

Broccoli.—Prick out into beds preparatory to planting in quarters hereafter.

Cabbages.—Plant out and sow for succession.

Lettuces.—Keep up successional sowings of these as required.

Peas.—Stake those progressing, and sow others for succession.

Turnips.—Make another sowing of Orange Jelly, Nonsuch, or Stone.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending May 11, 1864, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs.	5	29.933	29.894	60	32	46.0	53	51½	S.E.	.00
Friday	6	29.945	29.777	68	40	54.0	53	51½	S.E.	.55
Satur	7	29.805	29.776	69	30	49.5	54	52	N.E.	.10
Sunday	8	29.740	29.629	56	43	49.5	55	52	N.	.02
Mon.	9	29.743	29.590	57	48	52.5	53	52	N.E.	.28
Tues.	10	29.879	29.856	61	45	53.0	53	52	E.	.02
Wed.	11	29.862	29.801	55	47	46.0	54	52	E.	.01
Average.		29.844	29.693	60.8	40.7	50.2	53.5	51.8		.98

May 5—Overcast; cloudy; overcast.
— 6—Foggy; very fine; heavy rain at night.
— 7—Heavy clouds, exceedingly fine; rain.
— 8—Lightly clouded; fine, very fine; cloudy; rain.
— 9—Cold rain with brisk N.E. wind; cloudy.
— 10—Partially overcast; fine, overcast; rain.
— 11—Small drizzling rain; overcast.

Mean temperature of the week exactly equal to the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending May 21, 1864.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	64 8	41.1	52.9	14	0.46 in.	6	6	6	—	2	13	3	2
Mon. 16	66.1	43.0	54.6	15	0.34	2	7	4	1	4	12	4	4
Tues. 17	65.5	41.7	53.6	15	0.58	2	7	4	1	4	12	4	4
Wed. 18	65.3	42.7	54.0	17	0.17	2	8	5	3	3	11	5	1
Thurs. 19	66.2	43.1	54.6	13	0.50	2	8	7	2	4	5	3	1
Friday 20	66.3	43.3	54.8	18	0.44	2	7	7	3	4	10	1	4
Satur. 21	66.3	44.5	55.4	16	0.36	3	7	10	2	5	6	3	2

The highest temperature during the above period occurred on the 15th and 17th, 1833—therm. 86 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

Notices to Correspondents.

Books: *Grape.* Thomson's Treatise on the Vine, noticed in our columns at p. 558, 1863, may possibly suit you.

Dandelions: *Medicus.* As you are a Fellow of the Royal Horticultural Society you may obtain any reasonable quantity of Dandelion seed and roots in the Society's Garden at Chiswick, where the plant is flowering and spreading magnificently.

Gynerium argenteum fol. albo-lineatis: *W Bull.* Very distinctly and neatly striped with creamy white. This must be an acquisition amongst variegated plants.

Insects: *I O.* The beetles found on your Vines are the destructive weevil Otiorhynchus vastator, which is nocturnal in its habits, and which may be caught by laying a sheet under the trees and shaking them suddenly after dark, when the insects fall to the ground and should be destroyed.—*G G.* Tortrix vitisana.—*G W.* The insects sent are the black aphis of the Cherry and the small brown garden ant, which are attracted to the aphides by the saccharine matter they emit. The trees should either be fumigated, or well syringed with tobacco water or gas tar water, and subsequently with fresh water.—*W F.* The beetles sent are the destructive Hylobius Abietis, one of our largest species of weevil. We know no better mode of extirpating them than by employing children to hunt for them at the roots and on the bark of the trees. *W.*—*G B.* The beetles which burrow underground during the day beneath your Gooseberry and Currant trees, emerging at night to feed on the young foliage, are the Weevil, Otiorhynchus sulcatus. They are very troublesome to get rid of. Beat down the ground well beneath the trees, and water it with gas tar water. *W.*

Mimulus. *W Bull.* One of the flowers sent is very large 2½ inches across, with irregular crimson blotches around the margin, and must be very showy. Another, not quite so large, is, however, more pleasing, the limb segments having a round spot of crimson surrounded by a ring of yellow, and this bordered by an edging of crimson. The most distinct is smaller still, and more in the way of Unique: copper-coloured, with a marking of confluent dots scarcely affecting the tint of the ground-colour, the middle segment of the lower lip yellow, with three parallel bars of crimson.

Names of Plants.—*J J S.* Cyclamen hederifolium, with young fruit only.—*Edward.* Triglochin maritimum and Trichonema Bulbocodium.—*Sigma.* Cardamine hirsuta.—*F G.* A few withered leaves, without either flower or fruit, do not enable us to recognise it. If you will be good enough to forward some flowers we shall be happy to give you the information asked for.—*Lady G C.* 1. Spiræa lævigata; 2. An imperfect morsel of some other Spiræa, we believe trilobata.—*Andrew.* One of the many forms of Oncidium maculatum, but quite smashed by the letter stamper.—*A R K.* 1. Chrysanthemum frutescens, *alias* rigidum and regale of the French public gardens and flower markets; 2. Aloe Lingua.—*J G.* Cattleya intermedia.—*Kilvare.* The Florentine Salad plant is Poterium Sanguisorba.—*T. P.* Cerasus Padus, the Bird Cherry.—*G. Bath.* We take it for Sequoia alias Taxodium, sempervirens.—*W. H.* 1, Arbutus Unedo; 2, no flowers; 3, specimen quite insufficient; 4, Correa speciosa.

Pear Leaves: *T G.* The affection on Pear leaves is very common. It is not at present ascertained whether it is merely an unnatural development of some of the leaf cells, or the immediate work of a mite, or some other minute insect, which seems probable, as there is almost always an aperture in the centre. Whatever the cause may be, it does not seem to be injurious, except when it attacks the fruit, which is sometimes the case. *M. J. B.*

Savin Fungus.—*Dios.* Your Fungus on Savin is Podisoma Juniperi communis, a parasite allied to the common Wheat Mildew.—*R D S.* Podisoma Juniperi Sabinæ. The genus, as well as the allied genus Gymnosporangium, is confined to Junipers. They are perennial, and will probably destroy your tree if not carefully pruned out. *M J B.*

Violet Leaf Fungus: *T G.* Your Violet leaves are attacked by a parasitic Fungus, Polycystis Violæ, of which you may see a figure in the last number of the Popular Science Review. It is possible that some of the spots may be caused by Æcidium Violæ, but if so, the Fungus is not yet developed. *M. J. B.*

Weigela Isoline: *W Bull.* This hybrid of Van Houtte's must be a very useful white-flowered shrub, blossoming as freely as W. rosea, and quite pure in colour until the blossoms begin to fade. The flowers you sent looked exceedingly well by artificial light, so that it would be a good plant for evening decorations.

Erratum: In Messrs. Low & Co.'s Advertisement of Orchids May 7, p. 432, Huntleya should be 2 species instead of 21.

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Analysis and Report by Dr. Augustus Voelcker:—

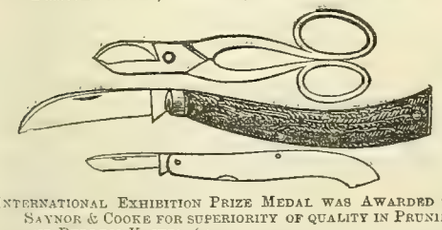
Moisture	6.91
Fatty matters	26.50
*Albuminous compounds (flesh-forming matters) ..	14.93
Gum, starch, sugar, and digestible fibre	31.20
Woody fibre (Cellulose)	16.13
†Mineral matters (Ash)	4.33
	100.00

* Containing nitrogen, 2.39. † Containing silica and sand, 1.07.

"10, Leadenhall Street, London, E.C.—April 15, 1864.
"Dear Sir,—I have much pleasure in sending you the preceding analytical results, for they show that the sample of Nut-meal which you gave me for analysis possesses extraordinary fattening properties, in as much as it contains no less than 26½ per cent. of a beautiful butter like fat. You will notice that the meal contains about as much flesh-forming matters as the best Barley meal, and that the proportion of woody fibre is not large. The condition of the meal is excellent. In conclusion I beg to say that this valuable fattening meal must not be confounded with a description of cake made from Palm-nut kernels. The samples of Palm-nut kernel cake that have come under my notice were all quite inferior feeding materials. "AUGUSTUS VOELCKER, Ph.D.
"Consulting Chemist to the Royal Agri. Soc."
"To John Coleman, Esq."
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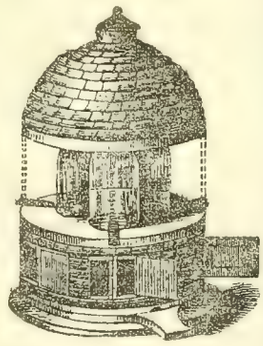


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The Company advances money, unlimited in amount, the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
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4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
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Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following land improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
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No investigation of title being required, and the charge not being affected by encumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD the Secretary, at the Office of the Company, 52, Parliamen Street, S.W.

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MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SPRING SESSION, 1864.
President—The Right Hon. the EARL BATHURST.
Council.

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Farm Manager—J. L. FLETCHER.
Resident Professors.
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Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S.
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SPECIAL LECTURERS.
J. BAILEY DENTON, M. Inst. C.E.—On DRAINAGE.
Professor J. MORRIS, F.G.S., of University College, London—On GEOLOGY.
JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
JOHN THORNHILL HARRISON, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
RICHARD GRIFFITHS WELFORD, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.
Applications for Admission and for further particulars may be made to the Principal.

Agricultural Hall, Islington.
SECOND INTERNATIONAL SHOW of FOX-HOUNDS, HARRIERS, DEERHOUNDS, GREYHOUNDS, BLOODHOUNDS, POINTERS, SETTERS, RETRIEVERS, SPANIELS, MASTIFFS, and all kinds of BRITISH and FOREIGN WATCH-DOGS, VERMIN KILLERS, and PETS, to be held at the Agricultural Hall, Islington, N., on FRIDAY, SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, May 27, 28, 30, 31, and June 1, 1864.
By Order. S. SIDNEY, Secretary.

AGRICULTURAL HALL, ISLINGTON.
The HORSE SHOW will open JULY 1.
ENTRIES CLOSE on JUNE 13.
Prize Lists are now ready, and may be obtained on application to S. SIDNEY, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON-TYNE, July, 1864.
LAST DAY for Entry of Stock, Wool, and Butter, 1st June.
All Certificates received after that date will be returned to the senders.
Prize Sheets and Certificates will be forwarded on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 14, 1864.

OUR Correspondent "S. X." has forwarded us some specimens of a plant, with the following note, which we here transcribe for the purpose of directing attention to some important agricultural principles which we conceive to be involved in the question to which it refers:—

"S. X. will be much obliged to the Editor of the *Agricultural Gazette* to inform him the name and nature of the enclosed plant, which he never perceived before in a meadow which is now quite overrun with it. The meadow is in good heart, and for many years has given a heavy crop of hay, having been annually fed off by ewes and lambs in the spring, besides receiving abundant dressings of sewerage."

Now the plant sent was the Rhinanthus Crista-galli, the Yellow Rattle, which is usually an indicator of poor wet land, though we are informed that it is abundant in a meadow in good heart. We have then, in this case, two important points which seem to demand attention.

1st. How is the sudden appearance of the plant to be accounted for, and 2dly, what may we presume to be the real condition of the meadow in which it is so found?

1. We do not for a moment suppose that the season in which our correspondent first observed the plant was

the one of its advent in the meadow in question; on the contrary, we would rather believe that it was natural to the meadow and to the district around; and it has then been a rapid increase of it which has attracted observation. And how this increase has been brought about may perhaps be arrived at by considering that the meadow has for many years given a heavy crop of hay after spring feeding by ewes and lambs. Now, as the Yellow Rattle would form part of the rick, we have only to suppose that a season occurred, in which from wet or other causes, the hay could not be made until the seeds of the Rattle had ripened*—a circumstance indeed likely to occur where hay is taken after depasturing, and the seeds would then be sown, and so multiply the pest for another season. Whether this was precisely the manner in which this weed of pastures has been here increased to the extent indicated we are not prepared to vouch, but we feel assured that the plant has been there for a length of time, and that it has increased from allowing its seeds to ripen.

2. At first sight one should suppose, from the description, that the condition of the meadow is extremely good; still, from the evidence before us afforded by the spread of the Rattle, this indicator of impoverished soil, we feel assured that its constant hay-making has taken away more fertilising material, more phosphates, more bones, than would at first sight appear, and than are restored by the sewerage; and, if so, we conclude that the richness of the meadow is diminishing. Sheep do not add to this, but rather aid in its diminution; true, sheep manure the land so as to augment the hay crop—still, however, at the expense of the land, not of the sheep; but this very fact, thus tending to a bulky hay-making—all the more surely hastens the decadence to which we have directed attention.

The statement, however, of the feeding off by sheep in spring, and the subsequent heavy crop of hay, though a seeming contradiction to the statement just made, will, upon reflection, be found to accord with it. There may be a quantity of keep, but this of a vapid and poor kind: hay off irrigated meadows has seldom what is called "proof" in it, nor, indeed, has the faster growing herbage—in general that quality which often belongs to the less crop-producing field. We hear of the enormous crops due to sewerage, but so there would be to pure water.

Such treatment and such results, however, do not always show "good heart" when well inquired into, and we confess that we have less faith in sewage-water being capable of repairing the loss of matter occasioned by hay-making than we have in the truth of our conclusions as respects the presence of Yellow Rattle in quantity in a meadow, which are:—

a. That its sudden augmentation is due to its having seeded on the soil.

b. That its presence and well being in any meadow is an evidence of the poor condition of the soil in respect of true manurial principles.

But while we speak of the Yellow Rattle as a weed in pasture, let it not be supposed that we attribute any poisonous properties to the plant; it is said, and we doubt not most truly, to be innocuous. But, where it occurs in quantity it necessarily takes the place of better matter. It is, however, an annual, so that the not letting it perfect its seed at any time will very soon destroy it. *B*.

We have more than once referred to The Penrith Farmers' Club as one of the most active and energetic of our local agricultural Societies.

A collection of lectures lately read at its monthly meetings, has just been issued in the form of a pamphlet,† "presented to each member of the Club by Henry Howard, Esq., President." The contents together constitute an admirable treatise on arable farming, and on the practice and principles of good tillage; and we hope it will receive a large publication outside the immediate operations of the Society to which it is addressed.

The first of these lectures is by Mr. W. S. Moffitt, of Brisco; it is "on the cultivation of an arable farm." It advocates the laying of the cold clay lands of the county down to Grass. Commencing with the report of a conversation with the tenant of 160 acres of such land whose rent is 150*l*., in which the unprofitableness of Wheat growing is admitted, and the cost of horse labour is asserted, and the greater economy and profit of grazing are suggested, it proceeds to declare, 1st, that all landlords ought to drain their lands, charging 5 per cent. on the outlay; 2nd, that all tenants should thoroughly clean their lands of all obnoxious weeds; 3rd, that a sufficient quantity of manure, or lime, or other artificial manure should be put on. The lecturer then proceeds to recommend that one quarter of every arable farm be properly "laid down"—converted into Grass. Of the remainder one-fifth is to be in grain crop, one-fifth is to be in Wheat or other grain, one-fifth in "seeds" for hay, one fifth in two-year old Grass, and one fifth in Oats. Instructions on the cultivation of these crops are then given, and in particular the necessity of a liberal treatment of the fallow or green crop is insisted on.

All this relates to land worth 15*s*. an acre and upwards. But what of inferior clays not worth so much? Lay them wholly down to Grass—that is Mr. Moffitt's advice, arising first out of the climate under which Cumberland is farmed, and next out of the relative prices of grain and butcher meat. He says, towards the end of his lecture:—

"Let me impress upon the practical farmers I see before me that I have no doubt in my own mind that the rearing and breeding of stock, whether it be cows or sheep or any other animal, will pay them better than growing corn. Corn is at a discount, gentlemen. Foreigners can send us sufficient corn if we did not grow a single bushel in the county of Cumberland. But we know that foreigners cannot compete with us in breeding and rearing stock; and I would remark that the saving of labour is an important consideration for the farmer. I should not have appeared here this afternoon were it not to impress strongly upon my brother farmers to plough less, cultivate their land properly, and attend closely to the rearing and breeding of stock. If they do this, farmers will find that they will still be able to put aside a little money for a rainy day, and be ready to meet their landlords on the rent day."

The speakers on Mr. Moffitt's paper generally admitted the soundness of his advice, which will, however, of course be received by his brother farmers in other counties under cover of the fact that the annual rainfall in Cumberland is twice or thrice what it is in our Eastern, Midland, and Southern Counties.

The pamphlet thus opens, along with an account of the tillage which alone will answer, with a recommendation that on certain kinds of soils it should be altogether abandoned, and perennial Grasses grown in place of grain and roots. This advice was not universally accepted however. Mr. Nicholson, who appears to own a steam plough or cultivator, was among the dissentients; and his advocacy of steam cultivation was a fair preface for the second lecture of the series, which is directly on the management of clay soils.

This most elaborate discussion of a very important subject is by Professor Coleman, late of Cirencester, to whom steam cultivation had been a personal experience for years, and who was well qualified by long practice, both as farm manager and as lecturer, for the task which had been laid upon him by the Penrith Farmers' Club. Like Mr. Moffitt, he recommends thorough land drainage as the first step in the cultivation of both arable and pasture land. After that comes deep and thorough tillage, and he declares, as every body else will do who has experience of the subject, that "steam is the best cultivating power for clay soils." Thorough drainage and deep tillage occupy one-third of the discussion. Then follows a recommendation of clay burning, with a reference to the practice in this particular of General Beatson, Mr. Pusey, and the Cotswolds, and to the researches and the writings of Dr. Voelcker. The management of Grass land then occupied the attention of the lecturer, and drainage, manuring, liming, and even tillage operations were discussed in connection with Grass land improvement; and the experience of Mr. Campbell, of Buscot; Mr. Ruck, of Braydon; and Messrs. Lawes and Gilbert is quoted and considered. The management of live stock on clay lands is the last topic discussed in Professor Coleman's most comprehensive discourse, which was followed by an instructive discussion.

The third lecture of the series is on the Principles of Tillage, by Professor Harkness, in which all the light of chemical science is brought to bear upon the practice of the tillage farmer. Here, too, the discussion indicates the vigour and vitality of the Club; whose proceedings we have great satisfaction in thus laying before those of our readers who may be interested in the prosperity of Farmers' Clubs in other counties.

—— The Society of Arts invite those of their members interested in the subject of cottage architecture, to a conference at their rooms, on Thursday the 26th of May, when a discussion will be taken on the actual circumstances of cottage accommodation, the causes out of which they have arisen, and the remedies for the evils which are everywhere apparent. In the same Journal which announces this invitation the judges appointed by the Society to award Mr. Bailey Denton's prizes for the best design for a labourer's cottage make their report. One hundred and thirty-four designs from 107 competitors were submitted to them, and Mr. J. Birch, of 51, Holywell Street, Westminster, receives the premium for the best of the series. The award is nevertheless accompanied by the following remarks, which cast a doubt upon the possibility of the object at which Mr. Denton aimed:—

"Notwithstanding that the offer of these prizes has been the means of procuring so large a number of designs, we cannot but consider that no satisfactory solution of the problem proposed has been given. The possibility of erecting really good and substantial cottages for the labouring population of this country generally, with the stated accommodation, at a cost not exceeding 200*l*. a pair, all profits and expenses included, is not demonstrated by the present designs. This is shown by the remarks of the competitors themselves and by the shifts they have found themselves obliged to adopt in order to reduce the cost, as well as by those exceptional cases where, owing to some peculiarly favourable circumstances, or by omitting some feature not so important in one locality as in another, a result somewhat approaching that which is desired in the cost has been arrived at, not in any case, however, without contravening the terms of the competition in reducing the given prices of certain items."

—— We can this week do little more than announce the publication of the First Part of the current Volume of the "Agricultural Society's Journal." Its chief feature is a very elaborate and exceedingly interesting account by Mr. H. Thompson, M.P., of English agricultural progress during the past quarter of a century, in which the influence of the principal events affecting agriculture during that period, are very boldly and ably discussed. Among them are the establishment and extension of agricultural societies, the adoption of free trade, the progress of the railway system, and the application of steam power to the operations of husbandry. To this Essay, which is the chief feature in this "the concluding volume of the first series of the Agricultural Journal," we shall next week direct more particular attention.

The other papers in the volume include two of the Worcester Prize Essays—reports on International meetings—a number of very interesting reports of experiment and research by Dr. Voelcker—an elaborate discussion of many years' Wheat experiments by Messrs. Lawes and Gilbert, and several miscellaneous communications. There is also a report on education as connected with agriculture, by the Rev. J. L. Breeton, which is the first instalment of effort due by the Society on account of the seventh object specified in its charter.

RAILWAY CARRIAGE TO AGRICULTURAL SHOWS.

Permit me to call public attention to the present position of exhibitors in regard to the railway facilities offered them in sending specimens of their produce to agricultural shows. Although the success of these meetings depends entirely upon the number of things exhibited, and their excellence or novelty, it is strange how little consideration exhibitors receive at the hands of the public.

If we knew the history of any new implement of practical value exhibited at the agricultural shows, we should become acquainted with such obstacles an inventor has to encounter as the casual observer little dreams of. The inventor of machinery for manufacturing purposes has only to adapt his contrivance to conditions which seldom vary, but the inventor of implements for farming purposes has to render his inventions adaptable to the ever-varying circumstances of soil and weather—to level land and hilly fields—implements that will accomplish their task on a rock, or work through a swamp.

The effect of all these difficulties is, that before one implement becomes of practical value, its inventor is subject to great cost, as the "waste heap" of broken-up models of the manufacturer too palpably show.

But great as are the difficulties and vexations attendant on bringing out one good implement, the stock breeder is subject to far greater mishance. When once an implement is perfected, the same models will produce the same machine in any numbers.

The case is, however, quite different with the stock breeder, for he is by no means sure that the same causes *i. e.*, breeding from the same animals, will give the same quality and value in the produce. The former is dealing with inanimate nature, whilst the latter has to do with the capriciousness and uncertainty of animal life.

It is quite certain that at any agricultural show the bulk of the exhibitors must be losers, in a money point of view, because the amount offered in prizes is not equal to the expenses of attending these shows, the small amount generally sold being too insignificant to mention.

Until within the last few years it was the custom of all railways to convey stock to and from the Royal Agricultural shows free. Since then a change has been made, and animals are charged for one way; but in order to entitle them to this privilege they must travel by goods train; and unless a whole truck be taken, even if only one animal has to go to the show,

* The plant has got the name of Rattle from the loose seeds rattling in the enlarged ripened seed-capsule.

† Lecture, &c. Printed by T. J. Sweeten, 'Advertiser' Office, Penrith.

the servant cannot travel in the same truck along with his stock. Besides this, exhibitors have too often cause to complain of the want of attention and reasonable accommodation, which show animals of late have obtained from railways. The railway servants are too much engaged with the passenger traffic these animals have caused, to have time to attend to the show stock, but which are nevertheless the cause of the throng of visitors.

But why should railway companies trouble themselves about show things? What does it matter to them if an animal worth perhaps several hundred pounds be shunted backwards and forwards in a goods truck, and shook almost to pieces? Why should a railway company concern itself if an animal be unnecessarily exposed, so that it is injured, or perchance die, from the effects of rough treatment, or neglect upon its line?

In answer, we would say that railway companies are very largely interested in the success of agricultural exhibitions, and we charge them with a narrow-minded and short-sighted policy in their present treatment of exhibitors.

To enable one to form a correct estimate of the value of these gatherings, increasing new contrivances for the development of the resources of the country, and the healthful amusement of the people, it seems only necessary to point out the enormously increased traffic that must necessarily be involved in the conveyance of those recently manufactured articles and improved stock since the establishment of the Royal Agricultural Society. At the period of the establishment of that Society few modern implements were invented; whereas now the agricultural implement trade is an important branch of the national industry. As giving some faint idea of the increase in the implement trade, we may quote from Morton's Almanack, the facts that in 1852 43 firms of agricultural implement-makers made only 1610 new machines, but in 1861 these same firms manufactured 25,336. These machines do not remain in the hands of the makers, but go by rail to every part of the country. At the date of the origin of the Royal Agricultural Society no artificial manures were made; now, hundreds and thousands, if not millions of tons are annually manufactured, nearly all which pay largely for railway transit; and the same may be said of the increased traffic arising from the transit of live stock.

It may be said that the Royal Agricultural Society does not make implements nor manufacture artificial manures, neither does it breed live stock, and therefore these facts do not affect this question. But whence could have come the knowledge to invent, and the means to adopt, these new discoveries, unless an institution like the Royal Agricultural Society had existed to chronicle and nurse new ideas until they had come within the attraction of commercial enterprise?

It is to these societies, doubtless, we are indebted for the immense strides we have made; otherwise the inventor, manufacturer, and purchaser, could not have been brought together.

Coming, however, to the more direct influence of these shows upon the receipts of the railways where they are held, we may judge of the immense benefit they confer, by the number of visitors who attend the showyard, most of whom "come by rail." At Leeds 145,738 visitors attended the show, and at Battersea 124,328 visited the yard—nearly all of whom contributed their share to the railway receipts by "going by rail."

These facts show plainly that the expenses to exhibitors in attending these exhibitions are greater than the direct gain; whilst railway companies gain directly by the traffic consequent upon a show being held near its line, besides the permanent traffic resulting from the introduction of new and improved farm practices.

Railway directors are mostly gentlemen of advanced views, of large and comprehensive minds, whose enterprising spirits have made this the "iron-girt isle;" and we cannot but believe that when they thoroughly consider all the bearings of this case they will grant the same facilities they did formerly to the exhibitors of the national shows, and give stricter instructions that the specimens sent for exhibition shall have more careful attention. *An Exhibitor.*

BREEDING AND REARING OF SHEEP.

(*Concluded from page* 421.)

[The following is the remainder of Mr. Woods' lecture, partly reported lately.]

Effect of Clayed Land.—But there is another point to which I must come—a point in which all light-land farmers will take great interest. The question is—"Does clayed land materially affect the health of the ewe?"

I know the prevalent opinion is that it does, and probably it may; but I say that that is very much within the control of the flockmaster himself. I will give you some practical experience upon the matter. I have been told, time after time, that the Waterloo Farm would kill any sheep—no matter whether they were hoggets, or ewes, or any other sort of sheep—they could not live upon it, and still more unhealthy would it be if it was clayed; and as to ewes, the man would be mad who would attempt to keep them. Now, that farm has been clayed very heavily; it has been clayed, marled, and chalked. All those three materials which are held to be injurious have been brought to bear upon it, and what has been the result? Not that all the sheep died; but I can give you a fact worth your consideration. From Michaelmas, 1861, to Michaelmas, 1862 (the last year we held the farm, and consequently at a time when we had to feed entirely off Turnips grown from artificial manure on clayed land), there were on the farm 306 ewes, 340 hoggets, 100 shearlings, and we bred 352 lambs. Now comes the tug of war. Between 1861 and 1862 our loss comprised the following:—5 hoggets, 10 ewes, 3 shearlings, and 3 lambs—total 21 lost, out of 1098 sheep, including lambs, and not a single case of abortion. But I am happy to say that this good look out did not end with the occupation of Lord Walsingham. Through the kindness and fairness of our excellent tenant, Mr. Bunting, I am enabled to give you the result of his experience for the past year. He had 300 ewes upon his farm last year, and he had not a single case of abortion; his loss of ewes was only five. Now I think that is a certain proof that under judicious management, with proper feeding, the virulence of clayed land may be very much mitigated. Now, it is right to say upon what principle we went. I don't give it you as a new light; I only give the practical experience of myself and others. We only gave a limited amount of Turnips, but a large amount of dry food and some bran, and to that system I attribute the little loss we had. I do hold that upon newly clayed land the evil effects upon breeding animals is produced very much by luxuriance of the growth of Turnips, and by their containing so much matter that is indigestible by the ewe; and when there is no correcting influence, inflammation is produced, and hence abortion.

Shepherds' Dogs.—I would here call your attention to a matter that requires your serious consideration, and that is with respect to shepherds' dogs. Is it right that they should be allowed to run about where breeding ewes are, frequently disturbing and often alarming them? I believe the evil is often more serious than we are aware of, or would be willing to acknowledge. Some shepherds know how to use dogs, but with them it requires care. How is it then with a careless, lazy fellow, having a wild and badly trained dog? And then, again, with feeding or fat sheep, dogs are still less required. Quietude is what all fatting animals require, and this I am sure they do not get where dogs are prowling about.

Treatment during the Lambing Season.—The next thing is the treatment of the ewes during the lambing season:—

I believe that to keep a flock healthy up to the day of lambing you must not limit the supply of dry food. Go on with it; don't be afraid of spending an extra 5*l.* for a ton of bran, for I trust the millers will one day get it down to that price. One thing has struck me in the large flocks of Norfolk, and that is the little care that appears to be shown, or rather felt to be desirable, for the protection of the lambs. In large flocks the shepherd is frequently overworked; the lambs are often dropped in very severe weather; there is very little protection for them; there may, perhaps, be 15, or 20, or 30 pens; but there are not pens enough, and I have seen a great many lambs perish from this cause. Now, it is of great importance to every flockmaster, whether great or small, to prepare a yard for his sheep to be in. It is not necessary to have them in yards on a mild and fine night, but you should have a good and well-sheltered yard, abundantly supplied with pens, and then you can put your flock in the yard if the night becomes an unfortunate one; because I feel quite sure, and I have proved it by my own experience, that my little outlay upon this matter is well repaid by the number of lives of lambs saved. Then there is another matter which I put to you who are flockmasters, and which I ask you to be good enough to consider, viz., whether there are not—I will not say through carelessness, because it is an unkind word to apply to a most useful class of men—but through almost the anxiety of our shepherds, many ewes and lambs perish? Generally, unless the man is experienced and well up to his work, he causes the death of many lambs and ewes by injudicious haste. There can be no question whatever that Nature is the grandest nurse and the surest doctor; therefore my opinion is that you should let Nature do its own work. When the ewes are lambing, do not be in too much haste. Watch them; but give them time and they will right themselves; and never have recourse to the use of the hand until you see that the ewe has given up using her own efforts, and she appears exhausted. Then there is another matter which is, no doubt, well known, but which, to make my subject tolerably perfect, it is right to go into, viz., inflammation, which frequently follows lambing. You have seen it scores of times, no doubt. After about three days some of the ewes will begin to strain and droop, showing that a violent inflammation of the uterus is going on. Now our practice has been—and you are able to judge for yourselves how far our practice is worthy of being followed by the figures I have given you—we have immediately bathed the ewe frequently with warm water, and afterwards we often have used injections made from Poppy heads, as well as a copious supply of Day's Extract of Driffield Oils, which I believe to be one of the most valuable farmers' friends yet brought out. After that we give 3 ounces of salts, two teaspoonfuls of laudanum. In many cases that has been successful in saving the life of the ewe. Then there is another thing which deserves to be treated upon as affecting the life of the ewe and frequently of the lamb also, and that is the garget, with which you are too well acquainted. We all know that this is produced by cold. Now, our practice has been a very successful one, because we have got a most intelligent shepherd—a man whom I hold to be second to none in the kingdom in the management of a flock. If it is the black garget, he lances the udder very freely, applies common salt very copiously, and rubs it well all over the udder. After doing that, he turns the ewe and bleeds her from the large vein running up the centre of the belly, and very freely. He closes the orifice by a pin and a little tow (the same as you would in the case of a horse), and gives at once half an ounce of jalap and half an ounce of alum in half a pint of beer. In most cases he is successful, not only in restoring the ewes, but in rare cases of retaining the value and perfection of the udder also. You know other gargets are often shown you by the hardness of the udder. Now in that case we do not scarify the surface of the udder; it is not necessary; we give medicine, and we bleed; but think it would be highly improper, and without any good effect, to scarify the udder.

Value of a Good Shepherd.—In speaking on this subject, there is one thing which it will not be out of place for me to name—viz., the importance and the value of a good shepherd.

A good shepherd on a farm is one of the most important servants; a man who, if he is really a good man, deserves greater consideration than any other man employed upon the farm, for this reason—how much property that man has under his care! how much we lose if he is a careless shepherd! how much we save if he is a careful and judicious one! I will not blame the system, but I have often thought that in the annual migration of shepherds there must be something wrong, because it keeps men in a state of not knowing what they are going to do—whether they are going away or whether they are to stay. If you get a good shepherd, value him, and teach him that his place is worth keeping; pay him well, and keep him upon the farm; don't let him, as soon as he knows what to do, and what not to do, be moving about and endeavouring to find a better place; but make him feel that to be a good servant he must do his duty, and that you will reward him for doing it. Again, in the lambing season I think that more is expected of a shepherd than a man can do. Nature has a limit to which it will allow a man to go, and beyond that is treason. Frequently a person has only one shepherd, with, perhaps a page, to attend to a large flock of breeding ewes. The shepherd desires to do his duty, but he becomes worn out by sitting up night after night. He cannot attend to the ewes as he ought to do. Many a lamb has perished, not from the fault of the shepherd (because he could not help it), but because he had more to do than ought to have been expected of him.

Lambs when on the Ewes and when Weaned.—Now, the next head to discuss is the management of lambs when on the ewes and when weaned.

I believe that the first and the most important thing to do is to feed the ewes well, so that they can do their duty to the lambs; for nothing can be worse—nothing can propagate disease and more weakness in lambs, than not to keep the ewes well at a time when they ought to feed their lambs. We have frequently found, after about the third day, the lambs of some mothers more than others troubled with a certain kind of diarrhœa. A kind of whitish excrement comes from them, which has a very disagreeable smell. This is clearly produced by undigested milk, which, if not soon removed from the bowels, will produce an amount of irritation that will end in death. We give at once two teaspoonfuls of castor oil, a teaspoonful of ginger and one of magnesia, the object being to carry off the irritation, but at the same time to cool and quiet the stomach. If that does not act in the way we desire in staying the diarrhœa, we give 10 grains of powdered chalk, half a drachm of tincture of rhubarb, and 10 drops of laudanum, which rarely fails to produce the desired result. I am sure you don't want me to tell you that the way to grow good lambs is to take good care of your ewes. In the first place, get good layers, and then fold the ewes, give them Mangel and cake, and let the lambs run out. Of course, the more cake you give the ewes, the more grateful both the ewes and lambs will be for it. Then another simple little thing is the tailing of the lambs. It is a simple operation, but if performed at an improper season often produces very unfavourable results. If it happens to be an unfortunate night, with the wind in the north or the east, the lambs are liable to suffer. Our experience has told us that the best time for cutting and tailing is when the lamb is about two or three weeks old. We, of course, select a nice warm day, with a south wind, if we are fortunate enough to get it, and we watch them very carefully at night. If we find any getting stiff, or lying about more than they ought to do, we take every means to make their blood circulate freely, and consequently that generally sets them right.

Hoggets fed upon Clayed Land.—I will now give you the experience of myself and other gentlemen as to hoggets fed upon clayed land.

This year we have 220 ewe hoggets feeding upon clayed land, clayed at the rate of something like 100 loads per acre; they are in the same field that they have been in ever since Michaelmas. I state it as a practical fact, that never since those ewe lambs have been fed on those Turnips one of them has ailed anything; they have very much improved in condition and appearance. They have in addition to ground white Turnips, half a pound of cake per sheep per day, and we give them a little long hay in racks. The land used to be light-blowing sand, but I hope its blowing is stopped now. There is another thing in the feeding of hoggets which I have found during the last two or three years to be of the greatest possible importance, and that is always to give a little chaff with the cake, because we have found that it has done as much as anything possibly can do towards staying everything like diarrhœa, or running out. I know it was the practice of the late Mr. Jonas Webb to do so. He used to say, "How would you, sir, like to be fed on a piece of roast beef day after day, and no vegetables or bread with it?" He held that the chaff was the bread or vegetables to the cake, and consequently the animal not only ate it with a relish, but that it acted upon the bowels in staying somewhat the laxative effect of the Turnips. In feeding Turnips with hoggets or with any sheep, and where the sheep cut their own Turnips, it is well known how important it is to give plenty of hurdle room for the sheep to fall back. It appears as though the sheep have an instinctive knowledge that it is good for them to eat up the old and dry withered Turnips in the afternoon, to correct the effect the fresh Turnips fed in the morning might have on their bowels.

Cotton Cake.—Now, there is one matter of interest in this part of my subject, viz. cotton cake.

I am not able to give you any information on this subject with respect to hoggets, but from what little experience I have had myself, in giving cotton cake to sheep, to Down ewes, I have determined never to give another pound of it so long as I have to do with sheep. Its effect upon the sheep was that of a powerful irritant upon the surface of the skin; 17 ewes lost the greater part of the wool off their fore-quarters, and immediately I withdrew the supply of the co-called cotton cake, the irritation ceased. I have had a letter from my brother, who has the management of the Duke of Portland's model farm at Clipstone Park, and who says that his experience tells him that the same value of Linseed-cake is far more useful and valuable than cotton cake. The butchers have told him that the mutton produced upon cotton cake is more yellow—in fact, it is quite yellow compared with that produced from linseed cake. I trust that gentlemen who have had experience in feeding with cotton cake will be good enough to state to us the fact of what they have done. I would merely mention, when speaking of feeding sheep, that we have found that when some of our animals were being forced rather sharply, they began to show symptoms of crying out "Hold hard," having had enough; we then bled them very severely indeed. I will give you a fact connected with this bleeding, which occurred to me. Within the last fortnight we had a lot of sheep in such a condition that we were almost frightened. We found one dead; the consequence was that we immediately bled the others sharply, while many of them could scarcely stand. The fact has been that we have not lost a sheep since, nor has one of them ailed anything. I believe the cause of death in that one sheep was apoplexy. By copious bleeding we removed the cause, and saved the lives of our valuable sheep.

Sale of Hoggets in or out of their Wool.—The next and the last point is a very important matter, viz., as to whether it is most profitable to sell hoggets in or out of their wool.

I think this is a very simple question, and one which comes within the knowledge of every farmer. I think the answer depends upon localities and circumstances. If a man has got a lot of sheep that are fairly ripe, which will come out of their wool and handle well, show plenty of mutton, and that of the right quality, then I say, "By every possible means clip them." But if it is doubtful how your hoggets will come out of their fleeces—if there is something about them that a man don't know whether they are quite up in condition—then I think prudence says, "Don't clip them." We don't want to enter into the mystery of these matters further than this, because feed also will regulate this matter. If a man sees that his

hoggers are not quite up to the mark, if he has got plenty of Mangel, and can carry them on his layers for a few weeks or months, and make them ripe, he will be guided by circumstances. I believe that every farmer is the best judge as to whether he should sell his sheep in or out of their wool. Gentlemen, I have now gone through the heads of my subject, and I will only make one or two concluding observations. The object of a meeting of this kind is to provoke discussion. I trust I have thrown out material enough to answer that purpose, and also I trust that many gentlemen here present will not, out of a feeling of kindness and consideration for me, have the slightest hesitation in attacking any of my weak points, but that he will at once do me the favour to point out the weak parts of my address, and give me an opportunity of gathering from this meeting the information which I seek at your hands. I would also beg of you to understand that it is not necessary in an agricultural discussion to make a grand and flowing speech; that is not what is required; what we want is, that gentlemen should be good enough to give us the benefit of their opinions—that they should state those opinions in language with which they are familiar, and then I am quite sure they will convey to us their ideas in the light in which we wish to have them. If they will be good enough to do this, the object of the meeting will have been accomplished, and I shall have had my reward.—(Mr. Woods, who had spoken for nearly an hour and a half, resumed his seat amidst loud and prolonged applause) —*Norwich Mercury.*

Home Correspondence.

A Plea for Uniformity.—We hope none of your readers will suppose from the heading of our letter that we have any desire to import into your neutral columns the discussions which agitate the politico-religious world. We plead for uniformity in a smaller matter, but one nevertheless of some importance to your constituents, the agricultural public. It has lately become largely the practice of merchants, factors, landowners, stewards, and large farmers, who make a habit of attending agricultural shows, to collect together the catalogues and trade lists of the leading exhibitors, and bind them together afterwards for reference. This is at once an advantage to those who adopt the system, and also to the agricultural implement manufacturers themselves. It is a system which is likely to become more generally adopted, now that the Royal Society, with a view of diminishing the bulk of their official catalogue, propose to allow exhibitors only two lines in which to describe each article. We propose, therefore, that the exhibitors who are now preparing their catalogues for Newcastle-upon-Tyne, should adopt by common consent one uniform size of page, varying the number of pages to suit their own convenience, but adopting this suggestion to suit that of their customers. As regards the best size, we think it will be admitted that the one most likely to be generally suitable will be the one most largely used now. Looking over the lists, of which we have a large pile now before us, of every imaginable size and style, we find the royal octavo to be the favourite. It gives room for large engravings, and is equally available for small ones, on the principle that "the hole which lets in the cat will let in also the kitten." The royal octavo size has been adopted amongst others by Messrs. Clayton, Shuttleworth & Co., Messrs. James and Fredk. Howard, John Fowler (steam plough maker), Messrs. Samuelson & Co., &c. And in order that we may not preach what we do not practise, we have ourselves followed the example of these gentlemen in our new catalogue, of which we forward a copy for your criticism, begging you to add a word or two in support of the suggestion we now make. *Greening & Co., Victoria Iron and Wire Works, Manchester, May* 4.

Pedigree Wheat.—In your number of May 7, p. 445, the paragraph headed "Pedigree Wheat," and signed by me, contains a very odd mistake, for which I cannot account—the figures "58" being substituted for "65." In my letter challenging such a sample of my Pedigree Wheat as that grown by Mr. Alderman Mechi against any other half dozen English varieties of Red Wheat, I thought I had named its weight as 65 lb. the bushel, but afterwards, upon referring to his letter, found that he gave the weight as 65½ lbs. Thinking I might be supposed to wish for some slight advantage in comparing Wheats of 65½ lbs. with others weighing 65lbs. I wrote to ask you to be so good as to make the correction. The correct figures were given in my letter as published in your Number of April 16. *Frederic F. Hallett, The Manor House, Brighton, May* 9.

Turnip Disease.—The Rev. Mr. Duncan says in his Prize Essay:—"The roots of the family of plants to which the Turnip belongs are particularly subject to the attacks of insects, and these are very liable to result in tumerous and tubercular excrescences. They demonstrate the fact—a very important one in this inquiry—that the puncture or bite of these insects is not merely a simple laceration or mechanical division of the parts. By means which we cannot explain (it may be by emitting some fluid secretion of their own, or by rupturing the circulating vessels, and thereby allowing the extravasated juices to mingle, and thus become changed in their chemical composition), they have the power of originating a new action in the plant, and developing an extraneous growth in a direction and form which are not natural to it." We who were brought up on farms are familiar with the appearance of diseased Turnips caused by the attacks of insects. I had the confidence, or impudence, to write an essay on the rotations of cropping and on grub in Turnips in 1859. I read it to one of my uncles, who told me he remembered a part of a field being contaminated by diseased Turnips being laid down in it for the ewes. It is a prevalent practice to lay down Turnips for the ewes on the two-year old lea previous to its being ploughed for Oats. Suppose Turnips to be laid down last January, the larvæ would be hatched in June 1864 among the Oats, and the Turnip crop in 1865 would be ruined by the diseased Turnips grown in the summer of 1863. You stated at page 802, in 1858:—"But though the immediate cause of this affection in the Turnip crop, and to a great extent its cure, are both tolerably well established, we are still all abroad as to how the presence of a certain mineral, or the absence of another, can so act upon the root as to bring about the extraordinary contortions which this disease presents." The late Rev. James Duncan's prize essay clears up the mystery. Finger-and-toe, Ambury, and Club in Cabbages, are severally referred to. I regret to see such a valuable essay lying a dead letter. *W.*

Crops and Cropping in Ireland.—I have just returned after a tour and six months' sojourn in the south of the island, and although I cannot write fully on the subject of this heading, a few hasty remarks may interest your readers at your side of the water, for they are interested in our prosperity, as we are in theirs. The crops, so far, in many cases look remarkably well, whilst in not a few cases they look backward and seedy. Wheats, winter sown, limited in extent, but looking generally well; spring sown, so far looking better, their age considered. The late autumn and winter sowing was much protracted by a very wet but still mild winter. The spring sowing extended to as late a period as March, and because sown in good weather, and on comparatively clean land, they offer well. Oats, whether autumn or spring sown, promise remarkably well. Barley, never sown under circumstances more favourable, and if we have good harvest weather, will produce abundantly. Beans, not much cultivated, indeed I may say not at all in the districts I have been through, except some few acres sown by myself for experiment in November, and never have I seen anywhere finer looking crops up to this date. Peas scarcely cultivated except for garden purposes, though the lands are better adapted for them than for Beans. Pastures were luxuriant during the winter, but checked much by the frosts in early spring; still Italian Rye-grass very fine, and now being used considerably for stock feeding in the stalls and fields. Stock of all kinds, I mean of cattle and sheep, scarce and dear. That the store stock should be so is no wonder, because of the death of sheep for the last three years, and the paucity of young cattle rearing during the same period; and because, besides, of the great drain on the country for exportation, thus dividing with your feeders a greater share of the profits than our breeders can afford. In fact, we mistake greatly in not feeding, I mean finishing more of our stock at home, where we have foods of the best kinds at home at first cost, which your feeders have not, generally speaking. Carrots in field culture have greatly increased, and were sown under favourable circumstances; so with Mangels, for which no country equals ours. Turnip sowing prepared for to a large extent, notwithstanding the humbugging cry of Swedes starting prematurely to seed, and degenerating into Rape or "Rape-like plants," as no doubt they do when grown from bad seed, but in no other case. To guard against such impositions many of the farmers in the south have made up their minds to grow their own Swede seeds, than which nothing can be easier, as many of them now know from experience. Such being the case with the scheming seed growers at your side the Channel, and the scheming seed vendors at both sides of it, "Othello's trade is gone," and I mention this to show those worthies that "Paddy," with all his ignorance, being "ignorant because learning was denied him," is becoming "wide awake" to the trickeries hitherto played upon him, not only in regard to spurious seeds but spurious artificial manures, and spurious artificial stock feeding. But has Paddy, especially in the higher circles, awakened from his slumbers before it became too late? "Alas for his country," and the nation at large, he has not, for emigration still goes on clearing the lands of Ireland of their redundant population, leaving by far too few to cultivate the lands to produce in an adequate degree the beef, mutton, wool, pork, butter, and poultry, so much required by your well-paid and well-employed artisans, and depriving your manufacturers of Irish customers, as well as the Chancellor of the Exchequer of the consumers of exciseable articles; and perhaps, worse than all, still filling the ranks of the armies and navies of what may be by-and-by our enemies, if they be not so at present, leaving our own to their chances of defending our colonies abroad, or even our shores at home, with a disaffected population—for there is no use in mincing the matter, Ireland is disaffected to the heart's core, and those who say it is not are either utterly ignorant of the state of the country, or, worse still, seek to throw dust in the eyes of the English people. This, as coming from me, may be considered rather graceless, and personally impolitic, but it is the truth, according to the best of my judgment, which I could wish some one to be able to prove erroneous. *Edward Carroll, College Hotel, College Street, Dublin, May* 2, 1864.

Healthy and Cheerful Dwelling Places.—If the situation of houses and dwelling places for the working classes was considered in proportion to its importance, we should not see so many of them badly placed. Those who build houses or construct dwellings for the working classes, should consider the health and comfort of those who may occupy them, it may be for a long time, and that every day is long and dreary where the situation is low, damp, and close. The air being in such situations heavy and impure, it should no longer be the fashion or custom to build either lodges or cottages with sleeping rooms on the ground floor. Nor should living or sleeping apartments be constructed over kitchens, laundries, or stables. Such arrangements are doubly objectionable as tending to diminish the purity of the air both in the upper rooms and also in those below, and that horses as well as those who are occupied about them, should have the advantage. Such buildings should be constructed open to the roof, and there is a deal of discomfort and bad health arising from washing and ironing being done by poor women in small inconvenient cottages; it would be a good thing if good well constructed washing houses and laundry were constructed, wherever they may be required. The situation should be open, free and airy, with a good supply of water, and it should be remembered that in making our dwellings cheerful we at the same time make them more healthy. The modern way of fitting up the interior of churches is very preferable to the old gloomy high backed pews where the younger members of the family could neither see nor be seen, and the interior of cottages would be much more cheerful and healthy with large and low windows, that the little folks may look abroad, and at the same time the rays of the sun and light be freely admitted. The ceilings of the living rooms should not be less than 8 feet high, and with a view to increase the area of the bedrooms they should be ceiled, if not entirely, partly open to the roof. Tiles are the best material for covering the roof, being warmer in winter and cooler in summer than slates, and as we ourselves no longer wear our coat collars half way up our heads with a thick wrapper round our necks, neither should we dress or shroud up our dwellings with trees and shrubs; but they should stand open, that the air may circulate freely about them. And the situation should be high, that good drainage may easily be effected. For a pair of Cottages, a good supply of water may be obtained either from drains on higher ground, or by spouting the roofs; in either case turning the water into a well-constructed tank. A drain should be laid quite round the cottage at a lower level than the foundations, and the overflow from the tank should be laid into it. The privy, pig pounds, and dust-holes should be placed at the lowest and further part of the garden. Every pair of cottages should have an oven, as baking a weekly supply of good wholesome food is at least a saving of a shilling a week to each family. A pair of cottages should have five bed-rooms, two in front, and three at the back; the centre room at the back may be let to either cottage as may be required. Newly-married people and those whose families are away, do not require but two bedrooms, and should the centre room not be wanted, it might then be let to lodgers, and as young men and boys are not so generally lodged now as formerly in farm houses, such lodging places would be found very convenient. *B. Ransley, Perreysfield Farm, Oxted, Surrey, May* 2.

Irish Agriculture.—The misfortunes which have attended Ireland's agriculture have made that country a subject of reflection to every one. Allow me to suggest through your columns that too exclusive an attention has been given by the Irish producers to those plants which produce seed corn. We may be sure that all the corn-bearing plants are like the Potato, exotics to Ireland. Why not try there the feasibility of growing exotic plants whose leaves are valuable? Though the dampness of Ireland's climate may fail to ripen fruit, it must produce the leaves of plants in great luxuriance. The cultivation of Tobacco has often been suggested; allow me to add that the Tea plant might produce its valuable product in that island if it were protected during the process of acclimatisation. Japan, where it now grows in perfection, has not a climate more different from Ireland than Virginia, yet Virginia gave Ireland the Potato. Let me say, then, to the lovers of agriculture, where damp injures the growth of corn try the Tea plant. The Tea we have from China loses much of its flavour in the long sea voyage through the tropics; we might hope then to grow a better article nearer home. *Acclimatizer.*

Cotton Cake.—Beware of purchasing dark hard cake, which contains from 50 to 60 per cent. of worthless and injurious husk. It should be of a bright yellow colour, with but few of the black particles of husk, brittle, and easily broken. Good Cotton cake can be sold at 5*l.* 5*s.* to 5*l.* 15*s.* per ton, and then it is a very valuable and economical feeding stuff. Very much depends upon the quality of seed from which it is made. If the seed has been subjected to neglect abroad, getting wet, and fermented, it cannot be made into good cake. The seed is covered with a very thick dark woody husk, to which is often attached some of the cotton wool. This ought to be removed by careful grinding, leaving the small kernel almost free from husk. It then is ground, heated, and pressed to extract the oil, after which it has a bright yellow appearance, the portions of husk that cannot be entirely removed showing dark grains. Chemical analysis proves such cake to be equally, if not more valuable, than Linseed cake.

I have used many tons of it, and continue its use. Rape cake is also very valuable. All cake is improved in value by keeping in a dry place. If you are doubtful as to quality, submit a portion to Professor Way or Voelcker, who will at once, for a trifling fee, give you an opinion as to its value and quality. The very nutritive quality of the seeds indicates how exhaustive their growth must be to a soil to which their ashes are not returned. I have reason to know that farmers have been very extensively victimised by the purchase of hard, indigestible, and unwholesome cake. In one case the so-called Rape cake contained a large quantity of irritating Mustard and other seeds, which killed a great many valuable sheep. A reference to an analytical chemist will detect such impositions. Linseed-cake is very often mixed with large proportions of bran and other cheap ingredients. Good Cotton and Rape-cake should not contain more than 15 per cent. of husk. *J. J. Mechi, May*, 1864.

Foreign Correspondence.

LYONS: *May* 5.—The following is the result of the International trial of steam ploughs at Roanne, in the district Loire in France, which commenced on the 28th of April, and was concluded on the 2nd of May. There were five entries, including Howard of Bedford, the Marquis de Poncins, M. Ganneron, Fowler, and Herr Lotz, of Nantes. The three first only came up, the two latter being absentees. The following is the award of the jury. First prize of 100*l.*, with a Gold Medal given by the Minister of Agriculture, to Messrs. Howard of Bedford. Second Prize of 80*l.*, with Silver Medal to the Marquis de Poncins. Third Prize of 40*l.*, with Bronze Medal, to M. Ganneron.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

At the Meeting held in the Rooms of the Society in Hanover Square, on Wednesday, May 11, Professor VOELCKER read a Lecture on the *Atmospheric Nutrition of Plants*. Mr. Raymond Barker presided.

Professor VOELCKER commenced by saying:—

Theoretical inquiries like those which had been made from time to time in the nutrition of plants, at first sight might appear of very little practical interest: but on looking closer into the matter, it would be found that questions of vital importance to the farmer depended very much upon the theoretical views entertained with respect to such theoretical inquiries. He would remind them of the controversy that had been revived within the last year or two with respect to the humus theory, under the new name of the vegetable mould theory, and serious apprehensions were entertained by many intelligent educated people that by degrees we might relapse into the condition in which it would be difficult to grow remunerative crops on the soils of England. Those apprehensions would not possibly have been entertained if correct views existed as to the way in which plants took up their food, The old humus theory has been successfully annihilated, for after Liebig's forcible writings in exposing its fallacy, it was impossible that that theory could be maintained. Yet it was strange that up to this day the readers of respectable journals should be entertained with lengthy papers on the vegetable mould theory as it had been called—papers which were little instructive to those who had not any precise views on the subject, and anything but entertaining to those who were acquainted with the recent progress of scientific research as bearing upon the process of the nutrition of plants. With these preliminary remarks he wished, with reference to the subject of his lecture, to mention, that there was nothing he could say of the atmospheric nutrition of plants that was original, or that was of very recent date; for he confessed at the very outset that within the last five or six years no very striking discoveries had been made which bore upon the subject. He had therefore in a great measure rather to systematise previous knowledge than to make any addition either from his own investigations or from those of others. But though they had not any material additions to their knowledge, yet that knowledge had become more definite and positive, so that they could with greater certainty speak on matters of which they had formerly but indistinct ideas. It would be necessary to allude briefly to the composition of the atmosphere, as they were well aware it was a mechanical mixture, chiefly of two gases, oxygen, constituting about 21 parts in round numbers, and nitrogen 79. Mixed with these two gases were certain small proportions of carbonic acid, ammonia, nitric acid, and invariably there was also present water in the shape of watery vapour. It was interesting to notice that the most apparent constituent of the atmosphere, nitrogen, did not take any direct part in the nutrition of plants, but that it was precisely those small quantities of matters that had been overlooked for a long time, ammonia and nitric acid, that played the most important part in that process. How true was it that what was most important to the very existence of many beings was often overlooked, whilst what was most striking to the senses was not of that practical importance which at first sight it might appear to be. Nitrogen then, notwithstanding some recent experiments that had been made in France by M. Ville to show that nitrogen was assimilated in small quantities by some plants, it had been clearly proved had no direct influence in the nutrition of plants.

They had most valuable experience in these matters in the experiments of M. Boussingault in France, and of Messrs. Lawes and Gilbert in England, and it appeared most decisively from these experiments that nitrogen as an element of the atmosphere was not assimilated. Oxygen, the other great constituent of the air, had more an indirect influence in the nutrition of plants than a direct one. The plants restored oxygen to the atmosphere. They kept up the balance of oxygen which it was so necessary to restore, inasmuch as animals continually took up oxygen from the air which they required for the support of respiration. As was well known, plants restored this oxygen from the carbonic acid which, through the medium of their leaves, they absorbed during the day time. He need not dwell upon this part of his subject, for they had now such abundant proof that it was chiefly the carbonic acid of the atmosphere that supplied the carbon of the plants, or in other words that supplied the great bulk of all vegetation. It was calculated that at least three-fourths of all the carbonising plants, or of all plants, was derived from carbon. During the daytime the absorption took place continuously, and no sooner had great portions of the leaves absorbed carbonic acid than they set about the work of destroying its form, assimilating the carbon, manufacturing it into starch, gum, sugar, and other combinations found in all vegetable productions, throwing off at the same time the oxygen, and thus restoring that balance which became continually disturbed by the removal of the oxygen by animals. It was supposed that the decomposition took place by direct sun light; but that was a mistake. The reflected rays and diffused light were capable of effecting this decomposition of carbonic acid as well as direct light, so that direct sunshine was not necessary that plants might grow and assimilate carbon. A question which naturally arose at once in the mind of every intelligent observer of the fact that carbonic acid was the chief source from whence plants derived their carbon was this—"Is the carbonic acid in the atmosphere sufficient to meet all the requirements not only of plants growing in an uncultivated state, but of plants growing in a somewhat artificial or forced condition?" At first sight it would appear that the quantities of carbonic acid in the air were anything but sufficient for the purpose, for according to De Saussure's accurate and precise determinations of the amount, there were only about four parts in every 10,000 parts of air. These determinations have been confirmed by many other observers, and it was therefore not far wrong to say that the air contained in every 10,000 parts from 4 to 5 parts of carbonic acid. This was a small quantity; but when they considered the enormous volume of the atmosphere—when they considered that plants were provided with such a beautiful apparatus for absorbing the carbonic acid diffused through the atmosphere, which was constantly wafted in all directions, and driven towards the leaves of the plants—when they further considered that there was no other source from whence plants could derive their carbon, and made the calculation of the amount of carbon contained in the enormous bulk of the atmosphere—they were forced to the conclusion that the quantity of carbonic acid in the atmosphere was sufficient for most plants. This idea did not preclude the other, that carbonaceous matters in the soil were most essential for certain purposes, but it was not the carbon in the soil which mainly supplied plants with this kind of atmospheric food. Observations of the wants of plants in this respect had been somewhat enlarged of late years, and he believed he was not wrong in stating that whilst there were some plants which might entirely rely upon the carbon which they found in the atmosphere, there were others which were greatly benefited by carbonaceous matters, which they were in the habit of calling humus, and which ought to be present, or at any rate which it was desirable should be present, in the soil. He believed cereal crops were not dependent in any great measure upon any carbonaceous or organic matters in the soil; whilst root crops, Turnips, Mangels, and others, were materially benefited by the carbon present in the humus; whether it was in the shape of a prepared organic that the humus acted usefully as a source of carbon to roots, or whether it was because the humus in the soil was continually undergoing a change, and produced continually carbonic acid in the very soil which grew the roots, he left for the present undecided. Indeed, they had no very distinct experiments, nor were they easily instituted, to show that organic matters as such were taken up by plants. But this was certainly known as a fact, and it was an important one, that the air in the soil itself contained a very much larger proportion of carbonic acid than the atmosphere resting upon it.

Some years ago M. Boussingault made some very careful and interesting experiments upon the amount of carbonic acid which occurred in soils, and he found that whilst the atmosphere that rested upon the soil only gave 4 to 5 in every 10,000 parts, the air in the soil contained, in sandy soil recently manured, 217 parts of carbonic acid in every 10,000 parts. Shortly after rain the air from the same soil was again analysed, and was found to contain as much as 974 parts of carbonic acid; evidently showing that the wetting of organic matter and the rapid decomposition which through contract with the porous earth had taken place in organic matter, had led to the destruction of the humus and the formation of large quantities of carbonic acid. This threw some light upon the very startling growths sometimes noticed, especially with regard to root-crops. They knew how very rapidly young Turnips started after a good shower of rain if the land had been well dunged, the rain expelling the rapid production of carbonic acid in the soil. They looked in vain for this result in soils which had not been properly cultivated. And this led him to another remark—that plants, and root crops especially, not only took up carbon through the medium of their leaves, but also in the shape of carbonic acid in very large quantities through the medium of their roots. It was especially useful to root crops, to furnish them at an early stage of their growth with matters that furnished carbon in the shape of carbonic acid, which he believed they took up very largely through the medium of their roots. Boussingault showed that whilst in calcareous soil there were in 10,000 parts of air only 87 of carbonic acid, and in heavy clay soil only 66, there were in pasture soils as much as 179 parts of carbonic acid to every 10,000 parts of air. Thus it would be seen that in all these instances, the quantity of carbonic acid in the soil was very much larger than the quantity resting immediately above it. In the next place he had to direct attention to perhaps the most important constituent of the atmosphere—he alluded to atmospheric ammonia. For a very long time this had been entirely overlooked; and it was very pardonable, since the quantity was so small that it could not be determined with anything like precision, and it was necessary to have recourse to the examination of the rain or dew to ascertain anything like an approximation to the truth. Perhaps the correct determinations were those that were obtained in France by M. Bineau, and also by M. Boussingault, who had done so much for the progress of scientific agricultural chemistry. According to M. Bineau, 1,000,000 parts of air contained only about two-tenths part of ammonia. The amount varied in different seasons, but not in different humus—the total amount of ammonia present in the atmosphere did not vary at all in the humus, but it did vary in different times of the year. According to the researches he had mentioned, the rain which fell upon an English acre carried upon the land about 22lbs. of nitrogen, both in the shape of ammonia and nitric acid. Indeed the amount of nitric acid in the atmosphere was somewhat larger than the amount of ammonia; but as both were small they might safely be taken together. Twenty-two pounds upon an acre was a very small amount, and they had to consider the very important question whether this quantity was sufficient for the requirements of plants. They pursued a very extensive series of experiments bearing upon this matter, and from them it followed that whilst there were some plants which might find a sufficient quantity of nitrogen in the shape of ammonia or nitric acid in the atmosphere in order to grow luxuriantly, there were others which were decidedly benefited if in addition to the atmospheric ammonia or nitric acid, they were supplied through the medium of the soil with an additional quantity, either of ammoniacal salts, nitrates, or organic matters producing on gradual decomposition either nitric acid or ammonia.

It was well known that the cereal crops were more than any others benefited by ammoniacal fertilizers, whilst those plants that were not in the same manner benefited by the ammoniacal fertilisers were those which they were in the habit of calling green crops. An interesting inquiry arose as to how it was that the cereal crops were especially benefited by ammoniacal manures supplied to the soil, and not root crops. It would seem that in the greater development of the leafy part of the green crops was the reason why they were more capable of assimilating the atmospheric food ammonia or nitric acid than cereals. So it would appear at first sight, and so they might judge perhaps correctly. But it was known that in certain soils ammoniacal manures were most useful even for Turnips or Mangels. It was plain therefore that it was only under certain conditions that root crops might be thrown entirely upon atmospheric resources for this description of food. When plants like Turnips grow rapidly, it was generally the case that the soil contained a considerable quantity of organic matter, it was then that the leaves became rapidly developed. But when for some reason or other, a deficiency of organic matter occurred, as was often the case in sandy soils, ammoniacal matters were supplied with great utility even to root crops. Although therefore it might be said that ammoniacal manures did not benefit as a rule root crops—that atmospheric ammonia was sufficient in those cases, they had to be careful how they generalised observations which might be the rule in many instances. He knew as a positive fact that in sandy soils ammoniacal salts might be applied with great advantage to the growth of Swedes, Turnips, and other crops; but there were other instances in which those manures were wanted entirely. How necessary it was then that they should have precise and accurate observations upon these important matters. And how necessary that they should not be satisfied with general statements like those which had been made, and very frequently by men eminent as scientific observers, but wanting the qualification in their minds which would allow them to become the guides of practical men. These generalisations were most useful, but reducing them to practice was another matter. There were many theories which were extremely beautiful, simple, or interesting to all who took an interest in the progress of farming, but which, labouring under the one great defect that they were not sufficiently minutely carried out in all their ramifications, were not fit to serve the farmer as rules to guide him in his operations.

The sum and substance of his observations upon atmospheric ammonia amounted to this, that whilst they knew that under certain conditions and for certain crops—conditions which had as yet still more minutely to be examined—they had sufficient food of that description in the atmosphere, there were other crops, and more especially cereal crops, which did not find sufficient ammonia and nitric acid in the air to grow with sufficient rapidity and to produce sufficiently remunerative crops without the addition of nitrogenous manures to the soil. Upon the great influence of water, whether in the shape of watery vapour, dew, or direct rain, as necessary food to plants he need not dwell, but he passed on to another effect of the atmosphere on vegetation. The observations he had hitherto made all tended to show the direct influence which the atmosphere had in the nutrition of plants, but there was another part which it played on the growth of vegetables, which might be called the indirect one. This was perhaps quite as great as the direct effect, for although they might supply abundance of food to plants, if the condition of the soil was such that the plants could not grow, the food itself was of no avail. Now, the indirect part played by the atmosphere was so great in its effect that they might say positively that all soils that were not penetrated by air were unproductive, no matter how much food there might be otherwise contained in it. Cases were constantly brought under his notice of soils sent to him for examination which were characterised as unproductive, but which turned out to contain abundance of all the mineral constituents required for the growth of plants, and which required only to be thoroughly penetrated by the air in order to furnish an unlimited quantity of food. The atmosphere really exercised a most beneficial effect both on the inorganic and organic constituents that occurred in the soil.

He had alluded to the large quantities of carbonic acid present in the air which was naturally contained in the soil, but this could not be produced unless the air found its way into the soil. An excess of organic matter in the shape of decaying roots or leaves indeed was so injurious that many soils which on account of their retentive powers were not easily penetrated by air, and which contained much organic matter, were decidedly improved by burning away altogether that matter. At first sight this would appear a great waste of useful material in clay soils, and certainly it was a waste in some sense, but if it produced a beneficial effect greater than the sacrifice made they could scarcely call it a waste. He made these observations because serious doubt had been entertained respecting the utility of burning. There were some soils so difficult to penetrate by air that the organic matter could not be destroyed in any other way, while its presence in an imperfectly aërated condition was rank poison to the growing plant. It was certain that the destruction of the sour humus as it had been called—though in a chemical point of view all humus was acid—had been attended with most beneficial effects, and when recourse could not be had to proper means of aëration, this destruction had been practised with very great advantage to the succeeding crop, even in the case of a crop which, like the Turnip or Mangel, would be otherwise benefited by the presence of carbonaceous matters in the soil. But when they could effect the destruction of the organic matters by the atmospheric oxygen, the practical result, he had no doubt, would be greater. Not only did the air, and more especially the atmospheric oxygen, act upon the organic matters in producing carbonic acid, but it also had an important effect upon them in producing nitrates in the soil. The quantity of organic nitrogen in the soil was very large. Some years ago he made an experiment with the view of ascertaining how much nitrogen was present after the Clover crop had been removed, and he had ascertained that it was equivalent to rather more than the amount of nitrogen present in 8 cwt. of Peruvian guano—that was taking 1 acre. It had been found that the Clover crop was the most excellent preparation for the succeeding Wheat—and it was known now as a fact, that in growing a good crop of Clover a very large amount of root was left in the soil. It could not be maintained that the nitrogen, to the whole extent he had stated, would be available in the shape of nitric acid; yet, if only one half became so available, the reason would at once be seen why Clover was such an excellent preparation for Wheat, and why a good crop of Clover was almost invariably followed up by an abundant crop of corn. But in order that the beneficial effect should take place, it was most essential that the soil should be penetrated by the air—that after growing a good crop of Clover immediate steps should be taken to work the soil, and the better the soil was worked by proper machinery the sooner the Clover ley was broken up, the sooner the atmospheric air entered the soil, the more rapidly were the nitrogenous constituents of the roots destroyed, and the more abundant were the nitrates found in the soil. He never examined soil that had been well penetrated by air, in which large quantities of nitrates were not invariably present. So much with regard to the indirect influence of the atmosphere in the nutrition of plants.

The indirect influence of the air on mineral matters was also most important, especially in the case of clay soils. Clay soils in many cases contained an abundant store of mineral food, which was as essential as atmospheric food to the growth of plants, but in many cases it occurred in a locked up condition, in which it was of little or no avail to the

growing plants, and it was only when the air thoroughly penetrated the soil that it became available. It was by the introduction of atmospheric oxygen and carbonic acid that many mineral compounds belonging to the double silicates of alumina and alkaline, of ammonia and lime were gradually decomposed. In consequence of this remarkable composition the surface of the soil becomes more porous and powdery, and a stiff clay soil was by proper aëration reduced into fine earth, and at the same time there were produced the food so much wanted for the growth of the plant, and that condition which enabled the plant to absorb more abundantly atmospheric food, for the more porous the soil was the more readily did it absorb ammonia and carbonic acid from the atmosphere. The atmosphere supplied an abundant store of food in a direct way to all plants; it also supplied nutriment in an indirect way in operating upon the organic matters of the soil producing carbonic acid and nitrates in the soil. It operates upon the mineral constituent of the soil, eliminating from them the insoluble matters of a mineral character, and rendering available the important soluble mineral constituents found in all plants; and lastly, while effecting all these beneficial changes in the soil itself, it materially improved its mechanical condition, in virtue of which the soil acquired the power of availing itself more perfectly of the food existing in such great abundance in the atmosphere itself. In bringing the lecture to a conclusion he stated that he had been unable, from insufficient data, to introduce any new matter, but had rather confined himself to the reproduction of old well-known facts in a brief manner. All that he could attempt to do was to give a brief account of what was positively known with respect to the atmospheric nutrition of plants.

The lecture was received with loud cheers.

In reply to Mr. Frere,

Professor Voelcker stated that good Peruvian guano contained from 14 to 15 lb. of nitrogen per cwt.

Mr. Holland, M.P., observed that in the management of the Clover crops, the roots containing so large an amount of nitrogen, attention should be paid to the increase of the roots, but if the Clover was fed off the plant was killed and the root not formed.

Professor Voelcker observed that after two years Clover crops, by leaving the plant standing for seed in the first year, more nitrogen was actually obtained than when it was immediately fed off.

Mr. Coleman suggested that the comparative injury from feeding might depend in a great measure upon the mode of feeding, and the objection might be obviated by the method which was certainly the most economical as far as the animal was concerned, and passing rapidly over the ground—allowing the crop to reach 6 or 8 inches, and then at once feeding off, giving say one day to one spot.

On the motion of Sir J. Johnstone, seconded by Mr. Holland, M.P., the thanks of the Society were voted to the Professor for his very clear and useful lecture.

Bath and West of England.—At the usual monthly meeting of the Council on the 7th inst., Mr. Poole said that as the Royal Agricultural Society of England had resolved to visit Plymouth in the year 1865, it appeared to be the wish of the Council of the Bath and West of England Society that they should go as far out of the way of the Royal as they possibly could, so as not in any way to interfere with the success of the great national exhibition. In order to enable them to do this, however, it would be necessary to alter or suspend those rules of the Society which, among other things, divided the area of their operations into an eastern or western division, and required that the annual meetings for exhibitions should be held in different towns in successive years, alternately in each district. With this view he formally handed in a series of resolutions which he should move at the next annual meeting.

At this stage of the proceedings the following communication, from the Mayor and authorities of the city of Hereford, was read:—

"St. John's Street, Hereford, 5th May, 1864.

"Dear Sir,—We are directed by the Mayor of Hereford to invite the Council of the Bath and West of England Society to hold their annual meeting in 1865 at the city of Hereford. A copy of the resolutions passed at a meeting held on Wednesday, the 4th May, 1864, is sent herewith.

"We are also directed to state that the required amount, viz., 900*l.* shall be duly paid to your bankers.

"We beg to inform you that the requisite sites for holding the show, for trial ground for implements, &c., will be ready for inspection at any time; and we shall be obliged by your letting us know when we may have the honour of seeing the deputation from your Council to view the same.

"Should your Council determine upon holding their meeting in this city in 1865, we trust that our arrangements will be found satisfactory.

We remain, &c.,

"J. T. Owen Fowler } Hon. Secs.
"Thomas Duckham }

"To H. St. John Maule, Esq."

The proposal contained in this invitation was very cordially received, but after considerable discussion it was held that no formal decision could be arrived at, till the annual meeting had affirmed the propriety of the changes contemplated by Mr. Poole in the motions of which he had given notice.

A deputation, however, was appointed to visit Hereford, on the 19th inst., for the purposes mentioned in the invitation.

The Programme of the Bristol meeting was brought up and confirmed. The open judging of Stock and Poultry will commence at 10 o'clock on the morning of Monday, June 13; the Implement and Arts Departments will open at the same hour; the Horticultural Department will open at 1 o'clock. On the other days all departments will open at 9 a.m., and close at 6 p.m. Of the trial of steam ploughs, &c., full information will hereafter be announced. A new and interesting feature will be the ring or circle, in which the horses will be paraded for at least half-an-hour, at 12 o'clock and 4 o'clock daily. The shoeing of horses will commence at 10 o'clock on Wednesday, at portable forges in the yard. The annual Banquet will take place on Wednesday, under the presidency of Earl Fortescue; the chair to be taken at 5 p.m., instead of 4 p.m. as formerly.

Reviews.

Agriculture, Ancient and Modern: A Historical Account of its Principles and Practice exemplified in their Rise, Progress, and Development. By "The Old Norfolk Farmer." J. S. Virtue, City Road, and Ivy Lane, London.

We have read the first part of this work with very great interest. It is the production of a man who has studied the history of agriculture with that full appreciation which experience has given him of the practical bearing of the lessons which it teaches, upon the existing relations of landowners, farmers, and labourers.

We have in No. I. of the monthly series, which is ultimately to issue in two large octavo volumes, an account, (1), of the origin both of property in land, and of the various tenures by which it has come to be held; (2), a history of the value of land in this country at successive periods; (3), a discourse on the aggregation and subdivision of land; (4), an argument for cottage allotments; (5), a chapter on the farm labourer, his rights and duties; (6), an elaborate history of the poor laws and of tithes; (7), and the Part concludes with an account of the game laws. These subjects are all discussed from the "Old Norfolk Farmer's" point of view.

And the readers of our contemporary, the *Mark Lane Express*, where his essays and opinions on current agriculture have so long been published, will perfectly understand from this, that along with general good will and an interest in the progress of agriculture as a whole, there is throughout a keen pursuit of the interest of the tenant farmer.

And as it is upon *his* prosperity that that of the whole agricultural community hinges, all this is perfectly consistent with a fair and even-handed judgment of the relations between him and those on either side of him, with whom he is connected. While therefore the lease and tenant right are strongly advocated, the illustrations which are given of the author's views prove the influence of these agencies on the value of the landlord's property, as well as on that of the tenant's interest in it; and while the tendency to an excessive subdivision of the land and to the multiplication of small farms is condemned in the public interest, there is a whole chapter devoted to an illustration of the advantage of large gardens and allotments to labouring men, whose daily wages in the service of a man of capital should still remain their chief maintenance.

The following extracts illustrate some of the subjects discussed in the work:—

1. *On Leases.*—"The question of the necessity of leases, and of their advantages to both landlords and tenants has been well ventilated of late years, and is well understood by most persons conversant with farming upon the modern system, and no liberal or enlightened landlord refuses to grant leases to his tenants; nor will any improving tenant entrust his property, by expending it in the necessary permanent improvements on a farm, from which the caprice, or the cupidity, of the landlord might eject him at six months' notice without a shilling remuneration. The danger of such a dismissal is no imaginary one, instances of it being of too frequent occurrence in the country. A recent case in a northern county—in which one of the best farmers in England, and whose family had occupied the farm for many years, was thus summarily ejected without the whisper of a complaint of his conduct, either in the management of his farm, or his conduct to his noble landlord, and after expending a great part of his property in permanent improvements—is sufficient to open the eyes of the farmers to the danger."——"We have no hesitation in saying that, if the predecessors of Mr. W.'s late landlord had acted upon the same principle in dealing with their tenants, the estate would not be now worth half its present value. The only safe plan that the present holder of the land can pursue, is to avail himself of Mr. W.'s improvements, and get as much out of the land as possible without expending a shilling upon it in improvements, the profits of which he would probably be deprived of by an ejectment, to make room for another tenant at a farther advance of rent—the landlord's profit upon his outlay.

"Any man conversant with rural affairs is able to judge, as he rides along the high roads, of the nature of the tenure by which the land is held. He has nothing to do but to look over the hedges to determine whether the land is held on lease or at-will. It is astonishing that the owners of land cannot see, by the different appearance of the fields, the impolicy of preventing the tenants from improving their farms by making it unsafe for them to do so. The interests of landlords and tenants are inseparable, and one cannot secure an undue advantage over the other."

"The value and importance of granting suitable and long leases is sufficiently exemplified by the results on those estates on which it is the practice. Any man, for instance, in passing through the county of Norfolk, where long leases, as a rule, prevail, will be struck both with the high state of cultivation which the fields present, and the wealth, ease, and independence of the occupiers. Perhaps the Holkham property is an exceptional case, the farms being in general very large, and the tenants unusually wealthy. The farm-houses are more like gentlemen's seats than the dwellings of husbandmen, and the fields are many of them large enough to constitute a good sized farm. But it may be safely assumed that the highly prosperous condition of the Holkham estate, which has increased three or four times in value since the late proprietor succeeded to it, is entirely owing to the liberal principle on which he acted in letting his farms, and the 21 years' leases on which they were invariably held. The policy of this was proved by the result; for, probably, there is not a landlord in the kingdom who has had less trouble with his tenants, or whose tenants have more cheerfully, at the expiration of their leases, agreed to pay the advanced rent which the diminished value of money rendered reasonable.

"The Earl of Yarborough's property in Lincolnshire is another instance in point. Following the example of the 'Holkham chieftain,' he has increased its value from 3000*l.* to 30,000*l.* a year. Most of the farms in Lincolnshire are large; and although the custom of the county has generally been against leases, the lands being held from year to year, a tacit understanding exists between landlord and tenant, which is seldom broken. We may also mention the Duke of Bedford's estate at Woburn as a proof of the advantage of granting leases. The late Francis Duke of Bedford was the friend and coadjutor of Mr. Coke, afterwards Earl of Leicester, and adopted his system in every respect. His unfortunate death in 1801, put a stop to many of the more public measures which he adopted for the improvement of agriculture. But although his immediate successor did not profess himself an agriculturist, he pursued the same liberal course with his tenantry, and the present proprietor follows in their steps. The consequence is, the estate has increased in value, until it realises 100,000*l.* a year.

4. *On Allotments.*—"That the bestowment of cottage allotments acts upon the mind of the labouring classes as a powerful stimulant to exertion and a desire to rise above the condition of poverty, which a sole dependance upon the wages he receives as a husbandman, sooner or later, almost inevitably involves, there cannot exist a doubt. Those who apprehend that it will render the labourer more independent, and less willing to obey his employer, or fulfil the duties of his station, take a very ignorant and narrow view of human nature. Any plan, on the contrary, which reforms the habits of the peasantry by enabling them profitably to occupy their leisure without having recourse to dissipation and vice, necessarily makes them better, and not worse servants, even if gratitude be left out of the question. We maintain that the concession of a plot of ground binds the peasant more strongly to his employer; whilst the increasing habit of industrial occupation makes even his regular employment as an agricultural labourer less onerous to him.

"It is in those cases where the plot of ground (as in Ireland and in France) becomes the sole support of the husbandman that habits of idleness are displayed. Without sufficient employment to occupy the whole of his time he has no stimulus, when his Potatos are planted, or his Oats sown, to find other fields for exertion, because his neighbours around him, being equally poor, can afford him no means of improving his condition. We have ample evidence in both countries that the system of small farming is injurious to a country; whilst the occupier is far worse off in every respect than the agricultural labourer of England. The only thing wanted by the latter is the allotment of land, to make his position comfortable and advantageous both to himself and to his employer, whose direct interest it is to see that those he employs have no reason to complain."

The section on the Game-laws exposes with great energy the evils inflicted by the "gamekeeper." The following passage gives the substance of the author's opinion on this subject:—

"To abolish entirely the game laws, and allow every one to range the country for the purpose of killing game without reference to the owner or occupier of a farm, would be productive of as much evil as the present system. The appropriation of the land renders it unbearable, if not impossible, that it should be liable at all times to be overrun by any one who can purchase a gun or keep a dog. The interests of agriculture, and, therefore, of the country at large, require that trespasses on private property should not be allowed on any pretence whatever, and that the game should belong—not as property, but as of privilege—to the owner or occupier of land, as they can agree between them. It is, therefore, against the excessive preservation of game, and the restriction laid upon the farmer who feeds it, that the observations are directed, and from which all the accompanying evils originate.

"These are comprehended in—first, the injury sustained by the farmer and the nation at large in the destruction of crops; secondly, the encouragement given to poachers; thirdly, the employment of gangs of keepers; fourthly, the demoralisation of the lower classes; fifthly, the lowering of the character of the landowners."

The illustrations of these five points are for the most part taken from Mr. Corbet's powerful lecture on Game Preserving, read some years ago before the London Farmers' Club.

The work is illustrated with a number of plates and wood engravings, which are rather artistic embellishments than instructive drawings. The whole will, we doubt not, prove to be, what the first Part promises for it, a liberal, intelligent, and instructive discussion of the whole range of English agriculture.

Miscellaneous.

The Consulting Engineer to the Agricultural Society.—The entries of implements for the Newcastle Meeting of the Royal Agricultural Society are considerably below those made for Worcester last year. There may be many reasons offered for this. Newcastle is too far off, or the exhibitors have been there already, or the conditions are not so satisfactory as they should be, and so forth. At any rate the conduct of this department came under considerable discussion again on Wednesday, when Mr. Clayden's wholesome proposition as to the consulting engineer having no business transactions with the competing firms was lost by an immense majority. It is, however, a significant fact that the motion was seconded, in the absence of Mr. Fisher Hobbs, on duty at Roanne, by Mr. Druce, who has frequently acted as a judge of implements at the Royal shows. But, unfortunately, instead of being argued as an open question, the point was still taken as personal; and Mr. Pain, in very questionable taste, went so far as to move an amendment of confidence in the present official, whereas the original resolution should have stood or fallen on its own merits; as it will have to, sooner or later. So far the Council have by their act sanctioned a very dangerous principle, while it must be their duty to see this carried out as conscientiously as possible. If the appointed referee of the Society be permitted to take commissions from the competitors, it must be distinctly laid down that these do not exceed the customary trade per-centage, or otherwise a very palpable advantage is made of the position. Great as will be the good that will follow even this partial agitation, we must still regret that the inquiry was not proceeded with, as it would have been very desirable to have had the opinions generally of the manufacturers on the subject. But the latter would seem to be losing all chance of a hearing; for, although Mr. Exall is compelled to retire from the Council, no successor from the same interest has been selected. *Mark Lane Express.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	May	Inches.	°	°				°	°	°	°	Inches.
Friday ..	6	29.05	50	48	S.E.	1	10	57	44	67	43	0.35
Saturday ..	7	29.82	57	53	N.	2	1	62	48	73	43	0.07
Sunday ..	8	29.74	52	49	S.E.	3	10	59	40	79	32	..
Monday ..	9	29.60	57	46	N.E.	1	10	54	45	60	44	0.06
Tuesday ..	10	29.61	56	53	N.E.	1	9	56	45	67	43	0.21
Wednesday	11	29.88	50	49	N.E.	0	10	58	47	73	46	0.00
Thursday ..	12	29.79	64	59	N.E.	1	5	63	49	74	45	..

Notices to Correspondents.

CATTLE MELON: *Several Correspondents* continue to apply for seed. We have more than once referred them to Mr. Blundell, Bursledon, Southampton.

COW: *J Atkins.* Give the cow some Cotton-cake, which is binding in its nature, and repeat the opium and chalk and gentian occasionally. *W. C. S.*

SHEEP: *G B.* A small octavo volume by W. C. Spooner, V.S.

POULTRY: *F H S and others.* We are endeavouring to obtain some reliable information relating to the establishments mentioned, viz., M. de Sora's and that of the Prince Tour and Taxis. The result shall be published in an early Number. There are several large entrepots in France, where poultry is kept on a large scale, but where it is merely prepared and killed for market, after being bought in at the various markets.

THE HYDROPULT,

THE HYDROPULT
Is invaluable for use in the GARDEN FOR WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
ETC., ETC.



THE HYDROPULT
Is desirable in every HOUSEHOLD FOR WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
ETC., ETC.

AN INVENTION FOR THROWING WATER BY HAND POWER.
SECURED BY ROYAL LETTERS PATENT.

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR, 32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanized Wire Strainer, Rose, and Small Jet.
Complete as above, with Copper Stirrup, TWO GUINEAS. Packing Case, 1s. extra.

Weighs but 8 lbs.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.
It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

There are among Amateurs and Professors of Horticulture, differences of opinion as to the excellency and applicability of Gardening Implements. Some adhere to old devices, bitterly denouncing any innovations on ancient customs; and either from MALICE or prejudice, when governed by a spirit of EGOTISTICAL CONCEIT, criticize in a most unfair and unjust manner an Implement, the merits of which they are not capable of appreciating. In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited editorials from gentlemen, whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerable more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only eight pounds, and can be worked by a boy of moderate strength for some hours in succession without fatigue. The mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measures 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

The Hydropult has been recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain. Ordered by the War Department as Fire Engines.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

Prospectus, with Testimonials, sent Free on application.

CHARLES P. BUTTON, PROPRIETOR,
HYDROPULT SHOW ROOM, 27, LEADENHALL STREET, LONDON, E.C.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

CAUTION.—The well-known reputation of READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling Syringes as "READ'S PATENT."

R. READ begs to caution the Public against being deceived by such false representations, as these instruments, upon trial, will be found defective and useless.

READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions sent Post Free.

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to
Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal. 12 gal. 16 gal.
£2 13 6 £3 2 0 £3 12 6

24 gal. 30 gal.
£5 0 0 £5 12 0



Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal. 28 gal.
£5 12 0 £7 0 0

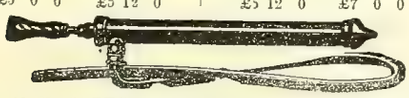


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10*s.* 6*d.* each.
,, 589. Middle Ditto ditto .. 9 6 ,,
,, 588. Small Ditto ditto .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 6 9 ,,

Fig. 591. READ'S SYRINGE, with two roses and one jet, 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 14 0
,, 592. Improved ditto ditto large 13 0

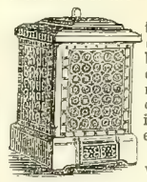
Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,
MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

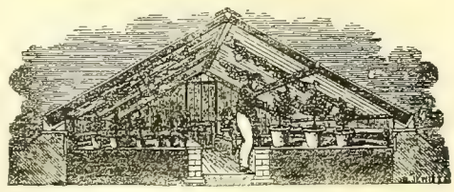


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

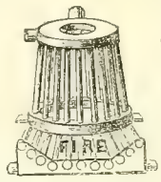
Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. Span-roof Houses, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*



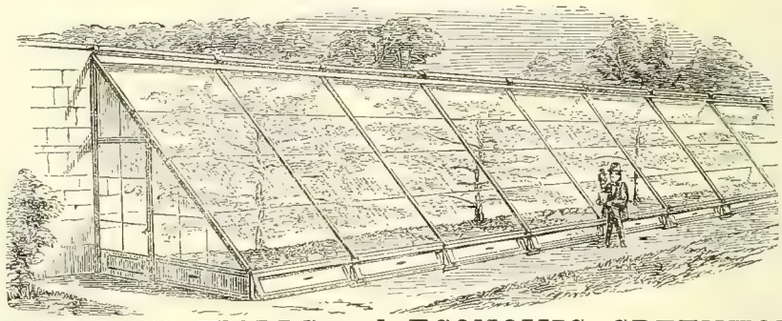
Heating by Hot Water.

JOHN TOOLEY, late 21 years with J. WEEKS & Co.
TUBULAR BOILERS,
All Sizes on the most Improved Principles, Valves, &c.
References in England, Ireland, and Wales.
JOHN TOOLEY, 9, Radnor Street, King's Road, Chelsea, S.W.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS and ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

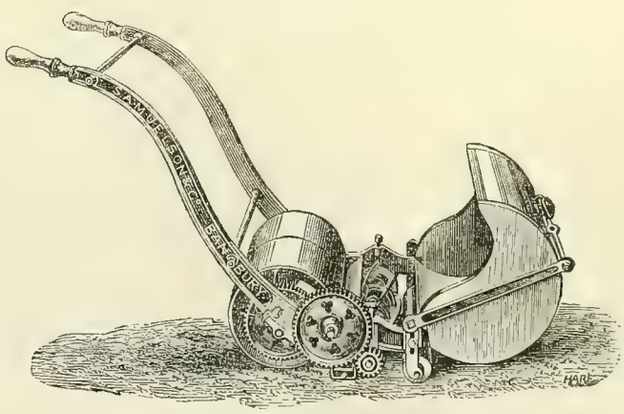
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady ...	£4 12 0
To Cut 16 inches, suitable for One Boy ...	6 10 0
To Cut 19 inches, suitable for One Man & Boy	7 0 0
To Cut 22 inches, suitable for Two Men ...	8 0 0
To Cut 25 inches, suitable for Two Men ...	11 10 0

PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8 15 0
To Cut 25 inches	11 10 0
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These Prices include Free Delivery to any Railway Station in Great Britain.



THESE
MACHINES
ARE IN DAILY USE
AT THE
ROYAL GARDENS,
CRYSTAL PALACE GARDENS, &c.

In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

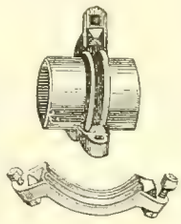
SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.,
AND OF ALL SEEDSMEN AND IRONMONGERS.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joint.

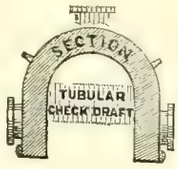
Estimates and Plans forwarded on application to

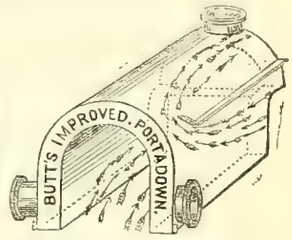
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot-water.



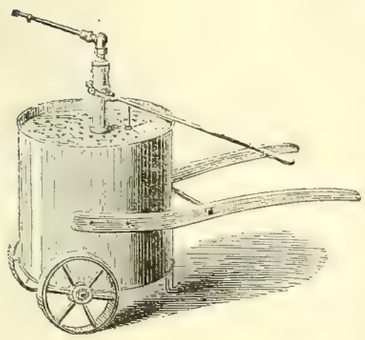


THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.

Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



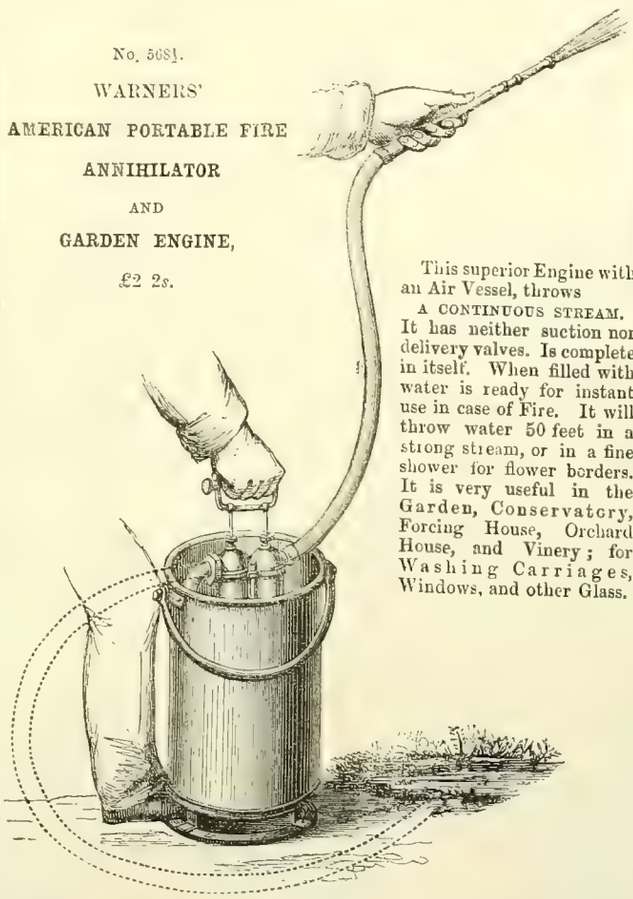
No. 554½.

WARNERS'
GALVANISED IRON GARDEN ENGINE,
WITH REGISTERED SPREADER.

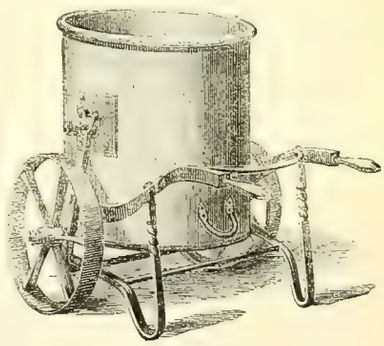
10 gallons	...	... £2 15*s.*
16 „	...	... 3 15*s.*
24 „	...	... 5 0*s.*

No. 568½.

WARNERS'
AMERICAN PORTABLE FIRE
ANNIHILATOR
AND
GARDEN ENGINE,
£2 2*s.*



This superior Engine with an Air Vessel, throws
A CONTINUOUS STREAM.
It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'
SWING WATER BARROW.

20 gallons	...	... £2 0*s.*
35 „	...	... 2 10*s.*

Saves a gardener's time when used with the water pot.



No. 25.

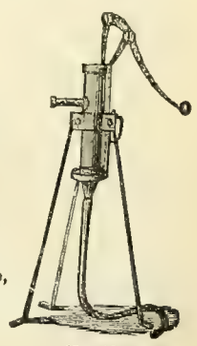
WARNERS'
PATENT IRON PUMPS.

2½ inch	...	... £1 10*s.*
3 „	...	... 2 4*s.*
3½ „	...	... 2 9*s.*
4 „	...	... 2 18*s.*
2½ inch, with short barrel	...	1 1*s.*

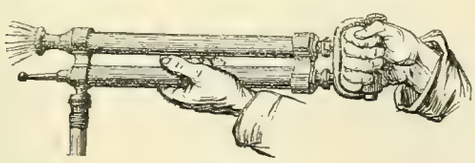
WARNERS'
PORTABLE LIQUID MANURE PUMP,
WITH LEGS,
£2 15*s.*

Do. for fixing to cart, £2 5*s.*

Suction Pipe for Pump, 2*s.* 5*d.* per foot.



No. 42.



No. 567½.

WARNERS'
IMPROVED PATENT DOUBLE ACTION SYRINGE,
with 5 feet of flexible Suction Pipe, 21*s.*
Is much improved since last season.
It economises a gardener's time
To draw from a water-pot, pail, or other vessel.



No. 590.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*



No. 557A.

WARNERS' REGISTERED DISC-VALVE SYRINGE. 9*s.*
FILLS QUICKLY AND EASILY.
It is well adapted for the gardener or amateur.

Fountain Designs in great variety. Can be supplied from a Cistern or Main.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C

INGRAM'S IMPROVED STRAWBERRY HOUSES.

JOHN WEEKS & COMPANY

Have now much pleasure in submitting the following Designs, showing the various forms in which INGRAM'S STRAWBERRY HOUSES are now being Manufactured at their Steam-power Works.

Fig. 1, which has already appeared in the *Gardeners' Chronicle*, is about 3 ft. 6 in. wide on plan, by about 8 ft. high at back, and is intended for the purpose of being placed against any existing wall. The means of access to the plants is effected by raising any of the sloping roof lights, which are conveniently arranged for that purpose.

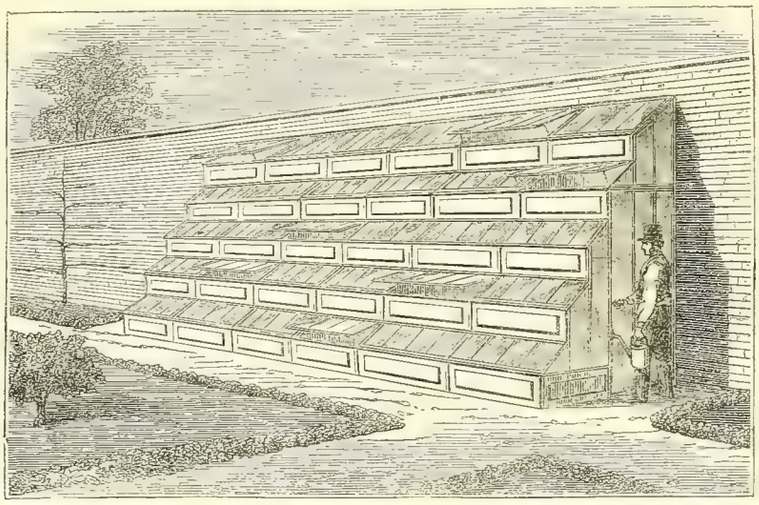


Fig. 2 is in every respect similar to Fig. 1, with the additional advantages of extra width, which affords the means of entering the Houses for the purpose of Watering and giving such attention to the plants as may be necessary.

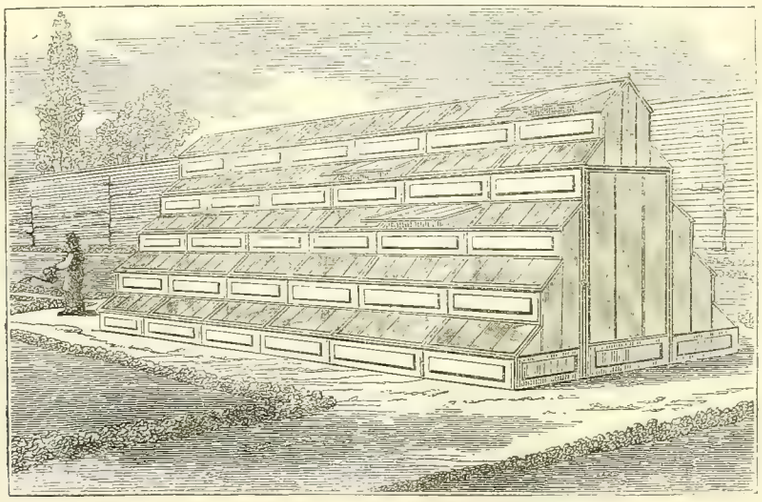


Fig. 3 is of the Span-roof shape, and can be placed in any part of the garden. It possesses every convenience of Nos. 1 and 2, with the additional advantages of being able to contain twice their number of plants.

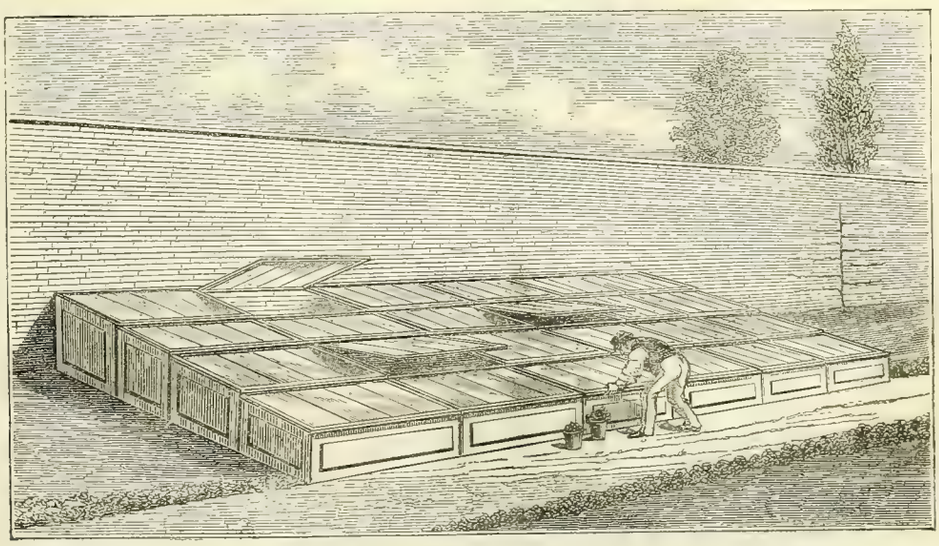


Fig. 4 is specially adapted for Ground Culture, and can be used for Strawberry Plantations, Vine Borders, or any similar purpose.

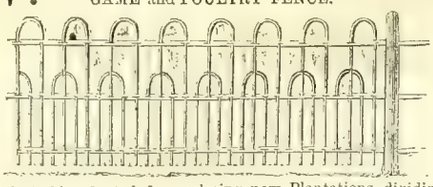
Each of these HOUSES are specially adapted for FORCING STRAWBERRIES, possessing as they do every qualification essential for the perfect cultivation of this highly important fruit. The special advantages of the invention may be enumerated as follows:—The HOUSES are constructed upon the CAST-IRON BRACKET PRINCIPLE, and require no permanent fixing; are easily removed, and can be adjusted to any existing wall. They admit an abundance of light and fresh air to the plants, while imparting shade and moisture to the pot. Each plant has the benefit of being placed close to the glass, while a considerable saving of labour is effected by the small amount of attention required compared with the old system. They will also be invaluable for the Summer Culture of Plants requiring similar treatment.

Information as to Price, &c., may be obtained of

MESSRS. J. WEEKS AND COMPANY,

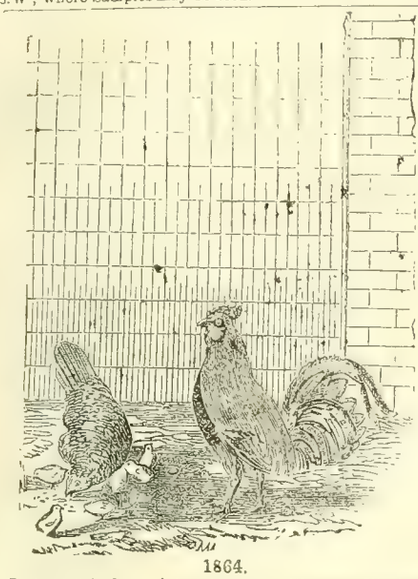
HORTICULTURAL ENGINEERS and HOT WATER APPARATUS MANUFACTURERS, KING'S ROAD, CHELSEA, LONDON.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6d. to 1s. 6d. per yard and upwards), neat in appearance, strong and durable.

Manufactory, St. Mary's Works, Newport, Salop; London Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.



1864.

Just published, royal 8vo. 66 pp. and Wrapper, Illustrated with 78 Engravings,

COMPLETE ILLUSTRATED CATALOGUE of IRON and WIRE FENCES for PARKS, FARMS, GARDENS, SHEEP-FOLDS, POULTRY COURTS, GAME PRESERVES, &c., post free on receipt of 4 stamps addressed to Greening & Company's Central Offices, 4, Warren Street, Manchester.

JOHN GEDDES, late

H. J. MORTON and CO.'S, CORRUGATED GALVANISED IRON ROOFING,

for Farm Buildings and other Roofs; the cheapest, most durable and neatest roofing in use; also Spouting at 10½d. per yard.

GALVANISED WIRE STRAND CABLE FENCING.

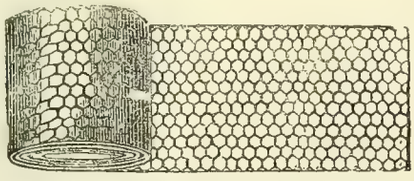


(Formed of twisted wires like a rope or cable), the strongest cheapest, and neatest fence in use; will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Five lines of Galvanised Strand, Iron Main Posts, and Pronged Standards. 2000 miles supplied.

Price 1s. per yard.

This Fence is far cheaper than posts and rails, or any kind of iron fencing, and possesses four times the strength of solid bars (Will not rust nor corrode.)

IMPROVED GALVANISED WIRE NETTING.



Prices of Netting 24 Inches high.—Sent Carriage Free.

Size of Mesh.	Proof against	Light. Per Yard.	Medium Per Yard.	Strong. Per Yard.	Very Strong. Per Yard.
2½ in.	Hares, Dogs, Poultry, &c. ..	4d.	5d.	6d.	7d.
2 in.	All kinds of Game ..	4½d.	5d.	6½d.	8d.
1⅝ in.	Small Rabbits, Hares, &c. ..	4⅔d.	6d.	7d.	9d.
1½ in.	Ditto ditto ..	6d.	7d.	9d.	11d.

NETTING supplied at considerably less prices. Made any width up to 6 feet at proportionate prices. For other sizes see Illustrated Catalogue.

VINERIES and GREENHOUSES WIRED.

HURDLES, GATES, and IRON and WIRE FENCING of all kinds.

GALVANISED IRON WATER CISTERNS for Cottage Houses, &c., to contain about 50 gallons, 26s.; 80 gallons, 31s.; and 140 gallons, 37s., with Lid and Brass Tap; will not rust nor corrode.

GALVANISED IRON PUMPS for Liquid Manure or Domestic Use, 3 inches diameter, 25s. and 30s. each. Tail Pipe for same at from 10d. per foot.

GALVANISED IRON SWING WATER BARROWS for Garden or Farm use, to hold about 20 gallons, 35s. and 40s. each.

BUCKETS, CORN SKIPS, BATHS, HAND BOWLS, &c.

PATENT LAWN MOWING MACHINES, from 70s. each.

ASPHALTE ROOFING FELT, 1d. per square foot.

Illustrated Catalogues and Estimates sent on application.

12, Great George Street; and 2, Basinghall Buildings, Leeds.

Universal Microscope. Price £5 5s.

SMITH, BECK, and BECK, 31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

BROWN'S FLORAL SHADING, sold by most respectable Nurserymen and Seedsmen, in pieces:—

No. 1, 20 yards long, 38 inches wide, at 7s. 8d. per piece.
2, do. do. 8s. 0d. do.
3, extra stout, 18 yards long, 30 inches wide, at 10s.

Samples on application to Charles Brown, Greenheys, Manchester.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2 inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

For Sale.

E. DENCH having given up Business, has left on hand THREE HANDSOME CONSERVATORIES, ONE VINERY, and PIT, for which he will not refuse any reasonable offer, being very desirous to close the affair.

For further particulars, address E. Dench, Pomfret Villa, Oakfield Road, Penge.

AILANTUS WORM EGGS for SALE; 8d. the dozen; or 6s. the 100. Worms alive at 4d. each. Apply to W. Vair, Dangstein, Petersfield.

NORTHERN TERRITORY of SOUTH AUSTRALIA.—FINAL SALES of COUNTRY LANDS. 250,000 acres, half to be Sold in Adelaide, half in London. Land Sale of 125,000 acres in London under the Act. The allotments of the Preliminary Land Sale in London having been all disposed of, notice is hereby given, in conformity with the above-named Act, and the regulations in force, that on the 7th day of June next, and subsequent days, LETTERS of APPLICATION, accompanied by the corresponding receipts of deposit, previously paid into the Bank of England to the account of the Agent-General of South Australia, will be receivable at this office from persons willing to purchase land at 12s. per acre in the present Land Sale, which consists of 781 allotments, each allotment containing 100 acres of country land, the deposit being 20l. per allotment.

For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.

The following printed papers, in connection with the present sale, may be obtained at this office, viz.:—

1. Copies of the Act and regulations, with directions.
2. Form for paying the deposit at the Bank.
3. Form of letter of application, enclosing the Bank deposit receipt.

G. S. Walters, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.

No. 5, Copthall Court, London, E.C., April 30, 1864.

N.B. The land orders to be issued in London are transferable by endorsement.

The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.

All future sales will take place in the Colony by public auction, at the upset price of 20s. per acre.

TO BE SOLD, the LEASE (38 years unexpired) of a FLORIST'S BUSINESS. Ground, 1 acre; Rent, 25l. a year. Five Greenhouses, about 200 feet run of Pit Lights; Cottage, Sheds, &c., and Stock, consisting of about 10,000 plants. Coming-in clear, 400l.

Apply on the Premises, R. Childs, Rye Lane, Peckham, Surrey, S.

To Nurserymen, Florists, and Others.

TO BE DISPOSED OF, by Private Contract, the long-established and well-known BUSINESS of the late James Cameron, of Uckfield, Sussex, Nurseryman and Florist. The Nursery Grounds are beautifully situated in the Outskirts of the town of Uckfield, near the Railway Station, within easy distance of Brighton, Hastings, and Tonbridge Wells. The proposed Sale will include the Stock and Plant and Goodwill of the Business, and (if desired) the Freehold Residence and some portion of the Garden Ground. Arrangements can be made with a Purchaser for the occupation of the other lands now forming part of the Nursery.

The Grounds may be viewed at any time by application on the premises; and further information obtained by letter or personally from Mr. A. Cheale, Uckfield: or from Messrs. Hunt, Currey, & Hoper, of Lewes, Solicitors for the Executrix.

Sales by Auction.

Walworth.

To Tulip Growers and Others.

MR. J. WILLMER begs to announce that he is instructed by Mr. J. Cook to SELL by AUCTION on the Premises, 43, Amelia Street, Walworth, S., on TUESDAY, May 17, at 12 o'clock, a Choice and Valuable Collection of TULIPS, comprising all the leading flowers of the day.

Catalogues ready after May 5, and may be had on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury, S.W.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 17, at 12 o'Clock precisely, a Choice Assortment of POULTRY and PIGEONS, comprising most of the known varieties; a capital lot of Bird Cages from Hamburgh; Rustic Garden Seats, and Stands from a celebrated manufacturer; also an Importation of Cedrus Deodara Seed in good condition.

On view the Morning of Sale, and Catalogues had.

Woolwich.

Stove, Greenhouse, and Ornamental Plants.

MR. J. C. STEVENS will SELL by AUCTION on the Premises, 49, Rectory Place, Woolwich, on WEDNESDAY, May 18, at half-past 12 o'clock precisely, by order of the Executrix of the late Dr. Butler, the CHOICE COLLECTION of STOVE and GREENHOUSE PLANTS, consisting of fine Camellias, Azaleas, Fuchsias, Pelargoniums, Liliums, Amaryllis, Caladiums, Gloxinias, Achimenes, Ferns, Orchids, Begonias, &c.; Garden Implements, &c.

On view the Day before and Morning of Sale, and Catalogues had on the Premises, and at 38, King Street, Covent Garden. The Entrance to the Sale will be in Red Lion Street.

Important Sale of New Plants introduced by Mr. Fortune from Japan and China.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three-years' agreement between Messrs. Standish and Fortune having nearly terminated) to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 24, at half-past 12 o'clock precisely, a splendid assortment of NEW HARDY PLANTS, many of which have never yet been offered to the Public, comprising—

Osmanthus (several kinds)	Clematis Fortuni & Standishi
New Oak from Pekin	Sciadopitys verticillata
Ilex crenata	Convallaria variegata
Retinospora pisifera aurea	Thujopsis dolabrata variegata

and a number of other Plants of great interest.

Many of the above are the original imported Specimens.

On view the Morning of Sale, and Catalogues had of Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Clearance Sale, Stoke Newington Road.

40,000 Bedding and Greenhouse Plants.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Eden Nursery, Stoke Newington Road, N., about 10 minutes walk from Kingsland Railway Station, on TUESDAY, May 17, at 12 o'Clock precisely without reserve, by order of Mr. Seabrook, the ground being immediately required for Building purposes, the whole of the valuable Stock, consisting of upwards of 40,000 BEDDING and GREENHOUSE PLANTS; viz., 12,000 Lobelia speciosa, 2000 Choice Fuchsias, 4000 Verbenas, Scarlet and Variegated Geraniums, 8000 Calceolaria aurea floribunda and others, Heliotropes, Petunias, &c., Show and French Pelargoniums, Cytisus, and other Plants in bloom, 1000 fine Cyclamen, Passiflora and Honeysuckles, Lophospermum, Eccremocarpus, &c.

May be viewed four days prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of 25,000 Bedding Plants.

Hornsey.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION on WEDNESDAY, May 18, at 12 for 1 o'Clock precisely, at St. Mary's Nursery, adjoining the Compasses, Hornsey, and a few minutes walk from the Railway Station, 25,000 BEDDING PLANTS, CLIMBERS, &c., all of the newest and choicest kinds.

Catalogues of Sale may be obtained at the Nursery; at the principal firms in the neighbourhood; of the Auctioneers, at the American Nurseries, Leytonstone, Essex; and will be sent free by post on application to Mr. Townsend, at the Nursery.

Mile End Nursery.

Annual Sale of 10,000 First class Bedding & other Plants.

MESSRS. PROTHEROE and MORRIS will submit to PUBLIC COMPETITION by AUCTION, on the Premises, Mile End Nursery, Bow Road, Middlesex, E., and within five minutes walk of the Bow Railway Station on the North London Line, on THURSDAY, May 19, at 12 o'Clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of very handsome Show, Scarlet, and Variegated Geraniums, Azalea indica, Herbaceous and Shrubby Calceolarias, Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Cupheas, Pyrethrum, Gazania splendens, Perilla nankinensis, Nierembergia, Variegated Alyssum, Ageratum mexicanum, Phlox Drummondi and Leopoldii Œnothera, Senecio, Intermediate Stocks, Climbers, &c.; together with some Ornamental Rustic Seats, Gothic Chairs, Tables, Lawn Baskets, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Eagle, Snaresbrook; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Choice Greenhouse and Bedding Plants.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION at the Mart, on FRIDAY, May 20, at 12 o'clock, a choice collection of SHOW, SCARLET, and VARIEGATED GERANIUMS, AZALEA INDICA, CALCEOLARIAS, HELIOTROPES, and other plants in Bloom; with a large assortment of Ornamental Plants for Bedding, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Camberwell.

26,000 Greenhouse and Bedding Plants.

MESSRS. PROTHEROE and MORRIS are directed by Mr. G. Wells to SELL by AUCTION, on the Premises, Grove Nursery, 9, Grove Place, Coleman Street, near St. George's Church, Camberwell, S., on SATURDAY, May 21, at 12 o'clock, about 26,000 GREENHOUSE and BEDDING PLANTS, including 6000 fine Show, Fancy, and French Pelargoniums, 6000 Scarlet and Variegated Geraniums, Herbaceous Calceolarias, Acacia Mimosa, Oleanders, Cytisus, Calla æthiopica, Hydrangeas, and other Plants in bloom; also 10,000 of the best Varieties of Verbenas, 1000 Heliotropes, Fuchsias, Cupheas, Gazanias, Petunias, Shrubby Calceolarias, Climbing Plants various, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Stoke Newington.—Important Sale.

To Noblemen, Gentlemen, Florists, and Others.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. J. H. Bird, having Let his Premises, to Submit for Unreserved SALE by AUCTION, on the Premises, The Nursery, Green Lane, Stoke Newington, N.E., on MONDAY and TUESDAY, May 23 and 24, at 11 o'Clock each day, the whole of the valuable Stock of GREENHOUSE PLANTS, consisting of many thousands of Tom Thumb, Variegated, and other Geraniums; 10,000 Cyclamen persicum; 1000 Passifloras of sorts; Vallota purpurea all kinds of Bedding-out Plants in considerable quantities; well-grown Honeysuckles and Climbing Roses in Pots; Acacias, Deutzias, Ficus elastica; 150 dozen of the old English Cloves in Pots; 500 Arbor-vitæ, 3 feet high, with many thousands of smaller ditto for planting out; several hundreds of strong Lilium lancifolium rubrum, in pots. Also the entire Collection of Large-flowering and Pompon CHRYSANTHEMUMS, in pots, embracing all the leading kinds, for which this Nursery has been so long celebrated; 1000 fine Double CAMELLIAS, beautifully grown, including fine young specimens of Double White, imbricata, and other leading sorts; Azaleas, &c.; together with several hundred cast of Garden Pots; a useful Cob Horse, seven years old, handsome and fast; a nearly new Market Van, capital Dog Cart, Tumbril Cart, three sets of good Harness; a well-known Pony, with Chaise and Harness; Water-pots, Wheelbarrows, and other effects.

May be viewed prior to the Sale. Catalogues may be had 6d. each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

GREEN'S PATENT SILENS MESSOR,

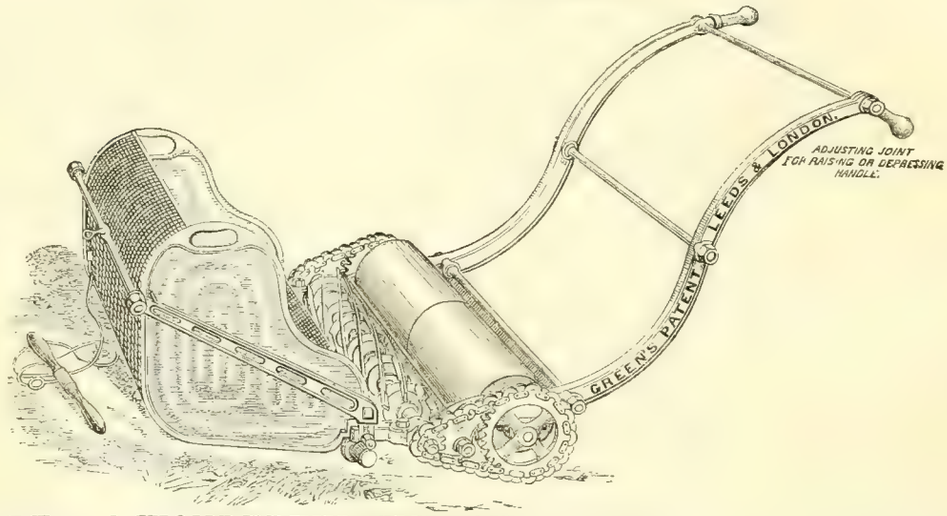
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

To Cut	10	inches	...	Price	£3	10	0	...	...	Suitable for a Lady.	To Cut	18	inches	...	Price	£7	10	0	...	...	Suitable for One Person.
„	12	„	...	...	5	0	0	...	...	„ „	„	20	„	...	...	8	0	0	...	...	Suitable for Two Persons.
„	14	„	...	...	5	10	0	...	...	Suitable for One Person.	„	22	„	...	...	8	10	0	...	...	„ „
„	16	„	...	...	6	10	0	...	...	„ „	„	24	„	...	...	9	0	0	...	...	„ „

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut	26	inches	...	...	£13	0	0	...	...	Leather Boots for Donkey, 18*s*.	To Cut	30	inches	...	...	£21	0	0	...	...	Leather Boots for Pony, 22*s*.
„	28	„	...	...	14	0	0	...	...	„ „	„	36	„	...	...	24	0	0	...	...	„ „

To Cut 42 inches ... ... £27 0 0 ... ... Leather Boots for Horse, 26*s*.
„ 48 „ ... ... 30 0 0 ... ... „ „

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

With regard to Messrs. Shanks & Son's attack upon us, we beg respectfully to refer them to our reply, which has appeared several times in this Paper.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

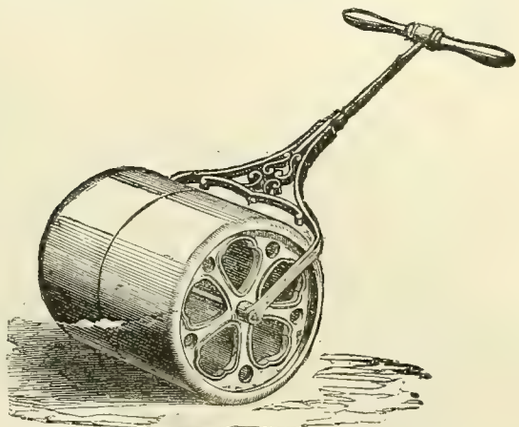
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter	30	inches;	length	32	inches	£7	10	0
„	24	„	„	26	„	4	10	0
„	20	„	„	22	„	3	10	0
„	17	„	„	16	„	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

Diameter	30	inches;	length	32	inches	£10	0	0
„	30	„	„	36	„	10	15	0
„	30	„	„	42	„	11	15	0
„	30	„	„	48	„	13	10	0
„	30	„	„	60	„	15	10	0
„	30	„	„	72	„	17	10	0
„	30	„	„	84	„	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN & SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1864.] SATURDAY, MAY 21. {Price Fivepence. Stamped Edition, 6d.

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THE QUEEN'S BIRTHDAY, on TUESDAY, May 24, will be celebrated by a FLORAL FETE at the ROYAL HORTICULTURAL SOCIETY'S GARDENS at SOUTH KENSINGTON. Cascades and Fountains, also Minton's Majolica Fountain from the Exhibition of 1862. Mast Tent for Rhododendron Show; New Orchard Houses; Military Bands. Hours, 12 to 7. Admission 1s.

ROYAL HORTICULTURAL SOCIETY.—The FIRST GREAT SHOW of the Season will take place on WEDNESDAY, June 1. Admission to Fellows' Friends by tickets previously purchased, 2s. 6d.; to the Public, 5s (on the day, 7s. 6d.); and will be continued on THURSDAY, the 2d, admission 1s. Open to the Public each day at 2. Military Bands at 3.

LINNEAN SOCIETY, Burlington House, Piccadilly, May 12, 1864.—The ANNIVERSARY MEETING of the Linnean Society of London will be held here, on TUESDAY, the 24th of this Month, at 3 o'Clock precisely, for the ELECTION of a COUNCIL and OFFICERS for the ensuing Year.
George Busk, Secretary.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40*l.* will be awarded for Cut Roses in the various classes.
For particulars, apply to the Secretary, Mr. Wm. Penn Cox, 37, Market Place, Leicester.

THE BIRMINGHAM ROSE SHOW, 1864, will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, the 7th and 8th of July next.
Prize Lists, &c., may be had of the Secretary, Mr. A. Forrest, Queen Chambers, Cherry Street, Birmingham,

Notice.

JOHN WATERER'S EXHIBITION of RHODODENDRONS, &c., will be on view at the Royal Botanic Gardens, Regent's Park, throughout the month of JUNE.
American Nursery, Bagshot, Surrey.

Exhibition of American Plants.

MESSRS. WATERER and GODFREY beg to announce that the RHODODENDRONS and other AMERICAN PLANTS at Knap Hill are just now in great beauty and may be seen daily.
Knap Hill Nursery, Woking, Surrey, near the Woking Station, South Western Railway
Their Exhibition in the Horticultural Gardens, South Kensington, will be in perfection on and after MAY 24.

A MAGNIFICENT COLLECTION of AMERICAN PLANTS, covering nearly 24 Acres, is now in perfection at G. Baker's American Nursery, about 1 mile from Sunningdale, S.W.R. Admission gratis.

WILLIAM BARNES begs to announce that his Unrivalled COLLECTION of INDIAN AZALEAS is NOW in fine BLOOM. An inspection is respectfully solicited.
Camden Nursery, Camberwell.—May 21.

J. IVERY and SON beg to announce that their fine collection of AZALEA INDICA is NOW in BLOOM; also that their collection of HARDY FERNS will be found very interesting. An inspection is respectfully solicited.
King Nursery.—May 21.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

ROSE, BEAUTY of WALTHAM.—In reply to recent attempts to depreciate this ROSE, Mr. Wm. Paul begs to reassure his friends and the public that it is one of the hardiest, sweetest, and loveliest of Roses, distinct, and quite equal to the coloured drawing and description originally given by him.
Waltham Cross.—May 21.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per doz.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

NOW READY, the NEW ROSES of 1864. Twelve of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
Richard Smith, Nurseryman, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
Charles Noble, Sunningdale Nursery, S. W. Rail.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

Hybrid Perpetual Rose, Lord Clyde.

PAUL and SON have much pleasure in recommending this ROSE, it having proved itself to be very fine during the past spring. See reports of Exhibitions. Strong plants, 5s. each.
Old Cheshunt Nurseries, N.

FOR SALE, 100,000 well-grown PLANTS, from 3s. per dozen, at Clifton Nursery.
C. Elwin & Co., 5a, Clifton Villas, Maida Hill, W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON and SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

Established 1800.
Ripon and Claro Seed Establishment.

WILLIAM MORTON,
Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

RAYNBIRD, CALDECOTT, and BAWTREE,
Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Seeds, Carriage Free.

B. S. WILLIAMS,
Nurseryman and Seedsman,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1861 forwarded Post-free on application.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

SUMMER BEDDING PLANTS at 2s. per dozen, and 15s. per 100; 6 guineas per 1000; 50 guineas 10,000.
Wm. Barratt, West Riding Nursery, St. John's, Wakefield.
N.B. CATALOGUES now ready.

General Plant Catalogue.

WM CUTBUSH and SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.
W. Dillistone, Munro Nursery, Sible Hedingham, Essex.

MESSRS. DILLISTONE and CO., of the Sturmer and Woodlands Nurseries, Essex, beg to inform their Patrons that their CATALOGUE (44 pages) for the Spring and Autumn of 1864, of BEDDING and other PLANTS, can be had gratis, and to new applicants upon receipt of one stamp.

Dahlias and Bedding Plants.

JAMES FAIRHEAD and SON beg to state that their CATALOGUE of the above is now ready, and can be had post free on application.
7, Borough Market, London, S.E.

Extra fine Bedding and Other Plants.

EDWIN COOLING begs to call attention to his stock of the above, which is unusually fine.
The CATALOGUE, containing full particulars of height, colour of flower, price, &c., free on application.
Mile Ash Nurseries, Derby.

Bedding Plants.

W. WITTY and SON have to offer fine strong VERBENAS, AGERATUMS, LOBELIAS, CALCEOLARIAS, Heliotropes, Petunias, Geraniums, Fuchsias, Salvias, Pentstemons, Pinks, Carnations and Picotees, &c., at very moderate prices.
W. Witty & Son, Cottingham Nurseries, near Hull.

GLEICHENIA HECISTOPHYLLA. — Good strong Plants of this fine Fern, 1½ to 2 feet high, 31s. 6*d.* to 42s. and 63s. each.
SCHIZOSTYLIS COCCINEA.—Now ready, 5s.
GASTRONEMA SANGUINEUM, 7s. 6*d.*
James Backhouse & Son, York Nurseries.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6*d.*; 15 do., 3s. 6*d.*; 25 do., 5s. 6*d.*; 50 do., 15s.; 100 do., 30s.
Barr & Sugden, Seed Merchants, 12, King St., Covent Garden, W.C.

Plants and Plant Cases for Table Decoration.

BARR and SUGDEN'S KEW, MEXICAN, and HORTICULTURAL PRIZE CASES, elegantly filled with Assorted Plants, 10s. 6*d.* to 105s.
Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.
HERBACEOUS CALCEOLARIA, 2s. 6*d.* per packet.
HALF SHRUBBY CALCEOLARIA, 2s. 6*d.* per packet.
CINERARIA, 2s. 6*d.* per packet.
CARNATION, Self, Flakes, and Bizarres, 2s. 6*d.* per packet.
PICOTEE, White and Yellow grounds, 2s. 6*d.* per packet.
Barr & Sugden, Seed Merchants, 12, King St., Covent Garden, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Melon Seeds.

MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6*d.*
Joseph Meredith, Vineyard, Garston, near Liverpool.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6*d.* each, offered by
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6*d.* The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.
Geo. Clarke, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.

SUTTON and SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 8*d.* per pound, or 30s. per bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEED Post Free.
Royal Berkshire Seed Establishment, Reading.

Skirving's Swede. Sutton's Selected Stock.

Price 8*d.* per lb., or cheaper in large quantities.
SUTTON and SONS have a Choice Stock of SKIRVING'S SWEDE SEED, growth of 1863, which they can strongly recommend.
Royal Berkshire Seed Establishment, Reading.

200 Bushels Fine Selected White Globe Turnip Seed.

EDWARD TAYLOR, Seed Merchant, Malton, Yorkshire, has a surplus stock of the above, which he offers to the Trade on reasonable terms. The whole is grown from large Bulbs, and is such as he can confidently recommend.
Price and Samples on application.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. Dixon & Sons, 57, Queen Street, Hull.

Turnip Seeds Direct from the Growers.

CHARLES SHARPE and CO., Seed Growers, Sleaford, have to offer superior Stocks of TURNIP and SWEDE SEED, the produce of their own Seed Farms, and saved from fully developed roots.
Price to the Trade on application.

SHARPE'S IMPROVED LARGE SWEDE, DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.
Charles Sharpe & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

To Gentlemen, Nurserymen, and Others.

J. GAINES begs to offer GREEN GLOBE ARTICHOKE PLANTS, at 25s. per 100. A good discount to the Trade.
All Orders must be accompanied with Post Orders payable to John Gaines, Herbalist, Covent Garden Market, London.

DICKINSON'S ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment.
New Park, Lymington, Hants.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

RICHARD SMITH'S RENOVATING GRASS SEED should now be sown, at a cost of 6s. per acre. A greatly increased yield will result from sowing 8 lbs. of Finest Grass and Perennial Clover.
Richard Smith, Seed Merchant, Worcester.

Cheap Grass Seeds for Hill Sides and Railway Banks.

ROUGH GRASSES, SAINFOIN, SIFTINGS, &c., suitable for the above purpose, at 2s. per bushel and 3*d.* per lb.
Address Raynbird, Caldecott, & Bawtree, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Golden Chain Geraniums.

WILLIAM HUSSEY begs to offer the above at 21s. per 100; also TOM THUMB and other Scarlets in sorts, at 14s. per 100, fine plants.
Horticultural Gardens, Norwich.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.

J. SCOTT'S FLOWER GARDEN DIRECTORY, 88 pages, is replete with information on Summer, Autumn, Winter, and Spring Gardening. Copious LISTS of all the best Flowers suitable for each season are given, price 6*d.*
Merriott, Crewkerne, Somerset.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

New Chrysanthemums.

JOHN SALTER is now sending out his NEW CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c.
A DESCRIPTIVE CATALOGUE will be sent on receipt of two postage stamps.
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Lord of the Manor,

Splendid New Double Fuchsia.
GEORGE FRY, Manor Nursery, Manor Lane, Lee, Kent, is now sending out this noble variety. For description, opinion of eminent Journalists, and Engraving, *vide* Circular, &c., sent on application.
A LIST of some of the leading men of the town, of whom the above may be obtained, will be advertised anon.

Bedding Plants.

MARSH and PERKINS, 42, Drapery, Northampton, have pleasure in offering the following, all strong healthy plants: GERANIUM COUNTESS of WARWICK, 4s. per dozen.
TOM THUMBS and other SCARLETS, 2s. 6*d.* per doz.
VERBENA LORD RAGLAN, 2s. 6*d.* per doz.
CINERARIA MARITIMA, 2s. 6*d.* per dozen.
N.B. The usual Discount to the Trade. A reference or remittance requested from unknown Correspondents.

BEDDING-OUT PLANTS.—The varieties of DAHLIAS, GERANIUMS, CALCEOLARIAS, VERBENAS, &c., best adapted for bedding-out, can be supplied in strong plants, to give immediate effect. Prices moderate. A DESCRIPTIVE CATALOGUE upon application.
James Dickson & Sons, The "Newton" Nurseries, and 102, Eastgate Street, Chester.

Hollyhocks and Dahlias.

JOHN HARRISON having a large Stock of the above, offers them to his friends in the Trade on the most liberal terms, viz:—Strong Good Plants of DAHLIAS, own selection, excellent varieties, 25s. per 100; HOLLYHOCKS, at half the Catalogue price. A large quantity of Strong HOLLYHOCK STOOLS, full of healthy Cuttings, to dispose of.
Nursery, Darlington.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution, free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews, for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous: forms a splendid Pillar Rose, 2s. 6d.

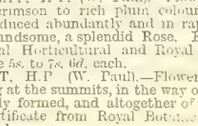
OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit: the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

PAUL'S Nurseries, Waltham Cross, N.

New Fern, Lastrea Standishi.



MR. WILLIAM BULL is now offering this beautiful new Greenhouse (and probably hardy) JAPANESE FERN, at 7s. 6d. each.

Establishment for New and Rare Plants, King's Road, Chelsea, London S.W.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf.
CALCEOLARIA BEAUTY of HERTS, clear amber.
CALCEOLARIA GENERAL TOM THUMB, deep yellow.
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30s. per dozen; the usual allowance to the Trade where SIX or more are taken.

Indian Azaleas.

WILLIAM BARNES has the largest and most healthy stock of the above favourite plants to offer for sale, comprising the finest specimens, suitable for exhibition in this or any other country, as well as many thousands of smaller dimensions, from three-quarter and half specimens down to small plants, all properly shaped to form symmetrical specimens, and finely set with bloom. Any person forming a collection or increasing their present one will do well to visit this Nursery, where every variety up to the present date worth cultivating will be found, the whole grafted upon the stock that W. B. has proved so admirably adapted to them, after many years close observation.

PRICED LIST will be forwarded upon application post free.
Camden Nursery, Camberwell, S.—May 21.

MYOSOTIS ALPICOLA, the ALPINE PERENNIAL FORGET-ME-NOT.—Far more dwarf and brilliant in colour than any other species. Forms "cushions of vivid blue," 2 to 3 inches high. Charming tufts just coming into bloom, 9s. per doz.; 50s. per 100.

PINGUICULA GRANDIFLORA (The Large Butterwort) true, 1s. each.

MYOSOTIS MONTANA, Early Spring Forget-me-Not; 6s. per doz.

LINARIA ALPINA.—Lilac and fiery orange corymbs from prostrate silvery tufts. Blooming plants in pots, 4s. per dozen; 15s. for 50; 21s. per 100.

CALANDRINIA UMBELLATA.—Vivid magenta crimson, 3 to 4 inches. Flowering plants in pots, 4s. per dozen; 25s. per 100.

GOLD NETTED DAISY.—Fine high-coloured tufts; 4s. per dozen; 25s. per 100.

JAMES BACKHOUSE & SON, York Nurseries.

New Plants for 1864.

B. S. WILLIAMS has much pleasure in offering the following Novelties for the first time, descriptions of which will be found in previous advertisements, and in his NEW PLANT CATALOGUE, post free to all applicants.

New Achimenes.		New Single Petunias.	
Purpurea elegans	7s. 6d. each, or the 6 for 42s.	Royalty	5s. each
Leopard		Purple Prince	
Magnet		Duchess of Northumberland	
Scarlet Perfection			
Vivicans			
Eclipse			
New Fuchsias.		**New Zonale Geraniums.**	
Neptune	7s. 6d. each	Display	5s. each
Queen of Beauties		Beauty	
Gem of the North		Royalty.	
Minotaur			

Paradise and Victoria Nurseries, Holloway, London, N.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, begs to announce that his eight NEW DAHLIAS, five NEW FUCHSIAS, and DELPHINIUM ALOPECUROIDES are now ready to send out. A DESCRIPTIVE LIST of all the above can be obtained free on application, and a plate of the Larkspur for 12 postage stamps.

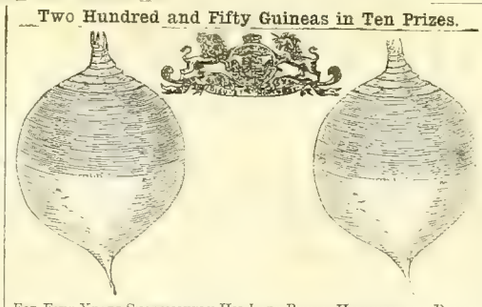
The Description of Delphinium alopecuroides (Wheeler's).—This distinct and perfectly unique garden variety of Larkspur is in every respect first-rate. It withstood the severe frost of Christmas, 1860, quite unprotected in the open border, without sustaining the slightest injury; its habit is robust and healthy, growing freely in the open border, blooming in June and July; the spikes of bloom are generally 2 feet in length, and when well grown the tip of the spike rises from 3 to 4 feet from the ground, densely clothed with very full and compact double flowers; the ground is of a creamy white, therefore in reality a blue-edged flower, though from its fulness it presents the appearance of a bright blue self, paler and somewhat shaded towards the centre. It is figured in No. 17, or the May number for 1863, of the "Florist and Pomologist." As some admirers of the plant were very anxious it should be distributed this season, it was requested to be figured when the bloom was almost past, consequently only small loose spikes could be obtained for the Artist, which accounts for the short spike in the plate, though the character of the individual blooms is quite correct.

The following remarks are taken from the "Florist and Pomologist:"—"We therefore have no hesitation in recommending both the sub'ect of our plate and the class of plants to which it belongs, to the notice of all lovers of their gardens.

"This variety of Double Larkspur, which the raiser has called Alopecuroides, doubtless from the close brush-like form of the principal part of the spike, was shown at a meeting of the Royal Horticultural Society's Floral Committee in July, 1861, and was then awarded a First-class Certificate. The specimens exhibited on that occasion were over 2 feet in length, furnished below with palmatifidly-lobed leaves, having incised segments and a ciliated margin, and terminated in a flower spike or raceme, slightly branched below and densely covered with small double flowers of a bright blue, paler and reddish-tinted towards the centre. It was regarded as a most desirable and very ornamental hardy plant."

It is propagated by dividing the Roots, not having hitherto produced Seeds. Price 7s. 6d. each.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the ROYAL EAST BERKS and SOUTH BUCKS AGRICULTURAL SOCIETIES, and many other valuable Prizes in various Parts of the Kingdom.

EXTRACTS from LETTERS received:—

R. MILWARD, Esq., *Southwell.*

"Your Champion Swede proved most excellent."

J. W. J. BARTRAM, Esq., *Little Weedon.*

"Your Champion Swede has given great satisfaction, having been a splendid crop, and kept well through the severe frosts."

Mr. THOMAS EDWARD WRIGHTON, *Bradninch.*

"My crop of Champion Swedes was the best in the neighbourhood, and kept well; also the Mangel."

Mr. JOHN ALLEN, *Faringham.*

"I was awarded the Prize for your Champion Swede at the Dartford Agricultural Meeting. The competition was good, being contested by some of our largest growers and best farmers, and I have no doubt there will be a good demand for your seed in this district next spring."

Mr. F. S. GUNTON, *Nort'n Mimms.*

"I have sown Sutton's Champion Swede for the last three years from the seed I had of you, and I believe them to be the best sort of Swedes grown. I grew about 400 tons of them last year, and had many much heavier and finer than any I saw on your stand at the Smithfield Show. I was only sorry I did not send you some of them."

J. STRATTON, Esq., *Broad Hinton.*

"With your Champion Swedes I won a prize of 10*l.* last year."

Mr. THOS. B. PALMER, *Escrick.*

"Your Champion Swedes are as sound and as good in colour as the day I got them up: I have sufficient to last till the 12th of May."

Mr. G. PARLETT, *Bury, Petworth.*

"The Champion Swede Seed I had of you last year turned out first-rate—the best piece of Swedes I ever grew, which has induced my neighbours to buy some this year."

Mr H. HAMMOND, *Market Place, Masham.*

"Your Champion Swede obtained the first prize at the Masham Show, the 10th of September last."

Mr. JOHN COLEMAN, *East Kennett.*

"Please send the same quantity of your Champion Swede Seed, as I never intend to grow any other sort while I can get yours."

Mr. J. B. REECE, *Harpswood.*

"I took the Shropshire Challenge Cup, likewise the Bridgnorth District Cup, with your Champion Swedes."

WM. SADLER, Esq., *Ferrygate, Drem.*

"The Champion Swede is cutting out everything here."

This celebrated variety still maintains its high character for hardiness, symmetry of form, and great weight per acre.

New Seed from Selected Roots now ready, 10*d.* per pound or cheaper by the bushel, prices of which may be had on application. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Bedding Geraniums.



MR. WILLIAM BULL begs to announce that a great many of his New BEDDING (ZONALE) GERANIUMS are NOW in BLOSSOM. An inspection is invited.

Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

E. G. HENDERSON AND SON'S SPRING CATALOGUE for 1864 will be forwarded on application.

Amongst many beautiful plants for the Flower Garden and Conservatory described in the above Catalogue are the following:—

ARUNDO DONAX, 1s. 6d. each.
" VARIEGATA, 3s. 6d.
ACHIMENES (TYDÆA) "RACHEL," 3s. 6d.; splendid.
AZALEA SOUVENIR DU PRINCE ALBERT.—The most distinct, 10s. 6d. to 21s.
ANTIRRHINUM.—New Italian double-flowered, 1s. 6d.
BOUVARDIA GRANDIFLORA, and other new ones.
CLEMATIS SPLENDENS (Lanuginosa hybrid), 5s.
CHRYSANTHEMUM EMPRESS of INDIA, 3s. 6d.
COLEUS MARMORATUS, 3s. 6d.
ERANTHEMUM RUBRO-VENIUM, 3s. 6d. and 5s.
DAHLIA (New Bedding) SCARLET GEM.—For style of growth and model of blooming habit, see Illustration in Catalogue.
DAHLIA, New rose-coloured bedding variety.
GARIBALDI PINK, rich deep rose-coloured, 3s. 6d.
PAMPAS GRASS (G. elegans), New Silver, 3s. 6d.
FUCHSIAS.—Banks's new varieties
GERANIUMS.—New variegated tricolor-leaved varieties.
GERANIUMS WHITE TOM THUMB and BEAUTY, with other kinds.
GERANIUMS.—Mr. Beaton's beautiful bedders, and other Continental Nosegay varieties.
GLOXINIA PUNCTULATA, 5s.; see figure in the Catalogue.
HEDERA (IVIES), 40 varieties and species, gold and silver margined or blotched; climbing or shrubby habits.
LAPAGERIA ROSEA, 1s. 6d., 2s. 6d., 3s. 6d., 5s.
" SPLENDENS, 3s. 6d. to 7s. 6d.
PHLOX LOUIS GRELL, beautifully striped, 1s. 6d., 2s. 6d.
PERPETUAL MULE PINK, ROSETTE.
PYCNOSTACHYS URTICIFOLIA, 3s. 6d.
ROSES, New Kinds of 1864, strong, healthy, 2 to 3 feet in growth, 3s. 6d.
SARRACENIA PURPUREA (PITCHER PLANT), 3s. 6d.
VERBENAS, VELVET CUSHION and BEAUTY; MADAME LEFEVRE; NOBILE CAROLINA FRANZINA; HENRIETTE (best of all Whites); MELINDRES SPLENDENS (dazzling); PALLAVICINI DI BRESCIA.
TROPÆOLUMS.—Beautiful and free blooming varieties.

Wellington Nursery, St. John's Wood, London, N.W.

Scarlet Geraniums and Double Rose Stocks.

TO NURSERYMEN AND OTHERS.

HAWKINS AND BENNETT, FRUITERERS, FLORISTS, &c., beg respectfully to invite an inspection of their splendid stock of fine-grown Dwarf SCARLET GERANIUMS, consisting of Tom Thumbs, Sutton's Perfection, and Christmas, in large and small pots. Also their DOUBLE ROSE STOCKS, in beautiful condition, and now ready for sending out.

Price per post on application to HAWKINS & BENNETT, Fruiterers and Florists, Twickenham, S.W.

Choice Tricolor Geraniums for Pot Culture.

ALFRED FRYER offers the following 12 Choice Tricolor, Gold and Silver-leaved varieties, for 21s.
Basket and package included.

Mrs. Pollock	Glow-worm	Golden Harkaway
Sunset	Argus	Golden Tom Thumb
Mrs. Milford	Picturata	Golden Vase
Rainbow	Silver Chain	Silver Nosegay

All the best kinds of VARIEGATED and SCARLET GERANIUMS for bedding out, 2s. 6d. per dozen, in 200 varieties, fine autumn-struck plants; including Cloth of Gold, Golden Fleece, Golden Chain, Reine d'Or, Flower of Spring, Bijou, Madame Vaucher, Rose Queen, Blackheath Beauty, &c.

Remittances requested from unknown correspondents.
Address, ALFRED FRYER, Chatteris, Cambridgeshire.

HERBACEOUS CALCEOLARIA, &c, SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.

CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.

CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.

HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.

SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.

PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d.

And every other first-class Seeds. See CATALOGUE, post free.

WM. CUTBUSH & SON, Highgate Nurseries, London, N.

BEDDING and BORDER PLANTS.—CALCEOLARIAS, CARNATIONS, CHRYSANTHEMUMS, CLEMATIS, DAHLIAS, FUCHSIAS, GERANIUMS, PETUNIAS, ROSES, and VERBENAS.

The choicest kinds of each at the lowest prices, at Mr. TOWNSEND'S, St. Mary's Nursery, adjoining the Compasses, Hornsey, a few minutes' walk from the Hornsey Railway Station.

Dealers supplied on liberal terms.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

New Bedding Plants.

MESSRS. JOHN AND CHARLES LEE are now prepared to offer the following Novelties, which they have proved to be distinct and good:—

TROPÆOLUM COOPER'S DEFIANCE.—Is very dwarf, short jointed, slightly trailing, small leaved, and an immense bloomer. Flowers bright scarlet. A first-rate Bedder. Price 2s. 6d. each; 18s. per dozen; 5*l.* per 100.

GERANIUM VARIEGATED LITTLE DAVID.—Is a very pretty white-edged sport of the well-known favourite, "Little David," so useful for Edging. Price 5s. each.

VARIEGATED GERANIUM THE BRIDE.—This interesting novelty is adapted for small beds in conjunction with Lobelia speciosa. The habit is very dwarf, the margin of the leaves pure white, and the flowers are also pure white. A very elegant little plant. Price 7s. 6d. each.

Royal Vineyard Nursery, Hammersmith, London, W.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

CARTER'S FARMER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

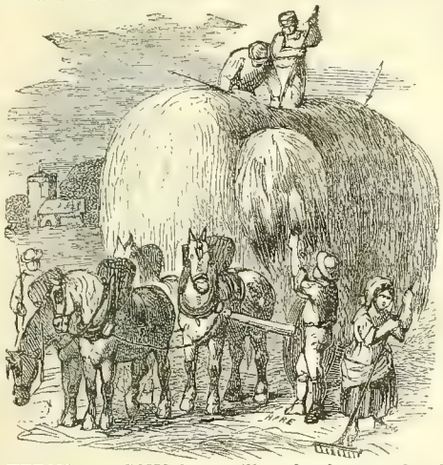
BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL, from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts, 6*d.* per lb. WORCESTERSHIRE SWEDE, not to be beaten, 9*d.* per lb.; other kinds, 8*d.* per lb. PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

Bedding Dahlia.



MR. WILLIAM BULL is now offering GEM of the DWARFS (height 18 inches), at 5*s.* each, 42*s.* per dozen, or £10 per 100.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Sutton's Permanent Pasture Grass Seeds.



SUTTON AND SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore.
Royal Berkshire Seed Establishment, Reading.

Grass Seeds.

RICHARD SMITH is now prepared to supply MIXED GRASS SEEDS of very superior quality, suitable for all kinds of Soil. Per Acre.

MIXTURE for Laying down to PERMANENT PASTURE	25*s.* to 30*s.*
MIXTURE for ORCHARDS or LAND shaded by Trees	24*s.* to 26*s.*
MIXTURE for PARKS and CEMETERIES	28*s.* to 30*s.*
MIXTURE for Improving OLD PASTURE	6*s.* to 8*s.*
MIXTURE for One, Two, or Three Years' Lay	15*s.* to 18*s.*
MIXTURE for Fine LAWNS and BOWLING GREENS	per lb. 1*s.*

PRICED LISTS may be had on application.
RICHARD SMITH, Seed Merchant, Worcester.

NEW HARDY WHITE SWEDE, the favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills.—Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor lands. Seed 9*d.* per lb. or 35*s.* per bushel, supplied by
RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 80, Seed Market, Mark Lane, E.C.

REIGATE SILVER SANDS, First-class PEAT SOILS, LOAMS, &c., on SALE.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Goods Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five miles or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).
Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

TOBACCO PAPER, extra strong. To the Trade or Retail. Sample and price on application.
H. BROWN, 4, Commutation Row, Liverpool.

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."—"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

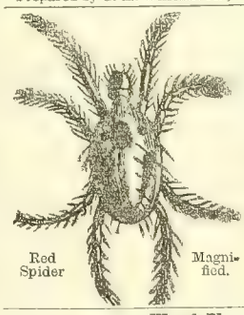
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6*d.*, 1*s.*, and 2*s.* each; and in quantities to suit large gardeners at reduced prices Carriage paid for orders of 5*s.* value and upwards.
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

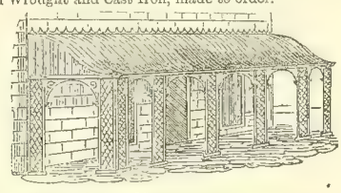
Wood Plant Labels.

EDWARD TAYLOR, Malton, Yorkshire, offers the above, of good quality, at the prices named below:—

DEAL WOOD LABELS,	3¼ inches in length,		2*s.* per 1000.	
"	"	4¼ "	"	3*s.* "
"	"	6¼ "	"	4*s.* "
ASH WOOD LABELS,	4¼ "		"	2*s.* 6*d.* "
SYCAMORE LABELS,	4¼ "		"	4*s.* "
"	"	6¼ "	"	6*s.* "

Samples, if required, on application.

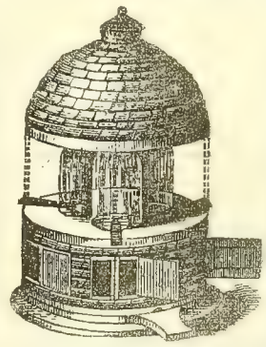
VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.

Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.

Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.
Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square, Manchester: J. WILSON, 60, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: EDMONDSON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	
£5 0 0	£5 12 0	



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 "
Telescope Branch Pipe for ditto .. .. 0 10 0 "

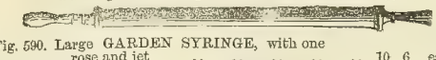


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each.
" 589. Middle Ditto ditto .. .. .. 9 6 "
" 588. Small Ditto ditto .. .. .. 8 6 "
" 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 "

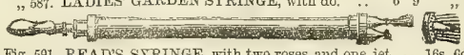


Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
" 592. Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

CAUTION.—The well-known reputation of READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling Syringes as "READ'S PATENT."
R. READ begs to caution the Public against being deceived by such false representations, as these instruments, upon trial, will be found defective and useless.
READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions sent Post free.

To Gardeners, Stewards, &c.

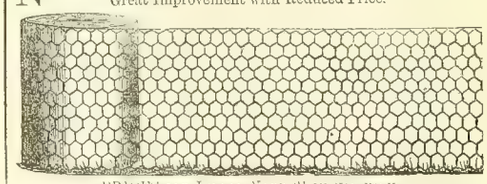
FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to
Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

TANNED NETTING, for the Protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh-sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* WOOL NETTING, COTTON NETTING, SCRIM CANVAS, GARDEN MATS, TULIP COVERS, GREENHOUSE SHADES, &c.
JOHN EDGINGTON & Co., 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W. Manufactory, 108, Old Kent Road, S.E.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard; or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard; or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.

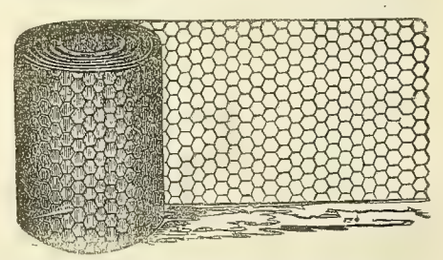


PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2
⅝ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England: and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICUTURAL MACHINES, TOOLS, and appliances.
Lists Free on application. Every article guaranteed to be satisfactory.
J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

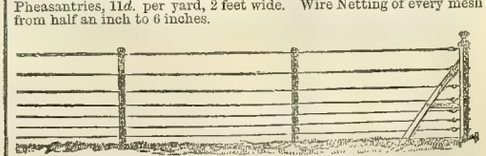
BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch " " " .. "	18 ..	5 "	4 "
2-inch " " " .. "	17 ..	6½ "	5 "
2-inch " " " .. "	16 ..	8 "	6½ "
1½-inch " " " .. "	19 ..	4½ "	4 "
1½-inch " " " .. "	18 ..	6 "	4½ "
1½-inch " " " .. "	17 ..	7 "	5½ "
1½-inch " " " .. "	16 ..	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.
The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard.
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 8d. per yard run.
Four yards wide.. .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

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Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

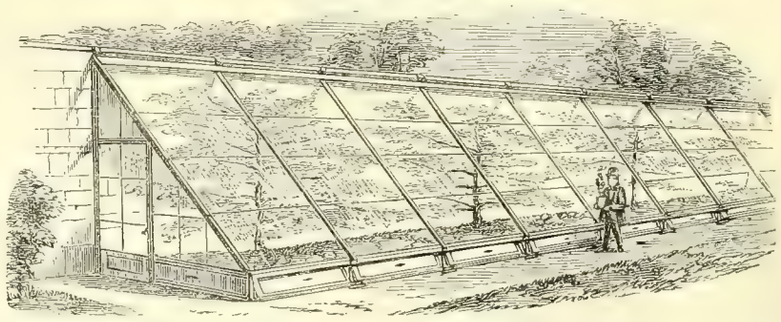
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Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C. from whom only it can be obtained.

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Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

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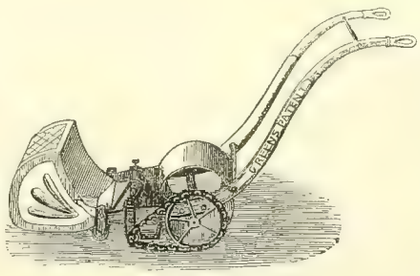
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Every description of IRONWORK. Lists Free.

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GREEN'S PATENT	SAMUELSON'S PATENT
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GALVANISED WIRE NETTING, all sizes.
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ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

Every Implement for Garden use on the lowest terms.

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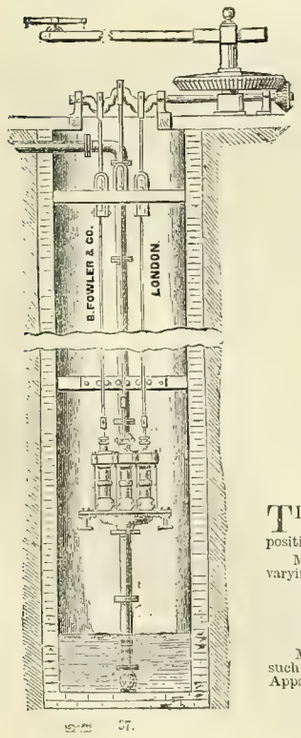
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MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



27.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

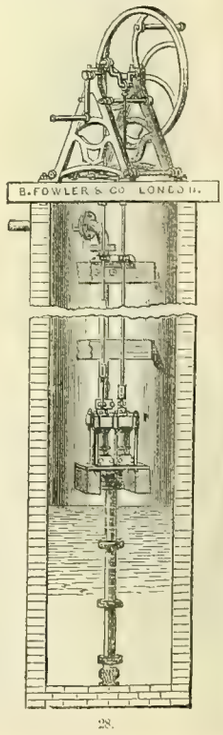
Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

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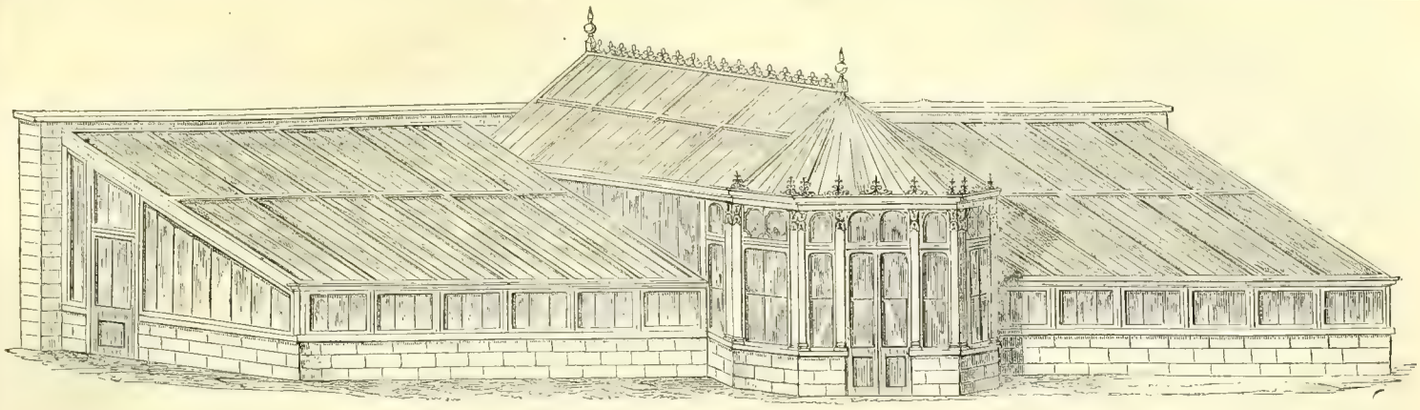
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Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.



28.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

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Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

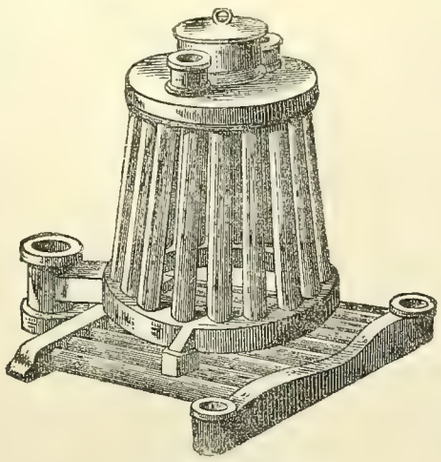
The **HEATING DEPARTMENT** always engages his special personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

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H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition.





FIRST CLASS PRIZE MEDAL
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HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO AWARDS were given.

Plans, Specifications, and Estimates on application.

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New Bedding Plant.

COLEUS MARMORATUS, one of the best and most distinct Novelties of the season, 10*s.* 6*d.* each, or Four Guineas per dozen.

Mr. William Bell's Establishment for New and Rare Plants, King's Road, Chelsea, London, S. W.

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CARTER'S GARDENER'S VADE-MECUM.

Rhododendrons.

Crimson, White, Purple, and Scarlet.

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FIRST PRIZE, 1861.
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FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

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Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1*s.*

The following Choice SEEDS are also specially recommended, having been selected with the greatest care:—

	Per packet—*s.* *d.*
CALCEOLARIA, HERBACEOUS, finest mixed	2 6
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A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants.

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THE NURSERIES, DULWICH, SURREY, S.,

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CATALOGUE OF NEW AND RARE PLANTS

for the present season is now ready, and will be forwarded Post Free upon application.

It contains DESCRIPTIVE LISTS of their NEW ZONALE GERANIUMS, PETUNIAS, GLOXINIAS, PRIMULAS, CINERARIAS, and their superior NEW BEDDING LOBELIAS, with all Novelties of Merit sent out by other raisers.

FUCHSIA PILLAR of GOLD.—The best variegated variety yet sent out, 3*s.* 6*d.* to 7*s.* 6*d.* each.

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MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

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Have received by Royal Mail Steam Ship *La Plata*, 32 Cases of ORCHIDS from their Collector in Guatemala, and they contained amongst other things a very large quantity of ODONTOGLOSSUM GRANDE and L.EVE, and L.ELIA SUPERBIENS. The Plants are in the finest possible condition, and are on Sale at very low prices.

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THE BEST HARDENED OFF STOCK IN THE KINGDOM.



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CONTAINING LISTS OF PLANTS OF ALL KINDS AT VERY MODERATE PRICES, WITH COMPLETE CULTURAL DIRECTIONS,

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FIRST-CLASS NEW BEDDING GERANIUMS,

Which they are now prepared to send out.

THE LATE MR. DONALD BEATON'S GERANIUMS.

It is with sincere regret that we announce the demise of the above-named highly-esteemed gentleman, whose place in the World of Horticulture we believe cannot easily be supplied. For 20 years he was looked to by all as the genius of the Gardening World, and it is admitted that his Seedling Geraniums alone will immortalise his name among the Floral public. Ten days prior to his death he concluded a contract with us for all the Geraniums sold by him last season to Nurserymen, for distribution in 1864, and the whole of the varieties we offer he proved in his experimental garden at Surbiton, and from a large Collection these kinds alone were selected.

The Set of Mr. Beaton's Geraniums, 1 strong Plant of each for 15s.

CYBISTER (Beaton).—Price 3*s.* 6*d.* each
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For descriptions of the above, see *Gardeners' Chronicle*, May 7 and 14, 1864.

CALCEOLARIA, PRIMULA, and CINERARIA, saved from the best named sorts only. Price per packet, 2*s.* 6*d.*

ADDITIONAL NEW PLANTS.

SWAINSONIA SPLENDENS, each, 3*s.* 6*d.* | GOLDEN VARIEGATED BALM, per dozen, 6*s.* | CLIANTHUS DAMPIERI SPLENDENS, each, 5*s.* | COLEUS MARMORATUS, each, 7*s.* 6*d.*

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LORD PALMERSTON
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The Set for 5*s.*

FUCHSIA, CARTER'S METEOR, each, 1*s.*
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" DROOPING GLOXINIAS for 1864
" ERECT GLOXINIAS for 1864
For full particulars and prices, see SPRING LIST of NOVELTIES, which can be had on application.
Mr W. B also begs to announce that his NEW PLANTS from Brazil, Central America, Australia, Bombay, Java, New Caledonia and Guatemala, are now ready for delivery, an inspection of which is invited.
New Bedding Plant, COLEUS MARMORATUS, 10s. 6d. each
New Ornamental Plant, GYNERIUM ARGENTEUM fol. VARIEGATUM, 31s. 6d. each
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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
LIST of AWARDS, MAY 17, 1864.

First-class Certificates.

ACER from JAPAN. from Mr. Veitch, Chelsea.
AGAVE SCHIDIGERA, from Mr. Williams, Holloway.
AUCUBA JAPONICA fol. MARGINATIS, from Mr. Bull, Chelsea.
CORDYLINE BANKSII, from Messrs. J. & C. Lee, Hammersmith.
GENETYLLIS sp., from Mr. Veitch.
GLEICHENIA HECISTOPHYLLA, from Mr. Bull.
GYNERIUM ARGENTEUM ALBO-LINEATUM, from Mr. Bull.
LILAC DR. LINDLEY, from Messrs. J. & C. Lee.
PELARGONIUM CLIPPER, from Mr. Bull.
RHAPHIOLEPIS OVATA, from Mr. Veitch.

Second-class Certificates.

COLEUS MARMORATUS, from Mr. Bull and Mr. Williams.
CYPRIPEDIUM PEARCII, from Mr. Veitch.
DIEFFENBACHIA BARAQUINIANA, from Mr. Williams and Mr. Bull.
DIEFFENBACHIA GRANDIS, from Mr. Bull and Mr. Williams.
PEPEROMIA ARIFOLIA, from the Society's Gardens.

Special Certificate.

ORNITHOGALUM THYRSOIDES, from Messrs. Carter & Co., Holborn.

The NEXT MEETING will take place on June 1.

THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, MAY 21, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	May	24	Linnean (Anniversary) ... 1 P.M. Royal Horticultural (Hall and Table Decorations &c.) at S. Kensington Noon
WEDNESDAY,	—	25	Royal Horticultural (Conversazione) 9 P.M.

THE dry weather of 1862 was very destructive to CONIFERS. We have seen many instances of its ravages, and amongst others a fine specimen of Cupressus macrocarpa, of 17 years' growth, in our own garden, fell a victim. We had indeed for some time suspected that the drought was not the primary cause of mischief, but we had hitherto neglected to examine our Cypress, in the hope that it might send up shoots from below. This morning, however, we have received from the neighbourhood of Exeter a portion of the trunk of a Cryptomeria japonica, which was 20 feet high, and which suddenly began to fail last September, exactly like our Cupressus. In this case, however, one small branch at the base which had taken root survived, and as a neighbouring large Sequoia and Wellingtonia, together with another Cryptomeria of still larger dimensions, remained healthy, it seemed improbable that all the mischief had arisen from drought. On examination, it appeared that there was a sheet of white mycelium between the bark and wood, exactly as in the Larch tree of which an account was sent to us last year by Sir PHILIP EGERTON, and whose history was recorded in this Journal, p. 244, 1863. As some large Beech trees formerly occupied the ground on which the Conifers were planted, there can be no doubt that the roots of the Cryptomeria have come in contact with the old decaying roots of the Beech trees, and have in consequence become diseased.

The death of the Cryptomeria accorded so exactly with that of our Cupressus that we proceeded at once to cut it down, and we found that its condition was just the same, a thick sheet of mycelium investing a large portion of the lower part of the trunk. It was evident, however, that the evil was of no recent origin, for thin black lines, which so often occur in wood infested with Fungi, penetrated to the very centre, and many portions of the upper part of the trunk, which the mycelium had not yet reached, showed symptoms of disease. On one side, indeed, the bark had evidently been dead for two or three years, as no wood had been deposited.

The tree suffered slightly from the frost of 1861, during which it lost its leader, but the mischief evidently was of early date, and arose undoubtedly from the attack of the roots by Fungi. So long as a portion of the tree remained in health, and there was a plentiful supply of nourishment, everything seemed to go on well; but drought came, the supply of moisture was cut short, and in consequence the whole gave way, as if by some sudden stroke.

In all probability a great portion of the deaths of Conifers last year attributed to drought, depended upon the cause we have just pointed out. Such cases teach us very powerfully that we ought never to plant young trees where old ones have been cut down, without most carefully grubbing up the roots. The least portion left behind may cause the death of some valuable tree when we least expect it.

IN another column we publish a very interesting letter from Mr. WYKEHAM MARTIN, of Leeds Castle, respecting the new mode of HEATING, which was described in our Journal for this year at p. 78. We have ourselves had an opportunity of inspecting the plan, which in point of economy and efficiency is scarcely to be equalled. Everything seems to thrive admirably on the tile floor; but for those things which may be supposed to succeed better when their roots are not confined, a deep border runs at the back of the house, and another down the centre. The fire, which need consist only of two or three refuse pieces of wood, when made up at night requires no watching, and when it is allowed to go out entirely for the purpose of experiment, or for regulating the heat, it is astonishing how long the tile floor retains a sufficient degree of temperature.

The main feature, however, of the plan, is getting a genial bottom-heat for a border in front of the house, a circumstance of inestimable value in the cultivation of Vines, which often suffer seriously from the great contrast between the temperature to which the roots are exposed, and that in the interior of the house, where the shoots and blossoms are developed. Shanking, spotting, branch-roots, leafwarts, and other maladies arise frequently from this cause alone. It is clear, however, that the border may be applied to many other purposes. Without the aid of frames it will doubtless answer for Capsicums, Tomatos, and other plants which are grateful for more bottom-heat than we can in general give them, but with the aid of frames we have facilities for producing early salad, Peas, and other vegetables, which increase in value directly in proportion to their precocity, and for Cucumbers and Melons, few conditions can be imagined more favourable.

It is obvious, moreover, that the plan might be introduced on a large scale in the middle of a garden, without any hothouse, which would materially diminish the expense. Experience would suggest numerous modifications.

On looking over a list of the temperatures registered from two thermometers, one of which was plunged in the warm border at a depth of 8 inches, the other at the same depth in the border in front of a short range of hot-houses continuous with that over the hypocaust, we find that from March 12 to May 6 inclusive, the mean temperature in the open ground at 8 inches was 51.454, while that of the warm border was 77.127, giving a difference of 25.7828.

The heat was sometimes more than is requisite, but it is to be observed that in the wall which separates the vault under the border from that under the house, there are four large shutters or valves, moving on a central horizontal axis, which may be opened or shut with the greatest ease, and by means of these the heat may be regulated with the requisite nicety. As the house was not built till the beginning of March, there has not been much time for practical results, but everything we saw at the beginning of April, and especially the Strawberries, looked well and healthy on the tile floor, and some Kidney Beans which were sown a few days before the house was complete, on the 12th of March, yielded a fine crop on the 4th of May. It has been necessary to water the border twice only since the hypocaust was in action. As the soil which is in contact with the tile-roof of the hypocaust does not get dry, it is not necessary to have so great a depth of soil as was at first anticipated.

It is obvious that some care must be taken to regulate the fire properly, or the bottom-heat will be occasionally greater than is desirable. A little experience will show the just method to be observed in opening and shutting the valves, and the times when the fire may be safely put out entirely or reduced to a few embers. A thermometer must be in constant use, but with a very slight degree of intelligence we believe that this method of heating will be an immense boon to the cultivator.

MR. BATEMAN'S LECTURE ON COOL ORCHIDS

DELIVERED AT SOUTH KENSINGTON, MAY 3, 1864.

A WELL-KNOWN traveller to whom, at a period now somewhat remote, I was indebted for the honour of my introduction to the Royal Horticultural Society, once observed to me, "that he had the greatest contempt for the ancients, because they had no Epiphytes! Even Pliny," he added, "who seems to have been a collector and a sensible man in other respects, would not have known a Cattleya from a Burlingtonia had such things come in his way!" Here I think my friend was somewhat too hard upon the ancients, whose ignorance of Orchidology resulted necessarily from their ignorance of the countries where alone Epiphytal Orchids are found, whereas the ignorance and indifference of the moderns in regard to these fascinating plants continued unabated up to the very close of the 18th century, notwithstanding the vast superiority of their geographical knowledge and their constant intercourse with all the chief Orchid-producing countries of the world. This will at once appear if we compare the world as it is known to ourselves with the comparatively small portion of it that was known to the ancients. In this map (Mr. B. exhibited a modern map of the world) we have the world as corrected up to the latest discoveries of Captain Speke, and on which its Orchid-producing regions are indicated by a red tint which varies in its intensity according as the yield of Orchids in the several portions may be great or small. The redder the tint the more numerous the Orchids. Thus many portions of Australia are just tinged with red, while throughout the Spice Islands, the peninsula of Cochin China, and Nepal, the colouring is intense. Hindostan is less conspicuous, but in Ceylon and Nepal the deeper tint reappears. In Africa the lighter hue is spread over a large portion of what was supposed not many years since to be an arid desert, but from which Captain Grant and others have lately brought most interesting samples of Orchideous Epiphytes. In Sierra Leone, and along the course of the Niger, Orchids swarm, as is likewise the case in Madagascar. But it is perhaps in America, within the tropics, that Orchids are most abundant. Here all the republics stretching along the vast chain of the Mexican and Peruvian Andes are—at least in an Orchideous sense—*red* republics! Turning now to the world, as known to the ancients (Mr. B. exhibited a map of the "*Orbis veteribus notus*," according to Strabo), we see at a glance that the range of their geographical knowledge fell short of the Orchid-bearing lines. Of America of course they knew nothing; Europe has no Epiphytes, neither has Africa in that portion with which the ancients were familiar—no, nor yet India.

Under these circumstances we need not wonder at the Orchid-ignorance of the ancients; that of the moderns is less easily explained! It prevailed, as we have seen, up to the close of the last century, and might have continued almost to the present hour had it not been for the labours of a Brown or of a Lindley, more especially of the latter, from whom, indeed, the science of Orchidology may be said to have sprung. The publication of his "Genera and Species" was as great an era to the botanist as the appearance of his memorable paper "On the Cultivation of Epiphytes of the Orchis family,"* was an event never to be forgotten by the "grower.

It was at least an era to me—then an undergraduate at Oxford—for it opened out to me a new field of interest and enjoyment which, after the lapse of more than 30 years, is as fresh now as at the very onset of my horticultural career. In the paper to which I refer, Dr. Lindley begins by describing the interest that attached to the plants of which it treats; he next points to the ill-success that had hitherto attended all our attempts at their cultivation, and then proceeds to explain the causes of our failure. And in order to do this he passes in review all the Orchid-producing countries of the world, and finds that the hottest if dry, and the dampest if cold are destitute of this tribe of plants. Heat and moisture are therefore the essential conditions of their artificial cultivation, and in order to grow them with any prospect of success he recommends an atmosphere damp to saturation, and a temperature of scarcely less than 80°, which he observes is that of the countries in which such plants are mostly found, *with the exception of the species inhabiting the Andes of New Granada.* It was rather, however, to the rule than to the exception that we were then disposed to look, and with these instructions from head-quarters we set to work to build our Orchid houses. Convinced that Epiphytes were fond of heat and moisture, we thought it was impossible to give them too much of either, and therefore, as may readily be supposed, our first structures were perfect Pandemoniums. At all events I can answer for my own, and that at Chiswick was quite as bad. After a while, however, we discovered that such an intolerable amount of heat was neither indispensable nor indeed desirable, and we therefore reduced the temperature to the point at which it stands in the best managed collections of

* Horticultural Transactions. Second Series. Part I., 1832.

the present day—those I of course mean, in which East Indian Orchids are grown.

In this way perfect success for a time seemed to crown our efforts. Orchid growing became an absolute mania, and so long as our supply of new plants was derived from the sultry islands of the East Indian Archipelago or the hot coasts of the South American continent, all went well. So soon however as these sources began to fail, and we were obliged to go for novelties to the higher regions of the interior, then it was that we experienced our first reverse. Guatemala was the earliest country with a mild climate to which our attention was seriously directed; for here Mr. Skinner—always an enthusiast in everything connected with natural history—was known to have established himself, and thanks to his energy and liberality, we speedily received in the form of living plants abundant evidence of the richness of the Orchideous Flora of that beautiful country, which he had then made his adopted home. It happened indeed that the Guatemala plants were of a mixed character, some—from the coast—delighting in a good amount of heat, while others—from the highlands or "nubes" as they are called—were naturally exposed to a temperature not a whit higher than that of our ordinary greenhouses. But, however varied the climate of their natural habitats, they were all—on their arrival in England—indiscriminately huddled into the same stove, where if some perished others did well, and we were but too ready to ascribe the loss of the former to the circumstance of their being a set of intractable things that did not even so much as know when they were well off. But the difficulty of which we had now the first mild indications, began to make itself more seriously felt as the cool Orchid-producing countries began to be more and more visited by collectors. Mr. Barker's importations from Mexico almost evaporated in the course of a few years, while a still more wholesale destruction awaited the discoveries of Warscewicz in New Granada and Peru. Indeed, in such ill odour at last were the finest Orchids of these glorious countries, that sundry Odontoglossa which, if we but had them alive, might now be weighed—carat for carat—against the choicest gems in Mr. Hancock's shop, were sold at Stevens's Rooms for sums that would scarcely suffice to purchase a bouquet at a stall in Covent Garden!

It cannot be denied that there were those amongst us, who had a shrewd suspicion that something was wrong. From Mr. Skinner, from poor Warscewicz, and from other disappointed collectors, words of warning reached us, but in vain, and it was not until Dr. Lindley took the matter in hand—indeed scarcely even then—that any serious impression was made upon the minds of cultivators; yet it seems strange that evidence so unimpeachable as that adduced in the 'Orchidaceæ Lindenianæ,"* in behalf of a cooler system of treatment for Orchids from cool localities, should have failed to command assent. In the pamphlet referred to Dr. Lindley remarks: "It is evident indeed that these Columbian species have no affection for a high temperature, and that many prefer a low one. No fewer than 13 occur between 10,000 and 11,000 feet, where, Humboldt tells us, it is as cold as the mean of the month of March near Paris; 19 where the mean is that of May in the same city; while the mean temperature of the zone between 5000 and 6000 feet, where the largest proportion exists, is only that of Paris in August, according to the same authority."

I had myself, at an early period, experienced what should have been a very useful lesson as to the power of certain Orchids to endure cold, and their inability to endure heat. It was, I think, in the midst of the severe winter of 1837-38 that I received a box of Orchids from Oaxaca, and which arriving at that season, and after an exposure for a night and a day on the top of a coach, I quite gave up as lost. As however they appeared green, I did just place them in the stove, under the impression that when thawed there would speedily be evidence enough to show that death had done its work. My amazement may therefore be conceived when I found that they evinced no symptoms of distress, but actually began to push roots and leaves! This they continued to do through the winter and spring, and I considered my plants secure; but when the severity of winter had passed, and a higher temperature began to prevail, then for the first time they seemed to pine, and in less than a twelvemonth nearly all had disappeared. Another lesson pointing in the same direction might have been drawn from a plant of Oncidium deltoideum, a Peruvian species, which after having nearly disappeared altogether, was at length accidentally met with near Liverpool, flowering finely in a greenhouse. But even this hint, broad as it was, met with no attention, and the poor Oncidium, having proved itself a species of rare beauty, was at once transferred from the greenhouse, where it had flourished, to a stove, where it died. At this distance of time it seems all but impossible to understand such fatuity, but I believe our reasoning—if we reasoned at all—might have been thrown into the form of a syllogism, thus:—

The East and West Indian Orchids succeed under hot treatment.

But these Mexican and Peruvian plants are Orchids;

Therefore the Mexican and Peruvian plants must succeed under hot treatment.

I shall not waste your time by pausing to explain the fallacy of such reasoning, I prefer to show you how by little and little our inveterate prejudices at length gave way.

It was, I believe, on the Continent that the first decided move was taken in the direction of cool treatment—induced, perhaps, to some extent by the greater economy of fuel which it is there necessary to practise. At all events it was in the collection of M. Linden himself, that the earliest triumphs of the new system were achieved, and it was in his houses that many of the most beautiful Odontoglossa, figured in "Pescatorea,"* flowered for the first time. Among ourselves Messrs. Jackson, of the Kingston Nursery, are entitled to the credit of having first adopted the cool system, and in looking through the old numbers of the Botanical Magazine I am astonished to find how many N. Granada Orchids are mentioned as having flowered in their establishment. Here, indeed, the *débris* of Warscewicz's sales found refuge for a time, but when the Kingston collection of Orchids was broken up, these treasures passed into other hands and other treatment, under which they perished—of course! The next rational move was made by Messrs. Veitch, at whose nursery in the King's Road I first saw the cool system at work, and great was my astonishment at the sight of plants such *e. g.* as Odontoglossum grande, in the most vigorous health, which I had never before beheld except in a weak and sickly state. This may have been some five or six years ago. Mr. Rucker and Mr. Day followed in the same direction, and succeeded perfectly even in their first attempts; while the last to move, to his shame be it spoken, was Mr. Bateman himself, who is now anxious to condone his past folly by teaching you in a few minutes what it cost him so many tedious years to learn.

Having now reached the point at which the principle of cool treatment may be regarded as established, it only remains for me to say a few words as to its details, and these will naturally arrange themselves under the heads of—1, House; 2, Temperature; 3, General Management. As regards the first, *i.e.*, the House, I would only observe that it should be low and small, and if possible face the north. The latter condition is easily complied with in most gardens, where a few yards of back wall, usually appropriated to sheds, may be covered with lean-to sashes (glazed with Hartley's rough plate), and then, two or three yards of hot-water piping being introduced, your cool Orchid-house is at once complete.† Next, as regards Temperature. This should be as equable as circumstances will permit; that is to say, during the daytime in winter it should not fall below 60°, while during daytime in summer the less it rises above 70° the better. In the night of course the temperature will fall considerably, and even if it sink below 50° no harm will be done. Lastly, as regards the General Management. Under this head comes humidity, which is an indispensable condition of success, and which must be kept up more or less, both summer and winter, by continually damping the floor and the shelves. On the latter, wet Moss should be kept constantly strewn, the evaporation from this being highly beneficial. Insects, such as woodlice, cockroaches, snails, thrip, scale, &c., must be rigidly excluded or kept in check, otherwise success is not to be thought of. The fumes of tobacco, even to the extent that many other Orchids would readily endure, are most injurious to the Odontoglossa and other cool Orchids, causing their leaves to fall off.

The plants themselves may be grown—according to circumstances—either on blocks of wood or in pots, the Odontoglossa always preferring the latter, while most of the Epidendra are safest on the former. When pots are used, they should be filled up to at least two-thirds of their depth, with large broken potsherds (so as to admit air to enter, and water to escape freely), and for the residue, in which the roots of the plant will be turned, no mixture is superior to the following: Take of broken potsherds two parts; of chopped Sphagnum one part; of fibrous peat well beaten, so that the earthy portion may fall out, one part; then mix the whole together and set your plant thereon, taking care that it stands well up above the rim of the pot. In this way water which, during summer especially, may be freely given, will pass readily away, without any risk of causing the roots to damp off or decay.‡ The pots moreover in which the plants grow should stand on other pots (inverted), placed in a saucer of water, both for the sake of humidity and of security from woodlice.

Nor let it be supposed that cool Orchid houses are luxuries not to be enjoyed in London or in other large towns. So far from this they might easily be fixed (in 19 out of 20 London houses) to the back of the building, and entered from the landing on the stairs, or they might be placed in the backyard. In this way Dr. Cauty, of Liverpool, has contrived in the very centre of the town to find room for two or three little Orchid houses, which answer perfectly, in the space where one would look to find nothing but dust-bins and coal-holes. Nay, there are yet other and even greater facilities, for Mr. Skinner has kept Lycaste Skinneri some years in a drawing-room, where it still flowers and flourishes, and Major Trevor Clarke has succeeded in flowering Odontoglossum grande in the open air! These, however, are exceptional cases, and for the vast majority even of cool Orchids, no doubt a special receptacle must be provided.

And now that we have overcome the difficulties which so long beset the cultivation of a most beautiful section of a most beautiful family, we may reasonably wish to inquire to what extent the importation of living plants may be expected to add to our treasures, and here beyond all doubt there is a splendid prospect before us! The illustrious Humboldt, whom I had the pleasure of meeting at Berlin in the year 1836, specially directed my attention to the beauty and profusion of the Orchids of equatorial America. It is of these that he himself speaks in one of his works, remarking that "although such plants are scattered through every part of the torrid zone, from the level of the sea to the height of 10,000 or 11,000 feet, yet it must be admitted that in the number of species, the colouring of their flowers, delicious fragrance, rich foliage, and brilliant flowers, none can be compared to those that inhabit the Andes of Mexico, New Granada, Quito, and Peru, where the shade is moist and the breezes mild, the mean temperature of the year at an elevation of between 4800 and 6600 feet, being from 64° to 69°." To the same effect may be quoted the testimony of the authors of the "Flora Peruviana," who assert that upwards of a thousand species might be found in Tarma, Huanoco and Xauxa alone!

In fact, these most beautiful of plants, like those most beautiful of birds—the humming-birds,* seem to cling with a marvellous partiality to the vast Andean chain which stretches from the frontiers of Mexico to the confines of Peru. These mountains are—geologically speaking—of recent date; the Orchids, therefore, that inhabit them must likewise be comparatively recent; indeed, no fossil Orchid has ever been discovered, although Ferns, with which in these days Orchids are invariably associated, have been found in countless myriads in the palæozoic strata. Nor need we be surprised at this circumstance, for if flowers be indeed, as has been touchingly said, "God's smiles," we should scarcely expect to have seen an earlier place in the programme of creation assigned to our Orchids, which are of little, if any, known utility to man, and have nothing but their beauty to commend them to his notice. They were not therefore called into being until he who alone could appreciate their varied charms was about to appear upon the scene.

In the earlier part of this lecture I had occasion to notice the ignorance and indifference in respect to Orchids that prevailed in Europe almost up to the very close of the 18th century. This indifference however did not extend to the settlers in the New World, for scarcely had the Spaniards discovered America than the wondrous beauty of the Orchids attracted their attention, and the names by which many of the plants are still known, *e. g.*, Flor de Muertos, Flor de Corpus, Flor de los Santos, &c., attest the devotional uses to which many of the most beautiful were, and still are applied. Indeed the altar of a Roman Catholic church in an Orchid country is the point to which a plant collector should first direct his steps, and it was actually in this way that Lycaste Skinneri and many of our present favourites were first discovered! The same feeling in regard to Orchids may be noticed in the curious work of Hernandez on the "Natural History of New Spain" (published early in the 17th century), from which I have copied the frontispiece (this was exhibited on a greatly enlarged scale), wherein all the most striking productions, whether animal or vegetable, of the country are grouped, with a disregard to proportion and perspective that might have done honour to the Chinese! Here are all the most remarkable beasts and birds and trees and flowering plants. Of the latter only three are given, but the place of honour in the centre is assigned to what can be none other than Stanhopea tigrina (the Flos lyncea of Hernandez), supported on the right by Tigridia pavonia, and on the left by a second Orchid, in which we at once recognise the *flor de corpus* or Lælia grandiflora.† Both these plants are already in our collections, but a multitude of others of equal interest remain to be introduced. (Mr. B. directed particular attention to drawings of Epidendrum erubescens, E. Frederici Gulielmi, &c., as special objects of desire; he also exhibited a model, by the nuns of Santa Anna in Guatemala, of E. cnemidophorum, of which plants have been recently introduced). Meanwhile the search goes bravely on, for already there are half a dozen or more collectors in quest of cool Orchids in the countries to which I have so

* Orchidaceæ Lindenianæ, or notes upon a collection of Orchids formed in Columbia and Cuba, by Mr. J. Linden. By John Lindley, F.R.S., &c., London: Bradbury & Evans, 1846.

* *Pescatorea, Iconographie des Orchidées*, par J. Linden, Bruxelles, 1851-60.

† For plan and section of such a house see Mr. Bateman's "Guide to Cool Orchid Growing." Reeve & Co., 1864.

‡ For full details of Orchid cultivation, many of which are alike applicable to hot plants and to cool, see Mr. Williams's Orchid Grower's Manual. London, 1862.

* Mr. Gould informs me that two-thirds of the known species of humming-birds inhabit the Mexican, New Granada, and Peruvian Andes, on which they are most abundant at the height of from 5000 to 10,000 feet; precisely the zone that is most prolific in Orchids! In Mr. G.'s splendid work on the Trochilidæ many species are represented as fluttering around, or sucking honey from various Orchids.

† The vernacular names of these two Orchids are respectively "Itzumacha" and "Cortico-atzonte-coxotchil," which should go far to reconcile us to the hardest Greek or Latin names that any botanist has yet inflicted!

frequently had occasion to advert. Unfortunately there is a peculiar difficulty attending the transmission of the plants, which have to perform a long journey by land before they can be placed on ship-board; consequently by far the larger proportion of the contents of the boxes hitherto received by the Messrs. Low, M. Linden, and others, were found, on opening them, to have entirely perished. Still there were a few survivors, for which collectors must be prepared to pay a high price if they choose to be the first to appropriate these treasures. These remarks are however only intended to apply to the Columbian or Peruvian Orchids. From Guatemala large supplies of the primest favourites have been received, and may now be obtained at a very reasonable rate. With these, the cool Orchid grower should therefore begin, and by the time he is sure of being able to manage them, we may hope that other kinds will be within his reach.

But at this point "surgit amari aliquid;" the question cannot but intrude itself as to how long all this pleasant excitement is to last? Attacked, as we have seen, in their mountain fastnesses by such a host of collectors, the Orchid supplies must at length fail. It may not be in 10 years or in 20 that we shall receive our last novelty; but still, sooner or later, the time must come. And the same question may well be asked in regard to all other plants, and indeed in regard to all other departments of natural history. How long, then, will it be ere, for lack of new materials on which to work, our Lindleys and Reichenbachs, our Benthams and Hookers, will find their occupation gone? How long ere not an insect will be left for a Bates or a Wallace to capture or to classify? How long can a constant succession of new birds be found to supply the splendid publications of an Audubon or a Gould? And how long will the marvellous sagacity of the Cuviers and Owens of the period be able to expend itself in the study of new forms of animal life, whether recent or fossil?

It will be a tame, monotonous, and effete world when nothing is left for the traveller to explore, or for the man of science to investigate, or for the collector to import. The naturalist will then cease to declaim on the inexhaustible fecundity of nature, and even the Christian will expatiate with diminished emphasis on the marvellous diversity of the works of God. To what quarter, then, shall we turn for relief? Must we patiently abide until the atoms shall have met in secret conclave, and arranged to reconstruct the universe in accordance with all the latest improvements of modern science? Or must we wait in weary expectation until some development hypothesis shall have hatched a new insect, or some theory of natural selection reared a new plant? If so, we must prepare to have our patience sorely strained, for all these theories that are credited with such vast achievements in the days of old, seem for the present to have struck work. Or in the absence of "fresh fields and pastures new" in the domain of nature, must we reconcile ourselves to the prospect of a sensuous, material, or mechanical age, in which the love of pleasure, or the greed of gain, or the pride of art will be the master passions of the human breast! God forbid! But no; for those who have studied in the school of a higher philosophy there are better things in store. For to them it has been announced by an authority that cannot err, that when the appointed hour shall have struck, that voice so mighty in operation will be heard once more, and the solemn words "Behold, I make all things new" will kindle into being ten thousand forms of animal and vegetable life, and change, as in a moment, the whole face of the world! Change—as a vesture is changed—change but not annihilate. For the instincts of our nature, the analogies of science, and the teaching of Scripture alike lead us to believe, that however dread the ordeal through which this our earth may be destined to pass, it will at length emerge from its fiery baptism in more than its primeval beauty, and adorned, as a bride for her husband, in all the glories of the new creation. A majestic vision will be then disclosed of the power and wisdom and goodness of God, such as no eye hath seen, no ear heard, and which no tongue can adequately tell, but which to His faithful people will be an ever-fruitful source of love, and joy, and wonderment, and adoration through all the festal ages of the world to come.

THE HORTICULTURAL CONGRESS AT BRUSSELS.

(*Concluded from page* 461.)

ON the 26th of April, the sitting commenced at 10 A.M.

In reference to the 8th question of the programme, "History of horticulture, explorations, introductions, &c.," M. Bommer addressed to the Congress a communication relative to the introduction of hardy plants.—M. Bastin made some additions to the note he had previously presented upon the nomenclature of vegetables.—M. Fritsch communicated a note upon the dynamics of plants.—M. Van de Corput read a note upon the utility of squares and public parks.—A further debate took place respecting M. Von Siebold's theory of the cause of variegation in plants, in which Baron Hügel, M. Von Siebold, M. Rodigas, M. Planchon, and M. André took part.—M. Bommer was of opinion that distinction should be made between leaves which were streaked (panachées), and those which were coloured (colorées). He also invited attention to the utility of Vaccinium amœnum, a species which produced excellent fruit, and was at the same time ornamental; and to that of Urtica (Böhmeria) nivea, a textile species, from the fibres of which the fine Chinese cambric was said to be woven. This plant had lived two winters in the Botanic Garden at Brussels.—M. Dumortier added some remarks on the utility of introducing new fruits. He asked M. Von Siebold if it would not be possible to introduce the famous sky-blue Grape, of which so much had been said.—M. Von Siebold intimated that he had received some of the Vines producing the Grapes of which M. Dumortier had spoken. When he quitted Yedo, on the 7th of May last, the plants were in a promising state; and he engaged to send a case of suckers to the Société Royale de Flore, upon his return to Japan. He was convinced the horticulturists of Belgium would know how to turn them to good account. M. Von Siebold added that he should always preserve a pleasant remembrance of Belgium, who, by her magnificent exhibition, had proved that she was the Flora of the two worlds.—M. Planchon thought that Urtica nivea was not the plant which furnished the Japanese with the tissue of the fine cambric. In his opinion it was the produce of Böhmeria utilis.—M. Kolb spoke at some length upon the introduction of plants among the ancients.—M. Entz Ferenez, Director of the National Nursery at Buda, gave a historical account of the horticulture of Hungary.—M. Hednielsky, Professor of the Société Imperiale d'Horticulture at Moscow, offered some remarks on the history of horticulture in Russia.—M. de Puydt, Secretary of the Société d'Horticulture at Mons, read a paper upon the necessity of giving a definitive signification to the words, hothouse (serre chaude), greenhouse (serre temperée), coldhouse (serre froide), &c. He afterwards entered at some length upon the subject of botanical geography.—M. Rodigas fils insisted upon the necessity of knowing the degree of moisture necessary to the different kinds of houses indicated by M. de Puydt.—M. Wesmael called attention to the defective manner in which the catalogues of horticulturists were often compiled.

M. Rodigas presented the report of the commission named on the preceding day to examine the proposition of a uniform nomenclature for vegetables. The commission, while acknowledging the utility of nomenclature, rejected the proposition because it was not considered as being one which was realisable by the Congress.

On the re-assembling of the Congress at 3 P.M., M. Rodigas invited the attention of physiologists to this fact, that he himself was able to prove:—namely, that having grafted Cratægus Oxyacantha upon Sorbus Aucuparia, the graft had dried up, but that some time after a bud of the Cratægus appeared higher up.—Several members spoke upon this subject, and mentioned similar facts which they had observed in other plants.

In reference to the 11th question: "Insects and other injurious animals; their destruction," M. de Selys-Longchamps called attention to the only efficacious means of destroying insects hurtful to agriculture, namely, the protection of useful insectivorous birds.—M. Fée and M. Brongniart concurred, and spoke of the measures taken in France for the protection of insectivorous birds.—M. Wesmael thought that protection should be equally extended to granivorous birds.—M. B. Dumortier suggested that the Committee should express the desire of the assembly, that measures should be taken for the protection of these classes of birds in Belgium. This proposition was received with applause; and the Committee undertook to make known the wish of the Congress to the Minister of the Interior.

A very animated discussion followed upon the causes of disease in the Potato and Vine, in which M. Kolb, chief gardener of the Royal Botanic Garden, and Delegate of the Bavarian Horticultural Society at Munich; M. Fischer, Professor and Director of the Botanic Garden at Berne; M. B. Dumortier, M. Planchon, and M. Brongniart took part.

The President then observed with regret that the time had arrived for the sitting to close. If, he said, the Congress had not produced more profitable results, it had at least secured the great advantage of establishing relations of amity between the learned men of different countries who were interested in horticulture.

M. Rauwenhoff, Secretary and Delegate of the Royal Netherlands Society for the Advancement of Horticulture, Professor of Botany at Rotterdam, in the name of the foreign members of the Congress expressed his gratitude for the welcome and sympathising reception they had received. He congratulated the learned men who had met together on the relations which had been established between them—relations which, while they gave rise to regret at parting so soon, induced a desire for speedy reunion. He thought, therefore, it ought to be announced that the Royal Netherlands Society intended to organise for next year an international horticultural exhibition, and measures would be taken to make it as fine and as important as possible, worthy of being compared with that of Brussels. This exhibition was to take place at Amsterdam, in the newly built Palace of Industry. M. Rauwenhoff concluded by saying, "I can assure you that those who come will be well received in Holland, for we shall be proud to have you amongst us. On separating, then, let us say, not 'Adieu,' but 'Au revoir!'"

Upon the proposition of M. de Selys-Longchamps, the assembly with acclamation gave a vote of thanks to the Committee, and the Congress then closed.

Home Correspondence.

Bottom Heat.—I have finished the hothouse, of a ground plan of which you were good enough to give a woodcut at p. 78 of this year's volume, and am happy to say that it seems likely to be very successful. You will see by the description of it given at that place, that it is heated on an entirely new principle, at least so far as hothouses are concerned, being that of the ancient hypocaust by which the Romans heated the ground floor of their villas. The fire is not only carried under the floor of the house (which is made of three courses of tiles bedded in cement, with 9-inch supports every 3 feet 6 inches), but also under the Vine border. Hence not only is heat provided, but it is provided in a new form, viz., that of bottom heat, both within the house and without. As I do not profess to be a gardener, but only a mechanic, I will confine myself to the mechanical effects, and refer you for the horticultural part of the matter to our mutual friend "M. J. B." [see p. 483] who kindly paid me a visit for the purpose of inspecting my contrivance. Mechanically speaking, then, I find the new mode most economical in fuel. I burn in it the roughest cord wood, and of that a very small quantity. I was fearful at first that the earth on the Vine border would get very dry where it came in contact with the tiles; but I was agreeably surprised to find that it continues to increase in moisture from the surface, where alone it dries by evaporation, down to the very tiles themselves. The border has been watered twice only since the 12th of March, when the fire was first lighted. The fire continues to burn without any superintendence from 7 or 8 o'clock till 6 the next morning, being thus "a real comfort to gardeners," as the advertisements used to term the American soothing syrup for mothers. I have lately (since April 20) discontinued the fire during the day, but nevertheless at 6 o'clock this afternoon (April 25), the earth in the border inside the house was at 88°. That of the border outside at 1 P.M. was 89°. The floor in the inside of the house has an area of about 351 feet; the border outside of about 300. I am trying this year Strawberries, French Beans, Cucumbers, Figs, Melons, Standard Tomatoes (*tomates à tige raide*), Capsicums, and Early Carrots. Everything looks healthy, and though the fire was lighted on the 12th of March only, the French Beans are nearly ready to gather. I have a border 2 feet wide at the back, and another 4 feet wide down the centre, the whole width of the house being 13 feet. Since my new house was finished I have found that Lord Eversley, a distinguished horticulturist, has for the last three years warmed his Vine border on a large scale by admitting the surplus heat of the house under a chamber roofed with tiles, and that the result has been most satisfactory, the border in the late severe winter being never below 68°. The cost of the whole floor (670 feet of surface, including the space under the front wall) and the warming apparatus, has proved, as nearly as it can be severed from the general cost of the house, 18*l.* 10*s.* The first outlay is therefore very moderate, as well as the expense of fuel. I ought to add, that as compared with any other mode of heating, 4*l.* worth of paving tiles to form a path must be deducted from the total of 18*l.* 10*s.*, for the whole floor being of tiles no path is needed. To those who may be disposed to build houses of this description I would give one caution. The floor, as it contains three courses of tiles bedded in cement, is very heavy when wet, and therefore the staging by which it is supported, as an arch by its wooden centre, until the cement is set and it gets dry, must be tolerably stiff. My man put an insufficient one at first, so I had to rebuild that portion of the outside border. *C. Wykeham Martin, Leeds Castle, Maidstone.*

The Weather Prophets.—According to Mr. Plant, of Birmingham, our last winter should have been remarkable for its length and severity—it ended by being remarkable for its mildness up to Jan. 2, and then not remarkable for its severity; from Jan. 4th to the 9th—the thermometer registering 22° of frost on the morning of the 6th—the frost was no more than agreeably severe, in fact about the average of our English winters. On the 12th of January thaw commenced, and on the 15th the weather resumed its December mildness. In February we had some agreeable but not severe frosts, from the 4th to the 10th, and then our winter ended—certainly one of the most agreeable winters I ever remember. Why has not Mr. Plant published in the *Times* the cause of the failure of his prognostications? So much for Mr. Plant. Our spring prophet is a Mr. Shepherd, author of the "Climate of England." He tells us "there is no foundation whatever for the statement that we shall have a mild and genial spring. The general character of the spring, summer, and autumn will be very bad indeed. I admit it is melancholy enough for me to stand alone, and foretell a cold wet year, but Nature will take care of herself." We have had the finest—the most perfect English spring I ever remember; clouds and rain, but not too cloudy; drought, but not too droughty; frosts, but not too frosty. So much for Mr. Shepherd. Our

summer prophet is Mr. Du Boulay; we are to have, according to him, a summer dry and unproductive. We have commenced it with copious rains, so that at this moment (May 16) everything belonging to vegetation is luxuriant beyond expectation. I hope at the end of the summer to have to record the failure of Mr. Du Boulay's prophecies. *Observer.*

Water Weed.—I enclose you a portion of weed taken from a reservoir that supplies our house. It having been noticed that the water for some short time at this period of the year usually became fetid, a member of the family was induced to examine the reservoir, and at some inches below the surface of the water he found an abundance of the enclosed weed, which no doubt had communicated its offensive flavour to the water. The reservoir is on a chalk soil, and has been in use for many years. Any information as to the name of the plant and its qualities will be gladly received by us. *W. B. H.* [This is the common Chara. Will some kind friend advise our Correspondent how to destroy it? The fetid effluvium from it is said to be extremely unwholesome.]

Rhododendron Falconeri.—I much fear that the rather profuse flowering of my Falconer Rhododendron (noticed in your columns, p. 438) may so weaken the plant that it is in danger of not surviving another year. Would you recommend me to apply a dressing of manure on the surface immediately?—or is it the fact, as commonly supposed, that manure is injurious to Rhododendrons? The effect of the huge compound trusses when fully expanded last week was very striking. *B. A.* [Give it now a good *mulching* of cow-dung, and keep it damp till the heats are over.]

Flower Markets.—Will you allow me space in your paper to try and impress two parties with the benefits to be derived from going with the age. It is impossible not to observe the great use now made in London houses of flowers for decoration; if you move in Society it is difficult not to hear every one crying out about the want of a flower market; if you go to Covent Garden, it is not impossible you may see a carriage panel smashed by the crush at the one flower shop. Now I have not an unkind word to say respecting Mr. Buck; his flowers are good, Miss Buck's bouquets are elegant, and their prices are not unreasonable; but still one house cannot feed London balconies and conservatories, and ladies are all saying, "I do not know where to go to; I cannot face Mr. Veitch's beautiful establishment; I have not the assurance to enter such a show place, and ask for a half-crown Geranium. Please use your influence with the Council of the Horticultural Society, and get them to establish a flower market at South Kensington." Now it appears to me that such a scheme is in every way feasible at the present moment. Let the Council set apart on each side of the new orchard-house entrances spaces, say 30 feet by 30 feet, to be let by tender to nurserymen for the sale of flowers. I believe that the nurseryman would arrange with a conservatory builder and get a house put up as an advertisement, and thus two trades would be benefited and the public secure an immense boon. It may be said that the great houses will not condescend to sell single plants—fancy, Roses at a shilling. I believe they know their own interest, and would only be too happy. If they refused, smaller houses would jump at such a chance. Let the Council send circulars to Mr. Veitch, Mr. W. Paul, Mr. Smith, Mr. Henderson, Mr. Hopwood, Mr. Bull, Mr. Buck, Mr. Lee, Mr. Salter, Mr. Williams, Messrs. Paul & Son, Carter, Barr & Sugden, and 50 others known to them, and let us see if they have not a dozen acceptances. I would further suggest that the sellers should mark the prices, and they would be saved trouble, and soon have their stock disappear. *A Male F.R.H.S.*

Aquariums.—Can any body tell me what is the cause of a sudden disease which has appeared in my aquarium. The latter has been built about 12 years. It holds about 60 gallons of water; has a supply pipe, so that in warm weather I change the water sometimes three or four times a day; has only Vallisneria growing in it. Some of my fish (roach, dace, gudgeons, carp, gold fish, minnows) I have had four or five years. Suddenly all but four are dead from fungous disease. A medical friend says that they have been struck with some malady of a typhoid character, because the extremities are bloodshot, and that in his opinion it arises from my having stirred up the deposit (which had collected under the gravel) when I had the aquarium cleaned out about a month since. I am inclined to think so too, as I remember two years ago losing some fish after a cleaning out. If this theory is true, it would imply that the fish should be removed whenever the deposit has to be touched. There are a few snails. *D.*

Ants (see p. 390).—I agree with "M. D." that no paste poisons will destroy these pests. I have also strewed guano, turpentine, and gas water in their runs, and bored very smooth holes, but all to no purpose. For some years I did not trouble myself about seeing them in my houses, and I considered that they did but little harm, but finding that a Nectarine tree on the back wall of a house did not set its fruit so well as I could have wished, and observing that it was overrun with ants, I examined it closely, and found that the ants were destroying the pollen. About the same time I received some Orchids from London which were infested with mealy bug; and I soon found that the ants were very busy in distributing it over the whole collection. I therefore determined to wage a war of extermination with regard to them. I found on examination that they had taken possession of no fewer than 12 houses, besides some pits. All the means alluded to above were tried without avail; but at last a successful bait was laid. A quantity of small birds were shot and placed in their runs, and on pots frequented by the ants. In less than 10 minutes after placing the birds there they were so covered with ants as to be invisible; the bait was one moving heap of ants, which we knocked into a bell glass, birds and all, and emptied them into the fire. I do not exaggerate when I state that in this way we destroyed in a short time more than a gallon measure full of them. Fresh birds were of course replaced in the runs, until the whole of the ants were destroyed. I am now nearly free from them, and had it not been that some extensive alterations that we have been engaged in this winter occupied my attention and prevented my following the scheme closely, I believe that I should have destroyed every ant in the place; as it is we have cleared nine houses effectually. This method I can therefore confidently recommend to "M. D.'s" attention, and I trust that he will try the plan, and report on its efficacy hereafter in your pages. *Edw. Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.*

——My Grass-plot has been much injured by ants throwing up hills all over it, and I have tried many things without success till this spring. My plan, which has been successful, is as follows:—I make a pan full of a strong solution of soft soap, say a dessert spoonful to a quart of water. I let it stand a day, and then, when the sun is shining and the ants are near the surface, I open the tops of the nests, and when they swarm up pour the solution quickly over them from a tea cup till the ants are dead, which does not take long, as it quickly kills them. As many of the ants are from home, or deep in the ground, the process must be repeated a few times. It does not injure the Grass at all, but rather does it good. The soft soap requires a little hot water put to it first to dissolve it. *B. B.*

Clianthus Dampieri.—I see that you mention this fine plant in your account of Messrs. Carter's Nursery, p. 463. That it deserves general cultivation must be admitted. Its handsome foliage alone might recommend it; but its glorious scarlet flowers cannot fail to attract the attention of everybody. It is reported to be difficult to manage, and I fear not without good foundation. I sowed seeds of it this spring, and only a few came up, and those to my disappointment damped off before they had made a third leaf. As it is a plant which all should possess, a hint from Mr. Boston, Messrs. Carter's manager, as to the best mode of growing it would doubtless be acceptable to many. *J. Baxter, Merevale, Atherstone.*

Foreign Correspondence.

Central Society of Agriculture, Horticulture, and Acclimatation.—The spring flower-show of this Society has just been held at Nice, in a garden remarkable for its magnificent groves of Orange trees, and we are happy to state that it more than equalled the expectations of its promoters. The Emperor, who takes much interest in the Society, forwarded two gold medals for distribution on this occasion; the Prince of Monaco, Prince Troubetskoi, and the ladies of Nice also contributed three gold medals for competition, in addition to the usual prizes offered by the Society. Amongst contributors of plants who stood in the first rank was Mr. Edwin Stuart, to whom was unanimously awarded the Gold Medal of Honour, destined by the Emperor to be given to the most meritorious exhibitor. This raiser's seedling Pelargoniums formed one of the chief attractions of the show, and for richness and delicacy of colour and fine form they could not well be surpassed. Some of the plants were also marvellous specimens of fine culture. Baron Vigier exhibited a superb collection, and received a gold medal as the most successful cultivator of exotic plants. Some very fine varieties of Azaleas and Rhododendrons likewise were shown in great perfection. The popular Alphonse Karr, celebrated alike for his writings and bouquets, exhibited a very handsome *corbeille* of flowers, which was universally admired. To M. Emile Thomas and M. Sacco were awarded the other gold medals, for their general collections of plants. The display of cut Roses was unusually fine, and comprised many new and first-rate varieties, of large size and extraordinary beauty. In this class Mrs. Freeman, an English lady, carried off the 1st prize. As a whole, the exhibition was entirely successful, and affords a stimulus for the farther exertions of the Society, whilst it augurs well for the "Grand Concours Regionale," announced to take place on the 1st May, 1865, to which the Emperor will contribute a prize of 6000 f. and a silver cup. This favoured climate, and the well-known attractions of Nice, will doubtless induce a large number of the lovers of horticulture to be present at this fête, which we understand is to be international.

Societies.

Royal Horticultural: *May 17* (*Election of Fellows*).—The following candidates were elected Fellows, viz.:—J. Ashbury, Esq.; Lady Isabella Atherley, Miss Ruth Baker, The Countess of Bradford, Mrs. Edward Charrington, Mrs. Cosier, E. S. Dale, Esq.; J. Day, Esq; Lady Donaldson, Lieut.-Colonel A. C. Fisher, R.E., C.B.; H. C. Rothery, Esq.; Hon. and Rev. Charles F. O. Spencer; Mrs. Verelst, Lady Vivian, General W. Watkins, J. F. West, Esq., and Mrs. White.

A highly instructive lecture on Ferns was delivered on this occasion by Mr. Moore, able Curator of the Apothecaries Garden, Chelsea, but owing to the large amount of space occupied by Mr. Bateman's lecture on Cool Orchids, published in another column, we are unable to find room for a report of it this week.

Foremost among plants shown to the Floral Committee, which also held a meeting on this occasion, was a basketful of the noble-looking Ornithogalum thyrsoides, to which allusion was made last week (p. 463). This came from Messrs. Carter & Co. of Holborn, who received a special Certificate for it. To a charming Acer from Japan, with red-coloured finely-divided leaves, from Messrs. Veitch, a First-class Certificate was awarded; similar marks of distinction were also conferred upon the following plants from the same firm, viz., Rhaphiolepis ovata, a valuable white-flowered hardy evergreen shrub; and a pale rose-coloured species of Genetyllis. To Cypripedium Pearcii (an undescribed species, we believe, but have not examined it), also from Messrs. Veitch, a Second-class Certificate was awarded. From Mr. Bull came a prettily variegated variety of Pampas Grass; a zonate-leaved brilliant scarlet-flowered Pelargonium named Clipper, and a new variety of Aucuba named A. japonica marginata. To all these were awarded First-class Certificates. To the same exhibitor were also awarded Second-class Certificates for Dieffenbachia Baraquiniana, a variety with polished ivory-white stems, and slightly blotched leaves, whose midribs are also white, and to a spotted stemmed kind of Dieffenbachia, called grandis. From Mr. Bull also came the handsome Gleichenia hecistophylla, to which a First-class Certificate was awarded; and Coleus marmoratus, a kind with pale green leaves edged with brown, to which a Second-class Certificate was awarded. To Messrs. Lee were given First-class Certificates for a Lilac named Dr. Lindley, a handsome kind, with great branching heads of deep lilac blossoms; and for the handsome Dracæna Banksii in flower. From Mr. Williams, of Holloway, came a singular looking Agave, named schidigera, to which a First-class Certificate was awarded, and Second-class Certificates were given to the same exhibitor for Dieffenbachia grandis and Baraquiniana and for Coleus marmoratus. A lemon blotched-leaved Aucuba, called bicolor elegans, and two handsome seedling Amaryllises were also furnished by Mr. Williams, together with many other interesting plants. From the Society's Garden came Peperomia arifolia, a variegated-leaved plant, to which a Second-class Certificate was awarded.

At the ordinary meeting of the Society, which took place on April 20, a paper on Disbudding Orchids, by Mr. J. Sherratt, gr. to James Bateman, Esq., F.R.H.S., was communicated. The author said:—"I beg to call your attention to the very important results obtained by the application to Orchid-growing of the old principle of disbudding. As all cultivators of Orchids are aware, it will not unfrequently occur that a plant, from having been unduly excited during the summer or autumn months, will commence a fresh growth late in the year, and at the very time that it ought to betake itself to rest: the growth thus obtained being generally weak, and therefore incapable of producing flowers. It so happened that at Knypersley, in October and November of last year, we had three plants, viz., Cœlogyne pandurata, Peristeria elata, and Epidendrum Stamfordianum, that had made a most vigorous summer growth, and might, therefore, be reasonably expected to flower freely at the proper season; but, to my great disappointment, all three, instead of flowering or resting, began to push new shoots. As I felt convinced that if these were allowed to go on there would be no chance of any flowers for at least 12 months to come, I determined to break off the young shoots, and try what enforced rest would do. Nor had I to remain long in suspense, for, in the case of the Epidendrum, no sooner were the young shoots removed than three flower stems (not yet out of bloom) began to make their appearance. As regards the Cœlogyne no further movement took place until spring, when strong fresh shoots, each enclosing a flower-spike, developed themselves. Lastly, as to the Peristeria, which was the latest to move, I have just discovered that, together with the young shoots of the season, several robust flower-scapes are rapidly coming forward. As I only experimented on three plants, and as the experiment succeeded in every case, I think Orchid-growers may congratulate themselves on having now open to them an additional power of control over their plants. I need scarcely remark that considerable knowledge of the habits of different species will be requisite, or the practice indicated may lead to serious mischief; but, judiciously applied, I have no doubt it may be of very great service. The three plants on which I operated are now exhibited to the Fellows of the Society."

Notices of Books.

Rambles in the Deserts of Syria, among the Turkomans and Bedaweens. 8vo, pp. 336. London, 1864. John Murray, Albemarle Street.

The present and future prospects of Turkey, with her extensive dependencies, are matters of considerable importance to the nations of Europe, and a continual

source of solicitude to British statesmen. Everybody seems to be aware that the power of Islam is on the wane, and it is generally supposed that some parties are looking with covetous eyes at the inheritance of the sick man, who every now and then has shown spasmodic symptoms of vitality, just sufficient to raise the hopes of friends and to disappoint them. The battles at Citate and other places in Wallachia, the Russian hosts compelled to raise the siege of Silistria, and the noble defence of Kars, cast a transient gleam of sunshine upon the fading fortunes of the Turks, but those who never wished well to the Ottoman Empire suffered this last barrier to Russian aggression to be removed.

Englishmen, however, who have little faith in the regenerating effects of war, still thought it possible to advance the material prosperity of the people, and at the same time their civilisation, by fostering trade and agriculture. British capitalists readily furnished money for the encouragement of industrial projects of various kinds, and strove to maintain the credit of the state, but it is feared that the system of corruption and oppression has eaten too deeply into the vitals of the constitution, and that habits of indolence and luxury are too thoroughly engraved in the national character, for the few honest and capable men, such as Fuad Pacha, to effect any real improvement.

Such, we take it, are the conclusions of the gentleman to whom we are indebted for the very interesting book before us; and it is a matter of some regret that a person, apparently so well qualified to give an opinion on various important matters, has thought it desirable to withhold his name, for after all, a man's name is to some extent a voucher, which gives additional value to the views and statements that he brings forward.

The primary object of our author is (as the title of the book denotes), to give an account of his own adventures amongst the wandering Bedaween tribes, from whom he seems to have experienced the greatest hospitality and kindness. His frank and fearless bearing, his capital riding, his knowledge of their language and modes of thought, and perhaps his agreeable manners, and evident desire to promote their welfare, contributed to win for him the good will of these simple children of the desert. He evidently enjoyed also the advantage of an excellent introduction, but of what nature, or whence derived, he gives no clue for conjecture. The book is written in the form of letters, 20 in number, dated from various places, and embracing a period of about four years, viz., from Oct. 1858 to Nov. 1862, a period, which, it will be recollected, included the unfortunate collision between the Druses and the Maronite Christians, and the massacre of Damascus.

The first letter is written from Beles, on the right bank of the Euphrates, just at the point where that river, having made its nearest approach to the great sea, from which it is distant about 140 miles, takes a bend to the south-east.

"The country was woodless, houseless, and uncultivated, and inhabited only by the wildest tribes, who are poor, and brave, and subsist by levying black mail from passing caravans. To check their predatory propensities, Ibrahim Pacha, when ruling over Syria, some 20 years ago, brought a tribe of African Bedaweens, of tried fidelity and good conduct," a measure which for a time answered well. The Hanadi, who are still employed as a sort of desert police, number about 1700 fighting men, and it was the traveller's first care to seek for Haji Batran their chief. The rascal came galloping up, with a troop of about 60 men, in open order, brandishing their long spears and feigning an attack, which might have disturbed the equanimity of a less knowing person than our hero, who recognised the bronzed features and loud laugh of the burly chief. This was early in the day, but Haji Batran declared that it was unsafe to proceed till dark, because the two great tribes Anezi and Shammar had been fighting, and it was prudent to keep out of their way, so they crept cautiously to the top of a small mound, and scanned the horizon, and finding no Arabs in sight, the tents were pitched. At dark they mounted, and an eight hours' ride brought them to a tumulus on the banks of the Euphrates. "Here we are soon introduced to Jedaan, the military sheikh of the Anezi, and his tribe, and the charms of Bedaween life are at once unfolded to us." Arab mares of the purest blood and of the most enduring quality; untold hours in the saddle; rides mostly performed by night through the trackless desert, the pole star for a guide; frequent alarms, which usually, however, led to no actual danger; with a few rather serious perils, mares and men at times famished, and often parched with thirst; camels' milk by way of food and drink; and one most alarming encounter, make altogether a sufficiently exciting narrative.

These wild Bedaween tribes have a wondrous love of freedom and very little taste for steady labour; they are light-fingered people, and their hands are against every man, yet are they by no means savages; on the contrary, they have their laws, and they are subject to the influence of public opinion, in some matters most strict, though in others not according with our notions. Theirs is a pastoral life, and they pride themselves on the little change their customs have undergone since the days of Esau and Ishmael. Among them retaliation for the shedding of blood is considered a duty, unless a ransom for blood has been paid, and, strange to say, little distinction is made between assassination, killing in battle, and accidental homicide.

Plainly it would be an immense advantage to themselves, and would render them a strength to the Government, instead of a constant source of annoyance and alarm, if these sons of the desert could be induced to cultivate their not unfruitful soil; and this Mr. A (an anonymous author), frequently urged upon his Bedaween friends. The Government also offers certain privileges if they will adopt this course. But a deep-rooted distrust of their Turkish rulers prevails; and besides, those who cultivate must be protected against the incursions of marauders, for nobody will care to sow if his enemies or neighbours are to come and pasture their mares upon his growing crops. Unfortunately Haji Batran seems to think his policy is to sow the seeds of discord and stir up strife, lest his vocation of policeman should be deemed unnecessary; so he sets his face against agriculture, and too successfully. When the guardians turn robbers, one asks, "*Quis custodiet ipsos custodes?*"

At one period it seems that Haji Batran and his tribe had received no pay for their services for a considerable time (a very usual circumstance, for all local payments are suffered to get frightfully into arrear), so he threatened to indemnify himself by making a raid upon the nearest tribe, and this he eventually did, killing a number of innocent men and taking their goods as a prey; and the worst of it was that he evidently thought he had done a smart thing. Of course complaints were made, but when the time came for a new governor to be appointed, his first act was to condone the past offences of his police, and, taught by past experience, he takes care to pay them regularly now.

Mr. A. appears to have been admitted into the bond of brotherhood with many of these Bedaween sheikhs, and it carried him, by a kind of freemasonry, through many dangers. It enabled him often to use his influence with one set of friends in behalf of others, even for the restoration of stolen property; and so long as he fell in with tribes connected in the remotest degree with his friends, he was always acknowledged as a brother, and met with the utmost kindness—a singular feature in Arab life.

Mr. A. gives a very clear account of the Druse and Maronite atrocities, written in the letters dated from Aleppo and Damascus, immediately after the massacre at the latter place; and as he had every facility for obtaining information, it is to be presumed that we have here a trustworthy account of these deplorable affairs. It seems that the Maronites and Druses settled on Mount Lebanon, are not always located in separate districts, but in many places form a mixed population. The former are fully three times as numerous as the latter. These however are braver. The Maronites look to French support, and are very arrogant, and were the first aggressors. Reports were circulated that the Druses were to be exterminated, so they determined to be beforehand, and under the influence of fear and fanaticism, resorted to treachery, and proceeded to acts of the most dreadful cruelty. Ahmed Pacha, the governor, though a skilful general, was singularly wanting in decision of character and moral courage. He made no attempt to check the insurgents. A colonel of irregular troops actually joined the insurgents with all his men, and they behaved like demons. When the time of retribution came, Ahmed Pacha was ordered to be shot for his moral cowardice, together with this colonel and 117 other officers and soldiers—and of nearly a thousand others, some were hanged, some sent to hard labour for life, and some for 20 years.

Fuad Pacha is praised by Mr. A. for his energy and honesty, but there are few indeed who deserve praise; our countryman Lord Dufferin is very highly spoken of.

Hearing that some Christian women had been carried off from Damascus, and would probably be sold for slaves, Mr. A. sets out on the most romantic errand possible to try and recover them, hoping by his extensive influence with many tribes to rescue at least some of these unfortunates from a miserable fate. This generous attempt was not unattended with danger. Indeed, Mr. A. very nearly lost his life. This is, of course, a very exciting part of the book, and the reader is as much carried away as if he were mounted on one of those fleet mares. However, the hero lives to tell the tale, and we think the whole of his 20 letters will be perused with very great interest, for they are full of life and valuable information.

Since writing the above we have had the satisfaction of meeting with a friend who has travelled in Syria, and who fully confirms the opinion we had formed of the writer, whose views, he says, agree very closely with his own.

Miscellaneous.

Edinburgh Botanic Garden.—This garden is about to receive an extensive addition by the incorporation with it of the Experimental Garden adjoining it to the south. The Experimental Garden was established by the Caledonian Horticultural Society, but was assisted by a Government grant of 200*l.* from 1833 to 1858. In 1857 the society, finding itself in difficulties, memorialised the Board of Works to take the lease off their hands, and in 1858 these difficulties were increased by the withdrawal of the grant. After repeated delays the Council of the society have received an offer of 1000*l.* from the Board for surrender of the lease, and for the large hall, Winter-Garden, and gardener's house, on condition of the society paying the arrears of rent due to the Office of Woods, which have accumulated to nearly 850*l.* At a meeting of the society, held recently, it was resolved to accept this offer. Sir W. G. Craig, who presided, expressed his confidence that the Board of Works would use the additional ground in such a way as to confer a great boon on horticultural science. The great herbarium in the Botanic Garden, second only to that of Kew, was almost destroyed for want of accommodation, but in the great hall of the Experimental Garden it would be admirably exhibited for study and consultation. The Winter Garden, when filled with the half hardy plants of the Botanic Garden, would be one of the most beautiful resorts for the public during the winter; and a great part of the new ground would be set apart as an arboretum, which would be of great importance to proprietors of land, and to the numerous students of botany in Edinburgh University, which is the greatest medical school of the kingdom. Although the arrangement was not an altogether favourable one for the society, it was one which would be of great benefit to the public, and would render the Botanic Garden of Edinburgh one of the best equipped establishments of the kind in the world. *Times.*

The Flower Sermon.—In accordance with an old and honoured custom of preaching on the Whitsun Tuesday in each year, from a text having a special reference to flowers, a sermon, popularly called the "flower sermon," has been delivered in the ancient church of St. James, Mitre Court, Aldgate. The church was crowded, the congregation being principally composed of the parochial school children and their teachers. The Rev. W. M. Whittemore, M.A., the rector, preached from the text, "As the Lily among Thorns so is my love among my children." The discourse, which was purposely simple, was at the same time impressive.

Destruction of Mr. Baker's Herbarium.—In the disastrous fire which occurred a few days ago on the premises of the Messrs. Baker, of Thirsk, the valuable herbarium of Yorkshire plants in the charge of Mr. J. B. Baker, the author of the "Flora of North Yorkshire," has been totally destroyed, only one of the walls of the botanical room being left standing. Scientifically, this is a great loss, and one which it will require many years of labour to replace. *Country Paper.*

Beddome's Ferns of S. India.—In our notice of the first part of this work, on 1st August, 1863, we say (quoting from the preface) that it can only be had by forwarding subscriptions to India. We now find that the work can be had by application to Mr. Van Voorst, Capt. Beddome having sent him copies of the first six parts.

Paris Parks (see p. 1184 of our last vol.).—Another spacious park for the recreation of the population of Paris is being opened on the Buttes St. Chaumont. All the houses in the Rue de Crimée and those on the high ground over the quarries have been taken down, and the ground is being levelled at the entrance to the park, which is to be opened about the centre of the Rue de Crimée. A railway has been constructed to assist in bringing up earth. The 55 acres which the Government is transforming into a public park are composed of hillocks and ravines, surmounted by a lofty hill. At present it is an uncultivated waste, commanding a magnificent view. The municipal authorities, struck with the beautiful landscape seen from the highest part of the park, resolved to construct there a wide boulevard, which will describe a curve, beginning at the upper part of the Rue de Crimée, and ending at the Rue Fessard. It is to be 72 feet wide, to be lined with houses on one side, with a handsome railing on the other, which will separate it from the park, to which access will be obtained by a grand marble staircase. This curved boulevard or terrace will have a corresponding walk on the side of La Villette, which will be formed by a segment of the same circle, and will commence at the Rue Puebla, and, as this terrace will be composed of several curves, the park of the Buttes St. Chaumont will be bounded by a series of curved lines. Vast reservoirs are to be established at 300 feet from the terrace, which will serve to supply the cascades and basins so refreshing during the extremely hot weather sometimes experienced in Paris. *Daily Paper.*

Edible Coniferæ.—The cone of the Araucaria Bidwillii (native name Bunya Bunya) of Northern Australia, is produced on the extreme upper branches. It is large, measuring 9 to 12 inches in length, and 9 inches diameter; on coming to maturity, the seeds are readily shed; they are from 2 to 2½ inches long, by ¾ of an inch broad; sweet before being perfectly ripe, and after that resembling roasted Chesnuts in taste. They are plentiful once in three years; and when the ripening season arrives, which is generally in the month of January, the aborigines assemble in large numbers, from a great distance around, and feast upon the seeds. Each tribe has its own particular set of trees, and of these each family has a certain number allotted, which are handed down from generation to generation with great exactness. The Bunya Bunya is remarkable as being the only hereditary property which any of the aborigines are known to possess, and it is therefore generally respected by the settlers. The Italian Stone Pine (Pinus Pinea) has edible seeds, which are eaten at dessert under the name of Pine nuts. They

are largely used for consumption in Italy, under the name of Pinoli molese. They come chiefly from Tuscany and from the Province of Ravenna, and are thought to give a peculiar relish to wine. In the south of Europe they are also called pignons doux. Athenæus speaks of the imports of the seeds of the Stone Pine into Egypt. They are brought to market at Lisbon strung upon thread like beads, and suspended upon a girdle round the waist. The seeds of P. Lambertiana of North America, and those of Pinus Gerardiana of Thibet and Affghanistan, are also eatable when fresh. In Switzerland, the seeds of the Siberian Stone Pine (Pinus Cembra) are used in some places as food, and in others as an article of luxury; and the shell being very hard, and requiring some time and skill to separate it from the kernel, the doing so forms an amusement for some persons in the long winter evenings, as separating the films from the kernels of the Walnut does in the Tarantaise. The kernels of another species, Llave's Pine (Pinus Llaveana) are eaten in Mexico, and those of the Imbricate-leaved or Chilian Pine (Araucaria imbricata) in Chili. The piñones of the Cordillera Pine are nutritive and farinaceous, in flavour resembling a roasted Chestnut. They are found in great abundance in the Chilian part of the Cordillera, and have become so necessary an article of consumption among the Indian tribes, that, whenever the crop is scanty, or the snow precludes their access to some of those parts where they have been accustomed to collect them, they are subject to considerable inconvenience. As the seeds will keep long, they are often imported into the southern districts of Chili, and, when boiled, are eaten by the country people, either hot or cold. With the exception of one or two trees near the coast, which have been planted, it is only found in the interior of the Indian country, south of the Biobio. The Indians of that neighbourhood subsist entirely on the seed of the Araucaria, which they harvest and bury in pits for winter use. The name of the tribe is derived from that of the tree which affords their food, *Technologist*.

Seedling Grapes.—The saying is common amongst us that "Two blacks cannot make a white," which may or may not be true, but the fact is indisputable that Mr. Thomson has procured a golden-coloured seedling Grape from the Black Hamburgh, in every other particular the same as the parent. That it is virtually of itself a spontaneous product is beyond the limits of denial; no admixture of pollen could possibly have occurred, as no other Grape in the garden was in flower at the same time. So, in technical language, this change of colour may be expressed by the word "sport," or "frolic," and there is every reason to suppose that it will continue to perpetuate itself. With regard to flavour it is necessary that the subject be approached with extreme caution. The opinions formed at the time of my visit are—the skin somewhat thinner than the Black Hamburgh, hardly so firm in the flesh, equal to it in flavour, and the berries not quite so large. The Vine appeared to be rather in a struggling state, young, and apparently overcropped, so that when this pressure is removed, by liberal cultivation the quantity of the fruit will proportionately increase. This new introduction, so far as I have been able to judge, is on an equality with its parent, and I have no hesitation in saying it will take a high position as a light-coloured variety. From what I could see, it does not shrivel at the stem after reaching maturity, like its congener the old Golden Hamburgh. But in saying this I would not have it to be inferred that the value of that variety has declined in my estimation. The departure in Mr. Thomson's case from a certain type of colour, without the intervention of pollen from any foreign source, is not a solitary instance. Exactly the same thing has happened with Mr. Dodds, gardener to Sir J. Greville Smith, Bart., Ashton Court, Bristol, with this slight difference, that Mr. Dodd's seedling is of a white instead of a golden colour. In answer to my inquiry, Mr. Dodd has forwarded the following reply:—"My white seedling Hamburgh was raised in 1861 from the produce of three extraordinarily large berries. By no probability whatever could they have been fertilised with any white variety, so at most it can only be considered as a sport. Who can prove that the Black Hamburgh was not originally produced from some white Grape?" I was disappointed in not having seen Mr. Thomson's other seedling Grape, the Duchess of Buccleuch, as I have invariably heard it spoken of as being of excellent quality. The bunches, I am informed, average from 12 to 15 inches in length, and set freely, and it is well adapted for early forcing in pots. The length does not include the footstalk—only the bunch itself. *A. Cramb, in Scottish Gardener.*

Calendar of Operations.

(*For the ensuing week.*)

Now is a good time to apply liquid manure to all growing crops. Guano is most useful mixed with water. Over a couple of pounds of it pour as much water as will fill a watering-pot; stir it up, leave it for a few hours to settle, and then use it in a clear state. It answers all purposes for all crops that require manure. The time of applying it is when plants are beginning to grow, and until they have arrived at maturity, and the best way is to give it in the shape of small quantities at a time and often; under such treatment it is surprising what progress young crops make in a comparatively short space of time.

FLOWER GARDEN AND PLANT HOUSES.

Seldom have Lilacs, Laburnums, Scarlet Thorns, Wistaria sinensis, and hardy spring flowering plants of all kinds blossomed in greater profusion than they are doing this year, and at present shrubberies everywhere have a gay and dressy appearance. See therefore that walks, borders, and lawns, are rendered equally attractive by means of good keeping. Indoors shading and watering will require particular attention.

Auriculas.—Many of these are still in good bloom, and should be well attended to. Those going out of flower will not need so much water, but still take care that there is a proper supply; gather seed as it ripens, and preserve it carefully.

Calceolarias.—Shade from bright sunshine, and keep clear of insects.

Carnations and Picotees.—Tie up the flower-stems as they advance; in dry weather supply the plants well with moisture, stir the surface of the pots occasionally, remove dead foliage, top-dress beds or pots which may require it, using a mixture of good loam and well-decomposed manure.

Cinerarias.—Plants going out of bloom should be supplied less liberally with water and kept cool; those still in flower will need the treatment previously recommended.

Fuchsias.—Plants reserved under glass for the purpose of border decoration may now be planted out. Those required as specimens in pots will well repay any attention bestowed on them now in the shape of stopping over-luxuriant growth, training, &c., by the more elegant appearance they will present when in flower. Supply water liberally, occasionally using liquid manure.

Hollyhocks.—Support such as need it; encourage liberal growth by the usual means, such as stirring the soil and applying weak liquid manure, especially to those for competition.

Pelargoniums.—These will now be coming finely into flower. Shade is essential to brilliancy of colour and preservation of bloom; keep the house clear of bees. Attend carefully to watering, and maintain as far as possible a moist atmosphere round the plants, by damping the floors, stages, &c., occasionally.

FORCING GARDEN.

Cherries.—Spare lights placed now over trees of May Duke against walls would forward the crop very much without farther trouble than drawing the lights a little apart during sunshine, and pushing them close and closing the ends with canvas during the night. They must, however, be securely fastened during stormy weather.

Figs.—In favourable weather let these have plenty of air during the day, and abundance of water, and, except where fruit is ripening, use the syringe freely.

Melons.—This season has been remarkably favourable for early Melons, and with many these will be ripened, and the crop gathered in time to admit of a second set of plants being turned out in the same pit. This is much preferable to the plan of obtaining a second crop from the same plants; they will succeed if planted before the middle of next month.

Peaches.—Forced trees in pots that have ripened a few early fruit, should be kept in the house till the beginning of next month at least to finish their growth. Give them plenty of water, and syringe once a day.

Pines.—Now is a good time to go through the whole stock of succession Pines, beginning with the largest. Let them be taken out of the pits, and turn them out and examine their roots in order to see if a shift is required. After the larger plants have received attention, follow with those of smaller size, putting them into larger or smaller pots according to the amount of vigour they possess. Some of the old tan will probably require replacing with new material; but it is requisite to use caution as to the depth of fresh tan at this season, for fear of overheating, and burning the roots. If the temperature of the old tan is not much below 85°, it will be sufficient to turn it over to the depth of a couple of feet. In replacing the plants, take care to keep such as are likely to fruit in the autumn by themselves as much as possible, in order that when wanted they may be removed without disarranging the whole pit. Plenty of room must be allowed to prevent the plants from becoming drawn.

Vines.—Houses in which Grapes are ripening should be kept at 90° or even higher, with sun heat, but if allowed to fall down to 70° at night, so much the better. On nights following clear sunny days like the present little or no fire will be necessary; avoid overcropping, and take care to keep red spider in check.

HARDY FRUIT AND KITCHEN GARDEN.

At present the weather is unusually favourable for all out-door operations. With respect to wall fruits, favourable reports are received from all quarters, and appearances warrant the same conclusion being arrived at with regard to standard fruits. In the kitchen garden too prospects are equally encouraging.

Cauliflowers.—If beds of these are becoming overcrowded, and the weather is too dry for transplanting, pull out a few of the larger plants, otherwise the whole will be injured.

Celery and Lettuces.—Plants of these lately ricked or planted out—indeed, most small plants that have recently been transplanted, will now while the weather is hot and dry require regular watering, and so will crops of Turnips and other Seedlings as they come up.

Onions.—A bed or border may now be prepared to receive thinnings when they are ready; and a bed of the Silver-skinned may yet be sown in light poor soil to come in for pickling.

Peas and Beans.—As soon as these show flower, pinch off their tops and stir the ground well between the rows. Water freely, and if time will permit throw a little soil over the wet parts to prevent the earth from caking or cracking.

Strawberries.—Water well between the rows, and mulch with some sort of rough litter.

Wall Trees.—See that no insects establish themselves on these; young shoots must also now receive attention. Never cut out or otherwise remove too much of the summer growth at once; it is much better to begin in time, and stop the strongest shoots only at first, pursuing the removing process with caution throughout the whole of the growing season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending May 18, 1864, as observed at the Horticultural Garden

May.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 12	6	29.871	29.779	65	36	50.5	53½	52	N.E.	.00
Friday 13	☽	30.096	29.979	73	34	53.5	54	52½	N.E.	.00
Satur. 14	8	30.100	30.099	73	44	59.5	55	53	N.E.	.00
Sunday 15	9	30.122	30.079	83	43	63.0	56	53½	E.	.00
Mon. 16	10	30.173	30.148	82	40	61.0	57	54	N.E.	.00
Tues. 17	11	30.184	30.158	81	42	61.5	57	54	S.E.	.00
Wed. 18	12	30.214	30.163	83	43	63.0	58	55	N.E.	.00
Average.		30.187	30.086	77.4	40.3	58.8	55.7	53.4		.00

May 12—Fine; dry air; fine at night.
— 13—Fine; very fine throughout.
— 14—Fine; very fine; fine
— 15—Very fine; very hot and dry; fine at night.
— 16—Very fine; hot and dry; fine.
— 17—Slight haze; very fine; dry slight haze; fine.
— 18—Very fine; excessively dry air; fine throughout.
Mean temperature of the week 6 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending May 28, 1864.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds						
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	65.5	43.1	54.3	17	0.30 in.	6	7	4	3	3	10	3	2
Mon. 23..	67.7	44.9	56.3	13	0.53	1	7	6	3	3	9	4	5
Tues. 24..	68.3	44.0	56.1	11	0.54	3	8	6	1	5	11	3	1
Wed. 25..	66.3	43.7	55.0	15	0.64	3	11	3	2	1	11	5	2
Thurs. 26..	67.1	43.1	55.1	17	0.48	3	10	4	1	3	12	3	2
Friday 27..	65.8	45.2	55.5	21	0.63	2	10	5	3	2	11	2	3
Satur. 28..	67.6	44.8	56.2	15	0.97	—	10	8	1	5	7	5	2

The highest temperature during the above period occurred on the 28th, 1847—therm. 91 deg.; and the lowest on the 23d and 25th, 1863—therm. 26 deg.

Notices to Correspondents.

Books: *W P S.* Lindley's Synopsis of the British Flora—provided you *really* understand the meaning of technical terms. If you do not, books are useless to you.

Corydalis speciosa: *F G.* This yellow-flowered species was found on the banks of the Amoor river, and has flowered at Glasnevin. It is one of the finest of its family.

Fungi: *C H W.* Your Fungus is the state of Cladosporium known under the name of Fumago foliorum. It grows on a sugary excretion on the leaves, and should be sponged off where practicable. If suffered once to get a footing it is very difficult to eradicate. The beams and wooden uprights probably have the common form of Cladosporium, from whence possibly the spores have fallen on the leaves. *M. J. B.*

Gardeners: *Red Hand.* A better man does not exist. He is an excellent gardener, capable of managing any place in Great Britain. He is a strict disciplinarian, and requires his people to do everything in a business-like manner.

Mildew: *G C.* This is a large word. Uredo suaveolens has a peculiar scent, and so has the common Bunt, but we cannot attribute any peculiar smell to mildew in general. Possibly the scent of which you complain, morning and evening, arises from the presence of Chara in some shallow pools or ditches. *M J B.*

Names of Plants; *J P S.* The seeds are those of Ailantus glandulosa, and the plants may be intended for feeding the new silkworm.—*J F.* Cytisus biflorus.—*Herbst.* 1, Pinus cembroides; 2, Abies Kæmpferi; 3, Retinospora obtusa.—*C W.* Salix Caprea.—*A Sub.* 1, 3, 4, Different forms of Selaginella Martensii; 4, is that called Danielsiana; 2, Selaginella serpens, sometimes called mutabilis or jamaicensis; 5, S. rubricaulis.

Peach House: *J. C.* We much regret to say that the inquiry is undecypherable.

Shading Greenhouses: *T C.* In such hot bright weather as we are now experiencing, shading is of very great advantage to almost all plants under glass, the excessive heat which is generated being distressing to the foliage, while means are not always at hand to keep up sufficient moisture in the atmosphere, or to keep down the temperature by ventilation, though both should be done as far as practicable. The best shading you can adopt is single or double tiffany or scrim; the latter being thicker is preferable for the Fern house. Such shading may be fixed for the summer; but if thicker material is used it should be mounted on rollers, so as to be rolled up in dull weather.

Variegated Dahlias: *H B.* The variety known as Variegata, with white-edged leaves, is much more effective as a variegated plant than Lilacina variegata, which has the leaves blotched in the centre with pale greenish yellow.

Vines: *W L.* We are afraid that your Vines are afflicted with mildew in an incipient state. At least on minute inspection we see spores which appear to be those of the Oidium, though the plant is not thoroughly developed. If the leaves and young bunches look mealy, apply sulphur at once, but at the same time be sure that the leaves do not wither from some other cause, as direct sunlight, or drought consequent on radiation. *M J B.*

Vine Leaf Excrescences: *T B.* Your Vine leaves have got the leaf-wart. It generally arises from a bad condition of the roots, but is not immediately mischievous. If, however, the roots are really unhealthy, you must expect shanking and spotting. *M J B.*

Vine Scale: *O H.* Your young pot Vines are affected with the common Vine scale, which is producing myriads of young. You must take immediate measures to get rid of it. You should, however, have carefully removed the scale in winter, when it is visible enough on the bark. *M. J. B.*

Misc: *Corres.* No. 21 of 1862. Full price will be given for the above.

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LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

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Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
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RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

PALM-NUT MEAL.—Manufactured by ALEXANDER M. SMITH & Co., Liverpool, delivered to Rail or Boat, at Liverpool, in bags of 2 cwt. each.

Marked A.M.S. L. Price 6*l.* a ton.

Analysis and Report by Dr. Augustus Voelcker:—

Moisture	6.91
Fatty matters	26.50
*Albuminous compounds (flesh-forming matters)	14.93
Gum, starch, sugar, and digestible fibre	31.20
Woody fibre (Cellulose)	16.13
†Mineral matters (Ash)	4.39
	100.00

* Containing nitrogen, 2.39 † Containing silica and sand, 1.07.

"101, Leadenhall Street, London, E.C.—April 15, 1864.
"Dear Sir,—I have much pleasure in sending you the preceding analytical results, for they show that the sample of Nut-meal which you gave me for analysis possesses extraordinary fattening properties, inasmuch as it contains no less than 26½ per cent. of a beautiful butter-like fat. You will notice that the meal contains about as much flesh-forming matters as the best Barley-meal, and that the proportion of woody fibre is not large. The condition of the meal is excellent. In conclusion, I beg to say that this valuable fattening meal must not be confounded with a description of cake made from Palm-nut kernels. The samples of Palm-nut kernel cake that have come under my notice were all quite inferior feeding materials.
"AUGUSTUS VOELCKER, Ph. D.,
"Consulting Chemist to the Royal Agricultural Society."
"To John Coleman, Esq."

Having been appointed by Messrs. SMITH Agent for the sale of Palm-nut Meal, I shall be happy to supply samples and further information as to this valuable feeding material.
JOHN COLEMAN, 150, Leadenhall Street, E.C.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.
For further particulars apply at the Manufactory; or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

To Owners of Landed Property.
A MANUFACTURING FIRM have for DISPOSAL a large quantity of ENCAUSTIC TILES damaged in the process of Manufacture, which they would be willing to deliver free on the Rail at a rate lower than the cost of the commonest description of Paving Tiles, enabling them to be used for Cottages and Farm-house Floors.
To Owners of Landed Property taking a quantity, they would be supplied at a very low rate.
Apply to X. Y. Z., Ironbridge, Shropshire.

Drainage, &c.
MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

DRAINAGE LOANS are made by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY to the Owners of Freehold Estates, Life Tenants, Trustees, Incumbents, Bodies Corporate, &c., for all works of Agricultural Drainage, as well as Irrigation, Enclosing, Road Making, Wood Grubbing, and Farm Buildings, sanctioned by the Enclosure Commissioners.
The advances are repaid by way of Rent Charge on the Estate created for such a term of years as the Landowner shall determine will best adapt the annual charge to the circumstances of the Tenants.
No investigation of Title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.
The Company either supply the money expended by Landowners in works designed and executed by their own Agents, or they undertake the entire improvement by their experienced staff, supply the weekly advances required, and charge on the estate the actual outlay in the works, and their commission thereon.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, London, S.W.

MIDLAND FARMERS' CLUB.—At a Public Meeting of Agriculturists and others, held at the Hen and Chickens Hotel, Birmingham, on Thursday, May 12, 1864, R. C. CHAWNER, Esq., in the Chair, the following Resolutions were unanimously agreed to:—

Proposed by the CHAIRMAN, seconded by Mr. H. WIGGIN,
1. That it is advisable to form a Midland Farmers' Club.

Proposed by Mr. T. B. WRIGHT, seconded by Mr. JOHN LOWE,
2. That Richard Croft Chawner, Esq., be requested to act as President for the current year.

Proposed by G. C. ADKINS, Esq., seconded by Mr. JAMES BALDWIN,
3. That the Mayor of Birmingham (W. Holliday, Esq.), C. M. Caldecott, Esq., Wm. James, Esq., H. Luckcock, Esq., and Mr. T. B. Wright be requested to act as Trustees.

Proposed by Mr. T. RYLAND, seconded by HOWARD LUCKCOCK, Esq.,
4. That Mr. H. Wiggin be requested to act as Vice-President for the present year.

Proposed by Mr. R. L. HUNT, seconded by Mr. W. LORT,
5. That Mr. J. Shackel be requested to act as Treasurer for 1864.

Proposed by Mr. H. WIGGIN, seconded by Dr. BODDINGTON,
6. That the following Gentlemen form the Committee for the present year:—

Adkins, G. C., Esq.	Chattock, H. H., Esq.	Lowe, Mr. Henry.
Adkins, Mr. H.	Couchman, Mr. C.	Lowe, Mr. John.
Aston, Mr. W., (Seisdon.)	Fowler, Mr. R., jun.	Masfen, Mr. R. H.
Baldwin, Mr. James.	Fowler, Mr. W., jun.	Mathews, Mr. J.
Beach, Mr. W. A.	Harris, Mr. Thomas.	May, Mr. G. A.
Bourne, Mr. W. Kempe.	Horley, Mr. T., jun.	Osborne, Mr. Henry.
Browning, Mr. C. L.	Keeling, Mr. C. R.	Ryland, Mr. Thomas.
Burman, Mr. T. T.	King, Mr. John.	Saxelby, Mr. T.
Chance, Mr. T. H.	Lees, Mr J. H.	Scott, Mr. W. J. B.
	Lort, Mr. W., jun.	Smith, Mr. Joseph.
		Turner, Mr. George.

Proposed by Mr. C. L. BROWNING; seconded by Mr. W. J. B. SCOTT—
7—That Mr. J. B. Lythall be appointed Secretary for the current year. R. C. CHAWNER, Chairman.

The Chairman having vacated the Chair, it was proposed by HOWARD LUCKCOCK, seconded by Mr. JOHN KING, and carried unanimously—That the best Thanks of this Meeting be given to R. C. Chawner, Esq., for his kindness in presiding this day.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. Established 1777.
Patron:—H.R.H. The Prince of Wales, K.G.
President, 1863-1864:—The Rt. Hon. Earl Fortescue.
THE ANNUAL EXHIBITION of STOCK, IMPLEMENTS, POULTRY, WORKS of ART, and HORTICULTURAL SPECIMENS, will take place at Bristol, on June 13, 14, 15, 16, and 17.
By order of the Council, H. ST. JOHN MAULE, Secretary.
May, 1864. 2, Wood Street, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE-ON TYNE, July, 1864.
LAST DAY for Entry of Stock, Wool, and Butter, 1st June. All Certificates received after that date will be returned to the senders.
Prize Sheets and Certificates will be forwarded on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 21, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May	23	General Meeting of the Royal Agricultural Society of England—Noon
THURSDAY,	—	26	Conference on Cottage Building—
FRIDAY,	—	27	Society of Arts—(11.30 A.M.—4 P.M.)
FRIDAY,	—	27	Dog Show at the Agricultural Hall,
SATURDAY,	—	28	Islington.

DR. VOELCKER'S instructions in the proper use of guano as a manure are the newest and most immediately useful of the contents of the new number of the Agricultural Journal. Everybody has been putting guano in with his Mangel Wurzels during the past few weeks, or will soon be putting it in along with Turnip seed. Dr. VOELCKER tells us that both the mechanical and chemical condition of the manure may be improved. Guano should be thoroughly ground or reduced to powder, in order to its full usefulness in the soil to which it is committed. And it is rendered less liable to waste if damped with five per cent. of its weight of oil of vitriol. The way to do it is to dilute the oil of vitriol in the first place with its own bulk of water, then pour both over as much sawdust as will easily take them up—this sawdust to be afterwards mixed with the guano. "I am convinced," says Dr. VOELCKER, "that if the suggestions which I offer are carried into practice, a considerable saving in the expense of the guano will be realised, for it will then be applied to the land in an improved mechanical condition, and in a state of increased chemical efficacy.

MR. THOMPSON'S instructive Review of English Agricultural Progress in the new number of the Agricultural Society's Journal, refers to the history of the Society as among the most efficient causes of that progress. It discusses the influence of steam power, now so generally employed in agriculture, as having also exerted an important influence; and it refers to the effects of free trade—of the tenure of land—and of the artificial manure manufacture, as powerfully efficient in the same direction. The progress itself is very well illustrated by the history of an ideal farm out of condition, with that of the various steps by which an intelligent farmer of the present day would undertake its improvement. This clever sketch we have transferred to our columns. And we shall in successive Numbers refer to the various influences and particulars which are enumerated as having furnished both the means and the methods by which the improving farmer is now equipped.

One of the points where Mr. THOMPSON has most elaborately illustrated the proposition which he advocates, is THE VALUE OF THE PRIZE SYSTEM as wielded by the Agricultural Society in the case of the agricultural machine manufacture. It is in the form of a critique of Mr. MORTON'S paper read last December before the Society of Arts, that this portion of his performance appears. Doing ample justice to the spirit in which that paper, and especially its attack upon the prize system, had been written, Mr. THOMPSON nevertheless confidently argues, on the three points wherein its attack for the most part consisted, that (1), the month of July is as well adapted as any other for trials which the Society's judges conduct; (2), that the shortness of these trials has practically and in the long run not been found to mislead the award; and (3), that the "excessive character of the prize system," though inevitable, is by no means fatal to the usefulness and efficiency of prizes as seen, not only before the Society's judges, but on the race-course and elsewhere.

It is declared that the experience of 17 of the Society's country meetings proves that the weather and the condition of the land has been generally favourable during the trial week in July—that a constantly increasing number of purchasers are guided by the judges' awards, made under these circumstances—that the opponents of the prize system fix their attention too exclusively on the defects from which no system can be free—that the effect of the prize system has not been to depose the old established firms, which have in fact been benefited by the influence of the periodical official inspection of their manufactures which the Society has thus conducted, for it has checked in the bud many a fallacious plausibility which might as a novelty have interfered with the regular progress of their trade.

We shall reserve till another occasion a discussion of the value of a quiet and careful examination and report by competent judges, as compared with that of a wholesale trial and prompt award—fully admitting that there are many points in which the latter has its advantages. At present let us just enumerate two or three of the particulars in which Mr. THOMPSON'S argument appears to us open to objection.

His discussion of the subject commences with a reference to the Suffolk drill. Now, we believe it may be asserted, that notwithstanding the large sums of money won as prizes by Messrs. GARRETT & Messrs. HORNSBY, in their competition for these awards the Suffolk drill is just what it was when the Society was formed. No implement has altered less in form—it was as efficient then as now, and somewhat cheaper. And then, as now, SMYTH who has hardly ever been a prize man has always been by far the largest maker.

Take other examples:—The harrows which last year won the prizes of the Royal Agricultural Society are precisely the same in form and principle as those exhibited by Mr. HOWARD, Sen., at the first meeting at Oxford. GARDNER'S Turnip-cutter, the best of all such tools, is the same now as then. Has the plough been materially improved? We doubt it. The prize plough at Warwick, to which Mr. MORTON referred before the Society of Arts, was, we understand, in the form in which it received the award of the Society's judges inefficient. And those which were immediately purchased in consequence of that award had to be recalled by the manufacturer. Of course we do not refer to this as any disparagement now of these ploughs—they are as as good as those of the best of the rival manufacturers—but the incident is a very great disparagement in our opinion of the value of an award made after a few hours' trial of the implement.

Perhaps it may be objected that these particular examples are among the class of exceptional cases, instances, and points, to which Mr. THOMPSON alleges that the opponents of the prize system confine their attention, in disregard of the broad and general aspect which the progress of the agricultural machine manufacture during the existence of the prize system has presented. We believe that the prize system in the earlier years of the Society was of very great service to the

manufacture, to purchasers, and (which is a point of comparatively little interest to us on a general review of the subject), to the fortunes of the competing manufacturers.

Now however agriculturists are less generally in need of official guidance; they are less and less guided by the official award of merit. And both the makers and the buyers depend more upon the performance of their tools when at work under ordinary circumstances before the general public, than on the opinion formed by three selected gentlemen during a few hours' official examination.

Sufficient credit is not given by Mr. Thompson, in our opinion, to the discernment of the ordinary agriculturist, quickened as that must be by self interest; and too much is given to the effect of a prize, the influence of which, whether on the trial field or the racecourse, is open to well-founded doubt.

His allusion to racing seems to us altogether inappropriate; and in fact suggestive of the worst evils of the system which is in question. Machine making is not a sport or pastime. Implements are intended for every-day use, and are expected to last the farmer a lifetime, or nearly so. Besides, is it quite so clear that racing (as at present conducted at least) has improved the breed of horses? Have not the pages of the Royal Agricultural Society's Journal expressed a contrary opinion? Fox hunting, where the only prize is a "brush," may probably have done so, or at least prevented deterioration—but a whole season's testing in the hunting-field, with a merely honorary distinction as its reward, is directly opposed to the short racing trial on which the award of a premium of 500*l.* by the Society's judges has heretofore been guided.

Messrs. Weightson and Grey, members of the Royal Agricultural College and lately students at that Institution, make a very able defence in another column of the professional education which is offered there. They appear however to have read our recent remarks on this subject, as if all our criticism had been directed against the present condition of the Institution. In this they are altogether mistaken. The "monstrous failure" that we referred to was the failure confessed by Dr. Voelcker when he gave it for his opinion that practical farming is better learnt from a tenant farmer than on the College farm.

Dr. Voelcker left the College some time ago. We presumed that his opinion had arisen out of his experience when resident at Cirencester, and we pointed out how that experience unavoidably had led to that opinion. The only teacher of practical agriculture while Dr. Voelcker resided at the College (and of his ability and efficiency there is not a doubt) had nevertheless a task put upon him which was beyond the power of any one man to perform. Daily lectures in the theatre, and daily lectures in the field, are more than any one responsible for the profitable management of 500 acres of land can undertake. And if 100 students have to acquire all their knowledge of farm practice from a single teacher on a farm under these circumstances, comparatively few of them are likely to succeed.

Mr. Grey speaks confidently of the success which nevertheless was achieved under Mr. Coleman's instructions, hampered though he must have been by his many other duties.

Dr. Voelcker's opinion however no doubt arose out of the fact that a great number of the students thus placed had failed to acquire a practical knowledge of farm management. For the acquirement of this practical knowledge accordingly he would have them spread abroad in twos and threes over the face of the country, where every one of them might have the almost undivided instructions of a practical tenant farmer. And he would confine the work of the College to instructions in the sciences which can be illustrated and taught in theatres and lecture rooms.

This we imagine to be the view he holds, and on which we commented. And we repeat it is a monstrous failure that is confessed when an Institution equipped for the especial purpose of agricultural instruction is admitted to be beaten by the practical farmer; who, whatever may be said of the advantages of undivided attention to the smaller number of pupils, does in most cases really regard the one or two whom he receives as a nuisance, borne only for the sake of the large premiums which they pay. The authorities who have the management of the Royal Agricultural College do not, we believe, think with Dr. Voelcker in this matter. They too, we understand, consider that if the Institution cannot teach practical farming, it must be pronounced a failure. Since the period to which Dr. Voelcker's experience refers, and on which no doubt his judgment has been formed, great efforts have been made to supplement the practical instruction in which he pronounces collegiate institutions necessarily deficient. The farm manager, who formerly had the responsibility of all the practical education upon his hands, now confines his attention to the field classes; and in the lecture-room the students receive the instructions of a number of lecturers, each especially acquainted with his own department, who come successively into residence for the purpose of a full discussion of it.

The College is now devoting more of its attention than ever it has done to practical instruction in agriculture. In this it is obviously fulfilling the purposes for which it was established. This needs more and more to be regarded as its essential object, and so, more and more, will its usefulness be admitted and its success ensured.

And *so* let us add, more and more will it be able to claim under the charter of the Agricultural Society that countenance and support which the National Society has hitherto refused it. For it seems plain, upon a perusal of that charter, that the education which under it the Society is bound to promote is not the general or ordinary but the professional education of the agricultural class. And desirable as the object contemplated by the Rev. Prebendary Brereton undoubtedly is—important as it may be to establish county public schools for the children of farmers, and of the middle classes generally—we earnestly hope that the Society will not embark in any great scheme of this kind, altogether foreign as it would be to the scope and purpose of its incorporation, and to the powers which it either possesses or can wield.

Mr. Holland seemed to us to state the thing most fairly when he put the promotion of good public schools for middle classes as a duty upon those individual members of the society whose social position authorised them, or enabled them, or required them to act for their several counties or neighbourhoods; leaving the Committee of the Agricultural Society to report upon the possibility of corporate action on the part of the Society, with exclusive reference to the period for *professional* education which elapses between school days and the tenancy or management of a farm.

—— We know of further examples of the activity of the common cheats, as they may now be called, who are endeavouring on false pretences to procure livestock from well-known breeders. Mr. Read, of Elkstone, had the other day an application for a "first-class Hereford cow," from a man who writes from Holloway; and we see that Mr. Smith, of Lower Wick, Worcester, has also been applied to from High Cross, Tottenham. A request for prepayment, followed by an examination of the cheque which will be sent in answer to it, before the animals are despatched, is the only perfect safeguard.

AGRICULTURAL EDUCATION.

After reading your article of the 30th April on the Agricultural Education of the Royal Agricultural College, and seeing that it has not yet provoked a reply, I cannot remain silent; and trust that my remarks will find a place in your columns, as they are in the cause of truth.

Not having seen the speech of Dr. Voelcker's referred to, I must assume that the text of your article fairly expresses the tenor of his speech, and I challenge him or any one else to show that the opinion therein expressed is well founded.

I can understand Professor Coleman's silence. He does not wish to blow his own trumpet; but I feel sure that he might confidently challenge any tenant farmer in the United Kingdom to show pupils who (in a two years' course) have received more full instruction in practical agriculture, or have kept a more strict account of the practice on the farm, than have some of those taught at the College. And I say that the College may well challenge any inquiry into the opportunity that students have and have had of learning practical agriculture.

Let people stick to facts and not trust too much to opinions hastily formed, and if they do so they will find the facts in this case strongly in favour of the Royal Agricultural College as compared with private tuition. I do not say this of the average of tenant farmers only, but of the better class of private tutors in agriculture.

I should like any one to show wherein the advantage lies with the private pupil over the student at the Royal Agricultural College.

The only objection to the system at the College that I have ever seen urged with any force, is the supposed undue relation of the sciences to practical agriculture, (a difficult question and not to be hastily decided), which let me say is entirely beside the point at issue, viz, the relation which the instruction in the practice of agriculture at the College, bears to that given to private pupils by tenant farmers.

Permit me now, as a member of the College who has studied agriculture there, both under Professor Coleman and Mr. Fletcher, to point out briefly some of the advantages which a student at the College has over one with even the best of practical farmers in acquiring a knowledge of farm practice itself.

No one acquainted with the College of late years will affirm that economy has been neglected on the farm; if they do, the College accounts and the state of the farm, which certainly never had the appearance of being farmed for show, are proof enough to the contrary. But the practice on the farm is not, I think, challenged; the only point challenged is the opportunity afforded the students of becoming acquainted with the practice of the farm, and before coming to any conclusion on this point, it would be well to take a look at the facts of the case.

Let any one who wishes to know what has been done by the students examine the farm and cultivation books of those who have obtained prizes; these will, I doubt not, compare favourably with those of any pupils on private farms; and I believe few farms, if any, will be found where so searching an inspection into the accounts is permitted to or required of the students.

It may be imagined that because the private pupil has more time to devote to practical agriculture, that therefore he has the advantage; but I believe the experience of all who have tried both will go to show that although the time on the College farm must be economised, yet much more is gained by a business-like walk round the farm, inspecting each operation and taking notes of it and the time men have been employed at each, than would be or is gained by the loiterer on the tenant's farm, where the student feels that he has more time than enough. Those acquainted with human nature with will grant that this is very generally the case.

It would however be easy to show (were it not trespassing too much on your space) that the examinations at the College under anticipation of which the operations on the farm are inspected and noted, tend greatly to quicken and increase habits of observation and regard for detail.

I might also dwell on the advantage arising from conversation among the students on the facts observed; no one will doubt that where a number of young men are thrown together much is gained by comparing notes.

You sir, I am sure, will readily admit that the discussion of the merits of this and that operation, calculating the cost and so forth, does more to impress the facts on the mind than any other kind of teaching; far different is it with the arguments and questions of the tenant farmer and his pupil, in which the former considers in most cases that his opinion ought not to be disputed.

I would in conclusion remark how superior is that teaching where the teacher makes teaching his special business, to that which may be expected from the farmer, whose time and thoughts are naturally more occupied with his own interests than in those of his pupil; and to reiterate your words, let the Royal Agricultural College drop its distinguishing title altogether if it cannot compete with the ordinary practical farmer in the work of practical agricultural education.

I hope that some who have tried both will come forward, and give their experience on the subject.
G. W. Gray.

As one who has had some insight into the means usually adopted by young men seeking an intelligent knowledge of their business as farmers, I have felt considerable interest in the remarks upon this subject which have appeared in the last numbers of your valuable Paper. One thing however is certain, that although it is often asked, "how is such knowledge to be obtained?" the question seems to belong to that numerous class specified by Sir Walter Scott as "more easily asked than answered." Now the knowledge required to make an efficient and money-making farmer, however it may differ from that required by a merchant or professional man, has still certain points in common with such pursuits, requiring in the first place a well balanced mind; 2d, shrewd judgment; 3d, knowledge of mankind; 4th, a knowledge of the minutiæ of his business; 5th, a knowledge of collateral subjects which may influence that business, and after all, and indeed what is included in the foregoing—experience. Such business qualifications take many years to develop. To look for any system of agricultural education which in the course of two, three, or four years will bestow on a young man such qualities is as absurd as it is unprecedented in the instruction for any other occupation. Boys in the middle walks of life receive a very similar education while at school, however diversified their future profession may be. A sound English education, intermixed with Classics and Mathematics, has been found by universal experience to be the best calculated for developing the mind. It is at the conclusion only of this period, say at the age of from 16 to 18 years, that special studies relating to the boys' future course of life are commenced. Those who

up to this time have been school companions must now part company. Some prosecute their abstract studies at our Universities, others repair to medical colleges, others to the study of engineering, and some to counting houses and manufactories to learn the customs of trade and commerce. The youth which we are interested in is intended for Agriculture, and the difficult question arises, "What is the best plan to give him the necessary knowledge?"

What is the nature of agriculture? Baron Liebig answers—"Agriculture is both an art and a science."

Now, an art is a practice which may be learnt simply by observation and imitation; such as ploughing, sowing, and all agricultural operations. Therefore the practice of agriculture is an art, and has no sympathy with science. All may be learnt by mere observation and imitation, and I maintain that a man with such knowledge may be a successful farmer, and further, that the great bulk of farmers may be so described.

What then does Liebig mean, and what does the popular opinion refer to, when they join in saying that agriculture is both an art and science. It means that to advance agriculture we must have something more than mere imitation of the practice of others—that we must know the reason of natural phenomena, and the laws which govern them, before we can pretend to modify usages connected with them.

We must know why it is wrong to bleed and purge for every disease before we give up so time-honoured a custom. We must be convinced that it is absurd to rub salt on a cow's back after calving before we dare undertake the responsibility of such an omission. We must be sure that nitrate of soda and ammoniacal salts have an exhaustive effect on soils before we can prevail upon ourselves to give up so apparently advantageous a top dressing. We must somehow or other try to find out why rotations of crops are necessary, and if they really *are* necessary, for they are frequently inconvenient to adhere to. Somebody ought to look after the causes of Clover sickness and the Potato disease. We should much like to know whether Messrs. Lawes and Gilbert or Prof. Liebig are right about the capabilities of the soil. These are a very few of the questions which belong to the science of Agriculture, and a true student of agriculture must know something of the bearings of such questions before he can be called master of his occupation. Without it usage is his master; with it, he is the master of usages.

It is only those who have vigorously applied themselves to such studies who know how deeply and generally the physical sciences must be ransacked before a sound judgment can be given upon the reasons of phenomena. Every chemist knows that a grounding in general chemistry must precede agricultural chemistry, and scientific men in general know that a man must have a knowledge of principles before he can apply principles.

For these reasons I lay it down as indisputable that to be a scientific agriculturist you must have a sound scientific education. Returning to our youth, who is intended for a farmer, it is evident that he must be taught both the practice and the science of agriculture. For the former I recommend a sojourn with an agriculturist of from two to three years, and for the latter, a course of instruction in physical sciences. I have been extremely sorry to notice the somewhat disparaging manner in which the Royal Agricultural College of Cirencester has been lately spoken of as a place where practical farming could not be taught. I shall not enter into the discussion of this question, but simply give it as my opinion that with attention in the lecture room and on the farm more advantages are given to the youth there assembled than any private farmer can bestow; while the high moral standard inculcated and the society of men similarly engaged, are advantages much superior to the solitary life of the "mud" student, who is very liable to become indolent in mind and body, and to seek release from *ennui* in low company.

There is no place in England more calculated to give sound notions of science both in its general and special applications to agriculture than this noble institution.

I cannot, however, recommend the College course as the only means of instruction for the young farmer, simply on account of its being too short in duration; but two years with a good farmer, and two years spent at Cirencester, would, I feel confident, turn out first-rate men, ready to commence on their own account. That four years so spent should make long-headed, experienced farmers, no one will pretend to say; nevertheless, judging from the remarks of some writers, they appear to be looking out for a system which in so short a time is able to send out men of not only knowledge, but experience.

To such I would point to our Medical Colleges. Do they pretend to send out men who can at once combine knowledge with experience? Are our military colleges calculated to turn out cautious veterans? Does engineering education at once fit a man for all practical difficulties? Does an agricultural education give a man the knowledge of when and how to buy and sell and contend with every difficulty of season. Unhesitatingly, no. It is well remarked that no man truly learns farming until he commences for himself. I certainly find it so, although I spent four years with a successful and experienced farmer, and two years at the Royal Agricultural College of Cirencester. *John Wrightson, F.C.S., M.R.C.A., Spring House, Tadberge, Darlington.*

ARE NOT DUNG HEAPS UNNECESSARY?

Most decidedly so, except under particular circumstances. I have now had the experience of several years, during which the bulk of my manure has been taken from under the animals in the covered sheds, and at once applied to the soil. The resulting crops give unmistakeable evidence of the correctness of this practice. If fermentation is so necessary in a dung heap, why does the sheep fold act so well without it? My custom is as follows. Our straw is cut up by steam power into 2-inch lengths. The action of cutting, splits most of it, so that the spongy inside of the straw is at once rendered available to absorb the urine. The outside of the straw we all know is glass, and impervious to moisture. The cut straw is applied as litter from day to day, care being taken not to use more than will get thoroughly saturated and intermixed with the solid manure—in fact, enough to keep the animals clean. If you put in too much it will heat and ruin the health of your stock. It is trodden, when so intermixed, into a sort of hodge-podge, which when applied to the soil will beat the best guano ever used—in the production of crops, and in the matter of profit. The manure is allowed to accumulate under the animals for a month or two, according to the temperature of the season. In winter it may remain long; in the summer or warm months you must remove it more frequently, having a watchful eye to the heat of the mass and to the comfort of the animals. If the manure is too warm, it takes the animals off their feed and endangers their lungs, much as a pig get the heaves or lung disease by lying on hot dung and then becoming exposed to atmospheric change. When the manure is removed it is completely saturated, so much so, that my practical neighbour says—"Mr. Mechi, your dung, although made under cover, is much more wet than ours, which is exposed to rain and the water from buildings."

It is highly desirable that this manure when taken out from the sheds should be at once carried to and spread on the land; for being so amply saturated it can take up no more moisture, and therefore a shower of rain washes the soluble portions out of it. If we have no land ready, we place it close to our great tank, so that any washing from it goes into the tank, and is thus economised. The floors of my sheds are all, of course, well brick paved. In farm yards the earth to a very considerable depth absorbs much of the farmers' wealth in the shape of soluble manure, and so we need not wonder at his preference for the sheepfold, where the soil gets every portion of the manure.

Manure is so costly to produce that we should certainly take as much care of it as we do of bird's dung (guano), for I presume that no farmer would see, with indifference, the latter washed away by the rains. Where is the difference? I cannot distinguish it.

I am always sorry to hear a farmer complain of having too much straw, or, as this last winter, complaining that for want of rain he could not make manure. It is evident that such a man does not keep enough stock; for although I grow an immense quantity of straw, and have all my manure made under cover, and a portion of my stock on sparred floors, I never have quite straw enough, and generally purchase an extra stack or two.

I venture to predict that the time is coming when an open farm-yard and a dung heap will be an event of other days.

I am sorry to see so little summer-made beef. The consumption of green food with cake under shelter should go on during summer. Why not continue making good manure all the year round? *J. J. Mechi, May* 16.

JUDGMENTS AT CATTLE SHOWS.

The following is extracted from a letter by the late Mr. Bates, of Kirkleavington, published in the *Farmers' Journal* of Nov. 25, 1844:—

"That by extra feeding the worst of animals may be forced forward to gain the applause of incompetent judges, there wants no proof; but how they are fed, whether on Indian Corn, which I have never used, or what other forcing keep, we are not told, but this I am certain of, that a cow, the Rev. Mr. Berry said, produced 16 quarts per meal, or twice a day, of milk at Mr. Whittaker's, never produced more than four quarts, or ¼ of the quantity when going in my cow pasture at Kirklevington, and that immediately after calving.

"Having furnished Mr. Whittaker with very many valuable Short-horns, some at less than a tenth of their value, and not a twentieth part of the cost of what he had paid for much worse animals; and in vain urged him to send them to my second Hubback, that he might see the difference between his produce and that of Frederick (267 in first volume of Herd Book, and 1016 in the second volume of Herd Book), he wished me to buy Gambier (2046) of him, being by Bertram, and having the Daisy blood, and from Lady Matilda, the highest priced cow bought at Mr. Charge's sale in 1828; I did so, and paid him double the price that I paid for Belvidere (1706 in 3d volume of Herd Book) which I bought soon after; and having both bulls in use at the same time, and having eight steers by each bull. I kept the 16 together, invariably, on the same keep, till the 19th of October, 1835, after they were two years old; when for want of keep, I sent the eight by Gambier to Yarm Fair, and they were sold at 12*l.* 12*s.* each. On the evening of the same day I offered the eight by Belvidere to the same person, that they might be fed together, at 17*l.* each, and he refused them.

"At the Easter previously, I had desired two graziers from the neighbourhood of Morpeth, who were attending Darlington Market on Easter Monday, to put a value on each of the eight steers, all going loose in the same straw yard, where they had gone all winter, eating Wheat straw; they valued those by Gambier at 9*l.* each, and those by Belvidere at 10*l.* 10*s.* each. On the 13th of May following, the eight Gambier steers averaged by measurement 36 stones each, and those by Belvidere 42 stones each. The eight steers by Belvidere were turned out in the day to a Grass pasture, very bare, and got straw at night, all the autumn of 1835, till January the 12th, 1836—12 weeks—and they were then not so good as they were at Yarm Fair, the 19th of October previous. They had afterwards a few Turnips (not 2 stones per day each) and some damaged Linseed, the cost of which did not exceed 1½*d.* per week besides straw and the cost of labour in boiling the Linseed, and for a few weeks at first got a little bran mixed with it to induce them to eat it—and when so learnt, got only chopped straw mixed with the boiled Linseed, which was bought by public auction.

"These cattle were sold in Leeds market the first week in June, and averaged 34*l.* each, averaging near 90 stones, each, of 14 lbs. per stone; those by Gambier, having the Galloway polled blood, &c., were sold 13 weeks afterwards at Wakefield, at 21*l.* 10*s.* each, making a difference in the price of the two lots of 12*l.* 10*s.* per head each; 100*l.* difference in the value of eight steers; no small consideration in the profits of grazing, besides three months longer keep.

"I meant to have reversed the cows to each bull the following year, and then seen the difference, but Gambier got no calves after the first year (not unusual in this tribe of cattle). I, however, put the cows that were to Gambier, the following year to Belvidere, and kept the produce in steers, in much the same manner as in the former year's breed, and sold them in the same market that the Gambier steers were sold at (viz., Wakefield), and above three months earlier; being sold in May, and got within 5*s.* per head of the price the Belvidere steers were sold for the previous year; the prices of beef per stone nearly the same both years—1836 and 1837. This proves, by a sure test, the contrast between Frederick's blood and that of Belvidere.

"Now this is a test of value far different to what 'Correspondent' proposes. The opinions of men, unless they have judgment, and honesty to act uprightly, is of no estimation whatever; as a proof in point, I need only refer Mr. Parkinson, jun., himself, to his decisions, and that of his coadjutors, Mr. Torr, of Lincolnshire, and Mr. Anthony Maynard, at Richmond, last summer, at the Yorkshire Agricultural Society's Exhibition (and these three took every pains in examining the different animals), and the decisions of the judges at the Durham Agricultural Society's Meeting at Stockton, within two months of the former, where the same bulls were again exhibited as at Richmond, and where one, unnoticed at Richmond, was placed before the two that got the first and second premiums at Richmond. After such frequent bare-faced, unprincipled conduct in men, to say nothing of the total want of judgment altogether, it behoves the conductors of agricultural societies to take some other mode of ascertaining merit than the opinions of men incompetent to such a task, and appointed by men who are the exhibitors themselves. Mr. Parkinson, jun., himself, had certainly great reason to be dissatisfied with the decisions of the judges at Durham, in 1843, when Sir Thomas Fairfax himself was placed in the back ground, and a bull placed before him, without the least character of a good Short-horn—but the decisions at Durham, in 1843, were praiseworthy in comparison to those at Stoton, in 1844.

"I have never had any hand in appointing judges at agricultural shows in my life, and no person of judgment has said, or can say, I ever received a premium to which I was not entitled. But not a few have seen, and said, how improperly my stock has been treated at public exhibitions.

"I exhibited cattle at the Tyneside Agricultural Society's meetings, from its first institution in 1804 to 1812, but never showed my best cattle, and was successful at every show (and those exhibitions were held sometimes thrice a year) till the last show in 1812, and I then showed better animals than I had ever showed before. One of the judges told me afterwards, that those who influenced the proceedings, decided in the room, before they went out to examine the stock, that I should never have another premium in that Society, however excellent the stock I exhibited; and this gentleman, and others who knew the determination come to, advised me never to exhibit again, and for 26 years afterwards I never did till the York meeting in 1838, although I continued my subscription to the Tyneside Society till it was dissolved.

"In 1819, seven years after I had ceased to show, a breeder of Short-horns, removed to the northern part of Northumberland from Tyneside, dined with me at the same table at Berwick-upon-Tweed, and after dinner he asked me, before a very large company, how my stock was going on, and I said I had not exhibited since 1812, and knowing the resolution that were come

to, 'that I was never to have a premium, however excellent the stock I exhibited.' He then said, 'You ought not to reflect upon me seven years afterwards, for I avow myself to have been the proposer of that resolution;' and he set to work to defend himself and those who acted with him, 'justifying their conduct' by saying, 'that they were perfectly right in so doing, as they had none of my blood, and having, for so many years, given me premiums, it was time to put a stop thereto, and act for their own interest alone, and help the sale of their own stock; this ended two years afterwards in the breaking up of the Agricultural Society in Tyneside; and the Short-horned cattle of that district, from having been the best shows I ever knew, far exceeding any in the present day, as a whole, became the worst of any district I know of; for in 1837, at the Hexham Show, there was not even the vestige of a good Short-horn from Tyne side in Northumberland, and the premiums were nearly all carried away by strangers from other districts; and with the decline of good Short-horns, the agricultural produce of the district fell off to less than one half to what I had known it on many farms, and probably never again will become equal to what it once was, while in other parts of the kingdom the agricultural improvements have greatly advanced. This ought to be a warning to all other agricultural societies to prevent the conductors thereof being governed by selfish motives, to advance their own interest, instead of the public advantage; for I have held, and ever will hold, that the prosperity of the landed interest, I mean landlord, tenant, and labourer conjointly, tends to the prosperity of every other class in the state.

"I must add further, that I showed Mr. Whittaker, Mr. Fawkes, of Farnley Hall, and others with them, the Belvidere steers to which I have referred above, in the spring of 1836, while feeding here; and showed them Norfolk's dam, feeding in the same Hemble—she stood with a cow by son of 2d Hubback (2683), whose dam cost 8*l.* in a two years old heifer, and this cow was only 48 stone at Christmas, 1835, and was when sold at Leeds, estimated at 84 stones, having gained 36 stones (of 14 lbs. per stone) in 20 weeks, and increased in value in the estimation of the butcher, who bid 12*l.* for her at Christmas, to be worth 32*l.*—being 20*l.* increased value in 20 weeks; while Norfolk's dam did not increase in weight one-fourth as much, and was sold, I think, at 27*l.* or 5*l.* less than the cow by son of 2d Hubback; this I pointed out to the above gentleman, and desired them to examine Norfolk's dam's rumps, as they had no fat upon them whatever, and yet it pleased the breeder of Norfolk to say that was owing (want of fat on his)—Norfolk's—rumps) to second Hubback; but they then had ocular demonstration before them that it arose from Norfolk's dam."

A REAPING MACHINE TOUR.

MR. GRAY, Brownrigg, has kindly put into our hands a jotting of his recent remarkable tour, in which he exhibited in the principal counties of Scotland, and in Northumberland, the capabilities of his new improved reaping machine. Introductory to his narrative, he says:—

About the end of harvest, 1858, shearers got very scarce—the best hands, as usual, having gone off to Berwickshire, leaving me with a few bothy girls, their cousins, brothers-in-law, &c., to cut a field of Oats, and one of spring Wheat. They formed altogether a very happy family party; but I found the cost of shearing per acre rather too much, and determined to have a reaper before another year. The difficulty was to get one that would give less bother than shearers. Bell's was the only one at work in the district, and from anything I could learn its working was not very satisfactory. The price, too, was high—about 45*l.*—and the stoppages and breakages frequent. Mr. Hope, Fenton Barns, informed me that a machine was made which could cut Grass as well as corn, and that the price was 25*l.* I made some inquiry, and ordered one. Mr. Hope, Fenton Barns, and Mr. Boushiell, Bonnington, got machines at the same time. I could not get on with the Grass cutting at all, and had to get a man down from Stirling to give me a lesson. We were then so successful that I secured the agency for the district, and the public, pleased, ordered 45 machines, which were all delivered in time for harvest. I had never seen the machine cutting corn, so that everything was again to learn. I soon found cutting round a field of good Barley was not satisfactory, and commenced cutting one side only. The man began gradually to improve in his delivery, and by breakfast time was making a very fair sheaf. The girls (minus their cousins this year) did not seem to like the change, and were making a mess of the lifting, so I promised the best lifter during the harvest a new gown, which produced a magical effect, and I think 15*s.* was never better spent than in buying that piece of cloth. Except opening up the fields, and 2 or 3 acres of very badly twisted corn, I cut the whole of my crop—about 100 acres—and 25 acres of Clover hay. Breaking one knife bar was the only accident. The drawback was the punishment of the horses from overdriving, which was obviated next season by putting on another machine, as I thought it safer to invest 25*l.* in another machine than risk killing a pair of horses worth 80*l.* The machines delivered in 1859 gave general satisfaction, and in 1860 I sold 186. On these machines various improvements were effected, but from errors in judgment, and carelessness in manufacture, they gave general dissatisfaction. The one I got for myself was taken away by Sir G. G. Suttie, and I got one which had been delivered to Mr. Scott, Garvald, but which he was anxious to get rid of, and in doing so parted with as true a working machine as ever was made. I got the first prize with it at Longniddry in 1860, was beat at Yester 1861, but it was the only machine that cut through the wet Barley without choking, when drawn out among those on the short list for a final trial.

Having succeeded in cutting the corn and laying it off in sheaves, it occurred to me to take a step in advance and lay the sheaf off the tilting-board on to the band, and at once save the labour of lifting the sheaves, and the loss from straggling attending that operation. To effect this without putting on extra machinery, and thus increasing the draught on the horses, was my great object.

[Mr. Gray proceeds to describe the details of his invention for the inserting of the band at the end of the tilting-board. We may mention that one great advantage claimed by Mr. Gray, in the simultaneous delivery of the band and the sheaf, is that it saves the loss that is always occasioned by having the sheaves turned twice over.]

Under every system of reaping corn a band has to be made for every sheaf, so that, whether cut by the hook or by machines in the usual way, or under my system, we are equal as far as band-making is concerned. The only advantage I claim over the other systems is that old wives, young boys or girls can make the bands in any part of the field where good corn for making bands is to be had. In some parts of fields the corn is often too short, and the twist has to be made on the heads, causing a loss, and in others partly rotten and unfit for bands. Or the bands may be made by the usual hands on dewy mornings or wet days, when nothing else can be done, and when the weather is favourable the whole strength on the farm is available for tying or stooking—only one being required to put in the bands. Under the ordinary system of laying off the sheaf, the different parts of the work I calculated thus:—Making the bands, 3-12ths; lifting sheaf and laying it on the band, 4-12ths; tying and stooking, 5-12ths—total, 12-12ths. Under my system, the lifting of the sheaf and laying it on the band is unnecessary, therefore 4-12ths, or 1-3rd of the whole labour is saved—that is 33⅓ per cent. Saved by no heads being left, and therefore no gathering or raking required, 6¾—total saving, 40 per cent.

In the lower district of this county the people following the machine generally work in threes. Two women make the bands and put the sheaf on the band, and the man ties and stooks. In the higher district and in other parts of the country, one woman and one man work together. The three follow the machine, and, say that their stent is 100 yards long, each of the three, on arriving at the end of their stent, has travelled 100 yards, or, collectively, 300 yards has been travelled. The three then march back, gather up the heads that are scattered about, and perform a journey of another 300 yards; or a total of 600 yards has been gone over by one person to lift, tie, and stook 100 yards in length of a cut made by the machine. Under my system only one is required, who ties and stooks as he goes, and having no heads to gather, does not require to come back, and lift 100 yards of a cut by travelling 100 yards. By working in threes and gathering back the ground is travelled over six times; by working in twos, four times; by one working, and no gathering, one time. A great deal of travelling can also be saved by drawing at a steady pace, and filling the machine. When the horses are fast driven, a machine capable of cutting 5 feet 3 inches seldom cuts more than 4 feet. By driving the horses steadily, 4 feet 9 inches can easily be done, thus saving both horses and workers of about 1-5th of the travel.

With these preliminary remarks, I now proceed to give as brief an account as possible of a journey undertaken for the purpose of showing, as far as it was practicable at the end of the season, the advantages of the improved reaper.

After a tolerably successful *début* at Amisfield, and also exhibiting at Brownrigg on the 19th and 21st, the machine was sent to Dunbar on the 22d, where it was shown at work on the farm of Mr. Brodie, Spott, in the presence of a large number of the farmers in the neighbourhood.

In the further prosecution of my journey, I made arrangements to take with me a pair of good horses, with a man and boy to rake and drive, and a girl to follow the machine and put in the bands.

On Wednesday the 23d the machine was exhibited in the Edinburgh Corn Exchange, and on the following day it was put to work on the farm of Mr. Herdman, Fala—the crop being a fair one of Wheat. The weather was rainy, but the trial proved a very successful one. In the afternoon the horses and machine went on to Kirkliston, west of Edinburgh.

Friday 25th.—At work on the farm of Mr. Dudgeon, Kirkliston. Cut Barley, very much laid and twisted. The trial a severe one, but came off very well. The same day cut Wheat on the farm of Mr. Salmond, Wheatlands. Part of the crop a good deal straggled; but when otherwise the machine made excellent work.

Saturday 26th.—Cut Oats and Wheat on the farm of Mr. Thomson, Paddock Hall, Linlithgow, where there was a large turn out of spectators. The performance of the machine, particularly on a heavy crop of Wheat, seemed very much to astonish some of the parties present, as reaping machines have not become general in this part of the country.

Monday 28th.—The weather extremely wet and disagreeable. Cut Oats and Wheat very much twisted, on Glen, the property of the Duke of Hamilton, Stirlingshire. The trial, both on account of the weather and the character of the crop, was not so favourable as I could have wished. The horses travelled on to Stirling that night.

Tuesday 29th.—The weather no better. Cut Wheat on the farm of Mr. Robertson, Cames. The riggs were of the old fashioned kind, and the water standing in pools between the furrows. Also cut Beans. I may mention that the plan adopted in this part of the country is to twist three or four of the stalks from the Beans around the sheaves, thus rendering it unnecessary to make "whuppies." A large number of the farmers, and almost all the implement makers in Stirling were present. The machine worked well, and seemed to give general satisfaction.

Wednesday 30th.—The weather still bad. Cut Wheat—a fine crop—on the farm of Mr. Wingate, Longcarse. The work well done, notwithstanding the wet. The horses, &c., proceeded the same afternoon to Dunfermline.

Thursday, October 1.—Cut Oats—partly heavy and partly a light crop—on the farm of Mr. Finlay, New Farm. For almost the only time in my journey, the horses were not forward in time. There was a large attendance of farmers and others, and the work excellent.

Friday, November 2.—Cut a quantity of Oats, kindly kept for the purpose, on the farm of Mr. Prentice, Bankhead, near Kirkcaldy. The weather had by this time cleared well up, and there was a corresponding improvement in the quality of the work done. We had a large attendance of spectators, amongst others the Earl of Rosslyn, who seemed much interested in the work. The horses went on to Cupar the same night.

Saturday 3d.—Cut a light crop of Barley on the farm of Mr. Bell, Dron. This was the largest meeting we had in the whole journey, the spectators including the principal people in the district. The horses went on to Newburgh the same night, where they remained.

Monday 5th.—Cut Oats on the farm of Mr. Howieson, Newbigging, near Perth. The land very soft and unsuitable for the machine, and the horses, from their long journey forward, showed, for the first time, symptoms of being fagged. The work, however, was well done, and all present seemed much pleased. I may mention here that the horses and workers were put up the same night with Mr. Hall, late of Amisfield Mains.

Tuesday 6th.—Cut a goodish crop of Oats on the farm of Mr. Robertson, North Dowald. Part of the field extremely unsuitable for a reaping machine, and the grain much laid and twisted, but the work done in a way that surprised every one.

Wednesday 7th.—Trucked the horses and machine from Crieff to Glasgow per rail, where they arrived same day. After the machine had been exhibited in front of the Corn Exchange, went out to Bishoprigg, about two miles from Glasgow, where we cut black Oats on the farm of Mr. Craig, Bachley, in the presence of a large number of farmers and others. The furrows were extremely deep, notwithstanding which the machine did its work well. The horses returned same night to Glasgow, and next morning left for Hamilton.

Thursday 8th.—Cut Black Oats on the farm of Mr. Fleming, Ormiston. The land lying in high ridges, and the water standing in the furrows, but splashed, and made very fair work. The horses travelled on to Lanark.

Friday 9th.—Cut the finest Oats we had met on our journey on the farm of Mr. Mitchell, Spitland. There was a large attendance. The work very well done. Travelled on to Biggar same afternoon.

Saturday 10th.—Cut a very short crop of Oats on the farm of Mr. Mackenzie, Hillriggs. Succeeded, notwithstanding the shortness of the straw, in placing the band regularly beneath the sheaf. Horses went on to Peebles.

Monday 12th.—Cut Wheat—a splendid crop—on the farm of Mr. Nicol, of Kerfield, near the Tweed. The Wheat was nearly 7 feet in length, and much laid, but the work was as usual done well.

Tuesday 13th.—Expected to get grain at Galashiels, but was disappointed.

Wednesday 14th.—Cut a fine crop of Oats, grown on newly-reclaimed land, on the farm of Mr. Simson, Blainslie, Lauder. On the same field one of Samuelson's self-delivery reapers was at work. The pace of both implements seemed to be nearly equal.

Thursday 15th.—Cut a splendid crop of bearded Wheat on the farm of Mr. Torrence, Sisterpath, near Dunse. Samuelson's self-deliverer, and Brigham & Bickerton's one-horse side-deliverer were also at work on the farm.

Friday 16th.—Cut Barley—very short in the straw—on the farm of Mr. Crow, Scrimerston, near Berwick. The meeting not having been locally advertised was not very well attended. On an adjoining field belonging to Mr. Crow, saw one of Fowler's steam ploughs at work, which was going splendidly.

Saturday 17th.—Tried to get corn at Alnwick, but did not succeed, and sent on the machine to Wooler fair to be exhibited there.

Monday 19th.—Cut a goodish crop of Oats on the Farm of Mr. Hardie, Ross, Northumberland. The machine did its work well, and every one present seemed well satisfied with it.

There being no more uncut grain in the district, I now determined to turn the horses' heads homewards. They accordingly arrived at Brownrigg on the following day—Tuesday, the 20th—after performing a journey of not less than 500 miles, and cutting on an average three or four hours a-day during the month that they had been from home. They travelled the whole journey on foot, except from Crieff to Glasgow, and notwithstanding their heavy work came home in first-rate condition—travelling forty miles the last day.

I cannot conclude this brief note of my tour without expressing my obligations to those gentlemen who in many cases reserved corn for me at some inconvenience to themselves, and also for the great personal kindness which I everywhere received. In almost every place where the machine was exhibited, the spectators seemed well satisfied with its performance, and in many cases I was publicly thanked on the ground for the trouble I had taken in bringing the machine. I cannot avoid mentioning, at the same time, that what seemed to give great satisfaction to those present was the steady rate at which it was driven without fagging the horses. It says not a little for the quality of the machine, and also for the care with which it was managed, that notwithstanding the unfavourable circumstances in which it had to work on many occasions, and the long journey it had made, it came back to Brownrigg as sound as it left, never, during the whole time having had a single breakage. *Haddington Courier.*

Home Correspondence.

Town Sewage for Railway Embankments and Cuttings.—Experience teaches us many things, and I will endeavour to show how our railway embankments and cuttings may be made to realise, during the six growing months, a very large rental, possibly as much as from 5*l.* to 10*l.* per acre, according to situation. I speak practically in this matter, for I have a bricked dome to my great tank, about 30 feet across and 9 feet

high; it is covered with earth, and although I sowed Grass seeds upon it they struggled for an existence on this dry bank, much as we see on the dry south side of the railway cuttings and slopes in dry weather. It at length occurred to me to throw a jet of my sewage on to it occasionally, and the result is an abundant supply of succulent and nourishing Grasses. The railways might thus be made the medium for conveying sewage from town to country, and they might tap the passing pipes, and apply their contents to the fertilization of an immense area, thus increasing their revenue. We should then no longer see the dried up or withered Grass burned by sparks from the engine. I throw out this hint for general consideration. My practical use of sewage from my house and from my animals convinces me more and more after 15 years trial, that we are comparatively ignorant of the great results that can be produced by the contents of our town sewers. By feeding sewaged Italian Rye-grass for two years, we may afterwards grow immense crops of food for man, either vegetable or cereal. A rotation in which this system is practised, would overwhelm us with with meat, bread and vegetables. At present our ideas are absurdly erroneous in this matter of sewage, always believing that it is only good for Grass, forgetting that if that sewaged Grass will carry four times as many animals as the unsewaged, we not only have that increase of meat and manure, but on breaking up the Grass for cereal or pulse crops, we have a mine of abundant production. I hope that the House of Commons Committee on Town Sewage, now about sitting, will take evidence on this question, and also that they will get engineering evidence as to the cost of conveying the sewage to the most suitable areas around our metropolis and towns. As I have said before, a pipe 4 feet in diameter brings from Loch Katrine to Glasgow (40 miles), a daily supply of water amounting to 23 millions of gallons, equal to one-fourth of the whole water supply of London. The fall of the pipe is 5 feet per mile. The cost, including bridges and other necessary works, was 10*l.* 8*s.* per yard. The Charing Cross Railway cost 1000*l.* per yard. Surely we cannot object to pay something to obtain our food, as well as to obtain a ride. The comparison, as to cost and importance, appears to me to be ridiculous. We should never forget the value of meadows irrigated with water only; in Hampshire 4*l.* and 5*l.* per acre is paid for land flooded with trout-stream water. Surely, when we administered the same dose, saturated with a hundred good things, it will have a much greater value. *J. J. Mechi, Tiptree, May* 17.

Preserving Roots.—Considering it of much importance to have our roots fresh and succulent late in the season, as mine are at this period, I will give my experience on this matter. It is the greatest possible mistake to store roots in a dry condition, and free from soil; they die and then rot, the same as we ourselves should when our vitality had departed. They are never in a better condition to store than when the sticking clay comes up attached to the roots of the bulb—the more clay the better—you will find this clay full of fine white living fibres, proving that the vitality of the plant still remains. Your great object should be to keep this earth and these fibres in a moist condition by preventing evaporation. Nothing will do this better than soft Barley straw, not loosely and carelessly thrown on the clamp, but laid straight as thatch. The additional cost is only 9*d.* per acre, or 7*s.* on a clamp, and it may save many tons of roots from rotting. Having thatched the clamp we then cover it well with earth that has been ploughed up round the clamp, leaving some pipe holes at the top. It is a great mistake to throw the Mangel or roots into small heaps on the field when pulled, and let them lie waiting for carting. The earth gets dried and falls from them on a second handling. They ought to be pulled, and at once thrown into the cart, and conveyed to the clamp. I look upon this as most important, the earth attached to the roots being retained. Every root should be, in our southern or eastern counties, pulled up and clamped or placed in mounds for feeding before the 9th of November. The quality is thus preserved. We know what numerous losses are incurred by the use of frozen Turnips. If we purchase roots in this neighbourhood to bring home, the price is usually 20*s.* per ton; surely at that price they are worth preserving. I observed to-day that the Mangel bulbs taken from the clamp had the wet clay sticking to the roots, the bulb being as juicy, heavy, and crisp, as when taken up more than six months since. A friend of mine having a very fine piece of white Turnips which he wished to preserve for his cows pulled them, and placed the bulbs touching each other, with the tops on, on a pasture close to the homestead. The Turnips fibred in the Grass, the foliage protected the bulb in the severe frost, and his Turnips remained available. They occupied a very small space when so packed. It is a great mistake to uncover the top of your clamp in the spring. Keep out the air. *J. J. Mechi, May* 16.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Agricultural Education.—The following is an abridgement of the discussion upon Agricultural Education which took place after the delivery of Mr. Holland's lecture.

After Sir Edward Kerrison, M.P., and the Rev. Prebendary Brereton had referred to the middle-class public schools lately established in Suffolk and in Devonshire—

Dr. Voelcker said, that having been practically engaged in the education of agriculturists, and taken interest in their welfare, he wished to make a few observations confirmatory of the views expressed by Sir Edward Kerrison.

In the establishment of schools, then, he would guard the managers against the great rock upon which many establishments had split, namely, the attaching of farms to the schools. He was convinced that the practical education which was given on the farm to the small tenant-farmers' sons was much better acquired at home than upon a farm attached to a school. The farm, moreover, was an expense which fell heavily upon schools, and without it he believed, with some little care, schools could be made self-supporting. They required to be supported by the influential men of the county; and such support as Sir Edward Kerrison had suggested that this Society should give would be most appropriate and beneficial to such schools; but it was in vain to hope that anything like a good practical education could be given in any establishment especially set aside for the instruction of the farmer. It was impossible to instruct three or four pupils together in one business. Wherever there were a number of lads brought together, they would be sure to do anything but what they ought to do. In school they could be kept under perfect control; so also in the lecture-room; but that could not be done on the farm. The thing was practically impossible, to give to a number of young men instruction in classes upon a farm. It was well that there should be establishments for the sons of gentlemen and landed proprietors, who required to have an insight of the higher branches of farming; and a different kind of education illustrated by a system of farming that had been described, though not very appropriately, as 'experimental farming.' The sons of wealthy farmers required to be specially instructed in the great art of making experiments, and of deriving advantage from a more careful observation than was perhaps needful on the part of the small tenant-farmer, for the simple reason that the latter had not the means at his command of bringing into play a superior standard of education. At present, it was the small tenant-farmers' sons who experienced the difficulty of finding proper schools for their instruction, and the great aim should be in such schools to give rather a general than a special education. A lad who, up to his fifteenth or sixteenth year, was instructed in the elements which were usually taught in general schools, and in addition perhaps the elements of natural science, especially of chemistry, would, when occupied upon the farm, practically turn out a much better agricultural chemist, and a more careful observer of the facts of natural history, than the lad who was instructed with special reference to his occupation in the elements of a particular branch of science, such as chemistry or botany. What was needed was a good education in the elements of natural science; and in its chief branches it should be provided in these schools. This would be a very useful addition to the general plan of instruction; but anything like providing the means of giving what was usually called practical instruction on the farm he was convinced would in the end turn out a failure, and entail a great expenditure of money upon the managers of the institution.

Professor Coleman, with regard to the education to be derived from having large classes upon a farm, entirely agreed with Professor Voelcker, that there was a difficulty in commanding the attention of the students and making the instruction sufficiently personal to be of value.

At the same time that much information might not be derived by students from the teaching of the farm, he could not admit. If success in practical farming depended so much upon local experience, and the practice depended largely on soil and climate, it would be absurd to suppose that instruction upon a farm, whatever its situation and soil, would fit the student to take charge of a farm and embark a large amount of capital upon it where the conditions were altogether different. But that much useful general information available for futdre development with reference to special cases was thereby conveyed, he did certainly believe.

Mr. Wren Hoskyns said the truth was, that the subject of agricultural education was one that had always presented considerable difficulties, partly arising out of a sort of ambiguity in the expression, itself, and partly from the nature of the class to which it was applied. With regard to the expression, "agricultural education" might be taken to mean the education either of the farmers or their sons—two classes which Mr. Brereton had very wisely separated.

But there was yet another question, viz., what was the special education of a person for agricultural practice? If the question merely concerned the education of the son of the farmer, he should then agree that education ought to be general and not special, that he would thereby be better adapted for the practice to which he would afterwards have to apply his knowledge. His knowledge and his practice would be more analytical and intelligent in every way, and more conducive to his own advantage and the profit of others, than if he were merely brought up to it by an education of a special character. But the question brought before the Committee of the Royal Agricultural Society — the question that Mr. Holland probably intended—was rather larger than this. It was a question how far education might itself be so adapted and directed as to convey some special advantage to agriculturists as a class. Now that embodied a very considerable difficulty, because he was not sure whether they were right in speaking of farmers as a class at all. For how could they classify under one head a body of men extending from the occupier of 30, 40, or 50 acres, up to the person who might be the owner of 2000 or 3000 acres, where he was absolutely farming himself without the assistance of any tenant-farmer? The class was, in fact, so extensive, that any attempt to legislate, so to speak, for such a class would be entirely futile, because the body to which the legislation would apply would require a hundred or more different modes of treatment. That which would apply to the rich man who was farming his own land, and this was now a rare class comparatively, would not apply to the smaller and poorer occupier. Need he remind them of Lord Macaulay's jeremiad over the decay of the former class? And he (Mr. W. Hoskyns) deeply regretted it, inasmuch as it had reduced the question of farming so much to a mere question of tenancy and the occupation of another person's land, which involved very different considerations, and did not go to the root of the improvement of the whole country, but rather to how a certain quantity of land should be treated in a manner the most profitable to the person who held it and during the period he held it. But the question of education, if attempted to be applied to the wealthier class of agriculturists, would be regarded as almost a presumptuous interference, because they were well able to educate their own sons, and were assumed to be well educated themselves.

The very separation, however, of that portion of the agricultural classes from consideration necessarily reduced the question to the education of the poorer class of farmers, who, Professor Voelcker said, must be the special subject of consideration.

Now, there was a greater difficulty respecting the education of that class than, perhaps, of any other body of men in the country. This was, first, because they were so widely separated from each other, and thus completely severed from the influence of education being brought to bear upon them individually; and next, because the practice of agriculture—that was to say, constant occupation from 6 o'clock in the morning until 6 o'clock at night in the business of the farm—was so exceedingly detrimental to the exercise of the mental faculties during the remainder of the day. Unless, indeed, a portion of the early part of the day were cut and carved out, and absolutely devoted to the purposes of intellectual culture of some kind, the attempt to put books in the evening into the hands of persons who had been the whole day occupied upon a farm, a plantation, or an estate, was almost futile. They must, therefore, in their deliberations in the committee, and even at that moment, address themselves to this point—what were the means by which they could bring educational influences home to the farmers?

Besides the establishment of schools, which had been practically and usefully discussed that morning, there was another important matter for the committee to consider, viz., how to bring to bear upon the home life of the poorer class of farmers, and particularly their sons, through the aid of this Society, the most powerful educational influences.

When, after the death of Mr. Pusey, the discussions took place respecting the Journal, an opinion which found some favour was that of cutting up the publication into smaller dimensions, so that it should be more available for practical home reading, converting it as it were into a sort of "Half-hours with the best Agricultural Authors." Thus it was hoped to bring before the agricultural mind, with little difficulty, subjects that would evoke and excite intelligence, in reference to the particular pursuit in which it was engaged. When he acted as a Juror during the International Exhibition, he remembered being asked by foreign members of the jury what was the amount of the agricultural produce of England? What were the particular productions of the east or the north of England? and a number of other questions which it struck him at the time no English farmer ever asked, and which he was afraid very few of them would be able to answer, particularly such as related to agricultural statistics. But to French, Germans, Austrians, Portuguese, Americans, and Canadians alike—to all he was obliged to return the humiliating reply that we had no means of ascertaining what was the agricultural produce of the country; and so surprised were these gentlemen, that they seemed to be really incredulous of the fact. He had alluded to this subject because it was one of the matters which he should like to see occupy the attention of the farmer and his sons, leading as it would to the question of what was the agricultural produce of other countries? He had often heard farmers who suffered from low prices speak of the quantity of foreign corn that was imported into the country; and they did so evidently without any knowledge of what was the best course for them to take under the circumstances, simply because they had no means of ascertaining what the resources of the world were in respect of the different kinds of grain, in Barley as compared with Wheat, or Oats as compared with Barley; what kind of climate was most suitable for Barley or Oats; and how far competition was likely to be greater or less in different kinds of grain. He had glanced at these topics because they were constantly spoken of by farmers in the markets, and in conversation with their landlands and each other, and he had remarked that farmers took a great degree of interest in them. He feared, however, that this Society had not quite done its duty in bringing these subjects forward in a manner that would add to the enjoyment of their pursuit, although they were topics to which farmers would most readily address themselves. He thought something might be done by the Society in this respect through the medium of the contributions to the Journal, and the chemical and veterinary questions that came before the Society; for these were subjects upon which they were periodically put in possession of a certain amount of knowledge, and he was of opinion that that knowledge might be made more generally available, by its being disseminated amongst the agricultural schools in such a form that it would also reach the agricultural home, and thus materially assist in developing the intelligence of the farming classes. Most cordially did he hope that success would attend the labours of the committee of the Society.

The Chairman, Lord Feversham, returned the thanks of the meeting to Mr. Holland, to whom, he said, they were greatly indebted, not only for his lecture, but for having proposed a committee of the Council of the Royal Agricultural Society to consider the important question of education, and observed that he could not entertain a doubt that important results would ensue through the instrumentality of that committee. He, for one, should be extremely gratified if they felt it their duty to recommend some general practical plan upon the subject, and also considered it expedient to propose that some prizes should be offered by the Society for the most proficient of the pupils educated at the proposed schools.

Mr. Wells observed that the preponderance of opinion expressed that day was rather against giving special instruction, either in the new or existing schools, for the education of the agricultural classes. He should be glad, however, to see the special education of agriculturists as far as possible promoted; and he thought, without attaching farms to the schools or colleges, such a special education might to a certain extent be imparted. Every farmer now-a-days found himself obliged to dabble a little in science, and it was most painful to witness the amount of capital that was wasted in the country, owing to ignorance in scientific matters. If, therefore, the elements of chemistry and a rudimentary knowledge of the steam engine were specially encouraged in these schools, he considered that it would be a very advantageous thing. He should be glad to find, therefore, that the committee proposed some scheme that embraced rather a more special system of education for the agricultural

classes than was furnished by the middle-class schools of the country.

Mr. Holland said it was satisfactory to find that they were all agreed in one point—namely, that the basis of instruction for a well-educated Englishman, whatever his after profession, should be public and liberal, including all branches of natural science as well as mathematics. Still, there was this difficulty, that after the lad quitted school, if he had to become a farmer, he must have practical knowledge, and that practical knowledge must be connected with science. Science and practice must go together, and the difficulty was how that was to be given to that very large and scattered class to which Mr. Wren Hoskyns had referred. The class might be narrowed by remembering that those who farmed their own land, or were occupiers of very large farms with ample capital, were more or less blended with the class above them. That therefore would diminish the number of those to whom they would have to pay attention; and if they looked to the small farmers, Mr. Brereton had marked out a limit, in his pamphlet on education connected with agriculture, and drawn the line at the holders of farms of from 300 to 500 acres, just to show that the object was to assist those who were not able from circumstances to take advantage of the institutions which were already in existence for the classes immediately above them. That difficulty was still staring them in the face; but he trusted that as the question of education had now been fairly mooted, they would not leave the lad who was intended to be a farmer in the lurch, after having assisted to give him the benefit of a good education, and perhaps encouraged and stimulated him by means of prizes in connection either with agriculture directly, or with the natural sciences, all of which were connected with agriculture, but that they would be able to hit upon some plan for aiding those who were obliged to gain a practical knowledge of their profession immediately after leaving school, and give them an opportunity of improving their knowledge in the sciences connected with their profession.

Farmers' Clubs.

Wayland and Watton: *The Restoration and Improvement of Exhausted Arable Land.*—Mr. J. Mayhew lately read a paper on this subject.

By exhausted arable land he meant land that had through ill-treatment or otherwise lost its productiveness—that was, the constituents necessary to fully develop the crop had been so reduced that there was not sufficient available food left in the soil to produce and mature a bountiful yield. To a certain extent exhaustion might arise from the production of an unusually abundant crop, although the previous treatment might have been liberal.

With regard to the means of restoring and improving the exhausted arable lands, and how to apply them, the means possessed were the various manures combined with a thorough system of clean and efficient cultivation. The manures consisted of natural manure, natural manure enriched by feeding with artificial food, and artificial manure. Many farmers endeavoured to convert their straw into farmyard manure at the lowest cost, with little regard to its value when so made, and frequently it was little better than straw saturated with rain water. He was opposed to the straw-yard method of feeding cattle. Even if a small portion of roots, mixed with cut hay or Cotton cake (which for cattle he believed was almost valueless) were given, it was so thoroughly assimilated by the animal that the manure so made, compared with that made by grazing stock, was of but little worth. Therefore, if they depended upon merely natural manure, he believed they would suffer an annual deterioration in the productiveness of their arable lands, while by persisting in such treatment, land that would otherwise be moderately productive would in the course of years cease to pay the cost of cultivation, and be productive of positive loss. In enriching natural manures by artificial food, the main consideration was that limit in expenditure ensuring the greatest profit. To attain the maximum profit by such feading, they must confine themselves to a moderately liberal use of those feeding stuffs containing the greatest percentage of flesh-forming qualities. He held, also, that their stock should be of varied character, whereby they would to some extent obviate heavy loss not unfrequently occasioned by diseases spreading among stock of the same kind, but would ensure with more certainty an average amount of feeding profit. Therefore all the stock should be fed with a portion of grain or artificial food, the quantity being proportionate to their then condition, and the purposes for which they were intended.

The choice of artificial manures among so large a variety was somewhat puzzling.

Among the vegetable class he believed Rape-cake to be, from its more special adaptability to the Wheat crop, the best substitute for farmyard dung. For general farm crops on many soils, guano was highly valuable. But from the ammonia it contained, and its volatile nature, it had a tendency on light lands to force the crops too rapidly, and thus engender disease and indifferent yield. Its general value was greater by applying it with other portable manures. Compound manures properly manufactured he regarded as of great value. He now came to the knotty point—what was the relative value of natural and artificial manures, and how should they be applied? The first step was to manufacture at a moderately liberal cost the greatest amount of enriched natural manure, to do which they must produce abundant root and green crops. For this he would use chiefly artificial manures, which were decidedly better than farmyard manure, where rapid growth and bulk were to be combined. As to the question what proportion of the root crop was to be consumed on the land, and what to be carted off to the cattle sheds—on a farm of 240 acres of light and useful arable land there would be each year 60 acres available for roots. He recommended that one-third should be cropped with Beet, one-third with Swedes, and one-third with common Turnips, reversing them every four years. Thus there would be twelve years between the same kind of roots being twice grown on the same land, which would ensure healthier and larger crops. An equal average of these three roots would give a greater weight of flesh-forming food than if the main crop were common Turnips, and would allow of a greater proportion being removed to the cattle sheds without decreasing the supply left on hand for sheep feeding. And what paid so well at the present day as meat making? He would remove all the Beet, one-third of the Swedes, and a small portion of the common Turnips; of course having regard to the bulk of the crop and other circumstances. Thus about half would be stored for the feeding of cattle, and the other half for the feeding of sheep would be on two-thirds of the land, by which means 40 acres would be folded for the succeeding crop, and on the remaining 20 acres of Beet land he would apply a fair dressing of artificial manure—about 24*s.* per acre—which had always ensured for him as good a crop of Barley as the sheepfold. The 30 acres of roots removed from the soil he would thus apportion—15 acres to 20 grazing beasts, 4 acres to 10 store ditto, 5 acres to cows, &c., and 6 acres would be held in reserve. The beasts to be grazed should be well-conditioned and well-bred, as ill-bred and poor animals would require about 20 weeks to fit them for the butcher, during which time they would consume 7½ cwt. each, at a cost of 26*l.* 5*s.* (charging one-third to the manure) for the 20 beasts. These beasts would make from 10 to 15 cwt. of manure each per week; taking the average at 12¼ cwt., the total amount would be 12½ tons each, which would be charged with 1*l.* 6*s.* 3*d.* as the third of the cake bill, increasing the cost of the manure by about 2*s.* per ton; but it should be remembered that the cake given replaced a considerable quantity of natural food, and would enable 15 beasts to be kept in the place of 12 without cake. The young beasts he would give half the quantity of cake and half the quantity of roots; consequently their manure would be less in bulk and inferior in quality. He charged their manure with a quarter instead of a third of the cake, which would amount to 10*s.* each beast; and assuming them to have made 10 tons of manure each, the increased cost for artificial feeding would be 1*s.* per ton. From his own returns he found that the sum left for produce of farm had averaged 4*l.* per head, and the young beasts had left 2*l.* after paying for their cake. From these calculations 30 beasts would show a clear return, for the 19 acres of roots, of 105*l.*, and adding 31*l.* 5*s.* charged to the manure, the total would be 136*l.* 5*s.*, or 7*l.* 3*s.* 2*d.* per acre, from which must be deducted the extra expense of carting and storing the crop at a cost of 13*s.* per acre. Thus the young beasts would leave 6*s.* 6*d.* per acre more for the roots as direct profit than those grazed. Crediting the higher fed animals with producing a more beneficial manure than that of the cheaper fed ones, he considered that at least 1*s.* 6*d.* of the cost of cake consumed by the former should be charged to the manure the second year after its application, amounting to 13*s.* 4½*d.* per beast, equal to 17*s.* 6*d.* per acre for the roots, giving the grazing beast an indirect advantage of 11*s.* over the young beast. Notwithstanding that these calculations showed the profits from each description of beast to be so evenly balanced, he still adhered to the conviction that they could not safely depend upon enriching their natural manures without feeding the grazing stock, as they invariably undervalued a superior article and overvalued an inferior one. Still, in extreme high feeding, the cost of the manure was so great that it ceased to be remunerative, and he believed it would be sounder economy to supply any deficiency with artificial manures. Cows, pigs, and all stock usually kept in a farmyard would also yield more profit by being fed liberally. With regard to sheep feeding as a means of manufacturing enriched natural manure, half the crop grown, as he had assumed, would, with the aid of artificial food, be sufficient under ordinary circumstances to feed 16 score of hoggets for 20 weeks. Were the same average of oilcake given them as was given the beasts, their aggregate consumption would be 15 tons, costing 157*l.* 10*s.* Charging one-third to the manure, which would be 52*l.* 10*s.*; this upon the 40 acres folded would be 26*s.* 3*d.* per acre. To leave the same price as the beasts for the roots consumed, they would be required to pay 19*l.* 16*s.* 10½*d.* per score, including cake, and leave for direct profit 10*s.* per head. Thus, within a fraction, they must pay 1*s.* each per week. Supposing the manure of the two kinds of stock to be of equal value, it would require 13 tons of bullocks' manure (without calculating the value of the litter, which would be 1*s.* 6*d.* per ton of manure), costing 2*s.* extra per ton for feeding with cake, to be equal to the 26*s.* 3*d.* charged to the soil for the sheep-fold.

Having noticed the folly of placing rich and costly manures in lands to feed an abundance of weeds, to the great injury of the crops, and having stated that he had not referred to the claying of light lands because he had not had much experience in such application, Mr. Mayhew recommended the carrying of all farmyard manure direct to the land in a raw state, thereby avoiding waste in bulk and in manurial constituents through fermentation, and that it should be mainly applied to the Wheat crop, for which it was better adapted than any other manure, by doing which they would materially assist the succeeding root crop, and consequently make an improved system of farming to a certain extent self-supporting. In conclusion, he said he was opposed to the extreme use of artificial manures, and to extravagant feeding; that his reasons for advocating good and liberal farming were based on the conviction that it yielded the largest net percentage returns for capital employed, believing also that the followers of such a system had fewer "bad seasons," as they were called, than the followers of either of the extremes, avoiding in a great measure the danger of disease arising from a highly artificial and over-luxuriant growth, and yet giving their cultivated plants that vigorous constitution which enabled them to withstand the vicissitudes of our climate, to which many crops on the exhausted arable land were obliged to succumb, or they became so weak and sickly that they failed to produce remunerative returns.

The following discussion then ensued:—

Mr. Goulder thought the foundation of good farming was cleaning and claying, and that it was a dangerous system to work the artificial manures until they had clayed the light land. He differed with Mr. Mayhew as to cotton-cake, which he thought might be used to great advantage both in the growth of the animal and for making manure. He agreed with Mr. Mayhew in thinking it a very expensive item to cart the roots from the land, and it was better to give growing beasts a limited quantity, and consume all they could with the hoggets fed highly on cake. Nothing would improve their land so fast as feeding sheep highly. He had discontinued his flock, and expected to grow more corn from keeping hoggets and dropping the ewes; he was satisfied that the ewes impoverished the soil unless they were kept very high, besides which there was a large risk attending the ewe flock. He preferred guano used in conjunction with a certain amount of superphosphate—say, two-thirds superphosphate and one-third guano, from which more could be grown than from guano alone.

Mr. Gates stated that his experience had not been favourable to claying. He had clayed with a very stiff clay a bright, sharp, sandy soil, and found that the clay did not mix with the soil, but was frequently left exposed by the sand blowing away.

Mr. Woods concurred with Mr. Mayhew in stating what a bad thing it was to have ill-bred animals, remarking that every man of discernment knew that it was easier to keep a well-bred animal than a bad one, though the latter were easier to buy. There could be no question as to the advantage of giving beasts cake, on which subject Mr. Mayhew's conclusions had been very fairly made. With regard to the statement that ewes impoverished land, he (Mr. Woods) asked, why was that so? It was the farmer's own fault if that were so. Why did they not feed their ewes better, in which case he was sure they would do the land as much good as other animals. As it was, they fed the ewes with the refuse food of the farm, and then expected them to improve the land and give a similar return to what was obtained from the hoggets that were much more highly fed. Mr. Mayhew had very properly advocated the growing of green food; but he must have made a mistake in saying there should be little expense gone to in producing green crops. No crop was more difficult to produce, and none more remunerative than a good crop of Clover and Vetches, but it could only be produced at some expense. A friend of his had said that he looked on the improvement of exhausted arable land as a matter that might be put in a nutshell—that if the land was a strong, cold, clayey land it should be drained, it should be well manured with good manure; if it was light land, it should be cleaned, clayed, made to grow good Turnips, and the Turnips should be fed off with cake. With regard to what Mr. Gates had said about claying, he thought that Mr. Gates could hardly have gone the right way to work, and that had the clay been used in sufficient quantities, and applied at the right time of the year, after being sufficiently exposed to the action of the air, he (Mr. Woods) was confident it would have been so pulverised that it would have been readily incorporated with the soil. He had clayed some land, putting on 100 loads per acre, and there were no lumps of clay to be found in that. He did not concur with Mr. Mayhew as to the desirability of applying raw manure to light land, but he agreed with Mr. Mayhew in saying they should save their farmyard manure for their Wheat. He thought they would hardly think it right to apply raw muck under such circumstances. The question was whether there was power in the light soils sufficient to decompose the raw muck without leaving it to lie during the winter months. He had very great doubts upon the subject. Mr. Mayhew had not said whether he approved of hoeing the Wheat, which was undoubtedly a very good thing. He held that good and well-made farmyard manure was the basis of all farming, as it was the only manure that would restore the vegetable humus that had been taken out of the soil by repeated cropping. With regard to artificial fertilisers, he thought they were things whose use required much care and caution. As to cotton-cake, he believed it to be a very dangerous food if not properly used, and he knew a most intelligent farmer who had lost eight or ten well-bred yearlings entirely, as he believed, through the use of cotton-cake. Mr. Johnson's system of growing Turnips and corn alternately, for the purpose of improving his land, was certainly a novel one; and if he had succeeded in growing corn every two years he had done more than Mr. Mechi ever did.

Farm Memoranda.

Dunse.—The past month has been much drier than it usually is; the total rainfall only amounting to 97 hundreths of an inch. The proverbial "smiles and showers" made their appearance in the second week, and under their influence, Grass and corn improved amazingly. On the 9th a drought set in, which continued for a week from that date; during which period there were two rimy mornings, and although the frost was not severe, Grass began to disappear. But during the night of the 15th we had a gentle rain, which, when it ceased between 6 and 7 o'clock next morning, amounted to more than ¼ of an inch. This, being followed by a mild day, had a very beneficial effect on the crops; besides softening the clods sufficiently to allow of sowing being proceeded with. The weather continued showery till the 19th, when there was a stiff breeze from S.W.—indeed in the height of the day, quite a gale; the evening however was calm and fine. The two following mornings were dewy, and the days were summerlike. The weather became colder on the 24th, but continued dry till the end of the month, with the exception of a slight shower on the 26th.

Labour.—Labour, which in the beginning of the month was considerably in arrear, is now pretty forward. The first half of the month was occupied, on most farms, in completing Oat and Barley sowing; after which every one was busy planting Potatos for a time. However, as was to be expected, there is a diminished acreage of this crop. Besides this, rolling, sowing Grass seeds, and stirring fallow have been vigorously prosecuted; and for these important operations the weather has been all that could be desired.

Cattle.—Feeding cattle have made good progress during the month, and Swedes are still of good quality. Potatos, which are almost unsaleable here, have been largely used as an auxiliary to the Turnips, and with their assistance cattle may be held for some time yet.

Sheep.—Most farmers now have their sheep on Grass; but unless there is more growth soon, many will be forced to clip and sell immediately. A very general practice this Spring has been that of netting the hoggs on the fallow break; and in some cases they are still eating cut Swedes there. With the exception of a few stragglers most low country flocks have finished lambing. The lambs are making little progress just now, because of the scarcity of Grass; and it is telling much more on their dams, which, besides losing condition are casting their wool, and also "coating," which involves a great deterioration inquality. The weather is now favourable for washing and clipping, and many have already made a beginning.

Corn.—The Corn trade may be said to be *in statu quo*, though in the first three weeks of the month, good Barley brought a fair price for seed purposes. For other sorts there is no demand; however, the supply is dwindling rapidly, and stackyards are nearly emptied. *A. C. T., Merse of Berwickshire.*

Miscellaneous.

Clean Trucks.—The prevailing ailment in sheep, known amongst farmers under the name of "Epp," is now becoming a matter of such magnitude as to awaken the serious attention of all breeders and feeders of stock, entailing an amount of mischief to the animal and anxiety to the farmer as to call out for some searching inquiry into "cause and effect." The effect is so apparent to most farmers who have anything to do with either breeding or feeding as to require but little comment, because its contagion is so sure, and its consequences upon the animal so disastrous, as to tell its own tale unmistakeably. An impression, founded upon facts, which prevails amongst intelligent and close observers of events is, that this complaint is widely spread amongst farmers by the want of that cleanliness in railway trucks which the agricultural public have a right to expect in the use of railway transit. For instance, a farmer may send 300 or 500 sheep to either York, Leeds, or Wakefield fairs, in railway trucks, perfectly healthy and free from any complaint. Those sheep may be put into trucks hot with contagion, from which sheep badly "Epped" may have just emerged; the natural consequence is that those 300 or 500 take the complaint. But the mischief does not rest with the 300 or 500. Doubtless they are sold in various lots, and each lot conveys to each homestead a secret and insidious enemy, dealing much mischief to the new lot purchased, and not unfrequently from want of thought, in their being mixed with the purchaser's old stock, communicate the contagion to them also, adding a most depreciating and embarrassing amount of evil and loss to farmers. Can no plan be devised by which these thickly contagioned trucks can be purified and made clean? Are there no chemical agents which can be brought to bear against this evil? or are the railway companies so much wrapped up in mineral and goods traffic as to think that they are doing their duty to the public when they carefully cover and protect merchandise, yet leave our beasts, sheep, and pigs exposed uncovered to all weather, inhaling a miasma left behind by the last discharged occupants? Surely this important subject demands a remedy. It is reasonable and expedient to keep the carriages cleanish for all sorts of bipeds, so it is to be hoped that quadrupeds will demand a share of official attention. *A Boroughbridge Farmer, in the Richmond Chronicle.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Strentley, near Reading.

Day of the Month.	Day of the Week.	Barometer corrected to Freezing Point at Mean Sea Level.	At 9 A.M., Railway Time. Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
May 13	Friday ..	Inch es. 29.03	° 57	° 53	N.E.	1	0	° 64	° 43	° 76	° 40	Inches. 0.00
14	Saturday ..	30.17	63	50	N.W.	0	0	65	42	80	38	..
15	Sunday ..	30.16	68	63	S.W.	0	1	72	52	89	45	..
16	Monday ..	30.18	70	65	S.W.	1	0	73	50	92	47	..
17	Tuesday ..	30.20	63	62	E.	0	0	72	50	84	45	..
18	Wednesday	30.24	..	..	E.	0	0	75	49	91	44	..
19	Thursday ..	30.21	77	70	E.	0	0	80	49	95	48	..

* 6 P.M. Heavy Thunderstorm Eastward.

Notices to Correspondents.

CLOVER DODDER: *R J.* It occurs in patches in light Clover fields, and when these are seeded its seeds are mixed in the bulk. They can be separated by sieves.

PIG FEEDING: *Agricola*, Received; for next week. Mr. Hilder, of Woking, feeds 1500 to 2000 per annum.

THE HYDROPULT,

THE HYDROPULT is invaluable for use in the GARDEN for WATERING BEDS, SPRINKLING PLANTS, DROWNING OUT INSECTS, CLEANSING TREES FROM SMUTS, DRESSING with LIQUID MANURE, ETC. ETC.



THE HYDROPULT is desirable in every HOUSEHOLD for WASHING WINDOWS, WETTING SIDEWALKS, SPRINKLING STREETS, WASHING CARRIAGES, EMPTYING CISTERNS, FILLING BARRELS, A SPRAY BATH, ETC. ETC.

AN INVENTION FOR THROWING WATER BY HAND POWER.

SECURED BY ROYAL LETTERS PATENT.

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR, **32s. 6d.**

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.

Complete as above, with Copper Stirrup, TWO GUINEAS. Packing Case, 1*s.* extra.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

There are among Amateurs and professors of Horticulture differences of opinion as to the excellency and applicability of Gardening Implements. Some adhere to old devices, bitterly denouncing any innovations on ancient customs; and either from MALICE or prejudice, when governed by a spirit of EGOTISTICAL CONCEIT, criticise in a most unfair and unjust manner an Implement, the merits of which they are not capable of appreciating. In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen, whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

The Hydropult has been recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain. Ordered by the War Department as Fire Engines.

It can be used for all purposes for which a Hydrant or Force Pump is applicable, and in situations where other contrivances are useless.

Prospectus, with Testimonials, sent Free on application.

CHARLES P. BUTTON, PROPRIETOR,

HYDROPULT SHOW ROOM, 27, LEADENHALL STREET, LONDON, E.C.



LAWN MACHINE AS AT WORK, MOWING, &c.

LATEST IMPROVEMENTS

IN

LAWN MACHINES.

SHAW'S PATENT FLEXIBLE LAWN MACHINE, for MOWING, ROLLING, and COLLECTING at the same time. With BOYD'S Patent Self-cleaning and Sharpening Brush.

IS THE ONLY ONE of which the Cutters are SELF-REGULATING, and free to follow all inequalities of ground, with the certainty of leaving a perfectly uniform length of Grass.

IS THE ONLY ONE in which the Pushing Handles are SELF-ADAPTING to any height and convenience of workman, without varying the height of Cutters.

IS THE ONLY ONE which can be used as a ROLLER ONLY, without risk of injury to the Cutters.

Is fitted with BOYD'S WELL-KNOWN PATENT SELF-CLEANING and SHARPENING BRUSH, which keeps the Cutters effective whether the Grass be wet or dry.

Packs away, when done with, in less than ONE-HALF THE SPACE of any other Mower, and is therefore safer from injury.

Full particulars, Drawings, Prices, &c., post free, on application to the PATENTEE and MANUFACTURER,

JOHN SHAW, JUNCTION WORKS, LEEDS,

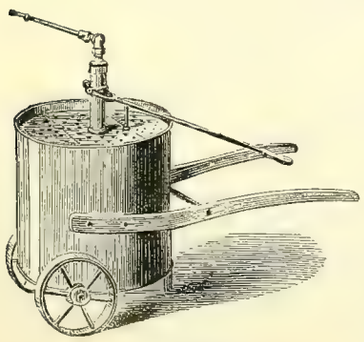
Who was Principal Manager for many years of One of the largest Lawn Machine Manufactories in England.

LONDON AGENTS:

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WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'

GALVANISED IRON GARDEN ENGINE,

WITH REGISTERED SPREADER.

10 gallons	..	..	£2 15s.
16 ,,	..	..	3 15s.
24 ,,	..	..	5 0s.



No. 35.

WARNERS'

PATENT IRON PUMPS.

2½ inch	..	..	£1 10s.
3 ,,	..	..	2 4s.
3½ ,,	..	..	2 9s.
4 ,,	..	..	2 18s.
2½ inch, with short barrel	..	..	1 1s.

No. 568½.

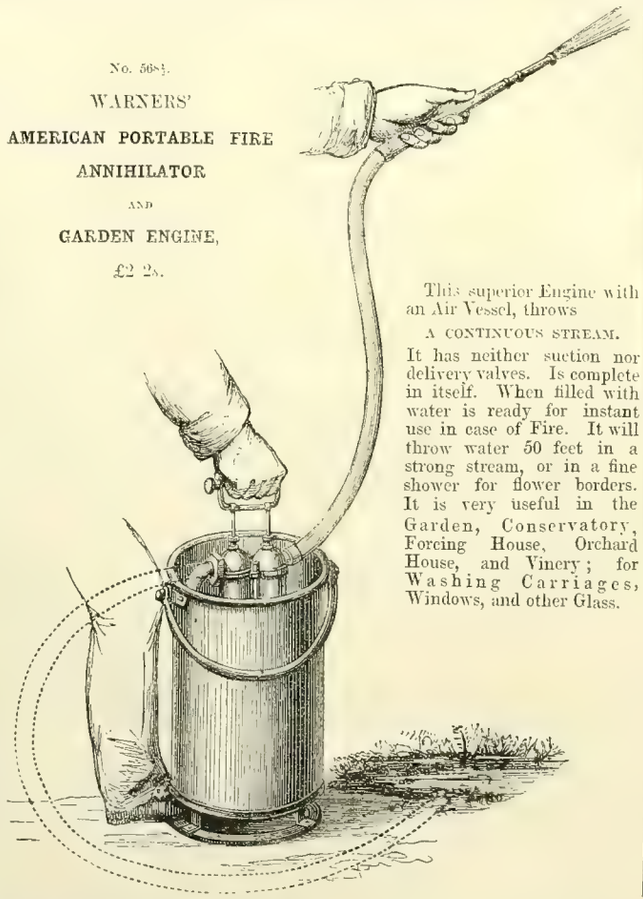
WARNERS'

AMERICAN PORTABLE FIRE ANNIHILATOR

AND

GARDEN ENGINE,

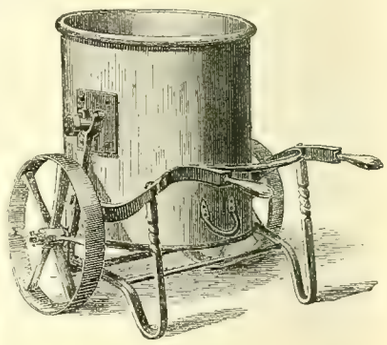
£2 2s.



This superior Engine with an Air Vessel, throws

A CONTINUOUS STREAM.

It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'

SWING WATER BARROW.

20 gallons	..	..	£2 0s.
35 ,,	..	..	2 10s.

Saves a gardener's time when used with the water pot.

WARNERS'

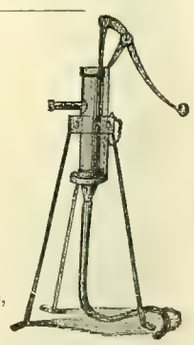
PORTABLE LIQUID MANURE PUMP,

WITH LEGS,

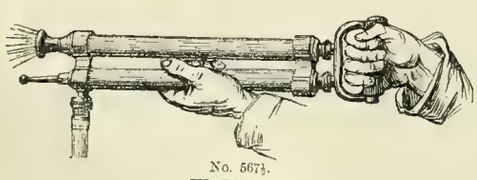
£2 15s.

Ditto for fixing to cart, £2 5s.

Suction Pipe for Pump, 2s. 5d. per foot.



No. 42.



No. 567½.

WARNERS'

IMPROVED PATENT DOUBLE ACTION SYRINGE,

with 5 feet of flexible Suction Pipe, 21s.

Is much improved since last season.

It economises a gardener's time

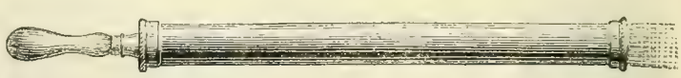
To draw from a water-pot, pail, or other vessel.



No. 590.

BARKER'S MILL, Large, 25s.; Small, 8s. 6d.

Fountain Designs in great variety. Can be supplied from a Cistern or Main.



No. 557A

WARNERS'

REGISTERED DISC-VALVE SYRINGE. 9s.

FILLS QUICKLY AND EASILY.

It is well adapted for the Gardener or Amateur.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.)

Illustrated Price Lists free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

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LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

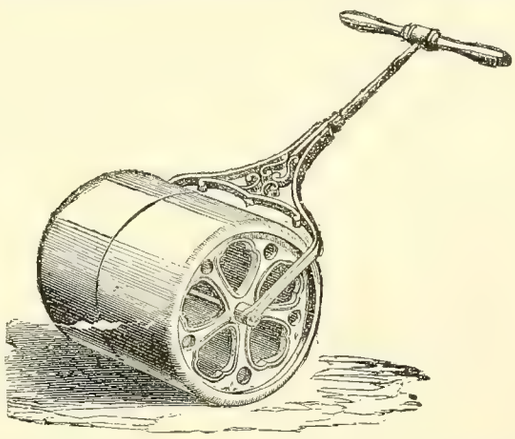
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter	30 inches;	length	32 inches	£7	10 0
,,	24 ,,	,,	26 ,,	4	10 0
,,	20 ,,	,,	22 ,,	3	10 0
,,	17 ,,	,,	16 ,,	2	15 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

Diameter	30 inches;	length	32 inches	£10	0 0
,,	30 ,,	,,	36 ,,	10	15 0
,,	30 ,,	,,	42 ,,	11	15 0
,,	30 ,,	,,	48 ,,	13	10 0
,,	30 ,,	,,	60 ,,	15	10 0
,,	30 ,,	,,	72 ,,	17	10 0
,,	30 ,,	,,	84 ,,	19	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
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SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

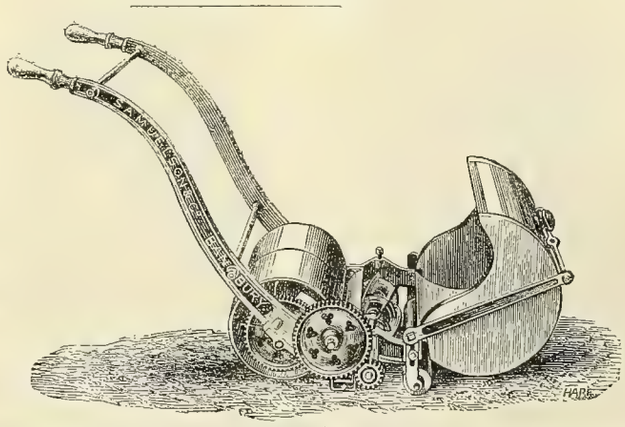
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 12 0
To Cut 16 inches, suitable for One Boy	6 10 0
To Cut 19 inches, suitable for One Man and Boy	7 0 0
To Cut 22 inches, suitable for Two Men ..	8 0 0
To Cut 25 inches, suitable for Two Men ..	11 10 0

PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8 15 0
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These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

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ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

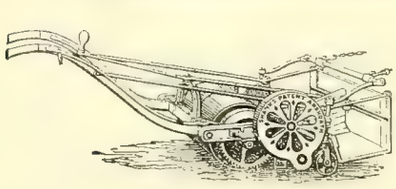
In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.,
AND OF ALL SEEDSMEN AND IRONMONGERS.

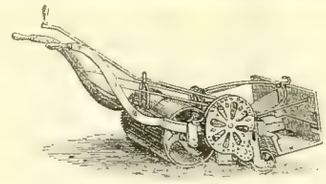
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

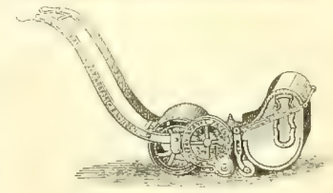
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction.

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SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

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Silent Movement, 4*s.* extra.

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By special permission of the Royal Agricultural Society of England, a reprint from their Journal of the above Essay is now before the public, by Messrs. DAY, SON, & HEWITT, 22, Dorset Street, Baker Street, London. Price, by post, Three Stamps, or Five Copies for Twelve Stamps. This celebrated Essay should be in the hands of all Breeders, from the large Dairy Farmer down to the Cottager with his One Cow.

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"Mr. Bowick's Essay, in a concise way, goes into the question of the construction of the Calf-house, the condition of the Cow before Calving, the best season for Calving, the Feeding of Calves, the Quantity of Milk and other food, the Health and Disease of the Young Calf, the Spring and Summer Feeding, &c. We recommend the perusal of the Essay to those who are employed in rearing calves."—*Mark Lane Express*, November, 1863.

"It is a cheap tract, well written, on a matter of great practical importance, and is certain to receive a wide circulation."—*Agricultural Gazette*, November, 1863.

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TO BE LET, with Immediate Possession, 3½ ACRES of LAND, situated 4 miles from London Bridge, well-stocked with Fruit Trees, &c.; with 3 Greenhouses, Pits, and Lights, with good Sheds and good supply of Water. A good opening for any young man with a small capital.

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TO BE LET, on LEASE, these well-known NURSERIES, established upwards of 70 years, belonging to the Executors of the late William Lodge, and situated in the best part of Manchester, containing Hothouses, Greenhouses, Propagating, Specimen and Show-houses, covering upwards of 5000 square feet of Glass (exclusive of Pits and Frames), the greater part Heated by Hot water on an improved principle. The Plant Stages are built on brick arches, with the Hot-water Pipes going through them, and are well adapted for Forcing Mushrooms, Rhubarb, Seakale, &c., which find a ready sale. There is also a good SEED SHOP, well fitted up with Drawers, Mahogany Counter, &c.; Private Office, Packing and Potting Sheds, and Cottage for a Foreman. The premises are well supplied with Water, and well stocked with Trees, Shrubs, and a good collection of Stove, Greenhouse, and Herbaceous Plants, which may be taken at a Valuation at the option of the Tenant.

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For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.

The following printed papers, in connection with the present sale, may be obtained at this office, viz.:—

1. Copies of the Act and regulations, with directions.
2. Form for paying the deposit at the Bank.
3. Form of letter of application, enclosing the Bank deposit receipt.

G. S. WALTERS, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.

No. 5, Copthall Court, London, E.C., April 30, 1864.

N.B. The land orders to be issued in London are transferable by endorsement.

The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.

All future sales will take place in the Colony by public auction, at the upset price of 20s. per acre.

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Important Notice.—Alteration of Date.

SALE OF JAPANESE PLANTS.

MR. J. C. STEVENS begs to announce that in consequence of the Fête at the Royal Horticultural Gardens, South Kensington, being on Tuesday, May 24, he has, for the convenience of Purchasers, POSTPONED the SALE of NEW and RARE JAPANESE PLANTS to THURSDAY, May 26.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Important Sale of New Plants introduced by Mr. Fortune from Japan and China.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. Standish and Fortune having nearly terminated) to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C. on THURSDAY, May 26, at half-past 12 o'clock precisely, a splendid assortment of NEW HARDY PLANTS, many of which have never yet been offered to the Public, comprising—

Osmanthus (several kinds)	Clematis Fortuni and Standishi
New Oak from Pekin	Sciadopitys verticillata
Ilex crenata	Convallaria variegata
Retinospora pisifera aurea	Thujopsis dolabrata variegata

and a number of other Plants of great interest.

Many of the above are the original imported Specimens.

On view the Morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Stoke Newington.—Important Sale.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. H. Bird, having Let his Premises, to Submit for Unreserved SALE by AUCTION, on the Premises, The Nursery, Green Lane, Stoke Newington, N.E., on MONDAY and TUESDAY, May 23 and 24, at 11 o'Clock each day, the whole of the valuable Stock of GREENHOUSE PLANTS, consisting of many thousands of Tom Thumb, Variegated, and other Geraniums; 10,000 Cyclamen persicum; 1000 Passifloras of sorts; Vallota purpurea; all kinds of Bedding-out Plants in considerable quantities; well-grown Honeysuckles and Climbing Roses in Pots; Acacias, Deutzias, Ficus elastica; 150 dozen of the old English Cloves in Pots; 500 Arbor-vitæ, 3 feet high, with many thousands of smaller ditto for planting out; several hundreds of strong Lilium lancifolium rubrum, in pots. Also the entire Collection of Large-flowering and Pompon CHRYSANTHEMUMS, in pots, embracing all the leading kinds, for which this Nursery has been so long celebrated; 1000 fine double CAMELLIAS, beautifully grown, including fine young specimens of Double White, imbricata, and other leading sorts; Azaleas, &c.; together with several hundred cast of Garden Pots; a useful Cob Horse, seven years old, handsome and fast; a nearly new Market Van, capital Dog Cart, Tumbril Cart, three sets of good Harness; a well-known Pony, with Chaise and Harness; Water-pots, Wheel-barrows, and other effects.

May be viewed prior to the Sale. Catalogues may be had, 6d. each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.

ANNUAL SALE OF 10,000 FIRST-CLASS BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will submit to PUBLIC COMPETITION by AUCTION, on the Premises, Mile End Nursery, Bow Road, Middlesex, E., and within five minutes walk of the Bow Railway Station on the North London Line, on THURSDAY, May 26, at 12 o'Clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of very handsome Show, Scarlet, and Variegated Geraniums, Azalea indica, Herbaceous and Shrubby Calceolarias, Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Cupheas, Pyrethrum, Gazania splendens, Perilla nankinensis, Nierembergia, Variegated Alyssum, Ageratum mexicanum, Phlox Drummondi and Leopoldii, Œnothera, Senecio, Intermediate Stocks, Climbers, &c.; together with some Ornamental Rustic Seats, Gothic Chairs, Tables, Lawn Baskets, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Eagle, Snaresbrook; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Choice Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, May 27, at 12 o'clock, a choice collection of SHOW, SCARLET, and VARIEGATED GERANIUMS, AZALEA INDICA, CALCEOLARIAS, HELIOTROPES, and other plants in Bloom; with a large assortment of Ornamental Plants for Bedding, &c.

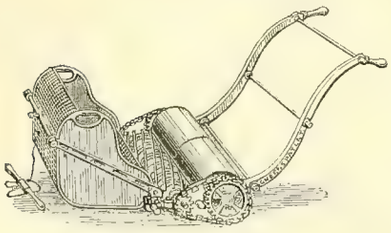
On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of Choice Cattle, &c.

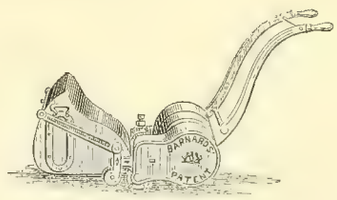
MR. W. BROWN has been favoured with directions to SELL by AUCTION, without reserve, on WEDNESDAY, May 25, at half-past 3 o'Clock precisely, at the Park Farm, close to the town of Chesham, Bucks, a select HERD of well-bred SHORT-HORN CATTLE, comprising the thorough-bred Bull "SPLENDID," by "MARMADUKE" (14,897), 2 young Bulls, 15 Steers, 11 Heifers (chiefly by "SPLENDID") all in good healthy condition; also 4 Wag Horses, and a variety of Farming Implements.

To be viewed the Morning of Sale. Catalogues obtained of Mr. BIRCH, at the Moor Farm, and at the Crown and George Inns, Chesham; Crown, Amersham; George, Aylesbury; King's Arms, Berkhampsted; Royal Hotel, Tring Station; and at the Offices of Mr. W. BROWN, Land Agent, Tring.

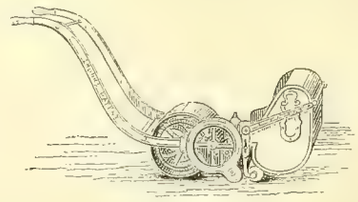
LAWN MOWING MACHINES FOR 1864.



GREEN'S MACHINE.



BARNARDS' MACHINE.



SHANKS' MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. BROWN & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of gratification, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success.

J. B. B. & Co. have resolved not to place before the public at present any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that all those naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All business thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to do so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.* Orders entrusted to J. B. B. & Co. for the Machines of any particular maker, will have most careful attention in every respect.

*** Owing to the pressing demand already, and increasing as the season advances, for the New Mowing Machines, J. B. B. & Co. would esteem it a great favour could orders be forwarded to them with as little delay as possible.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Boy* ..	£3 10 0	18-inch ..	*By a Man* ..	£7 10 0
12-inch		5 0 0	20-inch	*By two Men*	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch ..	*By a Man* ..	6 10 0	24-inch		9 0 0

BARNARD'S MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
8-inch ..	*By a Child* ..	£2 10 0	16-inch	*By a Man* ..	£6 0 0
10-inch ..	*By a Lady* ..	3 5 0	18-inch		6 10 0
12-inch	*By a Boy* ..	4 10 0	20-inch ..	*Man and Boy* ..	7 0 0
14-inch		5 0 0	22-inch ..	*Two Men* ..	7 10 0

SHANKS' HAND MACHINE.

(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
		£ *s.* *d.*			£ *s.* *d.*
10-in.	*By a Lady*	3 10 0	19-in. ..	*Man and Boy*	7 12 6
12-in.		4 10 0	22-in.	*By two Men*	8 7 6
14-in. ..	*By a Boy* ..	5 10 0			8 17 6
16-in. ..	*By a Man* ..	6 12 6	24-in.		

SHANKS' PONY and DONKEY MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for
	£ *s.*	*s.*	*s.* *d.*	
25-in.	12 10	25	12 6	*Donkey*, 16*s.*
28-in.	14 10	30	12 6	*Pony*, 21*s.*
30-in.	15 15	30	12 6	

SHANKS' HORSE MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for Horses.
	£	*s.*	*s.*	*s.*
30-in.	19	30	20	24
36-in.	22	30	20	24
42-in.	26	40	20	24
48-in.	28	40	20	24

J. B. BROWN & Co., have had the honour of supplying LAWN MOWING MACHINES, not only in every part of the United Kingdom, but throughout Europe, and also in India, Australia, America, and other countries. Among their numerous distinguished and well-known patrons for these Machines, may be mentioned:—

HER MOST GRACIOUS MAJESTY THE QUEEN, for the Royal Gardens
His Majesty the Emperor of the French
His Royal Highness the Prince of Prussia
His Royal Highness the Viceroy of Egypt
His Royal Highness Halim Pasha
His Excellency the Belgian Minister
His Excellency the Count de Tasca, Italy
His Excellency the Count Papadopoli, Italy
His Grace the Duc de Praslin, France
His Grace the Duke of Devonshire
His Grace the Duke of Portland
His Grace the Duke of Buckingham and Chandos
The Most Hon. the Marchioness of Londonderry
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Winchelsea
The Right Hon. the Earl of Lindsay
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmorland
The Right Hon. the Dowager Countess Granville
The Right Hon. Viscount Eversley
The Right Hon. Lord Hatherton
The Right Hon. Lord Calthorpe
The Right Hon. Lord John Chichester
The Right Hon. Lord Tredegar
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Rokeby
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Sir J. T. Coleridge
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
The Hon. Ashley Ponsonby
The Hon. E. Coke
The Hon. Captain Drummond
The Hon. Francis Drummond
The Hon. John Ashley
The Hon. Captain Arbuthnott
The Hon. Sir Edward Butler, Bart.
The Hon. Sydney R. Curzon
The Hon. Henry Petre
The Hon. Percy Ashburnham
The Lord Chief Baron Sir Frederick Pollock
Hon. and Rev. C. A. Harris
Hon. and Rev. W. H. Spencer
The Right Hon. Lady Alice Peel
The Right Hon. Lady Theresa Lewis
The Right Hon. Lady Julia Lockwood
Sir Augustus Clifford, Bart.
Sir William Codrington, Bart.
Sir Edward Dering, Bart.
Sir W. W. James, Bart.
Sir John Kirkland, Bart.
Sir Charles Wake, Bart.
Sir John M. Burgoyne, Bart.
Sir Edward Colebroke, Bart.
Sir Philip Duncombe, Bart.
Sir Archibald MacDonald, Bart.
Sir Edward Walker, Bart
Sir James Duke, Bart., M.P.
Baron de Wœlmont, Holland
The Count Harrach, Hungary
Baron von de Dicker, Germany
Baron Meyer Rothschild
Admiral Sir Phipps Hornby
Major-General Huyshe, C. B.
Colonel the Hon. Heley Hutchinson
Captain Polhill Turner
Captain Bowyer
Mr. Alderman Mechi, Tiptree Hall
Professor Owen, Sheen Lodge, Richmond Park
Dr. Fergusson
Colonel Davidson, Resident at Hyderabad, India
John Spencer, Esq., Bowood
Michael Thomas Bass, Esq., M.P.
W. S. Lindsay, Esq., M.P.
M. Digby Wyatt, Esq.

BESIDES NUMBERS OF OTHER WELL KNOWN AND DISTINGUISHED PERSONS BOTH IN THIS COUNTRY AND ABROAD.

A specimen of each of the best Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. & Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

☞ Messrs. BROWN & Co. beg to make the announcement, so important to all those who use MOWING MACHINES, that they now EXECUTE REPAIRS of all MACHINES in LONDON. All REPAIRS and ADJUSTMENTS of MACHINES promptly executed at moderate fixed rates. NEW IMPROVED HORSE, PONY, and DONKEY BOOTS made in the best style, WHOLLY of LEATHER, delivered free at prices as quoted above.

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22.—1864.] SATURDAY, MAY 28. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.—The FIRST GREAT SHOW of the Season will take place on WEDNESDAY, June 1. Admission to Fellows' Friends by tickets previously purchased, 2s. 6d.; to the Public, 5s. (on the day, 7s. 6d.); and will be continued on THURSDAY, the 2d, admission 1s. Open to the Public each day at 2. Military Bands at 3.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The Next MEETING of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the Great Show, which will take place in the Gardens of the Society on JUNE 1. Sub-committees will be appointed to adjudicate upon the subjects exhibited.

Class 35 is for NEW OR RARE TENDER PLANTS IN FLOWER.
Class 36 is for NEW OR RARE TENDER PLANTS NOT IN FLOWER.
Class 37 is for NEW ORCHIDS IN FLOWER.
Class 38 is for NEW OR RARE HARDY ORNAMENTAL PLANTS.
Class 40 is for SEEDLING FLORIST'S FLOWERS, and GARDEN HYBRIDS of all kinds.

The subjects exhibited in the above Classes must be in the Gardens by half-past 8 o'clock on the morning of June 1. They may be entered without previous notice; but a detailed statement of their names, IN WRITING, accompanied by the Exhibitor's address, must be handed in BEFORE NINE O'CLOCK. Any person may exhibit.

Seedling Flowers exhibited as novelties MUST BE NAMED.

THOMAS MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.
COMPARISON of NEW GARDEN FLOWERS at CHISWICK.

The FLORAL COMMITTEE having made provision for the trial during the present summer of New Varieties of Bedding Pelargoniums, Calceolarias, Verbenas, Heliotropes, Tropæolums, and Bedding and Pompon Dahlias, would be glad to receive any such varieties of the above-named flowers for incorporation in the Collections now being planted out at Chiswick. All novelties intended for examination, and to be included in the Report of the Committee, should be sent without delay, addressed to Mr. EYLES, Superintendent, R.H.S. Gardens, Chiswick. THOMAS MOORE, Secretary to the Committee.

ROYAL BOTANIC SOCIETY'S GARDENS,
REGENT'S PARK.

EXHIBITION of AMERICAN PLANTS, INDIAN and AMERICAN RHODODENDRONS, AZALEAS, &c.; MONDAYS, June 6 and 20. Tickets to be obtained at the Gardens only, by orders from Subscribers, price 5s., or 7s. 6d. on the day. Tickets used on June 6 will be admitted again on June 20. Gates open at 2 o'Clock.

ROYAL BOTANIC SOCIETY'S GARDENS,
REGENT'S PARK.

The next EXHIBITION of PLANTS, FLOWERS, and FRUIT, SATURDAY, June 11. Tickets to be obtained at the Gardens only by orders from Subscribers, price 5s., or 7s. 6d. on the day of Exhibition. Gates open at 2 o'clock.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.

The FIRST EXHIBITION of FLOWERS. FERNS, and VEGETABLES will take place in the Pleasure Grounds of J. G. Barclay, Esq., Knott's Green, Leyton, Essex, on WEDNESDAY, JUNE 8. Doors open to the Public at 1 o'clock. For further particulars apply to E. GOAD, Hon. Sec.,
Beulah Road, Walthamstow, Essex.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.

At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40*l.* will be awarded for Cut Roses in the various classes.

For particulars, apply to the Secretary, Mr. WM. PENN COX, 37, Market Place, Leicester.

THE BIRMINGHAM ROSE SHOW, 1864, will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, the 7th and 8th of July next.

Prize Lists, &c., may be had of the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham,

RUGBY ROSE SHOW.—Numerous inquiries from all parts having been made to me, to know who are the principal managers of the advertised Rugby Rose Show, who are to pay the prizes, and who are the working committee, and as private answers would encroach too much upon my time, I beg to state publicly that I know nothing whatever of the so-called Rose Show (further than what has appeared in print), neither whether there is any committee at all, nor have I any connection with the affair inany shape or way.

GEORGE BATLEY, Rugby Nursery.

WILLIAM BARNES begs to announce that his Unrivalled COLLECTION of INDIAN AZALEAS is NOW in fine BLOOM. An inspection is respectfully solicited.
Camden Nursery, Camberwell.—May 28.

A MAGNIFICENT COLLECTION of AMERICAN PLANTS, covering nearly 24 Acres, is now in perfection at G. BAKER'S American Nursery, about 1 mile from Sunningdale, S.W.R. Admission gratis.

J. IVERY AND SON beg to announce that their fine collection of AZALEA INDICA is NOW in BLOOM; also that their collection of HARDY FERNS will be found very interesting. An inspection is respectfully solicited.
Dorking Nursery.—May 28.

Herbaceous Pæonies and New Pyrethrums.

JOHN SALTER begs to announce that his extensive COLLECTIONS of these beautiful Flowers are NOW in BLOOM, and solicits the honour of a visit to his Nursery.
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Exhibition of American Plants.

WATERER AND GODFREY beg to announce that the AMERICAN PLANTS at Knap Hill are now in great beauty. Their Exhibition in the Horticultural Gardens, South Kensington, is now in perfection.
Knap Hill Nursery, Woking, Surrey, near the Woking Station, South Western Railway.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Melon Seeds.

MEREDITH'S favourite HYBRID CASHMERE MELON SEEDS. One Packet, 18 Seeds, for 2s. 6d.
JOSEPH MEREDITH, Vineyard, Garston, near Liverpool.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

General Plant Catalogue.

WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

GEORGE SMITH'S PRICED and DESCRIPTIVE CATALOGUE of all the leading NOVELTIES of 1864, of choice Show, Spotted, Fancy, Zonal, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready, and may be had free by Post in exchange for one Postage Stamp.
Tollington Nursery, Hornsey Road, Islington, London, N.

Plants and Plant Cases for Table Decoration.

BARR AND SUGDEN'S KEW, MEXICAN, and HORTICULTURAL PRIZE CASES, elegantly filled with Assorted Plants, 10s. 6d. to 105s.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

SUMMER BEDDING PLANTS at 2s. per dozen, and 15s. per 100; 6 guineas per 1000; 50 guineas 10,000.
WM. BARRATT, West Riding Nursery, St. John's, Wakefield.
N.B. CATALOGUES now ready.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.

J. SCOTT'S FLOWER GARDEN DIRECTORY, 88 pages, is replete with information on Summer, Autumn, Winter, and Spring Gardening. Copious LISTS of all the best Flowers suitable for each season are given, price 6d.
Merriott, Crewkerne, Somerset.

Extra fine Bedding and Other Plants.

EDWIN COOLING begs to call attention to his stock of the above, which is unusually fine.
The CATALOGUE, containing full particulars of height, colour of flower, price, &c., free on application.
Mile Ash Nurseries, Derby.

BEDDING-OUT PLANTS.—The varieties of DAHLIAS, GERANIUMS, CALCEOLARIAS, VERBENAS, &c., best adapted for bedding-out, can be supplied in strong plants, to give immediate effect. Prices moderate. A DESCRIPTIVE CATALOGUE upon application.
JAMES DICKSON & SONS, The "Newton" Nurseries, and 102, Eastgate Street, Chester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

New Chrysanthemums.

JOHN SALTER is now sending out his NEW CHRYSANTHEMUMS, PYRETHRUMS, HARDY VARIEGATED PLANTS, &c.
A DESCRIPTIVE CATALOGUE will be sent on receipt of two postage stamps.
Versailles Nursery, William Street, near Hammersmith Turnpike, W

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.
HERBACEOUS CALCEOLARIA, 2s. 6d. per packet.
HALF SHRUBBY CALCEOLARIA, 2s. 6d. per packet.
CINERARIA, 2s. 6d. per packet.
CARNATION, Self, Flakes, and Bizarres, 2s. 6d. per packet.
PICOTEE, White and Yellow grounds, 2s. 6d. per packet.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6d.; 15 do., 3s. 6d.; 25 do., 5s. 6d.; 50 do., 15s.; 100 do., 30s.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

To the Trade.

WANTED, TROPÆOLUM LOBBIANUM ELEGANS (true), GYNERIUM ARGENTEUM, small, larger, and strong. Please send price and size per 100 or 1000, to JAMES CARTER & Co., Crystal Palace Nursery, Forest Hill, Sydenham.

Seed Establishment, 181, High Holborn, London, W.C.

THE BUSINESS hitherto carried on at the above address by the late Mr. JOHN GEORGE WAITE, will be continued in the name of WAITE, BURNELL, AND CO., under the Management of Mr. JOHN T. BURNELL, stepson of the late Mr. WAITE, and for a long time associated with him.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

ESTABLISHED 1800.
Ripon and Claro Seed Establishment.

WILLIAM MORTON,
Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed-Corn and Seeds."

Genuine Seeds, Carriage Free.

B. S. WILLIAMS,
NURSERYMAN and SEEDSMAN,
Paradise and Victoria Nurseries, Holloway, London, N.
General PRICED and DESCRIPTIVE CATALOGUE for 1864 forwarded Post-free on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per doz.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

NOW READY, the NEW ROSES of 1864. Twelve of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
RICHARD SMITH, Nurseryman, Worcester.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S. W. Rail.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL'S Nurseries, Waltham Cross, N.

Hybrid Perpetual Rose, Lord Clyde.

PAUL AND SON have much pleasure in recommending this ROSE, it having proved itself to be very fine during the past spring. See reports of Exhibitions. Strong plants, 5s. each.
Old Cheshunt Nurseries, N.

ROSE, BEAUTY of WALTHAM.—In reply to recent attempts to depreciate this ROSE, Mr. WM. PAUL begs to reassure his friends and the public that it is one of the hardiest, sweetest, and loveliest of Roses, distinct, and quite equal to the coloured drawing and description originally given by him.
Waltham Cross.—May 28.

RUSSELL'S PYRAMID PRIMULA.—Seed of this celebrated strain is now ready, in packets, price 2s. 6d. The great satisfaction which these sorts have given in previous seasons will be fully maintained this. The flowers can be seen at the Nursery during the spring. Printed instructions for cultivation with each packet.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

To the Trade and Amateurs.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer Good SEEDS of the following:—
GYNERIUM ARGENTEUM, YUCCA ALOEFOLIA, POINCIANA PULCHERRIMA, } at 2s 6d. each per large packet.
May be obtained on application, and by enclosing the value, of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

DICKINSON'S ITALIAN RYE-GRASS SEED.—Sold only by himself, can now be had by Agriculturists, at 48s. per quarter, 7s. per bushel, for present payment.
New Park, Lymington, Hants.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL, from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts, 6d. per lb. WORCESTERSHIRE SWEDE, not to be beaten, 9d. per lb.; other kinds, 8d. per lb. PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

TRUE CATTLE CABBAGE.
Packed and Stationed at 3s. 6d. per 1000 by
THOMAS WELLAND, Surrey Gardens, Godalming, Surrey.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.

SUTTON AND SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 8d. per pound, or 30s. per bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEED Post Free.
Royal Berkshire Seed Establishment, Reading.

Skirving's Swede. Sutton's Selected Stock.

Price 8d. per lb., or cheaper in large quantities.
SUTTON AND SONS have a Choice Stock of SKIRVING'S SWEDE SEED, growth of 1863, which they can strongly recommend.
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NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. DIXON & SONS, 57, Queen Street, Hull.

Turnip Seeds Direct from the Growers.

CHARLES SHARPE AND CO., SEED GROWERS, Sleaford, have to offer superior Stocks of TURNIP and SWEDE SEED, the produce of their own Seed Farms, and saved from fully developed roots.
Price to the Trade on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES.
SUPERPHOSPHATES of LIME.
TURNIP MANURE.
BLOOD MANURE for Barley and Roots,
CRATE.
MANGEL MANURE. &c. &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

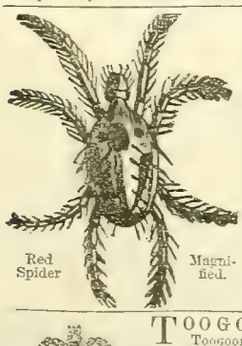
LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:— Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME .. £6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES .. 5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES 8 0
These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY THE PATENT
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary, or of the local Agents.
Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

Manures and Feeding Stuffs.
RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

TOBACCO PAPER, extra strong. To the Trade or Retail. Sample and price on application.
H. BROWN, 4, Commutation Row, Liverpool.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6d., 1s., and 2s. each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5s. value and upwards.
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford


Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2½ oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."—"February 24, 1864."
Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*" Signed JOHN MORLEY, HENRY DREW, HENRY SHEERMAN, GEORGE ISAACS."
"July 13, 1863."
Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.



PAGE'S BLIGHT COMPOSITION, introduced by BRIDGEWATER PAGE in 1848.—After thirteen years' extensive use this Composition is admitted to be invaluable to all who have a Garden.
EXTRA STRONG, 3s. per Gallon, sufficient to make four gallons. Ten Gallons and upwards carriage paid.
See leading article of *Gardeners' Chronicle*, October 25th, 1856, showing 192 Testimonials of its value, including that from Andrew Toward, Esq., Royal Gardens, Osborne Palace:—
"I have great pleasure to add my testimony to the efficacy of your Blight Composition, which has been used with great success upon Rose Trees much affected with the green fly.
"November, 1852."
From Mr. A. DOWLING, *Gardener to the* Right Hon. Lord HENRY CHOLMONDELEY, M. P., *Holly Hill.*
"Your Composition is most destructive to all blight. My wall trees must have died had I not availed myself of it. I consider it applicable to all cases, as it is not the least injurious to the foliage of the most tender plant.—May 17, 1851."
Agents in most of the principal Towns in England.
BRIDGEWATER PAGE, Royal South Hants Seed Establishment, 37 and 38, Oxford Street, and West End, Millbrook Road, Southampton

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

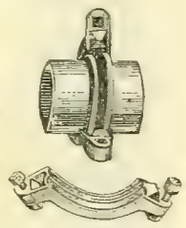
A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

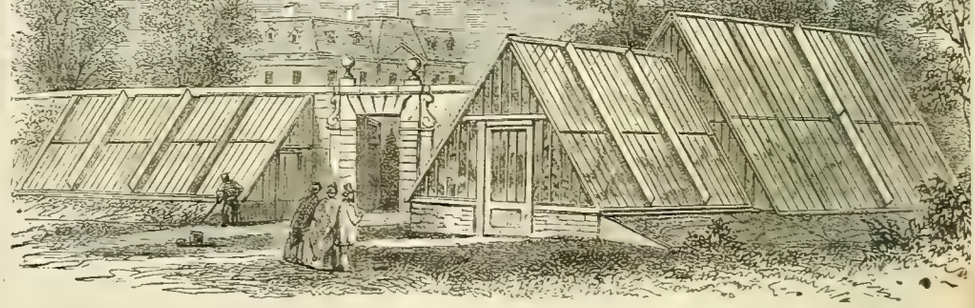


COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft.	In.		8 ft. Lights.	10 ft. Lights.	Ft.	In.		12 ft. Lights.	14 ft. Lights.	16 ft. Lights.
20	7	in length ..	£12 0 0 ..	£16 0 0	20	11	in length	£21 18 0	£28 10 0	£34 5 0
31	3	in length ..	16 10 0 ..	21 2 6	31	9	in length	29 6 0	37 12 0	45 16 0
41	11	in length ..	20 18 0 ..	26 18 6	42	7	in length	36 16 0	46 14 0	57 7 0
63	3	in length ..	30 6 0 ..	38 10 0	64	3	in length	51 14 0	64 18 0	80 10 0
84	7	in length ..	39 6 0 ..	49 11 6	85	11	in length	66 12 0	83 2 0	103 11 0
105	11	in length ..	48 17 6 ..	60 12 6	107	7	in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars, with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

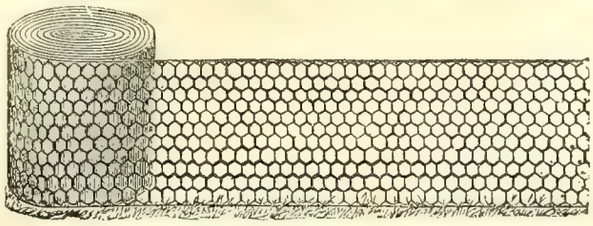
Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1s.; post free, 1s. 1d.

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical."—*Cottage Gardener*, Oct. 6, 1863.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4¼d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

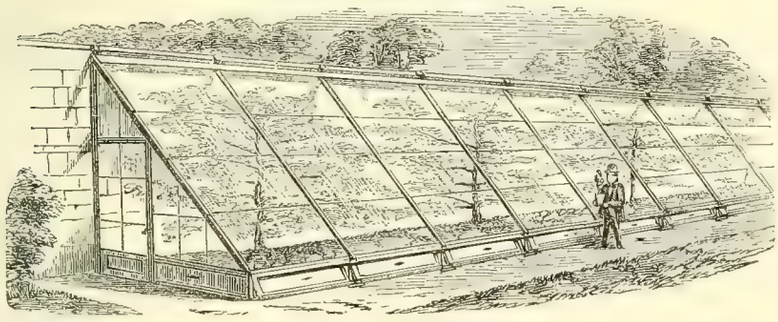
*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

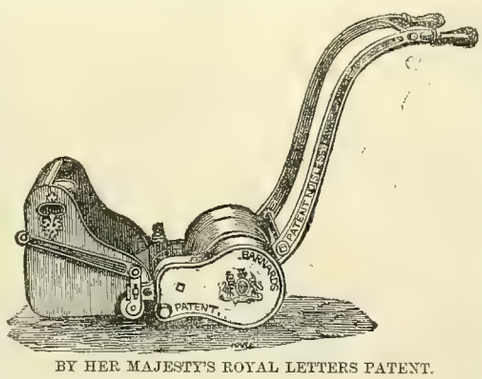
BARNARD'S NOISELESS LAWN MOWER.

This MACHINE differs from all other Lawn Mowers, in being constructed without either Gear-wheels, Chains, or Levers, the power being transmitted to the Cutters by a loose intermediate wheel, with an India-rubber tyre, which is placed between a plain-faced driving wheel and pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the intermediate wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber tyre will last from one to two seasons, and can be replaced at a cost of a few pence. An extra tyre is sent with each Machine.

The iron work of Grass-box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

The Miniature Lawn Mower, Cuts 8 inches .. .. £2 10*s.* 0*d.*
Suitable for the very smallest Grass plots or Edgings.

To Cut 10 inches. This can be worked by a Lady 3 5 0
To Cut 12 inches. Suitable for one person 4 10 0
The 12 inch and all larger sizes have the drum or roller divided in two parts for the convenience of turning.
To Cut 14 inches. Suitable for One Man 5 0 0
To Cut 16 inches. Suitable for One Man 6 0 0
To Cut 18 inches. Suitable for Man and Boy 6 10 0
To Cut 20 inches. Suitable for Man and Boy 7 0 0
To Cut 22 inches. Suitable for Two Men 7 10 0

Packed and Delivered Carriage Free to the principal Railway Stations in England.

Guaranteed to give satisfaction, and if not approved, can be returned.

The above are kept in Stock and can be forwarded immediately. Also, CAST-IRON VASES, CHAIRS, SEATS, TABLES, ROLLERS, WIRE NETTING, &c.

J. JONES, IRON MERCHANT and HORTICULTURAL ENGINEER,
6, BANKSIDE, SOUTHWARK, LONDON, S.E.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

REIGATE SILVER SANDS, First-class PEAT SOILS, LOAMS, &c., on SALE.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Goods Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d* per bushel (sacks at cost price, or on hire).
Kenbish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KINNARD, Swan Place, Old Kent Road, London, S.E.



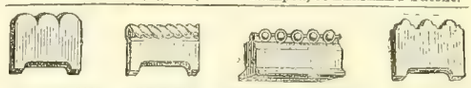
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.





GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
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To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

To Seed Merchants and Nurserymen.
SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

REDUCED PRICES OF PROPAGATING GLASSES.

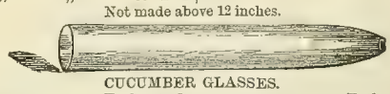


Each.—	*s.*	*d.*	Each.—	*s.*	*d.*
3 inches in diameter ..	0	4	12 inches in diameter ..	1	6
4 ,, ,, ..	0	5	13 ,, ,, ..	1	10
5 ,, ,, ..	0	6	14 ,, ,, ..	2	3
6 ,, ,, ..	0	7	15 ,, ,, ..	2	9
7 ,, ,, ..	0	9	16 ,, ,, ..	3	0
8 ,, ,, ..	0	10½	17 ,, ,, ..	4	0
9 ,, ,, ..	1	1	18 ,, ,, ..	4	6
10 ,, ,, ..	1	2	19 ,, ,, ..	5	6
11 ,, ,, ..	1	4	20 ,, ,, ..	6	0

BEE GLASSES.

Each.—	*s.*	*d.*	Each.—	*s.*	*d.*
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 ,, ,, ..	0	8	10 ,, ,, ..	2	0
6 ,, ,, ..	0	10	11 ,, ,, ..	2	6
7 ,, ,, ..	1	1	12 ,, ,, ..	3	0
8 ,, ,, ..	1	4			

Not made above 12 inches.



CUCUMBER GLASSES.

Each.—	*s.*	*d.*	Each.—	*s.*	*d.*
24 inches long	1	9	16 inches long	1	2
22 ,, ,, ...	1	7	14 ,, ,, ...	1	0
20 ,, ,, ...	1	6	12 ,, ,, ...	0	10
18 ,, ,, ...	1	4	Made to any length.		

HAND GLASSES, WITH OPEN TOPS.



Each.—	*s.*	*d.*	Each.—	*s.*	*d.*
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

"RECONNOITRER" GLASS, 10*s.* 10*d.* post free, shows distinctly windows and doors of houses 10 miles off; JUPITER'S MOONS, &c. For Landscape is valuable for 25 miles, is guaranteed equal to others at 3*l.* 3*s.*, the enormous sales allowing division of labour to an extent hitherto quite unknown. "The Reconnoitrer is very good."—*Marquis of Carmarthen.* "It gives me complete satisfaction, and is wonderfully good."—*Sir Digby Cayley.* "I never met an article so completely answering its maker's recommendation."—*F. H. Fawkes, of Farnley, Esq.* "An indispensable companion to a pleasure trip."—*Notes and Queries.* "We have found it fully equal to others more than four times its price."—*Field.* "I have found it effective on the 1000 yards range."—*Capt. Sendey, Royal Small Arms Factory, Enfield.*—The "Hythe" Glass shows bullet marks at 1000 yards, and men at three miles; 31*s.* 6*d.* Only to be had direct from SALOM & Co., 98, Princes Street, Edinburgh.
NO AGENTS.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

New Bedding Plants.

MESSRS. JOHN AND CHARLES LEE are now prepared to offer the following Novelties, which they have proved to be distinct and good :—

TROPÆOLUM COOPER'S DEFIANCE.—Is very dwarf, short jointed, slightly trailing, small leaved, and an immense bloomer. Flowers bright scarlet. A first-rate Bedder. Price 2*s.* 6*d.* each; 18*s.* per dozen; 5*l.* per 100.

GERANIUM VARIEGATED LITTLE DAVID.—Is a very pretty white-edged sport of the well-known favourite, "Little David," so useful for Edging. Price 5*s.* each.

VARIEGATED GERANIUM THE BRIDE.—This interesting novelty is adapted for small beds in conjunction with Lobelia speciosa. The habit is very dwarf, the margin of the leaves pure white, and the flowers are also pure white. A very elegant little plant. Price 7*s.* 6*d.* each.

Royal Vineyard Nursery, Hammersmith, London, W.

Giant Scarlet and White Intermediate Stocks.

ROBERT PARKER begs to offer SEED of these splendid varieties, which are far superior to the ordinary varieties of Intermediate Stock. Habit more robust and branching; flowers larger, and borne in greater profusion. If sown in April they will commence flowering in July and continue until Christmas in mild seasons. Price per packet, 1*s.*

The following Choice SEEDS are also specially recommended, having been selected with the greatest care :—

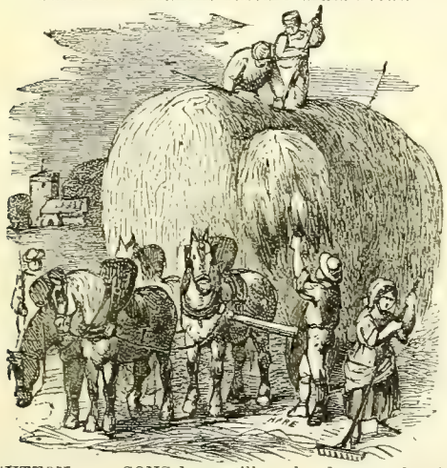
	Per packet—*s.*	*d.*
CALCEOLARIA, HERBACEOUS, finest mixed	2	6
CARNATION, PERPETUAL, finest mixed	2	6
CINERARIA CRUENTA, finest mixed	2	6
PICOTEE, PERPETUAL, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA, finest mixed	2	6
PRIMULA SINENSIS FIMBRIATA KERMESINA SPLENDENS	2	6

A SELECT PRICED and DESCRIPTIVE CATALOGUE of FLOWER, AGRICULTURAL, and VEGETABLE SEEDS, and NEW and RARE PLANTS, is published and will be forwarded to applicants. Exotic Nursery, Tooting, Surrey, S.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S FARMER'S VADE-MECUM.

Sutton's Permanent Pasture Grass Seeds.



SUTTON AND SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore.

Royal Berkshire Seed Establishment, Reading.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2*s.* each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5*s.* to 7*s.* 6*d.* each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7*s.* 6*d.* each.

PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7*s.* 6*d.* each. A coloured plate by Andrews for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2*s.* 6*d.*

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 3*s.* to 4*s.* per dozen. Fine vigorous plants of the old and popular sorts, 9*s.* to 18*s.* per dozen.

PAUL'S Nurseries, Waltham Cross, N.

SHARPE'S IMPROVED LARGE SWEDE, DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.

CHARLES SHARPE & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

King's Swede, Turnip, and Mangel Wurzel Seeds.

J. K. KING has a limited quantity of a very choice stock of SKIRVING'S SWEDE SEED from carefully selected transplanted Roots, growth of 1863; price 6*d.* per pint, 2*s.* per bushel. Also PURPLE TOP DITTO, fine stock, 6*d.* per pint, 2*s.* per bushel. GREEN ROUND TURNIP, hardy variety, 6*d.* per pint, 2*s.* per bush. HERTFORDSHIRE WHITE, ,, 6*d.* per pint, 2*s.* per bush.

All the best stocks of MANGEL WURZEL SEEDS, Priced Lists of which sent post free.

JOHN K. KING, Seed Grower, Coggeshall, Essex.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9*d.* per lb.; and his large FOSTERTON HYBRID, 8*d.* per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

FIRST EXHIBITION of PLANTS, FLOWERS, and FRUIT, SATURDAY, MAY 21.

LIST OF AWARDS.

EXTRA GOLD MEDAL.

To Mr. W. May, Gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, Staffordshire, for 16 Stove and Greenhouse Plants.
To Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants.
To Mr. W. Milford, Gr. to E. McMorland, Esq., 58, Adelaide Road, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

To Mr. R. Bullen, Gr. to A. Turner, Esq., Bow Bridge House, Leicester, for 20 Exotic Orchids.
To Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
To Mr. J. Fraser, Nurseryman, Leyton, Essex, for 10 Stove and Greenhouse Plants.
To Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 10 Stove and Greenhouse Plants.
To Messrs. J. Veitch & Sons, Nurserymen, Chelsea, for 10 Greenhouse Azaleas.
To Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, Surrey, for 10 Greenhouse Plants.
To Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 20 Exotic Orchids.
To Mr. W. Paul, Nurseryman, Waltham Cross, for 10 Roses in Pots.

GOLD MEDAL.

To Mr. C. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Stove and Greenhouse Plants.
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashstead House, Epsom, for 10 Stove and Greenhouse Plants.
To Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 15 Foliage and Flowering Plants.
To Messrs. T. Jackson & Son, Nurserymen, Kingston, Surrey, for 10 Cape Heaths.
To Mr. B. Peed, Gr., for 8 Cape Heaths.
To Mr. C. Turner, Nurseryman, Slough, Bucks, for 8 Greenhouse Azaleas.
To Mr. D. Melluish, Gr. to J. Chaffin, Esq., Grosvenor, Bath, for 8 Greenhouse Azaleas.
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 12 Exotic Orchids.
To Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, for 10 Roses in Pots.
To Mr. J. Fraser, for 12 Pelargoniums.
To Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums.

LARGE SILVER GILT MEDAL.

To Messrs. J. & C. Lee, for 10 Stove and Greenhouse Plants.
To Mr. W. Kaile, Gr. to Earl of Lovelace, East Horsley Towers, Ripley, Surrey, for 10 Stove and Greenhouse Plants.
To Mr. T. Page, Gr., for 6 Stove and Greenhouse Plants.
To Mr. B. S. Williams, Nurseryman, Holloway, for 15 Foliage and Flowering Plants.
To Mr. O. Rhodes, for 10 Cape Heaths.
To Mr. T. Page, Gr., for 8 Cape Heaths.
To Messrs. Paul & Son, Nurserymen, Cheshunt, Herts, for 10 Roses in Pots.
To Mr. T. Terry, Gr. to A. G. Puller, Esq., Youngsbury, Ware, Herts, for 6 Roses in Pots.
To Mr. J. Fraser, for 8 Greenhouse Azaleas.
To Mr. T. Page, Gr., for 8 Greenhouse Azaleas.
To Mr. J. Green, Gr., for 6 Greenhouse Azaleas.
To Messrs. J. Veitch, for 6 Greenhouse Azaleas.
To Mr. B. S. Williams, for 6 Exotic Orchids.
To Mr. B. Peed, Gr., for 12 Exotic Orchids.
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 6 Exotic Orchids.
To Mr. C. Turner, for 12 Pelargoniums.
To Mr. W. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, Berks, for 10 Pelargoniums.

LARGE SILVER MEDAL.

To Mr. C. Penny, Gr., for 6 Stove and Greenhouse Plants.
To Mr. H. Chilman, Gr., for 6 Cape Heaths.
To Mr. C. Penny, Gr., for 6 Greenhouse Azaleas.
To Mr. C. Turner, for 6 Greenhouse Azaleas.
To Mr. C. Turner, for 6 Fancy Pelargoniums.
To Mr. T. Bailey, Gr., for 6 Fancy Pelargoniums.

SILVER GILT MEDAL.

To Messrs. T. Jackson & Son, for 10 Stove and Greenhouse Plants.
To Mr. W. Kemp, Gr. to Earl Lovaine, Arbury Park, Guildford, Surrey, for 6 Stove and Greenhouse Plants.
To Messrs. A. Henderson & Co., Edgeware Road, for 15 Stove, Foliage and Flowering Plants.
To Mr. R. Baxendine, Nurseryman, Guildford, Surrey, for 10 Cape Heaths.
To Mr. W. May, Gr., for 6 Cape Heaths.
To Mr. O. Rhodes, Gr., for 8 Greenhouse Azaleas.
To Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 8 Greenhouse Azaleas.
To Mr. J. Wheeler, Gr., for 6 Greenhouse Azaleas.
To Messrs. H. Lane, for 6 Greenhouse Azaleas.
To Messrs. T. Jackson, for 6 Exotic Orchids.
To Mr. J. Green, Gr., for 6 Exotic Orchids.
To Mr. J. Fraser, for 6 Fancy Pelargoniums.

SILVER MEDAL.

To Mr. J. Cross, Gr., for 6 Roses in Pots.
To Mr. J. Cross, Gr., for 6 Stove and Greenhouse Plants.
To Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, for 15 Foliage and Flowering Plants.

SILVER MEDAL.

To Mr. J. Wheeler, Gr. for 6 Cape Heaths.
To Mr. W. Kaile, Gr., for 6 Greenhouse Azaleas.
To Mr. J. Fraser, for 6 Greenhouse Azaleas.
To Mr. O. Rhodes, for 6 Exotic Orchids.
To Mr. H. Chilman, Gr., for 6 Exotic Orchids.
To Mr. B. S. Williams, for Collection of Draceenas, Yuccas, and Agaves.
To Messrs. A. Henderson & Co., for Fancy Baskets, Pots, &c.
To Messrs. Paul & Son, for 6 Boxes of Roses.
To Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead, for 10 Pelargoniums.
To Mr. J. Weir, Gr., for 6 Fancy Pelargoniums.

SMALL SILVER MEDAL.

To Mr. J. Wheeler, Gr., for 6 Exotic Orchids.
To Messrs. Downie, Laird, & Laing, Nurserymen, Sydenham, for 36 Pansies.
To — Watson, Esq., Dunse, for 24 Pansies.
To Mr. W. Paul, for Collection of Roses in Pots.
To Mr. W. Paul, for 8 Boxes of Roses.
To Messrs. H. Lane & Son, for Collection of Rhododendrons.
To Messrs. Dobson & Son, for 9 Calceolarias.
To Mr. W. Bull, for New and Rare Plants.
To Mr. J. James, Gr., for 11 Calceolarias.
To Mr. J. Fraser, for Collection of New Azaleas.

BRONZE MEDAL.

To Mr. H. Hooper, Bath, for 36 Pansies.
To Mr. F. Howse, Slough, for 24 Pansies.
To Mr. W. Young, Gr., for 9 Exotic Ferns.
To Mr. W. Allen, Gr. to Earl Stradbroke, Henham Hall, Suffolk, for 4 Melons.
To Messrs. Barr & Sugden, for Wardian Cases.

CERTIFICATE.

To Mr. C. Turner, for Bougainvillea speciosa.
To Mr. W. Young, Gr., for 6 Lycopodiums.

FIRST-CLASS CERTIFICATE.

To Mr. W. Bull, for Gynerium argenteum albo-lineatum.
To Mr. W. Bull, for Aucuba japonica fol. marginatis.
To Mr. W. Bull, for Gymnostachyum Verschaffeltii.
To Mr. W. Bull, for Astrocaryum mexicanum.
To Mr. W. Bull, for Sedum Sieboldi medio-variegatum.
To Messrs. Veitch, for Draceena Cooperi.
To Messrs. Veitch, for Anthurium Scherzerianum.
To Messrs. Veitch, for Gymnogramma Pearcii.
To Messrs. Veitch, for Aucuba japonica vera.
To Messrs. Veitch, for Aucuba limbata.
To Messrs. Veitch, for Aucuba sp.
To Messrs. Veitch, for Hederoma sp.
To Messrs. Veitch, for Prumnopitys elegans.
To Messrs. Veitch, for Raphiolepis ovata.
To Messrs. Veitch, for Stephensonia grandifolia.
To Mr. B. S. Williams, for Agave schidigera.
To Mr. B. S. Williams, for Aucuba aureo-marginata.
To Mr. B. S. Williams, for Phormium tenax variegatum.
To Mr. B. S. Williams, for Xanthorrhœa australis.
To Mr. B. S. Williams, for Phalænopsis grandiflora var.
To Mr. B. S. Williams, for Gymnostachyum Verschaffeltii.
To Mr. E. P. Dickson, Nurseryman, Hull, for Gymnostachyum Verschaffeltii.
To Messrs. Lee, Hammersmith, for Draceena Banksii.
To Messrs. Paul, for a new double Scarlet May.
To Messrs. E. G. Henderson, for Aubrietia Hendersoni.
To Messrs. E. G. Henderson, for Saxifraga japonica variegata.
To Messrs. E. G. Henderson, for Sedum Sieboldi medio-variegatum.
To Messrs. E. G. Henderson, for Acer polymorphum rubrum variegatum.
To Messrs. Carter, for Ornithogalum thyrsoideum.
To Messrs. A. Henderson, for Acer polymorphum dissectum fol. roseo-marginatis.
To Messrs. Backhouse & Son, York, for Gentiana bavarica.
To Mr. J. Wiggins, for Pelargonium Commander.
To Mr. C. Turner, for Pelargonium Edgar.
To Mr. G. W. Hoyle, for Pelargonium John Hoyle.
To Mr. G. W. Hoyle, for Pelargonium Pretty Mary.
To Mr. W. Nye, for Pelargonium Cicero.
To Mr. W. Nye, for Pelargonium Rubens.
To Mr. W. Bull, for Petunia Rigoletto.

SECOND-CLASS CERTIFICATES.

To Mr. W. Bull, for Lastrea varia.
To Mr. W. Bull, for Chamæranthemum Beyrichii variegatum.
To Mr. W. Bull, for Pitcairnia tabulæformis.
To Mr. W. Bull, for Dieffenbachia grandis.
To Mr. W. Bull, for Camellia japonica variegata alba.
To Messrs. Veitch, for Draceena robusta.
To Messrs. Veitch, for Draceena sp.
To Messrs. Veitch, for Maranta striata.
To Messrs. Veitch, for Camellia japonica variegata.
To Messrs. Veitch, for Dieffenbachia grandis.
To Messrs. Veitch, for Cypripedium Fearcii.
To Mr. Williams, for Dieffenbachia grandis.
To Mr. Williams, for Draceena latifolia pendula.
To Messrs. Lee, for Draceena latifolia pendula.
To Mr. Standish, for Stuartia grandiflora.
To Messrs. E. G. Henderson, for Dieffenbachia grandis
To Mr. C. Turner, for Pelargonium Mrs. Ford.

COMMENDATION.

To Mr. Bull, for Coleus marmoratus.
To Mr. Bull, for Massonia (?) cannæfolia.
To Messrs. Veitch, for Sollya sp.
To Messrs. Veitch, for Camellia Sasanqua variegata.
To Messrs. Veitch, for Schismatoglottis picta.
To Messrs. Dickson, Hull, for Coleus marmoratus.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Golden Chain Geraniums, &c.

WILLIAM HUSSEY begs to offer the above fine Plants, at 21*s.* per 100; also the undernamed. TOM THUMB GERANIUMS, 14*s.* per 100; BRILLIANT do., 14*s.* per 100; BIJOU, 18*s.* per 100; SHOTTESHAM PET, 18*s.* per 100; CRIMSON IVY-LEAF, 18*s.* per 100; CALCEOLARIA AUREA FLORIBUNDA, 15*s.* per 100; LOBELIA SPECIOSA, 15*s.* per 100.

Horticultural Gardens, Norwich.

Choice Tricolor Geraniums for Pot Culture.

ALFRED FRYER offers the following 12 Choice Tricolor, Gold and Silver-leaved varieties, for 21*s.* Basket and package included.

Mrs. Pollock	Glow-worm	Golden Harkaway
Sunset	Argus	Golden Tom Thumb
Mrs. Milford	Picturata	Golden Vase
Rainbow	Silver Chain	Silver Nosegay

Remittances requested from unknown correspondents.

Address, ALFRED FRYER, Chatteris, Cambridgeshire.

Scarlet Geraniums.—To Nurserymen and Others.

HAWKINS AND BENNETT, FRUITERERS, FLORISTS, &c., beg respectfully to invite an inspection of their splendid stock of fine-grown Dwarf SCARLET GERANIUMS, consisting of Tom Thumbs, Sutton's Perfection, and Christinas, in large and small pots. Price per post on application to

HAWKINS & BENNETT, Fruiterers and Florists, Twickenham, S.W.

J. WATSON, St. Alban's, has much pleasure in recommending his fine new SHRUBBY CALCEOLARIAS for garden purposes; they are unequalled by any kinds in cultivation:—

CALCEOLARIA BIJOU, brilliant crimson, very dwarf.
CALCEOLARIA BEAUTY of HEATS, clear amber.
CALCEOLARIA GENERAL TOM THUMB, deep yellow.
CALCEOLARIA STARLIGHT, fine red.

The above are warranted thoroughly shrubby. Full description given in *Gardeners' Chronicle*, p. 334. Price 30*s.* per dozen; the usual allowance to the Trade where six or more are taken.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Indian Azaleas.

WILLIAM BARNES has the largest and most healthy stock of the above favourite plants to offer for sale, comprising the finest specimens, suitable for exhibition in this or any other country, as well as many thousands of smaller dimensions, from three-quarter and half specimens down to small plants, all properly shaped to form symmetrical specimens, and finely set with bloom. Any person forming a collection or increasing their present one will do well to visit this Nursery, where every variety up to the present date worth cultivating will be found, the whole grafted upon the stock that W. B. has proved so admirably adapted to them, after many years close observation.

PRICED LIST will be forwarded upon application post free.

Camden Nursery, Camberwell, S.—May 28.

HERBACEOUS CALCEOLARIA, &c., SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*
CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*
CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*
HUNTS SWEET WILLIAM.—Sealed Packets, 6*d.* and 1*s.*
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1*s.* and 2*s.* 6*d.*
PANSY.—From best named varieties. Sealed Packets, 1*s.* and 2*s.* 6*d.*
And every other first-class Seeds. See CATALOGUE, post free.

WM. CUTBUSH & SON, Highgate Nurseries, London, N.

E. G. HENDERSON AND SON'S SPRING CATALOGUE for 1864 will be forwarded on application.

Amongst many beautiful plants for the Flower Garden and Conservatory described in the above Catalogue are the following:—

ARUNDO DONAX, 1*s.* 6*d.* each.
" VARIEGATA, 3*s.* 6*d.*
ACHIMENES (TYDÆA) "RACHEL," 3*s.* 6*d.*; splendid.
AZALEA SOUVENIR DU PRINCE ALBERT.—The most distinct, 10*s.* 6*d.* to 21*s.*
ANTIRRHINUM.—New Italian double-flowered, 1*s.* 6*d.*
BOUVARDIA GRANDIFLORA, and other new ones.
CLEMATIS SPLENDENS (Lanuginosa hybrid), 5*s.*
CHRYSANTHEMUM EMPRESS of INDIA, 3*s.* 6*d.*
COLEUS MARMORATUS, 3*s.* 6*d.*
ERANTHEMUM RUBRO-VENIUM, 3*s.* 6*d.* and 5*s.*
DAHLIA (New Bedding) SCARLET GEM.—For style of growth and model of blooming habit, see Illustration in Catalogue.
DAHLIA, New rose-coloured bedding variety.
GARIBALDI PINK, rich deep rose-coloured, 3*s.* 6*d.*
PAMPAS GRASS (G. elegans), New Silver, 3*s.* 6*d.*
FUCHSIAS.—Banks's new varieties.
GERANIUMS.—New variegated tricolor-leaved varieties.
GERANIUMS WHITE TOM THUMB and BEAUTY, with other kinds.
GERANIUMS.—Mr. Beaton's beautiful bedders, and other Continental Nosegay varieties.
GLOXINIA PUNCTULATA, 5*s.*; see figure in the Catalogue.
HEDERA (IVIES), 40 varieties and species, gold and silver margined or blotched; climbing or shrubby habits.
LAPAGERIA ROSEA, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*
" SPLENDENS, 3*s.* 6*d.* to 7*s.* 6*d.*
PHLOX LOUIS GRELL, beautifully striped, 1*s.* 6*d.*, 2*s.* 6*d.*
PERPETUAL MULE PINK, ROSETTE.
PYCNOSTACHYS URTICIFOLIA, 3*s.* 6*d.*
ROSES, New Kinds of 1864, strong, healthy, 2 to 3 feet in growth, 3*s.* 6*d.*
SARRACENIA PURPUREA (PITCHER PLANT), 3*s.* 6*d.*
VERBENAS, VELVET CUSHION and BEAUTY; MADAME LEFEVRE; NOBILE CAROLINA FRANZINA; HENRIETTE (best of all Whites); MELINDRES SPLENDENS (dazzling); PALLAVICINI DI BRESCIA.
TROPÆOLUMS.—Beautiful and free blooming varieties.

Wellington Nursery, St. John's Wood, London, N.W.

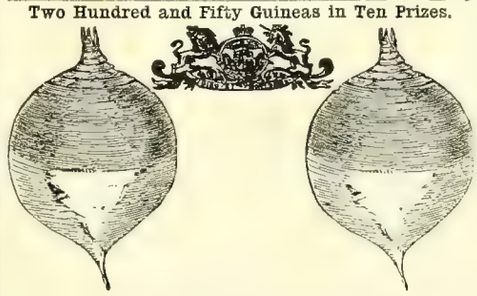
New Plants for 1864.

B. S. WILLIAMS has much pleasure in offering the following Novelties for the first time, descriptions of which will be found in previous advertisements, and in his NEW PLANT CATALOGUE, post free to all applicants.

New Achimenes.		New Single Petunias.	
Purpurea elegans, Leopard, Magnet, Scarlet Perfection, Vivicans, Eclipse	7*s.* 6*d.* each, or the 6 for 42*s.*	Royalty, Purple Prince, Duchess of Northumberland	5*s.* each
New Fuchsias.		**New Zonale Geraniums.**	
Neptune, Queen of Beauties, Gem of the North, Minotaur	7*s.* 6*d.* each	Display, Beauty, Royalty.	5*s.* each

Paradise and Victoria Nurseries, Holloway, London, N.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the ROYAL EAST BERKS and SOUTH BUCKS AGRICULTURAL SOCIETIES, and many other valuable Prizes in various Parts of the Kingdom.

SUTTON'S Champion Swede is one of the hardiest sorts in cultivation. The Champion Swede being of quick growth never suffers from mildew, and does not require to be sown so early as other Swedes.

EXTRACTS FROM LETTERS RECEIVED.

R. MILWARD, Esq., *Southwell.*
"Your Champion Swede proved most excellent."

J. W. J. BARTRAM, Esq., *Little Weedon.*
"Your Champion Swede has given great satisfaction, having been a splendid crop, and kept well through the severe frosts."

J. STRATTON, Esq., *Broad Hinton.*
"With your Champion Swedes I won a prize of 10*l.* last year."

Mr. THOS. B. PALMER, *Escrick.*
"Your Champion Swedes are as sound and as good in colour as the day I got them up; I have sufficient to last till the 12th of May."

Mr. H. HAMMOND, *Market Place, Masham.*
"Your Champion Swede obtained the first prize at the Masham Show, the 10th of September last."

Mr. J. B. REECE, *Harpswood.*
"I took the Shropshire Challenge Cup, likewise the Bridgnorth District Cup, with your Champion Swedes."

WM. SADLER, Esq., *Ferrygate, Drem.*
"The Champion Swede is cutting out everything here."

The above are only a few of the numerous Letters received in testimony of the excellence of SUTTON'S Champion Swede.

This celebrated variety still maintains its high character for hardiness, symmetry of form, and great weight per acre.

New Seed from Selected Roots now ready, 10*d.* per pound or cheaper by the bushel, prices of which may be had on application. Carriage free, except small parcels.

SUTTON & SONS Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, MAY 28, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June	1	Royal Horticultural (FIRST GREAT EXHIBITION) at South Kensington..	2 P.M.
THURSDAY,	—	2—Linnean	8 P.M.
THURSDAY,	—	2½	

THE prospects of an abundant CROP OF FRUIT are at present of a very favourable kind. We have not had such a show of blossom on our trees for several years. In all parts of the country near London which we have had an opportunity of visiting, the orchards have been literally loaded with flowers; and as we have thus far escaped our usual spring or summer frosts, the fruit is setting most abundantly. Nor is this profusion of bloom confined to what are commonly called fruit trees. All our other trees and shrubs which are grown for ornament only have been most gay with flowers.

The causes which produce the effects we have noticed are well worth the study of all who are interested in horticulture, and it is these causes to which we would direct the attention of the readers of this Journal. The amount of secretions which are formed and stored up annually by plants for the production of their flowers and fruit depends upon certain natural laws. For example, if we take our annual crops, such as Wheat, Barley, and other common kinds of grain, we find that if the season be favourable—that is, if we have a sufficient quantity of moisture to supply their wants during the period of growth, and a sunny summer and autumn, we are sure of having an abundant harvest. In this case the secretions of the plants are formed and expended in one season. With perennial plants, however, such as our common fruit trees, this is not so. In the latter the secretions are formed and laid up in store during one year to be used in the following one. Take the Apple or the Pear as an example of this class, and let us see what happens in so far as they are concerned. If the season be a wet and cold one, the leaves may be as numerous and as green and healthy-looking as they are in better years, but they do not perform their functions well; a less amount of the proper juices of the plant are laid up in store, and, as we say in common language, the wood is not well ripened. When the next season comes round, the trees are thinly covered with blossom, and oftentimes the flowers, after having been formed, drop off from want of nourishment. We cannot have fruit, simply because its elements are wanting in the tree—the wood has not been ripened during the previous year.

As this is the way in which Nature works, it follows that it is not difficult to explain how it happens that we have such an abundant promise of fruit this year. Last summer and autumn were remarkably favourable for the formation of the secretions of all the trees and shrubs which grow in the open air in England. It is true that if we refer to the tables of temperature which are published weekly in the *Gardeners' Chronicle*, we shall find that the mean temperature of the summer and autumn of 1863 was rather below the average of other years. But these results are given by taking the average temperature of day and night together. The nights were often very cold, while the days were clear and warm, and while the cold nights did little or no harm, the warm and sunny days produced the most beneficial effects upon all our flowering shrubs and trees. The summer and autumn, which enabled the farmer to gather an abundant crop of grain into his barns, also enabled the leaves of our trees to form and lay up in store a supply of matter which they are now expending in the production of flowers and fruit. In this way our orchards have been covered with bloom, and in due time the branches of the trees will bend down heavily laden with the fruit.

We believe there is more room for improvement amongst gardeners in this kind of knowledge than in almost any other kind connected with their profession, particularly as regards the artificial cultivation of exotic fruit trees. Already it would appear the culture of the Vine is thoroughly understood by all good English gardeners. They can make it bear its fruit abundantly and almost at any season they choose. Whether the knowledge which enables them to do this has been gained by studying the requirements of the plant, or has been hit upon accidentally, we do not now stop to inquire; that they have acquired it is quite certain. When the requirements of other exotic fruit trees are as well known as those of the Vine are, we may expect similar satisfactory results.

Perhaps we may return to this subject, as we believe it to be of the greatest importance to all who take an interest in the successful practice of horticulture.

GREAT doubts have long existed respecting the FUNCTIONS OF SPIRAL VESSELS, and allied vascular tissues. While some have maintained that they are the main ducts of the sap, others have asserted as strongly that their office is simply to convey air to different parts of the plant.

Thus much at least is certain, that as they are mere modifications of cellular tissue, they are, in an early stage at least, filled with fluid containing a greater or less quantity of granular matter, and that in some later stage of growth they contain air.

This degree of information however by no means satisfies the question as to their proper function. Monsieur GRIS and Monsieur DELIMIER therefore have done good service to science in undertaking a closer examination of the subject, and one which is more satisfactory than those which have hitherto been published, though their conclusions, which differ from each other, are not decisive.

The method which M. GRIS has employed, is to inject the vessels with a fluid, which by its chemical reaction may indicate what is really the nature of their contents. This he has been enabled to do by means of a preparation first proposed by Monsieur FEHLING to indicate the presence of glucose, which consists of sulphate of copper, solution of caustic soda, tartrate of soda, and potash, in certain proportions. This remains perfectly clear when boiling, and gives on the addition of a very small quantity of glucose, a red precipitate of oxydule of copper, which, observed under the microscope, is found to consist of little clots of a deep brown or almost black. A small quantity of sap mixed with the liquid exhibits the same appearance as glucose.

Now, if thick fragments of the wood of Chestnut, Birch, Poplar, or Laburnum, are steeped for a few seconds in this fluid, a thin microscopic slice shows that there is a deposit of oxydule of copper on the walls of the large vessels, a fact which is even observable with a common lens.

As this precipitate is generally very abundant on the walls of the cells of the medullary rays, M. GRIS concludes naturally that the lymphatic

vessels, in which a similar reaction takes place, contain a fluid which at all events closely resembles that in the cellular tissue of the same plants.

He has found, moreover, that the spirals of the reticulated, annular, spiro-annular, and other allied forms of vascular tissue, show in their interior a similar reaction, a fact which confirms Monsieur Trecul's notion as to their tubular structure.

This obtains in plants belonging to many natural orders, and is apparently very general, but he does not find that the fibrous cells which occur in the leaves of certain Orchids, or the remarkable utricles in Mammillaria and Echinocactus, have a similar structure. Monsieur Gris has further established the fact, that the spiral vessels do contain sap at other times than the spring, though he does not deny that at the same time they may contain bubbles of air, or even a stratum of air lining the surface of the cavity, though his observations at present do not go so far as to prove that they are not sometimes quite destitute of fluid.

A week after Monsieur Gris' first memoir was presented to the Academy, one by Monsieur Delimier was forwarded, with a view to show that at certain seasons the vessels contain air only. By means of a bladder of compressed air fitted accurately near the base of truncheons of certain plants, as the Vine, Maple, Acacia, Peach, and Lime, he was enabled with great ease to force a quantity of air through the vessels, which did not drive any fluid before it. By placing a coat of water on the upper section of the truncheon, he could see the bubbles proceeding very clearly from the apertures of the vessels, whatever the length of the specimens might be. This was the case in the month of March, but in April air would no longer pass through them, apparently in consequence of their being filled at that period with sap. At the end of May however the air passed through the vessels as before.

In plants with evergreen leaves, as the Bay tree and Camellia, when attached to the apparatus, if the slightest puncture be made in one of the most delicate nerves of the immersed leaves, there is an abundant escape of gas, whatever the season of the year may be, which seems to indicate that in these plants the vessels contain air alone. This however does not apply to vessels in their earliest stage of growth, when, as said before, they are nothing more than cells.

There is no doubt of the good faith of either party. Except in external reticulated cells, such as those which are so abundant in the aërial roots of Orchids, it is difficult to conceive that any cells surrounded by others filled with fluid can be absolutely void of moisture. A quantity, therefore, sufficient to produce the reaction mentioned by M. Gris may exist in the cells, or rather may bathe their walls without militating greatly against the notion that their principal function is that of air-tubes, like the tracheæ of insects. So long, indeed, as they are living structures, a certain quantity of moisture must exist in their walls, so that the truth probably lies between the two statements. To which it inclines the most, must be the subject of future investigation. *M. J. B.*

We have to remind our readers that the competition for the Ladies' Prizes offered this year by the proprietors of this Journal, will take place on Wednesday next at the great exhibition of the Royal Horticultural Society, to be holden at South Kensington. We may refer to the remarks at pp. 147 and 340 of our present volume, for the details of the competition, the chief conditions of which may be epitomised thus :—

1. Two prizes of 10*l.* each are offered.
2. The competition is to take place amongst ladies only.
3. The prizes are offered for the best single plants, examples of actual indoor-cultivation, and which have been grown in a room for six weeks previous to the exhibition.
4. The plants are to have been cultivated by the exhibitors themselves, and to be suitable for drawing-room decoration.
5. Flowering plants and foliage plants are to compete on equal terms, but the two prizes must go to the best dissimilar subjects, and to different competitors.
6. The plants may have been grown in pots or boxes, or baskets, or aquaria, or in any other convenient contrivance, so that they comply with condition 3.
7. Notice of the intention to exhibit is to be sent to the Garden Superintendent at South Kensington by the 28th of May (this day), and the plants are to be sent in on June 1st by 9, and to be ready for adjudication by 10 o'clock.

We trust we may see a spirited competition; for the fact that Ladies can and do grow plants in every way worthy of such rewards as are offered, does not admit of any doubt whatever.

We may also take this opportunity of again inviting the attention of the raisers of new Roses to the 5*l.* prize for the best English Seedling Rose, offered annually by ourselves in the present and four succeeding years. We refer for full particulars to pp. 699 and 1011 of our Volume for last year, but for the convenience of exhibitors we repeat the conditions which were laid down last autumn, after a careful comparison and digest of the various suggestions which Rose-growers were so good as to offer. The conditions were :—

1. The Rose may belong to any class, but preference will be given to Hybrid Perpetuals and Teas. It must be scented.
2. The full double globular or cupped form will be required, and form will take precedence of any other quality.
3. Free vigorous growth and abundant bloom will be insisted on.
4. Where merit is otherwise nearly equal, preference will be given to a pure white or yellow, or an intensely dark colour. Purity or intensity of colour will be held essential.
5. The Rose must be absolutely of English origin, and not let out.
6. Three trusses of each seedling, with buds and leaves, will be required at least once in the season.
7. The summer trusses may be shown at any of the meetings of the Floral Committee, but others will be required later as evidence of the perpetual character. The award will be made at the last meeting of the Committee in the month of August.
8. If in any one year no prize can be awarded, the amount will go in augmentation of that of the succeeding year.
9. The decision of the Floral Committee is to be final.

We shall be gratified to see these prizes well-contested for; and we hope that at least in succeeding years, when there shall have been time for the raiser of seedlings to have set about the work with a definite object, some really good sorts, which may supply the desiderata of Rosarians, may result from the stimulus which this competition may supply.

—— The first of the Great Flower Shows, held in the Regent's Park last Saturday, the general features of which are described elsewhere, furnished the usual quota of New Plants, and these we now propose to pass briefly in review. Though none of them stood out with remarkable prominence, there was, as will be seen, a considerable number of subjects which may be expected to become useful in our gardens.

Taking the plants in flower first, and of these the hardy ligneous class, we have however to record a decided acquisition in the Japanese Raphiolepis ovata, an evergreen shrub, which now comes before us with the stamp of complete hardiness. This plant is one of vigorous growth, and is remarkable for the thick firm substance of its dark green, roundish ovate, excessively blunt leaves, as well as for the profusion of its large white, racemed, rosaceous, red-stamened flowers. Upon this Raphiolepis, as we learn, the past long and trying winter has made no impression whatever, so that it may be set down as perfectly hardy in our climate.

Then there was a new double Scarlet Thorn, much superior to any which had previously come under our notice in the combined characters of depth of colour and doubleness. The blossoms were in fact fully double, and the colour a very bright and deep carmine red, so much so, that we regard the variety as greatly superior to the ordinary double Hawthorns, with pinkish-red flowers. Stuartia grandiflora, another hardy shrub which was shown, and one of Japanese origin, will doubtless be an acquisition in its way, its white blossoms, like small single Camellias, being very freely produced. To these hardy ligneous plants must be added a remarkably handsome hardy perennial herb, bearing the name of Aubrietia Hendersoni. This will be one of the most lovely of rock plants, forming dwarf close tufts of greyish lance-shaped sparingly-toothed leaves, and bearing a profusion of flowers set down close to the tufts of foliage, and of a deep violet-purple colour with a white eye, reminding one of the pips of the deep-coloured Verbenas in the style of Mrs. Moore. The closer habit, and the rounder and far deeper coloured flowers of this Aubrietia, places it far in advance of any of those commonly known in cultivation. Less novel perhaps, but equally rare, and of remarkable interest to the growers of rock plants, were the examples of Gentiana bavarica, but unfortunately the dulness of the morning and some accident of travel, prevented these from expanding their blossoms of brilliant blue, so that by the visitors generally this lovely plant was not sufficiently appreciated.

Of half-hardy plants, there was Ornithogalum thyrsoideum, to which allusion was made at p. 486; this was brought in a very effective mass, and a showy telling plant it is when the thyrsoid spikes of bloom are thrown up strongly as was the case on this occasion, the growth having all the appearance of being that of freshly imported bulbs. We may however state for the encouragement of those who may fear to grow this Ornithogalum, lest there should be a falling off next year, that a gentleman of our acquaintance has by careful culture of the leaves one season succeeded in throwing sufficient vigour into his bulbs to get a very good display of blossoms in the second year after their importation. And this is the secret of growing bulbs with success, namely, to take care of the leaves; the flowers will then take care of themselves.

A species of Genetyllis from the Swan River, with a remarkably neat branching habit, small blunt regular decussate ciliated leaves, and nodding heads of flowers surrounded by oblong ciliated bracts of a pink colour, is likely to make a good distinct greenhouse shrub, perhaps less showy than tulipifera, but in neatness of aspect certainly its superior. Then the Peruvian Cypripedium Pearcii, with its running rhizome, its long linear recurved grassy channelled leaves, and its green-veined, spotted-rimmed, tail-petaled flowers, of which mention was made last week,—evidently a very free-flowering plant, for all its suckers were showing bloom-spikes,—though deficient in colour, must be regarded as a very interesting species, doubtless adapted to cool treatment, remarkably distinct in aspect, and probably hereafter destined to take a higher award than in its present state has been accorded to it. We may also mention a small-flowered Sollya, with slender hairy stems, lance-shaped leaves, sometimes toothed, and abundant small bluish-lilac flowers. Cordyline Banksii too, with its broad grassy leaves, and its abundance of small white sessile flowers in a scapeless twice branched panicle, a yard high and 2 feet across, deserves to be recorded as a good greenhouse plant of the hardiest character.

New hothouse plants in flower were not plentiful. The most remarkable were the bright red Anthurium Scherzerianum, a beautiful dwarf Orontiad recorded by us in former years, but we believe not yet sent out; Pitcairnia tabulæformis, a Mexican plant, with a rosulate tuft of spathulate green leaves lying flat on the soil, and a short central raceme of light orange tubular blossoms; and an Anthurium-like plant under the obviously erroneous name of Massonia cannæfolia, having ovato-lanceolate stalked leaves, and a tallish scape bearing a white ovate spathe and a white spadix, but not at all equal in beauty to the well-known Richardia æthiopica.

Plants not in flower were more numerously shown, and there were some good things amongst them. Of the hardy herbaceous series the most remarkable was the striped-leaved Gynerium argenteum, called albo-lineatum, the leaves of which are very distinctly marked with white lines, and which when it comes to form a mass such as we see in the common form, must be a very telling object. Then there was the Sedum Sieboldii medio-variegatum, with yellow-centred leaves, which M. Von Siebold told the Congress at Brussels the other day that he himself had "made"—a pretty little plant in its way. Amongst hardy shrubs there were some interesting forms of Aucuba, besides the broad green-leaved japonica and himalaica. For example, there was a green-leaved form with long narrow sparingly-toothed leaves, 5 inches long and about 1¼ inch wide, to which one exhibitor had attached the appropriate name of longifolia; this was a very distinct-looking and handsome evergreen, and will become a favourite. There was also a broad-leaved deeply-toothed variety, in which the leaves were irregularly bordered with a yellowish-green hue, sometimes becoming almost golden; this was indifferently called marginata, aureo-marginata, and limbata, the latter name being perhaps the most current in this country, and is doubtless the handsomest of all the variegated Aucubas, on account of the breadth of its foliage, and its well defined and constant markings. Prumnopitys elegans, a hardy Chilian Conifer noticed at pp. 6 and 26 of our last year's volume, was produced in the form of healthy young plants of about a foot in height; they were of erect habit, with distichous leaves, and something of a Yew-like aspect. And there were examples of one of the handsome cut-leaved variegated forms of Japanese Maple, named Acer polymorphum dissectum fol. roseo-marginatis.

Of greenhouse plants the most novel exhibitions were the striped-leaved New Zealand Flax, Phormium tenax variegatum, which has the leaves boldly and definitely striped with cream colour; and the Gymnogramma Pearcii, described at p. 340. There was also a fine plant of Agave schidigera, which has been noticed in our report of the Brussels exhibition. Coleus marmoratus, a form of C. Verschaffeltii with bright green patches on its leaves, said to be hardier than the latter, of which it is a sport, but though the foliage is enlivened by the intermixture of green, it is not so rich-looking as Verschaffeltii itself. Then a Camella japonica, with white-edged leaves, may be a pretty plant for conservative walls, if it be only as hardy as the type.

Palms were represented by Stephensonia grandifolia and Astrocaryum mexicanum, both species of bold character, and having spiny stems. Stove plants were plentiful. That which will probably be the most useful to cultivators was the New Caledonian Dracæna Cooperi, a recurved-leaved sort with the fine colours and markings of the best forms of terminalis, quite

different from and much superior to a plant known as D. latifolia pendula, also shown, for which it has been sometimes mistaken; it differs in its longer, narrower, and more shining leaves, and in their more decidedly and uniformly recurved position, as well as in their deeper and brighter colouring. In D. latifolia pendula the colours are more dull, and the leaves are broader, the older ones only assuming the drooping character. What looked like a green form of this latter, was shown as D. robusta; it had broad leaves, a vigorous habit, and slightly-marked red margins. Another Dracæna, which might be called limbata, had narrow erect bronzy-purplish leaves with a narrow border of red. Two of the Brazilian Dieffenbachias introduced by M. Verschaffelt, were brought forward, but the plants are not yet sufficiently developed to show their true character. D. Baraquiniana, with its ivory-white stalks and midribs, was one of them; and D. grandis, with the leafstalks mottled, was the other. Both will doubtless hereafter prove to be good plants of their class. A dwarf Maranta called striata, introduced from the Philippine Islands, was remarkable for the profuse and well-marked white streakings on its leaves. Finally, we may mention that Gymnostachyum Verschaffeltii, which was shown by several persons, has established its distinctness—as a broader-leaved and more vigorous variety doubtless—from the plant grown in England last year under the provisional name of Eranthemum rubronervium.

The display of artificial flowers, which took place in the Lecture-room, comprised some very commendable imitations in wax, paper, and other materials, and formed an interesting episode of this first great exhibition of 1864.

—— We understand that the Birmingham Rose Show of the present year, which will be the third annual exhibition of Roses held in that town, is to take place in the Town Hall, on the 7th and 8th of July. This Rosarian gathering has been hitherto so successful that it has become one of the established floral institutions of the midland districts. We heartily wish the exhibition of the present year as full a share of success as its predecessors have realised. The schedules of prizes may be had on application to Mr. Forrest, Queen's Chambers, Cherry Street, Birmingham.

MEXICAN VEGETATION.

Vegetation in Mexico varies with the temperature. From the burning shores of Vera Cruz and Mazatlan to the icy summit of Popocatepetl there are three distinct and well-defined climates, giving a nomenclature to as many different regions, namely, the hot, the temperate, and the cold; and a traveller may in a single day pass from the region of perpetual snow to the heat and vegetation of the tropics. No country possesses a richer flora. The Cactus everywhere displays its gorgeous scarlet or bright yellow blossoms, either bursting from rocky crevices or rising from the sandy soil on stems growing to a height of 20 feet. Convolvuli, which oppress the senses by their heavy perfume, grow in such wild profusion as to stifle the growth even of the sturdy Maize. A passionate admiration, which amounted almost to an idolatry, of flowers was strangely blended in the Aztec people with a religion of blood. "Six thousand human victims were annually immolated on the altar of Huitzilopchtli; and at the inauguration of the grand temple of the god, 33 years before the Conquest, 7000 were slaughtered. The procession extended to a length of four miles." (Chevalier's Mexico.)

Of all the vegetables which furnish nourishment to man, the Banana is the most prolific. A single cluster often contains 160 to 180 pods, and weighs from 60 to 80 lbs.; a piece of land 120 yards square, Humboldt says, will produce 4000 lbs. weight of fruit, while the same area will rarely produce more than 30 lbs. weight of Wheat, or 80 lbs. of Potatos. Maize is, however, the most important of the cereal productions of Mexico. It is indigenous, and thrives even at an elevation of 8400 feet. It is the principal food alike of human beings and of the lower animals—the luxury of the rich and the necessity of the poor. In the valleys the returns of Maize range from 125 to 250 for one; and the best irrigated land has been known to produce 500 for one. In the hot region two and sometimes three crops are raised within the year. The agriculture being yet extremely rude and imperfect, and water being the only fertiliser, this amazing increase must be referred to the fertility of the soil. The Indian makes holes in the ground with a stick, drops in the seed, and in 90 days he plucks the ripened ears; and he can repeat the process throughout the year, according to his wants. Of all the indigenous products of America, Maize is perhaps the one which has proved of the greatest value to Europe. The gold which Columbus presented to his sovereign as the most precious production of a country abounding in precious things, did not typify its real wealth; it was more appropriately represented by the golden ears of Maize which he brought from the distant land.

The Coffee tree grows wild in many parts of Mexico. Excellent Coffee has been produced in the states of Jalisco, but the best is grown in the state of Vera Cruz, and it is said to be equal to that produced in any other part of the world. It is grown in great quantities and of the best quality along the whole Pacific coast. For its successful cultivation Coffee requires a peculiar climate; the mean yearly temperature must be at least 68°, and the thermometer should never fall below 55°. The best situations for its growth, therefore, are not sultry alluvial plains, but mountain slopes with an elevation of about 4500 feet. It is said to thrive best on soil which has been covered for ages with primeval jungle. Large portions of the temperate regions of Mexico fulfil all the required conditions, and, judging from the great success of the recent Coffee cultivation on the Neilgherry Hills and other equally favourable localities in British India, Mexico might supply Europe with some of the finest qualities which have ever been imported.

Cotton was found by the Spaniards among the indigenous plants of Mexico. The clothing of the people was made exclusively from it. Its cultivation fell off after the conquest, but there was a time when the export of Cotton from Mexico exceeded that from the United States. The plant still grows in almost every part of the country, even on the high lands, 5000 feet above the sea, but the finest qualities are produced in the moist coast regions. It can be grown to an almost unlimited extent on the banks of the Bravo del Norte, and also in the state of Vera Cruz, and over the whole extent of the Pacific coast. The Cotton plant of Mexico possesses the valuable property of not being injured or checked by frost, but continues flowering and forming pods until it is found expedient to root it up. Some of the varieties are said to be very fine, particularly one which is raised on the west coast between Acapulco and Columa, where both the soil and climate are highly favourable to its growth. Vast regions on both sides of the Cordillera are admirably adapted for Cotton cultivation, as are the table-lands of moderate elevation. White labour might be there advantageously employed, as the lands lie beyond the range of malaria, and the climate is perfectly salubrious. It was with considerable surprise that we noticed the remarks made by M. Thiers in the recent debate on Mexico in the French Legislative Chamber on the impossibility of cultivating cotton by reason of the pestilential climate. Such an opinion can have no application to the districts above referred to. The annual production is certainly at present inconsiderable, not even meeting the requirements of the factories established in the country, and does not much exceed in the aggregate 25,000 bales; but no doubt can be entertained of the capability of Mexico to produce sufficient to supply the world if the requisite labour could be obtained. *Quarterly Review, April*, 1864.

NOTES ON GARDENS.—No. VIII.

Royal Botanic Garden, Edinburgh.

Past the entrance gate, very like that of a nunnery, and very unlike that through which one would expect to enter a great national garden—by the curator's house to the right, and the visitor finds himself in a sort of Botanical College, his ideas rapidly expanding as to the possible duties connected with, and the desirable appurtenances of a botanic garden. First, there is a very useful museum, established and supported I believe chiefly through the exertions and liberality of Professor Balfour, who presented his own collections, and has worked up the museum to its present very creditable state without any aid from the Government. Geological botany, particularly that of the old red and carboniferous periods; the plants of Scripture—drawings and specimens; fibres, woods, and medicinal and economical products of the vegetable kingdom; illustrations of structural botany, &c., are all very well represented in this museum, though it has been established only about a dozen years. Then there is the large class-room,—a very large one—with the best arrangements for both teacher and pupils. In it I had a glance into some large cases of diagrams, fully equal both in execution and quantity to the other unique facilities possessed by the Edinburgh garden, for the teaching of botany. The number of pupils that attend Professor Balfour's lectures is generally between 200 and 300.

Probably the houses should form the next subject of remark, but before reaching them I was taken possession of by the interest of the out-door department, the arrangements of which are so vast and so varied, that one who tries to examine them thoroughly during a single visit will have little time for the rest. First there was a natural arrangement of hardy medicinal and economical plants; then a very extensive Linnean garden of hardy exotics on a light sandy soil; and next a still larger garden of hardy exotics arranged according to the natural system, the soil a heavy clay. This difference between the soils of the two largest arrangements is of course very conducive to the preservation of the collection, plants perishing in one garden from the peculiarities of a season surviving in the other, and *vice versâ*. Awful to relate there were no "Calcies," no "Tom Thumbs," no "Verbenias," covering acres. Nor did I at all regret to find that the thousand-folding of plants which are abundantly placarded by the possessors of most windows between Whitechapel and the shores of Clew Bay was considered beneath the dignity of this great garden. May a square yard of its surface never be converted from its present purpose of yielding interesting variety, and illustrating the world's vegetation, to that of "farming" certain individual species, and thereby excluding a host of others equally beautiful! So great is the demand for specimens to illustrate the lectures given in the garden that the arrangements already mentioned, and also a very good British garden, are quite unable to meet it, and in consequence there is a considerable space devoted to growing in quantity the annual and perennial plants most required for illustrating the natural orders, parts of plants, &c. Of course each student is supplied with a specimen, or so much ground would not be required for this purpose.

A large and special compartment for spring bulbs must prove a very charming feature during the spring and early summer months; indeed, some parts of the garden must then be of quite a cœrulean hue from the number and size of the beds of Scilla, Muscari, &c., which are in it. This mode of accommodating spring bulbs by giving them a position where they may remain undisturbed, is of course the only satisfactory way of growing these beautiful things, which one rarely sees well managed. A snug compartment was devoted to some of the best herbaceous things, such as the finer species of Aquilegia, Helleborus, &c. Along with these were several new, scarce, or unnamed plants, such as "Himalayan Wheat," a fine hardy Cineraria, and several Caryophyllaceous and Labiate plants which had proved ornamental. Along some of the borders I noticed lines of the best Hellebores, mixed with other good herbaceous plants, and particularly associated with several fine varieties of Orobus vernus—great favourites of Mr. McNab's, which he grows in quantity. These borders must, when the plants are in flower, exhibit such a display of good hardy species as we have no opportunity of seeing in the neighbourhood of London.

In the pond a "water weed" had gone wild, but fortunately it was the lovely Aponogeton, which almost covered the water with healthy leaves, sprinkled here and there with its sweet flowers. The plant, I understood from Mr. McNab, had been in the pond for many years, seeded abundantly every year, and flowered nearly the winter through. There are springs in the bottom of the pond which prevent the water from freezing except in very hard weather, and of course this accounts for the plant doing so well. Would it not be possible to add a very desirable charm to quiet waters in the south of England by the introduction to them of this plant, fit to act as maid of honour to Queen White Water Lily?

Some fine plants and beds of Astragalus Tragacantha were to be seen in front of the houses. Along the front of the great range of glass which runs across the garden, was a border containing Lilies, choice bulbs, Tritomas—lately extensively honoured by the distinguished patronage of "bedders out," Oxalids, Dorema asafœtida, and numerous interesting plants which require a little more warmth and shelter than are afforded by the exposed beds and borders. Lilium monadelphum speciosum, a very favourite plant with Mr. McNab, was planted at intervals along this border. The larger growing Ferns, such as Pteris caudata, Struthiopteris, three or four species of Osmunda, &c., &c., were finely and plentifully grown in various parts of the garden, planted in small circular beds, or as single specimens, the soil being covered with sphagnum and stones.

Passing to taller things there was a tolerably extensive Rose ground, and large plantations of Rhododendrons and American plants; but the space, about 16 acres, does not permit of a complete collection of hardy trees and shrubs being grown, though there is a very excellent selection. The collection of Coniferæ is, I believe, as complete as any in the country, though some of its chief ornaments were destroyed by the great frost of 1860. There were good specimens of many of the older introductions, and very thriving plantations of all the recent ones. I noticed one particularly good Wellingtonia, about 12 feet high, amongst them.

The principal range of glass consists of ten fine houses, backed by seed rooms, specimen rooms, gardeners' rooms, and such like offices. There is a space in the centre of the range that was originally intended for a Palm house; but that, for good reasons, having been built in another part of the garden, the site still remains—no doubt to be filled up some day with a useful structure, and thus complete the already very imposing range.

William Robinson.

(To be continued.)

PEARS.

In March I received a kind letter from Mr. Rivers, saying, that as I managed Strawberries so successfully, he dared say that I should like to try my hand at Pears on the Quince stock. I received them in a few days afterwards, with directions for planting. Fourteen of them were planted March 24 of this year; and six more (including a duplicate of Josephine de Malines, which, with Beurré Superfin, are his two greatest favourites) arrived, and were planted 10 days afterwards. The trees are beautiful specimens of dwarf pyramids and dwarf bushes. Their fruit buds were formed but were not expanded. I planted 13 of them 16 inches in advance of my south wall, and seven of them in a yard, in front of a wall, east aspect. I put the latest Pears in front

of the south wall, as they will require more sun to ripen them. The sorts sent were:—1. *Bergamotte d'Esperen*, described as far superior to Knight's March Bergamot; March to May. 2. *Beurré Bachelier*, an excellent hardy variety of Glou; December. 3. *Beurré d'Aremberg*, December to January. 4. *Beurré Diel*, December. 5. *Beurré Hardy*, October. 6. *Beurré Begmont.*—This Pear is not described in his Fruit Catalogue, to which, for full descriptions, I must refer the reader. I wrote for the description of this: "A nice variety of Beurré Rance; I have not yet catalogued it; it is as large as Beurré Rance, and of a reddish brown; I believe it to be a good thing: late." 7. *Doyenné d'Eté*, small; the very best early Pear; remarkably handsome; July. 8. *Doyenné d'Alençon*; January to May. 9. *Doyenné Gris*; November. 10. *Duchesse d'Orleans*, called also Beurré St. Nicholas; of the flavour of Gansel's Bergamot; October. 11. *Duchesse d'Angouléme*, a noble Pear; generally insipid from a wall; November. 12. *Josephine de Malines*, rich aromatic flavour; in Mr. Rivers's opinion unequalled; February to May. 13. *Madame Millet*; April to June. 14. *Passe Colmar*; December to January. Ten days later these came:—15. *Comte de Lamy*, one of our most delicious Pears; October. 16. *Beurré Defais*; December. 17. *Beurré Mauxion*; September. 18. *Marie Louise (D'Ueele)*; October. 19. *Beurré Superfine*; end of September. 20. Duplicate of *J. de Malines.*

All these were planted according to the following instructions:—"These are all on the Quince stock, and owing to the peculiarity of my soil are full of buds. An odd thing with this stock is, that, if the trees are removed just as the fruit buds are opening, they will still bear fruit. Those from the pots, with balls, we manage as follows:—Press them and loosen them thoroughly with the hands; in planting, give them some good stuff, and when the hole is three-parts full, pour in hard 2 or 3 gallons of water, and then fill in the remainder of the soil: do not tread down till a week afterwards, unless just to steady the tree, which you may do gently with the foot. They will scarcely feel removal. Treat those not in pots the same way." I did as I was directed. I gave them half a barrow of new rich maiden earth and black manuro in equal parts, and ended with the conviction that, planted so late in such a situation as mine, the result must be "nil." I had them covered over head at night with cloths, and I have saved a glorious crop of fast growing Pears. No. 1 had no bloom buds; No. 13 was a masterpiece in bloom; but the set fruit is destroyed by frost; No. 2 had but few bloom buds; and I think they will fail; but, all the others are a glorious success thus far. Some of these are not more than 2 feet, or 2½ feet high; and yet I have taken off from them full a hundred Pears, leaving on four times as many as must remain. The crops of all the 17 are good, and more than the trees can bear; but the crops of these are marvellous, namely, Nos. 3, 4, 5, 6, 7, 10, 11, 15, 16, 17, and 18.

No. 17 set 334 Pears: the plant is 37 inches high. Seventeen of the trees are disfruited down to 173 Pears, or rather over 10 Pears per tree. I find by Mr. Rivers' letter this morning that "Pears should not be disfruited till June or July. He says Pears have this season set a wondrous crop, but in every cluster are some that are much more advanced in growth than others; and these are often full of maggots, the pistil having been punctured by some insect in the centre of the flower. In a few weeks these will fall off." The others will have a full crop. Mr. Rivers recommends biennial removal and root pruning of these small dwarf Pears on the Quince stock.

All who have seen these plants here have pronounced them lovely in bloom or wonderful in crop. The Editor of the *Dorset County Chronicle* was so kind as to let me call my neighbour's and fellow-countymen's attention to them in substance much as the above. I am really very much obliged to Mr. Rivers for these "pet" plants, and I will do my best to bring the fruit to perfection. *W. F. Radclyffe, Rushton, May* 22.

P.S.—For sheets put on Peaches at 1, read 4 o'clock P.M., and taken off at 10 A.M.; by this arrangement the wall cools and heats gradually. Quick transitions are bad for them.

MR. MOORE'S LECTURE ON FERNS,

DELIVERED AT SOUTH KENSINGTON, MAY 17, 1864.

THE observations which, with your permission, I shall now have the honour to make, bear reference to a group of plants which has latterly become popular in a remarkable degree. These plants are the Ferns. I claim for them at the outset, that they are in every way worthy of the popularity which has been accorded to them; and I claim this on the ground that they present to us an almost endless variety of the most beautiful and graceful forms of vegetation with which we are acquainted.

The contrasts which occur amongst them are remarkable. Thus, while some of them rival in nobility of character even the most noble order of the Palms, some, on the other hand, are so delicate in their construction, that one might read almost the smallest print through the translucent substance of their leaves. Not a few of them are lofty and umbrageous trees, prominent amongst the glories of tropical forests; while others are tiny objects, barely distinguishable from the humble Mosses amongst which they grow. Throughout these and the thousands of intermediate forms which lie between, and which, independently of their variety of aspect, exhibit an almost infinite variety of structure, there is to be traced a family likeness which is undeniable when its features have been carefully scanned. So that, with attention, it is barely possible to mistake a Fern for any other plant. There is, however, to be found amongst the species of which this great family is composed, besides the family likeness, a distinct individuality of character, which is transmissible and transmitted through an indefinite succession of generations. It is by means of this individuality that we are enabled to refer each Fern as it comes before us, to its place in those systems of classification which have been devised to enable one person to speak on the subject intelligibly to another.

There are many aspects in which the Ferns might be presented to notice. I might, for example, take a geographical view, and explain the peculiarities of the Ferns of the different countries of the world, pointing out how one species, as in the case of Dicksonia abrupta, may be only known to occupy some isolated spot on the earth's surface, while another, like our common Bracken, may prove to be almost cosmopolitan. Indeed, to trace the dispersion of a well-known Fern over the surface of our globe, and to note the changes which it undergoes as it passes from one clime to another, all the while preserving an unmistakeable identity, observing at the same time the reasons which may be discoverable for the changes that occur, would be a most interesting and intellectual employment for those who might have leisure and inclination to enter upon it.

I might take up the subject in a purely botanical point of view, and show how each genus differs from the allied genera, and each species from its kindred species; and even this, though sometimes voted dry work by those who see little beauty in Nature's productions—dry, I suppose, because it is often carried on by the aid of a Hortus Siccus—is not after all so dry an occupation but that it may rivet the attention and call into pleasurable activity the observing faculties of those who may have the courage to take it up.

I might treat of the Fern tribe from a horticultural point of view, and the associations of this room seem to suggest that this might be the most proper course to take. But then, so varied are the habits and requirements of Ferns, so numerous the Ferns themselves, that any attempt to explain how the various species should be cultivated would I fear become wearisome, if it were not in a great measure unintelligible. It may indeed be stated in a general way that Ferns delight in shade and in moisture—abundant moisture at the root, and abundant moisture in the atmosphere—needing however at the same time perfect drainage, in order that the water thus freely imparted may not become stagnant. But even to this sound general rule there are plentiful exceptions. Some Ferns, the Osmundas for example, are aquatics, and delight in bogs and watery places, where moisture is ever present. To these, drainage in the sense applied to the culture of other Ferns, is consequently of little importance. Others, like the species of Cheilanthes and Gymnogramma, are so impatient of water in contact with either their roots or their fronds, that the least overdose is fatal to them. It will thus be seen that no general statement would be sufficient, while a detailed statement might prove tedious.

I must scarcely venture to hint at one other aspect of the subject, or I might point out how, in the eyes of sundry enthusiastic lovers of Ferns, the 50 or so species which are found in our own country, expand into hundreds upon hundreds of varieties, as an unusual twisting of a stalk here, or the shallower or deeper cutting of a frond there, or the abnormal growth of an ear, or a tooth, or even a tail, on some part of the frond, may modify its usual aspect. I must be content now to leave this fascinating branch of my subject, with the remark, that the changes which some of our common species undergo are really marvellous, while not less marvellous is the variety of metamorphosis that takes place, and the constancy of many of these deviations from the normal form.

Seeing, then, that there are difficulties in the way of dealing profitably here with either the purely geographical, or the botanical, or the horticultural, or that other aspect of the subject to which I have alluded, I propose to cut the knot by first of all tracing the development of a Fern from the spore; and then, since there is so much uncertainty and confusion amongst amateurs respecting the application of the names of Ferns, by endeavouring to explain the principles which regulate their application.

Now a spore, though not regarded as being strictly the analogue of a seed, may for our present purpose be considered as its equivalent. It is the separable atom from which a young plant may be developed. And very interesting it is to watch this development of the spores, the more so as it is an experiment which can be indulged in without cost, and is one involving scarcely any trouble. The formula is this. Take a common dinner plate and pour some water into it; place this plate in a window; set in it a pot filled with earth which has been baked, but subsequently moistened; invert over the pot a glass shade with its edge resting in the water, and the apparatus is complete. Then, after waiting a day or two for the earth to absorb moisture, take some Fern spores and scatter them thinly over the surface of the earth in the pot, replace the glass shade, and await the issue. Take care, however, that it is spores that are sown, and not their empty covers, for these last will never yield a young Fern. And yet they are so small that even those who may be in some measure aware of the dust-like and almost invisible character of the spores may well be excused for mistaking the one for the other. The best way to make acquaintance with the true spores is to take a portion of a Fern frond in fruit, let us say of the common male Fern, just at the time the membrane that overlies the little heaps of fructification is changing to the leaden hue which indicates approaching ripeness; then lay this portion of frond between some sheets of white paper under moderate pressure; the Fern as it dries will burst its spore-cases, and the infinitesimal dust which is then to be discovered scattered about the paper consists of spores. To return to our experiment: If the window in which the apparatus is placed be a sunny one, the warmth will make the action all the brisker, but in that case a screen to ward off the sun's rays must be put over the glass. Soon—that is in two or three weeks or so—if real ripe spores and not empty spore-cases have been sown, there will appear little flat green scale-like bodies. These are the seedling Ferns. The scales will enlarge, various unseen changes will take place, and anon a little frond will spring up, then another and another will follow, till at length a perfect plant is formed. To watch these dust-like atoms, so small as to be reputedly invisible, awakening into life, to tend the tiny germs as they day by day gain size, and step by step assume their parent form, is an occupation in which methinks no one could engage without finding it full of absorbing interest. And it has this quality, which should be a special recommendation in the eyes of an audience assembled here—that it is pure experimental horticulture.

The spore of a Fern has been already described as an almost invisible atom—an organised atom, however, containing the germ of life. In regard to its form, which is variable, it is commonly either roundish or angular or kidney-shaped. In regard to its composition it is made up of a minute quantity of cellular matter enclosed by a double membrane, the inner delicate, the outer brittle in texture; the outer one being sometimes smooth, sometimes diversified by markings consisting of prominent lines or of wart-like protuberances. When the spore is exposed to moisture, accompanied by a certain degree of warmth, the inner membrane swells, bursts the outer shell, and is protruded in the form of a little tubular pouch, whose contents acquire a green colour. This tubular pouch becomes divided by cross partitions, new cells are thus formed, and these again become multiplied, so that the prothallus or germ frond in its earlier stages, is converted into a row of cells, with one or two rootlets near its base. The cells at the apex however go on dividing frequently both in a transverse and in a longitudinal direction, and the germ-frond thus becomes developed into a thin cellular plate or scale-like body, which lies horizontally on the surface of the earth. The basal portion speedily withers, but the broader upper portion becomes thickened, and produces hair-like fibres on its lower surface. At this stage the germ-frond is usually of a roundish heart-shaped figure, with a deep notch in front, sometimes undulated at the margin, and having the fibres already mentioned growing beneath at the hinder part. Besides these fibres, however, if the under surface is closely examined there will be found upon it little wart-like excrescences of two distinct kinds. These bodies bear the names of antheridium, and pistillidium or archegonium. The antheridia are the smaller of the two, and most abundant near the base; they are built up of a few aggregated cells, and the central cell of each becomes transformed into a globular group of still smaller cells, each one of which contains a flat spirally twisted spermatozoon inclosed in a minute bladder-like cell or vesicle. As the antheridia approach maturity, the inner cells become dissolved, and when they become fully ripe, the vesicles and their contents swell until they burst through the apex, and then the spermatozoon, protruding through a rupture of its containing vesicle and becoming free, darts out with a rapid motion. The pistillidia, which are mostly placed in the front part of the germ-frond, are fewer in number than the antheridia, and also larger and more elongated than they, being composed of several layers of cells so placed as to surround a tubular cavity or canal, closed at first, but subsequently open, and at the bottom of which lies the germinal cell. Into this canal one of the vagraut spermatozoa finds its way, the canal closes, and a bud is formed, from which springs up the young plant.

The first frond that arises from the bud or growing point is small in size, and very unlike those produced by the plant when mature, but still it is erect and leaf-like, and altogether different from the flat horizontal scale which has been spoken of as the germ-frond or prothallus. Each succeeding frond is larger than the preceding, and assumes more and more the perfect character of the species, until at length after a variable lapse of time, a few months in the case of one or two annual species, and some years in that of others, the most perfect form appears. New spores are then borne upon these mature fronds, and the cycle is complete.

Now, in a perfectly developed Fern, such as we have traced through its various progressive stages, there are four parts or organs especially distinguishable. These parts are—the root, the stem, the fronds, and the fructification.

The roots of all ferns are fibrous, the older parts becoming more or less wiry in texture, the younger parts generally clothed with a down of velvety hairs. In those Ferns which, like our common Polypody and the well-known Hare's-foot, have a creeping habit, the roots are chiefly produced from the underside of the stem, and in plants of this habit they not only act as feeders to the plant, but also as holdfasts to retain it in the position in which it grows, this being very commonly on the trunk of a tree, or on the bare and often perpendicular surface of a rock. In Ferns which have an erect caudex, like that of our common male Fern, or like those of the Tree Ferns of the tropics—these latter not differing from the former in the nature of their growth but only in the degree of their development, the roots are protruded equally on all sides of the stem, and at length strike down into the soil, overlying and crowding upon each other as the plants acquire age and the stems gain height. In Ferns of this character, young roots are successively protruded from amongst the bases of the mature fronds, and if the conditions are favourable they at length completely cover those which were formed at an earlier period of the growth of the stem. The trunk of a Tree Fern in a healthy thriving state is thus coated with young roots in the process of overlying and intertwining with those which have been previously formed. This indeed is often so much the case that the root fibres form a thick buttress around the base of the trunk.

The stems of Ferns are of two kinds. One form, called a caudex, is very commonly erect; the other, called a rhizome, is nearly always creeping, but it does not therefore follow that all creeping-stemmed Ferns are rhizomatous, for in truth in many cases the stems of creeping Ferns are truly caudiciform in structure. It would be out of place here to enter upon a minute description of the anatomy of Fern stems: I will rather describe in a few words the more obvious differences observable between the caudex and the rhizome.

In the form of stem to which the term caudex is applied, the apex consists of the rolled up undeveloped fronds, which incurve on all sides towards the centre. Both in the stem itself and also in the stipes or stalk of the fronds, that particular kind of vegetable tissue of which wood consists is formed; but in the Fern stem this tissue is not consolidated into a close mass, as occurs in our timber trees, but forms thin plates or bundles embedded in the softer cellular matter which forms the bulk, the harder woody portions being found at or near the circumference. It is these which become overlaid by the root fibres in those stems which persist for a number of years, and the formation of these overlying rootlets may be readily observed in almost any of the caudiciform species met with in our Ferneries. Some part of the bulk of a caudex is frequently due to the persistence of the bases of the stipites; but this is not always the case, for in certain true Ferns these fall off, leaving a clean scar, marked only by the greater prominence of the ends of the woody bundles which have communicated with the stipes, and which are generally disposed on some uniform plan. These scars, which mark the position of the fallen fronds, are in some cases disposed with so much regularity, that they appear like a series of elegant carvings, and add in no inconsiderable degree to the beauty of the plant. In the greater number of the known Ferns having caudiciform stems, the stem itself is dwarf; such, for example, as occurs in our common Lady Fern, the fronds of which die away in winter, leaving only the caudex, buried or scarcely elevated above the surface of the ground. Sometimes even in these dwarf-habited species the caudex is almost if not quite simple, giving off no side branches, but confined in its growth to the development of the central bud or crown. Generally this is the habit of our Polystichums, which are consequently less readily increased by division than many other Ferns. It is to this tendency towards terminal rather than lateral development, that we seem to be indebted for those beautiful Tree Ferns which are the glory of their race, often rising to a height of 50 or 60 feet, or even more, in their native forests. However, in the greater number of species the caudex is but little elongated, and lateral growth sets in, so that the plant becomes a tuft of clustering crowns.

I have already alluded to the mode of increasing the caudiciform Ferns by dividing the separate crowns which they form by natural branching; but it is interesting to know that in some species at least recourse may be had to a more artificial process if the rapid propagation of the plant is desired. I do not now allude to the mode of inducing offshoots by destroying the growing point or heart, though this may be done; but it has been ascertained in the case of the Hart's-tongue Fern—and the same rule must surely apply to many others, at least of the evergreen species, which do not become quite dormant—that the caudex may be cut into small fragments, each of which will generate a bud or buds, and become an independent

plant. If the caudex of a Hart's-tongue Fern is examined, it will be found that not only does the base of the stalk of the frond adhere to the stem—for several years, perhaps, after the leafy portion has decayed and passed away, but this persistent portion continues quite fresh and succulent, so that on an old stem there are a considerable number of these living stipe-bases present. Now, if the stem is cut up longitudinally, and so that a portion of it, not too small, is retained with its rind uninjured in connection with one of these stipe-bases, and this is planted, and treated like a root-cutting for example, it will produce a plant. Every one of the stipe-bases so treated will yield a young plant if the manipulation has been carefully executed. It is no doubt from this facility of forming buds, which seems to reside in the cut edge of the bark of the stem, that many cultivators do not hesitate to cut through or quarter some choice or valuable Fern which has formed out a single crown, and find a compensation for the present and transient disfigurement of their plant in the possession of a duplicate available for a brother cultivator.

Most caudiciform stems have an upright, or at least an upward tendency, but not all of them. I may illustrate this by a reference to three of our common British Lastreas. Thus, Lastrea dilatata has normally an upward growing crown with the fronds set shuttlecock fashion,—by which I do not mean that it never grows laterally, or even downhill, if fixed for instance in a dyke-wall, or on a bank where it cannot help itself, but, that if growing in an open level space it will naturally take this upward direction. Then Lastrea spinulosa, which some of our ablest botanists profess to be not able to distinguish from dilatata, if planted on the level will creep along the surface, slowly but surely, throwing its fronds erect from the apex of the stout caudex, which in a few years will have progressed some distance from the point whence it started. Lastrea Thelypteris, a species in which the character of the stem is the same as in the species I have already named, runs much more freely and more extensively, the caudex being at the same time much more slender. Many other creeping stems of the caudiciform structure might be instanced if time permitted.

In rhizomatous stems the growth is different. The apex is here in advance of the youngest fronds, instead of being formed by them; the fronds are developed singly at intervals, the youngest being always some distance behind the growing point; and they are always or nearly always articulated, that is to say they are so attached, that when decay sets in they separate spontaneously at a natural joint. The rhizome is very commonly branched, and varies greatly in bulk; it affords a very ready means of propagating those species in which it occurs.

But it is time to pass on to the more important organs, the fronds, for just as it is the blossoms for the sake of which we cultivate Roses or any other popular flowers, so it is for the sake of the fronds that we cultivate Ferns.

The fronds may be considered as the leaves of the Fern, though they are not exactly analogous to leaves, since they themselves bear in almost all cases all that is borne by the plants in the shape of fructification. Before they are developed, the fronds of all true Ferns are coiled up in a circinate or involute manner; and this is perhaps the most ready means of distinguishing Ferns from flowering plants, none of the latter having their young leaves disposed in this manner. No better or more useful mark by which to distinguish a Fern at sight can be pointed out to the unimitiated than this involution of the young leaves; for though the fact of the absence of anything like flowers may be a more positive distinction, there is this difficulty, that it is not always available, since the flowering plants one meets with, either in the garden or in a country ramble, are not perpetually in blossom. The practised eye can indeed at once distinguish the fronds of a Fern from the leaves of a flowering plant simulating its appearance; but the novice cannot do this, and hence it is not uncommon to find in amateur herbaria the leaves of some umbellifer doing service as a Fern, or those of some other cut-leaved plant on which insect eggs have been deposited, mistaken for a Fern in fruit. A safe preventive of such errors would be to see that the young leaves in the heart of the plant from which the specimen was gathered, were coiled up in the circinato or crozier-like manner.

Fern fronds are very variable in character; indeed, it is this amount of variety which throws a charm over the plants as objects of cultivation. In a full-grown frond there are usually two parts to be distinguished, the lamina or leafy portion, and the stipes or stalk, but the stalk is not always present. The lamina is sometimes undivided, and Ferns of this simple character may be met with varying in diameter from half an inch to a foot or more. In other cases it is partially cut, or once, twice, or even thrice cut; and sometimes it is still more divided. The fronds of some Ferns are wholly sterile, while some are wholly fertile, and of a different and usually a more contracted form. In others there is no perceptible difference, beyond the presence of sori, between those which are sterile and those which are fertile.

In the stipes are embedded certain plates or bundles of woody tissue, which are tolerably constant in their position at the same elevation in cases where the stems of any particular species are about equal in vigour. It has been proposed indeed to make use of these woody bundles as discriminative characters, but since they vary at different elevations in the same stem, this cannot be done with safety. They have, however, another and more important application, for after being carried up through the rachis, they branch out so as to form the veins, which traverse the leafy divisions of the frond, and we shall see presently that these veins are very important in the economy of the plant, for besides forming its framework on which the more delicate cellular parts are, as it were, spread out, they give rise to the adventitious buds, which in some species appear in great numbers either on the rachides or on the upper surface of the fronds, and what is still more significant, they give rise also to the fructification. At certain determinate points along the course of the veins, constant in the same species under whatever conditions it is developed, the aggregations of spore-cases called sori, appear. In the absence of blossoms, which in the case of flowering plants serve to afford the characters on which their classification is based, many modern pteridologists have proposed to take the relation between the sori and the venation, and the modifications which the latter undergoes, as the basis of the classification of Ferns. In this view I concur generally, though it is fair to state that some of our highest authorities take a different view.

It may be well to explain, that in order to render intelligible the differences which occur in the venation, the name of 'vein' is given to those branches which proceed direct from the midrib, while those which proceed from the vein are called 'venules;' and those which proceed from the venules, 'veinlets.' Thus the first second and third series of branches proceeding from the midrib are readily referred to, and if it happens that others beyond these have to be spoken of, the expression 'ultimate veinlets' is found sufficient to distinguish them.

The venation of Ferns may be classed under three heads—the free, the connivent, and the reticulated. Free venation is that in which, when the veins have once diverged from their point of origin, whether that be a midrib or simply a vein entering the leaflet at its base, they do not, however much they may branch, again become united. If there is a midrib the branches or veins are usually either simple or once or twice forked; but if there is no midrib, the veins occupy the leaflets by a series of dichotomous (that is, two-forked) branchings. Most of our British Ferns have free venation. Connivent venation is that in which the veins or venules meet in direct lines from opposite directions and coalesce at an angle more or less acute, and are then continued onwards, or not, in the form of an excurrent or outward pointing veinlet. This is very well represented in Nephrodium molle, a common plant in our Fern houses. Reticulated venation is that in which the veins are united into a network, and occurs in great variety, giving rise to much diversity of opinion as to the limits or value of many modern genera which are based upon it. If the branches from the midrib are of nearly uniform strength, and united in meshes which are tolerably regular in form, the venation is said to be uniformly reticulated, but if there are given off a series of stronger veins directed towards the margin, with finer ones united in a network between them, the venation is said to be pinnately reticulated. It is also important to observe whether the venules all unite, or whether within the meshes there are some veinlets which are free at the point.

The lower part of the stipes commonly, and sometimes also the upper, as well as the crown in most caudiciform stems, and sometimes the whole surface of a rhizomatous stem, may be clothed with hair like or chaffy scales. These scales are very constant in their presence and their general character, and are of considerable use in the discrimination of species. In some of the larger growing Ferns, the species of Dicksonia and of some allied genera especially, the hair-like scales are very abundant, and those of a species of Cibotium are collected in the East, and employed as a styptic. Some Fern scales are beautiful objects for examination under a microscope.

We must pass on to the fructification, as it is called, though as the reproductive bodies which the Ferns produce are rather of the nature of buds than of seeds, the term is perhaps not very well chosen. That however is a question which need not now be dwelt upon. Of what is called the fructification, the spore which has already occupied our attention may be taken as the integer. The spore then is produced, along with myriads of kindred spores as dust-like and atomic as itself, within a casket, which is called the spore-case, or sometimes the capsule. The spore-case is a hollow body which in the true Ferns is furnished with an elastic jointed ring, more or less developed, which girts it in either a vertical, a horizontal, or an oblique direction. These cases are collected into groups of various character, usually round, oblong, or linear in form. The groups are called sori, that is to say, "heaps" of spore-cases. The point, or line, or surface, on which the sorus stands is the receptacle, an organ to which I attach very great importance. It is usually confined to some determinate part of the veins, but in one group, that to which Acrostichum belongs, it is universal, occupying the whole surface, both veins and intervening spaces. In some species the sorus or heap of spore-cases is without any covering. In others it is covered either by the turned-over margin of the frond or by a special membrane called an indusium, or else it lies within an investing membrane placed beneath it called an involucre, or is sunk in a hollow cup-like cavity. Those without a cover are called naked sori, those which have a cover lying over them are called indusiate sori, and those which lie within a cup or investing membrane are called involucrate sori. In by far the larger number of known Ferns the fructification is seated on the under surface of the frond, but in a few instances it has been observed on the upper surface; in certain groups, Trichomanes and its allies for example, it is projected beyond the margin, and in another, formed of the genus Vittaria, it is sunk in a furrow of the margin.

The classification of Ferns to which I proposed to advert, and which I must touch upon but briefly, lest I should become wearisome, rests very much upon characters derived from the spore-cases, the receptacles, and the veins. The primary divisions depend on the presence or absence of the ring or annulus, girting the spore-case, which has been already mentioned. This character eliminates the Marattiaceæ and Ophioglossaceæ, called Pseudo-Ferns, in which there is no ring, from the Polypodiaceæ or true Ferns, in which the ring is present. The peculiarities of this ring give rise to the secondary series of divisions, of which the Polypodineæ form much the larger group, and are distinguished by having the ring vertical and nearly complete. The third series of divisions rests mainly on the nature of the receptacle, and the form and covering of the sorus. Let us glance at the manner in which these facts are applied.

Commencing with the Polypodiaceæ, and with that portion of it called Polypodineæ, precedence should be given to the group in which the fructifying force is most completely developed. This is the group of which Acrostichum is the type, and in it we find the whole under surface, and sometimes also the upper surface, either of distinct fertile pinnæ or of distinct fertile fronds, crowded with spore-cases, attached not only to the veins, but also to the cellular spaces which lie between them. In this group occurs the simple-fronded Elaphoglossum and Hymenodium, the Lomaria-like Lomariopsis and Stenochlæna, as well as the noble-habited Acrostichum itself. Next to this comes the group typified by Platycerium, or the Elk's-horn Fern, which bears great amorphous effuse patches of sori, and has curious polymorphous fronds, and an epiphytal habit. The receptacles of these shapeless sori consist of a fine network of parallel and closely contiguous veins lying between the main veins in the fructifying parts.

Having disposed of those in which the receptacle is universal or effuse, we come to the more numerous groups in which it is localised in some definite part of the fronds, and takes a definite form. We find that here the receptacles are distributed on three different plans, some forming lines crosswise the direction of the veins, some forming lines parallel to the veins, and some forming dots either at the end or at some point along the course of the veins. The transverse series includes two groups, represented respectively by Lomaria, Blechnum, &c., and by Pleurogramma, Monogramma, and their allies, in which the receptacles are placed near to the midrib; but the first group is indusiate, while the second has no indusium. Then there are several transverse-fruiting groups, in which the receptacle is marginal or nearly so, and remote from the midrib. That represented by Tænitis, Drymoglossum, and Tæniopsis, and that represented by Vittaria, are both without indusia; but in the former the receptacle is submarginal, in the latter it lies in a furrow or slit at the very edge of the frond. Those typified respectively by Lindsæa, Adiantum, Cheilanthes, and Pteris are indusiate, Lindsæa having the indusium opening on the outward margin, while the rest open on the inward margin; Cheilanthes and Pteris having the receptacle on the frond itself, the former punctiform, the latter linear; and Adiantum having its receptacle not directly on the frond but on the indusium, and becoming inverted along with it, so that the spore-cases when *in situ* are upside down. Two other groups, represented by Woodwardia and Meniscium, have short transverse scattered sori, the first indusiate, the second naked.

Then, in the series in which the receptacles, and consequently the sori are parallel to the veins, and not parallel to the midrib, we have first the group containing Asplenium, Diplazium and Scolopendrium, in which the sori are lateral on the veins; and that typified by Didymochlæna, in which they are dorsal on the veins. Then come the naked-fruited groups represented by Hemionitis, in which the linear receptacles are joined like net-work; and by Gymnogramma, in which they are linear, and merely simple or forked. And finally there is the spuriously indusiate group, represented by Platyloma, in which the receptacles are linear, but so close together that the spore-cases become laterally confluent into a broad marginal band.

Of the punctiform series with naked sori Polypodium is the type, and with it go such genera as Goniophlebium, Phlebodium, Drynaria, Pleopeltis, Niphobolus, Nothochlæna, &c. Then comes an indusiate series: first, that group typified by Aspidium, Lastrea, Polystichum, &c., in which the indusium is reniform or peltate, attached by the centre or sinus; then that typified by Cystopteris, wherein the indusium is attached crosswise by its base; and that represented by Davallia, Microlepia, &c., in which the indusium is attached both by its base and sides, forming a sort of cup or cyst. There is here, besides, an involucrate series, in which the membranous cover lies beneath and folds over the spore-cases; this consists of the Dicksonia group, in which the sori occupy two valved cups at the margin of the segments, and the Woodsia group, in which the sori occupy cups at the back of the fronds. So we complete the Polypodineæ.

The Cyatheineæ which consist principally of Tree Ferns, differ from those previously mentioned in having the spore-cases compressed so that the ring becomes obliquely vertical, and in the receptacles being punctiform and elevated. They comprise Thyrsopteris, in which the fructifications are arranged in a thyrse-like manner on distinct contracted pinnæ, and Cyathea and Alsophila, in which they are dorsal, the first being involucrate, the second naked.

The Matonineæ form a small group represented by Matonia, a remarkably handsome Malacca Fern, with a tall slender polished shaft, and a fan-shaped frond. In this the ring is broad, sub-oblique, and nearly complete, the sori oligocarpous, and the indusia umbonato-hemispherical.

In the Gleichenineæ, of which Gleichenia is the type, the ring is complete, and obliquely transverse, the fronds rigid, and the sori dorsal: while in Trichomanineæ, represented by Trichomanes and Hymenophyllum, while the ring is similar in direction, the fronds are (usually, at least) pellucid, and the sori is extrorse-marginal, that is to say, set outwardly in reference to the edge. The Schizæineæ too, of which Schizæa and Lygodium are types, have a horizontal ring, but it is placed at the very apex of the spore-case, and looks like a radiately striated crown.

The Ceratopteridineæ, personified by Ceratopteris, are peculiar plants, being aquatic annuals with dimorphous fronds; their spore-cases have a very broad ring, which is sometimes rudimentary, sometimes more than half complete.

Then, finally, as far as regards the true Ferns, come the Osmundineæ, in which the two-valved spore-case has only the rudiments of a transverse ring near the top.

Of the Pseudo-Ferns both the Marattiaceæ and the Ophioglossaceæ want the ring of the spore-case. The former have dorsal fructifications on normal fronds, the latter marginal fructifications on very much changed contracted fronds. The former too are sub-divided into those with oblong distinct bivalved sori, as in Marattia and Angiopteris; those with circular concrete sori, as in Kaulfussia; and those with universal connate sori, as in Danæa.

I have already mentioned that Ferns vary in the most remarkable manner. Variability appears to be especially the character of those of our own country. Whether this apparent result arises from the sported forms being more observed and sought after here than elsewhere, or whether from any peculiar condition of our climate, I am unable to say, but the fact remains, that whilst the sports and monstrous forms of the thousands of foreign Ferns, so far as we know anything about them, may be almost counted by units, we can reckon ours by hundreds, though some half century of species only exist as the basis from which all this variety has been produced. Time will not permit that I should do more than refer to this part of my subject, but I have selected a few illustrations to show that in speaking of the metamorphoses as marvellous, I have not at all exaggerated. [Numerous curious varieties of the commoner British Ferns were exhibited.]

I would strongly recommend the study of the Ferns, our wild Ferns especially, to those whose time may hang heavily on their hands. They will find it a very enchanting occupation. The country rambles which must be taken in search of materials will not be less pleasant and healthful to the body than the discrimination of the species will be engaging and expansive to the mind. But I must warn the inexperienced who may engage in the pursuit, that they must not be led astray by the "darling" little specimens they are sure to find in plenty, but which have no other recommendation than the sympathies they excite in the breast of those who gather them, for they are, I am sorry to say, utterly worthless as regards the acquirement of a knowledge of Ferns. Let fair-sized, mature, fertile specimens be sought for and carefully preserved, and then the study will be easy, for there is no lack of trustworthy guides to be found amongst the books which are devoted to the subject on which I have so imperfectly discoursed.

Home Correspondence.

Heating.—I greatly rejoice in the success which Mr. Martin has achieved in working out his system of bottom heat. For that success fully confirms the efficacy of a very important portion of a more complete system, and capable of a much wider application, which I communicated to you some two years since, and to which, in a postscript to my letter on Cottage Building in your Journal (Nov. 28, 1863), I referred in the following words:—"Let me add that my system of heating frames and hothouses, and of warming large rooms, is now so perfected in my mind, and by sufficient experiments, that for a fair remuneration, which would enable me to give the time and expend the money for the purpose, I am prepared to show the public—1. That at a first cost of not more than 18*l.* or 20*l.*, and with an expenditure of fuel of not more than 2*d.* or 3*d.* a day, a hothouse of 60 feet by 20 feet can be sufficiently heated, partially (and that to any extent you please) with moist bottom heat, and throughout with heat from above; 2. That consequently a room of that size, or larger, may with less fuel than this be sufficiently warmed; 3. That steaming food for cattle can thus be effected at less cost than at present; 4. That sheds for drying in uncertain weather either Grass or corn can with my mode of heating them be profitably erected; and 5, that a way is thus opened, especially where peat can be had for fuel, for a profitable establishment of glass culture on some of our wildest heaths and most barren moors." By placing a steam chamber above the smoke chamber I obviate the necessity of so thick a covering as Mr. Martin uses for the latter, and the advantage of moist bottom-heat for Pines and other plants, you know far better than I do. The heat communicated by my

little stove is such that through the few nights of severe frost last winter no snow lay on the ground within 4 feet of my frames. By the combination of the use of steam with that of smoke for warming large buildings, I feel certain of obtaining the advantage of Mr. Goldsworthy Gurney's mode of heating, together with that of the Roman hypocaust, and at comparatively trifling cost. *Henry Moule, Fordington.*—[Mr. Martin says there is a misprint of some consequence in his letter published at p. 485. The mean temperature of Lord Eversley's Vine border during the severe winter was 60°, not 68°].

Cool Orchids.—I have read the report of the lecture delivered by Mr. Bateman at South Kensington on this subject; and one impression produced on my mind by reading the few lines which only bear practically on the subject of their cultivation, is that Mr. Bateman has never seen what he calls cool Orchids grown well. It may be that his own plants are better grown and flowered than Mr. McMorland's or Mr. Dawson's, but in this case it would have been more satisfactory if cultivators could have seen them exhibited at the lecture. When an improved method of growing Orchids is so strongly recommended, it is only fair that the lecturer should produce examples of his own growing. If this is more than ought to be expected of one who admits he is the last in the field, it seems rather extraordinary for the youngest disciple to take upon himself to lecture, and to write, with such meagre experience, a guide to cool Orchid growing. The mean temperature recommended by Mr. B. is 60°. Many think this rather warm than cool. I hope no one will follow the advice to build low houses with northern aspects until Mr. B. can show cool Orchids finer in growth and stronger in flower than those now to be seen. One of the most remarkable practical points in the lecture is, that it is now found that the mountain Orchids from Mexico and New Grenada do not like sun. They must therefore, I suppose, all or nearly all grow on the northern sides of mountains, and in deep ravines, where the rays of the sun never penetrate. This is information which, if correct, opens up a new field of speculation. *Robert Warner, Broomfield, Chelmsford, Essex.*

The Royal Horticultural Society's Flower Market.—I have seen, with some surprise—though the *quasi*-horticultural doings at the West-end of town almost fail to excite surprise, whatever their extravagance—the proposal (at p. 486) of a "Male Fellow" for the institution of a flower market in the gardens at South Kensington. My first impression was that your printers had been less careful than usual, and that the word "male" was a misprint for "mad;" but on second thoughts I gave up this solution, and came to the conclusion that the proposition was part and parcel—it is so like all the rest of the new dodges—of the deliberate attempts now being made to render the gardens ridiculous to those who have a love for horticulture, and to assimilate them as much as possible to such amusing establishments as Cremorne, &c. A flower-market indeed! Why cannot the incapables at South Kensington, as they are bound to do, if they are honest, after taking care of Horticulture, provide the Fellows, and be content to provide them, with a garden equal at least to an average private garden, and leave the nurserymen and florists to the pursuit of their proper callings. A flower-market, indeed! They had far better set up an Apple stall, and then they might be creating a market for the Society's own horticultural produce, and putting something into, instead of emptying, its coffers—as must be the result of such bungling extravagances as building 1500*l.* worth of Orchard houses merely to form "entrances" and to kill Orchard fruits, or instituting "floral fêtes" of sham flowers to be deservedly chronicled—as has been done by the leading journal—as total failures. "I hope I don't intrude." *Paul Pry.*

Andaman Island Plants and Best Mode of Packing them.—I have just received from the Andaman Islands a quantity of Orchids, together with other plants and seeds, many in form and appearance different from any I ever saw before. They were obtained at some risk, from the savage character of the people, and the officer was not experienced in the mode of packing; still they are looking up tolerably well. What they may turn out time will show. They were packed in powdered charcoal that had been exposed to the glaring sun some time, and soldered down in a large tin case enclosed in a stout wooden box. Many when washed looked quite green and fresh, and I hope may grow. I suspect the Orchids will be nearly the same as those found in Moulmein. The Ferns are alike, but there are others I know nothing about. I most probably may have more sent me. Wardian cases are out of the question, but perhaps some one will tell me the best means of packing them under difficulties, for at present all is in confusion there. An Indian officer states that he never beheld such splendid timber as is there—clean trunks to an enormous height, of woods finer than teak, which England would do well to secure for backing her iron plates. *X. X.*

Variegated Elms.—I enclose two twigs from a Chinese Elm about 30 feet high. The green leaf is on young shoots on the bottom of the main stem. All the upper part from a height of 4 feet is variegated. The variegation showed after a severe winter a few years since. Is it usual for this Elm to show this variegated appearance as it grows old? [We do not know.]

Societies.

ROYAL BOTANIC, REGENT'S PARK: *May* 21 (*First Great Exhibition.*)—A gloomy morning succeeding a thunderstorm which took place on the previous night, doubtless kept away from this great gathering hundreds of visitors, who otherwise would have been present. But if the attendance was comparatively limited, plants for exhibition were furnished in unusually large numbers, and such specimens! We may yet see greater variety and more striking novelty, but we can scarcely ever hope to see better gardening. There was not an ill grown plant in the tent. The Roses, the Azaleas, the Orchids, and the various groups of "stove and greenhouse plants," were one and all wonderful examples of horticultural skill.

Stove and Greenhouse Plants.—With the general appearance of exhibitions of these most of our readers are now familiar. Among the different subjects shown in this class many well-known forms were as a matter of course recognisable; but we did see, and with admiration, one striking novelty in the shape of a fine bush of Clerodendron Thomsonæ from the nurseries of Messrs. Jackson, of Kingston. Few persons acquainted with this only in a small state could have conceived that it would have made an effective exhibition plant; but that such is the case was universally admitted, its scarlet flowers, half-hidden by a snow-white calyx, produced in gracefully drooping racemes in great profusion, appearing to much advantage, even at a distance. Of blue Leschenaultias there were a few fine specimens, especially one in an admirable collection of plants from Mr. May, who was fortunate enough to land them safely in the exhibition tent, after a journey all the way from Rugeley in Staffordshire. We also noticed many magnificent specimens of the charming Stephanotis floribunda, Acrophyllum venosum, Everlastings, Chorozemas, and Hederomas. The Phlox-like Leptodactylon californicum formed a conspicuous object in some groups, which were also in some instances further ornamented by the addition of noble examples of Medinilla magnifica, loaded with the great drooping thyrses of its pinkish salmon inflorescence. Statice profusa, a deep purple kind of comparatively recent origin, proves to be a good addition to the class to which it belongs. More interesting, however, to many were doubtless the magnificent specimens of plants remarkable for their fine foliage, which characterised the collections of Messrs. Lee, Williams, Henderson, and Young. Among these were grand examples of Alocasia metallica, and the handsomely-variegated variety of A. macrorhiza; and Caladiums, of which the most striking were Belleymei, with leaves coated as it were with frosted silver, and the better varieties of bicolor, the foliage of which was splashed and spotted with carmine. Dieffenbachias also attracted considerable attention, as did also Cyanophyllum magnificum, on some of which the leaves were unusually large and fine. Intermixed with these were Theophrastas, Cordylines, Dracænas and Ferns, the latter including many remarkably fine Gleichenias.

Awards.—16 plants: 1, Mr. May; 2, Mr. Peed; 3, Mr. Wheeler. 10 plants: 1, Mr. J. Fraser; 2, Mr. Rhodes; 3, Messrs Lee; 4, Messrs. Jackson. *Amateurs.*—1, Mr. Green; 2, Mr. Chilman; 3, Mr. Kaile. 6 plants: 1, Mr. Page; 2, Mr. Penny; 3, Mr. Kemp; 4, Mr. Cross. 15 Fine-foliaged and flowering plants: 1, Messrs. Lee; 2, Mr. Williams; 3, Messrs. A. Henderson & Co.; 4, Mr. Young.

Orchids.—Of these there was the usual bank; but with one or two exceptions, there was a general absence of very large specimens. Among them we noticed the rare Peruvian Odontoglossum Phalænopsis, with narrow grass-like leaves, and large yellow-eyed white and rose-coloured blossoms, flat and beautifully marked; also one or two well-flowered specimens of O. nævium and of O. Pescatorei, the last quite a gem in the class to which it belongs. Of Anguloa Clowesi we observed one plant with no fewer than eight fully expanded bright yellow flowers on it; and there were some grand examples of Calanthe, Vanda, Aerides, Saccolabium, Lælia, Dendrobium nobile, D. aggregatum, and other well-known plants. Vanda gigantea was also present, but not in good condition; and we remarked among other species of Phalænopsis the rare delicate pink-flowered P. Schilleriana. Cypripediums, among which were some well-flowered plants, included an example or two of C. Hookeræ, an East Indian kind, with prettily variegated leaves and greenish flowers, with broad expanded rosy-purple petals. Of rarities, among Dendrobes there were Dalhousianum and Dayanum, the last certainly, as shown, in all respects inferior to either macrophyllum or anosmum.

Awards.—20 plants: 1, Mr. Baker; 2, Mr. Milford. 12 plants 1, Mr. Penny; 2, Mr. Page; 3d, Mr. Peed. 6 plants: 1, Mr.: Williams: 2, Mr. Jackson; 3, Mr. Rhodes. *Amateurs*—1, Mr. Wiggins; 2, Mr. Green; 3, Mr. Chilman; 4, Mr. Wheeler.

Azaleas.—Most of those exhibited on this occasion were literally "mountains of bloom," a remark especially applicable to the fine specimens furnished by Messrs. Veitch and Mr. Turner, both of whose groups consisted of plants of great size. It was universally admitted, however, that their appearance was far from being natural, owing to the stiff formal manner in which their branches were tied in; indeed, so even and regular was their surface, and so perfect was their conical shape, with not a green leaf to be seen, that their general aspect, especially when viewed from a distance, was more that of huge crinolines than plants. Let us hope, therefore, that a more tasteful mode of training may be as soon as possible subtituted for that just noticed. It may however be said that we know what we have, but not what we shall get. Nevertheless some change seems absolutely necessary; and we feel sure that the two great growers in question will be the first to seek for it. Among varieties there was little new; of well known kinds we noticed a magnificent specimen of the double-flowered Glory of Sunning Hill. When shall we see an equally fine plant of the new double white sort called Flag of Truce? There was also a wonderfully fine plant of the old yellow sinensis from Mr. Carson.

Awards.—8 plants: 1, Messrs. Veitch; 2, Mr. Turner; 3, Mr. J. Fraser; 4, Mr. Rhodes. *Amateurs.*—1, Mr. Carson; 2, Mr. Mellnish; 3, Mr. Page; 4, Mr. Cross. 6 plants: 1, Mr. Green; 2, Mr. Penny; 3, Mr. Wheeler; 4, Mr. Kaile. *Nurserymen.*—1, Messrs. Veitch; 2, Mr. Turner; 3, Messrs. Lane & Son; 4, Mr. J. Fraser.

Roses.—Notwithstanding the trying circumstances as regards weather to which these have been subjected of late, never have collections in pots been shown in better condition than on this occasion. Mr. Wm. Paul's plants were truly magnificent, and Messrs. Lane's and Paul & Son's were also fine. Those from amateurs were less satisfactory. Cut Roses, of which many boxfuls were shown, both by Mr. Wm. Paul and Messrs. Paul & Son, were all that could be desired, and the day being dull they preserved both their freshness and delicious perfume to the very close of the exhibition. As respects kinds we saw nothing different from what have often been noticed in former reports.

Awards.—10 plants: 1, Mr. W. Paul; 2, Messrs. Lane; 3, Messrs. Paul & Son. 6 plants (*Amateurs*): 1, Mr. Terry; 2, withheld; 3, Mr. Cross.

Heaths.—Among these there is still a great want of novelty. We did, however, observe a rather new kind called Spenceri, which promises to be an acquisition, and among old varieties were some fine plants of the true tortiliflora. Next month, when the finer summer flowering varieties are in bloom, we hope to be able to record the names of a few good kinds.

Awards.—10 plants: 1, Messrs. Jackson; 2, Mr. Rhodes; 3, Mr. Baxendine. 8 plants: 1, Mr. Peed; 2, Mr. Page. 6 plants: 1, Mr. Chilman; 2, Mr. May; 3, Mr. Wheeler.

PELARGONIUMS.—Those shown by Mr. Bailey, of Shardeloes, on this occasion were so extraordinary both as regards flower and fine growth as to throw all others comparatively in the background. Nevertheless, his able competitor Mr. Nye also had good plants, as had likewise both Mr. J. Fraser and Mr. Turner. Mr. Bailey's plants measured upwards of 4 feet in diameter, and about 2 feet in height. Such specimens confer on the cultural instructions which he gave in our volume for last year (see p. 725), increased value, and render the names of the plants he showed on the present occasion worth recording. They were Sir Colin Campbell, Monarch, Rose Celestial, Etna, Desdemona, The Belle, Sanspareil, and Lord Clyde. Among spotted varieties, the best were perhaps Sanspareil, Osiris, and Spotted Gem. Fancy kinds we shall find in better condition at the next exhibition. Among Seedlings, Commander, Edgar, John Hoyle, Pretty Mary, Cicero, and Rubens received First-class Certificates; and to Mrs. Ford, a rose and white Fancy variety, a Second-class Certificate was awarded.

Awards.—10 plants: 1, Mr. Bailey; 2, Mr. Nye; 3, withheld; 4, Mr. Weir. 12 plants: 1, Mr. J. Fraser; 2, Mr. Turner. 6 Fancy sorts: 1, Mr. Turner; 2, Mr. J. Fraser. *Amateurs.*—1, Mr. Bailey; 2, withheld; 3, Mr. Weir.

Rhododendrons.—A small group of these was furnished by Messrs. Lane; and from Mr. Noble, of Bagshot, came among others, a glorious new white kind named The Queen, which in its way must long stand in the first rank. It is, we believe, a seedling from album elegans, crossed with some other light sort. It is said to be very hardy, and a comparatively late bloomer.

Calceolarias.—Collections of herbaceous varieties of these, extremely well grown and flowered, came from Messrs. Dobson and Mr. James. They consisted, for the most part, of the usual spotted varieties; but in Messrs. Dobson's lot was a crimson scarlet, called Incomparable, which deserves mention on account of its bright colour, and Mr. James had a clear yellow sort named Mr. Eyles. Cluster, crimson spotted on a buff ground; Conqueror, crimson scarlet on a yellow ground; Miss Smith, and Kelly, were also all varieties well worth growing.

Miscellaneous Subjects.—Foremost amongst these was a terra cotta basketful of little Alpine plants, sent from York by Messrs. Backhouse. They were intended to have been shown in the chinks and crevices of little moss-covered rocks, as they are often found wild, but during their journey to London by railway the rockery was upset, and some of the plants were much injured. Among those nevertheless produced in good condition were Aquilegia alpina, the dwarf-growing Myosotis alpicola, the prettily veined-leaved Goodyera pubescens, the little bright blue Gentiana bavarica, the pink Primula farinosa, finely in flower; the orange and violet Linaria alpina; and Androsace villosa, the last with minute pink-eyed round snow-white blossoms. From Messrs. Barr & Sugden came various Fern cases, and neat-looking rustic plant stands. Mr. Williams furnished a group of Yuccas, Cordylines, Dracænas, Agaves, and similar plants, of which he has an admirable collection. Various new and rare plants, some of them Ferns, and others remarkable chiefly for the beauty of their leaves, also came from Mr. Bull, and we noticed some extremely well grown Lycopods and Ferns from Mr. Young, of Highgate. Pansy blooms came from Messrs. Downie Laird & Laing, from Mr. Hooper, from Mr

Watson of Dunse, and others. Finally Messrs. A. Henderson & Co. sent hanging baskets; and from Mr. Treen, of Rugby, came cut blooms of Verbenas.

Of new plants an account will be found in another column. Some very showy Seedling Pelargoniums were produced, but these we shall soon have another opportunity of reporting on.

We may add that Mr. John Waterer's exhibition of American plants is already in considerable beauty, and that only a few days of bright sunshine are required to have it in perfection. It promises to be even finer this year than on any previous occasion.

Royal Horticultural: *May* 24.—An exhibition was held in one of the arcades adjoining the Conservatory on this occasion, with the view of showing the various uses which may be made of flowers for the decoration of halls, drawing-rooms, dinner-tables, balconies, churches, &c. Although a considerable number of subjects, consisting chiefly of dinner-table ornamentations, were staged, yet of novelty either in material or design there was none; and with the general appearance of the exhibition, which was supported principally by dealers in table ornaments, disappointment was evidently experienced by many of the visitors. Mr. March's Crystal Jardinières or drawing-room tables for cut flowers, shown by Messrs. Banting, of St. James Street, formed conspicuous objects, as did also the large quantities of glass vases and other ornamentations in the same material from Messrs. Naylor & Co., Princes Street, Cavendish Square; and Messrs. Dobson & Pearce, of 19, St. James's Street. Mr. Robson, gr. to Lady Holmesdale, showed a cage-like table ornament with twisted glass ribs, between each of which was a vase full of flowers; and what is called the Holmesdale flower stand, for the decoration of the dinner table, shown by Lady Holmesdale, was highly commended by the judges for good taste and arrangement. Some tin-cased gilt wicker baskets, suitable for the centres of round tables, filled with gay flowers, and really very pretty, came from Lady Hume Campbell; and in some of Messrs. Dobson & Pearce's glasses various kinds of flowers were very tastefully arranged by Mr. Drewitt, gr. to Mrs. Cubitt, of The Deubies, near Dorking. Among them were Fortune's white Banksian Rose and the reddish buff flowered Sikkim Rhododendron Bedfordianum, together with Abelia floribunda and other examples of interesting plants. From Mr. Lucking came little baskets of plants for room decoration, and examples of March's glass stands neatly filled with Roses, Toothed Lycopod, Lily of the Valley, Isolepis gracilis, and Ferns, were also furnished by the same exhibitor. Some neat alabaster paste vases filled with Ferns, and ornamented on the sides with human figures, flowers, and fruit, were shown by Mr. Bull; who also contributed collections of plants for halls and churches, consisting of Dracænas, Rhopalas, Grevilleas, Palms, Musas, Yuccas, Aralias, Alsophila excelsa, Araucarias, and similar plants. A rather pretty design for the decoration of the dinner table was shown by Miss Wint, of 8, Gloucester Terrace, South Kensington. It was in the way of March's; but instead of one support it had three made of twisted glass, and the upper tray and vase at top which they supported, were tastefully filled with flowers, as was also the circular tray at the base; this was called the Victoria flower stand. Wire cornucopias, filled with dried Moss and flowers, also came from the same exhibitor. The Weeks' flower stand, formerly described in our columns, was furnished by Mr. Helbronner. Bouquets made of shell flowers were produced by Miss Beaumont; and of paper bouquets and plants made of that material, examples came from Miss Wetherfield, of Henrietta Street, Covent Garden, Miss Hughes, 45, Albany Street, and others. Charming vasefuls of rice paper flowers were, as usual, shown by Mrs. Stoddart.

An ornamental screen with upright trelliswork, covered with artificial Ivy leaves, surmounted at top by a wreath of Stephanotis and Passion-flowers, was shown by Miss Yates, of 3, Baker Street, Portman Square. This was fastened to a boxful of artificial plants, and altogether had a natural and very pleasing appearance. From Mr. Bull came boxfuls of living zonate-leaved Pelargoniums, of different kinds, for the decoration of balconies; and various iron and terra cotta contrivances for similar purposes were furnished by the Coalbrook Dale Company. Wardian Cases and pretty looking rustic vases for Ferns and plants of that description were likewise shown by Messrs. Barr & Sugden, of King Street, Covent Garden.

As regards churches, Mrs. Mould, of Onslow Crescent, showed an Easter Cross ornamented with white Pinks; and a wall decoration, consisting of circles made of the flowers of Guelder Rose, rose-coloured Pelargonium, and Laburnum, so placed as to intersect one another, also came from the same exhibitor. A pasteboard cross decorated with Lily of the Valley was furnished by Miss Gray, of Onslow Crescent; and against the wall of the arcade were chancel screens made of berried Holly for Christmas, and Box ornamented with different kinds of flowers for Easter. These were the work of the Misses Sutherland, of Coombe, who also had a neat Cross made of Wheat ears, and other interesting devices, chiefly in Holly.

The words "God save the Queen," made of wild flowers, were furnished by little boys of Spencer School, Wimbledon; and the same words in purple Rhododendron blossoms on a green ground were also shown, in the shape of a "swag," or large wreath, the only one apparently exhibited.

May 25 (*Election of Fellows*).—The following candidates were elected Fellows, viz.:—

Viscountess Boyne; Hon. Frederick Calthorpe, M.P.; G. H. Fitzroy, Esq.; P. Gadban, Esq., Consul General for Turkey; Miss Heron, Miss Laing; A. H. MacDougall, Esq.; Lieut.-Colonel R. H. Magenis; W. J. H. Money, Esq., Mrs. Brice Pearse; W. Russell, Esq.; Mrs. John Stapleton; S. Vaughan, Esq.; and A. Walls, Esq.

Notices of Books.

How to Lay Out a Garden, &c. By Edward Kemp, Landscape Gardener, Birkenhead Park. Third Edition. Bradbury & Evans. 1864.

The task of an author, we are told, is either to teach what is not known, or to recommend known truths by his manner of illustrating them. The latter would seem to have been the object that Mr. Kemp had in view when he prepared the excellent work now before us, of which we hail with pleasure the appearance of a new edition (the third), greatly enlarged, and illustrated with numerous additional plans and sketches of gardens and garden objects.

When noticing this work on a former occasion, we expressed our belief that it was one of the best books on pure garden design in the English language. Our opinion remains unchanged. There may indeed be more learned and classic works on the subject of landscape gardening; but we doubt if there is one that contains so much useful information and practical details, relative to the laying out of a garden, as are to be found in this unpretending volume.

The first part of the book, which professes merely to be suggestive, is devoted to a consideration of the various characteristics most generally desirable in a place of residence, but which are sometimes overlooked, or not so much attended to as they ought to be. The most important are the selecting of a site for a house, and the means of access to it; the nature and appearance of the surrounding property; the character of tthe soil; the supply of water; the aspect most desirable for a house and garden, &c. These and several other points are fully discussed, and will be found well deserving the attention of every one about to purchase an improvable property, with the view of forming it into a permanent residence.

The second part tells us "what to avoid," and shows that negative rules are sometimes of importance. For want of such beacons, it is truly observed, many a person who has gardened for himself has irretrievably spoiled his place before discovering his error. The most prevalent mistake is attempting too much, of which we have in our time seen some glaring examples, attended with the very same results as Mr. Kemp has described. Under this head it is remarked: "The effect of a garden may be marred by the formation of numerous flower beds, or groups of mixed shrubs and flowers, on the lawn. This is a very common failing, and one which greatly disfigures a place, especially as where intended only for flowers such beds usually remain vacant and naked for several months in the year. Flower-beds, too, when introduced in any quantity on a lawn, have an exceedingly artificial appearance, and interfere sadly with all ideas of breadth, harmony, and repose."

In a small garden the employment of rockeries, or other rustic objects in connection with the house, or in its immediate neighbourhood, is objectionable; and for this reason: "Every house must be regarded as a work of art, whatever may be its class or merit, and there would consequently be a want of harmony in associating it with anything composed of or resembling the uncultivated parts of nature. However ingeniously it may be contrived or executed, therefore, a rockery near a house must be considered radically wrong; and though great skill should be used in adaptation, or a variety of fortunate circumstances eventually awaken interest, these can never wholly atone for a fundamental error."

In this way many errors that are frequently committed are pointed out, in order that they should be specially guarded against. Among these may be noticed the adoption of too great a mixture of styles in gardens. Unsuitable ornaments, such as figures, bridges, flag-poles, groups of stones, &c., all manner of eccentricities, and in fact everything partaking of the nature of a sham, must be avoided by persons who have any desire to obtain credit for correct taste.

"What to attain" embraces a wide field for discussion, and forms the subject of the third part of the book. Here we have the general principles laid down upon which the art of landscape gardening mainly depends for being practised with success. We have also the rules that are applicable to them fully explained and illustrated, where it was considered necessary to do so, by a variety of neatly drawn plans and sketches, which will be found well deserving of careful study and attention. But it must not be supposed that the knowledge of these rules will enable any one to lay out a garden according to order, as it is obvious that every place will have some peculiarity belonging to it which will require a certain manner of treatment. Hence the landscape gardener must be guided by other circumstances, as well as rules. He must know the nature of the ground and the appearance of the surrounding scenery; the aspect and style of the residence; and the wants and wishes of the proprietor. These having been ascertained, he is then enabled to display his taste and skill by modifying some one or other of the rules, and adapting them in such a manner as to produce not only the best effect, but to harmonise with existing objects.

Nature is the great school of landscape gardening, but Mr. Kemp is not one of those who would carry the principle of imitation of Nature very far, or into minor matters. On this point we subjoin the following excellent remarks:—"To regard a garden otherwise than a work of art, would tend to a radical perversion of Nature. It is and must remain that which its proximity to the house alone enables it to be. No ingenuity can convert it into a forest glade or a glen. Nor is such a transformation to be wished for, were it possible, any more than that a dwelling should be transmuted into a hut, or a den, or a cave. A garden is for comfort, and convenience, and luxury, and use, as well as for making a beautiful picture. It is to express civilisation, and care, and design, and refinement. It is for the growth of choice flowers, and the preservation and culture of exotic trees and shrubs, with novel and interesting and curious habits, which could not be reared without the most assiduous guardianship and attention. In these respects it is fundamentally different from all natural scenes.

"Reflections such as these will make it plain that they who would imitate Nature in gardens, must do so in another way than by copying her piece-meal. They ought, indeed, to be imitators, but not copyists, transcribing her spirit, and not her individual expression—her general countenance or aspect, and not her particular features. An artist, be he a painter or a landscape gardener, or an amateur in either branch, should go to Nature to study principles, gathering up snatches of scenery, and storing them in his memory or his portfolio for future adaptation and use. He should note all that pleases him, and endeavour to understand how and why it influences his mind. By thus filling his brain with numberless beautiful little pictures or images, and his intellect with the foundations and sources of pleasure in his art, he will come from Nature doubly primed to give practical utterances to his imaginings, and prepared to embody in a composition the finer touches and more artistic and spiritual elements which he has collected from such a variety of sources. It is in this way that the imitation of Nature will be but the ennobling of art; the airy elegance and flying graces of the one being engrafted on the more substantial characteristics of the other."

The preceding extract will enable our readers to form some idea of the pleasing and attractive style in which the book is written. After laying down the principles upon which the art of landscape gardening is based, Mr. Kemp proceeds to show how they are to be applied, and for this purpose he gives a variety of plans and details, from his own practice, in which he explains the peculiar features of certain places he had to alter and improve, and the manner in which their incongruities were treated. His remarks on architectural gardening, for which the taste appears to be gradually increasing, are full of good sense, and merit particular attention. Its proper sphere is stated to be the immediate neighbourhood of the house, and as an accompaniment to styles of architecture. Whether the latter is a variety of Grecian or Italian, the garden ought to be distinguished by symmetry and regularity. It should exhibit a strict observance of rule, and a prominent indication of art, so as to harmonise with the house and other architectural objects. It specially demands that everything should be good and nicely finished, that the plants be of the best and most carefully selected kinds, the Grass evenly laid, the figures and beds and edgings of walks neatly and accurately cut, and all the lines, whether of walks or edgings, extremely straight or regular.

Respecting other kinds of gardening, some beautiful designs and explanatory details of great interest are given, but for these we must refer our readers to the book itself, in which they will find all the information they can possibly require about the laying out and arranging of flower and kitchen gardens; rock, Fern, and Rose gardens, as well as of those attached to suburban villas, &c. Indeed nothing has been omitted to render the work a perfect guide, that might be confidently referred to on every subject connected with the formation of a garden, and the furnishing of it with the most tasteful and fitting accompaniments for its enrichment. We therefore cordially recommend it as being indispensable, not only to the young gardener, but to all who take an interest in gardening, and desire to acquire a knowledge of the principles upon which the beauty and attractiveness of a garden so much depend.

In conclusion we will merely add that the book is beautifully printed, and has a capital index, which is of itself a great recommendation.

Watts's Excellent Dictionary of Chemistry, Part XV. which has just appeared (Longmans), contains, among other matters, a capital article on Heat, by Mr. George Foster.

Miscellaneous.

Exhibitions of American Plants.—The fine show of Rhododendrons and other American shrubs in the gardens of the Royal Horticultural Society, which has been supplied by Messrs. Waterer & Godfrey, from the almost inexhaustible riches of the Knap Hill Nursery, is to be formally opened to-day. It takes place in a monster tent just constructed, which is some 300 feet long, 120 feet wide, and 55 feet high, and is supported by two iron masts. The display therefore is very extensive, and the choice picked specimens of fine hybrid Rhododendrons with which the tent is crowded, produce a gorgeous effect. The exhibition in the gardens of the Royal Botanic Society in the Regent's Park, which is supplied by Mr. John Waterer of Bagshot, opens on the 6th of June.

Orchids.—We understand that Mr. Robert Warner's fine specimens of Cattleya Mossiæ are now in full bloom, and that any lover of Orchids will be allowed to inspect them. We may add that the display at present made by them is magnificent, and will well repay a visit to Broomfield, which is near Chelmsford.

St. John's Bread.—M. Jules Prévet has given in the *Mondes* the following notice of this plant, more commonly called the Carob tree, its botanical description, and its uses. The Carob (Ceratonia Siliqua) belongs to the family of Leguminous plants. It is a tree which grows principally along the whole of the coast of the Mediterranean. The fruit of the Carob is of a soft sweet pulpy texture. Poor people and children who eat it as food, have every appearance of good health; and animals to whom it is given are fat, glossy, and very much esteemed, on account of their firm juicy flesh. In Egypt, a refreshing but mucilaginous beverage is made from its fruit, and also very agreeable brandy. M. Chevalier, who has recently analysed it, states that its fruit, which is flat, brown, and from 15 to 30 centimetres long, contains water, a sort of vegetable albumen, a kind of gum, cellular matter, a small quantity of fatty matter, resin, some acetic acid, resulting perhaps from the fermentation of a part of the sugary matter, an acid analogous to malic acid, tannin, some uncrystallisable sugar, several salts, phosphates, chlorides, sulphates, potash, lime, and traces of silex and oxide of iron. Instead of Chicory, so fatally called the poor man's Coffee, which is so frequently adulterated, and so unpalatable and unwholesome, M. Prévet proposes to substitute the Carob, torrefied and powdered, as a very wholesome food, agreeable, requiring no sugar, and which could be sent to market at an extraordinarily cheap rate. Coffee, which is an excitant, and antisoporific, which stimulates the secretion from the kidneys, and produces a well-known complaint amongst women, could be well replaced by an infusion of torrefied Carob, which acts at the same time as a tonic and sedative, producing in the pit of the stomach a gentle and beneficial warmth, and having no effect whatever on sleep, &c. Its nutritive properties recommend it as a suitable diet for children. In Africa, where the Carob tree is very abundant, the infusion might be given to troops, who in time would very probably prefer it to spirituous liquors, which only debilitate them.

Singular Case of Parasitism.—In June, 1861, M. Wagner found under the bark of a young Elm which was dead in the neighbourhood of Kasan, some white footless worms, which from their organisation were plainly the larvæ of some insect. Each of these larvæ was itself filled with minute larvæ. In that there was nothing remarkable, for it is well known that cases of parasitism in insects are very common. But what struck M. Wagner was, that the larvæ enclosed were the facsimiles, in the minutest details, of those that contained them. This similarity would lead to the conclusion that the larvæ enclosed represented a second generation formed by the larvæ that enveloped them. Here then is a case of alternate generation still more astonishing than that in Aphides. In Aphides without sexes, false eggs form in an organ which is analogous to the ovary of individuals with sexes, whilst in the footless larvæ found by M. Wagner, the false eggs were formed in the fatty mass. This body is divided into a number of lobes, each of which is enclosed by its own membranes, and forms what M. Wagner calls embryonic portions, a term for which we substitute *pseudova* (false eggs). The development of a false egg appears to resemble very much that of a real egg. M. Wagner has observed three other species of the same kind, all presenting this curious method of reproduction. The perfect insect is at present unknown. From the appearance of the larvæ they would appear to belong to the order of Diptera. *Les Mondes.*

Calendar of Operations.

(*For the ensuing week.*)

The present is a good time for thinning annuals. If the plants are allowed space, they will develop themselves properly, which cannot be the case when they are crowded together. Such kinds as Nemophilas, Clarkias, Eschscholtzias, Erysimums, and others, which are not only beautiful, but well known, may be freely thinned out. In planting out those which have been raised in frames, it must not be supposed that when they are placed in the ground they may take their chance. Choose, if possible, showery weather for the operation; it will save much trouble and disappointment. Dry and keen winds are seriously detrimental to plants of the description we now allude to; and the trouble of previously potting in small pots, and gradually hardening, will be amply repaid by their size and vigour during the summer; for it will be apparent to every one, that the annual which can be placed where it is to flower, with a ball of soil and a mat of roots, will have great advantage over one which has hardly a particle of earth attached to its fibres when planted.

FLOWER GARDEN AND PLANT HOUSES.

Climbing or trained plants while growing will require constant attention in the way of thinning and stopping. As soon as the weather shall have become more genial, air must also be freely admitted, and pot plants, especially fine specimens, must be allowed abundance of room. Maintain a moist temperature, and see that nothing suffers for want of water. Inspect carefully young stock, especially that for blooming next winter. Early-sown Chinese Primroses and Cinerarias may be had in flower in October and November.

Carnations and Picotees.—Before the plants have made large roots place sticks to them. When deferred to a later period, thrusting in the stick often destroys some of the roots. Attend to watering, which must always be done effectually, taking care that the soil does not shrink from the sides of the pot, so as to allow the water to drain away without benefiting the roots.

Dahlias.—These will now be all planted out. The soil should be rich and well worked. If not done stake as soon as possible.

Pinks.—Place small neat sticks to these, and top-dress the beds with good decomposed manure.

Polyanthuses.—Shade and moisture are absolutely necessary for these at this season. Save seed from the best-formed flowers.

Ranunculuses.—Water between the rows—not often, but when it is done, let it be well done. Keep the beds free from weeds, and occasionally flood the walks round them.

Tulips.—Attend to hybridising. Well-formed flowers, on the outside beds, or good breeders, exposed to the influences of light, sun, and air, may be successfully crossed. Seedlings should be marked as they bloom.

FORCING GARDEN.

Melons.—Where the fruit is swelling the soil should be kept in a properly moist state, and every means should be used to preserve the foliage in perfect health, as there is no possibility of obtaining good flavoured fruit unless the leaves are kept in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves at once, as these when left only serve as a harbour for insects. There is yet time to secure a good crop in dung beds, and if any of the frames which have been used for getting up bedding-out plants can be spared for this purpose, the plants should be got out at once.

Peaches.—Forced trees in pots that have ripened a few early fruit, should be kept in the house till the beginning of next month at least to finish their growth. Give them plenty of water, and syringe once a day.

Pines.—Where these are grown on the planting out system, it should be remembered that the soil ought to be entirely renovated once in three or four years; the time for this operation must be left to the judgment and convenience of the cultivator; but if all, or nearly all of the older plants in any pit have perfected their fruit, such is an excellent opportunity for the purpose, and this is a very favourable time of year for the operation. The younger plants (which have been put in, one after another, as vacancies occurred) after being well watered, may be carefully lifted with balls, and set in a close shed while the soil is being changed. But if any remain of those which have already shown fruit, they may be left standing, with a small mound of earth about their roots. Or if they are not very far advanced, they may, for appearance sake, be removed with balls to the back row; as they do not suffer if it be carefully done. The soil should consist of about one-third of the best peat that can be obtained, and two-thirds of rich turfy loam, with an admixture of sand, according to the requirements of the other materials. The plants of the back row should be planted before the soil is put in for the second one; and the remaining rows proceeded with in the same order, that none of the soil be needlessly compressed. If the new soil is moderately moist, it will be better to withhold water from the roots for a few days, to allow the plants to make an effort of their own; and until they are thoroughly re-established a moister atmosphere must be kept up, and the pits shaded rather more than usual.

Vines.—A liberal supply of air is the best preventive against scorching. In finally regulating the Grapes of the latest crops, which are intended to hang through the winter, rather more should be cut away than from those intended for earlier use, that the bunch when ripe may hang looser. This will detract a little from their appearance, but the free circulation of air amongst the berries will do much to preserve them from injury in damp weather.

HARDY FRUIT AND KITCHEN GARDEN.

Water where necessary, and keep down weeds among growing crops.

Celery.—A first planting of early Celery may now be put in. Do not spare rich compost, decayed leaves, cow manure, &c., for the bottom of the trench.

Lettuce.—Prick out as wanted, when old crops are done with remove them, and manure and dig the ground.

Onions.—An occasional dusting with soot, on damp evenings, has been found highly beneficial to these. Thin out, and hoe between the rows.

Peas.—Continue to sow for late crops.

Potatos.—Stir the soil between the rows, and earth up as requisite.

Radishes.—The Turnip-rooted are best to sow now. The Black Spanish where liked, may be got in for winter use.

Turnips.—These come in well as successional crops. The Snowball, Orange Jelly, and Stone, are excellent.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 25, 1864, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 19	13	30.195	30.165	81	43	62.0	59¼	56	S.E.	.00
Friday 20	14	30.165	29.928	82	44	63.0	60	56¼	S.W.	.16
Satur 21	○	30 009	29.945	63	44	53.5	60	57½	N.E.	.01
Sunday 22	16	29.981	29.947	74	35	54.5	59	57	N.E.	.00
Mon. 23	17	30.139	29.929	60	26	43.0	60	57	N E.	.00
Tues. 24	18	30.224	30.174	60	30	45.0	58	56	N.	.00
Wed. 25	19	30.051	29.886	71	42	56.5	58	56	N.	.00
Average.		30.109	29.996	70.1	37.1	53.9	59.2	56.5		.17

May 19—Very fine; with heavy dew; very dry air; fine at night.
— 20—Very fine; wind changed to S.W.; thunderstorm at night rain.
— 21—Rain; fine throughout.
— 22—Fine; cloudy; fine; cool at night.
— 23—Cloudy and rather boisterous; fine; frost at night.
— 24—Fine but cold; hot sun and cold north wind; slight frost at night.
— 25—Hoar frost early A.M.; fine; cloudy; fine at night.
Mean temperature of the week 2¼ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
during the last 38 years, for the ensuing Week, ending June 4, 1864.

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29	66.9	44.8	55.3	13	0.97 in.	3	12	3	2	7	6	4	7
Mon. 30..	68.0	45.2	56.6	16	0.34	3	8	6	1	3	9	4	4
Tues. 31..	69.1	45.1	57.1	14	0.48	2	8	7	1	5	8	5	2
Wed. 1..	68.2	44.1	56.1	13	0.27	1	11	4	—	5	11	3	3
Thurs. 2..	68.4	45.0	56.7	18	0.87	1	4	3	5	3	10	6	5
Friday 3..	69.0	44.4	56 7	17	0.91	1	4	5	1	5	14	3	5
Satur. 4..	69.1	44.8	57.0	14	0.76	2	3	2	2	4	11	8	4

The highest temperature during the above period occurred on the 3d June, 1846—therm. 85 deg.; and the lowest on the 31st May, 1857—therm. 32 deg.

Notices to Correspondents.

A T S: *Mr. Bennett* says that in reading over his communication (see p. 486) he sees that he has omitted to state that the birds which are used as traps for these pests should be cut open before being placed in the ruus.

Books: *Amateur.* Thompson's Gardeners' Assistant will doubtless answer your purpse.

British Plants: *G S T.* You will probably get the plants you inquire about of Mr. Sim, Footscray, Kent, if indeed some of them are procurable anywhere.

Double Cardamine: *C J D.* There are both a double purple-flowered and a double white-flowered variety, known in cultivation. Yours, found wild near Chorley some few years ago, and which makes a very useful border flower, is a good deal like the purple one occasionally met with, but we have none at hand to compare it with. We have not heard of a second double purple variety like the distinct smaller sort you mention.

Golden-leaved Pelargoniums: *Mary.* The best of the golden-edged Pelargoniums with a red zone which has yet been made public, is that called Lucy Grieve; but Mrs. Pollock is good—very good, and more plentiful. We prefer Cloth of Gold amongst the yellow-margined sorts which are not also zoned with red.

Melon Leaves: *J P.* Your leaves are scorched, either by the sun or by dryness at night in consequence of radiation. It is very possible, however, that they would have felt neither had they not been constitutionally weak. Scorching and withering can be guarded against; but no one knows how to remedy constitutional weakness. There is no Fungus on your leaves. *M. J. B.*

Names of Plants: *A J.* Polemonium cœruleum; *vulgò*, Jacob's Ladder.—*S S.* Rheum crispum.—*Tavistock.* 1, Hebenstreitia dentata; 2, Crotalaria somperflorens.—*Y E R.* Onosma echioides.—*R S.* 1, Saxifraga Cotyledon; 2, Veronica saxatilis; 3, Saxifraga palmata; 4, S. hirta?—*Bertie.* 1, indeterminable; 2, Spiræa prunifolia fl. pleno; 3, Asplenium Adiantum-nigrum acutum; 4, Woodsia obtusa.—*Eastbourne.* Glaucium luteum—a mild narcotic of no importance.—*A Subscriber.* 8, Adiantum Capillus-veneris; 9, Adiantum formosum.—*M.* Ligustrum sinense. *S.*—They are all varieties of Polygala vulgaris, which is very sportive in regard to its colouring. *J D.* 1, Dryas octopetala; 2, Potentilla rupestris.—*C. E. F.* Æsculus flava.—*G. S.* It is certainly Rhododendron theiflorum. Your informant can't know anything about the species of this glorious genus.—*L E R.* 1, Spiræa hypericifolia; 2, Spiræa opulifolia; 3, a deformed Narcissus poeticus.

Pyrethrums: *J J H.* You should make your selection of the new double Pyrothrums now, or very shortly. We believe Mr. Salter's collection is or will soon be in bloom.

Rhododendron Fortuni: *Bromley Palace.* We are obliged to ask you to wait for an answer till next week, as we have no flower in our herbarium, and you have sent no leaf.

Vine Disease: *G B C.* We have examined your Vine leaves and Grapes very carefully. Though the upper leaves look white, it is only from the hairs, not from any mould. Your Vines are evidently affected with the disease called Chlorosis, but why they are so affected it is impossible to tell without personal examination, and perhaps after examination we might be as little able to point out the cause. Water one of your Vines with a *weak* solution of sulphate of iron (copperas), and see if it has any effect, but do it cautiously. There must, however, be some local cause, as more than one variety is affected, and this you may, perhaps, be able to discover. *M. J. B.*

Watering: *Subscriber.* The best time to water a garden at this season of the year is in the evening, because the moisture is not then so speedily dissipated.

Watering Contrivances: *Dover.* Don't buy it. Experto crede Roberto.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

SPRING SESSION, 1864.

President.—The Right Hon. the Earl Bathurst.

Council.

Rt. Hon. the Earl Bathurst. | Rt. Hon. T. H. Sotheron Estcourt, M.P.
Rt. Hon. the Earl Ducie. | Edward Holland, Esq., M.P.
Hon. William Bathurst.

Principal—The Rev. John Constable, M.A. Trin. Col. Camb.
Farm Manager.—J. L. Fletcher.

RESIDENT PROFESSORS.

Chemistry.—Arthur H. Church, M.A., Lincoln Coll., Oxon., F.C.S.
Assistant to Chemical Professor.—R. Warington, Jun., F.C.S.
Botany.—John Baylon, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. Murray, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. Meredith Lane, B.A., Scholar of Trin. Coll. Camb.
Drawing.—James Miller.

SPECIAL LECTURERS.

J. Bailey Denton, M. Inst. C.E.—On DRAINAGE.
Professor J. Morris, F.G.S., of University College, London—On GEOLOGY.
John Gamgee, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
Willoughby Wood, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
John Algernon Clarke, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
John Thornhill Harrison, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
Thomas Baldwin, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
Robert Russell, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
Richard Griffiths Welford, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.

Applications for Admission and for further particulars may be made to the Principal.

Land Drainage, & other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.

For particulars, apply to him, at 52, Parliament Street, Westminster.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 6*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.

MR. J. BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works: Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.

22, Parliament Street, Westminster, S.W.

LAND DRAINAGE.—WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRINAGE and IMPROVEMENT COMPANY, on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.

Repayment may be made by the Landowner as successive portions of the Works are completed, or the outlay and expenses may be charged on the estate by way of rent charge created for such a term of years as the Landowner shall determine will best adapt the annual payment to the circumstances of the tenants.

No investigation of title being required, or notices given to reversioners or mortgagees, no legal expenses are incurred.

Works of irrigation, enclosing, wood-grubbing, road-making, and farm buildings are executed in a similar manner.

Landowners desirous to execute any of the improvements by their own agents, and charge the outlay and expenses on the Estate, may obtain loans for the purpose.

Applications to be made to William Clifford, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY.

Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

To Landowners, the Clergy, Estate Agents, Surveyors, &c., in England and Wales, and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

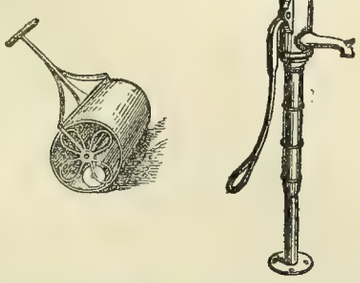
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W.

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Cottam & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot-water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.

Illustrated Catalogues free of Cottam & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

The Prize Essay on

"THE REARING of CALVES." By Thomas Bowick, Britannia Farms, Bedford (late Stoneleigh Abbey Farm).

By special permission of the Royal Agricultural Society of England, a reprint from their Journal of the above Essay is now before the public, by Messrs. Day, Son, & Hewitt, 22, Dorset Street, Baker Street, London. Price, by post, Three Stamps, or Five Copies for Twelve Stamps. This celebrated Essay should be in the hands of all Breeders, from the large Dairy Farmer down to the Cottager with his One Cow.

The Opinions of the Press.

"Mr. Bowick's Essay, in a concise way, goes into the question of the construction of the Calf-house, the condition of the Cow before Calving, the best season for Calving, the Feeding of Calves, the Quantity of Milk and other food, the Health and Disease of the Young Calf, the Spring and Summer Feeding, &c. We recommend the perusal of the Essay to those who are employed in rearing calves."—*Mark Lane Express*, November, 1863.

"It is a cheap tract, well written, on a matter of great practical importance, and is certain to receive a wide circulation."—*Agricultural Gazette*, November, 1863.

"The Essay will be very acceptable to Farmers, in general and a better two-penn'worth it would be impossible to recommend. It ought to be sown broadcast over England; and no farmer, bailiff, or servant in husbandry should be without it."—*Worcester Herald*, 2d January, 1864.

*** Address: Day, Son, & Hewitt, 22, Dorset Street, Baker Street, London, W.

AGRICULTURAL HALL, OPEN THIS DAY. Admission 2*s.* 6*d.* until 6 P.M.

DOG SHOW OPEN THIS DAY, and MONDAY, TUESDAY, and WEDNESDAY.

ADMISSION after 6 P.M. on SATURDAY, One Shilling.

ADMISSION, DOG SHOW, MONDAY, TUESDAY, and WEDNESDAY, 1*s.*

SECOND INTERNATIONAL DOG SHOW at the AGRICULTURAL HALL, contains besides Foxhounds, Stag Hounds, and every variety of Dogs used in Field Sports, very fine specimens of the true English Mastiff, Indian Mastiff, Kangaroo Hounds, Boar Hounds, Bull Dogs, Terriers English and Scotch, and every kind of Toy Dog and Pet.

Admission, SATURDAY, May 28, 2*s.* 6*d.* until 6 P.M., and after 6 P.M. 1*s.*; and on MONDAY 30th, TUESDAY 31st, and WEDNESDAY, 1st June, 1*s.*

SECOND INTERNATIONAL DOG SHOW. Open from 9 A.M. to 9 P.M.

AGRICULTURAL HALL, ISLINGTON.—The HORSE SHOW will open July 1. Entries close on June 20. PRIZE LISTS are now ready and may be obtained on application to S. Sidney, Secretary.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. Established 1777.

Patron:—H.R.H. The Prince of Wales, K.G.

THE ANNUAL EXHIBITION of STOCK, IMPLEMENTS, POULTRY, WORKS of ART, and HORTICULTURAL SPECIMENS, will take place at BRISTOL, on JUNE 13, 14, 15, 16, and 17.

President, 1863-1864:—The Rt. Hon. Earl Fortescue.

The CATTLE and POULTRY will be OPENLY JUDGED, on MONDAY, JUNE 13.

THE OTHER DEPARTMENTS WILL BE OPEN AS FOLLOWS:

STEAM ENGINES and MACHINERY in MOTION; The ARTS and HORTICULTURAL DEPARTMENTS.—MONDAY.
STEAM PLOUGHS & CULTIVATORS, MOWERS & REAPERS, to work from 11 to 3 o'clock, on TUESDAY and WEDNESDAY.
HORSE SHOEING, at Portable Forges.—WEDNESDAY.
The ANNUAL MEETING and BANQUET, on WEDNESDAY.
The HORSES paraded in the Circle at 12 and 4 daily.

The Band of the Royal Marines (by permission of Colonel Gascoyne, C.B.,) will play on Monday, Tuesday, and Wednesday; and the Band of the Grenadier Guards, (by permission of Colonel Lambert,) on Wednesday, Thursday, and Friday.

Admission:—On MONDAY, TUESDAY, and WEDNESDAY, 2*s.* 6*d.*; THURSDAY and FRIDAY, 1*s.*

Henry St. John Maule, Secretary, 2, Wood Street, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND. MEETING at NEWCASTLE-ON TYNE, July, 1864.

LAST DAY for Entry of Stock, Wool, and Butter, 1st June. All Certificates received after that date will be returned to the senders. Prize Sheets and Certificates will be forwarded on application to H. Hall Dare, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 28, 1864.

MEETING FOR THE ENSUING WEEK.

Wednesday, June 1—Agricultural Society of England.. Noon

As we are going to press, a conference on the subject of Cottages for the Labouring Classes is being held in their public rooms by the Society of Arts. We hope to give a report next week of any suggestions which may be made or information that may be given on this occasion in connection with the several points to which the Society is anxious that attention should be directed. How fully the discussion is to embrace every side of the question appears from the following programme of the discussion.

The points to be illustrated in succession are the following:—

1. The insufficient number of habitations for the labouring classes in town and country,
2. The badness of the existing accommodation.
3. The effects arising from this state of things, viz.:—
   (*A*) Religious, moral, and social.
   (*B*) Sanitary.
   (*C*) Economic.
4. The causes to which these evils may be, or have been, attributed, such as—
   (*A*) The Law of Settlement.
   (*B*) The Poor Laws.
   (*C*) Tenure of property, such as mortmain, leasehold system, tenancy for life, &c.
   (*D*) Legal difficulties affecting the transfer of property.
   (*E*) Difficulty of providing proper dwellings at a cost which will be remunerative to capital in town and country.
5. Remedies:—
   (*A*) What can be done by Legislation?
   (*B*) What can be done without Legislation?
   (*C*) What assistance, if any, can the Society give in either of these directions?

It is plain, as regards the last question on this list, that the Society are answering it themselves in a very effective manner. The public discussion of difficulties by those best qualified to assist in their removal is the best assistance that can be given *ab extra* towards the solution of those difficulties which are thus pointed out.

And, for the rest, it has been more than once pointed out in these columns that the difference between the field and the garden value of land is the cottage-building landlord's great resource and help. Ten acres of land divided into large gardens for a hamlet of 20 or two dozen new cottages may be worth but 15*l.* per annum to the farmers: they are however worth from 60*l.* to 80*l.* per annum to the tenants of the cottages. And the difference between those two sums represents a capital sum of 900*l.* to 1300*l.*, which is a contribution of 30*l.* to 40*l.* per cottage towards the cost of their erection. Add to this the interest of the tenant farmer in having labourers near their work, which should make him willing to bear his share of the annual cost of cottages upon the farm; and it appears to us that in country districts there is little real difficulty in the way of those owners of land who may lament the insufficiency of cottage accommodation on their land.

The man-engine in the Cornish mine, by which half an hour suffices to take the miner to and from his work, in place of the hour or two at either end of the day wasted in climbing up and down the ladders, has added a full third to the efficiency of his labour. A cottage on the farm, compared with one in the village three miles off, is like a man-engine in contrast with the ladders. A labourer fresh to his task can accomplish it more satisfactorily than one who does an hour's work before beginning it. And the tenant farmer on this ground may well be expected to bear his share in the burden of supplying the cottages by which the value of his labourers is so much increased to him, and the profitableness of his farm is increased.

The plans and details of construction by which cottage builders should be guided are well illustrated in Mr. Bailey Denton's valuable lecture on the subject, reported in the Journal of the Society of Arts for May 13.

We saw the other day several fields covered with 12 to 14 tons of Grass per acre. It stood as high as a walking stick, and as thick upon the ground as it could grow. Of a dark green colour, and still succulent from end to end of every stalk, with the flower spike barely through, it was then the very best green food that could be given to milk cows. And for this purpose it was being sold. Cow keepers in the neighbourhood were coming all day long and carrying it away, paying 1*s.* a rod, or at the rate of 8*l.* per acre for it on the spot. And many tons (from 6 to 30 daily) were being sent in to London cow houses; 25*s.* a ton being charged for it delivered there.

One piece which had been cut the previous evening had yielded 29 cwt.; it was 500 square yards in extent. Another piece had been cut the day before, and had yielded 65 cwt. it was 80 yards long and barely 15 wide. In the former case the produce had been after the rate of fully 14 tons per acre: in the latter it had been about 13 tons per acre.

Twenty acres or more had been already cleared, and the land cut earliest (in the end of April), is already covered nearly 2 feet high again. A second cut will be ready there before the middle of next month, a third towards the end of July, and a fourth in September. Perhaps a fifth may be obtained, or the last growth may be grazed upon the land.

The particular field to which we are alluding now, was sown in the autumn of 1862. It yielded four, and some of it five crops last year—12, 10, 7, and 5 tons per acre respectively; and it looks as strong and well this year as ever it has done. The land is worth barely 30*s.* per acre naturally; it is a light soil, shallow, and on gravel—but, richly manured, as near London it may be, it lets in the neighbourhood for 2*l.* and upwards. There are some 240 acres thus in Grass, for the most part in Italian Rye-grass. The enormous productiveness of that plant under favouring circumstances has probably hardly anywhere as yet been fully realised; but it may be well to describe the circumstances under which the produce witnessed in the case referred to has been obtained.

The land in question, about 300 acres in extent,

is let to the Croydon Board of Health, and they have sublet it to their tenant Mr. Marriage for a term of nine years at 5*l.* per acre. It lies near Beddington railway station, about two and a-half miles from Croydon. Mr. Marriage receives the whole of the sewage of Croydon for the use of this land; and passing the whole (about one million or more gallons a day) over the surface of the land, he thus removes from it its noxious and fertilising elements, and converts the filthy turbid ditch-water which comes on to the farm into the clear and limpid stream which leaves it.

The greater part of this land lies on a very uniform and regular slope below the point at which the sewage is received. The channel which brings it is about 6 feet wide, and the stream is usually about 18 inches deep. The water is dark enough to render a white card invisible at about 4 inches deep in it. It is not so filthy as the sewage either of Edinburgh or of Rugby; and this it owes in part to a preliminary separation of much of the solid contents of it, which takes place at the filter-beds below the town—so that only the soluble matters or particles in easy suspension are carried to the farm. There, by the ordinary plan of occasional stops placed in the channel, it is made to flow down furrows about 16½ yards apart, from which by other stops it is gradually poured out over the intervening lands. The slope is so uniform that this is easily effected. Much of the water sinks through into the gravel subsoil, much of it pours over the surface, and excepting the loss by evaporation in the one case, and by final infiltration in the other, both the water which flows and the water which sinks, reappears in the ditch along the lower edge of the field. This ditch carries it to fields which lie upon a lower level—so that the sewage undergoes a double process of filtration over and through the soil before it leaves the farm. Mr. Marriage is responsible for any nuisance that may be charged upon the farm; but although legal proceedings were taken some years ago against the Board of Health because of the nuisance they were guilty of when only a small piece of land had been used, none has yet been proved or even charged against Mr. Marriage and his farm. The land, laid out as described, is sown with Italian Rye-grass in the spring or autumn. In the latter case, as soon as the plant is fully established the field receives the water at intervals of a few days during the winter. One million or more gallons have to be used and purified every day, so that at short intervals every field is continually throughout the year being flooded. In the first year it yields about four cuttings, as already described, and in the second year as many. In the third year the plant begins to disappear, and natural Grasses take its place. It has, however, hitherto appeared to be the best policy to plough the land up as soon as the Rye-grass fails, and to resow. In the third year accordingly it is grazed hard down in the spring, ploughed up, and a green crop is taken and either resown in the autumn on the removal of that crop or sown with a corn crop and Grass seeds in the spring. There are 240 acres of the 300 within reach of the water, and of these some 180 to 200 acres are continually under Grass and irrigation. A field which we had seen in the spring of 1862, then in its first crop of Italian Ryegrass, but not covered with a good or even plant, owing to the rough management which alone was possible in the outset, is now covered with various natural Grasses which have taken its place. This field is now being ploughed up, will yield a crop of Turnips, and probably be sown down again in 1865.

Besides the growth of Grass for sale, a herd of 40 cows, with other young stock and many horses, is kept upon the farm for its consumption. And thus, as well as by the expedient of hay-making whenever that is necessary, any irregularities of demand for the produce which may occur are met. No difficulties of the kind have, however, yet proved very formidable.

The large produce, probably 8000 tons or more of green food, annually disappears as fast as it is grown; and there will no doubt prove to be room enough in the demand of 3,000,000 of people for all the produce which will one day similarly arise out of a proper use of the 20,000,000 cubic feet per diem of sewage water, which is about the quantity in the way of the Metropolitan Board of Works.

— We call attention to the fact that Wednesday, June 1st, is the last day on which entries can be received by Mr. Hall Dare, at the Society's rooms in Hanover Square, of stock for exhibition and competition at Newcastle in July.

PIG FEEDING.

No doubt you have seen the following extract, which I have cut from a weekly paper, but as all your numerous readers may not have seen it, I take the liberty to reproduce it for their especial edification:—

"A farmer near Dorchester has now the enormous number of 3000 pigs. He breeds and purchases to keep up his stock. One week he bought 600 pigs. They are fed partly on Wheat."

It certainly is a novel announcement, but like a new novel, I suppose it is "too strange not to be true." I regret the name of this spirited pig breeder is not given, as no doubt the number of visitors to see such a farm would rival those edified by studying the system of the kind and considerate Alderman of Tiptree Hall.

I beg to consult you, sir, under very peculiar circumstances. I have a large family, and have left the army, intending to adopt agriculture as a profession, at home, or in one of the colonies, but am sadly puzzled to determine where it is likely to pay best? I have consulted many friends; some say, "See what has been done at Auchness Farm, what is now done by Alderman Mechi, and you may do the same, if you take the same means;" others say, "go to Ireland, where land is better, and everything cheaper than in England." Some recommend Canada, near the lakes, others New Zealand or Tasmania.

I have an excellent general knowledge of agricultural pursuits, having long studied and watched the best systems, while I have an enthusiastic love for the life of a farmer, to which I can bring a working capital of a few thousands.

I have studied many standard agricultural works, but that which has most startled me is Mr. Mechi's "How to Farm Profitably," according to which the best paying stock for the farmer is swine. From this I have been induced to consider seriously if a pig breeding farm on a large scale would be likely to pay well? I mean to grow crops to be exclusively consumed by breeding sows, selling off their progeny when weaned, or as soon after as possible, while some should go to market as "roasters." The various roots, corn crops, pulse, Grasses, and vegetables should be grown on the farm, and properly prepared and cooked; while various sorts of offal may be advantageously purchased for feeding say 200 breeding sows.

If Cobbett was near the truth in saying a cow could be kept on one rood of cultivated ground, then I should like to know how many breeding sows one acre should keep?

There can be no doubt pig breeding economically and judiciously managed must pay; then arises the question, On what scale, and under what circumstances is it most profitable?

Two friends of mine, one in the extreme west of Ireland, and one in Hants, reclaimed large tracts of land by adopting the Mechian system of purchasing corn largely to fat pigs merely for the manure; but this, though part of my plan, is by no means its chief feature. I certainly want what Mr. Mechi would call "pig pudding," and urine to improve my land, but I must also have a certain profit by each sow.

I "go the whole hog" with the worthy Alderman on draining deep and clean cultivation, liquid manure, large fields, house feeding all stock, cooking, warmth, and comfort for them, keeping them on boards, &c., but the difficulties are, applying the liquid manure, building the houses, reconstituting the farm. I do not find landlords willing to listen to all this, yet I believe the time is coming when such things must be done by landlord or tenant, under an encouraging lease, which very few will grant. *Agricola.*

THE VEGETABLE MOULD.

In the cooler portions of the temperate zone there is greater difficulty than in warmer regions in restoring the vegetable mould when much exhausted by improvident agriculture, or in improving it when naturally defective. Irrigation, the all powerful fertilizer in the warmer climates, is liable, if carried out extensively in our cooler localities, to have injurious effects by lowering the temperature, and at the same time disposing the Cereals, Grasses, Legumes, Potato, to blight—to disease caused by Fungi or by animalcule destroyers. The Cereals around a small lake in this neighbourhood were almost every season blighted by red and brown varieties of Fungi, and the blighting removed by drawing off the water forming the lake by a tunnel. The same fungous disease termed mildew is well known to prevail around millponds, and stagnating pools, but apparently not so much near running water, or even extensive lakes. In the case of rapid streams the motion may affect the atmosphere favourably, while the force must increase the temperature; and in large lakes the commotion of the waves must produce something of the same effect, while in the small lakes and ponds very little wave commotion takes place. Moisture rises from stagnating pools often as a steaming fog, and lodges on the low ground adjacent, causing some atmospheric change favourable to the growth of Fungi. Under extensive irrigation Cereal blight will no doubt prevail, and the Gramineæ might also suffer. The prevalence of Fungi upon the leaves and stems of Grasses has been found highly detrimental to cattle.

In some of the warmer sand districts in continental regions of higher latitude than 40°, irrigation during the dry hot season will be highly beneficial. In winter also, when the growth is dormant from cold it is found advantageous, where easily practicable, to lay the old Grass pastures under river water, more especially when the water contains lime in solution, or carries a little floated mud. This is a common practice in Holland, and other low flat countries. But generally in all the moister countries of low temperature, such as the British Isles, summer irrigation, except very partially carried out, or with the highly nutritious drainage of cities, may be quite as injurious as beneficial. If followed to any considerable extent, the loss by mildew and a lowered temperature may more than balance the gain of irrigation. Even Mechi's liquid dressings, if generally carried out, must act in the same direction. But this would have little influence compared to extensive Grass-field irrigation effected by steam power or by windmill power, which latter I have seen in use in Holstein. Irrigation may also in cooler climates affect the health of the population, as it does in the warmer, though to a less extent. In the case of rivers or stagnating water giving out miasma, it has been found that muddy water, even water containing the washings of farmsteads, is more wholesome than clear water, probably from the deodorising and purifying effect of earth matter or mud.

The natural high road to the improvement of the vegetable mould by irrigation not being generally judicious in the moist and cool climate of the British Isles, at least unless hot water be obtained by deep Artesian bores, the other means of its improvement are various and much dependent upon local opportunities. To succeed in this the judicious farmer, having his improvements protected, will look around him and observe his opportunities. He will pursue an easy rotation of crops, have always heavy crops with the produce as much as possible returned as manure; proper drainage; clean and careful tilth; deep stirring, especially when the subsoil is good, so that the air and roots of plants may penetrate deep into the soil; procure large manures where possible, and where large manures cannot be obtained, a judicious selection of small manures in order to obtain large manures; he will use plenty of cake with feeding stock, and especially have the Grass land laid down rich of manure. Also in the case of light sand, claying the ground if good clay can be obtained near. On the coast, beach-sand, composed of comminuted shells, as is found on some parts of the west coast of Ireland, forms an excellent manure. I have known this carted a considerable number of miles into the interior, and esteemed much more than seaweed, which, however, every farmer near the coast should do his utmost to secure when drifted ashore.

As an illustration of utilising local opportunities, I may here state the method pursued by one of my sons in Holstein, to improve the more arid sand portion of his ground, where before his occupancy, the vegetable mould had been much exhausted. Having a considerable portion of land under coarse Grasses, Carices, &c., upon a formation of peat or peat earth, and where the dammed up water of mills prevents drainage and aëration, he adopts the plan of stripping off, as he requires it, the surface of a portion of the ground about 3 inches deep, that is the coarse Grass sward and a portion of the peat earth. This is taken to the dry sand fields and is well mixed with fresh cattle and horse manure from the farmstead, and with town manure from Altona, about two loads of the peaty sward for one of the manure, and a large hill formed, fully 5 feet high, of the compound. This remains for about six weeks till it has thoroughly heated, when it is spread and ploughed in for a crop. Here the heating corrects the preservative acid of the peat, digests the mass, and the whole becomes an active manure. The portion of the meadow thus stript of the sward, receives a surface dressing of city manure, and without ploughing is sown with proper seeds, and in two years becomes clothed with superior Grasses to those of the original sward. As the moss is in some places accumulating, this supply will not soon fail. This system was once practised in Scotland, introduced by the North Frieslanders, when the greater part of their own country being submerged, they colonised the lowlands of Scotland, bringing with them their language and customs, about the same time that the old Germans of Anglen, now Schleswig-Holstein, colonised and gave their language and name to England. I have found the language of the Island of Sylt, off the shore of Schleswig (a remnant of the ancient North Friezland), almost the same as our broad Scotch. For the purpose of making manure my son also keeps a flock of several hundred sheep. These during the day follow the shepherd (not driven) over the uninclosed pastures, and at night lodge in one of the old German barns; the walls of which, for aëration, are of warped twigs. This barn is bedded with the same moss turf sward, and the bedding renewed every few days till the depth of about 4 feet, when the heated mass is removed and immediately applied to the land (an excellent manure) and a new bedding begun. In the depth of winter the sheep are here fed with hay, straw, Turnips. Having good sea marl in different parts of the ground, in spare time, generally during strong frost, a portion of the ground receives a dressing of marl upon the old Grass, about

60 waggons to the acre. This is spread and remains exposed to the atmosphere all summer, when the field is broken up in autumn for a cereal crop. This exposure to the air is necessary that the acridity of the marl may be corrected. This marling is seldom or never repeated. Without this application of marl, or being limed, the greater portion of the land will not grow Clover. The only crop that does not benefit by the marling is Oats, which apparently suffers by the marl rendering the soil too loose. This the pressing machine might perhaps correct. Numbers of the old farmers are averse to marling. They say it enriches the father and impoverishes the son. No doubt it hastens the digestion of the vegetable mould, renders it more immediate food for the plant, and thus requires a greater supply of large manures to balance the greater consumption. It is, however, valuable as promoting the growth of Clover and other lime plants, which are especially calculated to improve the quality and increase the bulk of the manure.

In going over last summer to Holstein, partly with a hope to meet and converse with Baron von Liebig upon the vegetable mould, I observed a rather interesting fact respecting the Rye plant, so much sown on the lighter soils of Germany, and the staff of life in the north of Europe. In going through several Rye fields belonging to my son, of a superior kind of Rye, I endeavoured to select the most prolific ears and best developed grains in this cereal, which presents, like other plants under the culture of man, considerable variety. I found it more disposed to have vacant spaces in the ear than any other kind of grain. This led me to examine more minutely into the cause of the vacancies, and I came to the conclusion that it was owing to the defective fecundation. In fields of Wheat I found a few ears of Rye scattered amongst the Wheat, with strong stems and large ears, but with very few or no grains in the ear. I also found a few scattered ears growing on the public roads in the same unfruitful condition, but especially given to the production of the Fungus disease *Ergot*. I also knew that in the blooming season, in time of a gentle breeze, smoke clouds of the pollen of Rye are seen driving along the Rye fields, exactly the same as in this country we observe along fields of Rye-grass. These facts led me to conclude that Rye, and also Rye-grass, are gregarious plants; that the pollen of a particular ear goes to fecundate other ears and not itself; that Rye cannot exist like other cereals in solitude; that the pollen clouds are necessary to fecundation. Rye is perhaps the cereal that has been longest cultivated in fields by man, and this fact goes so far to prove the adaptation power of organic life to circumstance. *Patrick Matthew, Gourdie Hill, April* 25, 1864.

WHAT IS AGRICULTURAL CONDITION?

IN reading Mr. Thompson's able article in the last number of the Royal Agricultural Society's Journal, I was led to inquire, what is agricultural condition? how can a money value of such condition be ascertained?—as being two questions very often essential in the settlement between in-coming tenants and their predecessors, and which, if they could be readily answered, would tend very much to encourage good farming towards the end of a lease, and I think the succeeding narrative of Mr. Lawes's continued experiments on Wheat culture will assist me in finding the answer. Now the general repair of buildings, fences, &c., can be readily ascertained. The cleanliness and proper cultivation or aeration of the arable lands can be seen and valued, or their deficiency estimated. But the unexhausted manure, left or supposed to be left, has been a fertile source of dispute and annoyance, and several unsatisfactory methods have been devised to ascertain its value. Mr. Lawes's elaborate figures prove that on his soil cleanliness and proper cultivation will ensure a minimum of 16 to 20 bushels of Wheat as the natural productive capability of the soil. Mr. Smith, of Lois Weedon, has shown that the annual capability of his soil is double this amount. It is probable that all soils as generally left after a white crop, taken by an outgoing tenant, are reduced to this natural minimum of condition, and that the variation of this minimum of corn-bearing capability is one of the chief reasons for the variation of rent in different lands. It is also highly probable from these experiments that any farm cultivated on the alternate system (*i.e.*, two-course or four-course) will produce the same amount of corn one year with another, according to the season, from half the land as if the whole were grown annually with corn, but of course at only half the expense of seeding, harvesting, &c. Hence the usual stipulation, besides keeping the land clean, that the tenant shall not take two white crops running, and shall leave half his land in fallow or some fallow crop ready for a corn crop. This, if the fallows or fallow crops have been unmanured, appears to be the minimum amount of condition in which land can or ought to be left. Cleanliness and good tilth should be exacted; any manurial condition left in the land unexhausted by a corn crop should be paid for—the incoming tenant being entitled to have half his land (where suited to alternate husbandry) in a condition to produce what I have called its minimum capability of corn, and being equally ready to pay for any extra amount left him, as he does for the artificial manure and labour applied to the root crops, and in many cases for part of the cake consumed in previous years. How this can be satisfactorily ascertained and valued I propose to consider in a future letter, if you think the subject suited to the pages of the *Gazette*, together with some observations on the manufacture of manure in the rotation of crops which will arise out of the discussion, founded as well on a lengthened experience as on the articles above referred to. *J. B. M.*

LIME-WASHING SLATED ROOFS.

EVERYTHING that tends to keep the animal frame comfortable, either by warmth in winter and coolness in summer, tends to increase the farmer's profit. I assume that every farmer who knows his own interest will take care to make plenty of manure in summer as well as in winter by soiling or shed feeding animals on green food cut into chaff or short lengths, taking care to add to it some cake or corn. Any man who does not cut up into short lengths his green crops for soiling, omits to economize a valuable article of food. This remark applies especially to my strong crop of Tares, with self-sown Wheat, two feet high. Assuming then that we have plenty of young and old bullocks under slated roofs, those slates will feel almost as hot as fire when the summer sun shines upon them, for their dark colour absorbs the heat; whiten them by applying limewash, and they will be perfectly cold. Try the experiment on a single slate, and then lay your hand on each—you can scarcely bear to keep it upon the unlimed slate. Oh! but then the rain will wash it off! No, it will not, nor will all the rains that fall through the year—of course I assume that you lime-wash them in a dry day; it dries on in less than an hour when the sun shines. It is well to make the lime-wash pretty soup like, not quite so thick as thick gruel. But if rain will not wash it off, the winter's frosts will gradually remove it, so that it must be done once a year; May is a good time. There is one other advantage in lime-washing slates or tiles—it destroys vegetation, and your tiles and slates will always look new, however green and old, and, being freed from vegetation, will shoot the water more quickly. The slated roofs of my own house are whitened annually, and the lead work painted white, which prevents its buckling or cracking. Consequently the upper rooms are pleasantly cool, instead of being like an oven. The same remark holds good for cottage roofs, especially desirable in those low roofed chambers; and where there is no fire-place, or deficient ventilation in a crowded bedroom, which is too often the case, a couple of 2-inch or 3-inch drain pipes put through the wall near the ceiling, will cause a pleasant ventilation and prevent a corrupt atmosphere and fevers. They may be closed at will. The philosophy of lime-washing is that white reflects or repels the heat, just as they wear white cotton in hot climates; black absorbs it. London is a hot-bed in summer, and bugs thrive well in the super-heated upper chambers of poor neighbourhoods. The lime-washing hint may be safely taken in such cases. Our thin brick built cottages for labourers in the country are hot in the summer, and very damp in the winter, each heated brick absorbing, perhaps, half a pint of water from driving rains, and in cold weather the water draws inward to the warmer rooms, causing many diseases. Now if these brick cottages were well lime-washed (the pores of the bricks filled in fact with lime), they would not only repel heat in summer, but also partially resist wet in winter, the smooth limed surface drying off the water more quickly. Whenever intelligence increases, landlords and tenants too, who have a great horror of high poor rates, will look to these little but important matters, which, with drainage and pure water, will prevent many an industrious labourer and his family from becoming heavily chargeable to the parish either as an indoor or out-of-door recipient of poor-rate. Benevolent individuals who desire to do good, will be spared the pain and charge of the miseries resulting to their poorer neighbours by neglect in these matters. *J. J. Mechi, May*, 1864.

Thin brick houses should be painted white or cemented.

STEAM CULTIVATION.

[Mr. Robert Ransome read a paper on this subject before a Suffolk Farmers' Club in the beginning of the year, from which we make the following extracts.]

THE advantages of a deep and thorough cultivation of the soil, judiciously carried out, have, from the earliest periods, been exemplified in the increased fertility of land under garden culture, as compared with similar land less carefully cultivated. But whilst the advantages of spade husbandry are everywhere admitted, it cannot be disputed that, by the cost of labour, its application on a broad scale is placed entirely out of the reach of the British farmer; for this reason many have been the attempts of ingenious and persevering men to find a method of extending these advantages by substituting for the spade the subsoil plough, the trenching plough, and every conceivable form of broad-share plough, scarifier, cultivator, and grubber. The great advantage of the autumn cultivation of stubbles by means of the scarifier was early drawn attention to by the agriculturists of this country; but although Biddell's and other scarifiers fulfilled, as implements every requirement, that system of culture was not established on an extended scale. The reason for this failure lay in the circumstance, that to obtain the full benefit of the system it was necessary to employ the scarifier immediately after harvest, whilst the number of horses which a farmer could afford to keep not being sufficient to complete all the scarifying desirable during the fine weather, he was either compelled to subject only a small portion of his farm to this treatment, or else to protract his labours so far into the autumn, that the land, having become wet, was more damaged by the treading of the horses than benefited by the stirring. From these causes farmers, although still keenly alive to the advantage of more thorough tillage than they had at command, were constrained to continue in the old paths until the power of steam should be placed at their disposal. I shall endeavour to show how, from small beginnings, the application of steam to tillage purposes has steadily advanced, until by its aid it has become possible to obtain on a large scale, at a reasonable cost, the more perfect cultivation and enlarged fertility which have been hitherto the distinguishing attendants of spade husbandry.

History of Steam Cultivation.—Although for very many years frequent attempts have been made, and amongst others by Messrs. Heathcote, Parkes, Fiskin, Lord Willoughby d'Eresby, the Marquis Tweeddale, Messrs. Usher, Romaine, Hannam, &c., to cultivate by steam power, it is only within recent times that these attempts have won any considerable amount of public attention. In the year 1852 Mr. John Fowler applied to Messrs. Ransomes & May, of Ipswich, to aid him in developing his plan of draining by a windlass moved by horse power. In the course of experiments for this object, which ultimately issued in the steam power draining windlass exhibited by Mr. Fowler, of Lincoln, in 1854, his and their attention had been directed to the probability of carrying out more successfully than had up to that time been done the problem of steam cultivation, by means of an endless rope, and an implement balanced upon an axle carried by two wheels, so as not to require turning at the headlands. With an apparatus of this description, manufactured and in a great degree designed at the Orwell Works, Mr. Fowler competed for the Royal Agricultural Society of England prize at Chelmsford in 1856, and produced work at 7*s.* 2½*d.* per acre, which, according to the opinion of the judges, would have cost by horse power 7*s.* per acre. Simultaneously with this, great attempts were made by the advocates of cultivation by means of rotatory implements, to carry out that system by steam engines travelling over the land and cultivating it by an implement forming part of the engine—of which class were the cultivators of Mr. Romaine and Mr. Usher. In Mr. Boydell's plan the engine was employed to drag any implement after it. Although much ingenuity was applied, the result was not successful, and the system may now be said to be abandoned. The remarks made in the Royal Agricultural Society of England's Journal, reporting the trials of Mr. Fowler's draining machinery at the Lincoln Meeting, attracted the attention of Mr. Smith, of Woolston, to the advantage of employing steam instead of horses to draw a peculiar form of cultivator. This gentleman had previously given great attention to the use of scarifiers drawn by horses, and was firmly persuaded of the superiority of that implement over the plough, if a suitable draught power could be provided. With these views he attended the Carlisle Meeting of the Royal Agricultural Society of England in 1855, and there gave to me an order for a windlass, and a seven-horse power steam engine for steam tillage, to be designed by and made under the direction of Mr. Fowler, at Messrs. Ransomes & Sims' Works at Ipswich. This machinery was made and successfully worked in a field near that town, drawing one of Biddell's ordinary scarifiers. It was sent to Mr. Smith in December, 1855, and in February, 1856, he reported at the Society of Arts, that with it he could scarify to a depth of 7 inches, at the rate of 2½ acres per hour, and at a cost of 6*s.* 3*d.* per acre, exclusive of wear and tear, which he estimated to add one-fourth more to the cost. From that time to the present, and with slight modification of the original apparatus, Mr. Smith has continued to cultivate his own farm at Woolston with the most satisfactory results, and to introduce his system of culture by similar apparatus widely and successfully. Meanwhile, Mr. Fowler was urging on his experiments with the greatest zeal and energy, and in 1856, at the Paris Exhibition, he received for an apparatus made at the Orwell Works the first public recognition of success, by the award of a gold medal. In 1857 he received the Highland Society's prize of 200*l*; and in 1858 at Chester, for work done with an apparatus jointly constructed by Messrs. Ransomes & Sims, and Messrs R. Stephenson & Co., he received the Royal Agricultural Society's prize of 500*l*. About this date, Messrs. Howard, of Bedford, entered the field as manufacturers of Mr. Smith's apparatus, with which they continued associated until 1861. Since then they have been manufacturing an apparatus upon the roundabout principle with which Mr. Smith originally commenced, but further improved and developed in some of its mechanical details, especially in avoiding the necessity of turning the implement at the end of each furrow. I have thus briefly traced the rise of modern steam tillage to the period of the Chester meeting, about which time it may be said to have first become fairly established in public opinion as a successful invention. This opinion has never receded, but has daily strengthened, and it may be interesting to inquire what causes had, in the years 1856-57-58, operated to induce public opinion to regard as successful in 1858 that which, three years previously, had been regarded so differently. It is clear from the Royal Agricultural Society of England's Journal, that up to the Chester Meeting all Steam Cultivation was judged on the narrow basis of its actual cost in comparison with horse tillage—the far more important considerations of the value of the increased power placed at the disposal of the farmer, and of the improved producing powers of the soil when cultivated at the precise period of the season most favourable for tillage, were only imperfectly recognised, and not allowed to enter as a credit in the calculation in favour of steam. But during these three years Mr. Fowler had exhibited his apparatus at the meetings of local societies in various parts of the kingdom, always leaving behind him more or less land tilled by various implements, and often this was placed in the middle of a field, which had to be finished by horse-power; thus enabling the occupier of the land to compare its condition under both processes, and to see on which part the crops were heaviest. Mr. Smith was also cultivating his farm at Woolston, and freely admitting visitors to see the operations and hear his earnest expositions of his theory of cultivation. Customers had been found for apparatus on both Fowler's and Smith's plans; and with more or less success, as measured solely by first cost, they managed to cultivate each year a considerable breadth of land.

Steam Cultivation at Euston.—Mr. Ransome then quoted a number of examples from the Journals of the advantages of steam cultivation, and continued as follows:—

But we need not go out of our own country to find examples

of profitable steam cultivation. Mr. Kersey Cooper, of Euston, purchased in 1861 a second-hand and very much damaged set of steam tackle, with which he commenced cultivating a large farm in his occupation at Bowbeck. The farm is about 900 acres in extent, nearly all of which is arable; 250 acres are stiffish clay, 250 acres are mixed soil, and the remainder, which was originally heath, has the characteristics of light new land. The experience of the first season was marked by continual breakage, as might be expected from such an apparatus, but nevertheless about 250 acres were cultivated at a cost of 5*s*. 9*d*. per acre for fuel, oil, and wages, including carting of water, which employs one horse about half his time. At the end of this season Mr. Cooper was so satisfied with the value of the work, that he purchased a new twelve-horse power self-moving steam-engine, a new rope, and improved his windlass ready for the spring season of 1862. In that year, and on various days between the 18th of February and the 27th September, 407 acres were cultivated, of which 219 were done twice over, making in all 626 acres, at an average cost for fuel, wages, and oil, of 2*s*. 8¼*d*. per acre, the highest cost being 3*s*. 6*d*., and the lowest 2*s*. 4½*d*. The root crops following were the best that Mr. Cooper has ever grown, and every corn crop was very satisfactory. In the year 1863, the season's work was commenced on February 3d, and the last day's work was on September 24th, between which dates 376 acres were cultivated or ploughed with Fowler's balance plough. Of these 376 acres, 144 were cultivated twice, and 33 three times, making a total of 553 acres, the highest cost being 3*s*. 6*d*., and the lowest 2*s*. 8*d*. per acre. On the field of 33 acres which is heavy land, and was worked three times, and deeper than ever it had been before in this generation, a very thick crop of wild Oats sprang up after the first stirring, but were completely eradicated by the second crossing. All the corn crops after this cultivation were very good, and the root crops were better than those on adjoining horse-cultivated fields; of the land ploughed, 70 acres were sown with Rye and Tares, for spring feed, and 44 acres with Wheat. I saw these crops about two weeks back, and nothing could look better; indeed they presented a marked contrast to similar crops on land tilled by horse-power on the same and adjoining fields. In reckoning the above costs—Wages are 12*s*. 9*d*. per day; horse for water, 2*s*. half-day's work; coals, 10*s*.; oil, 1*s*.; in all 25*s*. 9*d*. per day. On several occasions, Mr. Cooper has got over 12 acres per day, but he estimates 10 acres per day as a reasonable day's work. With Mr. Fowler's plough he did 7½ acres per day, but as the rope was nearly worn out, the stoppages were, in his opinion, quite equal to 1½ acres per day. The implements used for cultivating were a 10-tine and 6-tine scarifier of the ordinary description, covering 4½ feet in width, and travelling at a speed of 100 yards per minute. The rope, which cost 60*l*. at the commencement, was after the above 1429 acres had been done, nearly worn out, and useful only for fencing, thus giving an average cost of 10*d* per acre. The wear and tear of points and shares has not been more than it would have been by horse tillage, nor the wear of the engine more than it would have been at threshing. When Mr. Cooper purchased the apparatus, he reduced his horses by selling eight in the second year, and has just sold four more, and has since not only performed the usual work of the farm, but has carted 8550 loads of clay an average distance of a quarter of a mile, which work he used formerly to perform by hiring. In a letter which I received last Friday, Mr. Cooper says:—"I am more and more satisfied of the superiority of steam tillage over horse labour. Since you were here, I have sold four more of my young cart horses, and am now forwarder with my work than I ever remember being at this season. You will further observe a great increase in the quantity of clay carted since you were here. Since then I have kept six men on constantly filling, and 10 horses carting it, which I hope to continue for another month, and then again in the summer, when I have put in my root crops. The quantity of clay I have given you has all been carted within 18 or 19 months. This work was formerly put out to carters to do for me, at 7*d*. and 8*d*. per yard." Mr. Ransome read several letters written to himself by gentlemen who have had experience of steam cultivation. The following is a brief summary of the letters. Mr. Chambers of Colkirk Hall, Fakenham, found the cost per acre, by steam cultivation, to be from 3*s*. 6*d*. to 4*s*.; he was satisfied that he got an improved result in his crop. Mr. Slater of Cheveley Hall, said, last year he hired a 10-horse traction engine, and a Fowler's cultivator, and cultivated 70 acres of light land 7 inches deep at 7*s*. per acre; he was thoroughly satisfied with the result, but he saw the necessity of removing fences, and having larger fields, and he was doing that as far as practicable. Mr. King, of Thorpe Hall, Scole, had been able to reduce the number of his horses one-fifth; he had ploughed 6 acres a day with the apparatus, at a cost of 5*s*. 2*d*. per acre for wages, fuel, water, and oil; and could do 6 acres per day in autumn when the ground was had, and 10 acres per day in the spring. Mr. John Ferguson, of Wretham, said he considered the steam cultivation of the soil, particularly stiff retentive soil, a most wonderful improvement upon the old plan. He had tried it on very light sandy soil in Norfolk, and on very stiff clays in Lincolnshire. The result was not so good on the light sandy land, but on the heavy land the effect of steam cultivation combined with thorough draining was almost magical; people came miles to see splendid crops of Wheat where nothing but weeds used to grow, and the consequence was that the steam cultivators were becoming very much the fashion in that district of Lincolnshire, and the farmers were willing to pay any reasonable price per acre to have their fallows done and let their horses remain idle. He found the cost of cultivating 200 acres of light land was 3*s*. per acre, and about 1*s*. per acre more for wear and tear.

And now in anticipation of the future. Are agriculturists to anticipate very great mechanical improvements in the apparatus employed, or a great diminution of its cost?

How can farmers on small means avail themselves of its advantages? Briefly it may be said that in this country, wherever a fair return is to be secured by its use, capital is always forthcoming in some way or other devised by the occasion; but the more obvious ways are—first, in those cases where a farmer has the capital to buy but not acreage enough to employ the apparatus—that he should plough for his neighbours on the farms adjoining his, or in places conveniently approachable. Secondly, by partnership between two or three farmers on adjacent farms—priority of use each season might be determined by lot—and the advantages of the partnership are far greater than at first sight appears. Thirdly, by hiring the apparatus of men who make it their business to plough for hire. This may, in some cases, be carried out; and, indeed, it now is: but I do not believe it will become so general a system as threshing has become, because a large portion of the advantage of the steam tillage lies in saving of horse keep, and in increased crops, the benefit of which can not be seen beforehand.

Home Correspondence.

Hiring Markets.—I observe that Mr. Dunlop, M.P., has got permission to introduce a bill to regulate the hiring of servants. It is strange that so many people of influence persist in selecting the different classes of operatives as subjects for comment. The supposed necessity of abolishing hiring markets was discussed at a meeting of the Highland Society in 1860, a report of which is given at page 297 of the *Agricultural Gazette* for 1860, and you allowed me to vindicate the continuance of hiring markets at page 632 for 1860. The ministers of the United Presbyterian Church had a special meeting (on May 6), on social morality. I stated a few weeks ago in an Edinburgh paper—If sufficient intelligence cannot be found among respectable rustics to enable them to suggest practical remedies for the present prevailing social evils, it cannot be found among those who cannot enter into the feelings of the working classes.—There is much room for improvement in the several modes of buying and selling of labour. Register offices ought to be established in every market and provincial town, and in every agricultural parish, as auxiliaries to "mops," feeing, and hiring markets; but the country is not prepared for such a sweeping and radical change as the summary abolition of public hirings. Hiring or engaging ploughmen through the medium of register offices alone implies the necessity of ploughmen being able to address strangers by letter. The majority of the most accomplished ploughmen would prefer working a hard day's work to sitting down to state to strangers in writing that they are open to engagements. Allowing a discount for being devotedly attached to my native district, I consider the modes of hiring in the counties of Roxburgh, Berwick, and Selkirk only require the establishing of the requisite number of register offices to satisfy the most fastidious. A good many farmers engage those who give satisfaction for another year about a fortnight before the public hiring days. In the event of popular employers having a vacancy, it is a prevalent practice for ploughmen on adjoining farms to offer themselves for the vacancies. If the farmers or their stewards know the applicants to be men of good character and good workmen they are engaged at the farm-steadings; but if the applicants are strangers the bargain is closed at the hiring markets, on condition that their employers report favourably of them. This is applicable to Kelso annual hiring on the first Friday of March, where the "speering-out" system is in force. A good many stewards introduce to their masters men whom the stewards are either acquainted with, or others are who recommend them to the farmers and stewards. The Scotch word "speer," and the English word "recommend," are synonymous terms in a hiring market. There is a register office in Kelso for farm servants. A great many people labour under the mistaken idea that it is the general practice for farmers and ploughmen, who are satisfied with each other, to go to the market to negotiate about a re-engagement for another twelvemonth. It is only those hinds who are changing masters and who have not got another employer that go to a public hiring for an engagement. But here is what is the cause of so much confusion at public hirings. Where a good feeling prevails between employers and employed, the farms are worked on "the taking and giving systems." That is, the hinds do not scruple to work overtime when required from the commencement of the busy season in spring till the end of harvest. The farmers reciprocate such favours by not exposing the yearly servants to the inclemency of pelting snow and rain, and by indulging them with a holiday on such occasions as the annual hiring markets and pleasure fairs. Thus hundreds of men who are re-engaged privately at home go to the public hirings to meet with their relations, friends, and sweethearts. The "speering-out" or recommending system was so general a few years ago that first-class servants of good character and in the prime of life would have little chance of being offered a situation by strangers requiring yearly servants. I suppose that this is still the general practice. Such a mode of hiring is better than the register-office system, but would-be legislators and reformers are not aware of it. As a general rule in some districts, a public hiring is a focus for a radius of nearly 20 miles. A good many of my schoolfellows in 1839, 1840, 1841, and 1842, and nearly all my relatives, are located within that radius. Aged ploughmen and their wives make arrangements to meet their married sons and daughters on such occasions, and because a few men allow themselves to display a little exuberance of feeling in a rustic manner, would-be reformers suggest that respectable servants and their wives must be deprived of their rights—the exercising their judgment as to the propriety of going to a public hiring. The upper and middle classes ought to perform the several duties which devolve upon them as proprietors and as employers, and abolish the degrading influences and ruinous practices inseparably connected with horse-racing and other amusements before they meddle with hiring markets. If hiring markets and pleasure fairs are to be abolished, I beg to suggest that the relationship of master and servant must be placed on a different footing. English labourers' small wages demand as little broken time as possible. Being day labourers, they are paid for overtime; but the case is different in Scotland, where the farmers can demand the services of yearly and half-yearly servants by night and day when grain is fit for harvesting. And farm servants cannot demand extra pay for working eight and nine days a week. Are would-be reformers prepared to better the working man in these respects? *W., Edinburgh.*

Roots and Oxygen.—The reading of Prof. Voelcker's lecture "On the Atmospheric Nutrition of Plants" has reminded me of a phenomenon which I observed some years since, and of which I sought an explanation in vain at the time. I observed that in a railway cutting through a stratum of the lower green sand, in which the water had stood, and of which it had been drained by the excavation, that where the roots of Willow trees had penetrated below the original water level in the ferruginous soil, a deoxidising process had taken place; or in other words, the iron had been deprived of its oxygen, to all appearance by the agency of the root. Can this be explained? Again, an urn containing burned bones was discovered; among the bones was found a small knife, supposed to be Saxon, say 750 A.D. Though the iron implements discovered in the gravel at the same spot were very much corroded, the knife in the bones was but slightly oxidised. In one case the living root deoxidises the soil, in the other the dead charred bones prevent the oxidation of the knife. *J. C. C.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE ANNUAL GENERAL MEETING of the member of this Association was held May 23 at their offices, 12, Hanover Square, under the presidency of Lord Faversham. There were also present amongst others, Lord Walsingham, Lord Portman, Professor Voelcker, Mr. Raymond Barker, Mr. Fisher Hobbs, Mr. Robert Smith, Mr. Astbury, Mr. Beale Browne, Mr. Frere.

The election of Members of the Council, which was the first business, led to no alteration in the list submitted, which included the names of Earl Fortescue and the Earl of Shrewsbury and Talbot.

Lord PORTMAN proposed Sir Edward Kerrison as President for the ensuing year. He said it had been some years since they had had a member of the House of Commons at the head of their body, but the Society had numbered amongst its Presidents Lord Eversley, and the present Speaker of the House of Commons, and the gentleman he now proposed had been a most active and useful member of this association.

The motion was seconded by Mr. FISHER HOBBS, and unanimously carried; and the Vice-Presidents and Trustees were re-elected.

The following report was read by Mr. H. HALL DARE, the Secretary:—

REPORT OF THE COUNCIL.

The Council have the gratification of announcing that, since the last general meeting in December, his Royal Highness the Prince of Wales has allowed his name to be enrolled in the list of your governors.

During the past five months the names of five governors and 136 members have been removed from the list by death and retirement, while one governor and 232 members have been elected, so that the Society now consists of

78	Life Governors
45	Annual ,,
1343	Life Members
4013	Annual ,,
17	Honorary ,,

Making a total of 5496, being an increase of 53 names.

The Council have elected Major-General the Hon. Alexander Nelson Hood as a Vice-President, in the room of Lord Ashburton, deceased.

The half-yearly statement of accounts to the 31st December, 1863, has been examined and approved by the auditors and accountants of the Society, and together with the balance sheet for the whole year 1863, and a statement of the country meeting account for Worcester, has been published in the last number of the Journal. The funded capital stands at 16,488*l*. 17*s*. 10*d*. in the New Three per Cents., 3000*l*. has been placed on deposit at interest with the Society's bankers, and the current cash balance in their hands on the 1st inst. was 2836*l*. 6*s*. 6*d*.

Papers have been read at the weekly meetings by Mr. Lawes, on 'Salt used as a Manure;" by Mr. Hughes, on "The Cultivation and Management of Clay Farms;" by Mr. Holland, M.P., on "Agricultural Education;" and by Prof. Voelcker, on "Nutrition of Plants by the Atmosphere."

A committee has been appointed to consider the measures which ought to be taken for the improvement of the education of those who depend upon the cultivation of the soil for their support, this being declared by the Charter as the seventh national object to be prosecuted by the Society.

The Lords Commissioners of Her Majesty's Treasury having applied to the Society for assistance in carrying out their design of presenting some sheep to the Viceroy of Egypt, who is anxious to improve his native breeds by crossing, a selection was made under the direction of the President; and a communication has been received of the safe arrival of the sheep at Cairo.

A special committee having been appointed to consider the question of the dates of calving, the Council have approved of their recommendation, that any alteration in the date of calving would be inconvenient and thus unadvisable.

The arrangements for the Newcastle Meeting, to be held during the week commencing Monday the 18th July, are proceeding satisfactorily. The showyard will be open as under:—

	s.	*d.*
Monday	10	0
Tuesday	2	6
Wednesday	2	6
Thursday	1	0
Friday	1	0

The Council have determined that the Annual Country Meeting in 1865 shall be held at Plymouth.

The district for the Country Meeting of 1866 will include the counties of Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, Norfolk, and Suffolk.

By order of the Council,
H. HALL DARE, Secretary.

On the motion of Mr. Childers, seconded by

Mr. Sutton Weston, the report was unanimously adopted.

A vote of thanks was accorded to the auditors on the motion of Lord Walsingham, seconded by Mr. Clutton, and was briefly acknowledged by Mr. Corbett.

The CHAIRMAN having invited suggestions for the consideration of the Council,

Mr. DUCKHAM expressed an opinion that there was frequently a scarcity of judges in some of the classes, and urged that members should send in names.

Mr. FISHER HOBBS quite concurred in the observation, and announced that the list would be open to the 1st of June.

Mr. BEALE BROWNE congratulated the Society upon the new regulation with respect to the shearing of sheep before exhibition.

The cordial thanks of the Society having been given to Lord Faversham for presiding, the CHAIRMAN, in acknowledging the compliment, referred to some of the points touched upon at the December meeting. With respect to the opinion of Mr. Sidney, that the duty of Editor of the Journal was rather to insert contributions and revise the productions of others than to write for the publication and introduce papers of his own, nothing had been said which would lead the Council to accept that as the view of the Society. Another suggestion of the same gentleman was that the funded property of the Society should be appropriated to providing large premises, with library and museum, but it was a question whether the amount of funded property would be sufficient for such a purpose, even if the members were willing that it should be so appropriated. Mr. Morton's statement that the seventh object of the charter, with reference to agricultural education, had not as yet been taken into consideration by the Council, was a very important one, and a committee had been appointed on the subject, but had not yet presented its report. As to one of the points submitted by Mr. Duckham, the Council had reason to hope that railway companies might adopt measures to facilitate the removal of valuable live stock after exhibition, but the difficulty they had to contend with was in the accommodation of the large number of visitors to the shows. The other point, with regard to the dates of calving, had been under the consideration of the committee, but it was found that it would not be competent or advisable so far as this great Society was concerned to make the alteration suggested.

The proceedings then terminated.

Farmers' Clubs.

CHESHIRE FARMING.—This was the subject of a recent lecture by Mr. Thomas Rigby, of Fenny Wood Secretary to the Association.

Mr. RIGBY said his remarks owed their origin partly to the somewhat cynical reflections upon their monthly discussions made by Sir Harry Mainwaring at the last public meeting of the Cheshire Agricultural Society, when he referred to the Over Agricultural Society, and described its members as self appointed and rathr self-conceited critics of the proceedings and views of their brother farmers, and very much too forward in their advocacy of certain points which he thought decidedly adverse to their interests, instancing draining, boning, sheep feeding, high-bred cattle, and broad-breasted bulls.

1. *Boning and Draining.*—After taking a review of Cheshire farming from 1800, Mr. Rigby proceeded to say that the application of bones as a manure to Grass land was the commencement of an era of progress which continues to exert a more decided influence upon practical farming than does draining.

The palpable advantage of draining any kind of pasture land without an after dressing of bones is but small, unless it is intended to subject it to a course of tillage. As a foundation to build upon, it has many advantages. The roots of Rushes, for instance, are robbed of their life blood by it. The aëration of the soil which it causes enables it to filter out of the rains of spring and the snows of winter all the fertilising properties they contain. In wet seasons it is drier and warmer, and in dry seasons the soil immediately below the surface will be found more moist than in undrained land. But although, as a rule, the fertilising properties of bones or other manures will be more quickly assimilated in drained than in undrained land, yet their action is very beneficial, even on the wettest and coldest clay land. The immense amount of money expended annually by farmers in this application, and the high rate of interest they are willing to pay their landlords for an outlay of this kind, is a clear indication that they have a high estimate of their value, and must think a larger percentage of profit may be realised by their aid than without them. Bones were not much used in the first 30 years of the present century. Their price was very low comparatively, but they were roughly ground, and longer in coming to profit. He had a receipt in his possession, dated May 17, 1833, for six tons of "bone waste," at 65s. per ton. The late Mr. John Marshall, of Norwich, has the credit of being the first to use it in this neighbourhood. It is said that he tested its utility by sowing part of a pasture field on his farm at Broken Cross in the form of the initials of his name, and the result was so decided that "J. M.," inscribed in living green, could be clearly seen nearly a quarter of a mile away.

2. *Shorthorns.*—On the subject of Shorthorn cows his opinion might open more space for discussion than the other two were likely to do in the absence of Sir Harry Mainwaring, for he was free to say that he had sacrificed too much of the milking properties of their stock to beauty of colour and form, and perhaps to fattening propensities.

He liked to see the mild-eyed, velvet-skinned, dolesome-looking Shorthorn; and as a feeder of beef he did not mind how nearly the cattle he purchased were related to "Royal Dukes" and "Duchesses," or even to "Royal Butterflies;" the nearer the better, the first cost being equal; but if he wanted milk and cheese, he would rather have his stock related to the short-legged, roomy-bodied, and rather thick-horned Cheshire cows of 1800, to the Ayrshire, or even the Welsh cow, and would prefer their being matched to the son of his neighbour's best milking cow than to a bull of Bates' or of Booth's Shorthorned cows will sell for more money as barrens than cross-breeds, and will feed more quickly perhaps, but they cost more to purchase or to rear, and must have better keep; and as a comparison of profit and loss to the dairy farmer, he was inclined to think that the balance would be against their account, except under circumstances specially favourable to them.

3. *Agricultural Improvement.*—After a few words on sheep farming—the lecturer maintaining that that description of farming had realised the most sanguine expectations—Mr. Rigby said that a few years ago, Mr. Donald, the enterprising agent of Mr. R. E. E. Warburton, furnished some particulars of the progress made in the neighbourhood of Great Budworth in the previous 12 years.

In 1844, on 800 acres, 276 cows were kept in 1856, on the same land, 412 cows were kept. 1845, 220 cows were in the bare fallow; in 1856, none. 996,000 draining tiles had been put in three farms, and a large sum of money expended on bones. No school in 1844; now every youth in the parish has access to education. It is but justice to say that this progress was then in advance of the progress making in the county generally, but it is only an average report of the progress now being made in every district; and an abstract of the whole would run thus:—Since A.D. 1800, the number of stock kept in the county is at least double if not treble; the weight of cheese made is even of greater proportion; the quantity of young stock reared even exceeds the proportion of cows in increase, and sheep have increased at least a hundredfold. Some may be ready to say that Wheat is neither of so good quality nor so abundant in quantity since the practice of marling was discontinued. But we now seldom see bare fallows, and they have now only one year's rent to pay for this crop, while they generally had two. Turnips and Mangels were then almost unknown; and since the railways have offered easy access to manufacturing towns, what Potatos have not been sent there! Most, if not all, of which is due to the practice of draining and boning. Looking at the great competition there is for farms, we might infer that the prospects for farmers were most cheering. Let but the faintest whisper of a farm being "To let" be uttered, and applications from would-be tenants literally pour in upon the agent or owner, who has only to name his rent. This state of things, however, does not arise from the profitable nature of the occupation alone, but from the fact that every man thinks he can farm, and because every other branch of business or profession is so crowded as to necessitate incessant striving for subsistence in almost every rank and class.

4. *Farm Lettings.*—The question of leases and yearly tenancy is not so clearly defined and mutually agreed upon as is desirable perhaps, but in the majority of cases that part of the feudal relationship which begat considerateness in the landlord and confidence in the tenant largely prevailed; and the cases are very rare where undue advantage is taken of a tenant's outlay and enterprise.

Considering the competition there is for farms, rents are rather moderate as a rule. He had a great respect for landowners as a class, and had had to do with as honourable gentlemen as any in Cheshire as landlord and agent, and of them and of their conduct to himself as tenant he had nothing but what was commendatory to say; so he must not be supposed as speaking from any sore or ill feeling in saying that the restrictions sometimes placed upon farmers are most injurious to their interests. When it is actually forbidden to sell hay or straw, the farm cannot be worth so much per acre to the tenant except it be of the stiffest and wettest clay. There are times when an enterprising tenant expends more of his capital in bones or draining than leaves him enough wherewith to purchase extra stock and other requirements, and it would be more convenient to stop an extra gate and send the mowers into the field if he were allowed to convey the hay into money. Under any circumstances, it would be better both for landlord and tenant if the surplus straw of a farm was sold, and its value applied to the land in bones. A prohibition on the sale of Turnips and Mangels is injurious when near a market. So, also, is the refusal to allow judicious eradication of useless fences, or cut down stunted or full-grown hedgerow trees; and the over preservation of game and the petty annoyance of gamekeepers are rather more provocative than agreeable. Then, again, an undefined position as to compensation for unexhausted improvements made upon a farm is not so satisfactory as an equally drawn agreement, nor is this in its turn so satisfactory as a liberal lease.

5. *Cheese.*—The present prices of cheese, beef and mutton, and of wool, afford the best prospects for the tenant-farmer.

It is fortunate that Cheshire is not a corn-growing county. Wheat, at 6s. per bushel of 75 lbs. is not quite so good a thing, even with the large yield of last year, as cheese at 70s. to 80s. per cwt.; and it would be their interest to increase the make, and especially to try to improve its quality. Two years ago America sent to this country very large cargoes of cheese, of greatly improved quality to what she previously sent. Last year, however, the importations were very much reduced, nor did the quality equal that of the preceding year. He had extracted the following from an American paper, to show that English cheesemakers will have need to put forth their best efforts to compete profitably with American cheese in our own markets:—"In the United States of America dairy farming is rapidly extending, and greater attention is yearly bestowed upon the production of cheese suited to the English market. The principal dairy State is that of New York. By the last statistical returns there were upwards of one million cows in that State. The quantity of butter annually produced exceeds 90 millions of lbs., whilst that of cheese amounts to nearly 40 millions of lbs. The average price obtained during the last four years for choice cheese is estimated to have been 3½*d.* per lb., and at this price the profits from dairy husbandry are stated to be higher than can be obtained from any other kind of farming produce." It is in this last sentence that we see the most serious opposition, for with all our improvements we should not find much profit in the manufacture of cheese at 3½*d.* per lb.; and yet in the "good old times" cheese has been sold in Cheshire for even less than this. He held in his hand a sale note of a dairy of Cheshire cheese, dated January 18, 1780, which ran thus:—"Jno. Bebington, bought of H. Ackerley, his dairy of cheese, No. 68, 14 cwt., at 23s. 6*d.*—18*l.* 19s.;" and our old dairymaids confess the modern practice of making cheese to ripen for market in six or eight weeks avoids the loss of weight to which they were exposed in keeping 12 months or more. Many of them aver that the winter keep of a dairy of cheese reduced its bulk as much as the loss of one row across the cheese-room. The quality of our cheese, however, is our chief concern. We have outlived the time when it was said that the pasturage of stock on boned land spoiled its flavour, and the time when the rushy land, and old rest pasture in particular, were said to be the only good cheese lands. "But there is room for greater improvement; and there is the advantage that the better the quality the higher will be the price obtained, although the quantity made may be doubled and trebled. In almost every other production, large arrivals to market cause prices to fall; but cheese of first-rate quality is almost an exception to the rule, as it will displace butter and butcher's meat. But he fancied he heard some dairymaid saying, "How are we to make better cheese? Don't we always try to do our best with every cheese we make, and yet its quality varies, and won't come right?" No doubt, this is a most perplexing question, which scientific inquiry has not yet answered, and which seems to scoff at imaginary rules or principles. He was disposed to think that the making of first-class cheese is almost a natural gift—or at least that it only follows a natural aptitude for the work, accompanied by close observation and sound judgment in the arrangements and details; and even in such case is more likely to follow early training than any amount of after apprenticeship. The daughters and servants of a house where first-class cheese is made generally prove good dairymaids themselves, while the number of those who excel that have not had these advantages is but limited. Much may be done, however, by the exercise of care and judgment. As in cookery or confectionary, widely different results may result from the use of the same materials. We find the same necessity for the "right woman in the right place" in the dairy, as for the men on the farm; and this being found, their prospects are just now of the most promising order. So also are the prospects of the grazier and rearer of young stock. The price of store cattle is certainly high, but so also is the price of beef and of calving cows; and so long as the two continue in the same proportion, there is no occasion for despondency.

6. *Farm Servants.*—There is just one star in the horizon which does not shine with the same degree of promise—he alluded to domestic farm-servants.

An intelligent merchant conversing with him some years ago remarked, "You farmers have no trouble with your servants." Perhaps they would not cordially assent to that, but when they saw the book entitled "The Greatest Plague in Life," they might surmise the subject on which such a book would treat. Certainly "our servants" are the prevailing subject of complaint. "The men are ignorant, unmannerly, conceited, neglectful, independent, and of very rambling habits after working hours. The women are all these and worse too" it is said. Of course, exceptions are admitted, "but the cases are very rare," is the reserve. Without doubt there is much ground of complaint; but it may also be doubted whether masters and mistresses are entirely free from blame. Granting that servants are uneducated and ignorant, are these facts always kept in view? There is, as a rule, too much impatience and greater severity of censure than their shapelessness or blunderings deserve, and more neglect of their morals than is justifiable. Indeed, the complainings made in their hearing are rather calculated to exasperate them than to improve, and the remedy lies largely with masters and mistresses themselves. He had very little faith in school training while the home influence remains what it is in the majority of cases. To be born in a cottage with only one or even two bed-rooms, and to be reared in it with five or six or a dozen brothers and sisters, and with parents who have themselves been reared in the same manner, is not the best guarantee for future modesty of demeanour or self-respect of character. Then, the training of the servants, if there be any in the first place they get, is not always improving. Nor is the example of masters and mistresses always such as they may profitably imitate. In many farm-houses all the interest taken in them is founded on the amount of work they may be got to do. In many, he was glad to say, there is an observance of the Sabbath enforced as far as practicable, and an attendance at a place of worship enjoined. But there were few who consider their sympathies and their feelings in that kindly affectionate way which, without display, makes an impression on their hearts, and ensures their interest and esteem. Some of the best managers of female servants are women who talk freely, it is true, but without undue familiarity with their maids, of their family, their friends, and their prospects; and he had invariably noticed a respectful obedience and respect on the part of the servant commendable to both. But, in making these observations, he assumed no prerogative. His object was to incite discussion and thought, and produce a kindly consideration for their servants in place of the wholesale condemnation now so general.

Mr. WILD, Weaverham, concurred in almost all the remarks made by Mr. Rigby during the delivery of his excellent lecture. With regard to draining, he had heard it said that the Cheshire farmer drained his land too much; but he (Mr. Wild) never yet saw a yard of over-drained land. He admitted that on some lands draining made very little improvement. If land undergoes tillage after draining, and is properly managed afterwards, it will be worth double in value. Years ago, there was a great objection to ploughing old meadow land; but he maintained at that time that such a course not only made the land hide-bound but also hide-bound the tenant and the landlord as well.

Mr. MORETON (Weaverham) said that land was the best bank farmers had. Too much cannot be done at it either in the way of boning or draining. Formerly, farmers used to lay down land to improve it; now they break it up. He agreed with Mr. Wild that keeping land down had a tendency to make tenant, landlord, and land as well hide-bound. Farmers ought not to be tied down to one course of tillage—they ought to have a little of everything.

Mr. WILLIS (Darnhall) said no draining would pay if the drains were taken across the butts, as he had seen in some instances. Leases of 14 years were worse than none at all; and with regard to farm-servants, he thought a great mistake was made by masters and mistresses in expecting too much from them. If the master would now and then put himself in the position of the servant, and candidly look at the relative duties of each, he would have more consideration for his servant than is often the case.

Mr. MORETON (Marton) thought that a farmer could not too highly value a good servant. He was sorry to see men who had lived all their lifetime on a farm turned away in their old age, and find it necessary to seek the workhouse in which to end their last days.

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. XXV., Part I. J. Murray.

We have already referred generally to the contents of this number of the Journal, and particularly to one or two of the Papers which it publishes. The reputation of the Part will no doubt arise chiefly from Mr. Thompson's interesting History of Agricultural Progress during the past quarter of a century. Professor Voelcker's contributions to its pages also add greatly to its interest, and the extremely elaborate history of their Wheat experiments by Messrs. Lawes and Gilbert add greatly to its value. The essays on Hop Culture and on Cider making will give a certain local interest to its pages. And the reports of International meetings, late though they are, will make its pages interesting in other countries.

The most startling facts which it relates are those collected by Mr. Thompson in illustration of English agricultural progress. And the most remarkable of these are those which show that no progress whatever has been effected. It appears from this research that the number of British sheep sent to market has been for the last ten years stationary, if not retrograde. To this extraordinary circumstance, and the influence which it ought to exert on our farm practice, we shall hereafter direct particular attention; meanwhile let us extract the statement which Mr. Thompson makes of our produce so far as it relates to sheep. Comparing the decimal periods ending 1842, '52, and '62 respectively, he says, of the supplies to the metropolitan markets, that "there has been an increase in the annual supply of cattle of 27 per cent.; and similarly comparing the 3d period with the 2d, that there has been a further increase of 22½ per cent. In the case of sheep, however, the increase in the 2d period was only 11½ per cent.; and in the 3d period, there has been a falling-off of 116,642 head annually, or 7 per cent. of the whole number of sheep brought to market! This diminution in the supply has occurred, too, when, in consequence of the high prices of both wool and mutton, there has been a strong inducement to flockmasters to increase their production to the utmost extent. The deficiency may to some extent be accounted for by the largely increased quantity of meat sent to Newgate and Leadenhall markets. The supplies sent to these markets consist partly of meat killed in the metropolis, the live stock having been purchased in the Metropolitan Cattle Market: this has already been taken into account. The remainder consists chiefly of meat conveyed by railway.

"Comparing a return lately obtained from the principal Railway Companies which convey meat to the metropolis with a return furnished by the same companies 10 years ago, it appears that the quantity of meat so carried has increased during the intervening period about 37 per cent. Supposing this to consist of beef and mutton in equal proportions, the additional 13,400 tons carried would give 6700 tons of mutton, representing—if 80 lbs. be the average dead weight of a sheep—a goodly flock of 187,600 head.* If mutton form the larger portion of the consignments, as appears probable (say as 5 to 3), the number of sheep conveyed by rail to the metropolis as dead meat now would be 234,500 more than were similarly carried ten years ago. The falling off in the number shown at Smithfield during the same period was 116,642, leaving a balance of increase of 117,858. This increase in the number of live and dead sheep brought to market in the metropolis is not, however, derived from our own country; as it will be seen in Table (D.) that the average importations of sheep in the four years ending 1862 had increased by 119,658 over the average importations in the four years ending 1852; so that, judging by the supplies sent to the metropolis (no bad test), it is pretty certain that the number of British sheep sent to market has been for the last ten years stationary, if not retrograde.

"The supply of meat sent by railway consists, to a great extent, of prime joints, and consequently represents a greater number of head of live-stock than an equal weight of meat sent to market in the ordinary way (by the carcase). This consideration, however, cannot affect our calculation to any appreciable extent. Take the case of 100 sheep slaughtered at Norwich, where this trade is largely carried on. The fore-quarters of the whole 100 sheep are now consumed at Norwich, and the same consuming power would formerly have been supplied by 50 sheep slaughtered and wholly disposed of there. The other 50 would have been sent to London alive; whereas now the inhabitants of Norwich are willing to purchase the inferior joints at a lower price, and the consumers of the metropolis are also willing to pay for the privilege of having the hind-quarters of the whole 100 sheep without the inferior joints. It is, therefore, a mere transfer of the best parts of the animal to the best market, and does not of itself give any indication either of increase or decrease in the number slaughtered.

"The slow rate of increase of our home-grown supplies of sheep becomes still more striking if we compare the number sent to the Metropolitan Market now with the number sold in Smithfield Market 40 years ago. In 1822 the number of cattle sold in Smithfield Market was 142,043, and of sheep, 1,340,160. In 1862 the number of cattle brought into the Metropolitan Market was 304,741, and of sheep 1,498,500; so that whilst the cattle have increased 114 per cent., the sheep have increased not quite 12 per cent!

"Strong corroborative evidence of the increasing scarcity of sheep is afforded by the great rise which has occurred in the price of mutton within the last 10 years.

"This great advance in the price of meat offers a strong inducement to farmers to add to the numbers of their live-stock of all kinds; but in the case of sheep, the long period during which their rate of increase has failed to keep up with the increase of consumption, makes the augmentation of our sheep-stock one of the most important farming questions of the day."

To this, which Mr. Thompson properly names as one of the most important farming questions of the day, we invite the attention of our readers.

What alterations are advisable in our farm management in consequence of the present scarcity and price of mutton and of wool?

* No accounts are kept of the relative proportions of beef and mutton forwarded by railway.

Farm Memoranda.

An Ideal Farm: "Wet, Foul, and Poor."—Mr. H. S. Thompson, M.P., thus describes the progress of improvement on a farm out of condition taken in hand by an intelligent man—"an advanced and improving agriculturist in 186—."

It may be well to premise that the entire description of this imaginary farm is derived from the writer's own observation and farming experience, though of course not all collected at one time or in one place.

The first object is to make the land dry; and our entering tenant is informed that "this farm cannot be drained; that all methods have been tried, but that it is as wet as ever; and that it's of no use wasting any more money upon it." He examines the drained fields, which are of three kinds. One is on a hill-side, and the drains are carried across the slope. He finds that in consequence of the deadness of the fall in the drains, and the sharpness of the slope of the land itself, the water not only makes its way into the drains but out of them again, and that the adjoining land is, as represented, wet as ever. He resolves to drain this land sufficiently up and down the hill to ensure the fall in the drain being more than a match for the fall of the land.

The second drained field is a strong loam, though in its present sodden state it has all the appearance and most of the attributes of the stiffest clay. Here the drains have been placed in the furrows, as the lands were high and beautifully rounded, and the previous tenant considered himself deeply in their debt for preserving a portion of his crop from the baleful influence of the stagnant water which remained all the winter in the intervening furrows. He therefore, in his care to preserve their form, rather added to than diminished their rotundity. On examination it is found that the reason why this land won't drain is solely its defective form. When land is flat each square foot of surface has only to dispose of the rain which falls upon it, but if laid in high-backed ridges a large portion of the rain runs into the furrows, and carries with it the finer particles of soil and manure, thus effectually choking the natural pores and interstices of that portion of the land where the bulk of the water is accumulated. After a few heavy rains these furrows hold water like a dish, and the vegetation for some feet on each side of them is starved and stunted. On digging into this land it is found to have thin veins of sand which contain much water, and it is of importance to tap these Lilliputian springs as low as possible without incurring too much expense. Our *novus homo* consequently resolves to put in his drains 4 feet deep, and the mains 6 inches deeper. The curvilinear shape and irregular width of the lands make it necessary to neglect them altogether, and he lays out his drains 10 yards apart, having regard to the best obtainable fall, mentally resolving gradually to reduce the height of the lands until the whole can be brought to a level surface.

The third and last attempt at drainage that had been made on the farm was in a field of pure unsophisticated clay. Both tenant and agent were convinced it would not answer, but some meddlesome friend of the owner had insisted on digging a hole in the field, which, though covered with a flag on which a substantial coating of clay had been well trodden down, was unaccountably found after a time to contain water; and it was difficult to say why water shouldn't find its way into a drain as well as into a hole. So a few acres were to be tried, as the cost would not be great, for everybody knew that it was of no use to drain clay deep, and inch pipes would be quite sufficient to carry off all the water there would be. In order, however, effectually to stop the mouths of all objectors, a small portion was to be done 4 feet deep. The lands were 18 feet wide, so a few drains were put in at a depth of 4 feet up every alternate furrow, and the remainder up each furrow at 2 feet deep. Both did good at first, but where the drains were in alternate furrows, and therefore 12 yards apart, the intermediate furrows held water all the winter. The shallow drains were the first to show symptoms of failure, and after a year or two deteriorated rapidly. In a few more years even the deep drains became less efficient, and the triumph of the anti-drainers was complete.

But the farm was now in possession of a man who was never satisfied until he could ascertain the cause of failure, and he saw at a glance that the deep drains were too wide apart. The slowness with which water percolates through really strong clay is such that wide drains cannot in ordinary seasons remove the surplus water of one rainfall before another comes. He therefore resolved to drain this land at 6 yards' interval, and as the cost of deep drains at this width would be heavy, he determined to put his tiles 3 feet deep, considering a bed of dry soil of that depth sufficient for any of our ordinary crops. On examining the old drains to ascertain the cause of their deterioration and inefficiency, he found that though in general well laid, there were places where the ends of adjoining tiles were not exactly on the same level or in the same line of direction, either in consequence of a little carelessness in the filling in, the occurrence of a large stone which it would have been laborious to remove or work round, or the removal of a smaller stone whose bed had not been sufficiently solidly filled up. In these cases the narrow channel afforded by inch pipes was sufficiently interrupted to check the flow of the water, and cause a deposit of silt, which eventually became cemented by a ferruginous deposit, and permanently reduced the effective width of the pipe. In the shallow drains these results were much aggravated by their nearness to the surface. A short drought was sufficient to open wide fissures down to the tiles, and the first heavy shower washed so much fine soil into the drains between the joints of the tiles that the run of water was unable to remove the deposit, and the action of the drains from that time became more and more feeble and ineffective.

There were two modes of avoiding these evils, viz., the use of collars or of larger pipes. He found that 2-inch pipes could be obtained at little more cost than inch pipes and collars, and after duly balancing their respective merits, the tendency of drainage-water on clay land to form a hard ochreous deposit, decided him in favour of the wider conduit, using collars only where a piece of boggy ground or running sand made it necessary to take additional precautions against silting-up. In such places it was found to be desirable to use long collars, making them overlap more or less, according to the urgency of the case.

Whilst planning his drainage operations, our farmer was not content to have his ideas bounded by what he saw on the surface, but followed with his mental vision the great ramification of roots upon which all plants depend for their stability and nourishment. He considered the description of materials collected in Nature's great laboratory, the decaying vegetation, the decomposing manure, and the various combinations of mineral elements. He knew that if a supply of water were long withheld, all the elaborate subterranean machinery would be brought to a stand; and on the other hand, that if water were always present, new and injurious combinations would take the place of the natural and healthy cookery for which the apparatus was designed. But when once the stagnant water was removed from below, then each successive shower would distribute to the greedy rootlets their ready-formed food, at the same time that it prepared more by bringing together the elements of nutrition which lay around, only waiting for this connecting link in order to work afresh at the task of elaborating the supply of materials for the growth of the leaves and stems above. Nor was this all—stagnant air is as bad as stagnant water, and the frequent descent of rain through the soil is required to displace from its pores the vitiated air, to be quickly renewed by a supply fresh from the atmosphere, which is as necessary for the healthy underground growth of vegetation as for the proper action of the lungs of animals. Arrangements were therefore made for the thorough drainage of the farm, on the principle that it was an object worthy of the utmost skill of the husbandman to secure as much as possible the sinking of the rain into the land as it fell and where it fell.

(*To be concluded in our next.*)

Miscellaneous.

The late Mr. Beadel.—The name of James Beadel has been familiar to landed proprietors and agriculturists for the last 30 years, as head of the well-known firm of Beadel & Sons. There were few men more thoroughly acquainted with land, its value and requirements, and few indeed on whose word both tenant and landlord were more content to rely. He had long been a Commissioner of the Essex turnpike roads, attending the meetings occasionally, and assisting by his practical advice. He was, too, one of the founders of the Central London Farmers' Club, to the success and usefulness of which he contributed by his lectures, being ever ready to use his influence for carrying out on the farm the views and principles he broached in the club-room, especially in respect to covered homesteads, which were adopted by his efforts and under his superintendence on several large estates. By these things he will be remembered as one of the practical agricultural improvers of the day, while in private life the qualities of his heart and his frank open bearing will cause him to be widely mourned as a friend. He was born on the 2d December, 1799, at Witham, where his family had been settled for many years. He claimed descent from Bishop Beadel, of Kilmorey, in Ireland, who was also a

native of Essex. Mr. Beadel retired from business about two years before death, owing to an attack of paralysis. He was elected a member of the Society of Arts in 1852. *Journal of Society of Arts.*

Diseased Cattle.—Professor Gamgee has just delivered, at the Royal Agricultural College at Cirencester, six lectures on the Plagues of Animals, and their prevention. They will shortly be published in a complete form by Mr. Hardwicke. The work will also contain the report of the International Congress of Veterinary Surgeons at Hamburgh.

Mr. Lawes and Agricultural Progress.—In the past twenty-five years agriculturists have bridged over and successfully passed the great gulf which separates the rule of thumb from the rule of three. The man who paved the way for their advance, and manfully led the van through year after year of costly, intricate, and ill-appreciated labour, was Mr. Lawes, of Rothamsted. He it was who taught us that the soil has a natural standard of fertility, which enables it without the aid of manure to produce year after year a certain number of bushels of Wheat or other grain. On his own farm at Rothamsted, though the land is by no means of first-rate quality, this average is about 16 bushels of Wheat per acre, and has not diminished, though 24 crops of corn have been taken successively, of which the last 20 have been Wheat. This has been done not only without the application of any kind of manure, but also without the intervention of any fallow or fallow crop. It must be borne in mind that this average produce varies, within certain limits, according to the character of the season, and that it may be reduced by bad management, such as improper seeding or foulness of the land. But, with fair play, all land has a certain standard of natural produce. Such is the important proposition which Mr. Lawes has worked out under the eyes of the nation, and which must in future form the basis of all rational farming. In order to appreciate the full importance of this discovery it is only necessary to look at the new light thus thrown on the nature and capabilities of the soil. Twenty years ago, what could be more unintelligible than the terms used to describe the comparative fertility of different farms? Such a one was said to be in "high condition;" such another was "out of condition." Who could define "condition"? It was considered a kind of mystery, of the real nature of which the experienced practical man was favoured with occasional glimpses, but which it was hopeless to attempt to explain to the uninitiated. Now that we know that land has a natural store of the materials required for the production of grain, which confers upon it a certain moderate standard of fertility, we have the key to the solution of this mystery. *Mr. Thompson, M.P., in the Jour. of the English Agri. Soc.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Stratley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	At 9 A.M., Railway Time. Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	May 20	30.16	74	67	S.E.	2	0	79	55	91	49	..
Saturday ..	21	30.09	53	53	N.	1	10	77	49	88	46	0.21
Sunday ..	22	30.00	63	60	N.W.	2	9	64	51	67	40	0.00
Monday ..	23	29.96	60	58	N.W.	1	8	63	48	82	41	..
Tuesday ..	24	..	..	..	N.E.	..	..	..	..	..	..	..
Wednesday	25	30.04	64	55	N.W.	2	3	65	36	70	31	..
Thursday ..	26	30.00	55	40	N.	3	2	60	42	78	37	..

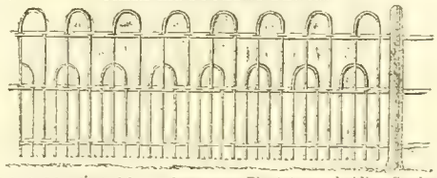
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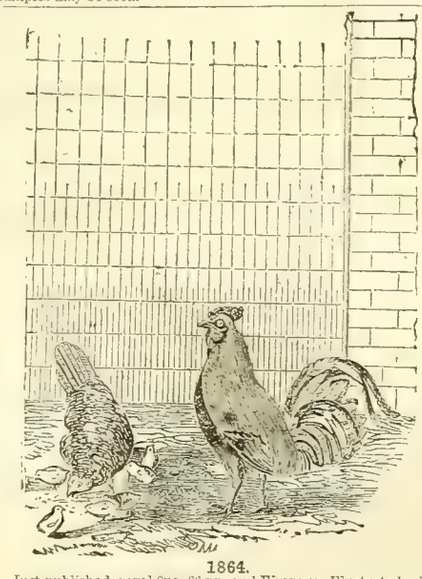
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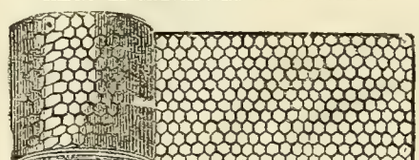


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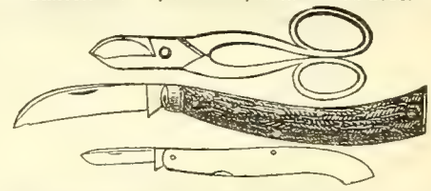
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FLOORING, MATCH BOARDS, DEALS, &c. as low as advertised. White Batten, 9*l.* per 120, 12 feet; Yellow ditto, 10*l.* ditto, ditto; ¾ Floor Boards, well prepared, from 11*s.* 6*d.* per square; Matched Lining, from 12*s.*; Venetian Blind Laths from 8*s.* 6*d.* per 100 feet super.
Charles Cutler, Surrey Sawing and Planing Mills, Church Street, Kennington.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for Superiority of Quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.
J. Tylor & Sons'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.
8 gal. £2 13 6 — 12 gal. £3 2 0 — 16 gal. £3 12 6
24 gal. £5 0 0 — 30 gal. £5 12 0



Fig. 571.
J. Tylor & Sons'
OAK TUB GARDEN ENGINES,
with Registered Spreader.
15 gal. £5 12 0 — 28 gal. £7 0 0

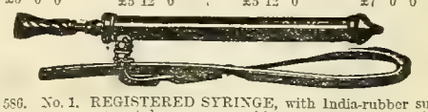


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 „
Telescope Branch Pipe for ditto .. .. 0 10 0 „



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each.
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „



Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
„ 592. Improved ditto ditto large .. 13 0
Garden Engines and Syringes of J. Tylor & Sons' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. Tylor & Sons, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.)

Illustrated Price Lists free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

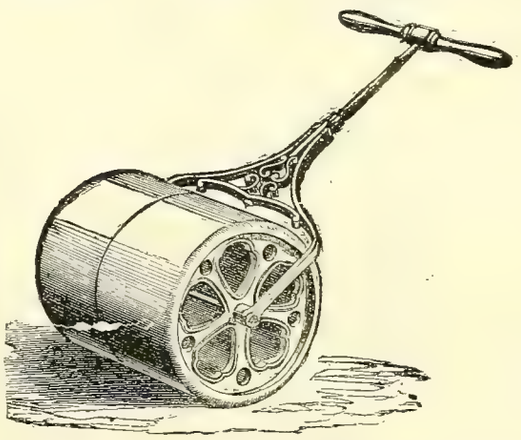
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter	30	inches;	length	32	inches	£7 10	0
,,	24	,,	,,	26	,,	4 10	0
,,	20	,,	,,	22	,,	3 10	0
,,	17	,,	,,	16	,,	2 15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

Diameter	30	inches;	length	32	inches	£10 0	0
,,	30	,,	,,	36	,,	10 15	0
,,	30	,,	,,	42	,,	11 15	0
,,	30	,,	,,	48	,,	13 10	0
,,	30	,,	,,	60	,,	15 10	0
,,	30	,,	,,	72	,,	17 10	0
,,	30	,,	,,	84	,,	19 10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

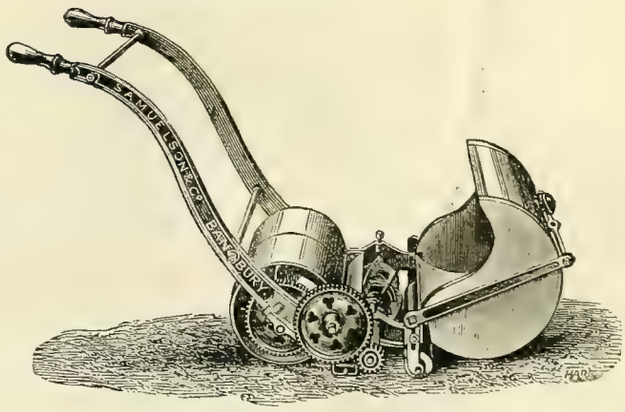
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 12 0
To Cut 16 inches, suitable for One Boy	6 10 0
To Cut 19 inches, suitable for One Man and Boy	7 0 0
To Cut 22 inches, suitable for Two Men ..	8 0 0
To Cut 25 inches, suitable for Two Men ..	11 10 0

PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8 15 0
To Cut 25 inches	11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.,
AND OF ALL SEEDSMEN AND IRONMONGERS.



LAWN MACHINE AS AT WORK, MOWING, &c.

LATEST IMPROVEMENTS
IN
LAWN MACHINES.

SHAW'S PATENT FLEXIBLE LAWN MACHINE, for MOWING, ROLLING, and COLLECTING at the same time. With BOYD'S Patent Self-cleaning and Sharpening Brush.

IS THE ONLY ONE of which the Cutters are SELF-REGULATING, and free to follow all inequalities of ground, with the certainty of leaving a perfectly uniform length of Grass.

IS THE ONLY ONE in which the Pushing Handles are SELF-ADAPTING to any height and convenience of workman, without varying the height of Cutters.

IS THE ONLY ONE which can be used as a ROLLER ONLY, without risk of injury to the Cutters.

Is fitted with BOYD'S WELL-KNOWN PATENT SELF-CLEANING and SHARPENING BRUSH, which keeps the Cutters effective whether the Grass be wet or dry.

Packs away, when done with, in less than ONE-HALF THE SPACE of any other Mower, and is therefore safer from injury.

Full particulars, Drawings, Prices, &c., post free, on application to the PATENTEE and MANUFACTURER,

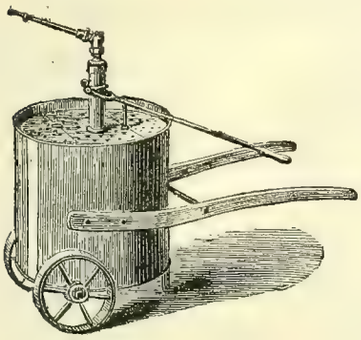
JOHN SHAW, JUNCTION WORKS, LEEDS,

Who was Principal Manager for many years of One of the largest Lawn Machine Manufactories in England.

LONDON AGENTS:
MESSRS. JOHN BOYD AND CO., 76, CANNON STREET WEST.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'

GALVANISED IRON GARDEN ENGINE,

WITH REGISTERED SPREADER.

10 gallons ..	..	.. £2 15*s.*
16 ,, ..	..	.. 3 15*s.*
24 ,, ..	..	.. 5 0*s.*



No. 35.

WARNERS'

PATENT IRON PUMPS.

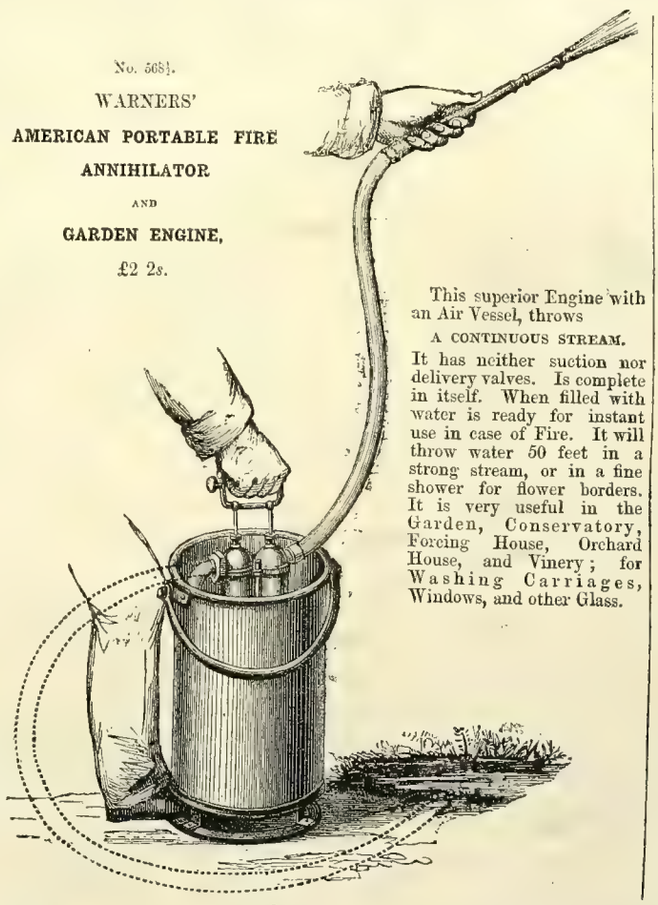
2½ inch	..	.. £1 10*s.*
3 ,,	..	.. 2 4*s.*
3½ ,,	..	.. 2 9*s.*
4 ,,	..	.. 2 18*s.*
2½ inch, with short barrel ..	..	1 1*s.*

No. 568½.

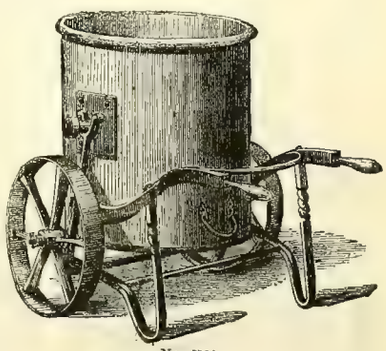
WARNERS'

AMERICAN PORTABLE FIRE ANNIHILATOR AND GARDEN ENGINE,

£2 2*s.*



This superior Engine with an Air Vessel, throws A CONTINUOUS STREAM. It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'

SWING WATER BARROW.

20 gallons ..	..	.. £2 0*s.*
35 ,, ..	..	.. 2 10*s.*

Saves a gardener's time when used with the water pot.

WARNERS'

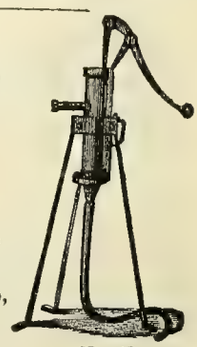
PORTABLE LIQUID MANURE PUMP,

WITH LEGS,

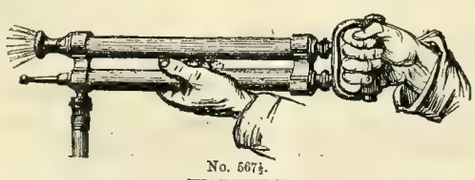
£2 15*s.*

Ditto for fixing to cart, £2 5*s.*

Suction Pipe for Pump, 2*s.* 5*d.* per foot.



No. 42.



No. 567½.

WARNERS'

IMPROVED PATENT DOUBLE ACTION SYRINGE,

with 5 feet of flexible Suction Pipe, 21*s.*

Is much improved since last season.

It economises a gardener's time
To draw from a water-pot, pail, or other vessel.



No. 590.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*

Fountain Designs in great variety. Can be supplied from a Cistern or Main.



No. 557A.

WARNERS'

REGISTERED DISC-VALVE SYRINGE. 9*s.*

FILLS QUICKLY AND EASILY.

It is well adapted for the Gardener or Amateur.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Grea Britain and Ireland.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

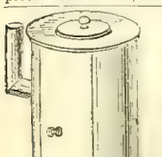
HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Heating by Hot Water.

GEORGE COWELL, Crescent, Salford, Manchester (late Partner with J. WEEKS & Co., Chelsea, London), will be happy to forward Plans, Estimates, and Specifications for the Erection of the above (free of cost) on receipt of dimensions and particulars.
Apparatus fixed complete, and warranted to answer throughout England, Ireland, and Scotland, at the lowest remunerative prices consistent with the best class of materials and workmanship. Upright Tubular Boilers, with all recent improvements, capable of efficiently and economically Heating from 100 to 20,000 feet of 4-inch pipe.
References permitted throughout the Country.
Descriptive Price List and full particulars on application.

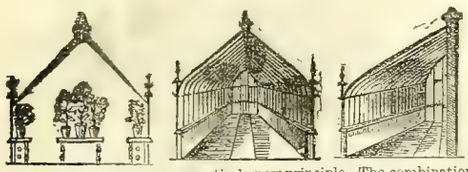
Greenhouses.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes to supply GREENHOUSES, VINERIES, and ORCHARD HOUSES, constructed on the best approved plan, of good Yellow Deal, 21-oz. glass, and four times painted, at 1*s.* 3*d.* per square foot; with 15-oz. glass, 1*s.* 1*d.* per foot.
J. S. begs to offer, ready made, a SPAN ROOF, 27 by 16, for 45*l.*; ditto Span, 17 by 12, 25*l.*; LEAN-TO, 25 by 14, 35*l.*; 23.6 by 12, 30*l.*; 45 by 14, 65*l.*; 100 by 14.6, 120*l.* Also several thousand feet, various sizes, all strongly made, glazed with 21-oz. glass, 9*d.* per foot.
Two-inch Lights made to order, 15-oz. glass, 8*d.* per foot.
Estimates for effectually Heating with hot water.
N.B. Second-hand, equal to new, a SPAN HOUSE, 17 by 12, complete with shelves (no brickwork required) and hot water pipes, 35*l.*



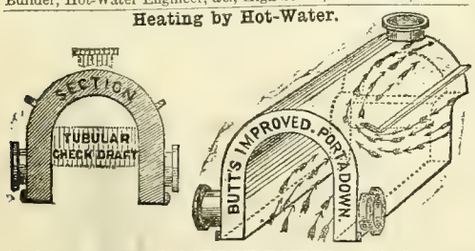
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.
The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.
For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.
Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

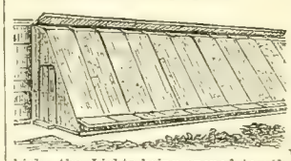
T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.
T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.
ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

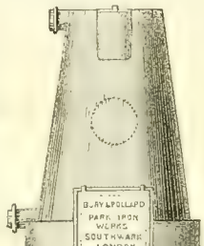
Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture.
It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.
Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1*s.* 6*d*, coloured 2*s.* 6*d*., for Horticultural Buildings, &c.

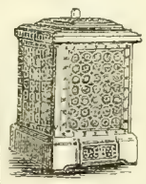
HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories,



&c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.
BURY & POLLARD (Successors to John R. Peill), Sole Manufacturers of the Improved CONICAL BOILERS which require no BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
Park Iron Works, 17, New Park Street, Southwark, London, S.E.
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half Horse Power upwards. To be seen daily at work as above. BURY & POLLARD are now making a powerful Windmill for the India Board, with Pumps for Cotton Irrigation.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.
This Stove is the nearest approach to Warming by Hot Water.



It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.
It is also made for small Conservatories, with a vapour chamber.
For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,
MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Pretty Flowers—Pretty Flowers.

INDIA-RUBBER HOSE and all necessary Fittings for Watering Gardens.
G. R. WOOLGAR & Co., St. Paul's India-rubber Establishment, 16, Ludgate Street, E.C.

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to
Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

TERRA COTTAS always on Sale, viz.:—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at
J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, S.W.

To Owners of Landed Property.

A MANUFACTURING FIRM have for DISPOSAL a large quantity of ENCAUSTIC TILES damaged in the process of Manufacture, which they would be willing to deliver free on the Rail at a rate lower than the cost of the commonest description of Paving Tiles, enabling them to be used for Cottages and Farm-house Floors.
To Owners of Landed Property taking a quantity, they would be supplied at a very low rate.
Apply to X. Y. Z., Ironbridge, Shropshire.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

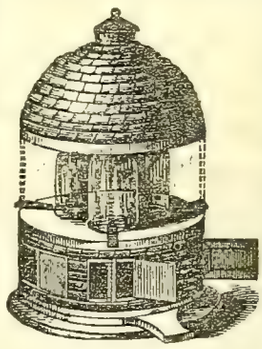
CAUTION.—The well-known reputation of
READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling Syringes as "READ'S PATENT."
R. READ begs to caution the Public against being deceived by such false representations, as these instruments, upon trial, will be found defective and useless.
READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions sent Post free.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C. from whom only it can be obtained.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS' FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.
Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.
Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.
Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.
Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square, Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: EDMONDSON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

CONSERVATORIES! GREENHOUSES! FRAMES!

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

3 *Cwt. Free to most parts.*

PATTERNS, PRICES, and TESTIMONIALS on application to

WALTER CARSON AND SONS, 9, GREAT WINCHESTER STREET, OLD BROAD STREET, E.C.
(Postal Address); Also 31, ST. JAMES'S STREET, S.W.

CAUTION.—*All Casks bear their Trade Mark, or are not genuine.*

EDGINGTON'S GARDEN NETTING, the cheapest and most durable; 200 square yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.

EDGINGTON'S RICK CLOTHS for 59 years have maintained their celebrity as the best.

EDGINGTON'S MARQUEES and TENTS are the prettiest.

EDGINGTON'S MARQUEES for hire are the most elegant and capacious.

Samples of material free on application. Be particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E.

A liberal Discount to the Trade.

INTERNATIONAL EXHIBITION, 1862, Class XIX.

Honourable Mention.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 8d. per yard run.
Four yards wide..	3s. 4d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

WARNER'S KOH-I-NOOR LAMPS,
TO BURN THE HYDRO-CARBON OILS.
PRODUCE A BRILLIANT LIGHT WITHOUT SMOKE OR SMELL.

They are more easily trimmed and refilled than any other Lamp with similar burner.

There is no danger of chimneys breaking, and the chimney cannot become smoked.

For designs of the above, adapted for the DINING-ROOM, DRAWING-ROOM, HALL, or LIBRARY, see Number 2 of this Journal. A REALLY GOOD LAMP.

The above may be obtained of any Lamp Dealer.

BATHS and TOILET WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the display of BATHS and TOILET WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. Portable Showers, 7s. 6d.; Pillar Showers, 3l. to 5l. 12s.; Nursery, 15s. to 32s.; Sponging, 9s. 6d. to 32s.; Hip, 13s. 3d. to 31s. 6d.; A large assortment of Gas Furnace, Hot and Cold, Plunge, Vapour, and Camp Shower Baths. Toilet Ware in great variety, from 15s. 6d. to 45s. the set of three.

THE BEST SHOW of IRON BEDSTEADS in the KINGDOM is WILLIAM S. BURTON'S.—He has FOUR LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bed Hangings. Portable Folding Bedsteads, from 11s.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 14s. 6d.; and Cots, from 15s. 6d. each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2l. 15s. 6d. to 20l.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaselers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London, W.

The Furnishing of Bed Rooms.

HEAL AND SON have observed for some time that it would be advantageous to their customers to see a much larger selection of BED-ROOM FURNITURE than is usually displayed, and that to judge properly of the style and effect of the different descriptions of Furniture, it is necessary that each description should be placed in separate rooms. They have, therefore, erected large and additional Show Rooms, by which they are enabled not only to extend their show of Iron, Brass, and Wood Bedsteads, and Bed Room Furniture, beyond what they believe has ever been attempted, but also to provide several small rooms for the purpose of keeping complete suites of Bed Room Furniture in the different styles.

Japanned Deal Goods may be seen in complete suites of five or six different colours, some of them light and ornamental, and others of a plainer description. Suites of Stained Deal Gothic Furniture, Polished Deal, Oak, and Walnut, are also set apart in separate rooms, so that customers are able to see the effect as it would appear in their own rooms. A Suite of very superior Gothic Oak Furniture will generally be kept in stock, and from time to time new and select Furniture in various woods will be added.

Bed Furnitures are fitted to the Bedsteads in large numbers, so that a complete assortment may be seen, and the effect of any particular pattern ascertained as it would appear on the Bedstead.

A very large stock of Bedding (HEAL & SON'S original trade) is placed on the Bedsteads.

The stock of Mahogany goods for the better Bed Rooms, and Japanned Goods for plain and Servant's use, is very greatly increased. The entire Stock is arranged in eight rooms, six galleries (each 120 feet long), and two large ground floors, the whole forming as complete an assortment of Bed Room Furniture as they think can possibly be desired.

Every attention is paid to the manufacture of the Cabinet work, and they have just erected large Workshops on the premises for this purpose, that the manufacture may be under their own immediate care.

Their Bedding trade receives their constant and personal attention, every article being made on the Premises.

They particularly call attention to their Patent Spring Mattress, the Sommier Elastique Portatif. It is portable, durable, and elastic, and lower in price than the old Spring Mattress.

HEAL & SON'S ILLUSTRATED CATALOGUE of Bedsteads, Bedding, and Bed Room Furniture sent free by Post.

196, 197, 198, Tottenham Court Road, London, W.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

THE GREENHOUSE in the STEREOSCOPE.
CRANSTON'S PATENT.

Six SLIDES of different Houses, Post free for 50 Stamps.
Single SLIDES, 12 Stamps each.
DESCRIPTIVE BOOK, fully illustrated (Second Thousand), Post free for 20 Stamps, from the Author and Patentee, JAMES CRANSTON, Architect, 1, Temple Row West, Birmingham.

The Lightest Articles for Summer Wear.

THRESHER'S INDIA GAUZE WAISTCOATS.
THRESHER'S INDIA TWEED SUITS.
THRESHER'S KASHMIR SHIRTS.

Sold only by THRESHER & GLENNY, 152, Strand, W.C., next door to Somerset House.

N.B.—Lists of Prices on application.

Bedroom Candles.

PRICE'S CANDLES, WHICH WILL NOT DROP GREASE WHEN CARRIED.—Thin, very hard Candles, sold in boxes 1s. and 3s. each, are recommended as the best Carriers.

Extra hard S 12 CHAMBER CANDLES, sold in boxes. Thicker Candles, intended for those who will not burn thin Candles.

SHERWOOD ECONOMIC BED-LIGHTS, in packets of 36 Candles for 1s., intended for use where cheapness is a great object; will be found an improvement on the ordinary Candles, as they gutter less.

Special CANDLESTICKS to fit thin candles, 1s. and 2s. 6d. each; reducing Sockets, making them fit any candlesticks, 2d. each.

PRICE'S Patent Candle Company, Limited, London.

MOIRES ANTIQUES.—SEWELL AND CO. have the largest Selection of Spitalfields MOIRES ANTIQUES in White, Black, and all the New Colours, at 4½ Guineas the full dress.
Compton House, Frith Street, and Old Compton Street, Soho, W.

SEWELL AND CO.'S MORNING and PROMENADE DRESSES made complete, with ROTONDES JACKETS, &c., trimmed *en suite*.

Barege Anglais, and Grenadines, 12s. 6d. to 30s. Evening and Ball Dresses. The Skirts made and trimmed complete.
Compton House, Frith Street, Soho, W.

METCALFE, BINGLEY, AND CO.'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2s., 3s. 6d., and 5s. each.
130 B, and 131, Oxford Street, W.

CULTIVATION of the HAIR.—This is admitted on all hands to be a department of the toilet of peculiar importance in reference to personal appearance. OLDRIDGE'S BALM of COLUMBIA produces Eyebrows, prevents the Hair from turning Grey, and the first application causes it to Curl beautifully, frees it from Scurf, and stops it from falling off. Price 3s. 6d., 6s., and 11s. per bottle. — OLDRIDGE'S Balm (sold Wholesale and Retail), 22, Wellington Street, Strand.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—
This delicious Condiment, pronounced by Connoisseurs
"THE ONLY GOOD SAUCE,"
Is prepared solely by LEA & PERRINS.

The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.

ASK FOR LEA AND PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

TAYLOR BROTHERS' GENUINE MUSTARD.
Dr. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity, Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.
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DYSPEPSIA (Indigestion), Constipation, Consumption, and all Nervous, Bilious, Liver and Stomach Complaints are only aggravated and accelerated by drugs of every description, but perfectly curable by DU BARRY'S health restoring
REVALENTA ARABICA FOOD,
As proved by thousands of cases which had been considered hopeless. We quote a few.—Cure No. 46,270. Mr. James Roberts, of Frimley, Surrey, of 30 years' diseased lungs, spitting of blood, liver derangement, and partial deafness.—Cure No. 47,121. Miss Elizabeth Jacobs, of extreme nervousness, indigestion, gatherings, low spirits, and nervous fancies.—Cure No. 54,816. The Rev. James T. Campbell, Fakenham, Norfolk, "of indigestion and torpidity of the liver, which had resisted all medical treatment."—In tins at 1s. 1½d.; 1 lb., 2s. 9d.; 2 lb. 4s. 6d.; 5 lb., 11s.; 12 lb., 22s.; 24 lb., 40s.
BARRY DU BARRY & Co., No. 77, Regent Street, London, W.; also at 61, Gracechurch Street, E.C.; 4, Cheapside, E.C.; 63 and 150, Oxford Street, W.; and all Grocers and Chemists in every town of the United Kingdom.

A GENTLE COURSE of PARR'S LIFE PILLS will clear from the body all hurtful impurities, restore a healthy action of the liver, bowels, and kidneys, without the least pain, or inconvenience. May be had of any chemist.

7th Edition, 10th Thousand, price 2s. 6d.; post free, 32 stamps.

DISEASES of the SKIN: a Guide to their Treatment and Prevention. Illustrated by Cases: By THOS. HUNT, F.R.C.S., Surgeon to the Western Dispensary for Diseases of the Skin, 21A, Charlotte Street, Fitzroy Square.
"Mr. Hunt has transferred these diseases from the incurable class to the curable."—*Lancet*.
London: T. RICHARDS, 37, Great Queen Street.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to W. GOODALL, Esq., Epsom, Surrey.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.
1, Devonshire Terrace, Fulham Road, S.W.

Landscape Gardener, &c.

ALEXANDER BLAKE (Five Years with Mr. JAMES VEITCH, Royal Exotic Nursery), 1, Prospect Terrace, Britannia Road, Fulham, S.W.

ALEXANDER BLAKE, in soliciting the patronage of the Nobility, Gentry, and Public generally, on his own account, as a Landscape Gardener, Constructor of Rockwork, Ferneries, Fountains, Waterfalls, &c., begs to announce that the increasing taste amongst all Classes for these attractive Ornaments, as well as the varied and beautiful arrangement of surface, to give effect, interest, and increased value to Gardens, Pleasure Grounds, Public Squares, and Parks, has determined him to devote the knowledge he has gained *more especially to the accomplishment of works of this character*, and trusts by strict attention to give satisfaction to those who may honour him with their patronage.

A. B. is prepared to give Designs and Estimates, and undertake on reasonable terms the Laying Out or Improving of Pleasure Grounds or Gardens of any size; and feels confident from practical experience, intimate acquaintance with Ferns and Plants from all climates, he will be able to produce a suitable and effective appearance in whatever Works may be entrusted to his care. He has given much thought to the construction of Ferneries, of various sizes, and the following are some amongst many beautiful ones designed and arranged by him while in the employ of Mr. Veitch, viz.:—

The Hardy Fernery at Mr. Veitch's Nursery.
The extensive Fernery at Lord Clifden's, Dover House, Roehampton.
The large Fernery at Mr. Moore's, Kensington Palace Gardens.
Grouping of Rocks and Ferns around the beautiful Fountain erected in the Conservatory attached to the Ball Room on the occasion of the Entertainment given to their Royal Highnesses the Prince and Princess of Wales, in the Picture Gallery of the Great Exhibition, by the Officers of the Guards.
Also the extensive Fernery attached to the South Kensington Museum, completed under his superintendence, and opened on the occasion of the Reception of their Royal Highnesses the Prince and Princess of Wales by Earl Granville.

Those who may feel disposed to favour him with their commands may rely upon his best efforts and moderate charges.—May 28th, 1864.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

PALM-NUT MEAL. — Manufactured by ALEXANDER M. SMITH & Co., Liverpool, delivered to Rail or Boat, at Liverpool, in bags of 2 cwt. each.

Marked A.M.S. L. Price 6l. a ton.

Analysis and Report by Dr. Augustus Voelcker:—

Moisture	6.91
Fatty matters	26.50
*Albuminous compounds (flesh-forming matters)	14.93
Gum, starch, sugar, and digestible fibre	31.20
Woody fibre (Cellulose)	16.13
†Mineral matters (Ash)	4.30
	100.00

* Containing nitrogen, 2.30 † Containing silica and sand, 1.07.

"101, Leadenhall Street, London, E.C.—April 15, 1864.

"Dear Sir,—I have much pleasure in sending you the preceding analytical results, for they show that the sample of Nut-meal which you gave me for analysis possesses extraordinary fattening properties, inasmuch as it contains no less than 26½ per cent. of a beautiful butter-like fat. You will notice that the meal contains about as much flesh-forming matters as the best Barley-meal, and that the proportion of woody fibre is not large. The condition of the meal is excellent. In conclusion, I beg to say that this valuable fattening meal must not be confounded with a description of cake made from Palm-nut kernels. The samples of Palm-nut kernel cake that have come under my notice were all quite inferior feeding materials.

"AUGUSTUS VOELCKER, Ph. D.,
"Consulting Chemist to the Royal Agricultural Society."

"To John Coleman, Esq."

Having been appointed by Messrs. SMITH Agent for the sale of Palm-nut Meal, I shall be happy to supply samples and further information as to this valuable feeding material.
JOHN COLEMAN, 150, Leadenhall Street, E.C.

DAIRY FARM WANTED on LEASE, near London, or some large Market Town in the Southern Counties, of about 100 Acres, one-third Arable; or the Advertiser would not object to Purchase a HOUSE (fit for a Gentleman) with Suitable Farm Buildings and about 25 Acres of Land, and Rent the remainder on Lease.
Apply J. I. F., Post-Office, Pangbourne, Berks.

TO BE LET, and entered upon at Michaelmas next, a FARM of 275 Acres, chiefly Strong Land, 230 Arable, 45 Pasture It is proposed to lay down in Permanent Pasture about 40 Acres more.
All particulars can be had on application to E. W. MOORE, Coles hill, Highworth.

Sales by Auction.

THE WINDING UP SALE FOR THE SEASON.

Choice Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, June 3, at 12 o'clock, a choice collection of SHOW, SCARLET, and VARIEGATED GERANIUMS, AZALEA INDICA, CALCEOLARIAS, HELIOTROPES, and other plants in Bloom; with a large assortment of Ornamental Plants for Bedding, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Bedding Plants, Pinks, Carnations, Ferns, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, June 4, at half-past 12 o'Clock precisely, a splendid assortment of Geraniums, Ageratums, Lobelias, Alyssums, Phloxes, Carnations, Picotees, Pinks, Dahlias, Fuchsias, Iris, Seeds, &c.

On view the Morning of Sale, and Catalogues had.

5000 Japanese Lilies from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 6, at half-past 12 o'Clock precisely, a consignment of 5000 LILY BULBS just arrived per ship Alexandra, from Japan, containing probably many thousand bulbs of Lilium auratum.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 7, at half-past 12 o'Clock precisely, a choice assortment of POULTRY and PIGEONS from the yards and lofts of well known breeders and exhibitors.

Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 10, at half-past 12 o'Clock precisely, a Collection of ORCHIDS, comprising choice Cypripediums, Oncidiums, Epidendrums, Lycastes, Dendrobiums, Anæctochilus, Maxillarias, &c.

More detailed particulars in next Advertisement.

New Japanese Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 16, at half-past 12 o'Clock precisely, the third portion of the valuable JAPANESE PLANTS collected by Mr. Fortune in Japan, and propagated by Mr. Standish, of Ascot.

More detailed particulars in next Advertisement.

NEW WORK ON THE ROSE, BY SHIRLEY HIBBERD.

Crown 8vo, with numerous Illustrations. In a few days,

THE ROSE BOOK.

A Practical Treatise on the Culture of the Rose, comprising the Formation of the Rosarium, the Characters of Species and Varieties, Modes of Propagating, Planting, Pruning, Training and Preparing for Exhibition, and the Management of Roses in all Seasons.

By SHIRLEY HIBBERD, F.R.H.S.,

Author of "Rustic Adornments," "Profitable Gardening," "Book of the Aquarium," &c., &c.

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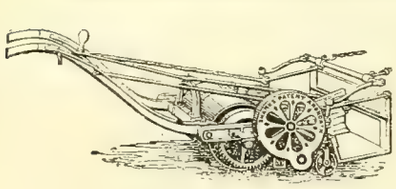
THE FAMILIES OF WILD ROSES.
THE FAMILIES OF CULTIVATED ROSES.
FORMING THE ROSARIUM.
CULTURE OF ROSES IN THE OPEN GROUND.
CLIMBING ROSES.
PILLAR ROSES.
YELLOW ROSES.
ROSES IN POTS.
ROSES IN BEDS.
ROSES IN GREAT TOWNS.
TEA ROSES IN TOWNS.
VARIOUS MODES OF PROPAGATING.
ON THE FORMATION OF STANDARD ROSES, AND ROSES ON THEIR OWN ROOTS.

GROOMBRIDGE AND SONS, PUBLISHERS, 5, PATERNOSTER ROW, E.C.

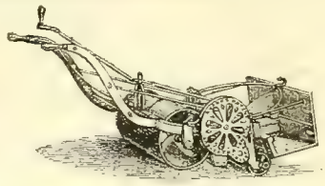
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

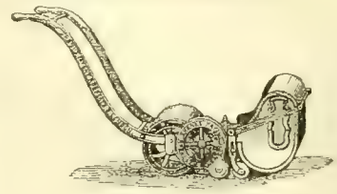
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

ALEXANDER SHANKS AND SON have had the honour this Season to furnish their celebrated LAWN MOWERS to HER MAJESTY THE QUEEN, for the Royal Gardens at Windsor, and to HIS MAJESTY THE KING OF SAXONY, for the Royal Gardens at Dresden.

A. S. & SON have for a quarter of a century devoted their attention to the Improvement and Manufacture of LAWN MOWERS; the demand for their Machines is now unprecedented, and out of the many thousands of Machines they have manufactured and sold, they cannot point to a single instance where they have not given every satisfaction.

A. S. & SON have further improved their PATENT LAWN MOWERS for this season, and have no hesitation in saying that their Machines are still, as they have always proved themselves to be, unequalled for the qualities that constitute a really good LAWN MOWER fit for the hands of the Gardener.

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ILLUSTRATED PRICE LISTS OF CHAFF CUTTERS, WIRE NETTING, GARDEN CHAIRS, ETC., FREE ON APPLICATION.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1864.] SATURDAY, JUNE 4. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
The RHODODENDRON SHOW, under the great Suspension Tent, is OPEN DAILY. Admission, Saturday and Monday, 6d.; Tuesdays, Wednesdays, Thursdays, and Fridays, 1s.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
LECTURE on TUESDAY NEXT, June 7, by the Rev. E. Bayley, on LONDON COTTAGE WINDOW GARDENING; and afterwards some Experiments with CHLOROFORM on SENSITIVE PLANTS by Mr. Murray. To Commence at 3 o'Clock.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.
The SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT, will take place on SATURDAY NEXT, June 11. Tickets to be obtained at the Gardens only by orders from Subscribers, price 5s., or on the Exhibition day, 7s. 6d. each. Gates open at 2 o'clock.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.
The FIRST EXHIBITION of FLOWERS, FERNS, and VEGETABLES will take place in the Pleasure Grounds of J. G. Barclay, Esq., Knott's Green, Leyton, Essex, on WEDNESDAY, JUNE 8. Doors open to the Public at 1 o'clock. For further particulars apply to E. Goad, Hon. Sec.,
Beulah Road, Walthamstow, Essex.

THE RUGBY ROSE SHOW: 1864.—The FIRST GRAND EXHIBITION of ROSES and a MUSICAL FETE will be held at Rugby on TUESDAY, June 21 (Open to all England).

President.—His Grace the Duke of Rutland.

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Messrs. Paul & Son, F.R.H.S.	Mr. John Keynes, F.R.H.S.

Hon. Sec.—Mr. W. H. Treen, F.R.H.S., Victoria Nursery, Rugby.
Schedules and all particulars on application to the Hon. Sec.
Prizes paid on the day of exhibition at the Hon. Secretary's Tent on the Ground. Three celebrated London Censors have accepted the office of Judges, and the awards will be published in the *Gardeners' Chronicle* and other papers. The Entries close on Monday, June 13.
W. H. Treen, Hon. Sec.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
A ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40*l.* will be awarded for Cut Roses in the various classes.
For particulars, apply to the Secretary, Mr. Wm. Penn Cox, 37, Millstone Place, Leicester.

STAMFORD HORTICULTURAL SOCIETY.
The ROSE and SUMMER FLOWER SHOW of this Society will be held on TUESDAY, July 5.
Rules and Schedules are now ready, and may be had on application of Messrs. Laxton & Hewitt, Hon. Secs., Stamford.

THE BIRMINGHAM ROSE SHOW, 1864, will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, the 7th and 8th of July next.
Prize Lists, &c., may be had of the Secretary, Mr. A. Forrest, Queen Chambers, Cherry Street, Birmingham.

WILLIAM BARNES begs to announce that his Unrivalled COLLECTION of INDIAN AZALEAS is NOW in BLOOM. An inspection is respectfully solicited.
Camden Nursery, Camberwell.—June 4.

IVERY and SON beg to announce that their fine collection of AZALEA INDICA is NOW in BLOOM; also their collection of HARDY FERNS will be found very interesting. An inspection is respectfully solicited.
Dorking Nursery.—June 4.

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Richard Smith, Nurseryman and Seed Merchant, Worcester.

British Fern Catalogue.
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Crimson, White, Purple, and Scarlet.
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N.B. CATALOGUES now ready.

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EDWARD TAYLOR, Florist, Malton, Yorkshire, offers the following 10 dozen BEDDING PLANTS (all strong and healthy) for 20*s.*, package included:—12 Ageratums, 24 Variegated and other Geraniums, 12 Fuchsias, 12 Lobelias, 24 Verbenas, 12 Dahlias, in 12 varieties; 6 Cupheas, 6 Salvias; 12 plants in 12 distinct sorts, or half the quantity for 10*s.*
CATALOGUES gratis on application.
E. T. having a surplus stock of many varieties, will be glad to make special offers to the Trade on application.

To the Trade.—Deutzia crenata fl. pl.
THOS. CRIPPS, Nurseryman, Tunbridge Wells, will be happy to supply plants of the above new and handsome hardy double pink flowering Japanese Shrub, well established in pots, 9*s.* per doz., or 50*s.* per 100. LASTREA STANDISHII, new and beautiful hardy Japanese Fern, 5*s.* each. COLEUS MARMORATUS, 2*s.* 6*d.* each. LONICERA AUREO-RETICULATA, fine strong last year's plants, in pots, 2 to 3½ ft., 6*s.* per doz., or 42*s.* per 100.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6d., 1s., and 2s. each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5s. value and upwards.
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.



PAGE'S BLIGHT COMPOSITION, introduced by BRIDGEWATER PAGE in 1848.—After thirteen years' extensive use this Composition is admitted to be invaluable to all who have a Garden.

EXTRA STRONG, 3s. per Gallon, sufficient to make four gallons. Ten Gallons and upwards carriage paid.

See leading article of *Gardeners' Chronicle*, October 25th, 1856, showing 192 Testimonials of its value, including that from Andrew Toward, Esq., Royal Gardens, Osborne Palace:—

"I have great pleasure to add my testimony to the efficacy of your Blight Composition, which has been used with great success upon Rose Trees much affected with the green fly.
"November, 1852."

From Mr. A. DOWLING, *Gardener to the* Right Hon. Lord HENRY CHOLMONDELEY, M. P., *Holly Hill.*

"Your Composition is most destructive to all blight. My wall trees must have died had I not availed myself of it. I consider it applicable to all cases, as it is not the least injurious to the foliage of the most tender plant.—May 17, 1851."

Agents in most of the principal Towns in England.
BRIDGEWATER PAGE, Royal South Hants Seed Establishment, 37 and 38, Oxford Street, and West End, Millbrook Road, Southampton



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials to newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."—"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*" Signed JOHN MORLEY, HENRY DREW, HENRY SHEERMAN, GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 8d. per yard run.
Four yards wide.. .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

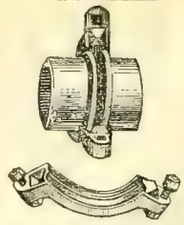
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

"RECONNOIT'RER" GLASS, 10s. 10d. post free, shows distinctly windows and doors of houses 10 miles off; JUPITER'S MOONS, &c. For Landscape is valuable for 25 miles, is guaranteed equal to others at 3l. 3s., the enormous sales allowing division of labour to an extent hitherto quite unknown. "The Reconnoit'rer is very good."—*Marquis of Carmarthen.* "It gives me complete satisfaction, and is wonderfully good."—*Sir Digby Cayley.* "I never met an article so completely answering its maker's recommendation."—*F. H. Fawkes, of Farnley, Esq.* "An indispensable companion to a pleasure trip."—*Notes and Queries.* "We have found it fully equal to others more than four times its price."—*Field.* "I have found it effective on the 1000 yards range."—*Capt. Scudey, Royal Small Arms Factory, Enfield.*—The "Hythe" Glass shows bullet marks at 1000 yards, and men at three miles; 31s. 6d. Only to be had direct from SALOM & Co., 98, Princes Street, Edinburgh.
NO AGENTS.



HOT-WATER APPARATUS,
WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,
53, GRACECHURCH STREET, LONDON, E.C.

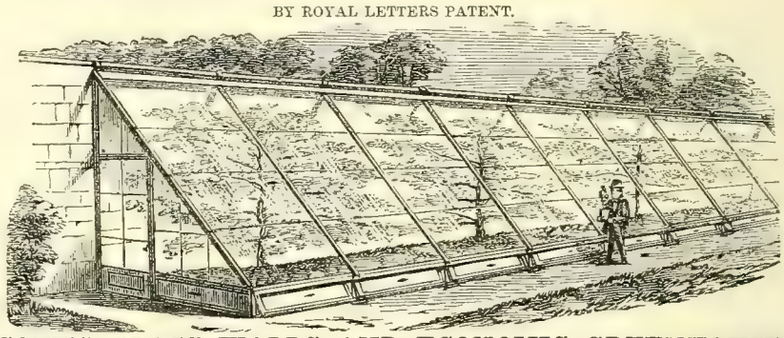
By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

For a few prices, see last week's advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,
OLD ST. PANCRAS ROAD, LONDON, N.W.
BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

JAMES PHILLIPS & CO.,
HORTICULTURAL GLASS MERCHANTS,
180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.
Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ..	7¼d.
Seconds	3⅝d. ..	5d.
Thirds	2½d. ..	3½d.
Fourths	2¼d. ..	3¼d.

HORTICULTURAL GLASS,
Stock Sizes, 16-ounce. In 100 feet Boxes.
These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds.
11 by 9	12 by 9	13 by 9	14 by 9	10s 9d	12s 3d	12s 6d	14s 0d
12 „ 10	13 „ 10	14 „ 10	15 „ 10				
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14				
19 „ 13	20 „ 13	18 „ 13	..	11s 6d	13s 6d	13s 6d	16s 0d
18 „ 14	17 „ 14	21 „ 13	..				
19 „ 14	20 „ 14	18 „ 14	..	14 to 15 ozs. to the foot.		16 to 17 ozs.	

FOREIGN SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
	£ s. d.	£ s. d.	£ s. d.
Best ..	3 7 0	.. ..	5 14 0
Seconds ..	2 10 0	.. ..	4 13 0
Thirds ..	.. ..	2 5 0 ..	2 10 0
Fourths ..	.. ..	1 15 0 ..	2 0 0

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ..	11s. 6d. ..	13s. 6d. ..	15s. 0d.
20 „ 13	Thirds ..	13s. 6d. ..	16s. 0d. ..	19s. 0d.
20 „ 14	Seconds ..	.. ..	English. ..	English.
20 „ 15	Best ..	.. ..	18s. 0d. ..	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4 ..	6½ by 4½ ..	7 by 5 ..	7½ by 5½ ..
8 „ 6 ..	8½ „ 6⅜ ..	9 „ 7 ..	9½ „ 7½ ..
		10 „ 8 ..	10½ „ 8½ ..

} 11s. 6d.
12s. 6d.

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.
London Agents for Hartley's Patent Rough Plate.
Perforated Glass for Ventilation.
Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.
Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	„ CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	„ PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	per 300 feet case	32s. 6d.	or about 1¼d. per foot.
3ds	,,	41 0	,, 1¾ ,,
2ds	,,	60 0	,, 2½ ,,
Best	,,	92 0	,, 3¾ ,,

Average Thickness, 21 oz.

4ths quality	per 200 feet case	33s. 6d.	or about 2d. per foot.
3ds	,,	42 0	,, 2½ ,,
2ds	,,	63 0	,, 3¾ ,,
Best	,,	89 0	,, 5½ ,,

Average Thickness, 26 oz.

4ths quality	per 200 feet case	44s. 6d.	or about 2¾d. per foot.
3ds	,,	56 0	,, 3½ ,,
2ds	,,	84 0	,, 5 ,,
Best	,,	116 0	,, 7

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2½	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5

Average Thickness, 21 oz.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

Average Thickness, 26 oz.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5¼
2ds ,,	4½	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

				Per 100 feet.			
15½ by 11½	14 by 12	17 by 13	22 by 16	4ths.	3rds.	2nds.	Best.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17	11s. 6d.	13s. 6d.	16s.	18s.
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

Average Thickness, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.
4 ,, ..	0 5	,,
5 ,, ..	0 6	,,
6 ,, ..	0 7	,,
8 ,, ..	0 10½	,,
0 ,, ..	1 2	,,
2 ,, ..	1 6	,,
4 ,, ..	2 3	,,
6 ,, ..	3 0	,,
8 ,, ..	4 6	,,
0 ,, ..	6 0	,,



HAND GLASSES.

12 inches diam.	5s. 6d.	each.
14 ,, ..	6 6	,,
16 ,, ..	7 6	,,
18 ,, ..	8 6	,,
20 ,, ..	9 6	,,
22 ,, ..	10 6	,,
24 ,, ..	11 6	,,

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.



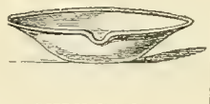
PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0s. 4d. ..	0 6 each.
4 ..	0 5½ ..	0 8 ,,
5 ..	0 7 ..	0 10 ,,
6 ..	0 9 ..	1 1 ,,
7 ..	0 10½ ..	1 2 ,,
8 ..	1 2 ..	1 6 ,,
9 ..	1 6 ..	2 0 ,,
10 ..	1 10 ..	2 4 ,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES. Ins. long.	each.	ROLLING PINS. each
12 ..	0s. 10d.	1s. 3d.
13 ..	0 11	1 4
14 ..	1 0	1 6
15 ..	1 1	1 8
16 ..	1 2	1 9
17 ..	1 3	1 10
18 ..	1 4	2 0
19 ..	1 5	2 2
20 ..	1 6	2 3
22 ..	1 7	2 4
24 ..	1 9	2 8



MILK PANS.

6 inches diam.	0s. 5d.	each.
8 ,,	0 8	,,
10 ,,	0 10½	,,
12 ,,	1 1	,,
14 ,,	1 6	,,
16 ,,	2 0	,,
18 ,,	2 5	,,
20 ,,	2 10	,,
22 ,,	3 4	,,
24 ,,	4 0	,,

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.		Qts. each
8	¾ filled,	3..1s. 3d.
9	,,	4..2s.
10	,,	6..2s. 6d.
11	,,	8..3s.
12	,,	9..3s. 9d.
13	At same average according to weight.	7d. per lb.
14		
15		
16		

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p.cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2*s.* each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5*s.* to 7*s.* 6*d.* each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7*s.* 6*d.* each.

PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7*s.* 6*d.* each. A coloured plate by Andrews for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose. 2*s.* 6*d.*

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36*s.* to 42*s.* per dozen. Fine vigorous plants of the old and popular sorts, 9*s.* to 18*s.* per dozen.

PAUL'S Nurseries, Waltham Cross, N.

E. G. HENDERSON AND SON'S SPRING CATALOGUE for 1864 will be forwarded on application.

Amongst many beautiful plants for the Flower Garden and Conservatory described in the above Catalogue are the following:—

ARUNDO DONAX, 1*s.* 6*d.* each.
" VARIEGATA, 3*s.* 6*d.*
ACHIMENES (TYDÆA) "RACHEL," 3*s.* 6*d.*; splendid.
AZALEA SOUVENIR DU PRINCE ALBERT.—The most distinct, 10*s.* 6*d.* to 21*s.*
ANTIRRHINUM.—New Italian double-flowered, 1*s.* 6*d.*
BOUVARDIA GRANDIFLORA, and other new ones.
CLEMATIS SPLENDENS (Lanuginosa hybrid), 5*s.*
CHRYSANTHEMUM EMPRESS of INDIA, 3*s.* 6*d.*
COLEUS MARMORATUS, 3*s.* 6*d.*
ERANTHEMUM RUBRO-VENIUM, 3*s.* 6*d.* and 5*s.*
DAHLIA (New Bedding) SCARLET GEM.—For style of growth and model of blooming habit, see Illustration in Catalogue.
DAHLIA, New rose-coloured bedding variety.
GARIBALDI PINK, rich deep rose-coloured, 3*s.* 6*d.*
PAMPAS GRASS (G. elegans), New Silver, 3*s.* 6*d.*
FUCHSIAS.—Banks's new varieties.
GERANIUMS.—New variegated tricolor-leaved varieties.
GERANIUMS WHITE TOM THUMB and BEAUTY, with other kinds.
GERANIUMS.—Mr. Beaton's beautiful bedders, and other Continental Nosegay varieties.
GLOXINIA PUNCTULATA, 5*s.*; see figure in the Catalogue.
HEDERA (IVIES), 40 varieties and species, gold and silver margined or blotched: climbing or shrubby habits.
LAPAGERIA ROSEA, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*
" SPLENDENS, 3*s.* 6*d.* to 7*s.* 6*d.*
PHLOX LOUIS GRELL, beautifully striped, 1*s.* 6*d.*, 2*s.* 6*d.*
PERPETUAL MULE PINK, ROSETTE.
PYCNOSTACHYS URTICIFOLIA, 3*s.* 6*d.*
ROSES, New Kinds of 1864, strong, healthy, 2 to 3 feet in growth, 3*s.* 6*d.*
SARRACENIA PURPUREA (PITCHER PLANT), 3*s.* 6*d.*
VERBENAS, VELVET CUSHION and BEAUTY: MADAME LEFEVRE; NOBILE CAROLINA FRANZINA; HENRIETTE (best of all Whites); MELINDRES SPLENDENS (dazzling); PALLAVICINI DI BRESCIA.
TROPÆOLUMS.—Beautiful and free blooming varieties.

Wellington Nursery, St. John's Wood, London, N.W.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—

DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.

They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.

Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at Market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY  THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.

Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary, or of the local Agents.

Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

REIGATE SILVER SANDS, First-class PEAT SOILS, LOAMS, &c., on SALE.

N.B. Loaded Trucks can be sent direct through to almost all the Railway Goods Stations in Great Britain.

W. SUORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).

Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

CARTER'S FARMER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Seed Establishment, 181, High Holborn, London, W.C.

THE BUSINESS hitherto carried on at the above address by the late Mr. JOHN GEORGE WAITE, will be continued in the name of WAITE, BURNELL, AND CO., under the Management of Mr. JOHN T. BURNELL, stepson of the late Mr. WAITE, and for a long time associated with him.

New Bedding Plants.

MESSRS. JOHN AND CHARLES LEE are now prepared to offer the following Novelties, which they have proved to be distinct and good:—

TROPÆOLUM COOPER'S DEFIANCE.—Is very dwarf, short jointed, slightly trailing, small leaved, and an immense bloomer. Flowers bright scarlet. A first-rate Bedder. Price 2*s.* 6*d.* each; 18*s.* per dozen; 5*l.* per 100.

GERANIUM VARIEGATED LITTLE DAVID.—Is a very pretty white-edged sport of the well-known favourite, "Little David," so useful for Edging. Price 5*s.* each.

VARIEGATED GERANIUM THE BRIDE.—This interesting novelty is adapted for small beds in conjunction with Lobelia speciosa. The habit is very dwarf, the margin of the leaves pure white, and the flowers are also pure white. A very elegant little plant. Price 7*s.* 6*d.* each.

Royal Vineyard Nursery, Hammersmith, London, W.

Indian Azaleas.

WILLIAM BARNES has the largest and most healthy stock of the above favourite plants to offer for sale, comprising the finest specimens, suitable for exhibition in this or any other country, as well as many thousands of smaller dimensions, from three-quarter and half specimens down to small plants, all properly shaped to form symmetrical specimens, and finely set with bloom. Any person forming a collection or increasing their present one will do well to visit this Nursery, where every variety up to the present date worth cultivating will be found, the whole grafted upon the stock that W. B. has proved so admirably adapted to them, after many years close observation.

PRICED LIST will be forwarded upon application post free.

Camden Nursery, Camberwell, S.—June 4.

Choice Tricolor Geraniums for Pot Culture.

ALFRED FRYER offers the following 12 Choice Tricolor, Gold and Silver-leaved varieties, for 21*s.* Basket and package included.

Mrs. Pollock	Glow-worm	Golden Harkaway
Sunset	Argus	Golden Tom Thumb
Mrs. Milford	Picturata	Golden Vase
Rainbow	Silver Chain	Silver Nosegay

Remittances requested from unknown correspondents.

Address, ALFRED FRYER, Chatteris, Cambridgeshire.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9*d.* per lb.; and his large FOSTERTON HYBRID, 8*d.* per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

VIOLA DEVONIENSIS,

A NEW PERPETUAL BLOOMING SWEET-SCENTED VIOLET.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

Are now prepared to offer this superb VIOLET, particularly recommending it to those who cultivate Violet flowers for sale, as the largest flowered Violet known. Very hardy and robust, blooming profusely and perpetually from September to April; the flowers extra large; colour of the darkest blue, and very sweet scented; the flower stem generally over 6 inches in length, and stiff; the foliage large and thick, bunching splendidly.

A Circular of TESTIMONIALS to be had on application, one of which is as follows:—

From Mr. G. B. CARLISLE, *General Fruiterer, St. Martin's Street, Exeter.*

"For the past three years I have received from September to April a constant supply of bunches of those beautiful Violets. The flowers are large, of the darkest blue, very sweet scented, the stems stout and long. The bunches of this Violet sell in preference to any other sort, and I have sent them to the furthest parts of the Kingdom. (Signed) GEORGE BYRON CARLISLE."

Strong Plants now sending out at 12s. per dozen, or 60s. per 100.

Orders received in London by HURST AND SON, 6, LEADENHALL STREET, E.C.

ROYAL HORTICULTURAL SOCIETY.

FIRST GREAT SHOW, WEDNESDAY and THURSDAY, JUNE 1 and 2.

AWARDS OF THE JUDGES.

PRIZE OFFERED by HIS GRACE the DUKE of BUCCLEUCH, the President.

CLASS 1.—12 FINE FOLIAGED and FLOWERING PLANTS, 6 each. (Open.)
1st Prize, Mr. James Veitch, Royal Exotic Nursery, Chelsea, 25*l.*
2d, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, 15*l.*
(NOTE.—The 2d Prize was offered, and is awarded by the Society.)

CLASS 2.—12 STOVE and GREENHOUSE PLANTS in FLOWER. (Amateurs.)
1st, Mr. William May, Gr. to J. Spode, Esq., Rugeley, 15*l.*
Equal 2d, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 10*l.*
Equal 2d, Mr. A. Morse, Gr. to T. Canning, Esq., Westbury on Trym, Bristol, 10*l.*
3d, Mr. John Green, Gr. to Sir E. Antrobus, Bt., Cheam, S., 7*l.*

CLASS 3.—12 STOVE and GREENHOUSE PLANTS in FLOWER. (Nurserymen.)
1st, Mr. J. Fraser, Lea Bridge Road, Leyton, 10*l.*

CLASS 4.—6 STOVE and GREENHOUSE PLANTS in FLOWER. (Amateurs.)
1st, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 6*l.*
2d, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, 4*l.*
3d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 3*l.*

CLASS 5.—6 STOVE and GREENHOUSE PLANTS in FLOWER. (Nurserymen.)
1st, Mr. O. Rhodes, Sydenham Park Nurseries, S.E., 5*l.*
2d, Messrs. T. Jackson & Son, Kingston, S.W., 3*l.*

CLASS 6.—ORCHIDS: AERIDES, VANDA, SACCOLABIUM, 6 distinct kinds. (Open.)
1st, Mr. George Baker, Gr. to A. Basset, Esq., Stamford Hill, 6*l.*
2d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 4*l.*
3d, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 2*l.*

CLASS 7.—ORCHIDS: CATTLEYA and LÆLIA, 6 distinct kinds. (Open.)
1st, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 6*l.*

CLASS 8.—ORCHIDS: ONCIDIUM, MILTONIA and ODONTOGLOSSUM, 6 distinct kinds. (Open.)
(No Competition.)

CLASS 9.—ORCHIDS: CYPRIPEDIUM and UROPEDIUM, 3 distinct kinds. (Open.)
1st, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 3*l.*
2d, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 2*l.*
3d, Mr. G. Baker, Gr. to A. Basset, Esq., Stamford Hill, 1*l.*

CLASS 10.—ORCHIDS: MISCELLANEOUS, 9 distinct kinds. (Amateurs.)
1st, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 9*l.*
2d, Mr. George Baker, Gr. to A. Basset, Esq., Stamford Hill, 7*l.*
3d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 5*l.*

CLASS 11.—ORCHIDS: MISCELLANEOUS, 9 distinct kinds. (Nurserymen.)
1st, Mr. B. S. Williams, Holloway, 7*l.*
2d, Messrs. T. Jackson & Son, Kingston, 6*l.*
3d, Mr. S. Woolley, Cheshunt, Herts, 5*l.*

CLASS 12.—ORCHIDS: MISCELLANEOUS, 6 distinct kinds. (Open.)
1st, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 6*l.*
2d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 4*l.*
3d, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 2*l.*

CLASS 13.—AZALEAS, 9 distinct kinds. (Amateurs.)
1st, Mr. A. Morse, Gr. to Thomas Canning, Esq., Westbury on Trym, near Bristol, 12*l.*
2d, Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Cheam, S., 9*l.*
3d, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, 6*l.*
Extra, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 2*l.* 10*s.*
Extra, Mr. Wm. Kaile, Gr. to The Earl of Lovelace, Ripley, Surrey, 1*l.* 10*s.*

CLASS 14.—AZALEAS, 9 distinct kinds. (Nurserymen.)
1st, Mr. C. Turner, Slough, 10*l.*
2d, Mr. J. Veitch, Chelsea, S.W., 7*l.*

CLASS 15.—AZALEAS, 6 distinct kinds. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 6*l.*
2d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 4*l.*
Equal 3d, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, 3*l.*
Equal 3d, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, 3*l.*

CLASS 16.—AZALEAS, 3 new kinds, sent out in 1862 and 1863. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 5*l.*

PRIZE OFFERED by Mr. KELK, Member of Council.
CLASS 17.—AZALEAS, 3 distinct kinds in 6-inch pots. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 5*l.*

CLASS 18.—RHODODENDRONS, 6 distinct kinds in pots. (Open.)
(No competition.)

CLASS 19.—ROSES, in pots, 12 distinct kinds. (Nurserymen.)
1st, Mr. Wm. Paul, Waltham Cross, 10*l.*
2d, Messrs. H. Lane & Son, Great Berkhampstead, 7*l.*

CLASS 20.—6 ROSES, in pots, distinct kinds. (Amateurs.)
1st, Withheld.
2d, Mr. T. Terry, Gr. to A. G. Puller, Esq., Youngsbury, Herts, 5*l.*

CLASS 21.—6 distinct ROSES, HYBRID PERPETUALS, in 9-inch pots. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 4*l.*
2d, Messrs. Paul & Son, Old Cheshunt Nurseries, Herts, 3*l.*

CLASS 22.—6 TEA-SCENTED ROSES, in 9-inch pots. (Open.)
1st, Messrs. Paul & Son, Old Cheshunt Nurseries, Herts, 4*l.*

PRIZE OFFERED by Mr. KELK, Member of Council.
CLASS 23.—3 SPECIMEN ROSES, in 6-inch pots. (Open.)
1st, Messrs. Paul & Son, Old Cheshunt Nurseries, Herts, 5*l.*
Extra Prize awarded by the Society to Mr. Charles Turner, Royal Nurseries, Slough, 2*l.*

CLASS 24.—CAPE HEATHS, 6 distinct kinds. (Open.)
1st, Mr. O. Rhodes, Sydenham Park Nurseries, S.E., 5*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 3*l.*
Equal 3d, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 2*l.*
Equal 3d, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 2*l.*

CLASS 25.—PELARGONIUMS, 12 distinct kinds. (Nurserymen.)
1st, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, 8*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 6*l.*

CLASS 26.—PELARGONIUMS, 9 distinct kinds. (Amateurs.)
1st, Withheld.
2d, Mr. J. Wiggins, Gr. to W. Beck, Esq., Isleworth, 6*l.*

CLASS 27.—PELARGONIUMS, 6 FANCIES, distinct kinds. (Open.)
1st, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, 5*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 4*l.*

CLASS 28.—PELARGONIUMS, 3 distinct kinds, sent out in 1863. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, 3*l.*

CLASS 29.—6 CAPE GERANIUMS, distinct kinds. (Open.)
(No competition.)

CLASS 30.—PANSIES, 12 distinct kinds in pots. (Open.)
1st, Mr. H. Hooper, Vine Nursery, Bath, 2*l.*

CLASS 31.—PANSIES, 24 Cut Blooms. (Open.)
1st, Messrs. Downie, Laird, & Laing, Nurserymen, Forest Hill, 1*l.* 5*s.*
2d, Mr. Hy. Hooper, Vine Nursery, Widcombe Hill, Bath, 15*s.*
Extra, Mr. E. F. Kingston, Fry's Belle Vue, Wells Road, Bath, 10*s.*

CLASS 32.—VERBENAS, 12 distinct kinds in pots. (Open.)
(No Competition.)

PRIZES OFFERED by LADY DOROTHY NEVILL.
CLASS 33.—PITCHER PLANTS, 3 SARRACENIAS. (Open.)
1st, Mr. T. Baines, Gr. to H. Micholls, Esq., Bowden, Cheshire, 3*l.*
Equal 2d, Mr. J. Veitch, Royal Exotic Nursery, Chelsea, 2*l.*
Equal 2d, Mr. B. S. Williams, Paradise and Victoria Nurseries, Holloway, 2*l.*

PRIZES OFFERED by LADY DOROTHY NEVILL.
CLASS 34.—3 PITCHER PLANTS (not SARRACENIAS) (Open.)
1st, Mr. J. Veitch, Royal Exotic Nurseries, Chelsea, 3*l.*

CLASS 35.—NEW or RARE TENDER PLANTS in FLOWER.
FIRST CLASS CERTIFICATE.
Imantophyllum miniatum pictum, from Mr. W. Bull, Chelsea.
SECOND CLASS CERTIFICATE.
Stangeria paradoxa fœmina, from Messrs. Jackson & Son, Kingston.
COMMENDATION.
Helichrysum argenteum, from Mr. S. M. Carson, Cheam.
SPECIAL CERTIFICATE.
Ornithogalum thrysoides, from Messrs. J. Carter & Co., Sydenham.

CLASS 36.—NEW or RARE TENDER PLANTS NOT in FLOWER. (Open.)
FIRST-CLASS CERTIFICATES.
Gymnostachyum Verschaffeltii, from Mr. Bull and Mr. Williams.
Cycas Ruminiana, from Mr. Bull.
Anœctochilus Petola superba, from Messrs. Jackson & Son.
Sarracenia rubra, from Mr. Williams, Holloway.
Dracæna Cooperi, from Mr. J. Veitch, Chelsea.
Gymnogramma Fearcii, from Mr. J. Veitch, Chelsea.
Stephensonia grandifolia, from Mr. J. Veitch, Chelsea.
SECOND-CLASS CERTIFICATES.
Nephrodium molle cristatum, from Mr. W. Bull.
Maranta striata, from Mr. J. Veitch.
Drosera sp., from Mr. J. Veitch.
Eranthemum sp., from Mr. J. Veitch.
COMMENDATIONS.
Pteris albo-lineata angusta, from Mr. W. Bull.
Dracæna Ehrenbergii, from Mr. W. Bull.
Dracæna robusta, from Mr. J. Veitch.

CLASS 37.—NEW ORCHIDS in FLOWER. (Open.)
FIRST-CLASS CERTIFICATE.
Phalænopsis grandiflora aurea, from Mr. Williams.
SECOND-CLASS CERTIFICATE.
Cypripedium Hookeræ, from Mr. Williams.
COMMENDATION.
Eulophia sp. Caffraria, from Mr. Salmon, Gr. to J. Kayess, Esq., West Ham.

CLASS 38.—NEW or RARE HARDY ORNAMENTAL PLANTS. (Open.)
FIRST-CLASS CERTIFICATES.
Aucuba (longifolia), from Mr. J. Veitch.
Prumnopitys elegans, from Mr. J. Veitch.
Lastrea Standishii, from Mr. J. Veitch, and Mr. Williams.
Athyrium Filix-fœmina diffisso-multifidum, from Messrs J. Ivery & Son, Dorking.
SECOND-CLASS CERTIFICATES.
Athyrium Filix-fœmina Fieldiæ lancifolium, from Messrs. J. Ivery & Son, Dorking.
Polystichum aculeatum acrocladon, from Messrs. J. Ivery & Son, Dorking.

CLASS 39.—NEWLY INTRODUCED PLANTS that have received special recognition from the Floral Committee during 1861, 1862, and 1863. (Open.)
FIRST-CLASS CERTIFICATES.
Mr. B. S. Williams, Holloway, for Cibotium princeps.
Mr. W. Bull, Chelsea, for Cibotium princeps.
SECOND-CLASS CERTIFICATES.
Mr. J. Veitch, for Anthurium Scherzerianum.
Mr. B. S. Williams, Holloway, for Sphærogyne latifolia.
THIRD-CLASS CERTIFICATE.
Mr. J. Veitch, Chelsea, for Pandanus elegantissimus.
FOURTH-CLASS CERTIFICATE.
Mr. J. Veitch, Chelsea, for Aucuba japonica vera.
FIFTH-CLASS CERTIFICATE.
Mr. J. Veitch, Chelsea, for Thujopsis lætevirens.
SIXTH CLASS CERTIFICATE.
Mr. B. S. Williams, for Alocasia zebrina.

CLASS 40.—SEEDLING FLORISTS' FLOWERS and GARDEN HYBRIDS. (Open.)
FIRST-CLASS CERTIFICATES.
Fancy Pelargonium Ann Page, from Mr. Turner, Slough.
Pelargonium John Hoyle, from G. W. Hoyle, Esq., Reading.
Azalea Vesuvius, from Mr. Veitch.
SECOND-CLASS CERTIFICATES.
Pelargonium Sunny Memories, from G. W. Hoyle, Esq.
" British Sailor, from G. W. Hoyle, Esq.
" Profusion, from G. W. Hoyle, Esq.
Fancy Pelargonium Mrs. Dorling, from Mr. C. Turner.
Rhododendron Princess of Wales, from Mr. M. Young, Milford.
COMMENDATION.
Pelargonium Exhibitor, from G. W. Hoyle, Esq.

CLASS 41.—GROUP of PLANTS, showing effective arrangement for Decorating a Small Conservatory. (Open.)
1st, Mr. Charles Turner, Royal Nurseries, Slough, 10*l.*

CLASS 42.—MISCELLANEOUS. (Open.)
1st, Messrs. Barr & Sugden, Wardian Cases for Window and Table Decoration, 2*l.*
Equal 2d, Messrs. J. Backhouse & Son, York, Alpine Plants, 1*l.* 10*s.*
Equal 2d, Messrs. J. Backhouse & Son, York, Group of American Osmundas, 1*l.* 10*s.*
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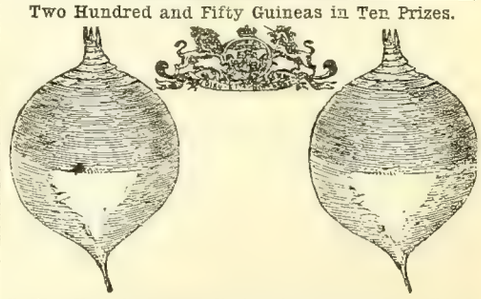
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"The Champion Swede is cutting out everything here."

The above are only a few of the numerous Letters received in testimony of the excellence of SUTTON'S Champion Swede.

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SUTTON & SONS Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, JUNE 4, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June 7	Royal Horticultural (Election of Fellows), at South Kensington .. .. .. 3 P.M. Lecture on London Cottage-window Gardening, by the Rev. E. Bayley.. 3 P.M.	
SATURDAY,	— 11	Royal Botanic (Second Exhibition of Plants, Flowers, and Fruits) .. .. 2 P.M.	

IN the "Proceedings of the Royal Horticultural Society" for May, there is a notice of some flowers of the TREE PEONY or MOUTAN, which had been exhibited at a late meeting of the Society by Mr. BATEMAN. It is announced that "in order to give the Fellows and the public generally an opportunity of judging for themselves of the attractiveness of these plants, the Council propose to devote to their cultivation a portion of the space in the new conservatory that is to form the approach to the South Kensington Gardens from Exhibition Road; and Mr. BATEMAN has presented to the Society a splendid collection of Moutans for the purpose of furnishing that space." If this matter be carried out in the right way, the Fellows of the Society and the public, will have a sight presented to them which cannot fail to be one of a most enjoyable kind. And, what is of great importance, the plants will be in full bloom at that season of the year when many of the Fellows are in London, and when they have the opportunity of visiting their garden.

There are few persons in this country who have any idea of the splendour of these gorgeous

flowers. The more common varieties, that is, those which we have had in cultivation in our gardens for many years, beautiful though they undoubtedly are, give but a faint idea of the beauty of those other kinds which have been lately introduced. The flowers of the older sorts are mostly light coloured—white, blush, or pink, and they are generally only semi-double. It used to be said that the Chinese had a yellow variety, also one with black flowers, and a double blue one, which, however, was only to be met with in the EMPEROR'S garden. The latter produced blooms of extraordinary size, each having from 100 to 1000 petals. When China was partially opened to foreigners in 1842, a search was made for these famous Moutans, and many new kinds—more than 30 we believe—were discovered and introduced to England. Amongst these, it is true, there was no real yellow or true blue; but there were dark and light purples, lilacs, and many shades of red of great beauty. One was almost black in colour, indeed it was known as the Black Moutan amongst the Chinese, while another was straw-coloured, and was called the Yellow Moutan. Most of the flowers of these plants were very double, and one at least was sweet-scented; the latter was amongst those exhibited by Mr. BATEMAN the other day, and was named "odorata rosea." Some of these varieties produce flowers of unusual size, and we dare say, were their petals counted, they might prove as numerous as those of the plant in the EMPEROR'S garden, to which we have alluded.

With such beautiful plants in our hands, it may naturally be thought that good use would have been made of them in this country. Such, however, has not been the case. Instead of producing a marked and charming effect in our gardens, they have been almost entirely neglected. There were two drawbacks to their successful cultivation—they were slow to propagate, and could not be multiplied like Verbenas and Geraniums; and they required a little knowledge in order to cultivate them successfully. The result has been that many of these fine things have either been entirely lost to Europe, or can only be met with on the continent, where they are more appreciated than they have hitherto been with us, and where, indeed, several new varieties have been produced.

But there is no real difficulty either in the cultivation or in the propagation of the Tree Peony to frighten a good English gardener. In a late article, at p. 1082 (1863), when noticing Mr. BATEMAN'S successes, we remarked that "the Moutan is a fair example of a class of beautiful plants, which, although perfectly hardy in England, yet require some slight protection from our spring frosts, and perhaps a little higher temperature in summer to enable the wood to become well ripened." It is indigenous to a country where the winter months are as cold as our own, but where the springs are early and the summers warm. All it requires, when in cultivation with us, is a slight protection from spring frosts and a little extra heat during the period of growth in summer, should that season prove wet and cold; and a cold winter during which the plants enjoy a period of rest. This is all; and all this can be easily and cheaply given by a moveable covering of glass. With regard to propagation, all we can say is that the Chinese gardeners propagate it freely by grafting on the roots of the single-flowered herbaceous Peony. And further, they can afford to sell the plants in the markets in full bloom, at a very cheap rate.

In LOUDON'S "Arboretum et Fruticetum Britannicum" there are several large plants of the Tree Peony noticed as growing in the vicinity of London, which, in former days, would seem to have been quite "lions" in their way. "One of the largest Tree Peonies within 10 miles of London stood, till lately, in the grounds at Spring Grove, where it was planted by Sir JOSEPH BANKS. It was 6 feet or 8 feet high, and formed a bush 8 feet or 10 feet in diameter in 1825. North of London, the largest plant in the country (P. Moutan papaveracea) is at the seat of Sir ABRAHAM HUME, at Wormleybury, in Hertfordshire. It is 7 feet high, and forms a bush 14 feet in diameter, after having been planted 30 years. It stands the winter, in general, very well; but, if the flower-buds swell too early in February, it becomes advisable to cover the plant slightly with a mat. In the year 1835 this plant perfected 320 flowers; but it has been known to bear three times that number."

If these remarkable plants were produced in the olden time, and before the late Sir ROBERT PEEL had conferred on horticulturists his boon of cheap glass, what may we not do now? Let our readers only picture to themselves a row of such plants on each side of the conservatory approaches at South Kensington. What a grand effect would be produced if each plant was only half as large, and had only half as many blooms upon it as that fine old plant of Sir ABRAHAM HUME'S. And then the brilliant and varied colours of the new kinds—white, and all shades of red, lilac, and purple, would produce an effect which it would be difficult for any one to imagine who is unacquainted with these plants. If the Royal Horticultural Society is able to produce these Peonies in perfection, and there is no reason why it should fail to do so, it will accomplish two objects at one time: it will afford a rich treat to the Fellows and the public in London, at a time when flowers are really wanted; and it will show to others that it is possible to accomplish the same thing in any part of the country. We repeat again that all that is wanted is a slight protection in spring, a warm summer to ripen the wood, and cold in winter so that the plants may go completely to rest. All forcing of the plants, drawing them up by heat and shade, or inducing them to grow when they should be at rest, must be carefully avoided.

THE WEATHER during the month just ended has been remarkable for an unusually high day temperature from the 14th to the 20th inclusive; and on the contrary, for nights as unusually cold so late as the 29th and 30th. On the 13th and 14th, the maximum temperature during the day was respectively 73° and 75°; but on the 15th, it was as high in the shade as 83°, and 82° on the 16th; on the four consecutive days it was 81°, 83°, 81°, 82°. During that period, the lowest temperature at night averaged about 43°. The heat of the ground rose from 54° to 60°. With this amount of warmth, such things as Kidney Beans and Scarlet Runners, which will not vegetate in cold soil, soon appeared above ground, but only to receive a severe check; for, on the night of the 29th, the thermometer fell to 25°, or 7 degrees below the freezing point, and on the following night it indicated 28°, or 4 degrees below freezing.

The wind during the month blew from the north 4 days, N.E. 14, E. 4, S.E. 5; altogether from north and easterly directions 27 days. It blew only one day from its usually most prevalent quarter, the south-west, one from the south, and two from the west. Previous to the 29th, when the thermometer fell so low, the air was excessively dry, and there was no moisture to form clouds to prevent the radiation of heat from the surface of the ground. The long succession of N. and N.E. winds brought a large amount of cold air from these quarters. Under such conditions frost may be apprehended, judging from what has been observed of these winds of late years, even in summer, but more especially if they continue to blow after an unusual outburst of heat, as they did recently. The air thus acquired a very high temperature, became highly rarified, and lighter in proportion to that temperature, and consequently was easily displaced by the colder and heavier air pressing from a northern quarter. If one or two unusually warm days and nights occur whilst northerly winds are prevalent, such are especially to be feared, and the probable consequences should be guarded against as far as pssible.

The heat gives buoyancy to the air and puts it in a condition to take flight as soon as a colder current begins to press upon it, and the more the air of a locality is heated above the temperature of an adjoining body of air, the more completely will it leave the latter in possession of that locality, and the tender vegetation which it may contain to the unmitigated chill of a cold, frosty current: a circumstance which often happens.

The high temperature just recorded exceeds any that has occurred in May for the last 36 years, with the exception of that in May 1833. On the 12th of May in that year the thermometer was 81°, and 86° on the 15th and 17th; therefore three degrees higher than in the present year. As regards the other extreme, the thermometer at night was only lower in May for 36 years in the following instances:—1852, on the 2d, 25°; and 28°, 27°, and 30° on the 3d, 4th, and 5th respectively; but in 1856, May 4th, it fell to 21°; but it has not been observed so low as in this year so late in the month.

Pears and Apples being well in leaf do not appear to have suffered much. Peaches and Nectarines on walls are safe. Plums and Cherries will probably drop their fruit a good deal, but the real extent of mischief done will only be made known after some days of hot sunshine. French Beans and Scarlet Runners are destroyed in some cases, the upper leaves of Potatos are blackened, but the stems are not generally killed. In short, the injury done does not seem to be so great as has been known to occur in May of some previous years.

THE KNAP HILL AMERICAN PLANTS are the world's wonder, and when we inform our readers that the very cream of them have been gathered together beneath a huge tent in the Gardens of the Royal Horticultural Society at South Kensington, we think little more need be said to induce crowds to go and see them. Nor will they be disappointed; beneath a stately canvas covering, 350 feet in length and 150 feet in width, supported by two iron pillars or masts some 60 feet in height, thousands of these charming plants are now in full blossom, producing a display of floral beauty seldom witnessed so near the smoke and dust of our great metropolis.

The tent in which these glorious treasures are contained has been designed by Captain FOWKE, and is a wonderful example of engineering skill applied to tent construction. It has a straight gravelled promenade, 32 feet in width, sunken down its centre, on either side of which are banks of Rhododendrons, separated from each other by means of straight gravel walks 8 feet in width, the whole being encircled by an outside walk and boundary border of choice Conifers. Among the latter are some unique examples of dwarf Firs, thriving plants of the lovely Cupressus Lawsoniana, Abies Nordmanniana, and other favourites of a similar kind.

It is to the Rhododendrons however we wish now to direct special attention. The beds of peat in which they are growing are all edged with turf, which not only serves to relieve the eye, but to set off their gay colours to increased advantage. In the middle of the central promenade is a grand mass of some of the finer sorts, and at a little distance from each end of it are noble standard trees of the well-known kind called Roseum elegans, the growth of half a century, with heads of bloom 8 feet in diameter, and trunks 5 inches through. These last occupy raised turfed mounds.

As regards sorts, among scarlets or deep crimsons the most brilliant are Blandyanum, Brayanum, atrosanguineum, Archimedes, Vandyke, Barclayanum, and John Waterer.

Different shades of rose comprise Titian, Roseum pictum, Towardii, Sir C. Napier, and Elfrida.

Among light-coloured sorts the most conspicuous are album elegans, delicatissimum, and album grandiflorum.

Of salmon-coloured varieties, Lady Eleanor Cathcart still stands at the head, its charming trusses of Geranium-like blossoms readily distinguishing it from all others with which it may be associated.

Purples consist of Nero, Lord John Russell, Currieanum, Sir I. Newton, and Ne Plus Ultra.

Among lilac kinds, the best is the semidouble Fastuosum, Onslowianum, and Everestianum, the last an old, but still useful kind.

Of pale-centred crimson-edged varieties, a class justly much prized, the best are Concessum, Alarm, and Bylsianum.

Exquisitely beautiful as the exhibition just alluded to is, we think that it would have had a still more charming effect had the deep crimson sorts with which it abounds been relieved by bright whites or yellows. The latter are chiefly yellow Azaleas, whose wavy petals want breadth, and consequently do not bear contrast with the rich red kinds of Rhododendron. As for the so-called *whites* they are in all cases stained with some shade of red—with a single glorious exception. We allude to a new variety, called Mrs. John Clutton, whose pure complexion, and matchless form, are scarcely equalled among the finest of the race. The shape of its corolla may indeed be regarded as more faultless than that of any Rhododendron hitherto raised, equalling the finest of the Chinese Azaleas. Of other glorious varieties the name is legion; but the following more especially demand separate notice—viz., Mrs. W. Bovill, an intense salmon-crimson sort, which cannot fail to be an acquisition; Lady F. Crossley, in the same way; and Charles Bagley, brilliant crimson.

It is in the class of whites, however, that new kinds are most wanted, and therefore we hail Mrs. Clutton as a most important acquisition.

The way of growing these magnificent plants is

now pretty well known. All of them have extremely small fibrous roots, containing in themselves no reservoir of moisture, and therefore they require to be continually surrounded by dampness. In the presence of dryness the little rootlets just mentioned wither and never revive. Dampness seems indeed to be more important to them than soil; for they are sometimes found growing on the branches of trees like Epiphytes in climates where the air is unceasingly charged with moisture. What the cultivator has to do therefore, in providing for his American plants, such as those we have been describing, is to keep them below the surface of the surrounding ground, so that what rain falls may be retained in it, and to give them a kind of soil which offers little resistance to the passage of their fine hair-like roots.

We may add that the beauty of the magnificent exhibition of these plants which Messrs. WATERER & GODFREY have had this season at Knap Hill, has unfortunately been greatly impaired by the frosts of last week, which not only destroyed the bloom, but in many instances even the young shoots. The tender shoots of other plants have also suffered.

—— THE fine show which took place on Wednesday at South Kensington, though remarkable for the splendour of many of the collections exhibited, and for the general absence of inferior specimens, did not present so much novelty as is sometimes met with at these gatherings; and indeed many of the NEW PLANTS which were exhibited have been already noticed in our remarks of last week (p. 506). The prizes offered for plants grown indoors by ladies did not induce the competition we had expected to see. The result, indeed, was a walk over the course for one of the two prizes offered, by an Adiantum which had not much to recommend it. However, the ice being broken, it is reasonable to anticipate that there will be less hesitancy in entering on the competition another year.

Amongst the New Plants shown in flower, the most remarkable was a fine form of Imantophyllum miniatum called pictum, of which a vigorously-bloomed plant was exhibited. It differed from the usual form, in the base of the orange-salmon segments having pale-coloured margins, so that a striped appearance was given to the heads of flowers. Another plant of considerable interest was the curious Fern-like Stangeria paradoxa, of which a female plant with one of its oblong ovate woolly cones—the first of this sex we have seen exhibited—was present. There was also a dwarf-habited Helichrysum, with white lanceolate woolly leaves, and large roundish white flower-heads, which may become a useful greenhouse plant. It bore the garden name of argenteum. Some seedling Statices were shown, but there was nothing amongst them equal in quality to the hybrid S. profusa. The Genetyllis and Sollya, mentioned in our previous notice, were again shown.

The most important subject in the group of plants not in flower, was Cycas Ruminiana, a very elegant Philippine species with a short and rather slender stem, and fronds of glossy green, composed of numerous long narrow pinnæ, altogether having a well-marked and Fern-like character. Under the name of Sarracenia rubra, was shown a very pretty little plant, with erect narrow compressed pitchers, the upper end of which was changed from green to white, and elegantly veined with red. There was a so-called Eranthemum, with the habit of Gymnostachyum Verschaffeltii, but instead of a fine net-work of red veins, this had the costa and primary veins marked out by bolder lines of red; and there was, too, a Drosera, with long-stalked oblong-ligulate leaves, beautifully fringed over with red-tipped glands. We noticed a large-leaved form of Macodes Petola called superba, in which the dark green leaves were beautifully veined, so as to leave open spaces of the ground colour. And besides these there were Dracæna Cooperi, Gymnogramma Pearcii, Stephensonia grandifolia, Agave schidigera, Sedum Sieboldi medio-variegatum, Phormium tenax variegatum, Gymnostachyum Verschaffeltii, the new Dieffenbachias, and various others, which have been noticed by us on previous occasions.

New Orchids were not numerous. The yellow-lipped form of Phalænopsis grandiflora, here called aurea, in which the greater part of the lip is of a decided yellow colour, was the most beautiful. Cypripedium Hookeræ, with its finely-spotted leaves, and broad purple-petaled flowers, and Cypripedium Pearcii, remarkable for the dark moustache which surrounds the top of its column, were also shown. There was besides a very curious but by no means showy plant, said to have come from Caffraria, and which was probably a species of Eulophia. This latter singular plant had long tapering bulbs, bearing at top about three long channelled leaves, which were finely serrated at the edge, and had much the aspect of narrow leaves of a Pine Apple; and springing from below the base of the pseudo-bulbs rose a tall flowering stem, 6 feet high, bearing a long raceme of flowers, in which the sepals were brown and recurved at the tips, the petals convergent green veined with red, and the lip long and protruding, of a pink colour, stained with red at the base.

Another group of novelties consisted of what were called Hardy Ornamental Plants, and here were several fine things, but mostly such as have been already noticed. For example: the beautiful form of Aucuba called limbata or marginata; the long narrow green-leaved Aucuba, sometimes shown as longifolia; Prumnopitys elegans, Lastrea Standishii, Gynerium argenteum albo-lineatum, and such like. Besides these there was a pretty hardy Fern, Athyrium Filix-fœmina diffisso-multifidum, with tasselled fronds and jagged pinnules; and a tasselled form of Polystichum aculeatum, known as acrocladon. A glaucous-leaved Retinospora, called Veitchii, was too young for a decided opinion to be formed respecting it, but it looked as if it might have been a selected seedling, intermediate between R. obtusa and pisifera, but with very glaucous branches.

Of Seedlings, we shall endeavour to say something next week.

EXHIBITION FLOWERS.

THE VERBENA.

FEW flowers have been so much improved of late years as the Verbena. At one period it was looked upon merely as a brilliant flower, suited for massing together or forming ribbon borders, for which purposes many varieties are well adapted; but it is its qualities as an exhibition flower that I have now to treat of. Those who have seen at the various shows good collections of Verbenas, nicely arranged and well shown, must acknowledge that no florists' flowers are more effective. The great variety of brilliant and delicate colours which are combined in the Verbena add a charm which is rarely to be met with among the ordinary races of florists' flowers. Not only is the Verbena one of the requisites of an autumn show, but, during the months of July, August, and September, it may be made to play a conspicuous part in the decoration of the greenhouse; while the delicate perfume which a few well-bloomed plants will impart to the house is at all times agreeable.

In selecting plants to grow under glass for the purpose of cutting blooms for exhibition, I would advise the strongest and most robust looking plants to be chosen. These should be potted singly into 4-inch pots, and placed in a cool frame for about three weeks, during which time the plants will have grown sufficiently to be twice stopped. A week after the second pinching in, they should be shifted into their blooming pots, which should be about 6 inches across. The compost I prefer is leaf-mould, old rotted frame manure, and good loam, in about equal proportions. When the bloom buds are visible they should be removed from the frame to a cool, well ventilated greenhouse, and a neat stick should be put to every shoot for the double purpose of keeping the plants tidy, and the trusses erect. It must be borne in mind that it is essential that every head of bloom should be supported, for if a truss once becomes one-sided it is useless for exhibition purposes.

Another matter which the grower must on no account neglect is the smoking of the frames or greenhouse immediately a green fly is seen, for if the plants ever become infested with this pest, the collection had better be destroyed, as the plants never recover sufficiently to produce good blooms. During hot weather the floor of the greenhouse should be occasionally sprinkled, and a slight shading should be used, or the more delicate colours will suffer.

It will be perceived that at the top of each shoot three buds will be produced. The two side ones should be removed as soon as they can be taken hold of with the thumb and finger, for the purpose of increasing the size of the remaining one. This removal of the smaller buds also prevents the plants from growing tall and scraggy, as after the one bloom-head is cut, fresh eyes will push out lower down the stem, and from these flowers will be produced throughout the season, and the plants will be more compact and handsome.

The following list contains the best varieties for growing in pots, and for cutting for exhibition. In fact, I have here given the names of the entire collection I am myself growing, except seedlings, of which this year I have upwards of four thousand, all in pots, and to be bloomed under glass, which method I consider the only one by which the exhibition kinds can be properly tested.

Annihilator.—A finely-formed brilliant crimson, flushed with purple, the eye white, large, and circular; an extra fine variety.

Apollo.—A useful back row flower, always good, but the colour is not generally pleasing, being a dull flesh, with pale crimson centre.

Black Prince.—Colour deep plum, with large lemon-coloured eye; good in form, and very distinct.

Cato.—A very pleasing sort; colour pale flesh, with light purple centre; a distinct variety.

Countess of Bradford.—Mauve, with white eye; a good and pleasing variety, and one which looks well in a stand.

Decorator.—Glossy crimson, with lemon-coloured eye; very good.

Emperor.—A useful sort; dull red, striped and shaded with deep crimson; very constant.

Firefly.—Brilliant scarlet, with yellow eye; a fine blooming variety.

Foxhunter.—Scarlet, with pale yellow eye; free large truss; extra fine.

Fairest of the Fair.—Pure white, with bright purple eye; a most chaste and beautiful kind, by no means a free grower, yet it should be in all collections.

Géant des Batailles.—Although not strictly a show variety, it is so good in many points, and so constant in producing fine trusses, of a peculiar shade of colour much required in a collection, that that no grower should be without it. The variety is too well known to require description.

Gloire de mon plaisir.—A rich crimson with lemon-coloured eye; constant and good; truss rather small.

King of Verbenas.—A strong growing kind; colour shaded crimson, with large white eye; of fine form, the truss large; extra fine.

L'Aveair de Ballent.—A grand variety; colour shaded pink with crimson centre; large truss and good habit; very attractive, and extra fine.

Lizzy.—A pleasing pink with white eye; a free bloomer.

Lord Elgin.—Dark maroon with white eye; distinct and pretty; requires good growth.

Lord Leigh.—Fine large scarlet with large lemon coloured eye; one of the best; extra fine.

Lord Craven.—Deep purple, or the colour of a ripe damson. This is one of the varieties (although not possessed of a good eye—a deficiency, in my opinion, fatal to an exhibition variety), which will find its way into every collection.

Mrs. Moore.—Without doubt the best of all the blue purple kinds yet sent out; the form is excellent; the eye is also large and white, and the surface of the flower smooth, but the truss is not large; the colour is most pleasing, being a bright blue purple.

Magnificus.—A fine back-row flower; colour dull lilac; a very finely formed truss, which is its chief recommendation.

Mad. Hermann Stenger.—A well formed flesh-coloured sort with pale red centre; a pleasing kind.

Mrs. Bayley.—Rosy crimson of a peculiar shade, with white eye; distinct.

Nemesis.—An excellent variety, colour rosy scarlet; the truss is finely formed, but the flowers want a bolder eye; still a very useful variety.

Pauline.—A chaste shade of rosy purple, with fine white eye, of exquisite shape.

Reine des Fleurs.—A delicate pink of a peculiar shade, with white eye; very pleasing.

Rose Celestial.—Another shade of pink, smooth, and of fine form, with a circular white eye.

Ruby King.—A very fine kind, but wanting a large eye; the segments are circular and stout in substance. Like Lord Craven its qualities must bring it into all collections.

Rose Imperial.—A large well-formed flower; colour deep pink with crimson centre.

Reine des Amazons.—Blush with crimson centre; truss large and well formed; extra fine.

Sylph.—Flesh colour with pale crimson centre; fine in form, a free bloomer, and constant; an extra fine variety.

Venus.—Pure white with purple centre; truss small, but very chaste.

The raisers of Verbenas having given the public little or no opportunity of seeing their productions during the past year, I cannot be expected to speak much of their new varieties. All I can say is, that the following, which are sent out this spring, are decided improvements on all I have seen:—

Alexandra.—White, striped with purple.

Blue Beard.—Grey blue, large and fine.

Mauve Queen.—Mauve, with white eye.

Model.—Scarlet, the eye perfectly circular, and very large.

Modesty.—Blush, with crimson centre; the best of the light varieties.

Monarch.—Lavender, with large white eye; very bold.

Startler.—Brilliant crimson, of very fine form, and with a circular white eye; large truss.

Wonderful.—Very similar to the above, but deeper in colour.

Charles James Perry, The Cedars, Castle Bromwich.

HARDY FERNS AND BOG PLANTS.

THE past winter has been of unusual severity in Devonshire, and any plants which have survived the frosts of January and February, would endure any ordinary winter in other parts of England. The collection of British and exotic Ferns at Becky Fall, affords an opportunity of giving a list of Ferns which may be considered hardy.

It will be perhaps better to give a brief description of the position in which the Ferns are planted at Becky Fall, for some which are now flourishing there can hardly be recommended for general cultivation, as few places offer the same facilities for growing kinds requiring much shade and moisture. I allude particularly to the various kinds of Trichomanes and Hymenophyllum, which, to be satisfactorily cultivated, must either have the natural rocks and water as in such a place as this, or some elaborate artificial imitation of Nature, such as may be seen at Messrs. Backhouse's nursery at York.

Becky is pretty well known to tourists in the West of England. It stands at the higher end of a narrow valley on the southern slopes of Dartmoor. The hills on each side are steep or even precipitous in some places, and densely wooded with Oak and Birch. The woods on the right of the valley shade off into the rocky slopes of a moor covered with Heath and Furze. The steepness of the hill confines the view to the beautiful valley beneath, which all looks as wild and untouched by man as it must have been at the time when the ancient Britons found one of their last refuges in these highlands. The stream rushes in a succession of falls and rapids over and among immense granite boulders, which are densely covered with Mosses and Ferns. A path leads down the right side of the valley, winding among granite rocks, or zig-zagging where the excessive steepness of the descent requires it. The Ferns are chiefly planted along this path. The aspect of this side of the valley being nearly north-east, the shady aspect and the numerous springs which break out on the side of the hill, prevent the ground ever being dry, added to which the average yearly rainfall of the place exceeds 50 inches. There is therefore an unusual degree of humidity, which causes the vegetation to assume a peculiar character. The wild Ferns become quite epiphytal, and with the Mosses clothe the limbs of the trees in dense masses. Lichens hang in long grey and green draperies from the branches. The rocks are covered with Stonecrop, Mosses, and Whortleberry. Here grow on moist rocks Hymenophyllum unilaterale and tunbridgense. Osmunda regalis grows among rocks by the water with almost tropical luxuriance, its fronds sometimes 8 feet long, drooping in the clear rapid stream.

Almost all the Ferns I am about to mention survived

the winter of 1862-63. I shall have to note that many have been injured or killed during the late winter, when the thermometer was as low as 9° on two occasions. The Ferns are mostly planted in hollows between the rocks, but advantage has been taken of this immense natural rockwork to give all varieties of situation and degrees of moisture suitable to the different plants. In shady hollows, where trickling streams of water make their way between the rocks, are beds of Polypodium Dryopteris and Phegopteris, and in more exposed places, P. Robertianum. In similar situations are thick tufts of Cystopteris bulbifera, fragilis and alpina, the free growing American Cystopteris tenuis, and several plants of the lovely C. montana, the best of the genus.

The pretty Woodsia obtusa is planted in clefts of the rocks, also Woodsia ilvensis and alpina. In the cracks of a wall, where the path is raised to cross a deep hollow, are planted Asplenium acutum, which is apparently dead; also A. alternifolium, septentrionale and fontanum; the last seems almost to have naturalised itself in this position. In a shadier place are Asplenium marinum, and its fine South American variety A. lætum, with A. Hemionitis—the last is dead; Polystichum angulare, with its many varieties, among moist exposed rocks; and P. Lonchitis with fine fronds 15 inches long. Polystichum flexum grew freely on exposed rocks, but is quite dead.

Lomaria chilensis, magellanica and alpina have all been much injured by the winter, and every frond killed; the plants, however, are all living, and probably would not have suffered so much if planted in a drier spot. Lomaria Spicant, with varieties strictum, crispum, and others, are at home among wet rocks. Lomaria fluviatilis also seems hardy. Lomaria Patersoni, in a very shady crevice, was much injured by the frost, but is now making new fronds; this is a very pretty and distinct little Fern.

Lastrea cristata, intermedia, and dilatata are growing everywhere. Lastrea frondosa, Sieboldi, and opaca all injured, but living. Lastrea Thelypteris, planted by little streams of water, runs its caudices under the soil and springs up many feet distant from the parent plant. Lygodium scandens is quite dead, but L. palmatum on a wet bank is growing freely. L. mexicanum, a very handsome species, has lately been planted, but cannot yet be pronounced hardy. Large tufts of those two handsome American Ferns, Onoclea sensibilis and Adiantum pedatum, grow on wet banks; and in similar places the Himalayan Onychium lucidum is growing freely.

Cyrtomium falcatum is much injured, perhaps killed. Woodwardia orientalis seems in an equally bad state. Woodwardia aspera, and W. radicans whose last year's fronds are more than 6 feet long, are dead. Woodwardia caudata, areolata, and virginica, are all hardy. The two last are among the most striking plants in the collection. Scolopendrium vulgare and its many varieties, are planted in shady hollows; also Scolopendrium reniforme. In peaty beds by running water are Osmunda spectabilis, cinnamomea, Claytoniana and interrupta, all growing very finely. In similar situations are Struthiopteris pennsylvanica and germanica, as well as Dicksonia antarctica, the latter quite dead.

Athyrium Filix-fœmina is also here, with many strange varieties, of which A. Frizelliæ is one of the most remarkable. Polypodium alpestre and its very pretty variety flexile, is growing well on moist banks.

Planted in a crevice of rock, but a good deal exposed, is Platyloma atropurpureum, growing splendidly, with fronds 15 inches long. This Fern ought to be in every collection. It is perfectly hardy, the fronds remaining uninjured during the most severe weather. It is not to be obtained at many nurseries. The plants here are marked as having come from Messrs. Backhouse. Platyloma rotundifolium and flexuosum are apparently quite dead. Gleichenia alpina, planted in a wet place, seems the hardiest of Ferns; it continued to uncurl its fronds during the frost. This is a dwarf species, but interesting as a hardy example of a curious genus. The finest of the Gleichenias, I mean hecistophylla, survived the winter of 1862-63, but is now dead; the others were also tried, namely Gleichenia Speluncæ, rupestris, flabellata, dicarpa, and dichotoma, but were killed with 5° of frost.

In a very dry crevice is planted Nothochlæna vestita. This Fern is often placed in a hothouse for the encouragement it would seem of scale insects, which are generally to be found on it. Here about 10 plants were planted two years ago. The Fern remains evergreen during winter, and not a frond was injured with 20° of frost. It is now making quantities of young fronds.

In a little cavern under a rock is Adiantum reniforme in dense tufts.

At one point a small waterfall tumbles over the rocks above the path, with dripping shady hollows around it. Here Adiantum Capillus-veneris and A. peruvianum survived two winters; also Todea pellucida and Niphobolus Lingua—now all killed. Here also are planted many New Zealand and South American Film Ferns. The following have been proved to be hardy—Trichomanes anceps, on rocks; Trichomanes venosum, on stumps of trees; Hymenophyllum humile, demissum and its variety nitens, and Trichomanes exsectum. Most of these Ferns have hardly been planted long enough to show their character, but the three last are undoubtedly very fine plants; H. demissum has made fronds 16 inches long.

Here the path leaves the labyrinth of rocks, and views open of the lower part of the valley. The path now descends to the stream at a point where the water falls by a pretty cascade into a clear pool below. Near here Trichomanes radicans has been planted, and the place seems to suit it admirably; the fronds are covered with seed. A too presumptuous water-ouzel has also taken a fancy for the spot, and almost smothered the Fern with its thick mossy nest. Looking back over the list of Ferns, I would particular recommend Woodwardia virginica and areolata, Platyloma atropurpureum, and Nothochlæna vestita.

It would be occupying too much space to enumerate all the herbaceous rock and bog plants here, and so few people cultivate them that the list would possess no general interest. Philesia buxifolia and Desfontainea spinosa are growing freely, with Tropæolum speciosum trailing over them. Lapageria rosea, though killed to the ground, is making many fresh shoots. Such plants of Cypripedium spectabile, pubescens, Calceolus, and the Siberian Cypripedium macranthum, are perhaps hardly to be seen elsewhere in England. Several Hellebores are very handsome; as are Gentiana verna and cruciata, and five or six other kinds. On wet rocks are several beautiful Alpine plants—Soldanella alpina and montana, Primula farinosa, and alpina, with large dark flowers.

In the higher part of the path several places have been arranged for the cultivation of Bog Plants. It is so difficult to imitate the conditions under which bog plants grow, that their beauties are little known to horticulturists. Here some hollows in the side of the hill were puddled with wet peat, and then great turfs and hummocks from the natural bogs on the moors were brought with wild plants on them, to which many foreign species were added. The arrangement answered admirably, and many curious plants were successfully grown, but the difficulty experienced now is to prevent the Grasses and other strong-growing plants overpowering the weaker. In the natural bogs the cattle eat these Grasses, and allow the small plants a chance of springing up, but this influence being removed, the more delicate plants get worsted in the "struggle for existence," as Mr. Darwin would say. The only plan yet found to obviate this, is to constantly pull up the Grasses by hand, an unsatisfactory process, and one which requires great care and knowledge of the plants. If any ingenious horticulturist will suggest any other plan, the collector of these bog plants will feel much obliged.

Among the most beautiful are Parnassia palustris, caroliniana, and some other foreign kinds, with Drosera dichotoma, Whittakeri, anglica, rotundifolia, and others. Cephalotus follicularis was killed by the past winter, but two of the North American Pitcher plants are growing well: Sarracenia variolaris and flava. In announcing these remarkable plants as hardy, I ought to say that it is probable that their roots were not frozen when the temperature of the air was 9° above zero, for the water which supplies the bog comes from deep springs in the granite, and never freezes, and the rocks and trees around would prevent much radiation.

I wonder that Sarracenias, which are plants so remarkable in structure, are not more often cultivated. The use of the pitchers to the plants does not seem generally known. I think there can be no doubt that all pitchered leaves are insect traps. All the pitchers I have examined, whether of Nepenthes, Cephalotus, or Sarracenia, contain sweet secretions which attract insects, and the insects when drowned in the water become food for the plant. It is most interesting to observe the modification of the lips of the pitchers adapting them to retain different insects in the trap. In Nepenthes there is generally an overhanging lip, like the eaves of a roof, all round the inside edge of the pitcher. I have often observed small beetles try to surmount this, and in their struggles fall back into the water. In Cephalotus there are a row of stiff curved thorny projections, arranged as one sometimes sees spikes on the top of a wall to prevent people getting over. In Sarracenia the inside of the pitcher is covered with hairs like plush all pointing downwards, to which insects attach their feet with difficulty. This is best observed in Sarracenia purpurea, which seems specially adapted for the catching of blue-bottle flies. The pitchers of Sarracenia variolaris are generally full of wasps. I am assured that in Borneo there are pitchers so large that rats are found drowned in them.

How and why, Nature has twisted the leaves of plants into these strange forms, is worthy of further inquiry, but it would be a digression in this paper. I should like to see the subject treated in the same manner as has been so successful in the "Fertilisation of Orchids," and if Mr. Darwin would turn his attention to it, I think that in the forms of Pitcher plants he would find many points fitted to his ingenious speculations. *W. W. B., Strete Ralegh.*

Home Correspondence.

Clianthus Dampieri.—I would advise your correspondent (see p. 486), to sow one seed only in a 3-inch pot in October, and to place the pots on a dry airy shelf in a cool greenhouse. When the plants have grown from 1½ to 2 inches high, and before the roots have got at all confined, shift them into 48-sized pots, and replace them on the shelves, being careful not to overwater them during the winter months. Here they may remain until they show signs of starting into strong growth, which will generally be (when no artificial heat has been given except to keep out frost), about the end of February. Then shift again into 24-sized pots, always taking particular care not to disturb the old ball or roots, and if possible to leave all the drainage attached. By the end of April the plants will be ready to receive their final shift into No. 8 sized pots, or into a border prepared for their reception, which, where practicable, is preferable. Seeds sown in February and treated as above often make good plants, and bloom well the same season; but those sown in the autumn make by far the strongest plants, and come into bloom much earlier. My opinion is that most growers spoil this fine shrub by taking too much care of it during the early part of the year, and by keeping it in a warm or close house, by which means a weakly growth is induced, which is very liable to cause the plant to die off entirely on the setting in of the first hot spring day. After the final shift the plants should stand as near as possible in the same position as they did before; and they should not be turned about with the idea of giving all the parts of the plants an equal share of light. I have often found them die off after having been moved, unless they were replaced in the same position as regards light which they occupied before. I could only account for the failure by supposing that the rays of the sun acted too strongly on the portions of the succulent branches that had not previously been subjected to them. The most suitable soil for this plant is a mixture of half yellow fibry loam, to which is added another half consisting of equal portions of silver sand, fibry peat, leaf-mould, and charcoal, all well blended together. For the final shifting use it chopped much coarser than for plants in a smaller state, and in all the shiftings take particular care to have thorough drainage. *T. C. Boston, Crystal Palace Nursery, Forest Hill.*

Horticultural Distinctions.—I find the following suggestion as to what may be called the conferring of Horticultural Degrees, in the new Midland *Florist's Guide*. The subject seems to be worth consideration, although it is launched with some rather hard words in reference to the Royal Horticultural Society; and perhaps some good use might be made of it. The writer observes:—"For some years we have thought it a disgrace to horticulturists, that notwithstanding the important fact connected with the pursuit, that it can boast a larger range of literature than any other science or calling save the Church [no, no], yet it is utterly without any College, Club, or Institution to which scientific attainments in some form or other connected with gardening, alone should earn admission. Artists and sculptors have their Royal Academy, and the R.A. denotes high position as an artist or sculptor. Law has its degrees; so also has medicine as well as the Church. Astronomers, Geologists, and other sections of the scientific world have their institutions, to be connected with which is a coveted honour by many; and although gardeners and florists know that a Royal Horticultural Society and a Royal Botanic Society exist, membership with either holds out no stimulant to young men to push forward to the higher pinnacles of their profession, and win a fellowship which carries honour with it. Why then are we without such a goal? With the strong band of distinguished gardeners, practical clear-headed horticulturists, and collectors who have braved the dangers of the tropics in search of new things for us, ought we not to have a fellowship amongst such men to distinguish them from the ruck? What has the Horticultural Society been doing to lose sight of this? Let them enlist new sympathy at once by considering how best this proposition may become a fact. Let us see the Horticultural Society cling to the true interests of horticulture, by developing its varied resources, and no step it could take would, we are assured, do more to raise it in the estimation of the public, than by seeking to establish a badge of honour for its brightest ornaments." The argument by which the writer supports his proposition is that the letters F.R.H.S. do not in these days bear the meaning which plain F.H.S. bore in former days. They do not even indicate that those persons to whose names they are attached care one iota for gardening as a science, but simply that the pockets of these individuals are long enough to pay the small fee by which such an appendage is purchaseable. And this being so, I concur in the suggestion that some plan might be devised by which honourable distinction might be conferred on the leading horticulturists of the day, and on their successors, without changing Kensington Gore into Cremorne, which is evidently about to take place, if the rational part of the Fellows do not bestir themselves. As there is some scheme in process of maturation to aid in the training or professional education of the rising generation of gardeners, in connection with Chiswick Gardens, I do not see any objection, but prospective advantages in the Royal Horticultural Society taking a further step, and devising some mark of honour (perhaps corresponding in character to a university degree) to be conferred for horticultural acquirements on those who occupy the front rank in the horticultural world. I shall be glad to hear the opinion of your readers on the details and general bearings of this question, so interesting to those who are horticulturists at heart. *X. Y. Z.*

Collecting Wild Plants.—I observe at p. 367, that "printed copies of the conditions of prizes offered by

the Royal Horticultural Society, South Kensington, for county collections of dried plants, were laid on the table" of the Botanical Society of Edinburgh, at their meeting on March 10. Let us hope that the resolution given in the May Number of the "Proceedings of the Royal Horticultural Society (vol. iv., pp. 90-92), has reached Edinburgh by this time. That there was abundant reason for remonstrance can be proved. Thus in Babington's Manual (Edition 1843, p. 194) we read of Menziesia cœrulea:— "Sow of Athol, Perthshire; nearly if not quite extirpated by an Edinburgh Nurseryman;" and in Bentham's Handbook (1858), p. 346: "In Britain, only on the mountain called the Sow of Atbol in Perthshire, where it is becoming exceedingly rare, if not already extinct." These quotations show that the Hookers, the Babingtons, Berkeley, Bentham, and our Manchester and Norwich friends, had some grounds for the apprehensions which they expressed. The professors of Botany both at Oxford and Cambridge have signed the remonstrance which was forwarded by Professor Babington. Could not these gentlemen prevail on the authorities of their Universities, and on the Council of the Royal Horticultural Society, to unite in proposing examinations and offering prizes at the several local middle-class examinations, which shall encourage the study of native botany without destroying the habitats of the rarest species? *F., Roydon Hall, Diss.*

Cool Orchids.—I have read Mr. Bateman's lecture on the above subject, and am bound to say that I was disappointed. There was an absence of anything practical in the report I read. I quite agree with Mr. Warner that "the mean temperature recommended by Mr. B., 60°, is rather warm than cool." *B. F., Manchester.*

Distributing Wild Plants.—Can "Vide, Hull," (see *Gard. Chron.*, 1864, p. 366), send me seeds of Viola stagnina? If he can and will, or will send me plants, I will owe him a day's work in harvest, until I pay him. If "Vide" has plants to send, Sutton, the small parcel carrier of Aldersgate Street, has, no doubt, an agent in Hull as well as in Diss; and a small parcel (if too large for post), entrusted to him would reach me at Diss, *vid* London, for less money, and probably quite as soon as if sent direct per railway. *F., Roydon Hall, Diss.*

Flower Market.—It was quite a pleasure to see once again our old friend "Hope I don't Intrude," though I must confess that on this occasion I fear that I have either trodden on his own particular corn, or must assume that with age has come a little acidity of temper. I will not quarrel with him for saying I am a mad F.H.S.; I will not quarrel with him for saying it is one of the schemes of the present management,—though our friend Paul, had he been as active as he used to be, might have learnt from several of the best men in the trade that this subject was discussed once before when the gardens were being laid out, but the space did not then shape itself conveniently. I must, therefore, assume, from the hard words and want of argument, that Paul has this time had to adopt the Old Bailey brief—"No case, abuse plaintiff." But now, Master Pry, will you kindly say how is it that every street has its wandering cart (accompanied by its wandering minstrel with a hoarse voice)—how is it that people, horrified at buying vegetables or fish at the door, may yet be seen sending their servants to the aforesaid cart for a little decoration. How is it, Master Pry? Why, London has no flower market. Paris has three large ones at least. I repeat again, let the Horticultural Society furnish the opportunity for the trade to supply the public there, and three good things will be accomplished: the trade will be commercially benefited, the public will be convenienced, and the Horticultural Society will receive an addition to their funds. *A Male F.H.S.*

Garden Notes: Rushton.—I did not peruse the *Gardeners' Chronicle* of May 7 till a few days since, when I found the excellent Peach article by Mr. Radclyffe. What is there stated, as regards the productiveness and fine condition of his own trees, is so truthful that confirmation by an eye-witness may seem almost superfluous. But having a vivid recollection of the pleasure I experienced during a visit to my worthy and respected friend in the summer of last year, I pray being permitted to say a few words on the splendid horticulture I saw there, although months have elapsed since. The name of Rushton has become almost a "household word" among horticulturists, from the frequent contributions of sterling merit by Mr. Radclyffe to this and other gardening periodicals—and no wonder. The thorough practical knowledge displayed in these articles always brings out points that cannot fail to be appreciated by the reader. The garden attached to the rectory at Rushton is most unfavourably situated, although in the mild climate of Dorset; it slopes towards the west; there is the house and some high trees on the east side, so that the sun has no power till after mid-day; at the bottom, on the west side, is a wide stream, which, in rainy times, overflows the adjoining meadow, and renders it a marsh, thus generating damp and cold, that prove a most difficult case to deal with. But these obstacles are contended against with such indefatigable perseverance and energy that every one who visits the garden leaves it delighted, and with feelings of the highest respect and esteem for the good pastor that superintends it. My visit last year was not at a propitious time; frosts, evidently arising chiefly from the cause above stated, had prevailed up to June. Black blight had wrought fearful havoc among the Roses, and worse than all, a terrific hail-storm, one of the most violent ever known in that county, had a few days previous to my arrival riddled the foliage of all kinds of trees and plants, as if it had been battered by shot from a gun. These catastrophes were alluded to by Mr. Radclyffe in several of his articles at the time. My kind rev. friend felt disappointment. Who could help feeling it under similar circumstances? But, like a true Briton, he did not despond. "We shall have some Roses here bye and bye," he said to me one evening while looking over the plants; and I know for certain that in the autumn of last year some of the finest Roses ever grown were produced in this same garden. The Peach trees, like everything else, had suffered from the hail, but they showed unmistakeable signs of vigour and good management; there were probably about 600 Peaches on the three trees, which are old ones, all so round, firm, and perfect—a sight beautiful to look at. I have the authority of Mr. Radclyffe himself that the fruit turned out to be everything that could be desired. Then there were the Strawberry beds; these were in full fruit at the time of my visit—I ought to say perfection, as far as my ideas are able to reach to that point. La Constance, Marguerite, Rivers' Eliza, Trollope's Victoria, and Eclipse were delicious, for they say the proof of the pudding is in the eating. It is, however, with Roses that Mr. Radclyffe's name has become inseparably connected; as a champion of the Manetti stock he has verified the position he has assumed by rearing plants that are truly marvellous. Notwithstanding the adverse circumstances he had to contend with last year, and by which hundreds of plants were seriously affected, there were specimens of Anna Alexieff, Chabrillant, and some others of the most hardy of the hybrid perpetuals literally loaded with bloom; his Triomphe de Rennes and Solfaterre were the best I ever saw. The new Roses on trial, of which he himself has given an account, were progressing favourably; of the care taken to ascertain the exact merits of the numerous kinds sent out annually it is impossible to speak too highly. Mr. Radclyffe's experience is a safe and invaluable guide to all Rosarians. As an enthusiastic lover of the Rose myself, I tender sincerely my thanks to this Journal for the liberal prize offered to encourage English Roses. We begin to know how small a per-centage of the French novelties yearly sent out are worth having [Hear! hear!]; there is room then for something to be done in this way. Like Mr. Radclyffe, I do not think "impossible" ought to be in the horticultural dictionary, and the time is not distant when our gardens will be decorated with first-class Roses of English productions, and of course with English names. I do not think that I stand alone when I express a strong feeling of desire to see among English names to English Roses the honoured one of Mr. Radclyffe, to whom so much is due. I am sure such men as Mr. W. Paul, Mr. Rivers, Mr. Wood, and others would, if it lay in their power, be ready to pay so simple a tribute of respect to the first Rosarian of the day—nor is such quite without precedent. The name of Mr. Reynolds Hole has been bestowed upon a Rose as an acknowledgment of his exertions as a Rosarian and originator of the Rose shows, but this Rose was a French production, and, like many others, has not turned out so well as could be wished, but this does not reflect at all on Mr. Standish. Hence my suggestion must be coupled with a condition, or something very like it—which is that the consent of Mr. Radclyffe himself, must be obtained before his name is attached to the flower. *Adolphus H. Kent, Bletchingley.*

The Winter.—At page 436, your Correspondents are invited to report on the effects of the late winter upon Japanese and other plants. As my garden is 400 feet above the sea-level, and fully exposed to E. and N.E., the thermometer registered as low within a degree or two on the days mentioned as is stated in the editorial remarks, but though so exposed the soil is quite dry, and at no time retentive of wet. Lonicera aureo-reticulata was uninjured, but is planted on the west side of the house, which is the most sheltered side; while L. flexuosa, on the other side, was killed to the ground: it has broken out from the bottom since. Ceanothus floribundus was quite killed; Eugenia Ugni, slightly injured; Colletia bictonensis, Desfontainea spinosa, Arundo Donax variegata, Farfugium grande, Lilium lancifolium rubrum, were not in the least affected; the bulbs of the last being about 4 inches in the ground. The foliage of Farfugium died off before the severe frost came. Of Conifers, Cupressus elegans, recently planted, was the only one that suffered; Thuja Lobbii, T. gigantea, Taxus coriacea, Libocedrus chilensis, Juniperus drupacea, J. Bedfordiana, Wellingtonia gigantea, now from 10 to 11 feet high, were not in the least affected by the low temperature. The other Conifers reported after the severe winter of 1860—1 are all thriving. *Adolphus H. Kent, Blechingley.*

Style of Public Gardens.—In the current century art has effected wonders, and that of horticulture amongst the rest has undergone vast changes. New trees, new flowers, new esculents, new and improved methods of production, propagation, and cultivation have enriched the archives of horticulture, but the taste for laying down ornamental gardens has in many instances not been improved, either by the introduction of laboured illustrations of design in geometrical form, or by striking contrasts in the intervals of walk and alley. Imported from Italy, Holland, and France, straight avenues with rows of trees or shrubs, levels with slopes in right lines, sometimes a formal curve, balustrades and statuary, all these have been adopted in public horticultural grounds; and in point of fact, nothing can be more appropriate where the enceinture of a suburban palace will not admit of a freer or more diffused mode of ornamentation. Fountains, cascades, and basins are also most valuable accessories wherever there is a natural supply of water, provided that due discriminative taste is [brought to bear upon the right use and allocation of these artificial and often beautiful and effective adornments. In the centre of all art there ought to appear evidences of advance. Accordingly we have public gardens—Kew, Regent's Park, and the renowned Horticultural Society's Gardens at Chiswick and South Kensington. These do or ought to contain all that is valuable, tasteful, and novel within the whole sphere of the science. It is true that floral innovations have been made in the parks and Kensington Gardens, but these form no part of the actual institutions of horticulture. For the gratification afforded to the public by such embellishments, with their gay flowers and healthful walks, we are indebted to the Commissioners of Woods and Forests. The Horticultural Society, at its Gardens at Chiswick, has for many years been regarded as the great promoter of improved horticulture; and these gardens, with their conservatories, and collections of fruits, trees, and flowers, were certainly well adapted as a school of gardening, being out of the smoke of London, the extent and form of surface moreover being calculated for the object; but the garden at Kensington is wholly unsuited for anything beyond a floral exhibition of potted and bedded plants, being within the great mantle of smoke, and being also too circumscribed and surrounded by lofty houses. Recent changes, moreover, such as the planting of Poplars throughout the space, both detached and in long ranges, adds not to the ornament of the place; and while these are the least graceful of trees, they are the most noxious to vegetation beneath their shadow. Again, long ranges of Yew have been planted in such a manner as to exclude all view of the geometrical parterres, and to cast a funereal shade over an elaborate garden. Possibly this innovation was made to chasten the grand effect of the geometric beds, which, however brilliant in rich flowers, and in various coloured and glittering knot walks, was generally condemned by lovers of horticulture and the old English garden. The Royal Botanic Garden of Regent's Park is quite a different affair; with its array of shrubs, its varied lawn, its range of glass and botanical collections, it assures the presence of something agreeable in the old English style, so that for a small inclosure it realises the object of its institution. The botanical collection, too, under the present manager, Mr. Robinson, is well arranged, carefully attended, and much advanced. Kew is however the real representative of a fine national garden. Here the old Palace does not impose too much formality in walks and terraces, nor offend the admirers of national gardening by an excess of ridiculously fine-drawn geometrical figures, interlaced with bands of various coloured gravel and gaudy walks; while no other place contains so much connected with the science of horticulture and botany. But it is a question whether Kew might not be improved by good taste in landscape gardening. The frequent introduction of Poplar trees in many public places, in Regent's Park (the new flower walk), on the mound of Buckingham Palace, and in its rearward court; in the Horticultural garden at Kensington; and lastly, on the causeway opposite the Brompton Museum, requires some comment. Of all foresters, Poplars are the least graceful, and afford least shade. We never find them on the Parisian Boulevards. The Plane, the Lime, the Elm, and the Chestnut are there chiefly chosen, because they the are wide spreading, and gay in their aspect; whereas, Poplars, with their spire-like columnar form, are least calculated to grace even any architectural structure with which they may be associated. Our most improved national garden and school of horticulture is Kew, now as it stands; and to the Government is due the credit of providing that place of instructional resort. Seeing, therefore, that the field of knowledge in this department is so restricted, it is of great importance that no bad taste be intruded into these treasured inclosures. There is ample scope for diversity of arrangement, for pleasing intermixture of design, for striking contrast in the wild luxuriance of tree, shrub, and flower, as there also is for variety of surface, without violating the evidences of Nature. The perfection of art is to keep in accord with her rules. By skill and care, we can improve and enrich the flower, the fruit, the shrub, the tree; so we can fashion a garden or parterre, and combine therein the trim, the wild, and, if there be scope enough, the grand and majestic. For the instruction of the public, then, such places of resort ought to be treated with caution, since elaborate works of objectional design will spread through imitation, whilst evidences of good taste will strike deeper root among amateurs, whose tendencies are more refined. *Joseph Newton*, 30, *Eastbourne Terrace, Hyde Park.*

Royal Horticultural Society's Garden, South Kensington.—I presume it was the "Male Fellow" alluded to by your correspondent "Paul Pry," who conceived the "dodge" practised

at the Gardens last Saturday; which was that Fellows' privileged tickets were only admitted to the tent, and the holders once penned in there, were not allowed to enter the Gardens except by the payment of 1*s.* each, extra. Visitors to Cremorne, Madame Tussaud's Wax Works, &c., will be familiar with this system; but to old—and not "mad"—Fellows of the Society and their friends, it is as disgusting as it is out of place, and all will feel obliged to you for permitting the expression of this opinion to appear in your columns. *F.R.H.S.* *May* 30, 1864. [We learn from the Assistant Secretary that "this arose from some misapprehension of orders. It was not intended that privileged tickets should be required to pay twice, but unless purchased previously they were to be charged 2*s.* 6*d.*, which would have been still heavier, although not open to this complaint." We regret to be obliged to call attention to other laches. What ingenious gentleman, for instance, presiding over the ticket department, issues tickets such as those of last Wednesday. Justice will not be done unless he is called to account.]

Societies.

ROYAL HORTICULTURAL: *June* 1 (*First Great Show*).—This was admitted by all to be one of the best exhibitions ever held under the auspices of the Society, and the numerous table decorations placed in competition for Sir Wentworth Dilke's prizes, together with Messrs. Waterer & Godfrey's magnificent exhibition of American plants, noticed in another page, all contributed to render this great gathering pre-eminently interesting to all true lovers of horticulture. Although the day was unfortunately overcast and cold, there was a good attendance of visitors, and in the morning H.R.H. the Princess of Wales honoured the exhibition with her presence.

President's Prizes for Fine-Foliaged and Flowering Plants.—The first of these was bravely won by Mr. James Veitch, who furnished a noble group, in the centre of which was a fine specimen of Dicksonia antarctica, surrounded by Azaleas beautifully in flower, a very fine white Ixora with the blossoms scarcely sufficiently expanded, and the orange Ixora amboinensis, together with Dipladenias, Allamandas, Crotons, Palms, and a fine example of the variegated variety of Alocasia macrorhiza. To Messrs. Lee was awarded the second prize for plants of the description just indicated. They consisted of Rhopalas, Alocasia Lowii, beautiful specimens of Cordylines, Theophrastas, Cyathea Smithii, the handsome-leaved Oreopanax dactylifera, and Heaths of different sorts.

Awards.—1, Mr. Veitch; 2, Messrs. Lee.

Conservatory Decoration.—The only group of plants exhibited illustrative of tasteful arrangement in small conservatories or greenhouses, was one furnished by Mr. Turner, of Slough. It occupied a corner in one of the arcades, and certainly well deserved a 1st prize, which was awarded it. On the two sides of the angle forming the corner in question were banks of gay flowering plants, such as Standard and other Fuchsias, Pelargoniums, Calceolarias, and Roses, and in front of these was a circular mass of similar materials, out of the centre of which rose a rustic device in the form of a tree-stump, the ends of whose shortened branches supported vases full of Fuchsias beautifully in bloom, growing up from among Moss and Fern. On the outsides of the vases were Fir cones and other ornamentations of that description, which when well varnished as these were, last long, and have a pretty appearance. Supports of this kind might be put together by almost anybody, and when overrun with creepers, or otherwise tastefully decorated as in this case, are infinitely superior to ordinary unsightly greenhouse stages.

Stove and Greenhouse Plants.—Of these large numbers were exhibited, and among them were some magnificent plants of Dipladenia, Allamanda—chiefly grandiflora, Statice profusa and Holfordii; Pleroma elegans, a glorious Melastomad, with circular violet purple blossoms, each as large as a crown piece; Ixoras, among which we noticed the orange sort called Griffithii; the universal favourite, Stephanotis floribunda; various Hedaromas, of which the best was tulipiferum; Everlastings, and other well-known plants, the names of which have often appeared in former reports.

Awards.—12: 1, Mr. May; equal 2, Mr. Peed and Mr. Morse; 3, Mr. Green. Nurserymen: 1, Mr. Fraser. 6: 1, Mr. Chilman; 2, Mr. Ingram; 3, Mr. Page. Nurserymen, 6: 1, Mr. Rhodes; 2, Messrs. Jackson.

Pelargoniums.—Of these there were some noble exhibitions, both of fancy and ordinary sorts. Among the last Etna and Lord Clyde are two of the most brilliant; Lucifer is a fine rose, as is also Lady Canning; and of light kinds, Desdemona, Empress Eugenie, Prince of Prussia, and Fairest of the Fair were conspicuous. Among spotted sorts few beat old Sanspareil; Osiris, Mr. Marnock, and Beadsman, are however valuable additions to this class. Viola deserves a place in every collection on account of its distinct colour. Among Fancy sorts Lady Craven and Ellen Beck, crimson and white; Cloth of Silver and Mrs. Hole, light sorts; together with Clemanthe, Edith, Reliance, Multiflorum, and Clara Novello were conspicuous.

Awards.—12: 1, Mr. Fraser; 2, Mr. Turner. Amateurs, 1. withheld; 2, Mr. Wiggins. Fancies, 6: 1, Mr. Fraser; 2: Mr. Turner. New kinds: 1, Mr. Turner.

Azaleas.—The blooms of these have now become sufficiently thin to show a few green leaves, which could not be seen earlier in the season, but which help to break up the too formal appearance of the plants. Among large specimens were fine examples of Sir C. Napier, Chelsoni, Criterion, Juliana, Purpurea, Gledstanesii, Gem, Perfecta elegans, Ardens, Rosea superba, Magnifica (a good white), Extrani, and last but not least, the handsome Petuniæflora, and the double-blossomed sort Glory of Sunning Hill. The last is as fine among salmon-coloured sorts as Flag of Truce is among whites and both are very double.

Awards.—9: 1, Mr. Morse; 2, Mr. Carson; 3, Mr. Ingram; extra, Mr. Page and Mr. Kaile. Nurserymen: 1, Mr. Turner; 2, Mr. Veitch. 6: 1, Mr. Turner; 2, Mr. Penny; equal 3, Mr. Fraser and Messrs. Lane. New kinds: 1, Mr. Turner. Mr. Kelk's Prize: 1, Mr. Turner.

Orchids.—These were furnished in great variety and in excellent condition. Among Dendrobiums was an excellent specimen of Dayanum from Mr. Baker, and, seen in the high state of perfection in which this was shown, it was really a fine kind, well worthy of a place beside either macrophyllum or anosmum, to both of which it is related. From Mr. Milford came the handsome hybrid Cattleya Dominiana, and of Lælia purpurata there were some grand specimens. Oncidium ampliatum majus was also shown in unusually good condition, as were likewise the various kinds of Vandas, Aerides, Saccolabiums, Lady's Slippers, and Odontoglossums, especially the handsome O. citrosmum, and the singular-looking prettily-spotted O. nævium. Of the red Trichopilia crispa there were one or two well bloomed plants. Mr. Williams had the rare Phalænopsis rosea in wonderful health; also the canary-coloured Cattleya citrina; and Mr. Milford again showed his fine plant of Odontoglossom Phalænopsis, previously mentioned by us at p. 510. From Mr. Wilson came a remarkably vigorous well-managed specimen of Cypripedium caudatum, with 10 flowers on it, each of whose singular tail-like appendages could not measure less than 2 feet in length. The handsome terrestrial Orchis foliosa was contributed in good condition by Mr. Penny, and of Uropedium Lindeni we noticed one plant from Mr. Baker.

Awards.—Aerides, Vanda and Saccolabium, 6: 1, Mr. Baker; 2, Mr. Penny; 3, Mr. Milford. Cattleya and Lælia, 6: 1, Mr. Milford. 9: 1, Mr. Milford; 2, Mr. Baker; 3, Mr. Penny. Nurserymen: 1, Mr. Williams; 2, Messrs. Jackson; 3, Mr. Woolley. 6: 1, Mr. Page; 2, Mr. Penny; 3, Mr. Milford. Cypripedium and Uropedium: 1, Mr. Penny; 2, Mr. Milford; 3, Mr. Baker.

Sarracenias placed in competition for Lady Dorothy Nevill's Prizes.—These consisted of purpurea, variolaris, flava, and Drummondi, of which there were some good plants, well furnished with long upright cornucopiæ-like pitchers.

Awards.—1, Mr. Baines; 2, Mr. Veitch; 3, Mr. Williams.

Pitcher Plants not Sarracenias competing for a Prize offered by the last-named Lady.—The only examples of these came from Mr. Veitch, and consisted of Nepenthes Dominiana, Rafflesiana, and another unnamed sort.

Collections of Recently Introduced Plants.—Mr. Veitch sent the singular Anthurium Scherzerianum, the pink and white variegated-leaved Hibiscus Cooperi, the variegated variety of Aralia Sieboldi, a crested variety of Pteris serrulata, Pandanus elegantissimus; Todea superba, a fine mass covered with a bell glass; the Japanese Thujopsis lætevirens, the green-leaved Aucuba japonica vera, Cryptomeria elegans, and the white-flowered Eranthemum tuberculatum. From Mr. Williams came Cibotium princeps, Sphærogyne latifolia, with leaves nearly as large and handsome as those of Cyanophyllum magnificum; Colocasia albo-violacea, and zebrina, the last with prettily mottled stems; the variety of Dracæna ferrea called grandis, and other interesting plants. Mr. Ivery had various pretty varieties of Athyrium Filix-fœmina; and from Mr. Bull came the variegated Musa vittata, Anthurium leuconeurum, Variegated Bamboo, Lastrea Standishii, a crested variety of the Royal Fern, Chameranthemum Beyrichii variegatum, and other fine plants.

Roses.—These consisted of well grown medium sized beautifully bloomed plants, all of which indicated a great improvement on the tall lanky specimens shown in some collections last year. Among the sorts were handsome examples of Louise Peyronny, Madame Damazin, Paul Ricaut, Narcisse, Coupe d'Hébé, Jules Margottin, Charles Lawson, Souvenir d'Elise, Madame Willermoz, La Reine; Anna Diesbach and Lælia, both with blooms nearly as large as those of a Moutan; Lord Raglan, and other well known kinds. Among kinds grown in 9-inch pots were fine examples of Senateur Vaisse, with five fully expanded blooms on it; and others, such as Victor Verdier, Prince Camille de Rohan, a nearly black kind, and Beauty of Waltham, though in small pots, were equally well flowered. Of Teas, Messrs. Paul & Son showed Marquis Foucault, yellowish white; President, Homer, Niphetos, Mansais, and Souvenir d'un Ami. Nice bouquets, consisting chiefly of light-coloured kinds, came from the Rev. W. F. Radclyffe. Cut Roses were also good, and the weather being favourable they preserved their freshness and beauty to the end of the day.

Awards.—12 Plants: 1, Mr. Wm. Paul; 2, Messrs. Lane. 6: 1, withheld; 2, Mr. Terry. 6 H. P. in 9-inch Pots: 1, Mr. Turner; 2, Messrs. Paul & Son. Ditto, Teas: 1, Messrs. Paul & Son. Mr. Kelk's Prize for plants in 6-inch Pots: 1, Messrs. Paul & Son. Extra, Mr. Turner.

Heaths.—Conspicuous among these were some fine plants of tricolor Wilsoni, certainly one of the best of its class; exquisita, Massoni, eximia, mutabilis, and ventricosa magnifica, a bright rosy flowered sort, prettily tipped with white. This latter is really a charming variety.

Awards.—6: 1, Mr. Rhodes; 2, Mr. Page; equal 3, Mr. Chilman and Mr. Peed.

Miscellaneous subjects.—Foremost among these was a panful of Alpine plants from Messrs. Backhouse, of York, of which some notice was taken at p. 510. In addition to names there given, we may mention those of Dianthus alpinus and Fischeri, the former a charming Pink, very dwarf, with flowers as large as a shilling; Cypripedium acaule, and Calceolus; a very small Gleichenia, and the Holly Fern; Erinus alpinus, covered with pink blossoms; the Bee (?) and another kind of Orchis; Cystopteris montana, Primula involucrata, and other interesting little plants. The same nurserymen also showed two or three varieties of the Royal Fern (Osmunda regalis). From Messrs. Barr & Sugden came some neat plant cases, and various ingenious contrivances in rustic pottery, for which a first prize was awarded. A handsome plant case was shown by Miss Maling. From Mr. Ivery came a very fine collection of rare British Ferns and their varieties; we also noticed some Strawberries, Juneating Apples, and a Moscow Queen Pine-Apple, from Mr. Floud, of Aberdare, weighing 5 lb. 13 oz.—a good weight it will be admitted for this early season of the year. Finally, from Messrs. Carter & Co. came another fine basketful of their Ornithogalum thyrsoideum, favourably noticed by us on former occasions, and Messrs. Downie, Laird, & Laing, showed some fine Pansies.

Ladies' Prizes.—For the two prizes of 10*l.* each, offered by the Proprietors of this Journal to ladies for plants of their own cultivation, only one exhibitor came forward, viz., Mrs. Dombrain, of Deal, who showed a tolerably pretty example of Adiantum cuneatum in a "Paxtonian" basket. This was stated to have been growing since August, 1863, in an ordinary living room with a south aspect, where both gas and fire were burned; it nevertheless looked perfectly healthy and well, showing conclusively that this kind of Fern, which is one of the prettiest of its class, is thoroughly adapted for room ornamentation. Other fair combatants for these prizes signified their intention, we believe, to enter the lists, but withdrew on the morning of exhibition. Let us hope that the handsome prize Mrs. Dombrain has won, may induce a more general display of courage next time.

Dinner-table Decorations.—Of these there was an admirable exhibition, which was in all respects a great improvement on that of last year. Most of the contrivances staged were well supplied with flowers, but there was a general deficiency of fruit, an item of decoration quite as essential in this case as flowers, and which we hope to see better supplied on another occasion. The three devices to which the 1st prize was awarded came from Mrs. Worthington Bliss, of 26, Eccleston Square. They were made of glass; each of them consisted of a stout upright stem, surmounted by a vase, a little way below which was a circular tray supported by a couple of neat brackets, on which hung two glass baskets by the handles. These, together with the vase and tray, were all tastefully ornamented with flowers, as was also the round circular base which upheld the whole. The height of the centre piece when dressed was 3 feet 9 inches, and that of the side pieces 3 feet. In appearance they were light and elegant; if they had any fault it was that the base seemed too small to support the top. The second prize set came from Miss March. This was also of glass, and in the way of, but perhaps not so elegant as, the same lady's first attempt at decorations of this kind. The third prize lot was likewise of glass, in the form of cornucopiæ, rising out of a circular base. These, which were extremely pretty, were supplied by Messrs. Naylor, 7, Princes Street, Cavendish Square, and were most tastefully decorated with flowers by Miss Wait, of Kensington Gate. This exhibition, in the opinion of many, should have been placed second. A set of beautiful glass decorations, highly commended by the judges, came from Lady Holmesdale, and similar praise was also bestowed on three devices, likewise for table ornament, contributed by Mrs. Cutbush. These consisted of flower-capped upright glass stems, and little saucers of flowers held in position by means of stout wire. A fringe of Isolepis, hanging from these little brackets, set off the whole to excellent advantage. White china figures, supporting baskets of flowers, were furnished by Viscountess Combermere; and numbers of devices in Minton's white chinaware were shown by Mr. Good, of South Audley Street, and Messrs. Phillips, of Oxford Street. From Lady Emily Peel came a set of decorations in this kind of ware. From Messrs. Naylor & Co. came a variety of tasteful ornaments in glass, and in a set of their stands various kinds of flowers were handsomely arranged by Lady Katherine Fielding. Numerous other contrivances for table ornament of less importance than those just named were also exhibited. We may mention that of the many blossoms employed for dressing the stands, few beat those of the common Corn-flower (Centaurea Cyanus). Its lively blue flowers set off the others to much advantage.

CRYSTAL PALACE EXHIBITION: *May* 28.—A grand display of horticultural produce was brought together on this occasion. Orchids, Stove and Greenhouse plants, Azaleas, Roses, Heaths, Tall Cacti, and Pelargoniums have seldom been finer, and there was the usual amount of New Plants. In all these exhibitions, however, we saw little or nothing that has not been

previously noticed by us. Of fruit, considering the season, there was a fair display.

A few good Pines were shown, among which we observed a Smooth-leaved Cayenne from Mr. Wallis, Astle Park, Cheshire; and a Queen and Black Antigua from Mr. A. Henderson, Trentham, for which prizes were awarded.

Among Grapes, several excellent dishes of Black Hamburghs were exhibited: those from Mr. Meredith, which took the 1st prize, were magnificent; Mr. Henderson's, which received the 2d prize, were also very fine. Prizes were also awarded to Mr. Petch, Mr. Wallis, and Mr. Hill; the latter had three fine bunches, weighing together 8½ lbs., but not sufficiently coloured. Mr. Meredith had a 1st prize for a splendid basket of 18½ lbs., in which the berries were large and beautifully coloured; Mr. Hill was 2d; and Mr. Clement, East Barnet, 3d. Muscats were not sufficiently coloured. Mr. Horwood had both 1st and 2d prizes for them, Mr. Embery being 3d. Of Melons, the best Green-fleshed was a hybrid Cashmere from Mr. Meredith; and Mr. Enstone was first in Scarlet-fleshed sorts.

Peaches were very good. Grosse Mignonne, from Mr. Joyce, was very large and fine, and was awarded a 1st prize; the 2d and 3d going to Mr. Taylor, East Barnet, and Mr. Turner, Slough, for the same variety.

Nectarines were also good. Mr. Evans, gr. to C. Newdegate, Esq., M.P., and Mr. A. Henderson had 2d prizes, the former for Elruge, and the latter for Violette Hâtive.

In Figs, Mr. Cross, The Grange, Alresford, was 1st with Brown Turkey, and Mr. Dawson, Broadlands, 2d with the same kind.

Beautiful dishes of Cherries were shown by Mr. Henderson, whose sorts were Circassian and Elton.

Strawberries were very fine. Mr. Smith, of Twickenham, was 1st in single dishes, with Sir Charles Napier; and in three dishes with the same kind, Empress Eugénie and British Queen, Mr. Budd, of Cobham Hall, was 2d. Mr. Smith had also some well fruited plants in pots. Lastly, Mr. Mortimore, gr. to A. Smee, Esq., Carshalton, had an extra prize for White Juneating Apples, and Citron des Carmes Pears.

Linnean: *May* 24.—G. Bentham, Esq., President, in the chair. The Treasurer read a general statement of the Society's accounts, from which it appeared that the balance in favour of the Society on the year's account was 407*l.* 15*s.* 3*d.* The Secretary reported that since the last anniversary the Society had lost by death 11 Fellows and 4 Associates, and by withdrawal 4 Fellows; while 29 new Fellows and 2 Foreign Members had been elected. At the ballot which ensued, J. Bateman, Esq., T. Bell, Esq., Dr. J. E. Gray, Dr. R. C. A. Prior, and Dr. C. Wallich, were removed from the Council; and in their place the following were elected:—Dr. W. Baird, D. Hanbury, Esq., J. Lubbock, Esq., G. MacLeay, Esq., and F. P. Pascoe, Esq. The following officers were afterwards re-elected, namely:—G. Bentham, Esq., President; W. W. Saunders, Esq., Treasurer; and G. Busk, Esq., and F. Currey, Esq., Secretaries. Thanks were severally voted to the President for his address, with to the Secretary for his obituary notices, both of which were directed to be printed.

Entomological: *May* 2.—F. P. Pascoe, Esq..F.L.S., in the chair. The Secretary exhibited an extremely rare British moth, Hydrilla palustris, taken in Quy Fen, Cambridgeshire, on May 29, 1862, by Mr. R. S. Schofield; a single specimen had only previously been recorded, captured by Mr. Dunning. Captain Cox gave an account of the collection of drawings of larvæ of British Lepidoptera made by Mrs. Cox, and described the classification of the larvæ which he had adopted, founded upon their colours, clothing, or spined character. He also exhibited a number of larvæ which he had found in vast numbers infesting a bran bin of large size, in which they formed tubular galleries. It was suggested that they were the larvæ of Aglossa pinguinalis. Mr. Wallace exhibited a box of butterflies, of the genus Papilio, collected by himself in Celebes, showing a remarkable modification in form to which, with a single exception, every species of Papilio found in that island was subject, namely, in having the fore wings of a more falcate form, with the fore margin much more arched and the extremity more pointed than in the examples of the same species taken in India or the adjoining islands of the Indian Archipelago. This he attributed to the perpetual attempts made by the insects to escape by rapid or zigzag flight from persecution by birds, which was affirmed to be favoured by such a form of wing. This assumption was, however, doubted by Professor Westwood, who denied that such a form of wing in British insects was connected with peculiar or rapid powers of flight, and who asserted that if increased powers of flight were induced, the muscles at the base of wings, and consequently the thorax itself, would be enlarged. This was, in fact, especially the case in the genus Charaxes, of which he exhibited a number of species of the greatest rarity from the Oxford Museum, several of which, unique in this country, had been received from the Zambesi, collected by the Rev. H. Rowley. Mr. Newman, and several other entomologists present, also objected to Mr. Wallace's views as to the cause of this curious peculiarity. A remarkable paper by Captain Hutton, "On the Reversion and Restoration of the Silkworm," was also read. The author had for several years past been occupied in India, with experiments on the common silkworm, Bombyx Mori, in order to effect its regeneration from its present debilitated condition, which had in fact rendered necessary the introduction of other kinds of silkworms in their stead in the great silk establishments of France and Italy.

Notices of Books.

Saxby's Weather System, or Lunar Influence on Weather. By S. M. Saxby, Esq., R.N. Octavo, pp. 120. Longman & Co.

The author considers himself entitled to more credit for his system than meteorologists have hitherto given him, and the greater part of the work is occupied to prove that such is the case, and that it is a correct one. In Chapter 11, at p. 100, we find it explained; and that is necessary before we can make any remarks upon it. The following, the author states, is what Europe now hears of as "Saxby's weather system:"—

"I found that the moon never crosses the earth's equator or reaches her position of stitial colure, without a marked disturbance of the atmosphere occurring at the same period. Therefore I began by combining these lunar changes, actual weather disturbances, into the relationship of *cause* and *effect*.

"In considering the cause, there was little difficulty in tracing it to disturbance of the electric system of the globe at such periods, in consequence of changes in the effect produced in our atmosphere by variations in the intensity of the attraction of the sun or moon, or both, as they vary their positions with respect to the earth. I had before me as a guide the well-known and recognised influence of the moon's attraction upon the tides.

"I find that the phases of the moon, properly so called, do not perceptibly affect the weather.

"That the period of new moon has a marked influence on the weather when occurring near the periods of lunar equinox or lunar stitial colure, and that this influence is heightened considerably if at the same time the moon be in perigee. That the mere fact of her being new or in perigee is of no importance at any other times. So that when the lunar equinox or stitial colure, occurs at the same period as the new moon in perigee, the greatest atmospherical disturbances to which our earth is liable may then be expected with certainty of fulfilment.

"Now, either the moon crosses our equator, or is at her stitial colure (or greatest distance from our equator) about once in a week (it is possible that one of each may happen in the same week, according to the inclination of her orbit), therefore there is an atmospheric disturbance from this cause, say once a week, and it is *invariably* traceable, as will presently be further explained.

"So that this 'weather system' is extremely simple. I fear many distrust it on account of such simplicity. For if we condense the definition of the above theory it is mainly a question of the moon's declination.

"The method in which the weather is affected by the forces of the sun's and moon's attraction, is the necessarily resulting sudden condensations of moisture in the atmosphere, or in the increased evaporation of moisture, according as the air is in a state of positive or negative electricity in a district, when disturbed by the sudden affection of the whole electric system at the periods above denoted.

"Now, sudden condensation of moisture in the atmosphere produces a partial vacuum, into which surrounding air necessarily rushes; hence the periods of lunar equinox, or colures, are periods of 'atmospheric disturbance,' the intensity of such depending much on localities; and where such condensations or evaporations occur upon a large scale, some days may elapse before equilibrium is restored.

"High winds at these periods are not always accompanied by falls of mercury in the barometer, since no accumulation of the electric fluid (which is imponderable) can increase the weight of the atmosphere.

"A rising or steady barometer is not to be trusted at these periods, as severe gales frequently occur at such times without influencing that instrument. But a falling barometer at these times should never be disregarded."

In order that the author's system might be better appreciated and more generally understood, the plainest language, such as that employed by Howard in his "Climate of London," had better have been employed. Such terms as apogee, perigee, moon's equinox, stitial colure, &c., might have their meanings expressed by words that every one could most readily understand. The moon's orbit has not always the earth in its centre, consequently she is sometimes much nearer the earth than at other times. When nearest she is said to be in *perigee*, "near the earth;" when farthest from the earth the term *apogee* is used. Of the moon's equinox and declination an idea may be formed from the course of the sun. Everybody in this part of the world knows that he rises high in summer, but creeps low, not much above the horizon, in winter; and at the equinoxes in March and September, he follows a middle course between these extremes, rises due east, sets due west, is 12 hours above our horizon, and 12 hours below it. With the sun these conditions occur twice a year, with the moon twice a month. When her declination is 0° she is on the equator, and follows the path of the sun at the time of the equinoxes; but from this she declines either north or south, and appears either higher, as the sun does at midsummer, or lower, as he does at midwinter; but instead of being six months in passing from the extreme highest to the extreme lowest, the moon accomplishes the same in about every fortnight. Howard calls her highest and lowest positions respectively her full north declination and full south declination; and mean declination, her equinoctial position. The term *stitial colure* employed in the work before us means the extreme departure from the equinoctial position, or the full north and full south declination according to Howard.

It is when the new moon is in the position nearest to the earth, or *perigee*, at the time either of the lunar equinox, or else when she is at the extremes of her declination, that the greatest atmospheric disturbances are to be expected. By the Nautical Almanack, or by Hannay's, any one can see when such combination of circumstances will occur. By the former work they can be seen four years in advance. The following are the days in the present season, "on which, according to the author's weather system, the weather may reasonably be expected as *liable to change most probably towards high winds or lower temperature*, being especially periods of *atmospheric disturbance*: 1864.—June 4, 12, 19, 25. July 2, 9, 16, 22, 29. August 5, 13, 19, 25. September 2, 9, 15, 22, 29. October 6, 13, 15, 19, 26. November 2 and 3, 9, 15, 23, 30. December 6, 13, 20, 27. Persons can observe what these periods may prove to be. In the mean time, we think the system is a step in the right direction.

Catalogue of Fruits of the American Pomological Society.

This is stated to be a catalogue of fruits recommended for cultivation in the United States and the Canadas, and is in two divisions. The first division embraces those States lying north of the southern line of Virginia, Tennessee, Missouri, &c., and east of the Rocky Mountains, including the Canadas. The second division includes the States south of the above line, and west of the Rocky Mountains. We have, however, only the first division before us; and in a note at the end it is explained that in consequence of the distracted state of the country since the last meeting of the Society, the committee have not been able to collect a sufficient amount of information to justify them in attempting to prepare the second or Southern Division of the Catalogue. We understand that the author, a capital man, is Mr. Barry, of Rochester, U.S.

The arrangement of the varieties is alphabetical, according to the nomenclature adopted by the Society. Synonyms are given in a few instances only. The tabular form has been adopted to obviate the necessity of repeating the names of varieties several times, as would be required if a separate catalogue were made for several sections. It has, we are informed, been decided by the Committee not to attempt at this time to give descriptions of the fruits recommended, but simply to indicate the season of maturity, use, and a few other particulars of importance, which require but little space. Accordingly we have columns for the number, name, season, and use; then, columns representing 24 States, besides the Canadas, several of the States being divided into two or three districts, so that in all there are columns for 35 districts. The State or district in which any variety is recommended, from the collected reports obtained by the Society, is designated by a star (*); and in cases where a variety is recommended as being of great superiority in any locality, two stars are made use of.

We can learn from this catalogue the season of the respective varieties named in it, as well as their use: for example, Apples, whether for the kitchen, for cider, or for market—those not designated for these purposes being regarded as dessert sorts; but neither their particular qualities nor their size are given, so that we can only infer the general merit and estimation of each variety from the number of stars appended to its name, denoting the greater or less extent of its cultivation We may mention a few which appear to be more especially cultivated in a great number of States, and over a vast extent of country:—Red Astrachan, Early Harvest, Fall Pippin, Gravenstein, Large Yellow Bough, Yellow Newtown Pippin, Rhode Island Greening, Boston Russet (under the name of Roxbury Russet), and Summer Rose. We observe that the most universally cultivated Apple in England, the Ribston Pippin, is only marked for four districts out of the 35, namely Canada West, Maine, New York West, and Vermont. As in Europe, warm countries seem not to suit it. There are 178 varieties of Apples enumerated.

The Pears have columns for their season, use, and for the stock in regard to such as will succeed on the Quince; and 35 columns headed with the districts as in the case of the Apples. The list contains 122 varieties, the greater part consisting of Flemish kinds, but with a considerable number of American. Some of the more universally cultivated varieties are the following:—Williams's Bon Chrétien (or Bartlett as it is called in America), Belle Lucrative, Beurré Diel, Easter Beurré, Beurré Giffard, Bloodgood, Doyenné d'Été, Flemish Beauty, Citron des Carmes, Seckel, Urbaniste, Vicar of Winkfield, Buffum. The Louise Bonne (of Jersey) has obtained very extensive cultivation, whilst its rival in this country, the Marie Louise, is only marked as

recommended for three districts, namely — Illinois North, Maryland, and Massachusetts.

We must very briefly notice the other fruits; but we may be allowed to make a few remarks on the Cherries, because some new American varieties have been greatly spoken of, and have been introduced into England, and that being the case it may be interesting to know what honour they receive in their own country as compared with well known good sorts of European origin. The American Amber and American Heart have each only a single star out of 35 localities, whilst the May Duke has 18, and the Bigarreau 14. Osceola is only patronised in New York West; Sparhawk's Honey has only a single vote in its favour; and Tecumseh one. Red Jacket has 4. Governor Wood appears to be most approved of all the native sorts, for it has 12 marks, or only two short of the Bigarreau, and being new there is a probability that it will equal, or perhaps exceed the latter. Its merits will doubtless be ascertained this season in England.

Of Peaches, the clingstone sorts have by far the greatest preference. The Early York, George the Fourth, both melting and American, are, however, in good estimation; and, amongst European varieties, the Grosse Mignonne. The cultivation of Nectarines appears to be very limited, and the same may be said of Apricots. Plums are more generally cultivated, and there are some good American varieties, such as the Washington and Jefferson; still, with the exception of the former, they are not recommended for so many districts as our Coe's Golden Drop, and the Greengage.

Of native Grapes, the Catawba, Concord, Delaware, Diana, and Isabella appear to have the preference. With reference to the European sorts, it is stated that very few of the local committees have made any report.

As already observed, this catalogue does not afford information as to the particular qualities which the respective varieties of fruits possess; but it shows at a glance the general estimation in which they are held, judging from the number of districts marked wherein their cultivation has been approved, and the extent of this up to 1862. Many of the newer States could not be expected as yet to furnish reports of the newest kinds of fruits; but these, previous to the above date, had been rapidly gaining introduction throughout those vast countries where till but recently cultivated varieties of fruits did not exist.

Currants appear to be in greater estimation than Gooseberries. Among the new sorts of the former, La Versaillaise has rapidly taken the lead. The Orange or Brinckle's Orange Raspberry appears to be most extensively cultivated. Of Strawberries, Wilson's Albany has obtained the greatest number of marks of recommendation.

Miscellaneous.

Exhibitors' Society.—The following notice has been sent us. At a meeting held in London, April 28, 1864, Mr. C. Turner in the Chair, it was resolved to form a Society of Exhibitors, to offer suggestions to the different Societies for the arrangement of their Schedules of Prizes, and to protect and advance the interests of exhibitors generally. That members subscribe 2*s.* 6*d.* per annum, payable in advance. That a general meeting of the members be held as soon as convenient after the last of the great exhibitions. SUBSCRIBERS.—Mr. Baker, Mr. Bester, Mr. Charles Lee, Mr. Chilman, Mr. Cutbush (Barnet), Mr. Cutbush (Highgate), Mr. Masters, Mr. Milford, Mr. Page, Mr. Penny, Mr. Reed, Mr. Rhodes, Mr. Shrimpton, Mr. Smith, Mr. Smith, Mr. Taylor, Mr. Turner, Mr. Wheeler, Mr. Wiggins, Mr. Williams, Mr. Young. *O. Rhodes, Sydenham Park, Hon. Sec. (pro tem.).*

Yew (Taxus baccata, L.), or *Yeugh*, in Chaucer and other old authors spelt *ewe*, in Aubrey's Wilts *ewgh*, Ang. Sax. *iw*, Old High Germ. *iwa*, Germ. *eibe*, Span. and Port. *iva*, Fr. *if*, Wel. *yw*, from Med. Lat. *ivus*, *iva*, or *iua*, an abbreviation of *ajuga*, which was a misspelling of Lat. *abiga*, a plant mentioned by Pliny (b. xxiv. ch. 20) as being the same as the Gr. χαμαιπιτυς, and called so from its causing abortion. These names of the Yew we find so inextricably mixed up with others that mean Ivy [See Ivy, p. 416] that dissimilar as are the two trees, there can be no doubt that their names are in their origin identical. How they came to be attached to these trees, the Yew and the Ivy, is the difficulty. Apuleius (ch. 26) speaking of Chamæpitys, says "Græci chamæpityn Itali abigam, alii cupressum nigram vocant." Brunsfels, too, says of the Chamæpitys (b. i. p. 161) "ego autem cipressen existimavi." The Yew seems to have been taken for this black Cypress, and in this way to have acquired the terms *abiga* and *ajuga*, and *iua* and *iva*. But we learn from Parkinson (Th. Bot. p. 284) that the Forget-me-not, a weed of cornfields, was "called in English Ground Pine and Ground Ivie, after the Latin word *Iva*." This term Ground Ivy was assigned by others to a small labiate plant, the Hedera terrestris, and Ivy regarded as the equivalent of Hedera, and subsequently transferred to the Hedera Helix, our present Ivy. The origin of Ajuga seems to have been a mere error of the copyist in transcribing the passage from the 24th book of Pliny. For, as distinct as are *abiga* and *ajuga* in our modern print, the b of abiga might be written so as to look like a v or u, and the word made to appear auiga, which, if the i were not dotted might be as easily read aiuga as auiga. Thus by a train of blunders Pliny's *abiga* becomes *ajuga*, and *ajuga iua* or *iva*. This *abiga*, *ajuga* or *iua* was, as Pliny tells us, the same as the Greek Chamæpitys. The Yew tree gets the name of Chamæpitys through a remark made by Apuleius, and thereby as its synonym, that of *iua*, or *iva*. The Ground Pine, from its terebinthinate odour, also gets the name of Chamæpitys, and thereby as its synonyme that of *iua* or *iva*. But from chamæ being equivalent to terrestris, this name *iua* or *iva* passes over to a weed called, from the shape of its leaf, and creeping habit, Hedera terrestris, and the equivocal word Hedera conveys it to the shrub called Ivy. Some of the dictionaries give a pretended Celtic *iw*, green, as its root. There does not appear to be any such word. *Prior's Popular Names of British Plants.*

A New Grain.—It is stated in the *Carlisle Patriot* that in consequence of the publication of several letters by Mr. Gillbanks, describing the scarcity of wild-fowl and other once numerous birds, and ascribing it to the disappearance of their natural food, attention has been directed to the subject. Some gentlemen in Her Majesty's service, during their explorations in a wild part of our North American possessions, were struck with the pertinacity with which immense flocks of wild-fowl and other game haunted certain localities. It was found on investigation that they came to feed on a sort of rice which was indigenous to the place, and renewed itself by shedding its seed in the alluvial deposit. Some of this grain has been sent to Mr. Gillbanks, who will experiment on the same, and report the result. It is said to differ from the "paddy," or national rice of China.—*Pharmaceutical Journal.* [This is, of course, the well-known Zizania aquatica.]

Calendar of Operations.

(For the ensuing week.)

As many as 7° of frost were registered at Chiswick on the night of the 29th ult., a very unusual circumstance at this season of the year. It need not therefore be wondered at, that crops which were in active growth and full of sap have suffered, especially Potatos Scarlet Runners and dwarf Kidney Beans, the tops of which have been partially killed. At Bagshot young shoots of Rhododendrons have been killed, and even in exposed situations those of common Laurel. Early vegetable crops have also been hurt in other localities, as well as some of the more tender bedding plants. As soon as the full amount of damage done has been ascertained, it will be necessary to take energetic steps to repair it, or the evil results of this late May frost may not be overtaken this season. Wall fruits do not appear to be injured.

FLOWER GARDEN AND PLANT HOUSES.

As soon as the conservatory and other show houses are relieved of superfluous stock, nothing will remain but to carry out a cleanly system of cultivation, and to introduce fine specimens from other houses or pits. All available surfaces should be moistened morning and evening, thorough ventilation obtained, except when the wind is very cold, and a thin canvas screen should be kept on during bright sunshine.

ASTERS.—Shift any that may require more room into larger pots, and others may now be pricked out into open beds, protecting them, if possible, from cold winds until they get somewhat established.

AZALEAS.—Where these have been forced for the purpose of producing an early winter bloom, they should now be placed in a cooler situation, for if left too long, after they have set their flower buds, in a high artificial temperature, they will, in all probability, make a second growth, which is highly detrimental, if not fatal, to the production of next year's bloom. Encourage a free growth in the young stock, and all plants going out of flower, by placing them in a rather high and moist atmosphere.

DAHLIAS.—No exertion must be spared to promote the growth of these plants, for the quicker the growth the finer the flowers. Let the ground between the plants be forked over occasionally, and in dry weather do not spare the watering pot.

FUCHSIAS.—Early plants of these are now in perfection, and whether grown as small plants, for decorative purposes, or as large specimens for exhibition, they are alike useful and interesting; keeping the plants well watered, and shaded during bright sunshine, are the only things necessary. Late-flowering plants should receive a shift when required.

FORCING GARDEN.

CUCUMBERS.—If early Cucumbers are exhausted with much bearing, and infested with thrip or spider, prune them freely, and shut up and shade every morning by 10 o'clock, after a free circulation of air. Let them be syringed before shutting up. The thermometer, with careful shading, may be allowed to rise to 95°; this course, persisted in for a little while, will kill or drive away the insect pests, and throw the plants into new growth.

MELONS.—This season has been remarkably favourable for early Melons, and with many these will be ripened, and the crop gathered in time to admit of a second set of plants being turned out in the same pit. This is much preferable to the plan of obtaining a second crop from the same plants; they will succeed if planted at once. Plants swelling their fruit should be kept moist, but avoid frequent waterings of the soil by giving good soakings; examine the stems frequently for canker, and apply quick-lime to the affected portion immediately it is perceived, first scraping off the decayed part; avoid also, as much as possible, cutting or mutilating the plants, and causing bleeding, which is the ordinary cause of this disease.

PEACH-HOUSE.—Give plenty of air day and night, and syringe heavily morning and evening, except where fruit is ripening. Persist in constant stopping.

PINERY.—Use the syringe in earnest to all the stock, shutting up as much solar heat as possible, and giving abundance of air to young and growing plants. Be careful to shade the fruiters slightly, in order to insure a greater amount of atmospheric moisture, which of course is dissipated by free ventilation.

VINERIES.—Early houses will now be cut, or in cutting, in many places. Do not hurry the plants into a resting state; nothing will be gained in point of earliness next year by such a course; rather endeavour to keep the leaves well fed, as long as the vital forces are at work, and to this end allow laterals to ramble awhile if so inclined. Ventilate late houses freely by 6 or 7 o'clock in the morning, and keep a little air on all night, if the thermometer can be maintained at 65° without the aid of fire heat. Keep floors and all surfaces wet, in preference to much syringing, if a fine bloom is desired.

HARDY FRUIT AND KITCHEN GARDEN.

Constant attention will be necessary to keep down insects on fruit trees. Vines on walls or buildings must be attended to, as to disbudding, stopping, &c. Apricots must be well examined for the grub, and Peaches judiciously thinned both of wood and fruit.

BROCCOLI.—Sow now some good white kind to supply the table during October and November. It is a good plan to sow some Cape Broccoli in drills, prepared after the manner of a Celery trench. The seed should be dropped in patches about a foot apart, to be afterwards thinned to about three plants in a patch. Sow a little more of Knight's Protecting, and a sprinkling of some very late spring Broccoli; it may serve to prolong the succession next spring.

CELERY.—Every attention should now be paid to Celery plants; they must have abundance of water in every stage. Those pricked out from the seed bed should have well prepared beds, the surface of which, for 2 inches deep, should consist of well rotted manure, soaked with water, and rolled or pressed level previous to pricking out the plants. If the weather proves sunny they should be shaded with boughs.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 1, 1864, as observed at the Horticultural Gardens.

May and June	Moon's Age	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 26	20	29.930	29.947	60	36	48.0	58	56	N.E.	.00
Friday 27	21	30.010	29.992	68	37	52.5	57½	56½	W.	.00
Satur. 28	((	30.017	29.903	68	42	55.0	58½	56½	N.	.00
Sunday 29	23	29.978	29.844	67	25	46.0	58½	57	N.E.	.00
Mon. 30	24	29.935	29.763	62	28	45.0	57	56	S.	.00
Tues. 31	25	29.732	29.594	67	40	53.5	56	56	N.E.	.34
Wed. 1	26	29.767	29.689	68	35	46.5	56	55½	E.	.00
Average.		29.932	29.832	64.3	34.7	49.5	57.3	56.5		.34

May 26—Cold dry N.E. wind; fine; rather cloudy; fine.
— 27—Fine; low dusky white clouds; very fine; whirlwind; fine.
— 28—Overcast, fine; very fine throughout.
— 29—Partially overcast; fine; sharp frost at night.
— 30—Frosty ice on shallow water; cloudy and cold; slight frost.
June 1—Overcast; fine; overcast.
Mean temperature of the week 6¼ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 38 years, for the ensuing Week, ending June 11, 1864.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5	70.6	47.0	58.8	22	0.90 in.	2	7	2	1	6	10	7	3
Mon. 6	68.6	48.0	57.3	20	0.28	5	7	2	2	4	11	4	3
Tues. 7	68.6	47.2	57.9	15	0.53	3	9	—	4	3	12	3	4
Wed. 8	70.0	47.0	58.5	15	0.45	4	8	1	—	3	16	4	2
Thurs. 9	69.8	47.7	58.8	20	1.48	1	7	3	2	4	15	3	3
Friday 10	71.2	47.5	59.3	18	0.95	1	9	3	2	4	8	7	4
Satur. 11	71.6	48.3	60.0	13	0.47	1	6	3	3	6	9	10	—

The highest temperature during the above period occurred on the 6th and 7th, 1846—therm. 90 deg.; and the lowest on the 9th, 1862—therm. 34 deg.

Notices to Correspondents.

INSECTS: *W M.* The larger species of Otiorhynchus is O. sulcatus, and the smaller one O. notatus.—*Skolasticos.* Your young fruit of the Pears are attacked by the larvæ of a small two-winged midge called Sciara Pyri by Kollar. We have never before seen it. The eggs were deposited by the parent in the embryo fruit at the time of flowering. Every Pear should be picked up as soon as it falls to the ground and burnt, or the small yellow larvæ will at once make their way into the ground to undergo their transformations. *W.*

NAMES OF PLANTS: *J B R.* Smyrnium Olusatrum and Antirrhinum Asarina.—*B & S.* Melampodium divaricatum. —, —, *and Co.* There is no doubt that it is a very fine thing, but we must decline expending on it the time required for determining its name, which may take some hours, until you furnish better materials and all the information you have regarding its history.

RHODODENDRON FORTUNI. We have to thank *A. G.* for flowers of what *is said* to be this plant, and very ugly they are. Can no one favour us with an authentic specimen?

POPLAR COTTON: *Enniscorthy.* The well-known substance, which envelopes the seeds of every kind of Poplar, is worthless for all textile purposes.

THUJOPSIS BOREALIS: *G F W.* Your plants of Thujopsis borealis have probably suffered early in the year from some chill. The effects of cold do not always declare themselves at once. As your pots are well drained, it is not likely that they should have suffered from being water-logged. The appearance of the specimens seems to indicate cold as the cause rather than any defect in the soil. *M. J. B.*

MISC. Full price will be given for the number of Sept. 19, 1863.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. Established 1777.

Patron:—H.R.H. The Prince of Wales, K.G.

THE ANNUAL EXHIBITION of STOCK, IMPLEMENTS, POULTRY, WORKS of ART, and HORTICULTURAL SPECIMENS, will take place at BRISTOL, on JUNE 13, 14, 15, 16, and 17.

President, 1863-1864:—The Rt. Hon. Earl Fortescue.

The CATTLE and POULTRY will be OPENLY JUDGED, on MONDAY, JUNE 13.

THE OTHER DEPARTMENTS WILL BE OPEN AS FOLLOWS:

STEAM ENGINES and MACHINERY in MOTION; The ARTS and HORTICULTURAL DEPARTMENTS.—MONDAY.

STEAM PLOUGHS & CULTIVATORS, MOWERS & REAPERS, to work from 11 to 3 o'clock, on TUESDAY and WEDNESDAY.

HORSE SHOEING, at Portable Forges.—WEDNESDAY.

The ANNUAL MEETING and BANQUET, on WEDNESDAY.

The HORSES paraded in the Circle at 12 and 4 daily.

The Band of the Royal Marines (by permission of Colonel Gascoyne, C.B.,) will play on Monday, Tuesday, and Wednesday; and the Band of the Grenadier Guards, (by permission of Colonel Lambert,) on Wednesday, Thursday, and Friday.

ADMISSION:—On MONDAY, TUESDAY, and WEDNESDAY, 2*s.* 6*d.*; THURSDAY and FRIDAY, 1*s.*

HENRY ST. JOHN MAULE, Secretary, 2, Wood Street, Bath.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.

22, Parliament Street, Westminster, S.W.

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.

ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.

Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.

Deputy-Chairman—WILLIAM PORTER, Esq., Hembury Fort, Honiton.

TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.

Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.

Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.

The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.

Outfalls through adjoining lands are obtainable under the Company's Act.

Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.

FREDERICK BRODIE, Secretary, Castle Street, Exeter.

Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.

Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY,

Offices: 52, Parliament Street, S.W.

HENRY KEK SEYMER, Esq., *Chairman*.

J. BAILEY DENTON, Principal Engineer.

Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—

1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.

The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, the term for building works being limited to 31 years.

No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.

The arrangements for effecting improvements are threefold:—

No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.

No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1., in each of these cases the landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

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The Agricultural Gazette.

SATURDAY, JUNE 4, 1864.

MEETING FOR THE WEEK.

WEDNESDAY, June 8—Agricultural Society of England.. Noon

—— A LARGE portion of the present number of the *Agricultural Gazette* is worthily occupied with a report of the Conference before the Society of Arts on dwellings for the labouring class, and with a report of Mr. BAILEY DENTON'S excellent lecture on the same subject. We have to acknowledge with thanks our obligations both to the Journal of the Society for the abridged report of their proceedings, which has been here given, and to Mr. BAILEY DENTON for the use of the valuable series of engravings with which his lecture was illustrated.

It will be seen that the discussion before the Society was for the most part confined to the question of dwellings for labourers in town. Much of the argument relating to the subject does however apply equally to the difficulties in the way of rural cottages. And a report both of the first day's discussion and of the second day's conference, which we hope to give next week, thus properly claims a place in our pages.

THAT was a capital home thrust of Mr. CORBET, into those who were the other day discussing the present method of taking the corn returns before the London Farmers' Club:—"He did not know whether or not the meeting were aware that they had been discussing agricultural statistics for the last hour"—"Was the Club prepared to declare itself in favour of agricultural statistics? He had frequently observed that when that expression was used, farmers immediately fired up; but to his mind it certainly appeared that by the experience of that evening, 'agricultural statistics' and 'corn returns' meant very much the same thing."

Good service is done by any one who shall point out particular examples of the benefit which agriculturists will themselves derive from a more accurate knowledge of the farm produce of the country than is now possible, and Mr. CORBET'S illustration is quite a case in point. The general proposition that an accurate knowledge of the truth, whatever it may be, must be universally beneficial, seems to us, however, so self-evident, that hardly any particular example of it seems an adequate illustration of it; and the whole result of that perfect publication of the truth from year to year, which we shall ultimately have, will no doubt be witnessed rather in the greater safety of commercial operations generally, and in the greater certainty of agricultural guidance, and of farm progress generally which will ensue from it, than in any special instance of immediate profit, which will be ever directly traceable from it. Particular examples of great profit are indeed the proof, if any were needed, of a general loss and injury. They are the result of exceptional knowledge or exceptional luck, coincident with or consequent on general ignorance. Great prizes are only met with in lotteries, where the many suffer. And agricultural statistics will tend not to benefit individuals, but to hinder irregularities of price, and to distribute the profits of the year more fairly over the months and more fairly over the multitude.

When the subject was last discussed before the Society of Arts, we showed from the quantities and dates and prices realised of all the corn sales of 1846, on a number of large farms, how little the great wave of price which occurred in May of that year benefited the tenants of those farms. Those tenants had, in fact, by their large sales when corn was low, and their abstinence from sales when corn was high, created that great wave of price by which agriculturists were so little benefited, and by which the general course of trade was so much injured.

The present writer was then in the occupation of 300 acres of arable land. His corn harvest of the previous year, got in in bad condition, was sold, as straw was needed, during winter. Much of the Wheat had indeed been warehoused during the period of lowest prices, but had to be sold early in the spring because of its bad condition. When prices rose in April and May of course he resolved, as regarded the remainder of the Wheat in rick, that he would not lose the high prices then obtainable for lack of that patience in which he had been so signally deficient during the period of low prices. And the upshot was that one half the crop was sold before the great wave of price had reached him, and the other half was sold *after the great wave of price had passed him!* And so it was with the thousand and one of farmers generally who had done the very same—who had in fact with him raised that wave by their ignorant behaviour in the market—picking their own pockets for the benefit of the very few who had the wisdom or the luck to sell.

These irregularities of price by which the great majority suffer for the benefit of the very few are the result of that ignorance which correct agricultural statistics will remove. At present individuals endeavour to obtain information for personal advantage; and agricultural journals obtain imperfect reports for the general good: and thus this ignorance is less than it otherwise would be—and the injury it does is not so great. When Government shall at length consider that the subject is of imperial interest, no doubt the necessary inquiry will be more generally made, and its results more generally published.

Mr. CAIRD, M.P., is next Tuesday again to call the attention of the House of Commons to the importance of the subject, and to detail a plan by which he proposes that a first attempt should at length be made. He proposes to inquire into the extent of the several crops, not over the whole country, but only over so many characteristic and typical portions of it, say 100,000 acres each. Fifteen such typical portions would represent the whole country fairly, and they would amount in all to one-tenth of the estimated extent of cultivated land in the island. In a memorandum which he has published on the subject, he says:—

There have been three objections hitherto urged to the collection of Agricultural Statistics:—

1. The cost.
2. The inquisitorial character of the inquiry.
3. The difficulty of obtaining accurate returns.

(1). By the plan now to be submitted the cost is not expected to exceed 3000*l.* a year—an amount which, compared with the object, is not worth a moment's consideration.

(2). Neither the names nor the boundaries of individual farmers will be known, and neither the persons making the inquiry, nor those to whom the results are communicated, can tell the precise farms to which the returns refer. The complaint of inquisitorial inquiry cannot therefore arise.

(3). The typical districts will be fixed quantities, say 100,000 acres each, laid down on the Ordnance maps. Every acre within that limit will be exhausted, so that absolute accuracy will be attained.

It appears that successful experiments have already been made in Scotland of the mode of collection now proposed. And Sir HARRY JAMES, the head of the Ordnance Survey by whom they were made, is prepared to conduct with his staff the whole inquiry.

We cordially hope that Mr. CAIRD'S proposal may be favourably received; and that whether it be accepted as a final and ultimate solution of the problem, or only as a preliminary and experimental approach to a solution, it may this summer be submitted to the test of a trial, for which there is still ample time to make the requisite preparation.

AS STRONG AS IRON, and as strong as steel, are common expressions. Those who are well acquainted with iron and steel will tell us that both are subject to many influences materially affecting their strength. Agriculturists have now so much to deal with iron in various forms that "a little knowledge" of iron would certainly not be "dangerous." Such a knowledge would rather be economical, as it would point to the means of avoiding many costly disasters to machinery. More especially is it necessary that farmers should understand certain elementary points in this part of the strength of materials, as one or two dangerous fallacies about iron have obtained some currency.

What engineers call the breaking strength of any material is simply, as its name implies, the dead pull, or dead weight, that would break a bar. This weight may of course be applied either tensionally, that is to say by pulling; or it may be applied in the contrary direction to crush the bar; or it may be laid on transversely, as when the bar is used as a beam, fixed or placed on one or more supports,—the weight being applied transversely to the longitudinal axis of the bar. There are also other kinds of stresses, such as those of shearing and torsion. "Shearing" is the kind of stress undergone by the rivets of the rivetted joints of a boiler, or by a pin in a forked joint. The ultimate resistance of a given size of rivet to this transverse force is the same as, or very little less than, the resistance to pulling. "Torsion," or wrenching, is the stress undergone by an object when twisted. A revolving shaft is thus subjected to torsion, which is itself a special form of tensile stress.

If a piece of india-rubber be taken, and stretched by pulling, the force, or the load, or the stress, is applied tensionally. If squeezed between the two fingers, it is subjected to a force having a tendency to crush the piece of india-rubber. If the supposed strip be nailed at its two ends, say horizontally, while its centre is left free, and a force be now applied to it—like, for instance, that by the finger to a harp-string—it is subjected to a load or stress transverse to its length.

Very good wrought iron bars will stand as much as 30 tons to the square inch, while some will break with about 20 tons under a tensile stress. The average breaking strength of fairly good wrought iron may be taken at 24 tons to the square inch cross section. A cubic inch of the same iron will stand about 28 tons before being completely crushed. Under a transverse load, the iron will break at an amount which will infinitely vary, with the distance between the supports, the shape of the beam, and various other influences.

It must never be forgotten that, long before the iron object is broken, it takes what engineers call a "permanent set." That is to say, it elongates, not merely temporarily, but also permanently. The same is the case with even such an elastic material as our piece of india rubber. If stretched sufficiently far, or sufficiently long, or sufficiently often, it does not come back to its original shape or length. It takes a permanent set; it is rather longer than before being stretched. With about 12 tons to the square inch of its cross section, our iron bar will take a slight permanent set, and this set will go on increasing until the bar be broken. Under pressure the bar will take a permanent set at 15 tons to the square inch. This tensile "limit of elasticity," as it is termed by engineers, will vary for different kinds of wrought iron from 10 to 12, and to even 15 tons on the square inch.

A full consideration of this "limit of elasticity" is of the utmost importance. All successful machines, engines, bridges, roofs, &c., have been built upon the assumption of its existence. That is to say, each square inch of the iron is loaded with only one-half of what would give it a permanent set. In our case this is 6 tons to the square inch. A good boiler, made of wrought iron plate that would stand 24 tons to the square inch before breaking, is constructed of such proportions that it may only undergo 3 tons to the square inch. In this case a complicated train of both mechanical and chemical force is continually striving to break its bonds.

It must be remembered that the ultimate breaking weights we have given were obtained by experimenting or testing iron in a particular way, the conditions of which are rarely obtainable in practice. The weights, under which the bars were broken, were *gradually* applied. To illustrate this we will suppose a rather light pair of ordinary beam scales, in one of which scales is placed a 10 lb. weight. These 10 lb. shall represent the ultimate strength, under a gradually applied load, of a bar of iron. If 10 lb. be now placed in the opposite scale very gradually, say ounce by ounce, the two scales will gradually and quietly come into equilibrio. This is the way in which have been broken the bars that gave an ultimate resistance of 24 tons per square inch under a tensile stress. But only 5 pounds, if *suddenly* placed in the opposite scale, will also raise the 10 pounds for a moment. And 12 tons, if suddenly applied, will break the bar that would only be broken by 24 tons, if these 24 tons were gradually applied. In the same way, the 1-inch square bar that would be injured, and perhaps strained beyond its elastic limit by 12 tons gradually applied, would undergo the same effects from only 6 tons, if this amount be suddenly applied. The main explanation is sufficiently simple. The gradual load has increased from 0 or zero up to (say) 24 tons; the impulsive force began its work at a rate of 12 tons. This law is, however, modified by various practical circumstances, when acting up to the breaking point, but it may be taken as strictly correct up to the elastic limit or proof strength of the material. We may however say with some confidence that a bar that would be uninjured with a gradually applied load of 12 tons, will be broken if this load be suddenly applied. The *safe* load under a passive strain is therefore 6 tons, and the *safe* load under an impulsive force is only 3 tons, as the safe working load, under ordinary circumstances, is only taken at one-fourth of the breaking load.

In a certain work on farm implements, which has, and deservedly so, much currency amongst agriculturists, we find it stated—"With reference to the opinion that severe tensile strains are injurious to the bearing powers of wrought iron, the experiments of THOMAS LLOYD, Esq., of Woolwich, go to prove that this is not correct, but that the tensile strain of wrought iron is not injured by breakages up, even to four times in succession." This is only in one sense true. The breaking strength under a load *gradually* applied, was found to be actually increased by the bars being broken. They first broke at about 33, and at the fourth breakage at as much as 39 tons. They were rendered harder, and at the same time brittle. Our india-rubber illustration will show how this took place. If we stretch or pull the india-rubber band, it of course elongates in the direction of its length. But it also contracts laterally at the same time. Its pores at last get more or less closed up. The same action takes place when a bar is stretched beyond a certain limit. It is rendered harder and more brittle. A rod of glass 1¾ inch in diameter will stand the same gradually applied load as an iron bar 1 inch in diameter. But the glass rod will be shivered to fragments by a blow. The peculiar effect of the lateral contraction in hardening wrought iron, appears to have been first pointed out in a paper on the testing of chain cables, read a few weeks ago before the Society of Arts.

The practical lessons to be learnt from the above remarks are manifold. In the first place, it is clear that iron may be injured without, for the time being, showing any marked sign. A wire rope may have been unduly strained by working on heavy ground; it is not, perhaps, extraneously broken, but it must give way at the next jolt. There is also little doubt that iron is much more liable to get broken during frosty weather, and more especially by sudden jolts. The immense importance of, and indeed necessity for, avoiding sudden strains is also clear, and more especially is this caution necessary in frosty weather. Under no circumstances should either engine-work or machinery be started suddenly. Merely in this way—only one of many ways—can a careful attendant save an annual income to his employer. The penny-wise economy that keeps down the wages of a valuable servant of this kind, may be defined as a diversion from its true source of a mere per-centage of the iron-founder's future bill. *P.*

RURAL COTTAGES.

THE following are extracts from Mr. Bailey Denton's lecture read May 11, before the Society of Arts. We take them from the report in the Society's Journal—and we have to thank Mr. Denton for the use of the engravings by which they are illustrated.

1. *On the Accommodation to be given.*—Experience enables us to adopt with security for cottages the following dimensions of space:—

Height of lower rooms, 8 feet; height between floor and ceiling of upper rooms, 7 feet 6 inches.

LOWER ROOMS.

Living room	Area, 150 ft.	—Cubic contents		1200 ft.
Scullery	" 80 ft.	"	"	640 ft.

UPPER ROOMS.

Parents' bedroom	Area, 120 ft.	—Cubic contents		900 ft.
Boys' "	" 90 ft.	"	"	675 ft.
Girls' "	" 80 ft.	"	"	600 ft.

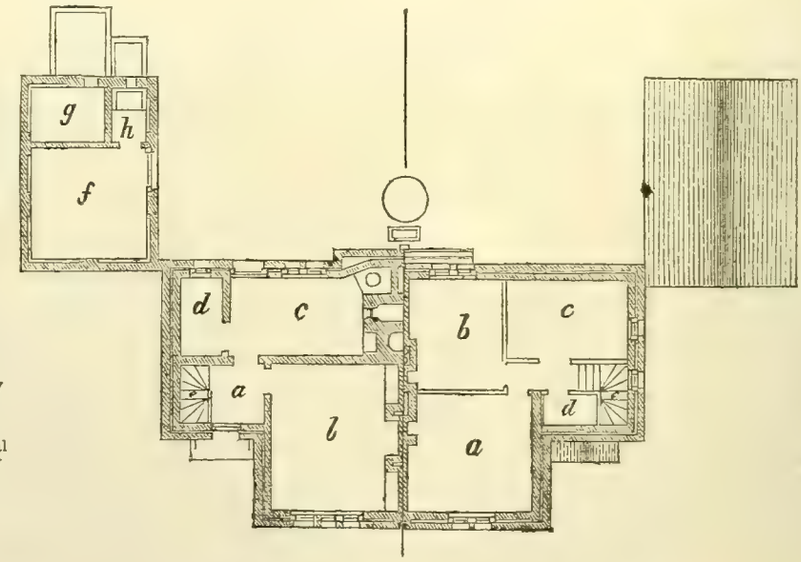
The ventilation which will render these spaces sufficient is gained by having a fire-place and window in each room, with the door entering directly from the porch, passage, or stairs. Practically, all minute refinements in the art of ventilation are found inapplicable. In addition to these desiderata, each cottage should be provided with a pantry within the dwelling, having a command of a free passage of air through it. The scullery, and not the living room, should have a copper and sink for washing, which should be the property of the owner of the cottage; an oven is a desirable addition, but it is not essential. The out-offices should consist of a small barn, for wood and coal; a privy detached, with facility for emptying it; and an ash-pit, so connected with the privy that the ashes may be used to prevent effluvium. The whole premises should be perfectly drained. All the roof-water should be preserved, and a command of well-water should be provided also. The yard and walks (if any) should be paved or gravelled, so as to preserve cleanliness within the dwelling.

These details of accommodation shortly supply the sanitary data upon which cottages of the best class should be built.

We will now consider how far the rules generally accepted on sanitary grounds may be modified to meet the varying conditions of the labourer, and thereby secure more extended accommodation.

No one can deny that in all cases where families of labourers consist of children of both sexes, it is essential to decency that three bedrooms should exist, but the possession of this advantage is so often abused, and so difficult to adjust to the actual condition of village populations, that it becomes us to consider whether we are not straining too much after one character of dwelling, while there are others which deserve equal attention, and which if they received it would secure a more perfect fulfilment of our good intentions.

The argument used in favour of building no other than cottages with three bedrooms is, that there already exist so many dwellings with deficient accommodation that it behoves us to supply a full number with a maximum amount before we descend to less. This view would be sound if it were not known to all experienced men that, owing to the difficulty of allotting suitable habitations to different-sized families, and the impracticability of shifting families already in possession of dwellings to fit prescribed rules, half the newly erected cottages are misappropriated. It is found, in fact, to require the harshness of



GROUND FLOOR.

a Porch
b Living room
c Scullery
d Pantry
e Stairs
f Wood and coal
g Piggery
h Privy

CHAMBER FLOOR.

a 1st Bedroom
b 2d Bedroom
c 3d Bedroom
d Closet
e Stairs

No. 1.—MR. ROBSON'S COTTAGES.

positive compulsion to remove a large family out of a small hovel into a full-sized cottage, while a well-to-do labourer, with a tidy wife and no children, will greedily seize a cottage with more bed-rooms than he can occupy, in order to secure the comforts of a new structure. The motive which actuates each is explained by the circumstance that while both are equally able to work, the man with few or no children is better able to pay for increased accommodation than the man with a large family. For the same reason, when a labourer with a large family does occupy a cottage with three bedrooms, he is frequently found to crowd his family into two rooms out of the three, and to let the third.

The modifications to be sought are not the reduction of space in the required rooms, nor in the dimensions of walls and timbers, but in the establishment of a better and more certain mode of asserting the dwellings to the circumstances of the labourer. It will not be by any refinements in the mode of building, nor by the substitution of concrete walls for brick walls, nor hollow walls for solid ones,* that the real difficulty can be removed.

It is admitted on all hands that the rent due for cottages is the great difficulty we have to contend with; and as a larger structure of equal durability and convenience must always cost more to build than a smaller one, it is self evident that if we are to adjust cottage accommodation to the requirements and circumstances of farm labourers, the adoption of one uniform size of cottage is the way to defeat the object. Moreover, as it happens that labourers having the largest families and requiring the most accommodation are those that can least afford to pay for it, it is equally clear that we must encourage every other means at command of providing for them than by the erection of new cottages. The alteration of existing cottages appears to be the better way of meeting the difficulty.

2. *The Duke of Bedford's Cottages.*—The late Duke of Bedford, in 1849, published, in the Journal of the Royal Agricultural Society of England, the designs and particulars of the several kinds of cottages he was erecting on his Bedfordshire and Devonshire estates. He had directed his surveyor to prepare plans of cottages, suitable for families of different sizes, singly and in blocks, and some most excellent designs will be found in the tenth volume of the Agricultural Society's Journal. Among them will be found the following plans.

* We may, with benefit, study to increase the labourers' comforts without increasing the expense in the cost of their dwellings, and this has already been partly done in the attainment of dryness by means of hollow walls. A very good specimen of cottage so built (see woodcut above) has been erected for the Earl of Pembroke, near Wilton, by Mr. Robson.

The engraving below shows a block of four cottages, in which two have two bed-rooms, and two, three bed-rooms each. No. 2 shows a pair of cottages, in which each has a single bed-room.

3. *Sir H. Dashwood's Cottages.*—On Sir Henry Dashwood's estate, in Oxfordshire, may be seen some excellent cottages (see p. 540), which contain three bed-rooms, but one is placed on the ground floor and two above, and scullery, pantry, &c., form a lean-to. The Cottage Improvement Society have issued a design with a similar arrangement of rooms, with the exception that the bed-room occupies the lean-to, in the place of the scullery, and has no fire-place in it; the plan, therefore, cannot be considered so good as that adopted at Kirtlington. They are figured at No. 4 in juxta-position.

Captain Dashwood, under whose direction the cottages on the Kirtlington estate were erected, thus explains the advantages of the design:—

"The downstair bed-room is adopted because it is found that a farm labourer, though requiring a third bed-room at one stage of his family's growth, does not require it for any length of time, as his family are either very young, or, as soon as able, go out to service. The ground-floor bedroom can, at such time, be used for a lodger; or when the parents get old they can retire to this room and admit a married child, or even another couple, to help to pay the rent. The old woman, by looking after the children, enables the young wife to attend to work, and the old man can help to gain a living by doing duties which frequently devolve on children to the loss of their education.

"The advantages of this plan are—

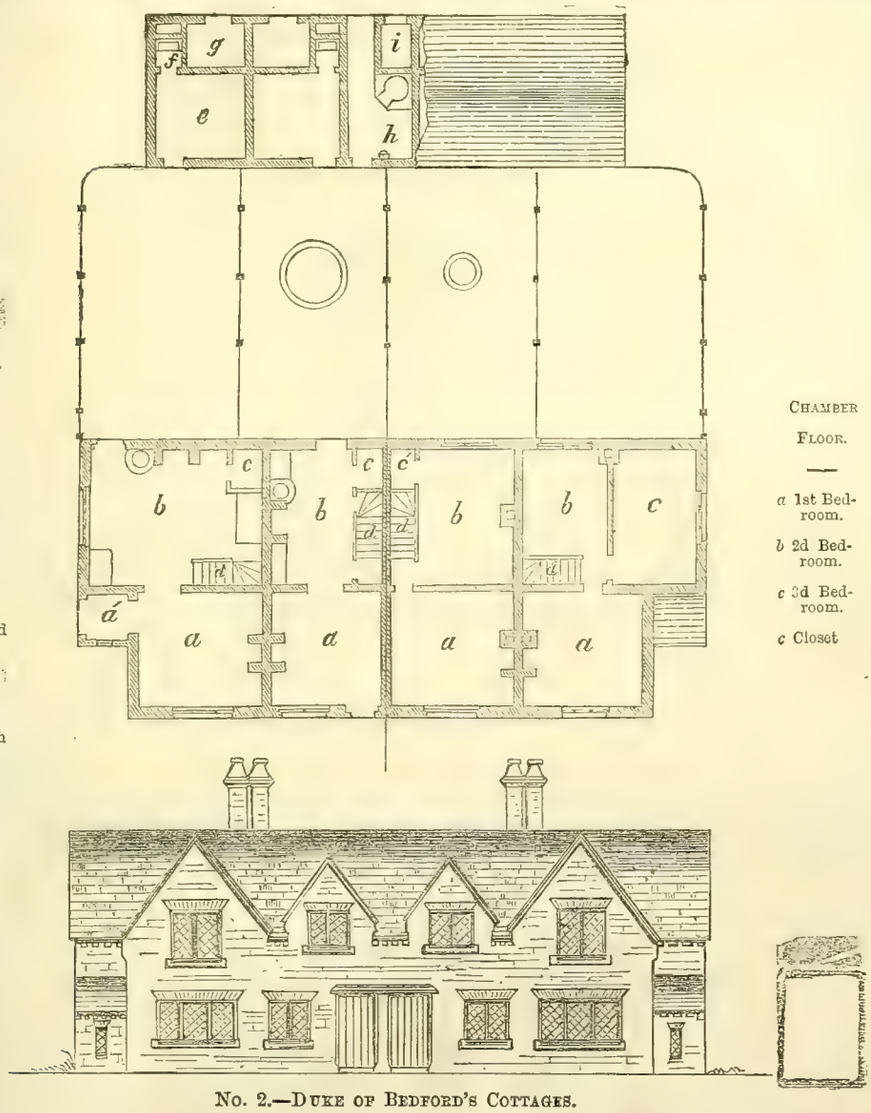
"First—That of enabling old and young people to reside under one roof, thereby securing nearly all the advantages of two cottages.

"Second—It secures greater privacy from the position of the rooms, as under ordinary circumstances the parents would sleep below and the children above, and the partition walls would be constructed of brick, and not lath and plaster, as is the case with ordinary three-roomed cottages.

"Third—It secures greater warmth and less draught; and

"Fourth, the third down-stairs room will be found available, if required, as a workshop, or as a bedroom, especially suitable for a crippled child or an aged parent."

A modification of the same arrangement of sleeping



No. 2.—Duke of Bedford's Cottages.

This Block of Cottages is furnished with a Drying Ground for each Tenement, and has a common Rain-water and Well.

rooms is shown by the woodcut (see p. 540) of a cottage designed by the writer, in which the scullery forms a small covered yard, extending from the cottage to the outbuilding. The advantage of this arrangement is, that, the yard and scullery being one, and under cover, the former is always dry, and the latter more spacious than under ordinary circumstances, while the room (*i.e.* yard) is so constructed that it cannot be mis-appropriated as a living room.

4. *Mr. Benyon's Cottages.*—Some cottages, erected on the Culford estate, near Bury St. Edmund's, by the Rev. E. K. Benyon, have an arrangement with respect to the scullery which will recommend itself. Mr. Benyon says—"I have just completed these cottages at a cost under 200*l.* I have put the bakehouse and washhouse out of doors, as this prevents any steam from getting into the bed-rooms, and the back kitchen is made small, so as to prevent its being made a living room, which I have found to be the case in some cottages that I have built, in which the larger front room has only been made use of to hang up the family photographs." The cost quoted by Mr. Benyon evidently does not include every detail. The woodcut, page 541, shows Mr. Benyon's arrangement.

5. *Lady Kerrison's Cottages.*—Provision for married people without children, and for old couples whose children have left them, is a desideratum of importance; and the single bedroom cottage, erected by the Duke of Bedford (woodcut 3), is a very good one for the purpose. But the plan suggested by Lady Caroline Kerrison is perhaps superior, inasmuch as the bedrooms are all on the ground floor, and are therefore more suitable for old people than bedrooms upstairs.

Lady Kerrison's plan is shown at page 541.

Reduced to figures, we shall find that three-bedroom cottages will cost from 130*l.* to 150*l.* each; those with two bed-rooms from 90*l.* to 130*l.* each, and those with one bedroom only from 70*l.* to 100*l.* The mean return required to repay principal and interest in 30 years may be taken at 8*l.* a-year for the first, 6*l.* 12*s.* for the second, and 5*l.* for the last description of cottage.

Improvement of Cottages.—With respect to the improvement and alteration of old cottages to meet the requirements of the present day, much has been done and much more can be done.

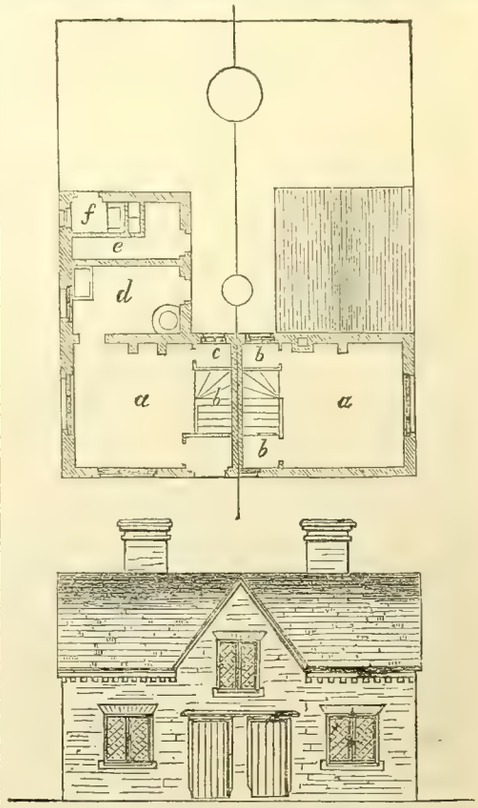
The best practical illustration of this fact is to be found at Broadlands, the estate of Lord Palmerston, where everything that can conduce to the comfort of the labouring poor has been studied with the greatest possible interest. Lord Palmerston has said, and proved, that "it is not necessary to pull down old cottages to build new ones. A great deal can be done, at a moderate cost, in improving the old ones." His lordship added, when he said this, "That the effect of improving these dwellings is almost marvellous. In the first place, the comfort of a man's house depends on the tidiness of a man's wife, and on the mode in which she tries to make him comfortable. But there is a temper of the human mind which is denominated recklessness. When a thing seems impossible, it is given up in despair. When a cottage is in such a 'ramshackle' state that it is impossible for the wife to keep it clean, she becomes a slattern; everything goes to ruin; the man is disgusted, and flies to the beershop."

At Broadlands, Lord Palmerston has personally superintended the enlargement and alteration of his old cottages, so as to render them free from those objections which are so repugnant to good feeling. Sufficient bedroom accommodation, good drainage, and ventilation have been his primary objects, while the poor man's comfort has been studied by the substitution of boarded for stone or brick floors, and by the provision of those little conveniences, such as cupboards and shelves, which we all know how to appreciate in our own houses. Several local societies have been established in different parts of England for the purpose of encouraging the improvement of existing cottages. It would be difficult to specify them, but in most cases the object has been to advance money to their poorer owners of cottages for the purpose of inducing them to build bed-rooms to existing tenements; and one society went so far as to offer a bonus or gift of 5*l.* to such owner as would add an additional bed-room.

The rules laid down by the Inclosure Commissioners for the advance of money to landowners for cottage building in no way extend to the conversion of or addition to existing cottages; and the facilities for getting money for the purpose of erecting new cottages are therefore one reason why so little attention is paid to the improvement of existing structures. This is to be regretted.

7. These remarks bring us to the third part of the subject—**the advantages of good cottages to the labourer, the tenant farmer, and the landowner, who, being mutually benefited, must severally contribute to the return due to the provision of good cottages.**

The advantages to the labourer by the acquisition of a good cottage are, nevertheless, considerable. He will have greater comfort and improved health; but although these benefits will render him physically better able to do his work, they do not enable him, in nine cases out of 10, to earn more wages, and thereby to pay more rent. If his cottage is placed on or near the field of his labour, he will gain more time in which to work in his garden and enjoy his home, and to this extent he is pecuniarily benefited. But, with this advantage, the utmost a labourer can pay in the way of rent is from one-sixth to one-seventh of his earnings; and assuming his wages to be, as in Hants or Dorset, 10*s.* per week, with double wages at harvest,



No. 3.—Duke of Bedford's Cottages.

Ground Floor.—*a*, living room. *b*, stairs. *c*, cupboard. *d*, scullery. *e*, wood and coal. *f*, privy. Chamber Floor.—*a*, bed-room. *b*, closets. These cottages are furnished with drying grounds, and have a rain-water tank and well in common.

it follows that 1*s.* 6*d.* per week represents the amount he can set aside for rent. In the Midland Counties, by the same rule, the proportion due to rent will be 1*s.* 9*d.*, and in the Northern Counties 2*s.* per week. There is an advantage however to the labourer in a comfortable cottage which he may not directly acknowledge or appreciate, and therefore for which he would be disinclined to pay. One of the certain effects of a comfortable home, with the cleanliness and tidiness which it begets in his wife and children, is to keep him from the public-house, and thereby to avoid the expenditure of his earnings in beer.

The advantages of well-built and well-placed cottages to the tenant-farmer, in securing labour at the time and at the place where it is wanted, can hardly be overrated. Well-placed cottages will not only secure the farmer a choice of his labourers, but will secure him that protection for his stock and property which the presence of selected men on the spot will be sure to gain. He will moreover save the time and strength of his labourers by securing that portion of both which would otherwise be expended in walking to and from the farm.

The advantage to a landowner of a good cottage tenantry is quite equal to, though not so manifestly direct in its results as, that to the labourer and the tenant-farmer.

The best cultivated districts, and those which owe their high rents to the superior treatment of the land, have arrived at their present condition from the superior character of the local labourers. The good habits which comfortable and cleanly homes beget, not only secure the superior cultivation and the improved rental which results from it, but they engender a respect for property generally, and are opposed to the evils of poaching and petty depredations which characterise certain demoralised districts. On these grounds the landowner can afford to debit himself with a part of the return due for good cottages. It is very much to his interest to recognise the fact in this light, for it will be a sorry day for him when cottages can be erected at such a price as will enable the labourer alone to satisfy the builder, and induce speculators to run up cottages wherever and whenever it may suit their purposes.

There is one way in which the landowner may contribute to the rent of a cottage in a tangible manner without a con-

tribution of money, which might be more generally adopted. It is by adding a rod of land to each cottage occupied by an able-bodied labourer, and charging him only an agricultural rent for it. The value of land of moderate fertility to a labourer for gardening is 9*d.* a pole, or 6*l.* an acre, if it immediately adjoins his cottage. The value of the same land for farming may be taken at 2*l.* an acre or 3*d.* a pole; if, therefore, the cottager pays but 3*d.*, and he is benefited to the extent of 9*d.* a pole, the difference of value will be 20*s.* a-year for the rod, which the landlord will thus practically contribute towards the cottagers' rent.

THE DWELLINGS OF THE LABOURING CLASSES.

IN accordance with a circular letter issued by the Council of the Society of Arts, a Conference on this subject was held on Thursday the 26th, and Friday the 27th May, commencing each day at half-past 11 o'clock. The Chair was occupied by William Hawes, Esq., Chairman of the Council.

A very influential meeting of noblemen and gentlemen assembled in accordance with the invitation of the Society. The following report of the proceedings of the first day is abridged from the full account of them given in the Society's Journal.

The discussion was taken under the following heads:—

1. On the insufficient number of habitations for the labouring classes in town and country.
2. On the badness of the existing accommodation.
3. On the effects arising from this state of things, viz.:—
   (*A*) Religious, moral, and social.
   (*B*) Sanitary.
   (*C*) Economic.
4. On the causes to which these evils may be, or have been attributed, such as—
   (*A*) The Law of Settlement.
   (*B*) The Poor Laws.
   (*C*) Tenure of property, such as mortmain, leasehold system, tenancy for life, &c.
   (*D*) Legal difficulties affecting the transfer of property.
   (*E*) Difficulty of providing proper dwellings at a cost which will be remunerative to capital in town and country.
5. Remedies:—
   (*A*) What can be done by legislation?
   (*B*) What can be done without legislation?
   (*C*) What assistance, if any, can the Society give in either of these directions?

The CHAIRMAN, in opening the proceedings, said there could be no doubt they would all agree in the importance of the subject to come before them for discussion, and in the vastness of the interests connected with it, and also in the opinion that it strictly belonged to this Society to use every means in its power not only to promote discussion, but, if possible, to suggest some plan by which the existing evils might be remedied. He referred to the difficulties in the way of any such plan; and as to the question if it was thought they could assist by an appeal to the legislature, he was directed by the Council to state that they would only be too happy to co-operate in promoting whatever the Conference might think best in that direction. If, however, it should be thought more good could be done without legislation, then the Journal of the Society would be open to communications and practical suggestions from those who would forward them to the secretary: and the rooms of the Society, and the services of its officers, would be at the disposal of those who desired to take active practical steps to forward the great object they had in view, viz., the improvement of the dwellings of the poor, by which their comforts might be increased, the value of their labour enhanced, and their families raised in their social position in the country. He now begged to invite observations on the first subject, viz.:—"On the insufficient number of habitations for the labouring classes in town and country."

Mr. GEORGE GODWIN said, his writings on the subject went to prove the truth of these two first propositions. But he had not been listened to. Houses described ten or twelve years ago as having in every room a separate family; houses of ten and twelve rooms, containing 40 or 50 people, remained in the same bad state. The children brought up in the dwellings he had described were educated downwards, and must necessarily grow up pests to society.

The Rev. THOS. PYNE said that, in many country districts, the state of things was as bad as in London and large towns. He did not believe the public generally were aware of the wretched character of the dwellings of the working classes.

Mr. MARSH, M.P., remarked that, while they must be unanimous on the two first propositions, and must all agree that the houses were as bad as they could be, it was worthy of notice that the dwellings were in many cases the same as they were years and almost centuries ago. It was therefore a consolation that they were met to deal with an evil which had not sprung up lately, but one which had existed from time immemorial.

Mr. W. H. BODKIN (Assistant Judge) said—As he was unable to remain till they came to the subject of the "remedies," he would direct the attention of those who had thought what remedies, legislative or otherwise, should be adopted, to the fact that much of this crowding of families in one room—so graphically described by Mr. Godwin, was to be attributed to the desire of the poor themselves to underlet the house which they occupied. He had seen houses which were well constructed, and where the rooms were adapted to the accommodation of a family with decency and comfort, but the disposition to get a portion of the rent repaid induced the occupiers to underlet the rooms to others, and caused the evils arising from crowding to which allusion had been made. He mentioned this because one of the most important points in considering the remedies would have reference to the mode of controlling this overcrowding.

The CHAIRMAN then read the following resolution, as embodying the opinion of the meeting on the two first propositions, viz.:—

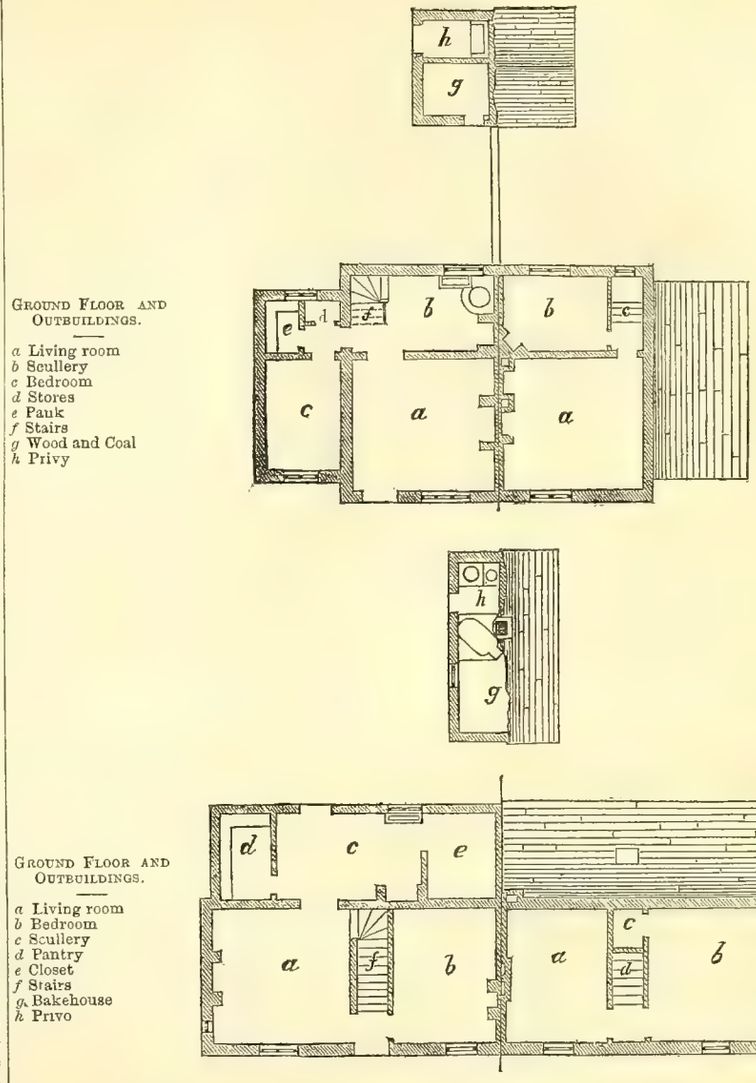
"That it is the unanimous opinion of this meeting that there is at present, in town and country, a very insufficient number of dwellings for the labouring classes, and that the accommodation is bad and unsuitable for the classes now occupying these dwellings."

The resolution having been unanimously agreed to, the CHAIRMAN called attention to the next subject under the first head, viz.:—"The effects arising from this state of things—religious, moral, and social, sanitary and economic." A large quantity of evidence on this subject was related.

Mr. S. REDGRAVE thought the deteriorated condition of the health of female domestic servants must have been remarked, the seeds of ill-health having been sown in early life, arising from the unhealthy habitations in which they were brought up during their youth.

Mr. C. WREN HOSKYNS said it was notorious that the want of sufficient cottages in the country often obliged the agricultural labouring population to walk several miles to their work. The walking alone was nearly equal to a day's march of a soldier, in addition to which the day's labour had to be performed, although, under such conditions, the labour must necessarily be of a very deteriorated character. The economic effect, as against the farmer, was to make wages higher where the labourers lived at a distance from their work, and to make the article of labour supplied inferior to what it would be under more favourable conditions.

The following resolution was adopted:—



GROUND FLOOR AND OUTBUILDINGS.

a Living room
b Scullery
c Bedroom
d Stores
e Pauk
f Stairs
g Wood and Coal
h Privy

CHAMBER FLOOR.

a Bedroom
b Bedroom

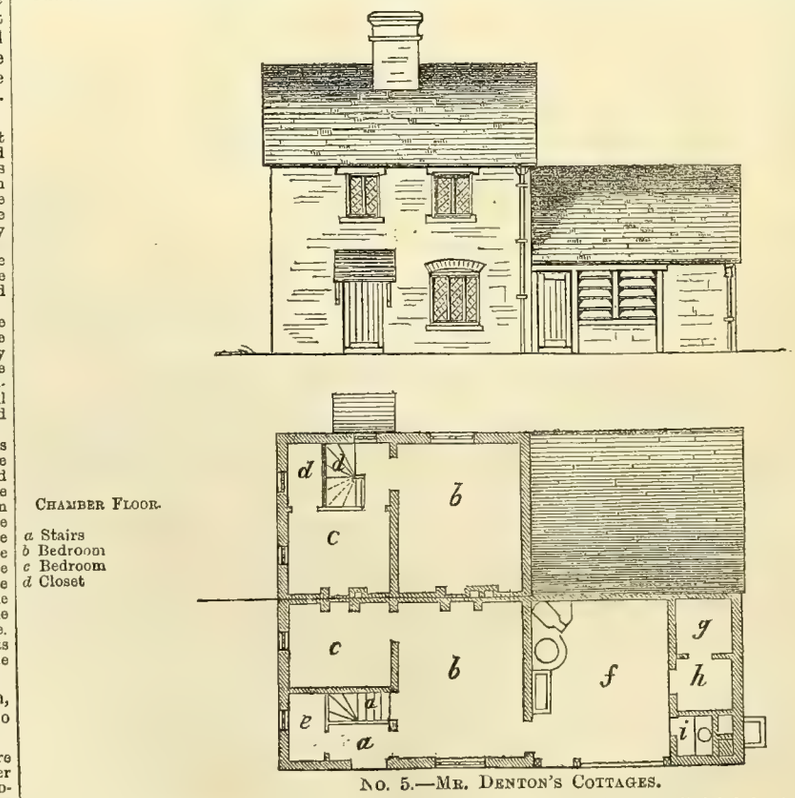
GROUND FLOOR AND OUTBUILDINGS.

a Living room
b Bedroom
c Scullery
d Pantry
e Closet
f Stairs
g Bakehouse
h Privo

CHAMBER FLOOR.

a Bedroom
b Bedroom
c Closet
d Stairs

No. 4.—SIR HENRY DASHWOOD'S COTTAGES.



CHAMBER FLOOR.

a Stairs
b Bedroom
c Bedroom
d Closet

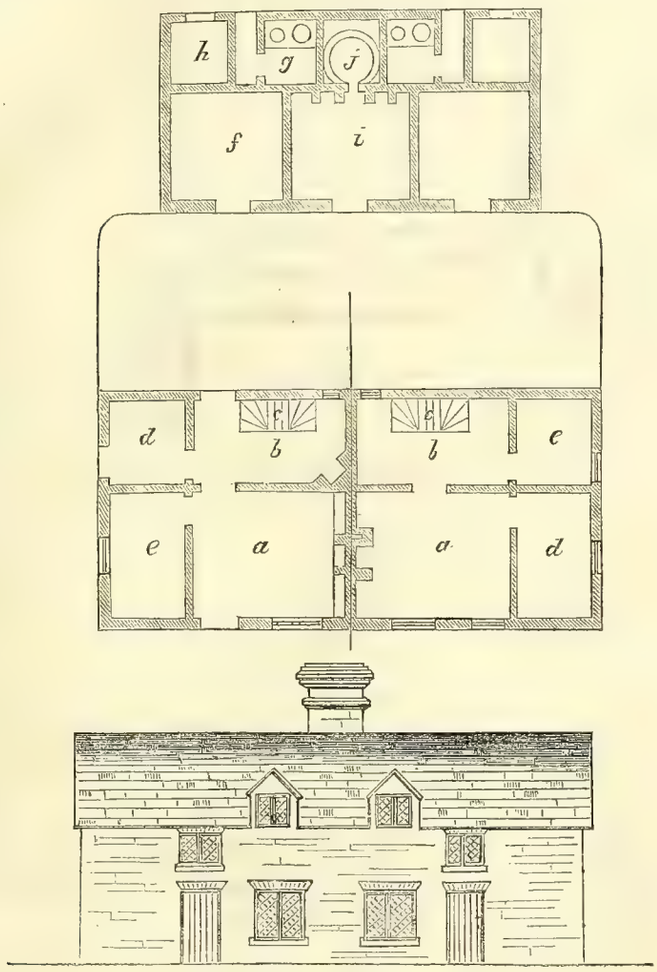
GROUND FLOOR.

a Porch
b Living room
c Bed-room
d Stairs
e Pantry
f Scullery
g Coals
h Wood
i Privy and Ashpit

No. 5.—MR. DENTON'S COTTAGES.

"That the evil effects arising from this state of things in a religious, moral, social, sanitary, and economic point of view, in the opinion of this meeting demand the immediate and serious attention of the country."

The CHAIRMAN said they now came to the consideration of a much more important point, viz.:—"The causes to which these evils may be or have been attributed: such as the law of settlement—the poor laws—tenure of property: such as mortmain—the leasehold system—tenancy for life, &c.; legal difficulties affecting the transfer of property; difficulty of providing proper



GROUND FLOOR AND OUT BUILDINGS.

a Living room
b Scullery
c Stairs
d Pantry
e Bedroom
f Wood shed
g Privy
h Pigsty
i Bake house
j Oven

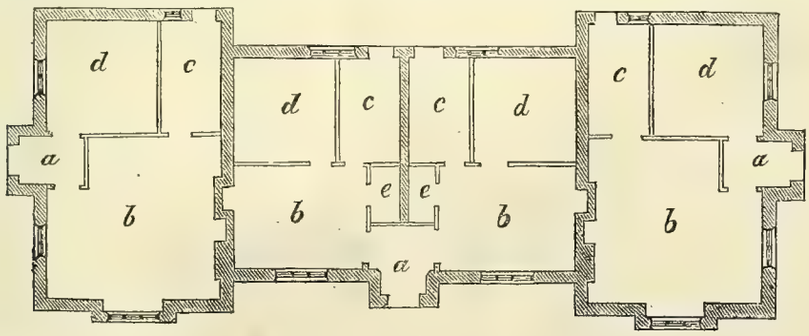
CHAMBER FLOOR

a 1st Bedroom
b Landing
c Stairs
d 2d Bedroom
e 3d Bedroom

No. 6.—MR. BENYON'S COTTAGES.

dwellings at a cost which will be remunerative to capital in town and country."

Lord BERNERS said—At one period of his life he held the opinion that a country gentleman did his duty if he saw that the parish in which he lived was put into a perfect state with regard to the cottages and their condition; but on further looking into the subject, he found that what were called "model parishes" were the worst that could be. That was





No. 7.—LADY KERRISON'S PLAN.

a, Porch. *b*, Living room. *c*, Scullery. *d*, Bedroom. *e*, Closet.

where builders ran up a few cottages, which were let at high rents to persons of questionable character, who had been driven out of the close parishes and congregated in a mass in the open parishes; and that was one of the reasons why he felt satisfied—after a good deal of consideration of the matter—that the abolition of the laws of settlement and removal would be a great boon to the working classes. He thought that a cottage occupied by a family should not have less than three sleeping rooms: but it was desirable that in country parishes there should be different classes of cottages, one of which should consist of ground floor only, for the occupation of aged people, and which could be let at a very low rent; another class at a little higher rent, and be adapted for young married people; but that, for the generality of cottages, there should be three sleeping rooms.

Mr. JOHN DILLON said—The operation of the Poor Law was vitally connected with the question, and was one of the causes they were now inquiring into. It was very properly urged that in the existing state of the law of settlement and removal it was not to the interest of the landed proprietors to build good cottages on their estates, and that they really injured their estates thereby. He believed that to be an effective cause of the stagnation of improvement in the houses of the labouring population: the spirit of the Poor Law was that a man should not be allowed to perish without assistance from his fellow-creatures; the consequence of this was, a fear was created that the certainty of assistance would lead the poor not to exert themselves to provide for their own maintenance; and to counteract that fear various measures had been resorted to, such as the scanty dietaries of the poorhouse; but he thought they might substitute an opposite influence to this, viz, the love of home. Make a workman's home comfortable and happy, and a source of domestic enjoyment, and the love of home would operate far more powerfully than the fear of the workhouse as an incentive to him to support himself. With the proprietor of a large estate, and a man of fortune, the motive was strong to make his dependants as happy and as contented as possible, but there was the latent fear present, that if he encouraged population around him he would have to pay for it in poor's rates, and would to that extent injure his estate by providing residences for his workpeople. This he regarded as one of the main causes of the present state of things, for, after all, those engaged in commercial life knew that self-interest would prevail; and if, by the alteration of the poor law, they could make it to the interest of the landowner to provide good cottages on his estate, and to promote the building of good houses in his neighbourhood, they would succeed in the end they sought better than by any other means that could be devised. He would, therefore, suggest a uniform rating for unions of parishes in the first instance, which might afterwards be extended to the whole country, from which he believed the most beneficial results would accrue.

Mr. KINIE could bear testimony to the fact that the town in which he lived was crowded with agricultural labourers, who had to walk several miles to their work on estates, where there were not more than two or three cottages. The result was, that while in the suburban parishes the poor's rates were not more than 1*s.* or 2*s.* in the pound, in the town to which the agricultural population was driven the rates were as high as 3*s.*, 4*s.*, and 4*s.* 6*d.* in the pound. He felt certain that, if the law of settlement were altered, the difficulty of getting landowners to provide cottages would be removed.

Rev. J. B. OWEN thought that, considering the vast number of dwellings of the industrious classes that had been removed in and about London for railway purposes, it should go forth as a suggestion from this Conference, that, upon the principle of compensation recognised in all other matters, railway companies were bound to provide cheap trains, at such hours, morning and night, as would enable the labouring classes of towns to occupy suburban dwellings, by means of which a vast amount of the evils arising from crowded habitations might be obviated.

Lord LYTTELTON, after remarking on the extreme multifariousness of the subject, said a very able article lately appeared in the *Saturday Review*, in which it was proposed to abolish the whole law of settlement and removal entirely, and replace it by one short Act of Parliament, which was very ingeniously sketched out. The principle on which it was based was undeniable, viz., that the support of the labourer ought to come out of the proceeds of his labour, and that he should, therefore, be relieved by the parish where he had laboured for a certain time. But the question was whether this would not lead to as much litigation as the present law. For the purpose of this Conference they might pass a resolution as to the undoubted effects of the law of settlement on the building of cottages. He should have no hesitation in supporting such a resolution, from a conviction that the utmost freedom of the circulation of labour would be beneficial to the labouring man.

Mr. FREDERIC GOLDSMID, while agreeing in the effects produced by the law of settlement, questioned whether a remedy would be found under a system of national rating. The true evil was the inadequacy of wages. In the manufacturing districts the wages were from 25*s.* to 30*s.* per week, while in Dorsetshire, Wiltshire, Kent, and other counties they did not exceed 10*s.* or 12*s.* per week. Under such circumstances they must see the utter impossibility of labourers paying sufficient rent to provide themselves with proper dwellings.

The CHAIRMAN then submitted the following resolution, as expressive of the opinion of the meeting on these points:—

"That in the opinion of this meeting the present lamentable state of the dwellings of the labouring classes is materially induced by the Law of Settlement and the limited area of Poor-Law rating."

The CHAIRMAN then invited discussion on the next two subjects, under the head of "Causes," viz.:—"Tenure of Property," and "Legal Difficulties affecting the Transfer of Property."

Mr THOMAS HARE said: On these points, they were now considering the effects of the want of a prime necessity—the means of repose, decent association, and where a family could be brought up with something like home feelings. Why was it that to the present day the progress of industry, and the vast wealth produced by labour, with the vast wages fund of the country—how was it that these could not be brought to bear to provide this article of prime necessity? It was mainly this, that the laws of transfer of property stood in the way of enabling the working classes to obtain this necessary requirement. The cottager had not only to pay the fair return upon capital, but was obliged to contribute to those of his own class who did not pay at all, or who actually injured the property. He had to pay for the repairs necessary on a change of tenancy, and in addition, he must pay for the collector who took the rents. There were also legal expenses and ejectments, besides legal expenses in the case of defaulting tenants. All these things were charged upon the poor tenant, and these he would escape, if, instead of being the tenant of another, he were his own tenant. Whence arose this difficulty? It consisted in the laws relating to the transfer of property. In the transfer of merely a suite of rooms in Lincoln's Inn 50*l.* was very easily expended. He thought they were in a position now with regard to property which enabled them to commence a better system. Under Lord Westbury's Act they could have an undefeasible title by registration. Suppose they took a plot of ground, they could obtain an indefeasible title from the Land Transfer Office, and they need not go back farther than that title. Upon such plot of land they could erect blocks of houses with numerous stories, each floor varying in rent as they went higher up, so as to suit all classes of occupants, and these floors might be conveyed each in a separate page of the register to different owners. It was found by experience that chambers erected in this manner would only cost 9*d.* per cubic foot. If they had 2000 cubic feet in two rooms, that at 9*d.* per foot would amount to 75*l.*, adding 25*l.* as the proportion for expenses of land, they had a total of 100*l.*, and for that 100*l.* the two rooms might be purchased by the working man by the process adopted by building societies, so as to be abundantly profitable to him. By the payment of 3*s.* per week he became the immediate possessor, and in 15 years he became the owner of those premises, in addition to paying 6 per cent. on the capital expended.

Lord LYTTELTON had no doubt the views of Mr. Hare on this

question were quite correct. The system propounded by Mr. Hare was applicable to dwellings for the poor, because only recently Parliament had passed a statute affecting the transfer of property on a larger scale. At the same time, the plan laid down was so simple and obvious in its nature, that it was by no means one of the most difficult parts of the subject to deal with. Mr. Murphy had said, if they had good people they would get good houses; on the contrary, it was a lamentable part of the subject, that people who would appreciate good houses could not get them without paying an exorbitant rent. Most landlords were desirous of doing what they could in the way of religious teaching, but he had been told by a clergyman that they might do all they could, but the single bedroom beat them. Birmingham might be mentioned as a town presenting a remarkable exception to the general crowding of the population. It was part of the habits of the people. The town was full of small, ugly houses, which would accommodate poor families, and not more than one family dwelt in a house. That was in itself an enormous advantage, and contributed to the better sanitary and moral state of that town.

The CHAIRMAN then read the following resolution, which was carried:—

"Resolved, that the tenure of property and the legal difficulties attending its transfer, and the obstacles they interpose in obtaining sites, impede the labouring classes from becoming possessors of suitable dwellings, buildings separately, or as portions of larger buildings."

The CHAIRMAN then invited remarks on the remaining proposition under this head, viz.:—The difficulty of providing proper dwellings at a cost which will be remunerative to capital in town and country."

Mr. WESTGARTH thought the principle of association which had been found to work so well in other directions, might be beneficially applied in the present case. No doubt the feeling of most Englishmen was to have an independent home, but if they could not effect that to the full extent they desired by the principle of association, they might greatly increase their home comforts. Mr. Westgarth proceeded to lay before the meeting a plan for large buildings, containing four or five floors, and capable of accommodating 200 or 300 persons with the most approved sanitary arrangements, which he said could be obtained by the moderate contributions of the many. In such buildings he proposed that there should be a large hall common to the inmates in general. He attached as much importance to the hall as to any point in the plan, as being a counterpoise to the public-house. Having also advocated a large kitchen in common, he added that Mr. Corbett, of Glasgow, had shown what could be done by the pence of the many in procuring the best articles of food at the cheapest rate. He thought, if those principles were adopted, the saving to a working man with a family would be one-third, and to the single man one-half of the present cost for the necessaries of life. He was much gratified to find that the results arrived at by Mr. Hare entirely corresponded with his own views, particularly with regard to that great want of the working man, viz., two good rooms to live in, of which he might possess himself at a cost of 100*l*. Those buildings, he said, might be carried out by joint-stock companies, and his calculations were that, after providing for repairs, insurance, and public rates, the property would give a return to the promoters of 6 or 7 per cent.

Mr. Alderman WATERLOW called attention to the accounts of the Society for Improving the Dwellings of the Labouring Classes, the dividend of which Society had varied from 1½ to 1¾ per cent., which gave an average of 4 per cent. If that Society, which started when the duty was on glass, and when there were many acts in the statute-book which interfered with building operations—if that Society had been able to pay a dividend of 4 per cent. from the time it commenced, in spite of all mistakes, any society of this kind starting now ought to pay an average dividend of 5 per cent. They had to thank the legislature for the facilities afforded to association by the passing of the Limited Liabilities Act, and under such facilities they should endeavour, each in his own district, to associate to provide for the particular wants of that district. In order to illustrate his meaning and give practical evidence of what might be done, he had been fortunate enough, within the last month, to start a society in his own district of Highgate. Less than a dozen gentlemen met, and at that meeting an association was formed, and a capital of over 3000*l*. subscribed. At the succeeding meeting the articles of association were agreed to, and at the next meeting they would be incorporated—all of which had been done at an expense of less than 25*l*., which was paid by voluntary contribution, leaving the capital entire for the object for which they were banded together. He should add, in both the companies he had assisted in forming, professional gentlemen had offered their gratuitous services to aid in promoting this object. Associations in various parts of London might be formed in this way at very little expense, and great advantage resulted from a local knowledge of each district, in the acquaintance with and the selection of sites suitable for the purpose in hand, and in that way he was persuaded a great deal might be done towards remedying the evils they were met to consider. There was one point he could not help alluding to, as tending to increase the difficulty of building houses for the working classes in towns—that was the tendency of the architects, in designing dwellings of this class, to make them of too ornamental a character.

Mr. HENRY MAYNARD remarked that he had indulged in cottage building as an amateur, and like others had found it expensive. He was pleased to hear the opinion of Alderman Waterlow, that 5 per cent. would be returned upon investments in dwellings for the poor. Although his own cottages had not brought him anything like that return, he was led from experience to believe, that by association and a due regard to the details of construction, dwellings of this class might be made to yield a fair return. He then alluded to the Cottage Improvement Society of Hastings, in which the capital invested amounted to 17,000*l*., the result of which showed, he believed, that an average of 5 per cent. was returned; and he was of opinion that an institution formed under the auspices of this Society, paying a dividend of 4 per cent. in half yearly instalments, would meet with abundant support. He thought, from what they had heard to-day, there was every encouragement to proceed in this work, for they had never found that any well-planned project for the improvement of the moral and social condition of the people of this country had been long without supporters.

Dr. GREENHILL referred at length to the history of the Hastings Society.

Mr. MORTIMER pointed out the prejudicial operation of the existing Building Act for the metropolis. He thought the remedies would be of a very limited character whilst that oppressive enactment remained in force.

Mr. GATLIFF mentioned, as the result of the experience of the Metropolitan Association, of which he was secretary, that the most unprofitable part of their operations had been the building of lodging houses for single men. This had been a considerable clog upon the profits of the association. They had expended about 15,000*l*. in those buildings, which did not return more than a half per cent, while the family dwellings gave a return on the average of 5 per cent. More recently-erected family dwellings had paid upwards of 6 per cent. With regard to the security of these investments, he added that during the last 20 years the association had received 90,000*l*. in rents, and the bad debts had not amounted to ½ per cent.

The CHAIRMAN then read the following resolution as representing the opinion of the meeting on this head of the subject:—

"That by proper attention to economy, by building to the extent only required by each district, and by the utmost care in avoiding unnecessary outlay in preliminary expenses, proper dwellings for the labouring classes can be provided which will realise in towns a fair dividend on the capital expended; and that although in rural districts, commonly speaking, the pecuniary return for capital invested in labourers' dwellings, considering the rate of their wages and their general circumstances, and the cost of repairs, can only be moderate, yet it may be regarded as satisfactory, when the consequent improvement of the character of the occupants, their comfort, their health, and the additional value of their labour are taken into account."

In submitting this resolution, the CHAIRMAN added: he had intended to offer some remarks on this part of the subject, as he confessed he did not agree with some of the views expressed in the course of the discussion, although he believed the resolution fairly represented the feelings of the meeting. He would, therefore, take the opportunity of saying a few words at the next meeting to relieve himself of any apparent inconsistency with respect to this resolution.

SOWS AND BREEDING ANIMALS.

"AGRICOLA" must bear in mind that the demand for "pork" is a limited one, but for "bacon," much more extensive. Young pigs, too, can always be sold, but will it not answer his purpose to let his young pigs grow into "porkers" or fat hogs? The latter are less exhaustive of the food, and leave richer manure than the former. Breeding sows, like cows, are much more hazardous than growing or fattening animals, and I know of very many heavy losses lately of cottager's sows, that have died some time after parturition from fever, &c. Breeding animals require a peculiar management, particularly a great variety of food, containing all the requisites for building up the animal frame, such as food containing bones, lean flesh, and fat; in fact, all the various components of the animal frame. How well Mr. Horsfall has illustrated and explained this in his papers on dairy management, Vols. 17 and 18, Royal Agricultural Society's Journal.

There is too commonly a fatal mistake made as to animals approaching parturition, and the remark holds good for sheep and cows as well as pigs, and no doubt applies to the human family. High feeding continued to the very time of parturition too frequently produces, after parturition, destructive fever. For the three or four weeks before, and a week or two after parturition, the food should be spare and of a cooling nature. This I have observed as the invariable practice of successful breeders. I was very much struck with a remark made to me by the home bailiff of a gentleman who has 150 splendid Alderney cows near Brighton. About 25 cows are allotted to each farm, and six weeks before each cow calves she is removed from the care of her usual attendant and brought home to be "starved," or rather to be fed on limited quantities of non-exciting food. "Sir," said this man to me, "we dare not trust the cows to their regular feeders. We can't make them starve them; they are so fond of seeing them well fed: we have found by experience that it won't do, in their condition, to trust them with their usual attendants." After parturition, for some time care must also be taken not to over feed. Some farmers administer salts or cooling and reducing medicine, where they do not starve.

A neighbour of mine had this spring some very well fed and healthy ewes, and continued feeding them high with corn, cake, and roots, both before and after parturition. He consequently lost many sheep and lambs, and has now found out his mistake. Observation and experience have taught me that Grass, however abundant and good, is by no means so "forcing" or nutritive as dry food, such as corn, cake, or malt combs. I placed a young ewe, having two lambs, in a 5-acre pasture, where she had an unlimited supply of Grass. I soon found that neither she nor her lambs progressed so rapidly as those I fed on cake, corn, malt combs, and bran, although the latter were limited as to their supply of Grass. Some time after lambing, when the excitement of parturition has passed away, the mother's food can hardly be too rich and plentiful, provided it contains all the elements required for the growth and development of its progeny.

To return to sows: I have observed that those having the range of a small pasture, or some green lanes, generally do well. Beware, however, of exposing thinly clad animals to atmospheric vicissitudes; a place for warmth or shelter, if provided, will soon be availed of when the necessity for it arises. Animals, like ourselves, soon feel atmospheric changes, and will find out suitable shelter if we provide it; but I almost fancy that some farmers do not give their animals credit for so much sensibility, or we should not see them shivering at a gateway, and in vain imploring their owners to give them shelter. Thick-hided and well-haired mountain animals, which have survived their companions, as well as their own climatic trials, can "stand" our southern open fields, and can "stand" the tormenting summer flies, better than our well-bred Short-horns or hairless pigs. The losses, however, caused to well bred stock by atmospheric exposure by want of shelter or by neglect, is sometimes awful. A sudden north-easter after a warm morning gives chills and "a cold" which soon ripens into pleuro-pneumonia—in plain English, the blood is thrown upon or congested in the lung, producing irritation, inflammation and destruction. Immediate attention or a Turkish bath may afford relief, but whenever an animal has a cold or cough, away with it at once to a shed far distant from the homestead, and even then slaughter it before you get to the infectious stage. A visitor told us the other day that a friend of his who had a splendid herd of 100 cows lost 60 of them, all from one cow "catching cold," and then getting lung complaints. "Heaves" in pigs is much the same complaint, and dangerously infectious. I never had "heaves" among my pigs, except in one or two instances where, being in an unpaved shed, they rooted a hollow in the floor, in which they half buried themselves. Rising up from these holes, cold struck the heated side, and away went the lungs. Allow your pigs to bury themselves in hot dung in cold weather, and they are almost sure to get the "heaves." Again, allow your pigs to huddle together on soft Barley straw in a confined hovel, badly ventilated, and they will get from the putrescent air fever or disease. Good reedy Wheat straw, or a wooden floor with slits or openings, and air circulating under it, will prevent all this. On our exposed and elevated farm, called familiarly in Essex "cold Tiptree Heath," we must not take liberties with our stock. An easterly or north-easter is a too costly affair to indulge in. I have noticed that among the 98 candidates for admission to our Royal Agricultural Benevolent Institution, one of the prominent causes of distress is "Losses by stock." By the by, I hope we shall have a successful anniversary dinner at the London Tavern on the 1st June, under the able presidency of Lord Stanley; and although it is too late for the dinner this year, I shall be very happy to put on my list for next year the names of those kind agriculturists who may desire to patronise my pet child. Turning to sheep, it is a great mistake to suppose that they are insensible to cold. Give them the chance, and they will soon select a warm shed in cold weather, even with their long wool on. In summer they will choose shade. It is a great mistake (very often made) not to give sheep access to water. My sheep, eating succulent Italian Rye-grass, and in addition cake, &c., drink a great deal of water, according to temperature, &c.; even in high Clover I give them the option of drinking. Pure water is a great boon to all stock. *J. J. Mechi, May* 30, 1864. P.S. Bear in mind that pigs in summer attract flies, which feed upon them and with them. They are therefore undesirable near to your residence, filling it with flies. *J. J. M.*

THE CATTLE IMPORTATION AND DISEASES BILLS.

THE House of Commons Committee met again on Tuesday. Since the last sitting Mr. Bruce had retired, and Mr. Thos. Baring, the Under-Secretary of State for the Home Department, who has been appointed in his place, occupied the chair on the occasion.

Mr. BIRCH, medical officer of the Fulham district, represented the views of the Association of Officers of Health of the Metropolitan district, with respect to the two Bills. Their views as embodied in a report were to the effect that there was a serious amount of disease amongst the cows in metropolitan dairies, and that the diseased animals were slaughtered for human food. A large number of diseased animals was daily imported to London and exposed for sale, and the diseases from which they were suffering were often of a dangerous character. The Association had reason to believe that much of the disease produced in human beings was due to the consumption of the flesh of such animals. They were of opinion that the evil might be checked by a more complete and systematic mode of inspection, especially at the time the animals were slaughtered. The principal diseases by which the cattle were attacked, were the foot and mouth disease, pleuro-pneumonia, parasitic and tubercular diseases. The Association regarded the provisions of the Cattle Diseases Prevention Bill as a very great improvement, inasmuch as they would subject to a more complete and careful inspection all animals sent to fairs and markets. The medical officer of health had full power to inspect meat, and the power was exercised as far as possible, but there were still great defects in the present law. Inspection of cattle at markets and fairs as proposed by the Bill would prevent diseased animals being sent to market, and would to a great extent check the sale of diseased meat. But there were a number of diseased cattle which did not pass through any market whatever, and in order to meet their case, he would suggest that the officers of health should have the same powers as the market inspectors. Marked instances had come under his notice of persons suffering from diseases caused by using unsound meat. The slaughtering of cattle in London should be limited to certain places, so that the medical officers might have an opportunity of making frequent inspections of them.

In answer to Lord Naas, he stated that in his opinion the killing of sound animals should be confined to licensed slaughter houses, and that diseased animals should be sent to "knackeries." The effect of diseased meat on the human form could be distinctly traced, but might be difficult of proof with scientific exactness.

To Mr. Caird: He did not think that pleuro-pneumonia and the foot and mouth disease had increased during the last few years amongst cows in London dairies, and this was owing to the inspection of cow-houses and the better precautions taken by cow-keepers. The health of the Fulham district had materially improved in the last few years, but that was due to the operation of improved sanatory regulations.

To other members of the Committee: A large portion of the cattle which was brought into London in a diseased condition contracted the disease in the transit from farms, and in those cases, even though the disease had been so recently contracted, the consumption of the meat would be injurious, while the evil might be difficult of detection. He could not say positively that a case had occurred of death from eating unsound meat, but there had been of late a large increase of carbuncle, which he attributed to that cause. A great many of what were called first-class butchers in London sold diseased meat. In all stages of pleuro-pneumonia the meat was injurious to health. The pigs in his district were fed upon all kinds of offal and putrid matter, and a great deal of mortality took place in the piggeries in consequence.

Dr. LINTON, Physician and Professor of Physiology at St. Thomas's Hospital, deposed that the diseases in animals seriously affected the nutritive qualities of the meat. There was no doubt evidence of diseases in the human subject from the consumption of the flesh of animals which had suffered from pleuro-pneumonia and foot and mouth disease. Animals affected by parasitic diseases would communicate those diseases to those who used the meat, and tape-worm and measles were imparted in that way. These diseases were chiefly taken in consequence of eating raw or partially cooked meat, and in meat well cooked the danger was to a great extent destroyed, especially in the early stages of the disease. Tape-worm had not, in his opinion, increased in the metropolis.

Dr. LETHEBY, Medical Officer of Health to the City of London, stated that he had had great opportunities of noticing the quality of meat sold in London, and of becoming acquainted with the nature of the diseases of cattle. The Commissioners of Sewers had upon his advice appointed inspectors to seize all animals suffering from parasitic disease, acute inflammatory disease, pleuro-pneumonia in all its stages, small pox, all animals that had taken physic, and all flesh that was in a state of putrescence. In the last three years 600,000 lbs. of meat had been seized in London, being at the rate of 1 ton per week, and of this 354,000 lbs. were of animals diseased, 152,000 lbs. animals which had died either from accident or disease, and the remainder consisted of flesh in a putrescent state. The two principal means of preventing disease were the disinfection of those things, particularly railway trucks, with which the cattle were brought into contact, and the separation of diseased from sound cattle. Convictions now frequently failed in consequence of the vagueness of the law as to what constituted the exposure of meat for sale. At the request of the Coroner he had examined the case of a man who died at Kingsland in 1860, and he found that the man had been eating sausages, and that 64 persons had been made ill through eating sausages purchased of the same person. The sausages were made from a cow that had suffered from pleuro-pneumonia, and to the consumption of that meat the calamity was traceable. Proper inspection would have the effect of deterring people from sending diseased meat to market, and animals would have a chance of being cured.

In answer to Mr. Caird, Dr. Letheby stated that he would recommend chloride of lime, which was inexpensive, as a disinfectant for railway trucks. He would have all diseased meat sent to the public market or slaughter house seized and condemned, and further than that, would make the person sending it responsible.

The Committee then adjourned.

Home Correspondence.

Disbelief of Tile Clay-draining.—I should have thought that after seeing the drains in my stiff plastic clays discharging water after rains during 20 years, we should hear no more the old cry of "drains are of no use in that strong loam," but I find that I am mistaken. Very recently a vestry meeting was held to increase the rating of a farm in my neighbourhood, which had been drained (with company money), and the homestead fitted with barn machinery, mill stones, &c., worked by a fixed steam engine. The vestry meeting, consisting of nine farmers, presided over by a large farmer, who is also an extensive land valuer, increased the rateable value 5*s.* an acre for the machinery and spring draining, but pooh-poohed the stiff clay drainage as being of no use on such soil, and, therefore, although it cost 5*l.* per acre, it escaped rating, very much to the surprise and not a little to the satisfaction of my friend who had executed it, and who was present, and who said to me afterwards, with a significant shrug of the shoulders—"What would the Scotch farmers have said to this had they been present?" I need hardly say that this extraordinary disbelief is an expensive luxury, costing our county of Essex annually a very considerable sum. I must exempt from this charge some whom I know have within the last six years given up their old prejudice, and now find the benefit of their change of opinion. *J. J. Mechi, June*, 1864.

Farm Capital.—Will Mr. Mechi be kind enough to answer the following questions which have suggested themselves to my mind, from a consideration of some articles from the pen of that gentleman, which appeared a short time ago in your valuable paper, recommending farmers to reduce the size of their holdings and to increase their outlay in artificial manures and feeding materials. Take a farm, say 150 acres of land, an average farm situated in any part of the country with which Mr. Mechi is best acquainted. How much of this farm would be grass and how much arable? What would be the rent and what the rates? How many horses would be required to cultivate it upon the four-course system? What stock would the tenant keep? What would be his average corn crops, and what would be his expenses for one year? And what his receipts, including all his sales? Supposing he wished to follow Mr. Mechi's advice, would he cultivate his farm on the same system, or would he adopt a different plan of cropping it, and would he require more or less, or the same number of horses? What amount of cake, corn, &c., would he buy? What amount of farmyard manure would he make, and what amount of artificial manure would he buy? What stock would he keep? What would be his average corn crops? What his total expenses—what his total receipts, and what his profits? I take the liberty of asking these questions, because I am at a loss to know how and where a farmer makes his profit; that he does make a profit, and a tolerably good one, seems clear to me, from the fact that whenever a farm is to be let it is almost always secure to command an advance of rent. *C. F. P.*

The Patent Nitro-Phosphate or Blood Manure Company (Limited).—May I beg the insertion of this letter to say that the fire that occurred at the Company's Works was confined to the vitriol works, part of which only were destroyed. The buildings in which the manures are manufactured remain uninjured, and are in full operation, and no interruption to the Company's business will take place. *C. T. Macadam, Secretary*, 109, *Fenchurch Street, May* 26.

Cattle Melon.—A correspondent inquires where the Cattle Melon seed can be had. I procured some from a seedsman of Southampton, 97 per cent. of which failed, although I took the precaution and care of placing each seed in a pot in a conservatory. Like Peter Pindar's razors, which were made for sale and not to shave, so seeds are often prepared for the like purpose, the seller forgetting to ticket them, "not warranted to grow." *Henry Dixon, Dorward's Hall, Witham, May* 24.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, June* 1, 1864.—Present, Lord Feversham, President, in the chair; the Earl Cathcart, Earl of Powis, Lord Berners, Lord Chesham, Lord Leigh, Lord Tredegar, Hon. H. G. Liddell, M.P.; Hon. A. H. Vernon, Sir J. V. Johnstone, Bart, M.P.; Sir William Miles, Bart., M.P.; Sir M. White Ridley, Bart., M.P.; Sir Watkin W. Wynn, Bart, M.P.; Mr. Amos, Mr. Arkwright, Mr. Raymond Barker, Mr. Barnett, Mr. Bowly, Mr. Bramston, M.P.; Mr. Buller, M.P.; Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Hamond, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Hudson, Mr. Humberston, M.P.; Mr. Hutton, Colonel Kingscote, M.P.; Mr. Laurence, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. Shuttleworth, Mr. Robert Smith, Mr. Thompson, M.P.; Mr. Torr, Mr. Wallis, Mr. Western, Professor Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

125 New Members were elected.

FINANCE.—Mr. Barnett reported that the Secretary's receipts during the past month had been examined by the Committee and by the Society's Accountant, and were found correct. The balance in the hands of the bankers on the 31st May was 2601*l.* 1*s.* 2*d.*

JOURNAL.—Mr. Thompson, M.P., Chairman, reported that the Judges of Essays had in Class I. awarded the prize of 50*l.* to the paper written by Mr. Henry Evershed, Park Hall, Gosfield, Halstead.

No. 422 is Highly Commended and No. 421 Commended.

In Class II. the prize of 25*l.*, offered by Sir C. Domvile, for the best paper on "Suburban Farms" is awarded to the Essay bearing the motto. "Urbis amatorem Fuscum solvere jubemus."

In Class VII. the prize is awarded to Mr. George Jones.

DISCUSSIONS.—Wednesday, June 8, at 12: Professor Simonds on Rot in Sheep. Wednesday, June 22, at 12: On the System of Farming best adapted to meet the increasing Demand for Live Stock.

AGRICULTURAL IMPLEMENTS.—Colonel Challoner, Chairman, reported that the Committee recommended to the Council that a circular containing the following resolution be sent to each intending exhibitor of ploughs at Newcastle, and that the standard of excellence in ploughs should be thus defined:—"That the plough should cut the sole of the furrow perfectly flat, and leave the land side clean and true; should lay the furrow slices with uniformity, with perpendicular cut of the land side, leaving a roomy horse walk; that it should have an efficient skim-coulter, be light in draught, simple, strong, and economical in construction." Whilst stating for the information of exhibitors the most approved standard of excellence in ploughing, it will still be open to the Judges to award a portion of the money to trials of ploughs intended to cut furrow-slices of different forms or to lay them in various positions. This report was adopted.

CHEMICAL.—Mr. Dent, M.P., reported that Professor Voelcker was continuing his manurial experiments on Clover and Grass seeds, and upon soils of different descriptions. A new and cheap source of potash has lately been discovered in Germany; the crude material contains about 20 per cent. of sulphate of potash, and could be supplied at a very low price. A sample of Angamas guano was shown to the Committee, containing from 25 to 28 per cent. of ammonia, average Peruvian guano containing 16 to 17 per cent. The analysis of a material introduced by M. Bizant for converting straw into nutritious food under the term Tanned Straw, was placed before the Committee by Professor Voelcker. It contained the following ingredients:—

Moisture	14.25
Oil	8.68
Albuminous compounds	15.51
Gum, mucilage, &c.	43.20
Woolly fibre	11.32
Mineral matter	7.00
	100.00

The price of this tanning material was rather above 1*s.* per lb.

GENERAL NEWCASTLE COMMITTEE.—The Earl of Powis reported the recommendation of the Committee, that in addition to the usual force of Metropolitan police, four additional constables be applied for to act as a night watch in the showyard; that two grooms be allowed to the Stewards of Stock in lieu of an Assistant-Steward; that there should be placards on the ends of the sheds, painted on tarpauling, instead of those hitherto used, which were of paper.

Mr. Fisher Hobbs having informed the Council that a number of agriculturists from the various "Concours" in France would probably attend the meeting at Newcastle, moved that tickets for distinguished foreigners be issued under the direction of the President, as at the Battersea meeting, which was seconded by the Earl of Powis, and carried.

On the motion of Colonel Challoner, seconded by Lord Chesham, Mr. W. Burgess (firm of Burgess & Key), 95, Newgate Street, E.C., was elected a member of Council, in the room of Major-General the Hon. A. N. Hood, elected a Vice-President. A committee consisting of the Earl of Powis, Lord Chesham, Lord Portman, the Hon. H. G. Liddell, M.P., Sir William Miles, Bart., M.P., Mr. Barnett, Mr. Dent, M.P., Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Humberston, M.P., Mr. Milward, Mr. Pain, Mr. Randell, and Mr. Torr were appointed to recommend the names of Judges of Live Stock to a special Council, which would assemble on the 15th inst.

GLOUCESTERSHIRE AGRICULTURAL.—The third year this Society has become migratory it has chosen the queen of watering places, Cheltenham, as the place to hold its meeting this year, and the show is fixed for the 22d and 23d of June.

The Cheltenham people having given every encouragement to ensure its success, the committee have increased the prizes offered to a considerable extent; and this, together with the facts that a grand horticultural show is to be held at the same time, and adjoining the cattle yard, and a large dog show in close proximity, leaves little doubt that this meeting will be the most successful the Society has ever had.

The entries are, we hear, well filled. Lord Ellenborough, of Southam, whose estate lies near, has consented to be the chairman.

THE INTERNATIONAL DOG SHOW.—There has during the past week been exhibited at the Agricultural Hall, Islington, one of the most perfectly illustrative collections of the various breeds of Dogs that has ever hitherto been seen. And, well arranged, with ample space for easy access in this noble hall, the exhibition has been enjoyed by many thousands of spectators. The various classes of Sporting dogs have been arranged on the ground floor, and the very numerous classes and various breeds of Toy dogs have been exhibited in the galleries.

The former division has included large and excellent classes of Pointers, a good show of Setters, especially of the class of Irish Setters, a fair show of Greyhounds, a capital class of Retrievers, a noble collection of Bloodhounds, some excellent specimens of Deerhounds and of Mastiffs, a very uneven and untrue class of Mount St. Bernards, and a very imperfect though tolerably numerous class of Foreign hounds. The other hounds have been in great force; there was a fine collection of Clumber Spaniels, and there were a few entries from packs of Foxhounds and Harriers. The Newfoundland dogs were a fair class. The Prince of Wales's comparatively small black dog in this class (presented to him in the island) corrects the idea prevalent of the Newfoundland as a great black and white dog.

The whole collection has exceeded above 1000 entries. H.R.H. the Prince of Wales has been among the exhibitors, prize-takers, and spectators. The imperfect Foreign classes by which the International character of the Show is claimed, require for the future to be fostered by greater liberality in the Prize Lists.

Calendar of Operations.

JUNE.

GLOUCESTERSHIRE.—Except the occasional thunder storms which fell during last week the weather has continued uninterruptedly dry. The effect of this lengthened time of dry weather is that all field operations are particularly forward. Nearly all the spring planted Barley, Oats, and Beans are growing fast, and appear very promising, though we fancy we can observe in some places indications of a check in its growth for the lack of moisture. The Wheat plant cannot as a whole be spoken so favourably of, for whilst a good deal has sustained no injury, or has partially recovered the effects of the severe weather earlier in the spring, there is a large quantity, more especially upon the exposed parts of the Cotswolds, looking very thin and weakly; indeed so much is this the case that many fields have been ploughed up and planted with other crops, and complaints are made that even now some fields are losing stock. Owing to the dry weather last year at the time the artificial Grasses were planted, very little of the plant germinated, and the unusual dryness of the present spring has prevented the little left progressing, so that the chance of a heavy crop of seed hay is entirely hopeless. We never remember to have seen so great a failure as the seed crop now exhibits. Grass is more promising, yet not likely without an immediate fall of rain to be anything approaching to an average crop. The preparation of the land for the root crop is in a very forward state. Mangel Wurzel planted early is up and looking well. Though a good deal is yet in the ground, and will have to wait for rain before it can germinate, Swede planting is progressing. The successful exhibitor of Barley for the Messrs. Blizard's 25 guinea cup, is Mr. Henry Hone, of Stoke Orchard, near Cheltenham, who won the prize with an exceedingly fine sample. Notwithstanding a shortness of keep, live stock generally appear to be doing well. As an exceptional case, and as a caution to those who may have land growing "meadow saffron," we mention an unfortunate fact of a farmer near Stroud, who lost this week six yearling beasts, and others not expected to recover, from eating this poisonous plant. Seldom have the fruit trees presented so gorgeous an appearance as they have this season by their exeessive inflorescence. Grain of all sorts is selling very low, Wheat being nearly unsaleable. Live stock seems scarce, and sells well, but should the present dry weather continue we may expect the shortness of food will affect prices adversely. *J. M. R.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	May 27	30.07	60	54	N.	2	3	58	34	70	29	..
Saturday ..	28	30 04	57	53	N.	0	6	62	46	79	41	..
Sunday ..	29	29.85	57	53	N.W.	2	10	61	44	80	38	..
Monday ..	30	29.98	54	50	S.W.	1	9	58	36	70	29	..
Tuesday ..	31	29.74	55	52	S.W.	1	10	58	43	74	37	..
Wednesday	June 1	29.79	54	51	S.W.	0	8	55	43	67	43	0.31
Thursday ..	2	29.75	58	54	N.E.	1	8	60	42	80	33	..

Notices to Correspondents.

BLACKER ON SMALL FARMS: *T F.* It was published in 1837 by W. Curry, jun., Sackville Street, Dublin.

CATTLE MELON: *A Joint Subscriber.* Many of the seeds sent are dead. You will see that another correspondent joins with you in your complaint.

PIG FEEDING: *Amicus* advises "Agricola," before risking his fortune in the way he is thinking of, to get up the very serious subject of Pig disease and death. Who, for example, would wish to be a Pig Farmer in Germany, just now? Whatever this gentleman does, he had better feel his way first. If one has to lose, it is so much better to lose 1000*l.* than 5000*l.* Better to burn one's fingers than to be utterly consumed.

WELSH EWES: *A Regular Reader* says—Can any of your correspondents oblige me by informing me of the smallest proportion which he has ever known of lambs born to a flock of ewes on a mountain farm (say in North Wales), after such a winter, for example, as the last. Thus, what is the lowest number that would be expected to be born and to be reared out of a flock of 200 ewes?

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

THE HYDROPULT

is invaluable for use in

the

GARDEN

for

WATERING BEDS,

SPRINKLING

PLANTS,

DROWNING OUT

INSECTS,

CLEANSING TREES

FROM SMUTS,

DRESSING

with

LIQUID MANURE,

ETC. ETC.



THE HYDROPULT

is desirable in every

HOUSEHOLD

for

WASHING

WINDOWS,

WETTING

SIDEWALKS,

SPRINKLING

STREETS,

WASHING

CARRIAGES,

EMPTYING

CISTERNS,

FILLING BARRELS,

A SPRAY BATH,

ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,

32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.

Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen, whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

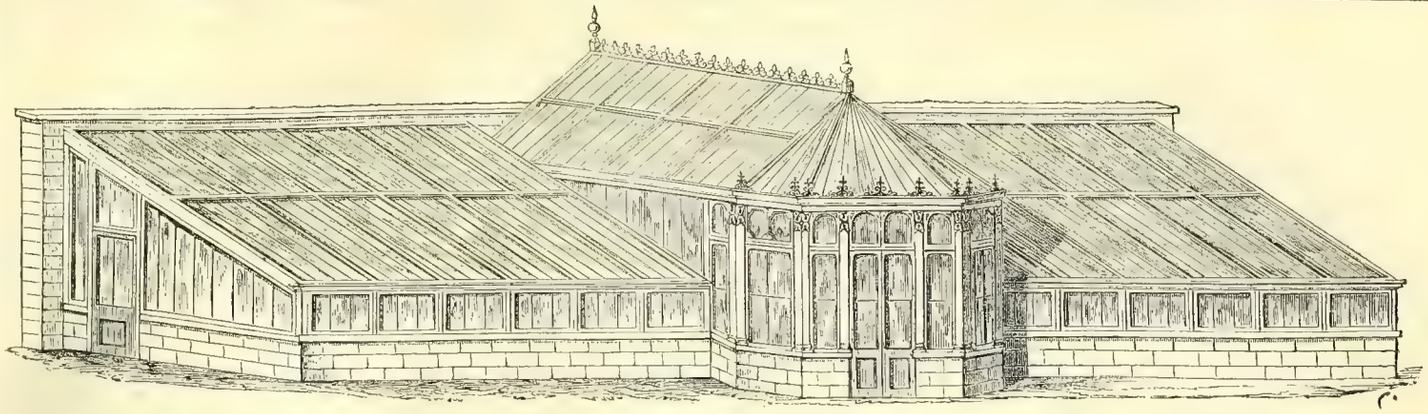
Price 30s.,

Complete with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede SYRINGES and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE

HYDROPULT SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.
WAREHOUSE and OFFICES, 27, LEADENHALL STREET, LONDON, E.C.
CHARLES POMEROY BUTTON, PROPRIETOR.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

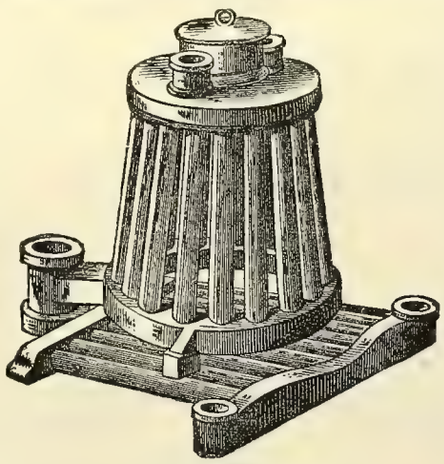
The **HEATING DEPARTMENT** always engages his special personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition.





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the International Exhibition.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the only Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which no Awards were given.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

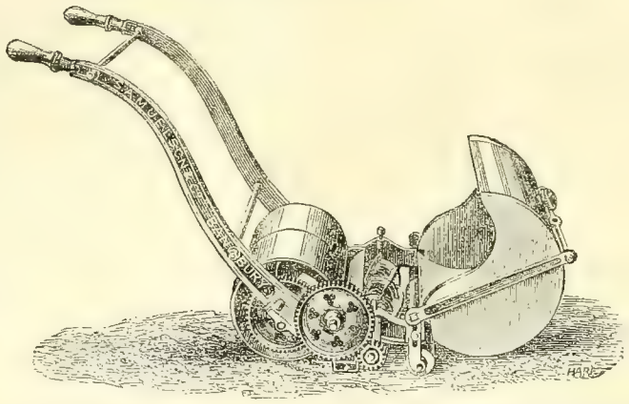
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 12 0
To Cut 16 inches, suitable for One Boy	6 10 0
To Cut 19 inches, suitable for One Man and Boy	7 0 0
To Cut 22 inches, suitable for Two Men ..	8 0 0
To Cut 25 inches, suitable for Two Men ..	11 10 0

PRICES OF PONY POWER MACHINES.

To Cut 22 inches	£8 15 0
To Cut 25 inches	11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

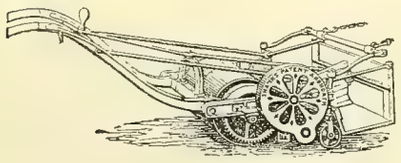
In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.,
AND OF ALL SEEDSMEN AND IRONMONGERS.

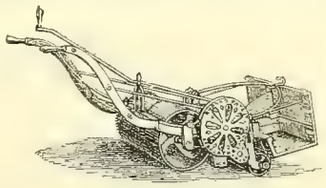
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

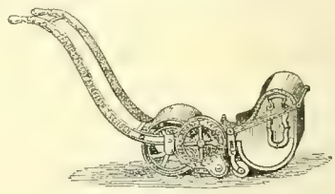
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

PATRONIZED ON THREE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN,

AND BY

HIS MAJESTY THE KING OF SAXONY.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

for Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Aparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.
J. TYLOR & SONS'
GALVANIZED IRON TUB
GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6

24 gal.	30 gal.
£5 0 0	£5 12 0



Fig. 571.
J. TYLOR & SONS'
OAK TUB
GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0

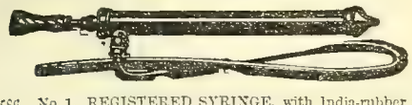


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each.
,, 589. Middle Ditto ditto .. .. .. 9 6 ,,
,, 588. Small Ditto ditto .. .. .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 ,,



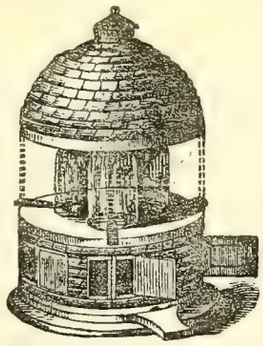
Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16s. 6d.
,, 592. READ'S SYRINGE, with one rose and jet 14 0
,, Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21s.; with window, 25s. Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.

Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.

Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square, Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: EDMONDSON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to Messrs. AMES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

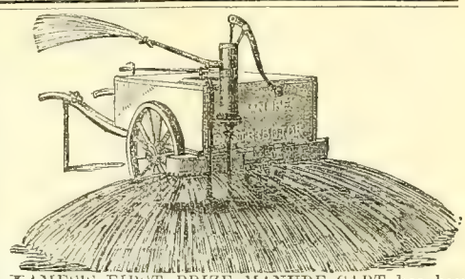
PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant,

"G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Brosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Cuibola pe trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.



JAMES'S FIRST PRIZE MANURE CART has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

Washing.

The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. JAMES, Tivoli Works, Cheltenham.

EXCHANGE, or TO BE LET, for Three or Four Months, from July, a LONDON HOUSE, near Hyde Park, on the North Side, containing 10 Bed-rooms and three Sitting-rooms.

REQUIRED, a HOUSE in the Country with equal accommodation or larger, Garden, Coach-house, &c., and near a Railway Station.

Address C. E. S., Calder & Co., Booksellers, Bathurst Street, Hyde Park, W.

TO BE DISPOSED OF, an OLD ESTABLISHED SEED and NURSERY TRADE, with an extensive connection in a good and increasing Market Town, on a line of Railway in the Eastern Counties. The Nursery, with Greenhouses and Pits, stocked with the Choicest Fruit Trees, Ornamental Trees, Greenhouse and Bedding Plants, &c., offers an advantageous opportunity to any practical industrious person, with a small capital, and will be disposed of either separately or with the Seed Business.

N.B. An advantageous opening for doing a good Corn Trade, in connection with the Seed Trade.

Apply to Messrs. HURST & SON, 6, Leadenhall Street, London, E.C.

To Market Gardeners and Others.

BRIGHTON, LESS THAN TWO MILES FROM THE SEA.

TO BE LET, on an improved Lease, a GARDEN and DWELLING HOUSE, with Offices and Outbuildings. The Garden, beautifully situated in the South Downs, about 12 Acres, including two Meadows, prepared for the purposes of a Market Gardener, in a high state of cultivation, furnished with Fruit Trees in bearing, Greenhouse, Hothouse, Forcing Pits, &c.; the House a pleasant, genteel, and commodious Residence. The whole suited for a retiring Market Gardener wishing to reside near the Sea, and to find partial employment of a profitable and agreeable kind. Brighton Market, Tuesday and Saturday.

Apply by letter to Mr. W. H. BACON, 3, Trafalgar Place, Clapham Rise, S., who will attend to any appointment at home or in town, and afford all further information.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating apdliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

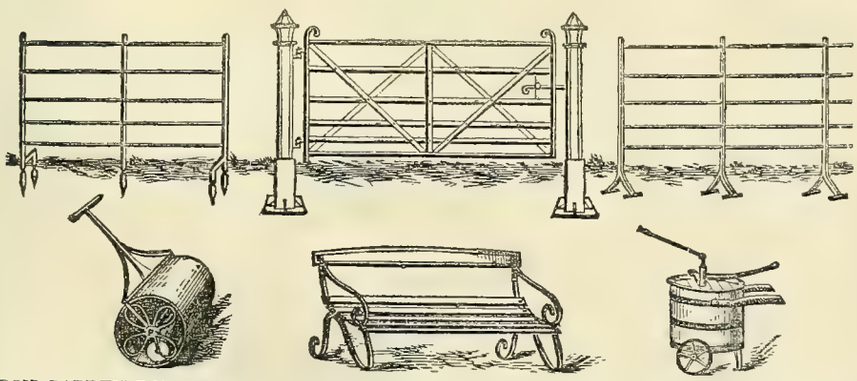
COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,

IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.

VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.

The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to

COTTAM AND CO., ENGINEERS and IRON FOUNDERS,

2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

Sales by Auction.

SALE THIS DAY AT HALF-PAST 12 PRECISELY.

Bedding Plants, Pinks, Carnations, Ferns, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, June 4, at half-past 12 o'Clock precisely, a splendid assortment of GERANIUMS, AGERATUMS, LOBELIAS, ALYSSUMS, PHLOXES, CARNATIONS, PICOTEES, PINKS, DAHLIAS, FUCHSIAS, IRIS, SEEDS, &c.

On view the Morning of Sale, and Catalogues had.

5000 Splendid Sound Bulbs, probably Lilium auratum?

JUST ARRIVED IN SEVEN LARGE CASES PER SHIP ALEXANDRA FROM JAPAN.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., WITHOUT RESERVE, on MONDAY, June 6, at half-past 12 o'Clock precisely, an Importation of splendid LILY BULBS, just arrived from Japan, in the finest possible condition, comprising 5000 large flowering Bulbs, the greater part of which will, there is very little doubt, prove to be that superb variety LILIUM AURATUM, as they are precisely similar to those sold at the last Sale, and for which there was so much competition.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 7, at half-past 12 o'Clock precisely, a choice assortment of POULTRY and PIGEONS from the yards and lofts of well known breeders and exhibitors.

Important Sale of Valuable Orchids,

THE PROPERTY OF A WELL-KNOWN ENGLISH GROWER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 10, at half-past 12 o'Clock precisely, the following very Rare and Choice ORCHIDS, all very healthy and fine Plants:—

Odontoglossum auro-purpureum.
,, speciosissimum.
,, sp. nova (Andes of Peru), resembling O. Pescatorei in habit.
,, nævium major or gloriosum of Linden.
,, Rossii.
,, nebulosum?]
,, Bictoniense.
,, Reichenheimii.
Oncidium undescribed? Andes of New Grenada, and O. ampliatum majus; most of the above are young healthy single plants, more or less established.
Cattleya Warscewiczii delicata, and the rare and charming Cattleya Wagneri rosea.
Cattleya Schilleriana and Warneri.
Lælia purpurata, 2 varieties in flower.
Cattleya labiata candida (Sion House variety).
Miltonia Regnelli.
Vanda suavis (v. Pescatorei).
The black-lipped variety of Cypripedium barbatum superbum and others.
Epidendrum bicornutum.
Dendrobium densiflorum album, &c., including several unnamed Orchids, recently received from New Grenada.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 10, an importation of ORCHIDS, just arrived in fine condition per the Peninsular and Oriental Company's Steamship "Ripon," consisting of four large cases, comprising

Phalænopsis Schilleriana;
Phalænopsis amabilis and rosea; and
421 Phalænopsis species (probably new varieties).

On view the Morning of Sale, and Catalogues had.

Important Sale of New Plants, introduced by Mr. Fortune from Japan and China.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. Standish and Fortune having nearly terminated), to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 16, at half-past 12 o'Clock precisely, the Third Portion of the Splendid Assortment of NEW HARDY PLANTS, many of which have never yet been offered to the Public, comprising the Entire Stock of two fine Skimmias, Saxifraga Fortunii (Hook.), a Greenhouse or probably hardy Bletia, the Golden-leaved Osmanthus, Raphiolepis ovata, Ligustrum coriaceum, a new Berberis, Retinospora Keteleerii variegata, &c.

On view the Morning of Sale, and Catalogues had.

PRIZE MEDALS AWARDED TO
GREEN'S PATENT LAWN MOWERS.

































Illustrated Price Lists free on application.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; and 19, EDEN QUAY, DUBLIN.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24.—1864.] SATURDAY, JUNE 11. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

A MEETING of this COMMITTEE will take place on TUESDAY, June 14th, at 12 o'clock Subjects for examination must be at South Kensington for entry by 11 A.M.

THOMAS MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

The RHODODENDRON SHOW, by Messrs Waterer & Godfrey, of Knap Hill, Woking, under the great Suspension Tent, is OPEN DAILY. Admission, Saturday and Monday, 6d.; Tuesdays, Wednesdays, Thursdays, and Fridays, 1s.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

LECTURE on TUESDAY NEXT, June 14, on PELARGONIUMS, by Mr. WILLIAM WILSON SAUNDERS. To commence at 3 o'Clock.

ROYAL HORTICULTURAL SOCIETY.

COMPARISON of NEW GARDEN FLOWERS at CHISWICK. The FLORAL COMMITTEE having made provision for the trial during the present summer of New Varieties of Bedding Pelargoniums, Calceolarias, Verbenas, Heliotropes, Tropæolums, and Bedding and Pompon Dahlias, would be glad to receive any such varieties of the above-named flowers for incorporation in the Collections now being planted out at Chiswick. All novelties intended for examination, and to be included in the Report of the Committee, should be sent without delay, addressed to Mr. EYLES, Superintendent, R.H.S. Gardens, Chiswick. THOMAS MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY'S EXHIBITION, SOUTH KENSINGTON, W., June 1.

Addition to List of Awards, p. 529.

CLASS 5.—Add, 3d Prize. Mr. R. Baxendine, Nurseryman, Guildford, Surrey, 2*l*.

CLASS 36.—Add to First-class Certificates. Phormium tenax variegatum, and Lastrea Standishii, both from Mr. B. S. Williams, Holloway.

Sir Wentworth Dilke's Table Decoration.—3d Prize was awarded to Miss Wint, not Miss Wait.

ALEXANDRA PARK COMPANY (LIMITED).—The GREAT FLOWER SHOW will take place on WEDNESDAY, June 22, and THURSDAY, June 23, when SEVEN HUNDRED POUNDS will be given in PRIZES. Two Military Bands will be in attendance. Admission—First day 5 Shillings; or by Tickets purchased before the day, Four [illegible]s. Second day, by payment at the Entrances, One Shilling.

Tickets can be obtained at the Company's Offices, 449, West Strand; at Mr. R. CLARKE's, 51, Threadneedle Street, City, E.C.; or of the Company's Agents. R. K. PARKINSON, Secretary.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.

The ELEVENTH ANNUAL SUMMER SHOW will take place on WEDNESDAY and THURSDAY, June 22 and 23, at the Royal Pavilion, on the same Grand Scale as in former years. Schedules of Prizes to be had on application to the Secretary, 96, St. James Street; or E. SPARY, Superintendent, Queen's Draperies, Park Street.

By Order of the Committee.
Brighton—June 11. EDWARD CARPENTER, Secretary.

THE RUGBY ROSE SHOW: 1864.—The FIRST GRAND EXHIBITION of ROSES and a MUSICAL FETE will be held at Rugby on TUESDAY, June 21 (Open to all England).

President.—His Grace the DUKE OF RUTLAND.

Patrons.

The Right Hon. and Right Rev. the LORD BISHOP OF LONDON.
The Right Hon. Earl of Warwick | The Hon. C. Bertie Percy
The Right Hon. Earl of Aylesford | The Hon. C. L. Butler
The Right Hon. Earl of Craven | Rev. Dr. E. Meyrick Goulburn
The Right Hon. Earl Howe | The Rev. Dr. Temple
Right Hon. the Lord Leigh | C. N. Newdegate, Esq., M.P.
Right Hon. C. B. Adderley, M.P. | W. Stratford Dugdale, Esq.

Lady Patronesses.

Her Grace the DUCHESS DOWAGER OF SUTHERLAND.
Right Hon. Countess of Warwick | Mrs. Lane
Right Hon. the Lady Leigh | Mrs. Lowndes

Patron Rose Growers.

Rev. S. R. Hole, F.R.H.S. | Mr. James Mitchell
Rev. W. F. Radclyffe | Mr. B. R. Cant
J. T. Hedge, Esq. | Mr. John Cranston
Messrs. Paul & Son, F.R.H.S. | Mr. John Keynes, F.R.H.S.

Hon. Sec.—Mr. W. H. Treen, F.R.H.S., Victoria Nursery, Rugby. Schedules and all particulars on application to the Hon. Sec.

Prizes paid on the day of exhibition at the Hon. Secretary's Tent on the Ground. Three celebrated London Censors have accepted the office of Judges, and the awards will be published in the *Gardeners' Chronicle* and other papers. The Entries close on Monday, June 13.

W. H. TREEN, Hon. Sec.

FURTHER PRIZES.

CLASS A. (Open.)—For the best COLLECTION of POT ROSES, not more than 20, and not exceeding 9-inch pots. 1st Prize, Seven Guineas; 2d, Six Guineas; 3d, Five Guineas.

RUGBY ROSE SHOW.—Numerous inquiries from all parts having been made to me, to know who are the principal managers of the advertised Rugby Rose Show, who are to pay the prizes, and who are the working committee, and as private answers would encroach too much upon my time, I beg to state publicly that I know nothing whatever of the so-called Rose Show (further than what has appeared in print), neither whether there is any committee at all, nor have I any connection with the affair in any shape or way.

GEORGE BATLEY, Rugby Nursery.

LEEDS HORTICULTURAL SOCIETY.—FIRST EXHIBITION of PLANTS, FLOWERS, FRUITS, and VEGETABLES, JUNE 21 and 22. Schedules and forms of entry, may be had on application to JAMES BIRBECK, Honorary Secretary.

☞ The Railway Companies have agreed to convey Plants, &c., for exhibition, free one way.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.

At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40*l.* will be awarded for Cut Roses in the various classes.

For particulars, apply to the Secretary, Mr. WM. PENN COX, 37, Market Place, Leicester.

STAMFORD HORTICULTURAL SOCIETY.—The ROSE and SUMMER FLOWER SHOW of this Society will be held on TUESDAY, July 5.

The Rules and Schedules are now ready, and may be had on application to Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

BIRMINGHAM ROSE SHOW, July 7 and 8, 1864.—ENTRIES CLOSE on JULY 1. Forms of Entry, Prize Lists, &c., may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

Herbaceous Pæonies and New Pyrethrums.

JOHN SALTER begs to announce that his extensive COLLECTIONS of these beautiful Flowers are NOW in BLOOM, and solicits the honour of a visit to his Nursery.
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

J. IVERY AND SON beg to announce that their fine collection of AZALEA INDICA is NOW in BLOOM; also that their collection of HARDY FERNS will be found very interesting. An inspection is respectfully solicited.
Dorking Nursery.—June 11.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 36s. per doz.
A DESCRIPTIVE LIST on application, enclosing Stamp.
Edgend Marsden, near Burnley, Lancashire.

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WHEELER'S LITTLE BOOK on SEEDS.

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SEED GROWERS and MERCHANTS,
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POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 4*s.* 6*d.* per oz.
JAMES WOODS, Florist, Harwich, Essex.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

General Plant Catalogue.

WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Cheap Bedding Plants, mostly at 2s. 6d. per doz.

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DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
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Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
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New Tariff for June, 1864.

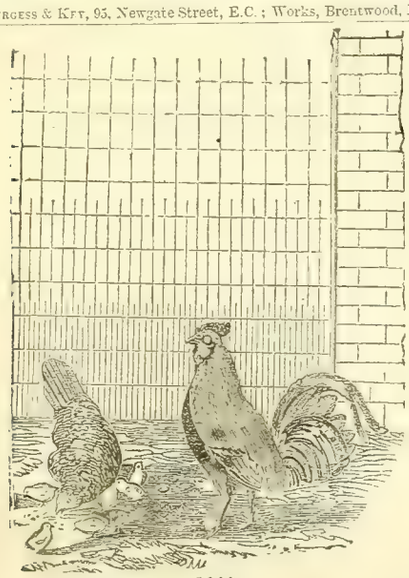
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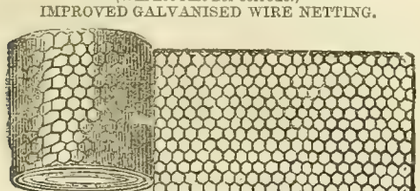
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These prices only apply to the sizes stated.

	4ths.	3rds.	4ths.	3rds.
11 by 9 12 by 9 13 by 9 14 by 9	10*s* 9*d*	12*s* 3*d*	12*s* 6*d*	14*s* 0*d*
12 „ 10 13 „ 10 14 „ 10 15 „ 10				
13 „ 11 14 „ 11				
14 „ 12 15 „ 12 15 „ 11 16 „ 11				
18 „ 12 19 „ 12 16 „ 12 17 „ 12				
16 „ 13 17 „ 13 20 „ 12 21 „ 14				
19 „ 13 20 „ 13 18 „ 13 ..	11*s* 6*d*	13*s* 6*d*	13*s* 6*d*	16*s* 0*d*
18 „ 14 17 „ 14 21 „ 13 ..	14 to 15 ozs. to the foot.		16 to 17 ozs. to the foot.	
19 „ 14 20 „ 14 18 „ 14 ..				

FOREIGN SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft. £ *s.* *d.*	16 oz., 300 ft. £ *s.* *d.*	21 oz., 200 ft. £ *s.* *d.*
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ..	11*s.* 6*d.* ..	13*s.* 6*d.* ..	15*s.* 0*d.*
20 „ 13	Thirds ..	13*s.* 6*d.* ..	16*s.* 0*d.* ..	19*s.* 0*d.*
20 „ 14	Seconds ..	.. ..	English. ..	English.
20 „ 15	Best ..	.. ..	18*s.* 0*d.* ..	23*s.* 0*d.*

The above prices include the Boxes.
We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4 ..	6½ by 4½ ..	7 by 5 ..	7½ by 5½ ..
8 „ 6 ..	8½ „ 6⅜ ..	9 „ 7 ..	9½ „ 7½ ..
		10 „ 8 ..	10½ „ 8½ ..

} 11*s.* 6*d.*
} 12*s.* 6*d.*

Boxes 2*s.* each, returnable at full price.
All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.
London Agents for Hartley's Patent Rough Plate.
Perforated Glass for Ventilation.
Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.
Glaziers' Diamonds from 10*s.* to 21*s.* each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	„ CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	„ PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

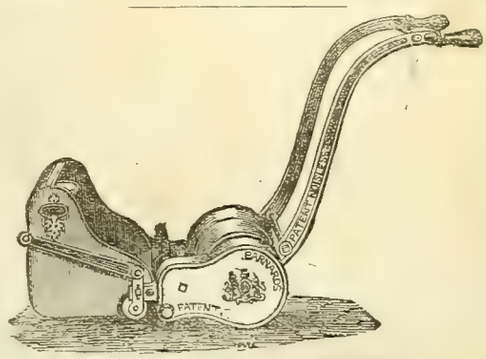
Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BARNARD'S NOISELESS LAWN MOWER.

This MACHINE differs from all other Lawn Mowers, in being constructed without either Gear-wheels, Chains, or Levers, the power being transmitted to the Cutters by a loose intermediate wheel, with an India-rubber tyre, which is placed between a plain-faced driving wheel and pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.
When the MACHINE is drawn back, the intermediate wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.
The India-rubber tyre will last from one to two seasons, and can be replaced at a cost of a few pence. An extra tyre is sent with each Machine.
The iron work of Grass-box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

The Miniature Lawn Mower, Cuts 8 inches .. .. £2 10*s.* 0*d.*
Suitable for the very smallest Grass plots or Edgings.

To Cut 10 inches.	This can be worked by a Lady	3 5 0
To Cut 12 inches.	Suitable for one person	4 10 0

The 12 inch and all larger sizes have the drum or roller divided in two parts for the convenience of turning.

To Cut 14 inches.	Suitable for One Man	5 0 0
To Cut 16 inches.	Suitable for One Man	6 0 0
To Cut 18 inches.	Suitable for Man and Boy	6 10 0
To Cut 20 inches.	Suitable for Man and Boy	7 0 0
To Cut 22 inches.	Suitable for Two Men	7 10 0

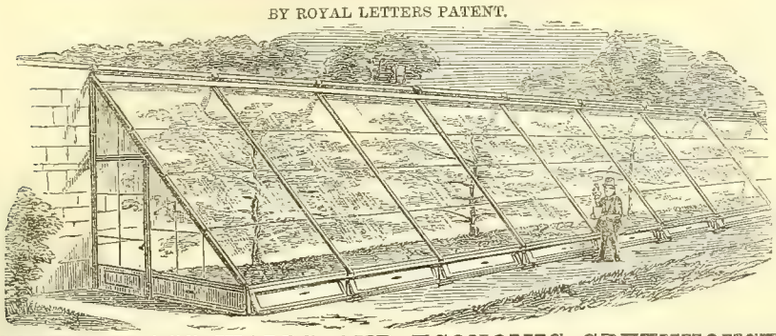
Packed and Delivered Carriage Free to the principal Railway Stations in England.
Guaranteed to give satisfaction, and if not approved, can be returned.
The above are kept in Stock and can be forwarded immediately. Also, CAST-IRON VASES, CHAIRS, SEATS, TABLES, ROLLERS, WIRE NETTING, &c.

J. JONES, IRON MERCHANT and HORTICULTURAL ENGINEER,
6, BANKSIDE, SOUTHWARK, LONDON, S.E.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of James Scott, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

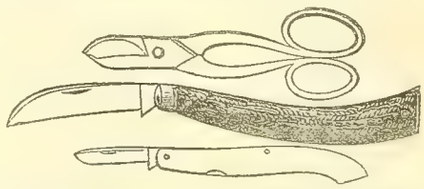
PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

Paxton Works, Sheffield, Established 1738.



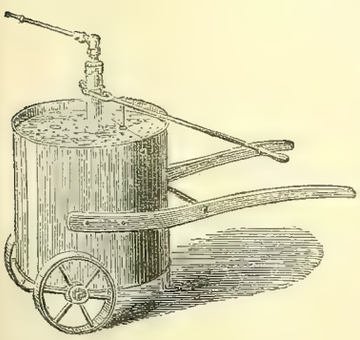
International Exhibition Prize Medal was Awarded to Saynor & Cooke for Superiority of Quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

WARNERS' GARDEN IMPLEMENTS.

ILLUSTRATED AND PRICED CATALOGUES MAY BE HAD ON APPLICATION.



No. 554½.

WARNERS'

GALVANISED IRON GARDEN ENGINE,

WITH REGISTERED SPREADER.

10 gallons	£2 15*s.*
16 ,, ...	3 15*s.*
24 ,, ...	5 0*s.*



No. 35.

WARNERS'

PATENT IRON PUMPS.

2½ inch	£1 10*s.*
3 ,, ...	2 4*s.*
3½ ,, ...	2 9*s.*
4 ,, ...	2 18*s.*
2½ inch, with short barrel	1 1*s.*

No. 508½.

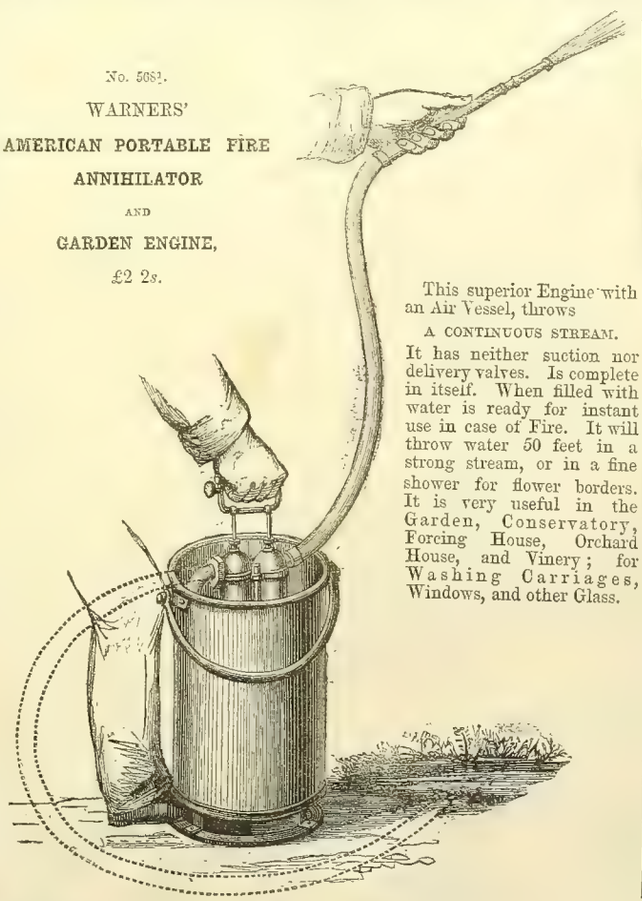
WARNERS'

AMERICAN PORTABLE FIRE ANNIHILATOR

AND

GARDEN ENGINE,

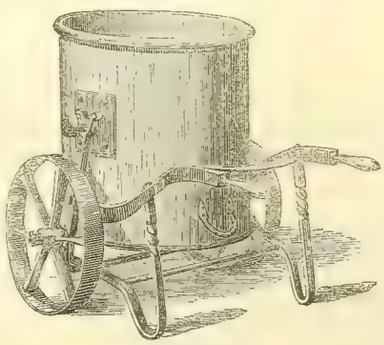
£2 2*s.*



This superior Engine with an Air Vessel, throws

A CONTINUOUS STREAM.

It has neither suction nor delivery valves. Is complete in itself. When filled with water is ready for instant use in case of Fire. It will throw water 50 feet in a strong stream, or in a fine shower for flower borders. It is very useful in the Garden, Conservatory, Forcing House, Orchard House, and Vinery; for Washing Carriages, Windows, and other Glass.



No. 579½.

WARNERS'

SWING WATER BARROW.

20 gallons	£2 0*s.*
35 ,, ...	2 10*s.*

Saves a gardener's time when used with the water pot.

WARNERS'

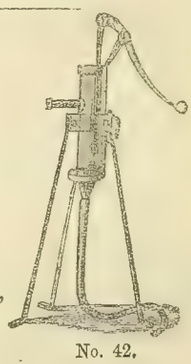
PORTABLE LIQUID MANURE PUMP,

WITH LEGS,

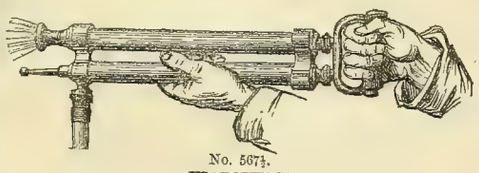
£2 15*s.*

Ditto for fixing to cart, £2 5*s.*

Suction Pipe for Pump, 2*s.* 5*d.* per foot.



No. 42.



No. 567½.

WARNERS'

IMPROVED PATENT DOUBLE ACTION SYRINGE,

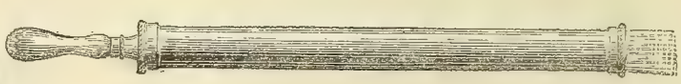
with 5 feet of flexible Suction Pipe, 21*s.*

Is much improved since last season.

It economises a gardener's time
To draw from a water-pot, pail, or other vessel.



No. 590



No. 557A.

WARNERS'

REGISTERED DISC-VALVE SYRINGE. 9*s.*

FILLS QUICKLY AND EASILY.

It is well adapted for the Gardener or Amateur.

BARKER'S MILL, Large, 25*s.*; Small, 8*s.* 6*d.*

Fountain Designs in great variety. Can be supplied from a Cistern or Main.

May be obtained of any Ironmonger, Plumber, or Seedsman in the United Kingdom, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Triangle, Hackney, N.E. Good substantially-made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 19 feet, for Sale, price 12*l.* A handsome CONSERVATORY, 46 feet by 12½ feet by 10 feet, 15*l.* A large assortment kept. Estimates given for any branch in Wood or Iron.

WILLIAM SMITH, 191, King Street, Hammersmith, begs to call attention to the Stock of LIGHTS he has ready for use. All made of 2-inch Yellow Deal 2 ft. 7 in. by 3 ft. 11 in., price 16*l.* or 17*s.* each; 2 ft. 6 in. by 3 ft. 11 in., price 11*l.*, or 15*s.* each; 15, 5 ft. 9 in. by 3 ft. 11 in., price 10*l.*, or 14*s.* each; 10, 9 ft. 8 in. by 4 ft. 8½ in., price 13*l.* or 18*s.* each.
GREENHOUSES made to order at 1*s.* 1*d.* per square foot.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6

24 gal.	30 gal.
£5 0 0	£5 12 0

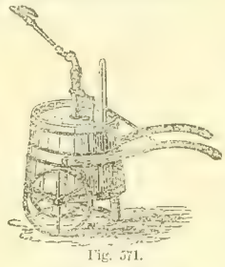


Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0

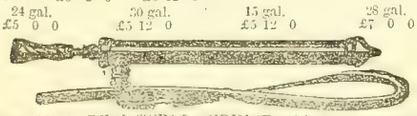


Fig. 587. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 0 each.
No. 2. Ditto ditto .. 1 1 0 „
Telescope Branch Pipe for ditto .. .. 0 10 0 „



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each.
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „

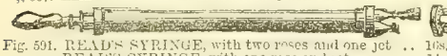


Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
„ 592. Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6*d.*, 1*s.*, and 2*s.* each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5*s.* value and upwards.
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.



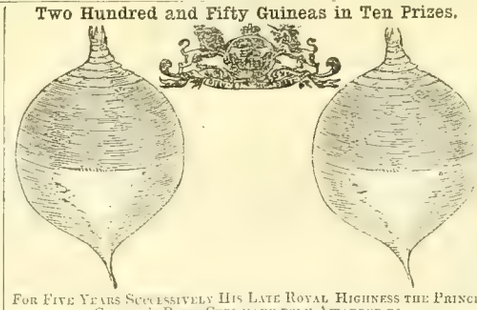
TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."—"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.* Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."
"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the ROYAL EAST BERKS and SOUTH BUCKS AGRICULTURAL SOCIETIES, and many other valuable Prizes in various Parts of the Kingdom.

SUTTON'S Champion Swede is one of the hardiest sorts in cultivation. The Champion Swede being of quick growth never suffers from mildew, and does not require to be sown so early as other Swedes.

EXTRACTS FROM LETTERS RECEIVED.

R. MILWARD, Esq., *Southwell.*
"Your Champion Swede proved most excellent."

J. W. J. BARTRAM, Esq., *Little Weedon.*
"Your Champion Swede has given great satisfaction, having been a splendid crop, and kept well through the severe frosts."

J. STRATTON, Esq., *Broad Hinton.*
"With your Champion Swedes I won a prize of 10*l.* last year."

Mr THOS. B. PALMER, *Esericke.*
"Your Champion Swedes are as sound and as good in colour as the day I got them up; I have sufficient to last till the 12th of May."

Mr. H. HAMMOND, *Market Place, Masham.*
"Your Champion Swede obtained the first prize at the Masham Show, the 10th of September last."

Mr. J. B. REECE, *Harpswood.*
"I took the Shropshire Challenge Cup, likewise the Bridgnorth District Cup, with your Champion Swedes."

WM. SADLER, Esq., *Ferrygate, Drem.*
"The Champion Swede is cutting out everything here."

The above are only a few of the numerous Letters received in testimony of the excellence of SUTTON'S Champion Swede.
New Seed from Selected Roots now ready, 1*od.* per pound or cheaper by the bushel, prices of which may be had on application. Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Ferns for the Conservatory to be Sold by Private Contract.

FOR SALE, a splendid Collection of Fine-grown FERNS—Specimen Plants—including many of the most popular kinds of Exotic and British, among which are Dicksonias, Adiantums, Woodwardias, Diplaziums, Davallias, Blechnums, &c. A rare opportunity of establishing a Fernery.
A List and particulars of size and price by applying to Mr. S. APPLEBY, St. John's Nursery, Balby, Doncaster; or to Mr. CLAYTON, Gardener, Cantley Hall, Doncaster.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

NURSERYMEN and Others having a Quantity of SPENT TAN to Dispose of after the same has been used for Forcing Pits may hear of a Purchaser on application to the Clerk of Works at the Agricultural Hall, Islington.

REIGATE SILVER SANDS, First-class PEAT SOILS, LOAMS, &c., on SALE.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Goods Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works, London and Country made Flower Pots of all sizes, Orchard House Pots, Tazzas, Vases, &c., of unique designs.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



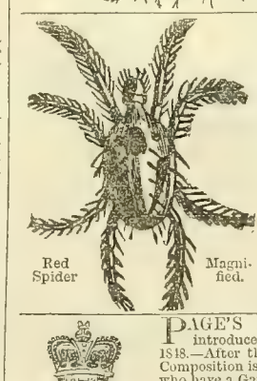
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 5*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).



PAGE'S BLIGHT COMPOSITION, introduced by BRIDGEWATER PAGE in 1848.—After thirteen years' extensive use this Composition is admitted to be invaluable to all who have a Garden.
EXTRA STRONG, 3*s.* per Gallon, sufficient to make four gallons. Ten Gallons and upwards carriage paid.
See leading article of *Gardeners' Chronicle*, October 25th, 1856, showing 102 Testimonials of its value, including that from Andrew Toward, Esq., Royal Gardens, Osborne Palace:—
"I have great pleasure to add my testimony to the efficacy of your Blight Composition, which has been used with great success upon Rose Trees much affected with the green fly.
"November, 1852."

From Mr A. DOWLING, *Gardener to the* Right Hon. Lord HENRY CHOLMONDELEY, M. P., *Holly Hill.*
"Your Composition is most destructive to all blight. My wall trees must have died had I not availed myself of it. I consider it applicable to all cases, as it is not the least injurious to the foliage of the most tender plant.—May 17, 1851."
Agents in most of the principal Towns in England.
BRIDGEWATER PAGE, Royal South Hants Seed Establishment, 37 and 38, Oxford Street, and West End, Millbrook Road, Southampton.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.
Strong Planting Canes, 21*s.* each; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.
Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

CARTER'S FARMER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

New Bedding Plants.

MESSRS. JOHN AND CHARLES LEE are now prepared to offer the following Novelties, which they have proved to be distinct and good:—
TROPÆOLUM COOPER'S DEFIANCE.—Is very dwarf, short jointed, slightly trailing, small leaved, and an immense bloomer. Flowers bright scarlet. A first-rate Bedder. Price 2*s.* 6*d.* each; 18*s.* per dozen; 5*l.* per 100.
GERANIUM VARIEGATED LITTLE DAVID.—Is a very pretty white-edged sport of the well-known favourite, "Little David," so useful for Edging. Price 5*s.* each.
VARIEGATED GERANIUM THE BRIDE.—This interesting novelty is adapted for small beds in conjunction with Lobelia speciosa. The habit is very dwarf, the margin of the leaves pure white, and the flowers are also pure white. A very elegant little plant. Price 7*s.* 6*d.* each.
Royal Vineyard Nursery, Hammersmith, London, W.

HERBACEOUS CALCEOLARIA, &c., SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*
CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*
CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.*
HUNT'S SWEET WILLIAM.—Sealed Packets, 6*d.* and 1*s.*
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1*s.* and 2*s.* 6*d.*
PANSY.—From best named varieties. Sealed Packets, 1*s.* and 2*s.* 6*d.*
And every other first-class Seeds. See CATALOGUE, post free.
WM. CUTBUSH & SON, Highgate Nurseries, London, N.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.
BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2*s.* each.
LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5*s.* to 7*s.* 6*d.* each.
LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7*s.* 6*d.* each.
PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7*s.* 6*d.* each. A coloured plate by Andrews for seven postage stamps.
RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2*s.* 6*d.*
OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.
"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*
The best of the NEW FRENCH ROSES, 36*s.* to 42*s.* per dozen. Fine vigorous plants of the old and popular sorts, 9*s.* to 18*s.* per dozen.
PAUL'S Nurseries, Waltham Cross, N.

E. G. HENDERSON AND SON'S SPRING CATALOGUE for 1864 will be forwarded on application.
Amongst many beautiful plants for the Flower Garden and Conservatory described in the above Catalogue are the following:—
ARUNDO DONAX, 1*s.* 6*d.* each.
VARIEGATA, 3*s.* 6*d.*
ACHIMENES (TYDÆA) "RACHEL," 3*s.* 6*d.*; splendid.
AZALEA SOUVENIR DU PRINCE ALBERT.—The most distinct, 10*s.* 6*d.* to 21*s.*
ANTIRRHINUM.—New Italian double-flowered, 1*s.* 6*d.*
BOUVARDIA GRANDIFLORA, and other new ones.
CLEMATIS SPLENDENS (Lanuginosa hybrid), 5*s.*
CHRYSANTHEMUM EMPRESS of INDIA, 3*s.* 6*d.*
COLEUS MARMORATUS, 3*s.* 6*d.*
ERANTHEMUM RUBRO-VENIUM, 3*s.* 6*d.* and 5*s.*
DAHLIA (New Bedding) SCARLET GEM.—For style of growth and model of blooming habit, see Illustration in Catalogue.
DAHLIA, New rose-coloured bedding variety.
GARIBALDI PINK, rich deep rose-coloured, 3*s.* 6*d.*
PAMPAS GRASS (*G. elegans*), New Silver, 3*s.* 6*d.*
FUCHSIAS.—Banks's new varieties.
GERANIUMS.—New variegated tricolor-leaved varieties.
GERANIUMS WHITE TOM THUMB and BEAUTY, with other kinds.
GERANIUMS.—Mr. Beaton's beautiful bedders, and other Continental Nosegay varieties.
GLOXINIA PUNCTULATA, 5*s.*; see figure in the Catalogue.
HEDERA (IVIES), 40 varieties and species, gold and silver margined or blotched; climbing or shrubby habits.
LAPAGERIA ROSEA, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*
SPLENDENS, 3*s.* 6*d.* to 7*s.* 6*d.*
PHLOX LOUIS GRELL, beautifully striped, 1*s.* 6*d.*, 2*s.* 6*d.*
PERPETUAL MULE PINK, ROSETTE.
PYCNOSTACHYS URTICIFOLIA, 3*s.* 6*d.*
ROSES, New Kinds of 1864, strong, healthy, 2 to 3 feet in growth, 3*s.* 6*d.*
SARRACENIA PURPUREA (PITCHER PLANT), 3*s.* 6*d.*
VERBENAS, VELVET CUSHION and BEAUTY; MADAME LEFEVRE; NOBILE CAROLINA FRANZINA; HENRIETTE (best of all Whites); MELINDRES SPLENDENS (dazzling); PALLAVICINI DI BRESCIA.
TROPÆOLUMS.—Beautiful and free blooming varieties.
Wellington Nursery, St. John's Wood, London, N.W.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT,

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG's *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

BEDDING PLANTS.

E. G. HENDERSON & SON

Will select choice varieties from the following sections, at 10*s.* 6*d.* for 50, and 21*s.* for 100 plants. In these selections many fine varieties will be included. The plants are strong and of extra quality. Purchasers will please to specify such sections as may not be required, and others particularly desired.

ANTIRRHINUM	GERANIUM	PANSIES
BOUVARDIA	HELIOTROPE	PENTSTEMON
CALCEOLARIA	HOLLYHOCK	PETUNIA
CHRYSANTHEMUM	LANTANA	SALVIA
DAHLIAS	LOBELIA	TROPÆOLUM
GAZANIA	MIMULUS	VERBENA

With Coloured-leaved Plants.

Descriptive Spring Catalogue forwarded on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

THE BRISTOL MEETING

OF THE

BATH AND WEST OF ENGLAND SOCIETY.

SUTTON & SONS,

SEEDSMEN TO THE QUEEN,

Respectfully invite the attention of their friends and the public generally to their MAGNIFICENT STAND in the SHOW YARD, including a Collection of 1000 distinct sorts of SEEDS in Glass Cases, Labelled with their Botanical and Popular Names. A large Collection of SEEDS for Agricultural purposes. Specimens of 250 sorts of GRASSES for Permanent Pasture and other purposes, all grown by SUTTON & SONS in their grounds at Reading. A Collection of AGRICULTURAL ROOTS, as also a large number of Models from Growing Specimens of the same, including Sutton's Champion Swedes, Sutton's improved varieties of Mangel Wurzel, Sutton's Imperial Green Globe and other Turnips, &c.

Orders will be received at the Stand for the celebrated Champion Swede and other Turnips.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9*d.* per lb.; and his large FOSTERTON HYBRID, 8*d.* per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

VIOLA DEVONIENSIS,

A NEW PERPETUAL BLOOMING SWEET-SCENTED VIOLET.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

Are now prepared to offer this superb VIOLET, particularly recommending it to those who cultivate Violet flowers for sale, as the largest flowered Violet known. Very hardy and robust, blooming profusely and perpetually from September to April; the flowers extra large; colour of the darkest blue, and very sweet scented; the flower stem generally over 6 inches in length, and stiff; the foliage large and thick, bunching splendidly.

A Circular of TESTIMONIALS to be had on application, one of which is as follows:—

From Mr. G. B. CARLISLE, *General Fruiterer, St. Martin's Street, Exeter.*

"For the past three years I have received from September to April a constant supply of bunches of those beautiful Violets. The flowers are large, of the darkest blue, very sweet scented, the stems stout and long. The bunches of this Violet sell in preference to any other sort, and I have sent them to the furthest parts of the Kingdom. (Signed) GEORGE BYRON CARLISLE."

Strong Plants now sending out at 12s. per dozen, or 60s. per 100.

Orders received in London by HURST AND SON, 6, LEADENHALL STREET, E.C.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—*s.*	*d.*	*s.*	*d.*		Per pkt.—*s.*	*d.*	*s.*	*d.*
PRIMULA ..	2	0	and 3	6	INTERMEDIATE STOCK ..	0	6	and 1	0
CINERARIA ..	1	6	and 2	6	BROMPTON do.	0	6	and 1	0
CALCEOLARIA	1	6	and 2	6					

The above Seeds are saved with great care, and can be warranted to give satisfaction.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

To the Trade.—Deutzia crenata fl. pl.

THOS. CRIPPS, NURSERYMAN, Tunbridge Wells, will be happy to supply plants of the above new and handsome hardy double pink flowering Japanese Shrub, well established in pots, 9*s.* per doz., or 50*s.* per 100. LASTRÆA STANDISHII, new and beautiful hardy Japanese Fern, 5*s.* each. COLEUS MARMORATUS, 2*s.* 6*d.* each. LONICERA AUREO-RETICULATA, fine strong last year's plants, in pots, 2 to 3½ ft., 6*s.* per doz., or 42*s.* per 100.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Indian Azaleas.

WILLIAM BARNES has the largest and most healthy stock of the above favourite plants to offer for sale, comprising the finest specimens, suitable for exhibition in this or any other country, as well as many thousands of smaller dimensions, from three-quarter and half specimens down to small plants, all properly shaped to form symmetrical specimens, and finely set with bloom. Any person forming a collection or increasing their present one will do well to visit this Nursery, where every variety up to the present date worth cultivating will be found, the whole grafted upon the stock that W. B. has proved so admirably adapted to them, after many years close observation.

PRICED LIST will be forwarded upon application post free.

Camden Nursery, Camberwell, S.—June 11.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

The Gardeners' Chronicle.

SATURDAY, JUNE 11, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June	14	Royal Horticultural (Floral Committee), at South Kensington .. .. Noon (Election of Fellows) at do. .. .. 3 P.M. (Lecture on Pelargoniums, by Mr. Wilson Saunders) at do. .. .. 3 P.M.
THURSDAY,	—	16	Linnean .. .. 8 P.M.

FOUR hundred blossoms of CATTLEYA MOSSIÆ at one view! This is a sight truly worth a journey from the Land's End to witness, and it is a sight that might have been witnessed a few days since, if it may not even now, in Mr. WARNER'S Orchid House at Broomfield, near Chelmsford. And such blossoms too! Not puny things with washed-out colours, or pallid from sweltering in excessive heat, but located in a ventilated house quite enjoyable, and presenting richly-marked colours in marvellous variety, and in all the vigour of robust health—the individual flowers measuring some 7 or 8 inches across, and the petals, in some cases, being as much as 3 inches in breadth. Mr. WARNER has certainly learnt the secret of managing Cattleya Mossiæ to perfection; and consequently such a picture as his show-house presented at the time of our visit, is not, we venture to say, to be paralleled in England! or Europe!! or the world!!!

No one who has not seen a large display of these charming Cattleyas in blossom at the same place and at the same moment, can have any idea of the endless variety which occurs amongst them. Scarcely two plants are alike, and some are most remarkably distinct from each other, so that in future it will not be enough for the Orchidophilist to place Cattleya Mossiæ in his collection: he must make up his mind how many of its forms he will admit, and then set about seeking out those which best suit his fancy.

Cattleya Mossiæ is distinguished amongst growers by its summer-flowering habit, and by the rich purple or violet-rose veining of its orange-stained lip. The veining differs in intensity of colouring and in the amount of space which it occupies in the several varieties, and the orange stain takes on more of yellow or buff as it is brighter or duller in tone, and is confined within the tubular portion of the base of the lip, or brought forward to the front edge at the part where the lip expands, but these purple veins and these orange stains are always to be found. It is chiefly in the modifications which these two features undergo that the differences between the several varieties occur, though the varied shades of colour, from pure white to deep rosy blush, which the sepals and

petals assume, yield other marks of distinction. So great indeed is the variety which exists, that for the sake of discriminating those most worthy of cultivation it has been found desirable to distinguish them by name; and the following are some of those with which we made acquaintance during an hour's saunter through the houses at Broomfield a few days since. It will be remembered that they are all forms of Cattleya Mossiæ, differing in size, in colour, and in marking:—

venosa: a very handsome variety, distinct-looking from there being very little orange present, and from the markings of deep violet rose being evenly distributed; sepals and petals deep blush, the petals becoming paler towards the margin; lip marked with lines of violet rose, beautifully fringed, extending nearly to the margin, the base very slightly stained with orange.

aureo-marginata: large-flowered; sepals and petals deep blush; lip with deep violet rose centre, and yellow base, the yellow stain continued so as to form a broad margin to the upper expanded portion of the lip.

Napoleonis: a very telling variety from its roseate tinge and the erect habit of its full-sized flowers; sepals and petals deep blush; lip large, mottled purple in front, and deep orange at the base, with a broad margin of pale blush.

purpurata: large-flowered; sepals and petals deep blush; lip large of a very dense and nearly uniform violet rose, orange at the base and having a pale frill or margin.

Blakei: sepals and petals deep blush, the latter frilled towards the points; lip orange-buff at the base, and mottled violet rose in front, the markings passing out nearly to the edge, so that there is no sharply defined pale frill.

superba: dark blush sepals and petals, the latter narrow and very slightly frilled; lip large, prominently stained with deep orange at the base, the front part brighter, and the centre veined and somewhat mottled with violet rose, leaving a broadish irregular pale margin.

striata: a curiously marked sort; sepals and petals deep blush, with paler veins, producing a motley striated appearance; lip motley rose striped throughout with dark purple rose, the margin paler and venosely striated, the orange tint confined to the base.

Helenæ: remarkable for its high-coloured flowers; sepals and petals deep blush mottled with dark purple rose; the lip a rich motley purple, orange at the base, and parti-coloured at the margin.

elegans: rather small in size, but lively and effective in colouring; sepals and petals deep blush; the lip small with bright orange-yellow base, and the central portion marked sparingly with veins of violet rose surrounded by a broad pale edge.

flammea; rather small but richly coloured, the petals and lateral sepals less spreading than in other forms; sepals and petals deep blush, the latter frilled towards the tip; lip small, very deep rich orange at the opening, dense violet rose in the centre, the orange intermingling therewith and producing a fiery crimson, the purple broken up with white in front, and irregularly margined with blush.

complanata: a large-flowered variety, but remarkable for the almost total absence of frilliness on the petals, and especially on the lip; sepals and petals rather deep blush; lip broad and spread out at the apex, a good deal stained with orange at the base, but faintly mottled and veined with purple over the centre, leaving a broad pale blush-tinted edge.

Victoriæ: a very large and beautiful variety, the sepals and petals large, of a blush tint, the lip deep purple rose, with bold orange marking at the base, and narrow even margin of blush.

conspicua: large-flowered; sepals and petals blush; lip richly marked with violet-rose, dashed with orange at the base, and having an irregular broadish pallid border; it blooms in great profusion.

splendens: large-flowered; sepals and petals blush; lip rich full purple rose with orange base, the margins blush, and very much frilled.

Lawrenceanæ: large flowered with erect stalks; sepals and petals blush, the petals very broad and considerably frilled; lip large, slightly stained with orange in the interior, rich deep violet rose slightly veined and mottled in front, with a narrowish and nearly even frill of blush. It is in the way of *splendens*, but rather smaller in the lip, with the throat more expanded.

grandiflora: a large-flowered variety; sepals and petals blush, the petals less frilled than in some forms, the lip a deep rich purple rose, slightly stained at the base with orange, and having a narrow even edge of pale blush.

aurea: a small-flowered variety, with the sepals and petals blush, less spreading than in most other forms; lip small, strongly marked with buff orange at the base extending forward to the front edge, and having broken violet-rose lines in the centre, surrounded by a very broad pale margin which is almost white inwards, and tinged with blush on the extreme edge.

aurea grandiflora: sepals and petals blush; lip marked with a bar and a few broken lines of violet rose, and very much stained with orange at the base, and towards the upper part of the margin; a large-flowered form.

Rothschildiana: one of the larger-flowered forms; sepals and petals blush; lip very bright orange at the base, with rosy-purple lines and splashes over the centre and a broad irregular white margin; the petals are finely denticulate.

grandis: the largest of all the forms in respect to the size of its lip; sepals and petals pale blush; lip mottled violet rose, with an irregular blush-coloured edge, the base stained with buff orange.

marmorata: one of the finest light-coloured sorts and one of the largest flowered; sepals and petals pale blush, the latter very broad; lip large light rose broken up into marbled markings covering the whole surface, except a narrow fringe at the edge; it is a good deal stained with deep orange at the base, and the margin is not only strongly frilled but conspicuously fringe-toothed.

fimbriata: one of the largest-flowered of the whole series, and prettily though not heavily marked; sepals and petals rather pale blush, the latter broad and a good deal frilled throughout: lip very much frilled, marked with a bright orange stain at the base, and in front decorated with broken veins of violet rose on a white ground, the extreme edge being blush; the lip is thus distinctly edged with blush.

Mooreana: a beautiful variety, well marked by the clearly defined narrow white border of its lip; sepals and petals pale blush; lip dense violet rose, moderately stained with orange at the base, and having a narrow even frill of white.

Williamsii: a large-flowered variety; sepals and petals blush-white; lip finely mottled with rose, stained with orange at the base, and having a broad pale margin; the flowers are amongst the palest in the series, and very beautiful.

Mariancæ: small-flowered, but very distinct and chaste; sepals and petals white; lip with a bright yellow stain at the base, prettily mottled with violet rose in the centre, and broadly and evenly margined with white.

Cattleya Wageneri, a small-flowered sort, with the sepals and petals white, and the lip also white with the yellow markings only, and no purple, quite agrees with C. Mossiæ in its season of flowering, and in everything but wanting the purple markings of the lip.

If one's attention could not but be arrested by the magnificence of the spectacle to which we have referred, and it would have been impossible to see it without being struck with admiration, if not with astonishment, there was an equal treat in store for the horticulturist in the observation of the remarkable health, the happy-looking condition, so to speak, of the plants throughout the collection. No sign of languishing, but robust growth, pushing, progressing, or maturing everywhere. One particular specimen from amongst the Cattleyas, that referred to under the name of conspicua, was a mass upwards of 2 feet across, and bore 30 of its noble flowers. Another was a Dendrobium chrysotoxum with 18 spikes—a mass of rich golden yellow; and a capitally bloomed and healthy-looking D. Devonianum bore numbers of its softly tinted and most exquisite blossoms. There were also intermixed such things as Lælia purpurata, Schilleriana, and grandis; Aërides Fieldingii; Saccolabium præmorsum; Dendrobium clavatum; Vanda suavis, and tricolor; Chysis bractescens; Anguloa Ruckeri, Odontoglossum citrosmum, and some graceful habited Oncidiums, whose colours formed a happy contrast to the rest.

The houses are all small, low, and span-roofed, never overheated, and heated by means of a more than sufficient power of boiler and pipe surface, and hence heated beneficially both for the plants and for the pocket. Mr. WARNER'S prescription for preventing ill-health amongst his plants, is FRESH WARM AIR: NO STAGNANT AIR OR MOISTURE, and the plants bear testimony that he is a good physician to them.

In one division were gathered what Mr. WARNER more especially calls his "cool Vinery Orchids." This is a low span-roofed house like the rest, covered with Vines bearing a capital crop of Grapes, and with the leaves so trained as just to screen the plants without the use of blinds. It has a fixed roof with a few side ventilators; and the rule adopted as we were told is—40° MINIMUM IN WINTER, AND IN SUMMER AS MUCH NATURAL HEAT AS THE SEASON AFFORDS, with ventilation. In this house Lycaste Skinneri was revelling, its leaves a yard long; Odontoglots had formed pseudo-bulbs half as large again as those of imported plants; Arpophyllums were in sturdy vigour; and Pleiones, which had been flowering some time since, now presented a perfect picture of healthy foliage. Wonderful! most wonderful!!

A PEAR tree was shown to us a few days since in a very curious condition. The ground beneath it was strewed with dead leaves of a very dark brown, inclining to black; almost all those on the tree were more or less in the same condition, added to which the fruit was either cracked, or its surface rough and disfigured.

The cause of all this at first seemed very obscure, but on a closer examination we found that it arose undoubtedly from a very minute Fungus, which was described some years since in the Transactions of the Horticultural Society of London under the name of Ascomyces bullatus.

A few days before some blistered Peach leaves were communicated, which exhibited an unmistakeable growth of Ascomyces deformans, and we have since seen several Peach trees attacked in the same manner. Most cases of Peach blister, which is in general considered by gardeners to be the consequence of cold winds, are referable to this cause, where they are not clearly produced by plant lice; and as the affection is no less injurious to the Peach tree, whose young branches are often as much affected as the leaves, than it is to the Pear tree, it is very well to caution our readers against both.

In the Peach tree the malady is plain enough from the first day of its appearance, before the Fungus is developed; but in the Pear tree it is not obvious at first, though the Fungus is matured much earlier. If, however, yellowish blisters appear on the upper surface of the Pear leaves, and on turning the leaf over the cavity beneath is found to be lined with a dead white bloom, it may safely be concluded that the Ascomyces is present. A precisely similar affection occurs on Walnut leaves, though not to such an extent as in general to prove injurious to the tree. It is of great importance the moment the disease appears to pick off every infected leaf, and to burn the whole, that the gathered leaves may not prove a fresh source of mischief.

While hunting for other specimens, our attention was called to a Poire d'Aremberg which looked sickly, and both on the young fruit and the leaves we found black or olive patches of incipient Cladosporium dendriticum, which we fear will prove destructive to our hopes of fruit, which was promising enough a few days since. We fear that where the Cladosporium attacks trees, it in general prevails to such an extent as to make the removal of the diseased leaves impracticable, and unfortunately we know of no chemical agent that will reach a parasite which makes its way into the air from the under surface of the cuticle.

Our misfortunes, however, were not over, for our attention was then called to a Catillac heavily laden with fruit, but which did not look in a satisfactory condition. Here the leaves were decaying at the tips or sides, and a microscopical examination showed that we had no Fungus to deal with, but a hopeless case of Chlorosis, arising probably from something which did not agree with the plant. This called to mind "J. P.'s" Melon leaves, of which we gave a report May 28, 1864; and we take this opportunity of informing our correspondent that we have just seen a frame of the variety known as Princess Alexandra, which, from a state of extreme apparent health, is just assuming the chlorotic condition, which was remarkable in his case. The cultivation was irreproachable, and we must refer it to one of those vexations which are so common to the cultivator, and of which the most skilful cannot always discover the cause, much less the remedy.

While on the subject of disease, it may be interesting to some of our readers to notice the fact that a quantity of double German Wallflowers, especially those with dark flowers, have gone off in a very curious way. Early in the year we lost several from the attack of a species of mould belonging to the genus Polyactis; but now, when the spikes are about half developed, all the flowers suddenly perish from the little white Peronospora parasitica, which is so common on the leaves of Cruciferæ. We have seen a species of the genus before on the petals of a Scabious, but this wholesale destruction of flowers by an allied parasite is entirely new to us. The little snow-white threads with their scattered spores sparkle on the dark ground, and are a very pretty object under a powerful lens. *M. J. B.*

THE Azaleas which have been exhibited at our Metropolitan Flower Shows of late years, and this

year in particular, are certainly most extraordinary productions. Their size and form tell us that an immense amount of labour has been expended in their training as well as in their general culture, and we are compelled to acknowledge that the results which have been obtained show a very great amount of horticultural skill. It is not every gardener who could produce such marvellous specimens as those which we saw exhibited at Regent's Park and at South Kensington a few days ago. This, however, is all the praise we can give. We think that the skill displayed might be better directed, and that the results are not worthy of the labour and expense required to produce them.

The form in which these plants are trained is very stiff and unnatural. It has not inaptly been compared to a huge extinguisher, or less gallantly to a fashionable article of a lady's dress. Indeed we happened to hear one sarcastic individual remark that each plant ought to be crowned with a fashionable bonnet, so that the "make up" might be complete. To be serious, we almost wonder that our great societies should encourage such a system by giving prizes for these plants, or that gardeners should waste their time in producing them.

In addition to the ugly form which we have just condemned, it would appear to be part of the system to hide the foliage. The flowers are spread out and tied all over the surface so that scarcely a green leaf is allowed to be visible. Surely this is wrong. According to our ideas foliage here and there contributes as much, or nearly as much, to our enjoyment of the beauty of a plant as its flowers; and when both are combined, as Nature intends them to be, the one heightens the effect produced by the other. By all means, then, let us have an opportunity of seeing the leaves of our plants as well as their blossoms.

Our English visitors to the great Brussels exhibition in April last, some of whom were deputed by the Royal Horticultural Society, had an opportunity of seeing that a show may be made interesting and effective without such huge specimens of scaffolding as those we have just been describing. It is to be hoped, therefore, that means will be taken to encourage and develope the skill of our cultivators in a new and more healthy direction. By all means let us have, at these shows, plants in the highest state of cultivation, large as well as small, but more natural in form, and with their leaves developed and visible to the eye as well as their flowers. The public, that great body that "pays" and supports these horticultural exhibitions, evidently takes a view of the matter somewhat similar to our own. At first, and for a time or two, it may be astonished at those great examples of horticultural skill—those "pillars of light," and "mountains of snow," as they are called in the "Proceedings of the Royal Horticultural Society"—but the surprise soon wears off, and the gem ceases to attract or to please. Any attentive observer may see that this is now the case at our London flower shows. In our most crowded exhibitions there is generally plenty of room in front of these large "specimens," which people have seen so often. If one happens to see a crowd a-head, he may be almost certain the attraction is Roses, Orchids, Geraniums, or something strange or new. And that people are not entirely led away by gorgeous colours and huge size, is clearly shown by the great interest which was taken in the little collection of Alpine plants which had been sent up by Messrs. Backhouse, of York. There was a crowd of delighted admirers in front of these plants all the afternoon. It was a charming little group, and we hope it will not be the last of its kind which will be sent in to give interest and variety to our flower shows.

—— The Seedling Garden Flowers exhibited on the 1st instant at the South Kensington Show, belonged chiefly to three or four groups—those of Azaleas, Rhododendrons, Petunias, and Pelargoniums.

Amongst Indian Azaleas there was from Mr. Veitch a very fine variety, called Vesuvius, which is a good deal in the style of Mr. Veitch's superb seedling Stella, that is to say, one of those bright orange scarlets in which the upper segment is suffused with a distinct violet tinge. Flowers of this character are novel and very beautiful, and the present was a fine and no doubt a first-class variety, though we somewhat hesitate to adopt an opinion which we heard expressed, namely, that it was probably the best of its class, for that would place it above Stella, which we are hardly prepared to do. It, however, well deserved the First-class Certificate which it gained.

Then, amongst Hardy Rhododendrons, Mr. Young had one called Princess of Wales, which had some merit, as well as novelty of character. It was a light-centred flower with a border of pale purple and spotted, a new style amongst the pale-centred class.

Amongst the Petunias one called striata purpurea, shown by Mr. Holland, who is well-known for his capital strain of this flower, was a very delicate variety of considerable promise, but required more growth. It had a rosy ground-colour, and was marked by broad bands of white.

The majority of the subjects shown were, however, of the Pelargonium race, and of these, amongst what are called the "show" varieties, was one of great beauty, and of a most distinct character, called John Hoyle. The shape of this flower, and the texture and substance of its petals, were in every respect unexceptionable; the colour was a rosy scarlet shaded and deeply veined with maroon crimson, the upper petals being entirely of a deep rich maroon except a narrow sharp edge of carmine. This is undoubtedly, so far, the crack flower of the year, and far outdistances all the rest, richly meriting the First-class Certificate which it received. The other most noticeable sorts of this class were British Sailor, a fine deep purplish rose with white centre, in the way of Diadem, but darker; Profusion, a well-formed soft rosy carmine with dark blotch, white centre, and pale rose lower petals; Sunny Memories, a smooth orange scarlet, with dark maroon blotch, pale lower petals, and white throat; and Exhibitor, a deep rose with dark blotch, white throat and pinkish under petals, remarkable for its prolificacy of bloom, and likely to be useful as a market plant. The Fancy Class received one or two useful additions, in Anne Page, which was a very pretty bright rosy carmine flower, the lower petals blush with small spots; and Mrs. Dorling, which bore a good truss, and had upper petals of a deep rosy carmine, and lower petals slightly tinted with carmine. Blair Athol, with dark ruby-red flowers, was not in good condition, but had desirable qualities about it. The first-named, however, was the best.

Of the class of Zonates there were several very nice flowers shown, but as it takes much to beat those already known, these did not meet with much favour from the censors. Sir Fitzroy Kelly, a pretty light scarlet; Enamel, in the way of Blackheath Beauty; Princess of Wales, a scarlet zonate white-edged variegated resembling Fontainbleau; and Eve, a very pleasing pale rose-pink, were among the most deserving of mention. The latter, which has now been shown on two or three occasions, promises to become an acquisition; it certainly improves on acquaintance.

We ought also to mention the Tropæolum called Cooper's Defiance, a very bright scarlet of the Lobbianum class; but of course, beyond the fact of its brilliant colour, no idea could be formed of its utility when planted out.

New Plants.

277. Trichinium Manglesii, *Lindl. Bot. Reg.* 1839, *n.* 28 *in not.*; *Bot. Mag. t.* 5448.

The existence of this beautiful herbaceous plant was made known in the Botanical Register for May, 1839; but it has only of late appeared in gardens from Swan



River, where it grows wild. Mr. Thompson, of Ipswich, who has been the fortunate raiser, writes of it thus:—

"The Trichinium Manglesii is from Bunbury seed; from a large quantity of the heads I picked out about a dozen perfect seeds, which yielded three or four plants. The root seems perennial, and throws up several branched stems, 18 inches or more high, the branches erect, elongated, and each bearing a handsome head of flowers, of which this woodcut gives a good idea. The copious white hairs, so characteristic of the genus, with which the florets and bracts are clothed, give a singular aspect to the plant, and contrast effectively with the amaranth-purple or mauve-coloured petals. Under the lens these hairs are pretty objects, owing to their denticulations.

"The germination of the seed revealed a peculiarity worthy of note. The plumule, instead of arising from between the two unequal seed leaves as in most plants, is emitted from a point considerably below them. The same thing I find occurs in Dodecatheon Meadia.

"I send you a small head of the Trichinium. Unless it ripens seed I see no chance of increasing my stock."

We earnestly hope it may succeed, as it is a *most* lovely thing.

ORCHARD MANAGEMENT.—No. V.

In the education, so to speak, or training up, of young trees for future usefulness, it is necessary, as in the human subject, to begin very early to lead them in the proposed direction; and as I am fully convinced that surface cultivation is indispensably necessary to the perfection of good management, so also the endeavour to keep the roots near the surface is a perfectly legitimate object. I therefore recommended (p. 365), for the furtherance of that object, that the roots should be spread out on the surface of the ground, and well covered with some good compost, in order that they might find plenty of nourishment and a genial medium in which to extend laterally. If this were not present, they would probably penetrate deeper into the earth, and in these early stages that ought to be prevented, and by attention and care it may be done. When permanently planted, they will of course do this to a certain extent, but it is not then of so much consequence, if there is only an abundance of surface roots to be acted upon by surface cultivation. In order still further to assist the development of surface roots in the young stocks, the covering of compost, should be well mulched over in March, with some good rotten manure.

I fear that these details will appear to some to be tediously minute, and the reasons given for them unnecessary as being in general so very obvious, but I am not clear that these things are so well understood by our younger brethren in the profession as might be supposed. Nor is this to be much wondered at, when we consider how much more is now expected from a gardener than would have been considered necessary in the younger days of the generation now passing away; thus, as there is so much more to acquire, it is to be feared that the fundamental principles of practice are often but imperfectly acquired. I have therefore been more minute in detail than may be needful to many practical men, in the hope of placing a few of those principles before others in a plain unscientific manner, and as a sort of antidote to the confusion of ideas often caused by the intricacies of ribbon border and parterre planting, which absorb so much more than their due share of the time and talents of modern gardeners, to the exclusion of many matters of much greater importance to them in the long run.

The beds in which the stocks are planted will require to be kept clear of weeds, and in the next year should have a top dressing of good compost, remembering all this time to leave the branches to develope themselves freely and unchecked by pruning, which will produce a corresponding development of roots, and increase the size of the stem. Two years in this bed, with such liberal treatment, ought to do wonders for them. In October it will be best to lift them very carefully, guarding them especially from injury to the roots; this is best done by taking out a deep trench at one end, and undermining the roots, in which manner the trees will come out much easier and with far less injury than when the soil is taken off from the top. Previous to replanting, the roots must be carefully examined, and every one which has a downward inclination must be closely pruned off—not shortened, but entirely removed. A bed having been prepared for them as before recommended, and in a situation where they can be allowed to stand until their final removal into the orchard, they should be placed as before on the surface of the ground, at a distance of not less than 3 feet apart each way; or if there were only a limited number under preparation, and space was no object, I should prefer 4 feet apart every way. Great care must again be taken to spread out the roots equally, and to see that they do not cross each other. The whole must then be covered with a sufficient depth of fresh compost, mulching as before advised. A little pruning of the branches may here be allowed if they are very much overgrown, but we must remember that we want a good sized stem to graft upon, as well as a good stock of roots to force up the scion into a vigorous growth, and therefore caution must be used in reducing the branches at this stage, lest we check the roots, and through them the enlargement of the stem.

I must again urge the importance of performing this planting operation as early in October as possible, and my reason is that I find when thus early planted an emission of roots will take place immediately, and consequently the tree will scarcely feel the removal; but on the contrary when late planting is resorted to, the emission of roots is by means so certain, and the tree is thrown

into an unnaturally dormant state, and although not killed, much time is lost in the future. It has often occurred to me that the temperature of the earth has very much to do with the *rationale* of planting. According to the tabular observations on the temperature of the earth recorded in Dr. Lindley's Theory of Horticulture (a book which every young aspiring gardener should thoroughly study), I find that the earth temperature of October is greater than in any succeeding month up to June, a fact which in my opinion speaks volumes in favour of early planting, and deprecates the practice of leaving it until those months when the earth temperature is the lowest.

If the foregoing directions have been complied with, it is only reasonable to conclude that in the following season the growth of the stocks will be such as to bring them into the requisite condition of size and strength for grafting, and that they will possess a great abundance of strong healthy roots, capable of yielding a vigorous development. At the proper season, then, they should be grafted. This operation should not be performed until the sap is in brisk motion; about the middle of April in most seasons will be a suitable time, but it may be done at the end of March in early seasons, and as late as the first week in May in backward seasons; but whatever season is selected, let the stocks be then, and not until then, carefully cut off at 3 inches from the surface of the ground, and grafted at once with the selected scions, which should be about 6 inches in length. In cases where the grafting of Apples is performed so near the surface of the ground, I do not advocate the use of grafting clay, but recommend the operator to bank the stock round with soil, so as to leave only the two top buds of the scion projecting. This soil should be pressed very firm, and after a time it will be necessary to go round and see that it has not all en away from the grafts, or cracked open; it may falso be necessary to apply a slight covering of very rotten manure, or any other light compost, the more effectually to exclude the air.

And now a word on the selection of scions, which may appear a trivial matter, but is in point of fact a very important one, and requires more than usual attention to minutiæ, or in other words to those trifles which constitute perfection. In the first place the middle of a shoot always forms the best scion; in the next, those shoots should always be cut from the extremities of healthy trees in full bearing, not from young luxuriant trees by any means, if it can be avoided—not because this would be any real detriment, but simply because the tendency to produce bearing wood will be longer deferred. If however it is desirable to propagate from choice sorts growing on old and debilitated trees, perfectly healthy shoots of a sufficient size may be obtained by shortening one of the large branches, and these will be equally eligible with the shoots from the extremities of bearing trees, because from the very condition of old worn out trees any shoots they may produce will be certain to possess the tendency to form fruitful wood. These shoots should be cut off a month or so before being required for grafting, and laid in under a north wall, or in a shady place: the reason being that it is found in practice to be desirable to have the sap in the stock considerably in advance of the scion.

The physiology of this matter has often puzzled me very much, but I have arrived at the conclusion that a great principle is involved, which is founded on sound practical deductions. When we take a scion from a plant in full action, say for example an Azalea, and graft it on to a stock also in full action, it is necessary to place them in a confined space with a high and moist temperature, so that both stock and scion may be kept in an excited state until the union is effected between them. As a further analogous illustration, I will instance the case of grafting Vines by approach, in which case it is necessary that both stock and scion (if I may so call it) should be in a free state of growth, when no bleeding will follow the cuts, and the union is easily effected, without the necessity of a confined space or a high moist atmosphere, because both have a separate source of vitality. But in the case of deciduous plants, like Apples, the practice must be altogether different. Here the operation must be performed under perfectly natural conditions, and any artificial excitement would only result in failure. We therefore take a scion from a tree when it is in quite a dormant state, before the sap is on the move, and adopt means to preserve its vitality by placing it in a cool temperature, in which condition the vessels, not being distended with sap, are in the most natural state to receive the ascending sap from the stock. On the contrary, if the scion were taken at the time it was required for use, and from a tree in which the sap had risen, it would be as full of sap as the stock, and therefore would not possess the inherent power of absorbing so readily the ascending sap, probably for want of a supply of leaves to elaborate it, and also of a confined atmosphere to preserve their vitality. This appears to me to be the reason why it is deemed proper to cut scions a month or so before grafting them. I may be mistaken, but I would advise my younger brethren to give the subject a thought now and then in the course of their practice. *John Cox.*

HYBRIDISATION OF FRUITS.

AN ancient friend of Gil Blas laments that the Peaches, which, in his boyhood, were as big as Pumpkins, diminished sadly in size in his old age. Most of us have felt as he did with regard to the fruits of boyhood. By careful crossing Bakewell improved the ragged bony sheep of his youth into the full-fleeced fleshy sheep of the present day, and there is no reason why the present race of fruits should not by the means he employed be improved into a race nearly as big as the youthful Pumpkins of Gil Blas' friend.

The introduction of orchard houses has removed the obstacles which have hitherto existed; the uncertainty of out-door cultivation has been too disheartening to the English fruit grower, and our fruit gardens, with few exceptions, owe the introduction of improved varieties to foreign cultivators, who appear to have depended more upon chance than any skilfully arranged system; their efforts have however given very satisfactory results.

The Acton Scot Peach, a hybrid obtained by crossing the Early Nutmeg and Royal George Peach, raised by Knight, and more recently the Victoria and Prince of Wales Pears, raised by Mr. Huyshe from the Marie Louise and Gansel's Bergamot, show that there is no lack of success in England, where skilful hands and heads are at work; these efforts have however been isolated, and it is during the years to come that the most important results may be expected from this interesting branch of horticulture.

In a well stocked and well cultivated Orchard house all the materials for the raising of seedlings exist, and as Peaches hold the first rank among refined fruit, I will begin with them. The earliest Peach known is the White Nutmeg, but valuable on that account only, the fruit being small and inferior; it should be improved by crossing with Grosse Mignonne, Noblesse, or Royal George; and to obtain size, with the Pavie de Pomponne or Catherine; probably the produce of the first generation will be a disappointment, but patience is a most needful virtue in everything connected with pomology, and the third or fourth generation may repair the defects of the first. Following the White Nutmeg we have the Red Nutmeg and Petite Mignonne, the latter a most delicious Peach, but now too small; it has a great tendency to reproduce itself, but, fertilised with the large varieties already named, a very valuable early fruit may be hoped for.

The Early Ann, Early York, and Acton Scot are all excellent early Peaches, but too small. The Early York reproduces itself from seed with little variation, and is likely with careful crossing to give the best results; it should be allied to the largest known varieties, irrespective of season of maturity.

The Shanghai Peach promises to be a valuable hybridiser; it is very large, very hardy, and very productive, the flesh particularly firm and solid, withal a good melting Peach; a good market fruit ought to be raised from this variety.

It seems like gilding fine gold to improve the flavour of the Noblesse, but if crossed with the Stanwick Nectarine this result is possible. To obtain size combined with flavour, the Grosse Mignonne, Noblesse, Galande, and Royal George should be crossed with the large Clingstone Peaches. Some of the Pavies in the south of France are enormous, and as a melting Peach will produce a Pavie from seed, and a Pavie a melting Peach, some good hybrids may be obtained.

To prolong the Peach season the late American varieties, will be valuable; some of these will hang on the trees till November, and present an imposing exterior on the dessert table; they will not, however, bear the test of "degustation." They should be crossed with the Grosse Mignonne, Noblesse, and the Walburton Admirable.

The Desse and Boudin may be improved by an alliance with Stanwick Nectarine and Noblesse Peach.

Dr. Lindley, when the Stanwick Nectarine was introduced, pointed out its great value as a hybridiser. Crossed with the Pitmaston Orange, the Elruge, and the very precocious Fairchild's Early Nectarine, some fine varieites will probably be obtained.

A race of late Nectarines originating from the Peterborough a late melting sort has been raised here; though large and handsome its flesh is too tough. Crossed with melting Peaches and the Stanwick Nectarine, the season of good Nectarines, fully equal in quality to the earlier kinds, may be prolonged until November; the very large Newington Nectarine will probably prove the parent of some fine melting varieties if allied to the freestone sorts.

In the orchard house here are now 110 seedling Peaches and Nectarines, nearly all bearing fruit with the help of glass and pot culture; this satisfactory result has been obtained in the short space of from three to five years.

I had the good fortune two years since, when attending the Fruit Congress at Namur, to be introduced to M. Gregoire-Nelis. This gentleman has earned a just reputation for the excellence of his seedling Pears; he was good natured enough to give me a history of his efforts, but he did not say that he had hybridised any varieties, his system consisting in the selection of the largest pips from the finest and best flavoured fruits. If by this simple method so many good and diverse varieties have been obtained, a careful and systematic hybridisation should give vastly superior results.

The Doyenné d'Eté is the earliest of all Pears, small, with an agreeable but not superior flavour; it is an abundant bearer and should be crossed with either Jargonelle, Beurré Giffart, Bon Chrétien (Williams), Beurré Superfin, or Louise Bonne d'Avranches, all possessing qualities in which it is deficient. The old fashioned Lammas, Green Chisel, and Citron des Carmes will probably be the parents of fine early Pears crossed with larger and finer varieties. The Jargonelle and Beurré Giffart, fertilised with their hardier cousins, may produce seedlings hardy enough for the North of England, without the protection of a wall.

The enormous size of the Uvedale's St. Germain renders it a most important parent; crossed with Beurré Superfin, Jargonelle, or Marie Louise, the produce may possibly possess the delicate flavour of the latter, combined with the enormous size of the former, a result most devoutly to be desired, as our Pears may then at all events be as big as Pumpkins.

The best of our winter Pears, Winter Nelis and Josephine de Malines, are too small; hybridised with either Beurré Diel, Triomphé de Jodoigne, Duchesse d'Angoulême, or Easter Beurré, a greatly improved progeny may result. During February we have the delicious Bergamotte d'Esperen; this is too small, and should be crossed with Gansel's Bergamot, Beurré Rance or Easter Beurré; in March and April the two last are large enough, but their flavour is not superexcellent. The recent introduction of Madame Millet has provided an excellent Pear for May, and Bezi Mai and Morel will last till June, but though they look well on the dessert table, they must not be tried by any other organ than that of sight; crossed with high-flavoured Pears they will probably prove the parents of late varieties equal to Beurré Superfin, a very high standard.

There is a tendency in some Pears to reproduce their race. The Beurré d'Aremberg is remarkable for this quality; the seedlings of this variety raised here differ from the parent only in the season of maturity. The excellent characteristics of the Passe Colmar are inherited by its descendants, and this quality will prove an important guide to the hybridiser. Before closing my notes on Pears I may mention that Beurré Clairgeau and King Edward's, from their size and beauty, are undeniable; but they want flavour, and should be crossed with those of better quality.

If you will allow me, I will at some future time offer you some remarks on Plums, Apples, and other fruits. In the present race for improvement in all things, it would be a sad pity that Pomology should lag. I may here remark that pot cultivation under glass is indispensable; out of doors the experimentalist would generally reap nothing but disappointment. To carry out hybridising successfully, many varieties of fruit must be collected; and as not more than three or four fruit on a plant will be needed, a moderate-sized pot may be used. The names of the parents from which seedlings are raised should be preserved, and the most minute attention given to all particulars connected with the races of seedlings, as the results are necessarily very slowly developed, and probably, to produce very marked progress, some generations of fruit must pass. *T. Francis Rivers, Sawbridgworth, Herts.*

NOTES ON GARDENS.—No. IX.

ROYAL BOTANIC GARDEN, EDINBURGH.

(Continued from page 507.)

THE houses in the Eastern division were chiefly devoted to the culture of Orchids, general stove and medicinal plants, tropical fruits, &c. The Edinburgh garden is so famed for a rich collection of the two last-mentioned classes of plants, that I was led to devote most of the short time spent in the houses to seeing as many of these as possible, doubtless missing numerous plants more likely to attract a general plantsman. In addition to fine samples of the commoner and indispensable medicinal things, I noticed the ornamental Saccharum violaceum; a plant 8 feet high or so of Theobroma Cacao; plants of the Bread fruit and Jack fruit; several Bananas and Plantains bearing good bunches of fruit; Janipha Manihot and Cinnamomum verum; a fine plant of Caryophyllus aromaticus, the Clove tree; Hebradendron gamboiodes; Myristica moschata, about 7 feet high; the true Cubeba officinalis, sent some years ago from Java to the garden; with the Litchi, Longan, Durio, Mangosteen, Cæsalpinia Sappan, Chinese Tallow Tree, and numerous others equally interesting. Many large Ferns were also to be seen in the warm wing of the main range. Amongst them a remarkably fine Cyathea arborea, several species of Alsophila, Angiopteris, Hemitelia, &c.

In the cooler houses I noticed various species of Chamærops, Charlwoodia, Dracæna, and a good specimen of Cordyline indivisa. One house was devoted to Azaleas and Camellias, many of them very large, and all in excellent condition; then came a house assigned to extratropical trees and shrubs, such as the Camphor, a plant about 20 feet high; various species of Podocarpus, very tall; large Acacias, Dacrydiums, Phyllocladus asplenifolia, and many other examples of the less hardy Coniferæ, such as Frenela Hugelii, Retinospora squarrosa, Widdringtonia cupressoides, and others. The other divisions were chiefly occupied with green-

house plants — Pelargoniums, Fuchsias, and popular garden things; Banksias, Hakeas, and Dryandras were also plentiful, some of them fine old plants. There was also a house of Heaths and Epacrises, with some of each genus of unusual size, and a plant of Erica melanthera between 12 and 14 feet high.

In the private department or "back houses" of the garden was a remarkably rich and varied collection of plants, quite enough in fact to make a very excellent public department. I shall merely mention those which most attracted my attention. Of the Onvirandra there were several fine plants growing in tubs, in a house containing also a number of Nymphæas and other aquatics. The largest Lattice-plant measured more than a yard across, with leaves from 15 to 20 inches long, and very abundantly produced; I understood the temperature of the water ranged from 60° to 70°, and it was by no means limpid or frequently changed. I think I am rather under the mark as to the dimensions of this remarkable plant. Of Cocos nucifera there were some vigorous young plants from 4 to 8 feet high, and along with them other choice things in the Palm line, such as Euterpe edulis, Areca rubra, Latania rubra, Oreodoxa regia, with a lot of Cycadaceous plants, including Stangeria paradoxa and other scarce species. Medicinal and other plants of like interest, again cropped up here in unusual abundance, many of them seen by me for the first time. For instance, Adansonia digitata, the Baobab, a promising young plant; Myroxylon Pereira; the Gutta-percha plant, Isonandra gutta; Strychnos nux-vomica; and healthy specimens of the deadly Ordeal Bean, Physostigma venenosum, sent from Calabar to the garden; the Mustard plant of Scripture, Salvadora persica; with several species of Nepenthes; and the "Doom bark" tree. In the propagating division was a goodly stock of young Palms; of Cinnamomum verum, Quassia amara, and other useful plants not often increased. Clerodendron Thomsonæ var. major, which had flowered in the garden during the season, and was considered much finer than the older form, was also here. Though no large house is specially devoted to Ferns, yet in various places in this department there was an extensive collection of exotic species, with many rarities, of which I can only mention Dictyopteris varians, Cionidium Moorii, and Lycopodium Hookeri. Various species of Hymenophyllums and Trichomanes were grown in a glass case in a pit devoted to Ferns requiring a high temperature, In this back region I also saw the Marsileas — ægyptiaca and macropus; Cinchonas — Calisaya, micrantha, nitida, and, if I mistake not, one or two other species; several interesting aquatics, such as Chætophora endiviæfolia, Eriocaulon septangulare, Pilularia globulifera; a collection of the new Japanese introductions; houses of young Heaths and other hard-wooded stuff; Sarracenias, Dionæa, Cephalotus, some curious Droseras, and others of that ilk.

In the same enclosure were the cool pits, frames, &c., a great portion of them occupied by a fine collection of Alpines, with numerous duplicates of many rare things. Primulas, very abundant, and well grown; alpine Grasses, rare Carices, good Ranunculi, all the British Pinguiculas, British Orchids, &c., were observed. Lobelia inflata, being I suppose much wanted for lecturing purposes, was planted out in a pit in quantity; and the Jalap plant was similarly grown. Parochetus communis, a pretty little creeper, was also amongst the alpines—a reintroduction I believe. Near at hand was a complete collection of British Ferns, species and varieties, with a large stock of the Woodsias and rarest things; and large pans of Ophioglossum vulgatum, Botrychium Lunaria, and the British filmy Ferns. There was a large collection of bulbous and tuberous rooted things in the same quarter; amongst them the new Alliums McNabianum and Murrayanum from California; Chrysobactron Hookeri, and quantities of good things of like interest. Of Narthex Asafœtida there was a fine stock, raised from a plant which had flowered in the garden. In the old Palm house were noble plants of the tenderer Conifers, with Knightia excelsa, Cupania Cunninghami, Palms requiring a rather cool treatment, remarkably fine plants of Gleichenia Speluncæ, dichotoma, and flabellata; with noble looking specimens of Alsophila excelsa, not long imported.

The new Palm house, which is about 100 feet long by 60 broad, and 72 feet high, cost between 6000*l.* and 7000*l.*, and was finished in 1858. For nearly 40 feet high the building is of fine stone, with large arched windows; the roof being a glass and iron curvilinear dome, in two stages, rising 35 feet above the stone sides. A neat iron gallery runs round the sides at 35 feet from the floor; and there is one at the base of the upper dome, but not for the public, besides exterior ones for repairs, &c. Externally the building is very beautiful and dignified, the latter character of course arising from the large use of solid masonry, which is useful also in retaining heat, and gives an amount of shade very congenial to the Palms. Of these I think I may say there were nearly 100 species. From Sagus Rumphii, Livistonia chinensis, and Caryota urens, nearly 50 feet high, and many others almost rivalling them, down to the lowest, there are "all sorts and sizes" of Palms, in the most luxuriant health, perfectly free from a spot of disease, or even of dust, and all grown in tubs too, some of them 6, 7, and even more than 8 feet in diameter, and with their contents weighing from 6 to 8 tons each; yet they seemed as much under control as the contents of a Wardian case could be. And such "tubbing"—no sign of any indecision about it—no evidence of hankering after the monstrosities of prize-tub competitors—no indication of a relapse into the good old tea-chest style, but a perfect display of simple excellence in that way. The tubs used are of strong oak, round and well-proportioned, and while looking at least as well as any other pattern, are much more convenient for the cultivator. Sphagnum was placed on the surface of the soil in these great tubs; I suppose for the purpose of keeping moist the surface roots, but being neatly laid on it was also much more agreeable to the eye than large surfaces of swashed earth. The amount of skill and labour which has overcome all the difficulties of huge plant culture, and placed the Palms in the very superior state in which they are, must have been very great. From its stateliness of exterior, fine proportions, and above all from the perfect condition of the plants, I was impressed at the time with the superiority of this house to any other of the kind which I had seen, and the impression still remains. The house is equally creditable to architect and manager, and quite worthy of rearing its head amongst the many fine sights that may be enjoyed from the Calton Hill, from which, by the by, I first saw its dome. Apropos of fine sights, there is a grand view of Arthur's Seat, with the foreground well wooded, to be had from the garden.

The health of the plants in the indoor department was very striking, especially in the main range and more unmanageable compartments. This is the more remarkable when one takes into consideration the immense number of species from all sorts of climes that have to be humoured and accommodated in those houses. The feat of keeping such a protean collection in fine health is one of far more difficult attainment than the growing, no matter how wonderfully, of specialties whose requirements are known to a hair's breadth, the difference being comparable to those observed between the movements of an "awkward squad" on its first parade, and the mechanical accuracy displayed by a "duty" company of guardsmen.

Fully aware of the impossibility of making myself acquainted with the vast contents of this garden, or of giving a sufficient idea of them in such an essay as the present, I find myself obliged to curtail inconveniently much information which I had acquired. I had "booked" the names of as many noticeable plants as would alone fill the space occupied by my "notes" on the garden; but fearing the landscape gardener's "effacing fingers" may precede my narrative I must, for the present at least, reluctantly forego the pleasure of recording them, as well as of a dissertation on the Messrs. Lawson's vast nursery, one or two other Edinburgh places, and the Glasgow and Belfast Botanic Gardens, all of which I had the privilege of examining. I feel that to do them full justice would run my tale so far into futurity as to render the latter portions of it stale and useless. So next for my gleanings on the shores "of you sweet Dublin bay."
Wm. Robinson.

Home Correspondence.

The late Frosts in Nottinghamshire.—June the 1st, 1864, will long be remembered by gardeners in this county. On the morning of the day in question frost caused such havoc as has no parallel, so late in the season, within the memory of the oldest inhabitant. The thermometer at Osberton, four feet from the ground, stood that morning a trifle above 20°, thus indicating 12° of frost. Early in the morning the sun broke forth, and continued to shine brightly during the day; by the evening, therefore, the full effects of the frost could be ascertained; the young growths of Yews, Rhododendrons, Ivy, Portugal and common Laurels, Ash, Andromedas—many of the more valuable Pinuses, Lavender, Walnuts, Mulberries, &c., are either killed or severely injured; the Apple crop, the most promising remembered in this part of the country for years, is nearly destroyed, while the slaughter made amongst French Beans, Potatos, &c., is appalling. On the walls the fruit crop, a very bountiful one, is perfectly safe, and, although 25,000 bedding plants were turned out, I believe I have not lost one dozen. For the benefit of young gardeners I may, however, remark, that all beds, as soon as they are planted and watered, are protected with Yew boughs, a plan which I consider should be adopted by all, for the following reasons, viz.: it protects the plants from hot sunshine, cold cutting winds, and frost, and it prevents the ground from getting parched up; had my beds not been protected, my loss might have been serious; as it is, the only plants injured are those which the boughs did not sufficiently cover. My Perillas, Tropæolums, Amaranthus, &c., were fortunately, however, not put out, although I had bedded out plants equally tender. So much confidence have I in the method of protection just alluded to, that two beds of Mrs. Pollock Geranium were trusted under this covering, and did not receive the least injury. In this neighbourhood the season has been particularly dry and hot. Such weather near Sherwood Forest tends to baffle the skill of both farmers and gardeners; a season unusually hot by day, cold by night, accompanied by cutting winds, and without rain for weeks, and lastly, characterised by the severe frost of the past week, renders success a laborious task. The following record of temperature during 13 nights, commencing with May 24, may not be without interest:—

May 24	.. .. ..	24°	
,, 25	.. .. ..	35°	
,, 26	.. .. ..	34°	
,, 27	.. .. ..	24°	
,, 28	.. .. ..	32°	
,, 29	.. .. ..	39°	
,, 30	.. .. ..	29°	
May 31	.. .. ..	36°	
June 1	.. .. ..	20°	
,, 2	.. .. ..	25°	
,, 3	.. .. ..	33°	
,, 4	.. .. ..	32°	
,, 5	.. .. ..	31°	

Edwd. Bennett, Gardener to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.

Flower Market.—The "Male Fellow," who takes so deep an interest in the marketing of flowers at Kensington—because it brings them near his own door probably, and would be a personal convenience to him—has, notwithstanding his Old Bailey experience, not succeeded in making out his case. Though getting in years, I can assure him that I go about a good deal even now, if not so much as of yore, prying into odd corners, and sometimes peeping where I am not wanted. My opinion respecting his project is indeed founded on what I have heard during some of these visitations; and it is to this effect, that "the best men in the trade" would laugh in his face if he would only propose to them personally to send shilling plants to his market. I am not to be caught with chaff, and so it won't do to tell me that the subject has been discussed before, and then fly off with the assumption that it was therefore approved. No, no, Mr. "Male," that won't do. Besides, has "Male Fellow" never heard of a certain Floral Hall established in the very heart of London, and abandoned as a flower market because it wouldn't pay? Then about these "best men:" if they are so eagerly approving, how is it that some of them—and some "best" names are very blandly brought in in a former letter (p. 486)—how is it that some of them do not now press forward to support and urge on the carrying out of the proposition? Perhaps the idea might be expanded, and we might have Orchard-house trees sent up ticketed with their prices too. Eh? If flowers, why not fruits or fruit trees? I have nothing to say *per se* against the institution of a flower market at the West-end, if the residents want such accommodation, and I could amuse myself sometimes by popping in; but I do protest against the poor Royal Horticultural Society being dragged into all the wild schemes hatched in the atmosphere of South Kensington, and being led on to expend its income and its energies upon objects utterly beneath the notice of a scientific body, whilst its proper objects, the improvement of horticulture and the advancement of horticulturists, are left to languish for want of support, and its one scientific garden is allowed to run waste for want of the "10*l.*" which would put a better face on it. I do protest—whether the scheme comes from within or without the sanctorium—against the foisting upon the Society such a derogatory work as the institution of a flower market, when at this very moment Chiswick is lying waste for want of action in the matter of an important scheme for the better practical education of young gardeners, which has, I am told, been carefully matured. Let the market, I say, go amongst the other curiosities "over the way;" or at least, let the Museumites or the Commissioners—from whichever source the inspiration comes—wait till the 'sick man' has departed before they seek to turn a penny out of his inheritance. Let them hold back, and not, with so little regard to common decency, lay themselves out to occupy the dead man's shoes. I "intrude" this remark, because it really does not require one to poke about with his umbrella to be able to guess that the projectors of this notable scheme, foreseeing the collapse which is imminent (and which, who knows? they may be helping on), seek to form a nucleus which may be developed into a profitable speculation when the melancholy "event" has happened. If this sunshiny weather lasts, I shall be able to move about freely—happily I have no corns—and 'Male Fellow' shall in future have no reason to regret my want of activity.
Paul Pry.

Zizania aquatica.—In your last Number there is a short notice of the endeavours made by my friend Mr. Gillbanks to introduce the Zizania aquatica into cultivation in our northern swamps and lakes as food for game. It is well known that this fine and productive plant grows in extreme abundance in the swamps to the west of Lake Superior, and farther to the north in Rupert Land and the Red River colony in North America. It there sheds its seeds into the water, where they vegetate abundantly. Probably, therefore, the same result might be obtained in England and Scotland. All the seed, a considerable quantity, given to Mr. Gillbanks has proved to have lost its vitality. The loss is doubtless caused by the seed having travelled in a dry state. Sir Joseph Banks found the same difficulty in getting living seeds, but ultimately had them conveyed in water. He then raised the plant, which continued to reproduce itself for some years. It was ultimately destroyed by changes in the property, and there is reason to fear that no living plants of Zizania exist in Europe. It is plain therefore that attempts must be again made to have the seed conveyed to England in a damp state, unless this notice should cause the discovery that the plant is still living in some curious garden. *C. C. B.*

Cool Orchids.—Your correspondent "B. F." says (p. 533) that there is an absence of anything practical in Mr. Bateman's lecture on cool Orchids. About two months ago Mr. Skinner presented me with a plant of

Lycaste Skinneri with two buds on it. It had only been landed from Guatemala a few days, but I was told that it might be kept in a comparatively cool place. I put it just within my library window. In about a fortnight the buds gradually opened, and two magnificent flowers have been in bloom for six weeks. Surely there is something practical in the fact of this wonderful exotic plant flowering in this manner without any of the treatment supposed to be indispensable to the cultivation of Orchids, viz., the use of hot-water pipes, syringing, steaming, &c. To me, who never had an Orchid before, not even in my greenhouse, the pleasure conveyed was something quite new to the senses. *Lovell Reeve, Sutton, June 6.*

Ferns v. Flowering Plants.—In one passage of my discourse on Ferns published at p. 508, I find a general remark which, in the condensed form it was necessary to adopt, scarcely expresses the meaning intended. I learn also that its intention has been mistaken, so that perhaps you will allow me in a few words to put the matter right. It is said that the fronds of all true Ferns have a circinate vernation, and that no flowering plants have their young leaves thus disposed. The term TRUE FERNS was used purposely to exclude the pseudo-Ferns, some of which, *e.g.* the Ophioglossaceæ, are not circinate in vernation; and in respect to flowering plants, the meaning was, that none likely to be mistaken for Ferns have this kind of vernation—the exceptions occurring amongst the antediluvian-like order of Cycads. *Thomas Moore, Chelsea.*

Collecting Wild Plants.—The statement made by your correspondent (p. 532), quoted from Babington's Manual (edition 1843, p. 194), respecting Menziesia cœrulea being "nearly if not quite extirpated by an Edinburgh nurseryman," on the station called the Sow of Athol, is incorrect. I accompanied the late Mr. James Cunningham, of Comely Bank, the nurseryman I suppose referred to, when he visited the station in question about 30 years ago, which was the only visit he made to it, and I can affirm that it was not unduly robbed; on the contrary hundreds of plants were left. I can only attribute the extirpation of the plant in the station just named, to the constant raids made on it by botanists and collectors, in consequence of the publicity given to it in our various British Floras and otherwise. *Menziesia cœrulea.*

Horticultural Plagiarism.—Any one conversant with the horticultural literature of the day cannot fail to have remarked the extent to which this sin is practised and tolerated. A. is a clever practical horticulturist, perhaps a genius in his way, but for want of early practice or education an indifferent writer; nevertheless his facts are valuable, and he is induced by his friends to lay them before the public. B., probably a common-place man, but business-like, shrewd, and educated, seizes on A.'s facts, and by a few verbal alterations presents them as his own, probably politely abusing A. (the man from whom he filches his knowledge) as a foil to discovery. This, which represents the commonest and most unprincipled of plagiarists, I will designate Class 1. Again: C. is a clever practical horticulturist, who never writes; D. knows nothing of horticulture, although he writes constantly on the subject. Living near to C. he visits him constantly and "draws" or pumps him. One of the C. class said to me the other day, "D. is a wonderfully clever man. He comes here and talks to me by the hour, and the next paper I take up I find my very words to him recorded in his article. What a memory he must have!" This is Class 2. But a deeper lot than either of these is in work. E. moves in three different circles, practising the arts of B. and D., and is tolerated in each on account of his supposed skill in the others. A friend remarked to me at a scientific *soirée* the other evening, "E. is a great horticultural writer." "Pardon me," I replied, "you mean a great —— writer." "Oh no!" rejoined he, "I beg to undeceive you there; he really knows nothing on that subject." This is Class 3. The errors these men commit are often ludicrous, and the mischief they do is incalculable. Writing usually anonymously, they assume an authority which throws the mere reader, who does not always stop to think, off his guard, and he swallows the bait whole. As a practical horticulturist, I hail with delight the prospect of a better education for the rising generation of horticulturists by means of the Educational Committee recently appointed by the Royal Horticultural Society. If fairly carried out, I anticipate that we shall soon find practical knowledge and literary skill combined in a higher degree, and then the shams and flunkeys of horticulture will be consigned to a merited oblivion. *Hortus Siccus.*

Societies.

ROYAL HORTICULTURAL: *June 7 (Election of Fellows).*—J. Bateman, Esq., in the chair. The following candidates were elected Fellows, viz.:—

H. Bebb, Esq., Rev. M. Brock, Mrs. Boulton, Miss Clough, Miss Clutton, Miss K. E. Clutton, Mrs. Constable, W. Crookes, Esq.; Lieutenant-Colonel W. C. Erskine, C.B.; Mrs. Gordon, Major Hall, R. D. Hodgson, Esq; Mrs. Lewis, H. C. Lopes, Esq.; Mrs. Plimsoll, Mrs. Potter, Miss Eleanor Roberts, Mrs. John Shaw, Mrs. Waters, C Westerton, Esq.; and Miss Williams.

A short but interesting lecture on the subject of "London Cottage Window Gardening," was delivered on this occasion by the Rev. E. Bayley, Rector of St. George's, Bloomsbury. It consisted of a history of the window gardening and clean and tidy room movement, originated a year or two ago by his curate, the Rev. S. H. Parkes, in the poor district of Little Coram Street, the most aristocratic inhabitants of which Mr. Bayley said were costermongers. Under Mr. Bayley's active superintendence this movement to improve the dwellings and condition of people of the description just named by holding floral exhibitions and offering prizes for the best flowers and the tidiest rooms, described at length in Mr. Parkes' "Window Gardening," has been crowned with very great success.

"All women, and nearly all men, love flowers, and it was wonderful," Mr. Bayley said, "how much affection for them was infused into the children of parents who cultivated plants." The occupation was also stated to have a spiritual influence on those who followed it. "In a lone room," said Mr. Bayley, "at the top of one of the houses where every room was the dwelling of a family, there dwelt an aged woman, whose scanty pittance of half-a-crown a week was scarcely enough for her bare livelihood. The visitor, Mr. Parkes, observed, with some surprise, a Strawberry plant growing and flourishing in a broken teapot that stood on the window-sill. He remarked from time to time how it grew, and with what care it was tended and watched. At length, one day, he said to this poor woman, 'Your plant does well; you'll soon have some Strawberries on it.'—'It's not for the sake of the fruit I do it,' replied the woman.—'Then why do you take so much care of it?' he asked.—'Well, Sir,' she replied, 'I'm very poor, too poor to keep any living creature; but it's a great comfort to me to have that living plant.'"

The first floral exhibition seems to have been a characteristic one. It was held in the Bible Mission Rooms. Out of 140 plants registered a month before, 94 were displayed. Green tissue paper made the forms look like flower-stands. Each exhibitor delivered his own plant, with a card upon it containing his name and address. Tea-pots, cracked and antique, jugs with broken noses, washing-basins, and other domestic vessels, served as flower pots, which were decked in gaudy scraps of paper-hanging. The terms of admission were—exhibitors, free; adults, one penny; children, one halfpenny. Two pounds were taken at the door for admissions; and this sum made the scheme self-supporting, paying all expenses. The prizes ranged from 1*s.* 6*d.* to 5*s.* Encouraged by the success of this show, the next, in the following year, was made a comparatively grand affair. Russell Square was then for the first time opened to the folks of Little Coram Street. The prizes ranged from 1*s.* to 10*s.*, for Fuchsias, Geraniums, and annuals. Exhibitors were admitted free to the Square, along with persons who paid 1*s.* entrance. After six in the evening, everybody who could afford to pay a penny was free to enter the square gardens. Lord Shaftesbury gave away the prizes, before an audience of 2000 persons. Not a flower-bed was trodden, not a sprig of a shrub was broken, by the thousands who roamed through the inclosure for a penny apiece. The only evidence, said Mr. Bayley, of the presence of so great a crowd being there, was a little scratching of the gravel. This first show in the square therefore proved in all respects highly successful.

The flower show for the present year is to take place on July 13. Prizes are offered as follows:—

CLASS I.—Persons living in the Little Coram Street District.
CLASS II.—Persons living in other parts of the Parish.
CLASS III.—Domestic Servants, (who Mr. Bayley said were excellent gardeners.)

To each of the above Classes the following Prizes will be given:—

	1st Prize.	2nd Prize.	3rd Prize.
Fuchsias ..	10*s.* 0*d.*	5*s.* 0*d.*	2*s.* 6*d.*
Geraniums ..	10 0	5 0	2 6
Annuals ..	10 0	5 0	2 6

CLASS IV.—Children in National, Infant, Sunday, Parochial, and Ragged Schools.

To the above Class the following Prizes will be given:—

	1st Prize.	2nd. Prize.	3rd Prize.	4th Prize.
Fuchsias	7*s.* 6*d.*	5*s.* 0*d.*	2*s.* 6*d.*	1*s.* 0*d.*
Geraniums	7 6	5 0	2 6	1 0
Annuals	7 6	5 0	2 6	1 0

CLASS V.—For Plants of any sort not entered.

1st Prize.	2nd Prize.	3rd Prize.	4th Prize.
10*s.* 0*d.*	5*s.* 0*d.*	2*s.* 6*d.*	1*s.* 0*d.*

RULES.

(1.)—Exhibitors under Classes I., II., III., and IV. must send in their names and addresses, with the names and numbers of the Plants they intend to exhibit, on or before Saturday, June 11th; and Plants not so registered shall not be allowed to compete in those Classes.

(2.)—Plants may be registered at Bloomsbury Vestry any morning between the hours of ½-past 10 and 12; and at Mrs. Beardon's, 12, Little Coram Street, during the hours of business.

(3).—The Registered Plants must remain in the parish, and under the care of the Exhibitors, from the 11th day of June until the day of Exhibition.

(4.)—All Plants sent to the Exhibition must be marked with the Number of the Class to which they belong.

(5.)—No Gardener or Flower Dealer may compete.

Mr. Bayley stated that this year he had entered about 450 names, and some 800 plants. The interest excited in these flower shows is, therefore, greatly on the increase.

In order to be sure that the plants to be exhibited were the required time in the growers' possession, and to prevent fraud, at which, however, there was stated to be little or no attempt, Mr. Bayley said that this year he has caused to be passed round the stems of the plants a piece of tape, the ends of which he secures to the pot by means of sealing wax. This answers perfectly for all plants except annuals, in dealing with which there is as yet some little difficulty.

Among plants grown by the London poor, the chief favourites are said to be Balm, Lavender, Thyme, Peppermint, Myrtle, Musk, Fuchsias, Geraniums, and annuals. Other plants, however, also receive attention. "A labouring man (said Mr. Bayley) in Little Coram Street cultivated Dahlias so successfully that Mr. Sowerby, of the Botanic Gardens, Regent's Park, gave him a number of the more choice kinds to experiment upon. 'Old Man,' or Southernwood, thrives everywhere. Sweet William, Stonecrop, and Nasturtiums do well. Creeping Jenny is suited to windows and pots. The Virginian Creeper grows well in a large pot. Major Convolvulus trained by the windows has been seen giving much pleasure to the infirm women of a ward of a workhouse as they watched day after day for a bud to appear. Minor Convolvulus grown in a pot at the top of a house caused great amazement by the closing of its small blue flowers at bed-time. Virginian Stocks and Scarlet Runners flower well. A Leek planted by a woman in St. Giles's Workhouse on the 1st March in a pot, when exhibited in Russell Square Gardens in July was three feet high. A piece of potato planted in a pot greatly delighted and astonished a poor woman by growing into potatos 'in little bunches in the earth.' A ragged-school boy ripened from a cutting seven strawberries. The horse-shoe Geranium thrives best in towns, the fancy kinds all fading fast or becoming covered with aphides."

The Assistant-Secretary then performed some experiments intended to illustrate the effects of chloroform on Sensitive plants. On the table were specimens of Mimosa pudica and Desmodium gyrans, a plant of Neptunia plena, Dionæa muscipula, and one or two others. He explained the mode in which the motions in these plants take place, adopting the views of M. Fée and others, who hold that they originate in some nervous influence in the cells of the plant analogous or similar to that of the cells in the lower orders (such as the jelly-fish and sea anemones) in the animal kingdom. He mentioned some experiments or circumstances which forbade the idea of their being due either to electricity, or light, or heat, or any external influence, and enumerated facts which seemed to point to the possession of some nervous power by the plant itself. The fact of its irritability being influenced by anæsthetic agents was one of these, and the experiments he exhibited were performed to illustrate this. He exposed a plant to the influence of chloroform, and after some time, on removing it from the vessel, it had lost its irritability. He then attempted to restore it by exposing the plant to the influence of nitrous oxide, or laughing gas.

The Chairman then drew attention to some plants furnished by Mr. Williams, of Holloway, and especially to two fine specimens of Lilium giganteum, from Mr. Hally, of Blackheath. The cone-like inflorescence of Gunnera scabra was also exhibited to the meeting.

Notices of Books.

The Battle of the Standards. 8vo. Pp. 79. By John Taylor. 1864. Longman & Co.

It is a great pity that this book, written and completed with care, and involving a question of much practical importance, should be marred by the introduction of a text of Scripture, totally inapplicable to the subject, and grotesquely commented upon, in this fashion. So "that the people who maintain a perfect and just weight, and a perfect and just measure, may expect lengthened days in the land which God giveth them." Whence it is inferred that "the inhabitants of this country, who have had the same measures of length, capacity, and weight, from the earliest times, have in consequence enjoyed a long and unbroken series of peaceful governments." Apart from this arrant bosh, there is a good deal of curious information on a mooted question of the present day. Shall we keep our old English measures, or adopt the French?

Mr. Taylor, with pardonable enthusiasm, gives Sir John Herschel's reasons for believing that the Pyramids of Egypt were constructed with a view to astronomical observations, which seems almost certain from the fact, that six out of the nine pyramids of Gizeh have the narrow passages, by which alone they can be entered, inclined at certain angles to the horizon, so that at the bottom of every one of these passages, the *then* Pole Star must have been visible at its lower culmination.

Next, Mr. Taylor gives the measurements of the Great Pyramid as made by various English and French *savans*. The differences noted by these observers are brought into wonderful harmony by the recent observations of Colonel Howard Vyse, who found that a casing of black marble, or what we should call swinestone, which once covered the building, had to be allowed for. Then he proceeds to show, by an array of figures, that these established measurements of the pyramid bear certain relations to the diameter of the earth: and further, that an English inch is to a nicety the 500,000,000th part of the earth's diameter: which we must admit to be a sufficiently striking coincidence.

If it be considered desirable to take the polar diameter for our base, Sir John Herschel suggests that a very perfect modulus would be made by the addition of a 1000th part to our present inch.

Further, in the King's chamber of the Great Pyramid,

there is a porphyry vessel called the Pyramid coffer; and on measuring this very accurately, it "was found to contain 128 pecks or 32 bushels of Wheat, and though a vessel of this capacity is not in existence with us at present (it is argued), we must have had such a measure in earlier times, since we daily make reference to it, for when we say eight bushels of Wheat make a quarter, we affirm it to be the fourth part of some entire measure, which is exactly equal in capacity to the Pyramid-coffer."

But it is not upon such grounds as these that the question of changing our weights and measures ought to be decided. The *Times* of last July drew a ludicrous picture of the dismay and confusion such a change would bring into every British household. "Every one of these familiar terms (yards, inches, pints, &c.), it says, will be not only obsolete but illegal, inasmuch as the obstinate use of them will involve fine and imprisonment. It is no use to urge that other countries have undergone this revolution, and survive. What are France, the Zollverein, and Portugal to us? They are accustomed to revolutions, earthquakes, and wars, &c."

Again, it is found in practice, that the French system of weights and measures is most inconvenient. This will be evident from the mere inspection of the English and French series of weights—"In the first there are 7 weights, viz., 1 lb., ½ lb., ¼ lb., 2 oz., 1 oz., ½ oz., ¼ oz. In the second there are 12 weights required, viz., 500 grammes, a 2 hectos, two of a hecto each, ½ hecto, 20 grammes, two of 10 grammes each, 5 grammes, 3 grammes, and two of 1 gramme each," and to weigh ½ of a livre we must take three of these weights.

But what say our own scientific men? Prof. Playfair, in an article written in the Edinburgh Review nearly 50 years ago, says:—

"Ten has indeed no advantage as the radix of numerical computation, and has been raised to the dignity which it now holds, merely by the circumstance of its expressing the number of a man's fingers." And he goes on to show that for the measurement of the circumference of a circle, and for all circular measures, the decimal scale is most abhorrent. Mr. John Quincey Adams, a commissioner appointed by the United States for this very purpose, says:—

"The decimal scale can be applied only, with many qualifications to any general system of metrology. Its natural application is only to numbers; and time, space, gravity, and extension, inflexibly reject its sway. It is a contrivance of man for computing numbers, and not a property of time, space, or matter. Nature has no partialities for number ten, and the attempt to shackle her freedom with it will for ever prove abortive."

These remarks are principally directed against the decimal division of things that are utterly indivisible by 10.

Professor De Morgan insisted on the necessity of "keeping distinct decimalization and metricalization, two things often confounded. He was as much for decimal division as any person could be, but the metre was objectionable. It arose from a mere fanciful connection with the quadrant of the meridian, and is of no practical consequence to any man alive." "You might as well (said the Professor, with polished irony) try to subdivide the distance from the earth to the moon."

The Astronomer Royal said that "if he had a new nation to create, with a new system of weights and measures, he would give them the binary scale throughout."

"It is a very remarkable circumstance that the habits of every individual inure him to the comparison of some definite portion of his person with the existing standards in use. There are few English men or women but could give a yard, foot, or inch measure from their own arms, hands, or fingers with great accuracy."

On the whole, then, it seems to be generally agreed in England that the inch, foot, and mile are excellent measures for the purposes for which they are used, and there is no objection to the use of decimal multiples and sub-multiples. Our weights and measures of capacity are arranged according to the binary scale, to the great convenience of buyers and sellers, and it is our humble opinion that the man who would alter them makes a grand mistake.

The *Botanical Magazine* for May contains portraits of: *Alströmeria Caldasii*, a very handsome species of the scandent section to which the name of Bomarea is given; it comes from the Andes of Quito, whence it was received by Mr. Veitch, and is a smooth climber with ovate-lanceolate leaves, and many-flowered terminal umbels of pale orange flowers spotted internally with red.—*Waitzia corymbosa*, a remarkably handsome Everlasting from the Swan River, introduced by Mr. Thompson, of Ipswich, probably an annual, with erect stems simple or sparingly branched at the base and terminating in a corymb of flower-heads, each about an inch across, and varying like our common annual Everlasting, in having the involucral scales, white or yellow or rose-coloured, the white form being the plant which has been called Morna nitida. This looks as though it would be a useful garden plant.—*Dendrobium barbatulum*, a pretty round-petaled, white-flowered Dendrobe of erect habit, said to be synonymous with the D. Fytchianum described at p. 100.—*Echinocactus Scopa*, one of the curious species of cylindraceo clavate dwarf Cacti, cultivated years ago in our gardens.—*Dendrobium infundibulum*, a fine white-flowered species from Moulmein, described by Mr. Bateman at p. 1194 of our volume for 1862. It is nearly related to D. formosum, and has been partially distributed, as already mentioned, under the name of D. moulmeinense.

The present month's issue of the same work contains: *Æchmea distichantha*, a South American Bromeliad, with long linear-oblong channelled spiny leaves, and panicles of short distichous spikes of flowers, of which the sepals are rose-coloured and the petals purple, excepting which the whole inflorescence is coloured red.—*Trichinium Manglesii*, a Swan River herb, noticed in another place, with oblong spathulate root-leaves, and spicate oblong heads of pretty purple flowers, which are singularly hairy. "At present it has been only treated as a greenhouse plant, but there is no reason why it should not be employed as a summer annual, as are many Australian plants, to the great advantage of our flower borders."—*Cattleya Lindleyana*, a pale Lælia-like Bahia species, with slender terete pseudo-bulbs, 6 or 8 inches long, supporting one or two linear-lanceolate leaves, and bearing solitary terminal blush flowers, which have linear-lanceolate sepals and petals, and a broadish lip of rather deeper tint, tinged with cream colour towards the base, and marked in front with a few lines of purple spots.—*Thibaudia sarcantha*, a charming Vacciniaceous shrub from New Grenada, somewhat doubtfully identified with the Psammisia sclerophylla of Planchon and Linden, from which it would seem to differ in the more fleshy flowers and pedicels, as well as in its erect not pendulous habit, and its smooth not pubescent branches. Here the branches are pendulous, the leaves fleshy coriaceous, and the flowers pendulous in terminal and lateral corymbs; they have thick clavate pedicels, and articulated therewith thick green fleshy calyces, and urceolate fleshy corollas, the swollen portion of which is red, and the contracted limb green.—*Dendrobium Farmeri var. aureo-flavum*, a Moulmein plant, with bright yellow flowers and an orange pubescent lip without spots, very brilliant and very handsome, of which Sir W. Hooker remarks that it was sent by the Rev. C. S. Parish, with the following note:—"'What if I were to say that Dendrobium Farmeri and D. chrysotoxum were one and the same? I know both of them extremely well, having had them growing for three years. There is no mistaking the two without the flowers. Two days ago, on going down into my garden, I was astonished and could hardly believe my eyes at seeing a panicle of the golden flowers of D. chrysotoxum proceeding from the bulbs of D. Farmeri!—the only difference being that the labellum is here rather pointed, and not so round as in D. chrysotoxum.' Dr. Lindley, too, has a remark, or rather offers a conjecture, somewhat to the same effect, when he says in his Contributions to the Orchidology of India—'D. Farmeri is scarcely distinct from D. chrysotoxum, although its flowers are tinged with pink, and its lip less abundantly fringed.' I fear both one and the other of these botanists," continues Sir W. Hooker, "have placed too much confidence in *colour* in the present case; for not only is the nature of the pseudobulb quite different (multangular in D. chrysotoxum, deeply quadrangular in D. Farmeri), but the curious deep velvety fringe of the lip of D. chrysotoxum has nothing resembling it in the labellum of D. Farmeri. This I take, therefore, to be a yellow-flowered variety of the latter, and quite distinct from D. chrysotoxum."—*Desmodium Skinneri var. albo-nitens* (albo-lineata in one place), the plant introduced by Mr. Verschaffelt under the name of Rhynchosia albo-nitens, and figured under that name by Lemaire in *L'Illustration Horticole* (1861, t. 290). It is a Mexican climber, of free habit, the leaves marked with white down the centre, and the flowers small, purple, in numerous subpanicled racemes. The Desmodium to which Sir W. Hooker refers it comes from Guatemala.

In the *Florist and Pomologist* for May is a figure of a *Bomarea* called *multiflora*, evidently the same as the *Alströmeria Caldasii* of the Botanical Magazine, above noticed; and in that for June is a capital picture of *Diadem Pelargonium*, the finest of last year's novelties amongst these popular flowers. In the text are some interesting papers by Mr. Fleming, of Cliveden, on house decoration and table decoration, by means of plants and flowers.

The figures in the corresponding numbers of the *Floral Magazine* are *Azalea Forget-me-not*, a spotted purplish red; *Hyacinth Robert Fortune*, too distinctly margined with white; a group of striped *Italian Verbenas; Camellia Comte de Gomer*, a fine rose-coloured sort striped with crimson; a group of *Early Tulips: Rose Madame Victor Verdier*, said to be very deep; the white variety of *Lapageria rosea*; and finally a group of *Cinerarias*, some of the latter incorrectly coloured, one especially named *Flower of the Day*, omitting a crimson zone between the purple and white of its florets, which forms one of its chief merits, and is an earnest of the production some day of a new class of varieties with tricolor florets.

A new Part of the *Useful Knowledge Society's Family Atlas* (the 8th) has appeared, and a capital number it is, containing part of Wales, and other English counties, with the Turkish Empire, and Kingdom of Greece.

Books Received.—The new number of the *Pharmaceutical Journal*, Second Series (Churchill), contains among other good matter a paper by De Vry on the Cinchona Barks of British India, and a very full account of the last meeting of the Society, which we may congratulate upon its flourishing condition.——The first part of Mr. Bateman's fine work on Odontoglossums has also just been received. This will be fully noticed hereafter.

Garden Memoranda.

Mr. John Waterer's American Plants.—Mr. Waterer's magnificent exhibition of these, which is held as usual in the Gardens of the Royal Botanic Society, Regent's Park, was formally opened to the public on Monday last. The plants as a whole were in excellent condition, and it is expected that the display will last equally good for at least a week or 10 days yet to come. The high-coloured Rhododendrons are now in full beauty, and intermixed with and well contrasted as they are with others of light colours, the effect produced is extremely striking, especially when viewed from the highest end of the tent, from which the whole mass of bloom can be looked down upon, and seen at one glance. When we state that upwards of 100 yards in length and as many in width have been wholly devoted to these gay flowering shrubs, some idea of the grandeur of the display may be conceived. The whole has been thrown into borders and beds of tasteful forms by suitable gravel walks, neatly edged with turf, and wherever room could be found on the gravel, turf mounds have been raised, on which have been placed noble standard and other Rhododendrons, most of which are of great age and size; thus situated they break the sameness which would otherwise to some extent prevail, and have a very imposing appearance. Among high-coloured Rhododendrons the gem of the exhibition is decidedly Annihilator, a magnificent kind; this is loaded with great trusses of flowers, whose glowing colour renders them conspicuous from all parts of the exhibition. Next in rank, both as regards size and brilliancy, is J. Whitworth, one of the very best of high-coloured sorts; Admiration is also a good kind; as are likewise John Waterer, Blandyanum, Titian, Ornatum, Vandyck, Roseum grandiflorum, and various high-coloured seedlings not yet named. Everestianum, as we stated last week, is still one of the best lilac varieties with greenish white eye, and among whites album elegans stands pre-eminent, being a good late and free bloomer. The best of all whites is however Minnie, a fine kind, which when better known cannot fail to be a favourite; it is a good trusser, and the flowers individually are of excellent shape. In Beauty of Surrey we have a useful addition to bright orange crimson kinds; it has a black blotch in the upper petals, setting off the truss, which is good, to excellent advantage. Elfrida is another distinct looking sort, with rosy salmon-spotted flowers in the way of Lady Eleanor Cathcart. Of the crimson and white class Bylsianum and Alarm stand at the head; both kinds have beautiful richly-coloured blossoms, white-centred, with a crimson margin. Prince Albert, a chocolate-coloured kind, though not showy, will be found useful for the sake of variety, and Nero and Lord John Russell are also good dark varieties. Of the roseum elegans breed Onslowianum is a valuable variety. There is no want of further examples of every tint and shade; but of the sorts at present in flower those just named are the most striking.

Miscellaneous.

Rugby Rose Show.—We observe that this is announced to take place on the 21st of June, under the Presidency of the Duke of Rutland, and a long list of distinguished patrons. It is stated that the entries will close on the 13th of this month. Several of the leading Rose growers in the South have, we believe, signified their intention of exhibiting; there therefore can be little doubt that the gathering will be a highly interesting one. Schedules of prizes, which vary from 5*s.* to 10*l.*, may be had of Mr. Treen, Victoria Nursery, Rugby.

Packing Orchids.—The following information, founded upon his 30 years' experience, has been kindly communicated to the Society by Mr. George U. Skinner, as the best mode of packing Orchids for transmission from Central or South America to this country. It may be useful to others as well as the Society's collectors:—"I have always found the best mode of packing plants for importation is with the Tillandsia, which will be found in all the high regions of Central and South America. It should be collected alive, *i. e.*, in a healthy state; kept for two days in a shady place, exposed to the air, but not the sun; when perfectly dry, lay a layer in the bottom of the box, then plants carefully placed, not too crowded; then another layer, and so on till the case is quite full; then a thick layer—this protects the plants from any great heat, or any cold; and the plants should then come with a matting over them to protect them from wet or salt water, and come on deck at any season, as it is far better than the steamy hold of any ship." *Proceedings of Roy. Hort. Soc.*

Balsam of Peru.—We passed some Balsam trees in the afternoon, each with a lot of calabashes stuck on its trunk to catch the drug which trickled from the wounds in its bark. I picked up a few of the fruit under one of these trees. Our second day's journey was not so long as the first—I think not more than about 12 miles. The Balsam trees occurred occasionally during the whole way. We stopped at a hut in the forest surrounded by a small clearing, the owner of which, like all the inhabitants of the Montaña, makes part of his living by gathering Balsam. The trees were very plentiful here, and generally of a large size. Their average height is about 70 feet, and the trunk is sometimes upwards of 2 feet in diameter a yard from the ground, and generally rises to a height of 40 feet without branching, so that it is impossible to get at either foliage or fruit without cutting down the tree. On the day after our arrival I got the man's permission to have a tree felled; he did not charge me anything for the tree, but stipulated that I should pay two of his sons a dollar each for felling it. I selected an old tree, nearly 2 feet in diameter. There was a sprinkling of pods upon it, but it was not by any means loaded. The pods are so loosely attached to the branches, and so brittle in themselves, that nearly all of them were shaken from the tree, and many broken to pieces by the shock of the fall. I found them to be approaching maturity, the seeds being fully developed, but I am afraid not ripe enough to grow. I had another smaller and more vigorous tree cut. The foliage of this was much larger than that of the older tree, and also a little different in form, but it bore no fruit. The specimens I send will sufficiently show the difference in the foliage of the two trees, and it is also sufficiently explained by the greater luxuriance of the younger. As I have already said, it is impossible to reach the foliage of any of the trees unless by felling them; but I examined the leaflets of many trees from specimens picked up from the ground, but saw nothing to induce me to believe that the balsam is produced here by more than one species. The young trees have always larger foliage than the old ones; but the difference was constantly the same as it was in the individuals I had felled. The trees never make a very dense head of branches and foliage; but in the old ones, which have been much bled, it is very thin; many of the small twigs are dead, and the living ones are covered with lichens. When a tree is about to be bled, two sloping notches are made in its trunk quite through the bark, and meeting in a sharp angle at their lower end, leaving thus a point of bark between them untouched. The bark and wood is hollowed out a little immediately under this point, and the calabash cup is inserted under it. The process is repeated all over the trunk at close intervals up as high as a man can reach; I have seen as many as 20 cups on a tree. The piece of bark and the cups I have sent will show the process better than I can describe it. When the lower part of the trunk of a tree is too full of scars and wounds for any fresh cuts to be made, a rude scaffold is sometimes made round the tree, and a new series of notches made higher up. From time to time, as may be necessary, the balsam-gatherer goes round the trees with a pair of flask-shaped bags made of raw hide, slung over the back of a donkey. Into these bags the contents of the calabash cups are successively poured, and the cups are re-inserted under the point of bark, and left to be again filled. The balsam is sent down to the ports on the river in these hide bags, when it is transferred to the tins. I could not learn which were the best months for the flowing of the balsam, one person saying that it was in July, another in March, and so on, scarcely two agreeing; but the bleeding goes on during at least eight months of the year, from July to March or April. When the balsam is flowing well, I was told that "one moon" sufficed to fill the cups. Respecting the time of the flowering of the tree, individuals differed as widely as they did about the best time for the production of the balsam. I think I was told that it flowered in every month of the year, each person asked giving a different month; and several asserted that it did not flower at all. *J. Weir, in Proc. Roy. Hort. Soc.*

Charge of Manslaughter against a Herbalist.—At the Central Criminal Court, May 11 (before Mr. Justice Williams), John Stevens was indicted for the manslaughter of William Probee. Mr. Poland conducted the prosecution, and prefaced the examination of witnesses with a statement, to the effect that the prisoner, formerly a grocer, was now a medical botanist, in High Street, Whitechapel, and held himself out as an agent of Dr. Coffin, a herbalist. He was charged with causing the death of William Probee, a lad of 15, by administering to him improper and dangerous medicines under circumstances which would be related in evidence. The law on the subject, he observed, had been laid down by the late Justice Buller, who on one occasion said he took it to be quite clear that if a person not of medical education undertook to administer medicine which might have a dangerous effect and thereby caused death, such a person was guilty of manslaughter. The prisoner was defended by Mr. Serjeant Ballantine and Mr. Sleigh. It was proved in evidence that on Sunday, March 20, the deceased, William Probee, was taken ill, and that in the evening his father went to consult the prisoner, and brought back a bottle of medicine, a box of pills, and a powder. The patient took the whole of the mixture, the powder, and eight of the pills the same evening. On Tuesday he was much worse, and a powder was obtained from the prisoner, which was given to the boy. The next day he was worse, and Dr. Monk was then called in, and prescribed some medicine, but it was not given to the boy, as the father "had much faith in the prisoner." Mr. Cumming, a surgeon, was also called in, and sent some medicine, but this was not given, and the prisoner continued to see the boy until his death, which took place six days after taking the medicine first prescribed by the prisoner. Mr. Serjeant Ballantine, in addressing the jury on behalf of the prisoner, contended that the whole question was one of opinion. Medical practice of late years had undergone a complete revolution, and homœopathy had taken the place of blood-letting. The prisoner contended that he had made no mistake, and that the remedies he had used were proper; if he was in error in selling capsicum, then every patent medicine vendor in the kingdom was liable to be indicted. Mr. Justice Williams, in charging the jury, said, that if the prisoner had been guilty of an unlawful act in the administration of the medicine, he was undoubtedly responsible for his conduct, and was guilty of manslaughter. The first question the jury would have to decide was this, whether they were satisfied that the death of the deceased was attributable to that unlawful conduct; and that the death of the deseased was the result of the medicine administered to him by the prisoner after the latter had undertaken the treatment of the case. The law of the land upon the subject was this, that there was no distinction whatever to be drawn between the case of a man who had qualified in the ordinary way for the practice of medicine, and a person who had not done so. Whether a medical attendant were authorised or not to act as such, made no difference; he was not responsible criminally for any mistake of judgment which might be imputable to him, unless that mistake of judgment could fairly be attributable to gross ignorance or want of skill on his part. The most eminent practitioner that ever lived had made and might make a mistake in the treatment of a particular patient, and he was no more responsible for that mistake than any other practitioner would be of lesser skill. In other words, if it were a mere mistake of judgment, he would not be responsible; but if the mistake he had made would not have been made but for his want of skill, then he was answerable for the consequences, because no man had a right to undertake the treatment of the disease of another, unless he was possessed of competent skill and judgment. Therefore, the inquiry was divisible into two branches,—first, was it made out to the satisfaction of the jury that the death of the boy, William Probee, was caused by improper medicines administered to him by the prisoner after he had undertaken the treatment of the case? If they were satisfied that the medicine was a proper medicine, and that that medicine had not superinduced the death, of course there would be an end of the inquiry; but if they should be of opinion that the death was attributable to the administration of the medicine, then would come the inquiry, was the administration of that medicine the result of ignorance and want of skill? The case was undoubtedly one of first-rate importance, because it was most salutary for the interests of the public that an unqualified person, acting ignorantly and without skill, should be punished for manslaughter if death resulted from his acts. The jury then returned a verdict of Not Guilty, and the prisoner was discharged. *Pharmaceutical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

LET shifting, if necessary, be done early, in order that the pots may be well filled with roots before the approach of winter. A compost, consisting of three parts fibrous peat, in a lumpy state, one part free turfy loam, and a little silver sand, will suit most kinds of half-hardy plants with the exception of Heaths, which succeed best in peat without any admixture except that of a little silver sand. In potting take care to secure thorough drainage. The crocks should be carefully placed to provide various outlets for the water; these, again, should be protected by a smaller size of pounded crocks and charcoal; and finally, the rough of the compost should be selected to place the ball on. This mode of arranging the parts of the compost, as also the drainage, will be found advantageous, if not absolutely necessary, where liquid manure is constantly used.

FLOWER GARDEN AND PLANT HOUSES.

Now is the time to encourage rapid and sturdy growth in young Correas, Epacrises, Pimeleas, Chorozemas, Leschenaultias, Polygalas, Heaths, &c. A constant stopping of gross shoots will be necessary, in order to equalise the distribution of sap and encourage the lower parts of the plant to develope themselves. Out of doors, early bulbs now ripening, if turning yellow, should be taken up, or the greater portion of their leaves trimmed away. Verbenas, Petunias, and such things should be frequently pegged down where it is requisite to cover the surface of the beds speedily.

AURICULAS.—Give abundance of air, and protect the plants from heavy rains.

BALSAMS AND COCKSCOMBS.—These must now be encouraged to grow freely, giving them a little weak liquid manure occasionally, and accommodating them with larger pots as they may require them.

DAHLIAS.—Replace at once with fresh plants, such as may have been killed by the late frosts, and secure them from injury by wind; also water overhead as well at the root in fine weather.

GLOBE AMARANTHUS.—These may receive the same treatment as Balsams and Cockscombs.

FORCING GARDEN.

FIGS.—Give abundance of water or liquid manure, if in pots or tubs.

MELONS.—Set shy sorts, and sprinkle frequently to keep off red spider.

MUSHROOMS.—Let old beds be examined as soon as they begin to go out of bearing. If, upon removing the soil, the dung appears decayed or exhausted, the bed should be immediately renovated; but if, as often happens, the beds are found in good order, solid and full of spawn, they should be watered moderately with tepid water, if they are found to require it, and in a day or two afterwards the surface should be covered with 2 or 3 inches of loamy soil. In hot weather the house should be kept as cool as possible, without throwing it open; in order to assist in effecting this, the paths and walls should be sprinkled frequently with cold water, and the evaporation allowed to escape at the top. Continue to collect horse-droppings, and let them be stored up to make new beds, or to renovate old ones.

PEACHES.—Give frequent waterings to these in their last swelling; continue to pinch luxuriant shoots, and to use the syringe liberally.

PINES.—In shifting let great attention be paid to having complete drainage; no after-management will compensate for the omission of this. Take care to thin growing stock in due time, giving abundance of room to plants approaching the fruiting period. Pines swelling fruit will now enjoy liberal waterings of clear liquid manure once a week, with fine syringings occasionally, more especially between their stems.

VINES.—Follow up former directions. Grapes just colouring should be assisted by a high temperature in fine weather, accompanied, however, with abundance of air; a moderate amount of fire heat should be provided should the weather become wet or cold.

HARDY FRUIT AND KITCHEN GARDEN.

Give the wood of Peaches a thorough thinning; don't reserve a shoot more than is wanted for next year. This, and keeping down insects, is the way to obtain success. Disbud Figs, retaining no more wood than is required for next season. Be sure to select for bearing, the shortest-jointed shoots.

CELERY.—Take advantage of the present showery weather to prick out young plants.

PEAS.—Sow for succession as may be required. Maclean's improved sorts are well adapted for mid-season work.

RIDGE CUCUMBERS.—These, Gourds, and Vegetable Marrows may be planted now; the first two in the usual way on prepared beds of rich soil, with the temporary protection of handlights; the last in vacant places where proper stations for vigorous growth can be secured. In preparing the beds for Ridge Cucumbers, some pieces of Mushroom spawn may be laid on a layer of half-rotted dung a few inches from the surface; by the time the leaves of the Cucumbers have extended themselves over the bed, the Mushrooms will appear beneath them, and thus be protected from the heat of the summer's sun.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending June 8, 1864, as observed at the Horticultural Gardens

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 2	27	29.788	29.724	62	48	55.0	57	58	E.	.00
Friday 3	28	29.867	29.797	62	39	50.5	57	56½	N.E.	.07
Satur 4	●	29.914	29.876	69	35	52.0	57	56½	N.E.	.26
Sunday 5	1	29.935	29.848	71	49	60.0	58	57	N.E.	.00
Mon. 6	2	29.971	29.921	75	36	55.5	59	57	W.	.02
Tues. 7	3	29.994	29.908	80	44	62.0	60	57	W.	.00
Wed. 8	4	29.906	29.814	79	41	60.0	61½	58	W.	.00
Average.		29.902	29.827	71.1	41.7	56.4	58.5	56.8		.35

June 2—Lightly overcast; fine; dry slight haze; overcast.
— 3—Rain; fine at night.
— 4—Clear, quite cloudless; exceedingly fine; rain at night.
— 5—Very fine; cloudless; exceedingly fine; mild at night.
— 6—Very fine, with a few light clouds; fine throughout.
— 7—Very fine; hot and dry; fine.
— 8—Very fine; sultry; very fine throughout.

Mean temperature of the week 1 1-5th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending June 18, 1864.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12.	70 9	49.1	60.0	18	0.78 in.	—	1	7	3	2	7	13	3	3
Mon. 13..	71.8	48.4	60.1	18	0.56	1	5	6	1	2	12	9	2	
Tues. 14..	72.3	48.6	60.5	17	0.48	1	3	6	1	6	11	9	1	
Wed. 15..	72.9	48.8	60.8	16	0.38	1	5	7	2	4	10	3	3	
Thurs. 16..	72.5	49.0	60.2	17	0.46	3	3	7	1	10	7	3	3	
Friday 17..	72.9	48.0	60.5	21	0.80	2	4	4	—	7	10	6	5	
Satur. 18..	72.7	49.9	61.3	19	0.84	4	2	4	3	6	6	10	3	

The highest temperature during the above period occurred on the 12th and 13th, 1842—therm. 90 deg.; and the lowest on the 15th, 1850—therm. 30 deg.

Notices to Correspondents.

FIGS: —. Leaves of Fig trees differ considerably on the same plant; but that you sent is too deeply lobed for either the White Ischia or the White Marseilles.‖

GRAPES: *A B.* You will be aware that Muscat Grapes generally do not set so freely as the Hamburghs; but the Bowood Muscat sets just as well as the White Muscat of Alexandria.‖

GYMNOGRAMMAS: *Alpha.* There have been various instances of the same fronds producing distinct portions coloured respectively by the golden and silver powder, and we have heard of distinct fronds—gold and silver—being produced on one plant, but we have never heard of the spores of gold Ferns producing a crop of the silver, or *vice versâ.* Even such cases as those referred to are, comparatively, very rare.

NAMES OF FRUITS: *H C L.* Dumelow's Seedling or Wellington Apple.‖

NAMES OF PLANTS: *G.* Viburnum Lentago.—*G S T.* 1, Myrrhis odorata; 2, Peucedanum Ostruthium; 3, Pimpinella magna. — *Buitenzorg.* Actinodaphne sclerophylla, we believe; certainly not Camphoromœa laxa.—*Enquirer.* Eriophorum angustifolium, common in boggy places.—*A W.* Half-grown twigs of Willow, wanting both flowers and mature leaves, are not safe specimens to name; yours appear to be: 1, Salix aquatica; 2, S. cinerea.—*Justitia, No.* 1, not received; 2, not in a state for determination; 3, Pyrus Aria.—*Peter Gray.* Your seedling Rhododendron is not better than Dalhousiæ, which it much resembles. It is not desirable to name such a variety until its qualities—good or bad—are better known. Besides, bad packing has ruined the two flowers both in colour and form. We like the foliage.—*J B.* Carex pallescens.—*A J.* The blue one is certainly Polemonium cœruleum; the white seems to belong to P. lacteum, a variety?—*Anon.* 1, Peucedanum palustre; 2, Chærophyllum temulum; 3, Stachys arvensis; 4, a bit of Populus tremula. —*J M.* Luzula nivea—a Rush, not a Grass.—*Truro.* 1, Cynosurus cristatus; 2, Lolium perenne; 3, Holcus mollis; 4, Poa trivialis—all the commonest of the common.—? *St. Asaph.* Ornithogalum pyrenaicum and Anthericum serotinum.—*C E F.* Pyrus Aria.—Answers to one or two correspondents are unavoidably deferred till next week.

STRAWBERRIES: *G L.* Your Strawberry is of the Chili breed and partakes too much of the nature of the original as regards a large hollow core. This is evidently an objection, although it may possess tolerably good flavour; of the latter, however, in packed and travelled Strawberries we cannot fairly judge. We thought it not equal to Sir Charles Napier, even making allowance for deterioration from carriage.‖

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS'S PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

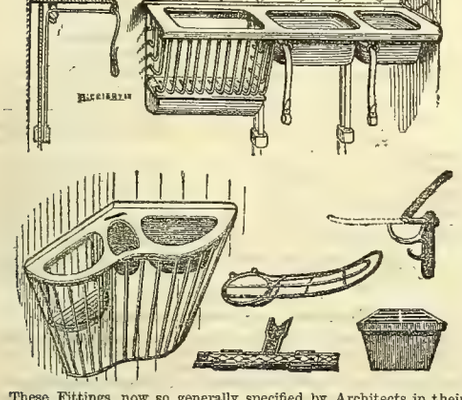
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Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

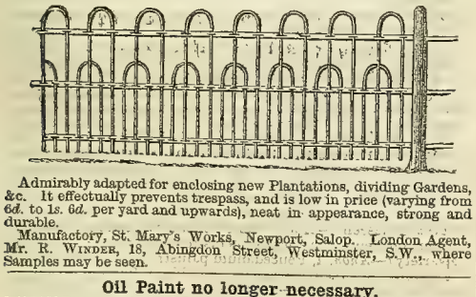
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ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY  THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED). Consisting of TENANT FARMERS, occupying upwards of 30,000 acres of land.
Chairman: JOHN CLAYDEN, Littlebury, Essex.
Managing Director: JAMES ODAMS.
Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary, or of the local Agents.
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RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

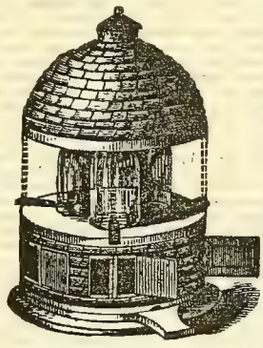
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Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENCASSE, No. 44, Landstrasse, Vienna; and Gegenuber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

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These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
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W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.

Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6*d.* to 1*s.* 6*d.* per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

Oil Paint no longer necessary.
HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

FLOORING, MATCH BOARDS, DEALS, &c., as low as advertised. White Batten, 9*l.* per 120, 12 feet; Yellow ditto, 10*l.* ditto ditto; ¾ Floor Boards, well prepared, from 11*s* 6*d.* per square; Matched Lining, from 12*s.*; Venetian Blind Laths from 8*s.* 6*d.* per 100 feet super.—CHARLES CUTLER, Surrey Sawing and Planing Mills, Church Street, Kennington.

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Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.
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ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SPRING SESSION, 1864.
President.—The Right Hon. the Earl BATHURST.
Council.
Rt. Hon. the Earl BATHURST. | Rt. Hon. T. H. SOTHERON ESTCOURT, M.P.
Rt. Hon. the Earl DUCIE. | Hon. WILLIAM BATHURST. | EDWARD HOLLAND, Esq., M.P.
Principal—The Rev. JOHN CONSTABLE, M.A. Trin. Col. Camb.
Farm Manager.—J. L. FLETCHER.
RESIDENT PROFESSORS.
Chemistry.—ARTHUR H. CHURCH, M.A., Lincoln Coll., Oxon., F.C.S.
Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S.
Botany.—JOHN BAYLDON, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. MURRAY, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
Drawing.—JAMES MILLER.
SPECIAL LECTURERS.
J. BAILEY DENTON, M. Inst. C.E.—On DRAINAGE.
Professor J. MORRIS, F.G.S., of University College, London—On GEOLOGY.
JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
JOHN THORNHILL HARRISON, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
RICHARD GRIFFITHS WELFORD, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.
Applications for Admission and for further particulars may be made to the Principal.

Drainage of Land.
MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.
MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
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DRAINAGE LOANS are made by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY to the Owners of Freehold Estates, Life Tenants, Trustees, Incumbents, Bodies Corporate, &c., for all works of Agricultural Drainage, as well as Irrigation, Enclosing, Road Making, Wood Grubbing, and Farm Buildings, sanctioned by the Enclosure Commissioners.
The advances are repaid by way of Rent Charge on the Estate created for such a term of years as the Landowner shall determine will best adapt the annual charge to the circumstances of the Tenants.
No investigation of Title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.
The Company either supply the money expended by Landowners in works designed and executed by their own Agents, or they undertake the entire improvement by their experienced staff, supply the weekly advances required, and charge on the estate the actual outlay in the works, and their commission thereon.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, London, S.W.

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Incorporated by Special Act of Parliament in 1853.
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TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

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MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster.

THE MIDLAND FARMERS' CLUB.—The FIRST GENERAL MEETING of the MIDLAND FARMERS' CLUB will be held at the Odd Fellows' Hall, Temple Street, Birmingham, on THURSDAY, June 23, at 2 o'Clock.
Subject for Discussion:—"The PRESENT POSITION and FUTURE PROSPECTS of ENGLISH AGRICULTURE," which will be introduced by R. C. CRAWNER, Esq., the President.
A DINNER will be provided on this occasion for Members of the Club at the Acorn Hotel, Temple Street, at 4 o'Clock punctually. Tickets, 2*s.* 6*d.* each, exclusive of Wine. An Early application for Tickets, at the Bar of the Hotel, is particularly requested.
Members will be enrolled on the day of the Meeting, for which purpose the Secretary will attend at the Cattle Show Offices, 13, Temple Street, from 12 until 2 o'Clock.
June 11. JOHN B. LYTHALL, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE, 1864.
The LOCAL EXECUTIVE COMMITTEE have arranged for a Registry of Lodgings and other Accommodation for Visitors to Newcastle during the Show, to be kept by Messrs. C. BROUGH, Academy of Arts, Blackett Street, and G. MURAS, 4, Northumberland Street, to whom applications must be made.
R. DODDS,
E. I. J. BROWELL,
WALTER JOHNSON,
JACOB WILSON,
} Hon. Local Secs.

The Agricultural Gazette.

SATURDAY, JUNE 11, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	June	13	Bath and West of England Society Show at Bristol. Entrance to the Yard, 2*s.* 6*d.*
TUESDAY,	—	14	
WEDNESDAY,	—	15	
THURSDAY,	—	16	Do. do., entrance 1*s.*
FRIDAY,	—	17	
WEDNESDAY,	—	15	Norfolk Agri. Society—Meeting at Lynn. Royal Agri. Society of England .. Noon

—— An appeal against a rate made by the overseers of the parish of Brinkworth, Wiltshire, in accordance with the recent valuation list made by the assessment committee of the union, was heard on Thursday before the Court of Queen's Bench. It appeared that the farms in that parish had been rated upon their actual rentals. The farm of the appellant (146 acres) was thus assessed on a gross rental of 300*l.*, while a neighbour's farm of the same quality of land (244 acres) was assessed on a rental of only 400*l.* a year; and so, on the same principle, several other farmers, occupiers in the same parish, were rated less than the appellant, who contended that the lands should have been rated on their net annual value, not on the actual rentals paid. This contention was allowed by the Court, who decided that the right test of annual value is not the actual rental but such rent as could reasonably be expected to be paid. The judgment accordingly was for the appellant.

—— We have to express our regret that the publication of a letter from Mr. SMITH, of Woolston, on Mr. RANSOME'S recent lecture on steam cultivation, also of a further discussion of the question "What is Agricultural Condition?" by our correspondent "J. B. M.," has been unavoidably postponed.

THE agricultural event of the coming week will take place at Bristol. The Bath and West of England Agricultural Society there hold their annual exhibition; and it is confidently expected to be a very great and successful agricultural gathering. Those of us who were present at the Bristol meeting of the Royal Agricultural Society of England will probably see that the illustration of the agriculture of a mere province which the coming week will witness—far exceeds in the extent, the value, and the quality of the articles exhibited the effort of the national society 20 years ago. This will be owing not merely to the unquestionable advance in agriculture which has been witnessed since that time; but also to the extraordinary energy and activity of that new lease of life which within that period the provincial society seems to have acquired.

And it is not only in its annual show of live stock and of implements that this great access of power and life is seen—the Journal of the Society vies as closely with that of the National Society as the show of the one approaches that of the other. The current Number of it which has just been issued, illustrates a number of points in its management, in which it might be copied with advantage by its rival. Besides the subjects proper for agricultural discussion at any time, such as Precocity of Development in Breeding Animals, here discussed with great ability by Professor BROWN, V.S.; the Natural History of Plant Parasites, by Professor BUCKMAN; and Arboriculture, by M. DE LA TREHONNAIS, the topics of the day and of the locality occupy immediate attention. Thus it is *apropos* of the Gloucestershire meeting that Mr. MORTON writes on Gloucestershire farming, and that Mr. HARRISON discourses of dairy management. And it is

apropos of a subject which has only lately been brought into agricultural prominence, that the Rev. J. L. BREEETON writes on middle class education. And besides the six substantial articles which have been thus referred to, there is a note book of as many pages appended, in which there have been collected for the readers of the volume, the chief items of agricultural value which have since the last issue appeared in agricultural literature elsewhere. Dr. VOELCKER and Professor DAUBENY, Professors THURY, of Geneva, and A. H. CHURCH, of Cirencester, Messrs. HARDING, C. W. JOHNSON, BLENCOWE, FRERE, WHITLEY, and others, are thus made to contribute to the agricultural information of the Western Counties; and these have distributed among their cultivators the agricultural information of the whole country, as well as the special contributions commissioned from selected agricultural writers.

Of the two Gloucestershire papers, that by Mr. MORTON has been written to illustrate the extraordinary advance in the arable farming of the district, and the comparatively stationary character of its pasture farming during the past 50 years, and especially during the past 20 years of his acquaintance with it. It appears that Gloucestershire experience proves the increasing fertility of the plough land under the ordinary agricultural management of the county. But it also proves that the produce of grain and meat which has so marvellously increased under arable culture has no corresponding counterpart in the produce of the Grass lands of the county. There is no such increased stock kept per 100 acres, nor is there any such increased annual produce from the stock which is maintained upon the Grass lands of the county as there is upon its arable lands. The object of the paper accordingly is to urge upon the owners of the dairy land of Gloucestershire the safety and the policy of such an extension of arable culture as would not alter, but facilitate and improve the dairy management of the farms. In order to the full and profitable development of the dairy system, it needs that at least one quarter of the land be arable.

It is however Mr. HARRISON'S paper on Dairy Statistics that readers will more especially receive as the leading article of this number of the Journal. It is one of the most important contributions which have for many years been made to the exact knowledge of English agriculture.

In a dairy of 60 to 90 cows on one of the best dairy farms of the Vale, an exact record of the produce of milk, cheese, butter, and bacon, has now for nine years been kept; and the lessons which these statistics teach on the policy of various details of management—on the value of breed or family descent—on the cost and profits of breeding from 2-year-old and 3-year-old heifers respectively—on the profits of dairy husbandry generally—and on the importance of a large percentage of plough land on the dairy farm, are of the very highest value and importance. The following are among the conclusions to which this paper leads us:—

1st. That it is desirable for the dairy farmer to rear his own stock, so that he may improve his herd, and, by using superior bulls, that the calves he has to sell may be of more value for rearing.

2d. That it is to his advantage to wean his heifer calves early, and, by his liberal treatment, to encourage their growth and bring them into the dairy at a little over two years old.

3d. That winter-dairying may be successfully carried on, and that by liberal feeding the cows will give almost as much milk as in the summer, without materially affecting the summer's yield.

4th. That a certain portion of arable land attached to every dairy farm—probably one-third—would greatly assist the farmer in supplying liberal feeding.

5th. That, as a considerable portion of the value of the food purchased goes to enrich the land, the farmer who uses much oil cake and other purchased food is improving the staple of the land.

6th. That it is to the advantage of the landlord to encourage liberal feeding, as tending to this improvement of his estate.

7th. That for this purpose he should erect suitable buildings for comfortable winter-housing of the stock, and encourage the breaking up of a portion of the poorer Grass lands.

The Frocester Court statistics will be quoted by all future writers on dairy husbandry as the first attempt which English agriculture has witnessed on so large a scale at the substitution of exact and recorded observation for that mere impression, vague belief, and rule of thumb by which our very respectable achievements in dairy husbandry have hitherto been accomplished.

We hope to publish Mr. HARRISON'S paper at length hereafter. Meanwhile we are glad to have had placed in our hands a series of lectures which that gentleman has been lately giving at the Royal Agricultural College on the same subject. The interest of that ultimate publication of such a course, in separate form, which will we hope be hereafter carried out, will not, we believe, be injured by the abridged syllabus of the several lectures which we hope to lay before our readers in successive numbers of the *Agricultural Gazette*.

THE Royal Agricultural Benevolent Institution may now be regarded as firmly established on the noble list of this country's charities. Founded but a few years ago by Mr. Alderman MECHI, and educated though a very promising youth by his unwearied labours, it has now attained its full majority, and is surrounded by troops of friends in all classes of the agricultural world, who lend their assistance and their patronage to its praiseworthy labours of love. Lord STANLEY, who presided at its annual meeting the other day, informs us that its income is now 3000*l.* per annum, that its funded property is 8000*l.*, and that it has already between 30 and 40 pensioners on its list. His lordship did not confine himself to a description of the charity, but pronounced a very able defence of the principle on which it is established. Indiscriminate charity has been well described as creating the distress which it relieves, but as failing to relieve all the distress which it creates. No such charge can be brought against the Agricultural Benevolent Institution, or against any of the professional charities which it resembles. As well might you expect a man to be made more reckless of his life at sea because of the institution of the Life-boat, as imagine the farmer less careful of success on land because of the institution of this Charity. To remove, however, the somewhat degrading idea of mere charity, as far as possible, Lord STANLEY proposes that as in the corresponding Gardeners' Benevolent Institution, the preference should be given at elections, on its foundation, to those candidates who have themselves contributed to its funds, and thus acquired a right to its advantages.

The other point referred to by the Chairman is one to which our readers and agriculturists generally ought to direct their attention. It appears that while certain counties, Essex, Middlesex, and Hampshire furnish hundreds of subscribers to this charity, others, as Yorkshire, Lancashire, and Cheshire, have very few. This defect or deficient agency is one of easy remedy. Lord STANLEY'S own words are these:—"Wherever there is a landlord or a land agency there we ought to have a friend and a supporter." We hope that Mr. SHAW, the Secretary, will have these words widely published, and that means will be taken to authenticate and authorise the efforts of any who may be disposed to call the attention of the agricultural body of his neighbourhood to the propriety of those claims which this charity makes upon their benevolence.

ADMIRAL FITZROY thus calls attention to the possibility of foreseeing the weather during harvest time:—

As the hay-making season is beginning, and harvest will soon follow, with usual anxieties among the agriculturists about dry or rainy weather, may I ask you to remind so large a class of the community that by keeping a very brief but regular tracing of the barometer and thermometer on paper ruled in small squares (say the tenth of an inch in size), and noted only once a day—at about eight in the morning,—much insight into coming change or continuance of weather may be easily obtained? Once a day gives a more useful line or trace than (oftener would do, as its angles, with the squares, show states of atmosphere more uniformly and evidently. Air, like surface of water, is not moved, depressed, or raised suddenly, nor does it, after being so waved or undulating, regain a quiet, balanced, and nearly level condition at once. Such a diagram, with its explanation, is given in my report for this year, presented recently to Parliament.

I do not mean the paper entitled "Weather Forecasts," which is not mine in any way.

In useful connexion with these suggestions to farmers may be observed that there are sound reasons, in theory as well as practice, for saying that the veering of wind "with the sun," or "right-handed," as a sailor would say, foretells drier or better weather, and that its "backing against the sun," or "left-handed," indicates rain, or wind, or both together. The turn of the winds in Ireland, Scotland, or Cornwall is usually in advance of Midland English Counties and eastern coasts from half a day to two days—a useful forerunner.

AGRICULTURAL NOTES.

BY MR. ALDERMAN MECHI.

TWENTY-TWO YEARS' EXPERIENCE IN DRAINING.—In 1842 I drained most of my farm. On the stiff clay side (plastic yellow clay, like bird-lime in winter and cast-iron in summer, too strong to make bricks, free from lime, but abundantly supplied with iron-rust), I drained 32 inches deep and 12 feet between the drains—the lower part of the drain filled with small stones to the depth of ten inches, and above or rather over the stones a 2-inch pipe, which binding against the sides of the drain, prevented any surface soil falling in among the stones. Well, it seemed an odd fancy, and just as it was finished Mr. Josiah Parkes's able paper and the 4 feet drainage made me think I had committed a folly, and so, after having drained about 75 acres in this way, my further drainage was done at wider intervals and deeper, with pipes alone. Twenty odd years have rolled away, and year by year my labourers and myself have watched closely every field and every drain, and we have noted that the closely-drained land with tile and stone is always forwarder and more quickly dried than the wider and more deeply drained; that it harrows more freely and friably, and requires less harrowing than the wide drained, and every drain works as perfectly as it did 20 odd years since.

Now do not for a moment let it be supposed that I am condemning the modern system of deep draining with pipes alone, which I know to be efficient, especially in soils having any friability; but I am convinced of this—that on our very stiff clays, especially in wet climates, it is most desirable to have the drains near to each other, say 18 feet or less, and also to have ample sized pipes, not merely for the purpose of draining the land, but for ventilating the subsoil. It is on this principle that I consider my close stone and tile drains so effective, and it is on this principle that I advocate, where opportunity offers, to fill the drain with porous material, or stones—the "area of porosity" in the drain, which I once propounded as a theory, has still a strong hold on my mind and on those of my more practical labourers, who say "Ah, sir, there is nothing like your first drainage: see how regularly the corn dies or ripens in colour, even in the furrows, and see how well it works after winter."

A great deal of draining work is being done by Messrs. Eddington, of Chelmsford, by a powerful engine working a mole plough, at 3 feet deep and 16½ feet intervals. No pipes are put in, but a tunnel larger than a tumbler is formed by the mole forcing its way and compressing tightly the earth or walls of the tunnel. Although I had considerable doubt about its success, especially in our collapsing and uncertain clays, I have seen and know of so many instances of its success that there can be no mistake about it. A good deal has been done in my own neighbourhood. It is a cheap, quick, and effective way of getting rid of surplus water by a tenant farmer, who has no compensation for drainage,—from four to seven acres can be done in a day. The cost, including horse and manual labour, coals, hire of engine, &c., is under 2*l.* per acre. I believe out of this 16*s.* to 18*s.* per acre is for the hire of engine, with drivers, &c. The drains are, I believe, one rod (16½ feet) apart.

The compression must be intense, for, on cleaving through the soil, the upper surface is moved and shaken like a small earthquake, and, no doubt, this breaking or lifting in addition to the cutting knife above the mole must admit water freely to the conduit.

The Messrs. Eddington let out many engines for this purpose, and for ploughing, threshing, &c.

I again commend my friends who farm very stiff unctuous clays, in cold wet elevated districts, to have their drains near to each other. In our cereal southern districts we have the advantage of many wide cracks in the soil. *J. J. Mechi.*

BIRDS AND TREES.—Although a decided enemy to hedge row timber, I am a great advocate for shrubberies, parks and plantations, judiciously placed at wide intervals, so as to afford climatic shelter, and proper refuge for the feathered tribe. I look upon birds as real farmer's friends, and not only encourage them in my shrubbery, but give to 300 fowls free access to all my fields. I hope that the ladies will take due note of this, in justice to me, for I know that I have been looked upon as a perfect savage in the destruction of those miserable old ugly Pollards and misshapen hedge-row trees which surround the paddock-like fields of Devonshire and other counties, and absorb the farmer's means. I am very fond of taking enlarged views, seeing in the distance a noble farmery, ample fields, rich crops, neat hedge-rows, variegated shrubberies and plantations, and now and then a noble tree; and I cannot for the life of me comprehend the gratification of wending my way for miles between hedge rows so high that the country is lost to my view even in a carriage, except an occasional glimpse of a four-acre field over the gateway.

I am a great advocate for winged game and rooks, for although they may cost us a trifle during the winter season or seed time, they certainly do us a more than compensating amount of good. When visiting the French department of the International Exhibition, I was very much struck by the inspection of a paper or volume containing an account of the food of a great variety of birds during each week of the year; and saw at once how much man was indebted to these interesting creatures for their destruction of the enemies to his crops.

Each bird was there (stuffed) as well as the description of its food. During the hatching season, the quantities of grubs, caterpillars and flies, carried by larks only to their young, are very great. Ground game do not eat insects, therefore I say little about them, except that a boiled rabbit or roast leveret is very nice now and then. *J. J. Mechi.*

UTILIZATION OF TOWN SEWAGE.—A Sewage Committee of the House of Commons is now sitting, and a very valuable mass of engineering evidence will be given to the public, enabling them to form an opinion of the practicability of conveying sewage to a considerable distance at a very small cost. Two eminent

hydraulic engineers, Mr. West and Mr. Hawkins, tell us that there will be no difficulty in pumping sewage, and that the cost of raising it to an elevation of 300 feet (nearly the height of St. Paul's, certainly higher than the Monument), would be from 13*s.* to 14*s.* per 1000 tons, or three-eighths of a penny per ton. We can easily imagine what a pressure and jet we should get from water or sewage at such an elevation, but if the required height were only 100 feet, we should get about 8 tons for a penny; but there would be pipes to lay down, the sewage to pay for, and the profits of a company, but even so, I expect that sewage could be laid down on the farm at three halfpence per ton. In my opinion the great value of sewage is the water. One hundred tons of water per acre represent a rainfall of 1 inch; and we know that such a rainfall for Grass land during the growing and summer months would be cheap at one penny per ton, or 8*s.* 4*d.* per acre; leaving out of the question the valuable sewage elements. It appears from Mr. Cuthbert Johnson's evidence, that the sewage water from Croydon never freezes in winter, therefore it must thus have a much higher temperature than the air and thus stimulate vegetable growth; for on the temperature of the earth depends in a great degree the growth of the plant.

I have a strong evidence of this in my conservatory, where, in the vicinity of a passing flue, my Camellias luxuriate and flower in November and December, at least two to three months earlier than those on the opposite side, where there is no subterranean heat.

Altogether, I anticipate that we shall get from this Committee, when the evidence is published, a most valuable mass of information on the sewage question.

One thing is quite certain, that to feed the people of the great metropolis, and the animals which they employ, the produce from six millions of acres, landlord's measure, is annually required, and, as I have said before, it appears to me most unfair that the results of such a consumption should not return to the lands which have been thus stripped of their produce and their fertility.

Mr. Cuthbert Johnson said on Thursday, in answer to a question from Mr. Caird—"If they applied the sewage to land in their own possession they would have no difficulty in letting it for 15*l.* per acre."

This reply has reference to 300 acres of land, which the Board of Health let only 4 years ago to Mr. Marriage, at 5*l.* per acre. Surely this is a real landlord's question, if the application of town sewage is to increase so rapidly the value of land.

Mr. Johnson lives at Croydon, where the value of the land for farming purposes is under 2*l.* per acre. *J. J. Mechi.*

How to make Good Hay.—I give my experience in this matter, and submit it to the criticism of my keen practical friends. I lay down as a principle that good hay should be green. If the cut Grass were immediately desiccated or dried artificially it would be green. It is the long exposure to the sun's rays that takes away its colour, and gives evidence of improper making. I lay down as another sound theory that Grass immediately after cutting should be either flying in the air by means of the machine, or be on the cock. As fast as the Grass is cut it is immediately sent flying into the air; and we keep on at this all day until the approaching fall of dew, before which time it must be put on the cock, for the dew is almost as bad as rain. A lady's dress or veil in the summer evening will give evidence of this. Grass after cutting should never be allowed to lie on the swathe or rake row, or lie spread over the ground. The damp from the earth prevents its making, whereas on the cock it heats slightly and makes much quicker than even when exposed to the sun on the ground.

I will give an instance of this. Two-thirds of a field of Grass were put into large cocks, the other third left on the rake row. It was on a Saturday, the weather being brilliant from Saturday to Monday. On Monday we carted, and it was found that the cocked Grass was much forwarder than the rake rowed, which had in consequence to remain out longer.

It is easy to understand this, for, in dry weather, you will always find damp under any covering you put over the soil. I commend this question of flying in the air or putting on the cock to our Scotch, Irish, and Lake Country friends, whose mountains give them frequent rainfall or a fine moist Turnip atmosphere.

It is easy to understand that scattering the separated blades of Grass high and rapidly through the air is, in fact, like blowing a gale of wind through them, and the Grass is thus quickly deprived of its moisture without losing its colour and quality by long exposure to the sun's rays. If dried artificially it would get heat without sunshine, which is just the north country and Irish condition. I would impress upon our machine-makers to increase the rapidity of motion of their circular rakes, so as to give an ample throw or spread without causing the horse to walk fast or trot. This is especially necessary with heavy crops, which I hope all my practical friends grow, and which I know they will be sure to have when they use town sewage for irrigation. A friend of mine who drives four-in-hand had such an immense crop of hay in his park, that he worked his tedding machine and his horses at full gallop, and thus got a splendid hay crop. The horses were ridden *en postillion*. In getting heavy crops of Italian Rye-grass into hay, it is absolutely necessary to have rapid motion; and I need hardly say that this Grass will bear cutting and carting earlier than meadow Grass.

Our mutual friend, Mr. Dickenson, got up a capital and extensive crop of hay during the miserably wet season of 1860 by the means I have suggested. If it rained, which was almost constantly, the hay was on the cock; an hour or two dry, the cocks were opened—several machines constantly going when the slightest opportunity presented itself.

As to stacking, those who have a covering can choose their own time. I observe that all keen hay-makers take care to have the carts heavily laden some time before unloading, for the bottom and middle of the stack, so that it should thus get a preliminary heating, as it is likely to have the greatest pressure and the most difficult escape of heat. I consider the drying in the air and the heating in the field cock the two important matters—and I need hardly say if you have not a rick cover if should be thatched immediately it is finished. It is easy to understand that hay when cocked in large cocks only occupies probably one-tenth or less of the space of the field, therefore if one inch rainfall takes place, it only gets one-tenth of the rain that it would have if spread over the field. The larger the cocks the less the injury from rain, but the cocks must be opened on every favourable occasion. We only want to get the moisture out of our Grass, preserving its colour and qualities. There is no place where they understand making hay so well as near London. The size of their ricks, the care with which they are pulled, or plucked so as to have a solid outside, and the neatness of thatching and cutting out, deserve imitation as well as admiration. *J. J. Mechi, June*, 1864.

DWELLINGS OF THE LABOURING CLASSES.

The following report of the second day's Conference on this subject before the Society of Arts is abridged by permission from the Society's Journal.

The Chairman, W. Hawes, Esq., said: To-day the business before them was the consideration of the fifth head under which the subject to be submitted to the Conference had been divided, viz., "Remedies: A. What can be done by legislation? B. What can be done without legislation? and, What assistance, if any, can the Society give in either of these directions?"

On the ground of the many general benefits which would ensue were the labouring population well housed, and on the ground that Parliament already interferes and legislates for the regulation of labour in factories and mines, also for carrying the working classes on railways at less than the regular fares, and in the construction of houses generally—advances large sums for school buildings, and to encourage education—spends large sums annually in the maintenance of prisons, and lunatic asylums, and other establishments rendered necessary by the vice and crime so often engendered in the present bad buildings in which the working classes were condemned to live; confines and holds in custody thousands who would have earned an honest livelihood had they been brought up from infancy in proper dwellings, there was no force in the abstract objection to Government interference, if it could be shown that the object was a national one—he submitted that they could, and without new legislation, materially aid in promoting the object in view. At present money was advanced on loan, through the Public Works Commissioners, at a low rate of interest, to landed proprietors for drainage and other improvements; and public works of various kinds might be assisted on the same terms, proper security being taken for the repayment of the loans. Now, suppose that by such assistance a portion of the capital requisite for this special class of buildings could be obtained at such a low rate of interest as would just turn the scale and make their erection a good commercial speculation—could anyone doubt that there would be plenty of builders ready to provide ample and proper accommodation for the working, as they now do for the upper, classes? Supposing, for instance, such a block of buildings as that represented by the model on the table cost 100,000*l.*, and that an income of 8 per cent. could be obtained from it, it was clear that if one half of that sum or 50,000*l.* could be borrowed from the Government at 3¼ per cent., the interest on the other half would be raised to such a figure as would induce builders to supply the rest and enter upon such speculations. If the moiety of the 100,000*l.* was repayable by a sinking fund in 30 years, the other half would still bear a high rate of interest, and by such legitimate means commercial speculation would be excited in this direction. In conclusion, then, he would say in reply to the question—What could be done by legislation? that relief for fiscal burthens on this kind of property could be afforded, and could be justified in the interests of the State; and, secondly, as to What could be done without legislation? that there was authority under existing Acts by which money could be lent for the purpose of building dwellings for the industrious classes, which, if brought into operation, might fairly be expected to yield most beneficial results. Do not let it be said we lend money to the landlord to improve his property, and refuse to lend money to find a decent house for the workman. He therefore hoped, in considering this question, they would not treat it as one for the benefit of the working classes alone, but that they would regard it from a broader point of view, as a measure of most pressing urgency, and calculated to confer most important benefits on the whole nation.

Dr. Hancock (of Dublin) called attention to the differences in the legislation on this subject in England, Scotland, and Ireland. Scotland was in this respect in advance of the other portions of the United Kingdom. The next question was—Why had not those powers in Scotland and Ireland been more extensively exercised? He thought the reason the owners of entailed estates had not done more was indicated in one of the resolutions passed on the previous day—viz., that the Law of Settlement stood in the way. The effect of the Law of Settlement was that it attached the liability to the wrong place—viz., where a person was born. That, in itself, was destructive to the increase of labourers' habitations.

Mr. Thomas Hare explained the provisions of the Bill to which he had alluded on the preceding day (see page 541), "An Act for amending the law of tenure and conveyance of certain real property within the limits of the metropolis, and for facilitating the acquisition and transfer of certain lands, tenements, and real estate therein, and especially of dwellings and interests of smaller value, and for extending the benefits of the law hereafter to other parts of the United Kingdom." The Chairman had suggested loans by the Government for these purposes; and he would add clauses to the proposed Bill to that effect. Such assistance might be given directly to the working classes. By the repayment of 3*s.* per week—half the present rent of inferior accommodation—in 15 years a man could redeem a mortgage of 100*l.*, and pay 6 per cent. upon the money borrowed. What could be more profitable than that, both for the State and the people? And what better security could be afforded for the repayment of the money?

Rev. A. W. Thorold was satisfied this object could only be successfully accomplished on a commercial basis. With respect to legislation, the Chairman had laid down another proposition, equally true—that no Act of Parliament would affect either the value of land or the value of labour and materials for building. All they wanted from the Legislature was to assist them as far as possible in removing the obstacles which were admitted on all hands to stand in the way of this movement. He had no doubt an Act, such as Mr. Hare had sketched, would make land more available for these objects.

Mr. Harry Chester invited attention to the Acts which had been passed from time to time to afford facilities for conveying sites for schools, &c. It was therefore, he apprehended, competent for them to ask the Legislature to afford similar facilities for the provision of sites for cottages.

Mr. J. Gregson, M.P., agreed with the provisions of the Bill submitted by Mr. Hare, for facilitating the easy transfer of small properties. He thought, however, that a permissive bill was seldom of much value. As to compelling railway companies to purchase more land than they required, he thought Parliament would never pass such a measure as that. The statement that building societies as a whole had not been successful was opposed to the impression he had always entertained. The Chairman was quite right in saying they must not look to benevolent principles for the accomplishment of their object; the commercial principle was the only one that could be relied on. Then the next question came, how were they to construct these houses so as to make them commercially remunerative? One way of doing so was by means of loans from the Government, on the system pointed out by the Chairman. Referring to the returns of this description of houses, published by Mr. Twining, he found that the rents were on the average so low that he was afraid they would scarcely pay a rental to provide a sinking fund for the repayment of the loan.

Mr. G. Godwin, F.R.S, thought it would be well that a short resolution should be proposed to the effect that it was desirable the supervision in the case of lodging-houses should be extended to all houses occupied by more than two families. This might be opposed to the maxim that "an Englishman's home is his castle," but it already existed where more than one family lived in one room.

Dr. Greenhill thought it better not to wait for assistance from Government, but to carry out the plan of buying up and improving unhealthy houses by means of joint-stock companies, which, if properly managed, were able to pay a dividend of 4 or 5 per cent. This rate of interest was not sufficient to induce merchants or builders to invest their money in such schemes as a commercial speculation, but it would be found a convenient mode of investment for persons who had no more profitable mode of employing more money. This was the case at Hastings, where about one-half of the capital of the Cottage Improvement Society (now amounting to 17,000*l.*) was subscribed by ladies, who received a regular half-yearly dividend at the rate of 5 per cent. per annum, without risk, trouble, or expense, and with the additional satisfaction of making their money useful to the community by helping forward the great work of sanitary reform.

Sir Christopher Rawlinson said the great question in his mind was, if Government advanced money at 3¼ per cent., whether cottages could be erected to pay 5 or 6 per cent. That was the whole difficulty. He had built cottages at a cost of 110*l.*, for which he now got 4*l.* 4*s.* rent per annum, and that could not be said to be remunerative. With regard to London, he thought the case was not one of so much difficulty. The opportunities of association were so much greater, and, from the higher wages of labour, there was a better prospect of obtaining remunerative results.

Mr G. H. Whalley, M.P., thought a short Act might be introduced, by arrangement with the Enclosure Commissioners, for giving the same facilities for borrowing money for the building of cottages that were now afforded in the case of drainage.

Mr. C. Akroyd said, as a large mill-owner and employer of work-people, he had erected 100 cottages for the workmen attached to some mills near Halifax. These cottages consisted of three classes. No. 1, costing about 120*l.*, was let at 5*l.* 15*s.* His object was to attract the best workmen to the neighbourhood, and in order to do that, it was necessary to have a better class of cottages for them to live in, and the results, he was happy to say, were satisfactory both to the employer and the employed. He thought large employers of labour would find it to their interest to erect this class of buildings for themselves. His second experiment was carried out at Haley Hill, where he purchased ground to the amount of 10,000*l.* The erection of houses to cover the whole of that plot would have amounted to a serious sum; therefore the problem he set himself was this—"Can I induce the workpeople in my neighbourhood to join me in the erection of a superior class of cottages on this land, so that, in the end, they may themselves become the proprietors of those cottages?" In conjunction with his workmen he formed the Akroydon Building Society, and placed themselves in communication with a benefit building society in the locality, to ascertain the terms on which it would advance money for the erection of blocks, on plans to be mutually approved by himself and the workmen as future occupiers and owners. Terms were arranged under which the building society advanced money, which, by a payment of 3*s.* per week, was to be repaid in 12½ years. In his first experiment, for the sake of economy, the houses were built back-to-back; but in the second case he was determined to carry out the "model cottage" in every respect, and he found it was impossible to build such a house as he wished to see the better class of workmen live in, for less than 190*l.*, including land. It might be said that failed to provide a cheap class of house for the poor; but indirectly it did so, as it was found the superior workmen vacated existing cottages elsewhere, leaving them to be taken up at a lower rental by others. He had great pleasure in stating that a new town was rapidly springing up in the neighbourhood, peopled by the best class of workmen. As soon as a block was finished he was repaid for the land by the building society, and in that way he gradually recovered the whole of his expenditure. The plan adopted at Halifax had been successfully initiated in other places, particularly in Leeds, where large plots of land had been purchased on which dwellings of superior design would be erected. It might be said that in some instances building societies had been failures, but for his own part he was amazed at the development of the co-operative system. In three towns in the West Riding of Yorkshire no less a sum than 1,200,000*l.* had been raised in this manner. If that were so, they might look to those building societies to advance much of the capital required. The money was borrowed in many instances at 3 and 4 per cent., and they paid their proprietors 5 per cent. These societies were a sort of savings bank, and there were great inducements to deposit capital in them. He thought the system he had pointed out was capable of indefinite extension in country towns.

Rev. S. Tenison Mosse (of Dover) said, having seen the evil effects of crowding of dwellings in his own town, he made application to the Government, and succeeded in obtaining

a site of 7 acres at the price of 250*l.* per acre, all expenses included. He then started a society, under the Limited Liability Act, for raising funds for building cottages on that site, but owing to various causes he did not succeed in getting a sufficient number of shareholders, although he promised them 5 per cent. for their money; for he held it was the commercial principle which must be brought before the public in this matter. Upon the issuing of the prospectus, showing a dividend of 5 per cent., shares to the amount of only 100*l.* were taken, upon the fourth of which, however, he entered into a contract for six pairs of cottages. By means of loans to the amount of 3,200*l.* in addition, he succeeded in planting 24 cottages, and had paid off the 1750*l.* to Government for the purchase of the land. If the plan suggested by the chairman, of borrowing public money at 3½ per cent., with a sinking fund of 1½ per cent. or higher, according to the returns, were followed, he had no doubt within two years he should be able to plant 100 cottages where there were now only 24.

With reference to the co-operative system which had been advocated, there was no doubt artisans in towns earning good wages might eventually become the owners of the houses, but to ask even 5*d.* a week from the agricultural labourer for such a purpose, would be asking him to do an impossibility, and the monied classes must be satisfied with a lower rate of interest to enable the labouring class to live with comfort and decency.

Mr. Alderman WATERLOW thought the attention of Parliament should be drawn to the question of furthering the equalisation of the poor rates. He wished the meeting to consider the bearing it would have on this particular class of property. There had been some dwellings of this kind erected in the Tower Hamlets and in Shoreditch, in both of which districts large numbers of the labouring classes lived, consequently the poor-rates were very high. The legislature might at least equalise the poor rates to the extent of making each town pay one rate throughout its area. If that were done in the metropolis it would be a great benefit to the labouring classes, because it would reduce their rates materially. Another point was, Parliament should be asked to consider whether with regard to local rates, the man of limited income was not entitled to some concession, as was now the case with regard to government taxes. He would suggest that a reduction in the local rating upon tenements under the rent of 5*s.* per week should be made.

Mr. H. W. FREELAND thought Mr. Alderman Waterlow had hit the right nail on the head in his remarks on the subject of rating, and Parliament might do much towards cheapening the cost of transfer of small properties of this kind.

The CHAIRMAN then read the following resolution, as embodying the views of the meeting:—

"Resolved,—That the legislature can promote the erection of proper and sufficient dwellings for the labouring classes:—

"1. By loans at low rate of interest, repayable within a limited time and under proper security and conditions, for building dwellings and cottages upon the precedent of the Dwellings of Labouring Classes (Ireland) Act, 1860 (23 Vic, c. 19), and other similar acts of the legislature.

"2. By assimilating the law of this country with that of Ireland and Scotland (Tenure and Improvement of Land (Ireland) Act, 1860, 23 & 24 Vic., c. 153, Act for Facilitating the Building of Labourers' Cottages, 1860), in giving facilities for obtaining advances on the security of settled estates.

"3. By throwing upon public companies requiring houses inhabited by the labouring classes, for their own commercial purposes, the obligation of erecting an equal number to those destroyed.

"4. Improvement of Lodging-house Act, as regards provision for sanitary purposes, and giving greater power to inspecting officers.

"5. By giving facilities to owners of property, under disabilities (such as tenants for life, minors, &c.), for conveying sites for building cottages upon the principle of the Montgomery Act in Scotland (10 Geo. III., c. 31) and the Tenure and Improvement of Land in Ireland (23 and 24 Vic., c. 153).

"6. By cheapening the cost of title and transfer of property, so far as affects cottage property.

"7. By enabling cottage property and labourers' houses in towns, and the sites of such property, to be registered under local authorities as personal property, transferable as to local registry alone, in the same manner as Government stocks and railway shares.

"By abolishing the law of settlement, and extending the present limited area of assessment for local taxation, so as to equalise the payments of all classes."

Mr. AKROYD objected to Government loans for building cottages, and contended that the objects could be better effected by the co-operation of the working classes themselves.

The resolution was then agreed to. It was further resolved—

"That the Council of the Society be requested to take steps for giving effect to the recommendations of this Conference."

Upon the motion of Mr. AKROYD, a vote of thanks to the Chairman for the able and courteous manner in which he had presided over the proceedings of the Conference was passed by acclamation, and the meeting adjourned.

AGRICULTURAL EDUCATION.

I HAVE little to add to what has already appeared in your columns from the pens of my late fellow students on the subject of agricultural education; but so strongly do I feel with them in all the opinions they have expressed, that I cannot refrain from adding my testimony to their truth, if you will allow me to do so through the medium of your Paper.

Time was, if report be true, when the object of the farm attached to the Royal Agricultural College was to show to the students every variety of practice and every breed of animal, until the place wore such a unique appearance as to be the laughing-stock of the neighbouring farmers. But this is no longer the case; and, although it does not yet pretend to be a model farm, the fallacy of the old method of management is acknowledged, and, with the exception of a few plots annually chosen for experiments, the whole of the land is treated as enlightened Cotteswold agriculturist would approve. The principles of stiff land farming can never be experimentally and thoroughly taught on the College Farm, because it happens to comprise little or no really strong clay land. Nor is there the possibility of students gaining as much practical knowledge of cattle feeding and dairying as is desirable, since the College is situated in a district as eminently suited as it is celebrated for sheep. Whether the site was well chosen by the first founders of the institution is perhaps a question; but there it is. Now the object of an agricultural education is to place the student in possession of an intelligent knowledge of the details of every branch of the "art and science" of agriculture, so that, when the time arrives for him to commence business, he may not find his choice of a farm, which is at best very limited, still further narrowed by inability on his part to cope with the difficulties of any particular department of his profession.

After having spent two years on a stiff-land farm in the midland counties, and two years afterwards at the College, I have arrived, on mature consideration, at the opinion that four years cannot be laid out to better advantage by a student of agriculture than in the following way. Let him devote one year to the acquisition of a knowledge of cattle management (including dairying, stall feeding and grazing), and of the principles of cultivation of the soil—of strong land especially. This must be done by residence with a tenant farmer; and during this year let him be as practical as possible, put his hand to everything, and become acquainted with all the details of labour in the field and in the barn. The knowledge he has now gained will be a sound foundation for the superstructure of scientific teaching that must next be raised upon it during two years' residence at the Royal Agricultural College—a superstructure whose first form is that of the detached blocks of the pure and perfectly general sciences, afterwards by degrees fitted and dovetailed into each other, and cemented together with a well-tempered mortar of practical agriculture; for surely one who is ignorant of pure chemistry can form no idea of the meaning of 10 per cent. of monocalcic phosphate of lime, or ever appreciate rightly the analyses which it is universally considered ought to accompany the sale of guanos.

But, after reading what has been said and written of the deficient instruction in practical farming at the College, our student will, I am sure, be astonished at the important place assigned to it there, and at the efficient manner in which he will hear every department of it discussed, and find every detail of it illustrated, as far as the capabilities of the farm permit. All he has learnt with the tenant farmer will be recalled to his mind and clothed with fresh interest; he will see the rationale of this practice, the doubtful nature of that, the improvement that might be made on the other, and the reasons of one and another failure, and I do not hesitate to say that the real value to him of the year already spent with the tenant farmer will be doubled before he leaves the College, and this entirely owing to the practical instruction he will receive, and the sharpening of his wits against those of his fellow students. It appears to me monstrous to suppose that two years with a farmer, who it is confessed very rarely care a straw for the advancement of his pupils, can be compared with the same period passed at the College, where every pains is taken to direct his studies, where emulation serves to stimulate effort, and the whole atmosphere is one of thought and progress.

I have supposed the student to be one who intends to do something, for every one knows there are plenty of young men who might be with a farmer till Doomsday, or at college till Doomsday, and leave evidence of nothing but total failure in their case; the education of such it is useless to discuss.

After his college course is completed he will hardly be fit to take a farm. If he devotes another year to practical agriculture, I believe, for reasons above stated, he cannot do so better than by remaining in residence at the College. It is less expensive than residence with a farmer, and he reaps the benefit of special lectures, or any others he may wish to attend.

Permit me, in conclusion, to remark, that I believe instruction in the sciences connected with farming could not be made less general than is done at the College without inflicting real injury on the students and on agriculture itself, by distributing over the country men possessing a store of shallow information, consequently wiser in their own conceits than seven times the number of men who could render a reason, and certain to bring discredit, wherever they move, on those sciences which are destined to renovate agriculture. *Arthur James Hill, M.R.A.C.*

AGRICULTURAL STATISTICS.

ON Tuesday evening, in the House of Commons, Mr. CAIRD moved his resolution in favour of Agricultural Statistics. He said:—

He had been much impressed with the extent to which this country was now dependent on foreign sources for its supply of food. The change had been very extraordinary in the last few years. The importations of foreign Wheat and flour for the 10 years previous to 1838 were considerably less than the present average yearly import. The imports for those 10 years were 6,200,000 quarters, while the average imports of the last five years were 9,000,000 quarters. The diminished price of corn on the one hand, and, on the other, the increased price of butchers' meat, dairy produce, wool, butter, and vegetables of all kinds, coupled with the increasing cost of labour, naturally caused a gradually diminished growth of corn. It was difficult to estimate the effect of the change which was thus over-spreading the country. If each farmer took away one-tenth of his land from corn, and let it out in Grass, we should require from 4,000,000 to 5,000,000 quarters of corn more to be imported than before, and that very process might be going on without our having the slightest knowledge of the change. But if we had the acreage under each crop we should know the extent of the change, and how it was gradually being brought about. He had always argued that the advantage to our own farmers of such a knowledge would be as great as to any other class. The farmer was to a great extent not only a seller but a purchaser of foreign corn. During the last four years the fluctuations which had taken place in the cost of foreign corn had been extraordinary. In 1860 and 1861 our imports of corn cost upwards of 40,000,000*l.* In 1863 and that part which was now remaining of 1864 up to next harvest—which, of course, was partly a matter of estimate—it would be found, he believed, that we should not pay more than 20,000,000*l.* A difference amounting to something like 20,000,000*l.* must seriously affect the whole monetary interests of the country, and if they looked to the commercial and shipping interests, it would be seen that the transport of such a vast weight of corn was a matter of immense importance. In one year we should require three millions of tonnage in another a million and a-half. He appealed to the benefit which the country had derived from the agricultural returns collected with such success in Ireland. The Chancellor of the Exchequer had more than once borne testimony to their value. But the Irish returns, though most important, must nevertheless be looked upon as incomplete until they should have the returns from Great Britain also. He believed if the system were once in operation most satisfactory statistics might be obtained from the office of the Registrar-General. But he had turned his attention to another mode of obtaining them, a mode which had been tried for two successive years in two different counties in Scotland with perfect success. He would select 10 districts in England, one in the south, one each in the south-west, midland, and south-east, in the west, midland, and east, and in the north, north-west, and north-east. Each of those districts might contain 100,000 acres, and so far they should insure absolute accuracy. He had proposed 15 sample districts for the whole of Great Britain, those districts containing 1,500,000 acres, which would represent about one-tenth of the whole of the cultivated surface of Great Britain. It was a convenient quantity, but was not material to his object. All that was material was that the same sample districts should be taken each year in succession, for by doing so they would be able to find out the changes which were taking place in the cultivation, and if there were a fifth or a tenth of increase, that would be an indication that a like increase had taken place in the cultivated acreage of the whole country. The whole cost would not exceed 3000*l.* a year, and such a small sum was hardly worth mentioning in comparison with the advantages to be derived from the possession of correct statistics. The second advantage of the plan was that it would entirely do away with the complaint as to the inquisitorial character of the inquiry, because the officer, taking the Ordnance map of 100,000 acres, and filling up that map as cultivated, need not know the name of a single farm or farmer. The returns so obtained of the surface of the country might be procured early and published towards the end of July, and the country would then be in possession of what it never had before—a satisfactory basis, on which every one interested in the purchase and sale of corn could calculate for himself what would be the probable result of the harvest about to be reaped. Towards September, when some criterion might be arrived at as to the probable yield of the harvest, the same officers as had made the inquiry in the previous part of the year would again inquire as to what would be the probable produce of the crop when threshed. Having developed the plan he suggested, he would now place his motion before the House, not asking the House to bind itself to that plan or any other plan, but only desiring that, as the question was of so much importance to the public generally, and as the returns could be procured for so very moderate amount, the House would agree to the principle expressed in the resolution which he now moved—"That in the opinion of this House the collection and early publication of the agricultural statistics of Great Britain would be advantageous," &c.

Colonel BARTTELOT could perfectly understand, if the collection of these statistics would only cost 3000*l.* a year and be of the great advantage described by the hon. gentleman, that the House might agree to such a resolution as that now proposed; but if the statistics would only be inaccurate and fallacious, he could see no advantage in collecting them. An estimate could not give an accurate account of actual produce. Moreover, the feelings of the people on whose grounds the officers would have to go ought to be taken into account, and their feelings were adverse to statistical returns of this nature.

Mr. PACKE agreed in what had fallen from the hon. gentleman who had just sat down; and as he had never heard what benefit would be derived from such a plan as that now proposed by those whose private concerns would be inquired into, he must oppose the motion. People connected with farms knew very well that they could not tell within many quarters what the produce of their land would be, and he therefore believed that the 3000*l.* a year would be thrown away. Such an inquiry as that proposed ought not to be made without the consent of the producers, and he did not see why a farmer should have his stock inquired into more than a shopkeeper.

Mr. PAGET said that having been for 40 years engaged in calculating what the probable yield of the harvest would be, he was certain that a very close guess might be made at it by this proposal. The objection to the taking of acreage of corn had considerably subsided; and he believed that the tenant-farmers had no objection to the acreage of their growing crops being known. Every landlord and every steward must know, and it could not signify to the tenant-farmer that the general public should know it. The gallant colonel opposite said that taking returns for these sample districts would not give a fair idea of what was being done all over the country; but, with the geological map in hand, it would not be at all difficult to mark out a sample district which would give the information desired. Of course weather which suited the lias strata would not be so good for the sandstone; but by taking a fair sample of the lias districts, it would not be difficult to ascertain what was going on in the same kind of lands all through the country. The practical form in which the hon. gentleman had embodied his proposition removed many of the difficulties which had formerly stood in the way, and the sum of 3000*l.* would be very little to pay for the valuable information which might be obtained. One result of the collection of this information would be that it would tend to reduce the inequalities of price throughout all the country, and would thus confer a great benefit on the small farmers particularly, whose interest it was to be able to take their produce to market regularly and get a fair average price for it. Certainly, nothing would tend more to make prices steady throughout the country.

Lord HOTHAM agreed very much with his gallant friend that it would hardly be practicable to arrange any such "type" districts as would give a fair representation of the yield of the whole harvest.

Mr. DENT deprecated as much as the noble lord speculation on the part of farmers, but then he believed the main causes of it to be the fact that they were so entirely in ignorance of what was likely to be the average of the crops throughout the country. He should wish, he might add, to see a return made not only of the crops but of the stock.

Mr. HUBBARD said he did not think the outlay of 3000*l.* or 4000*l.*, or even 100,000*l.* ought to stand in the way of their being procured if possible, particularly when we recollected that in one season 20,000,000*l.* was laid out in the purchase of corn alone, and that we had to compete with other nations in the markets of Europe and America. So far as the feelings of the farmers were concerned, he must say that he thought it was a point on which a good deal of misapprehension

prevailed. There was no person more interested in having accurate returns than the farmer himself.

Mr. Thompson pointed out that the acceptance of the resolution of his hon. friend would not in any way bind the House to a specific plan. He was of opinion that it would be advisable for the sake of removing prejudices, to confine the information to the amount of the acreage. That information, which was of great importance, might be collected at a comparatively trifling expense, and with little or no jealousy on the part of the farmers. The acreage being fixed, and it being known that the difference in the crops did not amount to more than 10 bushels an acre in a bad, as compared with a good season, every man might be able to form a fair judgment for himself as to whether in any particular year the yield approached the ascertained *maximum* or *minimum*.

Lord Naas said that in Ireland no difficulty had been experienced in ascertaining the acreage and the amount of stock, but the attempt to get at the amount of produce had not been equally satisfactory, the estimates in the same parish varying at times as much as 50 per cent.

Mr. M. Gibson said that he could not regard this as a mere abstract resolution. If it were passed his hon. friend would, he imagined, understand it as an encouragement, if not an approval of his plan. We had no knowledge at present beyond a more estimate either of the acreage under cultivation in the whole kingdom, or of the quality of the soil in various parts of the country; therefore, he thought that it was going a great way to assume that the proportion between the typical districts in two successive years would hold good for the whole country. In Ireland we had estimates of the extent of land under cultivation similar to that which his hon. friend had referred to for England; but an examination of the whole of Ireland showed that those estimates were entirely erroneous. Probably the estimate of 15,000,000 acres for England was equally wrong. In Ireland the estimate of the land under Barley was greater by one-fourth than the largest quantity actually sown, and too much land by about one-fourth was supposed to have been cultivated with Potatos. The fact was that the plan of his hon. friend had not been long enough before the House. He would not go the length of condemning it; on the contrary, he guarded himself from the assertion that it might not prove hereafter to have great merits. But before it was adopted in whole or in part it was absolutely necessary to see that the calculations rested upon accurate data. Now in Scotland he found that in the typical counties the increase from 1855 to 1856 in the acreage under Wheat was at the rate of 34 per cent.; whereas over the whole of Scotland the increase was at the rate of nearly 37 per cent. In Ireland in the same years the increase in the typical counties was 14 per cent., while over the whole country it was nearly 19 per cent. Between 1856 and 1857 the increase in the acreage under Wheat was 3½ per cent. in the typical districts, while over the whole of Ireland it was little less than 6 per cent., or nearly double the amount. Taking the difference between the years 1859 and 1860 in the Irish typical districts it was 2½ per cent., whereas over the whole of Ireland it was only ¼ per cent.; so that if the typical districts were taken in that year as an indication of what was going forward in the country, the increase would have been represented at five times its actual amount. This showed how difficult it was to select typical districts. He was quite prepared to admit that the collection of agricultural statistics was most desirable, and that the interests of this country, both agricultural and mercantile, would be greatly benefited by them. At the same time he did not see the slightest necessity for any resolution whatever on the point. He himself had proposed resolutions, but then he had always some definite plan in view; and unless the House were prepared to carry out a definite plan they ought not to sanction this resolution.

Mr. Bass thought there must be some misapprehension on the part of the right hon. gentleman and members opposite as to the proposition of his hon. friend. When he heard the President of the Board of Trade acknowledge that it would be most desirable to have these statistics collected, he was in hopes that he was about to propose that they should be taken not over one-fifteenth of the kingdom, but over the country at large. The right hon. gentleman quoted figures to show that a discrepancy of 5 per cent. existed between the returns as given by the typical districts and those extending over the whole of the country. What did that difference amount to? One million in 20. But what was the extent to which the country was at present in the dark for want of these statistics? Writers of eminence had declared that the general average produce of Great Britain and Ireland was only 6,500,000 qrs. of Wheat. The very highest authority in the kingdom, Mr. M'Culloch, on the contrary, placed the quantity of Wheat at upwards of 13,000,000 qrs. The late Sir G. Lewis, a few years ago, invited general co-operation in ascertaining the number of persons that could be fed in this country, and surely it must be of equal importance to know what they were to be fed with, and what proportion of their food was derived from our own country.

Mr. Heygate said all they wanted to know was an accurate account of the various descriptions of ground under different crops every year, and the quantity of live stock, so that they might trace the increase or decrease of the agricultural wealth of the country.

Sir G. Grey said he believed there was scarcely any difference of opinion upon the principle involved in the proposition of his hon. friend. The Government were fully convinced of the advantages of agricultural statistics in the United Kingdom, and agreed that they ought to be collected and published at the earliest period. But the noble Lord (Naas) had shown that these statistics would be of very little value if they did not extend over the whole country. The Government objected to this proposal because it did not advance one step towards the practical attainment of the object in view. If he had misconstrued his hon. friend, and if he thought the returns should be compulsory and should include the United Kingdom, then his hon. friend ought to bring in a Bill, and the House would know the means by which he proposed to carry out his object. The Ordnance map would no doubt give facilities for obtaining these statistics, but the plan in itself was one which the House ought not at present to adopt.

Mr. Caird, in reply, said there was a gradual progress of opinion among the farmers in favour of agricultural statistics, and he believed they would work more cordially with a voluntary system than under an Act of Parliament. Many modes of obtaining agricultural statistics had been proposed, and he should himself very much prefer a complete system. But what he was anxious to do was to get the Government to give up its supineness, and compel them to act by a resolution of that House. If he desired any recommendation for his mode of action he would refer to the authority of the right hon. gentleman on a similar occasion 20 years ago, and if a subject had been under discussion for 20 years assuredly it was high time to act.

The House then divided on the question "That the question be now put:"—

For putting the question	74
Against	62
Majority	12

The result was received with cheers.

The question was therefore put, and the resolution of Mr. Caird was agreed to.

THE CATTLE DISEASES AND CATTLE IMPORTATION BILLS.

The Select Committee of the House of Commons reassembled on Tuesday, Mr. T. Baring in the chair. Prof. Simonds was recalled. He did not think separation alone could be relied upon as a means of preventing the spread of the disease. Vaccination was in his opinion no preventive of small-pox. Insurance returns afforded no reliable data with respect to disease, the inspection being defective, and the offices open to a good deal of deception. There should be two schedules to the Bill, the one including rinder pest and small-pox, which should come under the more stringent regulations, and the other glanders, pleuro-pneumonia and scab, with regard to which he would only impose a penalty not exceeding 20*l*. Pleuro-pneumonia could be checked to a great extent by separation, by feeding the animals well to strengthen the constitution, and by treatment first with nitrate of potash, and afterwards with the sulphate of potash. He did not advocate administering aperient medicines or blood-letting. The disease could not be detected by the farmer during the period of incubation. It usually began with cough, the refusal of food, and unhealthy appearance about the coat. The animal might live 24 or 25 days, or it might live as many weeks. Sometimes a portion of the lung became detached and locked up in the healthy lung, and in that case the animal went to the butcher in an apparently good condition. He would exclude measles from these measures because the disease was not contagious, was easily detected, and was confined to pigs. Importers for their own protection had an inspection instituted before the cattle were put on board ship. In cattle from Hamburg, Holstein, and Cologne, sanitary measures were taken in case of pleuro-pneumonia and foot and mouth disease, and there was examination on the frontiers, and along the roads, so that there was good security against diseased cattle coming from those ports. The exposure for sale of cattle having pleuro-pneumonia or scab ought to be prevented, as those diseases were infectious. Placing diseased animals in a particular part of the market would give no security. Very few fat animals come to the market affected with pleura, but when they were found infected (and there should be inspection at the market) they should be sent to a public slaughter house. It would be very dangerous to give a railway official power to prevent the transmission of animals to their destination. He would only inflict penalties where persons "knowingly and wilfully" sent cattle for sale in a diseased state. It would be difficult in many parts of the country to find properly qualified inspectors under the Bill—they should be veterinary surgeons, and with the necessary qualifications they would be able to command high salaries. The present system of inspection on importation was a good system, but badly carried out. There should be an appeal from the inspector to the Royal College of Surgeons for England, and to the College of Veterinary Surgeons for Scotland. Great care was necessary in the selecting of qualified inspectors in the country, for it had frequently happened under the present law that animals imported were kept in quarantine, sometimes for as long as 10 days, without having any disease whatever. In March 1859, 104 head of cattle arrived here, and were pronounced by inspectors to be diseased. He examined them, and reported them to be perfectly sound, but the inspector would not allow them to pass the wharf, so they were put on board again, taken back to Holland, reshipped to Hull, brought up by railway, and sold in the London markets. Foot and mouth disease ought to be entirely excluded from both the Cattle Diseases Bill and Cattle Importation Bill. He did not think there was any reason to extend the Bill to cattle from Scotland or Ireland, that the penalty of 20*l*. would be sufficient to prevent importation of animals suffering from pleuro-pneumonia, and it was unfair to place those portions of the United Kingdom under restrictions from which the remaining part was free. He was inclined to think that no restrictions would materially check pleuro-pneumonia in this country, but at the same time it might be advisable that there should be an examination of cattle coming from Ireland and Scotland by competent inspectors.

To Colonel Barttelot: He did not think there was really much diseased cattle privately sold in this country. There was no doubt a considerable trade in animals killed in consequence of the disease of pleuro-pneumonia, even when the disease had arrived at an advanced stage, but there was no proof whatever that the eating of such meat was injurious to human beings.

To Mr. Beecroft: There was little or no advantage in inoculation for pleuro-pneumonia—the operation could not, as he had observed in his former evidence, be properly termed inoculation; it was merely productive of a little counter irritation. His experience from direct experiment was that the disease appeared after the inoculation, probably to the extent of 10 per cent. of the animals treated. It was not, as far as he was aware, a disease that ever reappeared in the same animal, but inoculation practised did not convey the disease.

To Mr. Alderman Salomons: It might be prudent to have inspectors at Scotch and Irish ports. If there was to be any inspection it should take place before animals were shipped.

To Lord Naas: He did not know that Scotch and Irish cattle were more affected with pleuro-pneumonia than English cattle. It was a well known fact that store cattle from Ireland were commonly attacked with pleuro-pneumonia, but that was owing to the hardships and privations they underwent upon the voyage.

Mr. Hall Maxwell, the Secretary of the Highland Society, stated that that body objected to the power given by the Bill to constables, railway officials, and others, to the whole system of inspection at fairs and markets, and to the insertion of the foot and mouth disease in the schedule. They considered that there was no occasion for the legislation proposed, and the House of Commons had decided in 1857, when a less stringent measure was proposed, and when there was much more disease, that further legislation was incompatible with the legitimate operation of trade. The exposure for sale of an animal affected with pleura should be subject to a penalty of 20*l*., but he would entirely exclude foot and mouth disease from the Bill. So far from advocating the omission of those clauses which gave the Privy Council power to act in cases of emergency, he should be willing to extend it to unknown diseases, for they would never make an order without good cause. He did not agree with Professor Simonds that those clauses should be limited to small pox and rinder pest. Inspection at fairs and markets would be inapplicable in many cases from the impossibility of finding a sufficient number of competent inspectors, and to legislate for small cases while the principal cases were left untouched was absurd. The penalty for exposure was sufficient to prevent animals affected with pleura being brought to the market, and it should be competent for the authorities of the market, the person at the next stand, or any one else to take proceedings in such cases. The Cattle Importation Bill established an unfair difference between land-borne and sea-borne cattle, which must tend to throw a large proportion of the trade into the hands of the railway companies. Dr. Gamgee's calculations were based upon unsound data. The insurance returns did not afford any indication of the mortality throughout the country. Dr. Gamgee, too, had not sought information from the corn dealers of Edinburgh, as was proved by a document he had, signed by 20 persons, who represented the whole of the trade from which it appeared, but instead of 908 cases of disease in 1861-62, there were only 791, and only 139 of those were condemned as unfit for human food.

The Committee adjourned till Friday.

Home Correspondence.

Steam Cultivation.—In your Journal of last week we find in a paper on Steam Cultivation, read to the Suffolk Farmers' Club by Mr. R. Ransome, of Ipswich that the names of Mr. King, of Thorpe Hall, Scole; and Mr. Ferguson, of Wretham, Thetford, are given as farmers who have been very successful in cultivating their land by steam. As other manufacturers' names are given in the paper referred to, where the purchaser had successfully adopted steam, and no mention is made of ours, we beg leave to inform your readers that the sets of apparatus used so successfully by Mr. King and Mr. Ferguson are both of our manufacture, and as a further proof of the success of our apparatus we may state that Mr. King's set alluded to is the third set we have manufactured for the same family, one of whom informed us he had cultivated 690 acres of land without a single breakage. *James & Frederick Howard, Britannia Iron Works, June 3, 1864.*

Cottages.—A remark made in the *Agricultural Gazette* some time ago to the effect that "if the rents of the cottages of the poor were raised, they would not thank those who built them more commodious dwellings," calls for some notice, in order to place the question in its true light, with reference to an additional tax on the labourer's moderate wages. In calling public attention to the defects of the cottages of the working classes, it was never supposed converting hovels (inferior to those provided for animals) into respectable houses, was to be at the cost of the labourer reducing his pittance, already small, to the starving point. The indirect benefit received by the agricultural and horticultural interest from the moral and physical improvement of the working classes resulting from a better description of cottage, enabling them to live more like human beings, should be considered ample compensation for any additional expenditure of money in so good a cause. To neglect any longer the crying evil which is demoralising the working population, will entail on the United Kingdom a fearful responsibility, and bring its own punishment. The seeds are already sown, and the plants growing strongly, which, if not quickly eradicated, will smother all the finer feelings of our nature, and produce a deplorable state of society throughout the land. It is to be feared men and women outwardly keep up an appearance of order and decent behaviour too much resembling the "whited sepulchre." Unless the education of mind and body are equally attended to in all schools, the labour of ministers and schoolmasters will be in vain—truthfulness and honesty of purpose do not flourish amongst either the upper, middle, or lower classes. The great principles on which all human actions should hinge, appear to be forgotten in the busy race of life—love to God and love to our neighbour. *Falcon.*

Italian Rye-grass.—We have a piece of Italian Rye-

grass, very similar in bulk to that you describe in the *Agricultural Gazette* of the 28th ult., which is growing on land of a very poor and gravelly nature. It had been planted with trees for many years, as being unfit for cultivation, until five years since, when it was broken up and sowed with Italian Rye-grass and Alsike Clover. Since that time it has given four cuttings every year. The first crop of the present season, fully 3 feet high, has been in course of removal, as required for the horses, during the last three weeks. The portion first cut is now grown again nearly one foot, and will be ready for re-cutting when the whole of the first crop is removed. The peculiarity of this case is that it has continued equally good for five years, and on very strong burning soil; the only explanation is that we every year (in February) give a top-dressing of farm-yard manure with a sprinkling of seeds, and during the summer irrigate it immediately after cutting, not with sewage, for there is none available, but with pure water. *Sutton & Sons, Reading.*

Comparative Trial of Swedish Turnips, 1863.—The following were planted under precisely similar circumstances of soil, tillage, and manure upon patches of ground alongside each other (for the purpose of testing the goodness of stocks and growth):—

No.	Variety.	Weight per acre of uncleaned roots.		Weight per acre of cleaned roots.	
		Tons.	cwt.	Tons.	cwt.
1	Skirving's Purple-top Swede..	18	4	16	0
2	Improved Hardy White Swede	18	6	13	14
3	Matson's Purpie-top Swede ..	15	16	13	11½
4	Inwood's Hardy Purple-top Swede	13	0	8	5
5	Green-top Swede; seed lately imported from Sweden	13	13	12	3

Upon weighing a portion of each in November last year, the result was as recorded, and it will be seen there is a great variation in the calculated weight per acre. Skirving's Purple-top Swede, a variety too well known to need description, stands first upon the list. The Hardy White Swede is about equal in gross weight, but it has a much larger proportion of root and top. Matson's, a very handsome Purple-top, comes next. Then a small good-shaped Green-top Swede, the seed lately imported from Sweden; and last by a long way the Inwood's Purple-top, a favourite in this district from its keeping well through the winter, but, judging from this trial, of very inferior productiveness. It may be said that weight is not the only criterion of value, but that "proof" in feeding and hardiness to withstand frost are important elements in the value of the Swedish Turnip. This is quite true, but weight of produce in a feeding crop must be always considered a most important item. We are continuing similar experiments this season, and in due time we shall be pleased to report the result to you. *Hugh Raynbird* (*Raynbird, Caldecott & Bawtree*), *Basingstoke, May* 17.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

SMALL-POX IN SHEEP.—At the meeting of the Society on Wednesday last, Mr. Raymond Barker in the chair, a lecture was delivered by Professor Simonds, of the Royal Veterinary College, upon small-pox in sheep. Before the lecture it was announced by Mr. Thompson, M.P., that the subject for the 22d would be "The Chemical Properties of Water for Economical Purposes," by Prof. Voelcker, in place of the one previously fixed for that day, namely, "Species of Farming best adapted to meet the increasing demand for Live Stock."

Professor SIMONDS prefaced his remarks by observing that the question with which he had to deal possessed considerable interest to the farmer from the rarity of the affection and in consequence of the fatality amongst the animals which were the subject of the disease. After meeting the objection to the term "small-pox" by showing its close analogy with the disease so named of the human subject—pointing out, however, at the same time, as the result of conclusive experiment, that the disease was not capable of being communicated from the sheep to human beings, or even to other animals, domestic or wild, or, on the other hand, from human beings to sheep—the lecturer proceeded to discuss the origin of the disease. The notion had been entertained by some, especially during the outbreak in Wiltshire in 1862, that its origin was spontaneous, but the impossibility, by any combination of known causes, of manufacturing a special poison had been ably argued by Dr. Budd before the British Association in 1863, and it was remarkable that the present generation knew nothing of the affection in this country till 1847, although it had been in existence from the earliest times in almost every other part of Europe, and had been described by the earliest continental writers. It was brought here in 1847 by some sheep believed to be healthy, but in which the morbific matter existed in a dormant condition, and that he had clearly traced in a publication afterwards brought out by him. Since then, however, his attention had been drawn to a work of a Dr. Fuller on small-pox and measles in the human subject, from which there could be little doubt that sheep-pox was raging about 1710 or 1711 on the South Downs of Sussex, but how it came or what means were used to get rid of it there were no means of knowing. The outbreak of 1847 extended to 1850, and lastly came the outbreak in 1862 in the county of Wiltshire. As to the manner in which the disease was then introduced, the theory of Dr. Gamgee that it was communicated from animals driven along a Roman road was only to be supported by the supposition that those animals came down from the clouds, and after doing the mischief were taken up again, for they could not be traced before or after. There was no positive proof of how the disease came, but it was then raging in Hanover and the adjacent parts of the Duchy of Lauenberg, and at that time we were drawing our supplies from Hamburg and Tonning, the chief port of Schleswig and Holstein, and some animals in which it was incubated might have found their way in spite of the efficient sanitary precautions, to this country. It was well-known too that butchers had been in the habit of drawing their supplies to a considerable extent from the metropolitan market for the supply of various parts of England, including nearly all the large towns. Thus a few diseased sheep might have found their way to the West. It was quite possible that as the malady became developed the purchaser endeavouring to make some salvage sold the sheep for manure, and that its origin might be accounted for in that way was supported by the facts that there was a large manure manufactory in the neighbourhood where the epidemic existed, that offal was commonly carried to the manufactory along a canal which passed through the very estate on which the sheep were first affected, and that, spanning the canal at a point where the animals fed upon the bank, was a bridge through which only one barge could pass at a time, so that one might be delayed while another passed through. Besides this he visited the manufactory after he was consulted about the flock, and found there heads, legs, and portions of the bodies of the sheep with the skin on. The lecturer proceeded then to trace the disease from the period of incubation through its various stages, observing that in the vesicular stage the animal did not die, but that if it was not fatal in the preceding or papular stage, it was sure to be fatal in the ulcerative or subsequent stage. As to the remedy, separation and good management were no doubt of some advantage, but they had been extolled, for the examination necessary for the measure to be effectual would be almost an impossibility where the flocks were large. The letters from Norfolk and Cambridge, by which the attention of the Government was called to vaccination, were calculated to mislead, for it appeared from what he had himself heard and seen, that the vaccination alleged to have taken place was no vaccination at all. Some 3000 or 4000 sheep were said to have been vaccinated by one man in a week or ten days. Where was the lymph to come from? The man carried it about in an ounce phial. In a few cases the animals were afterwards inoculated, and they took the disease. He recommended inoculation, or as it was more properly called ovination, but at the same time that separation and other means of abating the severity of the disease should not be neglected. The inoculated disease was infectious, but not in anything like the same degree as the natural disease, and practically, therefore, did not spread the malady.

A vote of thanks to the lecturer closed the proceedings.

BATH AND WEST OF ENGLAND.—At the Council Meeting on the 5th inst., a letter from the Royal Agricultural Society, on the subject of Agricultural Education, was referred to the Journal Committee.

The Meeting of 1865.—The Deputation who visited Hereford on the 19th ult., for the purpose of ascertaining the nature and extent of the accommodation offered by the authorities of that city for the Society's Meeting in 1865, reported that the site known as the race course, about 23 acres in extent, was in every respect eligible, and that the fields for the trial of implements were not only contiguous to one another, but within a distance of a quarter of a mile from the proposed show yard. The deputation reported very favourably on the courtesy and cordiality with which they were received and entertained by the local authorities, and the Council resolved that, subject to the suspension of the rules by the annual meeting, of which formal notice had been given by Mr. Poole, the invitation from the city of Hereford be accepted. It was also resolved to recommend to the annual meeting the election of Colonel Clifford as a member of the Council.

The Bristol Meeting.—Mr. Pitman, on behalf of the Railway Arrangements Committee, reported on the steps taken with the view of obtaining travelling facilities for persons visiting the exhibition, and a deputation was appointed to wait on the authorities of the several Railway Companies for the purpose of soliciting additional accommodation on the Monday, when, owing to the great interest excited by the public judging of the cattle and poultry, the yard will most probably be visited by a very large number of agriculturists from a distance, more especially as the charge for admission has this year been reduced to 2*s.* 6*d.* The deputation proceeded, at the close of the meeting, to wait on the railway authorities, and were fortunate in obtaining the promise of the Bristol and Exeter Company to run a special train from Exeter and intermediate stations on the Monday, and of the Great Western to run a special train from Stroud and intermediate stations on the same day. Most encouraging assurances were given as to the prospects of the various departments of the forthcoming exhibition, which is expected to be the largest and most successful that the Society has ever held.

Reviews.

Le Brome de Schrader. Memoire lu à la Société Impériale et Centrale d'Agriculture de France. Par M. Alphonse Lavallée. Williams & Norgate. London.

In this pamphlet, M. Lavallée calls attention to a *Bromus*, of American origin, which appears from his experience to be productive both of Grass and hay, and to be good food for milch cows. A first cut of its green Grass was over 8 tons per acre; the other three cuts were together barely 9 tons per acre. This we presume to have occurred in well cultivated land. It is not by any means an extraordinary yield; and does not justify to the English reader the extraordinary enthusiasm of the writer on behalf of this species of Brome Grass.

Of its milk-giving properties, it appears that the quantity yielded by cows immediately increased 18 per cent., when they were changed from Lucerne to an equal ration of the Brome Grass; and that it went back again some 10 per cent. when the Lucerne was resumed.

It is plain that our Italian Rye-grass, under liberal cultivation, will greatly exceed the new *Bromus* in its produce; and that, apart from any information on the richness of the milk, the mere quantity of the milk obtained from its consumption is a very fallacious indication of the merits of the latter as food.

Farm Memoranda.

MERSE OF BERWICKSHIRE.—The past month opened with a low temperature, caused for the most part by easterly winds and rimy mornings. The 5th was milder, and in the forenoon there were a few peals of thunder, accompanied by heavy showers. The 6th was wet but cold, and the wind having returned to the east vegetation made little progress for some time. The 13th and 14th were beautiful days, and on the latter the wind changed to the S.W., and there was a gentle rain in the evening, which had a very beneficial effect on all our crops. On the 16th, which was sultry, a thunderstorm travelled round us, but did not reach us; and on the 17th the heat was oppressive. On the 18th it reached its climax, the self-registering thermometer marking a temperature much higher than any experienced during last summer. The 19th was cooler, with fog in morning and evening. The morning of the 20th was the same; but about 7.30 thunder approached, and we had a smart shower of rain, after which the forenoon was bright and warm; however at 1 P.M. thunder again burst upon us, when there was a destructive shower of hail, some of the stones being more than three-quarters of an inch in diameter; this was followed by a deluge of rain, which saturated the soil in a short while. The wind having changed to N.W. the weather became colder and continued so to the end, the two last mornings of the month being very frosty.

Crops.—Grain crops have made considerable growth during the month, with the exception of a few late sown patches of Barley, which require showers and warmth, winter-sown Wheat especially, and early sown Oats were most luxuriant till the late frosts nipped them.

Beans are looking strong and vigorous.

Potatos pushed through the ground rapidly during the warm weather, but have made moderate progress since; indeed, they have been damaged by the frost in some instances.

The sowing of Turnips is well advanced, and in the earlier sown fields a healthy braird is to be seen. But where they were sown within a few days of the thunder storm, the drills are so battered that they will probably be a weak plant.

The crop of Grass has at present the appearance of being short, and in general there is a want of broad-leaved Clovers. However, showers and growing weather would improve the crop vastly. In nothing did the hot weather work a greater change than in pastures, but they are again beginning to look bare this cold weather.

Old Grass has stood well all through and is keeping a heavy stock. The Grass seeds have sprung up well, and promise to be a more equal plant than we have in young pastures this year. *A. C. T.*

Calendar of Operations.

JUNE.

CHATTERIS, ISLE OF ELY: *June* 8.—During the last few weeks the weather has been very variable. During the early part of May we had cold stormy weather, but there was an absence of frost. This was followed by intense heat, with the thermometer for several days as high as 81° in the shade. Subsequently to this cold again returned, but not as before, for severe ice frosts were experienced for several nights. After the four or five hot days we had a deluge of rain, accompanied by the most terrific thunder and lightning. Our lands were thoroughly soaked, and the underdrains were discharging the surplus water running at full hole. This, and the immediate return to cold and frost, proved too much for our high lands, and gave a paleness to some of the Wheats and more especially to the Barleys. The weather is again warmer, but gentle rains would be highly beneficial to vegetation, to mollify and soften the hard crust which has now formed on the surface of those lands which were so fearfully soaked, and which tends to check the full development of cereal plants. The Wheat plant is upon the whole promising, although the prospect

is not so hopeful as it was a month ago. Where too bulky a crop was expected, there is now but little fear of its being laid. The thinner crops are lighter than was anticipated. It is a common occurrence to hear farmers exclaiming, "How the Wheats have thinned themselves during this cold weather." Whether this will be for the better or otherwise, remains yet to be seen. Doubtless on the best crops and on the best lands, it will be to the advantage of the crop, but we cannot at present venture the opinion that it will be so on others. Oats are a better and a stronger plant than last year, especially in hot gravelly fen lands. Copious rains generally suit Oats, more particularly on this description of land. We have 94 acres of Polands looking very vigorous and generally a full plant. The wireworm was less destructive this year than usual. Next week we shall expect to see them showing corn. Barley, as already intimated, has suffered to some extent from the excessive rains of last month, so immediately followed by cold and frost. But the plant is good and the crop thick upon the ground, and should the weather be favourable for the earing we may get as abundant a yield, and a better quality than were the plant grosser and the straw more bulky. Beans and Peas are blossoming very well, and give promise of a good average crop of straw, but it is too early to give an opinion as to the probable yield. Potatos have been seriously injured by the severe frosts, and it is very doubtful whether they will recover sufficiently to produce anything approaching to a good crop. Mangels are a good plant generally; we are now singling ours with the hoe; warmth and genial weather is what they now require. Hay-making has commenced, and some fields are cleared on the old lands; the crop is heavy, but on seed lands far otherwise. We never had our plant of seeds so bad; the young plants were destroyed by the excessive drought of last summer. Pastures for cattle have been good, and the land has carried a good stocking. The trade for lean cattle has been only slow, arising from a deficiency of Grass keeping in some of the grazing districts, the rains having been so very partial. Wool has experienced a heavy decline, but probably may again rally, if farmers are not in too much haste to effect sales. The corn trade rises and falls as the weather is warmer or colder; but we see no prospect of such an abundance as was ingathered last year, and shall not therefore be surprised to see prices with the new harvest stiffen. We gathered our first ears of Wheat, where the ear had shot about half its length above the sheath, on the 4th inst., the same day as we gathered the first last year. We then commenced cutting Wheat on the 29th July. There is therefore the prospect again of a tolerably early harvest. *A. S. R.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	At 9 A.M., Railway Time. Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	June	Inches.	°	°				°	°	°	°	Inches.
Friday ..	3	29.83	55	52	N.E.	0	10	61	49	78	47	0.08
Saturday ..	4	29.92	61	56	N.E.	0	0	61	37	66	31	..
Sunday ..	5	29.92	66	60	S.W.	1	2	66	43	82	36	..
Monday ..	6	29.95	66	61	W.	3	5	66	51	79	44	..
Tuesday ..	7	29.95	60	59	N.E.	0	10	70	46	85	40	..
Wednesday	8	29.93	62	60	N.W.	1	10	72	53	88	47	..
Thursday ..		..	..	..	..	..	..	..	..	..	..	..

Notices to Correspondents.

ANTHOXANTHUM, &c.: *Rusticus.* It is a very poor Grass, and ought not to be sown except in a very small proportion. A week after blooming is too early to cut. The seeds of most Grasses will drop out under a very light threshing when fully ripe—and are separated from their chaff by a very light winnowing. We strongly advise you *not* to attempt the gathering seed yourself, but to trust to a good seedsman.

COLTSFOOT: *Drumpark.* Perseverance in pulling all the flower-heads in early spring, and in cutting off the leaves as soon as and whenever they appear, will ultimately destroy the plant, and this is the only remedy if the land be already laid down If it be still fallow, then care should be taken to remove the roots of the plant before laying it down to permanent Grass.

FARM BAILIFF: *Mr. T. Bowick's* advertisement last week should have contained the words "apply to." It does not refer to himself.

LICE ON CATTLE AND CALVES.—Grease well rubbed in will destroy them—or a decoction of tobacco will destroy them—or the ointment used for mange may be employed:—Sulphur vivum, 4 oz.; linseed oil or train oil, 8 oz.; oil of turpentine or oil of tar, 2 oz. Mix and rub well in.

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

THE HYDROPULT
is invaluable for use in
the
GARDEN
for
WATERING BEDS,
SPRINKLING
PLANTS,
DROWNING OUT
INSECTS,
CLEANSING TREES
FROM SMUTS,
DRESSING
with
LIQUID MANURE,
ETC. ETC.



THE HYDROPULT
is desirable in every
HOUSEHOLD
for
WASHING
WINDOWS,
WETTING
SIDEWALKS,
SPRINKLING
STREETS,
WASHING
CARRIAGES,
EMPTYING
CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,
32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.
Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.
It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen, whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

Price 30s.,

Complete with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede SYRINGES and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE

HYDROPULT SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.
WAREHOUSE and OFFICES, 27, LEADENHALL STREET, LONDON, E.C.
CHARLES POMEROY BUTTON, PROPRIETOR.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.)

Illustrated Price Lists free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

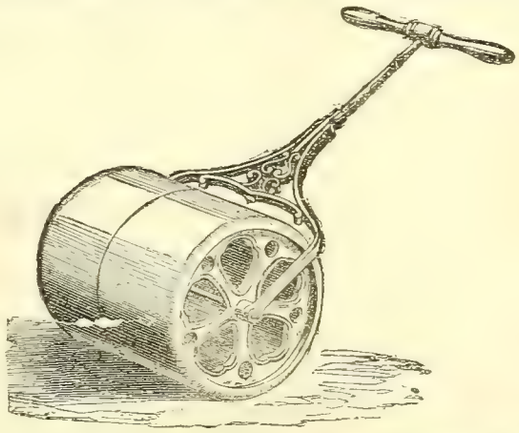
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter	30	inches;	length	32	inches	£7	10	0
,,	24	,,	,,	26	,,	4	10	0
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Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

Diameter	30	inches;	length	32	inches	£10	0	0
,,	30	,,	,,	36	,,	10	15	0
,,	30	,,	,,	42	,,	11	15	0
,,	30	,,	,,	48	,,	13	10	0
,,	30	,,	,,	60	,,	15	10	0
,,	30	,,	,,	72	,,	17	10	0
,,	30	,,	,,	84	,,	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
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AND 19, EDEN QUAY, DUBLIN.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

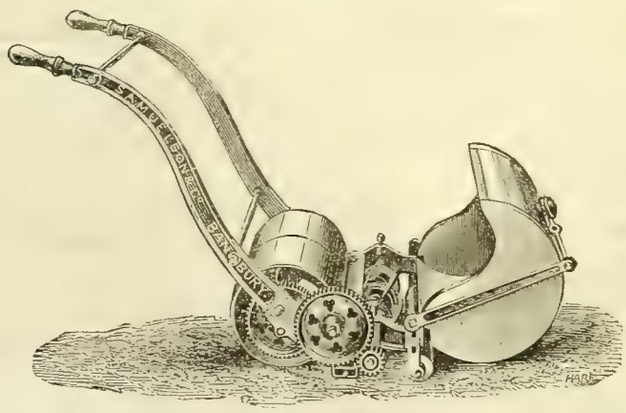
PRICES OF MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	.. ..	£4	12 0
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To Cut 22 inches	.. ..	£8	15 0
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These Prices include Free Delivery to any Railway Station in Great Britain.



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MACHINES

ARE IN DAILY USE

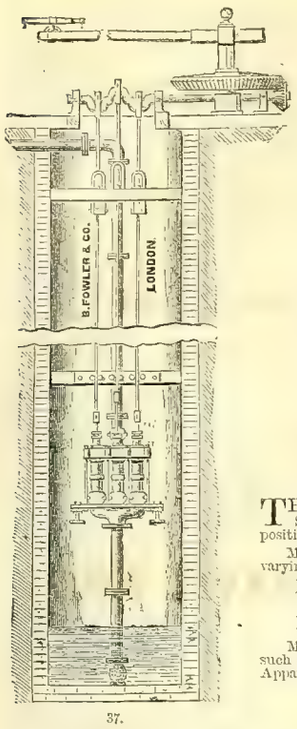
AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

In again submitting their LAWN MOWERS to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their MACHINES are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing. Selections from several thousand Testimonials free on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY. LONDON OFFICES: 18, CANNON STREET, E.C.,
AND OF ALL SEEDSMEN AND IRONMONGERS.



37.

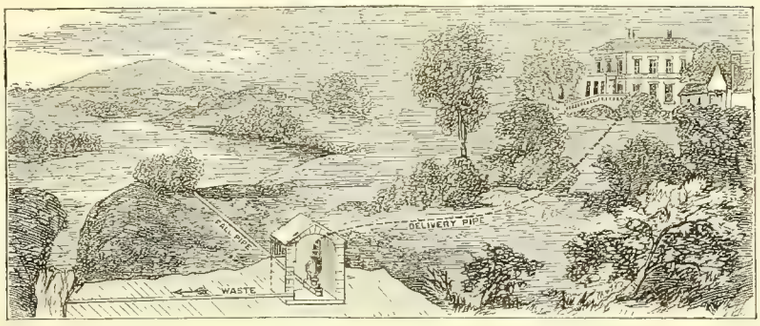
CLINTON & OWENS

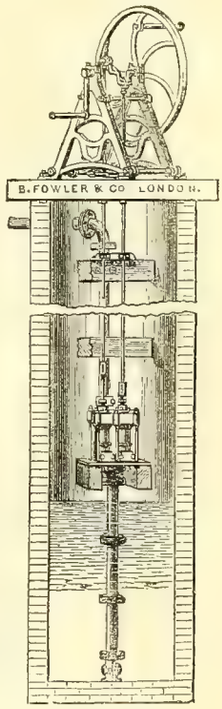
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MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

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28.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

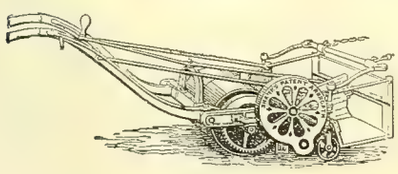
Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

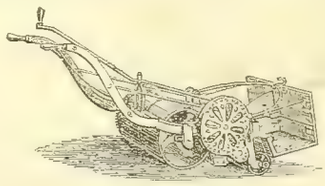
Price Lists of Pumps, &c. free on application.

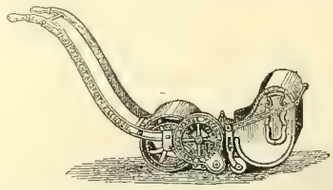
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.


HORSE MACHINE.


PONY MACHINE.


HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved, and their success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

for Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s*. extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s*. 6*d*. extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s*. extra.
28-inch Machine	14 10 0	30*s*. ,,
30-inch Machine	15 15 0	30*s*. ,,

Silent Movement, 12*s*. 6*d*. extra; Boots for Pony, 21*s*. per set; Ditto for Donkey, 16*s*. per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Aparat us.
30-inch Machine	£19 0 0	30*s*. extra.
36-inch Machine	22 0 0	30*s*. ,,
42-inch Machine	26 0 0	40*s*. ,,
48-inch Machine	28 0 0	40*s*. ,,

Silent Movement, 20*s*. extra; Boots for Horse's Feet, 24*s*. per set.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to

Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

THE RECENT VISIT of the PRINCE and PRINCESS of WALES to CAMBRIDGE, and the Marriage of the Count de Paris with the Infanta of Spain, at Claremont. The ROYAL TENT, 126 feet by 86 feet, 40 feet high; erected at Neville Court, many thousand yards of Scarlet and White Drapery, Coir Matting, Awnings, Boarded Floor for Dancing, Flags, Decorations, &c., &c., to be SOLD as SECOND-HAND. Also the Canvas used for enclosing the whole of the Cloisters at Neville Court and at the Fitzwilliam Museum, suitable for Rick Cloths, Waggon Cloths, Horticultural Shows, and fêtes.

Be particular to address BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

31, Cornhill, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,

31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 8d. per yard run.
Four yards wide.. .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 21*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

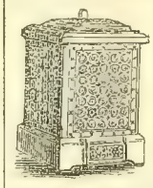
Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d.; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

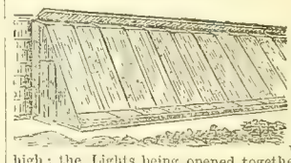
It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COWHOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.

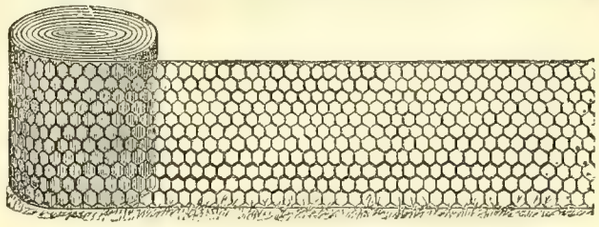


C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2½ inch	Hares, Dogs, Poultry ..	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
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1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4⅝*d.*	4⅜*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
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Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

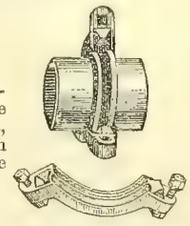
J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

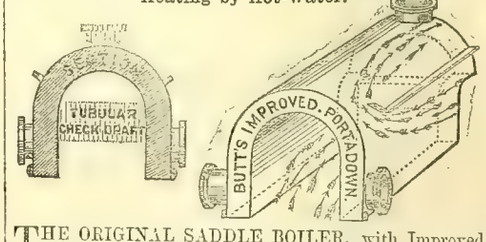
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



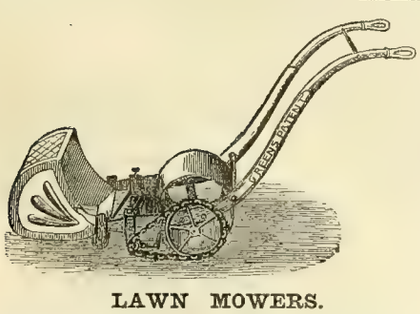
best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

DEANE & COMPANY'S

HORTICULTURAL TOOLS.



LAWN MOWERS.

GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT.

DEANE'S MOWING MACHINES, with Patented Improvements, 50*s.*, 70*s.*, 90*s.*, 140*s.*

GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*

GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*

GARDEN ROLLERS, 1*l.* 10*s.*, 1*l.* 14*s.*, 2*l.*, 2*l.* 7*s.* 6*d.*, 2*l.* 12*s.* 6*d.*, 3*l.* 2*s.* 6*d.*

GALVANISED WIRE NETTING, all sizes.

GARDEN SEATS, elegant patterns.

CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s.*

GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*

BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*

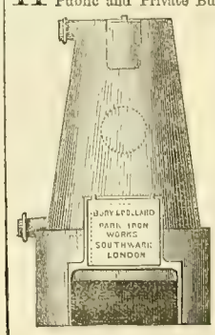
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility and Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD
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Sole Manufacturers of the Improved CONICAL BOILERS which require no BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

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BURY & POLLARD are now making a powerful Windmill for the India Board, with Pumps for Cotton Irrigation.

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SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

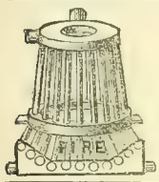
W. J. HOLLANDS, IRON MERCHANT,
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*, 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

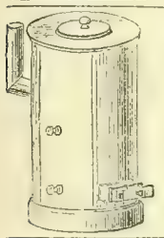
Heating by Hot Water.

GEORGE COWELL, Crescent, Salford, Manchester (late Partner with J. WEEKS & Co., Chelsea, London), will be happy to forward Plans, Estimates, and Specifications for the Erection of the above (free of cost) on receipt of dimensions and particulars.
Apparatus fixed complete, and warranted to answer, throughout England, Ireland, and Scotland, at the lowest remunerative prices consistent with the best class of materials and workmanship. Upright Tubular Boilers, with all recent improvements, capable of efficiently and economically Heating from 100 to 20,000 feet of 4-inch pipe.
References permitted throughout the Country.
Descriptive Price List and full particulars on application.



Heating by Hot Water.

JOHN TOOLEY, late 21 years with J. WEEKS & Co.
TUBULAR BOILERS,
All Sizes on the most Improved Principles,
For Churches, Chapels, Schools, Halls, Conservatories, &c.
IMPROVED VALVES, &c.
References in England, Ireland, and Wales
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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.
T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.
ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

Greenhouses.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes to supply GREENHOUSES, VINERIES, and ORCHARD HOUSES, constructed on the best approved plan, of good Yellow Deal, 21-oz. glass, and four times painted, at 1*s.* 3*d.* per square foot; with 15-oz. glass, 1*s.* 1*d.* per foot.
J. S. begs to offer, ready made, a SPAN ROOF, 27 by 16, for 45*l.*; ditto Span, 17 by 12, 25*l.*; LEAN-TO, 25 by 14, 35*l.*; 23.6 by 12, 30*l.*; 45 by 14, 65*l.*; 100 by 14.6, 120*l.* Also several thousand feet, various sizes, all strongly made, glazed with 21-oz. glass, 9*d.* per foot.
Two-inch Lights made to order, 15-oz. glass, 8*d.* per foot.
Estimates for effectually Heating with hot water.
N.B. Second-hand, equal to new, a SPAN HOUSE, 17 by 12, complete with shelves (no brickwork required) and hot water pipes, 35*l.*

TERRA COTTAS always on Sale, viz.:—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at
J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, W.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard; or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard; or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

TANNED NETTING, for the Protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh-sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* WOOL NETTING, COTTON NETTING, SCRIM CANVAS, GARDEN MATS, TULIP COVERS, GREENHOUSE SHADES, &c.
JOHN EDGINGTON & Co., 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W. Manufactory, 108, Old Kent Road, S.E.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable; 200 square yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*
EDGINGTON'S RICK CLOTHS for 59 years have maintained their celebrity as the best.
EDGINGTON'S MARQUEES and TENTS are the prettiest.
EDGINGTON'S MARQUEES for hire are the most elegant and capacious.
Samples of material free on application. Be particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E.
A liberal Discount to the Trade.
INTERNATIONAL EXHIBITION, 1862, Class XIX.
Honourable Mention.

METCALFE, BINGLEY, AND CO.'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2*s.*, 3*s.* 6*d.*, and 5*s.* each.
130 B, and 131, Oxford Street, W.

The Lightest Articles for Summer Wear.

THRESHER'S INDIA GAUZE WAISTCOATS.
THRESHER'S INDIA TWEED SUITS.
THRESHER'S KASHMIR SHIRTS.
Sold only by THRESHER & GLENNY, 152, Strand, W.C., next door to Somerset House.
N.B.—Lists of Prices on application.

SEWELL AND CO.'S MOIRES ANTIQUES, Spitalfield's Manufacture, celebrated throughout the Kingdom, 4½ Guineas the dress.
Compton House, Frith Street, and Old Compton Street, Soho, W.

SEWELL AND CO.'S MORNING and PROMENADE DRESSES made complete, with ROTONDES JACKETS, &c., trimmed *en suite*.
Barege Anglais, and Grenadines, 12*s.* 6*d.* to 30*s.* Evening and Ball Dresses. The Skirts made and trimmed complete. Beautiful French Organdie Muslins, newest patterns, 1*s.* per yard and upwards.
Compton House, Frith Street, Soho, W.

WARNER'S KOH-I-NOOR LAMPS, TO BURN THE HYDRO-CARBON OILS.
PRODUCE A BRILLIANT LIGHT WITHOUT SMOKE OR SMELL.
They are more easily trimmed and refilled than any other Lamp with similar burner.
There is no danger of chimneys breaking, and the chimney cannot become smoked.
For designs of the above, adapted for the DINING-ROOM, DRAWING-ROOM, HALL, or LIBRARY, see Number 2 of this Journal. A REALLY GOOD LAMP.
The above may be obtained of any Lamp Dealer.

BATHS and TOILET WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the display of BATHS and TOILET WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. Portable Showers, 7*s.* 6*d.*; Pillar Showers, 3*l.* to 5*l.* 12*s.*; Nursery, 15*s.* to 32*s.*; Sponging, 9*s.* 6*d.* to 32*s.*; Hip, 13*s.* 3*d.* to 31*s.* 6*d.*; A large assortment of Gas Furnace, Hot and Cold, Plunge, Vapour, and Camp Shower Baths. Toilet Ware in great variety, from 15*s.* 6*d.* to 45*s.* the set of three.

THE BEST SHOW of IRON BEDSTEADS in the KINGDOM is WILLIAM S. BURTON'S.—He has FOUR LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bed Hangings. Portable Folding Bedsteads, from 11*s.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 14*s.* 6*d.*; and Cots, from 15*s.* 6*d.* each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 13*s.* 6*d.* to 20*l.*

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.: 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London, W.

The Furnishing of Bed Rooms.

HEAL AND SON have observed for some time that it would be advantageous to their customers to see a much larger selection of BED-ROOM FURNITURE than is usually displayed, and that to judge properly of the style and effect of the different descriptions of Furniture, it is necessary that each description should be placed in separate rooms. They have, therefore, erected large and additional Show Rooms, by which they are enabled not only to extend their show of Iron, Brass, and Wood Bedsteads and Bed Room Furniture, beyond what they believe has ever been attempted, but also to provide several small rooms for the purpose of keeping complete suites of Bed Room Furniture in the different styles.
Japanned Deal Goods may be seen in complete suites of five or six different colours, some of them light and ornamental, and others of a plainer description. Suites of Stained Deal Gothic Furniture, Polished Deal, Oak, and Walnut, are also set apart in separate rooms, so that customers are able to see the effect as it would appear in their own rooms. A Suite of very superior Gothic Oak Furniture will generally be kept in stock, and from time to time new and select Furniture in various woods will be added.
Bed Furnitures are fitted to the Bedsteads in large numbers, so that a complete assortment may be seen, and the effect of any particular pattern ascertained as it would appear on the Bedstead.
A very large stock of Bedding (HEAL & Son's original trade) is placed on the Bedsteads.
The stock of Mahogany goods for the better Bed Rooms, and Japanned Goods for plain and Servant's use, is very greatly increased. The entire Stock is arranged in eight rooms, six galleries (each 120 feet long), and two large ground floors, the whole forming as complete an assortment of Bed Room Furniture as they think can possibly be desired.
Every attention is paid to the manufacture of the Cabinet work, and they have just erected large Workshops on the premises for this purpose, that the manufacture may be under their own immediate care.
Their Bedding trade receives their constant and personal attention, every article being made on the Premises.
They particularly call attention to their Patent Spring Mattress, the Sommier Elastique Portatif. It is portable, durable, and elastic, and lower in price than the old Spring Mattress.
HEAL & SON'S ILLUSTRATED CATALOGUE of Bedsteads, Bedding, and Bed Room Furniture sent free by Post.
196, 197, 198, Tottenham Court Road, London, W.C.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE,"
Is prepared solely by LEA & PERRINS.
The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.
ASK FOR LEA AND PERRINS' SAUCE.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

TAYLOR BROTHERS' GENUINE MUSTARD.
DR. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity, Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.
TAYLOR BROTHERS, Brick Lane and Wentworth Street, London, N.E.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by
DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

A GENTLE COURSE of PARR'S LIFE PILLS will increase the animal spirits, improve the complexion, and give vigour to the system.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to W. GOODALL, Esq., Epsom, Surrey.

7th Edition, 10th Thousand, price 2*s.* 6*d.*; post free, 32 stamps.
DISEASES of the SKIN: a Guide to their Treatment and Prevention. Illustrated by Cases: By THOS. HUNT, F.R.C.S., Surgeon to the Western Dispensary for Diseases of the Skin, 21A, Charlotte Street, Fitzroy Square.
"Mr. Hunt has transferred these diseases from the incurable class to the curable."—*Lancet.*
London: T. RICHARDS, 37, Great Queen Street.

Landscape Gardener, &c.

ALEXANDER BLAKE (Five Years with Mr. JAMES VEITCH, Royal Exotic Nursery), 1, Prospect Terrace, Britannia Road, Fulham, S.W.
He has given much thought to the construction of Ferneries, of various sizes, and the following are some amongst many beautiful ones designed and arranged by him while in the employ of Mr. Veitch, viz.:—
The Hardy Fernery at Mr. Veitch's Nursery.
The extensive Fernery at Lord Clifden's, Dover House, Roehampton.
The large Fernery at Mr. Moore's, Kensington Palace Gardens.
Grouping of Rocks and Ferns around the beautiful Fountain erected in the Conservatory attached to the Ball Room on the occasion of the Entertainment given to their Royal Highnesses the Prince and Princess of Wales, in the Picture Gallery of the Great Exhibition, by the Officers of the Guards.
Also the extensive Fernery attached to the South Kensington Museum, completed under his superintendence, and opened on the occasion of the Reception of their Royal Highnesses the Prince and Princess of Wales by Earl Granville.
Those who may feel disposed to favour him with their commands may rely upon his best efforts and moderate charges.—June, 1864.

NORTHERN TERRITORY of SOUTH AUSTRALIA.—FINAL SALES of COUNTRY LANDS. 250,000 acres, half to be Sold in Adelaide, half in London. Land Sale of 125,000 acres in London under the Act. The allotments of the Preliminary Land Sale in London having been all disposed of, notice is hereby given, in conformity with the above-named Act, and the regulations in force, that on the 7th day of June, and subsequent days, LETTERS of APPLICATION, accompanied by the corresponding receipts of deposit, previously paid into the Bank of England to the account of the Agent-General of South Australia, will be receivable at this office from persons willing to purchase land at 12*s.* per acre in the present Land Sale, which consists of 781 allotments, each allotment containing 160 acres of country land, the deposit being 20*l.* per allotment.
For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.
The following printed papers, in connection with the present sale, may be obtained at this office, viz.:—
1. Copies of the Act and regulations, with directions.
2. Form for paying the deposit at the Bank.
3. Form of letter of application, enclosing the Bank deposit receipt.
G. S. WALTERS, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.
No. 5, Copthall Court, London, E.C., April 30, 1864.
N.B. The land orders to be issued in London are transferable by endorsement.'
The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.
All future sales will take place in the Colony by public auction, at the upset price of 20*s.* per acre.

Farm in the South of Ireland.

TO BE SOLD, the INTEREST in a most DESIRABLE FARM, situate in the county of Cork, within a mile and a half of a Railway Station, comprising 233 statute acres, and held for an unexpired term of 30 years, and consisting of good Arable and Pasture Land, well situated and approached by good roads, and having plenty of spring water on the premises.
For particulars, &c., address, A. Z., care of Messrs. W. H. SMITH & Son, 21, Lower Sackville Street, Dublin.

Sales by Auction.

Rare Ferns.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 15, at half-past 12 o'Clock precisely, a small Collection of SPECIMEN FERNS, comprising many Rare Species, the property of a gentleman.
On view the Morning of Sale, and Catalogues had.

Rare Palms and Orchids.

THE PROPERTY OF A GENTLEMAN.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 15, at half-past 12 o'Clock precisely, a splendid assortment of RARE PALMS, comprising Areca oleracea, Œnocarpus sp., Phœnix dactylifera, &c. Also some fine established Plants of Cattleya superba, Burlingtonia candida, Rodriguezia secunda, &c.
On view the Morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 15, at half-past 12 o'Clock precisely, without the least reserve, a Small Collection of ESTABLISHED ORCHIDS comprising many of the best kinds, viz.:—

Cattleya marginata	Phalænopsis amabilis
,, Leopoldi	,, grandiflora
,, amethystina	Aerides Lobbii
,, Sion House	,, Larpentæ
,, maxima	,, Warneri
Lælia prestans	,, affine
,, Schilleriana splendens	Cypripedium villosum
Saccolabium retusum	,, hirsutissimum
,, ampullaceum	,, Fairrieanum
,, curvifolium	Chysis Limminghii
,, Blumei majus	Epidendrum atropurpureum
,, guttatum	Cymbidium eburneum
Phalænopsis Schilleriana	&c., &c.

All very healthy and fine established Plants.
On view the Morning of Sale, and Catalogues had.

Important Sale of New Plants, introduced by Mr. Fortune from Japan and China.

MR. J. C. STEVENS has been favoured with instructions (in consequence of the three years' agreement between Messrs. Standish and Fortune having nearly terminated), to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 16, at half-past 12 o'Clock precisely, the Third Portion of the Splendid Assortment of NEW HARDY PLANTS, many of which have never yet been offered to the Public, comprising the Entire Stock of two fine Skimmias, Saxifraga Fortunii (Hook.), a Greenhouse or probably hardy Bletia, the Golden-leaved Osmanthus, Raphiolepis ovata, Ligustrum coriaceum, a new Berberis, Retinospora Keteleerii variegata, &c.
On view the Morning of Sale, and Catalogues had.

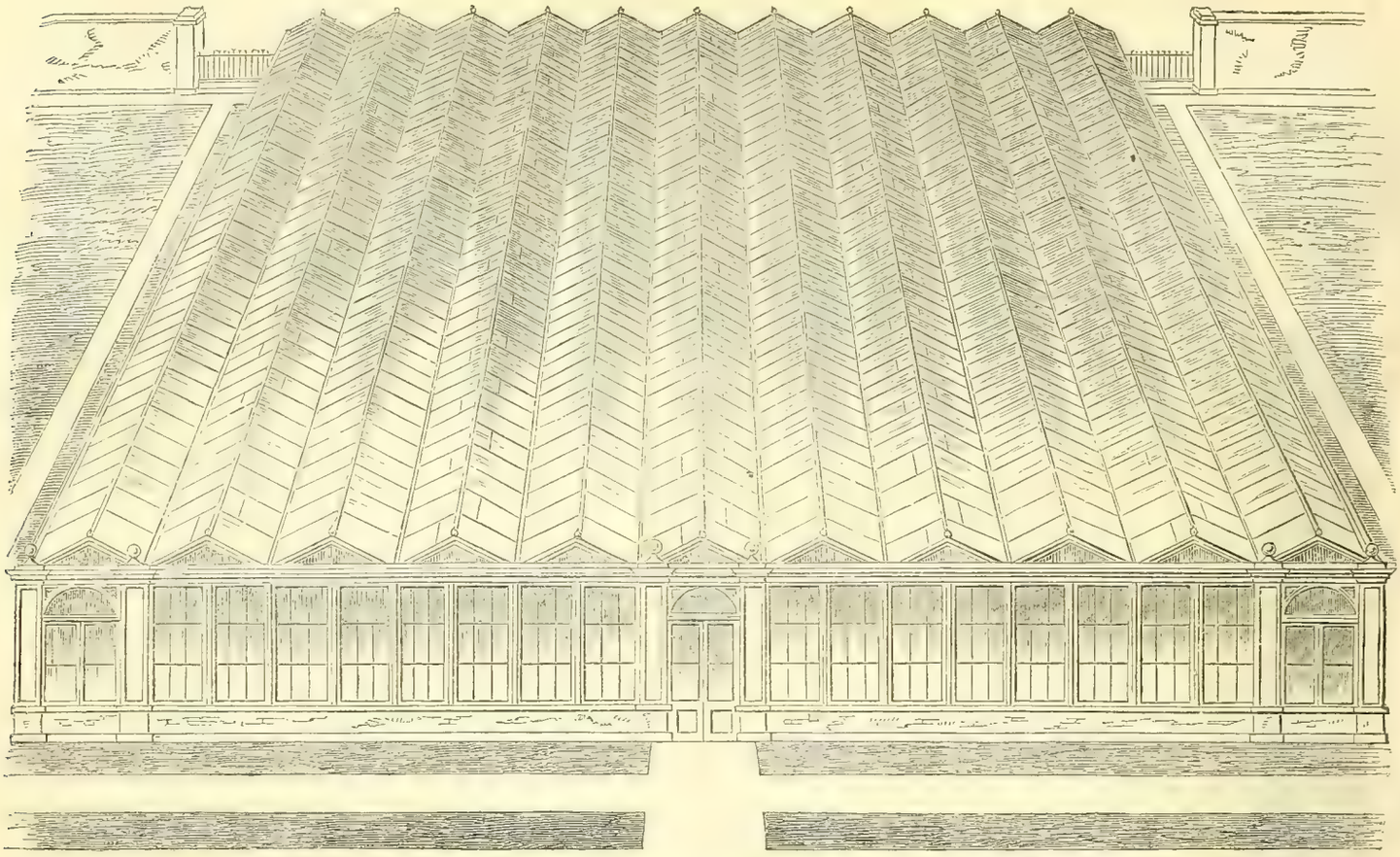
Upper Holloway.

UPWARDS OF 16,000 BEDDING AND OTHER PLANTS.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Pyle to SELL by AUCTION, on the Premises, St. John's Nursery, bottom of John Street, Upper Holloway, London, N., on WEDNESDAY, June 15, at 12 o'Clock, about 16,000 BEDDING and other PLANTS, including 500 Flower of the Day, 400 Christine and 1000 Scarlet and Variegated and other Geraniums, 1000 Fuchsias, 1000 Verbenas, 500 Pelargoniums, 1500 Heliotropes, 500 Pyrethrums, 400 Ageratums, 500 Cupheas, 2000 Lobelias, 300 Pentstemons, 6000 Asters, &c., &c.
May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Cock, Highbury, N.; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

To Nurserymen and Gardeners.

PADDOCK WOOD, KENT, immediately adjoining this important junction station on the South-Eastern Railway.—Plots of Land, with a registered and indefeasible title under the new Act.
MESSRS. DEBENHAM AND TEWSON will SELL, at the Maidstone Road Inn, Paddock Wood, on WEDNESDAY, June 29, at 2 for 3 o'clock, in lots varying from a Quarter of an Acre to Three Acres in extent, about 22 Acres of FREEHOLD LAND (land-tax redeemed), immediately adjoining the Paddock Wood Station, having extensive frontages to three roads, and very valuable as Nursery and Garden Grounds, and Accommodation Land. Every lot will be sold with a registered title under the new Act, affording a clear, simple, and indisputable title, at an almost nominal cost. Two-thirds of the purchase money on each lot can remain on mortgage at 5 per cent., and be paid by instalments.
Particulars and Plans of T. G. BULLEN, Esq., Solicitor, 19, Cannon Street West, E.C.; and of the Auctioneers, 80, Cheapside, E.C.

HOTHOUSES BY THE ACRE.



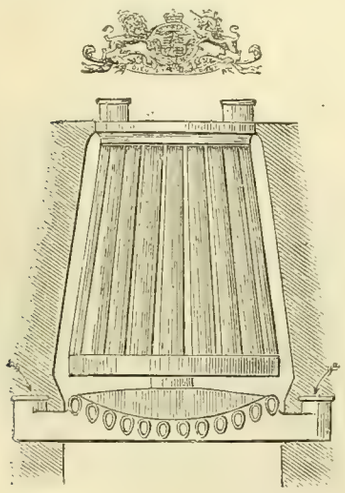
FRUIT, FLOWER, AND KITCHEN GARDENS UNDER GLASS.

The extremely variable and uncertain nature of the climate of Great Britain, renders the supply of garden productions so very precarious, that it is high time the energies of the Horticultural Architect were directed to the arrangement of a cheap, simple, and effective structure which would obviate the defects of climate and insure in all seasons an abundant supply of common culinary vegetables; and also of those garden luxuries which our present state of civilisation has rendered indispensable to the comfort of every gentleman's home.

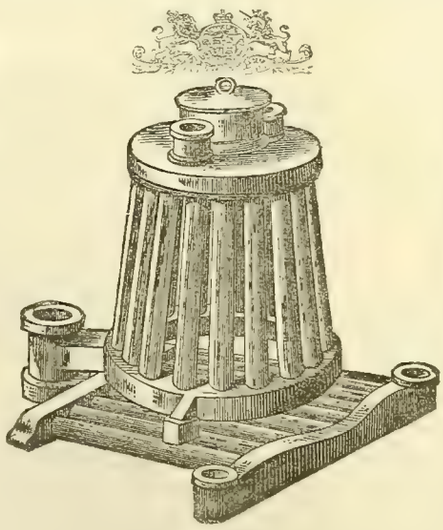
HENRY ORMSON has devoted much time to the consideration of this subject, and flatters himself that his designs for covering large spaces will entirely supply the desideratum, and that they will be found not only thoroughly efficient for the purpose contemplated, but that the prices at which he can erect them—manufactured by steam power machinery—will be so reasonable as to defy competition, while the workmanship and materials will be of the most superior description. PLANS and ESTIMATES given on application for covering ¼ of an acre, ½ an acre, ¾ of an acre, an acre, or any greater or less extent of ground which may be considered desirable.

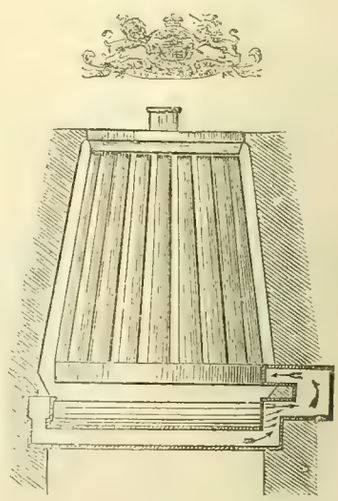
HENRY ORMSON, HORTICULTURAL BUILDER, STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



SECTION.





SECTION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

Is now from PRACTICAL TESTS allowed to be the best ever invented for EFFICIENCY, POWER, and ECONOMY, and from the following FACTS it will be manifest to every person's understanding that it must be infinitely more safe for carrying out the ONE BOILER system than any other UPRIGHT TUBULAR BOILER. For instance, the ordinary old-fashioned JOINTED UPRIGHT TUBULAR BOILERS made by ALL other Manufacturers, having 20 tubes for the Boiler, and 12 tubes for the Waterway Furnace bars, would have 64 joints made of cement and rope yarn ALL exposed to the direct ACTION OF THE FIRE, whereas in ORMSON'S PATENT THERE IS NOT ONE JOINT upon which the FIRE CAN ACT, hence the great advantage and security of this PATENT.

These Boilers are made of various sizes so as to suit the amateur or for heating the LARGEST ESTABLISHMENTS ON THE ONE BOILER SYSTEM.

HORTICULTURAL BUILDINGS OF EVERY DESCRIPTION MANUFACTURED BY STEAM POWER MACHINERY. LOWEST PRICES AND BEST MATERIALS.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, June 11, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1864.] SATURDAY, JUNE 18. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

The GREAT ROSE SHOW, June 29. Admission (by Tickets purchased previous to the day): to the Public, 5s.; Fellows' Privileged Tickets, 2s. 6d. Doors open at 2; Military Bands at 3.

☞ Notice to Exhibitors.—The uniform size of Box will not be insisted upon at this Exhibition.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

The RHODODENDRON SHOW, by Messrs Waterer & Godfrey, of Knap Hill, Woking, under the great Suspension Tent, is OPEN DAILY. Admission, Saturday and Monday, 6d.; Tuesdays, Wednesdays, Thursdays, and Fridays, 1s.

ROYAL HORTICULTURAL SOCIETY. FLORAL COMMITTEE.

LIST of AWARDS, June 14, 1864.

FIRST-CLASS CERTIFICATES.

Pelargonium (Fancy) The Rover, from Mr. C. Turner, Slough.
Pelargonium (Scarlet) Venus, from Mr. J. Hally, Blackheath.
Pelargonium (Variegated) Captain Meade, from Messrs. E. G. Henderson & Son, St. John's Wood.
Pleione Schilleriana, from Mr. W. Bull, Chelsea.

SECOND-CLASS CERTIFICATES.

Pelargonium Mary Hoyle, from G. W. Hoyle, Esq., Reading.
Pelargonium Publicola, from G. W. Hoyle, Esq.
Pelargonium (Fancy) Edgar, from Mr. C. Turner.
Pelargonium (Fancy) Silver Mantle, from Mr. C. Turner.
Pelargonium (Scarlet) Achilles, from Mr. W. Bull.

SPECIAL CERTIFICATES.

To Mr. Turner, for a Collection of Pelargoniums.
To Messrs. E. G. Henderson & Son, for a Collection of Variegated Pelargoniums.

The next Meeting of the Committee will take place on June 29, the day of the Great Rose Show, when the subjects for examination must be entered before 10 o'clock.

Thomas Moore, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

LECTURE on TUESDAY NEXT, June 21, on CONIFERS, by Mr. Murray. To commence at 3 o'Clock.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.

The LAST EXHIBITION of PLANTS, FLOWERS, and FRUIT this season, SATURDAY, July 2. Tickets to be obtained at the Gardens by Orders from Subscribers, price 5s., or on the day of Exhibition 7s. 6d. each.

Exhibition of AMERICAN PLANTS, MONDAY NEXT, June 20. Gates open at 2 o'clock.

ALEXANDRA PARK COMPANY (Limited).—The GREAT FLOWER SHOW will take place on WEDNESDAY, June 22, and THURSDAY, June 23, when SEVEN HUNDRED POUNDS will be given in PRIZES. Two Military Bands will be in attendance. Admission—First day, Five Shillings; or by Tickets purchased before the day, Four Shillings. Second day, by payment at the Entrances, One Shilling.

The Great Northern Railway Company have most liberally consented, subject to the Rules and Regulations specially framed, to convey the Plants, &c., intended for Exhibition, from any Station on their line free of charge, and in like manner to convey them back free of charge after the close of the Snow.

Tickets can be obtained at 449, West Strand; Messrs. Keith, Prowse, & Co.'s, Cheapside; Mr. R. Clarke's, 51, Threadneedle Street; Mr. Buchanan's Archery Establishment, Piccadilly; Mr. W. Cutter's, 116, Upper Street, Islington, or of the Company's Agents.

F. K. Parkinson, Secretary.

ENFIELD HORTICULTURAL SOCIETY.—The FIRST EXHIBITION this year will be held in the Grounds of H. C. B. Bowles, Esq., Myddleton House, Bull's Cross.

Admittance by Subscribers' Tickets, or from 2 till 5, 2s. 6d.; 5 till 6, 1s.; 6 till 7, 6d. J. Marshall, Hon. Sec.

Clay Hill, Enfield.

STAMFORD HORTICULTURAL SOCIETY.—The ROSE and SUMMER FLOWER SHOW of this Society will be held on TUESDAY, July 5.

The Rules and Schedules are now ready, and may be had on application to Messrs. Laxton & Hewitt, Hon. Secs., Stamford.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.

The ELEVENTH ANNUAL SUMMER SHOW will take place on WEDNESDAY and THURSDAY, June 22 and 23, at the Royal Pavilion, on the same Grand Scale as on former years. Schedules of Prizes to be had on application to the Secretary, 96, St. James Street; or E. Sabey, Superintendent, Queen's Graperies, Park Street.

By Order of the Committee.

Brigh[illegible] June 18. Edward Carpenter, Secretary.

W[illegible]NGBOROUGH FLORAL and HORTICULTURAL FETE, to be held at Hatton Park, Wellingborough, by the [illegible] permission of G. F. Holroyd, Esq., on THURSDAY, August [illegible]64. Premiums to the amount of about 120l. are offered for oper[illegible]petition; also 5 Silver Cups, of the value of 5l. each, will be g[illegible]n as Prizes.

A Ba[illegible] Ascent at 4 o'Clock. The Band of the Coldstream Guards [illegible] perform in the Grounds, by permission of Colonel Mark Wood. [illegible]tries close on the 18th August.

Sched[illegible]es, 2d. each, on application to the Hon. Secs.

Thomas S. Curtis.
William Dulley, Jun.

THE NORTHAMPTON ROSE SHOW, &c. ENTRIES CLOSE July 14.

Schedules and particulars may be had on application.
John Perkins, 52, Market Square, Northampton.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.

At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40l. will be awarded for Cut Roses in the various classes.

For particulars, apply to the Secretary, Mr. Wm. Penn Cox, 37, Market Place, Leicester.

BIRMINGHAM ROSE SHOW, July 7 and 8, 1864.—ENTRIES CLOSE on JULY 1. Forms of Entry, Prize Lists, &c., may be obtained from the Secretary, Mr. A. Forrest, Queen Chambers, Cherry Street, Birmingham.

THE RUGBY ROSE SHOW: 1864.—The FIRST GRAND EXHIBITION of ROSES and a MUSICAL FETE will be held at Rugby on TUESDAY, June 21 (Open to all England)

President.—His Grace the Duke of Rutland.

The Band of the First Life Guards, under the direction of Mr. Waterson, will perform during the day. The Exhibition opens at 12 o'clock, and Nineteen Excursion Trains run to Rugby on that day. See Railway Bills. W. H. Treen, Hon. Sec.

RUGBY ROSE SHOW.—Numerous inquiries from all parts having been made to me, to know who are the principal managers of the advertised Rugby Rose Show, who are to pay the prizes, and who are the working committee, and as private answers would encroach too much upon my time, I beg to state publicly that I know nothing whatever of the so-called Rose Show (further than what has appeared in print), neither whether there is any committee at all, nor have I any connection with the affair in any shape or way.

George Batley, Rugby Nursery.

The Nurseries, Lea Bridge Road, Leyton, Essex, N.E.

JOHN FRASER begs to announce that his COLLECTION of ROSES is NOW in BLOOM, and respectfully invites an inspection of the same. The Collection includes many new and fine varieties.

Roses.

JAMES MITCHELL begs to announce that his large COLLECTION of ROSES is NOW in FULL BLOOM.

Pilt Down Nurseries, Maresfield, Uckfield, Sussex, 2½ miles from the Uckfield Station.

Roses.

Old Nurseries, Cheshunt, Herts, N., per Great Eastern Railway.

PAUL and SON'S unrivalled COLLECTION is NOW in fine BLOOM. Open to admirers except Sundays.

Roses.

WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Waltham Cross, Herts, N.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.

Paul's Nurseries, Waltham Cross, N.

NOW READY, the NEW ROSES of 1864. Twelve of the newest and most vigorous for 36s.

DESCRIPTIVE LIST, free on application.

Richard Smith, Nurseryman, Worcester.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

New Roses for 1864.

H. WALTON begs to announce that his Selection of the above are Now Ready, fine healthy plants, 30s. per doz.

A DESCRIPTIVE LIST on application, enclosing Stamp.

Edgend Marsden, near Burnley, Lancashire.

Roses.

H. LANE and SON beg to inform their Patrons that their extensive COLLECTION of ROSES (7 Acres in one piece), is NOW in FULL BLOOM, at their Balshaw Nursery, 1½ mile from the Home Nurseries.

Vines Fruiting.

H. LANE and SON have still to offer VINES in pots, with from 5 to 15 bunches of fine fruit.

To be seen at their Home Nurseries.

Coniferæ.

H. LANE and SON'S superb COLLECTION of the above, including the finest lot of ARAUCARIAS in Europe, RHODODENDRONS, AZALEAS, TREES, SHRUBS, &c., to be seen at their Home and other Nurseries, Great Berkhamsted.

The Home Nurseries are within 10 minutes walk of the Berkhamsted Station, London and North-Western Railway, where Conveyances meet all Trains.

From the finest Strains in Cultivation.

CALCEOLARIA, CINERARIA, and PRIMULA.

Price per packet, 2s. 6d.

James Carter & Co., 237 & 238, High Holborn, London, W.C.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.

W. Dillistone, Munro Nursery, Sible Hedingham, Essex.

General Plant Catalogue.

WM. CUTBUSH and SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.

Highgate Nurseries, London, N.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Calceolaria, Cineraria, Primula.

E. G. HENDERSON and SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.

The CALCEOLARIA is now magnificently in bloom at the Nursery; the others in their respective seasons.

Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.—Deutzia crenata fl. pl.

THOS. CRIPPS, Nurseryman, Tunbridge Wells, will be happy to supply plants of the above new and handsome hardy double pink flowering Japanese Shrub, well established in pots, 8s. per doz., or 50s. per 100. LASTRÆA STANDISHII, new and beautiful hardy Japanese Fern, 5s. each. COLEUS MARMORATUS, 2s. 6d. each. LONICERA AUREO-RETICULATA, fine strong last year's plants, in pots, 2 to 3½ ft., 6s. per doz., or 42s. per 100.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,

Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,

Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

Established 1800.

Ripon and Claro Seed Establishment.

WILLIAM MORTON,

Old Market Place, Ripon.

PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

RAYNBIRD, CALDECOTT, and BAWTREE,

Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

POLYANTHUS SEED, from the finest Laced Flowers, in packets for 13 postage stamps, or 4s. 6d. per oz.

James Woods, Florist, Harwich, Essex.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6d.; 15 do., 3s. 6d.; 25 do., 5s. 6d.; 50 do., 10s.; 100 do., 30s.

Barr & Sugden, Seed Merchants, 12, King St., Covent Garden, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by

B. S. Williams, Paradise and Victoria Nurseries, Holloway, London

Grape Vines from Eyes.

LUCOMBE, PINCE, and CO., have now to offer a splendid stock of strong, healthy, GRAPE VINES, of all the leading kinds, at from 3s. 6d. to 7s. 6d. and 10s. 6d. each.

A few extra-sized CANES for fruiting finely next season, at from 15s. to 21s. each. LIST of Sorts on application.

Liberal Compensation for Carriage.

Exeter Nursery, Exeter.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.

Paradise and Victoria Nurseries, Holloway, London.

FOR SALE, Three TREES, an ORANGE, a LEMON, and a CITRON, 9 feet high, in good condition.

May be seen, or further particulars may be had on application to Mr. Young, Burwood, Cobham, Surrey.

PINE PLANTS for SALE.—About 50 SUCCESSION PINE PLANTS, clean, healthy, and in good condition.

Apply by letter to Dr. Wise, Banbury.

50,000 SURPLUS BEDDING-PLANTS of all kinds, turned out of pots and packed in Crates or Boxes, 10s. per 100, or 4l. per 1000. Post-office Orders or reference to accompany the order. Now is the time for Bedding out. A beautiful Collection of Hardy Climbers to be sold reasonable.

Dillistone & Co., Sturmer and Woodlands Nurseries, near Halstead.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most important of all Mr. Fortune's recent introductions from Japan, are now ready for distribution. Charles Noble has great pleasure in making this preliminary announcement. Full particulars, with prices, will be given in a future advertisement.

Sunningdale Nursery, Bagshot.

J. SCOTT'S SPLENDID NEW FUCHSIAS of 1864 constitute one of the finest Collections ever offered to the Public, and are now offered at 9s. per dozen sorts, being a great reduction on the Catalogue price, which will be sent to all applicants on receipt of 6 postage stamps.

NEW JAPANESE VARIEGATED SAXIFRAGE, 2s. 6d. each.

Merriott Nurseries, Crewkerne, Somerset.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

Richard Smith, Seed Merchant, Worcester.

Broad-leaved English Rapeseed.

H. AND F. SHARPE have a fine Sample of the above to offer to the Trade at a moderate price.

Seed Growing Establishment, Wisbech.

Rape Seed for Sowing.

CHARLES SHARPE and CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.

Price on application.

Italian Tripoli Onion.

CHARLES SHARPE and CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.

Price to the Trade on application.

Drumheads, true and strong, by

T. WELLAND, Surrey Gardens, near Godalming, Surrey, packed and put on the rail at 3s. 4d. per 1000. Choice sorts of Garden Plants at low prices.

CELERIES, 4s.; RED PICKLERS, 4s. per 1000.

W. VIRGO and SON can now supply TRUE DRUMHEAD CATTLE CABBAGE and DRUMHEAD SAVOY PLANTS, at 3s. 6d. per 1000; all strong and well rooted.

Wonersh Nursery, near Guildford.

NEW and GENUINE TURNIP SEEDS in quantity.

SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.

E. P. Dixon & Sons, 57, Queen Street, Hull.

SHARPE'S IMPROVED LARGE SWEDE.
DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.

Charles Sharpe & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL, from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts, 6*d.* per lb. WORCESTERSHIRE SWEDE, not to be beaten, 9*d.* per lb.; other kinds, 8*d.* per lb. PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

Seed Establishment, 181, High Holborn, London, W.C.
THE BUSINESS hitherto carried on at the above address by the late Mr. JOHN GEORGE WAITE, will be continued in the name of WAITE, BURNELL, AND CO., under the Management of Mr. JOHN T. BURNELL, stepson of the late Mr. WAITE, and for a long time associated with him.

ESTATE of MR. STEPHEN SHILLING, of North Warnborough, Odiham, Hants.—Notice is Hereby Given, that a FIRST DIVIDEND of Three Shillings and Sixpence in the Pound has been declared on this Estate, and will be paid from and after the 20th day of June inst., to such Creditors as have furnished full particulars of their respective claims.—Dated this 10th day of June, 1864.
S CHANDLER, Basingstoke, Solicitor to the Trustees.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S FARMER'S VADE-MECUM.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

JAPAN FLAX.—Third Shipment, just arrived.—The finest Material ever introduced for tying Plants, Flowers, &c. The highest testimonials from the first class Gardeners of the United Kingdom. Supplies can be obtained from every Wholesale Seed Firm in London. For Free Samples apply to Importer,
JOHN ALLISON, 22, Lawrence Pountney Lane, London, E.C.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works, London and Country made Flower Pots of all sizes, Orchard House Pots, Tazzas, Vases, &c., of unique designs.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



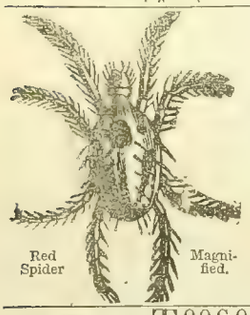
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."—"February 24, 1864."

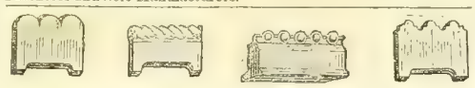
Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."
"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6*d.*, 1*s.*, and 2*s.* each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5*s.* value and upwards.
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.

To Gardeners, Stewards, &c.
FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.



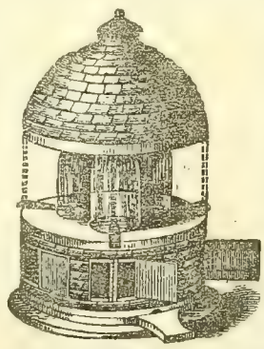


GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

Bee Hives.
PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.
Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.
Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.
Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.
Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square, Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: EDMONDSON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free; Price List free.
BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.
J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.
8 gal. £2 13 6 — 12 gal. £3 2 0 — 16 gal. £3 12 6
24 gal. £5 0 0 — 30 gal. £5 12 0



Fig. 571.
J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.
15 gal. £5 12 0 — 28 gal. £7 0 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 „
Telescope Branch Pipe for ditto .. .. 0 10 0 „



fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „



Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
„ 592. Improved ditto ditto large .. 13 0
Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating apdliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

CONSERVATORIES! GREENHOUSES! FRAMES!

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

3 *Cwt. Free to most parts.*

PATTERNS, PRICES, and TESTIMONIALS on application to

WALTER CARSON AND SONS, 9, GREAT WINCHESTER STREET, OLD BROAD STREET, E.C.
(Postal Address); Also 31, ST. JAMES'S STREET, S.W.

CAUTION.—*All Casks bear their Trade Mark, or are not genuine.*

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

EXTRAORDINARY and WONDERFUL IMPROVEMENTS for the PRESENT SEASON 1864.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.)

Illustrated Price Lists free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

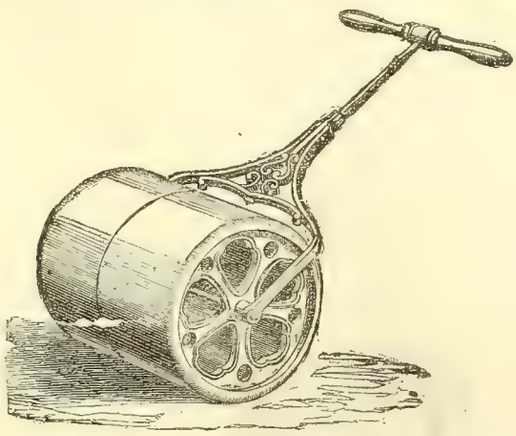
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter 30 inches;	length 32 inches	£7	10	0
,, 24 ,,	,, 26 ,,	4	10	0
,, 20 ,,	,, 22 ,,	3	10	0
,, 17 ,,	,, 16 ,,	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE POWER.

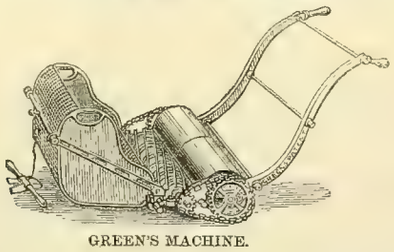
Diameter 30 inches;	length 32 inches	£10	0	0
,, 30 ,,	,, 36 ,,	10	15	0
,, 30 ,,	,, 42 ,,	11	15	0
,, 30 ,,	,, 48 ,,	13	10	0
,, 30 ,,	,, 60 ,,	15	10	0
,, 30 ,,	,, 72 ,,	17	10	0
,, 30 ,,	,, 84 ,,	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

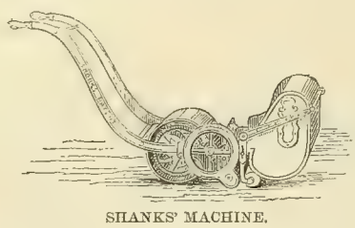
The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.

LAWN MOWING MACHINES FOR 1864.



GREEN'S MACHINE.



SHANKS' MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

Orders entrusted to J. B. BROWN & Co. for the Machines of any particular Maker, will have most careful attention in every respect.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch, 12-inch, 14-inch	*By a Boy* ..	£3 10 0 / 5 0 0 / 5 10 0	18-inch ..	*By a Man* ..	£7 10 0
16-inch ..	*By a Man* ..	6 10 0	20-inch, 22-inch, 24-inch	*By two Men*	8 0 0 / 8 10 0 / 9 0 0

SHANKS' HAND MACHINE.

Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch, 12-inch	*By a Lady* ..	£3 10 0 / 4 10 0	19-inch ..	*Man and Boy* ..	£7 12 6
14-inch ..	*By a Boy*	5 10 0	22-inch, 24-inch	*By Two Men* ..	8 7 6 / 8 17 6
16-inch ..	*By a Man*	6 12 6			

PRICED LISTS OF HORSE, PONY, AND DONKEY MACHINES, ON APPLICATION.

A specimen of each of the above described Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. & Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.
NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

CHOICE ORCHIDS.

HUGH LOW & CO.

Have pleasure in announcing the arrival of large supplies of ORCHIDS adapted FOR COOL TREATMENT. The Plants are in the finest possible condition, the bulk having left Guatemala early in May. The quantity being very large, H. L. & Co. are induced to offer the Plants at low prices, in order to effect extensive sales.

	Per doz.—£ s. d.
BRASSAVOLA GLAUCA	3 10 0
CATTLEYA SKINNERI	4 0 0
EPIDENDRUM VITELLINUM	6 0 0
„ AURANTIACUM	3 15 0
EPIDENDRUM MACROCHILUM in varieties	5 0 0
LÆLIA SUPERBIENS	6 0 0
LYCASTE CRUENTA	3 10 0
„ SKINNERI	6 0 0
ODONTOGLOSSUM GRANDE	4 0 0
„ LÆVE	5 5 0
ONCIDIUM CAVENDISHIANUM	7 10 0
„ BICALLOSUM	7 10 0
TRICHOPILIA TORTILE	3 10 0

ALSO TO HAND:—

From NEW GRENADA, fine Plants of
UROPEDIUM LINDENI, 63s. each.
EPIDENDRUM ATROPURPUREUM, 9l. per doz.

From VENEZUELA.
CATTLEYA MOSSLEA, in many varieties, fine plants, 4l. 10s. per doz.

From MADAGASCAR—ANGRÆCUM SESQUIPEDALE.

From BRAZIL—CATTLEYA ACLANDIÆ, in quantity.

From MOULMEIN—DENDROBIUM FARMERI var. AUREA FLAVA, CYPRIPEDIUM CONCOLOR, and many other Novelties.

A PRICED CATALOGUE of ORCHIDS (*in which prices are reduced in proportion to number of plants purchased*) can be had on application.

CLAPTON NURSERY, LONDON, N.E.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

THE SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT, SATURDAY, JUNE 11.

LIST OF AWARDS.

EXTRA GOLD MEDAL.

Mr. T. Whitbread, Gr. to H. Collyer, Esq., Dartford, Kent, for 10 Stove and Greenhouse Plants.
Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

Mr. W. May, Gr. to Josiah Spode, Esq., Hawkesyard Park, Rugeley, Staffordshire, for 16 Stove and Greenhouse Plants.
Mr. W. Mallard, Gr. to E. McMorland, Esq., Adelaide Road, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants.
Mr. J. Fraser, Nurseryman, Leyton, for 10 Stove and Greenhouse Plants.
Mr. H. Chilman, Gr. to Mrs. Smith, Ashstead House, for 10 Stove and Greenhouse Plants.
Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids.
Mr. W. Paul, Nurseryman, Waltham Cross, for 10 Roses in pots.

GOLD MEDAL.

Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Stove and Greenhouse Plants.
Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 10 Stove and Greenhouse Plants.
Mr. O. Rhodes, for 10 Cape Heaths.
Mr. B. Peed, Gr., for 8 Cape Heaths.
Mr. B. Peed, Gr., for 20 Exotic Orchids.
Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, for 12 Exotic Orchids.
Mr. J. Fraser, for 12 Pelargoniums.
Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums.

LARGE SILVER GILT MEDAL.

Mr. J. Wheeler, Gr. to J. Phillpot, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 10 Stove and Greenhouse Plants.
Mr. W. Kaile, Gr. to Earl of Lovelace, East Horsley Towers, Ripley, Surrey, for 10 Stove and Greenhouse Plants.
Mr. T. Page, Gr., for 6 Stove and Greenhouse Plants.
Messrs. T. Jackson & Son, Nurserymen, Kingston, Surrey, for 10 Cape Heaths.
Mr. T. Page, Gr. for 8 Cape Heaths.
Messrs. J. & C. Lee, Nurserymen, for 10 Foliage Plants.
Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 6 Fuchsias.
Mr. H. Cannell, Gr. to J. H. Wolton, Esq., Woodlands, Peckham Rye, for 6 Fuchsias.
Mr. W. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, Berks, for 10 Pelargoniums.
Mr. T. Terry, Gr. to A. G. Puller, Esq., Youngsbury, Ware, Herts, for 6. Roses in pots.
Mr. F. Whitbread, Gr., for 6 Greenhouse Azaleas.
Mr. C. Turner, Nurseryman, Slough, for 6 Greenhouse Azaleas.
Mr. B. S. Williams, Nurseryman, Holloway, for 6 Exotic Orchids.
Mr. J. Green, Gr., for 12 Exotic Orchids.
Mr. G. Fairbairn, Gr. to the Duke of Northumberland, Syon House, Isleworth, for 6 Exotic Orchids.

LARGE SILVER MEDAL.

Mr. H. Chilman, Gr., for 6 Cape Heaths.
Mr. J. Fraser, for 6 Fancy Pelargoniums.
Mr. T. Bailey, Gr., for 6 Fancy Pelargoniums.

SILVER GILT MEDAL.

Mr. W. Cutbush, for 10 Stove and Greenhouse Plants.
Mr. J. Wheeler, Gr., for 6 Cape Heaths.
Mr. B. S. Williams, for 12 Exotic Ferns.
Messrs. S. Henderson & Co., Edgware Road, for 10 Foliage Plants.
Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, Surrey, for 6 Greenhouse Azaleas.
Mr. J. Fraser, for 6 Greenhouse Azaleas.
Messrs. T. Jackson & Son, for 6 Exotic Orchids.
Mr. H. Chilman, Gr. to Mrs. Smith, for 12 Exotic Orchids
Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 6 Exotic Orchids.
Messrs. Dobson & Son, Isleworth, for 6 Calceolarias.
Mr. J. Wiggins, Gr. to W. Beck, for 10 Pelargoniums.
Mr. R. Cox, Gr. to Capt. Cahill, Sattigate, for 6 Fancy Pelargoniums.
Mr. C. Turner, for 25 Cut Roses.
Mr. H. Excell, Gr. to J. Hollingsworth, Esq., Maidstone, 25 Roses.
Mr. T. Bailey, Gr., for Providence Pine Apple.
Mr. J. Floud, Gr. to R. Fothergill, Esq., Aberdare, Glamorgan, for Queen's Pine Apple.
Mr. A. Taylor, Gr. to W. C. Ingram, Esq., Temple Newsam, Leeds, for 1 Pine Apple.
Mr. N. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for Black Hamburgh Grapes.
Mr. W. Hill, Gr., for White Muscadine Grapes.
Mr. W. Meads, Gr. to R. Currie, Esq., Trimley, Farnborough, Hants, for Frontignan Grapes.
Mr. C. Turner, for any kind of Grapes.
Mr. W. Hill, Gr., for Black Prince Grapes.
Mr. W. Meads, Gr., for ditto.
Mr. W. Allen, Gr. to E. J. G. Hopwood, Esq., Hopwood Hall, near Birmingham, for Dish of Peaches.
Mr. C. Allen, Gr. to J. P. Glegg, Esq., Withington Hall, Cheltford, Cheshire, for Dish of Nectarines.

SILVER MEDAL.

Mr. J. Cross, Gr., for 6 Greenhouse Azaleas.
Mr. O. Rhodes, for 6 ditto.
Mr. S. Woodley, Nurseryman, Cheshunt, for 6 Exotic Orchids.
Mr. J. Wiggins, Gr., for 6 Exotic Orchids.
Mr. B. S. Williams, for 10 Foliage Plants.
Mr. W. Bull, Nurseryman, Chelsea, for 12 Exotic Ferns.
Mr. W. Young, Gr. to R. Barclay, Esq., for 6 Fuchsias.
Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, Essex, for 10 Pelargoniums.
Mr. D. Donald, Gr., for 6 Fancy Pelargoniums.
Messrs. Paul & Son, Cheshunt, for 25 Cut Roses.
Mr. J. Morris, Gr. to Miss L. Crawshay, Caversham Park, Oxon, for 25 Cut Roses.
Messrs. J. Ivery & Son, Dorking, for Collection of Hardy Ferns.
Mr. R. Smith, Gr. to J. N. Walker, Esq., Calderstone, near Liverpool, for Providence Pine Apple.
Mr. F. Chitty, Gr. to Tom Webley, Esq., The Uplands, Selly Park, near Birmingham, for Queen Pine Apple.
Mr. J. Floud, Gr., for any kind of Pine Apple.
Mr. J. Meredith, Garston, near Liverpool, for Black Hamburgh Grapes.
Mr. J. R. Petch, Gr. to R. Barrow, Esq., Ringwood Hall, Chesterfield, Derby, for Black Hamburgh Grapes.
Mr. J. R. Petch, Gr., for Dish of Peaches.
Mr. W. Lynn, Gr., for Dish of Nectarines.
Mr. C. Powell, Gr. to Dr. Rummington, Sussex, for Black Hamburgh Grapes.
Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Bart., Coleorton Hall, Ashby-de-la-Zuch, Leicestershire, for Muscadine Grapes.
Mr. J. Drewett, Gr. to Mrs. Cubitt, Denbies, for Frontignan Grapes.
Mr. J. Embery, Gr. to S. Moss, Esq., Chadwell Heath, for a Dish of Grapes.
Mr. W. Meads, Gr., for a Dish of Grapes.
Mr. W. Miller, Gr. to Earl of Craven, Combe Abbey, for a Dish of Grapes.
Mr. W. Lynn, Gr. to Lord Boston, Maidenhead, for a Dish of Peaches.
Mr. J. Popple, Gr., for Black Prince Grapes.

SMALL SILVER MEDAL.

Mr. T. Page, Gr., for 6 Greenhouse Azaleas.
Mr. O. Rhodes, for 6 Exotic Orchids.
Mr. F. Whitbread, Gr., for 6 Exotic Orchids.
Mr. J. Mitchell, Nurseryman, Maresfield, Sussex, for 25 Roses.
Mr. T. Terry, Gr., for 25 Roses.
Mr. C. Turner, for 24 Roses.
Mr. J. Weir, Gr. to Mr. Hodgson, Hampstead, for 6 Fancy Pelargoniums.
Mr. H. Hooper, Nurseryman, Bath, for 24 Pinks.
Messrs. Downie, Laird, & Laing, Sydenham, for 36 Pansies.
Mr. J. Fergie, Dunse, N.B., for 24 Pansies.
Mr. W. Young, Gr., for 12 Exotic Ferns.
Messrs. J. Ivery & Son, for 12 British Ferns.
Messrs. A. Henderson & Co., for 3 Hanging Baskets.
Mr. W. Young, Gr., for 6 Caladiums.
Mr. C. Turner, for Providence Pine Apple.
Mr. F. Chitty, Gr. to Tom Webley, Esq., for a Pine Apple.
Mr. J. Meredith, for a Green-fleshed Melon.
Mr. T. Simmonds, Gr. to J. Smith, Esq., Micklehurst, Surrey, for a Green-fleshed Melon.
Mr. M. Henderson, Gr., for Black Hamburgh Grapes.
Mr. A. McKay, Gr. to the Duke of Bedford, Woburn Abbey, for a Dish of Black Grapes.
Mr. W. Young, Gr., for a Dish of Muscadine Grapes.
Mr. H. Beasley, Gr. to J. Wood, Esq., Acton, for Frontignan Grapes.
Mr. T. Harwood, Gr. to E. Graves, Esq., Avon Side, Bartord, Warwick, for 1 Dish of Grapes,
Mr. M. Henderson, Gr., for 1 Dish of Grapes.
Mr. A. Allport, Gr. to H. Akroyd, Esq., Cheshire, for Black Prince Grapes.
Mr. R. Ruffitt, Gr. to Viscount Palmerston, for a Dish of Peaches.
Mr. J. Wills, Gr. to Sir P. G. Egerton, Bart., Tarporley, Cheshire, for a Dish of Peaches.
Mr. C. Turner, Nurseryman, Slough, for a Dish of Peaches.
Mr. G. Masters, Gr. to the Earl of Macclesfield, Oxon, for a Dish of Nectarines.
Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, Staffordshire, for Black Cherries.
Mr. J. Enstone, Gr. to Sir J. Duckworth, Bart., Exeter, for White Cherries.
Mr. R. Smith, Twickenham, for two Dishes of Strawberries.
Mr. A. Henderson, Gr., for 1 Pine Apple.

BRONZE MEDALS.

Mr. J. Cross, Gr., for 6 Stove and Greenhouse Plants.
Mr. J. Wheeler, Gr., for 6 Exotic Orchids.
Messrs. Paul & Son, for 24 Cut Roses.
Mr. J. Howse, Nurseryman, Chalvey, Bucks, for 24 Pansies.
Mr. J. Stone, Gr. to Mrs. H. Foster, The Holme, Regent's Park, for 12 Exotic Ferns.
Mr. W. Young, Gardener, for three Hanging Baskets.
Messrs. Paul & Son, for Herbaceous Peonies.
Mr. W. Bull, for a Collection of New and Rare Plants.
Mr. A. Henderson, Gr., for Queen Pine Apple.
Mr. J. Jefferson, Gr. to J. Garside, Esq., Carlton House, Worksop, Notts, for a Pine Apple.
Mr. T. Bailey, Gr., for a Green-fleshed Melon.
Mr. R. Ruffett, Gr., for a Green-fleshed Melon.
Mr. J. Beck, Gr. to Lord Broughton, Marlborough, Wilts, for a Scarlet-fleshed Melon.
Mr. J. Wallis, Gr. to J. Dixon, Esq., Congleton, Cheshire, for Black Hamburgh Grapes.
Mr. W. Cruickshank, Gr. to J. Loyd, Esq., Langlebury, Herts, for Black Hamburgh Grapes.
Mr. H. Sawkins, Gr. to J. Brassey, Esq., Branfield, for Black Hamburgh Grapes.
Mr. J. Enstone, Gr. to Sir J. Duckworth, Bt., Exeter, for Dish of Peaches.

BRONZE MEDALS.

Mr. H. Hooper, for 36 Pansies.
Mr. A. McKay, Gr., for Dish of Peaches.
Mr. G. Masters, Gr., for Dish of Peaches.
Mr. J. Harwood, Gr., for Dish of Peaches.
Mr. C. Foley, Gr. to Hon. Richard Greville, Milford Haven, for Dish of Peaches.
Mr. A. Henderson, Gr., for 1 Dish of Nectarines.
Mr. J. Enstone, Gr., for 1 Dish of Nectarines.
Mr. S. Evans, Gr. to C. N. Newdegate, Esq., Nuneaton, Warwick, for Dish of Nectarines.
Mr. C. Tolley, Gr., for 1 dish of Nectarines.
Mr. J. Pottle, Gr. to B. Colvin, Esq., Woodbridge, Suffolk, for Dish of Nectarines.
Mr. J. Beck, Gr., for Dish of Black Cherries.
Mr. J. Beck, Gr., for Dish of White Cherries.
Mr. J. Pottle, Gr., for 2 Dishes of Strawberries.
Mr. J. Beck, Gr., for Box of Peaches.
Mr. W. Allen, Gr., for Box of Peaches.
Mr. J. Fraser, for Strawberries in Pots.
Mr. J. Masters, Gr., for Collection of Fruit.
Mr. A. Henderson, Gr., for Dish of Black Cherries.

CERTIFICATES.

Mr. J. Salter, Nurseryman, Hammersmith, for Box of Cut Peonies.
Mr. B. S. Williams, for 6 Amaryllis.
Messrs. Barr & Sugden, Covent Garden, for 3 Hanging Baskets.
Mr. D. Weymouth, Brislington, Bristol, for 24 Pansies.
Mr. J. Mitchell, for 24 Cut Roses.
Mr. J. Wallis, Gr. to J. Dixon, Esq., Congleton, Cheshire, for 1 Pine Apple.
Mr. H. Sawkins, Gr., for Green-fleshed Melon.
Mr. W. McLellan, Gr. to W. Cator, Esq., Barnet, for Green-fleshed Melon.
Mr. Hudson, Gr. to F. Barchett, Esq., Uckfield, Sussex, for Green-fleshed Melon.
Mr. W. Miller, Gr., for Dish of Black Hamburgh Grapes.
Mr. C. Penny, Gr., for Dish of Black Hamburgh Grapes.
Mr. J. Beck, Gr., for Dish of Peaches.
Mr. R. Wilson, Nurseryman, Warwick, for Dish of Peaches.
Mr. B. Knight, Gr., for Dish of Peaches.
Mr. J. R. Petch, Gr., for Dish of Nectarines.
Mr. C. Turner, for Dish of Nectarines.
Mr. W. Gardiner, Gr. to Sir G. Phillips, Bt., Weston House, Warwick, for Dish of Nectarines.
Mr. W. Lynn, Gr., for Dish of Black Cherries.
Mr. R. Wilson, for Dish of Black Cherries.
Mr. J. Meredith, for Dish of Black Cherries.
Mr. W. Lynn, Gr., for Dish of White Cherries.
Mr. D. Clement, for 12 lbs. of Grapes.
Mr. J. R. Petch, Gr., for Collection of Fruit.
Mr. R. Ruffett, Gr., for Dish of Figs.
Mr. M. Henderson, Gr., for Box of Grapes.
Mr. J. Pottle, Gr., for Box of Nectarines.
Mr. A. Henderson, Gr., for Dish of Peaches.

FIRST-CLASS CERTIFICATES.

Messrs. Jackson & Son, Kingston, for Anœctochilus petola superba
Mr. B. S. Williams, for Cattleya amethystoglossa.
Mr. B. S. Williams, for Yucca sp. California.
Messrs. Ivery & Son, Dorking, for Athyrium F.-f. Frizellæ lancifolium.
Messrs. Ivery & Son, Dorking, for Athyrium F.-f. Frizellæ nanum.
Mr. Bruce Findlay, Manchester Botanical Garden, Alocasia sp.
Messrs. Veitch & Son, for Lilium auratum var. japonicum
Messrs. Veitch & Son, for Lomaria sp. Manilla.
Messrs. Veitch & Son, Kœmpferia Roscoeana.
Mr. J. Watson, St. Albans, Herts, for Astelia bivittata.
Mr. J. Watson, St. Albans, Herts, for Gleichenia Cunninghami.
Messrs. J. Dobson & Sons, for Pelargonium Duke of Cambridge.
Messrs. J. Dobson & Sons, for Pelargonium The Rival.
Mr. Windsor, Gr. to Lord Dufferin, for Pelargonium The Clown.
Mr. C. Turner, for Pelargonium The Rover.
Mr. J. Holland, Gr., for Pelargonium Fairy.
Messrs. J. Dobson, for Pelargonium Sensation.
Mr. W. Paul, Waltham Cross, for Rose Princess of Wales.
Messrs. Downie & Co., for Pansy John M'Nab.
Messrs. Downie & Co., for Pansy Nethercote.

SECOND-CLASS CERTIFICATES.

Messrs. T. Jackson, for Stangera paradoxa fœmina.
Mr. B. S. Williams, for Imatophyllum borbonicum.
Mr. B. S. Williams, for Dracæna Ehrenbergi
Mr. B. S. Williams, for Hechtia species.
Messrs. Ivery & Son, Polystichum aculeatum var.
Mr. W. Bull, Chelsea, for Caladium Van den Heckei.
Mr. W. Bull, Chelsea, for Pandanus furcatus.
Mr. W. Bull, Chelsea, for Polygonatum verticillatum variegatum
Mr. W. Bull, Chelsea, for Dracæna Ehrenbergi.
Mr. W. Bull, Chelsea, for Nephrodium molle cristatum.
Mr. W. Bull, Chelsea, for Cycas Ruminiana.
Mr. W. Bull, Chelsea, for Rhododendron tubulatum.
Messrs. J. Veitch & Son, for Eranthemum tuberatum.
Messrs. J. Veitch & Son, for Gymnogramma japonica.
Mr. W. Nye, Gr., for Pelargonium Blair Athol.
Mr. W. Nye, Gr., for Pelargonium Amazon.
Messrs. J. Dobson & Son, for Pelargonium Meteor.
G. W. Hoyle, Esq., for Pelargonium British Sailor.
G. W. Hoyle, Esq., for Pelargonium Mary Hoyle.
G. W. Hoyle, Esq., for Pelargonium Publicola.
Mr. C. Turner for Pelargonium Ann Page.
Mr. C. Turner, for Pelargonium Dreadnought.
Messrs. E. G. Henderson & Son, for Petunia Volunteer.
Messrs. E. G. Henderson & Son, for Phlox Drummondi var.
Messrs. Downie & Co., for Pansy William Moffatt.
Messrs. F. & A. Smith, for Lobelia alba speciosa.
Messrs. F. & A. Smith, for Lobelia conspicua.
Messrs. F. & A. Smith, for Lobelia Blandina cœrulea.
Messrs. F. & A. Smith, for Lobelia Magenta.

WHEELER'S LITTLE BOOK on SEEDS.

CARTER'S GARDENER'S VADE-MECUM.

Choice Perennials and Biennials.

E. G. HENDERSON AND SON offer the following SEEDS for present sowing, of first-class quality :—

PERFECTION SWEET WILLIAM, of splendid colours, form, and variety, mixed, 6d. and 1s. per packet ; 10 selected varieties, 5s. ; in self colours separately, 1s. and 1s. 6d. each. A beautifully coloured plate of these, 2s. 6d.
CARNATIONS and PICOTEES, yellow and mixed, 2s. 6d.
PANSY, best English, 1s., 1s. 6d., and 2s 6d.
,, French Blotched, 1s. 6d. and 2s. 6d.
ALPINE AURICULA, 1s. and 2s. 6d.
ENGLISH named do., 2s. 6d.
HOLLYHOCKS, best mixed, 1s. and 2s. 6d. In 12 varieties do., 2s. 6d. and 4s. per packet.
STOCKS, INTERMEDIATE, scarlet and white, 6d. and 1s. each.
,, ,, ALBERT, new purple, 1s.
,, ALEXANDRA, new White Intermediate, 1s. per packet.
BROMPTON STOCK, white, purple, and scarlet, 3d. each.
LARGE-FLOWERED EMPEROR STOCK, mixed, 1s.
HYBRID GIANT CAPE STOCK, mixed, 6d.
WALLFLOWER, GERMAN, double mixed, 1s.
,, in 10 varieties, and separate colours, 4s.
,, English Blood-red, 6d.
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Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.
Strong Planting Canes, 21s. each ; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.
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GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—s. d.	s. d.		Per pkt.—s. d.	s. d.
PRIMULA ..	2 0	and 3 6	INTERMEDIATE STOCK	0 6	and 1 0
CINERARIA ..	1 6	and 2 6	BROMPTON do.	0 6	and 1 0
CALCEOLARIA	1 6	and 2 6			

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

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A DESCRIPTIVE and PRICED CATALOGUE post free on application.
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HERBACEOUS CALCEOLARIA, 2s. 6d. per packet.
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CARNATION, Self, Flakes, and Bizarres, 2s. 6d. per packet.
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HERBACEOUS CALCEOLARIA, &c., SEED.
CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s
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HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.
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And every other first-class Seeds. See CATALOGUE, post free.
WM. CUTBUSH & SON, Highgate Nurseries, London, N.

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WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes tha he has succeeded in obtaining a race altogether free from that deb ity of constitution which renders almost valueless some of the most beautiful Roses of the day.
BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year ; the same award at Stamford. Price 2s. each.
LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession ; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.
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PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous ; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews for seven postage stamps.
RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas ; not very double. Growth extraordinarily vigorous ; forms a splendid Pillar Rose. 2s. 6d.
OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit ; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.
"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture*.
The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.
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CALADIUMS, CALADIUMS, CALADIUMS.
Caladium bicolor picturatum

Caladium splendens	Caladium Wightii	Caladium poecile
,, Maffaii	,, amabilis	,, marmoratum
,, Belleymei	,, argyrites	,, Chantini

This Set of 10 good plants for 10s., hamper and package included.
Apply to J. C. PADMAN, Providence Nursery, Boston Spa, near Tadcaster

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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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BARR AND SUGDEN'S PLANT CASES, elegantly filled with Plants for Window and Table Decoration, 10s. 6d. to 210s. These were awarded First Prize at Royal Horticultural Fête and Flower Show, and at Royal Botanic Flower Show. Rustic Window Boxes, 10s. 6d. ; Rustic Window Gardens, 21s.
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NEW GRAPE, ROYAL VINEYARD.
TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season ; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.
B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

Dr. HOGG's *Report on the Royal Vineyard Grape :*
"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh ; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."
For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.
A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

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ESTABLISHED 1800.

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Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9d. per lb. ; and his large FOSTERTON HYBRID, 8d. per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.
MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils ; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

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VIOLA DEVONIENSIS,
A NEW PERPETUAL BLOOMING SWEET-SCENTED VIOLET.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

Are now prepared to offer this superb VIOLET, particularly recommending it to those who cultivate Violet flowers for sale, as the largest flowered Violet known. Very hardy and robust, blooming profusely and perpetually from September to April ; the flowers extra large ; colour of the darkest blue, and very sweet scented ; the flower stem generally over 6 inches in length, and stiff ; the foliage large and thick, bunching splendidly.
A Circular of TESTIMONIALS to be had on application, one of which is as follows :—
From Mr. G. B. CARLISLE, *General Fruiterer, St. Martin's Street, Exeter.*
"For the past three years I have received from September to April a constant supply of bunches of those beautiful Violets. The flowers are large, of the darkest blue, very sweet scented, the stems stout and long. The bunches of this Violet sell in preference to any other sort, and I have sent them to the furthest parts of the Kingdom. (Signed) GEORGE BYRON CARLISLE."

Strong Plants now sending out at 12s. per dozen, or 60s. per 100.

Orders received in London by HURST AND SON, 6, LEADENHALL STREET, E.C.

The Gardeners' Chronicle.
SATURDAY, JUNE 18, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June	21	Royal Horticultural (Election of Fellows), at South Kensington .. .. 3 P.M. (Lecture on Conifers, by Mr. Murray), at do. .. .. 8 P.M.
WEDNESDAY,	—	22	Alexandra Park Company Floral Exhi-
THURSDAY,	—	23	bition.

It is curious that so little should have been done by physiologists in general with respect to the changes which take place in FRUIT, after it has arrived at that degree of maturity when it either separates naturally from its stalk, or when it has arrived at such a state as makes it necessary for the horticulturist to secure his crop. Previous changes have been frequently investigated, but this, which may possibly be of some economical importance, and which at any rate is of much scientific interest, has been almost entirely passed by till it was taken up by M. CAHOURS, who lately laid before the French Academy a paper on the subject.

After the fruit is gathered, every source of nourishment or support is cut off except from the air, and it is by respiration alone that its vitality can be maintained for the completion of those chemical changes which do not depend on mere decomposition in a lifeless mass.

M. CAHOURS proposes to himself to determine three principal points. 1. The nature and ratio of the gases contained in the soft parts of the fruit. 2. The action of these parts on oxygen, the gas of respiration, alone, or mixed with nitrogen. 3. The action of the same gas upon the different parts of the fruit.

It appears from his observations that perfectly ripe Apples, Oranges, and Lemons, when placed in oxygen or a mixture of oxygen and nitrogen in which the former predominates, or in atmospheric air, consume a portion of oxygen, always giving out carbonic acid gas, but in greater quantities when exposed to light than in a dark chamber. The higher the temperature the greater is the proportion of carbonic acid. When however decomposition has commenced, the quantity of this gas increases rapidly, so that it cannot be wholesome to live, as many market gardeners and cottagers do, in a house where every room from the roof to the floor is laden with fruit.

The expressed juices contain in different fruits

a variable quantity of carbonic acid and nitrogen, the proportion of the former varying more than the latter. Not a trace of oxygen, hydrogen, carbonic oxide, or carburetted hydrogen appeared in the expressed juice. A question arises as to the origin of the contained gases, and it appears most probable that they are the result of fermentation, a process which frequently takes place in over-ripe fruit, as is plain from the production of yeast globules, which we have frequently seen in Grapes, and sometimes in other fruit.

M. CAHOURS has moreover proved that in an atmosphere of nitrogen under a bell glass, which excludes atmospheric air, carbonic acid is formed in perfectly sound fruit, notwithstanding the absence of any external oxygen from which it could be in part derived, and he concludes therefore that it is not due to slow combustion, during which the oxygen of air is consumed.

In fruit like Services and Medlars, where the process of bletting takes place, and without which the fruit is not eatable, it is only after vitality has ceased that the requisite chemical changes for economical purposes take place, changes which are sometimes promoted, or at least attempted to be promoted, by sprinkling the fruit with some fermented liquor. "Air then enters the cells and acts first of all upon the sugar, causing alcoholic fermentation with disengagement of carbonic acid and formation of alcohol, which is in its turn acted upon by the acids of the fruit, thus forming a true ether, which produces the aroma of the fruit. The air then attacks the cell itself, which becomes coloured yellow by the azotised membranes of which it is formed."

We are indebted to an admirable article in the *Reader* of May 21, 1864, for the above extract from a memoir of M. FREMY'S, and for the greater part of the matter, which has merely been abridged and put into a form adapted to the purposes of this Journal; omitting, however, the part which relates to M. CHATIN'S views of less immediate interest. A short abstract of the memoir of M. CAHOURS, from *Comptes Rendus*, will also be found in the *Illustrated News* for April 30, of the present year. *M. J. B.*

THE IMPROVEMENT OF OUR FLOWER SHOWS is a matter of such vital importance to horticulture —at least to that department which bears on the cultivation of flowers and flowering plants—that it ought to engage the serious attention of all who are in any way connected with gardening pursuits, now that the summer exhibitions are at their height. The advantage of giving attention to the subject just now, consists in this, that we can actually see the point to which we have attained, and by employing a little honest criticism may arrive at a tolerably correct estimate of our deficiencies.

We are sure it may be laid down as a basis upon which this subject can be discussed, that our deficiencies do not lie in the department of cultivation. In respect to the growth or production of plants and flowers, British gardeners always acquit themselves like men; and with the stimulus of exhibitions to prompt them, are in no danger of losing the pre-eminence they have won. But there is room for improvement in the "getting-up," so to speak, of the materials so admirably cultivated, and this is the point where, in a special sense, the cultivators of exhibition plants may contribute their quota of improvement. Familiar as we now are at our shows with monster specimens, we could not do without at least a considerable proportion of such as these; and familiar as we are, too, with blossoms in profusion almost overloading our specimens, we could not tolerate plants on which the blossoms were scanty; but we could well afford to dispense with not a little of the formality in training with which we have unfortunately at the same time become familiar. We might admire a fine specimen of some evergreen shrub, trimmed in moderately by the knife to, let us suppose, a pyramidal outline, in which, however, there still remained some play of light and shade from the slight inequalities of the spray, when we could never bring ourselves to admire the same kind of shrub clipped evenly and smoothly to the form of a cone. And so we could admire an Azalea, for instance, in which the spray, while preserving something of its natural massing, had been disposed so as to take a conical general outline, when we could not admire the training of a plant which had been put into steel hoops, and resembled nothing so much as a huge crinoline. Some years ago there was a great outcry about the forest of stakes used for tying out exhibition Heaths and plants of similar character, but nothing half so rigidly formal was ever perpetrated among Heaths as now appears unblushingly amongst the poor Azaleas.

Of course it is not to be supposed that the huge plants of all kinds brought to our shows—Azaleas, Pelargoniums, Heaths, Roses, &c.—can be moved from place to place uninjured, without support, and in many cases that support must be considerable in amount; but it may be laid down as one guiding principle for the cultivator, that the less support necessary to a plant—other points being equal—the greater has been the merit in respect of its cultivation; and as a second, that the less rigidly formal the arrangement of the branches under that necessary amount of support, the greater has been the merit in respect of its training. If, as we have said, in regard to the cultivation of their plants British gardeners always acquit themselves like men, we must add that it would be an advantage in respect to the training of them, if they could be persuaded, not indeed to appropriate the garments, but to listen to the advice of the gentler sex.

The great deficiency, however, of our flower shows lies in the arrangement of the plants after they have been grown and transported to the place of exhibition with so much care and cost. This defect has indeed grown up with the growth of the exhibitions themselves, and is perhaps inseparable from the customs which obtain amongst us. Nevertheless it is a defect, and a great and palpable defect, and one which all who are concerned in the future of flower shows should lend their aid to remedy.

The chief evil may perhaps be best indicated by the statement that our flower shows are literally a blaze; there is no relief, or no efficient relief, to the intense and universal glare, which is oppressive almost beyond endurance if the day is hot, and the show-room crowded. Respecting this evil there is, however, a fact and a fallacy to be distinguished. That we have too great a preponderance of bright colours, and too little of refreshing green, is a fact which one glance at such an exhibition as that which we have described at p. 412, would impress for ever on the mind. But that we could do with flowering plants in a less floriferous state is a fallacy. That it has taken possession to some extent, of the public mind, is, however, evident from the passing remarks one hears at a flower show. "The colours are too oppressive," says one, looking all the while with intense admiration at the huge blazing crinoline Azaleas. "But I do like to see the green leaves amongst the flowers," says another, who is gazing with satisfaction on a plant with scantier flowers. Nevertheless, what says the horticulturist calmly looking on, and taking measure of the cultural skill displayed? Why that B. has had his thinly-bloomed plants less under control than A., who brings his out, apparently all flower, scarcely a leaf being visible; and consequently that A. has shown more skill and carries off more credit than B. Now what is the great use of our exhibitions if they are not to act as tests and stimulants to bring out horticultural skill? Reduce the test, and be content with paucity of bloom, and what comes of it? Why, even the casual looker on, who so much admires the "green leaves among the flowers," would learn to point to a thinly-bloomed plant as poor and paltry compared with specimens within his recollection, and would walk away disgusted if he found that such were the best productions the gardeners of England could set before him. No, the change we want is not to lessen the blaze by thinning our plants of flowers; we must have our plants up to the highest standard of cultural skill, and if they CAN be brought out smothered with blossoms, we must have them so. But we must have a foil for all this brilliancy. We must have all our bright-coloured mass-flowering plants, such as Azaleas, Pelargoniums, &c., set in separate, small, distributed, and if need be well-balanced groups, with a background of green leaves, whether that background be composed of the Ferns and foliage plants which now form parts of our shows, as seems most desirable, or whether it be made up of additional material employed solely as a setting for the floral gems. We must also increase the non-floral element of our great shows by inviting more Palms, and Pothoids, and Arads; more Yuccas, and Agaves, and Dracænas; more Cycads, more Conifers, yea, even more hardy Evergreens, such as collections of Hollies, collections of Box, collections of Aucubas, collections of Yews, and such as these. They all have their use, and might indeed very well be supplemented in the earlier displays, by collections of what are called hardy Rhododendrons, which would give variety of colour.

Our monster plants, or at least a goodly number of them, we could not spare, but we do not want them set up in long dreary banks about which no one cares to linger. Let us rather have little groups of them kept apart by groups on different levels of some of the various other objects of exhibition at which we have hinted—and the list of which could be indefinitely extended—so as to change the aspect of the show at every step, and then we might hope to see visitors taking as much interest in the *modes* of the plants as in the *modes* of their fellow visitors. Above all, let us have an unlimited number of these large flowering plants and of large spreading Palms and Ferns, placed as single objects where the view of their beauty may not be obstructed: that is to say, let us have them elevated on appropriate stands, amongst groups of low plants placed well beneath the eye. And let us have infinitely more low-growing plants than now, set low—plants interesting in themselves, and useful as a surrounding for the more valuable and conspicuous specimens.

It will be said, perhaps, that such a change would lead to the occupation of much more space than we devote to our present exhibitions, and would sacrifice more time than could be found under our present system. Very probably it would be so, and why not? We must do something to keep up the interest of our exhibitions, or they will either cease to be, or will cease to hold the prominent position they have hitherto done. As to space, that would, however, be readily provided by covering, as we long ago suggested, an area of sufficient size with a ridge-and-furrow roof of glass, supported on iron columns, screened by tiffany or calico, and closed at the sides by canvas. This would secure the comfort of the visitors—a primary condition of fitness; it would set off the plants and flowers to the very best advantage—another leading condition; and it would render the plants secure against accidents of wind and weather—another most essential condition. We have no faith in monster tents, which, striking an average, secure neither the one nor the other of these necessary conditions; and as to the much talked-of superiority of canvas over other coverings for setting off the plants, we say that while it may be all very well in fair weather it is wretched in foul weather, and could not under any circumstances be superior to a properly shaded roof of glass.

But then, the time! It is impossible no doubt to learn with sufficient exactness the nature of the plants to be brought forward, to admit of allotting to them beforehand the respective positions in which they would yield the best effect; and unless this could be done, and done readily, it would be a hopeless task to attempt to arrange, in the way we have sketched, one of our large exhibitions within the few matin hours, needlessly and heedlessly limited at some of our leading shows, which pass before the visitors assemble; for collections must to some extent be broken up, and besides the arrangement, there is the judging to be got through, which latter must be done while the collections are intact. We do not see how this difficulty is to be got over without an extension of time; and notwithstanding the exhibitors' late protest, and admitting all they urge, we submit to them that they should fall in with some plan for the extension of time, if they do not desire to see exhibitions come to an end. As a rule, these great flower-shows don't pay, and that is a state of things which cannot be lasting. What we would suggest is, either that the plants should be brought in by noon of the previous day, the bulky ones being set as near where they would be required as possible to save trouble, that they should be judged immediately, and that the night and morning then should be set apart for re-arrangement, and that the visitors should be admitted perhaps by noon of the second or show day. Or else, that the exhibition should remain open for a week, the plants being brought in and judged as now, and then arranged in the night and morning before opening to the public. Though a month earlier than such an exhibition would be likely to take place here, we saw nothing in the case of the Brussels Show to lead us to infer that any damage further than would arise from a single day's show would be likely to result from the extension to a week, all reasonable care being taken to harden stove plants, and to give valuable rarities proper precautionary shelter. For ourselves, too, we enter a protest against any more

formal lines of stages, and against elevating any large proportion of the plants at all. Let us have them well beneath the eye, and we can then afford to have the more distant ones cut off from view by the visitors, inasmuch as every change of position will bring a new picture within sight.

We commend this whole subject to the careful consideration of the Committee appointed to re-organise the shows of the Royal Horticultural Society, and also to that of the newly-formed Society of exhibitors.

Right is right; and no strength of assertion, no community of custom, can transpose wrong into right. It is from the point of view which this truism suggests, that we notice here a popular delusion which exists on the question of Pelargonium *versus* Geranium, and to which our attention has been drawn by the following cutting from one of the cheap horticultural publications which a correspondent has sent to us along with an inquiry as to the fact in dispute. The quotation referred to is as follows:—

"Without making any distinction—which would only be etymological—between zonale and zonate, it will always be needful to keep Geraniums separated from Pelargoniums, and to use both designations as descriptive of things that are very distinct from each other. The literary dons at the Horticultural adopt the word Pelargonium for all classes indiscriminately, and some of the great trading firms adopt the word Geranium for all classes indiscriminately—and both are wrong. Let us limit the meanings of words, especially when we have a choice of words for every purpose, and we shall make much better use of them than by such loose and unthinking habits as at present prevail."

Unfortunately this critic, though well meaning, is wrong in his facts, and so his whole argument falls to the ground. The matter might not, indeed, have been worth attention in this place were it not that amateurs, in speaking of these plants, and nurserymen and florists in compiling their catalogues, so frequently fall into the same error.

The answer is simple enough, and may be thus stated:—The naming of plants is a business which devolves upon scientific botanists, and must be done in accordance with a well-understood code of laws. Names so given, and which receive the sanction of the leading men engaged in the science, are unassailable. In the days of Linnæus the name Geranium was applied to a group of plants comprising what are now called Geraniums, Pelargoniums, and Erodiums. As the number of plants referable to the group became more and more numerous, the exigencies of science required that they should be more completely discriminated, and accordingly, in 1787, L'Heritier remodelled the family, and distributed the species as they remain to the present day. His arrangement has been adopted by all the subsequent leading botanists, from De Candolle in 1824, to Harvey in 1860, and Bentham & Hooker in 1862. The names in question have therefore full and complete sanction, and are to all intents and purposes established.

Thus much introductory to clear the way for an application of the facts to the immediate question before us. We may put them in the form of an argument, thus:—

Geraniums are plants with perfectly regular flowers, and ten perfect stamens.
But the so-called "Scarlet Geraniums" have neither regular flowers, nor ten perfect stamens.
Therefore they are not Geraniums.

Or the proposition may be varied and put in this form:—

Pelargoniums have irregular flowers with the calyx prolonged at the base into a nectariferous tube which is adnate (joined lengthwise) to the stalk, and only seven or fewer perfect stamens.
The so-called "Scarlet Geraniums" possess all these characters which mark Pelargoniums.
Therefore they are Pelargoniums.

The proof that they are Pelargoniums and not Geraniums is perfectly easy. To say nothing of their irregularity, which the florists, however nearly, have not yet quite obliterated, let one of their flowers be taken and the stalk cut through just behind the calyx, and then the nectariferous tube will be evident. This is proof enough; for one might cut the stalks of all the Geraniums to be met with, whether among the showy perennial garden species, as G. ibericum, pratense, &c., or the common native weeds to be found everywhere, as G. columbinum, Robertianum, &c., without finding a nectariferous tube in the stalk of any of them. These latter are the only true Geraniums; and the name has now nothing to do with any of the more tender plants cultivated so extensively both for exhibition and bedding-out purposes. To these latter the name of Pelargonium belongs, and quite as much to the one set as to the other. We cannot therefore admit that "the literary dons at the Horticultural" are wrong in respect to this question; neither do we think it desirable or necessary that the name Geranium should bear a popular signification, distinct from and at variance with that which it bears in the records of science.

—— The introduction of new ornamental trees and shrubs, whether by seed-raising or by importation, is one of the most interesting of horticultural pursuits. We are therefore glad of the opportunity to notice certain plants of this class adapted for garden decoration, to be found in some of the French nurseries, our information being mainly derived from an account of them by M. Pépin, in the *Revue Horticole*. Most of the plants referred to were growing in the establishment of M. Dauvesse, of Orleans.

One of the most remarkable of the novelties referred to was a fine hardy variety of Ceanothus, called *C. azureus latifolius*; this had been selected from a bed of seedlings which had been raised from C. americanus, fertilised by C. azureus. The plant is described as being now abundant enough for distribution, and as having erect-growing stems and branches; oval leaves, hoary beneath and toothed at the margin; and long compact thyrsoid panicles of flowers, which open pale blue, but become deeper coloured as they get older. These flowers are produced from June till October or November; and it is recommended that the plants should be cut down annually, this treatment causing them to throw up young shoots, which bear very fine panicles of flowers. From the scarcity of blue flowers at certain seasons, and the profuse and continuous blooming of this new Ceanothus, M. Pepin concludes that it will be found useful for making contrasts, both in the shrubbery and the flower borders, and that it will take a prominent place amongst decorative plants. It is said to increase readily by cuttings and layers, and also by seeding, but the seedling plants are not to be relied on to reproduce either the early and continuous blooming qualities of the parent or the lively and decided colour of its flowers.

Another interesting plant of the same establishment is a *white-flowered variety of Spiræa Fortuni*—that species which has been introduced to commerce under the name of S. callosa. This variety is remarkably handsome, its white flowers being as numerous as those of the type, and disposed in a sort of corymb. Planted alternately with S. Fortuni itself, which is rose-coloured, the contrast is said to be very fine. Both the bark and leaves are paler-coloured than the type.

Then there is an *Acer Wageneri laciniatum*, a variety of Maple, which M. Pépin concluded had been obtained by seeds from Acer eriocarpum, one of the finest of the American Maples. The young wood of this new tree is purple and glaucous, and its leaves, which are very much laciniated, are glabrous above and white and downy beneath. This variety, the writer observes, from its light and carved foliage, will not fail to be chosen for the ornamentation of parks.

Another shrub of garden interest is *Maclura aurantiaca*, with the leaves streaked with white. This is new, and remarkably effective. M. Pépin also refers to *Fontanesia Fortuni*, a plant brought from China by Mr. Fortune, as being hitherto rare, but now extensively grown by M. Dauvesse, and forming a fine shrub, with foliage having much resemblance to that of certain species of Japanese Privet, vigorous in habit, and flowering abundantly.

It is, we learn, to M. Dauvesse, that we are indebted for the elegant dwarf *Thuja* (or Biota) *orientalis aurea*, which was picked out from his seed beds of Thuja orientalis in 1845. And in 1861, he obtained in a similar way, *Cupressus Lawsoniana nana*, a variety which assumes a pyramidal form, and has short branches and a compact habit, which give to it a novel and peculiar appearance.

We may also mention as a desirable addition to our hardy ornamental trees, a very handsome *Red-flowered Locust tree* (Robinia Pseud-Acacia) of which information has reached us from another source. This tree has been obtained by M. Villevieille, nurseryman at Manosque in the department of the Basses Alpes, and must prove a very decided acquisition. The flowers are as fragrant as those of the parent, and this quality, together with their colour and the elegance of the foliage, cannot fail to render the Red Locust a favourite amongst flowering trees.

NEW PÆONIES.

M. Rouillard, in the *Journal de la Société Impériale et Centrale d'Horticulture*, has given a very copious account of some new Pæonies raised by M. Guérin-Modeste, of Charonne, accompanied by some cultural remarks. Some very handsome seedling Tree Pæonies were produced from M. Guérin-Modeste's garden, at the spring exhibition of 1863; and at a later period several very meritorious varieties of Chinese herbaceous Pæonies were submitted for examination. This induced M. Rouillard to visit the collection which had yielded such interesting novelties.

The herbaceous and Tree Pæonies of China are well known to rank amongst the most ornamental plants which have found a place in our gardens. Their large flowers, disposed in elegant disorder, or with graceful regularity, assume the most varied colours, and are appreciated not only by florists, but also by artists, who produce them in their ornamental designs. The plants are, moreover, very hardy, and they have an indefinite longevity.

The Tree Pæonies thrive in peat earth, either pure, or mixed with fertilising substances, and generally in any sweet porous garden earth rendered fertile by well-decayed manure. They commence growing so early in spring that the first shoots and flower-buds are sometimes destroyed by frosts if not protected. Nevertheless they generally develope themselves, in spite of such accidents, from the lower eyes, which give fresh flowers, and in all cases the plants themselves are not affected in respect to their vitality. Some persons cultivate Tree Pæonies in conservatories, in prepared earth which is renewed from time to time; and thus sheltered from all hurtful atmospheric influences they develope in perfection their splendid flowers, the duration of which is prolonged by means of shading.

The herbaceous Pæonies succeed in nearly all soils having sufficient depth for their strong roots. They have the advantage of flowering after the Tree Pæonies, so that the flowering season may be prolonged from the beginning of May to the end of June.

All Pæonies love water, and principally the herbaceous sorts, which ought not to lack it, not only from the moment where the flower buds commence to form till they have perfected their flowers, but also from the beginning of August, continuing until the rains of autumn, to favour the production at the base of the stem of strong eyes, capable of yielding vigorous flowers in the following season. To secure the flowering of Pæonies in full perfection, it is essential to place them in very open positions, but where they may not receive the sun during the hottest part of the day.

When masses of the herbaceous Pæonies have become strong, and the ground has been exhausted by them, it is indispensable to take them up and separate them, preserving for planting portions having two or three strong roots, and the eyes well fed, and then to change their position; this operation should take place every six, eight, or ten years. As a general rule, when the flowers become few and diminish in size, the roots should be transferred to fresh soil. In the case of certain varieties it is beneficial, when the young stems are rising in spring, to take away the weakest, leaving only those which are more vigorous.

The multiplication of Chinese Pæonies is easy. All of them may be increased by division. However, as the tree varieties grow slowly, and one would have to wait many years for the tufts to become strong enough to be divided, it is found better to propagate these by grafting. To this end, strong roots of herbaceous varieties are procured; these are kept growing, and then grafted, a branch with one or more buds being inserted upon the side of the root. The grafted roots are put under bell-glasses or in frames, placed by preference in a north aspect, and the grafts soon become united, and commence to grow promptly, producing roots for themselves. The grafting is performed from the middle of July to the middle of September.

Few raisers of seedlings take this genus in hand, because it requires so much space to grow the large number it is necessary to plant out, in order to have a fair prospect of gaining some remarkable novelties, and it is besides necessary to wait for their flowering for seven, nine, or ten years, and even more in the case of the Tree Pæonies. However, MM. Guérin-Modeste, Verdier Père, Mathieu, and Lémon, of Paris; Thomas, of Saint Denis; Hiss, of Versailles; Callot, of Douai; Parmentier, of Enghien, and several others, among whom the Italian growers must be especially mentioned, have obtained many new Tree Pæonies as well as herbaceous varieties, magnificent sorts not yet distributed. To these must be added those introduced direct from China by Mr. Fortune. Several of these varieties of Tree Pæonies remain as yet without equal in respect to the regularity of their form and the beauty of their colours.

Many Pæonies, both ligneous and herbaceous, are to be found in commercial catalogues; but, as in the case of all flowers of which the varieties are numerous, one has to restrain one's choice to those among them which are most perfect, rejecting those which are inferior.

Among the new Pæonies M. Guérin-Modeste has obtained, are several herbaceous varieties—M. Malet, M. André, Zoé Verniory, Dr. Nestor Pelassy, Madame de Vatry, and Princesse Nicolas Bibesco, which were distributed in 1863, and others which will not be distributed till the present year. Of Tree Pæonies he has raised the following:—

Charles Rouillard.—Vigorous; leaves yellowish green; flowers very large, nearly full, brilliant fiery rose, softer rose towards the edge; a magnificent variety, with very fine flowers, and not yet in commerce.

Henri Pingard.—Vigorous; leaves glaucous green; flowers very large, nearly full, rose amaranth towards the base of the petals, pearly white at the top; a magnificent flower, not yet in commerce.

President Brongniart.—Vigorous; leaves glaucous green, tinted yellow; flowers large, well raised in the centre, rose amaranth, softer towards the outside, velvety white, very lightly tinted with carnation towards the centre; a superb variety, of which the flowers are of excellent form. This variety was let out in 1863.

Du Mont de Courset.—Vigorous; leaves deep green; flowers large, nearly full, clear satiny amaranth of uniform shade; a very fine variety, not yet distributed.

The herbaceous varieties noticed by M. Rouillard were the following:—

M. Malet.—Amaranth purple, shaded with delicate salmony pink; very full.

M. André.—Rosy purple, shaded with light salmon pink and rosy purple centre; nearly globular.

Madame de Vatry.—Rosy purple, the centre creamy yellow intermingled with delicate rose; very full.

Zoé Verniory.—Light rosy purple, the centre cream colour with rosy tips; very full.

Aspasie.—Yellowish white, very lightly tinted with rose; full and very elegant.

Lais.—Pearly white, scarcely tinted with rose, the centre yellowish, sometimes marked with purple; very full and delicate.

Marion Delonne.—Rosy purple, with white and creamy salmon at the centre, some petals marked with lively purple; very full.

Dr. Nestor Pelassy.—Amaranth purple, tipped with clear white intermixed with small petals of lively red; full and very fine.

Phryné.—Lively purple tinted with bright carnation, yellowish towards the centre; new and delicate, very full.

Princess Nicolas Bibesco.—Light rosy purple, creamy yellow mixed with rosy purple at the centre; the colours soft and agreeable, very full.

NOTES ON GARDENS.—No. X.

ROCKVILLE, DUBLIN, THE SEAT OF T. BEWLEY, ESQ.

NOW-A-DAYS, when it is a too general rule to cultivate in quantity a few plants as familiar to the eye as the common Daisy, it is a delightful treat to find a place where some interesting family of plants is taken in hand, where its choicest gems are cherished—gems which, while capable of captivating the humblest lover of plants, may also furnish interest to the scientific, or a figure to the Botanical Magazine.

Perhaps the very sea of floral monotony by which we are surrounded may have had a good effect by stimulating men of wealth and taste to take an opposite course, and revel in rarity; but be the cause what it may, places where specialties and novelties are thoroughly well cared for, are fortunately easily to be found in the neighbourhood of London and some other large cities. Thus one displays a mine of Orchideous wealth, another glows with the most wondrously painted "foliage plants," and a third is adorned with the most graceful of Nature's garnishings in their illimitable diversity. At Rockville all these are done, some of them in an unrivalled manner, and much more besides. The Orchids alone are of great value, and sufficient to make the fame of a ducal garden; the "plants of remarkable foliage" for condition and numbers I have never seen surpassed; I believe Rivers himself has no such orchard house, which at Rockville combines the comforts and advantages of a winter garden and Persian fruit grove; while for Ferns and a Fernery you might go from Buenos Ayres to Borneo, and examine all the glass erections from St. Petersburg to the sunny shores of the Mediterranean Sea, where such things cease to be a luxury, without finding a more unique scene, or one in which Ferns—from the largest arborescent species downwards—look or do better, or are more richly displayed than in the great Fernery at Rockville.

I shall say nothing of the out-door or the vegetable gardening part of the place, as the great interest of the vast indoor department quite absorbed my time and taste—but proceed at once to the Orchid houses, passing by a sort of half-grot half-greenhouse structure, planted with the Killarney Fern, a lot of rockwork with Alpines, creepers, &c., and a border devoted to young specimens of the rarer Coniferæ, and nursing them previous to final planting out. So, commencing with the Orchids, I first entered the Cattleya house, built—as all the houses now used for growing Orchids at Rockville have been—since my last "look round" three years before. The house is about 24 feet long by 16 feet wide and 10 feet high, substantially built, and remarkably neatly fitted with all requirements generally supposed to be necessary, and a few not included in "general suppositions." In the first place it is double-roofed, which of course much economises the heat, and preserves a greater equality of temperature than is attainable in a house of the ordinary type. With respect to the "feel" of the house—a point to be quickly observed by a connoisseur in such matters—I may say that it seemed to be sweetly congenial to the inmates.

The double roofs so prevalent at Rockville, are I believe, the result of Mr. Bewley's own experiments, and the system adopted is different to that used elsewhere, as the space between the two roofs is made as air tight as possible; the inner roof being fixed, and glazed with clear sheet glass, and the outer sashes made of a convenient size to take off for the purpose of cleaning, glazing, painting, &c.; the glass used being Hartley's true rough plate. There is a space of 4 inches between the two roofs. The ventilation is managed by a small triangular shutter in each gable, kept shut by an india-rubber spring or "accumulator" fastened on the outside, while inside a small cord is attached to the topmost point of the shutter, and fastened to a hook screwed to the stage, so that air may be given from half an inch to the opening of the whole shutter—18 inches—an ingenious and capital mode of ventilating houses of choice things. There are also ventilators built in the walls at the lowest point, having ornamental gratings outside the house, and small wooden doors within, which can be opened from 1 inch to 12. All the ventilating is done from the inside with the greatest facility. The walls are coated with Roman cement, which is found much cleaner and more durable than common plaster, which indeed seldom hardens in Orchid houses, and whitewash or any other colour is apt to wash off, discolouring the leaves, &c. There is a back or private walk in this and all the Orchid houses, where the plants are cleaned and most of the work done, leaving the main walks free for visitors, a very thoughtful arrangement, considering the number of visitors who avail themselves of Mr. Bewley's liberality, and flock to Rockville to be charmed by his wonderful plants and plant-houses. A plentiful supply of tepid water is laid on to this as to all the houses, drawn from taps placed on the sides of the front and back walls. Everything in fact in this and the adjoining Orchid houses is arranged with an eye to convenience and neatness, the painting, finishing, and keeping being done in such a way as is rarely or never seen in glass houses, the result being that nothing in the neighbourhood of the loveliest things known to us mars their beauty or offends the eye. What a contrast to the piggery of surroundings in which one occasionally sees fine plants!

The plants in this house were quite worthy of the care and and expense bestowed on them, and amongst a number of fine specimens I must find room to mention a few, beginning with Lælia superbiens, a huge mass in a very large pot, formerly well known in the Ealing Park collection; Lælia elegans in great variety, with one fine form from Mr. Reed's collection; and several large and healthy specimens of Lælia purpurata. There was a grand plant of the true Cattleya pallida; with Cattleya labiata, nearly a yard across, having shiny stout pseudo-bulbs, and showing well for flower, quite a match for Mr. Hanbury's once famous plant; also grand specimens of Cattleya Mossiæ in variety. Arpophyllum giganteum was of great size, and had been found to do best in a cool house with an abundant supply of water. Miltonia Regnellii and M. Regnellii purpurea, two rare and beautiful plants were also here, and a large bush of Vanda teres, which had flowered freely, and is grown rather cool at Rockville, along with Vanda cœrulea. Here were also Oncidium sarcodes in variety, one said to be particularly fine; Cypripedium Schlimii, Epidendrum prismatocarpum, Cattleya lobata, a good plant of the true Lælia Schilleriana, Cattleya Aclandiæ tigrina, and fine plants of the older Odontoglots, such as O. grande, with a host of other beautiful and valuable species, all in blooming health.

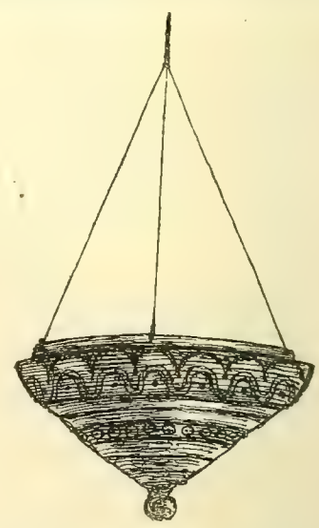
From the Cattleya house you enter the West Indian house, a single span about 16 feet square and 10 feet high, with double roof and fittings similar to those of the Cattleya house, but having a series of shelves for bringing the plants nearer to the glass. In this house the best West Indians might be counted by the score; these being recent importations from Mr. Bewley's own collector, including a stock—I shall be under the mark by saying 50—of that most gorgeous of Cattleyas, superba, with its lovely violet-tinted sepals, rich ruby lip and orange markings. Some specimens were 2 feet across—pansful of vigorous growth. The chaste little Ionopsis paniculata was abundant and in variety, a plant, by the by, which we have hardly yet seen in perfection in a cultivated state, as on a single imported spike the remains of nearly 200 flowers have been counted. There was a plant of Oncidium Papilio with between 20 and 30 flower spikes; a fine specimen of Oncidium Lanceanum with some beautiful and distinct varieties; the somewhat rare Paphinia cristata, nearly always in bloom; and probably the largest company of Burlingtonia candida to be found together in cultivation. *Wm. Robinson.*

(To be continued.

Home Correspondence.

Rose Information.—I cannot but be gratified by Mr. Kent's notice of me and of Rushton (see p. 533). I must not, however, accept the title of the first Rosarian of the day. That distinction belongs to Mr. Hedge, of Reed Hall, and to many others, whose superiority I am glad to acknowledge. A painstaking Rosarian would be ample praise. By painstaking, the Roses, so afflicted last year, are now in most abundant, and, I may say, magnificent bloom. I have had large parties here this week who read your paper and the *Dorset County Chronicle*, and they have expressed themselves much gratified. To-day (June 11) my old friend Sir Edward Baker and a party from Rauston honoured my gardens with a review of Peaches, Strawberries, and Roses, and seemed highly pleased. As Mr. Kent has pronounced me to be a "safe authority," I have thought it might be of advantage to Rose propagators, nurserymen, and amateurs, to say that the following Roses should be largely propagated, viz:—Senateur Vaisse, Comtesse Cecile Chabrillant, Madame Boll, Victor Verdier, John Hopper, Maurice Bernardin, Duc de Rohan, Duc de Cazes, Prince Camille de Rohan, Charles Lefebvre, Madame Boutin, Madame C. Wood, Madame Julie Daran, L'Eblouissante, Madame Clemence (properly Florence) Joigneaux, Maréchal Vaillant, François Lacharme, Beauty of Waltham, and General Washington, a good and grand fall Rose. These varieties have been thoroughly tried here, and may be called truly splendid and also constitutional Roses. They are now in abundant and beautiful bloom. The 13 first are especially grand and good here at all points. There are some good Roses of last year. I have budded a good many Briars and some Manetti stocks with the first I name, a valuable Rose for its colour, and of fine growth and foliage, and a free bloomer; it is a much improved Frederick the 2d. Alfred de Rougemont and Le Rhone are as yet the two best of last year. These are very good and can be safely propagated: Vainqueur de Goliath, Lord Macaulay, President Lincoln, Madame Freeman, a beautiful white Rose, and a better grower than M. Bonnaire, Baron de Rothschild, Peter Lawson, glowing scarlet, and Mrs. W. Paul. These 7 are as yet the best, and I have no hesitation in recommending them. The following are also good, viz., Souvenir de Charles Montault, and Jean Goujon. These two have not yet been quite full; but they are good growers and good garden varieties. Mr. W. Paul sent me a bloom of Lord Herbert, a superior Rose of fine colour and perfect in shape; but I have no specimen here to enable me to recommend it from experience. As regards Roses of 1864, I have, as yet, only bought André Leroy, which has not yet bloomed. A light Rose has been sent out for this, which is very dark, as figured in the Florist. I should say that the above is a perfectly safe direction. I have others, which have not yet bloomed; of these, if worthy, I will speak hereafter. *W. F. Radclyffe, Rushton.*

Hanging Baskets.—The accompanying is a representation of one of the cheapest and simplest of hanging baskets or vases, namely the top of an earthen bread-



pan. In Bristol they are quite as ornamental as this, especially those which are deeper than the common kind. *Somerset.*

Large Cattleya Mossiæ.—Your notice of the Orchids at Broomfield has induced me to send you some account of a plant of Cattleya Mossiæ that we have now in bloom. Our best plant measures three feet in diameter, and two feet in depth, and in shape is about half a ball; it has 99 flowers upon it, 96 of which are now in full beauty, two are faded, and one unexpanded, beside which several have been removed. *F. Harrison, Osmaston Manor, Derby.*

Lord Kenyon's Favourite Cucumber.—Two years ago I lost the stock of a Cucumber which I had from a private source, under the name of Lord Kenyon's Favourite. I have since tried five nurserymen, and have failed in replacing it. It was 9 inches long, perfectly smooth, with no handle or neck, and of a very dark shiny green on the sunny side, which went well into the flesh. One grand peculiarity connected with it was its scent; one cut perfumed the whole room. In this particular all that I have had subsequently under the name have broken down. Can any one help me out of my difficulty? *T. S. U., Staplehurst.*

Flower Market at South Kensington.—Alas! Paul, you seem to have quite forgotten your education. In my last letter I had to remind you that gentlemen do not call names, and now you are reduced to imputing motives, a course equally unheard-of among gentlemen. Why are your motives to be more pure than mine? Surely gentlemen can, without descending to Billingsgate, discuss questions. I advocate a flower market on the spare land at South Kensington—land not belonging

to the Royal Horticultural Society, though lent to it for the time. You object to two opinions, but surely it is not necessary for you to forget that you are a gentleman. Fie for shame, Master Pry; put up your umbrella and hide your blushes, and I will forgive you. Again, you misquote me strangely, I hope not purposely, for it would indeed lower you in my opinion, Master Paul, if I thought you did so purposely. I never proposed that the Horticultural Society should spend a farthing on the proposed flower market; on the contrary, I simply suggested that space should be set apart to be let to the trade. What for? Why, for the very purpose of strengthening the resources of the Society, and enabling it to expend the 10*l.* you say, Master Pry, is wanting. I believe that such spaces would willingly be paid for by the trade, would be a convenience to the public, and an attraction to the Fellows. Master Paul, you seem to be very positive that the "best men" would laugh at the idea of sending "shilling plants,"—let such a person send guinea plants and he will find buyers, if the plants were worth the money, as I have no doubt they would be; but still I have heard it said that one "best man" sells 40,000 plants a-year at a shilling, or less; and further, all the world, including even you, Master Pry, will admit, I suppose, that displays are profitable—look at the business obtained by Messrs. Waterer and Godfrey and Mr. John Waterer from showing their beautiful Rhododendrons — look at the profit derived from showing for a certificate down to a small mite, a new bedding-out plant. *A Male F.H.S.* [Nothing can be more true. *J. L.*]

The Laying out of Kew.—"But it is a question whether Kew might not be improved by good taste in landscape gardening," says Mr. Newton. Truly this is a question of easy solution, though too much money has now been spent in almost everlasting structures, inexplicably arranged, to leave any hope of Kew ever becoming a well laid out garden. The million surrounded by the floral charms of Kew, will however hardly find time to quarrel with the taste of those who conduct us by a noble walk to nowhere, and may possibly be in a mood to admire the genius required to make or suggest a vista, but as the plants will not be so attractive on the margin of the new lake, it may not be out of place to wish that before that piece of water is presented to the public in a finished state, some person with a little taste in such matters may be employed to modify the outline and singular aspect which it not long ago presented, suggesting the undirected labours of a party of turf cutters or canal makers. *W. H. S.*

Societies.

Royal Botanic, Regent's Park: *June* 11 (*Second Great Show*).—Orchids and stove and greenhouse plants were produced on this occasion in great profusion and in excellent condition; but Azaleas and Roses in pots were considerably inferior to those shown here in May last. Cut Roses were, however, all that could be desired, as were also Pelargoniums, and there was a good exhibition of fruit. The day being favourable there was a large attendance of visitors.

Stove and Greenhouse Plants.—Among these were some admirable examples of Allamandas, especially of grandiflora, of which Mr. Chilman had an unusually finely-flowered plant. From Mr. J. Fraser came a huge Phœnocoma proliferum in robust health, and covered with bright rosy blossoms; other kinds of Everlastings were also present in great numbers. Gompholobium polymorphum was shown in the form of a bush by Mr. Cutbush, of Barnet; and some excellent Ixoras, Dipladenias, Stephanotis, Pleromas, Vincas, and Heaths, came from Messrs. Whitbread and May. The former also furnished the pretty Aotus gracillima, covered with long spikes of bright brown and yellow blossoms. Among plants not in flower, Messrs. Lee had beautiful examples of Cyathea Smithii and other Ferns, Pandanus elegantissimus, Cordyline indivisa, a graceful plant with long handsome foliage conspicuously ribbed with orange; the noble-looking deep green-leaved Neottopteris australasica, one of the Bird's Nest Ferns; the singular bronzy-leaved Alocasia metallica, Rhopalas, and plants of a similar description. From Messrs. A. Henderson & Co. came, along with Anthuriums and other fine-leaved plants, a charming example of Alocasia macrorbiza variegata, and not less remarkable was a large collection of handsome-leaved plants from Mr. Williams, of Holloway.

Awards.—16: 1, Mr. Whitbread; 2, Mr. May; 3, Mr. Peed; 4, Mr. Wheeler. 10: 1, Mr. J. Fraser; 2, Mr. Rhodes; 3, Messrs. Lee; 4, Mr. Cutbush. *Amateurs.*—10: 1, Mr. Chilman; 2, Mr. Green. 6: 1, Mr. Page. Extra, Mr. Cross. *Fine Foliaged Plants.*—1, Messrs. Lee; 2, Messrs. A. Henderson & Co.; 3, Mr. Williams.

Orchids.—In collections of these we noticed a small plant of the new Dendrobium Parishii, a variety in the way of macrophyllum, but with flowers much smaller in size and redder in colour than those of that species. This came from Mr. Williams, who showed a good specimen of the pretty terrestrial Orchis foliosa. From Mr. Page came Oncidium ampliatum majus in beautiful condition, bearing three noble spikes of clear yellow blossoms; also a good plant of Orchis foliosa. Mr. Penny had the Holford variety of Saccolabium guttatum, with two gracefully-drooping spikes of purple-spotted white flowers; also the spotted buff Dendrobium albo-sanguineum, and a fine Cypripedium villosum. From Mr. Green came a small specimen of the charming Arpophyllum giganteum, with little rosy shell-like blossoms, the neat symmetrical arrangement of which on the upright spikes which upheld them, was the admiration of everybody; Mr. Chilman contributed a good Saccolabium guttatum; Mr. Peed, Trichopilia coccinea, the rich yellow Dendrobium chrysotoxum, and the snow-white purple-lipped Lælia purpurata. In a fine group from Mr. Milford, came Anguloa Clowesii with seven large yellow Tulip-like blossoms; the Bornean Cypripedium Stonei, with pale straw-coloured flowers, stained and spotted with reddish-brown; Dendrobium formosum, with large yellow-stained pure white blossoms; Lælia grandis and Brysiana, the last apparently a variety of purpurata; and the rare Odontoglossum Phalænopsis. Mr. Baker had a magnificent specimen of Cattleya Mossiæ, which could not measure less than three feet across and two feet in height, literally loaded with blossoms of the largest and gayest description; also the canary-coloured Cattleya citrina, Aerides Lobbii, with two branching spikes of rich rosy flowers; a grand plant of Odontoglossum citrosmum, with seven spikes of pink flushed delicate white blossoms; the pretty Dendrobium Farmeri, and the orange-scarlet Saccolabium curvifolium. From Mr. Wiggins came some handsome Aerides; Mr. Whitbread and Mr. Wilson also showed some well-grown plants.

Awards.—20: 1, Mr. Baker; 2, Mr. Milford; 3, withheld; 4, Mr. Peed. 12: 1, Mr. Penny; 2, Mr. Page; 3, Mr. Green; 4, Mr. Chilman. 6: 1, Mr. Williams; 2, Mr. Jackson; 3, Mr. Woolley. *Amateurs.*—6: 1, Mr. Fairbairn; 2, Mr. Wilson; 3, Mr. Wiggins; 4, Mr. Whitbread; 5, Mr. Wheeler.

Roses.—Concerning those in pots we have nothing to record, but of the beauty of the cut blooms it would be difficult to say too much; they were brilliant in colour, large, and preserved their freshness well throughout the day. Among them were charming examples of Lord Clyde, of which Messrs. Paul & Son had fine blooms; Senateur Vaisse, and other fine deep crimson sorts; among yellow kinds nothing beat Celine Forestier, of which most of the boxes contained blooms.

Awards.—10 in pots: 1, Mr. Wm. Paul. 6: 1, Mr. Terry. 25 Cut Blooms: 1, Mr. Turner; 2, Messrs. Paul & Son; 3, Mr. Mitchell. *Amateurs.*—1, Mr. Excell; 2, Mr. Morris; 3, Mr. Terry. 24: 1, Mr. Turner; 2, Messrs. Paul & Son; 3, Mr. Mitchell.

Azaleas.—Those exhibited on this occasion were certainly past their best; nevertheless the pleasing intermixture of leaves and flowers which they possessed rendered them by no means unattractive.

Awards.—6: 1, Mr. Whitbread; 2, Mr. Carson; 3, Mr. Cross; 4, Mr. Page. *Nurserymen.*—1, Mr. Turner; 2, Mr. J. Fraser; 3, Mr. Rhodes.

New Plants.—Among these there was little that had not been shown before. From Messrs. Veitch came Lilium auratum, a pretty Lomaria from Manilla, the white-blossomed variegated-leaved Kæmpferia Roscoeana, Eranthemum tuberculatum, and Gymnogramma japonica. Messrs. Jackson sent the prettily veined-leaved Anæctochilus Petola superba, and Stangeria paradoxa fœmina. From Mr. Williams came a fine variety of Cattleya amethystoglossa, a Californian Yucca, the orange-blossomed Imantophyllum borbonicum, Dracæna Ehrenbergi, and a species of Hechtia. Mr. Bruce Findlay sent from the Botanic Gardens, Manchester, a large leaf of some showy Alocasia; Mr. Watson, St. Albans, sent Astelia bivittata in blossom, and the rare Gleichenia Cunninghami. Mr. Bull contributed a handsome Caladium, named Van den Heckei, Pandanus furcatus, a variegated variety of Polygonatum verticillatum, a crested variety of Nephrodium molle, Cycas Ruminiana, and the white-blossomed Rhododendron tubulatum.

Pelargoniums.—Mr. Bailey again showed wonderfully fine plants of these. They consisted of Spotted Gem, Desdemona, Lord Clyde, James Lodge, Guillaume Severyns, Flora, Sanspareil, Glowworm, Nestor, and Lord Palmerston. Of fancy varieties the same exhibitor had Arabella Goddard, Princess Royal, M. Rougière, Crystal Beauty, Lady Craven, and Clemanthe. The names of other sorts shown on this occasion have frequently already appeared in our columns.

Awards.—12: 1, Mr. J. Fraser. 10: 1, Mr. Bailey; 2, Mr. Nye; 3, Mr. Wiggins; 4, Mr. Donald. *Fancy Sorts.*—6: 1, Mr. J. Fraser. *Amateurs.*—6: 1, Mr. Bailey; 2, Mr. Cox; 3, Mr. Donald; 4, Mr. Weir.

Fuchsias.—Of these one or two collections were exhibited, consisting of medium-sized well-bloomed plants, which however we yet hope to see in better condition when the season is further advanced.

Awards.—6: 1, Mr. Cannell; 2, Mr. Cross; 3, Mr. Young.

Calceolarias.—Messrs. Dobson showed a few good plants of these, the names of which did not appear to greatly differ from those given by us on former occasions.

Seedlings.—Among these the following received Certificates, viz., Pelargoniums Sensation, Duke of Cambridge, Meteor, and Rival, from Messrs. Dobson; Pelargonium Clown, from Lord Dufferin's gardener; The Rover, Ann Page, and Dreadnought, all Pelargoniums of considerable merit, from Mr. Turner; Pelargonium Fairy, from Mr. Holland; Blair Athol and Amazon, two fine Pelargoniums, from Mr. Nye; and British Sailor, Mary Hoyle, and Publicola, from Mr. Hoyle. From Mr. William Paul came his beautiful Rose called Princess of Wales; and from Messrs. Downie, Laird & Laing, Pansies John M'Nab, William Moffatt, and Nethercote; Messrs. Smith, of Dulwich, sent some seedling Lobelias, among which alba speciosa, conspicua, Blandina cœrulea and Magenta received Second-class Certificates; and from Messrs. E. G. Henderson came a prettily striped Petunia named Volunteer, and a handsome variety of Phlox Drummondi.

Heaths.—Of these, some well grown plants were exhibited, especially of Massoni, tricolor Wilsoni, which is one of the best of its class, and ventricosa magnifica, a profuse blooming rosy pink kind tipped with white.

Awards.—10; 1, Mr. Rhodes; 2, Messrs. Jackson. 8: 1, Mr. Peed; 2, Mr. Page. 6: 1, Mr. Chilman; 2, Mr. Wheeler.

Ferns.—Charming groups of these filled up shady recesses with excellent effect, and served to vary and enhance the general appearance of the exhibition. Among them were some remarkably large Gleichenias, Cyatheas and Dicksonias. Of British kinds, Messrs. Ivery had a highly-interesting collection, to various fine varieties of Athyrium in which certificates were given.

Awards.—1, Mr. Williams; 2, Mr. Bull; 3, Mr. Young; 4, Mr. Stone.

Miscellaneous Subjects.—Among these were cut blooms of Pinks from Mr. Hooper, of Bath; Pansies from Messrs. Downie, Laird & Laing, Fergie, Howse and Weymouth; hanging baskets tastefully filled with variegated and other plants from Messrs. A. Henderson and Mr. Young; rustic window boxes and other handsome room ornaments in the way of plant cases from Messrs. Barr & Sugden; Caladiums from Mr. Young; beautiful cut blooms of herbaceous Pæonies from Mr. Salter and Messrs. Paul & Son; Amaryllis from Mr. Williams, and various interesting plants from Mr. Bull.

Pine Apples.—Providences, though good for the season, were not remarkable either for fine form or heavy weight; of Queens, one or two fine fruit came from Mr. Chitty and Mr. Floud, gr. to R. Fothergill, Esq., Aberdare; a Prickly Cayenne, unripe, also came from the last-named exhibitor. We likewise noticed a Smooth-leaved Cayenne, weighing 4¾ lbs., from Mr. Taylor; a Black Antigua and a Cayenne from Mr. Young, stated to have been ripened without bottom-heat.

Awards.—Providences: 1, Mr. Bailey; 2, Mr. Smith. *Queens*: 1, Mr. Floud; 2, Mr. Chitty; 3, Mr. Turner; 4, Mr. A. Henderson. *Other sorts*: 1, Mr. Taylor; 2, Mr. Floud; 3, Mr. Henderson; 4, Mr. Chitty; 5, Mr. Jefferson; 6, Mr. Wallis.

Grapes.—Of these there were 25 dishes of Black varieties, 18 of White, and three of Grizzly Frontignan. Wonderfully fine Black Hamburghs, large both in bunch and berry, and finely coloured, came from Mr. Hill of Keele Hall, and Mr. Meredith of Garston, and good bunches of the same variety were also contributed by Messrs. Powell, Henderson, McKay, Cruickshanks, Wallis, Miller, and Penny; of Black Prince magnificent clusters came from Mr. Hill and Mr. Meads, gr. to R. Currie, Esq., Minley Manor, Farnborough. These were so perfectly equal in point of merit that the Judges awarded them equal first prizes. Mr. Hill's three bunches weighed together 8 lbs. 8 ozs., and Mr. Meads', 8 lbs. 10 ozs.; each of the clusters measured about 15 inches in length, they were finely coloured, and were altogether beautiful specimens of first-rate Grape-growing. From Mr. Pottle came well-ripened bunches of Black Prince, and Mr. Allport sent good specimens of West's St. Peters. Of Golden Hamburgh and Buckland Sweetwater there were some finely ripened bunches, and Mr. Meads, Mr. Drewitt, and Mr. Bailey showed famous examples of Chasselas Musqué, not a berry of which exhibited any symptoms of cracking. Mr. Beasley, Twyford Abbey; Mr. Bennett, Champion Hill, and Mr. M. Henderson contributed fine specimens of Grizzly Frontignan. Muscadines came from various growers, as did also Muscats, which were for the most part unripe. From Mr. Meads came very fine bunches of Trentham Black.

Awards.—3 bunches of Black Hamburgh: 1, Mr. Hill; 2, Mr. Meredith; 3, Mr. Powell; 4, Mr. Henderson; 5, Mr. McKay; 6, Mr. Cruickshanks. Extra, Mr. Wallis, Mr. Miller, and Mr. Penny. 3 bunches of Black Prince, or West's St. Peter's: Equal 1, Mr. Meads and Mr. Hill; 2, Mr. Pottle; 3, Mr. Allport. 3 bunches of Muscadine: 1, Mr. Hill; 2, Mr. Henderson; 3, Mr. Young; 4, Mr. Turner. Extra, Mr. Miller and Mr. Horwood. 3 bunches of Chasselas Musqué: 1, Mr. Meads; 2, Mr. Drewitt; 3, Mr. Bailey.

Peaches.—These were for the most part large and well coloured. They consisted of Gallande, Royal George, Noblesse and Barrington. Some fine fruit of the last, unfortunately a little bruised, came from Mr. Wills, gr. to Sir P. G. Egerton, Bart., M.P.

Awards.—1, Mr. Allen; 2, Mr. Petch; 3, Mr. Ruffett; 4, Mr. Stone. Extra, Mr. Masters, Mr. Henderson, and Mr. Knight.

Nectarines.—These were confined to Elruge, Hunt's Tawny, and Violette Hâtive, of all of which good fruit was contributed.

Awards.—1, Mr. Allen; 2, Mr. Lynn; 3, Mr. Masters; 4, Mr. Petch; extra, Mr. Turner and Mr. Gardiner.

Cherries.—A beautiful dish of Black Circassian was contributed by Mr. Henderson, of Trentham, and there were also fine dishes of Elton and Belle de Choisy from other growers. From Mr. Wilson, of Warwick, came Governor Wood, a white American variety, but too dull in appearance, we fear, ever to become a general favourite.

Awards.—Black: 1, Mr. Henderson; 2, Mr. Beck; 3, Mr. Lynn. *White*: 1, Mr. Enstone; 2, Mr. Henderson; 3, Mr. Lynn.

Strawberries.—Of these Mr. Smith and Mr. Pottle showed magnificent fruit of Queen, Sir C. Napier, and Rifleman. From Mr. Turner, of Slough, came a fine looking seedling named Sir J. Paxton, which will doubtless become a favourite. In general appearance it somewhat resembles President; it is said to have a fine musky flavour, and to be nearly as early as

Keens' Seedling. Mr. Fraser again showed Reeves' Eclipse well fruited in pots.

Awards.—4 dishes: 1, Mr. Smith; 2, Mr. Pottle.

Melons.—Among these by far the best was a Hybrid Cashmere from Mr. Meredith, of Garston, near Liverpool. It was a medium sized fruit, oval in shape, with whitish-green deliciously flavoured flesh, and a thin golden yellow skin. Among red fleshed kinds, Scarlet Gem still stands at the head.

Awards.—Green-flesh: 1, Mr. Meredith; 2, Mr. Bailey; 3, Mr. Ruffett; 4, Mr. Sawkins. *Scarlet*: 1, Mr. Simmonds; 2, Mr. Beck.

Figs.—From Mr. Ruffett came a good dish of Lee's Perpetual, and Mr. Pottle sent fine fruit of White Marseilles.

Miscellaneous Fruits.—One or two collections were shown by Mr. Masters, Mr. Pottle, and others, consisting of Pine Apples, Grapes, Peaches and Nectarines, Strawberries, and Melons.

ROYAL HORTICULTURAL: *June* 14.—Sir Wentworth Dilke, Bart., in the Chair. The following candidates were elected, viz.:—

S. Bowring, Esq.; I. Corbière, Esq.; J. Cridland, Esq.; L. Dell, Esq.; J. S. Forbes, Esq.; Major Grant, W. A. Irvine, Esq.; Mrs. Charles Jones, Sir N. J. Knatchbull, Bart.; Mrs. Low, J. Maynard, Esq.; H. T. Morton, Esq.; Mrs. St. Auburn, C. Waring, Esq.; W. Waring, Esq.; and C. M. Webster, Esq.

At a meeting of the Floral Committee held on this occasion, Mr. Turner received a Special Certificate for a Collection of Pelargoniums; also a Second-class Certificate for Edgar, a dark fancy kind, with a light eye. The Rover, a Fancy like the last, but lighter in colour, received a First-class Certificate; and to Silver Mantle, rose and white, was given a Second-class Certificate. Second-class Certificates were given to Mr. Hoyle for Publicola, a crimson-coloured Pelargonium with white eye and dark top; and Mary Hoyle, salmon pink with white eye and black spot on the upper petals. To Mr. Bull was awarded a Second-class Certificate for Pelargonium Achilles, a brilliant scarlet variety without any horse-shoe mark on the leaves. The same exhibitor also received a First-class Certificate for Pleione Schilleriana, a small greenish yellow-flowered kind, streaked with brown. To Mr. Hally, of Blackheath, was given a similar award for a bright scarlet zonate Pelargonium called Venus, with a slight yellow marbled variegation on the foliage. Messrs. E. G. Henderson received a Special Certificate for a collection of beautifully tricolor red-zoned Pelargoniums, in which was a pretty variety called Captain Meade, to which a Certificate was also given. From Messrs. Veitch came fine examples of Lilium auratum, a standard plant of the scented Pelargonium Lady Plymouth, and other interesting plants.

Mr. Wilson Saunders then delivered a very interesting and instructive lecture on Pelargoniums, of which the following is a condensed report. He commenced by pointing out the difference botanically between Pelargonium and Geranium, a full account of which will be found in another column. He then alluded to the geographical distribution of Pelargoniums, which he said all came from the Cape of Good Hope, with the exception of a very few, which were natives of New Holland, St. Helena, Canaries and Abyssinia. One, called Endlicherianum, came from Asia Minor, and it was remarked that as this was nearly hardy, it might yet be the parent of a race less tender in constitution than any we are now in the habit of cultivating. As regards duration, Pelargoniums were stated to be either perennials or annuals, and the difference of form among them was most remarkable, not only in the stems but also in the leaves. As regards stems, some were spiny, gouty, climbing, and succulent; and with respect to the leaves, in addition to the peculiar shape which some of them took, nearly all of them were deliciously scented. The flowers next engaged the lecturer's attention. They were stated to embrace different shades of yellow, white, pink, purple, scarlet, crimson, and very dark brown. Some of them gave out an agreeable odour at night; and it was remarked that when the flowers were perfumed the leaves were scentless. With respect to introduction, the first Pelargoniums, consisting of triste, cucullatum, capitatum, and a few others, made their appearance amongst us about 238 years ago, but they appeared in larger numbers between the years 1790 and 1810, since which period few additions to their numbers have been made. With regard to the Pelargonium in an economical point of view, it was mentioned that some are astringents; that one of the tuberous-rooted species allied to triste is eaten by the Kaffirs; and that in the south of France and in Algeria, an essential oil is obtained from P. Radula rosea. For gardening purposes, Mr. Saunders divided the species into groups as follows, viz.:—1, sorts remarkable for the beauty of their blossoms; 2, kinds worth attention on account of the beauty of their leaves; 3, species valuable for the scent yielded by their leaves; and 4, species remarkable for the odour of their flowers. These were then compared with some of the best florists' varieties contributed by Mr. Turner, and allusion made to some of the species from which they originated.

With respect to hybridization, Mr. Saunders stated that it was not at all certain when the first hybrids among Pelargoniums were raised, but he remarked it was certain that many existed at the latter end of the last century, and we might perhaps not be far from the truth in saying that some were known 100 years ago. The first no doubt were the result of chance, through the agency of bees or other accidental circumstances. The scarlet Fothergill Pelargonium was raised by Dr. Fothergill, in 1780; and during the first ten years of the present century some very marked improvements upon the original species had taken place—indeed the commencement of the present races of florists' varieties had been started. Colour was there, spotting and marking were present, but size was wanting, except in one or two instances, as well as shape and substance of petal.

The fine Pelargoniums which now annually grace our exhibition tables were next adverted to, the sections into which they are divided pointed out, and the names of some of the principal raisers mentioned. Among these was Mr. Hoyle, of Reading, from whom the following letter was read:—

"My acquaintance with Pelargoniums commenced 32 years ago, when I began to cultivate them; and for the last 24 years I have annually raised a batch of seedlings numbering some 10 or 12 hundred.

"One of the first I possessed was Davyanum, at that time a prime favourite, but it would be considered now to have scarcely one good point, though at that time a good deal of progress had been made. I possess some petals gummed on paper about 40 years ago, and in shape they remind one of the sails of a windmill. To estimate correctly what has been done, it is necessary to compare the best examples of the present time with the figures which floral and botanical works have given us from time to time; the early numbers of the "Florist," especially the first volume, give several examples. Improvement it will be seen has been great in all points in reference to a good flower; form, colour, substance, abundance of bloom and size—each of these might furnish much matter for remark. I believe however that there is yet plenty of room for further progress, and that the Pelargonium may be as much advanced in the next 20 years by judicious and persevering cultivation, as it has been during the last 20 years; it is just that time since the idea was given me that a purple with a white eye was a desideratum, and for 18 years I have tried all I could to procure it, and I have the reward of my perseverance in that beautiful flower called Diadem. Some progress has been made with the Scarlet class, and soon it will be a rarity to see a Show flower with a dull eye. It is usual to call those varieties that are spotted on the lower petals French; but there are many that have not that origin. Years before the introduction of the French varieties I had raised Saracen, Nonsuch, Ocellatum, and Sanspareil, the last still always 'one in the ring,' and with its white sport Fair Rosamond will long be grown for exhibition."

Mr. Saunders next proceeded to indicate some of the points which should characterise a good florist's variety, and briefly alluded to the propagation of some of the Cape species.

The concluding part of his subject will perhaps have most interest in the eyes of raisers. He said:—

"Having now shown shortly what has been done with the Pelargonium to the present time, I think we may glance at the future, and looking to the various characters of the species, see where progress may still be made by judicious crossing and selection. Although, as I have pointed out, more than 200 years have elapsed since the first Pelargonium was introduced, and nearly 100 years since the first crosses were noticed, yet with the knowledge we now possess of hybridization, and the advantage of selection, there can be no doubt that a very few years would effect great results in any new series of experiments for the further improvement of the Pelargonium, commencing with the species themselves. It is most desirable that these attempts should be made, knowing as we now do how valuable the Pelargonium is as a flower contributing to the gratification of such numbers of persons.

"To effect improvements in constitution, habit, foliage, flowers, &c., I would suggest experiments on the following species:—

"*P. Endlicherianum.*—Crosses from this plant may be expected to possess a nearly hardy constitution, and although it is of a low almost herbaceous habit, yet it forms a woody kind of root stem, with large and conspicuous flowers, good qualities for the hybridizer to work upon.

"*P. patulum.*—Here we have a plant with long almost trailing stems of a woody nature. It grows very quickly, and would clothe the side of a conservatory in a short space of time. Its flowers are small and inconspicuous, but properly crossed an improvement would soon take place here, and large blossoms might be expected, which would make the plant a very acceptable addition to our greenhouses.

"*P. peltatum, the Ivy-leaf.*—This beautiful and graceful species, with numerous shining succulent leaves, beautifully zoned with darker colour, and very free growing and trailing stems, is well worthy of more attention on the part of floriculturists. Some pleasing crosses have been produced, such as lateripes, hederinum, and scutatum, &c.; sufficient to show how ready the plant is to yield to the wishes of hybridizers. Much, I feel confident, might be done with this plant.

"*P. schizopetalum and Bowkeri.*—These have deeply laciniated petals, very elegant in outline and large in size. The flowers are dull in colour, but if they could be brightened by judicious crossing, very charming plants would be the result, and could a shrubby character be given to them, novelties would be obtained of a most striking character.

"With respect to shape of leaves, most of our hybrid Pelargoniums with very showy flowers have leaves bearing a great similarity to each other. As the leaves of many of the species are so very varied in outline and so elegant, why should not attempts be made to produce beautiful leaves with beautiful flowers? There is a very wide field open here for crossing and producing new and valuable varieties.

"Again, as the Pelargonium offers such varied and grateful perfumes in the leaves, why should not this character be imported into the leaves of the large and fine-flowered sorts. This would not be a difficult matter, and would certainly much add to the interest of the plant."

The lecture was amply illustrated by living plants of Cape species obtained from Mr. Saunders' extensive and fine collection of them at Reigate; and by some admirably-grown plants of florists' varieties from Mr. Turner.

LINNEAN: *June* 2.—George Bentham, Esq., President, in the chair. The President nominated J. J. Bennett, Esq., Dr. Hooker, J. Lubbock, Esq., and W. W. Saunders, Esq., Vice-Presidents for the ensuing year. Dr. Welwitsch exhibited a series of Aroideæ from Angola, principally to show the successive metamorphoses which occur in the leaves of Amorphophallus and some allied genera. The following papers were read:—"On the Conanthereæ," by J. Miers, Esq. In 1863 Dr. Leybold proposed to establish a new order of Monocotyledons under the name of Tecophileaceæ, agreeing with Iridaceæ in the structure of the perianth and root, but distinct in the number, introrse direction, and dehiscence of the anthers. Mr. Miers thought it might be assumed, though it had not been stated, that the chief feature on which Tecophileaceæ would rest, was the semi-inferior character of the ovary and capsule, which would place it between Liliaceæ and Iridaceæ. The sterility of three of its stamens was stated to be not peculiar to Tecophilea, but to occur also in the liliaceous Albuca, Brodiea, Leucocoryne, and in some degree in Zephyra and Cyanella; while the partial inferiority of the ovary was also an aberrant and variable character, seen in many genera, particularly in all the Conanthereæ. The object of the author was to show that Tecophilea really belongs to the latter group, and has no claims to be regarded as a distinct family. The Conanthereæ as proposed by Don included Zephyra, Pasithea, Conanthera, and Cummingia, and was then distinguished from the Asphodeleæ in Liliaceæ by a semi-inferior ovary and inarticulated pedicel. Endlicher added Echeandia. Zephyra singularly accords with Tecophilea; and of its six stamens two are sterile. The anthers of Conanthera and Cumingia are all fertile, and remarkable for being shaped precisely like the sterile anthers of Tecophilea. The Conanthereæ are further distinguished, among other points of structure, by having a solid semi-globular tuberose root, and nearly radical leaves. Pasithea, on account of its fingered or branching root, and other peculiarities, must be excluded, and evidently belongs to the Anthericeæ, where probably Echeandia should also be placed; but Cyanella, hitherto placed in Anthericeæ, must rank with the Conanthereæ. This group of Conanthereæ might without inconsistency remain a distinct tribe of the Liliaceæ, following the Allieæ and Anthericeæ, nearly in the manner in which it has been well classed by Lindley in his "Vegetable Kingdom." It would consist of Zephyra, Tecophilea, Conanthera, Cumingia, and Cyanella. If thought desirable on account of its very peculiar characters to consider the group as a distinct family, the name Conanthereæ or Conantheraceæ has a prior claim to that of Tecophileaceæ. The author then gave a full diagnosis of each genus from his own careful observation, and also a list of the species.——"2. On the individual sterility and cross impregnation of certain species of Oncidium," by Mr. John Scott; communicated by C. Darwin, Esq. This paper consisted of an account of various experiments carried on in the Edinburgh Botanic Garden, the result of which is thus summed up, the species employed being O. microchilum, two plants, ornithorhynchum, and divaricatum cupreum:—

O. ornithorhynchum by O. microchilum (2); 8 flowers fertilised, 3 capsules obtained, all good.
O. microchilum (2), by O. ornithorhynchum; 12 flowers fertilised, no capsules.
O. ornithorhynchum by O microchilum (1); 8 flowers fertilised, 5 capsules, 4 of them good.
O. microchilum (1) by O. ornithorhynchum; 12 flowers fertilised, 2 capsules, neither good.
O. divaricatum cupreum by O. microchilum (2); 6 flowers fertilised, 3 capsules, all good.
O. microchilum (2) by O. divaricatum cupreum; 18 flowers fertilised, no capsules.
O. divaricatum cupreum by O. microchilum (1); 6 flowers fertilised, 4 capsules, all good.
O. microchilum (1) by O. divaricatum cupreum; 6 flowers fertilised, 2 capsules, both good.
O. microchilum (1) by O. microchilum (2); 6 flowers fertilised, 5 capsules, 4 of them good.
O. microchilum (2) by O. microchilum (1); 6 flowers fertilised, no capsules; and again 12 flowers fertilised, no capsules.
O. microchilum (1) by its own pollinia; 24 flowers fertilised, 1 capsule, not good.
O. microchilum (2) by its own pollinia; 24 flowers fertilised, no capsule.

——3. "Notes on British Fungi," by F. Currey, Esq. ——4. "On Sloetia, a new genus of Moraceæ from Sumatra and Singapore," by Mr. Salpig Kurz, curator of the Herbarium of the Botanic Garden, Calcutta;

communicated, with a note, by Dr. Anderson. The plant in question, Sloetia Sideroxylon, yields some of the valuable timber known as Ironwood in the Dutch East Indian possessions. Messrs. Teijsmann and Binnendyk, in describing another tree, Eusideroxylon Zuageri, which produces Ironwood, enumerate the species known to them to afford the same class of timber, namely Eusideroxylon Zuageri, T. et B.; Namia vera, Miq.; Intsia amboinensis, Thouars; Cassia florida, Vahl.; Memecylon ferreum, Bl.; Stadmannia Sideroxylon, D.C.; Dodonæa Waitziana, Bl.; and Sloetia Sideroxylon, T. et B. The last, the Artocarpus elongatus of Miq., was the plant now described by Mr. Kurz.——5. "Descriptions of new species of Hymenopterous insects from the islands of Sumatra, Sula, Gilola, Salwatty, and New Guinea, collected by Mr. A. R. Wallace," by F. Smith, Esq.; communicated by W. W. Saunders, Esq.——6. "On the structure and homologies of the Renal Organs in the Nudibranchiate Mollusca," by Albany Hancock, Esq ——7. "Description of new tubicolous Annelids in the collection of the British Museum, Part 2," by Dr. Baird.

Notices of Books.

The Stream of Life on our Globe. By J. L. Milton, M.R.C.S. 1864. Robert Hardwicke, 192, Piccadilly. Pp. 614, 8vo.

The lively and ingenious writer of the book before us had a notion that people in general feel decidedly interested in the results of modern science, and that were it not for some very unnecessary drawbacks, they would take considerable pains to understand many of those questions of interest which so often come into discussion in the present day. So he wrote a series of papers for that "deservedly favourite Journal, 'All the Year Round,'" taking special care, that if not deep, his style should at least be popular and amusing, and above all that it should be entirely divested of dogmatism and all alarming Greek compounds. The result is just what might be expected, viz., for the most part a very readable book, containing numerous quotations from the celebrities of the day, whose pet notions are usually turned adroitly into ridicule, but with so little dogmatism, that the reader is often at a loss to know what is meant for banter and what for earnest.

The book itself commences with Geology, the importance of which study to the well-being of the world is very properly insisted on, and Hugh Miller is referred to in the preface, as giving an admirable description "of the difference he saw during his wanderings, between the crops growing over different kinds of rocks. The desolating famine of 1846, which cost the country over 50 millions sterling, was in Scotland confined to the primary districts." "It was geology, and geology only," he says, "that discovered gold in Australia."

Following the lamented Hugh Miller, Mr. Milton traces the beginning of life upon our globe through six great geological days or epochs with fanciful sunsets, midnights, mornings, &c., "à discretion," during which the earth is prepared for the habitation of man. Thus far he is plainly in earnest. This brings us in the second chapter to the first traces of man upon the earth. Mr. Milton says:—"It puzzles us to understand how man managed at all, for it seems beyond dispute that some of the earliest races at least, instead of being giants and warriors, were puny and feeble, possibly also degraded and stupid. How could he cope with these monsters? Yet nothing is more certain than that for ages he warred upon them with the flint-arrow and spear, leading the wretched precarious life of the savage." This of course introduces us to M. Boucher de Perthès, the caves of Chokier and Brixham, the fossil jawbone of Moulin-Quignon, M. Quatrefages, Dr. Falconer, the Danish kitchen-middens, the Neanderthal skull, and all the rest of it.

Next, the Lake Dwarfs of Switzerland have to be discussed, and the mound-builders; after that the wanderings of Scythians, Phœnicians, gipsies, and Jews, both black and white. In the chapter on language, Prof. Max Müller's "wonderfully seductive" theory comes in for an amount of chaffing which none but the unthinking public can suppose that it deserves. "As soon as ever a language is fairly formed, it becomes subject to a fatal form of phonetic disease which is often so virulent that it will eat away the whole body of a word, and leave nothing behind but decayed fragments. No love can guard it from the assaults of its natural foe, no veneration protect it from that downfall which sooner or later awaits any spoken tongue. Eternal change, ceaseless decay, such is the doom of the most polished, as of the rudest tongues. In the time of Horace the old Roman tongue was obsolete—as obscure as some old Saxon chronicle to us. The Salian priests could hardly understand their own hymns." Sir William Jones, a sound scholar and a truly wonderful man, found that the Sanskrit was a language more perfect in its structure than the Greek, more copious than the Latin, more exquisitely refined than either, and came to the conclusion that all three sprung from a common source. Professor Max Müller asserts that these are only 3 out of 8 children born of what he calls the Aryan tongue. "This word of might, Aryan," says Mr. Milton, "comes from *Ar*, to plough or open the soil—the old English *ear*, used in the sense of plough by Shakspeare. It was the root of the Latin word for plough, and the assumption that these Aryans overran a country is often based on the fact that the root of their name, *Ar*, has been found in the language of the country." The Professor says:—"The people with whom language grew up knew nothing of datives and accusatives," a statement, says Mr. Milton, "which must make many of our schoolboys conceive an intense admiration for such a wonderful people."

In the chapter on the cuneiform inscriptions, the labours of Germans in general, and Professor Grotefend in particular, are spoken of with wonderful plainness of speech, which most people would call audacity. The Rev. Charles Forster again appears to have given a very common-place solution of the mysterious figure in the Behistun carvings, singularly at variance with that offered by Colonel Rawlinson. The Colonel supposes the figure in question to represent the God Ormuzd, who hovers overhead in a most mysterious looking vehicle, holding the Zodiac in his hand. Mr. Forster, better taught, sees "no god at all, but simply a likeness of the artist himself, executed by his own hand, and representing him seated, as he worked, in a strong Palm-leaf crate, lowered from the edge of the cliff and resting against a small platform," and further says that instead of the Zodiac he has got a cymbal in his hand, which he is beating with might and main, asserting also that he is drunk; and this view is confirmed by the legend, of which Mr. Forster gives the interpretation.

Mr. Darwin's views of course come in for some smart rubs. Some of these are very fair, but this part of the book strikes us as weaker than that which precedes it. "The possibility that man is only a more favoured beast," which is a notion that most men very properly kick at, is we think not badly treated by Professor Müller. "Language is our Rubicon, and no brute will dare to cross it. Language is something more palpable than a fold of the brain, or an angle of the skull. It admits of no cavilling, and no process of natural selection will ever distil significant words out of the notes of birds or the cries of beasts." The chapters on the laws of life, food, and digestion, mental labour, dreams, nervous force, and vital power are we think the most valuable part of the work, for here Mr. Milton is on his own ground, and speaking from his own experience; but we confess to have been thoroughly tired with his account of all the celebrated giants and Daniel Lamberts, and his attempt to show that genius is not generally hereditary. Of the two concluding chapters we think "Life in the Waters" decidedly weak, and "Life in the Stars" by no means brilliant.

Watts' Dictionary of Chemistry, Part XVI. (Longmans), 8vo, is a capital number, reaching from *Hyalosiderite* to *Iodides*. The article on *Hydrogen* is particularly good; as are all those relating to Chemical Neology.

Decandolle's Prodomus, Vol. XV., is out, and contains Lauraceæ, Begoniaceæ, Datiscaceæ, Papayaceæ, Aristochiaceæ and Stackhousiaceæ. It is a work of wondrous labour, very skilfully prepared, and to the student of Systematical Botany priceless.

Books Received.—Parts 4, 5, and 6 of *A History of the World*, by Philip Smith, B.A. Having already expressed a very favourable opinion of this work, and having moreover given a few extracts from the first numbers, to show how the author was carrying out his plan, and the way in which he brings modern information to bear upon his subject, we need say nothing further than this, that the three new Parts before us fully maintain the high character we had previously formed. The condensation required in order to bring this history within reasonable compass imposes a restraint, which is perhaps more felt in the three latter than in the three former Parts; for these treat of comparatively barbarous nations, but those of the refined and intellectual Greeks, and the country which was the cradle of all that is most beautiful in art and literature. The three Parts before us contain the history of Greece traced through the mythical age, the Hellenic States and colonies, and the Persian wars, and carry us on through the rivalries between the Greek republics to the battle of Mantinæa, which finishes the first volume. Plans of Marathon, Salamis, and Platæa are given in one Part, and maps are promised to accompany the next.——*A Manual of Diet and Regimen;* by Horace Dobell, M.D. The physician is constantly asked a multitude of the most common-place questions respecting the management of his patient, and has to go over the same wearisome course 50 times in a day, and still he finds that he has omitted to mention some things of importance. To obviate this inconvenience, Dr. Dobell has drawn up a few simple rules for the clothing, sleep, meals, and diet of his patient, and for warming and ventilation, &c., which are to be observed in all cases, unless the physician writes "No," in the margin, against anything not suitable for any particular case. Tables of diet are drawn up under the care of Mr. Farrants, an eminent chemist and authority in such matters, so arranged that the right proportion of flesh and bone and fibre and fat-producing substance should be taken, and the medical man only writes "No" against any food which he may object to, such as pork or veal, or turnip; any mode of cooking food, as for instance baked, or fried, or salted, or any table of diet. The notion is not a bad one, except that some doctors would be sure to write "No" against almost every item in the book.

Miscellaneous.

Dropmore.—On Monday last there died a lady whose life had been so prolonged and whose career had been so much associated with long bygone events that, though cheerful and active, in the full enjoyment of all her faculties, and with a keen interest in passing events, her existence was almost forgotten. Lady Grenville, only daughter of the first Lord Camelford, born in London in 1772, and married 20 years later to Lord Grenville, died in London last Monday, 92 years afterwards. Her last appearance in public was on Saturday last, when she seemed to be in her accustomed health and spirits. She was taken ill the same night, and only survived till Monday. Her large estates are left, in accordance with the wish of her husband, Lord Grenville, who died not less than 30 years ago, to the Hon. George Fortescue, brother of the late and uncle of the present Earl. Her memory will long be dear to all who knew her beautiful place at Dropmore, the glorious Conifers growing there, and the kind manner in which the public was admitted to examine them.

Transporting Roses to India.—As the importation of exotics from the best nurserymen not unfrequently fails, occasioning considerable loss and disappointment to Indian horticulturists, it may be worth mentioning that an experimental consignment of Roses from Edinburgh reached Lahore last season in excellent order. The facts connected with their transport were as follows:—Mrs. Prinsep wrote to Scotland for a selection of Roses; these, to the number of 36 plants, including eight varieties, viz., Scarlet Moss, Mrs. Bosanquet, Cloth of Gold, Madame Williams, Aimée Plantier, Yellow Straw, Common Moss, and Cabbage, were packed in August by Mr. M'Nab, I believe, of the Royal Botanic Garden, Edinburgh, and transmitted by screw steamer, *viâ* the Cape to Calcutta, reaching Lahore early in January. The case was a simple but thick deal box, without tin lining for outer covering, and the cavity was about a foot square. The cuttings, with rootlets attached, were about 10 inches long, and were closely packed in dry Moss (Sphagnum), six in a row, separated by four wooden partitions, extending half across, alternately from either side. When this box was opened, 15 of the Roses had died by desiccation, but 19 survived, and had thrown out rootlets in transit; these were from 2 inches to 1½ inch in length. The cuttings were potted and placed in a lower room for four days, where the direct rays of the sun could not reach them. Twelve vigorous plants of this consignment were lately shown to me in Sir Robert Montgomery's garden; two of them have flowered. Some of the Roses have been sent to Murree and some to Dalhousie. The success which attended this experiment is encouraging, and the same mode of transport is worthy of trial with regard to fruit and ornamental trees. Dr. Jameson reports that on one occasion, 75 per cent. of plants thus packed reached the Saharunpore garden in good order. *Dr. Cleghorn, in Proceedings of Botanical Society of Edinburgh.*

Cusso, Kusso, or Kousso.—This is an article which is entirely new to a Pharmacopœia published in the United Kingdom. It has been likewise introduced into the secondary list of the Materia Medica of the recently issued United States Pharmacopœia. The plant which yields it is Brayera anthelmintica. It belongs to the natural order Rosaceæ. The flowers only are officinal, and are directed to be obtained from Abyssinia. The flowers are described as "small, reddish brown, on hairy stalks, outer limb of calyx five-parted, the segments ovate, reticulated." The segments are, however, not ovate, as thus stated, but oblong, or oblong-lanceolate, as may be seen by the drawing. They have a fragrant balsamic odour, and their taste is at first but slight, although ultimately somewhat acrid and disagreeable. The flowers have been found to contain a small quantity of a peculiar volatile oil, bitter acrid resin, two kinds of tannin, and a substance called kwoseine, and other matters of no importance. The medicinal properties appear to be essentially due to the bitter acrid resin, and doubtless to some extent, to the volatile oil and tannin. M. Pavesi, and subsequently M. Vée, have obtained a principle from Kousso, which they have termed koussine, and which they describe as yellow, bitter, and uncrystallizable. Is this the active principle? Kousso has been in use as an anthelmintic in Abyssinia for more than two centuries, and it is very highly valued in that country. It was introduced into Europe about the year 1847, and when first tried in England, France, Germany, and Switzerland, great expectations were raised as to its valuable medicinal properties. More recent trials, however, do not tend to confirm the extravagant notions then formed, and hence we regard this remedy as still upon its trial, and one which was well worthy of being placed in a secondary list of the Materia Medica, but scarcely in so prominent a position as it has obtained in the British Pharmacopœia. The conflicting results which have been experienced from the employment of Kousso are doubtless, in part, due to its varying age when administered, as its properties appear to be sensibly depreciated by keeping. The

only officinal preparation is the infusion, which should be taken in the morning fasting, and the last meal of the previous evening should have been slight. *Prof. Bentley in Pharmaceutical Journal.*

The Manchester Field Naturalists' Excursion to Middlewood.—On Saturday, the 14th of May, this Society selected the above romantic district for their first excursion this season; and although Disley and Middlewood are now familiar to most of the members, yet their attractions are always sufficient to bring a numerous party. Glimpses of Middlewood may be had by the traveller as he passes along the Buxton line. It is situated chiefly on the west side of the railway, between Hazel Grove and Disley. For visitors from Stockport or the neighbourhood, the pleasantest plan is to take the rail to Disley, then alight, and at once start off for the wood, which is reached after a pleasant walk through some half-dozen meadows. Arrived there, abundant work will be found for the most industrious naturalist, and if the object be only to enjoy a pleasant walk we venture to assert that this will be found one of the most attractive in the neighbourhood. At this season the wood is one rich carpet of wild flowers, the wild Hyacinth, Lychnis, Sweet Woodruff, Forget-me-Not, and others, being mixed with luxuriant tufts of Ferns. In this wood may be found the Beech-Fern (Polypodium Phegopteris), and near the water-wheel at the south end the Hart's-Tongue (Scolopendrium vulgare) grows very fine. It may be well to remind our readers that the Sweet Woodruff (Asperula odorata) gives a delicious aromatic fragrance when dry. It is well worth the trouble of collecting a handful for the handkerchief drawer. The common English snake (Natrix torquata), which is quite harmless, may frequently be found in Middlewood. It is most abundant near the water-wheel, amongst the old mines. No danger need be feared, as this snake cannot bite, having no teeth that can harm, and it is also without venom. After a couple of hours spent in the wood the company passed on to the Red Lion Hotel, Hazel Grove, where tea was provided. After tea the custom of former seasons was again adopted, and L. H. Grindon, Esq., the Honorary Secretary, was invited to address the members. He said it was very refreshing to ramble forth into the fields once more and commence the enjoyment of a season which seemed so full of promise. He must congratulate the members on the increasing prosperity of the Society. This had been abundantly shown by the crowded meetings they had witnessed during the winter, when, as they all knew, some of the *soirées* were so numerously attended, that the committee had had to turn their attention to the importance of obtaining more extensive accommodation than that which was afforded at the Athenæum Library Hall. He would call their attention to a paragraph in the circular which was well worth being put into practice. It read as follows:—"It has been suggested to the Committee that members who join in the excursions might add to the beauty and interest of the country round Manchester, by taking with them any surplus roots and seeds they may possess, especially of native plants brought from a distance, and also living fresh-water mollusca, and depositing them in places where they would be likely to become permanently established. No confusion would be caused, since the Flora and Fauna of the neighbourhood are now both well-known, and the introduction of new species would be a set-off also against any possible lessening of the abundance of those produced spontaneously. Members are invited to collect seeds, &c., for this especial purpose when at a distance from home, and also to enrich the neighbourhood by a judicious sowing of the seeds of exotic plants." Now, if the members would carry out these suggestions they would make up for anything they might gather, and they would also have the pleasure of looking forward to another season, when the spots visited might be expected to give some evidence of the "seed scattered by the way." Considerable efforts had been made late years to naturalise plants, and with great success. No danger need be anticipated that our flora would be in any way confused through bringing in new plants, as nothing absolutely original would be likely to be propagated, and it would be a source of pleasure if, years hence, we could visit some of our favourite walks, and find plants which had sprung from seeds of our own scattering. The lecturer then described the botanical peculiarities of various plants which had been collected, including the wild Cherry, Mercurialis, Adder's Tongue, and others. He alluded to the appearances of plants at different seasons guiding the operations of the farmer, and sometimes the horticulturist, as, for instance: if the Ash-tree is in full leaf, we may put our greenhouse plants out in the open air; and so, when the Ash-tree loses its leaves, we must not delay taking all tender plants in-doors. *Manchester Paper.*

Calendar of Operations.

(*For the ensuing week.*)

As has been previously observed, see that sickly or badly rooted specimens, if any, are kept free from red spider; also that young stock is not allowed to suffer from want of pot room, and during bright weather attend carefully to watering, giving weak liquid manure to all plants in free growth that are likely to be benefited by it. Such stove plants as may have been removed to conservatories or greenhouses while in bloom should be replaced in heat as soon as their beauty is over, in order to permit their young wood to get ripened before short days set in.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors trimming, staking, and pegging down must be well followed up at this period where neatness and order are essential. See that sufficiently strong stakes are applied to plants with heavy foliage. Keep Roses as much as possible free from insects, and if time can be spared dead blooms should be removed.

AZALEAS.—Shift any of the young growing plants that require more pot room, give plenty of air, shade in hot weather, and syringe daily. Set plants that have done growing out of doors, in some airy situation—to rest and harden their wood.

AURICULAS.—These should be kept quiet and cool. Green fly is very troublesome at this season; to destroy it effectually, fumigate several nights in succession.

CARNATIONS AND PICOTEES.—If a cool shady border can be spared it will retard the early kinds, thereby getting all in at one time, if desired, or the late ones may be kept some time in this manner.

CALCEOLARIAS.—Shrubby and half shrubby kinds that have flowered may be cut back, and placed in a cool place, partly shaded, to make cuttings.

CINERARIAS.—Those that were cut down early will now be throwing up suckers. Take cuttings, as soon as ready, and insert them in small pots in a nice sandy compost; place them in a cool frame or under a hand-glass; keep them close and sprinkle occasionally to prevent flagging; pot off as soon as rooted into a light compost, composed of two parts loam and one leaf-mould; add sand liberally. Sow seeds in a shady situation, and prick off as soon as the plants are large enough to handle.

CAMELLIAS.—Plants on which the bloom buds are forward, and that do not require shifting, may be set out of doors in a shaded situation. Shift all that require it. Syringe daily in hot weather.

DAHLIAS.—A constant attendance to watering and securing the young plants from wind is all that will have to be done for a few weeks. Towards the end of the month thinning of the side shoots and mulching the plants with rotten manure will have to be done. Commence destroying earwigs, before there are blooms for them to disfigure.

POINSETTIA PULCHERRIMA.—This is so much admired during the winter months, that too much care can scarcely be bestowed on it. Plants of it may now be partially dried off preparatory to their being cut down. As soon as the young shoots have fairly started again, let the plants be taken out of their pots, their balls reduced, and repotted in the same sized pots as before. When the latter are filled with roots, a last shift into 9-inch pots may be given They may then be placed in a cold pit, and kept close for a short time, after which air may be freely admitted until the beginning of September, when they should be replaced in the stove. The great point is to get the wood well ripened; that secured, a fine display of large brilliantly-coloured floral leaves may with confidence be expected.

FORCING GARDEN.

MELONS.—In the case of fruit ripening, a dry airy temperature must be kept up to ensure high flavour. Keep the shoots of succession crops thin, pinching off in time all extraneous growth. In watering great caution is necessary; where the fruit is approaching maturity cover the surface of the bed with flat tiles or slates to prevent evaporation.

ORCHARD HOUSE.—Persevere with syringing twice daily; attend well to watering; give plants that are well rooted and in small pots liquid manure three times a week; stop the shoots and remove all that are superfluous; give all the air possible.

PINES.—Air should now be given liberally to young stock. The plants should not, however, be exposed to drying winds by giving back and front air while the temperature is below the average, as it is at present, for that would not serve the end in view; but a moderate circulation should be secured whenever the weather is favourable. This, with careful attention to the state of the roots, keeping the bottom heat regular, the soil in a nice healthy state as to moisture, and giving a liberal supply of manure water to such as are well rooted, will be found much more conducive to robust growth than exposing the plants too freely, which would probably check and throw them into fruit prematurely.

VINES.—See that bunches for use late in the season are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the Vines. Where the fruit is swelling, be careful to maintain a moist state of the atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary, use good strong manure water. Give abundance of air where the fruit is colouring, and do not allow plants in pots to remain in the house to cause damp. Where the fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible; but a little fire heat will probably be necessary occasionally in order to keep the atmosphere dry.

HARDY FRUIT AND KITCHEN GARDEN.

Attend to previous directions in regard to the thinning and stopping the young shoots of all trained fruit trees, and now make the final thinning of Peaches and Nectarines, of course leaving the heaviest crop on the most vigorous trees and strongest branches. As a general rule, no two fruit should be left together. Plums of the large kinds, as well as the finer sorts of Pears, should also be thinned if the crop is too heavy. Young Peach and Apricot trees, when making over-vigorous leaders, should have the points of the branches shortened, to encourage them to make other shoots less vigorous, and of a fruitful character; this will obviate the necessity of shortening them back at the winter pruning.

LETTUCES.—These are everywhere very fine this year. Continue to plant out from early sowings, and to keep up successional crops.

PEAS.—A sowing or two of these should be made; Veitch's Perfection, Ne Plus Ultra and Victoria are good kinds.

SCARLET RUNNERS.—If not already done, sow at once for a main crop; also a good breadth of French Beans.

STRAWBERRIES.—These will require attention. Layer the runners intended for pot culture early, as well as those required for making new plantations. All spare runners may be cut away, and keep the plants free from weeds.

WINTER GREENS.—One of the most important operations in the kitchen garden is to see that there is a good breadth got in of Brussels Sprouts, Savoys and Broccoli for autumn use; therefore if these are not already planted they must be got in at once. The main plantings, however, to stand through the winter will be better deferred for a week or two yet; as when put in too early the plants become gross, and are much more liable to suffer from frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending June 15, 1864, as observed at the Horticultural Gardens

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 9	5	29.937	29.797	73	39	56.0	61½	58½	S.W.	.00
Friday 10	6	29.880	29.872	78	40	59.0	61½	59	W.	.03
Satur 11	7	29.93₂	29.757	72	39	55.5	61½	59	W.	.60
Sunday 12	8	29.797	29.725	73	41	57.0	61½	59	W.	.06
Mon. 13	9	29.615	29.578	69	35	52.0	61	59	W.	.46
Tues. 14	10	29.587	29.464	70	47	58.5	60	59	S.	.08
Wed. 15	11	29.709	29.495	72	39	55.5	60	59	S.	.16
Average.		29.778	29.669	72.4	40.0	56.2	60.8	59.0		.79

June 9—Very fine, cloudy and warm; cool at night.
— 10—Very fine throughout; dry air with brisk wind; slight rain.
— 11—Light clouds and fine; very fine; cold at night.
— 12—Light clouds; very fine; rain at night, and cold.
— 13—Overcast; heavy showers; thunder-storm; fine; rain; cold at night.
— 14—Very fine; clouds in dense dark masses; rain.
— 15—Cloudy, heavy showers; rain and some hail; fine, but cold at night.
Mean temperature of the week 3½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending June 25, 1864.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19 .	70.9	49.2	60.0	21	0.62 in.	2	3	3	2	4	15	6	3
Mon. 20..	72.1	49.1	60.6	18	0.46	2	4	2	2	6	11	9	2
Tues. 21..	73.8	51.0	62.4	16	0.68	1	5	4	3	1	19	4	1
Wed. 22..	73.4	49 5	61.5	16	0.59	—	3	2	1	2	16	9	5
Thurs. 23..	72.3	47.3	59.8	15	0.44	1	2	4	1	3	17	5	5
Friday 24..	73.8	49.3	61.6	15	0.72	1	3	4	1	2	15	9	3
Satur. 25..	72.7	49.6	61.1	19	0.72	—	2	6	2	5	13	6	4

The highest temperature during the above period occurred on the 19th and 22d, 1846—therm. 93 deg.; and the lowest on the 23d, 1851—therm. 35 deg.

Notices to Correspondents.

DECIDUOUS FOREST TREES: *A B C.* Cut their roots now. Thanks.

GRAPES; *D A.* The Grapes arrived in a state quite unfit for examination. All that we can say about them is that there is no mould on them, and that it (the affection) appears to be that form of shanking which attacks young bunches, sometimes even before the flower has well fallen. We have little doubt that the fault lies in the condition of the roots. All shanking we believe arises from that source, while rust is due to atmospheric conditions.—*J W.* Your former letter must have miscarried. Your present contains no details, but only four or five brown withered Grapes with the glands on the stalks much exaggerated. It does not seem to be any form of shanking. *M J B.*

KILMARNOCK WILLOW: *Ignoramus.* It will not live in dry chalky soil, which yours seems to be, as far as we can judge from that part of your writing which we have succeeded in decyphering.

NAMES OF PLANTS: *H Coggeshall.* Pyrus Aria, the Beam Tree.—*J B.* Don't know; no flower or other evidence.—*F M K.* The specimen has been accidentally overlooked, for which we sincerely apologise. It is a leaf of some Echium, not nameable without flowers.—*Urbs intacta.* 1, Holcus lanatus; 2, Poa trivialis; 3, Vulpia bromoides.—*Amateur, Doncaster.* 1, Arenaria ciliata; three other specimens *without numbers* consisting of two Saxifrages, indeterminable without much better specimens, and a wretched morsel of Œnanthe peucedanoides.—*E W H.* 1, Kennedya monophylla; 2, Habrothamnus fasciculatus; 3, Callistemon speciosus; 4, some Asperula: but we must ask for a better specimen, and in fruit.—*Gertrude.* Chiococca anguifuga, *not* densifolia—the Cainca of the Brazilians, a plant with powerfully diuretic roots.—*Lymington.* Jasminum gracile.—*A 20-years Subscriber.* 1, Ornithogalum aureum; 2, Linaria purpurea; 3, Erica melaleuca.

ORCHARD HOUSES: *A B.* No answer worth having can be possibly conveyed through the columns of a newspaper. We most strongly advise you to consult some one of the many very skilful hothouse builders of the day.

RHODODENDRONS: *H C.* Your seedling white is a very handsome variety.

ROSE LEAVES: *Amateur.* Your leaves are attacked by a parasitic Fungus, *Æcteroma Rosæ.* This Fungus originates beneath the cuticle, and we know of no means of stopping its growth. *M J B.*

MISC.: *R S G.* No man living understands those things better than Sir Wentworth Dilke.—*Cork.* It is very possible that the beautiful variegation in your Potato leaves may be constant. If so they will be interesting to lovers of such accidents. Be sure and let the tubers be thoroughly well ripened, and do not on any account allow the leaves to be pulled off.

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Offices: 109, Fenchurch Street, London, E.C. Manufactory: Plaistow, Essex.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

A MAGNIFICENT FIELD OF
Pure White Canadian Seed Oats, at
MR. HALLETT'S MANOR FARM, BRIGHTON within 200 yards of St. Mark's Church, Kemp Town), is now OPEN to INSPECTION. This Field adjoins the Lodge (at the entrance gates of the Manor House), where a sample of the Oats sown may be seen upon presenting Card with Address.
These Oats were raised from a very fine sample in 1862, which was hand-picked 27 times, and weighed 48 lb. the imperial bushel. They were drilled (3 bushels per acre), on the 24th February, 1863, cut July 20, and yielded on a very thin poor soil upwards of 80 bushels of Oats, and 185 trusses (36 lb.) of most excellent feeding straw per acre; while the ordinary Black Tartarian Oat, on the other part of the same field, ripened a fortnight later, yielded of grain a less crop, weighing 25 per cent. less per bushel, and of straw 120 trusses per acre.
The Canadian Oats were again hand-picked, to ensure *perfect* purity, and drilled on the above field February 17 of this year. Upon the same field, 1863:—

	Kernel.	Husk.	
Canadians	69.43	30.57	per cent.
Tartarians	70.79	29.21	

LAND DRAINAGE.—WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRINAGE and IMPROVEMENT COMPANY, on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.
Repayment may be made by the Landowner as successive portions of the Works are completed, or the outlay and expenses may be charged on the estate by way of rent charge created for such a term of years as the Landowner shall determine will best adapt the annual payment to the circumstances of the tenants.
No investigation of title being required, or notices given to reversioners or mortgagees, no legal expenses are incurred.
Works of irrigation, enclosing, wood-grubbing, road-making, and farm buildings are executed in a similar manner.
Landowners desirous to execute any of the improvements by their own agents, and charge the outlay and expenses on the Estate, may obtain loans for the purpose.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
Deputy-Chairman—WILLIAM PORTER, Esq., Hembury Fort, Honiton.
TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE MIDLAND FARMERS' CLUB.—The FIRST GENERAL MEETING of the MIDLAND FARMERS' CLUB will be held at the Odd Fellows' Hall, Temple Street, Birmingham, on THURSDAY, June 23, at 2 o'Clock.
Subject for Discussion:—"The PRESENT POSITION and FUTURE PROSPECTS of ENGLISH AGRICULTURE," which will be introduced by R. C. CHAWNER, Esq., the President.
A DINNER will be provided on this occasion for Members of the Club at the Acorn Hotel, Temple Street, at 4 o'Clock punctually. Tickets, 2*s.* 6*d.* each, exclusive of Wine. An Early application for Tickets, at the Bar of the Hotel, is particularly requested.
Members will be enrolled on the day of the Meeting, for which purpose the Secretary will attend at the Cattle Show Offices, 13, Temple Street, from 12 until 2 o'Clock.
June 11. JOHN B. LYTHALL, Secretary.

GREAT EASTERN RAILWAY. ESSEX AGRICULTURAL SHOW at HARWICH, THURSDAY, June 23.
On JUNE 22 and 23 RETURN TICKETS at SINGLE FARES will be issued to HARWICH from London, Maldon, Braintree, Haverhill, Sudbury, and all the intermediate Stations, available for the Return Journey up to and including FRIDAY, June 24.
On THURSDAY, June 23, ADDITIONAL TRAINS will be run as under:—
A SPECIAL TRAIN will leave London at 8.30 A.M., for Harwich, calling at Stratford, Romford, Brentwood, Ingatestone, Chelmsford, Witham, and Kelvedon, in connection with Trains from Maldon and Braintree, returning from Harwich at 8.15 P.M.
A SPECIAL TRAIN will leave Sudbury at 8.40 A.M., calling at Bures, Chappel, and Mark's Tey, and in connection at Chappel with a Train from the Colne Valley Railway; returning from Harwich at 8.30 p.m.
A SPECIAL TRAIN will leave Colchester at 9.0 A.M. for Harwich, calling at the intermediate Stations; returning from Harwich at 7.0 and 9.20 P.M.
On the Down Journey Passengers will be enabled to alight at Dovercourt, but on the Return Journey they will have to start from the Harwich Station.
Horses and Cattle will not be conveyed to or from Harwich by Passenger Trains.
The 9.10 A.M. Train from Manningtree to Harwich, and the 11.0 A.M. Train from Harwich to Manningtree will not run on Thursday, June 23.
London—June 18. By Order, J. B. OWEN, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND. MEETING at NEWCASTLE, 1864.
The LOCAL EXECUTIVE COMMITTEE have arranged for a Registry of Lodgings and other Accommodation for Visitors to Newcastle during the Show, to be kept by Messrs. C. BROUGH, Academy of Arts, Blackett Street, and G. MURAS, 4, Northumberland Street, to whom applications must be made.
R. DODDS,
E. I. J. BROWELL,
WALTER JOHNSON,
JACOB WILSON,
} Hon. Local Secs.

The Agricultural Gazette.

SATURDAY, JUNE 18, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June 22	Royal Agricultural Society of England (Dr. Voelcker)	Noon
THURSDAY, — 23	Gloucestershire Agricultural Society at	
FRIDAY, — 24	Cheltenham.	

THE utmost agricultural exhibition which all England could achieve by means of its National Association, 20 years ago, was gathered together in a small field behind the Victoria Rooms at Clifton. Now, the Agricultural Society of a few western counties, when it holds its annual meeting in the same locality, has to enclose a large portion of the adjoining Durdham Down, where it covers many acres with four-fold the number of agricultural implements shown in 1843, with as fine a show of Herefords and Devons as was ever gathered together, with an excellent show of Shorthorns, and with a fair display of our various breeds of Horses, Sheep, and Pigs.

In addition to all this there is a collection of pictures and of works of art, of lace, &c., the manufacture of the West of England—a poultry show—and a magnificent horticultural display. Surely never did entrance fee command a greater variety or extent of enjoyment and instruction, suited to the tastes of visitors from either town or country.

The Bath and West of England Agricultural Society, the oldest institution of the kind, dating from 1777, had gradually dwindled until, 14 or 16 years ago, it was in the predicament of administering a prize fund of barely more than 100*l.* per annum, and of being dependent upon the efforts of a very few old friends. In 1850 Mr. T. D. ACLAND published a letter to Mr. W. MILES, M.P., advocating a proposal for the establishment of annual agricultural meetings, to be held successively in different towns of the West of England. The English Agricultural Society had held a successful meeting in Exeter, and the farmers of the West had benefited by the inspection of implements by GARRETT, HORNSBY, CROSSKILL, RANSOME, and other manufacturers; but—"when would they meet again?"

At Taunton, in 1852 the Bath Society, now called the Bath and West of England Society, held the first of its migratory meetings for the purpose of thus collecting customers and manufacturers together. The first volume of its annual Journal was issued that year, and Dr. VOELCKER was appointed Consulting Chemist to the Society.

Since that year meetings have been held at various towns in the district, and in one instance at Cardiff, a town beyond the proper district of the Society—and with what constant success the following figures will declare:—

Date.	Town.	Entries of Live Stock.	Entries of Implements.
1855.	Tiverton	588	1107
1856.	Yeovil	519	1038
1857.	Newton Abbot	682	1106
1858.	Cardiff	686	960
1859.	Barnstaple	599	1127
1860.	Dorchester	599	1453
1861.	Truro	419	1121
1862.	Wells	419	1160
1863.	Exeter	567	1863

This year the entries of Implements exceed 2500, and those of live stock reach 545. The attendance which the show-yard has this year attracted is also unprecedented; and altogether the meeting rivals those of the National Society, not in the earlier years of its career, but in any of those which preceded its Chester meeting. The following was the attendance on the first three days of the week:—

Monday, paying 2*s.* 6*d.* each	2419
Tuesday, ,, 2*s.* 6*d.* each	4540
Wednesday, ,, 2*s.* 6*d.* each	11300

The sum received on these days thus amounted to 3072*l.* 4*s.*, as nearly as possible the same as was received on the first three days of all the four immediately preceding shows, at Exeter, Wells, Truro, and Dorchester, put together.

The Society may be congratulated on a most successful annual gathering. A report, in more detail, of its Bristol exhibition, is given in another page.

THE ROYAL AGRICULTURAL COLLEGE.

The following remarks were made the other day by Mr. R. Russell, of Leven, at the close of a short course of lectures there.]

I TRUST you will accept this imperfect sketch of the principles upon which a rotation of crops is founded as a token of my good will towards the success of this Institution. I am only sorry that my business prevents me from entering more minutely into the subject. I am glad, however, that I have had the opportunity of visiting the College and examining its working. It is a great privilege, I consider, that you enjoy in being educated where you can learn all that literature or science has as yet done for the art of cultivation. The greater part of the knowledge at present available can, I am persuaded, be picked up here with less expenditure of time and labour than in other institutions, where anything bearing upon agriculture must be taught in a very indefinite way. But in saying this I would by no means wish to over-estimate the advantages of the education which you acquire either in the lecture rooms or fields of Cirencester before you begin to put your knowledge to practical use. When you enter upon life and begin to manage land for yourself, you will find you have still much to learn as well as a little to unlearn—that the special peculiarities which determine the most economic systems of management in various localities demand careful study and consideration. It ought always to be borne in mind that the science, or explanation, of agricultural practices is still very imperfect, for were it otherwise the occupation of the chemist as an explorer were already gone. Indeed, it behoves every one to study the peculiarities of the systems of farming that are most generally followed in his own district. My experience has ever been that large farmers who have had a good general education, and have had their wits and observations sharpened by self interest, are guides that may be generally safely followed. Practical men, who have had no scientific training, may often confound causes and effects, but they seldom fail to grasp the substance of the matter. There is one thing that ought to be guarded against, namely, being puffed up with so-called scientific knowledge, and despising what may be the results of long accumulated experience.

There is a good deal said and written now-a-days on agricultural education, as if this were really a royal road to success in farming; no doubt if kept in its place it will bear good fruit, but the less conscious you are that you already possess any advantage over those with whom you are in after years to come in competitive contact, the more likely are you to turn the stores of solid information you have laid in to the best account. At the same time I do assure you that I am not disposed to undervalue the advantages which you have in studying here. On the contrary, having had opportunities of seeing the character and completeness of the education taught at Cirencester, I confess that I have envied the privileges of its recipients. As one of the examiners for the Highland Society's diploma, I, along with some of my coadjutors, have been struck with the rare proficiency of some of our diploma holders who were educated here. This fact so far satisfied me that this Institution is effectively answering the end its supporters have in view. For my own part I do not see any reason why you should not yearly turn out diploma holders by the dozen, instead of as at present in ones or twos; nor why many more of you should not take the Highland

ociety's diploma, were it to secure no other end than o show your parents or guardians that a good use has been made of golden opportunities. There never was so great a thirst or desire for agricultural knowledge as there is in the present day, and I do not know where it can be so well satisfied as at this Institution. Any honorary distinction which you have the means of acquiring here, will certainly be looked upon as a good omen or promise of your future success in life, as it will afford a strong presumption that you will display the same diligence in business as you have done at college.

I must candidly confess that the Highland Society, in imposing certain courses of study on its diploma holders, places this Institution at a disadvantage. For example, you may study agriculture practically here on the College Farm during your two years' course, but all this teaching is not recognised as practical teaching—over and above it you must remain other two years under the instruction of a practical farmer. Now, this I consider a mistake, for from what I have seen of the farm, I have no doubt you may learn the outlines of Cotswold farming as well here as on any other farm in the neighbourhood, and so derive from the practical teaching of the College, as much advantage as could be gained on any one farm elsewhere. If not—if your own farm is not a source of strength or profit to the Institution—in my opinion the sooner the connection between it and the College is dissolved the better; there is little advantage in doing anything by halves. On a Cotswold farm it is not to be expected that you can learn the Berwickshire or the Lothian system of farming, but only the very best management of the district.

The agricultural training in the University of Edinburgh does not aim at teaching two things—science and practice, which appear to one in some measure incompatible. The teaching there, however, has not been devoid of fruit. I have no doubt that such men as Mr. Caird, Mr. J. C. Morton, Professor Wilson, Mr. M'Lagan, and others, who attended the agricultural classes in Edinburgh, look back with gratitude to the instruction received there. In fact, agricultural education, like general education, ought to precede practical instruction. Many of you are sufficiently tasked with chemistry, agricultural engineering, as well as other branches of study which can be best learned here. My own opinion is, if you learn these well, you learn quite as much as can be expected of you. So much the more extensive or thorough your knowledge of the principles of agriculture becomes, so much the more likely are you to attain to eminence in carrying them out practically in after years.

The rudiments of the science of medicine, law, or any other learned profession, are taught in lecture rooms—but the lawyer only really begins to learn his profession when he begins to practise at the desk or at the bar—the medical man when he takes to the hospital or a regular town or country practice. So it is with the agricultural student, however liberal his education may be, over and above all his other acquirements. Skill and business habits must at last reign supreme, else all the rest will come to a poor account indeed. Practice can alone teach you these, but they will be all the more easily acquired after your minds have been exercised under so efficient a system of training as the permanent studies of this Institution afford.

I am very glad indeed that I have snatched a little time from business to visit this Institution. It has given me much pleasure to observe the order and discipline which prevails, and I have no doubt that in after years this will form one of the most pleasant and profitable aspects in which you will view your residence here. You have the best opportunity of acquiring the most liberal education, and from personal observation and examination since I came here, I am glad to find so many students far advanced in the knowledge of what relates to the art.

DR. ANDERSON ON PHOSPHO-GUANO.

AT a recent meeting of the East Lothian Agricultural Club, Mr. Hope, of Fenton Barns, intimated that he had applied to Professor Anderson, asking the following questions:—

1st. Do you consider phosphate in a soluble state manufactured from bones, or boneash, or coprolites, of equal value to those in phospho-guano, Baker's Island, Bolivian, Sombrero, or Kooria-Mooria guano treated with sulphuric acid? and is there any difference in the insoluble phosphates obtained from the same substances, and, if so, what?

2d. Are the phosphates in Peruvian guano, considering the fine state of subdivision in which they are found, and the source whence derived, of less value on the soil than soluble phosphates from mineral substances?

3d. Is the ammonia in bones and Bolivian guano of equal value to that in phospho-guano? If not, wherein consists the difference?

4th. Is the pure ammonia found in sulphate of ammonia of the same value as the ammonia in Peruvian guano?

5th. What would be the value of dissolved bones showing the following analyses:—

	I.	II.
Soluble bi-phosphate of lime	15.49	21.43
(Equal to ordinary bone phosphate rendered soluble	24.16	33.44)
Insoluble phosphates	8.52	4.88
Hydrated sulphate of lime	43.46	45 67
Alkaline salts	3.02	3.82
Silica	2.67	4 78
Organic matter, ammonia, and moisture	25.71	19.48
	100.00	100.00
Ammonia	2.75	0.64

If valued in the same way as phospho guano, when is it considered worth 11*l.* 15*s.* per ton?

6th. Is a manure obtained from boneash, Bolivian or Sombrero guano, with 35 or 40 per cent. of soluble phosphates, and 2 or 3 per cent. insoluble, of more value to the farmer than a manure made from the same substances with 20 or 30 per cent. soluble and 10 to 15 per cent. of insoluble phosphates?

The following is Dr. Anderson's reply:—

1st. Soluble phosphates derived from bones, boneash, and coprolites are chemically and mechanically identical, and ought therefore to produce the same effect in the soil. The point in which they do differ is in the cost of production. A ton of coprolites costs 2*l.*, or even as little as 1*l.* 10*s.* when large contracts are made, while a ton of boneash, containing the same amount of phosphates, costs about 4*l.* 10*s.*, and, the acid being the same in both cases, it is obvious that the manufacturer can produce soluble phosphates from the first at a much lower price than from the second of these substances.

2d. There can be no doubt that the value of a manure depends to some extent on its state of division, and the farmer shows his appreciation of the advantages to be derived from it by giving a higher price for bone-meal than for inch or half-inch bones. On this principle the phosphates of a guano must clearly be more valuable than those in inch bones or even in bonemeal; but I do not think they can be considered as valuable as soluble phosphates; for no mechanical subdivision, however great, can ever admit of the phosphates being so thoroughly incorporated with the soil as they can be when they are rendered soluble in water.

3d and 4th. These questions may be answered together, and I may state that I always have held, and still continue to hold the opinion that the nitrogen in bones, guano, and sulphate of ammonia is of the same manurial value, although in the last form it acts more quickly, and is therefore to be preferred when a rapid effect is desired. It seems to me that the experiments made last season by the Haddingtonshire Farmers' Club tend to confirm this opinion, and to show that the ammonia in Peruvian guano is as valuable as that in sulphate of ammonia. The question, however, is one which still admits of investigation in the field, and I have at present some experiments in progress which I expect will throw further light on the subject.

5th. As regards the value of the two samples of dissolved bones of which you give the analyses, it is not possible to give a definite answer without knowing the amount of organic matter they contain separate from moisture. Assuming, however, a fair proportion in both cases, and also that the manures are equally dry and well manufactured, we have then a case in which a valuation-table may be legitimately employed. In order that there may be no misunderstanding, I assume the average phospho-guano to contain, according to the analysis of Dr. Voelcker, 38.8 per cent. soluble phosphates, 2 insoluble phosphates, and 3.8 ammonia. Further, I shall select the values formerly in use for the different constituents of manures, except that I shall take 20*l.* per ton as the value of soluble phosphates in place of 30*l.* I need not enter on the discussion of the exact accuracy of these values, because it will be immediately seen that this is of minor importance for the use to which they are to be applied. According to this system, No. 1 must be valued as follows:—

24 tons	soluble phosphates, at 20*l.*	£483
8 ,,	insoluble, at 7*l.*	56
43 ,,	sulphate of lime, at 1*l.*	43
4 ,,	alkaline salts, at 1*l.*	4
10 ,,	organic matter, at 10*s.*	5
2.7 ,,	ammonia, at 60*l.*	162
	Price of 100 tons	£753

No. II. ON THE SAME PRINCIPLE.

33 tons	soluble phosphates	£668
5 ,,	insoluble	35
45 ,,	sulphate of lime	45
4 ,,	alkaline salts	4
0.6 ,,	ammonia	36
8 ,,	organic matter	4
		£792

PHOSPHO-GUANO ON THE SAME PRINCIPLE.

38 8 tons	soluble phosphates	£776
2 ,,	insoluble phosphates	14
36 ,,	sulphate of lime	36
2 ,,	alkaline salts	2
20 ,,	organic matter	10
3.8 ,,	ammonia	228
		£1066

By this calculation 100 tons of phospho-guano are estimated at 1066*l.*, but the price charged is in reality 1175*l.*; hence

1066 : 1175 = 753 : 829.

Consequently, if 11*l.* 15*s.* be the proper price of phospho-Peruvian guano, then No. I. should, if it is equally well made, be worth 8*l.* 6*s.*; and No. II., by the same mode of calculation, is worth 8*l.* 14*s.*

6th. I think a manure containing 35 to 40 per cent. of soluble phosphates made from boneash, Sombrero phosphate, or Bolivian guano, as a general rule more valuable to the farmer than one containing 20 or 30 per cent. soluble and 10 or 12 insoluble phosphates made from the same materials.

This is particularly true of a manure made from Sombrero phosphate, which is a purely mineral substance, so that its insoluble phosphates have but little manurial value. As under this head I understand you wish me to add to the information asked in your letter my opinion as to the value to the farmer of a manure made from these materials, containing 35 per cent. soluble phosphates, 3 or 4 insoluble, and 4 of ammonia, I may state that if dry and well manufactured, I think it worth to him about 10*l.* per ton. Of course, there will be more difference according to whether it be made from mineral matters or guano, in consequence of the greater value attaching to the insoluble phosphates in the latter case; but when their quantity is so small, this is not great.

There are several other respects in which my views have been misunderstood, and it has even been supposed that I consider it impossible to give an accurate estimate of the value of a manure. So far from entertaining this opinion, I believe it perfectly possible to do so, provided an accurate method be adopted. I have always pointed out that the valuation-tables formerly in use gave only an approximation, and were not to be rashly employed. In my "Elements of Agricultural Chemistry," published in 1860, I stated (p. 257) that, "strictly speaking, each individual manure should be valued according to a plan special to itself, and deduced from its own standard market price;" and again (p. 264), when explaining the use of valuation-tables, I said—"Although the data just given must always form the basis of the valuation of a manure, there are a variety of other circumstances which must be taken into account, and which gave great scope for the judgment and experience of the valuator. Of these the most important is the proper admixture of the ingredients and the condition of the manure as regards dryness, complete reduction to the pulverulent state, and the like. A certain allowance ought always to be made for careful manufacture; and, on the other hand, when the manure is damp or ill reduced, a small deduction (the amount of which must be decided by the experience of the valuator) ought to be made on account of the risk the farmer runs of loss from unequal distribution, and the extra cost of carriage of an unnecessary quantity of water." Finding that the valuation-tables, the use of which I thus explained, were rashly used and without the slightest reference to the points just adverted to, I published in the "Transactions of the Highland and Agricultural Society," in the end of 1862 or beginning of 1863 (not having the numbers by me while I write, I cannot give the exact date), a paper in which special reference was made to this point, and I stated that I no longer employed these tables, and explained the reasons which had induced me to abandon them. On referring to all I have written on the subject, I believe it will be found that my views have always been substantially the same. Whatever I have written has been for the purpose of guarding the farmer against misapprehension and promoting his interests to the best of my ability. *Thomas Anderson. To George Hope, Esq., Fentonbarns.*

STEAM CULTIVATION.

IN your Paper last week you gave us some extracts from Mr. Robert Ransome's paper on Steam Cultivation, and here is an extract from them:—

"The remarks made in the Royal Agricultural Society's Journal, reporting the trials of Mr. Fowler's draining machinery, at the Lincoln Meeting, attracted the attention of Mr. Smith, of Woolston, to the advantage of employing steam instead of horses to draw a peculiar form of cultivator. This gentleman had previously given great attention to the use of scarifiers drawn by horses, and was firmly persuaded of the superiority of that implement over the plough, if a suitable draught power could be provided. With these views he attended the Carlisle Meeting of the Royal Agricultural Society of England in 1855, and there gave to me an order for a windlass and a seven-horse power steam engine for steam tillage, to be designed by and made under the directions of Mr. Fowler."

Now, this is by no means true, for Mr. Fowler had nothing whatever to do with the engine. I contracted with Mr. R. Ransome for one of the Messrs. Ransome's ordinary seven-horse power engines, to be delivered by the 11th of October, 1855, and to be paid for ready money; and after an introduction to Mr. Fowler by Mr. R. Ransome, I contracted with the former gentleman to supply me with a windlass according to a direction I then gave to him, viz., two drums to be strongly framed together, to be put in motion, one in one direction and the other in the other, by a pinion to be driven by a steam engine, to be supplied by the 11th of October, 1855, and paid for ready money. Here is some positive evidence upon the point.

In answer to some inquiry about the windlass, Mr. Fowler wrote thus: "Oct. 8, 1855. I fear the tackle will not be ready before the end of the month. I was at Ipswich on Saturday and they promised it in about a fortnight." By this I saw that Mr. Fowler was employing the Messrs. Ransome to make the windlass. In a few days after the receipt of this I received the engine, and at once forwarded my money according to the contract, and at the same time I inquired about the windlass. On the 23rd Oct. 1855, the Messrs. Ransome sent a receipt for the money for the engine, and write this about the windlass: "We are making some tackle under the direction of Mr. Fowler, to whom we would refer thee." You see that they would not acknowledge me as a customer. This flatly denies Mr. R. Ransome's statement that I gave the order to him, but to make the case more clear I will go on.

On the 28th of December, 1855, Mr. Fowler wrote thus:—

"I am much obliged by your cheque for 78*l.* on account of steam windlass."

On the 2d of February, 1856, the Messrs. Ransome sent to me an account of 127*l.* 10*s.* for a windlass, two anchors, and three snatchblocks. This windlass, two anchors, and three snatchblocks, with some rope,

was what I had for my 78*l.*, the sum for which Mr. Fowler contracted to supply them.

You see that although the Messrs. Ransome deny me as a customer on the 23d October, 1855, they try to make a customer of me on the 2d February, 1856. I informed them at once that I had nothing to do with them, and that it was Mr. Fowler with whom I had contracted to supply the windlass. Here is their reply to my letter:—

"Feb. 23d, 1856.

"We are obliged by the favour of the 21st respecting account, and have written to Mr. Fowler on the subject."

There the matter ended with them, and so it did with Mr. Fowler, for I had paid him the 78*l.*, the sum of my contract, and I paid him no more, proving clearly that I stood by my contract, and that it was Mr. Fowler to whom I gave the order for the windlass. His after conduct towards me was not such that would be likely to induce me to give more than my contract.

I must now tell you that the windlass supplied had to be completely overhauled before I could work it; in fact, it was not in working order at all; new pulleys upon both the windlass and engine were required. The speed was too fast by half. The engine was completely mastered. The Biddle tried thus at Ipswich could not have done much, and you all know that two anchors and snatchblocks cannot work the roundabout, the Woolston system—turning the implement at the implement at the land's end; they never turned the Biddle with them. Then why does Mr. R. Ransome try to dispossess me of the credit of originating my Carlisle windlass? I did not make it, neither did Mr. Fowler make it; but I did originate it; for what purpose else did I go to Carlisle? I travelled to that place, 250 miles, for no other purpose. Mr. Thomas, then living at Liddlington, and Mr. Bennett, the Duke of Bedford's steward, travelled all the way from Bletchley station with me. On our journey there I explained to them what I was going to do, and told them that I would find some manufacturer or other who should make the windlass for me before I came back; therefore it is not creditable on the part of Mr. R. Ransome to try to deprive me of this little honour. The facts about it are plain; here they are.

My No. 3 cultivator was patented March 19, 1855; made and tried with horses in June, 1855. I travelled from Bletchley station to Carlisle, 250 miles, on the Monday of Carlisle Royal Agricultural Society's Show, on purpose to find some manufacturer to make for me a windlass. On my arrival at Carlisle, at 5 P.M., I went direct to the trial yard. The first person that I knew that I saw was Mr. R. Ransome. "Ah, Mr. Smith, what do you do here all this way from home?" was his inquiry. "I am come to buy a steam engine," was the reply. "Then," said he, "let us supply you with it." "Yes, but I want some windlasses for ploughing by steam power." After explaining to him the kind of thing I wanted, he said "Let us see Mr. Fowler." We met with him against the threshing going on. After an introduction I explained to him what I wanted, and told him that I should pay ready money for it, so that if it was good for nothing it should be my loss. The only stipulation was that the rope and tackle should be able to stand a 30-horse power pull. Upon this Mr. Fowler contracted with me at once. There was not a single word named as to who was to make it, and I expected that Mr. Fowler was to make it himself, for at that time I did not know that he had not works of his own. The tackle was supplied according to order in December, 1855, and paid for according to agreement; it now stands safe and sound under my shed, but before I could work it I had to regularly overhaul it, as well as have made a set of new anchors, and some additional snatchblocks, thus completely shattering Mr. Fowler's chance as to being the first to originate successful steam-cultivating apparatus: where was his cultivator or his plough? My No. 3 was in existence when I went to Carlisle, but he had nothing of the sort. Mr. R. Ransome tells us something about my working that "in February, 1856, I reported to the Society of Arts that with it I could scarify to a depth of 7 inches at the rate of 2½ acres per hour, and at a cost of 6*s.* 3*d.* per acre, exclusive of wear and tear, which I estimated to add one-fourth more to the cost. From that time to the present, and with slight modification of the original apparatus, Mr. Smith has continued to cultivate his own farm at Woolston with the most satisfactory results, and to introduce his system of culture by similar apparatus widely and successfully." Yes, and to prove the correctness of the latter part of the words quoted above about successful application, I will give a full report of my operations, and of this year's cropping on my farm:—

HEAVY LAND.

Field No. 1. In 1863, Clover fed on down to March, 1864. Steam cultivated once, 7*s.*; horse cultivated twice, 2*s.* each time. Total, 11*s.* per acre. Barley looking well.

Field No. 2. Clover being fed on.

Field No. 3. Steam cultivated once, 7*s.* per acre, and that the total cost for Beans. They are a full crop and look clean and well.

Field No. 4. Steam cultivated and drilled at one operation, cost 7*s.* per acre. Wheat looks well. No manure whatever used on this land except for Beans, and that nothing but straw and water, the straw the produce of the land the preceding year.

The total cost per acre for nine years on each of these fields has been, including steam and horse operations, No. 1, 3*l.* 16*s.* 10*d.*; No. 2, 3*l.* 17*s.* 4*d.*; No. 3, 5*l.* 14*s.* 4*d.*; No. 4, 5*l.* 3*s.* 10*d.* Nos. 3 and 4 were very rough at starting. They are all now very clean. I need not trouble you about the operations and cost on my light land; they have been equally cheap and successful; it is now well cropped and clean. Now, let my brother horse farmers divide the figures representing each field by 9, and tell me whether they could keep that land always in crop and clean at double that cost. Here then is enough to substantiate Mr. R. Ransome's statement about my success, but in future let him be more generous than to try to rob me of the credit of originating my Carlisle windlass. Fowler did draining, and that's all; he and Howard are followers of mine in steam cultivation. The former had nothing at Carlisle in the shape of steam cultivating apparatus; neither had he until long after my doings in Dec. 1855 and Jan. 1856, stated then at the Society of Arts. The latter we know all about, they claim nothing as original starters. To that extent they act fairly. *William Smith, Woolston, Bletchley Station, Bucks, May* 30, 1864.

HOW MUCH SEED PER ACRE SHOULD WE SOW?

THIS question can only be properly answered by each farmer on his own fields and in his own climate, after he has tried comparative quantities on those fields, under the same circumstances as to manuring, &c. But has each farmer tried comparative quantities either on a small scale or on a large one?

When in Hampshire the other day, a very extensive farmer told me that their quantity of seed per acre was Wheat, 3 bushels; Barley, 4 bushels; Oats, 5 bushels. This rather astonished me, but knowing that their land was light, I said, "I presume you have arrived at these quantities, after proper comparative trials." The colour came up into my friend's face, and he candidly confessed that he had not tried any other quantity, but followed the custom of the country. "Well," I said, "follow my example and feel your way down to a proper quantity by small comparative experiments, which will only involve a little trouble. Half an acre in each field will be enough for a comparative test." He promised to do so.

To show how seldom such experiments are made, I refer to the annexed dialogue which took place between myself and a large party of some of the best farmers in Cumberland in September last. This conversation proves unmistakeably that farmers, generally, have not tested the relative quantities by moderate experiments, much to their own loss and to the injury of their country.

Mr. Caird, who is a good authority, gives us only an increase of 8 for 1. That is, we sow 1 bushel or one kernel, and get nine in return.

I would defy any one to obtain so little as nine kernels from a good one placed in well cultivated and properly manured soil. I have now on my farm a very instructive instance of the proper quantity of seed per acre under varying circumstances. On a 13-acre field, 1 bushel of Wheat per acre, drilled after a Bean crop, appears to be the right quantity. On a Clover field adjoining, which produced in 1863, 3 tons of Clover hay per acre, was then top-dressed with shed manure, and when the after crop was sufficiently advanced was fed off by calves eating cake, &c., 1 bushel of Wheat per acre is far too much seed. On this field 1 peck per acre appears to be the right quantity; and although this may surprise many, it is quite open for inspection to any of my brother agriculturists who desire to see it, and will make the necessary application.

On four lands in this 7-acre field, I desired my labourers to dibble one kernel in a hole at intervals of 4½ inches, which is now the distance between each plant. Every kernel came up, and tillered so strong, that you may commonly find from 20 to 40 stems from each kernel, and although it looked thin when it first came up, it is now the thickest crop in the field, and it is the opinion of my labourers as well as of myself, that it will be the best half acre in the field. The dibble holes were made by a dibble given to me by Mr. Hallett, having a projecting collar to prevent the holes being deeper than 1½ inch. It is a great improvement on the ordinary dibble, as the point is small, and the dibble does not glaze or compress the sides of the dibble holes. Instead of a return of 9 for 1, I shall expect on these 4 lands a return of at least 200 for 1. It was dibbled in October. This experiment has strengthened my conviction that, according to our manuring and time of sowing, so must we vary our quantity of seed. In this case 2 pecks of Wheat, drilled per acre, would have been an ample quantity. I am of opinion, that the drills should be not more than 5 to 6 inches apart, so as to have the seed well dispersed.

On a field of Oats, after Tares and Cabbage, I have dibbled 1½ peck per acre against 8 pecks, and it is progressing favourably, although sown a fortnight later. Also on a field of Barley after Mangel a few lands have 1½ peck per acre against 6 pecks

Surely each farmer will ascertain for himself, irrespective of ancient customs, by a small comparative trial, what quantity suits his land best. That we generally sow too much seed for our modern high farming there can be no doubt. I said to an eminent brewer yesterday—"We shall have a fine Barley crop, I think;" he said—"I fear there will be too much Barley;" and, asking him the cause of his fear, he said—"Some of it is laid already, and it will be of inferior quality, unfit for malting."

There is great truth in this remark, for on comparing my crop with my neighbour's three years since, the difference in quality alone was 12*s.* 6*d.* per quarter. I sold mine for malting at 50*s.* His was sold for 37*s.* 6*d.* Barley was then dear. I sowed 6 pecks; my neighbour sowed 10 pecks.

I could multiply these cases extensively. Too thick sowing is a most serious loss to agriculture. My usual quantities are—Wheat, 1 bushel; Barley, 1½ bushel; Oats, 2 bushels; and as I farm more highly I must reduce my quantities. No one can lay down a rigid rule for all soils, climates, modes of farming, and varying seasons, but we may safely accept a few general principles:—

That very early sowing must be thinner sowing.

That very highly manured or naturally fertile land requires a smaller quantity of seed.

That cold elevated and late districts require a more ample seeding, although on cold, undrained, and weedy lands, a full crop cannot be expected.

That the quality of seed, whether arising from season or selection, has very much to do with the measure sown.

I know some farmers who sow tail or inferior thin seed. In my case, I not only dress it very close, but after getting it quite clear and free from light kernels, pass it through the blowing machine, so as to have only for my seed the very finest and heaviest kernels. In fact, to do with corn, what we do with cattle, begin with the right parent.

I certainly feel very much indebted to Mr. Hallett, for I adopt his plan of selecting first the finest ears, and then the finest kernels from those ears. Agriculture owes much to that talented and persevering gentleman, and I have some very fine Wheats, from seed raised from his stock—and I find no difficulty in selling his Wheat, weighing 65 lbs. per bushel; I find that it makes capital bread.

In conclusion, let us not forget that a bushel or acre in one county may mean 3 bushels or 3 acres in another county. In Carlisle a bushel means 3 imperial bushels, and Scotch, Irish, and Cheshire acres, are all much larger than the imperial acres to which this paper refers. How frequently a plant of young Clover is smothered and destroyed by a laid Barley crop. I remember a farmer near me getting so angry at losing his Clovers sown in Oats that he determined only to sow 1 bushel of Oats to save his Clover—not caring much about the Oats.

He told me to his surprise (but not to mine) that he had the finest crop of Oats that he ever grew. From a bushel of Oats dibbled I had a very fine crop of corn and straw. An Oxfordshire farmer looking at it said: "What a quantity of straw you have, Mr. Mechi; how much seed did you sow?" "One bushel." "Well," said he, "I sow 5 bushels! and have not so much straw as you have." At this I was not at all surprised, because I know that we get more weight of straw from thin than from thick sowing. *J. J. Mechi, June* 1864.

[The following conversation may here be quoted from a report of one of Mr. Mechi's public meetings in Cumberland:—]

Mr. Mechi.—I say to you, farmers of Cumberland, make the experiment for yourselves, and be convinced, for it is a very vital and important question for the British farmer and the British public. Let me ask you a question. How much do you think is the natural increase of ordinary crops throughout the kingdom for every bushel you put in of Oats, Barley, or Wheat! *Mr. Bogue.*—One hundred. *Mr. Mechi.*—You say a hundred. *Mr. Bogue.*—The Bible says so. *Mr. Jefferson.*—Seven. *A Voice.*—Eighty-eight to one. *Mr. Mechi.*—Mark you, one gentleman says seven, and another eighty-eight to one. This is a nice illustration. Any more opinions? *Mr. Bogue.*—Thirty to one. *Mr. Lawson.*—Ten. Some one else.—Ten. *Mr. Mechi.*—I see several long heads before me that have as yet remained silent. *Another Voice.*—Forty. *Mr. Gate* said they would get about fifty to one. *A Farmer* asked if Mr. Mechi meant the average of the county. *Mr. Mechi* said he would take that. *Several Voices.*—"About eight." "Twelve." *Mr. Bogue.*—Wnat grain do you refer to? *Mr. Mechi.*—Wheat, Barley, and Oats. I'll tell you my opinion by-and-bye. *A Voice.*—Six and three-quarters Wheat only. *Mr. Mechi.*—Does that gentleman alter his opinion about the eight-eight. The previous *Voice* —No. *Mr. Donald.*—Seven to one. Another *Farmer* said seven to one, and he had applied as much guano to his land as he had been paying rent. *Mr. Mechi*, after a pause for further replies, said.—I will tell you what Mr. Caird, who has collected statistics throughout the kingdom, says—that if you sow 1 bushel or one kernel you get an average of nine, counting the one grain in the nine. Mr. Jefferson, therefore, had guessed it to a nicety. The increase is eight to one. If any one put a perfect kernel of Wheat in the ground, do you think it would only produce nine? How many kernels do you count to the ear? Several *Voices.*—Forty. *Mr. Jefferson.*—I have seen fifty this year. Other *Voices* —Fifty-two. Fifty. *Mr. Mechi.*—1 have known them 110. Do you believe you can put a kernel of Wheat into the ground and that it will produce no more than nine? I ask that question. *Mr. Blackburn.*—It will produce above 100 on good land. *Mr. Mechi* —Does it not branch and tiller? *Mr. Blackburn.*—It would not produce so many without tillering.

WHAT IS "CONDITION?"—No. II.

IT has long been proved practically as well as theoretically that the most necessary ingredient in manures for roots and fallow crops is phosphorus (bone-dust) and minerals; for corn crops, ammonia or nitrogen. As, under the English system of alternate husbandry, the former are generally returned to the land in a great degree by the manure, and the latter is to a great extent dissipated by the growth of corn or removed by its sale, we will first confine our attention to the nitrogenous manures. We find from Mr. Lawes' experiments that under ordinary circumstances 5 lbs. of ammonia will produce a bushel of Wheat. We also

find that average land properly tilled and aërated will absorb yearly from the rain and the atmosphere sufficient of this substance to produce from 16 to 20 bushels of Wheat annually, *i. e.* from 80 to 100 lbs. of ammonia or its equivalent in nitrogen. Now, Prof. Voelcker and the chemists tell us that about 22 lbs. is contained in the annual rainfall, the rest must be absorbed from the atmosphere during the fallow season. And we have seen that the greater or less capability of absorbing or retaining this manure for the use of crops is a chief criterion of good or bad land.

If we take the average land of this country, worth about 1*l.* an acre, or 30*s.* including tithes, rates, &c., we shall find these rough estimates sufficiently accurate for our purpose. We start then with our land out of condition, but clean and capable of bearing after a corn crop some 16 to 20 bushels of corn. But the incoming tenant will not sow corn on a stubble. He has half his land either in fallow or fallow crop, roots or Clover, &c. He therefore takes to this half of his land with one year's ammonia already stored in it, and he therefore takes to it with two years' productive capacity, *i.e.*, irrespective of any manure, with a capacity of producing 30 to 40 bushels the first year. That this is borne out by facts I think proved—1st, by the general estimation of a clean fallow; 2nd, by the knowledge that Clover and roots abstract no ammonia from the soil, but rather increase it; 3rd, by a statement a fortnight ago made by Professor Voelcker, that he had found 80 or 90 lbs. o ammonia stored up in the roots of a thick crop of Clover. We may conclude then that an average agricultural crop of corn is double the amount of the natural productive power of the land, that is from 4 to 5 quarters, instead of 16 to 20 bushels; and that this extra produce is derived by the storage in the land of from 80 to 100 lbs. of ammonia, either naturallly or artificially. Mr. Lawes proves that 14 tons per acre of his farmyard dung, or 400 lbs. of nitrate or salts of ammonia, produce artificially a full agricultural crop. These contain, each of them, as near as can be ascertained, 100 lbs. of ammonia, therefore 100 lbs. ammonia on his land in addition to its natural capacity, produce an additional crop of 20 bushels an acre. We can go one step further. Professor Voelcker has shown in an able article on the prices of manures, that this ammonia can be purchased in guano or in nitrate of soda at 6*d.* the lb., so that 50*s.* worth of manure in value will produce these extra 20 bushels, and this at present prices is no bad return for the outlay. Now, if I have made my position clear thus far, I think I have arrived at the data from which to ascertain the value of farm-yard manure: the substance so called may have any value as a manure—from rotted straw, which has been washed all the winter in an open yard, to the best box dung. Mr. Lawes' farm-yard dung was worth, as above stated, 50*s.* for the 14 tons, or about 4*s.* per ton. I find analyses of well made dung varying from 10lb. of ammonia to 40 lb. per ton, or in value as above, from 5*s.* to 20*s.* I fear a great deal of dung, if analysed, would be found little better than rotten straw. Therefore, when a tenant takes to a heap of dung at a calculation, he is entitled to know, not the weight of straw and water it contains, but the amount of actual manuring matter or ammonia, of which the above straw and water are excellent retainers and absorbents, but little valuable for their own sakes. This value we will proceed to ascertain—excluding from our calculations the value of the straw, which is not to be taken off, but including all the manurial properties of the dung left in the yards, and the unexhausted value of any former applications beneficial to the future crops beyond what we have stated the incoming tenant to be entitled to, viz., a clean cultivated fallow. *J. B. M.*

PLUCK: MONEY: JUDGMENT.

MR. DAINE lately gave an address on these as the three requisites for taking and successfully managing a farm, before the Tarporley Farmers' Club. The following is an abridgment of his lecture. He said:—

1. I will reverse the order in which I have given them to you, and begin with Judgment. Now, suppose a farmer is about taking a farm, clearly he requires a certain, nay, indeed, a great amount of judgment, and the more so if he is about taking one of a different soil and in a different climate to that he has been accustomed to. Many great mistakes have been made by men going to take farms at a distance, and not understanding the climate or the capabilities of the soil, and following out that mode of farming which they had been accustomed to. It is well known that good Scotch farmers have soon altered their first views and modes of farming, not from any want of farming ability, but from the difference in climate, soil, custom of the country, as regards labour. And if most of our Cheshire farmers were to go to Scotland or the south of England, they would be equally out of their reckoning, in fact, we sometimes see men in almost the same neighbourhood quite at fault when going from a light-land farm to a stiff clay. Judgment, then, as to the soil and situation of a farm is of primary importance. If the farm is of a similar nature to that you have been accustomed to, you ought to have a good idea as to the yearly value; but if in a neighbourhood away, be careful, if possible, to consult some trustworthy and practical man living near such place. Being satisfied, then, as to the farm suiting you, the next consideration is the rent and other burdens, such as tithe, poor-rate, land tax, &c.

One very false guide, and one but too often taken by tenants, is the success of the last occupier. If a man makes money upon a farm, or leaves for a larger one, numbers will apply and be ready to take it, almost without viewing it, or asking the rent, whereas if a tenant or two breaks, or is poor, it is looked down upon as a poor farm, not worth taking, or which must be taken at a greatly reduced rent. As to letting farms by tender, we very strongly condemn the practice, as being neither to the interest of landlord or tenant. Every good farmer is not necessarily a good valuer of land; and we often find in this age of competition for farms, that those who have the least capital, and are not celebrated for ability or management in their own neighbourhood, will for the sake of getting a farm, go a distance away, and, well armed with testimonials—and perhaps one from their own landlord, who is only too glad to get quietly rid of a bad tenant—will offer more for a farm than they know it ought to be let for, trusting to their power of giving the farm a good whipping, for a change of fortune, when after a few years they are prepared to go away, and leave the farm ready for some poor wight, born with a silver spoon in his mouth, and who, having plenty of money and pluck, comes to dearly buy judgment. We have often heard the foolish remark made that landlords know too much about farming. We only wish they knew more; for if ever the saying is true that "a little knowledge is a dangerous thing," it applies in all its force to those landlords who know that every 3 acres of land will summer and winter a cow, every cow will yield 4 cwt. of cheese a year and feed a good calf too—that every acre of Turnips will give 30 tons—every acre of Grass 2 tons of hay—Oats, 50 bushels to the acre and 2 tons of straw; and those farmers who cannot come up to this standard, no matter the quality of their land, are deficient in the knowledge of their business, are clownish clodhoppers. No; give me a landlord who practically understands the risks, the expenses, the liabilities, the losses, and the anxieties, which a farmer every year of his life is subject to. At the risk of being thought non-progressive and one-sided, I will go still further and say that, if farmers' rents were to be adjusted according to the profits which landlords make from lands in their own occupation, with all the appliances of intellect, scientific acquirements, chemistry, steam ploughs, &c., the change would be in favour of the tenant. But, happily for both landlords and tenants, a better state of things is dawning, and landlords are beginning better to understand their own business, and to leave less to a third party.

Your judgment must also be brought to bear as to the capital required to stock such a farm as you are looking after. If you are about to take a poor worn-out farm, or one that requires a considerable outlay, and your landlord cannot, or will not, lay out the requisite capital, then clearly, as a matter of business and common honesty to yourself and family, you ought to have security for any money you spend in permanent improvements. Many suggestions have been made as to what is called tenant-right, but I think on reflection you will find nothing to work so well in practice, and to the mutual advantage of both landlord and tenant as long leases. If at the commencement of your lease you lay out your money in buying bones or other manures, draining, ridding up fences, &c., you know what length of time you have to regain your outlay with interest. Having then agreed upon the terms and taken your farm, your judgment will now have a wide field of action. If your farm be suited for a dairy, as the great majority of Cheshire farms are—especially in South Cheshire—then your chief business will be the selection of your cattle, and your judgment will be put to the test as to your knowledge of the milking properties of a cow. We would say buy such a stock as your land will carry. If your land be good, sound, rich land, then it will carry well-bred and large cattle; if wet or thin-skinned land, then Welsh, or Ayrshire, or cross-bred small cattle will be more suitable. But in any case select such as will fill your cheese-tub rather than adorn with their marbled beauty the butcher's stall. On poor or medium soils it is questionable whether any breeds will leave more profit than properly selected Welsh cows and crossed with a well-bred Shorthorned bull. It has been said by some that after the first cross from such stock, if continued to be crossed, they will begin to deteriorate. This I must question as requiring proof. I know a dairy stock which has been thus crossed for more than twelve years with good effect; and I know a farmer who a few years ago, when entering on a farm, bought nearly 50 head of cattle, the greater part of which were from Wales, and cost, when bought in April and May, about 11*l.* per head; the other part were Shorthorns, and cost from 16*l.* to 17*l.* each. The farm is only of very medium quality, and during the summer the Welsh beat the Shorthorns in milking; but the greatest difference was during the following winter and spring. The same food which kept the Welsh in fair store condition half-starved the Shorthorns, and during spring the Welsh fed good calves and did well afterwards; the Shorthorns had scarcely strength to calve, and the best part of summer was over before they got in condition, and of course made poor notes. But, whatever sort of cattle you buy, buy such as show a tendency to milk rather than feed, as experience will testify that your well-fed, thin-thighed, lean-fleshed cow will yield you from ½ cwt. to 1 cwt. more cheese during the season than your broad-breasted, thick-thighed, high-bred, showy cow. Let your judgment also be directed to the fact that, if you wish to make a large quantity of cheese, your cows, both before as after calving, must be kept up to the mark with proper nourishing food, so that after feeding good calves you may commence to make a large cheese; and to continue your good start, you must turn out to good dry pastures—well manured, and thus of good herbage. To keep up your make of cheese in the autumn, when Grass begins to fail, demands your special attention; and I know of nothing better or more economical than having a proper supply of common Turnips, grown after Rye and Vetches, early Potatos, or grown as a self crop.

2. *Money.*—We now come to the second part of our subject before mentioned—viz., Money or Capital, which is certainly an important commercial commodity. It must be owned that no definite sum can be named, because so much depends upon the other two requisites, but 8*l.* an acre is not a high estimate, although many do well with less, and some do badly with more. One with judgment and energy or pluck will make 20*s.* go as far as another deficient in these respects can make 30*s.* go. But you will not only require sufficient money to merely stock your farm and furnish your house—many expenses will follow; and if you want the money for your produce as soon as it is produced, or perhaps before, you will often be compelled to sell at considerable loss. I shall not be out of place by here remarking that the experience of many good farmers—and my own little experience and observation fully bear it out—has led them to thrash out and sell, as soon after harvest as possible, nearly all the corn they have to sell, especially Wheat and Barley. With a little spare capital, also, you may often buy things which will pay you well for the buying, whilst without that little surplus you may be compelled to sell when markets are at the worst, although your judgment tells you you ought to hold on. We have heard the matter discussed by practical farmers whether it is better for a tenant to pay interest for draining and boning, or do it at his own expense. Now, where land wants draining, and where bones will answer, there is no doubt as to the outlay paying good interest; but, without a lease, we cannot see the wisdom of a tenant going to this expense. A noble landlord, a few years ago, asked his steward who was expending so much money on one of his farms, and on being told the tenant, asked whether he had a lease. "Oh, no," replied the steward, "he has quite as much confidence in you as in a lease," when the nobleman nobly replied, "I am glad to possess the confidence of my tenants, and although it is true I shall never take advantage of them, but should on the contrary think it my duty to assist them, yet my life is uncertain, and I cannot say what unforeseen circumstances might compel my successor to resort to."

3. Time compels me to go on to the third requisite—viz., Pluck. This article, like fire and water, is most useful when kept within proper bounds, and, when not tempered by judgment and supported by money, becomes ruinous to its possessor; but still, on the farm, as well as on the battle-field, it is an indispensable requisite. I know of instances—and I dare say many of you can call others to mind—of men who possessed both money and judgment, and who have had good and cheap farms offered to them on beneficial terms, but who lacked the necessary pluck to embrace the opportunity.

Pluck or spirit is an indispensable requisite for an improving farmer. One will take a farm, and with open hands receive every penny which comes in, but, like the grave, which always cries "give," "give," will return nothing. Another will judiciously expend all he can honestly lay hold of, and will reap a hundredfold. We can now call to mind the case of two farmers who had each a fourteen years' lease of adjoining farms—the one had the pluck to expend a considerable amount in ridding up fences, purchasing manures, keeping good cattle, buying the best seeds, employing an adequate amount of labour, &c., and at the end of his lease had accumulated a pretty handsome sum, while on the other hand, the penurious neighbour who had nailed every copper that came to his hand, had not added a single gold to his original stock. It unfortunately happens that those farmers who have the most money have the least pluck to use it, and how this can be accounted for I do not know, except that Nature is not extravagant in her gifts, and those to whom she gives the cash she withholds the sense to use it. We are told "He that observeth the wind shall not sow, and he that regardeth the clouds shall not reap;" and so there are weak-minded people who have not the pluck to lay out their bit of money for fear the wind might blow it away or the rain wash it off—who would rather stick their talent in their old desk, and, like the man of old, let it remain only a talent still than lay it out on their land, doing good to themselves, their neighbourhood, and their country.

As a finish to this part of the subject, I cannot do better than refer you to the pluck contained in the following advice—"Whatsoever thy hand findeth to do, do it with all thy might."

AGRICULTURAL NOTES.

By Alderman Mechi.

Sewage Utilisation and Extension of Grass Land.—The longer I reflect upon this question as illustrated by my own practice, the more am I convinced of its agricultural importance as a means of increasing the farmer's profit and enhancing the value of the landlord's land. Sober men of these two classes are frequently asking me "Will it pay? How is it to be got on the land? Who is to do it? How much ought we to have per acre?" and so on. First, as to the difficulty of applying it. The evidence recently taken before a parliamentary committee will show that it is as easily conveyed as water, and that it can be delivered to a farmer for about 2*d.* per ton, or at most 2½*d.*

Then comes the question, will it pay the farmer at that price? This is the most important point of all, and I am able to answer that London sewage will pay if delivered to the farmer at 2*d.* per ton, or even at 2½*d.* per ton, speaking after a long experience in this matter. The most paying crop for sewage is Italian Rye-grass. In the absence of town sewage it answers my purpose, after sowing 3 cwt. of guano and 2 cwt. of salt, to wash it with 100 tons of water (a rainfall of 1 inch). The putting on of this water costs me more than one penny per ton, or 11*s.* per acre. If I have sewage I wash it in with sewage, but if I have been exhausting my sewage, the washings are scarcely stronger than water.

Let us remember that when we can attach our pipe to the sewage main, we at once do away with the need for expensive tanks, pumps, and the daily working expense of our engine. Take my own case—for coals, engine driver, and wear and tear of machinery and interest upon steam engine and tank, is not less than 16*s.*, or 1*d.* per ton. This would be saved, because the pressure would be always ample in the supply main pipes; and by attaching a full sized air vessel at the connection with the main, there would be an ample jet from the distributing hose, like that from a fire engine.

Our only expenses would then be as follows, according to the quantity we desire to put on. In my case it would be:—Paid capital: 15 yards of 3-inch iron pipe to each acre, at 4*l.* 5*s.* per ton. Freight from Scotland, 10*s.* 6*d.* Cartage, &c., (?) The 15 yards thus cost at 1*s.* 9*d.* per yard, 1*l.* 6*s.* 3*d.* Lead for joints, every 3 yards is five joints, at (?) Man jointing, digging, &c. (?) Cost of hydrant, and fixing one hydrant to each 11 acres, is per acre (?) 200 yards of gutta percha hose at 5*s.* 6*d.* = 7*s.* So that at all events we may safely estimate the fixed expenditure at 2*l.* per acre; and the interest and wear and tear on this at 20 per cent. (an excessive allowance); our annual charge for this would be 8*s.* per acre, or 2*s.* each watering for four waterings. To sum up for each day's watering:—

	£.	s.	d.
Wear and tear, and interest on fixed capital	0	2	0
Two men	0	4	0
Paid for sewage, 200 tons at 2*d.*	1	13	4
For two acres	£1	19	4

Or for a sewage rainfall of 1 inch, or 100 tons per acre, 19*s.* 8*d.*

When I laid down my pipes iron was cheap, and my 3-inch pipes, in 9 feet lengths, cost me 4*l.* 5*s.* per ton in Newcastle; freight and cartage brought it up to 5*l.* Now I think they are considerably dearer. There would of course be many fields that could be irrigated by open gutters; but even so I find that they cost 3*l.* per acre; and where we have to pay so much per ton for our sewage, it appears to me to be more economical and more safe to use the hose and jet, for in passing through or rather along gutters it is apt to sink down through veins of sand and gravel, and is not so equally distributed.

If we desire to make our sewage stronger, we have only to sow broadcast daily before watering from 1 to 3 cwt. of guano and 2 cwt. of salt, or some nitrate of soda, or all three, and the result is unmistakeable. For ordinary crops of Grass, &c., I should recommend 200 tons of sewage at each dressing, for this is admitted by all to contain the elements of 3½ cwt. of guano, and before we irrigate we should, in the case of using London sewage, sow broadcast superphosphate of lime in accordance with Liebig's admirable advice; seeing that the bones of meat, poultry, and game do not go into the sewers, and that the sewage, minus the bone element, is diminished in value 75 per cent.

On the extension of Grass land, owing to town sewage, I will speak in another paper. *J. J. Mechi.*

A Two-horse Steam Engine.—I hold it as a sound principle that no farm, even of 100 acres, if highly farmed, can do without steam-power, and also lay down as a principle this maxim—"Never use a man where you can use a horse, and never use a horse where you can use steam." The reasons are obvious—a man costs 2*s.* a day, or more than a horse, and has only 1*s.* 6*d.* of his power—a steam horse costs only 1*s.* per day, and can do twice as much work as a horse. I say nothing of water power, because we cannot use it in the south for want of fall.

Now, although I have a fixed steam engine of considerable power, I am almost inclined to have a smaller portable one as well, for, during summer, when we are cutting up green food, we do not always require the great engine, but lighting a small fire in the little engine, we could cut up Grass, Clover, Tares, or roots at small cost.

If you keep much stock, as I do, and give them all their food prepared or cut up, they will never be sufficiently supplied by hand-power. The cost is too great and the working of the chaff-cutter too unremitting and exhausting. The steam horse has no muscles to fatigue—you may work him incessantly, provided he is amply fed with coal and water.

But does a steam horse cost in the first instance more than a real horse? On the contrary, barely half the price; and as to durability, I have no hesitation in saying that it will very far outlast the real horse.

What we want is a very neat, and easily fixed engine—the accompanying drawing [not sent] illustrates one of two horse-power that may be purchased for 45*l.*, and is, I consider, most useful. I remember seeing one, a three horse-power engine, on the horizontal principle, at the Cockermouth Show, costing only 50*l.* It was by a Kendal manufacturer.

These small engines require little expense in fitting or fixing, and will do much work. The vertical ones occupy a very small space. *J. J. Mechi.*

Reform of Country Privies.—Independent of the propriety and profit of applying all excreta to the soil, there is the consideration of cleanliness and absence of offensive odours. Experience has taught me that earth is the greatest deodoriser, and it is certainly the cheapest. On the other hand water is the great decomposer or liberator of all smells. It sets up fermentation and putrefaction, and encourages the escape of the most offensive smells. Therefore instead of making our privy cesspools below the surface of the soil, and thus inviting the water to come in, the floor of the receptacle for our excreta should be raised just above the surface of the earth, so that no moisture enters it except our natural excreta, and that this should fall upon some dried earth. We are indebted very much to the Rev. Mr. Moule for pointing out to us that a pailful of dry earth will absorb and sweeten much excreta—a boxful of powdered dry earth and a half-round trowel, would relieve us of those horrid stenches which are common to nearly every farm privy, in spite of the honeysuckle or sweet briar that encases it.

A friend told me that a cartload and a half of dried earth absorbed for six months the excreta of a school of 55 boys. The earth was occasionally turned over and dried, and beat all the guano as a fertiliser.

Our youth should be taught to believe that the production of their food is dependent upon the utilization of their excreta. It is not improper to talk of these matters; on the contrary, it is becoming every day more necessary and justifiable. *J. J. Mechi, June,* 1864.

COTTAGE BUILDINGS.

The value of the information and of many of the opinions elicited at the late Conference on the subject of the dwellings of the labouring classes, can scarcely be fully estimated. At all events evidence was then afforded not only of a great advance already made in cottage improvements, but of the way being open to still further progress. Nevertheless there was equally strong evidence afforded on that occasion that the great object is yet unattained, without the attainment of which the expectation is utterly futile that such improvement will ever become in any degree co-extensive with the urgent demand for it. For no one on that occasion attempted to show how good cottages may be made good property by making them yield in their rent a fair return on the capital invested in them. And until this be done, landowners generally will not build to the extent that is needed. Some men of benevolence, with money at their command, will do so, but many more will be unwilling: many too are quite unable. It cannot be expected in the present state of things that any large proportion of our men of property will lay out 200*l.*, or even 150*l.* on a cottage for which they shall receive only 2*l.* 12*s.*, 3*l.*, or 3*l.* 10*s.* per annum. And yet the agricultural labourer, to whom and to whose cottage I would especially refer, cannot in his present condition afford out of his wages to give a higher rent than this. There are very many cases, moreover, in which, with the average rate of wages, even if he were placed in a cottage with a sufficient number of rooms, and those of sufficient size for decency and comfort, the cottager would be utterly unable either to furnish or to warm them.

The attempts to meet this difficulty appear to me to have been hitherto made in the wrong direction. The idea has been that while improving the cottage as to healthiness, and decency, and comfort, you must bring down the cost of building, either by the device of double cottages or of blocks of cottages or of hollow walls, &c., to the standard of 100*l.*; out of which sum I see it sometimes even proposed to allow 20*l.* as builder's profit! Now my firm conviction is, that in the ordinary mode of building cottages, and if we seek the improvement of the building by itself and irrespectively of other improvements, that one object—the general improvement of the dwellings of the labouring classes—is entirely unattainable. We must combine with it two other objects, between which and this there is so intimate a connection that one without the other can scarcely be effected. These are, 1st, the improvement of the religious, moral, and mental condition of the cottager; and 2dly, the improvement of his income and of his comforts through the economical arrangements of his cottage, and from the produce of the ground attached to it, to such an extent as shall enable him to pay for it a rent which shall be a fair interest on the outlay. Of the former of these two objects I shall now only remark that it is of little avail to provide a good cottage for the drunken, the lazy, and the dishonest; and further, that so long as extra payments at harvest and at other times are made in beer or cider, there will in these be so many temptations, especially to the young, to drunkenness, extravagance and dishonesty. Let us get rid of such customs and of the public-house together, and let us give a man at his home means of comfort and opportunities of improving his condition, such as I am about to propose (and that without taking for this any of the time due to his master), and there is, with God's blessing, a good prospect of our forming a class of labourers that, for sobriety, honesty, intelligence, and industry, shall be the strength and pride of the country. For the cottager in small towns, or in the suburbs of large towns indeed, similar aid might be provided. But I now speak only of the agricultural labourer or the cottager in agricultural districts. And, with respect to the second of the two objects which I have mentioned, which must necessarily be taken in connection with that of cottage improvements, there should, as Mr. Denton very justly observes, be attached to every cottage a quarter of an acre of land. If this be done, not in the form of a distant allotment but of a garden close to the house, then I am confident that a good cottage could be built for 120*l.* or 150*l.*, for which an agricultural labourer shall be willing to give 6*l.* rent, and in the suburbs of a town, for a cottage with only the eighth of an acre attached to it, there are many who would gladly give for it 10*l.* a-year. If, for instance, the Prince of Wales would, on his property in this parish, at a cost not exceeding 1100*l.*, erect eight cottages to an acre, his Royal Highness migh get from them a rental of 80*l.*, and have the pleasure of helping to raise up a happy peasantry.

The value of the produce which a cottager may raise from a quarter of an acre of land so situated and used as I propose, is yet I think little understood. So is the improvement in his moral and social condition which would almost of necessity be effected, even in the work of raising such produce. So is the increase of wealth to the country, by opening up, as this would, amongst the working classes new branches of industry. So is the increased value of the labourer to his employer, which would thus be obtained. And so, lastly, if such a plan as I propose should ever become general, is the enlarged home market for many manufactured goods which would spring up among a peasantry so improved as they would be in condition and healthy tastes.

Let me attempt to show that this is not a baseless vision. The gross produce of market gardens in the neighbourhood of London is sometimes above 200*l.* an acre. This is obtained partly by high manuring and by well skilled cultivation, and partly by a good market. What then, if a cottager instead of having, as is frequently the case, no manure, or scarcely any, could apply to his quarter of an acre manure the worth of which should be from 5*l.* to 8*l.* a year? And what, if at the same time, with very little cost of labour to himself, he could cultivate fruits and vegetables which in a short time would be sure to command a good market? Might he not fairly look for produce in the proportion of two-fifths of 200*l.*? This would be 20*l.* a year. Or look on it thus:—An acre of Red Currant trees planted 4 feet asunder, and trained as espaliers, or kept well pruned and well manured, will yield produce worth 50*l.* A very experienced gardener tells me I might say 70*l.* a year. But the produce of 50*l.* a year is a fact, that has been repeated again and again. Now, for such fruits the large preserving houses in London (and these, if there were the supply, would soon spring up elsewhere) would for this and similar produce offer a ready market. The care of the bushes would require very little of the cottager's time. His wife and children could pick the fruit, and besides the money to be obtained from this source, common vegetables of almost every kind, if only the ground be kept well manured, might be grown between the bushes. Besides this, let a perch of ground be lightly railed in for the purpose, and let a shed be attached to one of the walls of the cottage, and let the cottager's wife keep as many fowls as she well can in that space. If during the winter the hens partake of the warmth which I propose to introduce into the cottage walls, and if they have a little flesh of any kind given with grain they will commonly lay almost all the year round, and either in the food thus produced or in money, several pounds a year might by the wife with very little labour be added to the income—enough almost of itself to pay the rent—and why should not in this way the supply of eggs which now comes to us from France be raised by our cottagers? Let not the suspicion or distrust of the farmers withhold this advantage. The temptation to theft of Barley, which I know is dreaded by them, would in this practice be as nothing compared with that which the public-house affords. And if not, then on the other side the sale of Barley for this purpose might soon become considerable; besides which, another perfect substitute for guano would thus be manufactured at our very doors. From these two sources 20*l.* to 25*l.* a year might with almost certainty be added to the cottager's present resources.

But now let me give some idea of the cottage which would help in effecting this addition to the cottager's income, and the consequent improvement

in his condition. I will take one calculated for a large family, and which I should think would be considered a first-class cottage, but one the estimate given me for which does not exceed 130*l.* Like Lady Caroline Kerrison's cottages it would have no rooms overhead; but from those it would differ in this, amongst other features—that there would be in it two levels. The principal living room (15 ft. by 10 ft.), with a pantry or scullery at its side, would be on the lower level, and would form a "lean-to" against that which would be the main portion of the building. This portion would consist of four rooms, divided into two pairs by a passage 3 feet wide. Three of these would be bedrooms, one of them 10 ft. square, the other two 9 ft. by 7 ft. each; and the fourth, a sitting-room, would be 10 ft, by 8 ft. The floor of these rooms and of the passage would stand 2½ ft. higher than that of the "lean-to." Their outer walls would have a basement of 2½ ft., built with a hollow of 14 or 18 inches. This would be carefully covered down with slate or tile, well mortared, to keep in the smoke, and above it the walls would rise 7 feet to the eaves, having a hollow of four inches. The upper course of the bricks forming the inner portion of the wall would be perforated for ventilation of the rooms. By this arrangement fuel may be economised to such an extent that with 1 cwt. of coal or coke, or with a corresponding quantity of wood per week, the cooking for the family, the baking, the washing and ironing may be done; and whenever it should be required, the three bedrooms and the other sitting-room may be warmed, and to say nothing of other advantages resulting from this, full half the ordinary supply of bedclothes might thus be saved. This can be done by fixing a patent vapour-fed cottage range in the "lean-to" against the basement of the hollow wall.* Ordinarily the smoke from this range would pass either upwards through an earthenware pipe, or horizontally through a small portion of the basement into an underground chamber of the same depth as the basement outside the cottage, from whence it would escape by an earthenware pipe; but whenever it should be wished to warm the four it would be made to pass all round the basements, escaping at the end also by an earthenware pipe. For I have for some time ascertained the fact that if only you give smoke room it will pass away horizontally more easily than when it ascends perpendicularly, and that it passes away so slowly as to leave almost all its heat in the bricks of the chamber or large flue. By this means heat is radiated from the basement under the floor, and the 4-inch hollow in the upper part of the wall becomes a hot-air chamber. Heat is thus economised to such an extent that by the passing of the smoke through the basement for a very short time the rooms would be warmed sufficiently for some hours. At the same time, because the ventilation of the rooms would be effected by the passage of the foul air into this chamber thus warmed, all unpleasant or injurious draughts would be obviated. Again, if the bricks now wasted on ornamental but too often smoky chimneys should be used in forming a chamber for the smoke outside the cottage, such as I have referred to above, either a drying shed might be formed or a hotbed; and by means of it "Hothouses for the Million" might in towns and the suburbs of towns become a reality. The advantages of two levels, instead of upstair rooms, especially in times of sickness, will easily be seen; and the objection sometimes made to bedrooms on the ground floor, because of their liability to dampness, is obviated by the drying effect of the basement.

An objection may probably be made to the extent of the roof in the case of two levels. But there are things to set against this; amongst them the larger supply of good water thus afforded, enough if properly provisioned for all the purposes of any family. Thus far, however, there is in this kind of cottage only a more economical arrangement—though this of itself is no trifling advantage. But I will now in the last place show how, while in addition rendered more healthy than any cottage can be with the present sewage arrangements, such a cottage can, together with its garden, be made profitable to the cottager to the extent I have stated. Everything like a cesspool or a foul ditch or drain would be obviated by the adoption of my "earth system for the removal of excrementitious and other foul matter."† At the end of the passage between the two pairs of rooms there would be an "earth closet" within the building, and a similar one outside. Everything offensive is in these closets deodorised, an advantage is gained in their use, which in times of sickness is scarcely to be estimated; the whole of the house manure removed to the garden with perfect ease and scarcely any labour, and the value of manure thus preserved is not less than 1*l.* per head per annum. Let this be added to the fowls dung and the sink water, and the produce it may be of the pigstie, and the cottage garden may be manured as highly I think as any garden in the neighbourhood of London. The form and arrangement of cottages on this plan and system may of course be modified and greatly improved by men of more practical knowledge than I possess. But of the correctness and truth of the principles which I have here laid down, there is not in my own mind a shadow of doubt. Any general extension of cottage improvement lies I am certain in this direction. May many soon perceive it and be led to pursue it! *Henry Moule, Dorchester.*

* These ranges are manufactured by McDowall, Steven, & Co., Glasgow, and by Taylor & Son, High East Street, Dorchester.

† See Journal of Royal Agricultural Society, March 1863. Journal of Society of Arts, May 1863. *Mark Lane Express* for the last week in May, 1864.

Home Correspondence.

Hints on Feeding.—In the management of our live stock, notwithstanding that the chemists have by analysis given us the exact component parts of the various articles of diet from which beef, mutton, and pork are produced, and although we have everywhere, from the practical business man to the amateur, live stock kept, yet so little attention has been paid to the times of feeding, and the quantity and variety of food given, that little definite knowledge has been ascertained as to the economical results obtained in the increase of animals fed at particular times, and with different quantities and sorts of provender. As we before observed, great trouble has been gone to to know what food contains the most fat and flesh-forming principles. Furthermore, all stock keepers are aware of the value and importance of carefully bred animals, still the best method of administering this food, so as to get the maximum of increase at the least cost, is a subject full of interest and practical value. We hear sometimes of as much as 28 lbs. of oil-cake being consumed per diem by one beast, and one feeder gives 2 pecks of meal per day, whilst another of equally extensive experience gives less than half this quantity; another gives roots *ad libitum*, but one feeds without any, and depends upon hay and meal. With sheep we know of cases where a quarter of a pint of corn is daily used to each, or 2 oz. of cake. On the next farm the quantities used are perhaps two or three times as much. In the one case the owner argues that a smaller quantity given over a greater length of time yields the best results, and the one who uses the larger quantity is of the opposite opinion. In regard to the using of large quantities of food at once we may mention a circumstance that came under our observation some time ago. Our surprise was excited by the well-doing of some little pigs that were running about the yard; for although they had very little food given to them they were nearly fit to kill for pork. At first we began to account for the improvement from the breed of pigs; but the question was soon cleared up, by noticing the fact that these pigs ate a good deal of the droppings from some show beasts! The beasts were being fed with any quantity of meal and cake that they could be induced to eat, and a large quantity no doubt passed through their stomachs unappropriated—and hence the rapid growth of the pigs. On the other hand, it very often occurs that those who give the minimum quantity of food for fattening are disappointed in not getting their animals fit for the market at the expected time; and thus the food has not exercised its greatest force, and is consequently to some extent wasted. Now it follows that in either case food is consumed uselessly, and it is the absence of data of the proper quantity that can be given to advantage that we would hope to provoke some discussion upon; for it is manifest that food passing through the bodies of animals unassimilated must be wasted; and on the contrary food given in too small quantities to exert the full power it is intended to effect, is not economical. We could wish that the subject would be taken up by some scientific man who would experiment upon the several quantities used, and accurately report thereon. Space does not now allow, or we would say a few words upon the attendance on fattening animals and the times of feeding. *Scrutator.*

The Present Relationship of Master and Servant.—I feel surprised at Mr. Dunlop, M.P., attempting to frame an enactment which would, were it adopted as law, do a great deal of injury, and cause much confusion. A solicitor in Durse told some ploughmen who consulted him respecting their master's tyrannical conduct, that the law authorises farmers in Scotland to compel the ploughmen, if necessary, to plough 10 hours a day, or work 10 hours in the field at any kind of work which requires horse-power. But in the event of an arbitrary spirit arising between employers and employed, the law authorises a ploughman, in the event of his master compelling him to work ten hours in the field, to leave the horses at the expiration of ten hours' work, which would compel the farmer to take the horses to and from the field, and also groom and feed them. Again, in the event of a ploughman being absent from work through illness, the laws already enacted compel, if necessary, a farmer to pay a ploughman engaged for six months his wages in full in cases of illness which do not exceed six weeks in the six months, and a ploughman engaged for a year can claim his wages in full in cases of illness which do not exceed 12 weeks in the twelvemonth. The present laws only require to be enforced, when necessary, to protect both masters and men respecting the number of hours of labour during a day, and the deducting of wages in cases of illness. What more protection can be necessary for ploughmen on extensive arable farms? I know of a farmer who paid a hind's wages for 12 of the 13 consecutive weeks that yearly servant was off work one twelvemonth. That gentleman farmer was a Writer to the Signet before he became the occupier of a farm; so it is likely he is well acquainted with the law. He told the hind that he was legally bound to pay him for 12 of the 13 weeks. I know of a female bondager who went home to her father's house when unwell. She expected she was entitled to the whole of her wages. The lawyer she consulted asked her if she went home of her own accord, or if her master requested her to go home. He told her that the hind was not legally bound to pay the wages during her absence at her father's, owing to her going home of her own accord; but she could have claimed them had she resided with her hind-master, or been ordered by him to go home. Approving of cottage ploughmen being paid part of their wages in kind, and it being well known that every farmer in the United Kingdom ought to have his regular staff of labourers located in houses adjacent to the farm-steadings, I need not occupy space in arguing to prove that twelve months for married men and six months for single ploughmen are short enough engagements. Suffice it to refer to the well known fact that each of a great many ploughmen has a cow of his own fed on the farm where he is employed and resides. Very few hinds in the south-east of Scotland receive more than 5*l.* of cash in a twelvemonth. Some of the gentlemen farmers in East Lothian pay each hind only 1*l.* of cash in the twelvemonth. Suppose, by way of illustration, a dispute to arise between a master and servant. It is the general rule in the bondager district on Tweedside, for the farmers to pay each hind the half of his hind wages in advance, with the exception of the Oatmeal, which he gets at intervals. Each hind gets 20 imperial stones of Oatmeal, 9 or 12 bushels of Barley, 3 bushels of Peas, and one cartload of coals, at the Whitsuntide term. Hinds are paid these items before they prove themselves suitable workmen. Each hind has from 1000 to 1800 yards of Potato drills planted with his own seed, and a cow and a pig. I am describing a system I am pleased with, barring the bondager contract, to show that a year is a short enough engagement. Again, the present law authorises farmers to demand the services of their servants at any hour from Monday morning till Saturday night during harvest. A farm steward in East Lothian discharged a hind about a twelvemonth ago for refusing to take the horses to the smithy in the evening after the hind had finished his day's work of 10 hours! But the sheriff decided in favour of the hind. Had it been the lot of Mr. Dunlop, M.P., to be a ploughman, he would have been as firmly bound to the farm as a soldier is to the Queen. He would have to be in the stable at 6 A.M. in winter, and work out of doors from daylight till dark, with the exception of an hour at midday. Having to attend the stable at half-past 7, or 8 P.M., where he would have to remain nearly an hour, from about 9 P.M. till 6 A.M. during the week, and the Sabbath is all the leisure time Mr. Dunlop would have for courting his future wife. I beg to suggest that members of Parliament get copies of Dr. Strachan's "Addresses on Illegitimacy." Acts of Parliament will not be a remedy for the deplorable results of masters and mistresses not recognising courtship as a necessary part of our social system. *W., Edinburgh.*

Societies.

BATH AND WEST OF ENGLAND: BRISTOL.

THE very best of all the shows and meetings of a merely provincial society that has ever happened within our knowledge has been held during the past week at Bristol. A show of implements corresponding to at least two-thirds in mere bulk of a fair exhibition of the machine manufacture as now given at the meetings of the national society, and a first-rate show of live stock and poultry, are here supplemented by a horticultural exhibition, one of upholstery and works of usefulness, and one of pictures, lace, and china, and works of ornament and taste. The performances of a military band, and the occasional exhibition of the horses which are put through their paces in the ring, are other features of the meeting, and the whole is arranged with that taste and skill, and superintended with that hearty energy and good will which seem inseparable from the proceedings of the Bath Society.

We are not about to rediscuss the prize system, or to ascertain what share it may have had in promoting the progress in the machine manufacture which the Bristol Show of 1864 indicates when compared with that of 1843. In all probability this share has been very large, and the absence of one or two great firms, in particular those of Mr. Fowler and Messrs. Burgess & Key, seems to indicate that it may still be needed to stimulate the rivalry of the manufacturer, wherever machinery for a particular purpose has only lately been invented and applied. The fulness and merit of the exhibition generally however prove that it is not now needed for the great mass of agricultural machinery in general, in order to the insurance of a first rate show of implements. This we have had on Durdham Down, and in fields near Horfield during the past week. The solitary locomotive engine shown in 1843 by Messrs. Ransome, which travelled out to Frenchay and there came to grief by running off the road, is here represented by Mr. Aveling's well known road engine drawing a train of waggons, and by a large number of portable engines driving threshing machines, and exhibited by all the leading makers. The mowing and reaping machines of Mr. Cranston, Messrs. Hornsby, and many others, and the steam cultivators of Messrs.

Howard are entirely new classes of machines, which have arisen during the interval. As regards the less important novelties of 1843 which have since developed, mention may be made of the chain harrow, then represented by a flexible coat of mail, sprinkled with discs, of which Mr. Smith, of Deanston, then predicted the success, and which, in its present shape of an interlaced surface of angular rings, is now in very general use.

The implements shown at work, if we exclude those in motion in the yard, were confined for the most part to mowers, hay-tedders, and rakes. Howard's steam cultivator was very successfully in operation in a field of poor stiff clay, near Filton, known to us for the last 20 years as a remarkably hard, intractable bit of land, where it shattered and moved to a depth of 6 or 8 inches the hard clay that would have beaten a double or triple team of horses. And near this are the Grass fields, and one of Rye, on which the reapers and mowers were employed.

Green Rye was very successfully cut and laid in swathe or sheaf by some half-dozen reapers. The success of the hand-sheaf reapers was the chief feature of the show. Cuthbert's work and that of Hogg, near Exeter, and Page, of Devonshire, with their tilting apparatus was very good. Mr. Hornsby brought out a remarkably light swathe reaper and a very light sheaf reaper, both of which did good work. The extreme weight of machines of this class is an evil needing to be abated. The roughness of surface in agriculture makes heavy tools more liable to breakage than light ones; and the extreme lightness of Mr. Hornsby's reaper is not likely to prove inconsistent with sufficient strength. This firm has also entered the lists with a new mowing machine, which made very fair work on a poor light crop, which was on that account the more difficult to mow; but the best work in the field was that done by Wood's mower under the management of Mr. Cranston. A novelty in hay tedders was exhibited by that gentleman as an American invention. Instead of a barrel carrying all the pikes or forks by which the Grass is lifted, thrown and scattered—where the labour of moving the whole is constantly incurred for the sake of every separate fork in succession, these forks are in this instance moved separately. Eight light forks thus keep up a kicking action of very much the same kind as is exhibited by the heels of a trotting horse, which are here kept going at apparently the rate of say 12 miles an hour, while the machine which carries them moves forward at the rate of only three or four miles an hour. There is thus a rapid succession of kicks at the rate of about eight or nine miles an hour over the surface of the ground, which toss whatever is lying on it high and far. The whole is light, worked by a pony, and covers a greater width than the ordinary tedder. Its action is very amusingly effective, and attracted a great deal of attention in the trial field.

We have no prize list to announce. The Society does not award prizes. This, however, has not hindered the exhibitors from taking every opportunity which the Society has afforded for the exhibition of their machines—in competition for the great prize of commercial success which was "on offer" in the field and yard; many were looking on who had come to choose reapers and mowers for the coming harvest—confident, as all good practical men will always be, in the superiority of trusting to their own eyes and judgment rather than to those of the official judges.

We must not omit mention of the large collection of instruments and tools, of household and domestic use, in the yard. Among them is Hancock's butter squeezer, by which, without handling the butter, it is forced through small holes into clean water, and thus effectually both washed and hardened.

THE LIVE STOCK classes of most of the breeds of Cattle are remarkably well filled. About 40 Devons compete in six classes, of which the old bull and the two older female classes are remarkably fine. The prizes are given in the list below. The decisions of the judges were not always approved, and, in particular, the award in the case of Class II., the two-year-old bulls, is open to dispute; there were thicker, better grown animals in the class than that to which the 2d prize was given. The show of cows and older heifers was remarkably fine and good, and those classes were very deservedly generally commended. The 1st prize in the young heifer class is easily won by Major-General Hood's heifer the *Rose of Denmark*. The Shorthorns numbered 57, eight old bulls, seven under three-years-old and 13 yearlings, a remarkably good class; 10 cows, 8 heifers in calf, a first-rate class; and 11 yearling heifers. It is worthy of note, that excepting several well-known names, Hewer, Garne, Peel, Stratton, and Woodward, many of the prizes go to new men and into new districts. Messrs. Hosken, of Hayle, take the 1st prize in old bulls, with a rather coarse-headed red bull, which was removed from its stall on the second day owing to illness. Close beside it stood the noble second prize white bull HENGIST, of pure Booth blood, which most men would prefer; and beyond it again the grand old bull, now not looking in show condition, LORD OF THE HAREM, lately purchased by Mr. Woodward, which has never had the rank assigned to him which he has deserved. A very large and good class of young bulls brought Mr. Fawcett, of St. Alban's, into the first rank; his white bull of pure Booth blood taking the 1st prize, Messrs. Stratton and Hewer standing 2d and 3d. The show of cows and heifers is remarkably good; Mr. Sharpe's beautifully even white cow, wonderfully good at both ends, especially forwards, and with well arched rib, takes the 1st prize; Mr. Bowley's fine roan being 2d; and Mr. Stratton's large and long *Lady Hinda*, 3d. In the first rate class of older heifers, Mr. Stratton is 1st, Mr. Logan, of Newport, 2d and 3d, and there is not an inferior animal competing with them. In the younger Heifer class, Mr. Logan, whose sale takes place on the 7th of July, is 1st, with *Charlotte 4th*. Messrs. Garne and Stratton being 2d and 3d.

The Hereford classes are unusually well filled. There has rarely been better competition for the prizes of any society. The awards of Devon judges are not, however, always satisfactory, and in some classes, both male and female, the 1st and 2d animals should have changed places. Messrs. Arkwright, Baldwin, Duckham, Taylor occupy the first rank. Mr. Wigmore's dark red two-years-old bull, first in his class, handles too hard; and if Mr. Baldwin's, on the other hand, is rather soft, he is nevertheless better in this, as well as other respects, than the animal placed above him. Mr. Duckham's young bull, out of his celebrated cow *Carlisle*, which was 1st in her class at the Royal Agricultural Society's shows in three successive years, well deserves his honours. The female classes are remarkably good. Upwards of 40 Herefords are shown.

The Sheep classes include no less than 160 entries, and there is a fair show of Leicesters, Cotswolds, and Downs; with good classes of West Country Downs, Dorsets, and Mountain sheep, the especial breeds of the country. The prize list is given below.

About 80 entries of Pigs include a capital exhibition of Berkshires, the best of all the bacon breeds. Messrs. Hewer, Joyce, Bailey, with the Royal Agricultural College, compete successfully. One of the best in the yard is Mr. Stewart's black Berkshire sow, 3 months old, a model of perfection.

The Horse show includes 70 entries, about one half of them for agricultural purposes. The Duke of Beaufort's dark brown Clydesdale stallion SIR ROBERT is the finest of all the classes—a remarkably powerful, well-made horse, with good and vigorous action. Mr. Miles thorough-bred stallion ROUBLE may be mentioned as most worthy of note in the other classes. There is hardly any competition in Ponies. We conclude with the following list of the Judges' awards.

STOCK.—DEVONS.

CLASS 1. Bulls above 3 years.—1st, Mr. S. P. Newberry, Honiton; 2d, Lord Clinton, Beaford. Highly commended: Mr John Sobey, Trewolland, Liskeard.

CLASS 2. Bulls not exceeding 3 years.—1st, Mr. J. A. Smith, Bradford Peverell, Dorchester; 2d, Mr. W. Taylor, East Harptree. Highly commended: Mr. W. Harvey, Trelissick, Hayle.

CLASS 3. Bulls not exceeding 2 years.—1st, Mr. J. W. Buller, M.P., Downes, Crediton; 2d, Mr. J. Bodley, Crediton; 3d, Mr. J. Bodley.

CLASS 4. Cows in calf, or in milk.—1st, Mr. J. Merson, Brinsworthy; 2d, Mr. Walter Farthing, Stowey Court; 3d, Mr. J. A. Smith, Bradford Peverell. The judges commended the whole of this class.

CLASS 5. Heifers in calf or in milk, not exceeding 3 years.—Mr. J. A. Smith, Bradford Peverell; 2d, Mr. J. W. Buller, M.P., Downes; 3d, Mr. W. Harvey, Trelissick. Highly commended: Mr. C. Hambro, Milton Abbey, Blandford. This class was generally commended by the judges.

CLASS 6. Heifers not exceeding 2 years.—1st, Major-General the Hon. A. N. Hood, Cumberland Lodge, Windsor; 2d, Mr. W. Harvey, Trelissick; 3d, Mr. J. W. Buller, M.P. Highly commended: Mr. J. A. Smith, Bradford Peverell.

SHORT-HORNS.

CLASS 7. Bulls above three years.—1st, Messrs. W. Hosken and Son, Hayle; 2d, Mr. Jonathan Peel, Knowlmere, Clitheroe. Commended: Mr. William Woodward, Ashchurch.

CLASS 8. Bulls not exceeding three years.—1st, Mr. W. Woodward, Northway House; 2d, Mr Jonathan Peel, Knowlmere Manor.

CLASS 9. Bulls not exceeding two years.—1st, Mr. E. A. Fawcett, Childwick Hall, St. Alban's; 2d, Mr. R. Stratton, Wall's Court, Stapleton; 3d, Mr. W. Hewer, Sevenhampton. Highly Commended: Mr. G. Garne, Churchill Heath.

CLASS 10. Cows in calf or in milk.—1st, Mr. R. Sharpe, Courtlands, East Grinstead; 2d, Mr. E. Bowly, Siddington, Cirencester; 3d, Mr. R. Stratton, Wall's Court. Commended: Sir W. Miles, Bart., Leigh Court.

CLASS 11. Heifers in calf or in milk, not exceeding three years.—1st, Mr. R. Stratton; 2d, Mr. J. Logan, Maindee House, Newport; 3d, ditto. Highly Commended: Mr. E. Bowly. Commended: Mr. E. Alderson Fawcett, Childwick Hall.

CLASS 12. Heifers not exceeding two years.—1st. Mr. J. Logan, Maindee House; 2d, Mr. G. Garne, Churchill Heath; 3d. Mr. R. Stratton. Highly Commended: Mr. R. Sharpe, East Grinstead. Commended: Mr. J. Logan, Maindee House.

HEREFORDS.

CLASS 13. Bulls above 3 years.—1st, Mr. J. H. Arkwright, Hampton Court, Leominster; 2d, Mr. J. A. Hollings, How Caple, Ross.

CLASS 14. Bulls not exceeding 3 years.—1st, Mr. J. Wigmore, Weston-under-Ponyard, Ross; 2d, Mr. J. Baldwin, Luddington, Stratford-on-Avon. Commended, Mr. Henry Higgins, Woolaston Grange, Lydney.

CLASS 15. Bulls not exceeding 2 years.—1st, Mr. T. Duckham, Baysham Court, Ross; 2d, Mr. W. Taylor, Showle Court, Ledbury; 3d, Mr. W. Taylor.

CLASS 16. Cow in calf or in milk.—1st, Mr. John Baldwin, Luddington; 2d, Mr. H. Higgins, Woolaston Grange, Lydney; 3d, Mr. T. Thomas, St. Hilary, Cowbridge. Highly Commended: Mr. H. Higgins. This class was Commended generally.

CLASS 17. Heifers in calf or in milk, not exceeding 3 years.—1st, Mr. James Taylor, Stretford Court, Leominster; 2d, Mr. John Baldwin, Luddington; 3d, Mr. T. Taylor, Stretford Court.

CLASS 18. Heifers not exceeding two years.—1st, Mr. John Baldwin; 2d, Major-General the Hon. A. N. Hood; 3d, Mr. Andrew Rouse, Boughton Knight, Downton Castle.

SHEEP.—LEICESTERS.

CLASS 19. Yearling Rams.—1st, Mr. Joseph Gould, Poltimore, Exeter; 2d, Mr. Thomas Tremain, Trevarthian, Newlyn, Ladoc. Highly Commended: Mr. Tremain and Mr. Joseph Gould.

CLASS 20. Rams of any other age.—1st, Mr. J. Tremain, Trevarthian, Newlyn, Ladock; 2d, Mr. Thomas Potter, Thorverton, Cullompton.

CLASS 21. Pens of 5 two-teeth Ewes.—1st, Mr. Joseph Gould, Poltimore; 2d, Mr. James Buller, M.P., Crediton.

COTSWOLD.

CLASS 22. Yearling Rams.—1st, Mr. John Gillett, Fawler, Charlbury; 2d, Mr. Edward Handy, Sierford, Cheltenham.

CLASS 23. Rams of any age.—1st, Mr. Edward Handy.

CLASS 24. Pens of 5 two-teeth Ewes.—1st, Mr. John Wells, Hampnett, Northleach; 2d, Mr. Thos. Beale Browne, Salperton Park. Commended: Mr. John Wigmore, Weston-under-Penyard, Ross.

LONG-WOOLLED.

CLASS 25. Yearling Rams.—2d, Mr. George Kingdon Radmore, Pitt Farm, Thorverton.

CLASS 26. Rams of any other age.—1st, Mr. George Radmore; 2d, Mr. George Radmore.

CLASS 27. Pens of five two-teeth Ewes.—1st, Mr. John Wigmore, Weston-under-Penyard, Ross; 2d, Mr. John William Miles, Kingsweston.

SOUTHDOWNS.

CLASS 28. Yearling Rams.—1st, the Earl of Radnor, Coleshill, Highworth; 2d, Mr. R. N. Grenville, Butleigh Court, Glastonbury.

CLASS 29. Rams of any other age.—1st, Mr. J. Farquharson, Langton House, Blandford; 2d, the Earl of Radnor.

CLASS 30. Pens of five two-teeth Ewes.—1st, the Earl of Radnor: 2d, his Grace the Duke of Beaufort.

ALL OTHER DOWNS.

CLASS 31 Yearling Rams.—1st, Mr. James Rawlence, Bulbridge, Wilton, Salisbury.

CLASS 32. Rams of any other age.—1st, Mr. James Rawlence; 2d, Mr. Edmund Olding, Amesbury.

CLASS 33. Pens of five two-teeth Ewes.—1st, Mr. James Rawlence; 2d, Mr. James Rawlence.

SOMERSET AND DORSET HORNS.

CLASS 34. Yearling Rams.—1st, Mr. A. J. Pitfield, Eype, Bridport; 2d, Mr. Thomas Danger, Huntstile, Bridgewater.

CLASS 35. Rams of any other age.—1st, Mr. Thomas Danger.

CLASS 36. Pens of five two-teeth Ewes.—1st, Mr. Thomas Danger, Huntstile, Bridgwater; 2d, Mr. A. J. Pitfield, Eype, Bridport.

MOUNTAIN SHEEP.

CLASS 37. Rams of any age.—1st, Mr. William Taylor, Harptree Court; 2d, Mr. Robert G. Paramore, Bratton Court, Minehead.

CLASS 38. Pens of five Ewes of any age.—1st, Mr. Jonathan Peel, Knowlmere Manor; 2d, Sir Thos. D. Acland, Bart., Holnicote.

HORSES.—FOR AGRICULTURAL PURPOSES.

CLASS 39. Stallions not exceeding eight years.—1st, Mr. Elias Potter, Chedzoy, Bridgwater; 2d, Mr. Robert Jacob, Baltonsborough, Glastonbury. Highly commended: Mr. James Shepherd, Stogursey, Bridgwater.

CLASS 40. Mares and Foals, or in foal.—1st, Mr. Henry Hitchcock, Chilterne, Allsaints, Heytesbury; 2d, Mr. William Taylor, Harptree Court.

CLASS 41. Colts or Geldings, foaled in 1862.—1st, Mr. John Feaver, Stoney Littleton, Bath.

CLASS 42. Fillies foaled in 1862.—1st, Mr. Joseph Pyke, Cherhill, Calne.

CLASS 43. Thorough-bred Stallions.—1st, Mr. John William Miles, Kingsweston.

CLASS 44. Mares and Foals, or in Foal, for Hunters.—1st, Mr. Robert Cozens, Pilton, Shepton Mallet; 2d, Mr. Clement Champeney, Theab, Wells.

CLASS 45. Mares or Geldings foaled in 1860.—1st, Captain J. Simpson Ballard, The Verlands, Cowbridge; 2d, Mr. William Hewer, Sevenhampton.

CLASS 46. Colts foaled in 1863.—1st, Mr. Charles H. Williams, Roath Court, Cardiff. Commended; Mr. William Gapper, Duddlestone, Taunton.

CLASS 47. Fillies foaled in 1863.—No prize awarded.

PONIES.

CLASS 49. Stallion Ponies of any breed, not exceeding 13 hands high.—1st, Mr. Edward Lloyd, Neath, Glamorgan.

CLASS 50. Mare Ponies of any breed, not exceeding 13 hands high.—1st, Mr. Thomas Baker, Lynton, Barnstaple.

PIGS—LARGE BREED.

CLASS 51. Boars not exceeding 2 years.—1st, Mr. William Bradley Wainman, Carhead; 2d, Mr. Heber Humfrey, Kingstone Farm, Shrivenham.

CLASS 52. Boars not exceeding one year.—1st, Mr. W. Yells, jun., Highworth, Wilts; 2d, Mr. Arthur Stewart, Saint Bridge, Gloucester.

CLASS 53. Breeding Sows in Farrow, or that have Farrowed.—1st, Mr. Wm. Hewer, Sevenhampton, Wilts; 2d, The Royal Agricultural College, Cirencester. Highly Commended: Mr. Arthur Stewart, Saint Bridge. Commended: The Royal Agricultural College.

CLASS 54. Pens of two Breeding Sows, not exceeding 9 months.—1st, Mr. Wm. Hewer, Sevenhampton; 2d, Rev. Henry G. Bailey, Swindon. Commended: Mr. Wm. Hewer. The whole of this Class was highly commended.

SMALL BREED.

CLASS 55. Boars not exceeding 2 years.—1st, Sir Massey Lopes, Bart., M.P., Maristow, Devon; 2d, Mr. William Taylor, Harptree Court.

CLASS 56. Boars not exceeding 1 year.—Sir Massey Lopes, Bart., M.P.; 2d, Mr. Edmund Coles, Stone Farm, Yeovil. Highly Commended: Mr. George Tucker, Ipplepen, Newton Abbot. Commended: Mr. W. Bradley Wainman, Carhead.

CLASS 57. Breeding Sows in farrow, or that have farrowed.—1st, Mr. W. Bradley Wainman, Carhead; 2d, Mr. Edmund Coles, Stone Farm, Yeovil. Highly Commended: Mr. Robert Fookes, Milton Abbas, Blandford. Commended: Mr. Edmund Coles, Stone Farm, Yeovil; Sir Massey Lopes, Bart., M.P.

CLASS 58. Pen of two Breeding Sows, not exceeding 9 months.—Sir Massey Lopes, Bart. Highly Commended: Messrs. T. W. & C. Hardwick, Lower Court, Long Ashton. Commended: Mr. G. Kingdom Radmore, Thorverton.

EXTRA STOCK.—CATTLE.

1st, 2*l*., Mr. Robert Rendle, Gatel Farm, Guernsey, a cream-colour Jersey heifer in calf.

SHEEP.

1st, 1*l*., Mr. A. J. Pitfield, Bridport, Dorset, a pen of three Dorset horn ewes.

HORSES.

A prize to Mr. A. Emmrett, Tudor Lodge, Bristol, for a roan mountain pony.

PIGS.

A prize of 1*l*. to Mr. A. Stewart, Saint Bridge, Gloucester, for a black Berkshire sow.

[SUPPLEMENTARY PRIZES OFFERED FOR STOCK By the Local Committee and the Society of Merchants of the City of Bristol.

CLASS 59, Bull, Cow, and Offspring, the Calf not exceeding 6 months of age.—1st, Mr. Richard Stratton, Wall's Court.

CLASS 60. Bull Calf above 5 months and under 12 months old.—1st, Mr. G. Hitchman, Long Ashton, Bristol; 2d, Mr. Wm. Perry, Oswald, Cholstrey.

CLASS 61. Heifer Calf above 5 months and under 12 months

old.—1st, Mr. R. Stratton, Wall's Court, Stapleton; 2d, Mr. Walter Farthing, Stowey Court, a red heifer calf.

SHEEP.—SHROPSHIRE DOWNS.

CLASS 62. Yearling Rams.—1st, Lady Willoughby de Broke, Compton Verney, Warwick.

CLASS 63. Rams of any age. — 1st, Mr. P. W. Bowen, Shrawardine Castle, Shrewsbury.

CLASS 64. Pens of Five two-teeth Ewes.—1st, Mr. P. W. Bowen, Shrawardine Castle.

LONG-WOOL COUPLES.

CLASS 65. Pens of Ten Long-wool Couples.—1st, Mr. John Wigmore, Weston-under-Penyard; 2d, Mr. George Limbrick, Horton, Old Sodbury.

SHORT-WOOL COUPLES.

CLASS 66. Pens of Ten Short-wool Couples.—Mr. Ralph Neville Grenville, Rutleigh, Glastonbury.

HORSES.—FOR AGRICULTURAL PURPOSES.

CLASS 67. Stallions, not of the Suffolk breed.—His Grace the Duke of Beaufort, Badminton, Chippenham, Wiltshire.

The competition for prizes offered for shoeing was unusually intense; no fewer than 26 entering the lists, and the work thus occupying the whole day, and being witnessed by thousands of spectators. The winner took 29 minutes to make a near fore-shoe, point the nails, fit the shoe, and put it on. The winner of the 2d prize did his work in less time by two minutes, but the workmanship was inferior. Glover was 39 minutes in completing the work. The following is the prize list:—

1st, 3 guineas, E. Warry, Shepton Beauchamp; 2d, 2 guineas, F. Dunkerton, Shepton Mallett; 3d, 1 guinea, H. J. Glover, Shepton Beauchamp, an apprentice to Mr. Warry, who took the first prize.

We must not forget to add that one side of the yard was worthily covered by a row of shedding, under which a goodly show of seeds and agricultural produce was arranged by Messrs. Carter, Foster, Sutton, and Wheeler; all well-known firms in the seed trade. The stands of Messrs. Sutton and of Messrs. Wheeler were especially illustrative of the enterprise and resources of the exhibitors.

At the annual meeting in the Council tent on Wednesday, Lord Taunton was appointed President; a number of Herefordshire gentlemen were elected on the Council; a proposal to extend the district of the Society was negatived, it being understood that the Society was nevertheless willing to accept invitations from towns in the West of England outside of it. And in accordance with this its annual meeting next year is to be in Hereford.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	June	Inches.	°	°				°	°	°	°	Inches. 0.15
Thursday ..	16	29.85	66	61	W.	1	5	68	49	79	42	0.06
Wednesday ..	15	29.60	62	58	S.W.	1	10	63	51	74	44	0.05
Tuesday ..	14	29.56	58	55	S.W.	2	10	67	48	83	43	..
Monday ..	13	29.69	61	56	S.W.	0	10	64	46	81	39	..
Sunday ..	12	29.77	59	55	S.	2	10	66	50	78	45	..
Saturday ..	11	29.84	67	60	S.W.	2	5	69	52	84	47	..
Friday ..	10	29.91	67	60	N.W.	1	2	71	48	87	41	..

Notices to Correspondents.

IRRIGATION: *Subscriber*. You speak of "Wheat" land—of course irrigation is only adapted for Grass lands, and it is of service only when there is a large body of water; "a gallon a minute" is for irrigation purposes altogether useless. Will you state the case more precisely?

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

THE HYDROPULT is invaluable for use in the GARDEN for WATERING BEDS, SPRINKLING PLANTS, DROWNING OUT INSECTS, CLEANSING TREES FROM SMUTS, DRESSING with LIQUID MANURE, ETC. ETC.



THE HYDROPULT is desirable in every HOUSEHOLD for WASHING WINDOWS, WETTING SIDEWALKS, SPRINKLING STREETS, WASHING CARRIAGES, EMPTYING CISTERNS, FILLING BARRELS, A SPRAY BATH, ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,

32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.
Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.
It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen, whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

Price 35s.,

Complete with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede SYRINGES and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

HYDROPULT SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.
WAREHOUSE and OFFICES, 27, LEADENHALL STREET, LONDON, E.C.
CHARLES POMEROY BUTTON, PROPRIETOR.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 16 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*; 86 ft. by 25 ft., 207*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

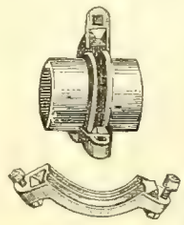
SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.





T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

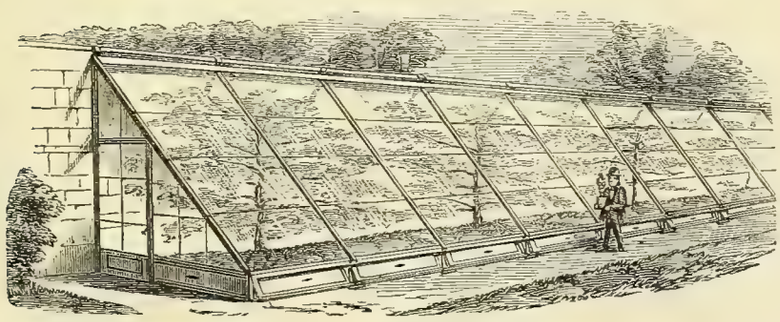
For a few prices, see last week's advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

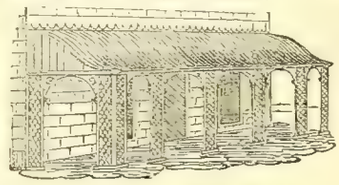
Two yards wide .. .. 1*s.* 8*d.* per yard run.
Four yards wide .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

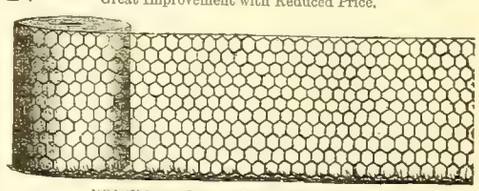
VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

NEW IMPROVED PREMIUM WIRE NETTING.

Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium		Strong.		Extra Strong.	
		Jap	Gal	Jap	Gal	Jap	Gal	Jap	Gal
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally

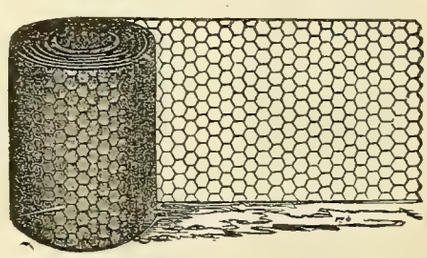
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch ,, ,, ,, .. ,,	18 ..	5 ,,	4 ,,
2-inch ,, ,, ,, .. ,,	17 ..	6½ ,,	5 ,,
2-inch ,, ,, ,, .. ,,	16 ..	8 ,,	6½ ,,
1¾-inch ,, ,, ,, .. ,,	19 ..	4½ ,,	4 ,,
1½-inch ,, ,, ,, .. ,,	18 ..	6 ,,	4¾ ,,
1½-inch ,, ,, ,, .. ,,	17 ..	7 ,,	5½ ,,
1⅜-inch ,, ,, ,, .. ,,	16 ..	9 ,,	7 ,,

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.

The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Heating by Hot Water.

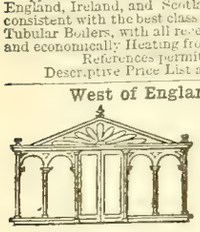
GEORGE COWELL, Crescent, Salford, Manchester (late Partner with J. WEEKS & Co., Chelsea, London), will be happy to forward Plans, Estimates, and Specifications for the Erection of the above (free of cost) on receipt of dimensions and particulars.

Apparatus fixed complete, and warranted to answer, throughout England, Ireland, and Scotland, at the lowest remunerative prices consistent with the best class of materials and workmanship. Upright Tubular Boilers, with all recent improvements, capable of efficiently and economically Heating from 100 to 20,000 feet of 4-inch pipe.

References permitted throughout the Country.

Descriptive Price List and full particulars on application.

West of England, Ireland, and Wales.





VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

Heating by Hot Water.



JOHN TOOLEY, late 21 years with J. WEEKS & Co.

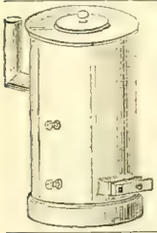
TUBULAR BOILERS,

All Sizes on the most Improved Principles, For Churches, Chapels, Schools, Halls, Conservatories, &c.

IMPROVED VALVES, &c.

References in England, Ireland, and Wales.

JOHN TOOLEY, 9, Radnor Street, King's Road, Chelsea, S.W.



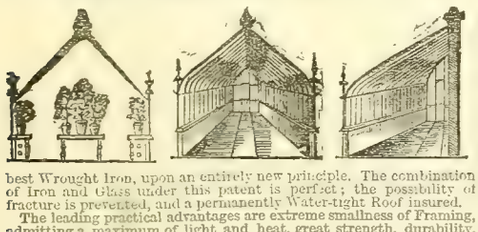
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

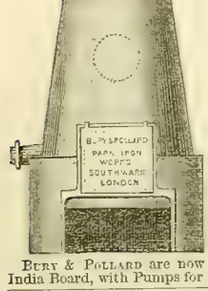


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility & Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



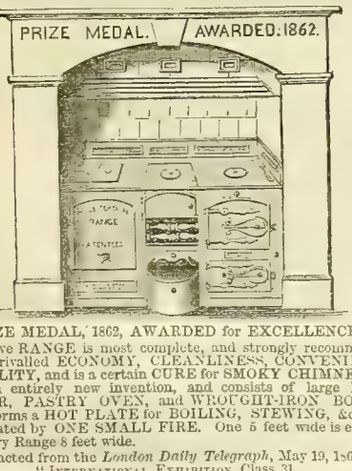
BURY AND POLLARD (Successors to John R. Peill), Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD are now making a powerful Windmill for the India Board, with Pumps for Cotton Irrigation.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole Heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.

"INTERNATIONAL EXHIBITION, Class 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side by side*; and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester.

Agents for London: BARRON, SON, & WILSON, 336, Strand, W.C.

Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

Card.

SAMUEL N. McGERROW, GENERAL HORTICULTURAL BUILDER, Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.* 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

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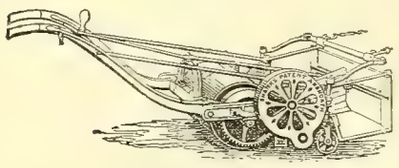
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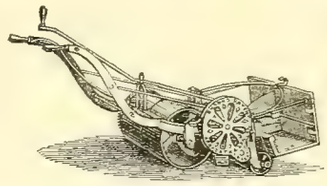
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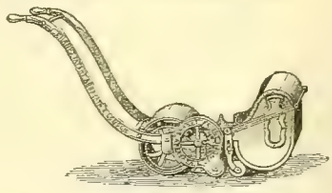
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Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, June 18, 1864.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1864.] SATURDAY, JUNE 25. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The NEXT MEETING of this COMMITTEE, for the EXHIBITION of NEW PLANTS and SEEDLINGS, will be held in conjunction with the Great Rose Show, which will take place in the Gardens of the Society on JUNE 29. Sub-Committees will be appointed to adjudicate.

The subjects exhibited must be in the Gardens by half-past 8 o'clock on the morning of June 29. They may be entered without previous notice; but a detailed statement of their names, IN WRITING, accompanied by the Exhibitor's address, must be handed in BEFORE NINE O'CLOCK. Any person may exhibit.

Seedling Flowers exhibited as novelties MUST BE NAMED.

THOMAS MOORE, Secretary to the Committee.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.

The LAST EXHIBITION of PLANTS, FLOWERS, and FRUIT this season, SATURDAY NEXT, July 2. Tickets to be obtained at the Gardens by Orders from Subscribers, price 5s., or on the day of Exhibition 7s. 6d. each.

Gates open at 2 o'clock.

THE NORTHAMPTON ROSE SHOW, &c.
ENTRIES CLOSE July 14.

Schedules and particulars may be had on application.
JOHN PERKINS, 52, Market Square, Northampton.

BIRMINGHAM ROSE SHOW, July 7 and 8, 1864.—
ENTRIES CLOSE on JULY 1. Forms of Entry, Prize Lists, &c., may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

STAMFORD HORTICULTURAL SOCIETY.
—The ROSE and SUMMER FLOWER SHOW of this Society will be held on TUESDAY, July 5.

The Rules and Schedules are now ready, and may be had on application to Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.

At the ROSE SHOW on the Leicester Race Course, on June 28 and 29, 40*l.* will be awarded for Cut Roses in the various classes.

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WARWICKSHIRE HORTICULTURAL and FLORICULTURAL SOCIETY.

— This Society's ANNUAL EXHIBITION of FLOWERS, FRUITS, and VEGETABLES, will be held (by permission) amid the Ruins of Kenilworth Castle, on WEDNESDAY, July 6, when Prizes amounting to One Hundred Pounds are offered, open to the competition of Professional or Amateur Cultivators, without restriction as to Membership or Residence. Schedules, &c., may be had on application to 26, Broad Street, Warwick. J. CHEYNE, Secretary.

Roses.

JAMES MITCHELL begs to announce that his large COLLECTION of ROSES is NOW in FULL BLOOM.

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EDWARD P. FRANCIS begs to announce that his extensive COLLECTION of ROSES is NOW in FULL BLOOM, including all the new leading varieties. The Great Northern and Great Eastern Railways run frequent trains to Hertford.
The Nurseries, Hertford, Herts.

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Roses.

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(By Order) EDWD. R. CUTLER, Secretary.
June 22, 1864. 14, Tavistock Row, W.C.

The Voting Papers have all been delivered. Any Subscriber not having received one is requested to make immediate application.

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CALCEOLARIA, CINERARIA, and PRIMULA.
Price per packet, 2s. 6d.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

General Plant Catalogue.

WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Calceolaria, Cineraria, Primula.

E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each. The CALCEOLARIA is now magnificently in bloom the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

BANKS'S Magnificent New FUCHSIAS.—A Coloured Plate (extra size) of the above, 2s. 6d., can be sent per postage.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, N.W.

INTERMEDIATE STOCK SEED (Fine Strain).—SCARLET and WHITE varieties, of First-class quality for the Trade.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

NEW BEDDING PLANTS.
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NEW VARIEGATED GERANIUMS and other novelties are to be seen bedded out largely in this establishment.
The VELVET CUSHION VERBENA is a fine advance among bedding plants.
E. G. HENDERSON & SON, St. John's Wood, London, N.W.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Vines Fruiting.

H. LANE AND SON have still to offer VINES in pots, with from 5 to 15 bunches of fine fruit.
To be seen at their Home Nurseries.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.
HERBACEOUS CALCEOLARIA, 2s. 6d. per packet.
HALF SHRUBBY CALCEOLARIA, 2s. 6d. per packet.
CINERARIA, 2s. 6d. per packet.
CARNATION, Self, Flakes, and Bizarres, 2s. 6d. per packet.
PICOTEE, White and Yellow grounds, 2s. 6d. per packet.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden W.C.

The Best Turnips for Feeding off Early.

SUTTON'S LINCOLNSHIRE RED GLOBE.
SUTTON'S IMPERIAL GREEN ROUND
POMERANIAN WHITE GLOBE
EARLY SIX WEEKS
} Price 8*d.* per lb., cheaper by the bushel.

Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Substitutes for Swedes.

SUTTON'S GREEN-TOP YELLOW HYBRID and SUTTON'S PURPLE-TOP YELLOW HYBRID, price 9*d.* per pound, or cheaper by the bushel.
Also, YELLOW TANKARD TURNIP, 10*d.* per pound (cheaper by the bushel.)
These are equal in quality to the best Yellow Swede, and will stand the winter if not sown too early. Carriage free except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. DIXON & SONS, 57, Queen Street, Hull.

SHARPE'S IMPROVED LARGE SWEDE, DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.
CHARLES SHARPE & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL, from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts, 6*d.* per lb.
WORCESTERSHIRE SWEDE, not to be beaten, 9*d.* per lb.; other kinds, 8*d.* per lb. PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

W. VIRGO AND SON can now supply TRUE DRUMHEAD CATTLE CABBAGE and DRUMHEAD SAVOY PLANTS, at 3s. 6*d.* per 1000; all strong and well rooted.
Wonersh Nursery, near Guildford.

Stones or Sprotbro Cabbage Seed.

JOHN SCHOLEY, NURSERYMAN and SEEDSMAN, Pontefract, has the above to offer to the Trade, his own growing of 1863. The above Cabbage is the earliest and best that supplies the Leeds and Manchester Markets.
Price per lb. 1s. 6d., or 7*l.* per cwt. About 15 cwt.

Italian Tripoli Onion.

CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy. Price to the Trade on application.

Rape Seed for Sowing.

CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
Price on application.

Broad-leaved English Rapeseed.

H. AND F. SHARPE have a fine Sample of the above to offer to the Trade at a moderate price.
Seed Growing Establishment, Wisbech.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

Seed Establishment, 181, High Holborn, London, W.C.

THE BUSINESS hitherto carried on at the above address by the late Mr. JOHN GEORGE WAITE, will be continued in the name of WAITE, BURNELL, AND CO., under the Management of Mr. JOHN T. BURNELL, stepson of the late Mr. WAITE, and for a long time associated with him.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Choice Exotic and Hardy Ferns.

EDWIN COOLING has a fine stock of particularly healthy well-grown Plants to dispose of, on very moderate terms. Also a few specimens suitable for exhibition. PRICED LIST free on application. Parties requiring COLLECTIONS of FERNS will be liberally treated.
Mile Ash Nurseries, Derby.

Prize Plant Cases.

BARR AND SUGDEN'S PLANT CASES, elegantly filled with Plants for Window and Table Decoration, 10s. 6*d.* to 21os. These were awarded First Prize at Royal Horticultural Fete and Flower Show, and at Royal Botanic Flower Show. Rustic Window Boxes, 10s. 6*d.*; Rustic Window Gardens, 21s.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden (opposite the Garrick Club), W.C.

50,000 SURPLUS BEDDING PLANTS of all kinds, turned out of pots and packed in Crates or Boxes, 10s. per 100, or 4*l.* per 1000. Post-office Orders or reference to accompany the order. Now is the time for Bedding out. A beautiful Collection of Hardy Climbers to be sold reasonable.
DILLISTONE & Co., Sturmer and Woodlands Nurseries, near Halstead.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most important of all Mr. FORTUNE's recent introductions from Japan, are now ready for distribution. CHARLES NOBLE has great pleasure in making this preliminary announcement. Full particulars, with prices, will be given in a future advertisement.
Sunningdale Nursery, Bagshot.

J. SCOTT'S SPLENDID NEW FUCHSIAS of 1864 constitute one of the finest Collections ever offered to the Public, and are now offered at 9s. per dozen sorts, being a great reduction on the Catalogue price, which will be sent to all applicants on receipt of 6 postage stamps.
NEW JAPANESE VARIEGATED SAXIFRAGE, 2s. 6*d.* each.
Merriott Nurseries, Crewkerne, Somerset.

Coniferæ.

H. LANE AND SON'S superb COLLECTION of the above, including the finest lot of ARAUCARIAS in Europe, RHODODENDRONS, AZALEAS, TREES, SHRUBS, &c., to be seen at their Home and other Nurseries, Great Berkhamsted.
The Home Nurseries are within 10 minutes walk of the Berkhamsted Station, London and North-Western Railway, where Conveyances meet all Trains.

Extra Strong Grape Vines from Eyes.

LUCOMBE, PINCE, AND CO., having this season a splendid stock of strong VINES fit for immediate planting, propagated from Eyes taken from their large experimental Vinery, can offer fine healthy, short jointed Canes, 6 to 9 feet long, of all the leading kinds, at from 3s. 6d. to 7s. 6d. and 10s. 6d. each.

L., P. & Co. have one of the largest Stocks in the Trade of Extra Strong Vines, with Canes 9 to 11 feet long, and proportionally strong, from which purchasers can advantageously select those suitable for fruiting finely next season. Liberal Compensation for Carriage.

Exeter Nursery, Exeter.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

To the Trade.—Deutzia crenata fl. pl.

THOS. CRIPPS, NURSERYMAN, Tunbridge Wells, will be happy to supply plants of the above new and handsome hardy double pink flowering Japanese Shrub, well established in pots, 9s. per doz., or 50s. per 100. LASTRÆA STANDISHII, new and beautiful hardy Japanese Fern, 5s. each. COLEUS MARMORATUS, 2s. 6d. each. LONICERA AUREO-RETICULATA, fine strong last year's plants, in pots, 2 to 3½ ft., 6s. per doz., or 42s. per 100.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution tree, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose. 2s. 6d.

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen.

Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

PAUL'S Nurseries, Waltham Cross, N.

HERBACEOUS CALCEOLARIA, &c., SEED.

CHOICE CALCEOLARIA (JAMES).—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.

CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.

CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 3s.

HUNTS SWEET WILLIAM.—Sealed Packets, 6d. and 1s.

SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.

PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d. And every other first-class Seeds. See CATALOGUE, post free.

WM. CUTBUSH & SON, Highgate Nurseries, London, N.

A MAGNIFICENT FIELD OF

Pure White Canadian Seed Oats in full Ear, and 3½ feet high, June 11, 1864, at

MR. HALLETT'S MANOR FARM, BRIGHTON (within 200 yards of St. Mark's Church, Kemp Town), is now OPEN to INSPECTION. This Field adjoins the Lodge (at the entrance gates of the Manor House), where a sample of the Oats sown may be seen upon presenting Card with Address.

These Oats were raised from a very fine sample in 1862, which was hand-picked 27 times, and weighed 48lb. the imperial bushel. They were drilled (3 bushels per acre), on the 24th February, 1863, cut July 20, and yielded on a very thin poor soil upwards of 80 bushels of Oats, and 185 trusses (36lb.) of most excellent feeding straw per acre; while the ordinary Black Tartarian Oat, on the other part of the same field, ripened a fortnight later, yielded of grain a less crop, weighing 25 per cent. less per bushel, and of straw 120 trusses per acre.

The Canadian Oats were again hand-picked, to ensure *perfect* purity, and drilled on the above field February 17 of this year. Upon the same field, 1863:—

	Kernel.	Husk.
Canadians	69.43 ..	30.57
Tartarians	70.79 ..	29.21 } per cent.

REIGATE SILVER SAND, 7s. 6d. per ton; packed, 10s. per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works, London and Country made Flower Pots of all sizes, Orchard House Pots, Tazzas, Vases, &c., of unique designs.

N.B. Loaded Trucks can be sent direct through to almost all the Railway Stations in Great Britain.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

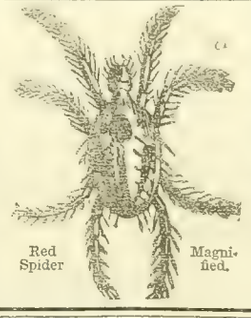
To the Nursery and Seed Trade.

TOBACCO PAPER of first-rate Quality.—Price on application to

CHAS. BROWN, Greenheys, Manchester.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6d., 1s., and 2s. each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5s. value and upwards.

Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."—"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of E. PAGE & CO., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

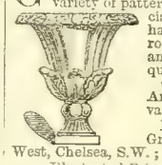
Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.





GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

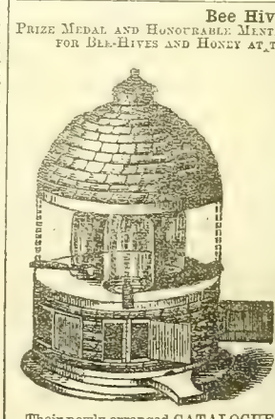
To be obtained of F. & G. ROSHER, at their Premises as above. Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21s.; with window, 25s. Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.

Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.

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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 8d. per yard run.
Four yards wide..	3s. 4d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9d. per lb.; and his large FOSTERTON HYBRID, 8d. per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

VIOLA DEVONIENSIS,

A NEW PERPETUAL BLOOMING SWEET-SCENTED VIOLET.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

Are now prepared to offer this superb VIOLET, particularly recommending it to those who cultivate Violet flowers for sale, as the largest flowered Violet known. Very hardy and robust, blooming profusely and perpetually from September to April; the flowers extra large; colour of the darkest blue, and very sweet scented; the flower stem generally over 6 inches in length, and stiff; the foliage large and thick, bunching splendidly.

A Circular of TESTIMONIALS to be had on application, one of which is as follows:—

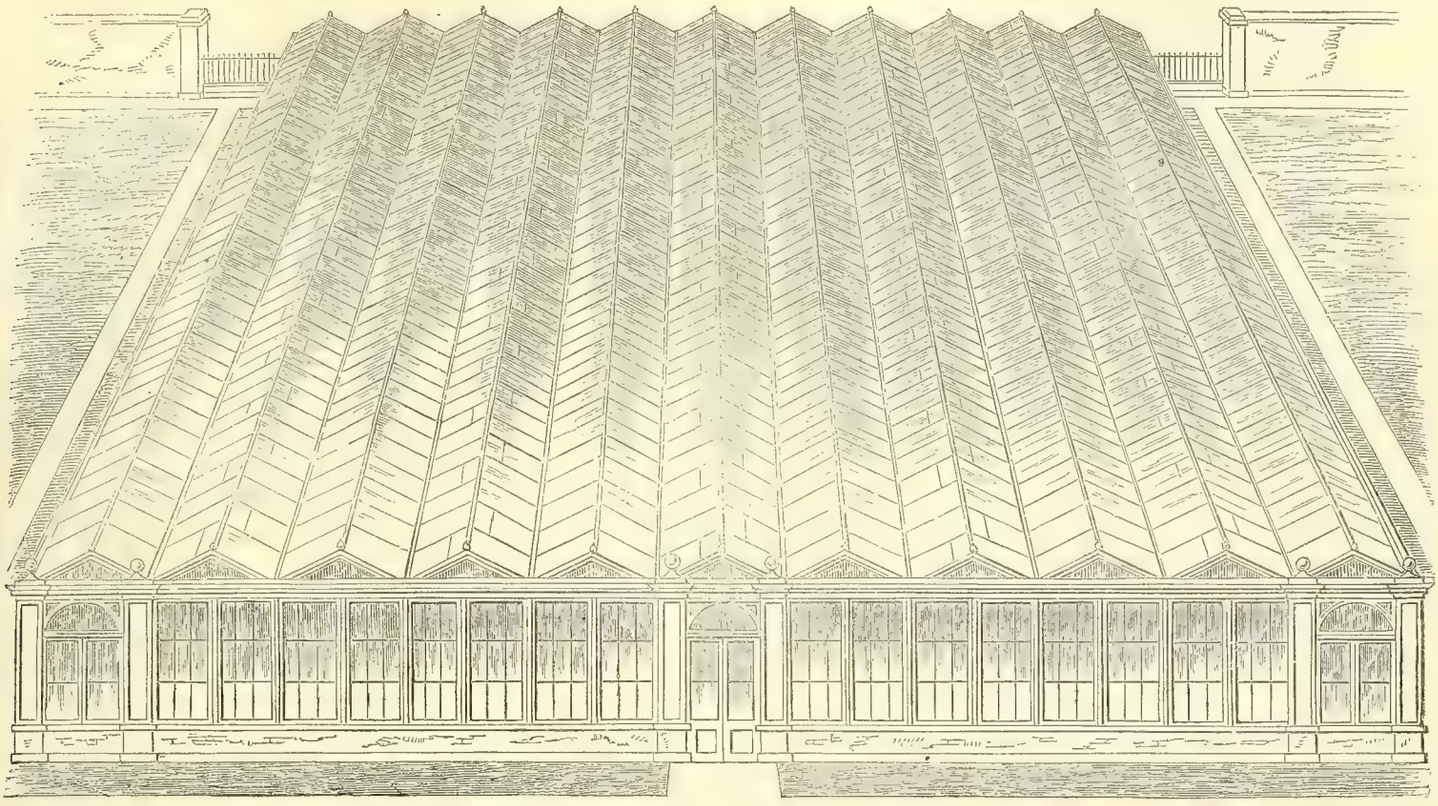
From Mr. G. B. CARLISLE, *General Fruiterer, St. Martin's Street, Exeter.*

"For the past three years I have received from September to April a constant supply of bunches of those beautiful Violets. The flowers are large, of the darkest blue, very sweet scented, the stems stout and long. The bunches of this Violet sell in preference to any other sort, and I have sent them to the furthest parts of the Kingdom. (Signed) GEORGE BYRON CARLISLE."

Strong Plants now sending out at 12s. per dozen, or 60s. per 100.

Orders received in London by HURST AND SON, 6, LEADENHALL STREET, E.C.

HOTHOUSES BY THE ACRE.



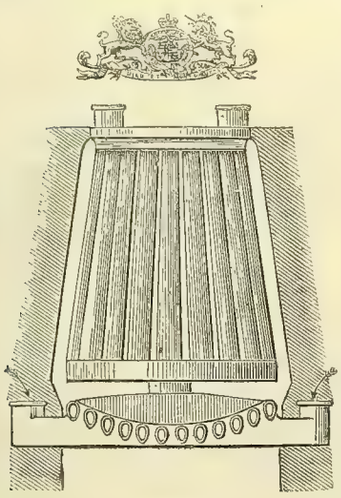
FRUIT, FLOWER, AND KITCHEN GARDENS UNDER GLASS.

The extremely variable and uncertain nature of the climate of Great Britain renders the supply of garden productions so very precarious, that it is high time the energies of the Horticultural Architect were directed to the arrangement of a cheap, simple, and effective structure which would obviate the defects of climate and insure in all seasons an abundant supply of common culinary vegetables; and also of those garden luxuries which our present state of civilisation has rendered indispensable to the comfort of every gentleman's home.

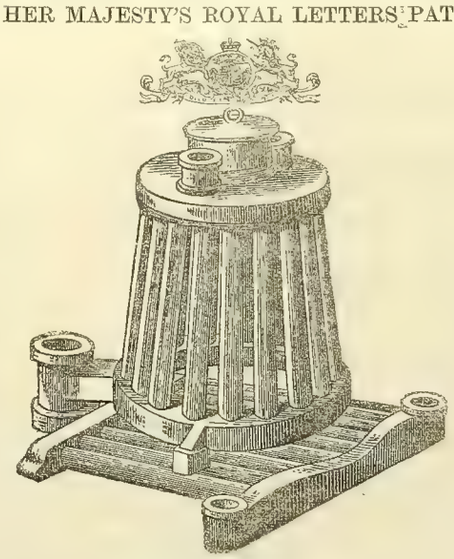
Henry Ormson has devoted much time to the consideration of this subject, and flatters himself that his designs for covering large spaces will entirely supply the desideratum, and that they will be found not only thoroughly efficient for the purpose contemplated, but that the prices at which he can erect them—manufactured by steam power machinery—will be so reasonable as to defy competition, while the workmanship and materials will be of the most superior description. Plans and Estimates given on application for covering ¼ of an acre, ½ an acre, ¾ of an acre, an acre, or any greater or less extent of ground which may be considered desirable.

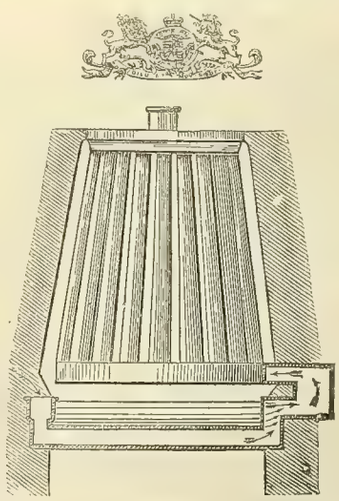
HENRY ORMSON, Horticultural Builder, STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



SECTION.





SECTION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

Is now from Practical Tests allowed to be the best ever invented for Efficiency, Power, and Economy, and from the following Facts it will be manifest to every person's understanding that it must be infinitely more safe for carrying out the One Boiler system than any other Upright Tubular Boiler. For instance, the ordinary old-fashioned Jointed Upright Tubular Boilers made by all other Manufacturers, having 20 tubes for the Boiler, and 12 tubes for the Waterway Furnace bars, would have 64 joints made of cement and rope yarn all exposed to the direct Action of the Fire, whereas in Ormson's Patent there is not One Joint upon which the Fire can act, hence the great advantage and security of this Patent.

These Boilers are made of various sizes so as to suit the amateur or for heating the Largest Establishments on the One Boiler System.

HORTICULTURAL BUILDINGS OF EVERY DESCRIPTION MANUFACTURED BY STEAM POWER MACHINERY. LOWEST PRICES AND BEST MATERIALS.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, Horticultural Builder and Hot-Water Apparatus Manufacturer,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

AWARD OF PRIZES GIVEN BY THE

ALEXANDRA PARK COMPANY, LIMITED,

AT THEIR

SECOND GREAT HORTICULTURAL FÊTE, JUNE 22 and 23.

LIST OF AWARDS.

12 STOVE and GREENHOUSE PLANTS. (Amateurs.)
1st Prize, Mr H. Chilman, Gr. to Mrs Smith, Ashstead House, Epsom.
2d, Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood.
3d, Mr. Thos. Baines, Gr to H. Micholl, Esq., Bowden, Cheshire.
4th, Mr. J. Wheeler, Gr. to J. Philipott, Esq., Stamford Hill, N.

8 STOVE and GREENHOUSE PLANTS. (Nurserymen.)
1st, Mr. John Fraser, Lea Bridge Road, Leyton, Essex.
2d, Messrs. J. & C. Lee, Hammersmith.
3d, Mr. B. S. Williams, Paradise Nursery, Holloway.
4th, Mr. W. Cutbush, The Nurseries, Barnet.
4th, equal, Mr. O. Rhodes, Sydenham Park.

6 STOVE and GREENHOUSE PLANTS.
1st, Mr. Thomas Baines, Gardener.
2d, Mr. H. Chilman, Gardener.

12 FINE-FOLIAGED and VARIEGATED PLANTS. (Nurserymen.)
1st, Mr. B. S. Williams.
2d, Messrs. J. & C. Lee.
3d, Messrs. A. Henderson & Co., Pine Apple Place, Edgware Road.

10 FINE-FOLIAGED and VARIEGATED PLANTS. (Amateurs.)
1st, Mr, Thomas Baines, Gardener.
2d, Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate.
3d, Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton.
4th, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill House, Highgate.
Extra, Mr. J. Wheeler.

COLLECTION of STOVE and GREENHOUSE PLANTS, effectively arranged.
1st, Mr. B. S. Williams.
2d, Messrs. A. Henderson & Co.
3d, Messrs. J. & C. Lee.
4th, Mr. W. Taylor, Gardener.

10 VARIETIES of CAPE HEATHS. (Nurserymen.)
2d, Mr. O. Rhodes, Sydenham.

8 VARIETIES of CAPE HEATHS. (Amateurs.)
1st, Mr. B. Peed, Gardener.
2d, Mr. J. Wheeler.
3d, Mr. H. Chilman.

6 DISTINCT VARIETIES of CAPE HEATHS. (Open.)
1st, Mr. J. Wheeler.
2d, Mr. W. Cutbush, Barnet.
3d, Mr. O. Rhodes.

9 DISTINCT AZALEAS. (Amateurs.)
1st, Mr. B. Peed.
2d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St Dunstan's, Regent's Park.

6 AZALEAS.
1st, Mr. C. Turner, Slough.

15 EXOTIC ORCHIDS. (Amateurs.)
1st, Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield.
2d, Mr. B. Peed.
3d, Mr. Thomas Baines.

8 EXOTIC ORCHIDS. (Nurserymen.)
1st, Mr. B. S. Williams.
2d, Mr. Samuel Woolley, Cheshunt.
3d, Mr. O. Rhodes, Sydenham.

6 EXOTIC ORCHIDS. (Open.)
1st, Mr. S. Woolley.
2d, Mr. J. Wheeler.
3d, Mr. H. Chilman.

12 EXOTIC FERNS in POTS. (Nurserymen.)
1st, Mr. B. S. Williams.
2d, Mr. Samuel Woolley.
3d, Messrs. A. Henderson & Co.

10 EXOTIC FERNS in POTS. (Amateurs.)
1st, Mr. William Young.
2d, Mr. W. Taylor.
3d, Mr. J. Holland, Gr. to R. W. Peake, Esq., Spring Grove, Isleworth.

6 TREE FERNS. (Open.)
1st, Mr. B. S. Williams.
2d, Messrs. J. & C. Lee.

SPECIES of HARDY FERNS, in Pots.
1st, Mr. B. S. Williams.

6 LYCOPODIUMS. (Open.)
1st, Mr. W. Young.
2d, Mr. James Martin, Gr. to J. W. Taylor, Esq., River House, Stoke Newington.

6 FUCHSIAS. (Open.)
1st, Messrs. J. & J. Hayes, Nurserymen, Lower Edmonton.
2d, Mr. H. Bartholomew, Gr., Muswell Hill.
3d, Mr. Charles Turner, Slough.

6 STANDARD FUCHSIAS. (Open.)
1st, Mr. Charles Turner.
3d, Mr. Wm. Young.
4th, Mr. H. Bartholomew.

6 GERANIUMS, SCARLET and its Var.
1st, Mr. John Catling, Gr. to Mrs. Lermitte, Finchley.
2d, Mr. Thomas Duke, Gr to Thos. Duckworth, Esq., Finchley.
2d, equal, Mr. Pettit, Gr. to G. Pouncey, Esq., Finchley.
3d, Mr. John McElroy, Gr. to W. J. Lancaster, Esq., Stamford Hill.
4th, Mr. E. Carter, Gr. to T. Ewart, Esq., Spring Croft Lodge, Finchley.

9 SHOW PELARGONIUMS. (Nurserymen.)
1st, Mr. John Fraser, Lea Bridge Road.

6 SHOW PELARGONIUMS. (Amateurs.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth.

8 FANCY PELARGONIUMS. (Nurserymen.)
1st, Mr. John Fraser.

10 VARIEGATED GLOXINIAS. (Open.)
1st, Mr. Wm. Young.
2d, Mr. Wm. House, Gr. to James Gay, Esq., The Bank, Highgate.

10 VARIEGATED ACHIMENES. (Open).
1st, Mr. H. Bartholomew.
2d, Mr. J. Pulling, Gr. to G. K. Smith, Esq., Colney Hatch.
3d, Mr. Wm. Young.

12 ROSES, in POTS. (Nurserymen.)
1st, Mr. Wm. Paul, Paul's Nursery, Waltham Cross

10 ROSES, in POTS. (Amateurs.)
1st, Mr. Thomas Terry, Gr. to A. G. Puller, Esq., Youngsbury, Ware.

18 NEW ROSES for 1863-64. (Open.)
1st, Messrs. Paul & Son, Old Nurseries, Cheshunt.

50 ROSES, Cut Blooms, 1 truss each. (Nurserymen.)
1st, Messrs. Paul & Son.
2d, Mr. C. Turner.
3d, Mr. Wm. Paul.

24 ROSES, Cut Blooms, 3 trusses each. (Nurserymen.)
1st, Messrs. Paul & Son.
2d, Mr. William Paul.
3d, Mr. C. Turner.
4th, Mr. John Fraser.

30 ROSES, Cut Blooms, 1 truss each. (Amateurs.)
1st, Rev. V. Knox Child, Little Euston, Essex.
2d, Mr. A. Moffatt, Gr. to Viscount Maynard, Euston Lodge, Dunmow.
2d, equal, Mr. H. Sawkins, Gr. to G. Brassey, Esq., Bramfield, Hertford
3d, Dr. Cooper, The Limes, Slough.
4th, Mr. Wm. Corp, Milford, Salisbury.

18 ROSES, Cut Blooms, 3 trusses each. (Amateurs.)
1st, Mr. Wm. Corp.
2d, Mr. A. Moffatt.
3d, Mr. W. Lane, Gr. to John Miles, Esq., Friern Barnet.
4th, Mr. J. Norgrove, Gr. to W. Barry, Esq., Chigwell.

COLLECTION of 24 Vars. CUT FLOWERS, Stove and Greenhouse. (Open.)
1st, Mr. O. Rhodes.
2d, Mr. B. S. Williams.

COLLECTION of 24 Var. CUT FLOWERS, Hardy. (Open.)
1st, Mr. Thomas Allman, Gr. to H. C. Haughton, Esq., Leyton.

24 Varieties of PANSIES.
1st, Messrs. Downie, Laird, & Laing, Stanstead Park, Forest Hill.
2d, Mr H. Hooper, Vine Nursery, Bath.
3d, Mr. E. F. Kingston, Wells Road, Bath.

24 Varieties of PINKS.
1st, Mr. Charles Turner, Slough.
2d, Mr. H. Hooper.
3d, Mr. E. F. Kingston.

24 Varieties of CARNATIONS.
1st, Mr. C. Turner.
2d, Mr. H. Hooper.

3 GARDEN VASES for CONSERVATORY DECORATION.
1st, Messrs. Cutbush & Son, Highgate.
2d, Mr. B. S. Williams.
3d, Messrs. A. Henderson & Co.

3 Groups of FRUIT and FLOWERS, for DINNER TABLE DECORATION.
1st, Mr. James Cutbush, Highgate.
2d, Miss A. M. Williams, Holloway.
3d, Mr. Hill, Highgate.
Extra, Miss A. Brunies, 6, Percy Circus, W.C.

3 HANGING BASKETS.
1st, Messrs. W. Cutbush & Son.
2d, Messrs. A. Henderson & Co.
3d, Mr. B. S. Williams.

FRUIT.

COLLECTION of FRUIT (8 Dishes).
1st, Mr. A. Henderson, Trentham Hall Gardens.
2d, Mr. Thomas Dawson, Gr. to Earl Cowper, Penshanger.
3d, Mr. C. Turner, Slough.

4 PINE APPLES (2 of a sort).
1st, Mr. T. Young, Gr. to C. Bailey, Esq., M.P., Aberdare.
2d, Mr. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park.
3d, Mr. A. Henderson, Trentham.

1 PROVIDENCE PINE.
1st, Mr. Thomas Young, Gardener.
2d, Mr. R. Smith, Gr. to J. N. Walker, Esq., Calderstones, Liverpool.

1 QUEEN PINE.
1st, Mr. Thomas Young, Gardener.
2d, Mr. A. Grant, Gr. to G. Plucknett, Esq., Manor House, Finchley.
3d, Mr. M. Rochford, Page Green, Tottenham.

1 PINE (any other variety).
1st, Mr. A. Henderson, Gardener.
2d, Mr. J. Wallis, Gr. to J. Dixon, Esq., Astle Hall, Congleton.
3d, Mr. William Boise, Gr. to J. H. Lermitte, Esq., Finchley.

3 DISHES of GRAPES (distinct varieties).
1st, Mr. J. Meredith, Gaston, Liverpool.
2d, Mr. John Embrey, Gr. to Mr. Moss, Chadwell Heath.
3d, Mr. A. Fowler, Gr. to Earl of Stair, Castle Kennedy, Stranraer.

1 DISH of BLACK HAMBURGH GRAPES.
1st, Mr. J. Meredith, Garston.
2d, Mr. H. Sawkins, Gr.
2d, equal, Mr. George Hyde, Gr. to H. Bowles, Esq., Myddleton House, Waltham Cross, N.

1 DISH of any other BLACK GRAPE.
1st, Mr. Wm. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire.

1 BOX, not less than 10 lbs. BLACK GRAPES.
1st, Mr. J. Meredith, Garston.
2d, Mr. S. Woolley, Cheshunt.
3d, Mr. A. Henderson, Trentham.

1 DISH of MUSCATS.
1st, Mr. C. Turner, Slough.
2d, Mr. Wm. Hayes, Oak Hill, East Barnet.
3d, Mr. John Embrey, Gr.

1 DISH, any other WHITE GRAPES.
1st, Mr. Geo. Hyde, Gr.
2d, Mr. A. Fowler, Gr.
3d, Mr. W. Hill, Gr.
Equal 3d, Mr. J. Bland, Gr. to F. Deaths, Esq., Golders Green, Hendon.

1 BUNCH of BLACK GRAPES, best flavoured.
1st, Mr. J. Meredith.
2d, Mr. Jas. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead.
3d, Mr. J. Wallis, Gr.

COLLECTION of GRAPES, with particulars of cultivation.
1st, Mr. A. Henderson, Trentham.
2d, Mr. J. Meredith.

FRUIT.

4 VINES in POTS, ripe fruit.
1st, Withheld.
2d, Mr. J. Pulling, Gr.

6 ORCHARD-HOUSE FRUIT TREES with fruit.
1st, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead.
2d, Mr. J. Fraser, Lea Bridge Road.

2 DISHES of PEACHES, distinct varieties.
1st, Mr. Jas. Ford, Gr. to Rev. T. D. Hudson, Frogmore Hill, Watton.
2d, Mr. Charles Allen, Gr. to J. B. Glegg, Esq., Withington Hall, Cheshire.
3d, Mr. Wm. Hill, Gr.
Equal 3d, Mr. Geo. Sage, Ashridge, Berkhampstead.

2 DISHES of NECTARINES, distinct varieties.
1st, Mr. Chas. Allen, Gr.
2d, Mr. George Masters, Gr. to Earl Macclesfield, Sherburn Castle, Tetsworth.
3d, Mr. Thos. Dawson, Gr.
Equal 3d, Mr. Wm. Hill, Gr.

1 DISH of PEACHES.
1st, Mr. Jas. Ford, Gr.
2d, Mr. John Brown, Gr. to Sir C. Knightley, Bt., Fawsley Park, Daventry.
3d, Mr. W. D. McLellan, Gr. to J. W. Carter, Esq., West Lodge, Barnet.
Equal 3d, Mr. J. Wallis, Gr.
Extra, Mr. J. Wills, Gr. to Sir P. G. Egerton, Bt., Oulton Park, Tarporley, Cheshire.

1 DISH of NECTARINES.
1st, Mr. John Brown, Gr.
2d, Mr. T. Dawson, Gr.
3d, Mr. George Masters, Gr.
Extra, Mr. J. Wills.

1 DISH of WHITE CHERRIES.
1st, Mr. Charles Turner, Slough.
2d, Messrs. H. Lane & Son.
3d, Mr. R. Knight, Gr. to C. M. Sampson, Esq., Worth, Sussex.

1 DISH of RED CHERRIES.
1st, Mr. A. Henderson, Gr.
2d, Mr. J. Meredith.
3d, Mr. Charles Turner.

3 DISHES of STRAWBERRIES, distinct.
1st, Mr. W. Kaile, Gr. to Earl Lovelace, East Horsley Towers.
2d, Mr. Charles Turner.
3d, Mr. James Martin, Gr.

GREEN-FLESH MELON.
1st, Mr. H. Sawkins.
2d, Mr. J. Meredith.
2d, equal, Mr. James Ford.
3d, Mr. Thomas Simmonds, Gr. to J. Smith, Esq., Micklehan Hall, Dorking.
3d, equal, Mr. Wm. Kaile.

SCARLET-FLESH MELON.
1st, Mr. J. Martin.

EXTRA PRIZES.
1st, Mr. A. Fowler, for 1 Dish Figs.
2d, Mr. John Brown, for 1 Dish Figs.
3d, Mr. A. Henderson, for 1 Dish Figs.
Mr. Charles Turner, for a Collection of Picotees.
Mr. John Monro, Rubley Gardens, for 6 Cucumbers.
Mr. James Holland, for two new Petunias.
Messrs. Barr & Sugden, King Street, Covent Garden, for Rustic Window Gardens, and Plant Cases with Plants.
Mr. George Turner, 35, Prince's Road, Notting Hill, for a Collection of Dried Grasses.
Mr. J. Pulling, for 6 Cockscombs.
Mr. Thos. Williams, Gr. to J. S. Cooper, Esq., Park Hall, Finchley, for 4 Herbaceous Calceolarias.
Mr. Thomas Baines, for a Collection of Sarracenias and Anæctochilus.

FIRST-CLASS CERTIFICATES.
Lilium auratum, Mr. James Veitch, Chelsea.
Dracæna Cooperi, Mr. James Veitch, Chelsea.
Lomaria species nova, Mr. James Veitch, Chelsea.
Gymnogramma Pearcii, Mr. James Veitch, Chelsea.
Lomaria zamæfolia, Mr. B. S. Williams Holloway.
Cattleya amethystoglossa, Mr. B. S. Williams, Holloway.
Agave schidigera, Mr. B. S. Williams, Holloway.
Zamia Lehmanni, Mr. B. S. Williams, Holloway.
Phalænopsis grandiflora aurea, Mr. B. S. Williams, Holloway.
Yucca albo spica, Mr. B. S. Williams, Holloway.
Sphærogyne latifolia, Mr. B. S. Williams, Holloway.
Phormium tenax variegata, Mr. B. S. Williams, Holloway.
Anæctochilus petola superba, Mr. B. S. Williams, Holloway.
Dracæna stricta, Mr. B. S. Williams, Holloway.
Clematis lanuginosa var. venosa, Mr. Townshend, St. Mary's Nursery, Hornsey.
Clematis lanuginosa var. atro-purpurea, Mr. Townshend, St. Mary's Nursery, Hornsey.
Clematis lanuginosa var. violacea, Mr. Townshend, St. Mary's Nursery, Hornsey.
Lastrea Standishii, Mr. Townshend, St. Mary's Nursery, Hornsey.
Alocasia species, Mr. Findlay, Manchester Botanic Gardens.
Dracæna stricta, Mr. John Fraser, Lea Bridge Road.
Lilium auratum, Mr. John Fraser, Lea Bridge Road.
Lastrea Standishii, Mr. Young, Gr. to R. Barclay, Esq., Highgate.

SECOND-CLASS CERTIFICATES.
Lamatophylla borbonica, Mr. B. S. Williams, Holloway.
Nidularia innocentea, Mr. B. S. Williams, Holloway.
Petunia splendida, Mr. H. Williams, Fortis Green Nursery, Muswell Hill.

JUDGES.

STOVE AND GREENHOUSE PLANTS.—Mr. Barnes, Camberwell; Mr. Edmonds, Chiswick; Mr. Mitchell, Hamilton Palace, N.B.

ORCHIDS, FERNS, AND FINE-FOLIAGED PLANTS.—Mr. Penny, Regent's Park; Mr. Anderson, Meadow Bank, Uddingstone, Glasgow.

FLORIST FLOWERS, &c.—Rev. H. H. Dombrain, Deal; Mr. Kinghorn, Richmond; Mr. Parsons, Welwyn, Herts.

FRUIT.—Mr. Cramb, Tortworth Court, Gloucestershire; Mr. Tillyard, Stanmore Priory; Mr. Whiting, Deepdene, Dorking.

DINNER TABLE DECORATIONS, VASES, AND HANGING BASKETS.—The Lady Fermoy; Hon. Mrs. Vivian; Mrs. Makins.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. Hogg's *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by Andrews will be sent in exchange for 12 Postage Stamps.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

INSTITUTED 1838.

The TWENTY-FIRST ANNIVERSARY FESTIVAL in AID of the FUNDS of this Institution will take place at the LONDON TAVERN, Bishopsgate Street, on FRIDAY, July 8.

The Right Hon. Charles Lawson, Lord Provost of Edinburgh, in the Chair.

BOARD OF STEWARDS.

George Child, Esq., *Chairman.*

His Excellency the Lord Lieutenant of Ireland, K.G.
His Grace the Duke of Buccleuch, K.G.
His Grace the Duke of Roxburghe, K.T.
The Most Hon. the Marquess of Tweeddale, K.T.
The Most Hon. the Marquess of Bowmont
The Right Hon. the Earl of Haddington
The Right Hon. Viscount Dalrymple
The Right Hon. Lord Portman
The Right Hon. Lord Elcho, M.P.
The Right Hon. Sir Robert Peel, Bart., M.P.
The Right Hon. the Lord Advocate, M.P.
The Hon. Arthur F. Kinnaird, M.P.
The Baron Lionel de Rothschild, M.P.
The Very Reverend the Dean of Edinburgh

The Rev. Dr. Norman McLeod, one of Her Majesty's Chaplains for Scotland.

Samuel Ainsworth, Esq.
James Anderson, Esq., Q.C.
Thos. Scott Anderson, Esq., W.S.
Adam Black, Esq., M.P.
John Bolton, Esq.
R. Broadwater, Esq.
Mathew Brown, Esq.
James Caird, Esq., M.P.
Henry Cutler, Esq.
Arthur Dickson, Esq.
Charles Fisher, Esq.
Finlay Fraser, Esq.
A. E. Henderson, Esq.
William Hurst, Esq., Jun.
John B. Innes, Esq., W.S.
Colonel Jeakes
Frederick Kennedy, Esq.
Joseph Kitchin, Esq.
J. E. C. Koch, Esq.
Stuart H. Low, Esq.
Charles Lawson, Esq., Jun.
Henry Graham Lawson, Esq., M.A.
William Miller, Esq., M.P.
Daniel Nash, Esq.
William Paul, Esq.
The Rev. Charles Parker, M.A.
Captain Robertson, R.N.
A. A. Robinson, Esq.
John Shaw, Esq.
The Rev. Dr. George Smith
Wm. Baxter Smith, Esq.
Martin H. Sutton, Esq.
Archibald Turnbull, Esq.
Charles Turner, Esq.
R. C. Ward, Esq.
Anthony Waterer, Esq.
John Waterer, Esq.
A. C. Wheeler, Esq.
Edmund Wilder, Esq.
B. S. Williams, Esq.
Samuel Wright Wright, Esq.

Tickets, One Guinea each, to be had of the Stewards and the Secretary. The Gallery will be opened for the admission of Ladies (Tickets 7*s.* 6*d.* each), of which a limited number only will be issued. Dinner to be upon table at 6 o'clock precisely.

14, Tavistock Row, Covent Garden, W.C. EDW. ROGER CUTLER, Secretary.

THE ATTENTION of FELLOWS of the ROYAL HORTICULTURAL SOCIETY is particularly invited to the following CORRESPONDENCE:—

No. 1.—To Andrew Murray, Esq.

Acton Green, Turnham Green, June 22, 1864.

Sir,—Will you be good enough to inform me whether the Four Advertisements in the sixth column of the first page of the *Times* of yesterday, commencing—

"Her Royal Highness the Princess of Wales; Horticultural Gardens, June 23; Messrs. Toole and Paul Bedford; Mumbo Jumbo,"

were inserted by the authority and with the knowledge of the Council.—I am, Sir, your obedient Servant,

JOHN LINDLEY, F.R.H.S.

No. 2.—To Dr. Lindley.

Royal Horticultural Society, South Kensington, W., June 22, 1864.

Sir,—The Four Advertisements in the sixth column of the first page of the *Times* of yesterday's date, commencing "Her Royal Highness the Princess of Wales," &c., *were* NOT *inserted by the authority and with the knowledge of the Council* of this Society.—I am, Sir, your most obedient Servant,

ANDW. MURRAY.

The Advertisements here referred to are the following:—

HER Royal Highness the Princess of WALES will OPEN the GRAND FETE and BAZAAR to be held in the Arcades on the South Side of the Horticultural Gardens, in AID of the Building Fund of the FEMALE SCHOOL of ART, in Queen Square, Bloomsbury, on Thursday next and two following days.

1. Purses containing 5*l.*, collected by ladies in aid of the fund, will be received by Her Royal Highness at the opening of the Bazaar.
2. The Band of the Royal Grenadier Guards will play during each day.
3. A variety of theatrical, musical, and other entertainments will be provided by amateurs and renowned professionals, who have kindly promised to give their services in aid of the fund, among WHICH MAY BE ENUMERATED MUMBO-JUMBO, a new burlesque by a new author, in a new theatre, with new scenery, new dresses and appointments, and by a new company.
4. RICHARDSON'S SHOW, with two startling new dramas by the renowned company of amateurs late of the International Exhibition.
5. Promenade Concerts.
6. The PEEP-SHOW AND PAUL-Y-TOOLE-Y-TECHNIC Institution; proprietors, Toole and Paul Bedford (by permission of B. Webster, Esq.)
7. The White Lilies of the Prairie in their world-renowned entertainment.
8. The International Dow Show.
9. The New Zealand Chief.
10. The Piping Bullfinch (late of the International Exhibition), &c.

Admission on Thursday, June 23, by tickets purchased before the day, 5*s.*; or by payment at the doors, 7*s.* 6*d.* Open at 11 o'clock.
On Friday, June 24, 2*s.* 6*d.* Doors open at 12 o'clock.
On Saturday, June 25, 1*s.* Doors open at 12 o'clock.

HORTICULTURAL GARDENS, June 23d, 24th, and 25th.—GRAND FETE and BAZAAR. The Blazing Burgee—Briganzio the Brigand—The Port Admiral. *The Blazing Burgee, an excellent substitute for butter at breakfast.* Don't run up tailors' bills, but run up and see Briganzio the Brigand. *The Port Admiral doubles up his enemies and bruises his perambulators. All at the Richardson's Show; one continued round of mystery, murder, crime, virtue, felicity, and revelry.* Every Quarter of an hour.

MESSRS. TOOLE and PAUL BEDFORD have generously offered their invaluable services (with the kind permission of B. Webster, Esq.) for the GRAND FETE and BAZAAR in AID of the Building Fund of the FEMALE SCHOOL of ART, Queen Square, Bloomsbury, on the 23d, 24th, and 25th June, in the Southern Arcades of the Royal Horticultural Gardens. "*A Horrible Tale,*" "*The Peep-show,*" *and the Paul-y-Toole-y-technic Institution, with Lectures on* "*Eye Hart,*" by these eminent professors, at intervals, from 2.30 to 4.30 each day.

MUMBO JUMBO will make his début on Thursday, 23d, and two following days, at the BAZAAR in AID of the BUILDING FUND of the FEMALE SCHOOL of ART, Bloomsbury, at the New Theatre, in the Royal Horticultural Society's Gardens.

RUGBY ROSE SHOW, JUNE 21.

AWARDS of the JUDGES.

Class A. Open.—Seventy-two Varieties.

No. 1. 1st Prize, Mr. B. R. Cant, of Colchester, Silver Cup or 10*l.*; 2d, Messrs. Paul & Son, of Cheshunt, 5*l.*; 3d, Mr. James Mitchell, Sussex, 3*l.*; 4th, Mr. John Cranston, Hereford, 2*l.*

Twenty-four Varieties.

No. 2. 1st, Mr. B. R. Cant, Colchester, Silver Cup or 4*l.*; 2d, Messrs. Paul & Son, 2*l.*; 3d, Mr. Wm. Draycott, 1*l.*; Extra, Messrs. H. Lane & Son, Berkhampstead, 10*s.*

Twelve New Roses of 1863 and 1864.

1st, Messrs. Paul & Son, 1*l.*; 2d, Mr. B. R. Cant, 10*s.*

Twelve Tea Roses.

1st, Messrs. H. Lane, 1*l.*; 2d, James Mitchell, 10*s.*

Twelve H. P. Roses.

1st, Messrs. H. Lane & Son, 1*l.* 10*s.*; 2d, Messrs. Paul & Son.

Twenty Pot Roses.

1st, Messrs. Paul & Son, Silver Cup, or 7*l.* 7*s.*; Extra, Messrs. H Lane, for four boxes of Roses, 10*s.*

Class B.—Amateurs.

No. 6. 1st, Mr. C. J. Perry, Silver Cup or 6*l.*; 2d, Thos. Laxton, 4*l.*; 3d, C. N. Newdegate, Esq., M.P., 2*l.* No. 7. 1st, C. J. Perry, 2*l.*; 2d, E. Hunt, Leicester, 1*l.*; 3d, C. N. Newdegate, Esq., M.P., 10*s.* No. 8. 1st, John Lane, Esq., The Lawn, Rugby, 1*l.*; 2d, Rev. E. H. Pochin, Sileby, 10*s.*; 3d, Mr. J. Chapman, Rugby, 5*s.*

Class C.—Cottagers.

1st, John Dicks, Weedon, 1*l.*; 2d, Absolem Tyrrell, 12*s.*; 3d, W. Hobley, Newton, 8*s.*; 4th, Mr. Wm. Gilbert, 5*s.*

Judges.—W. Barnes, Nursery, Camberwell; R. Ruffett, Gardener to the Right Hon. Viscount Palmerston, Brocket Hall.

W. H. Tallis, Hon. Secretary.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—*s.* *d.*	*s.* *d.*		Per pkt.—*s.* *d.*	*s.* *d.*
PRIMULA ..	2 0 and 3 6		INTERMEDIATE STOCK ..	0 6 and 1 0	
CINERARIA ..	1 6 and 2 6		BROMPTON do.	0 6 and 1 0	
CALCEOLARIA	1 6 and 2 6				

The above Seeds are saved with great care, and can be warranted to give satisfaction.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. Dobson & Sons, Seedsmen, Isleworth, W.

CARTER'S FARMER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on SEEDS.

The Gardeners' Chronicle.

SATURDAY, JUNE 25, 1864.

MEETING FOR THE ENSUING WEEK.

Wednesday, June 29 } Royal Horticultural (Great Rose Show and Floral Committee), at South
Thursday, — 30 } Kensington.
Saturday, July 2 { Royal Botanic (Last Exhibition of Plants, Flowers, and Fruits) .. 2 P.M.

Two large importations of Lily Bulbs, supposed to include a large quantity of Lilium auratum, have been lately sold by Mr. Stevens, the well-known auctioneer of King Street, Covent Garden.

We draw attention to these sales for two reasons; first, if the bulbs alluded to should really prove to be that magnificent species, it will soon be sold at a reasonable rate, and will consequently be brought within the reach of all who wish to add it to their collections. Our second reason for drawing attention to the circumstance is one of considerable horticultural interest, owing to the manner in which these bulbs were sent home. They came, in common packing cases, round the Cape of Good Hope, in the hold of a sailing vessel, and must have been at least four or five months at sea. When the boxes were unpacked in London, the bulbs were found to be in most excellent condition—indeed most of them were as plump and fresh as if they had been dug up and brought in from some suburban nursery on the morning of the sale. We had an opportunity of examining the manner in which they had been packed, and we shall therefore endeavour to describe it for the information of our readers. It is well worth notice, both on account of its value in a horticultural point of view, and on account of the theory of the operation.

The stems of the Lily, like those of many other bulbs and tubers, die off in autumn after having perfected their blossoms and laid up a supply of nourishment in fresh bulbs for the production of leaves and flowers in the following year. For several months during autumn, winter, and early spring the bulbs remain almost dormant in the ground, neither adding to their resources nor diminishing them. This state of repose is natural to these plants, and it is only by our giving heat and moisture in an artificial way that they can be induced to grow at this period of the year. It therefore follows, as a matter of course, that this is the proper season to send bulbs from one part of the world to another. The importations to which

we have just alluded had, no doubt, been dug out of the ground just after the plants had completed their summer growth, and when they had gone to rest for the winter, and this was one of the reasons of the successful result. Then they were on their voyage at that season of the year during which they are not naturally inclined to grow, unless they are compelled to do so by artificial means. Thus far, therefore, the importer had gone to work in the right way.

Having taken the bulbs out of the ground at the proper season for sending them home, the next matter to be attended to was the best mode of packing them. And here, too, a better method could not have been hit upon than that employed in the instance in question. They were packed in *dry earth*. This earth had two important properties; it was to a certain extent a non-conductor, and preserved the bulbs from the effects of sudden changes of temperature, and while it kept them in a plump and healthy condition, it absorbed any superfluous moisture and prevented them from rotting.

Such is the theory of the matter, and certainly the success which attended the experiment was most complete. We have no means of knowing whether the merchant who sent these cases home knew anything about the theory and practice of horticulture, but he certainly did the work as theory would have directed, and well deserves the success which attended his venture.

In a horticultural point of view this matter is also of considerable interest. We learn how easily and how cheaply plants of this kind may be sent from one part of the world to another, even if the voyage should be a long one. It is not necessary to have WARD's cases to introduce such thing as Lilies in quantity, even from such far-off countries as Japan; nor is it necessary to send the consignment by the expensive, although speedy, overland route. All that is required is to take up the bulbs at the right season of the year, and to pack them in the proper way. A common deal box, which any carpenter can make, and a little dry earth, is all that is required. In this condition the bulbs may be sent home in the hold of a ship like common merchandise, safe alike from the rude kicks of sailors and from the spray of the ocean. But suppose the conditions in which our bulbs were placed to be somewhat different, suppose that they had been taken out of the ground at the wrong season of the year—in spring, for example, just when the season of growth was approaching, and had been packed in wet instead of dry soil, the results would have been very different and not nearly so satisfactory. In the latter case the bulbs would certainly have commenced to grow during the voyage, and most probably would have been found dead on arriving at their destination.

A little knowledge of the habits of plants, so as to enable one to know how to treat them, is oftentimes of great importance to those who endeavour to send them to distant countries by sea. It frequently depends on the application of this knowledge whether the plants reach their destination alive and healthy, or dead and worthless. As regards the Lilies we have alluded to, the lucky importer has been well rewarded on account of his having possessed and applied this kind of knowledge, for the two consignments realised, we believe, the large sum of nearly 1000*l*.

—— THREE or four new INDIAN AZALEAS which have been exhibited during the present season are of sufficient merit to claim a few separate remarks.

First and foremost we should place Mr. VEITCH'S Stella, a large and well-formed flower, remarkable for its substance, and of a most telling colour, being one of the richest and brightest orange-scarlets to be found in the family, and marked with a Cactus-like glow of rich violet over the upper segments. It will thus be seen that the colouring is something like that of Duchesse Adelaide de Nassau, but the form is vastly superior. Another variety of the same style of colour, and from the same source, called Vesuvius, has been equally successful with the former in gaining a First-class Certificate, though at a later period of the year. We believe this also will prove a variety of superior character; but when we saw the two together the early part of the season, Stella was decidedly the better of the two. We have very little hesitation in recommending both of these, and none at all in the case of Stella.

Then Mr. IVERY'S Fascination is by no means badly named, for it is one of the most lovely varieties we have seen, in respect to its colouring. When we add that its flowers were shown as smooth as cardboard, and perfect in respect to form, we shall have said enough to recommend this also. The colour is a beautiful bright rose, broadly and distinctly bordered with white, with the upper segment richly spotted. It is deeper and brighter than any of the white-edged varieties, with the exception of the semi-double Belgian, Souvenir du Prince Albert, of which latter, by the by, though it has not this season been well shown in England, we have seen some finely-coloured and finely-developed flowers elsewhere.

Another variety of considerable merit was the Excelsior of Messrs. F. & A. SMITH, a smooth-flowered rose, conspicuously spotted on the upper segment. Mr. TODMAN'S Lord Derby too, is one which deserves a word of praise for its decorative qualities, the flowers being remarkably bright, and rose colour spotted with crimson, large, freely produced, and exceedingly effective.

Mr. KINGHORN'S Meteor is another flower of the season which must not be passed over. It is one of the bright orange scarlets, moderately spotted, something after the style of Mars, and, therefore, very showy.

Finally, as a companion to Flag of Truce, a double white, which continues to improve the longer one is acquainted with it, we must mention a Belgian sort, called Roi des Doubles, a close, double, crispy, bright and lively rose-colour, very showy, and one of the finest of its race for decorative purposes.

Some new Belgian varieties we hope to notice hereafter.

—— We understand that the formation of the NEW GARDENS AT SANDRINGHAM, the Norfolk residence of H.R.H. the PRINCE OF WALES, is being pushed forward rapidly under the superintendence of the gardener, Mr. CARMICHAEL. The walls are now in course of construction, and a range of forcing houses 300 feet long, with four others of 100 feet each, are to be commenced immediately by Mr. GRAY, of Danvers Street, Chelsea.

CHERRIES.

WHEN I think of Cherries, I seem to be cogitating on things that were and are not, for I go back in thought to my boyish days, some fifty years since, when numerous old trees of May Duke, Archduke, and Bigarreau Cherries, planted by my grandfather, were a little past their prime, but bearing, as most old trees do, large and delicious fruit. The size of these trees may be imagined when I state that from six to eight bushels were often gathered from one tree; and from "the old Bigarreau," now in the last stage of decay, I think I remember hearing that 10 bushels had been in one abundant season gathered. All this now seems like a dream, for owing to the destruction of birds of prey by the gamekeepers, and I half suspect from their having been driven away by the noise of the railway, fruit-loving birds have increased to such an enormous extent that Cherries grown in the usual way on standards are devoured before they are ripe. To illustrate their rapacity at the present day, I may mention that in July of last year I was led to look at two fine young standard Bigarreau Cherry trees literally covered with fruit. I calculated that their produce would be from two to three bushels. I thought of old times, and "mentally ejaculated" there will this year be enough for us all, meaning birds and self. This was on Saturday. On the Monday following I again visited my trees—not a Cherry was left, but the ground was covered with stems; the birds had evidently made our day of rest a day of thorough enjoyment—instead of sweet Cherries I had sweet songs, not quite satisfactory to one's fruit appetite. I ought to say that for some years past, this voracious conduct of our "feathered friends" has been not the exception but the rule, much to my discomfort; for it seems to me a sort of fixed idea that what we dearly loved in boyhood, we fancy we love in old age. As far as Cherries go, this is with me quite true, for there is something about these first-fruits of summer very charming—so bright, so cheery, so nice, but only when they are gathered from the trees with one's own fingers and eaten at once; gathered Cherries lose all their freshness of flavour in a very short time.

It is now some few years since I cast about to find some means of providing myself with ripe Cherries, and for the last two or three seasons I have had the pleasure of gathering them from the end of May till the end of August, ay, even later. I have accomplished this by a very simple mode of culture—merely by planting the trees in pots, and placing them in my "Cherry house," a span-roofed structure 14 feet wide. A house of this width, 5 feet high at the side, 10 feet high in the centre, and from 30 to 40 feet in length, would supply a large family the whole of the summer with such fine and ripe Cherries as are rarely gathered from trees in the open air now-a-days.

All the kinds of Duke Cherries, such as the May Duke, Empress Eugénie, Archduke, Nouvelle Royale, a fine large late Duke, Duchesse de Pallnau, the Blanchoury Cherry and some others, if grafted on the Cerasus Mahaleb, may be planted in the borders of the house as pyramids; they may be kept in a compact and fruitful state by pinching in their young shoots to three or four leaves all the summer, but such sorts as Early Purple Guigne, the finest and largest early Cherry known, the Belle d'Orleans, of equal excellence with the above when grown under glass—they are both too delicate for open air culture except in warm and dry climates—should be grown in 13 and 15-inch pots, as must also the other fine kinds of Heart and Bigarreau Cherries, such as Knight's and Warder's Early Black Cherries, the Black Tartarian, the Bigarreaus of sorts, and some of the late Guigne Cherries, which are so fine in the south of France and in South Germany. All these sorts of Hearts and Bigarreaus are generally grafted on the common Cherry stock, so that their growth is too vigorous to be controlled unless they are grown in pots. They would if planted out burst through the tallest roof. If, however, they are confined to pots and cultivated as pyramids, they form by summer pinching the most fertile and beautiful of fruit trees. My trees are at this moment covered with their rich-coloured fruit from "top to toe."

I have mentioned my "Cherry house" advisedly, for Cherries should have a house devoted to them, for more than one reason. If they are placed among other orchard house trees their fruit ripens so early, and is so tempting both to birds and boys, that it is almost impossible to preserve them till fully ripe; the former make their way through the open ventilators as freely as if the trees were in the open air, and the latter—well, any boy, whether gentle or simple, that can keep his fingers from a ripe Cherry must be of a very philosophic temperament—will pick them. My practice is to open the ventilators as soon as the Cherries commence to ripen, to cover the apertures with double netting, and not to close them till Cherries are over, *i. e.* towards the end of August; the free and constant admission of air gives flavour to the fruit. The door is always kept padlocked, and the key delivered only to a confidential man, who gives the trees water when they require it. *T. R.*

RESULTS OF MR. RICHARD SPRUCE'S TRAVELS.

MR. SPRUCE left Liverpool on the 7th of June, 1849, and reached Pará on the 12th of July. After spending three months in exploring the environs of that city, he ascended the Amazon to Santarem, at the mouth of the Tapajoz, and in November of the same year went 70 miles farther up, to Obydos, where the Amazon is at its narrowest and deepest. Starting from Obydos, he explored the Trombetas, and its tributary the Aripecurú, as far as the cataracts of the latter, in lat. 0° 47′ N., fixing five latitudes by astronomical observations, and making a map of those previously unknown rivers.

Returning to Santarem in January 1850, he remained there exploring the lower part of the Tapajoz and adjacent parts of the Amazon until October, when he started up the Amazon for the Barra do Rio Negro, where he arrived after a voyage of 63 days, 30 whereof were spent in the channels to the south of the great island of Tupinambaráua.

The greater part of the year 1851 was occupied in studying and collecting the rich vegetation of the lower part of the Rio Negro, and of the Amazon for a few days' journey up; and in November he started for the head-waters of the Rio Negro, in a boat of about 9 tons burthen, which he had fitted up expressly with that object.

Early in January, 1852, Mr. Spruce reached the village of São Gabriel, situated about midway of the cachoeiras, or cataracts, of the Rio Negro, and after remaining there some seven months, he proceeded up the large river Uaupés, which had been scarcely known to Europeans, even by name, until Mr. Wallace's adventurous exploration of it the preceding year. Mr. Spruce found the Uaupés to possess a more novel and beautiful forest-vegetation than any other part of South America, and his collections include several undescribed genera, besides many species notable for their beauty and the value of their products.

Mr. Spruce remained on the Uaupés until March 1853, when he sailed out of it into the Rio Negro, and up the latter river beyond the Brazilian frontier, to San Carlos del Rio Negro. This village was his headquarters during his stay in Venezuela, which extended to November 1854, or more than a year and a half. During that time he made two expeditions to the Orinoco, one by way of the Casiquiari, and the other by the portage of Pimichin and the Atabapo. On the former of these, besides examining the Casiquiari, both ascending and descending, he explored its tributary the Pacimoni to its source, among the lofty and picturesque mountains called Iméi and Tibiali; as also the river Cunucunúma, which bathes the western foot of the immense granite mass of Dinda, and enters the Orinoco a little below the bifurcation of the Casiquiari.

On his second visit to the Orinoco, he went as far down as to the cataracts of Maypures, rendered famous by the narrative of Humboldt and Bonpland. There and elsewhere in the region of the Upper Orinoco and Rio Negro he gathered many of the plants discovered by those illustrious travellers, and which had not been seen since by any botanist. He also constructed maps of the hitherto unsurveyed rivers, Cunucunúma and Pacimoni.

Leaving Venezuela, he descended the Rio Negro, and reached the Barra do Rio Negro about the end of 1854, after an absence of above three years. Having reposed there over two months, he took advantage of the steamers which had been lately established on the Amazon, to ascend that river beyond the Brazilian frontier, to Nauta in Peru, near the mouth of the

Ucayali; and from thence he went in canoes up the Marañon and its tributary the Huallaga to Tarapoto, a large and thriving town in the ancient province of Maynas. In the lovely valley of Tarapoto, which like many similar ones in the eastern roots of the Andes, will one day be the site of a magnificent city—when the immense resources of the Amazon valley and its unrivalled fluvial system shall have been fully developed—he remained nearly two years, and collected there, besides a vast variety of other plants, no fewer than 250 species of Ferns, in an area of only 50 miles in diameter.

In March 1857, Mr. Spruce left Tarapoto for Ecuador, descending the Huallaga to its confluence with the Marañon, then ascending the latter river and its affluents the Pastasa and Bombonasa to Canelos; finally through the forest of Canelos on foot to the village of Baños, at the foot of the volcano of Tunguragua. In this disastrous journey, which occupied a hundred days, he had to abandon all his goods in the forest, to escape perishing of hunger at the passage of swollen rivers.

Making Baños his head quarters, he devoted above six months to the exploration of the forests and paramos of its huge volcano, and of the upper part of the valley of the Pastasa.

In January 1858, he removed to Ambato, which for more than two years was his point of departure for excursions to Quito, Riobamba, &c., and to various points in the eastern and western cordilleras of the Quitenian Andes; although his movements were much harassed and restricted by the revolutionary state of the country, during nearly the whole of that period.

In 1860, Mr. Spruce communicated a valuable paper to the Royal Geographical Society, on the mountains of Llanganati, in the eastern cordillera of the Quitenian Andes. (Journal for 1861, p. 163-84.) He has also communicated numerous important papers to the Linnæan Society.

In 1860 he was occupied for some months in procuring seeds and plants of the Cinchona succirubra, or Red Bark plant, for cultivation in India—a task which was confided to him by Mr. Clements R. Markham, on behalf of Her Majesty's Government. Mr. Spruce displayed great zeal and resolution in performing this arduous service, while suffering from the effects of rheumatic fever, and his labours received the unqualified approbation of the Secretary of State for India.

His elaborate report on the expedition conducted by him to procure these seeds and plants (accompanied by a meteorological journal, and a complete sketch of the vegetation of the Cinchona forests), is by far the best that has appeared on this subject in any language; and has been invaluable as a guide to the cultivation of these precious plants in India. It covers 112 printed pages.

Afterwards, his broken health seeming to require a return to a warm climate, he removed to the plain of Guayaquil, and his active labours as a botanist may be said to have closed with the picking up of a few plants in that neighbourhood during the year 1861, and during 1862 at Chanduy, on the coast, near Punta Santa Elena, where an exceptional rainy season, coming after an interval of 15 rainless years, enabled him to make a small but interesting collection of the ephemeral plants which under the influence of the rains sprang up on the desert, and also of several curious trees and shrubs whose blackened stems had not for some years past put forth even a leaf.

The results of this long course of travel (whose objects were at first purely botanical) comprise from 6000 to 7000 species of flowering plants and Ferns, whereof a very large proportion were entirely new to science, especially among the trees, whose timber and other products were also ascertained to be in many cases of great value. Several new species may be instanced, and one entirely new genus, of trees producing the best kind of caoutchouc, which is now extracted from them in large quantities by the Brazilians, but was not before, until Mr. Spruce pointed the trees out on the Rio Negro and elsewhere. His specimens of all these plants are preserved in the principal public and private collections in the world, and are, therefore, perfectly accessible for the purposes of science. A very large collection of cryptogamic plants—perhaps the largest ever made by any single collector—still remains to be worked up.

Mr. Spruce's MSS. contain, besides notes on all the plants collected, vocabularies of 21 native languages of the Amazon valley, meteorological observations, barometric levellings, &c., throughout the regions visited, maps of three rivers which had not previously been surveyed, notes of travel, of the aspects and capabilities of the various countries, of the customs, food, trade and agriculture of their inhabitants, &c.

[Note by Mr. Bentham, President of the Linnean Society.—Mr. Spruce, before his expedition to South America, was well known for the zeal and assiduity with which he collected, and investigated, in various branches of botany, especially in the muscology of Yorkshire and the Pyrenees. His researches into the vegetation of the interior of South America have been the most important that we have had since the days of Humboldt: not merely for the number of species he has collected, amounting to upwards of 7000, but for the number of new generic forms with which he has enriched science; for his investigations into the economic uses of the plants of the countries he visited; for several doubtful questions of origin as to interesting genera and species which his discoveries have cleared up; and for the number and scientific value of his observations, made on the spot, and attached to the specimens preserved; all which specimens have been transmitted to this country, and complete sets deposited in the national herbarium at Kew.]

NOTES ON GARDENS.—No. XI.

ROCKVILLE, DUBLIN.—(*Continued from p.* 580).

Before leaving the West Indian house I should have alluded to a plant of one of the best varieties of Mango, planted out and in flourishing condition. The East Indian house is another double-roofed structure, containing a fine collection of Vandas, Saccolabiums, Aërides, &c., with some other plants of great rarity and interest, and among them the curious scaly-spotted "unknown plant," which Mr. Williams used to exhibit at the London shows a couple of years ago, and which then excited so much curiosity. This very singular plant is said to have been found by M. Porte growing round the trunks of trees on which he first met with the fine Phalænopsis Schilleriana, to which plant, indeed, the queer unknown bears a striking resemblance in its markings. M. Porte has stated that it bears very beautiful flowers, in the absence of which some have thought it to be a Ficus, others a singular form of Hoya. Not being elsewhere in the country, it of course adds much interest to Mr. Bewley's wonderful collection. Here was also a novelty in the way of aquatic accommodation—an ornamental tank for the Ouvirandra, with plate-glass front, white polished marble columns, back, and ends, and having also slabs of the purest white marble for placing under the leaves to fully display their peculiarity.

This not being my first visit to Rockville I had expected much, but the creation and filling with such fine plants of these houses in one department quite surpassed all my anticipations. A very marked improvement too was visible in the state of the Orchids, and not less so with any other class of plants. In a glass case was a profuse mass of Lindsæa Lowii [Polybotrya?] with its variously formed fronds of the most glossy green running over and clinging to pieces of tufa. Lindsæas grown as this plant was are beautiful indeed. There was a specimen of Vanda Roxburghii 6 feet high, a splendid and probably a matchless specimen, with Vanda Batemanni, a noble plant from the late Mrs. Lawrence's collection; Vanda suavis in quantity; and some rare and beautiful varieties of Vanda tricolor. Here too was Platycerium Wallichii, a fine Fern from Moulmein, and very scarce if indeed elsewhere in the country, partaking of the characters of P. Stemmaria and P. grande, having the fertile fronds of the one and the barren ones of the other species. Phalænopses were largely grown in a neat kind of shallow pan suspended from the roof, and were in vigorous health. Of the true Aërides nobile there was a fine plant; with a good variety of Cypripedium Stonei; Dendrobium Dayanum, macrophyllum giganteum, formosum, and others; Uropedium Lindenii, and a capital specimen of Angræcum eburneum. In this, as in the other Orchid houses, the plants were in rude health, perfectly free from spot, or any symptom of disease, while in point of cleanliness one might fairly conclude that the last Coccus was only to be found in his geological mantle, having perished in the "struggle" with the sponges, which, by the by, must be extensively developed at Rockville to keep such an immense collection in the cleanest possible state.

Near to or adjoining the new Orchid houses was a very neat greenhouse, with double span-roof, 30 feet long and 20 wide, the roof of Hartley's rough plate glass, and the fittings most convenient and tasteful. The platforms were covered with fine washed sea-gravel and supported by neat cast-iron columns. This house contained a collection of Orchids requiring cool treatment; large bushy specimens of Gleichenia dicarpa, scandens, microphylla, semivestita, and others; with Beaucarnea stricta and B. recurvata about 6 feet high, probably the largest specimens of these in cultivation. In this neat house was also a well-arranged case of Trichomanes radicans and Andrewsii, with the fronds depending gracefully from and contrasting well with pieces of tufa, stalactite, &c.

I now come to what formerly was the great Orchid house, but these plants having been removed to the smaller ones—more in the Day and Rucker style—which have been described, it is now used as a great stove, with Ferns, fine-leaved plants, climbers, Arads, &c. It is a noble span-roofed stove, nearly 140 feet long by 20 feet wide, in three divisions, with entrance corridor 8 or 9 feet square, where a book is kept in which the visitors enter their names. In the porch was a case on each side containing Trichomanes trichoideum, reniforme, exsectum; Hymenophyllum demissum, and several others of both genera. Exactly opposite the entrance was a noble plant of Cibotium Schiedei, with large masses of Eucharis amazonica near it; fine examples of Alsophila infesta and obtusa, the former very rare; and a remarkable specimen of Davallia aculeata, 3 or 4 feet through and 2½ high. I noticed also in this first division of the great stove many plants distinguished by their rarity or fine condition. Amongst them was Hemitelia horrida, Calamus micrantha, Cibotium princeps, the rarer kinds of Asplenium, Cheilanthes, Nothochlæna, &c., mixed up with Selaginellas, and flowering stove plants. Climbers looked freer, cleaner, and much better managed on the roof of this great stove than I had seen them elsewhere. In the first division Hexacentris mysorensis and lutea, Clerodendron Thompsonæ and Thunbergia Harrisii were trained on the roof with other climbers. In the second division were many good things in the Palm and Cycad way, including Cycas intermedia, Zamia Forsteri?, with hard corded and furrowed leaves; Plectocomia specabilis, very beautiful; Ceroxylon niveum, Arecas, Oreodoxas, Elæis, Astrocaryon, &c. From the roof of this division Hoya imperialis and grandiflora, with Stephanotis, were gracefully and naturally depended, and not rigidly tied to the wires as is generally the case.

Nearly full of extraordinary specimens of fine-leaved plants was the third division, so healthy and perfect, that they might be taken promiscuously and staged for a London exhibition with every prospect of success. On the roof Allamanda Schottii was very fine, as was Hoya campanulata; while Cissus discolor fell in free and natural flakes, in some parts so much so as to completely obliterate the usual conventional hothouse aspect. In this compartment was a case devoted to Anæctochili in vigorous health, and including amongst them Anæctochilus Maulii and A. petola cuprea; good specimens of Caladium Belleymei and the better species; Musa vittata, Maranta Warscewiczii, and Adiantum trapeziforme, 5 feet through; with other very large specimens of Adiantums, and Platycerium grande, Stemmaria and biforme. Amongst the finer plants in this house must be mentioned a variety of Alocasia metallica, with leaves of a more circular outline and darker bronze than the normal form; Crotons of immense size and rich colour; Pandanus javanicus variegatus, a grand plant about 7 feet through; Thamnopteris nidus, very fine; and a full collection of Selaginellas, the best kinds of which, such as Lyallii, Lobbii, atroviride, and, indeed, all the species worth growing, were far better done in the vicinity of a pond at the upper end of this house than I have seen them elsewhere. Round this pond was a piece of rockwork, from which sprang a sort of double arch crossing the basin, and bearing Goniophlebium subauriculatum and Reinwardtii, with other Ferns and Lycopods; while round the water scrambled Piper nigrum, Peperomias, Pothos argyræa, Scindapsus pictus, Solenosterigma bicolor, neat Ferns, Selaginellas, &c. Right against the end wall of this third division was built a piece of rockwork reaching to the top of the house and having passages through underneath, leading on the one hand to the Trichomanes house, and on the other to a most conveniently arranged potting shed, where choice and tender plants might be attended to without bringing them in contact with the open air. This rocky end of the house was also beautifully covered with Arads; Æschynanthus, very effective on it too; Monstera deliciosa, a huge plant climbing over the rocks; Cissus, Hoya, Campylobotrys, the lustrous Selaginella lævigata, Lygodium scandens, Marcgravia dubia, Philodendrons, and indeed most plants in cultivation, which could lend grace or variety to such an arrangement. So humid and congenial to those plants was the atmosphere in their neighbourhood, that the roots of Ficus and other plants hung in flakes, and with their white-tipped spongioles were anything but unpleasing. To enter the house devoted to the Killarney Fern, as before indicated, the visitor passes under the rockwork and soon enters a very charming little cave-like structure, with Trichomanes radicans planted by the hundred over rugged slopes, arches, fissures, &c., mixed with the Maiden-hair Fern; the light admitted by stained glass windows. Emerging from this interesting structure, and crossing a walk, the orchard house, a truly noble one, which I shall attempt to describe in my next paper, presented itself. *Wm. Robinson.*

(To be continued.)

Home Correspondence.

Exhibition of Azaleas; a Critic criticised.—Vigorous criticism, suggested by practical experience or knowledge of a subject, exerts a very beneficial influence upon whatever profession it is applied to, but the vague, unpractical, and vacillating manner in which certain horticultural matters are commented upon by some of your critics now-a-days is certainly neither edifying nor truthful. One year a particular form is regarded as a *sine quâ non*, is declared to be a "model of perfection," and the next it is said to be positively "ugly;" at one time people are delighted with the "mountains of bloom," and at another their taste and ideas are outraged because there are no green leaves to be seen. One cannot but pity the cultivator whose nose is thus laid hold of in an attempt to lead. In an article of June 11, upon Azaleas, after tardily acknowledging the skill of the growers, and playing with their fancy to describe the shape of the plants, your critics wonder that our great societies should encourage a system which gives prizes to plants which are so ugly. Now, knowing something of the cares and anxieties of an exhibition, I beg that you will in turn allow me to criticise your critic. At page 579 of last year's *Gardeners' Chronicle* it is maintained that "a pyramidal outline is the *sine quâ non* of form for exhibition plants," Orchids excepted. My employer, who has a keen eye for symmetry, entertains this very opinion. The proportion which we aim at when

putting a plant into a pyramidal form, is to have it about the same height, or slightly more, as it measures through the bottom, and the form is what I might call half of an ellipse of those dimensions, presenting the same appearance from whatever side it is viewed; this is the style of plant which my employer exhibited at the Regent's Park and Kensington Gore. They were flowered equally well all round, having no real face or back. Let me ask your critic if this is the form which he terms "ugly?" Time will make these plants more broken and loose in surface, but does your critic understand the difficulty of carrying loose and natural specimens to an exhibition, without the "forest of stakes," which he has so frequently growled and snapped at? Again, his taste is displeased by an overabundance of bloom upon the "huge specimens,"—then why has he not recorded his enjoyment and admiration of many of those plants which might be observed showing lots of "green leaves," and which were not in the large collections of "huge specimens?" In this matter I must tell him that if cultivation is to be the test of merit, he cannot always enjoy the sight of green leaves. If size of bloom, substance, and colour of flower must be the test of merit, would he be good enough to inform me how to get these qualities, along with green leaves, upon such varieties as Chelsonii, Arborea purpurea, Triumphans, Coronata, Juliana, Perryana, Empress Eugénie, Carnea superba, &c. Such varieties as Iveryana, Criterion, Barclayana, exquisita, Gem, variegata, lateritia, dilecta, &c., grow naturally before blooming, and certainly the effect of the bright new foliage upon those colours is very pleasing. Again, ripeness of wood is the secret cause of large well-coloured blooms. Let me ask, are you prepared to forego the fine quality of bloom for the sake of green leaves, in such varieties as do not naturally produce them before flowering? Again, he reverts to the great horticultural show held in Brussels in April last, to show that the pyramidal style is not needed, or not the thing we want. Does he consider the half spheroidal form of the Belgian specimen Azalea, a more natural one than that of our own, and what does he think of the quality of flower, as compared with the flowers upon our "huge specimens of scaffolding?" Again, he affects to say that Azaleas cease to attract, because he does not observe such stagnant crowds of visitors in front of them as is to be seen where Orchids, Roses, Alpines, &c., are placed. This is not difficult to explain, a collection of Azaleas is nearly as effective at a distance of 20 or 30 yards as it is at 2 or 3 yards off, and visitors who see them from different points, are not under the necessity of stopping in front of them, to put on their eye glasses before they can see their beauty. What would our May shows be without these offensive Azaleas? In conclusion, I think that a little friendly discussion as to shapes of Azaleas would be very acceptable, or at least to the "great grower." Should plants assume a spheroidal, oval, pillar, fan, or pyramidal shape, certain it is that the "public" will not purchase any shape but the latter from the establishment whence these remarks are forwarded. *Z. Stevens.*

Specimen Orchids and other Plants.—In the collection of Henry E. Gurney, Esq., of The Priory, Nutfield, are individual plants rivalling the marvellous specimens described in page 553. At Kensington last year 10 from this collection obtained a higher position at the Show than even Mr. Warner's. Now these plants have been reared in a house by no means the very best possible for their cultivation, and what is more, mixed with a great variety of other stove and fine-foliaged plants, such as Caladiums, Begonias, tropical Ferns, Dracænas, &c., all equally deserving of notice and in superb condition. One Cattleya Mossiæ measures 3 feet 6 inches in diameter, and had, when I saw it a few days ago, 50 expanded blooms, many of them 7 inches across, with petals 3 inches wide, the colour being equally perfect. Saccolabium guttatum, with seven spikes, some of them over a foot long; Saccolabium Blumei majus, with 12 spikes; Dendrobium Devonianum, now going off, has been very fine. Is not this wonderful? yet all this has been accomplished by the patient persevering industry of Mr. Lovell, the intelligent gardener. As Mr. Lovell proposes to exhibit the best of the fine-foliaged plants at the forthcoming show of the Blechingley and Nutfield Cottage Garden Society, any notice of them now would be premature, much as they are deserving of it; but in the report of the Show I hope they will receive their due share of attention. *Adolphus H. Kent, Blechingley, Surrey.*

Stagnant Waters.—The catastrophe at Sheffield has awakened public attention to the state of insecurity of reservoirs, and similar artificial constructions for the preservation of water throughout the country; and while the subject claims so much notice, I should like to be permitted to call attention to certain facts relating to these artificial accumulations of water in reservoirs, lakes, and ponds, not only in reference to the stability of the dams and embankments, but to the danger and impolicy of retaining large areas of stagnant water for merely ornamental purposes. It is not a century since a landscape gardener, named Brown, gained a great reputation in England for a certain aptitude in taking advantage of local circumstances, to form lakes and extensive sheets of water; accomplishing his purpose generally by damming up a small rivulet, or by throwing an embankment across a valley and arresting the natural drainage of a district. The fashion of making lakes, and of widening streams, spread very much amongst the landowners of the country, and the proprietors of very many of the fine estates in the kingdom, who were without the coveted possession of a lake, sought the services of "Capability Brown," and thousands of acres of rich alluvial land were inundated and lost to the productive resources of the country. The love of an English gentleman for his home, his pride in his estates, and his fondness for aquatic sports, explain, and in a degree justify, the adoption of a fashion which was deemed to add so much to the picturesque beauty of his park, and which afforded the opportunity of manly recreation, and helped perhaps to teach our Rodneys, and Nelsons, and Howes, their early lessons in naval tactics. But times are changed in half a century, a great revolution has taken place in our social habits, a country gentleman is no longer confined to his estate by the difficulties and expenses of transit. The sea, owing to the facilities offered by railways, is now within a few hours' journey of the dweller in the most inland district. The sea has become the home lake, while Windermere, Katrine, and Killarney are within easy reach; and, the truth must be told, our dirty ponds at home are beginning to be disregarded. I submit that the time has arrived for considering the propriety of continuing to preserve the weedy sheets of stagnant water bequeathed by "Capability Brown," invaded, and choked as they all are by Anacharis, as well as by other weedy aquatic plants, which makes the keeping of a lake as expensive as a parterre, and still leaves it in an unsatisfactory condition as regards purity, while it remains dangerous, as being liable to break through the imperfectly surveyed embankment, dangerous to the health of the owner, in consequence of the miasmatic exhalations which emanate from such waters, perilous in the same degree, and from the same causes, to the people of the locality, and injurious in its influence on the climate and agriculture of the neighbourhood. The humidity of the air in England is one of the objections urged against our climate. Fogs and mists are more prevalent in low wet districts, and river valleys, than in well-drained, dry, or upland places; every acre of water gives so much evaporating surface, and contributes its proportion of humidity to the air; and not only is the rainfall of a locality increased by the spread of water, but the temperature of the district is reduced; waterlogged land is several degrees colder than dry and cultivated soil, and the evil influence of artificial water reaches both air and land contiguous to it. The remedial influence of drainage and cultivation on local climate is well illustrated in Lincolnshire and the adjoining counties; of the meres and swampy wastes, which formerly spread far and wide over the level lands of these counties, many of them exist only in tradition. Whittlesea, over which passage boats sailed, is now a highly farmed and flourishing district; its lighthouses, rich farmsteads; the ruffs, reeves, bitterns and snipes have disappeared; the emaciated ague-stricken people of former years are succeeded by a sturdy and healthy race of men, and Lincolnshire is now one of the richest, healthiest, and driest counties in England; but Appold's centrifugal pump is kept at work; mechanical means are unceasingly in action, to rid the country of its recognised evil—stagnant water. I have dwelt on the evils of stagnant water, and commented on the impolicy of its preservation for mere purposes of pleasure. Recognising the immense importance of securing an abundant water supply to the country at large, I think that the whole subject deserves legislative investigation and action. Immense bodies of water hanging over towns must always be attended with danger. The shock of an earthquake, the collapsing a water-spout, or an unusual fall of rain or snow, may precipitate a disaster like that at Sheffield. The water-shed of England is to be found in the northern counties. A glance at Mr. G. J. Symons' British Rainfall shows us that the fall of rain in Cumberland trebles that of the home and Midland counties. Are the impediments to its conveyance from the northern lakes to London, and our large towns north of it, inseparable? *W. I., Belvoir.*

Cool Orchid Growing.—Now that this is engaging everybody's attention, allow me to place Dendrobium speciosum in the foremost rank in this respect, which I am sure it well deserves. Many believe it to be a very shy-flowering Orchid, and one only managed well by a few, consequently we seldom meet with it now in collections, except, perhaps, in some out of the way corner. All it requires is a cool house, with little or no shading, and a liberal supply of water at the roots while growing, which it does very fast, and that is a point in its favour, as it gives ample time through the summer months to get the bulbs well matured, and blossom buds ripened before autumn sets in, after which little water at the roots is needed; on the contrary, as dry an atmosphere as can possibly be kept, consistent with due consideration for the health of the other inmates of the house, will suit speciosum best, and predispose the plant to blossom freely. During the last six years I have never had it miss flowering but once. I showed it at the Manchester Botanical and Horticultural Society's Show in May, some four years ago, with from 40 to 50 spikes of bloom open at one time on it. I had a great deal of trouble in retarding it till so late in the season, but I was determined to show what a fine effect this plant was capable of producing, and well rewarded I was for my trouble, for it was the admiration of all who saw it. During my engagement with Messrs. Lucombe, Pince, & Co. I had two or three large specimens of it under my care, which used to flower freely every year, and were among the chief attractions in their show house during the months of February and March. I may mention that Mr. Dominy, Messrs. Veitch's foreman at Exeter, used to grow and flower this plant first-rate. Mr. Sherratt, gardener to J. Bateman, Esq., Knypersley Hall, Cheshire, is likewise a successful grower of it. At the time of my visit about 12 months ago he had a charming little specimen of it literally covered with blossom. I never saw one so small managed so well before. Mr. Sherratt told me that he kept it in a cool Vinery during the autumn and winter, after which he introduced it into a gentle heat, which made it flower profusely. *G. Toll, Gardener to J. A. Turner, Esq., M.P., Pendlebury, Manchester.*

Improvement of Flower Shows.—I am not aware whether it was intended to invite suggestions on the subject of the leading article in your Paper of Saturday last, bearing upon the desirableness of introducing some new features into our great flower shows or not, but I cannot help observing that I cordially agree with your remarks, and think that it is absolutely necessary, in order to keep up the interest of the patronisers of the shows, and at the same time to help forward the good cause of educating their taste, to do away with the stereotyped edition of raised stages and blank backgrounds. The object appears to me by no means difficult of attainment, and I like the idea of a permanent erection with a ridge-and-furrow roof on the score of economy; but in order to break the monotony of what I would call a straight-lined appearance, I think it should be raised in the centre, and also high enough to allow of festoons of chainwork whereon to train some of our hardy strong-growing climbers, such as Wistaria sinensis, and its white variety; Madame d'Arblay and other strong-growing Roses. The Virginian Creeper, and even Honeysuckles might be admitted, together with others which do not occur to me at the moment, all of which could be planted in beds formed around the base of the pillars supporting the roof; the beds should be planted with hardy evergreens of various sorts, bearing in mind to vary the foliage as much as possible. Some of the beds also at intervals might be covered with large blocks of stone to form rockwork for the purpose of introducing plants of hardy strong-growing Ferns. All the beds should be raised about 3 feet above the surface level, and each should have a level verge of turf, about 3 feet wide, on which to place the plants for exhibition. The evergreens in these beds would form a living background for the show plants, and would conduce to supply the deficiency of green of which you so justly complain. But in order to relieve the sameness of these beds it would be possible to introduce fountains of a light and graceful character, with only a medium volume of water, not cascades or powerful jets, so that spray might be avoided. One in the centre, and smaller ones at the extremities would suffice to give variety to the scene, and the space around them would form a congenial atmosphere for the show of Orchids. I think that the ground level should be preserved for the broad gravel walks intersecting the beds, not only because the level surface would be much pleasanter to walk upon, but also because if a *coup d'œil* were attempted by undulations of surface, we should still be open to the objection of presenting so great a mass of colour to the eye at once as to cause that oppressiveness so much complained of, and I think the remedy would be found in striving after more natural conditions rather than highly artistic combinations, and in so arranging matters that new beauties should be continually displayed in detail, the whole at the same time forming an agreeable and continuous promenade. I merely offer these suggestions as what occurs to me on reading your very just observations on the subject, which is one in every way worthy of the serious attention of all who are interested in the advancement of the profession, for which flower shows have already done so much, and are capable of doing still more. *John Cox.*

——I heartily approve of your article on this subject. I agree with you, that shows are doomed unless some alteration is made in them. I enter my protest too against "crinolines." At the same time, I fear that exhibitors are not yet prepared to have their collections broken up, though to this it will come, and, in the interest of the exhibitors, the sooner it comes the better, for the flowers will be shown off to greater advantage than they are at present. Beg of the societies to grapple boldly with the subject; also persuade them to give good prizes, and say that the plants must be delivered on Monday afternoon in time for the judges, and that they cannot be removed until Saturday morning. The public then would have time to study the exhibition, and purchasers would be ten times as numerous as they now are. In the mean time, I venture to suggest that the numbers in the first class of great flowering plants should be reduced—say in reference to Azaleas—to six, and let the societies say that these plants will only be shown on the front row. Exhibitors will be required to fill up the back rows with foliage plants; in fact let — feet of frontage be allotted for each Azalea, with the corresponding space behind, by the aid of which the exhibitor may display his Azaleas and his taste in the selection of tints; and when I remember what Mr. Veitch did many years ago in a "group, and what Mr. Turner did at the last

show at South Kensington, I have no fear of want of taste. *An Old Correspondent.*

Hardiness of Japanese Plants.—Referring to inquiries in your paper of the 7th of May last, we beg to state that plants of Retinospora pisifera and obtusa, which were planted out last year in our nurseries here, have survived the past winter without sustaining the slightest injury, and are at present in vigorous growth. It is but right, however, to mention that they were protected with a mat for three or four days during a severe storm in the end of December. R. pisifera is 3 feet 3 inches, and obtusa 3 feet 7 inches in height. We may mention that our specimen plant of Wellingtonia gigantea, which is 10½ feet in height, 3 feet in girth at the ground, and measures 29 feet round the branches, has withstood the winter without any damage, as it has done all the winters since being planted many years ago. Lonicera aureo-reticulata, Euonymus radicans fol. var., Bambusa Metake, and Arundinaria falcata are also quite hardy with us. If not giving too much trouble, we should feel very much obliged by being made acquainted with the names of the various trees which have from time to time been publicly planted throughout the country by her Majesty and the late Prince Consort, with their sites and dates of planting. This, we venture to imagine, might prove interesting to many. *Edwd. Sang & Sons, Kirkcaldy.*

Clianthus Dampieri.—Like Mr. Boston (see p. 532), I have succeeded in growing this well in a pot, and therefore the following notes on its cultivation may not be altogether uninteresting to those who wish to grow this plant under similar circumstances. I commenced in April by filling about one-third of a 3-inch pot with charcoal broken rather small for drainage, and then completing the operation with a soil composed of two parts good loam, one part peat earth, and one part charcoal broken small, the whole being well mixed together. The soil was pressed rather firmly and made into a little cone in the centre of the pot; this was pressed down so as to make it firm; a hole was then made in the centre of it about a quarter of an inch deep, and one seed was dropped in and covered with a little charcoal dust, peat, and sand mixed together. The pots were then placed on a shelf in the greenhouse, and very little water was given until the plants came up. In watering I always poured it gently round the rim of the pot, never allowing it to rise high enough to touch the stem of the plant. This is, I believe, most important, as a contrary practice is probably the cause of so many failures from damping off taking place while the plants are young. When they were about 2 inches high they were shifted into pots two sizes larger than those they occupied, and in September they received their final shift into pots similar in shape to those sometimes used for Hyacinths, *i. e.*, rather deeper than common pots. Great care was taken not to break the ball of earth, which is easily done in shifting in consequence of there being few roots to hold the soil together. After receiving their final shift they were replaced in the greenhouse, and during the winter months were given only just sufficient water to prevent them from being dust dry. When the syringe was used for other plants, we never allowed a drop of water to touch them if we could avoid it. In February they began to grow a little, and from that time they received more water, and they were in bloom in April, and were admired by all who saw them. *J. S. B. S.*

Kensington Flower Market.—Since "A Male F.R.H.S." has intrenched himself behind a heap of "bad names" and "impure motives," I will leave him there; but in doing so I venture with your permission to intrude] so far as to say:—1. That there is a wide difference between his proposed market and the American exhibitions he refers to. I am glad, however, to learn on such high authority that so much business is done at the latter; the proprietors of the magnificent plants deserve it all. 2. That he has adroitly shifted his ground by taking in "guinea" plants. I read the first argument thus: that "ladies" would not venture to go to "Veitch's" for a "shilling" plant, and hence the use of a market. I remark here that while the growers will not be at the trouble to send their "shilling" plants, they will not trust their guinea ones in his market. 3. That he should ask the officials how far the prospect of business drew the shilling-plant men when they were invited to "do" the bedding out at South Kensington; he should take great care to master the grand total of applicants, which was, I may say, quite as "grand" as any sensible person would have expected. 4. That he should ascertain how it is that the men so deeply interested (as he says) in this market question make no sign in his favour; surely there has been time enough for them to do so. How is it that hey are so insensible to their interests? I quit the subject by thanking you, Mr. Editor, for the opportunity you have afforded me of expressing my opinion on this proposal—so ridiculous and derogatory in as far as the Royal Horticultural Society is concerned. I think you can bear me witness that what I have said has been at least disinterested. *Paul Pry.*

Lord Kenyon's Cucumber.—In answer to "T. S. U.," I beg to say that I have this desirable kind for private use. It does not sell so well in the market as other kinds, but for flavour it is unrivalled; it is worthy a place in every garden. I have sent some seeds of it to the Royal Horticultural Gardens for trial. *Joseph May, Seedsman, 15, Waterloo Road.*

Gardeners' Royal Benevolent Institution.—To my great surprise I learn that at the approaching annual festival of the "Gardeners' Benevolent Institution," it is expected that there will be a dearth of fruit for dessert, and that therefore a great portion of it will have to be purchased. I learn, moreover, that this is annually the case! but surely this ought not to be so. This of all public dinners is especially remarkable for the beauty of its flowers and fruit, and being in behalf of gardeners, they should make interest with their employers to be allowed to present a dish of Grapes, or a Pine, or some fruit worthy of their skill, as some slight mark of gratitude for the charitable exertions made in behalf of their class—about eight Pines and a like number of dishes of Grapes, with a little of any other fruit, would be all that is required, and it does seem hard if the wealthy horticulturists of the United Kingdom cannot furnish that gratuitously upon such an occasion. It can only require to be known to be at once acceded to. Your aid, so often and generously given in former years, will be most valuable in this, when we expect an extra muster, especially of our Scotch brethren, to support the well-known Lord Provost of Edinburgh, who will kindly preside. *One of the Oldest Subscribers to the Gardeners' Benevolent Institution.*

Societies.

ROYAL HORTICULTURAL: *June 21.*—(*Election of Fellows*).—The following candidates were elected, viz.:—

E. Johnston, Esq., Mrs. George Lacon, Mrs. Macniel, Mrs. Sturch, Mrs. Joseph Taylor, and J. Turner, Esq.

The Assistant-Secretary then delivered a short lecture on Conifers, which was amply illustrated by living plants, photographs, and coloured drawings, the last from Messrs. Lawson's fine work the Pinetum Britannicum, now in course of publication. The sections into which Conifers are divided first engaged the lecturer's attention, and then some account of the geographical distribution and other particulars respecting some of the more common kinds of Pines, Firs and Cypresses, contained in these great groups, was given. The quality of the wood of certain kinds of Conifers was slightly touched upon, and in reference to that of Cedar of Lebanon and Deodar, it was remarked that in one instance where the one was grafted on the other, and of course grown under similar circumstances, small portions of both stock and graft were broken scientifically in order to test the relative strength of their timber, and the result was considerably in favour of that of the Deodar.

RUGBY ROSE SHOW.—The first exhibition of Roses held here took place on Tuesday last in a field a short distance from the town. The exhibition was in many respects a good one, although not so extensive as we expected to have seen it; nevertheless, some very fine collections were shown in both the amateur and nurserymen's classes. The Roses generally were large and fresh, but paler in colour than usual at this early period. In Mr. Cant's 1st prize collection of 72 varieties, some very fine blooms were staged, viz., Beauty of Waltham, Le Rhone, La Tour du Crouy, Mad. Caillat, François Lacharme, Maurice Bernardin, Comtesse Cecile de Chabrillant (very fine and beautifully striped), Mad. Julie Daran, Souvenir d'un Ami, Devoniensis, Monte Christo, President, Souvenir d'Elise (a charming bloom), Maréchal Vaillant, Prince Camille de Rohan, Victor Verdier, Cloth of Gold (very fine), and Comtesse Ouvaroff. Messrs. Paul & Son's collection of 72 had excellent examples of Mad. C. Crapelet, Amiral Gravina, Lælia, Lord Canning (a fine variety), General Castellane, Monte Christo, François Louvat, Duc de Rohan (beautifully marbled), Lord Clyde, Madame C. Wood, Triomphe de Rennes, Beauty of Waltham, and Baronne Gonella (very fine). In Mr. Mitchell's display were good blooms of Madame Pierson, Peter Lawson, Gloire de Santenay, Prince Camille de Rohan, Catherine Guillot, Francis the First, Senateur Vaisse, Madame C. Wood, and Madame H. Jacquin. Mr. Cranston showed fine flowers of John Hopper, Peter Lawson, François Lacharme, Comtesse Cecile de Chabrillant, Turenne, Souvenir d'Elise, and Professor Koch.

Awards.—1, Mr. Cant, Colchester; 2, Messrs. Paul & Son, Cheshunt; 3, Mr. Mitchell, Maresfield; 4, Mr. Cranston, Hereford.

The collections of 24 were well shown. Mr. Cant's stand had fine flowers of Jean Goujon, President, John Hopper, François Lacharme, and Maurice Bernardin.

Messrs. Paul & Son showed nice blooms of Madame Furtado, Lord Clyde, Prince Camille de Rohan, Maurice Bernardin, and Baron Adolphe de Rothschild. Mr. Draycott had Anna de Diesbach, Charles Lefebvre, Le Rhone, and Madame Boll, in good condition.

Awards.—1, Mr. Cant; 2, Messrs. Paul & Son; 3, Mr. Draycott, Humberstone.

In the classes for 12 new Roses Messrs. Paul & Son showed fine blooms of Lord Canning, Lord Clyde, Baron Adolphe de Rothschild, and Deuil du Prince Albert; and Mr. Cant had excellent specimens of Rev. H. Dombrain, Jean Goujon, Baron Lassus de St. Genies, and L'Eclatante.

Awards.—1, Messrs. Paul & Son; 2, Mr. Cant.

In collections of 12 Teas, Messrs. Lane & Son showed beautiful blooms of Niphetos, President, Souvenir d'un Ami, and Marquis de Foucault; and Mr. Mitchell, Souvenir d'Elise, Triomphe de Rennes, Comte de Paris, and Comtesse Ouvaroff.

Awards.—1, Messrs. Lane & Son; 2, Mr. Mitchell.

The Amateurs' Classes were well filled, and the competition more spirited than with the nurserymen. In collections of 36 varieties, Mr. C. J. Perry was 1st with an excellent stand, containing fine blooms of Madame C. Wood, Madame Clemence Joigneaux (large and fine), Charles Lawson, François Lacharme, General Jacqueminot, Gloire de Dijon, André Leroy d'Angers (very distinct), Charles Lefebvre, La Reine, Senateur Vaisse, Madame Boll, John Hopper, and Paul Ricaut. Mr. T. Laxton had good blooms of Anna de Diesbach, Lord Palmerston, Yellow Provence, Madame Knorr, Madame Furtado, Beauty of Waltham, and Coupe d'Hébé. Mr. Newdegate's stand contained nice examples of Madame Willermoz, Gloire de Vitry, Lord Raglan, Senateur Vaisse, Maurice Bernardin, and Anna de Diesbach.

Awards.—1, Mr. C. J. Perry, Castle Bromwich; 2, Mr. T. Laxton, Stamford; 3, C. N. Newdegate, Esq., M.P., Arbury.

In Collections of 18, Mr. Perry again stood first with beautiful blooms of André Leroy d'Angers, Charles Lefebvre, Madame Boll, Gloire de Dijon, Senateur Vaisse, Mad. H. Jacquin, and Mad. Schmidt. Mr. Hunt also had good specimens of General Simpson, Jules Margottin, Charles Lefebvre, and Lord Raglan. Mr. Newdegate also had pretty flowers of Madame Rivers, Turenne, and Victor Verdier.

Awards.—1, Mr. C. J. Perry; 2, Mr. Hunt, Leicester; 3, C. N. Newdegate, Esq., M.P.

ALEXANDRA PARK HORTICULTURAL EXHIBITION.—The second great flower and fruit show held under the auspices of the Alexandra Park Company, took place in their grounds on Wednesday and Thursday last, and as far as collections of gay plants were concerned the exhibition was a complete success. Owing to the weather being unfavourable, however, and partly no doubt to this new place of public resort being as yet but little known, visitors were scarce.

Stove and Greenhouse Plants.—These were plentiful and in admirable condition, some of the Allamandas, Stephanotis, Everlastings, Ixoras, and similar plants being all that could be desired both as regards health and bloom. A class, too, framed especially for the intermixture of plants in and out of flower, arranged for effect, was well supported, and quite answered the end in view, considerable taste being displayed in the setting up of their plants, not only by those to whom prizes were awarded, but also by less fortunate competitors. Tree Ferns from Mr. Williams and others, with noble heads of luxuriant foliage supported on massive trunks, served also to break the uniformity which prevails more or less among round-headed plants, and gave character and interest to this portion of the show. Fine-foliaged and variegated plants were likewise as usual very attractive, especially some of the examples of Alocasia macrorhiza variegata, whose large green leaves, boldly splashed and painted with white, were wonderfully fine, as were also some specimens of the bronzy-leaved A. metallica. Encephalartos and other Cycads from the garden of Mr. Yates, of Highgate, and others, also contributed to the interest of the occasion; and one or two plants which have not been shown before this season deserve perhaps a moment's notice. One was Allamanda violacea, a variety possessed of no particular beauty, but useful on account of its colour, which is purplish pink, pale in the petals, but darker in the throat. This came from Mr. Peed. The other is Roella ciliata, an old fashioned plant producing pale blue cup-shaped blossoms, each ornamented inside near the base with a darker blue band. The only drawback connected with this otherwise pretty plant is a disposition in the foliage to become rusty. That in the specimen from Mr. Wheeler however, now under notice, had not that fault, showing that under skilful management this little favourite may be even elevated to the first rank among ordinary exhibition plants. From Mr. Baines, gr. to H. L. Micholls, Esq., Bowdon, Cheshire, came some extremely well managed specimens of Ixora javanica, the pale mauve-coloured Bougainvillea glabra in the form of a bush, and other plants, which, although far travelled, had a cleanness and freshness about them which was quite delightful.

Awards.—12: 1, Mr. Chilman; 2, Mr. Peed; 3, Mr. Baines; 4, Mr. Wheeler. 8: 1, Mr. J. Fraser; 2, Messrs. Lee; 3, Mr. Williams; equal 4, Mr. Cutbush and Mr. Rhodes. 6: 1, Mr. Baines; 2, Mr. Chilman. Fine-foliaged plants, 12: 1, Mr. Williams; 2, Messrs. Lee; 3, Messrs. A. Henderson. 10: 1, Mr. Baines; 2, Mr. Taylor; 3, Mr. Donald; 4, Mr. Young; extra, Mr. Wheeler. Plants effectively arranged: 1, Mr. Williams; 2, Messrs. A. Henderson; 3, Messrs. Lee; 4, Mr. Taylor.

Orchids.—Although these were not shown so largely as we have seen them on other occasions this season, nevertheless what were produced were in good condition, and were as usual very attractive. From Mr. Wilson, of Enfield, came the handsome Cattleya superba; Mr. Peed had a well-flowered Lælia purpurata; Mr. Williams again showed his fine plant of Orchis foliosa; Mr. Woolley furnished Sobralia macrantha, the yellow Dendrobium clavatum, the Fox-brush Aërides, and the clear yellow Oncidium flexuosum, a most useful kind for cutting from for bouquets. In other groups were good examples of Odontoglossum citrosmum, different varieties of Bearded Lady's Slippers, and other well-known kinds.

Awards.—15: 1, Mr. Wilson; 2, Mr. Peed; 3, Mr. Baines. 8: 1, Mr. Williams; 2, Mr. Woolley; 3, Mr. Rhodes. 6: 1, Mr. Woolley; 2, Mr. Wheeler; 3, Mr. Chilman.

Ferns.—Of these, in addition to the Tree sorts above alluded to, were some grand examples of ordinary kinds. Mr. Williams, of Holloway, had very fine specimens of Gleichenia, especially of G. semivestita and dichotoma; also Todea africana, Cibotium princeps, and others. We likewise noticed an interesting group of British sorts from Mr. Williams, in which were many charming crested and other varieties.

Awards.—12: 1, Mr. Williams; 2, Mr. Woolley; 3, Messrs. A. Henderson. 10: 1, Mr. Young; 2, Mr. Taylor; 3, Mr. Holland. 6 Tree kinds: 1, Mr. Williams; 2, Messrs. Lee, Hardy sorts: 1, Mr. Williams.

Azaleas.—Of these a few good plants were contributed by Mr. Turner and others. Among them were Gem, still in good bloom, and the beautiful rosy-flowered variety called crispiflora.

Awards.—9: 1, Mr. Peed; 2, Mr. Penny. 6: 1, Mr. Turner

Cape Heaths.—Among these were some well-managed plants, especially Parmentieri rosea from Mr. Peed. We

also noticed good specimens of obbata, ventricosa magnifica, and other fine kinds.

Awards.—10: 1, withheld; 2, Mr. Rhodes. 8: 1, Mr. Peed; 2, Mr. Wheeler; 3, Mr. Chilman. 6: 1, Mr. Wheeler; 2, Messrs. Cutbush; 3, Mr. Rhodes.

Pelargoniums.—Both Fancy and other kinds of these were shown in fine condition by Mr. J. Fraser; among the former Cloth of Silver and Delicatum were loaded with blossoms, as were also Undine, Sarah Turner, Celestial and Musjid, dark kinds. Mr. Wiggins likewise furnished some good plants, among which were Lord Clyde, Mira, alba regina, Leviathan, Rembrandt, and Lady Taunton. Some two-year-old Seedlings were also shown, among the best of which were Legras, Antonina, Isabel, Fidelia, album formōsum, Excelsior, and Pet. Scarlet sorts were numerous, chiefly from the neighbourhood of Finchley; with the exception of one or two good pink and salmon kinds all were well known sorts. Their chief fault was too much flatness of shape, many of them being tied closely down on wire trellises.

Awards.—9: 1, Mr. J. Fraser. 6: 1, Mr. Wiggins. Fancy sorts: 1, Mr. Fraser. Scarlets: 1, Mr. Catling; equal 2, Mr. Duke and Mr. Pettit; 3, Mr. McElroy; 4, Mr. Carter.

Fuchsias.—Of these considerable numbers were shown, principally small plants, but some of them extremely well flowered. Standard varieties were also shown, and made a good display. Among sorts the most remarkable was Conspicua, bright red with a snow-white corolla, the two colours contrasting well with one another. Prince Imperial appeared to be a useful dark variety.

Awards.—6: 1, Mr. Hayes; 2, Mr. Bartholomew; 3, Mr. Turner. Standards: 1, Mr. Turner; 2, withheld; 3, Mr. Young; 4, Mr. Bartholomew.

Achimenes and Gloxinias.—One or two collections of these were shown in good condition; novelty however among them appeared to be scarce.

Roses.—A few were shown in pots; but by far the best were contributed in the shape of cut blooms. Triomphe de Rennes and Celine Forestier were conspicuous among yellows, and of crimson sorts there were some glorious examples, which for size or brilliancy of colour have seldom been equalled. Foremost among these were Olivier Delhomme, nearly scarlet; Lord Macaulay, Madame Crapelet, Baron Adolphe de Rothschild, Alphonse Damaizin, Beauty of Waltham, Charles Lefebvre, François Lacharme, Gloire de Santenay, John Hopper, Le Rhone, Lord Clyde, Lord Raglan, Maurice Bernardin, Princess of Wales, Lord Herbert, and other equally fine kinds. To light Hybrid Perpetuals, Virginal is a good addition; but more are wanted in the same direction. Alba rosea is a good light Tea. These and others, however, we hope to see again at the forthcoming great Rose shows.

Awards.—12: 1, Mr. Wm. Paul. 10: 1, Mr. Terry. 18 new varieties: 1, Messrs. Paul & Son. 50 cut blooms: 1, Messrs. Paul & Son; 2, Mr. Turner; 3, Mr. Wm. Paul. 24: 1, Messrs. Paul & Son; 2, Mr. Wm. Paul; 3, Mr. Turner; 4, Mr. Fraser. 30: 1, Rev. V. Knox Child; equal 2, Mr. Moffatt and Mr. Sawkins; 3, Dr. Cooper; 4, Mr. Wm. Corp. 18: 1, Mr. Corp; 2, Mr. Moffatt; 3, Mr. Wm. Lane; 4, Mr. Norgrove.

Miscellaneous Subjects.—Among these were some extremely well-grown Sarracenias from Mr. Baines, of Bowdon; Caladiums and Lycopods from Mr. Young, Highgate; various cut blooms of Pansies from Messrs. Downie, Laird, and Laing, and others; and Pinks, Picotees, and Carnations from Mr. Turner and others.

New Plants.—Among these the greatest rarities were some reddish-purple, or rather purplish-violet varieties of Clematis lanuginosa, from Mr. Townsend, of St. Mary's Nursery, Hornsey. One was called C. l. venosa, another C. l. violacea, and of the two the last was the best; it is nearly of the same colour as Pleroma elegans, and, when better known, cannot fail to be a great favourite. Mr. B. S. Williams showed a group of new plants, most of which have been reported on in former numbers. From Mr. H. Williams came a purple Petunia, prettily streaked with white; and Messrs Veitch had some new plants, among which was a young plant of Lilium auratum in a comparatively small pot, with no fewer than nine blooms on a single stem. So much for the profuse way in which this glorious Lily flowers.

Table Decorations.—The best three devices for the decoration of dinner tables came from Mrs. Cutbush, and will be found fully noticed in our report of the last show at South Kensington. The next best three were contributed by Miss Williams of Holloway, who showed March's stands charmingly decorated with both fruit and flowers. Other devices were also exhibited but these were the most remarkable.

Hanging Baskets.—Of these there were one or two exhibitions, allusion to which has been frequently made in former reports, and examples of Rosher's stately artificial stone vases on pedestals, dressed gaily with flowers by Mr. Cutbush, Mr. Williams, and others, were also exhibited, as well as other neat garden contrivances in stone from the same manufacturer.

Fruit.—Though not plentiful, some of the exhibitions in this department were excellent. The Black Hamburghs from Mr. Meredith and Mr. Henderson, and the Black Princes, three bunches of which weighed 10 lb. 6 oz., from Mr. Hill, were in every way wonderful specimens of good Grape growing. There were also some good Peaches and Nectarines.

Pine Apples.—Some well-grown Queens came from Mr. Young, gr. to C. Bailey, Esq., M.P., and the best Providences also came from the same cultivator. Good Ripley Queens, and Smooth-leaved Cayennes likewise came from Mr. Henderson and Mr. Penny.

Awards.—4 fruit: 1, Mr. Young; 2, Mr. Penny; 3, Mr. Henderson. 1 Providence: 1, Mr. Young; 2, Mr. Smith. 1 Queen: 1, Mr. Young; 2, Mr. Grant; 3, Mr. Rochford. 1 any other variety: 1, Mr. Henderson; 2, Mr. Wallis; 3, Mr. Boisc.

Grapes.—Mr. Meredith's single dish of Black Hamburgh was, as well it might be, the admiration of everybody, and not less perfect was his basket of 10 lb. of the same variety. Both bunches and berries were large, black as jet, and covered with a beautiful bloom. A bunch of this variety from him also gained the 1st prize for fine flavour. Muscats, though fine, were in most cases not quite ripe. Collections of Grapes were furnished by Mr. Henderson and Mr. Meredith, and we noticed some good exhibitions of Golden Hamburgh and Buckland Sweetwater. Among new varieties was a bunch of Duchess of Buccleuch, stated to have been cut from a Vine in a pot started in January last. It is a white Grape, with long handsome bunches, the flavour of which is excellent, resembling somewhat that of a Frontignan. The cluster in question weighed 1 lb. We also noticed a bunch of Chavoush, another new white variety; but this we had not an opportunity of tasting. Some extremely good bunches of Black Hamburgh were sent from Castle Kennedy by Mr. Fowler, gr. to the Earl of Stair.

Awards.—3 dishes: 1, Mr. Meredith; 2, Mr. Embry; 3, Mr. Fowler. 1 dish Black Hamburgh: 1, Mr. Meredith; equal 2, Mr. Sawkins and Mr. Hyde. 1 dish any other Black: 1, Mr. Hill. 10 lbs. Black: 1, Mr. Meredith; 2, Mr. Woolley; 3, Mr. Henderson. Muscats: 1, Mr. Turner; 2, Mr. Hayes; 3, Mr. Embry. Any other White Grape: 1, Mr. Hyde; 2, Mr. Fowler; equal 3, Mr. Hill and Mr. Bland. Best flavoured Black: 1, Mr. Meredith; 2, Mr. Weir; 3, Mr. Wallis. Collection: 1, Mr. Henderson; 2, Mr. Meredith.

Peaches.—These were chiefly Royal George, Noblesse, Royal Charlotte, Early Newington, and Violette Hâtive.

Awards.—2 dishes: 1, Mr. Ford; 2, Mr. Allen; equal 3, Mr. Hill and Mr. Sage. 1 dish: 1, Mr. Ford; 2, Mr. Brown; equal 3, Mr. McLellan and Mr. Wallis; extra, Mr. Wills.

Nectarines.—Among these, Scarlet, Downton, Elruge, and Violette Hâtive were conspicuous, and of Hunt's Tawny we observed a dish of good fruit.

Awards.—2 dishes: 1, Mr. Allen; 2, Mr. Masters; equal 3, Mr. Dawson and Mr. Hill. 1 dish: 1, Mr. Brown; 2, Mr. Dawson; 3 Mr. Masters; extra, Mr. Wills.

Cherries.—These were chiefly Eltons; but we noticed one good dish of Black Circassian, and one or two of May Duke.

Awards.—White: 1, Mr. Turner; 2, Messrs. Lane; 3, Mr. Knight. Red: 1, Mr. Henderson; 2, Mr. Meredith; 3, Mr. Turner.

Melons.—Among these the best flavoured were Mr. Meredith's Hybrid Cashmere, Marquis of Ailsa, Windsor Prize, and Scarlet Gem.

Awards.—Green-fleshed: 1, Mr. Sawkins; equal 2, Mr. Meredith and Mr. Ford; equal 3, Mr. Simmonds and Mr. Kaile. Scarlet-fleshed: 1, Mr. Martin.

Figs.—Fine dishes of Brown Turkey were shown by Mr. Fowler, Mr. Brown, and Mr. Henderson.

Strawberries.—Among these were President, Oscar, Marguerite, Comte de Paris, Sir C. Napier, British Queen, Admiral Dundas, and Mr. Turner's fine looking new kind called Sir J. Paxton.

Awards.—3 dishes: 1, Mr. Kaile; 2, Mr. Turner; 3, Mr. Martin.

Miscellaneous Collections.—Three of these were contributed, one by Mr. Henderson, another by Mr. Dawson, and a third by Mr. Turner. They contained Pine Apples, Grapes, Peaches, and Nectarines, Cherries, Strawberries, Melons, and Figs.

Awards.—3 dishes: 1, Mr. A. Henderson: 2, Mr. Dawson; 3, Mr. Turner.

Fruit Trees in Pots.—Of these Mr. Lane had an interesting collection, in which were Vines loaded with fruit. The same grower also had a collection of Grapes, in which were some fine varieties, the fruit of which were stated to have been ripened in a large span-roofed vinery in his nursery at Berkhampstead. Mr. Fraser also showed fruit trees in pots.

THIRSK NATURAL HISTORY.—We mentioned at p. 487 the destruction of Mr. J. G. Baker's Herbarium. It appears that not only the herbarium but also the library of that gentleman, and about 8000*l.* worth of property, together with the whole of the reserved specimens belonging to the Botanical Exchange Club connected with this Society, of which Mr. Baker was Curator, were also consumed.

To obviate the necessity for suspending the operations of the Exchange Club, Mr. W. Foggitt, of Thirsk, has kindly presented a stock of duplicates for the nucleus of a new collection. The other members are also asked to gather examples of any scarce species, such as are likely to be required for exchange, in addition to those enumerated in the printed list of Desiderata for 1864.

The following is the Curator's report on the scarce plants distributed this year:—

"As in previous years I propose, along with our annual list of desiderata, to offer a few remarks relative to some of the plants which have passed through my hands during the past year, as before, restricting the observations to a brief notice of plants of critical interest, and to species sent from provinces or sub-provinces from which they are not registered in the Cybele Britannica.

Anemone Pulsatilla.—Sent by Miss Atwood from Broadway, Worcestershire. It is not given in Cyb. Suppl. as a plant of the Mid Severn sub-province.

Caltha Guerangerii, Boreau.—This plant is described by Boreau (Flore du Centre, 3 edit. p. 21) as having the appearance and general character of C. palustris, but a looser habit of growth, stems tinged with reddish brown, broadly reniform strongly crenate-dentate upper leaves, sepals narrowed at the base, and with an interval between them in the expanded flower, oval anthers, which are lanceolate after the emission of the pollen, long yellow stigmas, and reddish brown carpels, with a long divergent beak. C. palustris M. Boreau describes as having faintly toothed reniform upper leaves, broad sepals which are but slightly narrowed towards the base, and short beaked carpels. C. Guerangerii is noticed by Mr. Syme in the new edition of English Botany, and there are specimens in the distribution this year which show more or less fully the characters attributed to it from Hampstead, Middlesex, gathered by Mr. Syme, from Wallasey, Cheshire, gathered by Mr. Bean, and from the neighbourhood of Thirsk, gathered by myself. I saw the narrow-sepaled plant in flower last Spring in several places and thought that it passed by gradual stages into the ordinary cup-flowered form.

Delphinium Ajacis, Reich.—Thanks to Mr. Hanbury there is this year a good supply of the Cambridgeshire Delphinium, most of the examples of which show well the points in which the plant differs from the true Consolida. The latter is figured by Mr. Syme in the new edition of English Botany, from a Jersey specimen.

Barbarea intermedia.—Mr. T. R. A. Briggs sends this year a specimen from Devonshire, from a quarry between Saltash and Plymouth, and I saw it last year in Surrey, in a field of Trifolium incarnatum and in a second North Yorkshire Station.

Viola tricolor.—I have distributed a series of specimens to show the range of Cornfield Pansies which we have in North Yorkshire, which come under this species, as the name is commonly applied. Of the extremes of the series, No. 1 comes near to or is identical with the French V. Lloydii, and No. 5 is the ordinary British representative of V. arvensis, whilst the others are intermediate stages of gradation.

Drosera obovata.—Mr. G. E. Hunt sends this year a supply of specimens from Sligichan in the Isle of Skye. I have only seen it previously from Braemar.

Arenaria norvegica.—Of this species and Cerastium nigrescens, we are indebted to the Rev. A. M. Norman this year for a good supply of specimens from the original Shetland stations.

Hypericum undulatum, Schousb.; *H. bœticum*, Boiss.; *H. decipiens*, Watson.—This interesting addition to the British flora, discovered by Mr. T. R. A. Briggs, in boggy ground in common wood, and two other adjacent stations in the vicinity of Plymouth, Devonshire, has already been noticed in the Journal of Botany and the new edition of English Botany. Its characters are as follows:—Rootstock creeping widely. Stem 2 or 3 feet high, slender, with four slightly winged angles. Leaves oblong oval, amplexicaul, thickly studded with pellucid dots, and with a network of pellucid veins. Panicle loosely corymbose, the long lateral branches often with only two or three flowers. Sepals always erect, lanceolate, acute or bluntish, with pellucid veins and dots, and sometimes, but not always, with black dots on the back and along the edges. Petals elliptical or obovate, as large as those of H. perforatum, tinged with red on the outside, slightly dotted with black on the edges. Styles about as long as the ovary, in the fully expanded flowers half as long as the capsule. From H. perforatum it differs by its quadrangular stem, broader leaves with network of pellucid veins, broader and blunter sepals and styles only half as long as capsule; from H. dubium by its closely dotted leaves and erect sepals; from H. quadrangulum by its less robust and less decidedly winged stem, more dotted leaves, larger petals and differently shaped sepals, and from all three by the much fewer and more distantly placed flowers of the panicle. It is already known as a plant of Spain, Madeira, the Azores, and the North of Africa.

Hypericum lineolatum, Jordan.—Of this plant, which is stated to differ from H. perforatum principally by having the petals marked with black lines upon their outer surface, I have distributed a few specimens from the neighbourhood of Thirsk, along with the normal form. I have seen it from Carnarvonshire (G. E. Hunt), and Northumberland (W. H. Brown).

Rubus saxatilis.—Sent by Mr. T. R. A. Briggs, from a hedgebank in Common Wood, Devonshire. It is not given by Mr. Watson as occurring south of the Severn province.

Herniaria hirsuta.—Sent by Mr. Bromwich, from a roadside at Kenilworth, Warwickshire, but as the station is in the neighbourhood of a tanyard where foreign bark is used, and he has gathered Heliotropium europæum and Amaranthus retroflexus in the same vicinity, he does not regard the plant as truly indigenous.

Tillæa muscosa.—Sent by Mr. Briggs from an old slate quarry at Colwell, near Egg Buckland, Devonshire. New to the Peninsula province.

Galium erectum var. diffusum.—Under this name I have distributed from a hillside at an elevation of 500 feet at Cleves near Thirsk, North-east Yorkshire, a plant with the following characters. Stems three feet long, quadrangular, slightly thickened at the nodes, smooth throughout or somewhat hairy below, prostrate, and rooting at the base, spreading or loosely ascending above, with numerous spreading branches from the lower part, so that the stems form a tufted and entangled mass. Leaves on the primary stem seven or eight in a

whorl, spreading at right angles from the stem or reflexed. Well developed leaves of the primary stem about a line broad, the broadest part being about two-thirds of the distance from the base to the apex, in colour grass-green, the edges rough with forward pointing prickles, the midrib opaque, or in the younger leaves translucent. Branches of the stem varying from erecto-patent to divaricate at right angles, in luxuriant plants even the lower ones producing flowers, the separate panicles narrowly pyramidal and not numerously flowered, and the whole of the bracts of the upper branches often half as long as the peduncles they subtend. Lobes of the corolla spreading or reflexed, in colour almost pure white or tinged with pink, broadly lanceolate, with an apiculus, in well-developed flowers 1-16th of an inch broad by 1-8th deep. Styles varying much in adhesion, free to the base or united up to the middle in the same plant. Fruit pedicels always erecto-patent, the angle not exceeding 45°, the pedicel two to four times as long as the fully matured fruit. Fruit oval, beautifully shagreened under a lens, but smooth to the touch. From G. erectum it differs principally by its habit of growth, by the relative development and position of its flowers and leaves, and by its thinner leaves with translucent midribs, in which it recedes in the direction of G. Mollugo. There are four French plants described intermediate between erectum and Mollugo, but this does not quite agree with any of them.

Borkhausia taraxacifolia.—Sent by Mr. W. Bean from a limestone quarry at Hutton Bushel, North-east Yorkshire. It is not given by Mr. Watson as occurring to the north of Suffolk and North Wales.

Chenopodium rubrum and *botryoides.*—Mr. H. C. Watson sends a series of specimens of these plants with which he writes:—These examples of C. rubrum and botryoides "are sent in order to assist in correcting some confusion of their names which has lately gained currency on the labels of specimens and in printed books. A small variety of C. rubrum, which is usually found on the gravelly or muddy margin of ponds frequented by geese, has been frequently mis-labelled with the name of C. botryoides, apparently on account of its nearly entire and fleshy leaves, although its inflorescence is the short dense spike of C. rubrum. This variety is consequently named C. rubrum var. pseudo-botryoides on the labels, and by other accompanying specimens it is shown to pass gradually into the typical form of C. rubrum, not into C. botryoides. The specimens of this latter very local species were gathered by Mr. Watson and Mr. Boswell Syme on the shore of Pegwell Bay, in East Kent, in September last. The only other localities certain for C. botryoides are those of Gravesend in the same county, where the plant was found by Mr. Syme, in 1852, and the long known one of Yarmouth, in Norfolk. To these counties that of Essex will probably be added, although some doubt still attaches to the records in that county. In most or all of the other alleged localities it is the variety of C. rubrum which has been misnamed botryoides."

Polygonum Raii.—Gathered last autumn by Mr. T. J. Foggitt, on the coast of Durham, near Seaton Carew, and by Mr. W. H. Brown and myself on the Northumbrian shore between Seaton Sluice and Blythe. It is considered in Cybele to require confirmation as a plant of the east coast.

Spiranthes æstivalis.—Sent by Mr. Hanbury, from the recently discovered station in Guernsey, a swamp called the Grand Mare.

Carex ericetorum, Poll. — Mr. Hanbury sends examples from the Cambridgeshire station, which he thus describes:—"It grows on chalk of our Gogmagog hills, at an elevation of 230 feet, associated with C. præcox. It is spread rather sparingly over a space of about 400 yards in length."

Carex involuta, Bab.—Mr. G. E. Hunt sends from the Hale Moss station a range of specimens, from which I have drawn up the following description. Root rampant; stems 1 foot to 1½ foot high, slender, with obtuse angles; leaves glaucous, channelled, only a line or rather less wide, flat or involute at the edges; bracts leaflike; male spikes usually two; fertile spikes one or two, erect, sessile or slightly stalked; glumes lanceolate, acute or apiculate, deep chestnut brown, with a green midrib; fruit pale green, ovate, narrowing gradually upwards into a beak, which is about half as long as the fruit, the spike being 1½ to 1¾ inch long, and the fruit 1-16th of an inch broad by 2 to 3 lines long, and even when ripe erecto-patent only. It seems to me that Mr. Hunt is right in referring the plant to ampullacea rather than vesicaria. The only appreciable difference between involuta and ampullacea is in the fruit, which in the latter is subglobose and narrowed into the beak suddenly, so that the lower fruits spread almost at right angles from the axis when fully ripe. In C. vesicaria the stems are scabrous and acute-angled, the leaves flat and from two to three lines broad, the fruits fewer in number in a spike, and separately considerably larger than in the other two, for they measure one-eighth of an inch broad by a quarter or upwards long, the beak being from one-third to one-quarter as long as the rest of the fruit.

Introductions.—The only noteworthy aliens sent in the parcels of this year are Galinsoga parviflora *Cav.*, a Peruvian Composite plant which is now plentiful as a weed in some parts of the North of Germany, from waste ground at Kew (Rev. W. W. Newbould): and Malva parviflora from a heap of manure near North Sandwich, Kent (J. T. B. Syme)."

Notices of Books.

The Student's Manual of English Literature. Edited by Dr. William Smith. London: John Murray, 1864. Pp. 492, 8vo.

A work of considerable merit, entitled "Outlines of English Literature," was written in 1846 by Mr. Thos. B. Shaw. This gentleman had been educated at Shrewsbury School, under the late Dr. Butler, Bishop of Lichfield, and graduated at St. John's College, Cambridge, in 1836. He became tutor in a family, and afterwards proceeded to St. Petersburg, where he was appointed a Professor of English literature and Lector of the University. His lectures were eagerly attended. Princes and Grand Dukes were his pupils, and he lived respected and honoured by all till 1862, when his brilliant career was unfortunately cut short by death at the early age of 49.

The work of which we speak was originally undertaken at the request of the authorities of the Imperial Alexander Lyceum, and intended for the use of the pupils of that establishment. The present edition was intended to form one of Mr. Murray's excellent Student's Manuals, for which purpose it had been well nigh rewritten. It is the fruit of Mr. Shaw's later years and mature judgment, and arranged as it is with the well known editorial skill of Dr. Smith, this work will be found a most valuable addition to the student's library. To students who are preparing for the examination of the India Civil Service, the University of London, and the like, this Manual will be indispensable, and, as far as we can judge, it deserves the highest praise. A companion volume is to be published, divided in the same way, and containing a selection of choice passages from the writers noticed in this work, so that illustrative pieces may be read with the biographical and critical notice of each author, a manifest advantage to the student. A work of this kind to be really useful must be brief, and at the same time comprehensive. In a very few pages we have a bird's-eye view of Anglo-Saxon, Anglo-Norman, and early English literature. The second chapter is devoted to the age of Chaucer, and to our taste is extremely well written, and we think it particularly valuable, because few young men have the skill to read for themselves and form their own estimate of this charming but difficult author. But we have not space to specify. There is enough to awaken the curiosity and to interest the youthful mind, and at the same time to guide his path over the wide and seemingly-trackless field of English literature. There are 24 chapters and an index.

Monographia Hymenomycetum Sueciæ. Scripsit Elias Fries. Vol. 2, pp. iv. and 356, 8vo, 1851-1863.

No mycologist perhaps has been placed in such favourable circumstances for the study of the higher orders of European Fungi as the author of the important work before us, of which we have just received the final instalment, nor has any one studied this very difficult branch of botany with such assiduity and success. With the exception of a few southern forms, Sweden possesses the greater part of the European Hymenomycetous Fungi, and in far greater profusion perhaps than any other part of the Continent. For no less than 55 years the learned Professor has made them an especial study, though with something of the discouragement of Wordsworth's maiden, whom there "were very few to love." These higher Fungi, indeed, have been greatly neglected on the Continent, insomuch that Fries himself writes that with the exception of the British botanists they have met with little attention.

He accounts for this neglect in various ways. Partly because of the difficulty of preparing useful dried specimens, a difficulty which, however, is, we think, needlessly exaggerated, partly from the necessity of studying the species repeatedly, and in different localities; partly, again, from the supposition that the species are extremely difficult of determination, though when the main divisions are once mastered, there are not more definite species in nature. Another drawback, perhaps, is that the microscope seldom affords any definite characters for their determination; and, lastly, because there is not the same hope of novelties that there is in other branches of mycology.

Mr. Berkeley has, however, pointed out in his "Outlines of British Fungology" that far the better course is to commence with the higher species, in illustration of which he brought forth a pithy observation from Monte Christo, and Fries here adduces a sentence of like import from Linnæus, to the effect that natural instinct teaches us first to become acquainted with the more perfect forms, and then with those which are more remote, "naturalis instinctus docet primum nosse proxima, dein remotissima."

Our author's object in this work is to give more perfect descriptions of the Swedish species than have hitherto appeared, and such descriptions as may be in perfect accordance with the figures deposited in the Museum of Stockholm, which now amount to more than 1200, copies of many of which we have received through the kindness of Professor Fries.

This is not, however, all that the volume contains. Besides descriptions of several new species, it refers to the species of his various works, which may be regarded as classical, almost all the figures of Krombholz, Harzer, Letellier, Briganti, and others, which is a great boon to practical mycologists.

It should be observed that our Author has confined his descriptions to the Agaricini. Of the other divisions he gives a mere list, with the exception of characters of a few new species.

Professor Fries estimates the species of Agaricini, of which from 2000 to 3000 are known, at 10 times that number, but we fancy that he has greatly overrated them.

As 100 copies only of this work were printed, the whole stock will soon be exhausted. Indeed, it is almost impossible now to obtain the first part of the second volume. Those who are so fortunate as to possess it already, should procure the remaining part immediately, either through Bonnier of Stockholm, or Kœhler of Leipsig.

Garden Memoranda.

Messrs. Ivery's Nursery, Dorking.—Among the beautiful specimens of Wellingtonia in this Nursery, is one with 12 perfect cones. These cones were first noticed about Midsummer last year, but did not attain perfection in the autumn; they have remained uninjured all the winter, and are now firmly set. They are all growing round the main stem at the end of the growth of 1862. Although these cones are apparently in perfect condition, it is possible that they are abnormal, caused by the frequent removal of the plant. A very fine plant of Lonicera aureo-reticulata stood out all the winter in an exposed situation in the same nursery. Mr. Ivery states that, with the exception of the severe frost in February, it continued to grow the whole time, the frost only taking off an inch or so of the new shoots.

Miscellaneous.

Birmingham Rose Show.—The third annual exhibition of Roses at Birmingham is fixed for Thursday and Friday, the 7th and 8th of July; and from all we can learn, the prospects of a fine display of the Queen of Flowers are all that the most enthusiastic admirer can desire. With a wise liberality the committee have added fourth prizes in all the classes. The great merit of nearly every stand exhibited at this great Midland Counties Show at its past meetings renders this step a very fair and judicious one. The prize list has also been generally revised and amended. We trust that the persevering efforts of the committee will be rewarded by still increasing success; and that, good as the first and second displays have been, they may be surpassed by the forthcoming one. We would only further add that no entry of intention to exhibit can be made after Friday next, the 1st of July.

Orchids which have Flowered in the Collection of R. Warner, Esq., Broomfield, Chelmsford, during the Month of May.—Phajus Wallichii, with 10 fine spikes of bloom, lasts a long time; 2 Lycaste Deppei, one a large plant showing upwards of 60 flowers—to flower this plant well it must be thoroughly rested in a cool house; 5 Calanthe veratrifolia, which makes such a good exhibition plant; 6 Dendrobium primulinum; 2 D. Jenkinsii; 3 D. aggregatum majus, and a plant of D. chrysotoxum, with 16 fine spikes of bloom; 3 of the lovely D. Devonianum. In our opinion, this is one of the gems of the whole order, and a rival for the famed Wardianum, which has been in flower. Had a good show of 12 D. macro-giganteum, of which there appear to be several varieties; had one with a growth nearly a yard long, and with upwards of 30 flowers on; also D. macro-majus, and the old macrophyllum, which is inferior to the two preceding; giganteum is the best; 4 D. anosmum; 3 D. tortile, two varieties, one of a deeper colour and larger flowers than the other; 4 D. crepidatum, and 2 D. pulchellum; the last-mentioned likes Indian house treatment; several varieties of Phalænopsis amabilis, both in flowers and foliage; some have leaves of a purple hue on the under side, dark green above, others light green; some are lanceolate-obovate outline, others obovate, and one or two almost orbicular; those with leaves approaching the obovate or orbicular outline are the best varieties; the flowers differ both in size, colour, and substance. Nine Java and Borneo varieties of P. grandiflora; the Borneo variety is of flimsy texture, bad form, and a good deal of yellow colour in it; the Java variety is of excellent form and substance, and of firm texture: have a plant of Java variety with six leaves, some feet long, with 20 flowers expanded, and others not yet open. The rare Portei, the only plant of which in cultivation is to be found in this collection; it is certainly a lovely object; it has had 23 flowers on, though most of them are now gone off; the foliage is somewhat similar to P. amabilis, the flowers are about 1½ inches across, sepals and petals pure white, lip of a delicate pinkish hue; it grows and flowers luxuriantly; treated as the others. Several varieties of P. Schilleriana; one has leaves a foot long, and had a spike of 23 flowers, each flower measuring 3 inches across; some have beautiful bands of silvery white stretched across the upper surface of the leaves with remarkable precision, while in others the silvery bands are nearly obliterated, and the eaves present a comparatively dull appearance. There are variations also in the flowers: some are of a deep rose colour, some light, and some are larger and of better form and substance than others. 9 Cattleya Skinneri, just

going off; had one plant with 55 of its bright mauve-coloured blossoms on; we have this day (May 26) 300 flowers of Cattleya Mossiæ expanded, and many more buds not opened; and being of infinite variety in size, colour, and form, present a gorgeous bank of flowers, contrasting beautifully with each other. Some of the plants have 19 or 20 flowers on, and one plant with even 30 flowers on, growing in a pot 12 inches in diameter across the top. Some of the flowers measure 8 inches across; some have dark pink sepals, some light, some intermediate; but it is in the labellum where is the greatest variation; in some crimson predominates, dark or light; in others orange, and in others there is a beautiful and harmonious combination of both, and some are quite light; some have a clear white fimbriated margin to the lip, in others this is not so distinct; in fact, they are of endless beauty and variety, baffling all description. 4 Cattleya Williamsii: it is one not very generally known; it is of the Mossiæ section, sepals and petals pure white, lip rich bright crimson, backed up by light sulphur-yellow, with pure white fimbriated margin. 1 C. amethystina, 1 C. ianthina, 2 C. labiata splendens, now in full bloom, have 15 flowers on. I think it to be a very superior variety of Mossiæ rather than of labiata. 3 Lælia Warneri, 1 Cattleya elegans, 5 L. purpurata, too well known to need any description, have one plant with 33 flowers on; 1 L. flava, 2 L. cinnabarina, lovely thing, nice show plant; 1 Broughtonia lilacina, pretty little thing, flowers light mauve; 2 Lælia grandis, sepals and petals light buff, lip cream white with streaks of dull purple in interior; 5 Cypripedium barbatum, 2 ditto ditto nigrum, 1 ditto ditto Crossii, a variety of very ornamental foliage; 1 C. Hookeriæ, flowers not very attractive, foliage good; 4 C. villosum, and 5 the curious hirsutissimum; 4 fine plants of Oncidium sphacelatum grandiflorum, which when well flowered is a very showy thing; 3 O. papilio, 2 Harrisonianum; 3 pulchellum, which requires a good moist heat; 2 O. ampliatum majus, 1 O. leucochilum, 1 O. species (Bahia), 1 Cyrtochilum flavescens; the Cyrtochilums appear to require starving into flower; 8 Chysis Limminghii, 3 ditto aurea, 4 ditto bractescens, 1 Epidendrum alatum, 1 ditto Hanburyi, 1 Ansellia Zulu, is a plant pretty generally known, though we are informed it has never been flowered in this country until this year; the flower-spike is similar to a Phajus spike; it is now 4 feet in length, and as it is not yet finished growing, the spike will rise to 5 feet, or perhaps more; it already shows for 30 flowers, which are about 1½ inches across; sepals and petals light green and brown, lip white with some pinkish marks in the interior; it is not possessed of much beauty. Anguloa Ruckeri with several flowers expanded; A. Ruckeri, Clowesii and eburnea flourish in a cool house, where they are making a growth superior to that produced in a warm temperature. Have 6 plants of Odontoglossum citrosmum roseum, and 1 of the old variety with 5 fine spikes, bearing in all 65 flowers. This is one of the Odontoglossums that will not endure cool treatment. 4 O. nævium, grown cool under the shade of Vines; it delights in moisture: O. membranaceum, nice thing, and 1 odonto [What can this mean?] was one of the finest of this remarkable race; both are grown with nævium. 1 Cymbidium pendulum, with spikes upwards of 2 feet long and 33 flowers expanded on 1 spike at one time; 4 Trichopilia crispa, large plant with 30 or 40 flowers on; we have 2 or 3 varieties of this plant: 4 T. suavis, 4 T. coccinea, and large plant of T. tortilis; 8 Saccolabium retusum, 3 Aërides (foxbrush), one with spikes upwards of 2 feet long; 1 A. Warneri, 4 A. virens, which on account of its sweet scent and delicate tinges of colour is a great favourite with us; 3 Vanda tricolor, 11 flowers on a spike; 6 V. suavis, one spike showing for 14 flowers; 3 V. insignis, and 3 of the curious V. cristata, which succeeds best on logs; 1 Chelonanthera gibbosa, 3 Rodriguezia secunda, 1 Sobralia macrantha, a gorgeous thing. *Extract from Mr. W.'s Gardener's Note Book, for May last, published in the Proceedings of the Royal Horticultural Society with numberless misprints here corrected.*

Transportation of Fish Ova to the Antipodes—The following extracts from letters on the transportation of valuable fish to the Antipodes, the first explaining the method adopted, and the second the result, are of sufficient importance to persons interested in Natural History pursuits to be worth recording in our pages. The original letters were addressed by Mr. James A. Youl to the *Times*:—1. Jan. 21, 1864. "Notwithstanding all the efforts made by the fishermen, we were unable to obtain a single ripe fish so long as the severe frost lasted, which appears to have prevented the spawning fish from leaving the sea and ascending the tributaries of the larger rivers to deposit their spawn. This bears out the opinion expressed very recently by Mr. Frank Buckland 'that the salmon is a very knowing fish,' and would not, therefore, quit the estuaries so long as the spawning beds were frozen and unfit for the reception of the ova." Ripe ova were obtained from Scotland, Lancashire, Worcestershire, and Wales, from fish which had ascended the rivers a few days after the breaking up of the frost. The ova were received between 5 A.M. and 10 A.M., and were placed safely in the ice-house of the Norfolk by 4 P.M. "The boxes in which the ova are packed are made of inch pine, 11¾ inches long, 8¾ wide, and 5¼ deep, perforated with holes top, bottom, and sides, to allow the water from the ice as it melts to flow into the boxes, and percolate through the Moss and ova inside. The manner of packing is as follows:—A couple of handfuls of charcoal are spread over the bottom of the box, then a layer of broken ice, after this a bed or nest of wet Moss is carefully made and well drenched with water; the ova are then very gently poured from a bottle which is kept filled with water; the box is now filled up with Moss, and pure water poured upon it, until it streams out from all the holes; another layer of finely pulverised ice is spread all over the top of the Moss: the lid is then firmly screwed down. As soon as this process is completed, it is most desirable, in my opinion, that the boxes should be placed in immediate contact with ice. One hundred and sixty-four boxes, containing above 90,000 ova so treated, were firmly packed at the bottom of the ice-house, covering the entire space. Upon these a solid mass of ice was piled, to the height of 9 feet, so that as long as any ice remained the ova would derive benefit from it."——2. *June* 4, 1864. "I have just received a telegram from my friend Mr. Edward Wilson that the salmon ova by the Norfolk arrived safely at Melbourne, and have been transmitted to Tasmania, and were showing signs of life in the breeding ponds of the River Plenty.

Calendar of Operations.

(*For the ensuing week.*)

As daylight and sunshine have now arrived at their climax for this season, stove plants which are in a growing state should be supplied with the maximum amount of heat and moisture, that they may the sooner complete their growth, and have a longer period to ripen it in. Water should be freely and frequently sprinkled on every evaporating surface, with a view to counteract the drying effects of abundant ventilation. Incessant exertions must be made to keep insects in check, particularly red spider. The blooming season of many plants may be retarded by pinching off the earliest flowers, thereby husbanding their strength and inducing them to make a longer season of growth. Forcing pits should now be actively employed in forwarding Achimenes, Gloxinias, Balsams, Cockscombs, Globe Amaranths, and other plants for immediate and autumnal display.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors the most pressing work at present will be that of keeping the place in order. The old surface of walks should be loosened a little with a sharp rake, and then receive a slight sprinkling of fresh clean gravel; the best time for the operation is when they are in a medium state between wet and dry, as the roller is then more effective in restoring the hard smooth surface than when the gravel is too dry. In connection with the repairs of the walks, any irregularities in the edges should be put right; and the edgings, whether of Grass or Box, or other evergreen, should be repaired and clipped.

CAMELLIAS.—Plants that have completed their growth and set their bloom buds, as many of the early flowering kinds will have done, should be removed to a cool airy house to harden their wood. Late growing sorts must be still kept warm and close.

HOLLYHOCKS.—These should be mulched and then thoroughly watered; the latter operation should be continued once or twice a week if dry weather should set in.

PANSIES.—Take off young cuttings as they are obtainable, and strike them under small glasses in a shady situation.

PINKS.—Water copiously should dry weather prevail. During the time the buds are swelling, weak liquid manure may be applied beneficially.

PELARGONIUMS.—With many it is now no small matter of anxiety to prolong the bloom of these, and if we can assist them but slightly, that will afford some satisfaction. Many of the finest kinds are now in perfection, and it is most desirable that shading should be attended to carefully, for one sunny day may injure the flowers beyond hope of remedy. It is equally desirable that the atmosphere of the house should be kept cool.

FORCING GARDEN.

CUCUMBERS.—Pay great attention to thinning and regulating the shoots; go over them at least twice a week, as they soon get crowded if neglected a few days. Guard against red spider, by syringing the plants and frequently sprinkling every part of the house. Attend to plants in frames. Keep linings well made up; earth up, peg out, and train shoots of growing plants. Water when necessary.

MELONS.—Keep up the top temperature, and a bottom heat of 85°, and a moderately moist atmosphere to the successional plants, and give occasional waterings. Those plants which are ripening their crops will require less water and a drier atmosphere. If it be desired to obtain another crop from them, care must be taken that the soil does not become too dry; water should be given to the under portion of the soil, by means of holes made with a tin tube.

ORCHARD HOUSE.—Syringe twice daily, taking care to wet the undersides of the leaves as well as the top. It is important that this is well attended to, otherwise, even though syringed well overhead, the undersides of the leaves may be devoured with red spider. Attend to the thinning of the fruit. Thin and stop shoots, not retaining more than is absolutely necessary for another year. Ventilate freely.

PEACHES.—Continue to keep insects in check, using the syringe freely to keep down the red spider, and tobacco smoke to destroy thrips. The foliage must be kept healthy, to ensure success in the crops of this and future seasons. Should mildew make its appearance in the late house, dust the plants with sulphur immediately.

PINES.—When the bottom heat is declining, it may be recruited by surfacing the beds with a few inches of new tan; as, independently of its own fermentative power, it absorbs a considerable quantity of heat from the sun, and attracts the roots to the surface, where they revel amongst the new material. In addition to these advantages, it checks evaporation, economises labour in watering, and keeps the roots in a more equable state of moisture during hot weather. The syringe must be freely used every fine afternoon, and the pits shut close for an hour or two, to compensate the plants for the loss they sustain by evaporation during the day.

VINES.—Let late Vines be supplied with a sufficient amount of heat and moisture to keep them growing at a healthy rate.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere in the system of gradually removing all superfluous shoots from wall fruit trees, and in order that the proper balance between the crop and the capability of producing it may be maintained, it will be necessary to disbud more or less severely according as the trees are vigorous or weakly; for example, vigorous trees, full of life, and evidently having a vast accumulation of sap, must have an outlet, or else there will be a risk of obtaining only strong unfruitful wood. Stop and thin therefore with great caution.

CABBAGE.—Sow now for Coleworts. The Rosette is one of the best.

CELERY.—Earth up this as it requires it, selecting a dry day for the operation.

ENDIVE.—Sow now for a first crop.

POTATOS.—Let these be earthed up as they require it, using a three-pronged hack instead of a sharp draw hoe, which it is a common practice to use, although it is liable to cut off the young strings which lie near the surface of the ground. The soil for earthing should be drawn from the centre of the space between the ridges.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending June 22, 1864, as observed at the Horticultural Garden

June.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 16	12	30.004	29.811	74	46	60.0	60½	59	W.	.00
Friday 17	13	30.078	30.053	76	44	60.0	61	59	S.W.	.14
Satur 18	14	30.112	29.957	75	45	60.0	62¼	59½	W.	.01
Sunday 19	○	30.225	30.199	74	39	56.5	62	59½	W.	.00
Mon. 20	16	30.252	30.100	74	50	62.0	62½	59½	W.	.00
Tues. 21	17	30.116	30.086	71	44	57.5	63	60	W.	.00
Wed. 22	18	30.122	30.036	70	50	60.0	62½	60	S.W.	.00
Average.		30.129	30.031	73.4	45.4	59.4	62.0	59.5		.15

June 16—Clear and fine; fine throughout; warm at night.
— 17—Uniformly overcast; cloudy and fine; overcast; rain.
— 18—Rain; very fine throughout.
— 19—Fine; very fine; cold at night.
— 20—Fine; very fine; warm at night.
— 21—Fine, with brisk wind; partially clouded; fine.
— 22—Fine; brisk wind; partially clouded and fine.
Mean temperature of the week 1 1-3d deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending July 2, 1864.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 26..	73.8	50.2	62.0	19	0.69 in.	1	2	4	2	2	14	10	3
Mon. 27..	72.0	48.6	60.3	13	0.80	4	2	2	2	3	17	8	—
Tues. 28..	73.3	49.3	61.3	15	0.65	3	2	6	1	3	12	5	6
Wed. 29..	72.8	48.6	60.2	10	0.22	3	4	3	1	—	16	6	5
Thurs. 30..	72.7	48.3	60.0	12	0.80	—	6	4	1	4	11	6	6
Friday 1..	72.3	51.7	62.0	18	1.18	3	5	5	4	4	11	6	5
Satur. 2..	73.3	51.5	62.4	14	0.22	2	5	3	—	5	10	9	4

The highest temperature during the above period occurred on the 30th, 1862—therm. 91 deg.; and the lowest on the 28th, 1862, and 30th, 1863—therm. 34 deg.

Notices to Correspondents.

INSECTS: *E A M.* The small fallen Apples have been infested by the caterpillars of a sawfly, Tenthredo testudinea, which laid its eggs in the embryo fruit whilst in flower. We know no other means of checking the mischief than by collecting the Apples as soon as they fall, and before the grubs have escaped, and burning them. *W.*

NAMES OF PLANTS: *Verna.* 1, A Fuchsia without flowers; 2, Centranthus ruber, with white flowers; 3, Not to be found; 4, Quite crushed to pieces.—*An Old Subscriber.* Holcus mollis; Festuca elatior; and Avena flavescens, we believe. None of these had either leaves or numbers.—*J H M.* Primula cortusoides.—*G. Bath.* The specimen is certainly not plicatum; possibly some form of pruniifolium. Whence comes it?

ORCHARD HOUSES: *Belfast, W.* As we have no experience in the matter you inquire about, and do not know any one who has, we can only advise you to consult Mr. Rivers.

ROYAL HORTICULTURAL SOCIETY.—We must refer enquirers to the Daily Papers for the events at South Kensington since the Garden has been permitted to fall into the uncontrolled hands of Mountebanks; Horticulture being discarded in favour of Mumbo Jumbo, and similar personages, with whom we have not the honour to be acquainted.

STRAWBERRIES: *B W Knight.* Your Strawberry, Princess of Wales, is very large, irregularly round, flattened, and sometimes cockscomb-shaped, deep red; seeds not deeply embedded; flesh bright red next the outside, pale at the centre, hollow at the core in the larger specimens; flavour very good, better than that of many of the very large varieties.

MISC.: Two shillings will be given for a Copy of October 15, 1853.

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MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5s. per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
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THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY,
Offices: 52, Parliament Street, S.W.
Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, the term for building works being limited to 31 years.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 52, Parliament Street, S.W.

Land Drainage, & other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5s. per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SPRING SESSION, 1864.
President.—The Right Hon. the Earl BATHURST.
Council.
Rt. Hon. the Earl BATHURST. | Rt. Hon. T. H. SOTHERON ESTCOURT, M.P.
Rt. Hon. the Earl DUCIE. | EDWARD HOLLAND, Esq., M.P.
Hon. WILLIAM BATHURST.
Principal—The Rev. JOHN CONSTABLE, M.A. Trin. Col. Camb.
Farm Manager.—J. L. FLETCHER.
RESIDENT PROFESSORS.
Chemistry.—ARTHUR H. CHURCH, M.A., Lincoln Coll., Oxon., F.C.S.
Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S.
Botany.—JOHN BAYLDON, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. MURRAY, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
Drawing.—JAMES MILLER.
SPECIAL LECTURERS.
J. BAILEY DENTON, M. Inst. C.E.—On DRAINAGE.
Professor J. MORRIS, F.G.S., of University College, London—On GEOLOGY.
JOHN GAMGEE, Professor in the New Veterinary College, Edinburgh—On the CONTAGIOUS DISEASES of ANIMALS and their PREVENTION.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—On the HISTORY of the SHORT-HORN BREED.
JOHN ALGERNON CLARKE, of Long Sutton, Lincolnshire—On CATTLE, SHEEP, PIGS, and POULTRY.
JOHN THORNHILL HARRISON, of Frocester Court, near Stroud—On DAIRY HUSBANDRY.
THOMAS BALDWIN, Professor of Agriculture at Glasnevin, Dublin—On FARM LABOUR in connection with the GENERAL ECONOMY and PROFITS of FARMING.
ROBERT RUSSELL, Editor of the "Highland and Agricultural Society's Transactions"—On ROTATION of CROPS.
RICHARD GRIFFITHS WELFORD, Barrister-at-Law—On LEASES and the LAWS of REAL PROPERTY as affecting Agriculture.
Applications for Admission and for further particulars may be made to the Principal.

ROYAL AGRICULTURAL COLLEGE CLUB. The ANNUAL DINNER of this Club will be held at the Queen's Head Hotel, Newcastle-upon-Tyne, on WEDNESDAY (July 20) during the week of the Meeting of the Royal Agricultural Society.
Tickets to be had at the Bar of the Hotel up to Tuesday evening, July 19. Members are allowed to introduce friends.
JACOB WILSON, Hon. Sec. pro tem.
Manor House, Woodhorn, Morpeth.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE, 1864.
The LOCAL EXECUTIVE COMMITTEE have arranged for a Registry of Lodgings and other Accommodation for Visitors to Newcastle during the Show, to be kept by Messrs. C. BROUGH, Academy of Arts, Blackett Street, and G. MURAS, 4, Northumberland Street, to whom applications must be made.
R. DODDS,
E. I. J. BROWELL,
WALTER JOHNSON,
JACOB WILSON, } Hon. Local Secs.

HORSE SHOW.—AGRICULTURAL HALL, LONDON.

OPENING DAY and PUBLIC JUDGING.—FRIDAY, July 1, at 10 o'clock A.M. Admission Half a Crown.

HORSE SHOW.—Admission, SATURDAY, at 9 A.M., Half a Crown.

HORSE SHOW.—A PARADE of PRIZE HORSES every afternoon.

HORSE SHOW.—Each Class will be Exhibited in the Tanned Ring once a day.

HORSE SHOW.—FORTY THOROUGH-BRED STALLIONS.

HORSE SHOW.—TWENTY ROADSTER STALLIONS.

HORSE SHOW.—SIXTY-NINE HUNTERS in THREE CLASSES.

HORSE SHOW.—THIRTY-FIVE WEIGHT-CARRYING COBS.

HORSE SHOW.—NINETY PONIES in THREE CLASSES.

HORSE SHOW.—ARABS, BARBS, TURKS, CHARGERS, HACKS, STATE CARRIAGE HORSES, &c.

HORSE SHOW, AGRICULTURAL HALL.—Admission, MONDAY, TUESDAY, and WEDNESDAY, July 4, 5, and 6. One Shilling.

HORSE SHOW, AGRICULTURAL HALL.—SEATS to be had in the ORCHESTRA to VIEW the JUDGING and DAILY PARADE. One Shilling.
By order, S. SIDNEY, Secretary.

The Agricultural Gazette.
SATURDAY, JUNE 25, 1864.

WE have been requested to publish a long correspondence between Mr. HALLETT, of Brighton, and Mr. SHIRREFF, of East Lothian, commencing so long ago as February 9, and arising out of an article on Plant Improvement by the latter gentleman, which appeared in this Journal on Feb. 8 under his own signature (see No. 6 *Agricultural Gazette*, 1864). The letters are not of public interest, and we are, therefore, unable to find room for them. It appears, however, that Mr. HALLETT and his advisers having read this article as a personal attack, conveying charges of "fraud" and "imposition," which were intended for himself, lost no time in instructing his solicitors to demand the withdrawal of the offensive terms. Mr. SHIRREFF's reply to this demand is the only essential portion of the long series of letters which followed; and we are glad to give the following extract from it, in order that the misunderstanding which has taken place may be corrected.

Mr. SHIRREFF, who denies that his use of the objectionable terms could be construed into a personal attack, nevertheless expresses himself as follows:—

"In writing the article in question I had no intention of giving offence to Mr. HALLETT, or of casting imputations on him; and if I have exceeded the bounds of fair discussion, I have no objection to withdraw anything improper which may have dropped from my pen."

We hope that the persona discussion which has thus terminated, will not check that public discussion of the important subject of plant improvement which none are better able to prosecute than Messrs. HALLETT and SHIRREFF.

A LETTER upon a "New System of Drainage" was read at a late meeting of the Agricultural Society at Belfast from Mr. ROBIE, of Kilbarchan, Paisley, which deserves some attention. This gentleman very properly describes land drainage as underground irrigation; its object being to withdraw the subsoil water, in order that the rainwater may traverse soil and subsoil, and so replenish the earth and feed the roots by which it passes.

This is done by having an outfall below the subsoil which it is desired thus to irrigate—an empty space into which the whole water of the soil may press—and above which the weight of that water is urging it downwards. It appears, however, that in certain river-side meadows with deficient fall considerable fertilising effect has followed a land drainage made 3 or 4 feet deep, even though the main drain enters the running water of the river 2 or 3 feet below its surface—a fertilising effect which is alleged to be equally striking with that which follows a deep drainage where the main delivers water into a ditch lower than itself; and Mr. ROBIE, who is aware of Mr. BOWICK'S success in thus draining river-side meadows near Kenilworth, pronounces it a new system of drainage—one which combines the two established systems of ELKINGTON and DEANSTON. We do not see in what way it can be said to resemble ELKINGTON'S method, which acted merely by tapping reservoirs of subsoil water: whereas this seems to be a contrivance for letting a body of water more freely into the subsoil.

Assuming, however, the facts to be as they are alleged to be, it is possible that something more than the plain and obvious action of the weight of the water in the soil above the outfall, which is the sole operating cause in ordinary drainage, may be in operation here. If a vessel of water be connected by a tube below it with an exit on the same level as that at which the water stands in itself, and that exit pipe be subjected to the action of a rapid current of water across its mouth, the adhesiveness of the particles of water to one another may to some extent tend to pull the water along the tube out of the vessel; and in this way a running river passing over the mouth of a buried drain will tend in some slight degree to pull the water along the drain out of the subsoil in which it is lodged. The first effect however, of opening a drain into the river below the surface of the water in that river, will be to send the water back along the drains till it stan s in them throughout the field at the level of the river surface. If the surface of the land be 1 foot higher than the surface of the water, then, whether those drains are made 1 foot or 3 feet deep, the water will stand just 1 foot from the surface when drained as it did before it was drained. The pulling action of a sluggish stream passing the mouth of the buried main cannot be denied—but how small its drainage influence must be can hardly be expressed.

The effect of drainage, 3 feet or 4 feet deep, and buried in water to within 1 foot of the surface, must indeed be attributed wholly to the 1 foot drainage which is thus provided, and which would be more cheaply furnished to the land by a set of open furrows 12 inches deep.

—— IT will be seen from the report in another page, that the Committee sitting on the Cattle Diseases Prevention Bills, after the evidence of Mr. CONGREVE, of Rugby, Chairman of the Central Farmers' Club, and others, have taken the foot and mouth disease off the schedule of those diseases which are to render cattle liable to the operation of the Bills in question.

—— THE attendance at the meeting of the Bath and West of England Society on Durdham Down last week was unparalleled. The total number of visitors to the yard during the five days was 88,138, and the receipts close on 6000*l*.

The following figures contrast the Bristol meeting with its immediate predecessors :—

		Visitors.	Receipts.
	FIRST DAY.		
1864	Bristol	2,419	£336 12 0
1863	Exeter	325	111 2 0
1862	Wells	181	58 17 0
1861	Truro	152	53 3 6
1860	Dorchester	178	63 0 0
	SECOND DAY.		
1864	Bristol	4,540	540 15 0
1863	Exeter	2,143	270 7 0
1862	Wells	268	47 3 6
1861	Truro	699	120 12 6
1860	Dorchester	659	135 15 6
	THIRD DAY.		
1864	Bristol	18,500	2194 17 0
1863	Exeter	4,326	525 9 0
1862	Wells	4,392	533 6 6
1861	Truro	7,278	898 10 10
1860	Dorchester	5,080	656 14 9
	FOURTH DAY.		
1864	Bristol	41,764	2020 19 0
1863	Exeter	9,952	1188 12 0
1862	Wells	6,508	780 13 10
1861	Truro	8,429	1017 1 5
1860	Dorchester	5,938	697 15 0
	FIFTH DAY.		
1864	Bristol	19,574	913 5 0
1863	Exeter	18,207	878 0 3
1862	Wells	4,004	188 10 1
1861	Truro	12,923	619 17 7
1860	Dorchester	10,803	516 1 7

—— WE learn that Mr. BOWLY, of Siddington, and Mr. RICH, of Didmarton, have purchased Capt. GUNTER'S 7TH DUKE OF YORK, the bull that has been used on their herds during the past two years. The purchase money, 500 guineas, is another illustration of the high prices BATES'S blood commands.

SEWAGED ITALIAN RYE-GRASS.

THE longer I farm the more I become impressed with the vast importance to the farmer and to the country at large of the value of this Grass when watered abundantly with sewage, or guano and other manures washed into the soil. I am now cutting a heavy second crop. My working horses get no other food than as much as they can eat of this Grass (112 lbs. per day), cut up by steam power into short lengths or chaff. "Sir," said my horseman to me the other day, "there is no food that will keep our horses in such condition as this." This is quite true, judging by their vigour and appearance. As Italian Rye-grass contains 25 per cent. of dry matter, it follows that, eating 112 lb. of it per day, our horses get 28 lb. of dry substance. Given to our cows it produces the most perfect butter, free from any rankness. I have also got about 77 head of calves, yearlings, and fat bullocks fed with it, and it is so satisfying that it takes them off their cake, if we allow them all they will eat of it.

It also makes the very best hay, if cut at the right time and got up green. It certainly pays me better than corn, and I shall gradually increase my quantity to 50 acres—making sewage by washing in guano, &c., and feeding a good deal of it on the land, for I find that folding ewes upon it, allowing their lambs to range outside the hurdles during the day, answers well; and I consider that any food that will put condition on to milking ewes must be first rate.

As to profit, my horses at 10*s.* per week are paying me (each horse consuming 7 cwt. per week), about 28*s.* 4*d.* per ton. As we grow fully 20 tons at the two principal cuttings, it requires no conjuror to show that it is a profitable operation. The carting and cutting up and feeding out costs about 2*s.* to 2*s.* 6*d.* a ton.

The cost of an acre I put down at 13*l.* 14*s.*; I miss the cheap town sewage. But there is another and very important result of growing sewaged Italian Rye-grass —the after condition of the land on which it grows. The first year of its growth we mow it and carry it off; the second year it is fed with sheep, eating cake, &c.), and irrigated. It supports during six months 16 sheep to the acre.

The third year (it being a biennial plant) we break it up, and find unmistakeably that those fields so treated surpass in durable fertility and productive power any other fields on the farm. It is felt for several years—I suppose and believe that the subsoil becomes improved by the saturation and chemical action of our sewage passing through it. At present high prices of meat and butter it certainly, under the circumstances I have mentioned, pays best to make meat, although the very making of that meat enables us to grow great corn and Pulse crops when we break up the Grass. If we wish to continue the land in Italian Grass we should sow some seed in it annually or biennially, and also some white Clover. It would be interesting to know how many tons of Grass would produce a ton of beef or mutton fit for the butcher. I value it at double the price of Mangel Wurzel, and 2½ times the price of Turnips, because it contains twice as much dry matter as the former, and 2½ times as much as the latter; and I consider this a tolerably safe way of testing their relative value. One thing is certain, Italian Rye-grass never purges or disagrees with any stock, if given at a proper growth, but if you let it run to seed, or get old and tough, it will kill young calves. It balls or winds into masses in the first stomach, and they cannot get it up to chew the cud. They suddenly jump up and die. It is best cut up into short lengths for all ruminating animals, and in fact I am more and more convinced by practice that it pays to cut up all green food, if of any length. The animals' stomachs will hold more, it packs closer, and they get on much faster than with long food. The same remark holds good in comminuting roots or chaffing straw, and I know the same rule applies as forcibly to strong pasture or meadow Grass in the growing season. There is great truth in the common farm-saying, that a bullock or horse turned out in high feed has five mouths.

I need hardly say that it is the greedy feeding and consequently excessive rapid growth of the Italian Rye-grass during the growing season that renders it so profitable. It gives us, under sewage, a crop of hay, or a heavy mowing every five or six weeks. In fact it gives us great crops, and fertilises the soil without the heavy expenses of ploughing, hoeing, &c.

Italian Rye-grass is considered by most south country farmers an exhausting crop, because their rain-fall is small and it is a very greedy drinker, and they have no irrigation. I know some successful men, however, who sow it in their corn crop, take one good feed or mow in the spring, when it has drunk up all the winter's rains, and then plough it up and take Turnips or some other crop. This is the best way where there is no irrigation, for there can be no second growth in crop without it. I carefully weighed an acre of my first cut a few years ago, and found it to be 15 tons per acre, equal to quite four tons of hay. The second crop or cut is generally eight to ten tons; the third crop is always comparatively inferior in our hot months and dry climate; we have capital feed afterwards in the autumn, and as this Grass is such an exhauster of moisture it soaks up the autumn rains, and keeps the land dry enough for feeding, which it would not be under other circumstances. There is one remarkable property or power about this Grass, which is not possessed by Clovers or fine Grasses. No crop of corn, however heavy, can smother or kill the young plants. If sown in the spring, and hoed or harrowed in, you are sure to have a crop next spring, however puny, and then it may look up when the corn crop is removed.

We cannot over-feed or over-manure it during winter and early spring and the first two cuttings; after that it wants a thunderstorm every week rather than manure. Unless very wet it will struggle to run to seed in July and August. During these critical months for green food wise farmers will fall back upon a heavy crop of Cabbage, planted out in February or March on a piece of land heavily manured and deeply trench ploughed.

Cabbages are just the opposite of Italian Rye-grass—they luxuriate in heat, provided the land has been deeply disturbed and filled with moisture and manure in winter or before. They are however very grateful for sewage; nothing pays better for it except Italian Rye-grass. I was very much struck to see in my Cabbage crop last autumn several so large that they touched each other.

I found there was a little leakage from one of my subterranean iron sewage pipes, and in an exact line with the sewage was an enormous crop of Cabbages. Nice cool Cabbages in hot weather are the very *beau ideal* of acceptable food to animals. We pass them through Bentall's pulper for our indoor stock. They are a very valuable meat and especially milk-producing crop. *J. J. Mechi, June*, 1864.

WHAT IS "CONDITION?"—No. III.

I AM aware that in giving the theoretical value of a dung heap I am risking the loss of attention of practical farmers; but if I can succeed afterwards in proving the conclusions arrived at to be true in practice, I shall recover it again, and this I hope to do by examples of neighbouring farms. Unfortunately the data upon which I am now to proceed, have hardly been sufficiently investigated, or if they have I have had no access to any report of them. I shall beg any one who thinks these researches worth following up, to read a very able article written by Mr. Lawes in the Royal Agricultural Journal, Vol. 8, for 1847, to whose accuracy and research I shall appeal for the confirmation of my figures. In this article he has shown that in fattening cattle the more nitrogenous foods are the most valuable, *i.e.*, supposing always the food given to an animal to be wholesome and fattening, its effects will be in proportion to the nitrogenous constituents, the other, or oily matters which enter into their composition, being generally in excess. He proceeds to prove from well-conducted experiments that about one-sixth part of the nitrogen consumed is carried off by the animal in its increased weight—the other five-sixths being lost or excreted; from this one-sixth he calculated the fattening value of the food. We will now consider the manuring value of the residue. It has long been surmised that a portion only of the five-sixths which were not incorporated by the animal in the form of meat was recovered in the manure—in fact, was wasted in the same way as the bushel of corn which requires 5 lbs. for its production, and retains but 1 lb. in its composition when ripe. This question, which was taken up by M. Boussingault, has been settled by the experiments of M. Reiset, a French gentleman, as reported in Royal Agricultural Journal, No. 51, of last year. He has determined with sufficient accuracy for our present purpose that about 2-6ths of the nitrogen are expired by the breath or through the skin, leaving but little over 3-6ths or one-half for the manure. Here then we arrive at a basis for our calculations. Allowing for some little waste, which always must take place in the most careful management, one half the nitrogen consumed will be left in the manure, and will if preserved be the measure of the value of that manure. We have already seen in a former letter that the value of the nitrogen in ammonia or other manurial combination may be taken at 6*d.* the lb., and that it is well worth purchasing on the farm at that price. We can also generally ascertain how many tons of hay, corn, roots, cake, &c., were consumed during the last winter, the remains of which constitute the value of the dung either in the yard or in the land. The amount of nitrogen contained in these feeding stuffs is also sufficiently known; the only guess or estimate which will be required to be made, will be the allowance or deduction from the full theoretical value in consequence of the washing or exposure of the dung while making in the yards. One half the quantity of nitrogen consumed is the outside value of box manure, from which no runnings have escaped, and which has suffered no exposure to the air. It is probable, from Professor Voelcker's analyses, that at least 30 per cent. from this full value should be deducted where it has been exposed for months to the sun and rain, and where the runnings have escaped into the neighbouring pond or road. A valuer would probably take off 10 per cent. as a medium allowance where common care and precaution have been taken, and sufficient straw used to prevent evaporation. Therefore for every ton of hay he would allow $\frac{2 \text{ p. cent.}}{2} = 100$ lb. &c., or 50*s.*; for every quarter of Barley, &c., at $\frac{4 \text{ per cent.}}{2}$ 6 lb., or 3*s.*; for Beans, at $\frac{5 \text{ per cent.}}{2}$ 7*s.* the quarter: oilcake, $\frac{5 \text{ per cent.}}{2}$ 5*l.* the ton, deducting from the whole 10, 20, or 30 per cent. as above for any want of economy in the manufacture. This method of estimating the value will apply equally whether the food was consumed by sheep on the land or by cattle and pigs in the yard. Less deduction would probably be requisite in the case of folded sheep, because the dung is usually ploughed in behind them, and little loss can occur. It would also apply to very excessive manurings, where one crop of corn had been taken off, but had not exhausted the manure. It was shown in a previous letter that a soil, the natural actual productive power of which was 16 bushels, or 32 bushels every two years, would require one year with another 40 lb. of nitrogen to increase the crop to 40 bushels. Suppose on any such field an excessive dose of 100 lb. of nitrogen had been followed by a good crop of five to six quarters, there still would remain the difference between the 40 or 80 lb. of nitrogen so removed by the crop, and the 100 put into the soil; this would remain an unexhausted manure in the land, and should be valued accordingly. But this will be more apparent when we come to consider the application of the above method of valuation to actual farms, in connection with a somewhat different rotation of crops and the method of manure making. I hope to prove the practical value of these suggestions by comparing the few returns of food consumed, and the effect of the manure made from it, with which I have been favoured, by showing how near the actual prices of several of these substances correspond with their feeding and manuring values thus arrived at (which is the best criterion of the truth), and to prove that the 10 per cent. deduction made above from the full value is a reasonable and fair approximation to the actual loss. *J. B. M.*

CATTLE IMPORTATION AND CATTLE DISEASES BILLS.

THE SELECT COMMITTEE OF THE HOUSE OF COMMONS to which these Bills are referred, sat again on Tuesday the 14th, Mr. T. Baring presiding.

Mr. CONGREVE, who rented a farm of 1000 acres in Warwickshire, near Rugby, of which he grazed over about 300 acres, stated that he presided over a meeting of the Farmers' Club in London, at which the Cattle Diseases Prevention Bill was discussed, and a most decided objection was expressed to the foot and mouth diseases being included, and he believed that to bring that disease under any restrictive measures would interfere with the trade and enhance the price of meat by reducing the number of cattle brought to market. It was difficult to say whether a penalty should be imposed in the case of pleuro-pneumonia, even when a diseased beast was knowingly sold, for the animals must be got rid of in some way. His practice was, whenever he found one of his animals with pleura to send it to a fair and sell it at once; but if there was a penalty he should be obliged to sell it to a butcher. In his opinion pleura was not very catching, and in proof of this he mentioned a case where he had purchased 13 oxen at Havre, one of which became attacked with pleura, but though he grazed them together all the time and brought them to London together, not one of the others showed the slightest symptoms of the disease; and this he said was not a solitary instance. He did not think any distinction could be drawn between beasts sold at a store market

and at a fat market. No man in his senses would buy a beast with pleuro-pneumonia to graze. He had never had sheep-pox on his farm, but should think from what he had heard that it was very catching, and that stringent regulations ought to be imposed to prevent the diseased animals mixing with the healthy ones. He would prevent animals with scab being brought into a store market if he could, but he did not think it would be possible. The principal objection to the Cattle Disease Bill was that part which related to the foot and mouth disease, and which gave power to an inspector or common policeman to stop a whole herd of cattle because he saw, or fancied he saw, symptoms of disease with some of them. Some regulation for the cleaning of trucks would tend to prevent infection, but he was certain there was no effective prevention of foot and mouth disease. It arose from some atmospheric cause and the predisposition of some animals to it. Two beasts perfectly healthy might be sent up in the same truck, and one might take the disease and the other not. In the case of pleura the best treatment, if the animal had anything on him, was to kill him at once, but if he was so poor as to be valueless to the butcher, then it might be advisable to attempt a cure.

By Mr. Holland. If care were taken that the inspectors should be competent persons, that would do away with his objection to the Bill as far as pleura was concerned. The cleansing of trucks might prevent the spread of disease to some extent, but not in all cases. He advised a gentleman who purchased some cattle at Birmingham to send to London to have the trucks cleansed with chloride of lime and whitewashed, and that was acted upon, yet when the cattle reached Smithfield they were attacked with the distemper as badly as any other animals in the market.

By Sir W. Miles. He had not seen much of pleuro-pneumonia, and it was possible that the animals he had mentioned as affected by it had only the common lung disease. A large body of men in Lancashire and the Midland Counties had given it as their opinion that the price of meat would be increased if foot and mouth disease were included in the Bill. Pleura was a fatal disease, but the foot and mouth disease, except in some rare instances, was not. If the foot and mouth disease were struck out of the Bill, the farmers and graziers would be content.

Colonel Barttelot: They did not consider that there was any necessity for legislation at all upon the subject, inasmuch as it was every grazier's interest to take the best care of his cattle. He did not think that the restrictions would be of use in the case of pleura, for the disease was a long time latent, and was very noticeable when it broke out, nor did he think the penalty which it was proposed to impose in that case would in any degree check the transactions of cattle buyers, or reduce the number of cattle brought to market.

By Mr. Leslie: In the instance he had given from his own farm he bought the animals at Havre in April for about 17*l*. 10*s*. apiece, and after grazing them till now he sold the ox with pleura for 15*l*. The flesh would not be injurious as human food, and he should be very happy to dine off the animal himself.

The room was then cleared, and upon its being reopened the Chairman announced that the Committee had decided to strike the foot and mouth disease out of the Bill.

Mr. Wilson, of Peterborough, gave evidence to the same effect as that obtained from the last witness, observing that the great objection of the farmers of his neighbourhood had been removed by the decision at which the Committee had just arrived. They were of opinion that restrictions ought to be enforced with regard to scabbed sheep.

Dr. Gamgee was recalled and examined with reference to the statements of Mr. Hall Maxwell in contradiction of his evidence as to the dairymen of Edinburgh. He stated that his information was derived from several of the leading dairymen in Edinburgh, including Mr. Haddo. He had also been assisted in preparing his statistics by two gentlemen, formerly pupils of his own in Edinburgh—Professor Murray, of the Royal Agricultural College of Cirencester, and Mr. Macgregor, Veterinary Surgeon of Seton Delaville. Since reading Mr. Maxwell's evidence he had received a communication from Mr. Haddo vouching for the correctness of his facts, stating that they were confirmed by subsequent observations, that he had taken pains to ascertain the truth, and there was no doubt that pleuro-pneumania had prevailed and continued to prevail amongst the dairy stock of Edinburgh. The dairymen had suffered considerable losses on that account, and animals were got rid of to the butcher as soon as the disease was seen, or, when they were in a very bad condition, to the pig feeders. He had received similar letters from the two young gentlemen whose names he had mentioned. A meeting was held last year at the New Veterinary College in Edinburgh to consider what measures it was expedient to take with the view of checking the disease. On that occasion a large number of dairymen were present, and one of them, when he mentioned the number of animals that had died from pleura, exclaimed "you may double that." Mr. Murray, a solicitor of Edinburgh, and the father of Professor Murray, had sent him a letter stating that in consequence of Mr. Hall Maxwell's evidence, he had visited 13 dairymen in Edinburgh and found that though they had signed the document denying the accuracy of Dr. Gamgee's evidence, they had never read those statistics themselves, and had given their signatures only because they were instigated to do so by a Mr. Macintosh, who went round to them on Mr. Maxwell's behalf, telling them that the object was to defeat Dr. Gamgee's Bill. Some of them told him that they were still suffering from pleuro-pneumonia.

The cross-examination of Dr. Gamgee was postponed till the following Friday, the Committee not having Mr. Maxwell's documents before them.

Mr. Duncan, a butcher of Glasgow, gave evidence in favour of a clause entitling a butcher who purchased an animal and who found upon slaughtering it within four days of the purchase that it was diseased, to recover the price from the seller. In Paris nine days were allowed Such a clause would not, in his opinion, prove a restriction on the cattle trader for the benefit of the butcher.

At this stage the Committee adjourned.

Friday, June 17.—Upon the reassembling of the Committee, Professor Gamgee was examined by Lord Naas. He stated that John Prentice, one of the Edinburgh dairymen whose names appeared upon the document laid before the Committee by Mr. Maxwell, had personally furnished him with information at various times during the last four or five years. Mr. Morton, another of the signataries of the memorandum, has also supplied him with facts; and though he did not received evidence directly from Mr. Andrew Simpson, he receive information with respect to that person's dairy from Mrs. Simpson, who managed it. Mr. Prentice supplied him with information as to the number of animals lost by disease in the year, not only with respect to his own dairy, but with respect to several others. He had now the materials for stating the number lost in Mr. Prentice's case; but the facts were embodied in his report to the Government at the time. He had plenty of evidence to prove that his inquiry was properly conducted, and that the greatest care was exercised in obtaining accurate information. He contended that his facts were unassailable, and the more they were inquired into the better they would be satisfied. The dairymen signed Mr. Maxwell's document without knowing anything about what they were doing.

A number of letters were here put in by Mr. Caird from dairymen in Edinburgh, contradicting the statement of Dr. Gamgee that he obtained the information from them upon which he founded his report to the Privy Council.

Professor Gamgee said he hoped his facts were not to fall upon such evidence; for if he could have put the writers to their oaths, he was satisfied that the result would have been very different. He thought he had succeeded in amply refuting all the charges that had been made against him, and if other measures were wanting for his vindication, that would be matter for future consideration.

Mr. Swan, of Edinburgh, stated that during the last year there had passed through his hands from 18,000 to 20,000 horned cattle, and between 80,000 and 90,000 sheep. It was seldom that beasts affected with pleura came into the market—not one in 500. He did not apply the statement to dairy cows, because they were much more susceptible of the disease for various reasons. Scab in sheep was easily cured, but as it was an infectious disease the sheriffs of counties in Scotland ought to be empowered to compel a man to keep animals so affected apart from sound ones, and in such places that they could not affect his neighbours' flocks. He approved of the clause with respect to the cleaning of waggons and steamboats used in the conveyance of cattle. He never found a foreign beast affected with pleura. When this Bill was brought in, he sent round circulars to every county in Scotland, and the answers he received showed that there was a great mitigation of disease in Scotland. As the Bill stood, however, unless great care was exercised, cases of considerable hardship would arise under it.

THE VACCINATION OF SHEEP.

[The following on this subject is abridged from Prof. Simonds' recent lecture on the Small-pox before the Agricultural Society of England.

In order to determine the preventive value of vaccination, the Government purchased 200 sheep, which were placed under the supervision of Mr. Marson, the Surgeon of the Small-pox Hospital, and myself. Those sheep were placed on a farm then in my occupation, in the immediate neighbourhood of London, and Mr. Marson and myself undertook to carry out a series of experiments upon them, in order to ascertain whether vaccination is protective or not. The Government had this question forced upon it by communications which appeared in the public papers at the time, strongly recommending the vaccination of sheep. The recommendations were chiefly from some agricultural gentlemen in the counties of Norfolk and Cambridge, and from surgeons in the latter county. I will deal with these two cases separately.

First, with regard to the recommendations which came from the Norfolk agriculturists, foremost among the persons who wrote to the papers was Mr. Henry Overman, of Weasenham. That gentleman said in effect that during his late father's life the small-pox in sheep showed itself in their neighbourhood, and that his father vaccinated the whole of his flock; that the sheep took vaccine disease; that they were protected from the affection; and that any man who preferred inoculation to vaccination was little better than a madman. Statements also came from other persons, but simply to the effect that they had vaccinated their sheep, that they did not take the disease, many of the parties not saying whether or not the sheep had ever been exposed to it. But, coming back to Mr. Overman, I have to make public what is, perhaps, known only to a very few individuals. Mr. Overman's own expression—I mean the late Mr. Overman—and the words were used at a meeting of an agricultural society held in Norfolk, in 1848—was, that as a letter of sheep, when the disease showed itself in his immediate neighbourhood, he conceived it to be his duty to send his animals out as free from disease as he possibly could, and therefore he had recourse to vaccination. He goes on to say—I now quote his own words—"I had 860 sheep vaccinated; I am very glad I did so, for I have not had any disease among them. I had subsequently to that 20 score of lambs vaccinated," making altogether 1200 in round numbers. 1200 sheep were vaccinated, he said, and none of them had taken the disease.

Now I have good reason to believe that these 1200 sheep of Mr. Overman's were not vaccinated at all. The same individual who did these sheep also vaccinated, as it was said, a large number of sheep for Mr. Hudson, of Castleacre, a member of the Council of this Society. He likewise vaccinated, as he called it, a large number of sheep for many individuals in that neighbourhood; so that, in all probability, he operated upon not less than from 3000 to 4000 sheep. Now, I might ask any one who knows anything at all about the matter, where in the world did the lymph come from to vaccinate 3000 or 4000 sheep in the course of about two or three weeks? But I find that this individual had no difficulty whatever about it. He carried his lymph at that time in phials which were filled to the brim. He used this material on the sheep generally, and he used it on Mr. Overman's sheep, with the exception of about 12. According to an admission of Mr. Overman himself made to me there were certainly not more than 12 of his sheep that were vaccinated from points in the ordinary way, and he said, "I did not see any difference between the vaccination done by points and that done by this fluid, and I am satisfied, therefore, that my sheep have been vaccinated." I have already stated that a number of sheep were done in the same manner for Mr. Hudson. In the course of a short time Mr. Hudson's sheep, being exposed to the influence of natural small-pox, took the disease, which went on rather severely in his flock. He then had recourse to inoculation. The person who was consulted, and who inoculated the sheep, knew practically little or nothing about the matter, or perhaps even worse than that—he presumed that he knew a great deal, and the result was, that these sheep of Mr. Hudson were done in a manner the most objectionable. If that individual had tried to kill sheep he could not have adopted a more effectual system for the purpose; for, instead of taking the smallest point of a lancet, or a needle, and just soiling it with the virus, and introducing the virus with one puncture under the skin, so as not to draw blood, he made large incisions inside the arms of these poor sheep, inserting in those incisions bits of tow charged with lymph and pus—and that he called inoculation. Until I went down and witnessed this for myself, I never saw so painful a scene. Besides those which died, there were others which suffered from the sloughing of wounds, the loss of an ear, the loss of an eye, and so forth; so that many of the surviving sheep might as well have died as lived, so far as the pecuniary question was concerned. Well might inoculation carried on in this manner have got into disrepute in Norfolk.

A natural outbreak took place also upon a farm of Mr. Muskett, of Narford. The gentleman who vaccinated sheep from a bottle, went there and vaccinated Mr. Muskett's sheep, after the natural disease had appeared. The result was, that in a flock of a thousand ewes the disease went on unchecked, and he lost 400 out of the thousand. I turn now to the case of Mr. Overman's sheep. Mr. Overman sent two sheep, after being pressed to do so, to the farm of a neighbour, in whose flock the disease existed; and those two sheep were both inoculated on that farm, one of them by a farmer who I do not hesitate to say at that time performed the operation of inoculating far better than many so-called veterinary practitioners—I mean Mr. Cooke, of Litcham. Mr. Cooke inoculated one of Mr. Overman's sheep, and Mr. Baldwin, a veterinary surgeon of Fakenham, inoculated the other. Both sheep took the disease, and passed through its several stages, and the result was in no way different from what was observed in hundreds of other sheep that were unprotected or had been even vaccinated. But Mr. Overman, in his letter to the *Norwich Mercury*, absolutely denied that these sheep did take the disease. I, knowing the facts of the case, then pressed Mr. Overman into a corner. I said, "Now, Sir, will you send five of your lambs on to such a farm, and have them exposed to the disease; and send five other lambs to the Veterinary College, picking them out yourself as the most successful cases of vaccination?" He agreed to do so. However, a little circumstance arose which prevented this arrangement from being carried out. That circumstance was this: On the very farm where the two sheep were sent that were inoculated, the one by Mr. Cooke, and the other by Mr. Baldwin—the same gentleman who had vaccinated Mr. Overman's sheep, and vaccinated, as it

was called, Mr. Hudson's sheep, and other sheep in that neighbourhood, was asked not to vaccinate these sheep, but to inoculate them. Being a surgeon he was supposed to know more about the matter than anybody else. I do not know how he proceeded; but three weeks after his so-called inoculation, I myself saw the sheep, and found many of them in the earlier stages of the disease; whereas, if they had been properly inoculated, they would have been in the third stage and recovering. This proved to me that many of the sheep had not been really inoculated, but that the natural disease was going on. I communicated this fact with the greatest innocence to Mr. Overman, saying that I found that the sheep in question had not been properly inoculated, and that the natural disease was proceeding. Mr. Cooke also chanced to say the same thing to Mr. Overman at Lynn market, when Mr. Overman directly turned round and said, that as we had impugned the inoculation of the sheep he declined to send either the five sheep to the farm, or the five to the Veterinary College, to be tested. A report has been prepared by me, and will be in the hands of Government to-morrow, in which the whole of the facts are stated. I there give Mr. Overman's own letter to me, and quotations from his letters to the *Norwich Mercury*, in order to show all the facts as I have now epitomised them; so that, as far as West Norfolk vaccinations are concerned, they are not worth a snap of the finger. There were, however, a few sheep properly vaccinated in Norfolk, by Mr. Rose, a surgeon; seven or eight by Mr. Joy, another surgeon; a few more by another surgeon; and also some by a veterinary surgeon, Mr. Smith, of Norwich. A small number of sheep were thus legitimately vaccinated, proper lymph being used, and every care taken; and the unanimous opinion of these gentlemen was, that vaccination was of no avail, because it was found that both by exposure and by inoculation these sheep took the disease. With the exception, therefore, of about 35 sheep out of 3000 or 4000, there were no sheep really vaccinated in Norfolk in 1848; and in those few instances, vaccination by no means protected the animals against the natural infection.

I now come to Mr. Ramsay, surgeon, of Shelford, Cambridgeshire, who in 1862 wrote a letter to the *Standard* newspaper, which afterwards found its way into the local papers. Mr. Ramsay wrote also a letter to the *Times*, in 1848, setting forth the great value of vaccination. He says, in his communication to the *Standard*, that he vaccinated a large number of sheep for Mr. Jonas Webb, Mr. Samuel Jonas, Mr. Hurrell, and other gentlemen; and he leads his readers to infer that these sheep were perfectly protected against infection, and that vaccination is, therefore, a thing which ought to be had recourse to in order to stay the progress of the pest in Wiltshire. Curiously enough, as if he had gone out of his way to give me a thrust in the side, he wants to know whether vaccination is not to be preferred, although Mr. Simonds is an advocate for inoculation. He is backed up in his opinion by Mr. Sprague, surgeon of Kimbolton, Huntingdonshire, who, at the time of the operations in 1848, was his assistant, and who writes a letter in support of the view which Mr. Ramsay had promulgated. Mr. Ramsay assumed that the reason why his vaccination was successful was, that he had recourse to what in technical language is called retro-vaccination: that is to say, he had taken the vaccine lymph from the human subject; and with that lymph he had vaccinated a cow; and, having obtained the produce of the lymph from the cow, he had afterwards vaccinated with it the sheep. With regard to retro-vaccination, I will only say that the experience of Mr. Ceeley, Mr. Marson, and myself, and the experience, I believe, of all Continental men who have ever tried retro-vaccination, is, that there is rather a loss by it than a gain. If you take a quantity of lymph from the arm of a healthy child, and introduce it into a calf, supposing it takes, you get very little increase of the material. Mr. Ramsay twitted me about these things in the public papers, and through other channels, in 1848. At last I said to him, "Well, will you allow any of your sheep which have been vaccinated on this improved plan to be subjected to the counter proof of inoculation?" At length, through Mr. Ellis, of Triplow, in Cambridgeshire, I was enabled to get Mr. Ramsay himself to select two sheep which he had vaccinated, and send them to me at the College; and he wrote a letter to the *Times* in which he stated that he had done so. So that about the selection of these two sheep by himself there can be no doubt whatever. What was the result? I took one of the sheep and inoculated it with some old sheep-pox virus which I had had by me for 16 weeks, during which time it might have been supposed to have lost its power, and I produced disease from it. The animal went through all the stages of the sheep-pox, and when it arrived at the vesicular stage I took lymph from it, and inoculated the other animal, and with the same result. These two sheep were sent back to Mr. Ellis, who acknowledged the receipt of them. I wrote a letter to Mr. Ramsay, saying that he was at liberty to test those sheep by any subsequent inoculation, or exposure to the disease, if he thought fit; that they were not protected when they came to London, but that they were protected now. Yet, in the face of this fact, that gentleman again came before the public as an advocate for the vaccination of sheep in 1862.

Now I have said sufficient to show that the public have been misled to some extent as to the effects of vaccination, and for this reason I think the Government deserves great credit for having determined to test the thing on a large scale. With regard to our own experiments I would epitomise them by saying that in every individual instance in which Mr. Marson and myself have been able to produce the vaccine disease, that, in every case in which we have exposed animals after the most successful vaccinations to natural small-pox, they have taken it, and in every case in which we have subjected them to the counterproof of inoculation they have taken it, and the disease has not been in the least degree mitigated by the previous vaccination. We have found this also, which is a very important point, that not more than 35 per cent. of the sheep are liable to the vaccine disease. We hear nothing about 35 per cent. or 50 per cent. in the vaccinations of Mr. Ramsay and Mr. Sprague with their hundreds of sheep. They speak as if they were all successfully vacinated, and as if every sheep were just as susceptible of the vaccine disease as the human subject. In answer to that, I repeat that we have found that not more than 35 per cent. of sheep are liable to take the vaccine disease, and that vaccination has no influence whatever in checking infection.

Home Correspondence.

Pig Feeding.—Mr. Mechi and "Amicus" give excellent advice to "Agricola," but neither seems to give the detailed information he asks. He wants to know where agriculture pays best, whether in England, Ireland, or Canada? Next he evidently wishes to know what system is best for him to adopt, as he means to embark in it as a matter of business, and make it his sole pursuit. I am not myself a farmer, but I take much interest in the subject, and did my other avocations allow of it, I should gladly settle in the country, which I hope one day to do. I cannot think that any one who writes in the style of "Agricola" would be so rash as to go headlong into such a heavy branch as pig-breeding on a very large scale without first feeling his way, and, I should hope, seeing his way very clearly. Probably he has been induced to ask the advice of practical farmers by seeing that one farmer keeps so many as 3000 pigs. I, for one, should be glad to go and see this farm, if I only knew where to find it. Surely Mr. Mechi does not mean to suggest that it could possibly answer for "Agricola" to rear and feed for bacon the progeny of 200 breeding sows? There is a rapidly increasing demand for animal food now, and the Royal Agricultural Society are about to discuss "The System of Farming best adapted to meet the increasing demand for Live Stock." To my thinking, the practical way for doing this is to follow the example of the Dorsetshire farmer; but with great public advantage this very important subject may, by your kind permission, be ventilated in your columns, for very few farmers seem to know much about the "discussions" of the Royal Agricultural Society of England. The questions raised by "Agricola" may lead to definite and practical results. As the letter of "C. F. P." in your succeeding issue proves, others seek for information on such subjects, and it is evident by the example of many besides Alderman Mechi that when such men embark in farming they do it well; being unincumbered with old prejudices, for they bring nothing into the business but the proved teachings of science and skilful careful management. We have some foreshadowing of this in the views of "Agricola," for although I have often heard of a sheep-breeding farm, and a Short-horn-breeding farm on very large scales, I never before heard of a pig-breeding farm. *Civis.*

Short of Straw; Burned Clay Ashes; Grass Land.—With high prices for wool, mutton, and beef, and low prices for Wheat, calculating men are laying down more land to Grass, especially where they can get town sewage, or other means of irrigation; and I venture to predict that, with the facile use of steam power, many a brook or spring will be availed of for this purpose, especially when water millers are bought out, and the general drainage and outfalls improved. At present an irrigator dare hardly look at a rivulet above ground, for the miller's rights appear to extend to everybody's territory, or rather acquitory (to coin a new word). This is one of the many trammels that encumber that young giant called agricultural progress. But to return to my subject, if we are to have Grass on very heavy wet clays, and feed much stock in winter with hay, cake, &c., we must have some shelter and bedding; and, in the absence of straw, this bedding must be either sparred floors or burned clay ashes—dry brick-dust in fact—for we must not tread and poach heavy land in winter, either in justice to ourselves or to the animals. Well, we all know that a dry brick will absorb nearly half a pint of water, and I know, and so does Mr. Randall, who practises it extensively, that brick-dust, ashes, or burnt clay, form an admirable and healthy bed for stock, absorbing all the fluid and keeping the animals dry and healthy: moreover, when saturated and carried to your fields as manure for root and green crops, or indeed for any crop, it is guano's superior in every respect. The alkalies of the clay, set free by burning, are essentially the necessary food for root and green crops. Now the cost of a cubic yard or ton of clay ashes should not be more than from 9*d.* to 1*s.* at most, and is, as compared with the necessary quantity of straw, quite an advantage. I have been a great clay burner, much to my own advantage. My affection for sparred floors remains undiminished; while fat hogs on straw suffer insupportable heat, causing fever, &c., during summer, they would, on open sparred floors, with ample circulation of air under them, lie in comparative comfort and content. Just now, owing to the fly question, and the proximity of my farm buildings to my residence, I am abstaining from pork for the four summer months, especially as beef sells so well. But when I had an immense number of 10 score hogs on sparred floors, over a tank 6 feet below them, and a lime-washed roof over them, it was pleasant to see them lying on their sides at full length, breathing very quick and short, the lungs being compressed by the large quantity of internal and loose fat, as may be illustrated by very stout gentlemen requiring the Banting remedy), Under these melting circumstances we used to turn our fountain jet upon them (a spray of 100 gallons per minute) to their great delight and to our profit, for their skins became as clean as the back of my hand, and their appetites marvellously improved, so that they "went on" to complete fatness—their appetites improved by the shower-bath. It strikes me that this jet washing might, in very hot weather, be advantageously applied to our bullocks on boards, for we know how much they enjoy a warm summer rain, and, indeed, I believe it to be highly conducive to their health and progression—I shall try it. On the first two or three applications, especially at the first, the animals are alarmed by the shower bath or rush of water, but when accustomed to it, they, like ourselves, enjoy the process in hot weather. *J. J. Mechi, June*, 1864.

Cattle Melon.—Permit me to say that I am not the seedsman referred to in your Number of the 4th inst. by Mr. Dixon, of Dorward's Hall, as having supplied him with non-growing seeds; those which I have sent out my customers inform me have come up well in the open ground without any of the care he appears to have bestowed upon his. My stock was presented to the late firm of Page & Toogood by Mr. Blundell, and came into my possession at the assignment in my favour. *W. Toogood, Southampton.*

A Hint for the Chancellor of the Exchequer.—Diseased Meat—Diseased Milk.—Can nothing be done to relieve town dwellers from the abominations (worse than the sewage which they will keep all to themselves and the fishes) of almost carrion flesh, and cruelly unwholesome milk, the baby's beverage? Professor Gamgee may cure sick animals, but his art can't reach 'death in the pot," of which there is now increasing danger for adults and infants. These growing evils may be truly ascribed to various causes, but we have now only to deal with their pernicious effects, so we must not allow red tape routine or circumlocution to interpose with the suppression of patent scandals and gross evils merely because they are of long standing. I can respect "vested rights" and freedom in trade, but only when they are honest. The real question is, can nothing be done summarily and openly to mitigate the growing evils? Surely some means may be devised for extending the Ægis of the British Constitution to the British million in items so vitally important as those of their daily meat and drink. I know 'tis unpleasant to recommend taxation; but still if something in this way is necessary as a means for preserving the public health, the well-being of many must be considered before the privileges of the few. Bad meat, bad milk, bad bread must at all risks be kept out of the public markets, and if the Legislature see fit to go about this in earnest, if they cannot entirely succeed, they certainly may to a large extent, by bringing all dealers in articles of food liable to adulteration under the ban of the law—butchers, bakers, milk sellers, &c., should all be required to take out an annual license; this has worked admirably with a much poorer class—the cab-drivers—men who live absolutely by manual labour. I would apply the Chicory test to milk, by requiring those who only watered that fluid—and who that sells it does not? to affix in large letters the following notice—"This is sold as a mixture of water and milk," and through the machinery of the police, or peripatetic inspectors, watch and ward may be kept over the "milk walks," power being taken to treat bad milk in England, as it is most properly treated in France—turned on the streets—to "waste its sweetness (?) on the desert air," dealers would soon find it more to their advantage to sell pure milk at a fair price rather than risk total loss by diluting it, and thus retailing poison openly "at full price." Vendors of meat can surely afford a small tax as well as grocers, publicans, brewers, &c.; by this means every man legally authorised to offer animal food for sale would be known to the Government, and for trivial offences their licenses should be marked, for gross ones they should be forfeited. The Chancellor of the Exchequer may thus obtain some accession of revenue, which may prove crumbs of comfort for farmers, when next the right hon. gentleman ventures to think seriously about easing the malt-tax. Very great and salutary protection may thus be easily and cheaply obtained for the public stomach, and if the public health really demands stringent measures for its preservation, honest men cannot complain, for my suggestion can only reach rogues. *Nemo.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

ON Wednesday the lecture was upon the "Chemical Properties of Water for Economical Purposes," and was delivered by Prof. VOELCKER. Lord FEVERSHAM occupied the chair.

Prof. VOELCKER observed that—

Whilst abundance of fresh air, a good supply of pure water, and a sufficiency of wholesome bread were unquestionably the three greatest material blessings which a kind Providence had supplied to man, it was strange that people were so unconcerned about the water supply. It was admitted in theory that it was most important for the country, as well as for towns, to have an ample supply, and yet people were found, particularly in the country, who paid little regard from whence they obtained their water, or what quality they used. In his present lecture he proposed to confine his remarks to the use of water in its ordinary condition, excluding from his notice its application in various other forms, such as ice and steam. As showing how little regard was paid by persons to the importance of examining into the condition of the water they used, he mentioned that he had examined many well waters at Cirencester, and found them impregnated with the most injurious animal matters and mineral substances, several containing three times as much impurity as the thick liquid which Mr. Mechi largely applied to his land; and thus, he said, health was injured at the same time that there was a great waste of that which would be most beneficial in promoting luxuriant growth upon the land. The drainage of Cirencester, which was in other respects a healthy place, was so bad that in many streets the water was contaminated with injurious substances, and the better classes would not reside there, because where this bad water was found the people were occasionally visited with fever. The same thing was true of separate houses, and in illustration of the point he mentioned a case that occurred to himself of a house in the country which he was warned from on account of the great number of deaths from low fever that had occurred in it. He found on examination that the water was very bad indeed; it was supplied from a surface spring, and there was no doubt that the drainage from the offices and the yard found its way into the well. He took the house; by walling over the surface well, and by compelling the servants to use only the water of a deep well in the yard, he maintained his family in perfect health. Bad water occurred more frequently than was generally supposed—during the past year he had received a good many samples for analysis which were unfit for drinking purposes. It was necessary to consider the qualities in water which were most esteemed for drinking purposes, for washing, and cooking, and brewing. The four qualities most esteemed in drinking waters were, the absence of any putrescent organic matter; the absence of any discoloration due either to suspended fine clay, which gave a muddy appearance, or to dissolved organic matter, such as was found in peaty districts softness, and coolness. The absence of putrescent matter was accounted for in many waters through the perfect filtration they had undergone in passing through a porous rock or a considerable bed of a porous sandy soil. Surface springs generally contained dissolved organic matters. A bad smell was always indicative of something wrong in water, but its absence did not prove the fitness of the water for drinking purposes. It was not, however, all organic matter that was injurious, though its presence was never desirable, for in all cases it had an injurious effect upon the leaden pipes by which the water was conveyed to houses. A good plan for testing the presence of organic matter was by evaporating two pints to 2 ounces. If the water became discoloured during evaporation, it would generally be found that it contained an amount of organic matter which rendered it injurious to health, and if it remained clear or only slightly coloured, the absence of injurious quantities of organic matter might be assumed. To complete the test, water should be evaporated to dryness, and then if the deposit gave off a smell like burnt feathers, which was a characteristic of nitrogenous matters, they had proof; organic substance was of animal origin, and such water should be at once rejected for drinking purposes. Softness in water was also due to composition. Nowhere in Nature was water found in a perfectly pure state. Even rain water contained atmospheric impurities, which, though useful in an agricultural point of view, were undesirable for drinking purposes. Rain water was an excellent dissolvent for chloride of sodium and the sulphates of magnesia and soda, but it also dissolved certain mineral matters which were ordinarily regarded as insoluble; carbonate of lime, one of the principal constituents of hard water, was scarcely soluble in pure water, but rain water invariably contained carbonic acid in solution, and in virtue of that became a solvent of carbonate of lime. The presence of this acid in rain water accounted therefore for the quantities of carbonate of lime in all spring and well waters in localities upon the chalk formation, or where calcareous rocks prevailed. Hardness of water was chiefly due to the presence of bicarbonate of lime, but that was merely transient hardness, readily removable, whereas sulphate of lime or gypsum imparted a permanent hardness. The presence of a large quantity of carbonate of lime was by no means injurious to human health, nor was there any evidence that other mineral waters were. Surface waters were invariably cold in winter and warm in summer, whilst water from deep springs had an uniform temperature. Waters that had an uniform temperature had a more uniform composition than those which varied at different seasons, the former dissolving in its long descent as much lime as it could, while the latter was left to be affected by purely local circumstances. Thus the temperature of water became indirectly an indication of its good qualities for drinking purposes. Water for cooking and washing should be essentially soft, in the one case because the lime neutralised in a great measure the soap, causing it to curdle, and destroying its detergent qualities; and in the other because the leguminous and albuminous properties of the matter boiling united and formed with the lime of the water an insoluble combination, and in that way Peas and Beans sometimes would not boil soft, and the whole of the properties intended to be extracted from meat and tea could not be obtained. Bicarbonate of lime in making tea should not be used, or it would give a soapy flavour. Water could be rendered soft on a small scale by the addition of a little carbonate of soda, but hard water required purification if intended to be used in feeding steam boilers. To correct the rapid deposit of carbonate and sulphate of lime in boilers, and by preventing the action set up in that case upon the iron, which often resulted in explosion, Clarke's process of adding powdered lime was a very good one, but the most effective of all was the caustic soda process adopted at Woolwich. With regard to the action of water on leaden pipes, there were three conditions by which they could account for the action of some waters upon lead: the presence of organic matter; the presence of alkaline salts or alkalies; and the absence of carbonic acid. Carbonate of soda and potash also acted upon lead, and so did lime. Some waters contained what might be called protecting salts, carbonate and sulphate of lime, but there were others which were very rich in those salts and yet acted strongly on lead. In laying down water supply pipes great care should be taken not to put them in cement, but to surround them with gravel—the lime acted upon the lead, and by inattention to this point pipes were frequently eaten away. A good protection was to throw over the leaden pipes a few pieces of zinc, which would be attacked first, but that could not be recommended for drinking purposes. The danger of water containing lead was much less than was believed by some; there was no proof of any case of injury to health from that cause; only a small quantity could find its way into the water, and that was rapidly and certainly removed by standing and filtration.

Professor VOELCKER closed his address at this report, reserving for a future occasion some remarks that he had intended to make upon the qualities most esteemed in water supplies for irrigation.

THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY will surely have no cause for regret because Cheltenham was selected for their annual gathering. The collection of live stock, implements, &c., exhibited here on Wednesday and Thursday of this week are alike creditable to the neighbourhood and locality included in the Society's limits. The result of the meeting at the Spa grounds will doubtless prove remunerative to the promoters and supporters of the Society. Following so immediately the important and successful gathering of the Bath and West of England Society on Durdham Down, near Bristol, it is most gratifying to observe the excellent quality and quantity of the various breeds of stock which had been forwarded for exhibition at Cheltenham. The missing breeds of cattle and sheep, and falling off of numbers of all heads of stock, are fairly atoned for in the superiority of many and most of the animals sent to the Cheltenham Show. Beginning with the Short-horns, we have beasts from the herds of all those breeders in the locality who are already distinguished for their success at the Royal and other agricultural meetings. The Herefords appear in great force, and certainly as a class merit the encomiums which were freely passed upon them from all sides. The Sheep likewise present altogether such a creditable appearance, that it is to be regretted the flock owners of this locality do not display greater desire to compete at more distant meetings. This remark applies more especially to the Cotswolds, which it must be allowed have latterly been nearly absent at the Royal and other large gatherings.

In Pigs we have a goodly array of animals, chiefly composed of Berkshires, which breed of swine prevails in this neighbourhood.

Of the Horses, too much praise must not be asked; following somewhat in the shoes of the large provincial Society, they have not attracted such good animals to the yard as we should expect to find at a meeting in the immediate vicinity of the most celebrated horses in the West of England. The Cart Horses are few in number and inferior.

Commencing with the Short-horns we find Mr. Woodward taking a 1st prize with a square thick animal of nice quality—more perhaps a farmer's than a show beast; still as this animal ran 3d or was commended at Bristol, and gets the local committee prize also here for the best bull in the yard, we must consider it a very deserving beast. Mr. Hewer gets a 2d with a very different looking animal, one light in shape, make, and colour. The 3d prize in this class also goes to Mr. Woodward, probably from lack of competitors.

Mr. Bowly, of Siddington, shows an exceedingly promising bull calf; if it is behind its neighbours in condition, it certainly can compete with them in growth of body, limbs, and coat, and being also correct in shape it is entitled to the 2d prize awarded.

Mr. Stratton, of Short-horn celebrity, commences his fortunes well at this show by taking a first for his superior, very perfect bull calf, which in colour, quality, and form cannot be well surpassed. In Class 4, again, the name of Stratton appears as entitled to a prize for bull, cow, and calf.

We are also glad to observe the Rev. E. Williams receiving a premium for his trio.

For the best heifer under three years Mr. Bowly fairly is rewarded; "Musical" is really very useful, and exhibits the qualities for which this herd has long been celebrated viz., quality, size, and condition.

Mr. Holland, of Dumbleton, and Mr. Woodward, also receive prizes in this class. If size and weight ruled the decision of the judges, No. 22, a heavy fine cow, the property of Mr. Elwes, would have received recognition notwithstanding her horns are disposed to join again with her person; but we have yet to learn what it is that guides judges in the selection of some animals, for surely Mr. Stratton's cow, No. 29, 3 years and 4 months, might have merited reward.

In Class 6, this gentleman is rewarded for his disappointment, as he gets a prize for the best breeding heifer, and a nice animal too, well entitled to the same. Mr. Logan has also a nice animal, which receives the 2d prize; Mr. Stratton again slips in for a 3d; and Mr. Woodward is justly commended for an animal of great merit, had her condition been better.

Mr. Logan exhibits and receives 1st prize in Class 7, a very perfect looking heifer, good in colour, coat, and shape. Earl Radnor receives a 3d in the same class for an older, coarser beast, inferior to Mr. Stratton's heifer, No. 42, which is altogether as good as can be.

In Class 8, Messrs. Bowly and Stratton run neck and neck with two as perfect heifer calves as need be seen. The judges had greater difficulty in awarding a prize here than in rejecting Mr. Holland's No. 47, "Duchess of Dumbleton," 7 months and 3 weeks. The latter animal, although good in some respects, is woefully narrow and pinched in behind the shoulders.

In the Milch Cow Class, Mr. E. Bowly exhibits three rare roomy well-grown animals. If quality of coat with excellent form were all the judges sought, one or more of these animals must have received distinction, but as milk has perhaps a good deal to do with it, Mr. Morris, of Maize Moor Court, very justly becomes entitled to the reward for his exceedingly commendable pair of red cows—the latter apparently possess all the qualities required in this class.

The Hereford Class is remarkably well filled; perhaps the grandest animals in the yard are Messrs. Holling's "Chieftain the 2d," and Taylor's "Tambarine." The former receives the 1st prize for as fine a specimen of a Hereford bull as could be exhibited. Such a carcase, enveloped in a hide of dappled brown, with a head like a deer, mild eye, lots of throatiness, and limbs so delicate that it is surprising how they can support such a huge frame. The next beast, No. 59, is likewise a splendid specimen of this popular breed, and although not so long or quite so growing as Mr. Holling's bull, is an animal not to be despised, and is justly entitled to the distinction he has won. In the next Class for Herefords, Mr. Read, of Elkstone, gets the 1st prize for his 2 years and 5 months old bull "Peremptorily," a good straight lengthy beast, of the real and familiar hue, his coat forming a strong contrast to the mottled ground around him. Mr. Taylor, of Ledbury, receives a 2d and 3d prize in this Class for two useful beasts; the smaller animal might fairly exchange rewards with No. 65, for he certainly has the neatest form, and stands better upon his fore pins than his more fortunate neighbour.

In the Bull Calves of the Hereford Class we observe a most praiseworthy animal (No. 69), the property of Mr. Perry, of St. Oswald; in form, shape, and colour this animal scarcely has an equal. Mr. Bradstock's bull calf possesses many excellent points, and might fairly dispute the reward with its companions in this class.

The prize for the Bull, Cow, and Calf in Class 12 is assigned to Mr. Wigmore, and certainly he should claim it, for although the dams in the other lots are exceedingly good, the males hardly are deserving the merit which might belong to them.

The Breeding Cows of the Hereford breed are extremely good. Mr. Jos. Craddock takes 1st prize, also the Local Committee's prize, for his 5 years and 6 months old "Queen Bess," a magnificent animal, straight, wide, and deep. Messrs. Perry and Wigmore likewise merit the distinction their cows have attained.

The Breeding Heifers in Class 14 are very good. Messrs. Bennett and Read again appear as successful competitors.

Class 15 is justly passed by. The judges certainly were right in withholding the prizes offered to this class.

For Heifer Calves under a year old, Mr. Perry receives a 1st prize, for a deservedly perfect little animal, as neat as a pin. Mr. Read gets a 2d in this class.

In the Fat Cattle Class the Earl of Radnor takes the lead with a fine steer, and Mr. Pike runs a good second; the latter also carries off the next prize for his 5-year old fat cow. We cannot understand the usefulness of the rule required to exhibitors in this class, for it does not appear very probable that a heifer could stand a good chance against an animal of twice its years. It was quite refreshing to look once more upon a really fine specimen of the noble Cotswold. Mr. Beale Brown's 2-year-old ram is a fine specimen of this most valuable breed, almost faultless in shape. Mr. Fletcher, of Shipton, exhibits a very fine ram also in this class, but Mr. Handy, who takes the second prize, can lay claim to the best quality of wool. This after all is the greatest feature to be sought for in a sheep at the present time; may be Mr. J. King Tombs might have claimed this superiority if his very superior closely shorn ram could have given evidence of the quality of his jacket.

In the Cotswold Shearling Rams we have numerous good animals competing, and again Mr. Handy carries off the prizes.

For the best five Cotswold Breeding Ewes and Rams, we find Mr. Smith, of Bibury, first with his grey-faced, even headed, well shaped pen, Mr. John Lane well deserving reward for his pen of most useful sheep, which exhibit the qualities for which he has been so long celebrated, and Mr. Cole deservedly commended.

With only one competitor against him, Mr. John Lane again takes the prizes for ewes with lambs by their side.

If the Cotswolds truly represent their native locality, how creditable it is to find the short-wool sheep taking the position they do here. What can be finer than the specimens of Downs sent from Coleshill—whether it be the best ram of any age, a shearling ram, or pen of breeding theaves, there Lord Radnor's name appears. The appearance of these animals reflects credit upon all who are interested in bringing them out, and not the least to the shepherd who has displayed such great skill in shearing the sheep. The Duke of Beaufort sends some very superior animals in this class, though not equal in condition or form to those from Coleshill. Mr. Playne contributes some useful roomy Downs, but before they can hope to compete with such animals as we have described, much remains to be done in the way of feeding and trimming at home.

The Shropshire Downs, deservedly popular and taking sheep, appear only in the name of E. Holland, Esq., M.P.; this is to be regretted, as without compe-

tition there can be no merit in winning. The Dumbleton rams might be better specimens of this breed, and their condition could be vastly improved.

In Oxfordshire Downs we have fair competition. Mr. Wallis, of Bampton, takes the prizes for both a 2-year and 5 months old and a shearling ram, both creditable specimens. Mr. Hobbs, of Maisy Hampton, shows a fine, somewhat coarse, though useful roomy ram.

Fat Sheep again are not very numerous. Mr. Read receives the prize for three Cotswold shearhogs, and Mr. Radnor for his exquisite pen of three symmetrical fat beauties, beating the Duke of Beaufort and Mr. Playne, who is again too low in condition.

The collection of Swine is really most excellent for the neighbourhood. Of White Pigs there were but a few, and those not of the first order, but the Berkshire were in great force, and most deservedly preserved the reputation they possess for size and quality. In the Breeding Sow Class we found some first-rate specimens from all the familiar breeders in this part of England—Hewer, the Royal Agricultural College, Sadler, Stewart, and Baily. In adjudicating the prize for breeding sows, the judges must have been influenced by size, and somewhat regardless of form, or how could Mr. Stewart's large faulty sow have been preferred to the perfectly-shapen, correctly-moulded "Sukey," the property of the Royal Agricultural College. The judges at Bristol and Cheltenham certainly differ in their taste and notions. Mr. Stewart deservedly gets a prize for his young Berkshire boar, but certainly is not entitled to distinction for his coarse mis-shapen breeding sow.

Mr. Hewer shows some nice young Sows in a pen of three, taking 1st prize, and the Royal Agricultural College came in again here 2d, for a nice neat pen of the like number. Mr. Baily exhibits and takes a prize with a very useful boar; and last, but not least, the Royal Agricultural College gets a 1st for a sow with seven pigs by her side, and well do they deserve the praise bestowed upon them.

We now have a few words to say upon the Horses. Then first for the Cart-horses. The collection under this head was not creditable to the locality or Society. In the award of prizes I should beg to differ with the judges in their selection of mare and foal; the 2d prize animal certainly should have had 1st. Earl Radnor's Suffolk would scarcely have been admitted into a show-yard in an eastern county—her fore legs ought to have disqualified her for distinction at Cheltenham. Mr. Woodward's roan mare certainly is entitled to greater praise, even if she does lack a little activity.

In Stallions we had the Duke of Beaufort's Gray, which animal very properly had to yield the palm to Mr. Barnet's old horse "Sir Peter Laurie;" the latter a very fine shaped handsome beast. Major Williams fairly takes a prize for his powerful hunting mare "Perfection."

The Cobs and Ponies were nothing extraordinary; Mr. Ed. Holland, of Prestbury, gets a 1st for his clever well-shaped Brown Cob, and Mr. Fred. Marshall for his fine stepping pony.

In the Implement Department we find many names amongst the exhibitors already well known to fame, as, for instance, Cambridge; P. & H. P. Gibbons, of Wantage, who receive a prize for their portable threshing machine with steam engine; Messrs. James Savory, of Tewkesbury, for a cider mill, and also a very handy threshing mill and engine; Humphries, of Pershore, again gets a prize for a threshing machine; Lane, of Cirencester, for his cake-breaker. Richmond & Chandler's chaff-cutter is again in the front rank. Messrs. Savory, of Gloucester, exhibit a very simple and substantial steam engine, which fully deserves the distinction given to it; and C. F. Wells's one-horse cart is justly entitled to a prize, being a really strong, serviceable implement, fit for its work. Great credit is due to Mr. Isaac James, of the Tivoli Works, for his collection of implements, which fully entitles him to the prize of 10*l*. A portable gap drill for mending the rows of Turnips or other green crops, appears both handy and suited for the purpose. Messrs. Baker & Co., of Gloucester, take a prize of 20*l*. for their assortment of implements. Messrs. Seaman & Mallony also exhibit implements of apparently excellent quality and workmanship.

The stands of Messrs. Wheeler & Sons and John Clare form attractive features at the exhibition; the seeds and Grasses under both stands are arranged with the usual good taste, and do much credit to the exhibitors.

In addition to the exhibition of agricultural stock, there is a show of Dogs, numbering some 400 animals. A brilliant collection of flowers may be viewed in another direction, or the weary sight-seer may find rest within the cool shade of the massive stone temple which stands in the centre of this busy scene.

One or more military bands add cheerfulness to the scene by their occasional outbursts of popular airs and tunes, and elegant and graceful forms hang on the arms of exquisite protectors, or recline on the many seats provided for loungers. Country men and women jostle their more tender fellow creatures, and struggle through the crowd indifferent to everything but the one object of their pursuit—probably the animal or animals from their respective localities—for loud are the praises some of these worthies bestow upon individual lots. The members of the Society with their friends dined together in a capacious tent, erected upon the implement ground; although the tables were not so well filled as they might have been, it cannot be said that life or humour were quite absent at that board, for hurrahs and cheers might be heard issuing from the direction of the feast, and we hope that all possible success may attend the Gloucestershire Agricultural Society, and that the promoters and subscribers will continue to meet under the same happy auspices for many years to come.

Reviews.

Tales and Traits of Sporting Life. By Henry Corbet. Rogerson & Tuxford.

Mr. Corbet has here collected a number of very readable sketches and tales; and his publishers have issued them in a very well printed little volume, illustrated with clever coloured lithographs as Frontispiece and Vignette. The biographies of J. Gully, old John Day, and the Chifneys, the accounts of Mr. Merry's establishment, and of the great horse and hound show, and a concluding paper on the Breeding of Hunters and Hacks, are among the more substantial pieces of general interest. There is besides these a very racy description of Goodwood, and a number of lighter sketches illustrative of the many sides of sporting life. We extract a passage from the concluding pages on the breeding of Hunters and Hacks:—

"Farmers will tell you that, as a rule, breeding 'nags' does not pay; as, under the circumstances, it would be rather a curious thing if it did. As a rule, breeding such stock does not answer, because they are bred without any rule at all. In these days, if a tenant wishes to rear a good beast, he takes especial care to secure the services of a good bull, as with the same ambition he will bid up for a Cotswold shearling, or a Southdown ram. If moreover, he really means to succeed, he will be almost as scrupulous in selecting a dam, and thus provided, he gives the principle he is testing a fair trial. But take the case of rearing a riding-horse, and how does the self-same man proceed? In nine times in 10 'just anyhow.' He puts anything he may happen to have with any thing that may happen to come in the way. As often as not he scarcely looks at the horse he uses, but takes the word of some roving blacksmith, or broken-down coper who travels the country with an animal 'best calculated to perpetuate the breed' of weeds and screws. Then the foal, when he does come, is cultivated much after the same fashion, or, that is, left pretty much to shift for himself. You will see him fighting for his own in the farmyard amongst a lot of store bullocks, as likely as not with a hip down, or a hole in his side from the thrust of a playful Hereford, and doing as well as he can on that grand specific, a due allowance of Bean straw. The result of this wonderful system is surely logical enough. At a year old the young nag is half-starved, sulky-headed, big-bellied, narrow-framed thing, with most probably a blemish or an eyesore of some sort to complete his personal experience, and with a general expression and carriage as lively as that of Rosinante, or Dr. Syntax's Dapple. Very naturally the breeder of such a prodigy is more than anxious to sell him, but quite as naturally can find nobody willing to buy him; until, without heart, mouth, or action—under-bred, under-fed, and half-broke—the butcher gets him thrown in with his next half-score of beasts, or the village apothecary, on the spur of some hapless moment, is brought to believe that the colt may suit him! And thus it happens that breeding nags does not pay—with rather less outlay and attention devoted to such a business than one would bestow on a sitting of Cochin China eggs, or a litter of terrier puppies."

Science and Practice in Farm Cultivation. By Prof. James Buckman, F.L.S., F.G.S. No. 3. *How to Grow Good Clover.* R. Hardwicke, 192, Piccadilly.

The several chapters of this section of Professor Buckman's work describe the Clover-family generally, the farm species of Clovers, the varieties of Red Clover, the Clover allies, the Clover sickness, and Clover weeds and parasites. It is the Clover sickness and the weeds and parasites we sow with our seed that are the great difficulty in the way of growing good Clover. Let us hear what Mr. Buckman says on the former of these subjects:—

"In considering the important question involved in the term 'Clover sickness,' we would first direct attention to the fact that crop Clover is a derivative plant which has been so forced that it is many times larger and more juicy and succulent than the wild plant from which it sprung. This derived nature (the propensity, as it were, for fattening) can only be maintained by a continuance from one generation to another of those luxuries to which the cultivated family has been accustomed; hence, then, if seed be brought from a richer soil to a poorer, or from a warmer to a colder climate, we may expect that its plants grown amid Barley and drawn up during the summer would have but a poor constitution to withstand the rigours of winter; but can we in such a case say that the land is Clover sick, that is, sick of growing Clover?

"Of course the seed here supposed will grow better in one place than in another, as, for example, we have traced some American seed of broad-leaved Clover grown by itself in a deep rich soil in the Vale of Gloucester, where the climate is so much milder as to be a fortnight before the elevated land of the Cotswold Hills and producing an abundant crop; while the same forming part of a mixture of 'seeds' with Rye-grass and Plantain on the hills, the two latter have taken possession of the soil, and the Clover made no progress at all; whilst other seed, under precisely the same circumstances, has done remarkably well.

"That there is much reason for these conclusions will be found in the fact that the more seed we import from warmer climates the more difficult is it found to make the land produce a plant; still importation is rapidly on the increase, because warmer climates can produce seed more certainly and in greater quantity than we can at home.

"The difficulty of growing from foreign seed increases in proportion to the thinness of the soil and the backwardness of the climate, so that the elevated districts on the stony Cotswolds just adverted to present, perhaps, more of the so-called Clover-sick land than any other of like extent.

"The seed of Clover, then, has become more and more pampered—more the offspring of large crops from deep alluvial soils under the tropical summer heat of the south of France and the United States, where it is grown as a self-crop and not fed merely on what the corn could not carry away; and so while this enervation, or, if preferred, this civilisation, of plant has gone on, we expect its seed all at once to withstand the shock of a lower temperature with constant climatal changes and cutting winds; and if it does not succeed, we say that the land is Clover sick, when, in truth, it is the seed that sickens under these new and trying conditions. As well may we say that the Northern States sicken of the negro, because he there dies out so rapidly, or that the warm south sickens of humanity, because those who are unacclimated sicken and die there."

This is the first explanation offered of the phenomenon called Clover sickness—but others are also suggested; the gradual abandonment of paring and burning, by which mineral food for the plant is prepared, and by which much mischievous insect life is destroyed, is one; and the following are the conclusions arrived at:—

"1. That the larger induced plant of our cultivated Clovers has not, as a rule, that perennial constitution of the smaller wild species.

"2. Even its induced habit is much deteriorated by transportation under adverse climatal circumstances.

"3. The seed itself is often full of weeds, which, by gaining the mastery, kill out the young Clover plant.

"4. This effect is enhanced by growing Clover with Barley, in which, if not smothered, it must become weakened.

"5. We ought not to expect to grow Clover where we have taken away the necessary substances for its growth in the corn crop."

Farm Memoranda.

AN IDEAL FARM: "WET, FOUL, AND POOR."

(*Concluded from p.* 518.)

THE next step was to form some plan for stocking and cropping the land. Previous experience as an occupier of strong land enabled the tenant to lay down certain maxims or axioms which he proposed to take as his guides. He had convinced himself, 1st, that corn-growing alone would not pay at present prices. 2d. That the breeding and fattening of sheep had for many years been more profitable than any other branch of farming; and that although this was clearly not a sheep-farm, still, with proper arrangements, it might be made to carry a moderate number of sheep with advantage both to the pocket of the occupier and the condition of the land. 3d. That horse-keep is the item which it is most difficult to keep down on clay farms, and which, if not resolutely dealt with, will effectually keep down the farmer's profits.

The plan now adopted was to buy in a sufficient number of ewes in the autumn to run on the old Grass land through the winter, at the rate of about one to the acre. In ordinary seasons they maintained themselves without extra keep until Christmas, from which time they received a small feed of Oats daily until lambing time. After lambing, Turnips or Mangel, previously stored on the Grass, were given them, with corn or cake, until the winter Tares or Clover were ready to commence. By the time these were consumed Rape was ready, and by selling off the lambs fat from time to time, and continuing the allowance of corn or cake to the ewes, all the lambs and most of the ewes were sold fat to the butcher by the time the Rape was done and the land had to be ploughed for Wheat. This plan had the advantage not only of realising in a short time a handsome profit from the sheep, but of leaving the Clover, Tare, and Rape land in first-rate condition for a crop of Wheat. It also promoted the great object of spreading the horse labour more uniformly over the year, as the land was broken up as the green crop was consumed, and the press of work avoided which usually occurs at the time of Wheat sowing. It thus became practicable to employ the whole team immediately after harvest in preparing the land for Swedes and Mangel Wurzel, the acreage under root crop being reduced to

a minimum by the growth of green crops for summer consumption. The following was the method followed:—As soon as the corn was out of the field, the stubble was scarified or breast-ploughed so lightly as to make sure of being able to burn in small heaps all that was pared off. After spreading the ashes, 12 loads per acre of manure fresh from the yards were distributed evenly over the surface, and ploughed in with a good deep furrow, of such a width as to stand nearly or quite on edge. Thus it remained fully exposed to the weather during the whole winter; and as soon as dry weather set in spring, a turn or two of the harrows, followed by a light grubber, destroyed the annual weeds, and the land was ready for sowing. Four cwt. of guano per acre sown broadcast and harrowed in with the seed, which was drilled on the flat at 3 feet between the rows, completed the operation. The tilth thus produced was superior to that obtained in any other way on strong clay; and though the land had only been winter-fallowed, any want of mellowness was made good during the early summer by frequent and thorough horse-hoeing, first shallow and then deeper, as more and more mould was formed. The advantages obtained by this system of growing roots were numerous:—1st. By securing an early seed-time, so that the crop was sufficiently mature to be removed from the land in October for storage at the homestead or on the Grass for ewes and lambs in the spring. 2d. By carting the manure on the land early in autumn, before the solidity produced by the drought of summer had been lost. 3d. By the great economy of horse labour in growing a fallow crop with only one ploughing, leaving the rest of the rough work to be done by the powerful though wayward team, frost, snow, wind, and rain.

Good crops of both Swedes and Mangel Wurzel were grown in this way at moderate cost; the only difference in cultivation being that the Swedes were sown a month later, and that instead of 4 cwt. of guano per acre, 2 cwt. of guano and 2 cwt. of superphosphate were sown broadcast at the time of sowing. But the heavy expense of carting a whole root crop from the land prevented the tenant from growing any considerable acreage of either; his great object being to introduce as much as possible into the management of clay land that characteristic feature of light land farming which constitutes the great difference between them in point of profit, viz., manuring the land by sheep instead of the dungcart.

The management of the corn on this farm soon became the topic of conversation. From an average yield of two to three quarters per acre the Wheat crop soon rose to four and even five, and the spring corn improved in proportion. Yet, when asked what he did to his corn, the farmer said, "Nothing! but hoe it;" and when pressed on the subject of manure his invariable answer was, "If you take care of your land, the corn will take care of itself." These seemed but simple answers, but they meant much. The consumption of green crops on the land in summer has already been described; the improvements he introduced into the making and keeping of his manure have yet to be told. The two together evinced that care for his land of which he spoke so oracularly, and which produced him such a bountiful return at the time of harvest. But he set great store by his hoeing. In a dry spring, when Wheat carried a splendid colour on good land, it used to turn yellow and sickly on this strong clay, even where well drained; and our farmer said it was all from want of hoeing. He explained it thus: if land is in good condition, and free from stagnant water, the roots of the Wheat-plant will grow all through winter, and will extend over a considerable surface by the time when dry weather usually sets in. As soon as clay begins to dry it begins to crack, and the fissures are wide enough entirely to break off the small roots and sever the plant from a large portion of its supply of food. Hence its change of colour and loss of vigour during the dry weather, which is on all other grounds favourable to its healthy development. This can only be prevented by horse-hoeing, not a single shallow hoeing, or rather sliding over the surface, which only shaves off a few annual weeds, but hoeings repeated until a good covering of mould can be obtained. When he had accomplished this, he used to boast that his clay would carry the Wheat up to harvest better than any light land in the country.

The arrangements for stocking and managing the Grass land on this farm were worthy of attention. It contained a good deal of inferior pasture, but no Grass good enough to fatten a bullock; and the previous plan had been to buy in young cattle in the spring, when most other graziers were doing the same, and when consequently in nine years out of ten they were bought dear. They had to be sold out again in the autumn, when many other farmers were selling too; so that the tenant generally returned from the fair grumbling that he had scarcely got more than he gave for his stock, and that his summer's Grass was all but thrown away. The difficulty on this land was that cattle could not be fattened at Grass; and if made up in winter, they either required more Turnips than it was profitable to grow on such a farm, or if fed solely on corn and cake, it was difficult to make them pay their way. The new tenant's first attempt was to give his bullocks cake at Grass, but some of them would not eat it; and even with this assistance the Grass was not good enough for the purpose, and the cost was considerable. He therefore tried another plan, which turned out a complete success. He bought yearling heifers in May, and a young bull to run with them at Grass. The bull was taken from them in August, so that none should calve later than May. The heifers remained in these pastures until severe weather set in, when they were taken into the strawyard, and received once a day a feed of roots, if there were any to spare; if not, 2 lb. of linseed cake daily, which, at 12*l.* per ton, cost 1*s.* 6*d.* per week. If in-calf heifers were very dear in the spring, he occasionally sold a few just before calving, for as much money as if they were prime fat; but his usual course was to let the calves run with their dams all the summer. When taken up in October they were so fat and their points so well developed that they looked like prize beasts in miniature; and by keeping them well through the winter and spring they were eagerly bought by the butchers in June, when the winter-fed cattle had been nearly all slaughtered, and the grass-fed had not yet come in. The heifers were disposed of as follows:—a few that promised to be first-rate milkers were taken into the dairy; the greater part were sold for winter-feeding, and from their age and growth were worth about 2*l.* more than when bought in a year and a-half before. The value of two summers' Grass for a young heifer on pasture of this quality was rated at 4*l.*; linseed-cake for 20 weeks, at 1*s.* 6*d.* = 1*l.* 10*s.*; so that the heifer when sold had cost about 5*l.* 10*s.*, from which, if her increased value be deducted, 3*l.* 10*s.* would be left as the cost of the calf. These calves received as much cake as they would eat, which did not exceed 1 lb. per day at first, and 3 lb. at the latter end of the time, averaging 2 lb. per day, at a cost of 1*s.* 6*d.* per week, or for the 34 weeks 2*l.* 11*s.* per head. Taking an average consumption of two stone of roots per day for 34 weeks, each calf would consume three tons of roots, which, at 7*s.* per ton = 1*l.* 1*s.* These items, added to the keep of the heifer, made a total cost of 7*l.* 2*s.* each. The straw and attendance were considered to be well paid for by the manure.

The price at which these yearlings sold varied of course with the markets; but in consequence of their first-rate quality, and their light weights, which exactly suited the butchers during the hot weather, they were always worth 1*s.* per stone more than the average price of fat beef; and they generally fetched 1*l.* per month of their age, varying from 12*l.* to 16*l.* per head: one year the whole lot averaged 16*l.* each, their age being 14 months. In all cases they left a handsome profit. The peculiar advantages of this system were thus described by the tenant. He said that when he took his half-fat cattle to market, he had to run after his customers; now they ran after him. Besides, it suited him better to feed cattle that ate 2 lb. of cake per day than those that ate six: he always fancied that the big beasts ate not only their share of the cake, but his too. As to the meadow-land, the present occupier made a point of mowing as small a number of acres as possible; but in order to keep the acreage down, he said it was necessary to keep the condition up; and as the field of Clover which had formerly been mown for winter fodder for the horses was now given up to the sheep, it was necessary either to mow more of the Grass, or to put up with a smaller stack of hay, unless the land could be made to produce more per acre. This the tenant did not think a very difficult task, when he was told that the usual yield from 20 acres of meadow was about 15 tons of hay. He saw that the land required liberal treatment for some years; and he therefore dressed it the first season with two cwt. of guano and 1 cwt. of nitrate of soda per acre, following it up the next year by a heavy dressing of well-made manure. He also took care that the land should be cleared by the 1st of March, as he had often seen a crop of hay ruined from the meadow being eaten bare in April. If drought sets in in May, land so treated becomes parched for want of its natural covering, and the Grass receives so severe a check that it recovers very slowly; and if the season continues dry, the ultimate result is half a crop of hay, stacked some weeks later than usual, and no after-grass. After two years of the treatment above mentioned, the Clovers and finer Grasses sprang up so as completely to change the character of the herbage in these meadows. They also produced half a ton more hay per acre.

The last point to be noticed in the management of this farm is the treatment of the manure. In consideration of the spirited exertions of the new tenant, his landlord consented to roof over a small fold-yard as an experiment; and the manure thus made was tested against an equal quantity made in the ordinary way. The result was so decidedly in favour of the former, that after some years' experience the tenant declared that he would rather pay for covering the yard himself than be deprived of the benefit derived from it. The cost of the roof was about 5*s.* per superficial yard of the space covered; and the increased value of the manure was found to be from 25 to 30 per cent. The advantage, however, did not end there, as there was considerable saving of expense by not carting the manure into heaps, or turning it once or twice in the heap, as had been the previous custom. It remained in the yard undisturbed until wanted, and was then in first-rate order for carting on to the land, whether applied to the Grass or for a fallow crop.

WHITFORD, NEAR FARRINGFORD.—Mr. Askell's farm of 660 acres, includes of Wheat, 120 acres, receiving 1½ cwt. of nitrate of soda; of Barley, 80 acres; of Oats, 20 acres; of Beans, 20 acres; of Potatos, 2 acres, receiving 8 tons of farmyard dung per acre; of Rape, 10 acres; of Turnips, 35 acres, receiving 2½ cwt. of superphosphate per acre; of Swedes, 55 acres, receiving 8 tons per acre of farmyard dung, 1 cwt. of guano per acre, and 2 cwt. of superphosphate per acre; of Mangels, 2 acres, receiving 2 cwt. of superphosphate per acre; of Clover, 20 acres; and of permanent Grass, 160 acres. The farm-yard dung is enriched by the consumption of purchased cattle food to considerable extent. The farm consists of 100 acres of clay, 100 acres loam, 300 acres moory soil, some on very thin white gravel subsoil, 160 acres Grass land, plenty of lime in the soil—plant Clover on the clay and loam, mixed seeds on the low or moory land, which is let lie in Grass two years, then broken up for Wheat. The clay land is farmed in the following system:—1st, fallow and dunged; 2d, Vetches and Turnips; 3d, Oats; 4th, Clover; 5th, Wheat; 6th, Beans; 7th, Wheat; 8th, early Turnips; 9th, Wheat, with Trefoil sown for early feed previous to the fallow. The loamy land: 1st, Swedes, dunged and ploughed in the autumn previous; 2d, part Beans, and part Scotch Wheat; 3d, Barley; 4th, part Clover, and the other part Vetches; 5th, Wheat. The moory land: 1st, Turnips, breast ploughed in spring; 2d, Barley; 3d, seeds; 4th, seeds fed with beast; 5th, Wheat. A heavy stock is kept, and a great quantity of artificial manure is used—guano and superphosphate, and some raw bones. A great quantity of corn and some oilcake is used to feed out all stock. Good artificial manures, used properly, are considered to pay very well.

Miscellaneous.

Adulterated Butter.—The facts were shortly these:—In July, 1862, the plaintiff was desirous to embark 1500*l.* in some business, and advertised accordingly. In consequence of such advertisement it was represented to him that the defendant had discovered a process whereby rancid and impure butter could be rendered as good as Dorset by the introduction of water. From the defendant's books it appeared that, whereas he had purchased 407 cwt. of butter, he had sold double that quantity—viz., 814 cwt.; and the plaintiff alleged that the statement was made to him many times by the defendant, that water only was mixed with the butter. Ultimately it became known to him that the process was not upon rancid but good butter, and not by water only, but by materials technically known as "flare" and "milk"—that is beef and pork fat. The plaintiff had been to Ireland with the defendant, and purchased a large quantity of Irish butter, and subsequently to its becoming known to him what the real nature of the process was, he also discovered that it was not a profitable business, and that the article would not sell in the market. Accordingly the plaintiff applied to the defendant for a dissolution and repayment of his 1500*l.*, which being refused, this bill was filled on the 29th of November, 1862. On the 3d of December an injunction was moved for to restrain the defendant from pledging the credit of the firm or contracting without the plaintiff's consent, when, by consent, an order was made for sale and dissolution, and 1131*l.* 17*s.* 8*d.* was paid into court. The answer had been put in, and the stock sold for 14*l.* The case now came on at this hearing. For the plaintiff it was contended that on the ground of fraudulent misrepresentation he was entitled to dissolve the partnership. The process was not what the defendant represented it; it was not profitable, and it was not a secret, for the defendant had communicated it to two parties previously, who had advanced money to him; in fact, it was a well-known process. The plaintiff's folly or credulity was not a ground to refuse him relief. If a party in selling a business made a false representation, the purchaser, in an action, would be entitled to damages. The Vice-Chancellor said his opinion was that the plaintiff could not come into a court of equity under the circumstances, assuming that he could prove the allegations in the bill. If the plaintiff or his agents believed that by the mere introduction of water the weight was to be doubled, there was no limit to their credulity; but as there was a limit to that of his Honour, he did hesitate to believe that any man of common sense could credit such a statement. It was admitted that the Food Adulteration Act not only made it illegal to adulterate an article, so that it was injurious to health, but also to sell as a certain article that which had been adulterated by the admixture of any other substance, although such substance was in itself harmless. He knew this before he entered into the partnership, and it was obvious that if such a transaction had taken place with regard to milk, that would have been against the provisions of the Act. But that was not all. The plaintiff said that until he entered into the business he knew nothing about any other agent than water; but he then discovered that there was a positive violation of the law, and he ought then at least to have insisted on a dissolution, but by his acts he said, "I have no objection to go on if it is profitable;" he supplied the money to buy "flare" and "milk," and when it turned out not to be lucrative wrote the letter of November, 1862, in which he expressed his desire not to go on while the market was in its then present state. By the answer it appeared that the parties had been very nearly settling the matter, and it was much to be regretted that they had not. Assuming that the plaintiff had a legal remedy,

he could not come here on the present facts. *Times Report, abridged, of Riddell* v. *Smith, May* 30, *before Vice-Chancellor Sir R. T. Kindersley.*

Elementary Schools.—I repeat, that if the elementary schools were generally under the charge of respected and efficient teachers, no injury would be done to the child of the higher class by sitting for a while on the same bench, and learning the same lesson, with the child of his father's subordinate; and it might be that many a kindly and pleasant association would spring up in after-life from the recollection of this early intercourse. *Rev. Prebendary Brereton, in the Journal of the English Agricultural Society.*

Calendar of Operations.

JUNE.

WESTER ROSS: *June.*—Although somewhat later of being sown than usual from the long continuance of adverse weather in spring, the crops were laid down in good condition, and brairded beautifully and promisingly. Since then we have had extreme alternations—one week unusually hot and forcing, the next so piercingly cold that the growth and progress of the previous week were very much lost, and the pleasing verdure of spring exchanged for the unpromising aspect of winter. About a fortnight ago we were rejoicing in the heat of summer; at the end of May there was a fall of snow which continued nearly throughout the whole day, enshrouding hill and dale in its covering of white, and up till now the higher hills all around have generally been covered with snow. Again, there is a thorough change. With June a moderate and genial rain continued to fall for several hours, afterwards it was mild and balmy. With a continuance of warm weather the growth would now be rapid, as there will for some time be no lack of moisture. Wheat on cold damp soils is thin and patchy, and must fall considerably short of a full crop. On dry soils in good condition it is close and healthy, and although not far advanced for the season promises to be a good crop. Oats look well everywhere, except on poor, ill-cultivated, and exposed fields, where for the time the braird has almost disappeared before these sore blasts. Barley, which in its earlier stages is greatly more delicate than Wheat or Oats, has ill borne the severities of the season. In this neighbourhood there are only a few fields of good Barley to be seen, but a continuation of genial weather would yet work wonders. We have no doubt but a top-dressing of guano or nitrate of soda would have been well repaid. Potatos, which have not been so largely planted this season, are coming above ground strongly and vigorously. Swedes have been somewhat retarded by the cold, but are now brairding satisfactorily. They are still continuing to increase in favour, and occupy a larger breadth annually. For some three weeks we will be busily occupied in preparing the ground for, and sowing common Turnips. Fortunately the soil this season admits of easy tilth, and becomes admirably pulverised. The hay crop on the whole is light, and pastures are well eaten. Grain and stock continue to maintain the same relative disproportionate value, but a little time will rectify this, as the breadth of Grass is gradually increasing by a corresponding lessening of the area for white crops.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTERY, Shrawley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in 24 hours previous on the Ground.
	June	Inch. 30.09	°	°				°	°	°	°	Inches.
Friday ..	17	29.94	60	58	S.W.	1	10	68	51	84	47	0.11
Saturday ..	18	30.01	64	61	W.	1	9	68	52	81	45	..
Sunday ..	19	30.24	67	63	N.W.	3	10	70	57	85	55	0.15
Monday ..	20	30.24	63	59	N.W.	1	10	68	51	82	44	..
Tuesday ..	21	30.10	67	61	S.W.	1	9	66	46	77	39	..
Wednesday	22	30.13	63	50	S.W.	2	8	67	52	79	45	..
Thursday ..	23	29.94	60	58	S.W.	1	10	68	51	84	47	0.11

Notices to Correspondents.

BAILIFF.—We want two good men in this capacity; one to take the orders of a Cotswold farmer, another to have the management of a large Irish farm.

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

THE HYDROPULT is invaluable for use in the GARDEN for WATERING BEDS, SPRINKLING PLANTS, DROWNING OUT INSECTS, CLEANSING TREES FROM SMUTS, DRESSING with LIQUID MANURE, ETC. ETC.



THE HYDROPULT is desirable in every HOUSEHOLD for WASHING WINDOWS, WETTING SIDEWALKS, SPRINKLING STREETS, WASHING CARRIAGES, EMPTYING CISTERNS, FILLING BARRELS, A SPRAY BATH, ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,

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Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.

Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's: since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

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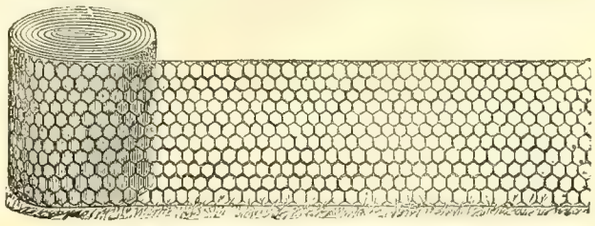
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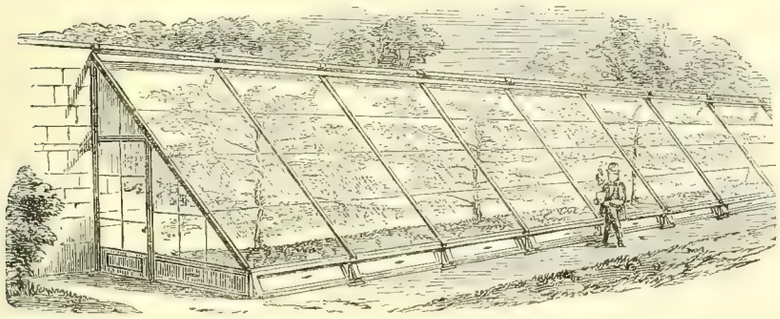
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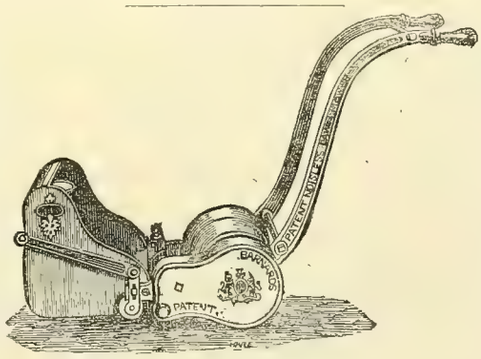
BARNARD'S NOISELESS LAWN MOWER.

This MACHINE differs from all other Lawn Mowers, in being constructed without either Gear-wheels, Chains, or Levers, the power being transmitted to the Cutters by a loose intermediate wheel, with an India-rubber tyre, which is placed between a plain-faced driving wheel and pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the intermediate wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber tyre will last from one to two seasons, and can be replaced at a cost of a few pence. An extra tyre is sent with each Machine.

The iron work of Grass-box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

The Miniature Lawn Mower, Cuts 8 inches .. .. £2 10s. 0d.		
	Suitable for the very smallest Grass plots or Edgings.	
To Cut 10 inches.	This can be worked by a Lady	3 5 0
To Cut 12 inches.	Suitable for one person	4 10 0
	The 12 inch and all larger sizes have the drum or roller divided in two parts for the convenience of turning.	
To Cut 14 inches.	Suitable for One Man	5 0 0
To Cut 16 inches.	Suitable for One Man	6 0 0
To Cut 18 inches.	Suitable for Man and Boy	6 10 0
To Cut 20 inches.	Suitable for Man and Boy	7 0 0
To Cut 22 inches.	Suitable for Two Men	7 10 0

Packed and Delivered Carriage Free to the principal Railway Stations in England.

Guaranteed to give satisfaction, and if not approved, can be returned.

The above are kept in Stock and can be forwarded immediately. Also, CAST-IRON VASES, CHAIRS, SEATS, TABLES, ROLLERS, WIRE NETTING, &c.

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Exhibition Prize Medal, 1862.

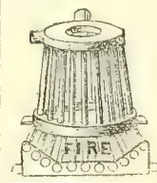


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

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Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.

Heating by Hot Water.



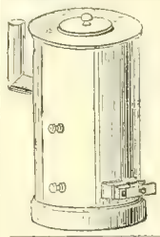
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All Sizes on the most Improved Principles, For Churches, Chapels, Schools, Halls, Conservatories, &c.
IMPROVED VALVES, &c.

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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

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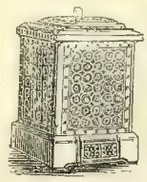
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Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



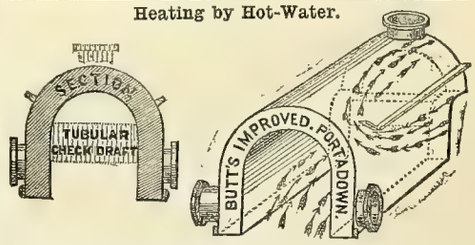
It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

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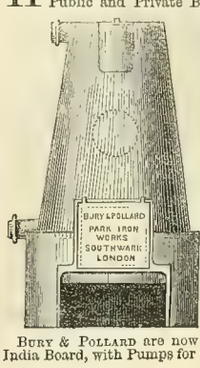
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THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

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(Successors to John R. Peill),
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AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

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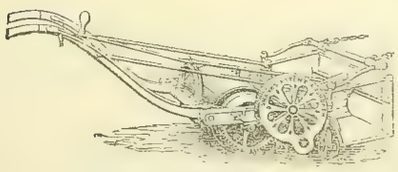
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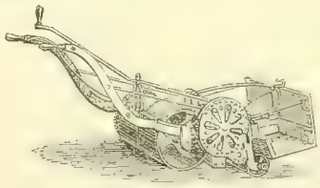
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

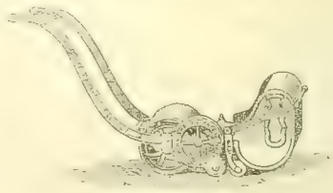
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

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SHANKS' NEW PATENT HAND MACHINE,

for Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
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SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
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28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

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30-inch Machine	£19 0 0	30*s.* extra.
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Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

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for Farm Buildings and other Roofs; the cheapest, most durable, and neatest roofing in use; also Spouting at 10½d. per yard.

GALVANISED WIRE STRAND CABLE FENCING.



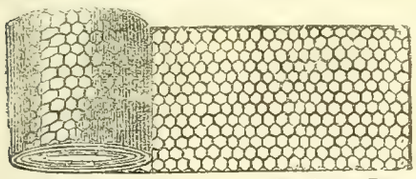
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Price 1s. per yard.

This Fence is far cheaper than posts and rails, or any kind of iron fencing, and possesses four times the strength of solid bars.

(Will not rust nor corrode.)

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PRICES OF NETTING 24 INCHES HIGH.—Sent Carriage Free.

Size of Mesh.	Proof against.	Light. Per Yard.	Medium. Per Yard.	Strong. Per Yard.	Very Strong. Per Yard.
2½ in. ..	Hares, Dogs, Poultry, &c. ..	4d.	5d.	6d.	7d.
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ASPHALTE ROOFING FELT, 1d. per square foot.

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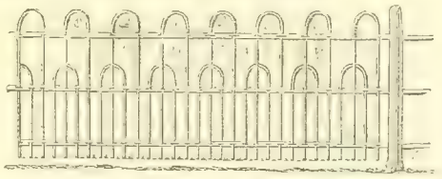
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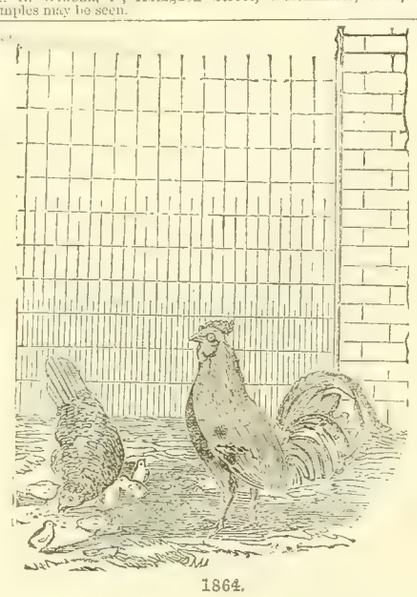
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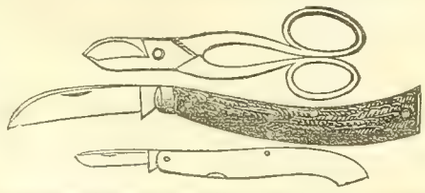
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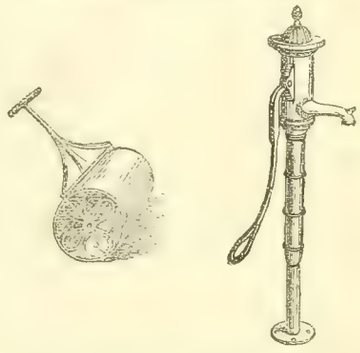
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For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.

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1. Copies of the Act and regulations, with directions.
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G. S. WALTERS, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.

No. 5, Copthall Court, London, E.C., April 30, 1864.

N.B. The land orders to be issued in London are transferable by endorsement.

The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.

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WANTED to PURCHASE, the STOCK and GOODWILL of a NURSERY BUSINESS, by a middle-aged Man of active and industrious habits, who has had 22 years constant experience as Managing Assistant in an extensive Country Business.

Apply to Messrs. GODWIN & SON, Solicitors, Newbury.

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TO BE LET, on an improved Lease, a GARDEN and DWELLING HOUSE, with Offices and Outbuildings. The Garden, beautifully situated in the South Downs, about 12 Acres, including two Meadows, prepared for the purposes of a Market Gardener, in a high state of cultivation, furnished with Fruit Trees in bearing, Greenhouse, Hothouse, Forcing Pits, &c.; the House a pleasant, genteel, and commodious Residence. The whole suited for a retiring Market Gardener wishing to reside near the Sea, and to find partial employment of a profitable and agreeable kind. Brighton Market, Tuesday and Saturday.

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TO BE LET on LEASE, or SOLD in such Lots as may be arranged, a large TRACT of LAND on the Mountains on the Isle of Man, well adapted for Sheep Walks.

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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

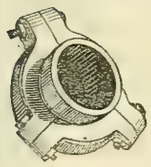
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

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JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

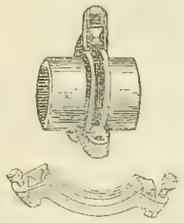
PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipe-Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—



TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Sales by Auction.

Orchids and Palms.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 28, at half-past 12 o'Clock precisely, a collection of ORCHIDS and GREENHOUSE PLANTS, the property of a gentleman giving up their Culture; a case containing 10 splendid masses of Lælia anceps and autumnalis, and a few very fine plants of Cattleya superba, Rodriguezia secunda, &c., and a few choice Palms, &c.

On view the Morning of Sale, and Catalogues had.

GREEN'S PATENT SILENS MESSOR,

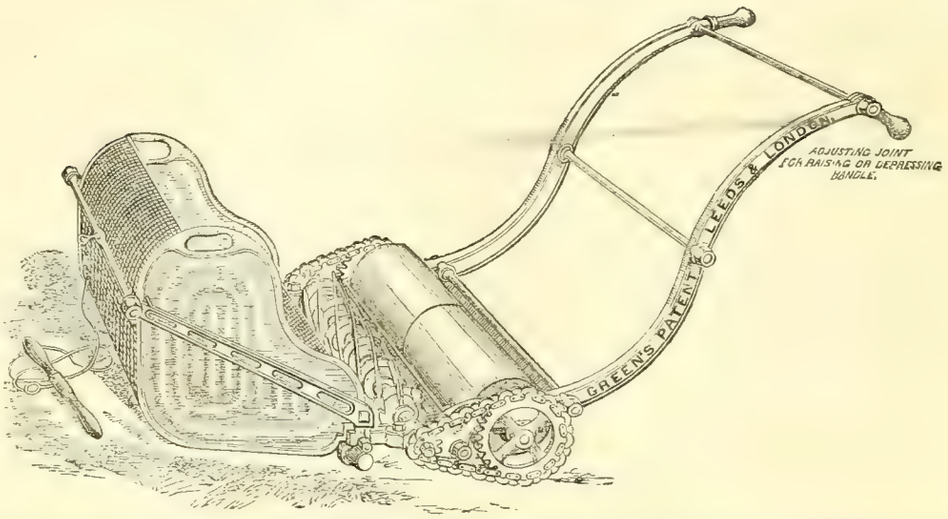
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

THOMAS GREEN AND SON, in introducing their NEW PATENT LAWN MOWING MACHINES (of which the above is a drawing) for the present season, beg to state that, in addition to the great number of improvements hitherto brought out, they have succeeded, after several months' trial (on the most difficult Lawns), in bringing out a machine which transcends the one of last year equally as much as did the very original one ever brought before the public. They are lighter and stronger, simpler in construction, more durable, and are warranted to last for years without getting out of repair. They do not require two-thirds the amount of power to work them of any other machines extant; and, from their efficiency, are unequalled for keeping Lawns in the highest state of perfection.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows, held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; BUCKINGHAM PALACE GARDENS; SANDRINGHAM PARK GARDENS; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS; and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

PRICES OF HAND MACHINES.

To Cut 10 inches	..	..	£3	10	0	..	..	Suitable for a Lady.	To Cut 18 inches	..	..	£7	10	0	..	..	Suitable for One Person.
,, 12	,,	..	..	5	0	0	..	..	,, ,,	,, 20	,,	..	..	8	0	0	..	..	Suitable for Two Persons.
,, 14	,,	..	..	5	10	0	..	..	Suitable for One Person.	,, 22	,,	..	..	8	10	0	..	..	,, ,,
,, 16	,,	..	..	6	10	0	..	..	,, ,,	,, 24	,,	..	..	9	0	0	..	..	,, ,,

The Patentees beg to call special attention to their HORSE, PONY, and DONKEY MACHINES, which have been entirely remodelled, and embrace all the recent Improvements adopted in the Hand Machines. They cannot fail to give entire satisfaction wherever used.

Prices of HORSE, PONY, and DONKEY MACHINES, including Patent Self-Delivery Box, Traces, and Stretcher, suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	..	..	..	£13	0	0	..	Leather Boots for Donkey, 18s.	To Cut 30 inches	..	..	..	£21	0	0	..	.. Leather Boots for Pony, 22s.
,, 28	,,	..	..	..	14	0	0	..	,, ,,	,, 36	,,	..	..	..	24	0	0	..	.. ,, ,,

To Cut 42 inches .. .. .. £27 0 0 .. .. .. Leather Boots for Horse, 26s.
,, 48 ,, ... 30 0 0 .. .. .. ,, ,,

The 26 and 28 inches can be easily worked by a Donkey or by Two Men on an even Lawn, the 30 and 36 inches by a Pony, and the 42 and 48 inches by a Carriage Horse; and, as the Machines make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the Machine.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 2, FARRINGDON ROAD (formerly 2, VICTORIA STREET), HOLBORN HILL, LONDON, E.C.
AND 19, EDEN QUAY, DUBLIN.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 27.—1864.] SATURDAY, JULY 2. [Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
The SECOND GREAT FETE will be held on WEDNESDAY and THURSDAY NEXT, July 6 and 7. Doors open at 2; Military Bands at 3. Admission on the first day (by Tickets previously purchased):—Fellows' Friends, 2s. 6d.; Public, 5s.; on the second day, 1s. each.

THE EXHIBITION of SCULPTURE in MARBLE, TERRA COTTA, &c., with various Coloured Experiments, will be OPENED at the ROYAL HORTICULTURAL GARDENS, South Kensington, on WEDNESDAY, July 13. Admission 2s. 6d.

ROYAL BOTANIC SOCIETY of LONDON, REGENT'S PARK.
A LECTURE upon the STRUCTURE of PLANTS and FLOWERS as a GUIDE to ARTIFICIAL FLOWER MAKERS, on TUESDAY, July 5, at 4 o'Clock, at the Gardens, by ELIZABETH TWINING.
Admission by the Orders of the Fellows of the Society.

ALEXANDRA PARK, WOOD GREEN.
GREAT NORTHERN RAILWAY.
THE GREAT ARCHERY MEETING of the YEAR.
The GREAT ARCHERY ASSOCIATION of ENGLAND will Compete for £500 Prizes, given by the Alexandra Park Company, July 6, 7, and 8.
As this is the first time the Association has held the Meeting near the Metropolis, the attendance is likely to be the largest ever seen at any Archery Meeting.
The Meeting will be held on the new Cricket Ground in the Park, which is 8½ acres in extent.

STAMFORD HORTICULTURAL SOCIETY.—The ROSE and SUMMER FLOWER SHOW of this Society will be held on TUESDAY, July 5.
The Rules and Schedules are now ready, and may be had on application to Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

BIRMINGHAM ROSE SHOW, in the Town Hall, Birmingham, on THURSDAY NEXT, July 7, commencing at 1 o'Clock P.M. precisely, and on FRIDAY, July 8.
RAILWAY FARES.—Arrangements have been made with the Railway Companies to convey Visitors to the Show, from the principal Stations in the Midland Counties, at a Single Fare for the Double Journey. See Hand Bills, to be obtained at the Stations.

Roses.
OLD NURSERIES, CHESHUNT, HERTS, N., per Great Eastern Railway.
PAUL AND SON'S unrivalled COLLECTION is NOW in FINE BLOOM. Open to admirers except Sundays.

Roses.
JOHN CRANSTON'S superb COLLECTION (extending over many Acres), is NOW in FULL BLOOM.
Nurseries, King's Acre, near Hereford.

Roses.
JAMES MITCHELL begs to announce that his large COLLECTION of ROSES is NOW in FULL BLOOM.
Pilt Down Nurseries, Maresfield, Uckfield, Sussex, 2¼ miles from the Uckfield Station.

Roses.
WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.
Waltham Cross, Herts, N.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that his COLLECTION of ROSES, is NOW in BLOOM, and respectfully invites an inspection of the same. The collection includes many new and fine varieties.
The Nurseries are about 5 miles from London, and are easily reached by Train on the Great Eastern Railway to Lea Bridge Station.

30,000 Splendid Standard and Dwarf Roses in Full Bloom.
MESSRS. PROTHEROE AND MORRIS respectfully invite an inspection of their unrivalled COLLECTION of ROSES NOW in FULL BLOOM, and will continue flowering until the autumn; such growth is rarely seen. Book for Leytonstone Station, which is 20 minutes ride from Fenchurch and Bishopsgate Streets, from whence Trains leave 15 times daily.
American Nurseries, Leytonstone.

Roses.
EDWIN HOLLAMBY begs to announce that his unrivalled Collection of the above, containing many new and splendid varieties, is NOW in FINE PERFECTION. A visit is respectfully solicited.
The Nurseries and Seed Establishment, Tunbridge Wells and Groombridge, Kent.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL'S Nurseries, Waltham Cross, N.

NOW READY, the NEW ROSES of 1864. Twelve of the newest and most vigorous for 36s.
DESCRIPTIVE LIST, free on application.
RICHARD SMITH, Nurseryman, Worcester.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Roses.
H. LANE AND SON beg to inform their Patrons that their extensive COLLECTION of ROSES (7 Acres in one piece), is NOW in FULL BLOOM, at their Balshaw Nursery, 1½ mile from the Home Nurseries.

Vines Fruiting.
H. LANE AND SON have still to offer VINES in pots, with from 5 to 15 bunches of fine fruit.
To be seen at their Home Nurseries.

Coniferæ.
H. LANE AND SON'S superb COLLECTION of the above, including the finest lot of ARAUCARIAS in Europe, RHODODENDRONS, AZALEAS, TREES, SHRUBS, &c., to be seen at their Home and other Nurseries, Great Berkhamsted.
The Home Nurseries are within 10 minutes walk of the Berkhamsted Station, London and North-Western Railway, where Conveyances meet all Trains.

ESTABLISHED 1800.
Ripon and Claro Seed Establishment.
WILLIAM MORTON,
Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on GRASSES
Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

New Soft-wooded Plants for 1864.
H. WALTON begs to announce that his DESCRIPTIVE CATALOGUE of the above is now ready, and may be had on application, enclosing stamp.
Edgend Marsden, near Burnley [illegible]re.

General Plant C[illegible]e.
WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6d.; 15 do., 3s. 6d.; 25 do., 5s. 6d.; 50 do., 10s.; 100 do., 30s.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

From the finest Strains in Cultivation.
CALCEOLARIA, CINERARIA, and PRIMULA.
Price per packet, 2s. 6d.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

Prize Plant Cases.
BARR AND SUGDEN'S PLANT CASES, elegantly filled with Plants for Window and Table Decoration, 10s. 6d. to 21Os. These were awarded First Prize at Royal Horticultural Fête and Flower Show, and at Royal Botanic Flower Show. Rustic Window Boxes, 10s. 6d.; Rustic Window Gardens, 21s.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden (opposite the Garrick Club), W.C.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most important of all Mr. FORTUNE'S recent introductions from Japan, are now ready for distribution. CHARLES NOBLE has great pleasure in making this preliminary announcement. Full particulars, with prices, will be given in a future advertisement.
Sunningdale Nursery, Bagshot.

NEW BEDDING PLANTS.
Wellington Nursery.
NEW VARIEGATED GERANIUMS and other novelties are to be seen bedded out largely in this establishment.
The VELVET CUSHION VERBENA is a fine advance among bedding plants.
E. G. HENDERSON & SON, St. John's Wood, London, N.W.

Choice Exotic and Hardy Ferns.
EDWIN COOLING has a fine stock of particularly healthy well-grown Plants to dispose of, on very moderate terms. Also a few specimens suitable for exhibition. PRICED LIST free on application. Parties requiring COLLECTIONS of FERNS will be liberally treated.
Mile Ash Nurseries, Derby.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS. No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.
HERBACEOUS CALCEOLARIA, 2s. 6d. per packet.
HALF SHRUBBY CALCEOLARIA, 2s. 6d. per packet.
CINERARIA, 2s. 6d. per packet.
CARNATION, Self, Flakes, and Bizarres, 2s. 6d. per packet.
PICOTEE, White and Yellow grounds, 2s. 6d. per packet.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent GardenW.C.

Chrysanthemums, Chrysanthemums.
C. ELWIN AND CO. have now to offer:—
100 doz. CHRYSANTHEMUMS in 48's, at 4s. per dozen
100 doz. " in 60's, at 2s. 6d. "
200 doz. " in 60's, at 2s. 0d. "
Also 100 doz. SCARLET GER[illegible]UMS in 48's, at 3s. "
100 doz. ASTERS in 48's, [illegible]4s. per dozen.
&c., &c.
Clifton Nursery, 5A, Clifton Villas, Maida Hill, W.

The Best Substitutes for Swedes.
SUTTON'S GREEN-TOP YELLOW HYBRID and SUTTON'S PURPLE-TOP YELLOW HYBRID, price 9d. per pound, or cheaper by the bushel.
Also, YELLOW TANKARD TURNIP, 10d. per pound (cheaper by the bushel.)
These are equal in quality to the best Yellow Swede, and will stand the winter if not sown too early. Carriage free except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Turnips for Feeding off Early.
SUTTON'S LINCOLNSHIRE RED GLOBE.
SUTTON'S IMPERIAL GREEN ROUND
POMERANIAN WHITE GLOBE
EARLY SIX WEEKS
Price 8d. per lb., cheaper by the bushel.
Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Robinson's Champion Drumhead Ox Cabbage Plants.
E. R. GREENUS, Railway Nurseries, Watford, has some Thousands of the above for SALE, good strong Plants, on reasonable terms.

SHARPE'S IMPROVED LARGE SWEDE, DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.
CHARLES SHARPE & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. DIXON & SONS, 57, Queen Street, Hull.

W. VIRGO AND SON can now supply TRUE DRUMHEAD CATTLE CABBAGE and DRUMHEAD SAVOY PLANTS, at 3s. 6d. per 1000; all strong and well rooted.
Wonersh Nursery, near Guildford.

DRUMHEADS, Strong and True, also the large EARLY FIELD IMPERIAL, and choice sorts of GARDEN CABBAGE, SAVOYS, &c., 3s. 3d. per 1000; BROCCOLIS and CELERIES 4s. per 1000.
THOMAS WELLAND, Surrey Gardens, Godalming, Surrey.

Stones or Sprotbro Cabbage Seed.
JOHN SCHOLEY, NURSERYMAN and SEEDSMAN, Pontefract, has the above to offer to the Trade, his own growing of 1863. The above Cabbage is the earliest and best that supplies the Leeds and Manchester Markets.
Price per lb. 1s. 6d.; per cwt. About 5 cwt.

BULBS FREE from WASTE in NECK or ROOT.—MANGEL WURZEL, from transplanted and fully-developed roots. LARGE YELLOW GLOBE and all other sorts, 6d. per lb.
WORCESTERSHIRE SWEDE, not to be beaten, 6d. per lb.; other kinds, 8d. per lb. PRICED LISTS on application.
RICHARD SMITH, Seed Merchant, Worcester.

Italian Tripoli Onion.
CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

Rape Seed for Sowing.
CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
Price on application.

Broad-leaved English Rapeseed.
H. AND F. SHARPE have a fine Sample of the above to offer to the Trade at a moderate price.
Seed Growing Establishment, Wisbech.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Calceolaria, Cineraria, Primula.
E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.
The CALCEOLARIA is now magnificently in bloom at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

BANKS'S Magnificent New FUCHSIAS.—A Coloured Plate (extra size) of the above, 2s. 6d., can be sent per postage.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, W.N.

INTERMEDIATE STOCK SEED (Fine Strain).—SCARLET and WHITE varieties, of First-class quality, for the Trade.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

J. SCOTT'S SPLENDID NEW FUCHSIAS of 1864 constitute one of the finest Collections ever offered to the Public, and are now offered at 9s. per dozen sorts, being a great reduction on the Catalogue price, which will be sent to all applicants on receipt of 6 postage stamps.
NEW JAPANESE VARIEGATED SAXIFRAGE, 2s. 6d. each.
Merriott Nurseries, Crewkerne, Somerset.

Seed Establishment, 181, High Holborn, London, W.C.
THE BUSINESS hitherto carried on at the above address by the late Mr. JOHN GEORGE WAITE, will be continued in the name of WAITE, BURNELL, AND CO., under the Management of Mr. JOHN T. BURNELL, stepson of the late Mr. WAITE, and for a long time associated with him.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 10*s.* per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d* per bushel (sacks at cost price, or on hire).
Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



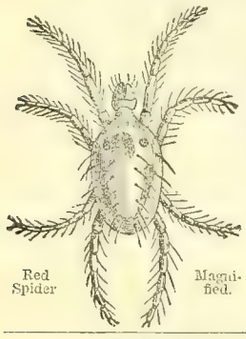
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

To Gardeners, Stewards, &c.

FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

Wasps.

HAYTHORN'S HEXAGON and CHISWICK NETS will protect all kinds of Fruit from Wasps, Flies, Birds, &c. Patterns free by post.
Direct, Mr. HAYTHORN, Nottingham.

The Hydropult Challenged.

WINTON'S "HYDROPNEUMATIC" FIRE and GARDEN ENGINES are acknowledged to be superior in every respect to the Engine of the above name. Sold everywhere.
HYDROPNEUMATIC, £1 15*s.* Lady's ditto, £1 10*s.*
JOHN G. WINTON, 13, Gladstone Street, St. George's Road, Southwark, London, S.E.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

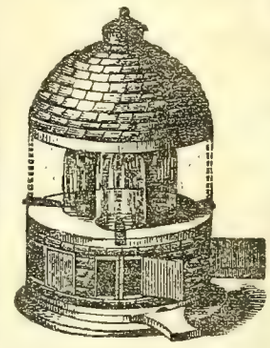
ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

BENJAMIN EDGINGTON, MARQUEE, TENT, RICK CLOTH, and FLAG MANUFACTURER by Special Appointment to her Majesty.—MARQUEES, TEMPORARY ROOMS and AWNINGS, for Dinners, Balls, Parties, &c., on HIRE, lined, boarded, lighted, and elegantly decorated. RICK CLOTHS, New and Second-hand, with Poles, &c., complete. NETTING for Fruit Trees; Scrims for Greenhouse Blinds, &c. Be particular to address,
BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E.
No other Establishment.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.

Several important novelties are introduced this season, including the *Woodbury Straw Bar-and-Frame Hive*, price 21*s.*; with window, 25*s.* Also *Artificial Combs*, made of a size suited to the *Woodbury Bars*, to assist in the formation of cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, W.

Their newly-arranged CATALOGUE of other Improved Hives, with drawings and prices, sent on receipt of Two Stamps.

Agents.—Liverpool: JAMES CUTHBERT, 12, Clayton Square, Manchester: J. WILSON, 50, King Street. Birmingham: J. H. COTTRELL, 15, Bull Ring. Dublin: EDMONDSON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 186, Trongate.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C. beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.
J. TYLOR & SONS'
GALVANIZED IRON TUB
GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	
£5 0 0	£6 12 0	



Fig. 571.
J. TYLOR & SONS'
OAK TUB
GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 „
Telescope Branch Pipe for ditto .. .. 0 10 0 „

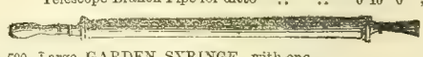


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „

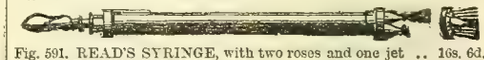


Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
„ 592. Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes to supply GREENHOUSES, VINERIES, and ORCHARD HOUSES, constructed on the best approved plan, of good Yellow Deal, 21-oz. glass, and four times painted, at 1*s.* 3*d.* per square foot; with 15-oz. glass, 1*s.* 1*d.* per foot.
J. S. begs to offer, ready made, a SPAN ROOF, 27 by 16, for 45*l.*; ditto Span, 17 by 12, 25*l.*; LEAN-TO, 25 by 14, 35*l.*; 23.6 by 12, 30*l.*; 45 by 14, 65*l.*; 100 by 14.6, 120*l.* Also several thousand feet, various sizes, all strongly made, glazed with 21-oz. glass, 9*d.* per foot.
Two-inch Lights made to order, 15-oz. glass, 8*d.* per foot.
Estimates for effectually Heating with hot water.
N.B. Second-hand, equal to new, a SPAN HOUSE, 17 by 12, complete with shelves (no brickwork required) and hot water pipes, 35*l.*

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9*d.* per lb.; and his large FOSTERTON HYBRID, 8*d.* per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

CHOICE ORCHIDS.

HUGH LOW & CO.

HAVE PLEASURE IN OFFERING FINE PLANTS OF THE EXTREMELY RARE AND BEAUTIFUL

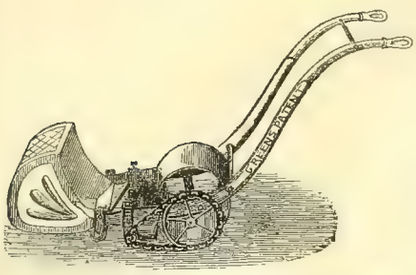
CATTLEYA AMETHYSTOGLOSSA, at 105s. each.

To purchasers by the Dozen a reduction would be made.

H. L. & Co. have also to hand by Royal Mail Steam Ship *Shannon*, an importation from their Collector, Mr. HENRY BLUNT, in New Grenada, consisting amongst other things of ODONTOGLOSSUM NÆVIUM. Prices on application.

CLAPTON NURSERY, LONDON, N.E.

DEANE AND COMPANY'S HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 50*s*., 70*s*., 90*s*., 140*s*.
GARDEN ENGINES, Galvanised Iron. Prices 55*s*., 65*s*., 78*s*., 90*s*., 100*s*., 110*s*.
GARDEN ENGINES, Wood, 90*s*., 110*s*., 138*s*.
GARDEN ROLLERS, 1*l*. 10*s*., 1*l*. 14*s*., 2*l*., 2*l*. 7*s*. 6*d*., 2*l*. 12*s*. 6*d*., 3*l*. 2*s*. 6*d*.
GALVANISED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s*.
GREENHOUSE SYRINGES, 8*s*., 10*s*., 18*s*. 6*d*.
BOYD'S SELF-ADJUSTING SCYTHE, 10*s*. 6*d*.
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

LAWN MOWERS.

GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

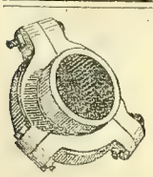
DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon

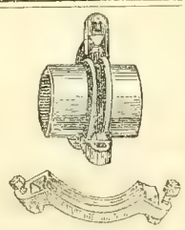
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

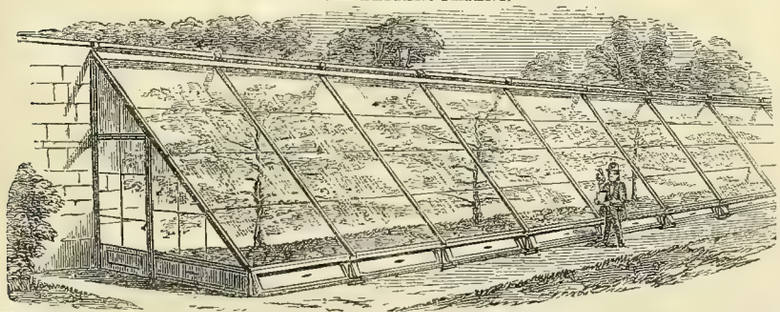
For a few prices, see last week's advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l*.; 43 ft. by 19 ft., 73*l*. 5*s*.; 64 ft. by 25 ft., 151*l*.

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s*.; post free, 1*s*. 1*d*.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Triangle, Hackney, N.E.—Good substantially-made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l*.; 21 feet by 13 feet, 28*l*.; 12½ feet by 10 feet, 15*l*. A handsome CONSERVATORY, 46 feet by 19 feet, for Sale, price 130*l*. A large assortment kept. Estimates given for any branch in Wood or Iron.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s*. 4*d*. 3-inch, 2*s*.; and 4-inch, 2*s*. 7*d*. BENDS, from Stock, 1*s*. 7*d*., 2*s*. 6*d*., and 3*s*. 3*d*. each. THROTTLE VALVES, 10*s*. 6*d*., 13*s*. 6*d*., and 15*s*. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s*. each. Improved Boilers and Iron Stands to use without brickwork, 56*s*. each. Valves from 10*s*. 6*d*. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYSON WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

West of England, Ireland, and Wales.

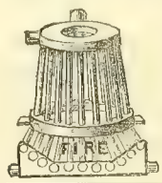


VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

Heating by Hot Water.

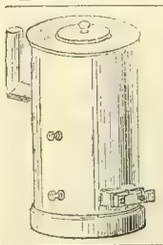


JOHN TOOLEY, late 21 years with J. WEEKS & Co.

TUBULAR BOILERS,

All Sizes on the most Improved Principles, For Churches, Chapels, Schools, Halls, Conservatories, &c.
IMPROVED VALVES, &c.
References in England, Ireland, and Wales.

JOHN TOOLEY, 9, Radnor Street, King's Road, Chelsea, S.W.



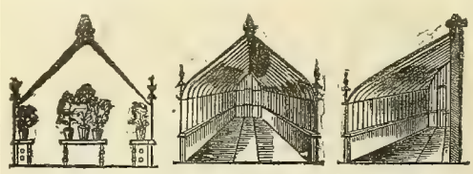
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d*. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l*. 10*s*.

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

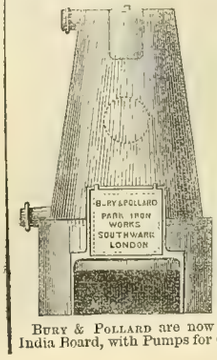


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility & Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD are now making a powerful Windmill for the India Board, with Pumps for Cotton Irrigation.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. RIVERS and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

AVERAGE THICKNESS, 15 TO 16 oz.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about 1¼d. per foot.
3ds ,,	.. ..	,,	41 0	,, 1¾ ,,
2ds ,,	.. ..	,,	60 0	,, 2½ ,,
Best ,,	.. ..	,,	92 0	,, 3¾ ,,

AVERAGE THICKNESS, 21 oz.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about 2d. per foot.
3ds ,,	.. ..	,,	42 0	,, 2½ ,,
2ds ,,	.. ..	,,	63 0	,, 3¾ ,,
Best ,,	.. ..	,,	89 0	,, 5½ ,,

AVERAGE THICKNESS, 26 oz.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about 2¾d. per foot.
3ds ,,	.. ..	,,	56 0	,, 3½ ,,
2ds ,,	.. ..	,,	84 0	,, 5 ,,
Best ,,	.. ..	,,	116 0	,, 7 ,,

SHEET SQUARES, Cut to Order.

AVERAGE THICKNESS, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5

AVERAGE THICKNESS, 21 oz.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

AVERAGE THICKNESS, 26 oz.

4ths quality	3d.	3½d.	3¾d.	4 d.	4½d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5¼
2ds ,,	4½	5	5½	5¾	6	6½
Best ,,	5½	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

XTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

				Per 100 feet.			
				4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16	.. 11s. 6d.	13s. 6d.	16s.	18s.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

AVERAGE THICKNESS, 15 TO 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.		11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..				
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

AVERAGE THICKNESS, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.		14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..				
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s. 4d. each.
4 ,, ..	0 5 ,,
5 ,, ..	0 6 ,,
6 ,, ..	0 7 ,,
8 ,, ..	0 10½ ,,
10 ,, ..	1 2 ,,
12 ,, ..	1 6 ,,
14 ,, ..	2 3 ,,
16 ,, ..	3 0 ,,
18 ,, ..	4 6 ,,
20 ,, ..	6 0 ,,



HAND GLASSES.

12 inches diam.	5s. 6d. each.
14 ,, ..	6 6 ,,
16 ,, ..	7 6 ,,
18 ,, ..	8 6 ,,
20 ,, ..	9 6 ,,
22 ,, ..	10 6 ,,
24 ,, ..	11 6 ,,

If removable tops, 1s. extra.

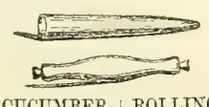
Painted and Glazed with Sheet Glass.



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0s. 4d. ..	0 6 each.
4 ..	0 5½ ..	0 8 ,,
5 ..	0 7 ..	0 10 ,,
6 ..	0 9 ..	1 1 ,,
7 ..	0 10½ ..	1 2 ,,
8 ..	1 2 ..	1 6 ,,
9 ..	1 6 ..	2 0 ,,
10 ..	1 10 ..	2 4 ,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES.

ROLLING PINS.

Ins. long.	each.	each
12 ..	0s. 10d.	1s. 3d.
13 ..	0 11	1 4
14 ..	1 0	1 6
15 ..	1 1	1 8
16 ..	1 2	1 9
17 ..	1 3	1 10
18 ..	1 4	2 0
19 ..	1 5	2 2
20 ..	1 6	2 3
22 ..	1 7	2 4
24 ..	1 9	2 8



MILK PANS.

6 inches diam.	0s. 5d. each.
8 ,,	0 8 ,,
10 ,,	0 10½ ,,
12 ,,	1 1 ,,
14 ,,	1 6 ,,
16 ,,	2 0 ,,
18 ,,	2 5 ,,
20 ,,	2 10 ,,
22 ,,	3 4 ,,
24 ,,	4 0 ,,

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.		Qts. each
8	¾ filled,	3..1s. 3d.
9	,,	4..2s.
10	,,	6..2s. 6d.
11	,,	8..3s.
12	,,	9..3s. 9d.
13	At same average according to weight.	7d. per lb.
14		
15		
16		

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p.cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes; OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds, NETT CASH.

CARTER'S GARDENER'S VADE-MECUM.

HERBACEOUS CALCEOLARIA, &c, SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.
CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.
PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d.
And every other first-class Seeds. See CATALOGUE, post free.
WM. CUTBUSH & SON, Highgate Nurseries, London, N.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.
BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.
LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.
LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.
PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews for seven postage stamps.
RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose. 2s. 6d.
OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.
"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*
The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.
PAUL'S Nurseries, Waltham Cross, N.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.
Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.
Exotic Nursery, Tooting, Surrey, S.

Extra Strong Grape Vines from Eyes.

LUCOMBE, PINCE, AND CO., having this season a splendid stock of strong VINES fit for immediate planting, propagated from Eyes taken from their large experimental Vinery, can offer fine healthy, short-jointed Canes, 6 to 9 feet long, of all the leading kinds, at from 3s. 6d. to 7s. 6d. and 10s. 6d. each.
L., P. & Co. have one of the largest Stocks in the Trade of Extra Strong Vines, with Canes 9 to 11 feet long, and proportionally strong, rom which purchasers can advantageously select those suitable for ruiting finely next season. Liberal Compensation for Carriage.
Exeter Nursery, Exeter.

CARTER'S FARMER'S VADE-MECUM.

A MAGNIFICENT FIELD OF
Pure White Canadian Seed Oats in full Ear, and 3½ feet high, June 11, 1864, at

MR. HALLETT'S MANOR FARM, BRIGHTON (within 200 yards of St. Mark's Church, Kemp Town), is now OPEN to INSPECTION. This Field adjoins the Lodge (at the entrance gates of the Manor House), where a sample of the Oats sown may be seen upon presenting Card with Address.
These Oats were raised from a very fine sample in 1862, which was hand-picked 27 times, and weighed 48 lb. the imperial bushel. They were drilled (3 bushels per acre), on the 24th February, 1863, cut July 20, and yielded on a very thin poor soil upwards of 80 bushels of Oats, and 185 trusses (36 lb.) of most excellent feeding straw per acre; while the ordinary Black Tartarian Oat, on the other part of the same field, ripened a fortnight later, yielded of grain a less crop, weighing 25 per cent. less per bushel, and of straw 120 trusses per acre.
The Canadian Oats were again hand-picked, to ensure *perfect* purity, and drilled on the above field February 17 of this year. Upon the same field, 1863:—

	Kernel.	Husk.
Canadians	69.43 ..	30.57 } per cent.
Tartarians	70.79 ..	29.21 }

Japan Flax.

THIRD SHIPMENT, just arrived.—The finest Material ever introduced for tying Plants, Flowers, &c. The highest Testimonials from the first-class Gardeners of the United Kingdom. Supplies can be obtained from every Wholesale Seed Firm in London.
For Free Samples apply to Importer, JOHN ALLISON, 22, Lawrence Pountney Lane, London, E.C.

CATERPILLARS, GREEN and RED FLY, &c.—All who wish to preserve their Fruit Trees, Rose Trees, Plants, &c., should use "WHITEHOUSE'S GARDENER'S FRIEND," an effectual destroyer of Insects. In boxes, 6d., 1s., and 2s. each; and in quantities to suit large gardeners at reduced prices. Carriage paid for orders of 5s. value and upwards
Prepared by G. H. WHITEHOUSE, Chemist, 19, High Street, Bradford.

ROYAL HORTICULTURAL SOCIETY.

ROSE SHOW,

WEDNESDAY and THURSDAY,
JUNE 29 and 30.

AWARDS of the JUDGES.

CUT ROSES.

CLASS 1.—72 kinds of CUT ROSES, 1 truss of each. (Nurserymen.)
1st Prize, Messrs. Paul & Son, Cheshunt, 6*l.*
2d, Mr. B. R. Cant, Colchester, 4*l.*
3d, Mr. Wm. Paul, Waltham Cross, 3*l.*
4th, Mr. J. Mitchell, Maresfield, Sussex, 2*l.*
Extra, Mr. J. Keynes, Salisbury, 1*l.*

CLASS 2.—48 kinds of CUT ROSES, 3 trusses of each. (Nurserymen.)
1st, Mr. Charles Turner, Slough, 4*l.*
2d, Messrs. Paul & Son, Cheshunt, 3*l.*
Equal 2d, Mr. Wm. Paul, Waltham Cross, 3*l.*
3d, Mr. John Keynes, Salisbury, 2*l.*
4th, Mr. B. R. Cant, Colchester, 1*l.*

CLASS 3.—24 kinds of CUT ROSES, 3 trusses of each, Hybrid Perpetuals. (Nurserymen.)
1st, Mr. J. Keynes, Salisbury, 2*l.* 10*s.*
2d, Messrs. Paul & Son, Cheshunt, 2*l.*
3d, Mr. B. R. Cant, Colchester, 1*l.* 10*s.*
4th, Mr. J. Fraser, Lea Bridge Road, Leyton, 1*l.*
Equal 4th, Mr. C. Turner, Slough, 1*l.*

CLASS 4.—24 kinds of CUT ROSES, 1 truss of each. (Nurserymen.)
1st, Mr. Charles Turner, Slough, 2*l.*
2d, Mr. J. Keynes, Salisbury, 1*l.*
3d, Mr. B. R. Cant, Colchester, 10*s.*
Extra, Mr. J. Fraser, Leyton, 7*s.*

CLASS 5.—48 kinds of CUT ROSES, 1 truss of each. (Amateurs.)
1st, J. T. Hedge, Esq., Reed Hall, Colchester, 6*l.*
2d, Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, 4*l.*
3d, Mr. W. Ingle, Gr. to C. G. Round, Esq., Colchester, 3*l.*
4th, Mr. H. Exell, Gr. to J. Hollingsworth, Esq., Maidstone, 2*l.*
Extra, Thomas Laxton, Esq., Stamford, 1*l.*

CLASS 6.—24 kinds of CUT ROSES, 1 truss of each. (Amateurs.)
1st, J. T. Hedge, Esq., Reed Hall, Colchester, 4*l.*
2d, C. M. Worthington, Esq., Caversham Priory, Reading, 2*l.*
3d, Mr. H. Exell, Gr. to J. Hollingsworth, Esq., Maidstone, 1*l.*
4th, Mr. W. Ingle, Gr. to C. G. Round, Esq., Colchester, 10*s.*
Extra, Mr. J. Morris, Gr. to Miss Crawshay, Caversham Park, Reading, 7*s.*

CLASS 7.—18 kinds of CUT ROSES, 1 truss of each. (Amateurs.)
1st, The Rev. J. Knox Child, Little Easton, Essex, 3*l.*
2d, Mr. W. Plester, Gr. to Mrs. Rush, Bishops Stortford, 1*l.* 10*s.*
3d, R. B. Postans, Esq., Brentwood, Essex, 15*s.*
4th, Dr. Cooper, The Limes, Slough, 10*s.*
Extra, The Rev. Henry Helyar, Pendomer Rectory, Yeovil, 7*s.*

CLASS 8.—12 kinds of CUT ROSES, 1 truss of each. (Amateurs.)
1st, The Rev. J. Knox Child, Little Easton, Essex, 1*l.* 10*s.*
2d, Mr. J. Churchfield, Gr. to R. L. Cherrington, Esq., Carshalton, 1*l.*
3d, Dr. Cooper, The Limes, Slough, 10*s.*
Extra, Mr. William Plester, Gr. to Mrs. Rush, Bishops Stortford, 7*s.*
Extra, R. B. Postans, Esq., Brentwood, Essex, 7*s.*

CLASS 9.—18 NEW ROSES 1863-4, single trusses, distinct kinds. (Open.)
1st, Mr. J. Keynes, Nurseryman, Salisbury, 2*l.*
2d, Mr. J. Fraser, Nurseryman, Leyton, 1*l.* 10*s.*
3d, Mr. William Paul, Paul's Nursery, Waltham Cross, 1*l.*
4th, Messrs. Paul & Son, Old Nursery, Cheshunt, 15*s.*

CLASS 10.—12 TRUSSES of any new kind of 1863. (Open.)
1st, Mr. J. Keynes, Nurseryman, Salisbury, 1*l.* 10*s.*
2d, Mr. W. Paul, Nurseryman, Waltham Cross, 1*l.*

CLASS 11.—12 TRUSSES of any kind except of 1863. (Open.)
1st, Mr. J. Keynes, Nurseryman, Salisbury, 1*l.* 10*s.*
2d, Messrs. Paul & Son, Old Nursery, Cheshunt, 1*l.*
3d, Mr. W. Ingle, Gr. to C. G. Round, Esq., F.R.H.S., Colchester, 10*s.*
4th, J. T. Hedge, Esq., Reed Hall, Colchester, 7*s.*

CLASS 12.—12 YELLOW ROSES, single trusses, not less than 6 kinds.
1st, J. T. Hedge, Esq., Reed Hall, Colchester, 1*l.* 10*s.*
2d, Messrs. Paul & Son, Old Nursery, Cheshunt, 1*l.*
3d, Mr. B. R. Cant, St. John's Street Nursery, Colchester, 10*s.*

CLASS 13.—12 TEA-SCENTED and NOISETTE ROSES. (Amateurs.)
1st, J. T. Hedge, Esq., Reed Hall, Colchester, 2*l.*
2d, C. M. Worthington, Esq., Caversham Priory, Reading, 1*l.* 10*s.*
3d, Mr. W. Ingle, Gr. to C. G. Round, Esq., Colchester, 1*l.*

CLASS 14.—12 TEA-SCENTED and NOISETTE ROSES. (Nurserymen.)
1st, Messrs. Paul & Son, Old Nursery, Cheshunt, 1*l.* 10*s.*
2d, Mr. B. R. Cant, St. John's Street Nursery, Colchester, 1*l.*
3d, Mr. William Paul, Paul's Nursery, Waltham Cross, 15*s.*

CLASS 15.—12 DISTINCT KINDS, single flowers. (Open.)
1st, Mr. J. Keynes, Nurseryman, Salisbury, 1*l.* 10*s.*
2d, Mr. C. Turner, Nurseryman, Slough, 1*l.*
3d, Mr. B. R. Cant, St. John's Street Nursery, Colchester, 15*s.*
Extra, J. T. Hedge, Esq., Reed Hall, Colchester, 7*s.*

CLASS 16.—DECORATED BASKET or VASE of ROSES. (Open.)
1st, Mr. W. Adcock, Gr. to Mrs. Forbes, Petersfield, Hants, 3*l.*
2d, Mr. C. Turner, Royal Nursery, Slough, 2*l.*
3d, Miss Wint, 8, Gloucester Terrace, South Kensington, 1*l.*

CLASS 17.—6 BOUQUETS of ROSES, 6 distinct kinds. (Open.)
1st, J. T. Hedge, Esq., Reed Hall, Colchester, 3*l.*
2d, Mr. C. Turner, Royal Nursery, Slough, 2*l.*
3d, Mr. William Paul, Paul's Nursery, Waltham Cross, 1*l.*

CLASS 18.—6 kinds of MOSS ROSE. (Open.)
1st, Messrs. Paul & Son, Old Nursery, Cheshunt, 1*l.*
2d, Mr. William Paul, Paul's Nurseries, Waltham Cross, 15*s.*

(PRIZES OFFERED by MR. WILSON SAUNDERS, Honorary Secretary.)

CLASS 19.—3 TRUSSES of any HYBRID PERPETUAL ROSE. (Open.)
1st, Mr. J. Keynes, Nurseryman, Salisbury, 2*l.*
2d, Mr. B. R. Cant, St. John's Street Nursery, Colchester, 1*l.*

(PRIZES OFFERED by MR. WILSON SAUNDERS, Honorary Secretary.)

CLASS 20.—3 TRUSSES of TEA or NOISETTE ROSE. (Open.)
1st, Mr. B. R. Cant, St. John's Street Nursery, Colchester, 2*l.*
2d, Mr. William Paul, Paul's Nursery, Waltham Cross, 1*l.*

CLASS 21.—24 ROSES, not less than 10 distinct kinds, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. Charles Turner, Royal Nurseries, Slough, 6*l.*
2d, Messrs. Paul & Son, Old Nursery, Cheshunt, 4*l.*
3d, Mr. William Paul, Paul's Nursery, Waltham Cross, 3*l.*

CLASS 22.—20 NEW ROSES, not less than 10 distinct kinds, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. William Paul, Paul's Nurseries, Waltham Cross, 6*l.*
2d, Messrs. Paul & Son, Old Nursery, Cheshunt, 4*l.*

MISCELLANEOUS.

Extra, J. Veitch, Chelsea, for Collection of Lilium auratum, 1*l.* 10*s.*
Extra, Messrs. Barr & Sugden, Covent Garden, for Plant Cases filled with Plants for Hall, Table, and Drawing-room Decoration, 1*l.*
Honorary Extra, Mrs. Mitchell, of 13, Milton Terrace, Wandsworth, for Roses Modelled in Wax.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST of AWARDS, June 29, 1864.

FIRST-CLASS CERTIFICATES.

CANNA NIGRICANS, from Mr. W. Bull, Chelsea.
CLARKIA PULCHELLA INTEGRIPETALA FLORE-PLENO, from Messrs. Carter & Co., Holborn.
GEONOMA GRIESBREGHTII, from Mr. Bull.
PELARGONIUM (NOSEGAY) AMY HOGG, from Mr. W. Paul, Waltham Cross.
PELARGONIUM (NOSEGAY) REBECCA, from Mr. W. Paul.
PELARGONIUM (ZONAL) FAUST, from Mr. Bull.
PELARGONIUM (ZONAL) HECTOR, from Mr. Bull.
PELARGONIUM (ZONAL) MADAME RENDATLER, from Mr. Bull.

SECOND-CLASS CERTIFICATES.

PELARGONIUM ((NOSEGAY) BEAUTY OF WALTHAM, from Mr. W. Paul.
PELARGONIUM (ZONAL) PSYCHE, from Mr. Bull.
PELARGONIUM (ZONAL) RED RIDING HOOD, from Mr. Hally, Blackheath.
PELARGONIUM (ZONAL) ROSAMOND, from Mr. Bull.
ROSE GLOBOSA, from Mr. W. Paul.

COMMENDATIONS.

PELARGONIUM (ZONAL) ENAMEL, from Mr. Hally.
VERBENA VELVET CUSHION, from Messrs. E. G. HENDERSON & SON, St. John's Wood.

SPECIAL CERTIFICATE.

To Mr. J. Walker, Thame, for a Collection of AURICULA-EYED SWEET-WILLIAMS.

THOMAS MOORE, Secretary to the Committee

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

The Next MEETING of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the Great Show, which will take place in the Gardens of the Society on JULY 6. Sub-committees will be appointed to adjudicate upon the subjects exhibited.

Class 46 is for NEW or RARE TENDER PLANTS IN FLOWER.
Class 47 is for NEW or RARE TENDER PLANTS NOT IN FLOWER.
Class 48 is for NEW ORCHIDS IN FLOWER.
Class 49 is for NEW or RARE HARDY ORNAMENTAL PLANTS.
Class 51 is for SEEDLING FLORIST'S FLOWERS, and GARDEN HYBRIDS of all kinds.

The subjects exhibited in the above Classes must be in the Gardens by half-past 8 o'clock on the morning of July 6. They may be entered without previous notice; but a detailed statement of their names, IN WRITING, accompanied by the Exhibitor's address, must be handed in BEFORE NINE O'CLOCK. Any person may exhibit.
Seedling Flowers exhibited as novelties MUST BE NAMED.

THOMAS MOORE, Secretary to the Committee.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—*s.*	*d.*	*s.*	*d.*		Per pkt.—*s.*	*d.*	*s.*	*d.*
PRIMULA ..	2	0	and 3	6	INTERMEDIATE STOCK.. ..	0	6	and 1	0
CINERARIA ..	1	6	and 2	6	BROMPTON do.	0	6	and 1	0
CALCEOLARIA	1	6	and 2	6					

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.
A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

The Gardeners' Chronicle.

SATURDAY, JULY 2, 1864.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, July 6 } Royal Horticultural (SECOND GREAT EXHIBITION and Floral Committee), at South
THURSDAY, — 7 } Kensington.

WE have the gratification of announcing that the COCOA NUT TREE HAS PRODUCED A RIPE NUT, in the palatial gardens of His Grace the DUKE of NORTHUMBERLAND at Syon House, under the skilful management of Mr. FAIRBAIRN. This is, we believe, the first time that so interesting an event has occurred in Europe, and we are sure that all true gardeners will welcome the little stranger with feelings of admiration.

ABOUT two years since, as we were travelling in a third-class carriage to Wales, we fell in with an intelligent workman from Manchester, with whom we soon entered into conversation. We hold that it is a very foolish habit in our countrymen to shut themselves up, as it is said, in the Bastille of their rank, inasmuch as we are of Sir WALTER SCOTT'S opinion, that there is no one with whom we may chance to meet, if his leading notions are drawn out, from whom we may not derive some information which we should have been sorry to have missed.

On the occasion in question our conversation turned on the love of Manchester artisans for plants, and even for some of the obscurer tribes of Cryptogams. My companion told me that many of them, for example, were well acquainted with Mosses, that they would employ their leisure in going any practicable distance for a species which they had not seen before, and that some of them whose earnings would admit of such an expenditure would even make excursions to Wales or the English Lake Country in search of novelties.

The neighbourhood of Manchester indeed, not to say Lancashire in general, is peculiarly rich in Mosses. In the Report of the Manchester Field-Naturalists' Society for the year 1863 now before us, we have a list of Mosses occurring in the surrounding district which far surpasses any that could be made in the greater part of our midland counties, and the knowledge of the locality of many of the species is due to the researches of humble native naturalists. The number of species

recorded in the pamphlet amounts to 264, some of which, as Tetrodontium Brownianum, Schistostega osmundacea, Leskea latebricola, &c., are not of common occurrence. Discelium nudum was first discovered near Manchester.

The attention, however, of the Society in question is not confined to any one branch of Botany or Natural History, but is turned in every direction which may afford rational instruction and recreation, in the true sense of the word, to a numerous and intelligent population. For this purpose, lectures, monthly excursions, and soirées are provided; programmes of the excursions, and their probable points of interest, being previously published so as to give ample opportunities of selection. The excursions especially, which, if the weather serves, are numerously attended, are a great point of attraction; and if they yield no novelties, which can scarcely be expected in a district so thoroughly explored, they at least send the members home with a fresh appreciation of the beauty of the manifold works of creation, all made in wisdom; and we doubt not that to a greater or less extent all who participate find "sermons in stones and good in everything." We should ourselves have rejoiced to have been present when a double variety of the white Wood Anemone, in our opinion one of the choicest ornaments of the spring garden, was found abundantly. But we would even go a step farther, and rejoice in the lecture "on autumnal phenomena of plant-life" at one of their *soirées*, which led very generally amongst the members to the collection of autumnal-tinted leaves of various kinds. It is often customary to run down the mere collector; but if objects are sought out even for their intrinsic beauty, without any peculiar reference to any scientific interest which may be connected with them, we are far from thinking that the employment is mere vanity. We are of the faction which believes that there is something which smooths down the rough places of human nature, even in the æsthetic aspect of the outward world. There is a passage so much to the purpose on this subject in Mr. Gladstone's lecture on Wedgwood, at Burslem, that we prefer copying it to inflicting our own crudities on the reader. The passage, slightly abridged, runs thus:—

"Beauty is not an accident of things, it pertains to their essence; it pervades the wide range of creation; and wherever it is impaired or banished we have in this fact the proof of the moral disorder which disturbs the world. Among all the devices of creation there is not one more wonderful than the profuseness with which the mighty Maker has been pleased to shed over the works of his hands an endless and boundless beauty.

"And to this constitution of things outward, the constitution and mind of men, deranged although they be, still answer from within. Down to the humblest condition of life, down to the lowest and most backward grade of civilisation, the nature of man craves, and seems as it were ever to cry aloud for something, some sign or token at least of what is beautiful, in some of the many spheres of mind or sense. This it is that makes the Spitalfields weaver, amidst the murky streets of London, train canaries and bullfinches to sing to him at his work; that fills with flower pots the windows of the poor; that prompts, in the humbler classes of women, a desire for some little personal ornament, certainly not without its dangers (for what sort of indulgence can ever be without them?), yet sometimes, perhaps, too sternly repressed from the high and luxurious places of society. But indeed we trace the operation of this principle yet more conspicuously in a loftier region: in that instinct of natural and Christian piety, which taught the early masters of the Fine Arts to clothe, not only the most venerable characters associated with the objects and history of our Faith, but especially the idea of the sacred person of our Lord, in the noblest forms of beauty that their minds could conceive or their hands could execute.

"It is, in short, difficult for human beings to harden themselves at all points against the impressions and the charms of beauty. Every form of life that can be called in any sense natural, will admit them. If we look for an exception, we shall perhaps come nearest to finding one in a quarter where it would not at first be expected. I know not whether there is any one among the many species of human aberration that renders a man so entirely callous, as the lust of gain in its extreme degrees. That passion while it has full dominion excludes every other; it shuts out even what might be called redeeming infirmities; it blinds men to the sense of Beauty, as much as to the perception of justice and right; cases might even be named of countries, where greediness for money holds the highest sway, and where unmitigated ugliness is the principal characteristic of industrial products. On the other hand I do not believe it is extravagant to say that the pursuit of the element of Beauty, in the business of production, will be found to act with a genial chastening and refining influence on the commercial spirit; that up to a certain point it is in the nature of a preservative against some of the moral dangers that beset trading and manufacturing enterprise; and that we are justified in regarding it not merely as an economical benefit—not merely as that which contributes to our works an element of value, not merely as that which supplies a particular faculty of human nature with its proper food, but as a liberalizing and civilizing power, and an instrument in its own sphere of moral and social improvement."

The marked change which was produced at Hitcham by Professor Henslow's encouragement of everything that fostered in his parishioners, especially those of younger years, a love of everything beautiful in Nature and art, was very striking, and where it is carried out, as it was in his case, with singleness of purpose and personal purity of example, there can be little doubt of its success.

It is on this account that we have been so much interested in the little work* before us, and have dwelt upon it at such an unusual length. *M. J. B.*

The art of photography is now doing for our trees what it has been doing for several years past for their owners and admirers; it is producing representations of the originals in a style which leaves the pencil sketches of our most talented artists very far behind. We are led to make this remark from having had an opportunity of seeing a very remarkable and beautiful collection of photographs exhibited in the Council Room of the Royal Horticultural Society, which had been brought together to illustrate a lecture on Conifers delivered by the Assistant Secretary, Mr. Andrew Murray. No trees which we cultivate in our parks and pleasure grounds are more admired than the graceful and beautiful Pines, and it was of course examples of these trees which were represented by the photographs to which we allude. All who feel an interest in Conifers—and who does not?—should endeavour to obtain a view of these pictures.

It is not every one who can find it convenient to travel so far as the Indian Himalayas, where the Deodar is at home, or to the "Mariposa Grove" in California, where the King of the Forest has been reigning for two or three thousand years. But a visit to the Council Room at South Kensington, where photographs of these trees are hanging on the walls, will enable any one to form a good idea of such magnificent vegetable productions, as they appear in the countries to which they are indigenous. Having, ourselves, had an opportunity of seeing the Deodar growing in the Himalayan forests, we can assure our readers that the pictures in question give an excellent idea of the originals from which they were taken. An artist sketching such trees with the pencil may fail to give such an idea, or may draw somewhat on his imagination to make up his picture, but the photograph produces the subject in an unerring way, even to its minutest details—form, general outline, beauties and defects, are all fixed upon paper exactly as they exist in nature. Hence, on looking on a picture of a tree taken from nature by the photographic art, we have the satisfaction of knowing that we are looking on an exact copy of the original, only reduced in size.

In the same collection our home examples of the more remarkable Conifers, native and exotic, are represented in a most interesting way. One of the most beautiful in the room is that of Abies cephalonica, which grows in the grounds of Daniel Gurney, Esq., of North Runcton, Norfolk; this photograph had been sent in by the Hon. Warren Vernon, and has a note upon it, stating that it was taken on a "wonderfully still day." This portrait is an admirable one, and will well repay a careful inspection. The beautiful Araucaria imbricata at Dropmore, 60 feet in height, "with Mr. Frost under it," is well represented, and had been taken on a windy day. A lake at Dropmore surrounded by Pine trees is also an admirable production; so is also what appears to be a corn-field in harvest time, backed with a forest of Pines. Nor must we omit to notice a group of Cedars, 800 yards long, also taken at Dropmore. This, we are informed, was taken "on a windy day," and it needs no pencil note to make us acquainted with the fact.

From Scotland we have pictures of Abies Douglasii, one of the most important of Douglas's introductions, showing its present appearance at Glenalmond; of A. Menziesii taken both at Glenalmond and at Keilour in Perthshire; and of A. Albertiana and A. Nordmanniana from G. Patton, Esq., of The Carnies. The last-named species has been remarkably well taken, and is well worth examination. A. Pichta and Pinus Cembra are both well represented.

There are in the collection some representations of groups of Scotch Firs of great interest; one in particular taken in Oakage Park, belonging to the Earl of Lichfield, is nicely done; and there are other groups of equal merit unmarked with the names of their owners, or the localities where they were taken. "Fir trees in snow" is very characteristic; indeed, in these pictures we do not only get a true representation of the trees themselves, but we also see the circumstances under which they have been photographed. As we look upon them we almost see the kind of day which it happened to be on which they were taken, whether it was calm or windy, or whether the season was spring, summer, autumn, or winter.

The names of the gentlemen who had succeeded in taking these beautiful photographs of our favourite Pine trees, were written on some of the works. Amongst them we observed those of the Hon. Warren Vernon, Thomas Patton, Esq., of Glenalmond, G. Patton, Esq., of The Carnies, the Earl of Lichfield, R. S. Holford, Esq., and Dr. Cleghorn. There were, no doubt, several other exhibitors of whose names we did not take a note, as the collection was a large one.

The subject is, we venture to think, full of interest to every English gentleman. By means of this valuable art, we shall now be able to form a good idea of the appearance which our exotic trees present in their native habitats; and we shall also be able to make exact pictures of their appearance at different stages of their growth with ourselves. We shall take their *cartes de visite* when they are young, middle aged, or fully grown; and as we send to those who are far away, a little sun picture of their relations or friends, we shall be able to send them at the same time a representation of some well-remembered tree which used to throw the shade of its friendly branches over the lawns or pleasure grounds of their old home.

We may add that on the walls of the Society's rooms there are, or were a few days since, some excellent coloured drawings of Pines, taken from the well known collections of Bicton and Dropmore, for the purpose of illustrating Lawson's "Pinetum Britannicum," several Parts of which have been already published. Araucaria imbricata, Wellingtonia gigantea, Cedrus Deodara, Cryptomeria japonica, Cupressus macrocarpa, Abies Douglasii and Abies Menziesii, are represented as they are now growing in these celebrated Pinetums.*

During the recent visit of their Royal Highnesses the Prince and Princess of Wales to Cambridge, a special exhibition of the Horticultural Society of that town took place; and Her Royal Highness was pleased on this occasion to distribute the School of Art Prizes to the successful competitors.

We notice this local Exhibition here, mainly for the purpose of remarking that of the 1000*l.* or thereabouts which were taken at the gates, a sum of 300*l.* was presented by the Society to the School of Art, and a similar sum to the charities of the town. Previous to this, at least 500*l.* had been presented by this Horticultural Society to the charitable institutions of Cambridge. All honour to it for so worthy a distribution of its surplus funds!

The course of action adopted in this matter is suggestive of a new field of operations for the various floral and horticultural societies which abound throughout the country. They may, such at least of them as are fortunate enough to be successful, also become charitable; and, from this point of view, we would particularly recommend to their notice a charitable institution intimately connected with horticulture itself, namely, the Royal Gardeners' Benevolent Institution. Many a flourishing Horticultural Society among those which are scattered throughout the length and breadth of

* Manchester Field-Naturalists' Society. Report of the Committee for the year 1863; with accounts of the Excursions and the Soirées, &c. Manchester, 1864. Price 6*d.*

* Is there no hope of some enterprising publisher taking in hand a pictorial Dendrological work?

the three kingdoms, might very well afford to present this excellent charity with its donation of 5*l.*, or 10*l.*, or 20*l.*, and in this way materially aid the Institution in the carrying out of its benevolent operations. The next anniversary meeting of the Gardeners' Benevolent Institution, which, in the person of its excellent Chairman, may be said to have a peculiar connection with horticulture, affords a capital opportunity for country societies, and metropolitan ones too, to profit by this suggestion.

Reverting to the Cambridge Horticultural Society, we may mention, that at the dinner which took place after the exhibition above referred to, and which was presided over by Richard Headly, Esq., a testimonial was presented to the indefatigable Honorary Secretary, Mr. C. E. Brown. This consisted of a handsome silver salver, beautifully chased, and bearing the following inscription :—

PRESENTED
BY THE
CAMBRIDGE HORTICULTURAL SOCIETY
TO
C. E. BROWN, Esq.,
HONORARY SECRETARY,
IN ACKNOWLEDGMENT OF HIS SERVICES ON THE OCCASION
OF THE VISIT OF THEIR R H.
THE PRINCE AND PRINCESS OF WALES,
June 3, 1864.

In the course of his remarks, in acknowledgment of the gift, Mr. Brown took the opportunity to explain that since the Society had established its open shows, it had presented to the various charities of the town the large sum of 800*l.*, besides the donation of 300*l.* which had been handed to the School of Art, and 100 guineas appropriated towards the erection of the new Guildhall; and this without reducing the permanent fund. The object of the Committee, he said, had not been so much to increase the funds of the Society as to improve its character and usefulness by enlarging its prize list, and then to aid its poorer neighbours by assisting the charities of the town. We wish we could point to similar examples of success nearer home, and to benevolent impulses of an equally unquestionable character.

—— At the meeting of the Royal Irish Academy on Monday last, Dr. Moore produced Irish specimens of the Neotinea intacta of Reichenbach, a plant formerly referred to Aceras, and a very interesting addition to the Flora of the United Kingdom. This pretty little Orchidaceous plant, which has hitherto been known as a native of Greece, Malta, Algiers, the south of Germany, and Portugal, has lately been found to extend its geographical range to Galway in Ireland, where it has been found by Miss More. It is well known that in the south-western counties of Ireland there are found several plants belonging to the Flora of the south of Europe, and that of North America, which are not to be met with elsewhere in the British Isles. They seem to form the solitary outposts in respect to the geographical distribution of the plants belonging to those Floras. Thus, besides the Neotinea now discovered in Galway, another pretty little Orchid, the Neottia gemmipara or Spiranthes cernua, grows in the county of Cork; this was at one time considered to be confined to Ireland, but is now known to be also a North American species. Again, in the county of Galway occurs the pretty little aquatic Naias flexilis, another plant of the North American Flora. In Kerry appear some of the Saxifrageæ of the Pyrenees; and finally several of the Pyrenean species of Ericaceous plants extend from Kerry through Galway to Mayo. It is not many years since that another little Orchid, the Epipogium aphyllum, up to that time unknown as British, was found in Herefordshire. These facts should act as encouragements to the diligent explorers of our native Flora.

—— The presence at Chiswick of the 1500 visitors, who, on Monday last, as elsewhere mentioned, found their way to the Strawberry Fête, notwithstanding the very meagre announcements that such a gathering would take place, the undisguised want of sympathy on the part of the authorities, and the absence of all attempts to give anything like a popular character to the meeting, is a fact which in itself is sufficient to negative the assertion and assumption that the members of the Horticultural Society and their friends cannot be induced to go so far west as Turnham Green. Of the fête itself we say nothing here, except that if a little heart had been thrown into it, it might have been a complete success; for we can at least believe the evidence of our senses as to the enjoyment with which many of the visitors promenaded in the old garden as in days of yore, and the satisfaction with which many others inspected the admirable examples of horticultural skill to be found in the departments devoted to fruit and flower culture. That the company would have been much more numerous there can be no doubt, had as much publicity been given to the fête as to the fooleries of Mumbo Jumbo, and the other mountebank exhibitions, which are fast bringing the Garden at Kensington into contempt.

New Plants.

278. Urceolina aurea.

U. aurea, foliis oblongis petiolatis utrinque acutis, scapo tereti, umbellâ multiflorâ, floribus pendulis tubo gracili unciali limbo inflato altè 6-partito laciniis basi imâ connatis saccatis apice ovatis æqualibus imbricatis, staminibus exsertis.

This most charming bulb has been sent by Mr. Pearce from Peru, and has been lately flowering in the nursery of Messrs. Veitch. It forms two broad oval leaves, and a tapering scape a foot or so high, on the top of which appears an umbel composed of gracefully nodding flowers. These are the purest yellow, with the tips only green, and a very slender green tube. The ovary is deep green, ovate, triangular, 3-celled, with 14 ovules arranged in two rows in each cell. The general manner of growth when in flower is that of a Phycella, or some such plant. If it should prove obedient to cultivation, which we do not doubt, it will be a perfect gem in a conservatory.

We retain the excellent name Urceolina, even although also employed in Zoology, in preference to Collania, a queer travesty of the name of an Italian Botanist.

ORCHARD MANAGEMENT.—No. VI.

When the buds of the scion break, it will be best to let the two grow on for a time until well developed, and then the strongest must be retained and the other removed; and as growth advances, every facility should be afforded for the production of a strong robust growth by mulching, and even the application of water in a parching season. If the stem and roots are possessed of that strength of development which it has been the object of the foregoing routine of culture to produce, they will have no difficulty in driving up the shoot to a height of seven feet the first season. The best height at which to cut them back for the formation of the head will be six feet from the ground; any, therefore, which do not attain that height must not be headed back, but the point of the shoot must be forced to break the following season and stopped at the proper height, so as to cause the young bud to break and form the commencement of a head the same season. The side shoots however, which will inevitably push out all up the stems, must be diligently rubbed off.

Those shoots which attain the height of 7 feet the first season after grafting, stand in the best position of all for the speedy formation of a handsome head, and will always be a season in advance of those which do not attain to that height the first year. Having then this for a standard, the operator will do well to consider what object is to be aimed at in his future manipulations, and to do this he must remember that the growth of the first three years from the season of shortening back to the required height, must be devoted to the formation of what I will call the framework, from which the bearing branches will radiate equally in all directions, and on which they will be lifted up into the beneficial influences of the sun and air. As years advance this framework will become greatly extended; and I would here observe that care should always be taken to keep these (by such time) large interior stems quite clear of growth. Nothing whatever is gained by permitting small shoots to develope themselves and produce fruit in the interior of the trees, where they are so entirely shaded by the exterior branches. Such fruit is invariably of inferior quality, and should never be permitted to divert the nourishment from the fruit which is more favourably placed to receive advantage from it.

The framework alluded to must be formed from the four buds on the top of the shoot; and now the operator will be able to appreciate the advantage of having a good store of accessible roots to back up the rather roughish handling to which the stems will have to be subjected. In the first place, every bud, as it breaks, must be rubbed off except the four at the top, and these four, when they have grown 5 or 6 inches, must be cut off with a sharp knife within a quarter of an inch of the stem. This will cause a cluster of young shoots to break out at the base of each, but very soon the whole number must be reduced to eight, which should be selected of equal strength, and in such a position as to form the commencement of a well balanced head. It is necessary to observe here that the shoots selected should not only be equidistant, but also such as have a horizontal tendency of growth rather than a vertical one. Some sorts are naturally more inclined to that habit than others; but it is quite possible to give the shoots, even of the stiffest upright growers, a horizontal direction if they are taken in hand when in a young and pliable state, which may be effected by gradually drawing them down to sticks fastened to the stem, or what is better still, as being more in accordance with the means by which nature acts, by suspending gradually-increasing weights to the shoots; but, however effected, it is important that this matter should be attended to, because in after years the trees will invariably fill up in the centre. There is never any difficulty to be contended against in that point; and our exertions must be centred upon the production of a wide-spreading framework, on which to carry the lower branches outwards into the influence of the sun and air. It is at this stage of growth that the tendency to do so must be given, so that the lower shoots may have a due proportion of strength diverted to them to enable them to push outwards their ulterior fruit-bearing branches.

With liberal mulchings of rotten manure and good soakings of soft water in very dry weather, these eight shoots ought to make good progress, although there are some sorts which obstinately refuse to do so the first year, and some even will not do it at all, and these are more properly the subjects for pyramids and espaliers, on which point, by the by, we have something yet to learn. The habit of some kinds is so gross that no restriction we can put upon them will turn them to a profitable use, and on the other hand nothing will entice some varieties to develope themselves largely, so that it is highly important that a proper selection should be made of sorts suitable for the purpose desired. I might enlarge much on this important point, but for the present I leave it, only observing, in returning to our subject, that the chief care necessary for the rest of the season will be to keep all extra shoots which push out continually removed, and to secure those which are retained from the effects of high winds. The next season the shoots should be shortened to somewhere near a uniform length of 18 inches. I am quite aware that it is a constant practice in ordinary management to shorten them much more, even to six inches or less, under the idea that strength is thereby given for the future developments of growth. But this, with the object we must keep in view, is retrograde practice; because what we want is a large interior diameter, and to shorten the shoots so closely will only bring the tree back into the position in which it stood at the beginning of the season; and as in either case only the two extreme buds should be allowed to grow out, it is obvious that no strength is lost; and also that by leaving the shoots long, much advantage is gained in the important matter of lateral development as a counterpoise to the tendency to fill up in the centre—a tendency which we are all glad to avail ourselves of when required, and which is in reality the very base upon which we act, and depend upon to supply deficiencies.

The surface dressing must be kept up, and every means taken to strengthen the trees for the next season's work, which will be heavy. In pruning at this point let the shoots be shortened to 14 or 18 inches, according to strength, and the previous liberal treatment for the encouragement of the roots should enable the buds to break freely. When they have grown a few inches they should be disbudded, but at this point it must be done more with reference to the equal distribution of the ultimate fruit-bearing branches rather than mere lateral extension, although the latter must be kept in view, for which purpose some should be left at the extremities and others more or less near the base of the shoots. For this no plain rule can be laid down, but much must be left to the judgment of the operator. The simple object to be kept in view should be to retain only those shoots which will form a well furnished head, but by all means the leaving of them too near together must be avoided.

At this stage the trees will be in the best possible condition to be removed to their permanent destination in the orchard, because the next year the shoots must not be shortened at all; and it is only reasonable to conclude that they will then commence to form fruit buds for bearing the following year, and the operation of lifting and replanting will form just that sort of check which would be likely to induce the tendency to form fruit buds; while at the same time, if the operation is performed with the necessary care, and in October, as before urged, it will not materially check the further development of branches likewise.

We have now, in accordance with Mrs. Glasse's recommendation, caught our hare, *i.e.*, we have brought our trees into the best condition for permanent planting. We have obliged them to do their work of preparation in a limited space, thus allowing the best use to be made of the contemplated site until the trees are ready to grow off into usefulness at once; besides giving ample time for the preparation of compost. I have no doubt but many will say this is a very tedious process, and so it is; but Nature will not be hurried in ordinary out-door management, although she may be controlled and directed. This idea occurred to me very forcibly the other day, and I thought it had a bearing on my subject. It was when looking at the magnificent Azaleas brought forward by Messrs. Turner and Veitch. What years of labour, what constant attention and care must have been bestowed upon them! and with what glorious results we all know. Can it be doubted that an equal amount of time, care, and attention bestowed upon fruit trees, with an equal amount of skill in taking advantage of their natural habits of growth, would result in the production of something in the fruit department superior to anything we have yet seen? It is worth all the trouble. Nothing great was ever achieved without hard labour, self-denial, and patient endurance; and young gardeners must divest themselves of the idea that they can attain to great results by a *coup de main*. The very nature of the materials upon which they operate forbids it. *John Cox.*

Home Correspondence.

The Horticultural Society in 1827.—Will you allow me to transcribe into your pages the following passages from a letter addressed to the conductor of the *Gardeners' Magazine*, in 1827, which seem to apply

almost as much to the Royal Horticultural Society of the present day, as it did to the non-royal body in Loudon's time. The extracts are these:—"The Horticultural Society and its garden were established for purposes over which fashion ought to have no control; not only to supply the tables of the rich with the luxuries of the vegetable world from every quarter of the globe, but to add to the comforts of the poor, to naturalize in the garden of the cottager the less luxurious but more valuable productions of Flora and Pomona, and to teach them how to make the best use of the spade and the watering-pot. I would ask you whether these objects are more likely to be advanced by the admission of 2800 well-dressed persons to promenade and eat ices and fruit in the garden, than by giving a free access to the garden to every member of the Society, allowing him to send to it, without reserve, every person eager for information on horticulture, at all times, and having those constantly in attendance who are able to give the information which is sought for, as well as specimens of whatever may be necessary to aid the inquirer in his researches as far as the benefit of horticulture is concerned. You seem to think that there is as much propriety in the Society breakfasting as you term it, once a year in this garden, as dining in a tavern. This argument is more specious than solid. In the first place it was not the Society that breakfasted in the garden, but every one who could pay a guinea, provided they could pass muster before the tribunal of the ladies patronesses,—persons who have no particular regard for horticulture; who went to the gardens not to examine the advancement of the art, or to hear of its prosperity, but merely to see and to be seen, and so obtain a subject for conversation in the fashionable coteries of the succeeding week. Sir, I am not fond of taverns nor of tavern-dinners, but I think one dinner of the Society at the Freemasons' Tavern, even dull as it has hitherto been, worth 500 of the fêtes in the garden on the 23d of July. At the dinner real gardeners are present, scientific men capable of appreciating the labours of the Society are present; the dessert which is displayed is examined as to its value in a horticultural point of view, as well as eaten; the conversation it excites is connected with the objects of the Society, and the meeting together of 200 or 300 individuals, actuated by the same useful motives, gives an impulse to the future exertions of the Society, which it never can obtain from 20 times the sum which has been thrown into its treasury by the late fête. You must forgive me for differing from you *in toto*, in your remark that 'it is obviously allowable and praiseworthy to call in the influence of fashion as an auxiliary support to useful institutions.' Now, so far from believing that fashion is a useful auxiliary to such an institution as the Horticultural Society, I think the Society has been degraded by receiving any aid from such a source. The objects of the Society, if steadily pursued, are sufficiently important to insure its permanence and prosperity, and to obtain funds adequate to its support, if its affairs be administered with suitable economy." How much the tone of these remarks suggests that they might have been written within the last few days. *X. X.*

Mumbo Jumbo at South Kensington.—Your few trenchant animadversions in last week's paper on the degenerate position into which the Royal Horticultural Society has allowed itself to lapse, will have gained you the thanks of all lovers of horticulture *pur et simple*, who like myself have watched, with regret and dismay, the gradual decline of an Institution till lately looked up to and respected as the presiding genius of English horticulture. One is reminded of that other sad instance of degeneracy, in a kindred subject, so touchingly lamented by the first of horticultural poets:—

> . . . Omnia vidi
> In pejus ruere, ac retro sublapsa referri, &c.
> *Virg. Georg.* i. l. 200.

Indeed, I consider myself fortunate, for the present at least, in not being a Fellow of the Royal Horticultural Society, any more than an associate of its statistical sister; as in either case I must have subscribed myself, what I will not deny that many are pleased to think me notwithstanding, an *A. S. S.*

Rose Information.—Madame C. Crapelet may be added to my former list of Roses (see p. 580); it is an excellent example of deep smooth petals. Jean Goujon is now out on a Briar budded last year; it is very good, but shows its eye. Triomphe d'Alençon, a red Baronne Prévost, is worthy of propagation. I do not propose now to name the still good old kinds, but merely to mention such of the new sorts as are worthy of extensive propagation. I will begin with Deuil du Prince Albert, a Rose of royal and national interest; it is well formed, and by the appearance of its blooms and foliage, I think it must have been derived from Patrizzi; from its drooping habit and colour, and mournful aspect, it is well adapted for a funeral Rose; it is of medium size. Mr. W. Paul is a smallish clear deep red Rose, nicely shaped, and admirably adapted for bedding and window gardens: for which purposes Mrs. W. Paul, a finer Rose, is also well suited. I have 20 plants of these two now blooming side by side. I see but little difference as to their efflorescence; all the blooms on both sorts are single, *i. e.* not in clusters; the plants are scarcely a foot high, and on counting three plants of Mr. W. Paul, I found that the first had 13 expanded blooms on it and five not open; the second had 16 blooms expanded, and eight not open; the third had 12 blooms expanded, and 14 not open; the 20 plants in full bloom were, and are still, a very pretty sight. Olivier Delhomme is a very clear scarlet, and of perfect form; it is one of the best. L'Esmeralda is in leaf, sepal, bud, and bloom, a slightly modified Jules Margottin—one of England's very best Roses; it is good, but not so much so as J. Margottin, of which I have a great many in magnificent bloom. Princess Alice is in the way of Belle de Bourg la Reine, but hardier, and a better grower; it is good, of the same colour, and has a shelly appearance, but not quite so good in quality of petal. Notre Dame de Fourvières is a large Rose of a shining flesh colour, such as M. Audot; it is of good growth, and has handsome foliage; in shape it is what may be called a Flanders mare; it is not my style, but some people might like it. Professor Koch, very rich cherry crimson, is fine and a good grower. Vicomte Vigier, when full, is excellent, and another instance of deep petals. Sœur des Anges is fine, and is blooming well; it is a modified Duchesse d'Orleans, sometimes much better, and hitherto oftener inferior to the parent. Both are better bloomers in the autumn than in the torrid heat of summer. Duc d'Anjou is much like Prince Leon in bloom and leaf; but it is bomb-shaped and shallower at the edges. These Roses may be propagated. I cannot at present recommend any more. I have others yet to bloom. Don't forget what I stated last year, and now repeat with ten plants in full bloom before me—Alfred de Rougemont is *the* great A 1 of its year. I was quite right last year in marking these as extra extra, viz. Charles Lefebvre Maurice Bernardin, Duc de Rohan, Prince Camille de Rohan; they are blooming in grandeur and great profusion. Add to these Alfred de Rougemont; John Hopper, Madame Julie Daran, Olivier Delhomme, and the older varieties, Senateur Vaisse and Comtesse Cecile de Chabrillant, and you have ten of the very best. *W. F. Radclyffe, Rushton.*

The Royal Horticultural Society.—I find *inter alia* in the New Charter of this Society, the following introductory clause. (I). "Whereas the Horticultural Society of London, hereinafter referred to as 'the said Society,' was incorporated by Royal Letters Patent under the Great Seal of our said United Kingdom, bearing date at Westminster the 17th day of April, in the 49th year of the reign of his late Majesty King George the Third, *for the purpose of the* IMPROVEMENT OF HORTICULTURE *in all its branches, ornamental as well as useful.*" I am curious to hear how the Council reconciles with this declaration, on which the Charter of the Corporation rests, the feats of Mumbo Jumbos, tight rope dancers, blazing Burgees, Brigands, and all the other vulgar absurdities which have so intensely disgusted of late that public which has really at heart the improvement of Horticulture. I suppose there can be little doubt that the Charter of the Society will by these acts be declared to be forfeited, whenever any Fellow chooses to bring the matter before the Law Courts. *Eboracensis.*

Lady Downes' Grape.—Is this Grape apt to go off during its second swelling, just previous to beginning to colour? I have a Vine of it planted in a house along with Black Prince, Hamburgh, and Sweetwater, all of which are doing and looking remarkably well, and always have done so; but last year, just about this time, the Lady Downes began to show symptoms of some disease, and this year it is far worse. The Vine cannot look in better condition, the foliage being very healthy. The bunches, too, are large, and the berries wonderfully fine; indeed I was congratulating myself on their fine appearance. On cutting open the berry, however, it shows some disease resembling the Potato malady, the outward sign of which is dark discoloration of the skin. I may also add that the roots are well protected, the border being covered with glass. Any information respecting this highly important Grape will greatly oblige me, as my employer intends planting it in a new house, if satisfactory proof be furnished of its good qualities. *A Young Gardener, Merthyr Tydvil.*

Strawberries.—It is not generally known that fully ripened Strawberries without sugar or cream are quite as beneficial for us as the Grapes so much used in North Germany, the effects sought being the same, namely, an innocuous, gentle, and constant purgative, which carries off the undigested mucus, the source of so much ill health to all weak stomachs. *Somerset.*

Royal Horticultural Society.—I find that the damage done to the garden by the late Mumbo Jumbo proceedings has not been great. Your informant nevertheless, was right when he said that "beds were trampled on and flowers broken;" for in the neighbourhood of the south arcade a Dahlia bed has suffered some damage of that description. The edges of the stone steps leading from the Council Room into the garden have also had pieces chipped off them in one or two places, from, it is said, rolling beer barrels down them. All this, however, is not much, considering that some 24,000 persons were present during the three days on which the garden was delivered up to the South Kensington mountebanks. *K., June 27.*

Orchids.—I wish to correct an error, inadvertently made in my communication last week. At page 604 it is stated that 10 Orchids from the collection of H. E. Gurney, Esq., of Nutfield, took a higher position at the Royal Horticultural Society's Show than Mr. Warner's. It should have been—6 obtained the first prize at South Kensington, and that 10 obtained a higher award than Mr. Warner's at the Crystal Palace three or four years ago. I am not aware that Mr. W. has exhibited since then. *Adolphus H. Kent, Blechingley.*

Societies.

ROYAL HORTICULTURAL: *June* 27 (*Strawberry Fête in the Society's Garden at Chiswick*).—The gates of this garden, once of world-wide fame, were thrown open on Monday last to Fellows of the Society and their friends, who assembled on its recently-mown tree-clad lawn, to eat Strawberries under leafy boughs, and listen to sweet music from the band of the Royal Middlesex Militia, which played during the afternoon. Some objection had been made by a few to this meeting, on the ground that it was scarcely in accordance with the objects of the Society, and that visitors would not go to the Garden at Chiswick. Most people, however, entertained a different opinion, and that the latter were right, at least as far as attendance is concerned, the result fully proved; for no fewer than 1500 persons were present on Monday last, all of whom seemed to so thoroughly enjoy the treat afforded them as to remind one of by-gone times. Now, therefore, that the experiment has been made and proved successful, let us hope that whenever any one of our perishable summer fruits is in season a similar meeting may be convened, in order that Fellows may have an opportunity of personally inspecting and testing the merits of the different varieties under circumstances most favourable to their full development. On the present occasion the Strawberries, just gathered from the beds on which they grew but an hour before, were served out to those who applied for them in the confectioner's tent, in which above a thousand punnets were sold, the buyers of them wandering about the grounds on the freshly trimmed-up walks, or sitting under trees in groups until the shades of evening compelled them to retire.

As regards other matters we may mention that in the large conservatory there is this season every appearance of an excellent crop of Grapes, the berries of which are already as large as peas. The young so-called varieties of Muscat too, to be proved this season by the Fruit Committee, are also looking well. Moreover, in the compartment recently formed for the trial of plants under the Floral Committee, the beds have all been planted, comprising among other things many novelties which in autumn cannot fail to yield much interest. All the varieties we understand are to be legibly named, and the order of merit bestowed on them by the Committee affixed to them.

It is clear therefore that useful instruction not only in regard to fruits but with respect to flowers also, ought to be found here by all who care to seek for it.

June 29 *and* 30 (*Great Rose Show at South Kensington*).—A magnificent exhibition of Roses, with which was incorporated the National Rose Show, was held here on Wednesday and Thursday last, and although the weather was by no means favourable, there was a tolerably good attendance of visitors. The Roses were arranged on stages, backed with green baize, in the North Arcade, right and left of the Conservatory, in which latter were the plants adjudicated on by the Floral Committee, and bouquets of Roses set up in epergnes and other contrivances for table decoration. Of the latter, a most tasteful centre-piece came from Mr. Adcock, gr. to Mrs. Forbes, of Petersfield, Hants. It consisted of a round wire base, filled with Moss, Fern, and Grasses, from among which rose a slightly serpentine wire stem clothed with Lichen and Moss, supporting a vase full of Roses, well selected as to colour, resting on a Moss-covered cushion, the whole presenting an appearance at once graceful and natural. Its only fault was its being somewhat frail and shaky when touched; but greater strength might evidently easily be given to it. It received a 1st prize, which it well deserved. The 2d prize design, a glass epergne charmingly decorated with Roses, Ferns, and Isolepis, came from Mr. Turner, of Slough; that which was placed 3d, a short stout frosted glass pillar supporting a basket of Roses, was furnished by Miss Wint, of Gloucester Gate. Other contrivances, though pretty, were less remarkable.

Of bouquets of Roses shown in Hyacinth glasses there was a fair display, and among the five trusses required to be contained in each bouquet were many favourite Roses. We noticed in particular, Comtesse de Chabrillant, Senateur Vaisse, Prairie de Terre Noir, a deep velvety crimson variety; Prince Camille de Rohan, one of the blackest of Roses; Madame Furtado; Madame Crapelet, rosy crimson, many blooms of which were shown on this occasion in excellent condition; Celine Forestier and L'Enfant Trouvé, two fine yellows; Madame Bravy, white with pink centre; and Madame Vidot, the last and Mrs. Rivers still two of the best of all delicate peach-coloured Hybrid Perpetuals.

Awards.—1, Mr. Hedge; 2, Mr. Turner; 3, Mr. Wm. Paul.

Of Moss Roses two or three boxfuls were contributed, but their somewhat unequal appearance when placed together rendered them as a whole by no means attractive. Let us hope that to the improvement of this class of

Roses more attention may soon be directed than has lately been bestowed upon it.

Awards.—1, Messrs. Paul & Son; 2, Mr. Wm. Paul.

Of Tea and Noisette Roses some good exhibitions were communicated, in which were fine blooms of Madame Bravy; Rubens, also a creamy white sort tinged in the centre with pink, but looser than the last; Madame Willermoz, a charming variety; Madame Falcot, an improvement on Safranot, as far as doubleness is concerned; Madame William, a fine yellow, but not shown on this occasion in good condition; Vicomtesse Decazes, and Gloire de Dijon, sorts too well known to require remark; President, large and fine; Marquise de Foucault, creamy white, in this instance flushed with rosy salmon; Gloire de Bordeaux, pink; Celine Forestier, a yellow Noisette, of the beauty and brightness of which we have often spoken in favourable terms; and Narcisse and Le Pactole, still good large pale yellows. Among rich deep yellows was Miss Gray, a fine bloom of which was shown by Mr. Hedge of Colchester, who also had Aurora, a large showy Tea; Louis de Savoy, and L'Enfant Trouvé.

Awards.—1, Mr. Hedge; 2, Messrs. Paul & Son; 3, Mr. Cant. Teas: 1, Messrs. Paul & Son; 2, Mr. Cant; 3, Mr. William Paul. Amateurs: 1, Mr. Hedge; 2, Mr. Worthington; 3, Mr. Ingle.

In the class of 12 trusses of any kind, Mr. Keynes of Salisbury, showed magnificent blooms of Charles Lefebvre, a deep velvety crimson Rose of the very first class. Other three blooms of this variety were also shown in another class by the same exhibitor, and were the admiration of all who saw them, as well they might be, for never were Roses shown in better condition or more perfect than these were. Messrs. Paul & Son had Mrs. Rivers and Comtesse de Chabrillant, the last unusually rich in colour and extremely beautiful, the petals overlaying one another with that wonderful regularity for which this Rose is remarkable. The same variety was also furnished by Mr. Hedge and Mr. Cant, of Colchester, and by Mr. Lawrence, of Chatteris; from Mr. Ingle, of Colchester, came Prince Leon; and Mr. William Paul had Lord Macaulay, a fine new variety, somewhat similar to Charles Lefebvre. Louise Margottin, a rosy peach-coloured fine double new Rose, was shown by Mr. Keynes; and among other kinds we noticed Eugène Lebrun and Lord Clyde, both brilliant crimson sorts.

Awards.—*Single Blooms*: 1, Mr. Keynes; 2, Mr. Turner; 3, Mr. Cant. Extra, Mr. Hedge, 12 trusses: 1. Mr. Keynes: 2, Messrs. Paul & Son; 3, Mr. Ingle; 4, Mr. Hedge. 12 trusses of new sorts: 1, Mr. Keynes; 2, Mr. Wm. Paul. *Amateurs.*—1 truss: 1, Rev. J. K. Child; 2, Mr. Churchfield; 3, Dr. Cooper. Extra, Mr. Plester and Mr. Postans.

In collections of 72 varieties there were, as a matter of course, multitudes of splendid Roses such as many have only an opportunity of seeing at great shows like that under notice. Conspicuous among crimsons in Messrs. Paul & Son's exhibition were Madame Charles Wood, Madame Crapelet, Louis XIV., Alphonse Damaizin, François Lacharme, Baronne Adolphe de Rothschild, Olivier Delhomme, one of the most brilliant and fine of comparatively new Roses; Professor Koch, Senateur Vaisse, Lord Clyde, Le Rhone, Gloire de Santenay, Madame Julie Daran, Maurice Bernardin, Lord Canning, Souvenir du Comte Cavour, and Lord Macaulay. Among yellows we noticed Celine Forestier and Narcisse; among white sorts Madame Willermoz; and among rose-coloured kinds Jules Margottin, Comtesse de Chabrillant, Charles Lawson, Madame Boll, Louise Odier, and La Ville de St. Denis. Bright crimson sorts in Mr. Cant's collection, which was placed second, consisted of nearly the same varieties as those just named, to which may be added Prince Leon, Paul Ricaut, General Jacqueminot, and La Brillante; of delicate pink kinds he had fine blooms of Madame Vidot and Caroline de Sansal; and of yellows Gloire de Dijon and Marquise de Foucault. In large groups from other exhibitors were also remarkably fine blooms, among which were Cloth of Gold, William Griffiths, the pure white Hybrid Perpetual Louise Darzens, and others.

Awards.—1, Messrs. Paul & Son; 2, Mr. Cant; 3, Mr. Wm. Paul; 4, Mr. Mitchell; extra, Mr. Keynes.

In the class of 48 Roses, three trusses of each, most of the leading varieties were well represented. Among others were Eugène Verdier, a white tinged with pink, and beautiful in the bud state; Mdlle. Bonnaire, in the same way; Beauty of Waltham, a charming crimson sort; John Hopper, in some instances a very fine Rose, but apparently somewhat variable; Louise Margottin, salmon pink; and Maréchal Vaillant, a good crimson sort, which when better known, cannot fail to be a favourite.

Awards.—1, Mr. Turner; equal 2, Messrs. Paul & Son, and Mr. Wm. Paul; 3, Mr. Keynes; 4, Mr. Cant. *Amateurs.*—1, Mr. Hedge; 2, Mr. Moffatt; 3, Mr. Ingle; 4, Mr. Exell; Extra, Mr. Laxton.

Collections of 24 varieties were rich in fine blooms of such sorts as Maurice Bernardin, Senateur Vaisse, William Griffiths, Mrs. Rivers, Imperatrice Eugénie, a good rose-tinted white; Gloire de Santenay, Alfred de Rougemont and Monte Christo, both rich dark crimsons; Lælia, peach, nearly as large as a Pæony; Madame Vigneron, and others.

Awards.—3 trusses of each: 1, Mr. Keynes; 2, Messrs. Paul & Son; 3, Mr. Cant; equal 4, Mr. J. Fraser and Mr. Turner. 1 truss of each: 1, Mr. Turner; 2, Mr. Keynes; 3, Mr. Cant; extra, Mr. Fraser. Amateurs: 1, Mr. Hedge; 2, Mr. Worthington: 3, Mr. Exell; 4, Mr. Ingle; extra, Mr. Morris.

In the class of 18 varieties the best blooms came from the Rev. Knox Child, who furnished Madame Boll, Gloire de Santenay, Mrs. Rivers, Comtesse de Chabrillant, Olivier Delhomme, Gloire de Vitry Souvenir de Malmaison, Jules Margottin, Eugène Bourcier, Madame Knorr, Senateur Vaisse, Boule de Nanteuil, Madame Vigneron, Victor Verdier, Gloire de Dijon, and Madame Vidot. The other classes in which Amateurs showed were also equally ably supported, Mr. Hedge, of Reed Hall, contributing as usual glorious blooms of most of the kinds just enumerated.

Awards.—1, Rev. J. K. Child; 2, Mr. Plester, 3, Mr. Postans; 4, Dr. Cooper. Extra, Rev. H. Helyar. *New Roses.*—1, Mr. Keynes; 2, Mr. Fraser; 3, Mr. Wm. Paul; 4, Messrs. Paul & Son.

Of Roses both old and new, in 8 inch pots, there was a good assemblage; but of new sorts the blooms were not in sufficiently good condition to enable us to form a fair estimate of their respective merits. Louise Margottin and Lord Macaulay are the sorts to which first and second prizes were awarded. Some prizes offered by Mr. Wilson Saunders were carried off by Mr. Keynes, Mr. Cant, and Mr. Wm. Paul.

June 29 (*Floral Committee*).—From Mr. Wm. Paul came some handsome nosegay Pelargoniums, to two of which, viz., Amy Hogg and Rebecca, First-class Certificates were awarded, and a Second-class one to Beauty of Waltham, from the same exhibitor. Mr. Paul also received a Second-class Certificate for a new purplish-crimson Rose called Globosa, which promises to be an acquisition. From Messrs. E. G. Henderson came various plants, among which was a pretty purplish-crimson Verbena named Velvet Cushion, which was commended. Various Zonal Pelargoniums came from Mr. Hally, of Blackheath, the best of which were Red Riding Hood and Enamel. Messrs. Carter contributed handsome bouquets of their fine double-blossomed Clarkia integripetala, to which a First-class Certificate was given. A charming set of Scarlet Pelargoniums, among which the best, perhaps, were Faust, Hector, M. Rendatler, Psyche, and Rosamond, came from Mr. Bull, who had other rare and interesting plants to which Certificates were awarded. Mr. Townsend again showed some violet purple blossomed varieties of Clematis lanuginosa; and from Messrs. Veitch came some magnificently-bloomed plants of Lilium auratum.

Fruit was confined to the remarkable Cocoa-nut ripened at Syon, from His Grace the Duke of Northumberland; to this allusion is made in another column. It received, we believe, a special award, and was, as it deserved to be, an object of universal interest.

CRYSTAL PALACE ROSE SHOW.—This took place on Saturday last, and the day being fine it was numerously attended. The different exhibitions, both from Nurserymen and Amateurs, were in admirable condition, and elicited general admiration. As both varieties and exhibitors were nearly the same as those mentioned above, any repetition of their names here would be superfluous.

THE GREAT FLOWER SHOW AT YORK: *June* 15 & 16.—The Sixth Annual Exhibition was a complete success, and the interest excited may be estimated by the receipts, nearly 1400*l.* having been taken at the gates; some fully 20,000 persons attended on the second day, many hundreds of whom were gardeners from almost every part of Yorkshire, as well as from Lancashire and surrounding counties.

The York Show is *the* Summer Show of the North of England, and is little inferior to the Metropolitan exhibitions, and so much is it looked forward to, that gardeners, both professional and amateur, strain a point to get there. The expenses of the Flower Show and Gala exceed 1000*l.*, and the committee consist of professional gentlemen and tradesmen connected with the city of York, who, with their courteous Secretary, Mr. Wilson, appear determined to carry out the exhibitions in a most liberal spirit, and are not afraid of their pockets suffering, which they sometimes do.

Their exhibitions are now of national importance to the midland and northern districts, as the only exhibition in the year in these districts where summer-blooming plants can be seen in the highest perfection, and where there is a chance of meeting new and rare plants. Six large and handsome tents were filled, and the centre tent, an exceedingly handsome lofty circular one, with a circular stage rising tier upon tier, was filled with noble specimens of stove and greenhouse plants, the whole being surmounted by statuary and flags.

In the Class for 12 Stove and Greenhouse Plants, Mr. Wm. Cole, Nurseryman, Manchester, was 1st, and in his collection were superb examples of Ixora javanica, coccinea superba, and alba, Dracophyllum gracile, and Allamanda cathartica; 2d, Mr. Richards, gr. to Lord Londesborough, Grimston Park, for some very fine plants, especially Mahernia incisa, 3 feet through and exquisitely flowered, and an Ixora odorata; 3d, Mr. Baines, gr. to H. Micholls, Esq., Manchester, who had Acrophyllum venosum, Erica tricolor Wilsoni, and Hederoma tulipiferum, very fine indeed; 4th, Mr. Foster, gr. to the Hon. P. Dawnay.

Some good Orchids were exhibited, and Mr. Charles Remmery, gr. to T. Jones, Esq., Manchester, took the 1st prize for 6 Orchids, and 2d prize for 3 Orchids. Amongst them were Cattleya Warneri and Wagneri, the latter a large white with pale yellow lip, both exquisitely beautiful; Phalænopsis amabilis, a noble plant of Phalænopsis grandiflora, a very fine plant of Saccolabium ampullaceum, Dendrobium Devonianum, Chysis Limminghi, and Lælia purpurata in fine character. An extra prize for a group of 12 Orchids was awarded to the same cultivator, in which was the very rare Trichopilia crispa marginata, Odontoglossum nævium majus, and Cypripedium grandiflorum. Mr. Micholls contributed a noble example of Cattleya Mossiæ superba, and good specimens of Dendrobium Devonianum and Lælia purpurata.

Some capital Azaleas were shown, although rather late for them. The best came from Mr. Cole and Mr. Micholls, the former being first for six plants, with Iveryana, a very fine plant of Gem, Chelsoni, variegata superba, Beauty of Reigate, and Juliana. Mr. Micholls was 2d, with Gem, Juliana, Iveryana, Stanleyana, coronata, and Gledstanesi.

There was a fine lot of Exotic Ferns, the principal exhibitors being H. Micholls, Esq.; Messrs. E. P. Dixon & Sons, Hull; Mr. Baines, Museum Gardens, York; and Mrs. Starkey.

Some very fine Heaths also came from Lord Londesborough's garden, Mr. Cole, and G. J. Yarborough, Esq., Amongst them were fine examples of jasminiflora, ventricosa coccinea minor, ferruginea superba, Massoni, eximia superba, and tricolor Wilsoni.

The Pelargoniums, as usual, formed the chief features of the exhibition. The 1st prize, for 12 plants, again fell to Mr. Henry May, nurseryman, Bedale, for some superbly flowered plants, such as are rarely seen away from the London exhibitions. These consisted of Lord Clyde, Leviathan, Rose Celestial, Desdemona, Sir Colin Campbell, Gem of Roses, The Belle, and Angelina. 2d, Mr. George Edward, Nurseryman, York, in whose collection were fine examples of The Bride and Ariel. 3d, J. Richardson, Esq., York. Six Spotted and French Pelargoniums: 1st, Mr. Henry May, with very fine plants; 2d, Henry Steward, Esq., York, in whose lot was a glorious plant of William Bull, and Sweep, a very effective stage plant; 3d, Mr. G. Edwards. Six Pelargoniums (Amateurs): 1st, Henry Steward, Esq., with exceedingly well-grown plants of Viola, very finely coloured; Beadsman, Desdemona, Monarch, Peacock, and Leviathan, with flowers of fine colour, size, and substance; 2d, J. Wilson, Esq., Nunthorpe Hall, with some fine plants, but rather too tenderly grown, as the flowers were not up to the mark in quality.

Mr. May's fancy Pelargoniums, which took the 1st prize, consisted of Hebe, Acme, a very fine example of Countess of Waldegrave, Lady Craven, Princess Royal, Mdlle. Patti, Modestum, Sarah Turner, and Madame Dolby, and were a fine even lot of plants. 2d, the Hon. P. Dawney; 3d, Mr. George Edward.

Some very fine ornamental plants were exhibited; and in the collection from H. Micholls, Esq., which took the 1st prize, were fine specimens of Anæctochilus Lowii, Ananassa sativa variegata, Cordyline indivisa in fine character, a huge Alocasia metallica in fine foliage, Dasylirion acrostichum, Sarracenia flava, and Dionæa muscipula. 2d prize to Messrs. E. P. Dixon & Sons, whose collections included fine examples of Yucca quadricolor, Sphærogyne latifolia in good character, Gleichenia Speluncæ, and Yucca aloifolia variegata. 3d, Mr. Baines, in whose lot were very fine plants of Dracæna Rumphii, and Yucca aloifolia variegata.

In the Class for 6 Stove and Greenhouse Plants there was a spirited competition. The 1st prize was awarded to Mr. Richards for a finely flowered Stephanotis floribunda, a well bloomed Aphelexis macrantha purpurea, a capital monster Polygala acuminata, a fine Erica odorata alba, Azalea Juliana, and a very fine example of Azalea Cavendishii well flowered; 2d, Mr. G. Houghton, gr. to T. Kendall, Esq., Cheadle, in whose lot was an extraordinary Franciscea confertiflora, 4 feet high and as much through, covered with flowers; a very fine blue Leschenaultia, Ixora coccinea, Phænocoma prolifera, poorly flowered, and two fine Azaleas. It was a hard race between the two collections, but the former justly won.

New and rare plants are encouraged here, and very properly, for they form one of the great features of interest of the exhibition. We would suggest another year that prizes be offered for the best new stove plant, greenhouse plant, Fern, and hardy plant respectively, say four prizes for each. This arrangement would bring out more plants and exhibitors; and it is of so much importance that new plants should be encouraged that we recommend the Council to adopt our suggestion. Almost all the exhibitors grow the new things, but for the first year or two the plants cannot be got large enough for the other collections.

The best new plant there was a very fine strain of Lilium auratum, sent by Mr. Fowler, gr. to the Earl of Harewood, and it was most deservedly admired. Next in point of interest was a superbly flowered example of Clianthus Dampieri, shown by Mr. G. Houghton of York, and which ought not to have been passed over unnoticed by the judges. It is a difficult plant to grow in such perfection as shown at York. Gymnostachyum Verschaffeltii, a new Ixora, and Musa vittata, were also in this class.

Some fine fruit was exhibited; the first, second, and third prizes for collections were awarded respectively to the gardeners to Lord Londesborough, the Earl of Zetland, and Lord Wenlock. Some good Pines were shown, especially by Mr. Bashford, Bowdon, Cheshire, which took the first prize, and by Mr. Batger, gr. to John Gott, Esq., Leeds, which took the second prize.

Mr. Cawkell, gr. to J. G. Riddell, Esq., took the 1st prizes for Black and White Grapes; and Mr.

Kirk, gr. to Sir Charles Wood, Bart,, the 2d prizes for each. We noticed Josling's St. Alban's, very fine in colour but rather small in the bunch.

Mr. Thomson, gr. to his Grace the Duke of Buccleuch, Dalkeith, sent, not for competition, two bunches, from plants grown in pots, of his Seedling Grape Duchess of Buccleuch. The bunches sent were 12 inches long, and each weighed 2½ lbs. They were not quite ripe, but evidently have a strong Frontignan aroma when quite ripe, and are of a pale amber colour. We understand that it grows much larger when planted out, and is very free and hardy. It looks like a valuable Grape. The judges awarded a Certificate of Merit.

Some good Melons were exhibited, and Trentham Hybrid Green-flesh, shown by Mr. Kirk, gr. to Sir Charles Wood, Bart., M.P., obtained the 1st prize.

Some good collections of British Ferns were shown by Mr. Lazenby, gr. to J. Buckle, Esq., York; Messrs. Dixon & Sons; and Mr. Baines, Curator of the Museum, York, and prizes were awarded in the same order. There were several other interesting features well deserving of notice, but we are unable to find space, except to observe that paper flowers, so very natural as to deceive many, were exhibited by Miss Harris, Micklegate, York. A group of Ten-week Stocks was particularly deceptive, and this collection, together with a display of flowers and fruit in leather, were much admired. Mrs. Thomas, of Cheltenham, and Mr. George Dale of York, also contributed a good collection.

Botanical of Edinburgh: *May* 12.—Prof. Balfour in the chair. Amongst the communications which were read was a *Notice of a new variety of Athyrium Filix-fœmina*, by Mr. John Sadler, who also exhibited a living plant. This remarkably beautiful variety of the common Lady Fern had been collected by Mr. James Cosh, in 1862, by a road-side in Stirlingshire. In the spring of last year Mr. Sadler had sown spores taken from the plant, some of which had germinated, but as yet exhibited none of the peculiarities of their parent. A specimen had been transmitted to Mr. Moore, of the Chelsea Botanic Garden, who pronounced it an undescribed variety; and as the Queen amongst Lady Ferns, recommended that it should be called Victoriæ. The fronds are from ten to eighteen inches in length, and crested at the apex. The pinnæ are also crested, but instead of being single, as in most other varieties, they leave the rachis in pairs, and at such an angle that each alternate pair overlap each other, so as to give a beautiful plaited appearance to the whole frond. The author was indebted to Mr. John Dawson and Mr Paterson for his specimens.

June 9.—Prof. Balfour in the chair. The following donations to the Museum at the Botanic Garden were noticed:—From Mr. J. Thomson, specimens of the Jew's-Ear Fungus (Exidia Auricula Judæ); from P. White, Esq., Midcalder, dissections of five genera of plants (framed); from Dr. M'Rae, *Oranges said to be the produce of trees grafted on the Laurel, at Teneriffe*. [We should like to hear more of this.] The following communications were read—I. *Recent Botanical Intelligence*. By Prof. Balfour. He first noticed the experiments of M. Gris and M. Dalimier in regard to the vessels of plants. The former showed that glucose was present in the vessels, and the latter that in their perfect state the spiral vessels contained air. M. Cloez and M. Gratiolet found that the gas exhaled from aquatic plants exposed to light in ordinary water slightly impregnated with carbonic acid contains besides oxygen, a notable quantity of nitrogen. M. Cloez also states that the coloured parts of plants do not decompose carbonic acid. M. Belhomme finds that in dicotyledons pollen grains may preserve their fertilizing property for a period varying from one to three years, and monocotyledons even to six years. Dr. Asa Gray is satisfied that the two genera Astragalus and Phaca must be united, and that the genus Phaca must be merged in Astragalus. It is in the botany of America that the distinction between Phaca and Astragalus is most pressing, and where the data for the answer are most largely to be found. While extra-tropical Asia is the focus of true Astragalus, that of Phaca is in America, mainly in North America, with an extension along the Andes into South America; while the flora of the Russian empire enumerates 168 species of Astragalus (of which more than nine-tenths are bilocellate or nearly so), and only six species of Phaca. Dr. Gray recognises, in a paper read to the American Academy of Arts and Sciences, 66 species of the Phaca series, and 52 of Astragalus proper. Moreover, rather less than half of the latter are completely bilocellate by a dorsal septum, and at least half a dozen of different groups have been or might be referred to Phaca. Dr. Asa Gray concludes that Phaca must be merged in Astragalus, and that, since in, perhaps, the majority of Phacæ, there is no intrusion nor peculiar tumidity of the seminiferous suture, the subtribe Astragaleæ of De Candolle has no valid foundation, so that Astragalus is merely a genus of the Galegeæ. In a paper on the variability of the Pear by M. Decaisne, given in the Annales des Sciences Naturelles, the author maintains that there is no evidence of the degeneration of our fruit trees in consequence of the continual propagation by grafting. The facts stated by those who contend for degeneration may be explained in various ways—such as climates or soils unsuited for the particular wants of the varieties, bad culture, or improper grafting. Our ancient Pears, so justly esteemed for a century or two, are still the same as they were at first. The Crassane, Saint Germain, Doyenne, Chaumontel, Bon Chrétien, &c., have lost none of their qualities. If they are neglected, it is only because cultivators are looking after novelties. M. Decaisne also maintains that it is not true that the seeds of good varieties of fruit, when sown in ordinary soil, have a tendency to go back to a wild state and produce crab fruit. Professor Balfour also called attention to papers by M. Leo Lesquereux and Professor Dawson, on the fossil plants of the coal formation, and the Devonian epoch of North America. ——II. *Remarks regarding the use of the Betel-nut*. By Professor Archer. Professor Archer described the manner in which the Betel-nut is prepared and used in the East as a masticatory, illustrating his remarks by a series of preparations from the Industrial Museum. The Betel-nut is the produce of Areca Catechu, a Palm of considerable size. It is estimated that upwards of 50 millions of the human race chew the nut.——III. *Notice of New Station for Corallorhiza innata near Edinburgh*. Communicated by Professor Balfour. Corallorhiza innata has of late years disappeared from several places around Edinburgh through drainage, but recently it has been discovered by Mr. E. V. Sandilands in considerable quantity in boggy ground on the north-western side of the west Dalmahoy Hill. Specimens were shown in a living state. Professor Balfour also remarked that notwithstanding the numerous botanists who collected plants in Scotland, there were very few if any instances of stations being destroyed by them. The injury caused had been chiefly by those who collected plants (especially Ferns) for sale. Many of these collectors came from England, where the mania for Ferns was excessive. He maintained that the recent remarks made as to the destructive propensities of Scotch botanists were erroneous, and must have been written by some one who knew nothing of the facts of the case. ——IV. *Letter from Mr. W. Bell, Saharunpore, dated 17th March*, 1864. Communicated by Prof. Balfour. I delayed answering your last letter until the seed collectors had returned from the hills, expecting that they would bring some seeds of Gentians and other plants which I had previously observed, but they are such a lazy apathetic set of people that unless a thing comes to hand readily they take no trouble in gathering it. Enclosed are a few seeds of Acacia Catechu and of a Barleria. The wood of the Acacia is of a deep brown colour, close-grained, hard, and very heavy. The leaves of the Barleria are held in high repute amongst the native doctors for their efficacy in intermittent fever. They have a bitter taste. The cryptogamic flora of this district is very scanty—about half a dozen Ferns, the same number of Mosses, two Marchantias, one Parmelia, and two Lecideas.——A letter was read from Mr. A. Denham, Agri-Horticultural Society's Garden, Madras, in which he states that there are eight acres devoted to the cultivation of the different kinds of cotton, and that he is hybridizing them with a native variety. R. Trail, Esq., Aberlady, sent living specimens of Erica vagans var. multiflora gathered by him near Ardrishaig, Argyllshire, in October, 1861. Mr. J. Sadler exhibited specimens of Glyphomitrium Daviesii, which had been collected by Mr. D. Black at Ardtun, Mull. Mr. J. Cross, gr. to Lady Ashburton, sent fresh cuttings of an upright form of Juniper allied to the Swedish, which grows abundantly on the Downs, near the Grange, Hampshire. Mr. A. Robertson, Ballydruin Gardens, sent dried specimens of Lastrea fœniseeii. Mr. P. Robertson exhibited a plant of Thuiopsis borealis in fruit. Mr. M'Nab placed on the table several interesting Alpine plants, including Fragaria lucida, from the Himalayas; he also exhibited a flower of Cereus grandiflorus, night-flowering Cereus, which had been immersed in water for five days, and still remained in an expanded state. Mr. F. B. W. White exhibited specimens of Asperula taurina, collected near Corstorphine Hill in a naturalized state. Mr. W. R. Hay noticed specimens of Cardamine pratensis, producing as many as four flowers on the same axis, separated from each other by extensions of the internodes, so as to appear like a series of coloured verticillate leaves at different heights on the peduncle.

Notices of Books.

Nesbit's Practical Land-Surveying. Eleventh Edition. Pp. 486. Edited by W. Burness, F.R.H.S. Longman & Co. 1864.

This is a first-rate treatise on Practical Land Surveying, edited by an experienced Professor of the art. Nesbit's has long been considered a standard work, and the fact that it has reached its eleventh edition speaks volumes as to its merits. Land-surveying, like everything else, has partaken of the improvements of the age, and methods for attaining greater accuracy are adopted. The treatise before us leaves nothing to be desired. It is in fact a text-book of the best kind for those who would study or teach this important branch of education. First, there is a short course of Geometry, comprising the definitions and necessary problems and theorems; next a description of the instruments employed, and the right method of using them; then we are carried through a thorough course of land-surveying, with the mapping of large estates, directions for the construction of sea embankments, &c. The whole illustrated by figures where necessary, and several folding maps; and about 80 pages are devoted to the subject of Railway Engineering.

Seemann's Journal of Botany, for the month of May (No. XVII.), is illustrated by a plate of a new British Fern, the *Asplenium Adiantum-nigrum obtusum*, of which the following account is given by Mr. Moore:—"Since the time of Willdenow, the existence in Europe of an Asplenium somewhat intermediate in character and aspect between A. Adiantum-nigrum and A. montanum, has been known. This Fern was called A. obtusum by Willdenow himself, A. Fosteri by Sadler, and A. Serpentini by Tausch, but is now considered as a form or subspecies referrible to A. Adiantum-nigrum, including a goodly array of synonyms besides those just mentioned. In the 'Index Filicum' the name of A. Adiantum-nigrum, γ obtusum, is employed; but some authors, as Heufler and Milde, prefer that of A. A. Serpentini, or A. A. serpentinum. This Asplenium Serpentini belongs to the triangular, tripinnate series of Asplenums, and though varying much in the size and breadth of its parts, is rather small-pinnuled in its most marked and characteristic states. It has the pinnæ straight and spreading, as compared with those of the variety or subspecies acutum, in which they are connivent; and from the more typical forms of Adiantum-nigrum, which have the base of the segments incurved, it differs, according to Heufler, in having the base of the segments recurvate. In some of its forms the segments are blunt and firm, in others blunt and of thinner texture, and in others again more or less acute; but even those forms which are narrow and obtuse, thus acquiring a wedge-shaped outline, are often acutely toothed at the apex. In outline, the pinnules vary from ovate-obtuse to ovate-acute or even almost acuminate, the segments in the former case having a short broad-ovate or ovate-oblong figure, and in the latter approaching more or less nearly to linear, but without any of the peculiar features of acutum, in which the segments are more strictly linear. The surface is of a dull opaque green, not lucid, as in acutum, and the fructification is crowded and generally becomes confluent. Till recently, this plant was chiefly known as a native of Croatia, Dalmatia, Hungary, Bohemia, and Saxony, extending to Italy and probably also to South Africa and Abyssinia. The name Serpentini was given to it from its being found on serpentine rocks. When, therefore, some two years since, Mr. A. Christie sent me from the serpentine range dividing the counties of Aberdeen and Banff, a small-pinnuled form of the common black Maidenhair, I was quite prepared to expect that this interesting Fern might be yet added to our Flora. And this expectation was soon realised, for very shortly after, Mr. Christie, who had renewed his researches, sent me specimens of the true plant undistinguishable from authentic examples for which I am indebted to the kindness of Prof. Braun and Dr. Sturm. The fact of the discovery of Asplenium Serpentini as a British plant was recorded in the early part of last year, the specimens having been gathered in the autumn of 1862." Amongst the other articles are a Synopsis of the Phanerogamic Flora of Spitzbergen, by Mr. A. J. Malmgren; and an account of the genus Ascobolus, with descriptions of the British species, and several woodcut figures, by Mr. M. C. Cook.

No. XVIII. of the same work contains a figure of *Boussingaultia gracilis*, a new species from Brazil, described by Mr. Miers, who remarks:—"The genus Boussingaultia was founded in 1825 by Kunth, on a plant from the Ecuador region, which was then described and figured by him; he placed it in Chenopodeæ, pointed out its affinity to Basella and Auredera. Subsequently the family of the Basellaceæ was established by Moquin Tandon, who placed Boussingaultia there, in his suborder Aurederæ, recording at the same time two other species from Mexico. All the plants of this family, comprised under six genera, belong to the New World, except those of the genus Basella, which is Asiatic. The discovery of a new species of Boussingaultia from Brazil is therefore interesting, for all the plants above mentioned are confined to the western side of the American continent. It is true that Tweedie sent a plant from Buenos Ayres, supposed to be cultivated, and which was referred to Kunth's type of the genus; but it was probably the plant now about to be described, which forms a fourth species of the genus." This new Boussingaultia bears long, very slender, and densely-flowered racemes, and was gathered by Mr. Weir in the province of S. Paulo. The same number contains the conclusion of Malmgren's Synopsis of the Flora of Spitzbergen; and a very interesting list of plants known to produce double flowers, compiled by the Editor.

In the numbers of the *West of Scotland Horticultural Magazine*, published during the last two months, we find some useful remarks by Mr. Doig and others, on Trees and Shrubs suited for exposed situations on the sea-shore; a few notes on Pears and Apples which succeed in the north of England, by Mr. Bell, of Bretton Hall, Yorkshire; together with remarks on modern flower-gardening, on the education

of the eye, and on the improvement of plants by change, &c. Mr. Bell's remarks, above alluded to, are as follows:—"Some time ago I promised to jot down a few notes concerning Pears that have ripened thoroughly, and been of good quality, on standard trees grown in the gardens here. Anything that succeeds well here, will, I think, have an equal chance in the west of Scotland, as I believe your climate to be almost as good as we have here, and your soil, from being carefully selected and thoroughly drained, a good deal better than our cold wet clays. I don't know of anything, however, more capricious than Pears. Peaches and Apricots, or almost any other fruit, in a good season, will be good anywhere, but I have often observed particular varieties of Pears very good in one place, and quite worthless at another a short distance off, where the conditions did not appear to differ materially. It appears to me that, where it could be done, the best plan would be to plant a good many sorts, and as soon as they were fairly proved to regraft those found unsuitable. I have, however, found those I shall name generally good in all places where I have met with them. The past dry summer just suited our cold damp soil, and I never tasted finer Pears anywhere. Hacon's Incomparable, in season in November and December, bergamot-flavoured, a good bearer and first-class Pear. The Beurré Nantais, in season in November, fine in appearance, and is equal to anything. Beurré d'Amanlis, October and November, extra size, fine bearer, and always good. Beurré Easter, December and January, better from a standard than a wall, excellent. Beurré d'Aremberg, December, free bearer, and good quality. Maréchal de la Cour, extra size, most excellent; tree requires to be regularly root-pruned. Williams's Bon Chrétien, September and October, large and good looking, musky flavour, much liked by some, very free bearer. Louise Bonne (of Jersey), October; free bearer, very good here in a fine season. Marie Louise, in some seasons very good here, from standards, invariably so from wall trees. Glou Morceau, November and December, generally good, though sometimes it does not ripen sufficiently here on standards. Beurré Diel, though not often very good here is invaluable for cooking, as it is a very handsome fruit and keeps good a long time; free bearer; it is worth growing. I could name many others, but all these I have proved to be first-rate in this not very favourable locality. If you should be planting Apples you will find Cox's Orange Pippin one of the very best. Here the tree grows and bears freely fruit of a superior quality. As a proof of its usefulness I may state that in the cold seasons of 1860 and 1861 it was almost the only Apple that we had fit to eat."

As usual the *Scottish Gardener* contains several papers of practical value. In the numbers before us we find good sensible articles on the culture of Neapolitan Violet, Spinach, Celery, winter-flowering stove plants, early spring Pine Apples, and such like useful subjects; whilst upon the state of horticulture in Scotland, Mr. W. Thomson has the following remarks:—"I observe with pleasure that nearly all our Scotch nobility and gentry are members of the London Horticultural Society, but it has always been a source of regret to me that, with a few noble exceptions, they do nothing for the encouragement of horticulture by the instrumentality of any similar society in their own country. Many of them may at one time have been supporters of the Caledonian Society; yet from want of support of some sort, it has for many years ceased to be more than a name, and now that the grounds and houses, once the property of the latter Society, are transferred to the Royal Botanical Gardens, I suppose the corporation is or will be dissolved. In these circumstances I am tempted to suggest that an effort should be made to reconstruct the old 'Caledonian Society' by a union with the 'Horticultural Society of Edinburgh,' the latter having plenty of health and vigour in its constitution, which could be mingled with the old associations and aristocratic connections of the former. In this way a thoroughly efficient Society might be brought into operation, not necessarily having a garden as formerly, but devoting its attention to the reward of merit in every department of horticulture. There is no more certain means of frittering away any good that horticultural Societies can do than by having two or three in a city like Edinburgh, yet from a variety of causes such has unfortunately been the state of matters for years, and such it will continue unless an effort is made now in a proper spirit. I am confident that if a good basis could be agreed upon, and our landed proprietors and others interested in such matters appealed to, there would be no lack of funds to enable the managers to give as liberal awards to subjects of merit as they do in London. It cannot be flattering to our national pride to observe what splendid awards are given at shows in such provincial towns in England as York, Bishop Auckland, and elsewhere, and there is no reason why exhibitions of the same description should not be as successful in Edinburgh, except the divisions that at present exist amongst those who ought to be united in supporting one efficient society. I have thrown out these hints with the sole object of calling the attention of all those interested to the matter, in the hope that a true desire to promote an important branch of rural economy that is every day becoming of greater importance, may lead all parties to smooth over any difficulties they may see in the way of forming one society that shall be worthy of being called national." We wish our northern brethren every success in any attempt they may make to reorganise a really efficient and practical Horticultural Society.

The *Midland and Northern Florists' Guide* has commenced its promised series of portraits of our leading florists, by that of Mr. C. Turner, of Slough, which was given in the May Number. The likeness, which is a good one, produced by photography, is accompanied by a memoir which reads "fast," and though highly complimentary is, to say the least, in questionable taste. We can, however, agree with the writer in his estimate of the four-fold claim Mr. Turner has upon the regard of florists:—1. As an exhibitor his success is without a parallel; 2. As a censor his decisions have been ever received as the righteous sentence of an upright judge; 3. As a tradesman he is entirely to be depended on; and 4. As a friend he is hearty, sincere, and unselfish—the pleasant companion, the generous host. Among the other papers are some remarks on the Sweet William; "July," says the writer, "is its season, and then it is in its glory. A bed of first-rate Sweet Williams is truly worth seeing, and I earnestly commend this flower to those who have not taken it in hand. There are two strains of Sweet William in cultivation worth growing, viz., Hunt's strain, originated by Mr. J. Hunt, of Wycombe, Bucks, the well-known Tulip grower, which are of a very fine form and varied in colour, but without the distinct white centre, peculiar to the other strain known as the Auricula-eyed, which are confined as yet chiefly to shades of crimson with a large white centre, and are very attractive. There is a strain known as the Perfection Sweet William, which I am told beats the Auricula-eyed, and which has been originated by Mr. Melville, of Dalmeney, near Edinburgh, but I am unable to say if it does or not." Then Mr. Henry Mayle asks the Fuchsia raisers of the present day what they are doing; and he answers for them—"simply sacrificing quality to size; breeding cart instead of racehorses; for the majority lately sent out are to my taste rough and ugly. Size seems to be the only desideratum now-a-days, with great, wide spreading crinoline corollas." He further recommends them to "go back fifteen years, and start afresh with a good breed," such as the splendid Champion of England and the graceful King Charming. There is besides a good deal of information about exhibitions of florist's flowers, especially Auriculas and Tulips, which must make this little serial a pleasant monthly visitor in the home of a true florist.

Garden Memoranda.

MR. SALTER'S NURSERY, WILLIAM STREET, HAMMERSMITH.—At no season of the year is this nursery without interest. Late in autumn there is the usual grand exhibition of Chrysanthemum; it is well known to contain one of the best collections of hardy variegated plants in the country; lately it has been the scene of a magnificent display of herbaceous Pæonies, of which Mr. Salter has an admirable selection; and now the houses are gay with most beautiful examples of Pelargoniums of the Nosegay section, one of the handsomest of the many groups into which this genus is divided. Among them the following are well worth attention, viz., Improved Titian, rosy salmon; Woodwardii, similar in colour, but perhaps a shade darker; Amelina Griseau and Mr. Lierval, white flushed with salmon, the one differing a little from the other in amount of colour, but both handsome; Germania, clear salmon red; both French and English varieties of Merrimac, the first rosy crimson with a fine truss of bloom; the last equally good, but a little different in shade of colour. In addition to these there are also Prince Christian, rosy pink; Flora, delicate peach; Comet, a vivid scarlet with a white eye; Lady Blanche, white; St. Fiacre, salmon; Helen Lindsay, rose and white, a fine kind for bedding purposes; Eugène Mezard, white, deeply flushed with salmon; Cybister, scarlet; Lord Palmerston, crimson; Spread Eagle, glowing orange scarlet, a dwarf neat sort; Mdlle. Sidonie, rosy lilac; Model, deep rose; Imperial Crimson; and Madame Pauline Gaspard, rose. These are all excellent varieties worthy of being added to any collection, each head of showy blossoms being quite a bouquet in itself.

Of the effect produced by the Pæonies while in blossom, it is impossible to speak in too high terms. They were the admiration of all who saw them, and lasting as they do for several weeks together in full beauty, just before the usual bedding plants come into blossom, they become quite an acquisition to our gardens. A list of all the best kinds may be found in Mr. Salter's catalogue, which can be had on application to him. In colour they comprise nearly every shade from pure white to deep crimson; and among them are some fine yellows. Planted singly they are handsome; but in masses they are magnificent.

Miscellaneous.

Subscription to Replace Mr. Baker's Library.—The following circular has been addressed to the Botanists of Great Britain and Ireland by a Committee, consisting of Messrs. J. T. Boswell Syme, W. Carruthers, Rev. W. W. Newbould, E. Newman, and H. C. Watson:—On the night of May 7 the adjoining dwelling houses and business premises of Mr. J. G. Baker and his brother were utterly destroyed by fire, the two families barely escaping with their lives. The amount of insurance was small in comparison with the value of the property destroyed by the very rapid conflagration. Among other losses of greater monetary value, were the botanical library and collections of Mr. J. G. Baker, gradually accumulated during the several years in which his leisure hours have been so assiduously and usefully devoted to botanical science; as also important manuscripts yet unpublished. Under these painful circumstances it is felt by his botanical friends, that some expression of sympathy and condolence ought to be offered to Mr. Baker, in the appropriate form of a subscription by the botanical public towards replacing his lost books. They trust that all true lovers of botany will enter into this feeling; and that by adding their individual subscriptions to the general fund, they will testify their appreciation of Mr. Baker's past disinterested services to botany and botanists, and assist in enabling him to continue the same in future years. A very small amount may serve to replace some one lost book or other object, so that no botanist need be deterred from a modest offering, in case other claims upon him at this time should interfere to prevent a larger one. A few botanists resident in or near London, and acquainted with Mr. Baker, have formed themselves into a local committee to carry out the proposed object; the metropolitan centre offering more facility for conferences, and for postal correspondence, than would be found elsewhere. They are kindly allowed to refer also to Professors Babington, Balfour, Oliver, and other leading botanists, as fully approving the step thus taken. But it is the wish and trust of the committee, that the offering to Mr. Baker should be a testimonial of respect and sympathy from the widest circle of botanists in this country. A printed copy of the subscription list, up to August 1, will be then sent to each subscriber, by way of closing the appeal. The committee earnestly request other botanists to assist in obtaining the addition of botanical names thereto as generally and numerously as possible. The proper postal addresses of several botanists not being known to them, they must in some degree trust to the kind co-operation of other parties, even in simply making this Circular and its purpose generally known. Subscriptions by cheque or post-office order will be received by any of the committee. Post-office orders should be made payable to Mr. John Thomas Boswell Syme, at the district office, Adelaide Road, London, N.W. Sums under 5*s.* can be remitted in postage stamps.

Iron Ligatures on Trees.—In 1839, during a severe gale, a large Ash, standing in the policies of an estate on the banks of Loch Koillisport, Argyleshire, was torn in two by the storm; the rupture extended from where the branches diverge from the trunk for some feet downwards, thus rent as it were on both sides but still keeping together. The tree being a favourite specimen, a broad hoop was made to bind it together, and, if possible, to save it. The hoop was about 2½ inches broad or so, made in two halves, but assisted by a sort of hinge at one side, and formed a very tight fit for the limit, or rather the top of the trunk, and being got round it was bound tight by a screw bolt, until it began to sink into the bark, and the two divisions were brought once more together. At the time the operation was being performed I felt very doubtful of the success of it; one thing, however, that went a great way to dispel this idea in the outset was the close and exact fit of the two sides, and the tight manner in which they were brought together, bark and wood, and secured, preventing ingress of air or wet. But then the action of the iron brought a doubt, and made me think the tree in question would be a short-lived one. Many years afterwards I happened to be in the same district, I remembered the tree and visited it, and found it not only in good health, but the iron hoop nigh covered with wood and bark, about half an inch or so being then all that was visible, and which ere now I have no doubt is entirely covered. *J. L., in Botanist's Chronicle.*

Calluna vulgaris in Newfoundland.—When I read the note from *Silliman's Journal*, by Asa Gray, quoted in the *Journal of Botany* for January, 1863, relative to the common Ling, Calluna vulgaris, having been lately discovered in the State of Massachusetts, with the further notice that De la Pylaie had, at an earlier date, mentioned it as a native of Newfoundland, I intended to send you a note confirming the correctness of the latter part of the sentence, but, like more good intentions, it was not carried out at the proper time, and consequently lost sight of. I have, however, been again reminded of the circumstance, by seeing in the last number of the *Natural History Review* a short article on the same subject, by H. C. Watson. I shall, therefore, without more delay, endeavour to record my story, which establishes the fact that our common Ling Heath is found in Newfoundland. In the year 1852 Mr. Ensor, of Dublin, brought to me from Newfoundland a number of plants of Sarracenia purpurea, and along with them two tufts of the common Ling Heath, which he told me grew in considerable quantities on a boggy part of his property, near to the place where he had dug out the plants of Sarracenia. I had the Newfoundland Heaths planted, one of which luckily grew, and is still living in this garden. It is what we would call a slender-growing variety if found in Britain, and what is more remarkable, either from being long accustomed to be covered with snow in winter, or from being naturally more tender, it is constantly nipped on the points of its shoots by frosts; besides, the foliage gets browned from some cause,

whilst Irish plants growing near it remain unscathed. *Dr. Moore, in Seemann's Journal of Botany.*

Arnica.—As this article is entirely new to the Pharmacopœias of the United Kingdom, although well known and much employed in Prussia and some other parts of Germany, in Italy, and in the States of North America, it will be necessary for me to make a few remarks on its botanical and geographical sources, its characteristics, and reputed medicinal properties. Arnica-root is directed to be employed in the British Pharmacopœia; but on the Continent and in America the flowers are preferred, and ordered in all but one of the preparations which are there official. We are ignorant of the reason why the root is ordered in the British Pharmacopœia. We should have preferred the flowers, because they would be more likely to be uniform in their properties from being gathered at a definite period; while the root, from being collected at different periods, will necessarily vary considerably in its strength. The plant from which this article of the Materia Medica is derived is the Arnica montana, Linn., and belongs to the natural order Compositæ. It is a native of the mountainous districts of Europe, and of certain parts of North America and Asia. The so called Arnica-root is really the rhizome, to which numerous small rootlets are attached. The rhizome is more or less twisted, rough from the scars left by the leaves which it formerly bore, somewhat cylindrical in shape, from one to three inches in length, and two to three lines in thickness. From this, numerous small rootlets arise, of variable length, generally two or more inches, and about the thickness of a common knitting-needle. Both the rhizome and rootlets have a brownish colour externally. The odour is peculiar, feebly aromatic, and disagreeable; and the taste somewhat peppery, bitterish, and nauseous. The root has been found to contain volatile oil, acrid resin, extractive, gum, and woody fibre. The extractive matter of Arnica-flowers, which is doubtless similar to that of the root, is said to be identical with cytisin, a poisonous principle obtained from the seeds of the common Laburnum tree. Mr. Bastick has also obtained from Arnica-flowers a peculiar alkaloid, which he has named Arnicina. The properties of Arnica appear to depend essentially upon the acrid resin, although these are doubtless modified to some extent by the volatile oil and extractive. Arnica is very highly valued as a remedial agent in certain parts of the Continent. It is regarded as a most useful stimulant in typhoid fevers, and in various debilitated conditions of the system; in paralysis, amaurosis, and other nervous affections, &c. The trials which have been made in this country of its remedial virtue do not in any material degree confirm the extravagant encomiums which have been passed upon it on the Continent. The dose of our officinal tincture is from two fluid drachms to a fluid ounce, every three or four hours. The tincture of Arnica-flowers, and also that of the root, have been much employed as a domestic remedy in this country and elsewhere, as an external application in sprains, bruises, &c. The experiments of Dr. Garrod, however, lead to the conclusion that its efficacy is entirely due to the rectified spirit employed in its preparation, as he found that about the same remedial effects were produced upon certain bruised surfaces by the application of either simple rectified spirit or tincture of Arnica. Altogether, so far as present experience leads us in this country, we have reason to believe that the virtues of Arnica, both as an external remedy and for internal administration, have been vastly over-rated. *Prof. Bentley, in Pharmaceutical Journal.*

Calendar of Operations.

(For the ensuing week.)

As tender kinds of greenhouse plants complete their growth, they may be set by themselves in houses or frames, of which the sashes can be easily put on or removed. In such a situation they can be freely exposed to sun and air, but at the same time may be covered when the weather is excessively wet. In staging the plants, they should be so arranged that they shall shade only the pots of those which are behind them. The hardier kinds of greenhouse plants may be set in the open air, without any kind of shading. It is a mistake to place established plants behind a north wall, during any portion of the summer; but, on the other hand, it is essential that the pots be protected from the sun. When the plants are necessarily out of doors during this season, they should be plunged in beds of sifted coal-ashes; but take care to place them far enough apart to ensure a free circulation of air amongst them.

FLOWER GARDEN AND PLANT HOUSES.

This is a good time for grafting or inarching Oranges, Camellias, Azaleas, choice Rhododendrons, &c. For grafting, forward ripe shoots of this year's growth are generally selected; but of small weakly growing kinds, it is preferable to take a portion of two-year-old wood along with the shoot. Until a junction is effected, the plants should be plunged in a close moist heat, rather stronger than that required for growing them in, and carefully shaded. Many other puny-growing, fine-rooted, stove and greenhouse plants may with great advantage be grafted on stronger growing species of the same family; amongst these we may mention Gardenia radicans, Ixoras, Chorozema Henchmanni, Pimeleas, Leschenaultias, &c.

Achimenes.—These deservedly rank among the most beautiful of ornamental plants; their flowers are produced in great abundance for months in succession, and the plants themselves are of the easiest possible culture. While growing, they like a warm moist atmosphere; but during their flowering season they do perfectly well in a comparatively cool and dry situation, such as a close greenhouse or conservatory, where they are almost always in blossom. As regards soil, light turfy loam, peat, leaf-mould, thoroughly decayed cow-dung, and silver sand suits them perfectly.

Amaryllis.—These glorious bulbous plants merit more than ordinary attention. When we consider their large handsome flowers, scarlet, crimson, or white striped with crimson, we may well class them amongst the most beautiful objects for the decoration of a conservatory or greenhouse. They succeed perfectly in any light, tolerably rich soil, in which there is a good proportion of fibry loam. Twenty-four sized pots suit them best. The only point requiring special attention is when to re-pot. This should correspond with the time at which the bulbs are to be started into growth. When the foliage dies at the tips, water should be gradually withheld, until the leaves have become quite decayed, when the bulbs should be kept dry till fresh leaves have reappeared. Some, however, never die down; they therefore require to be kept constantly in an intermediate or warm greenhouse, in a growing state, and shifted when the pots have become too small for the bulbs and roots, using at each shift as much fresh soil as possible.

Annuals.—Late-sown kinds intended for autumn flowering, should be thinned out or transplanted, before they crowd one another, and become too weak to support themselves.

Carnations, &c.—Perhaps no plants are more generally useful than the hardier kinds of Carnations, Picotees, and Cloves. Their beauty and fragrance not only recommend them to a prominent place in flower beds, but render them invaluable for glasses or bouquets. If pipings of them are taken off about this season, they sometimes strike as freely as Pinks; but the operation will be more certain to succeed if the handlights are set on a slight hotbed, or the pots plunged in a frame where there is a gentle bottom-heat. Points which require special attention are, that the cuttings be taken not later, on any account, than the expanding of the first flower; and that they be carefully shaded from every ray of sunshine. The most certain method of propagating them is by layers; but it is equally important that it should be done early, as the plants root sooner, and thereby become better established before winter.

Chinese Primulas.—Old plants of these should now, after their partial repose, be shaken carefully out of the old soil, repotted in light sweet compost, moderately rich, and placed in a warm frame for a few days, till they have begun to produce roots into the new soil, after which they must be removed to a position near the glass in a cold frame, and kept close till the plants are thoroughly re-established. These plants succeed best in moderate-sized pots.

FORCING GARDEN.

Peaches.—Admit a free circulation of air through all the houses during fine weather; but where the fruit is just ripening, ventilating during the night and in damp weather should be effected by means of the front, keeping the top sashes closed to prevent damp cold dews from setting on the fruit. The foliage in the early houses should be kept in a healthy state as long as possible by syringing, and guarding against insect depredations.

Pines.—Having selected, to meet the demand in winter and early spring, those plants which are now showing or flowering, and those which shortly promise to follow their example, a portion of the strongest and best rooted of those remaining should be picked out to succeed them; these should be potted immediately if they require it, and grown on steadily without any check; any of the smaller plants which are in immediate need of potting should also be attended to. Keep up an uninterrupted succession by planting a few suckers occasionally in a brisk bottom-heat. Where the planting out system is practised, there is no difficulty in keeping up the succession if all vacancies are filled up as they occur with the best plants selected from among the successions.

Vines.—As the Black Hamburgh is somewhat liable to shrivel after it is ripened, and as it is thereby deteriorated in quality, it is advisable to shade during very hot sunshine. Where the crops are swelling let the state of the borders be frequently examined, especially of those which are covered with tarpauling or other material. If the soil is dry let the surface be carefully loosened with a fork, and watered with liquid manure. Examine the bunches of swelling crops, thin crowded clusters, and remove any small berries, which will only spoil the sample if they are allowed to remain.

HARDY FRUIT AND KITCHEN GARDEN.

As every available means should be adopted for stimulating the various crops into vigorous growth, let due use be made of liquid manure, if this valuable auxiliary is available. This is the best time of year to make use of it, by applying it to every plant which it is desirable to stimulate into very vigorous growth, as the object in the cultivation of plants for the sake of their roots, stems, or leaves, is to induce a luxuriant growth, and to prevent or retard the production of flowers or seeds.

Celery.—Plant out now for the main crop. Earth up that now put out, choosing a dry day for the operation.

Lettuces.—Successions of these must be kept up as required.

Turnips.—A good breadth of these may now be sown.

Watercresses.—A supply of these for autumn and winter may be easily obtained by planting some strong young tops, about 4 inches long, in a line at the foot of a north wall. The cuttings should be of pieces which have protruding roots from the joints. Watercresses will grow freely in such a situation; and in many places where there are no artificial beds, and where natural ones are a considerable distance off, these will be found useful.

Winter Greens.—Take advantage of showery weather, like the present, to plant out Broccoli, Savoys, and other winter greens, if not already done. Walcheren Broccoli, planted the beginning, middle, and end of the month, will come into use during autumn and continue good up to Christmas.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending June 29, 1864, as observed at the Horticultural Garden

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 23	19	29.964	29.917	69	42	55.5	61½	59¼	W.	.17
Friday 24	20	30.165	30.109	66	52	59.0	61	59¼	W.	.00
Satur 25	21	30.013	29.947	72	53	62.5	61	59½	S.W.	.08
Sunday 26	22	29.925	29.876	73	34	53.5	61	59½	N.E.	.02
Mon. 27	23	30.124	30.058	67	39	53.0	60¼	59¼	N.W.	.05
Tues. 28	24	30.139	30.030	71	52	61.5	61	59½	W.	.02
Wed. 29	25	30.025	29.858	75	53	64.0	61¼	59	N.W.	.06
Average.		30.043	29.969	70.4	46.4	58.4	61.7	59.4		.41

June 23—Densely overcast; dark clouds and heavy showers; fine.
— 24—Very fine; fine; overcast at night.
— 25—Uniformly overcast; rain at night.
— 26—Rain; overcast; fine; cold, nearly freezing at night.
— 27—Fine; dusky and white clouds; overcast and fine; rain.
— 28—Overcast; cloudy; rain.
— 29—Very fine; overcast; rain in the afternoon; overcast.
Mean temperature of the week 2½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending July 9, 1864.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3.	74.2	50.7	62.5	16	0.78 in.	—	6	2	1	3	12	10	4
Mon. 4..	75.8	50.6	63.2	13	0.33	—	2	4	1	8	12	9	2
Tues. 5..	77.4	51.0	64.2	16	0.59	1	5	—	5	6	11	9	2
Wed. 6..	76.2	51.3	63.8	16	0.45	1	1	4	2	5	15	7	3
Thurs. 7..	73.7	51.4	62.6	20	0.34	2	2	4	4	5	14	8	1
Friday 8..	74.1	50.0	62.1	19	0.48	—	2	5	2	2	13	8	6
Satur. 9..	74.0	49.6	61.8	17	0.82	4	1	3	1	3	8	11	7

The highest temperature during the above period occurred on the 8th, 1852—therm. 97 deg.; and the lowest on the 9th, 1863—therm. 33 deg.

Notices to Correspondents.

Diseased Leaves: *L T D.* One of your Rhododendron leaves, that with the white spots, has a Fungus upon it belonging to the genus *Depazea*; the other leaves and those of the Pansies have no Fungus on them. We believe that in both cases the plants have been affected by frost, possibly as early as last November. The effects of frost do not always show themselves at once. You possibly have not had the drought which has been so prevalent in certain districts of the Midland Counties in England. If you have, as we know from experience, it would have aggravated early mischief. *M. J. B.*

Eddoes: *J T S.* Eddoes are the fleshy underground corms or tubers of various species of Arads, especially of Caladium esculentum. They are also called Cocos, and are much cultivated in the West Indies.

Fancy Dahlias: *Novo.* If the growers and fanciers won't recognise the inconvenience of so meaningless a name, and adopt something more intelligible, we cannot help you further than we have already done by suggesting in our previous volumes a practical and practicable remedy. The objection to this word "fancy" as the definition of a class of varieties is quite as strong in the case of some other florists' flowers, as in that of the Dahlia.

Horticulture: *Ignoramus.*—The word Horticulture means garden cultivation; Horticultural signifies of or belonging to garden cultivation. The use of Horticultural Gardens is to exhibit the various results of Garden cultivation.

Names of Plants: *G. Bath.*—We will give you an answer next week. It is because the enquiry is rather difficult that our health will not permit us to undertake it this week.—*Richard T. Key.* Habenaria viridis; Pinguicula vulgaris; Lysimachia nemorum; Trollius europæus.—*Somerset.* Syringa Emodi.

Primula cortusoides: *Z.* This old favourite is likely to originate a race of very popular hardy border spring flowers. The large-flowered and high-coloured varieties introduced from Japan by Mr. Veitch, of which that called amœna is the best, show every disposition to break away both in respect to colour and form, and we shall not be surprised to see some very beautiful things produced amongst the seedlings.

Rose-showing: *Subscriber.* The competition amongst separate varieties of Roses, three blooms of each, is a very interesting feature of a Rose show, but the plan adopted does not as yet bring so many competitors as it should do. Doubtless it would be wise to increase the number of prizes. If some dozen of prizes were offered, and separate classes opened for amateurs and dealers, this feature of the show would be more likely to expand to its due proportions, and thus serve to give variety to an exhibition, which, however beautiful, is rather open to to the charge of monotony. We shall not be satisfied till this unnecessary sameness is broken up by the interspersion of great urns and vases filled with massive and flowing wreaths, and bouquets such as the climbing and Noisette varieties would supply, introduced as a mere set-off to the show flowers.

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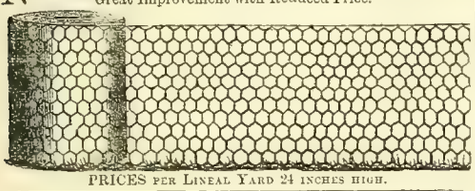
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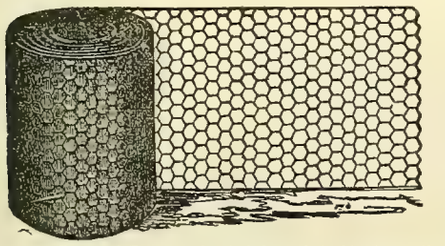


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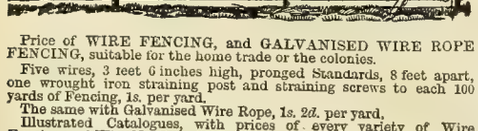
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1½-inch ,, ,, ,, .. ,,	18 ..	6 ,,	4¾ ,,
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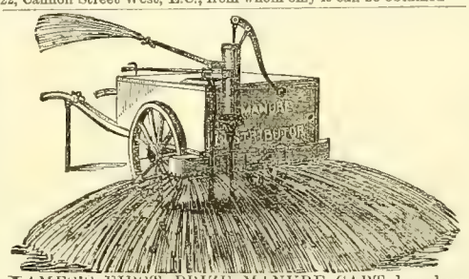
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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
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ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
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Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
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Offices: Castle Street, Exeter; 30, Parliament Street, London.

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Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

DRAINAGE LOANS are made by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY to the Owners of Freehold Estates, Life Tenants, Trustees, Incumbents, Bodies Corporate, &c., for all works of Agricultural Drainage, as well as Irrigation, Enclosing Road Making, Wood Grubbing, and Farm Buildings, sanctioned by the Enclosure Commissioners.
The advances are repaid by way of Rent Charge on the Estate created for such a term of years as the Landowner shall determine will best adapt the annual charge to the circumstances of the Tenants.
No investigation of Title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.
The Company either supply the money expended by Landowners in works designed and executed by their own Agents, or they undertake the entire improvement by their experienced staff, supply the weekly advances required, and charge on the estate the actual outlay in the works, and their commission thereon.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, London, S.W.

ROYAL AGRICULTURAL COLLEGE CLUB.
The ANNUAL DINNER of this Club will be held at the Queen's Head Hotel, Newcastle-upon-Tyne, on WEDNESDAY (July 20) during the week of the Meeting of the Royal Agricultural Society.
Tickets to be had at the Bar of the Hotel up to Tuesday evening, July 19. Members are allowed to introduce friends.
JACOB WILSON, Hon. Sec. pro tem.
Manor House, Woodhorn, Morpeth.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE, 1864.
The LOCAL EXECUTIVE COMMITTEE have arranged for a Registry of Lodgings and other Accommodation for Visitors to Newcastle during the Show, to be kept by Messrs. C. BROUGH, Academy of Arts, Blackett Street, and G. MURAS, 4, Northumberland Street, to whom applications must be made.
R. DODDS,
E. I. J. BROWELL,
WALTER JOHNSON,
JACOB WILSON,
} Hon. Local Secs.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
NEWCASTLE MEETING, JULY, 1864.
PROGRAMME.
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 13, 14, 15, and 16:—
Trial of Steam Cultivators and Field Implements on Benton Farm
SATURDAY, JULY 16:—
The Trial-Yard, for Brick and Tile Machines only, open from 9 A.M. till 6 P.M.; admission, 5s. each person.
MONDAY, JULY 18:—
Cattle-Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement-Yard open from 8 in the Morning.
Admission—Members free; Non-Members, 10s.
The Show-Yards will be closed at 6 in the Evening.
*TUESDAY and *WEDNESDAY, JULY 19 and 20:
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from Six o'clock in the Morning till Six in the Evening. Admission, 2s. 6d. each person.
* Public Working of Steam Cultivators on land in the neighbourhood of the Show Yard.
THURSDAY and FRIDAY, JULY 21 and 22:—
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from Six o'clock in the Morning till Six in the Evening. Admission, 1s. each person.
FRIDAY, JULY 22:—
General Meeting of the Members in the Show Yard at 10 o'clock.
By order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JULY 2, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	July 4 to	Horse Show at Islington.
WEDNESDAY,	— 6	
TUESDAY,	— 5	—Ripon.
WEDNESDAY,	— 6	—Royal Agri. Society of England (Noon).
WEDNESDAY,	— 6	
THURSDAY,	— 7	N. E. Agri. Society at Belfast.
FRIDAY,	— 8	
FRIDAY,	— 8	—Suffolk.

A CORRESPONDENT informs us that he has a stream which at the lowest runs "4 gallons a minute," which our observations on pure water for irrigation have led him to believe might be with advantage carried in a pipe to farms on a lower level. This, including a dam, might be done for about 600*l.*, or for 1*s.* per acre per annum. He has been further encouraged by the remark of one qualified to give an opinion that being within two or three miles of the Edinburgh slaughterhouses, the lower part of these farms would be remunerative if turned into permanent Grass.

Our Correspondent should examine the meadows below Edinburgh at Craigentinny, where, not 4 gallons per minute, but 10,000 to 20,000 cubic feet per hour—and this, not pure water, but foul with the waste of 80,000 people—are poured over the land continually, or for hours together. He should also go to the lands near Grange, on the south side of Edinburgh, and compare the quantities of comparatively pure water to which the large and early produce of Grass is there due, with the stream which he proposes to carry at an expense of 600*l.* for the use of "farms." It seems to us that he must have made a mistake as to the quantity of water at his command, for it would be utterly absurd, except for the saving of life, or possibly for the production of steam power, to spend 600*l.* in the utilisation of 4 gallons of water per minute.

Irrigation has been found to answer near Edinburgh, where the produce of the cow must be unusually valuable, for the cost of her food seems to be greater near Edinburgh than anywhere else on the face of the earth. They pay enormous prices there for green food, and carry it long distances; and it may well be that land "within two or three miles of the Edinburgh slaughter-houses" would pay to lay down in

Grass, notwithstanding the high rents now paid for it as arable land. But it will only be in cases where an enormous surplus of water is at command, not for merely moistening the roots of Grasses, and ensuring growth in drought, but for floating the whole surface with a skin of running water, as is done at Craigentinny, Grange, and many other places with great increase of the natural productiveness of the meadow.

THE great meetings at Newcastle, Stirling, and Sligo will come off during this and the ensuing month. Crowds of English, Scotch, and Irish spectators will attend them — drawn together neither by vague curiosity alone nor yet by desire for information only—the anxiety to know whether this or that will *win*—whether BOOTH or BATES; RIGDEN or Lord WALSINGHAM; FOWLER, SMITH, or HOWARD; HOWARD, RANSOME, or HORNSBY; COLEMAN or BENTALL—which of these is to be the winner of the prize—unquestionably attracts a multitude. How large a proportion of the whole have thus a definite curiosity to satisfy—how many come to inform themselves on the question of merit and to purchase — how many for mere agricultural enjoyment and a holiday—we need not attempt to determine before admitting, as may readily be done, that the PRIZE SYSTEM may be considered one great stimulant and attraction at these meetings. And as *they* are a great and successful agency for agricultural progress, *it* may fairly claim part of the credit for the improvement thus effected. So far therefore, and whether the prizes are awarded properly or not, the prize system is efficient. And although there is necessarily a considerable margin of uncertainty, connected with everything under judgment, around the definable and recognisable qualities and merits which it may possess, so that, in addition to the indisputable nucleus of merit which everyone admits, it will bulk larger and stand higher on the scale to one eye than another:—notwithstanding that there is thus an uncertainty about the official position which may be given to it, arising out of the circumstances of its examination, and out of the personal peculiarities of the judges—so that its place may not be wholly owing to intrinsic worth, as certainly it ought to be—yet the advantages of award by men selected for their ability, the advantages of the stimulant thus applied to exhibitors, and of the guidance thus offered to spectators, are so great that the prize system, as a rule, is not likely ever to be given up.

The exceptions to that rule are where, on the one hand, the same objects come up year after year—when the goal has already been achieved, and there is no room for further progress—or on the other where the indefiniteness or uncertainty is so great that no such examination as these meetings enable is at all likely to determine merit. Live stock certainly obeys the "rule"—many kinds of agricultural machinery appear to us as certainly, on one or other of the grounds just stated, to be among the "exceptions." Messrs. RANSOME, HOWARD, and HORNSBY are to submit their ploughs at Newcastle to examination for the determination of their relative merits—we believe that both the grounds on which these exceptions rest apply to them. These ploughs will be the same as we have seen for many years: themselves nearly perfect, their differences are good for nothing: and such as they are, they cannot be ascertained in a few hours' trial under one set of circumstances. Let the trial be *professedly* a ploughing match—as it *really* is—in which prizes are awarded to the men, not to the makers, for their skill, and it will be equally efficient in attracting spectators, for that is its sole utility at present.

The steam plough trial is another in which great interest is taken. We do not think much of the trustworthiness of a day or two's examination here: but the machinery is new, and it is possible that the stimulant of a favourable award may yet be able to push the invention beyond its present limits. And we would retain this still upon the list of subjects submitted to official trial, not only on this ground, but because it seems from recent experience at Bristol that the offer of official distinction is still necessary to ensure the presence of exhibitors. We can hardly suppose that Mr. FOWLER would have been absent from the show-yard on Durdham Down if any of his rivals had had a chance of carrying off a prize for the best steam cultivating apparatus on English ground. The fitness of the prize system as applied to implements thus has to be determined, piece by piece, with reference to each class of machinery by itself. It ought not to be condemned, and can hardly be defended, as a whole. As its work becomes accomplished in many departments of the field, its agency ought to be directed more exclusively, and with all the greater efficiency, to the others; and thus those who direct it will be the more likely to do good without any mixture of that evil which is now chargeable upon them.

As to the live stock, as we have said, it is not in the least likely that they will ever be withdrawn from the present plan of awarding distinction. And yet there is ample ground for the same sort of criticism here to which the system as regards machinery is obnoxious. Mr. BATES's letter, published some weeks ago, was conclusive on this subject. And his own judgment, as for instance on the Shorthorn bull Sir THOMAS FAIRFAX, lately given here, shows how liable the ablest men are to err, and how true his own dictum may be that 100 men are fit for the office of Prime Minister for one that knows how to act as Cattle Judge.

Perhaps the best illustration of this that we can give is the case of the *Duchesses* and other heifers shown at Canterbury and elsewhere, along with Mr. AMBLER'S *Woodrose* in 1861. Duchess 77 (2 years old at Canterbury), was 2d in her class, *Woodrose* was first. The *Duchess* was 1st in her class at Pontefract, Mr. BOOTH'S *Queen of the Vale* being 2d, and *Woodrose* nowhere. This is one instance of conflicting judgment.

Again, the twin *Duchesses* 78 and 79 were 1st and 2d at Canterbury in the young class—the roan being first and the white second. They were 2d and highly commended at Bishop Auckland shortly afterwards, the white being placed before the roan; they were 2d and highly commended at Dumfries, the roan being placed before the white; they were 2d and highly commended at Ulverstone, the white being placed before the roan; and so at Alnwick, and at North Lancaster: *Duchess* 77, nearly one year older, but shown latterly in the same class with them, being in all these cases first.

The difference of opinion as to 77 and *Woodrose*, and again as to the twins 78 and 79, are a curious chapter in the history of cattle-show judgments.

We at the time obtained from many of the judges engaged the grounds on which their judgment rested; and these, after the lapse of so much time, and taking every care to avoid the identification of the writers, which might perhaps lead to personal displeasure, we now publish. The following, on the merits of the twin heifers and their elder sister Duchess 77, is from a very able and well-known Short-horn breeder:—

"My decided opinion of Captain GUNTER'S twin heifers is that the white is by far the best, having a better back and more substance than the roan, without being inferior in any important particular. The older heifer is, I believe, inferior to both. Depend on it, this heifer [77] has been over estimated; she has tolerable rumps and good loins, but her knees are close together, thin through the chest, and altogether deficient in her fore quarters; besides, the thigh and twist are not perfect, the flesh not coming well down to the hock—in fact she is a good sample of the BATES blood, a fine, gay-looking heifer, but which will not bear a close scrutiny. I know it will be said 'what hair and quality?' this is certainly very fine and highly desirable, but let us not lose sight of substance and a level carcase for fine hair and gaudy loins; this will certainly grow into what we call a patchy cow. Of course you will be guarded as to what you put into print, as I shall be sorry to provoke controversy."

Take now the differing opinion of another equally well-known judge on the relative merits of the twin Duchesses:—

"I have no objection to stating my opinion respecting the decisions which I have been a party in giving at the different Shows respecting the Duchesses. Duchess 77, ever since I first saw her, which was at ——— last year, has been an especial favourite with me. I stood out for her against *Stanley Rose*, but the other two judges thought differently and went against me. The week following they were shown at the Yorkshire Show, and that decision was reversed. Shortly after they were shown at Ulverstone, and Duchess 77 was again the winner by different judges, therefore I had my satisfaction.

"This year the three Duchesses came first before me, at ———. We were unanimous in giving 1st prize to Duchess 77, but contrary to my opinion the 2d prize was given to Duchess 79, Duchess 78 3d: it was the best class I ever had before me. Among them were Mr Booth's *Queen of the Vale*, Ambler's *Woodrose*, Lady Pigott's *Empress of Hindostan* and *Stanley Rose*, &c. Therefore you may see wherever I have been a party in giving the prize to Duchess 79 (white) in preference to Duchess 78 (roan) it has not been with my consent.

"In giving my opinion respecting the three Duchesses, it is difficult to draw a fair comparison, inasmuch as there is seven months difference between 77 and the twins, and none can tell what seven months of good keep may do, and one has an advantage in one way, the others in another, but they all agree in being of the best quality I have laid my hands upon this year, and I have acted as judge in one capacity or another 14 times. Duchess 77 has not had as good a chance lately, being nearly up to her time of calving has in part spoiled her shape, and made her fore-quarters look rather defective to a person who has not seen her before.

"In regard to my giving preference to Duchess 78 to Duchess 79, the latter I consider has no advantage in any way to the other, except a little larger, and horns of better colour; my favourite is a better handler, of finer bone, and has a gayer and a more aristocratic look, especially in walking, and what I dislike the most is the way 79's horns stand, having too much the appearance of a steer, which, in my opinion, takes as much off the price of any breeding Short-horn as almost anything else. I would not use a bull with horns standing erect in that way if I had him given. Any competent person going round among the best herds will soon see the fatal effect where a bull of that kind has been used."

We have yet one or two other testimonies on this subject. At another show the same year, when the *Duchesses* 77, 78 and 79, and *Woodrose* were shown, and when the cup was awarded to one of the Duchesses, the following account was given of the decision by one of the judges:—

"The judges were and I fear would be thought a very long and tedious time by those outside the ring, in coming to a decision as to which to place first for the Cup as the best female animal at the show. For, considering the class of animals competing, it certainly required some one well versed in Short-horn matters to find out any little defect there might be in several of them, especially the three *Duchesses* and *Woodrose*, which were selected for the best, and then came the rub as to which of the four to place first. My opinion at that time was that 78 (roan) was the best and most perfect in form, style, and quality; and it being their first journey from home, and only a very short one, they all looked as well as they possibly could, and certainly very great credit is due to Mr. KNOWLES and those who had the care of them, for no animals could be better brought out than they were. Duchess 77, no doubt owing to her being so heavy in calf, was somewhat out of form, which gave her juniors a great advantage, and the same was the case with *Woodrose*, Mr. AMBLER'S beautiful heifer. I have seen them often since, and now consider 79, the white twin, the best. Her travelling seems to have improved her, and she has now much the wider girth of the two, which in my opinion is a very essential point in a Short-horn, and ought never to be overlooked. When last I saw them together, late in September, there was something superior in 79 over 78 that I cannot describe. I have given you the grounds of my decision as well as I can describe them, and if it is of any service to you, you are quite welcome to make what use of it you think proper."

Lastly, we have the history of a case in which 77, 79, and 78 came together in one class, and when 77, the older heifer, was placed 1st; 79, the white twin, 2d; and 78, the roan twin, nowhere. The writer gives his judgment as follows:—

"I am afraid you have undertaken a difficult task in bringing before the public the satisfactory reasons which have induced judges more than once to reverse decisions relative to the merits of the two rival Duchesses. It must be manifest to all that their merits are nearly equal, or such contradictory adjudications would not have been given. Duchess 77 is a beautiful roan, Duchess 79 is a creamy-coloured white, both possessing superb frames and beautiful proportions of great uniformity; both very handsome, and of exceeding fine quality in flesh and offal. Which had the preponderance of the finest and best points? '77th has the handsomest and best head, but her neck is longer and thinner than 79, and not so perfectly set to shoulder and chine—her chine certainly is not so good, neither do her ribs spring so well from her back as 79, and all her underneath parts are to my mind much inferior to 79, nor can her girth be so great (this we subsequently proved by the tape); the loin, rumps, and teats of 77 are uncommonly fine and broad, certainly superior to 79, but again she falls off comparatively in flank and twist. As a whole, 77 is the more magnificent animal of the two, but she does not possess so great uniformity as 79, nor does she denote a greater weight; her colour, too, is preferable, but I cannot get over perfection of form and symmetrical proportions, and these are more prominent in 79 than 77, and however fashionable the colour of 77, I must decide in favour of 79 as having a slight advantage in preferable points.' These were my grounds for arriving at the decision I gave."

It is very rarely indeed that a judge either will or can thus give the reason in detail which guides their decision; and it is plain from the quotations already given that a great deal of any award is due indefinitely to the degree in which any animal approaches the varying ideal of perfection which every judge conceives for himself. The Canterbury decision, the only one in which *Woodrose* was

placed above the *Duchesses*, was in all probability *generally* voted to be a mistake. At the Yorkshire Agricultural Society immediately after, as at the Selby meeting immediately before, the decision was reversed. Cattle judgments, as well as implement judgments, are thus not necessarily true or just; but the margin of liability to error and injustice must in both cases be very wide indeed before on that ground only the prize system will be abandoned.

We conclude with one extract more on the merits of *Duchess* 77 and *Woodrose*. The writer says:—

"With respect to the Pontefract decision I think the very great majority of breeders of first-class Shorthorns agreed with the decision between Duchess 77 and Woodrose. I believe the authorities at Watkinson Hall will be found among the number. *Woodrose* is a good thick useful heifer, but there is not the *style* about her that there is about Duchess 77. The latter beats all that I have seen shown this year in quality. A heifer of Mr. R. Booth's was placed 2d to Duchess 77. She has not the quality that Duchess 77 has, but is quite as good as *Woodrose*, and more symmetrical.

"In judging animals we give it to the best animal at the time we see them. In young growing animals a month sometimes makes a great difference when one is improving and another going back. Perhaps next year Mr. Booth's heifer may be as good or better than Duchess 77, and if so it will be acknowledged."

We agree with the writer in his further assertion that something should be done to prevent breeding animals being exhibited in the very fat state they are at present. The judges cannot get over it. The fat ones, if they are equally good, are sure to win. We would give prizes for heifer calves, yearling heifers, and for cows that had at least two calves. This would save many a valuable animal.

PRESENT APPEARANCE OF THE CROPS.

Essex: *Tiptree Hall, June* 27.—Said a Yorkshire coachman, who was driving me, "We shall have plenty of corn this harvest, for we have plenty of sour milk." I replied, "What has sour milk to do with the crops?"—"Well," he said, "we always find that when there are plenty of thunderstorms we get a good crop." This occurred many years ago, and I have since noted the observation was a correct one. Although our present Wheat crop can hardly be so large as that of last year, still it promises to be a full average crop. Barleys are good. Oats short and wanting rain, which may still help them up to an average. Beans are in excellent condition, and entirely free from any fly or insect, which is unusual and remarkable. Mangel and Turnips plant well; Potatos and vegetables are good—the former on light lands require rain; altogether it is more a heavy land than a light land season, and we know that it is from the stiff lands that we get so much Wheat. The hay crop is moderately good; with a fine time to get it up. Harvest will be general in this county, I think, by the 1st of August. On the forward lands it may be quite a week earlier than that. Severe white frosts destroyed the flag of the Wheat, and in some cases caused a benefit by checking its over luxuriance. Fortunately these frosts were accompanied by very dry weather. *J. J. Mechi, June* 27.

Gloucestershire: *Cullabine Farm, Dumbleton, near Evesham, June* 28, 1864.—In compliance with your request that I would give you my opinion as to the state of the crops this season, I must say that from personal observation and from what I have heard other farmers say, within a circuit of 10 miles, there is a great deficiency in the growing crop of Wheat, and a great deal of it must be much below an average crop; in the early spring, when the plant should have been tillering, it was attacked by the grub to a great extent; in most cases it was filled up with White Talavera Wheat, which is a failure. It is like a great deal of late planted Wheat in 1862, it looks like a lot of blighted Grass that never came into ear, neither will this. I am happy to say, however, that there are exceptions; many of the early planted crops will grow an average crop, anything over that will be rare. The early planted Barley is looking well, and does not appear to suffer from the very dry cold season; but many late crops are very light indeed. Spring Beans, should the fly not take them, I think will be an average crop on all the best cultivated farms, but the winter Beans are a total failure. Peas, which we are growing to a large extent, in consequence of the severe frost killing winter Beans, are looking remarkably well, and will be an abundant crop. Oats are grown very little in this neighbourhood. Winter Vetches have afforded very little keep this season, having suffered, and in many cases been quite killed, by frost; many complaints have been made as to whether the seed planted was the true Winter Vetch. Mangel Wurzels are not looking at all well; in many instances the greater portion of the seed is now only making its appearance, and must be a very light crop; but of course the old adage, half a loaf is better than no bread, holds good; and where gappy they should be filled up with Cabbage plants. I have planted 40,000 Cabbage plants this season, from the early portion of which we are now cutting a few for the sheep intended for exhibition at Newcastle. I will mention that I think Cabbage growing has not that general attention paid to it which it deserves. I consider that Cabbage might with management, could a little of the prejudice be rubbed off men's minds as to its exhausting qualities, which could be remedied by using plenty of farm-yard manure, and so returning to the land what it takes from it, be grown to very great advantage. One of the farms I cultivate is naturally a very stiff cold clay, but with a liberal supply of muck, I know I have grown many times 40 tons of Cabbage per acre. I have a plot of ground now planted with Cabbage; it is a very thin stone brash, such as our Hill Farm is in some parts composed of. This small piece is contiguous to the farm buildings, and being an odd corner is under spade husbandry; the soil is very thin indeed, and rests directly on the rock; it has been under Cabbage five years out of the last seven, and I have taken three prizes with Cabbage grown on it three years out of that period against that grown on land worth more than double the rent. After each Cabbage crop it has had a liberal dressing of good rotten farm-yard manure: the plants this year were put in in the middle of April, being half Wheeler's Imperial (a very early and good Cabbage), the other half Drumhead planted in alternate rows; the first named are what I am now cutting, to give the others room (they are growing so vigorously). After having hoed them I applied about 3 pints of liquid manure, and no other has been used; my later planted ones are suffering from the drought. I find that if Cabbage plants when planted in dry weather had only 1 pint of water applied directly to the roots it would save them; I kept planting and watering for five days, when there came a slight rain. I thought that would be sufficient and save labour, so left off watering; not so—when I left off watering, the plants ceased growing. Swedes are much affected by the fly, and I hear of many planting a second time—perhaps rather prematurely. The whole of the green crops and Grass want rain badly. The hay crop is very light in most localities, and keep is getting short. *Charles G. Clarke.* I enclose two or three ears of Wheat, which I consider to have suffered from the frost 27th of May; there is a great deal of such among the crops. [The tops are withered].——*Didmarton, Chippenham, June* 29.—I regret that I cannot report favourably of the appearance of the crops in this neighbourhood, chiefly the light soils on the edge of the Cotswold Hills. Some of the Wheat, where exposed to the north-east, suffered much from the late winter frosts, but yet much looked well during the spring; the greatest part, however, has come into ear unevenly, looks thin, and short and weak in the straw. The spring Wheat looks rather better in proportion than the winter, but altogether I consider the Wheat will be under average. Barley and Oats not bad colour, but very short in straw; the drought (as very little rain has fallen here) and cold nights stopped the growth of straw and development of the ear, and the yield must be very much under average. Beans and Peas not much grown here; they appear variable. Potatos much cut by the severe frost, which they can scarce recover. The season was favourable for cleaning the land and sowing the roots. Mangels a tolerable plant; Swedes, early sown, look very patchy, having come up at intervals; but the whole, with patience and expensive care in hoeing, may yet be a fair crop if more rain comes. All the hay crop (Sainfoin being the best) is very light indeed; the artificial is well made, but most of the English is yet to be secured. Grass keep is very bare, much like the summer of 1844, and all the cattle have to work hard for a living; but horned stock have done fairly when supplied with water; sheep not so well, many lots of lambs have gone off with scour and debility, although no expense has been spared in providing for them; but some kind of insidious fever seems to mar all our efforts, and appears more prevalent of late years. As stock should now be the great object, losses of such create anxiety, and the coming winter's keep must be well looked after. *Stiles Rich.*

Kent: *Marten, near Dover, June* 27.—The Wheat in our neighbourhood, generally speaking, looks well, though in many fields it is thin in plant. The spring corn also looks like an average crop. Peas above an average unless they are attacked by dolphin. The crops of Clover and Sainfoin have been short, but I think secured in good condition. Turnips and Mangel have come up well, and at present seem clear of fly, &c. On the whole I think the present prospects would lead us to hope for average crops. *Mark Sandford.*

Northumberland: *Anick Grange, Hexham, June* 27.—All the cereals are I think looking well on dry free soils; on poor and strong clays they are very indifferent, but on good land I think there is every prospect of a full average if weather continues fine. Harvest will not be general before the end of August. Winter sown Wheat is just showing out of the shot blade, and early Barley just getting clear of the blade, and this only in early situations. Clover cuts up very light in general. Meadows are not started yet, but will prove a fair crop I believe. Potatos look vigorous and promise well. Of Turnips it is too early to speak, they have brairded very irregularly in some places, having been in some instances to sow over again, but on the good Turnip lands I believe they are generally good. *Thomas P. Dods.*

Warwickshire: *Milcote, Stratford-on-Avon, June* 27.—Except on the deep rich loams, the prospect of a crop of Wheat is not encouraging. On the Turnip soils (owing to the general failure of the Clover and mixed seeds sown in 1863) much of the Wheat is growing after Barley, which is a bad antecedent for it, and the wireworm has committed great devastation on the plant drilled after Clover and Rye-grass, therefore the crop is thin, short, uneven, and does not promise to be good. The plant on the clay was much injured by frosts, and on these soils it is thin, weak, and unsatisfactory. Barley, where early sown, is a good crop on land suited to it, but the complaint is general of its having done badly on the heavier soils, or where it was planted late. Peas promise an abundant yield, and are early. There is a better appearance for Mangel than has been for several seasons, as the plant is regular, and has grown rapidly. Turnip growers have been much plagued by fly, and many fields have required resowing, but it is too early to speak of the probabilities of this crop. The hay is about half the usual quantity, and only a small portion of it gathered. Potatos are of excellent quality, and very productive. *J. C. Adkins.*

DAIRY FARMING.—No. I.

[The following are abridged extracts from the first of a series of lectures given at the Royal Agricultural College, by J. T. Harrison, Esq., of Frocester Court, Stonehouse, Gloucestershire.]

(1.) *What Land is most Suitable for Dairy Farming?*—In our search for a satisfactory reply, let us examine first of all the districts of England most famous for cheese and butter making. We find them extending from the borders of Devon and Dorset, through Somersetshire, branching between the Cotswolds and the Chalk Downs, through Wiltshire by the Vale of White Horse, through Berks, Oxfordshire, Bucks, and Beds into Cambridgeshire, in which district excellent cheese is made, but on the whole it is perhaps more famous for butter and grazing. On the opposite side of the Oolitic range from Somersetshire by Gloucestershire, Warwickshire, Leicestershire, through Nottinghamshire, Lincolnshire, and Yorkshire, and on the eastern side of the Pennine Chain, and through Derbyshire, Cheshire, and Lancashire on the western side, we find the principal cheese-making districts of England.

There does not seem to be any cheese making to speak of in Ireland, as that article is imported into it, and is sometimes sold at a high price in Dublin. Much excellent butter, however, is made and largely exported to England.

The first lesson then we learn from this examination is, that whilst butter, as the chief produce of the dairy, is made over a very extensive area, the cheese-producing district is of much more limited extent.

I am aware that I am open here to the objection that the Ayrshire experience is opposed to this conclusion, and that Mr. Harding's observation in 1859 to the Ayrshire Agricultural Association "that he was satisfied that whether he made cheese at Dalzig, among the mountains; at Canning Park, among forced Grass; or among the Heather at Corwar, where Mrs. Mason is making the desert to blossom as the Rose, there was no material difference whatever. His opinion was that good cheese, with good management, in the hands of a person who has something in the upper storey, can be made anywhere, whether at the Land's End in Cornwall, or at Caithness, in the extreme north of Scotland." To this I readily assent, with this proviso, that the land if not naturally suited for cheese making must be made so artificially. The point I am now enforcing is that some soils appear naturally fitted for cheese making, and that they are of limited extent, and the larger portion of our island is not so fitted.

A number of tables are then quoted of Dr. Voelcker's and Dr. Playfair's analyses, showing the great variety of composition which milk exhibits under the different circumstances in which cows are placed as to food. The lecturer then discusses the various circumstances affecting the growth of the different Grasses which constitute the chief food of dairy cows—Messrs. Lawes and Gilbert's researches showing the beneficial influence of phosphates and mineral manures on the growth of Clovers, and the effect on the other hand of ammoniacal manures in encouraging the growth of Grasses to the destruction of the Clovers.

(2.) *How to Grow Clover among the Grasses.*—With the results quoted from direct experiments, the experience of the Cheshire and Lancashire dairy-farmers corresponds. That experience is that the application of bones covers the ground thickly with Clover, Trefoil and succulent Grasses, in lieu of the thinly planted and very innutritious pink-pointed Grass which previously occupied the soil; whilst the quantity of cheese is in some cases doubled, and the quality improved.

Dr. Voelcker remarks: "On the porous land of Cheshire and similar soils on the new red sandstone formation, the result of boning is very striking; not only do bones there bring out White and Red Clover, but promote an abundance of the growth of succulent Grasses. The Clover itself becomes very luxuriant, and thus helps to increase the produce."

Now what is there in these leguminous plants, these Clovers, Trefoils, &c., that distinguishes them from the graminaceous plants?

Messrs. Lawes and Gilbert's experiments prove that

they are eminently nitrogenous, and remarkable for the quantity of lime they contain. When abundantly supplied with mineral manures to their roots they seem to have power pre-eminently of abstracting ammonia from the atmosphere; which is shown not merely by themselves being highly nitrogenous, but, as found by Dr. Voelcker, by leaving a larger amount of nitrogenous matters in the soil than existed before their growth, thus providing specially grateful food for the succeeding white crops when grown in rotation.

The Graminaceæ, on the other hand, require a liberal supply of ammoniacal manure to their roots, and when they have got it do not return the compliment by becoming highly nitrogenous themselves, but are chiefly composed of fat-forming and heat-producing elements. Professor Way suggests that the ammonia, which is so largely required by them as manure, acts as a carrier to the silica, nitrogen being exhaled as it is deposited.

A table, giving the composition of the ash of a number of Grasses and Clover, is quoted in illustration of these views.

As instances of the effects of ammoniacal manure, it is a common saying in Gloucestershire that when a person is putting a heavy dressing of farmyard manure on the Grass land he is poisoning the land, resulting in spoiling the cheese. No doubt more care is required in making cheese, but mowing the first year after manuring will generally remedy the mischief when there is plenty of mineral manure in the land.

Again, a highly improving dairy-farmer in Leicestershire dressed a piece of land heavily with sewage manure. When the cows were turned into it his dairyman could not make cheese at all, and went in great distress to his master, who resided at Derby, to tell him he must give up his situation. His master, however, told him to purchase a skimming dish and skim the milk till the cheese would stand; he did so and succeeded.

This is quite in accordance with what we might expect from Messrs. Lawes and Gilbert's experiments; the luxuriant Graminaceæ had smothered the Clovers, &c., enriched the milk as to butter, but seriously injured it for cheese.

I find that Professor Johnston estimates that the farm parts with as much earthy phosphates as is contained in 56 lb. of bone dust, in the milk of each cow, in its urine, and in the bones of each calf reared and sold off. It is therefore, he says, quite reasonable to expect benefit from a manure which restores these phosphates to the soil.

But, according to Dr. Voelcker, on land which is cold and wet, and rests on a poor undrained subsoil, bones often produce no effect. A great many pastures in the West of England, in Somersetshire and Devon, a considerable portion of the Grass land in Gloucestershire, and some of the heavy land in Shropshire, cannot be improved by bones. And Mr. Caird remarks that there is something in the soil of Cheshire peculiarly favourable to the action of bone manure; as in other dairy counties, where the same withdrawal of the phosphates has been long going on, an equally good effect, it is said, has not followed the application.

These observations of Dr. Voelcker and Mr. Caird seem almost obviously to point out the reason for the difference; which, I believe, is, that whilst the new red sandstone of Cheshire did not probably originally contain so much phosphate of lime as the lias clays and other later formations, it likewise, from its porous character, could not so well retain it.

We are brought then to this point in our investigation, that there must be something in the land of the natural cheese-making districts which is peculiar to it, and that something seems to be phosphate of lime; which thus becomes most highly important in our present inquiry.

The lecturer then proceeds to discuss the value of phosphorus and lime in the economy of Nature, and the presence of both in certain minerals, organic remains, and geological formations.

(3.) *Natural Sources of Phosphates—the Food of Clover.*—I believe I may truly assert that as the carboniferous system contains the great vegetable deposit of the earth's structure, so the secondary contains the great storehouse of animal fossil remains, in the condition most suitable to secure the continued fertility of the earth for the benefit of man. For in the form of superphosphate of lime it seems to be the basis of successful agriculture.

Consider the important part this manure (from whatever source obtained) plays in the agriculture of the present day. By means of it much of the Wolds and Downs of the country have been changed from mere sheep-walks into well cultivated fields, green with the luxuriant Turnip crops, or golden with the rich harvest of corn. Good crops of roots being secured, we have the plentiful supply of food for the sheep, yielding us its wool and mutton, and leaving behind a rich ammoniacal manuring for the succeeding corn crops.

It is from the secondary formation that coprolites, now so extensively used in the manufacture of phosphate of lime, are obtained, and the phosphate of lime found near Farnham, in Surrey, in such abundance as to be largely used in agriculture for fertilising soils, occurs exclusively, according to Mr. R. Austin, in the upper green sand and gault, and Lyall remarks, "it is doubtless of animal origin and partly coprolitic, probably derived from the excrement of fish."

I may mention here a remark made to me by an intelligent Cotswold farmer during a discussion at one of our Kingscote meetings; it was that the soil of the Gloucester Vale would be manure to their hill farms; at the time I thought little of it, but he meant it, and he was right. I have no doubt that certain beds of the lias formation, which by its producing, in many cases, cheese year after year without extraneous assistance, possibly for centuries, and without marked diminution in its capabilities of continuing the production, are so supplied with phosphate of lime that if used as marls on the oolitic farms they would prove excellent manures.

Reference is then made to the fact that the fossil remains of the older formations are shells or crustaceans, whose outer armour contains little or no phosphate of lime. The dairy districts, accordingly, belong almost exclusively to the secondary formations, in which phosphate of lime abounds, through the remains of vertebrate animals.

(4.) *Recapitulation.*—We found that whilst butter is made throughout the United Kingdom, the district for cheese making is of limited extent. This led to inquiries as to the variations in the composition of milk under different circumstances, and we found there was conclusive evidence of the influence of food upon the quality of milk. This again directed our attention to the effect of manures on the growth of Grasses, and we found that Messrs. Lawes and Gilbert's experiments and Cheshire experience both pointed to phosphate of lime as the manure encouraging the growth of those Grasses which increase the quantity and improve the quality of the cheese made from them.

Further, some lands were found to be greatly improved by the application of bone manure, whilst others were not benefited, although cheese had for very many years been made from them, by which large quantities of phosphate of lime must have been carried off. And the conclusion seemed a reasonable one that there must be a large supply of bone earth in such land, and the question arose—how came it there?

On examining, then, the geology of the district, it appeared that the surface of England where the secondary formation crops out, coincided with the cheese-making districts.

We found that, whereas the transition rocks contained the great depository of crustacean and vegetable remains, the secondary formations were remarkable for their valuable vertebrate animal deposits in a condition most suitable to ensure the continued fertility of the soil.

And we remarked that whilst the primary rocks are azoic, and devoid of animal remains of any kind, the Silurian rocks contain remains only in the shape of carbonate of lime, and that the fossils of the old red sandstone and carboniferous systems are nearly in the same condition, those of the secondary formation are distinguished by vertebrate animal remains containing much phosphate of lime.

And lastly we remarked the striking fact that the mammals, or milk-producing animals of the higher order, do not appear on the earth's stage until we reach the times of the tertiary formation.

Let us consider, then, what lessons we may learn from this investigation.

The first I think is, that on taking a farm we should not neglect or despise without careful investigation the system of agriculture pursued in the neighbourhood. Those following it may not always be able to give a satisfactory reason for their practice, which has possibly been arrived at by a trial and error process continued through ages. The rule of thumb system is therefore the best to begin with, cautiously introducing innovations on the old system.

The second, which is especially important to those of you who are intending to emigrate, is to encourage a habit of observation. You will possibly have to deal with an entirely new country, where there is no local experience to guide you. Observe well, and make yourselves masters of the practice at home, and as far as possible of the causes which have led to it.

The third lesson is that you cannot too eagerly pursue scientific knowledge of every description, not only for the pleasure it affords, but because it is practically useful. Chemistry, Geology, Botany, and Zoology, of which I regret to say my own knowledge is so superficial, are all of them invaluable. They proceed together as it were hand in hand, each assisting the other, and together, I am more and more convinced, combining to prove the omnipotence, omniscience, wisdom, and goodness of the Almighty Creator of the universe, whose hand we should ever see and acknowledge in the kind provision made for our daily wants, as well as in the wonders of creation that we see around us.

CATTLE IMPORTATION AND CATTLE DISEASES BILLS.

THE SELECT COMMITTEE to which these Bills are referred reassembled on Thursday, Mr. T. Baring in the chair.

Mr. BROWN deposed that he was a farmer residing near Chippenham, and that he kept a large number of sheep. The powers exercised by the Privy Council had tended to check small pox in sheep, and they would be of greater service if they were stronger. The importation of diseased sheep ought to be stopped, and a penalty inflicted in cases where a man brought bad sheep into the store market. A fine of 20*l.* would not be too heavy. The manner in which Professor Gamgee had treated the small pox in the Wiltshire flocks was deserving of great credit. He knew that Professor Simonds recommended inoculation, but it had often failed, and in his opinion ought to be prohibited. The best plan was either to kill the diseased animals or separate them from the flock. Six of his sheep had been vaccinated for the purpose of stopping infection, but they were afterwards inoculated, and two of them died. He did not think that they would have taken the disease at all had they not have been inoculated. Vaccination was the best means of stopping the spread of the disease, but with Dr. Gamgee he looked to the destruction of the animal in the worst cases. The decision of the farmers of Wiltshire assembled in public meeting to discuss the question of smallpox in sheep was decidedly opposed to inoculation. The power given to the Privy Council to order the destruction of diseased sheep was very valuable. The power exercised by the Government could not be too strong, as the prevention of disease was a most important matter.

Mr. KILLBEE, a salesman and grazier of Liverpool, was examined by Lord Naas, and said that having had considerable experience he was of opinion that pleuro-pneumonia was on the decrease, the number of cattle affected with that disease this year being not more than one per cent., whereas eight years ago it amounted to no less than six per cent. The violence of the disease was now much diminished. It would be impossible to enforce the greater part of the clauses of the Cattle Diseases Bill, as, if they were carried out, the result would be an intolerable interference with trade. The law as it stood was quite sufficient for all purposes. The proposed inspection, even if it could be acted upon, which he did not believe, would be worthless. His experience with regard to sheep was limited, but he knew that scab broke out in an irregular way. The public were already sufficiently protected with regard to both diseased cattle and sheep, and that further legislation was not therefore required, he believed was the general opinion of the trade. They were unanimous in scouting the idea that the store market required any legislative protection. Animals brought to the markets by steamboats certainly arrived in a much better state than those brought by rail. Pleuro-pneumonia did not affect the quality of the meat at all. He sent the carcase of a cow affected with pleura to Professor Muspratt, a chemist of Liverpool, and after the application of the usual tests, that gentleman gave it as his opinion that the flesh was good and wholesome food. That cow was known to have had the disease for ten days previously to being killed. There was no difficulty at all in curing scab in sheep, and the expense was very trifling; the most expensive part of the operation being the tobacco water. Butchers would not buy diseased animals, and their judgment might be taken as sufficient. He approved of the inspectors being appointed, as in Liverpool, by the corporation. Inoculation was a perfect farce. The best remedy for pleuro-pneumonia was the knife. He objected to anything which would check the importation of cattle, and he preferred an action at law in a remedy to going before the magistrates under Act of Parliament. The animal, part of which he sent to Dr. Muspratt, might have pulled through altogether, or it might have lived only three or four days. He believed the flesh of an animal a long way advanced in pleura to be fit for human food. The Bill, in his opinion, was altogether useless. The animals got much bruised and injured in railway trucks, and therefore for a journey not exceeding 30 miles it was much better to let the animals walk than to send them by railway. He did not consider it necessary to inflict a penalty in the case of a man bringing to market animals affected either with pleura or scab, and he objected entirely to any inspection of live stock. Under the provisions of the Bill half of the animals brought to market would have to be slaughtered. No amount of science would enable any one to detect the extent of the disease until the animal was dead. Scab was communicated without contact with diseased animals, but when it was detected it could be cured in a very short time. He would not have scabbed sheep excluded from the market, for although it was a contagious disease the meat was none the worse for it. Scab was often the result of overdriving. He had known sheep driven 30 miles, which were all right when they started, but which were afterwards found to have the disease. There might, for all he knew, have been incipient disease with those sheep at first. He had heard it stated that scab had its origin in a parasite, but it was of little consequence to him how it came, when it could be easily cured as soon as discovered.

Mr. MARK AINGER, cattle salesman and grazier of Dublin, had had considerable experience of pleura ever since it first appeared, and in his opinion it was due to atmospheric causes. The practice generally followed in Ireland was to send cattle affected with disease to market at once. The loss on store beasts was very great, but with fat cattle it was insignificant. Experienced men would readily detect pleura. No legislation would prevent its spread, and anything that Parliament might do would in all probability be mischievous to trade. The provisions of the Cattle Diseases Bill would be very harassing and annoying in operation, and no practical good would be effected. He had 1040 beasts and 750 sheep, and the amount of pleura had been reduced from 22 per cent. in the first two years to one

in 250 now. The graziers of Ireland were generally of opinion that the disease was gradually declining.

Mr. GARNETT, a large farmer of Meath, who represented the graziers of Leinster, gave similar evidence.

The Committee then adjourned till Friday.

THOROUGH-BRED HORSES.

ON Tuesday last Mr. P. Wyndham moved in the House of Commons to discontinue the system of the Queen's Plates hitherto given for races, on the ground that the system has tended rather to the deterioration of the race horse in this country. He quoted Mr. Dickenson from the Journal of the English Agricultural Society, as follows:—

"Great advances have been made in the breeding of cattle, sheep, and pigs, in every part of the United Kingdom during the last 40 years. What is the case with regard to horses? Have they not retrograded in the same degree? Can the present race of horses be compared with those bred 40 years since? The cart horse, perhaps, is the only class that can bear the comparison. There is a cause for this which I shall mention hereafter. Formerly Royal Plates of 100*l.* each were given for competition all over England, for four-year olds, 10st. 4lb.; five years, 11st. 6lb.; six and aged, 12st.; decided in four mile heats. Our horses were then the envy of the whole of Europe. These Royal Plates, for high weights and long distances, brought up our horses to this point of excellence; so long as they were so given so long we kept our supremacy, but by some unfortunate influence the conditions were altered, and lighter weights and shorter distances allowed. From this point I date, under my own observation, the commencement of the deterioration of our thorough-bred horses, and consequently those in everyday use."

The motion was ultimately withdrawn, after Mr. Newdegate, Sir R. Peel, General Peel, Lord Palmerston and others had spoken. The following is General Peel's speech as given in the *Times*:—"I disagree with the opinion that the breed of horses in this country has deteriorated. I have been for at least 40 years a breeder of this class of horses, and if my authority is worth anything it is certainly opposed to that of Mr. Dickenson. The hon. member's proposal is that the grant for Queen's Plates should be put an end to, 'as it no longer encourages the breed of good horses.' Now, I requested the hon. gentleman to postpone his motion, and I did so because on the 1st of next month there is a show of horses in this town, and I believe there will be 300 hunters, 42 thoroughbred horses, with hacks and horses of every description. I wanted the House to judge for itself whether the breed of horses had fallen off or not. In the Easter vacation I went to see two studs of horses—one belonging to a noble lord who unfortunately did not run first, but ran second for the Derby. He had 36 horses in training, and I think 18 of them would have carried me. I don't think I can give better proof of the quality of the present breeds of horses. My other visit was paid to the hon. member for Hythe (Baron Rothschild), who possesses as fine a stud of horses as can be seen anywhere. So far from the breed of horses having fallen off, I believe there never was a time when thorough-bred horses were more surely going back to that size and power which formerly distinguished them. Objection is taken to the racing of two-year-olds. And what is proposed? Why, to do away with all the races for old horses, all the weight-for-age races, and to abolish the Queen's Plates. I say it is impossible to tell to what degree these Queen's Plates encourage the breed of horses. You cannot judge of this at all by the number of horses which run for them. After horses have passed their third year, a man is inclined to ask, 'What can I do with them?' 'Oh!' he thinks, 'I can race them for Queen's Plates;' and this attaches a value to these horses which otherwise they would not possess, and without which they might go out of the country. But then it is said, 'These horses ought to run longer distances and with heavier weights.' Well, I say in reply that Admiral Rous is quite right, and that if you do so you will have none but common hacks running for Queen's Plates. No man would run good horses in four-miles heats with heavy weights for 100*l.* At the same time, horses now-a-days are as capable of running four-mile heats with 10 stone on their backs as they ever were. Well, then, 40 years ago I recollect it was thought a miracle when a two-year-old won the Feather Plate at Newmarket. Now, nothing else wins. I had much rather that the two-year-olds did not run in these races, but the fact I mention shows how the breed has improved. If the breed of horses has fallen off, buyers must certainly be extraordinary people, because they now give higher prices for thorough-bred horses than they ever gave before. Look at the prices fetched for yearlings at sales during the present year, including that of the Royal studs at Hampton Court. Depend upon it the public do not give these higher prices for brutes. Among the starters for the last Derby there were four or five of the finest horses that have run for many a year—certainly as fine as have run during my recollection. In my opinion there is nothing in the world like a thorough-bred English horse; and if you tried to produce large coach-horses you certainly would not improve the breed. I recollect the match of 200 miles in 10 hours that Mr. Osbaldeston won at Newmarket. Did he choose great hunters or strong half-bred horses? Not at all. Every horse he rode was a thorough-bred, and he did not care what they were; he took any horse which had had any training, and never varied in this choice. He rode each horse four miles, his riding weight being 10 stone. One horse carried him four times. It went 16 miles in 32 minutes, and no half-bred horse would ever have done that. Well, then hon. members say, 'Why should the public give this money for Queen's Plates?' Now I am prepared to make this proposal to the Government:—They give 3300*l* a year in Queen's Plates. But they take 7000*l.* a year in the tax levied on racehorses. Why put an additional tax on racehorses? Why not let them pay the exact tax that other horses pay? If this is done, owners of racehorses don't want the Queen's Plates. There is no class of people who enter more into the free-trade spirit than racing men. We have not sought to shut out foreign horses. We have always upheld free-trade for the turf; we have challenged foreign horses to come over here and compete with ours; and we have even given them weight because it was thought that they hardly stood upon equal terms with English horses. It is true that in France at present they have better horses than they used to have, but these horses are every one of them of English bloods. There is not a single country abroad where country-bred horses run—all of them are English bred, and buyers come to England for them. I can only say again that I think the hon. member is quite wrong in holding that our breed of horses has deteriorated, and is still more at fault in the manner in which he seeks to rectify this supposed deterioration—that is to say, by doing away with Queen's Plates, the only races left for old horses to run in. If the Government have determined to reconsider the question of weights and distances, I only hope that they will consult those who are the best judges of what is likely to promote the interests of racing. I should not have ventured to express these opinions if I had any interest in the question; but, as I no longer own a horse of any description, I have no personal interest in the matter whatever, except what arises from my great desire to assist in any measures that may improve the breed of English horses."

We add the following letter from Admiral Rous, which appeared in Wednesday's *Times*:—

"There can be but one opinion among all persons who are interested in the turf—that the grand object in breeding is to combine good size, great strength, and power of endurance with superior speed. This has never been lost sight of. Our motto is 'Fortes creantur fortibus et bonis.' We have succeeded in establishing a breed with one-fifth more speed and more strength than the original stock—an increased average stature from 14 hands to 15½—in 13 generations from the first imported stallions, Darley Arabian, Byerly Turk, without a drop of mixed blood, and we have a firm conviction, with ready proof, that no horses in the world can be compared to them.

"On the authority of Abd-el-Kader and my Indian friends, the race of Zad-el-Rakeb, the gift of Solomon to the tribe of Azed, has not degenerated since 1720, when the calibre of the English racehorse was probably on a par with the barbs which now adorn the Gibraltar meeting. Admit this fact, and it is patent to every racing man that the best of these 'divine horses' which, according to Eastern history, descended as a heavenly gift from Adam to Ishmael, Ishmael to Solomon, from Solomon to Mahomet, and from Mahomet to our own times, cannot compete with the Anglo-Arabian at a difference of five stone; a thoroughbred butcher's hack will beat the Flower of the Desert any distance under 100 miles.

"If there is a depreciation, why ascribe it to the abolition of heavy weights, or to the substitution of shorter courses? The natural solution would be that it is owing to the sale of our most valuable stock to every country in Europe, to China, to Australia, New Zealand. But we have enough left to challenge all the world. The Emperor and the French Government are liberal in their racing prizes, and promote the improvement of the Anglo-Arabian on national grounds. They well deserve success. In Great Britain, under the cold shadow of the Crown and the Government, doling out a miserable donation in the shape of encouragement, we not only hold our ground, but we advance with rapid strides. In 1843 the total amount of stakes, plates, and matches was 199,000*l.*; in 1863 it was above 250,000*l.* without including the Royal plates.

"The deterioration of horses is a pure fiction. Stockwell, King Tom, Young Melbourne (Nabob, sold to France), and many other stallions are framed to gallop under 20st.; the first charges 100*l.*, King Tom 75*l.* next season for the chance of a foal. You may see in Lord Glasgow's and Baron Rothschild's stables 20 horses up to 18st.; 60 years ago you could not have found five thoroughbred horses of this description in the United Kingdom. Fine yearling colts fetch at auction from 450 to 800 guineas, if they appear likely to stay a distance and to carry heavy weights. That ought to be a sufficient answer to those persons who imagine that light weights and short courses are detrimental to the breed, and encourage 'leggy weeds.' How can we improve our system?

"The 2700 brood mares produce about the same number of 'leggy weeds' as other domestic animals in proportion to the first class. In the human race there is a difference much greater to their discredit. As there is a national prejudice against converting horses into beef, some are kept on in training to take their chance in short races for the amusement of their owners. If 'those who pay the fiddler have a right to call the tune,' why are they to be abused by certain amateurs, who rarely subscribe to a racing prize, and who are never troubled with a trainer's bill? These gentlemen profess a horror for short courses, and a predilection for the old four-mile Queen's Plates, which broke down so many horses that they were revised in 1833, 1847, and 1861. Although I deprecate a return to the barbarous system, I am a strenuous advocate for two national prizes to test the capabilities of endurance—small sweepstakes, added to plates of 2000*l.*, to be run for at Newmarket, one the Round Course for four years and upwards, in the 1st October; the other in the Houghton Meeting, the Beacon Course, for any horse carrying 11 st., the winner of the first plate 7 lb. extra.

"It is an axiom in racing, both with man and horse, that the constant habit of carrying heavy weights destroys quick action. The speed of the fastest man would be a nullity if he were employed for a year as a heavy porter.

"Tailors, from the life they lead, and from never wearing heavy boots, preserve their speed. They can give 10 yards in 100 to any of the industrious classes who carry heavy burdens, as weight on the shoulders deadens the elasticity of the sinews, and stiffens the muscles of the legs.

"It is equally destructive to the speed of horses. Train the fastest horse at Newmarket under 11 st., and in six months he will entirely lose his racing form. Emblem and Emblematic, the winners of the Liverpool Steeplechases, cannot beat a moderate three-year-old at even weights for two miles. When horses lose their speed without any apparent cause, the trainers ascribe it to the decay of nature or to the effects of age. In 99 cases out of 100 it is owing to exercising them under heavy lads, who have been retained in their service from charitable motives.

"I admit that horses famed for running long distances are scarce, because the game is so seldom played. The heroes of old were generally small horses. The celebrated Gimcrack, in 1765, stood 13 hands 3½ inches. Latterly we have bred more for size and strength. From the days of Rubens, Castrel, and Selim (1810), we have looked for speed to win the valuable one-mile sweepstakes; but size and strength will be served when great weights are to be carried. In 1824 the speedy and magnificent Sultan beat the stout Centaur on the Round Course at 12st. and 11st. 9lb.; but the same year Centaur turned the tables on him at 9st. 3lb. and 9st. on the Beacon Course, and had the big one extended at the turn of the lands.

"Mabratta, a large, powerful horse, which could not get six furlongs at light weights in good company, could carry me, riding 17st., four miles under 11 minutes. He afterwards turned out a very stout hunter. This convinces me that a great-framed racehorse which would be beaten 500 yards in four miles by a clear-winded small horse, carrying 7st. 7lb. each, would reverse the case to the same amount at 16st. when the little one could not act under the weight. Therefore, by gaining great size and strength we have adapted the Anglo-Arabian to carry heavy men across the country, and at the head of their regiments; this is the national view of the subject. It may be difficult to procure such horses, because foreign agents will give 600*l.* for any thoroughbred horse up to 14 stones which can bend his knees, to supply royal and imperial stables on the continent.

"As the price of young stock depends in great measure on the amount of prizes *in prospectu*, every withdrawal of public money affects their value. The present Royal Plates (insignificant as they appear), are boons to the breeder, and afford amusement to our country friends. Their abolition would be a drop of water to the revenue, which derives a great income from the turf. Calculate the sum of money which the Treasury receives in eight days from the dense crowds at Ascot and Epsom.

"Nobody imagines that in an assembly of sensible and thoroughbred gentlemen Mr. Percy Wyndham's motion will find support.

"13, Berkeley Square, June 27."

AGRICULTURAL QUESTION.

CAN ANY ONE DOUBT THE ADVANTAGE OF AIRING THE SUBSOIL?—And, above all, of draining it and irrigating it? Dig below the 5 inches of ploughed soil in undrained clays and you bring up a lump of dense putty, as heavy as lead, and as impervious. Place it on the surface, it dries almost as hard as cast-iron; it shines, and then cracks by contraction; by-and-by down comes a shower, and your once stubborn and unmanageable mass disappears in a circle of friable crumbs.

To a reflecting mind at all acquainted with chemistry, what a volume this disintegrated clod opens up! and how its elements seem to reprove neglectful man for so long preventing their development and utilisation by the thousand and one affinities of sunshine, dews, frosts, and other aeralities (to coin a word).

We can now understand why the old man on his death-bed bid his sons dig for the imaginary treasure which he told them had been deposited in his field. They searched, but not in vain, for deep and frequent cultivation brought them money's worth by greatly increased crops. So it will to the British farmer, and so it does to me, and as I look at my teeming corn crops, nearly 6 feet high, throwing up their heads thickly and evenly till they look like a serrated floor, I know that in that great last effort of nature, their roots now find in what was once the unwholesome and unaërated subsoil the elements of a completed growth. They do not exhibit the too common appearance of an ill assorted regiment, where lank grenadiers and little riflemen intermix in incongruous proximity.

How sagaciously and profitably has that excellent man, the Rev. Mr. Smith, of Lois-Weedon, carried out deep cultivation. He does not poison his plants by placing them on the raw subsoil, but ploughing back the top soil on that they grow, whilst the naked uncovered subsoil is dug, manured, aerated, and prepared to form an improved subsoil, when the top soil shall be turned back upon it.

I am more and more confirmed in my conviction that the general cultivation of this kingdom is under five inches, more shallow, in fact, than the depth of a common wine glass—that depth must be measured in the solid earth—when broken up, and set on edge by the plough, it appears deeper. How does this five inches accord with the requirements of my friend Dixon's Parsnip, whose roots ran down 13 feet 6 inches in one season!

My bailiff was examining the drainage on my neighbour's field (a Wheat stubble, or a stiff clay) and found abundant roots of the Wheat crop 5 feet below the surface. So it is with many of our crops. Surely, then, the roots would thrive all the better by finding down below manure, air, and circulating water. *J. J. Mechi, June*, 1864.

FARM LABOURERS IN SCOTLAND.

[The following remarks were made in the House of Commons the other day on this subject.]

(1). AN important change had of late years taken place in their position. In former days, when farms were much subdivided, the farm servant was regarded as a member of the farmer's family. There was then no great difference between the master and man, and they lived together on intimate terms. The farm servant, if a man of good character, steady habits, and

industry, could fairly look forward to escaping from a menial station and becoming a farmer himself on a small scale. During the last half century, however, this state of things had undergone a complete change; and so wide had the interval become between the farmer and his labourers that it was almost impossible for any of the latter to rise from the lower to the higher rank. There were nowadays very few small farms to which a labourer could aspire. He had endeavoured to maintain the old system, but generally it was dying out. Agriculture was becoming more and more a manufacture; it required a large amount of capital in order to carry it on; and the tendency was for small farms to be absorbed in the large ones. In social position the farmer was raised far above his servants. He was a man of means, and could not have his labourers sitting and living with him as members of his family. Hence the servants lived quite apart from the farmer. They were stowed away in out-houses, with the liberty, perhaps, of lounging by the kitchen fire. They were thus in a great measure removed from the control and supervision of the master when their daily work was over. They were exposed to all sorts of temptations of a demoralising character, and were almost entirely precluded from reading or otherwise improving themselves. They had scarcely any means of rational entertainment, and were reduced to the mere gratification of their sensual desires. The bothy system had been loudly and vehemently denounced of late years; but for his own part he could not altogether join in this condemnation. He could not but see that when properly regulated they led to the farm servants being kept under a certain degree of wholesome restraint, and guided in the right way. On the other hand, the system of putting lads away into lofts and such like places, where they were left to their own devices, without any opportunity of improving their minds, without the means of proper recreation, and with full scope for their loose desires, was very objectionable. As to the feeing-markets, no one who knew anything about them could deny that they were attended with most mischievous effects. *Mr. Dunlop, M.P.*

(2). I differ from my hon. friend with regard to the gradual change which he asserts to be taking place in Scotland. My hon. friend says that the small farm system is disappearing, or is likely to disappear. Now, my own observation and experience leads me to say that it is quite the contrary. The more minute and perfect the system of farming adopted, in order to work them to a profit, the more likely is the system of small farms to increase than to diminish. The arable farms in Scotland and the north of England 16 or 20 years ago were much greater in extent than they were at present. Very large farms have not had a tendency to increase. My hon. friend is quite mistaken on that point; and I think if he would obtain information on the point before legislating on the subject, the conclusion at which he will arrive be different from that which he has expressed. I have not found that hitherto in Scotland among the farmers or farm labourers there has been a tendency to change shown at the end of six months. I have had men with me for upwards of 20 years, and I believe if my hon. friend will make inquiry amongst the large farmers in any part of Scotland, he will receive an ample corroboration of my statement. The truth is, that sensible farmers who know their business are too glad to keep good workmen, and in Scotland good workmen are only too glad to remain with good masters. I take that to be the general experience of Scotland with regard to this matter. Possessing an extensive knowledge of farm servants in Scotland, I can confidently state that I do not know a more respectable class of men than the married farm servants in that country, and any proposal that would tend to sever the connection which now exists between that class of men and their employers, by giving such power as my hon. friend proposes to enact, of dismissing a male farm servant at a month's notice, would in my opinion be highly objectionable. At present he has a house provided for him as part of his yearly wages, and it would be very inconvenient both to the farmer and the farm servant to introduce a system of this kind without much care and consideration. I have made these observations as a practical man, knowing a good deal on the subject, and I hope my hon. friend will take counsel upon the matter before he ventures to introduce another Bill next session. *Mr. Caird, M.P.*

Home Correspondence.

Clover Hay, with or without Italian Rye-Grass.—I am asked by a Scottish Correspondent how we make our Clover hay. I reply: it is, after cutting, allowed to remain untouched for two days, if fine; on the third day it is put into large cocks, remaining for two days to heat. The cocks are then opened, and the Clover spread round about and turned or lifted, and again put on the cock before the evening dew falls. This is repeated according to weather, making the cocks larger, taking care to have the crop always on a small space of ground, so that it can be readily re-cocked—in fact that it may occupy so small a portion of the ground as only to receive one-tenth or less of any rain that may fall. The addition of Rye-grass rather facilitates the making of the Clover. We like both to heat well in the cock, afterwards on the loads, and finally on the lower part of the stack before it receives the whole superincumbent weight. In the stack we insert vertically a sack filled with straw, and gradually raise it as the stack rises, the object being to form a chimney for the escape of heat from the heavily compressed portions of the stack. We never found any mould or injury from the insertion of these sacks, and they are a great safeguard against firing. In large stacks we put two or more chimneys. It is desirable in every stage to protect your hay as much as possible from either rain or dew. Beware of letting either your Clover or Italian Rye-grass become too old before cutting. We always hoe out any weeds from our Clover in the spring, and when those which have escaped the hoes show their heads in the Clover, women pull them up and carry them off to the headland. This latter operation only costs from 1*s.* to 2*s.* per acre, and pays admirably in the growing and after crop. Eradicating weeds and thus preventing their seeding is always a profitable operation. The crop we intend to grow is then not compelled to sit down to its dinner with a number of strong and hungry competitors. *J. J. Mechi.*

Green Peas for the London Market.—Railways have approximated places as well as individuals, so that at 44 miles from London I compete with the market gardener in its vicinity, and grow annually some 6 to 10 acres of Peas. It is good for the poor of our neighbourhood, affording employment to women and children, who get 9*d.* per sack of three bushels for picking the Peas when tolerably well podded. The parties who purchase them pay from 6*l.* to 9*l.* per acre, according as they are late or forward. The bines and unfilled pods make capital hay, and are estimated at 3*l.* to 4*l.* per acre. The land is thus early set free for Turnips or Rape. It is remarkable, that taken after sewaged Italian Rye-grass, the crop is always most abundant, with scarcely a weed to be seen. The cost of the Peas is as follows:—

Picking per sack (12 pecks)	0	9*d.*
Carriage by rail to London	0	9
Salesmen's commission	0	6
	2	0

The growers get 2*s.* per bag, and if they sell at 4*s.* 6*d.* the buyers get 6*d.* Special Pea trains are sent to suit the Saturday morning and Saturday evening markets. The salesmen in town furnish the empty sacks without additional charge. The farmer carts the Peas to the station. It is not unusual to see more than a hundred women and children picking in a 6-acre field. Pea-picking season empties the village school, and attracts to the field old and young. *J. J. Mechi, June* 1864.

Expenses of the First Year of a Crop of Italian Rye-grass on my Farm:—

1 years' rent, rates, and tythe	£2	5*s.*	6*d.*
3 bushels of seed (sown in previous crop of corn)	0	18	0
8 cwt. of Peruvian guano, at 14*s.*	5	12	0
6 cwt. of salt, at 1*s.* 2*d.*	0	7	0
4 cwt of superphosphate	1	4	0
Irrigation, 4 dressings at a cost of 9*s.* for labour, coals, &c., each dressing of 100 tons	1	16	0
Miscellaneous expenses of the farm	1	2	6
Labour cutting up, attendance on live stock, horse labour, &c.	1	5	0
	£14	10	0

I have just measured and weighed our second cutting, and it yields 8½ tons per acre, equal to 2¼ tons of hay. This is the growth of 4 weeks and 4 days. It would have been much heavier could I have spared it a week longer. The first cutting was over 12 tons per acre. *J. J. Mechi.*

Laying Land to Permanent Pasture.—In a recent number of the *Gardeners' Chronicle* you say "you do not join in the cry that has lately been raised for laying down land to Grass," and you therein state your reasons. It is certainly a subject requiring mature consideration, as it may possibly happen just as you have managed to get your land in pasture, a reaction may take place in the price of corn, although I by no means think it probable. At any rate the experience of the past few years has shown that the English crop, whatever it may be, no longer serves to exercise much influence on prices, and that the people of the country can be cheaply served with bread stuffs. If it is so, and it cannot be denied, the English farmer may as well say at once "so much the better," and endeavour to adapt his position to meet this new state of things, viz, that it does not matter what his crop may be, the public will have cheap bread. Very well, then; let him look this fact fairly in the face, and ask himself, how is he to meet it? I suppose I shall not be considered presumptuous in stating that hitherto very much attention has been directed to the production of corn; and a well-known Correspondent (Mr. Mechi) states that the unescapable expenses attached to arable land amount to at least 5*l.* per acre, and he is probably quite within the mark. But he bases his calculations on arable land being cultivated with horse-power, I believe; and that with Wheat under 40*s.* per quarter is not to be thought of in the heavy lands of this country. You will say that I have run away from my subject, and commencing by writing about laying down land to Grass, I am finishing in talking about steam. Exactly so. I shall be obliged if you or some other kind friend will inform us, as to whether it is right, with the advantages of steam power at our disposal, to diminish the cost of cultivation, and increase the produce of our heavy lands. Whether it is worth while, in consequence of low prices of corn, and dearness of all kinds of stock, to lay such lands down to Grass, for the purposes of more stock keeping. *W. S.*

One-roomed Cottages and Labourers' House Rents.—Owing to my being brought up in houses only one story high, with only one apartment on the ground floor, and not a sufficient number of joists in some of them to support a floor for an attic, such experience prompts me to read with interest the discussions on labourers' houses. The fact that labourers cannot pay a high enough rental for a good house is palmed upon the public as a plausible pretext for some not building houses, and for others building too small ones. A good many people wonder at Lord Palmerston's general popularity. The explanation is found in the fact that his extensive and varied knowledge is blended with common sense. His lordship stated at Romsey in 1859:—

"It is quite true that Mr. Dutton and myself have built some very good double cottages for the labourers on our respective properties, but I have heard it said by many that these buildings are altogether too expensive, and that they do not pay, and that other people could not afford to erect them. Now, in the first place, I hold that observation to be founded on fundamental error. When I build a good farm-house for a tenant I do not expect rent for that house separate from the farm. Well, the cottage for the labourer ought to be looked upon as a part of the appurtenances of a farm, just as much as the buildings for cattle, or any of those other erections essential to the land. How can the land be well cultivated if the labourers are not well housed? if they are obliged to trudge three or four miles in order to get at their work, and the same distance home again? It is manifest that they must be not only exhausted physically, but that their time must be wasted in walking to and from their work, and that the farmer does not get from them his money's worth for the wages he pays. Therefore I consider that, in providing a farm with accommodation for the number of labourers to be employed on it, you are giving facilities to the tenant to cultivate his farm, and increasing the value of the farm which you let to a good tenant."

Lord Palmerston's statements are borne out by remarks on "Time of Ploughmen," in Morton's New Farmers' Almanac for 1864, page 27. Although I recognise the maxim that "knowledge is power," and that "ignorance is weakness," I have written as if I believed that "ignorance is bliss." A good many scholars appear by their statements to have a total disregard of the proprieties of civilised life. A married couple with a large family of boys and girls, and a foreigner called a bondager, all herding together in one apartment, ought to have shocked a graduate of Glasgow University so much that he would be found denouncing such a barbarous practice, forced upon the people by farmers and their wives who have the accomplishments of ladies and gentlemen. Instead of denouncing such a custom, this graduate of Glasgow University, after serving an apprenticeship as a "mud student," and afterwards renting a farm, wrote the "Book of the Farm," and stated in it that "a second sitting-room in a hind's house is an unnecessary appendage to it; it will never be used as such. When in the second story it will be converted into a sleeping room, and when on the ground floor into a meal or Potato store, besides the beds that may be put into it. The fire will never be kindled in it, and it will become damp and cold. It is only when the labourer is a fixed resident, holding directly under the landlord, that he will furnish his second room on the ground floor comfortably, and warm it by occasional fires." To do justice to the subject, it would require a discursive and apparently irrelevant article for publication. For example, a proprietor or tenant-farmer charging house-rent is just like taking money out of one pocket and putting it into the other. As Lord Palmerston states:—"If you get a shilling a week from the labourer it is more to impress upon his mind that he is earning the accommodation you give him, rather than from any idea that it is to repay the expense of the erection. It is not like building houses in a town, which are built to be let at a profitable investment, but it is an addition to the value of the farm." I select this subject for comment as a supposed suitable reply to the recent harangues about education. I claim a practical knowledge of living in "one-room houses" with and without attics. Scotch farm servants are compelled to "sit up with the corpse" in the event of a death. My father died on a Monday morning, and his body had to lie within a few feet of the fireplace till the following Thursday. The man who succeeded my father as steward resided in that house till May 26, 1863. The consequences of a family living in one room are humiliating; because the habits of people so circumstanced are regarded as chronic, or something like it. Mr. Chambers, of Glenarmiston, stated at a meeting of the Architectural Institute:—"It was not a question of mere expense, but the habits and even prejudices of the rural population must be studied, else a great deal of money and a great deal of science may be expended, merely to produce a failure." (!) It ill becomes a successful publisher to forget the pit from whence he was dug. Mr. Chambers voluntarily stated that his father was a very poor man of the working class in Peebleshire. Each of Mr. Chambers's houses is merely a one-room house with a garret. Let Mr. Chambers and his wife and family fancy themselves compelled to live in such a place, and try to avoid the "free and easy" habits common to rustics brought up in one-room houses. *W., Edinburgh.*

Haymaking.—In a late number of the *Gardeners' Chronicle*, I notice some observations on haymaking by Mr. Mechi, which do not quite embrace the *rationale* of the subject, as if given by a practical farmer. First it is not the momentary tossing through the air by the teasing out turning machine that the cut Grass is dried,

but by the light-strewn exposure of it upon the stubble-sward, so that the drying air may have full access to every blade, underneath as well as above. Here a second or third operation of the tedding machine, as the hay, especially of Clovers and other legumes, becomes drier, is certain to break a portion of the leaves into fragments so small as to fall down amongst the stubble roots and be lost. Again it is especially necessary, as Mr. Mechi states, to throw the drying hay into cocks every evening, when during the night dew is expected to fall, but for a reason Mr. Mechi does not explain. When left on the ground exposed to the dew, the vitality of the cut Grass is to a considerable extent recovered, and half of the next day is past before this renewal of life is overcome, and the plant reaches the point of advancement in desiccation it had before the falling of the dew. In the cock, during the night, the plant, instead of being resuscitated, is smothered, and often entirely deprived of life by a slight heating, and when spread out, as soon as the dew on the sward is exhaled, soon becomes dry enough for the larger cock. In Scotland we manage these matters better than you do in England, [!] and to which we are led by having, in the hay season, a moister and cooler atmosphere—less drought and more rain. When ready for the larger cock, in which it might receive much damage in our ticklish climate before being ready for the large stack, we use the kills or bosses, upon which we build our grain ricks, an erection in the form of the letter A, but with three legs, from 11 to 14 feet high, and at bottom nearly 5 feet wide, with three bars around the uprights about 15 inches separate and from the ground, as in a common paling. We lay a few short branches of straw around these kills for the hay to rest upon free from the damp of the ground, with sometimes a low door to windward to admit of air. We then build about a ton of hay upon each of these with as little tramping as possible, the cock rising to the height of about 20 feet, and we cover it at top with a little straw tied down by two straw ropes. In this cock-rick the drying goes on for several weeks, the branches below or door admitting air, and the slight heating of the rick drawing up the air and giving it out above, along with the evaporating moisture of the hay. A few props are generally used to prevent the swaying of these tall, slender ricks, and to assist in aërating. In this way the hay can be secured sooner and more successfully in variable weather than in any other way, and as soon as the hay in the ricks is sufficiently dry, it is driven home and put in a large stack or sold. A different plan is sometimes adopted in the east of Europe. As soon as the Clover hay is cut, which grows luxuriantly for a number of years in succession in their excellent clay-marl soils, they throw the cut Clover, as soon as cut, into large cocks to heat to such an extent as kills life. When heated thus far they spread it out, and life being extinct it dries in a remarkably short space of time. It is said that this heating of the green Clover cooks the hay so as to render the woody matter in the stem much more digestible and of superior feeding power. We have now splendid hay-making and Wheat-blooming weather, but owing to the frost in the end of last month and beginning of this checking the growth while sufficient moisture was in the ground the crop of Wheat will be light. *Patrick Matthew, Gourdie Hill, Errol, N.B., June* 27.

Societies.

HIGHLAND AND AGRICULTURAL: *June* 22, *Half Yearly Meeting.*—Mr. Mitchell, of Alloa, the senior director of the Society, took the chair. 101 new members were elected.

The Stirling Show.—Mr. HALL MAXWELL reported about the forthcoming show, that the whole of the contracts had been made, and, in fact, the whole of the expenditure connected with the Show was in the hands of local contractors. He was now in a position to state very nearly how the entries stood. At Kelso they had 245 head of cattle, and for the Stirling Show there were already entered 386. At Kelso the horses were in an exceptional state, because for the first time there was a section for thorough-bred horses. The whole number of horses at Kelso was 127, and they had for Stirling 158 horses. In sheep they had 532 at Kelso, against 586 for Stirling. Last year there were 49 swine shown, and the number for Stirling was 66. In all, they had at Stirling 1196 head of stock already intimated and arranged for, against 953 head of stock at Kelso last year. 1101 implements were entered for Kelso; and up to the present time they had only 802 for Stirling. He was certain, however, that the number would be still further increased.

The Inverness Show of 1865.—Mr. HALL MAXWELL then said that, in regard to the Show to be held at Inverness in 1865, the arrangements, so far as they could be perfected up to this time, were in a very satisfactory state.

Chemical Department.—Dr. ANDERSON said they had as usual during the past six months performed a large number of analyses for members of the Society, and they had also been actively occupied in investigations and examinations regarding the Potato, particulars of which would be published in the Transactions for July. Progress had likewise been made in the examination of the cheeses of Scotland; and a series of analyses on the Turnip had been completed, which, he expected, would prove of great interest, connected as they were with a series of former experiments upon particular kinds of manures. Several new inquiries had been commenced, more particularly a set of experiments upon the Bean crop in various stages of its progress, similar to what he had made regarding Turnips and Wheat.

Mr. HARVEY, Whittingham, said that some time ago Dr. Anderson had stated that super-phosphates were worth 30*l.* a ton, but in writing a letter not many months ago to a gentleman who was now in the room, Dr. Anderson lowered the price of phosphates to 20*l.* a ton. He (Mr. Harvey) believed that this might be shown to be quite right; but he thought, for his own sake and for his own credit, that Dr. Anderson should explain to the members of the Society how he had arrived at the conclusion that superphosphates, which were formerly worth 30*l.*, were now only worth 20*l.*

Dr. ANDERSON said he presumed Mr. Harvey's observations referred to a letter which he had some time ago written to Mr. George Hope of Fentonbarns, at that gentleman's own request, in regard to the value of superphosphates from different sources. In that letter he (Dr. Anderson) stated exactly what he had done on previous occasions on this matter, and had repeated what he had frequently stated, that in his opinion simple phosphates, from whatever source they were derived, were identically the same, whether they were made from bones or boneash, or from coprolites. Therefore they must infer that the superphosphates ought to produce the same effect upon the soil. This was the scientific aspect of the question, and these were the views which he had constantly held in regard to the phosphates. But at the same time he had thought it necessary to remind the farmer that there was a commercial view of the question also, and that the manufacturer could, from the cheapness of the materials, produce simple phosphates from coprolites at a much lower price than he could produce them from any other source. If the farmer choose to prefer simple phosphates derived from bones, he must understand distinctly that he must of necessity pay for them a higher price than he would pay if he took them in the state of coprolites. This was simply a commercial question, which perhaps after all did not fall within his province; but at the same time it was one that was essentially connected with the matter referred to. They could see no prospect of reducing the price of bones so as to bring the phosphates derived from them down to the same price as the phosphates manufactured from coprolites. He knew farmers were averse to using coprolites. He thought that in some respects there had been a prejudice against them; but the serious point to him always had been this—that the manufacturers, so long as the farmer would not recognise the difference in price, would always endeavour to pass off to him the phosphates derived from coprolites at the price of the phosphates from bones; whereas, if the farmer was contented to take the coprolites, he would soon find that the price he had to pay must necessarily be smaller than for the phosphates not from bones

Mr. M'LAGAN, Pumpherston, said he thought Dr. Anderson had made it sufficiently clear to them that chemically and mechanically superphosphates were the same, whatever might be the source from which they were derived; but there was a question more important to practical and scientific men, and it was the physiological question—would both kinds of superphosphates produce the same effect upon the plants? He knew that opinions differed very much in this country and in England regarding this point, but he thought it was necessary that they should have the question answered ere they could speak correctly regarding the value of these manures. He thought it was too hard, and not altogether fair, to press Dr. Anderson here, as a purely scientific man, upon the point that has been raised, because the question could not be answered by a man of purely scientific attainments, but must be answered by experiments in the laboratory and in the field. He believed it would be much better if, instead of trying to upset scientific opinions on this matter, practical men would do their best to assist scientific men in their experiments and investigations. He for one would be most happy to enter into any experiments that might be thought to solve the knotty point whether superphosphates derived from coprolites were of as much value to the farmer in the field as superphosphates derived from bones. He thought that question had not yet been solved, either in the laboratory or in the field; and his own opinion was that it would be well were this Society to take some steps in the way of having experiments made with the view of deciding the point. He thought the question put by Mr. Harvey was a very simple one, and from the answer to it he understood Dr. Anderson to have said that at one time of his career superphosphates were worth 30*l.*, but that now they were worth only 20*l.* He thought if Mr. Harvey would refer to the schedules published by the manure-makers and compare the prices, he would find that all manures had in recent years been much reduced in price. And one reason for this reduction had been that the substances from which these manures had been derived were now increased in number, and had consequently become much cheaper than they were some years ago. Accordingly the products of the manures had also become cheaper, and he could easily conceive that if five or ten years ago superphosphates were selling at the rate of 30*l.* per ton, it was not remarkable that they should now be selling at 20*l.*, when they took into consideration the number of new materials that had been discovered for forming these manures.

Mr. HARVEY begged to say that manures had not been reduced in price.

Mr. M'LAGAN said that superphosphates had been much reduced in price, but it was quite true that Peruvian guano had not been lowered.

Dr. ANDERSON said he might add a word or two to what he had already said. As regarded the soluble phosphates derived from coprolites, he had to repeat once more that they were chemically and mechanically identical. The scientific man, having made this statement, had done all that it was possible for him to do; and when he was asked to draw a conclusion from them, he should say that, as far as science would enable him to draw it, these substances would produce the same effect on the soil; but it remained for actual field experiments to determine whether this scientific conclusion was correct. Should it not prove to be correct, then science received a new starting point, and it went to work with some further inquiry to ascertain what was the reason why those results which it should have anticipated had not proved correct in actual practice; and it was in this way that both science and practice almost always advances.

The Cattle Diseases Bill.—Mr. HALL MAXWELL laid on the table a copy of the Cattle Diseases Prevention Bill, as altered and printed by the directors, and laid before the Select Committee of the House of Commons.

He stated that the objections and proposed amendments by the Society had reference—1st, To the introduction of the foot-and-mouth disease into the Bill; 2d, To the powers proposed to be vested in railway officials, servants of rival dealers, and constables; 3d, To the proposed subjection of great fairs and markets to official inspection. That the committee has excluded foot-and-mouth disease from the schedule attached to the Bill; that it is understood the powers to railway servants, &c., will be reported against, and that there is every probability that the inspection of fairs and markets will meet with the same fate. In that case, the Society would be successful in having established the whole of its objections to the satisfaction of the committee. The directors had gone further; they had pointed out to the Home Office that in one respect the Bill was deficient, and had suggested clauses for the purpose of strengthening the hands of municipal authorities, and of checking the abuse of private slaughter-houses, by forcing all animals under disease, or carcases of animals which had been killed when in disease, through public slaughter-houses subject to strict inspection, and by imposing heavy penalties on all parties sending such animals or carcases to any private slaughter-house. This proposal had been favourably entertained by the Home Office, and was laid before the committee by the Secretary of State. The other measure under the consideration of the committee was the Cattle Importation Bill, by which it was sought to alter the existing law and to subject the sea-borne part of the home trade to the same restrictions as are imposed on the foreign trade. To this the Society objected on the ground that, in Scotland, the result would be so great a difference in favour of railway transit, as materially to interfere with the competition for carriage now afforded by steamers. This view had been given effect to by the Committee, and the clause affecting the home trade had been deleted. The general result was that, so far as the decisions by the Committee are known, they have been entirely corroborative of the views held by the Society. He had only to add that the Society was much indebted to Lord Elcho for the able and zealous manner in which, throughout the whole proceedings, he had promoted the views of the directors, and given the secretary every assistance in his power.

Agricultural Education.—The SECRETARY read the following report on Agricultural Education:—On the 6th April, the directors remitted to a committee of their number, and to the Council on Education, a letter addressed to the Board by Mr. Milne Home, and containing certain proposals in reference to agricultural education. Subsequent communications were sent by Mr. Home to the Secretary for the use of the council and committee—the last of these was received on the 9th May, and all of them were circulated. The committee, after several meetings, and the consideration of information in reference to some of the public schools in Scotland, reported,—1. That the council and committee cannot recommend the Society to interpose for the purpose of introducing into parish or other elementary schools the teaching of agriculture. 2. The council and committee are not satisfied that the same objections apply to the proposal encouraging, by prizes, the agricultural education of more advanced youths in provincial academies; but further information is required before the council and committee can come to any decision. The answers received from the head-masters are in some respects satisfactory, but no step can be taken till these gentlemen have been able to bring the subject under the consideration of their respective Boards of management.

Mr. MILNE HOME moved the adoption of the following motion:—"That this meeting, recognising the expediency of extending the means of obtaining agricultural education in Scotland, and likewise the duty of the Highland Society to attempt something more than it has hitherto effected for that object, returns thanks to the directors for the interim report now presented by them, and reserves consideration of the questions raised in the report till the final report has been presented as promised by the directors."

Some discussion took place on the question whether the Society ought to encourage education in parochial schools, Mr. Milne Home being in favour of that course, and Mr. Wilson of Edington Mains, Mr. Hope of Fenton-barns, and others being against it. Ultimately, Mr. Milne Home consented to omit the following clause from his motion—"And likewise the duty of the Highland Society to attempt something more than it has hitherto effected for that object."

The motion of Mr. Milne Home, as amended, was then unanimously agreed to. *Abridged from the Scottish Farmer.*

Reviews.

Agriculture, Ancient and Modern, &c. No. 2. By the Old Norfolk Farmer. J. S. Virtue, Ivy Lane.

The Second Part of this serial work commences with a history and discussion of the Theory of Agriculture. It describes the rise and progress of the principles and practice of good agriculture in England, Scotland, Ireland, France, and Prussia. The chief feature in the history of English agriculture is the account given of Tull and his system of husbandry. The figures illustrative of Scottish and Irish agricultural progress are not sufficiently descriptive of the present time. Quotations of the statistics of Irish agriculture could be obtained later than 1858.

One of the most important points referred to in the account of French agriculture is the subdivision of land among a multitude of small proprietors. The following passage quoted from Arthur Young, seems to be opposed to the opinion of Mr. Caird, M.P., given in the House of Commons the other day, and quoted elsewhere:—

"The great evil of small farming is the total inability of the holders to make those improvements which are continually being discovered in rural economy. Arthur Young has graphically described this inability of the small farmer in the following words:—'Let me ask of the advocates of small farms where the little farmer is to be found who will cover his whole farm with marl at the rate of 100 or 150 tons per acre; who will drain all his land at the expense of 2*l.* or 3*l.* per acre; who will pay a heavy price for the manure of towns, and convey it 30 miles by land-carriage; who will float his meadows at the expense of 5*l.* per acre; who, to improve

the breed of sheep, will give 1000 guineas for the use of a single ram for a single season; who will give 25 guineas per cow for being covered by a fine bull: who will send across the kingdom to distant provinces for new implements, and for men to use them; who employ and pay men for residing in provinces where practices are found which they want to introduce on their farms? At the very mention of such exertions, common in England, what mind can be so perversely framed as to imagine for a single moment that such things are to be effected by little farmers? Deduct from agriculture all the practices that have made it flourishing in this island, and you have precisely the management of small farms.'"

The work maintains its character as a full and instructive history.

Miscellaneous.

The Improving Farmer in 1864.—Without doubt he patronises steam, and thus economises horse labour—thrashes his grain in less time—dresses it better for market—leaves less in the straw. He also chaffs his fodder, slices or pulps his roots, and crushes his horse and cattle corn; the result being economy of feeding material, saving of manual labour, and improvement in the condition of his live-stock. Is it seed-time? His drills are so accurate in their work that the horse-hoe can follow when the weeds are yet so young that they are exterminated by the passage of the knives, yet without risk to the young corn. The iron harrows, before and after sowing (zigzag, diagonal, or chain), do more work at one turn than the old country blacksmith's implements did at two or three. If the land be too light, there are the smooth-roller, the fluted-roller, and the clod-crusher. Should it be hay-time or harvest, there are the mowing and reaping machines, the hay-spreaders, the horse-rakes, the steel forks, the improved harvest carts, the Dutch barn, and the rick-stands. This *resumé* might be extended to a tedious length, but it is unnecessary. *Mr. Thompson, M.P., in the Journal of the English Agricultural Society.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	June	Inches. 30.18	°	°				°	°	°	°	Inches.
Friday ..	24											
Saturday ..	25	30.06	63	61	N.W.	3	10	65	49	..	43	0.05
Sunday ..	26	29.93	66	63	N.W.	3	7	69	56	79	54	0.05
Monday ..	27	30.11	64	57	N.W.	3	6	68	46	81	40	..
Tuesday ..	28	30.14	67	61	N.W.	1	9	67	48	76	43	..
Wednesday ..	29	30.03	69	64	N.W.	0	5	68	55	75	50	0.02
Thursday ..	30	29.90	64	58	W.	3	8	71	57	82	54	0.01

Notices to Correspondents.

CHARCOAL: *Oswestry.* It is by itself of very little use; but as attracting ammoniacal matters from the air and elsewhere, it may be applied as a dressing over the ground, and will produce a certain effect. Thus it will tend to increase luxuriance of growth in corn crops when applied in early spring.

MANGEL WURZELS: *Kerry.* It would be worth while sending children along the rows to crush the maggot in the leaf before it has committed much mischief. The Turnip-fly is not to be cured. Mr. Rowley's drill for dusting the rows with lime is almost the only attempt worth mentioning. A painted board, on wheels drawn over the rows will catch myriads of the flies as they jump when it overshadows them. And a fresh coat laid over its underside after being drawn over every two or three rows will keep its power perfect. The best plan, however, is to get the land into such condition as will hasten the plant through this dangerous period. The water drill for the seed helps this.

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

THE HYDROPULT is invaluable for use in the GARDEN for WATERING BEDS, SPRINKLING PLANTS, DROWNING OUT INSECTS, CLEANSING TREES FROM SMUTS, DRESSING with LIQUID MANURE, ETC. ETC.



THE HYDROPULT is desirable in every HOUSEHOLD for WASHING WINDOWS, WETTING SIDEWALKS, SPRINKLING STREETS, WASHING CARRIAGES, EMPTYING CISTERNS, FILLING BARRELS, A SPRAY BATH, ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR, 32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.
Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.
It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 1 ¾ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 60 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

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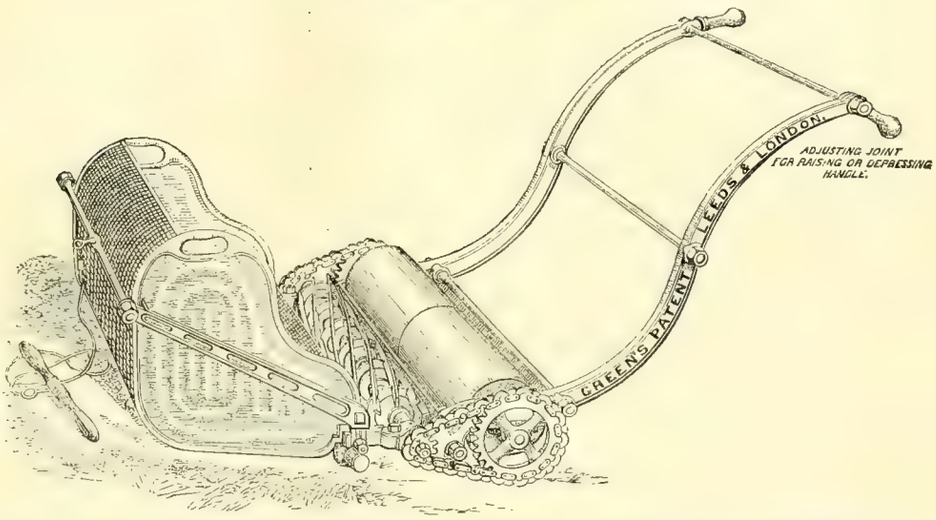
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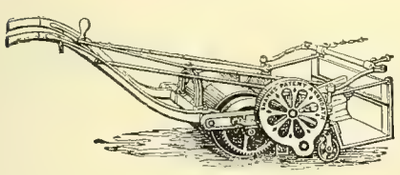
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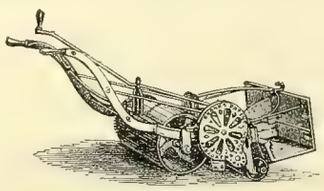
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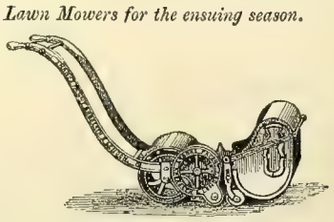
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19 „ 14, 20 „ 14, 18 „ 14 ..	to the foot.			

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
	£ s. d.	£ s. d.	£ s. d.
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11s. 6d. ..	13s. 6d. ..	15s. 0d.
20 „ 13	Thirds	13s. 6d. ..	16s. 0d. ..	19s. 0d.
20 „ 14	Seconds	.. ..	.. English. ..	English.
20 „ 15	Best	.. ..	.. 18s. 0d. ..	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 ..	6½ by 4½ ..	7 by 5 ..	7½ by 5½ ..	11s. 6d.
8 „ 6 ..	8½ „ 6⅜ ..	9 „ 7 ..	9½ „ 7½ ..	
		10 „ 8 ..	10½ „ 8½ ..	12s. 6d.

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	„ „ CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT „ DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

SHAW'S TIFFANY.

For samples and prices apply to J. Shaw & Co., 29, Oxford Street, Manchester.

TANNED GARDEN NETTING.—Inch Mesh, 1d. per yard; in pieces containing 400 to 500 yards. Small quantities, 1½d. per yard. TOBACCO PAPER, price to the Trade on application. H. Brown, Seedsman, 4, Commutation Row, Liverpool.

TANNED NETTING, for the Protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh-sown Seeds, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. WOOL NETTING, COTTON NETTING, SCRIM CANVAS, GARDEN MATS, TULIP COVERS, GREENHOUSE SHADES, &c.

John Edgington & Co., 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W. Manufactory, 108, Old Kent Road, S.E.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run, in any quantity, may be had at Chas. Wright's, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3d.; 1½, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen:—3 feet, 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard; or 100 yards, 20s.; 4 yards wide, 6d. per yard; or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.

Can be had in any quantity of Eaton & Deller, 6 and 7, Crooked Lane, London Bridge, E.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable; 200 square yards, 14s.; 500 yards 30s.; 1000 yards, 50s.

Edgington's RICK CLOTHS for 59 years have maintained their celebrity as the best.

Edgington's MARQUEES and TENTS are the prettiest.

Edgington's MARQUEES for hire are the most elegant and capacious.

Samples of material free on application. Be particular—Frederick Edgington & Co., Thomas Street, Old Kent Road, London, S.E.

A liberal Discount to the Trade.

INTERNATIONAL EXHIBITION, 1862, Class XIX. Honourable Mention.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c. Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.

For further particulars apply at the Manufactory; or of the London Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free; Price List free.

Burgess & Key, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

CONSERVATORIES! GREENHOUSES! FRAMES!

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

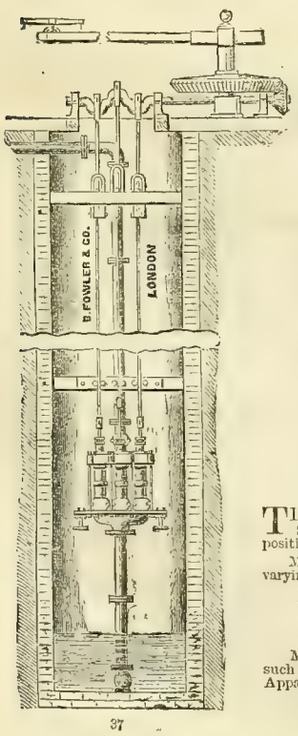
3 *Cwt. Free to most parts.*

PATTERNS, PRICES, and TESTIMONIALS on application to

WALTER CARSON AND SONS, 9, GREAT WINCHESTER STREET, OLD BROAD STREET, E.C.

(Postal Address); Also 31, ST. JAMES'S STREET, S.W.

Caution.—*All Casks bear their Trade Mark, or are not genuine.*



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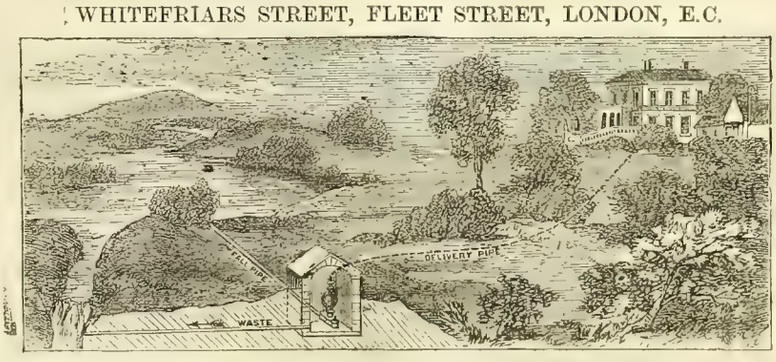
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MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

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THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

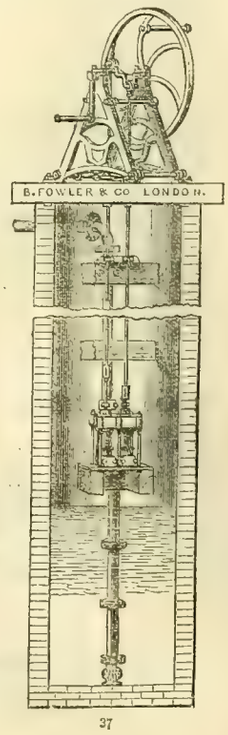
Messrs. Fowler have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 60 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. Fowler & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.



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TERRA COTTAS always on Sale, viz. :—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at

J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, W.

Sticks and Tallies.

COMMENDED BY THE ROYAL HORTICULTURAL SOCIETY.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES can now be had of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C. ; and Retail of all the principal Seedsmen and Florists.

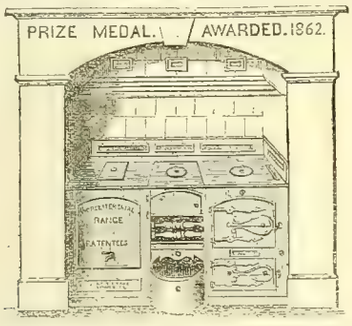
PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist :—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole Heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.

"INTERNATIONAL EXHIBITION, Class 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side by side;* and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester.

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Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

WARNER'S KOH-I-NOOR LAMPS, TO BURN THE HYDRO-CARBON OILS.

PRODUCE A BRILLIANT LIGHT WITHOUT SMOKE OR SMELL.

They are more easily trimmed and refilled than any other Lamp with similar burner.

There is no danger of chimneys breaking, and the chimney cannot become smoked.

For designs of the above, adapted for the DINING-ROOM, DRAWING-ROOM, HALL, or LIBRARY, see Number 2 of this Journal. A REALLY GOOD LAMP.

The above may be obtained of any Lamp Dealer.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY-PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, CHIMNEY-PIECES, FIRE-IRONS, and GENERAL IRONMONGERY, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with ormolu ornaments, 3*l.* 15*s.* to 33*l.* 10*s.* ; bronzed fenders, with standards, 7*s* to 5*l.* 12*s.* ; steel fenders, 3*l.* 3*s.* to 11*l* ; ditto, with rich ormolu ornaments, from 3*l* 3*s* to 18*l* ; chimney-pieces, from 1*l.* 8*s* to 100*l.* ; fire-irons, from 2*s.* 3*d* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth-plates.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. *d.*	*s.* *d.*	*s.* *d.*
3½-inch ivory handles	12 0	9 6	4 6
3¾-inch fine ivory handles	15 0	11 6	4 6
4-inch ivory balance handles	18 0	14 0	5 0
4-inch fine ivory handles	24 0	18 0	7 3
4-inch finest African ivory handles	32 0	26 0	11 0
Ditto, with silver ferules	40 0	33 0	12 6
Ditto, carved handles, silver ferules ..	50 0	43 0	17 6
Nickel electro silver handles, any pattern .	25 0	19 0	7 6
Silver handles, of any pattern	84 0	54 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.	*s.* *d.*	*s.* *d.*	*s.* *d.*
White bone handles	11 0	8 6	2 6
Ditto, balance handles	21 0	17 0	4 6
Black horn rimmed shoulders	17 0	14 0	4 0
Ditto, very strong riveted handles ..	12 0	9 0	3 0

The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the New Plated Fish Carvers.

CLOCKS, CANDELABRA, BRONZES, and LAMPS.—WILLIAM S. BURTON invites inspection of his Stock of these, displayed in two large show-rooms. Each article is of guaranteed quality, and some are objects of pure vertu, the productions of the first manufacturers of Paris, from whom William S. Burton imports them direct.

Clocks, from .. .. 7*s.* 6*d.* to 25*l.*
Candelabra, from .. .. 13*s.* 6*d.* to 16*l.* 10*s.* per pair.
Bronzes, from .. .. 18*s.* 6*d.* to 16*l.* 10*s.*
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WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W. ; 1, 1A, 2, 3, and 4, Newman Street ; 4, 5, and 6, Perry's Place ; and 1, Newman Yard, London, W.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," Is prepared solely by LEA & PERRINS.

The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.

ASK FOR LEA AND PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester ; Messrs. CROSSE & BLACKWELL ; Messrs. BARCLAY & SONS, London, &c. ; and by Grocers and Oilmen universally.

TAYLOR BROTHERS' GENUINE MUSTARD. DR. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity, Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.

TAYLOR BROTHERS, Brick Lane and Wentworth Street, London, N.E.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by

DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

The Furnishing of Bed Rooms.

HEAL AND SON have observed for some time that it would be advantageous to their customers to see a much larger selection of BED-ROOM FURNITURE than is usually displayed, and that to judge properly of the style and effect of the different descriptions of Furniture, it is necessary that each description should be placed in separate rooms. They have, therefore, erected large and additional Show Rooms, by which they are enabled not only to extend their show of Iron, Brass, and Wood Bedsteads and Bed Room Furniture, beyond what they believe has ever been attempted, but also to provide several small rooms for the purpose of keeping complete suites of Bed Room Furniture in the different styles.

Japanned Deal Goods may be seen in complete suites of five or six different colours, some of them light and ornamental, and others of a plainer description. Suites of Stained Deal Gothic Furniture, Polished Deal, Oak, and Walnut, are also set apart in separate rooms, so that customers are able to see the effect as it would appear in their own rooms. A Suite of very superior Gothic Oak Furniture will generally be kept in stock, and from time to time new and select Furniture in various woods will be added.

Bed Furnitures are fitted to the Bedsteads in large numbers, so that a complete assortment may be seen, and the effect of any particular pattern ascertained as it would appear on the Bedstead.

A very large stock of Bedding (HEAL & SON'S original trade) is placed on the Bedsteads.

The stock of Mahogany goods for the better Bed Rooms, and Japanned Goods for plain and Servant's use, is very greatly increased. The entire Stock is arranged in eight rooms, six galleries (each 120 feet long), and two large ground floors, the whole forming as complete an assortment of Bed Room Furniture as they think can possibly be desired.

Every attention is paid to the manufacture of the Cabinet work, and they have just erected large Workshops on the premises for this purpose, that the manufacture may be under their own immediate care.

Their Bedding trade receives their constant and personal attention, every article being made on the Premises.

They particularly call attention to their Patent Spring Mattress, the Sommier Elastique Portatif. It is portable, durable, and elastic, and lower in price than the old Spring Mattress.

HEAL & SON'S ILLUSTRATED CATALOGUE of Bedsteads, Bedding, and Bed Room Furniture sent free by Post.

196, 197, 198, Tottenham Court Road, London, W.C.

To Nurserymen and Florists.

WANTED to PURCHASE, the STOCK and GOOD-WILL of a NURSERY BUSINESS, by a middle-aged Man of active and industrious habits, who has had 22 years constant experience as Managing Assistant in an extensive Country Business.

Apply to Messrs. GODWIN & SON, Solicitors, Newbury.

Crown Lands.—Isle of Man.

TO BE LET on LEASE, or SOLD in such Lots as may be arranged, a large TRACT of LAND on the Mountains on the Isle of Man, well adapted for Sheep Walks.

For Plans and Particulars apply to the Hon. J. K. HOWARD, the Commissioner in charge, Office of Woods, Whitehall Place, London ; Mr. John CLUTTON, No. 9, Whitehall Place ; or to Mr. GEORGE MOODIE, Belle Vue, Douglas, Isle of Man.

TO BE LET, and LEASE to be SOLD, with immediate possession, a good MARKET GARDEN of about 8 Acres, situated a short distance from a fashionable Watering place and rapidly increasing Town, where a ready Sale for all produce can be made. The Land is good, and planted with choicest Fruit Trees just coming into bearing. Also a good Dwelling House, with Vineries, Pits, &c. The whole can be taken to at a valuation.

A FRUIT and SEED FLORIST'S BUSINESS can be taken to with the Garden if required.

Apply by letter to A. B., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

TO BE LET, a HOUSE, called THE MOUNT, situate at Ackworth, near Pontefract, Yorkshire, with 33¾ Acres of rich Grass Land. The House has been lately altered by the addition of Bay Windows, together with other improvements, and all the Rooms re-papered and painted in the best manner. There are three Sitting Rooms, Butler's Pantry, Kitchen, and Scullery on the ground floor ; capital Cellaring under the whole house, with about 10 Bed Rooms and Servants' Room. There is Stabling for Six Horses, with suitable Coach House, Mistle, Cart Shed, and Piggeries.

The property is distant about a mile from the Badsworth Hunt Kennels, and about two miles from Featherstone and Pontefract Railway Stations. Immediate possession can be given.

For cards to view, apply to Mr. JAMES JONES, Ackworth ; and for further particulars of rent apply to Mr. GEORGE KNOWLES, Architect, Leeds Road, Bradford.

Sales by Auction.

The Sale to commence at half-past 12 precisely.

Highly Important Sale of Established Orchids.

Duplicates from the well-known Collection of J. Day, Esq., of Tottenham, who is parting with some of his fine Plants solely from want of sufficient space for their proper cultivation ; they will be included in the Sale some extraordinary fine varieties, well worthy the attention of all growers and lovers of Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from John Day, Esq., of Tottenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, July 12, at half-past 12 o'Clock precisely, a splendid COLLECTION of ESTABLISHED ORCHIDS, comprising some of the best varieties ever offered for Public Sale, of the following well known sorts :—

Aerides affine
,, Fieldingii
,, Larpentæ
,, Lindleyanum
,, Lobbii
,, maculosum
,, quinquevulnerum
,, Schroederi
,, Veitchianum
Angræcum sesquipedale
Barkeria Skinneri
,, spectabilis
Cattleya labiata
,, Syon House
,, Mossiæ
,, Schilleriana
,, superba
,, Warscewiczii
,, marginata
Chysis Limminghii
Cœlogyne cristata
Cypripedium hirsutissimum
,, villosum
,, Dayanum
,, superbiens
Disa grandiflora
Dendrobium Falconeri
,, macrophyllum giganteum
,, Farmeri
,, albo-sanguineum
Lælia purpurata
,, elegans
,, Schilleriana splendens
,, majalis
,, præstans
Lycaste Skinneri
Miltonia candida grandiflora
Odontoglossum auro-purpureum
,, speciosissimum
,, nævium
Oncidium sessile
Phalænopsis Schilleriana
,, amabilis
,, grandiflora
Saccolabium Blumei majus
,, guttatum Halfordianum
Selenipedium caudatum
,, Schlimmii
Sobralia macrantha (Wolley's var.)
Trichopilia crispa
Vanda suavis
,, cœrulea
&c. &c. &c.

On view the Morning of Sale, and Catalogues had of Mr. J. C. STEVENS Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden.

Maindee House, Newport, Monmouthshire.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he has received Instructions to SELL by AUCTION, without reserve, on THURSDAY, July 7, at Maindee House, Newport, Monmouthshire, from 40 to 50 Head of Pure Bred SHORT-HORNED BULLS, COWS, and HEIFERS, the property of John Logan, Esq., which have been selected and bred from some of the most fashionable and pure blood. The young stock are by the celebrated Bulls, Prince Imperial (15095), Duke of Knowlmere (19623,) and Cherry Jacket (19434) ; and the Cows and Heifers are served by the two latter Bulls, and Prince of the Empire (20578).

Catalogues, with pedigrees, may be had on application to Mr STRAFFORD, 13, Euston Square, London ; or of Mr. J. SKINNER the Bailiff at Maindee Farm, Newport, Monmouthshire.

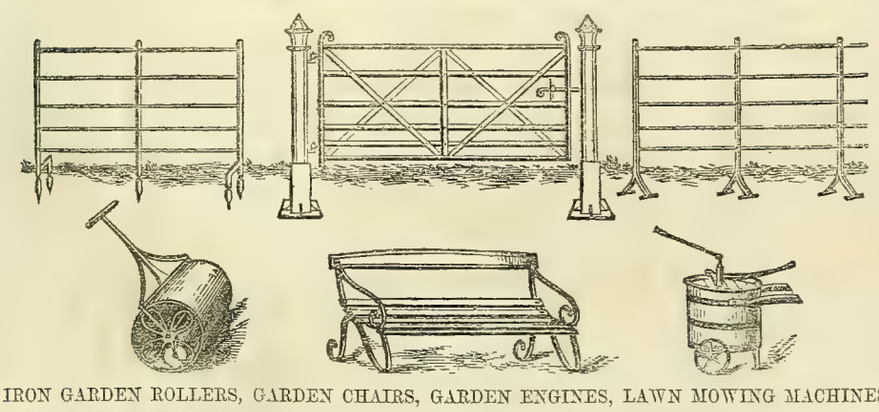
COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,

IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.

VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.

The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to

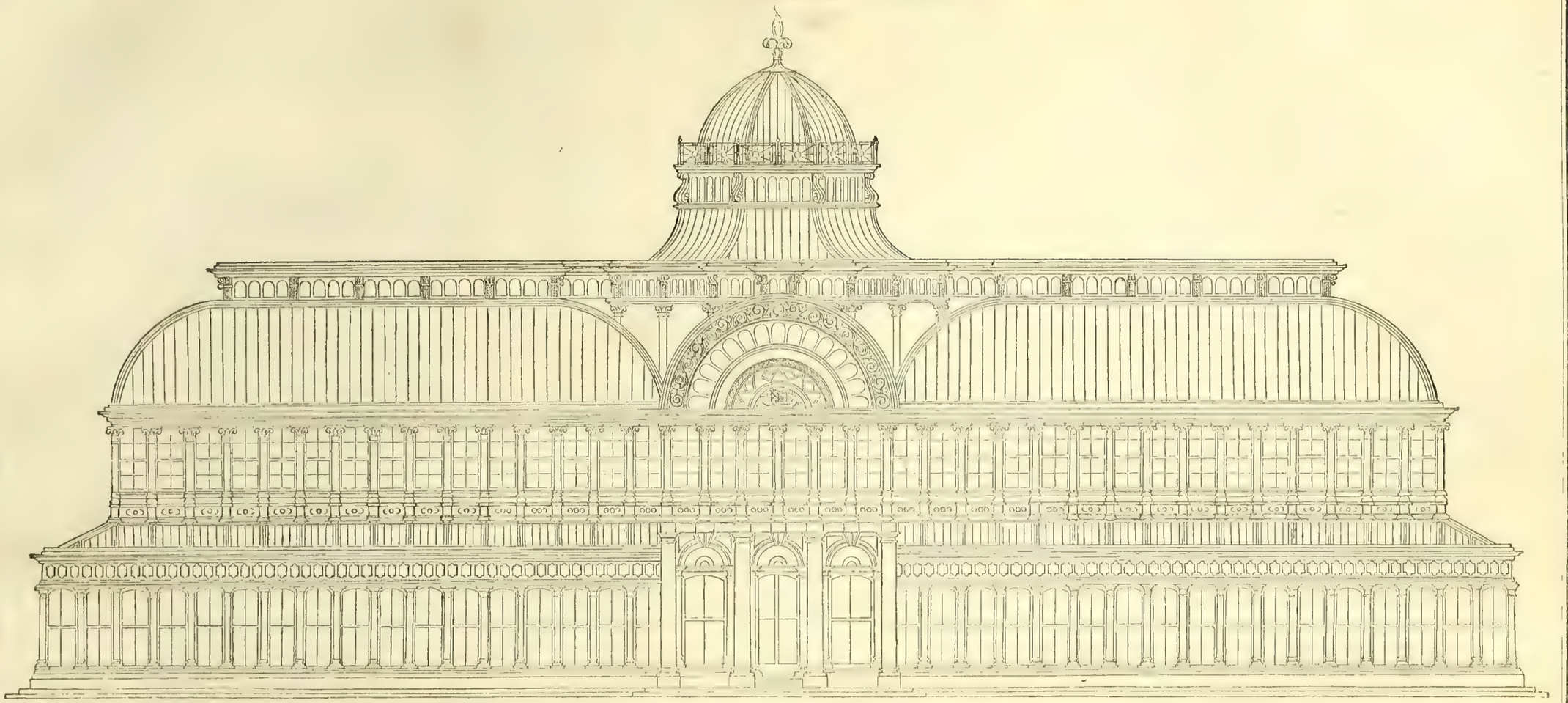
COTTAM AND CO., ENGINEERS and IRON FOUNDERS,

2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

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HORTICULTURAL BUILDINGS MANUFACTURED BY STEAM-POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.



HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, London, S.W.,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,

BEGS most respectfully to call the attention of the Nobility, Gentry, Nurserymen, &c., to his superior manner of Erecting every description of HORTICULTURAL BUILDING, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

In the **BUILDING DEPARTMENT** his object will be to adapt all Erections to the particular purposes for which they are required. He will devote equal attention to the Plain, Inexpensive, Practical Erections of PITS, ORCHARD HOUSES, GREENHOUSES, VINERIES, &c, as to the more Elaborate and Architectural Erections of CONSERVATORIES, WINTER GARDENS, &c., either in Wood or Iron.

The **HEATING DEPARTMENT** always engages his especial personal attention, and he feels justified in saying that in Simplicity, Safety, Durability, and Economy of Fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough Ventilation, he makes it a matter of first consideration.

PLANS, SPECIFICATIONS, and ESTIMATES on application.

ORMSON'S PATENT JOINTLESS TUBULAR BOILERS have now from PRACTICAL TESTS established for themselves the highest standing reputation for power, efficiency, and economy of fuel.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1864.] SATURDAY, JULY 9. [Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
STRAWBERRY FETE and OPENING of the EXHIBITION of BOUQUET HOLDERS & SCULPTURE, on WEDNESDAY July 13.
Admission by Fellows' Privileged Tickets, purchased before the day, 1s., or on the day 2s. 6d. Doors open at 2, Military Bands at 3.

THE EXHIBITION of SCULPTURE in MARBLE, TERRA COTTA, &c., with various Coloured Experiments, will be OPENED at the ROYAL HORTICULTURAL GARDENS, South Kensington, on WEDNESDAY, July 13. Admission 2s. 6d.

ALEXANDRA PARK.
GREAT NORTHERN RAILWAY.
The FORESTERS' GRAND FETE, MONDAY, July 11.
Admission One Shilling; Children, Sixpence.

ALEXANDRA PARK, Wood Green.
GREAT NORTHERN RAILWAY.
A GRAND FAIR will be held in the Alexandra Park, Wood Green (Great Northern Railway) THIS DAY, and remain open until September 1. Fifty Shops of an extremely attractive kind have been constructed in Paris by the Compagnie Suisse, for the purpose of the Fair. In the immediate neighbourhood of the shops space will be let for amusements of all kinds.
Applications for space to be made immediately to the General Manager, at the Company's Offices, 449, Strand, where a model shop can be seen, and the terms of rent ascertained.

ALEXANDRA PARK, Wood Green.
GREAT NORTHERN RAILWAY.
Clergymen and Teachers are requested to communicate with the General Manager for terms for the ADMISSION of SUNDAY SCHOOLS to the Alexandra Park.

ALEXANDRA PARK, Wood Green.
GREAT NORTHERN RAILWAY.
PIC-NIC and PLEASURE PARTIES will find the beautiful grounds of The Grove a most delightful place. The Restaurant is now open.

ALEXANDRA PARK, Wood Green.
GREAT NORTHERN RAILWAY.
May be visited in Twenty Minutes from the Metropolitan Station, Farringdon Street; and in Fifteen Minutes from the Great Northern Station, King's Cross.

WELLINGBOROUGH FLORAL and HORTICULTURAL FETE, to be held at Hatton Park, Wellingborough, by the kind permission of G. F. HOLROYD, Esq., on THURSDAY, August 25, 1864. Premiums to the amount of about 120*l.* are offered for open competition; also 5 Silver Cups, of the value of 5*l.* each, will be given as Prizes.
A Balloon Ascent at 4 o'Clock. The Band of the Coldstream Guards will perform in the Grounds, by permission of Colonel Mark Wood. Entries close on the 18th August.
Schedules, 2*d.* each, on application to the Hon. Secs.
THOMAS S. CURTIS.
WILLIAM DULLEY, Jun.

The Best Substitutes for Swedes.
SUTTON'S GREEN-TOP YELLOW HYBRID and SUTTON'S PURPLE-TOP YELLOW HYBRID, price 9*d.* per pound, or cheaper by the bushel.
Also, YELLOW TANKARD TURNIP, 10*d.* per pound (cheaper by the bushel.)
These are equal in quality to the best Yellow Swede, and will stand the winter if not sown too early. Carriage free except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Turnips for Feeding off Early.
SUTTON'S LINCOLNSHIRE RED GLOBE. SUTTON'S IMPERIAL GREEN ROUND .. .. POMERANIAN WHITE GLOBE .. .. EARLY SIX WEEKS .. .. } Price 8*d.* per lb., cheaper by the bushel.
Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Italian Tripoli Onion.
CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy. Price to the Trade on application.

Rape Seed for Sowing.
CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863. Price on application.

Broad-leaved English Rapeseed.
H. AND F. SHARPE have a fine Sample of the above to offer to the Trade at a moderate price. Seed Growing Establishment, Wisbech.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

Japanese Nurseries, Biggleswade, Beds.
NEW JAPANESE CHRYSANTHEMUMS.—The above curious and beautiful flowers, lately introduced by Mr. ROBERT FORTUNE, are now ready for sending out. Striped, Spotted, Yellow, and Bronze, perfectly hardy, 12s. and 18s. per dozen. Mixed, unnamed, 9s.
T. AYRES, Biggleswade.

Roses.
OLD NURSERIES, CHESHUNT, HERTS, N., per Great Eastern Railway.
PAUL AND SON'S unrivalled COLLECTION is NOW in FINE BLOOM. Open to admirers except Sundays.

Roses.
JOHN CRANSTON'S superb COLLECTION (extending over many Acres), is NOW in FULL BLOOM.
Nurseries, King's Acre, near Hereford.

Roses.
WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.
Waltham Cross, Herts, N.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that his COLLECTION of ROSES is NOW in BLOOM, and respectfully invites an inspection of the same. The collection includes many new and fine varieties.
The Nurseries are about 5 miles from London, and are easily reached by Train on the Great Eastern Railway to Lea Bridge Station.

Roses.
EDWIN HOLLAMBY begs to announce that his unrivalled Collection of the above, containing many new and splendid varieties, is NOW in FINE PERFECTION. A visit is respectfully solicited.
The Nurseries and Seed Establishment, Tunbridge Wells and Groombridge, Kent.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL's Nurseries, Waltham Cross, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Roses.
H. LANE AND SON beg to inform their Patrons that their extensive COLLECTION of ROSES (7 Acres in one piece) is NOW in FULL BLOOM, at their Balshaw Nursery, 1½ mile from the Home Nurseries.

Vines Fruiting.
H. LANE AND SON have still to offer VINES in pots, with from 5 to 15 bunches of fine fruit.
To be seen at their Home Nurseries.

Coniferæ.
H. LANE AND SON'S superb COLLECTION of the above, including the finest lot of ARAUCARIAS in Europe, RHODODENDRONS, AZALEAS, TREES, SHRUBS, &c., to be seen at their Home and other Nurseries, Great Berkhamsted.
The Home Nurseries are within 10 minutes walk of the Berkhamsted Station, London and North-Western Railway, where Conveyances meet all Trains.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2*s.* 6*d.*; 15 do., 3*s.* 6*d.*; 25 do., 5*s.* 6*d.*; 50 do., 10*s.*; 100 do., 30*s.*
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

VINES.—Strong planting CANES of all the leading varieties, at 3*s.* 6*d.* each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.
ESTABLISHED 1800.

Ripon and Claro Seed Establishment.
WILLIAM MORTON,
Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on GRASSES Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

FORTY-FOUR PAGE DESCRIPTIVE CATALOGUE of CHOICE PLANTS, now ready, for one Stamp.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

BANKS'S Magnificent New FUCHSIAS.—A Coloured Plate (extra size) of the above, 2*s.* 6*d.*, can be sent per postage.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, N.W.

INTERMEDIATE STOCK SEED (Fine Strain).—SCARLET and WHITE varieties, of First-class quality, for the Trade.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Calceolaria, Cineraria, Primula.
E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1*s.*, 2*s.* 6*d.*, and 5*s.* each. The CALCEOLARIA is now magnificently in bloom at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS AND MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS AND MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

General Plant Catalogue.
WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

CARTER'S FARMER'S VADE-MECUM.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

REIGATE SILVER SAND, 7*s.* 6*d.* per ton; packed, 16*s.* per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).
Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.

Japan Flax.
THIRD SHIPMENT, just arrived.—The finest Material ever introduced for tying Plants, Flowers, &c. The highest Testimonials from the first-class Gardeners of the United Kingdom. Supplies can be obtained from every Wholesale Seed Firm in London.
For Free Samples apply to Importer, JOHN ALLISON, 22, Lawrence Pountney Lane, London, E.C.

To the Nursery and Seed Trade.
TOBACCO PAPER of first-rate Quality.—Price on application to
CHAS. BROWN, Greenleys, Manchester.

To the Trade.
BAST FOR TYING PLANTS, FLOWERS, &c.
STUART AND MEIN, NURSERYMEN, Kelso, N.B., have received an importation of the above, of first-class quality. It is the cheapest and most economical article in use. Price 56*s.* per cwt. cash. Sample may be had on application.

Sticks and Tallies.
COMMENDED BY THE ROYAL HORTICULTURAL SOCIETY.
F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES can now be had of all sizes, Wholesale, of EDMAN & BLACKITH, Cox's Quay, Lower Thames-street, London, E.C.; and Retail of all the principal Seedsmen and Florists.

To Gardeners, Stewards, &c.
FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

TERRA COTTAS always on Sale, viz.:—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at
J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, W.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.* 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 2 inch. Improved Boilers and Iron Stands to use without brickwork, 5*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Wasps.
HAYTHORN'S HEXAGON and CHISWICK NETS will protect all kinds of Fruit from Wasps, Flies, Birds, &c. Patterns free by post.
Direct, Mr. HAYTHORN, Nottingham.

TANNED GARDEN NETTING.—Inch Mesh, 1*d.* per yard; in pieces containing 400 to 500 yards. Small quantities, 1½*d.* per yard. TOBACCO PAPER, price to the Trade on application.
H. BROWN, Seedsman, 4, Commutation Row, Liverpool.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

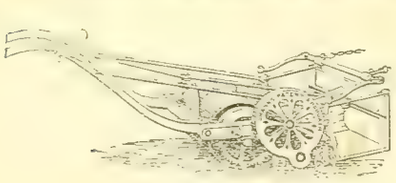
NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard; or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard; or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; 1-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELL, 6 and 7, Crooked Lane, London Bridge, E.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable; 200 square yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*
EDGINGTON'S RICK CLOTHS for 50 years have maintained their celebrity as the best.
EDGINGTON'S MARQUEES and TENTS are the greatest.
EDGINGTON'S MARQUEES for hire are the most elegant and capacious.
Samples of material free on application. 59, Jamaica—Frederick EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E.
A liberal Discount to the Trade.
INTERNATIONAL EXHIBITION, 1862. Class XIX.
Honourable Mention.

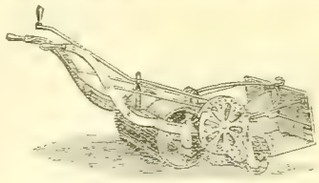
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

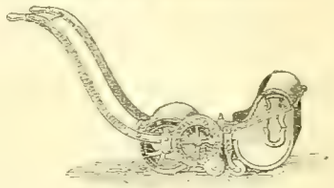
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

for Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4s. extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	
24-inch Machine	8 17 6	*Easily Worked by Two Men.*

Silent Movement, 7s. 6d. extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25s. extra.
28-inch Machine	14 10 0	.. .. 30s. ,,
30-inch Machine	15 15 0	.. .. 30s. ,,

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set;
Ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	.. .. 30s. extra.
36-inch Machine	22 0 0	.. .. 30s. ,,
42-inch Machine	26 0 0	.. .. 40s. ,,
48-inch Machine	28 0 0	.. .. 40s. ,,

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

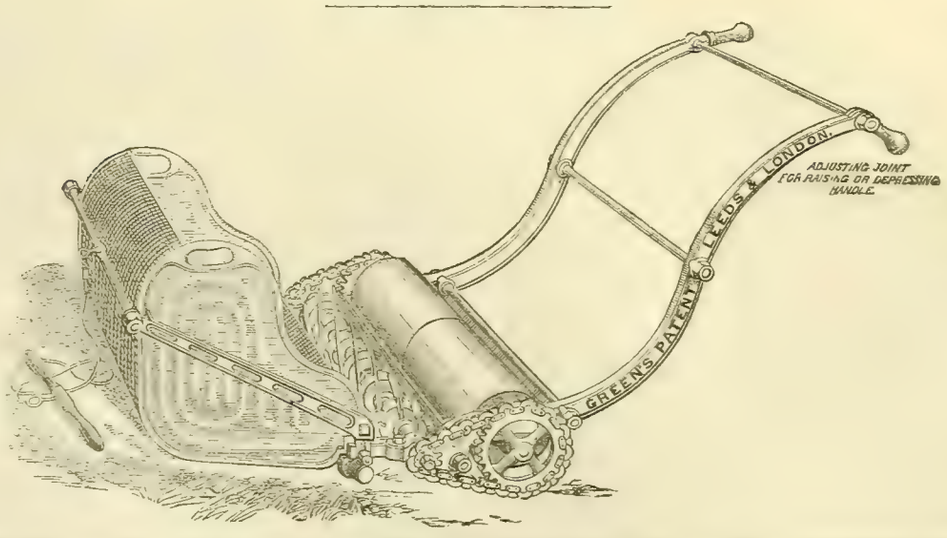
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER
TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

ILLUSTRATED PRICE LISTS may be had on application to

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.



BEATON'S GERANIUMS.



JAMES CARTER & CO.

Beg leave to state, in answer to numerous inquiries, that they have been unable as yet to get up a sufficient stock of

LADY PALMERSTON AND OTHER SEEDLING GERANIUMS

of great merit that they purchased of the late DONALD BEATON, but they hope to be able to offer them to the Trade and the Public in the Autumn. Further particulars will be announced in due course in succeeding Advertisements.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,
LONDON, DEDHAM, SYDENHAM, and ST. OSYTH.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

THE LAST EXHIBITION of PLANTS, FLOWERS, and FRUIT, SATURDAY, JULY 2.

LIST OF AWARDS.

EXTRA GOLD MEDAL.

Mr. F. Whitbread, Gr. to H. Collyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants.
Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

Mr. T. Gibbs, Gr. to E. L. McMurdo, Esq., Castle Down House, Hastings, for 16 Stove and Greenhouse Plants.
Mr. W. Millard, Gr. to E. McMorland, Esq., Adelaide Road, Haverstock Hill, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

Mr. W. May, Gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, Staffordshire, for 16 Stove and Greenhouse Plants.
Mr. J. Fraser, Nurseryman, Leyton, Essex, for 10 Stove and Greenhouse Plants.
Mr. R. Reed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants.
Mr. R. Reed, Gr., for 20 Exotic Orchids.
Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids.

GOLD MEDAL.

Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 10 Stove and Greenhouse Plants.
Mr. H. Chilman, Gr. to Mrs. Smith, Ashstead House, Epsom, for 10 Stove and Greenhouse Plants.
Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Cape Heaths.
Mr. R. Reed, Gr., for 10 Cape Heaths.
Messrs. J. & C. Lee, for 10 Foliage Plants.
Mr. T. Baines, Gr. to H. Micholls, Esq., Summerfield, Bowden, Cheshire, for 10 Foliage Plants.
Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 12 Exotic Orchids.
Messrs. J. Dobson & Son, Nurserymen, Isleworth, for 12 Pelargoniums.
Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums.
Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, Staffordshire, for a Collection of Fruit.

LARGE SILVER GILT MEDAL.

Mr. B. S. Williams, Nurseryman, Holloway, for 10 Stove and Greenhouse Plants.
Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Cheam, Surrey, for 10 Stove and Greenhouse Plants.
Mr. J. Wheeler, Gr. to J. Phillpot, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants.
Messrs. T. Jackson & Son, Nurserymen, Kingston, for 10 Cape Heaths.
Mr. J. Wheeler, Gr., for 8 Cape Heaths.
Mr. H. Chilman, Gr., for 12 Exotic Orchids.
Mr. B. S. Williams, for 10 Foliage Plants.
Mr. B. S. Williams, for 6 Exotic Orchids.
Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 6 Exotic Orchids.
Messrs. A. Henderson & Co., Nurserymen, Edgeware Road, for 10 Foliage Plants.
Mr. Fairbairn, Gr. to the Duke of Northumberland, Syon House, Isleworth, for 10 Foliage Plants.
Mr. H. Cannell, Gr. to J. H. Wolton, Esq., Peckham Rye, for 6 Fuchsias.
Mr. J. Fraser, for 12 Pelargoniums.
Mr. J. Wiggins, Gr., for 10 Pelargoniums.
Mr. T. Bailey, Gr., for 6 Pelargoniums, large size.
Mr. J. Cathn, Gr. to Mrs. Lermitte, East End, Finchley, for 6 Scarlet Pelargoniums.
Mr. Bannerman, Gr. to Lord Bagot, Rugeley, Staffordshire, for a Collection of Fruit.
Mr. J. Meredith, The Vineyard, Garston, near Liverpool, for 3 Dishes of Grapes.
Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., Regents Park, for 6 Stove and Greenhouse Plants.

LARGE SILVER MEDAL.

Mr. W. Kaile, Gr. to Earl Lovelace, East Horsley Towers, Ripley, Surrey, for 6 Stove and Greenhouse Plants.
Mr. J. Fraser, for 6 Fancy Pelargoniums.
Mr. T. Bailey, Gr., for 6 Fancy Pelargoniums.
Mr. W. Lynn, Gr. to Lord Boston, Hedsor, Maidenhead, for a Collection of Fruit.
Mr. T. Bailey, Gr., for a Collection of Pine Apples.
Messrs. H. Lane & Son, Nurserymen, Great Berkhampsted, Herts, for Vines in pots (Black).
Messrs. H. Lane & Son, for Vines in pots (White).
Mr. Baines, Gardener, for a Collection of New and Rare Plants.
Mr. T. Bailey, for 6 Pelargoniums of 1861 and 1862.
Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire (Extra Prize), for Black Prince Grapes.

SILVER GILT MEDAL.

Mr. O. Rhodes, for 10 Stove and Greenhouse Plants.
Mr. A. Ingram, Gr. to J. J. Blandy, Esq., The Grove, Reading, Berks, for 10 Stove and Greenhouse Plants.
Mr. T. Page, Gr. to W. Leaf, Esq., for 6 Stove and Greenhouse Plants.
Mr. R. Baxendine, Nurseryman, Guildford, for 10 Cape Heaths.
Mr. T. Page, Gr., for 8 Cape Heaths.
Mr. R. Parker, Nurseryman, Tooting, for 6 Exotic Orchids.
Mr. A. Ingram, Gr., for 6 Exotic Orchids.
Messrs. T. Jackson & Son, for 10 Foliage Plants.
Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, for 10 Foliage Plants
Mr. B. S. Williams, for 12 Exotic Ferns.
Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 6 Fuchsias.
Mr. J. Shrimpton, Gr. to A. J. Doxat, Esq., Putney Heath, for 6 Fancy Pelargoniums.
Mr. G Pettit, Gr. to J. Pouncey, Esq., Finchley, Middlesex, for 6 Scarlet Pelargoniums.
Mr. J. Fraser, for 6 Pelargoniums of 1861 and 1862.
Messrs. Paul & Son, Nurserymen, Cheshunt, for 50 Cut Roses.
Mr. C. Turner, Nurseryman, Slough, Bucks, for 50 Cut Roses.
Mr. W. Ingle, Gr. to C. G. Round, Esq., Birch Hall, Colchester, for 25 Cut Roses

SILVER GILT MEDAL.

Mr. J. Young, Gr. to C. Bailey, Esq., M.P., Aberaman Park, Aberdare, Glamorgan, for a Collection of Pine Apples.
Mr. J. Standish, Nurseryman, Bagshot and Ascot, for Vines in pots (White).
Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Bart., Coleorton Hall, Ashby-de-la-Zouch, Leicestershire, for 3 Dishes of Grapes.
Mr. C. Turner, for 12 lb. of Grapes.
Mr. H. Sawkins, Gr. to G. Brisley, Esq., Bramfield, Herts, for a Dish of Black Hamburgh Grapes.
Mr. C. Turner, for a Dish of Muscat Grapes.
Mr. W. Hill, Gr. for any kind of Grapes.
Mr. T. Rawbone, Gr. to C. M. Campbell, Esq., Woodseat, near Ashbourne, Derbyshire, for 4 Dishes of Peaches and Nectarines.

SILVER MEDAL.

Mr. H. Chilman, Gr., for 8 Cape Heaths.
Mr. S. Woolley, Nurseryman, Cheshunt, for 6 Exotic Orchids.
Mr. W. Wilson, Gr. to W. Marshall, Esq., Enfield, for 6 Exotic Orchids.
Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, for 10 Foliage Plants.
Mr. W. Bull, Nurseryman, Chelsea, for 12 Exotic Ferns.
Mr. J. Weston, Gr. to D. Martineau, Clapham, for 6 Fuchsias.
Mr. T. Duke, Gr. to T. Duckworth, Esq., Finchley, for 6 Scarlet Pelargoniums.
Mr. B. R. Cant, Nurseryman, Colchester, for 50 Cut Roses.
Mr. H. Excell, Gr. to J. Hollingworth, Esq., Maidstone, for 25 Cut Roses.
Messrs. J. Ivery & Son, Nurserymen, Dorking, for Collections of Hardy Ferns.
Mr. C. Turner, for Collection of Carnations.
Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, for Collections of Fruit.
Mr. A. Henderson, Gr. for Collections of Pine Apples.
Mr. T. Bailey, Gr., for Providence Pine Apple.
Mr. J. H. Cawkell, Gr. to J. G. Riddell, Esq., Hermetton Grange, Rotherham, for Queen Pine Apple.
Mr. J. Brown, Gr. to Sir C. Knightley, Bart., Fawsley Park, Daventry, for Pine Apple.
Mr. C. Turner, for Strawberries in Pots.
Mr. W. Hill, Gr., for 4 Dishes of Peaches and Nectarines.
Mr. J. Ford, Gr. to Rev. T. D. Hudson, Frogmore Hall, Welwyn, Herts, for 2 Dishes of Peaches and Nectarines.
Mr. W. Peachey, Gr. to R. Hole, Esq., Loughborough, for 3 Dishes of Grapes.
Mr. J. Meredith, for Dish of Black Hamburgh Grapes.
Mr. J. Pottle, Gr. to B. D. Colvin, Esq., The Grove, Bealings, Woodbridge, Herts, for Dish of Black Prince Grapes.
Mr. J. Embry, Gr. to A. Moss, Esq., Chadwell, for Dish of Muscat Grapes.
Mr. G. Saze, Gr. to Earl Brownlow, Ashridge, Berks, for Dish of Muscat Grapes.
Mr. C. Smith, Gr. to A. Anderson, Esq., Norwood, for Dish of Grapes.
Mr. H. Sawkins, Gr., for 2 Dishes of Peaches and Nectarines.
Mr. J. Embry, Gr., for 3 Dishes of Grapes.

SMALL SILVER MEDAL.

Mr. W. May, Gr. for 8 Cape Heaths.
Mr. O. Rhodes, for 6 Exotic Orchids.
Mr. J. Wheeler, Gr., for 6 Exotic Orchids.
Mr. W. Young, Gr., for 12 Exotic Ferns.
Mr. W. Martin, Gr. to J. W. Taylor, Esq., Stoke Newington, for 12 Exotic Ferns.
Messrs. J. Ivery & Son, for 12 British Ferns.
Messrs. A. Henderson & Co., for three Hanging Baskets.
Messrs. J. & J. Hayes, Nurserymen, Lower Edmonton, for 6 Fuchsias.
Mr. D. Windsor, Gr. to Lord Dufferin, Highgate, for 6 Scarlet Pelargoniums.
Mr. C. Turner, for 24 Pinks.
Messrs. Downie, Laird, & Laing, Forest Hill, Sydenham, for 36 Pansies.
Mr. Hale, Stoke Pogis, Slough, for 12 Pinks.
Mr. D. Weymouth, Brislington, Bath, for 12 Pinks.
Mr. J. Fraser, for 50 Cut Roses.
Mr. J. Wright, Gr. to Mrs. Ramsden, Twickenham, for 25 Cut Roses.
Messrs. Paul & Son, for 24 Cut Roses.
Mr. C. Turner, Collection of Cut Pelargoniums.
Mr. J. Fraser, for Collection of Fruit Trees in Pots.
Mr. W. Young, Gr., for 6 Caladiums.
Mr. H. Hooper, Nurseryman, Bath, for 24 Carnations.
Messrs. Barr & Sugden, for Collection of Plant Cases.
Mr. W. Beck, Gr. to Lord Broughton, Tedsworth, Wilts, for Collection of Fruit.
Mr. R. Hannan, Gr. to R. Crawshay, Esq., Cyfarthfa Castle, Merthyr Tydvil, for Providence Pine Apple.
Mr. T. Chitty, Gr. to T. Webley, Esq., The Uplands, Birmingham, for Queen Pine Apple.
Mr. F. Perkins, Gr. to C. Keysen, Esq., Warren House, Stanmore, for Queen Pine Apple.
Mr. T. Godfrey, Gr. to —— Chucks, Esq., Ware, Herts, for Queen Pine Apple.
Mr. A. Henderson, Gr., for any kind of Pine Apples.
Mr. J. Gadd, Market Gardener, Dorking, for Green-fleshed Melon.
Mr. J. Gadd, Market Gardener, Dorking, for Scarlet-fleshed Melon.
Mr. J. Monro, Market Gardener, Rabley, for 4 Dishes of Peaches and Nectarines.
Mr. H. Holder, Gr. to W. Child, Esq., Keymer, Sussex, for 2 Dishes of Peaches and Nectarines.
Mr. W. Miller, Gr. to Earl Craven, Coombe Abbey, Coventry, for 2 Dishes of Peaches and Nectarines.
Mr. T. Bailey, Gr., for 4 Dishes of Strawberries.
Mr. J. Meredith, for 12 lbs. of Grapes.
Mr. M. Henderson, Gr., for 12 lbs. of Grapes.
Mr. G. Hyde, Gr. to H. C. Bowles, Esq., Waltham Cross, for Black Hamburgh Grapes.
Mr. A. Henderson, Gr., for Dish of Black Hamburgh Grapes.
Mr. M. Henderson, Gr., for Dish of Black Hamburgh Grapes.
Mr. O. Goldsmid, Gr. to Sir W. Farquhar, Bt., Polesden, Dorking, for Black Prince Grapes.
Mr. M. Henderson, Gr., for Dish of Black Hamburgh Grapes.
Mr. O. Goldsmid, Gr., for Dish of Grapes.
Mr. G. Hyde, Gr., for Dish of Grapes.

BRONZE MEDALS.

Mr. W. Young, Gr., for three Hanging Baskets.
Mr. J. Green, Gr., for 6 Exotic Orchids.
Mr. H. Hooper, for 24 Pinks.

BRONZE MEDALS.

Mr. H. Hooper, for 36 Pansies.
Mr. C. F. Kingston, for 12 Pinks.
Mr. J. Mitchell, Nurseryman, Piltdown, Maresfield, Sussex, for 50 Cut Roses.
Mr. C. Turner, for 24 Cut Roses.
Mr. J. Cross, Gr., for 12 Begonias.
Mr. C. Turner, for a Collection of Pinetees.
Messrs. H. Lane & Son, for Fruit Trees in pots.
Mr. W. Lewis, Gr. to J. Gillott, Esq., The Grove, Stanmore, for a Dish of Black Hamburgh Grapes.
Mr. E. Sage, Gr. to Earl Howe, Gopsall Hall, Atherstone, for a Dish of Black Hamburgh Grapes.
Mr. W. Allen, Gr. to G. Hopwood, Esq., Hopwood Hall, Manchester, for a Dish of Black Prince Grapes.
Mr. W. Peachey, Gr. to R. Hole, Esq., Quorn Lodge, Loughborough, for a Dish of Grapes.
Mr. J. Meredith, for a Green-fleshed Melon.
Mr. A. Henderson, Gr., for a Scarlet-fleshed Melon.
Mr. W. Birse, Gr., for a Green-fleshed Melon.
Mr. H. Holder, Gr. to W. Childs, Esq., Wentworth House, Keymer, Sussex, for 4 Dishes of Peaches and Nectarines.
Mr. J. Brown, Gr., for 2 Dishes of Peaches and Nectarines.
Mr. J. Wells, Gr. to Sir P. Egerton, Bart., Tarporley, Cheshire, for 2 Dishes of Peaches and Nectarines.
Mr. A. Henderson, Gr., for a Dish of Figs.
Mr. C. Turner, for a Dish of Black Cherries.
Mr. C. Turner, for a Dish of White Cherries.
Mr. J. Enston, Gr., for a Dish of White Cherries.
Mr. Lydiard, Batheaston, for 4 Dishes of Strawberries.

CERTIFICATES.

Mr. G. Inglefield, Millfield Lane, Highgate, for 3 Hanging Baskets.
Mr. B. R. Cant, Nurseryman, Colchester, for 24 Cut Roses.
Mr. W. Hall, for 24 Cut Sweet Williams.
Mr. J. Wallis, Gr. to J. Dixon, Esq., Astle Hall, Congleton, for a Dish of Black Hamburgh Grapes.
Mr. T. Perkins, Gr., for a Dish of Black Hamburgh Grapes.
Mr. R. Peed, Gr., for a Dish of Muscats.
Mr. H. Beasley, Gr., for a Dish of Grapes.
Mr. A. Ingram, Gr., for a Green-fleshed Melon.
Mr. T. Bailey, Gr., for a Green-fleshed Melon.
Mr. W. Miller, Gr., for a Green-fleshed Melon.
Mr. C. Turner, for Strawberry Sir Joseph Paxton.
Mr. W. Beck, for a Box of Peaches.
Mr. J. Carr, Gr. to J. Hinds, Esq., Weybridge, for Fruit of Musa Cavendishi.
Mr. J. Hall, Gr., for 6 Queen Pines.
Mr. W. Hill, Gr., for a Box of Nectarines.
Mr. J. Crichton, Gr. to W. Balchard, Esq., Woodcote Lodge, Leamington, for a Dish of Apricots.
Mr. J. Brown, Gr., for a Dish of Figs.
Mr. J. Pottle, Gr., for a Dish of Figs.
Mr. W. Beck, Gr., for a Dish of Black Cherries.
Mr. J. Widdowson, Gr., for a Dish of White Cherries.
Mr. B. Marsham, Gr., for a Dish of White Cherries.
Mr. C. Turner, for 4 Dishes of Strawberries.
Mr. J. Widdowson, Gr., for 4 Dishes of Strawberries.

FIRST-CLASS CERTIFICATES.

Mr. W. Bull, Nurseryman, Chelsea, for Canna nigricans.
Mr. W. Bull, Nurseryman, Chelsea, for Geonoma Ghiesbreghtii.
Mr. W. Bull, Nurseryman, Chelsea, for Salpichlæna volubilis.
Mr. W. Bull, Nurseryman, Chelsea, for Ophioglossum palmatum.
Mr. W. Bull, Nurseryman, Chelsea, for Araucaria Rulei.
Mr. W. Watson, Gr. to C. Leach, Esq., King's Road, Clapham Park, for Disa grandiflora.
Mr. W. Watson, Gr. to C. Leach, Esq., King's Road, Clapham Park, for Disa grandiflora superba.
Messrs. A. Henderson, Pine Apple Place, for Gardenia florida variegata.
Messrs. Low & Co., Clapton Nurseries, for Erica Lindleyana.
Messrs. Low & Co., Clapton Nurseries, for Erica venosa.
Mr. Townshend, Nurseryman, Hornsea, for Clematis lanuginosa violacea.
Mr. B. S. Williams, for Hemerocallis kwanso variegata.
Messrs. Ivery, Dorking, for Polystichum aculeatum acrocladon.
Mr. B. S. Williams, for Beaucarnea sp.
Mr. B. S. Williams, for Yucca sp.
Mr. Bull, for Seedling Pelargonium Clipper.
Mr. H. Hooper, Nurseryman, Widcombe Hill, Bath, for Pansy Yellow Beauty.
Mr. H. Hooper, Nurseryman, Widcombe Hill, Bath, for Carnation Duke of Cambridge.
Messrs. Smith, Dulwich, for Petunia Indiana.
Messrs. E. G. Henderson, for Fuchsia Lucrezia Borgia.
Mr. W. Paul, for Rose Dr. Lindley.
Mr. Holland, Gr. to R. W. Peak, Esq., Isleworth, for Petunia Striata perfecta.
Mr. W. Thompson, for Grape Duchess of Buccleuch.
Messrs. Perkins & Sons, Nurserymen, Coventry, for Seedling Verbena Earl Aylesford.

SECOND-CLASS CERTIFICATES.

Mr. R. Parker, Nurseryman, Tooting, for Chimaphila maculata.
Mr. W. Bull, for Pteris albo-lineata angusta.
Mr. W. Bull, for Pandanus Blanconi.
Mr. W. Bull, for Peperomia argilia.
Mr. W. Bull, for Caladium mirabile.
Mr. Townshend, for Clematis lanuginosa atropurpurea.
Mr. Townshend, for Clematis lanuginosa Hollandii.
Messrs. Ivery, for Scolopendrium marginato-coronatum.
Mr. Hooper, for Pink British Queen.
Mr. Williams, Holloway, for Mimulus cupreus variegatus.
Messrs. Henderson, Wellington Road, for Verbena Velvet Cushion.
Mr. J. Watson, Nurseryman, St. Albans, for Calceolaria Beauty of Herts.
Mr. W. Bull, for Calceolaria Charmer.

COMMENDATIONS.

Mr. Davidson, Gr., Highfield Park, Hants, for a Variegated Laurel.
Mr. Bull, for Calonyction sanguinea.
Mr. B. S. Williams, for Niduiaria Innocentii.
Messrs. Ivery, Dorking, Athyrium F.-f. fissidens excurrens.
Messrs. Ivery, Dorking, Athyrium F.-f. imbricatum.

ROYAL HORTICULTURAL SOCIETY.

SECOND GREAT SHOW, WEDNESDAY and THURSDAY, JULY 6 and 7.

AWARDS OF THE JUDGES.

STOVE and GREENHOUSE PLANTS.

Class 1.—12 Plants in Flower. (Nurserymen.)
1st Prize, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, 10*l.*
2d, Messrs J. & C. Lee, Vineyard Nursery, Hammersmith, 7*l.*
3d, Mr. B. S. Williams, Paradise and Victoria Nurseries, Holloway, 5*l.*

Class 2.—9 Plants in Flower. (Amateurs.)
1st, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 10*l.*
2d, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 7*l.*
3d, Mr. Wm. May, Gr. to J. Spode, Esq., near Rugeley, 5*l.*
Extra, Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, 3*l.*

Class 3.—6 Plants in Flower. (Amateurs.)
1st, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, 6*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 4*l.*

Class 4.—6 Plants in Flower. (Nurserymen.)
1st, Mr. O. Rhodes, Sydenham Park Nurseries, S.E., 5*l.*
2d, Messrs. A. Henderson & Co., Pine Apple Place, Edgware Road, 3*l.*

ORCHIDS.

Class 5.—Aerides, Vanda, and Saccolabium, 3 distinct kinds (Open.)
1st, Mr. Geo. Baker, Gr. to A. Basset, Esq., Stamford Hill, 3*l.*
2d, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 2*l.*

Class 6.—Cattleya and Lælia, 3 distinct kinds. (Open.)
1st, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 3*l.*
2d, Mr. G. Baker, Gr. to A. Basset, Esq., Stamford Hill, 2*l.*

Class 7.—Oncidium, Miltonia, and Odontoglossum, 3 distinct kinds. (Open.)

Class 8.—Anœctochilus, 6 distinct kinds. (Open.)
1st, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, 3*l.*

Class 9.—Miscellaneous, 9 distinct kinds. (Amateurs.)
1st, Mr. Geo. Baker, Gr. to A. Basset, Esq., Stamford Hill, 9*l.*
2d, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 7*l.*
3d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 5*l.*

Class 10.—Miscellaneous, 9 distinct kinds. (Nurserymen.)
1st, Mr. B. S. Williams, Holloway, 7*l.*
2d, Mr. R. Parker, Tooting, 6*l.*
3d, Mr. S. Woolley, Cheshunt, 4*l.*

Class 11.—Miscellaneous, 6 distinct kinds. (Open.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Isleworth, 6*l.*
2d, Mr. G. Baker, Gr. to A. Basset, Esq., Stamford Hill, 4*l.*
3d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 2*l.*

FINE FOLIAGED and VARIEGATED PLANTS.

Class 12.—9 distinct kinds. (Open.)
1st, Mr. T. Baines, Gr. to H. Micholls, Esq., Bowden, 7*l.*
2d, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, 5*l.*

VARIEGATED PLANTS.

Class 13.—9 distinct kinds of Caladiums. (Open).
1st, Mr. J. Veitch, Royal Exotic Nursery, Chelsea, 5*l.*
2d, Messrs. A. Henderson & Co., Edgware Road, 4*l.*
3d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 3*l.*

VARIEGATED FERNS.

Class 14.—3 distinct kinds. (Open.)
1st, Mr. Wm. Bull, King's Road, Chelsea, 2*l.*
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 1*l.*

FERNS.

Class 15.—12 distinct kinds of Exotics. (Open.)
1st, Mr. Wm. Bull, King's Road, Chelsea, 4*l.*
2d, Mr. J. Martin, Gr. to J. W. Taylor, Esq., Woodberry Down, N. 3*l.*
3d, Mr. W. Young, Gr to R. Barclay, Esq., Highgate, 2*l.*

Class 16.—12 distinct kinds, British or Exotic, hardy and rare. (Open.)
1st, Messrs. J. Ivery & Son, Dorking and Reigate Nurseries, 3*l.*
2d, Mr. J. Salter, Versailles Nursery, Hammersmith, 2*l.*

Class 17.—6 Filmy Hymenophyllum and Trichomanes. (Open.)

MOSSES.

Class 18.—Collection of well-grown, 6 distinct kinds.
1st, Disqualified.

Class 19.—Lycopodiums, including Selaginellas, 6 distinct kinds.
1st, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, 3*l.*
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 2*l.*
3d, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, 1*l.*

PELARGONIUMS.

Class 20.—5 distinct kinds. (Amateurs.)
1st, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 5*l.*
2nd, Mr. J. Wiggins, Gr. to W. Beck, Esq., Isleworth, 4*l.*

Class 21.—6 distinct kinds. (Nurserymen.)
1st, Messrs. J. Dobson & Sons, Isleworth, 4*l.*
2nd, Mr. J. Fraser, Leyton, 3*l.*

Class 22.—6 distinct kinds of Fancies. (Open.)
1st, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 5*l.*
2nd, Mr. J. Shrimpton, Gr. to A. J. Doxat, Esq., Putney Heath, 4*l.*
3rd, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, 3*l.*

PELARGONIUMS, SCARLET.

Class 23.—12 distinct kinds, any shade of colour. (Nurserymen.)
1st, Mr. J. Fraser, Lea Bridge Road, Leyton, 6*l.*
2nd, Mr. J. Salter, Versailles Nursery, Hammersmith, 4*l.*

Class 24.—6 distinct kinds, any shade of colour. (Amateurs.)
1st, Mr. Thomas Duke, Gr. to T. Duckworth, Esq., Finchley, 4*l.*
2nd, Mr. J. Hawes, Gr. to J. A. Noble, Esq., Hornsey, 3*l.*

Class 25.—12 distinct kinds of Variegated Foliage. (Nurserymen.)
1st, Mr. J. Fraser, Leyton, 6*l.*
3d, Mr. J. Hally, Blackheath, 2*l.*

Class 26.—6 distinct kinds of Variegated Foliage. (Amateurs.)

Class 27.—6 distinct Scarlets. (Open.)
1st, Mr. J. Fraser, Lea Bridge Road, Nurseries, Leyton, 3*l.*

Class 28.—6 Nosegays, distinct. (Open.)
1st, Mr. J. Salter, Versailles Nursery, Hammersmith, 3*l.*

FUCHSIAS.

Class 29.—6 distinct kinds, in 9-inch pots. (Open.)
1st, Mr. H. Cannell, Gr. to J. H. Walton, Esq., Peckham Rye, 4*l.*
2d, Mr. G. Green, 8, Douglas Place, East Greenwich, 3*l.*

Class 30.—3 New kinds of 1863 in 6-inch pots. (Open).
1st, Mr. H. Cannell, Gr. to J. H. Walton, Esq., Peckham Rye, 2*l.*

Class 31.—3 Standards, not less than 3 feet of stem. (Open).
1st, Mr. M. Higgs, Gr. to Mrs Barchard, Putney Heath, 3*l.*
2d, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, 2*l.*
3d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 1*l.*

Class 32.—3 Plants suitable for dinner-table, 6-inch pots. (Open).
Extra, Henry Cannell, Gr. to J. H. Walton, Esq., Peckham Rye, 1*l.*

LANTANAS.

Class 33.—3 Plants grown on stems 18 inches high. (Open).

CALCEOLARIAS.

Class 34.—6 distinct kinds of Shrubby. (Open).

PLANTS OF ECONOMIC INTEREST.

Class 35.—Cotton. (Open.)
1st, Mr. R. Collins, Gr. to Major R. Trevor Clarke, Daventry, 1*l.*

Class 36.—Coffee. (Open.)
1st, Mr. R. Collins, Gr. to Major R. T. Clarke, Daventry, 1*l.*

Class 37.—Tea. (Open.)
1st, Mr. W. Bull, King's Road, Chelsea, 1*l.*

CUT ROSES.

Class 38.—36 single Trusses. (Nurserymen.)
1st, Mr. C. Turner, Slough, 3*l.*
2d, Messrs. Paul & Son, Cheshunt, 2*l.*
3d, Mr. J. Fraser, Leyton, 1*l.*

Class 39.—24 single Trusses. (Amateurs.)
1st Mr A. Moffat, Gr. to Viscount Maynard, Dunmow, 3*l.*
2d, Mr. H. Sawkins, Gr to G. Brassy, Esq., Bamfield, Herts, 2*l.*
3d, Dr. Cooper, The Limes, Slough, 1*l.*

CARNATIONS and PINKS.

Class 40.—24 Carnations and Picotees, 12 of each. (Nurseryman.)
1st, Mr. C. Turner, Slough, 2*l.*
2d, Mr. H. Hooper, Widcombe Hill, Bath, 1*l.* 10*s.*

Class 41.—12 Carnations and Picotees, 6 of each. (Amateurs.)
1st, Mr. D. Weymouth, Brislington, near Bristol, 1*l.*
2d, Mr. E. F. Kingston, Well's Road, Bath, 15*s.*

Class 42.—24 Pinks. (Open.)
1st, Mr. C. Turner, Slough, 1*l.*
2d, Mr. D. Weymouth, Brislington, near Bristol, 15*s.*
3d, Mr. E. F. Kingston, Well's Road, Bath, 10*s.*

LILIUMS.

Class 43.—6 distinct kinds in bloom. (Open.)

Class 44.—Lilium auratum in bloom. (Open.)
1st, Mr. J. Veitch, Royal Exotic Nursery, Chelsea, 2*l.*

VERBENAS.

Class 45.—24 Cut single trusses. (Open).
1st Prize, Mr. H. Cannell, Gr. to J. H. Walton, Esq., Peckham Rye, 1*l.* 10*s.*

NEW or RARE PLANTS.

Class 46.—Tender Plants in flower. (Open).
Mr. Williams, Holloway, for Erica Lindleyana. First-class Certificate
Mr. Williams, Holloway, for Nidularia Innocentii. First-class Certificate
Mr. J. Veitch, Chelsea, for Linum Chamissonis. Commendation
Mr. Baines, Bowden, for Ixora sp. (Moulmein). Commendation

Class 47.—Tender Plants not in flower. (Open.)
Mr. Williams, for Beaucarnea sp. First-class Certificate
Messrs. A. Henderson & Co., Edgware Road, for Gardneria florida variegata. First-class Certificate
Mr. Bull, Chelsea, for Ophioglossum palmatum. First-class Certificate
Mr. Bull, Chelsea, for Salpichlæna volubilis. First-class Certificate
From the Society's Garden, Chiswick, Anthurium sp. (Weir). Second-class Certificate
Mr. Wm. Bull, Chiswick, for Pandanus Blancoi. Second-class Certificate
Mr. Watson, St. Albans, for Astelia bivittata. Commendation

Class 48.—New Orchids in flower. (Open.)
Mr. Williams, for Dendrobium infundibulum. First-class Certificate
Mr. Bull, for Cypripedium Hookeræ. First-class Certificate.
Mr. Stone, Gr. to J. Day, Esq., Tottenham, for Polychilus Cornucervi. Commendation

Class 49.—Hardy Ornamental Plants. (Open).
Messrs. Ivery & Son, Dorking, for Polypodium vulgare pulcherrimum. First-class Certificate
Messrs. Ivery & Son, for Polystichum aculeatum acrocladon. First-class Certificate
Messrs. G. Jackman & Son, Woking, for Clematis viticella pallida. Second-class Certificate
Messrs. G. Jackman & Son, Woking, for Clematis viticella Mooreana. Commendation
Messrs. G. Jackman & Son, Woking, for Clematis viticella amethystina. Commendation
Mr. J. Veitch, for Quercus sp. Japan. Commendation

Class 50.—NEWLY INTRODUCED PLANTS that have received special recognition from the Floral Committee during 1861, 1862, and 1863. (Open.)
Mr. J. Veitch, Chelsea, for Lapageria alba. First-class Certificate
Mr. J. Veitch, Chelsea, for Lilium auratum. Second-class Certificate
Mr. J. Veitch, Chelsea, for Sciadopitys verticillata. Third-class Certificate
Mr. J. Veitch, Chelsea, for Lomaria gibba. Fourth-class Certificate
Mr. William Bull, Chelsea, for Lomaria zamæfolia. Fourth-class Certificate
Mr. J. Veitch, Chelsea, for Anthurium Schertzerianum. Fifth-class Certificate
Mr. B. S. Williams, Holloway, for Dracæna ferrea variegata. Sixth-class Certificate

Class 51.—SEEDLING FLORISTS' FLOWERS and Garden Hybrids. (Open.)
Messrs. E. G. Henderson, St. John's Wood, for Fuchsia "Lucrezia Borgia." First-class Certificate.
Mr. Hooper, Bath, for Pansy "Snowball." First-class Certificate
Mr. C. Turner, Slough, for Picotee "Princess of Wales." First-class Certificate
Mr. Watson, for Calceolaria Beauty of Herts. Second-class Certificate
Mr. Watson, for Calceolaria General Tom Thumb. Second-class Certificate
Mr. J. Salter, Hammersmith, for Pelargonium (Zonal) Mr. G. Hatchet. Second-class Certificate
Mr. J. Salter, Hammersmith, for Pelargonium (Zonal) Ornement des Massifs. Commendation.

Class 52.—PLANTS in POTS, arranged in Stands or Baskets for Drawing Room Decoration. (Open.)
1st, Messrs. Barr & Sugden, Covent Garden, 2*l.*
2d, Miss A. M. Williams, Paradise Nursery, Holloway, 1*l.*
3d, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 10*s.*

(PRIZES OFFERED by Mr. W. WILSON SAUNDERS, Honorary Secretary.)

Class 53.—3 HANGING BASKETS of Pendent Plants.
1st, Miss A. M. Williams, Paradise Nursery, Holloway, 5*l.*
2d, Messrs. A. Henderson, Pine Apple Place, Edgware Road, 2*l.*

Class 54.—MISCELLANEOUS. (Open.)
Equal 1st, Mr. T. Baines, Bowden, for Collection of Sarracenias, Anœctochilus, and Dionæa, 2*l.*
Equal 1st, Mr. O. Rhodes, Sydenham, for Collection of Heaths, 2*l.*
Equal 1st, Mr. W. Watson, Gr. to C. Leach, Esq., Clapham Park, for Collection of Disa grandiflora and D. grandiflora superba, 2*l.*
2d, Mr. D. McLellan, Gr. to J. W. Cator, Esq., for Collection of Begonias, 1*l.* 10*s.*
Equal 3d, Messrs. Barr & Sugden, for Plant Cases filled with Plants for Hall, Table, and Window Decoration, 1*l.*
Equal 3d, Messrs. E. G. Henderson & Son, for Collection of Ornamental Foliage Plants, 1*l.*
Equal 3d, Messrs. Hooper & Co., for Collection of English Irises, 1*l.*
Equal 3d, Mr. Wm. Bull, for Collection of Medicinal and Officinal Plants, 1*l.*
Extra, Mr. W. Hall, Slough, for Stand of 24 varieties of Sweet William, 10*s.*

FRUIT.

Class B.—Pine Apple, Cayenne.
1st, Mr. A. Henderson, Gr. to Duke of Sutherland, Staffordshire, 2*l.*
2d, Mr. J. Brown, Gr. to Sir C. Knightley, Bart, Daventry, 1*l.* 10*s.*
3d, Mr. G. Sage, Gr. to Earl Brownlow, Ashridge, Great Berkhamstead, 1*l.*

Class C.—Pine Apple, Queen.
1st, Mr. A. Grant, Gr. to G. Plucknett, Esq., Finchley, 2*l.*
2d, Mr. J. H. Cawkell, Gr. to J. G. Riddell, Esq., Rothersham, 1*l.* 10*s.*
3d, Mr. A. Henderson, Gr. to Duke of Sutherland, Staffordshire, 1*l.*

Class D.—Pine Apple, any variety except Queen or Cayenne.
Equal 1st, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 2*l.*
Equal 1st, Mr. J. H. Annen, Gr. to R. T. Crawshay, Esq., 2*l.*
2d, Mr. Wm. Kerfoot, Gr. to T. B. Cross, Esq., Chorley, Lancashire, 1*l.* 10*s.*

Class E.—Grapes, Black Hamburgh, single dish.
Equal 1st, J. Meredith, Esq., The Vineyard, Garston, Liverpool, 3*l.*
Equal 1st, Mr. J. R. Petch, Gr. to R. Barrow, Esq., Ringwood Hall, Chesterfield, 3*l.*
2d, Mr. H. Sawkins, Gr. to G. Brassey, Esq., Bramfield, Hertford, 2*l.*
3d, Mr. A. Henderson, Gr. to Duke of Sutherland, Staffordshire, 1*l.*

Class F.—Grapes, Millhill Hamburgh, single dish.
1st, Mr. J. R. Petch, Gr. to R. Barrow, Esq., Chesterfield, 3*l.*
2d, J. Meredith, Esq., Garston, Liverpool, 2*l.*
3d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Staffordshire, 1*l.*

Class G.—Grapes, Muscat Hamburgh, single dish.

Class H.—Grapes, Black Frontignac, single dish.
1st, J. Meredith, Esq., Garston, near Liverpool, 3*l.*

Class I.—Grapes, any other black variety, single dish.
1st, Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, 3*l.*
2d, Mr. J. Cross, Gr., The Grange, Alresford, 2*l.*
3d, Mr. H. Brown, Gr. to Earl of Chesterfield, Burton-on-Trent, 1*l.*

Class J.—Grapes, White Muscat of Alexandria, single dish.
1st, Mr. Geo. Sage, Gr. to Earl of Brownlow, Great Berkhamstead, 3*l.*
2d, Mr. C. Turner, Royal Nursery, Slough, 2*l.*
3d, Mr. J. Embry, Gr. to — Moss, Esq., Chadwell Heath, 1*l.*

Class K.—Grapes, Buckland Sweetwater, single dish.
1st, Mr. E. W. Hill, Gr. to R. Sneyd, Esq., F.R.H.S., Staffordshire, 3*l.*
2d, Mr. O. Goldsmid, Gr. to Sir W. Farquhar, Bart., Polesden, Dorking, 2*l.*

Class L.—Grapes, Golden Hamburgh, single dish.
1st, Mr. C. Smith, Gr. to A. Henderson, Esq., Norwood, 3*l.*
2d, Mr. Du Bain, Gr. to Col. the Hon. C. Duncombe, Waresley Park, Hants, 2*l.*
3d, Joseph Meredith, Esq., The Vineyard, Garston, near Liverpool, 1*l.*

Class M.—Grapes, White, any other variety, single dish.
1st Mr. A. Henderson, Gr. to Duke of Sutherland, Staffordshire, 3*l.*
2d, Mr. J. Embry, Gr. to — Moss, Esq., Chadwell Heath, 2*l.*
3d, J. Meredith, Esq., Garston, Liverpool, 1*l.*

Class N.—Peaches, Noblesse.
1st, Mr. W. Tillery, Gr. to Duke of Portland, Welbeck, Worksop, 2*l.*
2d, Mr. W. D. McLellan, Gr. to J. W. Cator, Esq., West Lodge, Barnet, 1*l.*

Class O.—Peaches, Violette Hative, single dish.
1st, Mr. H. Sawkins, Gr. to G. Brassey, Esq., Hereford, 2*l.*
2d, Mr. Geo. Sage, Gr. to Earl Brownlow, Great Berkhamstead, 1*l.*
3d, Mr. J. Brown, Gr. to Sir C. Knightley, Bart., Fawsley Park, Daventry, 10*s.*

Class P.—Peaches, Grosse Mignonne, single dish.
1st, Mr. E. Robinson, Gr. to E. R. Benyon, Esq., Englefield House, Reading, 2*l.*
2d, Mr. W. Tillery, Welbeck, Worksop, 1*l.*
3d, Mr. J. Cross, Gr. at The Grange, Alresford, 10*s.*

Class Q.—Nectarines, Pitmaston Orange, single dish.
1st, Mr. J. Cross, Gr. at The Grange, Alresford, 2*l.*
2d, Mr. J. Brown, Gr. to Sir C. Knightley, Bart., Daventry, 1*l.*

Class R.—Nectarines, Elruge, single dish.
Equal 1st, Mr J. Cross, Gr. at The Grange, Alresford, 2*l.*
Equal 1st, Mr. J. Wills, Gr. to Sir P. Grey Egerton, Bart., Oulton Park, 2*l.*
2d, Mr. R. Budd, Gr. to the Earl of Darnley, Gravesend, 1*l.*
3d, Mr. W. Brown, Gr. to Earl of Chesterfield, 10*s.*

Class S.—Nectarines, Violette Hâtive, single dish.
1st, Mr. J. Ford, Gr. to the Rev. J. D. Hudson, Walton, 2*l.*
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Staffordshire, 1*l.*

Class T.—Figs, White Marseilles, single dish, 12 fruits.

Class U.—Figs, Brown Turkey, single dish, 12 fruits.
1st, Mr. E. Robinson, Gr. to R. Benyon, Esq., Reading, 1*l.*
2d, Mr. J. Cross, Gr. at The Grange, Alresford, 15*s.*

Class V.—Cherries, single dish, 50 fruits.
1st, Mr. C. Turner, Royal Nursery, Slough, 1*l.*
2d, Mr. J. Widdowson, Gr. to J. H. Barnes, Esq., Rickmansworth, 15*s.*
3d, Mr. H. Sawkins, Gr. to G. Brassey, Esq., Bramfield, 10*s.*

Class W.—Plums, single dish.

Class X.—Strawberries, single dish.
1st, Mr. E. J. Widdowson, Gr. to J. H. Barnes, Esq., Rickmansworth, 1*l.*
2d, Mr. R. T. Budd, Gr. to Earl of Darnley, Gravesend, 15*s.*
Equal 3d, Mr. H. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, Acton, 10*s.*
Equal 3d, Mr. W. Kaile, Gr. to Earl of Lovelace, East Horsley Towers, Ripley, 10*s.*

Class Y.—Strawberries, 6 dishes, distinct kinds.
1st, Mr. E. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 3*l.*
2d, Mr. E. J. Widdowson, Gr. to J. H. Barnes, Esq., Rickmansworth, 2*l.*
3d, Mr. R. Budd, Gr. to Earl of Darnley, Gravesend, 1*l.*

Class Z.—Melon, Green-fleshed.
1st, Mr. E. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 1*l.* 10*s.*
2d, Mr. W. Kaile, Gr. to Earl of Lovelace, Ripley, 1*l.*
Extra, Mr. F. Rutland, Gr. to Captain Peptoe, Garnston Castle Hereford, 10*s.*

Class AA.—Melon, Scarlet-fleshed.
1st, Mr. O. Goldsmith, Gr. to Sir W. Farquhar, Dorking, 1*l.* 10*s.*

Class BB.—Vines in Pots, bearing fruit, 2 plants.
1st, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, 2*l.*
2nd, Mr. J. Standish, Royal Nursery, Ascot, 1*l.*

Class CC.—Orchard-House Fruit Trees, in pots, bearing fruit.
1st, Mr. J. G. Cocke, Gr. to G. S. Cundell, Esq., Clapham Park, 3*l.*
2d, Messrs. H. Lane & Son, Nurserymen, Great Berkhamstead, 2*l.*
Equal 3d, Mr. J. Fraser, Lea Bridge Road, Leyton, 1*l.*
Equal 3d, Mr. M. Higgs, Gr. to Mr. Barchard, Putney Heath, 1*l.*

MISCELLANEOUS, for Fruits not specially mentioned.
Equal 1st, Mr. E. Robinson, Gr. to R. Benyon, Esq., Reading, for dish of Brunswick Figs, 2*l.*
Equal 1st, Mr. J. R. Petch, Gr. to R. Barrow, Esq., Chesterfield, for basket of Grapes, 2*l.*
Equal 1st, Messrs. H. Lane & Son, Nurserymen, Great Berkhamstead, for large collection of Fruit Trees in Pots, 2*l.*
2d, Mr. H. Beasley, Gr. to T. Wood, Esq., Acton, for dish of Grizzly Frontignan Grapes, 1*l.* 10*s.*
3d, Mr. W. Beech, Gr. to P. Alcock, Esq., Epsom, for dish of Royal George Peaches, 1*l.*

Extra Strong Grape Vines from Eyes.

LUCOMBE, PINCE, AND CO., having this season a splendid stock of strong VINES fit for immediate planting, propagated from Eyes taken from their large experimental Vinery, can offer fine healthy, short-jointed Canes, 6 to 9 feet long, of all the leading kinds, at from 3s. 6d. to 7s. 6d. and 10s. 6d. each.

L., P. & Co. have one of the largest Stocks in the Trade of Extra Strong Vines, with Canes 9 to 11 feet long, and proportionally strong, from which purchasers can advantageously select those suitable for fruiting finely next season. Liberal Compensation for Carriage.

Exeter Nursery, Exeter.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2s. 6d.

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired." —*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

PAUL'S Nurseries, Waltham Cross, N.

CARTER'S GARDENER'S VADE-MECUM.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—s. d.	s. d.		Per pkt.—s. d.	s. d.
PRIMULA ..	2 0	and 3 6	INTERMEDIATE		
CINERARIA ..	1 6	and 2 6	STOCK.. ..	0 6	and 1 0
CALCEOLARIA	1 6	and 2 6	BROMPTON do.	0 6	and 1 0

The above Seeds are saved with great care, and can be warranted to give satisfaction.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 56 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Choice Exotic and Hardy Ferns.

EDWIN COOLING has a fine stock of particularly healthy well-grown Plants to dispose of, on very moderate terms. Also a few specimens suitable for exhibition. PRICED LIST free on application. Parties requiring COLLECTIONS of FERNS will be liberally treated.

Mile Ash Nurseries, Derby.

Preliminary Notice.

CLEMATIS JACKMANI and C. RUBRO-VIOLACEA have received two First-class Certificates, awarded by Royal Horticultural Society, August 4, 1863. Will be sent out this coming Autumn by Messrs. GEO. JACKMAN & SON. Orders will now be taken and executed in strict rotation.

Further particulars (with EXTRACTS from the LEADING HORTICULTURAL PAPERS) with price, will be given in future Advertisements.

Woking Nursery, Surrey.

A MAGNIFICENT FIELD OF

Pure White Canadian Seed Oats in full Ear, and 3½ feet high, June 11, 1864, at

MR. HALLETT'S MANOR FARM, BRIGHTON (within 200 yards of St. Mark's Church, Kemp Town), is now OPEN to INSPECTION. This Field adjoins the Lodge (at the entrance gates of the Manor House), where a sample of the Oats sown may be seen upon presenting Card with Address.

These Oats were raised from a very fine sample in 1862, which was hand-picked 27 times, and weighed 38 lb. the imperial bushel. They were drilled (3 bushels per acre), on the 24th February, 1863, cut July 20, and yielded on a very thin poor soil upwards of 80 bushels of Oats, and 185 trusses (36 lb.) of most excellent feeding straw per acre; while the ordinary Black Tartarian Oat, on the other part of the same field, ripened a fortnight later, yielded of grain a less crop, weighing 25 per cent. less per bushel, and of straw 120 trusses per acre.

The Canadian Oats were again hand-picked, to ensure *perfect* purity, and drilled on the above field February 17 of this year. Upon the same field, 1863:—

	Kernel.		Husk.	
Canadians	69.43	..	30.57	per cent.
Tartarians	70.79	..	29.21	per cent.

SHARPE'S IMPROVED LARGE SWEDE DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.

CHARLES SHARPE & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

NEW and GENUINE TURNIP SEEDS in quantity.

SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.

E. P. DIXON & SONS, 57, Queen Street, Hull.

Stones or Sprotbro Cabbage Seed.

JOHN SCHOLEY, NURSERYMAN and SEEDSMAN, Pontefract, has the above to offer to the Trade, his own growing of 1863. The above Cabbage is the earliest and best that supplies the Leeds and Manchester Markets.

Price per lb. 1s. 6d., or 7l per cwt. About 15 cwt.

HERBACEOUS CALCEOLARIA, &c, SEED.

CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.
CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.
PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d.
And every other first-class Seeds. See CATALOGUE, post free.

WM. CUTBUSH & SON, Highgate Nurseries, London, N.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most magnificent of all Mr. FORTUNE'S importations from Japan, are now ready to be sent out in strong plants, 15s. and 21s. each.

Also ARUNDO CONSPICUA, a worthy rival of the Pampas Grass, flowering very freely three months earlier in the season than that old favourite. Strong plants 18s., 24s., and 30s per dozen.

CHARLES NOBLE, Sunningdale Nursery, Bagshot.

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B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

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Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

The Gardeners' Chronicle.

SATURDAY, JULY 9, 1864.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, July 13 { Royal Horticultural (Strawberry Fête), at South Kensington.

WE have been favoured with information from several Correspondents who have had some of the late JAPANESE INTRODUCTIONS in the open air during the past winter, and all agree in reporting these plants as having passed through the trial unharmed. Considering the number of these new trees and shrubs, and the beauty of many of them, this is a matter of no small importance. From the knowledge we possessed of the hardy nature of some plants formerly introduced from the same country, these pleasing results were not quite unexpected. We have long known how hardy and how useful the common Aucuba is; and Mr. BARRON, of Elvaston Castle, had proved the beautiful Thujopsis dolabrata to be as hardy as the Scotch Fir. With regard to the Thujopsis, Mr. NOBLE, of the Sunningdale Nursery, has remarked that plants of this species which had been in the open air without shelter of any kind, appeared to be much more vigorous and healthy looking than others which had been protected under glass.

It may be regarded as a general rule, that the plants which are indigenous to countries where the winters are as cold or colder than our own, will prove hardy in our climate, provided our summers are hot enough to enable such plants to ripen their young shoots. And, *vice versâ*, plants which are indigenous to countries whose winters are milder than ours, will probably prove to be tender in England. As a general rule this will prove to be so. And further, as many of our readers have learned by experience, sometimes dearly purchased, if an attempt be made to cultivate plants in a higher temperature than that which is natural to them, they usually become unhealthy, and eventually die out altogether. It therefore appears that excessive heat is as injurious to some plants, as cold is to others; and

while some require a periodical season of rest and dryness, others prefer a high and even temperature, with much moisture, all the year round.

To all general rules, however, we believe there are certain exceptions, and this applies to the proposition which we have put forward in the remarks we have just made. We can point to one country at least which has winters apparently much milder than ours, yet its vegetable productions, when introduced into England, appear to be unaffected by the greater degree of cold which they are called upon to endure. The country we allude to is the one we have already named, which has lately opened its ports to foreign commerce, after having been almost shut up for upwards of 200 years. From all that we can learn, the winters of Japan are not nearly so cold as our own, and yet the trees and shrubs imported from that country appear to be nearly, if not quite hardy here.

Our information regarding the climate of Japan, although perhaps not quite so full as we might wish it to be, is still sufficient to enable us to draw the conclusion we have come to. The following table kept by Dr. HEPBURN, an American Medical Missionary at Kanagawa, will give a good idea of the temperature of the central portion of the Japanese Empire.

1860.	Thermometer, Fahr.												
	Average at Sunrise.	At 2 P.M.	Highest.	Lowest.	Clear days.	Cloudy days.	Rainy days.	Rain, in inches.	Snowy days.	Snow, in inches.	No. of earthquakes.
January	39	47	59	18	14	12	8	3·5	3	4	1
February	33	46	58	15	9	9	10	4·5	3	4	1
March	40	51	67	26	18	6	7	2·5	1	1	2
April	49	64	76	36	19	6	5	2·5	0	0	1
May	58	72	84	44	18	7	6	3·5	0	0	1
June	67	82	96	56	10	11	9	5·5	0	0	4
July	76	88	96	62	14	9	8	4·5	0	0	1
August	78	90	98	66	17	7	7	3·5	0	0	0
September	72	86	96	62	11	9	10	5·5	0	0	0
October	62	74	86	50	17	7	7	3·5	0	0	0
November	52	64	78	36	16	8	6	3·5	0	0	0
December	46	57	72	32	19	5	7	3·5	1	1	1

It will be seen by this table that during the months of January and February—the coldest of the year in Japan—the temperature ranged between 18° and 59° in the year 1860, when these observations were made. In some seasons it probably sinks a little lower than it did at that period, but we feel assured that, if we except the extreme northern parts of the Empire, the winters in Japan are much milder than our English ones. In the island of Yesso, which is the most northern of the Japanese group, the winters are said to be of long duration and extremely cold; in that island, therefore, it is not improbable the thermometer sinks quite as low during winter as it does in England. But most of the plants to which we have alluded, as having proved hardy with us, inhabit the central portions of the country, near where the above thermometrical observations were recorded. This is one example, therefore, of a race of plants which are capable of enduring the rigours of a winter much more severe than that to which they are subjected in the country to which they are indigenous—an exception to a very general rule.

The student of natural history or vegetable physiology is naturally inclined to inquire into the cause which produces such a remarkable exception to a very general natural law. That the exception exists, as we have stated it does, cannot be doubted; how it is so, or what the cause is which produces this curious state of affairs, we are unable to explain. There are many of the operations which are going on continually in the great laboratory of Nature, of which we are entirely ignorant. It may be that the productions we write of had, at some earlier period, a more northern home. They may have inhabited the bleak mountains of Manchuria, on the main land of Asia, where the winters are excessively cold, and when they migrated to a more genial country they may have retained much of their hardy constitution, which enables them to withstand our severe English winters. All this is of course mere conjecture. The cause is a mystery, but the effects are plain and of great value.

It will be observed that the Table we have given above has one division placed at the right hand side for a purpose happily scarcely necessary in English meteorological tables. This is the earthquake column, and shows the number of shocks that had been felt during the year. In the month of June there were no less than 11 shocks, and during the year the total number felt was 32! When we take into consideration the number that occurred during the hours of sleep, which were not felt and registered, we may have some idea of the activity of the volcanos of this extraordinary country. It may be that these subterranean fires have some effect upon the climate of the country at the present day, and render the winters less cold than they have been at an earlier period of the world's history. There can be no doubt, however, that one of the principal causes of the temperate climate is to be found in the rapid currents which flow in a northerly direction from the Pacific Ocean, and mix with the waters which surround and run between the various islands of Japan. These islands occupy a position on the eastern side of Asia, not unlike that of the British islands on the west of Europe, and are subject to influences of a like kind.

ON former occasions we have called attention to some curious cases of the PROTRUSION of the CELLULAR TISSUE in Apples and Broccoli from the ruptured cuticle, and its assumption of an entirely new form. We do not, however, remember to have seen any case so curious as one which occurs in Pears just received from Besborough. The surface of the fruit is sprinkled with white leprous rather concave spots, of curious forms and sizes, often with a definite dark border. At first sight we fancied that it must be some exaggerated form of the Fungus Ascomyces bullatus, which is this year so destructive to Pear trees. A glance, however, with a good pocket lens convinced us that this was not the case, as the disc consisted of irregular apparently branched bodies, closely resembling some species of the well-known genus Ceratium. We still therefore imagined that we had a Fungus before us, but to our surprise, on submitting a portion to the compound microscope, we found the white bodies to consist entirely of cells arranged irregularly, and scarcely adhering to each other. Some were simple cells with a broad transparent border; while others of various sizes, but generally larger and angular, had a compact mass of protoplasm within a thick wall pierced everywhere with simple or branched pores, and were evidently modifications of the ordinary grit-cells. What has induced this change we know not, nor have we had an opportunity of examining the condition of the cells before the swelling mass had ruptured the cuticle. They are now perfectly colourless, but they may possibly have been bleached since they were exposed to the influence of the atmosphere. The case, however, is extremely curious, and we are much obliged to our correspondent for its communication, though we can give him no information as to its cause or probable duration, as it is entirely without precedent.

Since the above was written we have seen an instance of the same disease attacking the fruit of an Easter Beurré in the Earl of WESTMORELAND'S garden in Northamptonshire. The fungoid appearance is still more striking in the fresh than in the dried specimens, the white tufts being very distinct from the brown stratum from which they arise. The disease bears a striking resemblance to that known by the name of Lichen in man. The component cells under the microscope, when the angular outline is not very determined, remind one forcibly of the spores of some Truffle. Another form of the disease occurred on the same tree, in which the spots were very diffuse, and instead of bearing tufts, the brown stratum was studded with little white flat angular facets, as if it were cracked. The appearance under the microscope of the cells of which these spots were composed, was just the same as in the former instance. A very similar affection occurred in our own garden on a red early Apple, but in too advanced a stage to admit of any close comparison. The component cells in this case seemed more broken up, and not so completely separated from each other, a circumstance perhaps to be expected from the very different characters of the tissue. We found only three diseased Pears on the tree, but these were even more strongly affected than those from Besborough. It is to be hoped that the malady cannot now spread any further, as the diseased fruit must be quite valueless. *M. J. B.*

—— LAST week (p. 625) we stated that the COCOA-NUT TREE had been induced to produce a ripe nut at Syon under the skilful management of Mr. FAIRBAIRN. It should have been added that a considerable share of the credit of the event belonged to Mr. SMITH, who was head gardener at Syon until his removal to Kew, about two months ago. Mr. FAIRBAIRN, who has now the management of Syon Gardens, was, we believe, Mr. SMITH'S foreman.

—— The arrival in London of Mr. RICHARD SPRUCE, after 15 years' absence in South America, during which he has been engaged in the explorations of which some account was given at p. 602, is announced. The valuable collections he has made of flowering plants and Ferns have been for the most part distributed, but the arrangement of the extensive Cryptogamic collection is not yet complete.

—— Another traveller botanist has lately returned from South America, namely Dr. SEEMANN, who has been occupied in Venezuela, in the exploration of the River Tocuyo. He has found extensive coal beds, the coal resembling Welsh steam coal in appearance, and valued in London at 30*s.* per ton.

—— We may mention that a very useful, simple STUDENT'S DISSECTING MICROSCOPE has been constructed by Mr. MATTHEWS, of Portugal Street, Lincoln's Inn. It is fitted in a neat mahogany box, which serves as a stand, and being only about four inches long and less than an inch in thickness, is not at all cumbrous for the pocket. It may be recommended to travelling botanists for its portability and utility.

—— We regret to have to announce the DEATH OF MR. DANIEL FERGUSON, for 28 years the efficient and much respected Curator of the Belfast Botanic Garden, which took place on the 5th inst. Mr. FERGUSON was a native of Perthshire, and was for some time foreman in the Glasgow Botanic Garden, where he assisted in getting up the specimens for Sir WILLIAM (then Dr.) HOOKER'S lectures. It was, we believe, on Dr. HOOKER'S recommendation that he was appointed to the charge of the Belfast Garden. We understand that the Directors have signified their intention to appoint Mr. W. HOOKER FERGUSON, son of the late Curator, who has had much training and experience at Kew, to the vacant office.

—— Of recent foreign and colonial BOTANICAL APPOINTMENTS, we may record the following:—Mr. PRESTO has been entrusted with the charge of the Botanic Garden in Trinidad, in succession to M. CRÜGER, who died in February last. Dr. PRINGSHEIM, of Berlin, has been appointed Director of the Botanic Garden at Jena, the charge of which has been given up by Professor SCHLEIDEN. Dr. ARESCHOUNG has succeeded to the post of Director of the Botanic Garden at Upsala, which had been resigned by Dr. ELIAS FRIES. Intelligence has also been received of the deaths of Professor TREVIRANUS, of Bonn, "the oldest professor of botany" in Germany; of M. TURCZANINOFF of Charkow, the author of numerous botanical papers in the Transactions of the Moscow Academy; and of M. C. F. LESSING, the writer of some excellent papers on the Compositæ.

—— Some NEW TULIPS of good quality were brought forward at the recent National Tulip Show held at Nottingham on May 25, which may be considered as the great show of the season, though as it turned out, too late for the south of England. The following Seedlings obtained Certificates of the first-class, namely:—*Alice*, from Mr. BARBER, one of STORER'S Seedlings, a flamed bizarre bearing much resemblance to Dr. Hardy, but brighter in the beam. *Beatrice*, from Mr. HAYNES, a feathered byblœmen with fine short cup and good form, beautifully marked with violet, the feathering good. *Bishop of Lincoln*, from Rev. S. CRESSWELL, a fine feathered byblœmen, in the style of Bessie, but much darker. *Bridesmaid*, from Rev. S. CRESSWELL, a superb flamed rose, well-marked and extra fine. *Giurgero*, raised by Mr. MARRIS, a very fine flamed byblœmen, bright, pure, and of fine form. *Jefferson Davis*, from Mr. PARKINS, one of STORER'S Seedlings, a fine plated feathered bizarre, very pure, and fine in form. *Lord Belper*, from Mr. HAYNES, a first-class bizarre breeder. *Princess Alexandra* from Mr. LYMBERRY, a flamed rose of good form, stout and pure, with fine dark anthers.

Much information concerning various other flowers exhibited, will be found in a report of the exhibition in the *Florists' Guide*, where amongst other varieties are mentioned:—*Lymberry's Great Britain*, a feathered bizarre of fine form and very pure, the feathering first-rate; *Cresswell's Bride*, a very bright scarlet feathered rose, well marked, but small; *Storer's General Lee*, a bizarre of very fine form, perfectly pure, and well marked: *Hepworth's Leviathan*, a red feathered bizarre, very regularly marked, the feathering reaching to the base of each petal; *Willison's William Dean*, an exquisitely marked feathered bizarre, with

the feathering marked to the base both inside and out, but shown rather small in size. The National Tulip Show is to be held next year in Birmingham.

At another Tulip Show held in Nottingham on May 23, it is stated that Mr. T. Wesley exhibited a curious specimen of a flamed Tulip with five perfect flowers on one stem!

ORANGE-GROWING IN MALTA.

I READ with much interest your remarks last year (see p. 1175) upon the desirability of introducing the Orange more extensively as a fruit-bearing plant into your houses, and I am of opinion that if more attention were devoted to its management, it would become not only a useful but also a highly ornamental shrub in England.

Those who have seen ripe crops in December or January of the Mandarin or Blood Orange, as I have seen them in Gibraltar, Malta, and Italy, will agree with me that a more graceful and ornamental plant would be difficult to be found; and I think when well grown and trained as a standard and planted out, its appearance, even without fruit, is much less objectionable than that of deciduous trees, such as Peaches or Nectarines, during their season of rest.

I have had the management of an Orange grove for three years and a half in Malta, and have been very successful, having increased the produce from 8000, which used to be about the annual crop, to 18,000, the number gathered last year. It would be a decided pleasure to see such a crop on trees in England, or at least something approaching it, and I certainly think it might be realised.

The Pine Apple when first cultivated in England seemed difficult, till by attention, perseverance, and skill, it has even been induced to surpass in flavour fruit grown in countries to which it is indigenous. Any one accustomed to the taste of Grapes grown in our Vineries would not hesitate in deciding in their favour when compared with the flavour of the same kind of fruit grown on the shores of the Mediterranean. Let us hope, therefore, for a similar improvement in the Orange.

In our Orangery here, some of the trees were transplanted and surrounded by a wall to preserve them from the north-east winds, which sweep across the island with resistless force, and make sad havoc of vegetation exposed to their fury.

The total number of our trees is about 200, small and large. From one Mandarin, 8 feet high, 9 feet wide and 4 feet through, grown in front of a wall with a south-east exposure, I gathered 583 Oranges. The trees in front of this wall endure a temperature in the months of July and August of from 135° to 140° Fahr. the reflected rays being thrown back upon them from the wall. Yet the Mandarins seem to delight in such a heat. The average temperature in exposed places without any special reflection during these months ranges from 100° to 110° at midday. The fruit then is about the size of a pigeon's egg.

In order to give your readers an idea of the system of culture pursued in Malta, it is necessary, however, to begin at the beginning.

The rock of Malta is a soft sandstone, having on its surface about a quarter of an inch of hard crust, impervious almost, if not totally so, to water. This crust must be removed by picking with a tool like a pickaxe, but shorter and thicker in the wings, in order to allow the rains of winter, which percolate through the soil, to be absorbed and stored in the ground, afterwards to be evaporated during the summer months, thereby keeping the lower roots nice and moist. After the picking process is completed, and the boundary walls erected, the inclosed space is then filled level with broken stone rubbish, broken fine on the surface to prevent the soil working through.

The walks are then built in with stone, and on the margins of these are laid down canals of hewn stone 7 inches wide by 9 inches deep, outside measurement, with a grooved canal 4 inches square cut in the stone and cemented at the joints to allow the water to run for irrigation. The soil is then filled in to the height of 3 feet 6 inches, or in other words to the surface of the canals. The Orangery is then ready for planting; this should be performed in June, because then the spring's growth is complete, and it is just before irrigation commences. The plants stand 15 feet apart in double or treble rows. This is generally the measurement for Blood and Portugal Oranges; 12 feet is sufficient for Mandarins.

The Seville Orange should not be planted amongst the kinds just mentioned, as the emissions or exudations from its roots are said to be injurious to their health.

If planted in December, when the autumn wood is made (for there are two distinct growths of young wood, viz. March and April, October and November), they would then be in danger of being damaged by the cold and cutting winds of January and February. For the same reason pruning is effected in June, as under those winds sometimes 2 feet of the tops of the branches are killed.

After transplanting is effected, irrigation commences, but the wounds of pruned trees are allowed to dry before they are watered, the drying process generally occurring in a few days. In June the fruit is about the size of a blackbird's egg. Thermometer at noon in the shade, 80°; at night, 61°.

During July westerly winds prevail; the air is then very absorbent, and consequently irrigation must be attended to more frequently, in order to prevent the fruit from dropping off.

The end of July and beginning of August is about the hottest time of the year; the sirocco winds from the deserts of Sahara and Lybia then prevail, sometimes seriously injuring vegetable life. The animal system, too, for a few minutes during these winds when at their worst, feels as if charged with electricity, and seeks, but seeks in vain, for relief. Not a leaf is seen to move, yet its noise is like the rustling of a lady's silk dress, and it beats upon the face like the heat from a warm oven. The effect upon the Orange is such that the leaves in half an hour after assume a yellow tint, curl up, and hundreds of the fruit drop. The best way to assist the trees after such depression is to give them a good syringing at sunset. The average temperature in the shade, 88½°; night, 68°.

In September there is a slight change; clouds begin to rise, the air gets a little cooler, and refreshing breezes are gladly hailed. Watering, which forms the chief summer's work, instead of being repeated every 10 or 11 days, may now be let run to 15. The average temperature at noon in the shade is 84°; night, 65°.

From June to the end of September, owing to the quantity of dust which is carried about by the winds, the trees are syringed every evening to keep the pores of the leaves open and clean.

In October the fruit is at its full size, and towards the end of the month it will begin to colour; rain is generally looked for about this time, and consequently manure is dug in, consisting of goat, sheep, and horse dung mixed, to keep the soil warm during winter. This is done every third year.

Owing to alterations and other impediments I was obliged to defer manuring till late in January, and then used cow manure, and found it to assist the swelling of the fruit admirably during summer. Temperature at noon in the shade, 75°; night, 63°.

In November, after the rains have set in—and they come down with tropical vengeance—the repeated thunder-storms purify the air, and vegetable nature seems once more to awake like a giant refreshed. Whilst the fruit of the Orange is ripening, new wood is being made, to be again mutilated by a scourge in another form. Average temperature in November and December at noon in shade, 62°; night, 50°.

During January and February the trees are again at rest, but the wood just made, owing to the salubrity of the weather, is forced on, and being succulent is but ill adapted to stand strong gusts of wind.

In enclosed places the winds coil and recoil round the garden, doing more injury to the plants than a direct force would do. February is the coldest month in Malta, the thermometer sometimes falling to 32°. Average at noon in shade, 57°; night, 46°.

March generally sets in rough; trees planted near the north-east coast suffer very much from the spray of the sea, which is sometimes carried like a mist for two miles to the interior of the island. As with the sirocco, so with this, the best remedy is syringing with fresh water, which prevents the salt from injuring the foliage; the unripe wood by concussion is rendered quite black, resembling the foliage of Dahlias after a night's frost.

Such are some of the difficulties to be encountered during winter.

About the middle of March the trees begin to show flower, the weather becomes more mild, heavy rains assume the character of light showers, and about the middle of April the rains cease for the season; the trees about the latter period are in full flower, when the flowers are thinned from the tree for purposes of distillation. When there is a good crop of bloom the trees are quite white, resembling Deutzia gracilis, such is the profusion of flowers with which they are adorned. In the morning Orange groves are surpassing delightful, but as the sun gets hot the scent becomes oppressive. Just as the blooms are open they are attacked by the Barbary bee, an insect which buries itself in the flower, and gnaws the outer coating of the young fruit. As the fruit increases in size the mouth-prints of these pests become more visible; when it is ripe they have the appearance of rust. Thermometer in the shade at noon, 63°; night, 49°.

As there are only six months of the year which may be termed rainy months, *i.e.*, from the end of October to the middle of April, some idea of the quantity of water required for irrigation and of the labour involved may be formed, especially in places where there are no aqueducts or natural streams.

The water is collected from the streets and fields during winter in reservoirs, and in summer it is raised by a man with a rope suspended across a pulley; two buckets are attached to the ends, so that one is filling at bottom, whilst the other is being emptied into a trough from whence it runs round the canals to the place of irrigation, another man being stationed to conduct the water from the canals to the basins round the trees.

In December and January the Mandarins may be said to be in perfection; if allowed to hang longer than the latter month they get very pithy and tasteless.

The Blood Red, Blood Egg, and Portugal Oranges increase in perfection as they hang on the tree from Christmas to May, afterwards they begin to shrivel from evaporation, and wither up, owing to the increased temperature. *William Robertson.*

THE GREAT ROSE SHOW AT SOUTH KENSINGTON.

AFTER being nearly smothered with crinoline, after a wearisome journey, after my horse dancing at the guard's whistle and nearly running away with me, after a feverish night, in which I reviewed and re-reviewed the different classes of most beautiful Roses, it occurred to me that a few words, "nothing extenuate, nought set down in malice" respecting the late Rose Show at South Kensington, might be acceptable to your readers.

I did not look into the amateurs' Roses, but in passing along I saw some very fine boxes of blooms, worthy of the palmiest days of Rose growing. Being a Censor in the Nurserymen's classes, I had a good view of their productions; and I must say that a finer or better lot of Roses, some in fine condition, and some in very fair condition, were never before to my knowledge exhibited. Where all did so well, it would be needless to specify at great length. The awards, which I believe to be fair, and made after great scrutiny and trouble, will show our opinions, whether right or wrong. After a splendid and hospitable *déjeûner*, given us by the Society, I bolted, as "listeners hear no good of themselves." No doubt had we a stethoscope such phrases as the following might have been heard in the breasts of the disappointed, viz., "Great shame!" "Always served the same!" "Don't know a Rose from ragged Jack!" "Hang me if this ain't my last 'go'! These latent ventriloquistical ejaculations, accompanied by "fantastic configurations of the physog.," pass off in a few days, and all again is good humour and preparation for the next tournament. I don't at present feel a twinge of conscience; and I hope my painstaking and able *confrères* are equally quiescent.

There were some boxes with very fine Roses in them, to which the highest honours would have been awarded had their condition been equal to their size and formation. Messrs. Paul & Son's 48 trebles were all good and in good condition. Amongst them Lord Clyde and Charles Lefebvre especially caught my eye. Among the Hybrid Perpetuals Madame Furtado and Monte Christo (a bad grower) were conspicuous. The first and second prizes of three trusses of Tea, or Tea-scented Roses, were the best I ever saw, viz.: Souvenir d'Elise and Madame Willermoz. The box, however, that in my eye stood "precipuè et pre-eminens," was in Class 11, containing Mr. Keynes' 12 Charles Lefebvre's. It was a Rose show in itself, and must have gratified every one.

The 12 trusses of any new kind, viz., Louise Margottin and Lord Macaulay, were very good, and occasioned grave reflection. The first were choice in colour, of uniform size, and well grown; the others were well grown, not of uniform size, of great substance, but a little rough at the edges. I have no doubt that this will be a great and long-standing favourite, as it is a first-class Rose.

When Queen Elizabeth went to Winchester College, she asked a boy when he was last flogged; to which he replied:—

"Cur, Regina, jubes veterem renovare dolorem?"

So I will not refer more than is meet to my *contretemps*. As my office was to see the Roses were not in duplicate, I could do no less than do my duty, especially as my *confrères* reminded me that we should be finely laughed at, if caught napping. We were obliged to disqualify a very fine box of Roses, belonging to a most honourable and high-minded man, to whom I attach no blame. I cannot say where the blame rests, but I suggest that a man should be allowed to stand by each lot of Roses till the place is cleared. It is impossible to suppose that Madame Charles Crapelet could have been placed with two Baron Gonellas intentionally by the exhibitor; a grey and two black horses would not have been more conspicuous. Very different from this was the case of another disqualification, where two Roses were tied together with matting to make a single truss. In one or two instances I found Roses improperly named, as Monsieur de Montigny for Baronne Prevost. I pointed it out to my *confrères*, but both were of opinion that where Roses were not in duplicate, they should not be disqualified for a misnomer. Let more care, however, be taken in future, otherwise it may affect the interests of spectators desirous of becoming purchasers.

There is only one thing that I could suggest as an improvement, viz., a prize for the finest array of any one, or more Yellow Roses—a gorgeous and golden display (open). I would, as regards admitting any one during adjudication, suggest that two policemen should stand, one at each end of the class under adjudication, and keep the coast clear for the judges. The pressure at last became quite a nuisance. *W. F. Radclyffe, Rushton.*

[It is a very absurd custom to let in the visitors at so early an hour as is now done. There is abundant time for them to enjoy themselves and the exhibition after 2 P.M., and none too much time for the judging between 10 and 2. At present everything is hurried and thrown into confusion, for no purpose whatever but to satisfy a whim.]

THE CULTURE OF THE PERPETUAL CARNATION.

The following remarks on the culture of these now popular and useful flowers, for which we are indebted to the Continental florists, are abridged from *L'Horticulteur Français*:—

THE Perpetual Carnation, on account of its vigour, accommodates itself to all soils, but it prefers open manured ground through which water will pass readily. The soil should be rather freely manured, and the manure dug in deeply. The surface of the ground should be occasionally broken up with a hoe, especially after much rain, in order to break the crust which hardens under the action of the sun. They require water but seldom, but it should be given plentifully.

In order to obtain strong plants, cuttings should be put in at the end of April or the beginning of May; they will then yield a very fine show.

To preserve the plants for several years, and to keep them dwarf, it is necessary to shorten each flower-stalk, after the bloom is over, to some 2 or 3 inches above its base. In this way there will be obtained every year a great quantity of flowers.

To enjoy the flowers in winter the plants should be put in an orangery or temperate greenhouse, giving them air as freely as possible. They ought only to go into the house when in flower or bud, because the buds restrain the ascending growth of the stalks. If, on the contrary, they are put in the house with the flower-stalks not yet provided with their buds, these stalks will lengthen out, and in the spring yield only some mis-shapen flowers, while the plants will be poorly furnished.

In the month of October the plants should be repotted with fresh earth in pots of 5 or 6 inches in diameter. They afterwards require shading for 8 or 10 days, and should be removed to the house only when they become liable to suffer injury from frost. Those plants which do not produce buds may be wintered in a pit, which can be covered with a frame and mats during intense cold, but it is necessary to avoid too much moisture; or they can be left in the open ground, where they will survive if the ground is well drained. In this case it is a prudent measure to cover them with straw, in order to shelter them from the sun, which is so fatal to plants when they have been frosted.

The following are new Perpetual Carnations, sent out in the spring of the present year by M. Alégatière, of Lyons:—

Secretary Cuzin.—Slate colour, and fiery scarlet; new shade of colour.

Madame Bondet.—Straw-yellow, strongly bordered with a fine violet colour; flowers very large.

Madame Pecoud.—Fiery orange, edged with slate colour; new shade.

Robert Fortune.—Pure white, heavily bordered with amaranth; dwarfish, vigorous, and free-blooming.

Ernest Benary.—Deep fiery scarlet, striped with maroon; very fine.

President Faivre.—White, with a broad cerise band; flowers enormous, and well formed. This vigorous and abundant flowering variety is quite an acquisition amongst the Perpetuals.

Home Correspondence.

Snakes.—Can any of your correspondents inform me how the noise commonly known as hissing in snakes is produced? They are extremely plentiful in this district, and this summer I have had occasion often to handle them whilst alive (both the ringed snake and viper), but never heard the noise produced till a few days ago, when a specimen of the common snake (Natrix torquata), hissed loudly and repeatedly, both whilst I held it in the air by the tail, and whilst allowed to rest partly on the floor. I trust that your readers will excuse my application should this matter be one well known; but I have been unable to find the explanation in any of the books on reptiles that I have access to; and I have heard so many reasons given for the noise that I should be very glad to know the true cause. *E. O.*

Royal Ashleaf Potato.—This is I find first-rate; it is early, handsome, a good cropper, and of excellent quality. It will supersede the excellent but fitful old Ashleaf. Mr. Steggall's judgment concerning it is quite correct. It is a strong grower, and the greens withstood perfectly sharp hoar frosts, from which other sorts suffered. From 11 Potatos I cut 43 sets, which came up without a miss. An Apple and a Potato can be cooked in more ways than any other fruit or vegetable. Without a good Potato and without a silver fork a dinner is not a dinner. *W. F. Radcliffe, Rushton.*

Mumbo Jumbo.—I understand that the tomfoolery of this potentate was not sanctioned by the Royal Horticultural Society [Of course not], and that measures have been taken to prevent the renewal of so degrading an exhibition. Some day I may reveal its secret history. In the meanwhile I hope you will find room for the following extract from the Parliamentary proceedings of July 1, as given in the *Times*. *A Disgusted F.H.S.*—"Mr. Ayrton said that up to this time he had been under the impression that the Department of Science and Art confined itself to the collection of the odds and ends which make up the exhibition at South Kensington. (A laugh). But it would seem that the Department was now applying itself to literary pursuits, in order to combine science, art, and literature. It had published a book entitled *Mumbo Jumbo; or, the Mountains of the Moon on the Gaboon.* (Laughter). He had had the misfortune to read that production, and certainly it was the most remarkable compound of nonsense he had ever perused in his life. (A laugh, and 'Hear.') At first one might suppose that there was some concealed wit in it—some lurking fun or humour in it; but there was none. It was a concatenation of nonsense such as might be expected to come from a combination of children of 12 years of age, writing a dramatic sketch under the superintendence of some grown person devoid of sense. (Much laughter.) The thing would not deserve any consideration but for one circumstance. A well-conducted and respectable person connected with the Museum, had been asked whether it was true that he was to take a part in the representation of the drama of *Mumbo Jumbo; or, the Mountains of the Moon in the Gaboon;* and whether in order to make himself more interesting in the eyes of the enlightened audience he was to make his face as black as a coal. (A laugh.) He replied that this performance was under the patronage of the Coles, and that it would be necessary for him to blacken his face to that extent, even though he might look foolish. He said he had a wife and children and had no chance; he was compelled to make a fool of himself on the occasion. (Laughter and 'hear.') Under these circumstances he had to ask the right hon. gentleman whether public servants at South Kensington, who might be respectable considering the salaries they received, had been obliged to blacken their faces, and take a part in the coarse monstrous and senseless performance that he was told had taken place in the Royal Horticultural Gardens. He did not know whether hon. gentlemen had been present at the performance, if so the House might have the advantage of hearing a better account than he had been able to give of the affair. He had only read the production. That was quite enough to make him avoid the Royal Horticultural Gardens on the occasion. (Laughter and 'hear, hear.') It was really a serious thing if respectable public servants had to make fools of themselves. Such a proceeding would be in the last degree degrading to our sense of public decency, and to the refinement and feeling which was supposed to exist in this country. (Hear.) He hoped the right hon. gentleman would give the House an assurance that the Science and Art Department would not embark in literary pursuits or dramatic performances. (Cheers.)"

Sun-stroke on Grapes.—In your Paper just received I see an inquiry as to the behaviour of the Lady Downes' Seedling Grape, at the crisis of the final swelling. It becomes discoloured, looks as if pinched by negro fingers, and of course is worthless. I believe that this results simply and solely from sunstroke. Muscat of Alexandria does the same, if fully exposed at a dangerous angle, and at the critical period, to the midsummer sun. Let your correspondent shade his bunches, as we have done, to obviate the evil, and I think it will not extend. The Grape is a most valuable and a very handsome fruit, but like other thick-skinned fruits it has a flaw in its armour at the time of most rapid expansion. *Richard D. Blackmore, Teddington.*

Cool Treatment of Orchids.—I can fully endorse all that Mr. Bateman has written on this subject, having seen his plants in the cool house at Knypersley growing most luxuriantly; they were perfect pictures of health and beauty, amply repaying the small outlay that had been incurred in providing a house so well adapted and so congenial to their growth, and reflecting great credit on Mr. Sherrat's skilful management. The following is a list of Orchids that have made great progress here in a house where a miscellaneous collection of soft-wooded plants are grown in a mean temperature of 55°, viz., Lycaste cruenta, L. Skinneri, Oncidium Wentworthianum majus, O. leucochilum, Odontoglossum citrosmum, O. pulchellum, O. grande, Maxillaria punctata, M. tenuifolia, Phaius grandiflorus, P. Wallichii, P. maculatus, Cypripedium barbatum, C. insigne, Brassia verrucosa, B. Wrayæ, Zygopetalum Mackaii, Dendrobium Paxtoni, Epidendrum crassifolium, and Cælogyne cristata. These plants were taken from a mean temperature of 75° on the 30th of April, 1863, and placed at once in the cool house in a mean temperature of 50°. During the hottest part of the summer the temperature ranged from 50° to 65°, with abundance of air; the roof, front and ends of the house were smeared over with a mixture of chalk and milk, to prevent the direct rays of the sun from doing injury to the foliage; this also causes a nice subdued light to fall on the plants, which they appear very much to enjoy. There they received the same treatment as the soft-wooded greenhouse plants that principally occupy the house. The pseudo-bulbs of Odontoglossum citrosmum measure 5¾ inches round the largest part of the bulb, whilst the bulbs grown in a mean temperature of 75°, are only 3¼ inches. Mr. Warner states last year, page 173, that O. citrosmum requires more heat than most others; now with me it has done better than any of the others in a cool house. Oncidium Wentworthianum measures 8¼ inches round the largest part of the pseudo-bulb, and 3¼ inches lengthways. I cut off three dead flower spikes that had lasted in great beauty for nearly seven months; they had borne 315 well expanded and beautiful flowers; there were then three more spikes on the plant, promising to be even finer than the three preceding ones, and I have no doubt that the plant will produce three times the quantity of spikes, and three times the amount of blooms, after it has had another season's growth in a cool house. Oncidium leucochilum measures 9 inches round the largest part of the pseudo-bulb, and 5¾ inches lengthways; this is three times the size of the bulbs grown under the former treatment. There is a very strong flower spike on each side, at the base of the large pseudo-bulbs, showing to what perfection this most beautiful Orchid can be brought, if grown in a cooler temperature, instead of stewed to death in an East India house. This, with O. Wentworthianum and many other valuable Orchids, have been dragging out a miserable existence under the warm system, ever since the year 1838; they have made more progress in less than one year under cool treatment than in the whole 24 years they were in vapour baths. I am quite convinced that many Orchids will stand from 10° to 25° of frost without receiving the slightest injury. During the very severe frost of 1860-1861 a large plant of Phaius Wallichii was left in a shed, and endured from 18° to 25° of frost for more than a week before I noticed its unfortunate position. I was very much afraid when I saw it that I should lose it. I immediately applied the usual remedy for frozen plants, namely syringing it heavily with cold water until the frost was got quite out of it; the plant was then placed in a cool dark place for a short time, and to my delight it soon began to show signs of returning animation. It was then placed in a vinery in a temperature of 60°, when it made rapid growth, and it is now in a cool house, a very fine plant. *J. Wills, Gr. to Sir P. Grey Egerton, Bart., M.P., Oulton Park, Tarporley, Cheshire.*

Govenia lilacea.—Mr. Skinner has shown me a flower spike and leaves of this pretty pale-flowering Orchid, said to have been imported in March last from Guatemala, and grown in a back kitchen in loose sandy soil with plenty of drainage, the pot being set in a saucer having always half an inch of water in it. The temperature was about 65°; it had been in flower 23 days, and is in good condition now, only a few of the first flowers having dropped off. *Geo. Eyles.*

Foreign Correspondence.

AN EMIGRANT'S LIFE IN NEW ZEALAND: *Rahaia Terrace Station, March* 22, 1864.—I am happy to say I am quite well, and at last have found employment, as you shall hear. After I had written my first letter, which I despatched as soon as I landed, I thought I would not write again until I had got a permanent situation, or, as they say here, "billet;" but I did not hear of one before the 1st of January, at which time my boxes were not off the ship. This situation I must tell you was 70 miles from Christchurch, and I could only get up there by walking, so I had to set off with nothing but the clothes I stood in and my blanket, and walk there, and it was quite an uncertainty as to whether or no I obtained this situation. However, to make short of the story, I arrived there in two days' walk, and was taken on. Well, the first job I had to do was to hoe up 2 acres of Potatos, and so I stuck to that until I finished them; and then I had to go and help the shearers, chop wood, fetch water, kill sheep, clean stables out, clean horses, &c., and after that I was put on as shepherd for a short time. Well, I am happy to say I gave satisfaction, and have continued as shepherd ever since. I am now second shepherd on the station, having been promoted, and get better pay and better living; so I hope now I shall get on. In the shearing time we had 45 men at work on the station, and we had such a small hut to sleep in that we had to lay on the bare floor (no beds, not even straw), one on the top of the other, just like a lot of pigs; and there were such swarms of fleas—I killed 145 in five nights off one blanket. What would you have said to that? They used to have hurdle races up and down my legs, and when thirsty, set to and had a suck at my blood. Well, I was on the station for two months. I could neither get pens, ink, nor paper, or else I should have written, so you see it was not my fault. One day I received a note saying that my boxes were lost, and that if I did not go and look after them I should in all probability lose them altogether; so off I had to trot again down to port, which was 80 miles, and I walked 160 miles in seven days, and found them after a good deal of trouble, but they had been opened at the bottoms and several things taken out; that journey cost me rather over 5*l.* This is an awfully expensive place; no one can live in the ordinary way under 15*s.* a day, and then live in the plainest manner possible. Well, as soon as I got back again, one of our shepherds left, and I put in for his billet, which was at our out station, in the snowy mountains, and after waiting a day or two our overseer came and told me I had given every satisfaction and I might go for a month on trial; so off I set with my sheep, having 2935 to take care of, and to yard and tail every night and morning, and then follow them all day, Sundays and all, wet or dry, from sunrise to sunset; and I tell you the days did seem awfully long and lonely, but I don't mind them now. Fancy, I never had a clean shirt on from the 1st of January until about the 7th of March, by which

time I managed, after waiting patiently, to get my portmanteau up the country. I have two dogs, one which the station finds me, and one which I bought for 15*l.*—rather a long price, is it not? but people think nothing of giving 30*l.* for a dog. I knew a man up in the Mackenzie country, who sold his sheep dog for 65*l.*; only fancy that! I am sorry to say that since I bought mine I have been very unfortunate indeed, for the other day a man drove a dray over the toes of the hind foot of my dog, and I am afraid I shall have to kill it, and if so it will be a sad loss to me, as I have no money to buy another with yet, although I have one in my eye, but the man wants a much longer price than what I gave for my present one. I have written to Messrs. A. & B., and ordered them to send me out two knives, for we cannot get them here, and they are absolute necessaries; we cannot do without them. I am such a distance from town that I can only go once a year. When you write to —— be sure and tell him I do not know what I should have done if I had not had the telescope he gave me; it is a first-rate one. (*From the son of an English Country Gentleman in New Zealand.*)

Societies.

Royal Botanic, Regent's Park: *July* 2 (*Third Great Show*).—This, the third and last great exhibition of the season held under the auspices of this Society, took place on Saturday last, and, as far as fine plants and excellent fruit were concerned, it was perfectly successful, the Black Grapes especially being wonderfully fine, and Stove and Greenhouse Plants, Orchids, Pelargoniums, Fuchsias, and Ferns, exhibiting all the freshness and beauty of appearance which they possessed earlier in the season. The day, too, being fine there was a large attendance of visitors.

Stove and Greenhouse Plants.—Among these we noticed a remarkably well-flowered specimen of Rhynchospermum jasminoides in the form of a neat bush, in luxuriant health, and emitting a fragrance which was quite delightful. This came from Mr. Kaile, gr. to Lord Lovelace, who had also the pretty rosy-flowered Azalea called crispiflora. With the different varieties of Kalosanthes, all showy autumn plants, several collections were ornamented; and there were likewise abundance of Allamandas, Stephanotis, Dracophyllum gracile, Dipladenias, Polygalas, Everlastings, Vincas, and Pleroma elegans, one of the handsomest of Melastomads, with violet purple surprisingly persistent blossoms, each as large as a crown piece. In Mr. Collyer's collection of 16 plants there were, in addition to other things, the clear yellow Gompholobium splendens, a pretty plant when well flowered as this was; and from Mr. May came a wonderfully fine specimen of the salmon-coloured Ixora salicifolia; also neat examples of white Ixora, Statice imbricata, and a flesh-coloured Cape Heath called Erica venosa. Mr. Williams had a prettily flowered plant of Statice profusa, one of the most free-flowering and useful of the genus. Of other stove and greenhouse plants an excellent collection was contributed from Hastings by Mr. Gilbert, gr. to E. S. McMurdo, Esq. It consisted of medium-sized plants charmingly in bloom, trained, but not too stiffly, and set up with a skilfulness as to contrast of colour which did the exhibitor credit.

Awards.—16: 1, Mr. Whitbread; 2, Mr. Gilbert; 3, Mr. May. 10: 1, Mr. Fraser; 2, Messrs. Lee; 3, Mr. Williams; 4, Mr. Rhodes. Amateurs: 1, Mr. Gilbert; 2, Mr. Peed; 3, Mr. Chilman; equal 4, Mr. Green and Mr. Wheeler; 5, Mr. Ingram 6: 1, Mr. Kaile; 2, Mr. Page; 3, Mr. Cross.

Fine-foliaged Plants.—These were shown in large numbers, and their beauty and variety rendered them objects of general admiration. Among them were Rhopalas, various kinds of variegated Yucca, Theophrasta imperialis, Cycads of different sorts, Palms; Caladiums, of which Wightii, Chantinii, Belleymei, and the little speckled argyrites were the most conspicuous; the gracefully growing orange-veined Cordyline indivisa, Alocasia metallica, and A. macrorhiza variegata; very fine bushes of Croton angustifolium, Cyanophyllum magnificum, the ample deep green-leaved Anthurium acaule, and the white-veined A. leuconeurum; Pandanus elegantissimus; the singular brownish deeply cut-leaved Oreopanax dactylifolium, and the large curiously perforated-leaved Monstera deliciosa.

Awards.—10: 1, Messrs. Lee; equal 2, Mr. Williams and Messrs. A. Henderson; 3, Messrs. Jackson. Amateurs: 1, Mr. Baines; 2, Mr. Fairbairn; 3, Mr. Taylor; 4, Mr. Young.

Ferns.—These, together with the plants just enumerated, formed as it were a background to the exhibition, and set off the flowering plants to increased advantage. The shady nooks and recesses in which they were placed were by no means the least attractive portions of the show. Among varieties contributed under this head there was little that has not been previously reported on. We may however add, that in health and general luxuriance of growth some of the plants exhibited may have been equalled but never excelled.

Awards.—12: 1, Mr. Williams; 2, Mr. Bull. Amateurs: equal 1, Mr. Young and Mr. Martin.

Cape Heaths.—These were furnished in admirable condition, especially collections from Mr. Rhodes of Sydenham, which were well grown and beautifully bloomed, and altogether well deserving of the 1st prize which was awarded them. Mr. Peed likewise showed good plants, as did also Mr. Wheeler and Mr. Page. Among the different varieties were good examples of Savileana, loaded with charming little polished rosy blossoms; obbata, Massoni, Aitoniana, Candolleana, the comparatively new kind called Spenceriana; nobilis, a yellowish-buff kind; Vernoni, Paxtoni, metulæflora bicolor, and others.

Awards.—10: 1, Mr. Rhodes; 2, Messrs. Jackson. Amateurs: 1, Mr. Peed; 2, Mr. Baxendine. 8: 1, Mr. Wheeler; 2, Mr. Page; 3, Mr. Chilman.

Roses.—Cut blooms of these were all that could be desired, and elicited general admiration. Among them some of the most conspicuous were Madame Charles Crapelet, M. Julie Daran, Triomphe de Caen, Maurice Bernardin, Gen. Washington, M. Clemence Joigneaux, Adolphe Rothschild, Lady Canning, Olivier Delhomme, Gloire de Santenay, Lord Clyde, La Brilliante, John Hopper, Beauty of Waltham (wonderfully fine), Maréchal Vaillant, Eugène Lebrun, Senateur Vaisse, Madame Charles Wood, and Louise Margottin.

Awards.—50: equal 1, Messrs. Paul & Son and Mr. Turner; 2, Mr. Cant; 3, Mr. Fraser; 4, Mr. Mitchell. 25: 1, Mr. Iugle; 2, Mr. Exell; 3, Mr. Wright. 24: 1, Mr. Turner; 2, Mr. Cant.

Fuchsias.—Several collections of these were shown, well-flowered, and otherwise in good condition. Some of the groups were, however, disqualified on account of the pots in which they were grown not being in accordance with the regulations. Sorts with white corollas were confined to examples of Madame Cornelissen. Among dark sorts were Lord Elcho, Prince Leopold, Comte Cavour, and Sir R. Peel. Light varieties comprised Minnie Banks, Wiltshire Lass, and Queen of Hanover.

Awards.—6: 1, Mr. Cross; 2, Mr. Weston.

Orchids.—Of these an attractive bank was furnished by the usual growers of them. In large groups were magnificent plants of Lælia purpurata, Cattleya amethystoglossa, different sorts of Aerides, Odontoglossum citrosmum, Lady's Slippers in great variety, the new Dendrobium Dayanum, the green-tailed Dendrochilum filiforme, the red Trichopilia crispa, Calanthe Masuca, Barkeria melanocaulon, Vanda Batemanni, and various Oncids and Brassias. In smaller collections Mr. Penny had a wonderfully fine Cattleya Mossiæ; also Lælia elegans and Brysiana, and Sobralia superba, the last with rich deep purple blossoms. Mr. Williams had as usual a good collection, as had also Mr. Beck, Mr. Ingram, Mr. Woolley, and Mr. Parker. From the last named exhibitor came a good plant of Acineta Humboldti.

Awards.—20: 1, Mr. Baker; 2, Mr. Milford; 3, Mr. Peed. 12: 1, Mr. Penny, 2, Mr. Page, 3, Mr. Chilman. 6: 1, Mr. Williams; 2, Mr. Parker; 3, Mr. Woolley. Amateurs: 1, Mr. Wiggins; 2, Mr. Ingram; 3, Mr. Wheeler. 12: 1, Mr. Fraser.

Pelargoniums.—These were again furnished in admirable condition, especially by Mr. Bailey, who has at all the shows held here this season, produced surprisingly fine specimens. Scarlets were also shown, and made a fine display. For names of varieties we must refer to former reports.

Awards.—10: 1, Mr. Bailey; 2, Mr. Wiggins. 6: 1, Mr. Bailey. New: 1, Mr. Bailey; 2, Mr. Fraser. Fancies: 1, Mr. Fraser. Amateurs: 1, Mr. Bailey; 2, Mr. Shrimpton. Scarlets: 1, Mr. Catlin; 2, Mr. Pettit.

New Plants.—Few of these were shown that have not been noticed already in our columns. Mr. Bull received First-class Certificates for Canna nigricans, a dark-coloured seemingly useful kind, Geonoma Ghiesbreghtii, Salpichlæna volubilis, the singularly cut leaved Ophioglossum palmatum, and Araucaria Rulei. The same exhibitor had also various other interesting rarities, to which attention may be directed hereafter. From Mr. Leach of Clapham, came a variety called superba of the charming terrestrial Orchid Disa grandiflora; Messrs. A. Henderson furnished a variety of Gardenia florida with leaves prettily variegated with white; Messrs. Low sent Erica Lindleyana and venusta, both promising varieties; Mr. Townsend showed violet purple flowered varieties of Clematis lanuginosa; Mr. Williams a handsomely variegated Hemerocallis, a Beaucarnea, a narrow-leaved Yucca, a variegated variety of Mimulus cupreus, and Nidularia Innocentii; Mr. Parker contributed a shrub, stated to be hardy, called Chimaphila maculata; Mr. Ivery various fine varieties of hardy Ferns; and Mr. Davidson a variegated Laurel.

Seedlings.—To a few of these Certificates were given. Among varieties thus distinguished were Pelargonium Clipper, a brilliant scarlet sort from Mr. Bull; a Pansy named Yellow Beauty, Pink British Queen, and Carnation Duke of Cambridge, from Mr. Hooper, of Bath; Petunia Indiana, and a prettily striped sort called striata perfecta, the former from Messrs. Smith, Dulwich, the latter from Mr. Holland, of Isleworth; Fuchsia Lucrezia Borgia, a kind with wide spreading corolla, streaked with red and violet, from Messrs. E. G. Henderson; a crimson Rose, called Dr. Lindley, from Mr. Wm. Paul; Verbena Earl of Aylesford and Velvet Cushion, the former from Messrs. Perkins & Son, the latter from Messrs. E. G. Henderson; Calceolaria Beauty of Herts, from Mr. Watson, of St. Albans; and another Calceolaria, named Charmer, from Mr. Bull.

Fruit.—That which excited most admiration, as well it might, was an exhibition of Black Prince Grapes from Mr. Hill, gr. to R. Sneyd, Esq., of Keele Hall, Staffordshire. It consisted of six bunches, three of which weighed 13 lbs. 10 oz., and the other three 11 lbs. 10 oz., all of them measuring some 17 or 18 inches in length, well shouldered, and in colour as black as sloes. Could skilful Grape-growing be carried farther? Surely these, and other almost equally fine productions from the same excellent exhibitor, proclaim him to be one of the most successful cultivators of the Vine in Europe. Worthy of association with Mr. Hill is also Mr. Meredith, of Garston, near Liverpool, whose Black Hamburghs have from time to time astonished even first-class Grape growers themselves. Their matchless colour, great size both of bunch and berry, plumpness and symmetry of form, readily distinguish them as "Meredith's" even among multitudes of what might well be called first-class Grapes. Long may the two cultivators who have just been named enjoy their well-earned reputation.

Pine Apples.—Among these were some fine Providences, one of which, from Mr. Bailey, of Shardeloes, weighed 12¼ lbs.; excellent Queens came from Mr. Young, gr. to C. Bailey, Esq., M.P.; Mr. Henderson, gr. to the Duke of Sutherland at Trentham; and Mr. Hall, gr. to Earl Scarborough; and we also noticed some good fruit of Enville and other kinds.

Grapes.—In addition to those mentioned above were some very fine bunches of Black Hamburgh from Mr. Sawkins, the only fault belonging to which was that they were scarcely sufficiently well coloured; Mr. Henderson had wonderfully good Black Hamburgh, as had also Mr. Embry and others. Of Golden Hamburgh and Buckland Sweetwater we noticed some fine bunches; Mr. Pottle, gr. to B. D. Colvin, Esq., had beautiful examples, scarcely ripe, of Trebbiana; and Grizzly Frontignan was also shown in excellent condition, as was also Mr. Thomson's fine new Grape Duchess of Buccleuch, of which favourable reports have already appeared in our columns.

Peaches.—These were for the most part large and fine, but in many instances greatly injured by carriage; several meritorious exhibitions justly failed to obtain prizes on this account.

Nectarines.—Among these were many excellent dishes; those consisting of Violette Hâtive and Elruge were especially large and fine.

Melons.—The season being favourable for these, examples of most of the best sorts were shown. Among Scarlets, the Windsor Prize stood at the head; and among Green-fleshed kinds, the best was Meredith's Hybrid Cashmere.

Figs.—Among these were very fine examples of Brown Turkey and Brunswick.

Cherries.—These consisted chiefly of Elton, Bigarreau, May Duke, and Black Circassian, beautiful fruit of which came from Mr. Henderson, of Trentham.

Strawberries.—Among these we noticed admirable exhibitions of Oscar, Sir C. Napier, Eleanor, British Queen, Admiral Dundas, Empress Eugénie, Crimson Queen, Keens' Seedling, Marguerite, Alice Maude, Goliath, Sir Harry, La Constante, Cuthill's Princess of Wales, Wonderful, an immense bearer, and Mr. Turner's new sort called Sir Joseph Paxton.

Miscellaneous Collections.—Conspicuous among these was a well varied and excellent display of fruit from Mr. Henderson, gr. to the Duke of Sutherland, at Trentham. It comprised admirable Black Hamburgh Grapes, Figs, Enville and Cayenne Pine Apples, three bunches of the Chaptal Grape, a showy white variety, the clusters of which are long and tapering; Melons, Peaches, Nectarines, and Strawberries. From Mr. Penny, gr. to H. Gibbs, Esq., St. Dunstan's, Regent's Park, came beautiful Peaches and Nectarines, very fine Black Hamburgh and Muscat Grapes, three bunches of which weighed 9 lbs. 13 oz.; a Queen Pine Apple weighing 3 lbs.; Melons, Strawberries, and other fruit, all of first-rate quality. In other collections there were also beautiful Grapes, Peaches, Strawberries and Cherries.

The names of exhibitors who were successful in obtaining prizes for fruit will be found in our advertising columns.

Royal Horticultural: *July* 6 (*Second Great Show*). This was in all respects an excellent exhibition; Stove and Greenhouse Plants were abundant; there was a fair amount of Fancy and other Pelargoniums; Fuchsias comprised some noble standards, as well as well-grown small plants; of Orchids there were the usual contributions; the supply of New Plants and Seedlings was satisfactory; and of fruit there was a highly interesting display. Their Royal Highnesses the Prince and Princess of Wales and other members of the Royal family honoured the exhibition with their presence in the morning before it was opened to the public.

Stove and Greenhouse Plants.—Among these were some charmingly-bloomed examples of Dipladenia crassinoda, and we also noticed one plant of the now seldom seen D. splendens. Of Pleroma elegans, one of the best of hardy greenhouse plants, many beautiful specimens were contributed; Allamandas and Stephanotis were also in admirable condition, as were also Everlastings, Statices, and Kalosanthes, the last giving life and colour to our greenhouses in autumn, and when skilfully associated with fine-leaved plants, producing a large amount of gaiety.

Awards.—12; 1, Mr. J. Fraser; 2, Messrs. Lee; 3, Mr. Williams. 6: 1, Mr. Rhodes; 2, Messrs. A. Henderson. 9: 1, Mr. Peed; 2, Mr. Chilman; 3d, Mr. May; extra, Mr. Wheeler. 6: 1, Mr. Ingram; 2, Mr. Page.

Plants remarkable for the beauty of their Foliage.—Among these were charming specimens of Variegated Yuccas, Cordylines, Rhopalas, Pandanus, Oreopanax, Alocasias, Theophrastas, and plants of that description, intermixed with noble specimens of Ferns, among

which one of the most striking on account of its glossy ample bright green leaves was Neottopteris or as it is sometimes called Thamnopteris australasica. This came from Messrs. Lee.

Awards.—9: 1, Mr. Baines; 2, Messrs. Lee. Variegated, 9: 1, Messrs. Veitch; 2, Messrs. A. Henderson; 3, Mr. Young.

Caladiums.—Of these there was a considerable assemblage, and being well grown, they were by no means unattractive. Veitchii, Lowii, Belleymei, argyrites, Chantinii, and Wightii still occupy the first rank among them; but some of the varieties of bicolor and others also well deserve attention.

Awards.—1, Messrs. Veitch; 2, Messrs. A. Henderson.

Ferns.—These comprised some wonderfully fine Gleichenias, a genus which now possesses many beautiful species. Cibotium princeps also appears to be a favourite with cultivators. Among others were Marattia elegans and Adiantum cardiochlæna, two useful, distinct looking kinds. Of variegated sorts, Mr. Bull had a small group, in which were different varieties of Pteris tricolor, argyræa, and cretica albo-lineata. Of hardy kinds, Messrs. Ivery and Salter furnished beautiful examples, and of Trichomanes and Hymenophyllums, a small group of beautiful specimens came from Mr. Watson, of St Albau's.

Awards.—12: 1, Mr. Bull; 2, Mr. Martin; 3, Mr. Young. British: 1, Messrs. Ivery; 2d, Mr. Salter.

Lycopodiums.—When well managed these equal in beauty some of the smaller growing Ferns, and without them a Fernery would lose much of its attractions. What, for instance, makes so nice an indoor edging as Toothed Lycopod, or a better covering for soil in small borders, or even in Wardian cases? For the ornamentation of the latter some of the larger growing sorts are also often employed with advantage. From Mr. Young came an interesting example of the close growing L. apodum, carpeting the surface of a large flat pan with a dense mass of vivid green.

Awards.—1, Mr. Higgs; 2, Mr. Young; 3, Mr. Ingram.

Orchids.—Among these there was little that has not received notice already in our columns. Of the beauty of Lælia purpurata, and of the different varieties of Cattleya Mossiæ it is difficult to speak too highly, and there were also some good Oncids and Dendrobes. Varieties of Lady's Slipper have also increased wonderfully of late years, and some of them are really beautiful. The pale green-tailed Dendrochilum filiforme seemed to excite considerable attention; and we noticed a small plant of white Phaius, which has not been shown before this year.

Awards.—Aerides, Vandas, and Saccolabiums: 1, Mr. Baker; 2, Mr. Milford. Cattleya and Lælia: 1, Mr. Milford; 2, Mr. Baker. Various, 9: 1, Mr. Williams; 2, Mr. Parker; 3, Mr. Woolley. Amateurs: 1, Mr. Baker; 2, Mr. Milford; 3, Mr. Penny. 6: 1, Mr. Wiggins; 2, Mr. Baker; 3, Mr. Page. Anæctochilus: 1, Mr. Ingram.

Pelargoniums.—From Mr. Bailey again came wonderfully fine plants, among which one of the most conspicuous was Lady Canning, a beautiful soft rose with white eye, and blotched in the upper petals. Etna and others were also in excellent condition. Queen of England, from Messrs. Dobson, is a pretty white sort with two small rosy crimson spots in the upper petals; the same exhibitors had also Perdita, Lord Clyde, and the spotted rose-coloured kind called Leotard. From Mr. Wiggins, gr. to W. Beck, Esq., came Maid of Honour, a lilac sort with white eye and dark top, well worth attention on account of its distinctness of colour; Regina formosa, rose with white eye and blotched top petals; and Eurydice, white blotched with red in the top, were in the same collection. Fancy kinds were likewise well flowered, and there was a fair display of Scarlets. Mr. Salter's Nosegay varieties, of which some account was given last week, received a first prize. Among white Zonal sorts the best were Virgo Marie, and Madame Vaucher, and conspicuous among different shades of Scarlet were Woodwardii, Leonie, Comte de Morny, Rose Rendatler, Martin Gireau, Attraction, Monsieur Martin, Aurora, and Rubens; the two last rosy salmon-colour. Of variegated-leaved sorts Mr. Fraser and others had good collections, in which the best were Mrs. Pollock, Mountain of Snow, and Alma; others, in the way of Golden Chain, as shown appeared to be no improvement on that still useful variety.

Awards.—5: 1, Mr. Bailey; 2, Mr. Wiggins. 6: 1, Messrs. Dobson; 2, Mr. J. Fraser. Fancies, 6: 1, Mr. Bailey; 2, Mr. Shrimpton; 3, Mr. J. Fraser. Scarlet: 1, Mr. J. Fraser; 2, Mr. Salter. 6; 1, Mr. Duke; 2, Mr. Hawes. Variegated, 12: 1, Mr. Fraser; 2, Mr. Hally. Nosegay: 1, Mr. Salter.

Fuchsias.—From Mr. Higgs, gr. to Mrs. Barchard, came three Standards at least 10 feet in height, with clean, straight stems, and fine heads of flower. Mr. Young, gr. to R. Barclay, Esq., showed small standards, among which the best was M. Cornelissen, a sort with a white corolla, apparently well suited for this description of growth. From Mr. Cannell came well-managed yearling plants, not large, but beautifully flowered. Finsbury Volunteer is a good sort with violet corolla and red sepals; among light sorts were Prince Alfred and Reine Blanche.

Awards.—6: Mr. Cannell; 2, Mr. Green. New: 1, Mr. Cannell. Standards: 1, Mr. Higgs; 2, Messrs. Lee; 3d, Mr. Young.

The subjects brought before the Floral Committee were on this occasion shown in classes. Amongst new plants in flower the most remarkable were Erica Lindleyana, and Nidularia Innocentii, both from Mr. Williams, of Holloway, to which First-class Certificates were given. The Heath bore some resemblance to gemmifera elegans, but was brighter coloured, the red at the base being deeper, the green tips more decided, and the flowers somewhat larger; as a summer-flowering Heath of the Massoni style it will be a very useful plant. The Nidularia was a good stove Bromeliaceous plant, with longish green leaves, and bright red bracts, some of them tipped with green, the flowers purple; from the endurance of the colours of their bracts plants of this character are very useful for decoration. Mr. Veitch had Linum Chamissonis from Chili and Peru, a dwarf sub-shrubby perennial with a good deal the aspect of a St. John's Wort, its deep orange-yellow flowers being narrow petaled and stained with red outside; though a free flowering plant, this did not appear to carry a head of bloom, and hence it only received a Commendation. A similar award was also given to an Ixora, which had sprung up amongst soil from Moulmein, shown by Mr. Baines, gr. to H. L. Micholls, Esq., of Bowdon, and which, when more thoroughly developed, will probably become a useful plant. It appeared to be of free-flowering character, with something the habit of crocata and coccinea, but with flowers more salmon y than the former and paler than the latter. A curious plant, with ovate obtuse mucronate leaves, clothed like the stem with white silky hairs, and bearing a spike of yellowish green flowers, called a Clianthus, was shown by Mr. Cox, gr. to J. Tyrrell, Esq., of Exeter.

In the Class of New Plants not in Flower, First-class Certificates were given to the following subjects, namely, to Gardenia florida variegata, from Messrs. Henderson & Co., of Pine Apple Place, a beautifully-marked plant, with most distinct and well defined variegation; to Salpichlæna volubilis, a climbing Lygodium-habited Blechnoid Fern, quite distinct in character, and to Ophioglossum palmatum, a remarkable tropical Adder's-tongue, with broad fingered fleshy fronds, both from Mr. Bull, of Chelsea; and to a glaucous-leaved species of Beaucarnea, from Mr. Williams. An Anthurium from the Society's own collection, one of the plants collected by Weir, with winged stalks and cordate leaves of a rich velvety shaded green marked by whitish ribs, a plant which might have received a higher award, as it will certainly one day deserve it, received a Second-class Certificate. Pandanus Blancoi, from Mr. Bull, a slender elegant long-leaved glaucous species of Screw Pine, received a similar award; and a Commendation was given to Mr. Watson, of St. Albans, for a large grassy-leaved plant, having a pair of pale-coloured ribs on each leaf, and called Astelia bivittata. In the same group Mr. Bull had young plants of a Conifer, under the name of Araucaria Rulei, which would have received a high award if they had been large enough to have shown satisfactorily that they were identical with the dried specimens which had been sent over from Australia along with them, the true plant being evidently one of first-class quality. Two Dammaras from the same exhibitor, Moorei, with long narrow gracefully recurving leaves, and hypoleuca, with blunt leaves glaucous beneath, were not enough developed; and the same may be said of two Bornean species of Anæctochilus, also from Mr. Bull, one of which especially, called magnificus, appeared likely to become a very beautiful object. In this group Mr. Veitch had Selaginella involvens, and a variety, argentea variegata; and Messrs. E. G. Henderson & Son Sedum Sieboldii medio-variegatum, all of which we understood the Committee had previously dealt with. There was also Iresine Herbstii, from Messrs. Herbst & Stenger, shown as a bedding plant, a soft-looking herb, of a deep brownish-red colour, with red ribs, the leaves kidney-shaped and cupped, or sometimes bilobed. Their cupped form gives them a somewhat starved or pinched-up appearance, which we fear may militate against the use which was suggested might be made of the plant.

The class of New Orchids was not numerously filled. The best plant shown was Dendrobium infundibulum, one of the kinds with black-haired stems and large white flowers, blotched with orange on the lip, in the way of D. formosum; this came from Mr. Williams. Another interesting plant shown by Mr. Bull, was the purple-petaled Cypripedium Hookeræ, which is as remarkable for its handsomely mottled leaves as for its neatly coloured flowers. Both these received First-class Certificates. Mr. Stone, gr. to John Day, Esq., of Tottenham, showed the curious Phalænopsis (or Polychilus) cornu cervi, a Javanese and Moulmein plant, with a curious clavate flattened spike having the flowers set in marginal notches, the flowers themselves rather small, with yellowish green sepals and petals, and a white lip, all marked transversely, the former with deep red brown, the latter with purple. Mr. Veitch also again showed the free-blooming though pale-coloured prettily marked black-moustached Cypripedium Pearcii.

Of Hardy Ornamental Plants nothing very remarkable was produced. The highest awards—First-class Certificates—fell to a couple of Ferns from Messrs. Ivery & Son; the first Polystichum aculeatum acrocladon, a fine crested form of this hardy evergreen species; the second, Polypodium vulgare pulcherrimum, a variety of the semilacerum stamp with crenated secondary segments. Messrs. Jackman & Son, of Woking, showed cut blooms of their two fine Clematises already certificated, namely Jackmanii and rubro-violacea, so marvellously like those produced last week from another source, as to suggest the idea of a common origin. They had also some further novelties from the same crosses, to one of which C. Viticella pallida, a broad petaled lilac with reddish bars, a Second-class Certificate was given; while two others, C. Viticella Mooreana, and C. V. amethystina, with narrower and more recurved petals, the first a deep violet, the second a paler violet blue, were each Commended. A Commendation was also given to a Japanese Quercus from Mr. Veitch, an evergreen of free habit, in the way of Q. glabra, but of which further information respecting its hardiness is needed. Mr. Williams showed Hemerocallis Kwanso foliis-variegatis, a well-marked variegated plant, very near the variegated variety of H. fulva; and Mr. Davidson, gr. to J. F. Marson, Esq., Highfield Park, Hants, had a Variegated Laurel with a kind of motley-yellowish venation, and blistered surface, which did not present a very healthy-looking appearance.

Seedling garden flowers were numerous, the most generally attractive being perhaps a large group of Zonal Pelargoniums from Mr. Bull, and another of the tricolor zoned series from Messrs. E. G. Henderson & Son. The varieties were not however considered sufficiently distinct to receive awards. The subjects which were selected for this distinction, were Fuchsia Lucrezia Borgia, a fine large flower with a mottled purplish red striped corolla, from Messrs. E. G. Henderson & Son; Picotee Princess of Wales, a delicately tinted light edged sort from Mr. Turner; and a Pansy called Snowball, white with dark eye, from Mr. Hooper of Bath. A Zonal Pelargonium called Mr. G. Natchet, from Mr. Salter of Hammersmith, a bright scarlet with a very large truss, received a Second-class Certificate; and a Commendation was given to the same exhibitor for another called Ornement des Massifs, a kind of crimson carmine recommended for its colour. Second-class Certificates were also given to Mr. Watson for Calceolarias Beauty of Herts and General Tom Thumb, the first a light orange shaded with brown, the second a very dwarf bright yellow, both likely to be useful for bedding purposes. There were two good white Zonal Pelargoniums from Mr. Keeler of Dulwich, called Noble and alba floribunda, but they did not appear to be superior to Madame Vaucher and other white sorts already known. Two stands of Pansies were shown by Mr. E. J. Lowe, of Beeston.

Miscellaneous Subjects.—Collections of plants of economic interest came from Mr. Bull and Major R. T. Clarke; fine boxes of cut Roses from Mr. Turner, Messrs. Paul, Mr. Fraser, Mr. Moffatt, Mr. Sawkins, and others; Carnations, Pinks, and Picotees from Mr. Turner, Mr. Hooper, and Mr. Weymouth; Lilium auratum from Messrs. Veitch; cut Verbenas from Mr. Cannell; Sarracenias from Mr. Baines; Heaths from Mr. Rhodes; variegated Begonias from Mr. McLellan; and plant stands and hanging baskets from Messrs Barr & Sugden, Miss Williams, and Messrs. A. Henderson & Co.

Pine Apples.—Of Providences and Enviles some fine examples were shown, and we also noticed some well ripened Queens, one of the best of which came from Mr. Grant, of Finchley.

Grapes.—Foremost among these must be mentioned Mr. Hill's fine bunches of Black Prince alluded to in another column. Large and fine specimens of Black Hamburgh came from Mr. Meredith, and Mr. Petch had beautifully ripened bunches of the same variety. From Mr. Sawkins and Mr. Henderson also came handsome fruit of this usetul kind. Grizzly Frontignans were furnished by Mr. Beasley, and we also noticed some bunches of West's St. Peter's. Among White Grapes were some very good bunches of Golden Hamburgh, a variety apparently likely to fulfil all that was said in its favour when it first made its appearance. Both here and at Alexandra Park exhibitions of it have been highly satisfactory. Among other white sorts were Buckland Sweetwater, three bunches of which weighed together 6 lbs. 3 oz.; these came from Mr. Hill. Three bunches of Chaptal, a variety shown by Mr. Henderson, were much admired for their beautiful clean look and long tapering shape. Muscats, excellent bunches, but scarcely ripe, came from Mr. Sage, Mr. Turner, and Mr. Embry. Duchess of Buccleuch would have received a Certificate, but the judges were precluded from giving one, that distinction having been conferred on it before. Grapes in pots were shown in admirable condition by Messrs. Lane, who also furnished illustrations of a new mode of training them. It consisted in surrounding the plant with an open circular wire trellis about 3 ft. wide at bottom, and becoming narrow towards the top, thus causing the plant to assume the form of a cone. The young shoots are led from the main stem outwards to the wire hoops to which they are fastened; in this way the fruit is well displ'ayed to view, and the branches and leaves have room for ample development.

Peaches.—These seem to have been unusually large and fine this year. Among them were beautiful specimens of Noblesse, Barrington, Royal George, and Violette Hâtive.

Nectarines.—Violette Hâtive, Elruge, Hunt's Tawny, and Pitmaston also appear to be excellent in quality this season, and many fine dishes of them were shown.

Cherries.—Of Black Circassian Mr. Turner had unusually fine fruit, and good dishes of May Duke and Elton were also contributed.

Strawberries.—The six best dishes came from Mr. Bailey, who furnished Bicton Pine, a white sort Oscar, Sir C. Napier, Filbert Pine, a variety of which

Mr. Bailey speaks in high terms; Wonderful and Admiral Dundas. From Mr. Kaile, gr. to Lord Lovelace, came some very large fruit of Sir C. Napier, one berry of which weighed nearly 2 oz. Mr. Turner had his seedling named Sir J. Paxton; and from Mr. Ingram, Royal Gardens, Frogmore, came a seedling named Fairy Queen, a pine-shaped fruit of excellent flavour.

Figs.—Among these we noticed remarkably fine examples of Brunswick, from Mr. Robinson, Reading; Brown Turkey were also good.

Melons.—Windsor Prize was the best among scarlet-fleshed sorts, and Golden Perfection and Meredith's Hybrid Cashmere among green-fleshed varieties.

For a list of prizetakers in fruit see an advertisement in another column.

Notices of Books.

Travels in Siam, Cambodia, and Laos; by the late M. Henri Mouhot. Two vols. 8vo. Pp. 604. John Murray: 1864.

The lamented gentleman to whom we are indebted for these remarkably interesting volumes was a French naturalist of good education and with many accomplishments, well skilled in photography, a capital draughtsman, and so thoroughly devoted to science and the love of foreign travel that he left his English wife and home in Jersey, regardless of the perils and hardships which such an expedition must necessarily entail, to explore the almost unknown and pestilential regions which lie between the peninsulas of Burmah and Cochin China.

M. Mouhot possessed so many excellent qualities that he became a favourite wherever he went. English and French, the Catholic missionaries and the natives of the country, the kings and mandarins, almost invariably were charmed with his society, and helped him forward in his work. These latter classes of gentry, of course, were highly gratified with the presents which our traveller distributed with a liberal hand. After three years of great success, during which he had uninterruptedly enjoyed the best of health, though his servants were often suffering, he fell a victim to jungle fever, towards the close of 1861, while *en route* for the provinces south-west of China, and died to the inexpressible grief of all his friends.

A short memoir prefixed to the first volume informs us that M. Henri Mouhot was born at Montbeliard, the birth place of Cuvier and Laurillard, and perhaps it was owing to this circumstance that his attention was first directed to natural history, a study to which he was absolutely devoted. At the age of 18 he went to St. Petersburg, and became a teacher or professor, but soon quitting literary pursuits, he gained so much celebrity as an artist practising photography, that he needed no other means of support. M. Mouhot had traversed Russia from St. Petersburg to Sebastopol, from Warsaw to Moscow, in pursuit of his pleasing art. He had also visited most of the countries of Europe, but still thirsted for knowledge, and longed for a wider field of research, and if possible for a field less explored by foreign travellers. An English book on Siam fell opportunely into his hands, and decided his destination, and the great Geographical and Zoological Societies of London gladly availed themselves of M. Mouhot's valuable assistance, and aided him in the prosecution of an object which was evidently so dear to his heart. They could not have made a more judicious choice, for with all the high principle and kindliness of heart which are to be found in the character of the English gentleman, our traveller combined that *gaieté du cœur* so characteristic of the French nation, which enabled him to sing in the midst of difficulties and dangers. Though a Protestant, M. Mouhot fully appreciated the self-denying labours of the Catholic missionaries, and won the affection of these devoted men wherever he met with them. Our traveller's courage and enthusiasm sustained him to the last, amidst many discouragements. In his last letter he writes: "I wish to cross the whole network of mountains which extend northward, see what lies beyond them, visit China or Thibet, and see the Calmucks or the Irkoutsk. But alas! I cannot trust 'my dear insects,' as you would say 'my dear children,' to the king of Louang Prabang." It is some consolation to know that M. Mouhot's merits were appreciated by the Royal Geographical Society.

We now proceed to give a slight sketch of this interesting work, premising that one of its charms is this, that there are nearly 100 excellent illustrations taken from photographs and sketches made by the author on the spot. These are spoken of by the members of the Geographical Society as "exceedingly curious and interesting;" as "admirably done, exhibiting representations of some remarkable monuments, evidently of Buddhist origin."

The moment a book is opened describing these singular countries, one stumbles upon the strangest sounding names, Bangkôk, Udoug, Phû Quoc, Komput, Battamboug, &c.—a foretaste of many strange things that are to follow. M. Mouhot landed at Bangkôk the capital, the Venice of Siam, on the deep river Menan, mother of waters, so deep that the largest vessels can coast along its banks without danger, under the very boughs of the trees, which are filled with singing birds and insect life. Our traveller was presented to the King of Siam, Somdel Phra by name, reminding us of the Pharaohs of old. This singular personage gave a great dinner to the Europeans, on the anniversary of his birthday, and walked round the table chewing betel, and chatting with his guests. He was about 56, and had reigned since 1851. The first part of his life was passed in complete retirement in a monastery, for Buddhists think it necessary that the rulers of nations should prepare themselves for supreme power by a life of repose and sanctity. The king mastered the history and geography of his country, and then turned to the study of astronomy, natural philosophy, politics, and philology. Besides the dialects of Siam and Indo-China, he is familiar with Sanscrit and English, and has written treatises in the latter language. Articles from his pen have appeared in English journals at Hong-Kong, and his Majesty is a member of the Asiatic Society of London.

"A singular institution peculiar to Siam, Cambodia, and Laos exists in a second king, slightly inferior to the other, and having a sort of reflected authority, the limits of which are not easily defined. His official title is Wangna, a word which literally means the youngest king. He has his Court, mandarins, and little army, but in reality is merely the first subject of his colleague. His chief prerogative is exemption from the customary prostration, instead of which he salutes the king by raising both hands in the air." The present Wangna leads the life of a rich noble and learned European. At Bangkôk there is a splendid pagoda called Wat-chang, a picture of which from a photograph is given. Our traveller visited Aynthia, the ancient capital, and proceeded a considerable distance up the river Menan. Here also he found the ruins of magnificent pagodas or temples, and at Mount Phrabat, where is preserved the footprint of Buddha.

After seeing the country of the Laotians, a fine race of people, M. Mouhot returned to the capital, engaged a vessel, and cruised along the gulf of Siam to Chantaboum, Komput, and Udoug in Cambodia. Near the island of Koman he witnessed a submarine volcanic eruption. At Komput he had a most flattering reception from the first king. On being presented with an English walking-stick gun, which had been brought as a present for the king, and which attracted his attention, his Majesty asked what it cost? but the Abbé who acted as interpreter, replied—"Sire, I dare not ask. In Europe no one tells the price of what he gives." At Udoug the second king was still more gracious, and evidently was greatly pleased with his visitor, and asked how he liked his city, meaning his Royal Palace, &c. The polished Frenchman replied:—"Sire, it is splendid, and presents an appearance such as I have never seen elsewhere."

The king pressed him to remain one day longer, adding, "It will give me pleasure, to-morrow you will dine with me; on the day after I will take you to see the town of the first king, and in the evening we will have a play." The play, however, was not much worth seeing.

M. Mouhot remained three months among the savage Stiens, and gives some sketches and information about them, in part derived from the missionaries. The country swarms with wild beasts, and the inhabitants defend themselves with poisoned arrows, the poison they use being extremely rapid in its effects. At Ongcar, the ancient capital of Cambodia, our traveller was amazed to find the most magnificent temple, of which he gives a thorough description, with measurements and many drawings. The architecture of this temple of Ongcar-Wat is grand enough to show that it must have been built in a time of wonderful prosperity, during the reign of powerful princes, and by a people enjoying a very high degree of civilisation. The people tell you "it is the work of Pra-Eun, the king of the angels," or, "it is the work of the giants." Some say "it was built by the leprous king," others affirm that "it made itself." Dr. Hodgkin "believed that the remains in question would be found equal in value to those which had recently been explored in Central America."

"What strikes the observer with not less admiration than the grandeur, regularity, and beauty of these majestic buildings, is the immense size and prodigious number of the blocks of stone of which they are constructed. In this temple alone are as many as 1532 columns. What means of transport, what a multitude of workmen must this have required, seeing that the mountain out of which the stone was hewn is 30 miles distant!"

The Annamites of Chantaboum pay their tribute of six ticals (18 francs) a-year to Government in eagle-wood, the Siamese in gamboge, the Chinese in gum lac. The eagle-wood diffuses a powerful odour when burnt. It is used at the incremation of the bodies of princes and high dignitaries. It forms in the cavities of the Aquilaria Agallocha of Roxburgh, a tree the wood of which is white and soft. The tree must be cut down and split to find the eagle-wood. M. Mouhot found that a peculiar odour was emitted by those trees which contained the treasure, and also that a hollow sound, on striking the trunk, was a further indication of its presence. M. Mouhot thinks the famous "durian," or "dourion," deserves its title of king of fruits. Our readers are aware that this strange fruit has the most exquisite taste combined with the most disgusting smell, which can only be compared to putrid flesh.

The last journey of M. Mouhot was directed towards the wild country and people in the interior of Laos. His route lay across rivers, through dismal swamps and the rankest tropical vegetation, where only elephants could force their way, varied occasionally by mountain passes, where the cold was keenly felt, and then ravines and swamps again. The elephants showed wonderful sagacity, but the intrepid traveller evidently felt misgivings sometimes, aroused less by the natural impediments in his way, than by reflections on the degradation of the people he met with, and the extortions of the petty mandarins.

He could scarcely have made any progress had not a friendly mandarin been travelling the same road with a party of elephants escorting a nearly white one (a sort of demigod, supposed to contain the soul of a deceased prince). The poor animal was honoured with cakes and dainty food in golden baskets, and died of indigestion. M. Mouhot reached Louang Prabang, in lat. 21°, and was proceeding in a N.E. direction, when he was attacked by fever, which he records in his journal, and 10 days later he added these few touching words, "Have pity on me, oh my God!"

Miscellaneous.

New Holland Plants: The Acclimatization Society of Victoria.—His Excellency the Governor, at the instance of the Right Hon. the Secretary of State for the Colonies, has addressed various inquiries to this Society, from among the answers to which we select the following:—The Victorian timber trees, with few exceptions, are not likely to bear the climate of Britain; and in the South of England and Ireland, where a few species have been acclimatized, they can only be viewed as objects of curiosity or ornament. But in warmer regions, especially beyond the tropics, where it is of importance to raise trees in woodless districts, none could be chosen for this purpose surpassing, and but few equalling, certain species of ours in rapidity of growth. Thus in Natal, and in other countries where fuel is excessively scarce, they might be raised most readily from seeds in the utmost profusion. In some of the lower regions and plateaus of the Highlands of India our trees would be equally eligible for raising shelter plantations, and furnishing, finally, fuel and material for artisans. The most important timber tree which we can offer is the Blue Gum tree (Eucalyptus globulus). It is most readily raised from seeds; and the seedlings, when a few months old, are easily transplanted during cool and humid weather. In rapidity of growth this tree excels perhaps all other trees of the globe; in regard to size it must be reckoned amongst the most gigantic productions of the vegetation of the world; for durability of its timber, and its resistance against decay as well in water as underground, it is excellent, and it is eligible for most purposes where a hard and heavy wood is needed. The tree, although chiefly a natural production of humid valleys, nevertheless resists well the influence of great heat and of hot winds. Several other Eucalypti are of nearly as much importance for introduction into several of the British colonies. Thus the Red Gum tree (Eucalyptus rostrata) grows also with remarkable celerity, and is recommended especially for plantations in depressed ground. Its wood is extremely durable, very suitable for underground work, piles of wharves, &c., susceptible of an excellent polish, and affords superior fuel. It is, like all other Eucalypti, most readily raised from seeds. Eucalyptus amygdalina is also a timber tree of quick growth, and besides is remarkable for the extreme abundance of volatile oil in its foliage. The Stringy Bark tree (E. obliqua) is the most to be recommended where a tree is sought for extensive plantations on barren ranges, and where a fissile wood for fencing purposes is required; it attains also gigantic dimensions, and its stem is almost invariably of a beautiful straightness. The bark furnishes material for rough paper. The other large Eucalypti eligible as timber trees are E. goniocalyx, E. corymbosa, E. botryoides, E. Woollsii, E. coriacea, E. Leucoxylon, E. Gunnii, E. viminalis, E. odorata, and E. persicifolia. The last is the famous Ironbark tree, so singular for the toughness and durability of its wood. Some Acacias of Victoria are also of great celerity of growth, amongst which A. mollissima is the most eligible. It is, however, neither a large nor a lasting tree, but of great value for the quick shelter it affords when raised for protection of other plantations; it yields, moreover, a gum similar to gum arabic, and also a good kind of tanner's bark. The West Australian Acacia lophantha, generally introduced here, is also highly suitable for the quickness of its growth and readiness with which it can be raised as a temporary shelter tree, though never attaining a large size. Of all our Acacias, however, the most valuable is the Blackwood tree, Acacia melanoxylon, on account of its beautiful wood, which has been with the greatest advantage used for elegant and durable cabinet work, for railway carriages, &c. The tree attains great dimensions in fertile, especially irrigated, ground, and is readily raised from seeds. Acacia homalophylla, though but a small tree, is much sought for its dark, scented, heavy wood, well known as the Myall-wood; this plant is restricted to the desert country. As far as known, the only plant restricted to these parts of Australia, and not merely used as a substitute for other species in the Materia Medica, is the Sassafras tree of Victoria and Tasmania (Atherosperma moschatum). Its bark is a powerful tonic, of which the efficiency seems mainly to rest in a peculiar alkaloid; it yields also a volatile oil, of which the especial therapeutic properties have to a great extent as yet to be

ascertained. The tree can, however, only be naturalised in deep, springy, forest ravines, of countries with a climate analogous to that of Tasmania and of the southern parts of Victoria. It is, however, not to be overlooked that several Acacias, especially A. pycnantha and A. mollissima, yield a copious supply of gum similar to that of gum arabic; and as both trees are of extremely easy growth, they might even on that ground deserve the attention of cultivators abroad. The native Cypress Pine (Callitris verrucosa), a tree easily and rapidly growing in sandy soil, yields a kind of Sandarach resin. The myrtaceous trees and shrubs are all more or less rich in æthereal oil, which in many instances greatly resembles the medicinal Cajeput oil. Eucalyptus amygdalina has yielded nearly 4 lb. of oil from 100 lb. of fresh leaves; several other species yield also a large return of oil, which has proved most useful for admixture with other essential oils in the manufacture of soaps. Melaleuca linearifolia has furnished 1¾ lb. from 100 lb. of leaves and branchlets. These oils have attracted attention as not only medicinally valuable, but also as solvents for various kinds of superior varnish resin, and for illuminating power (vide Jurors' Report Vict. Exhib. 1861). As medicinal products, the astringent gum resins of various Eucalypti likewise deserve attention, all species exuding more or less of this substance. There are plants in this country yielding excellent substitutes for the following drugs: Gratiola, Mezereum, Winter's Bark, Mint, Gentian, Lobelia, Althæa, &c. The Cyperus vaginatus, a Sedge of extreme abundance in some of the humid depressions of the colony of Victoria, produces a remarkably tenacious fibre, which by the aboriginal population was once largely employed for cordage and for making their fish-nets. This plant is certainly deserving introduction into other countries. The Australian Flax (Linum marginale) seems to have no claims to be introduced elsewhere in preference to that species which has been cultivated for ages, unless for its perennial duration. Two fibrous plants introduced here appear to hold out the greatest prospect for lucrative introduction into several other regions of the globe, viz., the New Zealand Flax, Phormium tenax, which could be cultivated without any protection in the southern parts of Britain, and which may be grown in inundated places not readily available for other cultivation; and, secondly, the Rhea, Böhmeria nivea, from which the Chinese grass-cloth is made. The latter plant has proved quite hardy and luxuriant in Victoria. Both are most easily grown and multiplied, and ought to be naturalised in all tropical and temperate latitudes. The fibres of Sida pulchella, Brachychiton populneum, Pimelea axiflora, and several Stipa Grasses, although not without value to us here on the spot, are apparently not of sufficient importance to entitle their respective plants to an introduction into other countries. Of culinary vegetables indigenous to Victoria, we have three kinds of Spinach. One of these, Tetragonia implexicoma, is a litotral plant, and for practical purposes similar to the well-known New Zealand Spinach. It is perennial, expanding and climbing to a wide extent, and might be advantageously transferred to every sandy and rocky seashore of the globe, wherever it will prove hardy. Seeds are very seldom obtained, and hence the plant has to be exported in a living state. The second is identical with the New Zealand Spinach, Tetragonia expansa; it belongs not only to the Victorian sandy coast, but also to the desert. By means of seeds it can without difficulty be introduced, as is well known, into other countries; it occurs wild also on the sub-tropical east coast of Australia, and therefore might be introduced into hot climates. The third kind of Spinach alluded to is that of Chenopodium auricomum. This plant is still more valuable than the Tetragoniæ, being more palatable and more nutritive; it grows also in tropical Australia, and will thus endure the climate of many warm parts of the globe. Of fruit plants we have scarcely any deserving introduction elsewhere, unless perhaps the Quandang, Santalum acuminatum; for although it is far inferior to the ordinary fruits commonly under cultivation, the fact of its being a desert plant, not becoming parched by sirocco-like winds, entitles it to consideration. Of forage plants we have some excellent Grasses, well deserving of introduction abroad; thus for countries of warm climate the perennial Kangaroo Grass, Anthistiria australis, would be eligible, as well as Panicum decompositum, and several other Grasses, chiefly belonging to the genera Panicum, Danthonia, and Agrostis, of which seeds can be obtained with ease. An excellent tender Swamp Grass is Danthonia nervosa, and a splendid Forest Grass the recently discovered Festuca dives. For countries with a colder climate three of our taller and yet tender-leaved Alpine Grasses might advantageously be selected, viz., Festuca Hookeriana, Danthonia robusta, and Hierochloe antarctica. A magnificent American Fodder Grass, Bromus unioloides, has become sufficiently plentiful here in cultivation to renders seeds available for re-distribution.

Calendar of Operations.

(For the ensuing week.)

Although in-door gardening loses much of its interest in summer, when Nature is so prodigal of her beauties in the open air, still many will find great nterest in adorning their windows with choice productions. Nothing can have a finer effect in a drawing-room or sitting-room than flowers bloomed well in pots and tastefully trained; and windows filled with plants convey a sense of refreshing coolness to the apartment. In order that they may have a good effect, however, the most scrupulous cleanliness must be observed, or their health will soon suffer. All decaying leaves should be removed as they appear, and no flowers should be allowed to die upon the stalk. By removing flowers as soon as their beauty is impaired, neatness and good taste are consulted; but this is not all, for by stopping the tendency to produce seed, more flowers will often be produced. Mignonette in pots soon becomes shabby if this rule is neglected; but by picking off every spike of flowers when it is elongated and bare, laterals will quickly reward the pains taken, and keep up an air of healthfulness. Among common plants Scarlet Pelargoniums are very valuable for window gardening. Fuchsias also amply repay the grower for window culture, and boxes filled with Stocks, Pelargoniums, yellow Calceolarias, and Mignonette, when well managed make an admirable display. By a little forethought and daily attention the window, even without a balcony, may thus be made very attractive until frosts appear again, and bulbs now dormant demand and repay our care.

FLOWER GARDEN AND PLANT HOUSES.

Many of the plants belonging to conservatories and greenhouses will now be set out of doors. Care must be taken that they are thoroughly attended to with water, and worms kept out of their pots. Good depths of cinder ashes are efficient for this purpose, yet even these should be lime-watered occasionally.

Chrysanthemums.—These should now receive their final shift, say into 11-inch pots, well furnished with good drainage. Let the compost to be used consist of two-thirds turfy loam and one-third well-decayed manure, to which should be added sufficient sand or grit to render the whole porous. Stake and replace the plants where they were set before, and take care that they at no time suffer from want of water. They may also be occasionally watered with guano or other liquid manure.

Cinerarias.—Seedlings should be pricked off into 3-inch pots as soon as they are sufficiently large to handle. Suckers may also be taken from old plants.

Orchids.—Afford these a thoroughly moist atmosphere; repot any that seem to require it; and sponge the foliage to keep it clean as often as may appear necessary.

Pelargoniums.—Plants that are getting out of bloom should be watered sparingly, and exposed fully to sun and air in order that the wood may be properly ripened before heading down. In cutting, leave, say three eyes on each shoot; afterwards, the stools should be kept rather dry for some time. Those in bloom should be carefully watered and shaded. Fumigate on the first appearance of green fly.

Roses.—Now is a good time to commence budding. The shoot from which the buds are to be taken should not be cut from the tree until the operator is ready for action. Let the buds then be cut out, inserted, and tied immediately.

FORCING GARDEN.

Melons.—Young plants must have careful attention in keeping the shoots thin and regular over the bed, for there is no time to be lost after this season, if a crop is to be secured. Earth up as the roots reach the outsides of the hills, using strong loam, and making it quite firm, so as to avoid rank growth. Plants swelling their fruit should be kept moist, but avoid frequent waterings of the soil by giving good soakings. Examine the stems frequently for canker, and apply quick-lime to the affected portion immediately it is perceived, first scraping off the decayed part; avoid also, as much as possible, cutting or mutilating the plants, and causing bleeding, which is the ordinary cause of this disease. Plants that have ripened their fruit and are in good health, if cut back, and the soil well soaked with tepid water, will soon start into growth, and set a second crop. They should not be allowed, however, to carry many fruit.

Pines.—If not already done, plants expected to show fruit next January should have their final shift at once, in order to get the pots well filled with roots, and the growth completed before winter; for if they are kept growing it will be uncertain if they will show fruit early in spring. Indeed there is no sure means of inducing Pines to show fruit at that season, except getting the growth well matured in autumn, and allowing them a short rest, giving no more water to the soil than is just sufficient to keep the roots in health, and then subjecting them to a brisk heat. Treated in this way a supply of fruit at the expected season may be calculated upon with tolerable safety, but owing to the want of convenience and necessary means or other causes, the plants are often kept growing when they should be at rest, and the result generally is that the plants start into growth in spring instead of showing fruit. Give plenty of clear manure-water to all the stock, except such as is being kept dry with a view to getting it to show fruit soon, and endeavour to secure rapid growth, now that it can be done without etiolation. Keep the atmosphere thoroughly moist, but avoid heavy syringings. Plants growing in the open bed must be well supplied with water at the root, giving a thorough soaking of manure-water as often as may be necessary.

Vines.—Attend to previous directions, keeping cool and moist where the fruit has been cut, in order to preserve the foliage in a healthy state as long as possible, and get the Vines well charged with organized matter, which will be of the utmost importance to next season's crop. Give plants fruiting in pots a liberal supply of manure water; also those being prepared for the same purpose next season. Keep a sharp look-out for insects everywhere, and lose no time in destroying them.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with fastening in the young wood of wall trees, and see that they are perfectly clear of insects; also stop any gross shoots and endeavour to secure a fair supply of bearing wood all over the tree. Gross shoots that were stopped early in the season should be divested of all laterals except one, or, if they can be spared, removed altogether. Keep the breast-wood on Pear and other wall or espalier trees closely stopped in.

Brussels Sprouts.—If not already done, a good breadth of these should be planted on rich deep soil; for if not got in at once, the crop will be but poor, and it is very desirable to secure a good supply of this most useful winter green.

Cabbage.—Sow now some seed of the Enfield Market for spring cutting.

Spinach.—Keep up successions, by sowing every three weeks or so where the demand for this is great.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 6, 1864, as observed at the Horticultural Garden.

June and July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 30	26	29.932	29.892	72	40	56.0	62	59½	N.W.	.00
Friday 1	27	29.939	29.929	69	41	55.0	61½	59½	N.W.	.00
Satur 2	28	29.927	29.575	71	47	59.0	61½	59½	N.W.	.14
Sunday 3	29	29.719	29.588	71	40	55.5	61½	60	N.W.	.08
Mon. 4	●	29.995	29.923	75	40	57.5	61	60	W.	.00
Tues. 5	1	30.026	29.997	76	38	56.0	62	60	N.W.	.00
Wed. 6	2	30.104	30.092	77	48	62.5	62	60	N.W.	.60
Average.		29.934	29.856	73.0	41.7	57.3	61.6	59.8		.02

June 30—Fine; overcast; dry air with brisk N.W. wind.
July 1—Fine; partially clouded; dry and clear; overcast at night.
— 2—Fine; overcast towards night; rain.
— 3—Fine; partially clouded; showery; overcast at night.
— 4—Fine; very fine, fine at night.
— 5—Fine throughout the day; coldest at night, only 4 deg. above freezing.
— 6—Very fine; cloudy; overcast; rain at night.
Mean temperature of the week 5½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending July 16, 1864.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 10	74.7	50.5	62.6	15	0.48 in.	2	3	2	1	4	12	6	8
Mon. 11	74.8	50.8	62.8	10	1.07	4	1	4	1	5	9	6	
Tues. 12	75.6	50.7	63.1	12	1.10	1	2	6	—	5	10	6	6
Wed. 13	74.0	51.4	62.7	13	0.92	—	4	5	—	2	22	4	1
Thurs. 14	76.4	51.1	63.8	14	0.64	—	4	3	1	6	13	10	1
Friday 15	76.2	50.3	63.2	20	1.46	1	4	3	—	4	18	6	2
Satur. 16	75.7	49.7	62.7	15	1.60	2	3	5	—	2	18	7	1

The highest temperature during the above period occurred on the 14th, 1847—therm. 93½ deg.; and the lowest on the 16th, 1863—therm. 34 deg.

Notices to Correspondents.

Apple Trees: *W S.* We regret to say your English is so bad that we cannot make out your meaning.

Birmingham Rose Show: We learn with satisfaction that this exhibition has been a most decided success, but unfortunately the report which has been sent to us did not arrive in time for publication to-day.

British Columbia and Vancouver Island Spar, Lumber, and Saw Mill Company: *E S.* Your circular is an advertisement.

Diseased Grapes: *J O.* Your Grapes are affected with rust, spotting, and shanking. Both the latter we believe arise from the same cause—some defect about the roots. We see no Fungus. One form however of spotting is caused by a Fungus against which no remedy is known. The other form of spotting will most probably cease when the roots are healthy, and not sooner. *M J B.—Sub.* and *A. F.* They have shanked—probably from the soil being too cold or too wet.

Insects: *M J B.* The small jumping insect sent (found on the Hop plant) is one of the small Cicadellina in the pupa state. It doubtless sucks the juices of the Hop. The Cimicidans are a species of Phytocoris, allied to danicus, and are most probably even more injurious to the Hop than the former. The third insect is a Longicorn beetle, Callidium Alni, which we believe to be quite harmless.—*Alpha.* The Carrots infested with *rust* are attacked by the larvæ of a small two-winged fly, Psila Rosæ. The plants attacked should be carefully picked out and burnt. Before sowing the Carrot seed it would be well to give the ground a dressing of spirits of tar mixed with sand. *W.*

Names of Plants: *G.* As far as it is possible to solve such an enigma, all flowers being absent, we should say that the plant may be the Indian Viburnum involucratum. It has nothing to do with macrocephalum.—*Old Subscriber.* 1, Poa trivialis; 2, Bromus mollis, starved; 3, 4, Holcus lanatus.—*J B.* Festuca or Vulpia Myurus; Carex acuta; Eleocharis multicaulis, both alike; Potamogeton pectinatum. No numbers to any of the specimens.—*C B.* The tree appears to be the cut-leaved form of the Mulberry, which is very variable in the shape of its leaves. The flowering plant is Phytolacca icosandra, which has borne the garden name of Bucelia violacea.

Paint for Iron: *T.* That used at Trentham consists of two-thirds Stockholm tar, and one-third gas tar, mixed and applied hot. A little fresh slacked quick-lime added to the boiling tar gives it greater consistency.

Roses: *R D, Hampstead.* The "Spring Rose of Shanghae" is one of the best climbing Roses which the Chinese cultivate. It is much used by them to cover walls or verandahs. In this country it may be trained on pillars or walls as other Roses are; it grows well in any good garden soil, and, as its name implies, it blooms very early in the season.

Strawberries: *Rivers' Royal Hautbois.* We have been favoured by our experienced friend, the Rev. Mr. Radclyffe, with a dish of this excellent Strawberry, upon which we have only to remark that it thoroughly deserves its reputation. The Hautbois flavour is enough mitigated to suit all palates; there is no more acidity than must be present in all Strawberries; and the flesh is most tender and delicate.

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They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
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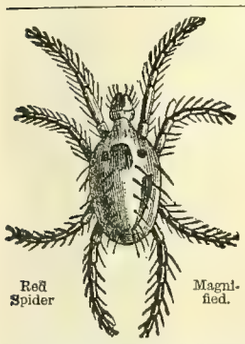
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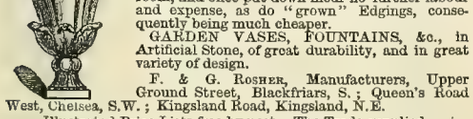
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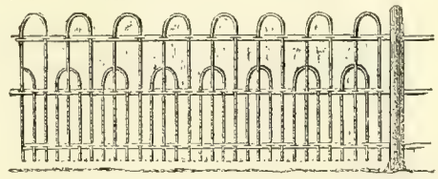
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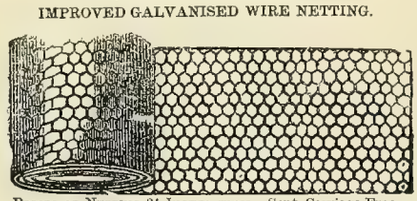
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Tickets to be had at the Bar of the Hotel up to Tuesday evening, July 19. Members are allowed to introduce friends.
JACOB WILSON, Hon. Sec. pro tem.
Manor House, Woodhorn, Morpeth.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE, 1864.
The LOCAL EXECUTIVE COMMITTEE have arranged for a Registry of Lodgings and other Accommodation for Visitors to Newcastle during the Show, to be kept by Messrs. C. BROUGH, Academy of Arts, Blackett Street, and G. MURAS, 4, Northumberland Street, to whom applications must be made.
R. DODDS,
E. I. J. BROWELL,
WALTER JOHNSON,
JACOB WILSON,
} Hon. Local Secs.

ROYAL AGRICULTURAL SOCIETY of ENGLAND
NEWCASTLE MEETING, JULY, 1864.

PROGRAMME.

WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 13, 14, 15, and 16:—
Trial of Steam Cultivators and Field Implements on Benton Farm

SATURDAY, JULY 16:—
The Trial-Yard, for Brick and Tile Machines only, open from 9 A.M. till 6 P.M.; admission, 5s. each person.

MONDAY, JULY 18:—
Cattle-Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement-Yard open from 8 in the Morning.
Admission.—Members free; Non-Members, 10s.
The Show-Yards will be closed at 6 in the Evening.

*TUESDAY and *WEDNESDAY, JULY 19 and 20:
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from Six o'clock in the Morning till Six in the Evening. Admission, 2s. 6d. each person.
* Public Working of Steam Cultivators on land in the neighbourhood of the Show Yard.

THURSDAY and FRIDAY, JULY 21 and 22:—
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from Six o'clock in the Morning till Six in the Evening. Admission, 1s. each person.

FRIDAY, JULY 22:—
General Meeting of the Members in the Show Yard at 10 o'clock.
By order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JULY 9, 1864.

MEETINGS FOR THE TWO FOLLOWING WEEK.

WEDNESDAY, July 13 to SATURDAY, — 16	Trial of Implements at Newcastle.
MONDAY, — 18 to FRIDAY, — 22	General Meeting of the Royal Agricultural Society of England at Newcastle.

A FIRST-RATE experiment is about to be made at Aldershot, in the utilisation of what may be called Town Sewage. The only approach to a solution hitherto of the difficulties which surround this problem has been where, as at Craigentinny, Rugby, and elsewhere, large quantities of water, containing all the waste of a population, have been poured over comparatively small quantities of land. A slope of sandy soil, where both surface and constitution enable the rapid passage of a perfect flood of the diluted liquid, seems hitherto to have been best fitted for the useful conversion of the filthy stream. Grass grown and irrigated thus has yielded an enormous and a profitable produce of capital cow food.

Now at Aldershot there are several concurrent circumstances which seem to indicate a more than usual prospect of success. There is land to be had for nothing—it is a gradual slope of a porous sand and gravel—the manure is the waste of an adult and well-fed population—it is diluted with less than half the water per adult that is supplied per head of all ages to the population of our great cities—and there is a bonus paid for the removal of the nuisance. Hitherto we believe that bonus has been paid to the Aldershot Manure Company; but the faults and difficulties of their processes for the extraction of the fertilising portion of what passes through their hands, together with the difficult sale and low market value of the manure which they thus manufacture, and together with the annoyance and expense of actions and indictments to which they have been subject, have, we understand, resulted in the new arrangement, by which Mr. BLACKBURN, of Aberdeenshire, a gentleman whose name in connection with questions of liquid manuring is already well known to readers of this

Journal, undertakes the work of removing and utilising the waste of Aldershot. His object is not to make a manure, but to grow Grass and milk for sale. One hundred and sixty acres of gradually sloping heath below the level of the camp have been allotted to him, and on to this farm some 700 tons a day of the drainage of the two camps will be delivered.

The land is now being torn up by heavy ploughs and teams, 18 to 20 inches deep. A furrow, 10 to 12 inches deep, is turned, and the subsoil is stirred 8 inches deeper by a subsoil plough. The whole of that ferruginous pan of concrete which has hitherto held water after rain upon the surface of that sandy heath is being broken up, and the drainage of the land is being thus effected. When a certain tilth has been thus provided, and the scanty growth of Ling which naturally covers the land has disappeared, the land is levelled and sown with Italian Rye-grass. Pumps worked by a 12-horse-power engine will receive the sewage; and, arranged as to direction of their thrust, and as to size of pipes, &c., so as to avoid as much as possible the friction which makes pipe irrigation so costly a labour, they will drive this sewage through underground piping to a hydrant in every 5 acres of land. Surface pipes will conduct it from these hydrants to stations in every 1.25 acres, and thence a man will distribute two or three hundred tons per acre evenly every day by hose. Two or three such waterings to every cutting of Italian Rye-grass will, it is believed, create under the dry summer sun of Surrey as large and quick a growth as that Grass has anywhere exhibited. And if so, there is stuff enough and land enough to convert the 200,000 tons of Aldershot sewage into at least 30 or 40,000 tons of Grass, and at the same time convert the sandy waste into a rich and fertile soil.

Besides the pipe irrigation, which will be gradually adopted and extended as it proves to be successful, there is an arrangement for carrying all the remainder of the sewage over the land on the plan of ordinary irrigation; shedding it by ordinary ridge and furrow over the surface of the land. The soil is however so extremely porous that it has been feared the filthy stream would not travel sufficiently over the surface, but would immediately lose itself in the soil alongside its channel; and thus not be dealt with by a sufficient quantity of soil or surface to disinfect it and abate the nuisance, which is of course the main purpose of the authorities in the arrangement which has been made with Mr. Blackburn. It is this which has led to the intended adoption of steam power and underground pipes over a portion of the farm —the remainder, however, being available for the common water-meadow plan of operation.

It is Mr. Blackburn's intention to adopt a rotation of three years. Italian Rye-grass, sown in the autumn of this year, will yield four or five cuttings during 1865 and 1866; broken up in the autumn of that year it will, in 1867, yield a crop of Potatos, and in the autumn of 1867 it will be again sown down for 1868 and 1869.

Although the operations at the Camp farm have been thus described in some detail, it must be understood that they are for the most part, hitherto, but plans. The experiment is only going to be tried. Some few acres of land have indeed been already sown, and 60 or 70 have been already subsoiled; some portion of the expenditure on buildings has been already incurred, but nothing can be done until the filthy stream is delivered on the land, and that has not yet been done. On its arrival it will find steam pumps ready to deal with most of it, and a waste pipe ready to convey the rest of it. And so, 20 or 30 acres at a time, it is confidently believed that the land will be gradually converted from an utter waste into a fertile field; and that which is now a nuisance and a plague will be converted into valuable and wholesome produce. Mr. Blackburn's experiment is certainly one of great agricultural and of great social interest.

Some weeks ago a question of the very greatest agricultural importance at the present day was announced for discussion at one of the weekly meetings of the Royal Agricultural Society of England. The altered management of light soils indicated by the present prices of meat, and wool, and grain, on which a paper was to have been read, is the point which every light land farmer in the country is anxiously considering, and on which he would gladly have been enlightened. It was, therefore, with great regret that we found the announced lecture had been abandoned, and that another, important as the subject is—"on Water and its Uses"—had taken its place.

The facts are that our population are better paid than they were, and they want better food and clothing than once satisfied them. A greater demand has thus raised the prices of meat and wool; and these are now sold at prices which, taking into account the contingent advantages of growing them, are unquestionably profitable.

There is no more profitable stock than sheep. The sheep fold is something more than a manuring, or all the arguments on first principles which go to prove the value of town sewage would not have been the failure that they are. It is an improvement of the texture as well as of the composition of that great extent of light land which is cultivated in this country, and mutton and wool are now high enough in price to make an extension and an intensification of sheep farming the great problem of the day.

Some years ago a paper appeared in the Journal of the English Agricultural Society on the question, "How to increase the quantity of meat?" The writer pointed out that the first plan was to increase the fertility of the soil, then to direct it towards the growth of the best cattle and sheep crops, then to consume these by the best bred animals, and to carry on the growth and fattening of them on the best and most economical plan. Do all this and you will have a maximum of meat produce from the land. It is not enough that you introduce the Hereford ox, or the Cotswold sheep, or the best meat makers in the world, and displace any of the rival breeds which waste more food in their growth. You must increase the home produce of that food, and that hinges on increasing the fertility of the soil, on the adoption of a suitable rotation of crops, and on buying the best seed. The drainage and texture of the land, the economical use of home and artificial manure. the improvement both of tillage and of plants, and in fact the whole range of agriculture thus lay within the scope of the lecture as originally announced; and we hope that the subject will yet be taken up piecemeal by the Society, and that a series of lectures may be announced during another session, which will thus go over the whole ground which lies within the scope of the first announcement.

APPEARANCE OF THE CROPS.

Essex: *Maldon, June* 30.—The longest days being passed with but little sunshine and summer heat, and with very little rain for the last six weeks to the present date, June 27, augurs not so good a prospect for the Wheat crop as was anticipated it would be a few weeks since, when, notwithstanding the coldness of the spring, it betokened in the view of myself and many others a full crop, equal to last year. At that stage of its growth the Wheat plant generally luxuriates during cold and dry weather; but at midsummer, and throughout the longest days (beneficial as it may be to some other crops, Peas and Beans, &c.), it suffers from it, and the ears are thereby often rendered more or less partially abortive from protracted or imperfect blossoming, as was the case more particularly in the cold summer of 1862. Hence the Wheat crop this present season, I conceive, will be far below the average of last year's, notwithstanding the better condition of the soil, and its being a very thick plant from a full quantity of uncommon superior seed being sown. On examination of the ears, especially those of the tenderest kinds, such, for instance, as the fluff-chaffed variety and some others, many of the should-be perfect grains are found to be abortive or false from injury when in blossom, or from not blossoming at all, say in many to the extent of one-third of the entire ear. Unfortunately too for the British farmer this occurrence, with some other mishaps, are not uncommon in this uncertain climate at this period of the Wheat's progress. The blossom will be found in those injured ears still enveloped within the chaff, never having expanded or made, or will make, its appearance at all, having produced only a yellowish powder, commonly called the "red-gum," and that particularly on the side of the ear whence the cold winds and frosts have mostly prevailed. A pretty correct estimate may be made, even at this early period, of a crop of Wheat, by ascertaining the average number of all the ears and grains, both great and small ones, that are contained on a square yard. If, for instance, it were possible, as many assert it is, that there are contained on some lands 600 ears of worth, grown and to be counted on a square yard (which, by the bye, is a very thick crop, and what I set down as almost impossible), and 20 grains, which is a very low estimate, acknowledged by some unobserving farmers and others, are proved to be found sound (perfect ears, be it observed, contain on an average from 50 to 100), consequently 12,000 grains would be the number grown on one yard, or 363,000 on a rod; which, at 20,000 to a quart, amounts to not less than 18 quarts, omitting fractions, to the rod, or 28,800 quarts, or 360 pecks, or 90 bushels, or 11 qrs. 2 bushels per acre! If, however, only 300 ears can be found of all sorts with this average of 20 grains in each, which I contend is a more reasonable supposition, then of course only half as much would be realised, viz., 5 quarters 5 bushels; but the probability is rather as I calculate for truth, that a much less average than either of those quoted will be found to be most correct, and I will venture to predict that not more than 250 ears, with an average of 15 grains, will be the extent throughout of ordinary crops, viz., 3 quarters per acre, which is under average. *A. Hardy.*

Gloucestershire: *Royal Agricultural College, Cirencester, July* 2.—A district with a surface composed chiefly of stone brash, light loam and transported clays, the whole resting upon a limestone basis, is ill adapted to withstand a continuance of hot, dry weather, therefore it is not surprising to find a large proportion of the crops in this neighbourhood much affected by the drought which has prevailed for more than two months. The Wheat has suffered less perhaps from the weather of the last three months than from the check it received in the winter. In consequence, much of this crop, on cold and thin soil, was marked throughout the spring by weak and scanty growth, from which it has never recovered. On most of the heavy land the Wheat has always maintained a good colour; the straw, though perhaps shorter than usual, is very stiff, but owing to irregularity in growth, and therefore in its length, the heads are uneven. Still there is good promise of a yield fully up to, if not a little over the average. On the light poor soils the Wheat is in a very different condition. In many places the crop is very thin, the straw light, the ears small and irregular.* The yield without doubt will be under the average. It is certain that the breadth of Wheat in this district falls somewhat short of its regular proportion, owing partly to the failure of last year's seeds, and the low price of this grain. Many agriculturists preferred keeping some of their Grass down a second year. The price of Wheat has also to some extent influenced the trade in nitrate of soda and other top dressings, as their application to Wheat this season has not been at all general. The land intended for spring corn was so thoroughly pulverised and mellowed by the frosts in January and February, that a better tilth perhaps was never obtained for both Barley and seeds. The Barley went in somewhat deep, but judging from the appearance of that which was sown early, this was no misfortune, as the crop looks healthy, and promises to be rather more than an average yield. On the other hand, where the Barley was sown late, or tilth deficient, it is short and needs moisture, and unless speedily improved by rain must give a small yield. All Grass and Clover seeds have suffered considerably from the drought, which will probably lead to another partial failure in most of the young Clover layers. The Oats (of which we have a large breadth) generally seem injured by the dry weather. The growth of straw is very short, frequently the heads may be seen issuing from stems barely a foot in height. Since it is the practice in this district to harvest the Oat crop very early, in order to preserve the nutritious qualities of the straw for feeding purposes, a short growth is almost as serious as a deficiency in grain. There can be no doubt the yield of grain and bulk of straw must be far below an average. The Bean crop has been so checked that it is probably already too late for rain to be of great benefit to it. With a full and abundant blossom there needed but our accustomed rainfall to have insured heavy pods; at present there appears little probability of Beans generally attaining maturity. The Pea crop in some localities looks promising, in others we find it thin and inclined to ripen prematurely. The crop is not nearly so heavy as last year, and will probably not reach an average. The hay crop on the Cotswolds probably never was lighter. In some cases we hear of 4 or 5 cwt. to the acre; few persons have cut over half a ton, and the chance of lattermath seems no better, for our Clover and Grass fields wear a uniform scorched appearance. Vetches were never more valuable than they have proved this season, but for a good breadth of these on many farms not one acre of seeds would have been cut yet. The drought checked the growth of Vetches on all descriptions of soils, and caused them to turn off and wither near the ground earlier than usual. Mangels, early Turnips and Swedes have all been grown under similar difficulties. The first of these crops has failed in some places, and a great portion of the first sowing of Turnips and Swedes having fallen a victim to the fly, the ground has been resown. The second sowing with the later roots are in many places thriving, still they all want rain. Cabbages are not very extensively grown about here; judging from the present appearance of two acres of plants upon this farm, the crop seems eminently adapted for a dry season. The Cabbage plants were dibbled on the 30th March upon bouts, 30 inches apart, 16 tons of manure containing a mixture of night soil, was applied per acre. The Cabbages have been twice deeply horse-hoed, ditto hand-hoed, and at this time the plants cover the entire ground, their large dark-green leaves betokening a heavy yield of valuable material just at the season when we most need it. The scarcity of keep is telling upon

* A large per centage of ears in all our Wheat fields have been injured either by frost in an early stage of their growth, or have been stricken since they burst forth, as from two to three corns at the point of these ears are withered, and the husk wears a whitish look.

all live stock. On our hills sheep can scarcely maintain their condition, and only those persons who have a wide run of Sainfoin, or meadows attached to their farm, can do anything like justice to their lambs and other young stock. For the last month our horses and cattle have been upon short rations of Vetches; the latter are cut into chaff with straw and inferior hay, in the proportion of one each of hay and straw to two of Vetches, which mixture answers remarkably well. Our flock has been tolerably free from disease; we were particularly fortunate during the lambing season; out of 200 breeding ewes, 184 dropped 244 lambs, with the loss of one ewe and two lambs; since then we have had a few casualties amongst the ewes, and half a score of lambs have died within the past month or five weeks from the effects of sudden changes in the atmosphere, the cases being confined to animals of weekly constitution, or those with organic disorders. *J. Lynch Fletcher,*

Hampshire: *Eling, Southampton, June* 29.—The promise of the Wheat and other crops is by no means so favourable in this neighbourhood as it was a month ago, owing no doubt to the low temperature which has since prevailed. At one time the Wheat crop bid fair to rival that of last year, now it must be put down as at least 25 per cent. less. The Wheat on the gravel failed most and earliest. The following may be accepted as an approximate to the truth:—Wheat about an average; Barley, rather under; Oats average; Peas, partially blighted and deficient; Beans, under average; Hay, average and well secured; Roots, doubtful at present, owing to the want of rain. *W. C. Spooner.*

Surrey: *Hoe Bridge, Woking, June* 29. — With regard to the crops in this neighbourhood, I think we have a fair prospect for the coming harvest. The Wheats which are principally white, viz. Talavera, Chedham, Rough-chaff, &c., have come well into ear, and the blooming season has been favourable. I think we have promise of a full average crop. Barleys also are looking well, except those put in late, they having suffered materially from the dryness of the season. Oats not much grown here; early Peas a good crop, but late ones almost, and some quite destroyed by vermin (greenfly). Beans not much grown, and the few we have very poor indeed, some being fed off by sheep, and the land to be sown with Rape or Turnips. The weather still being exceedingly dry, feed is getting very short indeed. Upland hay not more than half a crop, but well secured. Meadow hay also very light, but quality good, and now being carried in fine order. Mangels and Potatos are looking unusually well, and give promise of a full crop. Swedes and Turnips where up, are looking well, but we have heard considerable complaint of the fly taking them off in some localities. On the whole, I think we have seldom had the prospect of a better crop, nor have we seen the country looking more beautiful than at the present time. *Edw. Hilder.*

AN IMPORTANT AGRICULTURAL QUESTION.

Which exhausts the land most, a ton of meat, worth, at 7*d.* per lb., 65*l.* 6*s.* 8*d.*, or a ton of Wheat (4½ qrs.) worth, at average prices, 56*s.* per qr., or 12*l.* 12*s.* per ton?

Feeling sure that there could not be much difference, I consulted Professor Voelcker, who most kindly sent me the annexed letters confirming my opinion. When a ton of Wheat is sold off the farm, it leaves nothing behind it except exhaustion and two tons of straw worth as manure 19*s.*; but when a ton of meat quits the farm, it has left behind it nine-tenths of the manurial elements of the food consumed to produce it (see Liebig), or probably 30 to 40 tons of very valuable manure. Looking at the relative price of each I think that, so far as exhaustion goes, it settles the question in favour of the meat.

But then arises another important question. How much food is required to produce this one ton net of butcher's meat, and at what cost, as compared with the cost of producing an equal value in Wheat?

Taking Turnips as a means of making mutton, it requires 300 tons to produce 1 ton of meat, net dead weight. This is supposing the animals are on the fields, unsheltered; if with shelter, 200 tons are said to produce the same result. The acreage to produce 300 tons of Swede Turnips would not, on an average, be less than 20, because I have seen tables calculated to show that the average of Turnip crops does not reach 15 tons per acre of available bulbs. Now these 20 acres of Turnips would cost on an average in rent, rates, tillage, manure, &c., not less than 10*l.* per acre, or 200*l.*, including every expense up to the feeding of the animal, I hardly know whether I dare class or include in this expense shelter, attendance and losses by death, or casualties, so that we have thus for our 20 acres of Turnips a return in meat of 65*l.* 6*s.* 8*d.*, or 3*l.* 5*s.* 4*d.* per acre. However surprising this may appear to the uninitiated, it corresponds singularly, but exactly enough, with the prices which our sheep dealers are willing to pay for Swede crops in this neighbourhood, their price varying from 2*l.* to 4*l.*, according to crop and other circumstances.

Taking the estimate at 15 tons per acre, this would give the price per ton, at 4*s.* 4*d.* Mr. Morton, in his able paper "On Increasing our Supplies of Animal Food," Royal Agricultural Society's Journal, vol. 10, p. 359, says that he only got 3*s.* 4*d.* per ton for his root and green crops after paying for a considerable quantity of oil cake, and (p. 355), that it took 200 tons of this green and root food to make 1 ton of meat, and he says "this is a result singularly similar to some other tolerably extensive and very trustworthy specimens of experience given hereafter."

Well, then, having shown that it has cost us 200*l.* to produce 65*l.* 6*s.* 8*d.* worth of meat, and the manure from the consumption of 300 tons of Swedes, which Mr. Lawes values at 4*s.* per ton, or 60*l.*, let us see what the 65*l.* 6*s.* 8*d.* would cost us in Wheat—5½ acres would produce this amount, and the cost of my Wheat crops per acre being, according to my book (p. 23), about 8*l.* per acre—we should thus get in Wheat 65*l.* 6*s.* 8*d.* at a cost of 42*l.*, but we also get exhaustion and no manure. As no man could go on losing money for ever by Turnips for the sake of accumulating manure in his soil, it appears to me that we must come to the conclusion that we must take out by corn what we put on by green crops, and that the mixed husbandry principle, so admirably treated of in Mr. Morton's Prize Essay, and so well carried out in Norfolk, Lincolnshire, &c., must be the rule, at all events in our southern and cereal counties.

We are very much indebted to Mr. Lawes for his most clear, copious, and elaborate investigations on sheep, pig, and bullock feeding in the Journals of the Royal Agricultural Society:—Vol. 10, p. 276; vol. 12, p. 414; vol. 13, p. 178; vol. 14, p. 459; vol. 16, p. 45; vol. 21, p. 433; vol. 22, pp. 189 and 200; vol. 23, p. 191. These will well repay a close examination and teach us the value of food for animals under varying circumstances. I would also recommend a reference to Mr. Horsfall's papers on Stock and Dairy Management in Vols. 17 and 18. I may allude to the feeding question in a future paper. I have reason to believe that in the moist, misty, and hilly districts of the north and west, and also in Ireland, Turnips pay better than in the south and east of England. Both Turnips and Grass can be there more cheaply and more abundantly produced and of more succulent quality. *J. J. Mechi, June,* 1864. [300 tons of good Swede Turnip ought to produce nearly 2 tons of meat.]

PROFESSOR VOELCKER TO ALDERMAN MECHI.

I. Assuming your animal to contain 75 per cent. of water, which I think is not far from the truth, we have 25 per cent. of dry matter in meat (live weight). In Wheat there is only 10 to 12 per cent. of water, nevertheless, the 25 per cent. of dry animal matter contains quite as large a proportion of valuable mineral matters as the 88 or 90 per cent. of dry matter in Wheat, and certainly more nitrogen. If the nitrogen in the meat and in the Wheat is considered to have been taken entirely from the soil, the removal of a ton of Wheat will not exhaust the land quite so much in available that is active nitrogen as 1 ton of meat. 1 ton of Wheat contains a smaller amount of valuable mineral matters, and less active nitrogenous matters than 1 ton of meat (live weight), and if these mineral and nitrogenic matters, containing nitrogen, are restored again to the land, a ton of meat will give to the land more essential fertilising matters than 1 ton of Wheat. The difference in the exhaustion of the land by the removal of valuable mineral matters and active nitrogen in 1 ton of meat and in 1 ton of Wheat, however, is not great, but it is certainly somewhat greater in the case of meat than in the case of Wheat.

II. I hope you will have been able to make out my last note, and bear in mind that my calculation is based upon the supposition that the animal is reared from its earliest days of existence on the farm from which it is sold three or four years afterwards in the shape of butchers' meat. The question of greater or less exhaustion of the land by the removal of 1 ton of meat or 1 ton of Wheat assumes quite a different aspect if animals are merely got ready for the butcher, and bought in when nearly full grown. Such animals return, speaking roughly, at least three-quarters of all the manurial materials which they take from the land in the shape of food; the increase in weight of the animals is chiefly derived from constituents of food, which the plants obtained wholly from the atmosphere. Looking at the question in this point of view, a ton of Wheat exhausts the land at least three times as much as a ton of butchers' meat.

CATTLE IMPORTATION AND CATTLE DISEASES BILL.

The following are extracts from Mr. J. Giblett's evidence, as corrected. Mr. J. Giblett called in, and examined: I have been a cattle salesman for nearly 40 years; certainly more than 37 years. About 14,000 beasts pass through my hands in the course of the year; taking it on an average for many years together, from 12,000 to 14,000. All of them are sold at Copenhagen Fields market, or the main part of them. They are generally fat beasts; but in sending fat beasts, there are many sent in a lean condition, which are sometimes sold for stores. I have never ceased attending that market for 37 years. I have never missed one Monday but on two occasions, when it was necessary for me to travel to Scotland. Many beasts come in a very lean condition, that are sold for stores.

The Chairman.—With respect to the Cattle Importation Bill, upon which I was examining the last witness, do you concur in the opinion that the foot-and-mouth disease should not be a reason for stopping beasts imported from abroad?

I have had a life's experience on the subject, and I know that the foot-and-mouth complaint was very prevalent long before there were any cattle imported into England at all. I have seen the operation of it every day, and legislation on the subject is perfectly futile, I am convinced, by my practical experience; and I have come to the conclusion that practical experience will arrive at as right conclusions as any medical testimony can give. I believe it to be an atmospherical influence. I believe that many animals are liable to the foot-and-mouth complaint, which is neither more nor less than fever, which is engendered from the beast having travelled and exposed, as each gentleman here no doubt is aware, sometimes 48 hours at a time by railway, to be shunted off to allow others carriages to pass, coming out of warm sheds, fed by artificial food that is of a highly heating character, and exposed to variations of the atmosphere. I believe that alone, irrespective of any disease, would have the effect of producing the foot-and-mouth complaint; and it is a very great blessing that it does show itself, according to my judgment, in the extremities, instead of attacking the vital parts. The complaint passes off after it reaches the extremities. I never knew an animal to die with the foot-and-mouth complaint in my life. It is true that I have had a great many killed that were in a bad state, which, if I had had to keep them might have died. I do not at all consider that it deteriorates the quality of the food: it does to a very trifling extent diminish the value a butcher would give for a fat ox if it had the foot-and-mouth disease. If he was going to kill it immediately, certainly 10*s.* would be the extent of the difference.

With regard to the provisions in the Bill as to pleuro-pneumonia, do you object to the penalty which is put upon persons for sending beasts with pleuro-pneumonia into markets?

No, certainly not; I would be the first to hold up my hand in favour of a penalty being inflicted on anybody who sends a bullock, either to a fat market or to a store market, in a very bad state. There are cases when there are symptoms of incipient disease, the animal having the lung complaint to a small extent, which are difficult to detect, and it may not be dangerous. For instance, I have sold beasts, that I have afterwards understood had the lung complaint, at 32*l.* and 33*l.* each, and the food considered to be perfectly good; but I have seen beasts in a very lean and a very bad condition exhibited for sale, when I should have liked to have seen a penalty inflicted.

At present, I think, in the Metropolitan Market, the inspector or clerk of the market has power to kill and dispose of any beasts suffering from pleuro-pneumonia? Yes.

Do you approve of that?—Yes.

Mr. Cox.—In any stage of the disease?—No. He has the power, in the case of an animal in a very bad state, to cause it to be killed, and I should think that a very wholesome and proper power. Even if it were in rather a good condition, if it were suspicious, he might then order it to be killed and sent to a certain slaughter-house, and then to be subject to the decision of the meat inspector as to its being fit for human food or not.

If this clause, putting a penalty on sending beasts with pleuro-pneumonia into the market, passed into law, it would not be operative excepting the beast was so far gone as to be palpably the subject of that disease; because, putting aside the question of inspection, the person who would bring the complaint—a man having cattle in the neighbourhood—must see that the animal had pleuro-pneumonia, otherwise he could not bring the case forward?—I think that there ought to be a penalty in all bad cases; but I think, at the commencement of a disease, it is so difficult to detect, that a grazier may send his beasts away without knowing it, and beasts that are worth 30*l.* each. I do not in the least believe that the meat is in the slightest degree injurious, where it is only the commencement of the disease. In direct answer to your question I may say that, in a bad case, I think there ought to be a public inspector, and a power given to the inspector to have them killed.—The inspector, or any authority of the market?—Yes. There ought to be an appeal to a veterinary surgeon. I am content with an appeal to the Veterinary College myself, as to those cases.

What is your opinion with respect to scab? Would you put a penalty on sending sheep with scab into the market?

My attention more particularly, especially for many years past, has been directed to beasts; but I should be very sorry to see a stringent law preventing sheep with scab, except in very bad cases. I have known sheep worth 3*l.* each have the scab, and I think if a penalty were to be levied on persons sending such sheep into market it would be very serious.

Would those sheep which you have seen be from abroad or at home?—I have seen a great many, and I have had a great many, principally from home.

From abroad?—Yes, many from abroad also, some years since.

The outside loss which the importer would suffer would be that the sheep with scab would be killed at Blackwall, instead of being sent to Copenhagen Fields?—I should particularly wish that such sheep should be killed, but not that the whole cargo which came with such sheep should be stopped.

You have no objection to killing the affected sheep as long as the others might pass?—Certainly not; I would not allow meat to be passed until it came under the notice of the inspector. I have sold a million and a half sheep in my time.

You would not allow sheep actually affected with scab to be sent the market?—That is rather a difficult question to answer, without I explain my views. There are very bad cases of scab, which I would not allow to be sent into the market at all, but there are other cases which might be pronounced as scab, where there is a little irritation in the skin. You may see it the size of a shilling. I think to attach a penalty to sheep having scab in its skin of that character would be very improper. In seriously bad cases I think that scab should not be allowed to be sent into the market; but in cases such as I have described, where the skin is slightly affected, I think it would be cruel to inflict a penalty on a sheep worth 3*l.*

It would be a question of the degree of the disease?—I think so entirely, and so I think as respects the lung disease. That is my practical conviction of what is proper.

With regard to sheep sent to market to be sold as store sheep, I suppose you would exclude from those any sheep with scab?—Certainly, I would.

Mr. Cox: In any stage?—In any stage. If I may be allowed to make an observation, I may say that any legislation about the foot and mouth complaint would be perfectly impracticable as regards England. I have known one-third of the whole supply of immense fairs to be affected with it; and I have known that many of the persons going to these fairs would prefer buying them with the foot and mouth complaint, than buying those that had not the foot and mouth complaint, for these reasons. They buy them at a little less price (say a few shillings each), 10*s.* or 15*s* less. If they had bought those that were perfectly sound, by the time that they travelled them home they would be sure to have the foot and mouth complaint. I am often employed to buy beasts. I do not mind buying them with the foot and mouth complaint. I know the effect of it. It is merely a passing evil I believe it to be atmospheric influence, the same as vegetation is affected; the same as Potatos. I think it is improper to call it disease.

Do you consider that the restrictions in respect to small pox are proper and right?

Certainly; the stronger you make them the better.

With respect to measles in pigs, is that a complaint which can be detected by examination?—I never saw a case, neither do I understand pigs in any way.

Have you any other observation to make respecting either of the Bills?—I have heard many exaggerated statements made which, I think, would be scouted by

practical men. If you want evidence on the subject you can have practical men, the best authorities in England, who would ridicule much of the evidence that is given. For my own part, I do not attach the importance to the veterinary evidence on the subject that I do to practical experience; for I find, if you take six, you will find three diametrically opposite to the other three. These are my convictions, and I think that we practical men, from our daily observation, know a great deal more on the subject than they do. I would not speak thus boldly if I did not feel fortified by a conviction of the truth. I can prove the foot-and-mouth complaint was very much worse before one foreign oxen was brought into England in 1839. I then sold a large quantity of oxen. I have known that 40 or 50 were killed in a day in the market; and the slaughter-houses then were very close to Smithfield. They could not travel a few hundred yards; they were obliged to be killed in the market and trucked away. I believe it is dying out, and becoming far less frequent than it used to be, the same as the disease in Potatos; and most distinctly do I believe it to be an atmospheric influence. I certainly think it is contagious and infectious. I am convinced it does not damage the food, nor render it at all unwholesome. In fact I have seen the carcases of a great many beasts that have been killed in a bad state with the foot-and-mouth complaint, and I never saw a beast more clear; so I consider the foot-and-mouth complaint is in a great measure an emittance of the evil. When once it takes the extremities it prevents its attacking any vital part, and it becomes a passing evil. I think I have most distinctly stated that I consider importers most unjustly treated. It is my duty to claim on the part of those who consign large quantities of cattle to me from abroad that they should be treated fairly, and they ask and expect to have their Bill assimilated to the English Bill, and that the particular diseases against which inspectors could act should be duly scheduled in the Importation Bill. We think less than that would be unfair to the public at large.

Do you consider it would be perfectly safe and proper to land such cattle as appeared to be sound, retaining in quarantine those that were affected?—Yes; those that were highly affected with the foot-and-mouth complaint, whether they arrived at the wharves, or by the railway from Scotland, or whether they arrived from abroad, I would not allow the beast to go away in a very bad state, with their hoofs cracked, and so on; but in a rather bad state, in a state that is bad, and yet not very bad, I would have them conveyed away in carriages.

My question was, do you consider it perfectly safe to land the others?—Certainly; it would stop every fair in England if this Bill were carried out in the way in which it is laid before us. I have been a great deal concerned with the Smithfield Agricultural Show, and it would stop our show. We had 80 oxen in the Agricultural Hall last Christmas affected with the foot-and-mouth complaint. It would stop the show at Battersea, and the Royal Agricultural Show elsewhere; there were more than 150 cattle affected with the foot-and-mouth complaint at Battersea. I am at a loss to express myself; but, in fact, the term ridiculous arises in my mind every time I read the clauses that are proposed.

Mr. THOMPSON.—I think you stated that a fat ox that had the foot-and-mouth disease was just as good, and worth as much money as one that had not this disease?—The meat is worth as much money to the butcher.

You mean, of course, on the premises of the farmer?—I was alluding then to the markets as a seller, and I qualified that by saying, "nearly as much, about 10s. a-piece less."

In your great experience you must, of course, have often seen cattle that have been driven with the foot and mouth disease, that have come with their hoofs off, and their tongues in such a state that they could not eat?—I have seen them driven in such a state, and think they ought to have been carried.

In fact, the whole animal was in a state of great fever?—I have seen them so often.

When in that state, you would not say that an animal was in a fit state for food, or anything approaching the value of an animal not affected with it?—Yes; I would say "give it proper rest," and it would be in a fit state for food; because I have attempted to show you my belief, which is, that the emittance of the evil at the foot gets rid of the disease to a great extent.

You say there is less foot-and-mouth disease in beasts imported from the Continent than in those imported from Scotland?—Yes.

Are you not of opinion that that may be in consequence of the regulations which now prevent the importation of diseased cattle with mouth-and-foot disease from the Continent, and none of these regulations applying to Scotland?—I know we find them more healthful there, In Oporto they do not know what the foot-and-mouth complaint is.

As to North Germany especially?—There I find from reports I have received that they are more healthful, and in Holland particularly.

And in Prussia?—In some parts they are affected with it, but in Holland they are much more free than we are.

Would not the entire removal of any restriction on the importation of animals affected with the foot-and-mouth disease be likely to lead to a large increase of the importation of such animals from those ports?—It would not be their policy to send them if they knew they had the foot-and-mouth complaint, because there is a very rapid deterioration in the animal, and they are very generally inspected before imported.

But they do send them now, even with the risk of being stopped?—I should think in many cases they have taken it on the voyage. They may have had it in their system, but the voyage has caused it in many cases where the animal has been quite sound and where it has been landed with the foot-and-mouth complaint. I have often been down at Gravesend to meet the Scotch boats many years since, when the foot-and-mouth complaint was much worse than it is now. I have seen a large cargo of beasts there in perfect health. I have seen the same beasts landed at the wharves, and I have seen a large proportion of them affected with the foot-and-mouth complaint; that helps to convince me that it is an atmospherical influence. I know that in a sharp east wind it is much worse than at any other time. I was in the market yesterday, with a large quantity of beasts, and last Monday there were 6000, when I was in very active operation; I only saw three with the foot-and-mouth complaint.

HORSE BREEDING AND KEEPING.

[The following is an abridgment of Mr. Barthropp's valuable paper read recently on this subject before the Framlingham Farmers' Club.]

IN the first place, whether we breed cart horses or hunters, in order to stand a fair chance of success, it is necessary to have some fixed principle to go upon, and this I think cannot be arrived at without some knowledge of physiology as applied to breeding. Admitting the theory that the sire and dam have each their different influences to exert upon their progeny, the breeder must endeavour to make use of this knowledge to his own advantage.

1. Hitherto the farmers of Suffolk have contented themselves with the celebrity of their cart horses.

There has, however, during the last few years been a great depreciation in the value of these horses, and, except in a few particular cases, we do not hear of Suffolk horses and colts making very tempting prices at the Michaelmas sales. Taking into consideration then the falling off in the supply from Ireland, and the great dearth of good weight-carrying horses throughout England, why should not the Suffolk breeder follow the example of his Yorkshire and other northern brethren, and turn his attention to the breeding of the class of horse for which there will always be a sale? It may be said that heavy-land farmers have not room to keep their colts till they are fit for the dealer. But why, again, should not some of our large light-land men, who have plenty of marshes near the sea, invest some of their capital in buying up promising one and two year old colts, and thus fill up the gap between the breeder and the dealer? This custom is pursued to a great extent in Yorkshire and other horse producing counties. There are several reasons why the breeding of "riders," as they are called, has frequently disappointed the Suffolk breeder. First, they are not particular enough as to the mares they breed from, but expect the horse to do nearly everything; and if they are lucky enough to possess a good mare, they are frequently induced, by some chattering half-drunken horse leader, to put their mare to the first horse that comes into their yard; whereas, if they would trouble themselves to think whether the horse would suit their mare or not, or ask some friend who really does know the points a horse ought to possess to advise them thereon, the chances are they would be spared much annoyance, as well as certain loss. Again, the Suffolk breeder, good manager as he may be of his sheep and bullocks, does not generally pay that attention to his young "rider" he ought to do; the consequence is, the unfortunate colt has to shift for himself "about the yards," and is very very lucky if he has not some rather serious blemish long before the time comes for him to be turned into money; his owner is consequently disgusted, and vows he will breed no more "riders." There are enterprising men in this neighbourhood; let them then go into the north, or, if they have not confidence in their own judgment, let them commission some good judge to select for them one or two good, young, sound, well-shaped mares, with proper action, good temper, and whose pedigree they can depend upon; for remember how much the dam has to do with it. Let them select a stallion with equally unexceptional qualifications. Let them take care of the produce, giving it a liberal allowance of corn during the first year, at any rate; and remember never to allow it to lose the flesh in the winter that it has gained during summer. And I can see no reason why as good horses should not be bred in this part of Suffolk as in any other county, for a dry climate is natural and favourable to the horse.

2. And now, perhaps, I may be expected to describe what I call a good, well-shaped mare.

Now, almost all men fancy that they know something about horseflesh, and would think me very impertinent were I to question their judgment. I am free to admit that the generality of men know a good from a bad-looking horse; but it is only those who have a natural taste that way, and who have given the subject great attention, who can look a horse over point by point and give you an opinion worth having. If, then, it is difficult with a horse before you to understand what would at once strike the eye of the judge as points of excellence, how much more difficult must it be for me to convey to you by any words of mine what I consider ought to be the shape and make of the "hunter brood mare." First, then, as to size. The most valuable horses are those that can carry the most weight; and although it does not always follow that the 16-hand horse can beat one of 15 hands, yet most men like to be on a horse high enough to enable them to see what is on the other side of the fence as they come to it; I therefore think the hunter brood mare should not be less than 15½ hands. It is sometimes said, "A horse does not go on his head," and that it is not an important feature; but I think a good head is a great setting off to a horse. I would have it well proportioned to the size of the horse, and care not so much for a "pretty head" as a good intelligent-looking one, no matter if it is rather long, provided it is lean, with a kindly expression of eye, nicely hung on the neck, clear between the jaws, to admit of the trachea, or windpipe, having full play, and free from all thickening of any kind; the neck should be light, yet running gradually to strong, well-laid shoulders; the back should be of moderate length, with ribs springing well from the chine, a well-arched loin, two long hind quarters; the tail "on the top of his back," as it is called, is pretty enough to look at, but I believe the horse with rather drooping hind quarters will be found the fastest. The thighs should be full and muscular, running down into clean, big hocks, flat hind legs, good fetlock joints and feet. It is important that the mare has deep, as well as good springing ribs, muscular, not fleshy shoulders, good deep brisket with plenty of room for the lungs to play, arms well developed, and standing square on good flat fore legs, the sinews of which should be free from all appearance of fleshiness, but be hard and wiry feeling, and running into strong fetlock and pastern joints, with feet free from all appearance of contraction or flatness. This description of the essential points of a horse is, perhaps, a very imperfect one, but I know not what to say about it, further than, above all things, secure good oblique shoulders, and strong thighs and hocks. Nice straight fore legs are doubtless very desirable; but I would rather put up with a horse with arched fore legs, and that was a little cross-ankled, provided his shoulders and hind legs were good, than have the best formed fore legs ever seen, with upright short shoulders; remember, however, that it is not every horse with high withers that is desirable, but the shoulders should be long and well laid into the back.

3. The chief points of excellence I have enumerated in the mare are, in all respects, the same in the stallion, with, perhaps, the exception that his form should be more compact, his joints more firmly knit, and his general appearance denoting the possession of great power in comparatively small compass, and he must be thorough-bred.

As to the necessity of this, I find Mr. Corbet, in his Essay in the "Journal of the Bath and West of England Society," saying, "The great improver, then, of his species is the thorough-bred horse; and as a maxim, if you expect the produce of the half, or even three-parts, bred mare to be worth rearing, you must put her to a sire as pure as Eclipse himself. There may be occasional exceptions, but these are not to be trusted or taken as precedents. When certainly we see a fine powerful three-parts bred horse, with plenty of substance and style about him, a good head, fine shoulders, clean hocks, and so forth, we feel willing enough to have more like him. But in this case we have a forcible illustration of the fallacy of the proverb; for 'like does not get like.' Put the clever three-parts bred stallion to the equally clever three-parts bred mare, and can we do so with the assurance that they will produce anything as good as themselves? Most decidedly not." I must say I quite agree with Mr. Corbet in his opinion; at the same time it does not necessarily follow that because a horse is thorough-bred that he is fit to breed from, for there are lots of brutes travelling through the country with, perhaps, "a long pedigree, and a flaming account of what their sire or grandsire may have done, or even perhaps themselves may have accomplished over a short course with a light weight," that are, nevertheless, the very reverse of what a thorough-bred horse should be for getting hunters. Some years since I took great interest in the study of the stud-book, and I then could tell you the pedigree of almost every horse of note, and whether his blood was celebrated for speed or lasting qualities. Of late years I have been out of the way of it; I have, therefore, requested a friend of mine, well versed in the stud-book lore, to tell me the best strains of blood for hunting purposes. He says the chief strains are the Touchstone, Melbourne, Birdcatcher, Emilius, and Blacklock. Of these Touchstone is more especially adapted for racing purposes than for hunting, being very speedy, with very powerful quarters, but with upright shoulders, and badly formed fore legs. The shape is singularly to be seen in all his stock, which are generally sound in wind, and usually bays or browns: the old horse himself was never known to get a chesnut. His blood comes to us now chiefly through Orlando, and his sons Trumpeter, Diophantus, Zuyder Zee, Chevalier d'Industrie, Fitz-Rowland, &c. The Melbourne blood is remarkable for size, substance, fine open oblique shoulders, and good legs and feet, and whole dark colours; for country purposes it is difficult to find better from these good points. There are more large horses unsound in their wind than small ones of every breed, and for this reason the Melbourne blood has some few detractors, but it is staying blood unquestionably; and when we see such animals as Canezou, Blink Bonny, Meteora, Mentmore Lass, Mentmore, Middlesex, Cannobie, Prime Minister, and Oulston, we can afford to look leniently on the faults of others; the latter three, with Young Melbourne, Arthur Wellesley, and one or two others, are the stallions now covering by him. The Birdcatchers are mostly undersized horses, and in colour strongly incline to chestnut with silver hairs; they are neat, level horses, on short legs, but have too often small hocks, disposed from their formation to be curby, and when a horse can be found without these drawbacks with sufficient size, and a mixture of larger blood, it is quite the sort for hunting purposes. Stockwell, the grandest of his descendants, is free from them, but Rataplan, his own brother, has the curby formation, as had Daniel O'Rourke. Many good hunters were got by Birdcatcher in Ireland; but in the days of his popularity many horses were fathered on him which he never got; and if not in the stud-book, Birdcatcher pedigrees are not always to be trusted. The Emilius blood is always to be prized for country purposes, being of medium size and generally strong, thick, symmetrical horses, with true formation and fine "Orville" heads. Agreeable (formerly covering in Essex) was an example of this, as was Recovery, who was selected to be modelled for the St. James's Park statue. Emilius's half brother, Muley, is also notable for the great size of his stock; and I have a great opinion of the staying qualities of the blood for hunting purposes. Blacklock, himself a very big horse, and a very good one, comes to us chiefly through his sons, Brutandorff and Voltaire, the former the sire of Hetman Platoff, both father and son the sires of large, upstanding, coaching-looking stock in the north—and the latter the sire of Voltigeur and his brother Barnton, alike handing down the family character in the size and hardy colours and constitutions of nearly all their stock. On the turf they do not come to early maturity, and are more distinguished for staying qualities than for speed. There are a few strains distinct still from these. The Ion blood (himself a beautiful horse) comes to us through Wild Dayrell and Pelion, highish horses, and the latter with indifferent forelegs. The Dr. Syntax blood we have (crossed with Touchstone) in Newminster and in Newcastle, a double cross of it, a small horse, Knight of Avenel and Malcolm; it is undeniable for gameness, but generally too small for country purposes. The size, colour, and shape of Melbourne and Emilius, with some staying, game, blood like Tramp, Catton, or Whalebone blood, is the mixture to be sought after for country purposes. Having now, very imperfectly I allow, brought before you the subject of breeding and rearing a better description of riding horse than we are accustomed to see in this neighbourhood, I must leave it to the judgment of individual members of this club to determine whether they will travel out of the usual routine of bullocks and sheep, and sheep and bullocks, and substitute as a part of their farm stock one or two good brood mares, and this not merely as a matter of fancy, but with a desire to profit.

4. As my name has been associated for several years with the Suffolk cart horse, it would, perhaps, not be

right that I should entirely pass the subject over, especially as it is in accordance with the text on the card.

What, then, has been said as to the shape of the hunter and riding horse applies equally to the cart horse, with the exception of the shoulders; for whilst you cannot well have the shoulders of a riding horse too oblique, those of the cart horse ought to be more or less upright, so as to allow him to throw his weight into the collar. It is equally important with cart horses as with others that attention should be paid to their breed, selecting those that are remarkable not only for their form, but for the hardiness of their constitution, and for their activity. With regard to stallions, it is frequently said, and with much truth, that they are made too fat. Now, for myself, I would never breed from a travelling cart stallion that was not fat, for I know enough of the business to be certain that his owner would have made him fat if he could. Now, as it costs no more to keep a good horse than a bad one, and as there is an immense difference in the value of the two animals, and as the cultivation of land by steam will no doubt go on to increase, I see no prospect of the breeding of inferior cart horses becoming a very profitable business. I would, therefore, strongly advise you to breed only from good mares and by the best stallions. By adopting this course you will have a fair right to expect the produce to be worth rearing, and the difference you will have paid for the service of the horse of 10*s*., or even 1*l*., will be amply repaid you in the increased value of the foal. Some three weeks back there were something like a dozen cart stallions shown on the market hill in this town, and I feel certain that it would be cheaper to pay even 5*l*. for the use of some of those horses than to have the services of the others gratis. As to the rearing of foals, I think they should be kept well, especially if promising fillies; they will then be ready for sale should an opportunity offer: if not, they will be fit for work at an earlier age, say in the autumn of their second year, when two of them may do the work of one horse. But, remember, never let a colt be knocked up; if you do, he is almost sure to be a slug all his life; in fact, no horse should ever be overdone.

5. The feeding of cart horses is a most important item in the economy of the farm.

The question is, What is economy? Certainly not starvation, or keeping the horse below his work; but rather keep him above his work. It is scarcely necessary for me to speak of the various methods of feeding cart horses, as it must vary with the nature of the soil. Where stover is so plentiful that you can allow it *ad libitum* no doubt a horse will do very well with the bushel of Beans per week, with chaff; but there are not many farms where it would be convenient to allow such a supply of stover. Good fresh Bean or Pea straw cut into chaff with the stover, and an allowance of Beet-root cut with Gardner's cutter, will be found a more economic mode of feeding, in my opinion. In this neighbourhood Carrots are not much grown, but where they are they are unquestionably first-rate and cheap food for horses. I have heard of horses being kept in good condition with Beet-root and stover without corn, but I never could find it would do so with my own horses. One great point I think is, that the horse drivers do not spend so much time with their horses as they ought to do; another is, that generally there is not sufficient stable room to allow of the horses being kept under cover, as it must be wrong when a horse has been at work all day in winter that he should be turned out into an open yard at night, and exposed to any amount of rain or snow. A shed in the yard is of little use, as one or two horses are sure to be masters over the others, so that if they attempt to get under cover they only get driven out or kicked, and very often a farrier's bill is the result. So desirable, indeed, do I feel it to be that no water should be allowed to fall on a horse's back after his day's work is done, that I venture to assert that a horse in a loose box or covered yard would do better on a bushel of corn per week, than with 5 or 6 pecks if exposed to the vicissitudes of our climate in an open yard.

(To be concluded in our next.)

Home Correspondence.

The Cattle Disease Bill and the Importation of Diseased Cattle and Unwholesome Meat Bill.—These two Bills are now under examination by a Committee of the House of Commons. They are Bills of great importance to the agricultural interest, inasmuch as they contain a series of rules and regulations respecting the transit of stock, *i. e.* all domestic animals, and their exposure for sale in our fairs and markets. It does not yet appear to be taken up by the graziers and breeders of stock as a question of peculiar concern to them; but if they are not on the alert, or their firm friends in the Senate do not protect them, they will find it one of the most unjust, obnoxious, and perplexing laws ever enacted against the farming interest. Taking the two Bills consecutively we find as follows:—That any person who shall turn out, or place any stock upon open commons, open fields, roads, &c., or in fields insufficiently fenced, or upon any person's premises without leave, or shall drive them along any highway without great care, or shall expose for sale in any fair, market, or other place, "having reasonable cause to suspect the existence of disease in any animal," he shall be liable to a penalty not exceeding twenty pounds, and any justice may upon complaint order such stock ("cattle") to be removed to a place of safety, and to be kept there at the owner's cost, together with costs of removal. "Cattle inspectors" are by a subsequent clause appointed, whose duties, amongst many others, are to examine and seize, and remove in order, and at costs as above stated, any stock on their way to, or may be exposed in any market or fair, &c., or any stock intended for human food "he may deem to be affected with any contagious or infectious disease." Any person offering any obstruction to such seizure and removal is liable to a penalty of five pounds; and these inspectors are further empowered under a general Order in Council to seize and destroy diseased cattle or stock, or "meat, skins, hides, horns, hoofs, or other parts of cattle, or of hay, straw, fodder, or other articles likely to propagate infection." They have also power to order constables, and others, &c., to remove or aid them in such removal or seizure. In all this arrogancy of power these men act upon their own judgment, humour, and responsibility. No provision is made against their errors or wrong-doing. Then railway servants, on their own *ipse dixit*, can refuse permission for stock to enter their stations, &c. (because, as may be surmised), they are by another clause compelled to purify and cleanse out every truck in which cattle have travelled before it is again loaded. Carriers and innkeepers must do the like with their carriages or premises where cattle (stock) have been confined, under a penalty of 10*s*. for each head of stock. The second of these Bills—the Importation of Diseased Cattle and Unwholesome Meat Bill—places all importations into our ports upon the same footing, whether they come from "parts beyond seas, or be removed by sea from one part of the United Kingdom to another part thereof," and it provides for the examination of all animals or parts of animals or fish in whatever state, dried, salted, or otherwise, and all articles of package imported, &c., and for their condemnation and destruction, all by inspectors. Then further, for the examination "of all meat, poultry, game, fish, and animal substances intended for food," and for its destruction. Now, supposing all this is truly requisite (which we by no means allow), is it reasonable to trust all this power to a class of men to be called cattle inspectors? We think it cannot for a moment be tolerated. Then there is the power given to railway officials, carriers' servants, to refuse carriage to animals they may deem diseased. What a scope for rival dealers or malicious drovers, or bribery to these officials to induce them to refuse loads of cattle, &c. Then again the Scotch transits or Irish transits, and our own transits from port to port. The former would altogether relinquish transit by sea, and the latter could only export to Port Patrick, or Holyhead, or Liverpool, &c., under the same rules as for salted fish from Nova Scotia, or dried tongues from Archangel. This is simply absurd. Ireland, Scotland, and our own ports must certainly be left out, or all must travel by rail except Ireland. The foot and mouth disease is very properly excluded. There are many good regulations in the Bills. The cleansing of railway carriages and steamboats and layers, &c., is very commendable. The provision to compel all parties engaged in carrying stock to provide them with water is very proper and good. The main features of the Bills are good. Protection and careful supervision is much needed, but surely such can be accorded without perpetrating rank injustice. Why are all parties connected with the removal, sale, or disposal of stock to be at the mercy of a large class of petty officials for the most part unfitted for their work, as not knowing the peculiarities of the various diseases, or the appearance of meat under its various phases of putridity, &c. *O. F.*

Scotch Broadcasting.—A northern correspondent complains of weeds and asks me whether it would not be better to drill. In reply, I say that broadcasting is one of the weak points in Scotch farming, and is only justifiable where great stones or obstructions would prevent the use of the drill. Broadcasting is quite out of date in the south, for by it we lose the great benefit of the horse hoe. When a dry bright day or a good weed-killing day offers in the spring, away goes my man at break of day with Garrett's horse-hoe, which I have used nearly 20 years; and by sunset he had clean hoed 20 acres of Wheat, cutting everything up between the rows, which are 9 inches apart. The horsehoe covers a space of 7 feet 4 inches. Ten to 12 acres are considered a day's work, but with an extra pair of horses, and an extra 1*s*. for the man, we got over 20 acres. The same remark applies to Beans. This is by far the best and cheapest means of keeping our land clean, and the hoes cultivate, on their second use, almost as deep as the plough. Care must be taken to hoe before the spring fibres work in between the rows—to cut these would be injurious to the crop, either corn or root crops. We harrow our Beans well when about one inch out of the ground, and horse hoe them twice when further advanced in growth. The hand hoe is used in the rows. It does not pay to permit weeds to grow among your corn. *J. J. Mechi, July* 1864.

Corn Grown at Tiptree Hall Farm; Harvest of 1863.

	acres.	qr.	bus.
Thorne Field (red)	8	58	2
Willow Field (white)	6¼	46	0
Eleven Acres (red)	11	70	0
Ash Field (red)	6¼	29	4
Holly Field (red)	11¾	66	3
Nine Acres (Rivett)	9½	58	0
Black Sandys & Pond Field (Barley)	13¼	83	4
Nine Acres Chapel Field (Oats)	9	89	0
Thirteen Acres (Beans)	13	82	4
Oak Field (Beans)	6¼	36	0
Elm Field (Peas)	6	24	0
Peas picked green for London market	11		
Italian sewaged Rye-grass, fed, cut green, part made into hay	12½	643	1
Red Clover, hay 2¾ tons per acre	7½		
Tares, mowed green, followed by 3½ acres of Cabbage, and 3 acres of Turnips	6½		
Beans, cut green for stock	1		
Swedes (25 cart-loads per acre, estimated at 18 tons per acre)	5		
Mangel Wurzel, 25 tons per acre	13½		
Pasture made into hay, 2 tons per acre	5		
Pasture fed	1½		
Farm Buildings, Stack-yard, &c.	1½		
Roads, Fences, Water-courses, &c.	11¾		
Garden, Shrubbery, &c.	4¼		
	177		

The two first fields of Wheat, sold immediately after harvest, produced 16*l*. odd per acre, besides the straw left. All the Beans, Oats, and part of the Barley were consumed upon the farm, also the hay, and straw, roots, Grass, &c. The quantity of meat made upon the farm was about 200 lbs. per acre over the whole farm. *J. J. Mechi, June* 21, 1864.

Iron Hurdles.—Eighteen years or more ago I bought of Messrs. Garrett a number of 15-feet iron hurdles on wheels, at 25*s*., and here they are still, almost as good as ever. Well, my farm neighbours looked at them for 17 years, and have at length come to the conclusion that for sheep folding, &c., they are a real economy, taking time, cost, and efficiency into consideration; and I see them purchased and used by those who once thought me an extravagant farmer. I have no doubt that iron fencing will also soon be considered cheaper than even a Thorn fence, especially as land becomes more scarce and more valuable. Iron fences have no roots to draw the land and no bulk to occupy it. *J. J. Mechi, July*, 1864.

Sewaged Italian Rye-grass.—I wish to correct an error that I made. I said that my farm horses consumed 112 lbs. daily. It should have been 168 lbs. every 24 hours. That would be 10½ cwt. weekly, or 42 lbs. of dry substance in 24 hours. At 10*s*. per week (the usual cost of feeding a large farm horse in full or heavy work) this would give a value of nearly 20*s*. per ton for the Rye-grass. They have no other food so long as we have enough of the Grass. They consume a like quantity of sewaged meadow Grass when fed with it alone. *J. J. Mechi.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, July* 6.—Present, Lord Feversham, President, in the Chair; the Earl Cathcart, Lord Chesham, Lord Leigh, Major-General the Hon. A. Nelson Hood, Sir Montague Cholmeley, Bart., M.P.; Sir J. V. B. Johnstone, Bart., M.P.; Sir Matthew White Ridley, Bart, M.P.; Mr. Acland, Mr. Raymond Barker, Mr. Barnett, Mr. Barthropp, Mr. Bowley, Mr. Burgess, Mr. Cantrell, Colonel Challoner, Mr. Dent, M.P.; Mr. Druce, Mr. Fisher Hobbs, Mr. Hudson, Mr. Hutton, Mr. Jonas, Colonel Kingscote, M.P.; Mr. Milward, Mr. Pain, Mr. Randell, Mr. Thompson, M.P.; Mr. Torr, Colonel Towneley, Mr. Burch Western, Prof. Wilson, Mr. Frere, Prof. Simonds, and Dr. Voelcker.

Four hundred and five new members were elected.

Mr. Fisher Hobbs' motion that all persons nominated at the Monthly Council in July, shall have the privileges of Membership at the Newcastle Show, on paying the current year's subscription, was seconded by Mr. Torr, but lost on a division by 11 noes to 10 ayes. Mr. Dent, M.P., then moved that all persons nominated at the Weekly Council on the 12th should be elected at an adjourned Monthly Council to be held the same day, which was seconded by Mr. Pain and carried.

FINANCES.—The Hon. General Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on June 30 was 2817*l*. 3*s*. 11*d*. The balance-sheet for the quarter ended June 30, 1864, and the statement of subscriptions and arrears, were laid on the table, the amount of arrears then due being 737*l*.

JOURNAL.—Mr. Thompson, M.P., Chairman, reported that the Committee recommended that 20*l*. be given to the widow of the late Professor Henfrey, as an indemnity for the loss of a paper on the "Structure of the Roots of the Turnip," written for the Journal, and lost during the interregnum in the Secretaryship.

In Class III., Breaking up Pastures, the prize of 20*l*. was awarded to Mr. Charles Belcher, Little Coxwell, Faringdon.

The winner of the prize in Class II., announced at last Monthly Council (the name not being sent in as usual), has since repaired the omission, and announced himself as Mr. Bligh Monck, Coley Park, Reading.

NEWCASTLE MEETING.—The complete plan of the Showyard was laid on the table, the contractor having reported the whole of the sheds covered in, and all in readiness for the opening. On the motion of Lord Chesham, seconded by Mr. Torr, the Council resolved on ordering a separate refreshment room for Members of Council.

JUDGES.—Additional names were added in various classes, and it was resolved that a sum of 20*l*. be allowed for a report on the stock exhibited.

The following noblemen and gentlemen were appointed on the General Plymouth Committee:—Feversham, Lord, Chairman; Fortescue, Earl of; Powis, Earl of; Chesham, Lord; Portman, Lord; Tredegar, Lord; Hood, Hon. Major-Gen. A. Nelson; Vernon, Hon. A. H.; Lopes, Sir Massey, Bart., M.P.; Macdonald, Sir A. K., Bart.; Ridley, Sir Matthew White, Bart., M.P.; Acland, Thos. Dyke; Arkwright, J. Hungerford; Barnett, Charles; Bowly, Ed.; Bramston, T. W., M.P.; Cantrell, Charles S.; Challoner, Colonel; Dent, J. D., M.P., Gibbs, B. T. Brandreth; Hobbs, Wm. Fisher; Holland, E., M.P.; Hoskyns, C. Wren; Kingscote, Colonel, M.P.; Milward, Richard; Plymouth, Mayor of; Pain, Thomas; Pope, Edward; Randell, Charles;

Shuttleworth, Joseph; Tremayne, John; Turner, George; Thompson, H.S., M.P.; and Torr, William.

Royal Dublin Exhibition: *Flax Machinery.*—There are few implements of more importance at this exhibition than those designed for the manipulation of Flax, now more than perhaps ever before (at least during the present century), cultivated in Ireland. Those implements to which my present remarks apply, are what are called "breakers" (or buffers), and "scutchers." Of the first there are three most worthy of notice, namely Friedlander's, Rowan's, and an American design exhibited by Lawson & Sons, Leeds. Rowan's and the American are composed of fluted metal rollers between which the Flax is passed once, and comes out with the coarse woody matter completely crushed and loosened, so much so as to render the scutching process easy of accomplishment. That of Friedlander is composed of what are called buffers, elevated by a revolving toothed axle, and let fall alternately on the Flax plant on a flinted platform.

In this case the fibre is merely crushed or flattened without having the woody matter in any manner transversely broken, as in the case of the other two. Both Rowan's and Friedlander's are accompanied by scutchers, consisting of drums, on which are placed beaters to liberate the woody matter and tow from the fine fibre. The beaters in Rowan's are one end rather rigid, but on the other more flexible, being an improvement inasmuch they do not press heavily against the Flax in their revolutions, or endanger the fine fibres being injuriously broken.

Those on Friedlander's are toothed, if I may so express the little cup-like appendages placed in lines along the drum, in front of which are metal plates which are tightened and loosened by screws, as the state and condition of the Flax may deem necessary for the first and second beatings. To an ordinary observer unacquainted with them the respective merits of these machines would be quite mysterious. To obviate this difficulty the exhibitors of Rowan's and Friedlander's machines agreed to have them tested last week by a Mr. McMaster, who brought some good Flax of his own growing and saving on which to test them. I was rather fortunate in being present during the most important period of this test, being the only man either directly or indirectly connected with the press having had this chance, for it was but a chance. Although the tests were not in my mind conducted so as to do adequate justice to the machinery respectively, I have seen quite enough to enable me to judge, of which I would purchase myself did I want such. But believing that, as already said, the trials were not, perhaps they could not, under the circumstances be fairly conducted, I will reserve my own impressions, and leave your readers to form their own conclusion on the results the following figures will indicate. Flax operated upon by each set, 56 lb:—

Time Spent By Rowan's:	Minutes.
Streaking for breaking ..	23
Breaking	10
Streaking for scutching	21
Rough scutching	26
Fine scutching	59
Total	139
Gain in time	21
	160

Time Spent Friedlander's:	Minutes.
Streaking for breaking ..	0
Breaking or buffing ..	26
Streaking for scutching	36
Rough scutching	55
Fine scutching	43
	160

Produce. Rowan's:	lb.	oz.
Fine fibre	10	3
Fine tow	2	0
Coarse do.	3	0
	lb.	oz.
Waste ..	40	1
Haybands	0	12
	40	13
	56	0

Produce. Friedlander's:	lb.	oz.
Fine fibre	9	4
Fine tow	2	0
Coarse do.	3	0
	lb.	oz.
Waste ..	41	0
Haybands	0	12
	41	12
	56	0

In as far as the foregoing can be relied upon, there has been lost in Friedlander's in time nearly 14 per cent. and in fine fibre over 10 per cent. But a question now presents itself—what was the marketable value of the fine fibre of each? On this I am not going to offer any opinion. In justice to Friedlander's, I must say that the boy employed working them was not capable of doing work so quickly as the man working Rowan's. I must in justice to Rowan also say that a portion of the work done by him, for example, what is called the streaking or fitting in handfuls for the breaking and scutching, could be done by cheaper hands than those of the man at work, for little boys or girls could do the "streaking" equally well.

As this notice, if it ever sees the light itself, will be sure to meet the eyes of the authorities connected with the Exhibition, I would suggest another trial conducted in a more perfect manner, and that the American breaker be also tested with the other breakers, as, judging from what I had seen done by it occasionally, I would say it would do its work more quickly than either of them, nor am I aware of its work being less efficiently done either.

In concluding these hasty remarks I would advise your Irish readers, especially those in the West, South, and Midlands, to be cautious in selecting these breaking and scutching machines till it be practically proved which will give the best quality of fine fibre, as one shilling difference in the price of a stone of Flax, especially where much of it was to be prepared, would soon compensate for the extra labour expended in working, or the extra price paid for one set over another. Prices of breakers and scutchers:—Rowan's breaker, 25*l.*; scutcher, 24*l.* Friedlander's breaker, 30*l*; scutcher, 35*l.*

Amongst the other implements connected with the Flax manipulation are three turbines or horizontal water wheels, two only of which are at work. It is to be hoped the directors of the Exhibition will also put to a fair test the practical working power of these useful implements. *Edward Carroll, College Hotel, College Street, Dublin, June* 28.

Farmers' Clubs.

St. Austell: *Grass Land.*—Mr. Oliver, of Penhallow, read the following paper at a recent meeting of this Club:—Should a farmer now-a-days complain of the low price of grain—which he is certainly justified in doing—he is likely to meet with this sharp retort from consumers, "Why don't you lay your land down to Grass, that we might have shamble meat cheaper? surely the price of beef and mutton is high enough!"—thinking, no doubt, in their ignorance of agriculture, that by increasing the breadth of Grass land we should increase the quantity of stock; but, as practical agriculturists, you are fully aware that the arable land of this country will carry a much larger amount of stock, when properly cultivated, than when laid down to permanent pasture. If, therefore, in a national point of view, cereal crops will pay the expense of cultivating, such land should not be laid down permanently to Grass; for by so doing there would be a diminution of both labour and produce. Moreover, should these suggestions be adopted, consumers in this country would find themselves rather awkwardly situated in winter, when foreign stock cannot reach our shores, if winter fattening was discontinued, as it must necessarily be, on grazing farms.

(1). In treating on the subject of Grass land, I do not intend to confine my observations to permanent pasture, but to Grass land generally, and will commence with seeding.

Previous to seeding, the land should be carefully freed from weeds; and in order to accomplish that object, as well as to preparing a compact and suitable seedbed, the surface should be well pulverized. In selecting seed, particular attention should be paid to the kinds of Grass found to flourish, and such as are readily eaten by stock on adjacent land of similar quality; for it is surprising what effect soil and climate have on vegetation. Grasses which are eaten by cattle with avidity off certain soils will be rejected when grown on soils of a different character; hence the necessity of studying nature in the selection of seed. Seedsmen, however, frequently proffer a mixture regardless of the character of both soil and climate, which to me "savours strongly of the shop." I have seen many fields, that have been injudiciously seeded down for permanent pasture with those mixtures, rendered almost valueless for many years—although heavily manured—by the coarse, inferior Grasses domineering over the finer sorts, so that it has been found necessary to rip them again at a considerable sacrifice. Old Grass land, in the light soil and humid climate of Cornwall, is generally found to abound in soft Grasses, chiefly of inferior quality, ill adapted to the fattening of either cattle or sheep, especially woolly sort Grass (Holcus lanatus), which is of little value. It is, therefore, necessary to introduce some of the harder kind of Grass, such as the Fox-tail, Catstail or Timothy Grass, which appear to be well adapted to our loam soils; Cocksfoot, a Grass calculated to keep the digestive organs in order; rough-stalked meadow-Grass, &c. These Grasses should, however, be but sparingly used with Italian and Common Rye, mixed with different kinds of Clover (especially Cornish Mail, which will remain much longer in the land than any other variety), so that when the short-lived sorts die off, those which I have named, with others indigenous to the soil, may fill up the vacancy. The quantity of seed recommended by seedsmen is, I am persuaded, much too great. Grass crops suffer from being planted over-thick, in the same proportion as grain or root crops. Much care is required in sowing Grass seeds. It should be done by broadcast machines; and even then, to ensure its being rapidly sown—which is a matter of great importance—the land should be twice sown, by taking half the machine's breadth only at a turn. Rich soils, intended for permanent pasture, should be sown about the end of July, without a corn crop. Good arable land should be sown about the middle of May with a corn crop, or earlier if with Wheat, and the crop be forward. Light, plain land, which should be but seldom tilled, is most profitably seeded down about the middle of July, without a corn crop, adding two quarts of Rape-seed per acre, which affords much keep in the autumn or following spring. I would observe, by the way, that when coarse, upland pastures require to be "renewed," and are broken up for that purpose, the natural or indigenous Grasses should by no means be destroyed, since Grasses of a superior order cannot long exist on elevated poor land; and while it is impossible to purchase the seed of many of the native Grasses, it is more economical to propagate from plants.

(2.) The manuring of Grass land is a very interesting question: its effects are really wonderful. "Muck" is said to be the mother of manure. We will, therefore, first consider its varied effects, which will, of course, in great measure depend on its preparation, composition, and application.

This brief paper will not admit of my dilating on the two former questions; but with regard to the latter, I would observe that, in order to improve a coarse, old pasture, dung should be well fermented, or, still better, decomposed, by being previously mixed with rich calcareous or aluminous soil, and applied in the autumn, the Grass being first eaten close. Should it, however, be desirable to increase the quantity, recently made and slightly fermented manure should be supplied in the spring. On rich, arable land, I consider that farm-yard manure is most profitably applied on the second year's Grass, slightly fermented, in the spring; but on plain arable land I think it would be more advantageously applied in a similar manner to the first year's Grass. As a rule, I am decidedly of opinion that farm-yard manure is most profitably applied to Grass land, taking into consideration the facilities afforded for its application, in the autumn and spring, when teams would frequently be unemployed—economy of labour being a matter of great importance. Many persons are of opinion that when dung is applied to the surface of land, much of its manuring properties escape into the atmosphere. Experience and observation have, however, long taught me to think otherwise; and Professor Voelcker has lately, by a series of experiments, distinctly proved that it is benefited by exposure. Some years since I manured a field, in February, with recently made yard manure. We had a continuance of cold dry wind for about two months after. During that time the manure was frequently brush-harrowed, so that it had the appearance of short, dry straw; nevertheless, its effect was manifest long before any rain fell, and afterwards it was extraordinary—so much so, that I feel confident that I never applied manure to greater advantage. Lime is, no doubt, a valuable rectifier of rich old Grass lands, by acting upon and decomposing inert vegetable matter, and neutralizing acidity; but I consider it to be much more valuable when mixed with salt, having seen some wonderful effects from the application of that compound, to which sand is a great acquisition. I mix equal quantities of fish salt and quicklime, and then cover the heap with half the quantity of sea-sand, which prevents evaporation, fermentation being very great for many days; but when it has subsided I mix the whole well together, and subsequently apply it to the land, by means of a manure distributor, with great effect. If land be mossy, it should be well harrowed with a close, short-tined harrow previous to spreading the manure, and subsequently be chain-harrowed and rolled. Peruvian guano and nitrate of soda are both very stimulating manures for Grass land; but since they have a tendency to promote the growth of coarse Grass, old pastures so manured in the spring should be eaten close with stock up to the middle of June, in order that the finer Grasses may have an opportunity of taking their place, or the pasture is sure to become coarse, when the manure is frequently blamed, instead of the management. Grass produced by these manures is readily eaten by both cattle and sheep. Bone, however, I consider to be generally the best manure for Grass land in Cornwall, our humid climate being rather calculated to produce quantity than quality; and since a large amount of dairy produce and young stock is annually exported, requiring, for its production, a large quantity of bone-earth, that constituent must necessarily be employed to keep up the fertility of the soil; for, although there may not be a very perceptible falling off in the quantity of Grass, the quality frequently becomes inferior, from want of phosphate of lime, which, no doubt, is also essential to the health of stock. There are many instances in this county where the judicious application of bone manure has caused old Grass land to carry double the quantity of stock that it formerly did, and that, too, of very superior quality. Previous to application, bones should, if convenient, be slightly decomposed, either by fermentation, by mixing with the heap a quantity of liquid manure, the mass being well covered for a time by ashes or mould, which, when fermentation has ceased, should be carefully mixed, or sulphuric acid may also be used for the purpose; or it may advantageously be mixed, some months previous to being spread on the land, with way-soil or the cleaning of ditches. Bone manure should be applied early in spring, old Grass land being well harrowed before and after. Such land should subsequently be cut for hay, since the bone will for a time interfere with the feeding of stock; and long Grass has a tendency to fix and bury the undecomposed pieces of bone. Adulteration is, no doubt, a great check to the application of artificial manure generally, which, in many cases, is difficult to detect, save in the deficiency of our crops. The safest plan, therefore, is to patronise respectable manufacturers, and not suffer ourselves to be guiled by vendors offering cheap goods, which are not unfrequently nasty.

(3.) The stocking or cutting of Grass land requires some consideration, which will, of course, depend greatly on its character.

I consider, however, that, under all circumstances, it is unwise to eat young seed plants with sheep until they have taken a firm hold on the land, since sheep are apt, by biting close, to pull up a considerable number and injure others. Young cattle are, therefore, preferable to take the first cropping, since, while fastening the land, they do not bite close. Grass intended for permanent pasture should not be cut the first year, but be stocked close, in order that the finer Grasses may have an opportunity of taking their place, which are frequently smothered when the crop is cut. Old pasture land should be occasionally mown, but in all cases early; otherwise rank Grasses are sure to domineer over the finer varieties, and the sward consequently becomes coarse. On shallow, quick, arable land, the first year's seeds should be cut. If eaten, the land, being exposed to the scorching sun, frequently produces but a light crop of Grass, while, if shaded, it would have produced a heavy crop of hay.

(4.) The mechanical condition of Grass land is a subject worthy of notice, since it has great effect on the character of its produce—light land being congenial to the growth of bent and inferior Grasses generally, while firm land is favourable to the leguminous Grasses and those containing the largest amount of nutriment.

I therefore consider it prudent to stock our dry old pastures heavily with mixed stock during the winter, and find that the part which gets the greatest amount of treading invariably produces the best quality of Grass the following summer. My old pastures, at Trescowe, are frequently infested with the grub of the cockchafer and other worms, which render portions of the land very light, thereby exposing themselves to the prey of rooks, and at times apparently destroy all the Grass of a considerable breadth of land; but for many years past, on discovering the location of the grub—which is perceptible from the dry, coarse nature of the Grass—when the land is very wet in winter, I have roots carted on it, and there consumed by cattle, treading the land very firm, which entirely destroys the baneful effects of the insect, and causes the land to produce Grass of superior quality for many years. Grass land is frequently rendered too light through the instrumentality of earthworms, by driving into the subsoil and depositing the fine mould on the surface—a valuable process if kept within bounds, but, like miners generally, they are apt to do great injury by cutting off a sufficient supply of water. They must, therefore, either be destroyed or their effects counteracted by some mechanical means. The mole is, no doubt, very useful in destroying grub and various kinds of worm which injure our cultivated crops. Moles will occupy land no longer than they find food. I have seen many crops of both grain and roots saved through their instrumentality, but am not aware that I ever saw one injured by them. The chain-harrow is an excellent implement for spreading the earth deposited by them on the surface. Nature's little drainers, the earthworm and the mole, bring to mind the necessity of draining wet land previous to laying it down to Grass. Stagnant water not only prevents the growth of superior Grasses, but promotes the growth of those of an opposite character. All wet, low land should, therefore, be drained and trench-ploughed previous to being laid down to permanent pasture.

(4.) In conclusion, I would observe that I consider it desirable, with the existing price of agricultural produce and labour, to increase the breadth of Grass land in Cornwall in the following manner:—

1st. By allowing arable land to remain four or five years out to Grass, instead of breaking it up at the end of two or three years, as is now commonly done. By adopting that plan much better crops would be grown than at present, and there would be less complaint of Clover-sick land, rotten roots, and light

grain; while the expense of cultivation would be considerably diminished. Much land in Cornwall would produce good pasture for four or five years, that is not sufficiently strong to lay down permanently to advantage. 2d. A considerable quantity of our elevated thin soils, kept under the plough, certainly cannot be properly cultivated with the present price of grain. Such land should be boned, laid down to Grass, and not tilled, save with the view of renewing the pasture: and that should not be hastily done, since the decay of certain Grasses frequently makes room for those of a superior order. 3d. Much of our deepest, best arable land might undoubtedly be laid down to permanent pasture with advantage; but since laying down land for permanent pasture is an expensive process, and is a permanent improvement to the farm, enhancing its rental value, I consider that it is only fair and reasonable that landlords should assist their tenants in accomplishing this desirable object, by supplying the necessary quantity of bone manure, the tenant paying, say, 5 per cent. on the outlay. If that system was adopted, the value of an immense quantity of land in this county might be doubled; whilst landlords, their tenantry, and the community at large would be greatly benefited. Permanent improvements are certainly the duty of landowners, and not of tenant farmers.

THE LONDON HORSE SHOW.

WHOEVER first suggested the proposition of holding a Horse Show in the spacious Agricultural Hall, the idea that such a show if properly or even fairly managed must turn out a great card arose simultaneously in the minds of very many persons, who thought that the building, the metropolitan locality, and the season of the year, all combined to ensure success. Thus we are by no means surprised at the large number of the entries or the large number of visitors to the show. Within the widely extending precincts of this great metropolis there are a larger number of admirers of the animal, and a larger number of good horses than can be found in any equal spot in the whole world besides. The very fact that upwards of 40 English thoroughbred stallions, some of which were of the very highest class, and but few inferior animals, were brought together, was alone a sufficient security for a crowd of spectators, particularly at the present time, when so much discussion on the subject has been going on, and when an opportunity has offered for contrasting with them a very respectable show of Arabs, to a great extent the parent breed. The locality of the show, and the public interest it has excited, has enabled the daily press to offer to all our readers an account of the general features of the exhibition and some of the prominent merits of the prize horses. It will be unnecessary for us to follow in the same beaten track, and more interesting we imagine to render our observations of a more general character, and thus, whilst giving praise where praise, we think, is due, we shall not be deterred from criticising some of the weak points, or rather to point out where improvement is required, and how it may be afforded. We must bear in mind that the Show was not held under the auspices of any national society pledged to the improvement of the breed of horses, but is rather a commercial speculation, the risk being taken by a body of shareholders to whom the spacious building belongs, whilst the labours of making the necessary arrangements and appointments were supposed to be undertaken by the directors, but devolved in fact on a very few individuals only. The success of the Show, in addition to the circumstances set forth at our commencement, may be attributed to a liberal scale of prizes offered to exhibitors. Thus the sum of 250*l.* was devoted to the class of thoroughbred stallions, and attracted no less than 42, whilst for hackney stallions there were 21 competing for the 50*l.* distributed amongst them.

The 1st prize was given to the Earl of Stamford's Citadel, a fine chesnut 5-year-old horse by Stockwell, rather high on the legs, but with a good deal of bone, and though not distinguished in the racing world, well adapted for a hunter with a suitable weight, or for getting hunters out of bony weight-carrying mares. We presume the prize was given on the principle that this horse best combined the usually considered distinct qualifications of getting horses alike for the turf, the chase, and the park. The 2d prize was given to Mr. Wyatt's Nutborne, the Leeds prize winner and the favourite for the Derby four years ago, but who broke down in the race, although he had defeated the winner as a two-year-old. Now as the turf is first mentioned in the conditions for the prize, and as an additional 50*l.* is placed at the disposal of the judges for rewarding horses specially adapted for getting hunters, hacks, or troopers, we presume that the turf was intended to take precedence, and if so we do not think the 1st prize should have been given to Citadel in the presence of first-class race horses, such as Nutborne and Caractacus, who were great winners themselves, though not yet old enough to be the sires of winners. Caractacus, the winner of the third prize, although the conqueror of such mighty horses as Buckstone and The Marquis, is comparatively a low horse, being about 15½ hands, but with wonderful muscular power, and with a back, loins, and quarters that we seldom witness. He must have a remarkably good constitution, for he appeared full of flesh, if not fat. The 50*l.* placed at the disposal of the judges was divided between the smart and park-like looking Neville, the handsome but rather slight Newcastle belonging to Lord Stamford, and Mr. Blenkison's Amsterdam, whilst the small portion of 10*l.* was given to one of the most extraordinary-looking horses in the show, a powerful brown horse by Warlike, called The Czar. We use the word extraordinary advisedly, inasmuch as though we may see fresh winners of the Derby, the Oaks, and the Leger, year after year, it is very seldom indeed that such a weight-carrying thorough-bred horse as this comes under public notice. As we watched the proceedings of the judges, we certainly thought, from the long period this horse was under their attention, from his capital action, good forelegs, compact and powerful frame, and from the additional information afforded by the catalogue (with which the judges also were furnished), that he had been regularly hunted for the last six years, that such a rare animal for getting hunters would have been rewarded by something more than 10*l.* There were some good names and good horses that were necessarily passed over; amongst which those handsome horses Horror and The Hadji, and Lord Stradbroke's fine carriage-looking Great Eastern, and many others.

Reviews.

Farming in India, considered as a pursuit for European Settlers of a Superior Class. With Plans for the Construction of Dams, Tanks, Weirs, and Sluices. By Lieut.-Col. Greenaway, of the Madras Staff Corps. Smith, Elder, & Co.

A thoroughly practical book, full of information, both general on climate, and on relations with natives, and particular on the management of the land, and on the cultivation of crops, on wet farming, dry farming, hill farming, buildings and machinery, live stock and labour.

There is no doubt a very considerable public interested in the subject of Colonel Greenaway's book; and it will give them just the information required to enable the intending colonists of India to make a living by agriculture. Of course making a living there is something very different from what satisfies the English agriculturist. It means realising enough by a few years' industry to enable a return to a better climate for that remainder of life which Indian seasons may have left you. And on the causes of failure and the insurance of success in such an aim as this there is ample information here. The following is Colonel Greenaway's enumeration of the former:—

"Judging from these several cases which have occurred within my own knowledge, the causes of the failure of Europeans in India are of the same character as would end in failure elsewhere. For the sake of greater distinctness they may be summed up as follows:—

"Ignorance of the work undertaken, which may arise either from the want of training and experience, the want of technical knowledge of the particular work to be done (a defect that may be easily remedied), or deficiency of administrative capacity for work in general.

"Neglect of one's own business, whether occasioned by a disposition naturally given to indolence, or by over-confidence in servants. The latter is hazardous, however carefully the servants may have been selected.

"Want of caution in the choice of one's servants. Going ahead too fast, and so getting into debt. Disproportion of means to ends; and this may arise either from the inadequacy of one's capital at the first, from the creation of an establishment or plant above one's requirements, from over-building, or the employment of expensive processes in place of cheap ones, which would do as well, or from employing two men to do the work of one.

"Personal extravagance, and other vices on which it is not necessary to enlarge, but for which India offers but too much opportunity.

"Rashness in experimentalising, an error particularly liable to beset young and ardent men with strong views about reforming abuses, dispelling the darkness of barbarism, or urging the march of civilisation into a gallop.

"Rashness in speculation, caused by being in too great a hurry to grow rich.

"General incompetency, or 'muddleheadedness.'"

"Being too fine a gentleman to attend to one's dirty work, or too much occupied with the development of great ideas to take any interest in details."

It appears then that any one not afflicted with "muddle-headedness," and possessed of sufficient resolution, bodily vigour, and capital, may find India as good a field for the profitable investment of all three as any in the world.

It is the object of this book to remove the ignorance which the author places first on the list of difficulties. And to this end he gives instruction in the cultivation of Rice, Sugar Cane, Chillies, Cotton, Coffee and Tea, with less upon the last-named crop than we had expected, but with ample details and estimates of all the others.

There is a great deal of information on irrigation, drainage, and live stock, and, in fact, the book is written by a thoroughly practical man. It would have been more easily useful had it been provided with an index.

The following extract on the value and nature of labour will be of interest probably to those who stand a grade lower than the majority of those to whom the book is especially addressed:—

"There is at present a great scarcity of good subordinates in Southern India. Discharged soldiers, runaway sailors, and nondescripts, form the majority of the Europeans available for foremen or overseers, and there is no mincing the matter, that as a general rule they are an unsatisfactory lot.

"A really intelligent, sober, and trustworthy European overseer would be cheap at 400*l.* a year on any large plantation. As it is, however, East Indians and Portuguese are often preferred; or, where the planter is himself well conversant with the vernacular and the habits of the people, natives of unmixed breed. Indeed, wherever there is such a thorough mutual understanding between the parties, I believe that the Hindoo proper is really the best and most efficient subordinate that can be expected in the present state of the labour market.

"It is, however, much to be wished that a better class of young Englishmen should be introduced into the country in the subordinate grades. It is not for want of inducement that they do not immigrate. They may expect salaries ranging from 10*l.* to 30*l.* per month, houses to live in, rent-free, a better status, and pleasanter work than they could enjoy as mechanics in England.

"A respectable and trustworthy European, once known, is certain of always finding good employment in India. The difficulty of course is to become known; also the distance and expense of the journey doubtless deter many young men of the class most likely to succeed from turning their attention to such a mode of life, unless previously guaranteed a good situation.

"Of course the difficulties may be overcome. A young man might find his way, say to the Wynaad, for example, with testimonials in his pocket from well-known persons—from the clergyman of his parish, or from parties in England having Indian connections.

"Planters and men occupying influential situations in India, engineers in charge of works, and so forth, must have some relations at home; there must be some young men in the parishes where those relations reside who would be glad enough to take service in India under the conditions mentioned above. It would be worth the while of the young man or his family to raise the sum requisite to give him such a start. 100*l.* would be sufficient, with ordinary economy, both for passage and outfit, as far as Madras, Bombay, or Cochin, whilst from the date of his landing in India, his expenses should be paid by his employer.

"Surely it would be worth the while also of the planters, who are incessantly grumbling at the inefficiency and worthlessness of their subordinates, to take a little trouble, and even go to a little expense, to import young men of decent training, who come, as the Scotch say, of kenned folk; who possess respectable relatives to be shamed by their misconduct. Surely such young men would be preferable in all respects to anything now procurable (as a general rule) in Southern India. They would speedily acquire the necessary knowledge of the language, easily picked up in youth, and would be able to comprehend the character of the natives far better than the discharged soldiers can do, whose experience has been limited to the barracks and bazaars of large stations, where native life is seen in its worst, its ugliest, and its least characteristic form. Men whose first years in the country have been so spent, are found, as a rule, incompetent to understand natives, usually unfriendly towards them, and often disposed to be tyrannical over them. They have been prejudiced against them by that early association with their very worst orders; and their minds have seldom been sufficiently cultivated to be able to adopt liberal and enlightened views contrary to what they fancy to have been the teaching of their own experience. They thus enter upon their new duties at great disadvantage. The natives, who are extremely sensitive and wonderfully quick in reading character, are at no loss to recognise the feelings of such Europeans towards themselves; they also regard them as contaminated by their former associations. Respectable natives, especially of the agricultural class, look down upon camp-followers as the very scum of the earth, and it is proverbial to ask whether any good can come out of a cantonment bazaar. For these reasons, even without fault of his own, the ex-militaire is often thrown into a hopeless position, every decent native shrinking from him, while he is sought out by the worst and vilest, who call him 'My Lord,' flatter his vanity, pander to his passions, and make him the tool of their own roguery.

"Several exceptions, indeed, I have known—men who in spite of temptation, and very severe temptation, and of difficulties all but insuperable, have maintained their integrity. Their names recur to me as I write, and their example is invaluable, both as redeeming the class to which they belonged, from universal dislike and contempt among the natives; and as illustrating the value of a really good European subordinate to his employer."

Farm Memoranda.

DAIRY FARMING IN CHESHIRE.—The following reports are taken from the Journal of the Manchester and Liverpool Agricultural Society, just published:—

1. *Crouchley Farm.*—Mr. W. Whitlow's farm contains 238¾ acres, viz., 127¾ acres in pasture, 40 acres meadow and Clover (mown), 17 acres Wheat, 29 acres Oats, 19 acres Potatos, 2¾ acres Swedes, 2 acres homestead, orchard, and garden, 1 acre road and plantations. Customary rotation: 1st, Oats; 2d, root crops; 3d, Wheat; 4th, Oats, with Clover and seeds.

Live stock consists of 5 farm horses, 4 colts, 60 dairy cows, 2 bulls, 5 heifers, 120 sheep, 40 pigs, and 12 rearing calves; total, 248. Purchases annually bones

and artificial manure, principally bones, to the amount of 100*l.*, which is applied to Clover, root, and pastures.

Farm has been drained by the landlord, 4 feet deep and 18 feet apart. A stone quarry has been filled up, gaining 4 acres of land, and at a cost of 200*l.*, principally at the expense of the landlord.

This farm lies in a good locality for roads, canal, railway, and markets, and also in a good climate. The soil a good loam. Part of the farm with a subsoil of red sandstone, but the greater portion a subsoil of marly clay; the surface undulated. The farm has been completely remodelled by the late and present owner. An entire new farm house, outbuildings, and homestead. Old fences eradicated and new ones planted, new gates and posts put down, and the land well drained, with the exception of some small portions. Those improvements all made previous to claimant's occupation. The fences, gates, posts, roads, and premises are in first-class order, showing that the claimant has taken proper care of them, the new fences being mostly 5 feet high, 4 feet thick at bottom, and trimmed to a hog mane shape, and clean from weeds.

This claimant is a considerable grower of early Potatos; 15 acres of these had been planted, but were mostly taken up and sold, and the land planted with Swedes. A few left for seed were promising for a heavy produce; 4 acres of late varieties were looking well. The Swedes (2¾ acres) had had all the plants taken from them, for planting after the early Potatos, and looked ragged, but having plenty of manure below would soon recover.

Wheat, a first-class crop, thick, strong, and of good colour. 20 acres of Oats, a portion rather light, but the greater portion a full average; a 10-acre field of Oats, a first-class crop. The Clover of first year (17 acres) very superior, the second crop coming well on. Meadows productive of good herbage. Grass of second, third, and fourth year's lying, and pastured, showing the good effect of bone manure, being full of white Clover. A field of 40 acres, old pasture, one-half a good pasture, the other half not so good.

The out-buildings and homestead are extensive and substantial, but are complicated, and not so convenient as they might have been. The live stock, implements, and machinery for threshing, cutting, steaming, and feeding, show that the claimant possesses a proper knowledge of his profession, and a perseverance to carry out all things in a proper manner.

(To be continued.)

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	June	Inches.	°	°				°	°	°	°	Inches.
Friday ..	1	29.93	61	53	N.W.	3	8	67	51	83	45	..
Saturday ..	2	29 82	61	54	S.W.	2	10	65	51	78	49	..
Sunday ..	3	29.60	63	58	W.	4	10	67	51	81	46	0.13
Monday ..	4	29.90	68	60	W.	2	5	66	49	78	42	0.05
Tuesday ..	5	30.02	68	60	N.W.	3	0	69	51	80	45	..
Wednesday ..	6	30 14	63	57	N.	0	5	70	43	82	38	..
Thursday ..	7	30.13	64	59	N.W.	2	5	69	43	84	41	..

Notices to Correspondents.

REAPER: *A B.* wants a good Reaping Machine, one that wil work well on hilly lands as well as on level. Will any one state his experience?

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

THE HYDROPULT

is invaluable for use in

the

GARDEN

for

WATERING BEDS,

SPRINKLING

PLANTS,

DROWNING OUT

INSECTS,

CLEANSING TREES

FROM SMUTS,

DRESSING

with

LIQUID MANURE,

ETC. ETC.



THE HYDROPULT

is desirable in every

HOUSEHOLD

for

WASHING

WINDOWS,

WETTING

SIDEWALKS,

SPRINKLING

STREETS,

WASHING

CARRIAGES,

EMPTYING

CISTERNS,

FILLING BARRELS,

A SPRAY BATH,

ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,

32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.

Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of one man.

It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

Price 35s.,

Complete with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede SYRINGES and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

HYDROPULT SHOW ROOMS, 142 and 143, CHEAPSIDE, E.C.

WAREHOUSE and OFFICES, 27, LEADENHALL STREET, LONDON, E.C.

CHARLES POMEROY BUTTON, PROPRIETOR

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

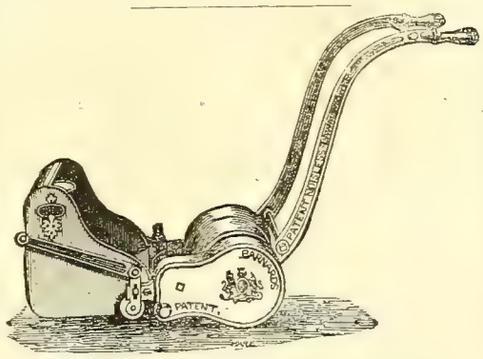
Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BARNARD'S NOISELESS LAWN MOWER.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

This MACHINE differs from all other Lawn Mowers, in being constructed without either Gear-wheels, Chains, or Levers, the power being transmitted to the Cutters by a loose intermediate wheel, with an India-rubber tyre, which is placed between a plain-faced driving wheel and pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the intermediate wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber tyre will last from one to two seasons, and can be replaced at a cost of a few pence. An extra tyre is sent with each Machine.

The iron work of Grass-box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

The Miniature Lawn Mower, Cuts 8 inches .. .. £2 10*s.* 0*d.*		
	Suitable for the very smallest Grass plots or Edgings.	
To Cut 10 inches.	This can be worked by a Lady	3 5 0
To Cut 12 inches.	Suitable for one person	4 10 0
	The 12 inch and all larger sizes have the drum or roller divided in two parts for the convenience of turning.	
To Cut 14 inches.	Suitable for One Man	5 0 0
To Cut 16 inches.	Suitable for One Man	6 0 0
To Cut 18 inches.	Suitable for Man and Boy	6 10 0
To Cut 20 inches.	Suitable for Man and Boy	7 0 0
To Cut 22 inches.	Suitable for Two Men	7 10 0

Packed and Delivered Carriage Free to the principal Railway Stations in England.

Guaranteed to give satisfaction, and if not approved, can be returned.

The above are kept in Stock and can be forwarded immediately. Also, CAST-IRON VASES, CHAIRS, SEATS, TABLES, ROLLERS, WIRE NETTING, &c.

J. JONES AND SONS, IRON MERCHANTS and HORTICULTURAL ENGINEERS,
6, BANKSIDE, SOUTHWARK, LONDON, S.E.

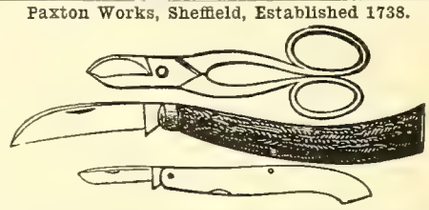
SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

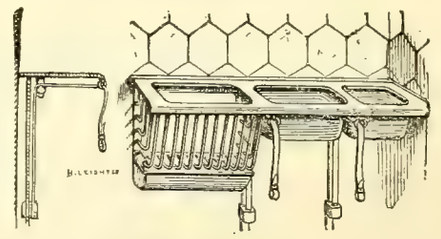
Paxton Works, Sheffield, Established 1738.

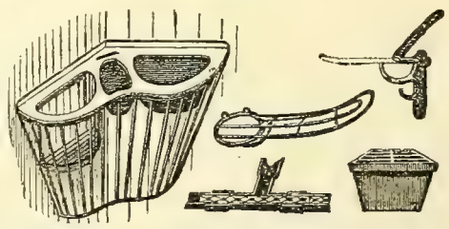


INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.





These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

See Advertisement first week in the month, or on application.

CONSERVATORIES! GREENHOUSES! FRAMES!

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

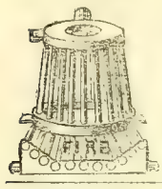
IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

3 *Cwt. Free to most parts.*

PATTERNS, PRICES, and TESTIMONIALS on application to

WALTER CARSON AND SONS, 9, GREAT WINCHESTER STREET, OLD BROAD STREET, E.C.
(Postal Address); Also 31, ST. JAMES'S STREET, S.W.

CAUTION.—*All Casks bear their Trade Mark, or are not genuine.*



Heating by Hot Water.

JOHN TOOLEY, late 21 years with J. WEEKS & Co.

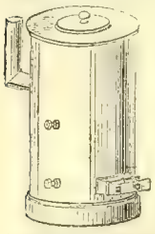
TUBULAR BOILERS,

All Sizes on the most Improved Principles, For Churches, Chapels, Schools, Halls, Conservatories, &c.

IMPROVED VALVES, &c.

References in England, Ireland, and Wales.

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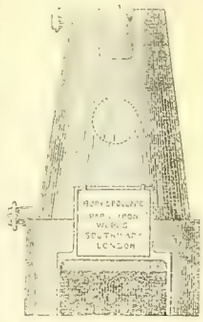
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility & Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD (Successors to John R. Peill), Sole Manufacturers of the Improved CONICAL BOILERS which require no BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

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N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD are now making a powerful Windmill for the India Board, with Pumps for Cotton Irrigation.

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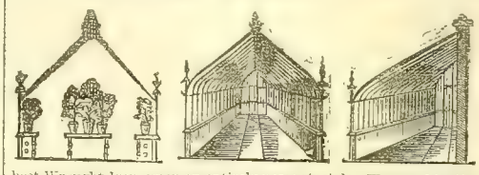
SAMUEL N. McGERROW, GENERAL HORTICULTURAL BUILDER, Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Triangle, Hackney, N.E.—Good substantially-made GREENHOUSES glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* A handsome CONSERVATORY, 46 feet by 19 feet, for Sale, price 130*l.* A large assortment kept. Estimates given for any branch in Wood or Iron.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

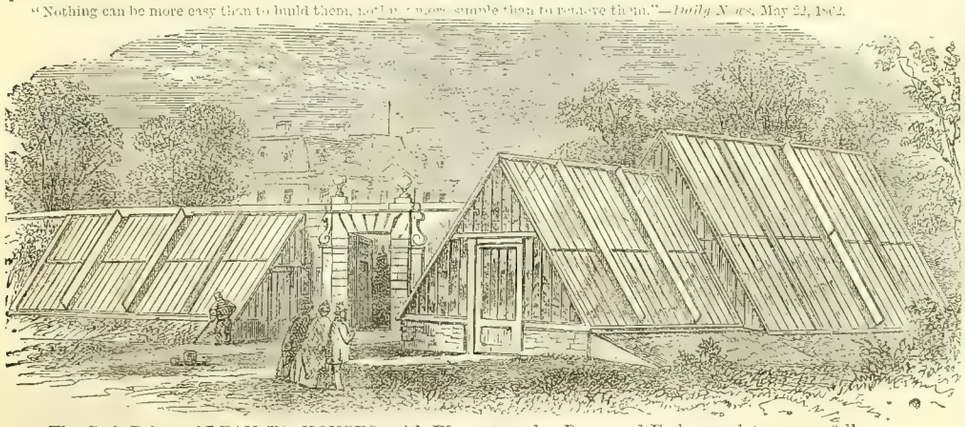
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to conserve them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights.	10 ft. Lights.	Ft. In.	12 ft. Lights.	14 ft. Lights.	16 ft. Lights.
20 7 in length ..	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length ..	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length ..	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length ..	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length ..	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length ..	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars, with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen and Paisley.

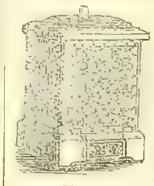
A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical."—*Cottage Gardener*, Oct. 6. 1863

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COWHOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Under the Patronage of Her Majesty.

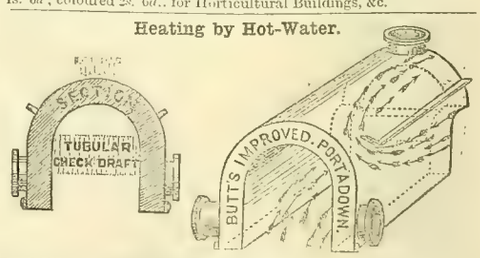
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS OF METALLIC and WOODEN HOT-HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls: which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London), Portadown, Ireland.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1*s.* 8*d.* per yard run.
Four yards wide.. .. .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

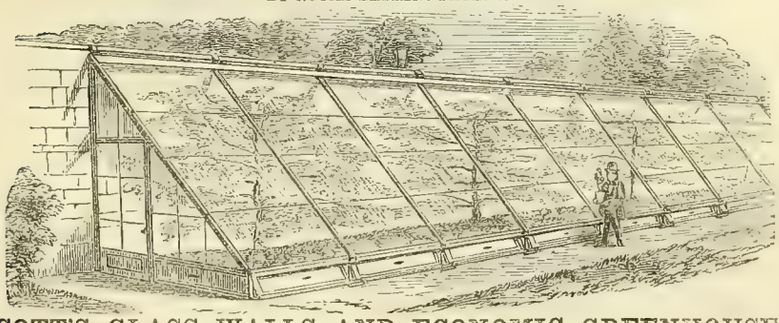
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

REDUCED PRICES OF PROPAGATING GLASSES.

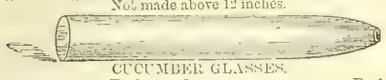


Each.	s.	d.		Each.—s.	d.
3 inches in diameter ..	0	4	12 inches in diameter ..	1	6
4 ,, ,, ..	0	5	13 ,, ,, ..	1	10
5 ,, ,, ..	0	6	14 ,, ,, ..	2	3
6 ,, ,, ..	0	7	15 ,, ,, ..	2	9
7 ,, ,, ..	0	9	16 ,, ,, ..	3	0
8 ,, ,, ..	0	10½	17 ,, ,, ..	4	0
9 ,, ,, ..	1	1	18 ,, ,, ..	4	6
10 ,, ,, ..	1	2	19 ,, ,, ..	5	6
11 ,, ,, ..	1	4	20 ,, ,, ..	6	0

BEE GLASSES.

Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 ,, ,, ..	0	8	10 ,, ,, ..	2	0
6 ,, ,, ..	0	10	11 ,, ,, ..	2	6
7 ,, ,, ..	1	1	12 ,, ,, ..	3	0
8 ,, ,, ..	1	4			

Not made above 12 inches.



CUCUMBER GLASSES.

Each.—s.	d.		Each.—s.	d.
24 inches long	1	9	16 inches long	1	2
22 ,, ,, ...	1	7	14 ,, ,, ...	1	0
20 ,, ,, ...	1	6	12 ,, ,, ...	0	10
18 ,, ,, ...	1	4	Made to any length.		

HAND GLASSES, WITH OPEN TOPS.



Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal. £2 13 6 | 12 gal. £3 2 0 | 16 gal. £3 12 6
24 gal. £5 0 0 | 30 gal. £5 12 0



Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal. £5 12 0 | 28 gal. £7 0 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. .. 0 10 0 ,,

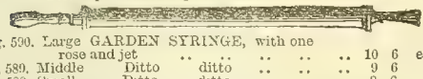


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10 6 each
,, 589. Middle Ditto ditto .. .. .. 9 6 ,,
,, 588. Small Ditto ditto .. .. .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 ,,

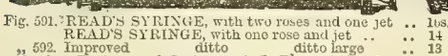


Fig. 591. READ'S SYRINGE, with two roses and one jet .. 10s. 6d.
READ'S SYRINGE, with one rose and jet 14 0
,, 592. Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

The Hydropult Challenged.

WINTON'S "HYDROPNEUMATIC" FIRE and GARDEN ENGINES are acknowledged to be superior in every respect to the Engine of the above name. Sold everywhere.
HYDROPNEUMATIC, £1 15s. Lady's ditto, £1 10s.
JOHN G. WINTON, 13, Gladstone Street, St. George's Road, Southwark, London, S.E.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

BEFORE you BUILD any more GARDEN WALLS, see the NEW PATENT CORRUGATED BRICK, invented and manufactured by I. FOXLEY, acknowledged to be the best thing for the purpose by gardeners who have seen it. No nailing required, no fixtures of iron, copper, &c. Perfect training is obtained, and the Trees can be kept clean and free from Insects.
License granted to make the Bricks in certain localities, and further information on application to I. FOXLEY, Stony Stratford, Bucks.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant,
"G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY-PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, CHIMNEY-PIECES, FIRE-IRONS, and GENERAL IRONMONGERY, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with ormolu ornaments, 3l. 15s. to 33l. 10s.; bronzed fenders, with standards, 7s. to 5l. 12s.; steel fenders, 3l 3s. to 11l; ditto, with rich ormolu ornaments, from 5l 5s to 18l; chimney-pieces, from 1l. 8s to 100l; fire-irons, from 2s. 3d the set to 4l. 4s. The BURTON and all other PATENT STOVES, with radiating hearth-plates.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen. s.	d.	Dessert Knives per Dozen. s.	d.	Carvers per Pair. s.	d.
3-inch ivory handles	12	0	9	6	4	6
3½-inch fine ivory handles	15	0	11	6	4	6
4-inch ivory balance handles	18	0	14	0	5	0
4-inch fine ivory handles	24	0	18	0	7	3
4-inch finest African ivory handles ..	32	0	26	0	11	0
Ditto, with silver ferules	40	0	33	0	12	6
Ditto, carved handles, silver ferules ..	50	0	43	0	17	6
Nickel electro silver handles, any pattern .	25	0	19	0	7	6
Silver handles, of any pattern	84	0	54	0	21	0
Bone and Horn Handles—Knives and Forks per dozen.	s.	d.	s.	d.	s.	d.
White bone handles	11	0	8	6	2	6
Ditto, balance handles	21	0	17	0	4	6
Black horn rimmed shoulders	17	0	14	0	4	0
Ditto, very strong riveted handles ..	12	0	9	0	3	0

The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the New Plated Fish Carvers.

CLOCKS, CANDELABRA, BRONZES, and LAMPS.—WILLIAM S. BURTON invites inspection of his Stock of these, displayed in two large show-rooms. Each article is of guaranteed quality, and some are objects of pure vertu, the productions of the first manufacturers of Paris, from whom William S. Burton imports them direct.

Clocks, from .. .. 7s. 6d. to 25l.
Candelabra, from .. .. 13s. 6d. to 16l. 10s. per pair.
Bronzes, from .. .. 18s. 0d. to 16l. 16s.
Lamps, moderateur, from .. .. 6s. 0d. to 9l. 0s.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London, W.

FRENCH CALL DUCKS.—Wanted, a few. Replies, stating price, to E., *Gardeners' Chronicle* Office, W.C.

WILD DUCKS.—Wanted, a few Young Birds. Replies, stating price, to E., *Gardeners' Chronicle* Office, W.C

NORTHERN TERRITORY of SOUTH AUSTRALIA.—FINAL SALES of COUNTRY LANDS. 250,000 acres, half to be Sold in Adelaide, half in London. Land Sale of 125,000 acres in London under the Act. The allotments of the Preliminary Land Sale in London having been all disposed of, notice is hereby given, in conformity with the above-named Act, and the regulations in force, that on the 7th day of June, and subsequent days, LETTERS of APPLICATION, accompanied by the corresponding receipts of deposit, previously paid into the Bank of England to the account of the Agent-General of South Australia, will be receivable at this office from persons willing to purchase land at 12s. per acre in the present Land Sale, which consists of 781 allotments, each allotment containing 160 acres of country land, the deposit being 20l. per allotment.
For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.
The following printed papers, in connection with the present sale, may be obtained at this office, viz.:—
1. Copies of the Act and regulations, with directions.
2. Form for paying the deposit at the Bank.
3. Form of letter of application, enclosing the Bank deposit receipt.
G. S. WALTERS, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.
No. 5, Copthall Court, London, E.C., April 30, 1864.
N.B. The land orders to be issued in London are transferable by endorsement.
The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.
All future sales will take place in the Colony by public auction, at the upset price of 20s. per acre.

TO BE LET, with Immediate Possession, a Convenient HOUSE, and Outbuildings, situate between New and Old Basford, and within two miles of Nottingham. The situation is well adapted for a Nurseryman; any quantity of adjoining Land up to Nine Acres would be added as might be required, and any reasonable outlay would be made for a suitable tenant.
Apply to Mr. JNO. LAMB on the Premises; or G. A. BEARDMORE, Esq., Springfield House, Basford.

To Nurserymen, Florists, and Others.

THE ALBION NURSERY, STOKE NEWINGTON, LONDON.

TO BE DISPOSED OF, with long Lease and well Established Business, in consequence of the death of the Proprietor, the above NURSERY, situate within three miles of Covent Garden Market, and surrounded by a very large and highly respectable neighbourhood. The Nursery is well Stocked, and the Plants in good working order, and immediate possession can be had.
For further particulars apply to Messrs. PROTHEROE & MORRIS, Auctioneers and Valuers, Leytonstone, Essex.

Sales by Auction.

Sale of Orchids next Tuesday.

IMPORTANT NOTICE.

MR. J. C. STEVENS begs to announce that he has received instructions from J. Day, Esq., of Tottenham, to SELL every PLANT in NEXT TUESDAY'S SALE, WITHOUT THE LEAST RESERVE.
Auction Rooms and Offices, 38, King Street, Covent Garden.—July 9.

Choice Nepenthes.

MR. J. C. STEVENS will include in his SALE next TUESDAY, Five fine Specimen Plants of NEPENTHES, and a few choice FERNS, the property of J. Day, Esq., of Tottenham.
38, King Street, Covent Garden, W.C.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION on TUESDAY NEXT, July 12, at his Great Rooms, 38, King Street, Covent Garden, after Mr. Day's Orchids, a small importation of CATTLEYA ACLANDIÆ, BURLINGTONIA SP., CORYANTHES MACRANTHA, HOULETIAS and various EPIDENDRUMS, &c.
On view the Morning of Sale, and Catalogues had.

SALE No. 2340.

The Sale to commence at half-past 12 o'Clock precisely.

Highly Important Sale of Established Orchids.

Duplicates from the well-known Collection of J. Day, Esq., of Tottenham, who is parting with some of his fine Plants solely from want of sufficient space for their proper cultivation; there will be included in the Sale some extraordinary fine varieties, well worthy the attention of all growers and lovers of Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from John Day, Esq., of Tottenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, July 12, at half-past 12 o'Clock precisely, a splendid COLLECTION of ESTABLISHED ORCHIDS, comprising some of the best varieties ever offered for Public Sale, of the following well known sorts:—

Aerides affine
,, Fieldingii
,, Larpentæ
,, Lindleyanum
,, Lobbii
,, maculosum
,, quinquevulnerum
,, Schroederi
,, Veitchianum
Angræcum sesquipedale
Barkeria Skinneri
,, spectabilis
Cattleya labiata
,, Syon House
,, Mossiæ
,, Schilleriana
,, superba
,, Warscewiczii
,, marginata
Chysis Limminghii
Coelogyne cristata
Cypripedium hirsutissimum
,, villosum
,, Dayanum
,, superbiens
Disa grandiflora
Dendrobium Falconeri
,, macrophyllum giganteum
,, Farmeri
,, albo-sanguineum
Lælia purpurata
,, elegans
,, Schilleriana splendens
,, majalis
,, præstans
Lycaste Skinneri
Miltonia candida grandiflora
Odontoglossum auro-purpureum
,, speciosissimum
,, nævium
Oncidium sessile
Phalænopsis Schilleriana
,, amabilis
,, grandiflora
Saccolabium Blumei majus
,, guttatum Halfordianum
Selenipedium caudatum
,, Schlimii
Sobralia macrantha (Wolley's var)
Trichopilia crispa
Vanda suavis
,, cœrulea
&c. &c. &c.

On view the Morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden.

Indian Orchids.

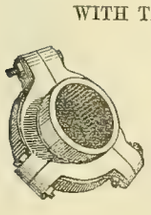
MR. J. C. STEVENS begs to announce that he has just received an Importation of Choice AERIDES and PHALÆNOPSIS in fine condition; they will be sold after the Established Plants NEXT TUESDAY.
38, King Street, Covent Garden, W.C.

English Wool Sales in London.

BRADBURY AND COOK will offer by PUBLIC AUCTION at the Wool Sale Rooms, 54A, Moorgate Street, on WEDNESDAY, July 20, about 1500 Sacks of ENGLISH WOOL, comprising some of the best flocks from Kent, Sussex, Cambridgeshire, Hertfordshire, Wiltshire, Dorsetshire, Somersetshire, Devonshire, and Cornwall; and which will include a large assortment of good half-bred Wool; also some superior South Down matchings from very choice flocks, combing and clothing.
The Wool will be shown in bulk on the Morning of the day of Sale at the West India Docks.
Catalogues can be had the day previous on application to BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

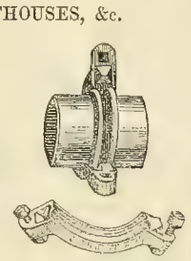
PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREEN HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipe-Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—



TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

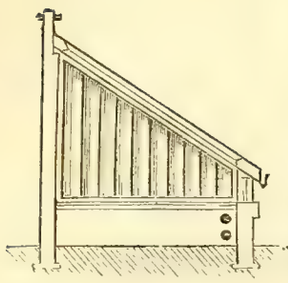
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

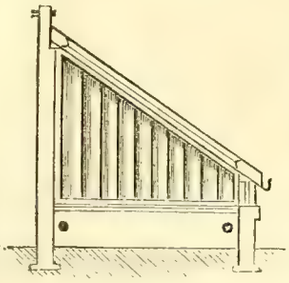
J. JONES & SONS' HOT-WATER APPARATUS.

No. 7.



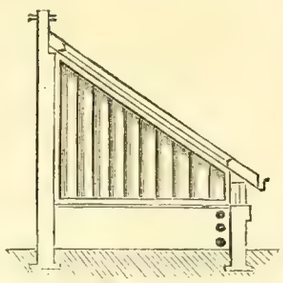
Size of House.	Price.
20 by 10 feet	£9 0 0
30 ,, 12 ,,	12 0 0
40 ,, 15 ,,	15 0 0
50 ,, 15 ,,	18 0 0
60 ,, 15 ,,	20 0 0
70 ,, 15 ,,	22 0 0
80 ,, 15 ,,	24 0 0
100 ,, 15 ,,	26 0 0

No. 8.



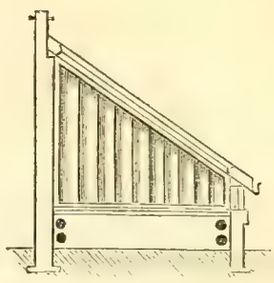
Price.
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24 0 0
26 0 0

No. 9.



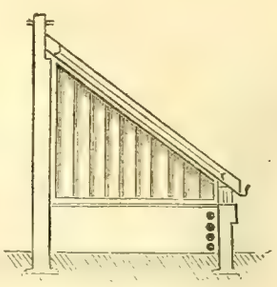
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24 0 0
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30 0 0
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36 0 0

No. 10.



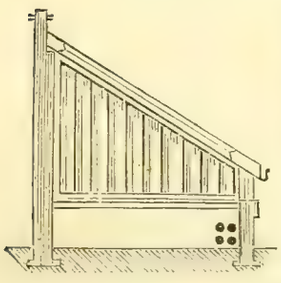
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28 0 0
32 0 0
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44 0 0

No. 11.



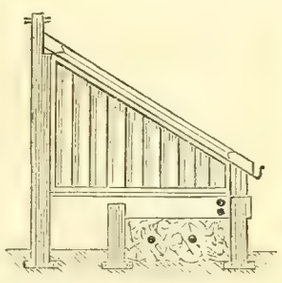
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25 0 0
29 0 0
33 0 0
37 0 0
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45 0 0

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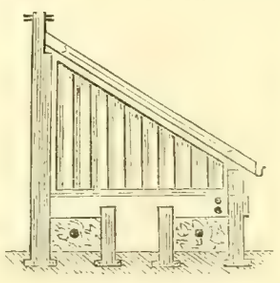
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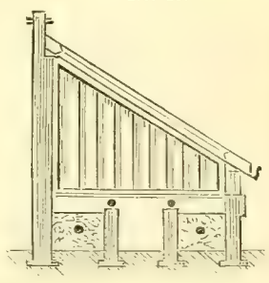
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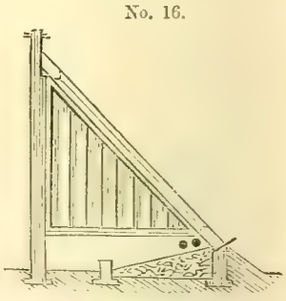
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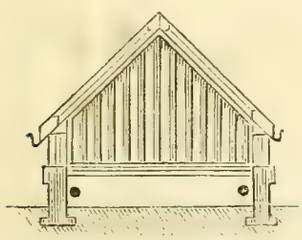
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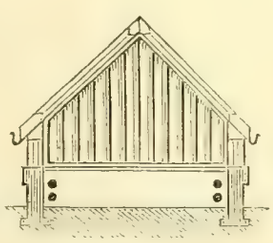
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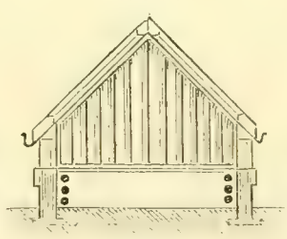
Size of House.	Price.
20 by 10 feet	£9 0 0
30 ,, 12 ,,	12 0 0
40 ,, 15 ,,	15 0 0
50 ,, 15 ,,	18 0 0
60 ,, 15 ,,	20 0 0
70 ,, 15 ,,	22 0 0
80 ,, 15 ,,	24 0 0
100 ,, 15 ,,	26 0 0

No. 18.



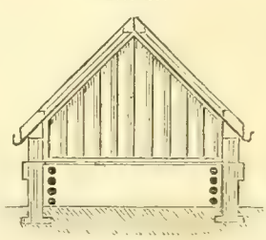
Price.
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 9
40 0 0
44 0 0

No. 19.



Price.
£18 10 0
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34 0 0
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44 0 0
49 0 0
54 0 0

No. 20.



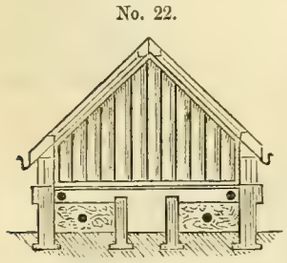
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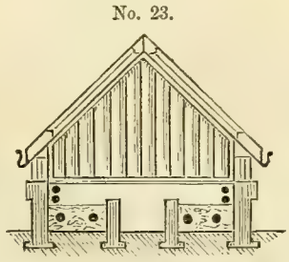
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36 10 0
42 10 0
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70 0 0

No. 22.



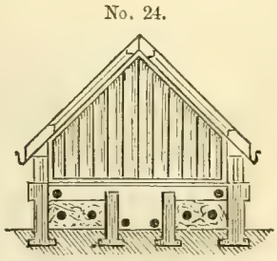
Size of House.	Price.
20 by 10 feet	£15 0 0
30 ,, 12 ,,	21 0 0
40 ,, 15 ,,	25 0 0
50 ,, 15 ,,	29 0 0
60 ,, 15 ,,	33 0 0
70 ,, 15 ,,	37 0 0
80 ,, 15 ,,	41 0 0
100 ,, 15 ,,	45 0 0

No. 23.



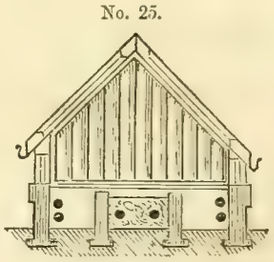
Price.
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51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



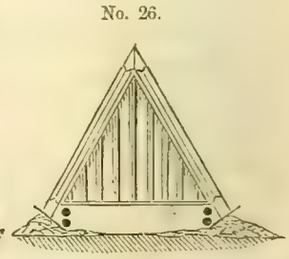
Price.
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price.
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price.
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J Jones & Sons will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

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J. JONES and SONS, IRON MERCHANTS and HORTICULTURAL ENGINEERS,
6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, July 9, 1864.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 29.—1864.] SATURDAY, JULY 16. {Price Fivepence. STAMPED EDITION, 6d.

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Assessments	677 a	Orchids, sale of	679 b
Bentham's British Flora	673 c	— Mr. Warner's	677 a
Bloomsbury flower show	678 a	Newcastle meeting	681 c
Bone-dust and drainage	682 b	Nicotiana wigandioides	675 a
Books, noticed	678 b	Palm, Chusan	674 c
Border counties of Scotland	687 a	Plants, officinal	677 a
Cabbages	682 c	Ploughmen's tricks	684 b
Castle Kennedy	679 a	Polymorphism	679 c
Cinchonas	679 b	Quarterly Journal of Science, rev.	687 b
Clover hay with or without Italian Rye-grass	686 c	Rockville, Dublin	675 b
Condition	684 c	Rosary V. Rosery	676 c
Crops, appearance of	683 a	Rose show, Birmingham	677 c
Cottages	687 a	Snakes, hissing of	677 a
Dairy farming in Cheshire	687 c	Society, Royal Horticultural	675 a—677 b
Drainage, new system of	689 c	— Entomological	677 b
Education, agricultural	685 a	Stock feeding, Scotch and English	683 c
Farm, Aldershott Camp	685 c	Strawberries, weights of	677 b
Fibrous plants	677 b	Tobacco manufacture	677 a
Gardeners' Benevolent Institution	676 c	Tubs, garden	680 c
Gooseberry caterpillar	680 a	Walnut, new	675 b
Grape, Muscat Hamburgh	675 b	Water pumps	676 c
Grass land	686 b	Window Flower Society	679 b
Law relating to assessments	677 a		

ROYAL HORTICULTURAL SOCIETY,
FLORAL COMMITTEE.
The NEXT MEETING of this Committee will take place on TUESDAY, July 19, at 12 o'clock.
Subjects for examination must be at South Kensington for entry by 11 A.M. THOS. MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY,
SOUTH KENSINGTON.
LECTURE on TUESDAY NEXT, July 19, on ROSES, by Mr. RADCLYFFE. To commence at 3 o'clock.

ROYAL HORTICULTURAL SOCIETY.
SOUTH KENSINGTON.
AUGUST SHOW.
1. A Show limited to new, extremely rare, or very beautiful Plants will be held in the Conservatory on WEDNESDAY, August 24, and will remain open until Monday Evening, August 29.
2. The object of the Council in inaugurating this Show is to Exhibit to the Fellows and the public the number of new, rare, and beautiful Plants brought before the Floral Committee during the last three years.
3. Exhibitors must state the price at which they are prepared to sell the specimens exhibited or other specimens of the same kind.
4. Purchases will be made by the Council to be distributed by Ballot or otherwise among the Fellows at a suitable period.
5. All plants must be delivered before 8 o'Clock on the morning of the Show.
6. For further information and schedules apply to Mr. EYLES, Royal Horticultural Society's Gardens, South Kensington.

Roses.
OLD NURSERIES, CHESHUNT, HERTS, N., per Great Eastern Railway.
PAUL AND SON'S unrivalled COLLECTION is NOW in FINE BLOOM. Open to admirers except Sundays.

Roses.
JOHN CRANSTON'S superb COLLECTION (extending over many Acres), is NOW in FULL BLOOM.
Nurseries, King's Acre, near Hereford.

Roses.
WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.
Waltham Cross, Herts, N.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., begs to announce that his COLLECTION of ROSES is NOW in BLOOM, and respectfully invites an inspection of the same. The collection includes many new and fine varieties.
The Nurseries are about 5 miles from London, and are easily reached by Train on the Great Eastern Railway to Lea Bridge Station.

Roses.
EDWIN HOLLAMBY begs to announce that his unrivalled Collection of the above, containing many new and splendid varieties, is NOW in FINE PERFECTION. A visit is respectfully solicited.
The Nurseries and Seed Establishment, Tunbridge Wells and Groombridge, Kent.

New Roses.
WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
PAUL'S Nurseries, Waltham Cross, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Roses.
H. LANE AND SON beg to inform their Patrons that their extensive COLLECTION of ROSES (7 Acres in one piece) is NOW in FULL BLOOM, at their Balshaw Nursery, 1½ mile from the Home Nurseries.

Vines Fruiting.
H. LANE AND SON have still to offer VINES in pots, with from 5 to 15 bunches of fine fruit.
To be seen at their Home Nurseries.

Coniferæ.
H. LANE AND SON'S superb COLLECTION of the above, including the finest lot of ARAUCARIAS in Europe, RHODODENDRONS, AZALEAS, TREES, SHRUBS, &c., to be seen at their Home and other Nurseries, Great Berkhamsted.
The Home Nurseries are within 10 minutes walk of the Berkhamsted Station, London and North-Western Railway, where Conveyances meet all Trains.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6d.; 15 do., 3s. 6d.; 25 do., 5s. 6d.; 50 do., 10s.; 100 do., 30s.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

ESTABLISHED 1800.
Ripon and Claro Seed Establishment.
WILLIAM MORTON,
Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on GRASSES
Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

LILIUM GIGANTEUM.—Wanted, a few strong Plants of the above, which will flower this Autumn.
State price, with descriptions of Plants, and number to offer, to DICKSONS & BROWN, Seedsmen, Manchester.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

BANKS'S Magnificent New FUCHSIAS.—A Coloured Plate (extra size) of the above, 2s. 6d., can be sent per postage.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, N.W.

INTERMEDIATE STOCK SEED (Fine Strain).—SCARLET and WHITE varieties, of First-class quality, for the Trade.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

To Pink Growers.
THE STOCK of the PINKS NELL GWYNNE and LORD RAVENSWORTH, two of the most showy varieties ever raised, and very large, will be sent out in Pipings at 1s. per dozen, and the postage, through
G. GLENNY, Horticultural Agent, Fulham, S.W.

General Plant Catalogue.
WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

Araucaria imbricata.
PETER LAWSON AND SON have just received, in excellent condition, a quantity of SEED of the above, which they offer to the Trade at 30s. per 1000. Liberal deduction when large quantities are taken.
Edinburgh.—July 16.

New Hybrid Spotted Herbaceous Calceolaria,
2s. 6d. per packet; Trade packets 5s., 10s. 6d., and 21s.
BARR AND SUGDEN offer the above CALCEOLARIA as the finest strain in the country.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

SCARLET INTERMEDIATE STOCK, Covent Garden variety, 1s. per packet.
PURPLE INTERMEDIATE STOCK, ditto, 1s. per packet.
HUNT'S SUPERB SWEET WILLIAM, 1s. per packet.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

New Spotted and Blotched Prize Hybrid Mimulus,
1s. per packet; Trade packets, 2s. 6d., 3s. 6d., 5s., and 10s. 6d.
BARR AND SUGDEN offer with confidence the above superb strain of MIMULUS; the stock of which they have just purchased from Mr. Bull. The Seed has been saved from the beautiful varieties which Mr. Bull has this season been exhibiting at the great London Flower Shows.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

FERNS, a large collection, from 6d. to 5l. each; FERN CASES, filled complete, from 4s. 6d. each; GOLD and SILVER FISH from 4s. to 12s. per dozen, 2l. per 100, 18l. per 1000. CANARIES, FOREIGN BIRDS, CAGES, &c.
R. GREEN, 154, Kingsland Road, N.E.; and Bedford Conservatories, Covent Garden Market, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Grapes, Grapes, Grapes.
FOR SALE, a House of BLACK HAMBURGH GRAPES, in fine condition.
Apply to Mr. BROCKWELL, Bush Hill, Edmonton, Middlesex, N.

Calceolaria, Cineraria, Primula.
E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.
The CALCEOLARIA is now magnificently in bloom at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

NEW BEDDING PLANTS.
Wellington Nursery.
NEW VARIEGATED GERANIUMS and other novelties are to be seen bedded out largely in this establishment.
The VELVET CUSHION VERBENA is a fine advance among bedding plants.
E. G. HENDERSON & SON, St. John's Wood, London, N.W

PRIZE PLANT CASES, elegantly fitted up, 10s. 6d. to 200s.
RUSTIC WINDOW GARDENS, 15s. to 30s.
RUSTIC MIGNONETTE BOXES, 10s. 6d. to 21s.
RUSTIC STANDS and TABLES, 15s. to 105s.
PAXTON HANGING BASKETS, 10s. 6d. to 21s.
CONSERVATORY HANGING BASKETS, 3s. 6d. to 21s.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Japanese Nurseries, Biggleswade, Beds.
NEW JAPANESE CHRYSANTHEMUMS.—The above curious and beautiful flowers, lately introduced by Mr. ROBERT FORTUNE, are now ready for sending out. Striped, Spotted, Yellow, and Bronze, perfectly hardy, 12s. and 18s. per dozen. Mixed, unnamed, 9s. T. AYRES, Biggleswade.

Italian Tripoli Onion.
CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

Stones or Sprotbro Cabbage Seed.
JOHN SCHOLEY, NURSERYMAN and SEEDSMAN, Pontefract, has the above to offer to the Trade, his own growing of 1863. The above Cabbage is the earliest and best that supplies the Leeds and Manchester Markets.
Price per lb. 1s. 6d., or 7l. per cwt. About 15 cwt.

THE QUEEN CABBAGE, true from the original Stock of good quality, can be had of C. SHILLING, The Hill Nursery, Winchfield, Hants, free per post, at 1s. per oz. It is the quickest heading Cabbage known, not growing many large leaves, and not liable to run to seed; there is a larger kind about lately under the same name. A few pounds of WHEELER'S IMPERIAL CABBAGE SEED, true for sale, last season's growth.

The Best Substitutes for Swedes.
SUTTON'S GREEN-TOP YELLOW HYBRID and SUTTON'S PURPLE-TOP YELLOW HYBRID, price 9d. per pound, or cheaper by the bushel.
Also, YELLOW TANKARD TURNIP, 10d. per pound (cheaper by the bushel.)
These are equal in quality to the best Yellow Swede, and will stand the winter if not sown too early. Carriage free except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Turnips for Feeding off Early.
SUTTON'S LINCOLNSHIRE RED GLOBE.
SUTTON'S IMPERIAL GREEN ROUND
POMERANIAN WHITE GLOBE
EARLY SIX WEEKS
Price 8d. per lb., cheaper by the bushel.
Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. DIXON & SONS, 57, Queen Street, Hull.

SHARPE'S IMPROVED LARGE SWEDE.
DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.
CHARLES SHARPE & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

Chivas' Orange Jelly Turnip.
CHIVAS AND WEAVER (late GEORGE CHIVAS) acquaint agriculturists that they are supplying the above TURNIP, grown with scrupulous care, from a Stock which they have been improving for several years; the characteristics of the variety are now generally recognised, viz:—Rapidity of Growth (may be sown till the middle of August), highly Nutritious and particularly Hardy. To secure the genuine article direct application is recommended. Price 1s. 6d. per lb.; 20 lb. delivered free at any Railway Station. Chester, July, 1864.

Rape Seed for Sowing.
CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
Price on application.

Broad-leaved English Rapeseed.
H. AND F. SHARPE have a fine Sample of the above to offer to the Trade at a moderate price.
Seed Growing Establishment, Wisbech.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

CARTER'S FARMER'S VADE-MECUM.

PEAT SOILS, various excellent kinds, on SALE by the Truck Load at moderate prices.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

REIGATE SILVER SAND, 7s. 6d. per ton; packed, 16s. per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).
Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free; Price List free.
BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

TERRA COTTAS always on Sale, viz.:—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at
J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, W.

To Gardeners, Stewards, &c.
FOR PRICE LISTS of the PATENT WATER BALLASTING PARK, FIELD, and GARDEN ROLLERS, which are now acknowledged to be superior to all others, apply to
Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

NEW AND BEAUTIFUL PLANTS FOR 1864.

JAMES VEITCH,

IN AGAIN SUBMITTING HIS

ANNUAL LIST OF NEW AND BEAUTIFUL PLANTS,

HAS GREAT PLEASURE IN DIRECTING ATTENTION TO THE CHOICE SELECTION WHICH HE IS THIS SEASON ENABLED TO OFFER.

It will be found to comprise many distinct and beautiful FLOWERING PLANTS, as well as others remarkable for their VARIEGATED and ORNAMENTAL FOLIAGE, also several fine FERNS, ORCHIDS, and HARDY TREES.

The whole of these have been introduced by J. V. direct from their native habitats, and he can confidently recommend them as being of sterling merit and desirable acquisitions in their respective classes.

ANTHURIUM SCHERTZERIANUM (Schott).

This, undoubtedly one of the most striking and beautiful dwarf flowering plants of recent introduction, was brought from Costa Rica to Europe by Mr. Hermann Wendland, of the Royal Gardens, Hanover. It may be described as a pothoid stove plant with lance-acuminate, deep green, stalked leaves, and an inflorescence (elevated on a scape 6 to 8 inches in length) consisting of a bright scarlet, ovate reflexed spathe and vermilion spadix. The effect produced by the beautiful brilliant scarlet inflorescence, each of which remains from two to three months in bloom, is most charming and novel, and being a plant of easy culture, and a most abundant bloomer, it must rank as one of the very finest novelties of the season, and cannot fail to become a general favourite with all cultivators of stove plants. It is figured in Sir William Hooker's work for June 1, 1862, and has received numerous First Class Prizes at all the principal English and Continental Exhibitions.

Price 42*s.* each.

AZALEA (INDICA) STELLA.

A vigorous growing variety, of a bright orange-scarlet colour, with a deep violet stain on the upper segments of the corolla, where it is also profusely spotted with lake. The flowers are large, of fine substance and perfect form, and it is universally allowed to be one of the finest Azaleas ever raised. It has been awarded First Class Certificates by both the Royal Botanic and Royal Horticultural Societies, and is described in the "Proceedings of the Royal Horticultural Society" as "A beautiful variety, of first-rate quality, quite the gem of the season."

Price 31*s.* 6*d.* each.

AZALEA (INDICA) VESUVIUS.

An exceedingly brilliant orange-scarlet flower, slightly tinted with purple on the upper petals. It is of moderate size, fine form and substance, and undoubtedly quite uncqualled in the brilliancy of its colour. Its foliage is small, with a close compact habit. This variety is considered by some critics to equal the foregoing, and is allowed by all to be a first-class novelty of sterling merit. It was awarded a First Class Certificate at the June Exhibition of the Royal Horticultural Society.

Price 21*s.* each.

AZALEA (INDICA) COMET.

A bright salmon scarlet variety, with violet tinted upper petals, many of the flowers being half salmon and half bright violet. Its habit is vigorous and good. This will doubtless prove a very novel and effective variety. Price 21*s.*

The above three Azaleas will be ready for sale on and after the 1st of October next, at the prices mentioned, if taken singly; or the set of three for 3*l.* 3*s.*

BERBERIDOPSIS CORALLINA.

Undoubtedly one of the handsomest hardy evergreen flowering shrubs J. V. has ever had the pleasure to offer. The credit of introducing this remarkable plant is due to Mr. Pearce, who discovered it in the Valdivian forests of Chili, and having stood in the open ground uninjured for several winters, it may be pronounced as perfectly hardy. It is a glabrous scandent evergreen shrub, with long terete branches, and alternate simple dark-green leaves. The flowers and long pedicles are of a BEAUTIFUL DEEP RED COLOUR, produced in clusters of twos and threes, and giving the plant a most charming effect when in bloom. This plant was figured in the "Botanical Magazine" for October, 1862, from whence we have extracted the following remarks from Sir William Hooker's description:—

"The subject of our present plate is not only one of the most beautiful hardy shrubs introduced of late years into this country, but botanically one of the most interesting; for it completely unites the two orders of Berberidcæ and Lardizabaleæ. It is not a little remarkable that so striking a plant should hitherto have escaped the notice of all botanists and collectors who have explored a region now so well known to us as Chili."

This beautiful plant is confidently recommended to all interested in the planting of distinct and beautiful ornamental shrubs. Price 21*s.* each.

BLECHNUM NITIDUM CONTRACTUM.

This fine bold-habited Lomaria-like Fern has been introduced from the Philippine Islands. It forms a stout erect crown or caudex, clothed with narrow dark-coloured scales, and bears rather large pinnate fronds made up of crowded linear-oblong acuminate pinnæ, which are spinosely serrate on the margin, and have a somewhat striated but shining green surface. The fructification, which forms longitudinal lines on the pinnæ, near the mid-rib, is sometimes found on distinctly contracted fronds, when the plant has all the aspect of a Lomaria; and sometimes on fronds only partially contracted, when it has more or less the aspect of the larger-growing Blechnums When in a young state the fronds are of a beautiful deep red colour, giving the plant a most handsome appearance. It received a Bronze Medal at the Exhibition of the Royal Horticultural Society on the 17th of June, 1863.

Price 10*s.* 6*d.* each.

BOMAREA MULTIFLORA.

This, a beautiful hardy greenhouse climber, which may be described as a climbing stemmed species of Alstrœmeria, was introduced from Peru by my collector, Mr. Pearce. Its habit is twining, and of moderately vigorous growth. Its foliage is 4 and 5 inches in length, lance-shaped, and of a light olive green colour. The flowers, which are of a deep yellow thickly spotted with crimson, are produced in umbels at the end of the branches, forming one of the most effective and beautiful climbers of recent introduction. It was figured in the "Florist" for May, 1864, where it is thus described:—"It is scarcely possible to conceive a more beautiful object than this, with its clusters of richly coloured blossoms hanging from its climbing stems. Indeed, amongst the many novelties which appeared at the Exhibitions of 1863, there were few we thought more attractive than this Bomarea multiflora." It was awarded a First-class Certificate at the Royal Horticultural Society's Exhibition, and universally admired by all who saw it. Price 21*s.* each.

CAMELLIA JAPONICA (VARIEGATA).

Another form of the numerous recently introduced variegated-leaved Japanese plants. As its name implies, it is the true Camellia japonica, with distinctly variegated foliage, each leaf having a more or less irregular broad margin of pure white. This plant forms an appropriate companion to the following.

Price 21*s.* each.

CAMELLIA SASANQUA (VARIEGATA).

A Japanese variety of the well known Camellia Sasanqua, rendered particularly striking by the very distinct and constant variegation of its small elegant foliage. The leaves, which are of a dark green colour, are irregularly flaked and mottled with white, and whilst in the younger stages are beautifully flushed with deep rose, gradually shading off to white. This and the foregoing variety will doubtless prove desirable additions to the class of ornamental-foliaged greenhouse plants.

Price 21*s.* each.

CEANOTHUS VEITCHIANUS (Hooker).

Although belonging to a genus of which we already possess so many fine species, the present one may be justly described as equal to, or even exceeding in beauty any yet in cultivation. It is nearly allied to C. floribundus, but far surpassing it in the great beauty of the glossy and almost polished surface of its leaves and the great abundance of its bright blue flowers. It is similar in habit to the many species so well known in our gardens, and is undoubtedly perfectly hardy. It was introduced by Mr. Lobb from California, and has been figured by Sir William Hooker, in the "Botanical Magazine" for July, 1859.

Price 7*s.* 6*d.* each.

CYPRIPEDIUM PEARCII.

This very elegant species of "Slipper plant" was sent me from Peru by Mr. Pearce, after whom it has been named by James Bateman, Esq. In habit it is strikingly distinct from all others in cultivation. It has a running rhizome, with long, linear, recurved, grassy-like leaves, producing from each sucker a flower spike 16 to 18 inches in height, and with from six to eight flowers on a spike. The flowers are of medium size, white, delicately veined with light green, with spotted rims and most beautiful twisted-tailed petals 2 to 3 inches in length. It is one of the most distinct and interesting of the genus, and is evidently of very free growth, and a most abundant bloomer. It has been exhibited before the Royal Horticultural and Botanic Societies, when it was awarded Certificates of Merit, and universally admired by all amateurs of Orchids. Price 210*s.* each.

DRACÆNA COOPERII.

An extremely elegant ornamental-foliaged plant, of great beauty, entitled, by its bold yet graceful habit and the brilliant colouring of its foliage, to the very highest rank as a decorative plant. This and the two following species form a portion of Sir Daniel Cooper's recent valuable introductions from New Caledonia, and it affords me great pleasure to be thus the medium of offering to the public, plants of such great beauty and sterling merit. This plant belongs to the same class as the old but popular D. terminalis, but is in every respect far superior to that species. Its habit is most striking; the leaves, which often exceed 4 inches in width, being uniformly gracefully recurved, and often covering the edges of the pot, while the brilliant glossy red colouring of the foliage far surpasses that of any other variety in cultivation. Its culture is most easy, and the smallest plants produce deeply-coloured leaves. It has been awarded the highest Prizes as a new plant, both on the Continent and in England; and is universally allowed, by all who have seen it, to be one of the finest decorative plants of recent introduction. Price, First Size, 31*s.* 6*d.* each; Second Size, 21*s.* each.

JAMES VEITCH'S LIST OF NEW AND BEAUTIFUL PLANTS—*(Continued).*

DRACÆNA LIMBATA.

A very distinct species, with erect, narrow, slightly twisted, bronzy-purplish leaves, each being marked with a narrow margin of red. It was introduced with the foregoing, to which its striking habit renders it a fit companion. It was awarded a Certificate of Merit at the May Exhibition of the Royal Botanic Society. Price, First Size, 31*s.* 6*d.* each; Second Size, 21*s.* each.

DRACÆNA ROBUSTA.

A fine, bold-habited plant, with very broad, bright green foliage, with slightly marked red margins. It is of a very hardy nature, and easily grown, producing leaves often from 2½ to 3 feet long, and 6 inches broad. This will doubtless prove a very useful plant for conservatory and general decoration. It has been awarded Certificates of Merit by the Royal Botanic and Horticultural Societies.

Price, First Size, 31*s.* 6*d.* each; Second Size, 21*s.* each.

The above three Dracænas will be sold at the prices named, if taken singly, or in sets of threes, as under:— The Set, First Size, 4*l.*; Second Size, 2*l.* 10*s.*

ERANTHEMUM COOPERII (Hooker).

This distinct and free-flowering New Caledonian plant was introduced to English gardens by Sir Daniel Cooper, Bart., after whom it has been named by Sir William Hooker. The flowers, which are produced in great abundance during the whole summer, are pure white, with beautifully marked mauve-coloured lips; the corolla having a long and very narrow tube, giving the flower much the appearance of that of the Jessamine. The foliage is lance-shaped, bluntly serrated, and of fine glossy dark green colour. Its habit is very compact, forming a beautiful and easily cultivated greenhouse flowering shrub. This and the following species will, when known, doubtless become general favourites. Price 10*s.* 6*d.* each.

ERANTHEMUM TUBERCULATUM.

A remarkably free flowering greenhouse plant, of great beauty, also introduced by Sir Daniel Cooper, Bart., from New Caledonia. It is described by Sir William Hooker in the "Botanical Magazine" for October, 1863, (in which number it was figured,) "As a small shrub, copiously branched with opposite, slender, tuberculated branches, and subovate leaves, half to three-quarters of an inch long. Flowers very numerous, pure white, and almost concealing the foliage by their number." This plant is of very easy culture, producing its beautiful Jessamine-like white flowers in great abundance during the spring and summer months. It can be highly recommended both for exhibition and general decorative purposes. It has been exhibited at the Royal Botanic Society's Show for June, 1864, and also at the International Exhibition at Brussels, on both of which occasions it received Certificates of Merit. Price 10*s.* 6*d.* each.

ERANTHEMUM SANGUINOLENTUM.

This really pretty variegated-foliaged plant was recently received from Madagascar. The leaves are of a dark green colour, rendered singularly beautiful by distinct and broad veins of deep pink; the stem and foliage being thickly covered with reversed red hairs. Its habit is dwarf and compact, producing a charming little decorative plant, and a great acquisition to our collections of stoves. The red markings on the leaves give the whole plant somewhat the appearance of a robust-growing Anæctochilus. It was awarded a Certificate of Merit at the June Exhibition of the Royal Horticultural Society.

Price 10*s.* 6*d.* each.

GYMNOGRAMMA (DICTYOGRAMMA) JAPONICA.

A fine bold-habited HARDY Japanese Fern, sent from Yokohama by Mr. J. G. Veitch. In general appearance it greatly resembles the well-known stove Fern G. javanica, but differs in its netted veins; and being entirely distinct from all other cultivated out-of-door species, it is undoubtedly a valuable acquisition. The fronds are from 2 to 3 feet in length, bipinnate, and of a bright green colour; the pinnæ of a long lanceolate form, and of considerable size. It was exhibited at the Royal Botanic Society's Show, June 11, 1864, and awarded a Certificate of Merit.

Price 10*s.* 6*d.* each.

GYMNOGRAMMA PEARCII (Moore).

A very beautiful free-growing Chilian Fern, introduced by Mr. Pearce, after whom it is named. The fronds are most beautifully and finely cut, forming an erect caudex, supporting on brown stipites the triangular fronds of about 1½ feet in height, decompound, and at least quadripinnate. The pinnæ and pinnules have each a triangular outline, the ultimate segments being small and narrow, linear in form, bearing a thin, short line of spore cases at the back. This is undoubtedly one of the finest species of this favourite genus; the exceedingly delicate and graceful fronds rendering it a plant of extreme elegance, and a decided acquisition to every collection of Ferns. It has received First-class Certificates from both the Royal Horticultural and Botanic Societies.

Price 31*s.* 6*d.* each.

LEPTOPTERIS (TODEA) SUPERBA (Moore).

This is probably the most beautiful of all the dwarf-growing New Zealand Ferns. Any technical description must necessarily fall far short of describing its exquisite beauty; it should be seen to be justly appreciated. The fronds, which are 15 to 18 inches in length, are of a pleasing transparent green texture, of a lanceolate outline, spreading, beautifully arching, and feathered down to the very base. The pinnæ are crowded and cut into narrow segments, which, instead of lying flat, as in Todea pellucida, are turned upwards, giving the frond an uneven surface, and producing an effect distinct from that of any Fern in cultivation. It has been frequently exhibited at the Metropolitan Exhibitions, and also on the Continent, where it has invariably received the highest awards, and been universally admired. Good seedling plants. Price 21*s.* each.

MARANTA STRIATA.

This really beautiful little variegated plant was sent from the Philippine Isles by Mr. J. G. Veitch. It is one of the dwarfest species of the genus, seldom growing more than 6 to 7 inches high. The leaves are 4 to 5 inches in length by 2 inches in breadth, of a bright green colour, profusely marked with streakings of pale yellow, the latter colour even predominating on a great portion of the foliage. Being of similar culture to the other Marantas, and so perfectly novel and distinct, J. V. feels assured that it will prove to be a pleasing addition to all collections of stove plants. It has been frequently exhibited, and awarded Certificates of Merit at the principal Metropolitan Flower Shows.

Price 42*s.* each.

PANCRATIUM ZEYLANICUM.

This dwarf, very free flowering stove bulbous plant was introduced from the Island of Panay (Philippine Isles), by Mr. J. G. Veitch, who describes it as being generally found growing under the shade of trees, and throwing up a succession of flowers throughout the greater part of the year. It has long, narrow, light green Amaryllis-like leaves, and a flower stem of about 9 inches in length, terminated by an elegant solitary white flower, with narrow recurved segments, and a beautiful large prominent staminal cup. Being of easy culture, it is a pleasing addition to our spring and summer flowering stove plants. Price 10*s.* 6*d.* each.

PLANERA ACUMINATA (Lindley).

A perfectly hardy Japanese timber tree, with ovate, acuminate, sharply serrated leaves, nearly allied to the Elm. It is a fast-growing ornamental tree, attaining a height of over 100 feet, AND IS CONSIDERED BY THE JAPANESE AS THEIR STRONGEST AND MOST VALUABLE TIMBER. Seedling plants, raised from seed sent by Mr. J. G. Veitch from the north of Japan, have withstood the past three winters in the open ground without the slightest protection, and no doubt can therefore be entertained that it will prove in all respects suited to the English climate, and worthy of being largely planted.

Price 7*s.* 6*d.* each, or 60*s.* per dozen.

PRUMNOPITYS ELEGANS (Philippi).

This fine Coniferous tree is another of Mr. Pearce's Chilian introductions. It was discovered at an elevation of 5000 to 6000 feet, in the province of Valdivia, which leaves little or no doubt of its perfect hardiness. The genus is nearly allied to Podocarpus; but this species is totally distinct from anything in cultivation, and is described as a pyramidal, evergreen tree, 40 to 50 feet high, with dark, glossy green foliage, with much the appearance of Abies Douglasii. It bears yellowish-green drupes, or "plums," which, when ripe, are eaten by the natives; and its wood, which is handsomely veined, is in great request amongst cabinet-makers. It forms a most distinct hardy evergreen tree, which, when known, will doubtless become a favourite. It has been frequently exhibited at the Metropolitan Flower Shows, and awarded First-class Certificates by both the Royal Horticultural and Botanic Societies.

Price 21*s.* each.

PTERIS SERRULATA CRISTATA.

A variety of the well known hardy greenhouse Fern, Pteris serrulata, in which the ends of all the long ribbon-like divisions of the fronds are beautifully tasselled. It is one of Mr. J. G. Veitch's numerous introductions from Japan, and whether regarded as adapted for decorative purposes, or suitable for glass cases, it will doubtless prove an acquisition. It has been exhibited before the Royal Horticultura and Botanic Societies, and awarded First-class Certificates.

Price 10*s.* 6*d.* each.

RETINOSPORA SQUARROSA, TRUE (Siebold).

A tree of medium size, found throughout the midland provinces of Japan, from whence it was sent by Mr. J. G. Veitch. Its foliage is very dense, and of a beautiful glaucous green colour. Its habit is pyramidal, having the branches gracefully curved towards the extremities, producing a shrub of most elegant appearance. This species is largely cultivated by the Japanese in their gardens, its close habit rendering it particularly adapted for being clipped into the many grotesque forms so peculiar to Japanese gardening. It has been frequently exhibited at the Metropolitan exhibitions, and was awarded a Silver Banksian Meda by the Royal Horticultural Society.

Price 15*s.* each.

The usual discount to the Trade. Plants are now ready for delivery.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA; and at COOMBE WOOD, KINGSTON HILL.

GREEN'S PATENT SILENS MESSOR,

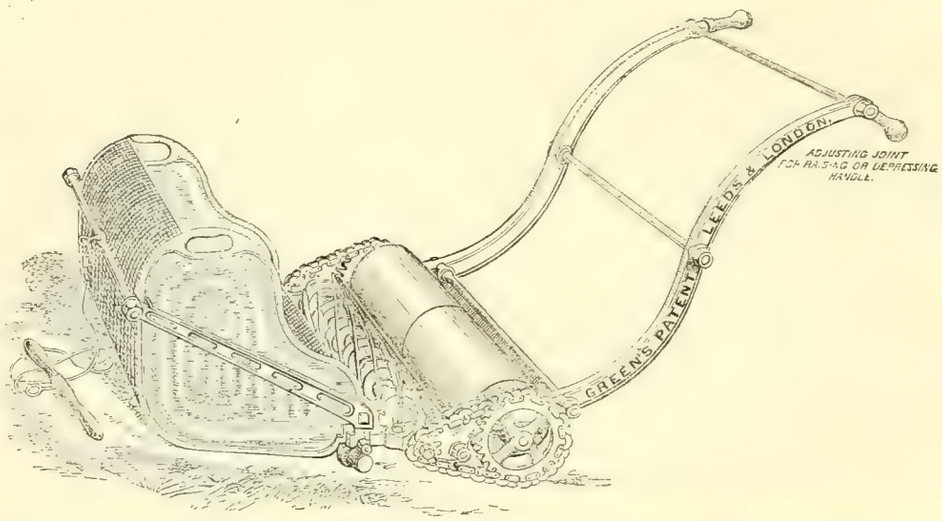
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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION, 1862, WAS AWARDED TO THOMAS GREEN, FOR HIS PATENT LAWN MOWERS.



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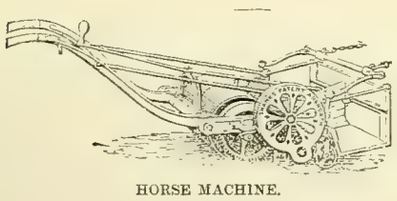
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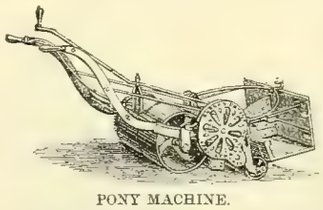
THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
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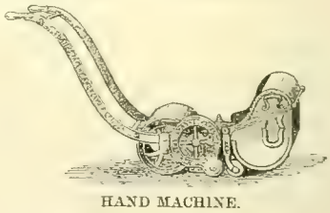
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.


HORSE MACHINE.


PONY MACHINE.


HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

for Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Extra Strong Grape Vines from Eyes.

LUCOMBE, PINCE, AND CO., having this season a splendid stock of strong VINES fit for immediate planting, propagated from Eyes taken from their large experimental Vinery, can offer fine healthy, short-jointed Canes, 6 to 9 feet long, of all the leading kinds, at from 3s. 6d. to 7s. 6d. and 10s. 6d. each.

L., P. & Co. have one of the largest Stocks in the Trade of Extra Strong Vines, with Canes 9 to 11 feet long, and proportionally strong, from which purchasers can advantageously select those suitable for fruiting finely next season. Liberal Compensation for Carriage.

Exeter Nursery, Exeter.

New Roses.

WM. PAUL can confidently recommend the following five NEW ROSES raised or introduced by him. In Beauty of Waltham, Princess of Wales, and Red Rover, he believes that he has succeeded in obtaining a race altogether free from that debility of constitution which renders almost valueless some of the most beautiful Roses of the day.

BEAUTY OF WALTHAM, H.P. (W. Paul).—Flowers cherry colour to bright rosy carmine, cupped, large and full, very hardy and very sweet. Obtained the premier prize at the National Rose Show, Royal Horticultural Gardens, as the best New Rose of the year; the same award at Stamford. Price 2s. each.

LORD MACAULAY, H.P. (W. Paul).—Flowers variable, ranging from scarlet crimson to rich plum colour, thick in the petal, large, full, produced abundantly and in rapid succession; habit good, foliage handsome, a splendid Rose. First-class Certificates from the Royal Horticultural and Royal Botanic Societies of London. Price 5s. to 7s. 6d. each.

LORD HERBERT, H.P. (W. Paul).—Flowers rosy carmine, the petals reflexing at the summits, in the way of Beauty of Waltham, large, full, finely formed, and altogether of first-rate excellence. First-class Certificate from Royal Botanic Society of London. Price 7s. 6d. each.

PRINCESS OF WALES, H.P. (W. Paul).—Flowers vivid crimson, presenting to the eye an unusual body of colour, owing to the thickness of the petals, cupped, large, very double, and remarkably smooth. Growth and constitution free, hardy, and vigorous; foliage handsome. Quite first-rate. Price 7s. 6d. each. A coloured plate by Andrews for seven postage stamps.

RED ROVER (W. Paul).—Flowers fiery red, flowering up to Christmas; not very double. Growth extraordinarily vigorous; forms a splendid Pillar Rose, 2s. 6d.

OPINIONS OF THE PRESS.—"It (Princess of Wales) has a most vigorous healthy habit; the colour is of the deepest and brightest crimson, and the form of the young bud, opening bud, and half-blown bud, very near perfection."—See *Gardeners' Chronicle*, Leading Article, July 25th, 1863.

"Mr. W. PAUL exhibited cut specimens of a Seedling H.P. Rose, Princess of Wales, bright carmine rose, which was much admired."—*Journal of Horticulture.*

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Fine vigorous plants of the old and popular sorts, 9s. to 18s. per dozen.

PAUL'S Nurseries, Waltham Cross, N.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—s. d.	s. d.		Per pkt.—s. d.	s. d.
PRIMULA	2 0	and 3 6	INTERMEDIATE STOCK	0 6	and 1 0
CINERARIA	1 6	and 2 6	BROMPTON do.	0 6	and 1 0
CALCEOLARIA	1 6	and 2 6			

The above Seeds are saved with great care, and can be warranted to give satisfaction.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, near Halstead, and only one mile from the Haverhill Junction of the Great Eastern and Colne Valley Railway, beg to offer 12 distinct and most beautiful HARDY CLIMBERS, all well-established, from 18 inches to 3 feet high, for 9s. They consist of the finest CLIMBING ROSES, JASMINES, PASSION FLOWERS, HONEYSUCKLES (in some rare kinds), CLEMATIS and IVIES (a most beautiful collection), &c., &c. Post Office Orders must accompany the order from strangers.

A CATALOGUE for one stamp is now in the press, of New and Rare Plants of 1864, at reduced charges. We possess all the greatest novelties.

A CATALOGUE of GENERAL STOCK and a WHOLESALE CATALOGUE of STOCK, each for one stamp.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Ferns for the Conservatory to be Sold by Private Contract.

FOR SALE, a splendid COLLECTION of fine-grown FERNS—Specimen Plants—including many of the most popular kinds of Exotic and British, among which are Dicksonias, Adiantums, Woodwardias, Diplazums, Davallias, Blechnums, &c. A rare opportunity of establishing a Fernery.

A List and particulars of size and price by applying to Mr. S. APPLEBY, St. John's Nursery, Balby, Doncaster; or to Mr. CLAYTON, Gardener, Cantley Hall, Doncaster.

HERBACEOUS CALCEOLARIA, &c, SEED.

CHOICE CALCEOLARIA (JAMES'). This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.

CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.

CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.

HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.

SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.

PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d. And every other first-class Seeds. See CATALOGUE, post free.

WM. CUTBUSH & SON, Highgate Nurseries, London, N.



THE BEST SORTS of CABBAGE SEEDS, in packets, 6d. each sort, Post Free, sufficient to raise a thousand plants of each.

SUTTON'S IMPERIAL
EARLY BLENHEIM
SUTTON'S DWARF COMBE

NONPAREIL, EARLY YORK, ENFIELD MARKET, WHEELER'S IMPERIAL, and other old sorts, 3d. per pckt; DRUMHEAD CATTLE CABBAGE, 2s. 6d. per lb.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most magnificent of all Mr. FORTUNE's importations from Japan, are now ready to be sent out in strong plants, 15s. and 21s. each.

Also ARUNDO CONSPICUA, a worthy rival of the Pampas Grass, flowering very freely three months earlier in the season than that old favourite. Strong plants 18s., 24s., and 30s. per dozen.

CHARLES NOBLE, Sunningdale Nursery, Bagshot.

Preliminary Notice.

CLEMATIS JACKMANI and C. RUBRO-VIOLACEA have received two First-class Certificates, awarded by Royal Horticultural Society, August 4, 1863. Will be sent out this coming Autumn by Messrs. GEO. JACKMAN & SON. Orders will now be taken and executed in strict rotation.

Further particulars (with EXTRACTS from the LEADING HORTICULTURAL PAPERS) with price, will be given in future Advertisements.

Woking Nursery, Surrey.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.

HERBACEOUS CALCEOLARIA, 2s. 6d. per packet.
HALF SHRUBBY CALCEOLARIA, 2s. 6d. per packet.
CINERARIA, 2s. 6d. per packet.
CARNATION, Self, Flakes, and Bizarres, 2s. 6d. per packet.
PICOTEE, White and Yellow grounds, 2s. 6d. per packet.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden.

CARTER'S GARDENER'S VADE-MECUM.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a GENERAL MEETING of the Members of this Institution, held on WEDNESDAY, the 13th inst., at the Bedford Hotel, Covent Garden, for the purpose of Electing Three Pensioners on the Funds, the following was the result of the Ballot.

No.	Candidates' Names.	Age.	Vote.
1	Benjamin Collins	65	534
2	Cuthbert Embleton	61	559
3	John Boswell	67	216
4	Mary Bray	56	762
5	William Ker	63	498

The Meeting then declared MARY BRAY, CUTHBERT EMBLETON, and BENJAMIN COLLINS, as having the greatest number of Votes, duly Elected Pensioners of this Society.

By order, EDW. R. CUTLER, Sec.,
July 16, 1864. 14, Tavistock Row, London, W.C.

ROYAL HORTICULTURAL SOCIETY.

STRAWBERRY FETE, JULY 13, 1864.

LIST of AWARDS.

CLASS 5.—STRAWBERRIES, 3 dishes, distinct kinds.
1st Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.

CLASS 9.—3 dishes of British Queen.
1st Class Certificate to Mr. J. R. Hale, Orpington, Kent.

CLASS 11.—1 dish of the British Queen.
1st Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.
2d Class Certificate to Mr. W. Warder, 181, Brompton Road, S.W.

CLASS 17.—Any other variety. Single dish.
1st Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.
2d Class Certificate to Mr. W. Warder, 181, Brompton Road, S.W.
3d Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.

CLASS 19.—Best Strawberry for Culinary purposes. Single dish.
1st Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.

CLASS 20.—Heaviest single Strawberry.
1st Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.

CLASS 21.—Heaviest 12 Strawberries.
1st Class Certificate to Mr. P. Lydiard, Bathcaston, Bath.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9d. per lb.; and his large FOSTERTON HYBRID, 8d. per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG's *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

The Gardeners' Chronicle.

SATURDAY, JULY 16, 1864.

MEETING FOR THE ENSUING WEEK.

TUESDAY, July 19 { Royal Horticultural (Floral Committee), at South Kensington .. .. .. Noon
(Lecture on Roses, by Mr. Radclyffe), at do. .. .. 3 P.M.

IF there were no other country in the world than our own; if BOTANY had no relation to any other science; if there were no such branch of knowledge as Botanical Geography; if no interest attached to the question how the plants which now cover the face of the globe arrived at their present distribution; or, to place the matter on the very lowest point of consideration, if there were no other end in the study of the members of our Flora than to distinguish the individuals of which it is composed, or to afford an agreeable and innocent occupation, it would be of little consequence on what particular theory the preparation of works which undertake to catalogue and describe the plants which occur in any given district, might rest as its foundation. Inasmuch, however, as matters of great scientific import are intimately connected with a correct discrimination of the members of which the vegetation of any country is really composed, and more than half the benefit which is to be derived from their study as a mental discipline will slip out of our hands where loose and unphilosophical views prevail, and partial knowledge can only lead to partial results, it is of no small consequence whether the views of the writer of such works may be sound or unsound, and whether his studies have been confined or not to the vegetation of a portion only of the globe.

It has often been said that too great laxity in the definition of species, and an excessive love of hair-splitting, is ultimately of greater benefit than

the contrary, because things which have once been confounded are not so easily separated, as those which have been wrongly dissevered can be reunited. Such an opinion however rests on a very limited view of the proper scope of science. But, apart from this, every opportunity of increased knowledge of plants in the different conditions under which they occur during a wide geographical range, and every experiment which is undertaken with a view to ascertain the limits of species under cultivation, tend to show that we are far more likely to err in the direction of hair-splitting than of ill-advised union of species. The interesting experiments which Monsieur DECAISNE—formerly it should be observed, a decided advocate for minute distinctions—lately undertook respecting the species of the genus Pyrus, led to extreme results, so extreme indeed that the angels of science would almost fear to tread in his footsteps. The common operations of the nurseryman, apart from hybridising, show how easily races, or, as they are often called by florists, peculiar strains, will arise under his selection, and we can scarcely deny that as great powers of elimination exist in Nature as in art. The excessive division of species which many botanists exercise in such genera as Mentha, Hieracium, Salix, Rosa, and Rubus, is so obviously against reason, not to say common sense, that it must indispose students, who should chance to begin with them, to believe in botany as a science at all. Divide and sub-divide as the theorist may, it is impossible for him to hit upon any definite characters such as shall at once indicate the species or even the section with anything approaching to certainty. The 36 species of British Rubi are in our opinion quite enough to make most students throw botany to the dogs, and have none of it. FRIES, with all his acuteness, has gone, as we believe, too far in this direction, and we were much interested in finding almost a confession to this effect in the part of his Monograph of Swedish Fungi just published.

"Though the limits of species amongst the gill-bearing Fungi, as Mr. BERKELEY has well observed, are more strictly definite than in almost any natural group, they are so unstable amongst the brittle Russulæ (Russulæ fragiles), that in my system I have reduced them to very few, and have sometimes been desperately inclined to unite all. Seeing that this path is merely subjective, and that many species are really distinct though obscured by intermediate forms, I have thought it more candid to bring forward those forms as specific which are most prominent and recognised by most, while many ambiguous ones have been omitted altogether. I advise, therefore, beginners to neglect doubtful forms till they have learnt to distinguish the more clear and typical species." (Monographia Hymenomycetum Sueciæ, vol. 2, p. 205.)

The more abundant any species may be, and the more widely distributed, as a rule, the more numerous will be the forms. A wise caution may be taken from another passage of FRIES in the same work, at p. 183. "Russula integra is extremely variable, surpassing in the number of individuals all the others, on which account it may give rise to the proposition of many species. Students should, however, be very cautious, not only in the proposition of new species in this direction, but how they refer its forms to those really definite, though rarer kinds."

A perusal of the numbers of the illustrated edition of Mr. BENTHAM'S "Handbook of the British Flora," so far as they are already published, has led to these remarks, as it seems to us to offer almost everything that a student can want, while it avoids the most dangerous quicksands. The illustrations are admirable, and though uncoloured quite sufficient for the accurate determination of species; the dissections, though necessarily limited in number, are admirable, and such as cannot fail to be of great assistance in the correct appreciation of the natural orders to which the plants belong; and not to mention some peculiarly striking parts, as the remarks on Umbelliferæ, besides many valuable scattered remarks, the divisions and specific diagnoses are so well defined that they not only facilitate the ready determination of a plant, but are most useful as an exercise of the mind. It is, we conceive, impossible to use them carefully and conscientiously, without realising something of the benefit which is so admirably described as derivable from the study of Botany, in an article on Botanical Lesson Books in the Natural History Review for July 1864. After mentioning other advantages to be derived from Botany properly studied, the reviewer adds: "Lastly, it has been forcibly pointed out by the late Professor HENSLOW that the study of Botany is the most simple and sure means of training the mind to those habits of accurate observation, methodical comparison and classification, which are essential to the medical man, and which he gets in no other way during his medical curriculum."

Nor are the advantages confined to any one profession, but are alike important whatever may be the line which we may take; and in none we believe more important than to any one who has ambition enough to wish to shine as a scientific cultivator, in contradistinction to the mere man of routine, or tradition. Practice alone will enable him to recognise in a seed bed promising individuals, while he at once roots up those which will yield only common forms; practice will enable him to point out varieties which no botanist's eye could readily appreciate, but it will not lead him to see the true bearings of difficulties which meet him in the course of his practice, and which can only be conquered by powers of reasoning, which must have previously received a fitting education. No rule of thumb or light of Nature will avail him in vegetable pathology; and without accurate powers of distinguishing nice matters which lie out of the common road, he is quite as likely to take the wrong as the right course. A person who cannot see the drift of the argument by which it appears that the Cedars of Lebanon, Atlas, and the Himalayas, are really forms of one and the same species, is not likely to understand such knotty points as are sure sooner or later to meet him in the more difficult departments of horticulture; and in consequence, since he must of necessity do something, he is quite as likely to take the wrong as the right course in seeking for a remedy. Numberless cases come before us in the course of correspondence, no less surprising for the error they involve, than the strange answers with which the examiner meets, as recorded in the article just mentioned, under the prevalent system of botanical instruction.

Mr. BENTHAM may perhaps be charged with too great a propensity for uniting species. The only instance, however, in which we should have any doubt is the union of Sedum rupestre and S. reflexum, but different as the extremes are, we have no doubt that he has good grounds for his opinion. Without a very extensive herbarium it is almost impossible to judge of the various phases through which the same species may pass, and in some cases, as in Mentha, he would perhaps have been justified in going even farther.

Without having recourse to foreign species, should any one seek for a justification of similar unions, we would recommend simply (to take a single example) an examination of the series of Cerastium alpinum in the Hookerian Herbarium, and almost any amount of change may pass current. Or to take a British species in its native soil, as, for example, Galeopsis Tetrahit. We have seen a bed of it in Aberdeenshire, which might have afforded at least half a dozen quite as good species as are made out of Rosa canina or Rubus fruticosus.

Mr. BENTHAM, however, has little hesitation about dividing, where Nature really seems to suggest distinction. While Barbarea vulgaris, præcox, and stricta appear as one species, Ulex europæus is kept apart from U. nanus, and Lychnis vespertina from L. diurna. On the other hand experiment has shown the identity of the supposed species known as Primrose, Cowslip and Oxlip, while the sagacity of Mr. DARWIN has indicated the real meaning of the differences which exist amongst individuals of these supposed species.*

Our Flora, though, unlike most insular Floras, especially where the continent is remote, it can boast of scarcely a single species peculiar to itself, has yet many interesting points as presenting the extreme western limit of species. Physospermum cornubiense, Cnicus tuberosus, Lobelia urens, Phyteuma spicatum, Linaria supina, Lathyrus tuberosus, and Bupleurum falcatum are instances of plants which affect only a few isolated spots, but are evidently the remains of a Flora which existed when island and continent were one. The instances where the limit extends as far as America, as in Erica vulgaris, are no less interesting.

Every opportunity is taken by Mr. BENTHAM to elucidate such matters, which, together with the accurate definition of genera and families, forms a marked feature of the work, a work, let us add in conclusion, which for the soundness of the views which it is calculated to impress, and the facilities which it offers for accurate diagnosis, we should wish to see in the hands of every student and master gardener.* *M. J. B.*

* Mr. DARWIN speaks of thumb-eyed individuals. It should be thrum-eyed, the word thrum meaning a thread, and is still used in that sense by weavers.

A FEW days ago a morning contemporary, in order to demonstrate the impossibility of something which we now forget, remarked that "we may as well expect to see PALM TREES growing on the banks of the Thames." To those who are only acquainted with the species of Palms which are indigenous to tropical regions, and which require a high temperature, the reasoning in question was quite conclusive. In order to see examples of this class, we must be contented with a visit to the noble Palm houses of the Kew or Edinburgh gardens, unless we prefer a journey to the East or West Indies. And we remark, in passing, that if any one wishes to have an idea of what a tropical forest is like, he may obtain a fair one by placing himself in the centre of the Kew Palm house, where many of the larger specimens have been planted out, or have had their tubs plunged to the ground level. It is true that more cleanliness and neatness prevail at Kew than is usually met with in an Indian forest. The visitor must therefore fill in a portion of the picture himself in order to make the resemblance more complete. He must imagine large trees to be lying about in every direction, some of which are living and growing, and others rotting where they have fallen. In some places the shade is so dense that the sun's rays are unable to penetrate, and no green herbage is able to exist below it; while in others, where the trees are less densely grouped together, the brushwood covers the ground so closely that it is difficult to cut a passage through it.

But a visit to the Royal Gardens at Kew will solve another problem—it will enable any one to see for himself that Palm trees, or at least, a Palm tree, may be made to grow out of doors "on the banks of the Thames." Just inside the main entrance to the garden, on the right hand side of the broad walk, there is a Palm growing which has been in that situation for 14 or 15 years, and is now really an effective and striking object on the lawn. It receives the protection which a garden mat can afford during the winter months, and that is all; indeed, this slight protection is given more with the object of preventing its broad leaves from being torn by the wind, or broken down by the snow, than as a safeguard against cold. And we may add that Kew is not the most favourable place in England for the growth of Palms in the open air, so that if such a thing can be done there, it can be done as well, and even better in many other places.

Another remarkable specimen of this Palm is growing in the grounds of Osborne House, in the Isle of Wight, where, we believe, it is an object of much interest to her Majesty the QUEEN and the Royal Family. It is even much larger and finer than the Kew plant, owing, no doubt, to the more favourable nature of the climate of the Isle of Wight.

The history of this Palm is as follows. Travellers who visited the Chusan Archipelago when the central portions of the coast of China were opened to foreign commerce in 1842 and 1843, were much struck with the very unusual appearance of the vegetation of the country. The ordinary indigenous trees were not of that tropical kind which were common in the more southern portions of the empire, but resembled more those met with in temperate countries like England. The Oak, Chestnut, Elm, and the Pine, were scattered over hill and valley, and gave a character to the landscapes. Here and there, however, were groups of a species of Bamboo, and a goodly sized Palm, which tended to give a kind of tropical character to some portions of the scenery. If one were to imagine groups of Bamboos and Palms amongst our English woods, an idea of the scenery we are describing would be obtained. It was a curious sight to see, after a snow storm on a winter day, the broad leaves of a Palm tree

* This is not the place for minute detail, but one or two matters which have struck us may be mentioned in a note. The scales are omitted in Cuscuta europæa. Though minute, we have never seen a specimen in which they are altogether wanting, and their form is distinctive. Lathyrus Aphaca is not always a corn-field weed. We have seen it for several successive years in Fir plantations. Cheiranthus has sometimes as bright-coloured flowers as Matthiola. Andromeda polifolia used to grow abundantly round Whittlesea Mere in Huntingdonshire, before it was drained. Hypochœris maculata is abundant in a district of the extreme north of Northamptonshire. Trifolium hybridum is naturalised in Northamptonshire and Aberdeenshire. Tilia parvifolia forms the greater part of the underwood on the thin scaly land south of Stamford, a wild district almost without a house 30 years ago. Some of the woods where the Lime abounds, are blue with Columbine whenever the underwood is cut down.

bending beneath a load of snow. To one who had been accustomed only to see Palm trees in the hothouses of a cold climate, the sight was very remarkable.

In 1848 or 1849 two cases were filled with young plants of this Palm and sent home to the Royal Garden at Kew. Sir Wm. Hooker was requested to forward one or two plants to Osborne House to be presented to his Royal Highness the late Prince Consort, who was well known to take a great interest in things of this kind. The plants reached England in safety, and the specimens we have alluded to formed part of the contents of these cases, and have been growing in the open air ever since. During the last 15 years many thousands of imported plants and seedlings raised in this country have been distributed over England and on the Continent, where this Palm is even more highly prized than it is with us. It was at first usually known as the "Chusan Palm," but latterly, having in the mean time flowered at Kew, it has been figured and described in the "Botanical Magazine" under the name of Chamærops Fortuni.

We shall return to this subject to make some observations as to the treatment which the Palm should receive in our gardens in order to make it a most attractive object on the lawn, such as it now is at Osborne House, and at Kew.

The following correspondence respecting the Royal Horticultural Society's Garden at South Kensington has been made public:—

"Windsor Castle, July 6.

"Dear Sir,—I have received the commands of the Queen to beg you will inform the Council of the gratification which her Majesty received from her visit to the Horticultural Gardens. Her Majesty was truly glad to see the improvements that are now in progress, which when completed will go far towards realising the wishes of the Prince Consort, and must conduce so much to the success which he anticipated for the Society when he procured their establishment at South Kensington.

"Considering the interest the Prince always took in these gardens, and how much the Society owes to his active support and assistance, it would be exceedingly gratifying to her Majesty if the Council shall resolve that his birthday, which falls on the 26th of August, should from henceforth be observed by the Society as a holiday, on which free admission to the gardens should be allowed to the public. The Queen does not doubt that the Council will readily adopt this suggestion, and she desires me therefore, to request that you will be good enough to bring the subject before them at their next meeting. Yours, &c., C. Grey."

"A. Murray, Esq."

"Royal Horticultural Society's Gardens, July 9, 1864.

"Dear Sir,—I have submitted to the Council your letter of the 6th of July, expressing the gratification of her Majesty the Queen at the improvements now in progress in the gardens of the Royal Horticultural Society, and suggesting that free admission to the gardens should be allowed to the public on the 26th of August, in the present and subsequent years, in order to mark the anniversary of the birthday of his Royal Highness the Prince Consort, the founder of the Gardens, to whom the Society is so much indebted for its present state of prosperity.

"The Council direct me to request you to express to the Queen the great pleasure they have in giving effect to her Majesty's wishes at all times, and at the same time their desire to show their deep sense of the obligation of the Society to the Prince Consort. The Council will, therefore, take immediate steps for arranging that the 26th of August in each year shall be kept henceforward by the Society as a holiday, in the hope of assisting towards bringing to the mind of the present and future generations the virtues of the Prince and his great services, especially to the working classes; and I beg you to assure her Majesty that the Council will endeavour to give a hearty welcome to all who will visit the Royal Horticultural Society's Gardens on that anniversary.

"I have, &c. "A. Murray."

"General the Hon. C. Grey, &c."

—— M. Bonard, in a recent number of *L'Horticulteur Français*, gives an account of a very ornamental plant for garden decoration, which he calls Nicotiana wigandioides. It is now the fashion, he says, to cultivate ornamental foliage plants, and he thinks that this is a fashion of which we need not complain, for in former days the capricious goddess has favoured the evergreens, and the turn of the flowers may in due time come. When that eventuality occurs, those plants which make a great display, and have persistent foliage, and elegant fragrant flowers will not be neglected; and such as this, according to M. Bonard, is the Nicotiana to which he alludes. Planted in the spring in the open ground, it developes itself vigorously, and attains as much as 8 or 10 feet in height in the course of the year. Its stem bears large leaves, measuring some 2 feet in length, and 1 foot in breadth, and sufficiently numerous to give the plant a well-furnished appearance; the young leaves, moreover, have a silvery appearance, on account of the compact white down which clothes them, and which completes their ornamentation.

This plant, it is said, far surpasses the famous Ferdinanda, whose leaves are like elephants' ears, wanting support. It rivals the Wigandia of the Caracas, which it excels in vigour and robustness. As with many of its congeners, this Nicotiana continues to grow during winter, unless, indeed, it is preferred to use the stems and leaves for destroying insects. In an Orangery where frost did not penetrate, MM. Baltet, of Troyes, had an enormous floral bouquet developed last winter. The plant was in spring placed in the open air, where it produced a novel and very fine effect. In the sample of the flowers sent to Paris, the colour was a dull yellow. When it is remembered that this plant is a Tobacco, it will be understood that the production of seed is most abundant. The Nicotiana wigandioides, when isolated in the middle of a flower bed or basket, or grouped on a lawn, or collected in masses, in appropriate parts of the flower borders, is considered by our French neighbours as a splendid decoration for the garden.

—— Every flower, says the proverb, has its perfume; but this is not quite true. The truth is more nearly reached when it is said that each country has its special vegetation. Thus Russia, which is poor in the more highly-developed species of plants, possesses a very varied cryptogamous vegetation. M. P. Walhenstein, secretary to the "Société Horticole de Russie," has lately made out a list of the principal Mushrooms generally eaten in Russia, in which he mentions Agaricus integer, Russula, melleus, deliciosus, and Georgii; and Boletus edulis, luridus and aurantiacus. The Russians have two different ways of eating Mushrooms, namely, raw and cooked. Agaricus Russula, A. melleus, and A. deliciosus are broiled with butter or oil. On the other hand, Agaricus integer and A. Georgii are put into a kind of brine, and are eaten after they have remained there for four or five months. Some persons add a little vinegar. The three species of Boletus undergo an analogous preparation, but instead of being pickled in a simple brine, they are put into vinegar which has been previously boiled, and is strongly flavoured with pepper. Agaricus deliciosus sometimes undergoes the same kind of preparation; and Boletus edulis and B. luridus are dried in an oven. These Fungi afford a food which is much sought for at Easter and Christmas by the Catholics, who are said to be very numerous in Russia. So, at least, says the *Revue Horticole*.

—— A new Walnut was presented at a meeting of the Société Impériale d'Horticulture in March last by M. Guyot, of Villeneuve, proprietor of the castle of Montalivet-Lagrange, near Sancerre. These fruits, gathered from a Walnut tree which came accidentally upon the ruins of an old castle, had rather a square than an oblong shape; their shell was thin, and the kernel well-formed. Although this Walnut showed some differences from other varieties, the Committee of Arboriculture abstained from giving it a name. The tree was about 20 years old. The quality of its fruit was not the only important character that it presented, for it came late into growth, something like the St. Jean Walnut.

—— We find in a northern contemporary the following remark respecting the Muscat Hamburgh Grape:—"We are clearly of opinion that the Muscat Hamburgh, when properly managed, will do best on its own roots." Two cases are quoted in support of the opinion thus advanced — Mr. Fowler's Grapes were all that could be desired, and Mr. Henderson of Wemyss Bay had fruit no less remarkable for finish; and these were both "on their own roots." The question is of some importance, and it would be desirable to ascertain what general verdict thereupon is to be found on the evidence which may be producible.

NOTES ON GARDENS.—No. XII.

Rockville, Dublin.—(*Continued from page* 603.)

The transition from Trichomanes culture to Fruit growing—from the little cave-like damp and gloomy structure to an ornamental light dignified, excellently arranged, and well-constructed orchard house 84 feet long, 60 feet wide, and 19½ high, was a surprising one, independent of the contrast in size. Here were fruit trees of most obtainable sorts in a perfect state of health and utility; here the finest orchard house I have ever seen; here a result produced, which were it the only one resulting from Mr. Bewley's taste, and boldly successful deviations from the usual measure-me-right style of garden architecture, would at once stamp the place as one of mark, and repay a visit from any don of the profession.

The roof is formed of three spans, of which the central one is the highest by about two feet; and roof air is given by ventilators 5 feet long and 1 deep, hinged to the ridge board and worked by line and pulley. The sides are glazed to the ground, and lateral ventilation is abundantly provided for by the sashes, which are all moveable, being hung on pivots in the centre.

The house is divided into three parallel beds: the central one about 18 feet wide, the others somewhat less; and walks of convenient size separate the beds, which are slightly raised above the floor. Along the sides and ends run narrow borders somewhat higher than the great central beds. The house is sufficiently heated to keep out frost, and if frost never threatened it, a wise measure it was to provide for the drying of the atmosphere in winter (as the moist climate of Ireland makes it very necessary there that cool houses should be well dried at that season), and thus ensure its being a most agreeable promenade. The sashes are of iron; the house is painted white, lined with blue, and is heated—as are all the great houses at Rockville—on Weeks's admirable plan, and that most satisfactorily, if the verdict of those on whom the care of the valuable collection is reposed, be the best criterion.

The beautiful and pendulous fruit of the Strawberry must produce a rich and tempting margin all round the interior of this noble house in spring, as beneath the furrow plates on each side, across the ends, &c., there are shelves placed for their accommodation, amounting in the aggregate to about 1000 lineal feet. Eight inches wide and one and a-half inches deep are these shelves, small slips dividing them into compartments 12 feet long; outside they are neatly finished and painted, inside they are well lined with pitch, to afford an opportunity of easily feeding the Strawberries with weak liquid manure. A border at the warmest end was planted with a choice selection of Orange trees, Limes, Shaddocks, Citrons, Lemons, &c., while the opposite end and side borders, about four feet wide, were planted with the newer kinds of Peach, Nectarine, &c., including some promising seedlings, and with here and there a nice bush of Eugenia Ugni and Eugenia apiculata, and the Loquat and Guava of large size.

In the centre beds, planted out at 12 feet apart, were perhaps some of the finest standard Peach and Nectarine trees to be anywhere found, in the most vigorous and fertile condition, about 10 feet through and as much high, allowed to assume their natural shape, for which liberty they were certainly none the worse, as it was stated in their favour that more than 200 fully developed and finely flavoured fruit had been in many cases gathered from a single tree. Figs were successfully grown in the corners, while on the roof at judicious intervals young Vines in a bearing state were doing graceful duty.

Here and there were well grown plants of ornamental character, favour being notably shown to good permanent things, to the disadvantage of "soft stuff," and the great relief of those whose brains are likely to be softened by being unable to escape from the violent hues of some of the "blazing Burgees" comprehended in that well understood though not very scientific term. But it is in winter that the house would yield most help to the cultivator, and most interest—apart from fruit growing—to the visitor, as independent of the dwarf Chrysanthemums which may, and I believe are, grown round the margins of the borders, the number of things usually "stood out" during the summer that may be comfortably housed in it when the fruit-tree leaves are shed, must be enormous. At all times such a house, more cheery, light, and airy than the conservatory, more congenially moist and convenient than the greenhouse, must be of incalculable use to the cultivator.

From the orchard house the Fernery is entered, and except that it is a few feet higher than that structure, it very much resembles it externally, being also built in three spans, but having a double roof glazed with Hartley's rough plate glass, with 4 inches of interspace dividing the two roofs. It is 60 feet long, the same number of feet broad, and 22 feet high. Internally—here I am at once brought to a standstill for want of descriptive power, similes, metaphors, &c., being all hopelessly intangible, and were it not for a cowardly horror of consigning the unique scene to the limbo of "things more easily imagined than described," I might quietly place it in that very full receptacle. Better, however, the rudest attempt than that.

To give the reader some idea of its general aspect, I will ask him to suppose the rude aborigines of some favoured antipodean valley to have, centuries ago, like the Goths, "with rough strength and hurried stroke smote an uncouth animation out of the rocks which they tore from the Moss of the moorland, and heaved into the darkened air the pile of buttress, and rugged wall" to form such fanes as their brethren of northern Europe delighted in; that time as usual has done its work of ruin, and the gale sprinkled the old walls with spores of the most distinct and beautiful Ferns; that majestic Tree Ferns spring from the long deserted floor, rivalling in height the remaining pillars, while the dwarf, graceful, and motley crew of Adiantums, Cheilanthes, Nothochlænas, and their many pretty allies spring up around in all their beauty, "from gray but leafy walls, where ruin greenly dwells," and in their wild variety and extraordinary verdure scramble over rocks and walls, line niches and arches, spring from between stones and out of chinks, crop beautifully and abundantly from the stems of some Tree Ferns, presenting in doing so an interesting picture of life upon life, without the struggle for existence being so painfully evident as it is when we look upon a plant on the eve of perishing from the fangs of a tropical

Cuscuta, or the distorting and often death-clasping folds of a Liana.

The singularly fascinating effect of the scene is produced by the entire breadth at the extreme end of the house being a mass of rockwork, with niches, numerous and varied recesses, and a winding path over its summit, from whence a peep may be had into the crests of some of the finest Tree Ferns in Europe; by the gutter beams of the roof valleys being supported by rugged pillars, from which spring rugged arches, thus dividing the house into centre and side aisles; while round the sides pointed rustic arches are again raised, and by the entrance end too, being as verdantly wild as could be desired. Above all, by the wonderful capacities of the house for Fern growing—capacities which are not surpassed, if equalled, in any clime, or in any other artificial enclosure. I am sure those who have visited Rockville during the past 12 months will agree with me that never before or since have they seen Ferns, especially the finer arborescent species, in such a perfectly healthy and spotless state, and the same may be said of numerous flowering plants which flourish here and there among their—in this case more favoured—rivals.

The hot-water pipes are placed between the rock and arch work of the sides and the glass, and are thus kept out of sight, while the air passes over them from the ventilators which are fixed in the short brick wall, and then through and over the arches, rockwork, &c., into the body of the house. I should have said that the sides and all are fixed in this house, unlike the orchard one, but the double roof is so conducive to the preservation of an agreeable temperature and moisture, that ventilation is very gently and sparingly admitted. Most deliciously pure, still, and agreeable was the atmosphere, which combined with the free and luxuriant vegetation to remind one of Darwin's impressions of the quiet gloom of the depths of a Brazilian forest.

My peregrinations through the Fernery were of a flitting character, from the number of prominent beauties that presented themselves. Here a cave of choice Ferns would attract attention, there a noble Tree Fern in the distance, thus compelling a "from pillar to post" movement; whilst on a distant ledge some old friend would appear quite in a new character, more beautiful than ever.

One of the first things met with was a mass of Ficus stipularis, drooping so abundantly from archways that it was necessary to push it aside to get through. Trichomanes radicans soon appeared lining a cave, but Trichomanes radicans is so abundantly planted at Rockville that one might fancy the Irish localities had all united there, and a cargo had afterwards found its way from Madeira to enrich the garden. Next came a great niche of Maiden-hair Fern, mixed with the common Hart's-tongue, the graceful leaves of the Maiden-hair contrasting beautifully with those of the Scolopendrium; while near at hand, on a receding group of rock, seedling Ferns of every age and size abounded, and drooping over them were Goniophlebiums and Platylomas, mixed with Tradescantia.

Approaching the pass over the end of the house, the fine-leaved varieties of Begonias—which are unequalled for forming most doleful exhibition groups—appeared in a state that at once commanded forgiveness. They wrapped their roots around, and ran from stone to stone, displaying a perfection of colouring and freedom of outline, to which as seen in pots they are perfect strangers. Nothing could be more pleasing than the wild streaks of light produced among the Ferns and other greenery, by some of these Begonias straying about in this rhizomatous manner.

On ascending the ingeniously constructed defile, which leads for many yards over the end rockwork, the vegetation was found to be most luxuriant and diversified. Many choice Ferns were to be seen, probably turned out of pots, and for the first time free since they left their native wilds. Begonia fuchsioides—always a good and graceful thing if well managed—was here to be seen of surpassing beauty, drooping naturally from a high ledge, and bearing a shower of its bright buds. The sloping sides at the back of the pass were covered with Hoyas, Bignonias, Tillandsias, Arads, &c., with here and there a mass of Begonia in great vigour, jutting boldly from the face of the stones.

The crest of a magnificent Dicksonia now came into view, and called attention from the rocky end to the central parts of the house. The plant was 20 feet across the crest, and the most perfectly healthy Tree Fern I have seen. It was planted on the floor, as were most of the Tree Ferns, in a mass of peat and rough stones, and so firmly had the roots grasped this mass, that the whole might have been removed almost as easily as if the plant had been in a tub. Beyond the Dicksonia could be seen Rhopalas and the Rice Paper plant in fine condition, growing amongst trailers and climbers and Bananas, while lower down Asplenium marinum grew in quantity from the recesses.

A little further on a noble plant of Dicksonia squarrosa, 14 feet high, and feathered from top to bottom, came into view—a plant worth a house to itself. Though an aged specimen it has never borne a fruiting frond at Rockville, and it is said that one in such condition has never been found in any Fernery, so it is probable that the removal from the main stem of the branches which it gives off, is the only means of propagating this very desirable species.

Before descending, Marantas, Algerian and other Ivies, Alsophila guianensis, and other Ferns, were seen. Then emergence was effected between masses of red granite and tufa near a handsome group of conglomerate quartz, from the chinks of which Leucostegia chærophylla, Cheilanthes, Nothochlænas and Selaginellas grew, with Asplenium zamiæfolium, and Polypodium spectabile; while standing singly was a noble specimen of the Silver Tree Fern of New Zealand, with a stem 8 feet in the clear, and near it a variety of Cyathea medullaris, 12 feet across. At the base of the Dicksonia seen from the mound, Woodwardia orientalis was growing; and from a rocky bank near, Woodwardia radicans depended, having the young plants at the apex of the fronds of great size, and in one or two cases doing in their turn the work of reproduction. Acrophorus hispidus scrambled wildly over a pile of stones in one place, and near it Begonia Queen Victoria covered 5 feet of a nearly perpendicular mass of red granite, the roots clinging to the stone like those of Ivy.

From a group of purple conglomerate sprang the shaft of one of the most elegant of Tree Ferns, Alsophila Macarthuri; and near it a fine specimen of Alsophila australis, canopied over a moss-covered heap of the old red sandstone, which, it may be noted, is famous stuff on which to raise young Ferns from spores. Here and there on the gutter-beam arches were many of the best species of Begonia, with abundance of Maiden-hair, and in some places a lot of the Killarney Fern; while at the base, Balantium Culcita was very fine, with Asplenium Fabianum. Lastly, Cyathea medullaris rose from the floor, covered with black chaffy scales, and spread out a crest more than 20 feet in diameter. A fine Bourbon and some other Palms were also to be seen, with the Cinnamon, Cassia, and other not very commonly grown stove plants. *William Robinson.*

(*To be continued.*)

THE CULTURE OF THE AMARYLLIS.

IT is generally known that the culture of bulbs receives much attention in the establishment of M. Van Houtte. The genus Amaryllis (Hippeastrum) especially, has always been one of the favourite flowers cultivated there. Indeed, the blossoms are carefully hybridised, and all the resources at command are put under contribution to improve the quality of the seedlings annually produced. The magnificent collection which received the gold medal at the Universal Exhibition at Brussels last spring, and which were exhibited by M. Beaucarne of Eenaeme, were obtained, from M. Van Houtte, as we learn from his new bulb catalogue, whence the following particulars are taken:—

The Amaryllis bulbs pass the winter on the shelf of a temperate greenhouse. They are kept in pots in the earth in which they have grown, without water. At the beginning of spring, about February, they are repotted in fresh earth, composed only of decayed leaf-mould, mixed with a little sand. The old soil is entirely removed, so that the bulbs are quite naked. In doing this a piece of rod is used, by the aid of which the earth adherent to the roots is cleared away, so as not to injure them. All rotten or broken roots are carefully picked off, and the finger is passed under the base of the bulb, to clear away any dead parts hanging there, the old loose skins of the bulbs being also carefully removed. Thus dressed, the bulbs are repotted. When the bulbs are dry these skins or coats do not adhere strongly to them, but when the plant is in full vegetation, and the bulb is swelling, it recovers its former firmness, and the coats will then form a solid mass with the bulb.

In repotting, the bottom of the pot should be furnished with potsherds, and the top of the bulb being held with one hand, the roots hanging down into the pot, the earth should be dropped in gently round it, until all the roots are buried. The bulb is only to be buried up to the neck, and the earth should only be moderately heaped up. This operation finished, the pots are after a few days placed in the temperate house or hot house, but no water at all is given to them until they start, and even then very little must at first be given. On the contrary, when vegetation is progressing with all its force, the waterings must be abundant. The pots should be placed in the temperate or hot house, according as it is required that the flowers should be more or less early.

During the flowering period, the grower may, if he wishes, fertilize his Amaryllids; but once fertilized, the flowers pass away rapidly, and after having borne seeds it is rare that the bulbs flourish the following year. The bulb becomes exhausted by seed-bearing, and after the seeds have reached maturity it will be seen to have grown lean, and that its dress—its coating—is too large for it.

After flowering, the plants with their pots should be plunged in the full sun, in garden soil, or in old tan, continuing the waterings so long as the vegetation is vigorous, but afterwards discontinuing them altogether, and restricting the plants entirely to such moisture as falls from the sky. In plunging the pots in the garden soil, it will be useful to draw out the pot for an instant from the hole which it is intended to occupy, and, with the aid of a pointed stick, to bore a second hole in the ground at the bottom, corresponding with the orifice for the drainage of the pot. This hole, from penetrating deeper into the earth, will hinder the earthworms from introducing themselves into the pot and afterwards overturning the earth in it. The earthworm tires the roots by its incessant peregrinations, if it does not occasion other damage.

The pots are to be removed from this position as soon as the atmosphere grows cool, and they are then to be placed, without receiving a drop of water, on some elevated shelf of the greenhouse, where the leaves will wither, and the bulbs again become dried. In this way the plants are brought into that state of repose which is altogether indispensable if it is desired that the flowers should create astonishment in the following season.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE Anniversary Dinner of this Charity took place on Friday last, the 8th inst. The Right Hon. Charles Lawson, Lord Provost of Edinburgh, presided, and proposed first the health of "Her Most Gracious Majesty the Queen," and then "The health of their Royal Highnesses the Prince and Princess of Wales, and other members of the Royal Family." He afterwards gave the "Army and Navy," and then came to what he characterised as the most important toast of the evening, viz, "Success and Prosperity to the Gardeners' Royal Benevolent Institution." In reference to gardeners, he said: "It often happens that some hard-working member of the profession is overtaken by misfortune, his age embittered by sickness, and nothing to look to but the kindness of those who are unwilling to see an honest, good man go without a helping hand when he needs one. Happily the Gardeners' Benevolent Institution exists, and its history is well known to most people. My friends Mr. Wrench and Mr. Cutler kindly consent to continue their services as Treasurer and Secretary; and of the 24 members forming the Committee of Management, one-third of that number are always practical gardeners. Now, I hope no one will esteem it a fault on my part when I say, if all the well-to-do gardeners were to come honourably forward and subscribe their mite towards an institution eminently their own, they would only be doing by their less fortunate brethren what reason, ordinary kindness, and duty should prompt them to do. I hope that all our landed gentry will consent to become subscribers to this Society—every one should, indeed, who enjoys the luxury of flowers, fruit, and vegetables. The ladies, especially, ought to think of the poor gardeners, whose hands have reared the flowers which give them so much pleasure, and enhance so beautifully their charms; but with the gardeners it is a positive obligation, and I trust that ere long such will be the success of the Gardeners' Royal Benevolent Institution, that not a single gardener or gardener's widow in the country, who may be in true misfortune, may have to ask twice, or ask in vain, for its sheltering protection."

The LORD PROVOST, after proposing "The Health of the excellent Treasurer of the Institution, his esteemed friend Mr. Wrench," remarked that it was most creditable to find Mr. Wrench, while even yet immersed in the anxities of business, holding a responsible office in an Institution of this kind, and he hoped that he might long have health and strength to continue in the same honourable course.

The Lord Provost's health was next drunk most enthusiastically, and in returning thanks he said, among other things: "Permit me to say a word in praise of what I consider a noble feature in the English character—it is free from all prejudice, and in this forms a brilliant example to your neighbouring fellow countrymen north of the Tweed and across the Channel. In this great city you invite all and sundry—Scotch, Irish, foreign—no matter where they come from they are all welcome, and welcome to do as they choose. I call this a grand national characteristic, and to it London is in no small measure indebted for the proud position she holds among the nations of the world, even England herself, indeed, for her greatness; and, to compare great things with small, I am indebted for appearing here this evening. I shall long remember the agreeable entertainment we have just had, and again thank you most warmly for your kindness to me."

The health of the Ladies, who mustered strongly in the gallery, was next given, and the meeting terminated. We understand that upwards of 400*l.* were collected on this occasion.

Home Correspondence.

Water Pumps.—The long continued drought has caused great demand for water. We have long since emptied all the rain cisterns. The pump water is impregnated with lime to such a degree as to render it unfit for garden purposes; and it has occupied the constant time of at least one man to carry water from the river. The path being immediately in front of the windows makes this process still further objectionable, and I imagine a pump would facilitate the labour—the garden is about 22 feet above the river, and the distance, following the surface of the soil, about 60 yards. One person tells me that a 4-inch suction-pump, and a 2-inch pipe, lead or iron, will suffice; another, that it must have an additional valve at the river; another, that the distance is too great for a suction-pump. Will any of your readers who have had experience in these matters give me advice? *M. P.*

Rosary v. *Rosery.*—For some time authors have been drifting into the practice of omitting all punctuation in their title pages. Still later we have another innova-

tion in the cover of "Our Mutual Friend," where Mr. Dickens's artist has absurdly placed a dot over the capital I in "Friend." The compiler of the advertisements of the Crystal Palace Company, or the reader of the *Times*, is now desirous of changing Rosary into Rosery (see *Times*, July 8). Surely this is undesirable, for even the most ardent lover of phonetic spelling would pronounce Rosary to be nearer the proper pronunciation than Rosery. Worcester's is the only Dictionary I possess, and I always find he gives both ways when at all doubtful. Rosary with him is a bed of Roses, a garland of Roses, a chaplet. These are strange times. Horticultural Societies don t now always mean Societies for the encouragement of flowers and fruit, but societies for teaching ladies how to skate, for the filling of beds with powdered bricks slates spar and other substances instead of flowers, for the encouragement of fancy fairs, buffo singers, &c. Surely, Mr. Editor, it is time we had another dictionary compiled, giving these new meanings. I am only a working gardener; still these changes often draw a sigh. *A. G. S.*

Officinal Plants, &c. at Exhibitions.—Endeavouring to fall in with, and assist in carrying out the views respecting the Royal Horticultural Society, promulgated at pages 109 and 110 of their Proceedings, I sent well-grown specimens to the Show on July 6 of the medicinal and officinal plants named in the accompanying list. I should have sent many other things in addition to this collection, but was anxious to send only well-grown plants. Judge of my surprise to find, that although entered in the miscellaneous class, not the least acknowledgment was made. With such a want of harmony betwixt theory and practice, how is one to know what to do? The collection consisted of:—

Betel Pepper, Piper Betle.
Croton Oil Plant, Croton Cascarilla.
Vanille, Vanilla planifolia.
Patchouli Scent Plant, Pogostemon Patchouli.
Cabbage Palm, Euterpe edulis.
Cotton Plant, Gossypium herbaceum.
Lemon Grass, Cymbopogon Schœnanthus.
Chocolate, Theobroma Cacao.
Ginger, Zinziber officinale.
Coffee, Coffea arabica.
Green Tea, Thea viridis.
Black Tea, Thea Bohea.
Bitter Quassia, Quassia amara.
Sugar Cane, Saccharum officinarum.
Violet Sugar Cane, Saccharum violaceum.
Cubebs, Piper Cubeba.
Cinnamon, Laurus Cinnamomum.
Black Pepper, Piper nigrum.
Gamboge, Xanthochymus pictorius.
Balsam of Peru, Myrospermum Pereiræ.
Fijian "Boro dina," Solanum anthropophagorum.

William Bull, Chelsea, July 7.—I was not aware that my collection of medicinal and officinal plants had met with the least recognition from the Horticultural Society until I saw the award of 1*l.* announced in the *Gardeners' Chronicle* of last Saturday. Even now I am at a loss to know why such a collection should have been stigmatised with a 3d prize when there were no other plants of a similar character in the exhibition to receive a 1st or a 2d. I may add that it is doubtful whether a similar collection could have been exhibited by any one else in the United Kingdom, excepting the Curators of some of our botanic gardens. *William Bull, July* 11.

Tobacco Manufacture.—Being about to emigrate to Queensland, I contemplate the growth and manufacture of tobacco, and should feel particularly obliged if any of your correspondents would in your pages give me some information as to the particular process or processes necessary to render it fit for consumption. The growth of the plant I am fully acquainted with, but its preparation afterwards, so as to render it similar to what we use in England, as Cavendish, shag, bird's-eye, &c., is what I want to know. Perhaps some one could refer me to a publication which would give me these particulars. *M. P. M.*

Nurserymen's Assessments.—Last autumn I had three hothouses erected at our country nursery; now, in consequence of putting up these additional houses, the parish authorities have come to the determination of assessing the place much higher than previously. Can they legally do so? I have always been given to understand that hothouses could not be taxed. What with the keeping them constantly in repair, painting and glazing, I consider that they cost quite enough without having to pay more for them. Besides, there is always the risk to run from hail storms. I should therefore feel obliged by your giving me some advice on the subject. *Assessed Taxes.* [You have increased the value of the land, and the authorities are probably right. Consult a solicitor before you appeal.]

Hissing of Snakes.—In answer to "E. O." I beg to state that I last year caught on different days three adders. Before taking them up I always hit them a little about the head with a Furze bush. Each, while undergoing that punishment, hissed lustily. I kept one of them for some days out of doors, and it hissed only when poked with a stick and annoyed; from which facts I consider that they only hiss when very angry; and no doubt, as White of Selborne has recorded, a disagreeable smell is emitted, though being in the open air I did not perceive it. As they opened their mouths wide to hiss, I suppose the noise is produced by their tongue, much in the same manner as it is with ourselves. *W. R. Tate, 4, Grove Place, Denmark Hill, Camberwell.*

Orchids under Vines.—Some of your readers have misunderstood the meaning of your remarks (p. 553), respecting my Orchids. Most of those who have written since on the subject seem to imagine that they meant to imply that no one had any plants to equal mine in size. Now my largest plants were not referred to by you. The object of your observations was evidently to describe a large and varied collection of Orchids, with foliage plump and firm, and plants profusely in bloom, grown not in "stew-pans," but in such well-ventilated houses that no close stifling feeling, so common in Orchid houses, is experienced, and in which any one can inspect the plants hour after hour with enjoyment. The question at issue is not as to whether my collection is better than some one else's, or whether some one has not grown plants faster than I have done. Lovers of Orchids like to increase the number of growers of them, and nothing is so likely to induce people to do this as prominently putting cases forward where Orchids are grown and flowered well, without excessive heat. The second principle enforced was, that any one having a Vinery might grow many Orchids to great size of bulb and perfect health under the shade of the Vines. Some may say, "Well, you have described the value of the shade of Vines for the Orchids, but what of the Grapes?" I shall be pleased in August and September to see any grower of Orchids who may like to test the quality of my Grapes. *Robert Warner, Bloomfield, near Chelmsford.*

Foreign Correspondence.

Textile Materials.—Sydney, N. S. Wales, Woollahra, Jan. 21, 1864.—Last Mail I had the pleasure to address you in answer to a query in your issue of June 27, 1863, p. 604, on the subject of fibre from Queensland. By that opportunity I forwarded a specimen of the plant, viz., Sida retusa, and pointed out its geographical range in this country. I now forward specimens of the fibre which has had no more preparation than soaking in water for 16 days. This was grown on the spot, the property of Sir Daniel Cooper. In my last I directed attention to other fibres indigenous to this country. Sida retusa has the reputation of coming from the "Mauritius," and its extensive dissemination is readily accounted for—being like that of the little Coleoptera "Dermestes lardarius" (Bacon Beetle), which finds its way to every port by every ship, even on the torrid Gallipagos Islands, the abode of the land-tortoise and iguana. So it is with this freely seeding plant and pest to the agriculturist—wherever hay is sent from the fields where Sida retusa grows, the chances are that the means of propagating this plant go also. *E. S. Hill.*

Societies.

Royal Horticultural: *July* 11 (*Election of Fellows*).—The following candidates were elected, viz.:

The Marchioness Dowager Ailesbury, Miss Bligh, Mrs. Col. Brooke, W. C. Brooks, Esq., Col. W. Burlton, C.B., Miss Cubitt, Rev. A. Du Cane, W. Gillett, Esq., W. Hooper, Esq., Lady Ouseley, Lady Parker, Mr. F. Perkins, Miss Reeves, W. Rigby, Esq., H. Robertson, Esq., M.P., D. T. Robertson, Esq., the Very Rev. Dr. Rock, R. H. Say, Esq., J. Thompson, Esq., Mrs. Webb, Miss Webb, J. A. Youl, Esq., and G. H. Jay, Esq.

July 13 *and* 14 (*Strawberry Fête*).—This was by no means well supported, almost the only exhibitor being Mr. Lydiard, of Bath, who showed, as he always does, large well ripened fruit. In Classes 1, 2, 3, 4, 6, 7, 8, 10, 12, 13, 14, 15, 16, 18, 22, 23, 24, and 25, there were no exhibitors. In Class 5, collections of three dishes of distinct kinds, a First-class Certificate was awarded to Mr. Lydiard. In Class 9 the same exhibitor showed three dishes of British Queen; and in Class 11 one dish of the same variety. In Class 17, viz. one dish of any variety not named in the schedule, Mr. Lydiard had a 1st prize for Myatt's Eleanor, and a 3d for Victory of Bath. In Class 19, viz. the best dish for culinary purposes, Mr. Lydiard was 1st with Myatt's Eleanor. In Class 20, viz. the heaviest single Strawberry, a 1st prize was awarded to Mr. Lydiard for British Queen, weighing 1 oz. 8 dwt. In Class 21, heaviest 12 Strawberries, 1st to Mr. Lydiard, for Myatt's Eleanor, weight 12¼ oz.

Associated with this meeting was an exhibition of Bouquet holders, among which by far the most important was one presented to her Royal Highness the Princess of Wales some time ago by the Maharajah Dhuleep Singh. Others came chiefly from dealers.

Entomological: *June* 6.—H. T. Stainton, Esq., F.L.S., V.P., in the Chair. Mr. Morris exhibited some leaves of the Sugar Cane from the Island of Mauritius, where the canes are infested to an alarming extent by a species of Coccus, very similar to the common Vine Coccus, and which has been supposed to have been introduced from Belgium or France. Various suggestions were made by different members as to the most effectual means of getting rid of the pest, Mr. Morris stating that he had been strongly advised to recommend diluted carbolic acid as a wash. Mr. F. Smith exhibited a series of drawings of the nocturnal Lepidoptera of India, executed by native artists with a wonderful degree of perfection, for Major Atkinson; also a Bombus, captured at Deal, which appeared distinct from any described British species. He also exhibited a series of nests, six in number, formed by a colony of Vespa germanica during a space of 38 days in the months of September and October, 1862. These nests were of the most fantastic shapes, some being cup-shaped, others like pillars, one resembled a stalactite cavern, and one was a fair resemblance of Stonehenge. The nests were built in cubical boxes, and it appeared that the fantastic direction of the combs was owing to wires placed in various positions, of which the wasps took advantage by way of support. A notice was read of the destruction of queen wasps during a long period of years, showing the effect of temperature on the development of those insects. Thus in some cold and bleak springs, very few queens could be seen, but in congenial seasons vast numbers were killed, as in 1841, when as many as 581 dozen of queens had been collected and destroyed. Mr. F. Smith objected to this wholesale destruction of the wasps, considering that they were, on the whole, serviceable rather than destructive animals. Professor Westwood exhibited some exceedingly minute four-footed Acari which had been found during the present spring infesting the buds of Black Currant trees, and completely destroying the embryo blossoms, by Mr. Chapman, of Glasgow. He also exhibited a new butterfly from Singapore and Assam, forming a new genus which he described under the name of Liphyra Brassolis. Mr. McLachlan exhibited a case bearing larva of the Coleopterous genus Clythra, found upon Thyme on Box Hill. A note was read from Mr. Trimen describing a case of mimetic resemblance, exhibited by a species of spider observed on Senecio pubigerus at the Cape of Good Hope, and referring to the object of such resemblance: the colour and markings of the spider so closely resembling the flower of this species of Ragwort as to deceive the butterflies of the genus Hipparchia, which it catches and devours on their alighting on the apparent blossom. Mr. Tegetmeier made some observations on the economy of hive bees with reference to their adopting and cleaning out old comb, and also as to their eating pollen. Major Parry exhibited a remarkable monstrosity occurring in an exotic stag-beetle, both antennæ of which were trifid. Mr. Stanton exhibited the pupa of the small moth Anchinia verrucella, which greatly resembles the chrysalis of a Pieris, being attached by the tail and girt round the body. Dr. A. Wallace gave an account of the successful rearing and weaving of the silk of the Bombyx Cynthia on the Ailantus tree at Colchester. Mr. F. Walker communicated a memoir containing descriptions of new species of Chalcidites of the genus Smiera from the Amazons.

Birmingham Rose Show.—This, the third annual gathering, was held in the Town Hall on Thursday and Friday the 7th and 8th inst., and was in all respects as complete a success as its predecessors. The competition among nurserymen was not perhaps so close as at the last show; but, whatever deficiency there might be in that department, it was fully made up by the amateurs, who showed considerably better than on any previous occasion. Throughout the entire show the blooms were good. New flowers of the last three years were conspicuous in all the principal collections.

The Silver Cup, value 10*l.*, for 96 varieties, was awarded to Messrs. Paul & Son, of Cheshunt, who showed fine blooms of Triomphe de Rennes, Gloire de Santenay, Madame Boutin, Sœur des Anges, Alphonse Damaizin, Olivier Delhomme, Clement Marot, Lord Canning, Lord Clyde, Madame Julie Daran, Madame Caillat, Duchesse de Morny, and Louise Margottin. Mr. John Keynes, of Salisbury, was second with good blooms of Madame Charles Wood, Madame Emain, John Hopper, Professor Koch, Olivier Delhomme, Le Rhone, Laurent Descourt, and Celine Forestier. In 48 kinds, Mr. B. R. Cant, of Colchester, had beautiful flowers of Le Rhone, Charles Lefebvre, Comtesse Cecile de Chabrillant, Francis I., La Brillante, Madame C. Wood, Marechal Vaillant, Maurice Bernardin, Monte Christo, Souvenir du Comte Cavour, Cloth of Gold, Triomphe de Rennes, Madame Falcot, President, Madame Willermoz, and Souvenir d'Elise. Messrs. Paul & Son had excellent examples of Lord Canning, Lælia, Comtesse Cecile de Chabrillant, Anna de Diesbach, John Hopper, Jean Bart, Gloire de Santenay, and Baron Gonella. In 24 varieties, Mr. Cant was again first, with fine specimens of Charles Lefebvre, Madame Julie Daran, Maurice Bernardin, Prince Camille de Rohan, Devoniensis, and Souvenir d'un Ami. Mr. Keynes also had good blooms of Charles Lefebvre, Madame Clemence Joigneaux, John Hopper, Duc de Rohan, and Baronne Adolphe de Rothschild.

Awards.—Nurserymen, 96: 1, Messrs. Paul & Son; 2, Mr. John Keynes. 48: 1, Mr. B. R. Cant; 2, Messrs. Paul & Son; 3, Mr. J. Keynes. 24: 1, Mr. B. R. Cant; 2, Mr. Keynes; 3, Mr. G. Batley; 4, Mr. W. H. Davis.

In the classes open only to Nurserymen resident in the counties of Warwick, Worcester, or Stafford, the awards were as follows:—

24 varieties: 1, Mr. W. H. Treen; 2, Mr. G. Batley; 3, Mr. R. H. Vertigans. 12 varieties: 1, Mr. W. H. Treen; 2, Mr. Geo. Batley; 3, Mr. W. H. Vertigans.

In the Amateurs' classes of 48 kinds, Mr. S. Evans, of Arbury, was 1st, with a good stand, containing fine blooms of Madame Furtado, Louise Magnan, General Washington, Madame C. Wood, La Fontaine, and Gloire de Santenay. Mr. Perry had good specimens of Gloire de Vitry, Maréchal Vaillant, Madame Clemence Joigneaux, John Hopper, La Fontaine, and General Simpson. In 24s Mr. E. Hunt, Leicester, showed nice blooms of Anna de Diesbach, Madame Vidot, Comte de Nanteuil; while Mr. Evans had good flowers of Madame C. Wood, Madame C. Crapelet, and Lord Raglan. In 18s, Mr. Evans stood 1st with nice

examples of Louise Peyronney, Madame C. Wood, and Madame C. Crapelet; Mr. W. Brown having Auguste Mie, Comtesse Cecile de Chabrillant, Lord Raglan, and Madame Boll.

Awards.—48 : 1, Mr. S. Evans; 2, Mr. C. J. Perry. 24 : 1, Mr. E. Hunt; 2, Mr. S. Evans; 3, Mr. C. J. Perry and Mr. E. Sage, Atherstone. 18 : 1, Mr. S. Evans: 2, Mr. W. Brown; 3, Mr. E. Hunt; 4, Mr. R. Garnett. 12 : 1, Mr. Sage; 2, Mr. Hunt; 3, Mr. C. E. West; 4, Mr. Perry.

In the Classes open only to Amateurs residing within 15 miles of Birmingham, the awards were as follows:—

24 : 1, Mr. W. Brown; 2, Mr. C. J. Perry; 3, Rev. P. M. Smythe and Mr. R. Garnett, equal. 12: 1, Mr. W. Brown; 2, Mr. T. B. Wright; 3, Rev. P. M. Smythe; 4, Mr. C. J. Perry.

In the Class open only to Amateurs resident within three miles of Birmingham, the awards were:—

1, Mr. H. Lowe; 2, Mr. G. Sansome; 3, Mr. G. P. Wragge; 4, Mr. W. Sturge.

Two Classes were provided for new Roses, open to all comers. In the various collections were very fine specimens of Duc de Rohan, John Hopper, L'Eblouissante, Peter Lawson, Madame Emain, Comtesse Courcy, Le Rhone, Lord Clyde, Alphaide de Rotalier, Madame Caillat, and Louise Margottin:—

Awards.—24: 1, Mr. Keynes; 2, Mr. Cant; 3, Messrs. Paul & Son; 4, Mr. Batley. 6 : 1, Mr. Keynes; 2, Mr. Keynes; 3, Mr. Cant; 4, Messrs. Paul & Son.

We must not omit to speak in high terms of an extensive collection of Roses sent by Mr. Cranston of Hereford, not for competition; also of a beautiful collection of Verbenas from Mr. C. J. Perry, consisting for the most part of seedling varieties of considerable merit.

The large hall, with its most convenient galleries, affords an admirable opportunity for displaying various objects of interest in connection with gardening, and several well known makers in Birmingham support the Committee, thus making the Rose show of unusual interest.

On this occasion Messrs. George Baker & Co., Chester Street, Birmingham, contributed a very extensive display of garden ornaments in wire work, especially such things as summer houses; ornamental garden pots and saucers in wire of various colours, and certainly the neatest and most ornamental we have seen for table decoration; wire-work chairs of graceful pattern and inviting ease; arm chairs of the same pattern, all just what ladies would delight in using. Also, flower stands in endless variety, garden seats of all patterns, two beautiful summer houses, and a quantity of other garden utensils. This large collection was greatly admired.

Mr. Charles Bryan, Worcester Street, Birmingham, sent a large display of China and earthenware articles for window, drawing room, and conservatory decoration. These consisted of garden seats, suspending baskets, Mignonette boxes, vases, brackets, and a host of other things made in earthenware, but a clever imitation of rustic wood-work. Some Fern cases were much admired and must become popular.

Mr. Thomas Rabone, Birmingham, exhibited a large collection of barometers, thermometers, hygrometers, and Admiral Fitzroy's storm glasses, of great interest, the maker adapting himself very much to the construction of such things connected with horticulture.

Messrs. Mapplebeck & Low sent a large collection of garden tools, which proved of great interest to the visitors. Amongst them was a very cheap transplanting apparatus, consisting of a pair of trowel-formed blades, and handles in the form of short-handled garden shears, an admirable invention for the use of ladies and amateurs, and appropriately named "a transplanter."

Mr. James Jackson, New Street, Birmingham, contributed a large collection of light and elegant ornamental flower stands, glasses, and vases in glass and china, of all patterns and colours, for drawing-room and dinner-table decorations. A novelty arrested our attention, which will be found useful in building walls where climbers are wanted. This is Foxley's patent corrugated bricks, made of the ordinary brick size, with a semi-circular projection along the centre of each, through which holes have been drilled for receiving wires for fastening climbers.

Messrs. Gough & Sylvester, Mr. Spurrier, and Messrs. Derry & Jones sent collections of silver and plated table ornaments for flowers, &c., many of them exceedingly beautiful, and intended for drawing-room and dinner-table decoration.

One other invention deserves especial notice; Mr. Pumphrey sent several of his Paxton Garden Engines, which may be best described as an improved form of the Hydropult. It is more finished in workmanship, is represented to be less liable to derangement, and from the construction of the piston draws water a greater distance than the Hydropult; the foot accommodation is also superior.

BLOOMSBURY FLOWER SHOW.—The fourth exhibition of plants, belonging to the working classes resident in the parish of Bloomsbury, and the second distribution of prizes for clean and tidy rooms, took place, under the presidency of the Rev. Mr. Bayley, on Wednesday last, the 13th inst., in Russell Square, and was perfectly successful, the day being fine, and the attendance of visitors satisfactory. Under a tent pitched on the Grass, beneath the shade of lofty trees, was a considerable assemblage of plants, not remarkable for fine growth or bloom, but all of them clean and healthy. They were shown in Classes: I. being for persons living in the neighbourhood of Little Coram Street, one of the very poorest of districts; II. for persons living in other parts of the parish; III. for domestic servants. In each of these classes were awarded prizes for Fuchsias, Pelargoniums, and Annuals. Class IV. was set apart for children belonging to the National, Infant, Sunday, Parochial, and Ragged Schools; and Class V. included odds and ends not provided for in the departments just enumerated. The prizes offered varied in amount from 1*s.* to 10*s.*, and the competition for them was extensive, indicating the interest which the poor take in the movement. The bulk of the plants exhibited consisted of Pelargoniums and Fuchsias; but we also noticed examples of Creeping Jenny, Yellow Calceolaria, white and crimson Pinks, Petunias, Hydrangeas, Dahlias, Verbenas, what are called Nettle Geraniums, Kalosanthes, Orange trees, Balsams, Mignonette, Musk, Asters, and French and African Marigolds. These were chiefly in clean-washed garden pots, which seem to have superseded spoutless teapots, china mugs, basins, and other appliances which characterised the first shows held under Mr. Bayley's superintendence. We, however, observed a little round tub filled with Potatos, Radishes, and a tuft or two of Virginian Stock; a sprig of Yew, kept alive some three years in a clear glass bottle, from a nurse in a workhouse; boxfuls of Ferns, and even shells filled with the same favourite tribe of plants; hanging baskets made of three-deep Strawberry punnets fastened together; table decorations, consisting of baskets ornamented with Fir cones, bearing a living plant of Acacia armata, surrounded by dried Grasses, with Oak galls strung on wire like beads; hanging wire baskets supporting finely bloomed plants of blue Lobelia; and finally a representation of a villa called Bloom Grove, in the form of a square box filled with plants thrown into groups by means of miniature gravel walks edged with shells and surrounded by an imitation red brick wall, with round white stone-topped pillars and entrance gate of the same colour, the whole being tastefully executed, and really very pretty. These, and here and there a little plant of red-leaved Coleus, formed the materials of which the flower show chiefly consisted. Even the children's department was well supported, and excited much interest. A twin sister of this exhibition is the clean and tidy room movement, which has also been instituted for the social improvement of the labouring classes, and prizes for this as well as for the flowers, were awarded in the evening to the successful competitors by Lord Shaftesbury. Concerning this, Mr. Bailey says:—"Last year prizes for clean and tidy rooms were offered for the first time by way of experiment through a section of the parish. Eighty-six persons gave in their names as competitors. This year the prizes have been extended to the whole parish, and 304 persons have competed for them. The competitors," Mr. Bayley adds, "value our visits, and only complain if they are not paid sufficiently often. My experience, after regular visitation of the rooms, is that a decided improvement has taken place in their condition in that part of the parish to which the movement of last year was confined. The sanitary effect of such improvement cannot but be good. The moral effect is, I am persuaded, excellent."

Notices of Books.

Species Filicum; being Descriptions of all known Ferns, Illustrated with Plates. By Sir William Jackson Hooker, K.H., &c. London: Dulau & Co., Soho Square.

A short time since we announced the issue of the first part of the fifth volume of this most useful book, and we have now to state that with the second part, which has since appeared, Sir W. Hooker has completed his arduous undertaking of describing all the known Ferns. The portion now before us consists of 190 pages of letterpress, including not only an index to the volume, but also an index to the genera and principal groups contained in the whole five volumes. These are accompanied by eight plates, representing as many species of the gymnogrammoid and acrostichoid groups. The text comprises the few concluding pages of Polypodium, and the genera Jamesonia, Nothochlæna, Monogramma, Gymnogramma, including Dictyogramma, Syngramma, and Selliguea; Brainea, Meniscium, Antrophyum, Vittaria, Tænitis, Drymoglossum, Hemionitis; and finally, Acrostichum, which is made to take in the whole of the Acrosticheæ of authors, excepting Platycerium, which stands by itself. In an Appendix is added the genus Matonia, which is referred to the Cyatheaceæ.

On the conclusion of a work so important as this to the students of Ferns, we may be excused for quoting the author's final explanations as to the plan and principles by which he has been guided, as they throw much light upon the character of the work:—

"It is with no ordinary feeling of satisfaction that the author has brought to a conclusion the five volumes constituting the '*Species Filicum* (accompanied by 304 plates, representing 522 species), being descriptions of the known Ferns, particularly of such as exist in the author's herbarium, or are with sufficient accuracy described in works to which he has had access.' This title is further explained in the preface to the first volume as including—(1) such species as the author has had the opportunity of examining himself; (2) those which have been universally received, and which his own observations have tended to prove are justly to be regarded as distinct by references to satisfactory figures; and (3) a considerable number of which he has neither seen figures nor specimens, but which are given upon the authority of botanists of name and character, though often imperfectly characterised.

"It is just 20 years since the author commenced this laborious undertaking, and during its progress his chief regret has been that he has, especially in the earlier volumes, introduced so many species merely on the ground of the name and celebrity of the author, going as far back as Swartz (1806), and Willdenow (1810), and which still remain in the category of species *non ritè cognitæ*. Of late years the number of bad or dubious species has increased to an alarming degree, consequently increasing the difficulty of the tyro in determining the good species; so that we require to be more guarded than ever in the selection of what ought to be maintained and what discarded. The excellent Dr. Grisebach has prefaced his account of the genus Hymenophyllum in his 'Flora of the British West Indian Islands,' with the remark. 'I omit several West Indian species of Hymenophyllum, and a few of Trichomanes, named by Dr. Van den Bosch, upon the same materials as I had before me, and published lately after his death (in the Nederl. Kruidk. Arch. 1863), because, judging from the descriptions, they are not well founded.' It is indeed well known that there is a tendency amongst botanists of the present day to increase the number of species (and genera too), on insufficient characters; an error often indeed arising from incomplete specimens, and want of suites of specimens which would show the modifications to which they are liable.

"On the limits of the genera of Ferns, it is needless for me to remark here. Every author is entitled to entertain his own views upon the subject. I have endeavoured to maintain such as may best preserve the natural grouping of the species, and be attended with the least difficulty to the working student."

The Species Filicum was originally designed to include the Osmundaceæ and Ophioglossaceæ, but has been brought to a close without them. It is, however, announced that the author, if life and health be spared to him, will prepare a volume to be entitled *Synopsis Filicum*, with brief characters of the sections, genera, and species of Ferns (omitting all really dubious ones), giving general habitats, and references for more complete information to the Species Filicum itself. In this Synopsis will be embodied the needful corrections, alterations, and additions which have accumulated during the 20 years progress of the larger work. The Schizæaceæ, Osmundaceæ, Marattiaceæ, and Ophioglossaceæ, all omitted from the present volumes, will be also added. What a luxury for Fern students will be this one-volume Synopsis of all the Ferns! We heartily trust the accomplished author may be spared to produce it.

Guide to Cool-Orchid Growing. By James Bateman, Esq. Pp. 16. London: Reeve & Co.

This useful and suggestive shilling pamphlet the author observes is not intended for botanists, but has been compiled with the view of assisting the admirers of cool Orchids in the formation and management of collections restricted to that particular section of the family. To this end there are given, first, an alphabetical list of genera, with brief directions for culture; and secondly, a list of cool Orchids already imported which are worth growing, the native country and time of flowering being added. Among the latter we notice the little Mexican Govenia liliacea mentioned last week at p. 652. This terrestrial genus Mr. Bateman explains may be treated like the Eastern Calanthes, only of course they must not be kept so warm. We notice a short piece of good advice to importers who are novices, which runs thus:—"In regard to Orchids imported for the first time, the cultivator must chiefly be guided in his treatment by the information supplied by the collector as to the *position* (*i. e.* whether epiphytal or terrestrial or both) in which the several species were found, and their *elevation* above the sea-level. A rise of 500 feet within the tropics may be taken approximately to be equivalent to a diminution of one degree of temperature." The notes on culture are brief, and special rather than general.

De Nederlandsche Boomgaard, &c., &c. [*The Dutch Fruit Garden: written and published under the Direction of the Society for Regulating and Improving the Varieties of Fruits, at Booskoop.*] Groningen: J. B. Wolters.

We have received the first part of this new work, containing Nos. 1 to 4 inclusive, each number consisting of a chromo-lithographed plate, with descriptions in Dutch, in which language, according to the Prospectus, the work is to be published.

In the numbers before us eight varieties of Apples are figured and described:—1st. *The English Winter Gold Pearmain*, which is the same as the King of the Pippins. 2d. *Pariser Rambour*, the same as the Reinette du Canada, to which are given most of the synonyms

in the Horticultural Society's Catalogue of Fruits. 3d. *Ribston Pippin;* in the figure the eye is particularly well represented. This well-known, and in this country generally much esteemed fruit, is not found to be first-rate on the continent; nor is it so good in the south of England as it is in the north, in its native county of Yorkshire, or the south of Scotland, or, indeed, from a south wall in well sheltered gardens even far northward in that part of the kingdom; there it is crisp, melting, and juicy. The nearest approach to that condition, southwards, is when the fruit is grown on a west aspect, in soil sufficiently drained, but never allowed to get too dry. The Dutch describe its flesh as being firm, fine, with a sugary acidity, and a peculiar rosemary perfume; first-rate quality, both for table and kitchen use; and it is recommended because, owing to the firmness of its flesh, it bears carriage or transportation without losing its good appearance, which they say, and we know, is not the case with the insipid soft-fleshed foreign Apples imported into this country. Instead, therefore, of these we may expect from Holland large importations of Ribston Pippins, for there it is stated the trees grow well, form handsome standards and pyramids, are very fruitful, and the fruit meets with a good and ready sale.

No. 4 is *Baumann's Reinette,* Baumann's rothe Winter Reinette. Couronne des Dames d'Enghien. This is a middle-sized, handsome Apple, red and streaked; flesh tolerably firm and fine, juicy, pleasant, with a refreshing but not sharp acidity; season December to April; first-rate for table and kitchen use. Raised by Van Mons in Belgium, and named after the Messrs. Baumann, of Bolwiller.

No. 5, *Scarlet Nonpareil.* We do not think this is the correct sort, with which neither the description nor the figure agrees. The stalk is too long; and the eye is too close and small. The flesh is described as being not unlike that of "de overal beroomde Wijker-pippeling"—the universally celebrated Wyker Pippin, which is our Golden Reinette. The figure is more like a small form of this, than a Scarlet Nonpareil.

No. 6, *Paradijs Dubbele Zuren,* Rother Eisen Appel, Rother drei Jahre dauerender Streifling, Pomme rouge rayée durable trois ans, Rother Calvillartiger Süszappel. This is represented as a longish kitchen Apple, above the middle size, red, streaked on the shaded side on a yellow ground; season March to April, but in a remark it is stated that it will keep well throughout the whole of June—a remark not agreeing with the term of its duration as implied by one of its synonyms, Pomme rouge rayée *durable trois ans.* It is described by Dittrich, Systematisches Handbuch der Obstkunde, p. 457, who states that Professor Crede of Marburg made this valuable fruit first known to the pomological public; that it ripens in January; and that it keeps well without shrivelling over two years. In the present work it is stated that its origin is not known, but that it was described by Knoop as an old sort. It resembles the Norfolk Paradise.

No. 7, *Ermgaarde Zoete* or Zoete Hermingard? Origin not known. It is much esteemed in the Overmaasche part of South Holland, and also in the province of Overyssel. Above medium size, oblong-ovate, marbled and streaked with pale and deep red, sprinkled all over with small grey dots; flesh fine, moderately firm, not very juicy, sweet, and of a yellowish colour; season January to April. First-rate for kitchen use—an exception to what is generally the case with sweet Apples.

No. 8, *Landsberger Reinette;* obtained by Councillor Burchard, at Landsberg, on the Wartha. Rather large, broad at the base, brownish yellow, third-rate for the table, first-rate for kitchen use; season November to January.

The chromo-lithographed figures of these fruits are admirably well done; we have seen no fruits represented by that process that could be at all compared with them.

Garden Memoranda.

Castle Kennedy, Stranraer, Wigtonshire, one of the Seats of the Earl of Stair.—This fine old place has been greatly improved, as far as landscape gardening is concerned, within these last 20 years, and even now many alterations for the better are being effected under the care of the gardener, Mr. Fowler. The grounds are very extensive and varied, and are remarkable among other things for their innumerable terraces and fine avenues.

A handsome new Castle is being built, and further works of a comprehensive character in connection with it are contemplated. Twenty acres are already exclusively devoted to the cultivation of coniferous plants, of which there is a rich and extensive collection, the climate and soil being very suitable for the growth of this highly ornamental class of plants. Of Deodars and Araucarias there are fine avenues, of which three are about 80 feet wide and 400 yards in length. The trees of which they consist vary from 15 to 25 feet in height.

The American ground is also extensive and well stocked with the finest sorts of Rhododendron, Azalea, Kalmia, and other plants of that description. One plant of Rhododendron, viz. Thomsonii, has had this season on it from 40 to 50 heads of bloom.

In the kitchen garden an extensive range of forcing-houses was erected a few years ago, the borders in which, both outside and inside, are thoroughly aërated and drained. The Vines in these houses are now producing magnificent crops of fine fruit. The Black Hamburghs in them weigh from 4 to 5 lbs. a bunch; Muscat Hamburghs are also very fine. One bunch of White Nice is unusually large. Golden Hamburghs are also excellent, both as to bunch and berries, the colour justifying the name which it bears. This is considered here to be one of the finest Grapes in cultivation, but it is said that until the Vine has attained strength and age, neither bunch nor berry swell or colour well. Peaches and Nectarines are also well grown, but what would be of most interest to many would be the Fig house; there, on the back wall, is a plant bearing a large crop of beautiful fruit in all stages of growth, and this is stated to be of a kind peculiar to this place, called the Castle Kennedy Fig; a fine variety, some of the fruit of which are stated to measure as much as 11 inches in circumference, and three fruit of it gathered for the Glasgow Show on the 8th of June weighed over 18 ounces. It is reported to be both earlier and more prolific than any of the other sorts in the house. Visitors to Castle Kennedy should not miss inspecting the houses where they can see this fruit and judge for themselves.

It should be added that these beautiful grounds are open to the public, and that they are yearly visited by thousands.

Adverting again to Coniferæ, it may be mentioned that Mr. Fowler has succeeded in obtaining a golden variegated variety of Araucaria imbricata, which grows equally well as the ordinary kind, to which it has no disposition to return. It forms a charming tree, and when it becomes known cannot fail to be a favourite. *J. L.*

Miscellaneous.

Important Sale of Orchids.—We find that at the late sale by Mr. Stevens of Mr. Day's *duplicate* Orchids, the following remarkable prices were realised, the whole producing nearly 600*l.*:—Lælia Schilleriana splendens, Mr. Day's fine variety, 10*l.* 10*s.*; also another specimen, 8*l.* 10*s.*; Cypripedium Dayanum, rare plant, 6*l.* 5*s.*; Angræcum sesquipedale, 24*l.*; Dendrobium macrophyllum giganteum, fine plant, true, 5*l.* 15*s.*; Cœlogyne cristata, 7*l.*; Lælia purpurata, fine plant, Backhouse's variety, 7*l.* 5*s.*; Sobralia macrantha, Woolley's dwarf variety, 7*l.* 5*s.*; Odontoglossum Pescatorei, 14*l.* 10*s.*; Cypripedium hirsutissimum, very fine plant, 6*l.* 5*s.*; C. superbiens (Veitchianum), 5*l.* 5*s.*; Aerides nobile, in flower, 5*l.* 10*s.*; Phalænopsis Schilleriana, fine plant, 6*l.*; Saccolabium guttatum giganteum, Bunney's variety, 8*l.* 10*s.*; Cattleya Schilleriana, 6*l.*; C. Warscewiczii, dark lip, 5*l.* 5*s.*; Saccolabium guttatum giganteum (var. Halfordianum), true, 26*l.* 5*s.*; Cypripedium villosum, fine plant, 7*l.* 10*s.*; C. Dayanum, 7*l.*; Aerides Veitchianum, true, 7*l.* 5*s.*; Lælia elegans, splendid dark variety, like L. Turneri, 8*l.*; Aerides Fieldingii, fine plant, 6*l.*; A. Larpentæ, 5*l.* 5*l.*; A. Schroederi, fine plant, 28*l.*; Dendrobium Falconeri, true, 5*l.* 5*s.*; Saccolabium guttatum giganteum, Bunney's variety, 6*l.* 10*s.*; Odontoglossum nævium, 6*l.* 10*s.*

Cultivation of Window Flowers.—A Society has recently been established in Nottingham, to encourage the cultivation of window flowers and plants, more particularly in the neighbourhood of Narrow Marsh.

Preservation of Cinchona Trees.—A letter from a gentleman owning a district in New Granada, containing trees of Cinchona, has been put into my hands by Mr. Markham. It shows very satisfactorily that the reprobation of the practice of extirpating these trees, which has found utterance in England, is beginning to produce a salutary effect in South America. The letter is from Don Narciso Lorenzano, and is dated Bogotá, March 4, 1864. He writes to his correspondent (—Griffiths, Esq.) as follows:—"I have to thank you for having sent me a copy of the 'Edinburgh Review' of last year, in which I have had the satisfaction of reading the article on the cultivation of the Quina trees in the East Indies. Permit me to congratulate you on the successful result of this undertaking, which partly ensures the supply of so precious a drug for the future. It appears to me that the principal motive which induced the Government of India to commence this cultivation, after overcoming so many difficulties, was the fear that the Quina trees would be extirpated, in consequence of the disorder and waste that is allowed in the woods, where they are destroyed by the barbarous method of pulling up the roots. Fortunately this destructive method, which, without any doubt, would extirpate this precious plant in a few years, is only practised in the forests of Pitayo, where it is due to the immoderate desire of making money which has taken possession of the Indians, who own the greater part of the land. But in none of the other establishments for the collection of bark, in this country, has a similar scandal been repeated. On the contrary, beneficial rules are observed for the conservancy of the woods, more especially in those where I have a proprietary interest. The method consists in leaving a part of the trunk, about three feet in height, whence shoots may sprout, and in clearing away the surrounding trees to enable the rays of the sun to penetrate. By this means most of the trees that are cut down quickly shoot up, and the rays of the sun penetrating to the cleared ground, the seeds which fall from the tree germinate freely. Thus we have the satisfaction of seeing, in the forest worked on this principle, that the trunks of cut trees send out new shoots, and that the young plants grow vigorously. This result gives us full confidence that the good kinds of quinas, which exist in the country, will be permanently preserved. From the above considerations we may conclude that there need be no fear that humanity will see itself deprived of this precious medicine, seeing that as well in Bolivia as in Peru, Ecuador, and New Granada, the rule of cutting the bark according to a fixed plan is observed, and care is taken that the woods are replenished with increased numbers of plants of the best species, while some experiments have been made in forming plantations on land where the best conditions for their growth are found. From all this we hope that in a few years we may see magnificent results." There can be but one opinion as to the inexpediency of continuing the "barbarous practice" referred to, whatever comes of the question as to the comparative produce of the root-bark. *Howard in Pharmaceutical Journal.*

Polymorphism in the Papilionidæ.—Polymorphism, or dimorphism, differs from simple variability in this—that the offspring differ from the parents in a considerable degree, and in a manner more or less constant and regular; so that, of the offspring of a single pair, some will resemble their parents, while others will differ from them; but the differences will be tolerably fixed and definite, and intermediate varieties will never occur. A large and handsome Malayan butterfly, Papilio memnon, is a good case of dimorphism. The male is nearly uniform bluish black, with rounded hind wings, and never varies. One portion of the females resemble the males in shape, but are coloured brown or ashy, and with more or less white markings on the hind wings. Another set of females are found, however, which differ remarkably in the shape of the wings, the under ones being lengthened behind into a large spoon-shaped tail; and they have also white lines radiating from the base of the wing. Intermediates in form or colour between these two kinds of females never occur. These very distinct kinds of female insect do not produce young like themselves only; for, from eggs laid by one of them, both kinds of butterflies are produced, as well as the male, which is different from either. It is just as if a blue-eyed flaxen-haired white man had two wives, one a straight-haired red-skinned Indian squaw, the other a woolly-headed coal-black negress; and all the boys from either mother were real white boys just like their father, while all the girls were either pure negro or pure Indian; but the Indian mother should sometimes have negro daughters, and the negro mother Indian daughters. Such a thing seems absurd and contrary to nature; yet this is exactly what takes place in the butterfly called Papilio memnon—the males are always exactly like the male parent, while the female offspring of each mother are partly like and partly unlike herself. The butterfly called Papilio pammon, inhabiting all parts of India, is another case. It is nearly black, with a band of white spots along the margin of the fore wings and across the middle of the hind wings. Some of the females are exactly like the male, having only a small additional red spot behind. The most abundant females are, however, quite different, having a large white and brick-red patch on the hind wings and a row of red spots. This was long supposed to be a different species named Papilio polytes; but, from the eggs laid by it, Papilio pammon was produced as well as others resembling itself; and a further proof is that no male of P. polytes has ever yet been found, although the species is very common. There is, however, in India, yet another butterfly, named Papilio romulus, of which no male has ever been found, although female specimens exist in every collection; and, from a careful examination of this insect, the author was convinced that it was really a third form of the female of Papilio pammon. To parallel this case, we must suppose that our white man has a third wife, white like himself, and that the children of both white, black, and red wives, if boys, are all alike white; but, if girls, may be white, black, or red, and often without any regard to the colour of their mothers. Further east, in the Moluccas and New Guinea, there is a butterfly named Papilio ormenus, which has also three kinds of females, but in this case all are different from the male; just as if our supposed polygamist had an oblique-eyed yellow Chinese wife in addition to his black and red partners. The more exact parallel would be, however, to suppose an island inhabited only by white men, with black, red, and yellow women, and that, after many generations had passed away, the men all remained pure white, and the women of their respective colours and races equally pure. This would exactly represent the phenomena of polymorphism, which is the ordinary course of nature in several species of insects in various parts of the world, and will sufficiently show that it is quite a different thing from simple variation, with which it has hitherto been confounded. *Wallace in Nat. Hist. Review.*

Orchid Nomenclature.—A revolution, or at least a strange disturbance, threatens the Orchideous empire so peaceful until now. The brand of discord has been thrown among the high aristocracy of its very numerous population. A terrible reformer, innovator we should say, has just appeared, who puts in doubt a great part

of the nomenclature, established so justly, and so clearly, principally by Dr. Lindley, and which till now has been adopted generally, and almost without question by all who employ themselves with the charming plants of this family, be they botanists or amateurs. Already in his different works, within the last few years, an author, whom it is unnecessary to name, has placed here and there signs which indicate the beginning of this reformation, or rather this deep disturbance, of the grounds of which we cannot judge, for the facts are simply indicated without comment in the 6th Vol. of the "Annales" of Walpers, the indication of which work is sufficient to point out the hardy innovator. We sincerely wish this author would withdraw his advanced opinions. Here are some of these changes:—A great number of species of Cattleya (Aclandiæ, Skinneri, luteola, labiata (with Mossiæ, &c.,) pumila, citrina, Forbesii, Perrinii, &c.), according to the author, become Epidendrum! The specific names are nearly all preserved, and this is fortunate. Lælia (superbiens, purpurata, Brysiana, grandis, lobata, xanthina, rubescens, peduncularis, autumnalis, &c.,) become Bletia! Brasavola (cuspidata, Martiana, amazonica, angustata, tuberculata, Perrinii, cordata, nodosa, venosa, Digbyana, glauca, &c.); and the Schomburgkias (Lyonsii, marginata, crispa, rosea, undulata, tibicinis, &c.,) are also Bletia. Nor let us forget that the Barkerias (elegans, Lindleyana, melanocaulon, spectabilis) also become Epidendrum. We hope that such strange reforms will have the same fate as those of M. Klotzsch among the Vacciniaceæ and the Begoniaceæ. Nevertheless it does not become us to blame such revolutions, and we await a more competent authority than ours, in this case of Orchids, to raise its voice and pronounce on the validity of such opinions, which according to our ideas are almost indefensible from a scientific point of view. The union under one name of the two genera Cattleya and Lælia has indeed for a long time been called for, inasmuch as they differ only in the number of their pollen masses, the first having four, the second eight. Besides, it often happens in certain species that of these eight, four (two pairs) are more or less abortive. Let us conclude, in the case of Cattleya, with the admirable C. Leopoldii, which we may without exaggeration call the king of its genus; and in that of Lælia, with our magnificent L. Brysiana, which certainly has nothing in common, notwithstanding the opinion of M. Reichenbach, jun., with Lælia purpurata, another wonder of the genus: it will be seen from the foregoing list, that these two plants figure in the German orchidology as Bletias (do not laugh!); whilst the first, which we do not find mentioned, will perhaps be called an Epidendrum. *Lemaire, in L'Illustration Horticole.*

Gooseberry Caterpillar.—Take one ounce of hellebore powder and two ounces of powdered alum, dilute these first in a small quantity of water, so as to get them thoroughly mixed, then add a gallon of water. Apply the mixture to the bushes affected, either by wetting them with a syringe or waterpot, over the upper surface of the leaves. The caterpillar will drop soon after feeding upon the leaves. I have made use of the same proportion for a number of years, and I have always found it most effectual. Hellebore powder will destroy these pests by dusting them dry, but it cannot in this way be applied so regularly over the leaves as when diluted. The principal use of alum is to cause it to adhere to the leaves. The price of Hellebore powder is 1*s.* 6*d.* per lb., and alum 4*d.* One gallon would do from 10 to 12 full-sized bushes; it is therefore by no means an expensive affair. It is, however, very requisite to keep a vigilant eye over the bushes in watching their first attacks, and applying the remedy as soon as the insects are observed. If only applied to those bushes which are seen to be attacked, the first or second good shower of rain makes the leaves as clean as if nothing had been done to them. *J. Webster, in Florist and Pomologist.*

Calendar of Operations.

(For the ensuing week.)

At p. 656 it is stated in reference to Roses, that now is a good time to commence budding; the objects contemplated by budding Roses should however be well understood before the work is begun. If it is intended only to make the performance subservient to the production of standards, then we would suggest the inquiry, whether in the locality indicated standards are desirable or not. A blind preference for a Rose tree with a tall stem and a heavy head, has been very prevalent of late years, and has often been indulged without regard to good taste or appropriateness. Now, many begin to be of opinion, that in itself, a standard Rose is not so elegant as a common well-trained bush, or one grown in the pillar fashion. A leafless stem, requiring a strong stake for its support, as all standard Roses do, has certainly little beauty or ornament about it; while a Rose growing on its own roots, and trained pyramidally to the height of 5 or 6 feet, is a magnificent object when in bloom. What then is the end or purpose to be answered by standard Roses? The answer is, they are only useful or desirable when a display is required above the heads of more lowly plants, and in such cases they may be introduced with fine effect. An avenue of standard Roses may be made a fine object, when there is a good undergrowth of smaller productions; or single standards may be introduced with advantage when space is limited, since they allow of flowers being grown underneath them. But even where standards are clearly desirable, it should be remembered that they ought to be placed in a finished state in the spots they are intended to occupy. Budding is the work of a nursery. Those who bud merely for amusement, may however find abundant opportunity of indulging in their favourite pursuit, besides that of forming standards.

FLOWER GARDEN AND PLANT HOUSES.

The hardier sorts of stove plants will form the most suitable decorations for conservatories during the next two months. Go over twiners frequently, and regulate their growth before the shoots get entangled; but avoid keeping them tied too closely, for they are never seen to advantage unless they are allowed to hang from the roof in a natural and graceful manner. Sickly specimens must be frequently examined for insects, and means used to get rid of them as soon as they are perceived, otherwise they will spread to adjoining plants, and be more difficult to eradicate than if taken in time. Young stock in stoves will now be growing rapidly, and must be afforded sufficient space to allow perfect development of foliage and the formation of compact handsome specimens. The atmosphere of warm plant houses can hardly be kept too moist, and the plants should be sprinkled overhead morning and evening, and every available surface kept constantly damp. Out of doors attend to staking such of the herbaceous plants as require it before they get blown about and injured, and do not huddle the stems together, as is too frequently done. Early flowering bulbs will now or soon be ready for taking up; they should not be left in the ground after the decay of the foliage.

CARNATIONS AND PICOTEES.—The most forward may now be layered; they should be put down in light soil, consisting principally of leaf-mould. Those shoots which apparently will not get sufficiently strong, may be taken off, and treated in the same way as Pink pipings. Take every opportunity of fertilising blooms for seed; do not cross a Picotee with a Carnation, and prefer those which have broad, stout, well formed, and smooth petals. The risk is considerable, even under these circumstances; but the gratification arising from the production of one first-rate flower repays all the trouble.

CHIRONIA FLORIBUNDA.—This is a plant well deserving a place in every collection; possessing, as it does, rich pink flowers of considerable size and beauty, and a good foliage, it is a matter of surprise that we do not oftener see it than we do. It is a plant of easy cultivation, requiring only to be potted in a mixture of turfy loam and peat, and to be placed where it has plenty of light and room.

CHRYSANTHEMUMS.—As was stated last week, these should now receive their final shift. Let the compost to be used consist of two-thirds turfy loam and one-third well-decayed manure, to which should be added a little sand or grit. Stake and replace the plants where they were set before, and take care that they at no time suffer from want of water. They may also be frequently watered with liquid manure.

DAHLIAS.—Remove all misshapen blooms, and place neat stakes round the main stem, to which the lateral shoots may be attached, otherwise they are apt to be twisted off by rough winds.

PINKS.—Occasionally examine pipings under handglasses; remove any which have contracted mouldiness, and carefully extract all weeds from amongst them.

FORCING GARDEN.

FIGS.—Trees that have been kept dry while ripening the first crop, and are now cleared, should be well watered at the root, and if there is any appearance of red spider, the leaves should be thoroughly washed with the engine. Give manure-water to trees showing a heavy second crop, and keep the atmosphere moist by frequently sprinkling the passages, borders, &c. Keep the shoots thin and regularly tied in so as to avoid confusion, and expose all parts of the tree equally to light. Where the fruit is ripening attend to previous directions, and keep the atmosphere and borders as dry as can conveniently be done. Assist trees in pots by giving them a liberal supply of manure water.

PINES.—So far this has been a favourable season for securing well-ripened high-flavoured fruit; such varieties, however, as are apt to spoil at the bottom before the upper pips are coloured should be kept as dry as possible immediately that they show the slightest signs of colouring, keeping the atmosphere also as dry as can be done without injury to the rest of the stock; slight fires may be used on cloudy days, giving a little air to dispel damp, and to keep the atmosphere in motion. Look well to securing a supply of fruit for late autumn and early winter use, which is sometimes a difficult matter. Prepare the plants for showing by keeping them dry at the root for a fortnight or so, after they appear to have completed their growth, and expose them fully to the sun, in order to give them a rather severe check. Those expected to show fruit in October and November should be encouraged to make free growth for the present. Be very careful in supplying young stock with water, as any neglect in this respect will probably result in its showing fruit prematurely; and attend to potting suckers in succession as regularly as they can be obtained.

VINES.—Grapes intended to hang through the winter should be thinned very freely, and, if necessary, they should be gone over a second time, leaving them so that the berries, when fully swelled, will scarcely touch each other. Only a moderate crop should be left on the Vines; for, to ensure success in keeping Grapes fresh and in good condition till next March, the Vines must be in first-rate health. Keep the atmosphere of houses where the fruit is colouring in active circulation, leaving a little air on at night, to prevent damp. If red spider appears inclined to be troublesome, wash the pipes, &c., with a mixture of soot and lime, and if the colour is objectionable add a little soot.

HARDY FRUIT AND KITCHEN GARDEN.

Shorten breast wood on Pears on walls and espaliers, and lay in young shoots of Peaches and Nectarines. Gather orchard fruit as it becomes ripe. Strawberry runners for forcing next season should be potted and placed in a close shady pit until the plants get established.

ASPARAGUS.—This may still be watered freely with liquid manure. On dry, friable soils salt may be used with advantage for this crop; but not on strong clays, as it keeps the ground wet in winter, and rots the roots.

BROCCOLI.—Let planting of this be finished now, as soon as possible.

CELERY.—Plant out for a main crop, and earth up early plantations as they require it, selecting a dry day for the operation.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 13, 1864, as observed at the Horticultural Garden.

July.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 7	3	30.122	30.082	74	35	54.5	62	60	N.W.	.00
Friday 8	4	30.017	30.1 6	65	41	53.0	61	60	N.E.	.00
Satur 9	5	30.091	29.988	68	50	59.0	61½	60	N.E.	.00
Sunday 10	6	30.033	30.025	70	49	59.5	61½	60	S.E.	.00
Mon. 11	7	30.047	30.046	81	49	65.0	62	60½	E.	.60
Tues. 12	D	30.096	30.039	77	49	63.0	63	60½	E.	.00
Wed. 13	9	30.046	30.016	76	42	59.0	63	60½	E.	.09
Average.		30.064	30.043	73.0	45.0	59.0	62.0	60.2		.10

July 7—Densely overcast; cloudy; fine; cold at night.
— 8—Fine; dry air; cloudy, with brisk N.E. wind; overcast at night.
— 9—Light clouds, and fine throughout.
— 10—Dry haze; fine throughout.
— 11—Fine; very fine, dry air; fine at night.
— 12—Uniformly overcast, very fine.
— 13—Densely clouded, very fine; overcast at night.
Mean temperature of the week 3½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending July 23, 1864.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17..	75.9	51.5	63.7	13	0.56 in.	2	—	2	2	4	17	8	3
Mon. 18..	74.8	50.4	62.5	18	1.22	—	1	1	1	5	19	8	5
Tues. 19..	72.8	50.7	61.8	21	0.60	2	1	1	1	7	16	8	2
Wed. 20..	72.5	50.6	61.6	23	0.72	1	1	3	—	1	19	11	2
Thurs. 21..	73.2	50.6	61.9	17	0.54	2	1	3	1	5	13	10	3
Friday 22..	73.1	51.5	62.3	22	1.37	3	3	2	1	3	14	10	2
Satur. 23..	73.8	52.1	63.0	19	0.70	1	6	5	2	3	11	6	4

The highest temperature during the above period occurred on the 17th, 1834—therm. 94 deg.; and the lowest on the 18th, 1863—therm. 27 deg.

Notices to Correspondents.

BOOKS: *S K.* Probably "Babington's Manual of British Botany" will suit you, if you understand how to use such books. If not, you had better first master "Oliver's Lessons in Elementary Botany," which are based upon the late Professor Henslow's schedule system of teaching. See also a Leading Article published to-day.—*A R H.* M'Intosh's "Orchard and Fruit Garden" will most likely supply what you require. It is not expensive.

CHISWICK GARDEN: *W M.* Visitors are admitted by printed orders obtainable from Fellows. The garden is open on every day except Sunday, from 9 in the morning till 6 in the evening.

INSECTS: *Alpha.* Pour a gallon of spirits of tar gradually on a barrow of sand, mix them well together, and sow over the surface of the field intended for Carrots. The above quantity will suffice for 60 or 70 square yards.—*J S., Kew.* The Silver Firs are infested with one of the minute woolly-bodied species of Coccidæ (Chermes coccineus?). The remedies against Aphides and scale insects should be employed. *W.*

LILIUM AURATUM: *Jamie.* The original plants were one-flowered, as stated in the account you refer to; but now that the plants have acquired something like their natural strength, they are found to bear eight or ten flowers on a stem. So much the better.

NAMES OF FRUIT: *G C B.* Your Strawberry is apparently Sir Charles Napier.

NAMES OF PLANTS: *N N.* I, Dictamnus Fraxinella; 2, Centaurea depressa; 3, Agrostemma Githago; 4, Malope trifida. *J H.* Polypodium alpestre flexile, a very well marked and handsome Scottish Fern, which some consider to be a distinct species.—*M W.* 1, Galium verum; 2, Galium Mollugo: 3, Geum rivale.—*Francis T.* Fraxinus integrifolia, a monster of the common Ash.—*B W.* Some Brasavola, and probably B. grandiflora, as far as the mere flower will enable us to judge.

PEAS: *W H., Maidstone.* The variety you have sent us is sold in Covent Garden Market under the name of Prizetaker.

PLANT TUBS: *Subscriber.* There is no objection to using slate tubs for large Camellias, except perhaps that they are heavier than wood, and make the plants all the more cumbersome to move about. We doubt if there has been anything yet contrived better adapted for planting, or better looking than round Oak tubs, a little narrowed downwards. Certainly there was nothing of any particular merit brought out when the Royal Horticultural Society offered a prize for the best tub some two or three years ago. We cannot recommend makers; but any horticultural builder would no doubt supply you; or you will occasionally find plant-tubs advertised.

VERBENA: *G C, Bath.* Your seedling is a very beautiful one, if constant, as from the trusses sent it appears to be. It is the counterpart of striata perfecta, only marked with carmine instead of lilac, and is the best red-striped Verbena we have seen. You should send specimens (three trusses) to the Floral Committee, which meets at South Kensington next Tuesday.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22 Eden Quay, Dublin.



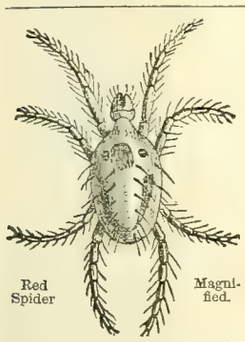
COCOA-NUT REFUSE delivered within 2¼ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

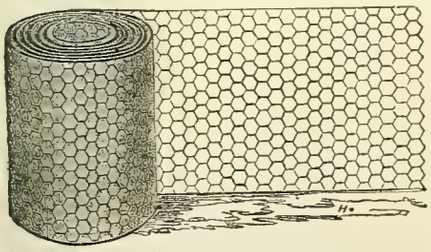
Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.

For further particulars apply at the Manufactory; or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

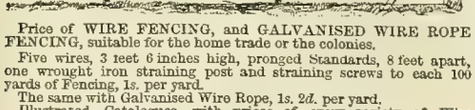
BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Iron. Japanned
2-inch mesh, 24 inches wide	No. 19 ..	4½d. per yd.	3½d. per yd.
2-inch " " " .. "	18 ..	5 "	4 "
2-inch " " " .. "	17 ..	6½ "	5 "
2-inch " " " .. "	16 ..	8 "	6½ "
1⅝-inch " " " .. "	19 ..	4¾ "	4 "
1⅝-inch " " " .. "	18 ..	6 "	4¾ "
1½-inch " " " .. "	17 ..	7 "	5½ "
1⅜-inch " " " .. "	16 ..	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong GALVANISED POULTRY NETTING, 7½d. per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1s. per yard.
The same with Galvanised Wire Rope, 1s. 2d. per yard.
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

HOWARDS' CHAMPION PLOUGHS, HOWARDS' STEAM PLOUGHS and CULTIVATORS, HOWARDS' HARROWS, HOWARDS' HORSE RAKES, HOWARDS' HAYMAKERS, &c., will be exhibited at the Newcastle Meeting of the Royal Agricultural Society of England, July, 1864.
Full particulars may be had free on application to JAMES & FREDERICK HOWARD, Britannia Iron Works, Bedford.
London Office—4, Cheapside, E.C., three Doors from St. Paul's.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
Deputy-Chairman—WILLIAM PORTER, Esq., Hembury Fort, Honiton.
TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY,
Offices: 52, Parliament Street, S.W.
Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, the term for building works being limited to 31 years.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 52, Parliament Street, S.W.

ROYAL AGRICULTURAL COLLEGE CLUB.
The ANNUAL DINNER of this Club will be held at the Queen's Head Hotel, Newcastle-upon-Tyne, on WEDNESDAY (July 20) during the week of the Meeting of the Royal Agricultural Society.
Tickets to be had at the Bar of the Hotel up to Tuesday evening, July 19. Members are allowed to introduce friends.
JACOB WILSON, Hon. Sec. pro tem.
Manor House, Woodhorn, Morpeth.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at NEWCASTLE, 1864.
The LOCAL EXECUTIVE COMMITTEE have arranged for a Registry of Lodgings and other Accommodation for Visitors to Newcastle during the Show, to be kept by Messrs. C. BROUGH, Academy of Arts, Blackett Street, and G. MURAS, 4, Northumberland Street, to whom applications must be made.
R. DODDS,
E. I. J. BROWELL,
WALTER JOHNSON,
JACOB WILSON,
} Hon. Local Secs.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
—GREAT SHOW of HORSES, CATTLE, SHEEP, PIGS, and AGRICULTURAL IMPLEMENTS, at NEWCASTLE-UPON-TYNE, JULY, 1864.

		Admission.		
MONDAY, July 18	..	10s. 0d.	WEDNESDAY, July 20	2s. 6d.
TUESDAY, July 19	..	2s. 6d.	THURSDAY, July 21 ..	1s. 0d.
			FRIDAY, July 22	1s.

For further particulars see Programmes, which may be had on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JULY 16, 1864.

MEETINGS FOR THE ENSUING WEEK.
Agricultural Meeting at Newcastle. Free to Members of the Royal Agricultural Society of England.

MONDAY,	July 18	{	Open judging in the Cattle Yards. Admission 10s.
TUESDAY,	— 19	{	
WEDNESDAY,	— 20	{	Admission 2s. 6d.
THURSDAY,	— 21	{	
FRIDAY,	— 22	{	Admission 1s.

AFTER a quarter of a century of travelling to and fro, having visited every coast and almost every county of the island, the Royal Agricultural Society of England revisits Newcastle. During the 16 years which have elapsed since its former meeting there, our agriculture has been wonderfully altered, intensified, improved. This has been done perhaps rather by the extension of what was already known and practised in 1846, than by the influence of anything altogether new; but many of our now common practices had then been only just adopted, and others have been very much improved, so that the great increase of produce which English farms now on the average yield, may be fairly attributed to agencies which have grown to their present efficiency during the period which has since then elapsed.

No doubt the Society has not merely reflected, it has stimulated the various changes which farm practice has during this period witnessed. The annual exhibitions which it has carried to one county after another of what all England can and does accomplish in the way of improved agricultural live stock and improved agricultural machinery have both urged that rivalry among exhibitors to which these improvements are due and made them known throughout the country as soon as they have been accomplished. No single agency, however, that can be named stands in anything like the same rank among the causes of our agricultural progress, with the use of guano and of artificial manures which has grown up since 1846, without the help of the Agricultural Society. Guano, bonedust, coprolites—the phosphoric acid of all these and the ammonia of our coal beds, still outrageously wasted—these are the real causes of our greater produce now than then.

Next to these in rank stand the various improvements that have been effected in the tillage of the land. In 1846, at the Newcastle meeting, Mr. PARKES delivered a lecture on land drainage which included pretty nearly all that is known on the subject even now. But since then he and many others, no longer writing and talking, have been actively engaged in carrying their ideas into practice; and the first step to thorough tillage—placing the subsoil and the soil in their best relations to the water which falls upon them or rises through them—has during the past 16 years been taken with immense advantage over large tracts of country. Manures and drains are at once the raw material of our manufacture, and the greatest improvement which has been effected in our machinery; and it is to these, but little aided by the operations of the Society, that the increase of our manufacture has been chiefly due.

Next to these come the further improvements which have been made in the tillage of the soil; and it is to machinery for this purpose that the Society this year directs by its prize list the attention of its exhibitors. We have accordingly a great competition in steam ploughs and cultivators, a very great competition in ploughs, and a great show of cultivators, harrows, and other tillage implements.

The week of the Newcastle meeting commenced

on Wednesday last, in large and well-adapted fields near the Benton Quarry station, about five miles north of Newcastle. Here are collected for trial:—(1) Fowler's 12-horse-power engine and anchor, working a four-furrow plough; (2) Savory's 12-horse-power engine, carrying its double windlass in drums around its boiler, and working any tool from any anchorage; (3) Howard's 10-horse-power engine and double windlass, working either plough or cultivator; (4) Fowler's two 7-horse-power engines, one at either end of the furrow, uniting their effort on the four-furrow plough travelling to and fro between them; (5) Savory's two 10-horse power engines, one at each end of the furrow, carrying the rope wound on drums surrounding the boilers and drawing any tool—Fowler's, Howard's, or Steevens'—that may be desired, to and fro; (6) Coleman's 10-horse-power engine, with two cultivators, each drawn to and fro alternately, and each accomplishing one half in length of the furrow between the engine and the anchor; and (7) Collinson Hall's pair of extremely neat, though probably too light, 7-horse-power engines, drawing cultivator or plough to and fro by means of his linked iron draught rod. Besides these, 17 swing ploughs, 30 wheel ploughs, 5 subsoil ploughs, 3 paring ploughs, and 5 diggers, also seek the judges' verdict. Messrs. C. S. Read, H. B. Caldwell, Prof. J. Coleman, F. Sherburn, Jun., and D. K. Clark, C.E., have undertaken the adjudication of the steam cultivation prizes; and Messrs. T. P. Dod, E. Wortley, and T. P. Outhwaite, award the premiums offered for horse ploughs. Their task is an extremely difficult one, but by careful trials over sufficient extent of land and gradual weeding of the inferior competitors, the problem at length becomes narrowed and more manageable. The issue will however not be known until next week.

In the meantime it may be stated as already obvious enough, that the trials of horse ploughs and those of steam cultivators do, from the very first, proceed upon altogether different principles. Probably there never was more beautifully executed work than some of the ploughing done on Wednesday and Thursday. Each furrow slice stands square, or with a sharper crest, unbroken from end to end, each precisely like its neighbour, the surface chiselled or machine-planed into furrows of perfect uniformity and symmetry.

This is on a hard dry Clover stubble, where the plough needs a firm hand to hold it to its work. But how does Mr. Savidge, of Sarsden, a successful cultivator, report his operations with the steam plough this week upon his farm? He says:—"We are now *bursting up* our Clovers in preparation for Wheat-sowing." It is no longer painted polished surfaces or clean cut slices that the tillage farmer wants; and we doubt very much if one pennyworth is ever added to the produce of the country by these repeated competitions amongst ploughs, in which the last touch to the perfection of a polished and a well cut surface, a thing utterly worthless agriculturally, becomes the turning point on which the award of the prize is made to hinge.

The competition among steam ploughs is much more satisfactory if not more interesting; and the use of two engines, both actuating the tool going to and fro between them, which has at length been successfully exhibited, is quite the leading feature of the trial so far as it has gone as yet. Of this a full report will be made next week. It must suffice at present to say that of the two principal trials, when (1) Fowler's large engine, and (2) his two smaller engines, drawing his 4-furrow plough, and (3) Savory's large double-drum engine drawing Howard's plough, and (4) his two single-drum engines working Steevens' plough, were engaged — the work done by Howard's plough (No. 3), thoroughly good, was also the neatest and best-looking; that (No. 4) done by Steevens' plough over very hard and track-marked ground, deeply and thoroughly moved, was extremely rough. Fowler's work, as deep as any, and presenting a perfectly uniform character, was broken up a good deal more roughly than No. 3, and with an expenditure, so we are informed, of very considerably less coal in the case of No. 2, notwithstanding that two engines were engaged.

As we write, another competition is going on, in which Fowler's 3-furrow plough, worked by one of his smaller engines, driven much beyond its nominal power, is doing wonderfully fine and thorough work in competition with Howard's plough driven by Clayton's 10-horse power engine. Howard's plough in this competition is turning over a more solid and well made furrow slice, in which the seams of green however are not so perfectly buried, and it is more easily balked on crossing a hard track-way across the land. Fowler's work presents a more broken surface, the green is well buried, and the work looks as if it were already a scarifying ahead of Howard's on the way to tilth.

On these trials of ploughs and cultivators, and on the merits of the live stock to be exhibited on Monday next in the yard on Town Moor, a report will be made next week.

There is a district of low-lying river-side land between Tarvin and Wervyn, in Cheshire, which is a very striking illustration of the mischief done to land by water-mills. Within a few miles nearly a dozen mills are planted along its course, making the full use of a sluggish stream, whose bed is thus utterly valueless for that drainage of the valley for which Nature had provided it.

The water is above the level of the land almost everywhere along its course, and in the few exceptions, the fall, if any, is not more than one of inches. Here then is a case where the new system of river-side drainage referred to in another column ought to be put in operation. Drainage 4 feet deep, communicating with an outlet pipe, though it delivers its flow 3 feet below the surface of the water, would be here efficient, if the experience of Mr. Bowick and the reasoning of Mr. Robie are to be accepted as generally true. The latter gentleman professes to find the explanation which the former needs in the existence of springs in those river-side meadows which have thus been drained. These springs find their easiest outlet through the drains thus opened, and the mischief done by them is thus removed. There remains however the drainage of the ordinary rainfall through the land to be accomplished. The mischief done to it in a case where the subsoil is full up to the level of the river cannot be thus removed; or cannot be more effectually thus removed than it would be by surface furrowing as deep as the circumstances would permit.

It is not thus, accordingly, that the river lands at Wervyn have in places been successfully laid dry. A real 4-feet fall has been obtained by taking a main up from low enough upon the river course past the mills to certain meadows a mile or two above them.

These meadows are isolated by embankment both from the mill lead, and from the natural water-course, and through their midst a main drain 4 feet deep is carried into which parallel drains gradually ebbing from 3 feet 6 at their lower end to about 30 inches at the upper carry the drainage of the land.

These meadows are peat covered with from 6 to 12 inches of alluvial soil. The drainage is perfectly efficient, notwithstanding that on one side the water is within a foot of the land, and on the other side the water is a foot or two above the land. There is a true drainage through the outfall provided by the main which passes the mills upon the course of the stream. And the high level of the water becomes actually an advantage instead of a great injury of the land. By means of it the drainage pipes are used in droughts to flood the subsoil. After dry weather the whole of the peaty subsoil is so far dry that pits sunk between the drains will hold no water above the level of the adjacent drainage channels. A plug is then put in the main at the lowest outfall of any particular field, and water being let in at the upper end from the natural water-course, in a very few hours the water is found to rise in these pits to very nearly the level of the river all through the meadow. When this is thus accomplished the supply is cut off, the plug is taken out, and the drainage proceeds as before. Two good purposes are thus accomplished, the Grass is fed, and freshened, and the fluffy ferruginous deposit in the drains, which seems to be inseparable from peat-land drainage, is washed out. Nearly a cart-load of this muddy deposit, which would soon choke the pipes, has been taken at a time in this way from the outfall of only a few acres of land by this occasional flushing of the drain pipes.

This drainage*, whether accompanied or not by floodings of the subsoil in this way during drought, has greatly improved the Wervyn meadows. And where bone-dust has been also applied, a very great improvement has been effected.

We shall hereafter give further information on the immense improvement effected in Cheshire pastures by the use of bones. Boiled bones, ground small, applied at the rate of from 8 to 20 cwt. per acre, never fail to produce a great improvement. The land immediately bears a great produce of White Clover among its Grasses: and everything—Grass, Clover, even Thistles, Rushes, and every kind of weed is eaten down bare by the dairy cattle.

The effect of bones on these river-side meadows is seen not only in this improvement of the quality and quantity of the desired produce, but also wherever the land is occasionally grazed by the gradual disappearance of weeds. Bone sawings in smaller quantity and Proctor's Grass-land manure, essentially we presume a superphosphate, also effect a very great improvement; but the chief and lasting benefit seems to be derived, especially in the case of poor clay land pastures, from a heavy dressing of boiled bones.

The great exception to the general rule of the stationary Grass-land agriculture of this country is to be found in Cheshire, where drainage and bone-dust have together made as great a difference in the dairy produce of the county as artificial manures and cattle feeding and land drainage have elsewhere made in the corn produce of many of our arable districts.

On three farms near Wervyn, where in 1853 64 cows were milked, there are now at least double the number. And on one of these, keeping 14 cows with difficulty, there are now 30 cows in milk, 18 young heifers to be brought to the pail next spring, six farm horses, and a lot of pigs.

This farm is 169 acres in extent, of which 50 acres are arable. The rent is now nearly double what it was 12 years ago, owing to per-centages on landlord's outlay during the interval; and as labourer and tenant also benefit, all classes may be congratulated on the advantages which in this case energetic agriculture has conferred.

* Executed, we believe, by Mr. John Palin, land agent, of Chester.

There is many a farm, and especially many a dairy farm, whose stock cannot be displaced without considerable loss, on which the failure of the green crop and the lightness of the hay crop seem certain during the ensuing winter to inflict considerable injury. We know one milking nearly 100 cows, where about one-third of the land is arable, and where the dependance has more and more been placed upon Swedes and Mangel Wurzel and straw during winter, and the dairy stock has been increased to the utmost, capable of being kept thus, and on a minimum extent of hay during winter, in order that the profits of summer grazing may be realised to the utmost. The Mangel Wurzel crop is there, as very generally, a failure; the Swedes are also for the most part a failure; the hay crop is there, as everywhere, extremely light. What is the tenant to do? He has resown his Mangel land and Swedes with Aberdeenshire Yellow Bullock Turnip. He will save every bit of straw for litter, and pass it through the chaff-cutter, and the roots through the Turnip pulper, in order to the utmost economy in the use of both as food. He will sow his stubbles with Turnips and Rape and Vetches, so as to have late autumn and early spring keep, in order on both sides to diminish the winter period when he is to be dependent on his diminished supplies. And if needs be, he can, when driven to it, sell at the best market he can find some of the least valuable of his dairy stock.

It is probable that he and others thus situated might do more than all this. The Cabbage plant ought to be more generally cultivated than it is, and especially on dairy farms. There are hardy sorts of the Drumhead Cabbage which profess to stand a certain degree of frost. And the Early York and other sorts of Spring Cabbage will in mild winters come very early into use in April. We should recommend in such a case as has been just described, planting out this Drumhead Cabbage early next month over any well tilled well dunged land. The crop will be ready by the end of Autumn, and it will be then at its hardiest to stand the frost, and by its means hay and hardier winter food may be saved in December and January, and perhaps all through the season. A large plot of Early York Cabbage also should be planted out in September, on any well done and sheltered spot, half field half garden, and will be useful for the cows in milk before the Grass is ready; and it too will thus help to economise the more valuable winter keep set apart for the cows when they first come into milk. The Cabbage plant seems to us now, as we come into August, to be the most likely means we have of supplying the deficiency of winter keep which is now obviously threatening us. And we hope that there is abundant supply in seed beds of true Drumheads throughout the country, for the demand which is certain to arise.

APPEARANCE OF THE CROPS.

Cambridgeshire: *Chatteris, July* 4.—Wheat: generally a good crop of straw, and a good ear. A few of the heaviest fields a little laid. With suitable weather there is the prospect of a good average crop, and it might easily prove more than this. But our country is so fickle that until we get the crop harvested we fear to express any decided opinion. Last year our crop was not so heavy as was reported in other districts; the present appearance this year is decidedly superior to last. Oats: this crop is unfavourably reported of. On the gravelly fen lands the Poland Oats were put in with manure, and the water drill are decidedly a good crop. Other varieties of Oats on other soils are much complained of. They are short in the straw, and only look like producing a light crop. Barley: the Barleys were injured by the heavy rains in May and the subsequent cold frosty nights. They have much improved, and will probably be an average crop, but not equal to last year. Beans: the crop of straw is good, but we hear complaints in some localities of the blossom not setting well, and in some instances where set, of the pods not filling well. What we have been able to examine personally are not suffering in this respect, but are fairly podded, and appear like yielding an average crop. Peas: as far as we have seen this crop promises well; and should it continue free from attacks of fly will afford a good yield. Mangels: growing well, and in most instances a good plant. Turnips: not grown. Coleseed: the early sown injured by fly; the later sown a very good and healthy plant. Potatos: on inferior Potato land a poor crop; on better soils more promising. Hay: on old pasture lands a heavy crop; seeds only a poor crop. *Alfred S. Ruston.*

Dorsetshire: *Bradford Abbas, Sherborne.*—Never before do I remember such a long continuance of dry weather; for the last nine weeks we have had scarcely anything of rain better than an occasional passing shower, commencing with great promise, but ending in complete disappointment and a hot sunshine. Still our light lands have proved more holding than stiffer soils, as much of the lias of the county of Somerset is cracked so much as to let in a hot sun and a drying atmosphere to the roots of plants already too dry to grow. The brashes and sands of the Dorset oolites present good promise of Wheat and Barley, the ears however, of both will be short, and I fear they are not free from insects, among which the aphis has been particularly busy. Beans and Peas flowered remarkably well, but when not very early sown will be a complete failure; the haulm of the Pea has dried up at the bottom, just as the plants came into flower, and coincident with this the aphis has sucked the verdure out of the flower and fruit, so that perfecting a pod has been to a neighbour so utterly impossible as to induce him to plough the whole in preparatory to sowing Turnips. Beans have in some places been attacked by the black dolphin, Aphis fabæ. My crop has been free from this pest, but can scarcely form a pod for lack of moisture. In roots the Mangels have come up very irregularly, but when stimulated into quick germination by the application of superphosphate, they still show a vigorous leaf; mine too are at present free from the leaf-mining grub, Anthomyia betæ, though both these and the Swedes are not free from an attack of the larvæ of some species of Noctua, which I am sorry to say is gradually but surely becoming a great pest. My Swedes want rain, but where I used 3 cwt. to the acre of superphosphate (Proctor's special), sown broadcast and well mixed with the soil, I have found such decided advantage over drilling with the seed as to induce me in future to act even more than I have yet done on Prof. Voelcker's dictum—to incorporate all manures with the soil. Our hay-making is well done, but the yield though good is below an average, and lattermath for miles is more bare and brown than in midwinter. When will the rain come is an anxious question. Harvest will be early, but if the prophets are to be right who tell us we shall have to suffer from too much wet, then the prospects of the farmer for 1864 will not be so cheering as they were two months ago. Flax, which is here grown in some quantity, promises a good crop of fibre, but much of the seed will fail to ripen. *J. B.*

Northamptonshire.—Owing to the very small quantity of rain we have had in this district during the spring and summer, the corn on the light porous soils is very deficient. The loss of plant in the Wheat crop on land of that kind was very great, and many pieces have been ploughed up, and Barley has been substituted. Much of that remaining is very thin, very full of Poppies and other weeds, and cannot fail to yield badly. The Barley crop is equally unpromising, being very short in both straw and ear; and, owing to the want of moisture, it is ripening prematurely in some parts of the fields. The severe frosts checked the corn but not the weeds, and where Clover seeds have been sown, and hoeing could not be resorted to, the weeds have obtained the mastery, and both in quantity and quality the corn will be deficient. The Oats, too, in nearly all cases and on all soils, are very short, and on some of the weakest and hottest land they will not get into bell. On the whole, they are decidedly a bad crop. On the clay soils, however, and also on the strong loams, I am able to report much more favourably both of Wheat and Barley. There was a partial loss of the Wheat plant on some of the tilths, but generally there is every appearance of a good average crop. Some of the Barley, too, is looking very well, particularly that which was sown early on the stale furrow. Of Beans and Peas there is an unusually large breadth sown, owing to the almost total failure of the Clover last year. The Beans on strong land in good condition have bloomed and set well, are so far free from fly, and promise well for a crop; but in those cases where they have been tried on land of a lighter character, they have suffered by the dry weather, and will be inferior. Peas of the early varieties, where early sown, have escaped the fly and promise fairly; but the later kinds are covered with fly, and will be of little or no value either for corn or fodder. On the whole it is generally considered that there will be a deficiency in comparison with last year of one-fourth in the Wheat, and of one-third in both Barley and Oats. Of Mangel there is generally a good plant, but owing to the unfavourable weather it has not made much progress. Most of the early sown Turnips have been destroyed by the fly, and those sown more in season have come up very irregularly. On the best Turnip soils there is a fair plant, but on the stronger land there is a very indifferent crop, and their growth is scarcely perceptible. Indeed, the crop generally is in a very precarious state, and a few more days of the present drying weather will be fatal to a large portion of it. The crop of hay is on the whole a very light one. The meadows and the best uplands, where laid early, have yielded well, but the seeds have not produced half a crop, and many of the inferior uplands have been equally unproductive. It is nearly all secured, and is of fine quality, and unless we very soon have a thorough soaking rain, that and other artificial food must be resorted to, or great losses will be sustained among the stock, as the pastures are getting very much dried up. Up to the last few days, however, stock has done well, and beasts and sheep on good land are generally in a forward state. *Owen Wallis, Overstone Grange, July* 12.

Oxfordshire: *Lodge Farm, Sarsden, near Chipping Norton, July* 12.—In giving you a short report of the growing crops in this neighbourhood, I am happy to say they are on the whole satisfactory, yet I fear the Wheat has suffered much on the thin stone brash and sandy soils for want of rain, and I have heard of many complaints of thin Wheat on the Cotswold hills on the deep and red soils; many fields of Wheat looking well last April, now show the "drill marks" too far, and the yield will be much under last year. The early sown Barley and Oats are a good standing crop, but the late planted is a poor prospect. Rain is much wanted for the corn and pastures. The crops of seeds and Grass are light, but secured in good order. On this as well as other steam-ploughed farms, the crops are quite an average except roots, which up to this time make but a poor show for want of moisture. I may here state for the information of those who wish to commence steam cultivation, that all our spring work, about 200 acres, besides 120 acres grubbed for a neighbour, has been done without any serious breakage, and 50*s.* will put our 12 months work in order. We are now bursting up our Clover lea with the grubber for Wheat, making what is called in some parts a pin fallow. *Matthew Savidge.*

Surrey: *Carshalton.*—Wheat: a good average crop. Barley: a fair crop, but beginning to suffer from dry weather. Oats: a light crop. Peas: short straw, but well podded. Beans: none grown. Potatos: well and healthy as yet; require rain. Mangel: a good plant. Turnips: coming badly, and slowly. Hay: a very light crop, pastures very bare. *James Arnot.*

West Sussex: *July* 11.—We have had very dry and not genial weather for several weeks, and pasture Grass that was so plentiful in the early part of summer has now got very short, and unless rain come soon our prospects altogether will be far from promising. There has been a good crop of meadow hay, and all got in in good order. The Clover crop has not been very good in many places, and perhaps we may say the whole is about an average as to quantity, but the quality better than usual. Wheat looks fair, but is now turning off for harvest, and will be fit to cut 10 days earlier than was expected a week ago, and is not likely to yield so well on that account; the straw is rather unequal in length, and the weather during the flowering time was very rough, which will be rather against it. That which was thinnest during the winter now looks far best, and does not suffer so much from the intensely dry weather that we have lately had. Some of Hallett's Pedigree, drilled a little over 1 bushel per acre, looks better than any other that we have got. Whether it is the sort or the thinner sowing that is the cause might be doubtful. I think it is both. I think there is no doubt but it will yield better than the rest, whatever the quality may be; and we often hear that millers don't like it. Barley is good, and perhaps will be the only crop likely to come up to an average this year; a great deal of it would have been down and spoiled but for the dry weather. Oats are very short in the straw, but the ear looks fairly, and the yield may not be much below an average. Peas are almost a failure, and a good many are being cut up for hay, or fed off by sheep to make room for Turnips; there has not been so bad a season for them for many years. Beans, I believe, are not much better, but there are not many hereabout. Potatos look still healthy, but are not likely to be a heavy crop; we have heard of disease, but don't think there is much of it yet. Mangel has come on slowly, but as it is now well established, and does not, like many crops, suffer from dry weather, we may expect it to do well. Swedes and Turnips, where sown in good time, have come on very well; but it cannot be expected that the later sown can come up without rain. Our markets are well supplied with lean stock sheep, and over done with mutton, and the latter has been a stiff sale, which has acted upon the sale of the former, but prices have not given way much. Lean cattle are not so plentiful as they were, and prices are still high. Our wool fair took place on Wednesday, June 29, and there was a large amount of business done at rather better prices than were expected; all good flocks, with a fair proportion of tegs, sold for rather over 2*s.* per lb. The Duke of Richmond's was sold at 2*s.* 1½*d.* Down ewes alone about 1*s.* 11*d.* There seemed a disposition to buy any quantity at these prices; I believe all was sold, except when some sellers thought fit to speculate for a rise. The attendance was very large, and though the fair has been only a few years established it has become one of the most important, and has been of great advantage to the farmers of this neighbourhood. Labourers have been better employed than usual, there being several public works going on; and there has not been so many spare ones for haymaking, but the fine weather has, with the mowing and haymaking machines, got through it very favourably, and there will be more done in this way every year. Where the mowing machine has been used it has given great satisfaction. Some have let the grass at 1*s.* 4*d.* per acre to a party of two men, giving them three horses (so as to have one resting) and the machine. And the men have earned good wages, from 4*s.* to 5*s.* a day, and the work is not near so hard for them as mowing with the scythe. One cuts odd corners and keeps the machine knives in order, while the other drives. So that the cost is about 2*s.* 8*d.* per acre, exclusive of tear and wear of machine; and the price for mowing with scythe has been about 4*s.*, leaving 1*s.* 4*d.* for machine. They do about from 7 to 8 acres a day. This plan insures that care is taken of the machine, and it is the liability to break in careless hands that makes many object to their use. One party who hires one says he gets two trusses an acre more after them, and that at once pays all cost. Harvest will begin about the end of this month. *G. S.*

AGRICULTURAL MEMORANDA.

Scotch and English Stock Feeding.—I very often have conversations on this subject with intelligent Scotch agriculturists. They say, "If we give our bullocks more than 2*l.* worth of corn and cake during the period of their fattening, we diminish the value of our Turnip crop. We in Scotland look to stock for our profit, and not to corn." Now I do not think that this is sound reasoning, because it is admitted, and I have observed, that the Scotch corn crops might be very much heavier than they are, and they certainly would be had they a better supply of rich manure produced by the feeding with a large quantity of cake and meal, and a small quantity of Turnips. The Scotch custom now is to give a bullock almost as many Turnips as it can eat, say 150 lb. per day, with straw in addition, and during the latter stages of fattening a few pounds of meal or cake. By this system there is not enough of imported food consumed to repair the exhaustion caused by the sale of the corn crops, which we all know are those which mainly exhaust the land—by being sold from the farm. The question really is, whether the half of the crops of Turnips removed from the field for consumption in the yards, aided by the said small quantity of cake or corn, will sufficiently restore the elements removed by the corn crops? I say, and believe most decidedly, not—at least not sufficiently to force, what is always the test of profit, a maximum crop of corn. The Norfolk, Lincolnshire, Cambridge, and other south-country men understand this question thoroughly, and therefore "go in" for such a consumption of cake as astonishes our north-country friends, who look upon it as extravagance and waste, and say that the animals cannot appropriate it. Hence the weak crops of corn which I have too often noticed in the north as compared with Norfolk and Lincolnshire. We really do not half farm; for I can see an enormous difference in my own crops, according to the quantity of cake consumed, and especially where I use the manure from under the boarded floors, unmixed with any straw, and carried direct to the land. It is as though painted on a map. Let us remember that when more cake is given, less Turnips are consumed—there is no mistake about that; and consequently a great many more cattle can be kept and a proportionate increase of manure will result, much to the advantage of the crops. It is true our Turnips will show a smaller money value, but we get our return in manure and corn. Selling, as I did, some fields of my Wheat at 16*l.* per acre just after last harvest—even at 44*s.* and 46*s.* per quarter, I come to the conclusion that corn pays, and I look to that as my mainstay, and upon stock as necessary evils to produce it. Besides, I got 2 tons of straw per acre as food or litter for my cattle. Turnips will not pay the cost of

producing them; a very fine crop of Turnips sold to be fed on the land without cake does not in Scotland, as an average, fetch more than 5*l.* to 7*l.* 10*s.* per acre, which is less than their cost; therefore, in reality, we must look to corn for our remuneration, and endeavour by the cheapest means to increase its produce. Those means are, in my opinion and practice, to consume with every bushel of Turnips, Grass, or other green crop, at least from 4 to 6 lbs. of Rape or Cotton-cake, and steamed straw, and to add, for young growing animals, a little bran and malt combs or some Beanmeal. Manure made in this way surpasses all guano in effect and cheapness. I have now a field of Mangel dressed with such manure. On one acre I added 3 cwt. of Peruvian guano, but there is no sign in the crop of its having been put on, showing that our home-made manure renders its use unnecessary; possibly and probably it may show in the after crop of corn. The consumption of Turnips only or mainly, does not supply manure enough for the corn side of the farm, at least not ample or rich enough to produce maximum crops, which it should be always our aim to grow. It is true that our Scotch friends use much artificial manure, but at a considerable cost. We have Mr. Lawes's authority in the Society's Journal to show that there is no artificial manure so cheap as the manure made by feeding fattening animals. In conclusion, it is bad policy to gain 1*l.* on our Turnip crop, and lose 1*l.* 10*s.* on our corn crops. Again, it is quite clear that the more manure we make from imported cattle food, the less will be the want of purchased manures. A ton of guano costs 13*l.* Mr. Lawes tells us that the manurial value of a ton of decorticated Cotton cake after consumption is 6*l.* 10*s.*, of Rape-cake 4*l.* 18*s.*, of Linseed cake, 4*l.* 12*s.*, and of Lentils 4*l.* 5*s.* As the loss upon these feeding stuffs cannot be more than 20 to 30 per cent., it appears clear to me that it is much more profitable to consume a quantity of these, rather than to pay 13*l* for a ton of guano, which, after all, is deficient in some important manurial ingredients. I never feed green or root crops, or pasture without giving cake. *J. J. Mechi, July* 1864.

PLOUGHMEN'S TRICKS.—In this county each ploughman attends to his own horses, and I often say that they are almost as fond of their horses as of their wives, for they certainly will (at your expense) indulge them with an unlimited supply of food if you do not control them. This makes the horses dainty, and much food is in consequence spoiled or wasted. I have seen most woeful waste on many farms, where the hay and green Tares, Clover, &c., are pulled out and trodden under foot, instead of being, as in my case, all passed through the chaff-cutter and given in mangers. Our Oats and Beans are also ground into meal and mixed with the cut food. When it is considered that the farm horses on arable heavy land farms consume under ordinary cultivation one-fifth of the whole (landlord's) acreage of the farm, it is time to see how we can economise their food. The head ploughmen are very fond of having the best team, and if they have one horse that is not quite to their mind, especially an old one, you will soon see it get thin and weak, and wonder how it is. If I suspect such a case I have the horse taken from the care of his usual feeder, placed in another stable or shed, and fed by another man. The result generally is that the lean horse becomes again fat and vigorous. An excellent workman of mine, but not of a good temper, had a hasty tempered and free horse placed under his care. He and his driver soon disagreed, although I never was allowed to see it, and the horse soon became unmanageable, irritable, and poor in condition, and was condemned to be sold, at a great sacrifice, of course. Suspecting something wrong, I placed him under different treatment, and found with kindness and good food he soon became a very valuable animal. My man looked sheepish, and felt the reproof without my expressing my displeasure to him, except in mild but significant terms. Each ploughman should have his corn in his own care under lock and key, or they will sometimes plunder each other. Horses should always be kept well up to their work, without being fat. Avoid having a vicious man as your horseman, who may damage one of your very best animals in a way that is not easily detected except in its serious results. As to ploughing, you should be always "plumbing the depth" of the cultivation, for your own satisfaction. There is nothing that ploughmen dislike and avoid so much as the subsoil. It is there that the hard work has to be done both for man and horse—and it is there that I am always most determined that the work shall be done. In dry weather it is a series of concussions, breaking up in blocks; when wet it is like drawing a plough through adhesive putty, but it must be done if you mean to farm profitably. A ploughman is happy, and so are his horses, when the plough glides complacently and evenly just above and on the old pan on which the sole has slid for many a year—a sort of paved floor in fact. I remember the late Sir John Conroy showing me his "probe," an iron-pointed stick with a sort of guard at the proper height. With this he probed and tested the ground to see whether the 18-inch trenching had been properly done, or he declined to pay for it. I always carry my probe or stick when walking over the fields, and am always more or less annoyed by finding shallow cultivation. In fact, we want a 40 horse-power engine to do what is really necessary in cultivation. If you clear away the soil from a square yard of ground, you will soon find out whether your ploughman has done his duty or sloped and undulated his plough. I mention these matters for the benefit of amateur farmers like myself. *J. J. Mechi, July*, 1864.

AN AGRICULTURAL LIBRARY.—I am so frequently asked questions by amateur farmers, and by some practical ones too, that I am led to conclude that they have not an agricultural library.

A fifty pound note spent for such a purpose would be a most profitable investment. For my own part I am always a learner—and should feel "quite at sea" without my books of reference, of which I annex a list. I remember visiting a large school, mostly sons of agriculturists, and on looking at the library naturally inquired for the books on agriculture. "I am ashamed to say, I have not one," was the reply of the worthy master.

I hope this hint will not be lost on our Middle-class Colleges, which are, so happily, being established in Suffolk and elsewhere.

It seems strange that all the sciences are taught except one, the most important of all, and on which all the others depend, namely that of filling the stomach cheaply and abundantly. Science should be the parent of agricultural art as well as of others far less important, and we ought to feel shame if we do not avail ourselves of the advantages offered to us by the great lights of agricultural science and development.

The interchange of facts and experiments in our now numerous agricultural publications can be of no avail to those who never read them. I am sometimes asked—"How can you content yourself on that small Tiptree Farm?" I reply—"Every wrinkle in a pig's face has a charm for me." And I also ask—"Did you ever see two sheep or two pigs exactly alike?" And I quote the cases of men who, with 1500 sheep, knew every one of them, and they never saw two sheep alike any more than we see any two human beings exactly alike. Some learned judges have been very much astonished to find that every Welsh shepherd could swear to his own sheep, and detect one if stolen and placed in another flock. Their gait, manner, expression of countenance, &c., vary as much as in human beings.

Besides all this, I am in good and intellectual company, with the literature of Liebig, Lawes, Voelcker, Way, Tull and Tusser, Parkes, Davis, Smith, Morton, Stephens, Huxtable, Denton, and many others, who have made their mark and done good service to the cause of agriculture. They are my companions and instructors in my hours of reflection and retirement from the mere ceremonies and duties of life. *J. J. Mechi, July*, 1864.

Stephens' Book of the Farm.
Morton's Encyclopædia of Agriculture.
The Journal of the Royal Agricultural Society. 24 vols.
Rham's Dictionary of the Farm.
Caird's English Agriculture.
Morton on Soils.
Morton's Arthur Young's Calendar.
Baron Liebig's—Chemistry in Relation to Agriculture
" Principles of Agriculture
" Modern Agriculture
" The Natural Laws of Husbandry
" Letters on Chemistry.
Loudon's Encyclopædia of Agriculture.
Bailey Denton on Draining.
The Agricultural Works of the Rev. S. Smith, of Lois Weedon; Mr. Hewitt Davis; the Rev. A. Huxtable; Mr. Sanderson.
Johnston's Lectures on Agricultural Chemistry and Geology.
Tull's Horse-hoeing Husbandry. By Cobbett.
R. N. Bacon on Norfolk Husbandry.
Lavergne's Rural Economy of Great Britain and Ireland.
Low on Landed Property.
Dixon's Law of the Farm.
Chronicles of a Clay Farm. By C. Wren Hoskyns, Esq.
Wye Williams on Combustion.
Armstrong on Boilers.
The Science and Practice of Agriculture. By Thomas Skilling Dublin.
Agricultural Chemistry. By Alfred Sibson.
Agricultural Science applied in Practice. By W. Wallace Fyfe.
The Field and the Fold; or, a Popular Exposition of the Science of Agriculture. By the Rev. Edwin Sidney, M.A.
Outlines of Modern Farming. By Robert Scott Burn.
The Duty and Office of Land Steward, and showing the way to Plenty. By Edward Lawrence: A.D. 1716.
The Whole Art of Husbandry. By J. Mortimer. 4th edition. A.D. 1716.
The New Farmers' Calendar. By a Farmer and Breeder. 5th edition, 1804. (Written, I believe, by a Mr. John Lawrence).
Warnes, Dickson, and others on the Growth of Flax and Use of the Seed.
Essays on the Elevation, Improvement, and Education of the Labouring Classes. By Cooper and Bond.
Several pamphlets on the Utilization of Town Sewage. By Mr. Halkett, Mr. Shepherd, Mr. Ellis, and others.
Comte de Gourcy's Agricultural Journeys in France, Belgium, &c.
Andrew Cornyar (Dublin) on the Theory and Practice of Modern Agriculture.
Alfred Sibson on Food, Feeding, and Manure.
An Inquiry into the Relative Value of Various Kinds of Food. By H. & T. Procter, of Catnay, Bristol.
Cameron's Chemistry of Agriculture.
The Farmers' Magazine.
The Agricultural Gazette.
The Farmers' Herald.
The North British Agriculturist.
The Mark Lane Express.
Bell's Weekly Messenger.
The Irish Farmers' Gazette.
The Magnet.
The Scottish Farmer.
Morton's Farmer's Almanack.
The Transactions of the Highland Agricultural Society.
The Journal of the Bath and West of England Agricultural Society.

WHAT IS "CONDITION?"—No. IV.

THE following are examples from four different farms of the value and actual produce of the nitrogenous constituents of the food consumed remaining in the manure, and so applied to the corn crops grown on these farms. One half of the nitrogen consumed being taken as the amount of such residue, as explained in Number 3, page 610:—

FARM.	No. 1.	No. 2.	No. 3.	No. 4.
Amount of arable land .. acres	100	350	150	63
Amount of arable land manured yearly by sheep	25	100	40	} 21
Amount of arable land manured yearly by cart dung	25	100	34	
Amount of arable land in corn crop yearly	50	160	75	42
Food consumed yearly. (One-half of nitrogen contained therein.)				
Hay by horses and cattle ton	25 5	180 37	30 6½	110 21
Corn by horses and cattle ,,	5 2	56 25	10 4½	16 7
Grains, malt dust or cake ..	..	90 9	..	150 3
Barley by pigs .. .. ton	5 2	16 7	11 4½	20 8
Roots	400 0¾	2000 5	600 1½	400 1
Guano and town dung	..	9	4	..
Nitrogen remaining in dung .. .. .. cwts	9¾	92	29¼	40
Deduct for evaporation, water, &c.	1	10	3	12
Remains applied to corn crops	8¾	82	26¼	28
*Nitrogen applied per acre to corn crops .. .. lbs.	17	56	35	150
Extra corn produced per acre by the above dressing, if 5 lbs. produces 1 bush. .. bush.	3½	11	7	30
Two years natural produce of land	32	30	32	48†
Total corn grown per acre ..	35½	41	39	78
Wasted in harvesting, birds, &c.	3½	4	4	6
Total threshed and sold per acre every alternate year .. bush.	32	37	35	72‡
*Value of nitrogen applied per acre at 6*d.* per lb.	8*s.* 6*d.*	1*l.* 8*s.*	17*s.* 6*d.*	3*l.* 15*s.*
Value of 1 load of cart dung at 20 loads per acre manured ..	10*d.*	1*s.* 5*d.*	1*s.* 2*d.*	3*s.* 9*d.*

† In 3 years. ‡ In 3 years.

The actual crops realised by the four gentlemen whose returns I have tabulated, coincide very remarkably with the theoretical amounts there indicated as due to the amounts of nitrogen consumed and excreted on their several farms. No. 3 is the least accurate; his annual produce does not exceed 4 quarters of Wheat per acre, or its equivalent 5 quarters of Barley. His land, however, is not quite so good, and his farming is decidedly more slovenly. Having made the necessary allowance for the land, I can only attribute the loss of a sack per acre more which he ought to grow to the Couch which is feeding on the land at the expense of the Wheat. He keeps a large stock and buys town dung, which is included in the Table. The first three farm on the regular 4-course system. No. 4 has for some years adopted a 3-course system—two years corn (Barley after Wheat), third year roots, highly manured; his crops are quite equal to the estimated amount of 78 bushels for the two years. The remaining remarks apply to all four farms. It will be seen I have taken one half of the nitrogen contained according to the best analyses in the food consumed, either in the yards, or by sheep on the land, as remaining in the dung; and probably where land is ploughed directly behind the sheep this amount is actually secured. This is, however, by no means true of yard dung. The greater part of the liquid from the cowhouse of No. 4 is run at once into a tank, and pumped over the Grass land. I have allowed 50 per cent. off this, equal to 25 per cent. off the whole manure made, for this loss. In the yards of the other three the manure suffers the usual exposure to sun and rain, and lies some months before it is applied to the land. I feel fully warranted by Professor Voelcker's experimental analyses at Cirencester, in deducting 10 per cent. from the original value for this depreciation. In estimating the natural productive power of these farms at 16 bushels per annum, *i.e.*, 32 bushels every two years, or 48 in three years, I have taken the actual produce of one of the fields which was cultivated for several years under the Lois Weedon system, and have allowed for a distant part of farm No. 2 being somewhat inferior to the rest, as before stated. The amount of this natural produce, added to the amount due to the manure applied, is the full crop the land may reasonably be expected to bear one year with another; from this however must be deducted the loss sustained by the ravages of wire-worm—of birds when ripe, of shedding at harvest and mice in the rick. My own experience tells me that the sack per acre I have deducted on this head is not too large an allowance; the net result coincides, as I have said, with the actual produce of three out of the four farms tabulated. These observations will, I trust, enable the reader to understand the Table, and to compare with them results arrived at in his own practice. In many parts of England they may not tally so accurately. If any one pursuing this investigation will assist me with further data I shall be glad of the opportunity of comparing them. Before proceeding I would call particular attention to the

value of a cart load of dung as it comes out in the last line. In calculating this (which has no bearing on the theory of the total value of the manure per acre, but merely shows how small a proportion of nitrogen is carted at a considerable expense) I have taken the total nitrogen in the manure (excluding the sheep-dung) and divided it among the number of acres treated with cart-dung, and have supposed that the dressing has amounted to 20 loads per acre. Of these 20 loads, as they are generally taken from the yard, three-fourths in weight will be water, and one-fourth straw, in which whatever manurial matter exists is incorporated. Town dung, which I used to purchase myself at 5*s.* per load, is probably better than any of the farm-yard dungs here tabulated; but I much doubt if any farmer buys manure in the cheapest market when he buys at this price, even in idle times when his teams are not otherwise wanted. It is also worth observing that the manure applied by No. 4, though sufficient for a far greater crop of Wheat than five quarters per acre, only produces that quantity the first year; the remainder of the unexhausted dung being preserved in the land, and producing its full effect in the Barley crop of the succeeding year—this is a light Barley soil. If, as I hope, these figures will bear the test of inquiry, and are near the truth, they will bear us out in the following conclusions:—

1st. That the amount and value of manures left in the yard or in the land can be ascertained and practically estimated.

2d. That cleanliness and good cultivation are more conducive to a full agricultural crop of corn than the usual application of dung.

3d. That supposing the land to be clean and thoroughly cultivated, half-a-crown spent in manure will produce an extra bushel of corn, worth 5*s.* at present price, without materially increasing the other expenses of the farm.

4th. That on the average land we have been considering, such a fallow will produce 16 bushels of Wheat, worth now 4*l.* more than if it had borne a corn crop. These are the questions as arising between landlord and tenant that I proposed in my first letter to examine (page 515), and to these I have directed attention; and the answers as deduced from Mr. Lawes's and M. Reiset's articles above referred to seem to correspond with the results of farm practice. This correspondence of theory with practice is the great test of the truth and correctness of either, and I hope thus to fortify my ideas in a future letter, when we come to consider the bearing of the theory above mentioned—that one-half of the nitrogen consumed goes to enrich the dung, and one-sixth to fatten the animal—upon the next question, whether at present prices dung can be made profitably at 6*d.* per lb. for nitrogen, and the consequence, if it can, that an extra 5*s.* worth of corn can be grown for half-a-crown—in other words, whether it pays to maintain a high condition in land. *J. B. M.*

AGRICULTURAL EDUCATION.

[The following is an abridged report of the discussion which took place on this subject before the Highland and Agricultural Society.]

Mr. MILNER HOME moved "That this meeting, recognising the expediency of extending the means of obtaining agricultural education in Scotland, and likewise the duty of the Highland Society to attempt something more than it has hitherto effected for that object, returns thanks to the directors for the interim report now presented by them, and reserves consideration of the questions raised in the report till the final report has been presented as promised by the directors."

He said that he had proposed this motion with the view of not committing the Society to certain opinions expressed in the report.

In consequence of the express reference made to one point in that report, and likewise of there being what appeared to him an important omission, he thought it necessary to bring those points under the attention of the meeting, for the purpose of justifying the motion which he submitted to the meeting.

It was said in the report that the committee could not at present recommend the encouragement of the teaching of agriculture in elementary schools; and there was no reference whatever to any assistance being given to the universities. Now, with regard to the first point, he knew there were considerable differences of opinion as to the expediency of encouraging agricultural instruction in the elementary schools. At the same time, he was aware that some of the directors of the Society were of opinion that such instruction, if it were of a simple and practical character, might be encouraged without detriment to these schools, and with very great advantage to the rural classes, whose children attended them. He had letters from several members of the Society on this very point—one from the convener of a northern county, who took a great interest in this question, and who strongly advocated the propriety of encouraging agricultural instruction of a simple character in the parish schools. A nobleman, likewise an old member of this Society, whom he would wish to see more frequently at their general meetings than he had been for some years past, advocated the same view of encouraging agricultural instruction in the parish schools. With these testimonies before them, it was a pity that the Society, by approving of this report in an unqualified manner, should decide against such instruction in these schools. He might also allude to the fact that some eight or 10 years ago an experiment was made in these very schools. The matter was brought before the Highland Society, when they not only approved of such instruction being given, but gave prizes to the best students in these schools. Passing to the second point, regarding the inquiries which had been made of the rectors and trustees of the provincial academies throughout the country—he was glad to find, from what was stated in the report, that the answers had been satisfactory. He knew that most of those schools were attended by the sons of farmers from 10 to 18 years of age. In many of them, even now, chemistry and botany were taught; and he felt certain that, if the Highland Society declared itself favourable to the extension of such instruction in these schools, that instruction would be given. There was a third point to which no reference was made in the report, but which he thought deserving of the consideration of the committee. In the University of Edinburgh there was a chair, the only chair in Scotland instituted expressly for the teaching of agricultural science. They were aware that the endowment of that chair was miserably small, and that the attendance of students at it was likewise wretched. Now, he thought it desirable that means should be taken by the Highland Society, if in their power, to make it a more efficient class, and it appeared to him that one method of doing so was to offer to the most diligent of the students who might attend, prizes of 20*l.* to 30*l.*, on ascertaining that these students came up to the standard of agricultural knowledge which the Council of the Society might fix. He understood that in the University of Aberdeen there was a weekly lecture on agriculture, but where, from the peculiar constitution of the lectureship, no fees could be taken. There also prizes might be offered to the students, and perhaps an addition made to the lecturer's salary, which would be an encouragement to men of talent to take the appointment and make the class efficient. It appeared to him that there was a sufficient surplus of the Society's funds, which would enable them at all events to make a beginning. He was quite aware that to do the thing efficiently it would require 500*l.*, 600*l.*, or 700*l.* a year so as to extend the advantages of agricultural education throughout the country in the Universities, provincial academies, and elementary schools. That could not be done in a day or a year; but a beginning ought to be made, and as the surplus of the Society increased, means might be taken further to carry out this object. He wished to impress upon the directors that this Society was not simply an agricultural society. In virtue of its original charter it was solely agricultural; but it also held an educational charter, and by virtue of that charter it is distinctly an educational as well as an agricultural society, having gone to the Crown for the express purpose of obtaining the high prerogative of encouraging agricultural education in Scotland. And therefore he said that a part of its power, influence, and pecuniary resources ought to be laid out in promoting the objects of the educational charter as much as the objects of the agricultural charter. But when he saw in the accounts of last year the miserable sum of 8*l.* as the whole that was expended under the educational charter, he said this Society did not come up to what was required in that specific charter. Instead of 8*l.*, it should expend 800*l.* Of course, no one would expect it to expend that sum at present; but to expend the paltry sum of 8*l.* was neither worthy of the Society nor fulfilling the requirements of the country. He intended to have moved the appointment of a special committee to consider this question, but the report he had heard read had induced him to follow the course of proposing the motion he had made. He looked upon the report as a harbinger and a pledge that the directors would not lose sight of this great question, but would carry it forward, and that a report should be brought forward at next half-yearly meeting of a more complete character, pointing out in what way the committee proposed that this agricultural education should be encouraged, and to what extent they might draw upon the funds of the Society to carry out this object.

Mr. M'LAGAN, of Pumpherston, said he had great pleasure in seconding Mr. Milne Home's motion. He did so most heartily, because he thought the directors had now taken a step in the right direction, and by this report they had given the Society a pledge that they would proceed with this matter, and would not rest till it was put on a satisfactory basis.

Mr. WILSON, Edington Mains, said it was very proper for the Society to direct attention to the furthering of the professional education of the farmers of the country; but he looked with very great dislike indeed at any proposal that this Society should interfere with the education of the parochial or other elementary schools of the country. He thought that was out of their line altogether.

Whatever the directors and members of the Society in their private capacity might think it proper to do, he did not think that this Society, constituted for certain specific purposes, should go out of its way to interfere with those old interests of the country, the parochial schools. The limited time which the children attending were usually there was, he thought, all required, or more, for the ordinary branches of elementary education; and any attempt to interfere with these to give them such a smattering of agricultural education as could be imparted would, he thought, be a very unwise thing. He had no hesitation in expressing his humble opinion that for this Society to encourage such a thing would be both injurious in itself and apart altogether from the proper functions and ends of the Society. And then, with regard to the proposals as to the more advanced schools, these were matters which would require to be very deliberately and carefully considered indeed before the Society plunged into proposals of that kind. For instance, the teachers and managers of certain institutions had been applied to for information. That was exceedingly good, and the more information they had upon this subject the better. But they would be immediately met with this difficulty, that if they began with certain institutions, and encouraged certain branches of education in these, they came athwart certain commercial questions. These institutions were commercial undertakings, and if they began to patronise some and overlook others, they would come immediately in contact with difficult and delicate matters. The Society would, therefore, require to consider everything very carefully before mixing themselves up with matters of that kind. He certainly thought, however, that there was a proper field for this Society to prosecute, and in which they had already made a beginning. He had listened in that room to statements which involved a manifest fallacy. He had heard it stated in that room that there appeared to be a reluctance on the part of the farmers of Scotland to take advantage even of such opportunities of education as were already open to them. Now, he by no means admitted that. There were, as they all knew, scientific and other classes open to the agricultural part of the population, as to every other portion of the community; and he believed that among the students attending these classes there would be found a very fair proportion indeed from the farmers of Scotland. Where, for instance, did such a man as his friend Mr. M'Lagan get his education? Although there were no institutions in Scotland for teaching those subjects that had a direct bearing on agriculture, every farmer had an opportunity of sending his sons, after they had received an ordinary education, to the scientific classes of the various Universities, where they might obtain a very effective education indeed. Something certainly was wanted in Scotland in the way of showing more directly the bearings of science on the art of agriculture than was done at present, and therefore he thought he could go along with the motion now under the consideration of this meeting for the purpose of inquiry. But he did not think they were now in a position to go very rashly into plans for expending the funds of the Society upon agricultural education. The subject would require to be very carefully and deliberately considered before any steps of that kind could be taken; and he did not think it was altogether a correct report of what had already been done to measure it by the 8*l.* appearing in the report as expended in that direction. Certainly, as yet, there had not been many young men presenting themselves to the Society for examination by the Education Committee. A good many more, however, had presented themselves for examination than had obtained a diploma, for he believed they had been pretty rigid in awarding that honour. But he thought that had been useful in guiding young men as to the branches of study to which it would be well that they ought to direct their attention. Then this was a thing that must necessarily require time before its influence could be fully felt; and he did not think it was fair to say that this was a failure because, as yet, a comparatively small number of young men had presented themselves for examination.

Professor ANDERSON said he felt a very great interest in the subject of agricultural education, and he had no hesitation in saying that good effects would arise from the mooting of the question at present. Like Mr. Wilson, he was very far from considering the results of the educational scheme of the Society as indicating a failure.

The number of candidates who had presented themselves had been considerably larger than the number which had obtained diplomas, and the reason why the number of successful competitors had been so small was that the Society had adopted a very high standard. It might be, in fact, a question whether in some respects the standard had not been a little too high; but he should be sorry to see anything done to give diplomas to men of low standing. He did not consider that the number who had obtained diplomas was disappointing. They must bear in mind that the idea of an agricultural diploma was a comparatively new one, and that they could not expect that all at once the number would be large. He might state that during the first ten years in which the University of Edinburgh granted degrees of M.D., the number of gentlemen who received degrees amounted only to 16 or 17, being at the rate of about 1¾ yearly. When they bore in mind that the degree of M.D. was an established degree, the value of which was fully recognised, they would see reason to conclude, he thought, that the number of gentlemen who had come forward for their diploma was not so small as to be considered altogether a disappointment.

Mr. HOPE, of Fentonbarns, was not at all satisfied with the terms of Mr. Milne Home's motion. He should protest against that Society being turned into a large educational establishment. He thought that education, both in primary schools and in grammar schools, was the business of the State and not of that Society.

He should like to see a thorough national system of education, but it had always been the religious element that had prevented it being carried out. He did not see that there was any great want of funds in Scotland. Mr. Milne Home had alluded to the Church of Scotland. That was merely the church of one-third part of the people of Scotland, but he for his part should like a national system of education for the whole.

Mr. MILLER, of Leithen, agreed to the first part of the motion. If Mr. Milne Home meant that the funds of the Society were to be applied in the manner indicated in his speech, by paying parish schoolmasters—by paying perhaps Free and United Presbyterian schoolmasters—and introducing science into the education of these schools, he thought that would interfere materially with the efficiency of these schools; and if agriculture was to be taught in these schools, what was to prevent medicine, engineering, or anything else being taught, thereby knocking on the head the grand object of the schools—namely, simple elementary education. The Education Committee of that Society pointed out the means that they thought necessary to acquire an agricultural education. These means were within the power of almost every man in Scotland, universities being situated west, east, and north. There was no necessity for the Society doing anything in these places. The means were at present before the public. As to the Agricultural Chair, its object was to bring into practical use all the education that was to be got at these Universities. But if instituted they were to set about the encouragement of agriculture in this way, they would probably have to get chairs instituted at Aberdeen, St. Andrew's, Glasgow, and Edinburgh. The Society was not able to do that. He moved the approval of the report as an amendment to Mr. Milne Home's motion.

Mr. WILSON seconded the amendment.

Mr. MILNE HOME thought that every one in the room had expressed a desire to increase the means of agricultural education. He had no objection to leave out the second clause of the motion, but certainly there ought to be no doubt as to the first question. Mr. Milne Home concluded by agreeing to omit the following clause from the motion—"And likewise the duty of the Highland Society to attempt something more than it has hitherto effected for that object."

Mr. MILLER then withdrew his amendment, and the motion of Mr. Milne Home, as altered, was unanimously agreed to.

THE CAMP FARM, ALDERSHOT.

MANURE, they say, is food *minus* growth; *i. e.*, food, *minus* not only so much of it as becomes actually built up in the growing frame, but diminished also by so much as is expired and wasted into the air in the growing process. Now, in the case of the adult animal, any growth is little more than a merely fattening process; and in the case of the adult animal—man—or at least in the case of any considerable number of men, growth may be considered absolutely nothing. In such a case, therefore, manure is just food *minus* so much as is wasted from the lungs and skin into the air. But looking on manure as the food of plants, none of all this wasted part is needed by the growing crop from the soil or from the manure with which the farmer replenishes it. The air itself

supplies the growing crops with just those matters, moisture and carbonic acid, which are wasted by the lungs and skin; and it therefore follows that, under the circumstances referred to, the manure returned to the soil represents the whole of the food which has been taken from it.

Now at Aldershot, more perhaps than any other place, we have an adult population. The waste of that camp, if properly economised and returned to the land, would reproduce the food which the Commissariat Department gathers and administers. All around that camp, too, there lies the best possible machine by which this waste, as raw material, may be re-manufactured into the food of which it thus appears as the complete representative.

A soil which is a mere machine for the growth of plants, is of itself entirely barren. It is a mere collection of particles, themselves valueless as food for plants, which together make the sponge, standing ground, warehouse manufactory, by which, the requisite raw material being supplied, the crop may be made and grown. The land around Aldershot answers to this description. It is a porous, almost barren sand; and it is so much the better for the purpose which is here required of it. In very wet weather the water collects in pools upon its surface; but that is because at 4 to 12 inches beneath the surface there is a ferruginous pan, as impervious as concrete. Break through that, and you dig from 10 to 20 feet before you come to water, through sandy beds, which are porous and need no drainage. The surface is partly covered with Ling and Heath, and, where used as a parade and review ground, this Ling is destroyed, and leaves the land a sheer white sand. Here, then, is a good machine, a porous soil on gradual slopes, nowhere very steep—and here is the best possible raw material for the agricultural manufacture, the waste of a well-fed camp. The land is to be had for nothing—the waste is to be given with a premium to any one who will take it away. What can be desired more than this as a good field for agricultural enterprise? Hitherto contractors of various classes have supplied the Commissariat with straw and food for stabling and for barracks at market price; and have paid, we believe, 4*d.* per week per horse for the removal of stable dung, and received a certain premium —some hundreds of pounds per annum—for the removal of all the other waste. The Aldershot Manure Company have received all the waste of urinals and latrines; have erected or dug filters, where a small quantity of lime water is mixed with the sewage, and the sediment is thrown out and dried, under the impression that it is worth the cost, and the remainder flows away still a filthy stream. The results of the operation are twofold. The Company are involved in suits for damages and in indictments for nuisance, on account of the imperfect nature of their process of disinfection; and the resultant manure is not considered by the neighbouring farmers of very great value. The proceeds of their manufacture are thus insufficient, even with the bonus which they receive from Government, to secure an adequate return. It is thus understood that they are about to abandon their contract, and the ground is thus open for another arrangement.

The principle of the new arrangement is that the land is itself the proper disinfectant of the sewage; and that the returns must be obtained not by the sale of the manure but by its use.

Mr. Blackburn, a gentleman of Aberdeenshire, who has in his own county had considerable experience in the utilisation of liquid manure—who has, in fact, been so convinced of the superior efficiency of manure applied in the liquid form, that for a long time he has been in the habit of washing manures into the land by water applied through underground piping—has at length induced the War Office to attempt at once the abatement of a great nuisance by its conversion into a great advantage. He has obtained from them the lease of about 170 acres of the waste land lying on a gentle slope towards the public road on the eastern edge of the camp grounds, and lying for the most part below it; and to this land the whole of the waste of the permanent camp, and a large portion of that from the north camp, is to be brought by piping. The amount, taking the average supply of water per head at 15 gallons per day, will exceed 700 tons of liquid a day. This, although a dilute manure, is many times as strong as the London sewage, where the supply of water is 40 or 50 gallons daily per head of all ages. This liquid comes on to Mr. Blackburn's Camp Farm at two points. At one of these farm buildings, chiefly cottages and cow-houses, are being erected, and there it is proposed to erect a 12-horse-power engine for the purpose of driving the liquid which there arrives, or so much of it as is proposed to be there utilised, through iron piping for distribution through hose over the land. The remainder from this supply will flow on and join the other on the lower ground, where it will escape, or be used on the ordinary shedding principle of a common water meadow.

Mr. Blackburn's experience at home and inquiries elsewhere have led him to adopt large under-ground piping for the avoidance of friction, so that two or three-horse power is all that he expects to require in the first instance for pumping three or four hundred tons of water on the two or three acres per diem on which he intends to apply it. The question of coals and wear of engine against interest of money invested in a more costly system of pipes, leads, in his case, to the adoption of large pipeage for the avoidance of friction. To this end, also, the pumps are to be placed so as to thrust as nearly as possible in the direction in which the water is to leave them, and all the pipe junctions are made by large quadrants, so no abrupt change of flow or angle in the pipage will lead to difficulty of motion. There will be a hydrant to every four acres, and from each hydrant surface pipes carried on wheels will fit to one another and to each hydrant, so as to convey the liquid to the centre of every acre or thereabouts. Thence gutta percha hose, directed by a man, will carry it at his will over the surface, so that he will be able to distribute 200 to 300 tons daily with great ease.

Mr. Blackburn is now preparing his land for use. To this end he is with teams of four and six horses drawing a heavy and strong Scotch plough, and turning over a furrow slice some 10 or 12 inches deep by 18 to 20 inches wide; and following this is a strong sub-soil plough, tearing up the furrow in its wake, eight to ten inches deeper. The ferruginous pan of brown and black concrete is thus broken through, and when the weather has had its will of it, the whole will be a porous sandy pebbly bed, some 18 inches deep, into which the water will sink readily—so readily, in fact, that it is feared even 700 tons of water daily would disappear from the side of an ordinary irrigation carrier, without extending over a sufficient surface to make a fertile field, and so yield a profitable produce. It is on this ground chiefly that Mr. Blackburn has adopted the plan of distribution by hose in the first instance, leaving whatever remainder may pass his pumps for use as in ordinary water meadows.

His operations are at present confined to a few acres only of his farm. If he shall succeed in getting 20 or 30 acres brought into fertility annually, he will attain his object with less risk and smaller outlay than if he attempted to realise his plan over the whole extent at once.

The plant by which he expects for the most part to convert the waste of the camp into food for the camp is Italian Rye-grass. This, one of the grossest feeders and one of the best cattle foods we have, is admirably adapted for the purpose. Sowing down some 20 acres with it in the first instance, and applying 400 or 500 tons per acre, at intervals of a week or thereabouts, twice for every cutting of this crop to every acre, he will get rid of at least 300 tons of liquid daily through the summer, for the cuttings will follow one another at intervals of four or five weeks. And if the experience of other places is likely to be realised at Aldershot, 40 or 50 tons of green food will be obtained per acre where now a scanty coat of Ling is all that Nature yields. This will be the produce of the first and second year of every crop. In the spring of the third year the 20 acres sown 30 months before will be ploughed up, and a Potato crop will be grown to come off early, so that the land may receive the seed of another Italian Rye-grass crop, which will yield, as before, in the fourth and fifth years, an enormous produce of green food.

That is the scheme. The land is being deeply and thoroughly stirred, and on that is hinged the confident expectation both that the nuisance of the camp will be entirely abated, and that the roots of the growing crop will be amply fed. The liquid will be poured over it from pipes, and any surplus unmanageable by the pumps will flow on the ordinary shedding principles over the surface of the land. Italian Rye-grass seed has been sown, and the pestiferous particles from urinal and latrine will find in the growing plant the agency which will build them up in new and useful forms; and luxuriant green crops, as great a contrast to the waste around them as the filthy stream is to the pure and wholesome milk which will come from the cow-house to which these green crops will be daily carried, will flourish where an utterly barren waste now prevails.

Confident in the instances which already exist to prove the soundness of Mr. Blackburn's plans, he already foresees all this; and we foretell that his Camp Farm, Aldershot, will be one of the most striking example farms of the country—one of the most remarkable forerunners of the many attempts which, following it, will be then successfully made at the solution of the great agricultural problem of the day—the utilisation of town sewage. *Oxford Journal.*

Home Correspondence.

Grass Land.—In your last Saturday's Paper you published a paper read by Mr. Oliver, of Penhallow, on "Grass Land," in which he stated that manure laid on Grass was benefited by exposure to the atmosphere. As there was no discussion on Mr. Oliver's paper, I will trouble you with a few remarks on the subject. The circumstance which appears to have led Mr. Oliver to this belief was that having put manure on some Grass land which was exposed for a long time to a dry atmosphere, so much so that it became like short dry hay, to his great astonishment he found (this appears to have been Mr. Oliver's first experiment) the Grass greatly benefited by the manure before the rain came. Mr. Oliver ought to be aware that this is no proof that the Grass would not have been much more benefited by the manure had it had the advantage of a good shower and damp weather after it had been laid on the Grass, from which it would have derived all the nutrition the manure contained, instead of which the gases evaporated a most essential portion of nutrition the manure contained, but notwithstanding Mr. Oliver is of opinion the exposure to a dry atmosphere benefited the manure, and therefore the Grass received more nutrition. As this is a subject of great importance to farmers, I should be glad to hear the opinion of some practical gentleman on this matter, as it may lead some into error, which I think is already too prevalent; but, judging from what I often see in the north of Yorkshire, many of the former appear to be of Mr. Oliver's opinion, as it is common for them to leave the manure for days on their summer fallows before ploughed into the ground, and as Mr. Oliver says, I have seen it like short dry hay. *H. Harrison, York, July* 12.

New System of Drainage.—I have just seen a copy of your Paper of the 25th ult., in which there appears a short comment on a letter of mine in the *Ulster Journal*, in relation to the drainage of flats with a defective outfall. From the stand-point of the writer of the remarks the views are correctly reasoned out, but the facts seem not to be fully admitted, neither is the theory advanced adequate to account for the copious flow of water found to issue from the drains. I cannot agree with the writer in saying that the discharge of the water from the drains is due to the current of the stream pulling the particles of water therefrom; or that a flat whose surface is one foot above an adjacent stream, would be as well drained by open furrows one foot deep as by drains 3 or 4 feet below the surface of the water into which they flow. In refuting the former opinion, I may shortly state that the drains executed by Mr. Bowick, now of the Britannia Farms, Bedford, are discharged by a vertical shaft a short distance from the water's edge; and therefore cannot owe their action to the cause assigned. In relation to the latter opinion, it might be partially tenable, if in draining low ground such as that referred to, there were no more water to discharge than the rainfall proper of the area drained; but it may be truly affirmed that no such case occurs, for the rains that descend on the hills and rising grounds, often at great distances, pass to a large extent into the strata of the earth, and re-appear in low-lying vales, and produce the numerous swamps and marshes that are found in almost every district. If this fact is admitted, the action of the drains appears more explicable, and less paradoxical. Some days ago I had some conversation on the subject with an intelligent agriculturist in Renfrewshire, who denied the facts *in toto*. "Water," replied he, "can never rise above its level;" an axiom to which no denial can be given; but on reminding him of the artesian well, as well as the Elkington system (which are identical in principle though differing in detail), he was somewhat staggered in his opinion. I farther referred him to the fact of springs that are frequently found to issue from the bottom of lakes and rivers, that have often been fatal to venturesome persons when the whole is covered with ice, but which is so weak over the spots referred as to be unable to support the super-incumbent weight. Analogous cases are found in dry land as well as water, but we are not inclined to assert that the action or the effects so well illustrated on the Avon and other places, are entirely owing to the explanation given, neither would we say that the system of drainage indicated would operate alike in every description of strata, or in every locality possessing a swamp holding stagnant and sour water. I may again pen a few lines on this novel subject, for new it is in every sense of the word. *David Robie, Kilbarchan, Paisley, July* 5.

Clover Hay with or without Italian Rye-grass.—Mr. Alderman Mechi's reply to a Scotch correspondent, "How to make Clover hay," must have gladdened the hearts of several of our old "Paddy-go-Easies" of the Emerald Isle, who laugh at science as love does at locksmiths. The practice thus indicated by the worthy Alderman was with little exception practised in Ireland at least half a century ago; indeed, I believe ever since the use of Red Clover as a separate hay crop has been known here. It may be adopted in a few places still by some old-fashioned fellows who hate innovation, but by none else that I can learn of. As my present purpose is not to write on haymaking, I will say no more about it now, beyond that I have seldom found the ordinary broad-leaved Clover fit to cut for hay when grown with Italian Rye-grass till the Rye-grass itself had become all but valueless for hay. But I have found the Trifolium incarnatum well adapted for such purpose when sown in autumn on a suitable soil without a corn crop. In saving the hay I have always studiously guarded against letting it lie in the swathe for two days, or more than a part of a day, no matter how fine the weather. However, as the nature of our forage plants must differ from that of yours, as our soils and climate differ, Alderman Mechi may be right in England, whereas such a practice would be looked upon as quite wrong in Ireland. I quite agree in the advice you give to "King" regarding the crushing between the fingers of the insect found working in the leaves of the Mangels. If adopted as soon as the small white blotch appears, little or no injury will be sustained by the crop. I also agree with you when saying, "the Turnip-fly is not to be cured" when his ravages once set in. To guard against such attacks, I have for a long time deferred Swede sowing to a rather late period, and then, to make up for lost time, sowed seed rather abundantly, and forced the

plants into the rough leaf by the application of stimulating manures. Trench ploughing in autumn I found to have good effect when followed by fine tilth and heavy rolling in spring with Crosskill's clod-crusher. The freshly painted board you recommend I have found to be of some little service in trapping the beetles in their jumps as drawn along the lines. Indeed I found a cheaper trap in the board repeatedly smeared over with Linseed-oil and turpentine without any paint, and latterly whenever I used such smeared board I dispensed with the turpentine also. *E. Carroll, Dublin, July 5.*

Cottages.—Beer houses are the real hindrances to progress as regards the labourer; there are one or two in every village, and is it to be wondered at that we have hovels instead of dwellings fit for a human being to live in? Wages in my late district have greatly risen within these 10 years, but unfortunately there is little improvement in the adult labourer, except where the employer is strictly determined to forbid drunkenness under the penalty of dismissal on the next pay day. The 200 or 300 acre men are greatly annoyed, and the larger farmers are obliged, through the introduction of the steam-engine, to have a superior staff to manage and attend upon their great improvements, but the plodding man must still jog on as well as he can, and this is done only by great exertion, and not without serious trouble. With regard to cottages or dwellings for farm labourers we have them in this district sufficient; I mention the names of two or three landlords—Colonel Lindley, Captain Eyers, of Shaw House; Miss Wasey, of Prior's Court; and many others, friends to the industrious poor. Cottage rent, 2*s.* per week, or 5*l.* from Michaelmas to Michaelmas. Living rooms, scullery, proper closets, three bed rooms, well with water, oven for two houses, and a large garden to each house. No lodgers allowed. *F. Chieveley, Newbury.*

The Bondager System of the Border Counties of Scotland.—The great demand for animal food has quite revolutionised agriculture. The Turnip crop is now the principal moving power on well managed arable farms. Owing to so many sheep being sold to the butcher before they are 15 months old, the Turnips require to be pulled, rooted, and topped, put into heaps, and cut by machines into small slices. It was a prevalent practice before the extensive cultivation of Turnips for most farmers to keep one servant for assisting to milk the cows, and she filled up her time in the barns, and as a domestic servant. This servant is called an "Ootins-lass." Each farmer to board and lodge the present requisite number of female labourers would be merely an extension of the "ootins-lass" system in the "good-old times" which Dr. Begg has expatiated so much about. Had I anything to do with these arrangements, I should prefer the bothy-system. Our ideas about domestic economy demand that each family and their domestic servants must have a residence for their exclusive use. Field labourers living in a furnished residence called a bothy, occupy the same position on a farm that noblemen's servants do in the "hall," and in their sleeping and sitting apartments. Farmers providing the labourers with board or the labourers doing it themselves are merely matters of arrangement and detail. The East Lothian farmers provide furnished lodgings, and give each bothyite 11*d.* and 1*s.* for each day's work. The amount of wages paid in each, depends on the amount of payment in kind. One crack farmer pays each bothyite 11*d.* a day in summer, and furnished bothy, coals, "plenty of sweet milk," and a few Potatos planted. I see nothing for it but for landowners to compel their tenants to abolish the compulsory bondage system. It is a singular coincidence that a disgraceful act of tyranny should have occurred on the farm which was occupied by the late Mr. Dawson, who was the first farmer that sowed Turnips on raised drills. It was the demand for field labourers that originated the bondager system. I observe in an Edinburgh paper that Margaret Young worked 140 days for the half year ending May 25, 1864. This corroborates my statements in former letters. In my calculations of the supposed earnings of a bondager at 10*d.* a day, in the *Agricultural Gazette* for 1863, p. 37, I set down 12*l.* 10*s.* 10*d.* for 301 days; 1*l.* 16*s.* for 12 days in harvest at 3*s.*, and 10*s.* for the 12 days' board—in all 14*l.* 16*s.* 10*d*, and 16*l.* 14*s.* as the supposed earnings of a bondager at 1*s.* a day, &c. I put 5*l.* against the hind for the land allowed for growing Potatos. I do not remember my father having more than 14 six-bushel sacks of Potatos off the 1500 yards of Potato drills. I have seen him have only seven and eight sacks. Notwithstanding that last year was a good Potato season, a good many would not have more than a ton of Potatos. Potatos were sold in East-Lothian last season for little more than 2*l.* a ton. By referring to the *Agricultural Gazette* for 1863, p. 37, 2d col., you will observe: A. required the bondager to earn 16*l.* 14*s.*, and 5*l.* against the hind for the Potatos, to make the gross total, in connection with the general rate of wages, equal to 47*l.* 5*s.* 2½*d.*, and perquisites of house and garden free, the cartage of coals, and the liberty to feed a pig. The bondager's board, lodgings, and washing, and the hind's expenses connected with going to hiring markets for a bondager, time, and the bondager's wages of 12*l.* to 13*l.* have to be deducted from this precarious and uncertain gross total! Mark, Mr. Editor, that several pounds must in a good many cases be deducted from this gross total. In short, with regard to a payment in kind, I consider that the house and garden, the cartage of coals, a cow's keep, the liberty to feed a pig, and food in harvest, are the only items which farmers ought to give in exchange for labour. I was much pleased with a letter in the *Scottish Farmer* by Mr. Gray, late of Dilston, who also disapproves of farmers giving each hind a given number of yards of drills for growing Potatos. *W., Edinburgh.*

Reviews.

The Quarterly Journal of Science, No. III. J. Churchill & Son, New Burlington Street.

The present number contains less of immediate agricultural interest than its predecessor. The agricultural chronicler refers to cattle sales and prices as illustrative of the value set on the momentum which pedigree confers on breeding animals—to the operations of agricultural societies — to the subject of agricultural education — to the recent review of agricultural progress, by Mr. H. S. Thompson, M.P.—to town sewage and its difficulties—to the collection of agricultural statistics—and to the subject of rural cottages. In addition to an extremely full record of scientific progress in various departments, there are interesting papers on the moon's surface, on gun cotton, on certain fresh-water fossils in Crete; on the use of the ophthalmoscope; on acclimatisation; and on copper mining in Tuscany; an exceedingly interesting series of original articles and reviews. From the first of these we extract Mr. Nasmyth's account of the useful services rendered by the moon:—

"Let us not suppose, because the moon is thus unfitted for animal or vegetable existence as known to us, that it is necessarily a useless waste of extinct volcanos. Apart from its value as 'a lamp to the earth,' it has a noble task to perform in preventing the stagnation that would otherwise take place in our ocean, which would, without its influence, be one vast stagnant pool, but is now maintained in constant, healthy activity, through the agency of the tides that sweep our shores every four-and-twenty hours, bearing away with them to sea all that decaying refuse which would otherwise accumulate at the mouths of rivers, there to corrupt and spread death and pestilence around. This evil, then, the moon arrests effectively, and with the tides for a mighty broom, it daily sweeps and purifies our coasts of all that might be dangerous or offensive.

"But there is still another duty that she fulfils—namely, in performing the work of a 'tug' in bringing vessels up our tidal rivers. Dwellers in seaports, or those who reside in towns situated up our tidal streams, have excellent opportunities of observing and appreciating her value in her towing capacity; and, indeed, it may with truth be said that no small portion of the corn with which we are nourished, and of the coal that glows in our firesides, is brought almost up to our very doors by the direct agency of the moon."

The paper on acclimatisation also possesses a certain agricultural interest. The following are extracts from Dr. Collingwood's article on the subject:—

"Among the useful animals to which the Société d'Acclimatation have directed special attention, the yak is conspicuous, a native of Thibet—a creature possessing a most valuable skin or fleece, and which is found to breed very readily in the Garden of the Society; and, although it at present yields but little milk, it is hoped that in time the influence of domestication may render it more valuable in this as in other particulars. Several prizes are offered for the breeding of these animals, viz., two prizes of 2500 francs each, for any one who shall produce by the 1st of December, 1865, four yaks of pure blood, of a year old, and of his own breeding; also other prizes of 1800 and 1200 francs, for crosses between yaks of pure breed and mountain cattle (vaches de travail); as well as smaller prizes for such animals as shall prove apt as beasts of labour or of burden.

"Similar experiments are in course of trial upon Angora and Egyptian goats, Caramanian and Merino sheep, &c., which are reported to be in a fair way to success; and encouragement is held out by prizes of various amounts, for the production of small flocks of these animals, for the purest breed, and the heaviest producible fleece.

"The gathering together in good condition, and in sufficient numbers to establish a species, of foreign animals and plants is necessarily a very slow and delicate process, and much time must obviously be expended before very decided results can be expected."

As to the Acclimatisation Society of Melbourne, it is declared that:—

"The herd of Camels brought from India, at an expense of 120*l.* per head, had become scattered, and were in a fair way of being annihilated under the various exploratory expeditions. Such of them as could be saved have been collected at Mr. Wilson's station, at the Wimmera, where they are now breeding regularly, and forming the nucleus of probably a large herd, available at some future day, either for exploration or for conveying the products of remote stations to the more arid districts.

"Reports have reached us of the failure of the first attempts to naturalise the Peruvian alpaca, and out of 300 introduced, five years since, from Peru, and purchased by the New South Wales Government for 15,000*l.*, all have died, and their progeny, 330 in number, are in an unhealthy condition—so much so that in the colonial legislature it was determined to get rid of the cost of keeping them, and disposing of them at once, by auction or otherwise. But on the other hand the official report of the Society prepared in the present year shows that another attempt is likely to have a more successful issue. It is there stated that the little flock of llamas and hybrids imported from England, and under the care of Mr. Duffield, have been diligently cared for. They have been crossed with pure alpacas, and young ones of the second cross are now being dropped. Since landing, their numbers have increased from 19 to 56. Thus, while the camels suffered from being too greatly scattered, the alpacas failed from too great concentration.

"The Angora goat has been received from the Paris Society, and is rapidly multiplying; they are being crossed with the common goat in considerable numbers. The Cashmere goat also has been imported by an enterprising gentleman at Maryborough, who is now experimenting with it. Various breeds of sheep, some of which shows signs of a peculiar adaptability to a hot climate, are also under experiment."

Farm Memoranda.

Dairy Farming in Cheshire.—2. *Tattenhall Hall.*—Mr. G. Jackson's farm contains near 322 acres, namely, 194 acres pasture, 14½ acres meadow (irrigated), 14 acres new meadow covered with dung water, 9½ acres Wheat after Oats, 26½ acres Oats, 10 acres Barley, 5 acres Beans, 2 acres Potatos, 14 acres Swedes, 2 acres Mangels, 1 acre garden and orchard, 3½ acres homestead, plantation and occupation roads.

Rotation adopted—1st Oats, 2d Wheat, 3d root crops, 4th Barley, 5th Clover. The same repeated, and then allowed to lie 10 years.

Live stock consists of 7 horses, 2 nags, 4 colts, 80 dairy cows, 3 bulls, 18 feeders, 21 heifers and stirks, 168 sheep and lambs, 54 pigs, and 11 rearing calves; total, 368.

Previous to 1858 boned most of the old Grass land, and since then has spent, on an average, 104*l.* annually on bones, mostly applied to seeds, and also 11*l.* 4*s.* per annum, on an average, on superphosphates and other fertilisers, and applied to root crops. Has sod-drained 16 acres of old Grass land, and 25 acres with horse-shoe tiles, at my own cost. Landlord has tile drained 215 acres, and filled up 7 pits. Erected entire new farm buildings on a new site; repaired and improved the house, spending on the whole 4000*l.*, including the drainage, &c.

The following has been done by the tenant, exclusive of the draining and boning:—Filled up 31 old pits, and most of the drains put in by landlord. Supplied the boulders for nearly a quarter of a mile of road in connection with the homestead and high road. Made 706 yards of new occupation road through the farm, and covered it with hard materials. Pulled up the old foundations of old homestead, and excavated the new. Carted the old materials to the new site; carted sand and coals for making the new bricks; pulled up the old pavement, and carted the stones and sand for paving the new farm-yard, and formed the ground for paving. Made 4 acres of waste land, including the old site, into a meadow. Levelled and prepared for irrigating 1½ acres of land, for meadow, which had previously been a bog. This farm lies in a good climate, with good roads around it, and not far from a canal, a railway, and good market. The soil varies much, from a good loam on a sandy bottom, to a very tenacious clay soil, on a very stiff, solid, clay subsoil. The surface is gentlyu ndulating, giving good fall for the drainage, which appears very effective. Most of the old fences have been eradicated, and new ones planted, which are very clean and growing well, some from 4 to 5 feet high, thick and healthy. Nothing is said in the certificate of eradicating the old fences, or of planting the new ones, but a very great length of both have been done in the last seven or eight years. The fields are now of a good size and shape, and convenient to approach from the new occupation road, which is in good order. One old fence, between two Grass fields, had many gaps in it, but we were told it was to be eradicated soon. The foot-paths through the farm are laid in better lines, more convenient for the travellers, and the land less liable to trespass.

The root crops all clean and healthy. Wheat a clean heavy crop, strong, of good colour, and nearly ripe. Beans, in 20-inch drills, were clean, healthy, and well set with pods. Oats and Barley fine crops, only about half an acre of the latter had some annual weeds in it; Oats ready for cutting. Clover of first year, the heaviest crop we have seen; it was then in cutting, having been pastured, we were told, till the middle of June. Pasture land mostly showed evidence of bone manure, and the irrigated meadows seemed productive of a fair quality of herbage. The live stock were all of a useful sort for the various purposes intended. The new farm buildings are the best arranged of any we have yet seen, for health and convenience of feeding, watering, and all other operations of threshing, steaming, &c., and also for the storing of fodder corn and roots. Implements of a useful sort and in good order.

House, dairy, and premises around in neat order, with every convenience for carrying on the process of cheese making, with the least labour, and for producing a good article. The cheese room had a very respectable

appearance, its contents proving the ability and perseverance of master, mistress, and dairymaid.

3. *Stanthorne, near Middlewich.*—Mr. C. Davenport's farm is 120 acres, mostly a strong loam soil on clay, it is disposed to 54 acres pasture, 15 acres meadow, 8 of which are covered with dung water. Wheat after Potatos 17 acres, Oats 20 acres, Potatos 10 acres, Turnips 1 acre, orchard and garden 1 acre, plantation and roads 2 acres. Rotation of crops on this farm—Oats, green crop, and then Wheat.

Stock on this farm, 4 horses, 1 colt, 23 dairy cows, 5 heifers and stirks, pigs 20, rearing calves 9, sheep and lambs 50; total stock, 112 heads. Buys usually about 40*l.* worth of these manures, viz., raw bone, guano, and horse dung, annually. Has drained 90 acres with 2½-inch, 3-inch, and 4-inch tiles; does not state the landlord has been at any of the expense thereby incurred; has built shipponing for 20 cows, cart house, and press house; these cost claimant 50*l.* Landlord found timber in the rough; has eradicated 2000 yards of old fences, and planted 1100 yards of new fences, landlord finding Quicks; has made a new road through the centre of the farm three-quarters of a mile long, at claimant's own cost, expended on that 15*l.*; drawn all materials for new buildings; filled up 16 pits, and gained 1 acre of land thereby. This year has made a granary over the cart-house, expense of that 30*l.*, of which the landlord has allowed the claimant 10*l.*

This farm is mostly a strong loam soil; the 54 acres pasture are in 5 fields, and in good condition; the 15 acres meadow is in two enclosures, are old turf, and in a productive state, and apparently well manured; the 10 acres of Potatos are in two fields, show healthy for a good crop, cultivation mostly in beds, and not free from weeds. The Turnips fair ordinary cultivation. Wheat after Oats medium crop; field after Potatos good crop, but not first-class. Oats, 20 acres, are in three fields; those after Wheat a good crop, but not the best; another field after Wheat medium crop; one field after the same crop last year short in the straw, seeds sown under. The new fences planted by this claimant are growing well, and all the old fences on the farm are well attended to. The farm is in regular and convenient sized fields, in consequence of the eradication of old fences and the new ones planted. The different buildings named by claimant in his certificate seem to be of a useful character, and the new road, as alluded to, and made by him, is quite suited to the occupation of the land. It is in a good state and a great convenience. The orchard, garden, and other conveniences about the yards and house are apparently well attended to.

NOTE.—Since receiving this claimant's certificate we have made inquiries, and have obtained further particulars; 180,000 tiles were used in draining the 90 acres. Claimant's landlord paid for them at the kiln. All other expenses (amounting to 202*l.* 10s.) were paid by claimant for labour in the draining, pulling up drains, &c., generally 3 and 4 feet deep, in places more.

4. *Lower Whitley, near Northwich.*—Mr. J. Rigby's farm contains 60 acres, namely 30 acres pasture, 10 acres meadow and Clover (mown), 1 acre Wheat, 6 acres Oats, 3 acres Barley, 8 acres Potatos, ½ acre Swedes, ½ acre Mangel, 1 acre garden, orchard, and homestead. Customary rotation: 1st, Potatos; 2d, Potatos; 3d, Wheat; 4th, Barley or Oats; 5th, Clover and seeds, for lying a few years.

Live stock consist of 3 horses, 1 colt, 17 dairy cows, 7 heifers, 25 pigs, and 11 rearing calves; total, 64.

Purchase annually from 50*l.* to 60*l.* worth of bones, guano, and horse manure. Have drained 28 acres with pipes and tiles, have eradicated 1422 yards of old fences, and filled up 2353 yards of old ditches, and planted 690 yards of new fences. Filled up two pits, gaining 2½ acres from old fences, &c.

This farm is not in a bad climate, though elevated much above the sea. Is not well accommodated with good roads, and is a considerable distance from markets, nor very near a canal or railway. The soil varies much from a fine loam to a stiff clay; appears properly drained. The surface irregular, some portions a steep incline; surrounded on every side with limber trees, and, as an arable farm, there are too many upon it, though many have been removed by eradicating old fences. Too much vermin in the shape of rabbits. Seven acres of the Potatos early ones, and mostly gone to market, and the land planted with Mangels, or Swedes. The first planted covering the ground, clean and vigorous. Only 1 acre of Wheat a good crop, 3 acres had lost root, was ploughed up, and the land sown with Barley, a heavy crop. Oats a heavy crop. Clover of 1st year had, we were told, been pastured till the middle of May, the stacks showing good produce. The second crop full of Clover. Second and third year's seeds, pastured, and full of White Clover, showing evidence of bone manure. An old pasture, on a thin clay soil, and another on a better soil, produced good herbage, from the application of bones.

The house and homestead in proper keeping. The outbuildings old, and not of the best construction for convenience or of sufficient extent, but in tolerable good repair. Fences, gates, and posts, in proper repair, as well as the occupation roads. The dairy stock and pigs well selected for profit. The working stock and implements of a useful sort, and the best of all, the claimant has several sons, who appear to all pull together in the right direction with their parents.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	July	Inches.	°	°				°	°	°	°	Inches.
Friday	8	30.14	63	59	N.W.	2	10	70	44	87	39	..
Saturday	9	30.11	54	50	N.E.	2	10	66	44	81	37	..
Sunday	10	30.05	66	61	N.E.	2	10	65	52	83	49	..
Monday	11	30.07	62	59	N.E.	3	6	72	53	87	47	..
Tuesday	12	30.12	57	55	N.W.	2	10	76	52	95	49	..
Wednesday ..	13	30 03	57	54	N.E.	2	10	69	49	90	41	..
Thursday	14	30.10	65	57	N.E.	0	0	69	48	87	42	..

Notices to Correspondents.

BLACK GRASS: *G A.* It is impossible to say if you will be liable to it. A well cleaned, horse-hoed Bean crop is a good fallow crop, and we should suppose you might sow Wheat safely enough on that ground after it. Drill it 10 or 12 inches apart, and you can easily keep it clean. June 17 is not an exceedingly early period either for Potatos or for Wheat to be in bloom.

CARCASES AS MANURE: *Broome.* Cut them up into fragments with a sharp knife and lay them in layers with plenty of sandy mould in an ordinary shaped dung-heap. In a month or two turn them over, having put plenty of additional mould beside the heap to throw in with it as it is turned. The flesh will have rotted away, and the bones can be thrown out to be charred, broken, and reduced to superphosphate with one-third their weight of sulphuric acid.

CATTLE DISEASES: *Sub.* "Spooner on the Sheep;" "Youatt on the Ox and Horse." The two latter are the volumes issued by the Society for the Diffusion of Useful Knowledge. The articles on Cattle Diseases in "Blackie's Cyclopædia of Agriculture" are by Mr. Spooner, of Southampton.

CONVERSION OF PASTURE: *Mead.* If the soil is very light and sandy it is better to dig in the turf—*one* spit deep. If it is more loamy than sandy, pare and burn.

DRILLING ON THE FLAT OR ON THE RIDGE: *X Y Z.* We have to-day received the *first* contribution from Mr. Wilkins' pen this year. Flat drilling is adopted in dry districts and on easily dried up soils—because under it a less surface is exposed to the drought. Ridge drilling is to be preferred chiefly on account of the easier, earlier, and more efficient operation of the horse-hoe where the rows of plants are raised above the general level—but also because the manure, whether farm dung or land manure, may, if it be so desired, be more directly applied to the nutrition of the young plant; and it will therefore be generally adopted, excepting where there is danger of drought. On this last account you had better drill on the flat of your farm, south of a line from Hereford to Hull.

HEATING OF MEADOW HAY: *K* asks "Can any of your readers tell me what is the proper heat for a stack of meadow hay to come to after it has been together about a week? Should a thermometer, placed in the middle of it, rise as high as 100° Fahrenheit?

LUCERNE: *Young Farmer.* If you can top dress it after the first cut with good rotten dung, and dig it or horse hoe it in between the rows, you cannot do better. If you have no farm dung spread 2 cwt. of Peruvian guano over it, out of a liquid manure-drill or water-cart.

PEA-STRAW: *P P P Wills.* It is nutritious fodder, and would be readily eaten along with sound hay, chaff, and Mangel Wurzel by cows.—Mr. Chadwick has not that we are aware published a "work" on neglected mechanical powers. The paper by him which we printed some time ago was read at one of the Royal Agricultural Society's meetings.

PLEURO-PNEUMONIA: *Agricola.* It has been treated fully in the pages of the R. A. S. Journal by Professor Simonds and others, and also noticed from time to time in this *Gazette.* The great secret of successful treatment is to take the complaint in its earliest stage—counter-irritation, oily laxatives, febrifuge medicine, followed by tonics, have proved successful; but if the animal is three parts fat we recommend the butcher's knife. We have no faith in nostrums. *W C S.*

SMUT: *A B.* The remedy is—washing the seed in some caustic wash, as blue vitriol (1 lb. to a gallon of water for a sack of Wheat). Some Wheats are more delicate and liable to it than others. Reaping machines are no doubt to be had for hire in some districts.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—



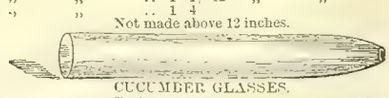
REDUCED PRICES OF PROPAGATING GLASSES.

Each.—s. d.		Each.—s. d.
3 inches in diameter .. 0 4	12 inches in diameter ..	1 6
4 " " .. 0 5	13 " " ..	1 10
5 " " .. 0 6	14 " " ..	2 3
6 " " .. 0 7	15 " " ..	2 9
7 " " .. 0 9	16 " " ..	3 0
8 " " .. 0 10½	17 " " ..	4 0
9 " " .. 1 1	18 " " ..	4 6
10 " " .. 1 2	19 " " ..	5 6
11 " " .. 1 4	20 " " ..	6 0

BEE GLASSES.

Each.—s. d.		Each.—s. d.
4 inches in diameter .. 0 6	9 inches in diameter ..	1 8
5 " " .. 0 8	10 " " ..	2 0
6 " " .. 0 10	11 " " ..	2 6
7 " " .. 1 1	12 " " ..	3 0
8 " " .. 1 4		

Not made above 12 inches.



CUCUMBER GLASSES.

Each.—s. d.		Each.—s. d.
24 inches long .. 1 9	16 inches long ..	1 2
22 " " .. 1 7	14 " " ..	1 0
20 " " .. 1 6	12 " " ..	0 10
18 " " .. 1 1	Made to any length.	

HAND GLASSES, WITH OPEN TOPS.



Each.—s. d.		Each.—s. d.
12 inches 6 6	18 inches	9 6
14 " 7 6	20 "	10 6
16 " 8 6	22 "	11 6
	24 "	12 6

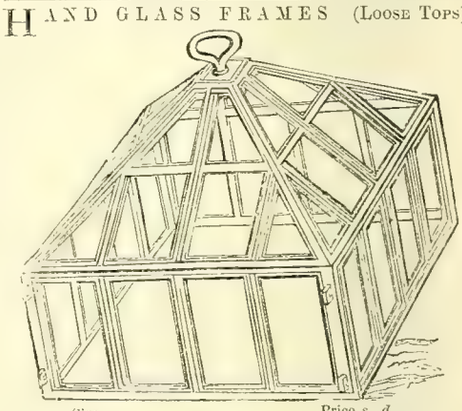
Painted and Glazed with 16 oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (LOOSE TOPS).



Size.	Price s. d.
11 by 11	4 0 Each.
18 by 18	5 0 "
20 by 20	6 6 "
22 by 22	7 6 "
24 by 24	8 6 "

Delivered Free to any Station in England if 12 or more are ordered.

J. JONES & SONS, 6, Bankside, London, S.E.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	15 gal.	28 gal.
£5 0 0	£5 12 0	£5 12 0	£7 0 0



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

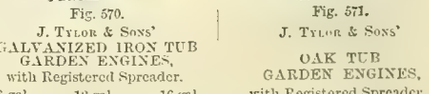


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 "
Telescope Branch Pipe for ditto .. .. 0 10 0 "

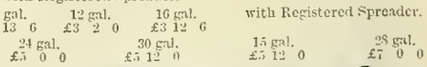


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10s. 6d. each.
" 589. Middle Ditto ditto .. .. .. 9 6 "
" 588. Small Ditto ditto .. .. .. 8 6 "
" 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 "

Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16s. 6d.
READ'S SYRINGE, with one rose and jet 14 0
" 592. Improved ditto ditto large .. 13 0

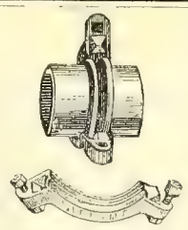
Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

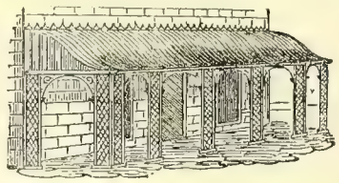
By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

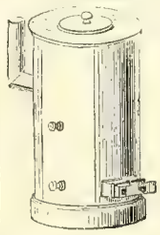
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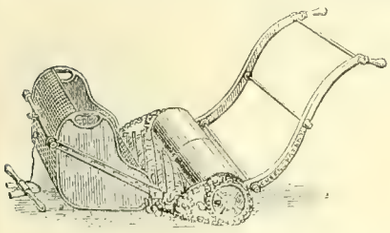
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Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

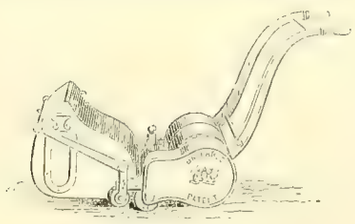
Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

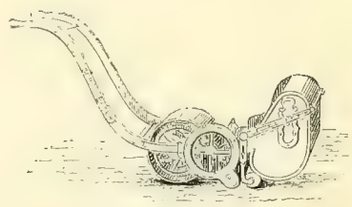
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GREEN'S HAND MACHINE.

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10-inch, 12-inch, 14-inch	*By a Boy* ..	£3 10 0, 5 0 0, 5 10 0	18-inch ..	*By a Man* ..	£7 10 0
16-inch ..	*By a Man* ..	6 10 0	20-inch, 22-inch, 24-inch	*By two Men*	8 0 0, 8 10 0, 9 0 0

SHANKS' HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch, 12-inch	*By a Lady* ..	£3 10 0, 4 10 0	19-inch ..	*Man and Boy* ..	£7 12 6
14-inch ..	*By a Boy*	5 10 0	22-inch, 24-inch	*By Two Men* ..	8 7 6, 8 17 6
16-inch ..	*By a Man*	6 12 6			

PRICED LISTS OF HORSE, PONY, AND DONKEY MACHINES, ON APPLICATION.

A specimen of each of the above described Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and thei Warehouse, 16, Laurence Pountney Lane, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. & Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

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NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

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REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

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THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

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IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

3 Cwt. Free to most parts.

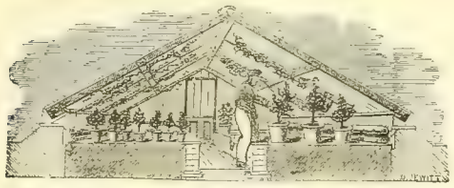
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Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1*d.*

Greenhouses and Conservatories.

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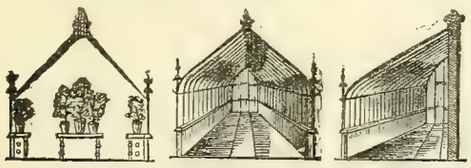
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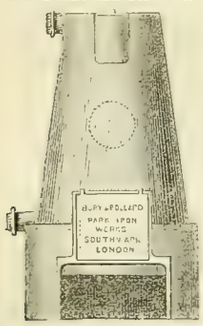


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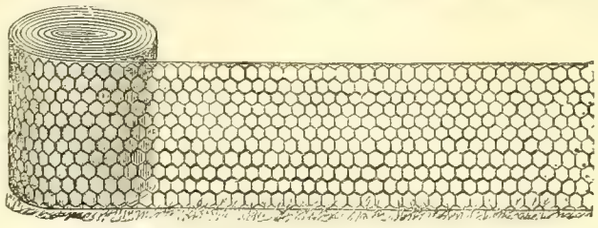
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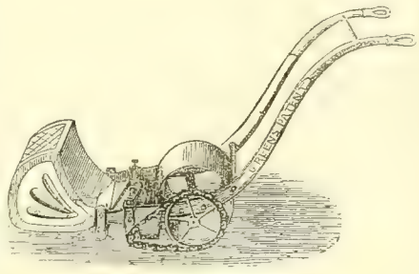
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(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

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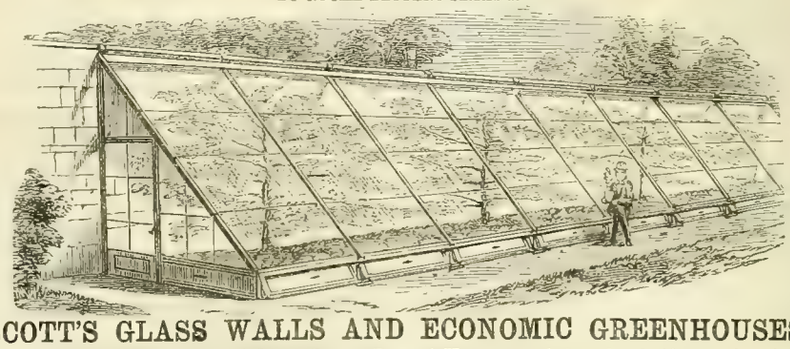
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Westmoreland.
DESIRABLE PASTURE AND ARABLE FARM.
TO BE LET, the HOLMESCALES FARM, comprising near 400 acres, of which about 360 are Pasture and Arable. Is remarkably healthy for Stock, being well watered with a running stream in almost every field; is also in high condition in every respect, having been eleven years, ending 1863, in owner's occupation, who expended largely in Drains, Fences, Bone Manures, Permanent Grass Seeds. Buildings, Turbine Water Wheel of about 8 horse-power, new House, containing large Drawing Room, Dining Room, &c.
The situation of Holmescales is 3 miles south-east from the Oxenholme first-class Station on the Lancaster and Carlisle Railway, 5 miles from Kendal, 5 from Milnthorpe Station, 7 from Kirby Lonsdale, 2 miles from the Lancaster and Kendal Canal, and within easy distances from three good Markets for the Sale of Fat and Lean Stock.
This Farm is worthy the attention of a first-class agriculturist, and the wishes of an eligible applicant as regards Lease, Shooting, &c, will be fully considered.
Possession at the usual times early in 1865, but special arrangements can be made for immediate entry if required.
Apply at the Farm to Mr. ROBERT KNOWLES, the present occupier, and agent for owner. The Postal Address is Holmescales, Milnthorpe

Sales by Auction.

Choice Orchids: Imported and Established.
MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, July 20 and 21, at half-past 12 o'Clock precisely each day, some of the scarcest and choicest ORCHIDS in cultivation; including the grand ODONTOGLOSSUM TRIUMPHANS, two Plants of Odontoglossum Phalaenopsis,

Paphinia tigrina	Miltonia Regnelli
Cattleya Warneri	Perasteria Humboldtii
,, Wagneri rosea	Schomburgkia undulata
Cymbidium eburneum	Epidendrum leucochilum

An IMPORTATION of ORCHIDS from MEXICO and other parts in splendid condition, including magnificent masses of

Lælia autumnalis	Odontoglossum Cervantesii
,, anceps	,, maculatum
,, albida	Oncidium nebulosum
Epidendrum vitellinum	

An IMPORTATION from Mons. J. LINDEN'S COLLECTIONS, including good plants of

Odontoglossum hastilabium	Epidendrum atro-purpureum
,, auro purpureum	verum
Galeandra Devoniana	Maxillaria venusta, &c.

Also a small IMPORTATION of established ORCHIDS, STOVE and GREENHOUSE PLANTS, &c. from the Continent.
On view the Morning of Sale, and Catalogues had.

To the Trade.
MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, July 21, the following Specimen TREE FERNS and other rare Plants, in lots suitable for the Trade:—

6 Cyathea medullaris	6 Dicksonia squarrosa
24 ,, dealbata	8 ,, antarctica
4 ,, Smithii	24 Todea pellucida
52 Dracena Veitchii	3 Lomaria discolor
56 ,, Banksii	12 Hymenophyllum dimissum,

and the whole of the stock of the rare and beautiful ASTELIA BIVITTATA, consisting of the magnificent Specimen Plant and 14 young ones.
On view the Morning of Sale, and Catalogues had.

Brixton.
To Gentlemen, Amateur Florists, and Others.
MR. J. WILLMER begs to announce that he has received instructions from Joseph Venables, Esq., to SELL by AUCTION, on the Premises, Hohe House, Acre Lane, Brixton, on SATURDAY, July 23, at 3 o'Clock (punctual time), the whole of his costly COLLECTION of TULIPS, CARNATIONS, and PICOTEES; Tulip Stage Cabinets, Cloth Rollers, several One and Two-Light Boxes and Lights. On view the Morning of Sale.
Catalogues on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury, S.W.

English Wool Sales in London.
BRADBURY AND COOK will offer by PUBLIC AUCTION at the Wool Sale Rooms, 54A, Moorgate Street, on WEDNESDAY, July 20, about 1500 Sacks of ENGLISH WOOL, comprising some of the best flocks from Kent, Sussex, Cambridgeshire, Hertfordshire, Wiltshire, Dorsetshire, Somersetshire, Devonshire, and Cornwall; and which will include a large assortment of good half-bred Wool; also some superior South Down matchings from very choice flocks, combing and clothing.
The Wool will be shown in bulk on the Morning of the day of Sale at the West India Docks.
Catalogues can be had the day previous on application to BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S MEETING AT NEWCASTLE, 1864.

STANDS 98 & 213.

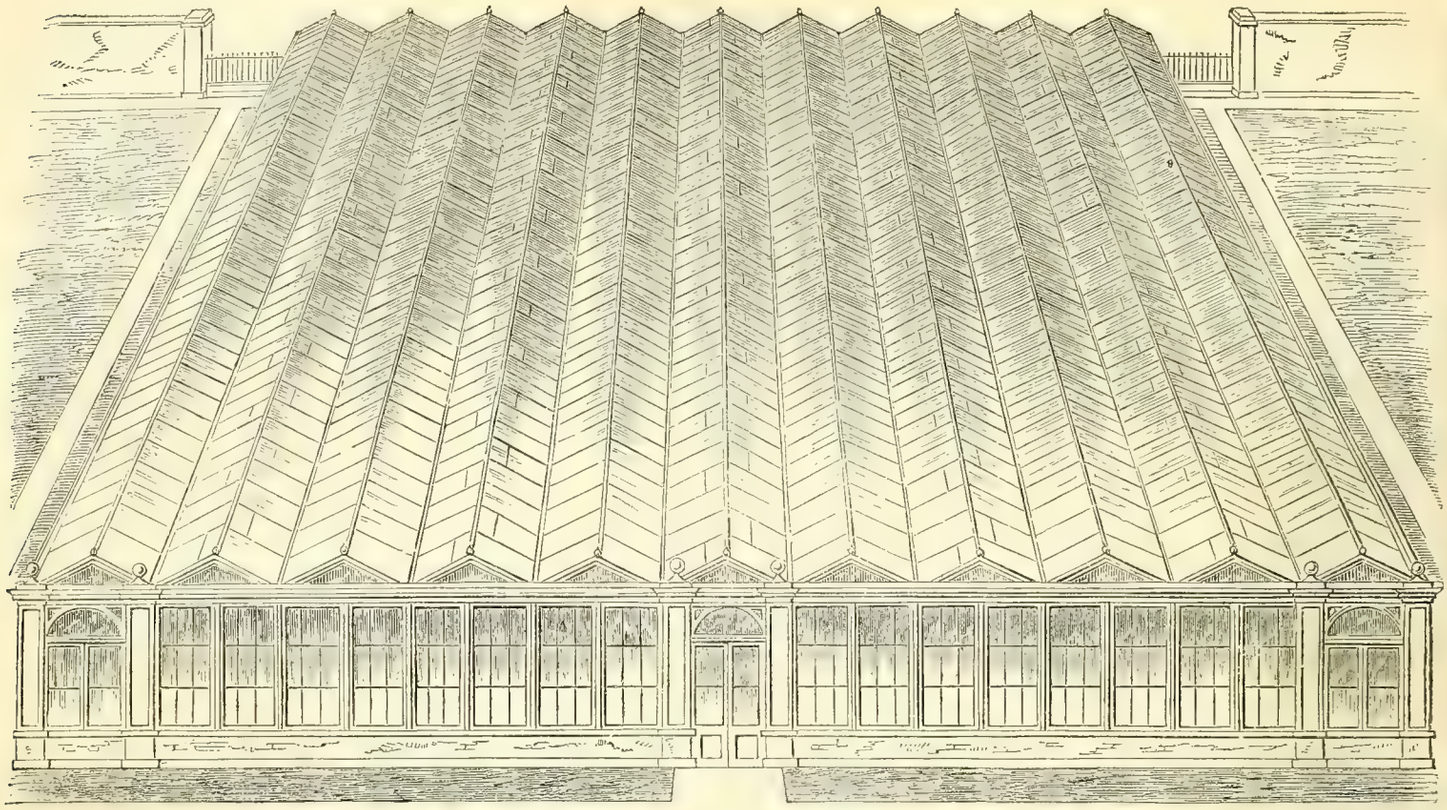
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

WILL EXHIBIT A COLLECTION OF

THEIR IMPLEMENTS AND MACHINERY,

EMBRACING PLOUGHS, HARROWS, MILLS, ROOT CUTTERS, ENGINES AND THRESHING MACHINES.

HOTHOUSES BY THE ACRE.



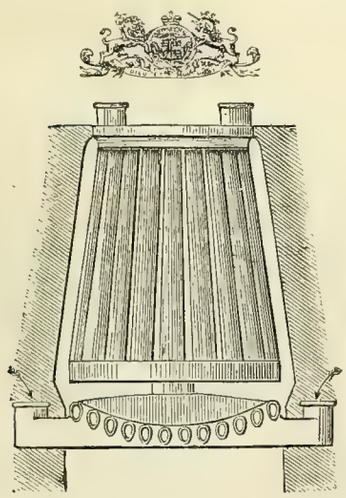
FRUIT, FLOWER, AND KITCHEN GARDENS UNDER GLASS.

The extremely variable and uncertain nature of the climate of Great Britain renders the supply of garden productions so very precarious, that it is high time the energies of the Horticultural Architect were directed to the arrangement of a cheap, simple, and effective structure which would obviate the defects of climate and insure in all seasons an abundant supply of common culinary vegetables; and also of those garden luxuries which our present state of civilisation has rendered indispensable to the comfort of every gentleman's home.

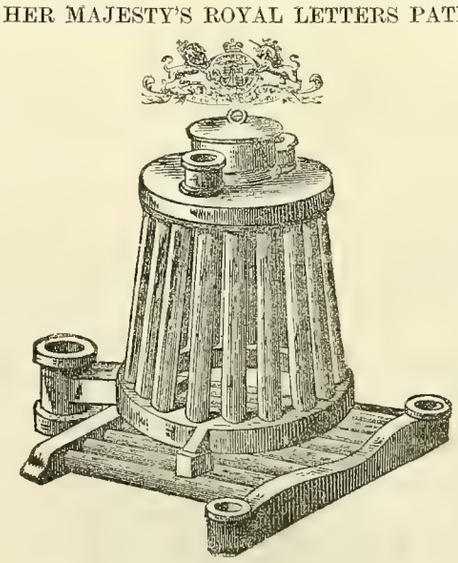
HENRY ORMSON has devoted much time to the consideration of this subject, and flatters himself that his designs for covering large spaces will entirely supply the desideratum, and that they will be found not only thoroughly efficient for the purpose contemplated, but that the prices at which he can erect them—manufactured by steam power machinery—will be so reasonable as to defy competition, while the workmanship and materials will be of the most superior description, PLANS and ESTIMATES given on application for covering ¼ of an acre, ½ an acre, ¾ of an acre, an acre, or any greater or less extent of ground which may be considered desirable.

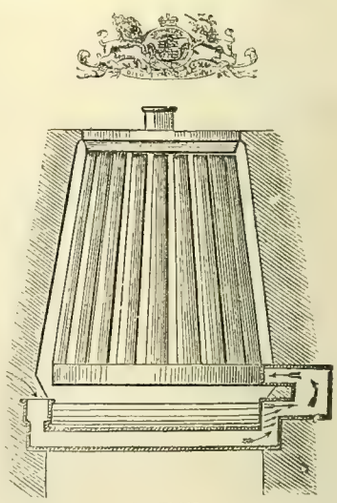
HENRY ORMSON, HORTICULTURAL BUILDER, STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



SECTION.





SECTION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

Is now from PRACTICAL TESTS allowed to be the best ever invented for EFFICIENCY, POWER, and ECONOMY, and from the following FACTS it will be manifest to every person's understanding that it must be infinitely more safe for carrying out the ONE BOILER system than any other UPRIGHT TUBULAR BOILER. For instance, the ordinary old-fashioned JOINTED UPRIGHT TUBULAR BOILERS made by ALL other Manufacturers, having 20 tubes for the Boiler, and 12 tubes for the Waterway Furnace bars, would have 64 joints made of cement and rope yarn ALL exposed to the direct ACTION OF THE FIRE, whereas in ORMSON'S PATENT THERE IS NOT ONE JOINT upon which the FIRE CAN ACT, hence the great advantage and security of this PATENT.

These Boilers are made of various sizes so as to suit the amateur or for heating the LARGEST ESTABLISHMENTS ON THE ONE BOILER SYSTEM.

HORTICULTURAL BUILDINGS OF EVERY DESCRIPTION MANUFACTURED BY STEAM POWER MACHINERY. LOWEST PRICES AND BEST MATERIALS.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 30.—1864.] SATURDAY, JULY 23. {Price Fivepence. Stamped Edition, 6d.

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Roses.

JOHN CRANSTON'S superb COLLECTION (extending over many Acres), is NOW in FULL BLOOM.
Nurseries, King's Acre, near Hereford.

Roses in Pots.

PAUL AND SON draw attention to their ROSES in POTS, fit for immediate planting. The plants of this year's New Roses are particularly fine. Prices on application.
"Old" Cheshunt Nurseries, Cheshunt, N.

Roses.

PAUL AND SON'S Unrivalled COLLECTION continues in FULL BLOOM. Particularly fine just now are the Teas, Noisettes, and later flowering Hybrid Perpetuals. Visitors may reach the Nurseries by Trains from Bishopsgate to Cheshunt (one mile) or Waltham (two miles from the grounds). Flies and Omnibuses at the latter.
"Old" Cheshunt Nurseries, Cheshunt, N.

Roses.

WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.
Waltham Cross, Herts, N.

Roses.

EDWIN HOLLAMBY begs to announce that his unrivalled Collection of the above, containing many new and splendid varieties, is NOW in FINE PERFECTION. A visit is respectfully solicited.
The Nurseries and Seed Establishment, Tunbridge Wells and Groombridge, Kent.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to
Benjamin R. Cant, St. John's Street Nursery, Colchester.

Roses, &c.

FRANCIS AND ARTHUR DICKSON AND SONS beg to intimate that their large and fine COLLECTION of ROSES (which embraces all the novelties and every variety of merit yet introduced) is NOW in FULL BLOOM, and they invite the inspection of their Patrons and all Cultivators of this popular and beautiful flower.
Having recently formed a large "Rosarium," in which all the choicest varieties of the most popular classes are grouped, purchasers will find this an excellent medium for selection and comparison. Their Geometric Flower Gardens are now also gay with the choicest and most beautiful Bedding Plants, and their Nurseries generally will, they think, repay a visit.
The "Upton" Nurseries, Chester.

Roses.

H. LANE AND SON beg to inform their Patrons that their extensive COLLECTION of ROSES (7 Acres in one piece) is NOW in FULL BLOOM at their Balshaw Nursery, 1½ mile from the Home Nurseries.

Vines Fruiting.

H. LANE AND SON have still to offer VINES in pots, with from 5 to 15 bunches of fine fruit.
To be seen at their Home Nurseries.

Coniferæ.

H. LANE AND SON'S superb COLLECTION of the above, including the finest lot of ARAUCARIAS in Europe, RHODODENDRONS, AZALEAS, TREES, SHRUBS, &c., to be seen at their Home and other Nurseries, Great Berkhamsted.
The Home Nurseries are within 10 minutes walk of the Berkhamsted Station, London and North-Western Railway, where Conveyances meet all Trains.

Orchard Houses.

MESSRS. RIVERS AND SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.
Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

CALANDRINIA UMBELLATA.—We have now a bed of this charming plant, about 60 feet long, in FULL BLOOM; and feel assured that in its own colour (pure magenta crimson) it has no rival in cultivation. Thus grown, it forms in the full sunshine a glowing mass of dazzling brilliancy that is almost painful to the eyes to look upon!
The entire bed stood unprotected during the whole of the late long and trying winter.
Fine Flowering Plants in pots, 25s. per 100, 4s. per dozen, 6d. each.
Jas. Backhouse & Son, York Nurseries.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most magnificent of all Mr. Fortune's importations from Japan, are now ready to be sent out in strong plants, 15s. and 21s. each.
Also ARUNDO CONSPICUA, a worthy rival of the Pampas Grass, flowering very freely three months earlier in the season than that old favourite. Strong plants 18s., 24s., and 30s. per dozen.
Charles Noble, Sunningdale Nursery, Bagshot.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.
Established 1800.

Ripon and Claro Seed Establishment.

WILLIAM MORTON,
Old Market Place, Ripon.
PRICE CURRENT of AGRICULTURAL SEEDS free by Post.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

CARTER'S GARDENER'S VADE-MECUM.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

General Plant Catalogue.

WM. CUTBUSH AND SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6d.; 15 do., 3s. 6d.; 25 do., 5s. 6d.; 50 do., 15s.; 100 do., 30s.
Barr & Sugden, Seed Merchants, 12, King St., Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.
HERBACEOUS CALCEOLARIA, 2s. 6d. per packet.
HALF SHRUBBY CALCEOLARIA, 2s. 6d. per packet.
CINERARIA, 2s. 6d. per packet.
CARNATION, Self, Flakes, and Bizarres, 2s. 6d. per packet.
PICOTEE, White and Yellow grounds, 2s. 6d. per packet.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden.

PRIZE PLANT CASES, elegantly fitted-up, 10s. 6d. to 200s.
RUSTIC WINDOW GARDENS, 15s. to 30s.
RUSTIC MIGNONETTE BOXES, 10s. 6d. to 21s.
RUSTIC STANDS and TABLES, 15s. to 105s.
PAXTON HANGING BASKETS, 10s. 6d. to 21s.
CONSERVATORY HANGING BASKETS, 3s. 6d. to 21s.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

New Spotted and Blotched Prize Hybrid Mimulus,
1s. per packet; Trade packets, 2s. 6d., 3s. 6d., 5s., and 10s. 6d.
BARR AND SUGDEN offer with confidence the above superb strain of MIMULUS; the stock of which they have just purchased from Mr. Bull. The Seed has been saved from the beautiful varieties which Mr. Bull has this season been exhibiting at the great London Flower Shows.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

New Hybrid Spotted Herbaceous Calceolaria,
2s. 6d. per packet; Trade packets 5s., 10s. 6d., and 21s.
BARR AND SUGDEN offer the above CALCEOLARIA as the finest strain in the country.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, True to Name. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

Japanese Nurseries, Biggleswade, Beds.

NEW JAPANESE CHRYSANTHEMUMS.—The above curious and beautiful flowers, lately introduced by Mr. Robert Fortune, are now ready for sending out. Striped, Spotted, Yellow, and Bronze, perfectly hardy, 12s. and 18s. per dozen. Mixed, unnamed, 9s.
T. Ayres, Biggleswade.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

FERNS.—A large Collection from 6d. to 5l. each; FERN CASES, filled complete, from 4s. 6d. each; GOLD and SILVER FISH, from 4s. to 12s. per dozen, 2l. per 100, 18l. per 1000; CANARIES and FOREIGN AVIARY BIRDS, CAGES, &c.
R. Green, 154, Kingsland Road, N.E.; and Bedford Conservatories, Covent Garden Market, W.C.

Calceolaria, Cineraria, Primula.

E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.
The CALCEOLARIA is now magnificently in bloom at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

SCARLET INTERMEDIATE STOCK, Covent Garden variety, 1s. per packet.
PURPLE INTERMEDIATE STOCK, ditto, 1s. per packet.
HUNT'S SUPERB SWEET WILLIAM, 1s. per packet.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

GLYCINE SINENSIS.—WANTED, Two Standard GLYCINES, for removal at proper time.
E., *Gardeners' Chronicle* Office, London, W.C.

To Radish Growers.

WANTED, 2 or 3 Quarters of Good New LONG SCARLET RADISH SEED. Must be warranted good stock and growth. Sample and lowest price to
R. Lyne, Esq., 41, Westbourne Park Road, Bayswater, London, W.

Italian Tripoli Onion.

CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

Rape Seed for Sowing.

CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1862.
Price on application.

The Best Turnips for Feeding off Early.

SUTTON'S LINCOLNSHIRE RED GLOBE.
SUTTON'S IMPERIAL GREEN ROUND
POMERANIAN WHITE GLOBE
EARLY SIX WEEKS
} Price 8d. per lb., cheaper by the bushel.
Carriage free, except small parcels.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

The Best Substitutes for Swedes.

SUTTON'S GREEN-TOP YELLOW HYBRID and SUTTON'S PURPLE-TOP YELLOW HYBRID, price 9d. per pound, or cheaper by the bushel.
Also, YELLOW TANKARD TURNIP, 10d. per pound (cheaper by the bushel.)
These are equal in quality to the best Yellow Swede, and will stand the winter if not sown too early. Carriage free except small parcels.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Stones or Sprotbro Cabbage Seed.

JOHN SCHOLEY, Nurseryman and Seedsman, Pontefract, has the above to offer to the Trade, his own growing of 1863. The above Cabbage is the earliest and best that supplies the Leeds and Manchester Markets.
Price per lb. 1s. 6d., or 7l. per cwt. About 15 cwt.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. Dixon & Sons, 57, Queen Street, Hull.

SHARPE'S IMPROVED LARGE SWEDE. DEVONSHIRE GRAY STONE TURNIP, LINCOLNSHIRE RED GLOBE TURNIP, WHITE GLOBE TURNIP, GREEN GLOBE TURNIP.
Charles Sharpe & Co., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own growth. Price to the Trade on application.

Chivas' Orange Jelly Turnip.

CHIVAS AND WEAVER (late George Chivas) acquaint agriculturists that they are supplying the above TURNIP, grown with scrupulous care, from a Stock which they have been improving for several years; the characteristics of the variety are now generally recognised, viz:—Rapidity of Growth (may be sown till the middle of August), highly Nutritious and particularly Hardy. To secure the genuine article direct application is recommended. Price 1s. 6d. per lb.; 20 lb. delivered free at any Railway Station. Chester, July, 1864.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

Per pkt.—	s.	d.		Per pkt.—	s.	d.	s.	d.
PRIMULA	2	0	and 3 6	INTERMEDIATE STOCK	0	6	and 1	0
CINERARIA	1	6	and 2 6	BROMPTON do.	0	6	and 1	0
CALCEOLARIA	1	6	and 2 6					

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.
A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

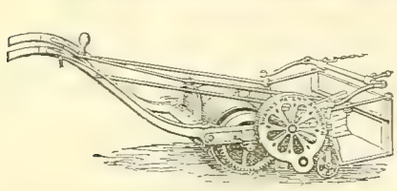
New Hardy Annual for Spring Flowering.
COLLINSIA VERNA.

W. THOMPSON, Seedsman, Tavern Street, Ipswich, begs to announce that he is now prepared to supply the Trade with fine SEED of the above beautiful novelty for autumnal sowing. Its charming sky-blue and white flowers are among the first to greet the returning spring, and precede considerably those of any other species. It received a Second-class Certificate at the Regent's Park Exhibition, April 30; and was referred to in conspicuous terms in a leading article in the *Gardeners' Chronicle* of same date.
Prices and full description will be sent on prepaid application. A Coloured Plate for 6 Stamps, or gratis to purchasers of a certain quantity.

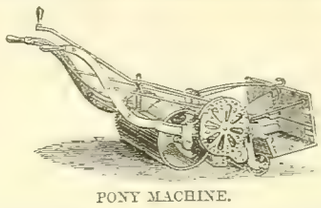
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.

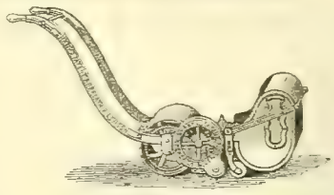
Important Improvements, combining efficiency with simplicity of construction, have been introduced into Shanks' Lawn Mowers for the ensuing season.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

MOWS ON UNEVEN AS WELL AS ON LEVEL LAWNS, AND WHETHER THE GRASS BE WET OR DRY.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE,

for Pushing only.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*

Silent Movement, 4*s.* extra.

SHANKS' NEW PATENT HAND MACHINE,

For Pushing or Drawing, Separately or Together.

Width of Cutter.		
16-inch Machine	£6 12 6	*Easily Worked by a Man.*
19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
22-inch Machine	8 7 6	*Easily Worked by Two Men.*
24-inch Machine	8 17 6	

Silent Movement, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

Shanks' Patent Lawn Mowers require less power to work them than any other, are all warranted to give satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

GREEN'S PATENT SILENS MESSOR,

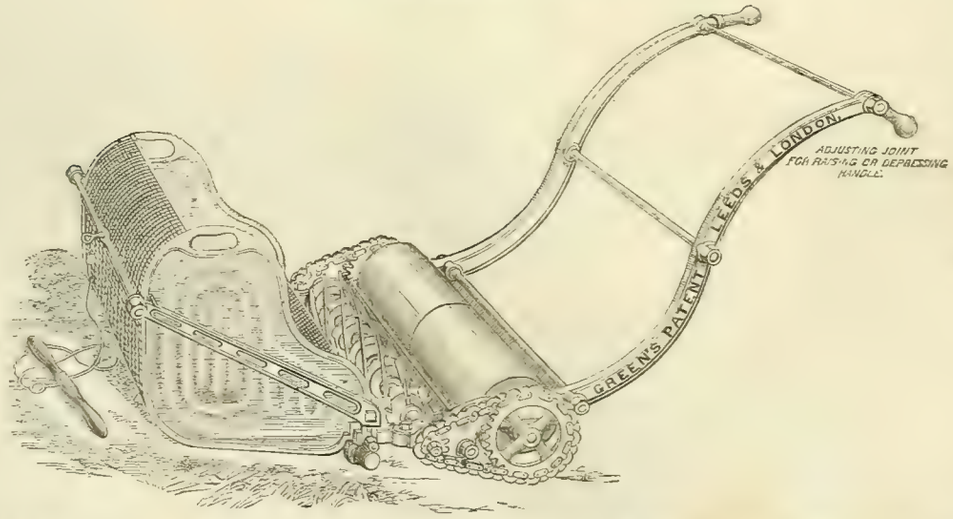
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

ILLUSTRATED PRICE LISTS may be had on application to

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle recently patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 15 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 8*s.*; 64 ft. by 25 ft., 107*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HERRMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COWHOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

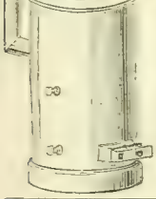
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.* 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.* and 3*s.* 9*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYALL WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.



RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 15 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

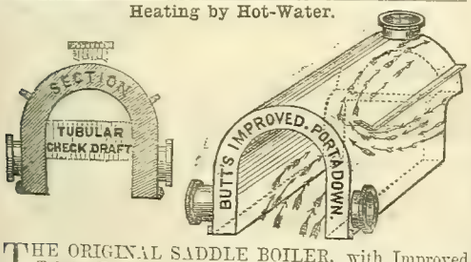


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., to any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London, Portadown, Ireland.

Greenhouses.

FOR SALE (SECOND-HAND), a capital LEAN-TO RANGE, 52 feet long by 15 feet wide, in three compartments, well adapted for Vineries or Show-houses.

The owner's Grounds are 10 minutes drive from Chelmsford Railway Station, where they may be seen any day before 12 A.M.

The Range or part may be purchased.

For price and particulars apply to F. H. P. DENNIS, Horticultural Builder, &c., Chelmsford, Essex.

BEFORE you BUILD any more GARDEN WALLS, see the NEW PATENT CORRUGATED BRICK, invented and manufactured by I. FOXLEY, acknowledged to be the best thing for the purpose by gardeners who have seen it. No nailing required, no fixtures of iron, copper, &c. Perfect training is obtained, and the Trees can be kept clean and free from Insects.

License granted to make the Bricks in certain localities, and further information on application to I. FOXLEY, Stony Stratford, Bucks

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

REDUCED PRICES OF PROPAGATING GLASSES.

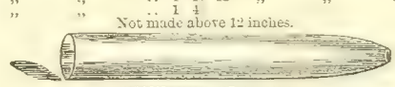


Each.—*s.*	*d.*		Each.—*s.*	*d.*
3 inches in diameter ..	0 4	12 inches in diameter ..	1 6	
4 " " ..	0 5	13 " " ..	1 10	
5 " " ..	0 6	14 " " ..	2 3	
6 " " ..	0 7	15 " " ..	2 9	
7 " " ..	0 9	16 " " ..	3 0	
8 " " ..	0 10½	17 " " ..	4 0	
9 " " ..	1 1	18 " " ..	4 6	
10 " " ..	1 2	19 " " ..	5 6	
11 " " ..	1 4	20 " " ..	6 0	

BEE GLASSES.

Each.—*s.*	*d.*		Each.—*s.*	*d.*
4 inches in diameter ..	0 6	9 inches in diameter ..	1 8	
5 " " ..	0 8	10 " " ..	2 0	
6 " " ..	0 10½	11 " " ..	2 6	
7 " " ..	1 1	12 " " ..	3 0	
8 " " ..	1 4			

Not made above 12 inches.

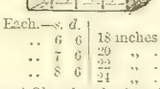


CUCUMBER GLASSES.

Each.—*s.*	*d.*		Each.—*s.*	*d.*
24 inches long ..	1 9	16 inches long ..	1 2	
22 " " ..	1 7	14 " " ..	1 0	
20 " " ..	1 6	12 " " ..	0 10	
18 " " ..	1 4			

Made to any length.

HAND GLASSES, WITH OPEN TOPS.



Each.—*s.*	*d.*		Each.—*s.*	*d.*
12 inches	6 6	18 inches	9 6	
14 "	7 6	20 "	10 6	
16 "	8 6	22 "	11 6	
		24 "	12 6	

Painted and Glazed with 16 oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

189, Bishopsgate Street Without, London, E.C.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down require no further labour and expense, as do "grewn" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6



Fig. 571

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

24 gal.	30 gal.	15 gal.	28 gal.
£5 0 0	£5 12 0	£5 12 0	£7 0 0

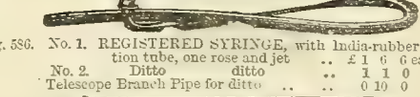


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 "
Telescope Branch Pipe for ditto .. .. 0 10 0 "

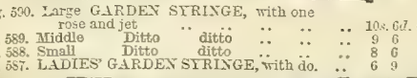


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10*s.* 6*d.* each.
" 589. Middle Ditto ditto .. .. .. 9 6 "
" 588. Small Ditto ditto .. .. .. 8 6 "
" 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 "

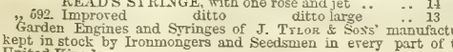


Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
" 592. Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make

Paxton Works, Sheffield.

SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

FLOORING, MATCH BOARDS, DEALS, &c., as low as advertised. White Batten, 9*l.* per 120, 12 feet; Yellow ditto, 10*l.* ditto ditto; ¾ Floor Boards, well prepared, from 11*s.* 6*d.* per square; Matched Lining, from 12*s.*; Venetian Blind Laths from 8*s.* 6*d.* per 100 feet super.—CHARLES CUTLER, Surrey Sawing and Planing Mills, Church Street, Kennington.

The Hydropult Challenged.

WINTON'S "HYDROPNEUMATIC" FIRE and GARDEN ENGINES are acknowledged to be superior in every respect to the Engines of the above name. Sold everywhere.

HYDROPNEUMATIC, £1 15*s.* Lady's ditto, £1 10*s.*

JOHN G. WINTON, 13, Gladstone Street, St. George's Road, Southwark, London, S.E.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

CAUTION.—The well-known reputation of

READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling Syringes as "READ'S PATENT."

R. READ begs to caution the Public against being deceived by such false representations, as these instruments, upon trial, will be found defective and useless.

READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions sent Post free.

BARROWS AND CARMICHAEL, Banbury, MANUFACTURE STEAM CULTIVATING APPARATUS, the cheapest, most simple, and successful Tackle out.

PORTABLE STEAM ENGINES, more simple in construction, efficient at work, and consuming less coal than the old-fashioned Engines usually made

THRESHING MACHINES, which will astonish those who work the ponderous and complicated Machines now so generally used.

TANNED GARDEN NETTING.—Inch Mesh, 1*d.* per yard; in pieces containing 400 to 500 yards. Small quantities, 1½*d.* per yard. TOBACCO PAPER, price to the Trade on application.

H. BROWN, Seedsman, 4, Commutation Row, Liverpool.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard; or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard; or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

EDGINGTON'S RICK CLOTHS for 59 years have maintained their celebrity as the best.

EDGINGTON'S MARQUEES and TENTS are the prettiest.

EDGINGTON'S MARQUEES for hire are the most elegant and capacious.

EDGINGTON'S GARDEN NETTING is the cheapest and most durable; 1*d.* per square yard in quantities of 250, 500, and 1000 yards.

Samples of material free on application. Be particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E.

INTERNATIONAL EXHIBITION, 1862, Class XIX.

Honourable Mention.

BENJAMIN EDGINGTON, MARQUEE, TENT, RICK CLOTH, and FLAG MANUFACTURER by Special Appointment to her Majesty.—MARQUEES, TEMPORARY ROOMS and AWNINGS, for Dinners, Balls, Parties, &c., on HIRE, lined, boarded, lighted, and elegantly decorated. RICK CLOTHS, New and Second-hand, with Poles, &c., complete. NETTING for Fruit Trees; Scrims for Greenhouse Blinds, &c. Be particular to address,

BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

To the Trade.

HOOPER'S ETRUSCAN HYACINTH VASES.—The new designs for the coming season, in these SUPERB ORNAMENTS are now ready, and List of Prices may be had on application.

Notwithstanding the unprecedented beauty and novelty of the designs of last year, those of the present will be found to far eclipse them, and must be looked upon as marvels of the Potter's art. The most perfect and exquisite delineations of ancient Grecian Figures, both upon dead and brilliant surfaces, and likewise imperishable gold and other ornaments, are included amongst their embellishments. In spite of these improvements, however, the prices are not raised.

H. & Co. beg to inform those of their customers, who being supplied last season out of the first lot of Vases, complained of imperfection in the glazing, that such improvements have since been made in their manufacture as to render them in that respect, as in every other, PERFECT

Early orders are solicited to ensure supply, as last year H. & Co. were quite unable to fulfil the whole of the orders received for them.

HOOPER & Co., Covent Garden Market, London, W.C.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide	3*s.* 4*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

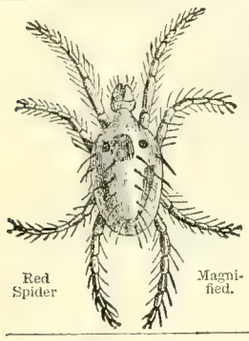
"It is much cheaper than Mats as a covering."

TERRA COTTAS always on Sale, viz. :—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at
J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, W.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free; Price List free.
BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5s.
SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.


Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

PEAT SOILS, various excellent kinds, on SALE by the Truck Load at moderate prices.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 7s. 6d. per ton; packed, 16s. per ton, delivered to Reigate Station. First-class Peat Soils, Loams, Bog Mould, &c., Sand Stone for Ornamental Rock Works.
N.B. Loaded Trucks can be sent direct through to almost all the Railway Goods Stations in Great Britain.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).
Kentish and other Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.

Preliminary Notice.
CLEMATIS JACKMANNI and C. RUBRO-VIOLACEA have received two First-class Certificates, awarded by Royal Horticultural Society, August 4, 1863. Will be sent out this coming Autumn by Messrs. GEO. JACKMAN & SON. Orders will now be taken and executed in strict rotation.
Further particulars (with EXTRACTS from the LEADING HORTICULTURAL PAPERS) with price, will be given in future Advertisements.
Woking Nursery, Surrey.

CARTER'S FARMER'S VADE-MECUM.

A MAGNIFICENT FIELD OF
Pure White Canadian Seed Oats in full Ear, and 3½ feet high, June 11, 1864, at
MR. HALLETT'S MANOR FARM, BRIGHTON (within 200 yards of St. Mark's Church, Kemp Town), is now OPEN to INSPECTION. This Field adjoins the Lodge (at the entrance gates of the Manor House), where a sample of the Oats sown may be seen upon presenting Card with Address.
These Oats were raised from a very fine sample in 1862, which was hand-picked 27 times, and weighed 48 lb. the imperial bushel. They were drilled (3 bushels per acre), on the 24th February, 1863, cut July 20, and yielded on a very thin poor soil upwards of 80 bushels of Oats, and 185 trusses (36 lb.) of most excellent feeding straw per acre; while the ordinary Black Tartarian Oat, on the other part of the same field, ripened a fortnight later, yielded of grain a less crop, weighing 25 per cent. less per bushel, and of straw 120 trusses per acre.
The Canadian Oats were again hand-picked, to ensure *perfect* purity, and drilled on the above field February 17 of this year. Upon the same field, 1863:—

	Kernel.	Husk.	
Canadians	69.43	30.57	per cent.
Tartarians	70.79	29.21	per cent.

CARTER'S GARDENER'S VADE-MECUM.

Seeds Worth Growing.
DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

Sow in July.
DOBSON'S HYBRIDISED CALCEOLARIA is unequalled in the Kingdom. New Seed just harvested, from 500 differently marked Varieties. Our celebrated Strain has taken all the First Prizes everywhere for the last 10 years. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSON'S PRIZE CINERARIA and PRIMULA, sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

AZALEA INDICA, Stocks for Grafting	per 100	20s. 0d.
ALOCASIA METALLICA	each	7 6
CLERODENDRON BALFOURII	„	10 6
RHODODENDRON COUNTESS of HADDINGTON	„	21 0
„ JAVANICUM	„	2 6
„ NUTTALI	„	2 6
TRITOMA GRANDIS	„	5 0
„ UVARIA GLAUCESCENS	„	1 6

Intending purchasers are invited to inspect the general stock of Plants. DESCRIPTIVE and PRICED CATALOGUES of SEEDS and PLANTS are published, which will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

HERBACEOUS CALCEOLARIA, &c., SEED.
CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.
CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.
PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d.
And every other first-class Seeds. See CATALOGUE, post free.
WM. CUTBUSH & SON, Highgate Nurseries, London, N.

Extra Strong Grape Vines from Eyes.
LUCOMBE, PINCE, AND CO., having this season a splendid stock of strong VINES fit for immediate planting, propagated from Eyes taken from their large experimental Vinery, can offer fine healthy, short-jointed Canes, 6 to 9 feet long, of all the leading kinds, at from 3s. 6d. to 7s. 6d. and 10s. 6d. each.
L., P. & Co. have one of the largest Stocks in the Trade of Extra Strong Vines, with Canes 9 to 11 feet long, and proportionally strong, from which purchasers can advantageously select those suitable for fruiting finely next season. Liberal Compensation for Carriage.
Exeter Nursery, Exeter.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.
ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.
Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.
Exotic Nursery, Tooting, Surrey, S.

Choice Seeds for Present Sowing.
ROBERT PARKER begs to offer the following, all of which are warranted new and the finest possible quality of their several kinds:

	Per packet—s.	d.
CALCEOLARIA, Herbaceous, mixed	2	6
CINERARIA, from named varieties, mixed	2	6
STOCK, Scarlet Intermediate	0	6
„ White, ditto	0	6
„ Giant Scarlet, ditto	1	0
„ White, ditto	1	0
PRIMULA SINENSIS FIMBRIATA, mixed	2	6

A PRICED and DESCRIPTIVE CATALOGUE of SEEDS and PLANTS is published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

PRIZE MEDAL FOR SEEDS AND CEREALS.
ESTABLISHED 1800.

WILLIAM MORTON,
OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9d. per lb.; and his large FOSTERTON HYBRID, 8d. per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.
MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

NEW GRAPE, ROYAL VINEYARD.
TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,
PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.
B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:
Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

Dr. HOGG'S *Report on the Royal Vineyard Grape:*
"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

NEW PLANT CATALOGUE.

JAMES VEITCH
BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF NEW AND BEAUTIFUL PLANTS FOR THE PRESENT SEASON

IS NOW READY, AND WILL BE FORWARDED POST FREE ON APPLICATION.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.—July 23.

ROYAL HORTICULTURAL SOCIETY,

SOUTH KENSINGTON.

EXHIBITION of HORTICULTURAL IMPLEMENTS,

MAY 20, and until AUGUST 24, 1864.

LIST of AWARDS.

CLASS 2.—GARDEN SEATS in IRON and WIRE.

Insufficient Competition.

CLASS 4.—GARDEN SEATS in WOOD and IRON combined.

Insufficient Competition.

CLASS 11.—GARDEN STOOLS in MAJOLICA or any other material (Not mentioned in the Schedule).

Insufficient Competition.

CLASS 14.—GARDEN VASES in TERRA COTTA.

Insufficient Competition.

CLASS 17.—GARDEN VASES in POTTERY WARE.

Insufficient Competition.

CLASS 18.—GARDEN VASES in IRON.

Insufficient Competition.

CLASS 23.—GARDEN THERMOMETERS of ALL KINDS, famous for accuracy and good workmanship.

Mr. L. Casella, 23, Hatton Garden, London, for Thermometer with Black Tin Frame and China Dial, price 9s., First-class Certificate.

CLASS 24.—GARDEN THERMOMETERS of all kinds, famous for accuracy and cheapness.

Mr. L. Casella, for Thermometer with Box-wood Indicator, Second-class Certificate.

CLASS 25.—GEOTHERMAL THERMOMETERS

Mr. L. Casella, for Geothermal Thermometer with Brass Tube, price 25s., First-class Certificate.

CLASS 26.—RAIN GAUGES.

Mr. L. Casella, First-class Certificate.

CLASS 27.—GARDEN BAROMETERS of any kind.

Mr. L. Casella, for Upright Barometer, First-class Certificate.
Mr. L. Casella, for Aneroid Barometer, Second-class Certificate.

CLASS 28.—GARDEN HYGROMETERS of any kind.

Mr. L. Casella, First-class Certificate.

CLASS 38.—GARDEN MOWING MACHINES drawn by hand.

Messrs. Thomas Green & Son, 2, Farringdon Road, Holborn Hill, First-class Certificate.

But the Judges consider the extra knives and small rollers disadvantageous to the machine.

CLASS 39.—GARDEN MOWING MACHINES, drawn by a Pony.

Messrs. T. Green & Son, First-class Certificate.

The foot-note to Class 38 applies to the Machine exhibited in this Class also.

CLASS 43.—GARDEN ROLLERS for One Man.

In this Class there were four Exhibitors, but the Judges did not consider the Rollers of sufficient merit to warrant them in making any award. They consider the division in the small rollers a positive disadvantage.

CLASS 47.—GARDEN ENGINES with Two Wheels, Zinc Tub.

Messrs. T. B. Brown & Co., Second-class Certificate.
This was awarded for the improved principle of fixing the leverage, and consequent easy working.

CLASS 49.—HYDROPULTS of all kinds.

The Hydropults exhibited were considered by the Judges inferior to the Garden Engines, not being so convenient for garden purposes, and requiring double the power to work them.

CLASS 50.—INDIA-RUBBER HOSE for Watering Gardens.

Messrs. J. Warner & Sons, 8, Crescent, Cripplegate, London, Second-class Certificate.

CLASS 54.—GARDEN PUMPS (Fixtures).

Messrs. J. Warner & Sons (Warners' patent), First-class Certificate.

CLASS 56.—GARDEN PUMPS (Moveable).

Messrs. J. Warner & Sons, for Barrow Pump with Two Wheels, First-class Certificate.
Messrs. J. Warner & Sons, for Galvanised Iron Pump on Iron Tripod, Second-class Certificate.

CLASS 59.—GARDEN WATERING POTS, small, in Tin or Zinc.

The pots exhibited in this class were not considered fit for the purpose.

CLASS 61.—GARDEN POTS in TERRA COTTA.

The pots exhibited in this class were not considered worthy of a Certificate.

CLASS 62.—GARDEN POTS in MAJOLICA for Conservatories.

Insufficient Competition.

CLASS 63.—FANCY GARDEN POTS in any material.

Insufficient Competition

CLASS 79.—PRUNING SAWS.

Mr. W. H. Mitchell, 3, Britannia Place, Limehouse, E., for Pruning Saw to shut up, Second-class Certificate.

The Judges considered the principle worthy of commendation.

CLASS 82.—MODELS of GREENHOUSES, FORCING HOUSES, and CONSERVATORIES, showing the best method of ventilation and heating.

The Judges did not consider the model exhibited offered any advantages over houses at present in use.

CLASS 83.—BOILERS for HEATING.

The Judges did not consider the Boilers exhibited possessed any advantages over those in general use.

CLASS 85.—HOT-WATER PIPES, showing the different systems of Jointing.

Those exhibited were considered well adapted for Steam, but too expensive for Hot Water.

CLASS 86.—STOP-VALVES for HOT-WATER PIPES.

Mr. T. G. Messenger; Horticultural Builder, Loughborough, for Messenger's Patent, First-class Certificate.

CLASS 90.—GARDEN TOOLS of any kind not mentioned in the Schedule.

Mr. J. T. Oakley, 202, Grange Road, Bermondsey, for Garden Engine with wood tub, without wheels, Second-class Certificate.
J. Reynolds, for Improved Fence for Training Plants, &c., Second-class Certificate.

The following Classes not mentioned in the foregoing List were represented, but the Judges did not deem the articles exhibited of sufficient merit to warrant them in giving any award:—20, 21, 29, 34, 41, 48, 53, 57, 64, 87, 88, and 89.



THE BEST SORTS of CABBAGE SEEDS, in packets, 6*d.* each sort, Post Free, sufficient to raise a thousand plants of each.

SUTTON'S IMPERIAL
EARLY BLENHEIM
SUTTON'S DWARF COMBE

NONPAREIL, EARLY YORK, ENFIELD MARKET, WHEELER'S IMPERIAL, and other old sorts, 3*d.* per pckt; DRUMHEAD CATTLE CABBAGE, 2*s.* 6*d.* per lb.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, near Halstead, and only one mile from the Haverhill Junction of the Great Eastern and Colne Valley Railway, beg to offer 12 distinct and most beautiful HARDY CLIMBERS, all well-established, from 18 inches to 3 feet high, for 9s. They consist of the finest CLIMBING ROSES, JASMINES, PASSION FLOWERS, HONEYSUCKLES (in some rare kinds), CLEMATIS and IVIES (a most beautiful collection), &c., &c. Post Office Orders must accompany the order from strangers.

A CATALOGUE for one stamp is now in the press, of New and Rare Plants of 1864, at reduced charges. We possess all the greatest novelties.

A CATALOGUE of GENERAL STOCK and a WHOLESALE CATALOGUE of STOCK, each for one stamp.

BURTON-UPON-TRENT FLORAL and HORTICULTURAL SOCIETY.

The SECOND EXHIBITION of the above Society will take place on WEDNESDAY, August 24. The First-class and Extra Prizes will be open to all England.

EXTRA PRIZES.

	First.	Second.	Third.
Collection of Roses (24-kinds, 3 trusses of each*)	£3 0 0	£1 10 0	£0 15 0
Ditto Dahlias (24 varieties)	1 10 0	0 15 0	0 7 6
Ditto Fancy ditto (24 varieties)	1 10 0	0 15 0	0 7 6
Ditto Hollyhocks (12 varieties) shown in spikes	2 0 0	1 0 0	

* A truss of Roses is to consist of one shoot cut from the wood of the current year's growth. Any addition to the original truss will disqualify. In cases where Roses bloom singly—that is, without surrounding buds, a single Rose may be shown, and will be accounted as a truss.

Exhibitors for the Extra Prizes will not be allowed to compete for similar subjects in the other class.

Non-Members subject to an entrance fee of 10s.

Schedules and other information may be obtained on application to the SECRETARY, 81, High Street, Burton-on-Trent.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST of AWARDS, July 19, 1864.

FIRST-CLASS CERTIFICATE.

PETUNIA STRIATA PERFECTA, from Mr. Holland, Gr. to R. W. Peake, Esq., Isleworth.

SECOND-CLASS CERTIFICATES.

ASPLENIUM TRICHOMANES SUBÆQUALE, from Mr. Holland.
PELARGONIUM HIGHGATE RIVAL, from Mr. Windsor, Gr. to Lord Dufferin, Highgate.
ROSE (H.P.) DR. LINDLEY, from Mr. W. Paul, Waltham Cross.
VERBENA GLOW-WORM, from Mr. C. J. Perry, Castle Bromwich.
VERBENA SNOWBALL, from Mr. C. J. Perry.

SPECIAL CERTIFICATE

Collection of 24 varieties of VERBENA, from Mr. C. J. Perry.

The NEXT MEETING of the Committee will take place on Tuesday, August 16. THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, JULY 23, 1864.

IT seems almost impossible to say anything new about VINES, but the case which we have now to report, if known to others, has hitherto escaped our observation. It sometimes happens that some single plant proves unhealthy in a house; the leaves never acquire a good colour, the bunches are abortive, or the fruit shanks or spots without its being possible to assign any reason for its difference from its neighbours. There is perhaps no appreciable difference in the position or soil, and yet the plant is always unhealthy, and there is no alternative save to root it out without pity. Such cases often come to us from correspondents, and in our ignorance, we are obliged rather to ask for information than to give it. The case before us however is of quite a different nature, because it is only a portion of the plant which is affected. The roots are in good order, there is no mistake about the treatment, and the crop upon the greater part of the particular Vine is healthy, and has no tendency to shank or spot; but there is one particular branch which, from the earliest budding in spring, has never gone right for the last five or six years. The young leaves are almost colourless, and as vegetation proceeds they never acquire a general green tint, but isolated patches only of their disk form a small quantity of chlorophyll, the rest either showing an unhealthy transparent appearance or withering altogether. The young Grapes swell partially after the flowers have fallen; about three in each bunch acquire their proper size, and contain one or two seeds, the rest remain small as currants, and are perfectly seedless. The depauperated Grapes however, are good in point of flavour, better in fact than the few which appear more normal in point of size.

On examining the particular branch, it is not possible to observe the slightest difference; the affection is perfectly local, and its cause as obscure as that of the variegated branches which appear on plants which are otherwise of the usual green tint. It is most probable that the disease, which depends on some constitutional change, would be propagated if it were attempted to raise plants from the eyes of the diseased shoot. It is not however likely that any one should make the experiment, as there are no merits about the diseased part which would suggest its multiplication, except for the mere purpose of ascertaining whether the malady is capable of propagation.

The case however is interesting, because it shows that disease in vegetables may arise from local causes which it is impossible to trace, and that we are not to assign at once to bad management every failure in the garden. *M. J. B.*

MANY of our readers, we imagine, have perused with pleasure the highly interesting "Notes on Gardens" that have appeared from time to time in our columns; and some of them, probably, are looking forward with the pleasing hope of soon having a holiday that will enable them to satisfy their curiosity, and see with their own eyes a few of the rare and beautiful things that our intelligent correspondent Mr. ROBINSON has pointed out as being worthy of notice, either on account of their singular form, their elegant appearance, or as examples of the skilful manner in which they are cultivated in the justly celebrated gardening establishments at York, Edinburgh, and Dublin.

It is, however, to what is stated at page 507, respecting the lovely "WATER WEED," APONOGETON DISTACHYON, in the pond of the Edinburgh Royal Botanic Garden, that we wish particularly to direct the attention of all who are fond of aquatic plants. We scarcely know a water plant that is more attractive than this Aponogeton, or better adapted for enlivening, with its long deep-green floating leaves, and curiously formed spikes of sweet-scented white flowers, the deep margins of a lake, or other ornamental piece of water; and we are surprised to find it is not more frequently employed for such a purpose, nor more commonly grown in our fountains and garden ponds.

Originally from the Cape of Good Hope, this plant has been generally considered to be a tender exotic, and has been treated as such; but it has now been ascertained that, under certain conditions, it is sufficiently hardy to endure the open air both in England and Scotland, and has become "acclimatized," if such a thing were possible, at Edinburgh. There we know it has lived for many years, producing seed in abundance, and flowering nearly the winter through. This is ascribed to the presence of springs in the bottom of the pond in which it grows, preventing the water from freezing except in very severe weather; but our experience with this favourite aquatic, for more than 30 years, leads us to believe that it is not so much to the circumstance of springs being in the pond that the plant thrives so well and escapes being killed by frost, as to the depth of water in which it is placed, and by which it is protected. In this opinion we are confirmed by the explanations that are given in the "Theory of Horticulture" of the conditions under which true aquatics exist. It is there observed, that "plants growing entirely under water are to some extent protected from those great and sudden changes of temperature to which ordinary land plants are frequently exposed; at the same time, however, water plants are very often injured by cold, and it not unfrequently happens that on a cold winter's night plants in a pond will be greatly injured, or even killed, whilst those in a neighbouring pond will remain quite uninjured. * * * Water is cooled either by evaporation, or by contact with cold air, but it differs from the soil in the facility with which it is moved, and the readiness with which currents are formed in it. When the surface of water is in any way cooled, it becomes heavier or denser, and a kind of circulation is immediately established, the cold water descending, and the warmer water rising to its surface. In this manner then, so long as the cooling influences continue, the water goes on sinking in temperature, the whole body of it getting colder; this, however, does not continue after it has arrived at a temperature of 40°; when this is the case, all circulation in the water ceases, because if the surface water is then cooled still lower, it no longer continues to contract and become denser, but on the contrary expands, so that it then remains floating on the surface. It follows from this very interesting fact, that when on a cold winter's night the surface of a pond is cooled, the whole body of water sinks in temperature to 40°; after that, the surface only continues to get colder, and a film of ice is soon formed, while the water below continues at a temperature of 40°. In consequence of this kind of circulation, and the facility with which it is produced, a body of water is easily cooled down to within 8° of freezing, but when once it has arrived at that point, its further cooling proceeds

very slowly, even although the cold becomes much more intense; for the water below is in fact protected from contact with the cold air by the film of ice at the surface, and ice is so bad a conductor of heat that the freezing of the water under the ice goes on very slowly. * * Water plants, therefore, are in fact preserved from cold by the coating of ice which forms over the surface of the pond in which they grow; if the water is deep they are seldom injured; but if it is shallow, and the cold long-continued, the whole depth of it will in time freeze, and the plants will be more or less injured."

These are facts of the highest importance, and well deserve consideration. If they are borne in mind, we venture to say, no difficulty will be experienced in growing this charming plant in any part of the kingdom. We have had it for years past in a little fountain near London, where it flowers almost continuously, and scents the surrounding air with its grateful and delicious perfume, resembling that of the Hawthorn. Our plants are about 18 or 20 inches under the surface of the water, and although their leaves are annually killed during winter, after being incrusted with ice perhaps 6 or 8 inches thick, yet, on the return of mild weather, new leaves gradually make their appearance, and show the plants to be as healthy and strong as ever, only requiring a renewal of the soil in the pots in which they are grown.

We would not, however, have it supposed from this that our favourite plant has changed its nature. On the contrary, we believe its delicate tissues are as susceptible of being injured by frost as they were on the day of its first introduction into this country; and if the conditions in which we have found it to flourish in all its native beauty are not attended to, we fear the attempts that may be made to cultivate it in shallow water will end in disappointment.

AT p. 678 we gave a description of the fourth annual FLOWER SHOW FOR THE WORKING CLASSES which was held in Russell Square, Bloomsbury, under the presidency of the Rector, the Rev. E. BAYLEY, B.D. Having had an opportunity of attending this Exhibition, we take the liberty of bringing the matter once more under the notice of our readers. Horticultural Societies have done a great deal to develop and encourage that practical knowledge of the requirements of plants which is now possessed by our English gardeners. The productions which are common at our Exhibitions, in our gardens, and in our flower markets, if compared with those which one remembers some 20 or 30 years ago, fully prove this. But, as a rule, our great horticultural bodies do not reach directly the lower orders of the people. The prizes which they usually offer are competed for and carried off by amateurs, nurserymen, and the gardeners of the upper classes of society. And the main object, or what at least ought to be the main object of these Societies, is the advancement of everything in any way connected with gardening or gardeners.

Horticultural Societies amongst the working classes in large towns have quite a different object in view. They encourage a love of flowers amongst the poor. In "Little Coram Street District," in the heart of London—it would be all but impossible to rear those splendid specimens which are brought forward at our fashionable horticultural fetes. The difficulty is to keep plants alive in such places, and it was really wonderful to see the condition the plants were in which were brought to the last Bloomsbury Flower Show. One could not help feeling that, all things considered, cultivators of those hundreds of pet plants which were arranged in the tent, deserved nearly as much praise for their care and skill as some of our best gardeners. These shows do a great deal of good in another way. By inducing the working classes to cultivate plants in their rooms, they provide them with a source of happiness to which they had probably been entire strangers. They create an interest in home, and in the operations which are going on in the vegetable kingdom, which, to quote the words we observed painted on one of the flags in the tent, must lead "onwards and upwards." Listen to an anecdote related by Mr. BAYLEY in a lecture he delivered lately at South Kensington. "In a lone room, at the top of one of the houses where every room was the dwelling of a family, there dwelt an aged woman, whose scanty pittance of half-a-crown a week was scarcely enough for her bare livelihood. The visitor, Mr. PARKS, observed, with some surprise, a Strawberry plant growing and flourishing in a broken teapot that stood on the windowsill. He remarked from time to time how it grew, and with what care it was tended and watched. At length one day he said to the poor woman, "your plant does well; you'll soon have some Strawberries on it." "It's not for the sake of the fruit I do it," replied the woman. "Then why do you take so much care of it?" he asked. "Well, sir," she replied, "I'm very poor, too poor to keep any living creature, but it is a great comfort to me to have that living plant."

No one, not even the most illiterate, can cultivate plants without being led to study and reflect. Such a question, for example, as the following must soon be presented and explained. "Why does a Geranium grow sickly if it is kept in a dark place, or if its leaves get smothered with dust; and why does it repay the care which is spent upon it in keeping it clean and in giving it, now and then, a little sun and fresh air? Then, if cleanliness and fresh air be good for plants, may they not be equally necessary and beneficial to the owners of such plants themselves?" In this way the growth of plants in rooms, and what Mr. BAYLEY calls the "clean and tidy-room movement" go hand in hand to promote the health and happiness of the people.

Some of the plants in this show of the working classes, had evidently been but a short time in the possession of the exhibitors, while others showed they had been room-plants for several years. It is a curious fact that most of the things which have been found to grow and bloom best in a London atmosphere were exotics. Fuchsias and Geraniums appear far better suited for this purpose than such plants as Roses and many other plants indigenous to England. Besides these, Southernwood, Musk, Pinks, Moneywort, Nasturtiums, Mint, and the well known "Nettle Geraniums," were the principal plants exhibited.

We may suggest that in future exhibitions—and we hope there will be many of them—more prominence might be given to the different classes. If this were done it would add greatly to the interest of the Exhibition in so far as the visitors are concerned. This year there were five classes:—Class I. for Persons living in Little Coram Street District (the poorest portion of the parish); II. Persons living in other parts of the Parish; III. Domestic Servants; IV. Children in National, Infant, Sunday, and Ragged Schools; and V. For Plants of any sort not entered. Although there were small handbills about describing the different classes, not one person in fifty saw them. Our suggestion is that large placards or ornamental flags should be placed in a conspicuous part above or behind the collections, in order to show, at a glance, to what class the exhibitors belong. While the mere number of the class affords but little interest, it would be very different were the visitors to see that in one part of the tent the competitors were those who lived in the densest or poorest part of the parish, in another that it was domestic servants, and in a third that it was children belonging to the different schools.

The excellent Rector of Bloomsbury and his assistants deserve the best thanks of all who feel an interest in the happiness and welfare of the working classes. We are glad to find the movement is not confined to Bloomsbury, but that others are following the good example in different parts of London as well as in some of our provincial towns. All success to movements like these; we gladly welcome their annual exhibitions; and in the words of a contemporary we hope they will prove to be "hardy annuals, flourishing in the midst of smoke and toil."

—— THE BEADED OR CORRUGATED BRICKS which have been patented by Mr. FOXLEY, of Stony Stratford, and of which a sample has been sent for our inspection, appear likely to be useful in the construction of garden walls intended for fruit trees. They are well made light-coloured bricks, with three half-inch apertures pierced through their substance lengthwise, so that they are hollow, and they have in the centre of one face a stout horizontal bead an inch in diameter, and projecting about half an inch from the surface, this being pierced with small vertical holes placed about an inch apart. It is intended that these beaded bricks, which is perhaps a better name than corrugated, should be used in alternate courses with common plain bricks, and with this view they are made of the ordinary size. As the ribs or beads project half an inch at such frequent intervals, they will serve to keep the branches at that distance from the general surface of the wall, while the holes pierced through them are intended to be used for tying in the branches at once without the addition of either wires or nails. Thus walls erected with them, will not only have an ornamental appearance, but will not be liable to get defaced by nail holes; and while the trees will have all the advantages of warmth and protection, the fruit will not be liable to be disfigured by pressure against the wall, nor the branches by accidental blows from the hammer. The manufacturer states that 1000 of these beaded bricks are required to 3500 common ones. They are made with the bead either vertical or horizontal, but the latter is preferred for general use.

—— WEIGELA HORTENSIS NIVEA is a name given by M. VON SIEBOLD to a fine ornamental Japanese shrub, which he has introduced to the gardens of Europe. It is a plant of vigorous habit, and is described as having the leaves large and strongly veined, and the flowers very large, of a pure snowy white, retaining their purity during the whole time of flowering. Both this, and Mr. Fortune's white Weigela, will be valuable for the purpose of contrasting with the deeper-coloured kinds already common in gardens.

—— The growth of ORCHIDS IN ROOMS has been engaging the attention of continental cultivators as well as our own; and some time ago M. HENNING of Chemnitz in Saxony, made known the results of his experience in the matter. M. HENNING has it is said cultivated a collection of 200 plants with no other precaution than that which is ordinarily taken in Northern climates, namely, to have the windows with double frames, and without having recourse to any special means of heating. At the season when the sun has great power, his plants were protected with gauze, and it was not forgotten to give them a little air, even in winter. Proofs are multiplying that these plants are more docile than at one time they were thought to be.

—— Among the New Flowers of the year deserving of attention, *L'Horticulteur Français* mentions:—1. DOUBLE-FLOWERED POTENTILLAS, raised by M. LEMOINE, of Nancy, who has earned great reputation in the production of these flowers. They consist of: Dr. Andry, with enormous flowers of a deep orange with scarlet veins; Louis Van Houtte, very large velvety crimson-scarlet; M. Daudin, dwarf, with large crimson red flowers; M. Rouillard, large transparent vermilion; V. Lemoine with enormous incurved convex flowers, garnet coloured shaded with vermilion, and bordered with yellow; William Rollisson, with large flowers of Indian yellow, bordered and shaded with very lively reddish orange. 2. Varieties of BOUVARDIA LEIANTHA from the same source: grandis, carmine orange, with flowers three times larger than the type; floribunda, with very abundant flowers in magnificent panicles, and larger than in other hybrids, of a cochineal rose during summer, and carmine orange in autumn; and splendida, with the habit of the variety called Hogarth, and the fine colour of leiantha itself.

—— In May last, at a meeting of the *Société Impériale d'Horticulture*, one of the members described a means which he had employed for the DESTRUCTION OF ANTS. This consisted in the use of a solution of arsenious acid (acide arsenieux) mixed in the proportion of one-tenth with sugared water. Another member proposed the use of carbonic oxide (oxyde de carbon), but this substance was objected to on account of the danger attending its use. M. BOISDUVAL advised the use of a mixture of benzine and water to be poured into the ants' nests; but, asks M. VERLOT, the reporter of this meeting, is there no fear that if this were used it might not present some inconveniences in the case of delicate plants? At least those who are troubled by the visits of ants, might try these and such other remedies as they suggest, and report the result.

NOTES ON GARDENS.—No. XIII.

ROCKVILLE, DUBLIN.—*(Concluded from page 676.)*

FROM the Fernery the visitor passes by a side door, and soon reaches the conservatory—an elegant curvilinear one, built against the dwelling house, and glazed with the best plate glass, but not of remarkable interest, except from its being well filled with such plants as conservatories rarely exhibit, and always containing some choice pickings from the very unique structures that have been described—before any of which it was built.

Another feature yet remains to be alluded to, and one the existence of which I was not aware of till ushered into it. It is a sweet and singular little garden, bounded on one side by the great stove, and on the other for about 160 ft. by a glazed rustic arcade, from which you look through pointed Gothic arches of beautiful tufa into the garden. The borders on either side of the walk through the arcade were planted with Camellias, Sikkim and Bhotan Rhododendrons, Myrtles, Roses, Loniceras, and many such plants, that enjoy conditions intermediate between those afforded by the greenhouse and the open air. Along the front of the arcade ran a border planted with the choicer kinds of Roses, mostly on their own roots: the pillars of the arcade to be eventually covered by the climbing varieties, and with Honeysuckles, Clematis, Gold and Silver Ivies, &c. On the little lawn enclosed by this arcade were flower beds; standard Rhododendrons, some of the rarer Conifers, and a fine spreading Beech with a seat underneath. At one end was a bank with Tea and China Roses, backed by Ivy-covered rocks; at the other, arches and rocks modified to suit the British and other hardy Ferns, while along and parallel with the side of the great stove was a

border devoted to choice Rhododendrons, and edged with small Heaths, Sedums, &c.

Elevated on the walls at the Fern-growing end, Woodsia hyperborea, Asplenium septentrionale and fontanum, with other small but more common Ferns, were growing charmingly; while near at hand a sort of bog accommodated Osmunda spectabilis, regalis, and cinnamomea. Amongst the Ferns was a fine specimen of the singular Athyrium F.-f. Frizelliæ, which was originally obtained from the "Devil's Glen," in Wicklow, and fell to the lot of Mr. J. Bain, of the College Botanic Gardens—just the person into whose hands a curiously-choice thing ought to fall.

It may be useful to name some of the plants flourishing in the arcade. They were as follows:—Double flowering Chinese Peaches in variety, Benthamia fragifera; Berberis nepalensis, Bealii, and Wallichii; Chamæbatia foliosa, Bignonias, Clematis, Daphnes, Escallonias, Jasmines, Oleas, Passifloras, Skimmias, Spiræas, Viburnum macrocephalum, Weigelas, Wistaria, Yuccas, Azaleas, Rhododendron Nuttallii and retusum, the latter very fine, with others; variegated Acers, and many other plants suited to the situation. The whole was of recent construction, and will of course gain many charms from increasing age and growth. It is one of the great improvements carried out at Rockville during the past few years.

The condition of an individual who would attempt to digest during a single day the result of the labours of hundreds of men cleverer than himself, as exhibited at an industrial exhibition, would not be by any means an enviable one towards the close of his well-meaning experiment. In some such condition did I emerge from the examination of Mr. Bewley's plants; but with the conviction that the time could not have been better spent than in seeing, on the whole, the finest collection of exotics to be found in any private garden of the United Kingdom. So, calling to mind a passage from Loudon, written some 30 years ago, in which it is stated that the chief things to be found in the gardens of Irish gentlemen of that time were Potatos, I smiled, and bid good-bye to Rockville. *Wm. Robinson.*

HARDIVILLÉ'S NUMÉROTEUR.

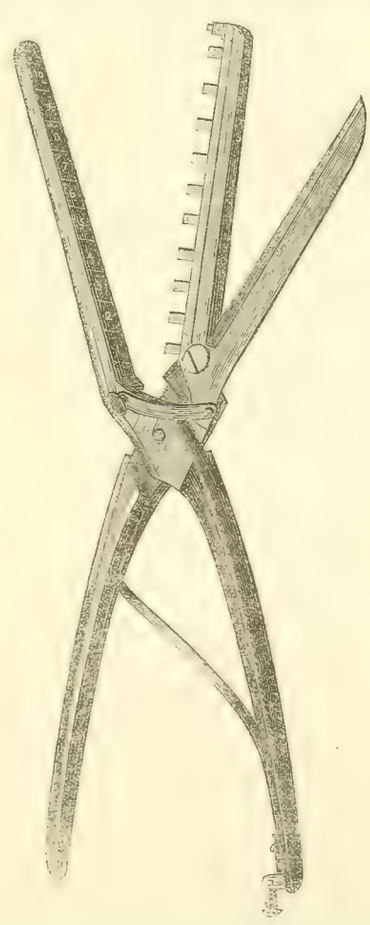
Of the numerous inventions which appear every year there are few which are lasting, for truly good inventions are rare. The subject of this note, the Numéroteur Hardivillé, is however (observes M. Carrière in the "Revue Horticole," whence the following account is condensed), a good one, and we are convinced that we benefit those who are occupied in horticulture in making it known.

Horticulture is a science so vast, and embraces subjects so different, that however good a man's memory may be it is insufficient, and hence it becomes necessary to give it mechanical aid. Among the means employed are tickets or labels written upon parchment or paper, or small pieces of wood, &c.; but these are soon effaced, and are very liable to get lost or displaced. A very good plan frequently adopted consists in the use of small bands of lead, which are rolled round the stems or branches of the plants. Upon this lead a number is marked, corresponding with a catalogue, in which the name and any particular remarks are entered. This method is sure; but to carry it out several things are necessary. First there is wanted a series of numbers from 1 to 10, or rather from 1 to 9, the zero, combined with other figures, making the numbers 10, 20, 100, &c. Then this series of numbers must be fixed upon a block of wood, and the figures have to be impressed upon the leads by means of a small hammer. So that to mark the leads we want—1st, a pair of scissors to cut the metal; 2d, a set of numbers; 3d, a block to receive them; and 4th, a hammer to strike and indent the figures in the leads. This apparatus, therefore, becomes troublesome, especially when it is necessary to change its place, as is the case when it has to be used in different parts of a large garden, or in a field. Besides, it suffices for one of the little figures to be lost to render the whole series useless. A consideration of these inconveniences induced an ingenious cutler, M. Hardivillé, of the Rue St. Jacques, in Paris, to invent the Numéroteur, or Numbering Pincers, which bears his name.

This instrument in its general form resembles a large pair of scissors, in which the blades instead of being cutting are flat and blunt, with the upper extremity prolonged. On the inner side of the upper of these blades is fixed a series of 10 figures arranged in order, from 1 to 9, followed by 0. These figures are placed at the end of small steel shanks screwed into the blade, and upon the opposite blade, which is flat, the figures are marked in hollows, so that, without groping, one is able to effect with certainty any necessary numerical combinations. A pressure of the blades suffices to indent the figure in the piece of lead that has been placed between them, and the lead is then withdrawn and placed in the same way beneath whatever other figure or figures may make up the number required. The blades of these numbering pincers work upon a movement similar to that of a pair of scissors, the alternate opening and shutting of the curved portion or handle also opening and shutting the two opposite blades, so that it is only necessary to put the plate of lead straight with the figure which is wanted, and then to make a pressure, to have this figure indented on the lead. At the end of one blade, in a line with the figures, is a small punch, with which, if necessary, to pierce the lead, in order to admit of passing through it a wire thread, by which it may be suspended.

To complete this instrument M. Hardivillé has added, on the side of one of the branches, a small blade, which by means of a spring adapted to the other branch, forms a pair of scissors with which to cut the leads. When the scissors are not needed, the spring is unfastened, being made to do so easily and quickly, and the blade then tightens itself against the branch of the pincer without any trouble. At the base is a moveable spring which serves to open the branches.

Thus we see that this instrument is very complete, but its value is augmented by its not being complicated,



and especially by its being of a reasonable price—10 francs. We do not hesitate, says M. Carrière, to say that by this invention M. Hardivillé has rendered a real service to horticulture, and we do not doubt that his numbering pincers will find their way into the hands of horticulturists generally, since they are the best which have been produced up to the present time.

THE MISTLETO ON THE OAK.

The Viscum album but rarely "gains a settlement" on the Oak tree—as seldom in our own day as in the Druidical times of old, when its very rarity heightened the veneration with which it was regarded when found. "Est autem id varum admodum inventum, et repertum magnâ religione petitur," says Pliny in his Natural History (lib. xvi. c. 44). In an excellent note by Dr. Giles in his translation of "Richard of Cirencester," (p. 432), he gives the opinion of Dr. Daubeny, "that Mistleto-growing Oaks were exterminated after the Druids were destroyed." (N. & Q., vol. ii.) It is highly probable that this was the case, but since all their Oaks too have been gone centuries since, it can make no difference as to its occurrence at the present time. Whatever may be the conditions necessary for the germination and growth of the Mistleto on the Oak, they must be such as rarely coincide, or it certainly would be much more common in this county. Oak may be considered the weed of Herefordshire; Oak timber and Oak bark form two of our chief exports. Oak woods and Oak trees border Mistleto-abounding orchards very generally, and the trees themselves are often mingled in very close alliance; indeed it would not be too much to say, from the great abundance of Oaks in the vicinity of orchards, that the birds must sow the Mistleto seeds upon them more frequently than upon any other kind of tree in the county. Nevertheless, so far as is known, there are but two instances of its growth on the Oak in Herefordshire, the one in Eastnor Park, which has been so well known for many years, and the other in an outlying district of the county at Tedstone Delamere, discovered by Dr. Cradock in 1857.

The occurrence of the Mistleto on the Oak is at once so rare and so interesting, that I have not confined myself to this county in my inquiries about it, but have taken some pains to ascertain its existence, at the present time, in all the instances which have been recorded as occurring in England. The following instances I have been able to get well authenticated:—

No. 1. *The Oak at Eastnor.*—Ten days since [March, 1864] I visited this Mistleto-bearing Oak. It is situated by the side of the drive leading from the Park up the Ridgeway Hill towards Malvern, about 200 yards beyond the Lodge. The Oak may be some 80 or 90 years old, and the Mistleto grows freely upon it. It is most luxuriant high up in the tree where three large branches grow very near each other, having in each instance destroyed the bough beyond the place where it is situated. It is also growing in four other places in the tree, one fresh yearling plant shooting straight out from the main stem of the tree about 12 feet from the ground. One large bunch of Mistleto growing in a large branch many feet from the main stem was dead and decaying, but without having killed the branch. The Mistleto plants are of both sexes, and the females bear berries freely. It is more slender and pendulous, with smaller and thinner leaves; or in other words, it is not so stiff and rigid and short-jointed as it usually is when growing on the Apple tree. During the 12 years I have known this tree the Mistleto has increased upon it, and the Oak is already beginning to show signs of suffering severely from the parasite. Upon the large Moss-covered branches it was curious to observe the great number of Mistleto seeds which had been deposited by the birds.

No. 2. *The Oak at Tedstone Delamere.*—In 1853 Dr. Cradock (Principal of Brazenose College), discovered the Mistleto growing on a thriving Oak in the parish of Tedstone Delamere. It had been known for some time before by a woodman, who kept it a secret, but occasionally produced a piece of it on particular occasions. The incumbent of the parish, at this time the Rev. Gregory Smith, M.A., has kindly sent me the following description of its present appearance:—"The Mistleto is still growing where Dr. Cradock observed it, on an Oak some 60 years old, and there it has been, according to the woodman, for some 30 years or more. The Mistleto grows in one bunch of five stems from the trunk of the tree, about 50 feet from the ground." It does not bear berries, although from the small portion Mr. Smith was good enough to inclose, it is the female plant.*

No. 3. *On a fine Oak at Badams Court, Sedbury Park, near Chepstow,* [the Mistleto is also now growing luxuriantly. G. Ormerod, Esq., has kindly forwarded the following description of its condition at this time. "The Mistleto is still growing on an Oak here; the tree is about 85 years old and situated on the northern mound of Badams Court, once a moated mansion of the Herberts, or Ap Adams of Beachly and Llanllowel, but now forming part of the Sedbury Park estate. There is only one branch of Mistleto on the tree, but it has become very luxuriant, and has now a diameter of at least three feet. It is more thin and straggling in its growth than it usually is on the Apple tree, though it is very healthy and bears berries freely. It grows from the side of a large branch some yards from the main stem of the tree and about 20 feet from the ground. The Oak itself is healthy and vigorous, and does not seem to be injured by the parasite." (April 5, 1864.)

No. 4. The Mistleto is also now growing on an *Oak at Burningfold Farm, Dunsfold, Surrey.*—The proprietor of the estate, W. Layland Woods, Esq., has been good enough to send me the account of its present condition. "The Mistleto at Burningfold grows on an Oak not less than 150 years old. The tree is more upright than spreading, and the branch grows on the side of an upright limb at about 50 feet from the ground. There is only one branch on the tree; it has grown there for many years, but in January 1849 it was broken very severely by a high wind. However, it flourished afterwards better than before; it is nearly three feet long, of a pendulous nature, not growing so rigid as Mistleto usually does. During the past summer a sparrow built her nest in the midst of the bunch. It does not injure the tree at present, but has in fact been the means of its preservation, for the Mistleto branch saved the tree from the axe some years ago. The Oak grows alone in a piece of pasture, but another which formerly stood near it has spoilt the beauty of the tree. The soil of the district is the weald clay of Surrey and Sussex, where the Oak used to flourish and abound." (April 19, 1864.)

No. 5. *On an Oak in Hackwood Park, near Basingstoke,* Mistleto has long been known to grow.—C. Hooper, Esq., of Eastrop House, Basingstoke, has very kindly obtained for me the following account of this tree. "The first Lord Bolton (grandfather of the present Lord) sent a specimen of the Mistleto from this tree to Sir Joseph Banks, who gave an account of it in the Philosophical Transactions. The Oak is still a fine large tree, but evidently very old and reduced in size from what it formerly was, but whether this is from the presence of the Mistleto or from storms it is difficult to say. The Mistleto grows near the middle of the tree at a considerable height from the ground, and in several places among the branches." (April 28, 1864.)—Mr. Hooper had not seen the tree himself, but

* I have since learnt that there is but little Mistleto in the neighbourhood of the tree. The nearest Mistleto-bearing tree is a Pear tree, about 100 yards from the Oak; and this in itself is an example of rare occurrence.

described it from a sketch which had been shown to him by Mr. Hill, of Basingstoke.

No. 6. *The Plymouth Oak.*—On recent authority, that of Mr. Edward Lees as quoted by Mr. T. W. Gissing in the Phytologist (vol. i. p. 151), it grows in an Oak tree not far from Plymouth, by the side of the South Devon Railway. A single bush grows in the topmost branches of a scraggy Oak tree. It is the first wood that occurs by railway north of Plymouth, and two or three miles distant from that town. I am unable to state whether this Oak is still in existence with the Mistleto upon it. The authority for it, however, is so good and so recent, that I am prepared to have faith in it.

These are all the instances of the growth of the Viscum album on the Oak that I have been able to authenticate, or believe in, as existing at the present time. I fully thought to have been able to give some examples of Mistleto Oaks in this paper, which had not been recorded before, but one after the other, they have all failed me, and I have had, on the contrary, to reduce those before known to this small number. *Dr. Bull, in Transactions of Woolhope Naturalists' Field Club.*

(To be continued.)

TOBACCO CULTURE.

IN reply to the inquiry of "M. P. M." at p. 677, a correspondent has sent us the accompanying information, taken from the *Canada Farmer*, of June 15, 1864. The information consists of extracts from an essay issued by the proprietors of a Tobacco warehouse in Kentucky, in reply to inquiries which had been addressed to them respecting the management of the Tobacco crop:—

Seed.—Among the various names, we give the preference to the Blue Prior. It does not produce such a long leafy staple as many other varieties, but, all things being equal, it yields a finer fibre and richer texture than most varieties, and is alike adapted to manufacturing and shipping.

Plant Bed.—In open weather in January February or March, select a rich spot of virgin soil; clean the surface of all leaves; burn thoroughly, so as to destroy all wild seeds; then dig 3 or 4 inches deep, thoroughly pulverising the soil, incorporating the ashes with the burnt earth; rake smooth, removing all litter, and sow at the rate of one tablespoonful of seed to 100 square yards of surface. Mix the seed in dry leached ashes, say 1 quart of ashes to the spoonful of seed. It is best to sow the bed both ways—now rake again, then tramp with the feet and cover with green brush without leaves. Remove the brush after the frost is out of the ground, and the plants begin to cover the bed.

Preparation of the Soil.—This crop requires the best soil. "New ground" or virgin soil yields the finest manufacturing leaf; but old well-manured land will give a larger yield and a richer heavier article, which will be sought by the exporters. The soil should be thoroughly cultivated before the crop is planted. The ground having been well ploughed and cross-ploughed and harrowed, you will lay it off 3½ feet each way, and raise a small hill in the check. You are now ready for

Planting the Crop.—This you will do the first "season," after your plants are large enough—when the first leaves are 3 or 4 inches long, just as you plant Cabbages, replanting, of course, until you get a stand. You will find many impediments in the way of getting a stand. Field cultivation will bring into requisition the plough and hoe. The ground should be stirred at least once a week, and not a weed or sprig of Grass be permitted to show itself. The last step in this process, or the "laying by of the crop," consists in drawing up the earth carefully around the plant with the hoe. At this stage your first planting will begin to "come into top," or has attained sufficient size to be topped. Topping is simply arresting the growth of the plant by taking out the bud, and is best done when the terminal bud alone has to be removed; if it goes beyond this point much of the strength of the plant has been expended in the formation of leaves that are lost. "Prime" off the under leaves up to the first good leaf, which is usually a hand's breadth from the top of the hill; then top, leaving 10 leaves at first topping, and reduce as the season advances.

Suckering and Worming.—So soon as the growth of the plant is arrested by topping, it will throw out "suckers" just above the foot-stalk of the leaves around the main stalk. These, with the horn worm, will demand vigilant attention. Never let them get a start. Once a week will ordinarily suffice to keep them under. In the midst of this struggle with these two formidable enemies you will find the first planting thicken and changing its colour, losing some of its clear deep green. The leaf, if folded between the thumb and finger, will break readily. These are some of the evidences that it is ripe and ready for the knife.

Cutting.—The cutting process is very simple. Split the main stalk down to within 2 inches of the bottom leaf, then with one down stroke cut the plant off just below the bottom leaf, and in raising place it on the ground, resting on the top leaves; so soon as it "falls," or wilts sufficiently, gather up and lay eight or 10 plants together with the hands to the sun. The best cultivators do not scaffold in the field, but "hang" on sticks, one end in the ground, and remove directly to the barn.

Curing.—The curing of the crop is one of the most important steps in its whole treatment, and most difficult to describe. If house room is plentiful it may be cured with but little firing, indeed without firing, but if house room is an object, heavy firing is necessary; it is always necessary when a dark rich colour is desired. Do not begin with large fires. Keep constant gentle fires until you attain the desired colour; then press your fires day and night until the entire leaf is thoroughly cured. It now hangs until you are ready for the next step, and until it comes in "case" for

Stripping.—Whenever the leaf is soft enough not to break or crumble in handling, "strike down" and bulk; removing the plants from the sticks, you lay it in bulk, the tails slightly lapping over to preserve the "order." Now, put your best judge of the article to sorting; he will take off all ground leaves, lugs or cullings, and the strippers will separate the different grades, putting the bright in one lot, separating the long from the short of the same class, the dark heavy shipping leaf to itself, the fine dark manufacturing to itself, &c. Tie in hands of from five to seven leaves, wrap smoothly with a slip or short leaf, make the tie not over 1½ inch long. Hang on sticks and "hoist" in barn. When it has thoroughly dried and again comes in case or "prizing order," that is when the leaf is soft and the main rib is sufficiently dry to break readily for one-third its length, from the larger end, bulk down as follows: Raise a platform on your barn floor, cover with boards, over them a layer of dry straw, and lay one or two hands at a time, heads out, a course the length desired for the bulk; then a similar course, so as to have the tails about to meet; then a third course with heads about midway the first, and the fourth with heads midway the second, repeating this until the work is completed. Cover with boards and straw, and put weights on. You are now ready for

Prizing.—Procure a good strong cask of well-seasoned timber; the drawn staves are the best; avoid Poplar and all soft, brittle wood for staves. The prizing process is an important one, and we recommend the following mode:—Get a piece of board cut to fit the inside of the cask, say 6 or 8 inches at the broadest point, lay this in the cask and pack the first course with the heads against the straight edge of your board, the Tobacco of course laid at right angles with it. This course being completed, place the board on the opposite side and pack as before; next place the board at right angles with its first position and pack as before—then opposite this last position and repeat the process, and so continue until the work is completed. You will always find straight samples drawn from hogsheads thus packed. Never put into the hogshead more than one hand at a time, and let that be carefully straightened and pressed in the hands of the attendants of the packer before it reaches him.

If your Tobacco is ripe, rich, and of fine fibre, from 1200 to 1500 lbs. is enough to put in a hogshead. If very fine or bright, 1000 lbs. is heavy enough. In "turning out" your hogsheads, leave space enough to secure well the top head; see that it is well fitted and securely "lined;" then nail all the hoops, and mark your name plainly on both heads and across the staves, putting on it your private number. Note in your memorandum book the quality and order of each hogshead, and furnish your commission merchant with a copy of it.

Home Correspondence.

Continental Nurseries and Rose Growing Establishments.—The following notes made during a recent visit to some of the principal continental nurseries and Rose grounds, may not be without interest to your readers. In the magnificent establishment of M. Dauvasse, Ceanothus azureus latifolius was about 3 feet high and 4 feet in diameter, forming a remarkably fine and effective bush, with some 20 or so beautifully compact panicles of flowers on it, not quite fully developed, but sufficiently so to enable me to arrive at the conclusion that it is a first-rate plant; it stood in the open quarters, and Mr. D. assured me that it was perfectly hardy; it struck me as being much more dense and beautiful in its foliage than any other of the species I had seen before. The variegated Maclura aurantiaca I did not think much of, as I detected very little of the variegation mentioned in it. A few of the plants were streaked with white, but certainly not half so beautiful and effective as Acer Negundo variegatum. Spiræa callosa alba is, however, a real gem, and when better known will most certainly be planted extensively. I noticed a bed of it with innumerable corymbs of almost pure white flowers; in fact it was one dense mass of green and white, and apparently was likely to continue in that condition for a long time. When cheap enough this will make a capital bedding-out plant. Acer Wageneri laciniatum appears also to be an advance upon some of the other Maples. In the same establishment I also remarked in the way of variegated plants, Weigela amabilis variegata, and W. rosea variegata, both distinct and good. The striped-leaved white Jasmine I also thought to be very pretty. Here I noticed the wreath-like horizontal mode of training Apple trees, carried out on a considerably large scale in lines parallel with the walks; they were tied down to wires, and every shoot is pinched in to two buds; they were bearing a fine crop, and Mr. D. informed me that they scarcely ever failed. The wreath was about 16 inches from the surface, thereby getting the benefit of the full ground heat in this very fine climate. Pyramidal Pears on the Quince were also producing fine crops of fruit. I observed also an enormous crop of Plums, ripe enough for market, on what he called the Early Favourite. This was on July 4. But the most complete and interesting modes of training the Apple, Pear, Peach, and hardy Vines I ever remember to have seen were in operation at the fine grounds of Messrs. Jamin & Durand, at Bourg la Reine, and I would recommend all interested in fruit cultivation who visit France to make a call at this place. Here were grand specimens of the blue or rather violet Clematis shown at South Kensington recently, viz., lanuginosa violacea. I measured one flower, and found it to be 6 inches in diameter. My principal object, however, was to see what I could find fresh amongst Roses. In this I was unfortunately a little too late, and could not see many improvements upon our established favourites, especially after viewing the fine show of them the other day at South Kensington. I must not omit, however, to mention two new ones which M. Jules Margottin showed me amongst a large batch of selected seedlings, viz., Charles Margottin, which is both deeper and richer in colour than the old Jules Margottin, and very large, full, and beautifully cupped. This will, doubtless, turn out to be really good. The other is to be called Baronne de Meno; it is in the way of Madame Rivers or Victoria, viz., nearly white and globular; if it will open well it is very promising and distinct. We want light varieties, the recent one being too much of the crimson stamp. My suggestion to Mr. M. was that we wanted quality—not quantity, and something in the way of good whites and yellows. Here, as well as at Eugène Verdier's extensive Rose grounds, were thousands of seedlings, one, two, and three years old, but I did not observe in those in bloom anything particularly striking. *A. Godwin, The Nurseries, Ashbourne.*

American Blight in Australia.—Perhaps you may think the following letter on this subject, received this morning from a horticulturist well known in the neighbourhood of Melbourne, worthy of a place in your Paper. The writer, Mr. Carson, says:—We have had a very bad year for American blight on the Apple trees—so much so that we have been applying Gishurst Compound with the garden engine, and in doing so I noticed a fact that may interest you, viz., that all the trees that had been dressed with Gishurst in previous seasons were clean or nearly so, while trees that for 10 years had never been blighted nor dressed were this year covered as with snow. The spread this season is beyond anything I have ever known; it is a hard matter to find a clean tree, but I am determined if possible to keep it down. My success with the Orange family has been so complete—three dressings in two weeks in the spring, with a solution not stronger than 2 oz. to the gallon, will carry the trees through the summer clean. We do this when the fruit is gathered, and before the growth starts for the following season, and have no further trouble with them. *G. W.*

Water Pumps.—Your correspondent "M. P." need have no apprehension of obtaining a supply of water from the river, and in sufficient quantity, by a lift pump 4 inches in diameter. The perpendicular height to which he requires the water to be raised (22 feet), is not objectionable, excepting only as to the power required, nor is the lineal distance, 60 yards, of any consequence to its action provided the pipes and joints are perfectly sound, and the suction pipe large enough. I recommend 3-inch suction pipes for every 60 yards. A valve at the mouth of the pipe in the river might be useful in case repairs were necessary. I advise "M. P." to put himself into the hands of an intelligent plumber or engineer in his neighbourhood. *An Old Engineer, Manchester.*

Horticulture, Croquet, and Fireworks.—I am not a reader of the "Owl," but from a quotation from that oracle, given in a daily contemporary, it would appear that a deputation of young ladies lately waited on the authorities of the Horticultural Gardens, to ask leave to play croquet on their lawns. It is said that they were most courteously received, but at the same time informed that THE GARDENS WERE FOR HORTICULTURE, not "husbandry." Is this true? If it be, I shall begin to hope the Council are coming (not too soon) to their proper senses; but I am doubtful if this Owlslight is to be trusted. How say you? I notice also one or two remarks which seem to be deserving of attention in the account given by the *Times* of the *soirée* which followed the scanty *fête* on the 13th; first that the floral decorations of the conservatory were not "artificial," but "the best specimens Chiswick could afford of splendid flowers pressed into temporary service," so that the fashionables find the old garden useful; and second, that the Horticultural Society in its attempts to astonish the Royal visitors, might have been more happy than in trying to illuminate their little cascade—after Niagara too, and, as the writer puts it, "might have shown them flowers for instance." I think so too; but, considering the composition of the managing body, it is perhaps not to be wondered that the leading idea should be illumination. *An Old F.H.S.*

The Present Drought.—We now all feel what a thoroughly dry season the present is; but probably few have realised in figures the extent of this calamity, for probably it will prove to be little else. Taking

your own Tables, as published weekly, I find that the rainfall at Chiswick for the first half-year of 1864, has been only 7.71 inches, many weeks having had no fall whatever; the highest fall in any one week having been 1.85 inch, viz., for the week ending March 9. Looking to your Tables of the rainfall for 23 years (*Gardeners' Chronicle*, Jan. 16, 1864), the average of the first six months appears to have been 10.625 inches; so that the fall to June 30, 1864, has been in defect about from ¼ (say 29 per cent.) to ⅓, and judging from present appearances, will not soon be made good. The years in which there has been an equal deficiency have been 1847, 1850, 1855, 1857, and 1858. *G., Bath.*

Orchids in Vineries.—I can fully endorse the statement of Mr. Warner (see p. 677) relative to the growth of Orchids in Vineries. I have seen them cultivated for years in this way without affecting the Grapes in the slightest degree, and I can assure your readers that I have seen finer specimens in every respect grown under this treatment than one usually finds in those "stew-pans" which have so long been considered indispensable to their successful culture. *J. M. Bothwell.*

Officinal Plants, &c., at Exhibitions (*see p.* 677).—Had Mr. Bull written to you to confess his astonishment at having received a prize for the poor lot of medicinal and economical plants shown by him at South Kensington the other day, and at the same time sent the pound so miserably "won" to the Gardeners' Royal Benevolent Institution, I must say it would have been a more dignified course than the one he has pursued. Why, there are only two or three plants named in the list Mr. Bull has thought worth while to send you, which are at all difficult to obtain, and none of those mentioned are difficult to cultivate. Had he sent good Clove, Nutmeg, and Strychnine plants—not to mention others equally desirable—and been "put off" with a 3d prize, then there would have been cause to complain. I hope that if "some" or any of our Curators of botanic gardens are not in possession of a better lot of medicinal plants than those exhibited by Mr. Bull, they will have sense enough to refrain from exposing such a poverty of interest, in your columns. *Dodecatheon Jeffreyi.*

Societies.

Royal Horticultural: *July* 19 (*Election of Fellows*).—The following candidates were elected, viz.:

H. L. Bischoffsheim, Esq.: F. D. Blake Bourne, Esq.; Hon. Mrs. E. Fellowes, Mrs. T. Ferguson, W. Leask, Esq.; H. A. Merewether, Esq.; W. Mort, Esq.; Miss Reeve, J. R. Tetley, Esq.; P. O. Whitehead, Esq.; and Mrs. F. Green.

The following interesting lecture on Rose Culture was delivered on this occasion by the Rev. W. F. Radclyffe, Rector of Rushton, near Blandford, Dorsetshire. He said:—

I thank the Council of the Society for the high compliment which they have paid to me in asking me to give a short, popular, and useful lecture on matters connected with the Rose. As the time is limited, and as "a great book is a great evil," I can only select. I will endeavour to avoid prolixity, laxity, and obscurity. Nothing new can I say—nothing that has not been said before, and said much better. The best lectures on the Rose are the noble works of Rivers, W. Paul, and Cranston—works that should be in the library of every Rosarian. Good, however, as these works are, I am persuaded that nothing but experience can make a man a first-rate Rosarian. I will endeavour to speak from experience, making this observation, that all, or almost all that I shall say, has been given already to the public in my published articles from time to time.

1. *Soil.*—The best soil for Roses, and also for such stocks as I possess, is friable loam. Where this soil exists not naturally it may be approached by an admixture of stiff soil, sand or ashes, and black manure, in equal parts. Oak trees, Roses, and Strawberries have all an affinity for clay; I had nearly said they were convertible terms. Still, even where there is not a particle of clay, which is the case where I live, certain Roses on suitable stocks with good high cultivation and attention may be grown, and very fine Roses too. There are also some Roses that cannot be grown without an admixture, of clay. I need scarcely say that these are Roses which, though good in themselves, are not fit for the public generally.

2. *Planting.*—Much depends upon how this is done. Briar Roses should not be planted deeper than 4 inches. Indeed, if people would mulch the plants in a radius of 18 inches, they may be planted nearer the surface. Manetti Roses should be planted over the collar of the bud, and hence they should be propagated sufficiently low that the radius of the roots may not be deeper than 6 inches.

3. *Staking and Tying.*—All freshly planted Roses, especially if exposed to wind, require to be staked and tied. Iron stakes are the best; but I use for small plants thatcher's spars, 6*s.* 6*d.* per 1000, and for strong plants I use hurdle shores at 7*s.* per 100. For tying I use matting. Where winds do not prevail, after the first year ground plants and 2 feet standards (the most convenient height where numbers are to be packed away) will not require staking and tying. If ground plants are grafted they must always be staked and tied, or the weight of the flowers will break them off at the point of union.

4. *Rose Stocks.*—The Dog briar, the Manetti stock, and the Celine stock are all good stocks for certain Roses under certain circumstances. Roses are volatile things, and all rules admit of exceptions. In the Rosary there is not, as in courts of law, "rule absolute." As regards the Celine stock, I know but little of it. Mr. Wood, of Maresfield, kindly gave me four specimens of the Duchess of Norfolk on this stock, ranging with shoots of one year's growth, from 12 feet to 12 feet 9 inches high. They bloomed admirably last year at their full height. This year I shortened them to 9 feet, and they have again bloomed well. I budded the Duc de Rohan—a splendid vermilion Rose, on the Boursault Amadis last year, and it has thrown up a fine truss and bloomed well.

As regards the Briar stock, it is an admirable stock for strong lands, and better than the Manetti stock for dwarf and moderate growers; but if land is light, or shallow, unless you can afford to replenish constantly, and also to mulch, you had better have Roses on the Manetti stock. This stock is suited to strong growers and to all lands. Though an Italian stock, it is in well-drained grounds, the hardiest of all stocks. In such inferior land as mine, Roses budded *in loco* on the Briar and manured very highly, bear no comparison with purchased Manetti Roses for earliness, abundance, and largeness of flowers, and for lateness and continuity of flowers. Still, put Briar Roses in suitable lands, and they will do splendidly for you. For pole purposes, the Manetti stock is, I think, the best.

5. *Pruning.*—Some people prune on a particular day, and prune all Roses alike. Excellent rules are given for the pruning of all families in the three works before referred to. It must not, however, be forgotten that Roses in the same family require very different pruning. Among the Bourbons there is a world-wide difference between Acidalie and La Quintinie. As regards a Briar Rose, in the spring of its first planting, or whenever it is moved, it is a rule that it must be cut hard, whether it be for a pole, wall, or standard; for lack of this, Briar Roses frequently fail. Till, however, the sap rises and the eyes swell, you must never prune.

As regards Manetti Roses, they often fail from being cut hard. From first to last prune them as hybrid Chinas, whether pot plants or monstrous plants. If their wood and skin is injured, then you must cut them down to sound wood and sound skin.

6. *Growth and Hardihood.*—These two are requisite for England. Some that have China blood in them grow well, but yet they are not hardy. As a rule the thorned Roses are hardier than the smooth-skinned Roses. Of course there are exceptions in both cases. When, therefore, you see a novelty described as thornless, remember it may be no recommendation. I ventured some years ago to say in an article that none but vigorous growers would suit the English; and the consequence has been that raisers of seedlings have erased the words "dwarf" and "moderate," and now nearly every Rose is described as "vig." I am told that some of the new Roses of 1864 described as "vig." are very dwarf and bad growers. "Moderate" in the fine lands of nurserymen will be dwarf in 95 lands out of 100, and "dwarf" means death. The two best moderate growers, and both of them hardy and excellent, are the well-known Géant des Batailles and Pauline Lansezeur.

7. *Watering.*—Roses suffer much in torrid weather from lack of water. Before watering, the ground should be surface-stirred, and sufficient water poured on to touch all the points of the roots. If the surface is kept superficially stirred, it will be moister than when kept corked down tight, because a lesser quantity of rain, and the night-dews, which are in the ratio of the sun's heat, will be able more easily to penetrate the soil.

8. *Syringing.*—A great many of the miseries of Roses would be got rid of if the trees were regularly syringed from the earliest appearance of the leaves. By keeping the lungs clean you preserve the health of the plants. The leaves of plants are externally and internally conducive to health. Syringing is the best thing to keep down fungi and aphides, and also to prevent the mischief of honeydew, which if not washed off as soon as perceived, will, by the sun's extraction of the fluid parts, leave a viscous concrete that will destroy the functions of the leaves.

9. *Fungi.*—These are a numerous family. The two most destructive are Orange fungus and White fungus. Orange fungus must be pinched off by hand before the nucleus bursts and spreads its spores over the leaves, and white fungus must be destroyed by sulphur (the black sulphur is best), or by a solution of 2 oz. of blue vitriol in a little hot water, and then mixed with a bucketfull of cold water and poured from a watering-pot, with the top on, over the leaves. This is the most effectual remedy. There is also another misery, "black blight." This is called by some a fungus. It may be so, but I could never perceive the spores of fungus. It proceeds, I believe, from excess of moisture and a low state of temperature; also from checks of weather. I am led to think this, because I never remember seeing it under glass, which is no preventive of white fungus. It is less mischievous than either of the other two miseries. When it occurs early in the year, if the leaves are universally affected, stirring the ground deeply, or removing the plant to estop the rising sap, are probably the best preventives of mischief.

10. *Wind.*—Roses cannot have too much air and too little wind in the growing season. At other times it is beneficial. Great havoc every year is committed on my Rosary by the destruction of leaves by wind. This season the wind has been quiet, but in 10 of the months of last year there were from one to five gales.

11. *Novelties.*—Do not give up such good and hardy Roses as the Géant and Baronne Prevost. They have outlived hundreds at my residence, and are as good and healthy as they were 12 years ago.

> "Tis good to be on with the new love
> Before you are off with the old."

No question, good Roses come out yearly, but we want not only good Roses, but better than we have got. We also want more distinct Roses.

As regards form, we want more deep cups and globes. As regards colours, we want true purples, (now supplied by Alfred de Rougemont), full-sized, pure whites and creamy autumnal whites, yellow Hybrid Perpetuals, variegated Hybrid Perpetuals, high coloured Teas, and more full-sized, full, very dark Roses. In the dark line we have Empereur de Maroc, small, beautiful, and full; Princesse Mathilde, dark, shelly, beautiful, but not full; Francis Arago, full and good; Alfred de Rougemont and Prince Camille de Rohan, both very dark, full, and extra fine. There is one new Rose very interesting, tolerably dark, and also good—a Rose of Royal and national interest, Deuil du Prince Albert, or the Mourning of Prince Albert. Mr. Rivers has well said, in a letter to me, that it is, from its darkness and mournfully pendulous habit, well adapted to represent the Royal and national, and I may almost say, world-wide sorrow at so sad an event. I caused it, at Mr. Rivers's suggestion, to be mentioned to her Majesty by my friend Lord Rivers, and I cannot but think that this Rose, and such like dark Roses as I have mentioned, would be very appropriate to adorn the Mausoleum, and also suitable to this Royal Garden, so indebted to her Majesty and the late Prince Consort.

Lastly: *Selection of Roses.*—I think you cannot do better, if you do not know the Roses, than state to the nurserymen what are your circumstances and wants; and though they cannot for several years be quite sure about them, I am certain they will not wilfully deceive you. The old "stuff" they know well; but they cannot, in the case of novelties, till they have passed through severe winters and unpropitious summers, tell their true value or worthlessness. I think nurserymen should take some security from the raisers of seedlings that the Roses are according to description; and I also think that they should make inquiry as to the "suppressio veri," as well as take security against the "expressio falsi."

It now only remains to thank you for your kind attention, and to hope that what I have said may create true Rosarians. Your well-known love of the Rose must be my apology for this prolonged address.

July 19 (*Floral Committee*).—Few subjects were produced on this occasion, but among them were one or two of considerable interest. Of Roses Mr. Wm. Paul furnished blooms of Dr. Lindley, a highly promising shaded velvety-crimson kind, to which a Second-class Certificate was awarded. The same exhibitor also had blooms of Rosea elegans, a lively carmine Rose, but not sufficiently full; and with it were some fine blooms of Lord Macaulay and of Princess of Wales, which have from time to time been favourably noticed by us. Hamlet, Lord Canning, and Lord Clyde, all crimson Roses, were contributed by Messrs. Paul & Son. To Mr. Perry, of Castle Bromwich, was awarded a Special Certificate for a collection of cut blooms of Verbena, among which Glowworm, scarlet with white eye, and Snowball, a good formed white with a green eye, received Second-class Certificates. A Petunia from Mr. Holland, of Isleworth, named Striata perfecta, received a First-class Certificate. Its flowers, which are of a deep purplish rose colour, and of medium size, have each five stripes or rather distinct bands of white in them, radiating from the centre to the circumference. For young examples of Asplenium Trichomanes subæquale, a Second-class Certificate was also awarded to the same exhibitor, who had likewise one or two plants of a little red Cyclamen, called Peakianum. To Highgate Rival, a rich, rosy salmon-coloured zonal Pelargonium, from Mr. Windsor, gr. to Lord Dufferin, a Second-class Certificate was given. Messrs. Carter contributed a pretty light crimson Clove Carnation, named Goliath; and Mr. Bull had a violet purple Achimenes, called Leonie; the last named exhibitor likewise sent a variety of Bearded Lady's Slipper, called Cypripedium superbiens, and a red spotted orange-coloured Tropæolum, named Gold Belt. From Mr. Young, of Highgate, came one or two Seedling Gloxinias; and we also noticed a few small Ferns from other exhibitors.

Linnean: *June* 16.—G. Bentham, Esq., President, in the chair.—St. George J. Mivart, Esq., exhibited a specimen of a curious monstrosity of Digitalis purpurea, apparently a fusion of several of the terminal flowers into one cup-shaped corolla, with median floral prolification, the adventitious branch just about to pass through the open carpels. The following papers were read:—1. "Description of the skeleton of a Dinornis presented by Dr. Gibson to the Museum of the Yorkshire Philosophical Society," by T. Allis, Esq. The specimens were obtained by Dr. Gibson, through his brother, a resident of New Zealand; and consisted of a skeleton of the Moa, as well as an Apteryx, and some of

its eggs. These arrived in York about the end of May. On unpacking the boxes the skeleton was found nearly perfect, and the condition of the bones excited astonishment. All that was learned of the history of the skeleton was that it was found in a sandhill, sitting on its eggs. Besides the bones of the parent bird, there were some small detached, and at first sight puzzling, bony plates; but on closer examination of one of them it was found to be the ilium of a very young bird, the progeny of the adult. There were five of these bones, four belonging to one side of the bird, showing them to be portions of the skeleton of four different chickens. By the aid of photography it was determined to take a permanent record of the state in which the bones had come to hand. A copy of these photographs was presented to the Society. One of them represented, among others, the following bones, connected together by cartilage, namely, the three vertebræ adjoining the sacrum with their left ribs, and the bones of the inner toe of the left foot. The other showed the femur, with the still flexible ligament which secured its head in the socket, and a portion of skin on the outer edge. Two vertebræ were exhibited to illustrate an interesting part of the history of this particular bird: the first dorsal representing the condition of all the vertebræ below it, and the first of the cervical representing in a greater or less degree the condition of the neck bones. It would appear that as the bird was undergoing the process of entombment in its grave of sand, it became alarmed at the accumulating weight which pressed upon it, and this induced it to extend its neck, and to lower its head to search out and remove, if it had been possible, the incubus which oppressed it; that this act caused the head to be buried in the sand just at that point at which it was of sufficient depth to exclude effectually all atmospheric influence, while the neck itself was just out of that protecting depth, for at one extremity of the neck the head was in the most perfect state of preservation, and at the other extremity the dorsal vertebræ were equally well preserved, the intermediate portion being the only injured part. "We are not so certain as we could wish," continued the writer, "as to what species our bird belongs to. Dr. Gibson has carefully measured the leg bones, and does not find them agree in all respects with any described by Professor Owen, but the difference may possibly be only sexual." The most striking peculiarity of the skeleton was stated to be its great strength, especially in the neck. The cervical vertebræ were described as wanting those acicular processes which are found on the under side of these bones in the ostrich, and bear a greater resemblance to those of the emu.——2. "On the sexual relations of three forms of Lythrum Salicaria." By C. Darwin, Esq.——3. "Notes on the sterility and hybridisation of certain species of Passiflora, Disemma and Tacsonia." By Mr. John Scott; communicated by C. Darwin, Esq.——4. "On the Œsophagus of the Ruminantia." By Dr. Rutherford; communicated by Dr. J. Anderson.——5. "On a Peloria and semidouble flower of Ophrys aranifera." By Dr. Masters.

ENTOMOLOGICAL: *July* 4.—A. R. Wallace, Esq., Vice President, in the Chair. Mr. Tegetmeier made some interesting observations on the economy of the honey bee, and exhibited a bar from a tenantless hive which, during the first half of the month of May last, had been visited by workers from an adjacent hive, which had cleaned out the cells of the old comb left in the hive, which they had securely fixed in its place by new wax at the top and sides of the bar. This he considered preliminary to an intended swarm, which would have subsequently taken possession of the empty hive, thus leading to the idea that it was the swarm of workers which led the queen whilst swarming, and not, as was commonly supposed, the queen which led the swarm. He also exhibited a curious series of the cells of bees of abnormal shape, with a view to prove that their hexagonal form was not the result of instinct, but that each cell was always commenced as a hemispherical cup, and that the hexagonal form was necessarily assumed in consequence of the cell being surrounded by six other equal sized cells. Mr. F. Smith objected again, as he had already done on several previous occasions, to this view of the subject, maintaining that the base of the truly hexagonal cells of the common wasp was flat. A communication was read from Mr. S. Stone as to the manner in which he had induced the colony of wasps (Vespa germanica) to form the curious series of structures exhibited at the preceding meeting. These were built by a small colony of workers attempting to build brood comb affixed to wires placed in various directions, and from which they were removed to another box, when the structure was completed without any eggs being deposited. Mr. Stainton exhibited a new species of Tineidæ, belonging to the genus Gelechia, for which he proposed the name G. Lathyri, it having been reared by Mr. Brown of Cambridge, from larvæ which fed upon Lathyrus pratensis. Prof. Westwood stated that he had succeeded in rearing Aglossa farinalis from the larvæ found in great profusion in a bran bin by Captain Cox. A Paper by Mr. Rowland Tremen containing descriptions of 15 new species of Butterflies from South Africa was read. The first number of a new volume of the Society's Transactions has just appeared, containing Major Parry's Monograph on the Lucanidæ, with 12 plates.

Notices of Books.

A Monograph of Odontoglossum, by James Bateman, Esq., F.R.S., F.L.S., etc.; Author of "The Orchidaceæ of Mexico and Guatemala." Imperial folio, in numbers each containing five Coloured Plates. London: Lovell Reeve, Henrietta Street, Covent Garden. 1864.

When, some 50 years ago, Humboldt, in association with his fellow traveller Bonpland, and assisted by Kunth, the eminent Prussian botanist, commenced the publication of their great work on the new genera and species of plants inhabiting equinoctial America, very little was known of the Orchidaceous epiphytes of that glorious country. The known species forming the superb genus to the illustration of which Mr. Bateman is devoting himself, amounted in all, even so lately as April, 1833, to five only. We suppose he himself cultivates in his rich collection at least 100. And certainly no genus of even the Orchidaceous race so well deserves to be admitted within the realm of Horticulture, in which it most fortunately happens that they all find themselves perfectly at home. It is vain for the Old World to contend with these Americans for the palm of Beauty. Its Air-plants and Dendrobes are quite inferior to the species of Odontoglossum.

We will only beg those who dispute this statement to cast an eye upon the species figured most admirably in this Mr. Bateman's first number, especially the *O. Phalænopsis*, with the inimitable great half-transparent variegated flowers of which no Butterfly-beauty would venture to compare herself. We observe that *O. nebulosum*, although another glorious plant, yet scarcely equal for richness of tints to the species just mentioned, produced the other day at Mr. Day's sale the sum of 14*l.* 10*s.*

Most fortunately, the constitutional peculiarities which at first opposed a barrier to the successful cultivation of these plants have now become thoroughly understood, and we do not find that it is attended with more difficulty than that of a Pelargonium. People naturally thought that natives of the tropics would insist upon a tropical atmosphere. No mistake could be greater. Hear what Mr. Bateman says, in speaking of O. nebulosum.

"It was at Munich, in the year 1835, that I first became acquainted with this fine Odontoglossum, having, through the kindness of Professor Von Martius, been allowed to examine the rich collection of dried specimens that Baron Karwinski had then recently brought home with him from Mexico. Two years afterwards living plants were sent to me from Oaxaca, which happening to arrive in the midst of that remarkably severe winter, 1837-38, I naturally expected would have been destroyed on their way; so, far, however, from this being the case, they appeared to have sustained little or no injury from the cold, and on being placed in a stove they soon began to push both roots and leaves. All went well so long as the temperature of the house did not exceed 70°, but when the winter had passed away, and they had to face the intense heat at which the Orchid houses of that period were ordinarily maintained, they then quickly lost their vigour, and before a twelvemonth had passed were all gone—victims, like a multitude of other invaluable plants, to our then ignorance of the conditions under which alone the Orchids of cool countries could be expected to thrive."

Of this O. nebulosum our author writes thus:—"I am not aware that this plant ever flowered in this country until within the last year or two; certainly no figure of it has ever been published in any English botanical periodical. I have, however, found in a French work (the 'Illustration Horticole'), under the name of O. maxillare, what is obviously the same as the plant represented in the plate. I should myself have probably fallen into the same mistake as Professor Lemaire, had I not enjoyed the opportunity, which he unfortunately had not, of examining the original specimens in Dr. Lindley's herbarium, and from which that able botanist drew up his description (in the 'Folia Orchidacea') of the two species. O. maxillare, of which Dr. Lindley only examined a single flower, though he made a most careful drawing, is shown by a glance at the latter to be a totally different thing; it has moreover, I fear, long since disappeared from our collections. In Dr. Lindley's description the flowerscape is said to be terminal, which in Nature it never is, although from the way in which Karwinski's wild specimen was glued together, it certainly presents that appearance in the herbarium. The column, moreover, and the base of the sepals and petals are said to be pubescent, though nothing of the kind is visible to the naked eye when the flowers are fresh. With a powerful magnifying glass pubescence may certainly be seen."

In addition to what has already been stated about cultivation, we take the following excellent advice:—"As most of the Odontoglossa require to be treated in the same way, I transcribe, from the 'Guide to Cool Orchid Growing' (Reeve, 1864), the following instructions for the culture of the genus:—'They will all succeed perfectly in a low lean-to house facing the north, the mean temperature of which need not exceed 60°. They should stand on a shelf of slate or stone, near the glass, but should always be protected from the direct rays of the sun. Constant humidity should be maintained by damping the shelves and floors, but the plants themselves will only require water in moderation, and what is given to them should pass away freely, for if it stagnates, or if the compost in which they grow becomes sodden, the roots will immediately decay. A gentle evaporation is greatly assisted by placing layers of Moss—to be kept damp of course—on the shelves whereon the plants stand. Odontoglossa cannot endure wooden blocks, but will thrive in a compost of which one-half consists of small broken potsherds, the remainder being a mixture of shredded Sphagnum (dusted with fine sand) and fibrous peat. About one-third of the entire depth of the pots may be filled with this mixture, the other two-thirds containing nothing but large pieces of broken pots, so as to admit as much air as possible to the roots. The pots in which the plants are grown should stand on other pots (inverted) placed in saucers of water, in order to secure humidity and protect them from wood-lice. Nearly all the species flower during the winter and spring months, a circumstance that greatly enhances their value. Many, *e. g.*, O. pulchellum, are deliciously fragrant, and the flowers of nearly all the species remain in perfection for weeks, whether left on the plants or cut for bouquets. In so vast a genus we shall, no doubt, meet with many idiosyncrasies, but nine-tenths of the species will flourish under the treatment indicated above, and which may be regarded as suitable to the majority of cool Orchids. Most Odontoglossa are, like the Masdevallias, very impatient of the knife, and cannot therefore be rapidly multiplied. They have also a peculiar aversion to fumigation by tobacco, which causes their leaves to fall off.'"

Who will not now take the Odontoglots into special favour?

Dictionary of Natural History Terms, with their Derivations. By David H. M'Nicoll, M.D. Lovell Reeve & Co., Henrietta Street, Covent Garden. 1863. Pp. 584. 8vo.

A good work of this kind has long been a decided desideratum, and Dr. M'Nicoll deserves the thanks of the whole body of students of botany, entomology, zoology, &c., for the very useful book which he has furnished.

There are hosts of unreasonable people, with the merest smattering of knowledge, who inveigh against the practice of giving hard Latin and Greek names to plants and insects; but those gentlemen have no notion of the exceeding difficulty there is in assigning characteristic and distinguishing names to the hundreds of thousands of objects with which nature supplies us. In fact, nature's variety beats man's inventive power, in the way of nomenclature, hollow. Mr. Bates, in his recent visit to the river Amazons, found 8000 plants and insects that had never been noticed or scientifically named before. Botanists and entomologists are usually glad to call a plant or insect by the name it bears in its native country; or, they select some peculiarity about it which they try to express in a Greek or Latin form; or they adopt the name of the person with whom it happens to be associated, as the discoverer or describer, &c. We have instances of each of these classes of names occurring in abundance in the book before us. Thus:—

"*Au'cuba* (Bot.), the original Japanese name of the shrub.

"*Pteran'dra* (Bot.) πτερόν, plume or feather, ἀνηρ, ἀνερος, ἀνδρος, a stamen; a genus of Malpighiaceæ.

"*Malpi'ghia* (Bot.) P.N. from M. Malpighi, Professor of Medicine at Bologna; typical genus of the splendid Nat. Ord. Malpighiaceæ."

When once people know the derivation, meaning, and history of a hard name, it is found that they no longer complain, but rather seem to enjoy its strangeness, and soon get it imprinted on their memory. It so happens that these proper names have been very extensively used in memory of Englishmen, or distinguished naturalists of other countries; and the names of the latter are not always euphonious to British ears. Nobody could object to the five consecutive names we find in page 42—Barringto'nia, Bartholi'na, Barto'nia, Bartra'mia, Ba'rtsia, whatever they might say to Kaulfus'sia and Kiggela'ria, but, if there were any occasion, the public would assimilate them, just as easily as they have adopted Fu'chsia and Eschscho'itzia.

Scarcely second to the difficulty of meaning, and indeed closely connected with it, is the difficulty of accentuation. Young hands are constantly tripping, to their great annoyance, and even the sages in the science are not always agreed on this subject. Dr. M'Nicoll modestly says: "In regard to accentuation, I cannot hope to please all, since, in some cases, I have failed to satisfy myself. The attempt has been made to reconcile the claims of the rules of composition on the one hand, and of euphony on the other." Dr. M'Nicoll's work gives a brief explanation of above 15,000 names and terms used in Natural History, and usually in a single line. It will be invaluable to those for whose use it was written. He hopes "it will solve the difficulties of at least the younger students of the Natural History Sciences. It has the merit, at any rate, of being the first attempt of the kind." As such, Dr. M'Nicoll deserves great credit, for it is extremely well done.

Garden Memoranda.

Broom House, Fulham, the Residence of the Right Hon. Laurence Sulivan.—Of the many charming suburban villas on the banks of the Thames, this is one of the very prettiest. On the garden front is a terrace richly ornamented with gay flowers in beds on gravel, a well-kept lawn beautifully adorned with clumps of evergreens, and magnificent specimens of ornamental trees, shady walks here and there, from which delightful glimpses of the Thames can be obtained through leafy boughs; and last, but not least, a natural rockery, decorated with hardy Ferns and flowering plants. On the north or entrance side is Grass land, on which stand some fine timber trees, conspicuous among which are Cedars of Lebanon, Acacia, Birch, Copper Beech, Horse Chesnut, and Elm.

To the hardy Fernery, just alluded to, belongs special interest, on account of the tasteful way in which it is arranged, and being partially under trees, these favourite shade-loving plants succeed well in it. The rockwork of which it consists is constructed of run bricks coated over with cement, the stations for the plants being in many instances Moss-covered hollow stumps of old Elm trees. These, when filled with good soil, form suitable receptacles not only for Ferns but also for many kinds of flowering plants.

The terrace garden during the greater portion of the year is a blaze of flower. Early in spring it is gay with Tulips, Hyacinths, Crocuses, and other early blooming plants, such as Pansies, Alyssum, Iberis, Arabis, Catch-fly and Forget-me-Not. In the first or second week in May, according to the season, these are cleared away to make room for the usual kinds of bedding plants. Among Scarlet Pelargoniums for out-door purposes the greatest favourites here are Boule de Feu or Attraction, and Preston Hall, the last a showy sort with a well marked horseshoe leaf; in the variegated class one of the most useful still is Alma; Rubens, pink, and Stella are also considered excellent. Of Verbenas, Blue Bonnet is one of the best in its class, as is also Purple King, an old, but still not easily beaten variety. Yellow Calceolarias, and other kinds of both Verbenas and Pelargoniums, are also at present blooming in the greatest possible profusion.

After the beauty of these plants is over, Pompon Chrysanthemums are turned out into a few of the most conspicuous beds. These are struck from cuttings put in in the last week in June, and they often flower well even up to Christmas.

In front of a wall by the side of a walk is a handsome ribbon border, consisting of Christine Pelargonium next the wall; then Pelargonium Brilliant, yellow Calceolaria, Purple King Verbena, and Cerastium, the last nearest the walk.

Of Heliotropes, there is a nice bed of some dwarf dark variety; of white zonal Pelargoniums, the best is Madame Vaucher, and of yellow leaved sorts, the most effective is still Cloth of Gold.

With respect to fruit, both on standards and on walls, there is an excellent crop; Peaches and Nectarines unprotected are a little less in size than those in a cool Orchard house, but not much. In short it is evident that the command of a little heat in these structures would be an advantage. Even unwarmed, however, they are found to be extremely useful for many purposes in early spring. Mr. Rust's new yellow Peach called Thames Bank, of which favourable reports have already appeared in our columns, promises this season to ripen some fine fruit, and other seedlings of Mr. Rust's are also in course of trial. Figs and Grapes are likewise good.

In the Fruit Room are coloured drawings of most of the new sorts of Pears grown at Broom House, and in Mr. Rust's cottage are beautiful specimens of the different kinds of woods grown on the estate, nicely put together and framed and glazed, as are also cases of preserved moths captured in the neighbourhood of Fulham, all subjects in which Mr. Rust takes much interest.

Of Melons in frames we noticed an excellent crop, growing in good friable loam. Melons here are never shaded, and the sort liked most is the Bromham Hall, which among green-fleshed varieties still stands in the first rank. Mr. Rust, the gardener, considers that two causes which contribute most to failure in Melons are using cold water, and not keeping up sufficient bottom heat.

Strawberries have been very plentiful here as elsewhere this season. The ground on which they are planted is heavily manured and trenched in April, and plants which had been forced are turned out in rows 3 feet apart and 18 inches asunder in the row. All runners are kept cut closely in, and a crop of Lettuces is generally planted between the Strawberry plants the first season. The following spring the hoe is passed through them several times, and after a good soaking of rain and the removal of the intermediate crop, every inch of ground is covered, or rather mulched with long stable litter. This retains moisture in the soil, and by being applied early the straw becomes bleached quite clean before the fruit is ripe. One advantage attending wide planting is that the fruit can be gathered without danger of being trampled upon. The plantations are allowed to stand three years, sometimes four, and then the plants are destroyed. Under this system large crops of fine fruit are obtained. Among sorts grown are Keens' Seedling, Bicton Pine a white kind, La Constante, Myatt's Eleanor, and Elton. Of these La Constante is the greatest favourite; the plants are dwarf, produce few runners, and bear enormously.

Scarlet Runners are cultivated here without stakes. They are sown in April in rows 3½ feet apart, and after they come up the plants are regularly stopped once a week or so during May and June. When the weather begins to set in warm they are mulched with stable litter; they generally begin bearing about the beginning of this month, and keep on producing pods all through August and most of September. In exposed situations, or where stakes are scarce, this mode of culture is well worth consideration.

Peas have been a good crop, but the present dry weather is affecting them greatly. The ground for late Peas here is always trenched, it being found that by that means they are better enabled to withstand vicissitudes of weather, than in ground treated in the ordinary way. Here the Abergavenny Marrow is considered the most useful Pea for late work; but in many instances early sorts are sown for that purpose with advantage.

Seakale, as grown here, makes a useful rotation crop. It is taken up in autumn and put away into any spare corner, covered with litter to keep frost from it; for forcing, a brick pit is filled with leaves about the first week in November; the roots are taken from their store, placed above the leaves, and covered with about 9 inches in depth of mould; fresh lots are introduced into the pits at intervals of about a fortnight all through the winter, and covered with short clean straw and wooden shutters. For new plantations pieces of the roots cut into lengths of some 4 or 5 inches are buried among coal ashes; and the first week in April, when beginning to sprout, they are planted in well-trenched ground, in rows 2 feet apart, and 18 inches asunder in the row. Spinach and Lettuces are planted as intermediate crops, and are off the ground before the Seakale wants the room they occupy.

Other kinds of Vegetables are also treated with equal skill, and not only the kitchen garden but also the ornamental department reflects great credit on Mr. Rust's management.

Miscellaneous.

Flowers v. *Foliage*.—Are there any people who entertain a real affection for flowers? If so, then how does it come to pass that flowers, at one time the greatest favourites, are after a few years of popularity no longer looked at; in common parlance gone out of fashion? Our great nurserymen are the first to find out in which direction the taste is tending. As soon as a plant ceases to be inquired for, they get rid of it at any price, to fill its place with the few favourites of the public; and the effect is, that plants which were seen in every garden, though their price was high, become extremely scarce and finally disappear altogether from the nurseries. Fashion, in this as in other things, is never without a reason for adopting an innovation. The Cactuses, of which, at one time, shiploads came to our shores, were discarded because they were such spiny irritating things, and which, in public gardens, you were requested not to touch. The Aloes, now only seen in all their diversified forms in Prince Salm-Dyck's magnificent works, had to make room for less interesting types, because you had to wait for a series of years before many of them flowered; popular opinion declared it was a whole century. Such plants might be in their place in antediluvian times, when people as old as Methusaleh were plentiful, but scarce fit garden pets when human life seldom reaches fourscore years. Then came the reign of the Dahlias, a brilliant and prosperous one, but suddenly cut short by the startling discovery that they flowered late in the autumn, and were apt to be killed by the first night-frost. "Besides," a sentimental lady was heard to say, "they always remind one that summer is past, and winter is coming on." Last autumn, when enjoying the fine show of Chrysanthemums in the Temple Gardens, we trembled at the very thought that somebody who has a voice in the fashion of flowers should find some argument why this lovely sight should not be seen; why the Chrysanthemum with its marvellous variety of colour, much more the "Pride of London" than the little humble Saxifrage of that name, should be banished for some new untried favourite, perhaps not half so well adapted to the atmosphere of our capital. As long as one set of flowers is superseded by another, there is, perhaps, not much to complain of, but a fashion is gradually creeping in well calculated to create alarm. Endeavours are now being made to persuade us that it is but a depraved taste to admire flowers at all; that it is the foliage on which Nature has lavished the greatest beauty, and that here real taste has proper objects for gratification. The Ferns were the first of this class of plants which gained a footing amongst us. The elegant and graceful tracery of their foliage was so bewitching that a perfect rage for them sprang up, and during the last 10 years more books have been written about them than since botany became a science. The species indigenous to our island have been illustrated in every imaginable manner—in bulky volumes, as in "The British Ferns Nature Printed," and in portable companions, as in "The British Ferns at One View." There is hardly a publishing house that has not aided us in understanding the subject by issuing one or more volumes, and there are few eminent botanists who have not given us the benefit of their experience in this branch of study. The success which the Ferns achieved was the greatest triumph of flowerless plants over flowers ever recorded. It was the commencement of a rage for fine-foliage plants, as gardeners call them—of that phyllomania now spreading through the length and breadth of Europe. All plants with variegated leaves became much sought after. A species which would not be looked at if preserving the natural green of its foliage, became at once an object of interest if labouring under a kind of albinism so as to make it appear mottled. But white and green was not enough to cause variety; the eye wanted more; and during the last few years the whole of the globe, inhabited and uninhabited, has been searched for plants with leaves having more than two colours—if possible, all those of the rainbow. The search has been productive beyond expectation, and we have now in our Caladiums, Arums, Begonias, Marantas, Cannas, and others, an endless series of these favourites. The latest development of phyllomania seems to be decidedly towards large and hard-leaved plants; all that are soft and weedy are to be cast aside. Here horticulture has hit upon inexhaustible stores, and amongst them the most majestic of all known plants, the great Palm tribe. This royal race has not yet received due attention amongst us. At Kew we certainly have the largest conservatory ever built for their reception, but we cannot boast of the most numerous collection of Palms. Continental establishments with fewer means than our great national one, and not favoured by so mild a climate as our own land, outnumber us. The value of Palms for decorative purposes on stair-cases in large halls and ball-rooms, as frequently seen abroad, is very great. One of the finest ball-rooms we ever entered was in tropical America, where, in a grove of young Cocoa-nut Palms, the tips of the over-hanging leaves had been tied together by gay-coloured ribbons, thus forming magnificent arches. The ground underneath having been floored and the whole brilliantly lit up, this natural ball-room produced a magical effect. We at once perceived how correct those are who maintain that the prototype of Egyptian, Grecian, and Gothic architecture was a Palm grove, as we find it almost too slavishly copied in the great Temple of Edfou. *Athenæum.*

Fertilising Power of Pollen.—M. Belhomme states that the pollen of monocotyledons preserves its properties for a much longer period of time than that of the dicotyledons. He experimented upon the following natural orders: Leguminosæ, Rosaceæ, Myrtaceæ, Umbelliferæ, Cacteæ, Cruciferæ, Malvaceæ, Solanaceæ, and Boraginaceæ of the latter group, and he found the pollen as fertile at the end of three years as it was at first. His experiments on Monocotyledons were made upon the Liliaceæ and Amaryllidaceæ, the pollen grains of which retained their fertility for a period of six years. Fertile and barren pollen may be readily distinguished. If the grains have lost their fecundating property, they feel like dry powder when placed upon the palm of the hand; if, however, they still possess it, they adhere to the hand, and seem as though they had been slightly moistened.

Podophyllum peltatum belongs to the natural order Ranunculaceæ. It is only found in a wild state, in the States of North America, where it is widely spread, extending from New England to Georgia. The plant may be also commonly seen in the botanic gardens of this and some other countries of Europe. Podophyllum root or rhizome occurs in pieces of variable length, and from two to four lines thick, averaging about that of a common goose quill. At intervals, when not too much broken up, it presents large irregular, more or less flattened tuberosities, from the lower surface of which brownish-coloured rootlets arise, or, when these are detached, their former position is marked by whitish, more or less projecting scars. The pieces are either nearly smooth or much wrinkled longitudinally, of a reddish-blackish or yellowish-brown colour externally, and internally whitish or yellowish. They break with a short close fracture; have a sweetish and frequently somewhat narcotic odour, and a nauseous, slightly acrid, bitter, and feebly narcotic taste. Podophyllum has been frequently analysed, and with somewhat conflicting results. The most important constituents, however, are two resinous principles, one of which, according to Lewis, is soluble in alcohol and insoluble in ether, and the other, constituting four-fifths of the whole, is soluble in both alcohol and ether. There is some difference of opinion in North America as to the relative purgative properties. The experiments of Mr. Harvey Allen led him to regard the resin which was soluble in both alcohol and ether, as alone possessed of any active purgative properties. In the British Pharmacopœia the resin obtained from Podophyllum by means of rectified spirit is officinal; hence, if the presence of two resinous principles be confirmed of different degrees of activity, our Pharmacopœia preparation will contain them both, as they are both soluble in alcohol. Podophyllum resin is described in the British Pharmacopœia to be "almost entirely soluble in pure ether," but we do not find the officinal resin as soluble as there stated. Besides these resinous principles, the alkaloid berberine, together with saponin and another alkaloid, have been recently

discovered by Mayer in Podophyllum. In America Podophyllum rhizome and its preparations, and more especially that of the resin under the name of Podophyllin, have long established their reputation as active and certain cathartics, Podophyllin has also been very extensively employed for some years in this country, and in other parts of the world, and is now, by almost universal testimony, regarded as a most valuable cathartic and cholagogue. In many cases it is applicable with perfect safety where mercury has been hitherto indicated and alone used. The griping effects which are frequently experienced by its use may be readily prevented by combining it with small doses of extract of henbane. The dose of Podophyllum resin of the British Pharmacopœia is from a quarter to half a grain, or even in some cases a grain. There can be no doubt but that Podophyllum is a very valuable addition to our British Pharmacopœia; indeed we have no hesitation in stating that it is by far the most important new remedial agent introduced into that volume. *Prof. Bentley in Pharmaceutical Journal.*

Hæmanthus, or Blood-flower.—This is one of the old and much-neglected plants, and one that is now very seldom seen. I cannot think why it should be so, for I know of no plant of more easy culture than the Hæmanthus, and one that will repay any one so well for the little attention it requires. It is one of the Cape bulbous-rooted plants, and, consequently, requires but little artificial heat. Any one that has got a greenhouse or vinery may grow it in perfection. My own practice of growing the Hæmanthus is as follows:—I always grow it in a late vinery, with the exception of the time the plants are in flower, when they are taken to the conservatory. I invariably give a long season of rest, which is generally from August till February. I consider this the most important point to make sure of fine strong heads of bloom. During the time they are at rest, they require but little water—just as much as will keep the leaves from shrivelling. For large specimen plants, I pot them only once in two or three years, as I find they flower much freer for being a little stunted in the pots. The best time for potting is when the plants are starting into growth. The most suitable soil is one of open texture. I use the following:—one-half rough turfy loam, and the other half equal parts of rotten cowdung, fibrous peat, charcoal, and sand, with good drainage, and an abundance of water during the growing season. They are propagated by dividing the roots, or from seeds; if by the former, it ought to be done when the plants are at rest. There are several varieties of the Hæmanthus, but to my fancy puniceus is by far the best. *A. Ingram, in Florist and Pomologist.*

Poisoning by Buttercups.—An inquest was recently held at the Bull Hotel, Dartford, before Mr. C. J. Carttar, coroner, on the body of a child named Sarah Elizabeth Heron, aged 6 years. It appeared by the evidence of the mother and father of the child, that some time before death the deceased had complained of feeling very unwell, and in great pain about the body and legs. The mother afterwards discovered that the deceased had been eating Buttercups from a field close by, and sent for a powder from a chemist's; but as the deceased vomited a great deal, and presented every appearance of having been poisoned, the parish surgeon (Mr. Martin) was sent for, but that gentleman did not arrive at the house till the child was dead. A *post mortem* examination had been made, which proved the deceased had been poisoned by eating Buttercups; and the jury returned a verdict to that effect.

The First Salmon in Australia.—I am in a position to report that our great Salmon-hatching experiment is proceeding most prosperously. The bulk of the late consignment of ova per Norfolk were forwarded to Tasmania, breeding ponds according to the newest piscicultural lights having been there prepared for the precious charge, and by the last advices many young Salmon had burst from the eggs, and many thousands more were expected. The Trout ova also were doing equally well. Small as is our own portion of this enterprise, it is not the less interesting. It is conducted by our Acclimatization Society, and an ice-making factory at North Melbourne is the scene of operations. A sort of inclined plane of pans, half filled with gravel, is so placed as to allow a continuous stream of water from melting ice to ripple over each pan, in which, spread upon the gravel, lie the ova. These ova are about the size of small peas, and are of a pale rose colour. Some nine or ten of them have died each day, but about ten days ago [May 16] among the births appeared the first Salmon in Australia. The *Argus* had a leader upon the illustrious young stranger. How he looked, how he struggled, and wriggled—not nearly so long as a finger-nail, with the adherent torn ovum still hanging about him,—and how he went to sleep as deep as he could plunge into the gravel, were all faithfully described. Day by day bulletins issued, announcing how he was getting on, until one irreverent and sceptical fellow ventured to doubt whether he was a Salmon at all, impiously insinuating that the proprietor of the ice works had slipped a tadpole into one of the pans to hoax the President of the Acclimatization Society, and asserting that time would yet show the first Australian Salmon to have four legs. Since however some 150 or 160 other metamorphoses from eggs to fish have taken place; all are healthy and strong, and (as is the nature of the creature), are gradually absorbing the appendant ova which once contained them. The first thing a Salmon parr does after he breaks from his prison is to eat it. If this great experiment prove successful the gratitude of our colonists is due to Mr. Youl and to Money Wigram & Co., for to these gentlemen is due almost all the glory of this success, after so many discouraging failures. *Melbourne Correspondent of the Times.*

Calendar of Operations.

(For the ensuing week.)

REMOVING breastwood from Pear trees on walls must occasionally engage attention; but in doing this the reciprocal action that ought to exist between roots and leaves must not be lost sight of. Operating too severely at any one time should always be avoided, for the entire destruction of any considerable portion of the leaves of a tree is sure to affect its roots, and altogether disarrange its functions. If to-day, for instance, a fruit tree is loaded with superabundant shoots, and if to-morrow they be all cut off, the tree will not recover the shock for weeks. The progress of the roots becomes arrested, the healthy foliage which invigorated them having been removed. Summer pruning, both of wall trees and espaliers, must nevertheless be done, and may be easily done well. The young leaves on the upper ends of shoots appropriate sap for their own growth, and return little or nothing to the roots; therefore they may be cut off with advantage. They are robbers not nurses. Thinning and farther shortening may afterwards be commenced, and carried on by degrees. As this is being proceeded with, the leaves at the bases of the shoots will begin to thrive better in consequence of more exposure to light and dews, and their gradual increase will compensate for the diminution of foliage consequent on the reduction of the shoots.

FLOWER GARDEN AND PLANT HOUSES.

The present dry weather will in some places render daily waterings necessary; even grass will be burnt up if rain does not soon begin to fall. Indoors shading, removing dead blooms and leaves, damping floors, and keeping everything scrupulously clean, are operations which will now demand attention. See also that nothing suffers from want of water.

AURICULAS.—Seedlings which were put out in pans or boxes in spring will now have attained considerable size, and may be potted off singly. Let the soil used be good loam and leaf mould well mixed, together with a little silver sand, and when potted let the plants be set in the shade until they have become somewhat established.

CARNATIONS AND PICOTEES.—Layering must now be proceeded with as rapidly as possible, it being a point of great importance to get the plants well rooted and established before placing them in their winter quarters. More of next year's success, as to fine healthy growth, &c., depends on attention to this matter than many people are aware of. All seedling plants should be marked and layered, noting their various properties, as to form, colour, texture, pod, &c.; should any seedling, otherwise fine, have serrated petals, it will be advisable to propagate it, as growing it in another situation may to a certain degree remedy this defect; even some of our best varieties will come occasionally (when poorly grown) very rough on the edge. As the blooms decay, extract the faded petals from the calyxes.

ORCHIDS.—Stanhopeas will now require attention, in the way of renovating the material in which they are growing, and otherwise putting them in order for the season. Other kinds will now do with less water than when they were in active growth.

PINKS.—Continue to plant out rooted pipings on beds of well prepared soil, but not too rich. A second crop of pipings may also be inserted where an increase of stock is required. Seed may also be gathered, retaining rather long stalks; tie half a dozen together, and allow them to get well dry, after which the heads or pods of seed may be put in small paper bags, which may be fastened round the stems, and then hung up in a dry airy situation till wanted.

FORCING GARDEN.

CHERRIES.—Let no exertion be spared that will contribute to keep the foliage healthy and clean as long as possible, by maintaining a cool moist atmosphere. Take care that the soil of the borders inside the house does not get too dry, or this will cause the plants to shed their leaves prematurely; and, on the other hand, do not allow it to get too wet, or the half-ripened buds will burst.

FIGS.—When these are ripening the house must be kept somewhat drier, but at the same time the state of the soil must be carefully watched, lest it gets too dry and causes the swelling fruit to drop off. Beware of red spider, which is particularly apt to establish itself at such a crisis, when the swelling fruits are making large demands upon the energies of the plants, and are thereby checking in some measure their vigorous growth. This is an evil which must be carefully guarded against.

MELONS.—Plants swelling fruit should be kept moist, but avoid frequent waterings of the soil by giving good soakings. Plants that have ripened their fruit and are in good health, if cut back, and the soil well soaked with tepid water, will soon start into growth, and set a second crop. They should not be allowed, however, to carry many fruit.

PINES.—If not already done, plants expected to show fruit next January should have their final shift at once, in order to get the pots well filled with roots, and the growth completed before winter. Give plenty of clear manure-water to all stock, except such as is being kept dry with a view to getting it to show fruit soon, and endeavour to secure rapid growth, now that it can be done without etiolation. Keep the atmosphere thoroughly moist, but avoid heavy syringings. Plants growing in the open bed must be well supplied with water at the root, giving a thorough soaking of manure-water as often as may be necessary.

STRAWBERRIES.—Take care to secure sufficient runners for forcing. Better have too many than too few.

VINES.—Early Vines which have completed their growth, ripened their leaves, and are showing an evident desire to go to rest, should have as much air as possible, lest the present hot weather should induce them to start again into growth. The side, front, and back upright ventilators should always remain open; and where a sufficient amount of ventilation is not attainable by these means, the lower ends of the sashes should be propped up, so as to ensure a free circulation of air through the house. In very wet weather also this plan is preferable to that of sliding down the top sashes, as it is not less essential to keep the soil dry than it is to keep the atmosphere cool during the season of rest. To this end the outside border should from this time be covered with a tarpauling or some other contrivance during rainy weather.

HARDY FRUIT AND KITCHEN GARDEN.

Until rain comes little can be done in this department in the way of planting. Even winter greens, in some places have not yet been planted on account of the drought, which has rendered the soil quite unfit to receive them.

CELERY.—This may still be planted. Some prefer what is called the Scotch plan, viz., beds of from 4 to 6 feet in width. These beds, which often succeed crops of Peas, are trenched two spits deep. The bottom spit receives plenty of raw manure or half-rotten leaves, and the top one old manure. The principal secret in growing very tender and crisp Celery, irrespective of size, is to sow it rather late, and grow it very quickly by means of plenty of manure and moisture. Whether in rows or beds, the young plants will not succeed without plenty of water.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending July 20, 1864, as observed at the Horticultural Garden.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 14	10	30.086	30.052	80	36	58.0	62	61	E.	.00
Friday 15	11	30.081	30.064	79	47	63.0	62½	61	E.	.00
Satur. 16	12	30.106	30.036	76	39	52.5	63	61	E.	.00
Sunday 17	13	30.120	30.043	82	44	63.0	63	59	S.E.	.01
Mon. 18	14	30.070	30.038	82	44	63.0	63½	61½	E.	.60
Tues. 19	○	30.035	30.028	85	46	66.0	64	61½	N.E.	.00
Wed. 20	16	30.056	29.999	87	47	67.0	65	62	W.	.09
Average.		30.082	30.047	80.1	43.2	61.7	63.3	61.0		.01

July 14—Uniform haze; hot and sultry; fine at night.
— 15—Slight haze; fine; hot and sultry with very dry air; thunder
— 16—Uniform haze; hot and dry; fine; cool at night.
— 17—Dry, slight haze; overcast, thunder in evening; showers.
— 18—Fine; very fine; overcast at night.
— 19—Fine; wind variable; hot and dry; fine.
— 20—Very fine; hot and sultry; fine.
Mean temperature of the week 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending July 30, 1864.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 24..	72.5	52.0	62.2	14	1.16 in.	1	7	4	2	5	12	4	3
Mon. 25..	73.8	49.4	61.6	10	0.36	2	6	3	—	2	10	12	3
Tues. 26..	73.5	50.6	62.0	18	1.22	2	2	4	2	5	13	7	4
Wed. 27..	74.6	51.3	62.9	17	0.98	2	3	5	2	4	12	7	3
Thurs. 28..	76.2	51.4	63.8	19	1.39	2	3	3	1	1	11	11	4
Friday 29..	75.8	51.8	63.3	16	1.31	4	5	4	1	4	12	5	3
Satur. 30..	75.1	50.4	62.7	16	0.88	4	4	3	1	2	10	9	5

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 30th, 1863—therm. 35 deg.

Notices to Correspondents.

DISEASED THORNS: *Diss.* Your Thorns are attacked by a Fungus, Æcidium laceratum. It would be an extreme measure to cut down the trees; if practicable you may gather the affected leaves and burn them. *M. J. B.* A box from some correspondent has been lost in the post, the envelope arriving empty.

DUTCH FRUIT GARDEN: *Pomona.* This size is quarto; on each plate two or more sorts of fruit is represented—each by three drawings, one showing the eye, another the stalk, and the third a section from eye to stalk. Each number, with one plate, costs about 10*d.*, but after the issue of the 12th number the price is to be increased.

HORSE-MUSHROOM: *W P.* This name is applied to Agaricus arvensis, of which large quantities are used in London and our large towns, while in Italy it is preferred to the pink-gilled A. campestris. The latter is doubtless the more delicate of the two, but the former is not unwholesome, and is known by its paler gills and by its turning yellow when bruised.

INSECTS: *A B.* The Wheat ears are infested by the Wheat aphis or dolphin, A. granaria, which in certain seasons like the present is developed to a much greater extent than ordinary. If very numerous they will certainly suck the juices out of the grains, which will shrivel up and become useless.—*C K.* The small fly found in groups on the leaves of your Cherry trees is one of the minute frog hoppers, belonging to the genus Typhlocyba. Their habits are similar to those of the aphides, except that they are far more active, leaping and flying with great agility. Syringe with lime water.—*Anon.* Your Rose leaves have had the parenchyme eaten off by the slimy larvæ of a small saw-fly with black wings, Selandria æthiops. Syringe the leaves well with lime water, if any of the larvæ still remain on the leaves. *W.*

NAMES OF PLANTS: *R B.* 1, Halimodendron subvirescens; 2, Cotoneaster frigida.—*T Smith.* Ficus stipulata.

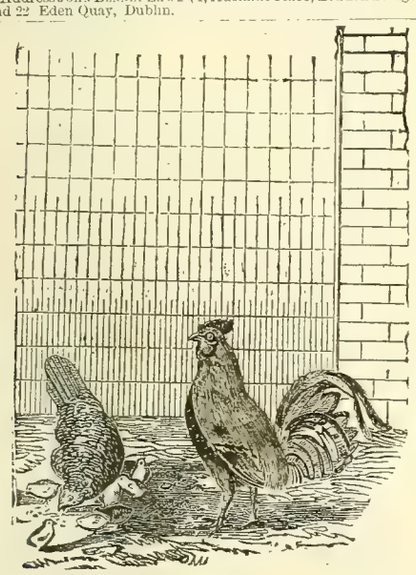
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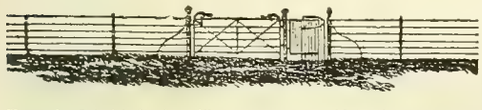
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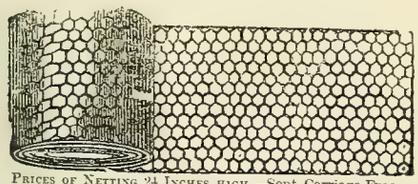


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The Agricultural Gazette.

SATURDAY, JULY 23, 1864.

THE first revisit of the Royal Agricultural Society has been an entire success. Newcastle, which in 1846 could receive the farmers of England pretty comfortably in its lecture rooms and halls, and allotted about 10 acres of its moor for the accommodation of their implements and live stock, has during the past week altogether overflowed with visitors, and has had to set apart four times as much land for the exhibition which they have come to see. These great annual gatherings can no longer now be marshalled for anything like organised agricultural discussions; and Mr. PARKES or Professor JOHNSTON, whose addresses upon land drainage and manures were 18 years ago among the leading features of the meeting, would hardly now obtain a hearing. The throng and general excitement are too great; and all that the Society can do is to give the multitude sufficient opportunity for the self-directed examination of the agricultural results which are displayed.

These are referred to in the following pages in detail; and it must suffice here to point out the extraordinary merit of the Show at both ends of the agricultural scale over the whole of which it extends.

Agriculture may be said to begin with the tillage of the soil and end with the manufacture of meat; and Mr. FOWLER'S steam plough standing at the one end of the manufacture, and Mr. CRUICKSHANK'S Short-horn "FORTH" standing at the other, may be thus considered to include between them its whole scope, extent, and range. Every line upon the scale which separates these extremes has been well represented at this meeting, but the best and most numerous illustrations of the whole are those of tillage implements on the one hand and of Short-horn stock upon the other.

Never before has so good a collection or so thorough an examination of tillage implements been made, and never before have better classes of Short-horn cattle been exhibited. We must refer our readers to the detailed account of our reporters for particulars of both. Of the former however two remarks may here be made. One is that the excellent quality and easy management of the steam tillage accomplished by many of the rival manufacturers must convince the farmer of plough land how thoroughly practical and efficient a thing steam cultivation has at length become. Mr. FOWLER'S method of two engines, one at each end of the furrow, co-operating in their pull upon the tillage tool going to and fro between them, is a great step in advance of all previous experience, and worthily receives the prize offered for the best application of steam power to the tillage of the land. And the other remark must refer to the small advance which the prizes of the Society and the competition of manufacturers have made in the form and merit of the plough. Mr. HOWARD exhibited his two general-purpose ploughs—the one which took the leading prize in 1846, and the other taking the leading prize in 1864—side by side. In some particulars the latter is no doubt an improvement on the former—in others, in our opinion, it is inferior. The former will, we believe, turn a squarer cut and therefore better furrow slice than the latter; but this has been made to turn the slice more perfectly, giving it a higher crest and probably a better outside for that half hour's inspection which in a racing trial it receives, and it wins the prize accordingly. Judging however from these two implements, the prize system has done very little good to ploughs during the past 18 years.

The yards have been thronged with spectators throughout the week. On Monday 720 visitors paid 10s. each; on Tuesday 10,224, and on Wednesday 15,947 paid 2s. 6d. each. The number of visitors to the yard on Thursday, the first of the shilling days, was 55,569; so that the Meeting, which was on the first three days favoured with bright and breezy weather, has quite maintained the high average attendance of the last few years.

WE are about to issue our annual circular of inquiries as to the prospects and probabilities of the coming harvest, and our correspondents will be requested to make their reports with reference to what is an "average" crop. But an "average" crop, as now understood, is not the average crop which satisfied us 10 or 15 years ago. It will, therefore, be understood that the word "average" will refer to the crops of the last six years:—1858 and 1859 were good years; 1860, 1861 and 1862, were very bad years; 1863 was a remarkably productive year. The average of the six last years may be considered a fair and standard crop; and if our correspondents declare of this year's crop that it is at, below, or above *an average*, it will be understood that they are referring to the average produce of 1858-63. This memorandum on the subject is published in consequence of the following note from Mr. W. WOODWARD, of Northway House, Tewkesbury. He says:—

"I shall be most ready to send you a report of crops, &c., of my locality when I return home, end of next week, from Newcastle, &c. Had you not better ask your contributors, in their information, to adopt a fixed number of years for average, now so vague a term without it, as 8, 10, or 12 years, or twice these numbers, so as to take two, three, or four courses of crops of a 4, 5, or 6-field rotation? What would now be thought a moderate crop, would 30 years ago have been considered a very large one; indeed, were it not so, how is our draining outlay and large cost of purchased manures to be paid for?"

THE GREAT AGRICULTURAL MEETING AT NEWCASTLE.

THE business of the Meeting commenced on Wednesday of last week, when the tillage implements, including steam-cultivators, ploughs, harrows, scarifiers, rollers, &c., which this year are submitted to examination by the Society's judges, were removed from the yard to the farm near Benton Quarry, about 4 miles north of Newcastle, where they were to be tried. Seven or eight fields of a hard and apparently undrained but tolerably friable soil, resting for the most part, however, upon a yellow clay, had been here provided. They were chiefly a foul Clover stubble, carrying in one or two cases an exceedingly foul and matted growth both of common and the so-called Onion Couch, with a grassy growth in one instance nearly a foot high. This was for testing the ploughs, both drawn by horses and by steam power; and a recently-ploughed fallow was also provided for the trial of harrows and rollers.

1. STEAM CULTIVATORS.—These were in the first place submitted to a preliminary canter. To each was allotted about 1½ acre in Field A—about 16 or 20 acres of comparatively light soil with a good deal of Couch among its Clover. And here accordingly, not so much for the satisfaction of judges as for that of the exhibitors, in order that their tools might prove to be in working order, there appeared:—

1. Savory's 12-horse-power double-drum engine—in which two narrow drums, about 6½ feet in diameter, surround the boiler and are worked by two cylinders alternately to and fro—the one uncoiling while the other coils the rope, which passes from the one to the other around an anchorage at the far end of the furrow, while any implement is drawn to and fro along that furrow. It is a cumbrous looking tool—its parts apparently not yet very compendiously packed; and

he whole rather adapted, as it seemed to us, for mining or quarry work, than for agriculture. The rope coils itself several strands deep upon the drums, which are capable of carrying 400 or 500 yards apiece, and thus of cultivating a furrow of that length. It here drew Howard's cultivator to and fro, and made very rapid work, thoroughly stirring and shaking the land, but leaving it with its grassy surface still too much upwards, as it grew. We may mention here that a capital testimony to the general usefulness of this engine, its adaptability to every sort of work and tool, was given by its selection by the judges for use in drawing all the tools, when they were subjected to the test of the dynamometer.

2. Savory's two engines, each with a drum around its boiler, and capable of winding on it the whole length of its rope one strand deep. They are of 12-horse power, and have been worked for a long time by Mr. Bomford, of Pitchill, near Evesham, whose labouring men, as engineers and stokers, accompanied them and worked them here. Here again rapid and successful work, but neither very deep nor very even, was accomplished with Steevens' 4-furrow plough.

3. Coleman's engine of 12-horse power, drawing his well-known cultivators, two of these tools being alternately actuated by the engine, each being drawn one half the distance, and drawn back the one to the midway of the furrow, and the other to the furrow end, while each alternately is at work. The advantage is that the pull is in every case direct, and the draught back of the empty tool is the only strain upon the anchor at the furrow end, or on the rope around it which connects the two cultivators. The disadvantage is that two tools, each requiring a man upon it, are employed, and that the rope is coiled upon rather small drums upon the engine framing. Mr. Coleman's cultivators made very thorough work.

4. Fowler's 14-horse power engine, working his large balance plough with digging breasts, made very good and excellent work indeed, striking the attention of any one walking across the field, the more for its being the first plot where the soil was wholly inverted and broken up.

5. Fowler's two nominally 7-horse power single cylinder engines, one at each end of the furrow, drawing a 3-furrow balance plough between them. Here each engine is constantly at work, and both are engaged all the time in pulling, the one directly, the other around the clip drum of "the one" as a pulley. Very good work was made; and this plan is evidently a step in advance upon the double engine system which Fowler and Savory have hitherto adopted. When two engines are employed and only one is in use at a time, each must be of greater power; and the waste by radiation is constant in the case of each, notwithstanding that each is only half its time at work. The fuel consumed must therefore be greatly in excess in the latter case. A comparison however of Fowler and Savory in this respect has not been perfectly fair here, for Fowler's engines were worked by accomplished stokers, and Savory's by agricultural labourers. The saving of coal must nevertheless be very great, and the first cost for engines of the requisite power must be considerable; and there is this further advantage—that neighbours may combine their engines, in Fowler's case, for work of any special difficulty, the engines being at the same time of just the right power for threshing purposes.

It is the slack-gear apparatus by which the rope is kept constantly tight by the draught of the plough itself that enables Fowler to adopt his double co-operating engines.

6. Howard's tools—cultivator and 4-furrow plough—were drawn by Clayton & Shuttleworth's 10-horse-power engine. His cultivator was not drawn so fast as where Savory's engine worked it, and the work, though thorough and deep, was not tossed about enough to make it a thoroughly good shatter of the land. Nothing could be better or more efficient than his ploughing.

7. Collinson Hall's linked rope, in which links of iron of a certain length are jointed and pulled by a revolving polygonal drum of the right size, was also shown, and two extremely neat and compact compendiously packed little engines, made by Turner, of Ipswich, were shown to work it—a cumbrous old timber framed 3-furrow plough of Fowler's being the tool. Unfortunately, however, the sides of the polygon were 3-16ths of an inch longer than the links! and thus the rope repeatedly broke, and Mr. Collinson Hall had it withdrawn from the competition. An extremely ingenious method of carrying the rope on polygonal frames the one within the other, so as to present the whole in sufficiently small compass, was exhibited. And no exhibitor displays more ingenuity in the devices by which the difficulties of his system are overcome, or more good nature over the failures which accident and misadventure occasionally interpose, than Mr. Hall.

We now come to Field B, of perhaps 12 acres, with a furrow apparently 400 yards long. Here Savory's double engines drew Steevens's plough to and fro and Howard's 4-furrow plough to and fro, each accomplishing one half the extent. Steeven's had by much the hardest half of the field, with a well-worn trackway down it, which he thoroughly tore up, making indeed apparently his best work there; for it was extremely rough and often half turned, over the rest of it, and exhibited a great contrast to Howard's ploughing, which was as good as it could be, laid evenly and well, with a 6 or 7 inch furrow, with only an occasional failure in the hollows of the ridges. His plough is very easily guided, and each frame of ploughs, held up by coiled springs, is kept to its work when down, not only by its own weight but by a catch, which the ploughman, either by hand or by his own weight upon his seat, thrusts underneath the axletree of the pair of wheels next to him, so that the whole of the hinder half of the framing must be lifted before the ploughs can be lifted out of work.

We now come to Field C, of about 16 acres, at least 500 yards long. Fowler's 14-horse power engine, and his two 7-horse power engines were both at work here, and made excellent ploughing from end to end of the field, and on the far side Savory's single engine with double drums worked Howard's plough. Both here and in Field B, about 4 acres apiece were allotted to the competitors. Savory's engine could not accomplish so great a length of furrow as the other. Howard's ploughing was the best in the field—as deep as any, and laid in rather narrower slices, which thus lay not so flat. The whole of the ploughing in this field was well done, 7 and 8 inches deep.

In Field D, Howard and Fowler had a racing trial over about 4 acres apiece, the one with Clayton's 10-horse power engine and a 4-furrow plough, and the other with one of his nominally 7-horse power and 3-furrow plough drawn to and from the anchor. This engine was working up to 100 lbs. and more of steam, and making from 150 to 200 revolutions per minute. The work of Howard's plough was thoroughly good—the furrow-slices were cut perfectly, laid evenly; but the plough was occasionally baulked when crossing a hard trackway. In Fowler's ploughing, also as deep and good, the edge of the furrow slice was broken, and the Clover more perfectly buried, and it was more perfectly accomplished across the roadway. Towards the end of his trial, however, the rate was too rapid for the quality of the work, which was left very rough. Fowler's 14-horse power single engine, working a 4-furrow plough at not so great a rate, made some very good ploughing in this field.

In Field E, Mr. Richardson, of Hibaldstone, worked Fowler's 8-horse power engine with separate clip drum attached in front and actuated by a rope-strap of peculiar construction. This was the apparatus for small occupations first shown at the Battersea meeting. It was working Fowler's balance plough with the digging breasts on, and it was making very excellent work. At the bottom of the field Coleman was at work with his cultivator, working across the ridges, which none of his competitors essayed to do, and intent apparently upon the quality rather than the quantity of his performance. And the best grubbing or stirring of the land accomplished by any of the rival machines at Benton, was done here by him.

In the adjoining Field F, while Coleman was quietly accomplishing good agriculture in the midst of a very foul piece of hard land, his rivals Fowler and Howard, the one under Mr. Greig's, and the other under Mr. Sutton's jockeyship, were tearing on at a racing trial, in which the former with his nominally 7-horse power engine, working up to from 110 to 120 lbs. of steam, and making sometimes nearly 300 revolutions a minute, was driving his digger with 5 tines down hill and 4 tines up hill, and the latter with a 10-horse power Clayton's engine was driving his 4-tine cultivator as fast as it could go, the engine making as many revolutions as the other, with, curiously enough, the steam indicator persistently stationary at about 55 lbs! In the course of the trial the fly-wheel of Fowler's engine, having lost its pin, flew off at the rate of 30 miles an hour, doing happily no harm either to itself or any one; and Howard's cultivator, meeting a land-fast stone, was thrown aside, and its driver, who, however, re-took his seat, was somewhat alarmed. Fowler had the steeper land. Howard accomplished his plot first, about 8 acres in 5¼ hours! and the advantage as to the quality of the work was, in our opinion, decidedly with the latter. The quality of Howard's cultivating, which is rarely sufficiently rough, is improved by its speed. That of Fowler's digging is best when slowest; speed tends to make the frame unsteady, and to diminish the depth and thoroughness of the digging.

In the last field of the steam cultivation, G—an extremely hard bit of land covered with long Grass above and matted with Couch below—Fowler's double nominally 7 horse-power engines, one at each end of a long furrow, worked his digger very efficiently. Savory's double engines worked Howard's cultivator very efficiently, without however making quite disturbance enough in the material moved, which fell back too much in its place again. And Fowler's 14 horse-power engine worked his balance-plough with three enormous digging breasts and threw the furrow-slice about in an extraordinary way.

In the whole course of these very thorough trials of the implements, no breakage of any account took place, and no accident of any importance happened.

In this last field Mr. Aveling showed his extremely simple and ingenious rope-porters at work. They are a light and high pair of wheels, sufficiently far apart, and carrying between them a light iron rod, as a gun is carried between the wheels of its carriage. This rod has a hook at one end, and a handle at the other. The wheels are wheeled over the rope as it is trailed behind the tool when leaving the engine, the hook picks it up in front of the wheels, and the handle holds it behind. It is thus attached to the rope and travels with it of itself from one end to the other of the field. One pair of wheels is thus attached by a boy at the engine at intervals of about 40 yards, and on the return journey they are easily detached as they arrive. What the labour to the engine of drawing 10 or 12 of these light rope porters to and fro may be in the case of a wet surface of land remains to be determined; in the meantime it is a great relief to the porter boys, who are by far the hardest worked people in the steam-cultivated field, and nothing can be more effective or lighter looking than these handy contrivances for accomplishing a very important work. It must be noted that these porters will only be available on level or uniform land. When hillocks intervene, the rope might drag on the land between two distant rope-porters.

Later on in the course of the trials the harrows and drags used in steam cultivation were subjected to trial, and some very good work was made by those employed by Fowler and by Howard. Ashby's rotatory harrows were also tried across some of the ploughing which had been done by steam.

THE DYNAMOMETER.—The implements were also submitted to the test of Mr. Amos's extremely ingenious and effective dynamometer. The nature of this instrument may perhaps be somewhat apprehended from the following description:—The revolution of a revolving button pressing against the surface of a revolving disc are counted in the ordinary way by wheels. The disc is made to revolve according to the rate of movement of the tool that is being tested, and the button presses against the centre of the disc, or is pulled out to the circumference of the disc according to the strain upon the tool. When the strain is nothing, however fast the disc may revolve, the button, being at its centre, is stationary. When the strain and the velocity are both considerable, then the button counts a great deal, both because the disc revolves fast, and because the button is at the end of a long radius from the centre of the disc.

The ordinary arrangements for making the disc revolve according to the motion of the tool, and for counting the revolutions of the button, are adopted, but the position of the button is regulated according to the strain, in a very ingenious way. Two horizontal pulleys, 18 feet apart, are fastened on to a stationed horizontal beam, and a third, so placed as to deflect the rope passing between them 12 inches out of the straight line, is midway between them. This third pulley is kept in its place by a strong spring behind it, and when the strain upon the rope is very great, it tends to push back the middle pulley against the spring. It is the deflection of this pulley which regulates the position of the button. When at rest the button stands at the centre of the disc, but it would not do for it to recede inch by inch along the radius of the disc for every inch of deflection of the pulley, because it is plain that it would need much greater increase of pull to deflect the pulley its last inch than it needed to deflect its first inch. The rapidly increasing strain needed to produce a uniformly receding pulley is however properly indicated at the disc by the successive inches of deflection upon the portion of the button being in like manner rapidly multiplied by means of a cam of suitable form so placed as to urge the button one unit outwards from the centre of the disc for every unit of pull added to the strain upon the rope. The length of furrow travelled by the tool, and the time occupied in the traverse, are both observed, and the number indicated by the counter as the combined result of speed and strain becomes a perfect indication of the labour required in the case of any tool to produce a certain result. And by means of a certain formula the quantity of horse-power engaged is known.

In this way it was ascertained that the quantity of power put forth by each engine in working itself and in working its tackle employed to draw a Fowler's 3-furrow plough at a given rate was 11½-horse power in the case of Mr. Coleman's apparatus, 20-horse power in the case of Savory's double engines, 15-horse power in the case of Howard's stationary engine, drums, and all round rope, and 13½-horse power in the case of Fowler's double engines. A further account of these experiments and others will be given hereafter.

We add here that to Mr. Fowler's double "7-horse power" engine uniting to actuate a plough between them is awarded the 1st prize of 100*l.* for the best application of steam-power to tillage. The other awards will be seen below.

Mention must be made of the cultivator and double ridge plough of Mr. Williams, of Baydon, Wilts. They did occasionally deep and thorough work, but are cumbrous and heavy tools.

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2. HORSE PLOUGHS.—In an adjoining field, which we may call "H" (a field of clean Clover stubble), some 50

ploughs were on Thursday and Friday set to work, and this seemed to be by far the most attractive part of the whole scene to the majority of visitors. Five light-land swing ploughs, 10 light-land wheel ploughs, 10 general-purpose wheel ploughs, and as many general-purpose swing ploughs; 10 heavy-land wheel ploughs, and two heavy-land swing ploughs, five subsoil ploughs, three paring ploughs, and five diggers were exhibited. Ridges were allotted to each, the men being allowed to correct with the hand the first three furrow slices, and thereafter to do the best they could with a pair of horses without correction. A furrow slice, 5½ or 6 inches by 9, 6½ or 7 by 10, and 9 or 10 by 15, was cut in the several competitions, and there never was better work done by ploughmen either at the shallow or the greater depth.

The judgment was very properly assumed to proceed upon a rectangular slice being truly cut and properly laid, the level of the subsoil being left plane and unribbed. This is in correction of the mischievous tendency which has prevailed of late years to erect the land in high-crested furrow slices, by making it deepest on the land side of the cut, so that that angle shall be acute.

The following are our notes as we walked across the land.

1. Page, of Bedford, pipe beam, light handled wheel plough; furrow about 5½ by 9 inches; slice laid on a perfectly level bottom, straight and true, without attempt at erecting a crest.

2. Cooke, of Lincoln, ploughing rather shallower, very good, level at bottom, no feathering.

3. Turner & Bishop, of Woburn, rather deeper, perfectly level; the best ploughing of the three.

4. Howard's, of Bedford (B), angle iron beam, furrow slices slightly crested; bottom hardly so level as the others, but the ploughing done the best of the four.

5. Ransomes, of Ipswich (R. N. E.,) trussed beam, perfectly level at bottom; cut slightly deeper than No. 4, and ploughed as well.

6. J. Stalker, of Penrith, not quite level at bottom; slices soon broken.

7. Hunt & Pickering, of Leicester, (G. W. O.) hardly so deep, perfect work; not so wide a furrow slice, ploughing as good as can be.

9. Gregory, of Westacre, an old-fashioned Scotch plough; work deeper and rougher, and therefore no doubt really better than the others, though it will not rank so high.

11. Gregory again; deep, wide, and rough work.

Between Nos. 11 & 12 Hancock's Digging Plough was tried, in which the furrow-slice is turned at twice, and the ground left in a beautifully worked condition, already almost perfectly tilled at one operation. It does magnificent and excellent work, and the implement may be used to turn the soil either altogether, or retaining each half at its own depth, the top being kept at top. It is only fair to say of it that it is of very heavy draught, and that neither ploughmen nor horses will much like it, and also that the trial ground was exactly the land in the state best adapted for the use of this implement.

13. Balls, of Rothwell, "Criterion" plough, made very beautiful work, neat and level at top and level below, but with a crested furrow slice, managed by under cutting on the land side.

14. Ransome (R. N. E.) perfectly level and true work both above and below.

15. Busby, of Bedale, good work and level below, perhaps a little under-cut, so as to obtain somewhat of a crest.

17. Sellar, of Huntly, good ploughing, but not level at bottom, and crested.

18. Seaman, of Worcester, work not level at bottom.

20. Howard's B B, good straight ploughing, but not level at bottom.

21. M'Gregor, of Aberdeen, not quite to the proper depth.

23. Hunt, of Leicester, under-cut on land-side, and extremely unlevel at the bottom; furrow slice excessively crested.

24. Ransome (R. N. F.) perfectly level and square, and well ploughed its full depth.

25. Busby, of Bedale, level and good ploughing.

26. Trotter, of South Acomb, a Northumberland swing plough, ploughing 7 to 8 inches deep; not quite evenly held.

27. M'Gregor, very good ploughing, but not quite level at bottom, and presenting accordingly a crested furrow-slice.

28. Howard's, also presented somewhat of a crested furrow slice, but this was the result rather of pressure into the shape, than of unlevel cutting of the slice from off the subsoil.

29. Warren's wooden beam plough, not quite level below.

31. Stalker of Penrith, very good work. Howard's 3-toothed subsoiler made very good work in the wake of this plough.

32. Sellar, Huntly, good 9-inch deep work.

33. Ransome's swing plough, work square, deep and good. Howard's digger as a subsoiler, made pretty good work here.

34. Cooke of Lincoln, very square good ploughing.

35. Armstrong of Penrith, unlevel work at bottom, some good subsoiling by Bentall here.

36. Hancock's pulveriser plough already referred to, made some very good work here.

37. Seaman of Worcester, made some high crested work, not to the full depth of the ploughing alongside, but the slices were squeezed and shattered, and the work was very well done, though it must have been laborious.

39. G. Sellar, of Huntly, did some very deep and heavy work, 10 inches deep.

41. Ransome's: furrow slices 10 inches by 15 or 16, the deepest work in the field, and furrow slices perfectly cut, and as square as possible, the bottom of the work perfectly level. The plough went from end to end of the furrow, doing this magnificent work without the handles being held, so truly had it been set.

42. Balls, of Rothwell, not full depth, very good work however, but not so deep as it should be, nor wide enough for the depth it was.

43. Hunt & Pickering: furrow slice about 7 inches deep, extremely crested.

44. M'Gregor, Aberdeen, very good, about 9-inch work, straight and broken well, rather crested.

45. Howard's: barely 10 inches, very level below and squarely cut, first rate ploughing.

48. M'Gregor, not full depth; plough not properly set, and work very uneven.

The dynamometer was used to test the strain in the case of some of the work done by these ploughs. The numbers are comparative only, obtained by a counter in the same way which has been already described:—

General Purpose Swing Plough.

	Up Furrow Draught.	Down Furrow Draught.
Howard's	29.60	25.25
Ransome	—	25.42
M'Gregor	21.3	25.54

Deep Work, 10 *inches by* 15.

Ransome, R R G	54 05	58.75
Howard, B B B	60.345	66.725

General Purpose Wheel Plough, Furrow 6½ inches by 9½.

Ransome	22.09	20.76
Howard	18.75	22.75
Busby	24.125	23.55
Seaman	23.67	20.28
Hunt	20.84	20.02
Ball	20.02	20.36

We must not conclude our account of the ploughing in this field without referring to the absence of Messrs. Hornsby as exhibitors of ploughs. On the last occasion, at Warwick, when tillage implements were submitted to the Society's trials, this firm suddenly appeared as plough makers, having adopted the convex mould-board which had been long known, especially in the carse land districts of Scotland. The decision of the judges on that occasion in favour of the high-crested furrow-slices which these convex mould-boards tend to create, placed them at once in the front rank of ploughwrights. And now, after four years of doubtless successful manufacture, they retire, refusing to submit to a judgment from competition which might possibly reverse the former decision. The case is no doubt an illustration of the commercial value of the Society's awards. But it is a pity that the award on that occasion should not have been submitted to revision by another court, for at present it appears that the private benefit of what may have been an accidental award is too considerable to be risked, notwithstanding that the subject is of public interest, and ought to lead to the public benefit.

3. HARROWS AND ROLLERS, &c.—We have now to go into another fallow field (I.) lately ploughed, in which harrows and rollers have been tried. The cultivator, roller, and harrow are tried in succession, and the judges standing by while one of these tools is drawn to and fro before them endeavour to ascertain by notes of the work and of the construction of each which is to be recommended for adoption by the farmer. Seaman's, of Worcester, in which longitudinal zig-zag bars, cross pieces of piping between them, and teeth at the intersection of both, are kept together by transverse rods passing through teeth and bar and piping, and the whole screwed up by nuts at the end of these rods, seems to unite compendious packing, strength, and simplicity in perfection; Bentall's harrows, in which the longitudinal bars are formed of angle iron for greater strength; Ransome's, in which a rivetted framework carries teeth by screw and nut and holdfast for each, every part being the counterpart of its neighbour, and any loss or wear being thus easily corrected or replaced; Williams', in which the frame is produced by the angular intersection of straight rods which would collapse in a parallel-ruler fashion, were they not kept at a certain angular divergence from one another by a transverse rod in front and another behind; Howard's, in which these longitudinal bars are crossed by repeated cross-bars, and the tines are fastened by screw head and nut to each—a washer with bent flange holding the nut fixed; and many others with waving, straight, or crooked bars respectively are here competing for the verdict of the judges. That verdict is given in the prize list below.

We can only add that besides ordinary harrows Mr. Ashby shows his rotatory harrows both under horse and steam draught and that they made good work; and chain harrows and Green's angle harrows for the same purpose, in which a surface of alternate rhomboids and hooks operates on the land over which it is drawn, are also exhibited. Ransome's flexible harrow, in which, if one row of teeth be lifted by any unusual obstacle they will *set* the succeeding row, so that it shall dig the more into the ground at that point, seems likely to be a useful tillage implement. Howards showed the Norwegian harrow, doing capital work under steam-power.

Rollers have not altered since the Warwick meeting, and, indeed, we remember Coleman's corrugated discs and Crosskill's toothed discs, the latter both of one size and of two sizes alternating, and Cambridge's simple discs—strung 10 or 15 on a single axle—so long ago as the Chelmsford Meeting, and even before then. Cultivators are not so much in competition as they might be. Dr. Ager's digging machine is exhibited—but it is not likely to come into general use, being unfit for anything but the lightest land, where there is no difficulty and no assistance beyond the tillage tools of ordinary arable culture required.

We add here the following awards by the judges of implements, which were not made known till Monday and Tuesday of the week following the trials:—

JUDGES OF IMPLEMENTS.—*Steam Cultivators.*—Messrs. D. K. Clark, C.E., H. B. Caldwell, J. Coleman, C. S Read, and F. Sherborn, Jun. *Brick and Tile Machines and Miscellaneous.*—Messrs. W. Tindal, and Gibson Martin. *Ploughs.*—Messrs. T. Dods, E. Wortley, and T. B. Outhwaite. *Cultivators, Clod Crushers, Rollers, and Harrows.*—Messrs. John Hickin and John Thompson.

PRIZES.

Iron beam plough, fitted with two wheels, Ransomes & Sims, 7*l.* 10*s.*
Plough (general purposes), James & Frederick Howard, 15*l.*
Iron beam plough, with two wheels, Ransomes & Sims, 7*l.* 10*s.*
Iron beam plough (swing), Ransomes & Sims, 7*l.* 10*s.*
Iron beam plough (swing), Ransomes & Sims, 15*l.*
Heavy land swing plough, McGregor & Humphrey, 7*l.* 10*s.*
Turf or stubble paring plough, Hunt & Pickering, 10*l.*
Patent subsoil plough, Edmund Hammond Bentall, 10*l.*

SILVER MEDALS.

Subsoil pulveriser plough, J. & F. Hancock.

HIGHLY COMMENDED.

Plough, James & Frederick Howard
Iron beam plough, Ransomes & Sims
Plough, James & Frederick Howard
Swing plough, James & Frederick Howard
Cotgrease plough, Ransomes & Sims
Two-wheeled plough, William Bushby
Excelsior iron plough, Seaman, Larkworthy, & Co.
Heavy land plough, William Ball & Son
Scotch ridging plough, Rev. Wm. F. Wharton

COMMENDED.

Iron plough for light land, William Ball & Son
Light land iron plough, Hunt & Pickering
Iron plough for general purposes, William Ball & Son
Heavy land wheel plough, McGregor & Humphrey
General purpose swing plough, McGregor & Humphrey
Subsoil plough, Ransomes & Sims
Plough, Ransomes & Sims

PRIZES.

Cultivator, E. H. Bentall, 12*l.*
Cultivator, Coleman & Morton, 10*l.*
Cultivator, Charles Clay, 8*l.*
Clod crusher, Beverley Iron and Waggon Co., 9*l.*
Clod crusher, Crosskill & Sons, 6*l.*
Clod crusher, William C. Cambridge, 5*l.*
Roller, Amies & Barford, 7*l.*
Roller, Beverley Iron and Waggon Co., 3*l.*
Harrows, Messrs. J. & F. Howard, 8*l.*
Harrows, Messrs. J. & F. Howard, 7*l.*
Harrows, Messrs. J. & F. Howard, 5*l.*

HIGHLY COMMENDED.

Cultivator, Coleman & Morton | Harrows, Ransomes & Sims
Clod crusher, Amies & Barford | Chain harrow, J. & F. Howard
Roller, Amies & Barford | Chain harrow, W. Cambridge

COMMENDED.

Cultivator, Corbett & Son | Roller, Hunt & Pickering
Roller, Hill & Smith

SILVER MEDALS.

Grain separator, A. B. Childs
American grist mill, Riches & Watts
1 set draining tools, Burgess & Key

PRIZES.

Tile Machine, John Whitehead, 5*l.*
Brick Machine, John Whitehead, 10*l.*
Brick Machine, J. D. Penfold, 5*l.*

HIGHLY COMMENDED.

Blast Delivering Apparatus for Chaff Cutters, Amies & Barford

PRIZES.

1st prize for best application of Steam Power for the Cultivation of the Soil, John Fowler, 100*l.*
2d prize for ditto John Fowler, 50*l.*
1st prize for best application of Steam Power adapted for small occupations, John Fowler, 50*l.*
2d prize for ditto, J. & F. Howard, 25*l.*
Best Plough for Steam Power, John Fowler, 20*l.*
2d Best ditto, J. & F. Howard, 10*l.*
Best Cultivator for Steam Power, John Fowler, 17*l.* 10*s.*
Steam Cultivator and Ridging Plough combined, J. & F. Howard, 12*l.* 10*s.*

SILVER MEDALS.

For improvement in the construction of Steam Plough, William Steevens
For Cultivator for Steam Power, Coleman & Morton

HIGHLY COMMENDED.

For improvements in Double Engines (Savory's Patent), Richard Garrett & Son
For Rope Porters, John Fowler
For Two-furrow Steam Plough, for extra deep tillage, J. & F. Howard

PRIZES.

Harrows for Steam Power, J. & F. Howard, 20*l.*
Best Windlass for Steam Power, John Fowler, 15*l.*
2d Best ditto, J. & F. Howard, 10*l.*
3d Best ditto, W. Savory & Son, 5*l.*
Best Anchor for Steam Power, John Fowler, 20*l.*
Rope Porter for Steam Power, Aveling & Porter, 10*l.*
Ditto, ditto, Coleman & Morton, 5*l.*

COMMENDED.

Norwegian Steam Harrow, J. & F. Howard
Rope Porters, ditto

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4. THE MACHINERY IN MOTION.—This part of the general exhibition of Implements is exhibited in a field adjoining to the main yard—the several firms taking up their stations in a continuous line around the edge of it.

The following exhibitors may be enumerated here:—

Messrs. Garrett show threshing machines with their rapidly worked fanner, sending its current of air to several different parts of the machine; the whole driven by their 8 horse-power moveable engine.

Mr. Wilson, of Lime Street, London, shows his conical stone mill at work.

Mr. Corbet, of Wellington, Salop, exhibits root pulper and washer for steam power.

Messrs. Ashby, of Stamford, show small engine, threshing machinery, chaff cutter, &c.

Messrs. Tuxford, of Boston, exhibit several engines of different power—Appold's rotary pump, traction engine, threshing machine, &c.

Mr. Williamson, of Kendal, shows threshing machines, turbine, &c.

Picksley & Sims, of Legh, show small engine, and shafting for wheels to drive bone mill, with oscillating pistons driving the contents of the hopper holding the bones up against the grinding cylinder—a very efficient tool.

Marshall, of Gainsborough, shows two engines and threshing machine.

Mr. Cranston, of 1, Temple Row, Birmingham, exhibits his patent arrangements for building and ventilating greenhouses.

Messrs. Holmes, of Norwich, show engine, saw mill, threshing machines provided with long conical Clover rubber, receiving the Clover heads and pods from the machine at its larger end, and gradually beating the seed out, delivering the whole at the lower and smaller end into elevators, which pass the whole through the winnowing part of the machine.

Amies & Barford, of Peterborough, exhibit their well-known steamers; also chaff-cutter with blast delivery of the cut chaff.

Mr. Wright, of Boston, shows cheap corn elevators, in which chain and rope netting is used in an endless web as a carrier.

Messrs. Barrett & Exall exhibit a small engine and threshing machine.

Messrs. Hornsby, of Grantham, show good engines and threshing machines, at as well appointed a stand as there is in the yard.

Mr. Barrow, of Banbury, shows Mr. Smith's, of Woolston, windlass and grubber for steam cultivation.

Messrs. Ruston & Procter, of Lincoln, exhibit two engines and threshing machines.

Messrs. Clayton & Shuttleworth, of Lincoln, exhibit a number of their well-known engines and threshing machines, also corn mills, saw mills, and traction engines.

Messrs. Richmond & Chandler, of Salford, show steam engines and chaff cutters.

Messrs. Aveling & Porter, of Rochester, exhibit their traction and travelling waggons.

Mr. Humphries, of Pershore, shows a threshing machine driven by Clayton's engine.

Bradford, of Fleet Street, shows a number of washing machines driven by a small engine.

Pollard's (late Peill's) windmill, in which the angle which the vanes present to the wind is capable of self-regulation, in order to the maintenance of a given power under varying force of air, stands in the middle of the yard, and there is ample wind for it.

Powis & James' (Victoria Works, Blackfriars Road) beautiful sawing and wood-cutting machinery is exhibited at a well-appointed stand.

Messrs Riches & Watts, of Norwich, show engines and small threshing machines, elaborate corn separator by the action of a number of screens, &c:

Weighell, of Pickering, shows a small engine and simple threshing machine.

Underhill, of Oswestry, shows a 6-horse power engine with threshing machine, saw mill, &c.

Roby, of Bury St. Edmund's, a good engine and threshing machine.

Whitehead, of Preston, powerful and elaborate double piston pipe and tile machine and pug mills.

Oldham, of Hull, bone mill driven by Roby's engine.

Pinfield, of Rugby, Ainslie's patent pipe and tile machine, in which two cylinders revolving in towards each other push the clay through the dies, and a rotatory radial set of wires cut the stream of pipes or tiles into lengths.

Hunt & Pickering, of Leicester, small upright engine, working corn crushers and chaff cutters.

Maynard's, Cambridge, chaff cutter, cutting the straw as fast as it comes from the threshing machine.

The Beverley Iron Company—engines, bone mills, corn crushers, in which the serratures on the acting cylinders have a cutting as well as crushing action given to them by the cylinders being laid obliquely to each other.

Hayes, of Elton—corn sheaf elevator.

Turner, of Ipswich, two small engines, working threshing machines and corn crushers.

Brown & May, of Devizes, small engine and threshing machine.

C. Powis—saw mill.

Porter & Co., of Lincoln, compendious, cheap, and efficient portable gas works, adapted for homesteads and houses.

The whole of these at work made a busy scene, and attracted a great company of spectators.

We have not space to give a detailed description of the Implement yard this week. The machines which have been submitted to trial by the judges are described elsewhere. The Catalogue of the Implements is hardly such a bulky volume as it has hitherto been. The leading manufacturers, most of them coming from a great distance, have been satisfied with a less abundant illustration than usual of their manufactures. And there is perhaps an unusual preponderance of stands exhibiting smaller articles of domestic use.

The judges to whom was allotted the duty of seeking out novelties for Silver Medals have given them to a grain separator and a grist mill, both of them American inventions, exhibited by A. B. Childs, of New Oxford Street; and to a set of draining tools by Burgess & Key; all of them having been exhibited for several years. The corn separator, however, is in some respects new, the multiplication of screens being now the leading feature of it; it is especially adapted for dealing on the great scale, as in mills and warehouses, with large quantities of grain. The grist mill, on the other hand, is strictly a farmstead machine. A conical longitudinally-grooved case-hardened iron core revolves within a heavy iron cover, carrying spirally arranged ridge lines approaching as near as may be to the cone. The corn is fed in at the small end and is delivered at the other end, well ground at the rate of 16 bushels an hour—requiring eight-horse power in that case to work it. It is a capital tool for turning odds and ends of threshing days to use in a barn. And it may be applied for reducing cake or any kind of grain to meal. Its cost is 25*l*.

The set of draining tools rewarded—and very worthily rewarded—by a medal, for a better does not exist, is the set known as Parkes & Co.'s.

Among the many reaping machines exhibited by different makers is one shown by Brigham & Bickerton, of Berwick, in which there is a simple attachment behind the driving wheels by which a pair of wheels draws out continually twine from a box, and cuts it off in lengths, dropping it just under the sheaf that is being swept off the platform by the revolving rakes. The ingenuity of the contrivance deserved a recompense at the hands of the judges.

Some general remarks on the implements exhibited will be found in a leading article.

THE CATTLE YARDS.

These were opened to visitors on Monday morning. The whole space enclosed (upwards of 40 acres), strikes one as unnecessarily large; the rings, especially the one where the horses are paraded, are excessively large, and the empty space is everywhere excessive. The show, in fact, is not so large as it has been for many years. If we except only the short year at Canterbury, the average entries of live stock have varied from 1400 to 2000, and the number of implement exhibitors has varied from 240 to 360. This year the live stock catalogue enumerates 1099 entries, and that of implements 260 stands. A comparatively short show, however, though it be, it is in great excess in almost every respect of the meeting of the Society 18 years ago; and the monster exhibitions which some years have witnessed are after all less instructive, *less manageable*, and not so much enjoyed as those which, being within less compass, the visitor can carry away in his mind and memory.

Comparatively small as the show of live stock is, a very large and laborious organisation is needed for its proper management. The commissariat, under Mr. Jacob Wilson's superintendence, deals with some 70 tons of straw and 20 tons of hay. This is stowed away in 14 lb. bundles and in 28 lb. trusses respectively; the latter, being cut and tied in 14 lb. and 7 lb. trussses, are collected in a yard, and a daily supply of Vetches and of Clover is also brought in. Every man in charge of stock is provided with a sheet of tickets, authorising him to receive daily 28 lb. of straw and 14 lb. of hay for every horse, cow, or bull in his charge —while 7 lb. of hay is allowed for every head of younger stock, and 14 lb. of straw and 3½ lb. of hay for every head of sheep stock. Corn and cake are either provided by the exhibitors themselves or supplied to them at a fixed tariff. Every morning and evening each man, coming in succession to the clerk in charge, hands in his ticket for what he has been authorised to receive, and a couple of men stand ready to throw out to him hay or straw, or to deliver to him Clover or Vetches at his desire. In this way in about an hour's time at either end of the day, about 10 tons of straw, 4 tons of hay, and 1600 bundles of Grass are supplied—and each day's tickets, preserved and arranged, becomes a voucher to the heads of the department of the proper administration of the material at their disposal.

SHORTHORNS.—Although some of the less important of our breeds of live stock are not so fully represented as they have been at previous meetings, nothing of the kind can be said of the Shorthorns. There never was a nobler exhibition of this the leading breed. 28 old bulls, 14 younger bulls, 33 yearling bulls, 20 bull calves, 13 old cows, 15 heifers, 28 yearling heifers, and 24 heifer calves, in all 175 head, competed for the Society's prizes—and Messrs. Wiley, Parkinson, and Robinson had not finished their labours until 2 or 3 o'clock in the afternoon. Where the three gentlemen in charge of Herefords and Devons had only two or three animals in a class on which to decide, and completed their examination in two minutes, these took more nearly two hours sometimes to decide, and long after the four or five best of the class had been selected, hesitated tediously over the final determination.

Class 1. Twenty-eight *Old Bulls*, including some animals of extraordinary merit, were first placed in the ring. The 1st prize goes to Mr. Cruickshank, of Sittyton, for FORTH, a 4½-year-old roan, bred by Mr. Stirling, of Keir. He stood first in the young bull class at Battersea, since which time he has grown wonderfully in mere mass and bulk, at the same time that he has retained his perfect evenness and symmetry of form. One of the shortest-legged animals in the yard, he carries undoubtedly the heaviest body—wonderfully fine in front and bosom, of enormous width everywhere, he is a perfect cylinder from the front for a long way backwards. He is excessively fat, but thick with firm good flesh all along the back and ribs, and enormous on the flank and bosom, but comparatively light behind.—Viscount Strathallan takes the 2d prize for FOSCO, a long white bull, possessing with excellent quality of flesh great depth of body both in front and behind. He had been previously exhibited at Perth, where he took the Challenge Cup for the best bull in the yard. He is more in breeding condition than FORTH, and deeper and better, especially in the hind-quarters.—The 3d prize goes to Mr. D. R. Davies, of Knutsford, for EBOR, also a roan, 3 years and 9 months old, with perfect quality of flesh, firm and yet elastic to the touch, with a well covered back and well sprung ribs.

Besides these many other good animals could be named; Mr. Linton's long and straight-backed HUGO, a dark red roan.—Lord Kinnaird's PRINCE LOUIS, a 3-year-old roan, with remarkably protuberant bosom, very thickly covered all along the back and rib, and highly commended at Battersea.—Mr. Peel's deep-bodied white bull HENGIST, remarkably small in the bone of the leg, with large hips, good deep twist, rather flat sided, and perhaps short in the hind quarters.—Sir M. W. Ridley's massive roan bull PRINCE LOUIS, of great and even width all along the back, perhaps not quite deep enough in the fore quarter.—Mr. Harrison's (Penrith) white bull PRINCE PATRICK, long and rather loosely put together, but with fine protuberant bosom.—Mr. Claydon's highly commended red and white bull MARQUIS CORNWALLIS 2D, straight and deep, with great hips, deep twist, and heavy flesh. Nearly the whole class might well have been commended as a collection of magnificent specimens of the breed. If one is to be singled out as especially inferior to the rest it was No. 11, exhibited by the Rev. J. Storer, of near Daventry, PATERFAMILIAS, good neither in form nor quality, whose children are not likely to inherit anything good from himself, whatever they may owe to his ancestry.

The Second Class of 14 *Two-year-old Bulls*, though only one half the number of Class 1, occupied the judges for quite as long a time. The prize went to Mr. Stirling, of Keir, for ROYAL BUTTERFLY 11, bought at Colonel Towneley's sale last March for 425*l*. He is a light roan, gay-looking, large framed, young bull, better in front than behind, with a most beautiful head and countenance, of great length, wonderfully well arched ribs, good bosom, rather light in the hind quarter, and perhaps from not being right on his hind feet appearing hardly straight to the end, but slightly drooping to the tail. He was nevertheless undoubtedly the most stylish bull of the lot, and the decision in his favour was no doubt perfectly right.

The 2d prize goes to Mr. Peel for ABBOT OF KNOWLMERE, a 2½ year old roan, showing hardly the same substance and mass of body, but a very good stylish animal with perfectly true and level back, hardly so big behind as some others in the class.

Mr. Eastwood takes the 3d prize for HERO, a white bull, long, deep and massive, and thick everywhere.

No. 29, Mr. Gell's MASTER GOLDSCHMIDT, is another very evenly covered on a good frame. And No. 30, Mr. Middleborough's LORD PAM, shorter than some others, but deep and massive, was very properly commended, and with the three prize animals occupied the judges a long time in settling the order of precedence.

The Yearling Bull Class contained no fewer than 32 animals.

The first prize goes to Mr. Willis of Carperly, near Bedale, for a good roan bull, BARON CROSSLEY, a large and massive animal, of great width forwards. The second prize is taken by Mr. A. J. Balfour, of Prestonkirk, for PRINCE EATH, of a dark rich roan colour the third prize goes to Mr. R. Booth, for PRINCE OF BATTERSEA, rather a smaller animal than some others in the class, and in our opinion beaten by Mr. Fawkes's LORD SURREY, a much more massive animal, of great length and depth, and carrying a remarkably fine coat. The class was a very puzzling one to deal with, and occupied the judges nearly two hours.

Class 4, *Bull Calves*, included 20 entries. Lord Braybrooke's straight, deep, heavy flanked white bull calf VOLUNTEER takes the first prize; Mr. Booth's BRITISH CROWN, a large deep massive animal, remarkable for thick and deep fleshy hind quarters, is second; and Mr. Harrett's (Kirkwhelpington) TALLEYRAND, only six months old, is third. He is of beautiful quality, carries a good coat, is wide in front and deep behind. The whole class is a very fine one, and many of our best breeders show well in it. Mr. Fawkes of Farnley Hall, Mr. Pawlett of Beeston, Mr. Peel of Knowlmere Manor, Mr. Bowly of Siddington, Lady Pigott, the Duke of Devonshire, Mr. Atherton of Speke, and others, show excellent stock.

We come now to Class 5, the *Cows* of the Shorthorn breed, 13 large and massive animals, forming one of the finest collections of this class of the breed that has ever been exhibited. The 1st prize goes to Sir M. W. Ridley for *Evelina 4th*, a very large framed animal of great width of back, unusually good for a cow in thickness of twist and thigh, and extraordinarily level and wide all along and *across* her back. The 2d and 3d prize go to Mr. Douglas, of Athelstaneford, for two red cows of very beautiful quality. The higher prize goes to the larger animal of the two, but inferior to the other in quality forward, exhibiting a coarser shoulder and less depth and protuberance of bosom. The 3d prize cow is the finer of the two in these points, and is possessed of wonderfully fine quality of flesh. Mr. Bowley, of Cirencester, shows *Songstress*, and her daughter *Musical*, two good specimens of his capital herd in this class; and Mr. Stratton, from the same county, exhibits *Luna* and *Maid of Honour*, roan and red roan cows of good size and quality. The whole class is first-rate.

The Heifers in Calf and in Milk form a class 15 in number, and Mr. Douglas takes the 1st prize with *Pride of Athelstone*, of the very highest breeding, and of similar stamp to the cows already described. Mr. Lambert's *Queen of Beauty*, a white heifer, already a winner at the Durham county show, takes the 2d prize, and the 3d goes to Mr. Stratton's large massive grand and straight heifer *Diadem*. Mr. Eastwood's *Bampton Butterfly* and *Double Butterfly*, both dark rich roans of great size and evenness, form a beautiful pair in this class; and Mr. Dugdale's *Kent Cherry*, bred by Mr. Hales, may also be named as a great beauty.

The Yearling Heifer Class is very large and good, and occupied the judges a very long time. Mr. Foljambe's roan *Gipsy Queen* takes the 1st prize; Messrs. Mitchell's roan *Blue Belle* the 2d; and Mr. Eastwood's *Royal Butterfly's Pageant* the 3d. Besides these there are such animals as Mr. Booth's somewhat smaller heifer *Lady Fragrant*, Mr. M'Intosh's *Princess*, a *Duchess* heifer with first-rate coat, life-like bearing, well arched rib; Sir M. W. Ridley's short-legged *Lady Fanny* and many other first-rate animals in this class. Twenty four *heifer calves* next came into the ring, and were more promptly divided into two divisions, the rejected and the reserved. The first prize was ultimately awarded to Sir A. Rothschild's rather small 10 months old red heifer, wide and straight, whether looked at from above or from the side, both ground plan and side elevation representing true parallelograms, in the latter case however perched up as it seemed to us on legs a little too long for the depth of the frame above them.

The second prize goes to Lord Feversham, for a somewhat younger calf of better colour and coat, and remarkably straight to the end of back, and thereafter with as true and rectangular a hind quarter as can be.

Mr. Douglas takes the 3d prize with a large and massive heifer just short of 1-year old, *Princess of*

Athelstane. Lady Pigot is an exhibitor in this class. *Circassian Queen* carries a good coat, and is a large and well made heifer. Besides these, Colonel Pennant, Mr. Dent of Neasham Hall Farm, Mr. Wood of Stanwick, Lord Feversham, and Mr. B. Kennedy, of Ulverstone, are exhibitors, most of them of two or three in the class.

The following are the awards in the Short-horn classes. Judges :—Messrs. Parkinson, Wiley and Robinson.

SHORT-HORNED.

CLASS 1. For the best Bull, above 3 and not exceeding 6 years old.—1st, 25*l.*, Amos Cruickshank, of Sittyton, Aberdeenshire; 2d, 15*l.*, Viscount Strathallan, Perthshire; 3d, Silver Medal, D. R. Davies, of Mere, Knutsford, Cheshire. Highly Commended: John Charlesworth, of Headfield, Dewsbury. Commended: John B. Booth, Killerby; Joseph Dent, Neasham; John Clayden, Saffron Walden.

CLASS 2. For the best Bull, above 2 and not exceeding 3 years old.—1st, 25*l.*, William Stirling, M.P., Perthshire; 2d, 15*l.*, Jonathan Peel, Clitheroe; 3d, Silver Medal, Richard Eastwood, Clitheroe. Highly Commended: Robert Gell, Grimston Lodge, York.

CLASS 3. For the best Bull, above 1 and not exceeding 2 years old.—1st, 25*l.*, Thomas Willis, of Manor House, Bedale; 2d, 15*l.*, A. J. Balfour, of Whittingham, Prestonkirk; 3d, Silver Medal, Richard Booth. Highly Commended: F. H. Fawkes, of Farnley Hall, Otley. Commended: J. Charlesworth, of Headfield, Dewsbury; George Garne, Chipping Norton; R. E. Oliver, of Sholebrooke Lodge, Towcester.

CLASS 4. For the best Bull Calf, above 6 and not exceeding 12 months old.—1st, 10*l.*, F. H. Fawkes, of Farnley Hall; 2d, 5*l.*, Richard Booth; 3d, Silver Medal, Robert Hannett, of Kirkwhelpington, Newcastle-upon-Tyne. Highly Commended: Lord Braybrooke.

CLASS 5. For the best Cow, above 3 years old.—1st, 20*l.*, Sir Matthew White Ridley, Bart., M.P., of Blagdon, Northumberland; 2d, 10*l.*, James Douglas, of Athelstaneford; 3d, Silver Medal, Richard Stratton, of Wall's Court, Bristol. Highly Commended: J. Bowstead, of Beech Bank, Penrith. The Class generally commended.

CLASS 6. For the best Heifer, in Milk or in Calf, not exceeding 3 years old.—1st, 15*l.*, James Douglas; 2d, 10*l.*, William Lambert, Haydon Bridge, Northumberland; 3d, Silver Medal, Richard Stratton. Highly Commended: R. Eastwood, of Thorney Holme. Commended: Richard Eastwood, Adam Dugdale, of Rosehill, Burnley; A. J. Balfour, of Whittingham, Prestonkirk; William White, of Barrell, Bedale.

CLASS 7. For the best Yearling Heifer.—1st, 15*l.*, G. S. Foljambe, Worksop; 2d, 10*l.*, A. & A. Mitchell, of Allon, Clackmannan; 3d, Silver Medal, Richard Eastwood, of Thorney Holme. Highly Commended: Richard Booth, of Warlaby; W. R. Brometh, of Cockeford, Tadcaster; the Duke of Montrose. Commended: A. & A. Mitchell, of Allon; David M'Intosh, of Havering Park, Romford.

CLASS 8. For the best Heifer Calf, above 6 and under 12 months old.—1st, 10*l.*, Sir A. de Rothschild, Bart., Tring; 2d, 5*l.*, Lord Feversham; 3d, Silver Medal, James Douglas, of Athelstaneford, Drem. Highly Commended: T. E. Pawlett, of Beeston, Sandy; Sir A. de Rothschild. Commended: John B. Booth, of Killerby; Lady Pigot, of Branches Park; John Wood, of Stanwick Park; Richard Eastwood.

HEREFORDS.—We now come to much smaller classes—the awards of the judges attracting comparatively few spectators—and on both grounds perhaps the order of precedence being more rapidly awarded. Forty-three head are here arranged in 8 classes—five old bulls, three younger bulls, six yearlings, and five calves, seven cows, six heifers, five yearlings, and six calves. The breed is very well represented. The 1st prize in the *Old Bull* Class goes to Mr. Taylor, for TAMBARINE, a very thick fleshed short-legged massive animal, which had already won many distinctions, having been first in the 2-year old class at Worcester, and first both at the Wells and Exeter meetings of the Bath and West of England Agricultural Society. The 2d prize goes to Mr. Meredith, for SUNBEAM. Besides this we have Mr. Turner's BOLINGBROKE, with not so straight and even a back as its successful competitor; and General the Hon. A. N. Hood's GARIBALDI, also some what defective—not quite true in the back, and a little hollow behind the shoulder.

Of the three 2-year old Bulls Mr. Baldwin's BATTERSEA takes the 1st prize, as he had done before at Battersea, as a bull calf, and at Ludlow and Hereford the same year—being again 1st at the Exeter show of the West of England Society last year, and 2d at the Worcester meeting as a yearling; and 2d this year at Bristol: he is a very level, true, and even grown animal—thick, with good meat along the ribs and back, where thick meat is wanted—he is of great depth in front, and not so fat as some of the stock is shown in some of the classes. Mr. J. M. Read's PEREMPTORILY, which stood 1st at Cheltenham the other day, is here passed over. Mr. Pitt's SAN JACINTO, which takes the 2d prize, is a very even well-made bull, rather light behind, but thick over loin and under flank. In the yearling class Mr. Duckham takes the 1st prize easily with COMMODORE, 1st at Bristol and at Newport, a wonderfully arched rib and back, both thickly covered. He is a grand and massive animal, standing on fine small legs. Mr. Wright's LION takes the 2d prize. Five bull calves are shown. Mr. Wright again takes the prize with SIR JOHN, not a very large calf, but with good hindquarters and flank.

In the *Cow* Class Mrs. Rea shows a capital pair of large-framed cows, for which she takes the 1st and 2d prizes; both of these had been shown last year at Worcester, where the 2d prize cow here was second in her class, and the 1st prize cow here was one of the best pairs of cows. Mr. Read's cow *Theora* is rather too fat. Mr. Pitt's light red *Sunshine* (Commended) is one of the most beautiful animals in the yard for fine shoulder and bosom. The *Heifer* class contains six entries. Mr. Baldwin's *Duchess of Bedford* 2d, 1st prize, was 2d in her class at Worcester, 2d at Hereford, and 2d at Bristol. Mr. Taylor, near Leominster, shows two good heifers in this class, with one of which he takes the 2d prize. Mr. Read's highly commended *Miss Southam* is a heavy-fleshed large-framed heifer, of great width and depth forward, and with good flank.

Mr. Baldwin is again first in the *Yearling Heifer* Class. His *Miss Hastings* 2d is a very even and symmetrical heifer. She was 1st in the calf class at Worcester, 1st at Bristol, and 1st at Hereford. Mr. Baldwin's stock has been extremely successful at this meeting. Major-General A. N. Hood takes the 2d prize for *Crown Princess*. The calf class contains half a dozen good specimens of the breed, of which those shown by Mr. Monkhouse and Mr. Knight are respectively 1st and 2d.

DEVONS are represented in eight classes by 34 entries. In the *Old Bull* Class, Mr. Farthing takes the 1st prize with VISCOUNT, one of the finest bulls we imagine ever shown of any age or breed. He is in the first place a very large and massive animal, placed on shorter legs than are hardly ever seen. His long, deep and symmetrical frame is covered thickly with good quality of flesh. Seen from the front so as to take in the great mass of bosom and great width and length of body, he is a very remarkable animal. Mr. Merson's 2d prize, YOUNG SALISBURY, is also a long and broad and heavy animal, somewhat light in the hind quarters and rather drooping at the rump. Both these bulls are, however, excessively fat.

The *Younger Bulls* comprise four entries. Mr. Smith's 1st prize, CONSTITUTION, is the best made up of the lot for show. He is wider, somewhat shorter and apparently thicker and fuller than the rest, but somewhat narrow and deficient in the thighs; Mr. Farthing's 2d prize, STOWEY, is a good thick and deep bull forwards, rather more slender and slighter behind.

The *Yearling Bull* Class contains only five entries, Mr. Farthing taking 1st and 2d prizes with two good Devons. Only three *Bull Calves* are shown, Mr. Turner, of Exeter, taking the prize with his 7 months old FREDERICK 2D.

There is a large class of *Cows*, Mr. Azariah Smith, near Dorchester, being 1st, and Mr. Farthing 2d. The former is a very large-framed heavy cow, and, being successful in a very large and good class, this is the greater distinction. Mr. Smith also takes the 3d prize, and the whole class is commended.

In the *Older Heifer* class five entries appear, Mr. Farthing and Mr. Hambro being 1st and 2d. The *Yearling Heifers* include five entries, of which two are from Windsor, and the Hon. A. N. Hood takes the 1st prize with one and is commended for the other. Mr. Turner, of Exeter, takes the 2d prize. Mr. Farthing is the only exhibitor of heifer calves; the oldest of these takes the prize.

The SUSSEX breed is arranged in four classes, and represented by 13 animals, Messrs. Marshall and Jenner being the only exhibitors. The former takes one 1st and three 2d prizes, the latter three 1st and one 2d prize. Mr. Marshall is, besides, highly commended twice, and Mr. Jenner is highly commended once. Thus 11 out of the 13 animals are distinguished, and this, being by judges of Herefords and Devons, is a very high honour to the breed.

The old bulls are altogether coarser looking animals than the Devons, neither equal in symmetry of frame nor in quality of flesh. A good Sussex bull is in fact to all appearance a large-boned coarse Devon. Mr. Jenner's 1st prize cow is a large, well made, good dairy looking cow, and in useful dairy condition.

The judges of Herefords, Devons, and Sussex stock are Messrs. Franklyn, Keary, and Gough, and the following are the awards :—

HEREFORD.

CLASS 9. For the best Bull, above 3 and not exceeding 6 years old.—1st, 25*l.*, W. Taylor, of Showle Court, Ledbury; 2d, 15*l.*, J. Meredith, of The Hildre, Shrewsbury. Highly Commended: J. A. Hollings, Ross.

CLASS 10. For the best Bull, above 2 and not exceeding 3 years old.—1st, 25*l.*, John Baldwin, of Luddington, Stratford-on-Avon; 2d, 15*l.*, George Pitt, of Chadnor Court, Dilwyn, Herefordshire.

CLASS 11. For the best Bull, above 1 and not exceeding 2 years old.—1st, 25*l.*, Thomas Duckham, of Baysham Court, Ross; 2d, 15*l.*, Edmund Wright, of Halston Hall, Oswestry.

CLASS 12. For the best Bull Calf, above 6 and not exceeding 12 months old.—1st, 10*l.*, Edmund Wright; 2d, 5*l.*, T. S. Bradstock, of Cobrey Park, Ross.

CLASS 13. For the best Cow, above 3 years old.—1st, 20*l.*, Louisa Rea, of Westonbury, Pembridge; 2d, 10*l.*, Louisa Rea. Commended: George Pitt.

CLASS 14. For the best Heifer, in milk or in Calf, not exceeding 3 years old.—1st, 15*l.*, John Baldwin, of Luddington; 2d, 10*l.*, James Taylor, Leominster. Highly Commended: J. M. Reed, of Elkstone, Cheltenham.

CLASS 15. For the best Yearling Heifer.—1st, 15*l.*, John Baldwin; 2d., 10*l.*, to Major-General the Hon. A. N. Hood.

CLASS 16. For the best Heifer Calf, above 6 and under 12 months old.—1st, 10*l.*, J. Monkhouse, of the Stow, Hereford; 2d, 5*l.*, A. R. B. Knight, of Downton Castle, Ludlow. Commended: Philip Turner, of the Leen, Pembridge.

DEVON.

CLASS 17. For the best Bull, above 3 and not exceeding 6 years old.—1st, 25*l.*, Walter Farthing, of Stowey Court, Bridgewater, Somersetshire: 2d, 15*l.*, J. Merson, of Brinsworthy, North Molton.

CLASS 18. For the best Bull, above 2 and not exceeding 3 years old.—1st, 25*l.*, J. A. Smith, of Bradford Peverill, Dorset; 2d, 15*l.*, Major-Gen. the Hon. A. N. Hood, Windsor. Commended: Walter Farthing.

CLASS 19. For the best Bull, above 1 and not exceeding 2 years old.—1st, 25*l.*, Walter Farthing; 2d, 15*l.*, Walter Farthing. Commended: G. Turner, of Beacon Downs, Exeter.

CLASS 20. For the best Bull-Calf, above 6 and not exceeding 12 months old.—1st, 10*l.*, George Turner.

CLASS 21. For the best Cow, above 3 years old.—1st, 20*l.*, J. A. Smith; 2d, 10*l.*, Walter Farthing. Highly Commended: J. A. Smith, of Bradford Peverell, Dorchester. The class commended.

CLASS 22. For the best Heifer, in milk or in calf, not exceeding 3 years old.—1st, 15*l.*, Walter Farthing; 2d, 10*l.*, Charles Hambro, of Milton Abbey, Blandford.

CLASS 23. For the best Yearling Heifer.—1st, 15*l.*, Major-General the Hon. A. N Hood; 2d, 10*l.*, George Turner, of Beacon Downs. Commended: Gen. the Hon. A. N. Hood.

CLASS 24. For the best Heifer-Calf, above 6 and under 12 months old.—1st, 10*l.*, Walter Farthing.

SUSSEX.

CLASS 25. For the best Bull, above 1 and not exceeding 6 years old.—1st, 10*l.*, George Jenner, of Parsonage House, Udimore, Rye; 2d, William Marshall, of Manor House, Bolney, Cuckfield.

CLASS 26. For the best Cow, above 3 years old.—1st, 10*l.*, George Jenner; 2d, 5*l.*, William Marshall. Highly Commended: George Jenner.

CLASS 27. For the best Heifer, in milk or in calf, not exceeding 3 years old.—1st, 10*l.*, William Marshall; 2d, 5*l.*, George Jenner. Highly Commended: William Marshall.

CLASS 28. For the best Yearling Heifer.—1st, 10*l.*, George Jenner; 2d, 5*l.*, George Jenner. Highly Commended: William Marshall.

CHANNEL ISLAND Stock is exhibited in considerable number of excellent quality, chiefly by Mr. Dumbrell, of Ditchling, Sussex, a large dairy farmer for the Brighton market, who milks probably a larger stock of Guernsey cows than any other man in the country. He exhibits no fewer than 9 animals out of the 20 which are shown, and he takes all the 1st prizes and two 2d prizes, besides a high commendation. They are very beautiful dairy stock. His bull, of a dark and light brownish grey colour, takes the 1st prize. His cow, one of the largest in her class, takes the 1st prize; both his heifers are in like manner rewarded.

The NORFOLK POLLED BREED is very well represented—long, heavy, large, and useful stock they are; great massive red bulls, large and roomy cows, and a capital class of heifers, they are one of the best illustrated breeds here. Lord Sondes, Sir E. Kerrison, and Sir W. Jones divide the prizes among them, and we are greatly indebted to them for continually at these shows keeping before us the quality of one of the most useful dairy breeds in the country.

We now come to Scotch breeds; and first of the AYRSHIRES: two old bulls, six younger bulls, seven cows, eight heifers, and eight yearling heifers, competed for the prizes. They constitute a very fine show of the breed, the female classes being especially good, and the older heifers perhaps the best of all illustrative of the breed. In this class the Duke of Hamilton takes the 1st and 2d prizes with two of the larger and more Short-horn like of the class, with horns pointing upwards, no black points, a lighter red and white, and larger size than the rest.

The ABERDEEN BREED is well illustrated by the stock chiefly of Mr. McCombie, large and heavy, massive and meaty; thickest in the best parts.

The WEST HIGHLAND Classes are not well filled, few in number, and in some cases deficient in quality. Two 3 and 4-year-old bulls, two yearling bulls, and four cows were shown. His Grace the Duke of Athol takes nearly all the prizes; the herdsmen are in this case more interesting to the spectator than their stock.

GALLOWAYS are very fairly represented by seven old bulls, three yearling bulls, four cows, and four heifers. They are a very neat, well-made breed of stock, very like the Norfolk, barring the colour, which is black; and indeed, as north-country gentlemen declare, the Norfolk is just a middling Galloway of a red colour! Whatever merits, however, as a meat maker the Norfolk breed possesses in comparison with its black cousins, it is certainly superior as a dairy breed. The Galloways are a capital butcher's breed, and we are indebted to the local committee of Newcastle-on-Tyne for the prize list, which has brought out from Messrs. Roper, Shennan, Graham, and others so good a show of Galloways.

The judges of the Channel Island and other breeds are Messrs. John Hudson and Fisher Hobbs.

The judges of the Scotch breeds are Messrs. Glennie, Murdock, and Fullerton; and the following are the awards:—

CHANNEL ISLANDS.

CLASS 29. For the best Bull, above 1 and not exceeding 6 years old.—1st, 10*l.*, James Dumbrell, of Ditchling, Hurstpierpoint; 2d, James Dumbrell. Highly Commended: James Dumbrell. Commended: J. R. de Trafford, Croston Hall, Preston; James Dumbrell.

CLASS 30. For the best Cow, above 3 years old.—1st, 10*l.*, James Dumbrell; 2d, 5*l.*, Lawrence Fowler, of Little Bushey Farm, Hertford: 3d, Silver Medal, to Thomas Wilson, Shotley Bridge, Gateshead. Highly Commended: R. Eastwood, of Thorney Holme. Commended: William Parker, of Carlton Hall, Penrith.

CLASS 31. For the best Heifer in-milk or in Calf, not exceeding 3 years old.—1st, 10*l.*, James Dumbrell, Sussex; 2d, 5*l.*, James Dumbrell.

AYRSHIRE.

CLASS 32. For the best Bull, calved before the 1st of January, 1863. 1st, 20*l.*, John Stewart, of Benside Cottage, Strathaven, Lanarkshire; 2d, 10*l.*, John Stewart.

CLASS 33. For the best Bull, calved after the 1st of January, 1863.—1st, 20*l.*, William Scott, of Cranberry, Ecclefechan; 2d, 10*l.*, Duke of Hamilton and Brandon. Highly Commended: Duke of Hamilton and Brandon.

CLASS 34. For the best Cow, above 3 years old.—1st, 15*l.*, Duke of Hamilton and Brandon; 2d, 5*l.*, Duke of Hamilton and Brandon. Highly Commended: Duke of Hamilton and Brandon. Commended: David Tweedie, of Castle Mains, Crawford, Lanarkshire.

CLASS 35. The best Heifer, calved before the 1st of January, 1863.—1st, 10*l.*, Duke of Hamilton and Brandon; 2d, 5*l.*, Duke of Hamilton and Brandon. Commended: John Stewart.

SCOTCH POLLED,

(EXCEPT GALLOWAYS).

CLASS 37. For the best Bull, calved before the 1st of January, 1863.—1st, 20*l.*, Robert Walker, of Hillside House, Portlethen, Aberdeen; 2d, 10*l.*, Alexander Paterson, of Mulben, Keith, Elgin.

CLASS 38. For the best Bull, calved after January 1, 1863.—1st, 20*l.*, William McCombie, of Tillyfour, Aberdeen.

CLASS 39. For the best Cow, above 3 years old.—1st, 15*l.*, William McCombie; 2d, 5*l.*, William McCombie.

CLASS 40. For the best Heifer, calved before January 1, 1863.—1st, 10*l.*, William McCombie; 2d, 5*l.*, William McCombie.

SCOTCH HORNED.

CLASS 42. For the best Bull, calved before January 1, 1863.—1st, 20*l.* Duke of Athole; 2d, 10*l.*, Viscount Boyne.

CLASS 43. For the best Bull, calved after January 1, 1863.—1st, 20*l.*, Duke of Athole; 2d, 10*l.*, Duke of Athole.

CLASS 44. For the best Cow, above 3 years old.—1st, 15*l.*, Duke of Athole; 2d, 5*l.*, Duke of Athole.

OTHER ESTABLISHED BREEDS.

(Not including the Short-horn, Hereford, Devon, Sussex, Channel Islands, Ayrshire, Scotch Horned, or Polled Breeds.)

CLASS 47. For the best Bull, above 2 and not exceeding 6 years old.—1st. 10*l.*, Lord Sondes; 2d, 5*l.*, Sir Edward Kerrison, Bart, M.P., Scole.

CLASS 48. For the best Bull, above 1 and not exceeding 2 years old.—1st, 10*l.*, Barnabas Collins, of Hunston, Ixworth, Suffolk; 2d, 5*l.*, Lord Sondes.

CLASS 49. For the best Cow, above 3 years old.—1st, 10*l.*, Lord Sondes; 2d, 5*l.*, Lord Sondes; 3d, a Silver Medal, Sir Willoughby Jones, Bart., Cranmer Hall, Fakenham. Highly Commended: Sir Edward Kerrison, Bart, M.P. Commended: Herbert Salt, Methley Park, Leeds; Sir Edward Kerrison, Bart., M.P.

CLASS 50. For the best Heifer, in milk or in calf, not exceeding 3 years old.—1st, 10*l.*, Lord Sondes; 2d, 5*l.*, Sir Willoughby Jones, Bart. Highly Commended: Lord Sondes. Commended: Sir Edward Kerrison, Bart., M.P.

CLASS 51. For the best yearling Heifer.—1st., 10*l.*, Barnabas Collins, of Hunston, Ixworth, Suffolk; 2d, 5*l.*, Sir Willoughby Jones, Bart. Highly Commended: Lord Sondes; Commended, Sir Edward Kerrison, Bart., M.P.

THE SHEEP CLASSES.

Perhaps there is no more interesting division of the mighty and successful Agricultural Show at Newcastle than that appropriated to the Sheep. The agricultural naturalist and lover of zoology are alike interested in a collection of native animals such as we find exhibited here. It is only at the annual gathering of the Royal Agricultural Society that the majority of us have really an opportunity of forming a knowledge of the various breeds of sheep in the United Kingdom. It is not the especial privilege, nor is it within the means of us all, to travel over this varied country to acquaint ourselves with the animals peculiar to certain districts, and therefore we feel particularly indebted to the Agricultural Society of England for affording us such an excellent chance of becoming familiar with the sheep of these islands.

Under sheds U, V, W, X, Y, we find some nine sections of sheep, numbering between 650 and 670 head. The Cotswold and Shropshire Downs are in greatest force; but perhaps the show of Leicesters is as good as of any Class present. The latter, we are aware, stood high in the estimation of northern flockowners, as tups of this breed are much used with Mountain or Cheviot ewes, and thus we find a class specially confined to the "Border Leicester," a new title to many breeders from our Midland and Southern counties. Lincoln and other long-woolled sheep (not qualified to compete as Leicesters or Cotswolds) take a good position; the specimens sent for exhibition chiefly hailed from Lincolnshire and Yorkshire, a circumstance not without interest in these days of dear mutton and high priced wool. Downs are well supported by both short and long-woolled varieties. The far-famed meat-producing evenly formed Southdowns still represent the counties of Sussex, Norfolk, and Berks. The Oxford Downs are as fine a lot of sheep as can be desired, and the West Country Downs well sustain their character for size and shape. Of Cheviots, Black-faced, and other mixed breeds, there is a good assortment. The pure white fleece and countenance of the Mountain Cheviot contrast strongly with the dusky face and fleece of the Horned Mountaineer or the coal-black head of the long-woolled Scotch sheep. We don't know whether the shape or colour of the head and jacket of the mixed breed interested us most. But the animals in this class certainly lay claim to features we do not desire to see reflected in the celebrated breeds of this country.

LEICESTERS.—When we find the distant counties of Devon, Beds, and Northampton contributing Leicesters to an agricultural show in the extreme north of England, we need say but little upon the universal popularity of this valuable breed of Sheep. The estimation in which they are held is best evidenced by the wide district over which they are found, and why, may we ask, should this be so? Because an animal of small bone, compact frame, with great aptitude to fatten and come to a heavy weight, and, lastly, a valuable fleece of wool upon its back, is justly pronounced perfect, and therefore profitable.

With no less than 43 *Shearling Rams* in Class 74, the judges of Leicester sheep had no easy task to perform in bestowing the 1st prize of 20*l.* upon the most worthy of that number. This distinction fell to Mr. Borton, of Barton House, Malton, for a useful young sheep with a good chest and crest, but deficient upon the tail and leg. The same exhibitor showed three neat animals in the same class. The 2d prize was adjudged to Mr. E. Pawlett, for his compact, clean-made sheep, with wide ears and Roman nose. This gentleman also showed four comrades to his prize animal of creditable form. The Silver Medal was borne away by Lieut.-Colonel Inge, Thorpe Constantine, Staffordshire.

We next examine Class 75 (*Leicester Rams of any age*), and here let us remark upon the striking and singularly clear development of the frontal and eye bones of a really fine bred Leicester. To our mind it is one of the most telling points in this breed of sheep; it needs not a great judge to look along that rank of Shearlings first alluded to to observe a vast variety of shape and outline in the physiognomy of the different rams, and we would strongly urge the importance of the point in connection with the character of the Leicesters. Mr. Ward Creswell, of Ravenstone, Ashby-de-la-Zouch, is richly deserving the reward bestowed upon his beautiful 3 years and 4 months old ram. The flesh and fat of this animal extended a good 6 inches beyond the usual limit of flesh upon a sheep's-tail, and the ribs on either side were equally as well cased; it was otherwise with the 2d prize animal, No. 599, a 3 years and 3 months old sheep, the property of Mr. John Borton. Here any deficiency about the tail or side of the rib was amply repaired by the great width of chest and perfect shape and condition of the neck, back, and loin; to look down upon this animal reminded one of the lines of a jolly-boat. The 3d prize, a Silver Medal, was awarded to No. 605, Mr. G. Turner's shearling ram, from Beacon Downs, Exeter, Devonshire.

Five Pens of *Shearling Ewes* competed for the prizes offered in Class 76, and were examined by the judges with great patience and care, all being subjected to the closest scrutiny. The 1st prize was awarded to Mr. S. Wiley, Brandsby, York, for his pen of five growing shearlings, and Lieut.-Colonel Inge received 2d prize for five short, high conditioned animals, with good jackets, and Mr. Thomas Marris was commended for his shearling ram No. 608.

COTSWOLDS.—Class 77 included 29 *Shearling Rams* of the Cotswold breed; we cannot express our admiration of these as a class, and it is to be regretted the breeders of this highly valuable animal do not display greater willingness to exhibit the magnificent animals which they speak of and own with so much pride in their own localities.

Mr. E. Handy gets the 1st prize for his 1 year 3 months and 2 weeks old Shearling Ram No. 614; this animal has a good crest and erect head, and so has the 2d prize animal, No. 639, the property of Mr. J. Wells, of Hampnett, Northleach, whose sheep fails behind the shoulder, but has a good coat. The 3d prize goes to Mr. E. Handy. Mr. Wm. Lane, of Broadfield, near Cirencester, was deservedly commended, and we must think the animals of the Broadfield flock merit greater notice than they appear to have received at Newcastle. Mr. Beale Brown exhibits some taking rams in this class, having coats and heads good enough for the most fastidious. The rams of any age of this breed again bring honours to Salperton, Mr. Brown getting the 1st for his magnificent animal; and we are glad to congratulate Mr. Wm. Lane upon receiving the 2d prize for his fine sheep, clad in wool of superior quality to the Salperton breed. Our breeders must not forego size for quality, and we would venture to assert that had Mr. Wm. Lane's sheep exhibited more growth and carried their heads higher, he would have had more cause for congratulation. The 3d prize, a Silver Medal, goes to Thomas Beale Brown, Esq., and Mr. William Lane is commended for his creditable sheep.

Class 79 comprises 13 Pens of 5 *Shearling Cotswold Ewes*, all very creditable specimens. Mr. Thomas Wells may, we think, congratulate himself upon receiving the highest honour in this Class. No. 653, Ewes of the Broadfield flock, in our estimation are most deserving this distinction; some of the pens are somewhat uneven, and this must reconcile Mr. Lane to the position he holds here.

LINCOLN.—In the Lincoln and other Long-woolled Sheep we have 15 competitors, but many of the animals lack condition. Mr. Robert Wright, of Nocton Heath, carries off the 1st and 2d prizes, and Mr. John Lynn, of Stroxton, Grantham, both breeders from Lincolnshire, take the third honour.

The *Rams of any Age* of the Long-woolled Breed, under Class 81, were in one or two cases peculiarly striking and interesting from their enormous size and coarseness; the 1st prize, No. 685, the property of Mr. Bumpstead Marshall, of Branston, at Lincoln, was a perfect mass of fat, it was impossible to trace the line of neck or to separate the head from the huge body; the 2d prize animal, No. 687, the property of the same gentleman, was a still larger beast, and, according to estimation, would weigh as much as a Shetland or Orkney ox. Such huge sheep are not very taking, and we preferred the three pens of 5 ewes each in Class 82, in which Mr. G. F. Howard, of Temple Bruer, Lincoln, receives the 1st prize, and Mr. T. Marshall gets the 2d.

The OXFORDSHIRE DOWNS next claim our attention. The *Shearling Rams* in Class 83, numbering 23 head, are a fine lot of sheep, with plenty of size and growth; many of them appear good wool producers; others, again, are far too close and short in this material. Mr. Howard's five sheep exhibit this failing, and though they are roomy growing animals, stand too high on the leg, and are altogether too loose for our liking. The Duke of Marlborough's lot also lack compactness of form, and appear low in flesh. Mr. Geo. Wallis, of Shifford, near Bampton, Oxon, exhibits seven exceedingly praiseworthy sheep, and very properly takes a 1st, 2d, and 3d prize, with his Nos. 700 and 704, two fine animals, possessing all the characteristics of an Oxford Down, with heads of the proper shape and colour, surmounted with the correct top knot, and their bodies clothed in a fleece of a quality and substance to be admired. Six rams of this breed, and of any age, in Class 84, deserve special comment, and Mr. Wallis again steps in for a 1st and 2d.

The pens of ewes of the same flock present a most marvellous contrast. Mr. Henry Overman gets a 1st prize for shearling ewes, perfect in shape and condition, but so delicate in colour and frame that it is impossible to believe they are of the same family or flock as the before named excellent rams of Mr. Wallis; and therefore the 2d prize pen, No. 729, a thorough pure lot of Oxfordshires, appear strangely different to their neighbours from Weasenham. Mr. Overman's sheep we venture to think might quite as fairly compete in either the Shropshire or Hampshire Down Classes. Lot 728, the executors of Mr. Treadwell, of Winchendon, Bucks, are a commendable pen.

The SOUTHDOWNS commence with 29 *Shearling Rams* in Class 86; it needed much careful inspection and observation to select the prize animals from such a good collection of sheep, and therefore we are not surprised that considerable discomfort and doubt arose in the minds of many interested in the decision of the judges. The Duke of Richmond, Lords Walsingham and Radnor ran a very near race with Mr. Rigden for the honours. The Merton Hall sheep were perfect in condition and compact in frame. The 1st prize animal, No. 739, has hind quarters at least 1½ inch higher than the fore. The same fault was visible in the 2d prize ram, No. 737, from Merton likewise. The 3d place was awarded to No. 733; this struck us as being in every respect the more desirable animal, with plenty of length, flesh well put upon a fine grown frame, the only fault perhaps was a little slackness behind the shoulder. Mr. Rigden's and Lord Radnor's sheep pleased us as having more ear than either the Duke's or Lord Walsingham's animals. The older rams of this breed were splendid specimens. Mr. Waters, of Motcomb, Sussex, received the 1st, and Mr. Rigden the 2d prize.

The *Shearling Ewes* of the same flock would fascinate any man having an eye to symmetry and colour. Lord Walsingham again comes in for 1st, for his pen of high conditioned animals, although they appear again a little too low in front. The Duke of Richmond receives the 2d prize for his even pen, and Lord Radnor is highly commended for as fine a pen of shears as could be desired. We must report our admiration of the Coleshill breed.

SHROPSHIRE.—With no less than 46 *Shearling Rams* in the Shropshire breed, the patience of the judges again was taxed to the utmost. Perhaps a finer collection of these sheep was never before witnessed. The ruling feature (wool) influenced the decision of the authorities very properly. All close-woolled animals, no matter how good their frame might be, had to succumb to the fuller fleece, and therefore No. 784, Mr. Thornton, of Pitchford, Shrewsbury, received the highest distinction for his 1 year, 3 months, 1 week old sheep; Mr. Matthews, of Mountford, Shrewsbury, the 2d; and Mr. John Coxon, of Freeford, Staffordshire, 3d. Mr. Byrd, of Stafford, for "Canterbury," and Mr. Smith, of Sutton Maddock, Shropshire, were highly commended; together with Mr. Mansell, of Adcott, Shrewsbury.

Shropshire Rams of any other Age.—Mr. Coxon gets the 1st for a 2 years and 3 months old sheep; Mr. P. W. Bowen, of Strawardine Castle, Shrewsbury, 2d; E. Holland, Esq., M.P., most deservedly highly commended for his good animal "Patentee the 4th;" and Messrs. Simpson, of Spofforth, Wetherby, Yorkshire, and J. Hanbury Bradburne, Lichfield, are likewise highly commended.

The *Shearling Ewes* of this breed are very excellent. Mr. Matthews receives the 1st prize, Mr. H. Smith 2d, and E. Holland, Esq., 3d. Lord Wenlock and Messrs. James and Edward Crane are highly commended.

HAMPSHIRE and other short-woolled sheep, not qualified to compete as Southdowns or Shropshires, are shown in three classes. Mr. W. B. Canning, of Elston, Devizes, takes a 1st Prize for a ram of splendid quality. Mr. Stephen King gets a 2d, and this gentleman is again highly commended for his ram, No. 844, from Bockhampton, Lambourne, Berks. In the older rams of the Hampshire breed we are glad to see Mr. Humfrey, of Oak Ash, near Wantage, in his old place, with 1st prize; Mr. Rose, of Zeals Green, Wiltshire, receiving the 2d. Mr. Humfrey is again commended for his exceedingly useful sheep. The prizes for shearling ewes in the same flock go, 1st, to Mr. W. B. Canning, 2d to Mr. Humfrey, and Mr. King is commended.

MOUNTAIN CHEVIOTS, included in Class 84, present a strange contrast to the fore-named breeds of sheep; the advantage of encouraging a breed of sheep so very different from the varieties now universally admired must depend wholly on their hardiness and the circumstances of their district. Their frames appear

loose and ill-adapted to carry meat, and the wool is of indifferent quality, and the animal savours far too much of the profitless sheep of the East to please us; at the same time we must allow the specimens exhibited at Newcastle show that some care has been devoted to the rearing and selecting animals of superiority, as the lots before us vary extremely in condition and character. Thus for instance, Mr. T. Elliot's, of Jedburgh, *Shearling Ram*, is very superior to many around him, and pleases one with his snowy whiteness and aquiline nose and length of tail. No. 878 again is a more pleasing looking ram.

The *Older Sheep* of this breed possess some redeeming points. No. 882 has a most elegant head and aristocratic profile, and is a long roomy sheep. 886 and 877 must certainly have strayed into the show yard, for they never could have reached their present condition excepting by hard living.

The *Ewes* of this flock are clean and white as could be seen some are roomy, but all too loose to recommend themselves to us.

The BLACK-FACED *Shearling Rams* in Class 98, demand more notice, and in every respect command our attention. It is impossible to regard these animals otherwise than as the natural and proper denizens of the mountainous regions which they inhabit; their dark countenances adorned with horns, as formidable as they are perfect; fleeces long and full, of dark hue, screen any fault there may be in their frame, so that the animals appear perfect, and certainly may be styled wonderfully handsome, and correct objects for the pencil of our greatest artists; the 1st prize, 897, is a magnificent animal, so also is 895, the coat of the latter is immense. In Class 99, the rams of any age of the mountain breed, 909, the 1st prize, a sheep of 5 years and upwards, the property of Mr. Ward, of Forest Hall, Kendal, Westmoreland, is a perfect picture; the 2nd prize, 907, is also a splendid animal, and perhaps surpasses his neighbour in the length and weight of his jacket.

The *Shearling Ewes* of the same family are peculiarly interesting and taking, with their elegant and pretty spotted countenances. Classes 121 to 127 are made up of Border Leicesters and Herdwicks, the breeds before referred to.

The following is the prize list of the Sheep Shows:—

LEICESTER.

CLASS 74. For the best Shearling Ram.—1st, 20*l*., John Borton, of Barton House, Malton, Yorkshire; 2d, 10*l*., to T. E. Pawlett, of Beeston, Sandy; 3d, Silver Medal, to Lieut.-Col. William Inge, of Thorpe Constantine, Tamworth. Highly Commended: John Borton.

CLASS 75. For the best ram of any other age.—1st, 20*l*., R. W. Creswell, Ravenstone, Ashby-de-la-Zouch; 2d, 10*l*., R. W. Creswell; 3d, Silver Medal, George Turner, of Beacon Downes, Exeter. Highly Commended: George Turner. Commended: R. W. Creswell.

CLASS 76. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 15*l*., Samuel Wiley, of Brandsby, York; 2d, 10*l*., Lieut.-Col. William Inge. Commended: Thomas Morris, of The Chase, Ulceby, Lincolnshire.

COTSWOLD.

CLASS 77. For the best Shearling Ram.—1st, 20*l*., Edward Handy, of Sierford, Cheltenham; 2d, 10*l*., John Wells, of Hampnett, Northleach; 3d, Silver Medal, Edward Handy. Commended: William Lane, of Bromfield Farm, Northleach.

CLASS 78. For the best Ram of any other age.—1st, 20*l*., Thomas Beale Browne, Salperton Park, Northleach; 2d, 10*l*., William Lane; 3d, Silver Medal, T. Beale Brown. Commended: William Lane.

CLASS 79. For the best Pen of 5 Shearling Ewes of the same flock.—1st, 15*l*., John Wells, of Hampnett, Northleach; 2d, 10*l*., William Lane. Highly Commended: William Lane.

LINCOLN AND OTHER LONG-WOOLLED.
(Not qualified to compete as Leicesters or Cotswolds.)

CLASS 80. For the best Shearling Ram.—1st, 20*l*., Robert Wright, of Norton Heath, Norton, Lincolnshire; 2d, 10*l*., Robert Wright; 3d, a Silver Medal, John Lynn, of Church Farm, Stroxton, Grantham. Highly Commended: Thomas Bampstead Marshall, of Branston.

CLASS 81. For the best Ram of any other age.—1st, 20*l*., Thomas Bampstead Marshall; 2d, 10*l*., Thomas Bampstead Marshall. Highly Commended: Robert Wright, of Norton Heath.

CLASS 82. For the best Pen of 5 Shearling Ewes of the same flock.—1st, 20*l*., R. G. F, Howard, of Temple Brever, Lincoln; 2d, 10*l*., Thomas Bampstead Marshall. Highly Commended: R. G. F. Howard.

OXFORDSHIRE DOWN.

CLASS 83. For the best Shearling Ram.—1st, 20*l*., George Wallis, of Old Shifford, Bampton, Faringdon; 2d, 10*l*., George Wallis; 3d, George Wallis.

CLASS 84. For the best Ram of any other age.—1st, 20*l*., George Wallis; 2d, 10*l*., George Wallis, Commended: John Bryan, of Southleigh, Witney; John Bryan; George Wallis.

CLASS 85. For the best Pen of 5 Shearling Ewes of the same flock.—1st, 15*l*., Henry Overman, Weasenham, Rougham; 2d, 10*l*., Duke of Marlborough. Highly Commended: The Executors of the late Samuel Treadwell, of Upper Winchendon, Aylesbury. Commended: William Hemming, of Coldcott, Moreton-in-the-Marsh.

SOUTHDOWN.

CLASS 86. For the best Shearling Ram.—1st, 20*l*., Lord Walsingham; 2d, 10*l*., Lord Walsingham; 3d, a Silver Medal, William Rigden. Highly Commended: Lord Walsingham. Commended: Lord Walsingham.

CLASS 87. For the best Ram of any other age.—1st, 20*l*., John Waters, of New Court, Eastbourne; 2d, 10*l*., William Rigden; 3d, a Silver Medal, Duke of Richmond. Highly Commended: the Earl of Radnor. Commended: William Rigden.

CLASS 88. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 15*l*.. Lord Walsingham: 2d, 10*l*., Duke of Richmond. Highly Commended: Earl of Radnor, Lord Walsingham, Sir Thomas Barrett Lennard, Bart., of Belhus Hockley, Romford; Duke of Richmond.

SHROPSHIRE.

CLASS 89. For the best Shearling Ram.—1st, 20*l*., Edward Thornton, of Pitchford, Shrewsbury; 2d, 10*l*., Henry Matthews, of Montford, Shrewsbury; 3d, Silver Medal, John Coxon, of Freeford, Lichfield, Staffordshire. Highly Commended: Sampson Byrd, of the Lees Farm, Stafford; Thomas Mansell, of Adcott, Shrewsbury; Edward Thornton, Thomas Horton, of Harnage Grange, Shrewsbury; John Coxon, of Freeford; Henry Smith, of Sutton Maddock, Shiffnal. Commended: Thomas Mansell, Edward Holland, M.P.: Sampson Byrd, Thomas Horton, Henry Smith.

CLASS 90. For the best Ram, of any other age.—1st, 20*l*., John Coxon, of Freeford, Lichfield; 2d, 10*l*., Pryce William Bowen, of Shrawardine Castle, Shrewsbury. Highly Commended; Joseph Simpson, of Spofforth Park, Wetherby; Edward Holland, Esq., M.P. Commended; John Hanbury, Bredburne, of Pipe Place, Lichfield.

CLASS 91. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 15*l*., Henry Matthews, Shrewsbury 2d, 10*l*., Henry Smith; 3d, a Silver Medal, Edward Holland, Esq., M.P. Highly Commended: James and Edward Crane, of Shrawardine; Henry Matthews, Shrewsbury: Lord Wenlock. Commended: J. & E. Crane.

HAMPSHIRE AND OTHER SHORT-WOOLLED.
(Not qualified to compete as Southdowns or Shropshires.)

CLASS 92. For the best Shearling Ram.—1st, 20*l*., William Browne Canning, of Elston Hall, Devizes; 2d, 10*l*., Stephen King, Bockhampton, Lambourne, Berkshire. Highly Commended: Stephen King. Commended: W. B. Canning.

CLASS 93. For the best Ram of any other age.—1st, 20*l*., William Humfrey; 2d, 10*l*., Christopher Rose, of Zeal's Green, Mere, Wiltshire. Highly Commended: William Humfrey.

CLASS 94. For the best Pen of 5 Shearling Ewes of the same flock.—1st, 15*l*., William Browne Canning; 2d, 10*l*., William Humfrey. Specially Commended, Stephen King.

MOUNTAIN.—CHEVIOTS.

CLASS 95. For the best Shearling Ram.—1st, 15*l*., Thomas Elliot, of Hindhope, Jedburgh, Roxburghshire; 2d, 5*l*., John McGregor, of Riggshead, Lochmaben, Dumfries; 3d, Silver Medal, Robert Boreland, of Auchencairn, Thornhill.

CLASS 96. For the best Ram of any other age.—1st, 15*l*., John Robson, of Bymass, Rochester, Northumberland; 2d, 5*l*., John Robson.

CLASS 97. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 10*l*., Robert Borland; 2d, 5*l*., Thomas Elliot; Robert Shortreed, of Attonburn, Kelso.

BLACKFACED.

CLASS 98. For the best Shearling Ram.—1st, 15*l*., William Ward, of Forest Hall, Kendal; 2d, 5*l*., Henry Walton, of Appletree Shield, West Allan, Haydon Bridge. Highly Commended: A. Wearing Long, of Mint Cottage, Kendal.

CLASS 99 For the best Ram of any other age.—1st, 15*l*., William Ward; 2d, 5*l*., George Hedley, of Otterstone Lee, Bellingham. Highly Commended: C. Summers, of Whitfield, Haydon Bridge.

CLASS 100. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 10*l*., Christopher Armstrong, of Ashgillside, Alston, Cumberland; 2d, 5*l*., John and William Dodd, of Padaburn, Rosehill, Northumberland. Highly Commended: William Ward.

THE PIG CLASSES.

To the lovers and admirers of the porcine family the exhibition of swine at Newcastle must be both interesting and satisfactory. It is the quality rather than the quantity of pigs exhibited in the 15 classes devoted to these animals which deserves our special notice, and justifies us in pronouncing this collection of stock as highly superior.

The correct outline, lengthy, low, and lusty frame, is equally as well preserved in the mammoth swine from Yorkshire as it is perceptible in the less wieldy pigs of Berkshire, and found prevailing in all the smaller breeds on exhibition here. We have still to complain of a scarcity of hair upon the carcases of many excellent animals, and are not surprised or disappointed to find the judges awarding prizes in nearly every case to pigs with the most coat, although there are specimens of hairless swine of great merit hard by. To our mind a pig forfeits all claim to distinction if it lacks coat, and we would exclude animals in such condition from all honours. This unnatural appearance in swine is purely the result of too close feeding, and sometimes breeding, and it is time steps were taken to check a state of things as unfortunate as it is unsightly.

The 1st prize boar in Class 101 (No. 969), the property of Mr. H. Harrison, of Leeds, needed but a little more hair to make him a perfect animal; his head and shoulders were excellent. No. 968, which took the 2d prize, also had a splendid head, and only wanted a tail to make him complete. In Class 102, Boars of a small white breed, Mr. Geo. Mangles received the 1st prize, for a first-class little pig, with lots of flesh; and the 2d prize went to Mr. T. Dunlop Findlay, of Easter Hill, Glasgow, for his small headed good haired animal.

The *Boars of a small black breed* were well represented by animals from Messrs. Sexton and Crisp, both exhibitors from Suffolk, the former gentleman received the 1st and 2d prize for two nice animals; they might have been more taking had hair occupied the place of the shining mixture over the bodies. The Berkshire Boars in Class 104, numbered 13. The Rev. Mr. Baily, of Swindon, Wilts, took the 1st and 2d prize with two growing useful animals; and Mr. Stewart, of Saints Bridge, Gloucester, received the 3d for his excellent little boar pig; the quality and shape of the latter animal deserved and received the highest commendation. Messrs. Sadler, J. K. Tombs, and Allender, are also exhibitors in this Class. In the next Class, for Boars not eligible for the before named Classes. No. 1009, a large white animal, fairly receives distinction.

Class 106 includes 13 Sows of the large white breed. Some of these animals are of prodigious size. The 1st prize goes to Mr. W. B. Wainman, of Carhead, Yorkshire, for his useful sow, No. 1012; the 2d prize also falls to this exhibitor's lot for an equally good animal with six bad pigs by her side; and No. 1016, Mr. John Hickman, of Hull, justly receives the 3d prize for his 2 years and 3 months old sow with 11 huge pigs at her side. Sows of the same hue, of a small breed, are well represented in Class 107. Mr. Wainman gets the first honour here; Mr. Stearn, of Wickham Market, notorious as a pig breeder, justly receives the 2d prize; and Mr. T. Dunlop Findlay, the 3d. Small sows of the black breed, hail chiefly from Suffolk; Mr. Stearn, Mr. Crisp, and Mr. Sexton, of that county, divide the honours between them.

The *Berkshires* number only 14 breeding sows; the competition in this class might have been more severe. A. Stewart, Esq., of Saint's Bridge, is justly entitled to the distinction assigned to his animals "Dido" and "Mrs. Gamp;" no pigs on the ground display more growth or quality for their age, and we must think the Saint's Bridge pigs will be heard of at future shows, and not in a position to be ashamed of. Mr. Allender receives the 3d prize for a useful sow with pigs by her side; and the Royal Agricultural College sow "Selina," is most fairly and highly commended.

The next class, for Breeding Sows not before eligible, comprise 11 animals of fair merit; the honour here goes to Mr. W. B. Wainman for another huge Yorkshire pig. Three lots compete in Class 111, for 3 sows of the large white breed, and Mr. Wainman again comes with some loose growing animals. In the two following classes, for 3 sows of the small white and small black breed, only two entries appear in each class. Colonel Douglas Pennant wins in the first class, and Mr. Sexton in the small black breed.

Class 114 includes 8 Pens of 3 sow each of the Berkshire breed. The 24 animals exhibited here are not by any means first-rate specimens of this celebrated breed. The 1st prize is gone where we should have given the 2d; and Mr. Druce, of Eynsham, Oxon, has to content himself with the inferior prize, Mr. J. K. Tombs receiving the 1st. Mr. Sadler, of Calcutt, Cricklade, shows a pen of 3 excellent sows, and the Royal Agricultural College exhibits 3 sows which do not disgrace that Institution.

The following are the awards of the judges:—

CLASS 101. For the best Boar, of a Large White Breed.—1st, 10*l*., Henry Harrison, of Cross Hills, Leeds; 2d, 5*l*., R. E. Duckering, of Northorpe, Kirton Lindsey. Commended: John Hickman, of 21, Prospect Place, Hull.

CLASS 102. For the best Boar of a small white breed.—1st, 10*l*., G. Mangles, of Givendale, Ripon; 2d, 5*l*., T. D. Findley, of Easterhill, Glasgow; 3d, Silver Medal, S. Geater Stearn, of Brandeston, Wickham Market. Highly Commended: William Parker, of Golden Lion Inn, Bradford.

CLASS 103. For the best Boar of a small black breed.—1st, 10*l*., to George Mumford Sexton, of Wherstead Hall, Ipswich, Suffolk; 2d, 5*l*., to G. M. Sexton.

CLASS 104. For the best Boar of the Berkshire breed.—1st, 10*l*., the Rev. Henry G. Baily, of Swindon, Wilts; 2d, 5*l*., the Rev. Henry G. Baily; 3d, Silver Medal, Arthur Stewart, of Saint Bridge, Gloucester. Highly Commended: George Mandor Allender, Lea Grange, Winslow, Bucks.

CLASS 105. For the best Boar of a breed not eligible for the preceding classes.—1st, 10*l*., William Bradley Wainman, of Carhead, Cross Hills, Yorkshire; 2d, 5*l*., C. W. Graham, of 1, Blackburn's Buildings, York Road, Leeds.

CLASS 106. For the best Breeding Sow of a large white breed.—1st, 10*l*., W. B. Wainman; 2d, 5*l*., W. B. Wainman; 3d, Silver Medal, John Hickman. Commended: Stephen Blakey, of Westgate, Otley.

CLASS 107. For the best Breeding Sow of a small white breed.—1st, 10*l*., W B. Wainman; 2d, 5*l*., Samuel Geater Stearn; 3d, Silver Medal, T. D Findlay, of Easton Hill, Edinburgh.

CLASS 108. For the best Breeding Sow of a small black breed.—1st, 10*l*., G. M. Sexton, of Wherstead Hall, Ipswich; 2d, 5*l*., S. G. Stearn; 3d, Silver Medal, S. G. Stearn. Highly Commended: T. Crisp, of Butley Abbey, Wickham Market.

CLASS 109. For the best Breeding Sow of the Berkshire breed.—1st, 10*l*., Arthur Stewart; 2d, 5*l*., Arthur Stewart; 3d, Silver Medal, George Mander Allender, of Lee Grange, Winslow. Highly Commended: John L. Fletcher, of the Royal Agricultural College, Cirencester, Gloucestershire.

CLASS 110. For the best Breeding Sow of a breed not eligible for the preceding classes.—1st, 10*l*., W. B. Wainman; 2d, 5*l*., W. B. Wainman; 3d, Silver Medal, Henry Keyworth, Woodhouse Moor, Woodhouse.

CLASS 111. For the best pen of 3 Breeding Sow Pigs of a large white breed, of the same litter, above 4 and under 8 months old.—1st, 10*l*., W. B. Wainman; 2d, 5*l*., John Hickman.

CLASS 112. For the best pen of 3 Breeding Sow Pigs of a small white breed, of the same litter, above 4 and under 8 months old.—1st, 10*l*., Col. the Hon. Edward G. D. Penuant, M.P., Penrhyn Castle; 2d, 5*l*., Lord Wenlock.

CLASS 113. For the best pen of 3 Breeding Sow Pigs of a small black breed, of the same litter, above 4 and under 8 months old.—1st, 10*l*., G. M. Sexton; 2d, 5*l*., S. G. Stearn.

CLASS 114. For the best pen of 3 Breeding Sow Pigs of the Berkshire breed, of the same litter, above 4 and under 8 months old.—1st, 10*l*., J. K. Tombs, of Langford, Lechlade; 2d, 5*l*., Joseph Druce, of Eynsham. Highly Commended: W. J. Sadler, of Bentham, Calcutt, Wilts.

CLASS 115. For the best Pen of 3 Breeding Sow Pigs of a breed not eligible for the preceding Classes, of the same litter above 4 and under 8 months old.—1st, 10*l*., George Maugles 2d, 5*l*., Joseph Wilson, of Manor House, Woodhorn, Morpeth

THE HORSE CLASSES.

There was no division of the Newcastle Agricultural Show which promised us more interest and pleasure than the collection of Horses. The Northern Counties have always been esteemed the breeding and rearing grounds of the best animals this country produces. If a line were drawn across the map of England which should sever the counties of Derbyshire and Northamptonshire, there is no locality south of this line, and west of Suffolk, celebrated for any particular breed of horses. It is true some of our Midland and Western Counties produce a useful class of heavy animals for agricultural and other draught purposes, yet we know of no special breed in any part of these localities that can be selected for direct comment by us. Almost every county in England doubtless rears a fair proportion of horses or ponies, but it is not in every direction that we hear of perfect and distinct varieties, and this unquestionably arises partly from natural disadvantages, and from indifference and neglect of localities.

On the hills and plains of Devonshire we find a rare breed of Ponies, deservedly celebrated for their hardi-

ness of constitution, great power and substance, excellence in shape, large bone, and wonderful endurance. The Exmoors, bred with such great care, reared and trained, as they now are, by many energetic men in that county—justly deserve the position they hold amongst the hackneys of this country. From Wales we receive large importations of Ponies and underbred Cobs, but so little attention is paid to the breeding and rearing of all descriptions of horse stock in the principality, that the breeds for which that country was so long celebrated, have degenerated rather than advanced. The counties bordering on Wales raise some useful Cart Horses, but sufficient attention is not paid by these neighbourhoods to breeding to entitle them to special distinction. Suffolk and Norfolk can vie with any county or district in the United Kingdom, in the patience and perseverance they have devoted towards maintaining and improving the valuable breed of horses for which these counties are so justly celebrated.

The original sorrel or chesnut horse of the eastern counties possesses many excellent qualities, and has so endeared itself to the inhabitants of those parts that we are proud and happy to believe the animal will never lose its colour, distinction, and characteristics. Apart from that locality we are aware the admirers of the Suffolk horse do not increase, and there is a notion that they are neither so enduring or hardy as the coarser bred draught horses of England. We prefer the animal in his native county, where we know it as active, honest, and enduring, yet we must allow the Suffolk breed has many characteristic points which require improving. The counties of Lincoln and York breed and rear probably more good horses than all the other districts of England put together; most of our best carriage horses and hunters hail from those counties, and Lancashire, Carlisle, and the counties around the Clyde are also famous for their horse stock. We therefore expected to find the Class lists at Newcastle filled with the sires, dams, and offsprings of Clydesdales, Clevelands, and the powerful draught horses of the manufacturing districts. Of the 170 horses entered, 10 competed for the 100*l.* prize offered to thorough-bred Stallions, 50 animals of various ages appeared in the classes assigned to Hunters, the Hackneys mustered only 9, and the Ponies 4. The heavy Draught horses, and those for agricultural purposes, were represented by four or five fair specimens of the Dray type, 12 pure Clydesdales, and 51 beasts of different ages for Farm use, and lastly 16 excellent Suffolks of the genuine colour and form. The absence of the valuable and powerful Clevelands caused us great disappointment, and we could wish the Classes for Dray Horses and even the Clydesdale lists also had been better filled. In the Hunter Class we were pleased to observe one or two very good Brood Mares, to our mind very superior animals to the two sires which competed for the 25*l.* prize offered for Hunter Stallions. The special prizes assigned to Hunters attracted some 25 or 30 animals of various ages and character, many of them rare samples of the true English hunter; others would have received more praise had they exhibited greater bone, and so come up to our notion of what a hunter ought to be.

The Roadsters and Hackneys did not muster very strong; still there were some good specimens of this useful stamp.

In Ponies a more miserable exhibition could scarcely be imagined; the three animals we saw on the ground were lost within the extensive ring or course staked out for exercising and exhibiting the horses.

Thoroughbreds.—The 100*l.* prize was not ill bestowed upon the sire of "Stockwell." Messrs. C. & J. Moffitt's "Laughing Stock" is not an every-day horse. We never looked upon a better middle piece, back or loin; but one objection could we make to this magnificent animal—his neck, perhaps, is somewhat short. The 2d prize horse "Cavendish" did not excel one or two of his comrades, but we think rather came behind them, with his thick and heavy shoulder. The "Knight of Avenel's" son "Sir Walter Scott," No. 390, is a beautifully topped horse, the beau ideal of an Arab in outline and head. The 3d prize was awarded to Sir Charles Monck, for his 8-year-old bay horse "Gamester," an animal with as fine a middle and well turned stern as could be found.

Hunters.—The Brood Mares in Class 54 won our heart; the 1st prize animal is the very model of a hunter's dam, long, low, and roomy, with plenty of substance. The 2d prize is a smaller animal, with a light head and neck, and well arched ribs. "Miss Ashton," an old-fashioned mare, with many good points, deserved more attention than was bestowed upon her, and the grey-tailed "Cara," No. 396, cannot be a bad one, if the adage be true that a "grey hair in a tail" betokens excellence.

Hackneys.—The two Hackneys in Class 55 we cannot extol; the bay long-backed "British Queen" we preferred when out of the shed to the sour-countenanced "Fanny."

Ponies.—The 1st prize for a Stallion Pony went to Messrs. Norman & Son, for their clever-looking "Jack;" the dark-brown cob "Glengary" we should prefer, with his big bony legs and strong frame.

Agricultural Horses.—The Class for Agricultural Stallions (not being Suffolks or Clydesdales) did not impress us very much. The 2d prize horse, No. 420, "England's Glory," the property of Mr. Matthew Read, is a really fine beast. Perhaps the animal is a little cobby in appearance, All the horses in this class deserve commendation. The 2-year old entire cart colts in the next class we did not admire, though the 1st prize animal, No. 424, certainly was marvellously big for his age.

The Mares and Foals in Class 60 were very second-rate. The old dark brown mare "Jolly," No. 429, deserved reward for the very good colt at her side. A nice 2-year old cart "filly" in Class 61 received the prize. In the next class we found but one competitor, and that a really stocky white gelding, a dray horse of the old school.

The grey 2-year old Stallion in Class 63 was worthy the distinction assigned to him, and the grey Mare with colt by her side, in the next Class, is likewise entitled to reward.

Suffolks.—We had specimens from Suffolk from Classes 66 to 69 inclusive. The 1st prize entire horse, "Talbot," the property of Mr. E. Cottingham, of Dunningworth Hall, Suffolk, is to our mind the best sample of this breed we have seen of late; his compact, neat frame is well supported on short bony legs. The ungainly, lanky quarters and thighs of this breed, are very likely to be perpetuated in colts by sires like Mr. C. Boby's "Conqueror." The mares of this breed we like the best. No. 444 is as well proportioned, nice an animal as need be.

Clydesdales.—The Clydesdale stallions well support the character of this celebrated breed. If the specimens at this show are somewhat heavier and more hairy about the legs than we expected to find them, they certainly do not lack activity, nor are deficient in action. In our opinion there is not a finer object in the horse collection than Mr. Grierson's "Benicia Boy." The head, neck, shoulders, loin, and quarters of this creature are faultless, and his frame is supported on limbs worthy the animal. It is when these mammoth Clydesdales move that one appreciates and applauds them; their action is so free, and, like a good stock, they walk or trot with apparent ease. A few such animals imported into our western and midland counties with a fair proportion of these north-country mares, would be a matter for national congratulation.

Amongst the Hunters exhibited, we must not fail to endorse the opinions of the Judges in their award to Mr. W. H. Clark, of Hook, Yorkshire; his light bay gelding "Sprig of Nobility" is an aristocratic beast. Here we have great size, substance, strong loins, fine shoulders, perfect head, powerful limbs, enough bone, and withal lots of breed. We should have no objection, though, to Nos. 485 and 490, both short-legged clean-looking animals; the whole class of Hunters were most creditable to the neighbourhood and counties around Newcastle. In the Colts and Fillies one or two superior beasts took our fancy. The 1st prize gelding, No. 499, did not strike us as deserving this honour. No. 503, a bay filly, the property of R. W. Hodgson, of Gateshead, certainly had the best frame and carcase in the class; her bone appeared a little small, but her strength and make, and withal such action, should have placed her higher up. The white-legged gelding, 502, moved cleverly and deserved all the praise bestowed upon him.

In the Roadster and Hack Classes we took much interest in, and regretted the entire animals of the first variety numbered so few. The 1st prize in the award for Hacks fell to Mr. Forster, of Gateshead, for his old-fashioned clever-looking "Multum-in-Parvo." The old horse showed work still, he made the circuit of the ring after a style not easily imitated. No. 511, a dark chesnut Cob, moved quickly, and received much praise from the bystanders.

The show of horses in Class 135, for the best pair of animals for Agricultural purposes, attracted some worthy competitors; the grey and bay geldings, No. 525, richly deserved the prize; the latter horse had not his superior in the yard. A pair of creams matched well, and moved cleverly, but we thought them somewhat under-sized. The remaining lots of horses demanded no special notice, nor do we care much for expressing opinions upon young growing animals. Enough animals have been enumerated by us to satisfy our readers that the horse stock at Newcastle was not unworthy the North and the occasion. The breeds that are not represented at this show, we trust may receive greater consideration upon a future occasion, and in directions where prizes have been withheld, we hope greater inclination will be exhibited to claim the liberal rewards proffered by the Royal Agricultural Society.

The following are the awards of the judges:—

CLASS 52. For the best Thorough-bred Stud Horse, having served Mares during the Season, 1864, and best calculated to improve and perpetuate the breed of the sound and Thorough-bred Horse for General Stud purposes.—1st, 100*l.*, C. and J. Moffitt, of Kirklington Park, Carlisle; 2d, 25*l.*, E. G. Simpson, of Leven Bridge, Yarm. Highly Commended: Sir Charles Monck, Bart., of Belsay.

HUNTER.

CLASS 53. For the best Stallion, Thorough-bred, suitable for getting Hunters, whose regular charge for serving half-bred Mares during the season 1864 has not exceeded 5 guineas.—1st, 25*l.*, Joseph Casson, of Middleton Lodge, Upsall, Edinburgh. Second prize withheld.

CLASS 54. For the best Brood Mare, with foal at foot, or in foal, for breeding Hunters.—1st, 15*l.*, John Brown, of Wigonby, Wigton; 2d, 10*l.*, William T. Scarth, of Keverstone Grange, Darlington. Highly Commended: C. Moffat, of Crosby-on-Eden, Carlisle.

HACKNEY.

CLASS 55. For the best Brood Mare, with foal at foot, or in foal, for breeding Hackneys.—1st, 15*l.*, Richard Britton, of Leeds Pottery, Leeds; 2d, 10*l.*, Francis Cook, of Thixendale, Malton, Yorkshire.

PONIES.

CLASS 56. For the best Stallion, not exceeding 14 hands.—1st, 15*l.*, Robert Norman & Son, of High Close, Aspatria, Cumberland; 2d, 5*l.*, W. and S. Hodgson, of Rodderup, Penrith.

CLASS 57.—Prize withheld.

AGRICULTURAL AND DRAY HORSES.

AGRICULTURAL.

Not qualified to compete as Suffolk or Clydesdale.

CLASS 58. For the best Stallion, foaled before Jan. 1, 1862.—1st, 20*l.*, Samuel Strickland, of Headley Hall, Tadcaster, Yorkshire; 2d, 10*l.*, Matthew Read, of Beamish Burn, Chester-le-Street, Durham; 3d, Silver Medal, Robert Orange, of Bedlington, Northumberland.

CLASS 59. For the best Stallion, foaled in the year 1862.—1st, 15*l.*, Samuel Strickland, of Headley Hall; 2d, 10*l.*, John Henderson, of Hossley Hill, South Shields.

CLASS 60. For the best Mare and Foal.—1st, 20*l.*, John B. Dixon, of Holling Farm, Ebchester, Northumberland; 2d, 10*l.*, Samuel Thompson, of Peel Hall Farm, Skipworth, Selby.

CLASS 61. To the owner of the best 2-year-old Filly.—1st, 15*l.*, John Eden, Esq., Beamish Park, Fence Houses, Durham; st, 20*l.*, Matthew Reed, of Beamish Burn.

DRAY.

CLASS 62. For the best Stallion, foaled in the year 1862.—1st, 15*l.*, William Dickman, of Lumley, Fence Houses, Durham 2d, 10*l.*, withheld.

CLASS 64 To the owner of the best Mare and Foal.—1st, 20*l.*, William Dickman, of Lumley, Fence Houses.

SUFFOLK.

CLASS 66. For the best Stallion, foaled before the 1st of January, 1862.—1st, 20*l.*, Edward Cottingham, of Dunningworth Hall, Saxmundham; 2d, 10*l.*, Charles Boby, of Alton Hall, Ipswich.

CLASS 67. For the best Stallion, foaled in the year 1862.—1st, 15*l.*, Henry Giles, of Croxton Park, Thetford; 2d, 10*l.*, William Thompson, jun., Thorpe, Colchester.

CLASS 68. For the best Mare and Foal.—1st, 20*l.*, Sir T. B. Lennard, Bart., of Belhus Aveley, Romford; 2d, 10*l.*, Sir Edward Kerrison, Bart., M.P., Suffolk.

CLYDESDALE.

CLASS 70. For the best Stallion, foaled before January 1, 1862.—1st, 20*l.*, Anthony Grierson, of Kilhead, Annan, Dumfriesshire.

CLASS 71. For the best Stallion, foaled in the year 1862.—1st, 15*l.*, David Riddle, of Kilhowie, Duntocher, Dumbartonshire; 2d, 10*l.*, Robert Moffat, of Dormansteads, Brampton, Cumberland.

CLASS 72. For the best Mare and Foal.—1st, 20*l.*, James Marr, of Alderstone, Mid Calder; 2d, 10*l.*, John Muir, of Lockfergus, Kirkcudbright.

CLASS 73. For the best 2-year-old Filly.—1st, 15*l.*, Duke of Hamilton and Brandon.

STOCK JUDGES.

Thoroughbreds and Hunters.—J. Cookson, H. Thurnall, C. N. Nainby.
Hackneys and Ponies.—C. Bedford, Hon. G. Lascelles.
Agricultural and Drays—T. Brooks, G. Botham, J. H. Bland.
Suffolks and Clydesdales.—H. Crosse, J. Steedman.
Leicesters and Lincolns.—J. B. Thompson, L. Borman, T. Greetham.
Cheviots, Border Leicesters, Black Faced, and Herdwicks.—W. Aitchison, William Smith, J. Bowstead.
Cotswolds.—J. H. Bateman, R. Lord.
Oxford and Hampshire Downs.—F. Budd, R. J. Newton, E. Little.
Shropshire.—J. Woods, J. Price.
Southdowns.—J. H. Fookes, J. S. Turner, P. Purvis.
Pigs.—J. Woolf, D. Nesham, J. Moon.
Wool.—T. Clayton. Jason Gurney.
Butter.—F. Hannam, J. Marshall.
Inspector of Shearing.—S. Druce.

VETERINARY INSPECTORS.

Professor Simonds. | Professor Varnell.
Assistant.—R. L. Hunt.

APPEARANCE OF CROPS.

DEVONSHIRE: *Tawstock, North Devon, July* 13.—Wheat: doubtful average, ear much infested with insects, occasional thin fields. Barley: good; where early sown on free soils in fair condition, not otherwise. Oats: short; season too dry and warm for. Hay: light, well saved. Potatos: finer than known for many years, no disease as yet. Swedes: good; regular full plant. Common Turnip: seed time too recent to judge. Mangel: irregular, backward. Want rain.

FIFESHIRE: *Grange, Kinghorn.*—I have to state that the crops in this district as a whole are light, as the heather has of late, though very dry, been very ungenial and barren, consequently crops have not progressed favourably. Wheat, Barley, and Oats, all under average. Beans, full average. Potatos under average and late. Early sown Turnip, irregular; late sown, promising. Harvest from present appearance will be at least 10 days later than last year. *Walter Veitch.*

FORFARSHIRE: *Ferryden Farm, Montrose, July* 16.—I am sorry I cannot report more favourably of the crops in this quarter; they have suffered greatly for want of rain, there will not be half the bulk of last year. Wheat is thin on the ground, but may yield pretty well, having had favourable weather for flowering. Barley considerably under an average. Oats very deficient, too short to be cut by the reaper. Potatos blanky, and looking very bad what has grown. Turnips much in want of rain, on several farms have required to be resown. Hay about half a crop, but quality excellent, having had fine weather for making it. *Alex. Bell.*

Notices to Correspondents.

RUST ON WHEAT: *A Subscriber.* We fear there is no help for your friend, but a well grown and vigorous crop is probably less liable than another to the mischief, and so far good agriculture may diminish the liability to rust. The works of the Rev. M. J. Berkeley, his writings on the diseases of plants, contain all that is known on the subject.

WILD FLAX: *Sub.* Next week.

ERRATUM: *Essex Crop.* The last line of Mr. Hardy's report last week, on the appearance of the crops, should read 3 quarters, 4 bushels, 1 peck, 3 quarts, and not 3 quarters only.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S MEETING AT NEWCASTLE, 1864.

STANDS 98 & 213.

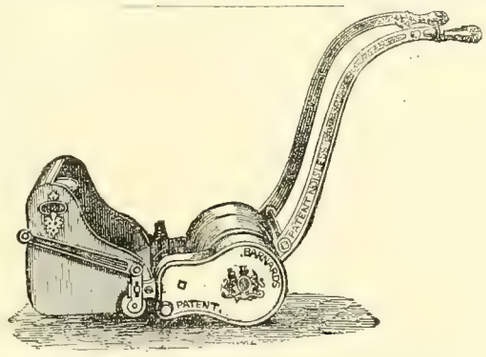
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BARNARD'S NOISELESS LAWN MOWER.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

This MACHINE differs from all other Lawn Mowers, in being constructed without either Gear-wheels, Chains, or Levers, the power being transmitted to the Cutters by a loose intermediate wheel, with an India-rubber tyre, which is placed between a plain-faced driving wheel and pinion; it is very certain in action, and at the same time so simple that it cannot be deranged.

When the MACHINE is drawn back, the intermediate wheel throws itself out of work, and the Cutters cease to rotate. The Cutters have steel on both sides, and when blunt can be reversed, bringing the sharp edges forward. It is perfectly noiseless, both in its forward and backward action, and works with considerably less power than any other Machine for the purpose yet introduced.

The India-rubber tyre will last from one to two seasons, and can be replaced at a cost of a few pence. An extra tyre is sent with each Machine.

The iron work of Grass-box is Galvanized, which prevents its being destroyed by rust, to which this part is so liable from its contact with damp Grass.

The Miniature Lawn Mower, Cuts 8 inches .. .. £2 10*s.* 0*d.*		
	Suitable for the very smallest Grass plots or Edgings.	
To Cut 10 inches.	This can be worked by a Lady	3 5 0
To Cut 12 inches.	Suitable for one person	4 10 0
	The 12 inch and all larger sizes have the drum or roller divided in two parts for the convenience of turning.	
To Cut 14 inches.	Suitable for One Man	5 0 0
To Cut 16 inches.	Suitable for One Man	6 0 0
To Cut 18 inches.	Suitable for Man and Boy	6 10 0
To Cut 20 inches.	Suitable for Man and Boy	7 0 0
To Cut 22 inches.	Suitable for Two Men	7 10 0

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

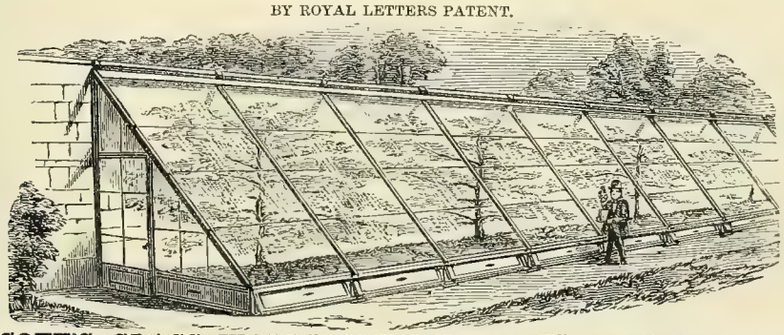
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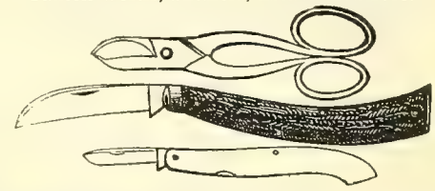
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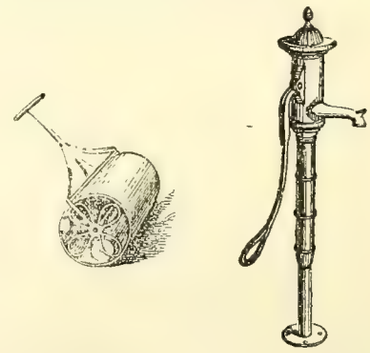
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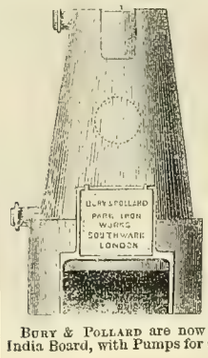


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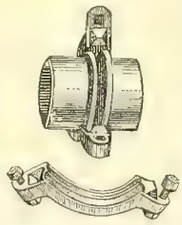
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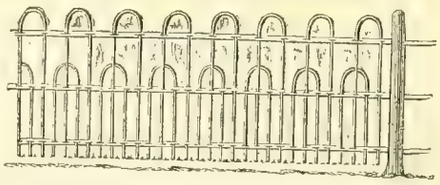
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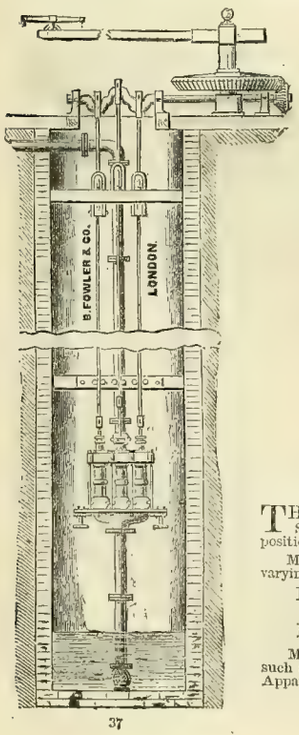
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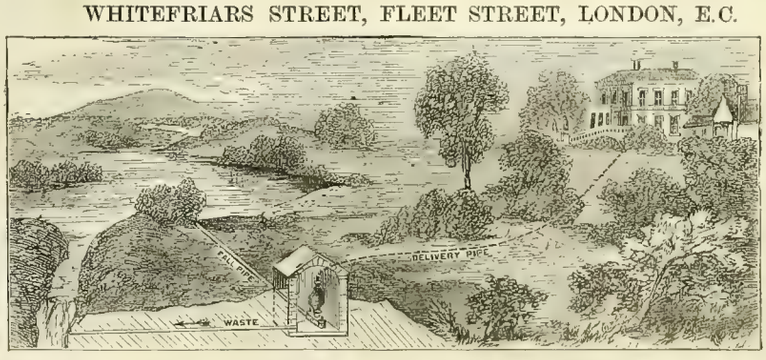
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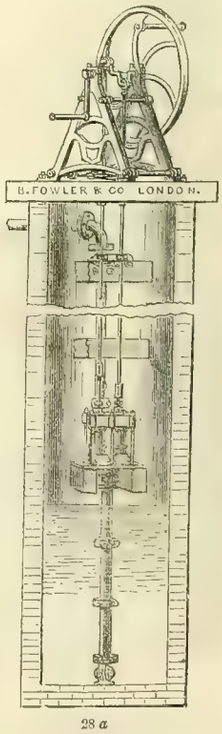
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The public are respectfully cautioned against worthless imitations, and should see that Lea & Perrins' Names are on Wrapper, Label, Bottle, and Stopper.

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*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. Crosse & Blackwell; Messrs. Barclay & Sons, London, &c.; and by Grocers and Oilmen universally.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by

Dinneford & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period without pain or any inconvenience.—Forward address on a stamped envelope to W. Goodall, Esq., Epsom, Surrey.

300 Acres Stock and Corn Land in a South Midland County.

TO BE DISPOSED OF, the Remaining Fifteen Years of a Lease. The House is a modern erection suitable for a gentleman; the larger portion of the Farm Buildings have been newly rebuilt. The Land having been put in a good state of Cultivation a Premium will be required. Immediate possession may be had.

Further particulars on application by Letter to B. C. D, Messrs. Howes, 7, Thavies Inn, Holborn Hill, London, E.C.

NORTHERN TERRITORY of SOUTH AUSTRALIA.—FINAL SALES of COUNTRY LANDS. 250,000 acres, half to be Sold in Adelaide, half in London. Land Sale of 125,000 acres in London under the Act. The allotments of the Preliminary Land Sale in London having been all disposed of, notice is hereby given, in conformity with the above-named Act, and the regulations in force, that on the 7th day of June, and subsequent days, LETTERS of APPLICATION, accompanied by the corresponding receipts of deposit, previously paid into the Bank of England to the account of the Agent-General of South Australia, will be receivable at this office from persons willing to purchase land at 12s. per acre in the present Land Sale, which consists of 781 allotments, each allotment containing 160 acres of country land, the deposit being 20l. per allotment.

For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.

The following printed papers, in connection with the present sale, may be obtained at this office, viz.:—

1. Copies of the Act and regulations, with directions.
2. Form for paying the deposit at the Bank.
3. Form of letter of application, enclosing the Bank deposit receipt.

G. S. Walters, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.

No. 5, Copthall Court, London, E.C., April 30, 1864.

N.B. The land orders to be issued in London are transferable by endorsement.

The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.

All future sales will take place in the Colony by public auction, at the upset price of 20s. per acre.

Sales by Auction.

Importation of Orchids

From the Ornithological Society's Agent in Costa Rica and other parts, and 50 fine established Orchids from one of the Oldest Collections in the Country.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 26, at half-past 12 o'Clock precisely, by order of G. U. Skinner, Esq., who has received per "Tasmanian," a small CONSIGNMENT of PLANTS from Guatemala, and a few BARKERIAS, which arrived in a former packet, with the first collection made by the Ornithological Society's Agent in Costa Rica, all in excellent health; and Mr. Skinner offers them without reserve for whatever they may fetch. He begs to call the attention of Amateurs to the CATTLEYAS in particular, being two distinct habitats of many hundreds of miles apart, and very apparent in the form of the pseudo-bulbs.

A small importation from India of VANDA ROXBURGHII, also 50 fine established ORCHIDS, in the best possible health, from one of the oldest established collections in the country, comprising amongst many others fine varieties of Cattleya Ruckeri, Phalænopsis Schilleriana, Aerides Lobbii and Warneri, Cypripediums, Vandas, &c.

On view the Morning of Sale, and Catalogues had.

Warwickshire.

MR. MARSH has been favoured with instructions from the Trustees of "The Aston's Estates' Act, 1863," to SELL by AUCTION, at the Bull Hotel, Nuneaton, on SATURDAY, August 6, at 2 for 3 o'Clock in the Afternoon, valuable and important FREEHOLD PROPERTY, distinguished as the NUNEATON and ATTLEBOROUGH ESTATES, comprising FOUR capital DAIRY FARMS in a high state of Cultivation, with good Residences and Agricultural Buildings; important COAL SEAMS; RED and BLUE BRICK and TILE WORKS of superior quality; valuable STONE QUARRY; BUILDING and ACCOMMODATION LAND; the "DOUBLE PLOUGH" INN, and other Property, together extending to about 1200 ACRES, producing the very inadequate Rental of upwards of £2500 per annum; also the Moiety of the Manors of Nuneaton and Attleborough, in TWENTY LOTS, as follows:—

Lot 1.—A valuable Enclosure of Freehold Land (admirably adapted for Building purposes or as Accommodation Land, situate on the Road from Nuneaton to Attleborough, opposite the Church, and containing about 8 Acres, at present in the occupation of Mr. Joseph Ward as yearly tenant.

Lot 2.—An Old Public House, known as the "Double Plough" Inn, with Stabling and other Buildings; also Cottage and Solicitor's Office adjoining, situate in Church Street, Nuneaton. Let at Rentals amounting to 20l. per annum.

Lot 3.—A most desirable Arable and Pasture Farm, in the Hamlet of Attleborough, with good Residence and Outbuildings, containing upwards of 360 Acres of Land, in the occupation of Mr. George Beale as yearly tenant, at 587l. 10s. per annum.

Lot 4.—A Capital Tithe-free Farm, on the high road from Nuneaton to Hinckley, with convenient Farm House and Outbuildings, and about 160 Acres of Land. Let to Mr. Joseph Cross, as yearly tenant, at 262l. 10s. per annum.

Lot 5.—A very superior Arable and Pasture Farm, in the Parish of Nuneaton, with good Residence and Outbuildings, and about 225 Acres of Land, in the occupation of Mr. Joseph Ward, as yearly tenant, at 428l. 8s. 8d. per annum.

Lot 6.—A superior Arable and Pasture Farm, in the Hamlet of Attleborough, with good House and Outbuildings, and about 220 Acres of Land. Let to Mr. Joseph Thompson, with Lots 7, 8, and 9, as yearly tenant, at the rental of 560l. 7s. 6d.

Lot 7.—A Piece of Meadow Land, of about 1 Acre, situate at Attleborough, adjoining the Trent Valley Railway, well adapted for Building purposes.

Lot 8.—A capital Enclosure of rich Meadow Land, of about 11 Acres, abutting on the high road from Nuneaton to Attleborough, admirably adapted for the erection of Manufacturing Premises or as Accommodation Land.

Lot 9.—A capital Enclosure of Meadow Land, adjoining Lot 8, of a similar description, and containing about 11 Acres.

Lot 10.—A very valuable Freehold Estate, containing about 26 Acres of Land, with one of the best Blue Brick and Tile Yards in the County, and all requisite Manufacturing Buildings thereon; also Two Coal Shafts, now sunk about 30 yards, and where first Seam Coal is abundantly obtained. Let to Mr. Thomas Hardy as yearly tenant.

Lot 11.—A Freehold Piece of Meadow Land, known as The Wharf, with frontage to the Coventry Canal and Nuneaton and Hartshill Road.

Lot 12.—A Freehold Piece of Meadow Land, of about 5½ Acres, known as Copper-Mine Close, adjoining the Nuneaton and Hartshill Road, and let to Mr. George Cross at 18l. per annum.

Lot 13.—A Freehold Plot of Ground, in Bond Street, Nuneaton, with a frontage of about 40 feet thereto, contiguous to the Railway Station, and well adapted for Shop Property.

Lot 14.—A valuable Freehold Estate, situate on the Turnpike Road from Atherstone to Nuneaton, comprising an extensive Stone Quarry of superior quality, with frontage to the Coventry Canal, and within a mile of the Railway Station; also Two Small Holdings, Red Brick and Tile Yard, Cottage and Garden, Wharf and part of "Punch Bowl" Inn. Let to different Tenants, and producing rentals amounting to about 312l. per annum.

Lot 15.—Two Freehold Enclosures of Meadow Land, with Barn thereon, having extensive frontages to the Coventry Canal, adjoining the Nuneaton and Atherstone Turnpike Road, and containing about 15 Acres, in the occupation of Mrs. Hurst, at 52l. per annum.

Lot 16.—A compact Freehold Property of about 14 Acres, in the occupation of the Trustees of Mr. John Cross, at 35l. 10s. per annum.

Lot 17.—A Valuable Freehold Property, situate near Abbey End, comprising a 2-Bay Barn and other Buildings, and about 30 Acres of Land, in the occupation of Mr. Thomas Iliffe, at 98l. per annum.

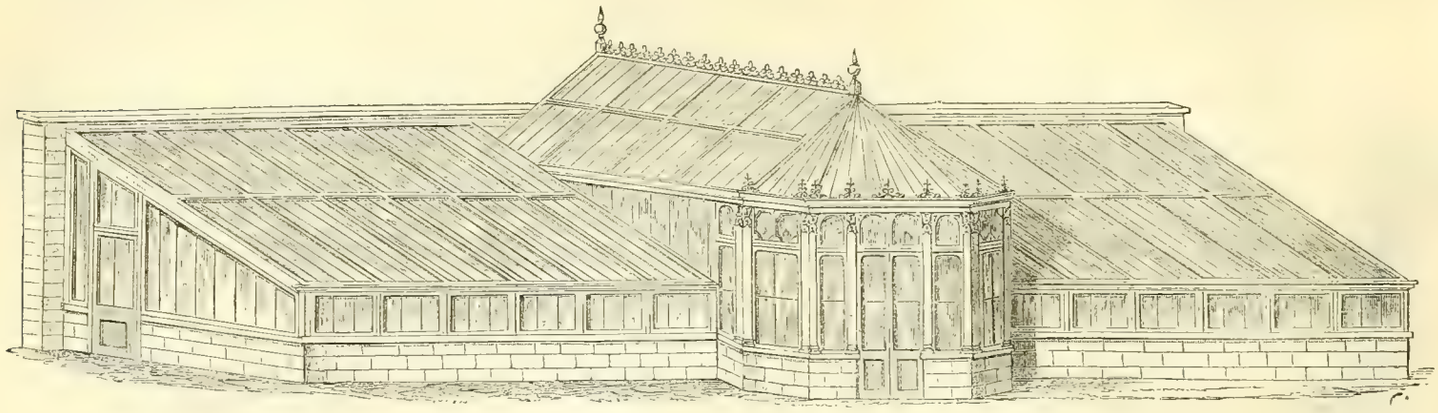
Lot 18.—A Piece of Garden Ground, known as Middle New Mill Field, containing about 4 Acres, in the occupation of Mr. James Biddle, with Lot 19, at 31l. 17s. 6d. per annum.

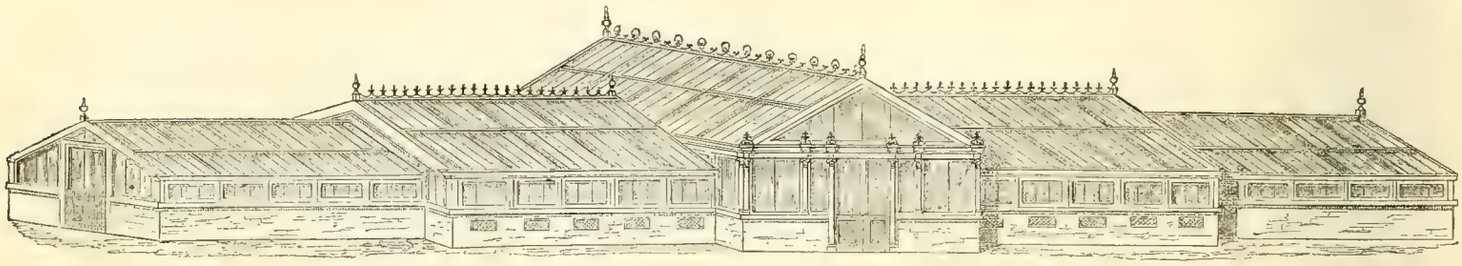
Lot 19.—A Piece of Garden Ground, called Bottom New Mill Field, containing about 4 Acres, and let to Mr. James Biddle, with Lot 18.

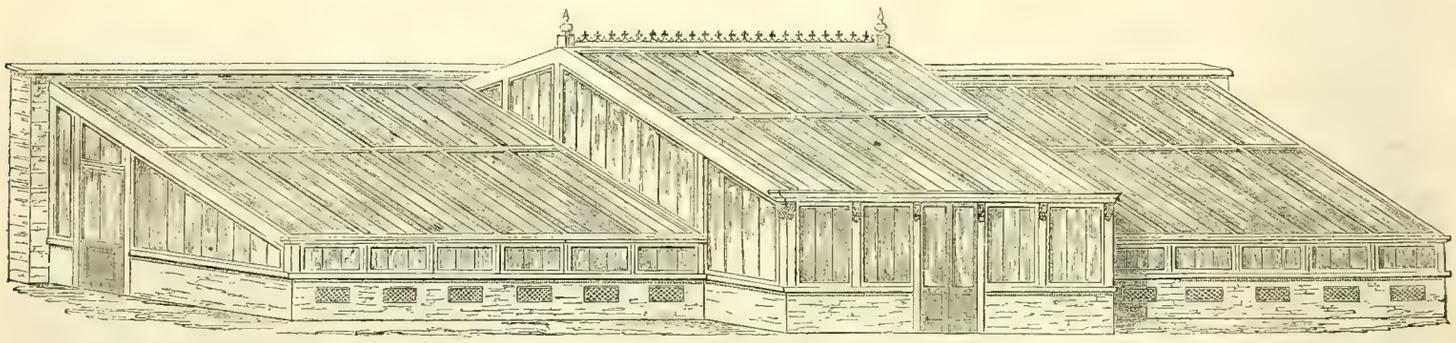
Lot 20.—The Moiety of the Manors or Reputed Manors of Nuneaton and Attleborough.

The Land on the Farms is in a high state of Cultivation and of superior quality; the Buildings good, and the Tenantry highly respectable; the other property, as well as the Farms, are within a short distance of the Railway Station, where daily communication can be had several times to the Market Towns of Coventry, Leicester, Birmingham and Warwick, and in the midst of the Atherstone and other Hunts.

May be viewed by permission of the Tenants, and Particulars, Plans, and Conditions of Sale may shortly be obtained of Messrs. Nicholson & Herbert, Solicitors, Spring Gardens, Charing Cross, S.W.; of Algernon Wells, Esq., Solicitor, Founders' Hall, St. St. Swithin's Lane, E.C.; of Messrs. Field & Brunoll, Solicitors, Norwich; of Messrs. Reynolds & Palmer, Solicitors, Yarmouth; of Messrs. Hoddings, Townsend, & Lee, Solicitors, Salisbury; of H. Radford, Esq., Solicitor, Atherstone; and at Mr. Marsh's Offices, Charlotte Row, Mansion House, London, E.C.; or will be forwarded on application.







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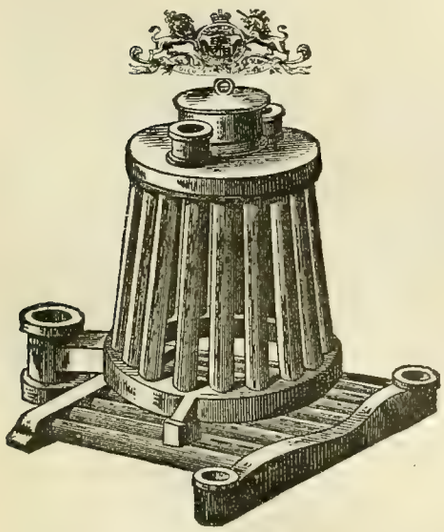
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ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.
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Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

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AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY.

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 31.—1864.] SATURDAY, JULY 30. {Price Fivepence. {Stamped Edition, 6d.

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Roses in Pots.

PAUL AND SON draw attention to their ROSES in POTS, fit for immediate planting. The plants of this year's New Roses are particularly fine. Prices on application.
"Old" Cheshunt Nurseries, Cheshunt, N.

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Roses, &c.

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E. P. DIXON & SONS, 57, Queen Street, Hull.

Chivas' Orange Jelly Turnip.

CHIVAS AND WEAVER (late GEORGE CHIVAS) acquaint agriculturists that they are supplying the above TURNIP, grown with scrupulous care, from a Stock which they have been improving for several years; the characteristics of the variety are now generally recognised, viz:—Rapidity of Growth (may be sown till the middle of August), highly Nutritious and particularly Hardy. To secure the genuine article direct application is recommended. Price 1s. 6d. per lb.; 20 lb. delivered free at any Railway Station.
Chester, July, 1864.

Stones or Sprotbro Cabbage Seed.

JOHN SCHOLEY, NURSERYMAN and SEEDSMAN, Pontefract, has the above to offer to the Trade, his own growing of 1863. The above Cabbage is the earliest and best that supplies the Leeds and Manchester Markets.
Price per lb. 1s. 6d., or 7l. per cwt. About 15 cwt.

WHEELER'S IMPERIAL CABBAGE (TRUE), 6d. per packet, post free; 10d. per oz., post free; 8s. per lb. carriage free. An early and most excellent sort; we believe THE BEST EARLY SORT FOR EITHER FARM OR GARDEN CULTIVATION. A great favourite: we receive orders for it from all parts of the kingdom.
J. C. WHEELER & SON, Seed Growers, Gloucester. Seedsmen to the Gloucestershire Agricultural Society.

Italian Tripoli Onion.

CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

Rape Seed for Sowing.

CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
Price on application.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—s.	d.	s.	d.		Per pkt.—s.	d.	s.	d.
PRIMULA	2	0	and 3	6	INTERMEDIATE STOCK	0	6	and 1	0
CINERARIA	1	6	and 2	6	BROMPTON do.	0	6	and 1	0
CALCEOLARIA	1	6	and 2	6					

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.
A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

WELLINGTONIA GIGANTEA.—The Undersigned begs to offer fine healthy Seedling Plants in pots, at the following prices:—
One Year Seedlings, in single pots, 50s. per 100.
Specimen Plants, in 24-sized pots, 18 inches, 60s. per dozen.
Fine Plants, in 32 pots, 1 foot, 30s. per dozen.
in 48 pots, 9 inches, 15s. per dozen.
ARAUCARIA IMBRICATA, in 48 pots, fine, 9s. per dozen.
CUPRESSUS LAWSONII, 9 inches, 12s. per dozen.
T. HENCHMAN, Edmonton, near London.

CLEMATIS FORTUNII and STANDISHII.—These, perhaps the most magnificent of all Mr. FORTUNE's importations from Japan, are now ready to be sent out in strong plants, 15s. and 21s. each.
Also ARUNDO CONSPICUA, a worthy rival of the Pampas Grass, flowering very freely three months earlier in the season than that old favourite. Strong plants 18s., 24s., and 30s. per dozen.
CHARLES NOBLE, Sunningdale Nursery, Bagshot.

HERBACEOUS CALCEOLARIA, &c., SEED.
CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
CHOICE PRIMULA SINENSIS FIMBRIATA.—Hayes' superb strain. Sealed Packets, 2s. 6d., 3s. 6d., and 5s.
CHOICE CINERARIA.—Saved from best named varieties, and cannot be surpassed. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
HUNT'S SWEET WILLIAM.—Sealed Packets, 6d. and 1s.
SCARLET INTERMEDIATE STOCK.—True and fine. Sealed Packets, 1s. and 2s. 6d.
PANSY.—From best named varieties. Sealed Packets, 1s. and 2s. 6d
And every other first-class Seeds. See CATALOGUE, post free.
WM. CUTBUSH & SON, Highgate Nurseries, London, N.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,


HAND GLASSES.

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.


PRESERVE JARS.

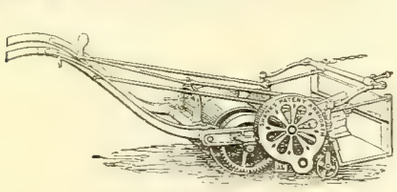
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

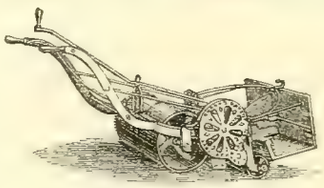

MILK PANS.

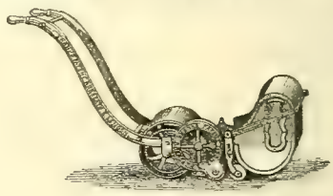
See Advertisement first week in the month, or on application.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.


HORSE MACHINE.


PONY MACHINE.


HAND MACHINE.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

Illustrated Price Lists sent Free on application.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

GREEN'S PATENT SILENS MESSOR,

OR

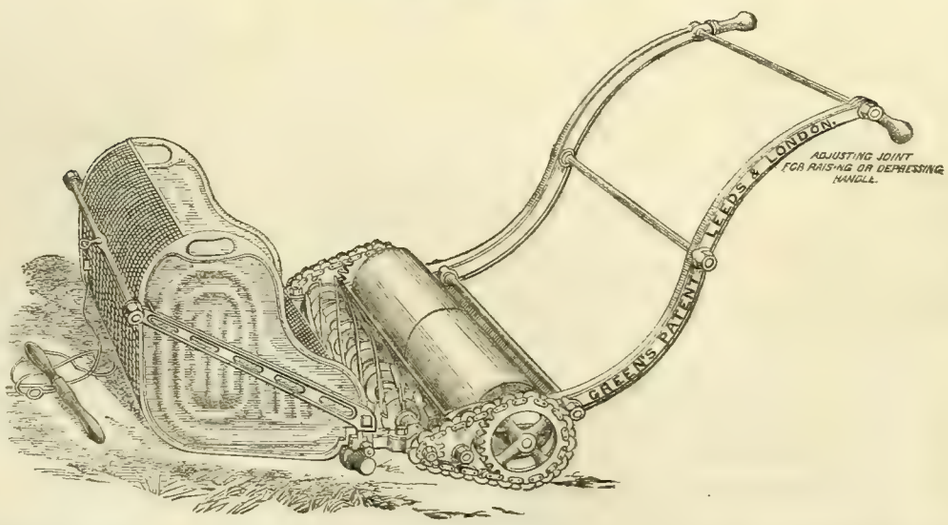
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER



TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.

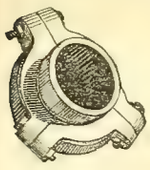


FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

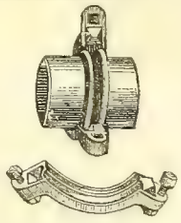
ILLUSTRATED PRICE LISTS may be had on application to

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

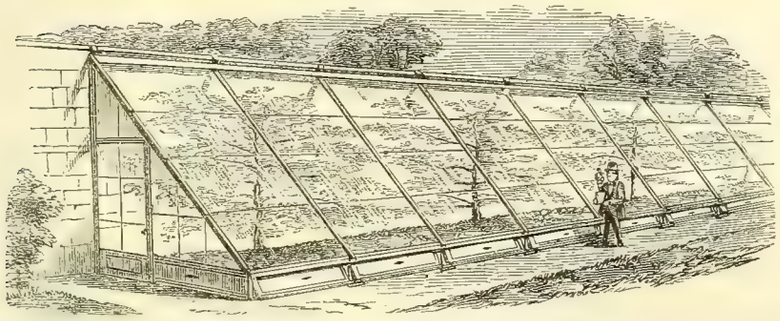
For a few prices, see last week's advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

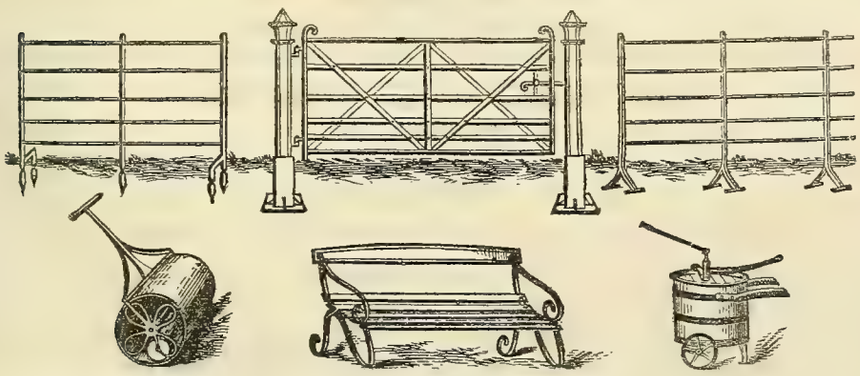
COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,

IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to

COTTAM AND CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Hothouses, Conservatories, &c.

H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E., established upwards of 20 years. Good substantially made GREENHOUSES, glazed ready for fixing, 12 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 25*l.*; 12½ feet by 10 feet, 15*l.*
A large assortment kept. Estimates given for any branch in Wood or Iron.

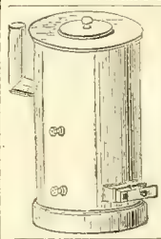
West of England, Ireland, and Wales.



VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

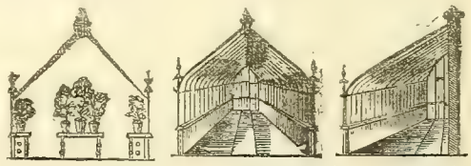


VINCENT SKINNER, Bridewell Street, Bristol.



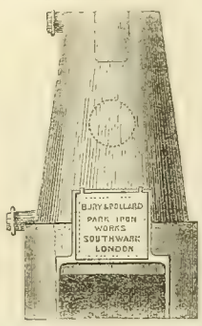
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.
The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.
For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
Park Iron Works, 17, New Park Street, Southwark, London, S.E.
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD are now making a powerful Windmill for the India Board, with Pumps for Cotton Irrigation.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



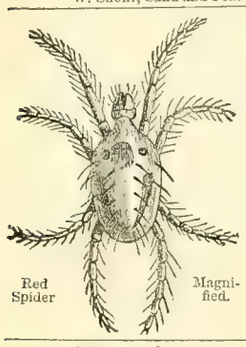
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

TAN GRATIS.—In the immediate neighbourhood of Covent Garden Market.
ESSEX & SONS, 28, Stanhope Street, Clare Market.

PEAT SOILS, various excellent kinds, on SALE by the Truck Load at moderate prices.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.


Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

A MAGNIFICENT FIELD OF
Pure White Canadian Seed Oats in full Ear, and 3½ feet high, June 11, 1864, at

MR. HALLETT'S MANOR FARM, BRIGHTON (within 200 yards of St. Mark's Church, Kemp Town), is now OPEN to INSPECTION. This Field adjoins the Lodge (at the entrance gates of the Manor House), where a sample of the Oats sown may be seen upon presenting Card with Address.

These Oats were raised from a very fine sample in 1862, which was hand-picked 27 times, and weighed 48 lb. the imperial bushel. They were drilled (3 bushels per acre), on the 24th February, 1863, cut July 20, and yielded on a very thin poor soil upwards of 80 bushels of Oats, and 185 trusses (36 lb.) of most excellent feeding straw per acre; while the ordinary Black Tartarian Oat, on the other part of the same field, ripened a fortnight later, yielded of grain a less crop, weighing 26 per cent. less per bushel, and of straw 120 trusses per acre.

The Canadian Oats were again hand-picked, to ensure *perfect* purity, and drilled on the above field February 17 of this year. Upon the same field, 1863:—

	Kernel.	Husk.	
Canadians	69.43	30.57	per cent.
Tartarians	70.79	29.21	

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, near Halstead, and only one mile from the Haverhill Junction of the Great Eastern and Colne Valley Railway, beg to offer 12 distinct and most beautiful HARDY CLIMBERS, all well-established, from 18 inches to 3 feet high, for 9s. They consist of the finest CLIMBING ROSES, JASMINES, PASSION FLOWERS, HONEYSUCKLES (in some rare kinds), CLEMATIS and IVIES (a most beautiful collection), &c., &c. Post Office Orders must accompany the order from strangers.

A CATALOGUE for one stamp is now in the press, of New and Rare Plants of 1864, at reduced charges. We possess all the greatest novelties.

A CATALOGUE of GENERAL STOCK and a WHOLESALE CATALOGUE of STOCK, each for one stamp.

NEW HARDY CLIMBING PLANTS.

CLEMATIS JACKMANNI, First-class Certificate,
CLEMATIS RUBRO-VIOLACEA, First-class Certificate,
Awarded by the Royal Horticultural Society, August 4, 1863.

The following is the Report of the Floral Committee:—

"CLEMATIS JACKMANNI.—This was one of a batch of Seedlings raised by Messrs. JACKMAN, the result of a cross between C. lanuginosa and C. Hendersoni and atro-rubens, the first being the female parent. They were lovely, hardy climbers, with large flowers, which, in the present variety, were of a deep bright violet, and consisted of a variable number of from four to six sepals. It was considered quite an acquisition. The plants flower from July onwards to the autumn."

"CLEMATIS RUBRO-VIOLACEA.—This was from the same batch of Seedlings as the foregoing, and differed chiefly in its intense maroon shaded, reddish violet flowers, which were remarkable for the rich velvety appearance of the surface."

The following is an Extract from the *Gardeners' Chronicle* Newspaper, Nov. 21, 1863:—

"The recollection of some hardy hybrid forms of Clematis shown at South Kensington during the past summer has served us as a reminder that, amongst hardy Climbers, the Clematis already occupies a very high position. Cut flowers of two of them exhibited on the occasion referred to (August 4, 1863), obtained each a unanimous Award of a First-class Certificate, and well they deserved it, for certainly nothing in their way could be more beautiful.

"We transcribe from our notes some particulars of these two varieties, which were named respectively C. Jackmanni and C. rubro-violacea, and which will be found well worthy introducing wherever hardy flowering climbers are cared for. C. Jackmanni had the leaves ovate, of moderate size (that is, rather over 2 inches long, as well as their stalks slightly hairy. The flowers were spread open 4, or sometimes 5 inches across, with from four to six sepals of a roundish, obovate form, terminating in a little point; these sepals were downy on the lower surface, and of an intense violet purple on the upper, the colour being remarkable for its rich velvet-like appearance; at the back, near the centre of each sepal, were three ribs, extending from the base to the apex, these being represented by three channels on the upper surface, which was rugose and veiny.

"C. rubro-violacea, differed in having its leaves smooth, and its flowers a trifle smaller, and of a rich, reddish-tinted violet, almost a maroon when fresh opened, but assuming the violet tint as they became older, though always retaining a reddish hue as compared with the former. The sepals were here, if possible, even more remarkable for their lustrous velvety surface.

"These seedlings were bred from lanuginosa, the female plant, crossed with the two very distinct sorts already mentioned. We have seldom seen anything more beautiful, the lustrous richness of the colours very much enhancing their beauty."

The *Gardeners' Chronicle*, January 9, 1864, on Meritorious Novelties in New Plants, mentions—

"C. Jackmanni, an English hybrid, with flowers of the richest velvety purple—decidedly front-rank plants."

"The Journal of Horticulture," August 11, 1863, remarks:—

"C. Jackmanni, a beautiful broad-petalled violet flower. C. rubro-violacea, a finely-formed reddish violet-coloured flower, very distinct. Both these varieties will prove a great acquisition to our list of hardy climbers."

GEORGE JACKMAN & SON, Woking Nursery, Surrey, have much pleasure in offering to the public for the first time these beautiful seedling Clematis; and they consider it is quite unnecessary for them to comment further on their sterling merits, after the above conclusive and high testimonials of their excellence and beauty. Orders will now be taken, and the plants will be sent out strictly in rotation in the month of October.

Plants, 15s. each. | Plants, extra strong, 21s. each.
The usual allowance to the Trade.
Two Coloured Drawings may be had post free for 24 Stamps.



For Present Sowing.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6s. per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure Sheep Feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 5d per lb., or cheaper in large quantities.

☞ A Mixture of the above will be found very useful for mending Clover and Grass Seed sown for mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for Green Manure.

RAPE.—New Seed at reduced price.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



THE BEST SORTS OF CABBAGE SEEDS, in packets, 6d. each sort, Post Free, sufficient to raise a thousand plants of each.

SUTTON'S IMPERIAL
EARLY BLENHEIM
SUTTON'S DWARF COMBE

NONPAREIL, EARLY YORK, ENFIELD MARKET, WHEELER'S IMPERIAL, and other old sorts, 3d. per pckt; DRUMHEAD CATTLE CABBAGE, 2s. 6d. per lb.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

CALANDRINIA UMBELLATA.—We have now a bed of this charming plant, about 60 feet long, in FULL BLOOM; and feel assured that in its own colour (pure magenta crimson) it has no rival in cultivation. Thus grown, it forms in the full sunshine a glowing mass of dazzling brilliancy that is almost painful to the eyes to look upon!

The entire bed stood unprotected during the whole of the late long and trying winter.

Fine Flowering Plants in pots, 25s. per 100, 4s. per dozen, 6d. each.

JAS. BACKHOUSE & SON, York Nurseries.

CARTER'S FARMER'S VADE-MECUM.

Choice Seeds for Present Sowing.

ROBERT PARKER begs to offer the following, all of which are warranted new and the finest possible quality of their several kinds:

	Per packet—s. d.
CALCEOLARIA, Herbaceous, mixed	2 6
CINERARIA, from named varieties, mixed	2 6
STOCK, Scarlet Intermediate	0 6
,, White, ditto	0 6
,, Giant Scarlet, ditto	1 0
,, White, ditto	1 0
PRIMULA SINENSIS FIMBRIATA, mixed	2 6

A PRICED and DESCRIPTIVE CATALOGUE of SEEDS and PLANTS is published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.

Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.

Exotic Nursery, Tooting, Surrey, S.

NEW PLANT CATALOGUE.



JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

Begs to announce that his CATALOGUE of NEW and BEAUTIFUL PLANTS for the present Season is now ready, and will be forwarded Post Free on application.

It contains full descriptions of the following CHOICE SELECTION, all of which can be confidently recommended as being of sterling merit, and desirable acquisitions in their respective classes:—

ANTHURIUM SCHERTZERIANUM (Schott).
AZALEA (INDICA) STELLA.
AZALEA (INDICA) VESUVIUS.
AZALEA (INDICA) COMET.
BERBERIDOPSIS CORALLINA.
BLECHNUM NITIDUM CONTRACTUM.
BOMAREA MULTIFLORA.
CAMELLIA JAPONICA VARIEGATA.
CAMELLIA SASANQUA VARIEGATA.
CEANOTHUS VEITCHIANUS (Hooker).
CYPRIPEDIUM PEARCII.
DRACÆNA COOPERII.
DRACÆNA LIMBATA.
DRACÆNA ROBUSTA.
ERANTHEMUM COOPERII (Hooker).
ERANTHEMUM TUBERCULATUM.
ERANTHEMUM SANGUINOLENTUM.
GYMNOGRAMMA (DICTYOGRAMMA) JAPONICA.
GYMNOGRAMMA PEARCII (Moore).
LEPTOPTERIS (TODEA) SUPERBA (Moore).
MARANTA STRIATA.
PANCRATIUM ZEYLANICUM.
PLANERA ACUMINATA (Lindley).
PRUMNOPITYS ELEGANS (Philippi).
PTERIS SERRULATA CRISTATA.
RETINOSPORA SQUARROSA, TRUE (Siebold).

ROYAL EXOTIC NURSERY.—July, 1864.

PRIZE MEDAL FOR SEEDS AND CEREALS.

ESTABLISHED 1800.

WILLIAM MORTON,

OLD MARKET PLACE, RIPON, YORKSHIRE,

Is now supplying his YELLOW BOY GREEN-TOPPED SWEDE TURNIP, grown from selected large Bulbs of the Hardy Green-topped Swede, at 9d. per lb.; and his large FOSTERTON HYBRID, 8d. per lb. NEW TURNIP SEEDS (Various), BROAD-LEAVED and LONG-STALKED RAPE SEEDS, WHITE MUSTARD, WURZEL SEEDS.

MIXTURES of GRASS SEEDS for Permanent Pasture, suitable to the various soils; ENGLISH and DUTCH CLOVERS, ARTIFICIAL GRASSES, LAWN GRASS, RYE-GRASSES, &c. Circulars (Third Edition) free by Post.

RIPON and CLARO SEED ESTABLISHMENT, RIPON, YORKSHIRE.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

Permanent Grass Seeds
FOR ALL SOILS.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing as under:—

PERMANENT GRASS SEEDS
For Laying down New Pastures (including CLOVERS in full quantities), 30s. per Acre.

PERMANENT GRASS SEEDS
For Mending New Pastures, which may have been injured by the Corn crop, 12s. per bush.

Royal Berkshire Seed Establishment, Reading.

Seeds Worth Growing.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our Collection in the Spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

DOBSON'S PRIZE PRIMULA SINENSIS SEED, Superbly Fringed. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

AZALEA INDICA, Stocks for Grafting	per 100	20s. 0d.
ALOCASIA METALLICA	each	7 6
CLERODENDRON BALFOURII	„	10 6
RHODODENDRON COUNTESS of HADDINGTON	„	21 0
„ JAVANICUM	„	2 6
„ NUTTALI	„	2 6
TRITOMA GRANDIS	„	5 0
„ UVARIA GLAUCESCENS	„	1 6

Intending purchasers are invited to inspect the general stock of Plants. DESCRIPTIVE and PRICED CATALOGUES of SEEDS and PLANTS are published, which will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Choice Flower Seeds for Present Sowing.

F. AND A. SMITH beg to offer the following saved from their CHOICE and SUPERIOR COLLECTIONS, and can warrant them genuine and of the finest quality.

	Per pckt.,				
CALCEOLARIA, from selected flowers	1s. 0d.	..	2s. 6d.
CINERARIA, from selected flowers	1 0	..	2 6
GERANIUM, Show and Fancy	1 6	..	2 6
GERANIUM, Zonale	1 0	..	..
GLOXINIA, extra fine	2 6	..	..
MIMULUS, choice hybrid	..	..	0 6
PANSY, from show flowers	1 0	..	2 6
PANSY, from fancy flowers	1 0	..	2 6
POLYANTHUS, extra fine	1 0	..	..
PRIMULA SINENSIS FIMBRIATA	1 0	..	2 6
STOCK, INTERMEDIATE, Scarlet and Purple	1 0	..	2 6

The Nurseries, Dulwich, Surrey, S.

CARTER'S GARDENER'S VADE-MECUM.

BURTON-UPON-TRENT FLORAL and HORTICULTURAL SOCIETY.

The SECOND EXHIBITION of the above Society will take place on WEDNESDAY, August 24 The First-class and Extra Prizes will be open to all England.

EXTRA PRIZES.

	First.	Second.	Third.
Collection of Roses (24-kinds, 3 trusses of each*)	£3 0 0	£1 10 0	£0 15 0
Ditto Dahlias (24 varieties)	1 10 0	0 15 0	0 7 6
Ditto Fancy ditto (24 varieties)	1 10 0	0 15 0	0 7 6
Ditto Hollyhocks (12 varieties) shown in spikes	2 0 0	1 0 0	

* A truss of Roses is to consist of one shoot cut from the wood of the current year's growth. Any addition to the original truss will disqualify. In cases where Roses bloom singly—that is, without surrounding buds, a single Rose may be shown, and will be accounted as a truss.

Exhibitors for the Extra Prizes will not be allowed to compete for similar subjects in the other class.

Non-Members subject to an entrance fee of 10s.

Schedules and other information may be obtained on application to the SECRETARY, 81, High Street, Burton-on-Trent.

RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.
President, The REV. DR. TEMPLE.

The ANNUAL SHOW of the above Society (open to all England), will be held at Rugby on TUESDAY, August 30.

Upwards of 120 Prizes in Class 5 will be offered for Plants, Fruits, Cut Flowers, Vegetables, &c., including a Silver Cup of the value of Six Guineas, with Second and Third Prizes of Three Guineas and One Guinea, for the best Collection of 8 Stove or Greenhouse Plants in Flower.

Entries to be made on or before the 23d August next. Schedules of Prizes and further particulars may be obtained on application to

JOHN S. SAVAGE, } Hon. Secs.
Rugby, July 30. WM. MASON, }

ROYAL HORTICULTURAL SOCIETY.
SOUTH KENSINGTON.
AUGUST SHOW.

1. A Show limited to new, extremely rare, or very beautiful Plants will be held in the Conservatory on WEDNESDAY, August 24, and will remain open until Monday Evening, August 29.
2. The object of the Council in inaugurating this Show is to Exhibit to the Fellows and the public the number of new, rare, and beautiful Plants brought before the Floral Committee during the last three years.
3. Exhibitors must state the price at which they are prepared to sell the specimens exhibited or other specimens of the same kind.
4. Purchases will be made by the Council to be distributed by Ballot or otherwise among the Fellows at a suitable period.
5. All plants must be delivered before 8 o'Clock on the morning of the Show.
6. For further information and schedules apply to Mr. EYLES, Royal Horticultural Society's Gardens, South Kensington.

The Gardeners' Chronicle.

SATURDAY, JULY 30, 1864.

BY the kindness of Monsieur NAUDIN and other friends we have under cultivation all the six species of CUCURBITA, which he has characterised in the 4th series of Annales des Sciences Naturelles, and several varieties of the more common species. Cucurbita perennis has a perennial tuberiform root, and if capable of being impregnated by either C. maxima or C. Pepo might afford a useful article of cultivation. In its present condition, with the habit of not flowering till the second year, it is a mere object of curiosity, especially as its fruit will not set without artificial impregnation. C. digitata has quite a different habit from the rest, and should it prove hardy would make an elegant covering for trellises.

It is not however to these rare species that we are indebted for the observations contained in the present article.

Amongst other varieties M. NAUDIN sent seeds of a variety of C. Pepo, under the name of C. oviformis, which has the remarkable habit of forming fruit on the tendrils. The cold nights have not proved favourable to it, and we were afraid that we should have no opportunity of examining this curious matter. A variety, however, of the same species known under the name of Courge de Touraine, a variety with enormous seeds surrounded by a thick welt, has given us occasion to satisfy our curiosity.

Our attention was first drawn to the plant by the fact that the tendrils, whether simple or divided, had a tendency to form a leafy lamina. We had previously seen a tendril represented by a small though perfect leaf in a variety of Cucurbita moschata, known as the Portmanteau Gourd, or Pleine Courge de Naples, which perfected its fruit in our garden in the ungenial summer of 1861, though the varieties of this species are in general impatient of our climate, a circumstance the more to be regretted as they greatly surpass in excellence every form of C. maxima (not excepting its variety C. ovifera) and C. Pepo.

Now authorities have differed much as to the nature of these tendrils. The BRAVAIS thought that they were accessory buds, GASPARRINI and others believed that they were leaves or stipules, but PAYEN, entering deeply into the distribution of the bundles of vessels which usually pass into the foot-stalk of a leaf, showed that whereas three in general concur in this purpose, in Cucurbits two only go into the footstalk, while the third goes at the right or left hand into the tendril, thus showing that it is really a separate portion of the leaf itself. In a few instances a left-hand tendril is formed, as well as one at the right hand, and then one bundle only goes into the leaf.

PAYEN'S observations were made on the Melon, but we find them completely confirmed in the variety of C. Pepo, known as Coucourzelle—in our opinion the best of all Vegetable Marrows—and in other varieties which we have studied. We observe, moreover, that the bundle which enters into the tendril uniformly branches at the point of entrance, and thus forms the outer of the two bundles, whether to the right hand or left, which enter into the footstalk of the leaf next in order of the whorl.*

It is to be observed that the tendril is in some varieties at the right, in others at the left of the leaf. In some forms of C. maxima this difference seems to be constant to the variety, but though in the Coucourzelle we find it to the left, and in the Touraine mostly to the right, we find on one plant of the latter that the tendril in one branch is constantly to the right, and in another as constantly to the left, differences which, in addition to the instances in other Cucurbits where two tendrils are produced, of which we have seen no instance in the culinary Gourds, seem very strongly to confirm the views of PAYEN.†

In the Touraine Gourd just mentioned a flower is formed at the point where the tendril branches, and it is clear that this arises from the stalk of the flower being soldered to the base of the tendril. The two are quite distinct in colour and appearance. But this is not all. Sometimes a second flower is formed at the next division of the tendril, and we conceive that this also must arise from a ramification of the plant proceeding from the axil of the leaf being soldered to the tendril at the same time with the flower. In this case every division of the tendril bears a leafy lamina. In one case indeed we have seen a distinct shoot rising from behind the flower.

This view of the coalition of flower branch and tendril is confirmed beyond doubt by a plant of the Portmanteau Gourd, in which a strong branch is perfectly confluent below with an ill developed tendril, the two being perfectly defined and distinct from each other.

Such coalitions not unfrequently take place between the stalks of the flowers, and we have thus occasionally perfect flowers with twice the number of parts.

Some question has arisen as to the nature of the floral envelopes. A case was figured in this Journal (1858, p. 685), in which there were five permanent leaves in room of the small divisions usually considered as sepals at the top of the Custard Vegetable Marrow. It is not uncommon, however, for these to become quite foliaceous. In C. moschata they are always more or less so, and in a plant of the Portmanteau Gourd in our garden they form five distinct broadly expanded leaves. In C. Pepo var. Coucourzelle they are generally more or less pinnate, though in most varieties almost setaceous. In a variety of C. maxima from Vienna, under the name of Kiachta, they are apt to be transformed into expansions exactly similar to the yellow corolla. A blossom is now expanded on a Touraine Gourd in which the divisions of the corolla are more or less distinct, and where most deeply divided inclined to be pinnated, while they are far greener than usual, and in this case, as in several others, one or more of the stamens are transformed into distinct petals. Where there is no appearance of two flower stalks being soldered together, the number of divisions of the sepals and petals varies very much. On the whole we are inclined to regard the bell-shaped flower as corolla rather than calyx, though it really seems of little consequence whether the outer appendages are considered as bracts or sepals.

We have still a curious case to mention: a seedling of the Touraine Gourd came up with very crumpled cotyledons, which were held together for a long time by the shell. There was not the slightest appearance of any plumule, nor has any been developed. An attempt, however, was made in this direction by strong roots being thrown out from the edge of the seed leaves, and we fully expected that a bud would be formed there. The weather has, however, been so dry, and the nights so cold, that in spite of every care no further growth has been made.

All attempts have failed under M. NAUDIN'S experiments to produce hybrids between the four well-known species C. maxima, Pepo, moschata, and melasperma. The variety Coucourzelle however has the more or less pinnated sepals and spotted leaves of C. moschata, and we have sometimes fancied that on these accounts, as well as from its peculiar excellence, it might possibly be a hybrid. The plants themselves vary greatly in habit, some throwing out long runners, others resembling the Bush Squash, and enormously productive on a congenial soil, where the roots can run deep in search of constant moisture. *M. J. B.*

* Compare Stocks in Annals of Nat. Hist. xviii., p. 110.

† Amongst other instances we may observe that in C. maxima it is to the right in the varieties Valparaiso, minima, Chypre, and Ohio; to the left in ovifera. That in C. Pepo it is to the right in Coucourzelle and mostly in Touraine; to the left in the Brazil Sugar Gourd and Asparagus Pumpkin, but in some plants of the former to the right; and, finally, that in C. moschata it is to the left in the Portmanteau Gourd, and a small early and hardy variety sent by M. NAUDIN.

IN an article drawing attention to a HARDY PALM which has been growing in the open air for many years at Osborne House in the Isle of Wight, and at Kew, we promised (p. 675) to offer some observations on its cultivation. We shall now endeavour to fulfil the promise then made, in the hope that our remarks will prove useful to those who would like to have a Palm tree growing on their lawns or in their pleasure grounds.

The Chusan Palm is able to bear any amount of cold which we are likely to experience in the southern parts of England, and it may even withstand our winters in the more northern parts of the kingdom and in Ireland. It requires, however, a higher summer temperature than we usually have in this country to enable it to grow with that rapidity which it does when at home. In its own country the summers are much warmer than our English summers are. From some tables of temperature in our possession it appears that in the course of the months of July and August, which are the hottest in the year, the thermometer stands not unfrequently at 100° Fahr. in the shade, and sometimes even a few degrees higher. The heat during these months is almost insupportable to Europeans, who rarely venture out of doors without some protection from the sun's rays. The springs too are early, and the season altogether is longer and finer than it is with us. It is the early spring, warm summer, and sunny autumn which enables the Chusan Palm to grow rapidly in its native country.

The heat of an English summer is therefore scarcely great enough for the Chusan Palm when treated entirely as a hardy plant. Hence if we put a small plant of it out in the open ground it grows very slowly, and many years must elapse before it attains sufficient size to become an attractive object in the garden. This is, probably, the reason why the plant is so seldom seen on our English lawns. But it is one of those difficulties which are easily overcome when the cause of the slowness of growth is explained and understood. Our plant, then, is one of those which will grow

fast enough if we can give it by artificial means a long season and a high summer temperature, such as it has in the country to which it is indigenous. This can easily be done by cultivating it in a warm greenhouse for a few years, say four or five, until it becomes large enough to produce an effect when planted out upon the lawn. The spring of the year is the best time to plant it out, as it then has the summer and autumn before it to enable it to accustom itself to its new quarters. It will go on growing, although not so rapidly as before, and its appearance will well repay the care which has been expended upon it.

There is one matter connected with this mode of management which ought to be carefully attended to. The roots must not be allowed to become matted and twisted in small pots, as is frequently the case with pot plants, and these roots should be carefully spread out when the plant is planted in the open ground. The growing of specimen plants in pots, and allowing the roots to become matted together and twisted like a corkscrew before they are planted out, is fatal to many of our finest things, more particularly to our new introductions. The roots get a spiral inclination, which they cannot shake off; they do not spread themselves out to take a firm hold of the earth, and the first gale of wind tears them out of the ground. As a general rule, we advise all persons to avoid planting these specimen plants. We only recommend the Palm tree in question to be cultivated as a pot plant, for a time, owing to its requirements in so far as summer heat is concerned, and for the objects we have explained. But it is easy to adopt this mode of culture, and at the same time avoid the matted roots and corkscrew system to which we have alluded. It is probable that in some favourable localities, such as Devonshire and Cornwall, for example, the greenhouse cultivation which we have recommended may not be necessary. We shall be glad to have the experience of any of our readers in that portion of the kingdom, or indeed from any other part where this Palm is growing in the open air.

The Chusan Palm may also be made to form an attractive object in a conservatory. With the hardier kinds of Tree Ferns, the handsome Dracæna lately introduced to our gardens by Messrs. LEE, of Hammersmith, and many other plants remarkable for their tropical-looking foliage, together with this Palm, a grand and imposing effect would be produced. With these might be mixed Camellias, Acacias, and other nearly hardy spring-flowering plants, and in this way a winter garden of great interest would be formed. Plants of the kind recommended are of easy cultivation, they are not liable to be injured, and are consequently just the things for public gardens in large towns.

IT is admitted that the French excel in the culture of ASPARAGUS, both in the open air and in forcing. But, like the English, they consider that it takes four years before a plantation can generally be in proper condition for cutting. This is a long time to have little or no return from the ground; and if the period by any mode of cultivation could be considerably shortened, say by one year, such a mode would deserve attention, and ought to be made known. Such a saving of time has been effected by JEAN-BAPTISTE CARBOU, who details his mode of proceeding in the *Revue Horticole*. He alludes to what is stated by M. CARRIÈRE, that Asparagus takes four years before it produces shoots proper for cutting under the most favourable circumstances. But by his own mode he has obtained in the second year shoots measuring from 2½ to 2¾ inches in circumference, a size which, it will be admitted, is quite large enough for use.

His mode of proceeding is this:—He selects the seeds from the best-grown stems, and takes only the finest berries on these stems. In March the seeds are sown on a border made up with vegetable mould mixed with one-third of decomposed hot-bed manure, and covered with the same mixture. After the plants are up they are thinned by removing all that have a weakly appearance; fifteen or twenty days later the plants are thinned a second time, and somewhat later they are thinned for the third and last time, always removing the weakest plants, and so contriving that finally they shall stand from 4 to 5 inches apart.

It is of the utmost importance, says M. CARBOU, that the greatest care possible should be given to the Asparagus seedlings, in order that they may be fit for planting out after the first year, that is to say when they are one year old, because at this period the roots, being rather short, are in less danger of having their spongioles bruised or broken off in the course of taking up.

In March, the ground having been previously prepared, trenches 2 ft. 3 in. to 2 ft. 7 in. wide, and 15 or 16 in. deep, are dug out; and with the soil in the bottom of the trenches a layer of from 8 to 10 in. thick of half-rotted dung is mixed; on this mixture the crowns are placed at a foot apart, and 9 or 10 in. from the sides of the trench; this admits of two rows in each trench. The crowns are covered with between 3 and 4 inches thick of a mixture similar to that in which the seeds were sown; and when the Asparagus has pushed a little, but before it appears above ground, the vegetable mould is covered with an inch or two of common soil.

Before planting, the roots are carefully inspected in order to make sure that none of them are rotten or decayed, and if any such are found they are invariably rejected, as are likewise those that have too many eyes or buds, which would only produce a crowd of weak shoots. Those only are planted which have their buds full and plump.

In the November after planting, and after having cut the stems nearly to the ground, the crowns are bared and then covered with a new layer of the mixture above mentioned (vegetable mould and rotten dung). By these means, and by attending to the growth of the stems during the summer season, the most satisfactory results are obtained. In the third year stems are often seen from 3 to 3½ inches in circumference.

M. CARBOU'S success mainly depends on the care which he takes in rearing the seedling plants, and especially by thinning out the weakest so as to give the stronger a better chance of becoming vigorous sets before they are planted out when one-year-old, instead of allowing the seedlings to crowd, draw up, and starve each other. They are also kept clear of weeds at all times, and this is easily done by means of salt, which may be applied for that purpose any time during the growing season; for whilst it will kill almost every kind of weed, it will promote the growth of the Asparagus. ||

—— THOUGH the season has not been so remarkable as some which have preceded it for the production of novelties amongst exhibition PELARGONIUMS in their various classes, there have nevertheless been a few new varieties of remarkable beauty brought before the admirers of this flower, to some of which it is our present object to invite attention. In doing this we must not omit to mention Mr. HOYLE'S *Diadem*, the crowning beauty of the season of 1863, a spotted, white-centred purple of consummate perfection, and probably at this moment the premier Pelargonium existing in our gardens. It is interesting to learn, as we do learn from the remarks of the raiser, as quoted by Mr. WILSON SAUNDERS in his lecture on this deservedly popular flower, that the production of this variety is the result of 18 years' application, during which period Mr. HOYLE'S skill and forethought has been brought to bear upon successive generations of seedlings.

The leading novelty of 1864, amongst the larger flowered varieties known as Show Pelargoniums, is undoubtedly that called *John Hoyle*, a flower of remarkable quality and richness, very different from, but very little if at all behind Diadem in excellence. It is not only large but well formed, not only well formed but rich, varied, and glowing in colour, the upper part being of a dense velvety maroon, with a narrow, well-defined margin of bright carmine, and the lower a rosy scarlet, freely shaded and veined with maroon crimson. Though not approaching to this flower in smoothness and general excellence, yet for its distinct and cheerful colour—a white-eyed salmony-pink with black-spotted upper petals, we have no doubt that *Mary Hoyle* will be welcomed by the growers, inasmuch as it bears large and very attractive flowers, the only defect of which is a little roughness on the edge. These are the most distinct; but there are other good average flowers of the year, as *Publicola* a carmine crimson, *British Sailor* in the way of Diadem, *Profusion* a rosy carmine, and *Sunny Memories*, an orange scarlet. These are from Mr. HOYLE'S collection, and among the show Pelargoniums he has had the exhibitions very much to himself, though doubtless there may be other good things in different establishments.

What is called the Fancy class has received a few additions, but nothing very strikingly distinct, though some are of good average quality, chiefly remarkable for their sturdy constitution:—Thus, *Ann Page*, *Silver Mantle*, and *Mrs. Dorling* will be found useful amongst the light flowers; and *Edgar*, *The Rover*, and *Blair Athol* amongst the darker ones. We have see no prominent novelties of the spotted class; the most effective was *Peter Barr*, a salmony flesh-colour with large almost black spots, telling as to colour, but wanting in quality.

Mr. BULL had a flower of novel character, which may prove the commencement of a new group likely to be as effective, we think, as that of the spotted-flowered varieties now so plentiful. It was called *Il Bacio*, and was evidently one of the French breed. The flowers were fairly formed, and of a glowing carmine crimson with a white centre and a pencilled bar of deep crimson extending backwards from the middle of the lower petals into the very centre of the flower, crossing the white base. The marking, therefore, so far as it is developed (on the three lower petals) may be said to have been radiate, thus presenting a new feature in this popular family.

—— PINGUICULAS are pretty little botanical curiosities, well worth cultivating by those who delight in the beauties of nature, but yet they are seldom seen in a cultivated state, for being bog plants, it is not often that accommodation for them is to be found in the garden. The *Botanists' Chronicle*, a little penny monthly serial we have mentioned on one or two previous occasions, states on the authority of a North Wales botanist, whose initials, W. P., are readily deciphered, that any of the species of this pretty genus may be easily cultivated by the following method, which he has successfully adopted. The plants are to be collected during their season of rest, any time between November and March, at which period of the year they resemble bulbs, and can be picked off the surface of the bogs and moors in abundance. A saucepan or other vessel is to be filled with finely broken pieces of peat earth, as much water poured in as the peat will absorb, and the bulb-like bodies or hybernacula placed on the surface, not buried, but just steadied on the top, when, if kept supplied with moisture, they will soon strike their fibres down into the soil, spread their leaves upon the surface, and make a beautiful appearance in their season.

—— A Correspondent of the *Botanists' Chronicle* describes a very singular abnormal growth of the WOOD ANEMONE, A. nemorosa. The rhizome of one of these plants was observed to produce a scape, which grew to the height of a couple of inches, and was there attached to and supported what appeared to be another portion of rhizome. This latter part, thus peculiarly situated, was about half an inch long and horizontal; it bore at one extremity a few immature leaves just bursting from the bud, and two scapes about a couple of inches long, each bearing a perfectly-formed flower of a deep purple colour. It is not stated where this curious monstrosity was met with, but one or two habitats have been recorded for a purple-flowered variety of the Wood Anemone.

—— Two very curious seedling sports of the FUCHSIA have been sent to us by Mr. BULL, of Chelsea. The plants were, we understand, raised two or three years ago, and have respectively since that time remained quite constant to the peculiar character they have put on. In one of the forms the calyx with its tube and sepals are developed in the normal condition, but there is no corolla; while the stamens and pistil are present, but unequally developed. In this case, in the place of the petals there are to be found alternating with the sepals nothing beyond four small rudimentary processes. This variety is consequently apetalous, as happens constantly in some of the other species of this family.

In the other form the change is different. There is the usual calyx tube and sepals, and the stamens and pistil are in a normal condition; the petals also are present, and in their proper place, alternating with the sepals, but instead of being flat and together converging to form the usual cup-like corolla, they are each of them rolled up separately in the form of a funnel, which is attached at the angle of the sepals by a stalk-like base. These petals are of the usual violet colour, and the effect of the flowers is altogether very droll. The changes are curious instances of the plasticity, shall we say, to be from time to time found manifesting itself in the vegetable world—manifestations which frequently mock at the fanciful existences we are so ready to dignify with the title of species. In these instances, however, the changes which have been developed do not add to the beauty of the flowers.

—— The species of ISOËTES have been again occupying the attention of Dr. A. BRAUN, who had already published various detached remarks upon this interesting cryptogamic genus. These more recent researches, which have been made known in the *Proceedings of the Berlin Academy*, are founded on specimens collected last summer by Drs. ASCHERSON and REINHARDT in the island of Sardinia, which, with the adjoining islets, is particularly rich in these plants. The division of the Linnean genus into three—*Isoëtes*, *Cephaloceraton*, and *Isoëtella*, which has been proposed by some recent writers, is not adopted by Dr. BRAUN, who instead thereof proposes to group the species under the natural subdivisions of terrestrial, amphibious, and aquatic.

NOTES ON GARDENS.—No. XIV.

BOTANIC GARDEN, OXFORD.

IT was a lovely morning towards the end of June on which I began a ramble through the Oxford Botanic Garden and its appendages, having by my side a flesh-and-blood Hortus Britannicus, that kindly cleared away for me such mystifications as I met with. The garden is the oldest in the British Isles, having been founded through the liberality of "Lord Henry Danvers, Baron

of Dauntsey, in the county of Wilts, and Earl of Danby in Yorkshire," on the 25th of July, 1632, exactly 232 years ago. My guide was Mr. William H. Baxter, son of the author of "Baxter's British Phænogamous Botany," and once the valued assistant of Loudon.

Though the garden is now in charge of Mr. W. H. Baxter, the author of the fine work just mentioned is still active on the scene of his more than half century of labour; and, though long ago retired from the curatorship, he still tends a few favourite British plants, takes loving care of the vast herbarium and library, is fully alive to the charms of a new Fern, and now and then adds a new work to his own library, of which Loudon says, "certainly it is by far the most complete that we have ever seen in the possession of any British botanic gardener," and which now numbers 3000 volumes. How few of man's occupations would not pall from such a length of labour!

If the familiar saying, that a man who plants a tree has not lived in vain, is as true as it is beautiful, then Mr. Baxter, sen., may count that his days have been spent most usefully, for daily does he walk under noble specimens of his own planting. And this reminds one of what fleeting things we are. "Hewers of wood," and for a time "Lords of Creation," we plant the tiny seed which springs into a mighty organism of almost iron strength, and for centuries sheds its leaves over our children's graves. But, why go to a tree to contrast it with man's fugacity,

> "When we think that paper, even a rag like this,
> Survives himself, his tomb, and all that's his?"

The spot at which I took out my note book may not have been the orthodox one for a beginning, but a more interesting one it could not be. It was in a space on the south side of the garden, about 50 feet long by 40 broad, outside of the massive walls which enclose the greater part of the latter in a square. The greater part of the space is taken up by an oval aquarium, in which hardy aquatics are better managed in a small space than I have seen them in any other garden. The water is always kept pure and at one height, by a continual flow. The tank is of brick and cement, and has brick cradles built in it to within a few inches of the surface of the water, in each of which a robust species, such as one of the Typhas, is put; and thus the rambling rampant things are kept very distinct. A step is placed round the inner margin of the tank, on which the smaller species growing in pots may be stood. Orontium aquaticum, a beautiful American water Arad, was doing finely, the pot being plunged rather deep. This however I have never seen in such perfection as at Henfield—also the only place in which I have seen the Canadian Rice flourishing. At Henfield too, Calla palustris was charmingly done in a deep cavity with a muddy bottom, shaded over by trees. I remember having seen single stems of it running 4 and 5 feet straight along the soft mud, with a string of its striking white spathes, and both these and the leaves of twice the usual size. There are muddy banks of ditches in most country places in which this little "Lily of the Nile" would make a pleasing alien. In water I have not seen the plant do well, or the flowers worth looking at. By the by, any one who lives near the Rye House, Broxbourne, and strays into the gardens there at this season, will probably see several thousand plants of a very fine aquatic, Sagittaria latifolia flore-pleno, in flower there. It is a perfectly hardy plant, and when growing in rich mud with a little water, a very stately one.

But to return to our aquarium. Almost every obtainable hardy aquatic was flourishing in it, and amongst them Nuphar pumila, advena, and Kalmiana; Cicuta virosa, rarely seen doing well in botanic gardens; Jussiæa grandiflora, and many others of interest.

This spot is in a line with the grand old entrance gateway, and consequently a view may be had right through the garden, the eye first meeting a pair of massive pillars, beautifully capped and wreathed with foliage and flowers, placed one on each side of the entrance to the main garden. A few steps beyond them are two old Yews, one on each side of the walk, which were planted by the elder Bobart, the first gardener, and for a long time clipped into shape as a pair of giant sentinels. These trees in bygone days were known as the "Yewmen Guard," and were the "subject of much rival wit in the University," several old ballads concerning them being preserved in the Ashmolean Library.

Beyond these the main walk is bordered by trees and shrubs, and half-way towards the entrance there is a circular aquarium, on the right of which a greet Manna Ash carries the eye upward to the tower of Magdalen College, the noblest of Oxford's towers. From many parts of the place this tower is a glorious object, rising apparently from the garden itself, from which it is indeed only divided by the High Street. Turning round, the visitor looks on Merton and Christ Church Colleges, vast and noble piles; while to the right, amongst other buildings, the dome of the Radcliffe Library appears, and then the famous Christ's Church walk, with its fine old trees, almost runs up to the garden.

All the associations that learning, architectural beauty, or hoary age can give, might here take their rise, but there are yet more plants to be talked of from the little stand-point I have selected, as it is here the alpine and many allied plants are arranged, on a series of little brick steps built against the wall of tall shrubs which shelter and almost surround the spot. By being elevated in this way the little plants are of course more easily examined, not to speak of other advantages. Some tiny British plants which cannot be kept long in their "proper places" in the garden, are here allowed to go wild, while in some parts Saxifraga hypnoides grows all round the pots of alpines, keeps them moist, and as a plunging material looks as much more pleasing, as it is more verdant, than coal ashes.

Well, most of the plants on this bench were of great interest, but especially so half a dozen fine pots of Cypripedium spectabile, just past its best, but yet more beautiful even in its decadence than many of the species exhibited at our shows are in their prime. Mr. Williams and others have brought out Orchis foliosa; why not some exhibitor surprise us with a dozen fine plants of this species* in a large pot of moist peat? There were Trilliums in good style, Parnassias in the same; Gaultheria Nummularia, seen for the first time; Mazus Pumilio, a little gem full of flower; Meconopsis aculeata, a fine new plant; the indispensables—Sedums, Saxifragas, and Sempervivums—very abundant; rare British plants, in some cases fresh from their native localities, and among them Dianthus Caryophyllus from Rochester Castle; Helianthemum canum, polifolium, and others; and many choice Alpines which I have alluded to in previous papers, and shall not now repeat their names.

Passing into the wall-enclosed portion of the garden, between the pillars previously alluded to, and turning to the right to go round the garden walls, a border of Carices in single line is seen, but the wall looks so respectable and dignified, and the climbers seem so fond of it, that I must give it a few words. Built of large slabs of cut stone, it is of great thickness and about 12 feet high, having a coved Gothic cornice on each side under an elevated Gothic coping, "and forms," says Loudon, "the noblest garden wall, speaking architecturally, which we have seen in any country." It is in perfect preservation, and likely to remain so for ages. From between the blocks here and there outcrops a rare British plant, which if it could write would certainly leave on record as decided an opinion of its "location" as Loudon has done. It is impossible in this country to have a complete garden without a good wall, and yet some of our new and large establishments are almost completely deficient of such accommodation. Making way to the Fern border, which runs along half the eastern side of the garden, a quantity of Equisetum Telmateia was met with, of great height and beautifully branched. The plant was allowed to run wild at the end of the Fern border, and neither indoors nor out was there a plant more graceful than some well-developed individuals of this wilding!

The hardy Ferns, of which there is a very complete collection, are finely grown in a border along the east wall about 7 feet wide, shaded on the other bank by the British trees and shrubs. Osmunda regalis cristata was very fine, and near it an old and vigorous plant, which has been in the garden for nearly 100 years, of the common Royal Fern, with the American Osmundas and Struthiopteris pennsylvanica, abundant and about 4 feet high. Splendid plants of the curious varieties of Scolopendrium were plentiful; the red form of Athyrium F.-f. plumosum was of large size, while A. F.-f. corymbosum was more than a yard high. Here and there on little stony knolls were excellent specimens of such things as Ceterach; Asplenium fontanum, which here stood the winter of 1861; Cystopteris montana; Asplenium refractum; Cystopteris regia; Aspidium Lonchitis; and Lastrea rigida, a yard in diameter. All lovers of Ferns in Oxford must much enjoy a walk in front of this fine Fern border, the charm of which is by no means lessened by its being shaded over by all our best and rarest British trees and shrubs, of quite unusual size and age. The Glastonbury Thorn and the true Service tree, Sorbus domestica, were particularly fine, the latter an old specimen, 40 feet high.

Peeping into the shade among the British trees, one could see Impatiens Noli-tangere and I. fulva covering the ground—another example of a way they have at Oxford of permitting a thing which will not remain behind a label, and forget the eternal law of Nature—change, to take its own way, and congregate on walls, in the shade, or where it will. A large collection of New Holland and such plants, out for the summer, is passed by; and then the range of buildings (consisting of the Professor's house, herbarium, lecture room, telescope room, library, &c.), which run along the end of the garden on its north side, and give it such dignity and character. Four of the greenhouses are raised against these buildings, and exactly in the centre of the range is the entrance gateway, the finest and most interesting thing of its kind in any British or perhaps any other botanic garden. The first stone was laid in 1632 by the then Vice Chancellor of the University, and the gateway was subsequently completed under the direction of Inigo Jones. On the right and left, as the garden is entered from the High Street, a figure may be seen—one of Charles I., and the other of Charles II., but from this point the vista down the garden to our old standpoint, the Alpine and aquatic oval, is so pretty that these gentlemen receive but little eye-worship.

Just inside this Danby Gateway, to the left, is probably the oldest and finest specimens of the Christ's Thorn in the country; while here and there along the front of the buildings Jaborosa integrifolia, the Wall Rue, Mandrake, and Squirting Cucumber appear gregariously; with Lavateria Olbia, a showy Malvad in one warm corner; Arundo Donax, very fine, in another, and so on, till another turn is made to the left along the west wall, where a fine group of the arborescent Sempervivums, turned out on the walk for the summer, appeared, with a Dasylirion 18 feet across standing amongst them. On the next wall Ephedra monostachya, the Currant Vine, Vitis riparia, and V. Labrusca, Colletias, and Aucuba japonica vera were in good style, with here and there along the border some fine thing in a semi-wild state. For instance, Corydalis lutea cropped out of the wall at intervals, and in other places the wall seemed to grow out of a bank of it. The large globular fruit of the Mandrake lay on the ground; Meconopsis cambrica, full of flower, might be counted by the score; Viola biflora grew along the bottom of the wall; Cardamine impatiens, in shade of bushes; a beautiful large white-flowered Allium, probably A. neapolitanum, appeared about the base of Wistaria, well worth growing as an ornamental plant on warm soils; Dentaria pinnata; Salix lanata, in great vigour; and now and then a plant of Lathyrus Sibthorpii, a highly coloured early flowering hardy Everlasting Pea, which has been grown in the garden for the last 60 years, but is not yet much in cultivation elsewhere. On the walls in various parts may be found Hieracium amplexicaule, Linaria vulgaris var. Peloria, Linaria purpurea, Erigeron acris, and Sedum dasyphyllum, in addition to the plants already mentioned.
Wm. Robinson.

* This used to be done in former days by Mr. Barnes.—Ed.

THE PASSE CRASANNE PEAR.

A well-executed figure of this Pear has been given in a recent Number of *L'Horticulteur Français* (vol. xiv. t. 12), the sample represented being a handsome depressed obovate fruit, the produce of a young tree.

According to the authority just quoted, the Passe-Crasanne is a Pear of a robust vigorous thick-set and freely-branching habit of growth. It succeeds either grafted upon the Quince or upon the free stock, and hitherto its fertility has been all that could be desired. The branches form a very open angle, sometimes even a right angle with the trunk; they are short, and often thorny; the bark is brown speckled with ash-colour, and spotted with numerous creamy-red lenticular markings; the leaves are roundish-oval and saw-toothed; and the flowers, before quite open, are tinted with rose at the back of the petals.

The fruit is large, roundish, and depressed, sometimes angular; its skin is thickish, deep-green, dashed with pale red, and marked with brown patches, taking on a yellowish shade when mature. The stalk is firmly fixed in a deepish cavity; and the eye is somewhat contracted, with but slight indication of the calyx lobes. The flesh is fine and delicate, becoming somewhat less so towards the centre, melting, juicy and sweet, with a slight briskness, and a fine and agreeable aroma. The period of maturity is variable, extending from December till March.

According to M. Baltet, this is one of our most valuable of modern Pears; and it has won for M. Boisbunel fils, of Rouen, a gold medal from the Société Impériale et Centrale d'Horticulture. The tree will, it is said, succeed in all situations favourable to the Pear, doing equally well in warm or cold exposures. The fruit withstands wind perfectly, and last year, though gathered late, was found firmly attached to the branches, notwithstanding the great dryness of the year 1863.

FLOWER SHOWS.

As the lookers on at our floral exhibitions are reasonably supposed to be the parties whose gratification is chiefly sought, it may surely be permitted to them to express their opinion on the important subject of the arrangement of plants and flowers, so as to afford at once the best display to the exhibitor, and the greatest attraction to the beholder.

I speak at present only as a beholder, and if I am compelled to speak as one who has become very weary of the old cone-shaped even surface of colour, and the long rows of these floral pyramids, resembling nothing in nature, it is with the strongest faith that the capability for something better and more in accordance with the principles of true taste, lies really at the foundation of these exhibitions, and will develop itself before long. I believe also that your Journal, always a favourite with me, may be made a channel for disseminating these principles of taste, if writers qualified not only by a natural sense of beauty, but by some artistic skill, will render what service they can to the exhibitor by suggesting what is wanted by the beholder, and so leaving the exhibitor to supply the demand as best he can. If, having done our best in this way as beholders, our requirements should appear fantastic or chimerical, we must both remember that it is often by suggesting an impossibility, that a possibility even more advantageous is brought about.

In order to attain the end desired, it is important to consider what are the elements of beauty, for, after all, beauty is the thing we want; and of these the first undoubtedly are colour and form. Next to these we have to consider harmony and proportion, and always variety. Colour we already have in our floral exhi-

bitions. Colour, indeed! but without harmony, because of the absence of relief; but in form we are most defective, and hence the want of proportion, symmetry, grace, loveliness—all that charms the eye in the aspect of nature.

Let us first consider colour. Those who have studied the subject are aware that each of the primitive colours—red, blue, and yellow—has its natural and harmonious contrast, and that when the sight is confined too long to any one of these, it positively aches for want of the relief afforded by the opposite colour. Take scarlet as an example. Look for some time at scarlet, then turn to green, and this natural want, with its natural relief, is fully realised. Hence the arranging of colours according to their true relations of contrast not only gratifies the eye, according to natural law, but actually enhances the value of each colour so contrasted, bringing it out as it were in its extreme power of beauty; while on the other hand, each colour loses in force and value by being either wrongly contrasted, or placed amongst too much of its own kind, so disposed as to be in any way deprived of its natural and necessary relief. Artists are well aware of the fact of one coloured object being killed, as they call it, by another, and this so easily, that a work of high merit may sometimes be destroyed in effect by the overpowering colour of a very inferior production.

As a large proportion of the flowers exhibited at our shows display more or less of red under its various aspects of scarlet, crimson, or pink, it is evident that no small amount of green must be wanted, not only to relieve the eye, but actually to bring out and set off the red. According to the same rule yellow will require purple, and blue will require orange, all which contrasts can be obtained by certain modifications—as, for instance, in the greens of certain kinds of foliage, which often verge upon purple, and still more frequently upon blue. But in this particular instance the contrast of blue and yellow may generally be obtained by the flowers themselves, so that the green of foliage may be left exclusively for the relief of red.

It is not here, however, so much as in form and variety, that I believe we shall find the great defect of our floral exhibitions. Of form I have already ventured to speak, and especially of that unnatural and ungraceful form, the cone, or pyramid, which appears to be so universally aimed at by exhibitors, and which is so seldom found in Nature, and is so little pleasing where it is found.

It is very difficult to give that consideration to form which the importance of the subject demands, so long as we are necessarily confined to long straight lines for the placing of flowers for exhibition. But suppose we deviate from these lines. Suppose we take a circle or an oval to fill up, and imagine ourselves in possession of some little island, surrounded, instead of water, by mere space.

There is, perhaps, no object in nature more beautiful than a little wooded island towering up in the centre with tall spiral trees, and fringed about the edges with light feathery foliage drooping down, and so shading off the central mass. Within the deep recesses of this embowering green we will suppose little gems of beauty, something for the eye to rest upon with concentrated attention, such as the cottage, the garden, or the village church,—the temple, the alcove, or even the boatman's hut; something there must be to arrest and fix the eye, something to vary the monotony of the green, something to think about, and the more beautiful the better. Without such objects, tastefully disposed, the picture of the island would be dull and tame. But, on the other hand, with such objects alone, and accompanied by no relief, the picture would be artificial, staring, wearisome to look at, and utterly devoid of attraction; and this it would be, quite independently of all individual beauty in the objects themselves.

Now, if some spirited and tasteful exhibitor would just work out this idea for the sake of showing what can be done by contrast, and by harmony and proportion in arrangement, but chiefly by following out some of the natural laws of beauty, it seems to me that a deeper and more intellectual interest would attach to our exhibitions than in their present state they are able to afford. Such an exhibitor might imagine himself constructing a little island of beauty. He could place his tall and perhaps variegated plants in the centre; Ferns would be especially required for bowery and feathery effect; while in and amongst these his flowering plants might be placed, with effects enhanced a hundredfold by relative and surrounding circumstances.

I am not prepared to say how far even Orchids might be placed to advantage up and amongst the overspreading foliage; but I do know by frequent experiment that the drawing of a bare Orchid in its pot bears no comparison as an object of beauty to the drawing of the same Orchid placed amongst foliage, with such surroundings as its natural condition would afford.

It might be difficult, under the present circumstances of our floral exhibitions, to arrange any great number of these objects of interest, which I have compared to little islands of beauty, and still more so to render them commodious for public inspection; but even one attempt at the carrying out of this, or any other idea in advance of the old style, would give interest to our exhibitions for next year; and even from some slight errors in a new course advantage is sometimes derived. It is I believe the idea which is so much wanted in our exhibitions, and, without some leading idea, however well we may work, or even fight, we can never accomplish anything worth attaining—certainly nothing in the way of beauty; and without beauty—genuine beauty—in some way or other embodied, our flower shows can have no lasting charm. There must be something in these exhibitions to keep up the interest they are well worthy of exciting, and to make them repay the visitor for the trouble and expense of going to see them. For the mere florist they are perhaps well enough as they are, but certainly not for that vastly greater proportion of visitors who go for the sake of finding something to admire, and who above all things want that natural and healthy refreshment which beauty, under its most favourable aspects, is so well calculated to afford. *S. S. Ellis, Rose Hill, Hoddesdon.*

THE MISTLETO ON THE OAK.

(*Concluded from page* 700.)

I will now notice all the other instances which I have found recorded in books, and shall be able to show that most of them have ceased to exist, either from the removal of the Oaks, or the death of the Mistleto in them. The Frampton Mistleto-bearing Oak, as one of the most recently discovered, shall head the list.

In the third volume of "Notes and Queries," Mr. Buckman states that Mr. Baker, the then President of the Cotteswold Field Club, and himself, were taken by Mr. Clifford to see an Oak near Frampton-on-Severn in which Mistleto was growing:—"The tree was a century old, and the branch, with a good bunch of Mistleto on it, was about 40 years old." This example no longer exists. In answer to a letter of inquiry about it, Mr. Clifford, of Frampton Court, has politely written to say:—"A large party of us went to examine the Mistleto Oak yesterday, and were sorry to find that the branch of the tree on which it grew was decayed and the Mistleto dead. The tenant intends to observe whether the Mistleto grows again upon it." (April 19, 1864.)

Jesse, in his "Scenes and Tales of Country Life," (1844) states that Mistleto then grew on an Oak near Godalming, in Surrey; at St. Dial's, near Monmouth; near Usk; and also at Penporthlenny, Goitre, Monmouthshire. I have been unable to learn the fate of the Godalming Oak, but through inquiries which have been made for me with great diligence and perseverance, I am able to state positively that the Mistleto-bearing Oaks in the three Monmouthshire localities named no longer exist. "The Oak at St. Dials which bore Mistleto, was cut down by the bailiff about twelve years since, and the owner of the estate, Sir Lionel Pilkington, dismissed him immediately for doing so." The Mistleto Oak, near Usk, can be heard of up to five years since, and shortly afterwards it is reported to have been cut down with its neighbours. The loss of the Goitre example is thus sadly accounted for by a gentleman who kindly wrote about it—"I remember about 25 years ago there was a very large bush of Mistleto growing in an Oak in the parish of Goitre, but it was most sacrilegiously cut down and hung up over the President's chair at the Cymrygyddian held at Abergavenny. I saw it there myself, as no doubt hundreds of others did also." (J. M. N. April 19, 1864.)

In 1817, Mr. Dickson, at the Linnean Society, stated that he had seen Mistleto growing in an Oak four miles from Maidstone, by the side of the Medway, but since this has never been recently confirmed, it has most probably ceased to exist.

The late Mr. Loudon, also, was shown it in an Oak on the estate of the late Miss Woods of Shopwyke, near Chichester, but this tree can no longer be heard of. It has doubtless passed away with its observer, and the proprietor of the land it grew upon.

Mr. Dovaston, in Loudon's Magazine of Natural History (vol. v. p. 203), says he saw it at the Marquis of Anglesea's Park, at Plas Newydd, Isle of Anglesea, "hanging almost over a very grand Druidical cromlech." (Loes' "Botanical Looker Out.") But this not only wants recent confirmation, but is indeed denied by the statement in the same book, that Mistleto is not now to be found on the Island.

The following examples are interesting, though they have never been publicly recorded, nor are they any longer in existence:—

The late Sir Hungerford Hoskyns, Bart., of Harewood, in this county, saw the Mistleto growing on an Oak in the parish of St. Margaret's, near Moorhampton, and used to tell the anecdote that when staying at Moccas, he mentioned the fact to Sir George Cornewall, Bart, who would not believe it. As usual in those days, a wager was to decide the point, and the next morning both gentlemen rode off to the tree. Since Sir George paid the 10*l.* we may be quite sure the Mistleto was there upon the Oak, though it has never since been heard of.

It formerly grew on an Oak in Rockingham Forest, near Moorshay Lawn, Northamptonshire, where the tree was notched for the convenience of climbing up to get the Mistleto. (J. Percival Smith, Esq.)

It grew some years since on the lower bough of an Oak in the Vale of Neath, Glamorganshire, about two miles below Aberpergwm House, but the Oak was afterwards blown down in a storm.

It grew on an Oak at Mersham Hatch, near Ashford, Kent, where the tree was cut down; it grew on another Oak at Ledbury, which was also cut down accidentally; and it also has grown upon several other Oaks, if the most positive statements of trustworthy intelligent people are to be relied on; but it is unnecessary now to mention them further, since they have never been noticed publicly, and are admitted no longer to exist.

Mr. Edwin Lees ("Phytologist," 1851, p. 357) thinks "that Mistleto occurs much more frequently on the Oak than is generally imagined, but that the instances are not made known." The present inquiry about it gives a result precisely the reverse. The belief in its frequent occurrence is very general; it is the fact that fails. Many persons have seen it, and are sure of it, but no one can show the tree with the Mistleto on it. Time after time have I followed up the most precise statements to my repeated disappointment. "The Mistleto on the Oak," writes an energetic searcher for it in Monmouthshire, "is like a ghost, it vanishes into thin air when you try to grasp it; everybody has seen it long ago, but the tree is always cut down, or somehow or other the result is—*nil*." Most woodwards will tell you, and in good faith too, that they have seen it, and indeed will generally mention the exact tree and the place where it grows, but the result of their further examination has always been the same; for some cause or other the instance fails, and the Mistleto can never be shown on the Oak. The tree has been felled or blown down, or it may be the isolated bunch of wild Ivy or Honeysuckle which deceived them is revealed now the leaves are off the trees. Or perchance where nothing is found, as most frequently happens, they have been misled by a cluster of small twigs from the Oak branch itself, and indeed at certain periods of the year they do resemble Mistletoe more closely than would be credited by those who have not closely observed them. In some instances the mistake has arisen from one tree being intermingled with another—the Mistleto bush is in the Oak tree, but it is found to be upon a branch of Maple, or Thorn, or Apple tree.

I cannot do better than insert here the following lively passage from the letter of one of our members. It shows at once very graphically his own zeal in the pursuit of science, and the caution essentially necessary in dealing with facts of rare occurrence. I regret that the excellent sketch sent with it must be omitted. "You, of course, will be particular in verifying every case of its occurrence on the Oak, and the following instance of my experience will only be valuable to you in proportion to your capacity of enjoying the spectacle of pain in others. After our Annual Meeting, I was staying with a friend whom I knew to have a very excellent practical acquaintance with Natural History. I asked if he had met with Mistleto on the Oak. He at once said he knew of one example which he had discovered himself two years before. It was growing on a scraggy bush of Oak that overhung the edge of a quarry in a coppice wood. I was glad to accept his offer to point it out to me, and we made a special pilgrimage to see it. I was to climb, and tear, and scuffle through the underwood and briars, so as to come round on the top over the brink of the quarry, whilst my friend remained below to point out the position; with difficulty I got there, creeping down on all fours, and there sure enough it was, as pretty and healthy a bunch of Mistleto as I ever saw. I thought I would have a specimen, not quite believing my own eyes (though both would have made affidavit of its genuineness on the spot); with much trouble and care at length I got hold of the branch and was immediately struck by something unusual in the colour of the bark (the leaves were not out), so I at once tasted and found it Apple; one single small branch was growing out from under the stock of this Oak bush, the exact counterpart of all the other shoots. My disappointment you may conceive, but not the chagrin of my kind guide, who had treasured up for two years the knowledge of this magnificent 'find,' and in his own parish too!"

A writer in the "Quarterly Review (Vol. 114, p. 219) speaks of the Mistleto as "deserting the Oak" in modern times. "It is now so rarely found on that tree as to have led to the suggestion that we must look for the Mistleto of the Druids, not in the Viscum album of our own trees and orchards, but in the Loranthus europæus, an allied parasite, which is frequently found growing on Oaks in the south of Europe." A very unnecessary confusion, it seems to me, has been created between the plants, and I purposely avoid entering further into the subject for the reason given in the Review. "There is no proof that the Loranthus ever grew further north than at present; whilst the Mistleto figures not only in the traditions of the Celts, but in those of northern nations."

P.S. While this paper has been in the press, I have been assured that the Mistleto grows on an Oak in the Bishop's Park, at Farnham, Surrey (Mr. Findlay), but have not had time to make inquiries about it. *Dr. Bull, in Transactions of Woolhope Naturalists' Field Club.*

DIDYMOPANAX (ARALIA) PAPYRIFERA, AND ITS CULTURE.

Abridged from a communication by M. A. Stelzner in the *Hamburger Garten und Blumenzeitung.*

THE Didymopanax papyrifera, better known under its former name of Aralia papyrifera, is an interesting plant in two respects—utility and ornament. As

regards the first, it is now generally known that its pith constitutes the substance called improperly Rice paper. This was not known in Europe 30 years ago. [At an earlier period than that]. The first small leaves of it that were brought to London from China, were formed into a bouquet of artificial flowers, which sold for 50*l*. There was then no certain data as to the plant from which it was made, nor its mode of preparation. Microscopical examination showed that it was a cellular tissue analogous to that which constitutes the pith of plants generally. It was thought that the plant of which the pith was thus employed by the Chinese was a leguminous one belonging to the genus Æschynomene. Sir William Hooker, however, determined it to be an Araliaceous plant, and assigned it to the genus Aralia; but latterly it has been made the type of the genus Didymopanax.

As an ornamental-foliaged plant the Didymopanax papyrifera holds a distinguished rank. At the present time, there are none of these that grow in the open ground during summer that, as regards proportion and breadth of foliage, remind us of the magnificent Palm family. With the latter neither the Solanum, Uhdea, Cosmophyllum, Gunnera, &c., can be compared for size and appearance. This defect may, however, be supplied by the plant which forms the subject of this article. According to M. Stelzner, it surpasses for effect all the plants just named, when it is properly cultivated. When well grown, its stately form, and its leaves upwards of 3 feet in diameter, of firm texture, capable of resisting the force of the wind, render it one of the most imposing plants that can be cultivated for open air effect in the summer season. Unfortunately, up to the present time, cultivators generally have persisted in treating it as a hothouse, or at least as a greenhouse plant; a weakly languishing growth has been the consequence, and many have left off growing it on that account; but it would exhibit itself very differently if it were merely protected in a cold house during winter, and planted out in the open ground for the summer, either on lawns or in groups. In the latter case its growth is very vigorous and rapid, especially if watered occasionally with liquid manure, consisting of a solution of guano or any other similar liquid.

The best plan for making the most of its decorative capabilities is to plant this Aralia in a basket, which can be easily plunged in the soil in the open air in summer, and taken up in the autumn. The plants thus removed can be placed in the greenhouse during winter, where amongst other plants it will prove very ornamental, from the noble appearance of the plant, and the extraordinary breadth of its foliage. Treated in this way, M. Stelzner says he has seen plants bear 6° or 7° Fahr. below freezing, without their foliage being in the least injured. From his experience he informs us that the Didymopanax papyrifera is an excellent stock for different species of Aralia, difficult to cultivate otherwise. Beneficial results have been obtained by grafting upon it the Aralia leptophylla, elegans, peltata, and the beautiful A. dactylifolia. Possessing so many advantages, the Didymopanax ought to occupy a high rank in the lists of plants with ornamental foliage. It is important to remark that it is easily propagated by the roots. ||

Home Correspondence.

Officinal Plants, &c., at Exhibitions.—In your last week's impression Mr. Dodecatheon Jeffreyi has evidently meant to be very severe, but nothing is easier than to make an attack under a pseudonym. As to the Gardeners' Royal Benevolent Institution, to which excellent charity I am an annual subscriber, and also a donor, I hold that Institution in such high esteem that I submit the following proposition to Mr. D. J.:—The Royal Horticultural Society will hold an Exhibition of Rare Plants on the 24th of next month, and if Mr. Dodecatheon Jeffreyi can then exhibit a collection of plants, of the same sorts which I exhibited, and better cultivated (I confine him to these particular plants, being those against which he speaks so strongly), I will hand over to the Gardeners' Royal Benevolent Institution the sum of 20*l*.; but if Mr. Dodecatheon Jeffreyi fails to do this, he shall hand over to the Institution a similar sum. I make this proposition from its being inferred that the plants I showed are easily obtained and more easily grown. In my former communication I thought I had sufficiently and distinctly stated that I could have exhibited other plants, but only selected such as were well grown specimens. *William Bull.*—When persons make statements in a public paper, it should be with an endeavour to lead and not mislead. If the former is the desire of the writer the motive is good, but if the latter the motive is bad. I venture to make these remarks in reference to a statement made by Mr. Bull (p. 677) respecting some plants shown by him at the July Show of the Royal Horticultural Society. Mr. Bull states—"I sent well-grown specimens to the Show on July 6, of the medicinal and officinal plants named in the accompanying list"—a list, allow me to remark, that does not contain one rarity. "Judge of my surprise, that although entered in the Miscellaneous Class not the least acknowledgment was made;" and then Mr. Bull goes on to say, "With such a want of harmony betwixt theory and practice, how is one to know what to do?" One is really inclined at first sight to cry out with the million, "what a shame!" but a little investigation into the matter will show that Mr. Bull was not so badly treated after all. I think it may also be shown that Mr. Bull has committed some mistakes in order to make his case appear worse than it was. First, it is stated that the plants were all well grown specimens. I saw them at the show, and can say they were good nursery plants, and not specimens at all, in the general acceptation of the term. Then it is stated that they were entered in the Miscellaneous class, and in his second letter that they were "stigmatised" with a 3rd prize. It would have been more dignified to have said "awarded" a 3rd prize. These awards seem to have perplexed Mr. Bull, because there were no plants of a similar character to receive first and second prizes; but it is scarcely possible to believe that Mr. Bull is so ignorant of the meaning of the term "Miscellaneous" as to think it meant a class specially for officinal and medicinal plants. He must have known, however much he pleads ignorance of the fact, that it is the omnium gatherum of an exhibition, and open to all plants not specially mentioned in other classes—at least so says the schedule. To have required a first and second prize for plants of a similar character would be, therefore, quite gratuitous. Moreover, I find that instead of the judges being very stingy, as Mr. Bull's letter would lead the public to believe, they were extremely liberal on this occasion, having awarded (see p. 648) three equal 1st prizes, one 2d, four 3ds, and one extra in this class, although they might with justice to all have awarded only one of each. I must also remark that Mr. Bull's second letter, dated July 11, proves his first to be altogether a mis-statement of the case. Now, Mr. Editor, I wish to remark, as a judge of Horticultural Exhibitions, and having a considerable knowledge of the men who generally have to decide the vexed questions of first, second, and third, that they do it with a degree of fairness that cannot be questioned, and that if they make a mistake, as all men are liable to do, it is not intentional but an error in judgment. Such statements, therefore, as that Mr. Bull has thought fit to make have a tendency to bring a class of men who deserve well of their brother gardeners into disrepute, and to make the office of judge so odious that respectable men will not be found to undertake it. Mr. Bull first makes a statement that his plants did not get a prize, which is untrue. He then makes a statement that they were stigmatised with a third prize—which is equally untrue—or at least a misapplication of words; and, lastly, he appears quite ignorant as to what subjects were eligible to take 1st and 2d prizes in a miscellaneous class—a state of ignorance in which I do not believe. *Qui.* [Mr. Bull seems to have been, in the first instance, led away by an unofficial letter, having no bearing whatever on the prize schedule under which he exhibited. As to the actual award in this case, that seems to have rested with the judges; and from our knowledge of the men who act in this capacity at the principal London shows, we should have full confidence in their decisions. Whether or not the Society should do more for this class of subjects is altogether another question.]—Being one of the judges of miscellaneous plants shown at South Kensington on the 6th inst., I beg to say that so far from Mr. Bull's collection being passed by us unnoticed, we examined it most attentively, in order to find out the particular merit, if any, of every plant that it contained, and all of us were unanimous that there was nothing in it to particularly recommend it. I am surprised that Mr. Bull should consider his plants equal to those in other collections exhibited in the Miscellaneous Class, against which, although Mr. Bull appears to be ignorant of the fact, they were placed in competition by himself. Mr. B. states that in exhibiting them he endeavoured to carry out views promulgated in the Society's Proceedings (see pp. 109, 110). These I have read carefully, and I admit that the introduction of the kind of plants therein mentioned would add greatly to the interest as well as to the relief, as regards light and shade, of our horticultural shows. I do not, however, for one moment imagine that "pigmy plants," such as were exhibited by Mr. Bull, are invited; on the contrary, fair-sized specimens that would give the company some idea of their natural habits, productions, or appearances, are doubtless what are wanted. *Richard Ruffett, Brockett Hall, Welwyn.*

The Gardeners' Benevolent Institution.—Thanks to the *Gardeners' Chronicle*, the dessert supplied by the gardeners to the festival on the 9th was abundant and sumptuous, so much so that not one half of what was exhibited on the tables was used. The whole of those fine trophies of fruit that adorned the high table were left untouched, and on all the other three tables there was a great deal more than was required. As this fruit was supplied by the gardeners at your solicitation for the benefit of the Institution, will you be kind enough to inform me and many others who are curious to know, what became of all that surplus, and whether it was sold in aid of the funds of the Society. *An Old Subscriber.* [We do not know. Perhaps the Secretary or some of the Committee will satisfy our Correspondent.]

The Working Men's Flower Show Movement in Manchester.—Allow me to send you a few particulars respecting a flower show just held in Manchester, of a character similar to one or two exhibitions recently described in your Paper, and showing what can be done by a little effort even in the smokiest and dreariest of back streets. The parish of St. Andrew, Ancoats, Manchester, covers 62 acres, and contains 16,070 people, or nearly 270 per acre, and every 12th or 13th of whom resides in a cellar. The district is rarely visited by persons living in other parts of the town, except for purposes of business or philanthropy, and it must be confessed there are no attractions either in the buildings or the population that would draw any one that way upon other grounds. The Rev. Canon Richson has for years laboured to amend the condition of the parish, and latterly he has received invaluable aid from his curates, especially Mr. Holland. Early in the spring of this year, it was determined to see what could be done in the way of establishing a small natural-history class in connection with the Central Improvement Society that meets in the school-room, and especially to make an effort to encourage the love of plants, and the cultivation of them, as a solace amid the interminable bricks and mortar. Two or three gentlemen of large botanical and horticultural experience lent their aid to Mr. Richson. A capital evening meeting was held, commencing about 9 P.M. (for not much earlier are the poor people of this district free from their work), and the arts of seed-sowing, bulb-planting, and training and tying up to sticks, &c., made practically intelligible to a large company, literally of all sorts, men, women, and children, young and old. It was determined at the same time to hold a flower-show, at which the result should be exhibited, and on Saturday last this was accomplished. About 300 plants were shown, all in pots, and comprising Fuchsias, Geraniums, Roses, Musk-plants, Wallflowers, Stone-crop, Aloes, and several others, with here and there a little Fig-tree, and several thriving young Elders. A Lilium lancifolium had six buds upon it, and would probably have been in bloom, but the poor fellow who grew the plant had been taken ill, and was unable to attend to it. A queer thing, lank and weak with the excessive warmth of the kitchen in which one Gideon Jowett had nursed it tenderly, turned out on minute scrutiny to be a Stock. Mignonette, Hydrangeas, Chrysanthemums, and a trough or two of Kidney Beans, gave pleasing variety to the display. Prizes were given for the best plants in every class, and special ones for vegetables, such as Lettuces, which, wretched as they were, really did infinite credit to those who could drag such things out of soil deserted even by Grass and the last-to-yield of weeds. A short time ago, one fine summer's evening, about 40 of these earnest and striving people accompanied the writer a little way into the country in order to learn something about trees and wild flowers. To show that the lesson had not been lost, there were at the exhibition several pretty bouquets of hedgerow and meadow plants, brought from a distance of at least two or three miles. Prizes for the best collections of dried leaves of native plants, laid out neatly so as to show their forms and differences, had also been offered, but the competitors were too diffident to exhibit until more should be done. There is every hope and prospect that the good work thus commenced will be persevered in. No effort will be spared to incite the people to further effort. A hearty interest in such simple and inexpensive pleasures will do them more good, and increasingly so day by day, than the providing of any amount of mere amusement, which leaves them uninstructed, and supplies no employment for the hands. There is the vast pleasure, too, for them of possession. "I reared this plant"; "this is mine, the flower that took t' prize at 'xhibition!" After helping to adjudicate the prizes, I spent the afternoon at Biddulph Grange. In the midst of the thousand charms of that lovely place, with the new and fascinating on every side, I could not but feel the more how deeply it behoves every lover of plants and flowers to strive, each in his own way, to let his sweet and perennial pleasures be shared in, be it ever so humbly, by the poor inmates of the Ancoats and London cellars. *Leo. H. Grindon, 14, Charlotte Street, Manchester.*

Tobacco Manufacture.—Your correspondent's communication from the "Canada Farmer" on Tobacco Culture (p. 700) is very valuable, and I feel greatly obliged for it, but there is no mention of the manufacture of it for consumption. What I particularly wish to ascertain is what process it undergoes, here or elsewhere, after the leaf is properly prepared; in fact, what is mixed with it, and how it is rendered into Cavendish or roll, as in these states it is always moist and of a sweetish taste. Also, does not the leaf undergo some preparation before being cut up into shag, bird's eye, &c., as well as for cigars? Any information on these points is what I more particularly require, and I shall feel greatly obliged by any hints from a real manufacturer, as I expect to leave England in about a month or six weeks. *M. P. M.*

Horse-hair Bags for Figs.—I have just seen in the garden of a relative at Chichester some horse-hair bags for preserving Figs; they are said to answer capitally. I can get no information as to whence they were obtained, as my relative purchased them with the house some 30 years ago. They are about eight inches wide by ten long, and have a string run through the top; they can therefore be readily opened or closed as required. *D.*

Foreign Correspondence.

An Emigrant's Life in New Zealand: *Rakaia Terrace Station, Canterbury, May* 12, 1864.—Doubtless you will have heard of my safe arrival in this colony,

after a very pleasant voyage of 108 days from port to port, and with only just enough bad weather to let us know what a storm at sea is like. I was some little time before I got any employment after my arrival, but at last I got a job of haymaking, which only continued a short time, and then I was nearly three weeks before I got anything else to do. I heard of J., and wrote to him to learn if I could get anything to do where he was, and after waiting a week got a letter to say that if I liked to come 70 miles up country I could find employment. So off I set, with nothing but my blanket and the things I stood up in. I walked there in two days, and was taken on to work the next morning, hoeing Potatos; and then shearing began, and I had to fill up the sheep pens from 4 A.M. till 7 P.M. This lasted for nearly a month, and awful hard times these were too, I can tell you: at night no bed to lie on, nothing but one blanket under me and one over me, and thousands of fleas, so that hardly any sleep could be had, and I got up next morning as tired as I had been the night before. However, I managed to get over that difficulty. After shearing, one of our shepherds left, and I applied to the overseer to let me go on as shepherd, which after a while he consented to, and I have remained so ever since. I have now over 5000 sheep under my charge, and two dogs. I go out at 5 A.M. until sundown. It is an awfully lazy job, as one has to walk so very slow, and the days appear very long; they seem as though they would never come to an end.

The country is as flat as a table for upwards of a hundred miles square, and we can see houses 70 miles off easily when it is a clear day. This is a very windy climate, and when it blows you have to be very careful with your sheep; they will drive for miles before the wind. To-day (May 12) we have had an awful gale from the south-west, with rain, hail, and snow. All the mountains are covered with snow, and look very grand indeed. They run the whole length of the colony. Where I live is just at the foot of Mount Hutt, in a little wooden house with another shepherd, and we scarcely ever see anybody to speak to for months at a time, so that this is a most lonely place. My employer, a very good sort of man indeed, and one of the leading men in the colony, owns upwards of 12,000 sheep, and has rather over 35,000 acres of land, besides any amount of land in Christchurch. The land up here is not fit for agricultural purposes, as it is so stony. The squatters never make any hay of colonial Grass, as it is so wiry. The sheep eat only the short Grass close to the stones. The long Grass grows in large tussocks; some of it is 1½ yard long, but the generality of the Grass or tussocks is about 1 foot long. There are no trees whatever except in the bush, nor shrubs either; the land is nothing else but Grass and Reeds, look which way you will. I have found the telescope most useful; in fact I could not do without it. The rifle I have not used since I landed. You remember sending me a book called the "Canterbury Settlement." Well, that book is as full of untruths as it possibly can be; and this I have found to be the case with all that I have read. *G. E. F.*

Notices of Books.

Autumn Rambles in North Africa. By John Ormsby, of the Middle Temple. Pp. 298. 8vo. Longmans. 1864.

In the present day a professional man who has the means, thinks a vacation tour indispensable. If young and vigorous he often passes his holiday admiring the beauties of Switzerland, climbing mountains, and breathing the pure Alpine atmosphere. Mr. Ormsby had many a time done this, but under the impression that *toujours perdrix* was monotonous fare, bethought him that Marseilles was very near, and from thence to Algeria was but a couple of days' steaming, and then—what a charming novelty would greet his every sense. And, sure enough, there he saw "*bonâ fide* Arabs, the old familiar figures of that charming story book of childhood, the Arabian Nights, which has left more pictures behind it than many a work of greater ability since perused."

The thought was certainly a happy one, and was carried out in a very moderate space of time, with very little real inconvenience, and at a very moderate cost, and it was the most thorough change that can well be conceived. He lands at Philippeville, and proceeds to Constantina and Batna, as Hannibal crossed the Alps, according to the schoolboy joke, "on the top of the diligence," and at once he makes for the Atlas, and mounts the *Pic des Cèdres*, and everything serves to remind him that he is in a charming land, where wild beasts are not confined in cages, but roam at large. He visits the old Roman city of Lambessa, and recognises in the Prætorium the most perfect and beautiful relic of Roman colonization in North Africa, and could well understand that the Garden of the Hesperides was situated in a valley of Mount Atlas, when he had seen the rich luxuriance and beauty of the glens of the Auress. It is the district west of the river Triton which Herodotus describes as being, above all the rest of Libya, woody and infested by wild beasts. "This is in fact the preserve out of which Jules Gérard made his best bags." Lions, however, proved scarcer than one would expect; indeed each lion requires a large tract of country for his hunting ground, so that they are perforce widely scattered, and being a strictly nocturnal animal, he is not often to be seen before sunset. They don't think much of a lion in Algeria; he says: "I asked a woodman, who spent the greater part of his life up in the forest, if he ever saw lions there, and he answered, 'Quelquefois, monsieur,' just as if he was speaking of rabbits."

At El Kantra our traveller found the town a collection of huts built of sun-dried brick, with flat roofs of Palm stems, plastered over with mud, and having little windows, or rather air holes, of fantastic patterns. The women seemed to constitute the working classes. "The branch of industry which flourishes most in the city, is lying at full length and meditating. The capacity an Arab has for this occupation is astonishing. He never seems to tire of it, and never demands any relaxation." Mr. Ormsby next explores the Djebel Mitlili, and gets a shot at a splendid Feshtall, the maned mouflon of the Atlas, a magnificent wild sheep, with horns thicker at the base than a man's arm, and more than two feet long, following the curve. And then, from the top of the mountain, the view he had longed for was before him. "There lay the Sahara, a vast tawny plain, dotted with black spots like a huge leopard skin, to quote the old similitude, stretching away southwards an unbroken flat on to the dim blue line where the sky came down to meet it."

About halfway between El Kantra and Biskara is one of the "remarkables" of Algeria (as the old travellers quaintly call them), the great salt mountain of El Outaia. "This is no mere hill with lumps of salt cropping out of it, but an honest *bonâ fide* mountain, probably at least four or five miles in circumference, and seven or eight hundred feet high, with peaks, precipices, valleys, grottoes, and all things proper to a mountain, entirely composed of pure rock-salt. There can be no doubt that this is one of the series of salt hills which Herodotus mentions as standing at intervals of 10 days' journey all along the ridge of sand, stretching from Thebes to the pillars of Hercules."

Incidentally we learn that "the Arab dog is a terrible nuisance, but he has one redeeming quality,—he is an arrant coward, and holds a stone in great awe. No traveller ought ever to approach an encampment or douar without providing himself with half a dozen heavy stones, and if he delivers a good family shot into the first pack that rushes at him he may be let pass."

Mr. Ormsby considers the little territory called "La Grande Kabylie," a district about 80 miles by 60 in extent, the very Switzerland of North Africa. It is a rugged mountainous region, inhabited by a fine race of men, as different as possible from the Arabs of the plain, and perhaps of Vandal origin. "Figs and Olives grow here in abundance, every village had its row of oil jars, each big enough to contain the whole 40 thieves, and its cleverly constructed oil-press standing in the middle, like the stocks in an old English village; and every villager we met had the hood of his bernous stuffed with dried Figs, of which, with a jolly *bonhomie*, he would generally thrust a handful into our hands."

It seems that "Dr. Shaw was aware of the fact that lions were eaten in Barbary; but the Oxford philosophers made him cut out all allusion to it in his travels, on the ground that it was an inversion of the natural order of things, lions being made to eat men, and not *vice versâ*. Nevertheless the custom obtains to this day, and not among the Arabs only. The day of my arrival at Tebessa some Arabs brought in a fine beast they had killed, and next morning we breakfasted on lion at the auberge where I put up. The flesh is like poor, stringy, strong-flavoured veal."

Whether this savoury fare had anything to do with it or not, Mr. Ormsby had an inordinate longing for a ramble with the lion-hunters, which is delightfully told; and it is worth while for the tourist to know that "it is possible for a man who has dined on Monday in London, by making the best use of express trains and quick steamers, to put himself in a position to be dined on by a lion in Africa on the following Friday evening," an immense advantage to a vacation tourist. This ramble with the lion hunters is very exciting, and extremely well told throughout, though the "noble beast" omitted to make his appearance. We could, doubtless, amuse the reader with some extracts from this chapter, and the next, entitled "a Derby Day with the Arabs," but it would be scarcely fair to the book, of which enough has been said to show that it ought by all means to be procured; for it will prove capital reading to the tarry-at-home traveller, as well as being invaluable to the Algerian tourist. The story of the poor old horse is quite pathetic—we *must* make room for it:—"My companion left me while he went to fetch his horse. He returned leading an animal, which only by courtesy could be described as a specimen of horse-flesh. He bore at best the same relation to a horse that an old hulk, undergoing the process of breaking up, does to a ship. How anybody on a fine autumn evening, not too warm, could prefer such a mount to walking, I was at a loss to imagine, and I looked as much, when Mr. C. hastened to explain that his matchless steed was devoted to a nobler service than that of bearing burdens. To be a lure for lions was the mission of his declining days, and he had been purchased for that purpose for the sum of 2*s.* 6*d.* English money. His coat, white with age, made him a conspicuous object at night; and his efficiency as a bait was increased by a chronic cough, which signalled his whereabouts with the regularity of a minute-gun. This explanation lent an unexpected interest to the animal; but it also suggested a destitution among the lions of the Mahouna for which I was unprepared; and then arose the question—might not a lion with an appetite up to the mark of such a scarecrow, look with favour upon a moderately succulent Christian?"

Our House and Garden. By Cuthbert W. Johnson, F.R.S. 8vo. Pp. 282. William Ridgway, Piccadilly. This little book is written with the laudable intention, if possible, to make home more charming, by directing attention to many things of interest about the house and garden, which otherwise might not be observed; "and by rendering some of its surroundings better understood."

A gentleman is in bed, when the servant taps at the door to call him, but instead of getting up forthwith, or it may be while dressing, he ask himself the question, Why do we use feather beds and blankets? and eventually he comes to the conclusion, that it is because they answer the purpose of keeping us warm, better than some other things, which are not non-conductors. At breakfast the same spirit of inquiry is manifested; the fire, the coals, the tea-kettle, the sugar, cream, and coffee, and even the orange marmalade, supply him with food for thought and talk, till he takes a turn in the garden, and observes the plants, and the Grass, and insect life around him, in the same style. There is a good deal of useful information, and several curious facts are quoted from the *Gardeners' Chronicle*, and publications of that class. From its style we should think the book was probably intended for young people. We say this however in no way of disparagement.

The Grammar of House Planning, by a M.S.A. and M.R.S.A. A. Fullarton & Co., Edinburgh and London. 1864. Pp. 190, 8vo.

During the last 20 years very considerable improvements have been made in domestic architecture, and in all that can add to the comfort and convenience of houses. Wise people therefore, who are intending to build should obtain the best advice, and avail themselves of those inventions which are found to answer in practice, and are most approved. Many people fancy they could choose a site and plan a house, but a mistake made here is usually a life-long trouble, for very few have the chance of rectifying errors of this kind, when once they are committed.

Of course there are first principles of house-planning, which never can be violated with safety, and the book before us endeavours to point these out. The writer appears to have given lectures on the subject, and has probably contributed to the pages of the "Builder," and similar publications, for he has been permitted to reprint extracts from these papers. The principles laid down are the result of observation and experience, and they are founded on good sense. Aspects and prospects, he says, are chief elements in choosing a site, but "architects in general pay little attention to the former, and admirers of rural scenery think of nothing but the latter." Of course you can't have all your rooms with a south-east aspect, which is undoubtedly the best, any more than the late Mr. Herring could have a south wall, for Peaches, running all round his garden, but assuredly the cheerfulness and even the healthiness of a house depends greatly upon considerations of aspect.

"Trees close to the house are absolutely pernicious, but if planted at a proper distance they compose its finest ornament. They should be considered as aids to show off the house and its appendages, instead of becoming the principal objects of attraction in themselves. Their disposition should be such as to create a perfect whole when seen in connection with the house itself.

"No more fitting or beautiful and poetic appendage to an architectural scene can be conceived than a refined and cultivated garden of choice flowers—those beautiful objects sent expressly to gratify the senses, and in the formation and adornment of which are united in perfection, the graces of colour and shape, freshness, and fragrancy."

Drainage; prevention of damp, which is better than its cure; ventilation; windows and their position; the position of the doors of a room, and subjects of the like kind, are all treated of, and well. A quantity of woodcuts and plates are given, showing plans of gentlemen's villas and cottagers' houses, figures of approved tiles for floors and roofs, traps for drains, &c. Indeed there is valuable information on the proportion of rooms and their decoration, lighting, and everything that can make a house pleasant and comfortable.

In Parts 12 and 13 of Dr. William Smith's *Dictionary of the Bible* there is an excellent article on the Locust of Scripture; and the nine different words which have been supposed to represent so many distinct species, or different stages of growth of the locust, are exhaustively discussed. Our readers are aware that there are persons at this day who gravely assert that the locusts which formed part of the food of the Baptist were not the insect of that name, but the long sweet pods of the locust tree (Ceratonia Siliqua), *Johannis brodt*, "St. John's bread," as the monks of Palestine call it. Locusts are, however, still used as food, and travellers tell us, "the Hottentots are glad when the locusts come, for they fatten upon them." At page 133 we learn, "There are different ways of preparing locusts for food; sometimes they are ground and pounded, and

then mixed with flour and water and made into cakes, or they are salted and then eaten; sometimes smoked, boiled, or roasted, stewed, or fried in butter. Dr. Kitto (Pict. Bib. note on Lev. xi. 21), who tasted locusts, says, they are more like shrimps than anything else; and an English clergyman, some years ago, cooked some of the green grasshoppers, Locusta viridissima, boiling them in water half an hour, throwing away the head, wings, and legs, and then sprinkling them with pepper and salt, and adding butter, he found them excellent. How strange then, nay, "how idle," to quote the words of Kirby & Spence (Entom. i. 305) "was the controversy concerning the locusts which formed part of the sustenance of John the Baptist. . . . And how apt even learned men are to perplex a plain question from ignorance of the customs of other countries."

We find in the *Botanical Magazine* for July, capital figures of the following subjects, namely:—*Macleania speciosissima*, a warm greenhouse shrub flowered by Mr. Bateman at Biddulph Grange, and received by him from the establishment of M. Linden, under the name of Thibaudia elliptica, but "certainly not that plant of Ruiz and Pavon." It is an evergreen shrub with long pendent branches, clothed with ovate distichous coriaceous leaves, and bearing nodding tubular flowers, several from each axil, so that they are crowded for some distance along the under-side of the branch, while the leaves spread right and left over them. The corolla is upwards of an inch long, bright scarlet tipped with yellow, tubular and five-angled, and slightly ventricose a little above the base. Mr. Bateman remarks that it requires the heat of a warm greenhouse, and should be placed in a large pot, which ought to stand on a bracket or shelf near the glass. When thus placed the long straggling branches hang down gracefully and flower abundantly. And thus flowered, the plant is very beautiful.—*Dendrobium marginatum*, a Moulmein epiphyte, introduced by the Rev. C. S. Parish to the nursery of Messrs. Low & Co., and flowered last April by Mr. Rucker. It forms a cluster of angular stems as thick as a swan's quill and a foot high, and bears linear lanceolate leaves, and lateral flowers, in pairs, of moderate size, the sepals and petals white, the lip three-lobed with the central lobe wavy and having a cinnabar-coloured disk and a white border.—*Micranthella Candollei*, a Melastomaceous shrub, from the Andes of Peru, and requiring greenhouse culture. It has rather large ovate acuminate five-nerved rusty-haired leaves, and a terminal many-flowered panicle of changeable purplish flowers, each about an inch across.—*Meconopsis aculeata*, a fine Indian Poppywort, native of the high mountains of Kumaon, at an elevation of 11,000 feet, and of Kashmir, at an elevation of 10,000 to 14,000 feet. The plant, which is sparsely clothed with spreading hair-like prickles, has radical cordate or ovate variously lobed leaves, and oblong pinnatifid cauline ones, all of these variously lobulate. The flowers are large, two inches or more across, of a rich purple-blue with golden stamens, solitary in the axils of the bracts, thus forming a long raceme in which the upper flowers expand first. The root is supposed to be perennial.—*Cymbidium tigrinum*, one of many new Orchids sent from the Malay Peninsula by the Rev. C. S. Parish, to the nursery of Messrs. Low & Co. It was found upon rocks in the Tenasserim mountains, at an elevation of 6000 feet above the sea level. Sir W. Hooker observes: "I have here adopted Dr. Lindley's character for the genus Cymbidium, but what are its limits I do not understand;" and he quotes a remark of Mr. Bateman, to the effect that the compact pseudo-bulbs and few-flowered spikes are very unlike anything in the genus with which he is acquainted. In the plant figured the pseudo-bulbs are clustered, roundish or ovate, as large as walnuts, with three or four oblong-lanceolate slightly twisted leaves. The scape is radical, about a span long, bearing about three flowers, which are large, but with the parts comparatively narrow. The sepals are spreading linear-oblong yellowish green; the petals similar erect and nearly parallel with the upper sepal; the lip large three-lobed, the side lobes erect purple within, the middle lobe recurved broad-oblong, white barred transversely with dark purple.

The present issue of *Seemann's Journal of Botany* contains a plate representing five new British Mosses, the species figured being *Hypnum imponens*, *Funaria microstoma*, and *Seligeria calcicola*, *calcarea*, and *pusilla*; these are described by Mr. W. Mitten. There are also papers on the flowers of Euphorbia amygdaloides, by Mr. W. G. Smith; an account of Mr. Spruce's Botanical Explorations; and some remarks by Professor Babington on Alsine pallida, a near relation of Alsine (Stellaria) media, the author observing that he concurs with those who combine A. pallida, media, and neglecta, "to form the species Stellaria media, Vill." The Editor has some observations on certain genera with a one-celled ovary referred to Hederaceæ. These genera are Arthrophyllum, Bursinopetalum, Pukateria, and Cuphocarpus; and reasons are given for transferring the three first permanently and the latter provisionally to the order Cornaceæ. The remaining papers are an official report on the Botanical Department of the British Museum; an account of the analysis of Indian Cinchona bark and leaves; some reviews; and the usual scraps of correspondence and botanical news.

The *Florist and Pomologist* figures *Graham's Yellow Perfection Wallflower*, a large-flowered single bright-yellow variety, obtained by Mr. F. J. Graham, of Cranford, after many generations of careful seeding and selecting. The object set out to be attained was, we are told, to produce a variety in which the flowers should be of a pure yellow colour, of large size, and of good form. These points of excellence have all been attained, and the flower, being one of the sweetest of its race, possesses all the elements of popularity. In the decoration of the spring garden this bright coloured sort, when it comes to be distributed, will form an excellent companion for the large deep blood-coloured variety now common everywhere. This number is unusually full of papers of interest. In an article on Spring Flower-gardening the writer observes: "I aver I have no faith in the prophetic vision of those who proclaim a speedy return to the system of mixed beds. The method has passed away; all our decorative gardening now tends towards the other pole of design." Doubtless this is true, to some extent at least. Parterres will not disappear from the garden system, and it is not necessary they should, but we don't want all the garden parterre-ized. Let us rather still have our parterres in appropriate places, and none more appropriate than terraces and similar spots isolated and detached from the rest of the garden; let us have our lawns free from glaring colour spots, and the inroads of the bedders; and let us have our flower borders too, wherein a succession of beauties not fitted for colour-grouping, but blooming on in turn from spring till winter, may constantly reward our care. This is the sort of reform which is needed. Mr. Fleming has a fourth paper on House Decoration; and "Quo" gives further chronicles of his Town Garden. Salad culture, especially that of Watercresses—a crop extensively grown in Buckinghamshire—is commented on by Mr. Bailey; Bedding Pelargoniums, Pears, Pot Verbenas, &c., come in for attention; and there is an account taken from the *Abeille Pomologique*, of the Abbé Dupuy's experiments in growing Pears on the Hawthorn stock. The plantation was made in November, 1862, the stocks having been grafted in the March previous. They were planted at 20 inches apart, in a shallow calcareous soil, which is friable to the depth of from 3 feet to 4 feet 6 inches; and they are intended to be trained in *cordon vertical*. The result which was noted in October, 1863, seems to have been pretty much in proportion to the vigour of the plant, the most vigorous being unfruitful, and the less vigorous ones more or less fruit-bearing. The following sorts are recorded as having "no fruit buds:"—Beurré d'Angleterre, Beurré Bosc, Beurré Bretonneau, Beurré Diel, Doyenné Doré, Duchesse de Berri, Fondante des Bois, Jalousie de Fontenay, Beurré Gillot, Jaminette, Marie Louise, Royale d'Hiver, Sageret, Sans Pepins, Van Marum, Virgoulouse. The following bore "some," or "a few" fruit buds:—Angleterre d'Hiver, Blanquet à longue queue, Bergamotte Cadette, Catillac, Beurré Duval, Beurré Esperen, Beurré Gillot, Marquise, Surpasse Meuris. The following were "full" of fruit buds, or had "many," or "plenty" of them:—Brown Beurré, Winter Nelis, Carmélite, Fondante de Charneux, Vicar of Winkfield, Double Philippe, Fusée, Henriette Bouvier, Louise Bonne of Jersey, Marquise, Martin Sec, Milan Blanc, Beurré Moiré, Nouveau Poiteau, Passe Colmar, Passe Colmar François, Paternoster, Bezi de Caissoy, St. Germain, Sylvange Thouin, Tonneau.

In the *Floral Magazine* are figures of:—*Azalea (indica) Souvenir du Prince Albert*, a semi-double Belgian variety, which, from its well-contrasted colours, will doubtless be a good decorative plant, though it has not yet been well shown in England; the flowers are of a bright salmon rose, very distinctly edged with white.—*Auricula Lord Clyde*, a dark maroon flower of good form, but with somewhat angular paste. It is remarked that "a considerable difference of taste exists between northern and southern growers as to what constitutes a good Auricula for exhibition, the former having been in the habit of greatly reducing the number of the pips, as the individual flowers are called, so as to make a truss consist of but three or five flowers, and looking more to the quality of the pip than to the size and effect of the plant as a whole; while the latter have regarded these as essentials, and have been more inclined to obtain large flowers than small ones. The friendly intercourse that has taken place between them both, in their exhibitions, has had the good effect of modifying both these views, and we doubt not that permanent good will result from it. There can be no question that refinement is the one remarkable characteristic of the Auricula; and if a flower be naturally coarse, or be made so by cultivation, it very materially detracts from its beauty; and moreover the effect of high stimulants on the Auricula is to alter completely the character of the colour, so that they are, for these reasons, to be avoided. We think, too, that the opinion is now winning its way amongst northern growers, that to cut down the number of pips, as they have been in the habit of doing, is also wrong, inasmuch as it gives them a very bald appearance."—*Ornithogalum thyrsoides*, an old-fashioned and long forgotten half-hardy Cape bulb of great beauty, lately reintroduced to the notice of cultivators by Messrs. Carter & Co., and more than once noticed by us.—*Fuchsia Cloth of Gold*, a sport of the well-known old favourite Souvenir de Chiswick, which is spoilt as an ornamental plant by the white-edged leaves thus associated with its bold crimson and purple flowers; but becomes of course all the more interesting to those who are touched with the mania for variegated plants.

Miscellaneous.

A Road-side Inn in the Rocky Mountains.—Well, Jack told me he was coming the other day, from the Warhoe diggings in California, overland to Florence in the State of Missouri. It was somewhere in the Rocky Mountains, I think. It was at night, and he was huddled up in a stage coach, asleep, and dreaming of bears, wolves, and wild Indians. Suddenly the coach broke down, but fortunately close to a little tavern. Jack Moseley rubbed his eyes and thought he was still dreaming, when, alighting, he found himself in front of the precise model of an English wayside inn. There was the bench, there was the horse-trough in front; there were the red and white blinds to the windows; there was the bar, with its big cheese in full cut, its pork pies, its row of gaily-painted kegs of cordials, and its well-polished beer-engine. There was the little parlour, with its neatly-sanded floor, its triangular spittoons, its rack of churchwarden pipes, and its coloured prints of fights for the championship, racing cracks, and Sir Tatton Sykes in top-boots, affably conversing with his trainer, who was bald-headed, white-cravated, and respectful, in drab gaiters. There was a grinning ostler, there was a stout potboy, there was a spruce waitress; there was positively a one-eyed bulldog on the premises. On the coffee-room blinds there flourished the approved golden legends as to chops and steaks that were always ready, dinners that were to be dressed, neat wines and soda-water; but wonder of wonders! what do you think the sign was? Not the "George Washington," not "The Jefferson," not the "Bold Digger," not the "Big Nugget," not the "Lucky Placer;" but the "Osbaldistone Arms." The landlord was an American born, but his grandfather had been a groom in the Osbaldistone family in England. He subscribed to *Bell's Life* and the local Yorkshire papers regularly, and his little house looked as though some magician had suddenly caught it up from the English north country and dropped it down in the middle of the Rocky Mountains. *Dickens's All the Year Round.*

The Best Whitewash.—Mr. Ritchie, a Boston (U.S.) master-builder, after 40 years' experience, comes to the following conclusions respecting the best white-wash:—1. For rough outside walls—those exposed to the weather—the best mixture is clear lime and water. Any animal or vegetable substance diminishes the adhesion and durability of the wash. 2. But if the wall be hard and smooth, the wash is improved by a mixture of very fine sand—as much as will mix and can be applied. 3. For inside walls an addition of a little glue—say a quarter of a pound to three pailfuls—increases the adhesion. If it be desired to have the walls very white, the whites of eggs may be used in the place of the glue. *Builder.*

Oysters.—Oysters appear to have been known to the ancients as well as the modern populations of the globe, for we find that they were not only held in esteem by the Athenians, but were eaten extensively by the Romans, who in all probability knew quite as much about their cultivation as we do at the present day. To give the history of the oyster as it was bred, cooked, and eaten in the days of Horace, Cicero, Seneca, &c., would require a volume of monstrous size, and would be quite beyond the space at our disposal; so we shall dismiss the subject in observing that the wealthy Roman, Sergius Orata, was the originator of artificial oyster breeding. He it was who formed the enormous beds of oysters at Baia, and who carried his culture of these shell-fish to such an extent both here and in Lake Lucrinus, that he was prosecuted for "trespass," by the celebrated orator Considius. It must also be stated, to the credit of the English "natives," that the Romans who first became acquainted with them in the time of Agricola, preferred them to their own, and gave to them the name of "Rutupians," from that of the locality—Richborough (Rutupium)—in which they were found. In zoological parlance the oyster is termed Ostræa edulis; most probably our term oyster is a corruption of the generic title, which was also the Latin name. The Greeks called it ὄστρεον, and used the shells as we use the balls of a ballot-box, the shell being termed ὄστρακον; the expression ostracise was thus originated. Being possessed of a double conch which opens and closes by means of muscles and a hinge, it is said to belong to the class of bivalves, and from having its gills arranged in folds it is designated a Lamelli-branch. The oyster must have existed for many centuries before a trace of civilisation appeared in Europe,—nay, before even man himself came upon the scene. From the writings of the late Edward Forbes, we learn that "the discoveries of geologists open scenes of regret to the enthusiastic oyster-eater, who can hardly gaze upon the abundantly entombed remains of the apparently well-fed and elegantly-shaped oysters of our Eocene formation, without chasing 'a pearly tear away,' whilst he calls to mind how all these delicate beings came into the world and vanished to so little purpose." Near Reading, in Berkshire, there exists a fossil bed of oysters, the specimens from which possess all the features of our best modern ones. This bed extends over more than six acres of ground and averages two feet in thickness; but, large as it is, it bears no comparison to those which volcanic action sometimes tilts

up along the shores of the South American continent, beds which in some instances are nearly 30 yards deep, and cover an area of 70 square miles. So much for the distribution of the oyster in time. As regards its present geographical range, we may say that it extends from Iceland to Naples and the Adriatic. It is not found in Greenland, but exists abundantly on the North American coasts; McAndrew has found it in Vigo Bay and off Gibraltar; and in his valuable report we find it stated that O. edulis is found from Britain to the Mediterranean, at depths varying from 4 to 40 fathoms. The oyster does not belong to the eastern hemisphere, and judging from the huge quantities contained in the Danish kjökkenmöddings, it must have had a wider European range during the "stone" period than it has at present. Vegetable food is the kind it loves, and when this is abundant, the oyster fattens. It affects a warm temperature, and does not reach perfection in cold climates. Hence it is, as Mr. Buckland states, that the oysters on the west of France, which are warmed by the Gulf Stream, have the advantage over our "natives." A sandy or muddy bottom, and comparatively shallow water, are most congenial to the adult oyster's tastes. It is as yet a question whether it will live in fresh water as well as in salt; but, from the evidence of Dr. Kemmerer, it would appear that fresh water only influences it as to flavour, and has no effect upon its growth, fattening, or virility. Very extensive beds exist all round our coasts, but the most important are those of Kent and Essex, and the Milton, Queenborough, Rochester, and Faversham beds are too well known to need any description from us. Suffice it to say that such is the importance of this branch of commerce, that 700,000,000! of oysters are annually consumed in London alone, and quite as many if not more in the provinces. Now, supposing we value them at 6*d.* a dozen, which is certainly below the ordinary selling price, we shall then have an annual expenditure in England of about three millions sterling in oysters alone! *Popular Science Review.*

Ancient Hair-Doctors.—But it seems that in all times ladies and gentlemen losing their hair believed in the possibility of a remedy, and where there was a demand there was, of course, a supply. The Ediths and Rowenas of the Saxons consulted the doctors about their hair, and so did the Julias and Æmilias of the Romans before them. The treatment was rather different in those days, but probably not less successful than that of our time. We may doubt whether the Lady Rowena put her hair in curl-papers; we may be sure she went to bed with her nose full of sowbread, serenely confident that she knew how to keep her hair on her head. "In case that a man's hair fall off, take this same wort (Sowbread) and put it into the nostrils," says Apuleius. He adds, soon afterwards, "It also is well beneficial for heart ache;" possibly he might have said, with equal truth, for "the thousand natural ills that flesh is heir to." But in any case it is no small thing to know how your hair may be made to grow, and your heart cured of its aches, by one and the same remedy. But not content with acting upon the hair indirectly through the olfactory nerves and brain, Apuleius and the Saxon leeches occasionally recommend local applications. They mention especially water-wort. "If a man's hair fall off," they say, "take this same wort, pound it in oil, smear then the hair therewith, it soon becometh fast." The assertion is rather vague as regards time, especially when we consider that the Saxons were a patient people. We are more precise in these days; "a month's trial will suffice to convince the most sceptical of the infallible virtues of the pommade Philocome;" and "we need ask the afflicted to buy no more than one bottle of the oil of the Esquimaux chiefs." *Dickens's "All the Year Round."*

Death of Mr. Geo. Dods.—We have to announce with regret the death of Mr. Dods, aged 38 years. The fine collections of stove and greenhouse plants which he was wont to exhibit at our great metropolitan shows when gardener to Sir John Cathcart, at Englefield Green, will doubtless still be fresh in the recollection of many. After leaving Sir J. Cathcart he became a nurseryman at Epsom, where for several years he has carried on that business successfully, until last Wednesday night, when death put an end to a long and severe illness. He was a warm and sincere friend, and his early death is a real loss to good gardening, of which he was an energetic supporter.

Calendar of Operations.

(For the ensuing week.)

No time should now be lost in putting all houses, pits, or frames in thorough repair before short days have arrived, or cold wet weather has set in. Let all glazing be seen to at once; also painting where needed. Inside white-washing, although manageable at all times, may likewise now be done, and before applying it see that abundance of sulphur is mixed with it. No one need be afraid of using any amount of it on cool surfaces. The repairing and cleansing of flues, where such still exist, will of course also suggest itself, and the examination of boilers or other apparatus where suspicion may rest should likewise be proceeded with forthwith.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors there will now be abundance of work requiring immediate attention. Tall plants may require additional staking and tying to preserve them from breaking down. Many beds and patches of early flowering annuals will now be past their best, and should be removed, filling their places with the gayest things that can be selected from the reserve garden. These matters should not be neglected even for a day, as a garden should at all times, if possible, present a scene of progressive beauty; to this end, therefore, every effort should be made to conceal or alter anything which would give it a declining or fading appearance. Advantage should be taken of favourable weather to do many operations in the reserve garden, such as thinning and transplanting young annuals, biennials, and perennials, and various shrubs which stand too close in their seedling beds. The propagation of many plants, of which a great quantity is required, is sometimes rendered difficult by their tendency to produce nothing but flowering shoots; by closely cutting in a few of the plants, this difficulty will be obviated, as they will thereby be induced to throw out strong young shoots, which will strike with the greatest facility. This hint applies to Lobelias, Petunias, Delphinium grandiflorum, and many other plants of a similar character. Although flowers of all kinds are, at this period, most abundant out of doors, yet some large and well-grown specimens of choice things will always furnish interest under glass. To accomplish this, however, skilful modes of culture are necessary if perfect success is to be attained. Climbers, too, must at all times receive attention. Stopping gross wood is by far too much neglected. Above all, secure a thorough freedom from insects; all this, however, presupposes plenty of labour, directed with judgment.

CHRYSANTHEMUMS.—The watering of plants of these which are being prepared for early winter flowering should be carefully attended to, or they will lose their lower leaves, by which the appearance of the plants will be spoiled, and the production of useless suckers encouraged. Old plants which were planted out for the purpose of layering, should now have the points of the shoots pegged down; after this preliminary operation the points will re-erect themselves, and in a week's time they may be layered in small pots, plunged immediately under the bent portion of the shoot. Established plants will also now require attention; see that they do not suffer from want of water.

DAHLIAS.—Trap earwigs, and remove all badly-formed buds as they appear.

PELARGONIUMS.—Cuttings may be taken of some of the best varieties, as they will strike now, in the open ground, with greater freedom than they will at any time during the year if coddled up by bottom heat and so forth; besides this the plants they produce are healthier, more robust, and form handsome specimens in a shorter space of time. Proceed by loosening the soil of a south border, and by mixing a little sand with it if required; afterwards insert the cuttings 3 inches apart, fastening them well with the thumb and fore finger. If the weather keeps dry, it will be necessary to water them occasionally; but, if possible, defer this till their bases are healed over. As soon as they have made a few fresh leaves, they can be taken up, potted into 3 and 4-inch pots, and placed for a few days in a close frame; after which they may be gradually exposed to sun and air.

RANUNCULUSES.—Beds from which the roots of these have been taken up, should be dug roughly or ridged in order to sweeten the soil by exposure to sun and air.

FORCING GARDEN.

MELONS.—Plants in dung frames will require considerable attention. Keep the bottom-heat as regular as possible, and endeavour to secure sufficient warmth from the linings to allow of giving plenty of air while the weather is fine. Water very cautiously, and only when a fresh supply is absolutely necessary, and then give enough to moisten the whole mass of soil.

PEACHES.—The wood will probably be ripe in the early house by this time. Give therefore all the air possible. Give trees from which the fruit has just been gathered a good washing with the engine to clear the foliage of dust.

PINES.—Plants intended to furnish the winter and spring supply of fruit must be treated with considerable care and judgment, in order to insure their showing at the proper time, or rather to do all that can be done to insure this, for the most experienced growers cannot always succeed in getting plants to fruit at the desired time. Attend to previous directions on this point, and continue to select the most promising plants, keeping them dry at the root, and fully exposed to light so as to check their growth, and induce a comparative state of rest for a few weeks. And those that have well-matured their growth, if wanted to fruit at once, should be kept close and warm, affording them a brisk bottom heat, and properly moistening the soil about the roots. Those intended to supply ripe fruit late in spring, if not considered sufficiently strong, may be encouraged to grow freely for some time yet, as if these can be got to show in November, they will be sufficiently early. Attend carefully to plants swelling their fruit, giving plenty of manure water at the root, and keeping the atmosphere warm and moist. Attend to the watering of recently potted stock, as if too much is given the fresh soil is apt to become sodden, and if too little the old ball becomes so dry that it is not easy to get it properly moist again, and in either case the check which the roots sustain frequently throws the plants into fruit prematurely. Get all succession stock requiring more pot room shifted as soon as circumstances will allow, in order that it may be well established in the pots before winter.

VINES.—Should wet weather set in, it will be unfavourable for Grapes that are ripe and expected to hang in good condition for a long time, and where the borders are of a strong adhesive nature, it will be advisable to cover with something to throw off heavy rain; where, however, the soil is of a light nature, and such that the water will drain through it freely, this will be unnecessary. Use gentle fires where fruit is colouring, with a moderate circulation of air, and on fine days too much air can hardly be given at this stage. In dull weather fire heat will also be necessary where fruit is swelling.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to fasten in young wood of wall trees, and to see that they are perfectly free from insects; also stop over-luxuriant shoots, and endeavour to secure a fair amount of bearing wood all over the tree. Gross shoots that were stopped early in the season may now be divested of laterals. Keep the breast-wood on Pear and other wall or espalier tress closely stopped in.

CABBAGE.—Sow now some seed of the Enfield Market or some other sort for spring cutting.

SPINACH.—Sow a little Prickly now for use late in the season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending July 27, 1864, as observed at the Horticultural Gardens

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind.	Rain.
Thurs. 21	17	29.915	29.829	81	49	65.0	66	63	S.W.	.10
Friday 22	18	29.858	29.855	76	50	63.0	65	62¼	S.W.	.00
Satur 23	19	29.968	29.943	79	43	61.0	65	63	S.W.	.00
Sunday 24	20	29.924	29.814	78	46	62.0	65	62¼	S.W.	.12
Mon. 25	21	29.791	29.613	73	50	61.5	64	62¼	S.W.	.53
Tues. 26	22	29.910	29.742	77	39	58.0	64	62¼	S.W.	.00
Wed. 27	23	29.964	29.848	78	52	65.0	64	63	S.W.	.10
Average.		29.905	29.806	77.4	47.0	62.2	64.7	62.7		.25

July 21—Fine; very fine; sultry; fine, rain in the evening.
— 22—Very fine; cloudy; overcast.
— 23—Very fine throughout.
— 24—Fine; very fine; overcast; rain at night.
— 25—Rain; fine; rain at night.
— 26—Very fine; dry air; fine, cold at night.
— 27—Very fine; quite cloudless; very fine.
Mean temperature of the week 1·10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending August 6, 1864

July and August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 31	75.0	50.6	62.8	14	0.66 in.	2	5	2	—	4	15	8	3
Mon. 1	76.1	50.9	63.5	18	1.23	1	3	7	2	3	13	8	1
Tues. 2	76.0	52.0	64.0	18	1.03	1	4	3	—	8	14	5	3
Wed. 3	74.9	50.9	62.9	19	0.38	3	4	3	2	4	16	5	1
Thurs. 4	75.7	51.3	63.5	17	0.85	2	3	4	3	4	16	5	1
Friday 5	74.0	51.4	62.7	18	0.88	1	4	4	2	5	13	6	3
Satur. 6	72.9	51.1	62.0	18	0.58	—	6	3	1	5	13	3	2

The highest temperature during the above period occurred on the 2d, 1856—therm. 92 deg.; and the lowest on the 1st, 1862—therm. 36 deg.

Notices to Correspondents.

BOOKS: *Dodecatheon.* We find on inquiry that there has been no second edition, properly speaking, of Mr. Smith's Fern Catalogue. A few remaining copies seem to have changed hands on the retirement of the publisher, and to have been issued with a new title page. Another edition is in preparation.

EVERGREENS: *W P.* Favour us with a *precise* case, and we will give you a precise answer.

FERN SPECIMENS: *J H.* If our correspondent will attach any reasonable meaning to the words "fair-sized mature fertile specimens," as distinguished from the "darling little specimens" which Mr. Moore has said are "utterly worthless" in the study of these popular plants, he will no doubt arrive at the intention of the passage quoted from the lecture printed at p. 509, which we cannot doubt was to discourage the gathering of seedling immature fronds, especially of the larger species, not old enough to be fertile, or enough developed to show the normal features of the plant. We get many specimens sent to us in this state—very pretty and very much prized by the finders, but very far from being fairly recognisable examples of their respective species; a similar experience on the part of the lecturer, no doubt led to the remark in question. If a frond is mature and fertile, the main conditions of usefulness for the purpose of study are fulfilled.

MELONS: *T Ellis.* Your medium-sized nearly round bright yellow coloured Melon, with white flesh and thin rind, upon being cut proved to be scarcely ripe, and therefore no correct opinion could be formed of its merit. It is however a fine looking promising variety, which we should like to see again in better condition.

MILDEWED ROSES: *Thomas.* Your Roses are infested with Erysiphe pannosa. It is too late to apply any remedy now. Flowers of sulphur should be dusted on the moment it makes its appearance, when it looks like a little white meal sprinkled over the plant. *M. J. B.*

NAMES OF FRUITS: *W G.* Your Apple is the Easter Pippin or French Crab.‖

NAMES OF PLANTS: *Alpha.* 1, Triticum junceum; and 2, Schizanthus porrigens, apparently: but in both cases the specimens were insufficient.—*Jane.* Gymnogramma sulphurea.—*C Darwin.* A large-flowered form, sometimes met with in cultivation, of Convolvulus sepium.—*Subscriber.* An Alströmeria, but too much crushed for identification.—*V.* Physianthus albens.—*H S.* The specimen is insufficient; it looks very much like a rankly grown Cardamine.—*R Draper.*—1, Lepidium Draba; 2, 3, Diplotaxis tenuifolia.—*J. Carter & Co.* Next week.—*A B.* 1, Medicago sativa; 2, Genista tinctoria.—*B S.* The specimen sent was too incomplete.

SEEDS: *G.* The little bodies, said to have been voided from the bladder, are certainly seeds of the Raspberry, as you suppose.

THE NUMÉROTEUR. *W B Page.* We do not know that the Numéroteur can yet be obtained in England. The maker is M. Hardivillé, cutler, Rue St. Jacques 218, Paris.

VEGETABLES FOR EXHIBITION: *W F S.* A dish of cultivated Mushrooms would be clearly admissible in a tray of vegetables for exhibition at a local show: and would count equal to or before either Turnips, Carrots, Beet, or Parsnips if the quality were good.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

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The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—
Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME £6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES 5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES 8 0
These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landownor, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
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LAND DRAINAGE.—WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRINAGE and IMPROVEMENT COMPANY, on all descriptions of property whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate or collegiate.
Repayment may be made by the Landownor as successive portions of the Works are completed, or the outlay and expenses may be charged on the estate by way of rent charge created for such a term of years as the Landowner shall determine will best adapt the annual payment to the circumstances of the tenants.
No investigation of title being required, or notices given to reversioners or mortgagees, no legal expenses are incurred.
Works of irrigation, enclosing, wood-grubbing, road-making, and farm buildings are executed in a similar manner.
Landowners desirous to execute any of the improvements by their own agents, and charge the outlay and expenses on the Estate, may obtain loans for the purpose.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
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2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jotties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
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FLOORING, MATCH BOARDS, DEALS, &c., as low as advertised. White Batten, 9*l.* per 120, 12 feet; Yellow ditto, 10*l.* ditto ditto; ¾ Floor Boards, well prepared, from 11*s.* 6*d.* per square; Matched Lining, from 12*s.*; Venetian Blind Laths from 8*s.* 6*d.* per 100 feet super.—CHARLES CUTLER, Surrey Sawing and Planing Mills, Church Street, Kennington.

BEFORE you BUILD any more GARDEN WALLS, see the NEW PATENT CORRUGATED BRICK, invented and manufactured by I. FOXLEY, acknowledged to be the best thing for the purpose by gardeners who have seen it. No nailing required, no fixtures of iron, copper, &c. Perfect training is obtained, and the Trees can be kept clean and free from Insects.
License granted to make the Bricks in certain localities, and further information on application to I. FOXLEY, Stony Stratford, Buck

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PORTABLE STEAM ENGINES, more simple in construction, efficient at work, and consuming less coal than the old-fashioned Engines usually made.
THRESHING MACHINES, which will astonish those who work the ponderous and complicated Machines now so generally used.

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HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
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President for the Year.—Lord DE TABLEY.
GRAND SHOW at KNUTSFORD (near the Entrance to Tatton Park), on SEPTEMBER 7 and 8. PRIZES amounting to nearly 1000*l.*, for Horses, Horned Cattle, Sheep, Pigs, Poultry, Dogs, Seeds, Roots, Horticultural Productions, Cheese, Butter, Implements, Machinery, &c.
ENTRIES CLOSE on AUGUST 6.
Prize Lists and Forms of Entry may be obtained from Mr. J. B. CUTTER, Local Secretary, Knutsford; or from
T. B. RYDER, Secretary.
57A, Church Street, Liverpool, July 30.

YORKSHIRE AGRICULTURAL SHOW at HOWDEN.
CHEAP TRAINS BY ALL RAILWAYS.

			Admission.
TUESDAY, August	2,	IMPLEMENT TRIALS,	1*s.* 0*d.*
WEDNESDAY, „	3,	SHOW YARD OPEN ..	2 6
THURSDAY, „	4,	Do., ...	1 0
FRIDAY, „	5,	Do., ...	1 0

J. HANNAM, Secretary.

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ALEXANDRA PARK.—GREAT DOG SHOW COMMENCES THIS DAY, SATURDAY, July 30.
Admission One Shilling; Children, Sixpence.

ALEXANDRA PARK, WOOD GREEN.
GREAT NORTHERN RAILWAY.
GREAT SHOW of SPORTING and other DOGS, THIS DAY, SATURDAY, July 30, and on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY NEXT, August 1, 2, 3, and 4.
Admission One Shilling each day; Children, Sixpence.

ALEXANDRA PARK, WOOD GREEN.—The celebrated BAND of the VICTORIA RIFLES will perform at the Park, THIS DAY, SATURDAY. Commencing at 1 o'clock. Conductor H. SIBOLD.

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May be visited in Twenty Minutes from the Metropolitan Station, Farringdon Street; and in Fifteen Minutes from the Great Northern Station, King's Cross.

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Clergymen and Teachers are requested to communicate with the General Manager for terms for the ADMISSION of SUNDAY SCHOOLS to the Alexandra Park.

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GREAT NORTHERN RAILWAY.
PIC-NIC and PLEASURE PARTIES will find the beautiful grounds of The Grove a most delightful place. The Restaurant is now open.

The Agricultural Gazette.

SATURDAY, JULY 30, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Aug. 1	}	Meeting of the Highland Society at Stirling.
to			
THURSDAY,	— 4		
WEDNESDAY,	— 3	}	Meeting of the Yorkshire Agricultural Society at Howden.
to			
FRIDAY,	— 5		

THE principal chalk district in England presents a generally unbroken hill side along a great part of its north-western edge where it joins the sands and clays lying, literally as well as geologically, below it. The rounded hill tops in which, as a table land, it terminates, stand,—for the most part bare and grassy downs,—some 400 feet above the richly wooded lowland of the green sand and Gault and Kimmeridge clays. The only exception to the continuity of this line of hills in Berkshire is at Wallingford, where it is cut asunder by a valley running south and west, through which a passage is provided for the Great Western Railway and the river Thames. And from the river or the rail, especially on its south-western side, you see that the high downland is divided by occasional western and south-western valleys into finger-shaped ridges, whose bold and abruptly terminating headlands almost overhang the water.

In the parish of Moulsford, at the very end of one of these ridges, on the highest point of it, probably 400 feet above the river, standing out unsheltered into the midst of the northern and north-eastern winds, which have been so prevalent during the past few months, there was dug in the dry absorbent chalk some five or six years ago a shallow conical hole, probably 10 yards across and 5 feet deep. It was made an impervious cup by dint of successive layers of puddled clay and pounded chalk; and its purpose was to supply the down-fed flocks with water which would otherwise have to be provided for them by laborious carriage from the Thames. We are describing the position and formation of one of many such drinking places which are provided in chalk down districts where wells are generally hundreds of feet deep, and where the labour of providing water for the live stock of the farm, in severe droughts such as we have this summer been experiencing, is excessive.

These exposed drinking places, standing where no water can run into them, and where the loss by evaporation must be a maximum, furnish a striking illustration of those extraordinary compensatory powers of our climate which come into operation for the safety, or we might rather say, the salvation of vegetable life during drought; and for that reason we refer to them here and now. The generally excellent promise of the Wheat crop on the dry and shallow chalk soils of Berkshire, and the promising character of even many of the spring-sown corn crops there, must be an astonishment to any man who considers what very little rain has fallen since May upon this dusty and absorbent district, and who forgets the lesson which is taught us by these drinking ponds perched up upon the highest points within it.

They are generally made in autumn, and are in the first place filled with snow. This is carted up and rolled into them and piled upon them, on the first opportunity. It melts and forms a first supply, and this gradually during the spring months is found to accumulate. Thereafter during the summer months it diminishes, but hardly ever altogether disappears. The one in Moulsford parish, just referred to, was in early spring about two-thirds full. The water has now nearly all dried up, and the tenant has covered it with straw, lest the soft mud, which is all that it contains, should dry and crack; and so this drinking cup, for such it is, should become leaky and be spoiled. But consider what that cup, not dry even now, after so many weeks of drought, has done. Till within the last fortnight or three weeks it has every day supplied a flock of 700 sheep and lambs with their daily water, and it has daily been exposed to the full force of drying winds and scorching sun ever since the month of May. The shepherd does not ascribe the unusual failure of the pond to want of rain—that, indeed, could not explain the exceptional occurrence of such a thing, for the evaporation *always* exceeds the rainfall during summer; and there is the daily consumption by the flock of 30 or 40 cubic feet of water—perhaps an inch in thickness over the surface of the pond—to be added to the natural waste.

He says it is not due to lack of rain that the drying air and thirsty flock have licked up the water of the pond; but it is owing to lack of nightly dews. The cold, harsh, northern and north-eastern winds which we have had so much, do not bedew the land like the damper southern and south-western airs. And no doubt the latter, on clear nights must, on passing over exposed spots, such as those selected for these "dew-ponds"—as they are called—have to give up much of the water which they hold.

Has any one experimentally investigated the phenomena of the Berkshire dew-pond?—actually observed what addition to its water supply has thus in a single night been made?—ascertained by actual observation on some clear night, the diminished temperature of that surface film of water in the pond which is supposed to become bedewed, and which indeed must often rise more than half an inch in a few hours in this way, in order to explain the non-exhaustion of the pond by thirsty sheep, and still more thirsty sun and air?

We should be glad to lay before our readers the particulars of such an investigation if any such has been made. Meanwhile they may be assured that whether the phenomena have been carefully examined and described or not, they exist; and that the dews which under extraordinary conditions must be so abundant, do, under the ordinary circumstances of our growing crops and pastures, materially hold in check the otherwise rapidly destructive influence of a drought.

OF all the subjects which come before the naturalist few are more curious and interesting than those insect forms which, from their ravages, have been denominated blights. Of these none are more numerous in species or individuals than those belonging to the genus Aphis of naturalists, to which belong the plant lice, green, black, or brown, and other "dolphins" of the unlearned.

So numerous are the reputed species of these, that almost every tribe, nay, every species, of plant may become the breeding place of one or more, and our cultivated plants being grown in masses sometimes present such hosts of them as to cause them to be referred to as the blight of that particular plant. Thus we have them named after the plants on which they abound as follows:

Aphis fabæ—the Bean louse, called also black dolphin.
Aphis pisi—Pea-plant louse.
Aphis rapæ—the Turnip-plant louse.
Aphis humuli—the Hop-bine louse.
Aphis granaria—Wheat louse, grain louse.

Now, we know that Beans, Peas, Turnips, Hops, and others are constantly liable to attacks of these creatures, but our grain crops are generally so free from a louse pest that we may well be excused

for now directing particular attention to this form, seeing that at the present time it is occupying our Wheat fields to an alarming extent. Within the last three weeks reports have constantly reached us of the appearance of a blight in the ears of different Wheat crops, which, indeed, induced us to examine our own Wheat with unusual care, and there we succeeded in tracing, but only to a slight extent, the prevalence of an aphis. On Saturday last we were invited to examine a piece of Wheat in the neighbourhood of Sherborne, Dorset, and we shall not soon forget the appearances which were presented to us.

The plant was clean in the stem, stood up remarkably firm and well, the ears were evenly long and well-grown, and all in fact in such a condition as, if viewed only a few days before, would have led us to predict a yield of as much as 40 bushels per acre; but now the plant louse has possession, to what extent may be guessed from the fact that we counted no less than 260 of these creatures in a single ear, and upon going into the field the fine heads look dirty to a disgusting degree.

On a more careful examination of the affected ears of corn, they appeared to taper upwards in a somewhat unusual manner from about the middle, and this was soon accounted for from the fact that the aphides were most abundant on the upper half, apparently because this part had notadvanced to the degree of growth and ripeness of the lower portion of the ears, and consequently these insects were battening upon those very juices which otherwise might have filled up the ear, but which we now fear will reduce a crop of so much promise, fully to the extent of 2 quarters per acre.

That this is very general, at least throughout the west, we know not only from report but personal observation, and we fear that it will have a very prejudicial effect upon the yield of the later sown Wheats; the earlier sown, now hastening into ripeness, are tolerably free, as the pest, even if it attacked them, would not greatly multiply as the ears ripened and dried, as the creatures live entirely by the suction of the sap of the part of the plants upon which they fix themselves, which they do by puncturing the epidermis, and so sucking out the verdure as long as any remains. When, however, it begins to dry they either leave it or die. In some gathered heads now before us they have died, as the corn is quite dry; and in the field were many heads of corn dried and whitened from lack of moisture, and these were free from the insects; but these dried ears would amount to as much as the seed used for the crop. It is more than probable that these creatures may be met with most seasons; in moister ones than the present only very rarely. But this year has been highly favourable to the development of plant lice of every description, and no creature on the face of the globe is endowed with greater powers for rapid increase than are these. It is by virtue of this that they sometimes appear so suddenly and in such quantities as to induce the belief that they are specially sent to us, when observation will soon teach us that they go through their various stages of growth on the very plants on which they are found, occasionally sending out exceptional winged forms from one plant to another, and so spreading the pest in virtue of only natural laws.

CURTIS, in his admirable work on farm insects, quotes Mr. MARKWICK as having "found the aphides or dolphins, as they are called in some counties, infesting Wheat-ears in the second week of July, 1797. Mr. KIRBY also reported this aphis to be sufficiently common upon Barley and Oats as well as Wheat in the same year." With us it is on the exterior of the Oat, just where the flower is joined to the pedicel, as also in the chaff scales, but we conclude the Oat to be less convenient to the creature than the Wheat, and the Barley less so still, so that it is even rarer on the latter plant. CURTIS himself says: "On July 12, 1842, I detected many of the apterous (wingless) aphides amongst the chaff of the Wheat ears apparently sucking the stem, they were brown and shining. And on looking over some Wheat fields at Cranford with Mr. GRAHAM (in the middle of August, 1845), we found numbers of the aphides in every stage of growth, from minute ones that were just born to the full-sized and winged parents."

This creature then is no new visitant, it is doubtless a part of our native insect fauna, though there are seasons when from the weather being suitable, or when its enemies—for it has parasites which keep it under—are not numerous, it assumes, as in the present year, an unusual degree of importance. We can only hope that the injury done may not be so great as we suppose, as against such creatures, minute as they are, and indeed because they are so, we are all but powerless; still, by being in time with our work, by getting in our seed early, we may, perhaps, escape much of this as well as other evils to which the backward farmer is so much exposed. *B.*

ON the very important subject of the TURNIP FLY we are asked by a correspondent to announce that he is in possession of a secret dressing for the Turnip seed by which the attack of the fly on the young plant is altogether prevented. His friend, who farms about 800 acres, tells him that he has not lost a plant of Turnip by the fly for 40 years, and gave him his receipt for preparing the seed. The great drawback to his method of doing it was, that the seed must be used in the next day or two or it would be spoiled. He has now, however, been making experiments for the last 7 or 8 years, with the view of overcoming this difficulty, and is happy to say he has this season succeeded. He has this season sown seed side by side, prepared and not prepared; the prepared seed comes up days sooner than the other and grows stronger plants, and although the ground was swarming with flies, and they might be seen perched among the plants almost everywhere, they did not touch these. The plants from the seed not prepared came up much more slowly, and were devoured as soon as they made their appearance.

Now, this is just the case in which all influence of any publicity we can command must be used for the purpose of putting readers on their guard against what is certain to mislead them. Our Correspondent no doubt writes in good faith, and is confident that he has that which is a genuine safeguard against the attack of the fly—we are equally confident that no dressing of the seed will be of any avail whatever for the prevention of the fly—the taste of the young leaves will be equally attractive to it, and will be altogether unaffected by whatever may be wrapped around the seed.

APPEARANCE OF THE CROPS.

ABERDEEN: *Huntly, July* 16.—It is too early with us to give a decided opinion of the grain crops. As far as they have come they are promising, but perhaps a fortnight later than last year. They are likely at present to be an average crop, but not up to the crop of 1863. Hay will be under an average; Potatos look healthy; Turnips are now making rapid progress; Pasture Grass has been abundant. Sunshine, such as we have had this week, with occasional showers, would greatly brighten the prospects of the harvest. *James Macdonald.*

AYRSHIRE: *July* 14.—1. Wheat, generally thin, owing to the severity of the spring frosts; considerably less than average. 2. Oats, very thick, but short of straw, owing to drought; will be an average crop I think. 3. Barley, Bere, Rye, &c.: of these crops I need scarcely report, as little or none are grown in this district. 4. Beans promise to be a fine crop, generally thick and healthy. 5. Potatos very healthy, and those already raised turning well out; will probably be considerably above average; no appearance of disease yet. 6. Turnips and Mangels; the former generally looking well, but likely to suffer soon from drought, as the land is already so dry as to have checked their growth; the latter healthy though not forward. 7. Hay, generally a very miserable crop, not more than one-third of a good crop; thin of root, and, owing to the dry weather in May, did not thicken. Pastures are likewise exceedingly poor, and in most cases in this neighbourhood house feeding for dairy stock has had to be resorted to. Rain is much wanted for pastures and green crops. *Andrew W. Ralston.*

BEDFORD: *Biddenham, July* 14.—I consider the Wheat and Barley promise an average crop, but I cannot give an opinion upon the effect the present cold nights may have upon the quality. Oats, Beans, and roots of all descriptions are below an average crop through the want of rain, and I do not recollect the pastures so bare of keeping at this season of the year. *William Lavender.*

CHESHIRE: *Spital Cottage, Wirral, July* 21.—So far as my observation goes, and from inquiries made, I believe the following will be about correct. With regard to the maggot mentioned it is new here; eggs seem to have been laid by some insect at the root of Cabbage or Turnip, which turn to a bunch of white maggots, and they entirely destroy the fibre of the plant. I have lost some thousand garden Cabbages in my fields this year from the pest. Hay crops quite one-third short of an average. Pastures have been very unproductive all the season, and are now bare. Wheat: rather short in the straw and thin on the ground, but healthy and promising (about an average). Oats: generally very short in the straw and inferior, a few fine exceptions. Barley: not much grown. Beans have been most promising, but the late hot dry weather has stopped their growth, and the yield cannot yet be predicted with certainty. Peas: none grown. Mangel Wurzel: various. Swedes: fair but rather late; this crop is beginning to suffer in places (my own are affected) from white maggots, which destroy the fibre and are particularly destructive this year among Cabbages in fields and gardens. Potatos: good crop, and no disease at present. *W. B. Burnham.*

DEVONSHIRE: *Tavistock, July* 19.—The promise of crops has been considerably reduced by the continued hot and dry weather which we have had, and which here is so very unusual. Wheat is short in the straw—indeed the same remark applies to all corn crops; and, except where the spring corn was put in early, and on land in good condition, the whole must be light. On clay lands in poor condition many Oats are scarcely more than a foot long; and Wheat put in on wet land is a very light inferior crop. The hay crop is very light, probably half an average. Mangels are very variable, on the whole not good; and the same may be said of Swedes and Turnips, for during the excessive heat and drought of the last six weeks no progress has been made. *John Benson.*

ESSEX: *Walton-on-the-Naze, July* 20.—Along the eastern coast of this county and for several miles inland the crops of Wheat, Barley, Oats, and Beans promise full and abundant crops. Occasionally where the cultivated soil rests upon gravel they are light, as they are everywhere this dry summer under the same conditions. Barley, especially, ripening too fast to be of good quality for malting purposes. Upon the chalky clays which form a large portion of the land in the northern parts of this county, the prospect for harvest is equal to and I think beyond an average yield, the only drawback being damage to the Wheat from red-gum, amounting perhaps to 1-10th of the grain. Root crops: Mangels are very variable—very good upon deep mixed soils, and bad upon light. Of Turnips, nothing can be predicted at this early period, but if rain does not come soon Swedes must be a failure. The heavy land farmer will this year have a great advantage over the cultivator of light. Beans short but well podded. Peas not generally good. Harvest will partially be ready in 10 or 12 days; generally it will not commence before the second or third week in August. Hot dry weather in July is favourable for the ripening of grain. No rain here since July 3. *Henry Dixon, Dorward's Hall, Witham.*

HAMPSHIRE: *Bursledon, Southampton, July* 13.—The Wheat crop since coming into ear has never shown over an average; but as we approach harvest the chance of an average crop daily diminishes. Barley under average; the crop is going off prematurely, and must therefore prove under an average both in quantity and quality. The Oat crop, which at one time also promised a full crop, will now be considerably under an average. Peas very irregular; the early sown a fair crop; later sowings will yield no kinds, and is being cut for hay, fed by sheep, &c. Beans various and under average. Roots: the early sown Mangels, Swedes, Carrots, &c., are in some instances a good plant, but the root crop as a whole is not likely to prove an average if rain came immediately, as the season is too far gone. Hay under an average, but well got up; after Grass and feed unusually short and bad. Potatos sound, but small and short crop. *Joseph Blundell.*——I give you below a brief summary of our agricultural prospects. Wheat varies very much, some very good, some very bad; promises to fill well, and in that case will be an average crop, but nearly one-third less than last year. Barley and Oats: the early sown generally good, later sown vary much: will be rather under average. Peas, early sown fair, backward very bad; under average. Turnips and Swede crop: the best at a standstill for want of rain; the main crop will be utterly lost, unless a thorough ground rain within 10 days. Mangel indifferent. Potatos a full average, forward, and at present free from disease. Hay excellent in quality, but one third deficient in quantity. Wheat harvest will commence partially about the 25th inst., and become general within a few days afterwards. *J. T. Twynam, Winchester, July* 14.

HEREFORDSHIRE: *Baysham Court, Ross, July* 14.—In our early spring all kinds of vegetation appeared to promise an abundant yield as a reward for the labours of the husbandman, and the cultivation of the land was in a most forward state from the very favourable nature of the weather for out-door operations, but unfortunately for our growing crops that state of weather has continued without intermission, and the stock farmer is now driven to his wit's end to know what to do for green food; his store of winter keep is and will be very light, as the pastures where spring grazed and afterwards kept for mowing were thoroughly burnt up, and the idea of mowing generally abandoned. The other pastures not producing more than an average of half the swathe of former years, and the Clovers proving one of the worst crops ever seen, will all tend to increase his cares for many months to come, and although the condition of the hay and Clover secured is extremely good, the quality is much impaired from over-ripeness before mowing. The anxious desire has been that a bountiful Providence would bless his efforts with some genial showers, or what would be still better, a good soak of rain; but that desire has been thwarted, and the cold easterly winds of spring, and frosty nights followed by a hot burning sun by day, have rapidly told upon not only the pastures but all other growing crops. The

Wheat crop will be one of the worst for some years past, as a heavy crop is quite the exception, and is only to be found where planted early with the land in good first-class condition; a few crops of early planted spring Wheat are occasionally to be found very good, but as a rule there will be a great deficiency in these crops, which have for several years been planted to a very considerable extent. The early planted Barleys are good, the later are, like the spring Wheat, wretchedly bad, and many acres of each have been grazed off the land, ploughed, and put to Rape or Turnips. The same may be said of Peas, and the Bean crops will also be very much below an average. The Vetches are burnt up and blighted. The Mangels are a thin bad crop, and although in some cases, where the land was of a very fine tilth, the Turnips and Swedes are a good plant, and despite the dryness of the weather grow well, yet the general crop is so far a failure. There will be an abundant crop of fruit, both Apples and Pears, although not so great as at one time expected. The Hops have until within a few days promised well, but many have now become blighted, and fears are entertained respecting the general crop, this being a most precarious time upon that uncertain plant. There are some cases of the lambs suffering with a complaint which for the past few years has carried off many hundreds from the flocks of this and adjoining counties. This adds to the embarrassment of the flock-master. The cattle stock do wonderfully well, considering the apparent want of food. *T. Duckham.*

Herts: *Near St. Alban's, July* 18.—Wheat: various, good crop on heavy land, light crop on gravel, early sown much missed in the ear; ten bushels per acre below last year. Barley: various, good crop on deep soils, light and blighted on gravel. Oats: short in straw, and deficient in crop. Peas: fair crop, but injured by the drought and vermin. Beans: average, but injured by the fly in places. Hay: scarcely half a crop, second Clovers unpromising. Turnips: a good plant, but very late. Mangels: a good plant, but stopped by the drought.

Kent: *Isle of Thanet, July* 19.—Rain is at present much wanted for most of our crops; green food of every kind is scarce; the deficiency of water on many farms is seriously felt, and if we do not get rain soon the supply of winter keep will be very short. Mangels and Swedes have planted well, but in consequence of the dry weather their growth (particularly the latter) is very slow; but little of the common Turnip seed has vegetated, and it is now quite useless to sow again. Clover and Grass hay has been secured in fine condition, but the crop has been generally light, and we have no prospect of any second cut of Clover, and can have but little rowen or aftermath of any kind without rain soon. Wheat again promises to be a great crop, though not equal to last year, as it is in many places a thin plant, and generally short in straw. Barley, considering the dry weather, looks well, and on good tilths, where it has been well managed and duly cared for, will be an abundant crop; on thin poor soils, and where it has been cross-tilthed, it is showing a tendency to ripen prematurely, and is of two or three colours. Oats are much shorter of straw than usual, and will prove deficient in quantity and quality. Some are already cut, which is a week sooner than their appearance indicated a fortnight since. The common Hog Peas, particularly where planted early, are good; other varieties will be a poor crop and an inferior sample. Winter Beans bid fair to be an average crop, but nearly all the Beans planted in spring are very inferior. Potatos are at present free from disease, though all the early sorts are very small, and rain is much wanted for the late ones. Fruit of all sorts is more than usually abundant. *Wm. Manser.*

Lancashire: *Holker, Newton in Cartmel, July* 15.—I think the crops of grain in this neighbourhood will be about an average. There is not so much straw as usual, but I think the grain looks well, and if the present fine weather lasts it will continue to improve. The hay crops (especially the sown Grass) are light but very well secured. For some time the Grass crops were at a stand still, but they are now growing fast and look promising. I travelled from Fleetwood to London, and from London to Leeds last week, and I thought the grain crops generally were light, and I could see no green crops. *Geo. Drury.*

Lincolnshire: *Long Sutton.*—I think the following remarks upon our harvest and green crops will apply to all the marshland and Fen districts. Wheat: the Wheat crops equal if they do not excel those of any part of the country. They are full, well grown, and with but a few exceptions possess a good average earing, but by no means equal to last year. In many parts of the Fens they are too heavy and rank. A few warm sunny days are much wanted to cause the ears to fill better, otherwise the grain will be coarse in quality. Oats: the Oat crop is a very irregular one; some few splendid crops are to be seen, but as a whole it cannot be a full average crop. Barley: the Barley crop is a much more extensive one than I have ever known, and to all appearance likely to prove well. The cold weather has not injured it. Beans: the Bean crops flowered most profusely, and as there was a full plant everywhere a large crop was anticipated. Much disappointment however has arisen owing to the pods not setting. It will not yield an average produce. Peas: the Pea crops are good and promise well. Both Beans and Oats are nearly free from aphis. Potatos: this is likely to be a good and yielding crop. Some early varieties are now lifting. Mangels: this is a very defective crop, being thin and backward. Swedes: this is a very irregular crop. The fly has been active. It will not be a full average. Turnips: these came up well and look promising. Coleseed is only now seeding, but as the land is in good order and weather more suitable a fair crop may be looked for. Clovers and seeds have yielded but poor crops, and much difficulty was experienced in getting it in order for stocking. Hay is a very short crop and is making slowly. The weather for the past month has been very cold and free from rains. *J. Clarke.*——*Caistor, July* 19.—The Wheat is a light crop, much less than last year in bulk, but, I think, is promising to be good in quality, the dry weather is in favour of its being good in quality; I think I shall have part ready to begin cutting in three weeks, but I believe it will not be general before a month (but will partly depend upon the weather). Barley on good land is doing well, and will be a full crop, but on light sandy land is suffering from the dry weather and will be deficient. Oats generally will be a light crop. The winter Beans will be a fine crop; but the spring Beans will be deficient. The Turnips are suffering partly from the wireworm, and the dry weather is much against them; we have plenty of plants where the wireworm does not attack them. We have little or no Mangels in this neighbourhood; the season generally has been too cold for them. *Jas. E. Dixon.*

Mid-Lothian: *Pumpherston, Mid Calder, N.B.*—Wheat in appearance is scarcely an average. Barley, full average. Oats after Grass, under average in length of straw; after green crop, full average. Beans, full average. Turnips, promising in appearance. Potatos, very good in some fields, very deficient in others, the settings being affected by dry rot; upon the whole under average. Hay considerably under average. *Peter McLagan.*

Morayshire: *Forres.*—Notwithstanding the peculiarity of the season, crops in general have a very promising appearance. The Wheat is vigorous, and has been in bloom for the last eight days under a brilliant sunshine. To-day the temperature in the sun is 115°. On some farms the crop is less extensive than usual. This is what might be expected; for although the crop of last year was excellent in quality, and very abundant, yet that of the previous three years was, on account of the cold seasons, very deficient. Barley promises to be a full crop, and the present appearance is not inferior to that of last year. Oats appear very unequal in many parts, and generally there will be a deficiency of straw, particularly where the crop has succeeded Grass. Beans and Peas are not generally cultivated in this county. Notwithstanding 22 rainy days in June, and five rainy days in the first week of July, yielding altogether about 4½ inches, the hay crop is under an average, showing that moisture, even on a soil open and congenial, must be accompanied with heat in order to secure a heavy crop of hay. Turnips, including Swedes, have been unusually difficult to manage this season. A great extent was laid down during the month of May, the ground became very dry towards the middle of that month, and the ravages of the fly were unusually great; then followed the frost at the end of the month, indicating 3° of frost here on the 30th, and 4° on the last day of May, which was fatal on many farms, particularly in the upland districts, where resowing became general. The mode of laying down the crop the second time was somewhat diversified; that most successful was to pass the harrows along the drills, and disturbing the soil; then a dusting of fermented bone-meal, Peruvian guano, phospho-guano, or dissolved coprolites was applied, to the value of about 20*s.* per acre; these manures were most successful in the order in which they are named, except that the guanos were equal, the latter being hardly better than lime-shells, dissolved with about four times their bulk of decayed weeds, and at about a fourth part the cost of the dissolved coprolites. After applying the manure the drills were set up afresh, and the seeds immediately sown. Another mode was to harrow down the drills, set them up afresh, and sow the seeds without any second manuring. The weather being quite moist, some parts were sown without the drills being disturbed any farther than by the operation of the sowing machine. According to the last method the Turnips will come to the hoe fully three weeks later than by the first mode, the second mode as to growth intermediate. The most of these second sowings of Turnip are now being singled, and the Turnip crop generally has a healthy appearance. The Potato crop looks very unequal, and generally speaking, the plants appear so feeble that an average can hardly be expected, even where late in coming up, and where they escaped the frost in May. Drumhead Cabbages are generally a failure from canker at the root. Mangel Wurzel, on account of the recent late seasons, is almost entirely given up, and reckoned inferior to Swedes in our climate. *John Grigor, Forres, Nurseries.*

Norfolk: *Denver, July* 16.—The present appearance of the crops in this district is various. They are looking well on the lands that are well farmed, except where they have been eaten down with game all winter. They have never overcome the constant nibbling they have undergone, look spiry and thin, and cannot be more than three-quarters of a crop, and some not more than half, and this is not all, for when the crop is destroyed the place is filled with weeds. Barley is looking well on the cool-bottomed lands, but on the gravelly and light soils it will ripen prematurely. It is changing colour very fast, and if rain does not come very soon a deal of the Barley will be injured. Oats are the worst crop I ever remember; many of them not worth harvesting, and will be cut and given to cattle. Beans and Peas promise fairly if the lice do not meddle with them. There are a few on some of the Beans. The late-sown Beans have flowered well, but whether they will form pods this dry time, I cannot tell at present. The pastures cut a sorry figure, and the seeds are burnt up, but still the stock have done well up to the present time. *Thos. Brown.*

North Wilts: *Swindon.*—The appearance of the crops in this neighbourhood is quite equal, perhaps I may be justified in saying superior, to those I have seen in other districts, which may be accounted for in some measure by our different soils being able to withstand the dry weather we have had the last three months better than many others, and perhaps we have had our share of the light storms that have fallen during that time, having had 4½ inches of rain, or about 1½ inch in each month. On the best farmed deep land the Wheat is good, and likely to be over average; on the thinner and poorer soils, it is weaker and rather scrawly; there is also more red gum or injury from the Wheat-midge than last year, especially under the hedges and sheltered places, and in a few instances I have seen some white blight, both of which will affect the yield; still on the whole I expect a full average crop of Wheat in this neighbourhood. The Barley generally looks promising, with the exception of some late planted, but I think there is less late Barley this year, as the root crops were consumed earlier than usual this spring. Oats are not so well spoken of, as the Barley being very short of straw, the pulse crops will also grow less straw than the last few years; but there has been a thick blossom, and it is yet too early to speak of the produce. The root crops are quite as promising as one can expect under the circumstances. If we get rain soon it is not too late for a good crop; but if the present drought continues much longer, we may have a considerable failure; where they have been put in with the liquid drill (as nearly all our district is), there is a good plant up to the present time, but where not I hear the case is different. The Clover and Grass varies considerably, some good, and some light, on the whole a moderate crop, and where due patience has been exercised some first-rate hay has been made. The cow leases are got very bare of Grass, and as a natural consequence the yield of milk is already fallen off to some extent, and with no immediate prospect of rain, the stockmaster must soon become anxious for the welfare of his stock. *T. A., July* 12.

Staffordshire: *Mitton, Penkridge, July* 20.—Wheat is thin on the ground, and ripening irregularly. Barley is the best crop: I think a good one. Oats vary very much; generally a light crop. Peas, a fair crop. Beans are drooping the last few days, and I fear the upper pods will not fill. Turnips: prospect bad; a considerable breadth sown, but few plants large enough to hoe. Hay all gathered in fine condition; the crops very light, and aftermath suffering greatly from drought. *Thomas Byrd.*

Suffolk: *Framlingham.*—Our prospects are very fine. Wheat: very good indeed, but not equal to last year. Barley: very fine and heavy, in places lodged. Beans and Peas good. Oats: none grown. Potatos: not grown, but in gardens very good. Clover and Grass very light crops. A commercial gentleman told me that in his rounds he found East Suffolk a most favoured district. Our Mangels are very promising. Turnips: no report yet. Swedes: scarcely grown on our heavier soils. The sand-land districts have given unfavourable reports all through the spring, and do not give a better appearance. A neighbour made the tour to West England, Wales, and home by Oxford; saw nowhere so fine a prospect as in "home, sweet home." Our harvest will not be early, say middle of August. Barleys quite green, and Wheats in blossom. Since writing I have heard many observations of the damage to our Wheat by the midge. I had before heard of it, but did not think much of the reports. To-day having heard more of them, think it right to apprise you of it. *Geo. Edwards.*

Wilts: *Avebury, Chippenham.*—I am pleased to say, I can give you a more favourable account of the appearance of the crops than a week ago. The last few days have been much more congenial than when so very cold and frosty nights. Wheat, Barley, and Oats, I think, will be an average crop. Beans and Peas very doubtful. Hay crop very short, made well. Swede and Turnips not lost, provided we get rain shortly. *Geo. Brown.*

Worcestershire: *Vale of Evesham.*—In reply to your request I beg to say that the Wheat on the strong well cultivated soils is very good, a full average crop; but on the poor shallow soils it has withered away lately in patches, is very irregular in height, and will be a poor crop. The Barley on almost every description of soil is looking well, and will be a full average crop. The Oats are very promising. The autumn-planted Beans were an entire failure; those that were planted the early part of February are very fine and good, but the late plants are very much covered with

blight and small in the pods and poor. Peas are variable; some very good, and others almost a failure from the long continued drought and blight. Vetches are tolerably good. Hay a very light crop on the uplands, but better on the meadow land. A great proportion of the Clover failed last season, so that the quantity mown was unimportant, but it was secured in good condition. The cutting of Oats and Barley will commence next week, and some of the early Wheat will be ready for the hook and sickle about the 5th August. The Mangels have again failed to a very large extent. The Swedes and Turnips are poor at present, wanting rain. Apples are plentiful but small, and the Pears are a poor crop, the cold weather causing them to fall off the trees, in some instances completely blackened through the core. Stock of all descriptions are doing well on the "roast meat" and plenty of water, but rain is very much wanted. ——, *Elms, near Pershore.*

YORKSHIRE: *Outwood Hall, near Wakefield.*—Wheat: very healthy, but rather late, and very thick on the ground; likely to yield a good average crop. Barley: particularly promising, but late. Oats: particularly promising, but late. Beans: seldom have looked better or cleaner. Turnips: very backward for want of rain, and do not promise a good crop. Hay: light crops, but well got. Clover: very fair crops and well got. Peas: few grown in this neighbourhood, but what are now on the ground, good. We have a steam-ploughing company in this district, which is doing great things and answers very well, both to the company as to remuneration, and to those employing the implements. *Henry Briggs.* —— *Rainton, near Thirsk, July* 14.—Wheat is mostly a thin crop, though lately much improved, very much below the last year in bulk; as to yield too soon to offer an opinion. Barley fair crop, though not bulky in straw. Oats decidedly bad. Beans very good in appearance, but yet much flower upon the stem. Meadow hay light crop. Broad Clover (mown) fair crop. Turnips generally backward; those sown in May mostly destroyed by Turnip fly and sown over; those early in June are doing tolerably well, but grow slowly. The weather has been much too cold for the rapid growth of Turnips. We have now, yesterday and to-day, fine sun and genial heat, and I greatly hope that we are now going to have summer weather. *Peter Stevenson.*

WHAT IS CONDITION?—No. V.

ALL investigators of agricultural truth have had to lament, whether farmers, or writers on farming, the great discrepancy of recorded results and practice. Nature is ever ready to answer questions put to her, and does answer them, but it is in a way and language of her own. Seasons will vary, crops will vary, animals will fat one year faster than another. The routine of farm work is always varying, and so does the master himself; for how often have we not seen one man grow rich and another poor on the same land and under, to all appearance, similar circumstances. It is from this ever uncertain quality of Nature's answers, or rather from an inability to read them with any certainty, that we are driven to the use of averages, relying upon the corrective power of each result over the others. We took refuge in this expedient in ascertaining the truth of our first proposition, that one-half of the proteine in the food was excreted in dung. We shall have to rely on it again for the second truth—that one-sixth of it is assimilated in the increased flesh of a fatting animal; or, in other words, as 1 lb. of nitrogen is contained in 28 lbs. of meat (dead weight) that 6 lbs. of nitrogen consumed will produce 28 lbs. of increase, or 4½ times its own weight. In the results of feeding, which have been from time to time published in the Royal Agricultural Society's "Journal," I find instances of much larger produce than this, but they are generally extreme results of very carefully conducted experiments on picked animals, and under the most favourable circumstances. I think the average I have taken is what most farmers would expect to realise from a proper mixture of wholesome food given to ordinarily good stock. I find it generally received that a bushel of Barley will make a stone of pig meat, and that a quarter of Beans per week to 100 sheep, when penned on good aftermath, will increase them 2½ lb. each. Each of these results will be in the ratio above stated of 4½ lb. of meat for each lb. of nitrogen consumed in the food, or 28 lb. of meat for every 1 lb. assimilated out of six so consumed. Of course these figures will vary, as I have said just now, with the temperature, the season, the attendance and the quality of the animal; in these is the farmer's judgment shown by selecting the one and controlling the other. I believe, from my own experience and what I can gather from others, sufficient margin has been left for ordinary cases of ill success, and that in the hands of a man up to his business they will generally be exceeded. Now supposing them to be true, and that every pound of nitrogen so consumed will produce 4½ lb. of butcher's meat, worth at present prices 2*s.* 6*d.*, we have the means of ascertaining whether any and which of the favourite feeding stuffs can be economically employed for that purpose, as far at least as this constituent of the food is concerned. I keep the attention fixed upon this constituent of the food as of the dung, not because I think it the most necessary or the most fattening ingredient of the food; far from it. I believe the carbonised or fatty ingredients to be so; but because among the recognised foods which are found by experience to be wholesome and profitable, these constituents are generally found in excess of the demands of the animal; and the nitrogenous or flesh-forming constituents were likely to be deficient. I have therefore for convenience sake left them entirely out of consideration for the present. The following then are the calculated values of the common feeding stuffs, including the manurial value, but exclusive of the necessary expenses of attendance, interest of money invested, and any serious loss by death, or contagious disease:—

	Containing of Nitrogen.	Should produce of Meat.	Worth, at 6*d.* per lb.	Add Value of Dung.	Total Value.
	lbs.	lbs.	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Hay, 1 ton	40	180	4 10 0	0 10 0	5 0 0
Indian Corn, 1 ton ..	88	396	9 18 6	2 4 0	10 2 0
Oilcake, 1 ton.. ..	105	466	11 13 0	2 12 0	13 15 0
Beans or Peas, 1 qr...	28	126	3 3 0	0 7 0	3 10 0
Barley, 1 qr.	16	72	1 16 0	0 8 0	2 4 0
Malt dust, 1 sack? ..	3	13	0 6 6	0 1 6	0 8 0
Roots, or, Green food 1 ton ..	3	13	0 6 6	0 1 6	0 8 0

Does experience, the great test of truth, bear out these figures? Do they represent with any accuracy the feeding and manuring values of the several articles? I think to a great extent they do. I think the generally allowed feeding value of hay at 3*l.* the ton, and the common price of roots, 6*l.* per acre, are as near as may be in the same proportion to their calculated values, as the above are the actual prices of cake and grain. Such being the case there would appear to be a large margin of profit on feeding animals for market, but from this calculated profit heavy deductions have to be made. I have mentioned the items of interest of money, attendance, risk of death or disease; to these must be added the liability to error in judgment in buying lean stock which weighs heavily on the inexperienced — the fact that lean stock is bought at a higher price per lb. than is realised by the fatted animal; and in the case of any but a farmer entering on the business, the difficulty of procuring the needful accommodation, and the purchase of straw or some substitute. These, I think, are sufficient reasons to deter the consumer or the butcher from all attempts at fattening their meat for themselves, although to a certain extent it might pay them, and has been done—but on the other hand I rely on the figures I have quoted as showing that a farmer possessing the necessary accommodation, capital, and judgment, need not be deterred by any anticipated loss from increasing to the utmost his live stock on his land; they promise him a satisfactory interest for his money, with his manure for nothing. And on mere commercial considerations I think no other conclusion could be expected. The farmer has so complete a monopoly of the meat market, that the competition of the world at large has little or no influence on this produce. Now if this is so, and our previous calculations hold good, that 1*l.* worth of nitrogenous manure per acre, or 40 lbs. weight of nitrogen, will produce one extra quarter of Wheat, we can ascertain how much stock a farmer should fat to realise this extra quarter over the acres he has annually in corn. This amount we have seen would remain as the residue from the consumption of 2 tons of common hay, half a ton of Indian Corn, rather less of oilcake, or from about 3 quarters of Beans and Barley, and half an acre of good root crops. And by taking the same figures in connexion with our former conclusion, that where 1 lb. of nitrogen was consumed, 4½ lb. of meat ought to be produced, and ½ lb. left in the dung, we shall see that about 9 lb. of meat fatted should produce 1 lb., or rather over 40 stone dead weight of increase to manure 1 acre. And this residuary manure, which in a former letter was shown to be cheap at 6*d.* the pound, I now venture to assert can be had for nothing. Cautioning the reader again, as I did in my former letter, that these results can only be expected from moderate good land, worth at least 1*l.* per acre; that it must be well farmed, clean, and pulverised; that the manure made in the yards must be protected with the utmost care, and the whole management of the farm conducted with judgment, accuracy, and economy. And who of us does not fail in some of these particulars? Who ever succeeds in realising all that he contemplated? Surely here are reasons enough for shortcomings without accusing the elements or the blight, the game or the vermin, as causes of an ill success. If we faithfully follow the teaching of Nature, and take pains to use the knowledge we possess, we shall find materials of success within our power sufficient to counterbalance those over which we have no control. And I venture to assure my brother farmers that one secret of success is to maintain a high condition in their land. *J. B. M.*

AN IMPORTANT WARNING.

CALVES KILLED BY EATING THE HEADS OF ITALIAN RYE-GRASS.

As my painful experience in this matter may be useful to some of my brother agriculturists, I communicate it for their information.

I generally wean and rear about 30 Short-horn calves annually, and hitherto very successfully—selling them fat at 26 months old at an average of 22*l.* each. This year we in no way differed from our usual mode of feeding, except that instead of cutting up their food we turned them out recently on some Italian Rye-grass which had been previously mowed for hay, and then guanoed and sewage-irrigated.

The calves were in excellent condition, and well fed, according to my usual custom; in fact, were removed from a bit of pasture where they received Cotton-cake, malt combs, and bran.

After being on the Italian Rye-grass for a week or 10 days, four of them appeared stupid, and did not feed well. They also had a short, dry cough.

We attributed this to a cold from the severe white frosts, and easterly winds. They were removed to a shed, fed on cut Rye-grass, &c., and recovered. Subsequently others were attacked and received a dose of salts, but did not recover, and died after paroxysms of suffering and violence. On a post-mortem examination of the large, also of the third or digesting stomach (called locally the Thimble crop), there was in the latter, and especially in the fourth stomach or abomasium, considerable inflammation. The veterinary surgeon and ourselves finding both stomachs filled with Cotton cake and Rye-grass, came to the conclusion that it was the Cotton cake that caused the death, and accordingly I alarmed my worthy suppliers by taking to them the stomachs and claiming the amount. The remaining calves were deprived of their cotton cake, and confined to some very nice luxuriant Rye-grass, some of it in seed heads on which the veterinary surgeon predicted they would do well. However, after another 48 hours, all the calves looked queer, with a short cough, an attempt to discharge some food from the mouth, a very hot tongue, short breathing and yawning, with eyes watering, and uneasy movements indicating pain—lying down, rising up, &c., and within 24 hours two more died. On examining the stomachs, no cotton cake, nothing but nice looking Rye-grass heads in short lengths could be found. This was extremely perplexing: the cotton cake was acquitted, nor could we convict the Rye-grass, because similar calves at home were daily fed with Italian Rye-grass, luxuriant, cut into chaff and mixed with the usual addition of cotton cake, malt combs, and bran. After taxing our faculties in various ways to account for it, I suggested that the only difference could possibly be that in one case (at home) the animals were compelled to consume the lower or smooth portion of the Rye-grass as well as the spiked or bearded and seeded top. In the field I noticed that the calves invariably and naturally, when put upon a fresh piece, take off the tops, and thus fill their stomachs with irritating substances, hard to digest, and unaccompanied by the proper proportion of smooth stem; possibly the heads contained too much stimulating matter; whereas the happy amalgamation of the rich head and poorer stalk appears to have preserved the health of the animals which had cut up food. The turtle soup, unmitigated by a bulky but comparatively unnutritious substance, appears to have caused stagnation, inflammation and death. Had these animals been limited to a given space in a given time, and thus consumed the whole plant, no danger might probably have arisen. An agricultural friend assured me this morning that both he and a neighbour had lost stock under similar circumstances, only that it was very rich old pasture instead of Rye-grass.

On our poor stiff-clay pastures, although richly sewaged and guanoed, I have never sustained loss. We know that the Rye-grass under sewage grows rapidly, and is what is called rank or succulent, and yet it never purges or scours animals. We observed that the third and fourth stomachs were highly inflamed, although nearly empty, while the rumen or great stomach, although full of food, did not show signs of inflammation. Whether we must attribute the irritation to the dry, tough, spongy condition of the seed heads or to their chemical composition I must leave to wiser heads, hoping that they will enlighten me. It is well-known on our heath that if young geese at this seed-ripening period go "a benting," that is, taking off the dry seed-heads of ordinary heath Grass, it will kill them, unless they first get a good feed of dry corn. Old geese are not in such danger. Several of my neighbours have lost calves and sheep lately. How far this is owing to the very dry weather is also worth considering, for these losses do not occur when there are occasional showers—at least that is stated to me by my bailiff and some of my neighbours. I have lost 10 out of 30 of my nice Short-horn calves, say not less than 60*l.*, besides the injury done to the 20 which are recovering. Their stomachs appear sore for some time after the attack, as indicated by their short stomach cough; and they lose flesh, and are weak from medicine and the necessity for feeding them moderately on cooling and succulent food. I have reason to know that even cows, horses, bullocks, lambs, and sheep are in danger under similar circumstances. Altogether both my bailiff and myself have come to a decided conclusion that it pays to cut up everything, especially for young animals. I have many head of stock doing well under cover on the very food that killed my calves. Old ewes folded on a limited piece of this Italian Rye-grass, and having cotton cake, &c., are doing well and suffer no injury. Some of my neighbours' fat shearling sheep have recently died. They were upon Red Clover, cotton cake, and water. He attributes their death to the cotton cake, because he found much of it packed

hard in the small or digesting stomach. I do not think it is the cake—I am puzzled in these matters.

May it not be that during this very dry weather the heads or seed pods of both Rye-grass and Clover, when unmixed with the due proportion of stem, are too rich or too toughly indigestible, thus irritating and inflaming the stomach. The sheep were worthless when killed, being very red all over, and my neighbour says that when he bled them it seemed as though they would never stop bleeding. Surely, the seed-heads and Cotton-cake together, were too rich and too forcing.

Some persons are apt to mistake the short cough for lung complaint. As only about 10 per cent. of the flock were affected, we may assume that some had consumed more seed-heads and less stalk than their fellows. *J. J. Mechi, July*, 1864.

P.S. My neighbour removed his sheep to another field, and stopped the supply of Cotton-cake. Still he loses some, so that the mischief, whatever may be its cause, arose in the Clover field where they were folded. It should be noted that this Red Clover field had not been mown, but had been before fed with sheep and manured. Now, we know that lambs fed upon the second growth of Clover, the first growth of which has been fed off by sheep, are almost sure to die. Has this been the case with these sheep? Generally speaking, old sheep do not suffer in this way. These were shearlings, nearly fat. I have 40 old ewes doing well, folded in Italian Rye-grass, having 1 lb. a day of Cotton-cake. Lambs would die under the same conditions.

I hope that your Correspondents will throw some light on this subject.

Cotton-cake makers are especially interested in this matter, because the losses are frequently attributed to the use of cotton cake. My own experience is favourable to the use of cotton cake, if of a bright or yellow colour, which indicates that it has been made from good unheated seed, and that there is not an undue proportion of husk. Black, hard cotton cake is very objectionable. I hope we shall soon return to the pure entirely decorticated.

July 21.—I have reason to believe that cotton cake is quite guiltless in this question of losses.

Another of my neighbours has lost about 70*l*. worth of calves, a cow, and two sheep.

Some time since a dealer lost many shearlings and two rams in my neighbourhood by being turned into a Ryegrass and Clover field during a dry July.

July 23.—I have come to definite conclusions as to the cause of death in these cases; it is neither due to cotton cake nor to the physical form of the Clover or Rye-grass, but is owing to its rankness or over-luxuriance. My neighbour's Clover was folded, the first growth, with shearling sheep eating cotton cake or corn food. The second time, when the second growth was nicely on the head, the same shearling sheep went on to it, still eating cotton cake and cut Tares. The consequence is that several of them have died of aundice and inflammation.

Yesterday we had a singular instance of the poisonous nature of the succulent rapidly grown Italian Rye-grass. Four days ago it was sewaged, having been prior to the former growth also guanoed. In four days it had grown from 4 to 5 inches, was of an intense green, and pronounced to be, by sharp practical men, just the food for lambs.

Well, we put on our lambs, taking care to do so in the evening, after they had been well fed. My bailiff accompanied them, and, within five minutes, turning accidentally round, he saw two of the lambs with their heads in the air staggering (stomach staggers it is called) and frothing at the mouth. He immediately saw the mischief, removed the lambs, and on their way back to a bare fold some of them vomited the Italian Rye-grass that they had just eaten, accompanied by frothy slime; others brought it up during the night. Some of them trembled, gaped, and showed all the same symptoms that my calves had done, such as rapid pulse, &c. Two or three of them are rather queer to-day.

I do hope that Professor Simonds, or some capable person will tell us how this is? If we mow this Grass, bring it home and cut it into chaff, all which tends to heat or dry it, it becomes wholesome food. The same remarks apply in degree to very succulent Tares. If the Italian Grass is brought home and given long and quite fresh to the calves it will kill them. It does not appear to injure old ewes as it does lambs or shearlings. The dry weather has something to do with it. In wet weather the evil is much diminished or disappears.

There is a growing and well-founded opinion among practical farmers that guano forces or flushes bulk at the cost of weight and quality. The proportion of ammonia seems too large and (chemically speaking) unnatural. There is nothing like good shed manure.

A GUANO CASE

AT THE COUNTY COURT, CARLISLE.

W. SLATER *v.* RAE.—This action, adjourned from last Court for consideration of the judge, T. H. Ingham, Esq., was brought by Mr. Slater to recover 14*l*. 1*s*. 4*d*., the amount of Patagonian guano supplied to defendant, who refused payment on the alleged ground that the guano was worthless.

HIS HONOUR said:—Undoubtedly when a person offers for sale a manure or any other article, by a certain name or title, the purchaser has a right to have delivered to him, quite independent of any warranty of guarantee, an article reasonably answering the description given and the purposes intended; but on the other hand the seller, as in this case, must not be held responsible for a misapplication of the article, or that moderate degree of uncertainty which it is admitted is incident to all these, what are called artificial manures, though that term is very improperly applied to guano. The manure now in question was sold by the plaintiff for Patagonian guano, a kind of guano, be it observed, of known inferiority. Then comes the question, did it reasonably answer the purpose which guano of this description ought to do? The defendant has produced evidence to show that it was almost worthless, that it produced in fact no visible effect upon his crop of Turnips at all; but he has never attempted to show that the same guano failed on its application by other parties. But we must now look at the evidence as given by the plaintiff, which, so far as appears, is wholly disinterested and unimpugnable. He has called several farmers who purchased of this very same cargo of guano, taken from the same vessel, at the same time and place, and they say they were perfectly satisfied with the result. How comes it then—for I believe the fact will not be denied—that the same article should have given different results in different hands? Now there is abundant evidence from a circular issued by the plaintiff, and which the defendant admits he got, wherein are testimonials from a great number of farmers, that the crop from this Patagonian guano depends very much indeed upon the nature and state of the soil to which it is applied. One tells you that he applied it to a black top porous soil, and it produced an excellent crop; and another tells you when applied to land ploughed out of old pasture, it produced no effect whatever. This proves an uncertainty for which I think the seller ought not to be held liable. Guano generally, but especially inferior guano, I know from experience will not have much or any effect upon poor stiff soil, which ought to have applied to it manure of more substance. As to the application of guano generally, we know that even with the very best Peruvian the crops will vary immensely, and the success always depends very much upon the power of absorption possessed by the soil, and the more porous and well-worked the soil is the greater the absorption, and of course as a certain consequence the greater the benefit in the application of all manures, because manure comes from the air on one side and from the earth on the other, and a proper working of the land and exposure of it to the air will often be as effective as an actual dressing of visible manure, inasmuch as the active but invisible ingredients of the air are absorbed by the soil to be made use of by the plant. It is quite absurd in any farmer to expect the same result from any manure, especially from these concentrated manures, when applied to badly worked land, as when applied to well worked, pulverised, absorbing land. But besides the various effects of the same guano on various soils, there is a most important matter in the mode of application, and which I constantly see farmers utterly disregard. Our greatest agricultural chemists emphatically say when giving advice how to apply these manures, "Always, if possible, apply it during showery weather. Always before application mix it with at least five or six times its weight of ashes or fine soil. The guano should on no account be allowed to come in direct contact with the seeds," and, it is added, (and these are the words of one of our most eminent agricultural chemists) "these rules, if attended to, will prevent the recurrence of those vexatious losses of time and capital, which many of our farmers have experienced for want of a due acquaintance with the properties of and correct modes of applying all these artificial manures." But there is another point to which I ought to advert, and it is this:—The guano brought from various countries, although beyond doubt a genuine unadulterated guano, varies considerably in the composition of its fertilising qualities. We know that the climates from which they all come are very dry, scarcely any rain falling, and the sun shining with vehement power, and, of course, the quality of the guano will be the best where the deposits happens to be the thickest, and it is not unreasonable to suppose that the quality of guano, from the enormous demand lessening the old deposits, will from year to year be found of inferior quality, coming, as it does, from newer and thinner deposits. But another reason why guano differs in composition is the fact that in some places the deposits are more exposed to the action of the spray of the sea and to the accumulation of sand brought by the prevailing winds. I mention these circumstances, because I am of opinion that if an individual, as in this case, imports a cargo of guano under a particular name, and there is nothing to show that it is not as genuine an article, as, taking these circumstances into account, it may fairly be expected to be, then he is not further responsible. The question really to be determined by the court is this:—Was the article sold by the plaintiff as Patagonian guano a natural, unadulterated article? Now it was alleged by the defendant's advocate that it was "a villanous compound." Where is the evidence of that? There is a very important piece of evidence on this point, adduced by the defendant, viz., the analysis of this very manure by an eminent chemist in Edinburgh, from a sample sent by the defendant, and which, to my mind, proves beyond a doubt that this was in no way whatever an adulterated manure; and what is more, I think, looking at the time when the analysis as issued by the plaintiff, and that obtained by the defendant are made. The slight difference, for it is but slight after all, which exists between the one and the other, is easily accounted for without in the least impugning the honesty of the analysis of the plaintiff. We all know that some of the constituents of all manures are volatile and go into the air. Ammonia, one of the most valuable constituents of all manures, is that which is most volatile, and on the other hand the least valuable constituents are always the least volatile and the most soluble. Now, the analysis, as stated in the plaintiff's circular, would be made, I presume, as early as April, at all events whilst that of the defendant's is not made until December, and the defendant tells us he had kept a small sample all that time in a paper bag, in some dry upper room. Now, I think this is an unfair way of dealing with this analytical process. What says a great agricultural chemist upon this point? He says: "if a sample of guano be wanted, half a pound should be taken from five or six bags containing the bulk, it should be mixed together until thoroughly incorporated, and to prevent evaporation and consequent deterioration, the sample should be wrapped up in a tinfoil or lead-leaf." But when we compare the respective analyses of plaintiff and defendant, they vary very little indeed, and they just vary in those very constituents which time most affects. We have less moisture, rather less ammonia, and more sand, and I think, therefore, that the defendant's analysis is not inconsistent with this guano having been, when purchased by him, a fair and reasonable sample of Patagonian guano. Looking to the very serious loss which follows, not only to the farmer but to the whole community, by the use of a worthless, adulterated manure, and which can only be discovered too late to renew the crop, I am sure our Courts of Law will always look with a very careful eye into this comparative new branch of trade. But, on the other hand, we must be careful to look at both sides, for we may discourage the interests of those who have capital and enterprise to import an article which has become almost a necessity to the agriculturist, and from which the entire public reap an advantage. I therefore give a verdict for the plaintiff, for the full amount—14*l*. 1*s*. 4*d*.—Mr. Wright; I am sure the agriculturists of the county will be deeply indebted to your Honour for your remarks.—*Carlisle Examiner*.

DAIRY FARMING.—No. II.

[The following passages on the fitness (and its causes) of the dairy districts are abridged from the second lecture on Dairy Farming given by Mr. Harrison, of Frocester Court, before the Royal Agricultural College.]

AFTER an enumeration of those beds included in the secondary formation, which are fitted for dairy husbandry, and giving extracts from the reports of Mr. Caird, and of Mr. Dyke Acland and others to the Royal Agricultural Society, which show that the richer lands on the secondary formation are applied to grazing, and the second-rate and inferior Grass land to dairy farming, the lecture proceeds:—

From these few specimens you will see that the dairy land is considered only the second best, and this arises probably not simply from the fatting cattle requiring the most luxuriant herbage, so that they shall not require to work hard to obtain their food, but that it is better adapted to supply fat-forming food, whereas the second best soil furnishes the more leguminous herbage, which is best for cheese making. Much of the best cheese is thus made on poor farms, though the quantity per acre is moderate.

Now, how come such farms to have the character of poor? Do they really deserve it? We found the land in our union, which is situated on the lias formation, when examined by the Assessment Committee, to vary in value from under 18*s*. per acre for the wet clays with but little soil on them up to 60*s*. per acre, when there was a rich deep loamy covering. I believe that these wretched looking, starved fields, yielding 18*s*. per acre, are not so intrinsically poor, but that they afford to the disgrace of their owners, a striking specimen of the absence of that permanent improvement which the growing requirements of the country loudly demand.

Let us see what the circumstances are which give rise to this character. They will generally be found to have a thin soil lying upon the undisturbed lias formation, which had been subjected to the enormous pressure of the superincumbent oolites, &c., previous to its upheaval and denudation. Such subsoils are almost impervious to water, and consequently extremely difficult to drain. It is such lands as these whose wealth is as it were locked up, that deep cultivation by steam-power is to unlock, and I have little hesitation in saying that when so treated they will be found among the most productive soils of the country. I know the excellent effects of drainage and deep steam-digging (which as it were completes the drainage, or is at any rate on such land a necessary supplement to it), when under cultivation, and of draining alone when in Grass, but the drains require to be put very closely together.

I should add here that I have found a good dressing of manure after draining indispensable, this you will understand when you consider that the effect of the drainage of such land is to completely alter the herbage, the coarse Grasses delighting in a wet soil being replaced by finer and more nutritious ones. The former die or languish, and the effect for a time seems injurious unless by good manuring the growth of these substitutes be encouraged.

We frequently have pressed upon our attention the value of the vegetable mould, and there is no question that what is so-called is of vast agricultural importance.

What then is vegetable mould? Its name would imply that it is a mixture of vegetable remains with the few inches of the mineral matters of the earth lying on its surface, and we are told by some that it owes its value to the presence of this vegetable matter, and that by recklessly using up this supply we are impoverishing the soil as rapidly as we can. Now one thing is clear—that vegetable matter must decay or pass through the body of some creature before it can become food for plant growth. In peat we find it not subject to decay, arising from the soil on which it rests having been long soaked with water which has no outlet, and by the capillary attraction of the peat constantly drawing a supply from this source for evaporation; thus the peat is never dried, the air is excluded, tannin is formed, and the peat is preserved. In this condition it is useless as a manure or a medium for the growth of plants, but when decomposed it becomes valuable.

The less drained the land is the more must the dead roots of plants be similarly preserved, and thus the less useful for vegetation. Again, the more complete the drainage the more freely will the air circulate in the soil, and the more rapid the vegetable decomposition. But unless the soil be retentive, the more rapid also will be the dispersion of the new compounds formed from the decomposition. Arable culture by constantly exposing the soil to the sun and air facilitates decay and forces vegetation. But when we dig the mould in a rich pasture field we find it of the finest possible texture, free from stones or gravel of any kind, unless they have been put on the surface, and then, in the course of years, they are found gradually descending below it. How came the soil in this fine condition? How is it that these stones and gravels appear to sink into the earth? Could the mere vegetation bring the earth to the surface? Undoubtedly not. There is another

agency at work, to which I must now direct your attention—it is that of the earthworm.

The Operation and Use of the Earthworm.—You must frequently have observed in the arable fields in the autumn the remarkable manner in which pieces of stubble and vegetable refuse are drawn together in a star-like form round the holes of the earthworm, some pieces being partly drawn in. From this operation I think we may fairly infer that this is the worm's provision for the winter, and that such vegetable matter is its food. Again it seems evident that along with this it eats earthy matter, a provision in all probability to assist digestion. This earthy matter, mixed with the vegetable fœcal matter, is thrown up on the surface in the shape of wormcasts, beautifully fine in texture, and around which if you examine the Grass in the spring of the year, you will find the herbage looking more thriving than on the patches where there are none. Here then we have a compost of earthy and organic animal matter of the finest description thrown up for the nourishment of the Grass. If we examine further we shall find that the quantity thus thrown up varies immensely on different descriptions of soil. You are all aware that worms soon die when thrown into water, and you will find that wet undrained land does not suit their taste, and that upon such there are few worm casts. Again, on sandy soils they are comparatively rare. As Mr. Thompson says, "those who in their boyhood dug for worms for ground bait are well aware that one spadeful of rich well manured loam will often do more towards supplying their wants than a whole hour's digging on poor sandy soil."

Are then the rich loams of our Grass lands the cause of their being there, or are they the manufacturers of them, delighting to increase and multiply in it with its extension? From my own observation of the influence of draining, I should say that on many of our clays if you remove the water the worms will multiply.

But you will be inclined to say—why spend so much time on such an insignificant subject?—the worm cannot appreciably ameliorate the soil or influence the growth of plants. Let us see.

Mr. Thompson tells us that on a sandy loam he found that wormcasts and decayed Grass roots unitedly accumulated a layer of soil not exceeding 1½ inches in 12 years, as tested by the descent of a well marked top dressing of mineral matter.

"But Mr. Wedgewood's experience (given in the "Penny Cyclopædia," by Mr. Darwin, article Lumbricus) was very different. In one field, which had been limed without having been ploughed 12½ years before, a layer of lumps of lime were found 3 inches below the surface. The soil below the lime was of a gravelly nature, whilst that above was of uniform firmness, excepting a line of black spots at a depth of 1 inch, the remains of cinders, which were spread over the field 3 years before." In this case we have an annual deposit of from ¼ to ½ of an inch of earthy compost by these little creatures.

"The second field examined was remarkable only from the cinders being now buried in a layer only an inch thick, 3 inches beneath the surface, which layer was in parts so continuous that the superficial mould was only attached to the subsoil by the longer roots of the Grass." Showing that the greater part of the herbage was deriving its nourishment from the upper part of the soil, which had been raised above the ashes by the earthworms.

"The history of the third field is more complete: previously to 15 years since it was waste land, but at that time it was drained, harrowed, ploughed, and well covered with burnt marl and cinders. It has not since been disturbed, and now supports a tolerably good pasture. The section here was turf ½ inch, mould 2½ inches, a layer 1½ inches thick composed of fragments of burnt clay, of cinders, and a few quartzy pebbles mingled with the earth; lastly about 4½ inches beneath the surface was the original black peaty soil." This gives about ½ inch of earth raised to the surface yearly during 15 years.

Now a thickness of a third to a quarter of an inch of soil amounts to 30 or 40 cubic yards, or between 20 and 30 tons per acre—no mean result when we consider the amount of labour required to apply one-half of that quantity in the usual way on a small portion of the farm. Let us not then despise this agency.

It is stated by the Rev. W. R. Bowditch in his interesting paper to the Royal Agricultural Society, "that a bowling-green at Penrith (45 yards by 32 yards) was watered with a solution of corrosive sublimate, after which 11 stones of worms were gathered, and 4 years before 20 stones." These weights correspond to 518 lbs. and 938 lbs per acre respectively. I have tested the accuracy of this and found worms at the rate of 1000 lbs. per acre in one part of a field when they appeared actively employed. Here, as Mr. Bowditch remarks, "there is cause adequate to the effect."

When we hear of an ox, whose weight when ready for the butcher would not probably exceed that of the worms, being fatted per acre, we pronounce without hesitation the land to be excellent, and the country covered with such an amount of stock would be a magnificent sight. But here we find a quiet subsoil worker carrying on from year's end to year's end his useful work, converting the decaying roots of the Grasses into manures; for he carries nothing off or out of the land as the farmer does from the surface, his manure and his body when he dies and decays becoming equally food for the plants, and silently depositing it, mixed with the finest earth, on the surface for the nourishment of the future vegetable growth.

We plough and cultivate our arable land, and expose it as much as we can to the influence of the atmosphere, that it may become disintegrated and capable of receiving the riches that the air and rainwater passing through it may impart, and is not Mr. Bowditch somewhat justified in asking the question "Is not this Nature's provision for the aeration of the soil of Grass land, which cannot be stirred by man? Are not worms his ploughman, bringing fresh soil to the surface for atmospheric disintegration, and opening channels in the earth to promote decomposition in them? May not the earth food of Grass plants depend principally upon the labours of earthworms?"

I go a step further and believe that they are the root pruners of the plants and consumers of this root growth when decaying, affording organic as well as mineral manure to the plants; and I think, as I have said, that with the aid of steam we may be able to stir the subsoil of our Grass land as well as of that under tillage, and thus both assist the drainage, aerate the land, encourage the multiplication and facilitate the working of these, as I believe, most valuable little creatures.

The Value of Bones as a Top-dressing.—Now if the view I have taken of the cause of the famous cheese dairy districts coinciding with a particular geological formation be correct, it follows as a consequence, that although the soil of some parts of this district, as Cheshire, may from the continued drain of phosphate of lime for a number of years, and its more porous nature than the lias and other soils, have become impoverished and require renovation by replacing in the shape of bone-dust that which has been taken away, still the subsoil will contain it in abundance, and that a judicious application of the subsoil to the surface would effect the same object. Now experience proves this to be correct.

Fifty years ago in Lancashire and Cheshire, which counties now derive so much benefit from the application of bones, red marl was the great source of fertilization. The enormous quantity, amounting to 200 or 300 loads per acre, sometimes put on the land, must always have remained a great barrier to its extensive use. Happily since then chemistry has come to the rescue, and concentrated manures are used instead. Mr. Paine and Professor Way, whilst examining the composition of the upper and lower strata of the green sand formation which lies immediately below the chalk, discovered large quantities of phosphate of lime and several layers of phosphatic nodules or coprolites containing 40 to 60 per cent. of bone earth.

When we consider, as Dr. Voelcker informs us, that superphosphate of lime probably constitutes fully three-fourths of all our chemically prepared fertilizers, and that the whole world is being ransacked to obtain materials for this manufacture, which is now carried on in England on a gigantic scale, and is rapidly extending on the Continent, we may judge of the importance of a careful analysis of marls in different localities, which may lead to the discovery of many now neglected, which are rich in phosphates and very valuable. As Dr. Voelcker remarks, "It is an interesting fact that in the neighbourhood of Swindon, where I am informed phosphatic manures are of no use, coprolites have been found. I have in my possession specimens of phosphatic nodules from the neighbourhood of Swindon, and highly phosphatic marls from other parts of Wiltshire. If in other localities phosphatic manures are unavailing, the intelligent observation of this apparently anomalous fact may then lead to the discovery of valuable deposits of mineral phosphates."

It may fairly be asked—may not other soils of the country besides those naturally so be made suitable for cheese making, by a judicious application of the mineral manures found wanting? I see no reason to doubt it, and we have an interesting case given by Mr. Dixon in his "Prize Essay on Manuring Grass Land," when 50 or 60 acres of land at Alvanley, near the forest of Delamere, in Cheshire, which had hardly any soil, nor had there been any attempt to cultivate it, no vegetable growing on the surface, except dwarfish Heaths, were covered with stone marl, and form now a most beautiful and luxuriant pasture.

Many fields which have been dressed with this peculiar marl are among the richest pastures of the district.

The lecturer then discusses the condition in which the dairy lands are placed in the hands of tenants; the state of non-equipment in which they are offered to tenants by their owners. This is especially true of the South-Western dairy districts. The Northern and Midland farms are better provided with buildings, which is perhaps owing to greater severity of climate. And on this point detailed information is then given.

The following recapitulation concludes the lecture:—

We have seen that the rich grazing and cheese-making district is naturally limited in extent, that from its geographical position, the geological formation on which it is situated, which is famous for phosphate of lime, it possesses a remarkable intrinsic value; which, however, is not duly appreciated generally by its possessors, as it is called the blot on English agriculture, calling loudly for improvement from its owners for their own sakes as well as their country's; and that notwithstanding the high rental it produces the accommodation is very frequently sadly deficient.

That within this district coprolitic and other phosphatic deposits are frequent, calling for the intelligent observation of those engaged in agricultural pursuits to discover fresh sources of supply, especially as phosphatic manures derived from these and other sources are being made on a gigantic scale not only for the United Kingdom but for Europe.

In the remaining lectures I shall confine myself more to the tenant's interest in the question, premising, however, that if Grass land improvement is to go a-head and overtake the proud lead that the more purely arable districts have got, the tenant's interest must be secured to him in a lease. He, like the arable farmer, may do much to permanently improve the value of his holding, and so be called upon to give up at short notice without remuneration that which has cost him much, and from which he has not had time to obtain any adequate return; besides this the value of his stock frequently bears a considerable proportion to the absolute value of the land, and it is hardly to be expected that he should go to great expense in improving his farm or his stock when he may be called upon to leave at a short notice and be obliged to sell off at possibly a great disadvantage.

Another point also I would name here (upon which, however, I shall have more to say afterwards, but I mention it here as it is a matter for the landlord's consideration), viz., that it is very decidedly to the advantage of every Grass farm that there should be a portion of arable land attached to it, both for the landlord's and tenant's sake. Some sandy or gravelly parts, or it may be clay with a thin soil, will generally be found, which may with advantage be brought under the plough.

HORSE BREEDING AND FEEDING.

[The following is the conclusion of the lecture by Mr. Barthropp on this subject, most of which appeared in a former Number of the *Agricultural Gazette*.]

HAVING made these few remarks on the feeding of cart horses, I will conclude by giving you the experience of a friend of mine who has paid great attention to the subject.

He has come to the conclusion that it is better, taking all things into consideration, to keep a small number of well fed horses than a large number of inferior fed. There is less outlay for horses, harness, &c.; fewer men are required to work them; there is no excuse for a small day's work being done if the horses are well fed and in good condition; besides which, if the horses are in good condition, the men naturally take a pride in attending to them, which they will not do if they are poor. His farm consists of 480 acres of arable, all heavy land and heavy mixed soil. He keeps 19 horses, that are selected with a view to hardihood and activity, and he finds that large horses do not last so long as horses of medium size; in fact, he says, "Above all I dislike a large horse, even if he could pull a castle down at a slow pace." In the following scale the provender is charged at an average price of—Beans at 16s., and Oats at 12s. per coomb; hay at 3l. 10s. per ton; and Beet-root or Swedes at 3d. per bushel. After harvest the horses are put upon full feed, for September, October, November, and half of December, and the allowance per week is—

Beans	.. 5 pecks	.. 5s. 0d.			
Oats	.. 2 pecks	.. 1 6			
Hay	.. 1 cwt.	.. 3 6			
Root	.. 4 bush.	.. 0 8			
		10 8	.. 15 weeks	..	£8 0 0

Half December, all January and February.

Beans	.. 3 pecks	.. 3s. 0d.			
Hay	.. 1 cwt.	.. 3 6			
Root	.. 4 bush.	.. 0 8			
		7 2	.. 9 weeks	..	3 4 6

Half February, all March, April, and May.

Beans	.. 5 pecks	.. 5s. 0d.			
Oats	.. 2 pecks	.. 1 6			
Hay	.. 1 cwt.	.. 3 6			
Root	.. 4 bush.	.. 0 8			
		10 8	.. 15 weeks	..	8 0 0

June.

Beans	.. 5 pecks	.. 5s. 0d.			
Oats	.. 2 pecks	.. 1 6			
Grass or Tares	..	.. 2 0			
		8 6	.. 4 weeks	..	1 14 0

July and August.

Beans	.. 3 pecks	.. 3s. 0d.			
Clover, Grass, or Tares	..	3 0			
		6 0	.. 9 weeks	..	2 14 0

So that the cost of each horse would be £23 12 6

A discussion then ensued, during which Mr. D. SMITH, Jun., said:—Up to the present, for the cultivation of their farms, they had to depend principally upon the horse. The animal he should select for the work of the farm would be of the medium size, not too long in the leg, with a good middle, smart and active. In some situations the steepness of the hills, and the heaviness and retentive nature of the soil, might require more than ordinary strength; but upon the lands in cultivation in this neighbourhood a horse of medium size was best, for it cost much less to keep than a large one. He advocated the keeping of at least one brood mare. As Mr. Barthropp had gone so fully into the question of breeding, he merely alluded to it, and recommended that a colt should not be put to work till he had attained his third year, by which time he would have cost full 30l. As to keep, he recommended a good supply of nutritious food. From Michaelmas to June 1st, and from September 1st to Michaelmas, comprised about 40 weeks, during which the horse had the hardest work to perform, and during that period he should be fed almost, if not entirely, at the homestead, and during the remaining 12 he might be kept on green food. He had drawn up two tables of the feed of a horse for the year. The first was as follows:—

1½ cwt. of Hay or Clover per week for 40 weeks, at 4l. per ton	.. ..	£12	0 0
10 coombs Corn, at 15s.	.. .. ..	7	10 0
1 ton of straw and chaff	.. ..	2	0 0
50 bushels of roots, at 3d.	.. ..	0	12 6
12 weeks' Grass, at 4s. 6d. for 12 weeks		2	14 0
		£24	16 6

That would be feeding the horse at the rate per day of 24 lbs. hay, 6 straw and chaff, 7½ corn, 9 roots. Total 46½ lbs. The second scale was—

2 tons Clover	.. ..	£8 0 0
12 coombs Oats and Beans	.. ..	9 0 0
1¾ tons straw	.. ..	3 10 0
50 bushels roots	.. ..	0 12 6
12 weeks' Grass	.. ..	2 14 0
		£23 16 6

He would, under this system, have 16 lbs. Clover, 9 lbs. Corn, 14 lbs. chaff, and 9 lbs. roots. Total, 48 lbs. per day. As to management, it was not right that the horse should be turned directly into the meadow. They did not take sufficient care of their horses, for as Mr. Barthropp had said of riding horses, by keeping them well they would get a much greater amount of work out of them. The stable should be at least 8 or 9 feet from ceiling to floor, well ventilated, cleaned out every day, and the wall whitened with lime-water. The rack should be as perpendicular as possible, so as to prevent the seeds getting into the horses' heads, and the manger should be rather deeper than they were in the habit of having, for the purpose of giving them rather more cut food. A friend of his had told him that he cut up his horses' food with a chaff cutter, and had a lad to feed them, the men who worked the horses having nothing to do with the feeding, and he found that a much cheaper system than the ordinary one. He had lived in several other counties besides Suffolk, and he did not know that in any it was the custom to turn the horses out into yards and pastures after the day's work as here. Economy was the great object they should study, and he should be pleased to find them acting upon a more economical plan than heretofore, if possible.

The Rev. J. H. GROOME said it occurred to him that one great cause of the defects which had arisen in the breed of horses in Ireland was that in their over anxiety to procure a certain kind of horse they had lost certain pure breeds. When he was a boy there was a

stock celebrated for trotting—the Shales stock; and he asked if it was not a pity that that stock had been lost, as it probably was very useful for crossing with pure racing stock? In the cart horses he remembered there formerly was a pure breed of bays, which had been lost, and he questioned whether they had been wise in losing the pure old stock of cart horses for the sake of such a matter of fashion as colour. The agricultural shows had been so far injurious as to set a particular fashion, and thus caused pure breeds to be lost. He also believed serious mischief resulted from the over-fatting of stallions. Great fatness was generally taken as a proof of a strong constitution; but was there no better criterion of a good constitution? The Yorkshire breeders did not use their riding stallions in such a fat state, but rather when in a hard condition; and why should not the same be the case with cart horses? He would like to know whether physiologically a given character might not be stamped on a race, and whether horses being kept excessively fat might not, in the course of many generations, produce such a change in the constitution of Suffolk cart horses that in the end the animal would be possessed of great fatting capabilities at the expense of his muscle, and degenerate from a muscular into an animal like the Short-horn bullock, with greater tendency to secrete fat?

The Chairman.—What do you think of that, Mr. Grey?

Mr. Grey (Parham).—Not anything. The fact of a horse getting fat was a proof of good constitution. If a horse would keep fat he did not want so much food. It was true riders were not made fat, but they were an entirely different race of horses. He thought the value of a travelling horse depended much on the leader; there were many leaders who were such drunken fools they did not know a horse from a donkey.

Mr. G. Goodwin said he never had a horse on his farm that he thought too fat.

Mr. George Jeaffreson said they would not injure a cart horse by allowing him to get fat, for the fat did not take the place of muscle in him whilst he had active exercise, and therein was the difference between the horse and the bullock; for the latter was shut up in a shed or yard, and never had any exercise, and the result was that fat took the place of muscle.

Mr. Barthropp, with reference to Mr. Groom's statement as to the Shales breed of trotting horses, said the decline of that breed was owing to the alteration in the method of travelling, which did away with the demand for trotting horses. Nevertheless, last year he was judge at a show in Yorkshire, where there was a class of 21 brood mares of this breed, with foals, and nearly as large a class of stallions. As to bay Suffolk horses, Mr. Catlin had some very fine teams of them, but there was always a doubt whether they were of the true Suffolk stock. With respect to the fatness of cart horses compared with riders, no one would think of showing a fat hunter or thorough-bred horse, because his body would be too big for his legs; and that sort of horse was not wanted fat and heavy; but in the cart horse weight was necessary. Mr. Jeaffreson had answered the question whether fatness would deteriorate the breed, and he might add that many entire horses travelled 20 miles a day, and still were what was called "beastly fat;" but a horse's fat would be found to be firm, whilst a bullock's was soft and pappy. He was surprised to hear any members advocate turning horses out at night into open yards. Let them only fancy a horse coming home on a foggy day in November in a very wet state. He was shut up from three to eight o'clock in a stable, and it was impossible for his coat, which would then be long, to get dry. He got into a cold sweat, and was then turned out into the open yard when, very likely, it was raining fast. When he lived at Cretingham he had a covered yard open on one side—not warmer than outside, but dry and sheltered from the rain.

Mr. Barnes, Kettleburgh, said the horse would be dry after being in the stable from three to eight.

Mr. Barthropp.—Let him be dry. What is the use of turning him out to get wet?

Mr. Barnes.—We can't do anything else.

Mr. Barthropp said the landlords ought to build covered yards.

AGRICULTURAL MEMORANDA.

Plenty of Green Food in hot dry Weather.—I am induced again to mention that so long as you have a good field of green Beans, so long have you a first-rate green food for either cows, fattening bullocks, or growing animals. They must be passed through the chaff-cutter. It is surprising how far an acre of good Beans will go in this way; and in my experience they pay much more money in meat and manure when so used than when submitted to the expensive process of harvesting, grinding, and wasting the straw. By mixing the cut Beans with a little cut Cabbage and rather dry Italian Rye-grass we can most comfortably keep our stock going, while others (having Beans too) are selling their stock at a sacrifice. My man finds them most excellent for producing rich milk. *J. J. Mechi, July* 23.

Wheat too thick from a peck an Acre.—Methinks some of my three-bushel friends will feel very angry at this heading, but it is true that my bailiff just now said to me "I have been walking into our peck an acre, and it is really too thick in some places, for I counted 48 stems from one kernel, and the kernels were placed only 4½ inches apart." This was some of Hallett's, and the other lands are our own Crabbe's Wheat. Both are excellent pieces, and look like 6 quarters an acre from less than one peck. The rest of the field is an excellent crop of rough chaff white from 1 bushel, but it would have been better thinner. My peck an acre of Barley promises to beat the 6 pecks; and a peck of Oats which were put in much later than the rest of the field come close to the 2 bushels. There is a great advantage in one respect in having some of your corn thinner than the rest; it comes in course at harverst, say a few days or a week later than the rest. *J. J. Mechi, July.*

Apparent Agricultural Discrepancies.—I am assured that Messrs. Way and other chemists have filtered liquified manure through glass tubes filled with dry earth, and that the fluid comes out as clear water. May I ask those gentlemen to be good enough to try the same experiment with earth not dry, but damp or wet, the same as we almost always find it at a foot or two below the surface. I think that they will then no longer find the fluid clear or colourless; that is, provided the original fluid was a compound of solid and liquid excreta fluidised. I am induced to ask for this trial, because when applying our fluidised sewage to our land we so frequently make the drains (at intervals of 30 to 50 feet and 5 feet deep) discharge abundantly the sewage, coloured and even smelling. I presume the difference must arise from the opposite conditions of the soil as to dryness or moisture. *J. J. Mechi, July*, 1864.

Home Correspondence.

Cereal Cultivation and Germinating.—The readers of the *Agricultural Gazette* will recollect that last autumn an elaborate and carefully-drawn up Table was printed in it to show the defective germinating powers of Wheat, to which it was my intention to have replied at the time; but a fearful accident having befallen me at the railway station at Manningtree prevented my doing so; but now, as, I am thankful to be able to say, I have been mercifully restored to nearly my former state of health, I will enable those of my friends who think my papers worth reading, to contrast my opinion and my practice and experiments with the results of the experiments and the conclusions drawn from them of the learned author of the above referred-to Table; and *in limine* I may as well say at once that I differed entirely from the opinions on the germinating powers of Wheat of the learned author of that Table. The subject is a most important one; and in agriculture none can be imagined more so, and my reputation as an amateur farmer and writer on agriculture I consider is somewhat involved in the settling of it. It is well known to very many kind friends, I hope, that I reside in one of the finest agricultural districts in this country—fields teeming and abounding with corn, and now ripening for harvest, are all around me, and so near that I cannot look out of a window but I have the inexpressible pleasure, beyond a few flowers which I take especial delight to look on also and contemplate, of beholding one of the most enrapturing spectacles in the world that thoughtful man can behold and enjoy—namely, a field of ripening corn. For example, on the south of me and just beyond my lawn, is my own most wonderful crop of Wheat—wonderful I write, because I will now challenge it not only against all England for quality and quantity, but against all the world, and yet there was only a single gram of Wheat to a square foot of ground; nor has the land been touched by any instrument whatever since the seed was put into the ground; and it is the 10th time in succession that the same land has been cropped with Wheat, and every year the crop is the same. Nay, further, there is Barley growing in the same way just by the side of it, and I will here stake my reputation upon it that there shall be not fewer than from 1200 to 1500-fold both of Wheat and Barley for every grain of seed I put into the ground; and as I have said, every year is the same, so that on one field I rented for 17 years (and I had it in Wheat 13 years out of the 17), I averaged 44 bushels an acre, and as fine Wheat as ever was grown, and yet I never exceeded 2 pecks of seed an acre, and sometimes scarcely 1 peck. But to proceed. On the west side of my house are Wheat fields in succession, for I know not how far, and on the east is a large field of Oats, and on the north one of Barley, but these are not mine, but are good according to the long established system of farming; but I mention these merely to show that I live in the midst of growing crops of corn, and that I in consequence ought to know something about them and how they are produced. But to return to myself and the learned author's germinating Table. It appears that the real object the author of the Table had was to prop up the system of thick seeding, and if he be correct I am growing these wonderful crops by magic; I by no means profess to do this, but I require a seed for every root I grow. But the author states that in some kinds of Wheat only about 50 per cent. will grow, in others only about 40 per cent., and in others not more than 30, and of one kind only 18 grains in 100 will grow. Now, as I grow all kinds of Wheat I can lay hold of, and as I sometimes do not use four quarts of seed an acre, what kind of crops should I have if only a 50, or 40, or 30, or an 18th per cent. grew? But last autumn I obtained 16 samples of different kinds of Wheat from corn dealers and farmers, and of each I put 100 grains in each of 16 rows, and not 2 per cent. failed to germinate and grow out of the whole. But from my experience, now extending to half a century, I have found but very little difference in the germinating powers of Wheat; and be it observed that I never doctor my seed Wheat, but just as I receive it from the seller or producer I put it into the ground, and yet I never have any smut, nor failing of any to germinate and grow. But my readers are sceptical, and if so, I ask them to come and see for themselves; they will see Wheat growing 6 feet high, and so strong that no storms can beat it down, and as thick on the ground as it can grow, and from about 3 quarts—quarts, I repeat—an acre of seed, and of Barley the same, though, of course, not so high; but from some grains of seeds of this cereal, I can count now 60 ears, and some of the ears have 38 and some few 40 grains in each. Then why should I sow more? I cannot tell, for if I were, I should most likely have worse crops, but I could not have better. But in conclusion, as gentlemen in my profession say, I will state that when Wheat fails to grow, in general the fault is in the sower and not in the seed; "in general" I write, but not always, but then when it does fail, one kind is as likely to fail nearly as another; but the least likely are the bearded kinds, but in none as to kinds will the difference be 5 per cent. But if my readers are still sceptical, I inform them that a neighbour of mine had a pint of Wheat which he had put into the middle of a large field drilled with Wheat at about 7 pecks an acre. The pint was sufficient for the fifth of an acre, and that fifth is now, my neighbour and his men believe, equal in quantity and quality to the rest of the field—but would this have been the case had only half the pint, or a quarter, or the fifth part of it grown? But will the author of the Table referred to be so good as to explain these cases? and if so I will give him a few more. *Geo. Wilkins, Wix Parsonage, July* 11.

Harvest Time near Rugby.—I send you a statement of the time of the corn crop coming into ear and flower on the Holbrook Grange farm for the last six years, as I find that some of your readers have been looking for its being carried on. I make it for six years instead of five as heretofore, because the season of 1859 was similar to what this season has been hitherto.

	Corn in Ear.			Wheat in Flower.
	Wheat.	Barley.	Oats.	
1859 ..	June 14	June 12	June 11	June 19
1860 ..	,, 24	,, 24	July 2	July 5
1861 ..	,, 14	,, 21	June 20	June 21
1862 ..	,, 20	July 4	July 10	,, 27
1863 ..	,, 15	June 13	None sown	,, 20
1864 ..	,, 15	,, 17	June 15	,, 21

	Begin Harvest.			Finish Harvest.
	Wheat.	Barley.	Oats.	
1859 ..	August 8	July 28	July 27	August 20
1860 ..	September 1	Sept. 11	August 28	October 3
1861 ..	August 16	August 26	,, 10	August 31
1862 ..	,, 25	September 5	September 8	Sept. 20
1863 ..	,, 8	August 3	....	,, 8

Chas. M. Caldecott, Holbrook Grange, Rugby, July 16.

Small-pox in Sheep.—I feel that it is only due to the memory of my late father to contradict some statements made by Professor Simonds in his address to the Royal Agricultural Society in Hanover Square, on Small-pox in Sheep. I have no wish to enter into any discussion upon the subject of vaccination; but I cannot allow some remarks which he has made relative to my father to pass unnoticed, they being untrue. First Mr. Simonds says "he does not believe Mr. Overman's sheep were ever vaccinated." It is to be regretted that Mr. Simonds should have assailed the statement of one who, being gone, is unable himself to refute it; but I, as Mr. Simonds justly observes, "knew all about it," and I equally maintain that my father's sheep were vaccinated. Secondly, Mr. Simonds says—"Mr. Overman sent two sheep, after being pressed to do so, to the farm of a neighbour, in whose flock the disease existed, and those two sheep were both inoculated on that farm—one of them by a farmer who, I do not hesitate to say, at that time performed the operation of inoculating far better than many so-called veterinary practitioners—I mean Mr. Cooke, of Litcham. Mr. Cooke inoculated one of the sheep of Mr. Overman to which I have just alluded; and Mr. Baldwin, a veterinary surgeon of Fakenham, inoculated the other. Both sheep took the disease, and passed through its several stages; and the result was in no way different from what was observed in hundreds of other sheep that were unprotected or even vaccinated. But Mr. Overman, in his letter to the *Norwich Mercury*, absolutely denied that these sheep did take the disease." Now the real facts are these:—My father, far from being pressed to send these sheep to his neighbour's flock, did it by his own particular wish, and as he also most correctly stated in the *Norwich Mercury*, these sheep did not take the disease. One never ailed anything, the other died from gangrene in the wound made by that farmer in inoculating the sheep, who, according to Professor Simonds, performed the operation so well. I wish to add from my own experience that this is no isolated case, for several rams were let by my father to those flockmasters who had smallpox in their flocks. Of

these he never lost one; but few of them took the disease, and those that did had it in the mildest form. I am only too glad that I am able to recollect these circumstances, and also to hold the letters which my father wrote at the time, and so refute the slur which Professor Simonds has thrown on my father, who was known and acknowledged as a man of strict truth and integrity, and one who, dealing with plain facts as they stood, was not a man to be "pressed into a corner" by the professor. I was glad to find that Government had determined to test vaccination and inoculation fairly one against the other; but I was surprised that the trial should be entrusted to a person so prejudiced in favour of inoculation as Mr. Simonds. Before a just conclusion can be arrived at, men unbiassed towards either system should be selected for the task. *Henry Overman, Weasenham, Rougham, Norfolk, July* 8.

New System of Drainage.—Mr. David Robie, Kilbarchan, Paisley, states that he has discovered a new, and, as he calls it, a novel system of drainage, upon which principle land lying below the level of rivers or canals may be drained, the mouth of the outlet pipe to pass into the river at any distance required below the surface. This idea is not at all new; it is new I will grant to call public attention to this mode of drainage, but those who have previously conceived these ideas have refrained from placing them before the public, for the very good reason that this system of drainage would never become of public utility from the difficulties with which it is surrounded, and therefore it is more novel than useful. As Mr. Robie's new system of drainage does not appear to have been very clearly explained, and probably many of your readers may not understand its principles, I will endeavour as far as I am able to make it intelligible to them. In the first place, estates lying low and bounded by canals or rivers, the waters of which are either on a level or above the surface of the ground, cannot be drained by Mr. Robie's new system, for this reason: the pressure of water at the mouth of the outlet pipe in the river would exceed the force and pressure of water in the pipes, because all the water to be conveyed was below the surface of the river, therefore the drains would always be full, and whether the river flowed quickly or sluggishly it would never draw the water out of the drains. But supposing these estates were bounded on one side by lands rising to a considerable elevation, and on the other by a river above the surface of the ground, in this case it is quite practicable to convey water through a main drain into the river several feet below its surface, but in order to accomplish this object, providing there were no strong springs rising up in these estates, the waters of which would be supplied from the high surrounding lands, and conveyed there in a natural main drain, an artificial main drain would have to be laid to convey the water from these elevated lands through the low estates, before water could be discharged from a main drain into a river running above the surface of the ground which required to be drained. The whole secret of this new system of drainage consists in having water brought from high ground, either by natural or artificial means, and this column of water must be of sufficient force to overcome the resistance the water in the river would offer at the mouth of the outlet, and this force would be exercised in proportion to the distance the outlet pipe was below the surface of the river. On this principle Artesian wells are constructed, and springs rise from the bottom of lakes and the beds of rivers. *H. Harrison, York, July* 19.

Artesian Drainage.—I have been much interested in an account given in your Paper of the 16th inst. by my ingenious friend Mr. Robie, of Kilbarchan, of experiments made in draining upon a new principle (which may be termed the Artesian system—or better the Robian system), as it strongly corroborates an article written by me some time ago, and rejected last winter by a leading London magazine, in which I pointed out that the cause usually given of the use of water in Artesian wells was erroneous and quite inadequate to the effect, and that the real cause was internal pressure upwards, and also the force of gravity downwards, forcing a lighter body (water) upwards from out of a compressible heavier body (water and earth held together by capillary attraction). This system of drainage, as described by Mr. Robie, which your readers will remember, was employed to remove the superfluous moisture from a flat piece of ground where the outfall is only about a foot lower than the surface of the field. Here it was found that by laying pipes from three to four feet deep, with an upright pipe at the exit end as high up as the surface of the open water-course or streamlet, the drain water rushed up out of the pipe drain into the water-course, and drained the field more effectually than pipes or open cuts about a foot deep, that is as deep as have a clearance of run by the natural level. Here Mr. Robie does not give the cause of the flow by the deeper drains. This my rejected theory explains. In my piece on Artesian wells, &c., I stated that the pressure of gravity of the incumbent mass (earth or rock water-logged) exceeding the weight of a column of water of the same depth, is one of the causes of the high rise of water in Artesian wells. Here it may be asked, how does the weight of the incumbent mass down as far as the bottom of the bore not send the bottom water up through the mass itself? The reason is that the attraction of cohesion between the earth and water so far resists the rise, while in the smooth bore the attraction of the sides will scarcely be known, and as the depth increases the pressure increases—that is, the difference of weight between the water column and moist earth column increases, while the attraction of cohesion may not increase. In the case of the flat field alluded to, the whole weight of the mass of moist earth down to the low pipes, minus the weight of a column of water of the same depth, must press the water out from the soil into the pipes and out at the raised mouth, while in the case of pipes only a foot deep, or open cuts, capillary attraction would almost balance the force of gravity. There may also be bottom springs from earth cracks, natural artesian wells under the lacustrine deposit of the flat field, which find a more ready vent through the deep pipes. When a boy I have often amused myself by shaking the sand with my feet at the side of a river, thus causing little streamlets of water to run down from the sand. The shaking loosens the attraction of cohesion or capillary attraction, and the greater weight of the sand particles causes them to reside and the water to rise and run down in streamlets; but it was my impression then that the shaking pumped up the water from the river. In the case of ground being well shaken by an earthquake, streams of water are often ejected from the earthquake cracks. I may recur to the different causes of the rise of water in artesian bores, the reservoirs of water in the interior and their cause, the cultivation of climate, the reclaiming of arid lands and desert. Had one-tenth of the means employed to obtain a knowledge of polar lands and seas been directed to obtain a knowledge of the interior of the earth, our knowledge might not have been so fruitless. *Patrick Matthew, Gourdie Hill, Errol, July* 25.

On Drainage where the Outfall is Defective.—In your Papers of June 25th and July 16th my name is mentioned in connection with this subject. I have not seen Mr. Robie's article in the *Ulster Journal*; but I believe that the subject would lose nothing at his hands. At present I am prevented from entering upon the topic, for the following reason. In February, 1863, I forwarded a paper thereon to the Royal Agricultural Society. The subject excited some interest among the Journal Committee, and two gentlemen were sent down to investigate the facts. They examined the instances referred to, on the rivers Tame and Oxon, and the article (with certain modifications) is now in type. At least the proof was revised by me some months since, and it will, I presume, be published in due course. Though I regret this long delay, yet if it leads to a fuller investigation (of apparently anomalous results) in the interval, I doubt not but it is all for the best. As regards Mr. Palin's drainage in Cheshire, your description shows it to be a very judiciously executed work; but, as you well know, there are many river-side meadows where it would be impracticable to carry up an outfall main. And to such cases, Mr. Dumolo's system (which my article describes, and which my practice has simply followed) is assuredly best adapted. *T. Bowick, Britannia Farm, Bedford, July* 20.

Societies.

AGRICULTURAL OF ENGLAND: *Newcastle.* — The great meeting has proved to be a great success; the attendance and receipts stand third on the list of the Society's experience. The attendance and receipts for the years 1861, 1862, 1863, and 1864 have been as follows:—

NUMBER OF PERSONS ADMITTED TO THE SHOW-YARD AT

	1st Day.	2d Day.	3d Day.	4th Day.	5th Day.
Leeds	2,027 ..	10,283 ..	18,823 ..	73,824 ..	40,824
Battersea.....	5,873 ..	10,083 ..	8,644 ..	28,092 ..	38,131
Worcester	811 ..	7,684 ..	9,293 ..	38,282 ..	19,469
Newcastle	720 ..	10,232 ..	15,949 ..	56,569 ..	30,811

AMOUNT OF MONEY TAKEN.

	Leeds.	Battersea.	Worcester.	Newcastle.
	£ s. d.	£ s. d.	£ s. d.	£. s. d.
1st day ..	506 15 0 ..	1468 5 0 ..	404 19 6 ..	360 0 0
2d day ..	1285 17 6 ..	1257 0 0 ..	960 12 1 ..	1279 0 0
3d day ..	2352 17 6 ..	1080 10 0 ..	1162 2 0 ..	1093 12 6
4th day ..	3691 4 0 ..	1404 12 0 ..	1015 18 5 ..	2828 19 0
5th day ..	2041 4 0 ..	1906 11 0 ..	973 9 0 ..	1540 11 0

The total number of visitors during the Show at Leeds were 145,781; at Battersea, on five days, 90,828; at Worcester, 75,539; and at Newcastle, 114,281.

The total amount of money taken at Leeds was 9877*l.* 18*s.*; at Battersea, on the specified days, 7116*l.* 18*s.*; at Worcester, 5417*l.* 1*s.*; and at Newcastle, 8002*l.* 2*s.* 6*d.*

The following are the numbers of catalogues sold during the five days of the Show:—Monday, 1918; Tuesday, 4077; Wednesday, 3920; Thursday, 3379; Friday, 1844. Total, 15,138.

At the general meeting of the Society in the Show-yard on Friday thanks were cordially and unanimously voted to the civic authorities, to the railways, to the local committee, and to Lord Feversham, the retiring President. In acknowledging this last vote his lordship said:—

It has been stated by gentlemen present that they are indebted to the Society for the visit which it has paid to Newcastle upon this occasion: but I can assure them that if any compliment has been paid by the Society to Newcastle it has been most fully reciprocated by all classes of the inhabitants of this great, important, populous manufacturing and commercial town, and we feel grateful to all classes of its inhabitants for the exertions and efforts which they made in bringing our great exhibition to a successful issue. We are greatly indebted to the Mayor and Corporation for their hearty welcome and cordial reception, for their sumptuous and unbounded hospitality, and as well for the great support which we have received from all classes of the community, and for the interest which has been shown in the object of the Society by the great mass of the population of Newcastle, as evinced by the numbers who have frequented the show yard, and who have greatly contributed thereby to the success of our meeting. It may, perhaps, not be an exaggeration to say that there are circumstances in the year 1864 which will ever be memorable in the annals of the institution. I believe there have been a greater number of members elected during the present year than in any former one. At the head of them is the heir-apparent to the throne of this country, his Royal Highness the Prince of Wales, who intimated in the most gracious manner his desire to be enrolled a governor of the institution. Then, also, we have for the first time visited the same locality in which the meeting was held 18 years ago. This, perhaps, is not, however, a surprising circumstance, invited, as we were, in the most honourable and liberal manner; and as so many years have elapsed since the period of the former meeting, since those who were then hardly out of their cradles have now grown up to be men and women, it is not extraordinary that the Society should have again selected, after so long an interval, Newcastle-upon-Tyne for the purpose of holding its meeting. I can assure you, gentlemen, it is no mere set form of words when I say that I find myself at a loss for terms adequate to express my deep sense of gratitude for the kind and liberal assistance which I have received during my year of office. The day has now arrived for me to return into your hands the high and important position of President of the Royal Agricultural Society. I do so with the utmost feelings of gratitude and thankfulness. I am aware of many deficiencies, but I may say it has been my study and desire to uphold the interests of the institution to the best of my ability and power, and I have to thank you most sincerely for the able assistance and the devotion of your time, and labour, and exertions to the accomplishment of the end. I have now, therefore, only to bid you, and all the Council and members of the Society generally, a hearty farewell, hoping that at the conclusion of this meeting you will, all of you, arrive at your homes safely and prosperously, carrying with you pleasing and grateful reminiscences of the very successful meeting which we have had on this second occasion at Newcastle-upon-Tyne.

We add the remainder of the prize list in those classes for the awards in which we had not last week sufficient room.

SPECIAL PRIZES, AMOUNTING TO 410*l.*,

OFFERED BY THE LOCAL COMMITTEE OF NEWCASTLE-UPON TYNE.

CATTLE.

GALLOWAY.

CLASS 116. For the best Bull, calved previous to January 1, 1863.—1st, 20*l.*, William Roper, of Ling Side, Seberham, Cumberland; 2d, 10*l*, W. and J. Sheenan, of Bailig, Kirkcudbright. Highly Commended: Alexander Jardine, of Applegarth, Lockerbie, N.B. Commended: William Kier, of Whithaugh, Newcastleton, Roxburghshire.

CLASS 117. For the best Bull, calved after January 1, 1863.—1st, 20*l.*, Sir Frederick U. Graham, Bart., of Netherby; 2d, 10*l.*, John Cunningham, of Whitecairn, Dalbeattie, Kirkcudbright. Highly Commended: James Graham, of Meikle Culloch, Dalbeattie.

CLASS 118. For the best Cow, above 3 years old.—1st, 15*l.*, James Graham, of Meikle Culloch; 2d, 5*l.*, John Cunningham, of Whitecairn.

CLASS 119. For the best Heifer, calved previous to January 1, 1863.—1st, 10*l.*, James Graham, of Meikle Culloch, Dalbeattie.

SHEEP.

BORDER LEICESTER.

CLASS 121. For the best Shearling Ram.—1st, 15*l.*, George Simson, of Courthill, Kelso; 2d, 5*l.*, Thomas Simson, of Blainslie, Lauder. Highly Commended: George Simson.

CLASS 122. For the best Ram of any other age.—1st. 15*l.*, Thomas Simson, of Blainslie; 2d, 5*l.*, Messrs. J. Wilson and John Angus, of Whitefield, Northumberland.

CLASS 123. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 10*l*, George Simson, of Courthill; 2d, 5*l.*, John Angus, of Whitefield.

CLASS 124. For the best Pen of 5 Ewes, of any other age, of the same flock.—1st, 10*l.*, William Purvey, of Linton, Burnfoot, Kelso; 2d, 5*l.*, John Angus.

HERDWICK.

CLASS 125. For the best Shearling Ram.—1st, 15*l.*, George Browne, of Troutbeck, Windermere; 2d, 5*l.*, Richard Browne, Troutbeck, Windermers. Highly Commended: Edward Nelson, Gatesgarth, Buttermere.

CLASS 126. For the best Ram of any other age.—1st, 15*l.*, Edward Nelson; 2d, 5*l.*, George Browne. Highly Commended Daniel Crosthwaite, Hallgarth, Keswick.

CLASS 127. For the best Pen of 5 Shearling Ewes, of the same flock.—1st, 10*l.*, George Browne; 2d, 5*l.*, Edward Nelson. Commended: George Irving, Wythrop Hall, Cockermouth.

HORSES.

CLASS 128. For the best Hunter—Mare or Gelding, 5 or 6 years old.—1st, 20*l.*, Sir Frederick U. Graham, Bart., of Netherby; 2d, 5*l.*, John B. Booth, Killerby. Commended: Thomas Sutton, Alwent Hall, Darlington.

CLASS 129. For the best Hunter—Mare or Gelding, 4 years old.—1st, 20*l.*, William Hardisty Clark, of Hook, Howden; 2d, 5*l.*, Robert Norman & Son, of High Close. Commended: J. W. Pease, of Woodlands, Darlington.

CLASS 130. For the best Hunter—Colt or Filly, 3 years old.—1st, 10*l.*, to James B. Boyd, of Doddington, Wooler. Commended: R. W. Hodgson, of North Dene, Gateshead.

CLASS 131. For the best Roadster—Stallion.—1st, 15*l.*, Thomas Brown, of Butterwick, Barton-le-Street; 2d, Thomas Altham Jackson, Quarry Gap, Bradford.

CLASS 132. For the best Roadster—Mare or Gelding, above 4 years and not exceeding 12 years old, and also not exceeding 15 hands.—10*l.*, Richard Forster, White House, Gateshead, Durham. Commended: J. W. Pease, Woodlands, Darlington.

CLASS 133. For the best Pony—Gelding, of any age, not exceeding 14 hands.—5*l.*, Rev. John Alexander Blackett Ord, Whitfield Hall, Haydon Bridge. Commended: Christopher Don Barker, 12, Carlton Place, Newcastle-upon-Tyne.

CLASS 134. For the best Mountain Mare Pony, of any age, not exceeding 13½ hands, with foal at foot or stinted.—10*l.*, Thomas Ramsay, Sherburn Green, Gateshead.

CLASS 135. For the best Pair of Mares or Geldings, or Mare and Gelding, for Agricultural purposes.—1st, 10*l*, Charles Mark Palmer, Whitley Park, Newcastle-upon-Tyne. Highly Commended; Duke of Hamilton and Brandon; Commended: J. W. Pease.

CLASS 136. For the best Gelding or Filly, 3 years old, for Agricultural purposes.—1st, 10*l.*, Duke of Hamilton and Brandon; 2d, 5*l.*, John Muir, of Lochfergus, Kirkcudbright.

CLASS 137. For the best Gelding, 2 years old, for Agricultural purposes.—1st, 5*l.*, John Laws, Kearsley, Matfen.

CLASS 138. For the best Gelding or Filly, 1-year old, for Agricultural purposes.—1st, 10*l.*, Joseph Laycock, of Gosforth, Newcastle-upon-Tyne; 2d, 5*l.*, to Jonathan Melvin Pattinson,

of Norwood, Gateshead. Commended: Nathaniel Clarke, of Beamish Park, Fence Houses, Durham.

WOOL.

Class 139. For the best Five Fleeces of Leicester.—2*l*., to John Angus, of Whitfield, Morpeth. Highly Commended: J. A. Armstrong, of Bayssleap, Wylam.

Class 140.—For the best Five Fleeces of Cotswold. Not sufficient merit.

Class 141. For the best Five Fleeces of Lincoln and other Long-woolled. Not sufficient merit.

Class 142. For the best Five Fleeces of Oxford Down.—2*l*., to Charles Howard, of Biddenham, Bedford.

Class 144. For the best Five Fleeces of Shropshire.—2*l*., to Ambrose Robotham, of the Oak Farm, Tamworth. Highly Commended: Lord Wenlock.

Class 145. For the best Five Fleeces of Hampshire and other Short-woolled.—2*l*., to William Humfrey, of Oak Ash.

Class 146. For the best Five Fleeces of Cheviot.—2*l*., to Charles Rea, of Doddington, Wooler. Highly Commended: John Robson, of Birness, Rochester, Northumberland.

Class 147. For the best Five Fleeces of Blackfaced.—2*l*., to Alexander Wearing Long, of Mint Cottage, Kendal.

Class 148. For the best Five Fleeces of Herdwick.—2*l*., Edward Nelson, of Gatesgarth, Buttermere.

BUTTER.

Class 149. For the best Firkin of Butter.—5*l*., to James Nicholson, of Blencairn Hall, Penrith. Commended: John Tweddle, of Askerton, Brampton.

Class 150. For the best 6 pounds of Fresh Butter, in single pounds.—1st, 5*l*., to G. M. Allender, of Lee Grange, Winslow, Bucks. Commended: Joseph Wilson, of Manor House, Woodhorn, Morpeth.

Reviews.

The Newcastle Daily Chronicle: July 18—23, 1864. Chronicle Office, Newcastle-on-Tyne.

Never, at any previous meeting of the English Agricultural Society, have we known its proceedings more fully or more ably recorded than they have been from day to day in the columns of the *Newcastle Daily Chronicle*. The series of its publications, commencing some days before those which we have named above, contains a full account of the implement trials, of all departments of the exhibition, and of every incident and occurrence connected with them; but we confine our reference more particularly to the week of the meeting, because of the very interesting and instructive papers from the pen of Prof. Wilson, which have been published on those days descriptive of the agriculture of the northern counties. These, characterised, like all Prof. Wilson's writings, by unambitious simplicity of style, relate in clear and lucid English a very full and explicit history of the great agricultural improvements which have of late years been effected in the county of Northumberland. We understand they are soon to be collected and published as a pamphlet, when agricultural readers will have the opportunity of learning what landlords and tenants are doing in the North; and they will join us in thanking the conductors of the local daily paper for engaging Prof. Wilson's pen in such a useful performance.

Meanwhile we extract an illustration from the forthcoming pages of the scale on which the duties of the landowner in some cases fall to be discharged, and of the spirit in which they appear to be undertaken.

The Duke of Northumberland's estates include 3000 acres of woodland, 116,200 acres of hill pastures and Grass land, 38,900 acres of tillage, and 4700 acres of waste and rock and shore. This great territory is allotted in sheep farms, varying from 4000 to 8000 acres in extent, and from 1*s*. 6*d*. to 6*s*. an acre in rent; and in ordinary tillage farms, varying from 200 to 900 acres in extent, and from 10*s*. to 3*l*. an acre in rent.

As regards the game, except in the vicinity of the duke's residences, where it is strictly preserved, the rule of the estate is that on the tillage farms the tenants have the offer of the shooting at a low rate, about 3*d*. per acre. This is generally accepted; if, however, it be not so, the right of shooting is let, the game tenant making his own arrangements with the farmer, so that the landlord is seldom called upon to interfere. All permanent improvements to the estate, as farm buildings, cottages, roads, &c., are done at the sole cost of the duke; for draining an annual charge of 5 per cent. on the outlay is made, the tenant also undertaking to lead the tiles. No less than 35,203 acres have thus been thorough drained, at an average cost of about 5*l*. per acre. Liming is usually done by the tenant, except when any special arrangement is made for an allowance from the landlord in the shape of material or money.

The same understanding also exists in reference to laying down land to permanent Grass. The condition of the farm-houses and buildings on the estate is generally good, and is each year being kept up and improved. Much, too, has been done by his Grace in regard to the cottages, upwards of 1000 having been either built or put into good repair since he came into possession of the estates. Much, however remains still to be done. The cottages vary in size, however, more than in condition. Some few are to be met with still having only one room, while in others again there are four rooms. The greater number, however, have but two rooms—a living and a sleeping room—with a small scullery and the usual conveniences. To all a garden is attached, and some have, in addition, a piece of land sufficient for the keep of a cow. The estate is of such large extent, so divided, and comprises such a variety of properties—land, mines, manufactories, houses, and other sources of revenue—all differing in tenure, that it is well-nigh impossible succinctly to describe the management. The general administration of the whole is entrusted to his Grace's commissioner, Mr. Hugh Taylor, from whom all the agents employed in the different departments or districts receive their instructions. Under ordinary circumstances coming within the rules laid down for the management of the estate, the agents have no difficulty; but in all other cases the matter is submitted, through the commissioner, to the duke, who himself looks into the case and decides upon its merits.

The following abstract of the amounts expended by the duke on the estate since he came into possession in 1847 will, as a sequence to the general description already given, show how clearly his Grace has understood his responsibilities as a large land proprietor, and how fully he has discharged them. The amounts, under their respective heads, are made up to Dec. 31, 1863, and are exclusive of the large outlay upon Alnwick Castle and other residences, churches, parsonages, &c.

For roads, bridges, &c.	£39,689	0	1
„ buildings, cottages, &c.	308,336	12	9
„ draining	176,582	4	0
	£524,607	16	10

These details enable us to draw a comparison highly favourable to his Grace between the administration of this and of some other properties, which pass like his from the present proprietor to collateral heirs; for that reason is often assigned as an extenuation of, if not as an excuse for, the unimproved and neglected condition they are allowed to remain in. Most of us will, I think, feel that in this respect the Duke of Northumberland has nobly and honourably exemplified the old Norman apophthegm, "*Noblesse oblige*."

—— We have to announce the death, on Tuesday last, of Mr. John Morton, of Nailsworth, Gloucestershire—one of the original members of the Royal Agricultural Society of England, and agent for many years over the estates of successive Earls of Ducie. English agriculture owes to him the establishment, a quarter of a century ago on Lord Ducie's property, of the Whitfield Example farm, which at one time received large numbers of visitors inquiring into the results of the land drainage and of the vigorous farm management which he there superintended and directed. We are also indebted to him for the first attempt to illustrate the connection existing in this country between Agriculture and Geology. In early manhood — already however, in the occupation of a small farm in his native county, Fife — Mr. Morton repeatedly walked over most of the counties of England, using for this purpose during many successive summers the comparatively leisure period lying on most Scottish farms between their early Turnip seed-time and a late corn harvest. His notes on the geology and farm practice of the districts thus examined were afterwards collected and published in his book—"On Soils:" and this, as the work of an original observer, was cordially introduced to the agricultural public by the late Dr. Buckland and the late Philip Pusey, M.P., and went through several editions during 1840–1848. And we must not forget among his publications about this time, the controversial pamphlet which he wrote along with his friend the late Joshua Trimmer, F.G.S., advocating the repeal of the corn laws from the agricultural point of view, on the ground that the farmer is or ought to be one of the largest consumers of grain in the right prosecution of his business—a truth which, though not generally admitted at the time, has since then been more and more realised. Early in the century Mr. Morton left Fifeshire, and took a farm near Dulverton, in Somerset; and, through the introduction of his landlord, the late Earl of Carnarvon, he was ultimately placed in charge of Lord Ducie's Gloucestershire estates. Here—on the Pusey property—and on estates in Lincolnshire, he long lived a laborious useful upright life, discharging the duties of his office with promptitude and integrity. He resigned his various charges at the age of threescore years and ten, and had latterly resided at Morningside Cottage, Nailsworth, where, as the honoured centre of a united family and of a pleasant social circle, he spent as bright and cheerful an old age as ever falls to human lot. The first heavy blow fell here nine weeks ago, when a happy married life at length was broken, whose 50th anniversary had been long since celebrated:—The Mother, pure exemplar of a simple Christian life, died May 20th, aged 76:—the Father, pattern of unobtrusive piety, of self-denial, honesty, and industry, and of public spirited and professional intelligence and ability, died July 26th, aged 83.

—— Fifty years of wedded life—
Honoured husband, happy wife!
Perfect trust, and perfect love—
Type of holier ties above!
Gently down the stream of time
Gliding to the sun-bright clime—
Thus, together, hand in hand,
Pass on to the Father-land.

Notices to Correspondents.

Flax Dodder: *H W C.* asks "which is the most effectual method of destroying 'Dother,' otherwise called Wild Flax." We have not heard the latter term applied to the parasite here meant, but Dodder is a common pest in Flax, which is best got rid of by pulling out the Flax-plants upon which the threads of the Dodder have taken hold. But as prevention is better than cure, it is important to see that the Dodder seed is not sown with the Flax, to which end American or Riga seed should be preferred; the Odessa seed nearly always contains seeds of Flax Dodder. Upon this subject see a paper in the *Agricultural Gazette*, for Sept. 10, 1859, also the "Bath and West of England Society," vol. xii., part 1, *J. B.*

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

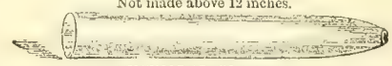
REDUCED PRICES  OF PROPAGATING GLASSES.

Each.—s. d.		Each.—s. d.	
3 inches in diameter ..	0 4	12 inches in diameter ..	1 6
4 „ „ ..	0 5	13 „ „ ..	1 10
5 „ „ ..	0 6	14 „ „ ..	2 3
6 „ „ ..	0 7	15 „ „ ..	2 9
7 „ „ ..	0 9	16 „ „ ..	3 0
8 „ „ ..	0 10½	17 „ „ ..	4 0
9 „ „ ..	1 1	18 „ „ ..	4 6
10 „ „ ..	1 2	19 „ „ ..	5 6
11 „ „ ..	1 4	20 „ „ ..	6 0

BEE GLASSES.

Each.—s. d.		Each.—s. d.	
4 inches in diameter ..	0 6	9 inches in diameter ..	1 8
5 „ „ ..	0 8	10 „ „ ..	2 0
6 „ „ ..	0 10	11 „ „ ..	2 6
7 „ „ ..	1 1	12 „ „ ..	3 0
8 „ „ ..	1 4		

Not made above 12 inches.



CUCUMBER GLASSES.

Each.—s. d.		Each.—s. d.	
24 inches long ..	1 9	16 inches long ..	1 2
22 „ „ ..	1 7	14 „ „ ..	1 0
20 „ „ ..	1 6	12 „ „ ..	0 10
18 „ „ ..	1 4		

Made to any length.

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.		Each.—s. d	
12 inches ..	6 6	18 inches ..	9
14 „ ..	7 6	20 „ ..	10 6
16 „ ..	8 6	22 „ ..	11 6
		24 „ ..	12 6

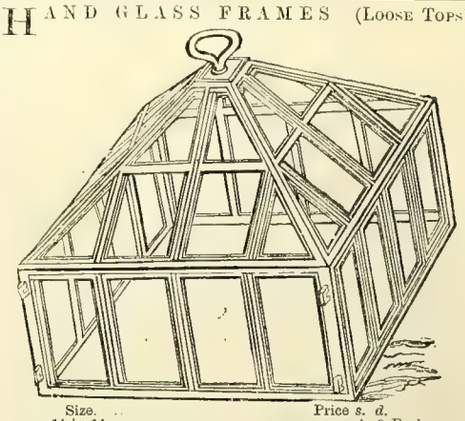
Painted and Glazed with 16 oz. Sheet Glass.

London Agents for Hartley's IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, Carson's PAINTS, PAINTS of various colours ground ready for use.

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Size.	Price s. d.
14 by 14	4 0 Each.
18 by 18	5 9 „
20 by 20	6 6 „
22 by 22	7 6 „
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Delivered Free to any Station in England if 12 or more are ordered.

J. Jones & Sons, 6, Bankside, London, S.E.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. Tylor & Sons' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	
£5 0 0	£5 12 0	



Fig. 571

J. Tylor & Sons' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0

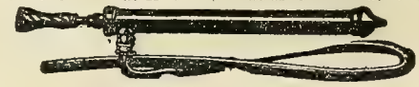


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 „
Telescope Branch Pipe for ditto .. .. 0 10 0 „

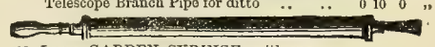


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10*s*. 6*d*. each.
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „

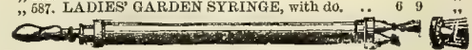


Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s*. 6*d*
READ'S SYRINGE, with one rose and jet 14 0
„ 592. Improved ditto ditto large .. 13 0

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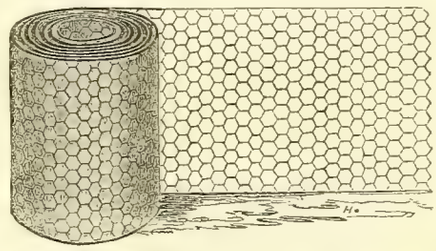
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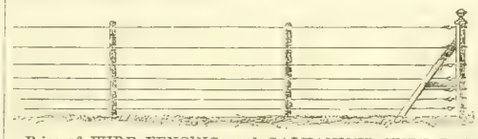
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2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
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2-inch ,, ,, ,, .. ,,	17 ..	6½ ,,	5 ,,
2-inch ,, ,, ,, .. ,,	16 ..	8 ,,	6½ ,,
1½-inch ,, ,, ,, .. ,,	19 ..	4½ ,,	4 ,,
1½-inch ,, ,, ,, .. ,,	18 ..	6 ,,	4½ ,,
1½-inch ,, ,, ,, .. ,,	17 ..	7 ,,	5½ ,,
1½-inch ,, ,, ,, .. ,,	16 ..	9 ,,	7 ,,

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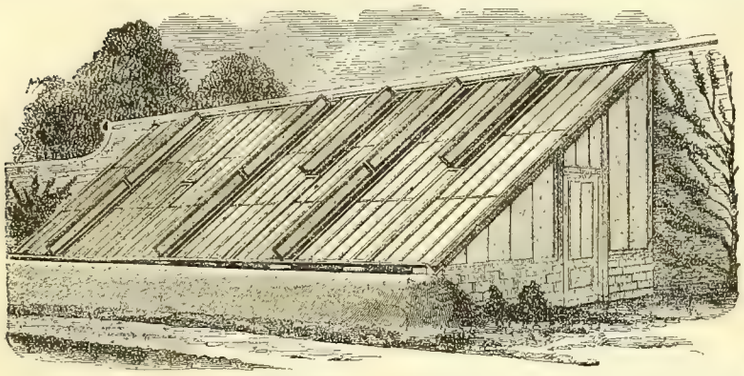
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 32.—1864.] SATURDAY, AUGUST 6. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The remaining Ordinary Meetings of this Committee at South Kensington, for the Exhibition of NEW PLANTS and SEEDLINGS, will take place on the undermentioned days at noon, before which hour the subjects for examination must be entered.

TUESDAY, August 16	TUESDAY, October 11
TUESDAY, Sept. 13	TUESDAY, November 8
TUESDAY, Sept. 27	THURSDAY, December 8

Thomas Moore, Secretary to the Committee.

CRYSTAL PALACE.—GREAT AUTUMN FLOWER and FRUIT SHOW, WEDNESDAY and THURSDAY, 7th and 8th September next.

Note.—Schedule of Prizes, &c., may be had on application to G. Grove, Secretary, as above.

1865.

GRAND FLORAL FETE at YORK, JUNE 16 and 17, 1865.—At this Show several Extra Prizes for Roses will be given. Jno. Wilson, Secretary.

Committee Room, 13, New Street, York.—Aug. 6.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.—The next Exhibition of this Society will be held in the Park of the Lord Bishop of Durham, on FRIDAY, August 26, when the following and numerous other valuable PRIZES will be awarded:—

For 6 Stove and Greenhouse Plants, 10*l*., 7*l*., 4*l*., 2*l*., 1*l*.
For 6 Handsome Foliaged Plants, 3*l*., 2*l*., 1*l*. 10*s*., 1*l*., 10*s*.
For 24 Dahlias, 7*l*., 5*l*., 3*l*., 2*l*., 1*l*.
For 9 Hollyhock Spikes. 5*l*., 3*l*., 2*l*., 1*l*.
For 6 Exotic Ferns, 2*l*., 1*l*. 10*s*., 1*l*., 10*s*
For 12 Dahlias, 3*l*., 2*l*., 1*l*. 10*s*., 1*l*., 10*s*.
For 24 Hollyhocks, Cut Blooms, 2*l*., 1*l*. 10*s*., 1*l*., 10*s*
For 9 Gladioli, Single Spikes, 3*l*., 2*l*., 1*l*., 10*s*.
For 8 Dishes of Fruit on Basket or Tray, 4*l*., 2*l*. 10*s*., 1*l*. 10*s*., 1*l*., 10*s*.

Complete List of Prizes on application to Secretary.

N.B.—The Full Band of the First Life Guards and three other Military Bands will perform during the day.

Hollyhocks.

PAUL and SON'S COLLECTION, including Jules Margottin and other Novelties, is NOW in FLOWER.
"Old" Cheshunt Nurseries, Cheshunt, N., G.E.R.

Roses.

WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.
Waltham Cross, Herts, N.

New Roses.

WM. PAUL respectfully invites attention to his large and vigorous Stock of NEW ROSES, now offered at lowest advertised Prices. Priced Descriptive CATALOGUE free by Post.
Paul's Nurseries, Waltham Cross, N.

Roses.

EDWIN HOLLAMBY begs to announce that his unrivalled Collection of the above, containing many new and splendid varieties, is NOW in FINE PERFECTION. A visit is respectfully solicited.

The Nurseries and Seed Establishment, Tunbridge Wells and Groombridge, Kent.

Roses in Pots.

PAUL and SON draw attention to their ROSES in POTS, fit for immediate planting. The plants of this year's New Roses are particularly fine. Prices on application.
"Old" Cheshunt Nurseries, Cheshunt, N.

Roses.

PAUL and SON'S Unrivalled COLLECTION continues in FULL BLOOM. Particularly fine just now are the Teas, Noisettes, and later flowering Hybrid Perpetuals. Visitors may reach the Nurseries by Trains from Bishopsgate to Cheshunt (one mile) or Waltham (two miles from the grounds). Flies and Omnibuses at the latter. "Old" Cheshunt Nurseries, Cheshunt, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

Roses, &c.

FRANCIS and ARTHUR DICKSON and SONS beg to intimate that their large and fine COLLECTION of ROSES (which embraces all the novelties and every variety of merit yet introduced) is NOW in FULL BLOOM, and they invite the inspection of their Patrons and all Cultivators of this popular and beautiful flower.

Having recently formed a large "Rosarium," in which all the choicest varieties of the most popular classes are grouped, purchasers will find this an excellent medium for selection and comparison. Their Geometric Flower Gardens are now also gay with the choicest and most beautiful Bedding Plants, and their Nurseries generally will, they think, repay a visit.
The "Upton" Nurseries, Chester.

The Finest New Rose of the Year is "Princess of Wales."

WM. PAUL (Son and Successor to the late A. Paul), can recommend with confidence this fine hardy English HYBRID PERPETUAL ROSE. The colour is light vivid crimson; the flowers are large, the petals of great substance, and very smooth. It has received a First-class Certificate from the Royal Botanic Society of London. Strong plants, 7*s*. 6*d*. each.
Paul's Nurseries, Waltham Cross, N.

Orchard Houses.

MESSRS. RIVERS and SON invite all those interested in ORCHARD HOUSE CULTURE to inspect their numerous houses, now full of bearing Trees.

Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

Notice.

SUPERB DOUBLE HOLLYHOCKS.
Nurseries, Saffron Walden.

The GRAND COLLECTION is NOW on BLOOM, and open to the inspection of all visitors on any day—Sundays excepted.

William Chater can supply SEED of sterling quality from best mixed varieties at 1*s*., 2*s*. 6*d*., and 5*s*. per packet.
William Chater, Saffron Walden.

RAYNBIRD, CALDECOTT, and BAWTREE,
Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. and F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

WHEELER'S LITTLE BOOK on GRASSES.
Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

CARTER'S GARDENER'S VADE-MECUM.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7*s*. 6*d*. each; 60*s*. per dozen.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

YOUELL and CO.'S GENERAL CATALOGUE for 1864 and 1865 can be had on application.
Royal Nurseries, Great Yarmouth.

General Plant Catalogue.

WM. CUTBUSH and SON'S DESCRIPTIVE PRICED GENERAL PLANT CATALOGUE is now ready, post free.
Highgate Nurseries, London, N.

NEW PLANTS of 1864.—Strong Plants at very low prices. CATALOGUE free for One Stamp.
Henry Walton, Edge End, Marsden, Lancashire.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2*s*. 6*d*.; 15 do., 3*s*. 6*d*.; 25 do., 5*s*. 6*d*.; 50 do., 10*s*.; 100 do., 20*s*.
Barr & Sugden, Seed Merchants, 12, King St., Covent Garden, W.C.

New Hybrid Spotted Herbaceous Calceolaria,
2*s*. 6*d*. per packet; Trade packets 5*s*., 10*s*. 6*d*., and 21*s*.

BARR and SUGDEN offer the above CALCEOLARIA as the finest strain in the country.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

SCARLET INTERMEDIATE STOCK, Covent Garden variety, 1*s*. per packet.
PURPLE INTERMEDIATE STOCK, ditto, 1*s*. per packet.
HUNT'S SUPERB SWEET WILLIAM, 1*s*. per packet.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

VINES.—Strong planting CANES of all the leading varieties, at 3*s*. 6*d*. each, offered by
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

VERY extra strong VINES from [illegible], of all the leading kinds, which, if planted now, would [illegible] a crop next season. Early purchasers will have 2000 to pick [illegible]. Price, very moderate, on application.
James Dickson & Sons, The "Newton" Nurseries, [illegible]hester.

Vines—Extra Extra Strong.

FRANCIS and ARTHUR DICKSON [illegible]RD SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, T[illegible]; to Name. Many are as thick as the "little finger," and if planted [illegible]diately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3*s*. 6*d*. [illegible] 15*s*. each, according to kinds and strength. List of kinds on appl[illegible]tion.
"Upton" Nurseries, Chester.

Charlotte Rothschild Pine.

B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.

Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Pine Plants.

TO BE SOLD, CHEAP, a quantity of very fine healthy clean QUEENS, Succession and Suckers, being a surplus stock.
Apply to M. Rochford, Market Gardener, Page Green, Tottenham.

PINE APPLE PLANTS for SALE.—A quantity of SUCCESSION and SUCKER PINES, warranted clean and in the best possible health, of the following varieties, viz.: Bennett's Seedling, the best Pine in cultivation, very dwarf habit, fruit excellent; Ripley Queen, Black Antigua, Black Prince, Black Jamaica, Smooth Cayenne, Enville, Providence, Globe, and Hurst Seedling.

May be viewed, &c., on application to Mr. J. Hickson, The Gardens, Wentworth, Staines, London.

FOR SALE, CHEAP, the Contents of a Small Orchard House.—APRICOTS, PEACHES, NECTARINES, and GRAPE VINES, in pots and now in fruit.
Mr. Hube, 5, Surrey Place, Wandsworth Road, S.

Fruit Trees in Pots.

J. R. and A. PEARSON have just now an ORCHARD HOUSE 90 feet by 30 feet, full of Trees, the Foliage and Fruit of which they will have great pleasure in showing any one interested in fruit culture. They also invite attention to their magnificent stock of Vines, particularly the Grafted Muscat Hamburghs. Chilwell, near Nottingham.

Good Seeds, Carriage Free, at Market Prices.

SUTTON and SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASS SEEDS SHOULD NOW BE SOWN.
Price 9*d*. per lb., or cheaper by the cwt.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

Rape Seed for Sowing.

CHARLES SHARPE and CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
Price on application.

Italian Tripoli Onion.

CHARLES SHARPE and CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

Agaves, Yucca, &c.

PLANTS of the above to be disposed of.—Also fine SPECIMEN CACTI, duplicates of a Collection; and a fine SPECIMEN TESTUDINARIA ELEPHANTIPES.

Price and description on application to S. P. G., Stamp Office, Wallingford, Berks.

Choice Hybridized Pelargonium Seed.

E. COOLING has a limited quantity of the above, saved from all the finest varieties in cultivation, to dispose of, price 2*s*. 6*d*. per packet, post free. Also CALCEOLARIA, CINERARIA, and PRIMULA, extra fine, 2*s*. 6*d*. per packet.
Mile Ash Nurseries, Derby.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Japanese Nurseries, Biggleswade, Beds.

JAPANESE CHRYSANTHEMUMS, just introduced by Mr. Fortune.—Quite new and distinct, brilliant colours, and enormous size; one of the greatest novelties of the season, perfectly hardy. Strong plants 18*s*. per dozen.
T. Ayres.

Calceolaria, Cineraria, Primula.

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Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

TWO NEW FIMBRIATED PRIMULAS. Seed Packets, 2*s*. 6*d*. and 5*s*. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood London, N.W.

New Spotted and Blotched Prize Hybrid Mimulus,
1*s*. per packet; Trade packets, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*., and 10*s*. 6*d*.

BARR and SUGDEN offer with confidence the above superb strain of MIMULUS; the stock of which they have just purchased from Mr. Bull. The Seed has been saved from the beautiful varieties which Mr. Bull has this season been exhibiting at the great London Flower Shows.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

PRIZE PLANT CASES, elegantly fitted up, 10*s*. 6*d*. to 200*s*.
RUSTIC WINDOW GARDENS, 15*s*. to 30*s*.
RUSTIC MIGNONETTE BOXES, 10*s*. 6*d*. to 21*s*.
RUSTIC STANDS and TABLES, 15*s*. to 105*s*.
PAXTON HANGING BASKETS, 10*s*. 6*d*. to 21*s*.
CONSERVATORY HANGING BASKETS, 3*s*. 6*d*. to 21*s*.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

Per pkt.—	*s*.	*d*.	*s*.	*d*.	Per pkt.—	*s*.	*d*.	*s*.	*d*.
PRIMULA ..	2	0	and 3	6	INTERMEDIATE STOCK.. ..	0	6	and 1	0
CINERARIA ..	1	6	and 2	6	BROMPTON do.	0	6	and 1	0
CALCEOLARIA	1	6	and 2	6					

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.

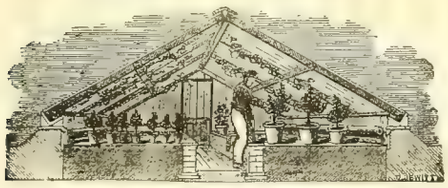
A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Unequalled Seeds for Present Sowing.

DOBSON and SONS' celebrated Strain of CALCEOLARIA. Sealed packets, with directions for sowing and growing, 1*s* 6*d*., 2*s*. 6*d*., 5*s*.
CINERARIA, 1*s*., 2*s*. 6*d*., 5*s*.
PRIMULA SINENSIS FIMBRIATA, 1*s*., 2*s*. 6*d*., 5*s*.
PELARGONIUM, 2*s*. 6*d*., 5*s*.

Are unsurpassed for their superior quality, the saving of which is under our personal care, and are warranted to produce first-class flowers only. Woodlands Nursery, Isleworth, W.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

GREEN'S PATENT SILENS MESSOR,

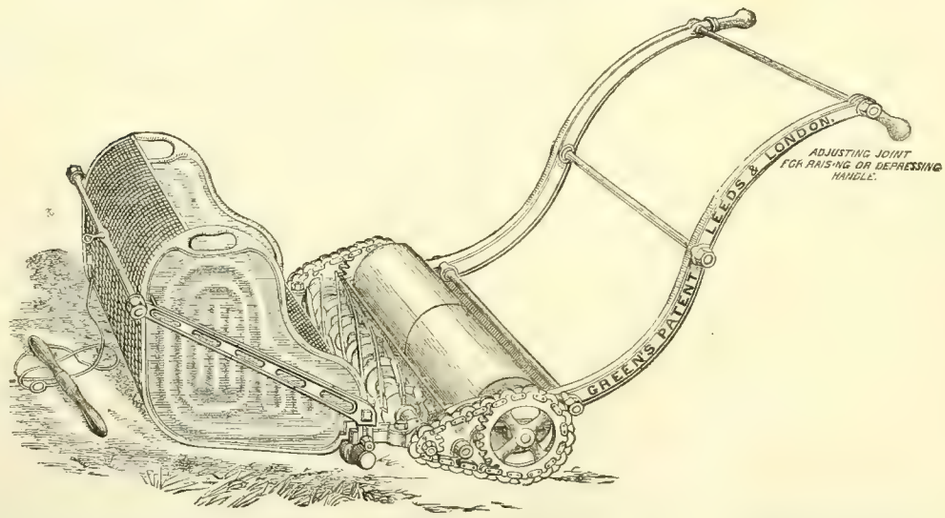
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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
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1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

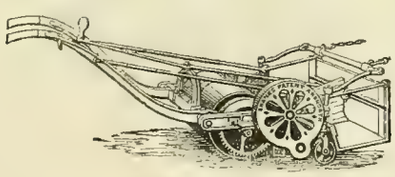
EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

ILLUSTRATED PRICE LISTS may be had on application to

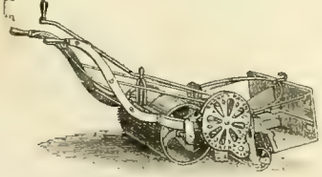
THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.

SHANKS' NEW IMPROVED PATENT

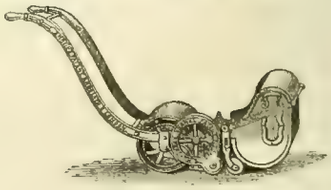
LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1864.



HORSE MACHINE.



PONY MACHINE.



HAND MACHINE.

PATRONIZED ON FIVE SEPARATE OCCASIONS THIS SEASON BY

HER MAJESTY THE QUEEN, AND BY HIS MAJESTY THE KING OF SAXONY.

Illustrated Price Lists sent Free on application.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at the London Depot, from which orders can be at once executed.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	per 300 feet case	32s. 6d.	or about 1½d. per foot.
3ds	,,	41 0	,, 1⅝ ,,
2ds	,,	60 0	,, 2¼ ,,
Best	,,	92 0	,, 3¾ ,,

Average Thickness, 21 oz.

4ths quality	per 200 feet case	33s. 6d.	or about 2d. per foot.
3ds	,,	42 0	,, 2½ ,,
2ds	,,	63 0	,, 3¾ ,,
Best	,,	89 0	,, 5½ ,,

Average Thickness, 26 oz.

4ths quality	per 200 feet case	44s. 6d.	or about 2¾d. per foot.
3ds	,,	56 0	,, 3½ ,,
2ds	,,	84 0	,, 5 ,,
Best	,,	116 0	,, 7

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1⅝d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3¼
2ds ,,	2	2⅜	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5

Average Thickness, 21 oz.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

Average Thickness, 26 oz.

4ths quality	3d.	3½d.	3¾d.	4 d.	4½d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5¼
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.				Per 100 feet.			
15½ by 11½	14 by 12	17 by 13	22 by 16	4ths.	3rds.	2nds.	Best.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17	.. 11s. 6d.	13s. 6d.	16s.	18s.
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

	4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.				
20 ,, 12 ,,				
20 ,, 13 ,,				
20 ,, 14 ,, Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,				
20 ,, 16 ,,				
20 ,, 17 ,,				

Average Thickness, 21 oz.

	4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.				
20 ,, 13 ,,				
20 ,, 14 ,,				
20 ,, 15 ,, ...	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 16 ,,				
20 ,, 17 ,,				

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s. 4d. each.
4 ,, ..	0 5 ,,
5 ,, ..	0 6 ,,
6 ,, ..	0 7 ,,
8 ,, ..	0 10½ ,,
10 ,, ..	1 2 ,,
12 ,, ..	1 6 ,,
14 ,, ..	2 3 ,,
16 ,, ..	3 0 ,,
18 ,, ..	4 6 ,,
20 ,, ..	6 0 ,,



HAND GLASSES.

12 inches diam.	5s, 6d. each.
14 ,, ..	6 6 ,,
16 ,, ..	7 6 ,,
18 ,, ..	8 6 ,,
20 ,, ..	9 6 ,,
22 ,, ..	10 6 ,,
24 ,, ..	11 6 ,,

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0s. 4d.	0 6 each.
4 ..	0 5½	0 8 ,,
5 ..	0 7	0 10 ,,
6 ..	0 9	1 1 ,,
7 ..	0 10½	1 2 ,,
8 ..	1 2	1 6 ,,
9 ..	1 6	2 0 ,,
10 ..	1 10	2 4 ,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES. Ins. long.	each.	ROLLING PINS.	each
12 ..	0s. 10d.	1s. 3d.	
13 ..	0 11	1 4	
14 ..	1 0	1 6	
15 ..	1 1	1 8	
16 ..	1 2	1 9	
17 ..	1 3	1 10	
18 ..	1 4	2 0	
19 ..	1 5	2 2	
20 ..	1 6	2 3	
22 ..	1 7	2 4	
24 ..	1 9	2 8	



MILK PANS.

6 inches diam.	0s. 5d. each.
8 ,,	0 8 ,,
10 ,,	0 10½ ,,
12 ,,	1 1 ,,
14 ,,	1 6 ,,
16 ,,	2 0 ,,
18 ,,	2 5 ,,
20 ,,	2 10 ,,
22 ,,	3 4 ,,
24 ,,	4 0 ,,

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.	Qts.	each
8	¾ filled,	3..1s. 3d.
9	,,	4..2s.
10	,,	6..2s. 6d.
11	,,	8..3s.
12	,,	9..3s. 9d.
13	At same average according to weight.	7d. per lb.
14		
15		
16		

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon,
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p.cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds,
NETT CASH.

Landscape Gardener.

JOSEPH NEWTON, 30, Eastbourne Terrace, Hyde Park, W., Author of "Picturesque Garden Plans," offers Advice, prepares Drawings, and sends Foremen to all parts of the United Kingdom. Works now in operation can be referred to near Belfast, Newcastle, York, Portsmouth, London, &c.

PLANTING ARRANGEMENTS of Rare TREES, &c., SHRUBS, ARBORETUMS, PINETUMS, &c., carried out by GEORGE GORDON, Author of the "Pinetum," and many years Superintendent of the Horticultural Society's Gardens, Chiswick.
Address, 30, Eastbourne Terrace, Hyde Park, W.

Sticks and Tallies.

COMMENDED BY THE ROYAL HORTICULTURAL SOCIETY.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES can now be had of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C. ; and Retail of all the principal Seedsmen and Florists.

TERRA COTTAS always on Sale, viz. :—FOUNTAINS, VASES, STATUES, FLOWER POTS, TRACERY, CHIMNEY TOPS, PAVING TILES, &c., at
J. R. BLASHFIELD'S Galleries, Praed Street, Paddington, W.

The Hydropult Challenged.

WINTON'S "HYDROPNEUMATIC" FIRE and GARDEN ENGINES are acknowledged to be superior in every respect to the Engine of the above name. Sold everywhere.
HYDROPNEUMATIC, £1 15s. Lady's ditto, £1 10s.
JOHN G. WINTON, 13, Gladstone Street, St. George's Road, Southwark, London, S.E.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free ; Price List free.
BURGESS & KEY, 95, Newgate Street, E.C. ; Works, Brentwood, Essex.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

TANNED GARDEN NETTING.—Inch Mesh, 1*d.* per yard ; in pieces containing 400 to 500 yards. Small quantities, 1½*d.* per yard. TOBACCO PAPER, price to the Trade on application.
H. BROWN, Seedsman, 4, Commutation Row, Liverpool.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard ; or 100 yards, 20*s.* ; 4 yards wide, 6*d.* per yard ; or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard ; 4 yards wide, 1*s.* per yard ; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S. ; Queen's Road West, Chelsea, S.W. ; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide	3*s.* 4*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

To the Trade.

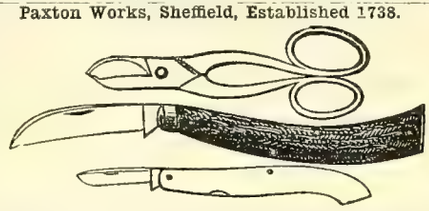
HOOPER'S ETRUSCAN HYACINTH VASES.—The New Designs for the coming season, in these SUPERB ORNAMENTS are now ready, and List of Prices may be had on application.
Notwithstanding the unprecedented beauty and novelty of the designs of last year, those of the present will be found to far eclipse them, and must be looked upon as marvels of the Potter's art. The most perfect and exquisite delineations of ancient Grecian Figures, both upon dead and brilliant surfaces, and likewise imperishable gold and other ornaments, are included amongst their embellishments. In spite of these improvements, however, the prices are not raised.
H. & Co. beg to inform those of their customers, who being supplied last season out of the first lot of Vases, complained of imperfection in the glazing, that such improvements have since been made in their manufacture as to render them in that respect, as in every other, PERFECT.
Early orders are solicited to ensure supply, as last year H. & Co. were quite unable to fulfil the whole of the orders received for them.
HOOPER & Co., Covent Garden Market, London, W.C.

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been favoured with the receipt of the following
Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.
J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6
24 gal.	30 gal.	
£5 0 0	£5 12 0	



Fig. 571
J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 0	£7 0 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 „
Telescope Branch Pipe for ditto .. .. 0 10 0 „

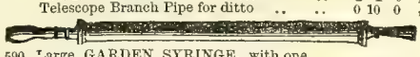


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10*s.* 6*d.* each.
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „



Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s.* 6*d.*
READ'S SYRINGE, with one rose and jet 14 0
„ 592. Improved ditto ditto large 13 0
Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 258, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence.
Agents : HENDERSON & Co., Florists, Pine-apple Place, Maida Vale ; NEWBERY & SONS, St. Paul's Churchyard : CARTER & Co., Seedsmen, High Holborn, W.C. ; HURST & SON, Seedsmen, Leadenhall Street; and Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.



Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants ; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863 ; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Permanent Grass Seeds
FOR ALL SOILS.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing as under :—

PERMANENT GRASS SEEDS
For Laying down New Pastures (including CLOVERS in full quantities), 30*s.* per Acre.

PERMANENT GRASS SEEDS
For Mending New Pastures, which may have been injured by the Corn crop, 12*s.* per bush.

Royal Berkshire Seed Establishment, Reading.



The Best Turnip for Late Sowing is
SUTTON'S SHORT-TOP SIX-WEEKS.

Price 1*s.* per lb. ; 45*s.* per bushel.
CARRIAGE FREE, except small parcels.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Chivas' Orange Jelly Turnip.

CHIVAS AND WEAVER (late GEORGE CHIVAS) acquaint agriculturists that they are supplying the above TURNIP, grown with scrupulous care, from a Stock which they have been improving for several years ; the characteristics of the variety are now generally recognised, viz :—Rapidity of Growth (may be sown till the middle of August), highly Nutritious and particularly Hardy. To secure the genuine article direct application is recommended. Price 1*s.* 6*d.* per lb. ; 20 lb. delivered free at any Railway Station. Chester, August, 1864.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.
MARK.

Seed required—
In September .. .. .. 4 bushels on 10 acres.
In October { 1st half } 4 bushels { On 8 acres. / 2d half } { On 6 acres.
In November .. .. .. 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.
Apply to FREDERIC F. HALLETT, Esq., F.Z.S., the Manor House, Brighton, Sussex.
NOTE.—This Wheat will not after the present season be again offered by Mr. Hallett to the public until 1868 at the earliest.

CARTER'S FARMER'S VADE-MECUM.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.
Strong Planting Canes, 21*s.* each ; Extra strong Fruiting Canes, 42*s.* each. Orders are now being booked, and will be executed in strict rotation.
Exotic Nursery, Tooting, Surrey, S.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants :—

AZALEA INDICA, Stocks for Grafting	per 100	20*s.* 0*d.*
ALOCASIA METALLICA	each	7 6
CLERODENDRON BALFOURII	„	10 6
RHODODENDRON COUNTESS of HADDINGTON..	„	21 0
„ JAVANICUM	„	2 6
„ NUTTALI	„	2 6
TRITOMA GRANDIS	„	5 0
„ UVARIA GLAUCESCENS	„	1 6

Intending purchasers are invited to inspect the general stock of Plants. DESCRIPTIVE and PRICED CATALOGUES of SEEDS and PLANTS are published, which will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

New Hardy Annual for Spring Flowering.
COLLINSIA VERNA.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that he is now prepared to supply the Trade with fine SEED of the above beautiful novelty for autumnal sowing. Its charming sky-blue and white flowers are among the first to greet the returning spring, and precede considerably those of any other species. It received a Second-class Certificate at the Regent's Park Exhibition, April 30 ; and was referred to in conspicuous terms in a leading article in the *Gardeners' Chronicle* of same date.
Prices and full description will be sent on prepaid application. A Coloured Plate for 6 Stamps, or gratis to purchasers of a certain quantity ; retail packets, 1*s.* each.

To the Trade.

JEAN VERSCHAFFELT begs to intimate that his Stock of CAMELLIAS, well set with buds, is this year unusually large and fine, and begs to solicit early orders for the same, in order to secure a first choice.
A first-rate Stock of INDIAN AZALEAS is also to hand, and will be disposable in good plants at from 4*l.* a hundred.
CAMELLIAS with buds at from 6*l.* a hundred.
Apply to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, near Halstead, and only one mile from the Haverhill Junction of the Great Eastern and Colne Valley Railway, beg to offer 12 distinct and most beautiful HARDY CLIMBERS, all well-established, from 18 inches to 3 feet high, for 9*s.* They consist of the finest CLIMBING ROSES, JASMINES, PASSION FLOWERS, HONEYSUCKLES (in some rare kinds), CLEMATIS and IVIES (a most beautiful collection), &c., &c. Post Office Orders must accompany the order from strangers.
A CATALOGUE for one stamp is now in the press, of New and Rare Plants of 1864, at reduced charges. We possess all the greatest novelties.
A CATALOGUE of GENERAL STOCK and a WHOLESALE CATALOGUE of STOCK, each for one stamp.

WELLINGTONIA GIGANTEA.—The Undersigned begs to offer fine healthy Seedling Plants in pots, at the following prices:—
One Year Seedlings, in single pots, 50s. per 100.
Specimen Plants, in 24-sized pots, 18 inches, 60s. per dozen.
Fine Plants, in 32 pots, 1 foot, 30s. per dozen.
" in 48 pots, 9 inches, 15s. per dozen.
ARAUCARIA IMBRICATA, in 48 pots, fine, 9s. per dozen.
CUPRESSUS LAWSONIANA, 9 inches, 12s. per dozen.
T. HENCHMAN, Edmonton, near London.

HERBACEOUS CALCEOLARIA, &c., SEED.
CHOICE CALCEOLARIA (JAMES').—This unrivalled strain has in every instance received FIRST PRIZES wherever exhibited—can be seen in bloom here. Sealed Packets, 1s. 6d., 2s. 6d., and 5s.
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And every other first-class Seeds. See CATALOGUE, post free.
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ROBERT PARKER begs to offer the following, all of which are warranted new and the finest possible quality of their several kinds:

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A PRICED and DESCRIPTIVE CATALOGUE of SEEDS and PLANTS is published and will be forwarded to applicants.
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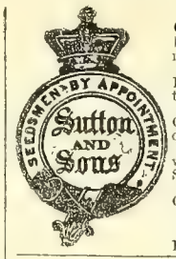
CHOICE AZALEA INDICA.

F. & A. SMITH,
THE DULWICH NURSERIES, SURREY,
Beg to call attention to their Stock of the above, which includes all the newest and best varieties, and of which they can now offer a large quantity, well set with bud, at moderate prices.
They can with confidence recommend their
FLAG of TRUCE, large double white, | PRINCE of ORANGE, brilliant orange scarlet,
CLAPHAM BEAUTY, bright rosy pink,
As the best formed and most distinct of their respective colours yet offered.
They have on Sale a few Plants of the original stock of the above sorts set with bud, and suitable for growing on into specimens, of which they will be happy to furnish sizes and prices.
A DESCRIPTIVE CATALOGUE of their COLLECTION Free on application.

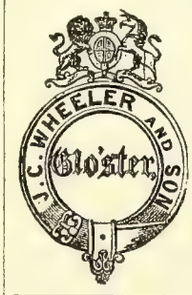
NEW GRAPE, ROYAL VINEYARD.
TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,
PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,
Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.
B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.
PRICES:
Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.
Dr. HOGG's *Report on the Royal Vineyard Grape:*
"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."
For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.
A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

NEW HARDY CLIMBING PLANTS.
CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.
Awarded by the Royal Horticultural Society, August 4, 1863.
The following is the Report of the Floral Committee:—
"CLEMATIS JACKMANNI.—This was one of a batch of Seedlings raised by Messrs. JACKMAN, the result of a cross between C. lanuginosa and C. Hendersoni and atro-rubens, the first being the female parent. They were lovely, hardy climbers, with large flowers; which, in the present variety, were of a deep bright violet, and consisted of a variable number of from four to six sepals. It was considered quite an acquisition. The plants flower from July onwards to the Autumn."
"CLEMATIS RUBRO-VIOLACEA.—This was from the same batch of Seedlings as the foregoing, and differed chiefly in its intense maroon-shaded, reddish-violet flowers, which were remarkable for the rich, velvety appearance of the surface."
The following is an Extract from the *Gardeners' Chronicle* Newspaper, November 21, 1863:—
"The recollection of some hardy, hybrid forms of Clematis shown at South Kensington during the past Summer, has served us as a reminder that, amongst hardy Climbers, the Clematis already occupies a very high position. Cut flowers of two of them exhibited on the occasion referred to (August 4, 1863), obtained each a unanimous award of a First-class Certificate, and well they deserved it, for certainly nothing in their way could be more beautiful.
"These seedlings were bred from lanuginosa, the female plant, crossed with the two very distinct sorts already mentioned. We have seldom seen anything more beautiful; the lustrous richness of the colours very much enhancing their beauty."
The *Gardeners' Chronicle*, January 9, 1864, on Meritorious Novelties in New Plants, mentions:—
"C. Jackmanni, an English hybrid, with flowers of the richest velvety-purple—decidedly a front-rank plant."
The *Journal of Horticulture*, August 11, 1863, remarks:—
"C. Jackmanni, a beautiful, broad-petalled, violet flower. C. rubro-violacea, a finely-formed, reddish violet-coloured flower, very distinct. Both these varieties will prove a great acquisition to our list of hardy climbers."
GEORGE JACKMAN AND SON, WOKING NURSERY, SURREY,
Have much pleasure in offering to the public, for the first time, these beautiful Seedling Clematis; and they consider it is quite unnecessary for them to comment further on their sterling merits, after the above conclusive and high testimonials of their excellence and beauty. Orders will now be taken, and the plants will be sent out strictly in rotation in the month of October.
Plants, 15s. each. Plants, extra strong, 21s. each.
The usual allowance to the Trade. Two Coloured Drawings may be had post free for Twenty-four Stamps.



For Present Sowing.
SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6s. per bushel, or cheaper in large quantities.
This is the best season for sowing Italian Rye-grass to ensure Sheep Feed very early in the spring.
TRIFOLIUM INCARNATUM (Early Crimson), 5d per lb., or cheaper in large quantities.
☞ A Mixture of the above will be found very useful for mending Clover and Grass Seed sown for mowing next spring.
MUSTARD SEED for Sheep Feed in October and November, or for Green Manure.
RAPE.—New Seed at reduced price.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



WHEELER'S IMPERIAL CABBAGE (TRUE), 6d. per packet, post free; 10d. per oz., post free; 8s. per lb. carriage free. An early and most excellent sort; we believe THE BEST EARLY SORT FOR EITHER FARM OR GARDEN CULTIVATION. A great favourite: we receive orders for it fro all parts of the kingdom.
J. C. WHEELER & SON, Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

CARTER'S GARDENER'S VADE-MECUM.

ROYAL HORTICULTURAL SOCIETY.
SOUTH KENSINGTON.
FUTURE ARRANGEMENTS.
24th August, Wednesday, and following days—Show of New and Rare Plants at South Kensington.
26th August, Friday—Prince Consort's Birthday: Admission Free at South Kensington Gardens. Music all day.
28th August, Saturday—Flower and Fruit Promenade at Chiswick, admission 1s. Band at 3.
24th September, Saturday—Promenade and Grape Show at Chiswick, admission 1s. Band at 3.
Promenades in August and September, every Monday, admission 6d.; and Saturday, 1s. at 4.
19th October, Wednesday and following days—Fruit and Vegetable Shows at South Kensington.
16th November, Wednesday, and following days—Chrysanthemum Show at South Kensington.
7th December, Wednesday and following days—International Fruit and Vegetable Show.
26th December, Monday, and following days—Perfumes from Flowers and the Processes of Distillation.
The Gardens are now open daily. Admission, Mondays, 6d.; Tuesdays, Thursdays, Fridays, and Saturdays, 1s.; Wednesdays, 2s. 6d.; Sundays, by Fellows' personal admission or orders.
On the days of the Band Competition, Volunteers in Uniform are admitted at half price.

The Gardeners' Chronicle.
SATURDAY, AUGUST 6, 1864.

WHAT then is to be done with our FLOWER SHOWS? That the visitors thereto are becoming weary of things as they have been, the forcible letter of Mrs. ELLIS, which we printed last week (p. 723), is abundant evidence, if indeed any other evidence than that afforded by one's own experience and observation were needed. And that something further must be embodied in these exhibitions—some leading idea, as our correspondent puts it, to keep up the interest in them, and to make them sufficiently attractive to repay the visitor for the trouble and expense of going to see them, has become very evident.

We live in an age of progress, and flower-shows, like all other institutions, must be progressive. What would satisfy the lookers-on of some quarter of a century ago, when exhibitions were by so many years younger and less developed than they are now, does not and will not satisfy the public of the present day. The bulk of the visitors on whose support the success of such gatherings is dependent, have made acquaintance with them, so to speak, at a higher level than did the generation which preceded them, and from this higher stand-point they look for greater things than have been as yet accomplished. Not indeed, so much, let us remark parenthetically, in regard to the province of the cultivator, as in regard to that of the exhibitor: not so much in the material which furnishes the show, as in its setting up, and the general features of its arrangement. But some change must be made in these latter to secure the sympathies of the looker-on: that is to say, it must be made the main object to supply that which the looker-on wants, namely, a picture of beauty. "For the mere florist," as has been very well observed in the letter referred to, "exhibitions are perhaps well enough as they are; but certainly not for that vastly greater proportion of visitors who go for the sake of finding something to admire, and who above all things want that natural and healthy refreshment which beauty, under its most favourable aspects, is so well calculated to afford." And yet with all our change, we must be as conservative as we can. We want reform, but to attempt a revolution would only lead to disaster. Exhibition plants are not produced like ALADDIN'S palace, and we must even make the best of the materials that we have, working in

gradually amongst them such desirable improvements as may be practicable.

The bane of our flower shows is formality. Almost everything about them, except Ferns and Palms which refuse to do homage to the prevalent fashion, is rigidly formal. Long continuous level lines of stages, step above step, or of still less varied flat-topped tables, form the foundation on which the matter-of-course superstructure has to be reared. Then as to plants: because a fine pyramid Azalea has proved to be a telling object, and the pyramidal outline is rather the fashion of the present day, every Azalea must appear as a closely-trained pyramid of glowing colour. So also because Pelargoniums happen to have been well presented in a depressed globular form, that in which they are probably the most readily produced, each Pelargonium just reflects another, with some slight variation of the shade of brilliant colour which it may present. Then those much maligned stove and greenhouse miscellaneous collections, which it is said are so dull that after Azaleas and Pelargoniums they don't attract the sight-seers—the fault lies not in the subjects themselves, but in their trimness and sameness of outline, and still more in the enormous masses of them which are brought into juxta-position, under which circumstances indeed, as a whole, they look dull enough.

Here, then, are three series of plants which together make up the bulk of our summer shows, and amongst them how much variety do we find? What between pyramids, and globes more or less perfect or depressed, the variation in form is reduced to a minimum, and nothing remains but colour to effect the necessary contrasts which should bring out the individual and several beauties of each of the plants. And little indeed is possible in the distribution of even this element of beauty. For on stages, tier above tier, but running in level lines, and so planned as to suit the bulkier of the plants (consequently here well filled and there scantily furnished), we meet with collection after collection of the same character, group after group of "dull miscellaneous" things, or mass after mass of brilliant colour, in wearisome continuity—here too, possibly a phalanx of giants, and probably next to them a squad of squats. There is no softening of sharp angles, no setting off of bright colours by cool greens or other complementaries, but each series, each collection, is put down, doubtless with the best skill of its owner, but as if no other plant were there, and without the smallest reference to its surroundings. This is where failure manifestly sets its stamp upon our present arrangements. Our cultivators can grow anything, everything, if they but know what is wanted, but the plan of our shows is such that neither they nor our show managers have yet shown the capacity to deal efficiently with the arrangement of the materials collected together with so much cost and labour, and with so prominent a display of productive talent.

It is not in colour, as our talented correspondent points out, "so much as in form and variety that we shall find the great defect of our floral exhibitions." True "it is very difficult to give that consideration to form, which the importance of the subject demands, so long as we are necessarily confined to long straight lines for the placing of flowers for exhibition." But why confine ourselves to these lines? That is, of all others, the very question. We have on more than one occasion invited attention to a more pleasing mode of arrangement, which is moreover by no means speculative, since it has been most successfully carried out by our continental neighbours. Flowing banks of varied foliage; striking groups of brilliant colours; low expanses of flower and foliage, with choice specimens of foliage or flower in contrast set here and there above them, and sometimes arching overhead; serpentine boundaries; and the outer plants set low so that the eye may range freely over them—these are features, which would a thousandfold improve the aspect of our shows; but, as we have also shown, they cannot be carried out without more time, without breaking up the separate collections of exhibitors, and without the employment of artistic talent in the distribution of the materials. But if not without these, why not with them? The reform is one which is demanded by the very progress and position of horticulture.

What Mrs. Ellis suggests is indeed very much like the arrangements to which we have just alluded. Suppose we deviate, she observes, from the long straight lines. "Suppose we take a circle or an oval to fill up, and imagine ourselves in possession of some little island, surrounded, instead of water, by mere space. There is perhaps no object in nature more beautiful than a little wooded island, towering up in the centre with tall spiral trees, and fringed about the edges with light feathery foliage, drooping down, and so shading off the central mass. Within the deep recesses of this embowering green, we will suppose little gems of beauty—something for the eye to rest upon with concentrated attention."

There is no doubt that this is the direction in which reform should be commenced. There is no lack of material; indeed, we have already a superabundance of the higher class of objects. Just as the operas of Mozart may be said to contain "music" enough to make up half-a-dozen of the ordinary calibre of those of modern times, so one of our present flower shows comprises first-class specimens enough to make at least two or three good shows, if supplemented with the complementary relief plants, which could be got in any quantity. They would even when thus dispersed be more effective than now, as they would not only be prevented from "killing" the effect of their own neighbours, but would in turn also escape being "killed." There might be some difficulty under present arrangements, in producing any great number of the "little islands of beauty" which are suggested in the letter to which frequent allusion has been made, but the attempt should be made.

One attempt, it is said, to carry out this or any other idea in advance of the old style "would give interest to our exhibitions for next year." We quite believe this, and have no hesitation whatever in saying that the attempt ought to be made; and further that a decided advantage will be gained by those who are first in successfully making this attempt. It does not appear to us however that such an "idea" would be so well left at first to the accidental treatment it might receive at the hands of any one or more exhibitors; but rather that the great Societies who hold the kind of shows now under discussion, should make special arrangements to have it thoroughly worked out under their own directions. The sample of this new plan of setting up might be thus made a prominent feature in next year's programme, and it would thus most effectually serve to bring home the matter to the comprehension of the exhibitors themselves, who might afterwards be left to vary or improve upon the original idea.

The pyramidal mode of training dwarf Pear trees, growing upon the Quince stock, is one which finds much favour with cultivators, but we have observed in the continental gardens a variation of it which seems to have some special points of merit. In the ordinary pyramid Pear tree the



branches are allowed to proceed from the stem in all directions, so that when perfect the outline is that of a filled-up tall cone. In the variety to which we refer the branches which issue from the upright main stem are all brought into five radiating lines, and fixed one above another, so that their points indicate a pentagon, with the stem in the centre. The advantage of this mode of training appears to be that light and air are admitted directly to the centre of the tree from five different points, and consequently the fruits growing on the sides of these regularly disposed tiers of branches are more thoroughly exposed to the influences of these necessary agents; while to some extent they are also sheltered.

Something of the same mode of training has been described in a recent number of *L'Horticulteur Français*, under the name of the pentagonal pyramid, by M. Croux, of Sceaux, and his few remarks are accompanied by a sketch, which we here reproduce. In this the branches receive the same direction as in the cases we have referred to, but the tip of each branch is carried upwards at the circumference of the tree, and grafted into that next above it, so that the whole system of branches is held firmly by means of this series of artificial unions, and the branches are at the same time kept at regular distances. When this plan is adopted, M. Croux points out that no other means of support is needed for any part of the tree, and consequently that the trouble and expense of providing trellis work are entirely done away.

Whatever practical benefits there may be in M. Croux's plan of grafting together the tips of the branches of his pentagonal pyramid Pear trees, we cannot but regard the pentagonal method of training as advantageous, for the reasons which have been mentioned.

Since our observations on several peculiarities in Gourds were published (p. 721), we have noticed one or two additional particulars which seem worthy of record.

It has been supposed that the roots which are so readily developed in some Gourds, especially in some varieties of Cucurbita maxima, are representatives of the second tendril, which in some Cucurbits is developed at the right or left hand of the leaf as the case may be. This however is certainly not the case. The accessory roots are not supplied like the tendrils by one of the three main bundles of vessels which enter into the stalk of the leaf where no tendrils exist. Moreover they are frequently developed at the right hand of the tendril, should that chance to be nearer to the soil than the other side of the footstalk.

We have moreover observed (in that variety of Cucurbita maxima seeds of which used formerly to be distributed by the Horticultural Society under the name of Cucurbita ovifera, and which is the very best of the tribe for purées), both the tendrils to be developed, and in this case the three bundles of vessels were most distinctly defined, one going into each of the tendrils, and the third in the centre entering the footstalk of the leaf. In this case they were so much the more distinct because the bright yellow stalk of the fruit was perfectly soldered to the stem, making a striking contrast of colour. The sepals in this variety are often very much elongated with yellow petaliform wings on either side, and the setaceous tip in some flowers is twisted almost resembling a tendril.

There seems, moreover, in this species a peculiar tendency in different parts to assume the colour of the corolla. In the fruit-stalk this is normal in several varieties, and in those now under cultivation, the leaves of healthy plants are spotted with yellow as decided as that of the flowers, and sometimes the greater portion of the lamina is similarly coloured.

We mentioned the circumstance that in Cucurbita moschata the sepals sometimes assume the form of perfect leaves; these fall off just like ordinary flowers, leaving the naked flower stem behind. We have just gathered a flower in which one large leaf is developed of a whorl below the flower and apparently below the point where the flower would fall off. As this is clearly not soldered to the flower-stalk, it must apparently be considered as a bract. We have seen no other instance.

Amongst several plants of the variety Coucourzelle of C. Pepo now under cultivation, some are wide spreading, while others answer precisely to the American Bush Squash. The habit, we believe, cannot be preserved, though it is most desirable to do so, and in this respect we have not found seeds of varieties of Bush Squash received directly from America more constant than others. Amongst the plants of a Gourd whose seeds we received from M. Vilmorin, under the name of Courge blanche

non coureuse, not a single individual retained the bush-like habit. All sent out remarkably long runners. *M. J. B.*

—— The appearance which has been made by the now greatly varied race of Scarlet Pelargoniums at the shows of the present season, though not all that could have been desired or all that may be attained, has, nevertheless, been so far satisfactory as to indicate that the varieties of this branch of the great Pelargonium family may be made very efficient elements of a summer display. This is especially the case with those beautiful forms which have salmon-coloured, rose-coloured, or parti-coloured flowers.

So far as our present experience teaches, the error which exhibitors have fallen into has consisted in attempting to grow their plants too large, and the consequence has been, that in order to furnish the too ample heads of foliage with a scattering of blossoms, the expedient of tying down the trusses has been resorted to. Nothing could be done so effectually to spoil the appearance of the plants as this tying down of the flower-trusses; and this has been so evident that we should hope it will never again be attempted. We doubt, indeed, whether many of these varieties—especially those which produce very large heads of blossoms, can be made to flower so thickly as the show Pelargoniums do, and if this really proves to be the case, it will be evident that the production of large plants is a positive mistake. It would be far more satisfactory to have neat moderate-sized plants, each with say ten or a dozen or a score well-developed trusses, than larger plants proportionately more thinly furnished.

Some advantage may probably be gained another year by the judicious treatment through the autumn and winter months of such plants as those which have been exhibited this season. With age, if a fair balance of health and vigour were kept up, a greater profusion of flowers would no doubt be brought out. These matters may, however, be safely left to our cultivators, if the encouragement to persevere is but continued to be held out to them in the prize schedules. Then we may expect to see these beautiful and varied flowers, the pride of our conservatories, taking their proper place at our shows. There is evidently some trouble and difficulty in arriving at a satisfactory result, as the deficiencies of the plants which have as yet been exhibited, bear witness; and this difficulty will not be overcome by the grower for the mere sake of varying the shows or pleasing the public which may come to look on. That is not the producer's business, at least not in a primary sense. He must have his substantial reward, and in every sense he is worthy of it.

We allude to this question just now for the purpose of urging the Societies to continue at least, if not to extend their prizes for this class of Scarlet or Zonal Pelargoniums. At present the prizes are below the average, and therefore fail to excite so much interest and competition amongst growers as would otherwise be the case. The plants have always been so treated, and this is no doubt the reason why they have not yet as a rule been brought out in the perfect state to which they are capable of being grown. Because some sorts of this race of Pelargoniums are largely used for out-door gardening, the notion seems to have been entertained that they were common things—mere bedding-out stuff, and that almost any petty prizes would be sufficient encouragement for them at a flower show; but nothing can be more fallacious than this notion. There are numberless choice and delicately-coloured sorts of this horse-shoe breed which are to all intents and purposes in-door plants, whose beauties can only be fairly brought out with the aid and shelter of glass. It is these sorts which we want to see freely brought to our flower shows, but we want them brought out perfect as to cultivation, and this we shall not have done unless there is some amount of persistence in the offering of prizes; and a due recognition of the trouble incurred, in the scale at which these prizes may in future be fixed.

—— One of M. Linden's recently introduced New Grenada plants, the Isotypus rosiflorus, belongs to the curious forms of the Mutisia group of Composites, and in its flower heads bears some resemblance to Barnadesia rosea. The genus Isotypus was established by Humboldt, Bonpland, and Kunth for a South American plant, which had lyrately pinnatifid radical leaves, white beneath, and a corymbosely branched stem. M. Linden's new species is described by its discoverer, M. Triana, as a very elegant plant. It was found between Mira and the Magdalena River, near to Bogota, at an elevation of from 1600 to 3300 feet, growing in dry stony places. Its leaves too are lyrately pinnatifid, smooth, green above and downy white beneath, while the stem is more or less branched, and bears numerous heads of flowers. It is a winter-flowering plant, and according to M. Triana, a fine ornament for the hot-house, on account of its red flowers and the white underside of its leaves. From the original I. onoserioides it is known by its heads being much larger and more distinctly stalked, by its peduncles being simple or but slightly branched, by the involucral bracts being more compact, and by the large terminal lobe of the leaf being deltoid instead of five-lobed. It is easily cultivated, requiring perfect drainage and the avoidance of over dampness in the soil; and is best placed in the hothouse near the glass.

THE RHODODENDRON.

It is as little to be doubted that the Rhododendron is the prince of ornamental evergreen shrubs, as that the Rose herself is the queen of flowers. And think of the season of its commencement, and the period of its continuance—from the middle of April to the end of June—leading us through many a scene of floral beauty to the very opening of Rosetide, as that again conducts us into the glories of the autumnal flower garden. So is Flora's bright chain woven, and the year is clothed with beauty. Why should not the lovers of flowers possess and enjoy them all?

We confess that we are somewhat old-fashioned and conservative in our tastes. We have even gone so far as to deprecate excess in the bedding-out system. But after seeing the flower gardens at Dalkeith and Dirleton we surrendered our convictions on this point, and beat a retreat into the position of the wise man, viz., that "everything is beautiful in its time." It cannot be doubted that families who spend their autumn only at their country residences, and who have no particular interest in individual plants, will prefer the fashionable flower garden of the present day. We retain so much of our old faith as to have a special predilection for the mixed style of flower gardening, and think it best fitted for a garden attached to a residence permanently occupied. We are not content with bare spaces in spring, and blank panels in summer, when we can have a succession of ornamental plants from February to November. To a man of such tastes flowering shrubs are indispensable, and of these, as already said, the Rhododendron is prince. There is no plant that suspends in air such masses of conspicuous and varied colours, none that is possessed of more diversified interest to the florist; and with it at his command no one, without attaching blame to himself, can continue to speak of "the shrubbery's insipid scenes." It may be added, that if the amateur has a turn for observation and experiment, there is scarcely any province of hybridizing so full of promise and enjoyment.

But the objection may be started by some, "We are not in the vicinity of peat, and the formation of a proper Rhododendron soil would be to us both operose and expensive." Let them hear what Mr. John Waterer says on that point:—"The commonly received opinion we find is still prevalent that the most choice kinds of American plants cannot be grown without the aid of a rich peaty soil; nothing, however, is more erroneous. Still we do not deny that a good peaty soil is preferable, but the absence of it need deter none from planting on that account, as abundance of material of a highly suitable character in every locality can at any time be found. However, in absence of peat (which is more or less to be found on nearly every estate), the subjoined will be found to answer every purpose. Leaf-mould and turfy loam in equal parts, with a small admixture of white or other sand; or the top spit of any plantation, wood, or Grass land—the more it is impregnated with vegetable particles the better; the thickness of the spit will depend on the composition of the soil—the more turfy the better for the growth of plants; a small portion of sand, with well rotted stable manure—the proportions of the latter being one barrowful to six of the former ingredient. But numberless instances are recorded of their thriving in almost every kind of soil, particularly in light fertile loams."

One does not like to modify, much less contradict, the opinions of a man of such experience as Mr. Waterer. We believe that in damp localities, with abundance of shade, Rhododendrons will grow in any soil, except where it is charged with lime, but in such situations they do not flower freely. On the other hand, they become stunted in open situations, and on clayey soils. For our part, we would not venture choice sorts on common exhausted garden mould, or on any soil in which peat and sand did not predominate. Doubtless they might live in almost every kind of soil, but we would rather be without them altogether than see them scraggy and ill-grown. Any one near a railway in Scotland may easily obtain a few trucks of peat. Many have free access to abundance of leaf-mould; and common pit sand is sufficient for the other ingredient. We warn our readers against crossing soils when they are intended for Rhododendrons. A layer half-a-foot thick of moss digged into clayey or gravelly soil, or exhausted garden mould, is just so much labour and expense thrown away. This we have learned from numerous instances, both of observation and experience. If only such a thin layer is to be had, let it be kept on the surface, and not much interfered with by digging. The great secret is to keep the soil loose and free near and around the neck of the plant, and it probably matters little whether this is done by means of sand and leaf-mould, or sand and peat, only in dry weather the former will require more watering than the latter. Any soil that clots or bakes into a sort of concrete is unsuitable for the fine fibrous roots of this shrub.

Last winter we formed a compost for Rhododendrons, and apparently with complete success. From a peculiarity in the district the chief difficulty was to procure suitable sand; and for this ingredient we were obliged to content ourselves with the finer dressings of the sandstone of Binny Quarry—that from which the new buildings in Edinburgh are being erected; these dressings were passed through a wide wire sieve. The peat was carefully broken down with a coarse rake, and mixed with the sand and vegetable mould, the heap being repeatedly turned over. A layer of about 16 inches thick of this material was placed in the beds excavated for the purpose, and the surface was sharpened by a copious sprinkling of silver sand obtained from the neighbourhood of Tranent. In these beds a number of Rhododendrons, after a long journey of some hundred miles, were planted about the middle of April; they have stood all the late droughts without being watered; not one of them has lost a leaf; not a few of them have bloomed beautifully, and they are now making shoots which we trust will blossom another year. We would say to the reader—go and do likewise. At all events we never had greater satisfaction in any gardening operation we ever performed. *J. S., in Scottish Gardener.*

NOTES ON GARDENS.—No. XV.

Botanic Garden, Oxford.

(*Continued from page* 723.)

Leaving the walls with some reluctance and passing up the main walk, it was noticed that the collection of exotic trees and shrubs which margin it in wide irregular borders was planted so as to accommodate the great number of species necessary in the limited space. Thus, the large species occupied the central line, then the second-sized trees on each side, and finally the shrubs to finish off. Half-way up the walk is the circular aquarium, which is also filled with the larger hardy aquatics growing in good style, while between the four walk entrances which converge at this point are benches about 3 feet high, having in them little copper cisterns about a foot in diameter, for growing tiny marsh aquatic plants, &c., so that the student can examine most of our larger aquatics in the aquarium, and then at once turn to where such things as Actinocarpus, Littorella, and the smallest of Canadian yellow Water-Lilies, Nuphar Kalmiana, are elevated for his convenience. These cisterns were made during Dr. Sibthorp's professorship, more than 50 years ago, but are still as useful as ever.

The half of the garden to the east of the main walk is almost wholly occupied by a natural arrangement of hardy plants, that to the west by a Linnean garden of British plants, and a garden of exotic annuals. Both divisions are, however, divided by a walk parallel to the main one, and these walks are margined by circular and oblong beds tastefully filled with bedding plants, Centaurea ragusina being largely used among them. This plant has been for nearly 70 years in the Oxford garden, where it was brought from its native home in the Mediterranean by Dr. Sibthorp. Mr. Baxter was, I believe, the first to use it as a bedding plant. About 5000 plants are used in the bedding, and as the arrangements of hardy plants—the beds cut in turf—are seen beyond the margin of colour produced by these, and beyond them again the trees raising a noble wall of foliage, in no place do Nature's brilliant colours appear to exceed the proportion which they were intended to bear to her ever-varying ever-refreshing mantle of green. Cycas revoluta and a few of its allies were placed out for the summer singly in the neighbourhood of these beds, the pots being placed in pits, so that the rims were a little lower than the turf, and of course they looked very well so placed. It is hardly necessary to say that the transference of the beauty of fine specimen greenhouse plants from the obscure spot in which they are often placed for the summer, to the favourite flower garden, lawn, or pleasure ground would be a desirable change.

From the north side of the garden its trees are seen to great advantage, completely obliterating as they do its formal outline, and presenting a diversity of character and of foliage which it would be difficult to surpass even where the surface aided the planter. The absence of duplicates and judicious intermingling of distinct things account for this. The Frizzle Filbert, Corylus Colurna, was 50 feet high, and nearly as much through, and the Yellow Pavia, Cytisus Adami, Hop Hornbeam, Rhamnus alpinus, and the Maiden-hair tree were proportionately remarkable, the latter very high and almost as straight as a Lombardy Poplar. Ailantus japonica, having somewhat of the habit of a Rhus, and with gracefully bent leaves three feet or more long, made a telling contrast among the foliage of the second-sized trees. Outside the garden, on the margin of the water near Christ Church meadow, Planera Richardi occurs, a noble specimen of a distinct looking, and I believe rare tree. In the various outer walks fine trees are met with, which are not in the botanic garden from want of space. Not far from the garden is a great tree of Salix alba, with aoundance of Mistleto upon it, and this, in addition to the trees it is commonly found upon, also occurs on Pavia flava, the Lime, Poplar, and Juglans regia; but the most singular specimen was suspended over one of the main walks by Cratægus prunifolia, on a branch leafless beyond the globular mass of the parasite, which contained a thrush's nest, and was 4 feet in diameter. Borne on the end of a branch, right away from the body of the tree, this interesting specimen, though quite healthy, was not expected to survive long.

The large specimen trees are named in a way that ought to be at once adopted by those who are anxious to have theirs decently labelled, but who have long ago given up patent labels, "tombstones," and all the

rest of it in disgust. A piece of tin a few inches square is used, with half an inch of the upper edge bent down to form a little coping to keep off dirt, &c., while the name is plainly written with white paint on a green ground, and a wire being passed through two holes in the angle formed by the bent portion, the label is nailed to the bole at about 5 feet from the ground. These labels remain perfectly legible and clean for many years, and nothing could be neater or more economical.

Noticing that the arrangements of hardy plants are very well filled, I passed on through a handsome entrance in the east wall, where the chief houses are found against its outer side; but these I shall do collectively, and now allude to the sweet bit of ornamental ground between them and the river Cherwell. In olden times the garden was subject to floods from the river—its now very desirable margin, the astonished curator sometimes finding it a placid lake, and the tops of the Irises veritable waterflags; but during the curatorship of Mr. Baxter, Sen., he managed to heap nearly 2 feet of soil over the surface, thus putting an end to erratic irrigation. Well, the chief charm of this little garden on the banks of Cherwell is produced by large plants of the several species of greenhouse Araucaria and other things of symmetrical habit being placed about singly, the pots being sunk in the turf. Among them the variegated American Agave was a noble specimen, with leaves 6 feet long, and evidently well primed for shooting into flower, which flowering will not compensate the garden for the loss of so fine a plant; Cordyline australis in flower, Xanthorrhœa hastilis, and Dasylirion acrotrichum were of great size. Some clumps of hardy Heaths and Rhododendrons were dotted here and there, but the largest beds were level, firm, and well drained, being for the accommodation of the medium and small-sized greenhouse plants out for the summer. Among the general greenhouse stuff in these clumps were healthy growing plants of Mr. Veitch's new Japanese introductions; stout little Caper plants, and Paronychia argentea from the walls of Nazareth. Along in front of the picturesque range of houses the low walls and corners were taken advantage of to comfortably shelter and guard such things as the Caper—which is elevated a little to keep its neck dry and warm; Bambusa Ragamanski, Viburnum macrocephalum; Indigofera decora, which gets killed to the ground during a very severe winter, but comes up again and forms a very pretty flowering plant for low walls; Arundinarias, Deutzia crenata fl. pl., and Clematis azurea grandiflora. I need scarcely say that the combination of clumps of greenhouse with hardy shrubs, the dotting about of fine specimens, the absence of monotony and gaudy colouring, the river with now and then a smart boat, the full-length view of Magdalen Bridge and through one of its arches of the original recorded locality for Arabis Turrita, and finally another splendid view of the tower of Magdalen, made this a delightful strip of garden.

Passing to the south side of the walls, the Grass garden appeared, each species being grown by itself in a little circle cut in the turf, which is perhaps the best way of avoiding the Gordian knot which the hapless Curator has to unravel who permits his Grasses to embrace each other. Hereabouts, on the outer side of the garden wall, was a very large plant of Smilax Sarsaparilla (?), which grew rapidly, was perfectly hardy, and had been for 25 years on the wall. On the border, which was here devoted chiefly to hardy medicinal plants—the Asafœtida plant was met with, and also Arundo conspicua, which is likely to prove a fine ornamental Grass in favoured localities. Xanthosoma violacea, a noble Arad, which we shall meet in its proper character in the stove aquarium, was planted out here, growing and in flower with the esculent Caladium; but I suspect Petasites vulgaris, on the rich banks of a stream, will always present a more "tropical appearance" than anything we can do with the exotic Arums in the open air in this country. A few thriving plants of Cephalotaxus drupacea remind us of the Pines, which are for the most part planted on the outer side of the west wall; but the garden is not favourable to the Pine tribe, and there is nothing of unusual interest among them.

Now for the houses, beginning at the succulent house, which is one of the four built against the herbarium, &c., at the north end of the garden, and which contains, when all the plants are housed, a very excellent collection of these curiosities—that is, if anything of the sort can be called so after the noble one at Kew. By the by, gentlemen who have given up growing everything in the way of a succulent, must feel a pang of regret when they enter that astonishing house at Kew, the perfecting of which by the late curator, Mr. Smith, would alone entitle him to the admiration of the gardeners of Britain, even did he not know a Grevillea from a Gymnogramma. But good things in the Aloe, Agave, and succulent way are "coming in again," and if any one doubts this let him look into Mr. Williams's new nursery at Highgate Hill, where he will also be surprised at the value set upon some of the specimens.

Well, the first noticeable thing met with was a regularly and beautifully striped Aloe from Natal, one of Mr. Saunders's introductions; then Echeveria pulverulenta, which would certainly be an addition to a group of dwarf "fine-foliaged" plants; and Echinocactus denudatus, with the strong spines laid down so low, and their points tucked in so comfortably, that even a non-callositied monkey could sit and meditate upon it, which character it will be admitted is a distinct one amongst Echinocacti. Of Mammillarias there was a good collection; and about 130 species of Mesembryanthemum, of which obconellum, nuciforme, and octophyllum appeared the most distinct and singular, with M. anatomicum, which is obliging enough to skeletonise its own leaves. There were also Euphorbia Scolopendria and grandidens, both very stately and distinct; Crassula obliqua, a perfect miniature tree; Aloe lineata, with good big bushy specimens of the officinal Aloes and Euphorbias.

The remaining houses here were emptied of their more important inmates, and filled with miscellaneous flowering stuff for the summer, with a large batch of Centaurea ragusina in flower to get seed from, a good collection of Cape Geraniums, Sphærogyne latifolia, and Stangeria paradoxa. *Wm. Robinson.*

(To be continued.)

P.S. The Dasylirion mentioned at p. 723, was 8½ not 18 feet in diameter, and Mr. Baxter's botanical library should have been stated to number 5000 vols.

BEES, HONEY AND HIVES.—No. I.

[The following very interesting and instructive letters on the important rural business of bee-culture, which bear the signature of "A Bee-master," and are dated from Tunbridge Wells, have lately appeared in the *Times*:—

"It is rare now-a-days to find even in the *Times*, where one finds everything, any information on this subject. I have ten stock-hives. I never destroy or kill my bees. I look on the system of the sulphur match as barbarous and unprofitable. I leave each family on an average not less than 25 lb. of honey for their winter stores, and the surplus only I take away. Should any hive swarm, which I can generally prevent, and the remaining stock be therefore deficient in provision for the winter, I feed them in the course of the early spring with barley-sugar. This and other little attentions endear the bee-master to his bees, as they are very susceptible of gratitude, and have long memories.

"A hive is very like a church. When, in May, it increases rapidly in numbers, and the temperature rises inside, you either increase their accommodation in area or in height, or you will have a secession. Should a secession take place, bees set an example ecclesiastics might copy. The new church never falls out with the old one. Side by side they work in perfect harmony, believing there is plenty of food for both. The only incidental mischief-maker is the wasp; whether he be prelate or presbyter I cannot say, but I know well he is a thief and intruder, and after a fight the bees, who in this matter are rigid non-intrusionists, eject, maim, or kill him—and he deserves it. Queen Victoria's Court is modelled on the apiarian Queen's. You may see the Queen bee, by means of my glass windows, going her rounds, and giving orders with her Royal ladies, who never turn their backs on Her Majesty. The exceptional instance occurred on one occasion, when it became necessary to give a rather sickly establishment rum and sugar, of which they drank to excess and got drunk. As long as the stimulus lasted the monarchy became a fierce democracy, and Queen and subjects were confounded in the *mêlée*.

"The only vice among bees is their passionate liking for rum and strong ale. But the teetotaller would fairly reply that they never care about either, unless it is pressed upon them.

"My bees at present have begun the massacre of the drones. These are a sort of Benedictine Monks, who, like Brother Ignatius, prefer enjoyment to hard work. They are round, fat, and lazy, making much noise, and eating of stores to which they do not contribute. About this time the Queen and her active subjects have awakened to the truth of the text, 'If any will not work, neither should he eat,' and the drones are being garotted. But you want to hear about the harvest

"In one square box there are 40 lb. of honey, and, a corresponding super rapidly filling up, there is likely to be for me as much more. In three Scotch or Ayrshire hexagonal hives, which I have found to answer best of any, the three supers are in two almost full, and in one there is at least 40 lb. weight in the super, and over the super is a bell glass with 7 lb. or 8 lb. additional. In one of Neighbour's very beautiful straw hives I have two bell glasses almost full, and a month ago I removed from this hive a very beautiful glass of honey. In one of Petitt's lateral hives the bees passed through the subterranean archway a month ago, and have nearly filled this compartment. On this, also, I have placed a super bell-glass, which is beautifully stored. From a common cottage straw hive I removed a bell-glass super three weeks ago, weighing 18 lb.

"This season I shall have nearly 200 lb. weight of surplus honey, and yet leave in each hive more than enough to last the producers till April, 1865. Why should not cottagers cultivate bees? There is nothing to pay for pasture; very little labour is required, and that labour amusing, in taking care of them; and for very early virgin honey there may be had 1*s.* 6*d.* a pound. The poor cottager might thus easily pay his rent. If landlords could only convince them that the old system of burning the bees in order to get the stock honey, which is at best inferior, is not only cruel, bu unprofitable, they would do an essential service. The poor peasant would have an interesting amusement after his day's work, and a contribution towards his rent on the year's end." *July* 19.

"Since my letter appeared in your columns I have received various communications from rectors, vicars, curates, &c., who feel a very great interest in bee-keeping as a social and commercial question. Most of these letters invite confidential and private communications, and record a variety of questions, difficulties, and perplexities which have injured or arrested the apiarian enterprises of the writers. I prefer to answer their inquiries through your columns. The most urgent questions in the letters of my correspondents, refer to the hives I employ, and which I briefly described in my letter.

"The first I mentioned is the Scotch or Ayrshire Hexagonal Hive. It is made of thoroughly seasoned deal in the form of a hexagon, about 8 inches in height, and 16 inches diameter. On the top is a series of parallel slits extending from front to back, which I open or shut by a series of corresponding deal slides. On receiving a swarm in April or May, I introduce the slides and thereby close up the top of the box. On finding, as in fine weather I am sure to find in three or four weeks, that the box is full, I place on the top another hexagonal box in all respects the same in size and shape, and draw out the slides and thereby introduce the bees to the vacant upper chamber. As each box has a window, I am thus able to ascertain progress. When this upper box is filled with honey, I may place on the top of it another precisely the same, drawing out the slides on the top of the second box, and introducing the bees to a third story. But usually I prefer, for the sake of the beauty of it, a bell-glass, greater or less as the season may suggest. I have found this hive by far the most successful. It seems the bees, who construct their cells in the form of hexagons, prefer the house in which they work to be of the same shape. A cottager may very easily make these boxes in the long winter evenings.

"The second kind of hive I alluded to is made of straw, and may be purchased at Neighbour's, in Holborn. The greatest disadvantage is its expense, costing, as it does, 30*s.* But it is so well made that it will last very long. I have had one in constant use during 10 years, and it is still as good as when it was bought. Its top is flat, with three longitudinal apertures closed till full, with zinc slides. About the end of May, in a good year, I draw out the slides after placing over each a good sized bell-glass, and in July I have often had in each glass 7 or 8 lbs. of honey. The reason of the failure at this hive is the coldness of the glass, which Neighbour's additional super straw hive or cover does not mend. But if my correspondents will get a piece of thick Scotch plaid made like a nightcap and case each glass with this, they will find the bees use it as readily as a wood or straw hive, and there will be no moisture from condensation of the bees' breath inside.

"The third sort of hive is Petitt's, of Snargate, Dover. It is worked on the lateral system, and of its kind is a perfect gem. Two boxes are placed on one floor with a subterranean communication between them; on stocking the box on the right a zinc slide is introduced which shuts off the communication. As soon as the box is full the slide is withdrawn and the communication laid open. The bees take possession of the other box on the left and fill it with pure honey. When my harvest comes I shut off the communication and remove the left-hand box full of honey. You will perceive that my principle of action proceeds on the notion that the bottom box of the Ayrshire or Scotch hive, the straw box of Neighbour's, and the right-hand box of Petitt's, are each the sacred property of my bees, which I feel it larceny to lessen or disturb, and that the surplus is the tithe or portion of the beemaster. The ruinous blunder of country bee-keepers is their taking honey from the former—honey, too, mixed with brood and bee's-bread and the films of the young grubs. In this, the department I never touch, the Queen presides with her Ladies-in-Waiting, and in any one of these, if the bees have filled the additional supers or laterals, there is abundance for all her subjects during the winter.

"In some of the letters you have been good enough to send me, the expense of these hives is urged as a fatal objection as far as the cottager is concerned. Let me therefore explain my last and cheapest plan.

"Place the swarm in a common sixpenny or shilling straw hive. When you ascertain, either by its weight or the busy working of the bees, that it is full, take a square board about a foot square; cut in the centre of it a round hole 3 or 4 inches in diameter; place on it a bell-glass, or, what is cheaper, a smaller straw hive; take a sharp table-knife and go to the hive about 12 o'clock at noon, when most of the bees are out working, cut out the top of the straw hive, making a round aperture of 4 or 5 inches in diameter, and place on it the board with the bell-glass, or lesser straw super, covering the glass with its nightcap, and you have everything you can desire. If in cutting the hole on the top of the stock hive you hesitate or lose your self-possession the watcher bees will attack you. Decision invariably paralyzes them for the moment and secures your safety. These glasses, or supers, are removed by cutting through between the board and the lower edge of the super with

a zinc plate, on which you carry off the super full of surplus honey, placing over the hole at the top of the stock a flat board or an empty super. From one straw hive treated in this way I carried off 18lb. of honey at the beginning of July this year. I ought to add that I keep my hives of every sort under cover of wooden sheds, accessible from behind by means of doors that let down. During the winter I cover up the hives in the sheds, each with paper, and thereby I keep them warm. As the spring approaches I give the lightest an occasional half-pound of barley sugar. This barley sugar I get at Kilner's, in Hanway Street, Oxford Street, before it is mixed with scent or lemon acid. Common sugar is of no use. To be available to the bee, to suit a lambent insect, it must have been exposed to a heat of 300° Fahrenheit. I had better add a few useful hints.

"Get acquainted with your bees; they are naturally very affectionate. I have frequently hived swarms, filling each hand with clusters of bees, and rarely have I received a sting. I have sat in the midst of them for hours, and weary bees have rested on me and have entered their homes singing a song of thanks.

"They have several bitter enemies besides the wasp. I used to see toads frequently sitting under the landing board, and only recently discovered they were there 'seeking whom they could devour.' On one of these ugly visitors being laid open his maw was filled with bees which he had sucked into his ugly jaws. The tom-tit, also, is a dangerous little enemy. He perches on the landing-place of the bees on a wet day, taps with his bill, apparently inquiring after the health of the inmates; a watcher bee comes out to reconnoitre, and is instantly snapped up by the wicked hypocrite. The spider, also, catches weary bees in his web, but the occasional use of a brush disposes of this peril. The snail, attracted by the warmth, occasionally creeps in. The bees successively attack him, but find their stings blunted and broken by the shell, as shot is by our ironsides. Failing to injure or remove the intruder they have recourse to a plan which indicates more than instinct. They cover him up with propolis, a kind of gum which they use for stopping up crevices, and not only does he die from want of air, but he is prevented from giving forth offensive odour by the air-tight case or shroud.

"The most attentive bee-master occasionally gets stung. I have discovered a cure not found in the pharmacopœia. Press a watch-key hard on the place after removing the sting; this prevents the poison from spreading; then apply moist snuff or tobacco, rubbing it well in, and in five minutes all pain is gone. This is a never-failing remedy.

"I have entered into these details because it is evident that a great interest has been excited by my communication, and because it is of great social importance. Many a poor curate and ill-paid vicar, and many a cottager with time to spare and his rent to pay, may thus add to their income. My bees feed over an area of six miles, improving every flower they touch and robbing nobody. Tunbridge Wells is one of the best bee districts in England, and this alone is evidence of its being a healthy district. Bees never get on in unhealthy places." *July* 27.

STRAY NOTES.

1. *Disfruiting and Taking off Strawberry Runners.*—It has been said that if you destroy the runners you induce incipient fruit-buds to become runners, which otherwise would remain fruit-buds. I planted Eliza (Rivers) this spring twelvemonth, and disfruited it and kept the running strings constantly cut off; and the following are the numbers respectively of the main stems of 12 plants, viz., 58, 49, 43, 50, 37, 56, 46, 32, 47, 44, 40, and 38. The crop was enormous, and the fruit from these plants, together with Wonderful and Empress Eugénie, supplied the *déjeûner* at the Royal Gardens on the 29th of June. I had counted before me three plants of the Empress Eugénie and three of Wonderful similarly treated, and of the same age, and they averaged from 18 to 32 main fruit stems per plant. I also had counted three plants of Wonderful, two years old plants, that had never been allowed to fruit, but had been kept solely for runners. The result was similar. I speak not of branchlets of stems, but of main stems running into the heart of the plant. Eliza, in different positions, went through the whole season. The two years old Frogmore Pines and Royal Hautbois bore immense crops. The Frogmore Pines were many of them as large or larger than Myatt's Surprise. The crop of Eugénie was very fine. I have fine spring-planted plantations of the following sorts that have been treated as the above, viz:—Eliza, Frogmore Pine, Eugénie, and Wonderful.

In critical seasons, these dis-fruited and dis-runnered spring-planted plants will be sure to crop well, if supplied with sufficient water. As these have now become strong plants, I have no objection to taking runners from them.

2. *Manetti Roses on Raised Banks.*—I described these banks last year. Nothing could be finer than the growth and blooming of the plants this year. The blooming is still very fine. I measured a new stalk from the base of Duc de Cazes, and found it to be 87½ inches. There are plants of it together exhibiting fine growth and continuity of splendid blooms. I made a new bank this year, and planted it with 10 of Alfred de Rougemont, 4 Duc de Rohan, and 10 Maurice Bernardin, all first-class, beautiful, and most successful Roses. Their blooming has been wonderful. I measured some of the stalks, new shoots from the base, of these three sorts, and they measured respectively 3 feet 2½ inches, 3 feet 10 inches, and 3 feet 7 inches; these have fine buds forming on them. None of the plants on these five Rose banks have ceased blooming since June 1. They are blooming finely now, and will keep on till winter sets in. Rose growing will be a new thing, when this mode of Manetti Rose culture is adopted. Moreover, four of the banks wintered their plants far better than others here. The above plants can now be viewed by a near resident reader. I have about 100 plants taken from pots on the banks; with the exception of three, which are on a seedling Rose, they are all on the Manetti stock. The Manetti Roses on the flat are still blooming beautifully.

3. *Peaches.*—My three trees protected with sheets have beautiful wood, lovely foliage, and 560 fine healthy Peaches. Taking the average of eight years consecutively, I shall have grown over 4000 Peaches; and next year I would undertake to put a Peach wherever the reader pleased to make a chalk mark. They are beginning to redden, and soon will look like the flocks of sheep ruddled for Weyhill Fair, which come across the downs, and go up my chalky hill to skip the turnpikes! These Peaches have been kept well syringed, adequately supplied with food, and copiously watered. I have only seen four blistered leaves this year. When will people learn that the young leaves of Peaches require as much or more protection than the blossoms? Glass or sheets are the only things that will effectually do both. *W. F. Radclyffe, Rushton, August* 2.

Home Correspondence.

Seedling Clematises.—Can any of your readers tell me how long it takes to get a seedling Clematis in flower from the time of saving or sowing the seed? In my simplicity I had formed the notion that the seed would lie in the ground inert for something like twelve months, and that it would be good work to get a plant to produce a weakly flower at the end of, say, the second year. If by any chance a stray seed or two should germinate in the first year, I had a notion that at least it could not be flowered till the end of the second year. I begin to fear I have been woolgathering, or at any rate have not kept pace with the times, my reason for entertaining this suspicion being founded on a letter I noticed a few days ago in a month old number of one of your contemporaries. A Mr. Townsend, who has it appears shown some seedling Clematises this summer, so marvellously like others shown last year by Messrs. G. Jackman & Son, of Woking, as to have suggested in the words of your reporter an idea of their "common origin," gives some explanations with the view of removing what he seems to consider the damaging aspect of this resemblance; and he says the seeds from which his large flowering plants were raised were sown by himself immediately after Christmas, 1862, and that some of the plants bloomed "last year," that is in 1863, while others have bloomed for the first time this summer. This is certainly a go-ahead age, but unless the opinions I have learned to form respecting the behaviour of Clematis seeds have been superseded by modern discoveries, I must own myself puzzled by these statements. The subject is not without importance, and I shall hope to profit by the experience of some of your readers. *A. Z.*

A few Words on Coffee and Cinchona Cultivation.—The Coffee plant thrives best in India at a medium elevation, and it has been cultivated with great success between 2000 feet and 4500 feet above the level of the sea. It seems to like the soils, exposures, and elevation of the red-barked Cinchona, although it bears a lower altitude than the latter has been attempted at in India. The two plants, botanically allied, depend on two vegetable alkaloids, somewhat different in composition from one another, for their effects on the human frame. The sustaining influence of Coffee is due to caffein, and the qualities of Peruvian bark as a febrifuge are due to quinine. The composition of the former is 16 of carbon, 10 of hydrogen, 4 of nitrogen, and 4 of oxygen. Of the latter it is 40 of carbon, 24 of hydrogen, 2 of nitrogen, and 2 of oxygen. The cultivation of both the Cinchona plant and the Coffee plant are at present attracting some attention, especially among men of capital in India. The wants of the English market for Peruvian bark, from which quinine is obtained, being but badly supplied from the wild forests of Peru, the English Government have exerted themselves considerably to introduce the plant into India; and their attempts have been crowned with success. Whether the cultivation on a large scale will pay, however, has yet to be proved. Should the Cinchona cultivation prove a profitable investment in India, there is every reason to hope that the hilly tracts of forest land which partly form the upper slopes of the Western Ghats of Southern India will soon be redeemed from waste by the Cinchona planter. In a few years we may be able to pass from one cultivation to another in ascending the Western Ghats from the plains of India, and ride through different examples of what industry can do; for immediately above the altitudes of the Coffee estates, and perhaps shading the roads of those over 3500 feet above the sea, we may find the Cinchona as a thriving plant, well repaying its cultivators. Tea estates might also be well represented on the lands above the Coffee estates; and indeed the cultivation of Tea has already commenced on the Neilgherry Hills, and the Tea sells on the spot at 2*s.* 6*d.* a pound. The hills of Travancore, Neilgherries, Wynaad, Coorg, Mungerabad, and Nuggar, where the elevation is sufficient, seem to offer fitting lands for the growth of the Cinchona. Where the elevation is excessive, 6000 to 7000 feet, as at Ootocamund, the sanatarium of the Madras Presidency, one kind of Cinchona plant can be grown. Where the elevation is not so great another species will thrive. It was feared that there might be found some difference in the alkaloids of the Cinchona plant grown in India from that grown in Peru, and that there might be in the former either a scarcity of the alkaloid quinine, or that its place might be taken by some modification, which modification, although nearly allied to quinine in actual composition, might, from perhaps an altered arrangement of its atoms, fail, or partially fail, as a powerful febrifuge. However, an analysis made of the young bark sent home from the Cinchona, grown on the Neilgherries, is very encouraging in this respect. The grand question to be answered now, is—Will the Cinchona cultivation pay? Of the profitable nature of Coffee cultivation in India we are certain; European energy and capital have in India, in the face of great difficulties, within the last few years opened out many thousands of acres of what was before dense forest, and grown Coffee to return 20 to 60 per cent. for their money. The prospect of so good a return has induced many men to risk in the backwoods of India their lives and means. The Coffee planters are now getting numerous enough in India to assert their rights at the hands of Government. They have changed forests into Coffee gardens, brought plenty to the poor of the crowded villages of Mysore and Madura by offering employment to thousands of men, women, and children, who might otherwise be compelled to apply to some Emigration Commission for work in the Mauritius and elsewhere; and done much to bring the poorer classes of the Madras Presidency face to face with English justice. But although land suitable for Coffee, and conveniently situated to roads, has been in places eagerly taken up, there are vast tracts which only require good roads made to them to bring them into requisition for Coffee; and for Cinchona also, if the latter will reward its cultivators. The cost of opening out an acre of forest, planting it with Coffee, and bringing the plants into bearing—which happens from the third to the fourth year after planting the young nursery plants, in India, may be considered from 10*l.* to 20*l.* per acre. The average yield yearly of a good Coffee estate in proper bearing is from six to eight cwt. per acre. The value of one cwt. in the English market is for a series of years, 70*s.* The following may represent the returns of a Coffee estate:—

Opening expenses per acre	£15	0	0
Cultivation yearly	13	0	0
Crop of 6 cwt. at 70*s.* per acre	21	0	0

This yields a yearly margin of 8*l.* per acre as profit on the year's expenditure; or on the outlay and cost of production a profit of about 28½ per cent. There are many Coffee estates in India that yield 50 and 60 per cent. The Coffee tree lasts with good management a long time in India, and seems to increase in vigour as it gets older. In Ceylon it is thought, that, as a rule, the Coffee trees do not improve after the sixth or seventh year. *J. Fowler.*

Blackbird v. *Cat.*—A friend of mine possesses an unusually large Tom Cat, who shows such a great antipathy to the blackbird's note of alarm, that one of these birds takes advantage of the fact to help himself from the cat's plate at dinner, all the time fluttering and crying, whilst the cat retreats to a little distance, mewing and showing his teeth, but not daring to advance. Have any of your readers ever noticed a similar instance? *C. D.*

Societies.

Botanical of Edinburgh: *July* 14.—Professor Balfour in the chair. The following communications were read:—1. *Account of the Zambesi District, in South Africa, with a Notice of its Vegetable and other Products.* By Dr. John Kirk, late of the Livingstone Expedition. Introductory to a few remarks on the chief vegetable products of East Tropical Africa (said Dr. Kirk), I may point out the leading geographical features of the regions recently explored. The Zambesi is the only river south of the equator of any great size on that coast, and in its hydrographic basin most of our time was spent. At its mouth is a vast alluvial delta extending 60 miles inland, with 90 miles of sea face. This is flat or gently undulating land covered with Grass vegetation; trees, singly or in clumps, break here and there the monotonous landscape. Such genera as Ficus, Combretum, and Acacia are frequent. Borassus among Palms, where it occurs, forms a marked feature, with its tall cylindrical stem bulged in the middle. These plains consist of horizontal beds of clay, sand, and vegetable matter. In the older clay beds are fossil bones of existing species of animals, with indications that there a race of men existed whose habits correspond with those of the negro The seaboard presents a dark

band of forest lining its creeks, Rhizophora, Barringtonia, Heritiera, Sonneratia and Pandanus, entwined with Leguminosæ and Convolvulaceæ, are here prevalent. The delta land abounds in game and larger carnivora; its rivers and creeks are the haunts of hippopotami and crocodiles, besides containing many species of fish. The Zambesi opens to the ocean by four mouths, of which two only are navigable. Above the delta the Zambesi banks are well wooded, and the finest trees are good for timber—suitable for ornamental work and shipbuilding purposes. Coal is abundant, and the veins conveniently placed; the best, however, are above the rapids, and therefore cut off from the coast. Europeans, adds Dr. Kirk, may rule the country but will never colonise it. The climate is a barrier, and the healthy lands of the interior are too far off to give much hope from them for a long time to come. Cotton is the most important of the vegetable products of Africa; it has been long in cultivation among the natives, and it is found in all parts within the tropics. Three distinct kinds are found, which, as far as this region is concerned, are distinct species, although, when studied over a wider field, it becomes difficult to divide them into definite species, the one being then found to pass into the other. The three sorts are, Gossypium herbaceum, G. barbadense, and G. peruvianum. The first yields a short staple adhering firmly to the seed; it is the worst of all, is of a woolly harsh nature, and seems to be the oldest in cultivation, being found mostly in the regions furthest from the lines of trade. The second, G. barbadense, has fine long staple, and is known by its seeds being free from each other, and the cotton separating readily from the seed. It is grown on the lower Zambesi and south end of the Nyassa Lake. Gossypium peruvianum is a large bush or small tree, yields excellent long staple cotton, and has the seeds cohering in masses. It is grown in the centre of the Continent and on the Rouma River; also on the western shores of the Nyassa Lake. In the mountains only are these plants annuals; in all the warm valleys they form perennial shrubs, yielding more than one crop every year. No better seed is required, the quality now cultivated being that most needed by our merchants. With its cultivation the natives are well acquainted. Both the soil and climate of tropical Africa are suited to the crop, for cotton is a sure plant, enduring great drought at the season of ripening its seed. The manufacture in all its stages is carried on by the same individual. Having gathered the crop, it is next picked from the seed, carded by means of a bow, and drawn into thread by hand, a spindle being used to twist it. The loom is a simple arrangement; the threads passed over two bamboos kept apart by four upright sticks, have the cross threads drawn through by a shuttle, the width of the cloth, each thread drawn up by a flat piece of hard wood. Thus, cloths weighing 5 lb. are formed 10 feet long by 5 feet in width; but the time needed for the operation is very great. Universal as is the Cotton plant, and excellent as we find its quality, more security is needed before the native will find it advantageous to cultivate it on a large scale. Shut out from civilisation by the exclusive claims of the Portuguese, this never can occur; for while they do not enter into such branches of commerce themselves, they encourage the slave trade, which is the root of all the misery now prevalent. The growth of Cotton has this advantage over all others excepting oil seeds—that it needs little supervision of Europeans; agents to purchase it if once grown in quantity, and security to the native, being all that is required. Oil seeds rank next in importance; and for Ground Nut and Sesamum—both in great demand — the soil is well adapted. Both are cultivated and thrive well. Other wild seeds yield oils of value, but only second in importance to the former. Among these are the Trichilia, a handsome tree widely distributed over the continent. Castor-oil is abundant, and small quantities of oil are extracted from the Cucumis and Sterculia. Among fibres that of the Lophostylis pallida is the chief; it furnishes what is made into fishing nets. Another, the produce of an Ectadium of the Apocynaceus group, is equal in value. These are estimated as superior to Flax, and might be had in large quantity. The Sanseviera yields another kind of fibre suitable for rope-making, and is also abundant. Of dyes the Orchella of the coast is exported in small quantity, and might be procured in much larger; and a yellow dyewood might be had. It is the produce of a species of Oudranea near to the Maclurea which yields Fustic, with which it agrees in physical as well as botanical character. India-rubber may be gathered from a climbing shrub abundant in the low countries; the plant is near to that yielding the caoutchouc of Madagascar, but nothing has yet been done to develop these branches of industry. The riches of the country are not those of the vegetable kingdom alone. Iron ore, malachite, and coal are all abundant in the Zambesi hydrographic basin, and will one day become of use to the world. I have brought a few examples illustrative of the arts among the people beyond the influence of Europeans. Their arms show what amount of development they have attained in war manufacture. The cotton illustrates the making of cloth among them in all its stages. Dr. Kirk then exhibited a large assortment of articles of native manufacture, such as weapons, Tobacco, Cotton, cloths, &c., several of which he presented to the museum. He also exhibited a native loom.——II. *Notice of Botanical Excursions in the Neighbourhood of Edinburgh.* By Prof. Balfour. Prof. B. stated that Mr. Claudio L. Serra had found abundance of Goodyera repens in fir woods at Dalmeny, within six miles of Edinburgh. Mr. Naylor exhibited specimens of the plant which he had collected in company with Mr. Serra. This discovery extends the southern limit of the plant considerably. Mr. Howie sent specimens of Arctostaphylos alpina from Ben Wyvis. Mr. M'Nab laid on the table flowering branches of Liriodendron tulipifera from the Botanic Garden; also a series of British Ferns and their varieties in a growing state. Several gentlemen were elected members.

Notices of Books.

The Flowering Plants of Great Britain. 8vo, in Numbers, with five coloured plates in each. Society for Promoting Christian Knowledge.

It may be a question how far it is wise in the Committee of General Literature and Education appointed by the Society for Promoting Christian Knowledge to undertake extensive works like the present, which certainly must interfere with similar publications in which large sums are vested by the trade, and where profit is a necessary object, whereas it is a matter of comparative indifference to a body so richly supported as the Society in question. The attempt to diffuse works containing useful information, and supplying a fund of rational amusement to replace the foolish and often mischievous trash which used formerly to be dispersed by the common hawker, was certainly worthy of the Society which contemplated not merely the diffusion of a particular set of dogmas, but the civilisation of the lower classes at the same time with the religious instruction of all; and we hail also with pleasure their efforts in an æsthetic point of view, which is by no means without its proper bearing on morality, to substitute for the daubs which used to mottle our cottage walls, prints which are tolerably irreproachable as works of art, and to place in the hands of the rising generation, whether poor or otherwise, little picture cards which combine correctness of design with sobriety of colouring, and are calculated to a certain extent to train the mind to the love of what is beautiful. If, however, as appears to be the case, more ambitious works are to be undertaken systematically by the Society, it is certainly essential that they should as far as possible tread in the same steps, and give correct information, and illustrations void of any glaring defect, and we think that this end is to a great extent attained in the work before us.

If we were disposed to be hypercritical, we might point out the too great uniformity of tint which exists in several species of the same genus represented on the same plate, and one or two cases, as in Anemone apennina, where there is a manifest failure of colouring; but in general the grouping is good and the sketches correct, though it would be possible to mark one or two, as for example Lathræa squamaria, where there is more or less of error. As regards cheapness there is scarcely anything which can compete with it, but we should think this of little consequence under the peculiar circumstances of the publication, if the work did not combine with it a proper degree of excellence. On turning to the text, which is, we believe, the work of Miss Anne Pratt, we are really surprised at the great mass of useful and curious information which it contains, insomuch that the practised botanist as well as the student may frequently consult the work with advantage, while there is scarcely a page which may not be read with interest. Where we have fixed upon certain points which are out of the range of common reading, as tests, we have very rarely found that our author has slurred them over or wholly passed them by. The antiquarian notices are of especial interest, and there are few matters physiological, medical, or æsthetical which have not met with proper attention.

As a specimen of the information which this work contains, we give an extract from one or two of the earlier numbers. Speaking of the Monkshood (Aconitum Napellus), a very doubtful native, though a common inhabitant of our gardens, our author says:—"It is very common in gardens, but should not be planted in those to which children have access, as its odour is noxious, and they are likely to select it for their play, on account of the fancied resemblance which the nectaries and side petals bear to a chariot drawn by doves. Some persons in delicate health have been injured by even smelling the flower in the open air; and others, on touching the eyelids after handling it, have experienced considerable pain and inflammation. Even the pollen of the stamens, if blown into the eyes, causes a dangerous affection. The root is most powerfully poisonous. A fatal instance occurred in the year 1853, in consequence of but a small quantity having been eaten in mistake for Horse-radish. The stems and fresh leaves have also proved fatal, or caused mental derangement. In one case, in which a man became maniacal through eating it, the surgeon who attended him declared that the malady was not caused by the plant, and insisting on eating some leaves in proof of his assertion, died in extreme agony."

Under Papaver Rhæas we have the following:—"Frantz Meyer mentions a singular usage connected with the Poppy amongst the Indian population which pours into Mexico from the Lake:—'Scarcely an afternoon passes in Lent that the observer will not find the canal covered with gay boat-loads of Indians, passing homewards from market, dancing, singing, strumming the guitar, and crowned with wreaths of Poppies.' 'I do not,' he adds, 'know the origin of the custom of wearing this forgetful flower, but it is both a healthier and more poetic oblivion than that resorted to by many people of other lands after a day of toil.'"

Again, under Papaver somniferum,* after stating the uses of its seeds in making oil, and their employment in Eastern confectionery and sprinkled over cakes, and of its milky juice in the manufacture of opium, our author says:—"In the opium shops of Constantinople it is mixed with rich syrups made of various fruits, in order to render it a sweetmeat; or it is formed into lozenges, on which are impressed the words 'Mash Allah'—the work of God. The Tartar couriers, who travel immense distances with astonishing rapidity, often take no other nourishment than a few of these small lozenges. The celebrated Maslach or Mash Allah of the Turks is believed, however, to contain other narcotic substances besides the opium, and the juice of the Hemp is probably mingled with it."

We must however give a specimen or two of the kind of antiquarian lore which is scattered up and down through the numbers. We will select the first from the account of the common Marsh Mallow (Althæa officinalis). "The Marsh Mallow is a native of every country in Europe, and we seldom look upon its large grey leaves without recalling to mind one of the uses to which the plant was applied in darker days. In times when men accused of crime had to give a supposed proof of their innocence or guilt by passing through some ordeal, persons of weak health or delicate frame, especially monks and ecclesiastics, were exempted from the usual mode of single combat, and were required to test their innocence by holding red-hot iron in the hand. As these trials were made in the church, and during the performance of mass, and as inspection was made by the clergy alone, the suspected person, if he had friends about him, was easily shielded by covering his hands with a thick coating of some substance which would enable him to resist the action of heat. A kind of paste used for this purpose was described in the 13th century by Albertus Magnus, a Dominican monk. The sap of the Marsh Mallow, the slimy seeds of a kind of Flea Bane (which were until recently used in Germany by hatmakers and silk-mercers), together with the white of an egg, were combined to make the paste adhere, and the hands were as safe as if covered with a pair of gloves. Beckman, remarking on this says, 'The use of this juggling trick is very old, and may be traced back to a Pagan origin. In the Antigone of Sophocles, the guards placed over the body of Polynices, which had been carried away contrary to the orders of Creon, offered, in order to prove their innocence, to submit to any trial. 'We will,' say they, 'take up red-hot iron in our hands or walk through fire.'"

We take, as a second, the following curious passage from the account of Dianthus Caryophyllus, which is not the less interesting from being an extract from another work.

"'The reserved rent,' says Mr. Turner in his paper on the Horticulture of the Middle Ages, 'the *unius clavi gariofili*, which is of such frequent occurrence in mediæval deeds relating to land, meant simply the render of a Gillyflower, although it has usually been understood to signify the payment of a Clove of commerce. The incorrectness of this rendering must be apparent, if we recollect that the Clove was scarcely known in Europe in the 11th and 12th centuries, when this kind of reserved rent was most common.'"

Multitudes of interesting passages might be extracted, but we have already exceeded our usual limits. We may refer especially to the observations on the Mustard tree of Scripture under Sinapis; to the curious occurrence of Sisymbrium Irio at Henfield, confirmatory of the old tale of its spreading amongst the ruins after the Great Fire of London; and to the habit of certain parasites under Thesium and Rhinanthus, as additional specimens.

The method of arrangement adopted is most judiciously the natural method, to the exclusion of the Linnean. The genera and families are well defined, though some difficult characters, as the comparative position of the cotyledons and radicle, are omitted; and considerable judgment is shown as to the admission of species. Brambles are very wisely restricted to five species, though we could wish that less latitude had been allowed in the Roses, of which there are 18 representatives. The price is so low that the book is

* Under Papaver Rhæas appears the following passage, which will surprise the cultivator who looks upon the plant in no other light than a worthless weed. Indeed, it has surprised us, and still does so, as we cannot find any confirmation of it in any book we possess. We fancy that it has accidentally slipped into P. Rhæas from P. somniferum, but if this is not the case we shall be glad to hear that the account is correct, and that we ourselves are oblivious. "This Poppy is cultivated in France and Germany, and the oil expressed from its seeds. The oil is not narcotic, but is consumed very generally on the Continent instead of Olive oil. Its use was at one time prohibited by the laws of France, much popular and unreasonable clamour having been excited against it; but it is now openly sold, and is often mixed with Olive oil. The seeds are also used in Poland and Russia as ingredients in soups and gruel." The statement that the flowers of Kōniga maritima are yellow is evidently a mere slip of the pen.

within the means of every gardener, and we cannot do better than cordially recommend it to his notice.

Haselden's Notes on the British Pharmacopœia (London: Hardwicke) is a small duodecimo of xxxvi. and 82 pages, designed to point out in a short and simple manner the additions, omissions, and changes of name which have been made in respect to the new British Pharmacopœia compared with the last editions of those of London, Edinburgh, and Dublin. There are brief explanatory notes on the various preparations.

Catalogues Received.—*S. Glendinning & Sons' Catalogue of Plants* contains a good selection of the usual stove and greenhouse plants, together with a considerable collection of hardy ornamental trees and shrubs and of Coniferæ.——*J. Keynes' Descriptive Catalogue of Roses* is a brief list of the best sorts, including the finest new varieties. It is almost confined to the H.P. class.

Garden Memoranda.

Messrs. Waterer & Godfrey's Nurseries, Knap Hill.—These nurseries, long celebrated for their fine collections of American plants, are situated little more than two miles from the Woking station of the South-Western railway. The road then crosses the Basingstoke Canal and a portion of the vast wastes of Woking and Horsell Commons; the former is now, however, in some measure occupied by the Necropolis Company, and also by the Government charitable institutions, as well as by private individuals for building purposes. The rural village of Horsell, too, lays in our route, its ancient church and modern schools being both objects of considerable attraction. From here we soon reach the newer portions of the nursery grounds, which are situated on either side of the road. The broad hedgerows and timber trees which formerly skirted this road have recently been removed, and the grounds broken up and cropped, preparatory to being brought into nursery cultivation in the autumn. Onwards the hedges are very beautiful, being formed of Green Holly faced with Thorn on the roadside, and the top, from some 5 feet in height, being worked with the Golden variety, produces a charming effect on this well-kept fence, which bounds the "Home Nursery" on the southern side. The entrance, through neat and appropriate gates, lays between lofty Holly hedges surmounted by huge pyramidal masses of gold and silver variegation. The "Home Nursery" is considerably more than 60 acres in extent, of varied surface and irregular outline, and the soil, too, is of different qualities and texture—admirably adapted for the nursing and cultivation of the fine plants which it contains. On the lawn in front of Mr. Godfrey's house, and in the grounds adjoining it, are some noble examples of remarkable trees and shrubs, amongst which we noticed several specimens of Douglas's Fir, some 35 feet or more in height, and the tips of the branches are now loaded with cones of a rosy-tinted pale green colour, somewhat thickly covered with lengthened trident, pale-coloured bracts, producing a charming effect. Magnolia Soulangeana is some 20 ft. in height, and the spread of its branches is 54 feet; it is a noble plant, flowering freely every season, and perfuming all around with its fragrance. Thuja aurea in beautiful specimens, 20 feet or more in circumference, and not more than from 5 to 6 feet in height, is plentiful, their golden spring livery being now changed into a delicate pale green. Cydonia japonica may be found in the shape of nicely-trained columnar specimens, some 15 feet in height and 5 feet in diameter; they flower freely every spring, and form a fine contrast with the Magnolias then in blossom. There are good examples of Araucaria, Deodara, and Cryptomeria, some 20 feet in height; the latter loaded with cones. Here also is the beautiful Abies Nordmanniana, nice specimens producing cones of a moderate size and brownish colour, from which resin exudes here and there in patches, giving them an extremely interesting appearance. Irish Junipers are abundant, as are also Upright and other Yews, many of the latter having golden heads. Of Liquidambar there is a fine specimen more than 40 feet in height; its large palmate yellowish green leaves have now a fine effect, and later in the season, when they assume their autumnal purplish red, the effect is even more striking. Of the Schubertia disticha, and its pendulous variety, there are sundry magnificent examples—the former is more than 40 feet in height. Sequoia sempervirens, of which there are several fine trees, is some 35 feet in height, dense, and beautiful. Plants of Sea Buckthorn are about 18 feet in height; their silvery tinted foliage forming a striking contrast with the various shades of green by which they are surrounded. Of Maidenhair tree there are several good specimens, some 30 feet in height; the singularity and beauty of their yellowish-green Fern-like foliage produces a fine effect. Of Pinus macrocarpa there is here a fine cone-producing specimen, and many well grown plants of Wellingtonia, Thuja gigantea, and the Golden Pine; the two former about 14 feet in height. Of Cupressus Lawsoniana there is a magnificent plant fully 10 feet high, the tips of whose lovely Fern-like branches are rendered pendent with the weight of its now nearly ripe globose cones. A standard Wistaria sinensis is a pretty object; it is 12 feet high, and the circumference of its branches is 35 feet; another, in close proximity, is intertwined and surmounted with the Bignonia radicans, and the trumpet-shaped orange-coloured flowers of the latter produce a pleasing effect in contrast with the delicate purplish-blue racemes of the former. Here are some finely-formed round-headed standards 12 or 15 feet in height of the cut and Fern-leaved Beech, cut-leaved Lime, &c. A standard Rhus cotinus, 10 feet in height and 24 feet in circumference, is a highly interesting object; it is now densely covered with large loose panicles of elongated hairy pedicels, which almost entirely hide its finely formed pale green semi-evergreen foliage. A standard Maple is ornamented with a pendent globular bunch of Mistleto rather more than 2 feet in diameter. There is also an aged almost branchless Spruce Fir, some 50 feet high, whose trunk is covered nearly to the top with deep green Ivy, of a columnar form, which looks very well amidst these admirable plants. Of Hollies there are some magnificent specimens, both of the Golden and Silver varieties, in the form of bushes, standards, and pyramids; some of these latter are 30 feet in height, and in appearance are altogether faultless. There are also many interesting examples of dwarf Pinus and Abies scattered about; one Abies pumila is nearly 14 feet in circumference, and not more than a foot in height. Standard variegated Oaks are also very interesting, the broad white-edged foliage producing a fine contrast with other trees with which they are associated. Sophora japonica pendula is 15 feet in height, and weeping to the ground; and there are some good specimens of Purple Beech; also a noble form of Lombardy Poplar, which towers up majestically over all competitors, forming a landmark for many miles around.

On the lower portion of the lawn is a nicely formed symmetrical flower garden, in the centre of which is a nice young Weeping Beech; the surrounding beds and borders are now gay with parti-coloured autumn flowers and beautiful Roses, which have this season flowered remarkably well; Gladiolus insignis too has been very gay, and will now be succeeded by the late flowering varieties of this magnificent genus. Closely adjoining this garden is the Propagating ground, covering a considerable space, subdivided and sheltered by fine examples of Hornbeam, Holly, and Yew hedges; these latter are surmounted at intervals by large globular masses of the Golden variety, which produce at this season of the year an exquisite effect. These inclosures contain a large assemblage of pits and houses adapted for the raising and propagation of hard-wooded plants. There are also other houses and deep pits adjoining, the latter used for grafting large standard Rhododendrons with the more new and valuable kinds, and the former are filled with small plants of the more popular varieties of Camellias for forcing purposes, and also with seedlings and other plants of the more rare Coniferæ. Here is also a considerable stock of the new and beautiful silvery variety of Cupressus Lawsoniana—a lovely plant. All around are screen-protected spaces to which newly propagated plants are transferred. Sheltering in various ways by means of dried Heath is largely adopted here.

In front of a block of span-roofed and other houses already noted, and which are used for the propagation and growth of Camellias and other plants, are some very remarkable specimens of fine trees. Abies nobilis forms a beautifully compact specimen some 20 feet in height; its large handsome pale-coloured cones, now bending it down with their weight, invest it with additional interest. Kolreuteria paniculata is some 20 feet or more in height, and the spread of its branches extends to 90 feet in circumference; it is now beautifully in flower, and has a highly ornamental appearance, altogether different from that of any other hardy tree; its large brownish tinted, ragged looking compound leaves, surmounted by loose spikes of Oncid-looking flowers, produce a singular effect. Nor is it less interesting in the autumn, when it is covered with large bladdery capsules, and when the leaves have changed to a deep yellow as they fall off. A nice specimen of Weeping Bird Cherry is an object of interest; and here also is a Bignonia radicans in the form of a large bush, 9 feet in height and 27 feet in circumference, densely covered with trumpet-shaped orange-coloured flowers. There are likewise many unique forms of Yew with both green and golden heads on nicely formed broad columnar bases. From near here starts the main walk of the nursery; it is 12 feet in width, and has a border of 30 feet in width on either side, in which a vast assemblage of admirable specimens of choice trees and shrubs are grown. Cupressus macrocarpa is a noble tree 30 feet in height. There are also good specimens of Araucaria imbricata, Wellingtonia gigantea, Abies lasiocarpa, Deodars and the fine upright-growing Thuja gigantea. Distributed along the front of the borders are many unique and beautiful specimens of dwarf bushes of Abies pumila, Clanbrasiliana and other Dwarf Firs, also Pinus sylvestris pumila, P. Strobus pumila, and others. Cryptomeria japonica nana, and the different dwarf species and varieties of Juniper are also extremely interesting. Quercus palustris, a beautifully erect specimen, is 40 feet in height. There are likewise nice plants of Lucombe and other Evergreen Oaks. A Douglas Fir is 40 feet in height. Pinus Pinaster variegata, with broad creamy yellow blotches and long glaucous foliage, is a very attractive plant. A handsome pair of Red Cedars with clear stems, situated close to the walk, measure 25 feet in height. There are also many good specimens of Weeping Ash, one of which is completely covered with the tree variety of Ivy, and has a good effect. Abies Albertiana, Thujopsis borealis, Cephalotaxus Fortuni, Libocedrus chilensis, Retinospora ericoides, Variegated Tree Ivy, Juniperus oblonga pendula, Ilex latifolia, ovata and scotica, in the form of nice compact specimens, are plentiful. We also noticed beautiful examples of Pinus Hartwegii and Abies Pinsapo, and a few good specimens of Golden Yews, variegated Hollies, and Thuja aurea.

We now come to a cross walk, the planting of the borders of which has been accomplished very effectively; the plants are not particularly large, but they are of the most choice and beautiful kinds; they vary in height from 8 or 9 feet at the back to a foot near the walk. Here the lively forms of Abies Nordmanniana, nobilis, and Pinsapo contrast well with Wellingtonia gigantea, Araucaria imbricata, and Douglas Fir, the common and green variety of Deodar, and also with such upright-growing plants as Irish Junipers, Yews, Thuja gigantea, &c.; the front portion is filled with dwarf Firs, Junipers, &c., and the whole is interestingly blended with Thuja aurea, together with fine forms of Upright and bush plants of Golden and Silver Hollies, and Golden Yews, the whole producing a very fine effect.

Proceeding along the main walk we arrive at a remarkably beautiful specimen of the variegated Abies excelsa, 14 or 15 feet in height. Of Abies monstrosa there are several good plants, whose long straggling branches produce a singular effect among the beautiful plants with which they are associated. Of Purple Beech there are some good forms; they are cut closely in every season; the foliage they produce is in consequence much more robust, and it is also of a very deep colour. Juniperus recurva is 18 feet in height and 45 feet in circumference; and of Broad-leaved and Silver variegated-leaved Box there are many good specimens. Here are also standard Lilacs and Fern-leaved Beech, nice specimens; also some glorious plants of Thuja aurea, more than 6 feet in diameter, Cupressus disticha pendula, Pinus Lambertiana, Montezumæ, and monticola, some of them fine specimens more than 20 feet in height, the last producing cones, long and pendent, of a brown colour, and the resin, which is white and transparent, exuding freely from every bract, gives them a somewhat crystallised appearance. Other remarks on these interesting grounds must form the subject of another paper.

Miscellaneous.

African Fruits.—Of African edible fruits and seeds one could almost go on to infinity, for there are few indigenous that are not eaten by the natives in some form or another. The Blood Plum of Sierre Leone (Hæmatostaphis Barteri), has a pleasant sub-acid flavour when ripe; in size and form it is similar to a Grape, but somewhat larger. Another fruit of the same shape and form, but smaller and with less pulp, is considered a favourite fruit on the Niger; it is a species of Vitex. The fruit of Sarcocephalus esculentus, called in Sierre Leone Native Peach, is, when full grown, about the size of a large Apple; it is of a pulpy nature; the outside is rough and uneven, and and bears some resemblance to a Custard Apple (Anona). The pulp of the Baobab (Adansonia digitata), has a very pleasant and agreeable sub-acid flavour, and is much esteemed by the natives in making a kind of sherbet or cooling drink. Detarium senegalense, called Duttock on the Gambia, where it grows to an immense tree, produces a fruit, the pulp of which is eaten, as well as the kernel or seed. In size and shape it is like a large Chestnut; the outer skin is of a dark dull brown. The small pod of Codarium acutifolium is remarkable for its velvet appearance; hence it is sometimes called Velvet Tamarind, and is also known as Black Tamarinds. The pulp enveloping the seed has quite the flavour of East Indian Tamarinds, and is valued by the natives of Sierra Leone on that account. The Ochro (Abelmoschus esculentus) is common on the Niger, and is used on account of its mucilaginous properties in various ways in the preparation of native dishes. The seeds of a species of Triculia are also eaten in this part of Africa; the fruit is very similar to the Bread-fruit, to which it is closely allied. Its size is about that of a child's head; the seeds are small and hard; the native name is Akna. The fruits of Habzelia æthiopica are used as pepper, and are sold in the markets at Nupé as well as at Bahia. The seeds of Monodora grandiflora, M. tenuifolia, and M. brevipes are all more or less aromatic, and would seem to be well adapted, if shipped in any quantity, for a useful condiment in this country. Many of the Anonaceæ have the same decided fragrance, but none so powerful as in this genus. The fruits are very large and round; those of M. grandiflora quite the size of a large cannon ball, the other species somewhat smaller. The seeds are about the size of a common Scarlet Runner Bean, and are very thickly embedded in the pulp, which fills up the interior of the fruit. The fruits of the Wild Mango, probably a species of Spondias, are eaten on the Niger, and on the Zambesi the kernels of a species of Sclerocarya. The stones of this fruit, however, are very hard and difficult to crack; these kernels appear to contain a quantity of oil, and perhaps might be turned to account in that way. The fruit of Mal-

pighia saccharina, called in Sierra Leone the Sugar Plum, in shape and size resembles the Damson. It has a sweet and agreeable flavour, and is in perfection in the months of February and March, when it is to be seen in large quantities in the market of Freetown. The tree producing it is lofty and majestic in appearance, attaining a height of 80 feet. The large seeds of Pentaclethra macrophylla, known in the Eboe country as Opachalo, and in Gaboon as Owala, are collected at the seasons of their falling, and eaten as food; they also yield a clear limpid oil. The young germinating shoots of Borassus æthiopum are eaten by the natives both of East and West Africa; for this purpose they are taken up soon after the seed has vegetated, and are then boiled in a similar manner as we cook Cabbages or some such vegetable. The large seeds of Cycas circinalis, from which the natives of Ceylon and Western India prepare a kind of Sago, are valued as an article of food in some parts of the Zambesi. The existence of a species of Cycas was discovered in Western Africa by the botanist of the Second Niger Expedition, as well as by Gustav Mann, both of whom found that the natives applied the seeds as an article of food. Of the Dika or Udika bread, a specimen of which arrived in this country some three or four years since, and was then supposed to be procured from the seeds of Mangifera gabonensis, it will be sufficient to say that upon further researches it is proved to be from no Mango, but from the seeds of Irvingia Barteri. The fruit is similar in form and size to that of the Mango, but the seeds, which contain a large amount of oil, are separated from the fruits and beaten in a trough till they attain a partially fluid state. This is then put into baskets of Musa leaves and exposed to the sun, when a white tallow collects on the surface, which is poured off, and the dika allowed to cool in the shade. The natives esteem it very highly in the various preparations of their food, but more especially in cooking fish. It has, however, a strong, rank, and highly disagreeable taste. The fruit of a species of Parinarium, known on the Zambesi as Mobola, is valued on account of the very sweet pulp which surrounds the seeds. The Gero corn (Penicillaria spicata) is in common use for household purposes on the Niger and Gambia. The seeds of Sorghum vulgare are also extensively used for preparing as malt. *Jackson, in Technologist.*

Hazel [Corylus Avellana, L.], Ang. Sax. *hæsl* or *hæsel*, and allowing for dialect, the same word in all Germanic languages, the instrumental form of Ang. Sax. *hæs*, a behest, an order, from Ang. Sax. *hatan*, Old High Germ. *haizan*, Germ. *heissen*, give orders; a hazel stick having been used to enforce orders among slaves and cattle and been the baton of the master. But the Lat. *corylus*, Gr. κορυλος, and Germ. *hasel* are identical; for it is agreeable to analogy that the initial *c* and κ of Greek and Latin words should be replaced with *h*, the *r* with *s*, and the vowel, the short *o*, with *a*. Thus Lat. *collum* makes *hals*; Lat. *cor cordis*; Gr. καρδια makes Goth. *hairto*; and Lat. *soror* replaces the Sanskr. *svasar*. This meaning of the Gr. κορυλος seems to be implied or shadowed in κοιρανος, a commander. It is not unlikely to be at the same time connected with Lat. *casa*, Germ. *haus*, as the material of which wattled dwellings were made. That a tree so generally diffused over Europe should have the same name in so many languages, is proof of some ancient general use of it, to which this name refers. Wedgwood derives it from Dan. *hase*, a husk. Mrs. Kent, in her *Flora Domestica*, from Ang. Sax. *hæsil*, a hat, a word of very doubtful authenticity. The verb *hælsian*, foretel, seems to be derived from the use of the hazel rod for purposes of divination. *Prior's Popular Names of British Plants.*

African Fibres.—The fibrous plants, both of the eastern and western coasts, are worth more attention than has hitherto been given to them. On the east there is the Baobab (Adansonia digitata), a good tough strong fibre—so strong indeed as to be the material from which the nets used to catch antelopes are always made. Then the Sanseviera guineensis furnishes a strong and durable fibre. The abundance of fibre capable of being obtained from the Buaze, probably two species of Lophostyles (L. longifolia and L. angustifolia) would seem to give it a claim to be classed among the fibrous plants of commerce. Experiments were made with this fibre some few years back by Messrs. Pye Brothers, who reported very favourably upon it, but since then it has been quite lost sight of in the commercial world. A notice of it, as well as Messrs. Pye's report, was published in Dr. Livingstone's book. The well-known fibrous plant, Paritium tiliaceum, also grows in this part of Africa, while on the West Coast are several good fibre-yielding plants. The fibre obtained from Vigna Catjang is very strong and tough, and is procured by beating the stem. These are but a few of the many apparently useful plants of the great African continent, which if brought within the range of commercial enterprise, would undoubtedly prove valuable. *Jackson, in Technologist.*

Calendar of Operations.

(For the ensuing week.)

THE present drought will render it necessary to pay great attention to watering out as well as indoors. All kinds of soil for potting may now be laid in with advantage. Store them up neatly in narrow ridges, so as to be safe from wet and yet exposed as much as possible to the action of the air; and as success in plant growing very much depends upon having suitable soil for potting, no trouble or expense that may be necessary to procure this should be spared where well grown specimens are expected. Loam of moderately good quality may be obtained in most neighbourhoods, but good peat is not so easily got; this is absolutely necessary, however, for the growth of choice hard-wooded plants, and should be procured at the proper season, so as to have it in a fit state for use at the right time.

FLOWER GARDEN AND PLANT HOUSES.

In some neighbourhoods green fly is troublesome out of doors. Where such is the case, tobacco water and soap suds may be used with success. The mixture should be used sufficiently strong to kill the insects, but not so strong as to injure the leaves. It should be applied in the evening, using a fine syringe or fine-rosed watering-pot for the purpose, and giving enough to moisten the whole of the foliage. Go over the beds frequently, and remedy any defect that may be perceptible without loss of time. Keep herbaceous plants neatly tied up, and cut off the flower-stems of any that are becoming unsightly. Take advantage of leisure hours and favourable weather to put in cuttings, and use every possible despatch with this work until there is a good stock in a fair way for rooting of such things as are known to be difficult to winter, except in the shape of well-established plants. Keep gravel walks perfectly clean and smooth by weeding, sweeping, and rolling, as may be necessary. Keep climbers on walls within due limits.

AURICULAS.—These must now claim attention. To insure good growth and bloom next spring they will require to be shaken quite out of the old soil and repotted, using a moderately rich, but well sweetened compost. Do not overpot, and for some time after repotting keep the plants rather close in a frame or pit, giving air by degrees and in proportion as they get established, when they may be fully exposed to the air, but not to heavy rains, to which they should never be subjected if they can possibly be screened from them.

DAHLIAS.—Go over the plants regularly twice a week, in order to remove all superfluous shoots and small buds; but this must be done with care; only cut away a little at a time, leaving robust varieties unpruned for a time. Water freely during this remarkably dry weather, and in addition give the plants a good sprinkling over head every evening after sunset. Secure the side shoots by tying them to stakes, and relieve the centre as much as possible. Earwigs should be kept in check before the blooming season sets in.

CINERARIAS.—These will now want a cool shady situation; if mildew makes its appearance sulphur should be at once applied. The first-struck cuttings will now require repotting; also the first-sown seedlings for early bloom.

PANSIES.—Choose a showery day for transplanting these; they are not easily managed during hot weather.

FORCING GARDEN.

FIGS.—When these are ripening the house must be kept somewhat drier, but at the same time the state of the soil must be carefully watched, lest it gets too dry and causes the swelling fruit to drop off. Beware of red spider, which is particularly apt to establish itself at such a crisis, when the swelling fruits are making large demands upon the energies of the plants, and are thereby checking in some measure their vigorous growth. This is an evil which must be carefully guarded against.

PINERIES.—Those who intend cultivating Pines on the open bed system cannot begin at a more favourable season than the present. The bed should be from 18 inches to 2 feet deep, and should consist principally of good rich mellow turfy loam, well broken up, and carefully intermixed with a liberal sprinkling of clean sand, and a small proportion of leaf soil or good rich fibry peat; for when rough turfy soil is used and the bed is ever, from any cause, allowed to get thoroughly dry, it is very difficult to moisten it again, as the water passes off through the lumps without penetrating them. But if the loam is well broken up and mixed with some leaf soil, or peat and sand, it will be found to take water freely enough, and the roots will be almost as much under command as when the plants are grown in pots. Persons commencing this method of growing Pines should also endeavour to avoid planting out pot-bound plants, for these, whether young or old, seldom strike freely into the fresh soil, and are very apt to fruit prematurely; but if such plants must be turned out, then care should be used to make the soil firm about the balls, so as to prevent the water passing off without moistening the balls.

STRAWBERRIES.—Take care to secure sufficient runners for forcing. Better have too many than too few.

VINERIES.—Every possible attention must be afforded young Vines planted this spring where strong rods are expected. Let a vigorous root action be secured, and endeavour to get the wood well ripened. Give air freely and early on fine days, so as to avoid any risk of scorching the foliage, but shut up early in the afternoon, sprinkling the floors, &c., so as to cause a genial moisture in the atmosphere, which will be of great service in strengthening the Vines. If plants are grown in the house, see that they are not infested with black thrips, and on no account be induced to regulate the temperature, &c., of the house for the plants, but remove these to other quarters, or make them fall in with the treatment most suitable for the Vines. Keep a sharp look out for the appearance of red spider in houses where the fruit is ripening, and coat the pipes or flues with sulphur on the first appearance of this enemy. Indeed it is well to do this occasionally by way of a preventive, which, in this case as in most others, is vastly preferable to a cure. Vines in pots intended for early forcing will require attention to get the wood properly ripened, and this should be effected by exposing them freely to light and air.

HARDY FRUIT AND KITCHEN GARDEN.

Young wood in most cases will be well ripened this year. It may however be advisable to go over such trees as are over luxuriant, and stop about half the shoots, beginning of course with the strongest, for a general stopping at this time would probably be of little farther service than to induce the production of a mass of useless spray, whereas stopping the stronger shoots or those which incline to grossness will divert the sap into the weaker ones, which will be strengthened, while the buds on the shoots that have been stopped will become full and plump without starting into growth. The only effectual method, however, of curing a gross habit of growth when this is the case in ordinary seasons is root pruning or keeping the roots within proper limits by means of shallow well drained borders. Should it be found that the shoots, after stopping, incline to start into growth, it will be advisable as soon as the fruit is gathered to open a trench at a moderate distance from the stem of the tree, cutting the stronger roots. This will be of the greatest service in checking growth, and will probably do more towards securing ripe wood than anything else that could be adopted. Get the Strawberry plantations intended to stand for next season trimmed as soon as convenient, cutting off and clearing away the runners, so as to afford the leaves plenty of room. Attend to providing plenty of Lettuce, Endive, &c., for winter salads; also see that there is a good bed of Parsley provided in some sheltered spot where it can be readily protected in severe weather.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Aug. 3, 1864, as observed at the Horticultural Garden

July and August.	Moon's Age.	Barometer Max.	Barometer Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 28	24	30.000	29.812	79	45	62.0	64	62½	S.W.	.00
Friday 29	25	30.057	30.022	82	43	62.5	65	63	N.W.	.00
Satur 30	26	30.130	30.110	80	52	66.0	65	63	S.W.	.00
Sunday 31	27	30.122	29.948	83	49	66.0	64½	62½	S.W.	.00
Mon. 1	28	30.043	30.010	77	49	58.5	65	63	S.W.	.00
Tues. 2	●	30.092	30.080	80	31	55.5	65	63	N.W.	.60
Wed. 3	1	30.112	30.028	79	45	62.0	64	62	N.	.01
Average.		30.078	30 001	80.0	43.5	61.7	64.6	62.6		.01

July 28—Very fine, with streaky clouds; cloudy; fine.
— 29—Very fine; cloudless; fine throughout; air very dry.
— 30—Densely overcast, fine; very fine.
— 31—Uniformly overcast, very fine; overcast; windy at night.
Aug. 1—Fine; very fine throughout.
— 2—Clear dry air; cloudy; fine; temperature in the night 1 deg. below freezing.
— 3—Very fine; lower current of air from S.; upper, from N.; excessively dry; slight showers.

Mean temperature of the week 1½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending August 13, 1864.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7..	74.4	50.8	62.6	13	0.57 in.	1	4	3	—	6	21	3	—
Mon. 8..	74.5	49.7	62.1	16	0.50	2	5	2	—	3	19	5	—
Tues. 9..	74.6	50.2	62.4	14	0.40	2	7	4	—	5	14	8	1
Wed. 10..	75.3	52.6	64.0	17	1.06	1	6	3	2	5	14	7	1
Thurs. 11..	75.8	51.3	63.6	17	0.78	1	1	3	1	5	15	11	1
Friday 12..	75.2	50.8	63.0	14	0.47	2	2	2	1	6	13	8	4
Satur. 13..	74.2	50.3	62.2	17	1.14	1	3	3	3	5	5	3	—

The highest temperature during the above period occurred on the 10th, 1842—therm. 92 deg.; and the lowest on the 13th, 1839—therm. 32 deg.

Notices to Correspondents.

CARNATIONS: *Z Z.* Your new scarlet Clove Carnation named Garibaldi is not in our opinion either so sweet-scented or bright in colour as Prince of Denmark. The blooms were, however, a little faded, and otherwise out of condition when they reached us.

CUPRESSUS LAWSONIANA: *K P.* You may transplant it as soon as the ground is moistened by the autumnal rains.

CYDONIA JAPONICA: *J W B.* We do not know that any use has been made of the fruit of the ordinary form of the Japan Quince, or Pyrus japonica as it is often called, but from a large-fruited variety raised in the south of France, a very good preserve may be made, as you will see on referring to p. 868 of our volume for 1859. It is probable therefore that the common sort might be used for a similar purpose.

NAMES OF PLANTS: *E K.* 1, Alopecurus pratensis; 2, A. geniculatus; 3, A. agrestis; 4, Bromus commutatus.—*K P.* Veratrum album.—*D.* Datura Stramonium.—*J B H.* 1, Hyssopus officinalis; 2, Origanum vulgare.—*C C.* Teucrium Botrys.—*W. May.* 1, Mentha piperita; 2, M. viridis.—*Mary.* Campanula rotundifolia, in an exuberant condition.—*C E F.* Cratægus prunifolia.—*W S.* Spiræa canescens.—*Jas Carter.* The Collinsia is possibly new; as to the two Godetias the specimens are insufficient for certain identification; they must be each accompanied by a ripe seed vessel and a few ripe seeds, and sent us again, when we will do our best with a difficult question.—*S C.* Athyrium Filix-fœmina rhæticum.—*T Corder.* Pimpinella Saxifraga, a plant which is most variable in the form and cutting of its leaves.—*Alpha.* Momordica Balsamina.—*M A Woodward.* Lastrea remula.—*Irish Sub.* Lastrea dilatata var. collina, certainly. The indusium has fallen away in some places, but is to be found shrivelled up in the centre of many of the sori.

NURSERYMEN: *J G & Co.* A nurseryman is not entitled to any longer notice to quit than other people, unless he has expressly stipulated for it.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.

Patrons.—The Earl of DERBY, K.G., and Lord EGERTON of Tatton.
President for the Year.—Lord DE TABLEY.

GRAND SHOW at KNUTSFORD (near the Entrance to Tatton Park), on SEPTEMBER 7 and 8. PRIZES amounting to nearly 1000*l.*, for Horses, Horned Cattle, Sheep, Pigs, Poultry, Dogs, Seeds, Roots, Horticultural Productions, Cheese, Butter, Implements, Machinery, &c.

ENTRIES CLOSE on AUGUST 6.

Prize Lists and Forms of Entry may be obtained from Mr. J. B. CUTTER, Local Secretary, Knutsford; or from

T. B. RYDER, Secretary.

57A, Church Street, Liverpool

Land Drainage, & other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.

For particulars, apply to him, at 52, Parliament Street, Westminster.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.

22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
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3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

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1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
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No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.

No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

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The Agricultural Gazette.

SATURDAY, AUGUST 6, 1864.

MOST of our pages are this week filled with reports of the current harvest. We cannot congratulate our readers upon the character of it. It was hardly to be expected that so cold a June and so dry a summer should have produced abundant crops—but we did not think from a recent examination of many of our eastern, western, and midland counties, that the returns at least of the Wheat crop would have been so unfavourable. The following tabular statement gives the general character of the reports which our readers will find in the following pages:—

NUMBER OF REPORTS.

Crops.	Under Average.	Average.	Over Average.	Total.
Wheat	82	102	20	202
Barley	26	119	47	192
Oats	126	72	12	210
Beans	88	27	14	129
Peas	58	48	9	115

We have only to add that the reports thus tabulated are necessarily assumed to be of equal value. But this is far from being the case. And readers who want to know about the character of our great Wheat-growing districts, as regards the chief grain crops, had better look at the southern and eastern counties to the exclusion of all the west and Ireland.

BUTTER-MAKING NOT A MYSTERY.

THERE are about five or six weeks in spring and fall when I suppose every farmer's wife can make fair butter. It will almost "make itself" with good June or September feed, in a clear dry June or September atmosphere, with the mercury indicating an average of 60°. But for the dairy to yield a generous profit through the whole year, a fair article must proceed therefrom every week. Everybody cannot be supplied through the dog-days with June butter; nor can every family have their tubs for winter filled in September. Now, if you can bring the dairy under the same conditions in August or December that prevail in June and September, why should you not realise the same results? But this it seems impossible at present fully to do. Yet I think the secret of success in butter-making is to bring about these conditions as nearly as may be.

1. In the first place you must, of course, have good cows. Some cows will make a large amount of high-coloured butter, but it is too soft to handle well in any weather, especially when very warm; others yield an article too white to be attractive, though I consider colour of much less importance than solidity. As far as my observation has extended, very yellow butter is not as good as that which is lighter coloured. It is apt to be oily, caused I think first, by being naturally soft, and second, by the consequent over-working it usually receives; the butter-milk being less readily extracted from soft butter.

2. Good cows obtained, the next requisite is good feed. And what can be better than June Honeysuckle "up to the eyes," or Clover aftermath in September? Probably nothing. I prefer, however, as a matter of health, to give a feeding of dry hay every day through the season. I can thus keep them more uniformly, and not subject them to sudden changes from green to dry food. But what for feed the remainder of the year? Why, get the next best thing—which is the same, cut and cured, for feeding in the stall. During the third week of last June I cut four or five acres of Clover and Red-top, the Clover just coming into flower, the Red-top showing its flower-stalk. Sixty days after I cut the same field again. This winter the cows, to which both lots are fed, seem to know no difference between the first and second crop. It is all Rowen to them. I am fully of the opinion that very little of the hay in New England is cut as early as it should be. For dairy cows I would prefer it all cut before blossoming rather than after. A large butter-dealer and a good judge tells me that he has known his mother to make just as good and just as yellow butter in winter, while her cow was being fed solely on rowen, as she could ever make in summer from the same animal. I think he came very near the truth.

3. But supplying yourself with a stock of June atmosphere to which to set your milk and do your churning through dog-days, is not so easy a thing as to cut your hay early, and afterwards a crop of Rowen. The thermometer does not usually stand at 66° from July to September, nor do you generally have clear dry air at that season. Hence, I do not expect you can make your best butter, or that which will keep the longest, during this period, unless you can secure these two requisite conditions—viz., moderate temperature and dryness of the atmosphere. But the nearer you can contrive to approach these conditions the better your success. I keep my milk during the extreme hot weather in my house cellar—a large, light, airy room, clear of all boards and wooden utensils not used for milk; the whole room thoroughly whitewashed. The windows—a north, south, and west one—are open or shut, darkened or not, just as may be needed to keep the air of the room as pure, as dry, and at the same time as cool as it can be under the circumstances. I consider a damp atmosphere worse than a very warm one for milk. It makes the cream thin and watery requiring much more care and longer time in churning. I need not say that I do or that you should set your milk in the pans two or three inches in depth, and skim it up at 24 or 36 hours old, putting the cream in a tin pail or stone jar, stirring it occasionally; for that almost all dairymen and women do. But when I say you should never commence a churning unless your cream is known to be at a temperature not any below 60°, nor higher than three or four above that point, I cannot at the same time say everybody does that, for I do not know of any dairyman or woman, except through the books, who is exact in this respect. All butter makers think that, if cream be warm, it will come too quickly, be soft and white, and not pleasant stuff to manage; and if too cold it will swell and foam, and not come at all—some one asserting that "it did almost come, but went back to cream again." One dairyman, who usually has good luck, told me this winter that he churned all one day and then gave his cream over to the pigs, only wishing he had done it sooner. Up to last April I occasionally, and not very unfrequently, had just such "luck." Since that time I have used a common 50 cent thermometer—selecting one that would slide easily in the case, or that I could dip the bulb into the cream without the case. When I have gathered a sufficient quantity of cream I try it by the thermometer; and if the temperature be from 60° to 64°, I churn it immediately; if not within those limits, I bring it there by some means before it goes into the churn. I keep my cream in a large tin pail that can be hung in the well the night before churning—not in the water, but just far enough down to have the cream at 60°, when churning is commenced. Placing it in the water makes it too cold; and cold cream is addicted to the same freaks in summer as in winter. In spring and fall 62° does well; in winter, 64°; but in summer the temperature will rise rapidly enough if you commence at 60°. I never want butter to reach a higher temperature than 66° at the time it separates from the butter-milk. Following this method, I have not had the shadow of a failure for ten months. My summer and winter butter have come about equally well, varying from 15 to 45 minutes, according to the ripeness of the cream. I think it does no harm to run a bucket of cold water through the churn after the milk is drawn off. If the butter is too soft, as it almost will be in summer, it does much good by hardening it before salting.

4. My butter is taken from the churn to a butter worker, like the small simple one that figured in Flint's work on "Dairy Farming"—a book, by the way, that every man or woman who expects to make a hundred pounds of butter should read through twice as a preliminary step. In this worker the butter is salted, then returned to the well for 12 hours, after which it is thoroughly worked. And here I find a great advantage in the worker over the hands. If butter a little too cold is worked in summer by hand, it will grow much too warm before the buttermilk is expelled; while the worker will do it quickly, thoroughly, and without causing the oily taste so commonly found in hard-worked butter. So much for summer butter. And now, to make good, sweet, yellow butter in winter, you have only to secure the same conditions that are best for making summer butter—namely, good cows, rich feed, a dry air in which to raise the cream, and a temperature as near 60° as it is possible to preserve. The latter condition is much more easily obtained in winter than in summer; for by artificial heat the air can be kept at the proper temperature in the milk-room without being made damp, while the same result cannot as readily be obtained in summer with ice, on account of the dampness accompanying it—indeed, I believe that more butter, and that of a good quality, can be made from a given number of quarts of milk, in winter, than can be through the warmest weather.

Finally, in butter-making, as in shipbuilding, or surveying, strike the word "luck" from your vocabulary. Learn your trade. Learn the laws that govern your work, and obey them. Be not outwitted by heat or cold, by wet or dry, but press them all into your service, and be master, and not slave, of the fluid forces of Nature. *New England Farmer.*

THE PRESENT APPEARANCE OF THE CROPS.

FROM THE REPORTS (JULY 30) OF OUR OWN CORRESPONDENTS.

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
SCOTLAND.										
INVERNESS	Under average	Average	Under average	Good	Few grown	Promising	Very light crop	Turnips, fair promise	Aug. 25	Alex. Simpson, Beauly
MORAY	Not average	Very fine crop	Average	None	None	Very promising	Light	Looking very well	In about four weeks	James Hamilton, Forres
BANFF	Under average	About average	Average	None sown	None sown	Under average	Rather light	Fair promise	Beginning of September	John Barclay, Braes of Enzie, Fochabers
ELGIN	Good crop; average	Above average	Nearly average	. .	....	Under average but healthy	Short crop	Very promising	Sept. 1	John Grigor, Forres
ABERDEEN	None	Fair	Nearly average	Good	....	Promising	Fair crop and well got	Stiff to grow	Fortnightlater than last year	James Laing, Peterhead
	Little sown; quality fair	A good average	Improving; and may be an average crop	None	None	Healthy, and promising well	Under average	Turnips much improved within last fortnight	Perhaps the middle of September	Jas. Macdonald, Huntly
	Average crop	Full average crop	Straw deficient; the ear has an average appearance	None grown	None grown	A fair crop	Below average	Now doing well	End of September	——, Whiterashes
PERTH	Nearly average	Full average	Under average	Full average	Full average	Irregular	Very short crop	Turnips, fair prospect	Last week of Aug.	David Edie, Elliothead
FORFAR	Thin; under average	Nearly average	Most miserable	....	....	Thin; very poor crop	Half a crop, but good	Backward	End of Aug.	Alex. Bell, Montrose
	Over average	Over average	Average	Over average	....	Under average	Under average	Under average	End of Aug.	Robert Colvill, East Newton-by-Chance Inn
	Average	Under average	Much under average	Very good	....	Bad	Half a crop	Good, except on clays	End of Aug.	Wm. Smith, Brechin
FIFE	Rather under average	Above average	Much under average	Above average	Above average	Under average	Very much under average	Rather under average	Aug. 22	John Pitcairn, Kinnaird
	Average	Average	Under average	Average	Average	Under average	Under average	Not very promising; finger and toe	Aug. 20 to 25	R. Russell, Pilmuir
	Under average	Full average	Under average	Above average	None	Below average and late	Not a half crop	Average crop	1st week of September	John Morton, Lambieletham, St. Andrews
	Average	Full average	Under average	Above average	....	Under average	Very light	Promising	In 20 days	Walter Veitch, Grange
STIRLING	Good average	Average	Below average	Above average	....	Below average	Average in low lands	Promising	End of Aug.	Alex. Buchanan, Whitehouse Farm
	Full average	Above average	Under average	Promise a full average	Not cultivated	Blanky and not vigorous	Greatly under average	Promise an average	End of Aug.	W. Drummond & Sons, Stirling
	Average	Fully average	Under average	Average	None	Below average	Below average	Nearly average	Beginning of September	——, Stirling
HADDINGTON	Average	Above average	Under average	Under average	....	Under average	Under average	Average	August 19	Patrick Shirreff, Haddington
	Full average	Over average	Under average	Average	....	Under average	Half a crop	Various; part excellent	About Aug. 20	George Hope, Drem
EDINBURGH	Thin; good deal rusted: not average	About an average crop	One-third short of an average crop	Average crop	None	Fully one-third short of an average crop	Half of an average crop	Suffered from drought	About Aug. 22	——, Dalkeith
	Average	Above average	Light; under average	Average	None grown	May be average	Under average	Turnips look well, except stiff soils	With fine weather about 1st Sept.	James Hislop, Midcalder
	Average of past six years	Average of do.	Short strawed; under average	Good	....	Scarcely average; no disease	Below average; aftermath poor	Promising	Aug. 20	James Melvin, Bonnington, Ratho
RENFREW	Very thin and little average	Fair average	Average crop	Good; average crop	....	Fair crop	Not over one-half the usual crop	Turnips and Mangel are looking well	About six weeks	George Boyd, Renfrew
LANARK.....	Very thin	None grown	Average	Good	None grown	Average	Very light	Wanting rain and heat	In Sept.	J. Munro Mackenzie, Wishaw
AYR	Middling	Good	Very good	Good'	....	Good	Light	Looks well	Sept. 5	Wm. Orr, Beith
	Generally thin: Under average	Little grown; average	Short of straw; good average	Over average; good	None grown	Early crops well; late crops promising	Very light; much under average	Very promising	About Aug. 24	And. W. Ralston, Lagg
	Variable; winter sown, thin; scarcely average	None	Generally good	Few grown; very good	None	Frosted; but recovering	Very light	A great crop	End of Aug.	W. M'Jannett, Irvine
SELKIRK	Average	Average	Under average	None grown	None grown	Average	Under average	Turnips good	Last week of Aug.	James Stalker, Galashiels
PEEBLES	....	Barely average	Below average	....	....	Average	Very light crop	Turnips very pr mising	Middle of Aug.	James Lyle, Innerleithen
ROXBURGH	Under average	Average	Under average	Look well	Look well	Under average	Very poor crop	Good	Aug. 20	Patrick Brodie, Clarilaw, Selkirk
	Average	Average	Below average	A little below average	Average	Below average	Below average	Full average	14 days	James Thomson, Whiterlee
DUMFRIES	....	Good	Very good	Good	....	Good	Very poor	Very good	Middle of Sep.	J. Little, Langholm
BERWICK	Under average	Average	Under average	Average	....	Average	Under average	Average	End of Aug.	George Logan, Humehall, by Stitchill
	Average	Above average	Decidedly under average	Good	....	Good	Light, but well got	Good on free soils; very poor on clays	About Aug. 25	John Wilson, Edington Mains, Chirnside
	None grown	Little grown	Short in the straw; but well headed, and like a full average	None grown	Few grown	Good	Under average	Not equal; all growing well	End of Aug.	John S. Bertram, Cranshaws, Dunse
WIGTON	Looks well, but small breadth	Little sown	Generally under average	....	....	Fair; disease appearing	Very light crop	Mangel only middling; Turnips very greatly improved	End of Aug.	A. H. M'Clean, Auchneel, Stranraer
ENGLAND.										
NORTHUMBERLAND	Hardly average	Fair crop	Very light	Good	A full crop	Thin	Light	Want rain greatly	End of Aug.	J. Grey, Lipwood House
1.	Average	Average	Short in straw: under average	Few grown	Average	Poor crop	Poor crop	Fair; great need of rain	About three weeks hence	Thos. Dods, Hexham
2.	Thin and poor	Short	Very light	Few grown	Average	Poor	Poor	Various; generally unequal plant	Sept. 1	Ditto
	A fair crop; thinner than we expected	Good	Very short, and a light crop	Good	Good; very few sown in this district	Want rain much, and a middling crop	Fair crop	On light lands good; on strong lands bad	The first of Sept.	Geo. Laing, Coldstream
	Below average	Above average	Light	An excellent crop	Average	Below average	A light crop	Below an average	About Sept. 1	Jacob Wilson, Woodhorn Manor House
CUMBERLAND ..	Average, although light	Average	Under average	....	....	Good	Very light	Good	Last week of Aug.	——, Carlisle
	A thin light crop, but well fed	Average crop	Very light crop	....	....	Poor crop	Very light	Swedes poor; Turnips good	End of Aug.	Richard Harrison, near Penrith
WESTMORELAND	Average	Average	Average	....	....	Good	Light, but good	Under average	End of Aug.	T. Wilson, Ullswater
	Good	Good	Light	Good	....	Good at present	Generally light	Very promising	Aug. 20 to 25	William Key, Kirkby-Lonsdale
	Thin crop: nearly an average	Average	Average	None	None	Looks well	About half a crop	Average	Sept.	Jonathan Robinson, Warcop
DURHAM	Rather thin	Good	Not very good	Good	Good	Good	Under average	Generally backward	End of Aug.	Robt. B. Dixon, Darlington
	Thin; nearly an average	Average	Under average	....	Very good	Looking bad	Very light	Bad	End of Aug.	George Crofton, Kimblesworth
YORKSHIRE.....	One-third below the average; attacked with red rust	A full average crop	One-third below the average	A full crop, with fair amount of straw	....	Looking remarkably healthy	A light crop; nearly all in good condition	Very healthy indeed, but late	Middle of Aug.	John Outhwaite, Bainesse, Catterick
	Under average	Average	Average	Full average	Average	Very promising	Half a crop, but well got	Swedes failed, or very late	End of Aug.	H. J. Turner, Richmond

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
YORKSHIRE	Scarcely average; red gum and midge	Good	Bad	Good	None	Small tubers owing to drought	Light crop, but well got	Late, but promising; want rain	About second week in Aug.	Peter Stevenson, Rainton
	Below average	Good crop	Below average	Moderate	Moderate	Moderate	Light crop; well got	Good where forward	Aug. 14	Brady Nicholson, Steveton Grange
	Average	Good	Bad	Short in straw; well podded	Bad	Poor crop	Well got, but bad crop	Very bad	Aug. 12	John Clark, Sen., Hessle, Hull
	Prematurely ripening owing to the drought	A good average crop	Poor crop owing to the drought	Fair average crop	Good	Healthy, but small	Short crop, but well got	Turnips very poor	Third week in Aug.	Henry Briggs, Wakefield
	Average	Good	Average	....	. ..	Look well	Light	Turnips bad	Aug. 18	Thos. Taylor, Dorrington
LANCASHIRE ..	Average, and good breadth	Looks well	Good; full average	Above average	None planted here	Look well	A light crop	All look well; Turnips late	In three weeks time	Richard Robinson, Garstang
	Scarcely an average	Decidedly good	Average; short in stem	Excellent	....	Complete success	Very light; well got	Healthy and strong	Middle of Aug.	William A. Ramsay, Parbold Hall, Wigan
	Scarcely an average	Fair average	Below an average	Few grown	Not grown here	Various; not heavy	Half a crop	A few good; more bad	Aug. 20.	G. W. Fowler, Liverpool
	Average crop	Nearly average	Rather light	Very few grown	None grown	Above average	Light	Under average	Last week in Aug.	H. W., Warrington
	Below average	Average	Average	Rather short	None grown	Looking well	Very light	Not well	In about 3 weeks.	R. Bell, Mosbro Hall, St. Helen's
	Short; but average	Short; but average	Short; but average	Very few grown	None grown	Good	Rather light; very well; sound	Very promising	About Aug. 25	Geo. Drury, Holker
LINCOLNSHIRE ..	Average	Good	Light	Good	Very good	Irregular	Very light	Various	Aug. 15	Croft Sharpley, Louth
	Average	Above average	Below average	Very few grown	Very few grown	Bad	Bad	Want rain much	Aug. 8	Francis Sowerby, Aylesby
	Full average	Average; large breadth for the district	Under average	Under average	Over average	Average; no disease; large breadth	Much under average	Mangels bad; Turnips irregular; Coleseed not up	Second week in Aug.	John Algernon Clarke, Long Sutton
	Nearly average	Average	Average	Fair crop	Average crop	Not good; and injured by frosts	Very light	Fair crops but backward; want rain	Aug. 15	William Dudding, Panton House
	Average	Over average	Below average	Average	Average	Good	Short crop	Very deficient	Aug. 10.	W. Fancourt, Aslackby
	Rather thin; but average	Good; on Barley soil	Light crop	Spring Beans light	Good; but few grown	Promising well	Very light	....	Middle of August	James G. Dixon, Caistor
	Under an average	Average	Under an average	Average	Average	Very small	Very light	Bad	Aug. 8.	Edward Darby, Folkingham
DERBY	..	..	Average	..	..	Good; no disease	Under half a crop; well got	Very promising	End of August	Benjamin Swaffield, Hartington
	Suffering from Smother fly	Good	Under average	Under average; dropped without podding	Average	Under average; damaged by frost	Very light	Suffering from the continued drought.	In about three weeks	John Parkin, Idridgehay
NOTTS	Average on good land; very light on thin soils; damaged	Good generally, but on the light soils very bad	But few grown	Not well corned	Good	Damaged by frost; now looking pretty well	Very light	Very indifferent; must be bad unless rain comes	In about 14 days	William Sanday, Holme Pierrepont
* On loam & clay	Good average*	Good average	Good average	Good average	Good average	Good	Light crop; but well got	Potatos good Swedes bad; Mangolds bad	About 1st week in Aug.	C. D., near Southwell
† On light sand	Bad; much under average†	Bad; and under average	Very bad indeed	None grown	None grown	Not grown, only for house	Not half a crop	Swedes very late and backward	About 1st week in Aug.	Ditto
	Very thin, with a deficient ear	Good crop; coarse quality	Short and light	Much under average	Average, but short in straw	Very bad	One-fourth of a crop	Failure	Aug 11	John N. Buckley, Normanton Hill
	Under average	Early sown, very light; late, average	Quite under average; very short	Not grown	....	Suffering from drought	Half a crop	Light land, pretty fair; strong land, very deficient	About Aug. 8	Henry J. Wilson, Newlands, Mansfield
	Very thin	Bad	Very light	Fair	Bad	Fair	Half a Crop	Not good as a rule	Aug. 1	William Chowler, Jun., Newark
	Below average	Average	Below average	Average	Average	....	One-third below average	Below average	Aug. 10	C. Paget, M.P., Ruddington Grange
CHESHIRE	Under an average, injured by insects	Fair average crop	Various	Injured, thinly podded	....	Healthy, early sorts fair crops	Very light, but very good	Very uneven	Aug. 12	W. Palin, Stapleford Hall
	Healthy and promising; about average	But little grown	Short, and light, under an average	Good	None grown	The late kinds promising, early sorts light	One-third short of average	Late deficient, damaged by maggots	About Aug. 18	W. B. Burnham, Spital, near Chester
SHROPSHIRE	One-third below an average, aphis and red gum	Average	Average	A total failure	Good	Good, and free from disease	Very deficient	Generally deficient, attacked by maggot	Aug. 15	Evan Davies, Patton Wenlock
	Good, but not so much as last year	Very good	Fair	....	....	Healthy	Very light	Fair promise on the light soils	Aug. 8.	Pryce W. Bowen, Shrawardine Castle
	Under average red gum very bad	Full average	Very good	Very bad	Fair; but blighted	Small crop	Very light crop; well harvested	Moderate; want more rain	Aug. 8 to 12	Richard Shirley, Bawcott Munslow
LEICESTER	Average crop; but much infested with lice; white is best	Barley on strong land average where early; but late sown bad	Oats very short, and will be very bad in the yield	Beans short of pods	Average	Potatos very hazardous at present	Hay and seeds half a crop; pastures brown and water scarce	Root crops generally bad	Early in Aug.	Francis Spencer, Lutterworth
	Good	Good	Good	Not much grown	Not much grown	Not much grown	Light	Fair	Middle of Aug.	——, Ashby-de-la-Zouch
STAFFORDSHIRE	Under average	Average	Average	Blighted	Good	Deficient	Very light	Prospect bad	Aug. 8	Thos. Byrd, Mytton Manor, Penkridge
NORFOLK	Bare average	Good average	A bad crop	Under average	Fair average	Looking well at present	Very light crop; but well got	Promising; want rain	Aug. 7 to 12	Thomas Brown, Denver, Downham
	Ears defective; slightly under average	Good	Under average	Average	Average	Want rain	Very poor indeed	Various; want rain	About middle of Aug.	Wm. Cubitt, Bacton Abbey
	Under average; thin plant, small ears, some deficient; affected by frost	Good crop; on well farmed land bulky, coarse; on other soils uneven	Not so good as last year	Rather defective; short in straw, and pods few and small	A fair crop; larger breadth than for years past	Rather diseased; early ones indifferent in yield	Hardly a three-quarter crop	Planted moderate	Aug. 8	William H. Taylor, Wymondham
	Average crop here; not above two-thirds of a crop from Peterborough to York	Very good crop here; north part of this country very much scorched, and prematurely ripe	Good; the Fens are a poor crop, much injured by the frost in June and May	None grown here; promise well on the deep land about Lynn	Good; taken up last Thursday and the land ploughed and drilled with Turnips	Good	Very short crop; well secured; seed very short, rain much wanted	Mangel very good; Swedes excellent here; complained on the strong lands of this county	About Aug. 8	John Hudson, Castle Acre Lodge
	Below average	Very good	Bad	Not good	Good	Good	Very bad	Beet good; Turnips bad	Aug. 10	——, Rougham
SUFFOLK	Good upon our best lands; very defective on other soils	Promises well upon all fine cool lands	....	Poor prospect	A large breadth; some not half a crop	Small, but no disease at present	About the lightest crop ever grown	Turnips doubtful; Mangels superb, but wanting rain	Aug. 15	Henry Edwards, Woodbridge
	Much very thin in plant, and light; below average	Upon good lands full average; elsewhere damaged by drought	Partial	Fair but below average	Pretty good upon the cool soils	Very inferior	Less than half an average crop	Mangels suffering; Turnips partial	Aug. 5	Cornelius Welton, Wickham Market
	Good	Good, but prematurely ripe	Few grown	Good, but lousy	....	....	Light crop, well secured	Turnips *n. g.*; Mangels suffering	Aug. 9	Geo. Edwards, Framlingham
HUNTS.....	Somewhat blighted; nearly average	Generally good	Under average	Strong straw; suffering from aphides	Good	A good plant; wanting rain	Good	Mangels good; Turnips indifferent	Aug. 4	Simon A. Daintree, Fendrayton by St. Ives
	Clays, good; gravels, light	Very good	Light	Light	Good	Very small	Light	A failure	Aug. 3	Peter Purves, Brampton

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
NORTHAMPTONSHIRE	Good *	An average	Thin and light	Light	A good average	Promising	Very light	Turnips very bad; Mangels fair	Aug. 3	Peter Love
* On strong land	Quarter below average †	Half average	Half average	Failure	A good average	Promising	Very light	Swedes almost a failure; Mangels fair		Ditto
† On light land	In the Fens above average; on highland thin, but good	On thin soils deficient	Under average	Plenty of plant, not well corned	Good	Good	Short produce	Mangels good; Turnips not good; Coleseed	First week in Aug.	John Whitwell, Peterborough
	Good; full average	About average	Much under average	Very short; badly corned	Average	Healthy, but very small	Half crops; well got	Very bad; almost a failure	Middle of Aug.	T. B. Smeeton, Cromwell House, Naseby
WARWICK	Thin; under average	Full average	Light	Indifferent; blighted	Thin and poor	Small; free from disease	Very light	Turnips a failure; Mangels small	Aug. 4	John Ford, Morton Hall
	Under average	Early sown average; late under average	Under average	Bad	Average	....	Half a crop	Want rain	Aug. 8	J. H. Burbery, The Chase, Kenilworth
	Under average	Full average	....	Under aver.; blighted	Various; under average	Small in consequence of drought	Much under average	Failure; Mangels require rain	Aug. 8	Wm. Gibbs, Stratford-upon-Avon
	Average	Under average	About average	Half an average	Under average	Good, but small	Half an average	Failure; Mangels doing well	Aug. 8	Wm. Aitchison, Berkswell
	On the deep loams and well cultivated clays lands a full average crop;	A very fine crop; beyond an average	....	Much blighted	Early sown good; late sown blighted and bad	Early productive; late look well	One-third of an average crop	Mangels promising; Turnips failed	About Aug. 10	J. C. Adkins, Stratford-on-Avon
	Various	Various	Light	If early, good	If early, good	Good	Very bad	Turnips bad	Aug. 6	W. Gray, Courteen Hall
	Thin, and very much blighted	Full crop, and promising	Well corned, but short in the straw	Winter Beans fail; spring blighted	A full crop	A light crop, but very sound	A very light crop; well got	Turnips a failure: Mangels good	About Aug. 15	W. Dexter, Seckington, near Tamworth
CAMBRIDGE	Good crop; ripening well; full average	About an average; not bulky	Some good; many bad	Badly podded, and full of fly	A full average	Not generally good	On good lands good; seeds light	Mangels a good crop	Aug. 8	Alfred S. Ruston, Chatteris
	Generally thick; deficient in the ear	Good	Moderate	Winter thin, but well podded; spring moderate	Good	....	Short crop	Suffering from want of rain	About Aug. 8	——, West Wickham
WORCESTER	Under average	Very good	Very few grown; good	Short straw and blighted	Early; very good	The early good; the late small	Got well; half the quantity of Grass	Very bad	Aug. 1	Joseph Matthews, Malvern
	Under average	Over average	....	Under average	Under average	Full crops, but small	Very light	Late and thin	Aug. 1	Richard Smith, Droitwich
	Excellent on well cultivated land. Bad on poor soils	Unusually good	Large crop	Early planted, good. Late planted much injured	Late planted, much injured by the green aphis	Early Potatos small but sound; late Potatos sound, but wanting rain	On meadow land, generally good; on uplands, very light	Miserable at present	Second week in August	Henry Hudson, The Elms, near Pershore
HEREFORD	Average	Average	Under average	Under average	Under average	Promising	Under average	Very unpromising	First week in Aug.	Henry Pride, near Monmouth
	Below an average	Below an average	Under average	Under average	Under average	Under average	About half a crop	Very bad	August 1	T. Duckham, Baysham Court, Ross
	Michaelmas planted very good; spring sown light	Good average	Under average; straw short	A good deal blighted	Not good	Early planted good; rest bad	Much under average	Very patchy	August 1	P. N. Edwards, Brinsop Court
MONMOUTH	Bare average	Over average	Under average	....	....	Very promising; all good at present	One-third under average; no after Grass	Healthy, but retarded	Aug. 10	G. R. Greenhow-Relph, near Usk
	About average; aphis	Very good; aphis	Light; aphis	....	....	Promising	Very light	Various; suffering from drought	Beginning of Aug.	W. H. Little, Llanvair Grange
	Average	Good	Light	Blighted	Very light	Average	Very light	Very bad	About Aug. 7	Thomas Beckingham, Monmouth
GLOUCESTERSHIRE	Below an average; thin, but healthy	Early planted an average; late indifferent	Same as Barley	....	Fair, but a good deal blighted	....	Very short, but well made	Swedes a good plant, but suffering from grubs and drought; late planted a failure	Second week in Aug.	J. M. Read, Elkstone
	Good, but thin	Good	Good	Badly blighted	Nearly destroyed	Looking well	Very light	Very patchy	Second week in Aug.	John Cobbam, Berkeley
	Thin, and short in the straw; rather under	Under average	Short in straw; much under average	Variable	Fair; some harvested	Injured by early frost	Very light quantity, but well made	Very defective; suffering from want of	About Aug. 4	Stiles Rich, Didmarton
	Average	Early sown good; late sown bad	Average	Much blighted;	Various	Promising; no blight	One-third of average	Some good, but generally a	First week in Aug.	J. T. H., Frocester
	One-fifth below average	Above average	Various	Below average	Blighted	Very small, but sound	Small quantity, but good	Suffering much from drought	Aug. 5	John F. Peacey, Winchcomb
	Thin, and irregular in height; land below an average	Early sown good; average	Below average; straw very short	Much blighted; under average	Very generally bad; below average	Under average; suffered from dry weather	Unusually light; much below average	Irregular short breadth, much injured by grub	Aug. 4	J. Lynch Fletcher, Royal Agricultural College
	Very variable; barely average of past 12 years	Average; parts ripening prematurely	Under average; few grown here	Considerably underaverage; many blighted with aphis	Barely average; part blighted	Under average; checked by drought	About 2-3ds of crop on low lands; half on uplands	Most unpromising; scarcely any at present	First week of Aug.	Wm. Woodward, North way House, near Tewkesbury
	Some full crop and some under average; thin	Rather under average	Under average	Badly blighted	Much under average	Very small; under average	Well made but much under average	Bad prospect	July 29	Giles Edmonds, Eastleach, Lechlade
OXFORD	Average crop	Average crop	Partial crop	Very bad; spring pretty good	Good	Good but small	Very short crop	Bad	Aug. 9	Richard Page, North Nowington
	Good on strong soils; under average on light land	Very good	Short and under average	Average	Under average	Small; healthy	Short crop; well secured	Very bad	Aug. 10	Matthew Savidge, Sarsden Lodge Farm
	Average	Under average	Bad	Bad	Bad	Under average	Much under an average	General failure, except of Mangels	Aug. 1	Saml. Druce, Eynsham
BUCKS	Average	Under average	Under average	Not over average	Not over average	Under average	Good and well got	Mangel good Turnips bad	Aug. 7	Edward Evans, Windsor
	Under average	Average	Under average	Under average	Average	Look well	Half a crop	Bad	Aug. 2	W. Smith, Woolston
	Below average	Much below average	Generally inferior	Diseased bad	....	Average	Short crop	Nearly a failure	Aug. 1	Alexander Fraser, Clayden, Winslow
	Below an average.	Fair on clay, bad on light soils	Very much below an average	Blighted; below average	About an average	Good	Very light on uplands; good in meadows	Mangel very indifferent; scarcely any Swedes	Aug. 8	W. G. Duncan, Bradwell, Stony Stratford
BEDS.	Average	Average	Not average	Not average	Average	Good	Light	Bad	Aug. 7	William Lavender, Biddlesham
	Not full plant but exceedingly good ear; many ears 5-set, ripening well, and every prospect of a good	A good crop on all soils, but the hottest gravels; quality is not likely to be good	Scarcely any grown about here; what we have, very light	Short in straw and not so promising now as a week or two ago	A very good crop	A great breadth planted, but the tubers at present very small	A good crop and well got	The Mangels and Kohl Rabi where early, good crop; Turnips very backward,	4th to 6th Aug.	T. E. Pawlett, Beeston Sandy
	Quite average on heavy land	Generally good	Indifferent in places	Gone off very much the last few days (fly)	Not average	Fair yield where sown early	A great deficiency; meadow average crop	Very bad indeed	Aug. 4	John Howell, Stevington

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
HERTS.	Over average	Over average	Over average	Much blighted	Fair crop	Very good; no disease	Clover bad; meadow average	Very backward	Aug. 8	John Bennet Lawes, Rothamsted
	A good crop	A good crop, ripening prematurely on gravels	Short straw, light cut	....	Injured by green-fly; indifferent	No complaint	Very slight crop; well got	Unpromising	Aug. 1	George Webb, Redbourn
MIDDLESEX	Red, average; White under	Average	Under	Very bad	....	Under	Average	Wurzel, good plant; Swedes, partial	Aug. 1	Thomas Hewitt, Cranford
ESSEX	Average on clay soils; one-third below on light gravelly soils	Above average; very good	Not average	Not average; infested with collier	Half a crop; damaged by aphis	Free from disease, but tubers small; not average	Well got up, but a light yield	Mangels various; Swedes, a great failure; Turnips, none	Aug. 1 to 7	Henry Dixon, Witham
	Below average	Good	About average	Under average	Light	Small, but good	Short; got well	Turnips short; Mangels good	Aug. 4	A. Barfield, Great Dunmow
	A very defective crop; at least 12 bushels per acres below last year	Scarcely an average crop, especially late sown, and ripening prematurely	Bad generally	Winter, a failure; spring, late sown much blighted	Generally light	Bad; very small	Short crop	Mangel Wurzel generally good; suffering dreadfully	Aug. 1	Wm. Fisher Hobbs, Boxtead Lodge, Colchester
	Much under average	Average	Under average	Under average	Average	Half crop	Short, but good	Turnips, failure; Mangels, good	Aug. 1	A. Hardy, Sen., Maldon
	Good	Excellent	Three-fourth of a crop	Half a crop	Half a crop	Half a crop	Three-fourths of a crop	Half a crop	Aug. 5	Collinson Hall, Romford
	Near average	Over average	Under average	Average	Under average	Good, but small	Failure	Mangel good; Turnips bad	Aug. 2	J. J. Mechi, Tiptree Hall
SURREY	General appearance good; but some prematurely ripe, and root-fallen	Good, over average	Crops light	Very much blighted	Early sown, fair crop; late sown, very bad	Suffering from drought, tubers very small	Very light indeed, well secured	Mangel looking well, dry, Swedes injured by grub, Turnips failure	Aug. 1.	Edward Hilder, Woking
	About 8 bushels under an average	Early sown, an average, but late sown under an average	White an average crop; Black very short	Nearly a failure, attacked by dolphin	Same as Beans	Good, but very small, about two-thirds of an average	Short crop, but well secured	Nearly a failure	Aug. 1	William Willis, West Moulsey
	Average, very blighted in many places	Good	Short, well corned	None grown	An indifferent crop	Earliest very small; late look healthy	Short crop	Mangels promising; Turnips most miserable	Aug. 4.	James Arnot, Woodcote, Carshalton
BERKS	Under average	Under average	Under average	Short crop	Very bad	Sound but small	Short crop; got up well	Unpromising	Aug. 2	John Adnams, Thatcham, near Newbury
	Various; hardly average	Burnt up on all light lands	Same as roots	Dwarfed; blighted	Half crop	One-fourth crop	Bad	Never worse	July 27	James Williams, Abingdon
	Scarcely average	About average	Under average	Very bad; blighted	Very much blighted	Exceedingly variable; very small	Very deficient	Very variable	Aug. 1	Thos. Owen, Hungerford
	Barely average; blight appearing more or less	Early, good; late bad	Early fair; late bad	Blighted very seriously	Blighted very badly	Good, but not large crop	Short in quality; well made	Suffering for want of rain	Aug. 4	E. W. Moore, Coleshill
	Average	Average	One-third less than average	Complete failure	Under average	Half an average	Very good in quality; half a crop	Very bad	Aug. 4	Stephen M. Plummer, Peasemore
SOMERSET.....	Good	Very good	Average; straw light	....	....	Excellent	Under average; well got	Turnips very good	Middle of Aug.	John B. Collyns, Dulverton
	About average; burden light, but yield good. Crop bad on poor clays and badly farmed lands. Spring sown bad for want of rain	Early sown good; late sown bad: on the whole, average. The "stiff straw," a new sort to the neighbourhood, is very bad	A poor crop	Winter Beans are partially good; Spring Beans will be a failure	In most cases cut and made into fodder	Early planted good appearance, but the late ones very bad	A light crop; good	The root crop will be very bad; the early Mangel and Swedes have done pretty well	Aug. 3	Walter Farthing, Stowey Court, Bridgewater
WILTS	Average	Average	Early heavy; late light	A failure	....	Average	Sainfoin good; others light	Good plant, now suffering	Aug. 8	Thomas Chandler, Aldbourne
	Average	Early good; late indifferent	Average	Total failure	Blighted	Good	Short, but good quality	Backward	Aug. 9	J. Pearce Brown, Burderop
	Full average	Average	Under average	Injured: aphis and drought	Moderate	Moderate; good	Under average	In want of rain	Aug. 1	Thomas Arkell, Swindon
	Good average	Good average	Good average	Very much blighted	Very much blighted	Not half a crop	Very light; made well	Very backward	Aug. 9	G. Brown, Chippenham
	Good	Good, except late sown	Average	Much blighted	Very bad	Plenty, but small	Short crop	Very bad	Aug. 1	——, Wilton
	Average	A full average	Below average	Decided failure	Two-thirds of average	Sound and good	Deficient, but good	Mangels good; Turnips bad	Aug. 1	Joseph Stratton, Manningford Bruce
KENT	Good average	The best crop for many years	Not half a crop	Under an average	Not half an average	Not half the crop of last year	Not half a crop	Very bad	Aug. 1	R. Matson, Wingham
	An average crop	Above an average	Three-fourths of an average	Half an average	An average	Early Potatos small	Well secured, but light	Good, but suffering	Aug. 3	Wm. Manser, Dumpton
	Average	Average	Short straw	....	Good crop	Looking well	Short crop	Looking well	Second week in August	M. Sandford, Martin, near Dover
SUSSEX	Average	Average	Under average	Much under average	Much under average	....	Half average crop	Inferior	Aug. 1	H. Scott Hayward, Folkington
	Average	Average	Early sown good; late sown light crop	Not grown	Blighted	Dried up, but free from disease	Generally light; well made	Mangel generally patchy; Turnips backward	Aug. 1	H. E. Sadler, Mid Lavant, Chichester
	Early sown average; late sown thin and under average. Some drought-ripe	Early sown average; late sown under average	Early sown average; late sown far under average. Straw 12 inches high	Early sown average; late sown under average	Bad; far under average	Healthy; average	Short, but well got	Suffering; Mangels bad; Turnips destroyed	Aug. 1	Fred. F. Hallett, The Manor House, Brighton
	Not average	Very little grown	About average	Average	Below average	No blight	Short crop	Poor crop	About Aug. 8	John Brotherston, Robertsbridge
	About average	Average	Under average	Bad	Very bad	Short crop; sound	Bad crop	Bad	First week in Aug.	James Eames, Lynch, Midhurst
HANTS.....	Full average	Over average	Under average	Inferior	Under average	Small, but healthy	Deficient, but good	Very bad	Now general	John T. Twynam, Winchester
	Under average	Under average	Under average	Under average	Under average	Average	Light crop	Great failure	Aug. 1	Joseph Blundell, Bursledon, Southampton
	Good average on the best land; inferior on very light and on wet land	Above average	Early sown good: late sown very short	Much under average	Under average	A light crop	A light crop; well secured	Suffering very much for want of rain	Aug. 1	Hugh Raynbird, Basingstoke
DORSET	Full average, and quality promises to be fine	Early sown good; late thin and small	Nearly an average, but short	Bad	Many very bad	Small, but sound	Short crop	Turnips half up; Mangels poor	Aug. 3	Robert Damen, Dorchester
	Full average	Early heavy; late sown very light	Average crop	None sown	Much lighter, and not half a crop	Fair crop;	Middling cut, and made well	Mangels middling; Swedes want rain; Turnips, grub worm	Aug. 3	Thomas H. Saunders, Watercombe
	Average	Above average	Above average	Blighted	Very blighted	Good	Very good	Uneven; want rain	Aug. 3	William T. Pope, Bridport
	Over average	Full average	Average	....	Bad	Very good	Excellent, but short	Under average	Aug. 4	W. J. Voss, Corfe Castle
	Good	Good	Good	Bad	Bad	Good	Half crop; well saved	Middling	First week in August	J. Furmedge, Beaminster
DEVON.....	Above average	Above average	Average	None grown	None grown	Good	Very light	Good	Aug. 5	——, near Totnes
	Average; straw short	Average; straw short	Under average; straw short	....	....	Very good; no disease	Very light but well got	Patchy, but now improving since the rain	Aug. 8	John Benson, Taviatock
	Bare average; ripening; a good colour	Early good; late inferior	Deficient	....	....	Finer than for many years	Light; well saved	Turnips good; Mangel irregular	Aug. 8	P. Cowan, Tawstock Manor, Barnstaple

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
DEVON.....	Early sown average; spring sown much under average	Early sown average; late sown bad crop	Bad crop	Bad crop	Quite a failure	Promise fairly	About half a crop	Not very promising	Aug. 1	George Turner, Beacon Downes
	Under average	Over average	Average	None	None	Good crop; no disease	Light crop	Good	Aug. 7	George Langdon, Ashford, Barnstaple
	Above average	Above average	Deficient	....	....	Average and healthy	Very deficient	Indifferent	Aug. 8	Samuel Cornish, near Kingsbridge
	Crops excellent	Good	Average	None	Bad	Good	Slight; good	Roots good	Aug. 5	Lamoureux & Clark, Plymouth
CORNWALL	Fair average crop	Various but average crop	Below average	....	....	Good	Not half; but well got	Promising	Aug. 1	James Wills, Southpetherwyn
	Above average	Average	Average	....	....	Above average	Very deficient	Average	Aug. 1	T. Davey Simmons, Killiganoon
	Above average	Average	Average	....	....	Good	Thin and light	Good	Aug. 5	John Michell, Tregoose, Truro
WALES.										
CARMARTHEN ..	Good; average	Average; short straw	Average; short straw	....	....	Splendid	Half a crop	Good; average	Aug. 8	John Muscott, Jun., Laugharne
	About average; a few pieces already commenced cutting	Good; average	Fair	....	....	Look promising	Very light crop	Looking well	About middle of Aug.	John Burnell, Llanelly
IRELAND.										
LONDONDERRY ..	Little sown; average	None	Short; under average	None	None	Good	Light; 3-4ths crop	Promising	Sept. 20	C. Pollock, Magherafelt
DOWN	A fair average with a slight speck of rust	Very short; inferior in quality	Winter good; spring very bad	Good quantity	Scarce and very bad	Good; average	About half a crop	Turnips very bad	Aug. 20	W. M'Cleery, Portaferry
ANTRIM	Good	....	Average	....	Not average	Average	Light	Average	Sept. 8	Jno. Burniston, Randalstown
ARMAGH	Very good	Good; little sown	Ears well filled; short in straw	Very good	....	Good crop	Light crop	Very good	Last week in Aug.	Wm. Boyd
	Very good	....	Very productive	None sown	None	Very good	Light crop	Good	End of Aug.	Robert Boyd Hardy, Cooley Hill
LOUTH.....	Looks well; not much extent	Very good	Very good	Little or none here	None	Very good	Over average	Looking very well	End of Aug.	William McCulloch, Dundalk
ROSCOMMON	Good	Good	Light	....	....	Very good	Short and light on uplands	Good	Sept. 10	John Kelly, C.E., Brook Lodge
WESTMEATH	Good	Average	Good	....	....	Very good	Short	Middling	Aug. 20	W. Newburn, Mullingar
TYRONE	Thin	None	Good	None	None	Good	Half a crop	Very good	Sept. 1	W. Paterson, Pubble Lodge
LEITRIM	None	None	Good appearance	None	None	Very promising	Average crop	Very good	Sept. 10	James Lindsay, Ballyglass Cottage
FERMANAGH	Very good	Good	Very good	....	.. .	Very good	Very bad	Good	End of Aug.	Andrew Mair, Brookeborough
CAVAN	Not grown	Not grown	Now looking well	Not grown	Not grown	Excellent; never were finer	Under an average, but well got	Not very good	End of Aug.	Thomas Chambers, Bailyborough
	....	....	Late short; early very good	None	None	Very fine	A very light crop	Swedes good	End of Aug.	J. Albert Nesbitt, Belturbet
LONGFORD	....	....	Very good	....	....	Very good	Light	Bad	Aug and Sep.	J. M. Goodriff, Granard
CLARE.....	Average	Much under average	Much under average	....	....	Sound, but small	About half a crop	Very bad	Aug. 15	Edward Bennett, Newmarket-on-Fergus
	Good	Average	Short	None	None	Excellent	Fine	Want of rain	Aug. 10	J. Digan, Killaloe
KILKENNY	Very good	Average	Bad; short in straw	None	....	Very good	Average	Average	Aug. 10	Dawson A. Milward
	Average	Average	Light	....	....	Under average	Under half average	Very bad	Aug. 10	Patrick Grace, Freshford
CARLOW.....	Good	Very good	Very poor	....	....	Not so good as last year	Very bad	Fair	Aug. 20.	——, Clonegal
WEXFORD.....	Good	Very good	Early, good; late, short	....	....	Not so good for 20 years	Early, good; late, very bad	Early crops of Turnips good; late, very poor	Aug. 15	George Glascott, J.P. Camolin
KERRY	Very good	None	Good, but short	None	None	The best since 1846	Short	Indifferent	Aug. 20	J. O. Sullivan, P.P. and V.G., Kenmare
	Average	Good	Good	....	....	Very good	Light crop	Good	About Aug. 25	John Creagh, Tarbert
TIPPERARY	....	....	Very good	....	....	Very good	Below the average	Below the average	Aug. 15	R. D. Bolton Massy, Ballywire
	Good	None	Good	....	....	Good	Good	Good	Aug. 20	Wm Ryall, Cashel
CORK	Very good	Good	Good; straw short	....	....	Very good; but small	Very poor crop	Very bad	Aug. 1	D. Clanchy, D.L., Charleville
	Good; injured by insects	....	Very short in straw	....	....	Under average	Under average	Very bad	Aug. 10	James Byrne, Shanballymore
	Good	Average; little grown	Under average and short	....	....	Very small but sound	Very light	Not promising to be good	Aug. 8	F. A. Twiname, Kanturk
	Good	....	Short	None	None	Small	Short	Small	September	Sam. Piddell, Kildorrery

Home Correspondence.

Crops at Ridding's Hill, Farnsfield, Southwell, Notts.—I duly received your note of inquiry about crops in this locality, and have filled in the sheet and return to you by this post; but I ought to explain that this farm is a fine deep loam, and a very productive soil. Now last year (1863) my Wheat crop nearly averaged six quarters per acre, and White Canadian Oats 14 quarters per acre, and other crops in like proportion, and all of excellent quality; but this year I feel sure will not be near so good a yielding year—but the soil to the north and east, and also to the west of this farm for many miles is various, from good sand to forest land, that is very light, and in some places "blow-away sand"—on that class of soils all the grain crops are very bad indeed; in some parts there are many acres of Wheat and Barley that are not more than four to six inches high at this time, and will not pay to cut; the hot dry summer is the cause of these bad crops; the seeds (farms on these soils have only a few acres of Grass, and on forest not any), are quite bare of herbage; the Turnips are a regular plant, but very late and backward indeed, they are just busy striking out and singling Swedes; the farms from this village (Farnsfield) to Mansfield, a distance of eight miles, were only a very few years ago a portion of the old Sherwood Forest, and grew only Gorse, Ferns, and Ling, and supported a few rabbits; nearly the whole of the forest is now enclosed, and grows good crops of Turnips, keeping thousands of sheep, and after that good crops of Barley, and seeds, and Wheat. It is managed on the 5-course, thus:—Turnips, Barley, seeds (pastured), seeds (ditto), and Wheat. Bones are used to a great extent, and Linseed cake to fatten the sheep. The occupiers on the above farms are getting money fast. Just the soils for Turnips and sheep. Now, the soil to the S., S.E. and S.W. of this farm is clay, in some parts good clay, and in others a poor, weak, wet, hungry soil. On the good clay all the Grain crops are good, but not so good as last year; the Beans are very good, much better than they have been for several years past. The Turnips are bad; fields present a very patchy appearance, and at a distance look more like summer fallows than land sown with Swedes; very few Mangels are now grown, and they are looking healthy, but small and backward. On my farm all my grain crops are very good; Hay and Clover good, quite an average crop of hay, and the Clover above average. Pastures are brown, but still plenty of food for stock. I ought to tell you that this farm is "high-farmed," and being in very good condition and clean, the dry summer has not hurt it. *C. D.*

Somersetshire Crops.—Wheat below an average; Barley, early sown on good soils, good, otherwise poor; Beans, various; Peas, bad where grown; Potatos, short but healthy; Hay, light but good; Root crops, bad; Mangels came badly; Harvest will be general in the beginning of August. *Charles Frederick Perkins, Kingston, near Taunton.*

Caution to Farmers and Riflemen.—Believing that the public should be made acquainted with the undermentioned facts I shall feel obliged by your kindly inserting this letter in an early impression of your Journal. In May last three cows, the property of Mr. Mullins, of Rugby, died, after exhibiting symptoms which could not be referred by Mr. Watson, the veterinary surgeon consulted, to any disease with which he was acquainted. On making a *post-mortem* examination of the cows, fragments of lead were found in their alimentary canals, especially in the reticuli or paunches. It was then remembered that the whole of the cows affected, although they had from November, 1863, up to the period of their death in May last, been pastured at a distance from the butts of the Rugby Rifle Volunteer Corps, had, prior to November, 1863 been kept in a field immediately adjoining those butts. This field was carefully examined by Mr. Watson, and among the herbage he discovered fragments of lead which corresponded in every way to those found in the stomachs of the cows. Now the lead here referred to is that which had been scattered from the targets consequent upon the impact of bullets, and is called "bullet spray." Some of this spray had been evidently picked up by the cows while feeding; it remained in their stomachs several months, where, during that time, it slowly, but continuously, underwent solution and subsequent absorption into the system, and so doubtless poisoned the animals in question. Since the death of the three cows, the owner has lost two more under precisely the same circumstances as those already related. The viscera of one of the cows which died last were sent to me for analysis, and I was enabled to demonstrate the presence of lead, not only in the coats of the stomach and intestines, and in their contents, but likewise in the liver and kidney, thus proving the passage of that poisonous metal into the circulation. I also had an opportunity of examining the bullet-spray, which enabled me to ascertain that most of it was encrusted with a pale drab-coloured substance, composed chiefly of carbonate of lead, a highly poisonous plumbic compound. It was this carbonate of lead which, I believe, more immediately caused the

death of the cows. Such, sir, is an epitomised statement of the facts in my possession, which appear to me of sufficient importance to occupy a nook in your Journal, as a knowledge of them may, I trust, induce owners of stock and commanders of rifle corps to take precautionary measures against the occurrence or recurrence of losses similar to those recorded in this communication. *Richard V. Tuson, Professor of Chemistry in the Royal Veterinary College, July 27.*

Steam Cultivation on Heavy Land. — One great advantage to be derived from the use of the steam cultivator to the farmer on clay soils, is the power and facility it gives him to set out a certain amount of work to be done in a given time. Many circumstances may arise which may render it desirable on his part, so to modify or alter his customary rotation of cropping (not for the pernicious and disreputable practice of cross cropping—my meaning is very far removed from that), but for the purpose of renovating and improving his land by devoting a larger acreage to the growth of Grass and roots for cattle feeding, and thereby enabling him to grow a larger amount of corn upon a reduced number of acres. To attempt this, however, with his ordinary working staff of horses, &c., would at any time be a doubtful proceeding. He knows perfectly well that he keeps no more cattle than just sufficient or hardly that to get his seasons completed in proper time and in a proper manner, and hesitates before altering a system that has worked as he thinks tolerably well, and so, whatever his ideas may be about altering his rotation, he is compelled to stand still in the old track or custom. It is then in such a case as this that the mighty aid of steam-power comes in, and awaits, like a willing giant, obedient to do his will. He may now look with delight and pleasure upon a soil that has so much troubled him with its stubborn and adhesive character, and give up all idea of pounding and battering down the same with heavy rollers and clod-crushers in vain and useless attempts to obtain a seed bed, but by one deep and thorough cultivation at the right time, and consequently in a proper manner, open up the soil to the all powerful yet ever varying agencies of nature. This fact cannot be too much impressed upon the clay land farmer, viz., that he is graciously permitted, if I may so term it, to make use of the weather by keeping his work well forward, or in advance of the season—but once caught, as many can testify to their cost, by adverse weather with work behind, it becomes a punishment of relentless severity. Half the labour that is commonly spent upon a clay soil is very often spent in vain. There they go morning after morning, three or four costly teams of cattle with their ploughmen, &c., and at such a pace! to turn over once more the shallow strip of soil that has been turned over for ages past, and lying upon a subsoil literally case-hardened. I have heard it said by practical men that this bottom, impervious alike to air and water, must not be broken up, and if no outlet existed for the rainfall, this would probably be right to some extent; but what is it that constitutes or helps to make the great fertility that we find upon some of our very shallow soils, whose subsoil is porous as chalk for instance. Is it not owing to a very considerable extent to the free action of the rainfall and of the atmosphere? It is this free action that we must endeavour to introduce in our heavy soils, and there is no doubt whatever that steam is the power for such action, and more effectually so by the cultivator than by the plough, and I may add that the best field of roots I am likely to have this year, has been cultivated only by "Smith's" No. 3 and 4 implements, and not been ploughed at all. *Wm. Simmonds.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, August* 3, 1864.—Present:—Thomas Raymond Barker, Esq., Vice-President, in the chair; the Hon. Major-General Hood, Sir A. K. Macdonald, Bart.; Mr. Amos, Mr. Barnett, Colonel Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Milward, Mr. Randell, Mr. R. Smith, Mr. Torr, Mr. Wells, Mr. Frere, Prof. Simonds, and Dr. Voelcker.

Finances.—The Hon. General Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on July 30 was 9781*l.* 2*s.* 6*d.* After payment of the expenses connected with the Newcastle Meeting, there will probably remain a surplus of 1000*l.*

Prize Essays for 1865.—Mr. Holland, M.P., presented the following list of subjects proposed for competition, which was agreed to:—

Subjects for Prize Essays for 1865.

1.	Agriculture of Leicestershire	£50 0
2.	Increase of sheep stock on strong as well as light land	25 0
3.	Short history of rise and progress of Short horns	25 0
4.	Comparative profit of making cheese, butter, or grazing stock on pasture land of various qualities	25 0
5.	Improvement of the water supply in rural parishes for agricultural and domestic purposes	20 0
6.	Comparative cheapness and advantages of iron and wood in the construction of roofs for farm buildings	20 0
7.	For the best account of the reclamation of waste or inferior land by marling or dry warping	20 0
8.	Any other agricultural subject	10 0

Newcastle Meeting.—On the motion of Mr. Milward a special vote of thanks was accorded to the directors and officers of the North-Eastern Company for their endeavours to promote the success of the show, which was carried unanimously.

Agricultural Education.—Mr. Holland, M.P., Chairman, reported that the Committee recommended that 50*l.* be offered by the Council for a prize essay on Middle Class Education, the essay to be delivered in with the other prize essays in March, 1865, and its adjudication to be left to the Committee. This was agreed to.

General Plymouth Committee.—Letters having been received from the Local Committee at Plymouth relative to the Show-yard, the Committee recommended that Mr. Randall and Mr. Torr, members of the late Inspection Committee, be requested to go down to Plymouth to arrange with the Local Committee the boundaries of the show-yard and levelling the fences as proposed and offered to the Society by the authorities of Plymouth.

On the motion of Mr. Fisher Hobbs a committee, consisting of the Hon. General Hood, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Milward, Mr. Randall, and Mr. Torr, were appointed to consider the Country Meeting Queries, and to report in December.

A letter was read from the Foreign Office, inclosing an extract from a report which has been received from H.M. Consul at Dunkirk, of which the following is a copy:—"Mons. Vandercolne, the corresponding member of the Society of Agriculture, informs me that he has found means to drain effectually by the use of a simple pipe, the expense of which one season's good crop would repay. He thinks that the expensive method of tile draining will be totally abolished in a few years. The prospect for the harvest of 1864 is not cheering; in consequence of the prevalence of cold winds during spring and long continued drought, every species of grain and farm produce is unusually backward, and a late and scanty harvest is very much feared. A singular contrast is to be remarked with regard to fruit trees; no such promise of fruit is remembered; this is attributed to the absence of frost, and to the bright sunny weather which prevailed notwithstanding."

The usual leave of absence was granted to the Secretary, and the Council then adjourned over the autumn recess to Wednesday, the 2d of November.

HIGHLAND AND AGRICULTURAL.

The Stirling Show of the National Agricultural Society of Scotland during the past week has proved one of the most successful meetings it has ever held.

The Show-yard was fitted up in the King's Park to the south of the Castle and Town, one of the finest situations in the country. The placing of implements commenced on Thursday the 28th, and the placing of stock on Saturday the 30th ult. The whole of the preliminary arrangements were completed on Tuesday morning, and the judges commenced their labours shortly after that hour. The classes of Short horns, Polled Angus, and Highland Cattle, and of Blackfaced sheep were of special excellence. The horses are believed to have been the best collection that ever was brought together in Scotland. The Classes of Mares were of especial merit. More than 200 Clydesdales were exhibited.

The following is the Prize List:—

Class I.—CATTLE.

Short-horn Breed.

The Medium Gold Medal to Bull "Forth," winner of the 1st prize at Kelso, 1863, belonging to Amos Cruickshank, Sittyton.

The Medium Gold Medal to Bull "Cherry Duke 2d," winner of the 1st prize at Edinburgh, 1850, belonging to Lord Kinnaird, K.T.

For the best Bull, calved before 1st Jan. 1862, (25 entries).—1st prem. 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, T. H. Binning, Home of Argaty; 2, Viscount Strathallan; 3, David Ainslie, of Cosren.

For the best Bull calved after 1st Jan. 1862, (16 entries).—1st prem. 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, James Douglas, Athelstaneford; 2, Thomas Mellis, Manor House, Bedale; 3, Lord Kinnaird.

For the best Bull calved after 1st Jan. 1863, (10 entries).—1st prem. 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, The Duke of Buccleuch; 2, Arthur James Balfour of Whitenbarn, Prestonkirk; 3, Viscount Strathallan.

For the best Cow of any age, (16 entries).—1st prem. 15*l.*, 2d, 8*l.*, 3d, Bronze Medal. 1, A. & A. Mitchell, Alloa; 2, John Bowstead, Penrith; 3, George Robertson Barclay of Keavil, Dunfermline.

For the best Heifer, calved after 1st Jan. 1862, (12 entries)—1st prem. 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, William Lambert, Haydon Bridge; 2, Jaffray Barcroft, Killioggit House, Dublin; 3, Arthur James Balfour, Viscount Strathallan.

For the best Heifer, calved after 1st Jan. 1863, (16 entries).—1st prem. 8*l.*; 2d, 4*l.*; 3d, Bronze Medal. 1 and 2, A. & A. Mitchell, Alloa; 3, James Douglas.

Polled (Aberdeen or Angus). 40 Entries.

The Medium Gold Medal to Bull, "Fox Maule," winner of 1st prize at Kelso, 1863, belonging to Robert Walker, Portlethen, Aberdeen.

The Medium Gold Medal to Cow, "Fair Maid of Perth," winner of the 1st prize at Edinburgh, 1859; and Medium Gold Medal at Perth, 1861, belonging to William M'Combie, Tillyfour.

The Medium Gold Medal to Cow, "Charlotte," winner of 1st prize at Inverness, 1856, belonging to William M'Combie.

The Medium Gold Medal to Cow, "The Belle," winner of 1st prize at Aberdeen, 1858, belonging to William M'Combie.

The Medium Gold Medal to Cow, "Pride of Aberdeen," winner of 1st prize at Dumfries, 1860, and Battersea, 1862, belonging to William M'Combie.

The Medium Gold Medal to Cow, "Mayflower," winner of 1st prize at Perth, 1861, belonging to William M'Combie.

For the best Bull, calved before Jan. 1, 1862.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, Alex. Paterson, Keith; 2, Mr. James H. Burnett, of Leys, Crathescastle, Aberdeen; 3, John Hepburn, Kirkcaldy.

The Silver Medal to the breeder of the best Bull.

For the best Bull, calved after Jan. 1, 1862.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, Wm. Goodlet, Boisban, Arbroath; 2, Robert Walker, Portlethen; 3, Robert Walker, Montbletton, Banff.

For the best Bull, calved after Jan. 1, 1863.—1st prem., 10*l.* 2d, 5*l.*; 3d, Bronze Medal. 1 and 2, James Leslie, Blairgowrie; William M'Combie, Tillyfour.

For the best Cow of any age.—1st prem., 15*l.*; 2d, 8*l.*; 3d, Bronze Medal. 1, 2, and 3, Wm. M'Combie.

For the best Heifer, calved after Jan. 1, 1862.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, Robert Walker, Montbletton; 2 and 3, the Earl of Southesk.

For the best Heifer, calved Jan. 1, 1863.—1st prem., 8*l.*; 2d, 4*l.*; 3d, Bronze Medal. 1 and 2, William M'Combie; 3, Lord Kinnaird, K.S.

Polled (Galloway). 28 entries.

The Medium Gold Medal to Cow, "Semiramis," winner of the 1st prize at Kelso, 1863, belonging to James Graham, Meikle Culloch, Dalbeattie.

For the best Bull, calved before Jan. 1, 1862.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, Samuel Thomson, Blaiket, Crocketford, Dumfries; 2, William Keir, Whithall, New Castleton; 3, Alexander Jardine, Lockerbie.

The Silver Medal to the breeder of the best Bull.

For the best Bull, calved after Jan. 1, 1862.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. W. & R. Callendar, Dalquhairn, Dumfries.

For the best Bull, calved after Jan. 1, 1863.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. John Cunningham, Whitecairn, Dalbeattie.

For the best Cow of any age.—1st prem., 15*l.*; 2d, 8*l.*; 3d, Bronze Medal. 1, the Duke of Buccleuch; 2, James Graham, Dalbeattie; 3, John Cunningham, Whitecairn.

For the best Heifer, calved after Jan. 1, 1862.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, Wellwood Maxwell of Glenlee, New Galloway; 2, James Graham; 3, Robert Jardine, Balgray.

For the best Heifer, calved after Jan. 1, 1863.—1st prem., 8*l.*; 2d, 4*l.*; 3d, Bronze Medal. 1, James Cunningham, Dalbeattie; 2 and 3, Wellwood Maxwell of Glenlee.

Ayrshire (132 Entries).

The Medium Gold Medal to Cow, "Collyhill," winner of 1st prize at Edinburgh, 1859, and Medium Gold Medal at Kelso, 1863, belonging to the Duchess Dowager of Athole.

The Medium Gold Medal to Cow, "Premium," winner of 1st prize at Glasgow, 1857, and Medium Gold Medal at Kelso, 1863, belonging to the Duchess Dowager of Athole.

For the best Bull, calved before Jan. 1, 1862.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, John Stewart, Strathaven; 2, the Duchess Dowager of Athole; 3, W. A. M'Lauchlain, Auchintraig.

The Silver Medal to the breeder of the best Bull.

For the best Bull calved after Jan. 1, 1862.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, Arch. Ballock, Milliken, East Kilpatrick; 2, John Brown, Stewarton; 3, John Stewart, Burnside, Strathaven.

For the best Bull, calved after Jan. 1, 1863.—1st prem., 10*l.*; 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, John Parker, Broomlands, Irvine; 2, Jas. Kay, Hill Sconn, Gargunnoch; 3, James Frew, Balmalloch, Kilsyth.

For the best Cow in milk, of any age.—1st prem., 10*l.*; 2*l.*; 5*l.*; 3d, Bronze Medal. 1, The Duke of Hamilton and Brandon; 2, Robert Wilson, Nether Johnstone, Kilbarchan; 3, the Duchess Dowager of Athole.

For the best Cow in calf, of any age.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1 and 3, the Duke of Hamilton; 2, the Earl of Strathmore.

For the best Heifer, calved after Jan. 1, 1862.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, Sir Graham Montgomery; 2 and 3, the Duke of Hamilton.

For the best Heifer, calved after Jan, 1, 1863.—1st prem., 8*l.*; 2d, 4*l.*; 3d, Bronze Medal. 1, John Parker, Broomlands; 2 and 3, the Duke of Hamilton.

Highland. 51 entries.

The Medium Gold Medal to Bull, "Duntroon," winner of the 1st prize at Perth, 1861, and Battersea, 1862, belonging to John Malcolm, of Poltalloch, Lochgilphead.

The Medium Gold Medal to Cow, "Rosie," winner of the 1st prize at Kelso, 1863, belonging to the Duke of Athole.

The Medium Gold Medal to Cow, winner of the 1st prize at Perth, 1861, belonging to Donald M'Laren, Corrychrone, Callander.

The Medium Gold Medal to Cow, "Shuna, winner of 1st prize at Battersea, 1862, belonging to John Malcolm, Poltalloch, Lochgilphead.

For the best Bull, calved before Jan. 1, 1861.—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, James Gordon, of Manar, Keithhall; 2d, Duncan Stewart, Monachoyle, Lochearnhead; 3, Archd. Stewart, Claigan, Dunvegan, Isle of Skye.

The Silver Medal to the breeder of the best Bull, the late Marquis of Breadalbane.

For the best Bull, calved after Jan. 1, 1860.—1st prem, 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, The Duke of Athole; 2, Alex. M'Donald, Ballochallan, Callander; 3d, Geo. Campbell, Ardifuir, Lochgilphead.

For the best Bull, calved after Jan 1, 1862.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, Robert Lawrie, Fincharn, Ford, Lochawside; 2, Mrs. Ewing, Strathleven House, Dumbarton; 3, Allan Pollock, Ronachan, Clachan, Cantyre.

For the best Cow of any age.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, John Malcolm, of Poltalloch, Callton Mor, Lochgilphead; 2d, The Duke of Athole; 3, Donald M'Laren, Corrychrone, Callander.

For the best Heifer, calved after Jan. 1, 1862.—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, John Malcolm, of Poltalloch; 2 and 3, The Duke of Athole.

For the best Heifer, calved after Jan. 1, 1862.—1st prem., 8*l.*; 3d, 4*l.*, 3d, Bronze Medal. 1 and 2, Allan Pollock; 3, John Malcolm.

Brittany.

J. E. Paterson, Linlothen, Broughty Ferry, Bull, age 3 years and 2 months, bred by Mr. Lindsay, Broughty Ferry.

Class II.—HORSES.

For Agricultural Purposes.

Medium Gold Medal to No 398, Stallion, "Sir Walter Scott," winner of the 1st prize at Dumfries, 1860, belonging to the Duke of Hamilton and Brandon, Hamilton Palace, Hamilton.

For the best Stallion foaled before Jan. 1, 1861 (17 entries).—1st prem., 30*l.*; 2d, 15*l.*; 3d, Bronze Medal. 1, Andrew Logan, Crossflat, Kilbarchan; 2, Peter Anderson; 3, Samuel Clark, Mansrae, Kilbarchan.

The Silver Medal to the Breeder of the best Stallion.—Andrew Logan.

For the best Entire Colt, foaled after Jan. 1, 1861 (12 entries).—1st prem., 20*l.*; 2d, 10*l.*; 3d, Bronze Medal. 1, John Kerr, The Bloom, Mid-Calder; 2, Robert Murdoch, Hallside, Cambuslang; 3, Wellwood Maxwell, of Glenlee, New Galloway.

For the best Entire Colt, foaled after Jan. 1, 1862 (22 entries).—1st prem., 15*l.*; 2d, 8*l.*; 3d, Bronze Medal. 1, Peter Anderson Gillespie, Glenluce; 2, George Scott Barr, Largs; 4, Robert Morton, Dalmuir, Old Kilpatrick.

For the best Entire Colt, foaled after Jan. 1, 1863 (25 entries).—1st prem., 10*l.*; 2d, 5*l.*; 3d, Bronze Medal. 1, William

Kirkwood, Shankston, Patna, Ayr ; 2. James Kay, Hillfarm, Gargunnock ; 3, Peter Crawford, Dumgoyach.

For the best Mare (with foal at foot), foaled before Jan. 1, 1861 (14 entries).—1st prem., 20*l.* ; 2d, 10*l.* ; 3d, Bronze Medal. Alexander Buchanan, New Kilpatrick.

For the best Mare (in foal), foaled before Jan. 1, 1861 (30 entries).—1st prem., 15*l.* ; 2d, 8*l.* ; 3d. Bronze Medal. 1, William Stirling, of Keir, M.P. ; 2, the Duke of Hamilton and Brandon ; 3, Wellwood Maxwell, of Glenlee.

For the best Filly, foaled after Jan. 1, 1861 (15 entries).—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, the Duke of Hamilton ; 2, Wm. Park, Balquhannan, Dalmuir ; 3, the Duke of Hamilton.

For the best Filly, foaled after Jan. 1, 1862 (16 entries).—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, The Duke of Hamilton ; 2, James Finlayson, Baker Street, Stirling ; 3, Major John Findlay, of Easterhill.

For the best Filly, foaled after Jan. 1, 1863 (10 entries).—1st prem., 6*l.* ; 2d, 3*l.* ; 3d, Bronze Medal. 1, Wellwood Maxwell, of Glenlee ; 2, Alex. Buchanan, Garscadden Mains, Glasgow ; 3, David M'Gibbon, Inveravon, Polmont.

CLASS III.—SHEEP.

LEICESTER. 170 Entries.

For the best Tup, not above 4 shear.—1st prem , 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, Thomas Simpson, Blainslie, Lauder ; 2, David Ainslie, of Costerton, Blackshiels ; 3, Thos. Watson, Esperton, Gorebridge.

For the best Dinmont or Shearling Tup.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, Thomas Simpson ; 2 and 3, George Simpson, Cowithill, Kelso.

For the best 5 Ewes, not above 4 shear.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, Wm. Purves, Burnfoot, Kelso ; 2, Thomas Ferguson, Kinnochtry, Coupar Angus.

For the best 5 Shearling Ewes or Gimmers.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, George Simpson ; 2, Thomas Simpson ; 3, David Ainslie.

CHEVIOT. 52 Entries.

For the best Tup, not above 4 shear.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, James Brydon, jun., Kinnelhead, Moffat ; 2, Thomas Borthwick, Hopsrig, Langholm ; 3, Sir Graham Montgomery, M.P.

For the best Dinmont or Shearling Tup.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, James Brydon, Moodlaw, Langholm ; 2 and 3, Thos. Elliot, Hindhope, Jedburgh.

For the best 5 Ewes, not above 4 shear, with Lambs at foot. 1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, Thomas C. Borthwick, Hopsrig, Langholm ; 2, James Brydon, Kinnelhead, Moffat ; 3, Robert Shortreed, Attenburn, Kelso.

The best Pen of Lambs, the Silver Medal, James Brydon, jun., Kinnelhead.

For the best 5 Shearling Ewes or Gimmers.—1st prem. 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, Robert Shortreed, Attenburn, Kelso ; 2, Thomas Elliot, Hindhope, Jedburgh ; 3, James Brydon, Moodlaw, Langholm.

BLACKFACED. 79 Entries.

For the best Tup, not above 4 shear.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1 and 2, Thos. Murray, Eastside, Penicuik ; 3, David Foyer, Knowhead, Campsie.

For the best Dinmont or Shearling Tup.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, Thomas Aitken, Liston Shiels, Balerno ; 2, the Heirs of the late James Walker Nisbet, Biggar ; 3, John Malcolm of Poltalloch, Lochgilphead.

For the best 5 Ewes, not above 4 shear, with Lambs at foot — 1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, John Phillips, Laighpark, Milngavie ; 2, Donald M'Laren, Corrychrone ; 3, Thos. Murray, Eastside.

For the best pen of Lambs, the Silver Medal.

For the best 5 Shearling Ewes or Gimmers.—1st prem. 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, John Archibald, Overscils, Stow ; 2, John Malcolm of Poltalloch ; 3, John Wilson, Crosshouse, Roslin.

SOUTHDOWN. 18 Entries.

For the best Tup, not above 4 shear.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, Robert Scot Skirving, Camptown, Drem ; 2, David R. Williamson, of Lawers, Crieff.

For the best Dinmont or Shearling Tup.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1 and 2, Robert Scot Skirving, Camptown, Drem ; 3, James Bruce, Burnside, Fochabers.

For the best 5 Ewes, not above 4 shear.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1 ,Robert Scot Skirving, Camptown, Drem ; 2, Alex. S. Findlay, of Castle Toward, M.P., Greenock.

For the best 5 Shearling Ewes or Gimmers.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1 and 2, Robert Scot Skirving, Camptown, Drem ; 3, James Bruce, Burnside, Fochabers.

LONG-WOOLLED, OTHER THAN LEICESTER.

For the best Tup, not above 4 shear.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1, Thos. Beale Brown, Salperton Park, Andoversford, Gloucestershire ; 2, Thomas B. Brown ; 3, John Gibson, Woolmet, Dalkeith.

For the best 5 Gimmers or Ewes, not above 4 shear.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, Thomas B. Brown, Salperton Park ; 2, John Gibson, Woolmet ; 3, Robert Scot Skirving, Camptown, Drem

SHORT-WOOLLED, OTHER THAN SOUTHDOWN.

For the best Tup, not above 4 shear.—1st prem., 10*l.* ; 2d, 5*l.* ; 3d, Bronze Medal. 1 and 2, Charles W. Hamilton, Hornwood, Dunlyon, Ireland ; 3, John Gibson, Woolmet.

For the best five Gimmers or Ewes, not above 4 shear.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, Charles W. Hamilton ; 2, J. Gibson, Woolmet. No award.

CLASS IV.—SWINE. 50 Entries.

For the best Boar, large breed.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal. 1, Mrs. Ferguson, Balthayock ; 2 and 3, W. B. Wainman, Carhead, Crosshill.

For the best Boar, small breed.—1st prem., 8*l.* ; 2d, 4*l.* ; 3d, Bronze Medal, 1, Mrs. D. Findlay, Easterhill, Glasgow ; 2, John Laing, Glendenglie, Kinross ; 3d, Robert Philp, Royal Hotel, Bridge of Allan.

For the best Sow, large breed.—1st prem., 6*l.* ; 2d, 3*l.* ; 3d, Bronze Medal. 1, W. B. Wainman, Crosshills ; 2, Richard Dichin. Stockport ; 3, D. Findlay, Easterhill.

For the best Sow, small breed.—1st prem., 6*l.* ; 2d, 3*l.* ; 3d, Bronze Medal. 1, Thomas D. Findlay, Easterhill ; 2, Thomas Sadler, Norton Mains, Ratho ; 3, Robert Philp, Royal Hotel, Bridge of Allan.

For the best pen of 3 Pigs, not exceeding 8 months old, large breed.—1st prem., 4*l.* ; 2d, 2*l.* ; 2d, Bronze Medal. 1, W. B. Wainman, Crosshill ; 2, Thos. D. Findlay ; 3, James Kay, Killfarm, Gargunnock.

For the best pen of 3 Pigs not exceeding 8 months old, small breed.—1st prem., 4*l.* ; 2d, 2*l.* ; 3d, Bronze Medal. 1 and 2, Robert Philp, Bridge of Allan ; 3, the Earl of Wemyss and March.

YORKSHIRE AGRICULTURAL SOCIETY.

HOWDEN.—The meeting of this Society here was opened on Tuesday, when a very large show of live stock—more especially of horses—was thrown open to the inspection of visitors. The following table compares the entries at the last few annual shows :—

	Cattle	Sheep	Pigs	Horses
1859 Hull	105	82	68	240
1860 Pontefract ..	81	76	70	204
1862 York	95	66	94	242
1863 Stockton	76	49	63	203
1864 Howden	78	67	65	320

It will be seen from these figures that while in several former years the shows held in other districts have to some extent surpassed that at Howden in regard to cattle, sheep, and pigs, the stock of horses at the latter, which is the centre of a district long famous for its breed of horses, and which itself is the seat of one of the most celebrated horse fairs in the country, has never even been approached at any other town visited by the Society.

At the annual dinner on Wednesday Lord Wenlock contrasted the show at Howden with that at Newcastle. "If the gentlemen who heard him had been at Newcastle and saw the show recently held there they could not have helped being struck with the immense advantage which in a great many points the Yorkshire Agricultural Society possessed over the Royal Agricultural Society while there. For instance, they had at Howden a much larger number of horses, and that point alone to the Yorkshire Society was one of paramount importance, and contributed to its great success. They had also a very much higher class of horses than were shown at Newcastle, which proved that in this comparatively small area, this one department had been developed with much greater success than over the rest of England. He really believed that the best horses in the world came out of Yorkshire.

Next year's meeting will be held at Doncaster.

We have only room for the following prize list :—

IMPLEMENTS.

Amies & Barford, Peterborough—For steam-power chaff-cutter, with self-delivering apparatus, Silver Medal ; steam engine, 2*l.* ; plain roller, 2*l.* ; clod crusher, 2*l.* ; corn grinding mill, 4*l.* Ashby & Co., Stamford—For haymaker, 2*l.* W. Busby, Newton, Bedale—For plough for a depth not exceeding 6 inches, 5*l.* ; plough for a depth not exceeding 8 inches, 10*l.* ; plough for a depth above 8 inches, 10*l.* C. Clay, Wakefield—For scarifier or surface parer, 5*l.* ; cultivator, 5*l.* ; drag for more than two horses, 3*l.* Cooke & Co., Lincoln—For plough for a depth above 8 inches, 5*l.* Coleman & Morton, Chelmsford—For drag for two horses, 3*l.* ; scarifier or surface parer, Highly Commended. Cuthbert & Co., Bedale—For plough for a depth not exceeding 8 inches, 5*l.* ; plough for ploughing and breaking up at same time a single furrow, 5*l.* ; plough for raising Potatos, 3*l.* Hornsby & Sons, Grantham —For apparatus to threshing machine for cleaning chaff, 2*l.* F. Hutchinson, Thirsk and Northallerton—For his stand, 2*l.* J Patterson, Beverley—For improved mill, 2*l.* Page & Co., Bedford—For heavy harrow for three horses, 3*l.* Puckering & Co., Beverley—For market cart, 2*l.* J. & R. Reeves, Westbury—For patent Bean dropper, 1*l.* B. Sanderson, Thorne—For double mouldboard plough for ridges, 5*l.* — Seaman—For light harrow for two horses, 3*l.* W. Sawney, Beverley—For plough for a depth not exceeding 6 inches, 10*l.* J. Spencer, Doncaster—For Potato planting machine, and horse rake, 2*l.* B. Stead, Barnsley—For scuffler for working between the rows of green crop, 2*l.* ; grubber for deep working between the rows of green crops, 2*l.* Taylor & Co., Salford—For churn, 1*l.* — Barker—Subsoil plough for four horses, 5*l.*

SHORT-HORNED CATTLE.

Best Bull 3 years old and upwards, 20*l.*, Richard Booth, Warlaby ; 2d, 10*l.*, J. B. Booth, Killerby, Catterick.

Best Bull 2 years old, 20*l.*, Richard Eastwood, Thorney Holme, Clitheroe ; 2d, 10*l.*, R. Gell, Grimston Lodge, York.

Best Yearling Bull, 20*l.*, J. H. Fawkes, Farnley Hall, Otley ; 2d., 10*l.*, J. Charlesworth, Headfield, Dewsbury.

Best Bull Calf upwards of 5 months old, 10*l.*, R. Booth ; 2d, 5*l.*, J. D. Jefferson, Thicket Priory, York.

Best Cow of any age in Calf or Milk, and having had a live Calf, 15*l.*, J. Wood, Stanwick Park, Darlington ; 2d, 5*l.*, H. Morley, Melbourne.

Best 3-year old Cow, in Calf or Milk, and having had a live Calf, 10*l.*, J. R. Middleborough, South Milford ; 2d, 5*l.*, C. Watson, Seaton Ross, Pocklington.

Best 2-year old Heifer in Calf, 10*l.*, and 2d, 5*l.*, R. Eastwood.

Best Yearling Heifer, 10*l.*, R. Booth ; 2d, 5*l.*, R. Eastwood.

Best Heifer Calf upwards of 5 months old, 5*l.*, R. Eastwood ; 2d, 3*l.*, Robert Fisher, Leconfield, Beverley.

Best fat Ox under 4 years old, 5*l.*, J. Hill, Wetherby.

Best fat Cow or Heifer, 5*l.*, R. Tennant, Scarcroft Lodge, Leeds.

CATTLE OF ANY BREED.

Best Cow for dairy purposes, 5*l.*, J. T. Robinson, Leckby Palace, Thirsk.

LEICESTER, OR LONG-WOOLLED SHEEP.
(Not Cotswold.)

Best Shearling Ram, 15*l.*, and 2d, 5*l.*, J. Borton, Barton House, Malton.

Best Ram of any age, 10*l.*, J. Borton ; 2d, 5*l.*, J. Simpson, Spofforth Park, Wetherby.

Best pen of 5 ewes, 10*l.*, W. Angas, Neswick, Driffield ; 2d, 5*l.*, J. Simpson.

Best pen of 5 Shearling Wethers, 5*l.*, E. Riley, Kipling Cotes Farm, Beverley.

Best pen of 5 Shearling Gimmers, 10*l.*, S. Wiley, Brandsby, York ; 2d, 5*l.*, F. Rickell, Warter, Pocklington.

GIVEN BY THE LOCAL COMMITTEE OF HOWDEN.

Best pen of 5 Gimmer Lambs, 5*l.*, J. Hannam, Kirk Deighton, Wetherby ; 2d, 2*l.*, F. Jordan, Eastburn House, Driffield.

SHORT-WOOLLED SHEEP.

Best Shearling Ram, 10*l.*, Lord Wenlock, Escrick Park ; 2d, 5*l.*, T. Marris, The Chase, Ulceby.

Best pen of 5 Shearling Gimmers, 3*l.*, Lord Wenlock ; 2d, 2*l.* ; T. Marris.

Best pen of 5 Ewes, 3*l.*, and 2d, 2*l.*, Lord Wenlock.

PIGS.

Best Boar large breed, 5*l.*, J. Shaw, Falsgrave, Scarbro' ; 2d, 2*l.*, H. Harrison, Cross Hills, Leeds.

Best Sow large breed, in pig or milk, 5*l.*, J. Hickman, Hull ; 2d, 2*l.*, J. Dyson, Leeds.

Best Boar small breed, 5*l.*, Lord Wenlock ; 2d, 2*l.*, H. Endeacott, Leeds.

Best Sow small breed, in pig or milk, 5*l.*, H. Keyworth, Leeds ; 2d, 2*l.*, M. Walton, Halifax.

Best Boar of any breed not qualified to compete in another class, 5*l.*, J. Hickman ; 2d, 2*l.*, C. W. Graham, Leeds.

Best Sow of any breed, in pig or milk, not qualified to compete in another class, 5*l.*, J. Hickman ; 2d, 2*l.*, H. Keyworth.

Best three store Pigs of any breed, and of the same litter, from 4 to 9 months old, 5*l.*, Lord Wenlock ; 2d, 2*l.*, J. Gledhill, Heckmondwike.

Best Boar large breed, under 12 months old, 3*l.*, J. Hickman.

Best Sow large breed, under 12 months old, 3*l.*, W. B. Wainmain, Carrhead, Cross Hills.

Best Boar small breed, under 12 months old, 3*l.* H. Endeacott.

Best Sow small breed, under 12 months old, 3*l.*, Lord Wenlock.

Farm Memoranda.

TATTENHALL HALL.—The following passages are extracted from the paper read by Mr. Jackson, the present tenant of Tattenhall Farm, before the Over Agricultural Society. He first refers to the former condition of the property :—

Formerly in spring the milking stock were usually too feeble to rise, to effect which the neighbours' aid was not unfrequently called in ; but the team horses were the sorriest figures of all I ever saw, they were mere moving skeletons, six of whom have from inability left the wagon and coals in the road to be fetched at twice the following day, the farmer in disguise as wagoner vowing if he could only get home the master should drive them himself, for he was ashamed of such a team.

At harvest the corn was, for the sake of appearance, put in stacks of only a few loads in each, near the road, to disarm the fears of creditors, while the light seen through the loop-lights of both barns told the tale of hollow deception. The farm buildings originally, put in a hole, where all the liquid manure passed directly into a stream that polluted the neighbourhood. The old pastures on the left of the mill stream had once been the best in the parish, but had by long pasturage with dairy stock become deprived of its phosphates, until as in a like case mentioned by Professor Voelcker, the milk, probably, contained only one-third its proper quantum of butter.

Our now best meadows were then bogs, that defied a snipe shooter to get across them in safety, and were employed in growing Alder that served in after time to drain them.

On the other side the mill stream, the land had, while provisions were at war prices, been cultivated—"Wheat, Fallow, and Wheat ;" in the meantime, capillary attraction bringing the stagnant water to the surface, so narrowed the crop on every but or stretch that the reapers had nothing to do with the rean or furrow.

War rents and peace prices, could, for Farmer Old Style, "a tale unfold," production yearly decreasing left him nothing to sigh for, but the forlorn hope of "another good war!" At this critical juncture the landlord died and the estate was sold. Mr. Jackson, late in 1823, got possession under a novel form of lease, which recites the measurement of the farm 326 acres, for fourteen years. After being put in good repair by the landlord, the rent of water mill and farm to be for the first three years 375*l.*, and for the last eleven years of this demise the rent to be fixed on by two indifferent people, one to be chosen by each party, and in case they should not agree, a third and indifferent person to be chosen as umpire, whose decision should be binding.

When the three years were expired, the estate had again been sold ; and while the new landlord and tenant were disputing about rent, a new man came in and gave the landlord his price. In a few years he and his successor had disappeared, and the landlord, very properly considering that Mr. W. Jackson had been ill used, sent for him and relet him the farm at the rent he had previously offered, with (you will please to note) this remarkable condition ! ! !—he would not have four fields at the extreme end of the farm, having learned by former experience that they would not pay to cultivate, and in Grass not worth rates and taxes.

Two conceited gentlemen of the shuttle, ambitious to be agriculturists, went to the landlord and took the largest of these fields, 14 acres, and either for love or money they got it cultivated ; and with a resolution that deserved better fortune, they decided on planting it with Potatos. They could not get farm-yard manure, and our artificial manures had not then been thought of. But they had heard of the wondrous property of soot, so they got a wagon load, and one brother made a hole and put in a handful of soot, and the other followed with a thin slice, cut from a Potato, and covered it carefully in the hole ; and no doubt the following summer they paid many pilgrimages to see the progress of what they had planted, in hope, but like many farming philosophers of our day, they found that the best laid planting schemes will not ever secure the expected increase ; but they were saved the expense of digging the crop—except when they were tired of the loom—they used to go and pull up a stem where they could find one, and carried home in their pockets all they gathered of the produce. You will not be surprised that the first experiment took a little wind out of their vanity sails. The second year's effort proving alike unprofitable ; and the third a forlorn, hopeless, insolvency, without assets—their looms gone and their habitation pulled down over their heads, and their land left to grow Thistles to seed the neighbouring farms—was a nuisance not to be borne ; and then, probably for the first time, was fulfilled the prediction of the far-famed Cheshire prophet, that "The landlord shall come with his hat in his hand, to beg of the tenant to take the land ;" and just only to oblige the landlord, the tenant consented to occupy, rentless.

One other of the "four" fields was put to another farm, and remains so, choosing its own crop. The other two had to come back to us, because nobody else would have them. Six of the adjoining fields, about 100 acres, were, to Farmer Old Style and his landlord, scarcely worth owning—they served to run stirks till they were old enough to be cows and big enough to be calves.

Now in the spring of 1842, to please my uncles, I consented as a partner to try my hand at farming. I knew I had an up-hill game to play. But with other better paying vocations, I resolved to make my farming play work. One undrained sixteen-acre field we dressed with boiled bones, 10 cwt. per acre, on the seeds. The field rooted badly, and the bones made little difference. I next tried lime on fallow for Wheat, and the cost, 70*l.*, I might as well have thrown into a pit. At the end of three years, the prices of produce were low, and without anything that promised a return, I found my farm ledger 600*l.* on the debit side. I told my landlord how matters stood, and that the farm had broken all who had held it for 40 years, and would break us except for other resources, and that there was only one or two things for it—if we were to occupy the farm, either he must improve it, or give us security for the necessary outlay.

Draining.—I shall never forget the peculiarly placid smile with which he replied—"We will drain you a field or two, and we will subsoil them for you, and then we shall see." He kept his word. We got two fields drained. The large one had 4800 yards of guttering in it, which, at 1*d.* per rood (a fair price) came to 2*l.* 10*s.*, and that for guttering every time the field was ploughed.

As luck would have it, at this juncture, accidentally, I travelled with Mr. Smith, of Deanstone, by rail from Crewe to London, and with simple, good-natured frankness, characteristic of a great man, he told me that satisfactory experiments had convinced him that the

broken stones which he had been used to place in his 30-inch or 3 feet drain were a useless waste of money, and that though we trod soft clay on horse-shoe tiles the water would find its way into them after a short time. This was good news for my horses and my landlord's pocket; and 15 years' subsequent experience has proved the soundness of Smith's philosophy.

Before leaving the subject there is for permanent pasture on clay subsoils trig-draining, which is not estimated according to its merits. The field I first drained, 20 years ago, at a cost of 2½*d.* per rood, 18 inches deep, dispersed all the Rushes and still answers well. The straight side of the trigging tool is turned to nick down the edge and reversed; the flange brings out the trig, the drain having previously been cut down 2 feet deep, and about 8 inches wide at the bottom. The trig is then scooped out, with what our drainers call a gooseneck, and the sod, about 2½ inches thick, turned upside down on the trig; the whole done at half the cost of a pipe. Everything in farming is a question of price, and as 3 acres on this plan may be done for one with pipe, and as it will probably last a lifetime, the farmer would have two-thirds of his money in his pocket; or, if done with pipe by the landlord at 6 per cent., the latter in seven years would cover the cost of trig draining.

Guano and artificial manures came into notice at the time we had drained the first field. It was a novel idea that suggested caution, to see a man sow manure with his hand, and I cautiously speculated first in a bag of Ichabo, and tried it on a few square yards of seeds, Wheat, and the remainder on about a quarter of an acre of Oats on the field we had drained, and stuck down sticks to mark the spots. Early in May, being showery at the time, the marks in a week were unnecessary, the colour and rankness showed in bold relief to the last inch of the application, and hundreds of admirers went away wondering at the results. The seeds rotted before the rest of the field had well started. The Wheat was more than could grow, and the Oats a good crop, while the other part was poverty stricken; and when the stacker came to the guano Oats he sang out, "Stop, these Oats are in bad condition, they are so heavy." The wagoner with a grin replied, "I thought so at first. These are the guano Oats."

"I had seen some other experiments that year which satisfied me that guano would for one year wonderfully increase production—its effects surpassed anything I had seen. One 20-acre field,—which the preceding year had been overstocked with eight rearing calves—after its application kept 200 Carnarvon ewes and lambs; and one butt or stretch, purposely omitted, retained its carnation Grass till the field was ploughed 12 years afterwards, whilst the rest resembled a velvet carpet (of wild Clover); and that year my farm advertised guano as an extraordinary agent for increasing production, whilst its application required but a fraction of the labour of ordinary manures. Up to this time, with about 50 cows, we had rarely got through the winter without a heavy outlay for fodder; while, with double the stock, we have ever since had some to spare for our needy neighbour—so, while draining in my case has been the foundation of increased production, guano was the start for the superstructure.

Of late years, I have taken as a substitute bones or superphosphate, as fertilising aids to farm-yard manure—having three times bought guano, and received a mixture of it with Welsh clay, which mixture can only be detected by analysis, as by application to the land we can only say, we saw little or no result.

Having started two steps forward—with our knowledge of draining and guano—let us return to the weavers' field. That, Farmer Old Style vowed he would never plough again, and we shall find a change has come over the spirit of his dream. Two fields drained, and one subsoiled by the landlord and the "guano Oats," the tenant thinking it was his turn to try next, had contracted for 40*l.* to drain the field that broke the weavers—the landlord giving the horse-shoe tiles from Wardle (Tweeddale Works), delivered by canal at Crow's Nest Bridge, Tattenhall; soon as ploughed and sown with Oats it was dressed with cheap Ichabo guano, at a cost of 40*l.*, and I think I never saw such a crop; it astonished every one who knew the field, although it had been eaten close down with sheep till the middle of May. If sold at 4*s.* per bushel would have paid for the draining, guano, seed, labour, and something over.

It scarcely appeared safe to sow Wheat after Oats on so poor a field, so we put in Swedes and Purple-top Turnips, manured with farm-yard dung and a skittering of cheap guano. The Swedes were very good, but the common Turnips were so rank that they bade defiance to both the landlord and his dogs. A splendid crop of Barley followed; then seeds, which, hanging together like Tares, I had to pay the mowers double price and give them double beer, so there was no labour saved; and the Wood's mowing machine, which did its work inimitably last year, would have been useless there, the crop being so twisted. The following 11 years it grazed, carrying, I believe, as much fatting stock as our best old rest land. In 1856 it was again put in with Oats, then Wheat, roots, Barley, seeds, Oats, and now it has Wheat. On part of this field cut off by the new fence I gained the 40*s.* prize of the Malpas and Whitchurch Club for Mangels, and the Swedes were first-rate, and that, please remember, on the very field the tenant had taken to oblige the landlord.

Implements and Cultivation.—The last 20 years have trebled in number, and so greatly improved our implements by contrivance, that to do them justice would require a treatise; they leave us to wonder how Farmer Old Style cultivated his land, killed his weeds, or secured his crops without them. I have never elsewhere seen the double mould plough, with the mould-boards removed, used as a subsoil plough, after the drills are drawn up for green crops. By this means, with little labour, the subsoil on the whole of the arable land once every course gets stirred 13 in. to 15 in. deep, which being under the roots rarely fails to secure full development.

After harvest, as quickly as possible, we scarify all the stubbles with Bentall's implement; then a pair of harrows loosens what is green, and covers in all weed seeds—which will vegetate—and the next ploughing buries them. When frost or fine weather favours, I like, early in winter, to get on the land what farmyard manure we have made, which, ploughed in, helps to keep it light in the spring; and, as soon after as the weather permits, the land is ridged up and subsoiled; if there is time to split the ridges before the Swede or Mangel seed is put in all the better. By the middle of January this year we had all our Potato, Mangel, and Swede land manured and ploughed under; and by the middle of March it had been stirred across, drilled up into ridges, and every drill had been subsoiled up to the beam with two horses; and as we cannot secure suitable weather, I find it is best to take time by the forelock.

Fences.—We have over a mile of fence, planted about six years ago, which only requires the brushing hook; beside this I paid last year an old labourer 1*d.* per rood for cleaning 1055½ roods, or 4 miles 3 qrs. 72 yards. There were also three new fences cleaned by day-work, which makes a total of about six miles of new fence.

Mode of planting new fences: First—we cut out two furrows with the Scotch plough, then run the (double mould) subsoil plough a foot deep up the furrow, scatter in a little rotten dung as for a drill of green crop, then shut up the dung with the Scotch plough for six furrows or "three rounds." The landlord gives the Quicks, a boy places them to a line, and two men soil them in, one up each side, and they will in a day plant a quarter of a mile.

The second year we cut off the Quicks 3 or 4 inches from the ground. It frets them if cut the first year, and they more frequently die, but if otherwise they shoot feebly; while if cut the second they will shoot 10 or 15 strong stems.

The hunters this spring had to pick a weak spot near a gate before taking a three-year shoot fence; and, in a few more years, I trust our new fences will defy even steeple-chasers. When two adjoining fields are ploughed, and Quicks put in as described, they will form a very good fence at the end of the five crop course, thus dispensing with railing. Beautiful fences, the great ornament of a farm, are got at a trivial cost, occupying scarcely three feet wide. We have grubbed from 10 to 12 miles of old miserable crooked fence, and must have added over 12 acres of land to the production of the farm.

There is one other source of increased production with which only I will detain you—a judicious course of cropping, and in this respect I am following the advice of Mr. Martin, of Henhull, so far as 100 acres of reserved pasture on the left of the mill stream will allow, coloured green, as you see, on the map. The fields numbered 1 to 18 are cropped—first five and then four course, and are eight years in crop and eight years pasture, viz., Oats, Wheats, roots and Beans, Barley, seeds, Wheat, Beans and roots, Barley, permanent Grasses, eight years. By this arrangement the land is in green crop, varied with Beans one year; on the next course or shift, Potatos, Swedes, and Mangels, on what was before Beans; and by again reversing the Swedes, Potatos, and Mangels, gives Beans once in 16 years, Swedes and Mangels once in 32 years, Wheat and Barley twice in 16 years, and Oats once.

The other 10 fields, No. 9 to 19, are cropped on the double shift or course, and changed as before described for 9 years, leaving the land pastured 11 years, only I purpose to put on this lighter land Peas instead of Beans.

Formerly:—I must just detain you with a last look at the Weavers' field, and follow the sorry Oats that we raked from it, until they are manufactured into horse flesh, cheese, &c. The gutters running obliquely with the ridges and reans, and the waggon crossing them has got many a shake till they had to be re-loaded before they were out of the field, and then there was no road, and the path circuitous as on the map, and rutted until the last horse of the three, steaming with efforts to keep on his legs, and two or three men with pitchforks steadying the load for fear of its rolling over, it arrives at last at home, and is put into a stack, and the two carts that follow are caught in a drenching rain, and so on the first fine day they and the waggon load have to be put on the nearest spare field to be dried, and as soon as fortune favours, all except what in moving was left for the rooks, is again stacked; but as there is no Wheat straw thrashed they have to remain unthatched through another drenching rain, and when the beginning of the year following, the stack has to be got in it is found that the roof is matted together, a serious loss, through not to compare with the loss of the Wheat stack that preceded it. It has next to be moved to the barn, and as there are no pavements, two horses in; each of two carts, through various mishaps and mud, get to the barn—with ducks and poultry besetting the path, and all in Clover. You will please to note the cost in labour in getting in a stack under the most favourable circumstances—2 carts with 1 horse each, equal to 4 men; on the stack, 2 men; on the carts, 2 men; to place or tread it in mow or bay, 3 men. Threshing with two men in each barn with two sticks each, keeping up the monotony of the winter music. From the barns to either ranks of cattle the paths were kept clean with a constant accumulation of straw that dropped as it was being carried with pitchforks. The Oat threshing was done by day work, because the waggoners conceived they had a moral license to take at night into the hay loft nearly all that had been beaten out during the day. On one occasion my waggoner, after helping himself to a sack, went to Wales for coals and forgot to restore the barn key to its place, so the threshers could not get into the barn that day. On another, and the last time we threshed with a flail, we winnowed only about 20 bushels of Oats at the end of theweek, as the united efforts of two men for 5½ days;;the rest had gone into a secret auxiliary stock for the team horses. These 20 bushels, given to the cows with hay—that most expensive article of farm produce—we will take as represented in milk put into a pail at the shippon door, and carried in the arms of a powerful man, we will suppose on Sabbath day, over his shoes in dirty weather, as you see by the distance on the map nearly one-eighth of a mile, through the then kitchen up four steps, across the entrance hall, living room, house place, two more passages, down eight more steps into a cool underground room, to remain; to be brought back to the cheese tub in the kitchen at 4 o'clock on Monday morning, and because the man could not get back before the next pail was full, he was obliged to have a "help meet," and under such disadvantages were the first conscientious attempts made to avoid the Sabbath desecration practised at that time throughout the Cheshire dairies on Sunday. The other milk house was on a level with the kitchen, small, and badly ventilated. The old plan of heating the whey added considerably to the labour, and that at the time when the cheese required most attention. The then system of treating the curd gave much additional labour where two cheeses were made per diem; so that with three or four hard working, strong women in the kitchen, they had hardly time for their tea before going to night milking. On Mondays a man was, during summer, put to turn the churn, for which he got a mug of beer, and so contrived to finish by dinner time. About twice a week in summer he had to carry the cheese upstairs, and as it was a hot job he took care to make a morning's work of it, and looked glum if he did not get another swig at the tap. The cheese had, when sent to market, to be carried down stairs again, and a slip at the top of the stairs occasionally made one cheese into two—and, at the conclusion, a good swig at the barrel was termed washing out the cheese tub. If none of the waggoners were killed, and came home sober, they must expect that the next dairy will taste of the Crab tree.

To return to the whey: this had, while hot, been carried in pails in our case, because no human contrivance was considered equal to get it to the pig cistern, from which again the bulk of it was carried to the far piggeries, the other piggeries being close to the milk-house. This moving and carrying of the whey three times over every day, first from the tub to the furnace, second from that to the cistern, and again to the pigs, to do which, during the summer, left one servant no lack of employment. The vessel-boiler, then in the dairy kitchen, necessitated a mess and muddle, which only wooden shoes, shod with iron or leather, could tolerate. A brewing-pan, in addition to the one for whey, took up the whole chimney opening, and left the servants all winter only the vessel-boiler fire for warmth and light, except auxiliared by a half-skinned rush dipped in fat, but of such candle wicks the pastures then supplied no lack. This is a very hurried and imperfect sketch, and gives but a feeble impression of the disadvantages under which dairy manufacture was carried on—and it is by some said to higher perfection than with us.

Now:—Last year a part of the Weaver's field, now No. 9, had Oats, and an uncommon good crop, cut, gathered, set up, raked with the horse-rake, rakings cocked, and all in good condition. Having found that a wagon with three horses, in harvest, and carts with one or two, resemble wheels in quick motion with large teeth and small, as though they were resolved to play at cross purposes the game of vexation, the wagon therefore was sold; and we will try to do with five two-horse carts, for having made a good road to the field, one horse will, on the road, do more than the work of two; and as the land is drained and free from gutters, there will, we hope, be no reloading, as with two good pitchers and two good loaders, the carts won't be in the fields many minutes, with an extra chain-horse to help them out. Seeing all fairly started here, we will go to the homestead, where we find no barn floor between the corn and straw bay, for the threshing operation is changed from an instrument with two sticks, to one that performs the combined operations simultaneously of threshing, straw-shaking, dividing corn and sacking it, good, bad, and indifferent, putting the caving one way and the chaff another. But we find a long roof, supported by seven brick arches, erected by the present proprietor of the estate, at a less cost than the old barns, and on the true manufacturing principle of being suited to its purposes. This range is capable of housing all the corn crops that ordinarily the farm is expected to produce, and it will be seen to form one side of the capital letter H, while the milking cows are ranged in two rows, with their heads to a feeding passage, forming the opposite side of the H; and the stroke that joins the two sides of the letter, represent on the basement one extensive root store, with food house, or cooking kitchen beyond. In February and March, the roots having been consumed, the compartment divided with hurdles, and intersected by the feeding passage and cart passage, forms four calf-houses into which the calves are from each of the four shippons driven behind the cows, and closed in with a wicket: the cows have only a single rail before them, and each two cows have an iron drinking trough, at which they can always drink at pleasure from the stream that constantly flows through the pipes that supply the troughs. You will see by the elevation of the cattle range that at each end there is a shed for 20 cows, which shed ventilates with the other 40 cows, and which are provided with 21 iron windows, that open or close by slides, and with the ventilators and cupola on the roof give free atmospheric circulation; so that, favoured by Providence, we have not since their erection (two years) had a sick cow or calf. The channels behind the cows are provided with trapped drains, and flushed with water at pleasure, which convey the liquid manure from the tanks, and is again conducted into the centre of a ten-acre meadow, where the cart is filled in a quarter of a minute. Over the food-house or cooking-kitchen is a straw-room or loft, in which is the chaff cutter; the operations of carting home the crops are continued so long as there is a load left, until the long range of arched roof is filled, one compartment after another, and except the last all the carts have been covered while unloading, safe from weather and waste of thatching. The roots, when pulled, are carted home with all convenient speed, and find stowage as indicated and in a root shed against the inner wall of the cow's side of the building, and near the root cutter. Over 40 of the cows, and "calves or roots," is stowage for an immense quantity of hay, say 100 to 120 tons. There are also two other ranks, forming with those described, and flanking the farmyard in the direction of the farmhouse. One rank has a hospital for six cows, nag stable for three horses, with harness-room; drift-house for portable thrashing apparatus and engine, a loose horse-box, and cart shed; this range also has very ample stowage for hay. On the opposite side, the other range forms a cart-stable for nine horses, food house, and a cart harness-house; the follow two spacious poultry

rooms, closed in front with a wire netting, and a well secured root house for Potatos at back; and over this rank there is spacious stowage for Clover or seeds, the mill serving as granary.

(To be concluded next week.)

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	July 29	Inches.	°	°				°	°	°	°	Inches.
Thursday ..	4	30.03	72	61	S.W.	2	5	72	50	88	40	..
Wednesday ..	3	30.12	68	56	S.W.	1	5	68	40	87	31	..
Tuesday ..	2	30.12	66	56	N.W.	3	5	70	52	80	42	..
Monday ..	Aug. 1	30 05	70	59	N.W.	1	5	76	54	90	45	..
Sunday ..	31	30.10	64	59	S.W.	1	10	74	53	90	43	0.00
Saturday ..	30	..	..	..	..	..	..	..	..	..	..	..
Friday ..	29	..	..	..	..	..	..	..	..	..	..	..

Calendar of Operations.

AUGUST.

Fifeshire: *Pilmuir, Leven, July* 28.—A cold and ungenial summer has kept vegetation in check, and none of the crops have shown much luxuriance. Hay is remarkably light, and pastures have not done well. Potatos have not a great deal of vigour about them, even on the best soils, and fields on the stiff lands are blanky and the stems weak. This crop, however, has improved greatly since the temperature became higher. Turnips, on the whole, are backward: the early sown were destroyed by fly, and many fields resown. Wheat is sound in the ear, but not particularly well set, and the straw is short. It will prove a bare average, even though the weather should now be favourable. Barley is the best crop. Oats are thin, and short in straw; almost every field has more or less a stunted appearance, and a very deficient yield is looked forward to. Beans are bulky, but close enough on the ground to set well. *R. Russell.*

Wester Ross: *July* 25.—So little rain has fallen for several weeks in this district that complaining is now loud and general. The hay crop, which has just been cut, is unusually light; the pastures are bare, or so thoroughly withered that they would form no unsuitable food for fire; Oats and Barley are so thin and short that they will bulk little in the stackyard, and Turnips, which have thriven well hitherto, cannot, in the continued absence of rain, hold out long. Repeatedly have the farmers' expectations been raised by the gathering of the clouds overhead, with every indication of immediate rain, but as repeatedly have their expectations been dashed by the disappearance of these same clouds before a scorching wind and brilliant sun. Nor have the neighbouring counties been so scantily supplied. True, Invernesshire has suffered considerably, but the Barley and Oats in the counties of Nairn and Moray are very fine, indicating a full supply of rain. As our Oats and Barley have not yet reached their full length an immediate and continued fall of rain would stretch them out considerably. Our Wheat crop, however, is good, and having now safely passed the blooming season amidst glorious sunshine, it promises an abundant return of well-matured grain, with a full average supply of straw. The Wheat has very much escaped the effects of the drought, having previously well nigh reached its full length. The Turnips came more rapidly to the hoe than usual, and the singling has for some time been completed. The Swedes are as yet advancing satisfactorily; the earlier sown ones pretty well covering the ground. Potatos on the whole do not look well, and will not be a full crop. The braird in many cases was deficient, and the stems are slim and stunted. Sheep of all kinds are a few shillings dearer per head than last year, whilst wool has reached a price perhaps unparalleled. Cattle also maintain their value, and meet a ready sale, whilst Wheat is gradually rising from its depressed and unremunerating price.

Notices to Correspondents.

Insects: *Anon.* The Wheat ears had worked their way out of your envelope. Small orange grubs infesting the grains of Wheat at this season are the larvæ of the Wheat midge Cecidomyia Tritici.

Landlord and Tenant: *Cor.* If you have received unconditional permission in writing to break up Grass, then we presume that the land so broken up is arable for the future, and affected merely by those conditions of your lease which relate to the management of the arable part of your farm; among which probably is one requiring you to lay down so much of it during the last year of your tenancy.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ..	7½d.
Seconds	3¾d. ..	5d.
Thirds	2½d. ..	3½d.
Fourths	2¼d. ..	3¼d.

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

			4ths. 3rds.	4ths. 3rds.
11 by 9	12 by 9	13 by 9 14 by 9	10s 9d 12s 3d	12s 6d 14s 0d
12 ,, 10	13 ,, 10	14 ,, 10 15 ,, 10		
13 ,, 11	14 ,, 11	.. ..		
14 ,, 12	15 ,, 12	15 ,, 11 16 ,, 11		
18 ,, 12	19 ,, 12	16 ,, 12 17 ,, 12		
16 ,, 13	17 ,, 13	20 ,, 12 21 ,, 14		
19 ,, 13	20 ,, 13	18 ,, 13 ..	11s 6d 13s 6d	13s 6d 16s 0d
16 ,, 14	17 ,, 14	21 ,, 13 ..	14 to 15 ozs.	16 to 17 ozs.
19 ,, 14	20 ,, 14	18 ,, 14 ..	to the foot.	

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft. £ s. d.	16 oz., 300 ft. £ s. d.	21 oz., 200 ft. £ s. d.
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds		2 5 0	2 10 0
Fourths		1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12 / 20 ,, 13	Fourths ..	11s. 6d. ..	13s. 6d. ..	15s. 0d.
	Thirds ..	13s. 6d. ..	16s. 0d. ..	19s. 0d.
20 ,, 14	Seconds ..	.. ..	English. ..	English.
20 ,, 15	Best ..	.. ..	18s. 0d. ..	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 ..	6½ by 4½ ..	7 by 5 ..	7½ by 5½ ..	11s. 6d.
8 ,, 6 ..	8½ ,, 6⅜ ..	9 ,, 7 ..	9½ ,, 7½ ..	
		10 ,, 8 ..	10½ ,, 8½ ..	12s. 6d.

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

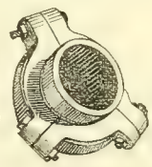
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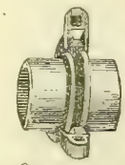
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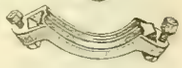
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WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS





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TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

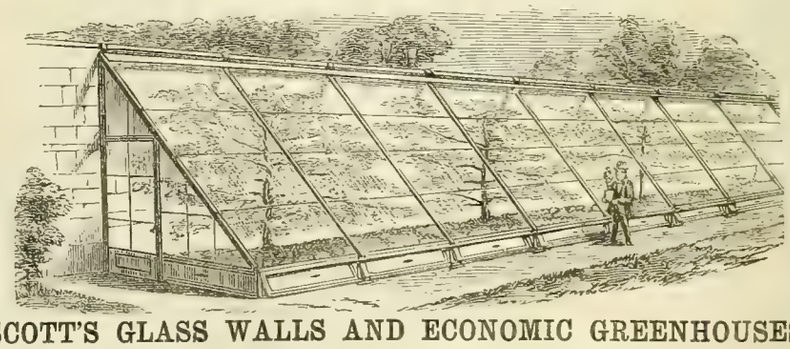
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It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

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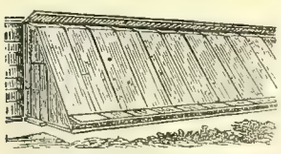
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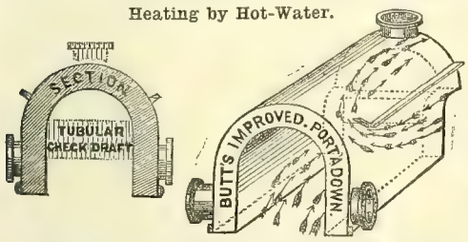
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THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

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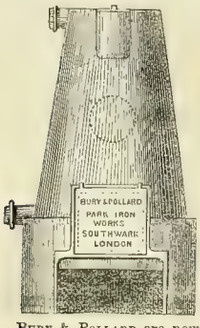
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The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

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Sole Manufacturers of the Improved CONICAL BOILERS which require no Brickwork, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
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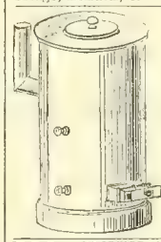
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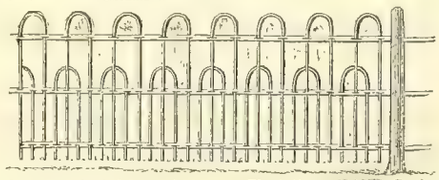
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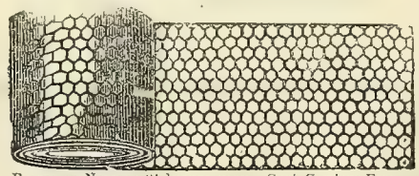


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1⅝ in. ..	Small Rabbits, Hares, &c. ..	4½*d.*	6*d.*	7*d.*	9*d.*
1½ in. ..	Ditto ditto ..	6*d.*	7*d.*	9*d.*	11*d.*

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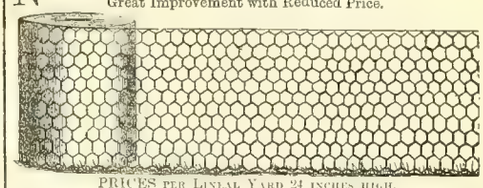
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2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

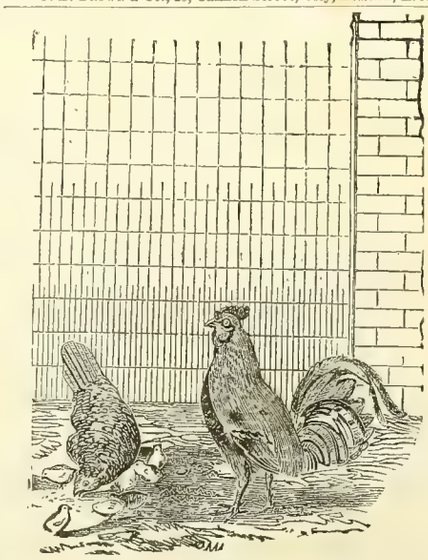
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The Property may be viewed on application to the Tenant, and further Particulars, with Plan and Conditions of Sale, obtained on application to Mr. Harris, Solicitor, 5, Stone Buildings, Lincoln's Inn, London, to whom those desirous of purchasing are requested to address themselves.

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GREENHOUSES.	FORCING PITS.	CHURCHES.	LECTURE HALLS.	FACTORIES.	DRYING ROOMS.
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J. Jones & Sons' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest CHAPEL or the largest CHURCH; for PRIVATE OFFICES, or those of PUBLIC COMPANIES.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more BATHS may be heated from the same boiler, and a constant supply of Hot Water obtained in any part of the House.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 33.—1864.] SATURDAY, AUGUST 13. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY
FLORAL COMMITTEE.
The next MEETING of this COMMITTEE will take place on TUESDAY, August 16, at 12 o'Clock. The Subjects for Examination must be at South Kensington for Entry by 11 A.M.
THOMAS MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.
A MEETING of the FRUIT COMMITTEE of the Royal Horticultural Society, will be held at South Kensington, on TUESDAY, August 16, for the examination of such Fruits and Vegetables as may then be submitted for the opinion of the Committee.
Communications and packages to be delivered at the Rooms by 10 o'clock on the day of meeting, and addressed to
ROBERT HOGG, LL.D., Hon. Sec.

CRYSTAL PALACE.—GREAT AUTUMN FLOWER and FRUIT SHOW, WEDNESDAY and THURSDAY, 7th and 8th September next.
NOTE.—Schedule of Prizes, &c., may be had on application to G. GROVE, Secretary, as above.

Autumnal Roses.
PAUL AND SON'S Unrivalled COLLECTION still continues finely in FULL BLOOM.
Thirty First Prizes, including the leading Awards at the London and Birmingham Shows, attest the extent and success of their culture.
Visitors may reach the Nurseries by Trains from Bishopsgate to Cheshunt (one mile) or Waltham (two miles from the grounds). Flies and Omnibuses at the latter.
"Old" Cheshunt Nurseries, Cheshunt, N.

Roses.
WM. PAUL'S ROSES are NOW in BLOOM. Admirers of this Flower are respectfully invited to visit the Nurseries. The Four leading Prizes of the present year have been awarded to his Collections. Entrance from the Platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.
Waltham Cross, Herts, N.

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PAUL'S Nurseries, Waltham Cross, N.

Roses.
EDWIN HOLLAMBY begs to announce that his unrivalled Collection of the above, containing many new and splendid varieties, is NOW in FINE PERFECTION. A visit is respectfully solicited.
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PAUL AND SON draw attention to their ROSES in POTS, fit for immediate planting. The plants of this year's New Roses are particularly fine. Prices on application.
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THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Roses, &c.
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The "Upton" Nurs... Chester.

20,000 Dwarf Roses in I... on own Roots.
FRANCIS AND ARTHUR ...KSON AND SONS,
The "Upton" Nurseries, Ches... to offer 20,000 DWARF
HYBRID PERPETUAL BOURBO... PEA-SCENTED ROSES,
ON THEIR OWN ROOTS, in pots, includ... the novelties and every
variety of merit yet introduced. Th... uts are very STRONG and
WELL ESTABLISHED, and if planted out n... ill bloom this Autumn.
F. & A. D. & SONS have also a lar... number of EXTRA STRONG
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varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.
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Nurseries, Saffron Walden.
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WILLIAM CHATER, Saffron Walden.

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Hollyhocks, Dahlias, &c.
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"The Royal Nurseries," Slough.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21s. per 100.
CHARLES TURNER, "The Royal Nurseries," Slough.

VINES.—Strong planting CANES of all the leading varieties, at 3s. 6d. each, offered by
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Very extra strong Vines from Eyes.
JAMES DICKSON AND SONS have ready all the leading kinds, which, if planted now, would produce a crop next season. Early purchasers will have 2000 to pick from. Price, very moderate, on application.
The "Newton" Nurseries, Chester.

Vines—Extra Extra Strong.
FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

Pine Suckers.
WANTED, a quantity of QUEEN, MONSERRAT and SMOOTH-LEAVED CAYANNE PINE SUCKERS. Send price, &c.
Mr. GEORGE GORDON, The Gardens, Norbiton Hall, Kingston, Surrey.

Fruit Trees in Pots.
J. R. AND A. PEARSON have just now an ORCHARD HOUSE 90 feet by 30 feet, full of Trees, the Foliage and Fruit of which they will have great pleasure in showing any one interested in fruit culture. They also invite attention to their magnificent stock of Vines, particularly the Grafted Muscat Hamburghs.
Chilwell, near Nottingham.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASS SEEDS SHOULD NOW BE SOWN.
Price 9d. per lb., or cheaper by the cwt.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

For Present Sowing.
TRIFOLIUM INCARNATUM.
New Seed of the above at lowest Market Prices, may be had of SUTTON & SONS, Seed Growers, Reading, Berks.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

Rape Seed for Sowing.
CHARLES SHARPE AND CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
Price on application.

Italian Tripoli Onion.
CHARLES SHARPE AND CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. DIXON & SONS, 57, Queen Street Hull.

DRACÆNA AUSTRALIS.—The price for 100 young plants, 6 feet 8 inches high, is *not* £2 5s. as previously advertised, but *only* £1 4s.
F. H. OHLENDORFF, Nurseryman, Hamm, near Hamburg.

Double Pyrethrums.
JOHN SALTER can now supply SEEDS of this year's growth from his COLLECTION of DOUBLE PYRETHRUMS, at 3s. 6d. per packet; and from Single Flowers at 1s. per packet.
Versailles Nursery, William Street, Hammersmith Turnpike, London.

HARDY HERBACEOUS PERENNIAL SEEDS.—12 Packets of beautiful varieties, 2s. 6d.; 15 do., 3s. 6d.; 25 do., 5s. 6d.; 50 do., 15s.; 100 do., 30s.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

SCARLET INTERMEDIATE STOCK, Covent Garden variety, 1s. per packet.
PURPLE INTERMEDIATE STOCK, ditto, 1s. per packet.
HUNT'S SUPERB SWEET WILLIAM, 2s. per packet.
BARR & SUGDEN, Seed Merchants, 12, King St., Covent Garden, W.C.

New Spotted and Blotched Prize Hybrid Mimulus,
1s. per packet; Trade packets, 2s. 6d., 3s. 6d., 5s., and 10s. 6d.
BARR AND SUGDEN offer with confidence the above superb strain of MIMULUS; the stock of which they have just purchased from Mr. Bull. The Seed has been saved from the beautiful varieties which Mr. Bull has this season been exhibiting at the great London Flower Shows.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

New Scarlet Geraniums.
JOHN SALTER solicits an inspection of his large COLLECTION of these fashionable Flowers, which are now in great perfection; among them are several new and distinct varieties of great merit.
Versailles Nursery, William Street, Hammersmith Turnpike, London.

Choice Hybridized Pelargonium Seed.
E. COOLING has a limited quantity of the above, saved from all the finest varieties in cultivation, to dispose of, price 2s. 6d. per packet, post free. Also CALCEOLARIA, CINERARIA, and PRIMULA, extra fine, 2s. 6d. per packet.
Mile Ash Nurseries, Derby.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Calceolaria, Cineraria, Primula.
E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.
The CALCEOLARIA is NOW magnificently in BLOOM at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.
INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

HYACINTHS, TULIPS, and other DUTCH BULBS, imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

Gladioli.
EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Paris, begs to inform Nurserymen, Seedsmen, Florists, and the Trade generally, that he will shortly publish his CATALOGUE of his unrivalled collection of GLADIOLI for this autumn, which may be had of him direct, or of his London Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C., upon prepaid application.

Permanent Grass Seeds
FOR ALL SOILS.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing as under:—

PERMANENT GRASS SEEDS
For Laying down New Pastures (including CLOVERS in full quantities), 30s. per Acre.

PERMANENT GRASS SEEDS
For Mending New Pastures, which may have been injured by the Corn crop, 12s. per bush.

Royal Berkshire Seed Establishment, Reading.

WELLINGTONIA GIGANTEA.—The Undersigned begs to offer fine healthy Seedling Plants in pots, at the following prices:—
One Year Seedlings, in single pots, 50s. per 100.
Specimen Plants, in 24-sized pots, 18 inches, 60s. per dozen.
Fine Plants, in 32 pots, 1 foot, 30s. per dozen.
in 48 pots, 9 inches, 15s. per dozen.
ARAUCARIA IMBRICATA, in 48 pots, fine, 9s. per dozen.
CUPRESSUS LAWSONIANA, 9 inches, 12s. per dozen.
T. HENCHMAN, Edmonton, near London.

NEW and VARIEGATED FOLIAGED PLANTS, &c.

See M. Pepin, in the "Revue Horticole," page 579; also *Gardeners' Chronicle*, July 24.
MACLURA AURANTIACA.
CEANOTHUS AZUREUS LATIFOLIUS, extra fine.
SPIRÆA FORTUNII CALLOSA, beautiful snow white and dwarf.
JASMINUM VARIEGATUM, new. WEIGELIA, &c. See List.
A. GODWIN & SON, Ashbourne, having been appointed Agents for the Sale of the above, can supply them in quantities in November next at reasonable prices.

A Challenge to Amateur Growers.

CALCEOLARIA SEED.—The owner of this unrivalled strain is prepared to challenge any amateur grower to show Plants for Competition in Season 1865 for a Prize of 5*l*. Any person wishing to take up this challenge will please communicate at once with Messrs. M'RAE & Co., Tredegar Nursery, Bow, London, who are authorised to complete terms.
Packets at 1*s*. 6*d*. and 2*s*. 6*d*. post free, can be obtained of Messrs. M'RAE & Co., Tredegar Nursery, Bow, E.

WILLIAM BARRON, GARDEN ARCHITECT, LANDSCAPE GARDENER, &c., Sketty, Swansea.
WANTED, large, handsome Plants for Conservatory Decoration, viz., AZALEAS, CAMELLIAS, HEATHS, EPACRIS, RHODODENDRONS, ORANGE TREES, &c. Parties having such to dispose of will please communicate as above, and oblige.



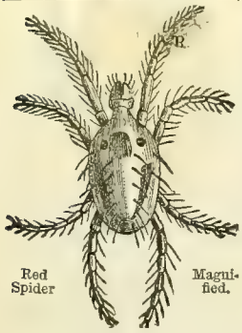
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s*. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s*., 3*s*., and 10*s*. 6*d*. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

REIGATE SILVER SAND, 12*s*. per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16*s*. per ton, or 1*s*. 6*d*. per bushel (sacks at cost price, or on hire).
Kentish and Hampshire Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.

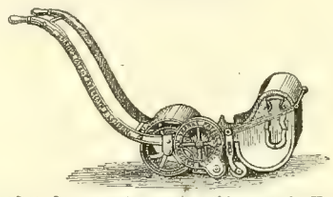
To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 258, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence.
Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs BARR & SUGDEN, Seedsmen, King Street, Covent Garden.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s*. 6*d*. per gallon, at the Manufactory, or 1*s*. 8*d*. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

SHANKS' NEW IMPROVED PATENT LAWN MOWERS.



Patronized on five separate occasions this season by HER MAJESTY the QUEEN, also by HIS MAJESTY the KING of SAXONY. Every Machine warranted to give satisfaction, and if not approved of can be at once returned.
Illustrated Price Lists free on application.
A. SHANKS & SON, Dens Iron Works, Arbroath; London Warehouse, 27, Leadenhall Street, E.C.
A stock of Machines always kept at the London Depôt.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.
J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.
8 gal. 12 gal. 16 gal.
£2 13 6 £3 2 0 £3 12 6
24 gal. 30 gal.
£5 0 0 £5 12 0



Fig. 571
J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.
15 gal. 28 gal.
£5 12 0 £7 0 0

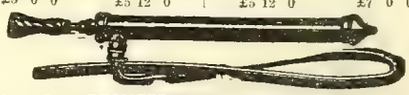


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. .. 0 10 0 ,,

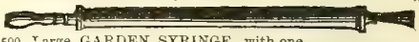
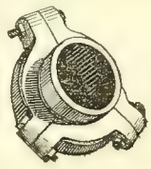


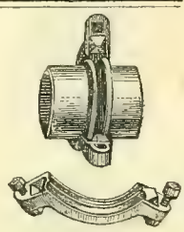
Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10*s*. 6*d*. each.
,, 589. Middle Ditto ditto .. .. .. 9 6 ,,
,, 588. Small Ditto ditto .. .. .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 ,,



Fig. 591. READ'S SYRINGE, with two roses and one jet .. 16*s*. 6*d*
READ'S SYRINGE, with one rose and jet 14 0
,, 592. Improved ditto ditto large .. 13 0
Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.



HOT-WATER APPARATUS,
WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

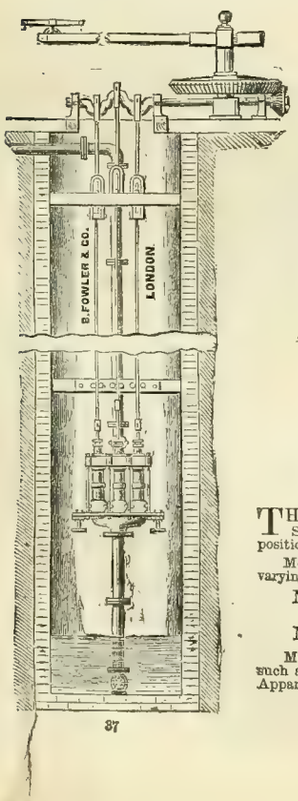
53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

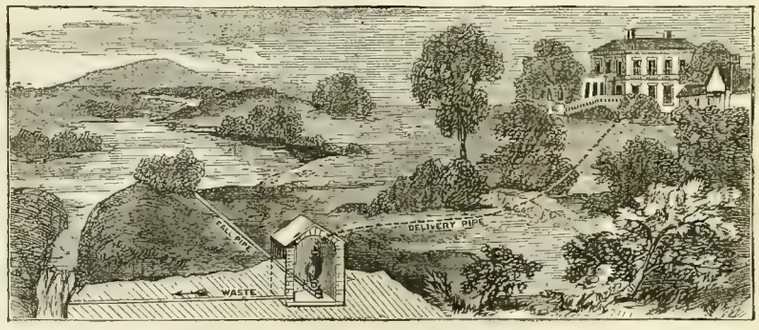
For a few prices, see last week's advertisement.

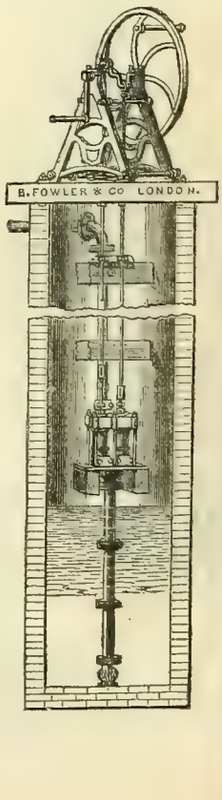
ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.



CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

37

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.



HAND GLASSES.



PRESERVE JARS.

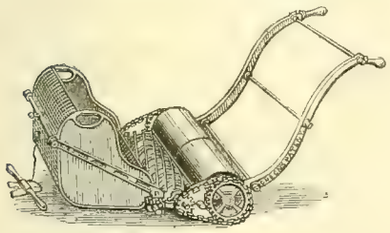


MILK PANS.

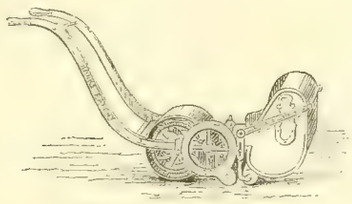
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

See Advertisement first week in the month, or on application.

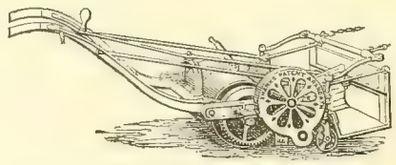
LAWN MOWING MACHINES FOR 1864.



GREEN'S MACHINE.



SHANKS' HAND MACHINE.



SHANKS' HORSE MACHINE.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	By a Boy ..	£3 10 0	18-inch ..	By a Man ..	£7 10 0
12-inch		5 0 0	20-inch	By two Men	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch ..	By a Man ..	6 10 0	24-inch		9 0 0

SHANKS' HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	By a Lady ..	£3 10 0	19-inch ..	Man and Boy ..	£7 12 6
12-inch		4 10 0	22-inch	By Two Men ..	8 7 6
14-inch ..	By a Boy	5 10 0	24-inch		8 17 6
16-inch ..	By a Man	6 12 6			

A STOCK OF MACHINES KEPT ON HAND, FROM WHICH ORDERS CAN BE AT ONCE EXECUTED. PRICED LISTS OF HORSE, PONY, AND DONKEY MACHINES, ON APPLICATION

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

GREEN'S PATENT SILENS MESSOR,

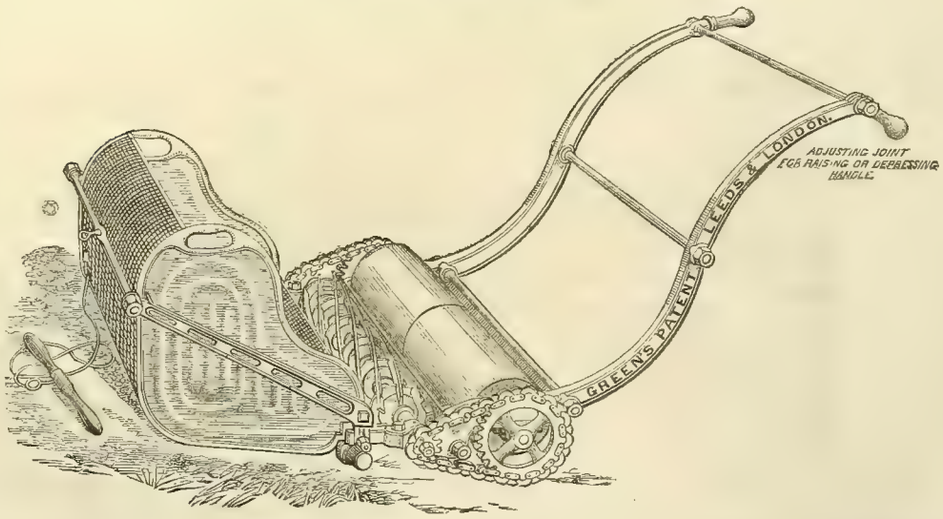
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

ILLUSTRATED PRICE LISTS may be had on application to

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.

Choice Seeds for Present Sowing.

ROBERT PARKER begs to offer the following, all of which are warranted new and the finest possible quality of their several kinds:

	Per packet—s.	d.
CALCEOLARIA, Herbaceous, mixed	2	6
CINERARIA, from named varieties, mixed	2	6
STOCK, Scarlet Intermediate	0	6
,, White, ditto	0	6
,, Giant Scarlet, ditto	1	0
,, White, ditto	1	0
PRIMULA SINENSIS FIMBRIATA, mixed	2	6

A PRICED and DESCRIPTIVE CATALOGUE of SEEDS and PLANTS is published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

		s.	d.
AZALEA INDICA, Stocks for Grafting	per 100	20	0
ALOCASIA METALLICA	each	7	6
CLERODENDRON BALFOURII	,,	10	6
RHODODENDRON COUNTESS of HADDINGTON	,,	21	0
,, JAVANICUM	,,	2	6
,, NUTTALI	,,	2	6
TRITOMA GRANDIS	,,	5	0
,, UVARIA GLAUCESCENS	,,	1	6

Intending purchasers are invited to inspect the general stock of Plants. DESCRIPTIVE and PRICED CATALOGUES of SEEDS and PLANTS are published, which will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Unequalled Seeds for Present Sowing.

DOBSON AND SONS' celebrated Strain of CALCEOLARIA. Sealed packets, with directions for sowing and growing, 1s. 6d., 2s. 6d., 5s.
CINERARIA, 1s., 2s. 6d., 5s.
PRIMULA SINENSIS FIMBRIATA, 1s., 2s. 6d., 5s.
PELARGONIUM, 2s. 6d., 5s.
Are unsurpassed for their superior quality, the saving of which is under our personal care, and are warranted to produce first-class flowers only. Woodlands Nursery, Isleworth, W.

To the Trade.

JEAN VERSCHAFFELT begs to intimate that his Stock of CAMELLIAS, well set with buds, is this year unusually large and fine, and begs to solicit early orders for the same, in order to secure a first choice.
A first-rate Stock of INDIAN AZALEAS is also to hand, and will be disposable in good plants at from 4l. a hundred.
CAMELLIAS with buds at from 6l. a hundred.
Apply to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

Major's Half-Shrubby Calceolaria Seed for 1864.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is prepared to supply the above Seed, saved from his new seedlings of this year, in packets, at 2s. 6d. per packet, or 3 for 5s., post free. Postage stamps may be sent in payment.
N.B. The following is the opinion of the Editor of the *Journal of Horticulture*, June 7, 1864:—
"H. Major, we have received your very beautiful blooms: they are even better than those you sent last year, both in shape and brilliancy of colour; and we wish that some of them could be seen at our London Exhibitions. You have certainly obtained a good strain."

TO the TRADE. CROP 1864.

PRIMULA SINENSIS FIMBRIATA ALBA.
PRIMULA SINENSIS FIMBRIATA ROSEA.
PRIMULA SINENSIS FIMBRIATA RUBRA.
PRIMULA SINENSIS FIMBRIATA ATRO-CARMINEA SPLENDENS (new).
PRIMULA SINENSIS FIMBRIATA STRIATA (new).
The above Seed has been grown from the finest strains in cultivation, saved from the choicest flowers only, and is guaranteed as unsurpassed. To parties who have not yet favoured us, we can refer to some of the principal growers in England and Scotland.

PRIZE PELARGONIUM
(Emperor Napoleon's large Gold Medal of Honour, April, 1864).
PELARGONIUM, large-flowered.
PELARGONIUM DIADEMATUM.
PELARGONIUM, Odier's 5-spotted.
PELARGONIUM, fancy.
Price on application.
STUART & Co., 10, Southampton Street, Holborn, W.C.

Beautiful New Plant, Dipladenia amabilis.

JAS. BACKHOUSE AND SON beg to call the attention of all lovers of Choice Plants to this superb DIPLADENIA, of which they possessed the entire stock. It is a new hybrid of unrivalled beauty; with the deep rosy-crimson flowers of D. crassinoda, approaching the size of D. splendens. Leaves about the size of D. Van Houttei, but of the form and texture of D. splendens. A most abundant bloomer, and for house decoration or exhibition invaluable. 10s. 6d. each.
J. B. & Son also offer the following:—
TRICHOMANES ZOLLINGERI.—Fine stove Fern from Java, of vigorous habit. Good healthy established plants 10s. 6d. each. Large specimens by special contract.
CATTLEYA WARCEWICZII, var.—Several nice healthy plants, just received direct from the party who first sent C. Warcewiczii delicata and C. Wagneri rosea to them. Prices on application.
SCHIZOSTYLIS COCCINEA.—Good strong plants for autumn flowering. 5s. each. For large quantities special prices on application.
York Nurseries.

CARTER'S FARMER'S VADE-MECUM.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At the Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger*, and the *Mark Lane Express*, Mr. Hughes said:—"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the Spring, and dressed it after harvest with Guano, and that in the Autumn, when my Sheep fed it off, it was up to their knees; and that I fed it off again this Spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. This Italian Rye-grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."
Mr. W. CARDWELL, of Nunnery Farm, near Sheffield, in a letter to Messrs. SUTTON, dated April 9, 1863, says:—"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."
Messrs. SUTTON have also been favoured with the following on the same subject:—

Mr. R. STUBT, *Pilming, September* 14, 1863.
"The SUTTON'S Improved Italian Rye-grass seed I had from you last year was very good; I think every seed came up. I have a beautiful plant, and have cut four good crops from it since the 30th of March last. It surprises my neighbours very much."

From JOHN BALDWIN, Esq., *Luddington, April* 11, 1859.
"It is certainly delightful to witness the Sheep up to their knees in your beautiful Italian Rye-grass."

From FREDERICK H. HALLETT, Esq., *The Manor House, Brighton.*
"I mowed some of your Italian Rye-grass at Christmas, 1856; again April 12, 1857; three times since in same year, and am mowing it again now, March 15, 1858. The cut on April 12 was 4 feet high, and a perfect mass of Grass."

J. H. FOWLER, Esq., *Eastleach, May* 16, 1862.
"I seeded some Rye-grass this last year, the seed of which I had from you, and sold it for 6s. per quarter more than any other sample in the market, in consequence of its very superior quality. Your Turnip and Swede seed also produced the best roots I ever saw. They were universally admired in this neighbourhood. Your Champion Swede is, I am satisfied, the best that can be sown; mine lasted and were quite juicy to the end of March, and none were rotten."

SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.
PRESENT PRICE 6s. per bushel, carriage free, in quantities of 8 bushels upwards. Quantity required per acre if sown alone 3 bushels.
Royal Berkshire Seed Establishment, Reading

CARTER'S GARDENER'S VADE-MECUM.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—s.	d.	s.	d.		Per pkt.—s.	d.	s.	d.
PRIMULA	2	0	and 3	6	INTERMEDIATE STOCK	0	6	and 1	0
CINERARIA	1	6	and 2	6	BROMPTON do.	0	6	and 1	0
CALCEOLARIA	1	6	and 2	6					

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.
A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.
The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.
Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.
Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER begs to announce that he has arranged for the distribution of the stock of this very distinct and valuable EARLY WHITE GRAPE, and that the plants will be sent out early in autumn. Full particulars as to its qualities will be given in future advertisements. In the meantime, and during the whole of the season, visitors to the Gardens of Dalkeith Palace will have opportunities of seeing and judging of its merits, as a large quantity of pot and permanent Vines are now fruiting at that establishment.
Strong Planting Canes, 21s. each; Extra strong Fruiting Canes, 42s. each. Orders are now being booked, and will be executed in strict rotation.
Exotic Nursery, Tooting, Surrey, S.

TRADE MARK.

HALLETT'S PEDIGREE NURSERY WHEAT.

Seed required—In September .. .. .. 4 bushels on 10 acres.
In October (1st half 4 bushels (On 8 acres. 2d half (On 6 acres.
In November .. .. .. 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.
Apply to FREDERIC F. HALLETT, Esq., F.Z.S., the Manor House, Brighton, Sussex.
NOTE.—This Wheat will not after the present season be again offered by Mr. Hallett to the public until 1868 at the earliest.



Cabbage Seed for Present Sowing.

SUTTON AND SONS can now supply the best sorts of CABBAGE SEED for early Table use next Spring and Summer.
Also the large DRUMHEAD CATTLE CABBAGE, which should be sown now for Feeding in the Autumn of next year, and smaller kinds for Sheep Feeding early next Summer.
Prices moderate, but various according to sorts.

Royal Berkshire Seed Establishment, Reading.



New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS, for Sowing in August and September.
This excellent Turnip if sown in the month of August will be ready for Feeding off in October and Novemuer, or will stand the Winter for Spring Feeding, being quite hardy.
Price 1s. per lb.; 42s. per bushel.
CARRIAGE FREE, except small parcels.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, being raised from Vines growing at their Nursery, and a selection of the most approved varieties cultivated, including also the new varieties offered by other growers this season. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"
Containing full descriptions of 50 most desirable varieties, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.
B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited. A List of those who have favoured him with orders will be published shortly.

PRICES:
Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

Dr. HOGG'S *Report on the Royal Vineyard Grape:*
"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

NEW HARDY CLIMBING PLANTS.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.
Awarded by the Royal Horticultural Society, August 4, 1863.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the public, for the first time, their beautiful rich coloured, free flowering Clematises that they can recommend with confidence, being convinced when known they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants sent out strictly in rotation in October.
For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Gardeners' Chronicle*, January 9, 1864, on Meritorious Plants; *Journal of Horticulture*, August 11, 1863.

Plants, 15s. each; extra strong, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.—The next Exhibition of this Society will be held in the Park of the Lord Bishop of Durham, on FRIDAY, August 26, when the following and numerous other valuable PRIZES will be awarded:—

For 6 Stove and Greenhouse Plants, 10*l.*, 7*l.*, 4*l.*, 2*l.*, 1*l.*
For 6 Handsome Foliaged Plants, 3*l.*, 2*l.*, 1*l.* 10*s.*, 1*l.*, 10*s.*
For 24 Dahlias, 7*l.*, 5*l.*, 3*l.*, 2*l.*, 1*l.*
For 9 Hollyhock Spikes, 5*l.*, 3*l.*, 2*l.*, 1*l.*
For 6 Exotic Ferns, 2*l.*, 1*l.* 10*s.*, 1*l.*, 10*s*
For 12 Dahlias, 3*l.*, 2*l.*, 1*l.* 10*s.*, 1*l.*, 10*s.*
For 24 Hollyhocks, Cut Blooms, 2*l.*, 1*l.* 10*s.*, 1*l.*, 10*s*
For 9 Gladioli, Single Spikes, 3*l.*, 2*l.*, 1*l.*, 10*s.*
For 8 Dishes of Fruit on Basket or Tray, 4*l.*, 2*l.* 10*s.*, 1*l.* 10*s.*, 1*l.*, 10*s.*

Complete List of Prizes on application to Secretary.

N.B.—The Full Band of the First Life Guards and three other Military Bands will perform during the day.

RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.

President, The Rev. Dr. Temple.

The ANNUAL SHOW of the above Society (open to all England), will be held at Rugby on TUESDAY, August 30.

Upwards of 120 Prizes in Class 5 will be offered for Plants, Fruits, Cut Flowers, Vegetables, &c., including a Silver Cup of the value of Six Guineas, with Second and Third Prizes of Three Guineas and One Guinea, for the best Collection of 8 Stove or Greenhouse Plants in Flower.

Entries to be made on or before the 23d August next. Schedules of Prizes and further particulars may be obtained on application to

John S. Savage, } Hon. Secs.
Wm. Mason, }

Rugby, Aug. 13.

BANBURY HORTICULTURAL SOCIETY.

OPEN PRIZES—1864.

The EIGHTEENTH ANNUAL EXHIBITION of this Society is fixed for TUESDAY, August 30, when, in addition to the usual number of Prizes to be competed for by Members, the following are offered, open to all England, on payment of an Entrance Fee of 2*s.* 6*d.*

For the best 6 Stove or Greenhouse Plants, either in Flower or Ornamental, of at least four different Genera, but not Fuchsias or Annuals, 1st Prize, 3*l.* ; 2d, 2*l.*
For the best 24 Dahlias, 24 varieties, 1st, 3*l.* ; 2d, 2*l.*
For the best 18 Hollyhocks, 2 Blooms of each 1st, 2*l.* ; 2d, 1*l.*
For the best 12 varieties of Verbenas (5 Trusses in a bunch), 1st, 1*l.* ; 2d, 15*s.*

The Judges may withhold any prize if the production exhibited is not considered worthy.

Intending Exhibitors must give notice to the Secretary on or before Saturday, August 27.

The Society will, if requested, convey the productions from and to the Railways.

The Bands of the Coldstream Guards and the Third Oxfordshire Rifle Volunteers and the Orpheus Glee Union will perform on the Grounds.

For further particulars, apply to E. J. Hartley, Acting Secretary, 57, High Street, Banbury.

ROYAL HORTICULTURAL SOCIETY. SOUTH KENSINGTON.

Future Arrangements.

24th August, Wednesday, and following days—Show of New and Rare Plants at South Kensington.
26th August, Friday—Prince Consort's Birthday: Admission Free at South Kensington Gardens. Music all day.
28th August, Saturday—Flower and Fruit Promenade at Chiswick, admission 1*s.* Band at 3.
24th September, Saturday—Promenade and Grape Show at Chiswick, admission 1*s.* Band at 3.
Promenades in August and September, every Monday, admission 6*d.* ; and Saturday, 1*s.* at 4.
19th October, Wednesday and following days—Fruit and Vegetable Shows at South Kensington.
16th November, Wednesday, and following days—Chrysanthemum Show at South Kensington.
7th December, Wednesday and following days—International Fruit and Vegetable Show.
26th December, Monday, and following days—Perfumes from Flowers and the Processes of Distillation.

The Gardens are now open daily. Admission, Mondays, 6*d.* ; Tuesdays, Thursdays, Fridays, and Saturdays, 1*s.* ; Wednesdays, 2*s.* 6*d.* ; Sundays, by Fellows' personal admission or orders.

On the days of the Band Competition, Volunteers in Uniform are admitted at half price.

The Gardeners' Chronicle.

SATURDAY, AUGUST 13, 1864.

MEETING FOR THE ENSUING WEEK.

Tuesday, Aug. 16 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington .. Noon

THE theory of the ACTION OF MANURES is a subject upon which it is of the highest importance that all cultivators of the soil should be correctly informed, and yet, if we are to trust some recent remarks of Baron LIEBIG,* it is a subject upon which English cultivators are very much at fault. The Baron charges it against us that we set about making one-sided and insufficient experiments, and then draw from them false conclusions as to the value of the agents employed.

It is in this way that the charge is made out. We have learned by the aid of science, it is said, that plants require for their normal growth a number of elements, as carbon, phosphorus, silica, ammonia, potash, lime, magnesia, &c., most of which are furnished by the soil; and we have also learned that these must all exist together and work together in building up the vegetable fabric. Again, no one of these different substances can replace or discharge the functions of another, so that if one be wanting, although there may be an abundance of the rest in the soil, the plant cannot thrive, or if one of them be insufficiently represented, the crop will suffer in direct proportion to the element that is wanting. Further than this, it is contended that ammonia possesses in itself no higher nourishing or manurial value than lime, phosphoric acid no higher value than potash, and so on.

This is LIEBIG'S doctrine; but English cultivators do not, he says, generally admit the doctrine, which, however, he maintains, is based on natural laws. On the contrary, they make experiments with manures, and draw conclusions as to their value, on evidence which is sufficient only to prove the deficiencies of the soil to which the manure has been applied, and not the true plant-feeding value of the latter, which they nevertheless set down as determined by one or two trials of this sort. For instance, phosphoric acid being found to have little influence on corn, but to be potent with Turnips, and salts of ammonia being found beneficial to corn, but to have no influence on Turnips, a so-called practical doctrine comes to be deduced, namely, that nitrogen (ammonia, nitric acid) is especially efficacious applied as a fertiliser for the corn crop, and that phosphoric acid has the same beneficial action on the Turnip crop. But LIEBIG goes on to urge that this mode of testing or estimating the value of manures is altogether fallacious; for if it be once proved as an empirical law, that ammonia, phosphoric acid, potash, lime, &c., are nutritious elements, and as such indispensable for all plants, there can be no further doubt of their efficacy in every single case, and no additional proof of their value can be needed. The fact of obtaining an increased bulk of a particular crop by the use of salts of ammonia or of superphosphates, is not in the least wanted to prove the efficacy of these manures; because this is already known and undisputed, nor does the fact that no such increase may follow from the use of potash or lime prove that these latter substances are not in themselves efficacious. Such facts indicate only what elements of food are abundant or wanting or available in a particular soil, and prove nothing as to the general efficacy of a manuring agent. The results of such experiments establish only the quality or nature of a particular plot of ground, and are consequently of little interest even to those who may have to deal with an adjacent plot.

It is then argued that there are certain conditions under which phosphoric acid or ammonia may not, either alone or together, exert the slightest influence on the growth of a plant. Thus: "supposing phosphoric acid, potash, lime, magnesia, silicic acid, &c., to be indispensable conditions for the efficacy of ammonia, and supposing ammonia, potash, lime, or silicic acid, to be indispensable conditions for the efficacy of phosphoric acid," it follows that if land manured with ammonia alone gives a higher return than it does without it, all that is proved is that this land "contained an excess of phosphoric acid, potash, lime, &c., inefficacious because a certain proportion of ammonia was wanting, but rendered efficacious by increasing the quantity of ammonia in the soil; while without this excess of available but not efficacious elements, the largest manuring with ammonia would have had no effect." And so of other substances.

It is really astonishing, concludes LIEBIG, that men of experience can be made to believe that because a manure has produced on certain land a high return, it should produce an equal effect, or possess an equal value, on all other lands; for if the efficacy of a manure, A, be believed to depend on the presence and quantity of the manures B, C, D, &c., it must, for such a result to follow, be assumed that all the land in a country contains the same quantity of B, C, D, &c., whereas it is indisputable that there are scarcely two fields of the same country, often not two fields on the same estate, which possess the same identical geological, chemical, or mechanical character, and consequently the quantity of the manures B, C, D, must vary in each instance. It must be plain, therefore, that a given "quantity of manure A, be it ammonia, phosphoric acid, or potash, must necessarily have quite a different operation in proportion as the land may be differently constituted. Even stable dung, which contains all the nutritive elements in conjunction, produces different effects when applied in the same quantity to different fields." Thus it follows "as a corollary, from the law of equality of nutritive value belonging to the constituents of food, that the element or elements which are either wanting in the soil, or are contained in it in insufficient quantity, are those which will prove of preponderating value in the manures applied."

* Popular Science Review, iii., 438.

THE following letter from Sir RODERICK MURCHISON appeared on the 6th of August in the *Reader*, and we reproduce it here, partly on account of the interest attached to the subject, and partly because we gave, so long ago as 1849 (at p. 612), a rather full account of these ESCULENT LICHENS, together with figures of two of the principal species, and again adverted to the subject in 1856 (p. 84), on the occasion of figuring an analogous substance from Melbury, in Dorsetshire. A letter, moreover, from Erzeroom, had previously been given in 1849 (p. 581), containing information received directly from Dr. HEINIG, the salutary physician at Byazid. A section of one of the specimens received originally by Dr. LINDLEY from Erzeroom is given in the "Introduction to Cryptogamic Botany" at p. 414, showing the very curious disposition of the gonidia.

The sudden appearance, indeed, of these and one or two other esculent Lichens has been familiar to botanists from the time of PALLAS. Indeed, one of the species had been sent a century before to DILLENIUS by AMMANN from the neighbourhood of Orenburg. Similar instances are not of unfrequent occurrence in Algeria.

"29th July, 1864.

"I have received a letter of the 14th inst. from my distinguished friend M. HAIDINGER, of Vienna, in which he thus alludes to a recent so-called fall of Manna in Asia Minor.

"'Baron PROKESCH-OSTEN, the Austrian Internuncio at Constantinople, sent me lately (6th July) a portion of this Manna, which fell with a gust of rain at Charput, north-west of Diarbekir, in Asia Minor, and I have prepared a communication thereon, which is to be read to day before our Academy of Sciences. Though not quite unknown, such falls of Manna certainly deserve more attention than has hitherto been bestowed on them. It is well known that the substance of them is a Lichen, the Parmelia esculenta of PALLAS, who found it in the steppes of the Kirghis and described it. PARROT and LEDEBOUR afterwards noticed it. A good account of this Lichen was given by Professor EDWARD EVERSMANN, of Kazan, who likewise examined it in the Kirghis Steppes. These falls are now known to extend far to the west, crossing the Caspian Sea to Van, Diarbekir, Malatia, and Jenirchehir. There was a fall at the last mentioned place in January, 1846, of which Dr. REISSEK gave an account at one of the first meetings of our "Freunde des Naturwissenschaften."

"'EVERSMANN had observed that these bodies, having much the form of Mulberries or Raspberries, are always perfectly detached, and grow larger from the moment when first observed, extending themselves on all sides. In the specimens sent to me by Baron PROKESCH-OSTEN, I found, however, that a good many of them are really attached to a strong support of pretty large greenish granite, sandstone, and a marly limestone of tertiary aspect. I have not, however, as yet sufficiently examined all the specimens.

"'This Manna is ground into flour and baked into bread; the Turkish name of it being Kudert-boghdasi, which means Wonder-corn or grain. Though used as a bread, its composition is remarkable; for it contains more than 65 per cent. of oxalate of lime, whilst on the other hand it has within 25 per cent of amylaceous matter.'

"I may observe that this amylaceous matter is allied to starch, and according to BERZELIUS, Iceland Moss contains 80.8 per cent. of it. It would appear, indeed, that several species of Lecanora are eaten by the nomades of the desert in Asia besides the Parmelia esculenta.

"On receiving the interesting letter of M. HAIDINGER, consulted the valuable 'Dictionary of the Bible,' edited by Dr. W. SMITH, and did not find under the name of Manna any allusion to the authors who have described it as a Lichen. As the appearance of the Manna in question was preceded or accompanied by a fall of rain, is it not probable that moisture, combined with a peculiar state of the soil, occasioned a sudden growth of the Lichen (just as Mushrooms spring up), rather than that the Lichen should have fallen in the rain?

"I do not here allude to the exudations from various trees and shrubs of the East described by AVICENNA, BURCHHARDT, and RAUWOLF, as noted in the 'Dictionary of the Bible;' for none of these substances, though called Manna and used in medicine, can be supposed to be the substance mentioned in Holy Writ, whilst the Manna spoken of in this letter, as analysed by M. HAIDINGER, seems to come into the same category as the Man-hu* of the Hebrews, who gave it that name, or, "what is it," from the sudden appearance of a thing previously unknown to them.

"RODERICK I. MURCHISON."

The only new fact in HERR HAIDINGER'S letter is the existence of a point of attachment, which has, we believe, never been observed before either in Asiatic or African specimens. That there must have been something of the kind is almost self-evident, though in general it may have been very minute, and separation may have taken place at a very early period. In the globular free condition of Parmelia cæsia, which, like the Lichen-Manna, is carried about freely by the wind, it is believed that there was once a point of attachment, though perfect specimens show no trace of it.

As regards the sudden appearance of the Manna, it is certainly worthy of note that it always comes with rain, but it is scarcely possible, from its abounding so much in mineral constituents, that it can be formed in the course of a few hours, a circumstance, moreover, which would be entirely at variance with the nature of Lichens in general. Besides it occurs in dense masses several inches in depth, and competent authorities assert that not a trace of it existed previous to the recorded Manna falls. Any one indeed who has examined specimens, which even in the dry state sometimes weigh two scruples, could not believe that it had escaped observation, for it is not like Nostoc dried up to a mere inconspicuous film under the influence of a burning sun. There would besides be no difficulty in such bodies being drifted over the extensive steppes by boisterous gales, and the circumstance that such gales attended by rain were productive of Manna after a long drought, when the people were almost perishing with hunger, has led the natives to look on the supply, coming in their utmost need, as miraculous. The Witch Balls, consisting

* In the text Man v'hua, literally "what he," which is singularly near the Arabic Man howa, or, in common parlance, Aish howa, "what is that."

of an interwoven mass of the stems of herbaceous plants, which travel hundreds of miles over the steppes, are in fact quite as marvellous as these Lichens.

There is not the slightest reason for thinking that this production has anything to do with the Manna of the Israelites; it scarcely answers any one of its characters. Lecanora esculenta, however, more especially has often been so regarded, rather from its supposed miraculous origin than from any sound reason. Among other instances it may be mentioned that specimens which were supposed to have fallen from the clouds exist in the Museum of Natural History in the Armenian Convent of S. Lazzaro, in an island of that name near Venice. Its obvious differences from the true Manna may have induced the writer of the article in Dr. SMITH'S Dictionary to omit any mention of it, though, indeed, Cryptogamic plants, as, for instance, vegetable Rust and Mildew, do not find a place in the work, though something might have been said about them with advantage.

It may be remarked, that besides the three principal esculent Lecanoræ, a species which forms a crust on the soil is often eaten in Tartary. This, it may be observed, is constantly accompanied by Nostoc.

The great proportion of oxalate of lime must render these Lichens a very poor article of food. They are perhaps more frequently ground up with Wheat, than used simply. The sheep that feed on the Lichen exist, but do not thrive.

We have more than once in very hot weather seen pearls of Manna drop from trees, especially from the Elm, and have swept them up like sugar plums from the smooth top of a wall. It is obvious, however, that such a number of persons as the Israelites who went out of Egypt could not have been sustained by such a precarious supply. Such a circumstance would be more miraculous than the miracle itself, which we shall never account for satisfactorily by any ordinary solution. *M. J. B.*

SOME one has noted as a characteristic of the present age its tendency to diffusion, expansion, and universality. Horticulture and Landscape Gardening, quiet professions as they are, are nevertheless in full share influenced by this onward movement. Horticulture is rapidly becoming a science built on the solid and secure foundation of the physiologist's labours in the field of vegetable anatomy. Landscape Gardening, roused and excited by the progress of the sister arts and aided by the introductions of modern travellers and hybridists, has entered on a new era, and embraces a field wide as it is fertile, and one in which the most industrious and gifted may find ample scope for the exercise of his ingenuity and taste.

Time was when LANDSCAPE GARDENING had but few professors, and the materials with which they had to work were limited in the extreme. How would BROWN and REPTON, PRICE and GILPIN have rejoiced over the TREES, SHRUBS, and PLANTS which their successors have at their disposal? Readily accessible by hundreds and thousands, in a condition to produce immediate effect, and at a price which recent improvements in the art of propagation have made marvellously low, we can only imagine what would have been the effect of England's landscapes *now* had these things been accessible in their day.

But while modern landscape gardeners revel amidst the wealth and variety of these later times, they should not forget that the happier days in which they work entail upon them increased responsibilities. And while reminding them of this fact, we cannot but record here our conviction that they have not hitherto sufficiently availed themselves of the treasures recently brought within their reach. If they are acquainted with them, they have not shown the alacrity displayed in other branches of art in availing themselves of their aid. If they are not, it is surely an important part of their business to study and master them. We predict that he who shall first do this, and display in good taste the almost infinite variety in form and tint now existing among trees and shrubs, will not only obtain for his profession a higher rank, but win for himself the best position in it.

Familiar acquaintance with many of the leading gardens and estates in England compels us to say that the great want in the landscape is VARIETY. There is a monotony in form and colour that should be, and must be corrected. Why indeed should it not? There is no lack of materials. As to form, there are spreading, columnar, and weeping, large-leaved and small-leaved trees in abundance. As to colour, there are light green, dark green, silver, gold, and purple trees shrubs and plants *ad infinitum*, to say nothing of the varied tints of spring, and the changing hues of autumn. When planting an estate or garden, these objects, or the best of them, should be so chosen and arranged as to heighten the beauty of each other by harmony or contrast; and convert the present unmeaning landscape into a series of beautiful pictures, perfect in themselves, yet sufficiently connected to form a complete whole.

Are we met by the objection that there is not even yet sufficient variety to accomplish all this? We join issue with the objector. It is true that we cannot find among trees and shrubs the bright colours and strong contrasts met with in flowers. But we do not want them. We would not have the whole country a flower garden. We seek not repetition or repletion, but would rather avoid both. Quite as appropriate in their sphere are the more sober hues. The remedy we seek is to be found in breadth rather than in intensity of colour.

In further elucidation of these views we are promised a series of papers from a well-known correspondent.

IN our number for June 18, 1864, we gave a notice of the interesting paper read by M. CAHOURS before the French Academy on the changes which take place in Fruit after it has arrived at that degree of maturity which makes it necessary to the Horticulturist to secure his crop. M. CAHOURS has lately laid another paper before the Academy on the RESPIRATION OF FLOWERS, which is not without importance, even in a practical point of view. The following are the points at which he has arrived, as summed up by the author, and which we copy from the number for July 16, 1864, of that admirable scientific journal "The Reader."

1. Every flower left in a limited atmosphere of normal air consumes oxygen and produces carbonic acid in variable proportions, whether the flower has smell or not.

2. The circumstances under which the phenomena are accomplished being identical, this proportion of carbonic acid increases in proportion as the temperature rises.

3. As a general rule flowers gathered from the same shrub, provided their weight is the same, produce a little larger quantity of carbonic acid when the apparatus in which the experiment is performed is exposed to the light, than when placed in total darkness; but nevertheless in some cases this proportion is sensibly the same under both circumstances.

4. When oxygen is substituted for normal air, the differences are less marked.

5. The flower while developing emits a little more carbonic acid than when it is in full bloom—a fact which can be explained by a more powerful vital action.

6. Every flower left in an inert gas emits small quantities of carbonic acid.

7. Of the different elements which make up a flower, it is in the pistil and stamens that the greatest vital power is concentrated, as they consume the largest quantity of oxygen, and produce the greatest proportion of carbonic acid.

Now it has long been known that under the influence of light while the green parts of plants give out oxygen, fixing carbon, the flowers or other coloured parts consume it to form carbonic acid, thus establishing a sort of equilibrium, so that the air is not materially altered as regards its constituents. Several of the points however noticed above had not been previously ascertained, and on reviewing the whole we may see that the prejudicial effect of flowers at night in heated rooms is not an old wives' fable. For though the quantity of carbonic acid formed under the influence of light is in many cases somewhat larger than that which is formed in a dark room, the difference is not great, and therefore, in addition to the evil influence of flowers at night as well as in day, we have to add that of the leaves, which no longer give out oxygen to replace that absorbed by the flowers. It appears, moreover, that the odour is a matter of indifference, and that where it proves injurious, as is sometimes the case in peculiarly susceptible constitutions, which are subject to "die of a Rose in aromatic pains," or a depressed condition of vital energy, its effects must be estimated independently of any other source of mischief. Full-blown flowers, moreover, appear to be less injurious than those which are just expanding, contrary to commonly received notions, and double flowers it should seem are less injurious than those in which the stamens and pistil are perfect. *M. J. B.*

—— IN consequence of the representations of some of the Rose growers, that the month of August would prove too early for the determination of the merits of SEEDLING ENGLISH ROSES, for which our prize is offered (see p. 506), so far at least as regards the testing of their perpetual-flowering qualities, we wish it to be understood that we are quite content that the consideration of the award should stand over, as suggested, till the 27th of September, the day on which the last meeting of the Floral Committee in that month will be held.

—— At p. 460 we invited attention to a hybrid Berberry from the Handsworth nursery, for which we proposed the name of BERBERIS STENOPHYLLA. The specimens we had then seen proved it to be a very handsome shrub in regard to its flowers, which were of the fine Apricot colour of B. Darwinii, and produced in racemes of from three to five together from the leaf-axils, instead of singly, as in B. empetrifolia, of which this new shrub has something the character, only that it is more vigorous. From samples which have recently been sent to us, we are able to say that the bushes are at this season laden with purplish-black berries, which must add greatly to their beauty, as well as prolong indefinitely the period of their effectiveness as ornamental shrubs. The berries, like the flowers, hang in racemes of from three to five from the leaf-axils, and are about as large as Currants in the samples sent to us, but we learn that they are smaller than usual this year, owing to the excessive drought. When we add that this Handsworth hybrid is of a very hardy character, that it makes strong shoots four feet long in a season, that it is clothed with neat narrow evergreen foliage, and adorned with a profusion of gay orange-coloured blossoms in early summer, we shall have said enough to show that it is likely to prove a very decided acquisition not only for our pleasure grounds and shrubberies, but also for our plantations and game preserves.

—— We learn from the *Journal of Botany* that the Imperial German L. C. Academy has conferred on Mr. RICHARD SPRUCE the degree of Doctor of Philosophy, in appreciation of his eminent services as a botanical explorer and traveller.

—— Mr. BELL, of Bretton Hall, mentions, in the *West of Scotland Horticultural Magazine*, that a small quantity of gas tar poured into a WASPS' NEST after dark, will most effectually destroy them. It is both the safest and easiest of the many plans he has seen tried to effect their destruction. A small piece of turf should be trodden into the hole after the tar is poured in. I have just had some nests dug up that were thus served "last night," he observes, and in every one the wasps were dead. We have seen the same plan adopted by Mr. RIVERS, who bears testimony to its efficiency.

—— Some few months ago the newspapers announced that the TEA-PLANT had been found in the greatest luxuriance and abundance in Pennsylvania, and that an American Tea Company had been formed, the natural inference from the language employed being that the Tea-plant in question was the genuine Chinese Tea. These remarkable, but apocryphal statements were noticed by us at the time (see *Gardeners' Chronicle*, 1863, p. 1034). We now learn from a notice by Dr. ASA GRAY in the *American Journal of Science*, that the Tea-plant referred to is the well-known Ceanothus americanus, the New Jersey Tea, the leaves of which were made use of so long ago as the period of the American revolution. Dr. GRAY states that he has examined a specimen of this new Tea, and is thus able with certainty to indicate its origin. Some one, he remarks, has stated that the beverage must have tried the patriotism of our great-grandmothers, but others report more favourably of its qualities.

HORTICULTURAL EXHIBITIONS.

THE following letter on this subject from Sir Joseph Paxton, M.P., to the Exhibition Committee of the Royal Horticultural Society, seems to open up questions of general importance, and will doubtless be read with interest.

7, Pall Mall East, London, July 20, 1864.

SIR,—Having been requested to give my opinion as to the nature and character of Exhibitions which the Royal Horticultural Society should encourage for the true advancement of Horticulture and its accompanying sciences, I have drafted out this letter, in order to form a foundation (or data) on which this matter can be discussed, and I trust with a good result.

1. No doubt the result of the Society's Exhibitions has, in many respects, been very advantageous to the cause of Horticulture, particularly the earlier ones. They have encouraged great improvements in the culture and management of plants, particularly in such plants as can be produced in flower at what may be called the London fashionable season; but they have by no means been productive of unmixed good. They have brought into existence an unnatural and artificial condition of things, which is not only objected to in the interests of gardeners themselves,

but is also opposed to the interests of the public, by causing what may be termed a spasmodic effort and exertion, which at other seasons of the year is unemployed, and, to a great degree, unproductive. I may illustrate this by stating that a good many years ago (and the same state of things now exists to a certain extent) I called to see a first-class London garden—forgetting that it was one of the Exhibition days, and I found only about six or eight plants in the garden, the others having all been trained—like a horse for racing—and had been taken to the show to win the stakes. In the same season, some time after this, I called again, and found the plants, having been their round of racing, all flowerless, and beginning to be placed under training for the next season for the same purpose; and this training was effected by keeping some plants back and forcing others, so that they might all flower together, and such plants as would not bear this treatment were not cultivated.

2. Every one, of course, says he has a right to do what he likes with his own plants, which I do not deny; and if a gentleman does not mind being 10 months in the year without flowers in order to make this great display, I have no fault to find with him; all I contend for is, *that* should not be the main aim and scope of the Exhibitions of the Horticultural Society. In one respect the Exhibitions of the present day have produced a good result by giving prizes for collections of beautiful foliage plants, as the culture of these plants (which look beautiful all the year round) is thus stimulated, and they are a great improvement in the garden.

3. But in other respects these great show cultivators grow very few plants which do not flower at the show seasons, and therefore leave the flowers which might be cultivated with great effect for other seasons of the year without much attention.

4. The true object of Horticulture should be, in my opinion, to increase the enjoyment derivable from it, and to diffuse it as widely as possible; to enable the owners of gardens to get the greatest amount of pleasure and satisfaction from their possessions, and to enable the general public to procure the greatest number of fruit, flowers, and vegetables, in the greatest quantity, of the best kinds, and at the cheapest prices.

5. In order to carry out this, there should be something like a continuous exhibition, so that a gardener would have no interest in forcing his plants unnaturally into flower; but if he had a beautiful specimen at any time he would know he could exhibit itwhere it would be seen and appreciated, and its merits rewarded. When the Horticultural Society was in its palmy days, one of its great sources of benefit and attraction was the fortnightly shows at their great room in Regent Street. It was then the practice for any gentleman in the country, if he had a new plant or a new fruit, to send it to one of these exhibitions at any time in the year, and the nurserymen brought every new plant there from their respective establishments. Dr. Lindley explained the nature and properties of everything as it appeared in each exhibition with his lucid and agreeable manner, in which on this subject he has no rival, and these meetings were intensely fashionable, and often densely crowded.

6. When the Horticultural Gardens at Chiswick were the leading gardens in the country for new plants, many gardens were supplied thence, and so they were never without great interest. They could not trust altogether to country gentlemen and nurserymen for plants for exhibition, and when the entries were deficient the shows were made up of beautiful plants from the Horticultural Gardens. Though, then, a Certificate of Merit from the Society meant something, and was prized at a high rate; it insured the sale of any plant which received it, and often practically represented a prize of some hundreds of pounds sterling—as many nurserymen had orders before the exhibition closed for very large amounts. It therefore appears to me that these fortnightly exhibitions should be renewed at once, and every attraction given to them. And considering the increase of commercial transactions relating to Horticulture, the facility of carrying anything from a distance, and the great influx of visitors into London in the season for a temporary sojourn, for the spring and summer months, it would be well to try a weekly exhibition without the descriptions, which in point of fact, would almost amount to a continual show. And they should be held in a place suitable for plants, where many nurserymen would not mind allowing them to remain all the time they were in full flower. One or two of the great shows might be still held in the Gardens, where the fashionables could attend to show themselves and look at each other; which they do on these occasions quite as much as at the flowers.

7. It would be too much in a letter of this sort to go into details as to how many branches of horticulture have remained stagnant for many years past; though it would not be irrelevant, it would occupy more space and time than I can now afford to give to it. But there is one subject that has pressed upon me so long, and I am so convinced of its damaging effects upon the commercial part of the supply of the finer fruits in the public market, that I cannot help reverting to it in this letter, and that is—the growth of fruits for sale by private establishments, in competition with the market gardeners. Many gentlemen keep gardens, partly for their own use, and partly for the sale of the produce, which they sell to cover part of the gardening expenses; and this is done to a very large extent and by some of the highest private garden establishments in the country. The result is, that fruit, with all the facilities of cheap glass and cheap coal all over the country (compared with 40 years ago) is absolutely dearer than it was 40 years since; while the produce of real market gardens is perhaps 50 per cent. cheaper and 100 per cent. better, the forced fruits in which the private establishments compete have made very little progress in goodness. If you went to Covent Garden Market between 30 and 40 years ago and looked at the fruit, you would find the fine Grapes were grown by Mr. Andrews, the great market gardener at Vauxhall, Mr. William Wilmot, of Isleworth, or some other good market gardener of the day; whereas, if you go there now, the same kind of fruit is from some private garden; and supposing a large quantity of fruit is wanted for a big party, none of the great fruiterers will undertake to supply you until they have written or telegraphed to some private establishments to know what they can get.

8. The first question that naturally strikes you is—How is the public worse off for this change? I can answer this, I think, to everybody's conviction, in a few words: A private establishment will very often sell in the early season 1 lb. of Grapes or a dozen Peaches, regardless of cost, at a price which it would ruin a market-gardener to attempt. This price will content a private gentleman who does not know the cost of growing them, but competition at these prices would ruin any market-gardener, who is nearly deterred from growing them at all; and therefore the regulation of the supply of the market is left in the hands of these limited private establishments. If the market-gardeners were not met there, they would try to excel each other in the cheapness and goodness of the fruit, as they do in all other things, and in a short time the market would have a regular supply at half the present cost of spring fruits, which is not attempted now on a scale large enough to compete with the great number of private establishments who send the best of their things, and pocket their losses, and the public have in consequence a very limited supply. I daresay it answers the purpose of the fruiterers very well, but it is very detrimental to the public.

9. And now, Sir, before I close my letter allow me to say a word or two about what is done in the sale way by the Royal Horticultural Society. It is quite legitimate and right to propagate and distribute any new plants (which it has brought into the country) to Fellows, but I object *in toto* to buying new plants, cultivating them, and balloting for them; this is (allow me to say) an infringement of the legitimate business of the nurserymen, who can do it much better and cheaper than the Society can. I am, Sir, yours very truly,

Joseph Paxton.

THE SUN AND RAIN.

The sun is the "Fire Queen," and the quickener of the vegetative world. Where its beams are not, or where its beams are withheld for any length of time, winter sets in (even though it be summer time), and bleakness and barrenness ensue. It is not only the daily proclamation of the existence and glory of our Creator, but it is the proclamation of the goodness of Him who "maketh his sun to rise upon the evil and the good." Without it the cultivator could not succeed. By artificial heat and light, no doubt, things usually dependent on the sun may be procured; but still the colouring of fruits and flowers is dependent on solar light and heat; moreover, the sun is the flavourer of fruits, and the saccharometer of the world. Fruits may be procured by artificial heat under glass in sunless summers, but flavour and colour are dependent on sun and air.

The moon has no chemical effect upon the earth, and as its light is only borrowed and feebly reflected, it has no heating power. It is an opaque body, devoid of fire, and always presents the same side to the earth. It is not however of the moon, but of the sun and rain, that I now propose to speak.

The sun is a huge globe or liquid mass of fire, the boiling cauldron of the sky. It is 1,300,000 times greater than the earth, and is distant from us 94½ millions of miles. Were it as near to us as the moon, which is distant from us 237,000 miles, the earth and its inhabitants would be incinerated. For several summers we have had but little of its heat; but this summer "nothing has been hid from the heat thereof." Agriculturists like this heat. They are gainers on the whole, after the deduction of the sun's parching demolitions. Horticulturists cry out badly for rain, especially those who have not free access to water. This leads me to observe that in constructing gardens, we should select a place with free access to water. Deficiency of pumps is one of the causes of failure in horticulture. It is one of the most noticeable defects of most English gardens, even of our larger gardens, where there is no other defect. The sun can scarcely be too hot, provided rain or pump water is in the same ratio. If there is no rain, and yet free access to water, give the English labourer a trifle extra and some beer, and he will carry out water enough in a week to drown Deucalion, the mythological Noah. These encouragements will produce rain-makers more effective than those in heathen countries. As the sun's heat and rain, for vegetation generally, should be in the same ratio, I am led to speak of rain.

Rain, like the sun, is a heavenly gift, distributed alike to "the just and unjust," and they are mentioned in connection in Scripture. Pump-water, even where it can be commanded, is not equal in effect to rain. The quality of rain-water is better and more genial to plants than pump-water, which loses its chemical properties by filtration. Moreover, when we water, the sun exhausts the water nearly as fast as we pour. Rain touches all the points of the roots; and the atmosphere is attempered and rendered more genial by it. We can water but we cannot check the sun's exhausting power, nor genialise the atmosphere. We water the roots (imperfectly), but Providence soaks and cleanses the whole plant.

The sun and rain, then, are the fertilizers of the world; and it is of no use to complain of the deficiency or excess of one or the other. The time will be better spent in adopting such measures of supply for both as the intellect which has been given us suggests, viz., artificial heat for certain things, and inordinate supplies of water to meet any deficiency, or the excessive power of the sun. It is impossible for gardeners to satisfy their employers unless their employers supply them with such agency as will meet the seasons in this climate. It is with a view of procuring more water-power, therefore, for our cultivators, that I have written this article. *W. F. Radclyffe, Rushton.*

NOTES ON GARDENS.—No. XVI.

Botanic Garden, Oxford.

(*Concluded from page* 748.)

To find the more important plant houses we again pass into the river-side garden, and here we enter the stove Aquarium, a ridge and furrow structure. There is no Victoria to be seen, for its culture has been abandoned for the variously coloured beauties of the Nymphæaceæ, the majesty of tropical Arads, and the interest of the numerous things that dwell on the margin of the deep, and thereby derive for man an additional charm. Surely, when it is impossible to have both, it is better to have all this than one single giant, and the occasional satisfaction of astonishing somebody who had not before seen the Royal Water Lily. No flowers with which we are acquainted are finer to look upon than those of the tropical Water Lilies rising boldly out of the changeful element, and here they were in a sheet of bloom. There were red, blue, and white Nymphæas, viviparous Nymphæas, pigmy Nymphæas, and odoriferous Nymphæas, all shut up and asleep during the heat of the day, but —as everybody should—I had an early morning peep at them, when fully expanded. Nymphæa gigantea, which was in flower, and the true N. stellata were considered among the best and rarest; and others might be mentioned almost *ad lib.*; but enough, the collection of Water Lilies is probably the best in the country. And here were some strange subjects which I had not seen off *terra firma* before, but evidently much enjoying the water in which the great pots containing them were plunged. Xanthosoma violacea, a great dark-leaved, dark-stemmed Arum, was 8 feet high, with leaves 3 feet long by 2 broad, and had an array of pointed runners of very much the colour and rotundity of mahogany rulers, making away from the pot on all sides. This plant, for producing fine effect in large stoves, aquariums, &c., will be invaluable. Hibiscus palustris, with flowers like those of a good single Hollyhock, rose from the water in a very luxurious state, nearly to the roof. The Ouvirandra was here of course, but as usual in most places the necessity for providing it with a larger pan was not immediate. Colocasia edulis and C. edulis purpurea were associated with the Xanthosoma in the water, and, with Thalia dealbata and the Nelumbiums, produced a very striking effect. Scarcely a less telling plant was Acrostichum aureum, which sent fronds from the water 8 feet high, with an abundantly flowering mass of Houttuynia at its base. With the commoner inhabitants of aquariums, flourished Saccharum violaceum and aureum, which is thought highly of by Mr. Baxter, as its flowers are greater favourites with the ladies than those of any other ornamental Grass he has got; also Philydrum lanuginosum, Herpestis Monnieria, the Nardoo, Carolina and other varieties of Rice, Hydropeltis purpurea, and Pilularia globulifera.

The Nymphæas were not by any means luxuriantly grown, as if such were the case a few of the freer growing species would soon monopolise a tank 27 feet by 17; but in the comparatively dwarf, firm, and free-flowering state which Mr. Baxter prefers, and which he effects by having a continuous flow of air, passing in from a drain, up through the pipes, over the tank and out at top; both drain and top-ventilation being at work night and day during the warm season.

From the aquarium the Fernery is entered, but after York and Rockville it is almost hopeless to record anything interesting about Ferns. Callipteris prolifera and esculenta, Lonchitis pubescens, and Rhipidopteris peltata the curious, were noticeable; and the contents of this house with the larger specimens in various others, leave the garden very well off for a general collection. Here we begin to meet the medicinal plants, &c., Musa textilis, the Manilla Hemp plant being one of the first, with some young Cocoa Nut plants; and in the Conservatory which was next

entered, some Ferns working up to the arborescent state, such as Alsophila capensis and A. excelsa, Cibotium Schiedei, and a fine Dicksonia. Thrinax parviflora was about 2 feet high and as much across—a specimen brought from Cuba by Professor Daubeny in 1838, and yet so dwarf. Those who having but small houses, yet desire in them the grace of the Palms, without the uncomfortable prospect of parting with a fine specimen, or having it give free roof ventilation some fine morning, should therefore certainly employ Thrinax parviflora. Now Mr. Baxter is in a dark corner, his arm deep in a water pan, and he pulls out a body remarkably like one's grandmother's worsted ball covered with Conferva, and I begin to think he has recovered the playtoy of a little Baxter. But no; it is the Goat Ball Conferva, C. ægagropila, quite a dense round ball 2 inches in diameter, with a lot of young Goat Balls, round and dense, too, but coming down to the size of marbles. So we look at the "queer fish" under a glass, and it is safely put back again. The stove I entered last, and found it almost a wood of fine old specimens, that completely hid the roof and walls. Here Pothos acaulis was of great size, and throwing its flowers freely to the ground; with Pandanus odoratissimus, very fine; the Old Man Cactus, and Cereus heptagonus, remarkable specimens; Aloe pseudo-ferox, a fine bush of a fine old thing; Arum viviparum; a great plant of the Paraguay Tea, and some good Ferns.

With the indispensable medicinal plants, &c., and those I happened to be very familiar with, were grown Amyris toxifera, Artocarpus Locucha, Cerbera Tanghin the Ordeal tree of Madagascar, Genipa americana, and Omphalobium Lamberti, which furnishes the beautiful zebra wood of the cabinet makers. It was altogether too hot to think of asking about the heating apparatus; but of the old four-wheeled waggon spoken of in the "Gardeners' Magazine," "which in severe weather is filled with burning charcoal and drawn backwards and forwards along the front path by the gardener," or its results, I saw nothing.

For nearly the whole of its existence previous to 1848, the garden was for the most part laid out in parallel beds. In that year Mr. W. H. Baxter altered it to its present very desirable form. The whole place is worked by five men in summer and four in winter, and was in as good keeping as could be desired; each man has a certain portion of the garden allotted to him, and to this portion he attends in every particular.

The Herbarium of the Oxford Garden is a very extensive and interesting one in more respects than one. It occupies several large rooms, and has been admirably arranged by Mr. Baxter, sen. Here are the herbariums of Morrison, plants collected from 1670 to 1683; of Bobart; of Sherard, presented in 1726; of Du Bois, Dillenius, Sibthorp, and Lord Macartney; some of Wallich's and of Dr. Daubeny's; but the great riches of the garden in this way was imparted by the late Mr. Fielding, who bequeathed to it his magnificent herbarium, second to few in existence. It alone contained 80,000 specimens collected by Wallich, Bentham, Schomburgk, Cuming, Douglas, Nuttall, Hartweg, and scores of other botanists, and included Prescott's fine herbarium. With a strong wish to stop a week here, I had only time for a look at the Mosses in the herbarium of Dillenius, the specimens from which he drew the plates in his great work; into some drawers containing the larger Proteads in fine preservation; and at some of the specimens in Dr. Sibthorp's collection from which the plates in his famous work were taken. On one of the tables lay a copy of the "Flora Græca," and the library—which is an extensive one—contains also the original drawings for that work, many rare books, and the drawings of the animals of the Levant, executed for Dr. Sibthorp by his travelling companion and draughtsman the celebrated Ferdinand Bauer. The garden also possesses one of the only two copies ever struck off from the plates engraved for the Emperor from the celebrated MS. of Dioscorides, with illuminated figures, preserved in the Imperial Library at Vienna, which was presented to it by Dr. Sibthorp. "The MS. was procured by Busbequius, the Emperor's resident at Constantinople, about 1560, and is said to have been copied at the expense of Juliana Anicia, daughter of the Emperor Flavius Anicius Olyber, about the year 492." This copy "contains 410 figures of plants to which Dr. Sibthorp has attached the Greek names, and in spite of their rudeness may be useful from their antiquity in enabling us to identify with modern plants those described in that early authority on the Materia Medica, especially as they are said to agree with the figures contained in a still earlier MS. of the same author existing in the library at Naples."

There is also a botanical museum, small but useful, "illustrative of the structure, functions, and uses of vegetables." Here amongst the monuments of the botanist's, benefactors and curators of the Oxford garden, a few words concerning them, extracted from the guide book, may not be uninteresting. Dr. Morison was the first professor at the garden, and during his time the elder Bobart was curator or supervisor, whose son afterwards became professor, and published the third part of the "Oxford History of Plants," which work was begun by Morison. Of the elder Bobart there is a small whole length figure in the frontispiece to "Vertumnus," a poem on the garden, published in 1713, in which he is represented dressed in a long vest with a beard, "which it is said on feast days he used to have tagged with silver."

The second Bobart was succeeded by Sandys and Trow, and these by Dr. W. Sherard, who was a munificent patron of the garden. He collected plants in Natolia and Greece, met with, and induced Dillenius to accompany him to England, gave 500*l.* towards enlarging the conservatory; presented the garden with a library of botanical books, and an herbarium "which rendered Oxford (in the eyes of Linnæus) pre-eminent in this respect among the Universities of Europe;" and on his death bequeathed 3000*l.* to provide a salary for the Professor of Botany, on condition that the University should supply the annual sum of 150*l.* towards the maintenance of the garden, and that Dr. Dillenius should be chosen the first professor—terms which were accepted by Convocation. Here the great cryptogamic botanist completed his "Historia Muscorum," all the subjects in which were drawn and etched by his own hand. Linnæus visited the garden during the time of Dillenius, and it is said surprised him in company with his patron Dr. Sherard; and having apologised in Latin for his inability to speak English, threw Dillenius off his guard, who said carelessly to Sherard, "This is the young man who would confound the whole of botany." Linnæus gathered the meaning of this speech by tracing the verb *confound* to its Latin root, and soon took an opportunity of retaliating by slightly alluding to it while he was demonstrating in the garden some of the new genera to which Dillenius had particularly objected. He soon led the Oxford professor to form a high opinion of his abilities, but could never make a proselyte of him. Dillenius was succeeded by Dr. H. Sibthorp, the father of Dr. John Sibthorp, who will ever be memorable in the annals of botany for his zeal and munificent designs to promote its advancement. He travelled much in Greece and the Archipelago, and on his death in 1795 made over to the garden all his books, drawings, and collections. He it was, as is well known, who bequeathed a freehold estate for the purpose, first, of publishing his magnificent "Flora Græca" in 10 folio vols. with 100 plates in each, and afterwards of endowing a professorship of rural economy in his own University, which was to be enjoyed by the Professor of Botany for the time being.

Dr. Sibthorp was succeeded by Dr. Williams, who on his death in 1834, when he was succeeded by the present professor, gave 500*l.* Consols to the garden. The piece of garden between the river and east wall before described was, till the alteration of the garden by the present curator, an experimental ground, of which the establishment was deprived till Dr. Daubeny purchased a couple of acres of ground near the Iffley Road, of Magdalen College, for this purpose, and subsequently made it over to the University in trust for the Professor of Rural Economy for the time being, in order that he may have the means of carrying on any enquiries connected with scientific agriculture which might from time to time suggest themselves.

Criticism of the dear old place is quite out of the question. My chief feeling on leaving it was one of gratitude to Lord H. Danvers, and all the good men who have given their labour and fortunes for its advancement: my chief wish that it, above all gardens, should never be removed to more "commodious premises," even though the improvement of gardening should surpass the most Utopian expectations, and our country towns have their Crystal Palaces, or future British workmen smoke the calumet of peace under their own Vines; but that it might remain for ages to come a home for the useful, strange, and beautiful inhabitants of the world of vegetation. *Wm. Robinson.*

BEES, HONEY, AND HIVES.—No. II.

(*Continued from p. 749.*)

"The letters that reach me, addressed to '*The Times* Bee-master,' are legion. I can now form some idea of the weight of the load that must press on your shoulders every day; but I confess I had no notion of the extent of the interest that these letters prove to exist in apiarian culture. I select such difficulties from the letters before me as I have not disposed of, and these I would endeavour to overcome.

"A very often repeated question is—What is the best way of hiving bees or securing a swarm? Let me at once state that the old and inveterate habit in Kent of beating a kettle, striking the tongs with the poker, and raising similar discordant sounds is utterly absurd. They do not affect the bees. In swarming the old queen abdicates and heads the swarm, and a young queen mounts the throne in the hive. The outgoing queen, followed by 5000 or 6000 bees, either *ex proprio motu*, or guided by pioneer scouts, selects a Rose bush, or a cozy opening in a laurel hedge, and all her subjects haug on, forming a cluster of bees as large as the largest bunch of Grapes. As soon as they have nearly all settled, take your empty hive or bee-box, which must be thoroughly clean, as bees hate dirt and slovenliness, turn the hive or box bottom upwards, hold it in your left hand under the cluster of bees, lay hold of the branch on which the bees hang with your right hand, and shake down the swarm into your empty hive. Place the hive bottom downward on a bee-board laid on the Grass close by, raise up the edge by inserting a wedge or stone about 2 inches in size, and cover the top of the hive with a cloth or a few branches to keep off the sun heat. If the queen is inside, which is usually the case, the bees will steadily enter and remain. If by your awkwardness you have left her in the hedge with her ladies-in-waiting, the bees will return to the hedge, and you will have all to begin anew. As soon as they are comfortably housed, carry the hive to the shed under which it is to stand, and do not look at it or touch it for three days. You need not be afraid of stings unless you meddle with the queen. If you interfere with her, the watcher bees will sound the alarm, and a thousand stings, like swords, will be unsheathed; but otherwise, they are so absorbed with her majesty that they do not fly at a prudent and fearless bee-master.

"A very important inquiry, repeated in several letters, is, on removing the super, whether of glass or straw, how are the bees to be expelled, that the honey alone may thus be secured? All the plans of tapping, beating, and smoking are bad. Tobacco smoke, and smokers generally, bees have a mortal hatred to. Bees have other personal antipathies, but the horrid scent of a tobacoo pipe in a visitor's pocket either induces them disdainfully to shun all acquaintance, or provokes them to make an attack.

"Your best way of removing a super full of honey, with bees, of course, in the spaces not full of comb, is to carry it about 100 yards away from the hive. Wedge up the glass on one side from the zinc plate on which you have carried it, and the bees will leave in the course of an hour, and fly home. They very soon discover their separation from their queen, and under this feeling they lose all courage and give up defending the very property they would have died fighting for when connected with the parent hive. The exceptional case is where there may be, what is very rare in a super, a portion of young brood—always in such cases drone-brood. This they refuse to desert. They do not attack, but, as if placed sentries by their queen, they insist on continuing at their post. The only course in such a case is to cut out the brood cells and put them away, as they are not likely to be wanted, and the bees will then return to the stock hive, report, I suppose, and receive future orders. In removing a super in August, when the bee ceases to accumulate in Kent, you must take care not to do so on the windward side of your hives, as the scent of honey will bring you visitors from every hive, who will rob you of all.

"If in this month you find it difficult to escape the robbers, carry your super into your cottage, near a window, and expose one side of the super to the window—the side having egress for the bees. Very soon great numbers will fly to the window-panes, and by opening it for a few minutes they will rush out, and robber bees will have no time to enter.

"I have been asked who and what is the queen, and who are those lazy abbots I referred to as drones. The queen is nearly twice the length of the common bee, of elegant proportions and shape. On seeing her you would at once pronounce her a duchess or a queen. But it is a singular fact, and well worthy the consideration of sanitary students, that she rises originally from the ranks, and that treatment makes all the difference. The egg deposited seems the same as that of the ordinary bee, but we find it always laid in a cell three times the size of common cells. As soon as the young queen comes from the egg numbers of nurse bees wait on her; she receives finer and more delicate food, more air, a warmer, larger, and nicer house, and apparently she is the creation of circumstances. She is the only female bee. The working bees are neuters; her husband is a drone. With queenly prerogative and dignity she selects her hushand, and off they fly on a wedding trip, and spend the honeymoon amid sunshine and flowers. But it is asked—Why are there so many drones in a hive, if only one wife? This is a very hard problem. But one part of it seems to me very clear. When the queen's countless eggs come to be hatched the temperature of the hive must be raised to 85° or 90° Fahrenheit. The fat, round, and lazy drones are really the fuel. They accordingly give out great heat. This year I had two stock hives during breeding at 95° Fahrenheit. We thus learn that fat old gentlemen are of use, and that Mr. Banting's system is not always wise or expedient.

"There are in a good hive three or four royal cells; consequently, three or four queens will turn up. What follows? If the heat be great and additional room withheld, the old queen will abdicate and head a secession—in apiarian language, a swarm—and the next senior queen will ascend the throne. If there be still no increase of room she, too, will secede and head a second secession—in apiarian phrase, a cast—usually feeble, requiring when hived to be fed, and rarely a desirable issue. But when room is given, and a drawing-room is added to the dining-room, and *boudoirs* to the nursery, I am asked what follows. Do the queens live together in harmony? My answer, from very careful observation, reveals a sad fact—a fact I cannot suppose to have been instituted in paradise. If two queens turn up in a hive with plenty of space, but related space, they fight it out till one alone lives. So settled is this law, that the bees hound on the more timid and cowardly of the two queens, and insist on victory with supremacy or death. This is to me the only melancholy trait in a favourite study; but I suppose some higher law requires it.

"It has been urged as a commercial question that honey is not now of the same importance as it was before the sugar-cane was discovered, and that gas had

superseded wax candles. I am satisfied from many considerations that if people would eat honey at breakfast instead of rancid London butter and nasty greasy bacon, not only would their health be better, but their temper would be sweeter. I find invariably that people who like honey are persons of genial and affectionate temper. * * * The producers of honey never draw their stings unless in defence of their homesteads, and the eaters and admirers of honey rarely indulge in acrimonious language. I believe a great deal of bad feeling is not moral or mental, but physical in its origin. If you have in a congregation, or in a school, or in a convocation some one who sets everybody by the ears, treat him to a little honey at breakfast for six months, and the 'Thorn will blossom as the Rose.' People that can't eat honey—'*hunc tu caveto*'—they can't ever fit 'a land overflowing with milk and honey.'

"I have not answered half the letters I have received; but because you have been so good as to take an interest in this very interesting subject I intend to send you, as an expression of my thanks, a small glass super of honey filled from Heath during July. If you do not eat honey, which I hope and, indeed, am sure is not the fact, you can give a portion to any inmates of your great hive in Printing House Square who may be prone to use their stings too freely." *August* 2.

[This and the foregoing letters, quoted at p. 748, together with the "Bee-master's Sermon," in which he argues that bees carry from the hive to the cottage hearth lessons of industry, loyalty, attachment to home, cleanliness, Christian sympathy, peacemaking, and a love of fresh air and early rising, have called forth on this subject of Bee-culture sundry criticisms, of which we propose to give the substance hereafter.]

IRRIGATION OF FLOWER-BEDS.

The present season will long be remembered by those who are interested in the cultivation of the soil, and especially by those who have the care and responsibility of large gardens resting upon them, in consequence of its excessive dryness, and the incessant labour which has been consequently entailed in dispensing water with the necessary liberality to the flower-beds and borders, &c. The practical amateurs and all lovers of flowers, and indeed horticulturists generally, will have data of their own, based upon some difficulty, disappointment, or want of success, to bring to their recollection the dry season of 1864; and it may be that each individual will economise to the best of his ability, and will husband the resources at his command in the shape of water and of labour in applying it, in order to produce the best effect according to his means.

No doubt the thoughts of some ingenious minds may bring to recollection the perusal of certain grand schemes which have from time to time been propounded and carried into effect for "supplying large towns with water" and other works of that description, in the hope of reaping some benefit, by adopting something of which they have long since read a description, either as to a supply or to distributing the resources at command; for we cannot get rid of the fact, that under ordinary circumstances, the present dry weather renders it necessary that the supply of water to our flower-beds and borders should be "continuous." Ingenuity however, and it may be science, will be taxed to meet the difficulties and necessities of a season like the present. Mulching with cocoa-nut fibre, with leaf-mould, or light rotten manure, or with short Grass or other material, will each be held in requisition, and most probably all or any of them will be found to produce the very best results from their power of preventing evaporation from the surface of the soil, and confining the extraction of its moisture chiefly to the roots of the plants. These therefore are means especially to be recommended where water is scarce.

Instances may occur where the supply of water is sufficient to meet even the demands of a season like this; but in such cases economy of labour is of no less importance, in connection with other matters which at first sight would appear to be of but little moment. I refer especially to the sloping or unlevel surface which beds and borders are generally made to assume, being highest in the middle and sloping towards the outside, consequently water soon finds its way to the lowest point, very little, if any, remaining to penetrate the soil. Thus only a surface or very superficial moistening of the soil is the result, although the operation of watering may be repeated again and again. Under such an arrangement the plants lacking moisture receive at their roots but, to say the most, a very scanty supply. This must be regarded as an extreme case, yet not without a remedy.

Let us take another instance, much less objectionable than the last, one which appears to represent the practice in most of the large establishments known to us, at present, more or less. In the first case mulching would certainly benefit the plants, but in ordinary cases it would not remove the evil; in the following case, however, it would effect much more. I now refer to what has been the rule of practice in some of the leading establishments, both public and private, in this country, for some time past, viz. that of preserving the surface of the flower-beds quite level, a practice which has done much towards attaining to the production of those grand sheets or seas of floral development of various hues which at the present time are the glory, and reflect the utmost credit upon the management, of some of the most extensive gardens and places of public resort in the kingdom, among which may be named the Crystal Palace, the gardens of the Royal Horticultural Society at South Kensington, Kew, Hampton Court, Hyde Park, and Victoria Park.

But returning to the subject of beds with an even level surface, and to those under my own charge in Battersea Park, most of which were made level before planting, it is found that in putting in the plants, the middle of the bed almost invariably gets higher than the sides. This in a season of ordinary moisture would hardly attract any notice; but in a season like the present, when moisture is of so much importance, the case is different. At the beginning of the dry weather this was found to be an evil that required an immediate remedy, as mulching is not resorted to, from water being plentiful and convenient for use. In consequence of this evil, that of the beds being slightly higher in the middle than at the sides, an arrangement of their surface was made by which water was retained to each separate line of plants. This was done by drawing the mould from the highest side behind each line of plants with a small hand-hoe, to the front, where it was raised so as to form a small retaining ridge, and thus a concave surface was formed to each line of plants of from 6 to 9 or 12 or 15 inches broad, according to the space between the rows. By this method and with careful watering, every plant is made to receive an equal quantity, and but little water is wasted, so that there is a great saving of labour. These little water tables however require to be carefully attended to, as the front or raised edge occasionally gets washed down, and every little fault is made good during the operation of watering. The labour of forming these tables and slopes about the plants has been fully compensated by a proportionate saving of labour in a few days' watering. There is nothing to complain of in the appearance of beds so treated, except in the case of those in which the surface is not covered with foliage; and these would probably suggest the idea that some juvenile engineer had been busily engaged in testing some of his rudimentary schemes, or moulding from memory an imitation of some earthwork. *J. G., Battersea Park.*

Home Correspondence.

Seedling Clematises.—I feel great pleasure in furnishing "A. Z." (p. 749) with our experience respecting the germinating properties of Clematis seed. As it is stated (p. 654), that Clematis Jackmanni and rubro-violacea, exhibited by us at South Kensington in July last, "were so marvellously like those produced the week before from another source, as to suggest the idea of a common origin," I feel bound, for the credit of our firm, to at once commence by explaining the origin, sowing, flowering, and working of those varieties; stating and confining myself unreservedly to facts as they occurred. Batch of Seedlings, No. 1: In the summer of 1858, when Clematis lanuginosa and C. Viticella Hendersoni and atro-rubens were in flower, the idea occurred to me that if I could succeed in hybridising the latter varieties with the former, I should get something distinct in colour and shape of flower. I did so, and the seed ripened, was gathered, and sown in November, 1858, by our propagator, Thomas May; the seeds did not vegetate in the year 1859, but they came up in 1860, and the young plants were potted off in the spring of 1861. The following Michaelmas we changed our propagator, and engaged Thomas Townsend (now manager of St. Mary's Nursery, Hornsey), who had these Clematises under his management, and they flowered for the first time in the summer of 1862, when we selected from among them some of the most rare and distinct varieties; these were worked for the first time by Townsend, who left our employ to take the St. Mary's Nursery, Hornsey, the following Christmas (1862). We then exhibited, within 9 months of the last mentioned date, C. Jackmanni and rubro-violacea, and were awarded unanimously two First-class Certificates. Batch of Seedlings, No. 2: I and Thomas Townsend hybridised together, in the summer of 1862, C. lanuginosa and some of the new seedlings of batch No. 1, with C. Viticella venosa, and the seed was gathered by him the following autumn, and was sown by our present propagator Dec. 27, 1862 (which, on reference to our labour book, I see was a week after Townsend had left our employ). This seed did not vegetate in the spring, but two seedlings came up in the autumn, and made a growth of from 2 to 3 inches; and one of these seedlings produced a weakly flower last week, the colour being lavender with a light centre to each sepal; the remaining portion of the seed came up this spring, and according to our former experience I expect the young plants to bloom in the summer of 1865. This explanation will, I imagine, clearly show that those varieties which were exhibited by the firm of George Jackman & Son, were originated at the Woking Nursery, and taking into consideration that our Clematises were exhibited in August, 1863, one season before Mr. Townsend showed the world that he also possessed similar varieties, I take it that ours must be considered the originals. I have only during these last few days read Mr. Townsend's letter on the subject of his Clematises inserted in a contemporary, July 12. He there states that "he shall be happy to answer any questions that may be put to him concerning them." His own words inform us that his letter only contains "some information respecting his seedlings;" further, "I came," he says, "to St. Mary's Nursery, Hornsey, at Christmas, 1862; immediately after this the seed was sown," and in the preceding line he states that "the seed from which these Clematises were raised, was hybridised and gathered by me." I notice, however, that he gives the public no information as to where he was up to Christmas, 1862, nor where his plants were that he hybridised, or from which he gathered the seed; perhaps he will favour us with these particulars. Again, some of them are reported to have bloomed last year, that is, in the same summer or season in which the seed was sown; this, contrasted with the statistics just given respecting our Batch No. 2, rather astonishes me, rendering as it does our system of propagation quite stage-coach pace, compared with the marvellous rapidity with which it is managed to raise Clematises at Hornsey. I hope therefore that Mr. Townsend will be good enough to give some further particulars as to his plan of rearing Clematises from seed. The Horticultural public may thus derive some valuable information on an interesting subject. *George Jackman, Jun., Woking Nursery, Surrey.*

Surface Caterpillars. — The long-continued dry weather we have had this summer has been very favourable to the development or rather preservation of insect life. Insects, indeed, in general can withstand cold and frost to a great degree so long as they are dry, but wet is their great exterminator. Among the insects which have thus become prevalent to an extraordinary degree, are the surface grubs of the heart and dart moth. In the series of agricultural returns published last week it will be seen that the Turnip crop is almost universally a failure, and in many instances this is expressly attributed to the caterpillar. In my own garden near Oxford they were first noticed in consequence of a bed of young Turnips being completely eaten off just below the surface of the ground. They then attacked Potatos, Carrots, Beetroot, and Seakale. I set my gardener daily to move the earth round the roots of these vegetables, and in a short time each day he filled a pint measure with the creatures. The dryness of the soil allowed it to be easily moved around the plants, and so long as this is the case this is the best remedy which I am able to suggest for their destruction. Another is to plant the tops of Lettuces, Potatos, or Turnips in the beds, keeping them moist, and visiting them daily. They form an excellent trap. *J. O. W.*

Oak Tree Killed by Frost.—I have just cut down an Oak tree here measuring 7 feet 9 inches in girth at 5 feet from the ground, above 50 in length to the lowest branch, and containing more than 80 feet of timber, which was completely killed by the frost of 1860. I do not know that there is any other record of an Oak of such size and vigour being killed by frost in England. This is the largest that I know of here, but it is only one out of many hundreds of Oak trees which were completely killed by the frost of that winter at this place. *C. W. Strickland, Howsham, near York.*

Notices of Books.

The Alpine Guide: Part Second. By John Ball, late President of the Alpine Club. London: Longman & Co., 1864. Pp. 502.

In our last year's volume we noticed at some length (pp. 846 and 894) the first part of this most useful guide, from the pen of one of the most successful of mountain travellers. The volume before us is a further instalment of the work, with capital maps, and some panoramic sketches, and is devoted to the Central Alps, in which is included the Bernese, the North Switzerland, the Leopontine, the Rhætian, and the Lombard Alps. Forty chapters or sections of the book are devoted to as many districts into which these mountain systems are divided, and under each of these a series of routes which are open to travellers are concisely yet amply discussed; such information as to tracks, and guides, and charges, and similar matters, as would be most likely to be sought after, and useful to those who are bent on trying mountain passes, being very clearly put before the reader.

The bulk of the volume being made up of a running account of these various routes, is necessarily to a considerable extent descriptive of the mountain scenery through which they pass; and hence there are many choice bits which are full of interest even for stay-at-home readers. Here is one such passage in the portion devoted to the Bernese Alps:—

"The upper valley of Hasli is a wild and barren glen, seemingly suffering from an especially ungenial climate, as cultivation here stops short at a far lower level than in other parts of Switzerland. The village (Guttannen) has been twice burned down in this century, and suffered severely from the storm of 1834. This does not seem to have affected unfavourably the physical condition of the people. The men are usually active and muscular, and will carry weights over the rough mountain paths that would not be attempted by well-fed townsmen. Soon after leaving Guttannen the track crosses to the right bank at the picturesque bridge Tschingelmatt, and rather more than one mile further on returns to the left bank. The vegetation becomes more alpine in character, the summits of the

Gelmerhörner are seen above the right bank of the valley, and the path ascends through a forest where a distant roar, gradually growing more distinct, announces the approach to the famous waterfall of the Handeck. This is certainly one of the finest in the Alps, and has the unusual privilege of never languishing for want of water. The Aar, after flowing rapidly for some distance through a narrow channel, suddenly springs over a rocky ledge, and descends, at a single bound of 200 feet, into a dark chasm, whence clouds of spray ceaselessly rise, as if driven up by blasts from some subterranean cavern. There are two points of view which should not be missed. One of these is in front and some way below the fall, reached by a narrow path turning to the left from the bridle-track; the other is from a wooden bridge thrown across the stream immediately over the fall. The effect here is most impressive, rather too powerful for the nerves of some visitors, who cannot bear to look down on the rushing flood at the moment when it leaps wildly into the void. The effect is heightened by the circumstance that another but much more slender torrent, called the Arlenbach, happens to join the Aar just at this point. Its clear waters spring from a lateral cleft into the abyss, and before reaching the bottom are mingled with the murky flow of the Aar, here laden with the fine mud of its parent glaciers."

In the St. Gothard district of the Leopontine Alps, at the Devil's Bridge, "there is a scene sometimes witnessed by travellers who pass this way in winter, that exceeds all that the imagination can picture to itself of the fury of human warfare. A winter storm in the gorge of Schöllinen is an event never to be forgotten by one who has beheld it. The howling and shrieking of the blast only at intervals allow the hoarser roar of the torrent to reach the ear, and the surrounding crags are but dimly seen amid the drifting snow that is swept along through the cleft of the valley. At such times the country people who have need to ascend or descend through the valley take refuge in the galleries above and below the Devil's Bridge, and when it becomes necessary to risk the passage, creep over on hands and knees, in order to avoid as far as may be the incredible fury of the wind at that point." Storms like these, snow fields, crevasses, avalanches, adders, and scorpions, all which may lie in one's path, only help to bring out in stronger relief the more agreeable features of Alpine travelling.

Not only are the prominent snatches of scenery indicated as they are passed, but facts of historic interest connected with various places along the different routes are adverted to, and the scientific traveller has many of the choicer objects of natural history pointed out. The botanist is especially favoured in this way, for here the well-known botanical attainments of the editor come in as a guarantee that those who put themselves under his guidance will not be disappointed. Thus in the Bernese Alps, on the route from Bex to Sion, the Alpine pastures above the châlets of Anzeindaz, and the stony slopes at the base of the Diablerets are pointed out as "extraordinarily rich in rare plants. The botanist may find tolerable night quarters in one of the châlets, but he should take provisions, as little is to be found here. Ranunculus pyrenæus, Viola cenisia, Crepis pygmæa, Hieracium breviscapum and H. speciosum are amongst the rarities of this locality. The geologist may find many fossils of the Gault period." On the route from Thun to Sion by the Rawyl Pass, "the char-road through the Iffigenthal is carried for about three miles above An der Lenk; the way lies at some height above the torrent through very beautiful scenery. Cystopteris moutana is here unusually abundant." Further on, "in the descent to Sierre, the botanist will be pleased to find Genista radiata." The rough ground at the foot of the Rhone Glacier, and the adjoining slopes "afford Achillea valesiaca, Carex bicolor, Kœleria hirsuta, and many species of Hieracium."

On the North Swiss Alps, "Epipogium Gmelini, Lathræa squamaria, and some other uncommon plants are on the slopes of the Rigi Scheidegg towards the Lake of Lucerne, and the beautiful Dianthus superbus is plentiful on the steep slopes north of Rigi Staffel;" while on the Pilatus the naturalist may well make the Klimsenborn Inn "his halting place for several days, as the mountain, besides being considerably higher than the Rigi, offers many more objects of interest. The flora of the limestone Alps is here very well represented, and the botanist may find several rare plants, such as Papaver alpinum (in débris below the peak of the Esel), Petrocallis pyrenaica, Campanula thyrsoidea, Androsace chamæjasme, Festuca Scheuchzeri, &c."

In the same way the most interesting features of the other districts comprehended in the Central Alps are indicated; and as to the mode of travelling, both what to do and what to avoid equally come in for attention. The young and adventurous spirits of the age, who in their aspirations for manly exercise, coupled with the agreeable and exciting incidents of travel, may be determined to scale the Alps, cannot do better than take Mr. Ball's handy-book as their Mentor, and Excelsior as their motto.

The Utilization of Minute Life. By Dr. T. L. Phipson, F.C.S. London: 8vo, pp. 282. Groombridge & Sons. 1864.

Some of the lower classes of animals are as remarkable for their utility to man as they are for the peculiarity of their organisation and their habits. A very important branch of manufacture depends upon the rearing of silkworms. Fortunes are made in France by the cultivation of the leech. The skilful management of bees, cochineal, and snails, brings its reward; and the breeding of oysters and various crustaceæ might be turned to account, and indeed the whole practice of pisciculture promises to be a great success. Dr. Phipson thinks, that while few people with slender means could hope to gain their livelihood by rearing new varieties of the dog, cow, horse, ass, or pig, an immense field is open to them if they would direct their attention to the utilization of minute life; and he is never weary of reminding the reader of the want that is felt in the world of a new dye, if anybody could produce one from the animal or vegetable world.

The first chapter of the little book before us is devoted to the silk-producing insects, and it is stated that 80 lb. weight of cocoons is the average produce from an ounce of silkworms eggs. Probably the produce might be greatly increased by adopting the French method of reserving only the finest and heaviest cocoons for breeding purposes.

Of all the colour-producing insects cochineal is the most important. It is calculated that more than a million pounds weight of cochineal arrives in Europe every year, and 70,000 of the dried insects, on an average, go to a pound. When the Vines of Teneriffe were completly destroyed a few years ago, the inhabitants turned their attention to the cochineal, which a gentleman had previously introduced from Honduras. It succeeded admirably. An acre of land planted with Cactus yielded from 300 lb. to 500 lb. of cochineal, worth 75*l.* to the grower: no bad investment by way of a makeshift!

It seems that two new Australian species have been discovered, one of which feeds upon the Mimosa, the other on a species of Eucalyptus. An insect named Coccus fabæ, which feeds on Beans and Sainfoin, has been discovered in the south of France, but it is not so rich in colouring matter as the cochineal. A Chinese Coccus is the cause of the production of large quantities of wax, resembling spermaceti, but it is scarcely known whether this substance is the product of the insect or of the plants it feeds on, which appear to be Rhus succedanea and Ligustrum glabrum. For information on bees, cantharides, locusts, and other insects used as food, the breeding and peculiarities of lobsters, and crawfish, and crabs, we must refer to Dr. Phipson's interesting book. Colouring matters evidently find great favour in his eyes. He says:—"The black or dark-blue colour of lobsters and their allies is very remarkable in a chemical point of view, as it becomes red in hot water at a heat of 70° Centigrade. The colouring matter can be extracted from the lobster's shell by means of alcohol, in which it is soluble; but during the operation the colour turns red. Sulphuric and nitric acid turn the red alcoholic solution to a permanent green, which the alkalies do not again change to red. A permanent organic green is such a desideratum at this moment in the tinctorial world, that the discovery of a new dye of that description would be worth thousands of pounds."

The formation of oyster beds on the coasts of France, under the direction of M. Coste, has been attended with wonderful success. "Every oyster is supposed to produce from one to two millions of young; out of these not more than 10 or 12 attach themselves to their parents' shell; all the rest are dispersed, perish in the sand, or are devoured by fish. Now, if faggots of brushwood be let down and secured to the oyster banks by weights, the young oysters will, on issuing from the parents' valves, attach themselves to these faggots, &c.;" "after six months one fascine was found to have no less than 20,000 young oysters upon it."

Pearl fisheries, escargotoires, leech ponds, the murex dye, corals, sponges, and a variety of other things are treated of; not in the loose popular style that is so common in the present day, but in a thoroughly accurate and philosophical manner, and the names are given of those authorities from whom information is derived. This is in fact a little work of scientific merit and research, and contains much information that is sufficiently curious. Thus, speaking of the regenerative faculty of some of the lower animals, in reproducing lost or mutilated organs, Dr. Phipson says: "Spallanzani, having cut off a snail's horn, observed that it began to bud out again in about five-and-twenty days, and continued to grow until it was as long as the other. He then cut away part of the head of another snail, and in course of time the lost portion was renewed. When the head was cut completely off the experiment sometimes failed, and the animal died; but more than once a new head grew again even in this case; at the end of a few months the snail appeared with another head, in every respect similar to the lost one. The snails thus operated upon retired into their shells the moment decapitation had taken place, and covering the opening with their operculum, remained thus inclosed for weeks, and even months. When forced out for examination at the end of 30 or 40 days, some appeared without any marks of renewal; but in others, especially when the weather was warm, a fleshy globule, of a greyish colour, was observed about the middle of the trunk.

"No particular organisation was noticed in this globule, but in eight or ten days it became larger—rudiments of lips, mouth, tongue, and the smaller horns appeared, then gradually developed, and in the course of two or three months the injury was so completely repaired that the new head could only be distinguished from the old by its lighter colour. These experiments have been confirmed by Bonnet, Schæffer, Gerordi, and others."

The Handbook for Travellers in Durham and Northumberland (Murray), is just the kind of guide which persons bent on a tour in our northern counties will find acceptable to them in their wanderings. It gives a brief but interesting account of the different districts, which are set down under routes such as the traveller may conveniently follow. In Northumberland we learn that it is only along the river banks or in well protected parks that fine trees will be found, the rest being blasted and parched by the fierce winds that sweep in from the sea. "Among the largest trees of the county are the King Oak (its trunk measuring 14 feet 9 inches at the ground), and the Queen Oak (14 feet 5 inches) at Netherwitton; a Larch (13 feet) in Hartburn Dene; an Ash (20 feet) at Wallington; a Beech (13 feet 5 inches) at Newminster; one of 14 feet at Capheaton; a Spanish Chestnut (12 feet 9 inches) at Bywell. Holly trees are remarkably fine all over the county, and are a great feature on the sides of its rocky denes; some of those in the old Trench wood at Netherwitton measure 7 ft. 6 in., and 9 ft. 7 in. at 1 yard from the ground. The book contains a good map of the two counties.

With the *Handbook for Travellers in Ireland* (Murray) in possession, who would not spend the vacation season in exploring the Emerald Isle, and especially when the whole country is laid out before him to be "done" in some three dozen routes, beginning with Kingstown and ending with Bantry Bay? It is a very tempting invitation, especially in the company of so pleasant a companion, for our guide is to tell us as we go, all about the Physical Geography, the Geological and Botanical points of interest, the antiquities, and the places of interest to be met with in these wanderings. Flax, we are told, is the staple crop of Ireland, and turf is an institution of the country. "No tourist can help being struck with the vast amount of turf which he sees either being cut or stacked for drying in the inland counties, or with the universal topic of conversation with respect to the turf crop, the success or ill-success of which brings comfort or tribulation to hundreds and thousands of poor families." Of course a book on Ireland without something like a "bull" would be an anomaly, and hence we read of a fine waterfall of 300 feet at Glencar, which runs *up* hill—at least so the visitor may be told in Sligo, this being explained by the curious fact "that when the wind blows strongly from the south, the water is prevented from descending." Then who would suppose Irish rabbits capable of such mischief as causing a mansion to be overwhelmed in sand? Yet so it is, as the traveller may find at Rosapenna. "A line of coast and country extends from the sea deep into the land, exhibiting one wide waste of red sand; for miles, not a blade of Grass, not a particle of bloom, but hills and dales and undulating swells, smooth, solitary, desolate, reflecting the sun from the polished surface of one uniform hue. Fifty years ago this line of coast was as highly improved as the opposite shore of Ards, and contained the comfortable mansion of Lord Boyne, an old-fashioned manorial house and garden with avenues and terraces, surrounded with walled parks. But now, not a vestige of this is to be seen—one common mound of sand covers all. The cause of all this mischief appears to have been the carelessly permitting the rabbits to gnaw the roots of the 'Tent Grass' (Arundo arenaria), which when protected serves as a sufficient guard against the incursion of the sand." A little more care in regard to the names of the rare plants mentioned would have been desirable. Thus the Killarney Fern, the botanical rarity of Ireland, is in one place called Trichomanes speciosum, and another T. brevisetum. The orthography of the names of plants too, is often faulty, Melanopsis, for example, standing more than once for Meconopsis. Such errors however are not very numerous, and the abundant information on general points of interest which the book contains, must make it a most useful companion to the Irish tourist. There is a good index, and two capital maps on a large scale.

BOOKS RECEIVED.—*Holiday Papers*, by the Rev. Harry Jones, are sad trash.——*Curtis' Botanical Magazine* for August contains a capital figure of the Corylopsis spicata, the fine new hardy shrub, with the leaves of a hazel and long yellow catkins, the colour of a Cowslip, introduced by Messrs. Veitch and Mr. Fortune from Japan.—— Of the *Useful Knowledge Society's Family Atlas*, part X. (Stanford), containing Scotland (3 sheets), and Ancient Palestine, has just appeared. The work, a real Hydrographical gem, is unapproached in price and execution by any other British Atlas.

Garden Memoranda.

MESSRS. CARTER & CO.'S ANNUAL GROUNDS, DEDHAM AND ST. OSYTH, ESSEX.—These grounds, spread as they are over many acres, serve to illustrate, in an eminent degree, the effect which different kinds of garden Annuals produce when grown on a large scale in patches of distinct colours. The various masses of Tom Thumb Nasturtium, of themselves amply repay a journey of many miles to see them. The great demand

for them necessitates their being grown extensively, and the display which they make is one of the most brilliant description, equalling even that of the Scarlet Zonal Pelargonium, while for one plant of the latter as many as 50 of the former may be bought. To persons, therefore, who having no means of wintering Pelargoniums, desire to possess a showy flower bed at a cheap rate, these Nasturtiums are a real boon. They may now be had of all shades of colour, from bright golden yellow pure or spotted in every petal with red, to glowing scarlet, and some even are nearly black. Of high-coloured kinds one of the most attractive is King of Tom Thumbs, a new kind with very dark foliage and intensely bright scarlet blossoms. This has not yet, we believe, been offered to the public. Of Canariense, both climbing on sticks and trailing on the ground, there are large plantations.

Petunias raised from seed and treated as annuals, rank perhaps next to the Dwarf Nasturtiums just alluded to, in point of attractiveness. A mixed mass of different coloured kinds of these is a sight not easily to be forgotten, and among so many thousands as are grown here, novelties of sterling merit are sure occasionally to make their appearance. From these seed is carefully saved year after year, always selecting the best, and in this way an excellent race of these showy flowers has been obtained.

Of Godetias, another class of comparatively large-blossomed plants, there are also great numbers, some of them quite decumbent, with purple and white flowers charmingly spotted with red; others tall and robust. Among the latter the best is G. rosea-alba, a profuse flowering and extremely showy plant; of dwarfer sorts, G. insignis would perhaps be the greatest favourite with most people. We must not, however, forget the Bride, a beautiful medium-sized Godetia, of which we noticed a large plantation at St. Osyth. This is a light-coloured kind, and, when seen *en masse*, is wonderfully handsome. Other new kinds not yet "let out" we hope to report on hereafter.

Among Everlastings (Helichrysums) there is now great variety, some being as brilliant in colour as even the greenhouse varieties of Aphelexis themselves. For cutting and drying for winter bouquets alone these annual kinds are very valuable.

Ten-week and German Stocks of different colours are flowering most satisfactorily as far as doubleness is concerned, but owing to the dry weather they have experienced they are not so robust as we have seen them in more favourable seasons. Notwithstanding the fierce sunshine to which they have been subjected, their colours are bright and showy, and the different beds of them are well worth inspecting.

Miniature dwarf French Marigolds are so compact in habit, and altogether such little gems, as to attract everybody's attention, as well they may, for perfection in this direction has been very nearly attained. Plants of them, not more than 6 inches in height, are literally bouquets of gaily striped brown and golden yellow flowers, and in the shape of edgings or small beds they are wonderfully pretty. For larger masses the lemon and bright orange African, and large French Marigolds are more suitable.

The different sorts of Calliopsis are now becoming so numerous that a selection from them must soon be made. Here may be found a race of dwarf plants, which, in a favourable season, must be extremely pretty. Of taller sorts, Drummondii, an orange with large dark eye, is one of the best.

Among lesser Convolvuluses, tricolor monstrosus is one which cannot fail to give satisfaction. The blossoms, which are white, with a broad rich purplish blue edge and yellow eye, measure nearly two inches across, and when fully open are really beautiful. C. minor splendens is also a fine kind. Among climbing kinds are some with striped and others with rich violet blossoms, which are large and showy.

Of the Swan River Daisy (Brachycome iberidifolia) there are charming beds now in perfection, both of the blue and white sorts, and also of the two mixed together, literally masses of floral beauty such as one rarely has an opportunity of seeing. This is undoubtedly one of the best of all dwarf annuals, and one which cannot be too extensively cultivated. It requires, however, to be sown in heat, and pricked out after all danger of frost is over. The blue and the white mix well together, and thus treated the effect which they produce is admirable.

Lupins are plentiful, and embrace a great variety of colours. One of the best is Hybridus insignis.

Among annual Chrysanthemums, tricolor Burridgianum still claims the first rank; but there are double yellow and white sorts, also both useful. There is likewise a double variety of tricolor, the blossoms of which measure quite two inches across. This too will no doubt be a favourite with everybody. It is, we believe, to be called C. t. Dunnettii. For border decoration these Chrysanthemums are well worth attention.

Salpiglossis though grown here in separate colours, appear to be yet much in want of improvement. Individually the blossoms are in some instances extremely handsome, but in habit they are somewhat faulty. With care and perseverance this may, however, yet be rectified.

Saponaria calabrica, both pink and white, is grown by the acre, the former viewed from a distance looking not unlike a field of blooming Heath. For the ornamentation of rockwork these charming little plants are much sought after, and they also make suitable ornaments for small beds and other places where less compact growing plants would be objectionable.

Œnotheras seem to be favourites, if we may judge from the large numbers of them that are grown here; they vary in size from the little decumbent varieties of Œ. Drummondii, to the profuse-flowering stately-growing Œ. Lamarckiana, which is an extremely showy herbaceous border plant. One of the largest flowered and best for beds is still Œ. macrocarpa.

Among German Scabiouses are some pretty things which might be sparingly introduced into borders or large mixed beds with good effect.

Rhodanthe Manglesii and maculata form charming plantations, the size and regularity of growth of which render them most effective. Of all half-hardy annuals these are two of the prettiest, and when cut their blossoms, like those of other Everlastings, last long in perfection. There is also a pure white variety which, when better known, will form a fine contrast with the bright rosy pink kinds.

Larkspurs at St. Osyth, both dwarf Stock-flowered and dwarf Rocket, are extremely showy and beautiful, and the taller kinds are also equally interesting. All these are in separate colours and mixed, and even among the multitudes of other fine things grown there they play a most important part. They are, however, now getting past their best.

Clarkias, now over, have been exceedingly beautiful this season, especially the double variety of integripetala, blooms of which were lately shown in good condition at South Kensington, and received a First-class Certificate. Rose-coloured and pure white single-flowered kinds have likewise been most satisfactory.

Nemesia compacta is one of the prettiest of all annuals for small beds, and for pot culture it is extremely suitable, forming as it does compact tufts of clear blue white-lipped blossoms. It has also the good quality of remaining in beauty for many weeks in succession.

Of the Cuban Datura ceratocaula there is a large bed, which, when seen after sunset, is a truly glorious sight, covered as it is with multitudes of great white blossoms each 6 inches in diameter, and so sweet-scented as to fill the air in their neighbourhood with a delicious fragrance. On this account alone this Datura is well worth cultivating; but the peculiar time at which the blooms open also gives it additional interest.

Linum grandiflorum is at all times one of the most attractive of annuals, its brilliant crimson blossoms being conspicuous even at a considerable distance. No difficulty is here experienced, as with some, in getting the seeds to germinate, and the young plants raised on slight bottom-heat and transplanted grow as freely and blossom even more profusely than Phlox Drummondii. Of the last there are also good beds.

Xeranthemums of different kinds are very gay, especially a new double purple, which is a great improvement on the old kind; their blooms being hard and dry, like those of Helichrysums, render them also very suitable for cutting for winter bouquets.

Annuals of other kinds are likewise plentiful, and grown in large quantities. Nearly 10 acres are devoted to Mignonette alone, and the fragrance arising from it is delightful. Nor is there any lack of novelties this season; but these we pass by until their real merits have been more correctly determined by further trial.

Vegetables, as might be seen from our notice of these grounds last year, also receive as much if not more attention than flowers, and consequently among them are many well selected varieties. Lettuces cover large breadths of ground, especially Carter's Giant White Cos, Dunnett's Giant Brown Cos, Victoria Cabbage, and Wheeler's Tom Thumb and Imperial, all excellent in their way. Among Cabbages the large and dwarf York and Enfield Market are grown extensively, as are also Snow's Early, Imperial White, Early Malta, and Grange's Early Broccoli, to which may be added for late use Mammoth and Carter's Champion. Among Peas, Veitch's Perfection, Princess Royal, a large, fine, green variety; and Wonder of the World are good summer sorts. Carter's Earliest is stated to be the best for a first crop. Among Cucumbers, Champion is reported to be most useful, and excellent for winter forcing. Herbs of all descriptions are likewise largely cultivated, as are Dunnett's Garnishing Parsley, a wonderfully fine curled variety, St. Osyth and Pine Apple Beets, and Gloucestershire Kidney and King of Potatos, two clean-skinned, fine-looking sorts.

Miscellaneous.

Scientific Studies in Connection with Medicine.—The following passages are selected from Dr. Balfour's opening lecture of the course of Botany, in May, 1864, as reprinted in the *Edinburgh Medical Journal*:—Natural Science, in all its departments, has now become an important part of education, not merely on account of its connection with professional studies, but also from its value in mental training. It exerts a most beneficial influence on the observant faculties; it calls the perceptive powers into action; it teaches the student to note the resemblances and differences among objects; promotes the formation of orderly and systematic habits; and it enforces accuracy, both of observation and of expression. It also benefits the mind by investing the objects around us with a new interest, and it supplies healthy and cheerful occupation at all times. The value of natural history as an educational science consists mainly in its teaching the student to observe truly and to note accurately. The prosecution of it ought not to be confined to any one profession, such as that of medicine. It should, to a certain extent, constitute a part of a liberal education. The student of classics, mathematics, and philosophy, ought not to ignore the knowledge of God's works in the creation around him. Why should not a portion of the summer be devoted to this subject by those who have been prosecuting their literary studies during the winter months, and whose long vacation might thus be in part profitably employed in preparing the way for their future professional career? It is surely of importance that the student of arts should know something of the objects in the material world with which he is surrounded; that he should enlarge his views of nature, and have a sympathy with that science which teaches the structure, functions, and uses of the organised beings which people the globe, and of the unorganised matter which forms the crust? In relation to medicine, botany must be viewed not only as furnishing the medical man with valuable information in regard to the affinities and properties of medicinal plants, and enabling him to substitute one species for another with safety in circumstances where the usual remedies are not at hand; but it must be regarded as an important branch of preliminary study, which trains the mind of the student to those habits of observation and diagnosis which are so essential to the successful prosecution of his profession. The study of the physiology of plants, too, enables him to observe in a simpler form many of those phenomena which are more complicated and obscure in the higher orders of living beings. This is specially true of the functions of fertilisation and embryogeny; the examination of which by eminent botanists, both in this country and on the Continent, has tended in no small degree to promote the advancement of animal physiology. The training of the mind in correct methods of observation gives to botany and the other natural history sciences, their value as instruments of preparation for professional education. There can be no doubt that every one entering upon a learned profession, such as that of medicine, ought to have in the first place a certain amount of literary education. The study of languages, both ancient and modern, of the mathematical sciences, and of mental philosophy, should precede in all cases the professional curriculum. It is also of importance that a class of men so widely diffused, and mingling so much with society, as the members of the medical profession, should be so instructed as to be able to give a tone to conversation, and to promote among those with whom they associate the love and the pursuit of literary and scientific accomplishments. The objections urged against natural history sciences have depended chiefly on the fact that they were studied at the same time with purely professional subjects, and that thus the minds of the students were overwhelmed with the multiplicity of objects brought under their notice, and with the necessity of preparing for an examination on one set of subjects whilst they were studying another. Natural history sciences have been considered a hardship, not because the students disliked them *per se*, or thought that the subject was not a good one for their minds to work upon, but because the study of them came at a most improper time, because far too much of it was attempted to be taught in the time, and because the little that they could learn well was what they felt they ought to have learnt in their younger days. A medical degree is not only a qualification to practise, but it is also a university honour, and the public will naturally expect that our doctors of medicine should be men of higher education than those who merely hold diplomas from colleges. The only direction, it appears to me, in which this superiority can show itself, is in the department of literature and science. It is to our medical graduates that we look for the advancement of science. Many of them are now occupying important scientific positions all over the world, and are contributing in no small degree to the advancement of our knowledge. In the military and naval services, and in our colonies, eminence in science has raised graduates in several instances to places of high responsibility and emolument. Our University has sent many of her alumni to occupy such positions; and at the present moment some of the most important scientific expeditions owe much of their value to Edinburgh doctors of medicine. Among these may be noticed Dr. Balfour Baikie, who has superintended the exploration of Western Africa; Dr. Hector, who acted as geologist in Palliser's expedition to the Rocky Mountains, and who is now engaged in valuable geological researches in New Zealand; Dr. John Kirk, who acted as medical man and naturalist to the Livingstone expedition; Dr. Thomas Anderson, now filling with the highest credit the office of superintendent of the Botanic Garden of Calcutta; Dr. Birdwood, filling a similar office at Bombay; Dr. Cleghorn, conducting the forest department in the North-Western Provinces of India; Dr. Alexander Hunter, ably conducting the School of Design at Madras, and the Horticultural Garden there; Dr. Aitchison, advancing the knowledge of Indian botany by his researches; Dr. Wallich, publishing valuable

treatises on the lower forms of animal and plant life; and many others who are doing credit to their alma mater.

Statistics of the Edinburgh University Botanical Class for 1864.—Number of Pupils, 187, of these 161 were medical, and 26 general students. Number of Lectures, 63; Practical and Histological Demonstrations, 60; Monthly Competitive Examinations, 3; Weekly Examinations, 10; Saturday Excursions, 11. The following were the Excursions:—1. Arniston and Dalhousie; 2. Burntisland and Aberdour; 3. Mid-Calder and Dalmahoy; 4. Drem, Gullan, and Longniddry; 5. Alloa, Menstrie, and Ochils; 6. Hawick, Cavers, Denholm, and Hassendean; 7. Linton and Tynninghame; 8. Newburgh and Lindores; 9. Dumfries and Carlaverock; 10. Anstruther and Elie; 11. Callander and Ben Ledi. Number of Species collected during the Excursions: — Dicotyledons, 503; Monocotyledons, 147; Ferns, and their Allies, 34; Mosses, 90; Hepaticæ, 12; Lichens, 55: Algæ and Fungi, 30. Total, 878. Number of miles travelled by railway, steamboat, and walking, 920. The numbers at the excursions varied from 40 to 110. Total expense of trips, 34*s*.

The Garden in Finsbury Circus.—This fine open space, one of the few that remain in the mania for railway making, and which was at one time threatened with invasion in one way or another by various competing projects, is to be carefully preserved by express enactment. It has long been a place to which men of business and others, pent up in the city, have resorted to breathe the fresh air in occasional intervals of leisure, the circus being within a few minutes' walk of the Bank of England and the parts of the city chiefly occupied by the mercantile and professional classes, and its threatened destruction had therefore been regarded with regret. The Metropolitan Railway (Tower Hill) Extension Act, 1864, which received the Royal assent a few days before the prorogation of Parliament, will subject the circus to partial spoliation during its construction, but that only for a limited time, and the ornamental gardens in the centre will be carefully protected in the process, and restored afterwards in parts which may be unavoidably injured. The extension railway is to be carried through the circus in a covered way, and after its construction the company are bound by their Act to restore the surface of the ground, and to lay out the part of the gardens which may have been interfered with in a way equally ornamental with the present to the satisfaction of some person to be appointed by the Board of Trade. They are also under express obligation to contribute 100*l*. annually towards maintaining the ornamental character of the grounds. In constructing the line the company are likewise bound by certain other restrictions. The railway under the gardens is to be completed within four months from the commencement of the works there, and the surface of the ground above the line is to be reinstated forthwith, and without any openings. No more of the gardens is to be occupied than is absolutely necessary in the process of construction, and the part so occupied will be securely fenced by close palings, at least 6 feet high, so as to prevent trespass on the parts of the gardens not taken up by the works. The trees are also, as far as possible, to be protected from injury.

Calendar of Operations.

(*For the ensuing week.*)

The few sharp showers which we have had this week have effected wonders; bedding plants are improving in appearance. Grass lawns are already greener, fruit trees look more healthy, and the shedding of their produce, which was becoming alarming in some districts, is in some measure arrested. As regards vegetables, the benefit of the change is also apparent, and prices at present high, especially for some things, must doubtless be reduced. Potatos, however, in some places are reported to be pushing young shoots from the new tubers which must greatly deteriorate their present value as well as render them unfit for long keeping.

FLOWER GARDEN AND PLANT HOUSES.

Let shading be used less frequently now than when the weather was so hot; plants ripening their growth have need of not only all the daylight they can get, but even moderate sunshine. A rough plan must now be made of the arrangements of flower beds, which should be numbered to suit an accompanying list of the names of the plants, with which it is designed to fill them next year, and the quantity required for each bed. By compiling a summary from this list, accurate information is at once obtained of the quantity of plants which must be propagated immediately by cuttings, and both by these and seeds in spring. By this simple means, redundancy and deficiencies are avoided, disappointment is prevented on the one hand, and waste of labour on the other. Whilst the half-hardy plants are in beauty, a tasteful eye will easily discover the weak and improvable points, and, by observing the more satisfactory parts, will readily perceive the most desirable future arrangement.

ORCHIDS.—Kinds which have already made their growth and ripened it should be removed forthwith to a cool house. Great care should be taken not to excite such plants into a new growth at this time, as it is much too late to get them properly matured, and the unseasonable draught upon the stored energies of the plants will materially interfere with their next production of flowers. Dendrobiums of the D. nobile character, which are sufficiently advanced in growth, should also be removed to a cooler house, where they should be supplied with a moderate temperature, abundance of air, and scarcely any water, till their stems are ripened and their flower buds formed. Those Orchids which are in a growing state should be placed in the most favourable positions, and encouraged by a high temperature, so long as the strength of daylight will admit of such a course.

PINKS.—Pipings in some cases may now be ready for transplanting; and in doing this not a moment should be lost, as they have need of all the rest of the season to establish themselves in such a manner as to prevent frost from injuring them. If the situations ultimately intended for them are vacant, they should be planted in them at once, as they thereby flower much finer; but if these places are occupied for the present by something else, the young Pinks should be planted 4 inches apart, on reserve beds in an open situation, the soil of which should consist principally of light loam, to which has been added some charcoal dust or charred refuse; a little dung mixed with road drift and soot should be added. The rotten manure from an old Mushroom bed answers very well for this purpose, as it encourages a mass of fibres, and produces a healthy not over-gross development of top.

ROSES.—Cuttings of China and some other kinds may now be taken and planted in a close cold frame in a north aspect for three weeks or a month, until they are cicatrised at the base; they should then be taken carefully up, potted in thumb pots, and plunged in a close warm frame with a gentle bottom heat. So treated, they will make nice plants in a very short time, and if kept under slight protection during winter, will fill their pots with roots, and be ready for planting out in April or May.

FORCING GARDEN.

CHERRIES.—Let no exertion be spared that will contribute to keep the foliage healthy and clean as long as possible.

MELONS.—Late plants swelling fruit should be kept moist, but avoid frequent waterings of the soil by giving good soakings.

PINES.—Maintain a high moist temperature, with abundance of ventilation, to plants which are swelling their fruits; and a rather drier atmosphere around those which are in flower. In all the stages except that last mentioned, use the syringe freely, in fine weather, when there is a certainty of the moisture evaporating by the heat of the sun; but, on dull days, depend almost entirely upon the evaporating troughs, and be careful to admit air, to prevent too great a condensation of moisture. If the syringe is used in excess during this month, it is liable to render the soil too wet for the healthy development of the plants. Take care that the bottom-heat does not get too strong for plants which have been recently potted or planted.

STRAWBERRIES.—If not already done, pot off layers, and place them where they will receive partial shade until they get established. After that they may have full exposure to sunlight.

VINES.—When late crops have done stoning, the borders, both inside and out, should have a good soaking of liquid manure, to assist the swelling of the fruit. Do not allow the process to go on too sluggishly, if they are of kinds adapted and intended for late keeping. Muscats ripened with the aid of the summer sun, by the end of August, are infinitely superior, both in appearance, flavour, and keeping, to those which are growing on through the next two months. The Vines in a more forward stage, on which the Grapes are just beginning to ripen, should be gradually inured to a freer admission of air; and if it be desired to keep for any length of time those which are quite ripe, they should still have the advantage of a slight shading during scorching weather.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to pinch or lay in shoots of Wall trees, and to gather all kinds of fruit as it becomes ripe.

CELERY.—This may still be planted. Some prefer what is called the Scotch plan, viz., beds of from 4 to 6 feet in width. These beds, which often succeed crops of Peas, are trenched two spits deep. The bottom spit receives plenty of raw manure or half-rotten leaves, and the top one old manure. The principal secret in growing very tender and crisp Celery, irrespective of size, is to grow it very quickly by means of plenty of manure and moisture. Whether in rows or beds, the young plants will not succeed without plenty of water.

PARSLEY.—Some strong, well-curled plants should be selected from the spring sowing, carefully lifted with large balls, and planted at the foot of a south wall. A quantity planted in boxes proves very useful during a long continuance of severe weather in winter, as they can be placed in a cool Peach-house, or similar situation.

POTATOS.—Let early kinds be got up as soon as the tops are ripe enough; and let particular pains be taken to pick out all the tubers, as those left in the ground are very annoying in future years. Let the produce be sorted, and if of an approved kind, let all the small and moderate sized tubers be carefully preserved in dry sand or charcoal dust. Be at a little trouble also to test the different varieties, and do not allow your number of sorts to exceed half a dozen, selecting those only which are most liked on table, free croppers, early in coming to perfection, and least liable to be affected with disease.

SPINACH.—Sow some for winter in good rich ground, deeply trenched; and, if the soil is of a heavy nature, the operations should proceed simultaneously, as the soil is thereby left in a loose uncompressed state. Avoid thick sowing in all cases; the rows should stand about 16 inches apart, to allow a free passage between the rows for forking, cleaning, and gathering the crop. At the first gathering every other plant should be drawn out entirely, thus giving additional space to those plants which are to produce the late winter and spring supply.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Aug. 10, 1864, as observed at the Horticultural Gardens

August.	Moon's Age.	Barometer Max.	Barometer Min.	Temperature of the Air. Max.	Min.	Mean	Temperature of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 4	2	30.057	30.013	84	47	65.5	64½	62½	S.W.	.00
Friday 5	3	30.117	30.058	89	55	72.0	66	63	S.W.	.00
Satur 6	4	30.088	29.997	89	40	64.5	66	63½	S.W.	.00
Sunday 7	5	30.015	29.862	82	59	70.5	66	64	S.W	.00
Mon. 8	6	29.876	29.814	81	47	64 0	66	64	S.W.	.00
Tues. 9	7	29.838	29.775	68	42	55.0	66	63½	S.W.	.56
Wed. 10	9	30.109	29.934	67	37	52.0	64	63	S.W.	.00
Average.		30.018	29.932	80.0	46.7	63.3	65.5	63.3		.09

Aug. 4—Light clouds; excessively dry air; very fine at night.
— 5—Very fine; cloudless; excessively dry, cloudless, and hot; fine; cloudy.
— 6—Overcast; hot and dry; fine at night.
— 7—Partially overcast; fine; very fine; overcast.
— 8—Overcast; very fine throughout.
— 9—Rain; densely and uniformly overcast; cloudy; rain; fine.
— 10—Very fine; clear; quite cloudless; cloudy and fine; cold at night.

Mean temperature of the week ½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending August 20, 1864

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 14..	72.5	50.8	61.6	15	0.79 in.	—	10	4	2	2	13	5	2
Mon. 15..	73.0	50.1	61.6	15	0.61	4	5	4	1	5	9	5	5
Tues. 16..	73.2	51.5	62 3	18	0.80	—	3	4	2	5	4	9	4
Wed. 17..	73.1	50.4	61.7	21	1.12	5	2	1	2	5	8	13	2
Thurs. 18..	73.3	51.6	62.5	14	0.38	3	1	5	3	4	8	8	1
Friday 19..	73.0	51.6	62.3	18	0.42	2	4	3	2	3	10	10	4
Satur. 20..	72.5	50 8	62 6	17	0.45	2	3	3	—	5	0	11	4

The highest temperature during the above period occurred on the 18th, 1842—therm. 92 deg.; and the lowest on the 21st, 1850—therm. 32 deg.

Notices to Correspondents.

BOOKS: *A A.* The book you mention is of no authority.—*J. C.* You will find the Pelargoniums described according to the notions of botanists, in the first volume of "Harvey's Flora Capensis.—*Filix-fœmina.* "Moore's Handbook of British Ferns" is the most convenient and trustworthy of the many publications on the British Ferns. — *Nemo.* "Berkeley's Outlines of British Fungology."

CRESTED FERNS: *Mary.* The best of the crested varieties of British Ferns are Lastrea Filix-mas cristata and its subvariety angustata, Jervisii, and Clowesii; Athyrium Filix-fœmina Victoriæ, corymbiferum, Elworthii, gracillimum, and multiceps; Polystichum angulare cristatum, grandiceps, and Kitsoniæ; Asplenium Trichomanes cristatum; Blechnum Spicant ramosum; Polypodium vulgare multifido-cristatum; Scolopendrium vulgare glomeratum, ramosum, ramoso-marginatum, laceratum, and cristatum; and Osmunda regalis cristata.

FUCHSIAS: *N.* Your blooms did not arrive in good condition. A meeting of the Royal Horticultural Society's Floral Committee takes place at South Kensington next Tuesday, at which you might exhibit plants of them.

HOT-WATER PIPES: *H J Moule.* There must either be something peculiar in the quality of the water you employ, if paint has no effect in preventing rust on the pipes, or else the paint must be imperfectly applied. Doubtless the open iron troughs are partly to blame. We should recommend that the pipes should be thoroughly dried and cleaned, and then painted, giving time for the paint to harden before the troughs are again filled. Can any of our readers help our Correspondent? Why not try the anti-corrosive paint?

MOSS ROSES: *Flora.* We have never heard of any real Black or Yellow Moss Roses, and cannot give our fair Correspondent any hope of finding either. Such things did exist formerly—in books, but nowhere else.

NAMES OF PLANTS. *W T T.* It seems to be Stanhopea inodora, but the middle lobe of the lip is lost.—*T Davis.* Crataegus odoratissima.—*F C.* Some Cœlogyne without leaves; perhaps C. graminifolia.—*E K.* 1, Glyceria fluitans; 2, Juncus compressus; 3, Poa trivialis, in a weak state.—*R S.* Glyceria plicata.—*G M.* Onoclea sensibilis.—*R T E.* 1, Acroclinium roseum; 2, Lupinus Menziesii; 3, Salvia Sclarea.

PENTSTEMON: *J Laing.* The Seedling which you propose to call Mrs. Moore is one of the most pleasing we have seen, and quite distinct. The large white flower-tube marked with rosy veins, and the even border of bright rose on the limb segments, give it quite a marginate character. Though the tube is not above the average length, it is broad and pure white both inside and beneath, while the limb is well spread out, and about half its surface occupied by the white of the throat, and half by the even and well defined rose-coloured border. It will be quite an acquisition.

ROYAL HORTICULTURAL SOCIETY. *Robinson Crusoe and many others.*—The state of our health does not allow us to interfere; but we disapprove as much as any one possibly can.

VALVES FOR HOT-WATER PIPES: *W B S.* On inquiring amongst those who are familiar with the different kinds of valves now in use, we learn that what is known as the Throttle Valve is the cheapest, and at the same time useful.

VENTILATION: *Subscriber.* We know of no special work on this subject, which however forms part of all general instructions in the different departments of garden culture; but we will endeavour to meet your wishes shortly. One chief object of ventilation in forcing-houses is to keep down the temperature, which during sunshine would otherwise be excessive; a ready guide for regulating this will be found in the tables of temperature always provided in gardening books in the instructions for the management of the different structures at different seasons.

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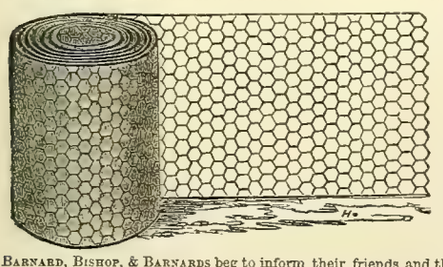
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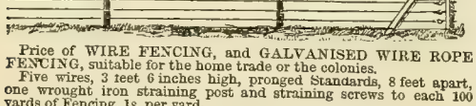
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The Agricultural Gazette.

SATURDAY, AUGUST 13, 1864.

THIRTY inches of rain or thereabouts fall annually upon this island. They wet its surface, which dries again and sends back so much into the air. They find their way by various surface channels, runnels, brooks, rivulets, and rivers to the sea. They sink through its surface to various depths, taking always the path of least resistance to that downward passage which the weight of the water urges, until at length the passage of least resistance leads to the reappearance of this portion of the rainfall in springs at various points below that where it sank into the ground.

Now of these two latter portions of the rainfall various uses are made:—They fill our rivers, which are thus along many miles of their course made available as carriers; they fill our mill-streams, and their weight is thus turned to account as power in various manufactures; they provide drink for our live stock and our population; and they feed our plants.

But the surface on which the rain-water falls is covered with plants. The cultivator of these plants is thus the first owner of this water; and he is more and more awakening to the immense value of this property, and to the greatly enhanced services which, properly directed, it can render to him as a grower of these plants.

Guided by the better knowledge of this subject which now prevails, every man either the owner or the hirer of this surface, is dealing with the water which falls upon it for his own exclusive benefit. Either each estate by itself, or it may even be each field by itself, is so drained that the rain passes through its soil and subsoil for use, instead of over its surface to waste; and after being made useful as a feeder of the plants grown in and on the soil, it is thereafter provided with as easy and as rapid an exit as is possible. The field is drained or the estate is drained, and thereafter the water, done with, is dismissed as immediately as possible.

Now, even as regards an estate, there is room for the use of water after it has done its duty as feeder of the plants. It is then available as a water supply for animals; it is even available for a use once again in irrigating, and so feeding plants upon a lower level. But if a larger view of the economy of the rainfall be wise as regards an estate, still more is an enlarged and general view important on the great scale of the nation generally. Our outfalls are every day becoming more direct and rapid in their action; rain which used to drag sluggishly downwards through meandering streams, runs straight out to the sea. Floods, rather as the result of this arterial drainage than as the result of parallel subsoil drainage, follow excessive rainfalls more immediately than they used. And, unexpected as it may be, the influence of agricultural drainage becomes apparent on our springs, our mill streams, and our rivers. It is of great importance that an inquiry be made into this subject, in order that the truth of the matter may be known before the owners of estates shall have permanently injured their own interests by a too narrow confinement of their views to the mere agricultural object of land drainage. And still more is it necessary, that the owners of land may not have permanently injured the general interests of the island and its population before Government shall have lost all opportunity of interference.

It is therefore satisfactory that one so well known as Mr. BAILEY DENTON, C.E., in connection with the subject, should have addressed the following memorial to the Home Secretary. It is to be hoped that his representation may be listened to. The following is the memorial:—

I beg permission to bring under your notice the necessity of an enquiry into the effect of under-drainage on our river systems, and generally into the larger questions of the water economy of the country.

Such an enquiry would elicit information on several objects of great national importance, and would go far to reconcile different views prevailing with individual land owners in the drainage of their estates, which at present produce derangement and general loss owing to contradictory action.

The experiences of the last 20 years lead to the following conclusions:—

1st, That the general effect of under-drainage as practised, is a gradual though slow decrease of our perennial water supply.

2d, That the prevailing mode of under-draining by its uniform application to soils equally wet but varying in character—*i. e.*, the retentive clays and the free water-bearing beds—is productive of drought at certain times and of floods at others.

3d, That under-drainage, when appropriately applied to wet soils of these various characters, is capable of becoming a means of improving the perennial supply of our rivers, by securing a more regular and increased flow instead of sudden discharges by periodical cessation, as at present.

4th, That certain districts subject to seasonal drought are capable of being supplied with water during the summer and autumn by the storage of the water discharged from drained land during winter and spring.

5th, That many villages of which the inhabitants suffer greatly for want of water in dry summers are capable of a like supply.

6th, That arterial or district drainage, as now conducted under the Land Drainage Act, 1861, is calculated to produce derangements in our river systems of the worst character, inasmuch as certain unconnected portions of our valleys are being acted upon without regard to the effect of such partial work upon the lower portions of the same valleys.

7th, That arterial or district works of drainage are carried out by local commissioners without due provision for appropriate under-drainage, according to the variety of soils.

8th, That although the Inclosure Commissioners are required to fix the limits of drainage areas formed under the Act of 1861, and to sanction the mortgaging of the rates, they really have no influence on the character of the works themselves, an anomaly productive of much evil, inasmuch as an authoritative sanction is seemingly given to works upon which no opinion whatever is exercised.

9th, That although entailed estates are charged with the cost of under-drainage, the efficiency of which is dependent on easements for outfall through adjoining properties, in but few instances does any legal right to such easements exist, owing to the great cost and difficulty of obtaining the right.

In addition to these conclusions it is observed, that as the quantity of water in the rivers during summer gradually becomes less from drainage or other causes, the influx of the refuse of towns becomes greater.

I may state too, as a coincident fact bearing upon the subject, that the subterranean supply or springs of the country were never so low within the memory of man as at this moment.

The present time would appear especially opportune for the suggested enquiry, inasmuch as the Lord Chancellor's Act "the Improvement of Land Act, 1864," following "the Land Drainage Act, 1861," will lead to a great extension of land drainage, and with 20 millions of acres in Great Britain still to drain, the accumulating effect will swell into one of great magnitude.

MR. ALDERMAN MECHI's account of the losses amongst live stock which he has sustained, as he at first supposed owing to adulterated or bad cake, but as he afterwards concluded owing to the indigestible food which they find in his fields, has

brought out many parallel cases, or cases which appear parallel to his. Amongst others, Mr. Wallace, of Houghton, Stockbridge, Hants, describes his experience, and we give his letter at length, as taking the other view of the case; and arguing that it is not benty Grass or indigestible field food, but bad cake and indigestible bought food that has done him mischief. He says—

"I have myself been a great sufferer in my lambs, and the symptoms were very similar to what Mr. Mechi describes. When my lambs were taken ill I was at a loss to understand it, never having seen anything like it before. I changed the food, the produce of the farm, without any benefit (my lambs have been eating ½lb. Linseed cake per head per day). I then came to the conclusion that the cake had something to do with it, especially after chewing it, and trying one ounce of cake with 6 ounces water, and finding it did not jelly as good cake ought to do. I stopped the cake, and within a short time I could distinctly see an alteration for the better. I then sent three lambs alive to the Veterinary College, Camden Town. When they died, on being examined *post mortem*, they were reported to have died from inflammation of the mucous membrane of the intestines, caused by something they had been eating; in the meantime I sent a part of the cake to two eminent chemists, and having read Dr. Voelcker's lecture upon the adulteration of oilcake in the last number of the *Royal Agricultural Society's Journal* for 1863—where he mentions that the analysis does not tell everything, as a clever oilcake maker can make a cake to analyse well, but still be composed of something very different from pure Linseed—I caused it to be examined thoroughly for adulteration. Both analyses make it out a fair average cake. One chemist reports it as being made from rather dirty seed, and that it is not a *genuine* or *pure* Linseed cake, but contains starchy refuse, bran or pollard, and *nut cake;* and adds, the danger of using such a mixed cake is, that it is apt to get mouldy, and sometimes acts like a rank poison. The other says it is not made from pure Linseed; it contains a quantity of earth nut, a small quantity of Rape, and some starch of a cereal, apparently Wheat, which is probably due to the addition of some bran or other refuse. It is also acid to test paper, and has apparently been made of seed which has undergone some fermentation, or has been damaged in some other way. I have a strong idea that such a mixture is sufficient to cause irritation of the intestines in a young animal, a lamb for instance, and if continued for some time to bring on inflammation. If the cake was not mouldy to appearance, might not the bran or nut cake be so before being mixed with the linseed? Dr. Voelcker makes mention in the lecture I referred to of the dangerous character of some of the nuts. (It is not long ago since I saw in the papers a case where a number of boys were poisoned by eating some peculiar sort of nut they found in bags at a railway station.) Within a district of 10 miles I know of no less than a dozen cases where parties have suffered in a similar way to myself. I have seen and corresponded with them, and find they have all been using linseed cake from the same manufacturer as I have. Some have used cake to one part of their lambs, and to the other part none. With cake they died, without it they did well. One person gave to some of his lambs cake alone, and to the rest cake and Beans; when cake alone was used then he suffered most; in all the several cases the lambs were feeding on a variety of other food. My immediate neighbours some of whom have used no cake and have not suffered, others have used cake from different manufacturers, and their lambs have done well. I have heard of one person who has lost a number of lambs from eating cotton cake, and he tells me they recover after stopping the cake. For my own part I never considered cotton cake fit for young animals. I have no doubt young animals in good condition, and hot weather, would be more likely to bring out the bad effects of cotton cake. Some of Mr. Mechi's calves were at home cool and quiet; this had something to do with the difference of their doing from the others at pasture. If his calves were suffering as he mentions, it would take some time after withholding the cake until they improved, and even then some that were affected would die; as I found to be the case with my lambs, for I believe out of 360, all eating this Linseed cake were affected more or less. You are quite at liberty to make any use you please of the above information, as it is a matter deeply concerning agriculturists."

On this point we quite agree with Mr. Wallace, and hope that the subject will not be allowed to drop, but that any other of our readers who have had anything like his experience will relate it.

Mr. Mechi adds, nevertheless, "I am decidedly of opinion that the losses have not been caused by cake feeding. My lambs and ewes are all getting cotton-cake daily, from half a pound to one pound each, and do well. They are on red Clover, the first crop having been mowed for hay. The field was then top-dressed with shed manure. Had the first crop been fed with sheep I should expect death to many lambs. Sheep must have plenty of water during this hot weather, and if possible some shelter from the sun's rays during the extreme heat of the day. Fortunately I have some abundant and never-failing springs from my deep drainage."

The Artificial Drying of Grain is one of the means that have been adopted at different times, and with varying success, for its preservation. It is well-known that most organic bodies, if kept in a state of dryness, can be preserved intact for an indefinite period. The moisture usually contained in the interstitial spaces of organic matters, being once driven off, can no longer act as a mechanical and chemical furtherer of decomposition.

Wood, fruit, grain, and similar substances, have been kept for a very lengthened period when once their natural moisture has been driven off. Many examples can be cited. We may mention as one, the discovery in 1707, at Metz, of a large quantity of Wheat, placed in 1528 in a subterranean granary. The Wheat was so well kept that the bread made from it, two centuries after its being reaped, was found to be excellent. The grain had probably been thoroughly dried in the sun before being stowed away. The application of heat has also the effect of hardening the epidermis of grain; it is thus not so easy of access to the moisture of the air, nor so liable to the attacks of insects. The *absolute* weight of grain is diminished by the application of heat, while its specific weight is increased. When dried Wheat, however, has been ground to flour and made into bread, the water it had lost is again absorbed.

According to a rather recent number of the Scientific American, "thousands, perhaps millions, of bushels of Wheat are annually injured by water and heating when transported on our lakes and canals. Such Wheat sells in New York and other places for a very few cents. per bushel." A practical plan for drying grain artificially would give us the power of seasoning it almost like seasoning wood; of getting rid of its natural humidity, which continually predisposes it to fermentation; and at the same time we should have a means of destroying the germs of its peculiar animal and vegetable parasites, the development of which follows, step by step, the progressive stages of the process of fermentation.

The great advantage of a good plan for drying grain artificially consists in its being a quick and cheap substitute for the various complicated mechanical and chemical means that have been adopted at various times for keeping corn from fermenting in the granary.

The records of the Patent Office show that several patents are built upon the phenomenon that grain always begins to decompose from the centre of a heap, while the outside is left intact. The grain at the outside is kept dry by the continual renewing of the air. The moisture is thus carried off from the outside of the heap; but if the inside be wet it will ferment.

Amongst the purely mechanical means used for preserving grain are those of shaking up and changing the position of the heaps by means of shovels. The late Mr. J. G. Bodmer, formerly of Manchester, proposes in the *Journal of the Society of Arts*, 1846, page 41, several plans for keeping grain in a dry state. He advocates mechanical apparatuses, on a large scale, by which it can be stirred up; and one of his plans consists in the use of an endless screw, or a Jacob's ladder which is traversed through the grain. Other means have been proposed, such as hollow columns, hoppers placed one above another, revolving cylinders, and similar expedients, for bringing the grains into motion at intervals, as substitutes, in fact, for hand labour. At certain ulterior stages in the state of the grain these plans would probably do more harm than good, as they would then favour the increase of insect life.

Plans were proposed in France in 1828 and 1852 for injecting cold air into stored-up grain. Thus, instead of the grain being moved through the air, as by the preceding means, the air itself is driven through the grain, and with a similar more or less efficient result.

An arrangement that has been used from immemorial times in southern climates is that of placing the grain in subterranean places, impervious to water, and hermetically closed, called *Silos* in French and Spanish. The grain is thus kept at a low and unchanging temperature. The preserving action of the *Silos* is accounted for by some upon the observation that the outer grain germinates from the moisture of the ground, and that it thus forms a hard shell several inches thick. The grain at the inside is stated to be preserved for years by the interstitial spaces between the grain getting filled up with carbonic acid gas, evolved from the decomposed outside shell.

Mr. W. Bridges Adams, in his book entitled "Roads and Rails," proposes (p. 208), to store grain in "large cast-iron canisters, built of plates—like a gasometer—through which warm air might be pumped till it was quite dry, after which it might be hermetically sealed, to the exclusion of all vermin. A small opening at top would serve to fill it, and a draw-off pipe at bottom to empty it." He thinks that grain might be preserved for an indefinite time in this way. He relates that in South America grain is stored up in the skins of oxen, taken off entire, and made into a hard dry bag, each of the shape of an ox.

Amongst the many chemical means that have been used to some extent for preserving grain, are chlorine and sulphurous acid gas, injected into the grain for destroying insects. This was patented in 1808. In 1845, carbonic acid gas was proposed both in England and France for the same purpose. The injection of chlorine was again patented in 1852 in England. Chloroform has also been employed. These chemical fumigations must evidently in some instances injure the grain, and must in most cases be very expensive and difficult to apply.

The mechanical means are all evidently founded on the principle of keeping the grain dry by renewing and changing the moistened air as much and as often as possible. In what may be called the *stationary* plans, this is obtained by filling the grain into sacks, and these sacks are placed as far as possible from one another. Or the grain is laid in thin layers, divided by occasional furrows. It will be seen at once that such plans will take up a large amoun of room.

The above may be considered as a short statement of the advantages that would be derived from a good plan for drying grain artificially. The problem is, however, involved in some difficulty. A grain of Wheat—taken singly—is by itself a bad conductor of heat, through its own molecular structure and composition; while this non-conductibility is increased in a mass by the air filling up the interstices between the individual grains. It thus becomes a very difficult matter to give to every grain heated the same temperature. Too high for some, the heat destroys many of their useful properties; too low for others, an insufficiency of heat can neither affect the egg, the larva, nor the insect; while the moisture natural to grain is also left undisturbed. Of course, if only a slight proportion of any quantity of grain intended to be used as seed gets torpid, and its life destroyed, this is sufficient to ruin the whole lot as seed. Authorities appear to differ as to the limits within which grain can be heated without injury. According to Monsieur Doyère, grain can support from 50° to 100° centigrade (122° to 212° Fahrenheit) without any greatly injurious effects. At about 70° centigrade, however, the gluten of the grain is cooked, and its germ destroyed—an effect similar to that of the same temperature on the albumen of an egg. The eggs of the parasitic insects peculiar to Wheat are destroyed by a temperature of 60° to 65° centigrade, and this heat is never found to injure the germinating properties of Wheat. These degrees of heat evidently vary on account of the heat acting on the grain being more or less absorbed by the greater or less humidity contained within it.

In any case, it is found that the germinating properties of Wheat are sooner destroyed than the qualities required from it in making up bread.

Another of the difficulties to be encountered in drying and storing Wheat consists in its hygroscopic nature, to which we have alluded above; a difficulty varying with different Wheat, being more or less as the Wheat is softer or harder.

Some time after heat is applied to the grain it begins to sweat, and after the utmost temperature that can be given by the apparatus is reached, the air surrounding the grain gets saturated with the amount of humidity proper to this degree of heat, and no further moisture is evolved. It then becomes necessary to drive off this moisture, and to cool down the grain.

The difficulties to be met with in drying grain are such that there is at present no generally successful apparatus for this purpose, whether simple or complicated.

To recapitulate; the points to be considered in the construction of an efficient apparatus are:—1st. A certain temperature must be given to the grain, high enough to kill the germs of the parasitic insects, not so high as to destroy the

life of the Wheat itself; and a certain temperature only varying within narrow limits is thus required.

2nd. Provision must be made to heat each grain equally, and to counteract the natural non-conductibility of the Wheat.

3rd. The steam evolved from the grain itself must be driven off.

It will be instructive to examine how these conditions have been fulfilled in the numerous plans, patented and otherwise, that at various times have been brought before the public; and a slight description of these plans, with the dates, will give the history of the attempts at drying grain made in the different countries.

In England, where grain is seldom stored for any great length of time, nor exported to any extent, there is no great necessity felt, save and except in wet harvest years, for any system of desiccating grain. The very great number of patents taken out within late years would seem to negative this, but none of these plans appear to be in successful operation, most of them being probably either scientifically, practically, or commercially deficient.

The French appear to have achieved most in this direction, although none even of their plans as yet seems to be quite successful. The Americans, favoured probably by their drier climate, have not attempted much in this way, as there are only about half a dozen patents taken out in Washington for grain-drying apparatus—a relatively small number for a country so prolific in patents. For want of a complete record of German invention, it is difficult to ascertain what has been done in that country.

Of course the cheapest and best plan for drying grain and flour, when it can be carried out, is that of submitting it, in thin and furrowed layers, to the conjoined influence of the sun and air. This, however, can only be carried out in a southern climate.

The different means proposed for artificially drying grain, may be roughly classed under the following heads:—1st. The centrifugal apparatus or hydro-extractor arrangement. 2nd. The stove or kiln principle. 3rd. The employment of the desiccating action of artificial gases, steam, superheated steam, of heated air, or lastly of air dried by exhausting it through either common lime or chloride of lime. 4th. The employment of the desiccating action of a metallic surface, which is heated with hot air, steam, superheated steam, gas, or hot water in indirect contact with the grain to be dried.

Many of these patents are simply absurd, while very few show a complete appreciation of the requirements of a grain drying apparatus.

The hydro-extractor or centrifugal plan is, as a rule, only used when the grain has been washed. It can merely get rid of water which is in mechanical union with the grain.

The stove, kiln, or retort, plan, is embodied in several French and English patents.

We may mention No. 97, year 1853, and No. 497, year 1854. Different arrangements upon this idea will be found described in the official "Descriptions des Brevets," *vide* Vols. 18, 72, 74, and 76. There are several general objections to this arrangement. It is expensive, it requires much room, and the grain gets unequally heated, unless well stirred up and moved about.

Kilns are used for torrefying grain for malt, or for roasting coffee on a large scale. These are very different operations to drying grain for storing, and any roasting action on Wheat detracts from the sweetness of the bread.

What we have termed the third principle, or the use of the direct action of desiccating fluids, may be divided into three kinds:—1st. In which the grain itself is moved against the desiccating fluid agent. 2nd. In which the fluid used is itself in action, and is injected into stationary grain. 3rd. In which the above two principles are combined into one apparatus.

As instances of the first kind of apparatus we might point to patents No. 97, year 1853; No. 614, year 1856; No. 2845, year 1857; No. 2364, year 1858, &c. Bringing the grain in motion against the desiccating fluid agent must evidently involve some complication. Not merely is an apparatus required for generating the heat, and necessarily one for keeping the grain in motion, but also in some cases an arrangement has to be constructed to inject the heated air. If a stove or kiln be used, almost all the inherent defects of this apparatus also come to bear upon this case.

The following patents taken out in England come under our next subdivision:—No. 11,947, year 1847; Nos. 1288, 1489, and 1882, year 1855; No. 2632, year 1857; No. 1530, year 1858; No. 2179, year 1860; No. 1436, year 1861.

The injection of carbonic acid gas, or of any other artificial gas into corn, is more to be used for killing the vermin in grain already far gone than as a preventive measure. Such an application is scarcely a thing for everyday use, and would be likely to give an unpleasant taste to the corn. The use of steam, or of superheated steam, although specified in several patents, appears absurd. If steam be taken at such a pressure that it can force itself through the grain, it must cook the gluten; at a low pressure, the steam would be condensed within the grain, thus leaving it in a worse state than before. Using air dried by chemical substances is a very scientific way of drying grain, but its action would probably be but limited, and in many cases the drying of air by such means would be scarcely practical.

With regard to the application of heated air in direct contact with grain, it will be seen that this plan has great difficulties in its wake. As is well known, the pressure of atmospheric air is only very slightly raised by a temperature of even 212°—so that it could not be injected by its own pressure. On the other hand, if the air be heated and injected by mechanical means, on its first contact with the grain it would probably give out too much heat. It is likely that this would be the case with Stanford's patent (No. 1530, year 1858) unless the air were admitted at a low pressure by the grain being placed in thin layers, as on a floor. In Delezenne's patent, taken out in France and England in 1854, and 1855, carbonic acid gas and heated air are forced into cases. There must be some difficulty in getting the gases to permeate through the whole contents of the case.

Instances of our third subdivision of the general plan of bringing air and gases in direct contact with the grain, will be found in Patent No. 2005, year 1859; and No. 3159, year 1860. Messrs. Newton, Messent, and Doyère have taken out similar patents in France, in the years 1838, 1853, and 1854 respectively.

The patent of Monsieur Doyère has been carried out on a large scale in France. The main features of his invention consist of a cylinder formed of wirework, open at its extremities, and on an incline, like a bolting drum. One or more of these cylinders are placed in a brick chamber communicating with a second chamber, containing a cast-iron stove and pipes. The heated air enters the chamber holding the wirework cylinder; the latter is revolved, while it receives the grain by the upper end; and empties it, after a passage of 15 or 25 seconds' duration, into a wooden case. The grain quickly passes through this case, which is provided with a thermometer—the guide of the operator. This thermometer gives the amount of heat of the grain at its exit from the cylinder. This amount of heat must not transgress the fixed limits of 57° to 62° centigrade. If the temperature be higher or lower, the fire must be raised or slackened; the cylinder has to be turned quicker or slower; the men must alter the communication between the two chambers; or more or less grain must be let in during the same time. The necessity for these manœuvres will be evident from what has been said above; the difficulty of practically carrying them out will be apparent. In addition to these objections, as the screenings drop through the wirework cylinder during the passage of the grain, they get charred, giving out an unpleasant taint to the Wheat, and causing discomfort to the attendants.

We now come to the last principle—that of using a heated metallic surface. This principle has been adopted in patents Nos. 32, 471, 1040, 2373, year 1853; No. 1479, year 1854; No. 2665, year 1855; No. 2008, year 1856; and Nos. 892 and 1589, year 1861, &c. The use of a gas flame on a metallic surface would give too much heat, so that we may dismiss this, although several inventors have attempted this plan. A kiln for roasting malt could, however, be heated with great regularity by means of gas. Superheated steam is also liable to the same objections. Hot water is not so light and neat in its application as steam. Heated air is unpractical and is dangerous to the grain, its heat as it is difficult to regulate, from the tendency of heated air to absorb so much caloric without changing its pressure; the plan does not give us such a ready means of keeping fire heat within due bounds, as compared with steam. The patent described in the specification No. 892, year 1861, may be regarded as the best and latest sample of this principle. The inventors, Messrs. T. Don, T. Smith, and L. Horsfield, describe their invention as follows. The steam, superheated steam, or air, are made to pass through pipes. These are placed in a case. The grain is caused in its descent to pass in contact with the heated surfaces of the pipes, and is thus dried. The moisture is drawn off as fast as it is evolved by means of a fan. The grain is stirred and moved about through the revolution of screws.

This arrangement is doubtless very efficacious, but the fan and the Archimedian screws must consume much power, and the whole is probably a very expensive apparatus.

There is a plan for drying grain which has been adopted to some extent in France, and with success; but which does not seem to have attracted much attention in England, nor has it been patented in this country. It is that of submitting the grain in layers of barely 1 inch depth to the action of exhaust steam. The small depth of the layer allows each separate grain to undergo the same degree of heat within a given time. It has been patented by Monsieur Malleval in France during the year 1854, and is described in vol. 39 of the official "Descriptions des Brevets d'Invention." It consists of a flat casing of copper or tin, with a double covering. The grain is between these casings, and is thus heated on both sides, as the steam traverses the apparatus from top to bottom, where it is let out by a tap. The grain is let in through a hopper placed at the top of the apparatus. There is a slide or damper at the bottom of the casing, by which the outflow of the grain may be regulated. The grain, on making its exit out of the apparatus, being hot and damp, is caused to fall into contact with the blast of a fan, by which means it is cooled down, and the moisture driven off. The grain, after being shovelled into heaps, is left for a few hours, and is then stowed away. The grain is stated to be heated to 60° centigrade (140° Fahrenheit), after being two minutes in the apparatus; 70° C. (150° F.), at the end of four minutes; and 75° C. (165° F.), at the end of 10 minutes. A small independent apparatus could be made of a small boiler containing about 3 gallons of water, and a case measuring about 1 square yard. With this arrangement the exhaust steam and condensed water could be returned back into the small boiler. An apparatus like the above, holding 3 bushels, would take to fill and empty it about two minutes. The grain would remain in the apparatus barely three minutes, and about 3 bushels of Wheat could be dried every five minutes.

It is evident that this plan could be carried out on a larger scale, and in a different shape; while peculiar facilities would be afforded in this system for drying grain with portable apparatuses, which could be applied at once to the threshing machine. *P.*

DAIRY FARMING.—No. III.

[The following are extracts from the third lecture of the series on Dairy Husbandry, lately delivered at the Royal Agricultural College, by J. T. Harrison, Esq., of Frocester Court, Stonehouse, Gloucestershire.]

1. The stand point from which we have as yet viewed the subject of Dairy Farming has been that occupied chiefly by the landowner and the public at large.

We have seen that the land occupying the surface represented by the secondary formations on our geological maps is intrinsically the richest in our islands, whether it be compared with the primitive and transition or with the tertiary series; that it consequently commands in a very marked manner the highest rental, but that, along with this maximum of value, there is frequently a minimum of attention paid to its permanent improvement.

From the state in which dairy farms are let, the tenant is frequently put in a wrong position from the commencement of his taking. If there is any truth in the unfavourable comparison so frequently drawn between the arable and the dairy farm, we may trace the cause of this to the peculiar circumstances in which they are respectively placed. In the case of the latter there is frequently hardly an acre of arable land attached to his farm, and possibly not a shed for his cattle, his farm undrained, the labour per acre reduced to a minimum—milking morning and evening, hay-making, foddering in the open fields, with a little hedging, ditching, and ground-beating during the winter, attention to have the cows duly in calf, and a little extra care during calving, demand but little labour and little forethought. Abundance of time is left for attending every market within many miles, where drinking and smoking enervate the mind and tend to lower the man to the level of the senseless beast which is under his care. According to Mr. Acland's description of the dairy farms of Somersetshire in 1850, "The pail (that is the cheese) pays the rent; the dairyman lives on his bacon, calves, and some butter, to the great injury of the cheese, their poverty rather than their will consenting; a few acres of land out of reach of the floods growing a little corn for their own consumption." A system that should lead Mr. Acland to represent "the men's labour as confined to seeing the cows milked at an early hour in the summer," and to say "it is a sad sight to see a man standing by doing nothing while his wife and daughter are turning many times in the day a weight of above half a cwt.," has surely something radically wrong in it. This is, however, by no means universally a true picture; and taking the whole of the dairy districts, it is to be hoped that it is the exception and not the rule. But when it is true, where does the fault lie? Not with the poor farmer, who, with less education it may be than many of the artisans in our towns, has no resources within himself and no spur to quicken his intellect; but with the system, which may produce a maximum of rent with a minimum of outlay on the part of

the owner, and may maintain a small class of farmers living very little if at all better than the labourers they employ. It is a system, however, which has not a spark of the spirit of improvement in it, which with the least labour also results in the least produce for the good of the country, and only tends to demoralisation and a miserable system of semi-serfdom which maintains a degraded tenantry.

2. I shall suppose, then, that we have taken a dairy farm of 600 acres under a landlord anxious to see it improve and ourselves prosper, thoroughly drained throughout, with ample but not extravagant convenience for men and stock, on a lease for a sufficient period to justify our laying out money in improvements, 400 acres of the farm being in Grass and 200 under the plough.

First, then, as to the Time of Entry.—A spring taking for dairy farming is undoubtedly the best both for outgoing and incoming tenants. I take it to be a wise provision that the amount of money to be paid to and by the outgoing and incoming tenant respectively should be reduced to as low a point as possible, so that the incoming tenant shall have his capital free to stock the farm properly, and not have a large sum of money locked up during his tenancy, and that the landlord may not have the farm thrown on his hands with a heavy sum to pay to his outgoing tenant, sometimes with the option of retaining him against his will, or of sacrificing this large sum before he can obtain another tenant.

In the spring the large supply of hay, straw and roots, which would have to be taken to at Michælmas, will have been consumed. Provision however should be made in the agreement between landlord and tenant for such a quantity of these to be left and taken to by the new comer as shall be required by his stock till the Grass is sufficiently grown to carry them. Supposing we had to provide for stock equal to 3 acres per cow, and that we bought them in from time to time, so that we had 100 cows, or 200 cows from the 6th April to the 10th of May to keep five weeks, we may estimate the quantity thus:—

Hay.—100 Cows × 5 weeks × 1 cwt., = 25 tons of hay.
Straw for litter.—„ „ } = 125 tons of straw.
Straw for thatching }
Roots.—100 cows × 5 weeks × 3½ cwt. = 90 tons of roots.

These we should have to take at a consuming price—which leads us to consider the payments to be made to the outgoing tenant. Now, the consuming value of hay, straw, and roots, is a very interesting and important question. I have taken some pains to arrive at an accurate estimate of them. From materials I have collected, I find that on rich dairy land where no young stock is reared, it requires 3 acres to maintain one cow, the Grass on 1½ acres being mown and made into hay. This agrees with Mr. J. Morton's report on the dairy farms near Whitfield in Gloucestershire, as he found that 1011 acres (33 only of which were arable), maintained stock equal to 358 cows, or nearly 3 acres per cow.

Hay.—From observation and the opinion of good judges, it appears that 25 cwt. of hay per acre may be taken as fully the average crop. If we take the autumn Grass to be equal to 3-fifths of the Grass mown, which is probably not far from correct, we have some data for calculating the consuming value of a ton of hay.

25 cwt. on 1½ acres mown, gives 37½ cwt. for the winter use.
Grass consumed by the cow during the summer months on the other 1½ acres, = 37½ cwt.
And 3-fifths of both these together (viz. 75), = 45 cwt., consumed during the autumn—or the whole produce of the 3 acres of Grass land required for one cow's keep equals 120 cwt., or 6 tons of hay.

The value of a cow's produce in this district may be taken at 15*l.* on an average, from which deducting 3*l.* for casualties, depreciation, expenses of attendance, milking, dairy utensils, marketing, &c., we have 12*l.* as the consuming value of 6 tons of hay, or 2*l.* per ton. That is the sum the cow will return to the farmer for his ton of hay. The Dorsetshire farmers are accustomed to let out their cows to dairymen at from 8*l.* 10*s.* to 10*l.* per cow per annum. This seems a low rate, but much depends upon feeding, &c., and this system by no means conduces to a maximum production. It is rarely the case that farmers purchase hay except they are driven to it, or can get at it about 2*l.* per ton to be consumed on the premises. When it is sold to be removed the price immediately rises, and the hay merchant, not the farmer, becomes the buyer.

Roots.—It appears that 20 lbs. of hay, or 120 lbs. of roots have been found sufficient to maintain an average sized cow in store condition. This gives the value of roots one-sixth of 40*s.*, or 6*s.* 8*d.* per ton, which is not probably far from their consuming value. The Oxford Farmers' Club, after a discussion upon the subject, agreed that 7*s.* was the value of a ton of Swedes.

Straw.—I have found that 1 cwt. of good straw per week, and 3½ cwt. of Mangel will keep a cow in good store condition, equal therefore to 120 lb. of hay. Thus—

120 lb. of hay, at 2*s.* per cwt. = 2*l.* 2*s.*, equal to	3½ cwt. of Mangel, at 6*s.* 8*d.* per ton	£1 2
	1 cwt. of straw, at 1*s.* per cwt.	1 0
		£2 2

So that 1*s.* per cwt., or 1*l.* per ton, is about the consuming price of straw. We have then for future calculation—

	d. per lb.
Hay worth 2*l.* per ton, consuming price	= ·215
Good straw worth 1*l.* per ton, consuming price	= ·108
Roots worth 6*s.* 8*d.* per ton, consuming price	= ·036

Summary of Hay, Roots, and Straw to be kept for Incoming Tenant.—Carrying out the quantity of the materials, we found we should require to take to, at these prices, things amounting to—

25 tons of hay	at 2*l.*	=	£50 0
10 „	straw at 1*l.*	=	10 0
Say 90 „	roots at 6*s.* 8*d.*	=	30 0
			£90 0

Grass not Eaten off.—Besides this in the way of food, the outgoing tenant may perhaps claim for Grass left on the ground. This may amount to about 2*s.* per acre over the Grass land, or say 50*l.*; it is certainly better to pay this than to have had the land trodden down by cattle, consuming it up to the day of entry.

Hedging and Ditching.—As to hedging and ditching, I think a farmer should be bound to do what was absolutely requisite up to the time of his leaving without charging for it.

Manure Hauling.—It will be to the advantage of the incoming tenant that his predecessor hauled upon the land a large quantity of manure during the winter months, and either spread it on the Grass grounds or formed heaps ready for roots on the arable land. The labour expended on these operations should be willingly and liberally met. The amount will depend upon the position of the farm buildings, and the part of the farm to which the manure was hauled. Supposing that half the manure made during the winter was hauled out, it would amount probably to 50*l.*

Tillages.—Again, all the tillage since autumn—and the seed sown should be paid for—the expense of sowing the Clover, harrowing, &c., and I think half a year's rent upon the Clover-lay, rather than have it eaten off.

Course of Cropping.—In estimating this we may take the arable land to be farmed on a double four-course system. We should then have 50 acres in preparation for roots, this will require deep ploughing—three horses not doing more than ⅔ of an acre a day, at a cost of about 12*s.* per acre—100 acres in white crops, once ploughed, at 10*s.* per acre; and 25 acres ploughed, for Beans, costing about 15*l.*; we have then to pay for hauling manure and tillage—

Preparation of 50 acres for roots	£30
„ 100 „ Wheat, &c.	50
„ 25 „ Beans	15
Sowing Beans, Wheat, &c.	25
Loading and hauling out manure	50
	£170

Wheat seed	100 acres at 1½ bushels	=	150 bushels at 7*s.*	..	£50
Beans ..	25 „	3 „	= 75 „	6*s.*	..	22
Clover seed	25 „	.. ..			..	10
½ year's rent on Clover, 25 acres					..	28
„ Wheat land, 100 acres					..	100
						£210

These items collectively amount to—

Hay, straw, and roots	£90
Grass keep	50
Acts of husbandry, dung hauling, &c.	170
Clover and Wheat seed, &c., and allowance of ½ year's rent on Wheat land, &c.	210
	£520

Horse Labour.

Acres		Days	Hor.	Days		£	£
For roots	50 ÷ ⅔ =	say 70	× 3 =	210	for 1 horse at ⅐ =		30
Wheat	100 ÷ ⅔ =	140	× 2 =	280	„ „ =		45
Beans	25 ÷ ⅔ =	35	× 3 =	105	„ ..		15
Sowing	125 ÷ 8 =	16	× 10 =	160	„ ..		24

Manure Hauling.

Say 200 cows for 10 weeks = 14,000 days × 1 = 700 tons ÷ 35 = 20 days × 10 = ...	200	„	.. 30
	955		£144

Or nearly 100 days for each horse; the outgoing tenant would have to cut chaff, haul Wheat, &c., for himself, besides what he could charge to the out-going tenant.

I do not think that on a dairy farm, unexhausted manures and cake need to be taken into account. The land is generally rich in mineral manures, and the quantity of stock kept should ensure a plentiful supply of farm-yard manure, so as not to require the purchase of much artificial manure.

3. LIVE STOCK.—We should have next to provide the live stock, so as to have them in good time for the Grass.

1*st, Horses.*—We should require 10 good horses, which would cost about 30*l.* each. Two of them, say useful mares to breed from and keep up the stock. This may appear a large number, but during haymaking and harvest-time they would not be found too many.

2*d, Sheep.*—The farm should carry a flock of 100 breeding ewes through the winter, which, with their lambs, should be sold off fat every year. This is better than keeping a flock constantly, since on the rich Grass they are very subject to the foot rot. These would be bought in at about 50*s.* each.

3*d, Cows.*—I shall not enter here into the question of what description of cattle it would be well to buy, although that is of the utmost importance to decide upon at once, as I shall in another lecture call your attention specially to that subject, and it would not materially affect the question of cost.

It would be well however to determine here which of four systems we determine to adopt, viz.:—

1st, Not rearing any stock, but purchasing in season heifers when necessary.
2d, Not rearing, but purchasing stirks to come in at three years old the following spring.
3d, Rearing calves to come in at three years old.
4th, do. do. two do.

The *First System* requires great judgment in selecting animals likely to milk well. The heifers wanted may be picked up at private sales, but must frequently be obtained at markets, accompanied with the risk of introducing disease into the herd. On this system there is no object in purchasing good bulls. When excellent judgment in selection is brought to bear it is probably profitable on the richer land, but there must always be considerable risk.

The *Second System* is open to the same objection as the first, with the additional one that it is not so easy to form a reliable opinion of the probable milking qualities of the stirks. They can however generally be purchased at a less price than the dairy farmers can rear them.

The *Third System* is that most usually adopted, and it has many advantages over the previous ones. I have found that superiority in the milking properties of cows is hereditary.

For instance, six cows of one family in my herd gave an average of 636 gallons each per annum in 1862 and 1863:—

2 cows of another family averaged in 1862 and '63 733 gals. each
2 cows „ „ „ „ 735 „

Evidence of the contrary is not wanting, but as the inferior milkers are sold off as quickly as possible, and I avoid weaning calves from them when I know it, I am unable to adduce evidence so distinct.

It is thus evidently the interest of dairy farmers to wean calves from the best milkers, and to weed out the bad ones.

It is also very important to use bulls the produce of good milkers. I have 21 cows in my pack got by Herald, a thoroughbred bull, the son of Honeysuckle, which belonged to the late Colonel Kingscote, and was remarkable as an excellent Short-horn milker; these 21 cows gave on an average in 1862 and 1863, 642 gallons per annum each.

The rearing of his own stock enables the dairyman to improve his herd as milkers, and by care he may do this, and increase their value when turned off to be grazed, for nothing is more marked at sales by auction than the decidedly increased value put upon animals that show a little breeding.

The *Fourth System* is adopted by a few, and seems to offer great advantages. My experience is that heifers brought into the dairy at two years' old, if well grown, will return from 8*l.* to 10*l.* the first year, without materially checking their future growth. In many of the dairies of the Vale of Berkeley this system is adopted.

Mr. Edward Bowley, in an excellent paper on Breeding Cattle, remarks upon this subject.

"My early calves (those which drop from December till the end of February) I allow to suck the cow for a fortnight, when I take them off and give them as much as they will drink of skimmed milk and thick gruel, made from boiled linseed, in equal proportions twice a day. As soon as they are inclined to eat, I supply them with oilcake, carrots, and hay. When three months' old I reduce the milk and linseed to once a day, and in three weeks afterwards discontinue it altogether, continuing the other food till they are turned out to grass, when I give them 2 lb. of oilcake, which I continue, in addition to their other food, 12 months, that is till they go to Grass, in the following July or August of which year they are served with the bull, so that they calve the year following, just before going to Grass, when they will be about 2 years and 4 months old. Some are of opinion that heifers should not calve till they are 3 years old, but my experience does not warrant this view of the subject.

The extra cost of oilcake which is a chief part of Mr. Bowley's system would amount to about 2*l.* per head.

Under the last two systems there is every inducement for the farmer to improve his stock by using good bulls; under the two former there is none at all, consequently any mongrel is used, which diminishes the value of the calves dropped, so that in the dairy districts calves of 10 days old are sold for 16*s.* each or even less, a sum which does not much more than cover the value of the milk consumed. Whereas in other districts cows are kept the whole year round, simply to produce and rear their calves.

My recommendation would be to rear your own stock, to do them well, bringing into the dairy at 2-years old those only which are well grown, and the others at 3-years old.

Having then decided to rear stock and to aim at its improvement, we should have to consider how many cows we could keep along with the young ones. The following is about what might be kept if the land were good:—

120 dairy cows.
30 calves.
30 yearlings.
30 2-years old.
100 ewes and lambs.
14 horses and colts.
100 pigs.

For the first year it would be possible to keep more cows than afterwards in place of the yearlings and 2 years old. To this the objections are that it is not desirable to purchase more dairy utensils, &c., than will be required when the farm is steadily at work, and that the dairy accommodations are not sufficient. There are two courses then open, either to mow more Grass the first year than it is intended to do afterwards, or to graze some bullocks—probably the best would be to do both—say that instead of 30 yearlings and 30 2-years old, you purchase 20 bullocks to graze, and mow 50 acres of Grass more than ordinary for hay; a little extra stock of which on hand is always desirable.

The live stock to be purchased would then be—

120 cows at 18*l.*	£2160
20 barrens at 14*l.*	280
100 ewes and lambs at 50*s.* ..	250
10 horses at 30*l.*	300
100 pigs at 30*s.*	150
	£3140

The stock will have to be purchased at markets, fairs, and sales by auction; and I should very strongly recommend great care being taken with the first purchase, as it is from these cows that the stock is to be maintained, and upon which improvement is to be made.

Both the cows and the barrens should be selected in good condition, which the above prices will enable us to do, otherwise much of the summer's keep is expended in putting flesh on the animals' backs, robbing the milk pail in the one case, and delaying the period when the grazers are fat, which is undesirable, as there is a risk of not selling them again from the Grass.

The extra hay made the first year must be charged to capital, as it will probably be dormant during much of the lease, really to meet an emergency. This we may call 50 acres at 30 cwt. = 75 ton at 2*l.* = 150*l.*

Although the stock will be larger in the course of two or three years, when the young animals grow up, the value of the whole (at market prices) will probably not exceed the above estimate, for the cows must be taken as losing 1*l.* per head each year as they grow older. We may therefore I think pretty safely take the above as a fair amount of capital required for the live stock.

DEAD STOCK.—We have next the dead stock to provide for. We may presume that the landlord has erected an engine for thrashing, or that he shall hire a portable engine and machine when wanted, and that all the necessary apparatus for straining pigs' food, boilers for dairy purposes, &c., are provided.

For the Dairy we should want—

2 milk carts at 12*l.*	£24	0	0
20 milk buckets at 5*s.*	5	0	0
1 large tub	3	0	0
Carry forward	£32	0	0

Brought forward	£32	0	0
2 small tubs	4	0	0
60 pans or stands to hold as much ..	10	0	0
Curd cutter and breaker, &c.	5	0	0
120 vats	30	0	0
6 double cheese pressers	30	0	0
Whey vessels	20	0	0
Cheese stands	15	0	0
Churn and butter tubs	5	0	0
Sundries	10	0	0
	£161	0	0
Cart Harness—			
6 sets of thiller harness at 4*l.* 10*s.* ..	27	0	0
5 sets of trace harness at 3*l.* 10*s.* ..	17	0	0
5 sets of go harness at 2*l.*	10	0	0
1 set of mowing machine harness ..	10	0	0
Headstalls, &c.	5	0	0
	69	0	0
Wagons and Carts—			
4 wagons at 30*l.*	120	0	0
5 carts at 14*l.*	70	0	0
1 small cart	8	0	0
	198	0	0
Haymaking Machines, &c.—			
1 mowing machine	22	0	0
2 tedding machines	22	0	0
1 horse rake	7	0	0
4 hand rakes	5	0	0
1 rick cloth	15	0	0
20 rakes	1	0	0
Prongs, shovels, &c.	9	0	0
	81	0	0
Ploughs &c.—			
5 ploughs at 5*l.*	25	0	0
1 bouting plough	4	0	0
1 subsoil plough	5	0	0
2 skim plough and cultivators	18	0	0
1 pair heavy drags	6	0	0
2 pair lighter harrows	8	0	0
1 Crosskill roller	15	0	0
2 smooth rollers	24	0	0
1 small roller	8	0	0
1 steerage drill	26	0	0
1 turnip drill	8	0	0
1 grass-seed drill	4	0	0
3 horse-hoes	7	0	0
2 chain harrows	7	0	0
1 reaping machine	35	0	0
Seedlips	1	0	0
1 ash screen	1	0	0
	202	0	0
Barn Implements &c.—			
1 2-horse-power	30	0	0
1 chaff cutter	10	0	0
1 root pulper	8	0	0
2 turnip cutters	8	0	0
1 winnowing machine	10	0	0
1 weighing machine	5	0	0
1 sack barrow	1	0	0
1 oilcake crusher	4	0	0
1 bushel measure	1	0	0
200 sacks at 2*s.*	20	0	0
Barn shovels, sieves, &c.	2	0	0
	99	0	0
Sheep Hurdles, &c.—			
Racks, hurdles, and troughs	20	0	0
Dipping apparatus	1	0	0
	21	0	0
Pigs—troughs, buckets, &c.	5	0	0
Cider and Cellar Utensils—usually wanted on a dairy farm	10	0	0
Ladders—of various kinds	15	0	0
Jack, grindstone, cow chains, baskets, &c.	26	0	0
Total of Implements, &c.	£927	0	0

We should besides these have at least capital enough to pay the wages for 6 months. I find that my labour amounts, including dairymaid, bailiff, and their keep, to 25*s.* an acre. This item will therefore amount to 750*l.* a year, for the half of which we should provide from capital.

The Capital we should require would thus be—

Payments to be made to outgoing tentant	£520	0	0
Hay to be made first year and kept against emergencies	150	0	0
Live stock	3140	0	0
Dead stock	930	0	0
Half year's wages in hand, say	360	0	0
Total Capital	£5100	0	0

This gives 8*l.* 10*s.* as the capital required per acre to stock a mixed dairy and arable farm well.

I have not allowed in this anything to meet the rent, as the sale of cheese will do this in due course. I would only add, that to have sufficient capital is of very great importance, as the person so situated is not obliged to force sales, and he can purchase at the cheapest market.

SHEEP SALES.

SHROPSHIRE SHEEP.

Mr. S. Byrd held his annual sale of rams the other day, when 30 rams of Patentee blood were offered by auction. The shearling rams were a lot of true-made, heavy-fleshed sheep, and with wool of the finest quality, whilst 13 lb. was the weight of several of their fleeces, which were exhibited on the ground. The attendance was large and biddings spirited, the four let sheep, with which the sale commenced, making 21, 26, 14, and 11 guineas respectively, the first being given by Mr. C. Stubbs for the magnificent highly-commended yearling at the Newcastle R.A.S., while the commended one went as high as 40 guineas. The 30 rams sold and let realised an average of 14*l.* 7*s.* 11*d.*

GRENDON.

Mrs. Baker.—The sale opened with a grand six-shear ram, Perfection, bred by W. O. Foster, Esq., M.P., highly commended at Leeds, in 1861, and there purchased by Mrs. Baker at 50 guineas, and which, from his excellent quality and good points, has done much service in the flock, and now goes to the Earl of Aylesford's, being purchased by his lordship's agent, Mr. Sharpe, at 20 guineas. Three promising yearlings were let at 6½, 7, and 10 guineas each. The Sparkenhoe winner of last year, a two-shear ram, price 15½ guineas; others selling afterwards at 16½, 14, down to 5½ guineas; the average being 9*l.* 6*s.*

YEW-TREE FARM, PENKRIDGE.

Mr. C. R. Keeling.—The sale included the magnificent ram Competition (bred by Mr. S. Byrd, and purchased at his sale in 1862, at 71 guineas), and many shearlings of his stock. The average obtained reached the high figure of 17*l.* 3*s.* 8*d.* per head.

PENDEFORD.

Mr. R. H. Masfen's brought the average 11*l.* 10*s.* 1*d.* for 35 rams, seven being aged sheep.

ELFORD PARK.

Mr. G. A. May.—The rams at Elford were good in colour and size, and clipped the first week in May from 10 lb. to 14 lb. of wool each. No. 1 was let for the season at 35 guineas to Mr. C. Randall, of Evesham; Nos. 3 and 6 made 14 guineas each; No. 7 23 guineas; No. 28, a very neat two shear, 20 guineas; the average being 11*l.* 18*s.* 10*d.* per head.

FREEFORD.

Colonel Dyott and Mr. Coxon.—The success achieved by Mr. Coxon at the recent Royal Agricultural Show at Newcastle, where with three sheep only entered he obtained a first and third prize and a high commendation, must be regarded a great triumph for any one flock, particularly as the exhibition of Shropshires on this occasion was pronounced to be one of more than ordinary merit, and these victories no doubt considerably increased the number of intending purchasers at Freeford on Monday last, where a most numerous and business-like company surrounded Mr. Preece in his disposal of the rams and ewes from the joint flocks of landlord and tenant. The rams generally were good in form, of fair size, excellent quality, and possessed of a money-making fleece, and, considering the large number offered, viz., 47, of which only one was, we believe, unsold, the average realised 13*l.* 13*s.* (for both selling and letting) must be considered one of the best of the season.

Mr. Yates, of Packington, hired the third-prize yearling at 24 guineas; and Mr. R. H. Masfen gave 47 guineas for the highly commended sheep in the same class, this latter sheep being preferred by many judges as a sire for ram-breeding purposes.

Mr. Horley's "Fosse" Flock.—The first sheep offered was Havelock, a five-shear ram, and winner of the Royal Agricultural Society's first prize at Battersea, and which was hired in 1862 by Mr. G. A. May, at 35 guineas, and which, after being entered by Mr. Keeling at 20 guineas, fell to Mr. John Canning at 30. Four shearlings were let at about 12 guineas each. The whole forty shearlings readily found purchasers at an average for all, both sold and let, of within a trifle of 12*l.* each.

WILTSHIRE DOWNS.

Ratfin Farm.—Mr. Edmund Olding's ram lambs and rams at Ratfin Farm, Amesbury, Wilts, were sold on the 27th ult. The highest prices for lambs let were 28, 17, 15½ guineas, &c., each; for single lambs sold, 26, 20, 18, 17, 16½, 15½, 15 guineas, &c., each; for lambs sold in pairs, 25, 22, 20, 17, 16 guineas, &c., per pair; for rams let, 20, 17 guineas each; and for rams sold, 14, 11½, 11 guineas, &c., each. The average of the lambs let and sold was 9*l.* 0*s.* 11*d.* each lamb, and of the ram lambs and rams, 9*l.* 1*s.* 7*d.* each.

COTSWOLDS.

Mr. Wigmore, Weston-under-Penyard.—Lots 1, 2, and 5 were secured by Mr. Duckham, of Baysham Court, Ross, for exportation to Australia. The whole 45 yearlings were sold at an average of 12*l.* 5*s.*

The following Cotswold sales are also reported. The most important of them has been that of Mr. W. Hewer, of Northleach, whose flock has acquired great celebrity. Fifty of these rams fetched an average price of 25*l.* 5*s.*, and one bought by Mr. W. Lane, of Broadfield, for the extraordinary sum of 230 guineas. Mr. R. Garne, of Northleach, has dispcsed of 50 at an average of 14*l.* 18*s.* 2*d.*; Mr. C. Barton, of Fyfield, 48 at 12*l.* 18*s.* 4*d.*; Mr. W. Garne, 34, at 12*l.* 7*s.* 8*d.*; Mr. G. Fletcher, of Shipton, 53 at 14*l.* 17*s.* 7*d.*; Mr. T. Porter, of Baunton, 50 at 10*l.* 18*s.* 10*d.*; Mr. E. Handy, Sierford, 51 at 10*l.* 10*s.* 10*d.*; Mr. W. Lane, of Broadfield, 56 at 10*l.* 6*s.* 7*d.*

PRESENT APPEARANCE OF THE CROPS.

[The following returns reached us too late for insertion in our tabulated form of last week.]

Berkshire.—Wheat, average; Barley, average; Oats, third less than average; Beans, complete failure; Peas, under average; Potatos, half an average; Hay, very good in quality, half a crop; Root Crops, very bad; Harvest, August. —*Stephen W. Plummer, Peasemore.*

Durham.—Wheat, below average and 28 per cent. below last year; Barley, good; Oats, short and bad; Beans, average; Peas, good; Potatos, upon strong soils light crop, elsewhere pretty good; Hay, light; Root Crops, not more than half a crop; Harvest, August 27 or 30. ——., *Sham.*

Essex.—Wheat, near average; Barley, over average; Oats, under average; Beans, average; Peas, under average; Potatos, good but small; Hay, failure; Root crops, Mangel good, Turnips bad; Harvest, August.—*J. J. Mechi, Tiptree Hall.*

Herts.—Wheat, 10 bushels below 1863 on an average; Barley, good, except on gravel, or late sown deficient; Oats, below average, injured by the drought; Beans, fair, injured by the fly in spots; Peas, below average, injured by the drought and fly; Potatos, small; Hay, scarcely half a crop, but well secured; Root Crops, late and inferior; Harvest, August 4.——— *St. Albans.*

Lancashire.—Wheat, under an average; Barley, average crop; Oats, not above two-thirds of a crop; Beans, good; Peas, good; Potatos, below an average; Hay, light crop; Root Crops, rather light crop; Harvest, August.—*Thomas Atherton, Chapel House, Speke.*

Lincolnshire.—Wheat, very good, above an average; Oats, light, very short straw, below average, far inferior to the past four years; Beans, few grown and barely average; Potatos, fair; Hay, good; Root Crops, Mangels light crop, Rape very inferior; Wheat Harvest, August 13. *Thomas Aitken, Decoy Farm, Spalding Fen.*

Northamptonshire.—Wheat, good on strong lands, not good on light; Barley, the same; Oats, a light crop; Beans, early sown, good; Peas, the same; Potatos, good; Hay, very bad; Root Crops, Mangel fair, Turnips bad; Harvest, August 6.—*William Gray, Camtershall.*

Oxford.—Wheat, average; Barley, under an average: Oats, bad; Beans, bad; Peas, bad; Potatos, under an average; Hay, much under an average; Root Crops, general failure except Mangels; Harvest, August 1. *Samuel Druce, Eynsham, Oxford.*

Home Correspondence.

The Harvest.—Your reports on the present appearance of the crops tells a sad tale, for by it we see that you have not an average crop of Wheat ("very defective," "blighted in many places," and "drought ripe," are prevalent words), about an average of Barley, a very bad crop of Oats, Beans, and roots. Now let us compare this with land under steam cultivation. My Wheats are excellent, ripening splendidly, much over an average; my Barley is also over an average, ripening well; my Beans are good, and free from blight; and my Swedes are good, they are growing well now. To prove that this is not an exceptional case I have examined other steam cultivated farms, and find that they also stand this dry summer. I will give a couple of instances: Mr. Whiting, of Stoke Goldington, near Newport Pagnell, who has farmed by steam power for six years, has splendid Wheat, Barley, Beans, and Oats, all over an average; his Mangels and Swedes are very good. Mr. Cranfield, of Buckden, Hunts, who has farmed by steam power for four years, has splendid crops of Wheat, Barley, and Beans, all much over an average; his Oats are a full average, and his roots are excellent; 100 acres all looking well, not a single plant missing. These are the results of deep cultivation in a dry summer, let my brother horse-farmers reflect over them a bit. *William Smith, Woolston, Bletchley Station, Aug.* 8.

New System of Drainage.—I venture to offer a few observations on a question now under discussion in your Paper, namely, the possibility of obtaining an increased outfall for inland water by its introduction to rivers below their surface. I saw an illustration of this a few days since, in the pumping of water from a coffer dam into a river. The water passed from the pumps into an open trough, made of two boards at right angles, which rested on the bottom of the river, of which the water was from 2 to 3 feet deep. As the pumped water was turbid and the river clear, it was easy to see the velocity with which the water reached the bottom of the trough; to all appearance it was little retarded in its passage downwards, falling as it did at an angle of say 45°. The displacement of the river water was shown by the disturbance and visible local elevation of the surface immediately above the point of final discharge, the end of the trough. The increase of outfall depth appeared to be considerable, due of course to weight and velocity of the running water. How far the velocity of the stream in the river, as has been said, "pulls along" the water so introduced, is another question. As to the Artesian theory, I see that a Correspondent suggests that "the pressure of gravity of the incumbent mass (earth or rock water logged), exceeding the weight of a column of water of the same depth, is one of the causes of the high rise of water in Artesian wells." Where, as in the sand beds of the plastic clay formation under London, or lower greensand under Paris, the strata are moveable, the sand blows so as to endanger the foundation of buildings above, and as appears to me rather impedes the rise of the water; other pressure it cannot exert. I have specimens so raised in Paris 1700 feet by the water. Ths law of the rise of water in Artesian wells is the mean, at any points between the highest source of supply and the lowest proximate outfall. The facts and figures and sections showing this in the London and Paris basins may be found in a paper of mine, read at the Institution of Civil Engineers, Jan. 22, 1850, and printed in their Transactions. Even where there is no known possible outfall, the rising of the water is kept down in its passage from higher levels, by the friction or resistance it encounters in the soil through which it passes; by no possibility can the earth cause the water to rise. *J. C. Clutterbuck, Long Wittenham, August* 3.

Will Reaping Machines displace much Harvest Labour?—This is a question of considerable importance to our agricultural labourers, and if it can be clearly shown that it will not, it may approve itself to their satisfaction. That it is advantageous to the farmer does not admit of a doubt. The harvest being expeditiously got in, cannot fail to be a great benefit to him. It sets his land at liberty for autumn culture, now so much in practice, and becoming more and more popular every ensuing year, and most deservedly so. A month's good autumn culture is almost equal to a summer fallow. It is in this laudable practice of autumn culture upon which the labourer may rely for a continuation of profitable labour. No sooner is the crop off than this culture ought to commence, but hitherto such has been the scarcity of labour at this

season that all has to be deferred till the harvest is completed, and thus the most valuable part of the season is lost. Our best modern and enterprising farmers would sacrifice much, would give any reasonable amount of wages in order that this culture may proceed simultaneously with the ingathering of the latter harvest. Now the general use of reaping machines would enable most farmers to accomplish this. The cutting for the most part may be achieved by the reapers. The labourers doing the tying, the stacking, and the raking. This of course appears to displace labour. In the first instance it does. But look at the subsequent operations in all their phases and bearings. It is unquestionably true that in every part of the country much greater attention and care is bestowed upon the culture and management of land and stock than formerly. This gives employment to a far greater amount of manual labour. Consequently there is neither the necessity, nor the disposition for labourers to migrate from the more thickly populated or the earlier harvest districts, to the later ones to aid in securing the harvest. In fact their services are required at home. It is only in a very scarce time that the price of harvest labour in the more thinly populated or probably later harvest districts is sufficiently tempting to entice workmen from any great distance, although railway facilities are so good. The labourers, then, in almost any district may, by the aid of these machines, be able to secure the harvest themselves, and retain the amount of harvest wages at home, instead of seeing it carried away to pay it may be the Irish landlord's rent, or it may be to eke out the scanty wages paid in some districts to labourers who are by this necessitated to leave their poverty-stricken homes to seek employments elsewhere. Depend upon it, if the time should come when their help is not much needed abroad, employment will be found for these migratories at home, and their employers will soon find it profitable help too. These things, as knowledge and enterprise increase, will approximate, assimilate, and rectify each other. It is altogether wrong to fancy there is a surplus of labour immediately after harvest. Where such fancies exist, there is something sadly wrong in the management. Every "hand," every appliance ought to be in requisition to effect a good autumn tillage, and to complete the various kinds of work that every autumn brings with it, and which is then so much better and effectually done than in the winter; besides, winter brings its work with it, and in great plenty too, if all is done that can profitably be done. Take for instance a market gardener. See how he disposes of his land, and what cultivation and management he bestows upon it. This in its measure ought to enter into the contrivance and calculation of every farmer. Nor must landlords continue such old-fashioned restrictions. Let it suffice that the farm is in good and fertile condition, and leave all the rest to the intelligence and good management of the farmer. Labour cannot be indefinitely increased under a restrictive lease. It is like imposing fetters upon an active agent. *O. F.*

Foreign Correspondence

RIO JANEIRO. *Estancia del Guayavo, May* 23, 1864.—My lambing season is going on beautifully. I count already 150—170; while the other flocks on the estancia have but 10 or 20 lambs in each. So much for my management. I will tell you what I have done. During last summer you may remember me telling you of the terrible seca; when the Grass in many places was quite scorched up, and little or no water in camp, besides the heat at noon being intense. Well, every day I saw that my sheep went where there was water, though it was two miles from the paesto, and got there just before the heat of the day came on; then during the heat of the day my flock had the good luck of having long Grass, about 2 to 3 feet high, and perhaps higher, to take shelter under. About 3 P.M., as soon as they got on the move, I used to turn their heads homewards, and so get home by sundown. Of course during the middle of the day I had to be in-doors, the sun being too powerful.—You ask me if dogs are used in "rounding" sheep. I do not know of any being used for that purpose. Dogs are used for cattle and minding the house. A German out here has shepherd dogs, and can work with them; but for rounding sheep with dogs a native seldom, if ever, does it. I have made inquiries respecting the number of square miles on this estancia. I believe it is something like 360 square miles.—For fencing a garden, the best fence I believe in this country is one similar to that which I have made round my garden (40 yards by 30 yards) *i.e.* stacones and rama (excuse spelling). If stone walls are used, then ants and animals make their appearance. Ditches likewise encourage ants, and indeed after a "temporal," a ditch would in all probability be washed away. I have sown Gorse seed and some Ash-keys, but most of my best seeds died in the ground last summer during the seca. Apple and Pear trees thrive amazingly. I believe Apricots, Peaches, Figs, Mr. W—— has in great numbers in his garden. The Vine is also cultivated both there and at St. George. With reference to the number of sheep in a flock, that all depends on circumstances. However, you may say from 1000 to 2000 in each. A flock generally commences with 1000 or so, and when it gets from 2000 to 3000 then it is generally parted as being too lage. Now here we have I believe 6000 capones in the one flock, so there is no rule. My flock commenced with 1500, *i.e.* I had 1500 (al corte), including 150 capones de cuenta. Old ewes, 881; ewe lambs, 255; caponitos, 214; capones de cuenta, 150; total, 1500. This J—— took over, Feb. 28, 1863. In 4th July we marked our lambs—hembras, 142; machos, 132; total, 274.

Flock counted	1473
Dead to date	27
	1500

Total in flock, 1473+274=1747

Nov. 10, 1863, marked our lambs—hembras, 127; machos, 120; total, 247. Flock counted, 1679+68, dead to date; total, 1747. Total in flock, 1679+247 =1926. My flock is only now lambing, which is two months late, but I am more than fortunate. The weather is everything one could wish. The war does not affect us so far. I hope the English at home do not interfere, or it will be "look out" for us here. There are neither rabbits nor hares in this part of the country.

Societies.

BATH AND WEST OF ENGLAND.

A monthly meeting of the Council was held at the Railway Hotel, Taunton, on the 6th inst., under the presidency of the Right Hon. Lord Taunton.

The Hereford Meeting.—The Secretary reported that the sum of 900*l.* had been paid to the Society's bankers by the Hereford Local Committee.

Dr. Gillett, Chairman of the Finance Committee, brought up various bills, amounting to upwards of 3000*l.*, which were ordered to be paid. He proposed that hereafter checks for the prizes awarded at the Society's annual meetings should be drawn at the Council meeting next ensuing; this he considered would be more gracious and becoming than to defer payment till the stated quarterly meetings of Council, at which financial questions are at present entertained.

Date of Calving.—On the motion of Mr. Duckham it was resolved, that the Stock Prize Sheet Committee be requested to consider the desirability of substituting "calved before the year" for the words "above three years old on the 1st of June," in Classes 1, 7, and 13; and calved "in the year" for the words "not exceeding three years or two years old, as the case may be, on the 1st of June," in Classes 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17, and 18 on the Prize Sheet.

Attending Stewards at the Open Judging.—Mr. Duckham read a letter from an Exhibitor at the Bristol meeting, complaining of certain irregularities on the part of persons showing stock in one of the classes, and in order to their future prevention, moved that the number of Stewards of Stock be increased, in order that each distinct set of Judges shall have one Steward in attendance upon them during the time they are occupied in making their awards. The Council generally concurred in the spirit of Mr. Duckham's resolution, but doubted the expediency of appointing extra stewards for the entire week of the Society's meeting; and it was ultimately resolved, on the suggestion of Sir J. T. B. Duckworth, with the full concurrence of Mr. Duckham, that at the May meeting of Council a sufficient number of members be appointed to assist the Stewards during the time the Judges are occupied in making their awards.

New Members.—Rev. A. Baillie, Bath, Mr. J. Snow, merchant, Bristol.

DORCHESTER: *Lord Rivers on Labourers, Landlords, and Farmers.*—1. *Labourers.*—At the annual meeting of this Society, after the awards of prizes had been read, the labourers were ushered into the room, for the purpose of receiving their premiums.

The CHAIRMAN (Lord Rivers) then said it was his agreeable duty to have to say a few words to them before they left. He congratulated them on having won the prizes just distributed, but said they must not look upon the one or two pounds they had received as a compensation for what they had done, for it was not in that light that he viewed the question. He believed it was a satisfaction to be acknowledged by any society, and they should look upon the premiums in the same way that a soldier did his medal, as a little token that their services had been acknowledged, and that the society had spoken well of them. But with reference to this point, he wanted to say a few words to the Dorchester Society. He thought it would be a very good thing, and remarkably desirable, that the successful candidates should have some printed record that they would be able to keep, in order to show that they had won these prizes. The simplest thing in the world would do, and their secretary, in the course of a little conversation, had thrown out the suggestion that it should be an embossed card, upon which could be printed for what the party had received the prize, whether for long and faithful service, for ploughing, sheep shearing, or anything else; but he thought the labourers ought to have some such proof of the estimation in which they were held by the Society. He would just give them an illustration of the importance of this. About three years ago his bailiff left him. He had a sort of head labourer working upon his farm as foreman, and he wanted a man to take the place of the bailiff, but had nobody at hand. He went quite by accident to the cottage of this man, and he never saw any thing more neat and nice than its appearance, as well as that of the children. They were at tea, and it looked so comfortable that he should have been happy to sit down with them. But all around he saw a number of little maple frames, which at first he thought contained pictures. He said to the man, "Well, Mitchell, what have you got here?" The man replied it was either a prize from the Blandford or Sturminster Society, one or the other, for sheep shearing. He then asked, "What is this?" The man replied, "That is a prize I received for hedging." He asked what others were, and found they were records of having received prizes for something else. At last he came to a very large black frame, very much larger than the others, and he said, "What have you got here, Mitchel?" The reply was, "That is not mine, my Lord." "Whose is it?" he asked. Mitchell replied, "That is my wife's." He asked, "What is that for?" The man said, "For having been a good servant, and having earned a good character (he thought) for 13 years." [The result we understand was, that his lordship engaged the man as bailiff, which capacity he satisfactorily occupies at the present time.] His lordship continued to observe that they prized those pictures much more than the money they had received, and knowing the value which was set upon them, it occurred to him that this Society should give similar proofs to the labourers of the distinction they had gained. There was one thing to which he wished to allude, and that was that he never had understood, nor should he ever be able to understand, how poor people lived. He had tried to draw up a statement of the outgoings and incomings hundreds of times, but it had always baffled him; but what astonished him was this, that whether the labourer earned 8*s.* a week or 16*s.*, taking the minimum and maximum, whether clothing was cheap or dear, whether the price of Wheat was as low as at present, or whether, as they had known it, up to 70*s.*, it seemed to be perfectly immaterial to the labourer, he clothed himself just as well, he did not get more into debt; and there was always a margin found, whatever the price of clothing, whatever the price of Wheat, whatever sickness there was, whether wages were 8*s.* or 16*s.* a week, for he scarcely ever saw a single parish in this or any other county where the labouring classes did not manage to support a beershop and make it the best business going. He did not wish them to think that he believed the poor were too well off—he wished they were better off; but their position always puzzled him more than anything else, and this puzzled him, that through thick and thin there was always a large margin for the beershop. Take his own parish, with a population of about 300, and he could undertake to swear that the beershop was the best business in the village. It was more sought after than anything else, and if anybody could get a little bit of land they would soon build another house to carry on the same trade. Where the money came from he did not know, but there was always this margin for the beershop. Well, he would advise them for goodness' sake to keep away from the beershop. So strongly did he feel upon this question that, although it might appear inconsistent in him, who should drink a bottle of wine after dinner to-day, and perhaps did so every day of his life, that he actually subscribed 5*l.* to the Sturminster Temperance Society, because he believed it was calculated to do so much good.

2. *Landlords.*—In acknowledging the reception of his health as a toast, Lord RIVERS said—He was the largest landlord in the county, and he hoped they would take in a good spirit what he was going to say. They had met as friends, and he did not desire that they should part otherwise; but there was always a risk of speaking before a large body of men, and he saw one or two of his own tenants and friends in the room. Now he confessed on his honour that he did not know, he did not understand the meaning of the term a "good landlord." He did not know what it meant. There was a definition given to it two or three years ago by a friend of his—he laughed at it to his face; therefore he was not saying behind his back what he would not say in his presence; nor did he wish to say anything disrespectful towards those who heard it, but it was received with immense applause. He gave as the definition of a good landlord, "A good landlord is a man who receives low rents, has no rabbits, and builds good farm buildings." Now, he did not believe it, and they must not think he had come here to say what was offensive. He did not understand what was the meaning of a man being a bad landlord who had high rents, a quantity of rabbits, and no buildings. Were the tenantry of Dorsetshire to be looked to as a set of poor miserable fools who could not hold their own. For what was the man who believed his landlord got too high rent? He must be a fool to give it. It should be remembered that there were two parties to the bargain; the tenant as well as the landlord at least subscribed to the conditions. If the tenant signed conditions which enabled the landlord to injure him, more fool he for doing it. He did not seek to exercise such power over his tenants; if he did he knew they would believe him that he would not come forward and say what he did. It seemed to him that they never allowed these things to be conducted on the same footing as any other business was conducted. Now they would understand his meaning of a good landlord in one respect, that was, that there was no relation in life in which they could not be liberal, kind, and indulgent, and there was an amount of liberality which a landlord

should show to his tenant. If he had a farm to let, his liberality consisted in a fair agreement and in encouraging the tenant by many ways, and by putting up farm buildings, which if he used he had to pay for. He did not understand the separation between the case of a landlord and tenant of a farm, and the landlord and tenant of a house. In either case he did not think it was a sound and good principle for either landlord or tenant to go upon. He wanted it to be a matter of bargain. He did not wish the tenant to be under an obligation to him, any more than he wished to be under an obligation to the tenant. Having agreed upon the conditions upon which it was to be farmed, then afterwards a man might become an encouraging and liberal landlord. He had certain insertions in his leases put in for protection against a bad tenant, but he should never think of putting them in force to a good one. It was merely an agreement which would serve him in the case of a bad tenant; and if he was a bad tenant it was his duty to send him away. What he wanted it to be was a thorough good matter of business between himself and his tenants. He wished them to make the best bargain they could for themselves, and he would enter into any agreement as a matter of business. He thought he knew something about farming and the tenant's position; and he had no objection to enter into it in a liberal spirit as a matter of business. But what he would not give credit for was that if he had a farm worth 1000*l.* he would let it for 900*l.* He blamed the man for criticising the conduct of a landlord for having raised the rent of a farm in a different manner than he would criticise the conduct of a landlord who raised the rent of a house. It was a fallacy and an unsound basis for the intercourse between a landlord and tenant to rest upon, that the liberality should in point of fact be giving the tenant 100*l.* a year.

3. *The Tenant Farmer.*—Mr. G. J. Wood, one of the successful exhibitors said; with regard to the cause of the farmers, he did think it deserved more consideration than had hitherto been given to it. He did not mean particularly in respect to the landlord, though there were some things which he thought required to be altered between landlord and tenant. There were two or three things that ought to be set right between landlord and tenant. He was no advocate for low rents; he did not think the tenants asked for it; but they asked for reasonable rents so that they could live. This, however, he said on behalf of the tenants, that for any landlord to let a farm to a man and then proceed to stock it himself was not quite honest. He knew there were many opinions as to the injury which game did; and he begged to express his opinion, as the result of 25 or 30 years' experience, that rabbits and hares did a great deal of damage to the land—much more damage to the land than a surveyor could estimate on looking over a farm and seeing here a quarter of an acre spoilt and there a quarter of an acre spoilt. That was not the damage done. The amount of damage was this, that if they allowed part of the farm to be stocked for several years in succession, the land was poisoned, and they had got to work 10 years before they got the land into anything like a perfect state again. Now he did not wish to overstate this question, or to state anything that would not bear the test of truth, but he did believe that to be an honest opinion. Then they would allow him to say that the cause of the farmer did not stand quite as it ought with regard to the legislation of the country. Mr. Calcraft had alluded to the rights of the ratepayers in regard to the county expenditure. He had very generously and honestly allowed that the rights, as he (Mr. Wood) had endeavoured on another occasion to express those rights, did belong to the ratepayers; and he thought it only remained for those who were in a position, whose province it was to alter the law in regard to that particular question, to proceed to do it. He did not know what proceedings it was necessary for them as farmers to take, in order to induce them to take up a question which was universally admitted. But there was another grievance, and a very great grievance, for the reduction of which they had been fighting during the last two years—he referred to the question of the Malt Tax. A great deal had been said; it had been canvassed in the country, it had been canvassed in the Houses of Parliament, and he must say that all the discussions that had taken place in regard to that question had shown to him that it was not fully understood, neither in the country nor in the House of Commons. He did not say it was not understood by some, but generally. People talked about it being a consumer's question, and said it was that and that only. Others said it was a producer's question; and others said it was a question which referred to the best grown Barleys in England, and not to any other sort. He had no hesitation in saying that it was a producer's question, that it was a consumer's question, and that it was a question which referred to all the Barleys grown in this country. And when the noble lord, in his very interesting and appropriate address to the labourers, spoke of the difficulty he had to ascertain how the money was spent, and referred to the beer-house as the only means he could account for the surplus, whether it be of 8*s.* or 16*s.* a week, this he said, "Remit the Malt Tax, and you remove the difficulty." A poor man now went to the beerhouse and paid 1*s.* per gallon for ale of the same kind he was satisfied he could have for himself, brewed by himself, if not malted by himself, in his own house, at 5*d.* or 6*d.*; and he challenged anyone to contradict that assertion.

Lord Rivers thanked Mr. Wood for what he had said; but he must have misunderstood what he (the noble Lord) stated when he said he did not like a landlord to stock a tenant's farm. He would tell them that he would not have a game farm if it were rent free. He would tell them why, because he should expect his landlord to act as fairly towards him as he should towards his landlord. Nothing would compensate him; if the game did him 500*l.* damage, he would not take 500*l.* for it, because that would not compensate him for his anxiety and wasted efforts. But this would not prevent a landlord letting his farm if he could get a tenant of a different mind. He let such a farm the other day, and he told the man to go and look carefully over it, to ask the labourers all about it; and to come back and say what he would give for it, but not to come and complain to him afterwards. Now he would candidly avow it, that he would not have it rent free, Many men took a different view of their position from what he should, therefore he let him the farm. But that did not affect the question of a good landlord or a bad landlord. He thought that at these meetings, from what he gathered from the reports, the proceedings were too much of a complimentary nature, and that they did not enter into agricultural matters quite enough. There was one thing that he should have liked to go more fully into, and that was the different mode of treatment, the different practice, and the very different amount of profit that was derived from sheep here in Dorsetshire and some other parts of England—for instance, in Nottingham and Norfolk. Some time since Messrs. Squarey & Rawlence took the trouble to get information as to the percentage of lambs weaned, in comparison with the number of ewes put to the ram, within 25 or 30 miles of Salisbury; and as they thought it would be interesting to him, they supplied him with the figures. He thought it was 90 per cent. Before he came here, not that he had come with a set speech, he referred to some returns of the percentage of lambs and ewes which he had obtained from various flock masters in Nottinghamshire in 1861. In one instance 361 ewes produced 442 lambs—that was the number of ewes put to the ram and the number of lambs weaned. Another return was from Mr. Fulger, who said that was the worst year he ever had in his life, and 200 Leicester ewes produced 208 lambs, and 191 downs produced 219 lambs. Here was another flock of Shropshire downs, and in one case 42 ewes produced 65 lambs, and in another 49 ewes produced 71 lambs. He had another return from a friend of Mr. Calcraft's, Mr. Bridgeman Simpson, of Nottingham, who from 501 Leicester ewes weaned 636 lambs. Another return was from Mr. Champion in 1860, from which it appeared that 249 ewes produced 294 lambs. He had also another return from a gentleman which ranged from 1853 to 1860. In 1853, 51 ewes produced 56 lambs; in 1854, 40 ewes produced 72 lambs; in 1855, 32 ewes produced 47 lambs; in 1856, 45 ewes produced 61 lambs; in 1857, 60 ewes produced 71 lambs; in 1858, 106 ewes produced 133 lambs; in 1859, 102 ewes produced 152 lambs; and in 1860, 106 ewes produced 135 lambs. The most extraordinary thing was that not one of these ewes or lambs, he would not say ever tasted hay, but not more than they had of turtle or venison. They were kept upon Turnips, and allowed to run on the after-Grass. It might be said that they did not keep so many per acre. Mr. Bridgeman Simpson had about 500 acres of land, which he farmed on the 5-field system. He had 100 acres in Wheat, 100 in Barley or Oats, 100 in Turnips, and 200 in Grass, or a two years' ley. Part of his land was tolerably good, and a part very light sand; and he should say it was not at all an average farm as farms went in this county. He had about 200 acres of the very roughest sort of pasturage, which could not be estimated at more than 100 acres of good. Now, upon this acreage he kept 530 ewes. He never sold his lambs, but kept the whole flock during the winter, and sold his tegs in the spring of the year, sending them out as two-teeth. In Nottingham and Norfolk they never gave any hay; they cut more wool than was done here; the animals were in good condition; and they kept more sheep.

Mr. Levi Groves, of Knighton, said he had travelled through the midland counties, and when the Bath and West of England show was here he challenged five Lincolnshire gentlemen to show that as much stock was kept on their farms as was done in this county. The fact was that they let a few sheep run over their pasturage, and they were astonished to see the large folds on such small pieces here. He believed that if they had more sheep they had not so many beasts.

The Chairman said the gentleman he alluded to kept the largest head of cattle that he knew of on such a farm.

Mr. Groves contended that they did not keep so much stock as in Dorsetshire generally.

The Chairman then entered into an estimate of what his sheep cost him in hay and labour, and said he had always a difficulty in drawing out an account what the carcase of the sheep paid in itself, but he found that he could make more money by feeding bullocks. In conclusion, he proposed "Success to the Dorchester Agricultural Society."

Reviews.

Land: its Registration and Transfer, A Letter addressed to Landowners on the benefit arising from a Parliamentary title, and the mode of obtaining it. By Howard Reed, F.S.S. Effingham Wilson, Royal Exchange.

This pamphlet explains the great advantages of an indefeasible, and at a glance, obvious title to land; it describes the mode of obtaining it, recites the various steps of the process, relates examples of the facility with which transfers may be afterwards effected, contrasts all this with the cumbrous and costly old system of conveyance, discusses the objections of solicitors, and foretells the great future now destined for the possessors and the possession of land. Mr. Howard Reed is evidently master of his subject, and capable of discussing it in still fuller detail with those who may consult him on the subject. His relations to the existing agency for the conveyance of land are described in the following passage from his Preface:—

"The writer is anxious to have it understood that he has, in the following pages, adopted the popular tone in alluding to lawyers from no desire to depreciate that body. He entertains the highest respect for them, hopes ultimately to work with them, and has already scured the co-operation of professional gentlemen possessed of advanced views respecting the use of land. He believes the difficulties surrounding the transfer of land to have arisen more from the desire of lawyers to protect their clients than to tyrannise over them. It is not, however, the less true that, as a class, the members of the legal profession have set their faces against Lord Westbury's Reform, not because they suspect its soundness in law, but because it is likely to lessen professional profits. But this attitude of antagonism is only temporary. They will soon perceive that whereas, under the old system, an estate passed once through their hands in a given time, recent legislatiou will tend in future to make it pass more frequently; and that in place of one large profit they will receive many small ones, which will more than compensate any immediate diminution. Like many an important innovation, it is regarded with the greatest suspicion by those who will, perhaps, derive from it the greatest benefit. While the expenses of land transfer were enormous few people used land as a security; now that its transfer is safe and cheap, it will become the favourite security—the savings bank for all classes. That the community may not lose the advantage of the amended law, pending the change of opinion on the part of the solicitors, it is necessary that the duties they seem indisposed to undertake should be performed by others who have no objections to overcome. A new Agency is, in truth, necessitated by the new Act."

Mr. Reed thereupon proceeds to enumerate every step taken under the old system and under the new before the title to land is established; the main difference being that now it may be examined and declared by a public officer, and is thereafter declared by him against all comers in the form of a simple certificate, including a reference to the national record in which it is specified:—

"The registered owner, on having passed through this very simple and inexpensive ordeal, is a man to be much congratulated. He places the little witness to his lordship in his pocket-book, and clears out his piles of musty parchments for a bonfire. Should he want money, he simply presents his certificate to his banker, who compares it with the register (which is accessible only for such purposes), and without a day's delay, makes the required advance. Both parties to this transaction are advantaged—the lender inasmuch as he receives, without trouble, the best possible security;—the borrower because he is not required to wait till his title be proved by the solicitor to the bank, and because the accommodation can be obtained with more secrecy than under the old system. The certificate on a foregoing page is the copy of a *bonâ fide* document, which is the result of the investigation of an abstract of title consisting of 100 sheets. The owner of this property will, when he wants to sell it, have nothing to do but to carry this document to the auctioneer, and the purchaser will have nothing to do but to see that the document corresponds with the entry in the register. Instead of entering into an investigation lasting for six months, or, perhaps, for two or three years, an inspection of the registry acquaints him with the facts of the case, and upon the payment of 5*s.* or 6*s.* beyond the price of the moderate stamp imposed by Government, the purchaser has his name entered upon the book, and receives a document corresponding with the one just produced, and the estate is conveyed to him for ever, with an indefeasible title. If he wants money, he has only to hand over this mortgage, with a corresponding statement, which may be done for a few shillings. If he does not wish the transaction to be know, he has simply to go to his banker's with the document, and say to him, 'Will you lend me 5000*l.* or 10,000*l.*?' He can then deposit it with the banker, who would receive it with the most perfect confidence, because, while the document is in his hands, there can be no possible dealing with the land, and the document itself proves the indefeasible title of the landowner."

Mr. Reed adds:—"Land is now destined to play a very different part in the substantial progress of this country. This liberative measure will bring a surprising amount of latent capital into operation, and will rapidly increase the value of land."

This is true, for owners heretofore have had for the most part to be satisfied with the mere enjoyment of the fruits of their land, now they will be able to *use* it. Money will be raised upon it without difficulty, either for its own improvement or for any other purpose whatever.

The special interest of this journal on the subject is

satisfied by declaring that the main difficulties in the way of all agricultural improvements are at once removed by Lord Westbury's Act. The capital required for buildings, cottages, roads, land drainage, everything which the estate requires, will be raised at once without the preliminary expenses which frighten landowners now, and without any transfer of authority over his property to the agency of any company or association outside, whenever the title, of which that Act provides so simple and accessible a declaration, shall have been obtained. Mr. Reed concludes as follows:—

"It only remains now for the writer to summarise the points he proposed to deal with in this pamphlet, namely: That the value of property is measured not so much by the supplies it may produce for our necessities, or the gratification it may yield to our feelings, as by the amount of other commodities for which it may be exchanged, that is by its market price:—that the exchangeable value of land is in some cause reduced to a minimum by the difficulty of ascertaining the title to it, and this depreciation sometimes exceeds one-half what that value would have been had the property being easily and readily negotiable: that an indefeasible title gives the quality of negotiableness at once to land, raises its exchangeable value to the maximum market standard, and, in the same ratio, increases the borrowing power of the proprietor who does not want to sell. These propositions simply embody the recognised doctrines of political economy. They have been handled briefly as the subject demanded, but it is hoped with sufficient clearness to show the value of Lord Westbury's Act for the emancipation of land from its long slavery."

Farm Memoranda.

TATTENHALL HALL.—We conclude here our report of this farm.

We have now got the crops all under cover, like a winter hive, and we have only further to describe the engine-house, boiler-shed, and steam chest, which occupy a position alongside the food-house. A small 6-inch cylinder engine, 12-inch stroke, drives Moody's root-cutter, which has the recommendaton of separating the dirt; it also drives the root elevators and chaff-cutters; the exhaust steam passes up a drain and heats the water as it comes to the force-pump, so that without waste of fuel hot water is sent into the steam boiler, into an oil-cake gruel tank, and also by a tap at the straw cutter sprinkles the chaff as it is cut, and the root elevator pours its cut Swedes and Mangels through the knives of the cutter, and the whole descends together into the steam chest, and when in three hours sufficient is cut to last the whole of the stock three days, all mixed up together, the steam is turned out of the boiler, which is 16 feet long, a sort of brewing scent is diffused over the building. On the old plan we saw it took equal to 11 men to remove the stacks or ricks to the barn. Let us now see how many men, independent of weather and waste, are required, not only to remove the stacks, but to thresh, dress, winnow, sack the corn, put the chaff and caving under cover, put the straw through the chaff-cutter, cut the roots, mix and mash the whole up together, so that when the cows smell it their teeth will water, and they won't look at well harvested hay in comparison. But we will take the men. Two on the rick, or putting the Barley to the feeder on the box; one putting the straw from the box through the pitchhole, one putting the straw to the two men feeding chaff cutter, one engineer, one taking away the sacked corn, chaff, and cavin, putting all under cover, and one boy filling the roots into the cutter, and coals to fixed boiler fire: total, nine men and the boy, who have finished their work while the men with two sticks were looking at it. Some of the manufacturing princes on both sides the Tweed have confessed that they cannot ditto it. It will also be seen that by changing the position of the threshing apparatus to the sides and end of the straw loft, one man at the shakers will be able to put the whole of the straw, as threshed, to the room where it is wanted. Our worthy agricultural alderman, with his fixed engine at Tiptree, cannot compare with it. While my portable engine has paid for itself, the threshing apparatus and repairs, with obliging my neighbours, besides being at liberty to steam cultivate my farm, and as many as will join me in the required outlay.

The food is cooked and prepared, in the words of Lord Kinnaird:—"Certainly the feeding buyers are very convenient;" and this is apparent from the fact, that one old man, through the winter, looks after the 80 dairy cows, without having to go outside the building for anything except to wheel away the dung from 40 cows to the side of the shippon, to the pig and nag horse dung-yard; and from the other 40, at the end of the other rank, to be there mixed with the cart stable manure, the mixing of which as made, it will be seen, is secured by the arrangement. The cowman early in the morning in spring, is assisted by a man helping to wheel away the dung.

It will be seen by the map that the homestead is placed in the disadvantageous position of being at the outside instead of at the centre of the farm. This is partially remedied by 24 cow-stalls and a food house erected near the junction of four fields, at the far part of the farm, to which the present proprietor has kindly added a good six-roomed cottage, at a cost of abont 100*l*., for which he gets 5 per cent.; and the man who has the charge of the young stock, feeding stock and sheep, pays 15*l*., including keep of a cow. The yearling calves have also a shed or lodge for shelter and feeding, and by consuming a quantity of roots and fodder, the cartage home is saved, and a good portion of manure made near where it is wanted for the green crops.

Dairy Department. Having traced the crops, or raw material until manufactured into meat and milk, we have next to glance at its further transitions. It will be seen by reference to the cow houses that by dividing the stock they are sent back to their pastures, and 40 cows come in at the back or at one gable, and the other 40 at the corresponding end, and so pass direct to the stalls without coming to dirty the inner yard or pavement—the cows being numbered from 1 to 80 instead of named, facilitates the milkers counting their cows, to prevent them waiting, and being required each to milk their number, avoids their delaying in hope of passing a hard or difficult cow, the cowman follows, and secures their being properly milked. A carrier with yoke and two tins, brings the milk, say on Sabbath morning, through the milk house, down six steps, into the second milk house, which is well ventilated, and under the dining room, and which is cool even in the hottest weather; the distance is so shortened and the yoke and swing tins so superior to the pail, that a strong boy will perform the task easier than the two men 20 years ago. The Sunday evening's milk is put in the milkhouse, which is also well ventilated, and the window to the north; on Monday morning the old milk of the previous day, and the new brought direct from the shippon, is divided into three cheese tubs, which at the bottom are provided with ¾-inch copper plugs, and these plugs are placed over a cast iron painted spout let into the kitchen floor, from which is continued a trough lined with lead, passing over four large slate cisterns, and each of these again provided with an inch plug over each cistern, and the bottom of each cistern is also provided with a 2-inch plug, to which is fixed a wooden handle 2 ft. 6 in. long; from these last plugs a socketed Buckley pipe, 3 inch drain, jointed with Roman cement, is continued to the Windsor pig troughs on each side of the pig food house. When the milk in the cheese tub has been changed to curd, an American curd breaker is used, and so soon as the curd has settled at the bottom of the cheese tub, a frame, filled in with woven wire like a window blind, with hinges in the middle to admit of the two sides of the frame coming together like a closed book, which when closed is put edgeways to the bottom of the tubs, and over the copper plug, the wire frame is then opened slowly till it resembles the capital letter V, turned with its two ends to come against the sides of the cheese tub; by this contrivance the curd is pushed away from the valve or plug, which is then drawn and a strainer put over the aperture, when the whey steadily filters off in a few minutes, while the dairymaid is left at liberty to repeat the process on the other two tubs. On Monday morning the whey will fill one of the small and one of the large slate cisterns, the other small cistern having received that from the Saturday evening's cheese, and the third and remaining cistern having been 48 hours and the cream twice skimmed or removed from it. The 2-inch plug when pulled by the handle will allow one-third of the whey in about one minute to get distributed at pleasure into all the pig troughs—this is pig feeding made easy, and the arrangements, and so far as is known is new, and completely disposes of all the old process between the cheese tub and the pig trough, and makes it a pleasure for every farmer to feed his own hogs, and thereby not only save the coals and labour of heating, but gets more and better butter, and the pigs thrive and do better than on scalded whey. Can any manufacturing patent contrivance surpass this? When the whey has passed off the curd is put into one of Mr. Cornes's patent cheese drainers, the whey from which passes off as before described to the slate cisterns; the curd is next ground in the mill, instead of by the old dilatory practice of breaking with the hand, which yet prevails in many dairies—the curd when broken and salted is put into the vat, and by dinner time the work is finished, and if by chance any of the whey gets split on the kitchen floor, the dairy maid removes it with a cloth, and so keeps her kitchen and herself both clean and neat, and that with the assistance only of having the curd mill turned, makes the cheese from 80 dairy cows with apparent ease and comfort. Whereas on Monday the curd has been put into three cheese vats, they are placed round the warm vessel boiler, and a door lets down to close them in till the following morning, when they are next removed to a stone, which, except in hot weather, is warmed by the flue of the vessel boiler passing under both it and the flags of the six stone cheese presses, while in hot weather the heat by pulling out a register is allowed to go up the chimney, by which simple contrivance (which has long been practised in greenhouses), it will be seen without cost (for the heat would go up the chimney), and with the labour only of pulling or pushing a register, gives the dairy maid the advantage of a perfect command of temperature. When the cheeses are "dry under press," the dairy maid lets down from the cheese room with a winch a scale bottom, on which the cheese is placed, and she turns the winch until the cheese is even with the planks that surround the chese room: she then slips a hook into a noose, which makes all safe, and slides the cheese on to the plank in the room, from which point it makes by turning daily progress to the other side of the room, when it is put on the floor, and by the time it is ready for market it has come pretty nearly the scale bottom, which lowers it down to be sent away, dispensing with the old plan of the man's panting, and his jug of strong ale.

For several years we have had our dairy vessels, cans, and cheese tubs painted with white enamel. This is done to perfection by Mr. Cornes, Barbridge, and so far from being more difficult to keep sweet we have found them the reverse. It saves much labour in scouring, which rapidly wears them out. I am aware that Professor Voelcker disapproves of this practice; but he ought to have supported his opinion with facts. The paint becomes enamelled, and is more perfectly cleaned than wood by scouring. We use tin milk pans, which, when worn, are liable to rust, discolours the milk, cream, and probably often accounts for black spots in cheese.

I have alluded to the disadvantages under which, at Tattenhall Hall, Sunday cheese-making was abolished. I hope you will bear with me when stating that for 30 years, with various dairy maids, we have found the duty a delight. I should fear a dairy mutiny, with our present arrangements, were I to order cheese to be made on Sabbath days. I am confident the plea would be, apart from its sacred obligation, "Pray do let us have one day of rest."

LAMBTON, DURHAM.—The Lambton property comprises about 15,000 acres, besides which, Lord Durham has another property of about 3500 in the Wooler district of Northumberland. The former is nearly all of the naturally cold ungenial clay loam of the district; the latter forms part of the Turnip and Barley soils of that part of Northumberland. The farms on the Lambton Estate are considerably above the average of the county, being from 200 to 800 acres in extent. Formerly they were of about the usual small size, latterly, however, as they became vacant they have been enlarged by taking down unnecessary fences, and throwing two or more together; and a wealthier and more enterprising tenantry now occupies them. They are mostly held on lease for 15 or 20 years—the former is the more common term. Some of the older tenants, however, prefer still to hold their farms upon the original terms, than to bind themselves by the covenant of a lease. The leases are liberally drawn up—they contain the usual restrictions as to cropping, but leave is readily obtained to depart from them if good reasons for so doing be adduced. The general practice on the estate is to follow a five or seven years course of cropping—Oats or Potatos,—Beans,—Wheat or Barley,—fallows or Turnips, — Wheat or Barley — seeds — seeds. Although the game is preserved, the rabbits, the farmers greatest enemies, are rigidly kept down. Formerly they were the perquisites of the keepers, who then had a direct interest in their abundance. Now they have strict orders to exterminate them, and any complaint by a tenant is at once attended to. Draining has been largely carried out on the estate—the tenants being called upon to pay 5 per cent. on the outlay. The drains are all laid 4 feet deep; on the strongest soils they are cut 18 to 20 feet apart; on the lighter soils they are placed at wider intervals.

Liming appears to be the general weak point of the farming system in both counties. It is here used, but not so largely as it should be, the cost being here, as elsewhere, the great obstacle to its more general application. Although the magnesian limestone crops out on the estate, it appears to contain such a large per centage of magnesia, as to be unfit for agricultural purposes. The two beds, the upper and the lower of the magnesian limestone formation are well-nigh as distinct in their physical, as in their chemical characters—the one contains from 30 to 40 per cent. of magnesia, while the other is nearly a pure limestone, with merely traces of magnesia in it. These latter beds should diligently be sought after, as they are admirably suited for agricultural use.

The buildings and cottages on the estate are mostly good and in excellent condition; the tenant, his stock, and his labours, being equally well cared for. Each year much is done in this respect on the estate, and always with the same encouraging results. All appear to have benefited by the liberal and judicious improvements that have been effected since the Royal Agricultural Society's meeting was last held in the district. The tenantry is of a superior class, and the farmers show evidence of advanced cultivation, while the noble proprietor has been recompensed by an increase of fully 20 per cent. to his rental, with the certainty of a satisfactory and progressive augmentation as the present leases expire.

His lordship identifies himself with his property by farming a large portion of it himself. The "home farm" at Lambton, including the park, contains about 1600 acres, of which 900 acres are in permanent Grass, and the remainder under the plough. The farm is laid out in large rectangular enclosures, and exhibits a high state of cultivation. The same system of cropping is pursued as that on the estate generally—either a five or seven years' course, as circumstances may make most advisable. The land has all been deep-drained and well limed, and for some time past a great portion has had the advantages of steam tillage, and has been stirred far deeper than is the custom of Durham farming. I had an opportunity of seeing the "steam-plough" (Fowler's) at work with the digging breasts on in the place of ploughs. The field was a tenacious loam, varying in quality and in texture, and in rather a rough condition, having been steam-ploughed in the early part of the winter, and not touched since. The plough was working from 12 to 14 inches deep, and throwing up the soil in a manner that it never had been operated on before; and I must do the men in charge of the steam-plough the justice to say that I never anywhere have come across a steam-plough at work on a farm before which was in such a clean and creditable condition. As large quantities of stock are fattened on the farm, the root-break is always well treated, in order to secure good crops. The usual allowance is from 25 to 30 loads of good farm dung with the addition of 4 to 5 cwt. of artificial manure—Peruvian guano and bones—to the acre. About 90 tons of Peruvian guano and 400*l*. worth of bones ground on the farm, were thus used during the past year. The results of this deep tillage and liberal dressing are seen beyond the crop for which it is mainly intended; they are traceable throughout the whole rotation. Last year, for instance, the Wheat crop on the farm averaged 56 bushels of market, and 4 bushels of tail corn to the acre—a crop, in all probability, without parallel even in the best soils of the country. About 200 acres of Grass are annually mown and made into hay, and a large acreage also is cut green for the horses used in his lordship's collieries. Below ground, also, the "steam horse," which has done such good service on the surface, has been introduced by his lordship with great success.

A breeding flock of 600 ewes are kept—about half the lambs are sold off fat—now averaging 35*s*. each,—and the rest are fed and sold off at a later period. A large number of beasts are also kept and got ready for the Christmas market. They are always disposed of at a public sale on the farm, about the middle of December, which, from the known quality of the stock and the mode of feeding adopted, is attended by purchasers from distant as well as neighbouring markets. Last year the sales comprised 122 fat beasts, chiefly Galloways, West Highlands, and crosses, which realised 2885*l*. 10*s*.; and 900 sheep, Cheviot, Cheviot crosses, and South Downs, for which 2569*l*. were obtained. As on most of the other large estates in the two counties, an increased portion of stronger soils on this, are being each year laid down for permanent Grass. Mr. Morton's practice is to sow the seeds down without any grain crop, and to feed them off the first year. He has tried the practice of sowing them with a corn crop, and has found that they never succeed so well as when sown by themselves.

The buildings are well adapted for a large farm; and the cottages are commodious, clean, and comfortable. The hinds are engaged by the year, and have 14*s*. per week, with a cottage, good garden, coals,

8 bushels of Wheat, and 8 cwt. of Potatos per year. *Professor Wilson, in Newcastle Chronicle.*

Miscellaneous.

The Exact Manner in which Plants Extract their Food is not ascertained. Liebig holds that it is not directly from solution in water, but contact between the membranes of the roots and the soil itself, the juices of the plant exercising a species of attraction for particular materials, just as if we place a thin piece of skin over a vessel full of water slightly acid from sulphuric acid and place on the top some lime, the attraction between the acid and the lime will be so great that gradually the whole of the lime will pass through the membrane. He does not say that water has no part in this process; on the contrary, he believes that the moisture held up in the soil by capillary attraction assists the process; but his argument tends to show that the water which circulates through the soil, has not power to convey food from one portion of the soil to another. To quote from his late work: "A plant is not like an animal, endowed with special organs to dissolve the food, and make it ready for absorption; this preparation of the nutriment is assigned by another law to the fruitful earth itself, which, in this respect, discharges the functions performed by the stomach and intestines of animals. The arable soil decomposes salts of potash, ammonia, the soluble phosphates, and the potash; phosphoric acid and ammonia always take the same form in the soil, no matter from what soil they are derived. In performing this function, the plant-bearing earth constitutes for the use of man and beast an immense purifying apparatus, whereby it removes from the water all matters hurtful to the health of animals, and all products resulting from the decay and putrefaction of deceased generations of plants and animals." The views of Liebig on this point are very ingenious, and, in the absence of definite knowledge, afford a more rational explanation of the influence of different crops in a rotation, than can be found in the mere differences of mineral food they require, viz.:—That it is due to the different habits of root-growth, that whilst one crop finds its food in the surface, another is supplied from the deeper layers of the soil. This view is by no means original, having been advocated years ago by Dr. Voelcker. Thus root crops, such as Mangels and Swedes, feed rather deeply, as well as near the surface. Beans feed entirely in the deeper parts, whilst Barley and Potatos spread out roots immediately below the surface. The Clovers feed whilst young near the surface, and in the second year become deep-rooted plants. That Clover-sickness often becomes visible at that period of growth, when the roots are descending into the subsoil, leads Liebig to a somewhat hasty conclusion, that the explanation of this hitherto inexplicable phenomenon is extremely simple, viz., the presence or absence of suitable food in the subsoil. Abundant evidence could be obtained to upset this pretty theory, and to show that Clover-sickness must be due to other causes, to which we have not the clue—that it occurs in soils both poor and rich—that a field shall fail at one time, and in the next course, without the addition of any food, the plant shall be perfectly good. *Professor J. Coleman, at Wigton.*

Calendar of Operations.

AUGUST.

Berwickshire: *Merse Farm, August* 1.—It is just two years and a week since that terrible gale, which did as much as the cold dark season to blight the Wheat crop of 1862; and just such another has blown all night; yet until the broken stalks die it might be rash to estimate the amount of damage. Hitherto the season has justified Mr. Du Boulay's predictions, for, though often bright, it has been cold and backward, with the exception of a few fine days about the middle of May, June, and July; and, with a rainfall of 5½ inches, the ground has never been wetted, owing to the immediate and intense drought. On exceptional deep loams crops look well, but on the vast majority of soils they are quite the reverse. Of all the cereals, Barley is the best; much of it is a good standing crop, though on hard clays the braird was late and irregular. It is, however, beginning to change colour too soon and very unequally. Wheat at one time threatened to be too thick, but the cold spring cured that fault; straw and ear are both rather short; many of the stalks being broken down, it will be bad to reap; and there is much red gum in the earliest fields. Oats have suffered most from the drought. On poor clays and gravels they are exceedingly short, some look as if they would never be worth harvesting, and many a field of good land will disappoint reasonable expectations. In a cold season we generally find a great growth of yellow weeds among Oats, but this year there is no such thing to be seen. We must attribute this to the thorough fallowing those fields got in the dry summers of 1858 and 1859. Beans were late of being sown, but grew vigorously; and here and there may be seen a very good crop of Peas on clean land. The old crop of Potatos being quite unsaleable, the breadth planted is much less than for some years past; and those planted late look but middling. In low situations the shaws were nipped in June. Seldom have we had a better fallowing season; operations proceeded regularly with scarce a day's stoppage; and some who were rash enough to sow their seed on dirty land, have got a good time to work it with scuffler and paring plough. Part of the Swedes sown in the beginning of May were taken by frost and flea, and we see no reason to alter our practice of waiting till near the middle of the month. With the exception of a few late sown fields of Turnips, which will never come to anything for want of sap, the crop in general, though not luxuriant, has progressed fairly and steadily. By the middle of July, when the lambs are weaned, seeds were totally burnt up; but such fields as got relief then, by transfer of stock to faggage or old Grass, are filling up nicely with White Clover. Old pastures have done well, being mostly grouped in well sheltered policies; but it must have been difficult to stock them with lean cattle, for the prices were monstrous. The Clover hay crop is very light, and well saved. Old land is just come to the scythe. To consume the old Potatos, a great number of cattle was kept on till June, and the price did not rise as usual. Mutton, too, has been moderate in price, and lean sheep very dear. Wool recovered from its depression about a month ago, and the rise in price has only been limited by the extraustion of supplies. Prices have ranged from 5*d.* to 8*d.* per lb. above last year. Lambs are a middling crop, and 4*s.* to 5*s.* up; 30*s.* being a current price for good average lambs. In lambs, as in wool, prices have been irregular, owing to the great and unexpected rise. It is more than ever evident, that sheep are the farmer's mainstay; for the corn crop has not proved nearly so abundant as it seems to have done in England. Harvest may commence within the month, and will be general in September. *J. T.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Strentley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Aug.	Inches. 30.14	°	°				°	°	°	°	Inches.
Friday ..	5	.09	70	60	N.E.	1	0	78	55	94	45	..
Saturday ..	6	30.03	71	65	S.W.	1	10	82	58	96	50	..
Sunday ..	7	29.87	67	63	W.	1	10	76	62	91	54	..
Monday ..	8	29.81	61	59	S.W.	1	5	76	55	94	46	0.80
Tuesday ..	9	30.05	63	54	N.W.	4	7	65	48	60	38	0.07
Wednesday ..	10	30.30	61	54	N.W.	0	5	64	43	78	33	0.00
Thursday ..	11											

Notices to Correspondents.

Diseases in Pigs: *A Worcestershire Lad.* The disease that has been so fatal to pigs differs from the pleuro-pneumonia of cattle, and is rather to be regarded as fever of a typhoid character, caused by some animal poison engendered probably from keeping a large number of animals together. Not much can be done by way of remedy, but much in the way of prevention. With a view of the latter the situation should be changed and the styes thoroughly lime washed and cleansed. If possible the pigs should be turned into a Grass field daily, for the sake of the room, the air, and the natural diet. The food should be in some measure changed, and rather less nutritious. Skim, or butter milk will be useful, also green vegetables. By way of medicine, 1 ounce of nitrate of potash and 2 ounces. of super-tartrate of potash; 2 ounces of carbonate of soda may be dissolved and mixed with the food of eight middle-sized pigs, and given daily two or three times. *W C S.*

Flint on Dairy Farming: *T O'G.* You can get it through any publisher, who will apply for it to the American publishers here. List of works hereafter.

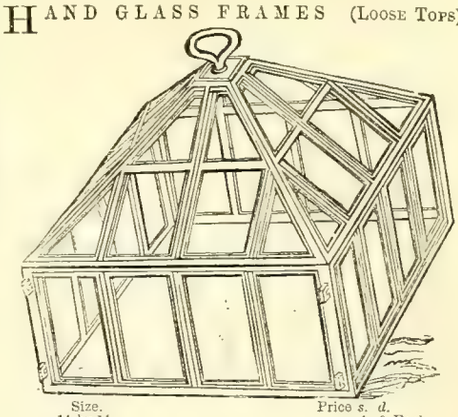
Leather: *S R A.* We can find no information on the composition of leather clippings. But it is doubtless rich in nitrogenous matter. In the conversion of skin into leather there is, however, such an insolubility and fixity of character conferred upon it that it is rendered useless as manure, except after such a tedious process of rotting and disintegration as will practically render it valueless.

Outgoing Tenant: *Clitheroe.* It is probable that the outgoing tenant having supplied all the labour of the Wheat crop (now standing), all the manure, all the seed, and half the rent, has spent 25*s.* to 30*s.*, 30*s.* to 40*s.*, and 15*s.* to 20*s.*, or in all 3*l.* 10*s.* to 4*l.* 10*s.*, say 4*l.* per acre. On the other hand the incoming tenant, paying half the rent, has paid 15*s.* to 20*s.*, say 1*l.* per acre. If the division is to be made in this proportion, then the incoming tenant should have one-fifth only of the proceeds after all the expense of harvesting and marketing has been discharged. But in general no such division is made. The outgoing tenant does and is done by, as his predecessor did and was done by at the last change of tenancy. Your question did not arrive till after we had gone to press.

Plants: *H W C.* The plant sent is Spergula arvensis, common Spurrey; it is a common denizen of sandy soils, and occurs in any crop; it is quite different from the Dodder, though it is, as we have this year experienced, a sad pest in Flax. It is harmless, and may be eaten by sheep; indeed it has been recommended for cultivation as sheep food. *B—M & Co.* The Grass is Bromus secalinus, Rye Brome Grass. *B.*

Tilework: *X Y Z.* There is information on the subject in the "Cyclopædia of Agriculture" (Blackie).

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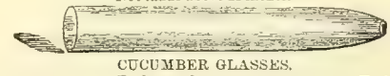


Each.—s. d.		Each.—s. d.	
3 inches in diameter	0 4	12 inches in diameter	1 6
4 „ „	0 5	13 „ „	1 10
5 „ „	0 6	14 „ „	2 3
6 „ „	0 7	15 „ „	2 9
7 „ „	0 9	16 „ „	3 0
8 „ „	0 10½	17 „ „	4 0
9 „ „	1 1	18 „ „	4 6
10 „ „	1 2	19 „ „	5 6
11 „ „	1 4	20 „ „	6 0

BEE GLASSES.

Each.—s. d.		Each.—s. d.	
4 inches in diameter	0 6	9 inches in diameter	1 8
5 „ „	0 8	10 „ „	2 0
6 „ „	0 10	11 „ „	2 6
7 „ „	1 1	12 „ „	3 0
8 „ „	1 4		

Not made above 12 inches.



CUCUMBER GLASSES.

Each.—s. d.		Each.—s. d.	
24 inches long	1 9	16 inches long	1 2
22 „ „	1 7	14 „ „	1 0
20 „ „	1 6	12 „ „	0 10
18 „ „	1 4	Made to any length.	

HAND GLASSES, WITH OPEN TOPS.



Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 6
14 „	7 6	20 „	10 6
16 „	8 6	22 „	11 6
		24 „	12 6

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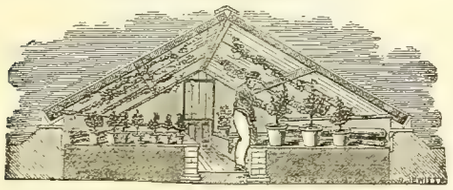
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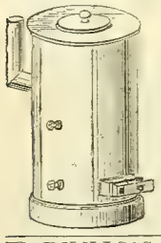
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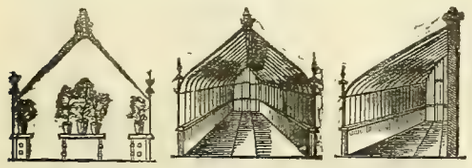
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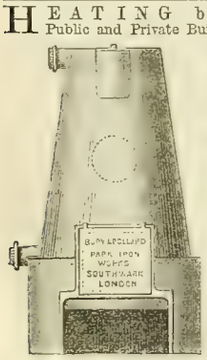


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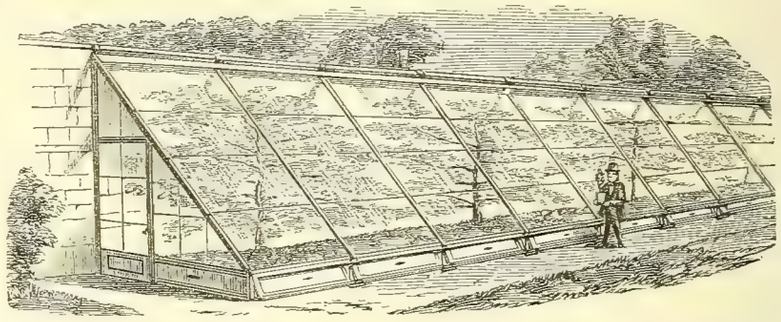
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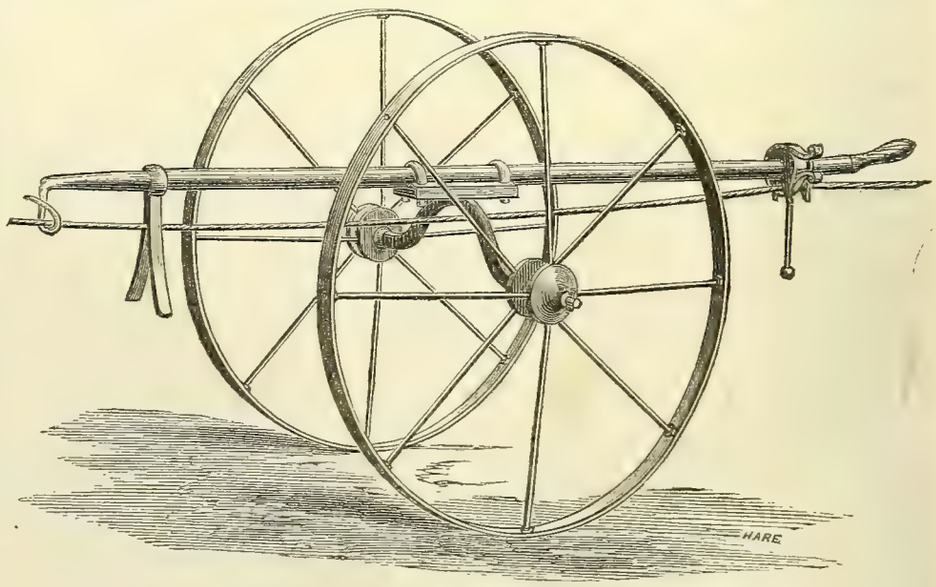
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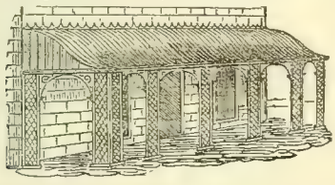
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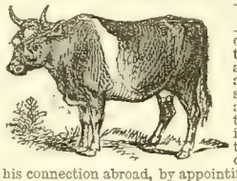
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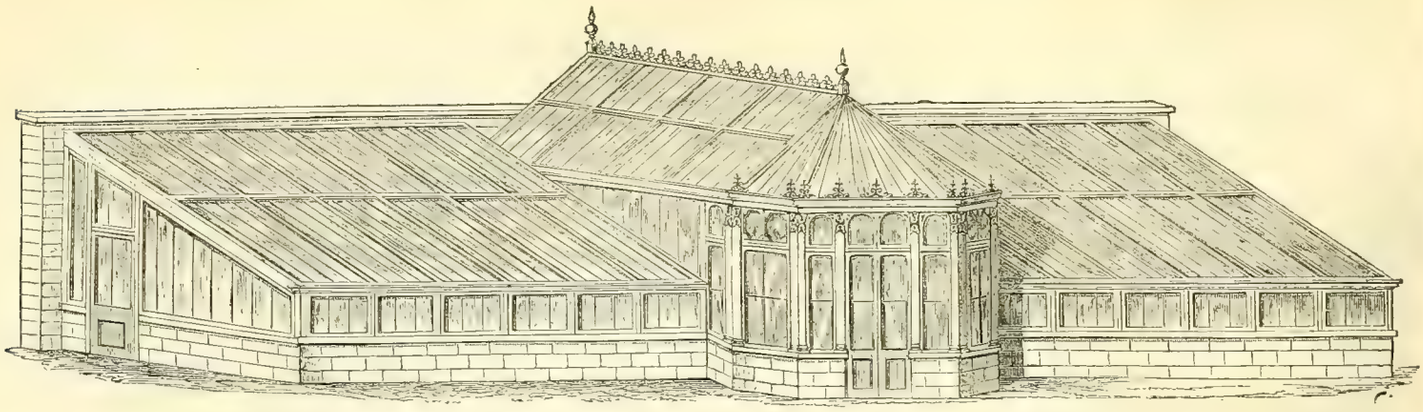
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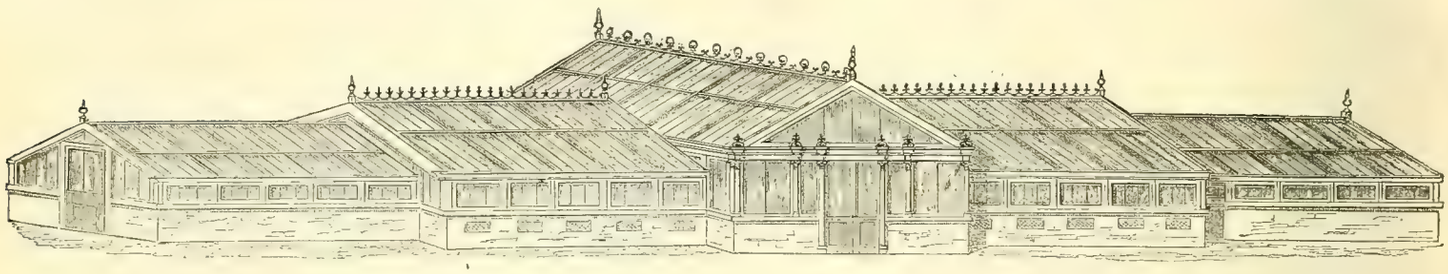
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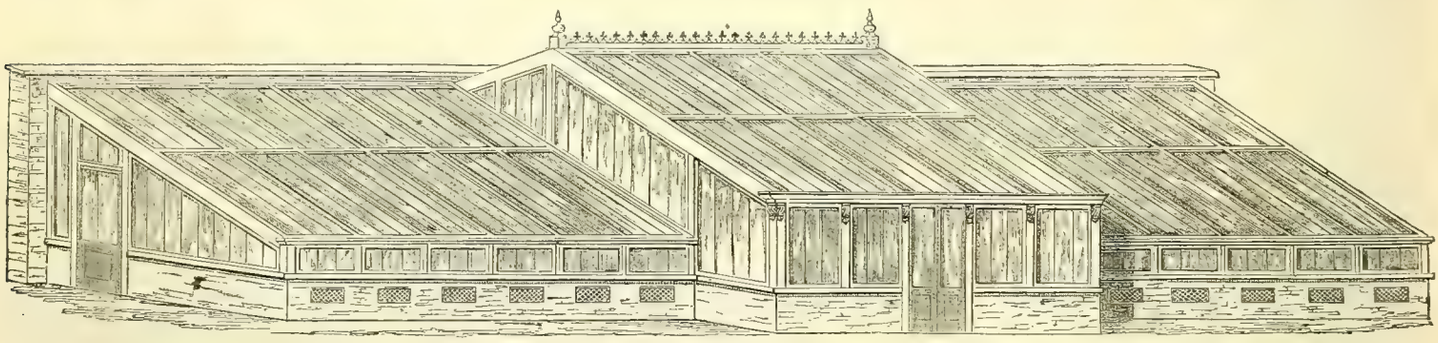
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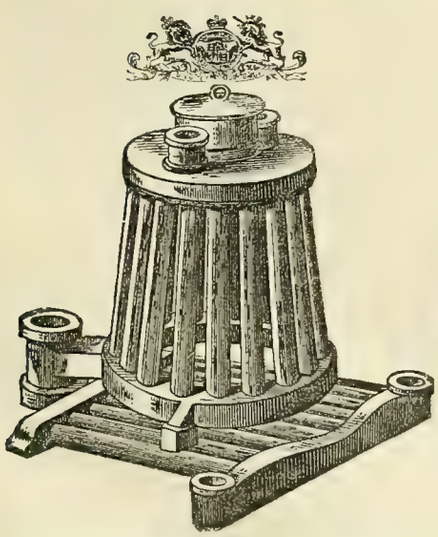
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 35.—1864.] SATURDAY, AUGUST 27. {Price Fivepence. {Stamped Edition, 6d.

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BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The Eleventh ANNUAL AUTUMN SHOW will be held on WEDNESDAY and THURSDAY, September 14 and 15, at the Royal Pavilion Grounds, on the same grand scale as on former years, and the usual amount offered in prizes. The Railway Cup, value 10*l.*, is offered for the best Eight Dishes of Fruits.

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Brighton, August 27.

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HYACINTHS, TULIPS, and other DUTCH BULBS, imported by Wm. Cutbush & Son. Twenty-four Prizes awarded to their Collections last Spring, Twenty-two being First Prizes. The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application. Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand. Highgate Nurseries, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants. Exotic Nursery, Tooting, Surrey, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible. Foot's Cray Nursery, S.E.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38*s.* per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 56*s.* per quarter, delivered at Braintree Station. Apply to Henry Eversher, Park Hall, Gosfield, Halsted, Essex.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 10*s.* per bushel, or 64*s.* per quarter, delivered at Braintree Station. Apply to Henry Eversher, Park Hall, Gosfield, Halsted, Essex.

CABBAGE PLANTS.—The Choicest and Earliest is our ROYAL DWARF, 4*s.* 6*d.* per 1000, Extra fine throwing Plants also BROCOLI, 4*s.*; SAVOYS, 3*s.* 4*d.* Thomas Welland, Surrey Gardens, Godalming Surrey.

NEW and GENUINE TURNIP SEEDS in quantity. SKIRVING'S KING of the SWEDES. DIXON'S IMPERIAL SWEDE PURPLE TOP. SKIRVING'S IMPROVED SWEDE PURPLE TOP. E. P. Dixon & Sons, 57, Queen Street Hull.

Mushroom Spawn.

SAMUEL CHEESE begs to inform his numerous Patrons that his NEW MUSHROOM SPAWN is now ready, and in first-rate condition. Address Mr. S. Cheese, 231, Oxford Street, London, W.

To Radish Growers.

WANTED, 2 or 3 Quarters of Good New LONG SCARLET RADISH SEED. Must be warranted good stock and growth. Sample and lowest price to R. Lyne, Esq., 41, Westbourne Park Road, Bayswater, London, W.

Italian Tripoli Onion.

CHARLES SHARPE and CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy. Price to the Trade on application.

Rape Seed for Sowing.

CHARLES SHARPE and CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863. Price on application.

For Present Sowing.

TRIFOLIUM INCARNATUM.—New Seed of the above, at lowest Market Prices, may be had of Sutton & Sons, Seed Growers, Reading, Berks.

WHEELER'S LITTLE BOOK on GRASSES, Gratis and Post Free. J. C. Wheeler & Son, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp. Richard Smith, Seed Merchant, Worcester.

Choice Flower Seeds for Present Sowing.

F. AND A. SMITH beg to offer the following saved from their CHOICE and SUPERIOR COLLECTIONS, and can warrant them genuine and of the finest quality.

	Per pckt.,	1s. 0d.	2s. 6d.
CALCEOLARIA, from selected flowers	.. .. ..	1 0 ..	2 6
CINERARIA, from selected flowers	.. .. ..	1 6 ..	2 6
GERANIUM, Show and Fancy	.. .. ..	1 0 ..	..
GERANIUM, Zonale	.. .. ..	2 6 ..	..
GLOXINIA, extra fine	.. .. ..	.. ..	0 6
MIMULUS, choice hybrid	.. .. ..	1 0 ..	2 6
PANSY, from show flowers	.. .. ..	1 0 ..	2 6
PANSY, from fancy flowers	.. .. ..	1 0 ..	2 6
POLYANTHUS, extra fine	.. .. ..	1 0 ..	..
PRIMULA SINENSIS FIMBRIATA	.. .. ..	1 0 ..	2 6
STOCK, INTERMEDIATE, Scarlet and Purple	.. .. ..	1 0 ..	2 6

The Nurseries, Dulwich, Surrey, S.

TO the TRADE. CROP 1864.

PRIMULA SINENSIS FIMBRIATA ALBA.
PRIMULA SINENSIS FIMBRIATA ROSEA.
PRIMULA SINENSIS FIMBRIATA RUBRA.
PRIMULA SINENSIS FIMBRIATA ATRO-CARMINEA SPLENDENS (new).
PRIMULA SINENSIS FIMBRIATA STRIATA (new).

The above Seed has been grown from the finest strains in cultivation, saved from the choicest flowers only, and is guaranteed as unsurpassed. To parties who have not yet favoured us, we can refer to some of the principal growers in England and Scotland.

PRIZE PELARGONIUM
(Emperor Napoleon's large Gold Medal of Honour, April, 1864).

PELARGONIUM, large-flowered. | PELARGONIUM, fancy.
" DIADEMATUM. | " Odier's 5-spotted.

Price on application.
STUART & Co., 10, Southampton Street, Holborn, W.C.

NEW ORNAMENTAL FOLIAGE PLANT, IRESINE HERBSTII (Hook.).

HERBST & STENGER,

KEW NURSERY, RICHMOND, LONDON, S.W.,

Have great pleasure in offering for the first time this distinct and handsome Plant, introduced by them direct from the River Plate, and to which a Certificate was awarded by the Royal Horticultural Society on August 24.

Colour of leaves dark maroon, ribs and stem bright carmine. A worthy rival of Coleus Verschaffelti, both as regards colour and hardiness.

Plants ready for delivery now at 10s. 6d. each.

The usual Discount to the Trade. Prices per 12, 25, 50, *and* 100 *Plants on application.*

LIST OF DUTCH FLOWER BULBS TO BE HAD GRATIS.

NEW INTRODUCTIONS

TO BE SENT OUT, FREE TO LONDON, IN SEPTEMBER NEXT.

J. LINDEN,

ROYAL ZOOLOGICAL GARDENS, BRUSSELS,

BEGS TO CALL ATTENTION TO THE FOLLOWING NOVELTIES NOW READY FOR SALE :—

PHRYNIUM (MARANTA) MAJESTICUM, Lind. — This noble species was discovered by Mr. L.'s collector M. G. Wallis, on the banks of the Upper Purus river, one of the great affluents of the Amazon. The leaves, striped like those of Maranta regalis, are of a dark purple below, and reach the length of 2½ feet. The great effect produced by this really ornamental plant, deserves the specific denomination. Fine plants 21s. each.

PHRYNIUM (MARANTA) PICTURATUM, Lind. — This truly splendid plant is without contest one of the best Marantas introduced up to the present time. The honour of introduction belongs also to the botanical traveller Wallis, who discovered it in the dense forest of the Purus. It is of a moderate size and of a compact habit. The leaves are of a dark satin-like green, embellished by a large central line surrounded by an undulated silver discus. A specimen of this fine species was sent to the Royal Horticultural Society's Exhibition of the 24th of August, and received a Second-class Certificate. Price 21s. each.

PASSIFLORA FULGENS, Wall.— A very distinct climber, with large bright scarlet flowers, and oak-like foliage. Also a discovery of Mr. Wallis in the Amazon valley. Price 15s. each.

TRICHOCENTRUM ALBO-COCCINEUM.— Exhibited at South Kensington the 24th inst., 42s. to 63s.

GALEANDRA DEVONIANA. — Fine plants of this beautiful species, from 42s. to 63s.

ODONTOGLOSSUM AURO-PURPUREUM, from 42s. to 84s.
" HASTILABIUM, from 21s. to 42s.
" PESCATOREI. 105s.

Large importations of Orchids from different parts of the world enable J. LINDEN to offer these favourite plants at very moderate prices.

CALADIUM CANNARTI, MIRABILE, and OSYANUM. 5s. each.
DORYOPTERIS ALCYONIS. 5s. each.
LILIUM WALLICHIANUM, true. 21s. each.
THEOPHRASTA IMPERIALIS. 10s. 6d. each.
LARIX LEPTOLEPIS, new from Japan. 10s. 6d. each.
ARISTOLOCHIA CORDIFOLIA.— Flowers 15 inches in diameter. 5s. each.

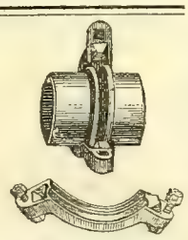
Usual Discount to the Trade.

LONDON AGENTS : MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, E.C.



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

For a few prices, see last week's advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.

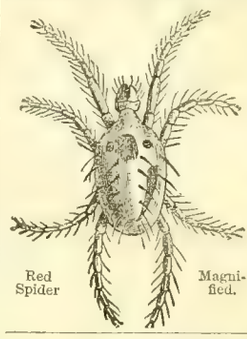
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence.

Agents : HENDERSON & Co., Florists, Pine-apple Place, Maida Vale ; NEWBERY & SONS, St. Paul's Churchyard : CARTER & Co., Seedsmen, High Holborn, W.C. ; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs BARR & SUGDEN, Seedsmen, King Street, Covent Garden.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants ; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

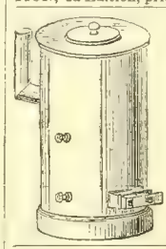
Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.* ; 43 ft. by 19 ft., 73*l.* 5*s.* ; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HERLMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s. ; post free, 1s. 1d.



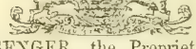
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting ; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

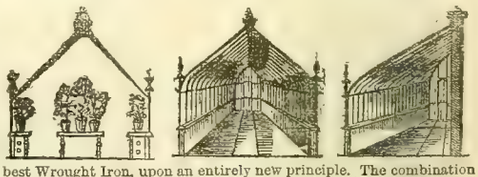
Midland Steam Power Horticultural and Hot-water Works, Loughborough.



T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect ; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

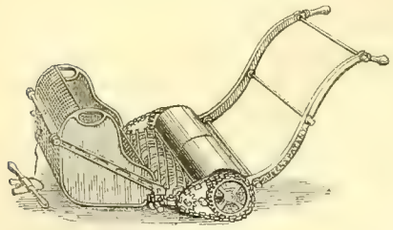
Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

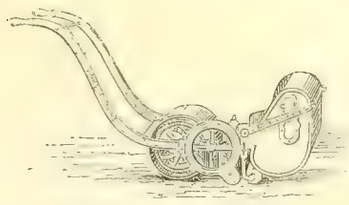
BURY & POLLARD having completed the order for the India Board are now making another large Windmill and Pumps for the Government Gardens at Agra.

WIND ENGINES FOR ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY & POLLARD two years ago for Ascension as working most satisfactorily

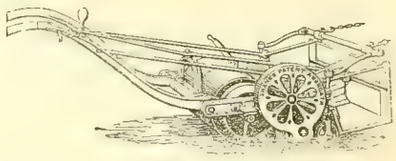
LAWN MOWING MACHINES FOR 1864.



GREEN'S MACHINE.



SHANKS' HAND MACHINE.



SHANKS' HORSE MACHINE.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch }		£3 10 0	18-inch ..	*By a Man* ..	£7 10 0
12-inch }	*By a Boy* ..	5 0 0	20-inch }		8 0 0
14-inch }		5 10 0	22-inch }	*By two Men*	8 10 0
16-inch ..	*By a Man* ..	6 10 0	24-inch }		9 0 0

SHANKS' HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch }		£3 10 0	19-inch ..	*Man and Boy* ..	£7 12 6
12-inch }	*By a Lady* ..	4 10 0	22-inch }		8 7 6
14-inch ..	*By a Boy*	5 10 0		*By Two Men*..	
16-inch ..	*By a Man*	6 12 6	24-inch }		8 17 6

A STOCK OF MACHINES KEPT ON HAND, FROM WHICH ORDERS CAN BE AT ONCE EXECUTED. PRICED LISTS OF HORSE, PONY, AND DONKEY MACHINES, ON APPLICATION.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.



HAND GLASSES.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.



PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



MILK PANS.

See Advertisement first week in the month, or on application.

GREEN'S PATENT SILENS MESSOR,

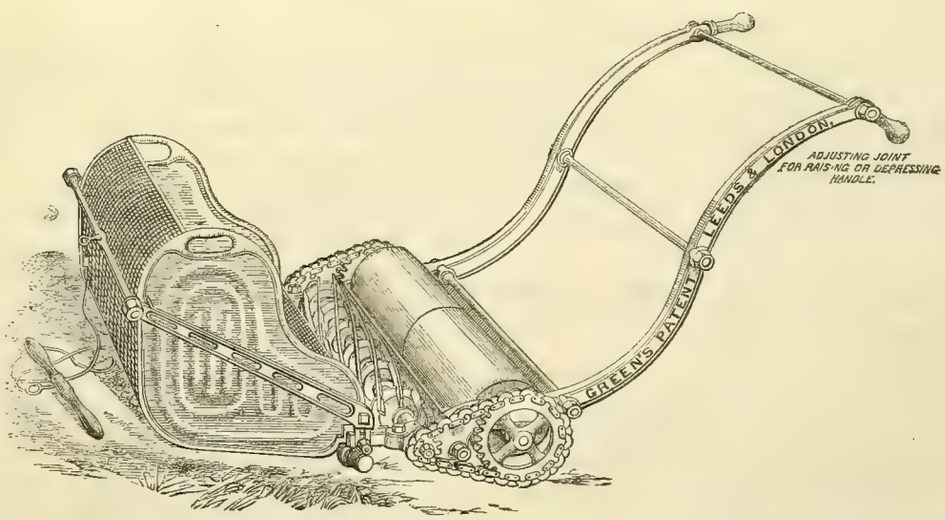
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

ILLUSTRATED PRICE LISTS may be had on application to

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.

FIR TREES.—WANTED, 100 or more WEYMOUTH or other quick-growing FIRS, suited for a sandy soil, 8 feet or upwards in height, to be delivered free at Walton Station (London and South Western Railway) and guaranteed to live for 12 months after planting.

Address, with full particulars and price, to JOHN START, Gardener, The Hollies, Weybridge, Surrey.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & Sons have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

WELLINGTONIA GIGANTEA.—The Undersigned begs to offer fine healthy Seedling Plants in pots, at the following prices:—

One Year Seedlings, in single pots, 50s. per 100.
Specimen Plants, in 24-sized pots, 18 inches, 60s. per dozen.
Fine Plants, in 32-pots, 1 foot, 30s. per dozen.
" in 48-pots, 9 inches, 15s. per dozen.
ARAUCARIA IMBRICATA, in 48 pots, fine, 9s. per dozen.
CUPRESSUS LAWSONIANA 9 inches, 12s. per dozen.

T. HENCHMAN, Edmonton, near London.

FERNS: a rare opportunity to noblemen, gentlemen, Proprietors of Public Gardens, Nurserymen, &c.—About a Dozen fine SPECIMEN FERNS, varying from 2 to 20 feet through. Also a few other Specimen Plants, consisting of Orange Trees, &c. The whole to be Sold a Bargain, solely because the room is much needed for other purposes.

T. HAWKINS, Manor Nursery, Harrow Road, Paddington, W.

CARTER'S FARMER'S VADE-MECUM.

HALLETT'S | PEDIGREE | NURSERY WHEAT.
TRADE MARK.

Seed required—
In September .. .. .. 4 bushels on 10 acres.
In October { 1st half / 2d half } 4 bushels { On 8 acres. / On 6 acres.
In November .. .. .. 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.Z.S., the Manor House, Brighton, Sussex.

NOTE.—This Wheat will not after the present season be again offered by Mr. Hallett to the public until 1868 at the earliest.

New Seed Business.

DRUMMOND BROTHERS (Sons of Mr. PETER DRUMMOND, of Stirling, N.B.) beg to announce that, being about to Commence Business in Edinburgh as RETAIL SEEDSMEN, they have secured, at 52, George Street, immediately adjoining the Music Hall, commodious Premises, which they intend opening in September, with the FLOWER ROOT TRADE.

Their constant aim will be to obtain the purest and most carefully selected Stocks of TURNIP and other AGRICULTURAL SEEDS; and their various MIXTURES of GRASS SEEDS and CLOVERS will consist only of the most suitable kinds, in proportions adopted by the leading agriculturists.

To the GARDEN SEEDS DEPARTMENT they shall devote special attention, using every endeavour to secure for their Customers VEGETABLE and FLOWER SEEDS of the finest quality and true to name.

Nursery Orders they shall be prepared to receive and have executed with carefulness and despatch.

Edinburgh being most favourably situated for Railway and Steamer communication to every part of the United Kingdom, DRUMMOND BROTHERS feel confidence in respectfully soliciting a share of the trade of the Country, and they hope, by studied attention to the wishes of those who may favour them with their patronage during the ensuing season, to merit a continuance of support.

CATALOGUES will be forwarded, when issued, upon application.

Viewforth, Stirling, August 27.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At the Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger*, and the *Mark Lane Express*, Mr. Hughes said:—"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the Spring, and dressed it after harvest with Guano, and that in the Autumn, when my Sheep fed it off, it was up to their knees; and that I fed it off again this Spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. This Italian Rye-grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

Mr. W. CARDWELL, of Nunnery Farm, near Sheffield, in a letter to Messrs. SUTTON, dated April 9, 1863, says:—"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."

Messrs. SUTTON have also been favoured with the following on the same subject:—

Mr. R. STURT, *Piluing, September* 14, 1863.

"The SUTTON'S Improved Italian Rye-grass seed I had from you last year was very good; I think every seed came up. I have a beautiful plant, and have cut four good crops from it since the 30th of March last. It surprises my neighbours very much."

From JOHN BALDWIN, Esq., *Luddington, April* 11, 1859.

"It is certainly delightful to witness the Sheep up to their knees in your beautiful Italian Rye-grass."

From FREDERICK H. HALLETT, Esq., *The Manor House, Brighton.*

"I mowed some of your Italian Rye-grass at Christmas, 1856; again April 12, 1857; three times since in same year, and am mowing it again now, March 15, 1858. The cut on April 12 was 4 feet high, and a perfect mass of Grass."

J. H. FOWLER, Esq., *Eastleach, May* 16, 1862.

"I seeded some Rye-grass this last year, the seed of which I had from you, and sold it for 6s. per quarter more than any other sample in the market, in consequence of its very superior quality. Your Turnip and Swede seed also produced the best roots I ever saw. They were universally admired in this neighbourhood. Your Champion Swede is, I am satisfied, the best that can be sown; mine lasted and were quite juicy to the end of March, and none were rotten."

SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

PRESENT PRICE 6s. per bushel, carriage free, in quantities of 8 bushels upwards. Quantity required per acre if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.—August 27.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

FOR PRESENT PLANTING (Sent Carriage Paid),

DUTCH, CAPE, FRENCH, and ITALIAN FLOWERING BULBS,

FOR THE

ORNAMENTATION of the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.

THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10s. 6d., 15s. 6d., 21s., 42s, and 63s.
THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10s. 6d., 21s., 30s., 42s., and 63s.
HYACINTHS, 2s. 6d. to 15s. per dozen. CROCUS, 1s. 6d. to 4s. per 100. TULIPS, 3s. 6d. to 20s. per 100.

A Detailed List of the above Collections, and a General Priced List of Bulbs, sent Free and Post Paid on application.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

CATTLEYA WARSCEWICZII, VARS.

Several nice healthy Plants, just received direct from the party who first sent C. Warscewiczii delicata and C. Wagneri rosea to us. Prices on application.

DIPLADENIA AMABILIS.

We beg to call the attention of all lovers of Choice Plants to this superb DIPLADENIA, of which we purchased the entire stock. It is a new hybrid of unrivalled beauty, with the *deep rosy-crimson* flowers of D. crassinoda, approaching the *size* of D. splendens. Leaves about the size of D. Van Houttei, but of the form and texture of D. splendens. A most abundant bloomer, and for House decoration or Exhibition invaluable.

10s. 6d. each.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

NEW HARDY CLIMBING PLANTS.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.
Awarded by the Royal Horticultural Society, August 4, 1863.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the public, for the first time, their beautiful rich coloured, free flowering Clematises that they can recommend with confidence, being convinced when known they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants sent out strictly in rotation in October.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Gardeners' Chronicle*, January 9, 1864, on Meritorious Plants; *Journal of Horticulture*, August 11, 1863.

Plants advertised at 15s. each: G. J. & SON cannot take further orders, for having had but a limited quantity of that size, for the future the price will be

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

NEW GRAPE, ROYAL VINEYARD.

TO BE SENT OUT IN SEPTEMBER NEXT.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which will be in excellent condition, and ready for distribution in September. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

Dr. HOGG'S *Report on the Royal Vineyard Grape:*

"Bunches hard and well set, sometimes long and tapering, and sometimes short ovate. Berries large and roundish ovate, skin white and somewhat transparent, showing the texture of the flesh through it, remarkably thin, and adhering closely to the flesh; so thin is it, that the whole berry may be eaten without any inconvenience being caused by the skin. Flesh firm and crackling, with a fine Sweet-water flavour. This is a fine looking Grape, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society."

For the opinions of the Horticultural Press, see *Gardeners' Chronicle*, April 9.

A correct COLOURED ILLUSTRATION by ANDREWS will be sent in exchange for 12 Postage Stamps.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—*s. d.*	*s. d.*		Per pkt.—*s. d.*	*s. d.*
PRIMULA	2 0	and 3 6	INTERMEDIATE STOCK..	0 6	and 1 0
CINERARIA	1 6	and 2 6	BROMPTON do.	0 6	and 1 0
CALCEOLARIA	1 6	and 2 6			

The above Seeds are saved with great care, and can be warranted to give satisfaction.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

UNRIVALLED CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, and PICOTEE.

HERBACEOUS CALCEOLARIA, 2*s.* 6*d.* per packet.
HALF SHRUBBY CALCEOLARIA, 2*s.* 6*d.* per packet.
CINERARIA, 2*s.* 6*d.* per packet.
CARNATION, Self, Flakes, and Bizarres, 2*s.* 6*d.* per packet.
PICOTEE, White and Yellow grounds, 2*s.* 6*d.* per packet.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden.

PRIZE PLANT CASES, elegantly fitted up, 10*s.* 6*d.* to 200*s.*
RUSTIC WINDOW GARDENS, 15*s.* to 30*s.*
RUSTIC MIGNONETTE BOXES, 10*s.* 6*d.* to 21*s.*
RUSTIC STANDS and TABLES, 15*s.* to 105*s.*
PAXTON HANGING BASKETS, 10*s.* 6*d* to 21*s.*
CONSERVATORY HANGING BASKETS, 3*s.* 6*d.* to 21*s.*

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

New Spotted and Blotched Prize Hybrid Mimulus,

1*s.* per packet; Trade packets, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

BARR AND SUGDEN offer with confidence the above superb strain of MIMULUS; the stock of which they have just purchased from Mr. Bull. The Seed has been saved from the beautiful varieties which Mr. Bull has this season been exhibiting at the great London Flower Shows

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

TWO NEW FIMBRIATED PRIMULAS. Seed Packets, 2*s.* 6*d.* and 5*s.* each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

New Hardy Bedding Plant—Sedum glaucum.

JOHN SALTER invites the Growers of BEDDING PLANTS to visit his Nursery and inspect this beautiful novelty, which he will send out early in 1865. It is very dwarf, and of exceedingly close habit, forming a compact mass of silvery gray foliage, which it retains both in summer and winter; for edgings, ribbon borders, or pots it will be found one of the most useful dwarf plants ever offered. Orders are now being taken for the Spring at 9*s.* per dozen. Price per 100 upon application.

Versailles Nursery, William Street, Hammersmith Turnpike, W.

The Greatest Novelty of the Season.

BEATON'S HYBRID BEDDING GERANIUMS.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that he has purchased from the Executors of the late Mr. Donald Beaton, the whole of his SEEDLING BEDDING GERANIUMS, which includes the latest efforts of this successful hybridist. Some are of a yellowish tinge, some rose, some purple, some magenta; the individual flowers of others are larger than a five shilling piece. For Bedding purposes they will prove invaluable, being new in colour and remarkably free and hardy.

They will be offered by PRICED DESCRIPTIVE LIST in October.

NOW in BLOOM, inspection invited. Entrance from the Platform, Waltham Station, Great Eastern Railway.

Paul's Nurseries, Waltham Cross, N.

New Hardy Annual for Spring Flowering.

COLLINSIA VERNA.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that he is now prepared to supply the Trade with fine SEED of the above beautiful novelty for autumnal sowing. Its charming sky-blue and white flowers are among the first to greet the returning spring, and precede considerably those of any other species. It received a Second-class Certificate at the Regent's Park Exhibition, April 30; and was referred to in conspicuous terms in a leading article in the *Gardeners' Chronicle* of same date.

Prices and full description will be sent on prepaid application. A Coloured Plate for 6 Stamps, or gratis to purchasers of a certain quantity; retail packets, 1*s.* each.

CARTER'S GARDENER'S VADE-MECUM.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15*s.* to 31*s.* 6*d.* each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions:—

2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.

A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited.

Strong Planting Canes, 21*s.* each; extra strong Fruiting Canes, 42*s.* each.

Exotic Nursery, Tooting, Surrey, S.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3 Rue Dunois (late Rue des Trois Ormes), Paris, begs to inform Nurserymen, Seedsmen, Florists, and the Trade generally, that he will shortly publish his CATALOGUE of his unrivalled collection of GLADIOLI for this autumn, which may be had of him direct, or of his London Agents, Messrs. BETHAM & BLACKIE, Cox's Quay, Lower Thames Street, E.C., upon prepaid application.

Stove Plants.

TO BE DISPOSED OF, a large and most choice Collection of STOVE PLANTS, including many very fine specimens suitable for Exhibition; also a nice Collection of healthy ORCHIDS. To any one forming a collection this offers a rare opportunity, as they will be sold on very moderate terms where a quantity or the entire is taken. Railway communication to all parts of Ireland.

For particulars apply to Mr. WM. DOWSE, Cloon Rectory, Mohill.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

SHOW of NEW and RARE PLANTS, AUGUST 24, 1864.

LIST of AWARDS.

CLASS 1.—STOVE PLANTS in FLOWER.

Mr. J. Linden, Brussels, for Rogiera gratissima, First-class Certificate
Mr. Thos. Ingram, Gr. to her Majesty the Queen, Frogmore, for Bougainvillea glabra, Second-class Certificate

CLASS 2.—STOVE PLANTS OUT of FLOWER, remarkable for their Foliage.

Mr. Thos. Ingram, for Dracæna ferrea variegata, First-class Certificate
Messrs. A. Henderson & Co., for Gardenia florida variegata, First-class Certificate
Messrs. A. Henderson & Co., for Oreopanax dactyliferum, First-class Certificate.
Mr. Wm. Bull, for Sphærogyne latifolia, First-class Certificate
Mr. Wm. Bull, for Dracæna ferrea variegata, First-class Certificate
Mr. J. Linden, for Maranta orbifolia, Second-class Certificate
Mr. J. Linden, for Mappa fastuosa, Second-class Certificate
Mr. J. Linden, for Cyanophyllum cinnamomeum, Second-class Certificate
Mr. J. Linden, for Maranta picturata, Second-class Certificate
Mr. Wm. Bull, for Dracæna terminalis latifolia pendula, Second-class Certificate
Mr. Wm. Bull, for Pandanus elegantissimus, Second-class Certificate
Mr. Wm Bull, for Gymnostachyum Verschaffeltii, Second-class Certificate
Mr. Wm. Bull, for Gesnera Radiancy, Third-class Certificate

CLASS 3.—GREENHOUSE PLANTS in FLOWER.

Mr. Thos. Ingram, for Lilium auratum, First-class Certificate
Mr. Wm. Bull, for Vallota eximia, First-class Certificate
Mr. Thos. Ingram, for Pelargonium Roi d'Italie, Second-class Certificate
Messrs. Herbst & Stenger, for Lobelia longiflora, Third-class Certificate

CLASS 4.—GREENHOUSE PLANTS OUT of FLOWER, remarkable for their Foliage.

Mr. P. McArthur, for Bonapartea juncea filamentosa, First-class Certificate
Mr. Wm. Bull, for Eurya latifolia variegata, First-class Certificate
Mr. Wm. Bull, for Rhodea japonica macrophylla fol. aureo-marginatis, Second-class Certificate
Mr. Wm. Bull, for Saxifraga japonica tricolor, Second-class Certificate
Mr. Thos. Ingram, for Euonymus japonicus aureus variegatus, Second-class Certificate
Messrs. Herbst & Stenger, for Iresine Herbstii, Third-class Certificate

CLASS 5.—ORCHIDS in FLOWER.

Mr. Wm. Bull, for Saccolabium Dayi, First-class Certificate
Mr. Wm. Bull, for Cypripedium Hookeræ, Second-class Certificate

CLASS 6.—HARDY PLANTS in FLOWER.

Mr. Wm. Bull, for Mimulus Conquest, Second-class Certificate

CLASS 7.—HARDY PLANTS OUT of FLOWER.

Messrs. Herbst & Stenger, for Euonymus radicans fol. variegatis, First-class Certificate
Messrs. Herbst & Stenger, for Aucuba japonica vera, First-class Certificate
Messrs. Herbst & Stenger, for Eurya japonica latifolia, First-class Certificate
Messrs. Herbst & Stenger, for Aralia Sieboldii, First-class Certificate
Messrs. Herbst & Stenger, for Sedum Sieboldii medio-pictum, First-class Certificate
Messrs. Herbst & Stenger, for Osmanthus ilicifolius variegatus, First-class Certificate
Messrs. Herbst & Stenger, for Bambusa Fortuni variegata, First-class Certificate
Mr. Wm. Bull, for Aucuba japonica fol. marginatis, First-class Certificate
Mr. Wm. Bull, for Aucuba japonica vera, First-class Certificate
Mr. Wm. Bull, for Euonymus radicans variegatus, First-class Certificate
Messrs. Geo. Jackman & Son, for Clematis rubro-violacea, First-class Certificate
Messrs. Geo. Jackman & Son, for Clematis Jackmanni, First-class Certificate
Messrs. Herbst & Stenger, for Saxifraga Fortuni tricolor, Second-class Certificate
Messrs. Herbst & Stenger, for Raphiolepis ovata, Second-class Certificate
Messrs. Herbst & Stenger, for Osmanthus ilicifolius, Second-class Certificate

CLASS 8.—HARDY CONIFERS

Mr. Wm. Bull, for Thujopsis dolabrata, First-class Certificate
Mr. Wm. Bull, for Retinospora obtusa, First-class Certificate
Messrs. Herbst & Stenger, for Retinospora pisifera, First-class Certificate
Messrs. Herbst & Stenger, for Retinospora pisifera aurea, First-class Certificate
Messrs. Herbst & Stenger, for Retinospora obtusa, First-class Certificate
Messrs. Herbst & Stenger, for Retinospora leptoclada, Second-class Certificate

CLASS 9.—STOVE FERNS.

Mr. J. Linden, for Dorvopteris Alcyonis, First-class Certificate
Mr. Wm. Bull, for Gleichenia hecistophylla, First-class Certificate
Mr. Wm. Bull, for Adiantum Féei, First-class Certificate
Mr. Wm. Bull, for Asplenium flabellulatum, First-class Certificate
Mr. Wm. Bull, for Cibotium princeps, First-class Certificate
Mr. Wm. Bull, for Gymnogramma Wetenhalliana, First-class Certificate
Mr. Wm. Bull, for Adiantum cardiochlæna, Second-class Certificate

CLASS 10.—GREENHOUSE FERNS.

Mr. Wm. Bull, for Cyathea Smithii, First-class Certificate

CLASS 11.—HARDY FERNS.

Mr. Wm. Bull, for Lastrea varia, First-class Certificate
Mr. Wm. Bull, for Lastrea opaca, First-class Certificate
Mr. Wm. Bull, for Lastrea Standishii, First-class Certificate
Messrs. Herbst & Stenger, for Lastrea Standishii, First-class Certificate
Messrs. Herbst & Stenger, for Lastrea opaca, First-class Certificate

CLASS 12.—MISCELLANEOUS.

Mr. Wm. Bull, for Astrocaryum mexicanum, First-class Certificate
Mr Wm. Bull, for Ceroxylon niveum, First-class Certificate
Mr. Wm. Bull, for Geonoma Ghiesbreghtii, First-class Certificate
Mr. Wm. Bull, for Centaurea argentea vera, First-class Certificate
Mr. Wm. Bull, for Pelargonium Mrs. Pollock, First-class Certificate
Mr. Wm. Bull, for Euterpe edulis, Second-class Certificate
Mr. Wm. Bull, for Attalea excelsa, Second-class Certificate

The Gardeners' Chronicle.

SATURDAY, AUGUST 27, 1864.

MANY of our readers were no doubt aware, even before the excellent account Mr. ROBINSON has given of the gardens at Rockville, appeared in our columns, that one prominent feature of that now famous establishment, is the DOUBLE GLAZING of the Plant Houses. This plan of construction, which if adopted elsewhere does not appear to have attracted much attention, is, we believe, destined to play a very important part in the future of plant culture, and we therefore gladly take an opportunity to bring it more directly into notice.

The beneficial influence of double-glazing upon the atmosphere of a plant-house, and in the same degree upon the progress of vegetation which is being developed therein, is threefold. It acts firstly, as a safeguard against any excess of heat by day; secondly, it serves as a protection against cold by night; and thirdly, it becomes a preventive of the aridity consequent upon radiation and condensation, which is so apt to take place, even when little suspected, in houses constructed with single roofs, in bright cold weather, whether by day or night. The double-glazing itself may be brought about by means either of a double roof, or of double sides and roof combined, but the principle legitimately carried out involves, that the space between the two surfaces of glass should be shut in on all sides, so as to completely enclose a body of air, which then acts as a non-conductor.

It is a common but homely saying, that what will keep out cold will keep out heat, and this familiar phrase is sometimes used to justify the mounting of a top coat in the dog days. That a double roof ought to have some appreciable influence in resisting cold, would no doubt be agreed to by any dullard, but the chances are that its influence in keeping down the temperature of a hothouse during sunshine, would not be admitted without question. Nevertheless, the action is as positive and decided in the one case as in the other, as we can testify from our own experience in this matter, in so far as regards the difference between a single-glazed and a double-glazed Wardian case, the one being constructed in the usual way, and the other with an outer shell of glass and wood 4 inches apart from the case containing the plants.

It is well known that in summer the great defect of a Wardian case is the excessive heat which accumulates in the interior, during periods of sunshine, and this renders it difficult to cultivate in them many plants for which they would otherwise be suitable. Now we find that in sunny weather there is a difference of some 10° or 12° in favour of the double-glazed case, that is to say, the double-glazed case is to that extent cooler than another similarly placed and similarly constructed in all respects, except that the sides and roof are single. We have not, as yet, had the benefit of a winter's experience, but we have no doubt that frost will be almost if not altogether excluded, and if so, many plants reputedly tender may be grown in such cases without risk. Of course in a larger structure, such as a plant house, the effect, at least in excluding frost, would be still more marked than in the confined area of a Ward's case.

That results of this kind will follow from the application of double glazing is now no speculation; they have been observed and commented on any time during the last year or two, and Mr. BEWLEY himself laid before the British Association about this period last year, both a description of his principal Fern house, which is constructed on this plan, and an account of his experience up to that date. This account is so complete and satisfactory that no apology is needed for introducing it here at length:—

"My Fern house is a triple-span roof standing north and south, 60 feet wide, *i.e.*, three spans of 20 feet each; the length is 48 feet; the height of the sides to the spring of the roof is 13 feet 6 inches—of this, 7 feet is a wall. In the lower part are ventilators near the ground, which are opened and shut from the outside. The rest of the sides is glazed with fine ribbed glass. I think it is called Hartley's rough plate. The centre span is supported by three pillars, 12 feet apart from centre to centre. These pillars are rough brown slate, square, about 3 feet each way. The stones are laid horizontally, with ample spaces between, from the mortar being picked out for plants. From pillar to pillar are Gothic arches of the same material, covered with Ferns, Lycopods, &c. Thus there are two rows of four arches each. Each side has in addition a row of eight arches of 6 feet each, planted in the same manner. Each roof rises about 7 feet, so that the highest part of the house is 21 feet. The north end is a wall, against which is a mass of irregular rockwork about 10 feet high, with concealed steps to the top, and from these a path from side to side to enable a view to be had of the plants below, there being a number of Tree Ferns standing on the floor. This path is depressed so as to allow a person to pass under the lowest part of the roof. On the north side of the path, the rockwork is carried up to the top of the house, so that when viewed from below, the rockwork is seen to extend from the ground to the glass. An irregular rockwork is also carried round the south end, and along the east and west sides, up to the glass (7 feet): but it is separated from the outer walls by a space of 6 inches to allow ventilation from the outside, and also for the circulation of heat, from a pair of 4-inch water-pipes which run round the house. This is the only heating power. In order to promote a circulation of air, there are openings, in fact small concealed arches in the rockwork on the ground level, passing through it to the narrow space next to the outer wall. Thus the hot-water pipes being next to the outer wall, and there being ventilators in these, and openings on the ground level inside through the rockwork, there is a perfect circulation of

air maintained—a matter all-important to the health of plants. The roof is one of ordinary construction; wooden rafters 4 feet apart, with three light iron sash-bars between. I may here remark, I prefer the combination of wood and iron to either exclusively. All iron has too uniform an appearance to please me. Wooden rafters 4, 5, or 6 feet apart break the dull uniformity into spaces, and are of great practical convenience by enabling a nail, screw, or hook to be put in whenever wanted. The inner glass is common 21 oz.; it is put in about 1 inch on the under side of the rafter, so that the rafter being about 6 inches in depth, 5 inches of it are outside. Now, on these rafters the outer roof rests—simple framed sashes 4 feet wide—and for the convenience of moving, in two lengths. They are glazed with the same glass as the sides, and are fixed in their places by a screw bolt, so as to be removed when required. Thus the inner and outer glass are from 5 to 6 inches apart. I do not think the distance is important; anything from 4 to 6 inches will do; but what is all important is, that the outer sashes should fit close, so as to admit of no circulation of air between. I do not like moveable sashes for top ventilation in any house, and therefore in mine I carry up the glass only to within 1 foot from the top of the ridge; above this are wooden shutters or panels for ventilation, and by a very simple contrivance they can be opened or shut.

"Now, as to temperature. My Fern-house being 60 feet by 48, with a mean height of about 16 feet, contains 46,000 cubic feet of space; and there being a pair of 4-inch hot-water pipes running round it, the heating power is 430 feet of pipe, or about 1 foot of pipe to 100 of cubic contents. In a single-roofed house, I do not think this heating power would do more than exclude frost in severe winter weather, but with the double roof, the thermometer rarely goes below 48°. I think I once saw it at 46°. My estimate is that I gain 14° or 15° of heat from the double roof. The loss of heat is very slow in cold weather; I think it would take three or four nights of severe frost to bring the heat of the house down from 52° to 48°, and probably 36 hours to cause the same reduction were the fire to be left out altogether. With a single roof this would be expected in, I think, about six hours. It is a great comfort to know that if, in any house I have, the fire were let out or neglected in the depth of winter for a whole night, its contents would suffer no damage. The reverse effects are equally interesting—the very slow increase of heat in warm weather. This has been a hot summer, yet the heat of the Fern house has never that I am aware of gone up to 79°; with a single roof and the same amount of ventilation, the house would run up to 80° or 85° in a single hot morning.

"There is another interesting fact, and one of great importance in plant-growing: there is a steady uniform increase of temperature in the house according as we ascend from the floor, day and night. This arises from the non-transmission of heat through the roof. Thus, while I have native Ferns and other temperate plants growing below, I have tropical plants, Ferns, Palms, &c., growing on the higher portions of the rockwork. And while in ordinary houses we remove tender plants from near the glass in severe weather, the nearer I place them to it, the warmer they are. This is curiously indicated by the little creeping Ficus and other plants clinging to the under side of the inner glass, and spreading over it, apparently in great enjoyment.

"Another important result takes place from the non-radiation of heat through the roof. In ordinary houses, where moisture forms a requisite of good plant-growing, no matter how freely we use the syringe in the evening, we find the house dry in the morning, arising from the great condensation of moisture on the roof, and running off when thus condensed. The cooled air having parted with its moisture in the morning when the temperature rises a little, it becomes absolutely dry, to the great detriment of the plants. With the double roof, there is very little condensation on the roof, the blanket of non-conducting air between the two roofs of glass preventing it; and consequently, as the air cools down a little at night, the condensation takes place on the plants themselves, exactly according to nature. I have gone into my Orchid-house, which has a double roof and sides, of a morning, and have seen the plants as beautifully covered with dew as a plot of Cabbages on a May morning. Is not this nearly the perfection of plant-growing?

"We generally commence fire-heat in the Fern-house when the cold weather sets in, in the latter end of October, and leave it off in March, when the house gets about 54°. Thus, we have fire for about five months only in the year, and during these five months, the consumption of fuel is not more than one-half of what it would be if the house had but a single roof. Now, using only half fuel for five months, and none during the other seven, causes a very large saving, and to this must be added the saving from no fire attendance during the same seven months—no small item. These together I calculate to amount to about 20 per cent. per annum on the extra cost expended on the double roof. But this is trifling compared with the enhanced value of the plants grown in a double-roofed house. The effect is astonishing. Plants which with difficulty held their own, or but slowly improved in an ordinary house, have grown and improved with me in a way that would surprise plant-growers in general. I should add, there is one point on which great caution is requisite by any one who adopts double-roofed houses. From the uniformity of temperature, and the consequent non-condensation of moisture, very moderate waterings and syringes are sufficient to keep the plants in health. A beginner will be very apt to overdo it. My Fern-house has nothing done to it for weeks together beyond a very light syringing each morning in summer, two or three times a week in spring and autumn, and once every week or 10 days in winter.

"My large plant-house is about 130 feet long, 19 wide, and 11 high. It had shelves at either side 3 feet wide, then paths of equal width, and a central stand 7 feet wide; beneath each of the side shelves there were two 4-inch flow pipes and two returns, 12 pipes in all. When I double-roofed it, the heat was too much, so I built a low brick wall on either side, and also enclosed in the same way the central 7 feet, and filled up the spaces with gravel, &c., to about 3 inches over the pipes; the gravel is kept damp, and on it the plants stand—on a hotbed, in fact, and they delight in it. I think any one who will cover up all his heating power in this way will soon find that it is superior to exposure—the heat is so gradually diffused and the moisture also, the gravel beds being frequently watered.

"The peculiarity and advantage of double-roofed houses may be summed up thus:—Great economy of heating power, and great uniformity of temperature and moisture; and consequently remarkable facility in growing plants in perfect health and beauty. So far as my experience has gone—and I have now been trying it for some years—I can have no hesitation in recommending the system to every person for the cultivation of any description of plants."

What benefit, then, to the general cultivator, it may be asked, is to be gained by this system of double glazing? Much, we reply, every way. There is unquestionably, first of all, a great saving of fuel, for the heat within not being rapidly dissipated as it is from an ordinary glass roof, does not need incessant renewal to the same extent as usual. Mr. BEWLEY's experience is clear upon this point. Then the draining of the juices of plants which takes place in ordinary cases by the condensation which is going on, on cold bright nights especially, and which too often reduces the atmosphere to such a parched condition as to have a scorching effect upon vegetation, is unknown. The mere decrease of the amount of fire-heat which, under the circumstances, it is necessary to apply, has the same kind of beneficial influence upon the atmosphere; and the necessity for throwing open the sashes during hot days to let off the accumulating heat—which of course flies away charged with vapour—being done away, neither the plants nor the atmosphere are robbed of moisture by this means. Then shading becomes unnecessary, so that the plants get continuous and abundant light, yet without excess. There is, it seems also, absolute immunity against the irruption of frost consequent upon any sudden or accidental failure of a heating apparatus. Above all, there is the gratification of seeing the plants happy and healthy, and revelling in an atmosphere which is thoroughly congenial to them.

We recommend every one who can do so, to try a double-glazed house, and we have a strong persuasion that the experiment will be repeated by the erection of another, and another till perhaps single roofs have altogether disappeared. We should particularly like to know something of the effect of this system of roofing in regard to fruit culture. In the mean time Mr. BEWLEY would do a service to horticulture if he would record his further experience, along with such statistical data as may be at his command.

IT is a very common notion that FUNGI will grow only in damp or wet weather. True as this is of the larger, and indeed, many of the smaller and more insignificant species, the case is quite the reverse with others. Every gardener knows that his Peas are more subject to mildew in dry than in wet seasons, and the case is the same with Hop mildew, and with many other species of Erysiphe which affect both wild and cultivated plants. In our driest corn fields, where not half an inch of rain has fallen since the 1st of May, several of the weeds, as for example, the common Knot-grass, are conspicuous at a distance from the extraordinary development of Erysiphe.

A striking instance of the peculiar prevalence of a Fungus during a time of drought which is perhaps without an equal since 1826, has lately been brought to our notice in the condition of the crop of Apricots in many gardens in our immediate neighbourhood, though it is not every tree which suffers, and the Moor Park variety seems more subject to attack than others. On the little Roman Apricot, which is almost banished from our gardens, though it is so sure a bearer, and is equal for culinary purposes to the finest varieties, we have not observed a diseased fruit, and the Breda has shown only a single spot, and that has dried up without running through its usual course.

The disease, which is caused by a little grayish mould, Oidium fructigenum, appears at various stages of growth. Apricots which are quite green are in some cases spotted, while in other cases the attack does not seem to take place till they are nearly ripe. The intermediate or half-ripe condition is apparently that in which the attack is most prevalent. The first indication of the disease is a little discoloured brownish spot, very slightly sprinkled with whitish minute tufts of threads, on some of which a solitary egg-shaped spore may be found. In this stage, if the subjacent tissue be examined, it will be found to be traversed by multitudes of thick succulent branched threads, evidently in a condition to bear a copious crop of fruit. The progress of the disease is very rapid. The brown spot increases in diameter; the centre is occupied by a dense mass of mould, consisting of closely-set roundish tufts; the threads bear necklaces of spores, the central ones of which are lemon-shaped, and as the disease spreads the little tufts often assume a concentric disposition, which indeed is in general far more apparent when some other kinds of fruit, as Pears or Apples, are the object of attack. At length the whole fruit gives way, and either drops off, if the flesh was very succulent at the first appearance of the Fungus, or remains attached to the tree withered and wrinkled like a large mouldy French Plum, but with a tinge of orange rather than of purple. In this condition the greater part of the sugar has vanished, the mould having in great measure lived at its expense.

Whether this mould is merely a condition of some more perfect Fungus is entirely unknown: but however this may be, as the disease does not show itself till the spawn is well established within the fruit, any remedy is perfectly hopeless; and the only advice we can give is at once to pick off every diseased fruit, and to guard against future attacks by burning them before the Fungus has had time to disperse its spores. It may be remarked that the Fungus penetrates as surely in a centripetal as a centrifugal direction. The fruit-bearing heads break out in the cavity of the flesh where it does not cling to the stone, exactly as the Potato-mould does in the berries of the Tomato.

Apricots are not the only fruit which is at present suffering from Fungus. We have lately received, through the kindness of Mr. M. C. COOKE, a specimen of diseased Figs from Sussex, where the whole crop in certain of the Fig orchards is affected and dropping off before it is ripe. This however is caused by a very different Fungus, apparently Gloeosporium fructigenum; but our specimen was not in a sufficiently good condition to enable us to determine this satisfactorily. A figure of that species will be found in the *Gardeners' Chronicle* for 1856, to which we must refer for particulars. We can only state at present, that the Fungus appears as a circular patch of little pustules, which apparently are destitute of any common sac or perithecium, and contain a mass of minute hyaline elliptic spores, with a nucleus or oil-globule at either extremity. The spores, moreover, as the walls which produce them contract, ooze out in the form of little colourless tendrils.

When the specimen reached us the circumference was fringed with beautiful specimens of Macrosporium, the spores of which with their numerous cells arranged in two distinct bundles form an exquisite object under the microscope. We conceive that this latter Fungus had nothing to do with the disease, but was an after growth. The Messrs. TULASNE have determined that it is a condition of one of the commonest of Fungi—Sphæria herbarum—a Fungus which not only affects indifferently almost every kind of herbaceous plant, but grows even on heaps of Seaweed rejected by the tides. *M. J. B.*

—— GLADIOLUS BRENCHLEYENSIS has long held a prominent place amongst the varieties adapted for producing effect in the flower-garden, on account of its bright orange-scarlet colour, and its hardy constitution; and this character it still holds, as we have abundant evidence in an arm-full of its glorious flower spikes just sent us from the nursery of Messrs. YOUELL & Co., of Great Yarmouth. Notwithstanding the improvement which has latterly been going on in the Gladiolus in respect to size and form, none of the finer varieties of

high colour are as yet sufficiently attainable to replace it; and when attainable it will remain to be ascertained whether they will prove to be equally useful. In the meantime G. brenchleyensis may be set down as a thoroughly attractive decorative sort.

We may mention that a quantity of Gladioli have been growing this season with remarkable vigour in the deep calcareous loam of Mr. Rivers's nursery at Sawbridgeworth, notwithstanding that they have not, it is said, done so well in other places as might have been wished, probably owing to their not having perfectly recovered from the disease which so seriously affected them last year. It would therefore appear that a calcareous soil is peculiarly suited to this flower, though perhaps in the case of Mr. Rivers's plants the healthy development may be partly attributable to deep moving of the soil, the plot on which they are growing being the site of an old hedge, which had just been grubbed and the soil thoroughly stirred. It is to be hoped that so fine a subject as the Gladiolus may not, from accidents of the seasons, lose the popularity which seemed to be setting in so decidedly in its favour.

—— We learn from Dr. Seemann that the true N. American Woodsia glabella has been found in the Tyrol and Carinthia, as well as in Norway, as recorded by Mr. Backhouse. The former gentleman has himself carefully compared the alpine specimens with typical examples of W. glabella from Arctic America, and finds them absolutely identical. In a former mention of this discovery (p. 175) we observed, that it was desirable to know if those who identified the Swiss plant with the North American species distinguish Woodsia alpina, and this we are assured they do. The occurrence of the plant in such widely separated European localities, renders it not improbable that it may yet reward the researches of a diligent explorer of some of our own northern mountains. It is a botanical prize worth finding.

—— Mr. D. Thomson, of Archerfield, speaks highly of Calceolaria canariensis—an unfortunate garden name intended to mean canary-coloured—as a bedding variety. He regards it as one of the finest bedding plants that has been introduced for some years; and being dwarf and bushy it is available for artistic designs in beds and borders to a degree which does not occur in any other Calceolaria he has seen. The severe drought too has but little affected it. Set as panels on a ground-work of blue Lobelia, with belting or bordering lines of Little David Pelargonium, he observes, it would be in company with primaries supplied by two plants not more useful than it is itself likely to become. As a pot or vase plant it is also first-rate.

ORNAMENTAL PLANTING.—No. I.

SPRING.

I have somewhere met with the remark that the poet revels most in the beauties of spring, the painter in those of autumn. The Landscape Gardener when selecting Trees should perhaps be conversant with and consider the effect they produce at all seasons. Spring is the time of promise in gardening, and I purpose in the present instance to confine my remarks to that season. The dominant features of Tree-scenery in spring are:—

1. The outline of the trees.
2. The colours of the flowers.
3. The colours of the leaves.

1. *The Outline of Trees.*—From among the various forms which trees assume, I may perhaps be permitted to instance the following as clearly defined points of departure—spreading, round-headed, pyramidal, and weeping. Not that it is intended to say that all trees are well defined examples of one or the other of these forms; for it is admitted that in many there is an absence of strongly marked character, and that a tree may be neither perfectly spreading, round-headed, pyramidal, nor weeping, but in the intermediate forms will generally be found a dominant habit which renders them easily referrible to one or other of these divisions.

Spreading.—This is the form most prevalent in nature, and such must be the staple of ornamental planting. The Ash, the Beech, the Oak, and its Spanish Chestnut are of this character. Look abroad on the uncultivated landscape, and the probability is that nothing else will meet the view, unless it be a few Lombardy Poplars, whose spire-like tops everywhere break into the blue vault above.

Round-headed.—Of these the Robinia inermis is perhaps the most strongly marked. This beautiful tree is not planted in England half so much as it deserves to be. In France it is met with at every step, and the dense masses of leaves of a fresh bright beautiful light green never fail to attract the attention of the traveller. Most of the round-headed trees are, however, of moderate or small growth, and therefore better fitted to fill various positions in the flower-garden than to adorn the distant landscape.

Pyramidal.—Pyramidal trees of large size are more numerous than round-headed ones. The Lombardy Poplar, Turkey Oak, and White Beam tree (Pyrus Aria) are well-known examples of these. There are also pyramidal forms of the Acacia, the common Oak, the Elm, the Elder, and a beautiful new Alder known in trade as Alnus asplenifolia. Then among evergreen trees we have the common Cypress, the Red Cedar, and the Irish Yew.

Weeping.—The Weeping Birch and Weeping Willow are both familiar trees, and form good illustrations of this group. They are less common round London than many other kinds, but they are distinct and attractive, and not likely to be passed unnoticed.

2. *The Colours of the Flowers.*—Trees and shrubs which flower in spring are especially valuable, and, fortunately there is no dearth of such. A group composed of Scarlet Thorns, Laburnums, and Lilacs will furnish an example of what may be effected by the introduction of spring-flowering trees.

3. *The Colours of the Leaves.*—Some deciduous trees put forth their leaves early, others late; but at whatever time they appear, being constantly moistened with the showers of spring, they present the eye with an agreeable freshness which we in vain look for at a later date. The varied tints of the bursting leaves form a most agreeable feature in the landscape in spring—the blood red of the Purple Beech, the yellow of the Caragana, offer contrasts in themselves pleasing, but which lessen in intensity as the summer advances. With evergreens the difference in colour between the new growth and the old, especially in the Pine tribe, is too strongly marked to escape notice, and produces a very pleasing variety. The darkest and the lightest shades of green are often thus brought in immediate contact.

Within view of the spot where these lines were written, is a stream, whose margin, at the time they were penned, was overhung with the pale tender green spray of a Weeping Willow; behind were dark masses of the common Yew, and still further beyond groups of blossoming Hawthorn. The effect of this combination was admirable. Onward still, and in the distant upland, were trees innumerable; but so far as could be distinguished, each seemed but a counterpart of the other.

Although not in a severely critical mood, I have been indulging the fancy by obliterating certain objects within range of sight—some of the comparatively meaningless trees which in many instances have been planted by the hand of man, but more commonly by Nature. In their places I have conjured up examples of the rarer and more modern trees, and the landscape thus improved lies before me in increased loveliness. I have gazed and am satisfied. The youth and freshness of spring are still there, but the monotony has disappeared; the whole landscape is inspirited.

In endeavouring to give utterance to these views I do not seek to ignore the fact that the prevailing colour in tree scenery is green, varying in shades, but still green. This is as it should be, for no other colour in nature is so agreeable to the eye. Let us then take this colour as the ground-work of our operations, and retain its ascendancy, but let us vary and increase the pictorial effect of the landscape by a more liberal introduction of other colours. Every domain should be in itself a picture, or rather a series of skilfully united pictures. *William Paul, Waltham Cross, N.*

ORCHARD MANAGEMENT.—No. VII.

It was observed in the last paper on this subject (p. 627) that the time occupied in the work of preparing the trees would afford ample opportunity for getting together a good supply of compost in readiness for planting them permanently. I must now bring this point more prominently before the mind of the planter, because a very considerable quantity will be required at planting time, and unless there is a large supply to fall back upon, it is absolutely necessary that every opportunity should be taken advantage of when work is slack or materials are plentiful, to get together as much as possible. This should be laid up in good sized heaps, either upon the intended site of the orchard or contiguous thereto. As these heaps will consist for the most part of an incongruous mass of materials, composed probably of the scrapings of roads, as well as the parings of the road sides, together with tree leaves, decaying vegetable matter, the clearings out of ditches and open drains, and indeed of anything which is likely to rot down into a friable and strong compost, it will be necessary to have them occasionally turned over, and well mixed up together to hasten the decaying process. I have urged this matter at some length, because it is desirable that the work of collecting should be commenced early enough to have all the materials thoroughly decomposed, well mixed up, and ready for use by the time the trees are ready for planting.

We must now return to that point where it was recommended that the intended site of the orchard should be trenched up, and planted with Potatos the summer previous to planting the prepared trees. By the beginning of October, the ground should be thoroughly cleared and levelled, and the stations for the trees marked out with stakes.

And now arises a question about which in my opinion the planters of orchards have committed some of the most serious mistakes that it is possible to conceive, and that is, the distance at which the trees should stand from each other. Our experience as practical cultivators teaches us that for perfect development there must be ample room; and this is true not of one department only, but of every department in the art of gardening. Take any one subject, either amongst fruits, flowers, or vegetables, and we shall find that the ruling principles of superior cultivation would not be considered as fully carried out unless the plants had sufficient room to develope themselves, so as not to touch each other when fully grown.

I purpose on a future occasion to draw more attention to this particular subject, but for the present I must confine myself to the application of it as regards the planting of orchards, for it appears to me to have been entirely lost sight of, or else repudiated, by many of our predecessors, who, following each other like sheep in a track, have planted their trees so near together that if they took to growing with any vigour at all, a very few years would elapse before the branches would meet. This could only happen indeed in cases where the ground had been well and properly prepared; for when the plan of digging a hole in the solid ground and sticking in the tree, was adopted, we may well suppose that many years would elapse before the branches would meet. Indeed, in such cases, unless under very favourable natural conditions, many of them would canker, and probably die off, and require to be replaced before those more liberally treated had arrived at maturity. Supposing, however, the ground to be well prepared, and thick planting adopted, the trees would soon meet, and then would commence the general thinning, pruning, and cutting, which is so entirely destructive to them, and indeed is in most cases the beginning of a downward course in the life of the trees. I conclude therefore that the practice is not at all in accordance with the recognised principles of good culture. Again, I have observed many instances in which, under such circumstances, thinning and pruning has been neglected, and the branches have become so thickly interlaced as to shut out the light of the sun, and it has been even difficult to get a ladder through to reach the fruit on the tops of the trees. Now this, although a condition on which many are apt to congratulate themselves, because, as they say, there is no waste ground, but all is covered, yet it is the very reverse of profitable, in comparison with trees which have plenty of room. This will become more evident if we remember that the greater the surface which can be exposed to the sun's rays, either direct or indirect, the greater in proportion will be the improvement in the size and quality of the fruit produced. An unbroken surface of branches covering a given area, does not by any means expose so much surface to the beneficial influence of the sun, as would a less number of trees with largely developed heads, not touching each other. The difference will be about equal to that between the length of a straight line from one point to another, and that of a very tortuous one between the same points.

Neither do I consider it desirable or profitable to plant thickly, with the understanding that every other tree shall be removed at a given time; for although it is possible that they may pay for a few years when they come into bearing, they will ultimately so injure each other as to prevent a perfect development on the part of those which are intended to remain permanently—more particularly on the lower branches, which is a very important matter, because it is only by a proper encouragement of these lower branches that a perfectly formed and well balanced head can be produced. And although, as I said before, the system may pay for a time, it will prove to be very bad economy in the end; for I am well convinced, reasoning from analogous cases in my own experience, that those trees which have the greatest amount of room to spread out and enlarge, other conditions being equal, will yield the largest returns for outlay, and that too in less time than the advocates of thick planting would suppose possible.

The physiology of this matter will become more evident when we reflect that every tree, which may be considered favourably placed, should have nothing to interfere with it, either above or below, within the circumference of a circle which it is probable by good management the branches would eventually cover. Therefore if an extra tree is planted between two, under the idea that it might be removed before harm is done, it is a fallacy, because it will not only have inflicted the injury of its shade upon its neighbours, but also will have exhausted the soil of those elements most favourable to the growth of the permanent trees. Thus it will be far better to trust, as I before recommended, for an intermediate remunerative produce to vegetable productions which require annual top-dressings, and which therefore help to keep the soil in good heart. The spaces however so cultivated should be contracted as the branches extend, so that eventually the whole may be laid down in Grass.

Now in reference to the distance at which it is advisable to plant the trees from each other, I would observe that a well grown Apple tree with sufficient room may be reasonably calculated to extend its branches to a maximum distance of 12 yards from the stem of the tree. But then again sorts vary very much in this respect. Some valuable sorts are more upright in their growth than others. Take for example two Apples popular in the market, the Yorkshire Greening and the Northern Greening; the former is of a very spreading habit of growth, the latter much more inclined to develope itself upwards, and yet it makes a noble tree with plenty of room and good treatment, and as it is a very free bearer, the weight of the fruit makes the branches more or less dependent as the trees advance in age. Yet it would obviously be very bad policy to

plant trees of this habit at the same distance apart as those whose habit of growth was more spreading.

These facts should teach the planter, that he should not only study the quality of his sorts, but the habit of his trees in regard to their growth, so as to give each its proper position in the orchard, for the difficulty as regards distance is easily got over by planting the upright and spreading growers alternately, and lessening the distance between them. Thus, supposing one to be a sort which may be calculated upon to radiate 12 yards from the centre, and the other only 8 yards, then taking the mean radius of the two, which will be 10 yards, and planting the sorts alternately, the spaces will be well filled. Thus we arrive at the average distance of 60 feet from tree to tree, and the same distance should separate the rows.

It is immaterial whether the trees are planted quincunx fashion or opposite each other, with such very wide intervals. I am inclined to recommend their being planted in squares rather than triangles, because as long as the intervening spaces are cultivated they will be worked with more facility in the square, than in the diagonal direction. The square method of planting is also more favourable to the equal distribution of the trees, under the system I have recommended, and therefore is to be preferred on the score of utility. *John Cox.*

BEES, HONEY, AND HIVES.—No. III.

(*Continued from p.* 773.)

[The letters of "A Bee-master," already quoted from the *Times* at pp. 748 and 772, have called forth from a well-known authority on the subject, Mr. T. W. Woodbury, Mount Radford, Exeter, the reply of which we here subjoin the principal passages.]

"As an English bee-keeper of many years' experience, I have been grieved at perusing the letters on this subject which have recently appeared, and which I cannot but think are likely to give our Continental neighbours and Transatlantic brethren a very mean idea of the skill and knowledge of British apiarians.

"First, with regard to bee communities remaining at peace with each other. This they will do so long as both are strong and tolerably prosperous, and honey continues plentiful out of doors; but as soon as honey-gathering is over, innumerable spies from strong colonies try the mettle of their neighbours, and should any one or more betray signs of weakness, the invaders take all, and utterly destroy the vanquished; unless indeed, the latter, as sometimes happens, join the confederation, and assist in the plunder of their own stores. Whatever virtues bees possess, therefore, honesty, or even the slightest respect for *meum et tuum*, is certainly not among them. But, while pleading guilty to the sin of dishonesty among my little favourites, I must absolutely acquit them of the charge of drunkenness, or a 'passionate liking for rum and strong ale.' Neither the one nor the other will bees meddle with, unless their natural repugnance to such abominations be overcome by their liberal admixture with either honey or sugar in some form; nor will they even in this case accept the proffered libation so readily as if pure water were used to dilute it.

"Mr. Harbison considers the queen a simple machine for laying eggs absolutely under the workers' control, who stimulate or repress her fecundity according to circumstances. I do not go these lengths, but I know Mr. Harbison to be far nearer the truth than your correspondent who talks about the queen's 'giving orders,' and says that 'if you interfere with her, the watcher bees will sound the alarm, and a thousand stings like swords will be unsheathed.' I am in the constant habit during the season of handling queen bees, and I can assure him that nothing of the kind ever takes place. The note of distress from a captive queen passes totally unheeded by her subjects, and though a few stray workers may alight on the bare hand that holds her prisoner and even lick her as she is held between the fingers, the sight of her captivity has no effect in moving them either to anger or resentment. When she is indeed gone for ever they generally fall into confusion for a time, and appear to seek her, but even this is not invariable. I have, moreover, another fact to communicate which will probably startle many of your readers. Regicide in its worst form is not unfrequently perpetrated by bees. Hurled in one instant from the height of popularity to the depths of misery, the poor deposed sovereign finds herself pinioned and unable to move a limb, among a dense mass of her unnatural children; and there she remains, without the possibility of escape, until death, very many hours afterwards, puts an end to her misery. Often have I seen the poor dried and shrivelled carcase, betraying in the distorted rigidity of every limb the severity of its last agony; and all this, so far as we can discover, without a cause! The youngest and most fertile queens are sometimes victims, and that even at a time when their loss entails extinction on the community.

"Stewarton (Ayrshire) hives are octagonal, not hexagonal in form, nor is there the slightest reason for imagining that the bee which builds a hexagonal cell would prefer a hive of the same shape. So far from a cottager being able easily to make the four compartments comprised in a Stewarton hive, it would puzzle many a skilled carpenter to dovetail even a single octagonal box accurately together.

"Common sugar (lump sugar is best) does not require to be exposed to a heat of 300° to be available by bees. Three lbs. of lump sugar mixed with 2 lbs. of pure soft water, and boiled a minute or two, forms excellent bee food.

"Pressure by a watch-key and tobacco as remedies for a bee sting are no new discoveries. I advise any one stung by a bee to take the sting out as soon and as carefully as possible, leaving no part of it behind, and then let the wound alone. All the so-called remedies which I have tried (and their name is legion) only irritate and increase the swelling, which otherwise would soon disappear.

"If any one has a swarm consisting only of 5000 or 6000 bees, let him not take the trouble of hiving it. A good swarm will weigh 4 lb., and I have known one weigh 8 lb. Now, 5000 bees are computed to go to a pound, and this is not too many, for a friend of mine counted and weighed 5020 freshly-killed bees this spring, and they only weighed 12½ oz. Let any one, therefore, do a simple sum in mental arithmetic, and say if 15,000 to 30,000 are not within the mark, even allowing for the weight of the honey carried off by the swarm.

"Brood in supers is not always drone brood, nor is the heat of drones necessary for the maturation of brood. If it were, they would not be absent in spring, when the weather is coldest, and a great quantity of brood is hatched, nor would they be destroyed in autumn, when the temperature is falling. There is, of course, a well-known and sufficient reason for the multitude of male bees in summer, and that is that queens may run no unnecessary risk by unavailing matrimonial excursions, as their loss at that time would entail destruction on the entire community. Neither does the queen exercise 'queenly prerogative and dignity' by selecting her husband. She launches into the air unattended, and there mates, sometimes with a drone from a hive a mile or two distant from her own.

"Bees are never nursed by other bees. They are strict utilitarians, and totally devoid of sympathy. 'Those who cannot work shall not eat' is a law applied with stern impartiality alike to the disabled worker and the useless drone. He therefore, who would teach or learn a lesson in charity must look elsewhere.

"Hives on the 'nadir,' or 'nether,' principle have often been tried, and as often found wanting, and for this reason,—they are opposed to the instinct of the animal itself, an instinct which prompts it to place its honey above and its brood below. It may, therefore, be safely asserted that any stock of bees which is compelled to place honey in a 'nadir' would collect double or quadruple the quantity in a 'super.'

"In commenting thus freely I am very desirous of making it known to our continental and American friends that these letters do not convey an adequate idea of the amount of knowledge of the subject possessed by British bee-masters. Not only have we frame hives second to none ever made for ingenuity and convenience, as well as the necessary skill to avail ourselves of the advantages they afford; but we are no strangers to the superiority of the Italian race of honey bee (Apis Ligustica), and are even now ransacking the world in the search after other species; while we have repeated and verified the experiments and investigations of Von Siebold, which establish beyond question the truth of Dzierzon's great discovery of parthenogenesis in the honey bee."

Home Correspondence.

Belgian Azaleas.—I see amongst your Notices to Correspondents a remark about the Belgian Azaleas exhibited at Brussels in the spring. Lest your Correspondent should be misled, the Azalea you refer to should be distinguished as Triomphe de l'Exposition 1864; there is a Triomphe de l'Exposition of a former year, I think 1863. You should not, I think, omit Guillaume III. and Madame de Cannart d'Hamale, exhibited in the same collection—both very fine flowers, and marked in my notes as equal with Triomphe de l'Exposition 1864, and superior to the two others quoted, although, if I remember rightly, the size and not the colour was the chief attraction. *Wm. E. Dixon, Hull.* [Size was the principal recommendation in the case of all these Belgian varieties, except that of Madame Van der Cruyssen, in which, in addition, there was good form.]

Radiant Heat.—Professor Tyndall's closing lecture for the season at the Royal Institution upon this subject must necessarily be of interest to gardeners. Some experiments made by him for the purpose of deciding whether any difference exists between liquids and their vapours as regards the passage of heat through them, showed that their powers of absorbing radiant heat were equal. He places water at the head of all liquids as a radiator and absorber, and adds that, weight for weight, its vapour transcends all others in its power of absorbing and emitting radiant heat. The best radiators, we all know, are the worst conductors, and *vice versâ*. The experiments being made by Professor Tyndall in connection with this subject, cannot fail to throw new light upon some of Nature's secrets. Water in one shape or other is most useful to us, and as the Professor intends to follow up his researches upon this subject, I trust that some one able to condense and simplify whatever may be in them relative to horticulture will favour us with his digest of the matter. *J. Thomson, Wortley.*

The Victoria Regia, &c., at Kew.—I paid a visit to the Royal Botanic Gardens at Kew last week, and saw, of course, much to please and interest me, but I was particularly delighted with the condition in which I found the two tropical aquariums. In both houses the Victoria is in luxuriant health and flowering freely; it is rather a curious coincidence that both plants came into flower on the same day. I did not count the leaves upon the plant in the smaller house, but it possesses quite as many as the surface of the tank can well accommodate. On the shelves at the ends of the house I found a collection of Pitcher-plants, some of them seedlings, in the most robust health, and producing their pitchers of a size much larger than I ever before saw them. The plants are evidently quite at home there. Along the sides of the house a collection of well-grown Caladiums and other "foliage plants" are arranged. In the aquarium near the Palm stove the Victoria has more room to display its wondrous beauty. I was told that it was planted out upon the 20th of May, having then six leaves upon it, the largest of which was 11½ inches in diameter. It grew rapidly, and it has been from time to time necessary to remove about a score of its leaves. It now possesses 14 full-grown ones, all perfectly healthy. It came into flower upon July 30, produced a second blossom on Aug. 1, a third upon the 4th inst., and it has since continued to throw up its delicate and lovely flowers at regular intervals. This regal Water Lily is surrounded by a circle of courtiers scarcely less lovely than itself. Of these, Nymphæa gigantea, the large blue Australian species, is remarkably fine; the crimson N. rubra, the white N. dentata, the fragrant N. cœrulea, with N. Lotus and other kinds, are all in flower; as is also a hybrid variety raised in Berlin, and named Inspector Bouché. The yellow flowers of Lymnocharis Humboldtii are peeping up between the Water Lilies. The Nelumbiums have evidently been very fine, but their flowers are nearly all over; this plant is, however, quite worth growing for its remarkable peltate foliage. Associated with these is a fine plant of Colocasia distillatoria (or, as I believe it is now called, C. antiquorum) half plunged in the tank. There are also some nice specimens of the variegated form of Cyperus alternifolius in one of the corner tanks, and I was informed that the only way of preventing them from running back into the green state is by growing them in pure sand. This is a practical hint worth making a note of, as it may prevent much disappointment. There are also some tropical Sedges which, apart from their botanical interest, may probably prove very ornamental plants, and useful for decorative purposes. One of the most remarkable and little-known plants which I saw in this house is Remusatium viviparum, which is certainly worthy of more extended cultivation. It may be increased with the greatest facility by the viviparous buds with which some shoots from the root are covered. The plant seems to revel in the moist heat of this house, and has produced leaves 2½ feet in length. The foliage is very dissimilar to that of any other plant, and it would make a fine contrast with some of the brightly coloured Caladiums, which it somewhat resembles in general habit and growth. The leaves are ovate, sagittate, with splashes of a purplish crimson colour, shaded off, between the principal ribs on the lower side; this colour shows through to a certain extent upon the upper surface. This house is full of interesting plants, as indeed the whole garden is, but one other as a botanical curiosity is specially worthy of mention. It is a dwarf form of the Papaw tree (Carica Papaya). This is a male plant, and is in flower, with a stem only 3 feet in height. There are several other plants from the same packet of seed, and it is to be hoped that some of these may prove to be females. The condition of the plants in both these houses, and in fact of the whole garden, is in the highest degree creditable to those by whose skill the result has been obtained. Every year sees some improvement made in these gardens—indeed, there have been constant successions of improvements ever since I first visited the place, now many years ago. *C. W. C.*

Effects of Ringing.—At the suggestion of Dr. Hooker I write to acquaint you of a fact which has puzzled me much. I have a good sized Pear tree (Jargonelle) in my stable-yard; about the middle of May, 1863, my pigs got loose from the sty, and before they were secured had ringed or barked the trunk of this tree for a space varying from 18 inches to 2 feet. The leaves, &c., turned black and were shed, and I concluded the tree was dead; but this year it has seemed more vigorous than ever, having been one mass of bloom, and producing a larger and finer crop of fruit than I have known it to do during the seven years I have resided here. I sent specimens of the fruit to Dr. Hooker. *Francis H. Boott, Dudley.*

Peristeria elata.—As several notices of this have appeared of late, I trouble you with a description of a specimen now in bloom in my small collection of Orchids, believing it to be a very vigorous one. I received the original pseudo-bulb about five years ago, in a very dry state, but under the treatment my gardener gave it it produced a fresh bulb, and in the following year the second fresh bulb threw up a flowering spike, six or seven feet in height, with some 30 or 40 blossoms; this was in the autumn of 1862. The new bulb of that year produced an equally strong spike last autumn, followed by two strong pseudo-bulbs, which at the present time have each two strong blooming spikes,

with 25 to 30 blooms on each spike. The soil it has been grown in has been mixed with *A. M., Eltham.*

Wasps.—The following plan will effectually destroy these pests. Soak a piece of rag (woollen is best) in spirits of turpentine, push it well into the nest with a stick, and then cover up with clay. The spirits of turpentine supplies the wasps, and the air being excluded by the clay they soon die. *Mary.*——I find tar a most effectual thing for the destruction of wasps. A small quantity poured into their hole at night, and a sod placed on it afterwards to keep in the fumes, generally finishes them; it is much quicker than the old again. *John Eddington, Wortham Park, Barnet.*——Gas tar will destroy wasps in the manner described at p. 770, and that effectually; but it is not the easiest method. All wasps do not build their nests in a hole in the ground; on the contrary, many attach them to the branches of trees. How, therefore, can tar be applied to these? Again, no person, however careless they may be, can use a quantity of tar without having their hands and often their clothes besmeared with it; and, that this is both unpleasant and disagreeable, few will be disposed to question. I have tried this method among many others which have been declared infallible, but I have found spirits of turpentine immeasurably superior to anything I have yet used. *J. M., Bothwell.*

Societies.

Royal Horticultural: *August 24 (Exhibition of New Flowers).*—This was not so well supported as could have been wished, three or four of our greatest metropolitan firms being unrepresented.

Mr. Mortimer, Maida Hill, sent examples of a variety of Brompton jasmine called Elmendorfii, which differed from the common kind in having the foliage ornamented with white threadlike appendages.

Messrs. Herbst & Stenger, New Nursery, near Flushing, sent a considerable number of interesting plants, among which the most remarkable were Rothschildia gibbera, in a charming gold-edged variety called aureo-B. leptoclada and rotata, all extremely beautiful hardy Conifers; also Lastrea Standishii and spans, the latter of a deeper shade of green than the former, and more robust: Aralia Sieboldii, well furnished with healthy deep green palmate-shaped leaves; the variegated-leaved variety of Eurya japonica latifolia, the green Japanese Aucuba, Osmanthus ilicifolius, the shining deep-green-leaved Raphidiophis crata, Saxifraga japonica tricolor, with foliage charmingly variegated with pink; Sedum Sieboldii medio-picturn, the centres of the leaves of which are striped with yellow; the silver-edged variety of Euonymus radicans; a large bunch of a purplish red-coloured plant, called Iresine Herbstii, which it is thought may be found useful in beds out-of-doors in summer; and Lobelia longiflora, a plant with long pale-green toothed leaves, and conspicuous star-shaped white blossoms. The same exhibitors also furnished a collection of tropical fruits among which were various Brazilian Eugenias, the Vanilla, and the Custard Apple.

From the garden of the Society at Chiswick came Mr. Weir's Peperomias, mentioned at p. 797; also the handsome pale-green-veined dark-leaved Anthurium. Likewise formerly noticed; Lilium auratum, the fine-foliaged Lomaria ciliata, various Ferns, Selaginellas, and other interesting plants.

From Messrs. Jackman, of Woking, came plants and coloured drawings of their fine new Clematises, alluded to in another column.

Messrs. A. Henderson & Co. contributed various Caladiums; the variegated variety of Aralia Sieboldii; Gardenia florida variegata, with foliage conspicuously mottled and overlaid with white; Greyanear dactylifera, with deeply divided palmate-shaped coriaceous rusty leaves, and other plants.

Bougainvillea glabra in a small pot, and furnished with a considerable amount of its handsome, pale magenta-coloured floral leaves, was shown by Mr. Ingram, of the Royal Gardens, Frogmore. The same exhibitor also sent a showy orange-scarlet zonal Pelargonium, named Roi d'Italie; examples of the rich, deep red-spotted varieties of Lilium lancifolium, also L. auratum, the golden variegated-leaved variety of Euonymus japonicus, a handsome red-leaved Dracæna called striata, and various fine Caladiums and other plants.

Mr. Bull, King's Road, Chelsea, showed a large collection of plants among which were a semi-double variety of Achimenes grandiflora; the pretty red-veined Gymnostachyum Verschaffeltii; Dracæna lætevirens variegata; and a broad pendulous-leaved variety of D. terminalis; a Gesnera called Rudimenta, with deep rich reddish-brown mottled leaves; Pandanus elegantissimus, with gracefully-drooping long narrow leaves, thickly furnished at the sides with small brown spines; Sphærogyne latifolia, with leaves as handsome as those of Cyanophyllum itself; Vallota eximia, finely in flower; the pink variegated-leaved Saxifraga mentioned above; the creamy-edged-leaved variety of Rhodea japonica macrophylla, Eurya latifolia variegata; Aranearia Rulei; and Pogonia discolor, with a deep brown leaf covered with conspicuous orange-coloured hairs; this last was carefully guarded with a bell-glass. The same exhibitor likewise furnished Pelargonium Mrs. Pollock, a beautiful variety now well known; Centaurea argentea; Sacciolabium Dayi, with a handsome spike of flowers on it; the singular Cypripedium Hookeræ; a pretty variegated miniature spirited Miconia named Cinquasi; a variegated variety of Bonapartea rubiana; the new Japanese Aucuba, covered with green and ripe fruit, which is produced in great abundance even on small plants; also a golden blotch-leaved Aucuba; the handsome Tanjongia deliciosa, Botiospora elegans, and various Ferns and Palms. Conspicuous among the former were Gymnogramma Wetherbiliana, a white-coloured tasselled sort; Adiantum cardiochlæna, a scarce plant with shiny-coloured stems; A. Pesli, the Guatemala Maiden-hair Fern; Asplenium Belangianum; Olfersia princeps; Gleichenia hecistophylla, a beautiful kind in the way of G. flexuosa; Lastrea Standishii, varia, and spans, and the Tree Fern Cyathea Smithii. Among the Palms we remarked examples of Euterpe edulis, the Silver Palm from New Grenada, and others of which descriptions have been given in former reports. From Mr. Silver came examples of the Tree Fern Golden Lady (Gevel), the Fingered Orange, and fruit of Bonapagele earthenware; the last when ripe is but prettily streaked with white.

Mr. Linden, of Brussels, contributed among other things specimens of Dorypteris Alycensis, a robust deeply divided leaved Fern; Trichomanes alboviolaceum, an Orchid new little seen, with yellowish brown sepals and petals and white lip, stained on both sides near the base with purple; Cyanophyllum discrimenatum, with herrigidous stems and ample leaves; Maranta pictorata, with shining deep-green leaves ornamented with a pretty silver variegation above and purple underneath; Musga fastuosa, a green-leaved Polynesian Island Empordolaceous plant; Maranta erythrina, and last, but not least, Begleria grandissima, a truly handsome Marantaceous plant, which when better known will doubtless become a favourite. Its numerous heads of delicate rose-pink blossoms giving it an attractive and beautiful appearance.

To nearly all the plants named in this report a Silver First, Second, or Third-class Certificate were awarded. The list of awards will be found in our advertising columns.

Notices of Books.

The Abbeville Jaw. A paper read at Hull by J. L. Rowe, F.G.S. Longmans. 1864.

The finding of the Abbeville jaw took the world scientific and theological by surprise, and mighty results were supposed to hinge upon the question of its authenticity. There were reasons for this. The discovery followed hard upon the heels of Professor Huxley's and Sir Charles Lyell's works, and these had been published while the world was in a state of excitement, scarcely knowing what to think about the Darwinian theories, and the Essays and Reviews. Happily the world has sobered down, and can calmly discuss the opportune finding of the jaw.

Mr. Rowe, who is a person perfectly qualified to judge of these matters, assures us that though there may be an apparent lightness of style in a popular lecture like this, "the exactitude of fact has in no case been sacrificed." If any of our readers wish to know the real state of the case, we recommend them to procure this little pamphlet.

Mr. Rowe assures us that, *mirabile mirandâ*, we have the story of the "Antiquary" beautifully repeated, for the workmen at Abbeville knew what the gentleman desired to find, and acted accordingly. He refers to p. 806 of the second Number of the Anthropological Journal, for a charmingly French view of the great discovery. "This time the demonstration was complete, but to render it more palpable, more striking, and safe from the last objection of sceptics, a crowning proof was required; it was requisite to discover in the fossiliferous diluvium, not merely the remains of man's industry, but the remains of his body. Who was to be the happy explorer? M. B. de Perthes has the glory of having finished the edifice of which he had laid the first stone. What must have been the joy of this venerable man when he was called upon to extract from the diluvial beds the celebrated jaw which our learned President has some days since shown you."

Mr. Rowe says, there are two distinct questions:—1. The genuineness of the jaw; 2. A far more important question, as to the nature, age, and genuine fossil contents of the beds in which it was alleged to have been found. As to the first, there can be no doubt now, that the *savans* were thoroughly humbugged. He says, "I believe I am only stating a simple fact, when I say, that not the slightest confidence is now placed in the genuineness of the jaw, as a fossil of the Moulin Quignon beds, by English geologists, whatever their opinion may be on the antiquity question." In fact, the workmen having been told what was wanted, "on the 28th of March a workman came to inform M. B. de Perthes that something was sighted. He found, projecting from the face of the excavation, about eight-tenths of an inch of what seemed to be bone;" but, how the flatness any workmen could recognise so small a body, when the matrix was of the same colour, does not seem quite clear. This was the famous jaw. Some were struck with "its almost black colour, its solidity, and its weight: all these peculiarities being obviously due to one and the same cause, namely, metallic infiltration." There were, however, suspicious circumstances, for washing subsequently deprived it of its dark colour which was reduced to "a light buff colour, mottled with brown stains." Some imbedded found in the same deposit, presented no signs of being genuine antiques, and a bone under, which saw across was found to be "quite recent;" the section was white, glistening, full of gelatine, and fresh-looking." But the Frenchmen were not satisfied; an international congress of *savans* was summoned. "On the 3d day the jaw was examined, the black matrix was removed, and the saw called into requisition, with the following results. There was found to be no real metallic staining of the bone, no infiltration of mineral properties from the supposed original matrix, no dendritic markings, little to no superficial erosion, such as is common in old bones, even when not buried in a stony bed. The test of Mr. Quignon; the dental canal was lined with a fine grey stain, quite different from the black matrix. Whilst brushed up the incline, the enamel of its single molar was white and brilliant, and its cleavage, where exposed by the section, was also white, and the jaw itself was dark under the saw, and had the distinct odour of sawn bone.

The case looked ugly for the champions of the jaw, and the French President adjourned the consultation to Abbeville. Here, the chairman of the tribunal again threw doubts upon the question, which were never satisfactorily cleared up, till Mr. H. Hughes, a gentleman who had had much experience in geological explorations, and whose integrity and intelligence could be vouched for by Dr. Falconer and Mr. Prestwich, took pickaxe in hand, in the summer of 1863, and here is an extract from his journal:—"June 6, No. 6. This I found in about an hour after I commenced work on Friday morning. I found the specimen 9 feet 4 inches to level, and 9 feet 6 inches from the crest of the cliff. This perhaps would have been the exact thing's equivalent to have deducted any one the amount of the distance from the outside of the cliff; and had I not been working to the day before, which enabled me to perceive a crack in a line where we were working, I should probably have come to the conclusion that this must be a genuine one. The track I have just referred to was not to be seen the next morning, as being made good, so as to have the appearance of undisturbed ground. I therefore followed my work in this direction to the distance of about 8 feet 6 inches, when I discovered the first bucket, and then the track was again to be seen, corresponding with the one of yesterday, so that I felt plainly to me that the crack had been made good from the place where I had left it off working yesterday, so far as the spot where I found the flint."

This surely is evidence enough for anybody; and Mr. Rowe concludes his first chapter with a true ring up:—

"The result of the whole is, I cannot doubt, that the jaw must follow the flints and the antler to the limbo of scientific bones, where we must charitably hope (repeating Mr. Evans's benediction) it may rest in peace."

Pictorial Geography for Schools and General Readers. By M. F. Maury, LL.D., Commander in the Navy of the Confederate States of America. Pp. 141. Longman & Co. 1864.

The name of Captain Maury is so favourably known in this country, in connexion with the "Physical Geography of the Sea," that we opened his unpretending book with great expectations. We were not disappointed, for the unpretending little volume contains a mass of information, which is the result of scientific labours and original researches, extending over many years. Capt. Maury's explanation of the trade winds, and the important duties they perform; the Gulf Stream, and the oceanic currents in general (for the construction of a plate to represent these a million and a quarter of observations were registered and used); the influence of the lay of a coast upon its flora and fauna; the effects of mountain ranges on climate, as for example, of the Andes, in intercepting an abundance of rain, on the side of the district of the Amazons, while Peru, on the other side, is left rainless;—these and a variety of other matters are brought before the reader in a manner so clear and interesting that one is never tired of having them so well explained. But the important part that the invisible vapour of the atmosphere performs, is a subject not so generally known. It has been found to possess the marvellous power, first of protecting the earth from the fierce intensity of the sun's rays, and then, when the earth has imbibed a portion of solar heat, this vapour in the atmosphere serves as a thick blanket to retain the warmth, and prevent its too rapid escape. In the absence of such moisture the city of Yakutsk, in Asiatic Russia, though only lying in latitude 61° 40', is inexpressibly cold. Erman observed the thermometer there at 104° below the freezing point. Capt. Maury tells us: "The cool nights, the scorching sun, the severe winters, the hot summers of the great steppes of Central Asia, were formerly a puzzle to travellers who ventured there. But now these new revelations of science, concerning the power of vapour over the radiation of heat, seem to make it all plain. The air of the steppes lacks vapour enough to intercept the heat of the sun by day, and to prevent its radiation from the valleys by night. Also travellers in crossing the great desert of Sahara in Africa, which lie under the calm belt of Cancer (vide Plate I), and yearly intertropical, have reported that by day the sand there is as fire, and the wind like flame; yet in this land of

fire and flame by day, they find it cold enough at night to freeze the water in their canteens." The discovery alluded to, is stated to be due to Professor Tyndall.

Another wonderful subject is the great capacity which water has for heat, being 3080 times that which air possesses, volume for volume. Now, in the condensation of vapour enough to form one gallon of rain water, it is found that heat enough is set free, in the clouds, to raise 5⅔ gallons of water from the freezing to the boiling point, and a still further quantity of heat is given out during the condensation of water into hail or show. Hence it is shown, by a simple calculation, which it is not necessary to inflict upon the reader, "that in the process of condensing the vapour for this one gallon of water, and freezing it into hailstones, heat enough is liberated in the cloud region to raise 67,690 gallons of air from the temperature of melting ice to summer heat"—a result which, it must be confessed, is positively astounding.

The dynamical force which the sea derives from its salts, *i. e.*, the way in which these assist in the circulation of its waters; the difference of the thermal laws of dilatation, for fresh water and for salt water; the phenomena attending the congelation of salt water; the scouring of the Straits of Gibraltar; the level and peculiarities of the Dead Sea, and of inland seas in general, are all beautifully described. Also one sees at once how it is that South America must have a gigantic river like the Amazons, while the continent of Australia is almost riverless. And then, again, why that great river, running from west to east through the most fertile country in the world, has scarcely any trade from one part to another. While the Mississippi, the great river of North America, running from north to south, "changes its latitude with every bend in its course, and consequently the inhabitants of each city on its banks have need of exactly those articles of traffic which every other city, either above or below, has to spare. The trade and traffic on that river before the American war commenced, was more valuable than the entire commerce of the whole country with all the nations of the earth besides."

This allusion to the war, and some other remarks on the unhappy state of his magnificent country, which he says will attract emigration until its "institutions become intolerable, as they are likely to do," remind us of the able defence of Secession principles which Captain Maury published about three years ago. How long is this desolating contest to continue? and how long is this ornament of his profession to be regarded as a rebel?

The third part of the second volume of *Harvey's Thesaurus Capensis* has just been issued. It contains as usual 25 well-drawn plates, illustrating as many rare Cape plants, with brief descriptions. Many of the subjects are of botanical interest only, but among them occur *Schrebera Saundersiæ*, a beautiful shrub, first found four or five years ago by Mrs. Saunders, of Natal, who describes the white flowers as fragrant, each blossom embellished by a dark velvety ring round the throat of the corolla, and as they are borne plentifully at the ends of the branches, the general aspect must be very ornamental. The flowers and foliage are those of a Jasmine. Of *Strychnos Atherstonei* we read that it furnishes the celebrated Kajaten wood of the eastern colonists. Dr. Pappe regarded it as a new genus, and named it Atherstonea, but Dr. Harvey cannot find any tangible character either in floral structure or in habit to distinguish it from Strychnos. It had been received under the name of the King's tree of the Zulu Kaffirs, whose chiefs' sticks of ceremony are made of its twigs. Three species of the curious Orchid genus Mystacidium are figured; the original M. filicorne, and two smaller species, all remarkable for the long slender cornucopiæ-like spur of the lip of the flowers.

We have before us the July and August Numbers of the *Scottish Gardener*, containing good practical papers on Rhododendrons, Lettuces, Salsafy, and Scorzonera. "Is the Rhododendron," asks one writer, "like the Rose, to become chiefly an amateur's flower?" and he replies: "We rather suppose so. We know of only one nobleman's garden in Scotland where there is anything like an adequate collection of this fine shrub. Various influences are adverse to Rhododendrons, and almost in the same proportion as the same influences are favourable to what is called the bedding-out system. Rhododendrons bloom in spring or in early summer, when the great world is in London. Spring flowers are neglected, and we have known an instance in which they were actually forbidden! Those, too, who are familiar with the economics of garden expenditure will readily understand that when the keeping of a place, *i.e.*, the price of labour necessary to the keeping of it, ranges from 500*l.* to 1000*l.* per annum, very little margin is left for defraying the expense of the formation of proper soils for Rhododendrons or the purchase of the plants. Gardeners cannot propagate Rhododendrons as they do Verbenas. Give a clever gardener in autumn three guineas worth of new bedding-out stuff, and in spring he will probably have some 10,000 plants to put out. Little do the admirers of the glowing riband borders, panels, &c., know how much of them is due to the gardener's brains and hands, and even private influence in procuring the means of floral decoration." The causes at which we have now hinted, continues the writer, "and perhaps others not difficult to surmise, tend to place Rhododendrons chiefly in the possession of amateurs, even as they throw Verbenas, Lobelias, and Scarlet Geraniums, &c., into the hands of noblemen's and gentlemen's gardeners." In another article on Moutan Pæonies, it is remarked that the account we gave of the cultivation of these plants in an orchard house at Knypersley, was read "with unfeigned astonishment." The writer admits that it is difficult to account for peculiarities of climate, and that of North Staffordshire may be of an abnormal description. "We beg however to say," he goes on, "that we have cultivated some of the old varieties of the Moutan with no inconsiderable success in the latitude of Edinburgh, in a somewhat humid district, and at an elevation of 350 feet above the level of the sea. We have six plants in our little garden—if we had room we should have more—three of which last spring were slightly protected, and three not at all, and one of the latter bloomed quite as well as the more favoured. We never apply any protection till about the beginning of February, when the thick pink annual shoots begin to protrude, and then a hood or table-like covering of Spruce-fir branches, leaving full access to the air below, and chiefly to preserve the flower buds from being nipped by spring frosts, is found sufficient. We will guarantee that this method will be successful as far north as Inverness. In the pleasure ground at East Binny, 400 feet above the sea level, the Moutans have stood for several winters without any protection, in the open shrubbery, and at a distance from walls. The plants flower beautifully every summer, and form irregular bushes of graceful waving outlines, such as are seen in Chinese drawings." We suspect however that the climate of Edinburgh is more favourable than that of Staffordshire, or perhaps for Moutans even than that of London, by not exciting growth at so early a period. There is some good advice to the Royal Horticultural Society—alas! that it should be necessary—to leave in future, fireworks and nigger-singing out of its programme, and to devote itself to the promotion of horticulture, the introduction of new plants, and the giving prizes for the exhibition of superior skill in any and every department of gardening—in a word to strive to fulfil its proper mission; then no more murmurings of discontent would be heard. "They have work enough before them, if they will only do it."

The *West of Scotland Horticultural Magazine* for the same month has a good article on the cool treatment of Orchids, which we shall endeavour to find room for shortly. There is also an interesting account of a method of Nature-printing practised by Mr. Connon, of Buchanan, who describes it as follows:—"I find the following paints or colours most useful for printing Ferns and other leaves: chrome yellow, Prussian blue, yellow ochre, burnt sienna, raw sienna, terra verte, Naples yellow, raw umber, and light red. Chrome yellow and Prussian blue, used in various proportions, make the most useful shades of bright green. Prussian blue and yellow ochre, or Prussian blue and raw sienna, make olive greens. Terra verte, with a little of chrome yellow, makes a useful green. Prussian blue and Naples yellow make a sickly green. Burnt sienna and raw sienna, used separately or together, do for withered leaves, or those brown spots which are found on Ferns in autumn, and which are very effective in making groups. In printing withered leaves, such as Brambles, which assume very bright tints in autumn, while the texture of the leaf remains fresh, light red will be found very useful, and raw umber is used for the small black stalks of some Ferns. Have three or four brushes, so that different colours may be used at the same time. Three of these should be about the circumference of a good-sized goose-quill, and one small and fine, for any little stalk that may have to be touched up afterwards. These are all that are necessary. The colours must be mixed up with a little boiled linseed oil, and practice must teach the quantities required. It must not be so thin as to have the least inclination to run on the palette. In general the face of the frond is the best to put the paint on. In Ferns, I may say, without exception, lay the frond or leaf (quite dry and clean) on its back on a clean palette; having your different shades all ready mixed on a palette for the purpose, take not too much colour in your brush, and beginning at the extremity of the frond, dab it on carefully and uniformly. Too little paint is less a fault than too much, but practice, as I said before, will show this. Withered spots, &c. can be put on at the same time, and remember to dab on the paint, not to lay it on as in painting. Having coloured the frond with paint, take it up and lay it carefully on the paper, the painted side, of course, downwards. Lay several folds of blotting paper above, hold the leaf firmly down by placing one hand on the stalk end above the blotting paper, and then with a cloth rolled up in the other hand, press and rub over the whole leaf. Take care, in Ferns especially, to apply a good deal of pressure up the middle of the frond, otherwise the thick midrib will prevent the part next it from giving a sufficiently distinct impression on the paper. The principal requisite in the paper is to have it smooth, and at the same time soft and porous." We quote also from these well-filled pages the following letter on the subject of Horticultural distinctions from the Editor of the "Florist's Guide:"—"I am glad to see you taking up the subject of 'Horticultural Distinctions,' first mooted in the *Midland Florists' Guide*. To me it seems that the proposition ought to have the consideration of every real horticulturist, who should make a stand against the unmeaning use of F.R.H.S. by any mushroom. Twenty-five years since the F.H.S. carried with it an honourable distinction, but in these days F.R.H.S. means nothing. Anybody who chooses to pay the annual subscription and entrance fee can use these letters. In fact they are used chiefly by puffing advertisers. I wish to see the Horticultural Society of London take this matter up, and institute a scientific department, fellowship with which shall be conferred on all distinguished in horticulture. The proper way to go to work in starting would be to appoint, say, Dr. Lindley, Mr. Thomas Moore, Dr. Hogg, Mr. Rivers, Mr. William Paul, and Sir Joseph Paxton, to prepare a list of 100 distinguished men in the gardening world to be at once elected Fellows. Then all future elections, which should take place quarterly, would be decided by the [selected] Fellows themselves, by means of polling papers and lists of names proposed being sent to them. No person to be elected who did not receive two-thirds of the votes. Any person to have the power of nominating candidates; but of course an unknown name in the gardening world would stand no chance of being elected. The plan of having examinations would not answer, as there are too many difficulties in the way. I think also that instead of having separate distinctions for England and Scotland, all should unite in pressing this subject on the Horticultural Society of London. There is a large number of first-class practical gardeners in Scotland, who are eminently entitled to such an honourable distinction, and on this side of the Border we have more to back them up. With, as I stated in the April No. of the *Florists' Guide*, 'the strong hand of distinguished gardeners, practical, clear-headed horticulturists, and collectors, who have braved the dangers of the tropics in search of new things for us, ought we not to have a fellowship amongst such men to distinguish them from the ruck?' It is my intention to keep this subject before horticulturists. I am much pleased to find that men eminent in the gardening world are determined to take up the subject; and I venture to hope that before next summer has passed, we shall find that my suggestions have not been made in vain."

The Midland *Florist's Guide* continues to occupy its ground usefully. The subject of conferring Horticultural Distinctions by some more satisfactory means than the assumption of the initials F.R.H.S. is again urged on the notice of members of the Society and of the horticultural public. Respecting the summer treatment of Gladioli the Editor observes that "it will be advisable to keep the plants syringed or watered with a rose pot night and morning, and weak liquid manure may be safely applied frequently. We believe liquid manure may be safely applied in a tolerably strong state. Occasional stirrings of the soil, combined with liquid manure, and frequent rose-pot waterings will do much towards ensuring a good bloom. We this year stripped the skin from every bulb when planting, and have scarcely a miss." A commentator on the London Exhibitions, speaking of Azaleas, observes—"Greek met Greek, and the tug of war was furious, but Chelsea prevailed over Slough. Messrs. Veitch & Son had immense plants, models of symmetry, and bathed in bloom; you could scarcely discern a green leaf on any of the Chelsea plants. In a few of Mr. Turner's plants they had struggled out from among the thick covering of flowers, as if they would assert their right to be considered part of the plant, and an important element in its cultivation I felt a sense of something like disappointment as I looked upon so much skill and so much labour thus misapplied. It was too artificial. There was symmetry without elegance, glare and show without attractiveness, size and proportion without ease or freedom. There was too much mechanism, and too little of nature." The same writer describes the Duke of Buccleuch's prize at Kensington, and that of the Proprietors of the *Gardeners' Chronicle* as the "most easy wins" he ever witnessed. "Two exhibitors in one case, and only one in the other, contended. I thought the Adiantum a very ordinary looking subject, and in common with many others, I greatly wondered that the prize was not withheld." The August number is almost entirely filled with reports of exhibitions.

Catalogues Received. — *William Paul's Select List of Hyacinths, &c.*, is a carefully prepared descriptive list of the best sorts of bulbs for autumn planting. Amongst the Hyacinths we notice such novelties as King of the Blues, Lord Palmerston, Robert Fortune, Thorwaldsen, &c. The Catalogue is accompanied by a reprint of Mr. Paul's lecture on the Hyacinth, delivered at South Kensington on the 5th April, and at the time reported at length in our columns.—— *William Cutbush & Son's Bulb Catalogue* for 1864, is also a carefully compiled select and descriptive list, including among novelties in the way of Hyacinths, Josephine, Robert Fortune, Henrietta Elizabeth, Lord Palmerston, Thorwaldsen, and the fine yellow San Francisco. Messrs. Cutbush also offer a new Raspberry—Princess Alice, and a new Black Currant—Varney's Princess of Wales. —— *Benjamin S. Williams's Catalogue of Bulbs* is another select list, though with less of rarity; and it is supplemented by a brief fruit catalogue.

Garden Memoranda.

Messrs. Jackman & Son's Nursery, Woking.—This establishment, long favourably known for its fine collection of hardy plants, is now likely to attain a world-wide fame for the magnificent new race of hybrid Clematises of which it has been fortunate enough to be the birthplace; and of the origin of which a full account was given at p. 773. A plantation of these charming plants, supported on stakes some 6 feet in height, has produced thousands of blossoms during this summer and autumn, varying in colour from deep rich violet blue to dark velvety maroon; and when we state that multitudes of such blooms have been quite as large in size as that represented by our woodcut of C. Jackmanni, some idea of the beauty of such a mass of graceful floral drapery gathered together in one place may easily be conceived. To flowers the size of those of C. lanuginosa has been added the rich bright violet-red colour of the small-blossomed C. Hendersoni and atrorubens, which were the male parents employed in producing these valuable mules, for the origination of which Mr. Jackman certainly deserves our best thanks. Beautiful they are admitted to be on all hands, but Mr. J. states that he will not be content until he has added to their splendid blossoms a delicious fragrance. Be that as it may, however, they will make glorious ornaments either for walls, verandahs, or rustic poles or pillars; and they are as hardy as the commonest Virgin's Bower which adorns our cottage porticos. The demand for them must therefore necessarily be great, and to meet it Mr. Jackman has wisely prepared a large and fine stock.

Another plant likely to become extensively cultivated when better known is Lonicera aureo-reticulata, the beautifully veined leaves of which have acquired a richness of colour here this hot dry season which is quite delightful.

Of Coniferous plants Mr. Jackman has an extensive and excellent collection, and his specimen ground on the lawn in front of his residence, furnishes ample illustrations of the beauty presented by some of the finer kinds in a large state. Of Thuja aurea and compacta, Golden Yews, Abies Pinsapo, Chinese Junipers, Deodars, Pinus insignis, Taxodium distichum pendulum, a beautiful variety; Cupressus macrocarpa, and Cryptomeria Lobbii, there are numbers of beautiful examples; Pinus macrocarpa has produced cones from which hundreds of seedlings have been raised. Of Cedrus atlantica there are also some fine trees, which are said to bear moving much better than Cedars of Lebanon of the same size and age. A plant of Thuja gigantea, 9 feet in height, has borne cones and ripened seeds from which plants have been raised; as have also Pinus excelsa and Cryptomeria japonica, both of which have attained the size of stately trees. Of Abies Nordmanniana we noticed a beautiful conical specimen, the deep glossy green of which during this hot season, when Grass and other things have been burned up, has been quite refreshing to look upon. This too has produced cones, as also has A. nobilis.

Among Hollies, one of the best is Watereriana, a spineless gold-edged variety, which, either in the shape of standards, pyramids, or bushes, has a compact and beautiful appearance. One example of this on Mr. Jackman's specimen ground is well worthy of mention; it measures about 10 feet in height, and quite 40 feet in circumference, close to the Grass, which it covers with a dense roll or mass of foliage, and the branches are sufficiently thick to conceal the stem all the way to the top, forming a singularly beautiful object. The broad-leaved Evergreen Oak is likewise a handsome tree; as are also Ulmus viminalis variegata, and the Purple and Fern-leaved Beeches. Of Weeping Elms, Ashes, Poplars, Hollies, and Limes we observed many fine specimens, and also one of the comparatively little known, but really beautiful old Chinese tree, called Koelreuteria paniculata.

Mr. Jackman's dwelling house, a new and commodious building, stands on a terrace, on the summit of a hill overlooking an extensive range of well-wooded and beautiful country; behind it is the nursery properly so called, and through this runs a broad walk bordered with select Coniferous and other trees, edged next the roadway with dwarf Firs. The quarters contain a thriving nursery stock of every description; of Abies Nordmanniana alone 30,000 plants are stated to have been raised from seed this year, and many others of it vary in height from 2 to 3 feet. These, and even Deodars 12 and 15 feet in height, move well, all having undergone a previous course of treatment calculated to facilitate that important operation. The beautiful Cupressus Lawsoniana bears cones in great abundance, and thousands of young plants are annually raised from the seeds. A dwarf variety of this fine Cypress may also be seen here. Abies lasiocarpa grows in the light soil of this nursery with great vigour; even this dry season it has thrown up a leading shoot 2 feet in length. From cones of Thujopsis borealis many seedling plants have been raised. Plantations of Wellingtonia from 5 to 7 feet in height seem to withstand the drought of the season well, as do also young plants of the Douglas Fir, for which there is now a brisk demand. Forest trees, fruit trees, Rhododendrons, Deciduous trees and shrubs, and Roses also form important items of the general stock, which covers an area of some 60 acres in extent.

Portugal Laurel hedges are much employed here, and good close fences they make. Pinus Pinaster and austriaca are also used as screens.

In one of the quarters a batch of Irish Yews, 4 or 5 feet in height, topped with the Golden variety, had an imposing appearance, even a long distance off, the bright yellow of the one forming a striking contrast with the deep green of the other.

The main road from Chobham to Woking and Guildford runs through Messrs. Jackman's grounds, and preparations are being made for planting ornamental trees and shrubs on both sides of it. This, therefore, when completed, viewed in connection with the little country church close by, surrounded as it is with Cedars of Lebanon, Deodars, Cypresses, Ilex scotica, Pinus austriaca, Cembra, and other Conifers, together with the Rose-clad parsonage, and substantially-built schools, will all doubtless add an interesting feature to this truly rural district.

It may perhaps be worthy of remark that this nursery is about a mile and a half distant from Woking station, and that it is approached through shady lanes, the banks of which are in many places covered with Ferns, wild Heath, and other native plants. Even in bright, warm weather, therefore, this part of the journey is far from being unpleasant; but to see such Clematises as those grown here, the old proverb, "Love knows not labour," holds good.



Miscellaneous.

Rice-Paper of Formosa.—The plant that produces the so-called rice-paper is the Aralia papyrifera of botanists (see p. 724), a low shrub with large leaves, in form not unlike those of the Castor-oil plant (Ricinus communis). This plant has as yet only been procured from the northern end of Formosa, where it grows wild in great abundance on the hills. It is of very quick growth, and the trunk and branches, which are lopped for use, are not unlike those of an old Elder in appearance. The cellular tissue or pith attains its full size the first year. The trunks and branches are mostly procured from the aborigines of the inner mountains, in barter for Chinese produce. They are rarely straight throughout their length, and are usually cut into pieces of about 9 inches long; and with a straight stick inserted at one end and hammered on the ground, the pith is forced out with a jump at the other end. The pith is then inserted into straight hollow Bamboos, where it swells and dries straight. If too short to form the required breadth of paper, several bits are inserted into a hollow Bamboo, and, by rods inserted at both open ends of the Bamboo, pressed together until dry. By this process the short bits are forced to adhere together and form one long straight piece of the required length. Thus paper of almost any size can be procured. The knife used in paring the pith into paper is in shape not unlike a butcher's chopper. It is well sharpened on a stone, and when not used kept with the edge in a wooden groove, held firm to it by two strings round the wood and the knife. Before using it, the edge receives a fresh touch up on a small block of wood usually a piece of the timber of Machilus ramosa, shaped like a large hone. The block on which the pith is cut consists of a smooth brick or burnt clay tile, with a narrow piece of brass on a rim of paper pasted at each edge, on which the knife is laid, and is consequently a little raised above the bare tile itself. The block is laid flat on a table, and the dried pith rolled on it with the fingers of the left hand, and then the knife laid on the brass rims with its edge towards the pith, its handle being held by the right hand. As the knife is advanced leftwards by the right hand, the pith is rolled in the same direction, but more slowly, by the fingers of the left. The paring thus goes on continuously, until the inner pith, about a quarter of an inch in diameter, is left, resembling somewhat the vertebral column of a very small shark, and breaking into similar concave-sided joints. This is used by the Chinese as an aperient medicine. The paring produces a smooth continuous scroll about 4 feet long, the first 6 inches of which are transversely grooved and cut off as useless. The rest shows a fine white sheet. The sheets, as they are cut, are placed one upon another and pressed for some time, and then cut into squares of the required size. The small squares made here are usually dyed different colours, and manufactured into artificial flowers for the adornment of the hair of the native ladies; and very excellent imitations of flowers they make. The sheets most usually offered for sale, plain and undyed, are about 3¼ inches square, and are sold in packets of 100 each, at rather less than 1*d*. the packet, or a bundle of five packets for 4*d*. The largest sized paper is made t order, and is usually exported to

Canton, where the grotesque but richly tinted rice-paper paintings have long attracted the curiosty of Europeans. Some of us tried our hands at paring, but made most abortive attempts, producing only chips, though the operation looked so easy in the hands of the apprentice. The term of apprenticeship to the trade is three years, during which time the man receives no pay, but only board and lodging from his master, and has to give his services as general attendant besides to his employer. When the three years are completed, the apprentice is required to work other four months, in place of paying premium. He then receives a certificate of capability, and can either set up on his own account or demand wages for hire. *Swinhoe, in Pharmaceutical Journal.*

Carving on Trees.—This much-condemned habit of our race, especially as practised on the Beech, is intimately interwoven with the most important element of civilisation. The smooth bark of the Beech recommended itself above all other trees of our latitude for carving—that of the Elm, Ash, and Oak was too rough for the purpose, that of the Pine and Birch apt to fall off in regular flakes. Now it is not simply a matter of coincidence that originally book and beech were synonymous; in the word Buckinghamshire, the shire of the Beeches, the more primitive root is still upheld. The old Runic tablets (some of which are still preserved) were made of Beech wood, and hence in all Teutonic languages the tree gave the name to the book. The origin of the word, and its identity with the Sanscrit "boko" letter, "bokos" writings, furnishes clear evidence that the Brahmins had the art of writing before they detached themselves from the common stock of the Indo-European race in Upper Asia; that we, together with other Teutonic nations, received alphabetical signs from the East by a northern route, and not from the Mediterranean; and that the belief that Ulphilas constructed the Gothic alphabet in the fourth century, on the basis of the Greek, is probably unfounded. *Athenæum.*

Garden Edgings.—We lately called on a friend and found him cutting numerous pieces of Rosemary into lengths of about 6 inches, for the purpose, he said, of planting them round the edge of a flower bed, and he was going to do this with a dibble. Now this is not the proper way to plant Rosemary hedges, although our friend said he saw a man putting it in in a similar way in a fine garden the other day. The edge of the bed or border should be properly made up and beaten firm and level all round or along, as the case may be, with the back of a bright spade. The line should then be put along it, and a small trench about four inches deep, cut in a similar way to surveyors' trenches, should be cut out—the cut edge of the trench being the edge of the border, so that the roots of the plants to be put in may incline to the walk, not under the border as we frequently see. Slips of Rosemary, about 8 inches long, should then be taken from the old plants (if the old plants have been planted deep for a time, so that the young shoots have struck all round, so much the better), and laid in this trench at distances apart of about 2 to 3 inches. The left knee of the operator should be placed in the trench to press the earth in on the young shoots, as it is brought up against them with the right hand. The back of the left hand will hold the slips in their places till the soil is placed against them. When the whole edge is put in, it should be gone over and any loose places made firm with the foot. The tops of the slips should now be cut off with the shears (not before), leaving the slips about two inches above the ground. The whole of the earth should then be put back into the trench, and the gravel put over all, and thus a nice neat edge will be secured. *Victorian Horticultural Gazette.*

Alleged Poisoning by Hemlock.—The papers state that recently a lady and her two children residing at Litherland were taken seriously ill soon after dinner. Two medical men who were promptly called in, at once ascribed the illness to the action of poison, and on the remains of some food taken at dinner being shown to them, they detected the presence of Hemlock leaves amongst the herbs used to flavour the soup. Remedial agents being promptly applied, the sufferers were relieved from all dangerous symptoms in the course of a few hours, though two or three days elapsed before they quite recovered from the effects of the poison. Further inquiries showed that the Hemlock had been gathered in the family's own garden, growing with Parsley, and it is suggested that probably the two kinds of seeds were accidentally mingled when supplied by the seedsman. [It is more probable that the poisoning was caused by the Fool's Parsley, Æthusa Cynapium, a common garden weed in some places, than by Hemlock, a plant much less likely to find its way into a Parsley bed.]

Calendar of Operations.

(For the ensuing week.)

A SHORT time ago we recommended all who are anxious to make a fine display of flowers next summer, to take notes of the most effective plants for that purpose, and of the habits and peculiarities of each. Such a review might now be carefully repeated, and the present state of the plants noted, marking particularly those which at that time made a creditable display, but which are now becoming shabby. In making arrangements for another year's planting, it is not necessary to include great variety, as the symmetrical relationship between the parts not only admits of repetition, but demands that the corresponding parts should be similarly furnished. The object should be to make the *tout ensemble* perfect; and in almost every case this may be done best by a small selection. For example, if the cultivator has of each distinct colour, and of the most useful intermediate shades, a few suitable plants of different heights, he may with proper taste make the arrangement of his masses as perfectly beautiful as a thing of the kind can be. The best way to proceed then is to make a list of desiderata, filling up for the present with things which approach most nearly to his standard, and substituting others as soon as they come under his notice. One important point to be attended to in the selection of plants for bedding purposes is the proper balance between flower and foliage, and especially amongst the bright warm colours. The principle of methodical arrangement might indeed be carried beyond the parterre, every clump of shrubs might be made to give evidence of good taste, in the disposition of shades and colours. Many of the finest and most showy herbaceous plants are now in beauty, and by studying the effect they produce in different situations, it is more easy to decide where they may be introduced with the greatest advantage.

FLOWER GARDEN AND PLANT HOUSES.

The great drought which has been experienced for many weeks past is now succeeded by cold winds and even frosty nights; flowers out of doors cannot therefore be satisfactory this season. The notes recommended to be made above should consequently include observations on such plants as have withstood the effects of the weather best.

CARNATIONS AND PICOTEES.—Pot off rooted plants, and place them on ashes in a shaded and sheltered place, covering with frame-lights, so as to prevent excessive rain, should it occur, from soddening the soil; regular attention as to watering, &c. must be given.

DAHLIAS.—These will yet require abundance of water while the weather is dry, if fine blooms are to be expected.

TULIPS.—A bed or beds should be made for offsets, and seedlings should be got in as soon as possible; every precaution should be taken, as far as preparation of the compost goes, to insure their healthy growth. The most beautiful blooms are often from maiden bulbs, or the first flowers which the offset produces. Here, too, is the amateur's reserve, from which he drafts to reinforce his main bed. Let this advice be attended to in good time, as it sometimes happens that weak offsets of very valuable sorts shrivel and perish by being kept out of the ground too long.

FORCING GARDEN.

CUCUMBERS. — If the weather is bright, dew the plants overhead once or twice a week, observing always to use a fine rose, as a heavy stream breaks down the leaves.

PINES.—Plants which have been recently potted, or shifted into new soil, will now be growing vigorously. This should be encouraged by a liberal temperature, but accompanied at all times by sufficient ventilation to prevent undue elongation of the leaves, and to mature their tissue while sunlight is powerful enough for that purpose. A less humid atmosphere should be supplied generally, and especially to those intended for fruiting early next spring, as it is very important that they should acquire a strong sturdy habit, and that the accumulation and elaboration of sap should be encouraged, rather than the increase of the size of the plant. Assist the swelling fruit with liquid manure, but admit abundance of air, for the sake of the flavour, and to prevent the crowns growing too luxuriantly.

VINES.—Pay every attention to the preservation of ripe Grapes from the effects of damp, by avoiding the spilling of water about the houses, and by admitting a free current of air in all favourable weather, accompanied by a little fire during rain or fogs. These houses should now, if possible, be freed entirely from plants in pots, or if any are allowed to remain they should be of kinds requiring little or no water, such as bulbs and other stove plants, which like a dry cool treatment to induce them to rest. From this time the points of all growing shoots should be stopped, as the leaves produced after this time take from the stored-up energy, without ripening sufficiently early to benefit the Vines in return. Care, however, must be taken not to stop too closely the lateral shoots of Vines which are still growing vigorously, as they are liable in such cases to burst the buds too near the base of the shoots. As wasps are now troublesome, their ingress should be prevented, by fixing some thin bunting over the moveable sashes. Haythorn's hexagon or gauze net is a good material for this purpose.

HARDY FRUIT AND KITCHEN GARDEN.

Let young plantations of Strawberries be well attended to by stirring the soil between the plants, and supplying them with plenty of liquid manure, that they may continue to progress at the root, and fully employ their leaves in the elaboration of sap. Promote by every means vigorous growth now, and fine fruit next year will be the reward. Alpine Strawberries should be looked to, to see that they are sufficiently moist, as they will soon be found useful in supplying a desirable addition to the dessert. If they are in a state to receive water, supply it in the shape of liquid manure. Plant a few beds of young runners on a north wall for another year; soil a sandy loam, moderately enriched. Look to the buds of fruit trees inserted in July and the early part of August, and loosen the ties. Proceed with forking dung in amongst fruit bushes and Strawberries, and thereby encourage the production of roots near the surface of the ground: these will materially assist in perfecting the growth of the plant, and preparing it for the healthy and abundant development of fruit. Attend to the gathering of fruit as it ripens, and if any of the trees are without names, take advantage of the opportunity of ascertaining them, marking the fruit as well as the trees that produced it. Take advantage of dry days to earth up Celery, sprinkling a good dusting of quicklime or soot about the plants in the lines, and over the surface of the ground for some distance on each side, to destroy slugs, which generally do considerable damage to Celery, especially in wet seasons. The soot or lime should be applied two or three times before soiling up the plants, at intervals of a few days, and early in the morning, before the pests have retired to their hiding-places. Take up and dry Onions that have completed their growth.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 24, 1864, as observed at the Horticultural Gardens

August.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 18	16	30.018	29.831	74	32	53.0	63	62	N.	.00
Friday 19	17	29.743	29.629	74	38	56.0	63	62	E.	.00
Satur 20	18	29.821	29.687	74	36	55.0	62½	62	N.	.02
Sunday 21	19	29.905	29.785	68	35	51.5	61	61	N.E.	.48
Mon. 22	20	29.952	29.813	68	44	56.0	60	61	E.	.22
Tues. 23	21	29.788	29.694	68	37	52.5	59	60½	N.E.	.16
Wed. 24	22	30.098	29.995	62	30	46.0	58½	60½	N.W.	.00
Average.		29.903	29.776	69.7	36.0	52.8	61.0	61.4		.88

Aug. 18—Slight uniform haze; very fine; cold at night.
— 19—Fine; very fine; fine, but cold at night
— 20—Cloudy; very fine; cool at night; slight rain.
— 21—Partially overcast; thunder-storm, with heavy rain; showery.
— 22—Uniform slight haze; partially overcast; rain.
— 23—Rain; fine, but cold at night.
— 24—Clear and cold; fine, with low white clouds; frosty, 2 deg. below freezing at night.

Mean temperature of the week 8½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Sept. 3, 1864.

August and September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	73.1	49.5	61.3	17	0.22 in.	2	6	3	—	5	11	7	4
Mon. 29	71.6	48.0	59.8	14	0.58	4	5	4	1	2	2	7	3
Tues. 30	72.0	48.3	60.1	9	0.92	2	6	3	—	5	9	10	3
Wed. 31	71.1	47.2	59.1	16	1.31	2	7	3	2	2	8	9	5
Thurs. 1	70.5	47.5	59.0	19	1.50	3	5	3	4	3	12	4	4
Friday 2	70.6	47.6	59.1	16	0.44	7	5	2	1	3	8	2	3
Satur. 3	70.3	47.6	58.9	16	0.49	3	7	3	1	6	9	6	3

The highest temperature during the above period occurred on the 1st, 1843—therm. 85 deg.; and the lowest on the 29th, 1850—therm. 32 deg.

Notices to Correspondents.

BOOKS: *W G.* The only treatise on Ferns in general, which we know as likely to assist you in obtaining a knowledge of these plants, and not very expensive, is the introductory or generic portion of Moore's Index Filicum, of which a portion has been issued with the several numbers published.

COLLECTIONS AT COUNTRY SHOWS: *T G.* If the terms of the prize schedule are as you quote them: "Stove or greenhouse plants (not Fuchsias or Balsams), six plants of dissimilar varieties," six Gloxinias of distinct varieties will certainly be eligible to compete for the prize, but of course they will not stand so high as an equally well grown collection, in which there was more variety.

CONIFERS: *J J R.* Without a cone, or a scale taken from the middle of a cone, it is impossible to name this class of Conifers with certainty.

JUDGING FRUIT: *A Grower.* Certainly all fruits exhibited for prizes, except such as winter Apples and Pears, (which cannot be if invited out of season, and which cannot well be dispensed with at an autumn show), should be ripe and fit for table; and wherever this is made a rule it should be strictly enforced. However unfortunate, therefore, that your better grown Muscats should have failed to carry off the prize, the award is strictly just if those which took the prize were ripe, while yours were not.

NAMES OF PLANTS: *M A.* Spiranthes autumnalis.—*H B.* Momordica Elaterium.—*T W.* Selaginella pubescens, miscalled Willdenovii in gardens.—*F E.* 1, Onychium auratum; 2, Woodwardia, *alias* Doodia media; 3, Platyloma flexuosum.—*W Abraham.* Blitum capitatum, a common old-fashioned garden annual.—*A T.* The plant found in the Usk is Potamogeton crispum.—*W Heale* Origanum Sipyleum.—*Bodorgan.* Not well enough to answer before next week.—*Henry Min.*—Wistaria, certainly.

POMEGRANATES: *A B.* Pomegranates prefer a rather heavy loamy soil, moderately enriched, and should be firmly potted or tubbed, good drainage being provided. Over-potting or over-tubbing is not good for them, for they seldom flower well unless the roots feel their confinement. They like warmth when growing, and to be kept dryish and not too cold when at rest.

SEEDS FOR INDIA: *A B.* You cannot do better than follow as far as you can the advice of your friends in India, namely, to take seeds of all kinds of fruit, flowers, and vegetables, especially the latter, which are probably the most important. That is to say, you should take two or three, or more of the best varieties of each of the leading kinds of vegetables; these would no doubt be most valuable and most acceptable. The seeds of fruits would be of more doubtful utility; and as to flowers, whose name is legion, the most welcome would be some of those which are well known and popular here, and such as would awaken recollections of home. You cannot do better than place yourself in the hands of one of the leading London seed houses. As to packing, the best mode is to put the seeds in ordinary brown paper covers, and these packages into canvas bags, not too large nor too tightly packed; and the more these are exposed to air the better.

SOIL OF NEW GARDEN: *R O.* If the soil is very stiff, we should advise the smother-burning of some of it, and then to mix this burnt portion with the rest. The admixture of sand or vegetable mould of any kind, or of charred vegetable refuse, would also be advantageous. This may be done at any time when the ground is dry, that is, in a state fit for working. The subject shall receive further attention.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22 Eden Quay, Dublin.

DIXON AND CARDUS'S LINSEED CAKE,
Analysed and Reported upon by Dr. VOELCKER.
As considerable mortality amongst the Lambs has occurred in two or three districts in Hampshire, and in some cases our Linseed Cake, on which they were feeding, has been blamed as the cause of it, we requested Dr. Voelcker to investigate the subject and report upon it; which report we subjoin.
It will be seen that the Cake was of excellent quality, and free from any matter that could be injurious to the health of animals feeding upon it.
Diseases in Lambs in isolated districts are by no means uncommon; and no doubt excellent Cake is often branded as the cause of sudden outbreaks of disorders in Lambs, whereas these disorders are enveloped in such mystery that the best Veterinary Surgeons and the most experienced Flock-masters are at a loss to advance a rational theory in accounting for the sudden death which often affects the flocks in one district and not in another.
The four Samples of Cake sent for Analysis were marked:—
J. W. No. 1 and No. 2, from Mr. John Wallace, Houghton.
T. E. From Mr. Thomas Edwards, of Compton House, Stockbridge.
S. A. From Mr. Stephen Ayles, of Braishfield, Romsey.
DIXON & CARDUS.

Report of Dr. VOELCKER.
101, Leadenhall Street, London, July 8, 1864.
To Messrs. DIXON & CARDUS, Southampton.
DEAR SIRS,—I have now the pleasure of handing you the results of careful Analyses of four samples of your Cake. You will observe at once that these four samples show a close agreement in composition, which distinctly proves that the manufacture of your Cake is carried on uniformly in your mill.
The per centage of Oil (the most valuable constituent of Oil-cake) in all four samples is quite as high as in the best kinds of Linseed Cake; and that of flesh-forming matters a fair average proportion.
The small amount of sand, and the absence of obnoxious weed seeds, shows that Clean Linseed is used in the preparation of these four samples of Cake.
I have carefully examined your Cake for injurious foreign matters, and am decidedly of opinion that it contains nothing that can be regarded as at all likely to be injurious to the health of animals fed upon it. Its condition is fresh, it is free from mould, and is palatable; and in my opinion is a wholesome and nutritious Cake of good average quality.—Yours truly, AUGUSTUS VOELCKER.

COMPOSITION OF FOUR SAMPLES OF LINSEED CAKE, MANUFACTURED BY DIXON & CARDUS, NORTHAM, SOUTHAMPTON.

	SAMPLES MARKED.				
	J.W. No. 1.	J.W. No. 2.	T.E.	S.A.	Barrel American
Moisture	10.91	11.39	10.58	10.48	11.64
Oil	11.55	11.26	10.92	10.94	10.43
*Albuminous compounds (flesh forming matters)	25.62	25.25	27.43	26.43	24.01
Mucilage, Starch, Sugar, and digestible fibre	31.00	31.28	30.34	30.96	34.44
Woody Fibre (Cellulose)	14.04	13.46	14.46	15.09	14.26
**Mineral Matters (Ash) ..	6.79	7.36	6.27	6.10	5.22
	100.00	100.00	100.00	100.00	100.00
*Containing Nitrogen	4.10	4.04	4.39	4.23	3.84
**Containing Sand	2.12	2.34	1.64	1.13	1.42

AUGUSTUS VOELCKER.
London, 101, Leadenhall Street.—July 8, 1864.
N.B. We have in the above Table added an analysis of Barrel American Cake, made by Dr. Voelcker some time ago for us, which shows our cake to be even superior to Barrel American, which is considered by many as the standard of first-rate quality. D. & C.

GIRDWOOD'S MELOSSOON or SHEEP PROTECTING DIP.—This preparation, poisonous alone to Parasites, forms an artificial yolk of great value for the sheep and wool. It is the Best, Cheapest, and Safest of all Dipping Compounds.
Price 6*d.* per lb. Above a cwt. free to stations.
To be had of Mr. ROBERT GIRDWOOD, Tanfield, Edinburgh, or his Agents.

Royal Agricultural Society of England.



RANSOMES AND SIMS, Ipswich,
WERE AWARDED
FOUR FIRST PRIZES
FOR
SWING and WHEEL PLOUGHS
AT THE
NEWCASTLE-ON-TYNE MEETING, JULY, 1864.
DETAILS OF THE AWARD:—
The FIRST and ONLY PRIZE of £15 0 0
For the Best Swing Plough for General Purposes.
The FIRST and ONLY PRIZE of £7 10 0
For the Best Swing Plough for Light Land.
The FIRST and ONLY PRIZE of £7 10 0
For the best Wheel Plough for Light Land.
The FIRST and ONLY PRIZE of £7 10 0
For the Best Wheel Plough for Heavy Land.
No other Firm was awarded more than One Prize.
No Prize was given of more than £15.

BARROWS AND CARMICHAEL, Banbury, Manufacture STEAM CULTIVATING APPARATUS, the cheapest, most simple, and successful Tackle out.
PORTABLE STEAM ENGINES, more simple in construction, efficient at work, and consuming less coal than the old-fashioned Engines usually made.
THRESHING MACHINES, which will astonish those who work the ponderous and complicated Machines now so generally used.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY,
Offices: 52, Parliament Street, S.W.
Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.
The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, the term for building works being limited to 31 years.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 52, Parliament Street, S.W.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
GRAND SHOW at KNUTSFORD, SEPTEMBER 7 and 8, for SPECIAL and other PRIZES, amounting to nearly 1000*l.*
The Exhibition will this year comprise HORNED CATTLE of various kinds; HORSES, including thorough-bred and other Stallions, and a large entry of Hunters, Cobs, Ponies, &c.; SHEEP, PIGS, POULTRY, DOGS, CHEESE, BUTTER, SEEDS, ROOTS, HORTICULTURAL PRODUCTIONS, IMPLEMENTS, MACHINERY, and Miscellaneous articles.
[ENTRIES for the Show finally closed on the 13th inst.]
Excellent Show Ground of about 12 Acres in extent has been provided by the Local Committee near the entrance to Tatton Park and Gardens, which, by the kind permission of Lord Egerton, of Tatton, will be open to the inspection of Visitors to the Show.
Admission to the Show:—On WEDNESDAY, September 7, from 10 o'Clock to 6 o'Clock, Admission (by Tickets sold on the spot) 2*s.* 6*d.* each; and on THURSDAY, September 8, from 8 o'Clock to 4 o'Clock, when the Show will finally close, Admission 1*s.* each Person.
On WEDNESDAY, the 7th, there will be a GRAND MUSICAL BAND CONTEST, which has been provided for out of Funds raised for Special Prizes, &c., by the Local Committee.
The PUBLIC DINNER will also take place on that day, at Half-past 3 o'Clock P.M., the Right Hon. Lord de Tabley in the Chair.
Tickets, 3*s.* 6*d.* each, may be obtained from Messrs. JENNISON, the Contractors, at Bell-Vue, Manchester, or in the Show Yard.
T. B. RYDER, Secretary and Treasurer.
57A, Church Street, Liverpool, August 27.

The Agricultural Gazette.

SATURDAY, AUGUST 27, 1864.

WE last year commented as severely as we could on the very remarkable speech addressed to a Cheshire Agricultural Society by the chairman of its annual meeting—Sir HARRY MAINWARING, Bart. Characterised by its confident utterances in direct opposition to the general experience of farmers, it was then described perhaps with undue heat as outrageous, arrogant, and ignorant. We give in another column an agricultural discourse by the same speaker at a former county agricultural show. It resembles last year's speech in the clever paradox and outspoken frankness which it displays. And we do not doubt that the speaker, known by his past performances, is welcomed at the county agricultural meetings by all who love something better after dinner than soft words and compliments and empty phrases. He is to preside again at the county show at Great Budworth on the 28th of September, and the address given on a similar occasion at that place, which appears elsewhere, will enable us to estimate the result of seven years additional experience of local agriculture on a clever and observant man, whose opinion ought to be of service to his neighbour.

The point which seems especially to weigh with Sir HARRY MAINWARING is that local experience and knowledge are necessary before a judgment of any value can be pronounced on the propriety of local practice. And in this we should have unreservedly agreed with him had our opinion not been staggered by the conclusions to which this local knowledge and experience had in his own case led.

The three points to which his experience of Cheshire farming leads him, are that bones and drains, and broad-breasted bulls, have spoiled cheese farms. We have lately been over a number of Cheshire farms, and everywhere we have learned upon the contrary, that drains and bones, and Short-horn bulls, have been the salvation of the Cheshire dairy farms. Meeting one sunny afternoon the other day with a hearty portly tenant farmer on his horse, slowly marshalling his herd of 50 milch kine to the milking, and remarking on the quality of his cattle—"Yes," he exclaimed, "we are nothing here without the cow." But on inquiry it appeared that his farm and all the neighbouring farms had greatly increased their stock by the aid of bones and drains, and greatly improved their stock by a Short-horn cross. If the statistics of a dairy farm for 40 or 50 years, since the first use of bones, could be obtained, it would clearly prove that the quantity and quality of milk produced had been immediately increased by boning and by draining. We hope hereafter to prove this point by an actual history; meanwhile we state it merely as the confident utterance of the many tenant farmers in that county with whom we have lately come in contact.

Cheshire is the county of all others that can be quoted for the improvement of its pastures. Dairy land in Gloucestershire and elsewhere has been generally stationary in fertility and produce or many years. "The condition of the Grass lands of England generally," recently exclaimed a first-rate agricultural authority at the London Farmers' Club, "is disgraceful." No doubt there are rushes and thistles in abundance on many of the pasture fields of Cheshire; but formerly there were more. The improvement of the county, ascertained bit by bit over a number of its farms, is unquestionable; and it is due to boning and to draining.

The history of Tattenhall farm, given in a recent number, is perfectly a case in point; and there is many another history which could be quoted also. The stock, too, is improving as well as the pastures for their maintenance. And this is everywhere attributed to a Short-horn cross upon the former cattle of the county—either of the Welsh or Long-horned breeds. It is quite a mistake to suppose that the Short-horn is the most delicate of breeds, and still more to imagine that it stands low on the list of breeds as cheese-producers. Mr. HARRISON, of Frocester Court, Gloucestershire, who milks close upon 100, and whose experience upon dairy matters we have been giving lately in our columns, puts them indeed lowest on the scale as butter cows, but the very highest of the whole for cheese.

It thus appears that not only is Sir HARRY'S dictum contradicted by general experience, but also by the very local practice and experience on which it declared itself to stand. Let us hope that we may next month have a speech from him as full as ever of spirit, point, and confidence, but teaching sounder doctrine than even local experience and practice have hitherto inspired.

JOTTINGS BY THE WAY.

STARTING from the south of England, and passing through the midland counties, every traveller must be struck by the present appearance of the country. On the sloping banks of the railways not a vestige of anything green can be discovered; most probably a spark from the engine has fallen, and every stalk, stem, or leaf is destroyed—in many places even large portions of standing corn have been thus consumed. The pastures are brown, the hill-sides slippery as glass, sheep run to water, cattle appear to be wandering continually in quest of food, and on many farms are even supplied with hay. The "root crops" are but an apology for what they should have been. Wheat is below an average crop, and late-sown Oats are short. But on the other hand, Barley is heavy and good; Potatos sound and promising, and Flax very satisfactory. Such was my idea of the state of things between the extreme south and Chester. From thence to Holyhead the prospect was more pleasing; the crops there appear heavy, and are likely to be better harvested than in 1863; several really good and regular fields of roots are seen, and the country generally does not appear to have suffered so much from a long protracted drought. Crossing to "the Emerald Isle," where it has been asserted that "rain falls every day" (but which assertion experience enables me to contradict) I find a different scene, for here the unusually dry season appears to have had a beneficial effect. Crops of all kinds are good; roots, regular and luxuriant; Potatos, though the tubers may not be perhaps as large as usual, are very healthy and promising; the hay crop, not yet secured, is heavy; and Flax, I should say, uncommonly good, and likely to prove very remunerative; in fact, every Englishman visiting Ireland for the first time must be astonished at the large number of acres of Flax growing. He would also be astonished perhaps to learn that the seed is entirely neglected and wasted, and certainly he must be astonished, and I may venture to

add not gratified by the sickening stench which proceeds from the numerous pits in which the Flax is steeped. Why the seed cannot be preserved—why it is so necessary to steep the Flax in these pits—or why the management of this crop differs so much in England and Ireland, I cannot explain — I ask for information; for surely, after making allowance for the dissimilarity of climate, it must be allowed that either we or they have much to learn, and by comparing notes, mutual assistance may be derived; any how the importance of growing Flax appears to be now discussed and known in Ireland, and in several large towns lectures on its cultivation and management were given during the past month. I apprehend that all crops are good throughout Ireland, and that an improvement in agriculture is steadily progressing. At Lough Gall, in county Armagh, a rich fertile district, by some called "the garden of the North," I remained several days, and had an opportunity to observe carefully the farming. I found well managed farms, several good implements lately introduced, a respectable class of peasantry, and I should imagine liberal and considerate landowners.

In the South again are many well-farmed parts, and crops that can gladden the eyes of either an Englishman or a Scotchman; but then I noticed a more ragged and "shoeless" crowd, a more plentiful supply of importunate beggars. Docks and weeds, I fear it must be allowed, flourish and abound in Ireland, and in many parts are seldom disturbed. On one occasion I did inquire, "why they allowed so many Docks to be propagated?" The answer I received was this — "Shure, yer honour, what would we do widout them when the horses had the distemper?" (conclusive).

I saw many good and large herds of Short-horn cattle, and some choice specimens of the pretty little Kerry cow, but the kind of animal which we know as "Irish," seems to be disappearing.

Sheep, generally speaking, I fancy do not thrive, probably the soil and atmosphere is too moist. In the little island of Innisfallen, in one of the lakes of Killarney, they are said to "get fat in three weeks," at all events those I saw, though I know not how long they had been located there, appeared to be almost fit for the butcher. Either the Southdown, or a cross between that and the Leicester, are the varieties generally preferred.

Large farm horses I rarely saw; on the farm of one energetic amateur near Dublin were several huge animals, but they seemed quite out of character. As a matter of course, the "well bred" Irish horse is justly appreciated and often seen, in spite of the active agents of English dealers.

Pigs certainly are much valued, and realise high prices. I found a less coarse breed of swine than I anticipated; even now I fear the pig is regarded as a member of the family, frequently enjoying the same privileges as the children; and though perhaps not actually permitted to occupy the same bed, may often be found under it! Poor Toby is found useful in many ways! *e.g.*, a friend of mine, requiring some clean linen, on going to the laundress to inquire about it, asserts that he found his shirt placed on the pig's back "to dry!" In the parts frequented by tourists a great profit is derived from poultry, but in some places in the south I was told that *after* the season "a good cock chicken may be bought for twopence!" During the winter months buttermilk and Potatos constitute the food of the poor, and in some places it seems that they do nothing in the winter, but are supposed to follow the example of the bees or ants, and save during the summer. Whiskey is supposed to be only indulged in on extraordinary occasions, such as a "wake" or a fair. To tourists I would say, "beware of the mountain dew!" Altogether I think that though an Englishman on his return to his own country may be wonderfully disposed to whistle the tune of "Home, sweet Home," still in Ireland he will have been agreeably deceived; there is much to be admired in her, though there may be much to be improved.

Barring the riots now commencing, 1864 must be a "golden" year for Ireland. *W. J. P., August* 16.

CHESHIRE FARMING SEVEN YEARS AGO.

[Addressed to the occupiers of farms in Over Peover and Goostrey-cum-Barnshaw, Cheshire. The following was the speech of Mr. (now Sir Henry) Mainwaring at the Agricultural Show at Great Budworth, Sept. 22, 1857.]

I am rather surprised that no allusion has been made to the meeting of the Royal Agricultural Society at Chester in July next at any of the agricultural meetings which have lately been held in the county, excepting at Macclesfield, where Mr. Humberston had made some very suitable observations, and said that upwards of 5000*l.* had been subscribed towards the expenses of the meeting, the prizes, &c., being a larger sum than had ever been subscribed by any county on any similar occasion. This is very satisfactory for us to hear; but may we not ask, "What return shall we get for our money?" On several occasions some leading agriculturists from the corn counties had been present at the cattle shows in this county, and it was rather curious to notice the various specimens of advice, and the recommendations which had been made by these gentlemen. One of them had said that the milking cows were too thin, and that if they were fatter they would give more and better milk; now, we all well know the reverse to be the fact, for it was found that as a cow put on fat her milk became less rich, though it might not decrease in quantity. A cow cannot feed well and milk well at the same time. Another recommended the feeding system. In Warwickshire and Northamptonshire, where one statute acre will feed a large ox fat for the London market, that system would pay; but Cheshire land will not do this: Cheshire farmers are well aware that cheese-making pays better than cattle-feeding. Horses and sheep had also been recommended as good paying stock, but our land cannot compete with the pastures of Shropshire and Lincolnshire, or the lime-stone leys of Derbyshire, and horses do not grow well in this county; they grow large in the belly, long in the leg, small in muscle. Sheep also fail; our land does not suit them, and we can only keep a flock for 12 months. Such advice can do us no good. I have read with great attention the speeches which have been made at the meetings of the Royal Agricultural Society for the last 10 years, and I have observed that, with some slight change of words, they have been one and all the same. The same subjects have been discussed year after year. Corn growing, steam engines, reaping machines, ploughs (all of little use in Cheshire), have been talked about over and over again. Now, if I had the honour of being a member of this Royal Society, and if I had the still greater honour of being deputed by the Society to attend their Annual Meeting, at Salisbury for instance, or at some town in a corn county,—suppose, when I made a speech at the dinner-table, I told the farmers present that they did not know how to farm their land, and that I recommended them to grow Grass instead of corn, and to keep milking cows instead of feeding cattle,—would it not be likely that they would say to me—"go back to your own county, and milk your cows and feed your sows."

Now this is just the advice which has been given to us Cheshire farmers, viz.:—to grow corn, to feed cattle, to keep sheep, and to breed horses: if such advice is to be given to us at Chester next year, surely such advisers had better keep away, for then so surely will our subscription of 5000*l.* be thrown away. If I were appointed by the Society to attend the Meeting in a corn-growing county, I would go into that county, and live there for three or more months, in order to study the climate, the soil, the mode of farming, the population, and the markets, and then at the dinner table I might be able to say something worth hearing, and probably to give some good advice to my audience. I wish that a plan of this kind might be carried out at Chester next year; and I would venture to suggest that some of the leading landowners in the county should consult with the Committee of the Royal Agricultural Society on the subject. Whether the suggestion be carried out or not, I would express a hope that something of the kind might be done, and I would take this opportunity of congratulating the Royal Agricultural Society on coming into this county —a county new to them; new ground; virgin soil as it were; a new system of farming, on which they would have to make new speeches, and to offer new advice. I trust that some members of that Royal Society, and that the judges appointed for the show, will come into Cheshire next spring to learn the peculiar mode of farming in this very peculiar county; and I feel certain that the houses of all now present in this room, and of every farmer in the county, would be open to them, and a hearty welcome given. I have said that the farming of Cheshire is very peculiar; it is at the same time very simple. I consider that he would be a bad friend to Cheshire farmers who advised them to depart from the old plan; and I think that a farmer departing from the old system, and pursuing another system—say the corn and feeding system—would pursue it to a loss. I say again that the system of farming generally pursued in the county is not only a peculiar system, but that it is the right system, for it is based upon four great points:—

1st, Upon the voice of Nature;
2d, Upon the direct finger of Providence;
3d, Upon the great force of custom; and
4th, Upon the mighty power of profit.

Let us look at the 1st point. Cheshire is one large meadow, of a strong deep alluvial soil, and nearly flat, except here and there some ridges of sand, bounded on three sides by hills, and on the fourth by the sea. Hence the soil and the atmosphere are damp, caused by fine fertilising rains, making the land green and full of Grass, at a time when other counties are burnt up; and causing it to produce the finest Grasses for cows and for milk, as well as every green herb for the use of man, in abundant quantities. Thus does Nature lead the Cheshire farmers to keep the green side uppermost.

As to the 2d point, the direct finger of Providence. On the south side of the county are the Staffordshire Potteries with upwards of 200,000 inhabitants; then come the towns of Congleton and Macclesfield; further on the east, Stockport with 80,000 people, and all that large mining and manufacturing district, Dukinfield, Hyde, Staleybridge, and Ashton; then Manchester with half a million of inhabitants; the towns of Oldham, Rochdale, Bury; then Warrington, and then Birkenhead and Liverpool with its 500,000 people. All these large towns are well supplied with corn, and beef, and mutton, from Ireland and Scotland and Yorkshire; but they look to Cheshire for cheese, and milk, and Potatos, and roots of all kinds; and Providence had been pleased to make the position of Cheshire one peculiarly adapted for supplying these wants. Farmers therefore should pause ere they set aside the old system of farming, considering the position in which Providence had placed them.

With respect to the 3d point, the force of custom; our ancestors have learned from Nature what the soil and climate were best suited for, and I think that we had better not set aside the good old custom of our ancestors. And now upon the 4th point, the mighty power of profit. Take, for instance, a farm of 150 statute acres; an active farmer, blessed with an active wife—a good cheese maker—would be able to keep 50 cows, each of which, if bred rightly, and fed rightly, would make 6 or 7 cwt. of cheese. (Hear, hear. No, no, 3½ cwt.) I know that in a dairy near Nantwich each cow produced 6 cwt. of cheese in a year. Then the out-goings on a dairy farm are very small. The farmer, and his son, and a boy would look after the cows; another son, or a labourer, would take care of the horses; his wife, and daughter, and a servant girl would manage the cheese; so that he would only require a labourer or two occasionally, and a few extra hands at harvest time. These expenses are small when compared with the costs and wages on a tillage farm. Cheese at 60*s.* per cwt. would pay far better than a corn crop in this county. A Cheshire farmer should not grow a grain of corn for sale; nor a Turnip except for sale. Having thus, I hope, shown that Cheshire farming is based on Providence, and directed by profit, I consider that the man, a stranger to the county, who should tell us farmers that we were all in the wrong, and should advise us to pursue another system of cultivating our land, must indeed be a very bold man. I have endeavoured to lay before you, gentlemen, some few points with respect to farming in Cheshire; and in proposing to you, as a toast, "Success to the Royal Agricultural Society of England," I would now, with many apologies, venture to tell you what (as appears to me) we do not want to hear from the Society next year; and 2dly, what do we want to hear from them. 1st. We want to hear nothing about fat Short-horn bulls. I once knew a man who, upon setting up a dairy farm, bought a splendid bull out of Durham for 200*l.*; and had he thrown him into the river Dane on the first night of his arrival, he would have been a richer man by 500*l.* at the end of a year or two. He bred very few calves, and those few were not milkers. But I know that farmers say, "Oh, if these high-bred heifers do not milk well, they will feed well." I do not admit the word if: it is a word not to be permitted. When a man takes a dairy farm he should say, "I will make a good dairy of cheese, and I will breed good milking stock only." We do not want to hear a word about Devon or Hereford cattle: we want to hear very little about horses. A Cheshire farmer, holding 150 acres, requires only two cart horses, and one good active nag to draw his shandry cart, and to serve in the "Earl of Chester's Yeomanry Cavalry." Still less do we want to hear about sheep. We do not want to hear anything about irrigation, except when we can throw a river of clear limestone water over our meadows; hay grown from land watered with dirty farm-yard water is not good for cows, nor will they eat it unless compelled to do so. We do not want to hear anything about implements—some very beautiful implements have been shown in the yard this day, but they are of very little use in Cheshire,—a dairy farmer only requires two ploughs, a heavy pair of harrows, a light pair of harrows, three or four carts, some cheese presses, and a roller. We do not wish to hear one word about ploughs:—I consider a plough to be a much more pernicious weed than a rush. We do not want to hear anything about steam engines. A steam engine is ruin to a farmer, unless he has 300 acres of corn land, beside Grass land. So much for what we do not want to hear: now for what we do want to hear:—1st. We want to hear a good deal on the best breed of cows for cheese-making. I will say nothing on this point to-day, as the subject was discussed in this room last year. I believe, however, that it is generally acknowledged that the cows are very inferior to what they were a few years ago. I was much pleased at seeing a placard on a cow's head, placed there by the judges this morning, on which it was stated that they considered the cow to be the best animal in the yard; but as she only gave a small quantity of very inferior milk, they did not consider her worthy of the prize: accordingly they had given the prize to a cow of a very inferior appearance in the eyes of the butcher, but of superior appearance to the eyes of the dairy farmer. 2d. We want to hear what is the best mode of wintering cows. I will give you an anecdote. I was travelling up to London in a very fast coach some years ago. I had observed that many of the horses had looked bad in their coats (it was late on in the autumn), and they appeared to be weak, and not up to their work; at last, a team came out in tip top condition, sleek in their coats as race horses and looking all over fit to run for the Chester Cup. They did their work easily—12 miles in the hour. I asked the coachman how he accounted for these horses looking so much better than all the other teams, and doing their ground so much more easily. He replied, "Oh, our governor alway gives his horses plenty of Beans when Blackberries are ripe." What wisdom—what good sense! At the time that horses are weak, when their

coats are thin, and their skin and constitution is undergoing a change, then the proprietor gave them good food to fit them for their work. Just so should farmers act; they should give their cows Oats and Beans, when they do give them 'fash,' or, as I call it, 'trash.' I will draw a picture, though I fear that too many of you gentlemen now present will appear as portraits in it. Imagine a cold autumn night—there has been a sharp white frost—the cows have been driven up to be milked, and are turned out again! they stand bellowing out for food; the cold mist begins to fall, when wheels are heard, and a cart is seen creeping along, laden with a high green top load, driven by a wet cold boy. It comes into the field; the cows bellow still louder; and the cold boy gets on the top of the load, and throws about, right and left, that dreadful fash—Turnip tops! And the wretched cows swallow them up greedily, and are driven up again in the evening to be milked, and turned out again for another cold night, and for fash again the next morning—and farmers are surprised that cows do not do well! Whenever I see a farmer giving his cows fash, I know what sort of man he is. An essay on the subject of winter feeding, which gained the prize at the Nantwich show last year, has been published,—an excellent essay, equal to any of Lord Macaulay's, got up with great labour, and full of statistics, but unfortunately, like the play of Hamlet with the part of Hamlet omitted, it fails to tell us exactly what we most wanted to know, viz., the best mode of wintering milking cows. I will therefore supply this omission, and tell you the best mode, viz.:—Tie up your cows on the 1st of November. After milking in the morning give them a good feed of crushed Oats with a little Bean flour, then turn them out for the day, and at night give them some good hay. This is for cows before calving. After they have calved pursue the same system, but double the quantity of Oats and Beans and hay, and add about 20 lb. of Mangels, to each cow per day; keep a field of Eddish, and turn them out in the daytime on the 14th of April, and on the 1st of May turn them out altogether. By this plan you may begin to make large cheese on the 1st of May, instead of the 15th of June, as is the case with the great majority of farmers, who lose the first six weeks of cheese-making, simply because their cows are out of condition. I would here remind farmers that by leaving their cows out so late in the year, suffering them to be exposed to the weather, and feeding them on fash and Oat straw at the time that they require good strengthening food, they induce disease. I believe it to be generally admitted that during the month of November the pleuro-pneumonia is engendered, that the seeds of that fatal disease are then sown, to break out among the herd in one or two, or it may be three or more years. The cows' lungs are then affected, and they never recover. We also want to hear something about leases. Last year two forms of leases were published, one by Mr. Humberston, the other by Mr. Tollemache, both excellent leases, and well adapted for a large tillage farm of 500 acres, the occupier of which has, and must have, 10*l.* per acre in his banker's hands before he can take the farm; but, like steam engines and reaping machines, of no use for the dairy farms of Cheshire. We also want to be told what is the best mode of making cheese. Mr. Cadbury, who is probably the largest cheesemonger in London, was one of the judges of cheese at the show at Macclesfield last week, and he told the meeting that Cheshire cheese was badly made, and that it was very inferior to what it was some years ago; he urged upon them to make a better article, and said that dealers would give a large price for good cheese. I had the honour of saying a few warning words on this subject in this room last year, therefore I shall say nothing more on the subject on this occasion. We wish to hear something on highways, which are kept in bad repair at a large cost in the country; and upon weights and measures, which vary so much. We want to hear a good discussion upon the neglect of meadows in Cheshire, upon the improvement of the same, and upon the best mode of making hay, and upon the autumn clearing of land after straw crops. I have seen lately some very dirty farming in the neighbourhood of Knutsford,* so I hope that some gentlemen from the neighbourhood of Bridgnorth, where the land is very clean, and very well farmed, may attend at Chester next year, and give a lecture to our farmers on the Knutsford side of the county. And lastly—for I will not mention any more subjects, though I could mention many—we want to have a good system of education laid down for the children of agricultural labourers from the age of four to ten years. I have now laid before you what we do not want to hear, and also what we do want to hear, from the Royal Agricultural Society at Chester next year. Many may not agree with me, but some, perhaps, may be of my opinion. I have also ventured to suggest that some members of the Society, or the judges, should come into the county before the show to learn the system of Cheshire farming. I hope some gentlemen may be induced to follow my suggestion; and I hope that, when they have made themselves acquainted with the soil and climate and markets of the county, when they understand the system of Grass farming, and when they fully comprehend the mysteries of cheese-making, then they will, to use the words of Southey, give us 'Not the Mushrooms of fancy, but the fruits of understanding.'"

(*) Tillage land in Cheshire is certainly very dirty when compared with other counties, and farmers are rightly blamed; but perhaps too much blame is attached to them, for two reasons: 1st, because the land in Cheshire is given to grow Grass and weeds in great profusion, and it is very difficult to keep it clean. 2d, because farmers do not know how to manage tillage land: they have given, very properly, their sole attention to Grass land and cheese making. A farmer from Cambridgeshire, or Holderness, would make a very bad dairy of cheese. A very good lecture on "the best method of cleaning arable land" has lately (March 24th, 1858,) been given by Mr. Dutton, at Over, in this county, which merits the attention of all farmers. [*Note by the Author.*]

FLAX CULTIVATION IN IRELAND, 1864.

Return, showing, in Statute Acres, the Extent under Flax in each County in 1863 and 1864, compiled from Returns obtained by the Constabulary and Metropolitan Police, who act as Enumerators.

Counties and Provinces.	Extent of Land under Flax.		Difference between 1863 and 1864.	
	1863.	1864.	Increase.	Decrease.
Ulster.	acres.	acres.	acres.	acres.
Antrim	21,576	34,847	13,271	..
Armagh	24,001	31,673	7,672	..
Cavan	10,260	15,924	5,664	..
Donegal	24,132	29,645	5,513	..
Down	44,963	59,137	14,174	..
Fermanagh	4,482	7,494	3,012	..
Londonderry	25,872	32,734	6,862	..
Monaghan	20,654	25,486	5,432	..
Tyrone	32,007	41,314	9,307	..
Total of Ulster	207,347	278,254	70,907 acres Increase in 1864.	
Munster.				
Clare	586	1,412	826	..
Cork	663	2,939	2,276	..
Kerry	378	1,236	858	..
Limerick	190	773	583	..
Tipperary	327	1,003	676	..
Waterford	38	257	219	..
Total of Munster	2,182	7,620	5,438 acres Increase in 1864.	
Leinster.				
Carlow	12	81	69	..
Dublin	1	31	30	..
Kildare	7	19	12	..
Kilkenny	50	270	220	..
King's	335	786	451	..
Longford	406	1,704	1,298	..
Louth	702	2,541	1,839	..
Meath	325	882	557	..
Queen's	63	268	205	..
Westmeath	159	595	436	..
Wexford	34	200	166	..
Wicklow	4	6	2	..
Total of Leinster	2,098	7,383	5,285 acres Increase in 1864.	
Connaught.				
Galway	300	1,537	1,237	..
Leitrim	887	2,226	1,339	..
Mayo	696	2,086	1,390	..
Roscommon	330	1,590	1,260	..
Sligo	259	1,246	987	..
Total of Connaught	2,472	8,685	6,213 acres Increase in 1864.	

	1863. acres.	1864. acres.
Total Acreage under Flax in Ireland in 1863 and 1864	214,099	301,942

Total Increase in 1864, 87,843 acres.

Extent of Flax grown in Ireland in each of the following years:—

1851	140,536 acres.	1858	91,646 acres.
1852	137,008 ,,	1859	136,282 ,,
1853	174,579 ,,	1860	128,595 ,,
1854	151,403 ,,	1861	147,957 ,,
1855	97,075 ,,	1862	150,070 ,,
1856	106,311 ,,	1863	214,099 ,,
1857	97,721 ,,	1864	301,942 ,,

The foregoing return—which exhibits an increase of the area under Flax in every county—is published, as in previous years, in anticipation of the general abstracts, which will show the acreage under the various crops, and the number of live stock, by counties and provinces,—they will, I trust, be ready for publication in the course of the ensuing month.

I do not apprehend that any difference of importance will be found between the acreage under Flax here given, and that which will appear in the detailed tables of the general abstracts now in course of compilation. *William Donnelly, Registrar-General, Agricultural and Emigration Statistics Office, 5, Henrietta Street, Dublin, August 8.*

MILK.

The composition of this important fluid varies not only in different classes of animals, but also in different individuals of the same class. Further, the composition of milk is modified by the influence of food, climate, degree of activity, and health. Notwithstanding these variations an average can be arrived at by numerous analyses, and the following table will give a general idea of milk:—

	Woman's.	Cows'.	Asses'.	Goats'.	Ewes'.
Dried Caseine	15.2	44 8	18.2	40.2	45 8
Butter	33.5	31.3	1.1	33 2	12.0
Sugar of Milk	65.0	47.7	60 8	52.8	50.0
Salts	4.5	6.0	3.4	5.8	6.8
Water	881.8	870.2	916.5	868.0	885.4
	1000.0	1000 0	1000.0	1000.0	1000.0

The various substances comprised in milk may be classified under three heads—cream, curd or caseine, and whey.

Cream, according to Dr. Voelcker's* analysis, is composed of—

Water	61.67		64.80
Butter	33 43		25.40
Caseine	2.62		7.61
Sugar of Milk	1.56		
Mineral matters	0.72		2.19
	100.00		100.00

And may be considered as consisting of small, round, egg-shaped globules, composed of fatty matters, enclosed in a thin cell of caseine, which, being lighter than the fluid containing them, rise to the surface and constitute cream, and in proportion to the quantity of this removed from the milk, the latter becomes less opaque, and assumes a blue tinge. When exposed to the air for a short time in a dry place it loses water, becomes more compact, and constitutes what is called cream cheese. When churned, cream undergoes a complete change; the caseine cells are broken, and the fatty globules gradually adhere one to the other and form a solid fatty mass, called butter, and it is found, on an average, that 28 lb. of milk will yield 1 lb. of butter. Fresh butter is composed of—

Fatty matters	Margarine, Oleine, Caproine, Caprine, Butyrine, Caproleine,	77.5
Caseine		1.6
Whey		20.9
		100.0

But as butter rapidly becomes rancid, it is necessary to adopt means to prevent this as much as possible, and the following are the usual methods, viz., working the butter well with water, and then adding 3 or 4 per cent. of common salt, or, melting the butter at a temperature below 212°; but the following method, employed by M. Bréon, appears to give general satisfaction. It consists in adding to the butter, water containing 0.003 of acetic or tartaric acid, and carefully closing the vessels containing it. The rancidity of butter is due to a fermentation generated by the caseine existing in it, which unfolds the fatty matters into their respective acids and glycerine, and as the volatile acids, butyric, caproic, &c., have a most disagreeable taste and odour, it is these which impart to butter the rank taste. Allow me to add, *en passant*, that whilst butyric acid possesses a repulsive smell, its ether has a most fragrant odour, viz., that of Pine Apple, for which it is sold in commerce.

Curd of Milk or Caseine has, according to Dr. Voelcker, the following composition:—

Carbon	53.57
Hydrogen	7.14
Nitrogen	15.41
Oxygen	22.03
Sulphur	1.11
Phosphorus	0.74
Total	100.00

And is easily recognisable by its white flocculent appearance. It is insipid and inodorous, like albumen, from which it differs in its insolubility in water, though it is dissolved by a weak solution of alkali or acid. But what chiefly distinguishes caseine is that it is not coagulated on boiling, and that rennet precipitates it from its solutions. Dr. Voelcker has proved, however, in his researches on cheese, that the commonly-received opinion, that rennet coagulates milk by decomposing the lactine into lactic acid, is incorrect, for he has coagulated milk while in an alkaline condition, and it is owing to the difference in the action of rennet on albumen and caseine, that chemists have been able to detect the presence of ½ to ¾ per cent. of albumen in milk. This important organic substance not only exists in milk, but is also found in small quantities in the blood of some animals, such as the ox, and in a large class of plants, but more especially in the leguminous tribe, such as Peas, Beans, &c. Caseine is the basis of all cheeses, and when these are made with milk from which the cream has been previously taken, the cheese is dry, but when part of the cream has been left the cheese is rich in fatty matters as well as in caseine; and I may add that the peculiar flavours characterising different cheeses are caused by modifying the conditions of the fermentations which the organic matters undergo. The following researches made by M. Blondeau illustrate this point, as well as the modifications which cryptogamic life under peculiar circumstances may effect in the composition of organic substances, and his interesting results were obtained in studying the conversion of curd into the well-known cheese of Roquefort. He placed in a cellar some curd of the following composition:—

Caseine	85.43
Fatty matters	1.85
Lactic acid	0.88
Water	11.84
	100.00

to which he added a small quantity of salt. After a month, and again after two months, he analysed portions of the same, with the following results:—

* For further particulars on this subject the reader is referred to Dr. Voelcker's paper, published in the "Journal of the Royal Agricultural Society of England," vol. 24.

	After 1 month.	After 2 months.
Caseine	61.33	43.28
Fatty matters	16.12	32.31
Chloride of Sodium	4.40	4.45
Water	18.15	19.16
Butyric acid	—	0.67
	100.00	99.87

The above figures show a most extraordinary change in the caseine or curd, for we observe that the proportion of caseine gradually decreases, and is replaced by fatty matters. Considering the circumstances under which this phenomenon has occurred, there can be no doubt that this curious conversion of an animal matter into a fatty one is due to a cryptogamic vegetation or ferment; and if the Roquefort cheese be exposed to the air under a bell jar for 12 months, the decomposition becomes still more complete; for it is no longer the caseine which undergoes a transformation, but the oleine of the fatty matters. The following analyses clearly illustrate this curious action. Composition of the cheese after two and 12 months:—

	After 2 months.	After 12 months.
Caseine	43.28	40.23
Margarine	18.30	16.85
Oleine	14.00	1.48
Butyric acid	0.67	..
Common salt	4.45	4.45
Water	19.30	15.16
Butyrate of ammonia	..	5.62
Caproate of ammonia	..	7.31
Caprylate of ammonia	..	4.18
Caprate of ammonia	..	4.21
	100.00	99.49

The substances to which cheeses owe their peculiar flavour are ammoniacal salts, chiefly composed of various organic acids, such as acetic, butyric, capric, caproic, and caprolcic. I cannot better conclude my remarks on cheese than by extracting from Dr. Voelcker's interesting papers a few of his numerous analyses of different kinds of cheese:—

	Cheshire.	Stilton.	Old Cheddar.	Double Gloster.	Single Gloster.	American.
Water	32.59	20.27	30.32	32.44	28.10	27.29
Butter	32.51	43.98	35.53	30.17	33.68	35.41
†Caseine	26.06		28.18	31.75	30.31	25.87
Sugar of milk / Lactic acid	4.53	33.55	1.66	1.22	3.72	6.21
†Mineral matter	4.31	2.20	4.31	4.42	4.19	5.22
	100.00	100.00	100.00	100.00	100.00	100.00
†Nitrogen	4.17	3.89	4.51	5.12	4.85	4.14
†Common salt	1.59	0.29	1.55	1.41	1.12	1.97

The principal application of caseine in arts and manufactures is that first introduced by Mr. R. T. Pattison, who used it under the name of lactarine for fixing pigments in calico printing. His process consists in drying the washed curds of milk, which he sells to the calico printer, who mixes it with a solution of ammonia or weak alkali, which swells it out and renders it soluble in water. To a solution of this substance, of proper consistency, he adds one of the tar colours, prints it, submits the goods to the action of steam, which drives off the ammonia, leaving fixed on the fabric the caseine and colour. In consequence of the insoluble compound which caseine forms with lime it has often been used as a substitute for glue or linseed oil in house painting, and it may be useful to some of my audience to know that when caseine is dissolved in a concentrated solution of borax, an adhesive fluid is formed, which is capable in many cases of serving the purposes of glue or starch. Mr. Wagner has made another useful application of caseine, mixing it with six parts of calcined magnesia and one part of oxide of zinc, and a sufficient quantity of water to make a pasty mass, which he leaves to solidify, and when dry it is extremely hard, susceptible of receiving a high polish, and is sold as a substitute for meerschaum.

Whey.—According to Dr. Voelcker, the composition of whey is as follows:—

Water	89.65
Butter	0.79
Caseine	3.01
Sugar of milk	5.72
Mineral matters	0.83
	100.00

When whey is concentrated to the state of syrup, and kept in a cold place, it gradually deposits fine well-defined crystals, which, on further purification and re-crystallisation, yield white quadrangular prisms of a substance called lactine, or sugar of milk, which is highly interesting. It is remarkable that while sugar of milk has only been known in Europe for a comparatively short period, where homœopathists are its principal employers, in India lactine has been known for a great number of years. Let us now study some of the chemical facts connected with sugar of milk. Thus cane sugar, when acted upon by nitric acid, gives oxalic acid, whilst lactine gives mucic acid; cane sugar, when unfolded under the influence of a ferment, gives alcohol and carbonic acid; lactine yields lactic acid. As the latter transformation is most important, in a physiological and chemical point of view, allow me to dwell upon it for a few minutes. The substance which possesses the property of most readily converting lactine into lactic acid, is caseine after it has undergone some peculiar modification, which renders it a ferment. Thus when milk leaves the cow it is alkaline, but when exposed to the air it rapidly becomes acid, and this is due to the conversion of lactine into lactic acid, a change most interesting as a chemical fact, since both lactine and lactic acid have the same composition, the only difference being that two equivalents of oxygen and two of hydrogen cease to exist as such in the acid, but may be considered as combined in the form of water with the remaining elements:—

Lactine ... C_{12} H_{12} O_{12}
2 Lactic acid ... (C_6 H_5 O_5 HO)

M. Pasteur has shown that this lactic fermentation is not merely confined to milk, but that it is a peculiar fermentation, differing from the previous one, which frequently occurs during the decomposition of organic matters, and is due to a distinct ferment of its own; and his researches on lactic fermentation have explained the fact, observed by M. Pelouze, some years since, that when a vegetable substance, such as sugar or starch, was put in contact with chalk or other alkali and an animal substance, lactic fermentation ensued, but until the researches of M. Pasteur, we did not know why sugar and starch, in these circumstances, should give lactic acid instead of alcohol and carbonic acid, which would be the result of a fermentation produced by yeast. Lactic acid is a most interesting substance to the physiologist, for it is found in large quantities, free or combined with lime, in gastric juice, in the muscular part of animals, or with soda, in blood, and its production is easily accounted for when we remember that it can be produced from the starch and sugar existing in our food. When lactic acid is purified by various chemical means and separated from the fluid in which it is combined, it presents itself as a syrupy fluid, of an intensely acid reaction, which, when submitted to the action of heat, first loses its one equivalent of water, and becomes anhydrous lactic acid, and on a further application of heat loses still one equivalent of water, and is transformed into a neutral substance called lactide. This acid, in a free state, has not yet received any important application in arts and manufactures, but I have little doubt that it will some day be largely employed, for we have noticed in a former lecture its advantageous use when produced from Rye and other amylaceous substances in removing the lime from various skins intended to be tanned or prepared as there described, and Mr. E. Hunt has used it in the form of sour milk for the conversion of starch into dextrine (see Journal of the Society of Arts, December 23, 1859). I wish now to say a few words on the mineral substances existing in whey, and which play a most important part in milk as a nutritious substance. We are all of us too apt to overlook the importance of the mineral elements in food, and to consider as essential the organic matters only. In milk, however, its alkaline salts, and especially the phosphate of lime, are as essential (as food) as caseine or fatty matters, for if an infant requires the lactine to maintain respiration and the heat of the body, the caseine to contribute to the formation of blood, the phospbate of lime is equally essential to the production of bone; permit me here to state that the practice adopted by some mothers of feeding infants upon amylaceous substances, such as arrowroot, sago, tapioca, &c., in place of milk, is most pernicious, for these contain neither flesh nor bone-forming element, and milk is the only proper food for infants.

Having now examined the general properties of some of the most important constituents of milk, let us say a few words on that fluid in its integrity. We all know how rapidly milk becomes sour, especially at a temperature of 70° to 90°, and as this is owing, as already explained, to the formation of lactic acid, the best way to preserve milk sweet for domestic purposes is to add to it every day a few grains per pint of carbonate of soda, to keep the milk alkaline. The possibility of preserving milk for a lengthened period has repeatedly occupied the attention of scientific men, as a most important problem to solve for the benefit of persons undergoing long sea-voyages, but up to a recent date with very imperfect success. One of the best plans proposed is to add to milk 7 or 8 per cent. of sugar, and evaporate the whole, agitating all the milk to prevent the formation of the skin, and when reduced to one-fifth of its bulk to introduce it into tin cans, which, after being subjected for half-an-hour to a temperature of 220°, are hermetically sealed. In 1855, l'Abbé Moigno drew the attention of the members of the British Association at Glasgow to milk which he stated contained nothing injurious, and which would keep for a long period. This statement has proved correct, for I have here some milk which has been in the hands of the Secretary of this Society since that period, and which, on being opened to-day, was found perfectly sweet. But if l'Abbé Moigno's process has remained a secret, M. Pasteur has succeeded in effecting the same end, and probably by the same method. Thus he has found that if milk be heated to 212°, it will only remain sweet for a few days; if heated to 220° it will remain sweet for several weeks; but if to 250° (under pressure, of course) the milk will keep for any length of time. This, according to M. Pasteur, is owing to the spores or eggs which generate lactic fermentation being destroyed by the high temperature, and thus the possibility of fermentation is put an end to.

The adulteration of milk by various substances stated to have been discovered therein, has, I think, been greatly over-estimated, as I have never found any of them in the samples of milk which I have analysed—in fact the most easy and cheapest of all is the addition of water. It is comparatively easy to ascertain if milk has been tampered with; but, without entering into details of the methods necessary to estimate the exact extent of adulteration, I may mention the following plan:—If a glass tube, divided into 100 equal parts, is filled with milk and left standing for 24 hours, the cream will rise to the upper part of the tube, and, if the milk is genuine, will occupy from 11 to 13 divisions. Another practical method is to add to the milk a little caustic soda, and agitate the whole with a little ether and alcohol, which dissolves the fatty matters; this ethereal solution is removed from the milk and evaporated, when the fatty matters remain, and experience has shown that 1000 parts of good milk will yield 37 parts of fatty matters. Any milk leaving no more than 27 must have been tampered with. Dr. Voelcker suggests the employment of a hydrometer as a means of ascertaining the quality of milk, as the specific gravity of that fluid is an excellent test. From a great number of experiments he has ascertained that good new milk has a sp. gr. of 1.030, whilst if good milk is adulterated with 20 per cent. of water, its sp. gr. will fall to 1·025. *Dr. Crace Calvert before the Society of Arts.*

TRIALS OF REAPING MACHINES.

THE trial of the Reaping Machines in connection with the North Lincolnshire Agricultural Show, took place at Gate Burton on Friday last, August 12, in a field belonging to Mr. Harpham. From the number of machines exhibited at the show yard, and the fact that the present year is considered very favourable for their operation, an exciting and severe contest was expected. The number of machines actually put in competition was nine, embracing some from the most noted and approved makers, including R. Cuthbert & Co.'s one and two-horse reapers, Picksley & Sims', Bamlett's, Woods', Burgess & Key's "self raker," Hornsby's self-delivery and one-horse manual delivery ditto.

The trial field embraced about 16 acres of Wheat, very strong but nearly all standing, except in some few places; about one acre and a half was allotted to each machine, and after a few rounds by each, the pieces was measured off, and the cutting commenced against time. Considerable difference was manifested both as to time and the quality of the work done. R. Cuthbert and Co.'s 2-horse machine cut nine-tenths of an acre in 33 minutes; Bamlett's 1 acre in 45 minutes; Picksley and Sims', and Woods' in about the same time. The self-delivery machines were much longer and made very indifferent work. After a somewhat long and severe contest, the 1st prize of 10*l.* given by the Right Hon. the Earl of Yarborough, President of the Society, was awarded to Mr. H. Smith, of Winterton, R. Cuthbert and Co.'s agent for Lincolnshire; and the 2d prize of 5*l.* to Messrs. Hornsby's 1-horse reaper. This is the fifth time the North Lincolnshire prize has been awarded to Cuthbert & Co.'s reaper.

On Saturday an extensive trial of reaping machine took place under the auspices of the United Agricultura Society of East Lothian. The competition took place on the farm of Athelstaneford, near Drem, where Mr. Douglas, the famed breeder of farm stock, had provided a field of 65 acres of Barley, divided off into lots of about 1¼ acre, and a field of Oats of 40 acres, divided into lots of nearly an acre each. The weather was extremely favourable for the competition, and the crop cut was in capital condition. The Barley was on a nearly level field, and was a full average crop; the Oats, which were in a field with a gentle slope, were light in the straw, but fully up to the average Oat crop of the season. Upwards of 30 machines were entered for the competition, but several were withdrawn. Several more were not brought forward, some of them owing to the machines having been missent or delayed by the railway company. There were very general complaints on the ground as to the conduct of the railway in the matter, and the competition was delayed fully an hour later than the time announced for its beginning. 18 machines in all took part in the competition, displaying fully the different principles of construction and working of those now in the market. Four were on the self-delivering principle—namely, Samuelson & Co.'s two-horse machine, Brigham & Bickerton's two-horse and one-horse reapers, and M'Cormick's sheaf-delivering machine, the latter exhibited by Mr. Todd, of Castlemain. The manual delivery reapers were—two by Mr. Halliday, of Haddington; two by Mr. Wallace, Alexandria, Dumbartonshire; two by Picksley, Sims, & Co.; one Pixley machine exhibited by Mr. Hume, Coldstream; a two-horse band-delivery reaper by Mr. Gray, of Brownrigg; a two-horse reaper by Brigham & Bickerton; a "Buckeye" combined reaper and mower by the same firm; a Gardner & Ainslie machine, shown by Mr. Reid; and a new two-horse reaper by Messrs. G. & W. Porteous, of Haddington. There were also one of the "Eclipse" one-horse machines of Samuelson, and a one-horse "Excelsior" of Brigham & Bickerton. The extent of the competition brought together a large number of the leading agriculturists of Scotland to witness the interesting sight. The judges were the

Marquis of Tweeddale, Mr. Henderson, Byres; Mr. Smith, Steventon Mains; Mr. Wyllie, Bolton; and Mr. Russell, Coalstonemains. The reaping began on the firing of a gun shortly after 11, and concluded about 5 in the afternoon, an interval taking place between the cutting of the Barley and the Oats, during which time a large party of gentlemen dined in the tent, the Marquis of Tweeddale presiding. After the allotted spaces in the two fields had been cut, the judges went minutely over the work, and also inspected the mechanism of most of the machines. They then selected a few for a further trial under their own immediate view, and after consideration gave the following awards:—For manual delivery machines—1st prize, Halliday, Haddington; 2d ditto, Brigham & Bickerton's "Buckeye;" 3d ditto, Halliday, Haddington; 4th ditto, Wallace, Dumbartonshire; 5th ditto, Humes, Pixley; 6th ditto, Wallace, Dumbartonshire. For self-delivering machines—1st prize, Samuelson & Co.; 2d ditto, Brigham & Bickerston's two horse. For the best reaper in the field, Mr. Halliday, Haddington. The machine placed first is the same as that with which Mr. Halliday took the first prize at the competition at Yester, in the same district in 1861, but with considerable improvement. It differs from the machine placed third in having a compound acting guiding wheel, by which the machine is easily turned, and which has the merit—of considerable importance on a Grass bottom—of not cutting up the soil, however sharply it may be turned. Both Halliday's machines are provided with a very simple arrangement, by which one lever throws the machine out of gear and at the same time lifts the knives out of the ground. This is by many deemed an advantage, though it has been objected that, as the knives cannot be lifted without stopping the cutting, there is not the same facility for clearing obstructions, such as stones, as is given in reapers where the actions are not conjoined. The balance arrangement for lifting the knives in Samuelson & Co.'s one-horse machine was much admired. There were, however, no prizes given for one-horse reapers. Brigham & Bickerton's machines, of which there were five on the ground, took both the 2d prizes. The "Buckeye" is a strong and rapid working machine, and gave great satisfaction. Mr. Wallace's reapers, which stood fourth and sixth, differed from each other in the arrangement of the wheels—one of them having two large wheels, while the other was constructed with one only. The Pixley machine, shown by Mr. Hume, started very late, owing to its detention on the railway, but succeeded in taking its place in the prize-list. The easy draught and excellent working of Samuelson's self-delivery machine won it the first place in that class. Its light draught is materially assisted by the action of the teeth, which pass through two fingers at each revolution, thus lessening the number of revolutions necessary to give speed to the cutters. The same arrangement is used in the "Eclipse" machine. The band-delivery machine of Mr. Gray excited considerable attention by its novelty. In it a girl follows the machine, placing a "whippie," or binding straw, on the tilt-board after each sheaf is delivered. The band is thus found lying beneath each sheaf on the ground. In every respect the competition went off well, and the work done was throughout good. So much was this the case that the opinion was freely expressed that with any of the machines on the ground a farmer would be well served.

IMPORTS AND EXPORTS.

The Commissioners of Customs have issued their report on the year 1863. The following are extracts:—

"Beginning with the return of the declared values of British and Irish exports, and comparing those of the six last years, we find the figures to be as follows:—In 1858, 116,608,756*l.*; in 1859, 130,411,529*l.*; in 1860, 135,891,227*l.*; in 1861, 125,102,814*l.*; in 1862, 124,992,264*l.*; and in 1863, 146,489,768*l.* So great has been the stimulus given to our manufactures during the year just past by the general prosperity of the country, that even the values of 1860, the highest previous year on record, have now been surpassed by nearly 11,000,000*l.*, an increase of 7 per cent., and those of 1862 by more than 22,000,000*l.*, an increase of 18 per cent. There is a rise in the value of haberdashery exported of more than 750,000*l.*; in hardware and cutlery, of 500,000*l.*; in linen yarn and linen manufactures, of 2,000,000*l.*; in machinery, of 250,000*l.*; in iron and iron manufactures, of 1,750,000*l.*; in other metals, of 1,500,000*l.*; in woollen yarn and manufactures, of nearly 3,500,000*l.*; and of cotton yarn and of cotton manufactures, of nearly 2,000,000*l.* and nearly 9,000,000*l.* respectively. The general result of the exports of British and Irish produce to all foreign countries is an increase of nearly 13½ millions, or 16 per cent., the figures being for 1862, 82,096,915*l.*, and for 1863, 95,570,114*l.* The remainder of the 22,000,000*l.* increase on exports generally has been absorbed by our colonial dependencies. India, as usual, has taken the lion's share, nearly 20 millions' worth of goods. The total values of the British and Irish exports to the British possessions are 50,919,654*l.* as against 41,895,349*l.* in 1862, an increase of nine millions, or 21 per cent.

"In the same manner the real values of the foreign and colonial exports have risen from 42,175,870*l.* in 1862 to 49,485,005*l.* in 1863, an increase of upwards of 7,000,000*l.*, or 17 per cent. as compared with one of 25 per cent. last year.

"The real values of the imports continue steadily to advance in an increasing ratio every year. Last year we recorded a rise of 4 per cent. in 1862 over 1861, as compared with one of 3 per cent. in 1861 over 1860. We have now to record one of 10 per cent. in 1863 over 1862. The figures are as follows:—In 1861, 217,485,024*l.*; in 1862, 225,717,976*l.*; in 1863, 248,980,942*l.*, showing an increase of 23 millions. This is the more wonderful when we consider that our imports from America, which fell in 1862 from 49 to 27 millions, have in 1863 experienced a still further decline of more than eight millions, or 29 per cent.—viz., from 27,715,118*l.* to 19,570,815*l.*

"We come now to our usual comparison of the quantities of the principal articles imported, and find an increase in 11 out of 14. 1st. Cotton.—The quantity of this article has advanced from 4,678,333 cwt. to 5,978,422 cwt. 2. Coffee this year shows the very large increase of 117,354,329 lb., as against 94,041,883 lb. in 1862. 3. Hemp and jute, 2,290,946 cwt., against 1,951,708 cwt. 4. Provisions (excluding eggs, the number of which has also largely increased) show 4,602,934 cwt., against 4,031,174 cwt. 5. Spirits, 10,521,131 gallons, against 10,281,586 gallons, rum having fallen off, and brandy and geneva increased. 6. Sugar (unrefined), 10,724,647 cwt., against 9,884,191 cwt. 7. Tea, the importation of which rose from 96,577,383 lb. in 1861 to 114,787,361 lb. in 1862, has again advanced in a still more remarkable way, viz., to 136,806,319 in 1863, partly owing to the transit to America and Russia from China being now performed through this country, and partly, no doubt, from the reduction of the duty having encouraged extended importations. 8. Timber and wood goods show 3,379,736 loads against 2,886,028 loads. 9. Tobacco shows 55,122,048 lb. as against 42,306,034 lb. in 1862. 10. Wine shows 14,186,189 gallons, as against 11,960,676 gallons. The quantities are as follows:—Spain, in 1862, 5,365,647 gallons, and in 1863, 6,716,560; Portugal, in 1862, 3,048,491, and in 1863, 3,594,885; France, in 1862, 2,244,727, and in 1863, 2,186,701. The produce of the Madeira Vines has still further fallen off from 47,102 gallons to 39,460 gallons, while the Cape growers appear to have determined on a fresh struggle on equal terms against foreign competition by sending us 105,165 gallons against 49,455 in 1862. The importation from Italy has also considerably advanced after the decline of 1862, and now exceeds that of 1861 by 40,000 gallons. 11. Wool shows 174,094,062 lb., as against 168,836,713 lb., the largest importation yet known.

"To turn to the three articles of which the quantities imported have decreased:—

"1. Corn and flour show 13,857,399 qrs. and 5,233,789 cwt., as against 16,375,192 quarters and 7,225,048 cwt. in 1862. This falling off is, of course, owing to the abundant harvest in this country, and is therefore in every respect a matter only for congratulation.

"2. Flax (dressed and undressed) shows 1,458,962 cwt. as against 1,798,351 cwt. in 1862, and 1,333,679 cwt. in 1861. The decrease is evidently only owing to the importation of 1862 having been unusually large, and is, moreover, a sign that Cotton has been more plentiful last year than it was in 1862.

"3. Silk (raw) gives 9,221,145 lb. against 10,372,123 lb. in 1862.

"Before proceeding to our record of the quantities of the principal articles entered for home consumption, we think it may be interesting, for the purpose of showing the magnitude of our commercial transactions with America and France, to give a comprehensive view of the state of our trade, inwards and outwards, with those countries, for the year 1863:—General imports from America, 19,570,815*l.*; import of bullion from America, 8,147,524*l.*; total inwards, 27,718,339*l.* Exports (British and Irish) to America, 15,351,626*l.*; export of bullion to America, 54,195*l.*; foreign and colonial exports, 4,235,557*l.*; total outwards, 19,641,378*l.*

"From France our general imports have been 24,024,619*l.*; import of bullion, 1,444,270*l.*; total inwards, 24,468,889*l.* Exports (British and Irish) to France, 8,667,138*l.*; export of bullion, 4,760,984*l.*; foreign and colonial exports, 14,271,152*l.*; total outwards, 27,699,274*l.* Thus, while it would appear that we are indebted to America on the direct transactions of the year in more than 8,000,000*l.*, which we have taken from her in goods or in bullion over and above what she has received from us, we seem to stand, on the other hand, in the position of creditors towards France, on the balance of the accounts of our direct trade for the year with that country, to the extent of upwards of 2,000,000*l.*

"We shall now proceed to show that the large importation of articles necessary for the use and comfort of mankind which we have just detailed has not been made upon a false estimate of the consuming powers of the country.

"The returns of the quantities entered for home consumption in the year 1863 show us that out of 11 principal articles 8 have experienced a rise. The consumption of cocoa has risen 4 per cent; of currants 9 per cent.; of raisins 11 per cent.; of tea 8 per cent. This is the largest increase in the consumption of tea that has occurred since 1857, and it is to be accounted for in the same way as in that year—viz., by the reduction of the duty. In 1857 the duty on tea was reduced from 1*s.* 9*d.* to 1*s.* 5*d.* per lb., and the quantity consumed rose from 63,200,000 lb. to 69,100,000 lb. in round numbers. The same result has followed the reduction made last year from 1*s.* 5*d.* to 1*s.*, though the increase has not been quite so large in proportion—viz., from 78,800,000 lb. to 85,200,000 lb. in round numbers. The former reduction, however, took effect on the 6th, and the latter not till the 25th of April. The consumption of sugar (unrefined) has risen 2 per cent., that of refined having slightly fallen off; of spirits 6 per cent., the increase being all in the imports of brandy and geneva; of tobacco 5 per cent. Wine (our last article) shows a rise of 7 per cent.—viz., from 9,803,028 gallons to 10,478,401, though the consumption still falls short of that we recorded for 1861. The wines of Spain have been more in demand during the last year than those of either of her rivals, Portugal or France. For while the consumption of French wines has risen from 1,901,200 gallons to 1,937,555 gallons, or 2 per cent., and that of port from 2,350,437 gallons to 2,618,680, or 11 per cent., that of Spanish wines gives an increase from 3,955,424 to 4,531,424 gallons, or 14 per cent. This return is also in excess of that for 1861 by nearly 500,000 gallons, while those for France and Portugal still fall short of the quantity consumed in that year. The quantities of each class of wine consumed in the year have been—of red, 4,529,053 gallons, and 5,949,348 gallons of white; the stronger wines still continuing to command four-fifths of the whole consumption of the country. There are only three articles which show a decrease of consumption. Corn and flour have fallen off from 16,354,397 qrs. and 7,191,384 cwt. to 13,794,834 qrs. and 5,182,184 cwt., or 15 per cent. and 28 per cent. respectively. This, as we said above, has arisen of course solely from the abundant harvest, and the increased quantities of home-grown grain consumed in 1863. The fall in coffee, viz., from 34,664,135 lb. to 32,986,116 lb., a decrease of 4 per cent., we can hardly account for altogether, as in previous years, by its wholesale adulteration with chicory, inasmuch as since April 1863, the duties have been nearly equalised, although we believe the dealer still finds it his interest to adulterate, the price of chicory being so much lower than that of coffee. We may, however, attribute a portion of the loss to the fact of the increased demand for tea, now that the duty on that article has been reduced, having somewhat affected the market for coffee. In the face of so very large a reduction of duties as has been made by the Government in the year 1863, amounting in all to a sum estimated at 1,708,785*l.* a year, it cannot, of course, be expected that the Customs' revenue should show anything but a very considerable decrease. The total gross receipt has fallen from 23,993,546*l.* in 1862 to 23,588,932*l.* in 1863, and the net receipt, after deduction of repayments and drawbacks, from 23,709,505*l.* to 23,217,637*l.*, a decrease of 491,868*l.*, or nearly half a million.

"The comparative returns of shipping show, first, that the increase in the tonnage entered inwards and cleared outwards in 1863, as compared with 1862—viz., from 26,535,439 tons to 26,738,733, or an increase of 203,294 tons, is entirely in the British shipping, and tonnage of foreign vessels inwards and outwards having fallen off from 10,588,579 tons to 9,719,341 tons, while that of the British has risen in the year from 15,946,860 tons to 17,019,392 tons or more than one million of tons. 2dly. That the number of new vessels built and registered in the British empire in 1863 is 2090 of 507,606 tons burthen, as against 1933 of 451,534 tons, an increase of 157 vessels and 56,072 tons. 3dly. That though the aggregate number of vessels existing on the registry has fallen in the past year from 39,427 vessels to 38,282, yet the tonnage at the same time has risen from 6,041,358 tons to 6,427,273 tons, and the number of men employed as crews from 304,171 to 312,722, so that the carrying power of British shipping has increased instead of diminishing."

RESTRICTIVE CLAUSES IN LEASES.

Like all human laws made for the purpose of keeping the vicious from perpetrating mischief upon their neighbours, these covenants introduced are expressly for the purpose of preventing an ignorant, selfish, or evil-disposed tenant from injuring the farm he occupies; and it is therefore usual for landlords not to interfere unnecessarily whenever they feel that they have a tenant equal to the management of the farm, and who is evidently improving it yearly as he goes on. And it behoves the landlord to sanction the proceedings of the tenant by entering into a new contract a few years before the expiration of the current lease, thereby ensuring the improvements to him, or the money spent in these improvements should be repaid by valuation, in proportion as they may be unexpended at the expiration of the term.

The injury that a tenant has the power of inflicting upon a farm, by a scourging process of cropping and reduced cultivation, in the last years of the term, can hardly be over-estimated, and it behoves every landlord to guard against it as far as possible. This can only be effected by stipulations introduced into the lease at the time of the tenant entering upon the occupation. And in case no new agreement should again have been entered into at the commencement of the fourth year

next preceding the expiration of the lease, these stipulations should be to the effect that the landlord agrees to pay for all draining, for all extra manuring by manure purchased and brought on, or by oil-cake consumed, and for all other permanent improvements made by the tenant from that time, in such proportion as they may be unexpended at the expiration of the lease; a deduction for any dilapidations to the farm by neglect or improper management being made by the valuers, whose decision, by themselves or umpire, should be binding, and conclusive as regards both parties.

Let us add, that as the wealth and intelligence of the farmer increase, it becomes more and more the interest of the landlord to leave the management of the land which he has leased for a term of years to the unshackled enterprise of the tenant. Except during the last few years of the lease, to which the above paragraph refers, it must be the interest of the farmer to maintain the fertility of the land at as high a pitch as possible; and the purpose both of the owner and occupier of the land is best served by leaving the latter to do all he knows for his own interest, which is that also of his landlord, unshackled by restrictions whether as to cropping or as to sale of produce. Towards the end of the lease, when the interests of the owner and occupier may diverge, the former should endeavour to renew the engagement of the latter at such a rent for another period as the land may then be worth; and failing that, he should insert in the lease that during the last four years of the term no straw or hay be sold without an equivalent purchase of manure, no two white-straw corn crops should succeed each other; all root crops should be consumed on the land, and one-fourth the land should lie in Clover every year.

There can be no doubt that it is not merely the personal interest of the landowner that is served by the adoption of the lease for a term of years, with any other expedient which increases the quantity of capital invested in the cultivation of the land, but every other interest is also served. The general adoption of thus tilling land is a matter of public policy; and we make no excuse for adding here the following statement of the argument on this subject:—

"Everybody is benefited as the quantity of invested farm capital increases—the landlord, for rent in the long-run is in proportion to the fertility of the soil, whether it be natural or artificial—the farmer, for, notwithstanding what economists tell us about the greater costliness of every fresh addition to an artificial fertility, practical men know well that from the latest outlay on the soil there is not only its own return but an increased benefit derived from what has been done before; for instance, that besides the advantages conferred directly by the steam plough, there is an increased efficiency given by it to the land drainage which had preceded it; that besides the direct advantage of the application of lime, there is the increased force given by it to previous manurings; and many other illustrations could be quoted. That the labourer and the consumer are benefited by the increased outlay and effort of the farmer is too plain to require a proof.

"The converse of the proposition is equally true—everybody is injured by that which either occasionally or constantly checks the investment of farm capital. The value of the land, the profits of agriculture, the money paid as wages, the produce sent to market, all diminish with the slackened effort of the farmer. There is thus no question of greater agricultural importance than—how to encourage the investment of capital in the land.

"There are two principal plans which landlords have adopted in order to a satisfactory solution of this question. They have offered their land to wealthy tenants for a term of years at a fixed annual rent, letting it, with as few restrictions as possible, be dealt with as the tenant chooses, in order to the creation of fertility, and the conversion of that fertility to his profit. And this, it cannot be doubted, is the only true way to encourage agricultural enterprise. It has the two great advantages of giving to regular professional agriculturists the certainty of a home for a term of years, and to the more energetic among them an undisturbed and certain field for their enterprise. The lease alone, however, is not a security for the permanence of the fertility which it creates.

"When tenants have made the outlay which the circumstances of the farm require, and the fertility thus conferred is rewarding their exertions, the end of the term draws near, and knowing that then their opportunity is about to cease, it no longer becomes their interest to make any other outlay than is repaid within the year or by the current crop. They draw upon the artificial fertility which they had created until it ceases with the end of their occupation as it began with its commencement.

"When 'the lease' alone exists, there is thus a tendency to an intermittent fertility. And some modification of the relation between the landlord and the tenant is needed to make the latter maintain good and energetic management throughout his occupation of the farm. This modification is either in the nature of a series of restrictions as to cropping and sales of farm produce during the last few years, to which we have referred above; or it is in the nature of a provision, by which any extraordinary expenditure by the tenant in farm management and improvement is repaid to him so far as the benefit of it may remain unexhausted when his lease expires."

The provisions which are to have this effect, by which it becomes the interest of the farmer to keep the land at its utmost fertility to the very end of the lease, constitute the code of what the Vale of Evesham Agricultural Society call "landlord and tenant right." It is plain that they are not antagonistic but supplementary to the lease for a term of years—that the latter more especially is the incentive to agricultural enterprise, and that the former ensures the maintenance of the fertility thus created.

This system of tenant-right valuation, by which along with the security, not of a lease but of the personal character of the owner of the land, the fertility of very large districts in this country is maintained at a very high pitch, has long been known and praised by agricultural writers as characteristic of the best parts of Lincolnshire and some other counties. Thus the usual allowances in the north of Lincolnshire to outgoing tenants are as follows:—

Bone dust is considered to last three years—a tenant receives two-thirds the cost of what he applied the previous year, and one-third of what he applied the year before that. For marl or chalk, an allowance is made until seven years have expired. For lime, the allowance lasts five years. For draining with tiles, it last seven years. "It is plain that there is nothing in the two systems of lease and tenant-right to make them antagonistic; they should be combined in order to the best result." And this, accordingly, is the plan recommended by a committee of the Vale of Evesham Agricultural Society, which, under the presidency of Mr. E. Holland, M.P., has lately issued a scheme for the preservation of both landlord and tenant right, of which the following are the principal provisions.

After the usual arrangements for the appointment of valuers and arbitrators between the landlord, or incoming tenant, and the outgoing tenant, it is declared:—

"At the expiration of the tenancy, one-half part of the arable land shall be clean, and fit for planting with white straw crops. One moiety of such half part shall have been fallowed with green crops during the previous summer, the other moiety thereof shall have been wholly under Clover or mixed Grass seeds, or parts in Clover, and the rest Beans after being manured. None of the Clover or other Grasses shall have been allowed to stand for seed.

"One-fourth of the arable land shall have been sown in the spring preceding the termination of the tenancy with Clover or other proper mixed Grass seeds, upon land fallowed the previous year, and clean (or upon clay land farms this fourth may be not less than half Clover, the remainder fit to plant with Beans). The Clover seeds shall be supplied by the landlord or incoming tenant, not later than the 1st of March. If not so supplied, they shall be purchased (not less than 14 lb. to the acre) by the outgoing tenant, who shall be paid on production of vouchers for the same. He shall also be paid for sowing and harrowing, but shall not stock the seeds after harvest.

"Not more than one-fourth of the arable land shall require to be fallowed in the year after the termination of the tenancy, nor require an outlay of more than 50*s.* per acre to clean it; if it require less than that sum, the incoming tenant shall pay the difference.

"The incoming tenant shall pay 50*s.* per acre for all land in excess of one-half which, under the above conditions, is fit to plant with white straw crops, and shall be paid at the same rate for every acre short of one-half of the arable land.

"The incoming tenant shall pay 40*s.* rer acre for all the land whereon Clover or other Grasses have been grazed the whole summer by sheep, provided that it be clean, and that only one crop of corn has been taken since the previous fallow. The outgoing tenant shall be entitled to the sum of 50*s.* per acre for all clean fallows; if not clean, the cost of making them so must be deducted.

"The out-going tenant shall be paid one-half the cost of all purchased manures applied to green crops in the last year of the tenancy, and one-fourth of that in the last year but one, such cost not having exceeded 40*s.* per acre. All unprepared bones and lime used upon any part of the farm within the last four years shall be paid for, and burnt soil, where the application has not been less than 80 cubic yards per acre—one-fourth of the cost in each case being deducted for each year's use—and for every other fertiliser of a permanent character, such allowance as the arbitrators may determine. He shall also be paid one-half the cost for all oilcake or linseed consumed during the last year, and one-fourth of that consumed in the last year but one provided that it has been given to cattle and sheep, but not to horses, and does not in either case exceed the average of the three previous years.

"The outgoing tenant shall be entitled to the value of all growing green crops, and of all hay and straw remaining on the premises. The arbitrators shall fix the times for threshing and for delivering such straw to the incoming tenant.

"It is desirable that all draining should be done by the landlord, charging interest for the cost thereof; but where it has been done with pipes at the tenant's expense within the last eight years, and provided the extent and system have been approved by the landlord in writing, the cost not including carriage of materials, shall be repaid, subject to a deduction of one-eighth for every year's use; but in case the landlord has paid for materials, the cost of labour shall be considered as repaid in four years.

"All other permanent improvements made by the tenant with the landlord's previous sanction in writing, shall be paid for as the arbitrators may determine.

"Not less than 12 months' notice shall be given to terminate a tenancy."

We are glad to give currency in the pages of a standard work on valuations such as Baylton's has become, to suggestions issued on such good authority as that of the Evesham Committee, and so well calculated as these appear to be to provide for the interests of both the landlord and the tenant, and to hinder that intermittent condition as to fertility of the land which prevails when leases without valuations of unexhausted improvements at the termination are the rule.

We conclude this chapter with one word of warning as to the possibility of an over-regard in this way to the interests of the outgoing tenant. He certainly has no right to a full valuation of all the improved conditions which his landlord's property has acquired while in his hands. The valuations recommended are merely for the purpose of securing him from any loss to which liberal farming to the end of his lease might subject him. "A great apparent increase in the intrinsic value of an estate may often arise from a comparatively inexpensive act on the part of the cultivator. Draining, liming, or subsoiling may sometimes increase the value of land far beyond the cost of the operation; but notwithstanding this, no claim can be justly made for more than this cost. Its effect has been so great, not because it has added to the soil anything for which the tenant paid, but because it developed and brought into action that which, though dormant then, had a pre-existence in the property of the landowner."

It is plain, then, that the sole object of the valuation of what has been called tenant right, is to induce a tenant to continue his usual practice hitherto of applying bone-dust and other manure, and of purchasing cake and other food for cattle, by letting him have his year, or two years, or three years' enjoyment, as the case may be, of the result, with a repayment of such a portion of the mere cost of the operation as would, at the termination of the lease, correspond to the years yet to run of the period during which the operation would still be fruitful.

It is well to bear in mind that excessive valuations of this kind at the commencement of a new tenancy are prejudicial to the value of land, by restricting competition for it to a less numerous class of farmers. When valuations on entry are not heavy, a larger number of applicants come forward in competition for any vacant farm. *Baylton's Art of Valuing Rent and Tillage. 8th Edition. By J. C. Morton.*

Home Correspondence.

Rye-grass and Cattle Disease.—Since noticing the letters of Mr. Mechi, Mr. Wallace, and others in your *Agricultural Gazette*, respecting disease which appeared in cattle after depasturing on fields of Italian Rye-grass, I have examined the Rye-grass growing on the edges of green paths and headlands in our fields, and I find a considerable quantity of Rye-grass which has been, and some which still is, affected by the disease called "Ergot." The Ergot or "Spurred Rye" is known to possess deleterious and poisonous qualities on the human frame, though it is employed for special medical purposes. The question arises whether "Spurred Rye-grass" eaten by cattle, can, or may, produce disease in their system. The noxious qualities of the Ergot of "Rye" are mentioned in many works upon poisons, or medicines; but I do not recollect meeting with any observations respecting the existence of a similar disease in Rye-grass. *Nath. C. Barnardiston, The Ryes, Sudbury, Suffolk, Aug.* 17. [Rye-grass is not uncommonly ergotted; and much mischief, especially to cows in calf, has often been attributed to it.]

Crops in Norfolk.—What a serious drought we have had, and I may say still have! It has been the most trying season for the farmer and his live stock that I have any remembrance of, and I fear that we hardly yet know the worst of it, as there is no prospect of winter food for stock. As regards the Wheat and Barley crops in this district, I think they are both nearly of average quantity and quality. I have cut all my Wheat, and carted all except 8 acres; and I shall have carted a third-part of my Barley before this day is over. I am rather overstocked with bullocks, but they do not seem to suffer for want of feed; the water from the stream which I headed up three years ago with a sluice seeming to supply the place of Grass. *T.*

Wheat-carrying by Grant's Portable Railway.—It may interest many of your readers to know that this railway was yesterday employed on the estate of H. Bannerman, Esq., in this parish, in carrying Wheat to the stack, being, it is believed, the first work of the kind ever attempted by rail. A good crop was cleared off a 6-acre field in the course of the day, and stacked in the field in a decidedly expeditious and creditable manner; the frequent shifting of the branch line and turntable being effected with remarkable ease and despatch by one man. The tackle employed consisted of 60 rods of rails, two trucks with ladders, and two turn-tables. Although corn-carrying is not the kind of work for which the railway would be most useful in this district, where so little is grown, yet I feel it to be due to Mr. Grant, who has bestowed a very great amount of thought upon the subject, to state my conviction that the adaptability of the railway for carrying corn, as well as roots and manure, must be a most important consideration in the great corn and root-growing districts of the kingdom, especially on large holdings, where steam is used in the cultivation of the soil, and the horse-power of the farm is reduced to a minimum. Although the field in question inclined upwards to the stack, one horse only was employed to draw the two trucks coupled together. But it would very frequently happen in level districts that horses might be entirely dispensed with. As I have said, however, these considerations rather concern your corn-growing readers than the Hop-growers of this neighbourhood, who are chiefly attracted to the rails by the power which their great bearing surface affords, of getting out manure, hop-poles, &c. at any season without having to wait for a frost, and of avoiding that injurious kneading of the soil which carting off the root crops so often inflicts. *William L. Hubble, Steward to Henry Bannerman, Esq., Barn Hill, Hunton, Kent, August* 20. [How many men and boys were used; and what quantity of corn was got together?]

Societies.

Ormskirk.—Lord Stanley presided at the annual meeting of this Society last week, and thus referred to its uses and proceedings:—We are not a very ancient society—all the better for us, I say, because we are clear of antiquated rules and unsuitable customs. We are not an old society, but these are days when men live fast, and when the year does the work of half-a-dozen. We have seen within one generation on this very spot a village grow up into a town of 20,000 people; and we need not, therefore, be ashamed of owning that our society is a little younger than Southport—being only eight years old. Nor can we claim to be at present a very numerous body. We have upon our list as paying 10*s.* and upwards, 220 members, but

there have been fluctuations. Two or three years ago the number was rather larger than it is now, but I lay no stress upon that, because I consider we are still growing, and that we have not at all reached what may be considered as our permanent position. But in a society of this kind the number of enrolled members is no test whatever of the amount of the work which you have done, or which you are doing. There are very many persons who don't care to subscribe, but who, nevertheless, come as regularly as any subscribers to our yearly meetings, and who pay their shilling upon the ground, and who go away, having carried off whatever they could learn there in the way of agricultural experience. Now, those attendants, though they might not show on our lists, yet not only do some good to themselves, but very materially assist in the aggregate of our finances. I don't mean by that that I should not be very glad, for one, to see the subscriptions to this Society increased. I think they ought to be increased, and I think they will be increased; at the same time, I can make large allowances for men who are not very willing to part with money that has been hardly earned by their own labour, or by labour which they have honestly paid for. It is one thing to be free with your cash when you have made, God knows how much by speculation, at the risk of total ruin, and it is another thing to part with that which has been honestly and hardly earned. But what I do say is this, that the influence and usefulness of a society of this kind is not in any degree to be measured by the number of its annual subscriptions. I think we have a much better test in the attendance at the show-yard, and in that respect it shows a very marked improvement. The amount taken at the doors last year, I am told, was 117*l*. To be sure, it was wet, but that is not a very unusual thing in Lancashire. The amount this year I believe has not been accurately made up, but it this day considerably exceeds 200*l*., and that, I hope, is a fair measure of the progress we are making. On the whole, if we look back at the past, although we may not be able to point to any very brilliant or extraordinary achievements, still we may fairly say that we have done, and are doing, our work in a steady and unostentatious way. There is such a thing as making the pace too good to last, and spending all one's energies at the outset. Well, I hope we have not done that. Plants which are the fastest of growth are the most rapid also to decay. That has not been our case and I think we have taken root in the soil; and, although we expect to be blown about and buffeted, our association will grow up into a stately tree. Having discussed these financial details, let me say one word as to the value of local associations of this kind. There are some people who think it would be better if there were only one or two great agricultural associations in a county, and if all these smaller gatherings were done away with. I believe they are entirely mistaken. I don't look upon it that we take away one subscription or one visitor from the Liverpool and Manchester or from the North Lancashire agricultural societies. There are many gentlemen who attend here in their own neighbourhood, among their own friends, where they can recognise every other face they see, who would never think of taking the trouble of going to one of the inland towns among strangers halfway from here to Yorkshire. No, there are some people who say, "I can't afford to subscribe to both the county and the local society, and I prefer the local." That is true; but then the larger association may set this against it—there are many persons who acquire a taste for these meetings, and an inclination to compete at them, who would never have acquired that taste had not the opportunity been brought to their doors. There is another point. We are a little out of the way here. The greater societies very properly and naturally look to their balance-sheet, and, as that depends very much upon the number of admissions to the show-yard, they are always anxious to hold their meetings in the most central towns, where a large number of persons can be brought together. That is quite right for them to do; but I am afraid if we had to rely upon them exclusively, we in Southport and in Ormskirk might find ourselves, to use an American phrase, "left out in the cold." Well, I say, therefore, let us live and let live. There is ample room for our society; ample room for other associations of the same kind, and I hope that we may continue to flourish by the side, and, if they so please it, under the shade of our bigger neighbours. They won't hurt us, and I don't believe we shall hurt them. And now will you let me say a few words upon a question deeply interesting to us all, and which on these occasions we can't entirely avoid—namely, what are the prospects of agriculturists in these districts, what has been done, and what is doing here? I have always said, as I say now, recognising as I do the immense improvement in the past 25 years, that Lancashire farming is still not, upon an average, what it ought to be, and not what it will be. Partly this is due, I think, to the enormous increase of trades and manufactures in these districts, drawing off capital and energy in other directions; partly it is due, not to poverty, but to the overwealth of landlords, who draw many of them from coal and building land so large a portion of their rents, that to them agricultural operations are a secondary matter; and again, partly it is due to the unfavourable opinion—a prejudice, I think—as to the climate and soil of this country, which possibly prevents farmers from coming here from other districts. No doubt we have a damper soil and a colder climate than in the south; no doubt the sea wind does us no good; no doubt, most of our land requires a deeper and costlier drainage for making it really valuable; but on the other side we have great advantages to set against this. We have an almost entire freedom from such droughts as at this moment are causing the great anxiety and alarm over the south of England. We have more capital at our doors than is possessed by any county excepting the metropolitan county of Middlesex; we have a greater quantity of machinery; we can get better machinery, and we can get skilled men to manage it; and we can too, get what is as important—cheap coal to work with. The flat expanses of this county are singularly favourable for the operations of the steam plough; and what is perhaps more important than all, we have in Liverpool and the adjacent district a market absolutely insatiable, especially for dairy produce. There is one thing more. Whenever our wise men, who are now a good deal at sea on the subject, shall settle among themselves some plan for making the sewage of towns really useful—and I do think that will come before long—we shall then be in a position to take back from the towns as much as we send to them. Well, then, what is it that we want here, and that we can supply? In the first place, I think we want a more thorough conviction, especially among landlords and tenants, that farming, in order to be carried on efficiently, requires both capital and training. I do not look forward, as some people do, to see all small holdings extinguished, and to see the whole country divided into enormous farms and many hundred acres. I shall be sorry to see that day upon social grounds, and I do not believe it will be economically necessary. Now, as a general rule, the holdings in this country are smaller than they ought to be; but I believe—and I am speaking upon the judgment of high agricultural authority—I say, I believe that farms of moderate size, farms of from 100 to 200 acres, may be worked with all the appliances of modern skill and science, given only two conditions—that there shall be the requisite training in the farmer, and that he shall be able to combine with his neighbours to obtain those costly improvements which are necessary for modern farming, and which on his own private account he could not purchase. But we want something more. I have said it before, and I say it again, although I am afraid it is an old story,—I think that every good tenant, who is expected to stay permanently on the farm he holds, is entitled to ask for a lease, or for the offer of a lease. One feels, of course, that there is something rather pleasing in the idea of that relation which exists between tenants-at-will and a landlord, in which the parties are bound, not exactly by law, but by a sort of honourable understanding that exists between them. I have nothing to say against that, and where perfect reliance can be placed upon that understanding I don't doubt it is sufficient. But I do say this,—and in what I am speaking I am rather in my own mind addressing landlords than tenants,—I say that if a tenant is to be expected to lay out capital on his farm, it implies no distrust of the landlord, it is simply an ordinary and a proper business precaution, that he should insist upon having a lease. I may say that upon the estate of which I know most—upon the estate of Lord Derby—no good tenant has been, or will be, refused a lease except under some peculiar circumstances where the arrangements made are only temporary, and where some change in those arrangements is contemplated. Now, there is another matter which I, if I am not tiring your patience, should like to mention. It is quite right that the landlord, whose interest in the soil is permanent, should secure himself against ill-usage or exhaustion of the land by one whose interest may be only temporary. There can be nothing said against that; but that may in general be done by a few simple provisions, and I don't hesitate to say that leases, as they are framed over the greater part of the country, are in many—perhaps in most—cases coupled with conditions which are unnecessarily complicated and unnecessarily restricted. But then the answer is plain. If you don't want to enforce them, what is the use of having them? I believe that these two things—the one making the giving of leases the general rule, the other having leases drawn more simply than, as a rule, they are at present—I believe that those two matters would go very far to settle that question of land ownership of which we have heard something of late. And perhaps you will allow me to say a word about that matter. We have heard great alarm expressed of late lest the soil of England should be swallowed up by a certain number of great proprietors. We have been told that large estates are everywhere increasing, that small properties are everywhere dying out, and that therefore the bulk of the population is being separated from the soil. Now, I cannot speak for other parts of the country, but in these districts I will venture to say that, although there has been a very great amount of transfer, it will probably be found that the transfers have been, in by far the majority of cases, no transfer of the old possessors of the neighbouring property, but rather in favour of a new class of proprietors, who have made their money in towns. No doubt there are cases where estates have grown by economy and good management, as there are other cases where estates have been diminished by waste; but, take it upon the whole, the real change that is taking place is this—that the old small freeholder, burdened with debt and mortgage up to the ears, is being bought off, and his place is being taken by those who have acquired wealth in commerce or in manufactures. Now, I can't say that, as to that process, I see anything which ought to be objected to. In England the possession (I mean the ownership) of land is a luxury; and those, therefore, who are making their 10 per cent. securely in business will be glad to pay from 40 to 50 years' purchase for landed property—receiving, that is, from 2 to 2½ per cent. on their capital, and thus be sacrificing, so far as that amount goes, from three-fourths to four-fifths of what they are making. That is no uncommon case, that is, I conceive, the result of our national character.

The noble lord proceeded to observe that when a Frenchman had made a fortune his desire was to take a fine house in a fashionable street in Paris, while an Englishman, in similar circumstances, would buy an estate, and try to bring up his son as a country gentleman, and that he thought the latter the better taste of the two; but that it followed from the very existence of that taste that land could not be remunerative as an investment. Consequently land was a bad bargain to buy, but it was a good one to sell. A poor man would thus sell a small estate, which was heavily mortgaged, probably thinking, and thinking rightly, that he would do better by becoming a tenant on the land, and by investing the money he thus obtained in the purchase of stock, and in making other improvements, than by retaining a nominal ownership of the land without having the capital or the credit to make that really available in a financial point of view. And thus it was in this country that the number of small freeholds was gradually diminishing—but diminishing not, so far as his observation went, in favour of a few colossal properties, but rather of moderate-sized estates, purchased by capitalists who had acquired wealth elsewhere. He believed that if this state of things in England were investigated, county by county and parish by parish, that would be found to be a true description. That was not a state of things that they need regret. Let them try to give the farmers a more independent possession, and let them encourage such excellent societies as that. He advocated the plan of giving to labouring men at a moderate rent freehold cottages (and railroads added to the facility for so doing), and remarked that the soil of England was not split up into estates of which it would take 100 to make a good-sized field. His lordship concluded by observing that, whether they agreed with him in what he had stated or not, he thought they would be of his opinion that it was better for him to discuss such matters as those to which he had alluded than paying them mere compliments. As to the show of that day, so far as his observation went, it had far outdone any of its predecessors; and though there were not so many implements displayed as might be desired, the show of horses was excellent, and of cattle generally very poor, while the display of fruit was entitled to high praise.

Reviews.

The History of Windsor Great Park and Windsor Forest. By William Menzies, Resident Deputy-Surveyor. Illustrated with Photographs by the Earl of Caithness and Mr. Bembridge, of Windsor. Longmans.

This superb volume, which has been for some years promised, has at length appeared. It is the result of careful and persistent antiquarian research, well directed professional labour, and remarkable literary ability. Describing the Park and Forest in successive chapters during the reigns of Elizabeth, of James I., and until the death of Charles II., from James II. to the death of George I., and during the rangership of William and Henry, Dukes of Cumberland—it relates the age of the existing plantations, the methods employed to determine it, the history of individual specimens of old trees, details of the utilitarian management during the Commonwealth, and the vigorous management as Ranger, of Sarah, Duchess of Marlborough.

The whole is interspersed with much interesting personal anecdote, and with historical and professional memoranda. We thus read as an extract from a document of the year 1625, that in the 22d year of the reign of Elizabeth, 13 acres of Cranbourne Walk in Windsor Forest had been fenced into the Great Park pales, and sown with acorns, "which is now become a wood of some thousands of tall young Oaks, bearing acorns, and giving shelter to cattle, and likely to prove as goodly timber as any in the kingdom." This plantation Mr. Menzies believes to be that large group of Oaks stretching from the back of the Park Bailiff's house and premises in the direction of Cranbourne, which is accordingly in all probability the oldest plantation in this country of which any definite history exists. Again, with reference to another plantation, the following is a note of professional value:—"An important lesson may be learnt from this plantation (one of 1718), and from the fine one of 1693, viz, that in all progressive thinnings of a plantation from the age of 20 years to one of 150 years, light and air *generally* must be sought for, not *special* individual regularity among the trees, and that the finest headed and straightest grown trees should always be left, to the exclusion of double-headed, forked, or bushy ones, though set out at exact distances. It would be a mistake because two or three fine Oaks are growing within 20 feet of one another at 40 years of age to separate them with the idea of thinning them. Give them light and air all round, and they will do well. In these plantations, which in my opinion are perfect both as regards their present state and the system of management which has been followed with them for one hundred years, we find two of the largest and finest trees growing at a distance of but 8 feet apart; we find four other remarkably fine trees also growing in a group at the respective distances of 15, 18, and 21 feet from each other. Indeed, the irregularity is such, that

were all the trees 21 feet apart, we should have nearly 100 to the acre, whereas there are only 30 to the acre, so that some of the Oaks are 50 feet or more apart."

In one of the chapters the date is given—1623—of the first mention of draining; in that year and the following various sums were ordered for the draining and the "trenching" of portions of the Park.

With George the Third's reign commence the notices of the Norfolk and the Flemish Farms, and of their management by Mr. Kent, a land-agent, from the year 1790. Although their cultivation was not profitable, nor even, in some particulars, pointed out by Mr. Menzies, well advised, yet "a most important object [one which has been regarded by his successors] was effected.

"His Majesty's example gave a great impulse to the improvement of farming land in the raising of green crops, draining, liming, and keeping clean; points which were then scarcely beginning to be understood, although we now treat them as the first elements of success in farming."—"The King continued to farm until 1813, when the Norfolk Farm was let to a Mr. Hatch, and the Flemish Farm to Mr. Joseph Perkins. They then passed through various hands, until in 1830 King William IV. resumed possession of them. After his death arrangements were already made to throw them again into the Park when his Royal Highness the Prince Consort took them under his own care."

The latter chapters of the volume relate more particularly to the history of the Forest—its enclosure, the various conflicting claims relating to it, the manners and customs of the district, conflicts with the authority of the "Constables," and particulars regarding remarkable individual trees. The whole is full of very interesting and amusing detail.

Take the following as an anecdote on "title"—a first-class agricultural subject. The owner of the cottage gave the following account of it:—"You see, sir, my wife's father as was, so I've been told, lived in another house near this 60 or 70 years agone; and there was a piece of waste land as were part o' the Common that was handy, and so he first planted 'taturs in it, and then he got some bricks and some sods and he put up a bit of a place to take shelter in, and at last he got to live in it, and there was a good deal o' bother made about it one way and the other; but he was servant to a gentleman as was a magistrate in the neighbourhood, and he was friendly to the poor people, and said as the land was no use to nobody, and so he kept it, and when I married his daughter I came to live in it. When the old man got frail I kep him for a good many years, and when he died, me and my wife's brother we gave him a comfortable funeral; and as my wife's brother paid a good part of the expense of it, he took the one half of the house and lived in it, and I took the other. There never was no will as I heer'd on, and I believes as he never was married to my wife's mother, and so you see, sir, I don't think there is any kind of deeds or titles as I can give you, that I knows on, except it be the key o' the door."

Mr. Menzies justly closes his account of recent history and improvement with the remark—"It is no easy matter to keep pace with the improvements at present going on in England; but what I have mentioned will show that not a little has been done to bring Windsor up to its legitimate position, as it is certainly in an historical light the most interesting landed property in the kingdom."

The magnificent folio volume in which the results of his inquiries into this subject are recorded, is illustrated with a series of admirable photographs of particular trees and occasional groups—Oaks, Beech, Fir, and Cedar. The old Pollard Oak at Forest Gate, probably 800 years old, 27 feet round, is one noble specimen. Some of these sun pictures, in which the inner light of the treeless wood is seen through boughs of Cedar, which cast a broken shadow upon the stems in the foreground, are especially admirable; and, in particular, the picture of Cedars at maturity in Belvidere Wood is very fine. "Queen Anne's Oak," age about 400 years, is another good photograph. The whole series are a worthy garnishing of a very admirable volume,—"Fit gift for a Queen"—as the *Times* reviewer pronounces it, "and dedicated to Her Majesty."

Farm Memoranda.

WATEREND FARM.—Few if any of the Gloucester cheese are what we would call full-milk cheese. It is a common practice in the vale of Berkeley to take the cream from a considerable proportion of the milk. In the dairy at Waterend very little cream is taken off: and this, together with the general carefulness of the management, accounts for the superiority of Mr. Leonard's cheese. He has 36 cows this summer; and previous to our visit 8 lb. to 9 lb. of milk butter, in addition to the cheese, were weekly made. As cheese is made twice a day, the hours for milking are early. In the morning it is commenced a little before 5 o'clock, and in the afternoon at 3. As the milk is brought in it is put into the cheese tub, and great care is taken to free it from impurities. A cloth is thrown over the tub, and above it is placed the ladder with the hair sieve through which the milk is poured. A table-spoonful of nitre is put over the cloth, and is left to mix with the milk as it flows through into the tub. The colouring matter—composed of a solution of annatto—and the rennet are then added, and stirred carefully through the milk.

The thermometer is not used in Mr. Leonard's dairy, and on that account we cannot speak precisely as to temperature. During the time of milking there is, of course, a considerable loss of heat; and as the small quantity of skimmed milk is added in summer without being heated, the temperature of the whole, we would suppose, may be from 85 to 90 degrees when the rennet is added.

About an hour is allowed for coagulation. The time for breaking is judged by the touch of the finger. By allowing the curd to become pretty firm the whey comes off purer than it would do if the curd were earlier broken. Breaking the curd is an operation that must be carefully performed. The dairy superintendent, or in her absence a trustworthy person, must do this part of the work. The hands are put gradually down to the bottom of the tub, and are brought slowly to the surface with the palm upwards, and the fingers extended. This is done repeatedly; and care is taken to avoid pressing or squeezing the curd, as a very slight pressure would cause the whey to come off white. After the hands have been passed through the whole mass in this manner, a circular wooden breaker, formed like a net, is used to complete the operation of breaking. It is moved slowly and steadily until the whole of the curd is made very fine. The breaking usually occupies from 20 to 30 minutes. The curd is then left about 20 minutes, to allow it to settle to the bottom of the tub. It is next drawn gently by the hands to one side of the tub to admit of the whey being taken from the other side. The whey is lifted in a wooden bowl, and poured through a hair sieve into the leaden vessels, which are placed at the side of the dairy. The sieve retains any small portions of the curd that have been lifted in the bowl. When the greater part of the whey has been taken off, the curd is heaped on one side of the tub; it is cut in different directions, to allow the remaining whey to run out, and is gently pressed by the hands to accelerate the separation. The whey, as it flows from the curd, is lifted from time to time and put through the sieve into the whey leads. The curd is then put into vats with thin cheese-cloths, locally called whey-cloths, over them; and the vats are placed in the press, one above the other, for about 20 minutes.

When taken from the press, the curd is cut into squares, and broken by the hand somewhat finely into the tub. A little heated whey is poured over it; the whey and the curd are well stirred together; the curd is drawn slowly to one side of the tub, and the whey is taken out as before. After the whey has been taken off, the curd is again broken down by the hands into the vats. It is easily broken, as it has not attained a firm state of cohesion. As the vats are filled, the curd is pressed into them with the hand, and they are piled one above the other in the cheese tub. At this stage the curd is in a pasty state, and the fragments combine very easily; the pressure from the weight of the vats brings the contents of each vat into a mass. When the vats are all filled, they are reversed, and the bottom ones placed uppermost. The top cheese is taken and a triangular paring, about an inch broad at the base, is cut off round the edge. It is then turned into a whey cloth, the vat is rinsed with a little whey, and the cheese is put into it with the cloth under. The edge that is now uppermost is pared round as the other had been, and a portion of curd, in the form of an inverted cone, is cut out of the centre of the cheese. This is called "cutting out the witch," and we have been informed that the practice is seldom omitted by a Berkeley dairymaid. Along with an old horse-shoe over the door it forms a perfectly sufficient safeguard against witchcraft. The "witch" is broken down by the hand, the paring from the edge is placed round the opening made by "cutting out the witch;" as much more curd is put in as suffices to make the vat full enough; the cheese is covered over with the cloth, and is put into the press. The other vats are treated in the same manner, and are then put into the press.

After being pressed an hour or an hour and a half, the cheeses are put into dry whey-cloths, and returned to the press till the evening. They are then rubbed over with refined salt, and put into thicker cloths, called "salting cloths." In the morning the cheese is again rubbed with salt, and returned to the press in the same cloth. Next morning it is rubbed a third time with salt, and the salting-cloth is put over it another day. On the fourth morning the cheese is put into the vat without a cloth, for the purpose of being made smooth. It is reversed in the vat on the fifth morning, and again on the sixth, and on the seventh morning it is laid on the shelf. The frequent rubbing of so many cheese with salt has a very severe effect upon the hands of the dairymaid.

It may be stated as a fair average of the amount of whey butter in Mr. Leonard's dairy, that one pound is made weekly from the produce of each cow during summer. The cheeses are turned daily in the cheese room until they become firm, and afterwards they are turned about twice a week. Before being sold they are painted with colouring matter composed of Venetian red and water. There is no particular age of the cheese at which the painting should take place. They are painted just long enough before being sold to allow the peculiar bluish colour, which indicates a true Gloucester cheese, to show itself. This may be at the age of three or four or six months. In painting the dairymaid sits on a low stool, takes the cheese in her lap, and scrapes it carefully. She then stains it over with a woollen cloth dipped in the paint. In some cheese-rooms, after the cheese is painted a Cabbage leaf is placed upon it, to assist in imparting the desired colour. The leaf is kept on a week, first on the one side and then on the other. A longer time of it would injure the colour.

The single Gloucester cheese, which is generally made in Berkeley, is 15½ inches in diameter, and from 2½ to 2⅔ inches in depth. This gives about eight cheeses to the cwt. The quality of the double Gloucester is originally the same, but it is made of double thickness, and is usually kept to a greater age, which accounts for the higher price at which it is sold. The large leaden vessels and some of the other utensils in the Berkeley dairies are excellent. The cheese-tubs, like most of our own, are of wood; but the vats or chessels are much superior to ours. They are made of Elm, and are turned out of a single piece of wood. Their surface is remarkably smooth; and as they are hooped with wood there is nothing about them to corrode. With ordinary care, therefore, they last a long time. The wooden presses, though they have a clumsy and old-fashioned appearance, seemed to work well. We counted 15 cheeses piled upon each other in one of them. They have no advantage over good lever presses, and in some respects are not so convenient.

This appears to be a very accurate account of the Gloucestershire cheese-making. There are a few points upon which I have some remarks to make. The writer says few if any of the Gloucester cheese are what we would call full milk cheese.

This depends entirely upon the richness of the milk Some milk may have a great deal of butter made from it, and still make full milk cheese. I may instance the testimony of Dr. Voelcker to the richness of some skim milk cheese made under his own eye in my dairy. The doctor says of it: "Though made from skim milk it is as rich in butter as good Cheshire cheese; at six months old it was pronounced by several good judges to be excellent, superior indeed to most of the Gloucester cheese which I have ever tasted." Again, as to the quantity of butter made, although only 8 or 9 lbs. of milk butter were made weekly, there appears to have been about 36 lb. of whey butter—this is a very large quantity—and it would be much better to make more of the former, which is most valuable, and less of the latter, as it cannot affect the cheese when taken off at first, or as whey butter. I find our total make of butter is at the highest very little over 1 lb. per cow per week, upwards of 80 per cent. of which is best or milk butter.

The addition of a little nitre prevents the cheese from heaving. As to colouring the cheese I never colour mine, and I find no difficulty about selling it in consequence. The colour does no good at all, it makes the cheese look a little richer perhaps, and so long as the public in London and other parts prefer to eat anatto with their cheese it will be used, but I agree with Dr. Voelcker that it would be well if it were banished altogether from the dairy. The thermometer should be used in every dairy, and the cheese run at about 84°. Dairymaids generally judge by their own sensation, but there is no question that milk of the same temperature will feel to the hand cool one day and warm another. On this point Dr. Voelcker made some very useful experiments. He found a temperature of 60° too cold; the curd took three hours to form, and was tender. At 65° it took two hours, curd still tender. At 70° to 72° it takes from three quarters of an hour to one hour; the curd neither too tender nor too hard. At 80° to 84° the curd was firm and well adapted for making thick cheese, but not thin. At 90° the milk curdled in 20 minutes, and at 100° in about a quarter of an hour, curd hard. At 120° to 130° curd soft, running like toasted cheese, but on cooling became hard. *Mr. Harrison, at Cirencester Agricultural College.*

Miscellaneous.

Duty on Corn.—On and after the 1st of September next, the duty upon corn and grain will, under the provisions of the Act 27 Vic., cap. 18, become chargeable by weight, and in lieu of the present rate of 1*s.* per quarter, that of 3*d.* per cwt. will be levied. The Commissioners of Customs have accordingly promulgated the necessary instructions to their officers throughout the kingdom, and apprised them that, at ports where the municipal or other authorities have hitherto meted corn and grain, the duty may be assessed on their certificates of weight, as it has hitherto been on their certificates of measurement. At ports where the practice of measuring grain may be continued, the weight for duty may be calculated according to an average obtained by weighing a fair proportion of bushels or of sacks of uniform measurement; or if the sacks are made up on board the importing vessel to any particular weight, the account for duty may be calculated from the tally on the completion of the discharge of the cargo. As, however, the alteration in the mode of charging the duty was adopted by desire of the trade, and not for any benefit to the Crown, it is to be understood that, in any case not falling under the conditions before specified, the Crown is not to be put to

an increased expense in ascertaining the weight of corn and grain for duty.

Produce of Cows.—In Mr. J. Morton's paper in the *Agricultural Gazette* of October, 1854, he gives the following return of the produce per cow over a large extent:—

Cheese .. .. .. 4 cwt. per cow per annum.
Butter .. .. .. 40 lbs. ,,

Mr. Caird's observations on the dairy districts in 1851 corresponded very nearly with this. The average produce of eight good farms in this neighbourhood on which no young stock is kept is—

3¾ cwt. of cheese per cow per annum.
31 lbs. of butter ,,

It appears that in seven years, from 1857 to 1863 inclusive, there were 459 cows milked for one year on Frocester Court farm, which gave an aggregate of 245,458 gallons of milk, or on an average 535 gallons per cow per annum. The money-value of this produce was 6778*l.* or 6.63 pence per gallon of milk. The average return in money per cow, not including the calf, was 15*l.* in the nine years from 1855 to 1863.

The average weight of cheese per cow .. .. 3.8 cwt.
,, butter ,, ... 44.5 lbs.

The following are the details which have been carefully recorded, from 1855 to 1863 inclusive:—

Date.	Number of Cows.	Milk. Total.	Milk. Per Cow	Butter. Total.	Butter. Per Cow	Cheese. Total.	Cheese. Per Cow	Return. Total.	Return. Per Cow
1855	30	..	..	lbs. 1803	lbs. 62	lbs. 10,804	lbs. 362	£ 414	£ s. 15 0
1856	45	..	..	2919	65	19,040	423	711	16 0
1857	55	33,258	605	3466	63	25,424	462	906	16 10
1858	52	24,780	477	2021	39	20,160	388	637	12 5
1859	60	32,000	533	2425	40	22,738	378	705	13 5
1860	66	34,470	522	2486	37.73	20,344	444	1070	16 4
1861	71	39,140	550	2151	34.8	30,312	455	1068	15 0
1862	73	38,238	524	2752	37.8	30,876	423	1034	14 3
1863	83	43,572	531	3340	40.4	36,690	447	1268	15 9
	534	245,458	Average = 535	29,733	Average = 44½	227,433	Average = 426	7033	Average = 15nearly

During the former of these years there were more sheep and more animals grazed. For the last two years an accurate account has been kept of the quantity of milk given by each cow. The milk is measured once a fortnight, and recorded by means of diagrams. This method is found of great service for ascertaining accurately the relative value of the cows for their milking properties (except as to the richness of the milk): by its aid the least valuable are culled out of the herd, and calves weaned only from the more excellent. The experience of the years 1862 and 1863 shows that—

Cows brought in.	Years old.	Average	Gallons.	£	s.	d.
8	2	1st year ..	317 at 6¾—	8	18	0
15	3	1st ,, ..	472 ,,	13	15	6
14	3	2d ,, ..	535 ,,	15	0	0
15	3	3d ,, ..	616 ,,	17	6	6
20	3	4th ,, ..	665 ,,	18	14	0
18	3	5th ,, ..	635 ,,	17	17	2
9	3	6th ,, ..	708 ,,	19	18	3
15	3	old ..	651 ,,	18	6	2

These figures give only an approximation to the truth; for the bad milkers which would keep down the average of the first, second, and third years, would probably be culled out in the fourth and fifth years, and only the very best milkers would be found in the sixth year, and among the old cows. Were the facts recorded for a number of years, by taking the produce of the same cows yearly throughout the period, a much more accurate result would be obtained. To test the richness of the heifers' milk three cheeses were made last summer from 30 gallons of new milk given by the heifers, and three were made from 30 gallons given by the largest milkers. The following were the weights of the cheeses on the 4th December last:—

Heifers .. .. 3 cheeses weighed 26 lbs.
Old cows .. .. ,, 25½ ,,

showing but little superiority in the heifers' milk. A subject of interest upon which light is thrown by a careful record of the milk given by each cow is, as to the time at which it is most desirable for the cows to calve. One point is very clear, that as winter draws on all the cows seriously lessen their yield of milk, whether they calved early or late. This, no doubt, is a question of food and temperature combined; and if the cattle were housed and liberally fed this would not occur; and thus arises the question of high feeding dairy-cows in-milk during the winter months. Doubtless we keep our cows doing very little indeed for several months during the winter, in which time they consume a great deal of valuable food. This the grazier turns to good account along with some artificial food. Cannot the dairyman do the same with advantage? Mr. Horsfall answers decidedly, "Yes;" and, seeing that butter throughout the winter always brings a good price, this is well worthy of attention. The following examples are the first that come to hand of cows that calved early in 1863, and of some that calved about the time of going out to Grass:—

	Weeks.	Average Quarts per day.	Dropped from	Maximum in Summer.
Handsome, Feb. 20 to May 1	10	10	11½ to 8	10½
Old Spark, Jan. 9 to ,,	16	12	13 ,, 11	14
Prettymaid, Mar. 2 to ,,	say 9	11¼	12½ ,, 10½	14½
Orange, Jan. 17 to ,,	15	12½	15 ,, 11	14½
Gooseberry, Feb. 19 to ,,	10	10½	12 ,, 9	13
Magpie, Jan. 6 to ,,	16	11	12½ ,, 9½	14
Violet, Jan. 3, to ,,	16	10½	12 ,, 9	12
Lemon, Jan. 10, to ,,	16	10½	11½ ,, 9½	14½
Blossom, Jan. 26, to ,,	14	10	10½ ,, 8½	13
Peachy, Feb. 5, to ,,	12	10¼	12 ,, 10	12
Famous, Jan. 10, to ,,	16	10¼	12¼ ,, 8½	13
Brindy, Feb. 16, to ,,	10	11½	12½ ,, 10½	14½
		12)131		
	Average ..	11 quarts nearly		

Compare these with some that calved about the end of April or beginning of May:—

	Weeks.	Average Quarts per day.	Rose from Gallons.
Primrose, from April 27..	10	14	12 to 16
Dewberry, from April 19	,,	12½	11½ ,, 14
Alice, from May 3 ..	,,	15	12½ ,, 18 fell to 12
Coaley, from April 14 ..	,,	13½	12 ,, 15½
March, from April 16 ..	,,	14	9 ,, 17 fell to 14
Dowke, from May 25 ..	,,	12½	12 ,, 13½ fell to 11
Clara, from April 22 ..	,,	11½	10½ ,, 13
		7)93	
		13⅔ quarts per day.	

The comparison is not so favourable to the latter as it would generally be, as the weather was very cold after the cows were turned out in May last. It shows that the early calvers by no means lost their time before being turned out to Grass, and when turned out were not far behind the later ones in the quantity of milk they gave. When the advantage of having early calves to wean or to sell is taken into account, it seems that the earlier the cows come in in the spring the better; but they must be liberally treated, and no doubt a more liberal diet would have paid well in the cases given above. The weekly food given to the cows that calved early was—

3½ cwt. of Mangel, at 6*s.* 8*d.* per ton ..	..	1*s.* 1*d.*
1 ,, hay, at 2*s.* per cwt. ..	..	2 0
Attendance ..	..	0 5
		3 6 per week.

It does not, however, seem desirable to feed so highly as Mr. Horsfall. His object was to fatten his cows and milk them at the same time. This is not the aim of the dairy-farmer, but rather to maintain them in good condition while they are giving a good yield of milk. Two or three pounds of Rape-cake and meal daily in addition to the above allowance would probably effect this object. *Mr. Harrison, of Frocester Court, in the Bath and West of England Agricultural Society's Journal.*

The Poetry of the Racer's Life.—Let us leave the high-mettled where we first found him, in such good companionship, with the little lambs, mocking his long stride as they run matches against each other to the tinkling of the starting bell with which the wandering ewe will clear the way. How different in its sober, monotonous echo, to that quick thrilling alarum which proclaims "They're off!" When, in the noise and turmoil of the crowded course, we are challenged on every side by the hoarse, husky Ishmaelite, who will "lay agen" everything and everybody—when, amidst the din of discord and the wild revelry of such a holiday, we catch a glimpse of the yellow jacket of Aristophanes, as he sweeps by in his canter, or struggles home to a chorus of shouts and yells, of cracking of whips and working of arms—hero, then, though he may be, high though that number nine be exalted, we see little of the beauty and poetry of the thoroughbred horse's life. We must seek this rather in the sweet solitude of the downs and byways, where the shepherd's hut is the ending post, and the farmer, thrice happy in his ignorance, will lean carelessly on his stick as they march by, to ask "What's the name of that 'un?"—*Corbet's Tales and Traits of Sporting Life.*

Notices to Correspondents.

Daintree's Seedling Potato: *C H.* must look at our Advertisement columns. — Mr. Alderman Mechi, Tiptree Hall, Kelvedon, Essex.

Fern: *Anon.* It makes good litter, and rotting with the waste of cowhouse or of stable it makes good manure, nearly as good as straw.

Errata.—For "600," at p. 802, col. *a*, 12th line from bottom, read "60."—For "greater" evil, at p. 805, col. *a*, line 34, read "quarter" evil.

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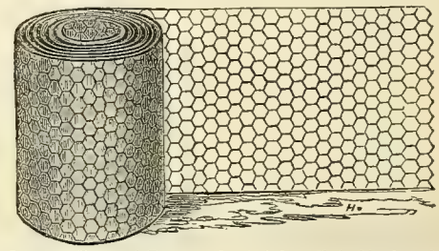
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2-inch ,, ,, ,, .. ,,	17 ..	6½ ,,	5 ,,
2-inch ,, ,, ,, .. ,,	16 ..	8 ,,	6½ ,,
1½-inch ,, ,, ,, .. ,,	19 ..	4½ ,,	4 ,,
1½-inch ,, ,, ,, .. ,,	18 ..	6 ,,	4½ ,,
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6 ,, ,, ..	0	7	15 ,, ,, ..	2	9
7 ,, ,, ..	0	9	16 ,, ,, ..	3	0
8 ,, ,, ..	0	10½	17 ,, ,, ..	4	0
9 ,, ,, ..	1	1	18 ,, ,, ..	4	6
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8 ,, ,, ..	1	4			

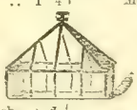
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20 ,, ,, ...	1	6	12 ,, ...	0	10
18 ,, ,, ...	1	4			

Made to any length.

HAND GLASSES,  WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

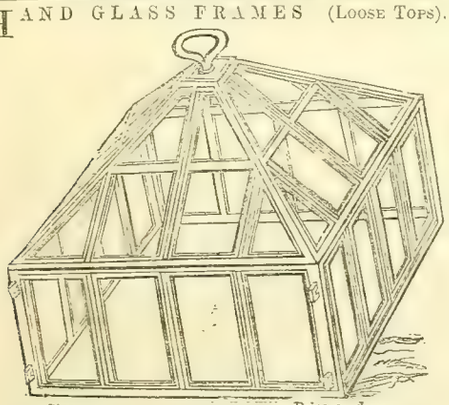
Painted and Glazed with 16 oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (LOOSE TOPS).



Size.	Price s.	d.	
14 by 14	4	0	Each.
18 by 18	5	9	,,
20 by 20	6	6	,,
22 by 22	7	6	,,
24 by 24	8	6	,,

Delivered Free to any Station in England if 12 or more are ordered.

J. JONES & SONS, 6, Bankside, London, S.E.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal. £2 13 6 — 12 gal. £3 2 0 — 16 gal. £3 12 6

24 gal. £5 0 0 — 30 gal. £5 12 0



Fig. 571

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal. £5 12 0 — 28 gal. £7 0 0

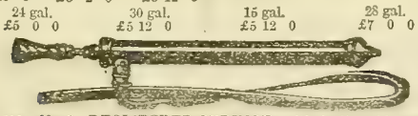


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. .. 1 1 0 ,,
Telescope Branch Pipe for ditto .. .. 0 10 0 ,,

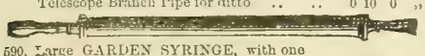


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10s. 6d. each.
,, 589. Middle Ditto ditto .. .. .. 9 6 ,,
,, 588. Small Ditto ditto .. .. .. 8 6 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 ,,

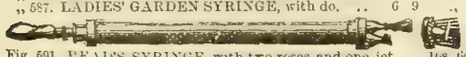
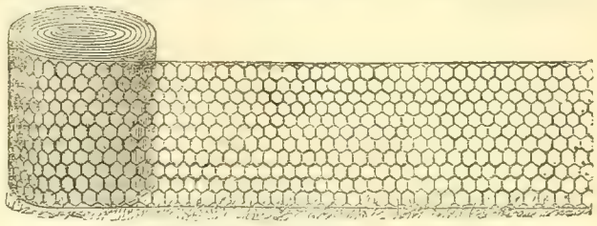


Fig. 691. READ'S SYRINGE, with two roses and one jet .. 16s. 6d
READ'S SYRINGE, with one rose and jet 14 0
,, 592. Improved ditto ditto large .. 13 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,  WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4⅝d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5½d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

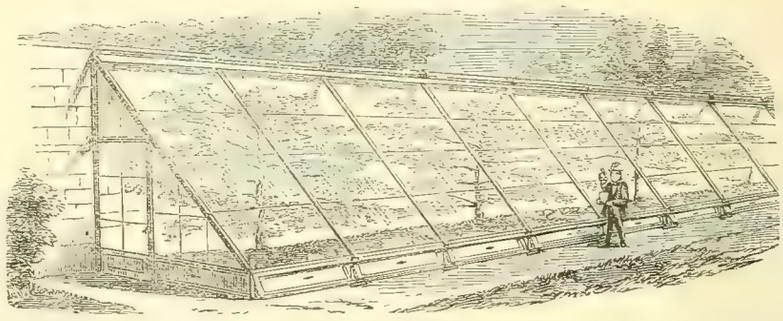
*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

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OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



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CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

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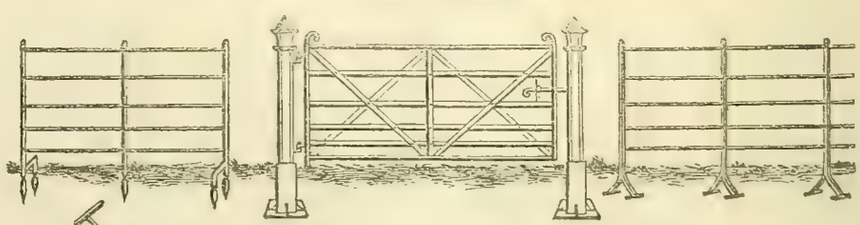
COTTAM'S

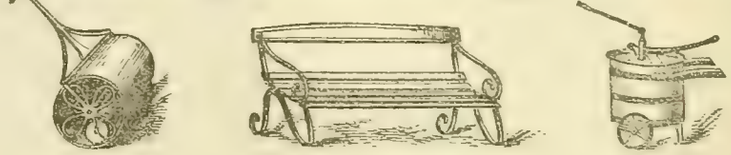
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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

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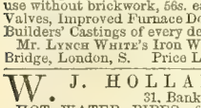
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A large assortment kept. Estimates given for any branch in Wood or Iron.

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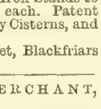
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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Sizes of Lights well adapted for Roofs or Walls—20 lights, 12 ft. by 5 ft.; 20 do., 11 ft. 3 in. by 5 ft.; 30 do., 11 ft. 6 in. by 4 ft. 4 in.; 20 do., 9 ft. 2 in. by 4 ft. 4 in.; 20 do., 7 ft. 10 in. by 4 ft. 4 in.; 12 do., 7 ft. by 4 ft. 3 in.; 12 do., 6 ft. by 4 ft. 3 in. Upper ranged, hinged for ventilation—20 lights, 3 ft. by 5 ft.; 20 do., 2 ft. 9 in. by 5 ft.; 30 do., 3 ft. by 4 ft. 4 in.; 20 do., 4 ft. by 4 ft. 4 in
Estimates for Heating effectually by Hot Water.

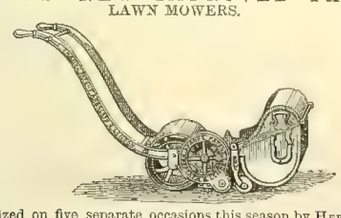
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9, 8	„ 6	„	4 feet 4½ „	10*l.*, or 1*l.* 4*s.* each.
20, 7	„ 0	„	3 feet 11½ „	16*l.*, or 17*s.* each.
35, 6	„ 0	„	3 feet 11 „	25*l.*, or 15*s.* each.
15, 5	„ 9	„	3 feet 11½ „	10*l.*, or 13*s.* 6*d.* each.
18, 5	„ 6	„	3 feet 11½ „	10*l.*, or 12*s.* each.

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TAYLOR BROTHERS' GENUINE MUSTARD.
Dr. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity, Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.

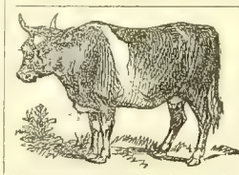
THE GREENHOUSE in the STEREOSCOPE.
CRANSTON'S PATENT.
Six SLIDES of different Houses, Post free for 50 Stamps.
Single SLIDES, 12 Stamps each.
DESCRIPTIVE BOOK, fully illustrated (Second Thousand), Post free for 20 Stamps, from the Author and Patentee, JAMES CRANSTON, Architect, 1, Temple Row West, Birmingham.

FOR SALE, TEN SWARMS of BEES, Swarmed in May last.
Inquire of JOHN BEASLEY, Buckle's Alley, North End, Walham Green, S.W.

Peterborough New Ram Fair.

MR. E. LAW has been favoured by Mr. C. Clarke, of Ashby-de-la-Laund, near Sleaford, to SELL, at Peterborough, SEPTEMBER 10, 50 of his LINCOLNSHIRE LONG-WOOL SHEARLING RAMS.

SHROPSHIRE SHEEP.—THE GREAT CENTRAL SALE of RAMS and EWES, (by order of several eminent Flockmasters in the Midland Counties,) will be held at Bingley Hall, Birmingham, on THURSDAY, the 8th day of September next.
The Entries, to the present date, comprise:—
150 Splendid SHEARLING, and a few older RAMS.
500 Beautiful STOCK EWES and THEAVES.
30 Fine RAM LAMBS.
Terms and particulars on application.
JOHN B. LYTHALL, Auctioneer.
Offices: 13, Temple Street, and Bingley Hall, Birmingham.



BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the importer has made arrangements to keep a large stock always on view.
For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

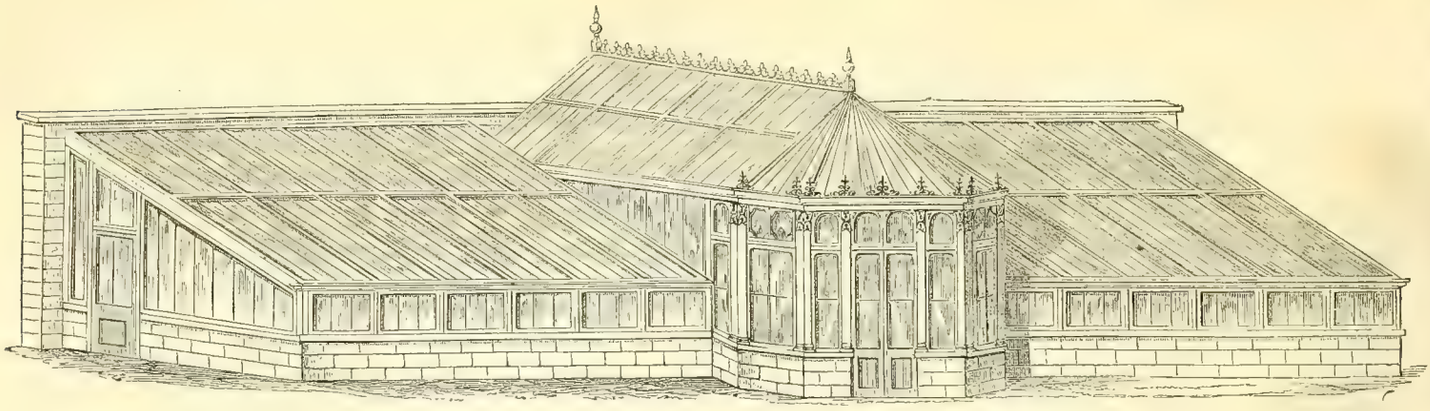
NORTHERN TERRITORY of SOUTH AUSTRALIA.—FINAL SALES of COUNTRY LANDS.
250,000 acres, half to be Sold in Adelaide, half in London. Land Sale of 125,000 acres in London under the Act. The allotments of the Preliminary Land Sale in London having been all disposed of, notice is hereby given, in conformity with the above-named Act, and the regulations in force, that on the 7th day of June, and subsequent days, LETTERS of APPLICATION, accompanied by the corresponding receipts of deposit, previously paid into the Bank of England to the account of the Agent-General of South Australia, will be receivable at this office from persons willing to purchase land at 12*s.* per acre in the present Land Sale, which consists of 781 allotments, each allotment containing 160 acres of country land, the deposit being 20*l.* per allotment.
For such purpose this office will be kept open daily from 10 to 3 o'clock, and will be closed on the 5th day of September next, or as soon as 781 applicants shall have made application.
The following printed papers, in connection with the present sale, may be obtained at this office, viz.:—
1. Copies of the Act and regulations, with directions.
2. Form for paying the deposit at the Bank.
3. Form of letter of application, enclosing the Bank deposit receipt.
G. S. WALTERS, Agent-General of South Australia, the officer appointed for Sale of Land under the Act.
No. 5, Copthall Court, London, E.C., April 30, 1864.
N.B. The land orders to be issued in London are transferable by endorsement.
The proceeds of the sales, less 10 per cent. for expenses, are to be applied to the improvement and government of the territory.
All future sales will take place in the Colony by public auction, at the upset price of 20*s.* per acre.

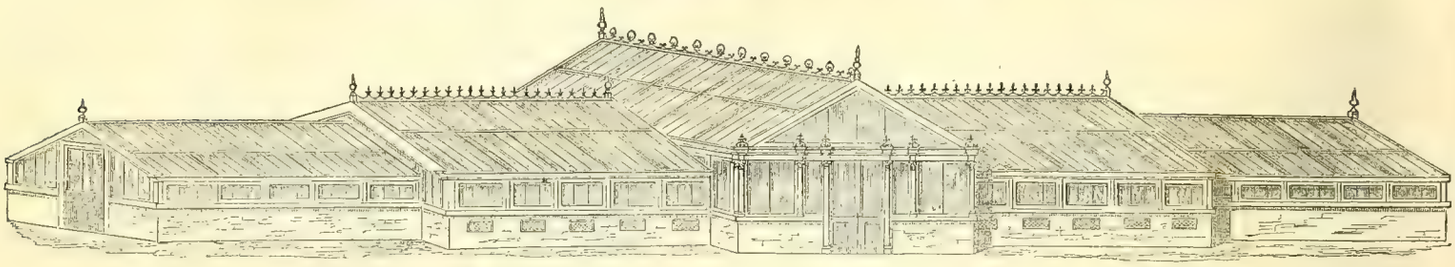
Sales by Auction.

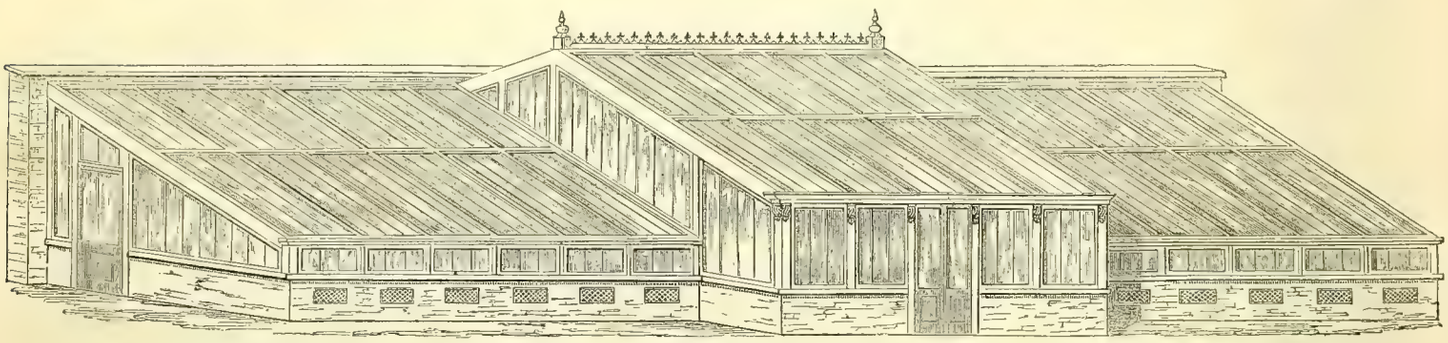
Important Sale of about 100,000 Choice Specimen and Seedling Conifers, &c.

MR. J. C. STEVENS, of 38, King Street, Covent Garden, London, W.C., begs to announce that he has been favoured with instructions to SELL by AUCTION, on the Premises, on TUESDAY, September 20 and two following days, at half-past 12 o'Clock precisely each day, in the well-known gardens of the Arboretum, Leamington, the extensive COLLECTION of about 100,000 fine Specimen and Seedling Araucarias, Cedars, Golden Yews, Picea nobilis, Nordmanniana, and Pinsapo, Abies Douglasii, Menziesii, Albertii and Khutrow, Wellingtonia gigantea, Pinuses, Thujas, &c.; Standard Fruit Trees, Roses, Rhododendrons, Forest Trees, Laurels, Camellias, Azaleas, and other Greenhouse Plants and ornamental Evergreens now growing on the 8 acres, to be cleared for building villas; also some of the Specimen Plants on the 8 acres appropriated to the extensive Hydropathic Establishment, now in successful operation; the proprietor, J. Hitchman, Esq., having agreed with the owners of the adjoining land to make a new street through their property, which is now in progress.
On View the week prior and Morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.; and of Mr. JOSEPH, Sole Manager of the Arboretum, Leamington, Warwickshire.
N.B. All Plants purchased at the Sale must be paid for on or before Saturday, September 24, but they will be allowed to remain on the ground till December 1, if desired.

Holker Hall, Lancashire.
IMPORTANT SALE OF FIRST-CLASS SHORT-HORNS.
MR. STRAFFORD has the honour to announce that he has received Instructions from his Grace the Duke of Devonshire to SELL by AUCTION, without any Reserve, at Holker Hall, on FRIDAY, September 9 next, 30 Head of BULLS, COWS, and HEIFERS, from this far-famed herd, which include the whole of the Barrington, Cleopatra, Nonsuch, Minstrel, and Cozy tribes, now at Holker, with the exception of two heifer calves, one from Countess of Barrington, and the other from Cleopatra 2d; also some young Bulls from the Oxfords, Dustie, and other famous Cows. Mr. STRAFFORD, after a personal inspection of these animals, can with the greatest confidence recommend them to the favourable notice of breeders and purchasers of first-class Short-horns, and begs to add that the whole will be sold in a bonâ-fide manner.
Catalogues, with Pedigrees, may be had on application to Mr. DREWRY, Holker House, Newton-in-Cartmel; or of Mr. STRAFFORD, 13, Euston Square, London, N.W.







HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

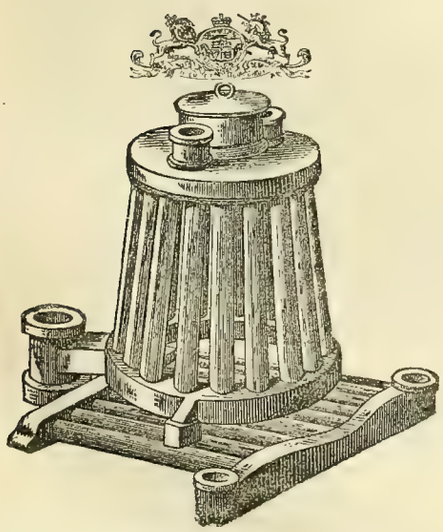
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S

ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of		250	feet of Pipe.
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 36.—1864.] SATURDAY, SEPTEMBER 3. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
AUTUMN SHOW of ROSES, DAHLIAS, HOLLYHOCKS, &c. on TUESDAY, September 6. Doors open at 1. Admission 2s. 6d

ROYAL HORTICULTURAL SOCIETY, FLORAL COMMITTEE.
A Sub-Committee will meet on the Day of the Dahlia Show, SEPTEMBER 6, to examine any Seedling Dahlias which may be exhibited on that occasion. Such Seedlings may be entered without previous notice on the morning of the Show, but a List of the names of the varieties to be examined must be handed in before 9 A.M.
The next Ordinary Meeting of the Committee will take place on September 13, at 12 o'Clock, on which occasion the subjects must be at the Meeting Room for Entry by 11 A.M.
Thomas Moore, Secretary to the Committee.

CRYSTAL PALACE.—GREAT AUTUMN SHOW of FLOWERS and FRUIT, WEDNESDAY and THURSDAY, 7th and 8th September. Admission each day, 1s.
A Special Train for Gardeners will leave London Bridge Terminus, at 6 o'clock on Wednesday morning. From the number of entries exhibitors are particularly requested to arrange their specimens early.

BRACKLEY AGRICULTURAL and HORTICULTURAL SOCIETY.
The ANNUAL FETE of this Society will be held on TUESDAY, September 20.
Last day for receiving Entries for Flowers, Fruit, &c., September 16
Further Particulars and Schedule of Prizes, may be obtained of the Honorary Secretary, R. J. Russel, Brackley.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The Eleventh ANNUAL AUTUMN SHOW will be held on WEDNESDAY and THURSDAY, September 14 and 15, at the Royal Pavilion Grounds, on the same grand scale as on former years, and the usual amount offered in prizes. The Railway Cup, value 10*l*., is offered for the best Eight Dishes of Fruits.
Schedules of Prizes to be had on application to the Secretary, 96, St. James's Street; or of E. Spary, Superintendent of the Exhibition, Queen's Graperies. Edward Carpenter, Sec.
Brighton, Sept. 3.

Roses in Pots.
PAUL and SON draw attention to their ROSES in POTS, fit for immediate planting. The plants of this year's New Roses are particularly fine. Prices on application.
"Old" Cheshunt Nurseries, Cheshunt, N.

Autumnal Roses.
PAUL and SON'S Unrivalled COLLECTION still continues finely in FULL BLOOM.
Thirty First Prizes, including the leading Awards at the London and Birmingham Shows, attest the extent and success of their culture.
Visitors may reach the Nurseries by Trains from Bishopsgate to Cheshunt (one mile) or Waltham (two miles from the grounds). Flies and Omnibuses at the latter.
"Old" Cheshunt Nurseries, Cheshunt, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

Roses.
WM. PAUL'S ROSES are still in BLOOM. Admirers of this flower are respectfully invited to visit the Nurseries. Entrance from the platform, Waltham Station (Great Eastern Railway), half an hour's ride from London.
Paul's Nurseries, Waltham Cross, Herts, N.

NEW PLANTS of 1864.—Strong Plants at very low prices. CATALOGUE free for One Stamp.
Henry Walton, Edge End, Marsden, Lancashire.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

To the Trade.
SNOWDROPS, Double and Single, by the 1000.—Price on application to Frank Warwick, North Road Nursery, Sleaford, Lincolnshire.

Guernsey and Bella Donna Lilies.
BARR and SUGDEN, 12, King Street, Covent Garden, W.C.

GUERNSEY and BELLA DONNA LILIES, Fine Strong Bulbs, 6*d*. each; 5*s*. 6*d*. per dozen.
Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

Bedding Pelargonium Mrs. Pollock.
ALFRED FRYER offers strong out-door struck Plants, well established, in 60-pots, at 3*s*. 6*d*. each or 36*s*. per dozen.
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

New Scarlet Geraniums.
JOHN SALTER solicits an inspection of his large COLLECTION of these fashionable Flowers, which are now in great perfection; among them are several new and distinct varieties of great merit.
Versailles Nursery, William Street, Hammersmith Turnpike, London.

GERANIUM "MRS. POLLOCK."—An immense Stock of this truly beautiful variety. Price per dozen, hundred, or thousand for strong established plants on application to
Saltmarsh & Son, Moulsham Nurseries, Chelmsford, Essex.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON and SONS, Seed Growers and Merchants, Royal Berkshire Seed Establishment, Reading.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.
Orders for Roots amounting to 20*s*. forwarded carriage free.
The BULB CATALOGUE is now ready, and can be had gratis and post free on application.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7*s*. 6*d*. each; 60*s*. per dozen.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

Picea nobilis.
WILLIAM BARRON begs to offer splendid Seedling Plants of the above, from 4 to 7 inches, at 12*s*. per dozen, or 90*s*. per 100, including package. Special prices to the Trade on application. Elvaston Nurseries, Derby.

CARTER'S GARDENER'S VADE-MECUM.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Double Pyrethrums.
JOHN SALTER can now supply SEEDS of this year's growth from his COLLECTION of DOUBLE PYRETHRUMS, at 3*s*. 6*d*. per packet; and from Single Flowers at 1*s*. per packet.
Versailles Nursery, William Street, Hammersmith Turnpike, London.

West Riding Nursery.
NEW HARDY JAPAN SHRUBS.—CATALOGUES are now preparing of these inimitable Ornaments, indispensable to English Gardens.
Apply to Wm. Barratt, St. John's, Wakefield.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21*s*. per 100.
Charles Turner, "The Royal Nurseries," Slough.

VINES.—Strong planting CANES of all the leading varieties, at 3*s*. 6*d*. each, offered by
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Grape Vines.
B. S. WILLIAMS directs attention to his well-selected stock of GRAPE VINES, consisting of the leading varieties, such as—

BLACK ALICANTES	MUSCATS
BLACK HAMBURGHS	SWEETWATERS, &c.

They are especially fine this season, and an inspection is invited.
Paradise and Victoria Nurseries, Holloway, London, N.

Very extra strong Vines from Eyes.
JAMES DICKSON and SONS have ready all the leading kinds, which, if planted now, would produce a crop next season. Early purchasers will have 2000 to pick from. Price, very moderate, on application.
The "Newton" Nurseries, Chester.

Vines, Vines—extra strong.
J. MEREDITH, The Vineyard, [illegible]ton, near Liverpool, begs to inform the public that [illegible]ery fine stock of VINES of various sizes, both for plant[illegible]runing in pots. The wood is thoroughly ripened, so that [illegible] forced early if necessary. The stock has been propa[illegible]the Vines that produced the fine Grapes which have be[illegible]sful for the last four years at the London and Liverpool E[illegible]

THE TRUE BLACK ALICANT[illegible]gnificent Late GRAPE.—The above variety may [illegible] genuine from J. Meredith, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Meredith's Black Alicante Grape.
FRANCIS and ARTHUR DICKSON and SONS, The "Upton" Nurseries, Chester, can supply excellent well-ripened CANES of this magnificent Grape, ready for immediate planting. It hangs considerably longer than Lady Downes, and is in every respect a first-rate Grape. Price on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard Houses.
MESSRS. RIVERS and SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.
Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

Charlotte Rothschild Pine.
B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
Paradise and Victoria Nurseries, Holloway, London.

PINE PLANTS.—About 50 extra fine Fruiting, and 100 Successions (cheap), principally Queens, warranted clean and healthy.
Apply, first by letter, to Mr. Judd, Fruiterer, &c., 80, High Street, Winchester, Hants.

Hyacinths, Tulips, Crocus, Narcissus, &c.
BARR and SUGDEN, 12, King Street, Covent Garden, W.C.

SUTTON'S AUTUMN CATALOGUE of BULBOUS FLOWER ROOTS, containing full Descriptive Lists of all the best sorts of Hyacinths, Tulips, Crocus, Gladioli, &c.; and also a Select List of Seeds for Autumn Sowing, is now ready, and may be had gratis and post free on application to
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Fresh Imported Dutch Bulbs.
SUTTON and SONS have just received from Haarlem one of the most extensive and rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
Royal Berkshire Seed Establishment, Reading.

Now Ready.
B. S. WILLIAMS' BULB CATALOGUE for 1864, containing selected Lists of DUTCH and other BULBS, with Cultural Directions, will be forwarded post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Hyacinths, Tulips, Narcissus, Crocus, &c.
THE LONDON SEED COMPANY, LIMITED, have just received their DUTCH FLOWER ROOTS, in fine condition. Early orders are requested.
68, Welbeck Street, Cavendish Square, London, W.

Dutch Bulbous Roots.
BUTLER and McCULLOCH beg to announce the arrival of their First Consignment of the above, in fine condition, and respectfully solicit orders. CATALOGUES post free.
Covent Garden Market, London, W.C.

Hyacinths and other Dutch Bulbs.
Quality unsurpassed, Prices moderate.
WM. PAUL'S PRICED DESCRIPTIVE CATALOGUE is now ready, free by post.
Paul's Nurseries, Waltham Cross, N.

Dutch Bulbs, Late Tulips, &c.
CHARLES TURNER'S CATALOGUE of the above is now ready. The roots have also arrived in fine condition. Orders will meet with prompt attention.
A fine stock of LILIUM AURATUM.
The Royal Nurseries, Slough.

J. SCOTT'S BULB CATALOGUE for 1864 is now ready, containing selected LISTS of DUTCH and other BULBS, with Descriptive and Cultural Directions; also numerous Hints on the Cultivation and Arrangement of the Winter and Spring Flower Garden, with Lists of Plants, post free for one stamp.
Merriott Nurseries, Crewkerne; and Yeovil, Somerset.

Dutch Bulbs and other Flower Roots.
Consisting of Hyacinths, Crocus, Tulips, Narcissus, Anemones, Lilies, Snowdrops, &c.
JAMES FAIRHEAD and SON beg to state that their BULBS and ROOTS have arrived this season in prime condition and very large size.
CATALOGUES free on application.
7, Borough Market, London, S.E.

HYACINTHS, TULIPS, and other DUTCH BULBS, imported by Wm. Cutbush & Son.
Twenty-four Prizes awarded to their Collections last Spring, Twenty-two being First Prizes.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

DUTCH BULBS.—HYACINTHS, best named, 6*s*. per dozen; mixed, 3*s*. and 4*s*. per dozen; 20*s*. per 100. DUTCH YELLOW CROCUS, 1*s*. per 100; 8*s*. per 1000. FERN CASES, filled complete, from 4*s*. 6*d*. each.
R. Green, 154, Kingsland Road, N.E., and the Bedford Conservatories, Covent Garden Market, W.C.

WEST RIDING NURSERY and SEED COMPANY, St. John's Wakefield.
DUTCH FLOWER ROOTS.—Two large importations have just been received in fine condition.
CATALOGUES may be had on application to Wm. Barratt.

Calceolaria, Cineraria, Primula.
E. G. HENDERSON and SON offer SEED of the above in first-class quality, per packet, 1*s*., 2*s*. 6*d*., and 5*s*. each.
The CALCEOLARIA is NOW magnificently in BLOOM at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

New Seed, Post Free.
CALCEOLARIA, CINERARIA, PRIMULA, and SWEET WILLIAM, carefully saved from show varieties. One packet of each for 60 stamps; single packets, 1*s*. 6*d*.
Robert Bullen, Gardener, 55½, High Cross Street, Leicester.

To the Trade.
INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials. Price published shortly. Remittance requested from unknown correspondents.
Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton, Sept. 3.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. Dixon & Sons, 57, Queen Street Hull.

Italian Tripoli Onion.
CHARLES SHARPE and CO., Sleaford, have Seed of the true variety to offer, their own importation direct from Italy.
Price to the Trade on application.

Rape Seed for Sowing.
CHARLES SHARPE and CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
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WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

CARTER'S FARMER'S VADE-MECUM.

FERNS.—A rare opportunity to Noblemen, Gentlemen, Proprietors of Public Gardens, &c. Some fine specimen and other FERNS, varying from 2 to 20 feet through, late the choice selected stock of Mr. Carbonell; also some other specimen GREENHOUSE and other PLANTS, CREEPERS, &c., the whole to be sold very cheap, owing to the room being required for other purposes. To be seen at the Manor Nursery, Harrow Road, Paddington.
Address, T. HAWKINS, Florist, Bishops Road, Bayswater, W.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place, delivered five miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire). Kentish and Hampshire Peats, Yellow Loam, Leaf Mould, Sphagnum Moss, and Cocoa Fibre Refuse.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

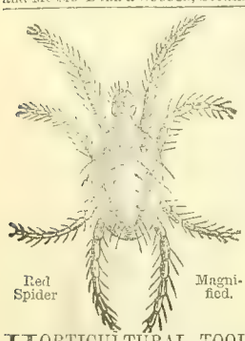
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORNELL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence.
Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs BARR & SUGDEN, Seedsmen, King Street, Covent Garden.



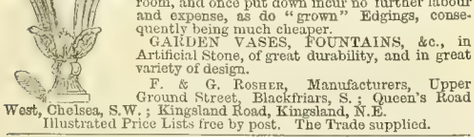
Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free.
Price List free.
BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

DENCH'S PATENT GREENHOUSES, &c., late of King's Road, Chelsea.
The above Patent, Business, Machinery, and all connected therewith, has been transferred to T. H. P. DENNIS, Horticultural Engineer, who still continues to supply the same with many important improvements.
These useful buildings will in future be termed THE GARDENERS' OWN GREENHOUSES; under which name information respecting the same must be applied for to
T. H. P. DENNIS, Horticultural Builder, Engineer, and Patentee, High Street, Chelmsford, Essex.

To the Trade.

HOOPER'S ETRUSCAN HYACINTH VASES.—The New Designs for the coming season, in these SUPERB ORNAMENTS are now ready, and List of Prices may be had on application.
Notwithstanding the unprecedented beauty and novelty of the designs of last year, those of the present will be found to far eclipse them, and must be looked upon as marvels of the Potter's art. The most perfect and exquisite delineations of ancient Grecian Figures, both upon dead and brilliant surfaces, and likewise imperishable gold and other ornaments, are included amongst their embellishments. In spite of these improvements, however, the prices are not raised.
H. & Co. beg to inform those of their customers, who being supplied last season out of the first lot of Vases, complained of imperfection in the glazing, that such improvements have since been made in their manufacture as to render them in that respect, as in every other, PERFECT.
Early orders are solicited to ensure supply, as last year H. & Co. were quite unable to fulfil the whole of the orders received for them.
HOOPER & Co., Covent Garden Market, London, W.C.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.
Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ..	7¼d.
Seconds	3¾d. ..	5d.
Thirds	2½d. ..	3½d.
Fourths	2¼d. ..	3¼d.

HORTICULTURAL GLASS,
Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

	4ths.	3rds.	4ths.	3rds.
11 by 9 12 by 9, 13 by 9, 14 by 9				
12 „ 10 13 „ 10 14 „ 10 15 „ 10	10s 9d	12s 3d	12s 6d	14s 0d
13 „ 11 14 „ 11				
14 „ 12 15 „ 12 15 „ 11 16 „ 11				
18 „ 12 19 „ 12 16 „ 12 17 „ 12				
16 „ 13 17 „ 13 20 „ 12 21 „ 14				
19 „ 13 20 „ 13 18 „ 13 ..	11s 6d	13s 6d	13s 6d	16s 0d
16 „ 14 17 „ 14 21 „ 13 ..	14 to 15 ozs.		16 to 17 ozs.	
19 „ 14 20 „ 14 18 „ 14 ..	to the foot.			

FOREIGN SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
	£ s. d.	£ s. d.	£ s. d.
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ..	11s. 6d. ..	13s. 6d. ..	15s. 0d.
20 „ 13	Thirds ..	13s. 6d. ..	16s. 0d. ..	19s. 0d.
20 „ 14	Seconds ..	.. ..	English. ..	English.
20 „ 15	Best ..	.. ..	18s. 0d. ..	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4 .. 6½ by 4½ .. 7 by 5 .. 7½ by 5½ ..	}	11s. 6d.
8 „ 6 .. 8½ „ 6⅜ .. 9 „ 7 .. 9½ „ 7½ ..		
10 „ 8 .. 10½ „ 8½ ..		12s. 6d.

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.
London Agents for Hartley's Patent Rough Plate.
Perforated Glass for Ventilation.
Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.
Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	„ CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT DRYERS.	TURPENTINE.

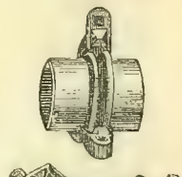
Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

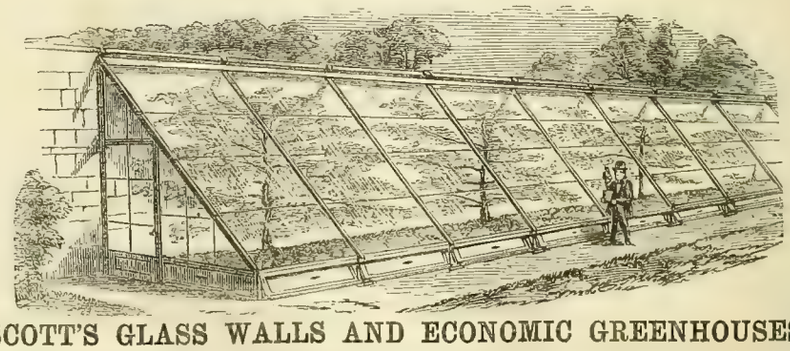
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. RIVERS and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

AVERAGE THICKNESS, 15 TO 16 OZ.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about	1¼d. per foot.
3ds ,,	.. ..	,,	41 0	,,	1⅜ ,,
2ds ,,	.. ..	,,	60 0	,,	2⅔ ,,
Best ,,	.. ..	,,	92 0	,,	3¾ ,,

AVERAGE THICKNESS, 21 OZ.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about	2d. per foot.
3ds ,,	.. ..	,,	42 0	,,	2⅓ ,,
2ds ,,	.. ..	,,	63 0	,,	3¾ ,,
Best ,,	.. ..	,,	89 0	,,	5½ ,,

AVERAGE THICKNESS, 26 OZ.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about	2¾d. per foot.
3ds ,,	.. ..	,,	56 0	,,	3¼ ,,
2ds ,,	.. ..	,,	84 0	,,	5 ,,
Best ,,	.. ..	,,	116 0	,,	7 ,,

SHEET SQUARES, Cut to Order.

AVERAGE THICKNESS, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2⅓d.	2½d.	2¾d.
3ds ,,	1⅝	2	2¼	2⅝	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5

AVERAGE THICKNESS, 21 OZ.

4ths quality	2¼d.	2¾d.	3 d.	3½d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

AVERAGE THICKNESS, 26 OZ.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4⅜	5	5¼
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

6 by 4	7 by 5	8 by 6	9 by 7	4ths.	3rds.	2nds.	Best.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

				Per 100 feet.			
15½ by 11½	14 by 12	17 by 13	22 by 16	4ths.	3rds.	2nds.	Best.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17	.. 11s. 6d.	13s. 6d.	16s.	18s.
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

AVERAGE THICKNESS, 15 TO 16 OZ.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

AVERAGE THICKNESS, 21 OZ.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s. 4d. each.			
4 ,, ..	0 5 ,,			
5 ,, ..	0 6 ,,			
6 ,, ..	0 7 ,,			
8 ,, ..	0 10½ ,,			
10 ,, ..	1 2 ,,			
12 ,, ..	1 6 ,,			
14 ,, ..	2 3 ,,			
16 ,, ..	3 0 ,,			
18 ,, ..	4 6 ,,			
20 ,, ..	6 0 ,,			



HAND GLASSES.

12 inches diam.	5s. 6d. each.		
14 ,, ..	6 6 ,,		
16 ,, ..	7 6 ,,		
18 ,, ..	8 6 ,,		
20 ,, ..	9 6 ,,		
22 ,, ..	10 6 ,,		
24 ,, ..	11 6 ,,		

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	
3 ..	0s. 4d. ..	0 6	each.
4 ..	0 5½ ..	0 8	,,
5 ..	0 7 ..	0 10	,,
6 ..	0 9 ..	1 1	,,
7 ..	0 10½ ..	1 2	,,
8 ..	1 2 ..	1 6	,,
9 ..	1 6 ..	2 0	,,
10 ..	1 10 ..	2 4	,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES.		ROLLING PINS.
Ins. long.	each.	each
12 ..	0s. 10d.	1s. 3d.
13 ..	0 11	1 4
14 ..	1 0	1 6
15 ..	1 1	1 8
16 ..	1 2	1 9
17 ..	1 3	1 10
18 ..	1 4	2 0
19 ..	1 5	2 2
20 ..	1 6	2 3
22 ..	1 7	2 4
24 ..	1 9	2 8



MILK PANS.

6 inches diam.	0s. 5d. each.		
8 ,,	0 8 ,,		
10 ,,	0 10½ ,,		
12 ,,	1 1 ,,		
14 ,,	1 6 ,,		
16 ,,	2 0 ,,		
18 ,,	2 5 ,,		
20 ,,	2 10 ,,		
22 ,,	3 4 ,,		
24 ,,	4 0 ,,		

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.	Qts. each	
8	¾ filled,	3..1s. 3d.
9	,,	4..2s.
10	,,	6..2s. 6d.
11	,,	8..3s.
12	,,	9..3s. 9d
13	At same average according to weight.	7d. per lb.
14		
15		
16		

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p.cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds,
NETT CASH.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

HYACINTHS, fine Selected BULBS of the choicest varieties by name.

100 in 100 extra fine vars.	£4	0	0	25 in 25 choice exhib. vars.	£1	10	0
100 „ 50 „ „	3	0	0	25 „ 25 extra fine	„	1	5	0
100 „ 25 fine showy vars.	2	10	0	25 „ 12 choice	„	0	17	6
50 „ 50 extra fine „	2	0	0	12 „ 12 exhibition	„	0	15	0
50 „ 25 good „ „	1	15	0	12 „ 12 ext. fine	„	0	12	0
50 „ 12 „ „ „	1	5	0					

12 in 12 good, for pots or glasses, 6s. and 9s.

Orders amounting to 21s. and upwards sent carriage paid.

BUTLER & MCCULLOCH, Covent Garden Market, London, W.C.

COLLECTIONS OF BULBS.—Orders amounting to 21s. and upwards sent Carriage-free.

FOR GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5l.	2l. 10s.	1l. 5s.	1l. 1s.	15s.	10s. 6d.

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5l.	3l.	2l.	1l. 5s.	1l. 1s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5l. 5s.	2l. 12s. 6d.	2l. 2s.	1l. 1s.	15s.	10s. 6d.

These Collections include only Bulbs of first-class quality.

For full particulars see CATALOGUE, which may be obtained post free on application.

BUTLER & MCCULLOCH, Seed Merchants, Coven en Market, London W.C.

WELLINGTONIA GIGANTEA.—The Undersigned begs to offer fine healthy Seedling Plants in pots, at the following prices:—

One Year Seedlings, in single pots, 50s. per 100.
Specimen Plants, in 24-sized pots, 18 inches, 60s per dozen.
Fine Plants, in 32-pots, 1 foot, 30s. per dozen.
„ in 48-pots, 9 inches, 18s. per dozen.
ARAUCARIA IMBRICATA, in 48 pots, fine, 9s. per dozen.
CUPRESSUS LAWSONIANA 9 inches, 12s. per dozen.

T. HENCHMAN, Edmonton, near London.

New Hardy British Ferns.

J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.

POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
„ „ GLOMERATUM.

(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)

Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.

Dorking, Sept. 3.

TO BE DISPOSED OF, the following SPECIMEN AZALEAS, well-grown Plants, dimensions as follows:—

	Height. ft.	in.	Width. ft.	in.
PERRYANA	4	4	2	2
BEAUTY of EUROPE	5	0	2	6
VARIEGATA	3	0	3	0
ALBA LUTESCENS	4	0	2	0
ARDENS	3	5	2	4
IVERYANA	3	6	2	0
MAGNIFICA	4	0	3	0
GLORY of SUNNING HILL	4	6	2	9
LEEANA	5	0	3	0
ALBA MAGNA	5	2	2	6
ADMIRATION	2	3	2	3
STRIATA FORMOSISSIMA	3	6	3	3

The 12 to be sold together.

Price on application to JOHN SCOTT, Florist, Bathford, near Bath.

Circular.

SEED WAREHOUSE, 54, High Street, Exeter.—I beg respectfully to apprise you that pursuant to the terms of my late Father's Will I have taken to the SEED BUSINESS which for so many years was carried on by him upon the Premises (now belonging to me), No. 54, High Street, Exeter.

It will be my endeavour to keep a Stock of GARDEN and FARM SEEDS of the best quality, which I trust will meet with your entire approbation. Soliciting a continuance of your esteemed favours and kind recommendation,—I am, your most obedient Servant,

ROBERT T. VEITCH.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 10s. per bushel, or 6s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 56s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

HERTFORDSHIRE HERO BARLEY.—Six-rowed, very productive, and stiff strawed; rather coarse but suitable for Winter or Spring Sowing, for Early Spring Feed, or an Early Crop for Harvest.

Price 50s. per quarter, delivered on Rail at Basingstoke.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; or Basingstoke.

EARLY SPRING FEED,
For Present Sowing.
NEW ENGLISH ITALIAN RYE-GRASS,
Best Imported Ditto,
TRIFOLIUM INCARNATUM,

For Sowing on Stubbles and mending deficient plants of Grasses or Clovers.

WINTER BARLEY | WINTER OATS | COMMON RYE
GIANT RYE | WINTER TARES

For Early Spring Feed.

MUSTARD and RAPE, for sheep keep and ploughing in for manure.

Samples and prices on application to RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; and Basingstoke.

New Seed Business.

DRUMMOND BROTHERS (Sons of Mr. PETER DRUMMOND, of Stirling, N.B.) beg to announce that, being about to Commence Business in Edinburgh as RETAIL SEEDSMEN, they have secured, at 52, George Street, immediately adjoining the Music Hall, commodious Premises, which they intend opening in September, with the FLOWER ROOT TRADE.

Their constant aim will be to obtain the purest and most carefully selected Stocks of TURNIP and other AGRICULTURAL SEEDS; and their various MIXTURES of GRASS SEEDS and CLOVERS will consist only of the most suitable kinds, in proportions adopted by the leading agriculturists.

To the GARDEN SEEDS DEPARTMENT they shall devote special attention, using every endeavour to secure for their Customers VEGETABLE and FLOWER SEEDS of the finest quality and true to name.

Nursery Orders they shall be prepared to receive and have executed with carefulness and despatch.

Edinburgh being most favourably situated for Railway and Steamer communication to every part of the United Kingdom, DRUMMOND BROTHERS feel confidence in respectfully soliciting a share of the trade of the Country, and they hope, by studied attention to the wishes of those who may favour them with their patronage during the ensuing season, to merit a continuance of support.

CATALOGUES will be forwarded, when issued, upon application.

Viewforth, Stirling, Sept. 3.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.

"Upton" Nurseries, Chester.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions:—

2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.

A DESCRIPTIVE CIRCULAR will be forwarded to applicants. and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited.

Strong Planting Canes, 21s. each; extra strong Fruiting Canes 42s. each.

Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & Sons have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

The Greatest Novelty of the Season.

BEATON'S HYBRID BEDDING GERANIUMS.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that he has purchased from the Executors of the late Mr. Donald Beaton, the whole of his SEEDLING BEDDING GERANIUMS, which includes the latest efforts of this successful hybridist. Some are of a yellowish tinge, some rose, some purple, some magenta; the individual flowers of others are larger than a five shilling piece. For Bedding purposes they will prove invaluable, being new in colour and remarkably free and hardy.

They will be offered by PRICED DESCRIPTIVE LIST in October.

NOW in BLOOM, inspection invited. Entrance from the Platform, Waltham Station, Great Eastern Railway.

Paul's Nurseries, Waltham Cross, N.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD, a very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT, brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH, dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL, dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR, clear rosy scarlet, very large truss, and fine foliage.
SURPRISE, a light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3 Rue Dunois (late Rue des Trois Ormes), Paris, begs to inform Nurserymen, Seedsmen, Florists, and the Trade generally, that he will shortly publish his CATALOGUE of his unrivalled collection of GLADIOLI for this autumn, which may be had of him direct, or of his London Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C., upon prepaid application.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN and SEEDSMAN, Rue Dunois 3, (late Rue des Trois Ormes), Paris, has the honour to inform his NUMEROUS friends and the Trade generally that the CATALOGUES of GLADIOLI published by him up to the present time are CANCELLED, and will be replaced by a new Edition, with REDUCED PRICES, on September 1, which may be obtained from him direct, or of his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

CATTLEYA WARSCEWICZII, VARS.

Several nice healthy Plants, just received direct from the party who first sent C. Warscewiczii delicata and C. Wagneri rosea to us. Prices on application.

DIPLADENIA AMABILIS.

We beg to call the attention of all lovers of Choice Plants to this superb DIPLADENIA, of which we purchased the entire stock. It is a new hybrid of unrivalled beauty, with the *deep rosy-crimson* flowers of D. crassinoda, approaching the *size* of D. splendens. Leaves about the size of D. Van Houttei, but of the form and texture of D. splendens. A most abundant bloomer, and for House decoration or Exhibition invaluable.

10s. 6d. each.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

NEW HARDY CLIMBING PLANTS.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.

Awarded by the Royal Horticultural Society, August 4, 1863.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the public, for the first time, their beautiful rich coloured, free flowering Clematises that they can recommend with confidence, being convinced when known they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants sent out strictly in rotation in October.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Gardeners' Chronicle*, January 9, 1864, on Meritorious Plants; *Journal of Horticulture*, August 11, 1863.

Plants advertised at 15s. each: G. J. & SON cannot take further orders, for having had but a limited quantity of that size, for the future the price will be

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

NEW INTRODUCTIONS

NOW READY, TO BE SENT OUT, FREE TO LONDON.

J. LINDEN,

ROYAL ZOOLOGICAL GARDENS, BRUSSELS,

BEGS TO CALL ATTENTION TO THE FOLLOWING NOVELTIES NOW READY FOR SALE:—

PHRYNIUM (MARANTA) MAJESTICUM, Lind.—This noble species was discovered by M. L.'s collector Mr. G. Wallis, on the banks of the Upper Purus river, one of the great affluents of the Amazon. The leaves, striped like those of Maranta regalis, are of a dark purple below, and reach the length of 2½ feet. The great effect produced by this really ornamental plant, deserves the specific denomination. Fine plants 21s. each.

PHRYNIUM (MARANTA) PICTURATUM, Lind.—This truly splendid plant is without contest one of the best Marantas introduced up to the present time. The honour of introduction belongs also to the botanical traveller Wallis, who discovered it in the dense forest of the Purus. It is of a moderate size and of a compact habit. The leaves are of a dark satin-like green, embellished by a large central line surrounded by an undulated silver discus. A specimen of this fine species was sent to the Royal Horticultural Society's Exhibition of the 24th of August, and received a Second-class Certificate. Price 21s. each.

PASSIFLORA FULGENS, Wall.—A very distinct climber, with large bright scarlet flowers, and oak-like foliage. Also a discovery of Mr. Wallis in the Amazon valley. Price 15s. each.

TRICHOCENTRUM ALBO-COCCINEUM.—Exhibited at South Kensington the 24th inst., 42s. to 63s.

GALEANDRA DEVONIANA.—Fine plants of this beautiful species, from 42s. to 63s.

ODONTOGLOSSUM AURO-PURPUREUM, from 42s. to 84s.
„ HASTILABIUM, from 21s. to 42s.
„ PESCATOREI. 105s.

Large importations of Orchids from different parts of the world enable J. LINDEN to offer these favourite plants at very moderate prices.

CALADIUM CANNARTI, MIRABILE, and OSYANUM. 5s. each.
DORYOPTERIS ALCYONIS. 5s. each.
LILIUM WALLICHIANUM, true. 21s. each.
THEOPHRASTA IMPERIALIS. 10s. 6d. each.
LARIX LEPTOLEPIS, new from Japan. 10s. 6d. each.
ARISTOLOCHIA CORDIFOLIA.—Flowers 15 inches in diameter. 5s. each.

Usual Discount to the Trade.

LONDON AGENTS: MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, E.C.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Feels great pleasure in being able to introduce this important acquisition. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years.

B. S. W., to meet an extensive demand, has prepared a large Stock, which is in excellent condition, and is now ready for distribution. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

HYACINTHS AND OTHER CHOICE BULBS.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS. For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post Free on application.

Choice Hyacinths for Glasses or Pots, 6s., 8s., 10s., and 12s. per doz.
,, ,, for Beds or Borders, 3s. 6d. per doz.

BARR & SUGDEN 12 KING ST. COVENT GARDEN

FOR PRESENT PLANTING (Sent Carriage Paid),

DUTCH, CAPE, FRENCH, and ITALIAN FLOWERING BULBS,

FOR THE

ORNAMENTATION of the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.

THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, and 63*s.*
THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, and 63*s.*
THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
HYACINTHS, 2*s.* 6*d.* to 15*s.* per dozen. CROCUS, 1*s.* 6*d.* to 4*s.* per 100. TULIPS, 3*s.* 6*d.* to 20*s.* per 100.

A Detailed List of the above Collections, and a General Priced List of Bulbs, sent Free and Post Paid on application.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

NEW ORNAMENTAL FOLIAGE PLANT, IRESINE HERBSTII (Hook.)

HERBST & STENGER,

KEW NURSERY, RICHMOND, LONDON, S.W.,

Have great pleasure in offering for the first time this distinct and handsome Plant, introduced by them direct from the River Plate, and to which a Certificate was awarded by the Royal Horticultural Society on August 24.

Colour of leaves dark maroon, ribs and stem bright carmine. A worthy rival of Coleus Verschaffelti, both as regards colour and hardiness.

Plants ready for delivery now at 10s. 6d. each.

The usual Discount to the Trade. Prices per 12, 25, 50, *and* 100 *Plants on application.*

LIST OF DUTCH FLOWER BULBS TO BE HAD GRATIS.

ESTABLISHMENT for the INTRODUCTION of NEW PLANTS.

TO BE SENT OUT IN SEPTEMBER 1864.

AMBROISE VERSCHAFFELT, GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES :—

ACHYRANTHES VERSCHAFFELTII, Versch. (Illustration Horticole).—A splendid introduction; it is the rival of the charming Coleus Verschaffeltii, with the advantage that the Achyranthes is less delicate, and may be kept easily in a good greenhouse. It will be one of the finest plants for planting out in the summer. A beautiful bed can be now seen in my nursery. Obtained prizes in all the exhibitions to which I sent it—Ghent, Antwerp, Brussels (International Exhibition), &c. Fine plants, 8*s.* each.

PHRYNIUM (MARANTA) VANDEN HECKEI, Versch. (Illustration Horticole).—This splendid Maranta was introduced by the botanic collector Baraquin, who discovered it in Para. It is one of the finest introductions I have made. Obtained several first medals. Fine plants, 20*s.* each.

ACER PSEUDO-PLATANUS var. LEOPOLDII (Illustration Horticole).—One of the best variegated Acers that we have. A correct Drawing may be seen in the September number of the "Illustration Horticole." Good plants, 8*s.* each; stronger, 16*s.* each.

AQUILEGIA SPECTABILIS (Illustration Horticole).—This is one of the finest Aquilegias; see figure in "Illustration Horticole." Good plants, 4*s.* each.

AZALEA PONTICA BOUQUET DE FLORE.—Splendid variety, large bouquet, rose, delicate, with stripes. A figure will be published shortly in the "Illustration Horticole." Good plants, 4*s.* each.

New Pears.

BEURRÉ SPAE (Illustration Horticole).—Fruit of first quality; see "Illustration Horticole." Good plants, 8*s.* each.

BEURRÉ VAN GEERT.—Fruit of first quality. A drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 8*s.* each.

ROSE (HYB. REMONTANTE) DUCHESS of MEDINACELI.—This is one of the best Roses that will be sent out this autumn. A Drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 16*s.* each.

N.B. The NEW GENERAL CATALOGUE No. 75, is now ready, and can be obtained Free of my Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

All Letters containing Orders must be sent direct to
AMBROISE VERSCHAFFELT, GHENT, BELGIUM.

DOBSON'S CELEBRATED SEEDS, for PRESENT SOWING.
PRIZE CALCEOLARIA. 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 7*s.*
PRIZE CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
PRIZE PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
PRIZE PELARGONIUM, 2*s.* 6*d.*, 5*s.*
Sealed Packets, post free.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

	Per pkt.—*s.*	*d.*	*s.*	*d.*		Per pkt.—*s.*	*d.*	*s.*	*d.*
PRIMULA ..	2	0	and 3	6	INTERMEDIATE STOCK.. ..	0	6	and 1	0
CINERARIA ..	1	6	and 2	6					
CALCEOLARIA	1	6	and 2	6	BROMPTON do.	0	6	and 1	0

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

Japanese Nurseries, Biggleswade, Beds.

BAMBUSA VARIEGATA (JAPAN).—The most beautiful variegated foliage plant ever offered either for the greenhouse or out of doors, quite new, from Japan. Price from 5*s.* each.

EUONYMUS JAPONICUS AUREUS VARIEGATUS.—A most beautiful plant, variegated dark green and brilliant gold, quite new and distinct from anything in its class. Plants from 5*s.* each.
T. AYRES.

WILLIAM BARRON begs respectfully to inform his friends and the public, that in consequence of his intended Removal from Elvaston to his new Nurseries at Borrowash, his large and magnificent stock of Specimen CONIFERS and other rare and hardy Plants will be offered for Sale upon very favourable terms.
His DESCRIPTIVE CATALOGUE for the AUTUMN of 1864 and SPRING 1865 will shortly be ready, when it may be had free upon application. Elvaston Nurseries, Derby.

New Hardy Bedding Plant—Sedum glaucum.

JOHN SALTER invites the Growers of BEDDING PLANTS to visit his Nursery and inspect this beautiful novelty, which he will send out early in 1865. It is very dwarf, and of exceedingly close habit, forming a compact mass of silvery gray foliage, which it retains both in summer and winter; for edgings, ribbon borders, or pots it will be found one of the most useful dwarf plants ever offered. Orders are now being taken for the Spring at 9*s.* per dozen. Price per 100 upon application.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2*s.* 6*d.* and 5*s.* each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

CARTER'S GARDENER'S VADE-MECUM.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 3, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Sept.	6	Royal Horticultural (Show of Autumn Flowers) at South Kensington.
WEDNESDAY,	—	7	Crystal Palace Autumn Flower and Fruit Show.
THURSDAY,	—	8	

Is there any difference between the varieties of WHITE MUSCAT GRAPES allied to the Muscat of Alexandria?—if so, how much? and in what does it consist? These have been some of the vexed questions amongst fruit growers for some time past, and there has seemed to be little prospect of obtaining unanimous replies. The very causes which, as we suppose, have operated in giving origin to some at least of the reputed varieties, have been more or less actively at work in perpetuating a diversity of opinions on these points. It cannot be doubted that some of the so-called varieties may be traced back to the exhibition of—or at least the production of, remarkably fine samples of fruit, whose very excellence has seemed to set them apart from the rest, but which excellence has been produced, perhaps, by a combination of favourable circumstances of a more or less permanent character, and have disappeared under other conditions; while others, there seems as little doubt, have been seedlings whose apparent divergence from the original has been rather dependent on the advantages they have derived from experimental cultivation, than in any permanent distinctive character.

Such being the unsatisfactory condition of this Muscat question, it was resolved some two or three years since that one of the houses at Chiswick should be devoted to the clearing up of the mystery; and with this object in view as many varieties as possible were got together—young healthy Vines of the following reputed sorts, procured as far as possible from authentic sources, being planted, namely:—Muscat of Alexandria, Charlesworth Tokay, Muscat Escholata, Denbies Muscat, Barnes' Muscat, Canon Hall Muscat, Passe Muscat, Tynningham Muscat, Bowood Muscat, Tottenham Park Muscat, and the Zibibo of Sicily. It was thought that the best way to test their distinctness was to bring all the varieties together, and to grow them as nearly as possible under the same conditions. This was done; Vines of the same age were planted in the same border, and last year these Vines yielded their first fruits, with very little promise of diversity amongst them. This year they have borne a fair crop, and the suspicion of sameness which was

excited last year has been more than confirmed. Excepting only the Canon Hall variety, which stands out prominently from the others, there is no perceptible difference to be found in the whole series, now that the fruit is matured and fit for table. There are diversities observable, it is true, such as the presence of rounder or more oblong berries, with more or less of looseness or compactness, more or less of shouldering, more or less of tapering elongation in the clusters; but the differences in the berries are here seen to occur indifferently on the clusters of the same Vine, and the differences in the clusters occur indifferently through the whole series of Vines. The only observable difference of flavour is readily traceable to the more or less ripened condition of the particular berry or bunch, and cannot in any case be traced as characteristic of the variety. Thus, for all useful purposes, the so-called varieties are identical; nor are there any distinctions to be observed, independent of the fruit, in the wood or in the foliage.

It appears, however, from observations made during the earlier stages of growth, that although it may have vanished by the time the fruit has matured, there is a difference perceptible in certain cases while development is going on. Some of the kinds are found to set their fruit better—that is to say more abundantly, more uniformly, and more certainly—than other kinds, and this, in one sense at least, is to be regarded as an advantage. The better setting kinds are the Bowood Muscat, Tynningham Muscat, and Passe Muscat, which all agree in this peculiarity, and which do not otherwise present any differences among themselves. Perhaps it should also be mentioned that the Charlesworth Tokay was just a shade less ripened than the others, indicating lateness, but the difference was hardly perceptible.

To sum up, therefore, the result of this experiment, is to show, that leaving out the Canon Hall Muscat, which is diverse, all the other varieties mentioned are either identical or so closely similar as to present no appreciable difference at the period of maturity, but that the three varieties just above specified have the advantage of being what in garden parlance is called better setters. We understand that a resolution somewhat to this effect has been unanimously agreed to by a pretty full meeting of the Fruit Committee, which has just made this a special subject of examination. For ourselves, we do not hesitate to affirm, that neither the foliage nor fruit of these young Vines, grown under identical conditions, and really excellent in quality, could by any possibility be correctly distinguished by any outward character, or inherent quality, if once they were intermixed.

But if there are no actual differences between them, what is the explanation of all the supposed distinctions which have gone to swell up our lists of Muscat Grapes? That differences have been presented, chiefly of course in the size and form of the berries and bunches, is apparent enough; and that they have been differences sufficient to mislead good judges is equally apparent, for no doubt, at this very moment, some at least of the varieties which have been mentioned, are believed in as distinct by good gardeners. We suppose the explanation, on the one hand, to be, as already indicated, that the samples which have mystified growers have been the result of peculiar, and it may be unappreciated advantages of soil or situation, of something eminently favourable to the crop in the very material or construction of the border, or of healthy vigour, whether it be that of young Vines just come to their prime, or of old Vines well established in a position where their roots are fed independently of all borders, there being combined with some one or other of these advantages that kind of judicious treatment which has turned them to their full account, and resulted in well-swelled and thoroughly-matured Grapes. The differences amongst Muscat Grapes attributable to mere position and treatment we know to be by no means inconsiderable, from the evidence which any great fruit show will furnish; and we can hardly refuse to go a step further, and admit that the diversity may sometimes give the impression of a distinct variety; and if such an impression becomes once established, it is not without difficulty overcome. It is fair to mention, that in one or two of the above cases the new names are not to be set down to the account of the original growers. This applies especially to the forms distinguished as Barnes's and the Denbies Muscats, which were included in the trial merely from a certain reputation they had acquired, the names being added to distinguish them.

On the other hand, no doubt some of the supposed distinct Muscats have been seedlings. Now we know that in the case of flowers a seedling plant, in its first flush of vigour, will often indicate qualities which it does not maintain when it falls into the ordinary routine of cultivation; and it is only reasonable to infer that something of the same kind may occur in respect to fruits. And then, if a choice seedling fruit, like a Grape, does really seem to indicate any distinct and desirable qualities, it is petted and coaxed on in a way which may keep up the delusion for a time, until it is brought to the test of a rigid comparison, such as has been made in the case to which we refer; and all this in perfect good faith on the part of the grower. Thus we think, in one or other of these ways, may the occurrence of so many supposed varieties of White Muscat Grape be accounted for.

Now for the practical result, so far as it may be considered settled at this stage of the Chiswick experiment. It is that there are only two of these White Muscats, where we have hitherto counted at least ten; and the Canon Hall being one, it matters little which of the remaining names is taken to represent the other. On the whole the preference might be given to the Bowood or Tynningham or Passe Muscat, from their setting better. It ought not however to be overlooked, that if these varieties do set more freely than the rest, they give more trouble in thinning.

Those who have no difficulty in "setting" the old Muscat of Alexandria—and that many growers have not our fruit shows well testify—need give themselves no trouble about the rest. We do not go so far as to say that they are all identical, but we do say the differences between them, if any, are so slight as to be of no practical importance, and are not like those between certain forms of Black Hamburgh, distinctly appreciable.

EVERY gardener who has any pretensions to an acquaintance with the common ATMOSPHERIC CONDITIONS which affect cultivation, is well aware of the baneful effect of nocturnal radiation on vegetation, and adopts, therefore, some contrivance to prevent it by interposing a screen of wood, canvas, or some other material, as the especial case may require. In nature a great deal is effected in the same direction by overclouding, and it has been supposed that the clouds act not only by preventing radiation, but partly by reflecting the heat radiating from the earth, and partly by the emission of heat from their own substance.

As regards the prevention of radiation, the clouds and the artificial screen act apparently in the same way, but as the heat increases much more rapidly than it was abstracted before the screen was interposed, and as the heat is greatest at the earth's surface, and diminishes gradually upwards, and inasmuch as in either case of the screen or cloud the effect is the same, as appears from actual experiment, some other explanation must be sought than that which has obtained currency. Two Italian philosophers, Dr. FUSINIERI and Signor ZANTEDESCHI, have accordingly undertaken the examination of this phenomenon, and an account of their investigations is given in the "Reader" of August 20, 1864, from Secchi's *Bullettino Meteorologico*.

As the result of their investigations they affirm "that the nocturnal vapours arising from the earth, a source warmer than the air through which they pass, condense progressively the higher they ascend; but a fluid rendered specifically lighter than air by its excessive temperature does not lose the heat employed in its ascension, whereas the temperature of a fluid must equalise itself with that of the surrounding atmosphere directly its ascension is obstructed. Hence it is seen that nocturnal vapour ascending from the earth, and arrested by means of an extended surface, must of necessity heat the air and all immediate bodies more than if its ascension had not been impeded. And in the same manner, when this obstruction is withdrawn and the vapour is allowed to ascend, the surrounding cold air will rush into the space that had been heated and effect the rapid decrease of the temperature observed."

When a cloud at a great distance is interposed instead of an awning at a short distance, Signor ZANTEDESCHI observes that the clouds arrest the vapour in its upward course, and the highest stratum which first comes in contact with the cloud will hinder the progress of that immediately below, and so on to the surface of the earth, and as the heat thus arrested in its progress will be imparted to the surrounding atmosphere, the temperature will rapidly increase, while the nocturnal evaporation will be checked.

Whether this interesting explanation be of any practical importance or not, it is of very great consequence that the attention of cultivators should be called again and again to the subject, and especially as connected with forcing houses. The absolute necessity of some covering to the exposed glass, especially where considerable heat is kept up at night, is a point to which we have often alluded, as the dryness of the air where this is not attended to, becomes a fertile though frequently an unexpected cause of mischief.

We have lately seen what we believe to be an instructive case, though we had not an opportunity of talking the matter over with the gardener under whose inspection the case took place. The Vines in a particular house were extremely unhealthy, the leaves pale and partially withered, the bunches irregular, and the berries, which in many cases were very small, shanking and spotting, were for the most part of little value. Some of the Vines were sending out long roots from the branches, a circumstance which seemed to indicate a desire to get as much moisture from the dry air as possible. It was moreover apparent that the condition of the Vine roots was not the cause of evil, as in the same house a large plant of Psidium Cattleyanum, whose roots were differently circumstanced, showed an equal degree of unhealthiness. The greater part of its fruit was densely rusty, and cracked both longitudinally and across just as it was beginning to swell and ripen. The whole seemed to us clearly to indicate mischief arising from an atmosphere occasionally very dry, with sudden accession of moisture from the roots. On no other theory could we account for the condition of the house, and we believe the case is one which may convey a very useful lesson. In other houses we observed an excellent crop, and their condition seemed quite confirmatory of our theory. *M. J. B.*

—— On the 26th ult., the anniversary of the birthday of the PRINCE CONSORT, the GARDENS of the ROYAL HORTICULTURAL SOCIETY were, according to announcement, thrown open to the public, free of charge, in compliance with the expressed wish of her Majesty the QUEEN. The grounds were opened at 10 o'clock, and continued open till 7 o'clock in the evening. The day was delightfully fine, and during the course of it, as nearly as can be ascertained, about 153,000 persons were admitted. It is very gratifying to be able to state that no material damage beyond the unavoidable trampling of the turf slopes, was sustained, notwithstanding the densely crowded condition of the garden throughout the day. The conservatory, orchard-houses, arcades, and maze were all open, and the cascades and MINTON'S fountain played. Bands were stationed at various parts, and played at intervals. Towards evening the Old Hundredth Psalm, with a hymn composed by the PRINCE CONSORT, and the National Anthem were sung by the assembled visitors on the upper terrace, the singing being led by trumpeters.

—— The meeting of the BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, which is to be held this year at Bath, will commence on Wednesday the 14th inst., under the Presidency of Sir CHARLES YELL. The geological features of the immediate neighbourhood of Bath, the celebrity and beauty of the city and its environs, and its historical associations will, no doubt, conduce much to the scientific interest and success of the meeting. All the principal railways have consented to convey members and associates travelling on their respective lines at a single fare for the double journey, but in order to secure this privilege it is announced that early application must be made to the local secretaries for pass tickets.

—— The *Revue Horticole* states that a large TRADE IN APRICOTS is carried on in Burgundy. The principal centres of Apricot culture are at Marsannay-la-Côte, where the trade has during the last few years reached to the value of 10,000 francs; and also near Morey, where the sale has been not less considerable. Of the next importance, in a commercial point of view, Gevray, Chambol, Beaune, Brochamp, Couchey, Fissin and Chenove may be cited. The varieties which are mostly grown bear the names of Abricot rougeot, Abricot vert, Abricot petit-jaune, Abricot de Morey hâtif, and Abricot Goulard in these localities, beyond which they are not known; but they are preferred for commercial purposes on account of the great quantity of fruit they yield from trees grown fully exposed. They are either grafted on the Peach, or raised from the stones. Three other kinds of Apricot are well known in the same districts, and their fruits also enter largely into commerce. These are the Abricot-Pêche, Abricot de Pont-à-Mousson, and the Abricot gros Augoumois; these last find their way in the catalogues of Horticulturists, but the former do not.

—— The Rev. J. G. C. FUSSELL, of The Chantry, Frome, has sent us specimens of two forms of GYMNO-

GRAMMA CHRYSOPHYLLA of remarkable beauty, on account of their size and the vigorous character of their growth. Some of the visitors to the London shows of 1863 will doubtless remember an enormous specimen shown by Mr. FUSSELL at one of the flower shows held at Kensington in the old Exhibition building; this specimen, which was in the most perfect health, formed a spreading mass some 5 feet through or more, and was we suppose the finest plant of Gold Fern ever exhibited. It was evidently one of the larger seedling forms of this variable species; and the specimens now before us, retaining completely the giant character of those formerly exhibited, suggest the application to it for garden purposes of the distinctive appellation of G. CHRYSOPHYLLA MAJOR. The fronds are at least 3 feet long, with the lower pinnæ nearly a foot long, and the pinnules pyramidal and acute, exceeding an inch in length. Another form, scarcely so large, but even more elegant, suggests the name of G. CHRYSOPHYLLA CAUDATA, on account of its elongated taper-pointed pinnæ. In this the fronds are about 2½ feet long, the larger pinnæ 6 inches, and the larger pinnules about an inch, and of an oblong ovate blunt form, so that the pinnæ stand apart. Both sorts are clothed beneath with the richest yellow powder, and are fine examples of what are called Gold Ferns.

—— Among the NEW PEAS of the Wrinkled Marrow class which have fallen into the hands of Mr. TURNER for distribution, one which is called the PREMIER stands high in point of excellence as a summer variety. It has the character of being very productive, and of growing 3½ to 4 feet high, producing long well-filled pods, and it certainly is, when cooked, a large deep-green and exquisitely-flavoured Pea, quite fit for an epicure's table.

—— According to M. BILLIARD FILS there is an art in PRUNING SPIRÆAS. These beautiful shrubs are divisible, he tells us, into two distinct classes, according to the pruning they require. Generally, he observes, all Spiræas without distinction are pruned—or rather sheared, for few take the trouble to prune them—during the winter; but this practice involves the loss of the flowers of certain species which blossom in spring. For this very sufficient reason, he argues that there should be two periods for pruning: one at the beginning of spring for those species which flower upon the buds of the same year, and the other immediately after the flowering season, for those which form their flowers upon branches of the preceding year. The following species, with their varieties, should, according to this view, be pruned at the beginning of spring, namely:—S. salicifolia, Billiardii, canadensis, Douglasii, callosa or Fortunii (of which M. BILLIARD mentions the varieties paniculata, alba, and foliis variegatis), eximia, californica, tomentosa, rosea grandiflora, floribunda, corymbosa, Regeliana, semperflorens, pachystachys, Nobleana, and Gonthierii. On the other hand, the following sorts should be pruned immediately after flowering:—S. thalictrioides, sorbifolia, pikowiensis, ariæfolia, Nicoudertii, aquilegiæfolia, sinensis pendula, expansa nivea, Lindleyana, opulifolia, lævigata, bella rosea, prunifolia, with its double-flowered variety; lanceolata or Reevesii, with its double-flowered variety; ulmifolia, pubescens, crenulata, cana, adiantifolia, chamædrifolia, Blumei, Kamoun, rupestris, alpina, oblongifolia, amœna, hypericifolia, procumbens, grandiflora, speciosa, confusa, Thunbergii, and Hookeri.

EARLY FLOWERING BULBS.

THE return of August brings with it the usual announcements of the importations of bulbs, and that catalogues of them are on the eve of publication; and many a well-compiled little tract invites attention and assails the pocket. In fact, the "Postman's Knock" is already introducing to notice some of these lists, and I always peruse them with pleasure, even though but few additions are made to last year's subjects.

Of all the divers varieties of bulbs that can be pressed into the service of winter decoration, two of them can be had in bloom remarkably early, viz., the Roman Hyacinths, perhaps more generally known as the white Hyacinths of Paris, and the Paper-white Narciss, perhaps more popularly known as the single Italian Narciss. These two are pushed on into bloom to a large extent to supply the exigencies of the market in the shape of cut flowers; and also to render good service in the Conservatory, mixed with Chrysanthemums and similar plants.

For window or conservatory decoration during winter, Paper-white Narcissi are invaluable. They are easily and early obtainable, and they are easily cultivated; they flower freely, and remain in bloom for a considerable time. I find that two importations of this flower are made into the London market. The largest quantity, and which is also the earliest flowering, comes from Paris; the other, and in the case of which the bulbs flower some two months later, comes from Holland or the Channel Islands. How there is such a difference in the time of flowering I do not know, but the fact exists. By employing both the Parisian and the Dutch bulbs, a succession of flower can be obtained from the beginning of November till the end of April. The first are already in the market, so forcing can be commenced at once. Then as a companion there is the Parisian Double Roman Narciss, not nearly so beautiful but yet very early in blooming. It is true that you can get but three or four flowers on one of its muscular looking stalks; but then, at such a season of the year, who is disposed to be fastidious? Why, in the midst of the short, dark, fog-stricken days, or those of intense, biting frost, or of snow-clad houses and streets, the dullest looking flowers are treasured up with tender care—the uncoloured blossoms of a Christmas Rose even—and are welcome there as a bunch of spring Violets.

The little azure-blue Scilla sibirica also comes in with the preceding, and so do the old single Duc van Thol Tulips. By the assistance of a little warmth, a constant supply of this charming yet tiny Tulip can be maintained, till the larger members of its family, together with Hyacinths and Crocus, come in abundantly. And so you can draw around you a family circle of little floral pets, whose pleasant influence can fill the heart with deep thankfulness, and cause the outward gloom to become a ministrant to the cheerfulness within. *Quo.*

THE LONDON PARKS.—No. I.

BATTERSEA PARK.

No brave New Englander was more "severely wounded" in the gorge of death at Petersburg than the bugbears of our flower gardens—monotony and dumpiness—have been by the splendidly successful arrangements adopted by Mr. Gibson in Battersea Park. It may be long before death ensues; long before remote country gardens, now overspread with "bedding" in its vulgarest aspect, are adorned with the grace and beauty which might characterise them; and still longer ere real plant-beauty envelopes the cottage now in too many cases surrounded by a spread of bad blue, gamboge, and scarlet, without a particle of grace—the colour being afforded by plants which, during May and June, the sweetest months of the year, look starved and contemptible, and during the dog days, or by the time one has feasted upon flowers, yield forth a blaze of "colour" which could be almost equally well spread out by the cotton printer, and which render our gardens generally the most uninviting places in the world for a Turner to look into for repose, or a subject.

All real lovers of plants have long ago been surfeited and disgusted with the sameness of our flower gardens, but their tastes and suggestions have been ignored for what was supposed to be the popular love of a "blaze;" but now the people, even those from the most cheerless streets of London, are enabled to see the difference between geometrical colouring of the ground, and such a scene of beauty as Mr. Gibson has provided for them. Moreover, in the "sub-tropical" garden at Battersea Park, the rollers in carriages that are "set down" at the South Gate may be seen, not strolling along with a listless stare, such as we see exemplified in our great bedding places, where the only pleasure derivable is from the general effect and colouring of the scene, but standing astonished, interested, charmed—wondering at the grace of one plant, and determined not to go without the name of its dignified neighbour. Along with these, equally wrapt in admiration, is the propeller of the perambulator, that formerly may have done duty as a soap box, and now teems with humanity of all conditions, evidently drinking to the full of the loveliness displayed by a mixed vegetation.

It must not be inferred from what I have said, that bedding-out proper is not to be seen at Battersea; on the contrary it is there, pure and simple, to an enormous extent. The individual whose soul is charmed by long lines of colour this, succeeded by long lines of colour that, and who gloats over the absence of verdure or leaf beauty, may go there and be twice blessed, for Mr. Gibson has catered for his taste most extensively. Should the misanthropic stroller wish to call up such associations as could be derived from the sight of some great undertaker's black plumes, placed out in lines for an airing, he, too, need not despair, for behold, in vast lines, Perilla is there!

In some places too the advanced colour-culturist may see displays which will give him pleasure, and perhaps instruction. But I did not go to Battersea to inquire about and descant upon the effects and daubings of the "bedder out," which, Heaven knows, has been sufficiently done over and over again. So having explained this to Mr. Gibson, and apologised for youth and ignorance, I had a look over the main features of the park before entering the well shut-in shades of the sub-tropical garden; admired the excellent drives and promising luxuriance of the young trees and shrubs; met with a large spread of Œnothera macrocarpa, and regretted the absence of Œnotherataraxacifolia, which by the by would add an exquisite charm to the subtropical garden in the evening—the time when it and every other garden are most enjoyable during such hot weather as we have had; came upon Tritomas in fine condition; and eventually stopped short at a beautiful bed of Solanum marginatum.

This is, perhaps, the best of the Solanums employed at Battersea, and has erect fierce spines on the leaves, which have margins of downy silveriness, while the young unfolding leaves in the centre are covered with close down of a pinkish tint. It is an invaluable plant for filling a summer vacancy in the mixed border, or indeed for any flower garden work. Mr. Gibson plants this and other Solanums a good distance apart, as if the plants touch each other the strong spines come into play and lacerate the leaves. In any case the stateliness and the symmetry of plant are better seen when they stand singly.

Near these Solanums, on the west drive, may be seen the bed of Canna limbata, which has stood out all last winter, the roots being deeply protected; and also in the same neighbourhood a very perfect and brilliant piece of colouring produced by seven elevated radiating beds, each about 36 feet long, widening, and gradually rising to fully present the colours to the eye, as the long beds recede from a central circular one. There is also a very effective display of bedding near the "Rosary" Lodge, in which Rosary the Moss Rose does wonderfully well, covering the ground closely pegged down, presenting good evidence of having been covered with bloom. A circular bed here, about 14 feet in diameter, filled with Coleus Verschaffeltii, crossed and surrounded by Centaurea ragusina, both splendidly done, was without doubt remarkably telling—but then what about the dumpiness which characterises it, and almost every other bedding composition? It was unmitigated of course. Now I confess to have been often charmed by such a little rotundity as Monanthes polyphylla or Sedum brevifolium, but when squat succeeds squat, to be in its turn surrounded by other squats, and a large space is quite given up to squattiness, then I say of it as Byron said of another species of dumpiness, "On my soul I hate it." Around the refreshment room on the banks of the Thames (from which I had better say a straight walk leads to the sub-tropical garden, which is so easily hidden in by banks and trees that one who did not know of its existence might miss it, and conclude that there was little more in Battersea Park than in any other great "bedding" establishment), there is a superb band of colouring, which should be seen by all colour-culturists.

Now for the subtropical garden, of which I shall give my impressions exactly as they were stamped, and for the few of them that may not appear laudatory I must apologise, as I feel it is presumptuous in me to criticise the yet growing though successful and vast experiment of a veteran distinguished in more fields than one. For the future, however, I shall say what I think candidly of the work of any don or dignitary of any public garden that I may be privileged to write upon.

A bank of shrubs and trees faces the visitor who enters from the north side, and the walk diverges to the right and left of it; but to the right I went, attracted by a fine plant of Alsophila australis, looking quite at home plunged in the Grass under a large Willow, with Marattia cicutaria beside it, and behind in the secluded shade, Anthuriums—which will not bear the sun, a young Dicksonia, and Carludovica, a genus which Mr. Gibson hopes yet to do more with in the subtropical garden. The sight of the Ferns made me mentally predict that ere long the frequenters of the subtropical would be treated by Mr. Gibson to tree species in full character. Philodendron podophyllum was quite healthy near the Alsophila, and the same may be said of two plants of Grislinia macrophylla near the entrance; but they did not appear to me to present any advantages of leaf or habit more than could be obtained from many hardy trees and shrubs. Going a little way beyond the Alsophila, a partial view of the scene opens up, and one of the most beautiful of sights it is that has ever been enjoyed in a garden. A lawn of irregular outline and full of diversity occupies the greater portion of the space enclosed, and this is planted with fine-leaved plants in all sorts of arrangements, with clumps of shrubs and rising young trees, and with bedding plants, too, here and there, looking much the better for being associated with so much leaf beauty and verdure. But it is against the well-planted winding ridge which surrounds the enclosure that the chief display of leaf and tropical beauty is to be seen, as it is in and on its quiet recesses, hollows, little terraces, and banks that Mr. Gibson comfortably accommodates hundreds of his noblest tropical friends. The view of this bank from numerous points is astonishingly beautiful. It has in itself the elements of rarity, and in no one spot fails to present the visitor with something interesting, from the original little bedding compositions, up through the fine-leaved Ferdinandas, Wigandias, and their numerous helpmates, to the Ferns, shrubs, and trees in the background, which shut out every brick, and confine the scene to plants, their admirers, and the canopy of heaven.

Every one interested in gardening or plants should see this garden some time between this and the end of September, during which month Mr. Gibson says many of the plants will be much finer than they were at the date of my visit. Though the surrounding division is much the more attractive, I will begin again at the Alsophila, and going round the lawn endeavour to say which is best and which is worst of the host of things from both the "indoor and outdoor department" that are used to produce the novel display. I must however first observe, that it was only last spring 12 months, that Mr. Gibson fairly began the experiment, and one of the greatest wonders is how he has got together such an immense number of valuable plants in such a short time. I must add that hardy herbaceous plants may and will yet be drawn on very extensively by Mr. Gibson for producing effects quite equal, and in many cases far superior to that of many of the "tropicals" he employs at present. I need only instance some very near relations of Cynara Scolymus, grand plants, as may be seen at Kew, not omitting the

Artichoke itself, for a well grown plant of it in flower, is one of the noblest objects in cultivation. *Wm. Robinson.*

(To be continued.)

HOOIBRENK'S SYSTEM OF VINE CULTURE.

THE system of Vine culture propounded by M. D. Hooibrenk, of Heitzing, near Vienna, a brief notice of which will be found at p. 986 of our volume for 1863, has attracted so much attention and discussion on the continent, and is still regarded there with so much interest by those holding favourable or unfavourable views respecting it, that some further explanatory particulars will no doubt be acceptable to many of our readers.

We commence with a remarkable report which has been presented to the *Société Centrale et Impériale d'Horticulture de Paris* by a commission charged to examine this method of cultivating the Vine, as practised in the garden of Madame Furtado, at Rocquencourt, and in that of General Jacqueminot, at Meudon. The following is a *résumé* of the more important passages of this report:—

At Rocquencourt M. Fournier first conducted the Commission towards a pit or glass-case (*bâche*) which had been set up against a wall 8 feet high, and of considerable length; and explained that the results obtained proceeded from old Vines, which had not yielded any produce for several years, as much by reason of age, as by the evil influence of masses of shrubs growing in front of them. These shrubs had been removed, and large trenches opened at the foot of the wall, the trenches being filled with good soil and manure, and the old Vine stems laid down therein, the terminal branches being either fixed against the wall, or trained as espaliers. The Vines throughout the whole extent of the wall had become furnished with vigorous shoots, rising vertically to various heights, and then turned off to one side and lowered a little below the horizontal line, in order to form long fruit-branches. The inclination of the fruit-branches was from 12—15°. All these long inclined branches had the most of their buds developed, almost all of the buds bearing one or oftener two moderately fine bunches, not, however, attaining the condition of perfection. In all those cases where the stem had only one long branch, the first eye had produced a shoot, which being trained vertically and not stopped, became fit to replace the fruit-branch in the following year. But wherever on the same stem there were two, three, or four fruit-branches, only one or two of them yielded shoots fit for the replacement. The inclination of 12—15 degrees below the horizontal line being regarded as a distinctive and essential character of the Hooibrenk method, the equal bursting and fertility of all the buds of the fruit-branch, whatever might be its length, being attributed to it, the Commission was induced to examine closely all the eyes along the whole length of the fruit-branches, and though here and there the equality was nearly realized, yet, in many cases it was not manifested, either in the breaking or vigour of the buds, or in the number and quality of the bunches. The greatest vigour showed itself at the extremities, while the centre was generally inferior, and sometimes altogether naked.

The inclination of the fruit-branch, indicated by M. Hooibrenk, was held by M. Guyot to be no new thing, since it had been practised from time immemorial in France, as at Jurançon, at Madiran, and in other places. M. Guyot maintained that the depression of the branches was neither necessary nor advantageous, and that the horizontal line was better adapted than any other to secure the equal development of the buds, and of the fruit crop. This equality, so well obtained in the French vineyards, would disappear, he argued, if the cordons, instead of being horizontal, were inclined downwards. M. Forest expressed the opinion, shared by MM. Malot and Guyot, that equal growth and fructification throughout the length of a fruit branch depended much more upon the pinching or stopping being done at an opportune time, than upon the mere inclination of the branch some few inches more or less below the horizontal line.

These having been examined and discussed, M. Fournier conducted the Commission to another pit or glass-case (*bâche*) containing some old Vines in horizontal cordons, furnished with their Grapes, and other Vines laid down distant from the wall, bearing one, two, three, or sometimes four long branches, the greater part inclined downwards, but some horizontal. All these long branches were furnished with Grapes. The stems, which had three or four long branches, produced only one or two shoots for replacement, so that the same mode of pruning could not be repeated the next year. These Vines bore abundantly, but the Grapes were of third or fourth-rate quality, and inferior in flavour to the fruit of Vines trained in horizontal cordons, which latter, moreover, were found to yield with perfect uniformity both shoots and fructification, each branch bearing as many clusters as shoots.

It was therefore concluded that the abundance of fruit and the vigorous growth observed were the natural consequence of successfully laying down (*recouchée*) the stems of the old Vines; and that the appearance, consistency, and flavour of the fruit were the result of a temporary fertility induced by the superabundant vigour thus thrown into the plants, and not durable qualities as in the case of the cordon and courson Vines.

It was also found that when the Vines had but one long fruit-branch, they produced at the angle a bud of sufficient strength to yield a shoot for replacement; but that when they were furnished with two, three, or four such branches, they did not produce the new shoots necessary in the following year. While therefore acknowledging the ability and practical success with which M. Fournier had established and conducted his experiments, the Commission found in their results nothing to constitute a new invention or a new system.

Count Lelieur, in his *Pomone française* (1842), remarks that in certain countries they leave on one of the short branches (coursons), one shoot without pruning it. This shoot is called pique, ployon, or marcotte, according as it is kept straight, or bent, or is thrust into the ground to make it take root. The Vine yields sometimes as much on this alone, as on all the rest of the short branches; but it is necessary in order to load a Vine with these long branches that it should



FIG. 1.

be vigorous, planted in good soil, and of at least four years growth. The Vine-dressers of the environs of Paris multiply them too much, thus exhausting the plant and lowering the quality of the produce. The



FIG. 2.

fruit of the short branches always ripens before that of the long ones; there is also a marked difference in the latter between the ripening of the clusters at the top

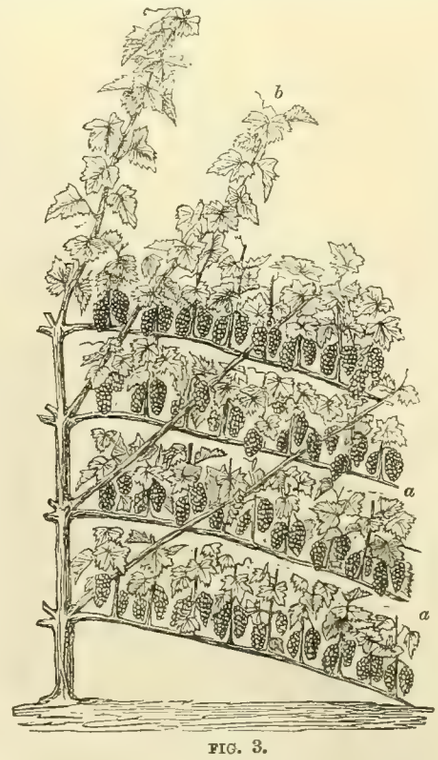


FIG. 3.

and those at the base of the branch. The celebrated French pomologist therefore only accords exceptional praise to this mode of pruning. But even from this point of view, the system may deserve to be known, although with us as a general rule it can only be applied to Vines cultivated under glass.

M. Hooibrenk's description of his system was translated from the German and published by M. Ladrey in *La Bourgogne* for March 15, 1860, and is there accompanied by figures. Fig. 1 shows how the Vine ought to be pruned and worked in the spring. Fig. 2 represents the development of that Vine during the summer. In the following spring the Vine is again pruned and disposed as represented in Fig. 1. The two best branches must be chosen, pruned back to 10 or 12 eyes, and sharply bent close above the head of the old stem, which last operation is very important. In the following spring again the bent branches are pruned to one eye, and replaced by the new shoots which have had during summer a vertical direction, and have been prepared for bearing fruit. The same treatment is to be indefinitely repeated.

Subsequently M. Guyot stated in the *Journal d'Agriculture pratique* (April 5) that the system of M. Hooibrenk was only a plagiarism of the French system of Vine culture, of which a summary with engravings had been published in 1857 in the same Journal. M. Hooibrenk, it is said, has since abandoned the curvature of the branch above the old stem, as well as the bilateral system, in order to employ the unilateral system, and the simple lowering of the fruit-branch. He however still proposes, as in Fig. 3, some dispositions which are held to be impracticable. The fruit-branches (*a*) are from 5 to 6 feet in length; from the base of each of these is to be trained a young shoot (*b*) of from 7 to 10 feet long for renewal. All experience in tree culture establishes the axioms that an abundance of fruit prevents the production of wood, and reciprocally that a superabundance of wood is opposed to a large production of fruit. It is therefore argued that if there are eight, six, or four branches of 7 feet long laden with fruit, this will not permit of eight, six, or four young shoots of similar length being produced on the same stock at the same time—an opinion corroborated by the Vines seen at Rocquencourt, where they bore several of the long branches. It is observed that M. Hooibrenk in his figures everywhere shows the branches as being opposite instead of alternate, a circumstance likely to embarrass those who allow themselves to be guided by his figures.

M. Pynaert, to whose account we are indebted for the foregoing extracts, suggests that the system might perhaps be applied to Vines treated as espaliers, particularly under glass, with good results. In forcing, especially where it is sometimes necessary to allow the trees to rest for a season, he thinks one might, by the aid of these long branches, load the Vines at pleasure.

On the same subject M. Rivière has recently stated at one of the meetings of the *Société Impériale d'Horticulture*, that Philippar, in his course of culture, published in 1840, gives precise indications as to the inclination of the cordons of Vines and branches of fruit trees. One of the plates of this work represents the trees with bent branches, after the method practised by Cadet, of Vaux, and others, in which they have the inclination recommended by M. Hooibrenk. He also finds in the translation, published in 1763 by Dupuy d'Emportes, of the Vegetable Staticks of Hales, a figure representing Vines, with branches inclined according to the same system.

The method of M. Hooibrenk has thus, it will be seen, both its advocates and its depreciators. No doubt the present season will produce further evidence of its results in France and Germany. In the meantime our own cultivators may do well to take note of it, as some modification of it may after all be found useful if we should ever come to grow Grapes on the orchard-house plan.

ORNAMENTAL PLANTING.—No. II.

SUMMER.

WHATEVER may be the beauty of trees in spring, there is an incompleteness attending it—the incompleteness of progress; it is not until the arrival of summer, when the leaves have attained their full size, that trees appear in full dress, and produce that depth of light and shade in which the lover of Nature finds so much pleasure.

If we seek to produce variety through the diversity in form of the leaves, we shall find no difficulty in doing so. There are the needle-shaped, of which the Pines, Firs, and Junipers, are examples. The small-leaved, which include such trees as the Oak, the Elm, the Beech; the large-leaved, to which belong the Catalpa and Paulownia; and the compound-leaved, grand examples of which are met with in the Ailantus, Kolreuteria, &c.

But the colour of the leaves in summer is the most fertile source of variety. There are light green: for example, Taxodium distichum, and Gleditschia; dark green: Fraxinus crispa, and Castanea vesca; purple: Beech, Elm, and Sycamore; yellow: variegated Turkey Oak, Ash, and Sycamore; white: Acer Negundo variegatum, and Silver Poplar. I know of no trees so beautiful in the landscape in summer as the two latter, on account of the idea of coolness they suggest by the glitter of their white leaves. The Aspen, too, is desirable at the same season, the ceaseless play of its foliage disclosing a breeze so faint as to be scarcely distinguishable by any other test.

Then as to shade—we want shade in summer. Trees which produce the densest masses of foliage should be selected for this purpose and planted in appropriate spots. Although "deciduous" trees are in their greatest

beauty at this season, we cannot altogether dispense with "evergreens." The latter are invaluable on account of the variety they produce, and also for the coolness and almost impenetrable shade which they afford.

"Before me rose an avenue
Of tall and sombrous Pines,
Abroad their fan-like branches grew,
And when the sunshine darted through,
Spread a vapour soft and blue
In long and sloping lines."

The Abies Douglasii, A. Deodara, and Pinus austriaca stand in the very foremost rank, both as summer and winter trees, for avenues, groups, or single specimens.

The examples above given are mostly trees attaining to considerable size and familiar samples of such. There are, however, others of medium and lowly growth similar in form, colour, and general character.

Among novelties I have not forgotten the remarkably beautiful trees introduced from Japan, by Mr. Fortune and Mr. Veitch. Some of these, the Acers especially, are wondrously beautiful, but are they hardy? Time is necessary to prove this. It is reported that some are difficult of propagation, and if so it will require time before they become sufficiently reasonable in price to be generally available. *William Paul, Waltham Cross, N.*

Home Correspondence.

American Aloe.—In the conservatory at Walcot, Shropshire, one of the seats of the Earl of Powis, there is now an American Aloe in bloom. Mr. Bond, the gardener, attributes its flowering to the great warmth of the season. The plant is not more than 60 years old, and it is not what would be called an extraordinarily large specimen. The flower stem is 21 feet high, with 26 panicles of bloom on it; on one of the lower ones there are 240 flowers and buds. The panicles project at unequal distances all round the upper part of the stem, with a most graceful curve; the summit is crowned by clusters of bloom buds, and as a whole it is a most wonderful floral production. *G. Jones, Aug.* 29.

Winds.—Good foliage is the health of plants; if it is injured by winds to any great amount the effect is the same as that occasioned by blights, which stop the respiration and perspiration of the plant, and also prevent the inhalation of those gases from the atmosphere which conduce to health. The effect of injured foliage in the case of Roses is the staining of the rind, and a general imperfection of the wood. Most years we suffer from fungus and blights of one kind or another. Last year my plants suffered from a crushing hailstorm, and also from winds, as well as from black blight in the early part of the year, and from white fungus in the latter part of the season. This year the winds have been quiet, and I never have had, since I have been a Rose cultivator, a finer season, nor finer nor more abundant Roses. They commenced flowering out of doors on the Manetti stock on the 7th of May, and are now blooming well; and they will continue to do so (having been manured and copiously watered) till winter sets in. My present object, however, is to speak of winds. What are the causes of those agitations in the atmosphere which are called by the generic term of winds? They are occasioned by the annual and daily motion of the earth, and also from the more or less influence exerted by the sun upon the earth, which influence varies in different seasons, and also varies at different times in any one season. If our globe were fixed, it is plain that the sun's rays would be always directed upon the same surface. The air above the surface would then be greatly heated, as is the case in the equatorial region, and would rise, whilst currents of air or winds would rush in to fill the vacated space, or rather the more rarified space; for though Nature is said to hate a vacuum, there is in reality no such thing as a "vacuum" in Nature. If there is in Nature a vacuum, it is in the human head! The most violent winds are the trade winds, which are occasioned by the rushing in upon a heated surface of cold or moist currents of air, to supply the place of the highly heated column of air that has ascended; and so regular are cause and effect, that mariners can tell the exact time of the occurrence of these trade winds. The same theory will explain the cause of winds generally beyond the tropics, where the sun's influence is much weaker than at the equator, where the sun has shed its beams in a direct manner since the world began. The winds which affect us are called variable, in distinction from the trade winds, which are invariable. There are two winds, or rather breezes, which affect us, and which may be attributed to much the same causes as the trade winds. They are also nearly as invariable, viz., the land-breeze and the sea-breeze. After sunset the land and water lose their day-heat; but loss of heat by the land is quicker and greater than that sustained by the water. The air over both these surfaces must therefore be cooled unequally; and soon the air, which rests on the earth, being colder and denser than the air over the sea, rushes into the more rarified space of the latter. This takes place at the end of the night, and produces the land-breeze. But when the sun rises, it heats the earth quicker than the sea, and the colder air resting over the sea rushes in its turn into the more rarified air resting over the land. This takes place at or towards the evening, and constitutes the sea-breeze. As regards Rosaries (as I have stated in my Lecturette before the Royal Horticultural Society at South Kensington), they cannot have too much air, and, during foliage time, too little wind. My home garden is as much exposed to the W. or S.W. wind as Portland and the Eddystone. My other garden at Rawston (close here), is shielded S. and W. by a high Thorn hedge, but is open, or nearly so, to the N. and E., so that I manage in the course of the year to grow a daily treat (this season a daily exhibition) of Roses on the Manetti stock in unfit land (highly cultivated), *i.e.*, in chalky and thin gravelly soil. In selecting a Rosarium, choose an airy but protected situation with free access to water, and beware both of variable and invariable winds! *W. F. Radclyffe, Rushton.*

Cyperus alternifolius variegatus. — It is stated (p. 820) that the only way of preventing this from running back into the green state is to grow it in pure sand. This I know from experience is incorrect, as I have a large plant without one blade of green upon it. Its leaves are beautifully white, with a few very fine veins of green in them, which adds greatly to their beauty. I grow it in very poor peat, with a little sand; if not kept pot-bound it comes nearly all green. *T. C., Lymington.*

Thladiantha dubia, Bunge.—You noticed this Cucurbit in 1861 (p. 848) as having been then recently introduced by the French "Acclimatation Society." I wonder if your notice attracted the attention of English floriculturists to it. Few things which I saw in a recent visit to the Botanic Gardens of Paris, Lyons, and Grenoble, pleased me more than this plant. In the experimental gardens of the Jardin des Plantes it grows like a weed, covering everything in its way with a pretty foliage of velvety, heart-shaped leaves and a profuse abundance of beautiful, bell-shaped, yellow flowers. Only the male plant, I believe, is in cultivation, but it is a most free grower, and may be multiplied to any extent by its tubers. There can be no doubt that in the South of England, at any rate, it would grow well enough out of doors. In the north, if too cold, it would be a valuable acquisition as a greenhouse climber. *D. O.*

Wasps.—A deadly mode of destroying these pests is by means of cyanide of potassium and dilute sulphuric acid (as sold by druggists). It can be applied with but little trouble by day or night, though of course the most certain plan is at night, when all are at home; those, however, who would wish to see its deadly effect may do it in the day time. The mode is simply this: Put half a drachm of cyanide of potassium in a vial, and three drachms of dilute sulphuric acid in another; pour in the acid, thrust the bottle into the hole, the more upright the better; every wasp that enters drops at once, and none come out, so that the operator may look on without risk; at night act in the same manner, but dig the nest out in 10 minutes and destroy it. I believe the same plan would be effectual with red spider and thrips, but I have none to try it on; on green fly it acted at once. *T. W. Taylor, Bocking, Aug.* 30.

New Hybrid Clematises.—Allow me to reply to Mr. George Jackman's questions published in your Paper of Aug. 13, and also to those of A. Z., inserted in a previous number. The facts of the case as concerns myself and these Clematises are as follows. Previous to my entering Mr. Jackman's service, I resided at Sunningdale, and was in Mr. Charles Noble's service; on the cottage in my garden I had growing Clematis lanuginosa, which was hybridised by myself. The seed was gathered in the September previous to my entering Mr. Jackman's service, and was preserved in sand till I came to Hornsey, when it was regularly sown in warmth, being 15 months from the time of gathering it. In three weeks several plants appeared and were potted and encouraged; the seedlings exhibited by me were some of them. Such is the history of my Clematises.. Mr. Jackman's observations insinuate that I could not obtain flowering plants of seedling Clematises from the time I left his service till mine were exhibited; if, however, A. Z. or Mr. Jackman will visit Hornsey they will find that I have now flowering seedling Clematises sown at Christmas, 1863—not puny flowers, but from 4 to 5 inches in diameter. This is only nine months. I would therefore recommend A. Z. and Mr. Jackman to leave off wool-gathering, and pursue a system of propagation, by which they might have flowering plants of seedling Clematises in one year instead of three. I have pursued my avocation for upwards of 30 years, and I have no cause to be ashamed of my transactions during that period. *Thomas Townsend, St. Mary's Nursery, Hornsey.*—— Your Correspondents may well question the statement of Mr. Townsend when he asserts that he bloomed in 1863 some plants of seedling Clematises from seeds sown soon "after Christmas, 1862." I have had some experience in sowing seeds of the Ranunculaceæ, and I have generally found them not only the most stubborn to vegetate, but the most tedious to bring into flower of almost anything I know. I may instance the case of my seedling Clematis Reginæ, now in the hands of Messrs. Veitch, and with which they this summer took a First-class Certificate. I find, on looking back into my Note Book, that the seeds, which were from a cross between C. azurea grandiflora (the seed bearer) and C. lanuginosa, were sown in "September, 1855," with this memorandum added:—"1856: October 28, observed three seeds vegetated," and as I closely watch my seedling pots, I feel certain that they could not have been many days up before I observed them. Only three plants came altogether, and one soon died. The first bloom was in April, 1862. Now, if Mr. Townsend wrought with hybridised seeds, and sowed them on, or "immediately after Christmas, 1862," and bloomed some plants in 1863, and others in 1864, carrying first-class prizes too, he has accomplished a feat I would never undertake to do, and one certainly greatly in advance of any experience of mine. *I. Anderson Henry, Hay Lodge, Trinity, Edinburgh.* [We quite agree.]

An Acre of Glass.—Mr. Ormson, I see, advertises glass structures by the acre! How such an announcement would have amazed our forefathers! In bygone times a couple of vineries, a conservatory or Orange-house, a greenhouse, a couple of odd houses, and a few pits were considered ample. The duties of a gardener have increased since then at least tenfold, and the rage for bedding-plants has been the means of banishing from our gardens many beautiful herbaceous plants and annuals, and has still made more laborious the duties of a gardener. Times, however, are progressing, and we are now living in an age of wonders. People's tastes go with the times, and gardeners are compelled to do the same; but above all, seasons have changed. The uncertain and variable nature of our climate tends to baffle the skill of the gardener, and he is compelled to use glass structures to guard against the uncertainty of the seasons. As a proof of this, in looking over my register I find that from October 1, 1863 to June 6, 1864 we had no fewer than 164 frosty nights, and independent of these, on 46 nights the register was under 40°. Thus, for a period of 8 months and 6 days we have not had the register above 39° more than as many nights. The frost of June 1 was very destructive. On August 11 and 12 we had frosts, and the last named day the register was 29°; and French Beans, Amaranthus, Ageratums, &c., were slightly injured, but not sufficiently so to disfigure them. Never therefore could such an announcement as that of Mr. Ormson in your advertising pages come at a more appropriate time, for the great heat by day and the exceedingly cold nights, render glass structures on a large scale almost indispensable. The cheapness of glass and the powerful aid of machinery have brought such structures within the reach of many gentlemen whose delight is in their gardens. It is not however my intention now to enter upon the advantages or disadvantages of such structures, but merely to state that they appear to me to be a step in the right direction. The following is the temperature of some of the hottest days and coldest nights of each month, from Oct. 1 to June 1, as indicated by a thermometer in the shade.

Months.	Night.	Day.	No. of Frosty Nights.
	Deg.	Deg.	
October	24	64	12
November	21	55	15
December	19	50	24
January	3	47	28
February	9	52	26
March	14	53	28
April	21	68	16
May	25	82	9

In addition to the above I may state that the first six nights of June were accompanied by frosts. Since the above was written we have had more severe frosts, damaging the French Beans, &c. On August 19 the thermometer indicated 27°; on the 20th, 35°; 21st, 31°; 22d, 26°; and on the 23d, 33°. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.* [From Lincolnshire we learn that on the Fen land the haulm of hundreds of acres of Potatos has been cut down by frost within the last two or three weeks.

Societies.

ROYAL HORTICULTURAL: *August* 27 (*Promenade at Chiswick*).—Between 200 and 300 Fellows and their friends assembled here on this occasion to listen to excellent music from an efficient band, and to inspect the different matters of interest now to be seen in the garden. Prominent among the latter is the great Conservatory, full, as usual, of magnificent examples of Grapes, now ripe and ripening; a house in which are growing the so-called different varieties of Muscats alluded to in another column; various illustrations of hardy fruits and of fruit tree pruning and training; and last, but not least, the fine collection of half-hardy plants placed under the auspices of the Floral Committee in a new trial ground at the East end of the Conservatory. Among these, though affected like other things by the late drought, are many subjects of sufficient importance, as far as out-door decoration is concerned, to demand a separate notice, which will be given as soon as their respective merits shall have been fairly tested by the Committee appointed to determine them.

Notices of Books.

Wayside Weeds. By Spencer Thomson, M.D. Edinburgh. Pp. 212. 8vo. Groombridge & Sons. London, 1864.

This is the title of a small book written for young people, with the good natured idea, that instead of carrying the juvenile student through a terra incognita of hard names, much might be gained by selecting some of the commonest and most familiar plants, which many

persons would call mere weeds. These Dr. Thomson arranges by the handful (not that the flowers are always in bloom together), contriving to choose plants of the same family, or conveniently related to one another. By this means, and with the aid of about 120 clearly drawn wood-engravings, he leads the little student onward to the conclusion of a chapter on Ferns, when the reader is informed that he has been following the "natural" system, and finds five pages on classification. The book is written in a pleasant, and what might be called patronising style, occasionally stilted—as *e.g.*, when he calls something "our first initiament into botanical terms," meaning, we presume, initiation. Initiamenta, the elements of a subject, is a word only used in the plural.

Passages of a Working Life. By Charles Knight. Vol. 2, Pp. 336. Bradbury & Evans, 11, Bouverie Street.

The favourable impression which Mr. Knight's first volume produced, naturally led us to welcome the second, the greater part of which we read with undiminished interest. If there is a slight falling off towards the end of the second epoch, that result must be attributed rather to the circumstances of the times than to the writer; to the complete success of the object which he had in view, not to its failure. As a person of intelligence, with keen powers of observation, and a patriotic desire to do good in his generation, Mr. Knight noticed the abuses which abounded in his day, and saw some of the perils which threatened his country. He traced much of the rampant evil to brutal ignorance, and made the instruction of the masses the object and the mission of his life. This at least forms the warp of the history he has written, and the woof is made up of the various events that were taking place around him during a period of great political excitement, together with sketches of a number of the remarkable characters with whom he became acquainted in the way of business; and that business was, as we have said, providing cheap and useful literature for the million. 1824, which saw Mr. Knight settled in Pall Mall East, was the age of caricatures, when H. B. so marvellously hit off the portraits of Lords Eldon, Lyndhurst, and Brougham, and other celebrities of the day; and the first personage in the realm came in for a large amount of free handling. Such caricatures tell us much of the history of those times, and a prominent place was occupied by "the march of intellect."

The funeral of Lord Byron gives Mr. Knight an opportunity of recounting the history of an injunction restraining him from publishing the correspondence of that erratic nobleman, a great disappointment to the young publisher.

By Christmas time Mr. Knight was shocked at the general drunkenness that prevailed in London, and lamented that there was nothing for the people to amuse themselves with, and that the British Museum was rigidly closed at such holiday seasons. There was no National Gallery, no South Kensington Museum, no cheap train to Kew Gardens or Hampton Court, no musical performances for the multitude, no rational amusement whatever, except perhaps a visit to the elephant at Exeter Change or the lions at the Tower.

A visit to Paris brings out a description of the French travelling and capital as it was in 1825, and how everybody did a little bit of smuggling, as a matter of course, on his return to England; but Mr. Knight turns away from French translations and devises the scheme of a "National Library;" and before the end of 1826 he is introduced to Mr. Brougham, who was organising the "Society for the Diffusion of Useful Knowledge." "That first interview," he says, "was an event which had a marked influence upon many subsequent passages of my life."

The spring of 1827 saw Mr. Knight in financial difficulties, but in the summer his services were accepted to superintend the Diffusion of Useful Knowledge Society's publications, which had started with Mr. Brougham's celebrated "Discourse on the Objects, Advantages, and Pleasures of Science," of which it may with truth be said, "No reader, to whom the subjects treated of were in any degree new, could read the little book without feeling an ardent desire to know more,—to know all. Such were my own feelings, &c." This treatise and a few sixpenny numbers were all that the Society had published hitherto.

At this date the Stationers' Company had a virtual monopoly of the almanacs, being rich and unscrupulous enough to buy off all competitors as they arose. These almanacs were filled with disgraceful trash, and paid a duty of 1*s.* 2*d.* to Government. Knight consulted Mr. Brougham, and by his influence scientific assistance was obtained, and the "British Almanac" was published under the Society's auspices, and was soon followed by "A Companion to the Almanac."

In 1828, Brougham made that celebrated speech in which he said "the schoolmaster is abroad." Soon after this Mr. Knight was engaged upon another of the Society's works, the "Library of Entertaining Knowledge," and he travels by the coach to Liverpool, Manchester, Leeds, and other large towns on the business of the Society, giving his experiences, and noticing the state of things wherever he goes.

The monthly meetings of the Society's sub-committees, and their plain dinner at 5 o'clock, brought Mr. Knight acquainted with all the distinguished men who took a part in the work of the Society, and he says a few words about the assistance which each of them rendered to the cause of education. Their names are familiar to us all, but alas! how many of them have closed their labours upon earth. Mr. Knight says:—"After the Reform era I have sat at the monthly dinner with five Cabinet Ministers, to whom it appeared that their duty was to carry forward that advancing intelligence of the people which had conducted them to power, and which would afford the best security that liberal opinions, &c." To Brougham he assigns the merit of giving to a certain book the well-known title—"The Pursuit of Knowledge under Difficulties." In 1830 came the death of George IV., and in a few weeks after that, the French Revolution, and Mr. Knight in company with two friends visited Paris, and gives some account of what he saw and heard in France at that epoch. Before the year is out Brougham becomes Lord Chancellor, and ere he strides into the House of Lords desires Mr. Knight to "advertise Paley to-morrow morning," which work accordingly came out, "with Notes and an Introductory Discourse by Henry Lord Brougham."

The Reform Bill and the Cholera were the chief topics of conversation, when on March 31, 1832 appeared the first number of the "Penny Magazine." It met with such success that by the end of the year a sale of 200,000 in weekly numbers and monthly parts was reached. "It may be fairly calculated that the number of readers of that single work amounts to a million. If this incontestable evidence of the spread of the ability to read be most satisfactory, it is still more satisfactory to consider the species of reading which has had such an extensive and increasing popularity. In this work there has never been a single sentence that could influence a vicious appetite; and not a paragraph that could minister to prejudices and superstitions, which a few years since were common. There has been no excitement for the lovers of the marvellous, no tattle and abuse for the gratification of a diseased taste for personality, and, above all, no party politics."

It appears that Dr. Arnold had a strong desire to be able to co-operate with a body, which he "believed might, with God's blessing, do more good of all kinds, political, intellectual, and spiritual, than any other society in existence." He was anxious, he wrote, to furnish them regularly with "articles of the kind that I desire." Mr. Knight, however, distinctly states that no expression of such a desire ever reached him, and much regrets it.

The first number of the "Penny Cyclopædia" appeared January 2, 1833. It had a sale of 75,000 so long as a single number was issued every week, but when two and afterwards four numbers appeared per week, the public felt that it was larger and more expensive than they had been led to suppose, and the sale fell off, and when the work was completed in 1844, the balance of outlay above the receipts was 30,78*l.*, a loss which fell entirely upon Mr. Knight. To Prof. De Morgan was confided the mathematical department; and the Astronomer-Royal undertook the article on Gravitation, "a masterpiece of lucid exposition without the employment of mathematical formulæ." Dr. Arnott wrote the general articles on Physics. There were other contributors of the highest mark. But the general application of the Electric Telegraph, Photography, Chloroform, and a variety of new inventions came in just late enough to render the work an imperfect one. And Mr. Knight attributes its pecuniary failure to the duty on paper, and proves his position in a note at the end of the book.

Another work of importance which Mr. Knight published was "The Pictorial Bible," under the editorial care of Dr. Kitto, a very remarkable person. We have, however, perhaps already exceeded the limits of the reader's patience, and must close our notice of these very interesting "Passages of a Working Life."

BOOKS RECEIVED.—The *Geological Magazine*, edited by T. Rupert Jones, F.G.S., assisted by H. Woodward, F.G.S., F.Z.S. The first number of this new Geological Magazine came out in July. The first paper is "On the Past and Present Aspects of Geology," and gives a brief account of the ideas that have prevailed on that science. The present epoch is supposed to be a period of wholesome scepticism as to the exact truth of various received principles, as *e. g.*, "the contemporaneity of strata which contain the same or similar fossils, and which are geographically far apart." The Editor desires so to conduct the Geological Magazine that it may "be regarded as an impartial tribunal, whose verdict will command respect by reason of its justice." The original articles comprise among other papers a notice of the pebble-bed at Budleigh Salterton, in which "some 50 species of fossils have been already detected, all without exception new to British Geology;" a paper on species of Thecidium, with two plates; and a translation by Mr. Ramsay, F.R.S., of a very interesting work on the "Sahara and its different Types of Deserts and Oases," by Professor Desor, of Neufchatel. This is an article that will well repay perusal.——*An Abridgment of the Practical English Grammar*, by Roscoe Mongan, A.B., a very shabby unattractive little school book, very badly printed on very inferior paper.——*Orthographic Projection and Isometrical Drawing*, by W. S. Binns. This is one of Mr. Gleig's (Chaplain-General of the Forces) school series. It is intended to help mechanics and handicraftsmen in the simplest kinds of drawing. Workmen should be handy with their pencil and compasses, able to draw to a scale, and represent simple forms in plan, elevation, and section. This shilling book will help them, but in our humble opinion it is far too difficult.

Garden Memoranda.

MESSRS. IVERY & SON'S NURSERY, DORKING.—The taste—we might almost say the passion for Ferns, which is a characteristic of the present day, has not been without its influence on commercial gardening, for it is no less true in horticultural than in economical matters, that for whatever there is a demand there will arise a supply. The little world of pteridophilists has long been familiar with the pteridean stores to be found at Foot's Cray and Todmorden, and the names of Sim and Stansfield have become as household words amongst this Fern-loving class of garden amateurs. Now Mr. Ivery is following in their wake, and treading closely upon their heels, his collection of varieties ranking in the trade probably next to that of the growers we have mentioned in fulness, and his stock of most of the best sorts being at the same time very extensive, from the happy facility with which the rearing of plants from the spores is carried out. We were indeed most agreeably astonished, considering the short period which Mr. Ivery has been before the public in the character of a Fern grower, to find on the occasion of a recent visit that his stock had become so rich and rare, and withal so abundant, and had assumed so vigorous, orderly, and healthy an appearance.

But passing from the general to the particular, we may describe Mr. Ivery's British Ferns as divisible into three groups. There are the specimen plants, examples of which one has latterly become familiarised with at our great shows—avoided it would seem by other Fern traders; these are sufficiently numerous to fill a long range of deep pits, in which they grow to perfection. Then there are what may be called "half specimens," examples of the better class of varieties, shifted on into larger pots than those afforded to the general stock, with the object of giving "a helping hand" to those who are desirous of setting up a Fernery without waiting too long for results. And then follows the ordinary trade stock, which, as we have just said, is not only extensive and in vigorous health, but includes many of the best and most thoroughly marked varieties in cultivation. These latter are all grown in pits, many of them rudely constructed of turf sods, but none the less congenial to Ferns on that account.

In a collection so varied it would be hopeless—for want of space rather than of matter—to attempt to notice all the varieties which possess sufficient interest to render them worth mentioning, but we may name a few of the more rare and striking among them, and some of these prove to be seedlings raised by Mr. Ivery's very intelligent foreman, Mr. Appleby, to whose enthusiastic love of Ferns no doubt the excellent condition of the collection is in great measure to be attributed. The most remarkable, perhaps, are a series of entirely different forms selected out of large batches of the varieties of Lady Fern, called Frizelliæ and Fieldiæ, because they indicate strongly the sportive character found to exist in many species of Ferns, and not less so the permanence of such sports, for in almost all cases the seedlings from these sports reproduce their own particular parent forms in a greater or less ratio—sometimes the whole of the progeny, sometimes the greater part, and much more rarely a few only presenting the true character of the sport, the rest consisting partly of new sports diverging again from the first, and partly of plants which run back to some normal condition of the species. The latter, however, are probably often derived from vagrant spores, sown with the true ones; and hence it may be assumed, as an almost absolute condition, that Fern sports either reproduce themselves or yield further deviations, and seldom revert to a normal condition. Of sports of the Lady Fern then, derived from the varieties already mentioned, Mr. Ivery has several, and amongst them the following:—A. F.-f. lancifolium, a tall form, 2 feet high, with the lower portion about 3 inches broad, made up of tapered pinnate pinnæ, forked at the base and divergent, and with the upper part scarcely averaging an inch in breadth, having the pinnæ always forked or ramose, and the apex tapering away into a sharp slender point, which has suggested the name; this has evidently come from Fieldiæ. Another, larger still, and but slightly removed from the normal condition, albeit showing a peculiar distinctness in the mass, is A. F.-f. compositum, which has fronds two or three feet long, the lower part 6 or 8 inches broad, and like the normal variety incisum, the apex also quite normal, but between these parts the upper portion of the frond is changed so as to assume the peculiar narrowed and forked character of Fieldiæ. Another resembling the last, except that the apex of the frond and of the portion of pinnæ otherwise normal are multifid, is called A. F.-f. compositum multifidum. Then A. F.-f. strictum is of quite another character, the whole frond being linear and pointed, and made up of the short forked or ramose pinnæ, such as are found in the contracted portion of the fronds of Fieldiæ. A. F.-f. Fieldiæ obtusum is another well-marked sport, having the lower pinnæ from an inch and a-half to two inches long and simple, and the upper ones an inch or less and

forked or ramose, but all of them, as well as the frond itself, blunt and rounded at the apex, and the pinnules set close. Another, called A. F.-f. Fieldiæ diffissum, with the broad base and contracted apex of Fieldiæ, has the peculiar deep open cutting which characterises the variety diffissum, and is thus altogether unlike the preceding, in which the parts are rather full and crowded: both of them being moderately vigorous in habit. A. F.-f. Frizelliæ nanum has stiff sturdy fronds a foot long, but otherwise, except in its blunt apex, does not differ from the gracefully arching parent Frizelliæ; while A. F.-f. Applebyanum retains this arching habit, but becomes ramose at the apex, forking into a broad flat head of some 10 to 15 divisions; and A. F.-f. Iveryanum unites the forking pinnæ of Fieldiæ with the stiff blunt-ended habit of Frizelliæ nanum. All these and perhaps others we have overlooked, have sprung up in Mr. Ivery's nursery from a sowing of Frizelliæ and Fieldiæ.

Among the specimen plants, which it may be noted are not cumbrously large, being mostly in about 10-inch pots, we may further mention of Lady Ferns, A. F.-f. Grantiæ, a dwarf dense broad-fronded close variety, with undulated pinnules and pinnæ; A. F.-f. grandiceps, with a contracted base and great round bunchy head, forming a fine cristate mass; A. F.-f. fissidens, a curious ragged-looking sort with long-toothed unequal irregular pinnæ; A. F.-f coronatum, another variety with small lower pinnæ, and a large massive head, but quite unlike grandiceps, for the head does not form a rounded mass, but spreads out more like a coronet; A. F.-f. glomeratum, a fine novelty, such as might come from the fusion of a very much improved multiceps with grandiceps, the frond terminating in a large dense globular head of finely-cut crispy segments, and the pinnæ being also crested in a similarly dense manner. Passing to other species, Polystichum aculeatum acrocladon may be instanced as a fine novelty, with dark green persistent fronds crested at the apex of both fronds and pinnæ; and P. aculeatum proliferum as another elegant variety of a species not prone to vary, and having the proliferous character so well marked in the analogous variety of angulare. We must be content with further specifying Lastrea montana Nowelliana; Blechnum Spicant imbricatum, ramosum, and projectum; Osmunda regalis cristata; Lastrea Filix-mas cristata and cristata angustata, L. F.-m. Bollandiæ, and crispa, the latter very odd-looking from its density and dwarfness; Athyrium F.-f. plumosum and corymbiferum; Polypodium vulgare omnilacerum, one of the best of the bipinnatifid Polypodies; and P. vulgare pulcherrimum, another fine and elegant variety more in the way of semilacerum; both the Woodsias; with Asplenium fontanum and germanicum; and some of the best Scolopendriums. We also noticed young plants of the very distinct Polystichum angulare rotundatum, with the pinnules of roundish outline; and the most remarkable A. F.-f. Victoriæ, the Queen of Lady Ferns, which has the pinnæ forked at the base, and is everywhere crowned with crests.

Among the store plants we were most struck with the stock of Asplenium septentrionale—a whole frame full, the plants as even as if manufactured, as vigorous as if revelling on Snowdon, and altogether presenting a picture of—but we fail to find a simile, suffice it therefore to say, a picture such as would delight the heart of a Fern lover. These plants had in fact, from their vigour and their symmetry, an appearance so unlike what this little Spleenwort generally bears under cultivation that for a moment we were nonplussed. We were told they had all been raised from spores on the establishment, and were in this way found to grow more readily and freely than plants collected from their native rocks. This, we observe in passing, is legitimate cultivation, and should put to the blush those dealers or others who are ready to receive, even though it be with an open pocket, the strippings of any wild habitat. Asplenium fontanum and Polystichum Lonchitis, reared in the same way, were equally flourishing; and seedlings of Woodsia alpina in strong force, also showed themselves quite at home among the Surrey hills. As all these plants, and other varieties too, beyond a doubt, may thus be obtained in plenty from spores, and with better prospect of success in respect to their cultivation than if gathered wild, it is to be hoped that Fern growers, who are increasing in numbers, will be warned in time to do all they can to encourage such a legitimate mode of culture, and to discourage to the uttermost the destruction of our rarer species in the few places in which most of them occur in a state of nature. To be indoctrinated with this idea, if for nothing else, is worth a journey to Dorking, even though it were from the Land's End.

Besides those already mentioned, there were in the store pits fine healthy batches of the following Athyriums—conioides, Vernoniæ, Parsonsiæ, Elworthii, mucronatum, Applebyanum, fissidento-excurrens, Barnesii, and glomeratum; of Polystichum aculeatum acrocladon; of Lastrea lepidota; of Lastrea dilatata dumetorum; and of Blechnum Spicant ramosum, imbricatum, and projectum, all well-marked varieties; while in the several pits and houses were legions of seedlings of all kinds to follow in succession.

PLASNEWYDD, ANGLESEA.—Every one who passes down the Menai Straits from the wonderful tubular bridge, one of the greatest triumphs of modern engineering, towards Caernarvon, must have observed on the right hand, just after leaving the pretty little church of Llanvair, a line of charming wood about two miles in length, occupying the banks which fall more or less precipitately towards the water, consisting of magnificent trees principally of Oak, Beech, and Sycamore, the remains, doubtless, of the ancient forest from which Anglesea took its name of Ynys Dywyll, from its impenetrable darkness. This wood, which extends nearly to the Church of Llanedwen, is broken in the midst by a green slope on which stands the noble mansion of Plasnewydd, the property of the Marquis of Anglesea, but for many years the residence of the Dowager Lady Willoughby de Broke, to whose taste alone the beautiful garden to which we are going to call the attention of our readers, owes its attraction.

This property formerly bore the name of Llwyn y Moel, derived probably from the curious Druidical tumulus which is one of its leading points of interest. This mount, which bears the name of Bryn yr Hên Bobl, or Hill of the Ancient People, is laid bare on the south side, exposing a most curious chamber, the object of which has exercised the ingenuity of Welsh antiquaries to little purpose from the time of Pennant. It is probable that further excavations may lead to fresh discoveries, as there seems to be one, if not two passages leading from the cist. This mount is shaded by one or two fine Oaks, which are recorded as having most appropriately in former days produced the Mistleto, but if this report is correct, there is no trace of the parasite now.

The mound is not the only Druidical remain which demands notice, for near the house is a most perfect and magnificent double cromlech, the larger of which consists of an enormous mass of stone more than 12 feet long and broad, and 4 feet thick, supported originally by five stones, of which two have fallen, and close to it a smaller one of near 6 feet square, supported by three uprights, and originally as it should seem by four.

The wood itself moreover is of considerable botanical interest, containing at least one rare Fern, while the trees afford in profusion rare Mosses, such as Pterogonium Smithii and Neckera pumila, while the soil is in places adorned with the lovely Hookeria lucens.

The lawn, which descends abruptly from the house to the sea wall, and which even in the present dry season is beautifully green, has most judiciously been left unornamented, the splendid mountain view extending from the Rivels to those beyond Aber, needing nothing whatever to draw off the attention. A seat which commands a full view of Snowdon with the Glyder looking up the Pass of Llanberris, is placed accordingly at the entrance of the garden, and is a favourite resort for those who have a passion for pondering on the outline of these distant hills, which present with every change of atmosphere a fresh object of interest. The ever changing waters of the Straits, and the beautiful scattered woods on the opposite coast, which unlike most woods are without a particle of formality, form the most admirable foreground to the extensive panorama.

It is time, however, to turn to the gardens themselves, which from their beauty strike every passer by. The lawn, of which we have just spoken, and which in front of the house is perfectly clear of trees, extends in the direction of the tubular bridge, which, with the adjacent column, forms an interesting object, and is continued deeply into the wood so as to leave the boles of the magnificent trees perfectly exposed, and to form a beautiful contrast to the dense mass of foliage beyond. This part of the lawn is studded with various beds which in point of colour are more brilliant than anything we have seen elsewhere, and where tall plants like Gladioli or Kniphofia are used, the soil is concealed with great effect by a dense covering of some charming little plant like Saponaria calabrica. These brilliant gems are here and there contrasted with groups of tall Grasses, which have an excellent effect. From the house a hedge of Fuchsias, of extreme luxuriance, extends towards a small but very pretty conservatory, the base of which is covered with Clematis montana, except in the centre, where the flight of steps leading into the interior is covered by a curved parapet, surmounted by snow-white urns, containing beautiful masses of flowers.

In front of this the ground is laid out in terraces, leading down to the sloping lawn just mentioned, with a charming riband border of great length, consisting of Gazania, blue Lobelia, Flower of the Day Pelargonium, and Calceolaria amplexicaulis, in the whole of which not a single failing plant can be discovered. The beds on the terraces consist of groups of flowers inlaid in ornamental Box, which flourishes in great perfection, and which in the upper terrace is disposed in scroll-work, with an elaborate monogram in the centre which is quite marvellous, from the perfection with which the Box is trimmed, and the peculiar brightness of its colour. The Box, moreover, is set off by the pure tint of the quartzose gravel, which is judiciously though sparingly mixed with fragments of other tints. The groups of flowers look peculiarly bright embosomed in the Box, which perhaps could scarcely be produced in such perfection under a less favoured climate.

We think that scroll-work has been too much neglected from a notion of its being too artificial. It is not, however, more artificial than riband borders, or, indeed, than the bedding system in general, and it has the great merit of being beautiful in winter as well as in summer. Everything, however, depends upon purity of design, neatness of execution, and perfect cultivation, without which it can only be a failure; and if flower are intermixed, it is certainly a great point to have such perfect masses as are general in this charming garden, or to have flowers like those of the splendid varieties of Chinese Pinks, at least double the size which they attain under ordinary cultivation.

Miscellaneous.

Windsor Forest.—The date at which it was first fenced in is unknown. It was inclosed long before the time of Elizabeth. On December 9, 1564, that Queen sent strong orders to the Lord Chief Justice and Solicitor General, to direct and advise the Earl of Sussex, Chief Justice in Eyre, to hold a court for redressing disorders within the Forest. This Chief Justice in Eyre was an important personage, generally some nobleman appointed by the Crown, to hear and determine all complaints of trespass within the Forest, and all claims of purchases, liberties, and privileges. The office became gradually obsolete, and was abolished in George the Third's reign; the last person who held it being Mr. Granville, who had not performed any duty, except granting licences for shooting, for 40 years previously. Until the year 1817, the Forest was simply an open common over which the Crown had rights of timber and pasturage for deer. The timber was only such as grew naturally, in a wild uncultivated state, lopped for the deer and destroyed by the commoners. Accordingly, little of the old Forest timber is sound or valuable; although we are indebted to this system for the numerous picturesque trees. Even over that part in which the deer were kept there were complicated rights. The Crown claimed the right of pasturage for the deer, the right of cutting browse-wood for them, the right of timber growing naturally on the land, and the right of property in the soil itself. Then there were many manors in the Forest, the lords of which claimed the right of granting shooting licences, the right of under-wood, the right of pasturage, and other similar rights. The Constable of Windsor Castle claimed the right of protecting the Crown "vert," or "browse," and "venison;" the Lord Chief Justice in Eyre, the power of prosecuting all offenders against forest laws, accused of wood-stealing or land-inclosing, together with the power of granting licences for shooting. The commoners claimed to cut turf for fuel; pasturage in summer for as many animals as they could keep in winter on their lands; grazing for geese; and, further, helped themselves to everything which they could possibly appropriate. If they had small pieces of freehold adjoining any part of the open common, they had a simple but ingenious method of extending them at the public expense by always "scouring out" their ditch on the side opposite to their own land, until by this "rolling brook and ditch" they carried out their boundary as far as they dared. They could see no moral or legal wrong in this process. An old commoner related, with glee, that one Christmas eve, 60 years ago, when the Forest officers were tapping their Elder wine—a custom come down from time immemorial and still kept up—he worked all night long in the bright moonlight, and had a quarter of an acre added to his land before the morning. Moonlight nights were the season for such and similar operations. If a commoner could only build himself a hut of turf, and have a fire lighted and a *pot boiled* in the rudest chimney, the hut became established as a house, was in fact his "castle," and was then wholly unassailable except by regular process of law, which the Forest officers frequently declined to institute. If, however, the pot had not boiled, the forest officers might proceed without ceremony to pull the house down. With the enclosure of the Forest all such customs have passed away. The commoners were never much given to deer-stealing, preferring the more substantial accumulation of "landed property," which when found out was not so severely punished. They had vast numbers of swine, which were turned out into the Forest. One of these men could spin amusing yarns about the good old times. He had been so much among pigs that he regarded them with particular affection, and seemed to understand every one of their movements. "The pigs," he said, on one occasion, "are like us, for they will ate amost anything; and yet they are different too, for if you put a lot o' things afore a pig he'll always take the best of them first; but when I gets my dinner o' Sundays, I likes my beef and taturs first, and my pudding afterwards. Them as was bred in the Forest it was no manner o' use tryin' to keep them in when the acorns began to rattle off the trees; out they would be. There aint a move but they're up to; and when you want them home, and they won't come, they *are* aggrawatin'! They'll circumwent the artfullest man as ever lived. There aint a bit o' pig as isn't good to ate, as I knows on; but the sweetest morsel is the wery pint o' his nose, which you scrapes and salts and hangs a fortnight, and then you byles it with greens and taturs. There's ne'er a pictur ever hangs in a man's cottages as aiquals a gammon of bacon hung up agin the chimney." This oid man and two others are the sole survivors of a class which in a few years will be extinct in this part of England. *Athenæum*

Wasps.—There is no sweet without a bitter. Every Beemaster feels the plague of wasps this autumn of 1864; for 15 years, the range of my experience as a

Beemaster, I have not seen so fierce and multitudinous bands of wasps descending on my bees on predatory incursions. I do not mean to insinuate that the wasp has no mission. I believe he has his use. He is the scavenger of our gardens, and clears off decay, putrescence, and filth of every sort. For this I give him credit, but I cannot extend to him either the affection or respect I feel for my bees. Were you to see the wasps this autumn rushing into my hives, sometimes by a sudden dash, at other times by stealth, you would instantly acknowledge in them the type of the thief and burglar. But my bees are better prepared for the wasp's reception than London householders for thieves. He runs the gauntlet every time he enters. Through my glass observatory windows I watch the conflict. One bee half his size, seizes him by the throat, another gives him a taste of his sting, and two or three watchers seize him by the legs and drag him out. I have hit on an admirable plan of keeping him off, well worth disclosing to every Beemaster. I place at the entrance of the hive a stick of barley-sugar a couple of inches long. This brings to the entrance a dozen of bees, who thankfully feed on it. There is thus secured an additional guard at the gates. The moment the wasp alights the whole *posse* fly at him and drive him away. Another plan is to fill half full a wine bottle with beer and sugar. Incidentally a bee may look in, but the wasps, whose scent is perfect, rush in and are drowned. It is a sacred duty devolving on every Beemaster to exterminate these Arabs, Bedouins, and corsairs. They lay up no stores for themselves, they do nothing for the support or enjoyment of man. They use their stings, not like bees, in self-defence, but in sheer wickedness. They are professional thieves. Like the bees of a Correspondent of yours, they have no respect for *tuum*, and having no *meum* they care nothing for it. Living at the expense of others, without consulting the convenience or goodwill of anybody, they richly deserve what their extermination will pay for—sulphur, gunpowder, and boiling water. The death penalty is due to every wasp that enters a bee garden. The razing of his house and the dislodgment and destruction of the whole clan have become a sacred duty. Let me beg all that value their lives to examine well every Apple, Pear, and Peach they eat, for these venomous insects may be seen this year ensconced under the skin, and if admitted within the mouth they will sting the throat, and, as in several recent cases, the sufferers will die. Do not conclude I am uncharitable. It is no charity to connive at theft and murder. I am satisfied that killing wasps is no murder. Had Peter the Hermit or Walter the Penniless lived in my garden, and witnessed these wicked vagabonds trying every hive, worrying my bees and stealing my honey, they would have preached a crusade against wasps. *A Beemaster, in the Times.*

Calendar of Operations.

(*For the ensuing week.*)

FEW plants are more attractive than Japan Lilies. They come into bloom at a time when the beauty of New Holland plants is over, and when an actual paucity of flowering plants exists, wherewith to decorate our conservatories and greenhouses. They produce a gorgeous display either in-doors or out; and as they are quite hardy they may be liberally planted in the open border, and thus constitute one of our best autumnal flower-garden plants. The cultivation of them in pots is by no means difficult. Immediately when the bulbs go to rest in autumn is the proper time to repot them. By no means destroy the old roots, but carefully place them amongst the fresh soil. If large examples for particular display are required, large pots may be employed, and half a dozen large flowering bulbs placed in each pot. Rough peat, intermixed with a little loam and silver sand, is the best kind of soil for them. The pots should be well drained, and the crown of the bulb should be just covered with the soil; when potted they should be placed in a cold pit or frame, in order to prevent the soil from freezing, although frost will not injure the bulbs. Where room under glass is an object in winter, they may be plunged in the open air in coal ashes, in a manner similar to potted Hyacinths. There is scarcely any plant which is so much benefited by liquid manure as this Lily, more especially before expanding its flowers. If used in a clear state, and considerably diluted, this water alone may be applied for at least a month before the plants come into flower. If the object should be out-door cultivation entirely, they should be planted in beds, in which in favourable seasons their effect is exceedingly grand. Excavate the soil 18 inches deep, and fill in the bottom a foot deep with very coarse peat, intermixed with one-fifth of decayed manure or leaf-mould. The remaining 6 inches may be entirely peat. If the bulbs are large enough to bloom, plant them 12 inches apart every way, and if beds of the different sorts are well contrasted one with another, the effect will be magnificent. Lilium lancifolium speciosum or rubrum is one of the handsomest of these Lilies; and those who can afford it cannot do better than add to their collections the glorious L. auratum, of which so many fine specimens have been exhibited this season. The old japonicum is also worth growing.

FLOWER GARDEN AND PLANT HOUSES.

Stove plants which flower upon young wood may with propriety be shifted now, as they will thereby be much invigorated; and the size of the blossoms also will be improved. Those, on the contrary, which flower upon the ripened wood, must be gradually encouraged to go to rest, as the days decrease in light. We would not pot any plants when they are very near their flowering season. Poinsettias, which do not flower until January, may be repotted now, and freely supplied with liquid manure; under this kind of management the floral leaves will be double the size that they would be if less liberally treated. As Amaryllids in pots show signs of ripening, they should be gradually dried off. Before the season is further advanced, every gardener should calculate, as nearly as may be, whether the extent of his framing conveniences will be sufficient to afford shelter during winter to his stock of established half-hardy plants, as well as to those he is now propagating. If his room is deficient, he must either restrict autumnal propagation within certain limits, or prepare additional pits without further loss of time. Brick pits are of course the most durable, and although expensive in the first outlay, are cheapest in the end. A very common make-shift pit is built of turves, which lasts several seasons and is very warm, but in appearance rather untidy.

BALSAMS.—These will now be in full flower, and must be treated so as to keep them in beauty as long as possible. Do not let them suffer from want of water, remove all dead blooms, and keep the foliage clean and healthy.

DAHLIAS.—Exhibitions of these will now be held plentifully all over the country, and to procure fine blooms for them will test the skill and patience of many an amateur. Early flowers, from which it may be desirable to save seed, should have attention, and as they wither, the decaying florets should be extracted. Seedlings, especially weak late blooming ones, that give any evidence of merit, though they may not be quite up to the mark in every respect, should be taken care of, to be tried again, as high cultivation another season may cause a more favourable development of their good qualities.

HOLLYHOCKS.—Great improvement has been effected in these showy border plants of late; even this season some excellent new kinds have been exhibited. Save seed from the best. Some adopt the plan of removing the upper part of the spike, leaving six or eight of the early blooms. When the plant throws up four or five stems, and propagation of the variety is an object, one or more of the spikes of flowers may be sacrificed; the stem may be split, cut in lengths, with a bud in each, and placed under a hand-glass, taking care that the small portion of shoot retained is covered with soil, leaving the point of the bud exposed. Strong young plants may often be raised in this way.

FORCING GARDEN.

CUCUMBERS.—Where a supply is required during winter, vigorous young plants should be secured at once from seed, as plants that have been bearing through the autumn, however promising they may look, seldom answer well for winter fruiting.

MELONS.—Where fruit is ripening, give air as freely as the state of the weather will permit, and keep the atmosphere as dry as possible. If late plants are infested with spider, syringe morning and afternoon as freely as can be done without injuring the leaves; in short use every means to get the plants perfectly clean, while water can be employed without danger of creating too much damp.

PINES.—Let the soil about the roots and also the atmosphere be somewhat dry about fruit that is ripening; therefore be careful not to over-water. Endeavour to afford growing stock a steady bottom-heat of about 70°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will soon be necessary to a considerably larger extent than has been the case during summer, care must be exercised to secure a properly moist state of the atmosphere, keeping the evaporating pans or troughs regularly supplied with water, and moistening the floors, &c., frequently, as any sudden change from a moist to a dry state of the atmosphere would be most injurious to growing stock, and also to plants swelling their fruit. Be as sparing of fire-heat, however, as circumstances will permit, and shut up early on the afternoons of bright days. Where young stock is grown in dung pits care must be exercised after this season not to get the plants weakly through keeping them too close and warm; air should be admitted freely on every favourable opportunity, and sufficient command of warmth should be secured from the linings, to allow an opportunity of giving a little air at night and on warm cloudy days.

VINES.—Remove all decayed or unhealthy berries from ripe Grapes, and keep the house well aired and free from moisture. Where the crop is cleared, the wood ripe, and the leaves beginning to decay, the sashes, if not already removed, may be taken away altogether.

HARDY FRUIT AND KITCHEN GARDEN.

Where planting of Broccoli and other Winter Greens has been delayed by the late drought, that operation should now be completed as soon as possible; also make failures good in plantations already made. Make the principal sowing of Cabbage for spring use; and plant out those sown last month for Coleworts. Sow Brown Cos and hardy Cabbage Lettuce towards the end of the month for spring use; plant out those sown last month in a warm situation; these will probably be useful in November. Earth up Celery in a forward state. Sow Turnips and make a sowing of Early Dutch at the end of the month, for use in spring; also Early Horn Carrot—these should remain in the ground for winter use. Sow Tripoli Onion; also Prickly Spinach for winter and spring supply.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Aug. 31, 1864, as observed at the Horticultural Gardens

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 25	23	30.157	30.152	77	34	55.5	58¼	59½	S.W.	.00
Friday 26	24	30.300	30.240	69	31	50.0	59	59½	N.	.00
Satur 27	25	30.326	30.215	71	47	59.0	59	59½	S.W.	.00
Sunday 28	26	30.134	30.056	70	52	61.0	60	59	S.W.	.00
Mon. 29	27	30.038	30.001	75	38	56.5	60¼	60	S.W.	.00
Tues. 30	28	29.846	29.825	79	57	68.0	60½	60½	S.	.01
Wed. 31	29	29.930	29.760	71	42	56.5	63	61	S.W.	.14
Average.		30.104	30.035	73.1	43.0	58.0	59.8	60.1		.15

Aug. 25—Clear; dusky white clouds; fine; cold at night.
— 26—Clear; quite cloudless; fine; one deg. below freezing at night.
— 27—Slight haze; very fine; fine throughout.
— 28—Partially overcast; very slight drizzle; overcast at night.
— 29—Fine; very fine; cold at night.
— 30—Very fine; hot and sultry; slight rain.
— 31—Densely clouded; rain; fine at night.
Mean temperature of the week 2½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Sept. 10, 1864.

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W	N.W.
Sunday 4	70.4	46.2	58.3	16	0.58 in.	5	7	4	4	2	7	3	6
Mon. 5	69.8	47.3	58.6	16	0.30	3	9	7	—	4	5	6	2
Tues. 6	69.5	46.0	57.7	17	0.70	1	10	4	—	1	14	7	1
Wed. 7	69.6	47.1	58.4	17	0.55	1	6	6	1	6	11	5	2
Thurs. 8	68.9	47.3	58.1	17	0.65	3	7	2	2	3	15	3	3
Friday 9	68.8	48.0	58.4	17	1.09	—	6	2	3	5	6	8	2
Satur. 10	69.4	45.5	57.5	19	1.27	2	4	4	1	7	8	10	2

The highest temperature during the above period occurred on the 5th, 1848—therm. 83 deg.; and the lowest on the 6th, 1850—therm. 30 deg.

Notices to Correspondents.

ALOCASIA ZEBRINA: *E A H.* This plant would of course be admissible in a class for the best "Ornamental Foliage Plants," although as you say, the stem is more beautiful than the leaves. The meaning of such a class is clearly plants not in flower.

BEDDING PELARGONIUMS: *H W C.* For general bedding purposes, where the colour of the flower is what is wanted, there is no advantage, but rather the contrary, in the presence of a horse-shoe band or zone on the foliage, for its tendency is to create dulness. A plain green, the shade of colour rather lively than dull, sets off the flowers to better advantage. Of course there may be cases when the zoning of the leaf may be introduced with good effect as an element of the composition, just as in those instances where the colour of the foliage is varied by white or yellow; but such cases do not occur so frequently with the former as with the latter. It is different with the tricolor zonate sorts, such as Mrs. Pollock, because in these it is the bright picture presented by the leaf colours which is really desired. So, too, in our opinion, the white eye we see in some varieties is not desirable in bedding sorts, unless exceptionally; a better picture results from the use of whole colours.

EXHIBITIONS: *A Showman.* It is sheer nonsense for any one to urge that we in England should shut our eyes or harden our hearts against those features of arrangement in which we are excelled by our neighbours over the water. It will be much wiser if we try to introduce them to our own exhibitions, as far as may be consistent with such habits and customs as cannot readily be changed. We say, as we have said before, that the bane of our shows, even the best of them, is formality and stiffness, and these cannot be got rid of without a radical change as to arrangement. In the foreign shows which have been mentioned in connection with this subject, we have a clear indication "how to do it;" and if we are deterred by bad counsellors from profiting thereby, it can only be to our own loss. If you take our advice you won't listen to the bah! of wolves in sheep's clothing.

MARIGOLDS: *W Melville.* The pot Marigolds are showy and varied in colour, and of very good quality, but not better, if so good, as some we have seen from the South of England. We quite concur that they are fine things for the back of a ribbon border, wherever such plants are admissible.

NAMES OF PLANTS: *J B.* 1, Polypodium vulgare cambricum; 2, P. v. omnilacerum.—*G E.* Myosotis sylvatica, not arvensis.—*G Y.* 5, Tournefortia heliotropioides.—*S H P.* Such plants can rarely be named from a solitary leaf and *nothing more.* It is probably Salvia Æthiopis, or something of the sort.—*G. Young.* 1, Pteris hastata macrophylla; 2, Pteris hastata; 3, Calycanthus lævigatus; 4, Pavia macrostachya.—*Constant Reader.* 1, Panicum miliaceum; 2, Polypogon monspeliensis; 3, Lagurus ovatus; 4, Lamarckia aurea.—*Constant Reader.* Phytolacca icosandra.—*A D.* The specimen sent is a starveling of Matricaria Chamomilla, the Wild (not the officinal) Chamomile, whose slight properties are aromatic, and could not, we should think, have caused any injury to cows; indeed, some animals are said to eat it; but another plant, equally common, the Anthemis Cotula or Mayweed, so like this Matricaria as to be distinguished only by purely technical marks not at all apparent to an ordinary observer, may grow intermixed with it, as it often does, and as this is reputed to be acrid, even blistering the skin if much handled, it may be injurious if eaten in sufficient quantity.

STOPPAGE OF HOT-WATER PIPES: *Agricola* has a hot-water apparatus connected with his kitchen range; but the pipes are partially stopped, caused, as he fears, from the hard water forming a deposit within them. He would be thankful to any Correspondent who would inform him what is the best means of preventing this deposit, and believes the information would be beneficial to many persons besides himself. Can any one help him to a better remedy than sal-ammoniac?

TROPÆOLUMS: *W Melville.* The samples of the dwarf bedding Tropæolums were too far gone before they reached us to enable us to say much about their colour. They are dwarf and compact in habit, as in the Tom Thumb section, one having the flowers maroon-crimson, the other scarlet. So far as we could judge from the condition of the flowers, these seemed to be much better shaped than those of the ordinary Tom Thumb varieties. The scarlet one appeared particularly good. The others were past examination.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.

They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22 Eden Quay, Dublin.

DIXON AND CARDUS'S LINSEED CAKE,
Analysed and Reported upon by Dr. VOELCKER.

As considerable mortality amongst the Lambs has occurred in two or three districts in Hampshire, and in some cases our Linseed Cake, on which they were feeding, has been blamed as the cause of it, we requested Dr. Voelcker to investigate the subject and report upon it; which report we subjoin.
It will be seen that the Cake was of excellent quality, and free from any matter that could be injurious to the health of animals feeding upon it.
Diseases in Lambs in isolated districts are by no means uncommon; and no doubt excellent Cake is often branded as the cause of sudden outbreaks of disorders in Lambs, whereas these disorders are enveloped in such mystery that the best Veterinary Surgeons and the most experienced Flock-masters are at a loss to advance a rational theory in accounting for the sudden death which often affects the flocks in one district and not in another.
The four Samples of Cake sent for Analysis were marked:—
J. W. No. 1 and No. 2, from Mr. John Wallace, Houghton.
T. E. From Mr. Thomas Edwards, of Compton House, Stockbridge.
S. A. From Mr. Stephen Ayles, of Braishfield, Romsey.
DIXON & CARDUS.

Report of Dr. VOELCKER.
101, Leadenhall Street, London, July 8, 1864.
To Messrs. DIXON & CARDUS, Southampton.
DEAR SIRS,—I have now the pleasure of handing you the results of careful Analyses of four samples of your Cake. You will observe at once that these four samples show a close agreement in composition, which distinctly proves that the manufacture of your Cake is carried on uniformly in your mill.
The per centage of Oil (the most valuable constituent of Oil-cake) in all four samples is quite as high as in the best kinds of Linseed Cake; and that of flesh-forming matters a fair average proportion.
The small amount of sand, and the absence of obnoxious weed seeds, shows that Clean Linseed is used in the preparation of these four samples of Cake.
I have carefully examined your Cake for injurious foreign matters, and am decidedly of opinion that it contains nothing that can be regarded as at all likely to be injurious to the health of animals fed upon it. Its condition is fresh, it is free from mould, and is palatable; and in my opinion is a wholesome and nutritious Cake of good average quality.—Yours truly,
AUGUSTUS VOELCKER.

COMPOSITION OF FOUR SAMPLES OF LINSEED CAKE, MANUFACTURED BY DIXON & CARDUS, NORTHAM, SOUTHAMPTON.

	SAMPLES MARKED.				
	J.W. No. 1.	J.W. No. 2.	T.E.	S.A.	Barrel American
Moisture	10.91	11.39	10.58	10.48	11.64
Oil	11.55	11.26	10.92	10.94	10.43
*Albuminous compounds (flesh forming matters)	25.62	25.25	27.43	26.43	24.01
Mucilage, Starch, Sugar, and digestible fibre	31.09	31.28	30.34	30.96	34.44
Woody Fibre (Cellulose) ..	14.04	13.46	14.46	15.09	14.26
**Mineral Matters (Ash) ..	6.79	7.36	6.27	6.10	5.22
	100.00	100.00	100.00	100.00	100.00
*Containing Nitrogen	4.10	4.04	4.39	4.23	3.84
**Containing Sand	2.12	2.34	1.64	1.13	1.42

AUGUSTUS VOELCKER.
London, 101, Leadenhall Street.—July 8, 1864.
N.B. We have in the above Table added an analysis of Barrel American Cake, made by Dr. Voelcker some time ago for us, which shows our cake to be even superior to Barrel American, which is considered by many as the standard of first-rate quality. D. & C.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
THE RIGHT HON. LORD RIVERS, *Chairman.*
J. BAILEY DENTON, ESQ., *Principal Engineer.*
Offices: 52, Parliament Street, S.W.

Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, and it may be so adjusted that principal, interest, and all expenses will be included in an annual charge of 6*l.* per cent.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 52, Parliament Street, S.W.

TRADE PEDIGREE MARK.

HALLETT'S NURSERY WHEAT.



Seed required { In September .. .. 4 bushels on 10 acres. / In October .. .. { 1st half .. .. 4 bushels On 8 acres. / 2d half .. .. On 6 acres. } / In November .. .. .. 4 bushels on 4 acres. }

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, without which the Wheat will in no case be sent.

APPLY TO FREDERIC F. HALLETT, ESQ., F.Z.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

Land Drainage, & other Agricultural Improvements
MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster.

Drainage of Land.
MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.
MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
GRAND SHOW at KNUTSFORD, SEPTEMBER 7 and 8, for SPECIAL and other PRIZES, amounting to nearly 1000*l.*
The Exhibition will this year comprise HORNED CATTLE of various kinds; HORSES, including thorough-bred and other Stallions, and a large entry of Hunters, Cobs, Ponies, &c.; SHEEP, PIGS, POULTRY, DOGS, CHEESE, BUTTER, SEEDS, ROOTS, HORTICULTURAL PRODUCTIONS, IMPLEMENTS, MACHINERY, and Miscellaneous articles.
[ENTRIES for the Show finally closed on the 13th inst.]
Excellent Show Ground of about 12 Acres in extent has been provided by the Local Committee near the entrance to Tatton Park and Gardens, which, by the kind permission of Lord Egerton, of Tatton, will be open to the inspection of Visitors to the Show.
Admission to the Show:—On WEDNESDAY, September 7, from 10 o'Clock to 6 o'Clock, Admission (by Tickets sold on the spot) 2*s.* 6*d.* each; and on THURSDAY, September 8, from 8 o'Clock to 4 o'Clock, when the Show will finally close, Admission 1*s.* each Person.
On WEDNESDAY, the 7th, there will be a GRAND MUSICAL BAND CONTEST, which has been provided for out of Funds raised for Special Prizes, &c., by the Local Committee.
The PUBLIC DINNER will also take place on that day, at Half-past 3 o'Clock P.M., the Right Hon. Lord de Tabley in the Chair.
Tickets, 3*s.* 6*d.* each, may be obtained from Messrs. JENNISON, the Contractors, at Bell-Vue, Manchester, or in the Show Yard.
T. B. RYDER, Secretary and Treasurer.
57A, Church Street, Liverpool, Sept. 3.

SMITHFIELD CLUB FAT CATTLE SHOW, 1864.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
The Prizes now offered consist of 195*l.* in money, two Silver Cups for Cattle value 40*l.* each, three Silver Cups for Sheep value 20*l.* each, and a Gold Medal for Pigs, also 60 Silver Medals to the Breeders, and a Butcher's Silver Cup, value 10*l.*
There are now Eleven Divisions for different breeds of Cattle, Eleven Divisions for Sheep, and Four Classes for Pigs of different ages.
The Entries for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists and printed Forms of Certificates with full particulars can be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

SMITHFIELD CLUB SHOW, 1864.
IMPLEMENT DEPARTMENT.
The LAST DAY for receiving ENTRIES for IMPLEMENTS and MACHINERY is SATURDAY, October 1.
Printed forms of Certificates and all necessary information can be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words—"Smithfield Club."

The Agricultural Gazette.

SATURDAY, SEPTEMBER 3, 1864.

—— A GOOD deal has during the past week appeared in print on the subject of reaping machine competitions.

The *Mark Lane Express* attributes the marked success which at length attends the use of mowers and reapers very much to the prize system, which localises, intensifies, and defines that rivalry amongst manufacturers, the results of which have been so beneficial. It calls attention to the trials (reported in our columns last Saturday) before the East Lothian and the North Lincolnshire Agricultural Societies, as examples of the advantages of the prize system as administered by official judges.

On the other hand Mr. BERNHARD SAMUELSON, to whom the first prize was awarded for a self-acting or sheafing reaper at one of these competitions, without condemning the prize system in itself, asserts the comparative uselessness of these provincial competitions, and attributes it to the impossibility of having prizes fairly and impartially awarded at such trials.

The *Times* had declared in reference to the proceedings of the North Lancashire Agricultural Society, that reaping and mowing machinery would come more rapidly into use among farmers if really useful examples of these labour-saving tools were more frequently exhibited in efficient working order at the provincial cattle shows.

Mr. SAMUELSON states accordingly the reason why the principal manufacturers of these and other machines hesitate to send their productions to local shows. He sums it up in two words—mismanagement, and partiality of the local directors.

In illustration of this assertion, he puts the

case of this very North Lancashire Society. His firm exhibited in 1862. They were set to work in "fields of grain which had not been underdrained nor rolled, but were intersected with surface drains, some of them nearly 2 feet in depth, and concealed by the crops. In the first field no precaution was taken to keep out the crowd, which trampled down everything before it. Of course, no judgment was possible." They were then ordered into an enclosure, from which not only spectators but the exhibitors themselves were excluded, until the open watercourses brought some of their machines to grief, when they broke bounds. A favoured exhibitor, however, had not only been admitted from the beginning, but had been allowed to reconnoitre and practise in the field before the trial.

This year another northern society offered prizes for steam ploughs and reapers. One of our leading makers was tempted to compete for the former; "of course," says Mr. SAMUELSON, "he was only second—a local maker being placed before him. As for the reaping competition, that was adjourned for a fortnight, although the crops were waiting, because another local man was not ready.

"Last week," he says, "the East Lothian Society had a competition of reaping machines. My firm took the first prize for a self-acting or sheafing reaper, but the prize for 'the best reaper in the field' was given to a manual delivery reaper made on the spot, which also stood first on the last similar occasion in 1861, but had not become famous out of East Lothian during the interval. All the most celebrated Scotch makers competed in both years, but the East Lothian implement was owned on each occasion by the same East Lothian nobleman, who was also one of the judges, all the other judges being East Lothian men like himself."

Then follow remarks of less general interest on the number of new reapers which the Banbury firm have this year started, and so forth. But the allegations, however, which we have quoted above, as to the favouritism shown to local makers, and in particular the reference to the "East Lothian nobleman," ought to be immediately replied to by the proper authorities.

The most interesting account, however, we have seen of machine competition in the harvest field is that of the one at Midville, near Boston, Lincolnshire, superintended by the Bennington Labourers' Friend Society. Think of a *Labourers'* Friend Society getting up a competition among reaping machines! What would those gentlemen say to this who some years ago deprecated the extended use of agricultural machinery on the ground that employment for the labourer would thereby be diminished? The Bennington Labourers' Friend Society know well that the working man is interested above all things in the establishment and prosecution of vigorous and successful agriculture. The steam engine and the steam plough—the reaper and the mower and the thresher—are parts of vigorous management, and it is where vigorous management prevails that wages are highest, and working people are best off. It seems too that this very successful meeting at Midville came off without the incentive of any prizes to be awarded. The following is the account of it:—

Six reapers made their appearance upon the ground, four of which were double-horse and two of them single-horse machines. Each had an acre and a-half of Wheat allotted to it to cut, and the time consumed in the accomplishment of the task was noted with every one of them except the two single-horse machines. The following particulars will show the difference between the respective implements:—HORNSBY & SONS' (side delivery), 3 horses and 1 man, 75 minutes; BURGESS & KEY'S (side delivery), 3 horses, 2 men and 1 boy, 55 minutes; SAMUELSON'S (sheaf delivery), 2 horses and 1 man, 48 minutes; BURGESS & KEY'S (sheaf delivery), 3 horses, 1 man and 1 boy, 57 minutes; HORNSBY'S (back delivery), 1 horse and 2 men, not timed; CUTHBERT & Co's (back delivery), 2 horses and 3 men, not timed. The judges were Messrs. JAMES MARTIN, of Wainfleet, and CARTWRIGHT MAYFIELD, of Hagnaby. Their decision, which appeared to give universal satisfaction, awarded the first place to SAMUELSON'S machine in the double-horse department, and to HORNSBY'S in the one-horse. The general opinion, however, on the ground was in favour of the side deliveries in preference to the sheaf delivery.

—— Mr. STRAFFORD'S September list of Shorthorn sales includes a dozen animals of all ages belonging to Capt. SPENCER, on the 8th, at Lancaster; 23 belonging to his Grace the Duke of DEVONSHIRE, at Holker Hall, North Lancashire, on the 9th; 52, the entire herd, belonging to J. WORSEY, Esq., at Lower Clopton, near Stratford-on-Avon, on the 20th; 33, the entire herd, belonging to G. F. HENEAGE, Esq., at Hainton Hall, near Wragby, Lincolnshire, on the 21st; 33, the property of D. R. DAVIES, Esq., at Mere Old Hall, Knutsford, Cheshire, on the 23d; 68, the entire herd, belonging to Mr. JOHN LAXTON, at the Manor House, Morborne, near Yaxley, Peterborough, on the 27th; and 34, the herd of the late Mr. THOMAS CHAPMAN, at Whitwell, between Oakham and Stamford, on the 29th. Here are about 250 pure-bred cattle, whose average price will fairly represent the existing market value of good Short-horn stock. We see that in reference to the sale at Holker Hall, Mr. STRAFFORD announces that the tribes from which they are descended contain some of the oldest, the purest, and the best blood in the country, and have for many years been famous for producing animals of great excellence and real merit: the specimens here offered will be found to have fully sustained the reputation of these tribes, as not only their pedigrees but the animals themselves will bear the strictest scrutiny, and with the exception of two heifer calves, from "Countess of Barrington," and Cleopatra 2d," the Catalogue includes all the females of these families now at Holker Hall. Mr. STRAFFORD'S instructions are that no reserve whatever shall be placed upon them.

We add that at Mr. WORSEY'S sale, two bulls, SAFEGUARD and STANDARD, the property of J. C. ADKINS, Esq., of Milcote, of the celebrated *Charmer* family, will be sold.

—— In another column will be found an account, taken from the *Oxford Journal*, of a recent visit to the Beddington sewage meadows, near Croydon, which were described in our columns last June. It appears that a hot dry summer is not favourable to succulent vegetable growth, even where the soil is soaked with sewage water. The tendency of the Italian Rye-grass to throw up its seed-stem is irresistible under such circumstances; and the great first cutting of 13 or 14 tons per acre, grown under the cool moist air of March, April, and May, has this year been followed by cuttings of not more than 5 or 6 tons per acre grown in June, July, and August. Those who speculate on the possibility of turning London sewage to account on the low-lying lands of such a dry hot district as the counties of Kent and Essex generally are in midsummer, must consider this diminished efficiency of their manure at that season.

It is to some extent a counter balance to this deficiency of power of sewage water, however, to find that it has this year proved remarkably efficient at Beddington in growing Mangel Wurzel. An attempt had been made there on the 17th or 18th of May to plough up some Grass land, but the land was found too hard; and on the 20th, when we walked over it, the land was lying under sewage water, which had been thrown over it simply to soften it. Immediately thereafter the Grass land was ribbed up by the plough, two furrow-slices being laid together over an inner slice unmoved. Mangel Wurzel seeds were dibbled on these upturned sods, and when the ground was dry, sewage has at intervals been let in upon the land, standing and soaking in the furrows. The consequence is that there was, when we were over the land the other day, an extremely promising young crop of Mangels, full of growth and without a blank. We have never seen anything like so good a plant after so late a sowing.

—— It is well to call attention to the various expedients which have been and no doubt will be immediately adopted for shortening the period during which our live stock will, during this coming winter, be dependent upon the existing store, or the existing promise, of food for them in the country.

The Early Stone Turnip has no doubt been sown largely upon early moved stubbles, and the rains of the past week have started the seed. The Trifolium incarnatum has probably been more largely sown than usual, and may yet be sown—simply harrowed in, 20 lb. of seed per acre, upon the moistened unmoved stubble—and it will yield large crops of green food pretty early next spring. The Winter Oat and the Rye are other means of shortening the period of winter feeding by providing early spring keep. Cabbages have been more generally planted than hitherto — and Mustard may be sown yet with the probability of a crop worth having before the frost shall cut it down.

AGRICULTURAL EDUCATION.

[The following letter was last week addressed to the Editor of the *Times*.]

YOU have powerfully enforced and illustrated the argument on this subject, which Lord Stanley recently addressed to the Ormskirk Agricultural Society. Good professional training on the one hand, and sound business relations between landowners and land cultivators on the other, are undoubtedly, as you point out, the best agency for the furtherance of agricultural progress. "Judgment, Pluck, and Capital," which qualify for agriculture, as for every other occupation, will be forthcoming, just in proportion as a man is properly educated for his profession, and is enabled to invest his means in it with safety. And, accordingly, it seems plain that our agricultural societies cannot employ themselves more usefully than in endeavouring to promote a sound public opinion on agricultural education on the one hand, and on the relations of landlord and tenant on the other.

Are you aware, however, that we have a National Agricultural Society incorporated by Royal Charter for the very purpose (among others) of promoting agricultural education; and that this Society was startled the other day by the intelligence that never since the grant of its Charter, now more than 20 years ago, had it done anything whatever in discharge of the duty in this particular which it then assumed. A committee of its governing body has been since appointed "to consider the measures which ought to be taken for 'the improvement of the education of those who depend on the cultivation of the land for their support,'—that being declared by the Charter to be the 7th National object to be prosecuted by the Society"—and the result of its deliberations has lately been announced by the offer of a prize of 50*l.* for an "Essay," to be sent in next spring. The upshot hitherto accordingly of the whole discussion, it appears, is this:—The Society is directed by its Charter to "take measures;" it has taken no measures—has never even thought of taking measures. It doesn't know what measures to take, and has therefore appointed a committee to advise it, but this committee finds itself in the very same predicament; it, too, fails to indicate what measures are advisable; and, handing in its turn its duties over to the general public, it recommends that 50*l.* be offered as a fee to Counsel for an opinion on the subject. Will any gentleman accept the 50*l.* of this Society and tell its office bearers what to do?

The measures to be taken seem so plain and the need of them so urgent that more good will be done, as I believe, by a discussion of them here and now than by waiting half a year for the professional judgment on them which is offered them. The measures which are wanted have been made obvious enough by the general educational experience of the past few years. "Middle-class schools" and other educational institutions have been both urged and guided, as everybody knows, by annual University examinations and by those of the Society of Arts. These examinations have applied both rein and spur, with the best effort on both the direction and the rate of progress. And like the corresponding official examinations of our professional schools—legal, medical, military, naval—they are, I understand, becoming year by year more careful and severe, and therefore more efficient. Surely there is every indication here of what might similarly be done for agricultural education by so powerful an association as the Royal Agricultural Society of England. There has been no attempt on the part of the examining bodies to establish new colleges or schools. These have multiplied as personal enterprise or public spirit has been aroused by the demand for them. The object has been only to improve the existing institutions. Education has been guided by the programme of the examinations which are to test it, and both teachers and students have been stimulated by the distinctions, prizes, and professional position which are the result of their success before the examiner.

Something like this is needed for promoting the education of the Agricultural profession. So far as professional education is concerned, the majority of young farmers are at present taught simply by experience on the farm at home; probably the bulk of the remainder acquire what professional ability they possess by residence for a year or two upon a farm elsewhere. There are indeed a few professed schools of agriculture in this country, and these are much more capable of imparting the science and the skill on which professional ability depends; but they are suffering from the lack of that stimulus and that guidance which national agricultural Societies and their official examiners, with the prizes and distinctions given them to award, ought to have supplied. The number of these professional schools would probably increase were they thus made the care of great agricultural associations, but the first effect of such a thing would, doubtless, be to increase the efficiency and success of the few already established.

There is a Royal Agricultural College at Cirencester for example, incorporated like the National Agricultural Society by a Royal Charter. One would think

that here was an agency ready to its hand, by whose aid the Society might long since have taken measures for the improvement of agricultural education. It has sent out during the past 16 or 18 years 20, 30, and 40 men per annum, many of them well qualified as agriculturists, who have since achieved professional success. Furnished with a large farm, with a staff of teachers and professors, some of them of European reputation, with accommodation for 200 students, with lecture rooms and laboratories—a completer apparatus for agricultural education than anywhere else exists—it has nevertheless often needed help and guidance, almost failed indeed at times for want of them. And these the Agricultural Society might have given it; and, just as the Universities are helping general schools, ought to give it now. Carried on at great personal labour and expense by public spirited men—Mr. Holland, Mr. Sotheron Estcourt, the Earl of Ducie, and Lord Bathurst—with only a public object to subserve—it has never yet, as I believe, been even recognised by the Royal Agricultural Society of England. And not one half, I dare to say, of the members of that Society, nor one in ten, in all probability, of those who are seeking agricultural education in this country for their sons, know of its existence. Could this have been if the duty, connected with "the seventh National object," imposed by the charter of the Society had been properly discharged, or even been attended to at all?

It seems to me that the offer of a prize for an essay on the subject of middle-class schools for those who are dependent on the cultivation of the soil, while a duty so obvious and direct remains undischarged, is giving the go-by to the whole affair—is in effect a shirking of the plain responsibility which has been laid on the Society by its Charter. And as the subject is certainly of great public interest, I venture to ask that publicity for this statement of it, which your columns alone can give.

It is certain that the next generation of agriculturists will need all the ability which a good professional education can confer. The new order of proprietors to whom it seems, from the address at Ormskirk, and from your subsequent remarks on it, the country must look forward—the men who have bought their land at 40 and 45 years purchase of the existing rental, will unquestionably do their utmost to raise their rents in some proportion to their outlay. They will claim every penny which their tenants can afford to give. And the help which these will need, is that better education which will first enable them to negotiate with landlords on fair and equal terms, and thus qualify them for the best possible use and prosecution of the bargain to which they may consent. The Royal Agricultural Society of England is bound by its Charter to take measures for the promotion of this better agricultural education, and no better use of its large powers can be imagined than in aiding, stimulating, and directing the existing means of it. *J. Chalmers Morton, Examiner in Agriculture to the Society of Arts, Streatley, near Reading, August* 25.

A DAY AT BIRKENHEAD.

1. THE PHOSPHO-GUANO WORKS at Seacombe, opposite Liverpool, cover upwards of 3 acres of ground. The materials used in the manufacture are—*first*, the so-called Maracaybo guano, which is found as a stone-like incrustation either on the rock or on the organic beds with which the surface of certain West Indian Islands is covered; *second*, sulphuric acid of the density 1·74; and *third*, sulphate of ammonia. The first is imported by the Phospho-guano Company, who have acquired exclusive right to the guano at Maracaybo and neighbouring islands—the second and third, manufactured at soda-ash and gas works in the neighbourhood, are purchased and delivered at the Company's Works. The ship loads of guano are piled under shelter as they arrive: the vitriol is delivered at intervals in carboys as it is needed; the sulphate of ammonia is lying in a small hill or large heap under the same roof.

The process is as follows:—The guano, in the form of hand-shaped fragments of the incrustation, is fed into mills and ground. A horizontal circular trough, with iron bed, revolves rapidly around its centre under a pair of upright "stones," which, standing in this trough, revolve more slowly with it. These "stones" have iron rims hollowed out, so that any pebbles in the guano can always escape their action, and a certain portion only of the stuff fed in is with each revolution crushed to powder. The trough is, however, being continually emptied at a constant rate by revolving cups, which lift whatever they lay hold of to a screen, and from this the powder is received into bags, while the unground residue returns to the trough.

Two such pairs of stones keep two men continually shovelling the shell-like fragments of guano into the mill, and three or four men are continually carrying the ground guano away in bags to the great heaps, which are operated on during the busier manufacturing season, and which in the meantime accumulate to a quantity of many thousand tons.

The manufacture is conducted in iron pans, each capable of holding 20 cwt. of the manufactured material. Over each is a cistern of sulphuric acid; so much of the sulphate of ammonia is put into each of these pans, of which there are two double rows, about 30 in all.

The proper quantity of sulphuric acid is then mixed with it and dissolves it, and the proper weight of guano is then added, and the whole is thoroughly intermixed. The pans are emptied from 16 to 18 times a day, so that the materials of each change remain together for more than half an hour, before they are thrown into a common heap.

This in the course of weeks is quarried out and put through the breaking and mixing machine. A rapidly revolving double circular framework, the parts of which turn different ways, receives the shovelsful of the hardened mould, in which state it is quarried out, and this is delivered by centrifugal action, well powdered by the rapid strokes it has received on its passage from the centre to the circumference. It is then weighed in cwts. into bags and casks, and is ready for sale. And a very large sale it meets with, though owing to the cost of the materials and the process it is inevitably a costly article.

The question of value is one of course quite apart from that of cost; but with ample certificates of value from the highest authorities in chemistry, derived from their knowledge of its composition, and, what is still better, with ample testimony from agriculturists of the effects it has produced—with, moreover, our knowledge of its origin as a natural guano to which sulphate of ammonia has been added—we need not wonder at the large sale which it commands, notwithstanding its high price.

2. LISCARD HALL.—Mr. Harold Littledale, of Liverpool, owns a large extent of land near Seacombe, on the western side of Birkenhead; and some hundreds of acres of this property near his house he farms. His farm includes 300 acres of arable land, and 150 acres of poor Grass land.

The five-course rotation is adopted, viz.:—1st and 2d years, Italian Rye-grass; 3d, Oats; 4th, Green crops, as Turnips, Potatos, Mangel Wurzel; and 5th, Wheat. The green crops, together with large purchases of grain and cattle food, go to the maintenance of a large herd of dairy cows.

Ninety of the finest Yorkshire large-framed productive cows were standing in the stalls at the time of our visit, and about 1000 quarts of milk were daily taken from them. From 800 to 1000 quarts a day are the usual produce, 200 gallons being sold daily in the neighbourhood, and the remainder being churned.

The buildings—a remarkably well-arranged, commodious, and neatly kept homestead—have been erected with a view mainly to the accommodation of a large dairy stock. Four parallel ranges of buildings—three of them byres—abut on a cross range of higher buildings, at the back of which are threshing barn and machinery for grinding corn, cutting chaff, churning, &c. There is ample accommodation, both for housing the live stock and dealing with the produce of the farm—and the apparatus includes millstones, threshing machine with conical drum, chaff-cutters, corn and cake crushers, churns.

The cows, milked at 4 A.M., and 3.30 P.M., are fed at 7 A.M., 1 P.M., 3 P.M., and 5 P.M. on hay, grains, Turnips, Mangels, and hay chaff. A good bull is kept, and the best cows are kept on and calved on the premises. Many, however, are every year sold off, and others bought in their places to keep up the supply of milk. They are generally bought in at their prime, four or five years old, and kept two or three years before being disposed of. The pleuro-pneumonia has made frightful havoc in the herd on four several occasions during the past 20 years, more than 100 having been lost in this way at different times. When the supply of milk exceeds the sale a considerable remainder exists, which is set in earthen vessels for butter. The churning takes place when the milk is two or three days old, in an upright cylindrical churn with two sets of beaters, one projecting from the upright central axis, and the other from the inner surface of the cylinder. A number of experiments were made at the time of the erection of this churn by Mr. Clyburn, of Lord Ducie's Implement Works, at Uley, Gloucestershire. He compared the Cheshire D or box churn, Rowan's churn, Brown's vertical double-action churn, and his own, and the following table gives the results of his experiments:—

Name of Churn.	No. of gallons of Milk and Cream.	No. of quarts of Water.	Temperature.	Revolutions per minute.	Total of revolutions.	No. of minutes.	Temperature when finished.	Weight of Butter.		Experiment.
								lb.	st.	
Cheshire Churn	18	6	56	60	7200	120	60	17	10	No. 1 by hand power.
Rowan's Churn	18	6	56	60	14400	240	60	15	6	
Vertical Churn	9	3	56	100	6100	61	60	6	0	No. 2 by horse power.
Cheshire Churn	18	4	56	100	11000	110	60	12	0	
Rowan's Churn	18	4	56	100	no result	..		..		
Cheshire Churn	18	4	58	100	7200	72	..	14	8	No. 3 by horse power.
Cheshire Churn	18	6	56	70	8680	124	..	16	2	
Cheshire Churn	23	9	56	100	14700	147	..	19	12	No. 4 by horse power.
New Churn	23	9	56	100	4000	25	..	19	12	

The usual practice now is to drive the revolving beater 140 revolutions per minute, the milk being thus broke between 40 moving spokes or arms, and as many fixed ones. The butter comes in 12 to 15 minutes—and the rapid churning yields 5 to 7 per cent. more butter than the ordinary slow action of the box-churn.

The management of the herd is in the hands of four men and four women, who see to the feeding, cleaning, and milking.

The whole waste of the cow-house goes into two large tanks, 60 feet by 13 feet, and 10 feet deep, and is thence pumped over the Italian Rye-grass. A 4-horse power engine drives this through a 3-inch pipe and hose over the Italian Rye-grass at 200 to 1000 yards distance. It lowers the tank about 8 inches in an hour, and gets over 4 or 5 acres in a day of 10 hours. This is equal to about 60 tons of liquid applied per acre, which is a pretty fair dressing. Sixty acres of first year, and as much of 2-year old Italian Rye-grass thus treated, are cut generally four times a year, and provide capital summer feeding for the cows. The Rye-grass is sown in autumn after a thorough tillage and good manuring of the Wheat stubble; it remains down two years, and is ploughed up for Oats. Very heavy crops of grain are obtained,—the Mangel Wurzels were the finest we have this year seen. The Italian Rye-grass in early July was promising well for the second cutting, and the Wheat and Oat crops were looking like more than 5 and 10 quarters per acre. Rent, wages, and taxes, are all extremely high, as the neighbourhood of a large town would make them. We have nowhere seen cleaner, neater management, either in the field or in the farmery. Liscard is a capital specimen of vigorous suburban agriculture, under the direction of Mr. Littledale's farm manager.

THE BEDDINGTON MEADOWS, NEAR CROYDON.

WE described some weeks ago the attempt which is being made at Aldershot to utilise the waste of the camp—to turn the refuse of a large population, which bid fair to become a pestilential nuisance, into a source of food and profit. Mr. Blackburn, who is conducting that experiment, would be a very courageous man if he had only analogy to guide his proceedings, for it is a singular fact that analogy is very far as yet from being a safe guide in these matters. Manure is indeed food, minus growth; and the waste of a great feeding establishment like Aldershot, or any other town, ought to be as valuable as the waste of a great feeding establishment such as we see on every well-managed farm. But hitherto this has failed of being realised. The Rev. Henry Moule, of Dorchester, does indeed find that, in the case of a single household, a proper conservation of house waste suffices for the fertility of a garden; but even this falls far short of the agricultural parallel. An arable farm is certainly well stocked, and that means well manured, if it carries two or three sheep per acre. Comparatively few plough-land farms do so much. But when we come to apply a unit of this kind to calculations of the value of town sewage, we are altogether at fault.

In Mr. Morton's evidence before the select committee of the House of Commons on Sewage, in 1862, he says that the water which drains and washes out one-half of the ground on which the city of Edinburgh stands, is all turned upon about 230 or 240 acres between Edinburgh and Leith, so that 300 persons must, as it were, have been "folded" here per acre.

At Carlisle again, where Mr. M'Dougal hires the sewage of the town, the produce of 20,000 people flows over 110 acres, being after the rate of nearly 200 persons per acre. And it is one of the greatest puzzles that exists in agriculture that the general truth, apparently so obvious when sheep and cattle are the live stock which fertilises the farm, fails of being realised in those few cases where the waste of a resident population has been turned upon the land. It needs no longer two or three per acre, but a whole population, to bring about the fertility which is desired.

Mr. Blackburn has examples in Watford, Croydon, and other growing and considerable places, of the kind of success which was likely to follow his attempt at Croydon. In the former of these places the Earl of Essex hires the sewage, and pumps it over his Italian Rye-grass grounds; but although he has a considerable population to fertilise the grounds, he confessed before the Committee that his mistake lay in setting apart too many acres for the purpose. If he had had a population of 200 per acre, instead of 40 or 50 only, the experiment would have been more profitable.

Probably, however, the most instructive experiment in the utilisation of town sewage is near Croydon, where the Board of Health, having drained the town, and been prosecuted by neighbouring landowners for the nuisance which the delivery of the drainage water at one point had occasioned, took some hundreds of acres on a very slight but uniform slope about two miles below the town, and relet this land to a tenant at an advance of 1*l.* per acre for the use of the sewage water on it; and this is now being poured over it. Mr. Marriage, of Chelmsford, the tenant of the farm at Beddington, has thus about 240 acres under sewage, which pours on to the farm at its upper end, and is conducted along ditches with hatches at one field and another, by putting down which the contents of the ditch are made to overflow at that field. The water is thus led along parallel narrow furrows about 16 yards apart, and from them it flows over the intervening

lands. The land is particularly well adapted for the purpose, being of a very gradual slope, and down this slope it trickles to the lower end of the field, is gathered into a drain there, and thence conducted to a field on a still lower level. After being conducted a second time over the land, the filthy turbid stream which was delivered on to the farm from the town, leaves it clear and limpid, with hardly a smell to offend the nose; and the stream into which it falls is now as full of fish as ever it used to be.

It is on the use by the land of those contents of the filthy sewage water which it leaves behind it on the Beddington Meadows that Mr. Blackburn and other experimentalists on the subject build their hopes.

What, then, is the use to which this filth is turned? Mr. Marriage sows this land with Italian Ryegrass. After the plant has grown, it receives during the first winter and the following spring several dressings of two days' water at a time, and the consequence is an enormous growth of green. When we saw these meadows in the month of May, there was over these fields of Grass in their second year a crop of 10 to 13 tons per acre. It stood, of a dark green colour, as high as a walking stick, and succulent from end to end—a mass of food of the very best quality for cows. Five hundred square yards cut the day before had yielded 29 cwt., and 1200 square yards cut the previous day to that had yielded 3½ tons, The whole was sold as fast as it was ready to men who came with carts morning and evening from long distances, and took away their quantities at about 9*d.* a cwt., or 1*s.* a square rod. Several cuttings are obtained each year, varying, perhaps from 10 or 12 tons per acre at first to not more than 4 or 5 in a hot midsummer, and again 7 or 8 tons per acre in the autumn.

A walk over these meadows the other day showed that the cool spring weather is the best for grassy growth. The contrast, however, between these meadows and surrounding Grass fields, baked in this summer's drought, is very great. But the formation of the seed spike is in hot weather almost immediate, and there is less succulence in the stem and leaf, notwithstanding that the land is soaked with the filthy water. It needs a cool damp air, as well as a well-fed cool moist soil, to produce the most abundant growth of Grass. Mr. Marriage's experiment is, however, sufficiently successful. 8000 tons of Grass, or thereabout, are annually produced from 240 acres thus watered; and this, either fed at home, or sold at a price varying from 8*d.* a cwt. at home to 1*s.* and 1*s.* 3*d.* a cwt. in London, pays sufficiently well. The Italian Rye-grass sown this autumn is retained over two and sometimes three summers—but it gradually dies, and thins, and dwindles—other less productive Grasses gradually taking its place, until at length it is ploughed up. The best plan probably is to allow only two summer crops from it, breaking it up in the third spring for Turnips or Potatos—this crop being removed in time for re-sowing the land in the following autumn, when it will be ready to bear another repetition of two-year cropping with Italian Rye-grass.

The land at Beddington is especially adapted for the water delivered from the Croydon drainage, especially because of the gradual and even slope of its surface; but it is by no means the better qualified for this use of it by the natural fertility which it possesses. It is a very fair quality of porous gravelly soil, worth probably 2*l.* per acre, or rather more, in the neighbourhood. The Local Board of Health, driven to obtain such land at any cost, give, we understand, 4*l.* per acre for its use, and the tenant is charged 1*l.* extra for the sewage over it. But the land is not the better for its being of good quality naturally. We believe that a sheer sand would, in a year or two, be as productive as a good loam under the treatment which these lands receive, a statement of considerable importance to owners of unproductive estates.

In order to the best and most economical use of town sewage, it only needs that a porous sloping surface of soil, however poor, be provided. It is a machine by which the fertilising filthy flood will be converted into pasture. It is only a machine that is required—and the poorer soil will be a cheaper machine than one of natural fertility. We believe accordingly that, notwithstanding the extreme poverty of the soil with which Mr. Blackburn has to deal at Aldershot, he will realise from the waste of the camp of 18,000 men as great a return as is obtained by Mr. Marriage on the fertile soils at Beddington from the waste of 20,000 people living in the town and neighbourhood of Croydon.

COTSWOLD RAM SALES.

(From the *Wilts and Gloucestershire Standard.*)

WE give below our usual Tabular Statement of the principal Sales of the past eight years:—

NAME.	1857. Sheep Sold.	1857. Average. £ s. d.	1858. Sheep Sold.	1858. Average. £ s. d.	1859. Sheep Sold.	1859. Average. £ s. d.	1860. Sheep Sold.	1860. Average. £ s. d.	1861. Sheep Sold.	1861. Average. £ s. d.	1862. Sheep Sold.	1862. Average. £ s. d.	1863. Sheep Sold.	1863. Average. £ s. d.	1864. Sheep Sold.	1864. Average. £ s. d.
Mr. H. Howell, Coates	40	12 10 0	40	9 0 0	40	8 19 3	40	14 10 2	41	8 11 7	40	11 1 0	40	11 6 8	39	10 17 3
Mr. J. Lane, Barton Mill	50	9 14 9	50	10 8 0	45	8 18 0	48	10 10 4	47	11 2 3	48	10 0 4½	50	11 18 9	47	9 14 9
Mr. Beale Brown, Hampen	65	12 17 9	70	10 2 4	60	10 0 3	—	.. ..	—	.. ..	—	.. ..	30	6 0 0	—	.. ..
Mr. J. King Tombs, Hatherop	50	8 15 0	53	8 0 0	43	8 9 3	40	8 8 6	39	9 6 2	50	7 13 3	40	8 12 6	40	7 10 2
Mr. C. Barton, Coln Rogers	52	13 5 8½	52	12 2 1	53	11 1 2	52	12 7 4	50	10 5 0	50	11 13 0	52	11 19 2	49	9 11 7
Mr. W. Cother, Middle Aston	70	9 16 2	70	11 1 3	68	9 1 1	60	8 14 2	60	9 18 0	86	10 13 6	65	8 9 11	44	9 10 3
Mr. W. Garne, Kilkenny	56	8 3 0	49	8 5 0	45	8 7 2	**46**	**19 8 0**	54	12 4 0	47	10 4 5	48	11 6 9	34	12 7 8
Mr. W. Lane, Broadfield	**65**	**22 4 2¼**	58	16 14 6	50	11 16 6	54	17 8 0	50	17 11 3	50	13 13 9	56	14 14 11	56	10 6 7
Mr. J. Gillett, Minster Lovell	64	14 2 0	64	12 14 1	60	14 4 2	60	11 17 2	66	12 2 7	58	9 17 4	50	10 0 3	56	9 16 4
Mr. R. Garne, Aldsworth	59	16 17 3	60	12 7 2	50	12 1 6	52	18 13 2	56	15 15 7	50	11 14 1	54	15 16 9	50	14 8 2
Mr. W. Smith, Bibury	57	18 16 2	59	13 6 7	51	11 4 9	50	11 7 4	50	9 10 0	54	8 0 4	44	11 4 6	54	9 19 11
Mr. T. Porter, Baunton	52	10 15 8	50	9 15 8	44	9 0 0	49	11 11 8	50	10 18 6	50	7 17 6	30	8 16 9	50	10 18 10
Mr. E. Ruck, Castle Hill	70	9 6 6	70	8 7 8	60	8 11 6	60	8 2 6	—	.. ..	—	.. ..	—	.. ..	—	.. ..
Mr. Fletcher, Shipton	54	12 9 3	54	12 3 7	50	13 5 6	51	11 8 6	50	12 16 6	51	11 17 9	52	13 10 6	53	14 17 7
Mr. W. Hewer, Northleach	54	15 18 6	**55**	**20 12 11**	53	14 17 6	50	16 8 6	50	16 5 3	56	17 17 0	**50**	**17 5 0**	**50**	**25 5 2**
Mr. Walker, Yanworth	46	12 0 7	46	9 0 3¾	40	10 14 7	19	13 1 0	—	.. ..	—	.. ..	—	.. ..	—	.. ..
Mr. R. Lane, Cottage Farm	30	16 5 0	46	12 2 6	**32**	**16 0 7**	32	17 6 6	**36**	**34 10 8**	**43**	**23 2 3**	—	.. ..	—	.. ..
Mr. Howell, Ewen	42	12 0 6	40	12 9 4½	40	11 1 3	40	12 8 4	40	11 0 6	40	13 3 3	36	12 1 6	39	12 19 0
Mr. J. Barton, Coln St. Aldwyns	50	9 1 6	50	9 4 0	50	8 17 0	45	11 8 0	50	10 7 0	46	8 19 7	44	11 5 0	46	9 5 9
Mr. Barton, Fyfield	50	13 9 9	50	9 10 0	50	9 2 10	50	15 3 6	44	15 10 0	46	16 13 4	44	14 14 11	48	12 18 4
Mr. Handy, Sierford		....		....		....	—	9 18 0	40	9 16 3	42	10 10 3	48	9 15 0	51	10 10 10
Mr. H. Cole, Ashbrook		....		....		....		....		....	—	0 0 0	20	10 10 6	24	8 12 4
Mr. James Walker, Northleach		....		....		....		....		....	—	13 5 0	36	11 9 2	40	10 0 0
Messrs. J. Wells & Co., Hampnett		....		....		....		....		....		....		....	51	11 19 5

In 1854 Mr. Garne, of Aldsworth, realized **£21 7s. 3d.** each for 55 sheep.—In 1855 Mr. W. Lane's average for 65 sheep was **£20 2s. 6½d.**—In 1856 Mr. R. Lane obtained an average of **£20 14s. 1d.** for 30 sheep.—Mr. R. Lane has now discontinued his sale of shearhogs, and last year sold his ram lambs at an average of nearly **£7** each.

*** The highest average obtained in each year is distinguished by being printed in black type.

Home Correspondence.

The Death of Live Stock and Oilcake Considered.—In your Number of the 13th August is a letter from Mr. Wallace on the above subject, and some remarks by you upon it and on Mr. Mechi's letter relative to the losses amongst his calves. As it is a matter of great importance to farmers, we are sure you will be glad to publish any details which may throw light on the subject, as to whether the disease amongst Mr. Wallace's lambs could be caused by feeding them on good Linseed-cake, or whether the lambs suffered from some epidemic independent of the cake. We say "good" Linseed-cake, because Mr. Wallace says "the Linseed in the cake may have undergone some fermentation, and if the cake was not mouldy to appearance, might not the bran or nut cake be so before being mixed with the Linseed?" If materials (or even the purest Linseed) in a state of decomposition are used, the cake will of course be injurious and unfit for food; in the same way beef or mutton if in a similar state would be unfit for the food of man. Now, we can speak positively as to the perfectly sound condition of the cake Mr. Wallace complains of, as we made it and supplied him with it. In order to satisfy others we sent a piece of cake from Mr. Wallace's farm and some from his neighbours to Doctor Voelcker, for his analysis and microscopical examination, and we enclose his report for your perusal. The following facts strongly corroborate our opinion that the cake had nothing to do with causing the complaint among the lambs. 1st, the disease was confined to a limited locality, and farmers in the same district lost lambs who were not feeding with our cake at all. 2dly, many hundreds of farmers residing in other parts of Hampshire and the neighbouring counties of Dorset, Wilts, Somerset, Devon, Sussex, &c., were using our Linseed-cake, and their flocks were not only free from disease, but did well and gave every satisfaction to their owners, as numbers of gentlemen have voluntarily written to inform us after hearing of the case and reading Dr. Voelcker's report in the county papers. 3dly, Mr. Wallace sold such lambs as he considered deteriorated by eating our cake. in lots of 50 each, by auction, at Salisbury. We purchased one lot and sent them to a neighbouring farm (Mr. Benjamin Gulliver, of Wimpson, near Redbridge) where they were folded on a piece of Clover and fed with precisely the same sort of cake that was said to have poisoned them at Houghton. These lambs improved so rapidly that in the course of three weeks we sold them at a profit of 12*l.* 10*s.* on the lot, and the butcher who slaughtered them says that he never had a healthier lot of lambs. Trusting that you will kindly insert this letter in your next paper, and allow the foregoing facts to speak for themselves. *Dixon & Cardus.*——The following is the report of Dr. Voelcker, introduced by a preliminary statement from Messrs. Dixon & Cardus. "As considerable mortality amongst the lambs has occurred in two or three districts in Hampshire, and in some cases our Linseed cake, on which they were feeding, has been blamed as the cause of it, we requested Dr. Voelcker to investigate the subject and report upon it; which report we subjoin. It will be seen that the cake was of excellent quality, and free from any matter that could be injurious to the health of animals feeding upon it. Diseases in lambs in isolated districts are by no means uncommon; and no doubt excellent cake is often branded as the cause of sudden outbreaks of disorders in lambs, whereas these disorders are enveloped in such mystery that the best veterinary surgeons and the most experienced flock-masters are at a loss to advance a rational theory in accounting for the sudden death which often affects the flocks in one district and not in another. The four samples of cake sent for analysis were marked:—J. W. No. 1 and No. 2, from Mr. John Wallace, Houghton. T. E. From Mr. Thomas Edwards, of Compton House, Stockbridge. S. A. From Mr. Stephen Ayles, of Braishfield, Romsey."

REPORT OF DR. VOELCKER.

101, Leadenhall Street, London, July 8, 1864.

To Messrs. Dickson & Cardus, Southampton.

Dear Sirs,—I have now the pleasure of handing you the results of careful analyses of four samples of your cake. You will observe at once that these four samples show a close agreement in composition, which distinctly proves that the manufacture of your cake is carried on uniformly in your mill. The per centage of oil (the most valuable constituent of oilcake) in all four samples is quite as high as in the best kinds of Linseed cake; and that of flesh-forming matters a fair average proportion. The small amount of sand, and the absence of obnoxious weed seeds, shows that clean Linseed is used in the preparation of these four samples of cake. I have carefully examined your cake for injurious foreign matters, and am decidedly of opinion that it contains nothing that can be regarded as at all likely to be injurious to the health of animals fed upon it. Its condition is fresh, it is free from mould, and is palatable; and in my opinion is a wholesome and nutritious cake of good average quality.—Yours truly,

AUGUSTUS VOELCKER.

COMPOSITION OF FOUR SAMPLES OF LINSEED CAKE, MANUFACTURED BY DIXON & CARDUS, NORTHAM, SOUTHAMPTON.

	SAMPLES MARKED. J.W. No. 1	J.W. No. 2	T.E.	S.A.	Barrel American.
Moisture	10.91	11.39	10.58	10.48	11.64
Oil	11.55	11.26	10.92	10.94	10.43
*Albuminous compounds (flesh-forming matters)	25.62	25.25	27.43	26.43	24.01
Mucilage, Starch, Sugar, and digestible fibre	31.09	31.28	30.34	30.96	34.44
Woody fibre (Cellulose)	14.04	13 46	14.46	15.09	14.26
**Mineral Matters (Ash)	6.79	7.36	6.27	6.10	5.22
	100.00	100.00	100.00	100.00	100.00
*Containing Nitrogen	4.10	4.04	4.39	4.23	3.84
**Containing Sand	2 12	2.34	1.64	1.13	1.42

AUGUSTUS VOELCKER.

101, *Leadenhall Street, London, July* 8, 1864.

N.B. We have in the above Table added an analysis of Barrel American cake, made by Dr. Voelcker some time ago for us, which shows our cake to be even superior to Barrel American, which is considered by many as the standard of first-rate quality. *D. & C.*

Stubble Turnips.—The unprecedented long drought and pestilential plague of insects, is at last, thanks to a kind Providence, repaired and set at nought by this day's soaking north rain—I presume and trust universally, judging from the quarter whence it comes. I have in a former article hinted and recommended, that the only alternative and proceeding I can conceive of to relieve the supposed losses farmers and gardeners must

have sustained by repeatedly losing their plants of most kinds, and to supply the wants of general consumers in the present emergency, is to secure a fresh supply of stubble Turnip seed or some other variety of a dwarf habit, and to sow it thinly immediately. As it is a matter of serious and urgent importance and public interest, and so much vacant ground is at liberty and at rest in all localities far and near, allow me through your far spreading columns, and for the guidance of all, to state that within the limits of this month or beginning of September, is not too late to sow it with a view of fearless success; if not to grow Turnips full sized, yet quite large enough for the pot (they will be needed, as Potatos must be dear), if the plants are well hoed and singled out in due time. Also for sheep feed in the fields, where they will be wanted assuredly, and will come off in ample time for Wheat. *A. Hardy, Sen., Maldon.*

Reviews.

Outlines of Modern Farming. By Robert Scott Burn. Vol. III. Cattle, Sheep, and Horses. Virtue Brothers, 1, Amen Corner, Paternoster Row.

Illustrated with numerous woodcuts, and full as usual of well packed information extracted from every trustworthy source, this third volume maintains the character of the series. We look in the index for information on cattle food, which will this season be scarce enough; and on the economy and provision of which, therefore, information is anxiously desired by many a stock master, soon to be in difficulties, if indeed he be not suffering already, and we are directed to page 71, &c., from which we extract the following passages:—

"A few remarks on the varieties of food used for the feeding of cattle, and the modes in use of preparing them, will appropriately and usefully conclude this chapter.

"*Wheat* is rarely used in bulk as a feeding material, its price being usually such as to preclude any chance of using it economically. When, however, it can be obtained at, or a little over, 1*d.* per lb., it may be used economically in conjunction with other food. The cereals generally are very fattening, producing more fat than flesh. Indian Corn is pre-eminently valuable in this way. Beans and Peas are more remarkable for having the contrary effect, adding to the muscle and the flesh of the animal. In conjunction with other food, Bean-meal is often given to cattle with good results. On the straws of the cereals as a feeding material, much has been said and written of late at Agricultural meetings and in Agricultural Journals. The practical result of the discussion may be stated to be this: that straw, where roots are scarce, may be used to a much greater extent than has been usually the practice, provided it be used with judgment and in conjunction with other food; and that mixed with this in the form of chaff, or rather cut straw, better results will be obtained than if a large bulk of uncut straw is given to the animal, the roots being also cut or pulped. With this food—pulped or cut roots, and cut straw, or chaff as it is most generally termed—and with 3 or 4 lbs. of Bean-meal or crushed oil-cake per day, animals may be fattened, or at all events prepared for fattening, with economical results.

"The *Roots* generally employed as food for cattle are Turnips, Mangel Wurzel, Kohl Rabi, Carrots, and Potatos; the three latter, however, not so frequently, Turnips and Mangels being what may be called the staple food of cattle in this country.

"Turnips owe much of their feeding value to the soil in which they are grown, and the way in which they are cultivated. It has for many years been an established rule with farmers in this country, that the more bulky the roots, the higher their feeding value. Many, however, are of opinion that the opposite of this is the case. Of all the varieties of Turnips grown, Swedes are considered the most nutritious; they keep longer in good condition than other kinds, of which the yellow is the next in value to the Swede; the white the least valuable.

"Mangels are a most valuable food; but it is necessary that they should be kept for some time—till Christmas, at least, of the autumn they are taken up in—as they possess an acrimonious substance or peculiarity when freshly gathered which has a bad influence upon the health of the animals partaking of them. If Mangels, however, are given early in the season, they should be given sparingly at first, until the animals get accustomed to them.

"*Natural Grasses.*—As food the Grasses vary much in feeding value, and much depends also upon the way in which they are grown. Grasses grown under irrigation are generally of greater nutritious value than those grown in the ordinary way.

"Of the *Artificial Grasses*, Clover, as a feeding material, is greatly influenced by the time at which it is cut down, full flower being the best time.

"Of *Hay*, Clover-hay is not so valuable as fresh-cut Clover. Of ordinary hay, it is generally understood that the second crop, or after-math, is not so nutritious as the first crop.

"Of leaf-crops, *Cabbages* are by far the most valuable food; for milch-cows they are specially good.

"*Oil-cakes and artificial foods.*—These form most important adjuncts to the feed stock of the cattle feeder. The following remarks from a lecture by Dr. Stevenson Macadam are so full of practical information bearing upon this subject, that we do our readers a service by quoting them here:—

"'*The Feeding qualities of Oil-cakes.*—The ordinary food of stock, consisting of Grass, hay, and Turnips, is very bulky in its nature, and contains a small per centage of flesh-forming ingredients, accompanied by a large proportion of heat-producing constituents and refuse matter. The digestive systems of the sheep and the ox are specially designed for making the best use of such food, but the fattening process proceeds slowly unless an admixture of richer food is given. The oil-cakes, which are now so extensively consumed by stock, supply in small bulk, and with comparatively little trouble to the animal, a large amount of fat and flesh-forming ingredients. The feeding qualities of oil-cakes are mainly dependent on the presence of albuminous compounds to the extent of 20 to 40 per cent., accompanied by an average of 12 per cent. of oil. But besides these, there is a large amount of starch and woody fibre, along with a little sugar, and gum, and saline matter containing phosphates—the principal element in bones. In short, we have present in an oil-cake the important feeding properties of the ordinary food of animals in a concentrated form, and readily capable, when partaken of by the animal, of becoming flesh and fat.

"'One of the great advantages of a feeding stuff with the composition of an oil-cake, is the presence of so much ready-formed oil, as this is readily assimilated by the animal system, and is readily stored up as fat. At the same time the digestive powers act on the starch, gum, sugar, and part of the woody fibre, resolving these into compounds which, as they circulate through the blood, become elaborated into fat capable of being also deposited in the tissues. The albuminous constituents also become transformed before and after entering the blood, and ultimately are woven into flesh in the living structure, whilst the phosphates are taken up into the blood, and supply the wants of the bones.

"'*Linseed-cake* is regarded as the first-class oil-cake, and it is obtained from Linseed by bruising, steaming, and subjecting it to pressure in hair-cloth bags, when about 25 per cent. of oil is extracted, and Linseed-cake is left. The better kinds contain 24 to 30 per cent. of albuminous compounds, and about 12 per cent. of oil. Linseed oil-cake is liable to be mixed with inferior oil-seeds, bran, and other cheap materials, which detract from its nourishing properties, and occasionally impart to it noxious properties. A simple way of examining Linseed-cake is to grate down about half an ounce, and put it in about half a tumbler of water, and stir for a short time. Good cake gives a light-coloured jelly, with an agreeable taste and smell. If other seeds be present as impurities, they communicate a disagreeable taste and an unpleasant odour, like refuse Canary-seed.

"'*Cotton-seed cake* is made from the seed of the Cotton plant in two ways. 1. By crushing the whole seed—husk and kernel—yielding a cake with little more than 20 per cent. of albuminous compounds and 6 per cent. of oil, and which is very objectionable as an article of food, owing to the presence of the fragments of husk and much Cotton fibre. 2. The cake is prepared by first shelling the seed so as to remove the husk, and the kernel so obtained is compressed so as to extract some of the oil, and a very superior feeding cake is left, which contains from 30 to 40 per cent. of albuminous compounds, and 15 to 18 per cent. of oil. In the shelled or decorticated cake no fragments of the husk should be observed. The newly-prepared or fresh cake is yellow in colour, somewhat resembling Mustard, but becomes brown on the surface when exposed to the air—especially when damp—and the brown tint passes gradually to the centre as the cake gets aged.

"'*Rape-cake* is the cheapest kind of oil cake, but many varieties are equal to Linseed in composition, and in some cases have been found equally useful in the feeding of stock. It is prepared by bruising and compressing Rape-seed, which yields Rape-oil, largely used as lighting oil, and leaves in the bags the Rape-cake. This description of cake has naturally a pungent taste, which cattle and sheep rather dislike at the first, and very often it is found necessary to mix the bruised cake with Locust Beans, or merely to sprinkle the cake with treacle, which to a great extent mask or cloak the pungency of the cake, and besides add to the feeding properties. Rape-cake is often mixed with other seeds, especially Mustard-seeds, which necessarily impart blistering properties to the cake, and thus give rise to rather serious effects in the alimentary canal of the animal partaking of such a mixed cake. The presence of the Mustard-seed may be easily determined by reducing the cake to powder, and mixing it into a thin paste with cold water in a pickle-bottle, which can be corked up. If the quantity of Mustard is great, the characteristic smell of made-up Mustard will be decidedly apparent in a quarter of an hour, but failing its appearance, then the experiment may be allowed to go on for 24 hours, when should no pungent odour be recognised, and the taste is not extra strong and pungent, then Mustard is not present in quantity to be at least productive of harm; but if the Mustard odour is obtained, and especially if a very strong pungent taste accompany it, Mustard is present in quantity to be injurious to the health of animals partaking of the cake.

"'The judicious employment of the various kinds of cake in the feeding of animals is productive of the best results, but cakes of all descriptions are too rich to be given alone to feeding stock, and the daily quantity should be limited. In the feeding of sheep with cake, it would be safer if some plan could be adapted whereby each hog would only take its allotted share. During recent seasons, several fatal cases happened, not only where a too liberal dose of the Rape-cake had been thoughtlessly given, but even where the proper quantity was weighed out for a given number of sheep; but as one sheep could appropriate its own and its neighbours' shares, evil consequences resulted.

"'In concluding the subject of oil-cakes, special reference must be made to the very rich nature of the dropping or manure obtained from stock fed on cake. The improvement in the nature of the manure through the instrumentality of the oil-cake is mainly due to a part of the albuminous or nitrogenous compounds passing through the animal without having been taken up by the system. The proportion of the nitrogenous ingredients of the oil-cake which thus passes direct through the alimentary canal, and appears in the manure, is variously estimated at 7-8ths down to 9-20ths of the whole, and therefore we may safely consider that the manure represents one-half of the total value of the oil-cake.'

"The way in which food is prepared for the animal is a point of considerable importance in connection with the best modes of economically feeding cattle, and has received of late a most extended discussion. For a long time, and until indeed very recently, the only mode ever thought of by cattle feeders of administering food, was simply giving it them in its natural condition. Straw, hay, and roots in bulk were thrown down to them, and they were allowed to make the most and best of them as they could. In process of time it was suggested by some advanced thinker that by dividing the materials (cutting the straw or hay into short lengths, and slicing the roots into pieces), the process of assimilation by the animals would be materially hastened. The next step in the process of assisting assimilation was the cooking of food; and so far as the preparation of the roots was concerned, a further division of their bulk was introduced, and in place of contenting themselves with slicing or separating them into comparatively large pieces, a thorough comminution was carried out by some feeders, and pulping roots became then a largely developed practice. On these points then—the cooking of food and the pulping of roots—many experiments have been made, and the results of these, and of a less precise but a most extended practice, have been made known; and the result is greatly in favour of both of these plans of preparing food. The advantages of cooking food may be summed up briefly by stating that it enables it to be more quickly digested by the animal, saving much mastication. Against this, however, it should be remembered that there may be a disadvantage arising by avoiding too much the process of mastication, which we know is a natural process, having certain important ends in view, as mixing the food with the saliva, &c., and absorbing the oxygen from the air. The second advantage obtained by the cooking of food is the getting rid of, in many cases, musty odours and bad flavours, which are present in cattle food very frequently; and, thirdly, by adding to the warmth of the animal, or perhaps more correctly stated, by not subtracting from it that which it already has, by giving it large bulks of cold uncooked food. The advantages obtained by pulping roots may also be briefly stated here:—reducing the quantity of food consumed, as no waste is allowed; ordinary straw can be used with the roots; and all danger of the cattle choking is avoided.

"Much has been said lately of the advantages afforded by allowing mixed food, as cut straw or hay, and pulped roots, to ferment and become soured. There is no doubt whatever that many animals are greedily fond of fermented or soured food. We have not, however, much direct evidence to fall back upon as to the real merits of fermented food. Mr. Duckham, of Baysham Court, Herefordshire, speaks very favourably of it. The most mouldy hay, cut into short lengths and mixed with pulped roots, becomes, after fermentation sets in, most sweet and palatable. When pulped roots are mixed with straw they soften it and render it more easily assimilated."

Farm Memoranda.

EAST BARNS, HADDINGTON.—Probably there is no tract of alluvial soil in Scotland more valuable than that stripe of land which stretches along the south-east coast, between Phantassie on the one side and Dunglass on the other. The length of this stripe is about 10 or 11 miles as the crow flies, while its breadth varies from two to four miles. The general character of the soil is a rich loam, interspersed and mingled here and there in varying proportions with sand or clay. It is friable in its quality, and upon the whole pretty easily worked. Stiff places are occasionally encountered, which try the mettle of the horses and the skill of the ploughmen, but in the majority of cases there is nothing to complain of in this respect. In climate, too, the district alluded to is particularly well favoured. The rainfall is rather limited at times, and the land occasionally suffers from protracted droughts; but this is more than compensated for by the comparative immunity of the tract from those severe and unseasonable frosts that often work

such dire havoc on the upper and midland districts of the county. The humid exhalations from the adjoining ocean have a certain effect in counteracting the effects of the long droughts on vegetation, and thus it happens as an almost invariable rule that the seaside farmers get through with their harvest at an earlier period than their less fortunate neighbours. With a soil and climate thus adapted to the successful prosecution of the labours of the husbandman, we believe it will be admitted that in general there is no portion of the country better cultivated than the district to which our remarks are at present limited. Two hundred years ago, when the legions of Cromwell passed along the low country, they were amazed at its fertility, and the same character it still retains. No better criterion to the value of land can be obtained than the amount of rent which it yields to the proprietor. In these competitive days land is occasionally pushed a little beyond its fair value; but exceptional cases do not invalidate the truth of the general remark. Assuming it, accordingly, as a fact, we are pretty safe in asserting that there is no more valuable soil in the whole of Scotland than that which lines its south-eastern coast, right and left of Dunbar. At a distance of two or three miles from any railway station, and at least three from the nearest market town, farms have been let within the last 10 or 12 months at a rental of not less than 5*l*. per imperial acre, and this is by no means an out-of-the-way case.

It is in this locality that Mr. Murray, of East Barns, has been engaged for the last 19 years in developing his farming conceptions on a scale that places him among the chief agriculturists of the day. The phrase, "merchant princes," has now crept into colloquial use; and, with the example of Mr. Murray and others before our eyes, the time seems to have come when the collateral title of "farming princes" might not be unworthily bestowed on men who, in their own way, are much more benefactors to their race than many of those potentates that figure so prominently in the world's history. The scale on which Mr. Murray farms is of itself something princely. There are many farms in the county more extensive than his. It comprises no more than 500 imperial acres; but his yearly rental, which we believe is a fixed money one, is not less than 2400*l*. a year—a larger sum than the total annual revenue of more than one German dukedom. To work this extent of land 20 horses are constantly employed, and half as many ploughmen, besides female labourers and others. The population of the farm is, not only in name but in reality, a little "town," and embraces an aggregate, great and small, of from 140 to 150 human beings, distributed among 27 cottages, and all under the immediate supervision of the farmer himself, whose will is law to the whole community. There may be farms as well managed in the county as that of East Barns, but we are safe in asserting that there are none in which the whole of the agricultural machinery—composed, as that is, of thews and sinews, horse and steam power, mechanical implements, and brains to work them—is kept in better condition, or produces more satisfactory result. In going over the farm, the visitor cannot help being struck with the extreme neatness and tidyness that is everywhere visible. Hedge-rows are neatly pared down, so as not to leave a single superfluous projecting branch; deadly warfare, too, is waged with the weeds, which are never permitted to shoot up their unwelcome heads above the level of the soil. The feathered creation is also as rigidly interdicted from the fields; and the sole employment of one of the men on the farm has been for the last two months to watch, gun in hand, the approach of any stray wood pigeon or other winged marauder, and make it pay the price of its temerity. Though the land lets at so high a value, yet, under the system pursued by Mr. Murray, it cannot be said to be rack-rented; and perhaps the best proof of this lies in the fact that he has got his lease renewed on his own terms, and without the intervention of either middle-man or valuator. The farm, when Mr. Murray entered on it 19 years ago, was very much out of order. The property had been for some time under trustees before A. Mitchell Innes, Esq., of Ayton Castle, the present proprietor, succeeded to it, and had greatly deteriorated in value. Since that time, however, a change has taken place on it, the full extent of which can only be understood by those who remember the condition of the land at the commencement of the lease, and what it now is. The fields have been re-arranged in many places, new dykes built, hedge-rows planted, a splendid row of first-class cottages erected, and, in addition to all, a range of farm buildings have been put up which, though not the newest in the district, are among the completest, most convenient, and largest in the whole county. The genius of order reigns supreme in East Barns. Go where we will—through any part of the farm, from the closes in the interior of the steading to the extremest verge of the fields—and nowhere will anything be found out of place. The steading itself is quite a model in this respect. Its arrangement is as nearly as possible that of an oblong square, in which all the farm buildings are concentrated. Stable, granary, straw barn, cart, implement, and Turnip sheds are all enclosed within and enter from the interior of the square. A large gateway which faces the south gives access to the enclosure, and is regularly locked up at night, keeping snug and secure all the bestial of the place. The closes are numerous and well-arranged, and furnish the necessary accommodation for feeding 80 head of cattle. Though the litter from such a quantity of stock must be excessive, the daintiest lady in the land might at any period of the year venture through the enclosure and find everything as cleanly swept and carefully looked after as if the court-yard had been the entrance to a nobleman's mansion. A liberal allowance of paint and the free use of the brush keep the wood-work about the steading always as fresh-looking as if the buildings had been erected but yesterday. In the work of the harvest field the same neatness is observable. Mr. Murray has not yet experimented in reaping-machine cutting, though in possession of one; but we will in vain look for machine work equal to what he makes with his band of well-trained harvest hands. The grain is cut down almost to its roots, and so closely that the severed stalk is but barely discernible among the Clover plants. No stray heads are allowed to straggle from the sheaves, which it is the pride of the bandsmen to set up as symmetrically as possible. A visit to the harvest field at East Barns is indeed a sight worth seeing. The girls—smart, active, and tidily dressed—go through their work with a will, stimulated now and again by a kindly and encouraging word from the master, when he passes along to see how matters are progressing. There appears to be a uniform mode of handling the hook, and we believe that Mr. Murray is so particular in this respect that he rarely engages stray hands. His plan for many years has been to write to Ireland for his labourers, fixing for them the time to come to East Barns, when, sure to the day, Pat makes his appearance, and goes to his work as methodically as if he had never left the farm. So much is this a part of the system followed out that reapers are at the present moment at East Barns who have never missed a season with Mr. Murray for the last 36 years. Though so conservative and averse to change—a feeling which also manifests itself among his workpeople, who seldom seek another employer—the tenant of East Barns is in many other respects not inimical to progress. He has a great desire to improve the social and intellectual position of his work-people, and, as one practical proof of it, has established for their use a library which numbers some four or five hundred volumes of general literature. In another respect, also, his example might well be imitated by his brother farmers. Many years ago he resolutely set his face against the indulgence by his men in the habit of profane swearing and loose talk—a practice, we regret to say, that is but too prevalent in the county. At a recent meeting, the unpleasant circumstance was even made the subject of comment. It is to the credit of Mr. Murray that he has succeeded in entirely banishing it from East Barns. Of course, it took a little time to effect such a gratifying change. The means adapted for the purpose were simple enough, but that they have been effectual is evident from the fact that from one year's end to the other anything in the shape of an oath is rarely, if ever, heard. In other respects, too, Mr. Murray evinces his interest in the work people—an interest that, on their part, is warmly reciprocated; for we believe that on no farm in the county is there an employer more respected or beloved. In his own sphere, and without the intervention of either Royal Commissioners or agricultural associations, he has been doing much to improve the condition of the farm labourer, and of those who are dependent on him. This has not been done without some outlay on his part, but it has been greatly compensated by the alacrity and steadiness with which his people carry on the work of the farm.

We hear much now-a-days of such model farms in England as Tiptree Hall, of which Alderman Mechi seeks to make a world's wonder. We question, however, if there is a place in the country where agriculture is carried on under better defined principles and with more profit than at East Barns. No expense is spared in the cultivation of the land, and nowhere is it more efficiently brought under what is termed "high farming." It may be also stated that there is not a farm in the county where there will be found more attention paid to the comfort of the industrious tillers of the soil. If it is added that there is not another farmhouse in Scotland where a more generous hospitality is exercised — where all the amenities of social life are more abundantly distributed, or where more tastefully kept pleasure grounds, including vinery and conservatory, are at hand to enliven the leisure hours of its occupant—we have said enough to justify us in claiming for East Barns and its tenant the character of being notable examples of a first-class farm and a first-class agriculturist, even in the far-advanced county of East Lothian. *Haddington Courier.*

Farmers' Clubs.

DORCHESTER: *Cattle, Sheep, or Pigs.*—The choice of live stock for light land farms was lately the subject of a very instructive paper by Mr. Saunders, before this Club. He said:—The general advantage or benefit to be derived from fattening stock on light lands is to be found in the value of the good manure which is left on the soil, especially where much corn or cake has been consumed, to be obtained at a future day in the realisation of an increased quantity of corn grown therefrom; the system must also tend to improve the land, if it be only for a certain time, and thus the owner of the soil may derive some little benefit also. I do not feel confident in asserting that the land receives a permanent benefit, as I am inclined to think that where land (especially of light nature) has been what is termed high-farmed, it requires marked attention afterwards to keep it up. The actual clear profit from fattening, or it may be loss, must of course depend on a variety of circumstances, amongst which I may briefly notice the cost and supply of food of the various kinds, seasons, and I may also here add the situation viewed with regard to shelter; then, again, the age, quality, and general description of animal selected or otherwise, the degree of fatness attained, and the state of the market when sold. Hence I prefer making my remarks of a general nature as much as possible, instead of endeavouring to explain too much by figures, and, it may be, misunderstood. I have also thought the better way would be to direct those remarks principally to winter grazing—that is, with roots, hay, and other food, in the shape of oilcake or corn, or mixed kinds; besides, the quantity of stock grazed on light lands in other ways is limited. Thus we shall be enabled more easily to compare them, as it is not the system itself taken alone that we are met to consider, but its application and bearing on sheep, cattle, and pigs respectively on light lands, taking general interfering circumstances into consideration as we find them. To make any animal pay for feeding, the process should be conducted in moderation, by what is termed slow feeding—that is, allowing the animal food sufficient to keep it in a thriving condition, but not of a too expensive kind, being enabled by those means to allow it more time to make flesh at the same amount of cost. Thus, for instance, if we take two lots of lean sheep, equal in numbers, and nearly alike in quality and live weight, giving one lot ½ lb. of cake per day, with roots and hay in fair allowance, to the other 1 lb. of oilcake, with the same roots and hay as the first receive, we shall no doubt find what is very reasonable—that with 1 lb. of cake the increase of weight would be greater than with ½ lb.; but then, again, allowing them to be thus fed, say for 16 weeks each lot, I would ask, shall we find the extra increase of weight by the highest fed lot over the other pay us for the extra money expended in the shape of extra food?

1. *Choice of Sheep for Grazing.*—Connected with the increase in the weight of sheep for a given amount of food, I would refer you to various experiments, reports of which are published in the Royal Agricultural Society's Journal. The experiments I allude to were carried on by Mr. Lawes, a gentleman who, as most of you are aware, has from time to time conducted many experiments beneficial to agriculture, relating to manures for different farm crops, fattening qualities of different breeds of sheep, also the relation of bullocks to sheep, and various other stock. From the excellent and very fair way in which these were conducted, the manner in which the results are given, coupled with the large numbers experimented on, they are deserving of considerable attention; but as a rule, taking all published experiments simply as they are given, we find them to be unsatisfactory rather than otherwise, in a great measure so from the circumstances connected with their being very indefinite as laid before us.

In No. 28 of the Journal referred to, we have a report of experiments on the comparative fattening qualities of different breeds of sheep; many similar ones have appeared since. The breeds here alluded to are the Hampshire and Sussex Downs, which, being so near those kept in our own district, has induced me to name this particular report rather than any subsequent one. A friend of Mr. Lawes bought 50 Hampshire Down lambs at Overton fair in July, 1850, which arrived at Rothamsted early in August. And in October he bought 50 Sussex lambs, which were selected from the flock of a Mr. Sadler; these were taken home and placed with the Hampshires, which from the time of their arrival had been fed on Grass only. At this latter date both lots were provided with some White Turnips, thrown down to them in the pasture, and were thus fed until November 7, when 40 of the more uniform of each lot, believed fairly to represent the respective breeds, were placed side by side upon rafters in a long shed. This was done from the land being of a heavy kind, and not adapted to carry stock in winter. The experiment now commenced by giving to each lot a weight of dry food proportionately to the respective live weights previously ascertained. The Hampshires, found to be 113 lb. live weight, received 1 lb. oilcake per day, and 1 lb. Clover chaff each sheep; the Sussex, whose average weight was 88 lb., received food in similar proportion, about four-fifths of a pound of oilcake, and the same of Clover chaff. Swedes were given to each lot, as many as they chose to eat, but from quantities which had been previously ascertained by weighing them. Both lots of sheep were weighed every four weeks, as nearly as possible at the same hour of the day, with a view to rendering all the circumstances equal at each weighing during the time the experiment was being carried on, which was 26 weeks. I do not purpose troubling you with many of the details of this experiment with sheep further than what have reference to the system of feeding, showing how they increased in weight according to the food which they received in a given time, rather than to consider which breed was most remunerative. Taking the Hampshires first, we find that during the first 20 weeks they received 1 lb. of oilcake and 1 lb. of chaff daily, eating about 100 lb. of Swedes each week per head for the 20 weeks together, and taking the average of them all. At this date (March 27) they were shorn, and their oilcake increased to 1½ lb. per day each; but the chaff remained as before. Of roots they consumed rather more; the quantity stated is 135 lb. weekly as the average of the following month. The two weeks which remained to complete the 26 weeks they ate rather less, viz., 112 lb. of Swedes weekly, with 1½ lb. of cake and 1 lb. of chaff daily. The increase in live weight per head was 2 lb. 11 oz. weekly during the first month (November), 2 lb. 6¼ oz. weekly during the second month (December), 2 lb. 6 oz. the third (January), 2 lb. 12½ oz. the fourth, and 2 lb. 14 oz. weekly during the fifth month; the sixth month,

although with an extra quantity of cake, they only increased 2 lb. 6½ oz. weekly; the fortnight remaining they increased 3 lb. 10½ oz. weekly. Thus it seems they decreased in proportionate gain during the first few weeks after their cake was increased, at the same time eating more Swedes; but this might have arisen perhaps somewhat from their being shorn just at that time, as afterwards they showed a considerably increased gain. Now let us take the Sussex. These were fed, and their food increased in the same manner proportionately as the Hampshires, with this difference only, that at the end of 20 weeks the Sussex, by a mistake of the man attending them, received the precise weight of hay as the Hampshires, while before they had given them only in proportion to their relative live weight. Their increase in live weight weekly during the first month was 2 lb. 8¾ oz.; the second month, 1 lb. 1¼ oz. weekly; third month, 1 lb. 5 oz.; fourth month, 2 lb. 0¾ oz.; fifth month, 1 lb. 3¼ oz. This brings us to the time when they were shorn, and their food increased. The sixth month they increased weekly 2 lb. 12 oz., and the last two weeks, which concluded the experimental period, they increased live weight weekly 6 lb. 3½ oz. I could have wished to draw some more satisfactory conclusion from a comparison of the two lots of sheep, taking them together, than it appears I am able to do, as we find that at one time (the month after shearing) the Hampshires lost in weight compared to previous weighing, whilst the Sussex increased very considerably; then during the last fortnight the Hampshires gained more than the Sussex in proportion. One thing will be observed in which both agree—that is, the increased live weight weekly was less during December and January than the periods before or after. The experiments were interesting, as they commenced early in the winter, and were carried on through it into the spring; the misfortune was their being shorn before the experiment so far had terminated. If we take both lots together for the whole period, and average them, we find they consumed weekly for the whole period per head 7 lb. 1½ oz. oilcake, 6½ lb. chaff (nearly), 92 lb. Swedes—increase in live weight, 2 lb. 5½ oz. weekly. Their live weight (the average of both lots) when put up was about 100 lb. each, from which it does not appear they were very heavy sheep. No doubt the more correct way to deal with these figures would be by putting those calculations at so much per 100 lb. live weight rather than so much per head, but it would not appear quite so clear at first sight. I may however state that the mean average gain in weight per 100 lb. live weight over the whole time was 1 lb. 11½ oz. weekly, whilst at the commencement of the experiment it was found for 100 lb. live weight there was an increase of 2 lb weekly. Mr. Lawes observes, in reference to one point, the tables showing that as the experiment proceeded a large amount of food was required to yield a given amount of increase in live weight—"that the experiments led to the belief that in this seeming diminished effect of the food the difference was more apparent than real, for as the animal ripens the increase is found to be much less aqueous than during the earlier periods of growth." So it becomes necessary, in drawing our conclusions from any experiment whatever, to comprehend all the various conditions by which it is surrounded. I should not have occupied so much of your time with these experiments, conducted with reference to sheep alone, but for the reason that on some points what is applicable to sheep has also some connection with beasts and pigs.

2. *Choice of Sheep or Bullocks.*—I will now proceed to consider the fattening of oxen and sheep relatively. It would be somewhat difficult to include pigs, the food consumed by them being of a different description; hence there is greater difficulty in drawing a correct comparison, so that it will be perhaps better to speak of them separately afterwards. Taking one view of the matter, in speaking of the "relative" advantages of sheep and beasts, I would first inquire how many sheep are equal in consuming powers to one bullock?—a question which is certainly one not to be answered satisfactorily in a moment.

Various opinions exist, differing considerably one from another—some believe four, others six, some eight to one. A subject somewhat similar to the one we are now met to discuss was a short time since brought forward at a meeting of the Botley Farmers' Club, in an able paper by Mr. Blundell, a very practical agriculturist, and one well acquainted with stock, especially the grazing of it. His opinion appears to be that four sheep would consume the same amount of food as one ox, bringing forward an estimated cost of feeding the ox on the one hand, and the four sheep on the other. The ox, however, has the advantage of a loose box under cover, whilst the four sheep are in the open fold. He concludes that, allowing the ox to consume 4 lb. of oilcake and 60 lb. of roots, with straw as fodder instead of hay daily, it would gain 16 lb. in meat per week, and after paying for the food consumed, haulage of roots, cartage of manure back to the field, attendance, &c., show a profit of 1*s.* 8*d.* per week, placing the value of the beef at 7½*d.* per lb, together with the value of the manure. On the side of the four sheep consuming the same quantity of cake, and the same quantity of roots, but with an allowance of 1 lb. of hay per day each instead of straw, in open fold on the land, he concludes the increased weight of mutton would be about 6 lb., or 1½ lb. each sheep weekly. Placing the mutton at 8*d.* per lb., and taking into consideration all the circumstances, including the expenses of food and attendance, he shows a loss of 3*l.* weekly for the four together. This statement would have been more useful had it dealt with both sides under equally favourable conditions. On the one hand, we have the ox under the best conditions favourable to fattening; on the other, the sheep under almost the worst. I also think he has placed 4 lb. of cake against the four sheep, when 3 lb. would have given nearly as favourable a result; the ox I consider to have been underfed rather than otherwise. My own opinion is that, taking beasts of four or five years old, and sheep of two years old, feeding them under equal conditions of food, warmth, and shelter, six sheep are more in proportion to one bullock than any less number, but then the profit or loss may vary considerably, according to the system of management pursued. I would place them in this way—the beasts under cover, the sheep in a sheltered yard, but not of an expensive kind, both being provided with a fair amount of good food:—

6 sheep to consume	*s.*	*d.*
4½ lb. cake per day = 31½ lb. weekly, at 11*l.* per ton ..	3	1
90 lb. Swedes per day = 630 lb. weekly, at 7*s.* per ton	2	1
6 lb. hay per day = 42 lb. per week, at 3*l.* per ton	1	1½
Attendance	0	4½
	6	8
Increasing in weight 11 lb. meat, at 8*d.* ..	7	4

1 bullock to consume	*s.*	*d.*
4½ lb. cake per day = 31½ lb. weekly, at 11*l.* per ton ..	3	1
90 lb. Swedes per day = 630 lb. per week, at 7*s.* per ton ..	2	1
8 lb. hay per day = 56 lb. per week, at 3*l.* per ton	1	6
Attendance	0	8
	7	4
Increasing in weight 12 lb. at 7½*d.* p. lb.	7	6

These calculations are based on my own experience on our own farms; the quantities of food named are what I believe to be moderately good keep for sheep or beasts—that is, supposing we feed both on the same kinds of food for comparison's sake only. Although I have given hay in the statement for beasts, I believe that straw as fodder pays better than hay. Beasts thrive better when fed on mixed kinds of food; instead of giving the full value of cake, give them, say one-half in cake, the other half in meal, with due consideration to the relative market value of the two. Then, again, with roots—Swedes in the early part of the winter are as good, and perhaps better (weight for weight), than Mangels, but in the spring I prefer Mangels instead of Swedes for bullocks. Sheep also pay better with a mixture of cake and corn together than with cake alone. The proportion of increased weight to food consumed, which I have stated in the case of sheep, is about what I have found from the average of many weighings over several lots of sheep from time to time, whilst fatting up to 16 or 20 weeks. Mr. Lawes found with the Hampshire sheep, for the 26 weeks, that with 8 lb. of oilcake, 7 lb of chaff, and 106 lb. of Swedes weekly, the average weekly increase in live weight was 2⅝ lb. In some other experiments he states (No. 47, Royal Agricultural Society's Journal, page 215), referring to oxen and sheep, as the general results over large numbers of animals to which he arrived, that an ox consumed 12 lb. to 13 lb. dry substance of food to produce 1 lb. live weight increase; whilst sheep, consuming 15 lb. to 16 lb. dry substance of food, should yield 1¼ lb. increase, showing that beasts give the least proportion of increase for a given amount of food; he also stated they expended in respiration more than sheep. His experiments show what may be done with good management, and therefore it is desirable that we should become somewhat acquainted with them. That management has much to do with fattening, nearly all experience confirms. We may give animals too much expensive food, so that they will not pay; so also shelter from cold and rain is very necessary during winter, both for sheep and bullocks, to may them pay. Although I have said much in reference to sheep under cover, I wish to be understood that on light lands during autumn and the spring, if the weather is favourable for them to remain out in the field, they make nearly, perhaps quite as much flesh as if they were under cover, leaving their manure evenly over the field, giving solidity to the land, and saving the expense of drawing the roots home and the manure back, which are considerable advantages on the side of sheep over beasts, which require their food in house. It is when fattening sheep on the land during the autumn that we have an opportunity of carting away a portion of roots to the homestead, the loss to the land being made up in the cake or corn there consumed, the roots removed being consumed by bullocks, or kept in store for the same sheep when the weather becomes unfavourable for them to remain longer in the field. I do not consider on the whole, taking light land farms, that much bullock fatting is of advantage, as the quantity of roots which I have just mentioned are almost the only ones which ought to be removed from the land, if intended for Wheat, believing that, except in a very few instances, the whole of the other roots would be more advantageously fed by the store sheep entirely, without any taken away. Where the root land is intended for Barley, then more roots may be taken away without loss to the following crop, with a view to converting the surplus straw of the farm into good manure, rather than to derive any large profit from grazing. The haulage and storing of roots to the homestead is somewhat expensive, and cannot be performed at less than 10*d.* to 1*s.* per ton for a mile distance, even under very favourable conditions. In such a case I would prefer putting up a cheap sheltered yard in the field for sheep to lie in during bad weather, thus making manure where it would be wanted at a future day.

3. *Choice of Pigs for Feeding.*—These latter remarks in relation to roots and straw apply to pigs almost in the same degree as to sheep or bullocks. The value of pig manure to light land is considerable; but the profit in other ways depends very much on the nature and quantity of the food the pig receives.

Pigs can be made to pay if fed on Barleymeal, given them in small quantities at the commencement, with roots besides, and also a few grains if they can be procured. Taking a pig eight months old, I consider 1 peck of Barleymeal per week and about 3 bushels of roots per week sufficient to begin with, to be gradually increased until the pig is fat. In this manner pigs can be made to pay for the food they consume; but if a pig is fattened on meal, and that only, I do not think 10*s.* per score will fairly show a balance in its favour. There is one advantage in having some pigs to consume any refuse food, and the litter which may be supplied them is not necessarily so good as that required by other stock.

4. *Conclusion.*—Taking a general view of the whole subject throughout, the conclusions to which I have arrived are these—that the fattening of stock, as a whole, on light land farms, is a benefit to the land, in supplying the means of converting the surplus straw into good manure, more than the profit derived directly in money value. Thus, mixed kinds of stock possess their respective advantages at different times. To sheep I give the preference, as I believe it can be shown their profit over beasts is greater under the same conditions. The advantage to the land, at those periods of the year when sheep can be kept to consume their food there, added, gives it in their favour. Our experience tells us the simple return of manure, of which light land may have been deprived, will not of itself supply all that it requires. The extent to which the fattening of pigs can be carried on with advantage rests, in a great measure, on the quantity of surplus straw on the farm, and the facility with which a quantity of roots may be brought to the homestead, the loss to the land from their removal being weighed, and the manner in which it may be replaced.

Mr. GENGE certainly thought that the grazing of a mixed class of animals—sheep, cattle, and pigs—was the most advantageous, though relatively, perhaps, sheep were the most profitable. He took particulars of the feeding of some oxen last year, and the profit was so small that it would not be advisable for him to adopt box-feeding. At Michaelmas he put up three oxen in fair condition, two valued at 18*l* each, and one at 12*l*. The food they consumed in 24 weeks cost 26*l*. 13*s*. 6*d*., cake, at that time, being so dear that he considered meal more economical. They "proved" as well as any animals could; and, at the end of the period named, he sold them for 80*l*., which, adding together their original value and the cost of keep, only left him a profit on the three of 5*l*. 6*s*. 6*d*. The average cost of their keep was 7*s*. 4*d*. per head per week, and the profit only 1*s*. 5½*d*. They, of course, left a great quantity of very good manure; but, if he had been fatting on a large scale, and had lost a bullock or two, it would have swallowed up the profit. In feeding out sheep liberally, however, they paid him very well, independent of the manure they left.

Mr. CRANE was glad to say he had only one pig to his name. As to the old ewes, instead of selling them at a low figure, when poor, he grew some Rape to feed them on, and took advantage of the fortnightly sales to send them in as he thought fit, which answered well; and he had no doubt the land was also benefited.

Mr. DAMEN said he had had some experience in fatting stock, and the conclusion he came to was, that on light land sheep paid infinitely better than oxen. He alluded to the important item derived from wool; but even if he could have shorn the oxen, he believed the sheep paid better.

Mr. J. G. HOMER referred to the advantages of grazing in making good manure for the corn crops, by the extra food which was given to the animals. His experience was that sheep paid more than beasts, but still they could not do one without the other. He believed that our hill farms would allow of a portion of roots being taken from the field into the yard. In certain seasons of the year, he believed sheep would do as much harm as good on certain descriptions of land. Much depended on the season. In the first part of the autumn sheep might be grazed on the land with advantages, but after November till February he always found they did best in the yard, where they would make double as much mutton. He also agreed with gradual feeding rather than giving the animal so much that it could not take up all the nutriment contained in the food. In home feeding he considered a great thing was the conversion of all the straw into manure. With respect to another point, the nearest calculation he could make was that six sheep would consume about the same as one bullock.

Mr. T. H. SAUNDERS said he had for some years been in the habit of weighing sheep alive to see how they "proved." He had given a pint of corn a-day, and found they paid for it; but when he doubled that allowance, although in the same field of Turnips, they did not pay for the extra quantity. He had made similar experiments with pigs as well as sheep, and found slow feeding paid best. As to feeding sheep out of doors, when the weather was bad, as Mr. Homer said, it was almost impossible to make them pay. His practice had been, instead of carting the Swedes home, to put up a temporary yard, at the expense of about 20*s*., which would hold about a couple of hundred sheep, so that they could walk out to eat their food, and go in for shelter at night. Where the land was light, the solidity given to the soil by the treading of the sheep was almost as useful as the manure they left behind. He also liked to put a rick where the yard would do for two years instead of one. As long as the weather was favourable in autumn he should not put sheep in a yard, for he found that during fine weather they gained most out of doors; but when it got wet they did better in the yard. If they had a yard in the corner of a field they could take some Turnips and place them in a row close by the yard, so that they would be there to food when the weather got bad just where they grew, and where the manure was required He alluded to the necessity of sheep being also well looked after and regularly fed, which was of no less importance than their having plenty of food. Mr. Homer had observed that on heavy land sheep sometimes did much harm, and he (Mr. Saunders) therefore took care on wet days even to keep them off moderately light lands, as they were better in the yard on those days. With regard to oxen, he generally bred and fed his own, and, though he had not been able to weigh them, from valuation he believed there was not very much difference between their profit and that of sheep; but then he always considered that he gained by the latter giving solidity to the land, and instead of carting the roots home they were consumed on the spot. Were he proprietor of a large estate, he would feed as much as possible, for it would make the farm pay much better; but then it gave a false face to a poor farm by making it better than it really was. If they had a good holding also, it would answer to feed as much as possible; but if a landlord could step in and raise their rent, they had better not feed too high; for if they were not able to repeat such liberal doses as formerly, the land would soon go back to its original condition.

Mr. G. GALPIN said one question which presented itself very forcibly was, Did the fattening of sheep pay in itself? He did not believe, as a rule, that it did. It was only from the manure which agriculturists got for the succeeding crops of corn that they got any return for the money laid out. Perhaps his views were different from those of gentlemen who had spoken before; and he was glad to hear that they did make it pay. He had once put up some old oxen, by which he lost 20*l*.; and, from this experience, he should not put up any more. Mr. Blundell, however, who was a very practical man, found that the fattening of cattle paid better than sheep, and said it all depended upon the animals they bought. Mr. Galpin also spoke in favour of fatting broken-mouth ewes, when they would sell well, whereas before they would fetch next to nothing.

The CHAIRMAN said his experience went with the meeting as to slow feeding. He had seven beasts in the Repository sale that day, which were grazed on roots and hay, without a morsel of cake or corn. He thought they averaged about 22*l*. per head; and it would not be unfair to say the animals were worth about 12*l*. or 13*l*. each at the end of November. He was not fond of oilcake bills, though he did not say they should not feed on oilcake or a good substitute for it; but he thought they ought as much as possible to grow their fattening food on their own farms. He also argued that they should always keep all their stock, even breeding stock, in good condition, not only as affecting the animals themselves, but also the manure which they left behind. It was also of the utmost importance to keep the young stock well the first year, both sheep and calves; and, in pursuance of this principle, he had, for some years past, cut the Turnips for all his lambs through the winter: and, though there was a little more expense, he was amply repaid for it. He considered that the evidence of good or bad farming was, whether there was any unused or surplus straw lying about. As to Mr. Galpin's remark about fattening poor oxen, he had for years given up attempting any such thing; but, at the same time, he had not given up half-fattening them, so as to be fit for the contractor.

Miscellaneous.

Agricultural Education in Ireland.—The Head Inspectorship.—The retirement of Dr. Kirkpatrick from the position of Head Inspector of the Agricultural Department of the National Board of Education, recently alluded to by Sir Robert Peel in the House of Commons as being a probable event, is now, we understand, a settled fact. Considering the important nature of the office, as well as the effect which the steps taken by the Commissioners with relation to it may have, not only on the mere question of agricultural education, but on the future progress of Irish agriculture, it is natural that considerable anxiety is manifested as to the choice which the Commissioners may make of a successor to Dr. Kirkpatrick. There never was, perhaps, in the history of this department of the Board's operations, a period when the Commissioners had a more responsible duty to fulfil than that which devolves upon them in consequence of Dr. Kirkpatrick's retirement from office.

This is evident from the altered state of matters in Ireland, the conflicting opinions which are presented to the public regarding the management of land, and even the total abandonment of cultivation, which has been of late so persistently advocated, and even practised. Everything combines, therefore, to render the duty which the Commissioners have to perform more than usually onerous; and a mistake made at the present time would be fraught with irreparable injury to the country. In the literary department of the Board's arrangements, each of the head inspectors enjoys the very great advantage derivable from the advice and suggestions of his colleagues, and hence it may be assumed that in all decisions affecting literary subjects the collective wisdom of responsible and highly experienced officers has been brought into exercise; but in the agricultural branch, by which is affected, not the education of the community merely, but the material wealth, comfort, and prosperity of the nation, one officer alone adjudicates upon arrangements, plans, and principles which should be accepted by the country at large as safe, practicable, and profitable, and be adopted and acted upon without any cause for doubt or hesitancy. It is manifest, therefore, that the agricultural head inspector should be an officer possessing practical experience, should be gifted with a clear understanding of the trust committed to his charge, as well as solidity of judgment of no ordinary character, and should possess administrative abilities of a nature adapted to the varied duties of his office, and be also qualified to represent the Commissioners in a manner calculated to secure the respect and confidence of the public. We can testify to Dr. Kirkpatrick's gentle manly and conciliatory bearing under many difficulties which have arisen connected with his department; and in the name of the interests which we represent, we desire to express a hope that no one may be appointed as his successor who shall not be capable of adding to the friends of the agricultural department of the Board, instead of lessening and narrowing the interest with which it may at present be regarded. We do not hope for more than we have idealized in the future agricultural head inspector; and we say it advisedly, that it will be an ill omen for the permanency of the agricultural department if the choice about being made would realise less. A golden opportunity offers for putting that department on a better footing in public estimation than it has ever occupied, and we are full of hope that the expectations entertained on the subject will not be disappointed. Agricultural education is at present occupying a large share of attention in other parts of the United Kingdom; and as Ireland has hitherto taken a lead in the matter, it would be a fatal mistake did anything occur to injure its efficiency, or lessen public confidence in it. *Dublin Farmers' Gazette.*

The Nitre Beds of Tacunga, Ecuador.—Last week, M. Boussingault communicated to the Academy of Sciences a paper on the nitre beds of Tacunga, in the State of Ecuador. Nitre, or saltpetre, is a substance formed by nature in astonishing abundance; it is to be met with in rain, snow, hail, and fogs; in the water of rivers, and consequently also in the ocean. It is produced in the air and in various soils; but, though found everywhere, it is seldom found in large quantities; the only spot on the globe where it is met with in this shape is Zarapaca, in Peru. Elsewhere this salt makes its appearance spontaneously, producing efflorescences on the surface not unlike vegetation. One day the soil is black and damp, the next is white and crumbles into dust. The saltpetre is collected by sweeping the surface, and if the weather continues fine a new crop soon appears. It is thus obtained on the banks of the Ganges after an inundation; in Spain they obtain it by lixiviating vegetable mould, which may therefore serve the double purpose of a profitable nitre bed or a rich corn field. Tacunga is a town situated 59′ S. lat. and 80° 10′ W. long. from Paris; it was built in 1524, on the site of an Indian city; its altitude is 2860 metres, its mean temperature 15° centigrade. It lies between two rivers, the Alaque and the Cutushee, and at the base of the Cotopaxi. Its soil rests on a bed of trachyte and volcanic tufa, and consists of fine sand containing particles of trachyte and pumice-stone. The saltpetre effloresces on its surface, and is collected as above described. A kilogramme of dry earth produces 18 per cent. of nitre, independently of nearly 2½ per cent. of nitrogen combined with organic substances. Efflorescence of saltpetre denotes an extremely fertile soil; indeed, M. Boussingault considers fertility and nitrification to be intimately connected; the latter, however, depends in a great measure upon certain atmospherical conditions; thus, dry weather favours it; but damp, and especially rain, will dissolve and wash away the nitre already formed. *Journal of Society of Arts.*

Mr. Rigden's Sale of Southdown Sheep.—The annual sale of Southdown ewes and letting of rams, established many years ago by Mr. Rigden, of Hove, took place on Friday at the Hove Farm, near Brighton. The flock comprised 100 ewes and 40 rams for letting and hire, the auctioneer being Mr. Bushby, of Lewes. The ewes were put up in pens of five, seven of which were purchased at 2 gs., two at 2½ gs., three at 3 gs., three at 3½ gs., two at 4 gs., two at 5 gs., and one at 6½ gs. The principal purchasers were Lord Sudeley, who bought eight pens, and Lord Norbury, who purchased seven pens. With the rams for letting there was some spirited competition. Three were let at 10 gs. each. Two of these were taken by the Baron Nathusius, of Magdeburg, Prussia, who reserved the right of purchase at double the price. The others were let at prices varying from 11, 15, 18, 22 (for Duke of Richmond), 22½, 30, and 36 gs. (this last to Lord Sudeley). Two of the rams were not let. There were 19 rams for sale, but only seven found purchasers, and the competition was far from active. Five were knocked down at 10 gs., one at 12 gs., and one—a two-year-old—at 15 gs.

Shropshire Rams.—At Ludlow, Mr. B. Giles's annual sale of pure Shropshire rams took place, 20 of which, bred by Mr. James Hand, sold at prices varying from 10*l.* to 12*l.*; 15 ditto, bred by Sir C. R. Boughton, Bart., from 10*l.* to 15*l.* each; 8, bred by Mr. C. Boulton, Cainham, 8*l.* to 10*l.* ditto; and 10 bred by Mr. Nightingale, Burway, 6*l.* to 10*l.* Mr. R. G. Price, M.P., Lord Bateman, and others were among the purchasers.

Lincolnshire Rams, belonging to Mr. Stephenson, were sold by auction at Newbold, Yorkshire. The number offered was 56, all of which, save three, were quickly disposed of at an average of nearly 9*l.* each.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Stratley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Aug.	Inches.	°	°				°	°	°	°	Inches.
Thursday ..	31 Sept.	29.66	64	59	N.W.	2	3	60	49	77	41	0.07
Wednesday ..	30	29.73	65	63	S.	2	10	78	63	87	60	0.07
Tuesday ..	29	29.87	70	62	S.E.	3	0	74	43	87	38	..
Monday ..	28	30.00	67	62	S.W.	1	5	65	50	74	51	0.01
Sunday ..	..	30.14	59	55	S.W.	2	10	60	31	81	29	0.05
Saturday ..	..	..	..	..	..	..	..	..	..	..	..	..
Friday ..	..	Lucas.	..	..	..	..	..	..	..	..	..	..

Notices to Correspondents.

CATTLE MELONS: *M S.* Mr. Biundell says:—The "Cattle Melons" alluded to as being of various colours and shapes, are intended to be so, and are strictly of two kinds, designated "Cattle Melons" and "Cattle Marrows," the former being various in colour but of a globular shape, and growing to a large size, the latter being rather elongated in form; are early in fruiting and abundant producers; both, however, are alike nutritious for cattle feeding at any period of their growth.

CLOVER DODDER: *R C.* Your sample is a handful of the Clover Dodder, a mischievous parasite which springs from a seed capable of separation from Clover by screening. It springs from the soil; soon lays hold of a plant; and its connection with the soil then dies. Thereafter it grows from plant to plant, entangling a whole circle in its embraces, sucking their juices and destroying the whole. If the Clover is for seed, the circles thus destroyed should be pared and burned before the crop is harvested.

GRUBS: *Henry.* The grubs sent, which have eaten the Swedes, and are beginning with the Mangel, were referred to at page 802.

MANURES: *T D Hill.* A crop requires certain substances as the building material of a certain produce, and it is the substances (not so much *present* as) available *in minimo* which rules the crop. Nitrogen and phosphorus are very often the substances *in minimo*, and hence the value as manure of those substances guano and superphosphate, which yield them in abundance. Lime is sometimes *in minimo* in relation to the requirements of some crops, and then a liming is useful. But lime is also valuable for its power of dealing with other good things present, which may not be in a condition to be used, by its power of bringing them into such a condition. Its office as a manure is thus an extremely composite one.

WORKS ON DAIRY MANAGEMENT: *R.* We take the following list from Mr. Allnutt's catalogue of his Agricultural Library at 200, Fleet Street. All systematic works on agriculture refer to dairy management, and in particular Mrs. A. Scott's Dairy Management, 1*s.*; How to Choose a Good Milk Cow, by J. Haxton, 3*s.*; Cows and Dairy Husbandry, by M. M. Milburn, 1*s.*; Handbook of Dairy Husbandry, by J. C. Morton, 1*s.* 6*d.*; Milch Cows and Dairy Farming, by C. L. Flint

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LEISTON WORKS, SUFFOLK.
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142 & 143, Cheapside, London, E.C.
Illustrated Prospectus with Testimonials sent free on application.

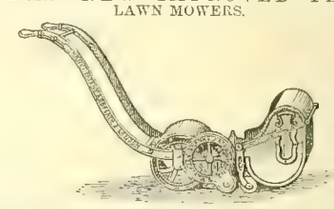
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Manufacture STEAM CULTIVATING APPARATUS, the cheapest, most simple, and successful Tackle out.
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THRESHING MACHINES, which will astonish those who work the ponderous and complicated Machines now so generally used.

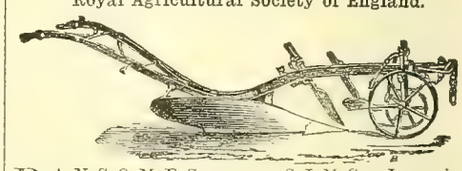
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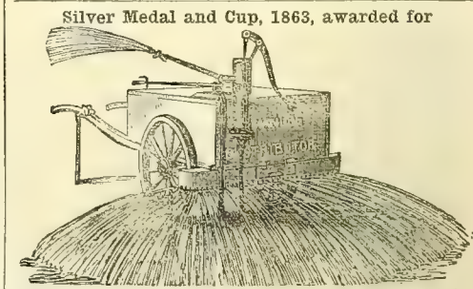
Patronized on five separate occasions this season by HER MAJESTY the QUEEN, also by HIS MAJESTY the KING of SAXONY. Every Machine warranted to give satisfaction, and if not approved of can be at once returned.
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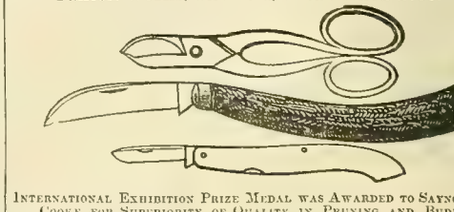


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Fig. 570.

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with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 2 0	£3 12 6

24 gal.	30 gal.
£5 0 0	£5 12 0



Fig. 571

J. TYLOR & SONS'
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Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 6 6 each.
No. 2. Ditto ditto .. 1 1 0 „
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Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 10s. 6d. each.
„ 589. Middle Ditto ditto .. .. .. 9 6 „
„ 588. Small Ditto ditto .. .. .. 8 6 „
„ 587. LADIES' GARDEN SYRINGE, with do. .. 6 9 „



Fig. 591. READ'S SYRINGE, with two roses and one jet .. 10s. 6d.
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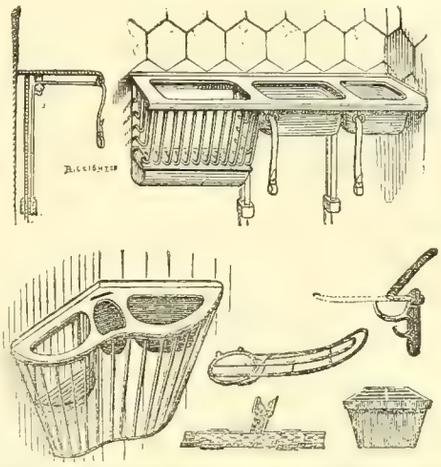
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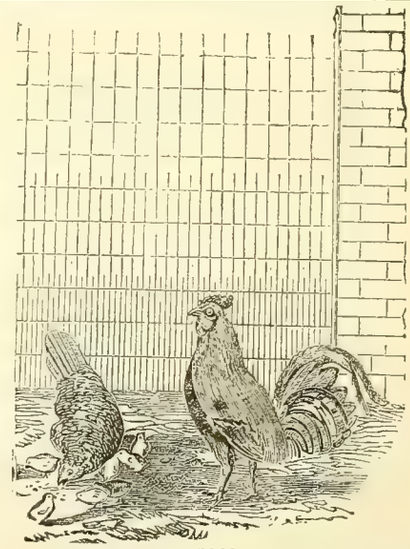
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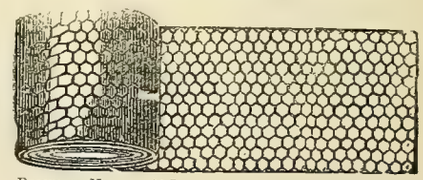
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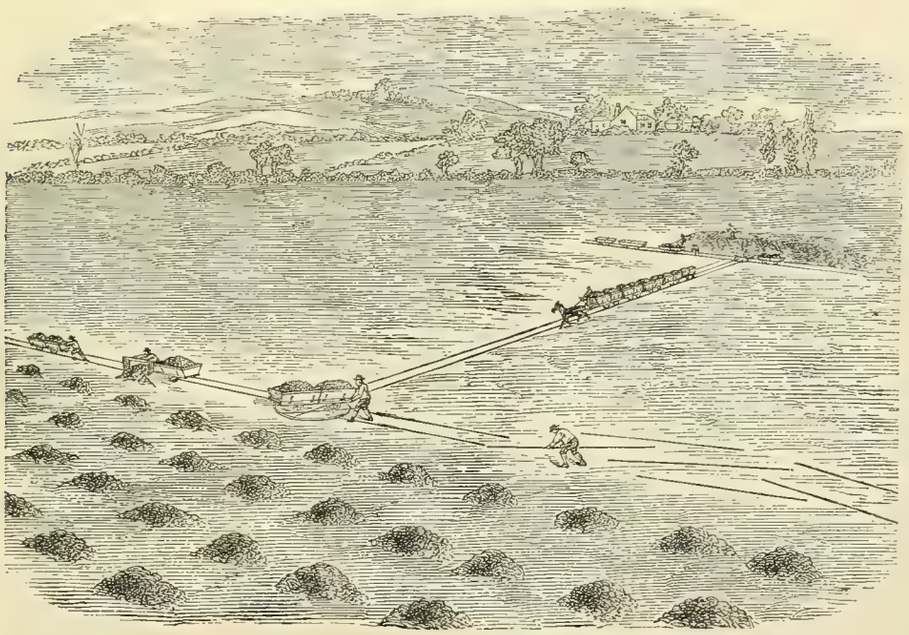
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Four yards wide..	3s. 4d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

TANNED GARDEN NETTING.—Inch Mesh, 1d. per yard; in pieces containing 400 to 500 yards. Small quantities, 1½d. per yard. TOBACCO PAPER, price to the Trade on application.
H. BROWN, Seedsman, 4, Commutation Row, Liverpool.

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been favoured with the receipt of the following
Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED assorted LABELS for 3s. Delivered free in London on receipt of a Post-office Order or Stamps for the amount.
Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

To Seed Merchants and Nurserymen.
SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make
Paxton Works, Sheffield.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

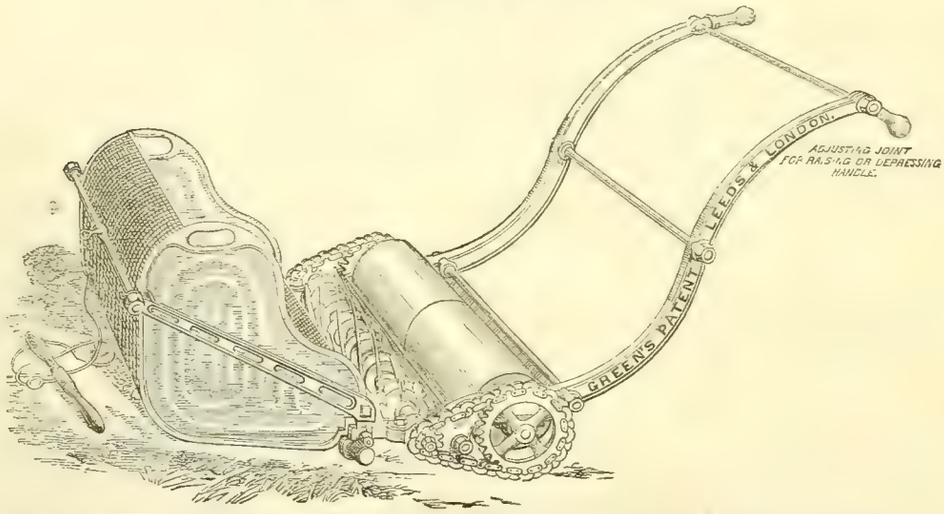
Universal Microscope. Price £5 5s.
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31, Cornhill, E.C.; late 6, Coleman Street.
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GREEN'S PATENT SILENS MESSOR,
OR
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

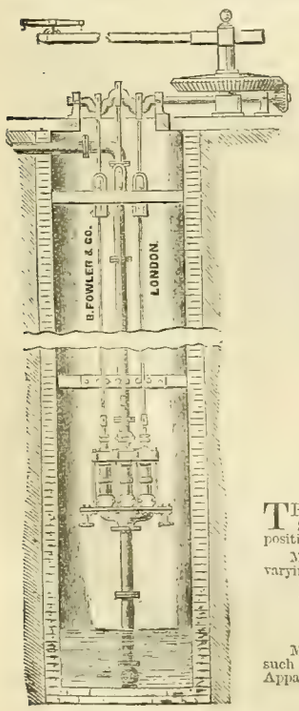
THE
FIRST PRIZE MEDAL
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WAS AWARDED TO
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FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
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LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

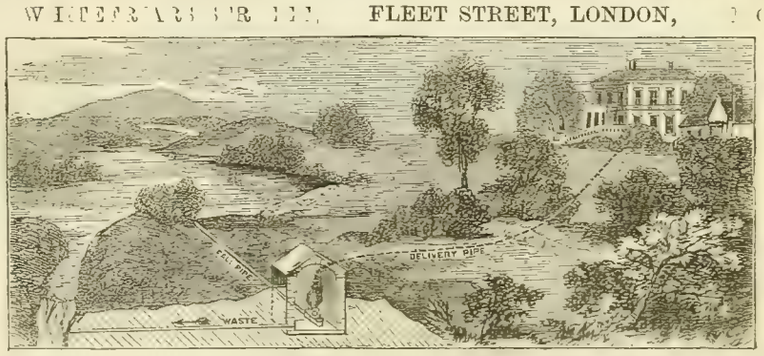
EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

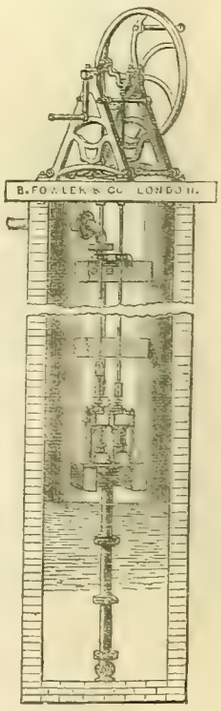
ILLUSTRATED PRICE LISTS may be had on application to
THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.



87

CLINTON & OWENS
(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WATERLOO WORKS, FLEET STREET, LONDON,





28 a.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.
Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 20 to 300 feet, and forcing through main pipes 50 yards to several miles in length.
No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.
No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.
Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.
Price Lists of Pumps, &c. free on application.

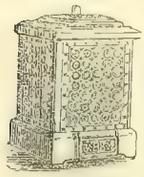
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.

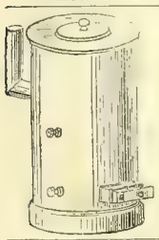


It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COWHOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.



RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

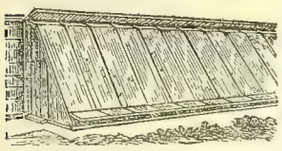
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Under the Patronage of Her Majesty.

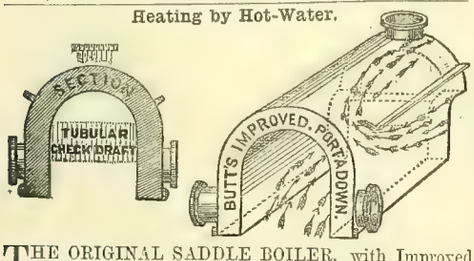
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOT-HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD (Successors to John R. Peill), Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD having completed the order for the India Board are now making another large Windmill and Pumps for the Government Gardens at Agra.

WIND ENGINES FOR ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY & POLLARD two years ago for Ascension as working most satisfactorily.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 101*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Card.

SAMUEL N. McGERROW, GENERAL HORTICULTURAL BUILDER, Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Hothouses, Conservatories, &c.

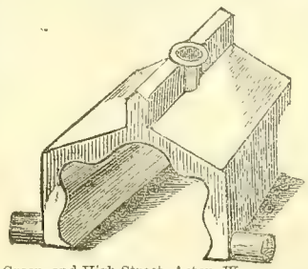
H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E., established upwards of 20 years. Good substantially made GREENHOUSES, glazed ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.*

A large assortment kept. Estimates given for any branch in Wood or Iron.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, 1, Mount Villa, Acton Green, and High Street, Acton, W.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads from	12*s.* 6*d.* to £20	0*s.* each.
Shower Baths, from	8*s.* 0*d.* to £6	0*s.* each.
Lamps (Moderateur) from ..	6*s.* 0*d.* to £8	10*s.* each.
(All other kinds at the same rate.)		
Pure Colza Oil	4*s.* per gallon.	

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small useful set, guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.			Bead Pattern.			Thread or Brunswick Pattern.			King's or Lily, &c.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
12 Table Forks	1	13	0	2	0	0	2	4	0	2	10	0
12 Table Spoons	1	13	0	2	0	0	2	4	0	2	10	0
12 Dessert Forks	1	4	0	1	10	0	1	12	0	1	15	0
12 Dessert Spoons	1	4	0	1	10	0	1	12	0	1	15	0
12 Teaspoons	0	16	0	1	0	0	1	2	0	1	5	0
6 Egg Spoons, gt. bowls..	0	10	0	0	12	0	0	12	0	0	13	6
2 Sauce Ladles	0	6	0	0	8	0	0	8	0	0	9	0
1 Gravy Spoon	0	6	6	0	9	0	0	10	0	0	11	0
2 Salt Spoons, gt. bowls..	0	3	4	0	4	0	0	4	0	0	4	6
1 Mustard Spoon, gt. bwl.	0	1	8	0	2	0	0	2	0	0	2	3
1 Pair of Sugar Tongs ..	0	2	6	0	3	6	0	3	6	0	4	0
1 Pair of Fish Carvers ..	1	4	0	1	10	0	1	10	0	1	10	0
1 Butter Knife	0	2	6	0	4	0	0	5	6	0	6	0
1 Soup Ladle	0	10	0	0	12	0	0	16	0	0	17	0
1 Sugar Sifter	0	3	3	0	4	6	0	4	6	0	5	0
Total	9	19	9	12	9	0	13	9	6	14	17	3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2*l.* 15*s.* Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

WARNER'S KOH-I-NOOR LAMPS, TO BURN THE HYDRO-CARBON OILS.

PRODUCE A BRILLIANT LIGHT WITHOUT SMOKE OR SMELL.

They are more easily trimmed and refilled than any other Lamp with similar burner.

There is no danger of chimneys breaking, and the chimney cannot become smoked.

For designs of the above, adapted for the DINING-ROOM, DRAWING-ROOM, HALL, or LIBRARY, see Number 2 of this Journal.

A REALLY GOOD LAMP.

The above may be obtained of any Lamp Dealer.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period without pain or any inconvenience.—Forward address on a stamped envelope to W. GOODALL, Esq., Epsom, Surrey.

Peterborough New Ram Fair.

MR. E. LAW has been favoured by Mr. C. Clarke, of Ashby-de-la-Laund, near Sleaford, to SELL, at Peterborough, SEPTEMBER 10, 50 of his LINCOLNSHIRE LONG-WOOL SHEARLING RAMS.

SHROPSHIRE SHEEP.—The GREAT CENTRAL SALE of RAMS and EWES, (by order of several eminent Flockmasters in the Midland Counties,) will be held at Bingley Hall, Birmingham, on THURSDAY, the 8th day of September next. Sale to commence at half-past 10 o'Clock.

The Entries, to the present date, comprise:—
150 Splendid SHEARLING, and a few older RAMS.
500 Beautiful STOCK EWES and THEAVES.
30 Fine RAM LAMBS.

Terms and particulars on application.

JOHN E. LYTHALL, Auctioneer.
Offices: 13, Temple Street, and Bingley Hall, Birmingham.



BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the importer has made arrangements to keep a large stock always on view.

For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

Proposed Cemetery at Burton-upon-Trent.

To ARCHITECTS, LANDSCAPE GARDENERS, &c.

THE BURTON-UPON-TRENT IMPROVEMENT COMMISSIONERS, who are also appointed a BURIAL BOARD for the TOWN of BURTON-UPON-TRENT, are desirous of receiving Plans, Estimates, and General Specifications for the Erection of Two Chapels, Residences for the Registrar and Sexton, and Walls; also for Laying Out and Fencing the Grounds, and constructing Drains and Footpaths in the proposed Cemetery, consisting of 12 Acres, the whole cost, exclusive of the purchase of the land, not to exceed 6000*l.*

A premium of 50*l.* will be given for the most approved Plans, Estimates, and Specifications, and 25*l.* for the second best.

Should the author of the approved Plans be employed in carrying out the Works, the premium of 50*l.* will be deducted from the Architect's Commission.

A Lithographed Plan of the Site and further information may be obtained on application to me on and after the 12th day of September next; and the Plans, &c., accompanied by a Letter with a Motto, are to be forwarded to me on or before the 12th day of October, 1864.

By Order of the Board. WM. COXON, Clerk.
Public Offices, 53, High Street, Burton-on-Trent.

TO BE LET, GARDENS, with some 300 feet run of Hothouses, Greenhouses, &c., on advantageous terms, together with the Stock of Pines, Vines, Bedding and other Plants. The Houses are Heated with a Tubular Boiler, and are all well supplied with Water and every convenience. They are the property of a private gentleman who cannot superintend them, and afford an excellent opportunity for a young married man to commence for himself. A small capital will be required either to purchase the stock or as security for its preservation. None but Churchmen of good references and character need apply.

Address, A. B. C., 40, Lime Street, London, E.C.

Pilsley Nursery, near Clay Cross.

TO BE LET on LEASE, and entered on immediately, the above Nursery, containing about Eight Acres, planted with Fruit, Forest, and Ornamental Trees and Shrubs, also the MANOR HOUSE, with Greenhouse, Propagating House, Forcing Pits, Cold Pits, and Frames. Also, if required, about 40 acres of Grass and Arable Land, all in excellent condition, situated two miles from Clay Cross Station on the North Midland Railway, and one-and-a-half miles from Doe Hill Station on the Erewash Railway.

Application to be made to J. SAMPSON, Pilsley Nursery.

Sales by Auction.

Periodical Sale of Poultry and Pigeons, and a Consignment of Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 6, at 12 o'Clock precisely, some CHOICE SPANISH, POLANDS, DORKINGS, GAME, COCHINS, &c., from Miss Millward, Mrs. H. Fookes, and other well-known exhibitors; and some capital Pigeons from A. Hutchins, Esq., and others. Also a Consignment from Holland of 6 cases of HYACINTHS, TULIPS, and CROCUSES, fine bulbs and first-rate varieties.

On View the Morning of Sale, and Catalogues had.

Leamington.

IMPORTANT SALE OF ABOUT 100,000 CHOICE SPECIMEN AND SEEDLING CONIFERS, &c.

MR. J. C. STEVENS, of 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions to SELL by AUCTION, on the premises, on TUESDAY, September 20, and two following days, at half-past 12 o'Clock precisely each day, in the well-known gardens of the Arboretum, Leamington, the EXTENSIVE COLLECTIONS of about 100,000 fine Specimen and Seedling Conifers, Standard Fruit Trees, Roses, Rhododendrons, Forest Trees, Laurels, Camellias, Azaleas, and other Greenhouse Plants and Ornamental Evergreens; now growing on the 8 acres to be cleared for building villas. Also some of the Specimen Plants on the 8 acres appropriated to the extensive Hydropathic Establishment, now in successful operation, the proprietor, J. Hitchman, Esq., having agreed with the owners of the adjoining land to make a new street through their property, which is now in progress.

On view the week prior, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.; and of Mr. JOSEPH SOLE, Manager of the Arboretum, Leamington, Warwickshire.

N.B. All Plants purchased at the Sale must be paid for on or before Saturday, September 24, but they will be allowed to remain on the ground till December 1, if desired.

Valuable Tulips.

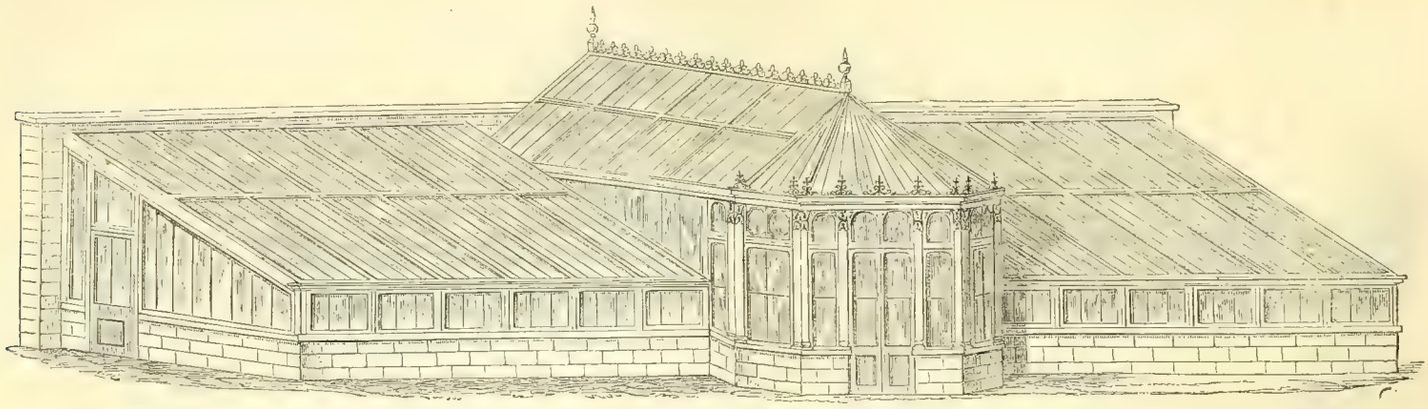
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JOHN SLATER, to SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, London, E.C., on THURSDAY, September 8, at 12 o'Clock, a very select portion of the finest strains from his valuable COLLECTION of TULIPS, amongst which may be enumerated Seedlings of Storer, Battersby, Martin, and others which are very scarce, and a great acquisition to any collection.

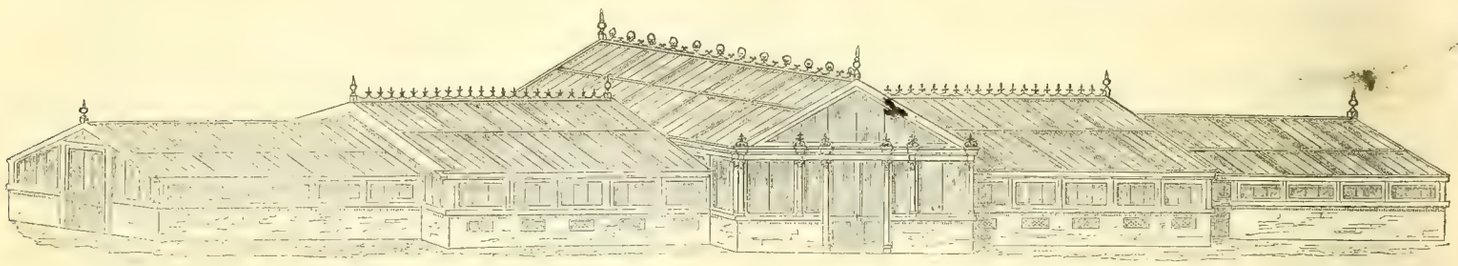
Catalogues had at the City Auction Rooms of Mr. SLATER, Florist, Northenden, near Manchester; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

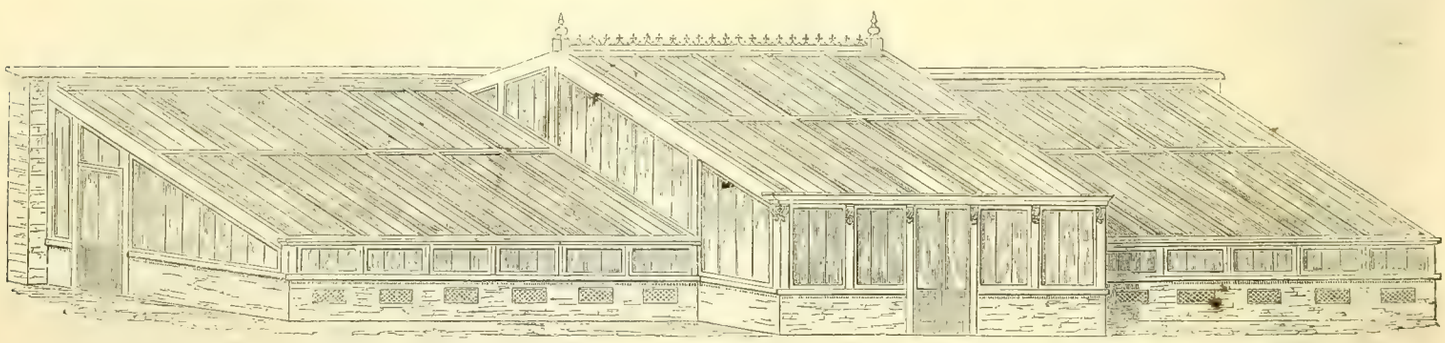
Surplus Stock of a Greenhouse and General Builder.

J. AND G. BOND will SELL by AUCTION, on the Premises, 205, King Street West, Hammersmith, W., on THURSDAY, September 15, at 12 for 1 o'Clock, 4 Small GREENHOUSES, 7 ft. by 8 ft., 12 ft. by 8 ft. 4 in., 16 ft. by 9 ft. 6 in., 20 ft. by 11 ft.; a Forcing House, 16 ft. by 8 ft.; 4 dozen Pit Lights; 14 Cucumber and Melon Frames, various sizes; 8 pairs of 1½ in. & 2 in. Sashes and Frames; 12 4-panel Doors; 5 Dressers, Shelves, Folding Steps, Ladders, Garden Seats, Flower Stands, &c.

On View the Day previous and Morning of Sale. Catalogues on the premises, and at the Auctioneers' Offices, 10 & 11, Dorcas Terrace, Hammersmith Road, W.







HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

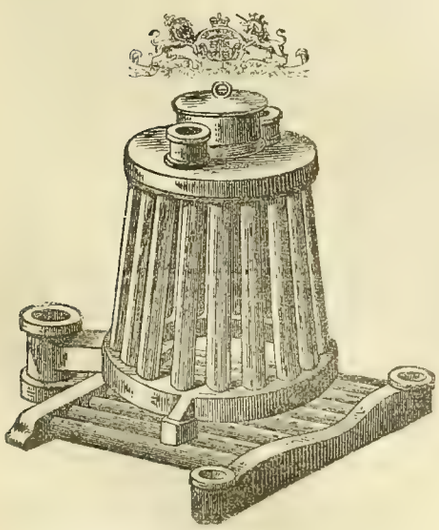
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S

ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.
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Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1864.] SATURDAY, SEPTEMBER 10. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
An Ordinary Meeting of this Committee will take place on TUESDAY, September 13, at South Kensington. The Subjects must be entered by 11 A.M.
Thomas Moore, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK.
On SATURDAY, September 17, the CONSERVATORY at CHISWICK, containing the great collection of TRIAL GRAPES, which are now in perfection, will be open to the public.
Doors open at 12 o'Clock. Band at 3. Admission, 1s.

BRACKLEY AGRICULTURAL and HORTICULTURAL SOCIETY.
The ANNUAL FETE of this Society will be held on TUESDAY, September 20.
Last day for receiving Entries for Flowers, Fruit, &c., September 16
Further Particulars and Schedule of Prizes, may be obtained of the Honorary Secretary, R. J. Russel, Brackley.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.
The ELEVENTH ANNUAL AUTUMN SHOW will be held on WEDNESDAY and THURSDAY, September 14 and 15, at the Royal Pavilion Grounds, on the same grand scale as on former years, and the usual amount offered in prizes. The Railway Cup, value 10l., is offered for the best Eight Dishes of Fruits.
Schedules of Prizes to be had on application to the Secretary, 96, St. James's Street; or of E. Spary, Superintendent of the Exhibition, Queen's Graperies. Edward Carpenter, Sec.

Roses.
WM. PAUL'S ROSES are still in BLOOM. Admirers of this flower are respectfully invited to visit the Nurseries. Entrance from the platform, Waltham Station (Great Eastern Railway), half an hour's ride from London.
Paul's Nurseries, Waltham Cross, Herts, N.

Roses.
PAUL and SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

ROSES in POTS.—The largest and choicest Collection in the North of England, including many thousands of the very best varieties out, at 9s. per dozen, or 65s. per hundred, all extra strong.
CATALOGUES may be had on application of B. Whitham, The Nurseries, Reddish, near Stockport.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD and SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Large Importation of Flower Roots from the best Houses in Haarlem.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
WM. WOOD and SON beg to solicit early commands for BULBS, just arrived in most excellent order.
Prices as reasonable as any respectable house in the Trade.
DESCRIPTIVE CATALOGUES may be had on application.

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Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON and SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, and BAWTREE,
Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE LONDON SEED COMPANY, LIMITED,
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Orders for Roots amounting to 20s. forwarded carriage free.
The BULB CATALOGUE is now ready, and can be had gratis and post free on application.

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NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

Bedding Pelargonium Mrs. Pollock.
ALFRED FRYER offers strong out-door struck Plants, well established, in 60-pots, at 3s. 6d. each or 36s. per dozen.
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

GERANIUM "MRS. POLLOCK."—An immense Stock of this truly beautiful variety. Price per dozen, hundred, or thousand for strong established plants on application to
Saltmarsh & Son, Moulsham Nurseries, Chelmsford, Essex.

Hyacinths and other Dutch Bulbs.
Quality unsurpassed, Prices moderate.
WM. PAUL'S PRICED DESCRIPTIVE CATALOGUE is now ready, free by post.
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Hyacinths and Dutch Bulbs.
Fine and at moderate prices.
PAUL and SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
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The Best Twelve Hyacinths Imported by
SUTTON and SONS,
for Twelve Shillings.
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To Hyacinth Growers.
SUTTON'S DESCRIPTIVE LIST is NOW READY.
Post Free.
Sutton & Sons, Reading, Berks.

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Covent Garden Market, London, W.C.

Hyacinths, Tulips, Crocus, Narcissus, &c.
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12, King Street, Covent Garden, W.C.

Now Ready.
B. S. WILLIAMS' BULB CATALOGUE for 1864, containing selected Lists of DUTCH and other BULBS, with Cultural Directions, will be forwarded post free on application.
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CHARLES TURNER'S CATALOGUE of the above is now ready. The roots have also arrived in fine condition. Orders will meet with prompt attention.
A fine stock of LILIUM AURATUM.
The Royal Nurseries, Slough.

J. SCOTT'S BULB CATALOGUE for 1864 is now ready, containing selected LISTS of DUTCH and other BULBS, with Descriptive and Cultural Directions; also numerous Hints on the Cultivation and Arrangement of the Winter and Spring Flower Garden, with Lists of Plants, post free for one stamp.
Merriott Nurseries, Crewkerne; and Yeovil, Somerset.

Dutch Bulbs and other Flower Roots.
Consisting of Hyacinths, Crocus, Tulips, Narcissus, Anemones, Lilies, Snowdrops, &c.
JAMES FAIRHEAD and SON beg to state that their BULBS and ROOTS have arrived this season in prime condition and very large size.
CATALOGUES free on application.
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Fresh Imported Dutch Bulbs.
SUTTON and SONS have just received from Haarlem one of the most extensive and rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
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SUTTON'S AUTUMN CATALOGUE of BULBOUS FLOWER ROOTS, containing full Descriptive Lists of all the best sorts of Hyacinths, Tulips, Crocus, Gladioli, &c.; and also a Select List of Seeds for Autumn Sowing, is now ready, and may be had gratis and post free on application to
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SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
Sutton's GUINEA COLLECTION for BEDS and BORDERS.
For particulars see Sutton's AUTUMN CATALOGUE, which may be had Gratis and Post free.
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Hyacinths, Tulips, Narcissus, Crocus, &c.
THE LONDON SEED COMPANY, LIMITED, have just received their DUTCH FLOWER ROOTS, in fine condition. Early orders are requested.
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DUTCH FLOWER ROOTS.—Two large importations have just been received in fine condition.
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ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

GUERNSEY and BELLA DONNA LILIES, Fine Strong Bulbs, 6d. each; 5s. per dozen.
Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

Guernsey and Bella Donna Lilies.
BARR and SUGDEN,
12, King Street, Covent Garden, W.C.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 56 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

EVERGREENS.—All sorts and sizes, suitable for present planting in large quantity, of very superior quality and on low terms, especially where a considerable order is given. All have undergone periodical Transplanting, and will remove to any distance with safety. Special prices on application.
James Dickson & Sons, The "Newton" Nurseries, Chester.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21s. per 100.
Charles Turner, The Royal Nurseries, Slough.

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H. LANE and SON have succeeded in producing a house of VINES, in full bearing, containing all the leading varieties, in order that purchasers might have a chance to choose for themselves, so as to avoid disappointment. The above, with the fruiting Vines in pots, are unrivalled and worthy of any one's inspection. The Nurseries, Berkhampsted.

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FRANCIS and ARTHUR DICKSON and SONS, The "Upton" Nurseries, Chester, can supply excellent well-ripened CANES of this magnificent Grape, ready for immediate planting. It hangs considerably longer than Lady Downes, and is in every respect a first-rate Grape. Price on application.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. Meredith, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Very extra strong Vines from Eyes.
JAMES DICKSON and SONS have ready all the leading kinds, which, if planted now, would produce a crop next season. Early purchasers will have 2000 to pick from. Price, very moderate, on application.
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B. S. WILLIAMS has much pleasure in stating that he has secured a fine supply of this valuable and rare PINE, stated to be the finest in cultivation.
Also a fine Stock of BLACK JAMAICA and SMOOTH CAYENNE PINES. Prices on application.
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T. PAPE can supply PROVIDENCE, MONTSERRAT, BLACK PRINCE, JAMAICA, and QUEEN PINE Plants, warranted clean and healthy; also strong VINES for fruiting in pots or planting out, of all the leading kinds, at moderate prices.
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FOR SALE, a quantity of QUEEN PINE SUCKERS, also a few ENVILLE and OTAHEITE. The Queen Suckers 6d. each if 50 are taken. Warranted clean and free from scale.
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MESSRS. RIVERS and SON invite all those interested in ORCHARD HOUSE CULTURE to inspect their numerous houses, now full of bearing Trees.
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WELLINGTONIA GIGANTEA.—Fine specimens of this noble tree, 3, 4, and 5 feet, repeatedly transplanted, and being full of roots will remove with perfect safety. Low in price.
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INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
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Calceolaria, Cineraria, Primula.
E. G. HENDERSON and SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.
The CALCEOLARIA is NOW magnificently in BLOOM at the Nursery; the others in their respective seasons.
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DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
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Rape Seed for Sowing.
CHARLES SHARPE and CO., Sleaford, can offer a fine sample of the above, English Seed, saved in 1863.
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Early Feed.
FOR SALE, a quantity of EARLY BROAD-LEAVED SEED RYE, at 50s. per quarter. Sacks 2s. each.
The above can be recommended as a selection after several years observation from near 40 samples of the earliest Rye procurable, and may be relied upon as a very early and most productive variety.
Apply to Mr. W. W. Gillingham, Seed Merchant, Rochford, Essex.

New Seeds for the Farm.
NEW WELSH WINTER VETCHES, TRIFOLIUM INCARNATUM, ITALIAN RYE-GRASS, WINTER RAPE, Winter Dun Oats, Winter Rye, Early Field Yellow, White Stone or Stubble, and Orange Jelly Turnip, for present Sowing. Prices on application.
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WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
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Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3 Rue Dunois (late Rue des Trois Ormes), Paris, begs to inform Nurserymen, Seedsmen, Florists, and the Trade generally, that he will shortly publish his CATALOGUE of his unrivalled collection of GLADIOLI for this autumn, which may be had of him direct, or of his London Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C., upon prepaid application.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN and SEEDSMAN, Rue Dunois 3 (late Rue des Trois Ormes), Paris, has the honour to inform his numerous friends and the Trade generally that the CATALOGUES of GLADIOLI published by him up to the present time are CANCELLED, and will be replaced by a new Edition, with REDUCED PRICES, on September 1, which may be obtained from him direct, or of his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.



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For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

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BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

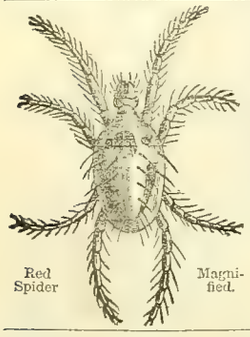
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Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.: HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs. BARR & SUGDEN, 8 cosmen, King Street, Covent Garden.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

Orders forwarded by Railway with despatch.

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GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED assorted LABELS for 3*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount.

Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

31, Cornhill, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide..	3*s.* 4*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.—Sept. 10.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

FOR PRESENT PLANTING (Sent Carriage Paid).

DUTCH, CAPE, FRENCH, and ITALIAN FLOWERING BULBS,

FOR THE

ORNAMENTATION of the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.

THE COVENT GARDEN COLLECTIONS of BULBS for In-and Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, and 63*s.*
THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, and 63*s.*
THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
HYACINTHS, 2*s.* 6*d.* to 15*s.* per dozen. CROCUS, 1*s.* 6*d.* to 4*s.* per 100. TULIPS, 3*s.* 6*d.* to 20*s.* per 100.

A Detailed List of the above Collections, and a General Priced List of Bulbs, sent Free and Post Paid on application.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

NEW ORNAMENTAL FOLIAGE PLANT, IRESINE HERBSTII (Hook.)

HERBST & STENGER,

KEW NURSERY, RICHMOND, LONDON, S.W.,

Have great pleasure in offering for the first time this distinct and handsome Plant, introduced by them direct from the River Plate, and to which a Certificate was awarded by the Royal Horticultural Society on August 24.

Colour of leaves dark maroon, ribs and stem bright carmine. A worthy rival of Coleus Verschaffelti, both as regards colour and hardiness.

Plants ready for delivery now at 10s. 6d. each.

The usual Discount to the Trade. Prices per 12, 25, 50, *and* 100 *Plants on application.*

LIST OF DUTCH FLOWER BULBS TO BE HAD GRATIS.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.



Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 16 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*; 86 ft. by 25 ft., 207*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

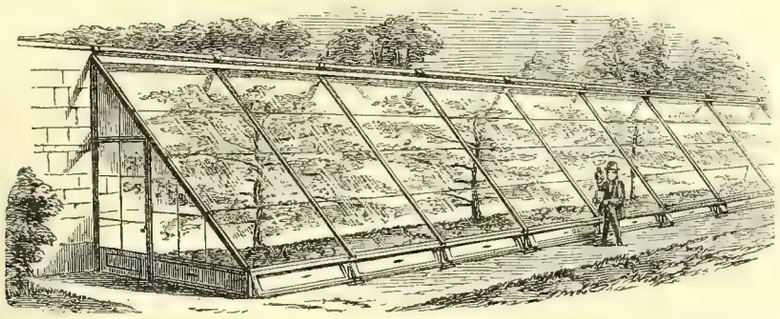
SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

NEW IRON TRELLIS WORK, Galvanised, Diamond Pattern, 1 inch openings, in strong Panels, to screen off neighbours, bad views, or for front situations, 1*s.* per square foot, fixed. 500 yards WIRE FENCING, 3 ft., has been little used, 1*s.* per yard, very strong, Diamond Pattern.

N.B. The New IRON TRELLIS, well adapted for Pheasantries.

R. RICHARDSON, 99, Euston Road, London, N.W.

1000 YARDS of SHEEP NET, 3 feet 6 inches, to be SOLD for 15*l.* 500 yards of Second-hand WIRE FENCING, 3 feet wide, 3-inch diamond openings, nearly new, 25*l.* IRON SUMMER HOUSE, 7 feet by 6 feet, stained and varnished interior, 9*l.*

R. RICHARDSON, 99, Euston Road, London, N.W.

BENJAMIN EDGINGTON,

MARQUEE, TENT, FLAG, and RICK CLOTH MANUFACTURER,

By Special Appointment to Her Majesty.

An Illustrated Catalogue sent free by post.

Be particular to address BENJAMIN EDGINGTON (only),

2, Duke Street, foot of London Bridge, S.E.

No other Establishment.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.



HAND GLASSES.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.



PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



MILK PANS.

See Advertisement the first week in the month, or on application.

GREEN'S PATENT SILENS MESSOR,

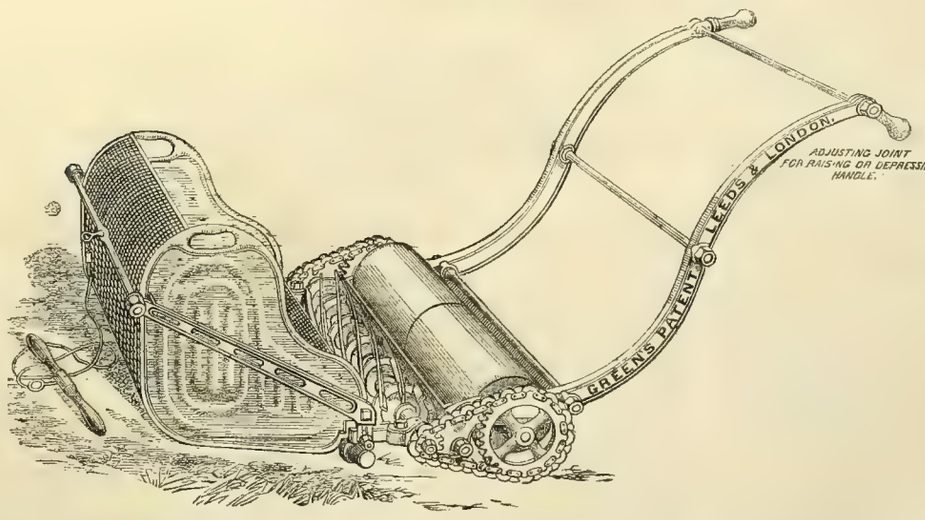
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS.
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

EXTRAORDINARY AND WONDERFUL IMPROVEMENTS FOR THE PRESENT SEASON 1864.

ILLUSTRATED PRICE LISTS may be had on application to

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS, YORKSHIRE;
or 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.; or 19, EDEN QUAY, DUBLIN.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.

"Upton" Nurseries, Chester.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions:—

2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.

A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited

Strong Planting Canes, 21s. each; extra strong Fruiting Canes 42s. each. Exotic Nursery, Tooting, Surrey, S.

GRAHAM'S MUSCAT MUSCADINE, a hardy Orchard-house Grape with a Frontignan flavour.—This hardy and prolific Grape was raised by F. J. Graham, Esq., of Cranford, and received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society. It has a fine Frontignan flavour, is equal in every respect to the Chasselas Musqué, but more hardy, and not so liable to crack as that variety is. It is a very abundant bearer, the bunches being equal in size to those of Royal Muscadine, and the berries as large as those of Dutch Sweetwater.

The Stock having been purchased by JOHN STANDISH, strong Plants will be sent out in the first week of June, price 15s. to 31s. 6d. each.

Strong Plants of all the leading kinds of Grapes. LISTS and Prices to be had on application.

Royal Nurseries, Ascot, Berks.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Fruit Trees.

B. WHITHAM begs to call attention to his very superior stock of APPLE TREES, including about 2000 of LORD SUFFIELD, RINGER, GRENADIER, POTT'S SEEDLING, LORD DERBY, GOLDEN SPIRE, and LORD CLYDE, which are allowed to be the very best sorts out. No grower ought to be without the above sorts. Also many other good varieties, all at 8s. per dozen, or 60s. per hundred. A further reduction in price per thousand.

Trained and Standard PEARS, CHERRIES, PEACHES, NECTARINES, &c. in great variety, at equally reasonable prices.

CURRANTS, Red, White, and Black Naples, at 2s. per dozen, or 12s. per hundred, extra fine.

CATALOGUES may be had on application to B. WHITHAM, The Nurseries, Reddish, near Stockport.

CARTER'S FARMER'S VADE-MECUM.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 56s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

HERTFORDSHIRE HERO BARLEY.—Six-rowed, very productive, and stiff strawed; rather coarse but suitable for Winter or Spring Sowing, for Early Spring Feed, or an Early Crop for Harvest.

Price 50s. per quarter, delivered on Rail at Basingstoke.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; or Basingstoke.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 10s. per bushel, or 64s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARE.

Seed required—In September .. .. .. 4 bushels on 10 acres; In October (1st half / 2d half) 4 bushels (On 8 acres / On 6 acres); In November .. .. .. 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.Z.S., the Manor House, Brighton, Sussex.

NOTE.—This Wheat will not after the present season be again offered by Mr. Hallett to the public until 1868 at the earliest.

See full advertisement with engraving of Ear in *Agricultural Gazette* and *Mark Lane Express* of September 3 & 5.

EARLY SPRING FEED,
For Present Sowing.
NEW ENGLISH ITALIAN RYE-GRASS,
Best Imported Ditto,
TRIFOLIUM INCARNATUM,

For Sowing on Stubbles and mending deficient plants of Grasses or Clovers

WINTER BARLEY | WINTER OATS | COMMON RYE
GIANT RYE | WINTER TARES

For Early Spring Feed.

MUSTARD and RAPE, for sheep keep and ploughing in for manure.

Samples and prices on application to RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; and Basingstoke.

New Seed Business.

DRUMMOND BROTHERS (Sons of Mr. PETER DRUMMOND, of Stirling, N.B.) beg to announce that, being about to Commence Business in Edinburgh as RETAIL SEEDSMEN, they have secured, at 52, George Street, immediately adjoining the Music Hall, commodious Premises, which they intend opening in September, with the FLOWER ROOT TRADE.

Their constant aim will be to obtain the purest and most carefully selected Stocks of TURNIP and other AGRICULTURAL SEEDS; and their various MIXTURES of GRASS SEEDS and CLOVERS will consist only of the most suitable kinds, in proportions adopted by the leading agriculturists.

To the GARDEN SEEDS DEPARTMENT they will devote special attention, using every endeavour to secure for their Customers VEGETABLE and FLOWER SEEDS of the finest quality and true to name.

Nursery Orders they will be prepared to receive and have executed with carefulness and despatch.

Edinburgh being most favourably situated for Railway and Steamer communication to every part of the United Kingdom, DRUMMOND BROTHERS feel confidence in respectfully soliciting a share of the trade of the Country, and they hope, by studied attention to the wishes of those who may favour them with their patronage during the ensuing season, to merit a continuance of support.

CATALOGUES will be forwarded, when issued, upon application.

Viewforth, Stirling, Sept. 10.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

NEW PLANTS.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

BEGS TO OFFER THE UNDERMENTIONED NOVELTIES, ALL OF WHICH WILL BE FOUND VALUABLE ACQUISITIONS.

	Each.—s. d.
ACHYRANTHES VERSCHAFFELTII (Iresine Herbstii).—A new ornamental foliage plant	7 6
AQUILEGIA SPECTABILIS.—A handsome hardy perennial plant	3 6
BEGONIA DIGSWELLIANA.—Fine free-flowering variety for Winter Decoration	3 6
DIEFFENBACHIA BARAQUINIANA.—Leaves pale green, beautifully spotted with white, stalks and midribs ivory white	31 6
DIEFFENBACHIA GRANDIS.—Leaves pale green and spotted, leaf-stalks and stem elegantly mottled	21 0
LOBELIA LONGIFLORA.—A very distinct flowering plant, with long green toothed leaves, and conspicuous star-shaped white blossoms, very fragrant	1 6
MARANTA PICTURATA.—Leaves of a dark glossy green, embellished by a long central line, and ornamented with a silver variegation, very handsome	21 0
ORNITHOGALUM THYRSOIDES.—A showy flowering bulb, producing large spikes of snow-white flowers.	

NEW GRAPE, ROYAL VINEYARD.

Now ready for delivery.

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

For the opinions of the Horticultural Press, see former Advertisements.

NEW HARDY CLIMBING PLANTS.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.

Awarded by the Royal Horticultural Society, August 4, 1863.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the public, for the first time, their beautiful rich coloured, free flowering Clematises that they can recommend with confidence, being convinced when known they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants sent out strictly in rotation in October.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Gardeners' Chronicle*, January 9, 1864, on Meritorious Plants; *Journal of Horticulture*, August 11, 1863.

Plants advertised at 15s. each: G. J. & SON cannot take further orders, for having had but a limited quantity of that size, for the future the price will be

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

NEW INTRODUCTIONS

NOW READY TO BE SENT OUT, FREE TO LONDON.

J. LINDEN,

ROYAL ZOOLOGICAL GARDENS, BRUSSELS,

BEGS TO CALL ATTENTION TO THE FOLLOWING NOVELTIES NOW READY FOR SALE:—

PHRYNIUM (MARANTA) MAJESTICUM, Lind.—This noble species was discovered by M. L.'s collector Mr. G. Wallis, on the banks of the Upper Purus river, one of the great affluents of the Amazon. The leaves, striped like those of Maranta regalis, are of a dark purple below, and reach the length of 2½ feet. The great effect produced by this really ornamental plant, deserves the specific denomination. Fine plants 21s. each.

PHRYNIUM (MARANTA) PICTURATUM, Lind.—This truly splendid plant is without contest one of the best Marantas introduced up to the present time. The honour of introduction belongs also to the botanical traveller Wallis, who discovered it in the dense forest of the Purus. It is of a moderate size and of a compact habit. The leaves are of a dark satin-like green, embellished by a large central line surrounded by an undulated silver discus. A specimen of this fine species was sent to the Royal Horticultural Society's Exhibition of the 24th of August, and received a Second-class Certificate. Price 21s. each.

PASSIFLORA FULGENS, Wall.—A very distinct climber, with large bright scarlet flowers, and oak-like foliage. Also a discovery of Mr. Wallis in the Amazon valley. Price 15s. each.

TRICHOCENTRUM ALBO-COCCINEUM.—Exhibited at South Kensington the 24th inst., 42s. to 63s.

GALEANDRA DEVONIANA.—Fine plants of this beautiful species, from 42s. to 63s.

ODONTOGLOSSUM AURO-PURPUREUM, from 42s. to 84s.
" HASTILABIUM, from 21s. to 42s.
" PESCATOREI. 105s.

Large importations of Orchids from different parts of the world enable J. LINDEN to offer these favourite plants at very moderate prices.

CALADIUM CANNARTI, MIRABILE, and OSYANUM. 5s. each.
DORYOPTERIS ALCYONIS. 5s. each.
LILIUM WALLICHIANUM, true. 21s. each.
THEOPHRASTA IMPERIALIS. 10s. 6d. each.
LARIX LEPTOLEPIS, new from Japan. 10s. 6d. each.
ARISTOLOCHIA CORDIFOLIA.—Flowers 15 inches in diameter. 5s. each.

Usual Discount to the Trade.

LONDON AGENTS: MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, E.C.

ESTABLISHMENT for the INTRODUCTION of NEW PLANTS.

TO BE SENT OUT IN SEPTEMBER 1864.

AMBROISE VERSCHAFFELT, GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES:—

ACHYRANTHES VERSCHAFFELTII, Versch. (Illustration Horticole).—A splendid introduction; it is the rival of the charming Coleus Verschaffeltii, with the advantage that the Achyranthes is less delicate, and may be kept easily in a good greenhouse. It will be one of the finest plants for planting out in the summer. A beautiful bed can be now seen in my nursery. Obtained prizes in all the exhibitions to which I sent it—Ghent, Antwerp, Brussels (International Exhibition), &c. Fine plants, 8s. each.

PHRYNIUM (MARANTA) VANDEN HECKEI, Versch. (Illustration Horticole).—This splendid Maranta was introduced by the botanic collector Baraquin, who discovered it in Para. It is one of the finest introductions I have made. Obtained several first medals. Fine plants, 20s. each.

ACER PSEUDO-PLATANUS var. LEOPOLDII (Illustration Horticole).—One of the best variegated Acers that we have. A correct Drawing may be seen in the September number of the "Illustration Horticole." Good plants, 8s. each; stronger, 16s. each.

AQUILEGIA SPECTABILIS (Illustration Horticole).—This is one of the finest Aquilegias; see figure in "Illustration Horticole." Good plants, 4s. each.

AZALEA PONTICA BOUQUET DE FLORE.—Splendid variety, large bouquet, rose, delicate, with stripes. A figure will be published shortly in the "Illustration Horticole." Good plants, 4s. each.

New Pears.

BEURRÉ SPAE (Illustration Horticole).—Fruit of first quality; see "Illustration Horticole." Good plants, 8s. each.

BEURRÉ VAN GEERT.—Fruit of first quality. A drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 8s. each.

ROSE (HYB. REMONTANTE) DUCHESS of MEDINACELI.—This is one of the best Roses that will be sent out this autumn. A Drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 16s. each.

N.B. The NEW GENERAL CATALOGUE No. 75, is now ready, and can be obtained Free of my Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

All Letters containing Orders must be sent direct to
AMBROISE VERSCHAFFELT, GHENT, BELGIUM.

HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	£4 4s.	12s.
Very fine ditto	3 10	9
Good ditto	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

HYACINTHS, TULIPS, and other DUTCH BULBS, imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

CHAS. SOUTHBY, NURSERYMAN, Clapham, London, S., offers a few Packets of the following SEEDS saved this season from Plants that obtained Prizes at the London Shows:—
CYCLAMEN PERSICUM, from 8 vars. .. per pkt. 2s. 6d.
CINERARIA, very dwarf vars. .. .. „ 1 6
CALCEOLARIA, the finest possible strain .. „ 2 6
PANSY, from 24 best vars. out .. .. „ 1 0
VINES from Eyes, strong Canes of all the leading kinds, 5s., 7s. 6d., and 10s. 6d. each.

New Hardy Bedding Plant—Sedum glaucum.
JOHN SALTER invites the Growers of BEDDING PLANTS to visit his Nursery and inspect this beautiful novelty, which he will send out early in 1865. It is very dwarf, and of exceedingly close habit, forming a compact mass of silvery gray foliage, which it retains both in summer and winter; for edgings, ribbon borders, or pots it will be found one of the most useful dwarf plants ever offered. Orders are now being taken for the Spring at 9s. per dozen. Price per 100 upon application.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

New and Choice Plants.
B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

Choice Seeds for Present Sowing.
B. S. WILLIAMS can now supply Genuine SEEDS of his well-known strain of

Per pkt.—s. d.	s. d.	Per pkt.—s. d.	s. d.
PRIMULA ..	2 0 and 3 6	INTERMEDIATE ..	0 6 and 1 0
CINERARIA ..	1 6 and 2 6	STOCK	0 6 and 1 0
CALCEOLARIA	1 6 and 2 6	BROMPTON do.	0 6 and 1 0

The above Seeds are saved with great care, and can be warranted to give satisfaction.
Paradise and Victoria Nurseries, Holloway, London, N.

New Hardy British Ferns.
J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
„ „ „ GLOMERATUM.
(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Sept. 3.

The Greatest Novelty of the Season.
BEATON'S HYBRID BEDDING GERANIUMS.
WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that he has purchased from the Executors of the late Mr. Donald Beaton, the whole of his SEEDLING BEDDING GERANIUMS, which includes the latest efforts of this successful hybridist. Some are of a yellowish tinge, some rose, some purple, some magenta; the individual flowers of others are larger than a five shilling piece. For Bedding purposes they will prove invaluable, being new in colour and remarkably free and hardy.
They will be offered by PRICED DESCRIPTIVE LIST in October.
NOW in BLOOM, inspection invited. Entrance from the Platform, Waltham Station, Great Eastern Railway.
Paul's Nurseries, Waltham Cross, N.

New Hardy Rhododendrons.
JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.
MRS. FITZGERALD, a very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT, brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH, dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL, dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR, clear rosy scarlet, very large truss, and fine foliage.
SURPRISE, a light lilac, with immense dark marking, which renders it very remarkable.
American Nursery, Bagshot, Surrey.

WELLINGTONIA GIGANTEA.—The Undersigned begs to offer fine healthy Seedling Plants in pots, at the following prices:—
One Year Seedlings, in single pots, 50s. per 100.
Specimen Plants, in 24-sized pots, 18 inches, 60s. per dozen.
Fine Plants, in 32-pots, 1 foot, 30s. per dozen.
„ in 48-pots, 9 inches, 15s. per dozen.
ARAUCARIA IMBRICATA, in 48 pots, fine, 9s. per dozen.
CUPRESSUS LAWSONIANA 9 inches, 12s. per dozen.
T. HENCHMAN, Enfield, near London.

To Gentlemen and Nurserymen.
MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid they must be cheap.

DOBSON'S CELEBRATED SEEDS,
for PRESENT SOWING.
PRIZE CALCEOLARIA. 1s. 6d., 2s. 6d., 3s. 6d., 7s.
PRIZE CINERARIA, 1s., 2s. 6d., 5s.
PRIZE PRIMULA, 1s., 2s. 6d., 5s.
PRIZE PELARGONIUM, 2s. 6d., 5s.
Sealed Packets, post free.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Established Upwards of a Century.
BUTLER AND McCULLOCH,
SEED MERCHANTS,
Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5l.	2l. 10s.	1l. 5s.	1l. 1s.	15s.	10s. 6d.

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5l.	3l.	2l.	1l. 5s.	1l. 1s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5l. 5s.	2l. 12s. 6d.	2l. 2s.	1l 1s.	15s.	10s. 6d.

These Collections include only Bulbs of first-class quality.
For full particulars see CATALOGUE, which may be obtained post free on application.
Orders amounting to 21s. and upwards sent Carriage-free.

CARTER'S GARDENER'S VADE-MECUM.

ROYAL HORTICULTURAL SOCIETY.
SHOW of AUTUMN FLOWERS, TUESDAY, September 6.
AWARDS of the JUDGES.

CLASS 1—24 ROSES, cut blooms, distinct varieties, single trusses.
Messrs. Paul & Son, Old Nurseries, Cheshunt, N., First-class Certificate
The Rev. W. F. Radclyffe, Rushton Rectory, Blandford, Dorset, Second-class Certificate

CLASS 2—18 ROSES, cut blooms, distinct varieties, single trusses.
Messrs. Paul & Son, Old Nurseries, Cheshunt, N., First-class Certificate
Mr. W. H. Treen, Victoria Nursery, Rugby, Second-class Certificate

CLASS 3—12 ROSES, cut blooms, distinct varieties, single trusses.
Mr. W. H. Treen, Victoria Nursery, Rugby, First-class Certificate

CLASS 4—12 TEA ROSES, distinct varieties, single trusses.

CLASS 5—24 HOLLYHOCKS, single flowers, distinct.
Messrs. W. Minchin & Son, The Nurseries, Hook Norton, Oxon, First-class Certificate

CLASS 6—12 HOLLYHOCKS, single flowers, distinct.
Messrs. W. Minchin & Son, The Nurseries, Hook Norton, First-class Certificate

CLASS 7—24 GLADIOLUS, cut spikes, distinct kinds.
Messrs. Paul & Son, Old Nurseries, Cheshunt, Herts, First-class Certificate

CLASS 8—12 GLADIOLUS, cut spikes, distinct kinds.
Mr. W. H. Treen, Victoria Nursery, Rugby. Disqualified, not being named

CLASS 9—24 PHLOXES, cut spikes, distinct kinds.

CLASS 10—24 VERBENAS, 5 trusses of each, distinct kinds.
Messrs. W. Minchin & Son, The Nurseries, Hook Norton, Oxon, First-class Certificate

CLASS 11—36 DAHLIAS, distinct kinds (Nurserymen).
Mr. J. Keynes, Salisbury, First-class Certificate

CLASS 12—24 DAHLIAS, distinct kinds (Nurserymen).
Mr. J. Keynes, Salisbury, First-class Certificate

CLASS 13—18 DAHLIAS, Fancies (Nurserymen).
Mr. John Keynes, Salisbury, First-class Certificate

CLASS 14—12 DAHLIAS, Fancies (Nurserymen).
Mr. J. Keynes, Salisbury, First-class Certificate

CLASS 15—24 DAHLIAS, distinct kinds (Amateurs).

CLASS 16—18 DAHLIAS, distinct kinds (Amateurs).

CLASS 17—12 DAHLIAS, distinct kinds (Amateurs).

CLASS 18—MISCELLANEOUS.
Messrs. A. Henderson & Co., for Group of New and Rare Plants, First-class Certificate
Messrs. F. & A. Smith, Dulwich, for Collection of 24 Balsams, Second-class Certificate
Messrs. Paul & Son, Cheshunt, Stand of 20 French Asters, Third-class Certificate

ARTIFICIAL FLOWERS.
Mrs. Stodart, Victoria Station, Pimlico, for a Stand of 12 Dahlias in Rice Paper, First-class Certificate

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
LIST of AWARDS, September 6, 1864.
FIRST-CLASS CERTIFICATES.
PELARGONIUM BEAUTÉ DE SURENNES, from Mr. Salter
DENDROBIUM FORMOSUM GIGANTEUM, from Mr. Bull
ALLAMANDA HENDERSONII, from Messrs. Henderson & Co.
PENTSTEMON Mrs. MOORE, from Messrs. Downie & Co.
DAHLIA GEORGE WHEELER, from Mr. Keynes
DAHLIA CHAMPION, from Mr. Keynes

SECOND-CLASS CERTIFICATES.
PENTSTEMON Mrs. E. CLARK, from Messrs. Downie & Co.
VERBENA MINERVA, from Mr. Stalker, Sydenham
DAHLIA QUEEN OF PRIMROSES, from Mr. Keynes
DAHLIA QUEEN OF SPORTS, from Mr. Keynes

COMMENDATION.
BEDDING VERBENA PURPLE PRINCE, from Mr. Norford, Brompton.

The Gardeners' Chronicle.
SATURDAY, SEPTEMBER 10, 1864.

MEETING FOR THE ENSUING WEEK.
TUESDAY, Sept. 13 { Royal Horticultural (Floral Committee) at South Kensington .. .. Noon

IF, besides the fact that ORCHIDS, many of them at least, do not need excessive heat, it were a generally recognised truth that they associate admirably WITH VINES, we should probably see the collections of these beautiful flowers rapidly increase in number and probably also in extent; for if to the saving resulting from the adoption of a lower temperature were added the profit of a crop of good Grapes, the actual cost of Orchid growing would be reduced to a very small item, if it did not prove to be absolutely *nil*.

But though the fact be not so extensively recognised as it should be, it is nevertheless perfectly authenticated, that good Grapes may be grown in association with beautiful Orchids; even as it is also true that most Orchids may be grown better in a moderated temperature, than in a reeking vapour bath. Here, then, in respect to Orchid culture is a double advantage gained over the practice of bygone years: (1) a reduced expenditure for fuel; and (2) a crop of first-rate dessert fruit to boot.

We have been led to make these observations, in consequence of the receipt of some admirable Grapes grown at Broomfield by Mr. ROBERT WARNER, in association with his Orchids—and these it is pretty well known do not suffer in consequence, as we have repeatedly had occasion to mention in our columns. As to the Grapes, we can report them to be a good average sample of serviceable Black Hamburghs, the bunches from 1 lb. to 1¾ lb. in weight, the berries of average size, well-coloured, rich, juicy, and full-flavoured; and all this, though they have not full advantages in respect to their cultivation.

Nothing would be so likely to keep up and even to extend the ranks of Orchid-growers as the distinct and full appreciation by the thousands of amateurs who do not indulge in extensive garden establishments, of the fact that Orchids and Vines go well together. Mr. WARNER informs us that he can now speak from the results of nine years' experience of this association, and his utterance is most decided in favour of the practice. He has during all this period been engaged in growing many species of this Orchideous race in Vineries, and what are termed greenhouses with Vines trained under the roof, the two kinds of structure differing somewhat in respect to the treatment they receive—as regards temperature especially, and thus yielding fruit in succession. In this way, then, every one who possesses a glass house of even the simplest character may not only grow Vines, but also indulge in plant-culture. Mr. WARNER writes:—

"It is well known that in a general way plants do not thrive under the shade of Vines. This prevents many persons fond of flowers from indulging in the luxury of growing their own Grapes, but such would not be the case if it were generally known that there is a class of flowers which do even better under Vines than when grown without their friendly shade. The fact I have often taken occasion to mention, but it is one that requires to be repeated over and over again, 'line upon line, precept upon precept,' before it will make a due impression on the minds of cultivators generally. If I had but a few houses at Chiswick, or even at the gardens at South Kensington, I would soon show the public what could be done with Orchids and Vines.

"There are but few Orchids worth growing that might not be cultivated under Vines. Even many of the East Indians do well under this *régime*. It is only some few species of Vanda, Aërides and Phalænopsis, that cannot be so cultivated. One of my cool houses, which is devoted to Lycaste, Odontoglossum, &c., is not allowed to fall below 40° in winter, and in summer the temperature is permitted to run up as high as the sun will raise it. The other cool house where I grow Cattleya Skinneri, Vanda cœrulea, Dendrobium nobile, and many Brazilian Orchids, is not allowed to become cooler than 50° in winter; and this also in summer gets as hot as the sun may make it. The roots of the Vines are confined within brick pits, and altogether, from the nature of the soil and the little preparation made, they are not so suitably placed as they would be in a good raised open border. Still, under all these disadvantages, I get a good crop of useful Grapes every year; and the colour, as you will see, shows that much air is given, so that the treatment is really on the cool system."

Mr. WARNER goes on to point out that one of the great drawbacks to the general cultivation of Orchids, namely, the supposed necessity for a large expenditure under the item of fuel, is thus got over. He states that he does not on an average use more throughout the year for all his nine small houses than a ton per week of the cheapest coal, and if his houses were closely glazed and in a less exposed position, the consumption would be still smaller. No doubt the fact of having an abundance of piping is an advantage, and in the construction of his boiler, made according to his own directions, Mr. WARNER may have another advantage; but putting all these things together, the cost of fuel for each house is not, he states, at the utmost more than 2s. per week.

Who, then, would not grow Orchids when, over and above the gratification to be derived from their often gorgeous, often grotesque, and always

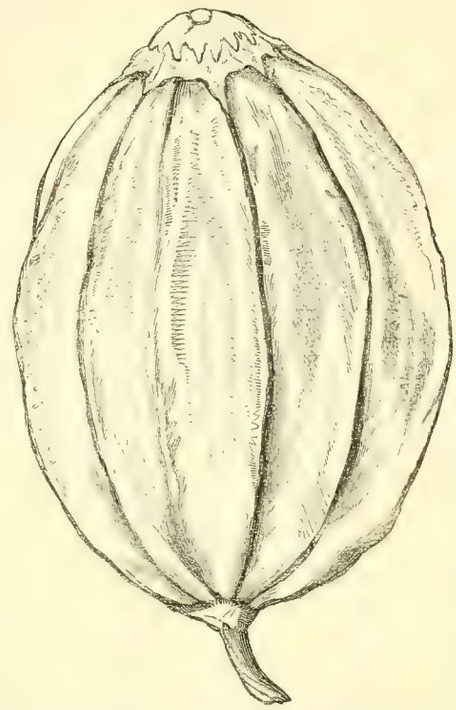
charming blossoms, there is at so small a cost also to be secured so luscious and precious an adjunct as a well-favoured and well-flavoured crop of Grapes?

AMONGST the seeds of CUCURBITS which were kindly sent to us last spring by Monsieur NAUDIN, were those of a Melon (under the name of White-fleshed Cantaloup), we believe of Algerian origin, which had been pronounced by Monsieur DURIEU DE MAISONNEUVE, who explored the Botanical riches of Algeria with such success, to be the most delicious of all the Melons.* Our seeds were as widely distributed as their number would allow, and three which were given to Mr. EWART, Gardener to the Earl of WESTMORELAND, produced three plants, which have yielded perfect fruit. There was nothing particular about the foliage or flowers. They belonged to the same type as that of most of our large Melons; the leaves being of rather a large size, obscurely five-lobed, but very acutely and strongly cup-shaped.

The three plants presented fruit of three distinct forms, though all evidently belonging to the same variety, the seed of which seemed to be pure. In the first, the fruit was elliptic, very deeply nine-ribbed, with the interstices still showing short distinct hairs, slightly warty, and very sparingly if at all cracked or netted, with the perfectly smooth apex projecting like a broad nipple with a central scar beyond a corky lobed ring, exactly as in the varieties of Cucurbita maxima, known as Turbans or Turks' Caps. In the second the characters were the same, with the exception that the form was globose instead of elliptic; while in the third there was no projecting nipple, but in its place a broad strongly warted circular area, as in the variety known as the large Germek. In all, the stem flowed gradually into the fruit, and the colour was a delicate buff, while the flesh in the one we have figured, which was the only one we had an opportunity of examining, was of a washy white slightly tinted with green, of a tolerably firm consistence and high flavour, while the scent was most delicious, resembling that of a pure Green Cabul. We could, however, hardly go the length of saying that the flavour was superior to that of any we ever tasted; but it was nevertheless excellent, and the flesh not the worse in our opinion for being rather firm, like that of most of the Cantaloups. The variety at any rate is very handsome; it grows to a large size, and where more than one sort is cultivated is a desirable change. The present season has not we think been favourable to the perfect development of the qualities of delicate fruit. The cold nights have scarcely been compensated by the hot dry days, and all the fruit we have seen has ripened rather prematurely without giving time for the most perfect growth, with a decided tendency to rapid decay. The dry atmosphere has moreover favoured the red spider, and the most diligent syringing has not availed in every case to drive the enemy away.

There is a figure of a red-fleshed Cantaloup in a work on Melons by a cultivator named JACQUIN, which, though rough, represents tolerably our second more globose form.† Our author observes that the word ought properly to be spelt Cantaluppen, as it is derived from a town in the Papal dominions called Cantaluppi. In this country it has been very generally supposed that the name has something to do with the old family of Cantaloupe, but this is a mistake, for which no authority can be found. The town is a short distance from Rome (some 15 miles), and Melons were first introduced there, according to JACQUIN, by some Armenian Missionaries. From thence they passed to France in 1495, and from thence to Spain, England, the Netherlands and Germany. They sometimes in consequence bear the name of Italian Melons. It has indeed been asserted that Melons were introduced at the end of the Mithridatic war by LUCULLUS, but the notices of authors are so obscure and doubtful, that ALPHONSE DE CANDOLLE, who is one of our best authorities on such subjects, for many reasons which are detailed in his work on Geographic Botany, is inclined to think that they are of comparatively modern introduction.

The variety alluded to above, which comes very near to our white-fleshed Cantaloup, is called the Prescott Cantaloup. It is of a roundish form, depressed at either pole, with a prominent umbilicus, and attains a larger diameter of 5¼ inches, and is yellowish when ripe and ornamented with dark green spots; the umbilicus prominent, surrounded by a coronet of network and marked in the centre with a similar spot. It is considered as a casual variety of



the White Prescott Cantaloup, the colour of which is whitish, with a few green spots, but when ripe, yellowish, spotted with chestnut-brown dots, and the umbilicus large and corky, as in our third variety. The rind is smooth when ripe, but at first hairy. Our author has but one variety of Cantaloup with white or greenish flesh, and this, which appears to be originally an English Seedling, is very different from that before us. Our figure represents the fruit of half the natural size. *M. J. B.*

—— NOTWITHSTANDING all that has been said about the destruction of the AMERICAN BLIGHT or Woolly Aphis, either by means of the use of oils or of the essences of turpentine and lavender, writes M. DELAVILLE, the pest continues to infest our fruit trees, and principally those of the greatest vigour, a result, it is concluded, to be attributed to the inefficiency of the means adopted, which are both expensive and difficult of application. I have, he observes, like many other cultivators, destroyed a goodly number of infested trees in the hope that the neighbouring trees would not become affected, and by this simple means I had thought to get rid of them, when lo! in the height of summer, some four years ago, I found a large number of my espalier White Calvilles, full of large woolly flakes which sheltered thousands of the insects. If it is true, moralises the writer, that sometimes misfortune is good, then this new invasion must be so regarded, for I have through it discovered a more simple means of getting rid of the formidable enemy. Waiting impatiently till the following December, M. DELAVILLE armed himself with a hard brush provided with a handle, and with this and boiling water he set to work to scrub and wash the poor besieged trees; then with a sharp pruning knife, having cut away the woody tumours caused by the puncture of the insects, many others which had taken refuge about them were brought to light, and these were speedily removed by a second washing similar to the first, with water kept boiling for the purpose by a lighted stove. This completely destroyed them; for since then no more have appeared, while the trees have continued to shoot and produce as before, unaffected in health by so powerful a remedy. Last summer M. DELAVILLE found in another part of his garden, some of his finest horizontal cordon Pear trees to be covered with these insects. But on the occasion of one of his lessons in tree-culture in the month of December, he had the satisfaction of showing his auditory the simplicity and immediate efficacy of this hot-water cure. All, writes M. DELAVILLE, who have tried this simple remedy, have had their trees quite cleared from these formidable enemies, without any other cost than that of a little charcoal or a few faggots; and he concludes that after such repeated success he may venture to recommend the plan he has adopted, without any fear of being contradicted by the results: so that henceforth it may be said of the woolly aphis of the Pear and Apple, as of the oïdium of the Vine, those only will have it who are willing to have it. A similar remedy it will be remembered, effectually destroys mealy bug, but it should be applied when the wood has become hardened.

—— We have already briefly alluded to a curious physiological fact relating to the DEVELOPMENT OF BUDS, vouched for by M. E. RODIGAS, one of the Professors of the School of Horticulture at Ghent. The fact is one of so much interest, that we subjoin a more complete version, gleaned from the account given in the *Flore des Serres*.

It is well known that many pomaceous trees may be intergrafted, and the practice is in constant operation in nurseries. Cratægus, Mespilus, Sorbus, Pyrus, and Cydonia are familiar examples. Cratægus, which furnishes the subject of the fact above referred to, succeeds best on Sorbus or Pyrus Aucuparia, and indeed may be successfully worked on it at any height to obtain vigorous and handsome stems. And this is what appears to have been done in the case in question.

Dr. F. RODIGAS, the director of the cultural establishment attached to the normal school of the State, at Lierre, had grafted in a thicket contiguous to his garden, a dormant bud of the scarlet Cratægus Oxyacantha on the stem of a Sorbus Aucuparia. The bud was placed on the eastern side, at about a yard from the ground, in the usual way. This was done in July. In the following spring the bud was developed and attained nearly 2 inches in length, when the leaves were dried up. But at the same time on the opposite side, and about 6 inches below the point of insertion of the bud, the stock produced another bud of Cratægus, the leaves of which were developed in a healthy and characteristic manner, and acquired half their normal size. This bud however also eventually dried up. The stem at this point had a circumference of about 3 inches; it was perfectly smooth, and there was no vestige to be seen of the insertion of a bud, though it is well known that a very evident scar is always found where a bud has been inserted. The young shoot was absolutely adventitious. Of this fact, which, M. RODIGAS observes, is perhaps without precedent in the annals of the physiology of plants, the perfect authenticity is guaranteed. It is only to be regretted, he adds, "that this portion of the tree was not submitted to microscopical examination. We leave it to those who search into the mysteries of nature to explain this strange phenomenon. Is it possible that a cell containing in itself the vital germ of the Cratægus can have been borne along from the point where the eye was inserted to that where the new bud has been formed? Can the affinity which exists in the sap and in the whole organization between Sorbus and Cratægus, be held to favour this view of the fact? We dare not say. Nevertheless it may be remarked that if an analogous fact has ever occurred, it may very well have passed unperceived."

—— We mentioned at p. 631 that a subscription had been set on foot for the purpose of REPLACING MR. BAKER'S LIBRARY, which had been unfortunately destroyed, together with his Herbarium, by fire. We now learn that the Metropolitan Committee who undertook to receive subscriptions are able to report a considerable list of contributions; and they suggestively mention that several botanical authors have besides presented copies of their own works to Mr. BAKER, while others in possession of spare copies of useful botanical works have sent them to him. The subscriptions acknowledged amount to 88*l.* 12*s.*

—— Those who are inclined to use COLLINSIA VERNA for the decoration of their spring flower-beds, may be reminded that this is the season for sowing the seeds, not only because it is necessary to sow in autumn in order to get the plants sufficiently early into blossom, but for a more potent reason, namely that, beyond a very small percentage, the seeds refuse to grow if kept till spring. The secret of its cultivation consists in attention to this idiosyncrasy of the plant. The details of treatment recommended to be adopted by Mr. THOMPSON, are these:—The seeds must be sown between the end of August and the middle of September, in pans of light vegetable soil, which should be kept *thoroughly damp*. In a fortnight the seedlings will show themselves, and when these have made their first pair of leaves (besides the seed-lobes) are to be pricked out singly in pans, boxes, or pots, the latter if intended for blooming under glass. From this moment it is important that the seedlings should be kept cool and damp, and close to the glass, that their growth may not be forced. If intended to bloom in the open ground, they may be planted out in light, rich soil, in partially shaded situations, or in a north or north-west aspect, and will require no other attention but slight protection during severe weather. Thus treated, they will, in ordinary seasons, commence blooming early in April, and continue in flower six or eight weeks. When potted for growth under glass, they will often commence flowering in March, or even earlier, according to the temperature of the house; but as rapid growth is unfavourable to the formation of compact, well-branched specimens, it is desirable to keep them in a temperature which just excludes frost, until they are well advanced in their growth. The white and bright blue of the blossoms no doubt renders

* The ticket which came with the seeds was precisely as follows. Cucumis Melo Cantalupensis carne albâ! White-fleshed Cantaloup. The most delicious of all the Melons according to M. DURIEU. Not yet cultivated in the Museum.

† Vollständiges Handbuch der Melonenzucht, von Jacquin d. ält. Translated from the French. With 33 plates. Quedlinburg und Leipzig. 8vo, 1853. Pp. viii & 150. The work is not one of much authority, but it contains a great quantity of figures and an account of several varieties, including those of the Water Melon. The original edition appeared in Paris in 1832.

this Collinsia effective when well bloomed in masses; and those who use annuals to supply early flowers, will find it, at least, worth a trial, the more so as its near ally, C. bicolor, from which it differs obviously in colour, proves so well suited to the purpose.

THE LONDON PARKS.—No. II.

BATTERSEA PARK (*Continued from page* 844.)

I WILL recommence my notes on the Sub-tropical garden at a mixed bed on the left, the best looking plants in which are:—Solanum pyracanthum, which does very well in the open air, and would, I think, be best grown from plants young and single-stemmed to begin with, and to be kept so. I have seen it doing very nicely, managed in this way, in the Wellington Nursery. Verbesina verbascifolia. Amicia zygomeris, useful from its distinctness, but it will be seen in much greater perfection in other parts of the Sub-tropical garden. Deeringia Amherstiana variegata, very healthy, but not producing a more remarkable effect than some hardy variegated shrubs would afford. Russellia juncea in flower and growing nicely. Ficus elastica, all the plants plunged in pots, as numbers of the things are, and looking quite at home of course. The plant is finely grown by the hundred in the garden, and has in many cases made a clean growth of 1 foot since planting out, the young leaves and bracts affording a singular and useful effect from their colour. Asclepias curassavica, nicely in flower. Montagnæa mollissima, doing very well; it is a great favourite with Mr. Gibson, which is saying a good deal for it. Sonchus laciniatus, which will do well for such work as it is used for at Battersea, being a most elegant-leaved plant, but the wretched flowers must not see the light. Some species of Hibiscus and Vinca were also here, and though they were expected to do better during the coming month, yet they looked the "picthur o' misery," as some Hibernians would say.

I next came upon a bed edged with Convolvulus mauritanicus, which when well done, is the sweetest and most graceful of small edging plants we have, as all will say who notice it round the bed I allude to at Battersea. A group of American Aloes next turned up, plunged in the Grass; and near them Lithospermum fruticosum, the little blue beauty growing very well, but not flowering satisfactorily. Here I may remark that all the beds are made upon elevations of brick rubbish, which keeps the roots dry and warm, while the surface of the beds is level, and their sides nicely sloped down with turf. Still going round on the left, one is attracted by a very imposing bed, with grand Caster-oil plants in the centre, a fine line of Uhdea bipinnatifida around them, Funkia subcordata flowering modestly under the shade of the Castor-oils, the whole edged with a rich row of the purple Plantain. It seemed to me a very striking bed, and all the plants in it fit for their work. Dracæna australis was plunged here and there, and grew freely in the open air; as did Nicotiana wigandioides, a grand thing, and quite a Gog amongst Tobaccos, but it did not seem to me to be ever likely to rival the magnificent Wigandia. In some places I thought the large beds, planted with a single species, were a little too unbroken and vast, and presented too level lines of foliage, but from this I must exempt a splendid bed of Wigandia, which, whether planted individually or collectively, subdued all feeling but that of respectful admiration, and made me exclaim to Mr. Gibson when approaching its head-quarters—"This is the noblest Roman of them all!" To see the Wigandia alone at Battersea is well worth a visit. Canna macrophylla was very fine, but all the Cannas and most other things are surpassed by, though they contrast beautifully with, His Eminence Ferdinanda, who, with a rare mixture of grace and dignity, spreads forth his ample leaves, nearly 2 feet in breadth.

In another mixed border we meet with:—Senecio planifolia, a plant which will, I think, be found useful for such purposes. Hibiscus Cooperi, very doleful-looking indeed. Polymnia grandis, a grand thing, apparently of free habit, with leaves somewhat like those of the Bread-fruit tree, and the stem beautifully fluted. The Coral tree, healthy. Saccharum Maddeni. Aralia papyrifera, which occurs in many places, and is a capital plant. Aralia macrophylla, very fine; but of course, as it is not to be raised freely like the Solanums, &c., it will probably remain long among the choice single specimens plunged about so freely. Canna discolor or floribunda, with very dark leaves and free habit, was highly spoken of by Mr. Gibson, and seemed to deserve it; but I did not think so much of Magnolia fuscata, which is about in various places, looking healthy enough, and probably calculated, with some other sweet-scented things, to add ere long another tropical charm besides that of aspect to the Sub-tropical. Cupania Pindaiba was one of the choice specimens. Begonia fuchsioides was rather freely used, and was flowering nicely, but it did not assume the free and graceful habit which it does in a higher temperature. Dracæna ferrea was plentiful as well as useful, and "bears any amount of sun and exposure."

Many fine-leaved plants were plunged here and there singly, such as Rhopala Jonghii and others; Tupidanthus calyptratus, which is thought highly of for open air use; Aralia farinosa and others; Strelitzia augusta, Grevillea Hillii, Dracænas, Latanias, Astrapæa Wallichii, and the Bambusas, of which there are many promising plants about. A few young Tree Ferns next appear, with Stadmannia australis fine, and Ficus imperialis with leathery leaves 18 inches long by a foot broad; but the Ferns made me think that a lot of such rings and single specimens of the North American Struthiopteris and numerous other large and hardy Ferns as I had seen in the Edinburgh Garden last autumn would be a telling improvement, and by no means an expensive one.

Among the starvelings here—one would expect to have found many more in such an immense collection of stove plants as is planted out—I may mention the Ginger, the Lemon Grass, and the Hand plant; but Coleus nigricans, which filled some beds, was the reverse of stunted and very ugly, being of a sea-sick black. None of these, I should say, would be again much used. The bold Aralia papyrifera filled the centre of a bed nobly; Mr. Gibson recommends it to be planted at about 9 inches high; it ought to be abundantly supplied with water, and may be propagated to any extent from the roots. In the hollow of the lawn is a bog in which grew Papyrus antiquorum Cyperus alternifolius, Scirpuses, Andropogon squarrosum, and Gunnera. When the plants of Gunnera get up like the one at Kew, they will take "the shine" out of many things that look better at present. Talking of big-leaved hardy things, I concluded that Rheum Emodi would be well worth introducing to the Sub-tropical. In one long winding bed there is a forest of Ficus elastica—fine equal-sized plants growing rapidly; the bed edged with Centaurea, Amaranthus, and other plants; and it is certainly one of the most astonishing beds ever seen. However, I thought it and some of the great Canna beds, a little too flat-topped.

The lover of monotony—if there is such an individual—had better expect very little gratification in this department, for go where we will, choice plants, many of them rarities in the stoves and greenhouses of good places, crop up abundantly. Here, again, we meet Dracæna arborea; young plants of Fortune's Palm, which ought to do beautifully in the well-sheltered nooks; Acacia schænifolia; a very likely looking plant of Mr. Veitch's on trial; Charlwoodia congesta; numerous good plants of Yucca aloifolia variegata; and plenty of others which I have not space to mention by name. I have, however, missed few if any of those which seemed most at home. There were many fine species of Solanum about, and plenty of Solanum violaceum, with a singularly spiny one, armed with fine purple spines on every surface, and named atropurpureum, but S. marginatum may, I think, be pronounced the very best. I am as yet forgetting the bedding plants, but there is a tasteful sprinkling of them about amongst the tropicals, so that provision is made for every taste, and one may say "look on this picture, and on that" without any doubt as to the decision.

The walk which leads from the south drive to the Sub-tropical has match pairs of some things already mentioned, edged with herbaceous plants; and Bambusa gracilis, surrounded by the variegated Coltsfoot—one of the very best of variegated plants, but it has a fashion of coming up anywhere but where you want it, unless planted in pots, as it was in this case. Here I noticed that the old plants of Nicotiana wigandioides did not look so well as those which were young and dwarf, and the same may be said of some other subjects. The simple-stemmed and young almost invariably looked best. Chamæpeuce diacantha was on trial, but there is no doubt of its giving satisfaction.

Lonicera aureo-reticulata formed a most effective and chaste edging; and divided from it by Amaranthus I met an old friend in a strange place, Plumbago capensis, as an edging plant, pegged down close and flowering very freely. Geranium anemonæfolium, a rare Geranium, was very useful; and some of the Grasses came in well, such as Panicum plicatum and Pennisetum longistylum, but there are many annual, and some hardy perennial Grasses which would add much to such arrangements as these, and without doubt they will soon be seen at Battersea. Are there more elegant plants than Panicum capillare, Milium multiflorum, or even the common Millet, P. miliaceum, not to mention others? I think not, and also that to fully beautify our flower gardens the more graceful species of Grasses must be extensively used. I thought the Solanums had been done with, but here I met another fine one, S. robustum, with a velvety orange tint, decurrent leaves, and a good habit.

There were quantities of Caladium esculentum doing tolerably well, and expected to grow twice as large, but I don't think the plant will ever assume its real dignity with us in the open air. Centaurea gymnocarpa made an excellent edging round a bed of Coleus; it ought to be much more used in flower gardening than it is, being a far more graceful plant than C. ragusina, as all will say who see it depending round the edge of the raised bed I allude to. The grand bed of Wigandia was the last of those on the lawn, and I found the leaves to be more than 2 feet long by 15 inches wide. It was edged with Farfugium grande.

Going round again to the northern entrance, and beginning on the right, we first notice Dracæna terminalis in lines and in capital condition, with Musa Cavendishii, rosacea, glauca, and zebrina—the last looking very much at home, and the others much better than one could expect; also a selection of fine Cannas, C. zebrina elegantissima being remarkable. Those who want to make a feature of Cannas should immediatel go to Battersea and study the vast collection there. The Japanese Privet is a shrub much used by Mr. Gibson; he considers it second to no other plant for withstanding the smoke. Bushes of Brugmansia Knightii in flower appeared to "astonish the natives" very much, and no wonder, from its contrast to the rigid little dumps they generally see so much of; and Tradescantia discolor looked very well in pots. We now come upon a little panel which is distinct in its way, the diamonds being marked by lines of Sedum denticulatum, and the front edged neatly by Sempervivum hirtum. This reminds me of what neat edgings might be made from the encrusted Saxifrages and some of the hardy Crassulaceæ. Veronica incana filled little half diamonds in this panel very neatly.

Passing a shady recess with Blechnum corcovadense, Musa, and Marattia, we approach what may be well termed the region of Castor-oils, Cannas, and Ferdinandas, for the groves of these plants, in the most luxuriant health, could not be surpassed in their native countries. The last mentioned grows on an average about 10 inches per week, and like some other of the best things, will be in much better condition a week or two hence if the weather is favourable. Of Ricinus, the varieties gigantea, spectabilis, and sanguinea, appeared the best. The old Canna indica was to be seen in some places, but is utterly useless compared to any of those previously mentioned. A group of Monstera deliciosa looked quite at home under a Willow, and, though dwarf, they were unfolding young leaves healthfully. Lastrea opaca I noticed in quantity among other Ferns, and the Cardamom plant, rather plentiful, with Alpinia nutans, and numerous allied plants. Thus Mr. Gibson treats his visitors to some medicinal and economical plants, not often to spare even in good botanic gardens. One round bed near the walk was very charmingly filled by a single plant of Dracæna Ghiesbreghtii in the centre, surrounded by two superb rings of Dracæna terminalis, and finished by a ring of Salvia patula, the ground-work being composed of Lonicera aureo-reticulata, which was also trained up the stem of the fine central Dracæna. Looking up from the neighbourhood of this bed, for some distance on either side to the rising boundary, various beds may be seen in nicely sheltered bays, beautifully filled with a mixture of our very choicest stove and greenhouse plants, each bed different in composition and arrangement from its neighbour, the whole series offering a treat to the plant-lover, the like of which was never to be had out of doors in this country before, and very rarely indoors. In some of them, young and graceful Palms, such as Seaforthia elegans, did the chief work, but they were contrasted by and intermingled with the best Dracænas, Alsophila australis, Philodendrons, Berberis trifurca, Caladium violaceum, and Arundo Donax and conspicua, Musas, Strelitzia juncea, Crotons, Rhopala magnifica, and scores of other choice plants. The two Arundos should be in all arrangements of the sort, especially the first, which does so grandly in the flower garden at Syon.

It may be a question whether it is judicious to employ the vast number of Exotics that are used at Battersea for the decoration of our flower gardens generally, but there can be no doubt as to the propriety and necessity of introducing many of the most effective and free growing of them into all monotonous flower gardens at once. Neither will anyone with the slightest general knowledge of the capabilities of the hardy herbaceous plants and Alpines, of the Ferns, and of the Grasses, obtainable and easily cultivated in this country, doubt, that with a selection of these, with every really good and distinct bedding plant, with a large assortment from Mr. Gibson's splendid lot, and above all, by the help of a man of taste and a little more knowledge of plants and their habitats than is required to turn out the "stuff" in the end of May, a garden—a real garden—could be formed, which would as far surpass the old mixed garden and the "modern flower garden," in interest and delight-giving, as the Pyramid of Cheops surpasses in size the gum-bottle before me!

Somebody has talked of gardening having arrived at its climax, but so long as the more important parts of our garden landscapes are planted with the most ungraceful plants in existence, and the placard and wall-paper printers' notions of colour are floating about in the brains of our gardeners, causing them to present us with scenes remarkably like those taken care of by "Archibald Nagle, general advertiser," in lieu of the exquisite colouring of Nature, the expression of such an opinion is little less than idiotic.

I was full of these ideas after witnessing Mr. Gibson's raid into the enemy's country over the water; but not having time to think of them all now, I must wind up by telling how much I thanked Mr. Gibson for presenting the public with a scene infinitely more beautiful and interesting than anything ever seen in a gaudily decorated garden; and I felt, too, that when a future Loudon comes to write the "History of English Gardening in the Nineteenth Century," and therein of our emergence from a period of debased taste, that his name must figure as a leading pioneer. *Wm. Robinson.*

SHOW GOOSEBERRIES.

GOOSEBERRY shows have long been held annually in many parts of the kingdom, but more especially in Lancashire, Cheshire, and Yorkshire, and at these

shows, prizes have been awarded for the heaviest berries, flavour being very rarely taken into consideration. The consequence of this has been, that numerous varieties have been raised of enormous size, but coarse in substance, and bad in quality as regards flavour. So long, however, as prizes are offered solely for weight, that point alone will of course be the main consideration with the raisers and growers for competition; but that no doubt has been brought to a high standard, varieties having been raised so large that 12 fruits have weighed upwards of 1 lb. Such has been the result of long and extensive competition, bearing on a single point, that of weight.

Presuming that a Gooseberry bush can only bear to perfection a certain weight of fruit, it will be admitted, that when the use of the fruit for dessert is the object, it is better that that weight should consist of moderate-sized berries of good quality, than of very large ones of bad or inferior quality. This being admitted, it must be concluded that the prizes offered for size only have been misapplied, so far as ripe fruit is concerned. But taken in another point of view, such prizes may, on the whole, have proved of importance to the community, more especially in the populous manufacturing districts, where also these shows most abound.* Although not considered good to eat ripe, at all events by those who have the opportunity of obtaining such smaller well-flavoured kinds as we have described in a former article, yet some of these large kinds are good for tarts, and they have the advantage of soon acquiring size enough for that purpose. And it may be borne in mind that by the class of persons confined in shops and manufactories, some such acid as is afforded by various fruits is required much more than by those who are employed in the open air; and these large Gooseberries are the earliest fruits of the season to cheaply afford this desirable supply.

Again, among the many hundreds of varieties that have been raised, there are some which, though large, are nevertheless well flavoured; and such are those which form the subject of the following notes:—

FRUIT RED.

Leigh's Rifleman. — Rather late, large, roundish oblong; skin hairy, red, thick; flavour sharp and rich. An abundant bearer, and has been long much grown for the London market.

Bratherton's Lord of the Manor.—Late; very large, roundish; skin hairy, red, rather thick; flavour very good.

Lomas's Victory.—Syn. Lomax's Victory; middling early, tolerably large, roundish oblong; skin hairy, light red, thin. The unripe berries are much esteemed for tarts.

Milling's Crown Bob.—Late, very large, oblong; skin hairy, red with a greenish mixture near the base, bright red at the blossom end; flavour good. One of those sorts which is a good deal cultivated for the market.

Denny's Shakespeare.—Late, very large, roundish; skin hairy, red, thick; flavour very good.

Hopley's Companion.—Middling early, very large, roundish oblong; skin hairy, bright red, with reddish orange veins; flavour rich.

Dublin.—Very large, roundish; skin hairy, red, with orange red veins; flavour sweet and rich. This is perhaps the best of the very large Gooseberries, and is likely to obtain an extensive cultivation for the market.

Speedwell.—Large, roundish oblong; skin hairy, light red, thin; flavour rich and vinous.

Berry's Farmer's Glory.—Leaves pubescent above; fruit very large, obovate, downy, red, thick; flavour rich.

Hampson's Tantararara.—Above middle size, obovate; skin downy, red; flavour rich.

FRUIT YELLOW.

Beaumont's Smiling Beauty.—Early, large, oblong obovate; skin smooth, yellowish white, thin; flavour very good.

Broom Girl.—Early, large, roundish oblong; skin hairy, thin; flavour rich.

Fanny.—Large, roundish oblong; skin hairy, yellow; flavour rich.

Goldfinder.—Large, oblong; skin hairy, yellow; flavour excellent.

Leader.—Very large, roundish oval; skin smooth, yellow; flavour rich.

Moreton Hero.—Very large; skin smooth, yellow, and thin; flavour rich.

Candidate.—Large, oblong; skin smooth, thin; pulp tender and rich.

FRUIT GREEN.

Parkinson's Laurel.—Rather late, large, obovate; skin green, very downy, and thin; flavour very sweet.

Collier's Jolly Angler.—Late, large, obovate; skin downy, light green, and thin; flavour rich.

Massey's Heart of Oak.—Middling early, large, oblong, tapering to the stalk, which is thick at its insertion; skin smooth and thin; flavour rich and excellent.

Edward's Jolly Tar.—Resembles the preceding, but is less oblong; ripens later, the skin being thicker; flavour rich and sweet.

Beeston Castle.—Large, roundish obovate; skin smooth, green, thin; pulp tender, with rich flavour.

Random Green.—Very large, oblong; skin green and thin; flavour good.

Green Overall.—Very large, obovate; skin downy, green, and thin; flavour rich and excellent.

Lofty.—Very large, obovate; skin hairy, green, very thin; flavour very rich.

Lord Eldon. — Large, roundish obovate; skin smooth, green, and thin; flavour sweet and rich.

Keepsake.—Large, roundish oblong; skin hairy, green, thin; flavour very sweet, rich, and excellent.

FRUIT WHITE.

Woodward's Whitesmith.—Syn. Whitesmith, Sir Sidney Smith, Hall's Seedling, Lancashire Lass, Grundy's Lady Lilford; middling early, and of good size, but has not been much grown for competition where size alone is the object; roundish oblong, sometimes inclining to ovate; skin downy, white, and thin; flavour excellent. When prizes were offered for new sorts, flavour being taken into consideration, and when the number of them was inconveniently numerous, the task of decision was found to be greatly abridged and simplified by the expedient of offering prizes for sorts better than Woodward's Whitesmith. Few were brought forward to compete with this standard of excellence.

Wellington's Glory and *Crompton's Sheba Queen* are scarcely different from the preceding.

Saunders's Cheshire Lass.—Very early, large, oblong; skin downy, white, and very thin; flavour rich and sweet. Deserves recommendation for its earliness in ripening, and also for tarts, its green fruit soon acquiring a size fit for that purpose.

Cleworth's White Lion.—Late, tolerably large, roundish oblong; skin slightly hairy, white, transparent, very thin; flavour rich.

King of Trumps.—Large, roundish oval; skin smooth, white; flavour rich and excellent.

Cook's White Eagle.—Late, large, obovate; skin thick, smooth, white; flavour good. Affords a late succession.

Taylor's Bright Venus.—Middling early, of medium size, obovate; skin very slightly hairy, white; flavour sugary, rich, and excellent. After being ripe it has the property of hanging till it begins to shrivel; and it then acquires a slight bloom, resembling that of the Pitmaston Greengage Gooseberry. ||

* These shows are of a very primitive character. The club-room of a country inn is usually the exhibition place. The exhibitors gather round a table; the chairman sits with scales and weights before him, and calls for the "heaviest red," it may be. A berry is produced by some exhibitor, weighed, and the weight recorded. This is repeated so long as berries are forthcoming, the heaviest for the time being, remaining in the scale as the standard, until it is beaten by a heavier fruit. These large berries appear to be produced rather by means of thinning and high cultivation than by special feeding.

ELIZABETHAN GARDENING.

[From Fraser's Magazine for August.]

THAT style of domestic architecture which, after an interval of about half a century, succeeded the Gothic, and which is called Elizabethan—though some of its finest examples belong rather to the reign of James I.—has of late years suffered a revival; and, as the only really domestic style of English architecture, certainly deserves a considerable share of popular favour. We trust the taste for it may increase, and supersede the bastard attempts at domestic Gothic which modern architects perpetrate, under the disguises of Venetian, Victorian, or some other phrase for their original ideas of what Gothic ought to be.

In its broad characteristics, the Elizabethan is, without doubt, a style peculiarly well adapted to our English climate and scenery. The warm tint of brick—its favourite material—harmonises far better with the cool green of foliage, than the cold lines of the grey or white stone or stucco of an Italian building; while the quaint clumps of decorated chimneys, the variously-formed gables, the obvious roof, the large unsymmetrical windows, and ornamental portals, all meet the requirements of a residence in a country which necessitates huge fires, ample light, and protection from heavy rains and occasional deep snows, and which practises a large and free-handed hospitality. It is, moreover, a style suited for the prince and for the peasant; it can meet the requirements of the most wealthy,—as in Holland House, Hardwicke, and other stately examples; while it is suited to shelter the lowliest cottager. The details of its ornamentation—hybrids between the Classical and the Gothic,—are doubtless susceptible of improvement; but they are not necessary to it: on the contrary, it is capable of receiving the most varied ornamental details, from any source which the fancy or taste of the modern architect can adapt or devise. In fact, it has the unspeakable advantage of not being a true 'style,' and, therefore, has no pedantic rules to fetter it.

It is strange, however, that while so much attention has been paid to the study of this style for country residences, but comparatively little has been done for promoting a knowledge of the style of gardening which prevailed at the same period, and always accompanied it as a very essential part of the design. It is customary to see a not despicable imitation of an Elizabethan house, surrounded by a garden in what is called the 'Natural' style — which means a small lawn with a few small flower beds cut out upon it in an irregular manner, after the fashion of the confectioner's ornaments on a tart; or, if a more ambitious style is attempted, it is either an Italian or French garden, totally at variance with the style of the mansion. Even if an attempt is made to reproduce an Elizabethan garden, and the architect is consulted on its laying out, we shall probably find the 'forthrights,' *i. e.*, the principal walks, accurately set out; but there the architect's knowledge will seem to have failed him. He could plan a flat surface, intersected at right angles by broad straight walks, but how to fill up the spaces between the intersections was beyond his powers. It was as if he had undertaken to erect a building, and having laid down the ground plan, and drawn the general outlines, he was unable to design a capital, carve a window tracery, or execute a moulding. It would be obvious that such a man had not half learned his profession, and had undertaken more than he was able to perform; yet few gentlemen detect that the designer who leaves their gardens only half planned, with all the details of ornamentation shirked and omitted, is equally ignorant of his profession, and has no business to undertake the laying out of grounds. The architect feels conscious that he ought to be able to complete his work, and prepare a design for the surrounding of the house which he has built; and therefore, if appealed to, he undertakes it, though he rather despises the task; but, being seldom appealed to, he neglects this part of his education, and is incompetent to the work. It was formerly—as it still should be—the work of the architect to plan out the garden attached to the villa; and, in the early works on domestic architecture, there is scarcely a ground-plot not laid out as a parterre or labyrinth. That it is otherwise now is really the fault of employers. When a gentleman has built a house, he thinks he has done with the architect, and sends for the landscape-gardener. The landscape-gardener, who, for the most part, is more ignorant of architecture than the architect is of landscape-gardening, has not the remotest suspicion that the garden should harmonise with the house. He has certain rules, according to the fashion of the time; and, whether appropriate or not, he lays out the garden according to those rules, in the prevailing taste of the day. He has no more idea of appropriateness than the milliner, to whom the prevailing fashion of the minute is the only guide, and with whom one pattern serves for all alike. Of course, neither the milliner nor the gardener is to blame: while ignorance prevails among their employers, and fashion reigns sole arbiter, they must comply with their employers' demands; for ruin would await the presumptuous heretic who dared to dispute fashion's decrees.

'Ancient' gardening, as Loudon calls all English gardening prior to the Revolution, still labours under the ban which tabooed Gothic architecture in the last century. It is regarded as simple barbarism, without rules, laws, or ordinances of any kind; the mere outbreak of 'a diseased imagination.' The popular belief is, that there was really no style of gardening worthy of study, much less of imitation, prior to the Revolution. It is generally believed that William III. introduced gardening into England, in the form which is, from him, called the 'Dutch' style; that is, quaint figures of temples, vases, statues, animals, &c., in 'topiary work,' with formal canals, and broad straight walks, bordered by walls of cut foliage; that the excess to which this taste was carried led, in the first quarter of the 18th century, to a directly opposite style—the 'Natural' or 'English' style, in which the grounds were to be reduced to a wilderness, and a vain attempt made to imitate the wild luxuriance and easy grace of Nature; and that this has yielded partially to the modern style—a modification of the French and Italian styles.

But the truth is, that all these styles had been long previously practised in this country. In the reign of HENRY VIII., the gardens of Nonsuch House were laid out in the Italian style, with columns and pyramids of marble, statues, vases, fountains, &c. In the same reign, Leland, in his Itinerary (p. 60), describes the gardens at 'Wrexhill Castille, in Yorkshire,' as containing 'mountes, *opere topiaris*, writhen aboute with degrees like cokill-shells to com to the top without payn,'—in what is now called the 'Dutch' style. Examples of this style, much older than the time of the stern Dutchman, still remain attached to old mansions. At Packwood, near Knowle, in Warwickshire, there is a 'mount writhen with degrees like cokill-shells,' and planted with Yews, which is probably quite as old as that so quaintly described by Leland. Three-quarters of a century before the alleged introduction of the 'Dutch' style, Lord Bacon, in his 'Essay on Gardening,' had advocated the Natural style in preference to 'images cut in Juniper or other garden stuff, knots or figures, with divers-coloured earths—they are but toys—they are for children.' And, before the end of the 16th century, Spenser had described the 'English' or 'Natural' style, with much beauty, in passages in the Faerie Queene, adapted from Tasso:—

> There the most dainty paradise on ground
> Itself doth offer to his sober eye,
> In which all pleasures plenteously abound,
> And none does others' happiness envy;
> The painted flowers; the trees upshooting high;
> The dales for shade; the hills for breathing space;
> The trembling groves; the crystal running by;
> And, that which all fair works doth most aggrace,
> The Art, which all that wrought, appeared in no place.

It has been frequently said that Milton's description of Paradise was instrumental in introducing the Natural style; but if so, it could only be by a mis-

apprehension of what he says. In his description of what may be called 'the open country' of Paradise, 'hill, and dale, and plain,' he lauds it as not planted by 'nice art, in beds and curious knots;' but it by no means follows that he was opposed to visible art in the garden, any more than Spenser, because he describes the art as concealed in the seductive Bower of Bliss, which was spread as a trap for the Knight of Temperance. On the contrary, Milton describes the 'blissful bower' of our first parents as fashioned by Divine art; and his words are carefully selected to convey an idea of the art which perfects man's abode. The *roof* is *inwoven* shade, *fenced* up by a verdant *wall;* flowers *wrought Mosaic* and with *rich inlay broider'd* the ground. How elaborately the passage is phrased to exhibit art; and how carefully the poet distinguishes between the home of man, where art should be visible, and the wild range of nature, where art has no place.

In fact, the English have always loved gardens; and it is impossible to fix a date when gardening was not practised as an art. The Romans had their gardens in Britain, and introduced many useful and ornamental plants. Every Saxon gentleman had his 'garth' for pleasure, and his ort-garth (orchard) for vegetables; and, under the Norman Kings (temp. Henry II.), the citizens of London had gardens to their villas, 'large, beautiful, and planted with various kinds of trees.'

It would be possible to trace some of the alleged modern styles of gardening to a much earlier date; for it is quite certain that the 'Dutch style, with cut trees, straight avenues, and canal-like ponds, prevailed in Egypt; that the 'Natural' or 'English' style was preferred at Babylon: for the celebrated hanging gardens made by Nebuchadnezzar for his queen Anytis, were laid out to imitate the mountains and natural scenery of her native country, Media; and the sculptures represent similar gardens at a still earlier date in Assyria. But we have no intention of entering into so pedantic an inquiry, or we might literally travel to China and Peru for further illustrations.

(*To be continued.*)

Home Correspondence.

Prize Groups of Plants.—According to promise I beg to send you a list of plants comprising the group to which the Silver Cup was awarded at the Leicester Horticultural Show held the other day. This collection occupied a space of 40 feet in length and 7 feet in width, and was exhibited by A. Turner, Esq., of Leicester. In the centre was a noble specimen of the Norfolk Island Pine, upwards of 13 feet high; on either side of this stood fine examples of Seaforthia elegans and Dicksonia antarctica, under the shade of which were fine specimens of the following Orchids, viz.: Vanda suavis and tricolor, Oncidium flexuosum, Cattleya bicolor, Lælia elegans, and Dendrobium chrysanthum. In other available space stood the following plants, carefully arranged, so as to produce the best possible effect:—Plumbago capensis, trained on a large globular trellis; Cissus discolor, Echites nutans, Sphærostema marmoratum, Pandanus elegantissimus, Pandanus javanicus variegatus, Croton longifolium variegatum, Alocasia metallica and macrorhiza variegata, Pothos argyræa, Caladium Chantini, Houlletti, picturatum, Wightii, hæmatostigmum, Belleymei, Troubetskoi, and Lowii; Lilium lancifolium rubrum and album; Disa grandiflora; Eranthemum rubronervium, Eriocnema marmorea (both the latter under large bell-glasses); the Japanese Lonicera, Pteris argyræa, Lomaria attenuata, Blechnum glandulosum, Anemia fraxinifolia, Asplenium lucidum, Nephrodium molle var. corymbiferum, Platycerium alcicorne, and Pteris rubro-nervia. These plants formed in themselves a forest of the most beautiful vegetation. *An Old Exhibitor.*

Double Glazing.—In your Paper of the 27th ult. you have done me the honour of alluding to my experiments on this subject, and of quoting a statement of mine written for the information of my friend Mr. Ward, and by him laid before the British Association last year. At the close you invite me to give my further experience, and I have now much pleasure in doing so. Another year's trial has confirmed me still more of the value of double glazing, and of its perfect adaptation to all kinds of plant growing. With me, under this system, plants continue to flourish and increase in beauty to a degree far beyond what I expected when I first adopted it. One unexpected result has followed—an almost total cessation of annoyance from insects. Formerly, as with others, these pests, of various kinds, abounded with me; now they but rarely appear, and when they do they are few in number and are easily got rid of. From this I infer that when plants are grown in a condition of atmosphere suited to maintain them in perfect health, they are but little liable to such attacks, which so often impair their beauty. But the most remarkable feature arising from double glazing is the extraordinary length of time heat is retained in a house so treated. I give you an interesting instance. In the first week of January last we had here four days and nights of continued severe frost, the thermometer not rising during these days to 32°, and each night falling to about 18°. Just at the commencement of this frost an accident happened to the apparatus which heats my stove house, 130 feet long, and a range of about 60 feet for Orchids. On entering the latter one morning I was alarmed to find that the fire had been drawn, the water in the pipes run off, and some of the latter disconnected to enable a new fitting to be put in. I was assured, however, that all would be completed by evening, so as to enable the fires to be relit. On my arriving home about sunset I was informed that the new fitting did not fit, and that another casting should be made and be ready for use the next day. It did not come home until two days after. So there was a valuable collection of tropical plants in two large houses without any heat, with 12° to 14° of frost. I much regret I did not make a note at the time of the actual temperature of the houses, and of the divisions of each, and can therefore now only write from recollection. I think it was about 56° on the morning the fire was discontinued. I am sure that 24 hours after the reduction was only 3°, and the following morning, 48 hours after, only 3° more! The houses remained in the same condition the third night, and 2° more were lost—a reduction of 8°, from 56° to 48°, in 72 hours, with a mean temperature outside of about 25°. Nothing was injured. Is not this a striking proof of the value of double glazing? It saved me more than I ever spent in this way, for I must have lost my plants without it, because long before the above time expired the temperature of an ordinary house must have gone below freezing point. With such a system a gardener and his employer may sleep without anxiety all night during the hardest frosts. I send these few facts in the hope that they may prove interesting to some of your readers, and induce them to turn their attention to double glazing, I entertain no doubt that those who try this system will never regret it. To those who doubt it, I have only to say, "Come and see the results, and judge for yourselves." *Thos. Bewley, Rockville, Black Rock, near Dublin, Sept.* 7.

Flower Shows.—In looking back through the vista of past years, I find that almost invariably prizes are taken in certain classes by the same individuals. The competition is left to two or three, who claim 1st, 2d, and 3d prizes. How does this happen? Is it because they are the only growers of the subjects exhibited? No. Is it because they are the most skilful cultivators of them? No. It is simply this. A. commenced growing plants some 20 years back, B. 15, and C. 10, but D., E., and F. only commenced four or five years ago—unfortunately for them therefore they can have no hopes of being successful just yet, as A., B., and C.'s plants are older and consequently much larger, though more skill may have been bestowed on those in the possession of D., E., and F. The only way of remedying this evil, (for it is considered by many to be an evil), is to name the size of the pots required, and to fix the standard smaller than some of the sizes in which many of the plants are exhibited at present. Or let the prizes given at present to plants in any sized pots be given to those in a size fixed upon, and a smaller prize given to those in any sized pots, as it would perhaps be unfair to exclude the latter altogether, although they have been exhibited so often, that most of them are well known to the public. In short, it has been said of some collections, that if only set properly on the road, they would find their way without difficulty to any of the London shows. It is to be hoped that the drift of these remarks will not be misunderstood. Provided the hints just given are attended to, there would I think be more competition, greater skill displayed, and more recent introductions would doubtless thus be brought before the public in the shape of specimens than have hitherto been submitted to public inspection. *W. P. R., The Gardens, Shrubland Park, Ipswich.*

Glazing.—I shall feel obliged for a reply from any experienced gardener to the following question. Will a Vinery answer in which the house is composed of lights that have the glass put in without laps? The lights in my Vinery were originally of the old-fashioned form; the glass being in small squares, each overlapping the other, leaving a small aperture between. While in that state the Vines prospered, and excellent Grapes were usually obtained. But the then owner, considering that harm was done by the rain driving in occasionally with a south wind, thought to obviate the evil by inserting thicker glass in strips of 18 inches long, the edges of which, instead of overlapping, were put end to end with white lead between, so as to render it perfectly water-tight, and so it was; but at the same time of course it became air-tight, and ever since the Vines have evidently done badly. The foliage is weak, and subject to red spider and other pests, and the fruit small, while the whole plants appear parched and dwindled. Is this owing to the alteration? Can it be avoided by proper ventilation by means of the front lights which swing, and the upper lights, the topmost of which slide? or would it be advisable to reglaze the lights, and allow the glass to overlap so as to admit of freer ventilation? I should observe that I always start my Vines early in the year, so as to have the Grapes ripe by August and September. An opinion on this point will greatly oblige. *B.*

Wasps.—Can any of your Correspondents tell me what is the reason that there are so many wasps this year? A gentleman, speaking to me one day on the subject, declared it was owing to the destruction of the blackbird, but I doubted his word, for I have closely watched the habits of birds at all seasons of the year, and I have never seen a blackbird or any other bird attempt to destroy a wasp; and the blackbird is the very last I should look to for such an action, for blackbirds I think live entirely upon fruit. From May till October they live on the products of the garden and orchard, and the remaining months their food is furnished by the wood and hedgerow. Every gardener knows what a plague the blackbird is in the fruit garden; it destroys more fruit than all other birds put together. So I do not think the cause of our having so many wasps lies in the destruction of blackbirds; I attribute it to the hot and dry summer, which I think has been particularly favourable to wasps. Since the latter first made their appearance I have destroyed upwards of 100,000, and the means I have used are very simple, and not expensive. I have a quantity of large-mouthed bottles, and I half fill them with a mixture of beer and water sweetened with sugar; then I hang them on the walls and fruit trees where the wasps are most numerous. They are very fond of this mixture, and to make it more attractive, I place over the mouth of the bottles a Plum or Pear that has been partly eaten by them; care must, however, be taken to leave sufficient room for them to get into the bottles. The plan of placing the fruit over the bottles assists in the destruction of wasps in two ways. In the first place it renders it more difficult for a wasp to get out of a bottle when it is once in, and it flutters about in the bottles until it falls into the liquid. In the second place, many wasps will be found to prefer the fruit to the mixture, and as they are great gluttons, they eat of the fruit until they become helpless, and then fall into the bottles and are drowned. In this way I destroy from 150 to 200 in every bottle I hang out in the course of a day and night, and as I have more than 30 bottles I destroy about 5000 wasps every day. And now there appears to be just as many as there were before a wasp was taken, although every nest has been destroyed as soon as it was found. *G. G., Coventry.*

Frogs.—Can any of your readers tell me whether they ever heard a frog squeak? A large and much distended one was in our garden yesterday, and every time it was touched it uttered a most distinct squeak. It was very sluggish, but finally took three or four leaps, squeaking with every jump. As I never heard such a thing before, I should be glad to know whether it has ever been noticed. *F. H. H., Kew.*

Societies.

Royal Horticultural: *Sept.* 6.—*Exhibition of Autumn Flowers.*—Cut Roses were shown on this occasion by Messrs. Paul & Son, the Rev. Mr. Radclyffe, and Mr. Treen of Rugby. Hollyhocks and Verbenas came from Messrs. Minchin & Sons, and Messrs. Paul & Son furnished cut spikes of Gladioli. Of Dahlias, Mr. Keynes contributed the only collection exhibited. Messrs. Paul & Son showed a stand of French Asters; Messrs. Smith, Balsams; and Messrs. A. Henderson & Co. a group of Miscellaneous Stove and Greenhouse Plants, among which we noticed the variegated variety of Rhynchospermum jasminoides, various sorts of Ferns, Campylobotrys regalis, Marantas and other interesting plants. The same firm also contributed Allamanda Hendersoni, a continuous flowering variety in the way of Schottii, as far as the blossoms are concerned, but with foliage more like that of cathartica. This received, as it well deserved, a First-class Certificate; as did also the large orange-stained white blossomed Dendrobium formosum giganteum from Mr. Bull, King's Road. To Pelargonium Beauté de Surennes, a fine rose, from Mr. Salter was awarded a First-class Certificate, and Verbena Purple Prince from Mr. Norford, of Brompton, received a label of Commendation. Another Verbena called Minerva, pink with a crimson eye, from Mr. Stalker, of Sydenham, was awarded a Second-class Certificate. Pentstemon Mrs. Moore, a beautiful variety formerly alluded to by us, received a First-class Certificate, and Mrs. E. Clarke, a Second-class Certificate. These came from Messrs. Downie, Laird & Laing, as did also other fine varieties of the same useful flower. Dahlia Queen of Primroses received a Second-class Certificate; and George Wheeler, purplish crimson shaded lilac, a First-class Certificate, as did also Champion, a variety in the way of Lord Derby; while Queen of Sports, a carnation-striped sort, had a Second-class Certificate. These were all shown by Mr. Keynes, of Salisbury. Two groups of Pelargoniums from the Society's Garden, placed at each end of the different collections, served to set them off to good advantage, but altogether the display was miserable compared with what might have been expected at this season of the year under proper management. To most of the collections just named Certificates were awarded, as will be seen by an advertisement in another column.

Crystal Palace Horticultural Exhibition, *Sept.* 7 *and* 8.—The autumnal Fruit and Dahlia show, which was held on Wednesday and Thursday last, was well attended. The display of fruit was unusually large, and in many instances excellent, especially in the case of Black Grapes, which were all that could be desired.

Collections of 8 *dishes of Fruit.*—These were not numerous; but among them were some excellent examples of skilful cultivation. In the different exhibitions were very fine Black Hamburgh, Muscat, and Trebbiano Grapes, good Barrington Peaches, Moor

Park Apricots, Enville and Queen Pine Apples, Trentham Hybrid Green-fleshed Melon, Morello Cherries, Pitmaston Orange and Elruge Nectarines, Red Magdalen and other Peaches; Washington, Coe's Golden Drop, and other Plums; and Williams's Bon Chrétien Pears.

Awards.—1. Mr. A. Henderson, Trentham; 2, Mr. Dawson, Panshanger Herts; 3, Mr. Jones, Nottesford Abbey, Hants.

Pine Apples.—These were neither plentiful nor good, a statement confirmed by the fact that both the first and second prizes for Queens were withheld. Among other sorts was a singular variety from Mr. Drewitt, gr. at The Denbies, in which from the base and crown, proceeded little nobs surmounted by crowns—in short a kind of hen-and-chicken Pine Apple. This came from Penang, and from its peculiarity of appearance elicited considerable attention. We also noticed a Providence, weighing 10 lb.

Awards.—Queens: 1 & 2 withheld; 3, Mr. Stafford, Wormley Bury, Hants. Other varieties: 1, Mr. Page, gr. to W. Leaf, Esq., Streatham; 2 and 3, Mr. Smith, gr. to A. Anderson, Esq., Norwood.

Grapes. — These were wonderfully fine, especially Black Hamburghs, three bunches of which, weighing together 11 lb. 4 oz., were contributed by Mr. Meredith, of Garston, near Liverpool. The basket of 12 lb. from the same excellent grower was also equally good; and beautiful fruit of Lady Downes' Seedling also came from Mr. Wills, gr. to Sir P. G. Egerton, Bart, and Mr. Henderson, of Trentham. Of White Grapes the best three bunches were furnished by Mr. Dwerrihouse, gr. to Viscount Eversley, at Heckfield. The same exhibitor had also a bunch, beautifully formed and well ripened, of the same sort, a seedling, which weighed 5 lb. This was shown as the largest single bunch of any kind. It was however beaten by Child of Hale, a new variety, from Mr. Meredith. This latter weighed no less than 8½ lb. Marchioness of Hastings, from Mr. Henderson, weighed 4 lb. 14 oz.; and Muscat Hamburgh, from Messrs. Lane, upwards of 2 lb.

Awards.—12 lb.: 1, Mr. Meredith; equal 2, Mr. Wills and Mr. Henderson; 3, Mr. M'Kay; extra, Mr. Monk. Three Black Bunches: 1, Mr. Meredith; 2, Mr. Ford, gr., Frogmore Hall, Waltham, Herts; 3, Mr. Ormant, gr., Hookfield Grove Epsom. Three White Bunches: 1, Mr. Dwerrihouse; 2, Mr. Budd, gr. Cobham Hall, Gravesend; 3, Mr. Wills. Heaviest Bunch: 1, Mr. Meredith; 2, Mr. Dwerrihouse; 3, Messrs. Lane & Son.

Peaches.—These were for the most part small; those, however, to which 1st prizes were awarded were all that could be desired, both as regards size and colour. The sorts were chiefly Barrington, Violette Hâtive, Grosse Mignonne, Têton de Venus, Royal George, and Vanguard.

Awards.—1 and 2, Mr. Cross, The Grange, Alresford, Hants; 3, Mr. Spivey, Bishop's Stortford.

Nectarines.—Among these were numerous examples of Pitmaston Orange, Elruge, Violette Hâtive, Red Roman, and Murrey. With one or two exceptions they were, however, small in size.

Awards.—1, Mr. John Fraser, Lea Bridge; 2, Mr. Henderson; 3, Mr. Woodward, Ewell, Surrey.

Melons.—These were plentiful. Among green-fleshed kinds, the best were Bailey's Golden Perfection, Beechwood, and Bromham Hall, and among red-fleshed sorts Gem stood in the foremost rank.

Awards.—Green-fleshed: 1, Mr. Bailey, Shardeloes; 2, Mr. Rust, Broome House, Fulham; 3, Mr. Beech, Ringswarren, Epsom. Scarlet-fleshed: 1, Mr. Young, Lee Park, Havant; 2, Mr. Blair, Shrubland Park, Ipswich; 3, Mr. Godfrey, Ware Park Mill, Herts.

Figs.—One or two dishes of these were good; the rest were somewhat small in size.

Awards.—1, Mr. Eustone, Ware House, Exeter; 2, Mr. Dungey, Ockham Park, Ripley.

Cherries.—These were chiefly Morellos, of which there were some large and excellent fruit.

Awards.—1, Mr. Dawson; 2, Mr. Holder, Reading; 3, Mr. Bailey.

Plums.—These were shown in great variety, and in good condition. Among the varieties were Greengage, Prince of Wales, Goliath, Washington, Jefferson, Coe's Golden Drop, Denyer's Victoria, and other well-known sorts.

Awards.—1, Mr. Bailey; 2, Mr. Woodward; 3, Mr. Kaile, East Horsley Towers, Ripley; extra, Mr. Drewitt, The Denbies, near Dorking.

Apples.—These were numerous; for the most part large and free from speck or blemish, the bright warm colour of the Red Astrachan and Quarrenden lighting up and setting off to good advantage the different green-skinned kinds with which they were associated. Among dessert varieties were very fine examples of Kerry, Downton, Ribston, Fearn's, Golden, and Cox's Orange Pippins; Summer Pearmain; Cox's Pomona, a free-bearing excellent kind; Old Nonpareil, Bull's Golden Reinette, and Blenheim Orange. Kitchen sorts comprised Reinette du Canada, Wellington, Hollandbury, Keswick Codlin, Alexander, Lord Suffield, Hawthornden, Cellini, Golden Noble, Kentish Fillbasket, Lord Nelson, and Maux Codlin.

Awards.—Dessert sorts: 1, Messrs. Lane, St. Mary's Cray; 2 Dr. Cooper, Slough; 3, Mr. Webb, Reading; extra, Mr. Betteridge, Milton Hill, near Steventon, Berks. Kitchen kinds: 1, Messrs. Lane, St. Mary's Cray; 2, Mr. Mortimore, Wallington; 3, Mr. Wren, Carshalton; extra, Mr. Webb, Reading.

Pears.—These were plentiful and for the most part in fine condition. The sorts were chiefly confined to Duchesse d'Angoulême, Beurré Bosc, Marie Louise, Crassane, Chaumontel, Napoléon, Glou Morceau, Beurré Diel, Beurré Rance, Comte de Lamy, Gansel's Bergamot, and Beurré d'Amanlis. As regards flavour, the best were Louise Bonne of Jersey, and Williams's Bon Chrétien, of both of which some fine fruits were exhibited. Among sorts shown for weight there was nothing remarkable.

Awards.—Three Dishes: 1, Mr. Wilson, Craven Cottage, Fulham; 2, Mr. John Fraser; 3, Mr. Nicholls, New Road, Hammersmith. Single Dish for flavour: 1, G. Wilson, Esq., Gishurst Cottage, Weybridge; 2, Mr. Heather, Ember Grove, Thames Ditton; 3, Mr. Sheath, Langley, Bucks. Single Dish for weight: 1, Mr. Dwerrihouse; 2 & 3, Mr. Goldsmith, Polesden, Dorking; extra, Mr. Harrison, Oatlands.

Miscellaneous Subjects.—Among these were some well fruited Vines and Peaches in pots from Mr. Giers, Norwood, and Messrs. Fraser and Lane. Mr. Wm. Paul had also some Vines in pots, showing the period of ripening of different kinds. Capsicums of unusually large size came from Mr. Scorer, Woodlands, Havant; very fine nuts from Mr. Webb of Reading; large and beautiful fruit of the Granadilla from Mr. Blair, Shrubland Park; and last but not least, the highly coloured and extremely fine looking Apple from Mr. Taylor of Southampton, mentioned in our notices to correspondents, the fine appearance of which alone would recommend it to a prominent place on the dessert table. We also noticed some very fine Oranges from Mr. D. Hutcheson, Margate.

Dahlias.—The display of these was large, and the blooms in the winning stands in good condition. Those from Mr. Turner and Mr. Keynes especially were very fine. Good stands were also contributed in the amateur class. In the different collections we noticed beautiful examples of Lord Palmerston, Lady Franklin, Lady Popham, Goldfinder, Earl of Shaftesbury, Heroine, Commander, Hon. Mrs. Trotter, Madge Wildfire, Criterion, Hon. Sidney Herbert, Model, Captain Harvey, Cygnet, Chieftain, Lord and Lady Elcho, Lord Cardigan, Joy, Hope, Volunteer, Pioneer, Hugh Miller, Miss Henshaw, Pluto, Lord Derby, Duchess of Wellington, Perfection, George Douglas, Lord Eversley, Miss Pressley, Mr. Stocken, Mrs. Pigott, Mr. Boshell, Marquis of Bowmont, Chairman, Jenny Austin, Norfolk Hero, Mrs. H. Vyse, Cherub, Warrior, Juno, Lord Dundreary, Gold Drop, Umpire, Bob Ridley, Delicata, General Jackson, Mauve Queen, Dinorah, Count Cavour, Charlotte Dorling, Beauty of Hilperton, Donald Beaton, Mrs. Henshaw, Midnight, Peri, Willie Austin, Disraeli, Lord Canning, and George Brown. Among Fancies we noticed fine blooms of Harlequin, Lady Paxton, Countess of Bective, Pauline, Starlight, Elegans, Queen Mab, Confidence, Sam Bartlett, Miss Jones, Mrs. Crisp, Norah Creina, Madame Sherrington, Summertide, Fairy Queen, Mrs. C. Kean, Countess of Shelburne, Pluto, Zebra, Garibaldi, Rev. J. Dix, Triomphe de Roubaix, Mrs. Wickham, Duchess of Kent, Leopold, Oliver Twist, Flirt, and Gem.

Awards.—48 blooms: 1, Mr. Turner; 2, Mr. Keynes; 3, Mr. Walker; 4, Mr. Legge. 24 blooms: 1, Mr. Keynes; 2, Mr. Turner; 3, Mr. Walker; 4, Messrs. Kelway & Sons; 5. Mr. Morse; 6, Messrs. Saltmarsh & Son. Amateurs, 24 blooms: 1, Mr. C. J. Perry; 2, Mr. Sladden; 3, Mr. Hobbs; 4, Mr. Hopkins; 5, Mr. Watt; 6, Mr. Pannett. 12 blooms: 1, Mr. Sladden; 2, Mr. Charlton; 3, Mr. Hopkins; 4, Mr. Hobbs; 5, Mr. Sladden; 6, Mr. Wakeman. Fancies, 12 blooms: 1, Mr. Keynes; 2, Mr. Turner; 3, Mr. Walker. Amateurs: 1 and 2, Mr. Sladden; 3, Mr. C. J. Perry.

Asters.—Exhibitions of these were numerous, and seemed to excite much interest. Both the French and German sorts were very much admired, and both were very handsome.

Awards.—German: 1, Mr. Sandford; 2, Mr. Bettridge; 3, Mr. Jennings. French sorts: 1, Mr. C. Sandford; 2, Mr. Ward; 3, Mr. W. Sandford. Extra: Mr. Wyatt.

Roses.—Several boxfuls were shown, all of them more or less indicating the ill effects of the dry hot weather which we have lately experienced. Among them there were, however, fair examples of most of the leading varieties, foremost among which stood Senateur Vaisse, Gloire de Santenay, M. Eugène Verdier, Gloire de Dijon, and Celine Forestier.

Awards.—36: 1, Mr. Turner; 2, Messrs. Paul & Son; 3, Mr. Keynes. 24; 1, Messrs. Paul & Son; 2, Mr. Turner; 3, Mr. Keynes. 18 (Amateurs): 1, Mr. Exell; 2, Mr. Wright; equal, 3, Mr. Plester and Dr. Cooper; 4, Mr. Marlow.

Hollyhocks.—Various stands of cut blooms were shown, in which were excellent examples from Mr. May, of Bedale, the Rev. E. Hawke, and Mr. Smail, of Norwood, of most of the best kinds, among which we noticed the Rev. J. Dix, Stanstead Rival, J. Ullett, Mrs. Cochrane, Purple Prince, Premier, Prince Charlie, Lord Loughborough, Queen Victoria, and J. Clarke. Messrs. Downie, Laird & Laing, showed handsome spikes of this favourite flower.

Awards.—24: 1, Mr. May; 2, Rev. E. Hawke; 3, Messrs. Minchin & Son. 12 (Amateurs): 1, Mr. Smail; 2, Rev. E. Hawke; 3, Mr. Pannett; extra, Mr. Porter and Mr. Plester.

Verbenas.—One or two good exhibitions of these were furnished by Mr. C. J. Perry, Mr. Turner, and Messrs. Minchin & Son.

Gladioli.—From Messrs. Kelway, Standish, and Paul & Son came collections in which the following were good and striking, viz.: Brenchleyensis, scarlet; Eleanor Norman, delicate pink and white; Clemence, pink striped with crimson; Comte de Morny, cerise with white throat; Egerie, rose striped salmon; Erato, bright rose; Isoline, delicate pink; John Bull, saffron veined white; Le Poussin, red with white throat; Linné, cerise blotched with yellowish white; Madame Binder, carmine striped white; Ophir, purple spotted yellow; Penelope, creamy white; Vesta, carmine spotted white; Imperatrice Eugénie, a charmingly marked kind; Scottish Chief, Reine Victoria, Madame Standish, Ensign, Rev. Joshua Dix, Basil, large and showy; Rosenberg, Edith Dombrain, and Miss Howell, the last a good pink. In one of the collections the spikes were backed up by the stiff deep-green leaves of Yucca gloriosa.

Seedlings.—These were chiefly confined to Dahlias, of which some promising sorts were exhibited. First-class Certificates were awarded to Leah (Turner), golden yellow, an effective looking flower; Princess Alexandra (Collier), small compact rich orange, striped with bright crimson; George Wheeler (Keynes), purple shaded lilac; and Spitfire (Rawlings), orange scarlet. Second-class Certificates were given to Brunette, flame colour with very heavy lacing of purple crimson, and Black Hero (Hopkins), a promising dark mulberry flower, and to E. Spary (Keynes), compact light maroon. Queen of Sports, Champion, and Queen of Primroses, were also exhibited, and much admired. To Seedling Verbenas, Charles Turner, large delicate pink with bold crimson eye, and Snowball, white, with a fine outline, First-class Certificates were awarded. These came from Mr. Perry.

Miscellaneous Plants.—Of these a collection came from Mr. James Veitch, in which were Lilium auratum, the singular Anthurium Scherzerianum, Dracænas, and other interesting plants; Messrs. Smith contributed Balsams; and from Mr. Linden came the pretty Rogiera gratissima, and one or two other plants, all of which were mentioned by us in a former report. From Messrs. Fraser came a strong-growing useful-looking Heliotrope, of continental origin; and from Mr. Wm. Paul examples of Beaton's Pelargoniums alluded to at p. 794.

Notices of Books.

Lessons in Elementary Botany, the part on Systematic Botany based upon material left in MS. by the late Professor Henslow; with numerous Illustrations. By Daniel Oliver, F.R.S., F.L.S., &c. London and Cambridge: McMillan & Co. 16mo, pp. 317.

It is not for want of Botanical Text-books of every conceivable size and character, that we are not a nation of botanists. They abound, from the thin 16mo to the bulky 8vo; but yet somehow or other one does not meet in society with many persons who have even a smattering of the science; while of those who necessarily become students of it, at least professedly, very few advance to a respectable knowledge of its secrets. A reviewer has lately attributed this want of result in great measure to the character of our instruction books and lectures, in which commonly, under the notion of beginning at the beginning, the reader or hearer is bewildered by long unintelligible discussions about cells and tissues and such abstruse matters, and thus loses heart at the very outset. There is probably much of truth in this view of the matter.

Such a charge at least does not rest against Professor Oliver, whose first chapter is devoted to an examination of the common Buttercup, and becomes a lesson in respect to the root, the stem, the leaves, the flowers, and the fruits of plants in general; and whose second and third chapters by means of the very same specimens illustrate the principal functions of plants; while a fourth and fifth are devoted to a comparison of the Buttercup with various other common familiar flowers, by which some notion of the differences of structure which occur amongst plants is plainly brought out. The sixth chapter explains the use of certain "flower schedules" largely employed in teaching by the late Professor Henslow—employed also by Professor Oliver, as he tells us, with much advantage in his own class, and strongly recommended by him both for private colleges and schools.

These schedules form a distinguishing feature of the book, their object being to compel attention to those points which are of the first importance in the structure of flowers. Here is one of the schedules, filled up for the Buttercup, by way of example:—

Organ.	*No.*	*Cohesion.*	*Adhesion.*
CALYX	..	Polysepalous.	Inferior.
sepals	5	..	..
COROLLA ..	..	Polypetalous	Inferior.
petals	5	(regular).	..
STAMENS ..	∞	Polyandrous.	Hypogynous.
filaments ..	..	..	..
anthers	..	..	..
PISTIL	..	Apocarpous.	..
carpels	∞	..	..
ovary	..	..	Superior.
PERIANTH † ..	..	..	..
leaves	..	..	..

Class.	*Division.*	*Name.*
Dicotyledon.	Thalamifloræ.	Buttercup.

N.B. The sign ∞ denotes many. No entry is made opposite to perianth (†) because it is described as calyx and corolla in the case of the Buttercup.

The use of these schedules is explained thus:—The column headed "No." is to be filled with the real number of parts, whether free or coherent, in each of the four series of organs which compose the flower; a "0" opposite an organ necessarily indicating suppression. The column headed "Cohesion" is to be filled in with terms which express or involve cohesion of parts or the absence of cohesion; and the last column headed "Adhesion" is in like manner for terms which express or involve adhesion of parts or the absence of adhesion The terms used are—Of the calyx (cohesion or it

absence), gamosepalous, polysepalous; (adhesion or its absence), inferior, superior. Of the corolla (cohesion or its absence), gamopetalous, polypetalous (regular, irregular). Of the stamens (cohesion or its absence), if cohering by their filaments, mon- di- or poly-adelphous; if by their anthers, syngenesious; if free, mon- di-, &c., up to 10, dec-androus; or if more than 10, poly-androus. Of the pistil (cohesion or its absence), syncarpous, apocarpous; (adhesion or its absence), inferior, superior. To denote the number of carpels constituting the pistil, whether they be free or coherent (if the latter, the number being inferred from the divisions of the style or stigma) the Greek numerals are prefixed to the termination -gynous, as mono- di- poly-gynous, &c. The advantage of encouraging close and correct observation of structure in this way is obvious; and the student is recommended to keep a supply of the schedules in blank, and always to make use of them after collecting a plant not previously analysed.

As an example of the easy style of the elementary portion of the book, we quote a passage which familiarly indicates the nature of transpiration and absorption:—"By this time the specimen of Buttercup has probably faded; the leaves now become soft and flaccid, are drooping, and the stem has lost much of its stiffness. How is this? If the specimen be not quite withered, plant it again in the soil, and cover it with a flower-pot, or better and more easily done, put the root in water, and place the whole in a cool, shaded place for a few hours. We shall anticipate matters, and suppose that this has been already done, and that you tried the experiment in this way upon three distinct specimens of Buttercup. No. 1 you left lying upon the table; No. 2 was placed with its root in water; No 3 was hung upside down, with a flower or leaf in water, the roots in the air. The general result of your experiment will be as follows:—After the lapse of, say 24 hours or so, No. 1 will be, as we have already found, faded; No. 2 will be nearly unaltered; No. 3. will be partially faded, the parts out of water especially. Hence we may gather, that water supplied to the specimens prevents them from fading, especially if it be supplied to the root. On the other hand, if water be withheld, they fade.

"If we take now the faded specimen first described, and put its root in water, and leave it for a few hours in a cool, shaded room, we shall probably find, unless it be irretrievably withered, that it freshens more or less, the leaves and stem becoming firmer and more nearly like their original state. This experiment shows us, further, that water supplied to a fading Buttercup enables it to recover. Reflecting upon these experiments we shall be led to the following conclusions:—

"i. That water evaporates from the exposed surface of plants.

"ii. That fresh supplies are taken into the plant by the root.

"iii. That the stem serves to convey this water-supply from the root to the leaves.

"We may now try another simple experiment, devised by Professor Henslow, which shows that exposure to direct sunlight, as well as dryness of the air, has to do with this evaporation of water from the leaves. Take six or eight of the largest, healthy, radical leaves of the Buttercup you can find; two tumblers filled to within an inch of the top with water, two empty dry tumblers, and two pieces of card, each large enough to cover the mouth of a tumbler. In the middle of each card bore three or four small holes, just wide enough to allow the petiole of a leaf to pass through. Let the petioles hang sufficiently deep to dip into the water when the cards are put upon the tumblers containing it. Having arranged matters thus, turn the empty tumblers upside down, one over each card, so as to cover the blades of the leaves. Place one pair of tumblers in the sunshine, the other pair in a shady place. In five or 10 minutes examine the inverted tumblers. That exposed to the sun you will find already lined with dew on its cool side, while that kept out of the sun is still nearly or quite clear. It is manifest, therefore, that evaporation from the leaves must be not only rapid, but considerable in amount when plants are exposed to the sun or a dry atmosphere. This exhalation of vapour from the surface of plants is termed *transpiration*. A correct understanding of the process explains how it is that plants growing in parlours are apt to become faded even when watered, because the taking up of water (termed *absorption*) by the roots, cannot always keep pace with the transpiration from the leaves, owing to the rapid evaporation excited by dryness of the air."

The seventh chapter describes in further detail the various organs and their modifications; and the eighth, closing the first part, explains the minute structure and vital processes of plants.

The second part of the book is devoted to the classification or systematic arrangement of plants, and in this portion much use is made of the schedules, one of them being devoted to a selected type of each natural order of our British flora. The learner is told not to be content with the examination of the plants used as types, but to try and refer every flowering plant which is met with to its type. If this is done, he is promised that in a short time the natural orders to which most British plants belong will be easily recognised. The various orders are treated upon the following plan:—

"46. *Natural Order*—Solanaceæ. The Solanum family.

"Herbs or shrubs. Stamens same number as corolla-lobes. Ovary 2-celled, ovules indefinite.

"Type—Bittersweet Solanum (Solanum Dulcamara).

"A straggling deciduous shrub, with alternate petiolate often auricled leaves, and loose extra-axillary cymes of purple flowers.

Organs.	*No.*	*Cohesion.*	*Adhesion.*
Calyx .. .. *sepals*	.. 5	Gamosepalous. ..	Inferior. ..
Corolla .. .. *petals*	.. 5	Gamopetalous. ..	Hypogynous. ..
Stamens ..	5	Pentandrous.	Epipetalous.
Pistil .. .. *carpels*	.. 2	Syncarpous. ..	Superior. ..
Seeds	Several, albuminous, in red berries.		

"Observe the frequently geminate leaves and extra-axillary inflorescence of the order: the persistent accrescent calyx of Winter Cherry (Physalis Alkekengi), grown in cottage gardens; the anthers of Solanum opening by pores at the apex; the albuminous seeds with, usually, a curved embryo; the fruit of Thorn Apple (Datura), four-celled, owing to the infolded dorsal sutures of the carpels, which reach and adhere to the placentas.

"Although some species under cultivation are amongst our most valuable food-producing plants, the order is dangerous, including the Deadly Nightshade (Atropa Belladonna), the berry of which, about the size and colour of a black Cherry, has often proved fatal to children; Henbane (Hyoscyamus niger), a viscid weed of waste places about villages, with dingy, purple-veined, yellow flowers; and Tobacco (Nicotiana), the oil distilled from which is a virulent poison. The narcotic principle of Tobacco is developed in the leaf by a fermentative process, after it has been collected. In 1862, upwards of 35 millions of lbs. of Tobacco were entered for home composition. It is extensively grown in hot countries, especially in the Southern States of America, Cuba, South America, and the East Indian Islands. The Potato-plant (Solanum tuberosum) is by far the most important member of the order, affording our most valuable esculent. It was originally introduced from the south-western coast of South America, Potatos are the tubers of swollen portions of underground branches, and not roots, as the 'eyes' (leaf-buds) of the tubers show. They contain about 15 per cent. of starch, which may be roughly separated from the tissue of the Potato by grating and washing. From this starch are prepared dextrine, used in calico printing, and British gum, used to attach postage labels. The Potato disease is caused by a minute fungus (Botrytis infestans), which usually attacks the leaf in the first place, rapidly descending to the tubers. The starch of diseased tubers, while it remains, is perfectly wholesome. Cayenne Pepper is the ground seeds of species of Capsicum. The fruits of the Aubergine (Solanum Melongena) and Tomato (Lycopersicum esculentum) are used in cookery. The berry of Winter Cherry may be safely eaten; it is cooked in Spain and Germany."

The little volume closes with instructions for drying plants, an appendix showing how to describe them, and a combined Index and Glossary. In laying it down we feel we may unhesitatingly congratulate Professor Oliver on having taken up an honourable place amongst the many authors of books of botanical instruction to which we alluded at the outset of this notice. The text is freely illustrated by good woodcuts, most of which, as we learn from the preface, were "drawn by Professor Henslow's daughter Mrs. Barnard, of Cheltenham, from the admirable sheet diagrams designed by Professor Henslow, and executed by Mr. Fitch for the Committee of Council on Education."

The Application of Cast and Wrought Iron to Building Purposes. By Wm. Fairbairn, C.E., F.R.S., F.G.S., &c. Third Edition. Pp. 303. Longman & Co. 1864.

This is a first-rate work, by a civil engineer in the foremost rank of his profession. Being written for the guidance of professional men, of course a great part of it can only be duly appreciated by those who are conversant with mathematical science. The use of iron for all purposes of construction is year by year becoming more general. We see not only cast-iron beams spanning our streets in all directions, and tubular bridges of gigantic proportions crossing rivers and arms of the sea, but there appears to be no limit to the applicability of this material to the building of all kinds of warehouses and mills, which will possess the important advantage of being fire-proof.

The first part of Mr. Fairbairn's work is on cast-iron beams for supporting the floors of buildings. Such beams appear to have been used by Smeaton so far back as a hundred years ago, when iron was of very inferior quality; and to have been first employed in the construction of a cotton-mill by Boulton and Watt in 1801. Mr. Hodgkinson, who is well known in the scientific world, and is "the very first authority" in such matters, has made a number of carefully conducted experiments on the strength of beams; some of these experiments seem to have been made on Mr. Fairbairn's premises, and are given at length; the results of others are tabulated, and a mass of information is stored up for the use of the practical man. It is a singular circumstance, that the combination of cast-iron beams with wrought-iron tension-rods or trusses, for the purpose of giving additional strength, is found to be a mistake, and in some cases absolutely injurious. The one metal possesses great powers of resisting compression, the other great powers of resisting extension; and the consequence of their combined use is that the extensile property of the wrought iron does not come into play till the cast iron beam is on the point of breaking, which is obviously too late.

The application of wrought iron beams for supporting the floors of buildings and fireproof warehouses is very interesting, but it involves a good deal of mathematical and technical knowledge. We must, therefore, pass on to the description of a palatial building, of which Mr. Fairbairn is justly proud. It was erected for Titus Salt, Esq., and is called "the Saltaire Mills," situated on the river Aire, near Bradford. The floor-area of this establishment covers about 12 acres. It is probably the most magnificent and the most complete building of the kind in the world.

The fourth part of Mr. Fairbairn's valuable work treats of "the adaptation of malleable iron beams or girders for the construction of bridges," ending with a description of the author's projected bridge over the Rhine at Cologne, a proposal which the Prussian Government, for reasons of their own, were unwilling to adopt.

Catalogues Received: *Sutton's Autumn Catalogue for* 1864; *James Carter & Co.'s Gardener's and Farmer's Vade-Mecum:* Part IV.; *Barr & Sugden's Illustrated Autumnal Floral Guide for* 1864. These all contain good lists of Bulbs, accompanied by cultural hints. Amongst them we are glad to see such things as Ixia and Sparaxis re-appearing.——*Robert Parker's Catalogue of Plants, &c., for* 1864-5, is a full list of Orchids, Stove and Greenhouse plants, Ferns, &c., with a bulb supplement.

Miscellaneous.

African Dyes.—Some of the products here enumerated are only known to be used amongst the natives, but their economic value is very apparent. They produce some of their brightest and best colours for dying their mats, &c., from woods, barks, seeds, roots, &c., and these colours are mostly fixed without the aid of mordants, the knowledge of the use of which is quite unknown to them. One of the best dye-woods found on the Zambesi is a species of Cudrania, a plant closely allied to the Fustic of Commerce. This is a common climbing shrub. The colouring principle seems to be as fully developed as in the wood of Maclura. It is the heart wood from which the dye is obtained, though the bark is of a very bright yellow, and of a considerable thickness, running in deep ridges in a slightly spiral direction. The external covering is of a dusky brown colour, very thin, and, upon peeling off, exposes the very bright yellow bark, and this appears to be composed of thin layers of a papery nature similar to Birch bark. These are of the brightest yellow, but no colour can be extracted from them; that which is contained in the wood itself would seem to be in the form of a resinous secretion. By the use of alum as a mordant, a good durable colour can be obtained. What is a most singular fact is, that having this dyewood so easily accessible, they get the bulk of their yellow dye from other sources. The pretty baskets, mats, and ornamental articles, in the manufacture of which they are so clever, and which are plaited with the leaves of the native Date Palm (Phœnix spinosa), are always composed of three colours—black, red, and yellow—very harmoniously interwoven. These colours are extracted from the barks of three distinct trees, and are very apparent, even in the outer bark; indeed, the colours of the barks are almost as distinct as when extracted. The colours are obtained, probably in the most simple manner, that of boiling the bark. Specimens of these woods with the bark upon them, together with articles dyed with them, are in the valuable collection at Kew, and were brought home by Dr. Kirk, the indefatigable collector and medical officer to the Zambesi Expedition. It is to be regretted that he was unable to obtain specimens of the leaves and flowers of each, whereby to determine their scientific nomenclature, but the difficulties to be encountered in collecting in uncivilised Africa are not few. Many things obtainable through the instrumentality of the natives are extremely difficult to trace to their right source. In Soudan the roots of Cochlospermum Planchoni are much used as a dyeing agent, a good yellow colour being easily extracted from them. This is probably the source from whence is obtained the yellow colouring matter of the mats and baskets of the people of this coast. They employ the leaves of Phœnix spinosa in a similar manner to those of the East Coast. By the ingenuity of these people many other plants are made to yield dyes for their own domestic uses. A species of Sorghum (S. vulgare), which would appear common to both the East and West, gives a crimson colour, from the sheathing base of the leaves; and the mode of extracting it seems equally well-known to the natives of both sides of Africa. On the Niger it

is much used for dyeing mats, nets, cotton fabrics, &c. In Sierra Leone a yellow dye is obtained from the bark of a shrub Cœlocline polycarpa, and is called "yellow Gbéyido bark." All sorts of things are used as dyes in various parts of Africa, in fact, anything from which a colour can be extracted. The wood of a species of Afzelia is used on the Rovuma for dyeing black. Pods of species of Acacia are made in that part of Africa to give a brown colour to their black cloths. Orchella weed is one of the largest articles of commerce in dye-stuffs imported from Africa, and it would seem to grow almost universally in any favourable situation as far in the interior as has yet been explored. Barwood and camwood are also exported from the West Coast into Liverpool, and are used in this country for dyeing red. The bright red of the English bandana handkerchiefs is procured from the latter wood. Both woods are the produce of one tree, and the commercial difference would seem to be selected varieties according to the amount of colour contained in them; camwood fetching in the markets nearly four times the price of barwood. The wood is occasionally used for turning small articles, and also for the smaller kinds of furniture work. Turmeric is likewise used by the natives of South-Western Africa as a dye, while Henna, the powdered leaves of Lawsonia inermis, is known by them as well as by the natives of the more ancient and historical Egypt. *Jackson, in Technologist.*

The Summer of 1864.—Droughts in this climate have been of rather frequent occurrence. Within the last quarter of a century five years have been thus characterised—namely, 1840, 1844, 1852, 1863, and 1864. It is, however, in the spring when droughts have usually happened, and in that season of the year they prevailed in the first four of the above. We have not had so dry a summer as that just closed since 1800. Dry summers are therefore very rare. Our rainfall in the three driest summers of the present century is as follows:—

	June.	July.	August.	Total.
1800 ..	0.43 in. ..	0 22 in. ..	0 64 in. ..	1.29 in.
1826 ..	0.19 in. ..	1.67 in. ..	1.81 in. ..	5.67 in.
1864 ..	1.80 in. ..	0.70 in. ..	0.69 in. ..	3.19 in.

Our average for the three months is about eight inches, so that the deficiency this summer is nearly 5 inches. Last year closed with 4 inches deficiency of rain. February and March this year were in excess, and all the other six months were in deficit. It rarely happens that we get two very dry years in succession. The deficiency of rain from January 1, 1863, to the present time is almost 10 inches, or equal to four months of our average fall. The shade thermometer attained the highest point on the 20th of July—83°, and the lowest was touched on the morning of the 1st of June—31°, or 1° below freezing point, 4 feet above ground, and 23°, or 9° below freezing point, on Grass. This is, I believe, the lowest on record in this country for the month of June. The mean of June was 58°, or 1° in deficit; July, 61.5°, being 0.5° in excess; and August, 59°, which is about the average. The mean summer temperature was therefore below the average. We have not had a hot summer since 1859, when the shade thermometer exceeded 90° on several occasions. The means of June, July, and August, 1859, were 1°, 5°, and 3° above the average respectively. It is worthy of remark that the *maximum* of May this year—84°—was not reached during the three subsequent months. The barometrical ranges were less than in any previous summer of my observations, thus precisely corresponding with the dry character of the weather. The drought accounts for the comparatively low night temperature, the earth being too dry to retain the heat of the sun beyond a few hours in the daytime; hence radiation often brought down the temperature very low during night. To this also must be attributed the seldom occurrence of thunderstorms since May. So far, then, as Birmingham (about the centre of England) is concerned, the summer was the driest for 64 years. The total fall of rain in two months ending the 27th of August was under an inch. August was the driest ever known here up to the 28th. Only 0.21 in. of rain had fallen in the first 27 days. The severity of the frosts in June and August was extraordinary. On many mornings ice of considerable thickness was formed, which in the month of June was not on former record, and also very remarkable for August. Notwithstanding the many days of cloudless skies and brilliant sunshine, the greatest heat in any day did not come up to that of last spring. With this result, and the mean temperature of the three months ending August 31 being below the average, I come to the conclusion that the summer, though so dry and bright, was not a hot one. *T. L. Plant, in the Times.*

Calendar of Operations.

(*For the ensuing week.*)

THE late rains and comparatively cool weather have worked wonders in the appearance of ornamental grounds generally, and since their occurrence the culinary department in particular has become greatly improved. If frost therefore keeps off for some time, a troublesome season may yet furnish tolerably satisfactory results. Dahlia blooms, hitherto small in most places, are now increasing in size, and bedding plants on the whole are beginning to produce a fair amount of gaiety. Indeed, where proper attention has been bestowed, sub-tropical plants, like those now to be seen in Battersea Park, have been unusually fine, and have elicited universal admiration.

FLOWER GARDEN AND PLANT HOUSES.

Keep Begonias for winter display thin, that their foliage may be as much as possible uninjured. Plumbago capensis being almost indispensable for supplying cut flowers for autumn use, must not be overlooked. Attend also to Chrysanthemums; water them freely with liquid manure. The earliest winter-flowering Heaths and Epacrises should now or soon be placed under cover, as it will forward their blooming; give air, however, freely.

AURICULAS.—Finish repotting and keep the plants dry. Do not remove decaying leaves until they are quite dead. Keep the plants free from green-fly.

BEDDING PLANTS.—Propagation of all the more important bedding-out plants must now be finished as quickly as possible; late struck cuttings, as we have often remarked, are bad to keep through the winter through having an insufficient amount of roots and ill-matured wood. Let Scarlet and other Pelargoniums struck in the open ground be taken up and potted immediately they have made roots; they will require a close frame for a week or two, when they should be placed on a dry bottom in a southern exposure to harden them for the winter. For the same purpose Verbenas, Petunias, &c., struck in pans and intended to be kept in them through the winter, should be placed in a similar situation, at the same time stopping the points of the shoots. It should in fact be a point to keep them as hardy as possible by fully exposing them, until they are placed in their winter quarters.

CARNATIONS AND PICOTEES.—If not already done, get soil ready for potting off. Shelter the plants from heavy rains, should they occur.

CINERARIAS.—If sufficient stock is not yet secured, propagate young plants from suckers, and keep them in a close shady frame until they have became established.

HOLLYHOCKS.—Propagate these from eyes, and cuttings placed on gentle bottom heat.

HYACINTHS.—The potting of these for forcing must soon occupy attention; in doing this do not forget to put in a few miniature ones, which are stated to bloom beautifully in proportion to their size; they form good outside rows to vasefuls of large-flowered varieties, which should, of course, occupy the centre. About equal portions of good fibrous loam and decayed leaf-mould with silver sand will be the best soil for them if for forcing, but well-decomposed cow-dung must be substituted for the leaf-mould when the bulbs are intended for late flowering. After potting place them on a dry bottom and cover the pots 2 to 3 inches deep with old tan, ashes, or better than either, Cocoa-nut refuse, preserving them at the same time as much as possible from heavy rains; under this treatment they will fill their pots with roots, and will be in readiness when wanted.

IXORAS.—Plants which have bloomed, and which it may be desirable to increase in size as fast as possible, should be cut back, repotted if necessary, thoroughly cleaned, tied out, and placed in the warmest end of the house. These, if properly attended to, will make a fine growth before winter.

PANSIES.—Keep plants of the finer kinds supplied with good soil, in order that young shoots may strike root freely in it. They may also be propagated by means of cuttings.

PELARGONIUMS.—Re-pot plants that are sufficiently advanced after having been cut back, keeping them rather close and moist until they strike into the new soil. Plants, however, that are fairly established after re-potting can hardly be too freely exposed to air or kept too cool.

FORCING DEPARTMENT.

CUCUMBERS.—As we stated last week, where a supply is required during winter, see that vigorous young plants are secured at once, either from seed or cuttings. The last usually make the most fruitful plants.

MELONS.—Where fruit is ripening give air freely. If late plants are infested with spider, syringe morning and afternoon as freely as can be done without injuring the leaves; in short, use every means to get the plants perfectly clean.

PINES.—Endeavour to afford growing stock a steady bottom-heat of about 70°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will soon be necessary to a considerably larger extent than has been the case during summer, care must be exercised to secure a properly moist state of the atmosphere. Be as sparing of artificial heat, however, as circumstances will permit, and shut up early on the afternoons of bright days. Where young stock is grown in dung pits care must be exercised after this season not to get the plants weakly through keeping them too close and warm.

VINES.—Continue to remove all decayed or unhealthy berries from ripe Grapes, and to keep the house well aired and free from moisture.

HARDY FRUIT AND KITCHEN GARDEN.

Upon a careful attention to the growing crops this month the abundance or scarcity of the winter supply will very much depend; everything must be done to keep them in a growing state, and if the weather should continue dry, many crops in light land will require a good supply of water, but such as are in heavy land, and deeply trenched, will be better without it; in every case, however, the operation of surface stirring must be constantly attended to, it opens the ground to atmospherical influences, and does much good. The main crop of Onions should now be in a fit state for harvesting, and storing away when in a thoroughly dry state; when the beds are cleared they should be well manured, trenched up, and otherwise prepared for planting with Cabbages to stand through the winter. Draw the largest of the Cauliflowers from the beds sown last month, and prick them out in nursery beds under glass, to prepare them for planting under handlights. Celery will now require constant attention to earthing up, and be sure to see that the plants are thoroughly well watered a day previous to the operation of earthing, which must always be done in dry weather. The earliest Endive should be tied for blanching when quite dry, also Lettuces; and new plantations of both Lettuces and Endive may be made twice this month; see that the Lettuces intended to be transplanted into frames for the winter supply are properly attended to by surface stirring and watering. Thin out Prickly Spinach sown last month to 6 or 8 inches apart, and hoe the surface over to keep down weeds. Sow a good breadth of Turnip Radishes for autumn use, also small salad under handlights. Let young plantations of Strawberries be well attended to by stirring the soil between the plants, and supplying them with plenty of liquid manure, that they may continue to progress at the root, and fully employ their leaves in the elaboration of sap. Promote by every means vigorous growth now, and fine fruit next year will be the reward. Alpine Strawberries should be looked to, to see that they are sufficiently moist, as they will soon be found useful in supplying a desirable addition to the dessert. If they are in a state to receive water, supply it in the shape of liquid manure.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Sept. 7, 1864, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer Max.	Barometer Min.	Temperature of the Air. Max.	Min.	Mean	Temperature of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 1	●	30.043	29.955	70	49	59.5	62	60½		
Friday 2	1	29.896	29.753	72	45	58.5	62	61		
Satur 3	2	29.683	29.652	73	49	61.0	61	61		
Sunday 4	3	29.881	29.784	73	51	62.0	61	61		
Mon. 5	4	30.032	29.916	68	43	55.0	62	61		
Tues. 6	5	30.038	29.918	72	60	66.0	60½	61		
Wed. 7	6	29.957	29.927	75	61	68.0	62	61		
Average.		29.927	29.844	71.8	51.0	61.4	61.5	60.9		

Sept. 1—Very fine throughout; dry air.
— 2—Cloudy; fine, rather windy; cloudy; mild at night, rain.
— 3—Very fine, hot; rain at night.
— 4—Very fine; overcast; rain.
— 5—Fine, with clouds; very fine throughout.
— 6—Very fine; overcast, heavy rain; cloudy; warm at night.
— 7—Overcast, densely clouded and mild; windy with warm rain.
Mean temperature of the week 2 4-5ths deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Sept. 17, 1864.

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 11 .	68.4	46.8	57.6	10	0.68 in.	2	8	1	2	5	6	10	4
Mon. 12..	68.8	44.8	56.8	15	0.49	4	6	1	4	2	8	12	1
Tues. 13..	67.8	45.6	56.7	17	0.42	2	2	0	2	4	7	9	5
Wed. 14..	66.7	46.3	56.5	19	0.84	1	4	7	4	3	9	7	3
Thurs. 15..	67.1	46.2	56.8	19	1.63	1	3	0	2	7	5	6	5
Friday 16..	68.3	47.5	57.9	15	0.50	3	7	3	1	9	4	7	2
Satur. 17..	69.1	45.7	57.4	14	0.90	1	6	6	2	2	13	4	4

The highest temperature during the above period occurred on the 12th, 1868—therm. 86 deg.; and the lowest on the 17th, 1840—therm. 29 deg.

Notices to Correspondents.

BORAGE: *A Y.* This is good for bees, and is one of the ingredients of the old fashioned cool tankard. We are not aware that it is grown for cattle or horses, but an allied plant, the Comfrey, sometimes is. There is at least no harm in it.

COMPOST FOR VINE BORDERS: *Old Sub.* You had better try a young growing and useless Vine in a pot in the heavily salted compost, before making up your border of it; if the plant carries healthy foliage you will be safe, but we confess we should hesitate to make a border with such materials before it had been several times turned over, and exposed for at least a whole season. Lime, either fresh or old, would probably have been a preferable addition; and as to using salt thus freely for killing weeds, they would no doubt have perished had the material been simply thrown up in a heap, and once or twice turned, picking out any perennial roots that might threaten to become troublesome. Has any of our correspondents had experience with salted Vine borders?

NAMES OF FRUITS: *J Black.* 1, Easter Pippin; 2, Hughes's Golden Pippin; 4, London Pippin; 5, Herefordshire Pearmain; 6, Hawthornden.—*M J C.* 1, Red Quarrenden; 2, Old Golden Pippin.—*W B C.* Red Astrachan.—*W Taylor.* Your Seedling Apple is very handsome, regularly formed, oblate, glossy, uniform bright red next the sun, pale green where shaded; flesh soft and tender, with a pleasant sub acid but not rich flavour. It is exceedingly beautiful.

NAMES OF PLANTS: *A Y.* The Conifer appears to be Cupressus torulosa, a plant which is more or less tender in England, so that its success would depend very much upon position and local circumstances.—*E T.* We are making inquiries about the Oak specimen.—*J S.* 1, Polystichum angulare proliferum; 2, P. aculeatum lobatum; 3, Polypodium vulgare.—*G, Bath.* Origanum Dictamnus, one of the plants grown in cottage windows as the Hop plant.—*M J C.* 1, Polystichum aculeatum; 2, Lastrea Filix-mas; 3, Polystichum angulare; 4, Lastrea dilatata.

ROYAL HORTICULTURAL SOCIETY OF DUBLIN. The recent show held on September 1st, was, we are happy to state, a very successful one. We have not room for the report this week, but it will appear in our next number.

SCARLET RUNNERS: *J C J.* It is quite possible yours do not bear in consequence of getting dry at the root in so hot a position as they must be in under a south wall. Have they been well watered in dry weather? The failure of a crop, as some of our correspondents have recently shown, may, however, arise from injury to the flowers caused by humble bees. You had better advise with some neighbouring gardener, who may be able to see what is the nature and condition of your soil. The Peas under a north wall would not be favourably placed. Probably both want a better circulation of air about them.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.

They also continue to supply GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1864 are now ready for delivery at his Factories, at the following prices:—

	Per ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22 Eden Quay, Dublin.

Autumn Wheat Sowing.

PHOSPHO-GUANO, Carriage Free at any Railway Station or Shipping Port in the Kingdom, 11*l.* 10*s.* per ton, net cash, for 10 tons and upwards. Smaller quantities, 11*l.* 15*s.* per ton.
*** This Guano is admitted to be the best manure for Wheat, containing, as it does, 35 to 40 per cent. of Soluble Guano Phosphates, and 3½ per cent. of actual Ammonia, in addition to Potash. The advantage of applying it in autumn is, that the farmer is enabled to harrow the Guano well into the soil before sowing, which produces a better result than top-dressing in the Spring. The Phospho-Guano promotes a strong braird, vigorous growth, and a full and plump grain. Apply at the rate of 2 to 2½ cwt. per acre.
PETER LAWSON & SON, Contractors, Edinburgh; and 28, King Street, Cheapside, London, E.C.

DIXON AND CARDUS'S LINSEED CAKE, Analysed and Reported upon by Dr. VOELCKER.
As considerable mortality amongst the Lambs has occurred in two or three districts in Hampshire, and in some cases our Linseed Cake, on which they were feeding, has been blamed as the cause of it, we requested Dr. Voelcker to investigate the subject and report upon it; which report we subjoin.
It will be seen that the Cake was of excellent quality, and free from any matter that could be injurious to the health of animals feeding upon it.
Diseases in Lambs in isolated districts are by no means uncommon; and no doubt excellent Cake is often branded as the cause of sudden outbreaks of disorders in Lambs, whereas these disorders are enveloped in such mystery that the best Veterinary Surgeons and the most experienced Flock-masters are at a loss to advance a rational theory in accounting for the sudden death which often affects the flocks in one district and not in another.
The four Samples of Cake sent for Analysis were marked:—
J. W. No. 1 and No. 2, from Mr. John Wallace, Houghton.
T. E. From Mr. Thomas Edwards, of Compton House, Stockbridge.
S. A. From Mr. Stephen Ayles, of Braishfield, Romsey.
DIXON & CARDUS.

Report of Dr. VOELCKER.
101, Leadenhall Street, London, July 8, 1864.
To Messrs. DIXON & CARDUS, Southampton.
DEAR SIRS,—I have now the pleasure of handing you the results of careful Analyses of four samples of your Cake. You will observe at once that these four samples show a close agreement in composition, which distinctly proves that the manufacture of your Cake is carried on uniformly in your mill.
The per centage of Oil (the most valuable constituent of Oil-cake) in all four samples is quite as high as in the best kinds of Linseed Cake; and that of flesh-forming matters a fair average proportion.
The small amount of sand, and the absence of obnoxious weed seeds, shows that Clean Linseed is used in the preparation of these four samples of Cake.
I have carefully examined your Cake for injurious foreign matters, and am decidedly of opinion that it contains nothing that can be regarded as at all likely to be injurious to the health of animals fed upon it. Its condition is fresh, it is free from mould, and is palatable; and in my opinion is a wholesome and nutritious Cake of good average quality.—Yours truly, AUGUSTUS VOELCKER.

COMPOSITION OF FOUR SAMPLES OF LINSEED CAKE, MANUFACTURED BY DIXON & CARDUS, NORTHAM, SOUTHAMPTON.

	SAMPLES MARKED.				
	J.W. No. 1.	J.W. No. 2.	T.E.	S.A.	Barrel American
Moisture	10.91	11.39	10.58	10.48	11.64
Oil	11.55	11.26	10.92	10.94	10.43
*Albuminous compounds (flesh forming matters)	25.62	25.25	27.43	26.43	24.01
Mucilage, Starch, Sugar, and digestible fibre	31.09	31.28	30.34	30.96	34.44
Woody Fibre (Cellulose) ..	14.04	13.46	14.46	15.09	14.26
**Mineral Matters (Ash) ..	6.79	7.36	6.27	6.10	5.22
	100.00	100.00	100.00	100.00	100.00
*Containing Nitrogen	4.10	4.04	4.39	4.23	3.84
**Containing Sand	2.12	2.34	1.64	1.13	1.42

AUGUSTUS VOELCKER.
London, 101, Leadenhall Street.—July 8, 1864.
N.B. We have in the above Table added an analysis of Barrel American Cake, made by Dr. Voelcker some time ago for us, which shows our cake to be even superior to Barrel American, which is considered by many as the standard of first-rate quality. D. & C.

BARROWS AND CARMICHAEL, Banbury, Manufacture STEAM CULTIVATING APPARATUS, the cheapest, most simple, and successful Tackle out.
PORTABLE STEAM ENGINES, more simple in construction, efficient at work, and consuming less coal than the old-fashioned Engines usually made.
THRESHING MACHINES, which will astonish those who work the ponderous and complicated Machines now so generally used.

HIGHLAND and AGRICULTURAL SOCIETY.
EDINBURGH VETERINARY COLLEGE.
The COMMITTEE of the Highland and Agricultural Society of Scotland, appointed to Superintend the Veterinary College, hereby intimate that SESSION 1864-65 will COMMENCE on WEDNESDAY, November 2, at 4 P.M.

The COURSE of STUDY embraces the following CLASSES:—

1. Zoiatrics, Veterinary Medicine, and Surgery	Professor DICK.
2. Zootomy—comprising Veterinary Descriptive Anatomy and Physiology	Mr. STRANGEWAYS, V.S.
3. Practical Anatomy, and Anatomical Demonstrations	Mr. STRANGEWAYS, V.S.
4. Chemistry, Theoretical and Descriptive, from commencement of Session till end of January	Dr. A. DALZELL.
5. Veterinary Materia Medica and Pharmacy, from beginning of February till end of Session	Dr. A. DALZELL.
6. Physiology and Histology, Physiological and Pathological	Dr. P. YOUNG.
7. Practical Pharmacy and Clinical Instruction	Prof. DICK, assisted by Mr. WORTHINGTON, V.S.

Perpetual Fee for attendance on all the Classes, £16 16*s.*
JN. HALL MAXWELL, Secretary.

HIGHLAND and AGRICULTURAL SOCIETY.
AGRICULTURAL EDUCATION.
The SOCIETY'S AGRICULTURAL DIPLOMA will be conferred on Candidates who shall have passed the Examination, and fulfilled the other conditions required by the Royal Charter and relative Bye-Laws.
Examinations are held annually towards the close of the Winter Session of the Edinburgh University. Detailed information may be had by applying to Mr. HALL MAXWELL, 6, Albyn Place, Edinburgh.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.
President—His Grace The DUKE of BEAUFORT.
Vice-President—The MAYOR of BIRMINGHAM.
The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1.
Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1863, may be obtained from the Secretary. The ENTRIES CLOSE on NOVEMBER 1.
GEORGE BEECH, Secretary.
Offices: Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE ..	£794 10	BREEDING PIGS ..	£76 10
FAT SHEEP.. ..	299 5	CORN and ROOTS ..	71 8
FAT PIGS	60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1864.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
The Prizes now offered consist of 1955*l.* in money, two Silver Cups for Cattle value 40*l.* each, three Silver Cups for Sheep value 20*l.* each, and a Gold Medal for Pigs, also 60 Silver Medals to the Breeders, and a Butcher's Silver Cup, value 10*l.*
There are now Eleven Divisions for different breeds of Cattle, Eleven Divisions for Sheep, and Four Classes for Pigs of different ages.
The Entries for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists and printed Forms of Certificates with full particulars can be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

SMITHFIELD CLUB SHOW, 1864.
IMPLEMENT DEPARTMENT.
The LAST DAY for receiving ENTRIES for IMPLEMENTS and MACHINERY is SATURDAY, October 1.
Printed forms of Certificates and all necessary information can be obtained on application to MR. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words—"Smithfield Club."

The Agricultural Gazette.

SATURDAY, SEPTEMBER 10, 1864.

ALTHOUGH showers have fallen of late over most of the southern and midland English counties, yet the soil has nowhere yet been soaked. The rain has generally been licked up again by the dry air and sun almost immediately, and excepting where the land had been deeply tilled and loosened so as to permit the water to sink some depth at once, it has hardly benefited. It is, indeed, a wonder to any one at all observant, how in the midst of such unusual drought, the Grass plant has continually been fed. No doubt its growth has been greatly checked and hindered; but on a dairy farm we know, where 90 cows are milked, they have been making as many as nine cheeses all through the summer, where they used to make 12. The cattle turned out on the close cropped ground yet manage daily to satisfy their hunger, and of course this is by the continual growth of their provender, which is sufficient for its purpose, though one sees little else but a half withered stubble on the surface. There is, however, some verdure to be seen almost everywhere—the Elm trees in the hedge rows show as dark a green and luxuriant a growth as ever—the deep rooted Clover is green, while the Grass around them is burned up—and the Thistle stands up as strong and green as ever, drawing its nourishment from a deeper layer still. In their ability to withstand the drought we have a good practical lesson for the farmer. He may depend upon it that deep tillage has a double power of vegetable sustenance among its advantages. It facilitates the deeper rooting of our plants, and by its multiplication of that inner superficies of the soil and subsoil on which their capacity as a warehouse of food for plants depends, it doubles and quadruples their ability to store up and retain the moisture which will penetrate them against the time when it will be wanted.

And this is now no mere theory. Thanks to Professor CHURCH, of the Royal Agricultural College, we are able in a particular example to state accurately the quantity of moisture existing in the subsoil after a summer's drought under differing treatment and different conditions of the soil above it.

The layer examined was the 13th of an inch in thickness, downwards from the surface of the ground. One foot of soil was removed, and the next inch taken for examination, and the quantity of water which that inch of soil contained was ascertained in the usual way. It will be seen from Professor CHURCH's account that nearly 29 per cent. in weight of the layer in question was water where the soil had been deeply cultivated; while a similar layer taken in another case on lower ground from beneath 12 inches of soil which had not been moved at all, contained only 19 per cent. of water. Even this seems a very large quantity, but it must be remembered that the last portions of mechanically combined water are given off with extreme reluctance, and that the difference between 28.8 and 19.2 per cent., less than 10 per cent. as stated in figures, may be all the difference between a very difficult and scanty provision, and practically none at all for the growing plant. These experiments of Professor CHURCH, which furnish an instructive lesson on the value of tillage operations at any time, appear to us especially interesting at the present, when we are suffering from a summer's drought so unusual. The following is the report of them with which we have been favoured:—

"The following experiments were made in order to determine the comparative amount of mechanically combined water in uncultivated and cultivated soils, after the long-continued and severe drought of this summer.

"The samples were taken August 20th. In each case a foot in depth of soil was removed, and the next inch taken as a sample for experiment. The foot was measured from the level of the neighbouring turf.

"No. 1. A bed in the Botanic Garden. It had been deeply cultivated (16 inches) in autumn. At the time of taking the sample nothing was on the ground. Per-centage of moisture = 28.6.

"No. 2. Uncultivated ground in the Botanic Garden. It has never been disturbed within memory; it was covered with rough turf, but the sample was taken from a spot nearly bare, the turf having shortly before been removed to the depth of an inch or two. This ground was about 1 foot lower in level than that from which No. 1 was taken. Per-centage of moisture = 19.2.

"No. 3. Ground in kitchen garden, trenched in autumn (16 inches): Carrots had been grown on part, not on the portion from which the sample was taken. Per-centage of moisture = 26.2.

"No. 4. Ground in kitchen garden. It had been dug once in autumn (8 inches) to about half the depth of No. 3; a crop of Chalots since; at time of taking sample nothing on the ground. Per-centage of moisture=20.5.

"I should add, that with the exception of a heavy shower of rain in the middle of July, we have had scarcely any wet since the spring; it will be seen that the samples were taken before the commencement of the late rains. The soil experimented on is a light calcareous clay loam, resting on the forest marble. *A. H. Church, R. A. College, Cirencester, Aug.* 30."

MR. SANDERSON, of Manchester Buildings, Westminster, reports to the *Times* the impressions regarding the current harvest, which four weeks of travel in various parts of the country have left upon him.

"Crops have all cut up better than farmers anticipated, and as the various harvest operations advanced the brighter became the farmers' prospects. Corn in stock gave higher promise than corn growing; the yield on the barn floor exceeded that which the stock led farmers to expect, while the returns—especially of Wheat—to the miller are equal to those of last year."

The earlier sown of the spring crops are generally better than the later. Plants which have fully developed their feeding apparatus in the soil before the drought comes on them are the better able to withstand it. The following illustration of this is given by Mr. SANDERSON:—

"One half of a field containing 18 acres, which forms part of a highly cultivated farm in West Kent, was seeded with Black Tartarian Oats in the third week of March; the other half of the field, which consisted of similar soil, was treated in every manner alike, excepting that it was seeded on the 20th of April. The result is that the yield of the former will exceed 80 bushels per acre, while that of the latter will not reach 34 bushels. Many similar cases have come under my observation, and, as a rule, an improved system of farming from drainage, deep cultivation, and liberal manuring justifies early seeding."

The following, somewhat abridged, is the general report given of the harvest:—

"On all soils adapted to its growth, Wheat is a full

a verage crop, and the quality and condition are very uperior. Bright coloured straw, ears sound and fully developed, and grain plump and clear, characterise the larger area under Wheat. On undrained clays and imperfectly pulverised soils, the effects of the drought, by creating deep fissures in the land and thereby forming the surface soil into large masses as hard as indurated cement, have been most severe; consequently on such soils the Wheat has been thin in the ground and short in both straw and yield.

"The Barley crop, especially in the south, is unequal. In the Barley counties of Norfolk, Berkshire, Bedfordshire, Suffolk—barring the sandy soils of the latter, and in all the Barley districts of Scotland, this cereal is unquestionably above average. The samples brought to market in Northumberland and the Lothians run from 56 lb. to 58lb. per bushel. On light, shallow soils Barley is deficient in bulk and yield, and the grain small and steely.

"With the exception of the Lincoln, Cambridge and York fens, which have produced bulky crops, the Oat crop in England is sadly deficient. In Scotland, too, the Oat crop is thin in the ground, short in straw, and altogether deficient.

"The Bean crop is very irregular; on deep loams it is an average, but on the whole this crop is deficient.

"Potatos generally are of fine quality; tubers small, but plentiful, and the produce light.

"The Turnip crop in the southern, eastern, and in most of the midland counties of England is a failure. In the fine root-producing counties of Norfolk, Hants, and Berkshire a few fields of average quality may be witnessed, but these are exceptional, and the greater portion of the area allotted to Turnips and Mangold is a blank. Fortunately, in the north the root crops are more promising. In the north parts of Staffordshire and Shropshire, and part of Yorkshire, the Turnip crop, though inferior, will afford a considerable amount of 'feed.' In the west part of Cheshire, and in all Westmoreland and Cumberland, Turnips were never more promising, while in Scotland generally they are a full average crop. All the counties south of the Forth and Clyde, and in the north Aberdeen—whose roots constitute the chief food of the Smithfield favourites—may be specially named as promising a large weight of Turnips.

"Pastures in the south have suffered severely from the drought, and up to the middle of August presented the most arid appearance. Stock not supported with extraneous food subsisted chiefly on hedgerow leaves and the branches of trees, and it is surprising how they maintained their condition. In the north-western counties of England, and in the border and western counties of Scotland, pastures, though not equal to the average of years, have nevertheless been unusually green and fresh, and have afforded good keep for stock.

"Taking the crops as a whole, Wheat is average, Barley fully average, Oats one-third deficient, Beans under average, Potatos short, roots in the south not one fourth of a crop, in the north a full average.

"In the absence of statistics the exact relative acreage under cereals in 1863 and 1864 cannot be ascertained. There is no doubt, however, that the area under cereals, especially Oats, this year is far short of that of last year.

"With a light crop of hay, roots a failure, a short yield of straw, and barren pastures, it is a matter for serious apprehension on the part of farmers in the south respecting their short supply of food for a full supply of store and fattening stock. Doubtless the major part of the Oat crop will be consumed for that purpose, and cakes of every description will be largely used, but these can only be profitably used as auxiliaries, not as substitutes for natural food. It is essential for every farmer strictly to economise his food resources, and chop up all hay and straw for cattle food, too frequently only wasted as cattle litter. For the latter purpose sand, burnt clay, spent bark, and indeed every available appliance must be resorted to."

THE second Committee of the House of Commons which has of late inquired into the utilization of town-sewage, has just made its report. It has come to the conclusion that it is not only possible to utilise the sewage of towns, by conveying it in a liquid state through mains and pipes to the country, but that such an undertaking may be made to result in pecuniary benefit to the ratepayers of the towns whose sewage is thus utilised.

This is one conclusion of great importance to which its inquiries have directed it. Let us hope, however, that an authoritative dictum of this kind may not indefinitely postpone its own realisation. Nothing seems plainer than that the first attempt to realise the agricultural value of town sewage must be without any burden on the speculation of the kind thus suggested. The ratepayers may come in fairly enough for a share in the ultimate profits, if any, of the undertaking; but those who risk their funds in it should receive all the proceeds until a dividend of at least 10 per cent. upon the outlay has been declared. Indeed, it is not likely that funds will be forthcoming for the purpose on any other terms; for it is no ordinary risk, which the first speculators incur.

Another important conclusion to which the Committee has arrived, is that whereas no efficient artificial method has been discovered to purify, for drinking and culinary purposes, water which has been once infected by town sewage, yet soils and the roots of growing plants have a great and rapid power of abstracting impurities from sewage water, and rendering it again innocuous and free from contamination. Here then is the obvious remedy against both waste and injury. That which at present is a nuisance can on the agricultural plan, and on no other known to art or science, be deprived of its injuriousness, and at the same time be turned to account by conversion into wholesome food.

THE committee of the United East Lothian Agricultural Society has, as we anticipated, lost no time in replying to Mr. SAMUELSON's allegations of unfairness at the late reaping machine competition. And their Secretary, Mr. RICHARDSON, has been directed to request a publication in the *Times* of the following extract from their minutes, in answer to Mr. SAMUELSON's letter:—

EXTRACT FROM MINUTES OF THE COMMITTEE OF DIRECTORS OF THE UNITED EAST LOTHIAN AGRICULTURAL SOCIETY, HELD ON THE 2D OF SEPTEMBER, 1864.

"The attention of the committee was called to, and they took into consideration a letter from Mr. Samuelson, Banbury, to *The Times* newspaper, dated August 27, as to competitions of reapers at local shows, from which the following is a quotation:—'Last week the East Lothian Society had a competition of reaping machines. My firm took the first prize for a self-acting or sheafing reaper, but the prize for "the best reaper in the field" was given to a manual delivery reaper made on the spot, which also stood first on the last similar occasion in 1861, but had not become famous out of East Lothian during the interval. All the most celebrated Scotch makers competed in both years, but the East Lothian implement was owned on each occasion by the same East Lothian nobleman, who was also one of the judges, all the other judges being East Lothian men like himself.'

"The committee considered it necessary to contradict that statement, as they know that neither at this nor the previous competition did Mr. HALLIDAY's machine, which stood first at both competitions, belong to the nobleman alluded to. The machine at the late competition was engaged to be delivered to Mr. HARVEY, Whittingham Mains, on the afternoon of the trial, and he in consequence refused to act as a judge, in case any partiality might be alleged.

'How such a statement should have been furnished to Mr. SAMUELSON, who was not present, the committee are at a loss to conjecture.

"As to the complaint of partiality on the part of the judges, the committee have reason to know that their awards gave almost universal satisfaction to the large assemblage of agriculturists on the ground, and the committee are of opinion that Mr. SAMUELSON has unfairly reflected upon the decision of the judges.

"Extracted from the minutes by
"ROBERT RICHARDSON, Secretary."

THE BERKSHIRE DEW PONDS.

SOME weeks since an article appeared in this Journal drawing attention to the ponds on the Berkshire Downs which in that county go by the name of dew ponds. The description there given (p. 729) leaves nothing to be said, and the cause attributed by the shepherd to the failure of the Moulsford Pond is in accordance with the general belief of all who live in the vicinity of such ponds—not merely ignorant rustics—but men of some education and considerable powers of observation.

Such a mass of concurrent testimony, based though it may be in error, ought not to be set aside lightly without investigation or proof of its erroneousness, if so it be. The interest created by the present lengthened season of drought led me to make some observations and calculations respecting the supply of water in one of these ponds—at Westridge in this parish. The observations unfortunately were made on a night unfavourable to the formation of dew, but the calculations countenance the popular notion. Nevertheless, as they are affected with uncertainty in the determination of the height of the water at the commencement of the drought, I refrain from stating them at present, hoping at some future opportunity to set before your readers the result of an exact and lengthened examination.

Before dismissing the subject for the present, let me briefly point out the condition which governs the whole question. The formation of dew no doubt is mysterious to the uninitiated; but it is well known to science that it is produced whenever substances are presented to the air so cold that they condense a portion of the invisible aqueous vapour which is always suspended in it.

Under a clear sky, when the heat of the sun is withdrawn, vegetation parts with its heat so quickly as soon to be so much colder than the surrounding air that the air in contact with it yields up a portion of its vapour, which is condensed into water, and so it continues to act, gradually accumulating moisture on the surface of the leaves until the return of the sun, or it may be a warm dry wind, raises the temperature, and makes a further deposition impossible. The same thing occurs for the same reason when on a hot summer day a glass vessel of cold spring water is brought into a warm room—its sides continue to stream with moisture until the body of water in the vessel is raised in temperature so as no longer to compel the air to part with its vapour. Now apply this reasoning to the case of our ponds. Different substances have, as we know, very different qualities in causing the formation of dew on their surfaces, simply because they part with their heat at very different rates. Now, water is much more tenacious of its heat than many solid substances; and I have satisfied myself by experiments with an exquisitely sensitive thermometer, that there is no cold film formed on its surface by radiation, as suggested in the article in this Journal referred to above; nor is it absolutely certain that evaporation is ever suspended even when that portion of the atmosphere which is in contact with the water is saturated with moisture: but, however that may be, in order to fulfil the theory by which they could be truly called dew ponds, the process of evaporation must be reversed, and during the few hours out of the 24 upon the few days that occur during the year on which it may be possible for the deposition to take place, it would seem that the deposit of dew on the water must be enormous, not only to make up for the loss by evaporation, but also to yield an available supply for the flock.

We must be prepared then to find that these ponds are simply reservoirs for rain-water—a kind of savings bank on which the flocks may draw for a considerable time during seasons of necessity, without fear of total exhaustion, unless the period of drought is prolonged as at present. The pond at Westridge made 10 years ago and filled with snow, still holds water, and has never been in danger of exhaustion until the present year, and during this dry summer it has up till the present time afforded water to 480 sheep daily, and to above 700 for part of the time, besides serving for various other domestic uses at the two farms and the neighbouring cottages. The value of these ponds, simply in this light, stripped of all their mysterious attributes, is convincingly felt at the present date by many who are either raising all their water from a depth of 400 feet in the bowels of the earth, or employing their teams with vast labour to draw from the river. *J. S., Streatley Vicarage, Sept. 6.*

SHORT-HORN CORRESPONDENCE.

[Mr. Bowly, of Siddington, has been so good as to place in our hands the letters on this subject of the late Henry Cottrell, Esq., of Rhodgate Lodge, Congresbury; and from them we extract the following correspondence in 1826 and 1827 between himself, Major Rudd, and the Rev. H. Berry.]

ON THE PEDIGREE OF HUBBACK.

1. *Mr. Cottrell to Major Rudd, 27th Nov.*, 1826.—

"As you stated in a letter in the *Farmers' Journal*, dated 16th July 1821, that "You were in possession of evidence which established the fact that the dam of Hubback owed her propensity to fatten to an admixture of Kyloe blood, &c., and that the sire of Hubback had an admixture of Alderney, &c., and that Hubback, therefore, was the main root of the improved Shorthorns uniting three crosses, the Dutch or old Short-horned breed, the Kyloe, and the Norman or Alderney, &c.,' I shall be greatly obliged by your information, for upon reference to all the documents I have, which are numerous, I do not find it shown where the dam of Hubback is Kyloe. You all appear to have agreed upon the certainty of Hubback's sire, but we still are in the dark as to the Kyloe blood. Vide Herd Book, Hubback.—My motive for this inquiry is not under the impression that the breed is at all deteriorated by the Kyloe, *vide* Lady; but because I am a researcher into the very trifles of this breed, on account of my admiration and conviction of its superiority."

2. *Major Rudd to Mr. Cottrell, Nov.* 30, 1826.—

"Many years ago I felt a great interest in tracing the origin of the improved Shorthorns, having derived much amusement in breeding them. I have for a long series of years been intimately acquainted, and on terms of great friendship with Mr. Charles Colling, and his brother the late Mr. Robert Colling, of Bampton. From them I have always understood that the great improvement of this breed was derived through the bull Hubback; hence I became anxious to trace as far as possible the pedigree of this bull. All the information which I could derive from the Messrs. Colling on the subject was that Hubback was got by a bull belonging to a Mr. George Snowdon, who had been a tenant of the late Sir James Pennyman, and whose bull was from the stock of the late Sir James Pennyman. It so happened that my principal tenant at this place was for many years hind (farm steward) to Sir James, and from him I learnt that Sir James Pennyman had his stock of cattle from Sir W. St. Quintin, of Scampston, near Malton, and that he had often heard Sir James say they were a cross between the Alderney and Shorthorns. Some years after I received this information, I happened to purchase the 'New Farmers' Calendar,' 4th edition, published in 1802, in which at p. 493 you will find a full account of Sir William Quintin's experiments and of the improvement he made in the Shorthorns by a cross with the Norman and Alderney Cattle. These experiments, and the result, are also given in Middleton's "Agricultural Report of Middlesex," p. 415. From this great weight of evidence I have therefore no doubt that the improved Shorthorns have Norman or Alderney blood. The greatest pains have been taken to trace the pedigree of the dam of Hubback, and I believe that Mr. George Coates, the author of the 'Herd Book,' did everything in his power to procure proof that she was a pure and real Shorthorn, but his efforts were fruitless and in vain. I knew several farmers who remembered the dam of Hubback. She belonged to a bricklayer at Harworth, near Darlington, and was generally depastured in the highways. Their concurrent testimony to me was that she was a small cow, and that they had no doubt whatever from her appearance that she was a half-bred Kyloe. It was from their testimony, which they offered to verify on oath, that I have always believed Hubback to have Kyloe blood through his dam. There is also external evidence in the Kyloe coat of hair which peculiarly distinguishes the real and genuine descendants of Hubback. The old un-improved Shorthorns are remarkable for the reverse; that is for having very bad coats. To this testimony I can add the fact which I know of my own personal knowledge [ ] of the bulls which were the nearest related to Hubback actually got stock which had the appearance of being half-bred Kyloes. This I have seen with my own eyes. I must conclude this subject with my assurances that an experience (in breed: the highest improved Shorthorns) of more than 20 years standing has left no doubt in my mind as to the real cause of the improvement. I have instituted experiments which would

convince the most sceptical, and which at some future day I shall, perhaps, communicate to the public."

3. *Mr. Cottrell to Major Rudd, Jan.* 1, 1827.—

"I beg to observe I was fully apprised of your opinion as to the origin of Hubback and his dam. But, as you have been so kind as to say you felt pleasure in any of my letters on the subject, may I, without inflicting a punishment, intreat a second in elucidation, if you can, of the statement of G. Coates, and Hutchinson, and Waistell, relative to the date of Hubback—G. C. saying 1777, and Hutchinson for Waistell, 1785, 4 yrs. old. In a conversation with old George, some length of time ago, the old man stated to me he knew Hubback in Fawcett's possession and that he considered his statement of age as correct as any counter-statement, and that he would collect and send me every particular in his power."

4. *Major Rudd to Mr. Cottrell, Jan.* 5, 1827.—

"I have often heard from Mr. Charles Colling that he commenced his endeavours to improve the breed about the year 1785, and therefore I believe that Mr. Hutchinson was correct in naming that year as the period when the bull Hubback was first used by Charles Colling. What age Hubback then was I do not know. Having given you all the information in my power respecting the origin of Hubback, I have nothing to add on that subject, except to repeat my entire conviction that Hubback united Kyloe, Alderney, and Short-horned blood, and that from this union arose the improvement of the Short-horns. Your information to me respecting the remarks made on your bull Touchstone are very interesting to me, for I recollect hearing the late Mr. Robert Colling make a similar remark respecting the Short horns, when he was entirely ignorant of the real pedigree of Hubback. He observed that the colour often resembled the Alderney, as the hair did the Kyloe. I believe that the discovery of the real origin of Hubback was first made by me from the active inquiries I made into the subject. I have given you the evidence, which can leave no doubt in the mind of any liberal and unprejudiced person. It is singular that a prejudice should exist against the Kyloe when it is known in all the cattle markets that no breed shows more symmetry of form or inclination to fatten. I entirely coincide with you in the opinion that too close breeding occasions a degeneracy. It causes a diminution of size and weakens the constitution. I have had the evidence resulting from more than 20 years' experience. An occasional change of bulls is indispensably necessary, to keep up the size and constitution. I entertain an opinion that an occasional infusion of Kyloe blood is necessary. I have tried the experiment with great success, and regret much that my great distance from the Smithfield Show prevents me from showing the result to the amateurs who assemble there. You may believe me, when I declare to you upon my honour, that for the last five years, during which the experiment has been fairly tried, I have found my oxen of this fresh cross much superior to those of the real Colling Shorthorn. They are much fatter at the same age when they are kept exactly in the same manner. I consider that an experiment of this kind is decisive, for if the oxen had been kept by different persons much might have been attributed to difference of keeping. I have found them invariably the best every year for the five years in succession, and I can add that they have produced the most money when sold at the public markets. I can give you no stronger testimony."

5. *Mr. Cottrell to Major Rudd, Feb.* 1, 1827.—

"It appears pretty plain the exact year of Hubback's birth cannot be got at, but from the evidence of the Herd Book, Mr. Hutchinson's assertions are incorrect, the Messrs. Colling not thinking it worth while to keep one of his (Hubback's) begetting. Vide R. Colling's lame bull, Hearn, this bull did mischief; R. Collings' horn bull, Charles 126, Garland 271, Grandison 279, from a son of Hubback, and a very long list of cows by sons and grandsons of Hubback. As you have informed me of your experiments, I intrude on you with a statement of pursuits here. I live in the midst of large cheese-making dairies; the land is highly rented, and as the farmers find cheese the most remunerative, scarce any young stock is reared. If their cows get out of season they are sold and replaced by purchases, generally at Gloucester market, 3 years old heifers and calves: I may say averaging 12*l.* each. Select or particular breed they are quite careless about. Their search in the cow is quantity of milk; the bull to get a fat and white fleshed calf. Where 60 or 80 cows are kept, seldom more than four or six calves are weaned, and these perhaps once in three or four years. Having myself noticed the uncertainty of these looked-for qualifications, I have made various experiments. I have possessed Alderneys, Devons, Glamorgans, mixed breeds, Long-horns, Herefords, Yorks, or unimproved Short-horns, and Isle of Skye, but not any other Scotch. I have also crossed some of these breeds. In the year 1813 I procured improved Shorthorns, said to be descended from Cecil, to which as a main stock I have remained steady, and since to certain pedigreed improved Shorthorn cattle; because from them I have found the greatest certainty of the above qualifications. But I have played experiments with these, by crossing with Devons and Alderneys. The three breeds joined produced the prettiest and neatest animals I ever obtained, but I had neither milk nor weight. I now exert every kind of persuasion to get the farmers to procure the improved Shorthorns (and I despair not of ultimately succeeding), though I am sorry to pourtray their characters—as adhering to their fathers' and grandfathers' old ways. I did not mean in my last letter, describing my bull Touchstone to convey that I considered the improved Shorthorns (save Lady blood) to be a mixed breed, but what my neighbours say of him. In this point I must dissent from you and others, upon this ground: although they bear resemblances in colour and shape to other breeds, yet in all the several herds of this breed that have come under my notice there is the same invariable general character. I have not seen that flying off as in other breeds, viz., true bred Alderneys frequently are as dissimilar to their congeners as possible; Devons and Herefords, whose colour has been of such long standing, equally fly off, but, indeed, I believe I may say it of all our native cattle, for perhaps there is not now one true, distinct, native breed, and it may ultimately happen with the improved Shorthorns. This you will say is recantation. To attribute to them the Kyloe coat I cannot. It is true I am not acquainted with the varieties of Scotch cattle, but I never felt such coats on those I have known as on the improved Shorthorns; theirs being universally mossy, whilst the Scotch are long only. The greatest similarity to the Scotch are the Longhorns (they are here numerous), approximating in colour, form, and length of hair.

(To be Continued).

SHEEP SALES.

LINCOLN SHEEP: *Biscathorpe, Sep.* 1.—Mr. Kirkham's flock has for years surpassed all the other flocks of the county. The number of rams offered by Mr. Briggs was 150, 74 of which were shearlings. The prices realised must have surpassed Mr. Kirkham's most sanguine expectations, as they went far beyond anything recorded of sheep letting in this county. No. 8, a shearling, almost perfect in form, and possessed, in a superlative degree, of all the high qualities of a first-class ram, was let to Captain Catlin, Needham House, Wisbeach, for 160*l.*, a price never before reached in Lincolnshire. No. 9 was let to Caleb Going, Esq., Nenagh, Ireland, for 60*l.* No. 10 realised 65*l.* No. 13 was secured by Mr. Smith, Morton, near Burlington, for 110*l.* No. 20, 90*l.*, Mr. R. Howard, Temple Bruer. No. 39, 70*l.*; in short, the 74 shearlings averaged 23*l.* 5*s.* a head. Of the two-shear and aged sheep three were let for 100*l.* each and upwards, viz., No. 79, a two-shear of rare character, let to Mr. Daintree, of St. Ive's, for 110*l.*; No. 120, a fully developed and almost perfect three-shear, to J. Kirkham, Esq., for 120*l.*; and No. 123, a three-shear, for 100*l.*, to Mr. Caswell, Laughton; a fourth realised 85*l.*, a fifth 60*l.*, a sixth 56*l.*, &c. The 150 rams realised the sum of 3392*l.* 10*s.*, giving an average per ram of 22*l.* 12*s.* 4*d.*

Halton: Aug. 29.—Mr. Vessey's sheep included 180, chiefly shearlings. A further supply of about 14, which had been kept in reserve for contingencies, quickly shared the fate of their fellows. As several gentlemen were still unsupplied, a further and last reserve was produced, which were disposed of as readily as the first; so that altogether more than 200 were let, being a larger number than Mr. Vessey had ever before let in one day. Still they were insufficient to meet the demand.

At the dinner, Mr. WELSH, after observations on the dryness of the season, which had forced them to have recourse to artificial food for the preservation of their stock, said in the use of Cotton-cake they were labouring under very great disadvantages, for if they were going to quit their occupations, whatever Cotton-cake might have cost them, they would be allowed nothing for it. Cotton-cake was a valuable auxiliary in a season like this for keeping the stock alive, and he thought an allowance ought to be made for that as well as for Linseed-cake. As to the reaping machine, he had now employed one for six or seven years, and he would back that which he used the other day at New Leake against all the other machines in the country. With it he had cut an acre and a half in 48 minutes. He believed reapers would come, and must come into very general use, and for this reason, that owing to improved cultivation and improved manures, they had now, instead of three weeks or a month as formerly, only about 14 days in which all their corn must be cut.

Mr. HEANLEY, referring to Mr. Welsh's observations respecting Cotton-cake, said he had asked his steward about it, and he replied that he would allow the same for Cotton-cake as for Linseed-cake. He had been subpœnaed in a case at Lincoln, and he said there that he expected to be allowed for Cotton as well as for Linseed-cake.

Mr. MASON was quite aware that the use of Cotton-cake in this country was only recent, and he could not consider its use so established as for it to be allowed for as a custom of the country. It was a matter to which himself and other valuers had turned their attention. To some persons the use of Cotton-cake was an advantage, and to some it was of no use whatever. But whether it should be allowed for or not was a question which they (the agriculturists) should decide, and not the valuers. He would advise them to have a provision for allowance for its use to be inserted in their agreements.

Mr. MARTIN said he had for many years come to Halton for sheep, and it was his opinion that persons coming here had generally fared well. The long-wool sheep had been the wealth of Lincolnshire. It was the wool it had always grown, and it was now more in request by manufacturers than any other kind of wool. Many flocks of sheep in this county had last year clipped 14 lb. of wool each, and he considered them the sheep to pay.

Tathwell.—In consequence of the death of its late proprietor, F. Chaplin, Esq., the whole of this celebrated flock was sold by auction, by Mr. Briggs, on Tuesday last. The 70 shearlings made 1165*l.* 10*s.*, averaging over 16*l.* 10*s.* each. Amongst the two-shear and aged sheep some made very high prices, No. 115 reaching the extraordinary figure of 130*l.* This was bought by W. Chaplin, Esq., who also gave 70 guineas for No. 128, two splendid rams. No. 116 was bought by Mr. Dudding for 80*l.*, No. 114 by Mr. Greetham for 50 guineas. No. 120 by Mr. Wingate for 40*l.*, and No. 80 by Mr. Topham for 40*l.* The 150 rams made the gross sum of 2592*l.*, or an average of about 17*l.* 5*s.* *Lincolnshire Chronicle.*

SHROPSHIRE: *Dumbleton, Aug.* 31.—Lot 1, very justly described in the catalogue as a "grand" six-shear ram, Patentee 2d, winner of the 1st prize at the Royal Agricultural Society's show at Leeds, by Patentee—Farmer, to be let for the next eight weeks, was started at 10 guineas, but the price reached 20 guineas, the bidder being Mr. Bradburn, of Pipe Place, near Lichfield. The sire of this ram was the winner of the Royal Society's prizes at Salisbury and Chester. Almost immediately after this lot was knocked down, a telegram was received from an eminent breeder, offering any reasonable sum for this ram, but the offer was too late. Lot 2, another grand two-shear ram, Patentee 4th, by Patentee 3rd—dam by Cullabine, highly commended at the late show of the Royal Society at Newcastle; a true type of the Shropshire sheep, of wonderful constitution, large size, excellent colour, abundance of wool, and an aptitude to feed, was next offered, and, after some spirited bidding, was let to Mr. Spurgeon (bailiff to Mr. Allsopp, of Hindlip), for the same period, at 37 guineas. The next lot was a three-shear ram, for sale, known as Lord Dartmouth, sire Cullabine 7th, Old Cullabine, by ram of Foster's; dam Lord Salisbury, the winner of three Royal prizes. This is one of the best animals of the year, and it was bought by Mr. Bate for 15 guineas. Others went at lower prices. There were 30 lots of shearling ewes, five in a lot, and these were mostly sold. The first lot, which was an average sample, was bought by Mr. Curtis Hayward, at 2*l.* 19*s.* per head.

BORDER LEICESTER RAMS: *Mungoswalls, Dunse.*—Mr. J. Thomson's shearling rams, were sold by auction in Dunse fair, August 26th—44 shearlings, at an average price of 7 guineas.

WORDS OF ADVICE TO IRISH TENANTRY.

[The following sensible advice was published at the beginning of the year by Mr. C. W. Hamilton, of Hamwood, among the tenantry on the estates under his charge.]

AFTER three years of constant rain, and one in which an unusually wet autumn injured a promising harvest, and almost precluded the possibility of good autumn tillage, there is not much to cheer the farmer; but much to make him anxious for the future. He hears on every side proofs that the live stock, as well as the population of this country, are diminishing in numbers; and unless each individual farmer sets about considering how he may on his own farm prevent the diminution of stock and population, the country must grow poorer and poorer, and he himself end in ruin.

Government and law makers can do but little to help you; but if every one would help himself, the prospect of the country would soon improve. You must change your mode of farming, if you wish to save yourselves; and I think that some few observations upon the change that you must make may be of use to you.

When the price of corn was high, you took too much out of the ground; and now that the price has fallen, and is not likely to rise, you get a smaller return and price, and complain that tillage does not pay as well as grazing; and many are laying down as pasture land tracts which were formerly under tillage. But although this may do in good ground, and where one man holds a very large extent of Grass land, and thus, making a small profit on each one of many hundred acres, may realise a good income, yet the profit on each one of from 20 to 30 acres makes too small a sum for a small farmer and his family to live comfortably upon. Indeed, from the way I see poor and exhausted land let out, I feel sure that for many years the Grass does not pay the rent, much less enrich the farmer.

What I wish to urge you to aim at is, to breed stock which you will always be sure of getting a good price for, and not to depend upon selling corn. You may feel sure that if you set about it properly you will make more by consuming your corn as food for stock than by selling it. I doubt if it is wise in the largest farmers to abandon tillage entirely, because if they abandon tillage they abandon also the rearing and wintering of stock; but I am quite sure that the small farmer cannot do so without going to ruin; and if he does not abandon it, but carries it on in the old way, he will be also a loser. Whether you hold many or few acres, you should lay out your cropping so as to keep the greatest number of sheep or cattle you can, both in winter and summer; and to keep through the winter as much, or nearly as much, as you can feed through the summer, and also lay out that whatever labourers you require at one time of the year should have employment on every day of the year. If you put under Oats every acre that you think will give you any sort of a crop, and sow your crop late in the spring, you will always be subject to what I have seen so much of among you this last autumn, fields of corn coming in ripe at the same time, and shedding the best part of the grain from want of hands to reap it. You may depend upon it that this want of hands will increase every year in future. The remedy that I suggest is, that you should sow only that land that is fit to give a good crop, and that you should sow different kinds of Oats, and at short intervals, so as not to have the crop coming in at once. Where the land is clean, a portion sown in autumn would come in early, and thus few hands would be sufficient at harvest time. It takes nearly as many hands to harvest a bad crop as a good one; and you would find it to your advantage in every way to manure and till 5 acres properly, and get from 15 to 20 barrels of Oats per acre, rather than get from nine to 10 barrels from double the number of acres. You cannot grow any good crop without manure, and you cannot have manure unless you keep your cattle in houses, and unless you have Turnips and Mangels to give them in the winter; but you had much better leave it alone than not carry it out properly. I have seen many giving their roots and hay at first recklessly, and then having either to sell or turn out in cold March weather the cattle whose food has run out. It is very easy for a prudent person to calculate beforehand. If you have no means of weighing your crop of roots, you may load your carts evenly and count them, and remember that roots shrink so from evaporation that for every 100 stones or cartloads or tons that you put in, you can only calculate upon measuring or weighing out 60. Another simple plan is, to pack the

roots in an even ridge, and measure that in length, and then only use such a length in the week as will enable you to carry on to the end. Many people waste much by giving more than necessary. I find that where cows are kept dry and warm, three stones of Mangels is an ample daily allowance for large dairy cows; five cwt. of straw to each gives them clean bedding for six months, where the floor is high and even; but as most of you have Heath, Fern, Sedge, or even Furze, bedding is easily economised. About 6 cwt. of hay and one ton of straw is what each consumes as food in the six months, and two or three pounds of oatmeal given in mash to each in addition to the straw, will keep a large cow in full milking condition. Now, no one should house stock on the 1st November, unless he sees that he has food for carrying on until May 1. What I give is the rate of feeding for animals which, when fat, would weigh from 6 to 8 cwt.; smaller cows will take proportionably less. If you have the means of cutting the straw, and boil in a pot 2 lb. of Oatmeal and a ¼ lb. of Linseed until the Linseed turns into jelly, and then mix it with the straw, you might dispense with the hay altogether. Under this treatment each cow ought to rear her calf, and make at least six pounds of butter per week; and if you get into the habit of skimming the milk only once, and churning the cream, you will have that amount of butter, and all the skim milk to use in the house; and if you sell what you do not use to your labourers, at a very low price, say 1*d.* or 1½*d.* per gallon, you would make them much more comfortable, and help to make the dairy pay. You should inquire and satisfy yourselves that the labourers you employ do get milk and meal at a fair rate. If you fatten sheep, you will find much profit in feeding them under shelter, and make quite as much manure as by stall-feeding cattle with the same amount of food and bedding.

Now, with respect to rearing the young, whether of cattle or sheep, I think that one of the most fatal errors that you make is in thinking that any land and any food is good enough to bring them round, and that good feeding is thrown away upon them. You may depend upon it that the animal that is fed and sheltered well from the day of its birth will pay best. If a starved calf is put upon good feeding suddenly, it will probably die of blackleg or some other disease of the blood. If young sheep are kept on poor food, they have not strength of constitution to stand the change from the dry summer's Grass to the unhealthy herbage of a wet autumn, or even to Turnips or Rape given in spring; but if you get them into condition before Christmas, you will find them able to stand the roughest winter. Well, my advice to you is, to sow in May a sufficient quantity of white or Aberdeen Turnips to be able to give your hoggets each about half stone a day during October and November; and if you see any tendency to scour, stop it at once with half pint of Oats to each a day for a week or fortnight, and you will have but few losses in the spring; and I need not tell you how heavy those losses have been of late years, nor how much Oats and Turnips the sheep that annually die would pay for. Shedding need not be a very expensive matter—common poles from the thinning of plantations are in most places cheap enough. Nothing makes a nicer wall for a sheep shed than Furze wattled in, and any coarse thatching, such as Heath, Rushes, or Furze, makes a sufficient roof. I have no doubt whatever, now that mutton is scarce and dear and corn cheap, that Oats may be turned into mutton to profit. I would recommend any breeder of sheep to sow a good breadth of Rape in May, with artificial manure, drilled in and hoed afterwards just as the Turnips are; you will find it invaluable for the ewes in September, and for fattening of wethers, which it will generally do to the number of 20 to the Irish acre, and leave the land in fine condition for Oats. You may be quite sure that you will not be able to hold on unless you determine to have 1 acre of green crops, so tilled and manured as to give you from 30 to 40 tons of Turnips or Mangels to the acre for every 2 acres of corn that you sow; and that it will be better for you to till only a quarter of your farm well and leave the rest in Grass than to have a greater extent under the plough than you can clean and treat properly. The expense of labour in producing 30 or 40 tons of Turnips or 20 barrels of Oats from an acre is not much greater than it takes to produce a crop of half the amount.

If you tilled well in autumn and winter, and always did every act of farming on the first day that the weather suited for the operation, you would seldom be beaten by even a wet season. I have so strongly urged you to make your farms breeding farms that I need say no more on that subject, but end as I began, by urging you earnestly to consider how impossible it is that our country should prosper as long as the labourers, whom you cry out for during the summer, are left unemployed during the winter. You are ready to give them exorbitant wages at harvest time; but you seem to expect that they should appear then for your advantage, and disappear afterwards, going and living you care not where or how. You will find that if you continue this system, they will continue to go, but not to return, as heretofore. You and I have gone through that sad period of the famine, and well know what degradation relief rates bring with them; and you cannot doubt but that emigration is better than unprofitable labour. But it would not be necessary, if every farmer so laid out his system of cropping as to have the same number of workmen, whether members of his own family on small holdings, or hired labourers on large farms, equally employed on every working day in the year. I have no doubt that this is practicable and profitable; and that there is no other way in which we may ever hope to see the country flourishing and the people happy. *Charles Wm. Hamilton.*

DAIRY FARMING.—No. V.

[The following are extracts from the Fifth Lecture on this subject lately delivered to the Royal Agricultural College, Cirencester, by J. T. Harrison, Esq., of Frocester Court, Stonehouse, Gloucestershire.]

1. *Disposal of Milk.*—The most simple and remunerative method of disposing of milk is to sell it simply as milk to the consumer—1*d.* a pint, or 8*d.* per gallon, is the common wholesale price. For milk thus disposed of, we may safely say that the return per gallon is a maximum, and the expense attending it is a minimum. Thus, with much expense attending the manufacture, I find 6¾*d.* per gallon is the most I can make by converting the milk into butter and single Gloucester cheese. But, as before remarked, quantity not quality being the object, cows giving a considerable quantity of milk are selected, and house feeding is generally followed. Hence great reliance is placed on grains as food, of which 1½ bushels, with 10 or 12 lbs. of hay, and 1¼ cwt. of roots, chiefly Mangel Wurzel, are given daily, or in place of the hay and roots, abundance of cut green food, Clover, Vetches, &c., during the summer. This, with an ample supply of water, forms the daily food of the large Yorkshire cows in the London dairies.

These cows yield from 600 to 1000 gallons of milk per annum, which at 8*d.* per gallon, returns from 20*l.* to 33*l.* each. This does not, however, by any means give an exact notion of the average yield of these cows, as it is the custom to replace those that give less than 8 quarts of milk per day, by others at a loss of 6*l.* or 7*l.* each.

2. *Butter Dairying.*—I shall next make a few remarks on butter dairying, which forms a complete contrast to the milk dairy system—quality or richness in cream being the chief object instead of quantity. The contrast is well shown by a comparison with Mr. Horsfall's management, as his cows are to a great extent similarly house fed. In his case, instead of feeding to encourage a large supply of poor milk, and drawing upon the condition of the cow to supply some quality, he feeds highly or rather richly to obtain butter, and fatten the animal at the same time. Instead of purchasing animals in good condition as the milkman that he may make them lean, Mr. Horsfall buys them from three to five years old, and lean that he make them fat. Of course he buys cheaply, whereas in the other case a good price must be given. In some cases he buys strippers, which correspond nearly with the cast off of the milkman. These cows when bought frequently give but little milk; after a week or two it increases 2 quarts a day, and that too of much richer quality.

Mr. Horsfall aims to give his cows in the shape of purchased food, the nitrogenous and oleaginous matters, and the phosphates which are carried off in the milk and the improved condition of the animal, and in this way he finds his pastures are not tending to impoverishment, but to increased fertility.

Mr. Horsfall's winter feeding per week consists of—

	s.	*d.*
63 lb. of hay, valued at	2	3½
Straw and shells of Oats	1	3
Mangel Wurzel	1	0
35 lb. Rape cake 10½ lb. Bran 10½ lb. malt combs. 10½ lb. Bean meal	4	0½
Cost of food per cow per week	8	7

And his return he reckons at—

14 quarts of milk daily at 2*d.*	16	4
Gain of flesh, 6½ lb., at 6*d.*	3	5½
	19	9½

Leaving a profit on each cow of 10*s.* 10*d.* per week.

Mr. Horsfall cooks his food to a great extent, but for further particulars I must refer you to his most instructive papers in the Journal of the Royal Agricultural Society.

The butter obtained from a certain quantity of milk varies immensely. Mr. Morton, in his "Handbook of Dairy Husbandry," gives a large amount of useful information on this and other subjects. He ascertained that the quantity of milk required to give 1 lb. of butter varies from 16 up to 29 pints, depending apparently upon the food given and the breed of the animals. But the method employed to extract the butter has also much to do with this result, the butter being more or less pure, and the impurity being casein, the principal ingredient of cheese. The purer the butter the finer the taste, and the better it will keep. There seems to be a difference of opinion as to the advantage of the Devonshire system of scalding the cream before making it into butter. Mr. Acland, in his report on Somersetshire, says it is a common opinion that the object of the scalding is to extract from the milk a larger quantity of cream and butter. Having obtained most contradictory answers to his inquiries upon the subject, he had an experiment made on 12 quarts of milk. The butter obtained from the 12 quarts of milk scalded was 1 lb. 4½ oz.; from the 12 quarts not scalded, 1 lb. 6 oz.; the difference amounting to 7½ lbs. on every 100 lbs. in favour of the non-scalded milk.

Professor Way's analysis of the butter produced shows a larger quantity of pure butter from the raw than from the scalded milk butter.

The results of Dr. Traill's experiments were:—

1. That the addition of some cold water during churning facilitates the process, or the separation of the butter, especially when the cream is thick and the weather hot.

2d. That cream alone is more easily churned than a mixture of cream and milk.

3rd. That butter produced from sweet cream has the finest flavour when fresh, and appears to remain the longest period without turning rancid.

4th. That scalded cream, or the Devonshire method, yields the largest quantity of butter; but if intended to be salted, is most liable to acquire a rancid flavour by keeping.

5th. That churning the milk and cream together, after they have become slightly acid, is the most economical process for districts where butter-milk is sold; whilst at the same time it yields a large amount of excellent butter.

In April last, before the cows were turned out to Grass, I had butter made from 8 gallons of milk in three different ways, when the results both as to quantity and quality varied immensely.

1st. The cream raised in the ordinary manner from 8 gallons of milk, yielded 28½ oz. of butter, the quality of which was very good.

2d. The cream raised from 8 gallons of milk by the Devonshire plan, yielded 38½ oz. of butter, which had a creamy taste.

3rd. The milk was allowed to stand till it turned sour, when it gave 50½ oz. of very inferior quality. On repeating the experiment last week (May), we obtained from the same quantity—by the first method, 48 oz. instead of 28½ oz. of butter; by the second method, 48 oz. instead of 38½ oz. of butter; by the third method, 24½ oz., instead of 50½ oz. of butter, all good in quality. I do not attempt to explain this, but it points out the importance of a little experimenting. The richness of the milk and the temperature have no doubt a good deal to do with the results.

The temperature of the cream before churning should be about 60°; during the process of churning the temperature rises considerably. In some experiments made by Mr. Ballantine of Edinburgh, he obtained the largest quantity of butter when the temperature of the cream was 56°, and the butter 60°, the best quality cream at starting 52°, butter 55°. When the heat exceeded 65°, no washing could detach the milk from the butter without the aid of salt.

Ruegg says, "the production of butter by churning is both a chemical and mechanical process. By the mechanical operation of the churn the envelopes of the globules of fat are broken, and the globules brought into cohesion. By the chemical process the sugar of milk is converted into lactic acid, and the bulk of the fluid, which was put sweet into the churn, is instantly soured. The following is Mr. Ruegg's description of the process of butter making in Dorsetshire, whose butter holds the highest rank in the London market.

"The cows are milked twice a day in summer in the fields, in winter generally in the straw barton. The milk is purified by being passed through a sieve, and then set to cool in milk leads. In some counties glass ware or stone coolers are used; but the Dorsetshire farmer will use nothing but leads, which he finds the cleanest, sweetest, and in every respect the best of milk coolers. In these the milk is allowed to stand for a period varying from 12 to 36 hours according to the season, the quantity of milk at command, &c. Usually after standing 24 hours, it is skimmed, and the cream is collected in tin vessels until sufficient to form a churning has accumulated. In very large dairies and in the summer season, butter is made every day; and it may be laid down as a general rule that the quicker cream is converted into butter, the sweeter and better the butter. It should not be allowed to remain longer than three days under any circumstances." . . . "The butter having come, (to use the language of the dairymaid), the whey is drawn off for the pigs, and the butter is taken out and well washed. It is then thoroughly worked with the hand until the buttermilk is thoroughly expressed, and the air bubbles are broken. A portion of salt is mixed with about each half dozen pounds; the manipulation is resumed; the lump undergoes a second washing, which carries off the surplus salt; and it is finally made up into rolls or printed pats for the home market, or, with an additional salting, is packed in clean tubs for the London factor."

The system adopted depends in some measure on the district; thus in the thinly peopled Dorsetshire the whey or buttermilk is given to the pigs, but in densely populated districts, such as the northern manufacturing counties, the buttermilk is consumed by the people, and the quality of this made from the milk and cream together, leads Mr. Rowlandson to prefer the Lancashire method, which combines, he says, the best principles connected with the other methods.

"The practice alluded to consists in dividing the milk into two portions, viz., the greater part of the first milk is set in the ordinary way to stand for cream, the latter being usually taken off quite sweet, and the skimmed milk sold, used for the family or given to the pigs; the latter part of the milking, which is rich in cream, is at once placed in a vessel containing the cream of prior milkings; the last drawn are locally called 'afterings;' in cold weather the mixed cream and afterings are set near the fire, in order to induce acescency, provincially termed 'soiling.' The churn should be set at 58° or 60°, and if smartly churned the butter will 'come' sometimes within the hour, and rarely, if set at the above temperature, will it exceed one hour and a half."

Mr. Rowlandson's views of the advantages of this system are that, "By setting aside the milk first drawn to stand for cream, the most aqueous and serous portion of the milk is got rid of, whilst by preserving the last drawn portion and mixing it with cream it obtains the requisite fluidity, and the acescent form in which the whole is placed in the cheese is favourable to the speedy formation of the butter. The quality of the buttermilk thus made is far superior to that made from cream alone, and so more soluble.

I may add that when the whole milk is churned, the churn is

a fixture; it is an upright somewhat conical vessel, made so, however, only in order to secure the tightness of its hooping; of various dimensions, from three feet and upwards in height, and from 15 inches in diameter, according to the quantity of milk to be treated This milk is churned when about three days old, varying according to the weather, being first allowed to cool and then placed in large wooden vats to become sour. Steam or water power is frequently used, as in the case of the larger churns it is too laborious for manual labour.

The Devonshire method of making butter differs materially from the above, and is peculiar to that county. The milk is placed in tins or brass pans holding about 11 or 12 quarts each. Twelve hours in summer, or 24 hours in winter after milking, these pans are placed on trivets over holes in a broad iron plate heated by a clear fire of charcoal or wood-ashes. The milk is gradually warmed to near the boiling point, but on no account allowed to boil, or the whole is spoilt. When the bottom of the pan (as locally expressed) rises to the surface, forming a ring a short distance from the rim of the pan, the milk is removed from the fire and allowed to cool. Each morning the cream thus formed the preceding day, which is called clouted cream, is removed from the pan and turned round in a wooden bowl by the hand, or in hot weather with a bottle filled with cold water renewed from time to time, by which simple process the butter is generally quickly separated, after which it is treated as in other cases.

There is great variety of opinion as to the best vessels for separating the cream from the milk. Zinc should be avoided. Mr. Horsfall uses milk bowls of glazed brown earthenware; they stand on a base of 6 or 8 inches ditto, and expand at the surface to nearly twice that width. Four or five quarts are contained in each bowl, the depth being 4 or 5 inches at the centre. These he places in leaded cisterns, gently inclining, along which he can pass cold or hot water at pleasure. Glass, tin, and white glazed pans are also found very useful, but the Dorsetshire farmer, as before mentioned, prefers leads to them all. Slate is sometimes used, and has a nice clean appearance; when the vessels are of earthenware the glazing should be entire, otherwise the porous earthenware imbibes the milk and becomes offensive.

The necessity of cleanliness on the part of the dairy-maid cannot be too strongly insisted upon. The dairy vessels must be scrupulously clean; they and the dairy itself should be removed from everything that taints the air; this applies to all dairies, whether for butter or cheesemaking, and much too little attention is paid to the subject. The pigstyes, stables, cowyards, &c., should all be well removed from the dairy, whereas, in most cases, they are close by. With a little management the whey, &c., can be made to run away in pipes conveniently to the pigs, and where the fall of the ground will not permit it, it is better to pump it up out of a sunken well than to have the sties close to the dairy.

We have now to consider the conversion of milk into cheese.

3. *Cheese Making.*

The art of cheesemaking consists in separating the casein, combined with a certain proportion of butter, so as to preserve it in a concentrated and portable form for the food of man.

It appears that the most complete coagulation is effected by the agency of the prepared stomach of the calf or of the lamb, as used by the Stilton cheesemakers. The calf's stomach when prepared is called a vell, and is sold by most chemists in the dairy districts.

From these vells is made rennet.

In Cheshire the rennet used is made fresh from the vells every day. These, procured fresh from the butcher the previous year, are cleaned and salted and laid one over the other, with a layer of salt between each, in a deep earthenware vessel. They are taken out a month previous to use, the brine is drained from them, and they are spread out, covered with salt, and dried. Two bits of 2 or 3 square inches are cut off these and put into half-a-pint of warm water the day before use, along with a teaspoonful of salt. This is sufficient for 50 or 60 gallons of milk.

In other parts rennet is prepared in the following manner. A brine is made strong enough to bear an egg, this is then boiled half-an-hour, and when quite cold put into a jar—the large Olive oil jars holding about 30 gallons are very useful for this purpose; to every two gallons of brine are added six vells and one lemon sliced, which does away with any disagreeable smell. Spices, such as Cloves, also are added by some, as they keep the rennet in good condition, and give it an agreeable flavour. One ounce of saltpetre to every two gallons should also be added.

This should be prepared in February, and is a most essential part of cheese-making, and the greatest care should be taken that the vells are sweet. The rennet thus made exerts so powerful an influence as to coagulate the casein of 1800 times its weight of milk. The advantage of using the rennet in this form is that when once its strength is ascertained it can be used with confidence.

[A detailed examination is then made of the action of rennet on milk, and it appears that nearly one-fourth of the casein of milk escapes its coagulating influence, and escapes in the whey.]

The manufacture of Parmesan cheese is described to illustrate the effect of heat in the process.

Parmesan cheese is made entirely of skimmed milk—two meals, the evening's after it has stood 16 hours, and the morning's, about six, were put together. At 10 o'clock, this milk, consisting of about 66 gallons, was suspended in a large copper by a crane over a slow wood fire. When an hour had nearly elapsed, the milk, having been frequently stirred, was about 82° of Fahrenheit, and the heat of the atmosphere at the time was 70°. The cazaro or dairyman took a ball of rennet, like a large Walnut, and squeezed it through a cloth into the milk, which was all the while stirred. He then removed the copper from off the fire by means of the crane, and a few minutes past 12 the rennet had operated. The coagulated milk was freely stirred up, and allowed to stand for a little till the whey should in some degree separate—at 1 o'clock the cazaro ordered his sotto-cazaro to work the curd, which he did with a stick properly armed with cross wires. The curd being reduced to a small grain and left to subside till the whey was nearly clear on the surface, part of this was taken out, and the copper again turned over the fire. It was now brought to a heat somewhat below boiling, and a quarter of an ounce of saffron added, to impart a slight degree of colour. All the while the curd was stirred with a wooden instrument, to prevent singeing or burning, and the cazaro from time to time examined it betwixt his finger and his thumb, to mark the exact moment when it should have attained sufficient firmness and solidity. The heat was 124½° Fahrenheit. It is, however, often raised considerably higher.

When the small grains of curd felt as firm as the cazaro wished (which was in about an hour and a half) the copper was taken from the fire and the curd allowed to subside. The cazaro then drew off about three fourths of the whey; poured round the bottom of the copper three or four gallons of cold water, to cool it so far as that he might be able to handle the curd, and slid below this a cloth, by which he brought it up and placed it in a tub to clear. When drained it was put into a hoop, and about half a hundred weight laid upon it for an hour. The cloth was then removed, and the cheese placed again in the hoop and put upon a shelf.

The practice is to allow it to remain there for two days, at the end of which period it is sprinkled all over with salt; and this is repeated every two days for 30 days successively, if it be summer, and 40 if it be winter; after which no further attention is requisite. During the process of salting they place two cheeses on one another, in which situation they are supposed to take the salt better than when single. They are afterwards scraped clean, turned in the magazine once every day, and rubbed with linseed oil to preserve them from insects. They are never sold till they have been kept six months.

A point of great interest respecting cheese making is the quantity of butter retained in its manufacture. Dr. Anderson, an intelligent writer on the subject, says:—"It is generally supposed that richness or the proportion of oily matter contained in cheese is the cause of its agreeable flavour; but (he adds), I cannot admit this to be the fact; for Parmesan and the small round Dutch cheeses are both deemed by most persons to be of the best flavour, and yet they are made of skimmed milk." From experience I know that the richest cheeses are most liable to become acrid if not properly made, and the skim cheeses will keep longest.

The fine rich cheeses, however, contain a large quantity of butter, and skim cheese is generally distinguished by its absence. And the justly prized Stilton cheese is made from new milk with the addition of some cream. It can, however, only be eaten as a condiment, and its equilibrium is so unstable that without great care it soon totters to decay.

As butter is ordinarily about double the price of cheese, you will see how the question of separating the butter or leaving it in the cheese gives rise to an endless variety of practice.

In 1857 I made some experiments upon the subject, and when the cheese was ready for use I had them priced by an intelligent cheese factor. Thus, pricing the

Butter at 1*s.* per lb.
Skim cheese at 4½*d.*, or 42*s.* per cwt.
Two-meal cheeses at 6½*d.*, or 58*s.* 4*d.* per cwt.
New milk cheese at 6¾*d.*, or 65*s.* per cwt.
Stilton cheese at 10*d.*, or 93*s.* 4*d.* per cwt.

I found that making

Skim cheese and butter returned 5¾*d.* per gallon.
Two-meal cheese and butter, 6½*d.* per gallon.
New milk cheese, 6½*d.* per gallon.
Stilton cheese and skim cheese, 8¾*d.* per gallon.

Dr. Voelcker has since made some similar experiments, and found that 1000 gallons of milk gave:—

8 cwt. of whole milk cheese at 70*s*, equal 28*l.*
6 cwt. 2 qr. 16 lb. at 60*s.*, and 1¼ cwt. butter at 1*s.*, equal 26*l.* 18*s.* 4*d.*
6 cwt. 0 qr. 24 lb. at 50*s.*, and 2½ cwt. butter at 1*s*, equal 29*l.* 10*s.* 8*d.*
Or extra rich: 4 cwt. 3 qr. 0 lb. at 70*s.*, skim 3 cwt. 0 qr. 12 lb. at 50*s.*, equal 24*l.* 7*s.* 10*d.*

Had he put the extra rich at 90*s.*, instead of 70*s.*, this last would have been 29*l.* 2*s.* 10*d.*, which accords more nearly with my experiment; the great difference in the result in either case, however, points out how with varying prices it may be sometimes more profitable to make a large quantity of butter, and at other times but little. The great, and a very important objection to acting upon this is, that it is most desirable to have a steady market for your cheese, and this you can only secure by making constantly a similar article. For good cheese there is always a ready sale, but inferior frequently becomes a drug. It is remarked that near large towns, where where is generally a good demand for fresh butter at a high price, the cheese made is inferior. On rich farms again, much butter may be made, and excellent cheese at the same time; in fact it is sometimes necessary, on account of the richness of the milk. A comparison of the following analysis of milk, by Dr. Voelcker, on my farm in August and October, and on the College farm in September, 1860, will explain this.

	Frocester Court Milk.			College Milk.
	August	October	Nov.	Sept.
Water..	87.40	83 90	85.20	90 32
Butter	3.43	7.62	4.96	1.89
Casein	3.12	3.31	3.66	2.87
Milk Sugar	5 12	4.46	5.05	4.28
Mineral Matter—Ash ..	.93	.71	1.13	.65

The cheese made at Frocester in August weighed when sold, .89 lb. per gallon of milk.
Ditto in October .99 lb.
Ditto in November 1.17 lb.

You can thus judge how much skill and careful observation are required to ensure success. A skilful dairymaid is thus of the greatest value to the success of the dairy farmer, for he may enrich his land and increase both the quantity and quality of his milk, and when it is brought into the dairy have it all spoilt.

The more gently the curd is broken up after it is set by the rennet, the less is the covering of insoluble matter enclosing the oleaginous portion of the fluid broken—when unbroken it becomes enveloped with curd and fixed, as it were; but when broken the cream escapes among the whey, making it opaque, and this cream is only regained by setting up the whey, when it collects on the surface, is removed, and made into an inferior butter, called whey butter. Thus we know the careless dairymaid by the large quantity of whey butter she makes. From the same cause, and sometimes from not having the curd sufficiently firm, a good deal of curd is suspended in the whey, and settles afterwards in the bottom of the leads. Much cream on the whey, and much curd below it, after it has been standing some time, are certain indices of the slovenly cheese maker.

There is one other subject to which I will call your attention before giving an account of some other processes of cheesemaking—that is, the quantity of water contained in cheese. After a very careful examination of forty analyses of different kinds of cheese, I find that poor skim cheese contains in a striking degree a large percentage of water, and that on the other hand extra rich cheese has, as might be expected, an excessive percentage of butter. Excluding these extremes, a diminution in the percentage of butter is in a great degree made up by an increase in that of water, so that the two combined range generally between 61 and 67 per cent. of the whole cheese. This is very striking when we find also that the quantity of water in these same cases varies from 27 to 44 per cent.

It seems as if water to a great extent takes the place of butter when it is absent, so as to fill up the interstices between the particles of casein, and that thus by making a poorer cheese we shall not lose so much weight and obtain more butter into the bargain; but we must remember that in taking off the butter on the other hand, a great deal of casein is removed along with it, which lessens the quantity of cheese made from the remainder of the milk. The makers of Parmesan cheese appear alive to this, as they make cheese of the buttermilk as I mentioned before.

[A description is then given in detail of the process of Gloucester cheesemaking, as carried out on the farm of Mr. Leonard of Waterend farm, for which see page 832 of this Journal. The details of Wilts and Cheshire cheesemaking are also given.

Before proceeding further, I would recall your attention to the points I have endeavoured to explain to you:—

1. That what is called casein in milk, although apparently of the same composition, has this peculiarity, that 3-13ths of it is not coagulated by rennet.

2. That the remaining 10-13ths when coagulated, envelope the creamy particles which are contained in small insoluble bags.

3. That when the curd is tender the utmost gentleness is called for, so as not to disengage or break these bags or to separate the firm particles of the curd.

4. That the careful application of heat after the curd is firm with constant stirring, as in the manufacture of the Parmesan cheese especially, and to some extent in the Cheddar system, or the ordinary method of what is called slip scalding (that is, taking out some of the whey, heating it, and pouring it over the curd) appears to have the effect of coagulating some portion of the remainder of the casein or albumen, thus forming a coating round the particles of curd, defending them from contact with the whey, and preserving them from decay and subsequent excessive loss by evaporation.

5. That the question of the extraction of the remaining portion of casein or albumen seems well worthy of further investigation.

Home Correspondence.

Caterpillars.—The continued dry and fine weather of this summer so much reminds me of the summer climate of Australia, that it is natural to find from your columns that the troubles from the insect world have been reproduced here also. The ravages of the caterpillar on the Turnip, Cabbage, and Mangel crops, as described by your correspondents, are almost an annual thing in Australia. It is a gratification to find that rooks have, in attacking this pest, proved themselves the farmer's friend. We may hope to establish and colonise them with as much success as the salmon promoters appear to have had. I observe your correspondent states it was after the plants had been hoed and singled that the caterpillars began their depredations. This is my experience also in Tasmania; the hoe removes the food of the insect, and he resorts of necessity to all that is left—your own crops; in this way I have seen row after row of plants fall in successive progress after the steps of the hoer. I set myself to detect what was the favourite food of this caterpillar, and came to the conclusion it was the common Hog-grass (Polygonum vulgare). I was told by a labourer he knew an instance of a small plot being left unhoed to answer the needs of the caterpillar, and that it remained free from attack. Perhaps some of your Correspondents may have time this season to verify or disprove this statement. I am disposed to suggest for protecting any small collection of plants the placing a row of soot along the roots, with slight watering to dissolve the soot, the bitterness of which will I think deter the caterpillar. *Tasmanian, Ryde, Aug.* 26.

Capillary Attraction an Obstacle to the Descent of Water?—Mr. Donald states in his pamphlet on Land Drainage:—"A certain quantity of water is retained in suspension, and no more; and when dry weather

occurs the water suspended is slowly drawn upward from a considerable depth by capillary attraction, bringing with it such organic or inorganic matter as it may have dissolved." We are told in Morton's Cyclopædia of Agriculture that 100 lb. of dry sand in a bag will take up and hold 25 lb. of water before it begins to drip; that 100 lb. of loam will in like manner take up about 40 lb. of water, and that 100 lb. of pure dry clay will take up about 70 lb. of water." With all due deference to your knowledge of land drainage, here is a sentence of yours which expresses a common but erroneous idea about capillary attraction being an obstacle to the descent of water in soils not waterlogged by leakage from underground veins supplied from higher levels:—"It is plain that drains will not remove any water which may be in the subsoil below them; but what we contend for is this, that neither will they affect water lying in some of the subsoil above their level, for the capillary attraction of that portion of the subsoil lying immediately above them, will in spite of those drains lift that water above their level."* Capillary attraction does that at present in soil which is too dry for growing Grass luxuriantly; but capillary attraction could not, with heavy rainfalls, keep land at the dripping point. It is impossible that land which is sufficiently porous to allow the rapid filtration to lower levels can be kept at the dripping point in wet weather by capillary attraction. The following quotation from Mr. Girdwood's memorandum will explain the meaning of the Rev. Mr. Clutterbuck's statement, that "Drainers seem to confuse the two forces of capillary attraction, and that which is sometimes called friction. It is by this that water is held in soils in an inclined line, to which in 1841 I gave the name of 'water level' to the late Sir T. Sebright, on the Watford Water Scheme, a term very much found fault with, but still in use." Mr. Girdwood states:—"In some of the gypseous clays in Derbyshire and Staffordshire I have gone to great depths. In one case at Sudbury, the seat of Lord Vernon, I have drained about 40 acres at a depth of from 8 to 11 feet. The drains are 66 yards apart, and have been perfectly successful. This land had been twice drained, I believe, and was as wet as ever. I dug down in a dry time, finding no great rush of water till I got to about 8 feet. It then began to flow, and at 10 it rushed in with such force that the workmen had to be hauled up. This determined my proceedings." *Agricultural Gazette*, 1858, page 94. A good many will consider that this shows the power of capillary attraction, but it does not; it was the escape of water by leakage, from veins supplied by a reservoir at a higher level. Land saturated by leakage is in a condition similar to what it would be in were a perforated iron-pipe laid 6 or 8 feet below the surface and supplied by a reservoir 100 feet above the perforated pipes. The bursting of a water-pipe in a street in Fulham, near London, showed me and others the force of friction caused by leakage. The water is pumped out of the Thames and forced into a reservoir on Putney Heath for supplying the Pimlico district. The bursting of the pipe made a hole in the street apparently 12 feet square. Capillary attraction had nothing to do with that; neither has it anything to do with the floating of water on the surface within a few feet of drains. Mr. Bailey Denton stated in his remarks at the London Farmers' Club:—"What was the object of draining? The perfect aëration of the soil. When the soil had been aërated from one drain to another, the water descended, for this reason, that it was just 817 times heavier than the air which was displaced by it. That was one of the principal points in drainage, and it disposed at once of the illusion that a well was any criterion of a water level." *Agricultural Gazette*, 1858, p. 11. Mr. Bailey Denton's paper, which I have referred to, and Mr. Girdwood's memorandum, ought to be read together to enable a comprehensive view of the aëration of dense clays and open soils by artificial drains. For example, Mr. Denton refers to the fact that "Soils of different formation, for the most part, are equally susceptible of percolation if channels of discharge were provided below." Here is a practical proof of it. Mr. Girdwood states:—"Where gravel beds occur in the clay, or under it, they often permit of wide intervals being used with perfect success. I have drained nearly 200 acres of this kind of subsoil at Sudbury, at 6 feet deep, and at intervals of 44 yards, with the greatest success. Sometimes we meet with very porous beds, where the land, though full of water, may be laid dry with drains of moderate depths at very wide intervals. I lately met with a remarkable instance of this in Oxfordshire, on the Earl of Shrewsbury's estate at Bampton. On one side of the town the immediate subsoil is the Oxford clay, well known for its stubborn retentive qualities; on the other side, however, there is an extensive superficial deposit of gravel full of water, so full indeed, that when I first examined it, it was not possible to cut trial holes at all, as the trench filled with water to within 12 inches of the surface as fast as it was dug. Owing to the flatness of the country, it was not possible to get an outfall of greater depth than 5 feet; but when the first field was drained, all the shallow wells within a quarter of a mile in one direction were laid dry, and several adjoining fields were also drained by means of it. The drain was a large one, but it had to be taken up and one twice its size substituted," This jumble of quotations ought to convince the readers of the *Agricultural Gazette* that a knowledge of capillary attraction is not of any practical utility to those superintending draining operations in dense homogeneous clays. As for the "New system of drainage," I treat it as the discovery of a "mare's nest." *A Roxburghshire Rustic.*

The Condition of the Labourer in Scotland.—In a report of a meeting of the Morayshire Farmers' Club, I observe Mr. Cushing, Speymouth, stated in his appropriate remarks:—"But another and worse error is, that certain people (and I regret to say some of my own cloth) in discussing the condition of farm servants, have made it a kind of political question; and while lamenting, or professing to lament, the condition of the farm servant, their true object was to strike at the master, or still better, at the landlord. I speak advisedly when I say this. They have represented the farm servant as a down-trodden serf, as degraded in morality as the cattle he tends, and worse looked after and cared for. Having drawn this dark picture, these gentlemen proceed to tell us that the landlord and the farmer are alone to blame for this state of matters, more than half the evils of which are the creation of their own prolific fancies. Their remedies are to do away with the law of entail, to break down large properties and large farms into small ones, to upset all things, and establish a universal suffrage, or something of that nature." Mr. Collie, Ardgay, stated in his remarks:—"The general assumption is that farm labourers are a more degraded and immoral class than any other portion of the community. I take exception to that. I believe they will stand comparison with, and are just as moral, as any other class. If you look at the large number that are kept, and compare them with the number kept of any other class of labourers, you will find, when the criminal calendar is called, they will bear a very small comparison, and we very seldom see them in the panel box. I believe what Mr. Cushing says is quite correct—that these men are getting up a cry against the rural labourer for a purpose different from what they state it to be." The Chairman drew up the following as the finding of the Club:—"1. That the condition of farm servants has been steadily improving for many years past, and that a very marked improvement has taken place since this subject was discussed by this Club seven years ago. 2. That the cottage and bothy system appears best adapted to meet the views of both masters and servants, as possessing in many respects advantages over the practice of boarding servants in the kitchen." "This was approved of." Were farmers as a body to express their sentiments as freely as the Morayshire farmers have done, Mr. Dunlop, who has attempted by legislation to alter the relation between master and servant in Scotland, would pause before he ventured to be guided by the positively erroneous assumptions of reformers that as Parliament has interfered in regard to mines, manufactories, emigrant ships, and lodging houses, there seems no reason why it should not interfere to protect our agricultural labourers—the sons of toil—a race which forms the very backbone and sinew of the community." Landowners are not responsible for the dwindling and entire sweeping away of villages; it is the power-loom that has starved the hand-loom weavers out of the rural villages. Contrast this with Dr. Begg's erroneous statement at Liverpool, where he stated that "the villages have been swept away, and the respectable families of people expatriated to make way for such large farms worked by these bachelor colonies, the leading object being to raise the greatest amount of rent at the smallest possible outlay." A "Friend to the Labourer" in Morayshire has stated that "servants are neither so industrious, so temperate, so respectful, nor so trustworthy now as of old; and the low state of morality among this class has in this quarter become proverbial." This is in direct opposition to the opinion of the Morayshire Farmers' Club. Modern farming employs nearly double the number of women and boys that it does men. This is a stumbling-block to Mr. Scot Skirving, Dr. Begg, and others, when speaking and writing on the requisite number of cottages for arable farms beyond the reach of male and female labourers in villages and towns. Fancy these men advocating the necessity of building family cottages as residences for the single men and women, who require to be imported, to make up the complement of labourers at 10*d.* and 1*s.* a day! It is positively preposterous describing all the social evils as the results of hiring markets and bothies. I read lately in a book by the Rev. Dr. Blakie (Better Days for Working Men), that Messrs. Pickford of London have erected a large lodging-house for the single men in their employment. There is a lodging-house attached to some of the London police stations, at least for the single men. No one finds fault with lodging-houses being provided for noblemen's male and female servants, for Pickford's men and for policemen, but single ploughmen and female farm labourers are regarded as unfit for enjoying similar privileges! Dr. Strachan's Address to Young Women should be read on the subject. Any one can procure it from Andrew Elliot, 15, Princes Street, Edinburgh, for one penny. *W.*

Ergotted Grasses and other Plants.—When Mr. Alderman Mechi's letter on Stock Diseases arising from the use of Italian Rye-grass, appeared, it struck me that in addition to the inconvenience experienced by stock, in digesting the comparatively dry woody fibre of such Grass, they had also to digest some of the ergot alluded to by Mr. Barnardistone in your last impression. I have in a former letter told your readers I was the first to grow Italian Rye-grass to any appreciable extent in Ireland. That was close on 30 years ago. I have studiously watched its growth in various parts of Ireland ever since, and have never failed to discover it ergotted more or less when allowed to stand for seed; the extent of such ergotism, if I may use the word, being in proportion to wet or dry state of the summer months during its maturation; rarely when wet did it appear to any great extent, but frequently when dry, as is the case with many other Grasses. But whether it is, that our climate is on the whole more moist, and our Grasses as a consequence more succulent, I have never witnessed in cattle inconvenience from its use except in very dry seasons, and then such as I have found, or fancied I have found, to arise from the use of some other Grasses also causing constipation in both sheep and cattle, and this frequently on some farms more than on others lying quite contiguous to them, and to an ordinary observer, in all respects of a nature, both in soils, subsoils, and produce, natural and artificial, similarly characterised. When such Grasses were cut in a comparatively green and rather succulent state for soiling, I have rarely witnessed any such inconvenience—never at all when the Grass was obtained from land irrigated with water suitable for such purposes; for we have in Ireland, as I suppose you have also, waters which, when run over pastures or meadows, would not only greatly diminish the quantity but sadly deteriorate the qualities of the herbage. A strange case of slow poisoning by ergotism some time ago went the rounds of some agricultural papers. I do not remember having seen it noticed in yours. There are, as authentically reported, in one of the finest Grass-producing districts of that most luxuriant Grass-producing county in Ireland, the rich county of Meath, some fields on or contiguous to the demesne of Lord Dunsany, whose Grasses, Clovers, Vetches, Oats, Potatos, and I believe even Turnips, Mangels, and Carrots, when eaten by cattle and horses, exclusive of other pods produced elsewhere, will cause such a disease in both varieties of stock, as will cause the hoofs and horns to fall off the one, and loosen if not cause to fall off the hoofs of the other, and leave all as bare of hair on tails and manes as if they had been affected with the most virulent mange. The old people and children who eat the Potatos or bread or stirabout made from the corn, are said to lose their hair and nails and become otherwise physically debilitated [?!] When speaking with Lord Dunsany's steward on the subject some time ago, I questioned him on the character of the soil, subsoil, on drainage, subsoiling, general manuring and management, top-dressing, irrigation, &c.; and all he could satisfy me was, that all these things, he, as an excellent practical farmer, had duly attended to, and as far as he knew, met the most strict attention. Now, sir, we have in Ireland—and as an Irishman I am proud to say it, without I hope any vain boasting—as good practical and scientific men, comparatively speaking, as any other part of Europe can boast of; and as our papers have failed to excite their attention, permit me without apology to call on Mr. Baldwin, the excellent practical and scientific lecturer on agriculture to the Board of Education in Ireland, and one of your excellent professors at Cirencester. I call on Sir Robert Kane, the director of the Museum of Irish Industry; and on Dr. Sullivan, one of the lecturers there as well as Professor of Chemistry to the Catholic University, to which I will add, if I can so far presume on the attention of a gentleman to whom I am personally an utter stranger, Professor Jukes, of the Geological Department of the Museum of Irish Industry, to have this mysterious affair duly investigated. Each of these owes it to the cause of science, to our common humanity, to discover this cause if possible, and design a remedy against such evil effects. *Edward Carroll, Dublin, August* 27. P.S. Since the above was written I have read "the Jottings," by W. J. P., for whose remarks on Ireland, I, as an Irishman, beg to thank him—even for his burlesque description of the use of Irish "Docks," and our laundresses mode of drying the tourist's clothes. I could, and if spared, may hereafter give your readers, if they wish to have them, some notes purely Irish, and even more grotesque than those good-natured remarks of your intelligent, and I am sure, well meaning correspondent "W. J. P." *E. C.*

Societies.

Royal Agricultural of Ireland: *The Sligo Show.*—The following report is abridged from the *Dublin Farmers' Gazette*:—We must impress on the Society and its well-wishers the importance of having some Special Prize of more than usual value, to be competed for at the annual shows. The Purcell Cup is much missed, and, if a donor cannot be found willing to have his name honourably connected with the Society and with Irish agriculture in this manner, surely there would not be the slightest difficulty in making up sufficient funds by subscription to procure a cup. The Cork cups, in connection with the sheep classes, have done much good to the Society's shows, and to the

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country, let us, therefore, have, if not a Purcell Cup, an "Hibernian Plate" to be competed for in the cattle sections.

The Short-horned class, which is always the leading feature in all our gatherings, from the Royal itself down to the humblest "local," presented but little to interest one, as the various sections were brought out for the inspection of Messrs. Wiley, Thurnell, and Wetherall, jun., on Wednesday morning. In fact, we have often seen a better turn out at a local show than that which appeared at Sligo, if not in point of numbers, certainly in that of style and quality. The bull selected as the 1st in the aged section—Young Craven Hero, belonging to Mr. Joshua Kell—is a short-legged, thick bull, but very light behind; and the 2nd bull, Mr. Cox's Nero, with no pedigree, is slack at the girth, has a drooping, bad rump, and is all through but a coarse animal. The 2-year old bulls were better; the first on the list being Mr. Conolly's Royal Ranger, which had been the 2d prize yearling at the Royal Dublin Spring show last year, when shown by his breeder, the late Captain Ball. The yearling section contained some very inferior animals, which do not promise much for future generations, if their career as bulls is not speedily terminated; but the 1st bull in the section would not be easily passed over anywhere, and in fact, he had been a commended bull at the last Spring Show of the Royal Dublin Society. The bull we refer to is Star of the West, belonging to Mr. Low, Kilshane, Co. Tipperary.

Turning now to the female sections of the Short-horned class, those sections which have been graced by so many first-rate and really grand animals at former shows of the Society, we found first of all the cows, presenting a useful lot for ordinary purposes, without anything remarkable. In the 3-year old heifers Mr. Barcroft won easily with his Mysie the 19th, the second 2-year old heifer at the Kilkenny Royal, and the first 3-year old at the last Spring Show; Mysie being also the "reserve" in the award of the gold medal. She is a heifer of great substance, with a good rib and quarters. The 2nd in the section was Mr. Wood's Bessy, a strong, useful, good-backed heifer. Mr. Barcroft had another very easy victory in the 2-year old section, the first of that lot, as well as the winner of the gold medal as the best of all the prize cows or heifers exhibited at the show, being the Maid of Rocklands, whose winning at the Stirling Show of the Highland and Agricultural Society of Scotland we recently recorded. She was also the gold medal heifer of the last Spring show, as well as the 2nd in her section at the Kilkenny Royal, so that, young as she is, for she is just two years old, she has done her part well in supporting Mr. Barcroft's name as a successful exhibitor. The 2nd prize was given to Mr. Kell's Rose, a somewhat plain heifer. The yearling section was headed by Mr. Adamson's Mab, a nice, level heifer, come of a winning line of blood, being descended from Matadore, Pro-bono-Publico, and Pat. In the heifer calves Kilbogget was again at the top of the tree, Mr. Barcroft winning with his Muslin, a promising calf by Chief of the Harem, a son of Mr. Langston's Lord of the Harem, the 2nd aged bull at Battersea.

The Herefords as a class were good, better so, taking them all through, than the Short-horns; and we must say that the Society should do more towards the encouragement of those gentlemen who have been at so much expense of late years in introducing the best Hereford blood into Ireland than it does at present, only one premium in each section being considered sufficient for a class of stock second only to the Short-horns, and not even second in the estimation of many as graziers' stock.

Passing on to the other breeds, Mr. Owen, of Blesinton, clears all the prizes in the Polled sections, with his bull Sir John, bred by Sir John Sinclair; his 6-year old cow from the Malahide Castle herd, and his 2-year old heifer, bred at Blesinton, and come of the best blood in Angus. Mr. John Borthwick got a prize for his well-bred Ayrshire bull Royal Charlie, and 1st prize in the young heifer section with his Bonnie Bell, the same heifer which took the 2nd prize at the last show of the North-East Society. In the Kerry sections, Mr. James Brady, so long a successful exhibitor, when acting for the late Lord Charlemont, made his *début* at Sligo on his own account, and with as much success as any man could possibly wish to have, for he carried off everything. His bull Young Knight is an extraordinarily good animal, thick and deep, with a great shoulder and good back, and is at the same time a very nice handler. So good is he that the judges were all taken with his appearance, and put him down as the "reserve" bull for the gold medal as the best of all the prize bulls of any age or breed.

Horses come next in the catalogue, beginning with those adapted for agricultural purposes, and the aged stallions were again headed by Mr. Mill's Colonel, which, as some of our readers may remember, was the winning horse both at the Kilkenny Royal and the Royal Dublin show. Colonel also got the special medal as the best stallion of any age exhibited. Mr. Mooney's two-year-old stallion, Sir Patrick, by Sir William Wallace, apparently out of the same dam as that of Welshman, got the 1st prize in his section, no 2d award being made. Mr. Mill's Clydesdale mare Bell, with a foal at foot by Lord Clyde, and in foal to the Colonel, got the 1st prize in her section, and the 50*l.* challenge cup awarded to the best of all the stallions, mares, fillies, or geldings exhibited, being the second time she has gained it, having been the cup mare last year at Kilkenny.

There was a very fair entry for the "Croker Challenge Cup," specially set apart for the best weight-carrying thorough-bred stallion; and after a good deal of consideration, the judges picked out Sir Percy Nugent's Hospodar as the best of the lot. Hospodar got the gold medal at the National Horse Show last April, as having the "most quality" of any of the stallions exhibited on that occasion, although another horse, which did not appear at Sligo, was put first at that time.

The entry of Colts or Fillies for Hunting purposes, and up to at least 12 stone, foaled on or after 1st January, 1860, was large, but some of them were rather light.

The show of sheep was short of what we have seen it at other times, but, on the whole, what were there were good. Mr. Marris got the 1st prize in the section of shearling Leicester rams, and also the challenge cup, with a sheep which had been the 2d shearling at the Newcastle Royal. This shearling is a good backed sheep, and particularly good in the girth, with a full bosom, and superior rumps. The 2d shearling, which belonged to Mr. George Turner, is a very large sheep of his age, and well put together. There is a deal of good about Mr. Marris's 3d prize shearling, though he is not so thick, nor yet so sweet a sheep as his owner's cup ram. Mr. Turner had another of his shearlings highly commended. In the rams of any other age, Mr. Turner led the way, and also got the 3d prize in the section, the intermediate position as 2d being filled by one of Mr. Marris's rams, two highly commendeds falling to Mr. Owen's lot. In shearling ewes Mr. Marris took both 1st and 2d prizes, his 1st pen being a level lot of handsome sheep, while the sheep in the 2d pen had scarcely as much quality. Mr. Owen's commended shearlings were nice sheep, both in mutton and wool. Mr. Seymour Mowbray, who took the prize with his ewe lambs last year at Kilkenny, was similarly placed at Sligo, with a pen of neat lambs.

Mr. Beale Browne, the champion of the Cotswolds, had it again all his own way in the sections in which he exhibited, taking everything on the prize list, his three-shear ram being one of the largest sheep which has ever come under our notice. His shearling ewes were particularly good. A Sligo exhibitor, Mr. W. C. Chambers, was the winner in the ewe lamb section.

In Southdowns Mr. Marris was the only exhibitor, every one he showed being good sheep of their kind, with plenty of size to please anybody. The Shropshires were well represented, and Mr. C. W. Hamilton took the 1st and 2d prizes in the shearling ram section, together with the Cork Cup, being the second time in succession that it has been awarded to that gentlemen.

In the next section, that of rams of any other age, Mr. Hamilton was again the winner of the 1st and 2d prizes, the 1st prize ram being the same grand sheep which took the cup as a shearling at Kilkenny, and the 1st prize at the Stirling Show of the Highland and Agricultural Society.

The show of Swine was neither so large nor yet so good as the Irish Royal should have, nor yet as good as it has had; and, without going into particulars, we shall merely mention the following as being the principal lots, namely, the aged Berkshire boar from the Glasnevin Albert Farm, the young sows of that breed exhibited by the Right Hon. John Wynne and the Commissioners of National Education, and the two lots of Berkshire breeding pigs, four months old, exhibited by Mr. William Joyce.

Implements.—The implement yard was by no means so well filled as usual, several firms who used to be prominent exhibitors being unrepresented, except through the medium of agents. Still, it was not the least attractive part of the show in many respects, and considerable excitement was produced by the competition which took place for a special prize of 30*l.* for the best machine for scutching and dressing Flax, the conditions being "that it be simple in construction, moderate in price, capable of being attached to the horse gear of an ordinary threshing machine; that an intelligent farm labourer, with a little instruction, can easily work; and if not portable, that can be easily set up."

The machines entered for competition were Friedlander's patent double scutching machine; John Gray & Co.'s (Uddingston) improved Flax breaking and scutching mill attached to a threshing mill; William Graham's (Dublin) patent Flax breaker, and his improved Flax scutching machine; and David Nevin's (Kilmoyle, Coleraine) patent scutching machine. After a lengthened trial, the judges awarded the prize to Messrs. John Gray & Co., who are engaged in putting up a considerable number of their machines in the north of Ireland.

Farmers' Clubs.

HEXHAM.—This Society was founded by Mr. John Grey, late of Dilston, and from its records we extract somewhat condensed the following paper on "Leases," read nearly 9 years ago by Mr. Grey—as a capital example of wise advice founded upon a long experience.

The subject which I have undertaken to introduce to-day is, "The relative duties of Landlords and Tenants." It would be a very trite definition of the terms landlord and tenant, if I were merely to tell to a Farmers' Club, that one is the owner, and the other the occupier of the soil—names which are continually in your mouths, and facts as familiar to you as household words. But, when I come to speak of the duties of each, I can fancy that some may say, "We know well what is expected of the tenant—obligations are laid on him by the landlord which he is required to fulfil—but who can impose any on the landlord—'can he not do as he will with his own?'" Be assured, gentlemen, there is much fallacy in that aphorism. Obligations, as strong as laws, arise on all sides, to fetter his will, if it be capricious, and to control his conduct—obligations connected with his family interests, with his social position, and with his character in public estimation—all tending to that result, which experience in a free community teaches, that he consults his own interest most surely and permanently who gives due consideration to that of others. Before entering particularly into the duties of each, as the connection exists between them in our times, it may be allowable to look back, and shortly to trace the origin of their respective positions.

In early times, or in the settlement of unoccupied countries, men became owners of land by royal grant, by conquest from their weaker neighbours, or by clearance. In modern times, it is obtained by inheritance or by purchase. In the early periods of our country's history, as in less civilized countries still, the chieftain held his lands by strong hand against innovators, and the inferior inhabitants were maintained as serfs to serve for defence or aggression in war, and for hunting and field labour in times of peace. Countries so circumstanced were necessarily thinly peopled. As civilisation advanced, and society became settled, the owners of large domains could not occupy and cultivate them under their own eyes and management, but resorted to the mode of letting them off in parcels to their retainers. The serf who had hitherto yielded his labour in peace, and his life in war, for the precarious support and protection which he derived from his chief, altered his condition, and took a portion of land to occupy; first, paying for it in the shape of produce in kind, and in personal service; then, as money came into use, rent resolved itself into a stipulated money payment, and the relations between landlord and tenant became recognised and defined. Thus, out of that feudal state, by degrees, rose the system of letting lands on lease to tenants, and bringing to bear on the productive powers of the soil, the industry, skill, and capital, of a large body, most influential and important, as on their exertions mainly depend the support and prosperity of the nation at large. A twofold application of capital is thus brought to bear on the all important operations of agriculture. The original value of the soil is vested in the landlord, who also supplies, or ought to supply, the capital fixed on the land in buildings, fences, embankments, and all substantial and permanent improvements, which do not alter with, or depend upon the changes of tenancy; while the tenant, again, employs what may be called the floating capital, working upon the other, and making it productive. Thus a system of reciprocal aid and obligation is created and acted upon, so familiar to us now, that we are apt to lose sight of the fact, that it is both artificial and conventional. The landlord looks to have his property maintained in value, and restored to him without deterioration, though out of his own management; and the tenant requires security of possession for the outlay of his capital, and for the perfecting of his plans of improvement. Other kinds of property there are, which may be let on lease, and worked by speculators, but they differ entirely in character from land. For instance, a bed of coal or a vein of lead ore is let to a company on certain conditions. When that bed or that vein is exhausted, the property is extinct. It has been purchased and paid for by one party, the benefit has been received by the other, and the income from that source is at an end. Not so with land; its value is perpetual. We return to it from year to year to claim its produce; it is grateful to us, if we are kind to it, and remunerative, in proportion as we treat it with skill and liberality. It is this unceasing value and perennial productiveness of land, which call for restrictions and regulations as to its management, sufficient to secure its owner against any unreasonable drain of its fertility while out of his power; and, on the other hand, require for the tenants such security of tenure and such liberal conditions, as shall afford him all reasonable prospect of a suitable return for his capital, skill, and industry, as well as an inducement to use his best efforts to keep its productive powers in active and constant operation.

The arrangements between landlords and tenants are still, in many parts of England, left to be settled by customs and rights, or to what is called "a good understanding" between them. Nothing can be more creditable to the character of both parties than the very common existence of this "good understanding" and long-continued connection between the owners and occupiers of land; but when we consider that land is, in most hands, a saleable commodity, and that the uncertainty of human life, in all cases, makes it doubtful how long the parties who now go on harmoniously may live to act together, there can be no doubt of the prudence on the part of the tenant, and the justice on that of the landlord, in having the rights and obligations of both defined and secured by a plain legal document, termed a lease.

In districts which have long been enclosed and cultivated, and where no expensive improvements are required, annual occupation is attended with less risk and inconvenience than in others, and it is unquestionable that where such custom prevails, agriculture is found to be in the most languid condition, and intelligence among farmers at the lowest ebb. It was remarked by that distinguished writer on agriculture—Arthur Young—many years ago, "Give a man a permanent interest in a bog, and he will make it fertile; but give him a lease of a garden for a year and he will leave it a wilderness." He is the best tenant who treats his farm as if it were his own property, and he is likely to do the most for his land, who has the longest prospect of enjoying it. There are estates, and those of great extent, so bound up by mortgages, entails or settlements, that the owners have it not within their power to act the part of liberal and improving landlords, because the money they ought to expend on their property would but increase the fortune of the heir to the privation of other members of the family. To remedy this evil and help forward the good work of national improvement, the legislature has wisely come forward to make advances of money for the execution of certain beneficial works, or to give a guarantee to public bodies who do so, or legalised terms of repayment, as preferable claims, resting on the property for a given number of years; thus helping owners who cannot do so themselves to contribute to their own and the public benefit. For this act of the legislature the country may be grateful—and indeed some

compensation was justly due from legislatures, for the evil which their acts at former periods entailed upon it, by attempts to regulate the price of produce, and to set at defiance that unerring law of demand and supply which, when left to its natural operations, is as sure and steady in action as the law of gravitation, or any other law in the phenomena of nature which science has proved or developed. Unfavourable seasons will produce scarcity, and circumstances over which legislation can exercise no control will create high or low prices, but if all attempts to regulate production and price were futile in former ages, much more vain and nugatory would they be now, since the facilities of intercourse throughout the world and the spirit of enterprise which animates its merchants give such ready means of conveying the surplus of one country to supply the wants of another. A better light has arisen on our political horizon, and a sounder system prevails in our day. Landlords and tenants meet on more equal, because on more natural grounds. The artificial system has been pronounced untenable. We no longer trust to legislative enactments, or await with anxiety the result of Parliamentary divisions, but each party sets himself with determination to act his part in the work of progressive improvement, the great end of which is to increase produce and lessen its cost. The landlord takes upon himself to supply buildings, drainage, and other things essential to that object, and the tenant to apply the floating capital, skill, and industry, necessary to derive the greatest benefit from his occupation.

One result which it is reasonable to expect from this state of things is, the encouragement of spirited tenants on long leases, and the gradual abandonment of the custom which still prevails in many, though those the worst cultivated districts in England, and not at all in Scotland, of holding land on annual tenancy.

That the tendency is now to engage in long leases, I have practical proof in the recent letting of farms, and that it is reasonable, I shall try to demonstrate hereafter. I have been accustomed to think, where no unusual outlay was required for improving a farm, that 15 years was a sufficient length of term for an owner to relinquish the power over his property, and for a tenant to have a fair course of crops, and in holdings of small size. I see no need to alter that opinion. But in offering two large farms to let last autumn, believing that tenants of large means are not willing to remove and establish themselves in concerns demanding great capital without the prospect of lengthened occupation, I offered them on leases of 15 or 21 years, as parties might propose. The result was, that of 10 proposals for one farm, which was let eventually at a rent of 2000*l.*—only three offered for both terms, and mark the difference of the offers. One for 15 years was 1630*l.*, but for 21 years 1760*l.*, viz., 130*l.* more for the longer time during the whole lease. Another for 15 years was 1620*l.*, but for 21 years 1730*l.*, being a difference of 110*l.* per annum. Another for 15 years was 1400*l.*, and for 21 years 1626*l.*, making the great difference of 226*l.* The other seven competitors offered only for a term of 21 years. Then for another farm offered on the same conditions, and let for 1305*l.*, of six parties, not one proposed for the shorter term. Having stated that the tendency of the times is for long leases, I shall now venture on another assertion, and say that the tendency is equally for large holdings. It used to be the argument against the policy of large farms, that there was less competition for them, in letting. I must again appeal to facts and practical demonstration. Of six farms which I have recently let—for one of 2000*l.* rent I had ten offers; for one of 1305*l.*, six; for one of 1050*l.*, seven; for one of 258*l.*, six; and for one of 180*l.*, two. Hence, then, for a large farm of 2000*l* a-year, were ten offers from highly respectable and eligible tenants, and for a small farm of 180*l.*, with good buildings and in good condition, only two.

I must now show some reasons for the present preference for large farms and long leases.

A great portion of the land in this country is in the hands of the aristocracy, and other wealthy proprietors, who can occupy only a small part of it themselves. The prevalence of these large estates in few hands curtails the number of the middle class of landowners which is found in many countries, whose place, however, is well substituted in this, by the large occupiers to whom I am now adverting. The capital, which would go but a short way in the purchase of land, is sufficient to place an active man in a highly respectable and most useful position as the tenant of a large farm, and the taste or ambition which elsewhere lead to the purchase of a small estate tend here to the possession of an extensive occupation. It is reasonable to think that a man planting himself and family down upon land on which he is to invest a large capital, and for which, by daily attention and habit, he is likely to conceive a strong local attachment, should like to cherish the idea of settling there for a long period of his life. But, besides those feelings of local interest and attachment which grow spontaneously in the human breast, the current of events and free state of society tend strongly to the concentration of large operations, on the ground of rural and political economy. We have a continual increase of population, which all the efforts of agriculture hitherto have failed to feed; the rational desire of the statesman and the interests of the agriculturist are to do their utmost to supply its demand by an increase of produce, and by obtaining that produce at a diminished cost. The obvious means of attaining these desirable objects are to apply more skill and science to the cultivation of the land, and to effect greater economy in tillage, by a perfect division of labour and the employment of improved implements and machinery; these are only to be effected in large establishments. I am friendly to a few small farms in a district, not because I deem them profitable in a national point of view, but because they serve as steps in the ladder, for men of small means and industrious habits to mount by. Such men, at times, succeed wonderfully, but it is by dint of hard labour, poor living, and rigid economy. They can work only with the plainest and least expensive implements—various operations must be done by the same hands—horses are at times laid idle for the sake of some manual operation—corn is threshed by a machine of small power, or by the slow and monotonous evolutions of the flail, leaving a good deal in the straw, producing it in small quantities at different periods, and at last rendering it to the market in a deteriorated condition. Compare this languid and imperfect mode of proceeding with that of a farm of large dimensions and complete arrangements, where each department of labour is provided with adequate strength and under judicious management, watching the fitting season and effecting the work with expedition, by the economy of well-selected implements in the hands of skilful workmen, with able horses. Here a large quantity of corn can be threshed out at once by water or steam power, and a machine so constructed as to raise the grain, when separated from the straw, to a winnowing machine, and so fit it for market at once, all hands being kept actively at work during the time; and then the premises are locked up, and other work is resorted to. In the same building with the threshing machine corn is ground, and vegetables and roots steamed or boiled for the feeding of stock. These sources of economy in labour and in the preparation of food are out of the reach of the small occupier. Another source of profit is also in great measure out of his power. You hardly find 1000 sheep in a whole county of small tenements, which one large farm will supply; but then they require attendance, and that the small farmer cannot give, while on a large scale it is the sole occupation of a shepherd, who in most parts of this county, so well adapted for sheep, is the most essential and profitable of the farm servants. A full complement of sheep on suitable land and well managed is the safest stock that a farmer can possess; producing a return of wool as well as mutton, one of which may not be depressed in price if the other is; besides which, sheep are the most effectual fertilisers of the land which they occupy. These are some of the grounds on which I found my opinion, that the tendency of circumstances now is in favour of long leases and large holdings; of which I have given you a practical illustration, as well as a proof that, notwithstanding the difficulties and depression which agriculture has of late years experienced, capital is not wanting in the hands of farmers, any more than the spirit to invest it on suitable opportunities.

A very important subject which comes to be settled between landlord and tenant is the due regulation of the rent which the latter ought to pay for the privilege of occupying the land of the former.

In ancient times, as has been already stated, the rent, or render, was given in kind and in personal service—the tenant yielding so much produce to the lord and doing his work in conveying fuel from the wood or blubog, in reaping his corn, making his hay, and rearing animals and poultry for his use. These in time were converted into cash payments, and the letting of land and paying for its occupation assumed the character of a commercial transaction. In consequence of the great fluctuations in the price of grain and of the consequent value of land, of late years a partial return has been made to the old system—not of actually paying rent in kind, but of converting it into the money value of a certain amount of produce, according to the average price of the time, which is called "a corn rent." This has not proved generally satisfactory to the tenant, for when prices are low little remains for his profit; and when high, as now, enabling tenants on money rents to receive a good surplus, he finds himself giving a high rent to his landlord and making much less to himself than his neighbours are realising. There can be no doubt that money is the most convenient medium of intercourse, and the best representative of value, and that those tenants act the most prudently who are careful of their profits in good times to be prepared to meet others less favourable, or who, having security of tenancy, lay them out in improving and enriching their land, so as by an increase of produce to be able to meet a fall of prices.

MANCHESTER AND LIVERPOOL.—The Society's 17th annual Show was held on Sept. 7 and 8 at Knutsford. Some of the departments, including those for cheese and horses, are unprecedentedly large. Knutsford had raised 500*l.* towards the expense of the meeting, of which 300*l.* augment the show premiums of the Society. Altogether the Society offers 365 premiums to be competed for, the total amount given being this year 911*l.* The entries comprise 108 horned cattle, 269 horses, 141 sheep, 96 pigs, 164 poultry, 110 dogs, 92 cheese and butter, 95 seeds, grain, and roots, 2 saddlery, 1216 implements, and 206 flowers, &c. The show of horses is good, in addition to being the largest remembered at the meetings of this association. Being held in the heart of Cheshire, the show of cheese and butter, as might be expected, is particularly worthy of attention. The total number of entries is this year 2391; last year, at Birkenhead, they were 3150; in 1862, at Warrington, 1740; in 1861, at Ashton-under-Lyne, 2150; in 1860, at Bolton, 1623; in 1859, at Edge Hill, Liverpool, 1597. There were nearly 14,000 visitors upon the ground during the first day, and the receipts at the gates were 700*l.* The annual dinner was held on the showground, about 200 persons being present. Lord De Tabley, the president of the Society, occupied the chair. The Chairman proposed "Success to the Society." He said that at the establishment of the Society by the union of the old societies in 1848, there were only 310 entries; this year there were 2391 entries—a number unprecedented, with the exception of the show held at Birkenhead. There was an increase in the number of implements and of that machinery which was devoted towards the improvement of agriculture. The cost of labour was increasing, and there was a natural tendency to absorb labour in large towns. Agriculturists must therefore economise labour, by getting machinery to do their work and by taking advantage of the improvements, not only in chemistry, but in any mechanical invention which the spirit of the times might bring under their notice. But the great question of the day was the use of the sewage of large towns for irrigating land. He hoped the time would soon come when that sewage would be used more than it was now for fertilising their fields.

Reviews.

Agriculture, Ancient and Modern, Nos. 3 and 4. J. Virtue, Ivy Lane.

This work continues to promise on its completion to be a most complete picture of the art of cultivation as practised by all nations. The present numbers are occupied with a continuation of the history of European agriculture, and with an account of the present state of the science relating to farm practice. The following is an account of agriculture in the Campine, the large sandy plain of the provinces of Antwerp and Limburg, in Belgium.

"The soil is one continuous covering of driving sand, twisted up by the eddies of wind into large mounds, or driven in clouds before it. In some parts it is thinly covered with heath or marshy plants intermixed with pools of water, stunted Firs, or Brushwood. Yet in this desolate and barren region the industry and perseverance of the Belgians have succeeded in reducing the apparently incorrigible waste to fertility; and here and there you meet with their little farms, fenced in by sand heaps from the surrounding desert, and smiling within its boundaries with verdure and brightness. These farms are multiplying continually, and bid fair, at no distant period, to convert the sterile desert into a garden, the howling wilderness into an abode of happiness and plenty. The chief means of effecting this important change is irrigation, which is greatly promoted by the numerous canals that have been constructed at a large expense. Extensive tracts of meadows have been formed, and roads are driven in every direction through the plain, from town to town, for the accommodation of the inhabitants, the canals being the common medium for conveying away the produce to, and bringing home the manure from, the different towns. Nothing, in fact, could be effected without these two auxiliaries, as the Belgian farmers are well aware, whose motto is, 'With the water, the Grass; with the Grass, cattle; with the cattle, manure; with the manure, everything nearly which one desires on a farm!" Since the formation of the Campine Canal nearly 5000 acres have been brought under cultivation in the commune of Arendonck alone, where large farms have been established, and hundreds of head of cattle are fed, and dairies are formed. The value of the land in the Campine, where these improvements or creations have been effected, has risen from almost nothing to respectable prices. The best heath land, that sold previous to 1830 at 20 francs per hectare,* will now bring from 150 to 250 francs. Many of the richest gardens and most fertile farms in the neighbourhood of the towns of the Campine were, 10, 20, and 30 years since, tracts of barren heath and the dreariest sand. Wherever manure has been easily obtained, there it has been the most carefully preserved, and most prudently applied; and in the history of the facilities of obtaining abundant supplies of manure you read the history of the culture of the deserts of the Campine.

"The soil of the Campine varies from a light white sand, through which the water filters as through a sieve, to a sandy loam. The former is planted in the first instance with Fir trees and Broom, the *débris* of which, annually deposited, forms in time a vegetable mould, and consolidates the surface. Loam or clay is brought in aid, then manure, and thereby a crop of Potatos, or Buckwheat, or Rye is obtained. From this stage the process gains strength continually, until the defects of nature give way, and victory and success crown the efforts of the indomitable invader.

"In some parts the yellow sand lies upon a hard crust called 'tut,' and in England iron or moor-band pan, under which is a good loam. This is a more promising soil, but it involves the labour of deep trenching with the spade, to bring the loam and pan to the surface, when the frost is allowed to ameliorate them, after which they mingle intimately with the surface soil, and at once, with the addition of manure, form an excellent staple for cultivation. Potatos are first taken, then Rye with Clover. The land is trenched upwards of 27 inches (70 centimetres) in depth with the spade, the turf being buried with the Grass uppermost, to form in its decay a fertiliser for the future crop. The Campinoise farmers are said to excel even the Flemish in the collection and preparation of manures. All the cattle are stall-fed, and every description of vegetable capable of being reduced to manure is employed as litter, with which mould is also mixed to increase the bulk. The whole is kept under cover until it is wanted to be spread upon the land. An excellent compost for top-dressing the meadows is made by placing layers of vegetable earth on the stable floors to absorb the urine, to be afterwards mixed with other manure. The best rotation of crops recently introduced is as follows:—1st year, Beetroot; 2d, Colza; 3d, winter Barley; 4th, Rye with Clover, or Oats with do.; 5th, Clover; 6th, Wheat. This, however, is exceptional, as in general the cereal crops are too numerous, to the exclusion of root crops that require hoeing, so that the land is apt to become foul, which in some seasons materially affects and reduces the produce.

"Rye is the principal cereal cultivated in the Campine. The seed is usually brought from a distance, and is sown at the rate of about 2½ bushels per acre. The average crop is about 24 bushels, but instances are related in which, by the application of an abundance of manure, as much as 74 bushels per acre have been obtained. Wheat has hitherto been an exceptional crop, but is now beginning to be generally cultivated, being rather more largely manured for than Rye. The produce ranges from 20 to 28 bushels per acre. Barley is very little cultivated, but Oats and Buckwheat both form important articles of produce. The former yields from 33 to 66 bushels per acre; the latter from 28 to 33 bushels."

In the 4th part of the work we have a review of animal and vegetable physiology, of the food and diseases of plants, and of agricultural chemistry and geology and meteorology. And then commences a description of our domestic animals. The work continues to be ornamented with well-executed engravings, interesting, however, rather as artistic garnishing of a well got-up volume than as instructive illustrations of the various subjects treated in it.

* About 6*s.* 9*d.* per acre.

Miscellaneous.

Wheat Carrying by Grant's Portable Railway.—In reply to your question as to the number of hands employed in carrying a field of 6 acres, by the above apparatus, I beg to say there were eight men carting and stacking, and a boy to lead the horse. I estimate the crop at 5 qrs. per acre and about 3 loads of straw per acre. *Wm. L. Hubble, Hunton Court, Aug.* 30. [We understand that eight men, one boy, and a horse carted and stacked 6 acres in a day. Where single-horse carts are employed, three men and two boys in the rickyard, two boys taking the load to the yard and the empty carts from it, and two men and two biggish lads, loading and pitching in the field, will clear 12 acres a day of a heavy crop. We have paid from 12*d.* to 14*d.* per acre for the pitching to the cart, and loading there, and pitching to the rick—two men and a biggish lad thus earning from 12*s.* to 14*s.* a day amongst them. This is altogether at the rate of 5 men, 4 boys, and 2 biggish lads, together with 6 horses, to 12 acres. If we value the horse at 2*s.* 6*d.*, and the men at 5*s.* a day, and the boys at 1*s.* 6*d.*, and the biggish lads at 3*s.* a day during harvest, then the horse labour method costs about 4*s.* 6*d.* per acre to carry and stack; and your plan costs 7*s.* an acre. The portable railway is no doubt valuable for many purposes, but not for the corn harvest, when men are dear and scarce, and horses are cheap.]

Agricultural Uses of Tobacco.—By order of the 25th Sept. the Treasury sanctioned the continuance of the privilege of manufacturing sheep-wash from Tobacco in bond (as a remedy for the "scab" disease) to Mr. Fleming, a manufacturer at Glasgow, who had been permitted in April, 1862, to commence this operation experimentally, and also to extend the permission to any other manufacturer who might wish to avail himself of it at any port where Tobacco is imported and warehoused. Notwithstanding the numerous applications that have been addressed to your lordships and to us on the subject, only one other manufacturer at Glasgow, and one at the port of Leith, have as yet announced their intention of fitting up premises for the purpose. The quantity of leaf Tobacco that has been used in Mr. Fleming's manufactory up to August last was 8240 lbs., from which 5894 gallons of sheep wash had been extracted, the greater portion of which had already been supplied to different flockmasters as samples.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Stratley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	Sept. 2	29.55	61	59	S.W.	3	10	67	52	81	45	..
Friday ..	3	29.71	67	63	S.W.	3	10	70	51	70	44	0.07
Saturday ..	4	29.83	65	61	N.W.	2	6	69	53	83	48	0.00
Sunday ..	5	29.94	60	56	N.W.	3	3	67	53	82	46	0.04
Monday ..	6	29.98	60	59	S.W.	1	10	65	51	82	48	0.63
Tuesday ..	7	29.98	63	65	W.	3	10	69	58	79	53	0.02
Wednesday	8	29.99	70	67	S.W.	2	10	70	63	80	59	..

Notices to Correspondents.

CLOVER DODDER: Will any one kindly send us a sample in seed by post.

WEIGHING MACHINE: *Cor.* Apply to C. Bartlett, of Newcastle; or C. Mancer, 1, Bull and Mouth Street, St. Martin's-le-Grand; or C. Carter, Swan Lane, London; or W. Sawney, of Beverley; or W. H. Nicholson, of Newark-on-Trent; or J. Pringle, of Kelso; or T. E. Colegrave, of Newcastle; all of whom exhibited weighing machines at Newcastle.

ERRATUM: For "effort," in 43d line from bottom of col. c., p. 850, read "effect;" for "thus," on 52d line from top of col. a, p. 851, read "then."

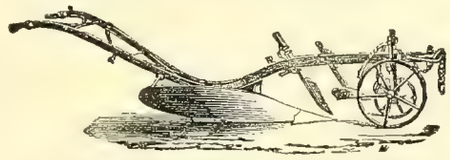
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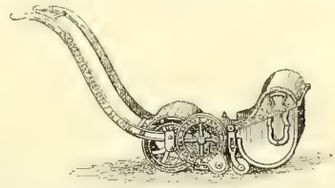
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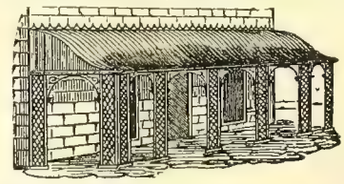
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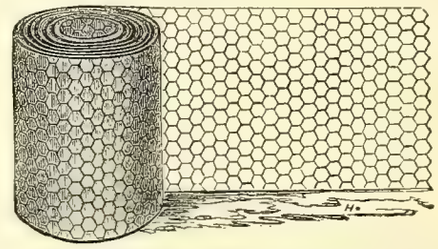
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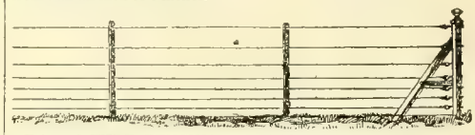
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2-inch " " " .. "	16 ..	8 "	6½ "
1⅝-inch " " " .. "	19 ..	4½ "	4 "
1⅝-inch " " " .. "	18 ..	6 "	4½ "
1⅝-inch " " " .. "	17 ..	7 "	5½ "
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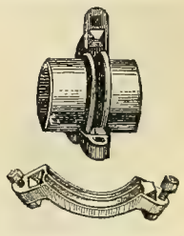
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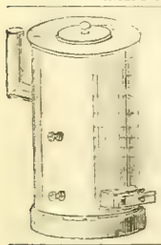
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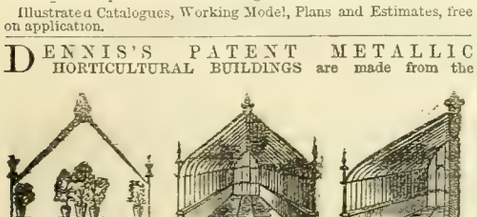
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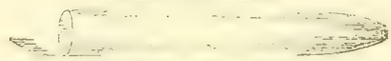
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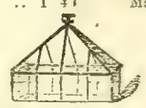
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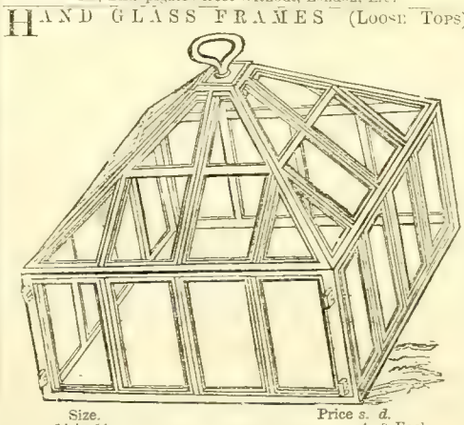
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6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
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London: GROOMBRIDGE & SONS, Paternoster Row, E.C.

To Nurserymen and Others.

CHELTENHAM CEMETERY.—Notice is Hereby Given, that the CHELTENHAM BURIAL BOARD intend to enter into a CONTRACT for PLANTING the GROUND at the NEW CEMETERY with TREES and SHRUBS, according to the Specification and Drawings, Form of Contract and Bond, which may be seen at the Office of the Architect and Surveyor, Mr. W. H. KNIGHT, the Old Farm, St. George's Place, Cheltenham. The work to be completed on or before the 1st day of November next.

Proposals or Tenders to be delivered to Mr. G. E. WILLIAMS, Clerk to the Burial Board, on or before Friday, September 23, at the Offices of the Burial Board, in Cheltenham, known as the Public Offices, between the hours of 10 A.M. and 4 P.M., endorsed, "Tender for Planting Ground, Cheltenham Cemetery," and such Proposals or Tenders to contain the Names, Residences, and Description of two Sureties for the due execution of the Contract.

The Board will not be considered pledged to accept the lowest or any Tender.

Dated this 5th day of September, 1864.
GEORGE EDMUNDS WILLIAMS,
Clerk to the Cheltenham Burial Board.

Proposed Cemetery at Burton-upon-Trent.

To ARCHITECTS, LANDSCAPE GARDENERS, &c.

THE BURTON-UPON-TRENT IMPROVEMENT COMMISSIONERS, who are also appointed a BURIAL BOARD for the TOWN of BURTON-UPON-TRENT, are desirous of receiving Plans, Estimates, and General Specifications for the Erection of Two Chapels, Residences for the Registrar and Sexton, and Walls; also for Laying Out and Fencing the Grounds, and constructing Drains and Footpaths in the proposed Cemetery, consisting of 12 Acres, the whole cost, exclusive of the purchase of the land, not to exceed 6000*l*.

A premium of 50*l*. will be given for the most approved Plans, Estimates, and Specifications, and 25*l*. for the second best.

Should the author of the approved Plans be employed in carrying out the Works, the premium of 50*l*. will be deducted from the Architect's Commission.

A Lithographed Plan of the Site and further information may be obtained on application to me on and after the 12th day of September next; and the Plans, &c., accompanied by a Letter with a Motto, are to be forwarded to me on or before the 12th day of October, 1864.
By Order of the Board. WM. COXON, Clerk.
Public Offices, 53, High Street, Burton-on-Trent.

Epsom.

To NURSERYMEN AND GENTLEMEN'S GARDENERS.

TO BE SOLD, with immediate possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. GEORGE S. DODS, the late Proprietor. The Grounds contain Five Acres of Land, has a large quantity of Glass, which is completely and economically Heated with Hot Water; also a valuable general NURSERY STOCK.
For further particulars apply at the Nursery.

Pilsley Nursery, near Clay Cross.

TO BE LET on LEASE, and entered on immediately, the above Nursery, containing about Eight Acres, planted with Fruit, Forest, and Ornamental Trees and Shrubs, also the MANOR HOUSE, with Greenhouse, Propagating House, Forcing Pits, Cold Pits, and Frames. Also, if required, about 40 acres of Grass and Arable Land, all in excellent condition, situated two miles from Clay Cross Station on the North Midland Railway, and one-and-a-half miles from Doe Hill Station on the Erewash Railway.
Application to be made to J. SAMPSON, Pilsley Nursery.

To Market Gardeners and Others.

BRIGHTON, LESS THAN TWO MILES FROM THE SEA.

TO BE LET, on an Improved Lease, a GARDEN and DWELLING HOUSE, with Offices and Out-buildings. The Garden beautifully situate in the South Downs, about 12 acres, including Two Meadows, prepared for the purposes of a Market Gardener, in a high state of Cultivation, furnished with Fruit Trees in bearing, Greenhouse, Hothouse, Forcing Pits, &c. The house, a pleasant, genteel, and commodious residence. The whole suited for a retiring Market Gardener wishing to reside near the sea, and to find partial employment of an agreeable kind. Brighton market, Tuesday, Thursday, and Saturday. It would be a pleasant residence for a gentleman fond of Gardening, or the place is applicable to the purpose of Training Stables, with use of contiguous tracks of Down.
Apply by letter to Mr. H. JENNER, 22, Regency Square, Brighton; who will attend to any appointment at home or in London, and afford all other information.

Sales by Auction.

Dunford Nursery, Chertsey, Surrey.

MESSRS. WATERER AND SON beg to announce that they have received instructions from Messrs. Chitty & Chapman to SELL by AUCTION, on TUESDAY, October 11, and following day, at 10 o'Clock, the WHOLE of the Young and Valuable NURSERY STOCK, the produce of Nine Acres.
Further particulars will be given in future Advertisements, and ay be had by applying to the Auctioneer, Chertsey, Surrey.

An Importation of Choice Odontoglossums and Cattleyas from Mr. J. Linden's Collector in New Granada.

ALSO, AN IMPORTATION OF ORCHIDS FROM BRAZIL, A CONSIGNMENT OF TREE FERNS FROM MELBOURNE, AND A SELECTION OF BULBS FROM HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 15, at half-past 12 o'Clock precisely, a very choice assortment of ORCHIDS, in splendid condition, from Mr. J. Linden's Collector in New Granada, comprising 25 healthy plants of the rare ODONTOGLOSSUM TRIUMPHANS, 25 good plants of CATTLEYA TRIANÆI, 25 CATTLEYA SPECIES NOVA, with large white flowers, from Bogota; some good plants of the exceedingly rare CATTLEYA RUCKERI. Also, an importation of fine masses of CORYANTHES MACRANTHA, and other Orchids from Brazil. A consignment of 50 TREE FERNS, 6 to 8 feet, from Melbourne; and an assortment of HYACINTHS, TULIPS, and CROCUSES, good varieties, from Holland.
On view the Morning of Sale, and Catalogues had.

Dutch Bulbs and Seedling Conifers.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 17, at half-past 12 o'Clock precisely, an Importation, just received direct from Holland, of HYACINTHS, TULIPS, and CROCUSES, and other DUTCH BULBS, in capital order; and a large quantity of SEEDLING CEDARS, THUJAS, CUPRESSUS, ARBORVITÆ, PINUSES, JUNIPERS, &c., mostly 2 years old; in all about 60,000 Plants in fine health.
On view the Morning of Sale, and Catalogues had.

Leamington.

IMPORTANT SALE OF ABOUT 100,000 CHOICE SPECIMEN AND SEEDLING CONIFERS, &c.

MR. J. C. STEVENS, of 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions to SELL by AUCTION, on the Premises, on TUESDAY, September 20, and two following days, at half-past 12 o'Clock precisely each day, in the well-known gardens of the Arboretum, Leamington, the EXTENSIVE COLLECTIONS of about 100,000 fine Specimen and Seedling Conifers, Standard Fruit Trees, Roses, Rhododendrons, Forest Trees, Laurels, Camellias, Azaleas, and other Greenhouse Plants and Ornamental Evergreens; now growing on the 8 acres to be cleared for building villas. Also some of the Specimen Plants on the 8 acres appropriated to the extensive Hydropathic Establishment, now in successful operation, the proprietor, J. Hitchman, Esq., having agreed with the owners of the adjoining land to make a new street through their property, which is now in progress.

On view the week prior, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.; and of Mr. JOSEPH SOLE, Manager of the Arboretum, Leamington, Warwickshire.

N.B. All Plants purchased at the Sale must be paid for on or before Saturday, September 24, but they will be allowed to remain on the ground till December 1, if desired.

Windlesham Nursery, near Bagshot, Surrey.

HIGHLY IMPORTANT SALE OF AMERICAN PLANTS.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER, 38, King Street, Covent Garden, London, W.C.) begs to announce that he has been favoured with instructions from Mr. G. Baker, to SELL by AUCTION, at the American Nursery, Windlesham, near Bagshot, Surrey, on TUESDAY, September 27, and three following days, at half-past 12 o'Clock precisely each day (in consequence of the Sunningdale and Cambridge Town Railway passing through part of the Nursery), a most valuable and extensive COLLECTION of about 20,000 STANDARD and DWARF RHODODENDRONS, KALMIAS, and AZALEAS, comprising some of the newest and choicest varieties; fine specimen CEDRUS DEODARA, CEDARS of LEBANON, and ARAUCARIA IMBRICATA, from 4 to 20 feet high, in fine state for removal; also some fine Piceas, Pinuses, and Thujas, 1500 Cupressus Lawsoniana, Variegated Hollies, Common and Portugal Laurels; also numerous first-class Evergreens and Deciduous Trees and Shrubs of various sizes.

On view the week prior and Morning of Sale; and Catalogues had by inclosing Two Stamps to Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C., and of Mr. G. BAKER, American Nursery, Windlesham, near Bagshot, Surrey.

The Nursery is one and a quarter miles from Sunningdale Station, on the London and South-Western Railway; and a Van will meet the 10.50 train from Waterloo, arriving at Sunningdale Station at three minutes past 12, to convey parties to the Sale.

Refreshments will be provided on the ground for parties attending the Sale. N.B. Mr. G. BAKER has a Machine for removing large Plants, and he will undertake to have them carefully packed and sent to any part of the country if desired.

To Horticultural Builders, Photographers, and Others.

MR. SWAIN has received instructions from the Owner, who is diminishing his stock, to SELL by AUCTION, on the Premises, Pine Cottage, New Road, Hammersmith, close to the Queen of "England," on WEDNESDAY, September 14, at 1 o'Clock, the SURPLUS STOCK of GREENHOUSES; consisting of Span and Lean-to Roofs, measuring 27 feet by 16 feet, 17 feet by 12 feet, 25 feet by 14 feet, 45 feet by 14 feet, 50 feet by 14 feet, and others of smaller dimensions; a large Quantity of Lights of all dimensions; upper Ranged Lights for Ventilation; a Blacksmith's Forge; Hot-Water Apparatus and Furnaces; Cucumber and other Frames; and Miscellaneous Effects.

May be viewed two days prior and Morning of Sale. Catalogues had on the Premises, and of the Auctioneer, The Lodge, Notting Hill.

Surplus Stock of a Greenhouse and General Builder.

J. AND G. BOND will SELL by AUCTION, on the Premises, 205, King Street West, Hammersmith, W., on THURSDAY, September 15, at 12 for 1 o'Clock, 4 Small GREENHOUSES, 7 ft. by 8 ft., 12 ft. by 8 ft. 4 in., 16 ft. by 9 ft. 6 in., 20 ft. by 11 ft.; a Forcing House, 16 ft. by 8 ft.; 4 dozen Pit Lights; 14 Cucumber and Melon Frames, various sizes; 8 pairs of 1½ in. & 2 in. Sashes and Frames; 12 4-panel Doors; 5 Dressers, Shelves, Folding Steps, Ladders, Garden Seats, Flower Stands, &c.

On View the Day previous and Morning of Sale. Catalogues on the Premises, and at the Auctioneers' Offices, 10 & 11, Dorcas Terrace, Hammersmith Road, W.

To Market Gardeners, Nurserymen, Cow-Keepers, and Others.

BLUE ANCHOR ROAD, BERMONDSEY, NEAR THE SPA ROAD STATION OF THE GREENWICH RAILWAY.

MR. W. T. ATWOOD has received instructions from the Executors of the late Mr. Mack, to SELL by AUCTION, on the Premises, on TUESDAY, September 20, and following day, at 12 o'Clock punctually, without reserve, the LIVE and DEAD STOCK in TRADE, together with the HOUSEHOLD FURNITURE. The Stock comprises 150 3-Light Boxes and Lights, 600 Hand Glasses, 4 Spring and other Waggons, 4 Tumbril and Scotch Carts, Light Cart, Phaeton, 4 Powerful Cart Horses, Nag Horse and Pony, 5 Cows in milk, Implements, Barrows, Baskets, and numerous other useful Articles, Dairy Utensils, and heaps of Manure.

The Crops comprise a quantity of excellent Sea Kale, and 3-year old Asparagus Roots for Forcing, 1 and 2-year old ditto, Mint, Rhubarb, Celery, and various other Crops.

The Furniture consists of a 4-post Mahogany Bedstead, good Bedding, Chairs, Tables, two Mahogany Wardrobes, Pianoforte, and other genuine Furniture.

May be viewed the Day before and Morning of Sale. Catalogues had on the Premises; the Inns in the London Markets; and of the AUCTIONEER, Mortlake, Surrey, S.W. Furniture and Stock on Tuesday, September 20; Crops on Wednesday, September 21.

Dalston Nursery.

500 CHOICE CAMELLIAS, GREENHOUSE PLANTS, THREE GREENHOUSES, PITS, FRAMES, AND EFFECTS.

MR. F. W. SEARLE will SELL by AUCTION, upon the Premises, near Dalston Gate, Dalston Lane, N.E., on TUESDAY, September 27, and following day, at 12 o'Clock each day, by order of the proprietor, who is relinquishing the Cultivation, the STOCK, comprising CAMELLIAS, well set for bloom, from 4 to 5 feet; large ACACIAS, AZALEAS, MYRTLES, CYTISUS, fine AMERICAN ALOES, CACTI, CRASSULA FALCATA, and other Greenhouse Plants; large EVERGREENS in pots, Lean-to GREENHOUSES and Effects.

On view day prior and Mornings of Sale. Catalogues at the Centre Avenue, Covent Garden, S.W.; of the principal Seedsmen in London, by post for one Stamp; and at the Auctioneer's Offices, 23, Coleman Street E.C.

HEATING BY HOT WATER.

J. JONES & SONS,

IRON MERCHANTS AND HORTICULTURAL ENGINEERS,

6, BANKSIDE, SOUTHWARK, LONDON, S.E.

It is now generally admitted that BUILDINGS of any kind can be more effectually warmed by HOT WATER than by any other means; but as so much depends on the way in which the APPARATUS is fixed, it is of the greatest importance that it be done by experienced men.

J. JONES and SONS are prepared to estimate for WARMING, to any extent—

GREENHOUSES.	FORCING PITS.	CHURCHES.	LECTURE HALLS.	FACTORIES.	DRYING ROOMS.
CONSERVATORIES.	PEACH HOUSES.	CHAPELS.	BILLIARD ROOMS.	OFFICES.	CELLARS.
VINERIES.	PINE STOVES.	SCHOOLS.	HALLS and PASSAGES.	WORKSHOPS.	COACH HOUSES.
HOT HOUSES.	ORCHARD HOUSES.	READING ROOMS.	BATHS.	WAREHOUSES.	HARNESS ROOMS.

J. JONES & SONS' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest CHAPEL or the largest CHURCH; for PRIVATE OFFICES, or those of PUBLIC COMPANIES.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more BATHS may be heated from the same boiler, and a constant supply of Hot Water obtained in any part of the House.

For WAREHOUSES and WORKSHOPS this system of Heating is unsurpassed, as it is not only the means of keeping goods dry, but it also adds to the comfort of the workpeople, and thereby effects a saving in labour.

J. JONES & SONS recommend Boilers of all kinds being set in Brickwork, if possible; but Portable Boilers can be supplied, if required.

MATERIALS.—All Materials supplied will be of the best quality.

DELIVERY.—Boilers of various kinds, and Pipes and Connections, being always in stock, can, at a very short notice, be sent to any part.

FIXING.—The Fixing will be done by experienced men, fully capable of finishing properly any work they may undertake; and J. JONES & SONS are prepared to guarantee the effectual working of any Apparatus fixed by their own men.

ESTIMATES.—Plans and Estimates will be sent, on application.

LIST OF IRON WORK KEPT IN STOCK.

PIPES for GAS, WATER, or STEAM.	MANGERS and STABLE GUTTERS.	HYDROPULTS.
RAIN-WATER PIPES.	CAST and WROUGHT HAY RACKS.	GARDEN SEATS and CHAIRS.
MOULDED GUTTERS, of DIFFERENT PATTERNS.	PIG and CATTLE TROUGHS.	ORNAMENTAL and PLAIN GRATING.
HALF ROUND GUTTERS for FARM BUILDINGS.	WIRE NETTING.	WROUGHT IRON TUBING.
PUMPS.	HAND GLASS FRAMES.	MOWING MACHINES and GARDEN ROLLERS.
FLANGE PIPES for Ditto.	CAST IRON VASES.	LAMP POSTS.
PATENT KITCHEN SINKS.	FLOWER STANDS.	

J. JONES and SONS can also supply the following at a short notice, at Manufacturers' Prices :—

BAR, ROD, and HOOP IRON.	GIRDERS and COLUMNS, WROUGHT or CAST.	VERANDAHS.
IRON HURDLES.	PLAIN and GALVANIZED ROOFING.	IRON STAIRCASES.
STRAINED WIRE FENCING.	STABLE FITTINGS.	GARDEN ENGINES.
CAST IRON RAILING, ORNAMENTAL or PLAIN.	STOVES and RANGES of any size and shape.	GARDEN SYRINGES.
WROUGHT and CAST IRON GATES.	BATHS, with or without Fittings.	GARDEN ARCHES.
BOUNDARY POSTS.	IRON CONSERVATORIES.	AGRICULTURAL MACHINES.
TANKS and CISTERNS, PLAIN and GALVANIZED.	BALCONIES.	AGRICULTURAL IMPLEMENTS.
PAILS and BUCKETS, PLAIN and GALVANIZED.		

IRON WORK OF ANY KIND. PRICES AND ESTIMATES ON APPLICATION.

J. JONES AND SONS, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 38.—1864.] SATURDAY, SEPTEMBER 17. {Price Fivepence. {Stamped Edition, 6d.

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BRACKLEY AGRICULTURAL and HORTICULTURAL SOCIETY.
The ANNUAL FETE of this Society will be held on TUESDAY, September 20.
Last day for receiving Entries for Flowers, Fruit, &c., September 16.
Further Particulars and Schedule of Prizes, may be obtained of the Honorary Secretary, R. J. Russel, Brackley.

Pines.
B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH CAYENNE, BLACK JAMAICA, &c. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines.
B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
Paradise and Victoria Nurseries, Holloway, London, N.

Very extra strong Vines from Eyes.
JAMES DICKSON AND SONS have ready all the leading kinds, which, if planted now, would produce a crop next season. Early purchasers will have 2000 to pick from. Price, very moderate, on application.
The "Newton" Nurseries, Chester.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. Meredith, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Meredith's Black Alicante Grape.
FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, can supply excellent well-ripened CANES of this magnificent Grape, ready for immediate planting. It hangs considerably longer than Lady Downes, and is in every respect a first-rate Grape. Price on application.

Vines, Vines—extra strong.
J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Grapes and Vines.
H. LANE AND SON have succeeded in producing a house of VINES, in full bearing, containing all the leading varieties, in order that purchasers might have a chance to choose for themselves, so as to avoid disappointment. The above, with the fruiting Vines in pots, are unrivalled and worthy of any one's inspection. The Nurseries, Berkhampsted.

Pine Suckers.
FOR SALE, a quantity of QUEEN PINE SUCKERS, also a few ENVILLE and OTAHEITE. The Queen Suckers 6d. each if 50 are taken. Warranted clean and free from scale.
Apply by letter, post paid, to J. Hannan, Gardener, Cyfarthfa Castle, Merthyr Tydvil.

RIPE PEACHES and NECTARINES on Bush Trees.—The largest crop of the above ever grown in the open ground in this country, without walls or any protection, may be seen at Josiah Illman's Nursery, Wellington Place, Strood, Kent.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21s. per 100.
Charles Turner, The Royal Nurseries, Slough.

The Kimberley Strawberry.
CHARLES KIMBERLEY can supply the above fine Strawberry, in strong plants that will Fruit well next season, at 10s. per 100.
London Agents: Messrs. Hurst & Son, 6, Leadenhall Street.
Stoke Nursery, near Coventry.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard Houses.
MESSRS. RIVERS AND SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.
Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

Japanese Lilies.
J. MANN'S JAPANESE LILIES are NOW in BLOOM.—Admirers of the Flower are respectfully invited to visit the Nursery, near the Great Eastern Railway Station, Colchester Line.
John Mann, Nurseries, Brentwood.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

The Best Twelve Hyacinths Imported by
SUTTON AND SONS, for Twelve Shillings.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

To Hyacinth Growers.
SUTTON'S DESCRIPTIVE LIST is NOW READY. Post Free.
Sutton & Sons, Reading, Berks.

Hyacinths, Tulips, Crocus, Narcissus, &c.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Dutch Bulbous Roots.
BUTLER AND McCULLOCH'S CATALOGUES post free.
Covent Garden Market, London, W.C.

Imported Dutch Bulbs.—Now Ready, Part IV. of
CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis, and post paid on application to
James Carter & Co., 237, 238, High Holborn, London, W.C.

Dutch Roots
MESSRS. JOHN AND CHARLES LEE have just received their Annual Supply of DUTCH ROOTS in good condition.
CATALOGUES free by post on application.
Royal Vineyard Nursery, Hammersmith, London, W.

Dutch Bulbs, Late Tulips, &c.
CHARLES TURNER'S CATALOGUE of the above is now ready. The roots have also arrived in fine condition. Orders will meet with prompt attention.
A fine stock of LILIUM AURATUM.
The Royal Nurseries, Slough.

Hyacinths and Dutch Bulbs.
Fine and at moderate prices.
PAUL AND SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
"Old" Cheshunt Nurseries, Cheshunt, N.

Large Importation of Flower Roots from the best Houses in Haarlem.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
WM. WOOD AND SON beg to solicit early commands for BULBS, just arrived in most excellent order.
Prices as reasonable as any respectable house in the Trade.
DESCRIPTIVE CATALOGUES may be had on application.

Fresh Imported Dutch Bulbs.
SUTTON AND SONS have just received from Haarlem one of the most extensive and rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
Royal Berkshire Seed Establishment, Reading.

SUTTON'S AUTUMN CATALOGUE of BULBOUS FLOWER ROOTS, containing full Descriptive Lists of all the best sorts of Hyacinths, Tulips, Crocuses, Gladioli, &c.; and also a Select List of Seeds for Autumn Sowing, is now ready, and may be had gratis and post free on application to
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Sutton's Unrivalled Collections of Bulbs.
SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
Sutton's GUINEA COLLECTION for BEDS and BORDERS.
For particulars see Sutton's AUTUMN CATALOGUE, which may be had Gratis and Post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Excellence and Economy.
H. BROWN'S PRICED DESCRIPTIVE AUTUMN CATALOGUE of BULBS, SEEDS, &c., will be sent free on application. The first importation has arrived, and the quality cannot be surpassed.
Wholesale and Retail Seed Warehouse, 4, Commutation Row, Liverpool.
See large Advertisement, *Gardeners' Chronicle*, Sept. 17.

J. SCOTT'S BULB CATALOGUE for 1864 is now ready, containing selected LISTS of DUTCH and other BULBS, with Descriptive and Cultural Directions; also numerous Hints on the Cultivation and Arrangement of the Winter and Spring Flower Garden, with Lists of Plants, post free for one stamp.
Merriott Nurseries, Crewkerne; and Yeovil, Somerset.

Dutch Bulbs and other Flower Roots.
Consisting of Hyacinths, Crocus, Tulips, Narcissus, Anemones, Lilies, Snowdrops, &c.
JAMES FAIRHEAD AND SON beg to state that their BULBS and ROOTS have arrived this season in prime condition and very large size.
CATALOGUES free on application.
7, Borough Market, London, S.E.

Hyacinths, Tulips, Narcissus, Crocus, &c.
THE LONDON SEED COMPANY, LIMITED, have just received their DUTCH FLOWER ROOTS, in fine condition. Early orders are requested.
68, Welbeck Street, Cavendish Square, London, W.

WEST RIDING NURSERY and SEED COMPANY, St. John's, Wakefield.
DUTCH FLOWER ROOTS.—Two large importations have just been received in fine condition.
CATALOGUES may be had on application to Wm. Barratt.

Roses.
PAUL AND SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to Benjamin R. Cant, St. John's Street Nursery, Colchester.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES, for the present season.
Nurseries, King's Acre, near Hereford.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

Paul's Nurseries, Waltham Cross, N.
WM. PAUL (Son and Successor to the late A. Paul).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
Orders for Roots amounting to 20s. forwarded carriage free.
The BULB CATALOGUE is now ready, and can be had gratis and post free on application.

CARTER'S GARDENER'S VADE-MECUM.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

Bedding Pelargonium Mrs. Pollock.
ALFRED FRYER offers strong out-door struck Plants, well established, in 60-pots, at 3s. 6d. each or 36s. per dozen.
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

To the Trade.
INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

Calceolaria, Cineraria, Primula.
E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.
The CALCEOLARIA is NOW magnificently in BLOOM at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

Clianthus Dampieri splendens.
C. KIMBERLEY has just received a supply of the above fine Greenhouse Climber, direct from Australia, which he begs to offer in packets of six seeds for 1s. 6d.
Stoke Nursery, near Coventry.

West Riding Nursery and Seed Company.
LILIUM AURATUM.—Several Plants of this fine importation have Bloomed in this Nursery, and fully sustain its high character. Price per bulb or dozen on application to
Wm. Barratt, St. John's, Wakefield.

Picea nobilis.
WILLIAM BARRON begs to offer splendid Seedling Plants of the above, from 4 to 7 inches, at 12s. per dozen, or 90s. per 100, including package. Special prices to the Trade on application. Elvaston Nurseries, Derby.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

PINUS EXCELSA WANTED.—Some good large Trees. State price and size, delivered at Abbey Wood Station, Kent.
Address by letter to J. G. C., Mr. Chartres, 40, King William Street, City, E.C.

WANTED, large quantities of Small Transplanted SCOTCH FIR and BEECH, also 3-year Seedling BEECH, for Cash. Apply to G. Frost, Nurseryman, Bampton, Devon.

FOR SALE, Cheap.—12 AZALEA INDICA, Specimens; 5 CAMELLIA JAPONICA; 2 CEREUS (fine), 4 feet; 1 FICUS ELASTICA, 7 feet. The property of a Lady.
Apply to T. Bray, Florist, &c., Hope Cottage Nursery, South Lambeth, S.

Mushroom Spawn.
SAMUEL CHEESE respectfully solicits all Nurserymen and Seedsmen to give his MUSHROOM SPAWN a trial.
Address Samuel Cheese, 231, Oxford Street.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials. Price published shortly. Remittance requested from unknown correspondents.
Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton, Sept. 10.

NEW and GENUINE TURNIP SEEDS in quantity.
SKIRVING'S KING of the SWEDES.
DIXON'S IMPERIAL SWEDE PURPLE TOP.
SKIRVING'S IMPROVED SWEDE PURPLE TOP.
E. P. Dixon & Sons, 57, Queen Street, Hull.

CABBAGE PLANTS.—WHEELER'S IMPERIAL, young plants, suitable to plant out at this season of the year for spring use. References or remittances requested from unknown correspondents.
Price on application to C. Dolton, Seed Grower and Culinary Plant Nurseryman, Speenhamland, Newbury, Berks.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

Genuine Italian Rye-grass.
Produced from Second Crop Foreign Seed.
MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has a good supply of the above, which has been thoroughly cleaned, and which will be offered to the Trade on reasonable terms, and samples will be forwarded on application.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 56s. per quarter, delivered at Brimtree Station.
Apply to Henry Evershed, Park Hall, Gosfield, Halsted, Essex.

CORNELIUS WHITEHOUSE, Brereton Nursery, near Rugeley, Staffordshire, has to offer 200,000 Transplanted GREEN HOLLIES, from 7 inches to 5 feet: also, a large and well grown General NURSERY STOCK of Choice Evergreens of various sorts and sizes, American Plants, Conifers, Ornamental Trees, Variegated Hollies, Trained Fruit Trees, &c., Forest Trees, Strong Quicks, &c. The whole in fine condition for moving. The Trade liberally dealt with in Green Hollies, from 7 inches to 12 and 12 to 18 inches. Cash or reference is respectfully requested from unknown correspondents.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3 Rue Dunois (late Rue des Trois Ormes), Paris, begs to inform Nurserymen, Seedsmen, Florists, and the Trade generally, that he will shortly publish his CATALOGUE of his unrivalled collection of GLADIOLI for this autumn, which may be had of him direct, or of his London Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C., upon prepaid application.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade in general that his NEW CATALOGUE is just published, containing many interesting novelties, and may be had on application to his Agents, Messrs. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

CAMELLIAS, with flower buds, 6*d.* per 100.

INDIAN AZALEAS, best varieties, with flower buds, from 3*l.* 10*s.* and upwards.

ACER PSEUDO-PLATANUS, var. LEOPOLDII.—This splendid new hardy variety (of which A. VAN GEERT possesses the entire stock), with a brilliant carmine striped foliage, will be sent out in strict rotation from the 1st October. Fine grafted Trees, on stems, at 10 and 20 francs each. A Drawing may be had on application, and one plant over for every three taken.

A. VAN GEERT also offers fine plants of his new hardy RHODODENDRON AUGUSTE VAN GEERT, 5*s.* to 10*s.* 6*d.* each.

A. VAN GEERT, Nurseryman, Ghent, Belgium.

TO BE DISPOSED OF, close by the Chippenham Station:—

1 large AGAVE ALOE, in perfect condition, 38 years' growth. Length of leaves 4 feet.
1 Broad-leaved MYRTLE, handsomely grown.
1 healthy BLOOD-ORANGE TREE, well covered with leaves and fruit; 7 feet from tub; above 11 years' growth.
1 fine fruited LEMON TREE, same height.
1 CITRON TREE, in fine fruit, same size; matches well with the other plants.

Inquire of Mr. BISHOP, Cliff Cottage, Chippenham.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid they must be cheap.

HERTFORDSHIRE HERO BARLEY.—Six-rowed, very productive, and stiff strawed; rather coarse but suitable for Winter or Spring Sowing, for Early Spring Feed, or an Early Crop for Harvest.

Price 50*s.* per quarter, delivered on Rail at Basingstoke.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; or Basingstoke.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 10*s.* per bushel, or 64*s.* per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per ton; packed 16*s.* per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



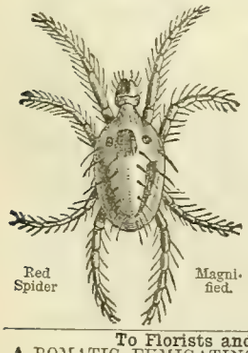
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence.

Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.: HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & M'CULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs BARR & SCODLS, Seedsmen, King Street, Covent Garden.

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been favoured with the receipt of the following

Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, ESQ., *of Hobbeness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

CARTER'S FARMER'S VADE-MECUM.

DOUBLE SNOWDROPS, fine roots, 14*s.* per 1000.
LARGE YELLOW DUTCH CROCUS, 12*s.* 6*d.* per 1000.
LARGE BLUE DUTCH CROCUS, 12*s.* 6*d.* per 1000.
DOUBLE VAN THOL TULIPS, 30*s.* per 1000.
Choice named HYACINTHS, 4*s.* per dozen, 30*s.* per 100.
Florists' Hybridised CALCEOLARIA and CINERARIA, 1*s.*, 1*s.* 6*d.* and 2*s.* 6*d.* per packet.
Finest FRINGED PRIMULA, 2*s.* 6*d.* per packet.

The AUTUMN PRICED LIST is now ready, and may be had free on application to

EDWARD TAYLOR, Derwent Nurseries, Malton, Yorkshire.

EARLY SPRING FEED,
For Present Sowing.
NEW ENGLISH ITALIAN RYE-GRASS,
Best Imported Ditto,
TRIFOLIUM INCARNATUM,
For Sowing on Stubbles and mending deficient plants of Grasses or Clovers.
WINTER BARLEY | WINTER OATS | COMMON RYE
GIANT RYE | WINTER TARES
For Early Spring Feed.
MUSTARD and RAPE, for sheep keep and ploughing in for manure.
Samples and prices on application to RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; and Basingstoke.

NEW HARDY CLIMBING PLANTS.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.
Awarded by the Royal Horticultural Society, August 4, 1863.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the public, for the first time, their beautiful rich coloured, free flowering Clematises that they can recommend with confidence, being convinced when known they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants sent out strictly in rotation in October.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Gardeners' Chronicle*, January 9, 1864, on Meritorious Plants; *Journal of Horticulture*, August 11, 1863.

Plants advertised at 15*s.* each: G. J. & SON cannot take further orders, for having had but a limited quantity of that size, for the future the price will be

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

ESTABLISHMENT for the INTRODUCTION of NEW PLANTS.

TO BE SENT OUT IN SEPTEMBER 1864.

AMBROISE VERSCHAFFELT, GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES:—

ACHYRANTHES VERSCHAFFELTII, Versch. (Illustration Horticole).—A splendid introduction; it is the rival of the charming Coleus Verschaffeltii, with the advantage that the Achyranthes is less delicate, and may be kept easily in a good greenhouse. It will be one of the finest plants for planting out in the summer. A beautiful bed can be now seen in my nursery. Obtained prizes in all the exhibitions to which I sent it—Ghent, Antwerp, Brussels (International Exhibition), &c. Fine plants, 8*s.* each.

PHRYNIUM (MARANTA) VANDEN HECKEI, Versch. (Illustration Horticole).—This splendid Maranta was introduced by the botanic collector Baraquin, who discovered it in Para. It is one of the finest introductions I have made. Obtained several first medals. Fine plants, 20*s.* each.

ACER PSEUDO-PLATANUS var. LEOPOLDII (Illustration Horticole).—One of the best variegated Acers that we have. A correct Drawing may be seen in the September number of the "Illustration Horticole." Good plants, 8*s.* each; stronger, 16*s.* each.

AQUILEGIA SPECTABILIS (Illustration Horticole).—This is one of the finest Aquilegias; see figure in "Illustration Horticole." Good plants, 4*s.* each.

AZALEA PONTICA BOUQUET DE FLORE.—Splendid variety, large bouquet, rose, delicate, with stripes. A figure will be published shortly in the "Illustration Horticole." Good plants, 4*s.* each.

New Pears.

BEURRÉ SPAE (Illustration Horticole).—Fruit of first quality; see "Illustration Horticole." Good plants, 8*s.* each.

BEURRÉ VAN GEERT.—Fruit of first quality. A drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 8*s.* each.

ROSE (HYB. REMONTANTE) DUCHESS of MEDINACELI.—This is one of the best Roses that will be sent out this autumn. A Drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 16*s.* each.

N.B. The NEW GENERAL CATALOGUE No. 75, is now ready, and can be obtained Free of my Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

All Letters containing Orders must be sent direct to
AMBROISE VERSCHAFFELT, GHENT, BELGIUM.

EXCELLENCE AND ECONOMY.

COLLECTIONS OF BULBS.—Nos. 1 to 9 Carriage Free.

The following COLLECTIONS of BULBS will be found convenient for Purchasers unacquainted with, or who have not time to select, the different species. Any variety not approved of should be stated when ordering, when others of equal value will be substituted. Should orders arrive late, when some varieties are all sold, others will be substituted unless requested not to do so at the time of ordering. GLADIOLUS are not generally ready to send out with these Collections, and should, with other Bulbs not mentioned, be ordered separately.

For terms of payment see page 3 of PRICED DESCRIPTIVE CATALOGUE, post free on application.

No. 1,	For In-door and Out-door Culture	..	£5	0	0	No. 6,	For In-door Culture	..	..	..	£1	0	0
No. 2,	do. do. do.	..	4	0	0	No. 7,	For Out-door Culture	..	..	..	4	0	0
No. 3,	do. do. do.	..	2	0	0	No. 8,	do. do.	..	..	..	2	0	0
No. 4,	do. do. do.	..	1	0	0	No. 9,	do. do.	..	..	..	1	0	0
No. 5,	For In-door Culture	..	2	0	0	No. 10,	For Window and Out-door Culture	..			0	10	0

NAMES of ASSORTED BULBS.	1	2	3	4	5	6	7	8	9	10
ANEMONE, Single, mixed	36	24	12	6	..	..	25	25	12	..
ANEMONE, Double, mixed	36	24	12	6	..	..	25	..	..	..
CROCUS, four colours, separate	600	400	200	100	..	..	1000	400	250	..
CROCUS, 20 named varieties, separate	100	100	..	..	120	..	..	..	..	..
CROCUS, 10 "	..	..	50	30	..	50	100	100	..	50
CROWN IMPERIALS, sorts	6	3	..	..	..	..	12	..	..	..
CYCLAMEN, sweet	..	..	..	..	2	1	..	..	..	..
DOG'S-TOOTH VIOLET	12	6	..	..	..	..	..	..	..	..
HYACINTHS, fine, Double and Single, named for pots, moss, &c.	24	18	12	6	12	12	..	..	..	3
HYACINTHS, fine, named for glasses, &c.	24	18	12	6	12	6	..	..	..	3
HYACINTHS, Single and Double, various colours, separate, for borders	18	12	..	..	..	..	100	60	25	..
HYACINTHS, Miniature	..	..	..	..	12	..	..	..	..	6
IRIS, sorts	6	6	3	..	6	3	50	..	..	..
JONQUILS, large, Double	18	12	12	6	6	3	..	12	6	3
JONQUILS, sweet, Single	18	12	12	6	6	3	..	12	..	3
JONQUILS, CAMPERNELLE	6	6	..	..	..	..	12	12	9	..
LILIES, sorts	6	3	..	..	3	1	24	6	2	..
NARCISSUS, POLYANTHUS, sorts	6	6	4	2	12	4	..	..	..	3
NARCISSUS, sweet, border sorts	12	12	..	..	..	..	200	100	36	..
RANUNCULUS, TURBAN, four sorts, separate	100	50	24	12	..	..	100	50	24	..
RANUNCULUS, mixed	100	50	24	12	..	..	100	50	24	..
SCILLA SIBIRICA	12	12	12	6	12	6	..	..	..	6
SNOWDROP, Double	100	100	50	24	25	12	100	50	25	..
SNOWDROP, Single	100	100	50	24	25	12	150	50	25	12
TULIP, Single, Early, VAN THOL	100	50	24	6	12	6	..	..	..	..
TULIP, Double, Early, VAN THOL	100	50	24	6	12	6	..	..	..	..
TULIP, Early, Single, sorts	50	36	18	6	12	6	50	24	12	..
TULIP, Late, Single, mixed	..	..	..	..	..	..	50	24	12	6
TULIP, Double, for pots, sorts	18	18	9	6	12	6	..	..	..	6
TULIP, Double, mixed	50	36	18	6	..	..	50	24	12	..

H. BROWN, SEEDSMAN, 4, COMMUTATION ROW, LIVERPOOL.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM," Containing full descriptions of 50 most desirable varieties, will be forwarded by Post on application.

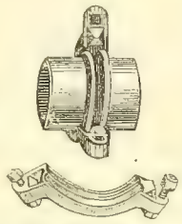
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN, 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GREEN'S PATENT LAWN MOWERS have proved to be the best in all cases of Competition. Leeds, London, and Dublin.

"THE HYDROPULT," 142 & 143, Cheapside, London, E.C. Illustrated Prospectus with Testimonials sent free on application.

SHAW'S TIFFANY. For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED assorted LABELS for 3s. Delivered free in London on receipt of a Post-office Order or Stamps for the amount. Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

REDUCED PRICES  OF PROPAGATING GLASSES.

Each.—s. d.		Each.—s. d.	
3 inches in diameter ..	0 4	12 inches in diameter ..	1 6
4 " " ..	0 5	13 " " ..	1 10
5 " " ..	0 6	14 " " ..	2 3
6 " " ..	0 7	15 " " ..	2 9
7 " " ..	0 9	16 " " ..	3 0
8 " " ..	0 10½	17 " " ..	4 0
9 " " ..	1 1	18 " " ..	4 6
10 " " ..	1 2	19 " " ..	5 6
11 " " ..	1 4	20 " " ..	6 0

BEE GLASSES.

Each.—s. d.		Each.—s. d.	
4 inches in diameter ..	0 6	9 inches in diameter ..	1 8
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

No made above 12 inches.



CUCUMBER GLASSES.

Each.—s. d.		Each.—s. d.	
24 inches long ..	1 9	16 inches long ..	1 2
22 " " ..	1 7	14 " " ..	1 0
20 " " ..	1 6	12 " " ..	0 10
18 " " ..	1 4	Made to any length.	

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.	
12 inches ..	6 6	18 inches ..	9 6
14 " ..	7 6	20 " ..	10 6
16 " ..	8 6	22 " ..	11 6
		24 " ..	12 6

Painted and Glazed with 16 oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use. 180, Bishopsgate Street Without, London, E.C.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.



HAND GLASSES.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.



PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



MILK PANS.

See Advertisement the first week in the month, or on application.

HOT-WATER PIPES

DELIVERED TO ANY STATION IN ENGLAND.

J. JONES & SONS

Beg to state that they can now supply HOT-WATER PIPES and FITTINGS delivered Carriage Paid to any Railway Station in England, and that they have made very advantageous arrangements for delivery at the following Stations; and parties availing themselves of this offer will in many cases get their Pipes at a Country Station at a less price than would be charged in London.

ALFRETON
ACCRINGTON
ASHBOURNE
ADLINGTON
ASHBY-DE-LA-ZOUCH
ATHERSTONE

BRADFORD (YORKS.)
BURTON
BURNLEY
BOLTON
BINGHAM
BULWELL
BEVERLEY
BURY
BEDALE
BARNSLEY
BARTON
BIRKENHEAD

CHESTERFIELD

CHESTER
CHORLEY
CHELFORD
CREWE
CHEADLE
CONGLETON
COLWICH

DERBY
DEWSBURY
DONCASTER
DRIFFIELD
DROITWICH
DUDLEY

EDGBASTON
ECKINGTON

FARNWORTH

GAINSBOROUGH
GRANTHAM

HALIFAX
HARROGATE

ILKESTON

KIRKHAM
KNAPTON
KNARESBOROUGH

LANCASTER
LEEDS
LIVERPOOL
LOUGHBOROUGH
LEEK
LICHFIELD
LEAMINGTON
LEICESTER
LINCOLN

MACCLESFIELD
MALTON

MANCHESTER
MANSFIELD
MARKET HARBORO'
MARTON

NOTTINGHAM
NORMANTON
NORTHALLERTON
NORTHAMPTON

OAKHAM
OLDBURY
OLDHAM
ORMSKIRK
OSWESTRY
OUNDLE

PRESTON
PONTEFRACT
PETERBOROUGH
PENKRIDGE

RETFORD
RICHMOND (YORKS.)
ROTHERHAM
ROCHDALE
RUGELEY
RUGBY
REDDITCH

SHREWSBURY
STAFFORD
STOURBRIDGE
SALFORD
ST. HELEN'S
SETTLE
SKIPTON
STAMFORD
SLEAFORD
SCARBOROUGH
SELBY
SHEFFIELD

TAMWORTH
THIRSK
TIPTON
TRENTHAM
THRAPSTON

UTTOXETER
ULLESTHORP

WORCESTER
WOLVERHAMPTON
WELLINGTON (SALOP)
WREXHAM
WARRINGTON
WIGAN
WAKEFIELD
WORKSOP
WELLINGBORO'

YORK

Also to any Station in Derbyshire, Shropshire, Warwickshire, Cheshire, Lancashire, Yorkshire, Leicestershire, Worcestershire, Lincolnshire, and Staffordshire.

J. JONES AND SONS will be happy to forward their Illustrated Catalogue of Hot-Water Pipes, Boilers, and Fittings, and Prices for the same, delivered Free to any Station; but parties requiring prices must state the quantities of Pipes, &c., required, and the Station to which they are to be delivered.

J. JONES AND SONS, IRON MERCHANTS AND HORTICULTURAL ENGINEERS, 6, BANKSIDE, LONDON.

ZONALE PELARGONIUM SEED, for present sowing, 2s. 6d. per pkt.—The above includes the newest and choicest varieties, and embraces the most distinct and diversified colours of this popular favourite. Amongst it are Mr. Bull's new kinds, so highly commended and universally admired at the great Flower Shows. This is a rare chance to amateurs of raising first-class sorts.

Mr. Bull's new SPOTTED HYBRID MIMULUS, 1s. per packet.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD, a very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT, brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH, dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL, dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR, clear rosy scarlet, very large truss, and fine foliage.
SURPRISE, a light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

Violets.

ROBERT SHACKELL begs to offer plants of his
RUSSIAN SUPERB VIOLET, at 12s. per dozen.
DOUBLE PURPLE, strong plants, 6s. per dozen.
DOUBLE WHITE, strong plants, 6s. per dozen.
PURPLE TREE VIOLET, strong plants, 6s. per dozen.
RUSSIAN, best for Winter Blooming, 2s. per dozen.

ROBERT SHACKELL has a Violet called VIOLA DEVONIENSIS, a fine variety now in bloom, at 6s. per dozen. He has a fine lot of White Pink plants, useful for forcing, at a low price. He will very soon have a quantity of nice plants of Daisies in varieties, Pansies, Anemones, and Hellebores, niger, &c.

ROBERT SHAKELL has a quantity of strong GOOSEBERRY and CURRANT TREES, good varieties, at 16s. per 100, suitable for Market Gardeners.

R. S. will feel a pleasure in sending samples gratis of anything he may advertise on receipt of sufficient to pay its carriage. He respectfully requests a remittance with any order he may be favoured with.

ROBERT SHACKELL, Florist, 5, Broad Street, Bath.

New English Hybrid Perpetual Rose, "King's Acre."

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, "KING'S ACRE," will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

Two Splendid Seedling Azaleas.

WILLIAM BARNES has great pleasure in announcing to his friends and the public that he will be prepared to send out on and after the 15th of October next, his two magnificent Seedling Azaleas, BRIDE of ABYDOS and PURITY.

BRIDE of ABYDOS is a splendid white, striped and splashed with pink; of fine vigorous growth, and an abundant bloomer. It was exhibited before the Floral Committee on May 6, 1862, when it met with their unanimous approval. The following description is given of it in the *Gardeners' Chronicle* upon the 10th of that month:—

"Mr. BARNES, of Southampton Street, Camberwell, contributed a beautiful Azalea named Bride of Abydos, the flowers of which are large, white, flaked with pink, and possess great substance; of this variety three plants were exhibited, all excellent in habit and evidently free in growth."

In the *Gardeners' Chronicle* of December 27, 1862, page 1217, in describing the new and most prominent Azaleas of the above year, are the following remarks:—

"As a free-flowering sort of vigorous habit adapted for decoration and exhibition, the Bride of Abydos is the most useful which has appeared amongst the whites, with occasional streaks of red."

Fine strong Grafted plants will be ready on the above date at 21s. and 31s. 6d. each.

PURITY is a beautiful clear white, fine large flower, with unusual substance and of the most perfect shape; it is of a fine robust habit. A variety of this description has long been required, viz.:—

A pure white, with fine shape, large flowers, and good vigorous habit. Plants will be ready on the above date at 21s. and 31s. 6d. each.

A few plants of each variety to offer in extra large plants, prices of which can be obtained on application to

WILLIAM BARNES, Camden Nursery, Camberwell, S.

HYACINTHS AND OTHER CHOICE BULBS.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS. For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post Free on application.

Choice Hyacinths for Glasses or Pots, 6s., 8s., 10s., and 12s. per doz.
,, ,, for Beds or Borders, 3s. 6d. per doz.

NEW PLANTS.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

BEGS TO OFFER THE UNDERMENTIONED NOVELTIES, ALL OF WHICH WILL BE FOUND VALUABLE ACQUISITIONS.

	Each.—s. d.
ACHYRANTHES VERSCHAFFELTII (Iresine Herbstii).—A new ornamental foliage plant	7 6
AQUILEGIA SPECTABILIS.—A handsome hardy perennial plant	3 6
BEGONIA DIGSWELLIANA.—Fine free-flowering variety for Winter Decoration	3 6
DIEFFENBACHIA BARAQUINIANA.—Leaves pale green, beautifully spotted with white, stalks and midribs ivory white	31 6
DIEFFENBACHIA GRANDIS.—Leaves pale green and spotted, leaf-stalks and stem elegantly mottled	21 0
LOBELIA LONGIFLORA.—A very distinct flowering plant, with long green toothed leaves, and conspicuous star-shaped white blossoms, very fragrant	1 6
MARANTA PICTURATA.—Leaves of a dark glossy green, embellished by a long central line, and ornamented with a silver variegation, very handsome	21 0
ORNITHOGALUM THYRSOIDES.—A showy flowering bulb, producing large spikes of snow-white flowers	5 0

NEW GRAPE, ROYAL VINEYARD.

Now ready for delivery.

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

For the opinions of the Horticultural Press, see former Advertisements.



FOR PRESENT PLANTING (Sent Carriage Paid).

DUTCH, CAPE, FRENCH, and ITALIAN FLOWERING BULBS,

FOR THE

ORNAMENTATION of the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.

THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10s. 6d., 21s., 30s., 42s., and 63s.

HYACINTHS, 2s. 6d. to 15s. per dozen. CROCUS, 1s. 6d. to 4s. per 100. TULIPS, 3s. 6d. to 20s. per 100.

A Detailed List of the above Collections, and a General Priced List of Bulbs, sent Free and Post Paid on application.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

NEW PLANTS.

FISHER, HOLMES, & CO.,

Beg to announce that they are now prepared to send out their

NEW BERBERIS AND ABIES.

THE FOLLOWING ARE THE DESCRIPTIONS GIVEN OF THEM IN THE *GARDENERS' CHRONICLE*:—

BERBERIS STENOPHYLLA.

See page 460, May 14, 1864.

"A very hardy hybrid Berberis, between Darwinii and empetrifolia, which promises to be one of the best evergreen shrubs in cultivation. We call it B. stenophylla. The branches are hairy; the spines 3-parted; the leaves very dark green, about half an inch long, pale beneath, tipped with a short spine, and rolled backward at the edge, so as not to appear flat but to look almost cylindrical. The flowers are of the same charming apricot colour as that which renders Darwinii so ornamental, but they are smaller,' &c.

August 13, page 770.

"At p. 460, we invited attention to a hybrid Berberry, from the Handsworth Nursery. The specimens we had then seen proved it to be a very handsome shrub in regard to its flowers, which were of a fine apricot colour, and produced in racemes of from 3 to 5 together from the leaf axils, instead of singly as in B. empetrifolia, of which this new shrub has something the character, but it is more vigorous. From samples which have recently been sent us, we are able to say that the bushes are at this season laden with purplish black berries, which must add greatly to their beauty, as well as prolong indefinitely the period of their effectiveness as ornamental shrubs. The berries, like the flowers, hang in racemes of from 3 to 5 from the leaf axils, and are about as large as Currants in the samples sent to us, but we learn that they are smaller than usual this year, owing to the excessive drought. When we add that this Handsworth hybrid is of a very hardy character, that it makes strong shoots 4 feet long in a season, that it is clothed with neat narrow evergreen foliage, and adorned with a profusion of gay orange-coloured blossoms in early summer, we shall have said enough to show that it is likely to prove a very decided acquisition, not only for our pleasure grounds and shrubberies, but also for our plantations and game preserves."

First size, strong plants in pots, 21s. each.
Second size, in pots, 15s. each. | Third size, in pots, 10s. 6d. each.

ABIES CANADENSIS MICROPHYLLA.

A beautiful Conifer of slender pyramidal habit, remarkable for the dumpy plump-looking blunt-end leaves which clothe its smaller twigs and branches, and which from their brevity and plumpness give it some peculiarity of aspect.

See p. 580 last year.

"The same exhibitors had an elegant North American Fir, very near the Hemlock Spruce, remarkable for its dumpy, plump, blunt-onded leaves."

Also in *Gardeners' Chronicle* for this year, p. 460, it states:—

"This Abies is of such singularly dwarf habit that it might almost be compared with a Heath. Leaves very dark green with a white streak beneath, rough at the edge, and no bigger than those of Menziesia polifolia. It may possibly be included in some catalogues under the name of Abies canadensis nana, but the leaves are much smaller than in the plants which we have seen bearing that name. Messrs. Fisher, Holmes & Co. have found it much more hardy than canadensis is itself, it not having suffered in the severe winter two years ago, when so many Conifers were injured."

Plants in pots, 42s. each.
A few extra sized Plants in pots, 63s. each.

Prices to the Trade on application.

N.B. CATALOGUES of FRUITS; FOREST, ORNAMENTAL, and EVERGREEN SHRUBS; ROSES; KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS; STOVE and GREENHOUSE PLANTS; DUTCH FLOWER ROOTS, &c., may be had Free in their respective seasons.

FISHER, HOLMES, AND CO., HANDSWORTH NURSERY, SHEFFIELD.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	.. £4 4s.	12s.
Very fine ditto	.. 3 10	9
Good ditto	.. 2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

HYACINTHS, TULIPS, and other DUTCH BULBS, imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

DUTCH HYACINTHS and EARLY TULIPS for FORCING.
12 Early Showy HYACINTHS .. .. 6s.
12 Early Choice HYACINTHS .. .. 8s.
The two dozen carriage free.
Single VAN THOL TULIPS, 5d. per dozen; 4s. 6d. per 100.
Double VAN THOL TULIPS, 6d. per dozen; 3s. 6d. per 100.
Double TOURNESOL TULIPS, 1s. per dozen; 7s. per 100.
All Dutch Roots are very fine and lower in price this season.
A PRICE LIST free by post.
CHAS. SOTHEBY, Seedsman, Clapham, S.

Established Upwards of a Century.

BUTLER AND McCULLOCH,



SEED MERCHANTS, Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5l.	2l. 10s.	1l. 5s.	1l. 1s.	15s.	10s. 6d.

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5l.	3l.	2l.	1l. 5s.	1l. 1s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5l. 5s.	2l. 12s. 6d.	2l. 2s.	1l. 1s.	15s.	10s. 6d.

These Collections include only Bulbs of first-class quality.
For full particulars see CATALOGUE, which may be obtained post free on application.
Orders amounting to 21s. and upwards sent Carriage-free.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

New and Choice Plants.
B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

New Hardy British Ferns.
J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " GLOMERATUM.
(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Sept. 17.

New Hardy Bedding Plant—Sedum glaucum.
JOHN SALTER invites the Growers of BEDDING PLANTS to visit his Nursery and inspect this beautiful novelty, which he will send out early in 1865. It is very dwarf, and of exceedingly close habit, forming a compact mass of silvery gray foliage, which it retains both in summer and winter; for edgings, ribbon borders, or pots it will be found one of the most useful dwarf plants ever offered. Orders are now being taken for the Spring at 9s. per dozen. Price per 100 upon application.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

CARTER'S GARDENER'S VADE-MECUM.

Paul's Nurseries, Waltham Cross, N.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading Plants, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.
HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce in the landscape, many handsome specimens of large size.
FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.
ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.
BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.
BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.
His collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.
PRICED CATALOGUES free by post.
Orders by post promptly attended to. Entrance from the Platform, Waltham Station, Great Northern Railway, half an hour's ride from London.

Vines—Extra Extra Strong.
FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

Vine Duchess of Buccleuch.
ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.
The following Certificates and Prizes have been awarded at various London and other Exhibitions:—
2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.
A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited.
Strong Planting Canes, 21s. each; extra strong Fruiting Canes 42s. each. Exotic Nursery, Tooting, Surrey, S.

Fruit Trees.
B. WHITHAM begs to call attention to his very superior stock of APPLE TREES, including about 2000 of LORD SUFFIELD, RINGER, GRENADIER, POTT'S SEEDLING, LORD DERBY, and GOLDEN SPIRE, which are allowed to be the very best sorts out. No grower should be without them, also many other good varieties, all at 9s. per dozen, or 60s. per hundred. A further reduction in price per thousand.
Also the justly celebrated Apple LORD CLYDE, new, of 1863, which is allowed to have no equal in flavour and keeping qualities, at 2s. each or 20s. per dozen.
Trained and Standard PEARS, CHERRIES, PEACHES, NECTARINES, &c. in great variety, at equally reasonable prices.
CURRANTS, Red, White, and Black Naples, at 2s. per dozen, or 12s. per hundred, extra fine.
CATALOGUES may be had on application to B. WHITHAM, The Nurseries, Reddish, near Stockport.

WILLIAM BARRON begs respectfully to inform his friends and the public, that in consequence of his intended Removal from Elvaston to his new Nurseries at Borrowash, his large and magnificent stock of Specimen CONIFERS and other rare and hardy Plants will be offered for Sale upon very favourable terms.
His DESCRIPTIVE CATALOGUE for the AUTUMN of 1864 and SPRING 1865 will shortly be ready, when it may be had free upon application. Elvaston Nurseries, Derby.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
LIST of AWARDS, September 13, 1864.

FIRST-CLASS CERTIFICATES.
ACHIMENES AURORA, from Mr. A. Parsons, Danesbury, Welwyn
ACHIMENES ROSE QUEEN, from Mr. A. Parsons
DAHLIA LEAH, from Mr. C. Turner, Slough
PELARGONIUM (VARIEGATED) METEOR, from Messrs. Saltmarsh & Son, Chelmsford
PELARGONIUM (ZONAL) LITTLE TREASURE, from Messrs. Saltmarsh & Son
VERBENA ANNIE, from Mr. Cooling, Bath

SECOND-CLASS CERTIFICATES.
DAHLIA SPITFIRE, from Mr. G. Rawlings, Romford
DAHLIA MISS ROBERTS, from Mr. C. Turner
GESNERA CHROMATELLA, from Mr. W. Bull, Chelsea

COMMENDATION.
ANTIRRHINUM (DOUBLE) GIUSEPPE GARIBALDI, from Mr. Bull.

The NEXT ORDINARY MEETING of the COMMITTEE will take place on TUESDAY, September 27, when Dr. Lindley's Prize for the best English Seedling Rose exhibited during the season, will be awarded.
THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 17, 1864.

IF anything could reconcile us to the loss of shade and shelter in the AVENUES OF THE REGENT'S PARK, concerning which some remarks will be found at p. 771 of our volume for 1863, it is the clever and beautiful CLASSICAL GARDEN which has been laid out by Mr. MARKHAM NESFIELD in the space once occupied by the innermost of the lines of trees of which they were composed. We must, however, confess at the outset that we cannot adopt the views enunciated by the *Times* as to the pernicious effects of these trees—that of rendering the park damp and dismal, a prey to ague and rheumatism, for a pretty close acquaintance with the spot, extending over many years, has certainly left no such reminiscence, but instead thereof the recollection of an umbrageous canopy which was most enjoyable, at least during those times when enjoyment could be fairly expected from it. Of course no one would think of seeking pleasure or gratification, hardly of taking a constitutional, under these trees, when they were dripping with rain-drops or while a bitter north-easter was raking their ranks, without intending to invite some such companion as rheumatism; and in this case there could be no ground of complaint if such a companion were sometimes found. All this, however, does not in the least detract from the merit of Mr. NESFIELD's classical design, or the beauty of the garden which has been laid out and planted under his direction, and which occupies a length of some 350 yards and a breadth of about 75 feet between the outer lines of trees on either side of the main walk in the southern or first division of the park, immediately adjoining Park Square.

We pass over now, a question on which there may be two opinions, namely, as to how far the elaborate flower gardens which have become the fashion of the day, are in place in the parks at all, since in the instance which is more immediately before us, the very formality of the situation invites some such formal treatment, and the gardens being bounded by the existing lines of trees, are in some sense cut off from the park proper, and at least do not interfere with its character and general features.

The western division of this Avenue Garden is the more furnished of the two, having been laid out last year, while the eastern division has been but a few months completed. The trees on the western side are consequently more established, and the arrangements altogether show more completely the intention of the designer. It is of course after all but a narrow strip on which to work, but it has been treated with much judgment and taste, as we think all who examine it will agree. It is divided into three principal parts, consisting of a central garden and two ante-gardens, the principal feature in the former being a large tazza supported by griffins and standing in the centre of a curbed bed: this being flanked north and south by a long sunk flower panel on Grass, also with a stone curb. Two features of these panel gardens struck us as being particularly happy. The first was the use of a broad line of Holly along the centre of the principal flower beds, kept even at top and just higher than the flowers, which were thus finely relieved by contrast with its dark green foliage. The second was the free use on the Grass level, of the graceful yet formal Yucca recurva, and other formal plants, such as round-headed standard Holly green and variegated, pyramidal Box, and spheroidal Thuja aurea. The flower beds in these two gardens have been this season cleverly planted, with a keen appreciation of colouring effect, and an abhorrence of gaudy glare. In one the Holly centre has been flanked on each side by Scarlet Pelargonium, purple Verbena, and orange Tropæolum, edged by grey Gnaphalium lanatum; in the other the materials have been Trentham Rose and Flower of the Day Pelargoniums, then purple Verbena, with the edge of grey Cerastium. The bright yellow of the Calceolaria, instead of being mixed up with the other colours, has been massed in circles at the end of the beds, with the effect of imparting liveliness and brilliancy without vulgarity to the whole composition. When at the best, these little parterres, round which the walk is carried, must have been very beautiful. Various other tazzas and vases are judiciously introduced so as to connect and harmonise the various parts of the design.

In the ante-gardens north and south of this the arrangements are altogether different. There is a broad central path, planted on both sides with a line of Lombardy Poplars, which are to be kept cut to a close form and moderate height; and which by the silvery flicker of their leaves break up the monotony of the too confined space, and at the same time, by carrying the eye onwards, and affording a marked contrast with the taller and more bulky trees, gives the impression of great length rather than of narrowness, and consequently of increased space. The side borders are planted with trees and dwarf shrubs arranged in lines and masses, so as to work out a picture from their different colours, forms, and habits, the principal things used at present being yellow-spotted Aucubas and Euonymus japonicus, edged with lines of green Hollies, and behind these Persian Lilacs in masses, to yield abundance of flower in spring. Here and there are groups of Berberis Aquifolium; and at other points groups of standard Thorns, Laburnums, and Almonds, are introduced so as to connect the prominent parts of the design. Outside of all is a dwarf Hornbeam hedge, planted so that the stems intersect each other diagonally in the form of trellis work.

The eastern division is so far similar to the western that there are two terminal ante-gardens leading to the central compartment, but the centre itself is differently treated, owing to the necessity of introducing angular walks to facilitate the dispersion of the crowds which occasionally congregate. This part, however, has not yet received the finishing touches, some rearrangement of the architectural ornaments and other modifications being contemplated. The eastern ante-gardens, like the western, have their lines of Lombardy Poplars, and their flanking beds of formally arranged shrubs and standard trees, among which Dwarf Box, clipped Privet, and Rhododendrons occur—of the latter the ponticums are preferred, for this reason, that their foliage does not look drooping and failing, as does that of many hybrids partaking of the catawbiense blood. On the outside, again, occurs the trellis hedge of Hornbeam.

On the western side of the garden and exterior to the avenue, a raised bank, chiefly for shelter from south-west winds, is planted with the common Lilac, this being selected as a showy shrub flowering in masses in spring. This belt might with

advantage be more broken up and extended in a westerly direction. Groups of Hollyhocks, which occur here and there within the garden, form admirable features, these flowers being particularly well suited for the purpose. It is of course impossible without a plan to explain the minute details of the arrangements in this highly artistic garden, in which there has been a very successful attempt to realise in landscape gardening something of the effect of landscape painting; but the points to which we have alluded will give some general notion of its grouping and composition, which we repeat reflect the highest credit on Mr. NESFIELD's taste, and augur well for his future career in this walk of landscape gardening.

We ought not to omit mention of a very commodious red-brick gardener's cottage designed by the architect, Mr. W. EDEN NESFIELD, and now in course of erection near the south entrance, for with its handsome gables and verandahs nestling among the trees, it will form an elegant finish to the vista in the western garden looking southwards.

While we still hope that the insatiable genius of Change, may not lay ruthless hands on the as yet shady avenues of the further park, we may observe that the small portion of ground on the eastern side of the avenue in the first park fronting the Colosseum, might with advantage be laid out as an adjunct to the garden already formed, since it is completely cut off from the more open portions of the park lying to the north and west. At present it certainly bears rather a meaningless character.

One further improvement, which would seem from its obvious fitness to have been contemplated in the original laying out of the ground, is moreover wanting, and this it is to be hoped the authorities may find ere long the means of accomplishing. We refer to the continuation of the broad walk through the gardens of Park Square and Park Crescent onwards to Portland Place, with which it lies in a direct line. Were this line opened up, London might boast of one of the finest possible continuous thoroughfares, extending from St. James's Park to Primrose Hill; and the area of the gardens of the square and crescent placed at Mr. NESFIELD's disposal might be made to form a grand continuation townwards of his refined and classical formal garden. Here might also be found a capital site on which to erect what London is so lamentably deficient in, a pair of fountains worthy of England's metropolis.

And now, having given Mr. NESFIELD the praise which we believe to be his due for the manner in which these Avenue Gardens have been planned and planted, we may offer a remark or two as to what appears to be desirable to ensure their permanent success. First of all, he should, we think, eschew the too free use of flowering plants, the attempt, that is, to rest content with a mere blaze of flowers. With the limited breadth of 75 feet, and a row of old-established Elms and Horse Chestnuts on either side, no gardener need be told that it will be uphill work to keep flowering plants fed in such a way as to secure that vigour and brilliancy which are essential in a garden of this kind if it is to rise above mediocrity. The trees will be perpetual robbers, and no manuring, no watering, no root-cutting will compensate for this original defect of situation. This being so, we think that bedding plants, instead of being dispersed over the whole garden, should be rather confined to small compact groups here and there, such as the central parterres which we have described, in which, if necessary, the soil might be wholly renewed every year; while all other weedy flowers, such as some which have been necessarily used for mere filling up this season, should be banished altogether. Groups of Hollyhocks, and groups or lines of Gladioli, and such like formal subjects might be introduced with good effect, and if not too numerous could be specially provided for; and such of the subtropical plants as Cannas, Ferdinandas, Aralias, Dracænas or Ricinus, either planted out or plunged — singly we think, certainly not in mixed groups as now—might be induced to grow satisfactorily. For everything which has to be planted out, however, trenching and manuring will have to be resorted to, as well as watering, and that to a far greater extent than is probably calculated on. Even with the more permanent shrubs the secret of ultimate success, if success be accomplished, will lie in annual top-dressing, and mulching, and in copious watering; while for the beds of choice flowers a renewal of the soil, of frequent if not annual recurrence, will be necessary.

What we would mainly suggest, then—since this garden cannot hope to vie in the way of flowers with others more happily situated—is that a distinctive and characteristic feature should be given to it by the more abundant introduction of evergreen shrubs of varied colour and character, so as to maintain a permanent and perpetual interest. We have no London garden fit to look on in winter as well as in summer. Here is an opening for Mr. NESFIELD to win new laurels. The contiguous trees, which are his chief difficulty with respect to flowers, would by their shelter rather help him than otherwise in the case of shrubs. We are not going to inflict on our readers a catalogue of names, but as an indication that materials are not wanting to the accomplishment of this idea, we may just point to such things as the varieties of Holly with variegated leaves; the Aucubas green and blotched; the forms of Euonymus japonicus, of which one with gold variegation is most brilliant and full-toned; Euonymus radicans variegatus, one of the brightest of white-edged leaves, and thoroughly hardy; the several forms of Osmanthus green and variegated, also thoroughly hardy; the neat Ilex crenata; the yellow-veined Lonicera aureo-reticulata; Helianthemums green and variegated; Yews green and golden; and Ivies in endless variety of form and colour. Such an Evergreen Garden, for which the design is in every way fitted, might give to the Regent's Park a prominent position amongst the metropolitan park gardens, such as has been already nobly won by Battersea through Mr. GIBSON's most successful development of the idea of a subtropical garden.

—— THE SOCIETY OF AMATEUR BOTANISTS, the existence of which was mentioned at p. 100 of our volume for 1863, is making progress. The Association, which was formed in 1862, was at first only designed as a bond of union between the students in different elementary classes established in the metropolis; and as a stimulus to them to carry on the work they had commenced to a practical issue. Though thus established for a special purpose, the Society is, we find, open to other amateur botanists than those for whose especial benefit it was formed. The prospectus at first circulated, and still adhered to, defines the objects aimed at, to be mutual assistance in the study of British plants by the establishment of a herbarium, museum, and library, the interchange of specimens, the communication of papers, and such other means as from time to time may present themselves. These objects are carried out by excursions during the summer on alternate Saturday afternoons, and by meetings on the evenings of the first and third Wednesdays in every month at 8 o'clock (at 192, Piccadilly), when papers are read, often of an interesting character. A herbarium (Phanerogamic and Cryptogamic) has been commenced; the nucleus of a library of practical works (chiefly local floras) has been collected; and the museum—if so grand a name can be applied to the collection of fruits, and seeds of British plants—is in embryo. In the interchange of specimens but little has as yet been done, although scarcely a meeting passes without a few desiderata being supplied to members. The conditions of membership exclude no one, of either sex, taking interest in botanical pursuits. An admission fee of half-a-crown, and an annual subscription to the same amount, have yielded sufficient funds for the working of the Society. Residents in the country are admitted as corresponding members on payment of the admission fee. In its quiet and unassuming manner this association continues to increase in numbers and usefulness. At present it contains about 50 members, and its meetings and excursions are well attended. Such a Society only needs to be better known to insure increase. It is in contemplation to commence a register of all plants, whether cryptogamic or phanerogamic, found by the members within a reasonable distance of London; and it is intended that efforts should be made, not only to record the occurrence of cryptogamic plants, but also to obtain as good a collection of them in the herbarium as circumstances will permit. In furtherance of this object, the President, Mr. M. C. COOKE, will be enabled to render valuable assistance. The Society has, we think, acted wisely in combining a field club with a chamber association.

—— Though we may not perhaps meet in the VARIETIES OF BRITISH FERNS with more striking deviations from the normal form than are to be found amongst the sports of the Lady Fern—Frizelliæ, Victoriæ, and acrocladon to wit, we do not appear as yet to have exhausted the store. The cry is "still they come." Within the last few days we have received specimens of Lastrea Filix-mas, gathered at the foot of the Bird Rock, near Dolgelly in North Wales, which it is possible some may find it hard to believe to belong to the Male Fern at all, so utterly diverse are they from any form of it yet seen, even as persons may be found not thoroughly intimate with such sports, ready to question that those we have mentioned above have anything in common with the Lady Fern. Facts, however, are stubborn things, and we must claim as a fact, that the remarkable Fern now alluded to, is a veritable Filix-mas. We propose to distinguish it by the descriptive epithet RAMOSISSIMA, and in doing so we must congratulate the discoverer, Mr. R. WEIGHT, on having added one of the most distinct and interesting forms yet met with to the already numerous varieties of our British species of Ferns.

The sample before us presents these peculiar features:—Its length is about 10 inches. At an inch from the base the stipes becomes forked into two equal branches, which are bare of pinnæ for a length of about 4 inches, while the remaining portion of the length is furnished with pinnæ. This upper leafy portion consists entirely of a series of furcations, the forking being repeated at every inch or so, till the head of the frond, when moderately spread out, becomes equal to its height in breadth. On one of the two branches may be counted as many as six progressive series of furcations, and some three dozen distinctly developed points, several of which are, indeed, a good deal dilated, as if a little extra vigour would have produced another furcation. The whole head has necessarily something of a bunchy character, and the extreme points are somewhat crisped. Of course, after branching to this extent, the whole of the pinnæ on the fronds become reduced very much to the character of pinnules, varying, however, in size and form, but with a general tendency to an oblong figure, and blunt or even dilated at the top. The few larger pinnæ at the base are nearly an inch long, oblong and dilated at the apex, resembling very much the pinnæ of similar size to be found on young plants of L. Filix-mas cristata. There is no trace of fructification on the specimen which has reached us. This may be considered as the analogue amongst Male Ferns of the varieties crispum and acrocladon amongst Lady Ferns. *M.*

New Plants.

278. URCEOLINA AUREA (*ante*, p. 627).

To the particulars respecting this beautiful bulbous plant given at the page just referred to, we now add a figure, which will give a better idea of the appearance



of the flowers, than can be formed from mere description. The flowers, it will be remembered, are elevated on a scape about a foot in height, and the leaves are rather broad and fleshy. Sir W. Hooker thinks it the same as the Urceolina pendula of Herbert.

BRITISH ASSOCIATION.

AT the opening meeting, which took place on the 14th inst., the new President, Sir C. Lyell, in his inaugural address, made some remarks on the subject of Thermal Springs, which, as bearing on the question of earth temperature, are not without interest to cultivators. The following are passages from the address:—

What renders Bath a peculiar point of attraction to the student of natural phenomena is its thermal and mineral waters, to the sanatory powers of which the city has owed its origin and celebrity. The great volume and high temperature of these waters render them not only unique in our island, but perhaps without a parallel in the rest of Europe, when we duly take into account their distance from the nearest region of violent earth-

quakes or of active or extinct volcanoes. The spot where they issue, as we learn from the researches of the historian and antiquary, was lonely and desert when the Romans first landed in this island, but in a few years it was converted into one of the chief cities of the newly-conquered province. On the site of the hot springs was a large morass, from which clouds of white vapour rose into the air. There first was the spacious bath-room built. On the slopes and summits of the picturesque hills in the neighbourhood rose many a Roman villa. Dr. Daubeny has remarked, that nearly all the most celebrated hot springs of Europe, such as those of Aix-la-Chapelle, Baden-Baden, Naples, Auvergne, and the Pyrenees, have not declined in temperature since the days of the Romans; for many of them still retain as great a heat as is tolerable to the human body, and yet when employed by the ancients they do not seem to have required to be first cooled down by artificial means. This uniformity of temperature, maintained in some places for more than 2000 years, together with the constancy in the volume of the water, which never varies with the seasons, as in ordinary springs, the identity also of the mineral ingredients which, century after century, are held by each spring in solution, are striking facts, and they tempt us irresistibly to speculate on the deep subterranean sources both of the heat and mineral matter. How long has this uniformity prevailed? Are the springs really ancient in reference to the earth's history; or, like the course of the present rivers and the actual shape of our hills and valleys, are they only of high antiquity when contrasted with the brief space of human annals?

It has been ascertained that the hot springs of the Pyrenees, the Alps, and many other regions are situated in lines along which the rocks have been rent, and usually where they have been displaced or "faulted." Similar dislocations in the solid crust of the earth are generally supposed to have determined the spots where active and extinct volcanoes have burst forth. Another connecting link between the volcano and the hot spring is recognisable in the great abundance of hot springs in regions where volcanic eruptions still occur from time to time. It is also in the same districts that the waters occasionally attain the boiling temperature.

The quantity of solid as well as gaseous matter transferred by springs from the interior of the earth to its surface is far more considerable than is commonly imagined. The thermal waters of Bath are far from being conspicuous among European hot springs for the quantity of mineral matter contained in them in proportion to the water which acts as a solvent; yet Professor Ramsay has calculated that if the sulphates of lime and of soda, and the chlorides of sodium and magnesium, and the other mineral ingredients which they contain, were solidified, they would form in one year a square column 9 feet in diameter, and no less than 140 feet in height. All this matter is now quietly conveyed by a stream of limpid water, in an invisible form, to the Avon, and by the Avon to the sea.

The temperature of the Bath water varies n the different springs from 117° to 120° F. This is exceptionally high, when we duly allow for the great distance of Bath from the nearest region of active or recently extinct volcanoes, and of violent earthquakes. The hot springs of Aix-la-Chapelle have a much higher temperature—viz., 135° F., but they are situated within 40 miles of those cones and lava streams of the Eifel which, though they may have spent their force ages before the earliest records of history, belong, nevertheless, to the most modern geological period. Bath is about 400 miles distant from the same part of Germany, and 440 from Auvergne—another volcanic region, the latest eruptions of which were geologically coeval with those of the Eifel. The geological map of the environs of this city, shows numerous lines of fault or displacement of the rocks, and one of these has shifted the strata vertically as much as 200 feet. I have therefore little doubt that the Bath springs, like most other thermal waters, mark the site of some great convulsion and fracture which took place in the crust of the earth at some former period—perhaps not a very remote one, geologically speaking.

Hot springs are, for the most part, charged with alkaline and other highly soluble substances, and, as a rule, are barren of the precious metals, gold, silver, and copper, as well as of tin, platinum, lead, and many others, a slight trace of copper in the Bath waters being exceptional. Nevertheless, there is a strong presumption that there exists some relationship between the action of thermal waters and the filling of rents with metallic ores. Thermal springs, charged with carbonic acid and with hydro-fluoric acid (which last is often present in small quantities) are powerful causes of decomposition and chemical reaction in rocks through which they percolate. If, therefore, large bodies of hot water permeate mountain masses at great depths, they may in the course of ages superinduce in them a crystalline structure; and in some cases strata in a lower position and of older date may be comparatively unaltered, retaining their fossil remains undefaced, while newer rocks are rendered metamorphic. This may happen where the waters, after passing upwards for thousands of feet, meet with some obstruction, as in the case of the Wheal Clifford spring; causing the same to be laterally diverted so as to percolate the surrounding rocks. The efficacy of such hydro-thermal action has been admirably illustrated of late years by the experiments and observations of Sénarmont, Daubrée, Delesse, Scheerer, Sorby, Sterry Hunt, and others. The changes which Daubrée has shown to have been produced by the alkaline waters of Plombières, in the Vosges, are more especially instructive. These thermal waters have a temperature of 160° Fahrenheit, and were conveyed by the Romans to baths through long conduits or aqueducts. The foundations of some of their works consisted of a bed of concrete made of lime, fragments of brick, and sandstone. Through this and other masonry the hot water has been percolating for centuries, and has given rise to various zeolites, spar, and siliceous minerals, all found in the interspaces of the bricks and mortar. The quantity of heat brought into action in this instance in the course of 2000 years has, no doubt, been enormous, although the intensity of it developed at any one moment has been always inconsiderable. The study of late years of the constituent parts of granite has, in like manner, led to the conclusion that their consolidation has taken place at temperatures far below those formerly supposed to be indispensable. But some geologists, when made aware of the intervention, on a large scale, of water in the formation of the component minerals of the granitic and volcanic rocks, appear of late years to have been too much disposed to dispense with intense heat when accounting for the formation of the crystalline and unstratified rocks. As water in a state of solid combination enters largely into the aluminous and some other minerals, and therefore plays no small part in the composition of the earth's crust, it follows that when rocks are melted, water must be present, independently of the supplies of rain-water and sea-water which find their way into the regions of subterranean heat. But the existence of water under great pressure affords no argument against our attributing an excessively high temperature to the mass with which it is mixed up. Still less does the point to which the melted matter must be cooled down before it consolidates or crystallises into lava or granite afford any test of the degree of heat which the same matter must have acquired when it was melted and made to form lakes and seas in the interior of the earth's crust. We learn from Bunsen's experiments on the Great Geyser in Iceland, that at the depth of only 74ft. at the bottom of the tube, a column of water may be in a state of rest, and yet possess a heat of 120° Centigrade, or 248° Fahrenheit. What, then, may not the temperature of such water be at the depth of a few thousand feet? It might soon attain a white heat under pressure.

Passing from thermal springs to a consideration of the glacial period, which it was observed was a mere episode in one of the great epochs of the earth's history, the inhabitants of the lands and seas—man so far as is known non-existent—before and after the grand development of snow and ice being nearly the same, Sir Charles briefly alluded in conclusion to two points on which a gradual change of opinion has been taking place among geologists of late years. First, as to whether there has been a continuous succession of events in the organic and inorganic worlds, uninterrupted by violent and general catastrophes; and, secondly, whether clear evidence can be obtained of a period antecedent to the creation of organic beings on the earth. On the first point, he observed although, a belief in sudden and general convulsions has been losing ground, as also the doctrine of abrupt transitions from one set of species of animals and plants to another of a very different type, yet the whole series of the records which have been handed down to us are now more than ever regarded as fragmentary. I agree with Mr. Darwin in considering them as a mere fraction of those which have once existed, while no approach to a perfect series was ever formed originally, it having never been part of the plan of nature to leave a complete record of all her works and operations for the enlightenment of rational beings who might study them in after ages. In reference to the other great question, the earliest date of vital phenomena on this planet, the late discoveries in Canada have at least demonstrated that certain theories founded in Europe on mere negative evidence were altogether delusive. In the course of a geological survey, carried on under the able direction of Sir William E. Logan, it has been shown that northward of the river St. Lawrence, there is a vast series of stratified and crystalline rocks more ancient than the oldest fossiliferous strata of Europe, or those to which the term primordial had been rashly assigned. The newest part of this great crystalline series is unconformable to the ancient fossiliferous or so-called primordial rocks which overlie it, so that it must have undergone disturbing movements before the latter were formed; and again, the older half is unconformable to the newer portion of the same. In this lowest and most ancient system of crystalline strata, a limestone, about a thousand feet thick, has been observed, containing organic remains. These fossils have been examined by Dr. Dawson, of Montreal, and he has detected in them, by aid of the microscope, the distinct structure of a large species of Rhizopod, called Eozoon canadense, specimens of which have been brought to Bath by Sir Wm. Logan. We have every reason to suppose that the rocks in which these animal remains are included are of as old a date as any of the formations named azoic in Europe, if not older.

Sir RODERICK MURCHISON, in seconding a vote of thanks to Sir C. Lyell, observed that after many years of labour among his own Silurian rocks and those which lie beneath them in Britain and the continent of Europe, he had come to the conclusion that during vastly long periods in the formation of the crust of the earth, *i. e.*, in the Lower Silurian formations, all animals (and their fossil forms are in countless profusion) belonged to invertebrate life, and that in all these long periods no fishes with back bones swam in the then seas. Descending into older rocks, and beneath the Silurian types of life, the closest researches have only revealed to us two or three species of a coralline body, and probably a few seaweeds. The discovery at present announced from still older rocks pertained, he observed, to the same low order of animals, and the very name of Eozoon canadense, or dawn of Canadian life, really seemed to point to the earliest origin of animal life that we are ever likely to obtain.

The sectional meetings commenced on Thursday.

ORCHARD HOUSES.

THIS is the 14th year of my orchard-house culture, and I can truly say the 14th of unvarying success—of pleasurable cultivation. During that period much has been said for and against this most simple mode of growing fruit in an artificial climate; prejudice has as usual with all new cultural modes, been very active, and even now sways some really good gardeners, for it is but a few days since that I heard of a very skilful Grape-grower having said, on being shown a house full of healthy trees, "It is of no use,"—meaning orchard-house culture; and R. T., one of my old friends, prunes his wall trees in cold weather in February, protects their blossoms in March, and when he happens to have a good crop he also says, "no other mode of culture can equal wall-tree culture."

Such men have always existed in England, and their ranks will never lack recruits as long as some men move on in one limited routine of thought and action. They are to be excused, for what can be more perfect than a well-appointed nobleman's garden, with fine walls well furnished with trees, Peacheries, Pineries, and Vineries? All is done well, and success is perfect. A good gardener educated under such circumstances feels that nothing more is wanted, and accordingly looks down with a degree of contempt on all other modes of culture. I sometimes endeavour to place myself ideally in the same position, and am more than half inclined to think that I should do likewise; so when I hear of an experienced gardener saying of orchard-house culture, "It is of no use," I freely forgive him, and only regret that he has not been able to acquire freedom of thought.

I find I have rambled from my intention, which was merely to give you in a few lines some account of the progress I have made in this mode of culture, flattering myself that at least some of your readers will feel interested in my ways and words. And first, with regard to the form of those structures called orchard houses: there are two, the lean-to and the span-roofed. For a few years I was quite successful in growing good Peaches and Nectarines in low lean-to houses, and I perfectly remember having seen some fine trees full of fruit in 1854 in the garden of Mr. T. Bewley, at Rockville, near Dublin, grown in low lean-to houses built with boards and asphalte felt; he has long repudiated such structures, and now calls them by the undignified name of "shanties," thus scorning his first love. Well, I soon found that much care was required to keep trees in health in such houses, and so turned to the span-roofed form, which, as a rule, I believe to be the most perfect of all for fruit-tree culture, owing to the facility with which low lateral ventilation—the great essential of orchard-house culture—can be carried out. As all my numerous houses are thus ventilated, and all are without roof ventilation, I am able to lay down some rules with the confidence gained by experience, for more healthy or more luxuriant trees were never seen than those cultivated here—no red spider ever making its appearance, even during the hot and dry weather of the past summer.

The amount of ventilation required for houses of different widths is as follows:—A span-roofed house 14 feet wide (no house should be of less width) should have a continuous shutter 1 foot wide on each side opening downwards, the lower part of the aperture 18 inches from the ground. A house of this width should be from 5 to 6 feet high at the sides, and from 10 to 12 feet high to the ridge. A span-roofed house from 18 to 20 feet wide should have a continuous shutter on each side 15 inches wide. A house of the same form 24 feet wide should have a shutter 18 inches wide. A house 30 feet wide should have a shutter 2 feet wide. A house 40 feet wide should have one 3½ feet wide. In all these cases the shutters should be continuous, to be made to open downwards, and the bottom of the aperture should be not more than 20 inches from the surface of the ground outside and inside. I have not yet seen a single span-roofed house 40 feet wide, and I am not aware of any advantage to be derived from so wide a structure, but with sides from 8 to 9 feet in width, and low ventilating shutters 3 or 3½ feet wide, I have but little doubt of their success. The great object is to have the two low lateral currents of cool air to come in with sufficient force by their own gravity, so as to meet in the centre of the house, the large body of air to become rarefied, and ascend to the roof through the leaves of the trees, and then to make its escape through the small

triangular apertures under the gable at each end. So apparent is this ingress of cool air in a sultry sunny day, that the centre of the house is always agreeable, although the temperature may be from 80° to 95°.

My favourite width for houses—favourite because of the perfect success attending the culture of the trees in them—is 24 feet; these houses are 5 feet high at the sides and 12 feet to the ridge, but from closely observing the fine robust and healthy growth of my trees, although in pots, I am quite inclined to recommend a greater height, say 8 feet at the side, and 15 feet to the ridge. The truth is, my ideas of the extent to which orchard-house culture may be carried have, like my trees, grown slowly but healthily, and I can now see no reason why a Peach tree cannot be grown in an orchard house, so as to bear a bushel of fine fruit.

With respect to the culture of trees in pots, or planted in the borders of orchard houses, a few words, the result of several years' experience, may not be out of place. Trees in pots require a considerable deal of manual labour in watering, unless, as should be the case, the water is laid on so that a hose can be used; but they are so convenient for forcing or retarding, that their use will never be discontinued. The great fault of most cultivators is the not feeding them sufficiently; scarce any surface dressing can be too powerful, but the best ever yet discovered is the compost so often recommended—horse droppings and malt or kiln dust, equal quantities well mixed—spread out and then saturated with strong liquid manure; it should not be made into a ridge or heap, for then fermentation is so violent that the smell is perfectly intolerable. This compost, used as a summer surface dressing, commencing in May, and renewing it three or four times till the end of July, has a most remarkable effect. The trees seem to be gifted with reason, they do not attempt to root through the pots at bottom, but seem instinctlvely to come upwards and feed upon the compost till every portion of it is full of fibres, forming a circular ridge round the pot on the surface. To every fruit tree in cultivation I have found this summer surface dressing acceptable; but mark! this strong compost brought into immediate contact with the roots would doubtless injure them to a great extent; it should be employed solely as a surface-dressing, while trees are in full growth. Fruit trees in pots are too often seen in a state of semi-starvation, owing to a lack of food—their fruit small, their leaves and shoots weakly; rich surface food will remedy all these defects, and make potted trees a great source of pleasure to the cultivator.

With some amateurs there is still an open question whether to plant all the trees required for an orchard house in the borders, or to plant, *i. e.*, cultivate them in pots. For some few years I have closely watched both modes of culture, and at last feel that I can give a more decided opinion than I have ever yet done. In large span-roofed houses, *i. e.*, in houses 18 feet wide or upwards, with a central walk and a broad border on each side, trees may be planted in the borders with advantage; the only condition required is solidity of soil—a Peach tree would grow and bear better in the centre of a turnpike-road, than in the deepest richest and most fertile border of a kitchen garden, if light and dry. It will, perhaps, be better that I describe what has been done here rather than give directions as to how a Peach border in an orchard house should be prepared. The soil on which my houses are built is a stiff calcareous loamy clay; this has been under nursery culture for upwards of a century, and not made rich by frequent manuring. Well, after the houses were built, the surface of the soil looked very solid from the trampling of the workmen; it was not stirred or dug in any way, but some holes 2 feet in diameter and 18 inches deep, were dug. In these some standard and half-standard Peaches were planted, some rotten manure being mixed with the soil in filling it in; some five or six gallons of water were given to each tree, when the roots were covered with soil, and then the remainder filled and left for a day till the water had soaked in; the earth round each tree was then firmly trodden down, and the work considered as finished. They now stand in a firm, unbroken floor, and the only culture they have had is to stir the soil 1 inch deep round each tree in June, when the fruit is swelling, and spread over the circle a shovelful of rotten dung, merely to absorb and prevent the water running off as it otherwise would do.

They have no water from the end of September till early in March, when the blossom buds are swelling, and then water is given once a fortnight, till hot weather in June, when a good sound watering, say three gallons to a tree once a week, enables them to ripen their fruit in perfection.

The best description of tree to plant in span-roofed houses is the half-standard, with a stem about 4 feet in height. They have this advantage, their heads can be looked over, and the young shoots pinched in, and directed. The pinching need not be so close as for potted trees; six or eight leaves may be left instead of three, as in potted trees. In lofty houses, if the amateur wishes to form an avenue, and to walk under the shade of his Peach trees, tall standards may be planted, but they are not so agreeably pruned or tended to as half-standards; the latter soon form fruitful umbrageous heads, and as I have proved are most satisfactory. These trees may be planted from 10 to 12 feet apart, and till their heads become large, pyramids in pots may be placed among them.

Pyramids are not eligible for planting out; the sap will go to the head, so that the lower branches become unfruitful and weakly; but cultivated in pots and their young shoots pinched in, they form the most beautiful of all trees; in fact I know of no fruit tree more attractive than a well managed pyramidal Peach tree, full of fine fruit. If the soil be poor and hungry, the surface dressing recommended for potted trees may be given to those planted out, two or three times during the summer. Here, all our variations of soil, from loam to sand, are full of comminuted chalk, and to this I impute the great luxuriance of all my stone-fruited trees. The three great requisites for the successful culture of orchard-house trees are solidity of soil, a calcareous soil, and a rich summer surface-dressing; the latter seems like nutritious food to animal life, and a common expression here in June is: "the trees require some fresh dressing, they have eaten up all they had in May."

The best description of trees for lean-to houses are bush trees in pots for the front border, and pyramids in pots for the border at the back of the house. The objection to lean-to houses is the difficulty of having a continuous ventilating shutter in the back wall at a low level, and the same height from the ground (18 inches) as the front. Sliding shutters to a certain extent may do, but I believe failures have often taken place from the lack of two continuous currents of air entering the house simultaneously. Lean-to houses should never be narrow—never less than 12 feet wide. I have seen a good and careful gardener fail in orchard-house culture in lean-to houses only 6 or 8 feet wide, in spite of his utmost care; it would seem that the draught of cool air is too sharp, the changes of temperature too sudden. I have a strong idea that the failure in Apricot culture in orchard houses is generally owing to the nature of the soil; here, they prosper and bear annually large crops of fine fruit, and trees, now some 12 or 14 years old, are more fruitful than ever; this is doubtless owing to our calcareous and rather stiff loam. Would it not, therefore, be advisable for cultivators who have loams non-calcareous, to mix powdered chalk with them? I think so. *Thos. Rivers, Nurseries, Sawbridgeworth.*

ELIZABETHAN GARDENING.

(*Continued from p.* 869.)

VARIOUS circumstances contributed to give an impetus to a taste for flowers and ornamental gardening during the reign of Elizabeth. Among these may be enumerated the extended intercourse with other countries; the improved condition of the middle classes; the security and internal peace of the kingdom; and the immigration from the Low Countries of the persecuted Huguenots, who brought with them the cultivated flowers for which Holland was already celebrated. Many of the great London merchants—as Master James Cole, John Tradescant, and Mr. Nicholas Lete, 'a worthy merchant and lover of all fair flowers,'—interested themselves to procure new plants from their correspondents in distant countries; and some of them even sent out, at their own expense, persons especially commissioned to seek out and bring home rare and curious plants both from the far East, and from America. These efforts were attended with so much success, that at the beginning of the 17th century the English flower garden was stocked with a much greater variety of flowers for all seasons than is usually found in the best gardens cultivated in the fashion of the present day.

The botanical works of the period were chiefly Herbals, which, from their number, seem to have been very popular; but this was probably rather on account of their medical information than for their botanical or horticultural uses; for mankind seems to have a natural love for amateur dosing and domestic quackery. Several works, however, on gardening, as an art, were published during the reign of Elizabeth; among others 'The Gardener's Labyrinth; containing a Discourse of the Gardener's Life, in the yearly travails to be bestowed on the plot of earth, for the use of a garden; wherein are set forth divers herbes, knottes, and mazes, cunningly handled for the beautifying of gardens, &c.' Soon afterwards the same author published a second part on the kitchen garden. Similar guides to the art of gardening were published by Sir Hugh Platt, Thomas Hyll, William Lawson, and others. The most copious work, however, and one which contains as much useful information as most books on gardening of the present day, was the 'Paradisi in Sole, Paradisus Terrestris,' by John Parkinson. It was not published till 1629; but Parkinson—who was born in 1567, three years later than Shakspeare—may be fairly classed among Elizabethan authors. These works indicate that gardening was at this period a popular amusement, and that the amateur was seeking information and instruction in his favourite pursuit.

The favourite style for the 'Garden of Flowers' attached to the house of the proprietor, which prevailed in the time of Elizabeth, was that which Shakspeare succinctly but fully describes in three words, the 'curious knotted garden' ('Love's Labour's Lost,' Act I. scene 1), composed of 'forthrights'—straight walks—with knots, 'meanders and mazes'—geometric beds—filling the intersections. The knots and mazes consisted of flower beds divided by gravel walks edged with Box, Thrift, Thyme, and other low-growing plants; or with stone, slate, tiles, &c. The pattern was strictly geometric, stiff, and formal, like the patterns of Arabic tracery; but withal very well adapted for filling in with harmonious colouring. The gardening books of the period generally give elaborate patterns for laying out gardens in this style; though, as Parkinson says, 'it would be almost endless to express so many as might be conceived and set down, for that every man may invent others far differing from these, or any other that can be set forth.' Topiary-work was added to the parterre; and being executed in evergreen shrubs, helped to give interest to the garden even in the winter. Sometimes, perhaps, more quaint and less formal patterns were adopted; and probably Giles Fletcher's description of a garden cut like a lady fair was copied from actual observation:—

> The garden like a lady fair was cut,
> That lay as if she slumber'd in delight,
> And to the open skies her eyes did shut.
> * * * *
> Upon a hilly bank her head she cast,
> On which the bower of vain-delight was built;
> White and red Roses for her face were placed,
> And for her tresses Marigolds were spilt.

In order to bring the garden into harmony with the building, and make it, as it were, part thereof, a long broad terrace—in more stately mansions—ran along the private front of the house, and commanded a view of the whole design. Broad flights of steps connected the garden with the terrace, and thence the principal walks diverged in straight lines, which were intersected by similar walks parallel to the terrace. These walks—broad, and gravelled or turfed—formed the main lines of the design; the intermediate parallelograms were filled up with 'the meanders or mazes,' the 'beds and curious knots,' or with labyrinths, shrubberies, and orchards, or Grass plots. Thus a uniform plan, harmonising and answering to every feature of the house, was presented. The forthrights of the garden corresponded to the ground plan of the building, and the mazes or knots to its ornamental details, its pillars, friezes, mullions, and carved capitals. The peculiar geometric tracery which surmounts so many Elizabethan buildings, very closely corresponds to the geometric beds of our Elizabethan gardens.

The gardener of the period was not inattentive to the importance of producing a rich effect of colour in his garden. His practice was to mix and blend the colours of the flowers in one rich mass of various hues, 'as Nature does herself' in her wild banks, moors, and woodlands. This necessarily ensued from the beds being planted with various flowers to succeed each other at different seasons—

> As in a rainbow's many-coloured hue,
> Here see we watchet deepen'd with a blue;
> There a dark tawny, with a purple mix'd;
> Yellow and flame, with streaks of green betwixt;
> A bloody stream into a blushing run,
> And ends still with the colour which begun;
> Drawing the deeper to a lighter stain,
> Bringing the lightest to the deep'st again;
> With such rare art each mingleth with his fellow,
> The blue with watchet, green and red with yellow;
> Like to the changes which we daily see
> Around the dove's neck with variety;
> Where none can say (though he it strict attends),
> Here one begins and there the other ends.
> Using such cunning as they did dispose
> The ruddy Piony with the lighter Rose,
> The Monkshood with the Buglos, and entwine
> The white, the blue, the flesh-like Columbine
> With Pinks, Sweet Williams; that far off the eye
> Could not the manner of their mixture spy.
> *W. Browne.*

In the mingling of colours here indicated lies the secret of all purely ornamental, as distinguished from pictorial, colouring:—

> Where none can say (though he it strict attends),
> Here one begins, and there the other ends.

This is true colouring: a harmonious blending of tints softening and subduing each other; not violent contrasts, rendering each other more violent, harsh, and glaring. Here we have light blue (watchet) deepened by dark blue; a dull tawny brightened with a purple; yellow and flame cooled by streaks of green. This mode of intimately mixing colours so as to make them blend is quite different from the modern fashion of separating them to make them contrast, by planting separate beds of distinct flowers—great patches of one colour here and another colour there—like the patches on a harlequin's jacket, and on the whole about as picturesque and interesting; and certainly directed to the same end, viz., to please the vulgar taste for coarse colours. Beds of flowers planted in this manner can never be made to produce a harmonious effect, unless you go to an eminence half a mile off to survey your garden. What we ought to imitate—if we adopt an artificial standard—is the rich colouring and intermixture of warm and cool tints in a Persian carpet, and not the violent hues and vulgar blaze of the French carpet weaver. Of course more was left to Nature than the modern gardener trusts to her care. As the primary object was to have a succession of flowers during the year, it was impossible to arrange them for mutual effect as to colour. The contrast and harmonies of one month would be deranged in the next, and any attempt to produce determinate effects would be rendered futile as one flower succeeded another. The chief attention in planting was given to bringing all the flowers well into view by placing them

with regard to their respective heights and sizes, and the colours were left to blend themselves as

Tapettes (tapestry) that Nature
Had made herself.—*Chaucer.*

The Elizabethan gardener had no fear but that if the flowers were varied and plentiful enough their colours would blend with quite as much beauty as in any artificial arrangement which he could devise. He had seen how Nature blends her colours on the river bank or the woodside, in the open meadow, or the upland path, and he was quite satisfied to let her dispose his colours in like manner. And this he might safely do; for the colours which he had to use being natural to a temperate climate, and not tropical exotics dragged from their blazing home, were soft and harmonious; and whatever their arrangement, were sure to produce a satisfactory result. The best artificial guide to colour arrangement which the gardener can have is the varied play of light which passes through the glass of an ancient painted window, seen from a distance; where the pattern cannot be deciphered, but only a rich mass of colouring perceived. Probably the nearest approach which European art has made towards pure taste in the use of bright colours is in the old glass which adorns some of our cathedrals and parish churches. The reason for this success is that subject was made subordinate to colour; and the painter rather sought to produce a rich assemblage of colours than to execute a picture better suited to an opaque surface. He felt that he had to deal with the richest colours which human art could produce, and it was his aim to do justice to the means at his disposal, and not to display his skill as a draughtsman.

In dealing with flowers, however, we have this superior facility: that while artificial colours require artificial treatment, and demand attention to certain rules as to their juxtaposition, Nature's colours always harmonise, if placed near enough together, and we need never be afraid to give them almost any arrangement we please, or in fact—which is better—leave them to take any arrangement which they may happen to fall into. It is a rule, for instance, not to oppose blue and red, and not to ally blue and green; but in a garden we may constantly see these colours blend together in perfect harmony, and with the richest effect, in spite of all our artificial rules. What, for instance, can be more exquisite, in the spring, than a bed of Anemones of every possible colour? or, in the autumn, than a mixed mass of German Asters in all their varied hues? What a rich mosaic is a bed of Hyacinths, Tulips, or Pansies; and how exquisitely their various tints weave what Shakspeare calls 'a rich scarf for the proud earth.' It is in this blending of colours that the painting of Nature so far transcends all that man can do; and this is a secret which the modern præ-Raphaelite has yet to learn, viz., that Nature does not pick out her colours, or forms, in separate bits—here a bit of scarlet, there a bit of blue, and there a bit of green; here a leaf, and there a pebble; but she blends them all in one rich whole, so that with the strictest attention 'we cannot the manner of their mixture spy.'

Spenser, Shakspeare, Jonson, Drayton, Browne, and all the poets of the time seem to have delighted in this commingling of flowers of various colours; and perhaps it is not too bold an assertion to make, that the taste of the age which produced our best poets, and a distinctive style of architecture, was at least equal to the taste of the age which has not half a dozen poets to boast of, and which has no architecture at all, but what is servilely imitated from a bygone age; and perhaps it is not too heretical to believe that the careless blending of colours in Nature is as good a guide for combinations of the colours of Nature as the most learned theories which science can elaborate in a dark closet for the colours of art.

(To be continued.)

ORNAMENTAL PLANTING.—No. III.

AUTUMN.

THE prominent feature of tree scenery in autumn is the changing and varied colours of the leaves. As green is the dominant colour of the mature leaf in summer, so is a russet brown that of the falling leaf in autumn. But there are some trees whose leaves grow brighter as they advance to maturity, and in the red, purple and yellow hues which they assume in autumn, we find materials to vary and increase the beauty of the landscape. The leaves of the scarlet Maple and the scarlet Oak change to a fine red; those of the Norway Maple, the Birch, the Ash, the Kœlreuteria and the Tulip tree to yellow; the Liquidambar dies a variegated mass of green, red, purple and yellow; and there are various intermediate tints, which, if less marked, are nevertheless of infinite value. These, in our opinion, are seldom sufficiently used in the composition of tree-scenery.

The Sumach (Rhus typhina) is valuable, not only for the brilliant tints of its dying leaves, but also for the feathery tufts of flowers which it produces, and which become dry and remain on the tree during autumn and winter.

Trees which bear fruits or berries are also worthy of notice at this season. The red and the yellow-berried Mountain Ash are beautiful. Then there are numerous varieties of the Thorn (Cratægus) producing yellow, red, and black berries, some of them of large size; and the Siberian Crab and the Transparent Crab, when laden with their respective fruits, are objects of matchless beauty.

As the greater number of English landed proprietors spend the autumn at their country seats, it becomes of first importance that every feature of beauty at that season should be fairly and fully developed. But what is the fact? We know of many first-class English residences where the monotony previously condemned in spring exists alike in autumn. From universal green to universal brown, and back again as the seasons revolve, is all the change that takes place. The flower garden, planted and arranged with exquisite skill and taste, forms a series of glowing pictures; but everything beyond is dull, tame, heavy and monotonous. Now we would not that the garden should be a whit less beautiful, but the proprietor of a demesne is not expected to spend all his time there. The pursuit of country sports, if nothing else, will take him into the outlying parts of his estate, and as he traverses the dewy meads amid fogs and falling leaves, the intervals of sport may be enchantingly filled up by the contemplation of a varied, vigorous, and well-composed landscape. Whatever, therefore, is left undone, at least the park and the outlines of woods and plantations should be varied and adorned by all the forms and colours that can be drawn from the rich repertory of the vegetable kingdom.

At this season, as at others, there requires a due admixture of the deciduous and the evergreen to attain all that is desirable. The airiness, the grace, the glow of the former, is rendered far more beautiful when associated with the more solid-looking and durable forms of the latter. As the deciduous forms are stripped bare, and their leaves scattered by the autumnal whirlwind, it is pleasant to contemplate the permanency and repose of the evergreens, fitly represented by the Pine and Yew. *William Paul, Waltham Cross, N.*

Home Correspondence.

Sharp Frosts in Durham.—From the beginning of August up to the 27th, this county has been visited with sharp frosts at sunrise, the thermometer frequently indicating from 2° to 2½°; both plants and glass have frequently been covered with rime, and on Saturday morning, the 27th ult., the frost was still more severe, the thermometer indicating 6°. Where the ground was wet it was frozen hard; water-taps could not be moved; and Dahlias, Heliotropes, and various other plants were killed; Sycamores, Chestnuts, and other forest trees dropped their foliage as soon as the sun came upon them. So severe a frost has never, I apprehend, been known to occur so early in this country. *John Harrison. Darlington.*

Lily of the Valley.—Is it common for this to seed? Several old gardeners have told me that they never knew it to do so. *G. W.* [Occasionally.]

American Blight.—I see noticed in your pages several modes of getting rid of this pest. I have found, both on old and young Apple trees, that a brush rubbed after wetting on a box of Gishurst and worked about over the blight is a complete cure, and it is certainly a simple and inexpensive one. *G. Wilson, Gishurst Cottage, Weybridge*

Voices of Frogs and Toads.—Professor Bell, in his "British Reptiles," does not allude in his account of the frog, to any other voice than croaking; but in his account of the ringed snake, in describing the mode in which this reptile preys upon frogs, he mentions the latter as uttering under a sense of danger a "peculiar weak cry with more than usual shrillness;" and again says that he has heard a swallowed frog utter "its peculiar cry" from the stomach of the snake (Op. cit. pp. 49, 51. 1st ed.) Is not this shrill cry what your correspondent (see p. 869) has heard? When I resided in Alabama, my curiosity was excited one day, by hearing, from a marshy spot, a continued succession of deafening shrieks, excessively shrill and loud. I had reason to believe they were produced by a small dusky species of frog (probably Rana clamata); for on approaching the spot whence the sound proceeded, it instantly ceased, at least there; and two or three of these frogs would dash into the water, and dive. Wishing much to witness the act of uttering the sound, I crept cautiously to the edge of one of the pools, in which I saw two or three frogs. They were very shy, and kept under water; but I waited patiently, quiet and motionless, a very long time, taking care not to stir hand or foot. At length one of them, taking courage, raised his head and half of his body out of water, sitting up, as it were, and resting on the toes of his fore feet; and thus uttered the piercing shriek, which had a kind of cracked or ringing sound, somewhat like that of a penny trumpet, but vastly louder and shriller. When about to cry, the frog first fluttered the skin of the throat a few times, and then suddenly inflated it, till it was like a blown bladder, perfectly round, as big as his head, and this condition continued all the time of the shriek, about four or five seconds. I saw the reptile do this many times close to my feet; and a very curious sight it was. The skin of the throat, when thus inflated, was so stretched, that it looked like a thin transparent membrane. I heard a pretty little note a day or two ago from the common toad (Bufo vulgaris). I domesticate these reptiles in my plant-houses, to keep down the wood-lice, and am often able to surprise visitors by showing them the most singular way in which a toad catches the fleeing victim. Sitting quietly among my plants the other day I heard a little feeble piping note two or three times repeated, and after a few minutes the same again, and presently again. I guessed the musician and cautiously peered among the Orchids towards the spot whence the notes proceeded. I had not looked long before I caught sight of a little toad about one-third grown, and as black as a sweep, sitting imbedded in the Cocoa-fibre from which a Renanthera coccinea is growing, his head and shoulders only protruding from his cosy nest. I brought my face as close as I could, avoiding any sudden movement, and presently heard, and saw, my musical friend tune up, moving his head with a sort of jerk at each note. His back was towards me; so that I regret that I could not see his throat. Yesterday I heard him at his musical practice again. Each utterance consists of about three distinct sounds, in the same tone, somewhat like the feeble chirps of a young chicken, but more mellow and flute-like. The voices of even our native animals constitute a subject on which I am persuaded we have yet much to learn. A year or two ago, as I was passing at night along a lane overshadowed by tall meeting Elms near this town, it being pitch dark, I heard from the opposite side of a field bounding the road, a loud shrill cry of the most startling character. Again and again, at intervals, that unearthly wail rose up on the night, retiring, however, farther and farther from me. I continued to hear it till I was got far beyond the place; but no clue to its mysterious origin could I then obtain, nor have I obtained since. I am pretty sure it was not the voice of the screech-owl; and I am inclined to attribute it to some one of our wild mammals. Does the badger ever utter a cry of this kind? *P. H. Gosse, Torquay.*——Permit me to direct your Correspondent's attention to a pond near "Bruxelles les Ixelles," in which frogs are reared and nurtured (as I heard) for table use. I frequently walked by this pond; it is filled with almost every variety of Algæ, and the croaking of the millions of frogs diverting in it, can only be realised by hearing the noise—no pen could describe it. *E. A. M., Dublin.*——If "F. H. H.' means by her frog's "squeaking" in her hand that it croaked, I have once met with a similar instance. It was some years ago that it occurred. It is extremely rarely that a frog or toad croaks in the hand; but a fortnight since I captured a common toad and a natterjack, both of which croak whenever handled. The toad's croak is just like a mouse's squeak. Both are now in the Zoological Gardens, and if "F. H. H." would deposit the frog there with them, any naturalist would have an opportunity of hearing the croak of all three of our native anourous Batrachians successively. *W. R. Tate, 4, Grove Place, Denmark Hill, Camberwell, S.*

Orchard-house Fruit.—Some little time back I wrote to you on the subject of the flavour of fruit grown in pots in orchard-houses. At the fruit show the other day at the Crystal Palace, my Pears, Louise Bonne, grown in a pot and kept till all fear of frost was over, in an orchard house, won the 1st prize for "Single dishes of Pears containing 12 fruit," there being 40 exhibitors in this class. *G. Wilson, Gishurst Cottage, Weybridge.*

Societies.

ROYAL HORTICULTURAL: *Sept.* 13 (*Floral Committee*).—From Mr. Parsons, of Danesbury, Welwyn, came various Seedling Achimenes, to two of which, Rose Queen and Aurora, First-class Certificates were awarded. The former is purplish-rose in colour; the latter, a bright carmine-rose shaded with violet, a most effective variety; with beautiful medium-sized flowers. From Mr. Bull came various rare plants, and to a pale lemon-flowered Gesnera among them, named Chromatella, a Second-class Certificate was given; while a double-blossomed Antirrhinum, named Giuseppe Garibaldi, from the same exhibitor, was Commended. Associated with these were also Saccolabium Dayi and Lilium auratum. Among Dahlias Mr. Turner's Leah received a First-class Certificate, as it well deserved, for it is universally admitted to be one of the finest varieties that has been produced for years. Miss Roberts, rose lilac (Turner), was also a promising flower, to which a Second-class Certificate was awarded. From among several seedling Dahlias shown by Mr. Rawlings, of Romford, Spitfire was selected for a similar award. It is of medium size, and in colour a light reddish salmon. Little Treasure, a very dwarf zonal Pelargonium in the way of Baron Hugel, received a First-class Certificate; as did also Meteor, a variegated sort, stated to be an improvement in colour—more yellow, and more fiery—on Mrs. Pollock. Both these came from Messrs. Saltmarsh & Son, of Chelmsford. A charming bright carmine and white-striped Verbena, named Annie, from Mr. Geo. Cooling, of Bath, received a similar distinction. This is the best striped Verbena yet obtained, and both for pot and out-door culture is certainly a very valuable addition to the section to which it belongs. Verbena Shakespere, shown by Messrs. Perkins & Son, was said by them to be larger than either Lord Leigh or Foxhunter, both of which it resembled. Rose Dr. Lindley, fully noticed by us in former reports, came from Mr. Wm. Paul; various Dahlias from Mr. Legge; and Cineraria maritima compacta, and a Pelargonium or

two from Mr. Salter, of Hammersmith. Mr. Wm. Paul showed a very good Grape, stated to be the result of a cross between the Black Hamburgh and Grizzly Frontignan; and a promising white variety of Grape was furnished by Mr. Bousie of Stoke Park, near Slough. The last was, however, unripe. Messrs. Lee, of Hammersmith, sent a dish of the Gordon Castle Plum, a yellow sort, something like Golden Drop, and reported to be useful in the north of Scotland.

ROYAL HORTICULTURAL OF DUBLIN: *September* 1.—The annual autumn exhibition of this Society took place at Salthill. There was a sharp competition for the silver cup offered by the Dublin and Wicklow Railway Company for 15 ornamental and flowering plants; but it was well won by Mr. McNeill, gr. to the Chief Secretary, with a lot of very fine plants, amongst which we particularly noticed admirable examples of Alocasia metallica and Croton pictum. The 2d prize, given by the Society, was awarded to Robert Gray, Esq., in whose collection were grand plants of Latania borbonica, and Pandanus utilis. A 3d prize was awarded to Mr. Smith, gr. to his Excellency the Lord Lieutenant, who had an extraordinarily good Cycas revoluta, and a superb Croton angustifolium. These three collections were very fine indeed.

Mr. Smith had six fine Heaths, which took a 1st prize; and Mr. Byers, gr. to the Lord Chanceller, took a 1st prize with six fine plants of the following Orchids:—Saccolabium guttatum, Blumei, and Blumei majus, Odontoglossum grande, Vanda tricolor, and Aërides quinquevulnera. Mr. McNeill also took a 1st prize for six stove and greenhouse plants. Little that was really new and rare was to be seen; and we would suggest to the Council the advisability of offering special prizes for the best or the two best new and rare plants, in which quality and not size should be the standard of excellence.

There was a capital display of fruit. Mr. Davis, gr. to Sir Charles Coote, Bart., took the 1st prize for Pine Apples with a first-rate Smooth-leaved Cayenne. Mr. James, gr. to the Duke of Leinster, took first prizes in Peaches with Barrington, and for a brace of Melons with Scarlet Perfection. A special feature of the exhibition, however, was afforded by two handsome fruit trophies, in competition for Alderman Mackey's silver cup, for the best collection of fruit arranged for dinner table decoration. The 1st prize was awarded to Mr. Smith, gr. to his Excellency the Lord Lieutenant, for an elaborate ornamental design, consisting of an upright stem with drooping wire supports for Grapes, alternating with saucer-shaped leaves for Peaches and other fruits, the whole surmounted by a Pine. Much taste was displayed in the arrangement of this group, and a large collection of fruit was introduced. The 2d prize was awarded to Mr. J. Roberts, gr. to the Honourable Alfred Bury, whose design was made up of a pot Vine, grown on the umbrella pattern, from which hung several bunches of Grapes, the pot being covered with a four-sided stage with circular corners, each of which contained a Pine Apple, and a base supported the whole, on which various fruits were arranged. It contained a fine lot of fruit, but there was a stiffness about the design which told against it.

Mr. Roberts showed very fine Muscat Hamburgh Grapes staged in the London style; and Mr. Mason, gr. to Colonel Taylor, M.P., had some superb bunches of Buckland Sweetwater of an amber colour. Reine Claude de Bavay and white Magnum Bonum plums were very fine indeed; also another plum shown as White Mogul, which appeared identical with the White Magnum Bonum. Some of the dessert Apples were wonderfully fine, especially examples of the Irish Peach Apple; and amongst kitchen Apples, the Echlinville, Glory of the West, Alexandra, and Warner's King were very fine indeed.

There was a good display of cut flowers, especially of Dahlias and Gladioli. For 36 Dahlias the 1st prize was awarded to Messrs. Campbell & Son, Glasnevin, for Lord Palmerston, Criterion, Sparkler, John Dory, Miss Henshaw, A. Dodds, Peri, Sidney Herbert, Earl of Shaftesbury, Mirfield Beauty, Bob Ridley, Alexandra, Maid of Bath, Pre-eminent, Earl Russell, Donald Beaton, Warrior, Anna Keynes, fine; Lord Clyde, fine; Chairman, Golden Drop, Queen Mab, Beauty of Slough, Mrs. Wheeler, Baron Taunton, Princess, British Triumph, Hon. Miss Herbert, Harlequin, Mr. Stocken, Hugh Miller, Lilac Queen, Lord Derby, Lady Elcho, and Lord Dundreary. J. B. Houston, Esq., Belfast, took the 2d prize for a good stand of flowers, the best of which were Lord Palmerston, Criterion, Chieftain, Golden Drop, Duke of Wellington, Pauline, Madame Lemmens Sherrington, Turner's Delicata, Handforth Hero, Sir George Brown, Count Cavour, John Spencer, Beauty of Hilperton, Jenny Austin, Volunteer, Magnificent, and Lord Derby. Messrs. Dickson & Sons, Newtonards, were 3d, and had good blooms of John Dory, Beauty of Hilperton, Harlequin, Hugh Miller, Madame Lemmens Sherrington, Hon. Mrs. Trotter, Stafford's Gem, Volunteer, Bob Ridley, Miss Pressly, Mrs. Wickham, Cygnet, and Donald Beaton. In 24 Dahlias there was a good competition, Messrs. Campbell & Sons standing 1st; Messrs. M. Saunders & Son, Cork, 2d; and Messrs. Fergus Farrell & Co., 3d. Some good Hollyhocks were shown, the best coming from Messrs. Dickson & Sons, Newtonards, who took the 1st prize, but they were not equal in size to what Mr. May in the north of England, and Mr. Chater and others in the south of England, are in the habit of showing.

There was a glorious display of Gladioli, and many first-class new kinds were shown. In the class for 24 dissimilar spikes, we think a finer lot has never been seen. The spikes were long, the blooms fine and in first-class condition. Amongst them were Prince of Orange, Madame Vatry, Calendulaceus, Ceres, Marie Dumortier, Comte de Morny, Victor Verdier, and La Quintinie, all very fine indeed. Messrs. Dickson & Sons carried off the challenge cup; while J. F. Lombard, Esq., was placed 2d, and 1st each for 12 spikes and six spikes. In his collections were some first-class new things, some of them seedlings of his own. We noticed as very fine—Paddy from Cork, Lady Morgan, Guido, Princess Clotilde, The Colonel, Flore, Edulia, Mrs. Lombard, a very beautiful light seedling; Stuart Low, Princess of Wales, Samuel Waymouth, Madame Periere, Alice Kirwan, Mrs. Siddons, and Cuvier, all very first-class for exhibiting. J. W. Lane, Esq., Dublin, was placed 3rd for 24 spikes, and amongst his were The Colonel, Miss Howell, Carminata, one of Standish's very best seedlings; Reine Victoria, Madame Vilmorin, Imperatrice Eugenie, Prince Imperial, and Napoleon III., all very fine. In other collections we noticed John Leech, Lucifer, Prince of Wales, very fine indeed; Bertha Rabourdin, Dr. Lindley, Cuvier, John Waterer, and Lady Hill, all fine varieties.

A general opinion prevailed that the exhibition was one of great excellence. At the same time, we think a little more liberality in the form of extra prizes for very deserving objects, and, an enlargement of prizes for the large collections, would tend to still further improve the exhibitions. The annual dinner took place in the evening, at the Salthill Hotel, and was presided over by his Grace the Duke of Leinster, who observed in the course of the proceedings that when he first joined the Society it was a very small one, and it was most gratifying to find that it had prospered so well. Societies of this kind were most useful; and he believed that the improvement of Horticulture in Ireland was in no small degree attributable to the operations of this Society. Sir Robert Shaw, in acknowledging the toast "The Royal Horticultural Society of Ireland," said, it was owing to the Society that Horticulture had advanced so much in Ireland. Every annual show had been an improvement on the preceding. It was now established, and had improved materially in its finances, having a good large sum of money in the funds, and a good deal of what was called "plant," the best tests of success. In responding to the toast of "The Judges," Mr. Dean spoke in terms of high eulogy of the quality of the fruits, plants, and flowers exhibited.

[We are glad to learn that there is such a thing as a successful R.H.S.]

Notices of Books.

Notes upon Crystal, or Obsolete Words of the Authorised Version of the Holy Bible critically and Chronologically considered, with Occasional Biographical Notices. To be completed in Six Parts. Part I. Small 8vo. Pp. vi. and 136. London, 1864.

We do not precisely understand the title of this work, however ingenious or taking at the first glance. Did it treat of false translations it might be well enough, but words, however obsolete now, had once their own proper meaning, and can scarcely be considered as motes, merely because the process of time has altered or obscured their meaning; some of them, moreover, are even better and more expressive than any that could be put in their place.

It is curious that in the very word which led the author to the studies of which this work is the result, while he applied to a Welsh friend for the sense in which he understood the word "bolled," as translated in the Welsh version, he did not apply to Wedgwood's Dictionary of English Etymology, which would have taught him, as would Richards' Welsh Dictionary, that Bŵl is the Welsh word for the husk or hull of Flax seed, as in the proverbial expression "Fal y bul ar y llin," as the boll on the Flax. The truth, however, is, that the Welsh translation, as far as our very limited experience goes, seldom solves any etymological difficulties.

In the opening word again, "Bible," our author is very unfortunate as regards his explanation that the ancients were accustomed to write on the peel and leaves of the Papyrus, since it is contrary to the character of the plant, which may be seen in very many hothouses, and a correct account of which is accessible to every inquirer. Its leaves, if it has any proper leaves, are extremely narrow, and utterly unfit for the purpose. It is the stem alone which is available. We do not see why authors should be so careless as they are with regard to the plainest facts of Natural History. It would be easy to adduce, even amongst modern authorities, the most glaring errors in this respect, errors which detract very much from our faith in their diligence and truthfulness in other respects. This same neglect of matters lying within the province of natural science, may account for the omission of such a word as Blast, on which something might have been written, but it does not account for the omission of the word "by," used in the sense of against, as in "I know nothing by myself," an omission which is all the more to be regretted, as the passage is so often misunderstood, though a single glance at the Greek will set all right. The word "by" is seldom or never used in this sense now, and at any rate it has much greater claims to be considered obsolete than "by and by," which is of very frequent occurrence in conversation if not in literature, not to mention such words as addict, after, alledge, allegory, allow, alms, &c., which are either not obsolete at all, or not so in the sense in which they are supposed to be obsolete. It might have been mentioned under the heading "at one," that the word atonement has popularly lost its real sense, a consequence we believe of the low tone of religious doctrine prevalent during the last century, insomuch that the verb instead of retaining its true sense of reconciling, conveyed a notion of making up for past transgressions by present good, in direct contradiction to Scripture.

We have no hesitation in making the above criticisms, because we consider the work itself to be one of great value, and as there will be ample opportunity of profiting by them, if correct, in the future parts. The Biographical notes are far from being void of interest, and the quotations are well selected and frequently instructive. We may add that the Introduction contains a good deal of information on the origin of our language, and its relation to the several translations of the Bible, which will be read with profit and interest, and which will perhaps convey some information even to those who are pretty well informed on the subject.

The September *Botanical Magazine* contains figures of the following plants:—*Urceolina pendula*, a fine Peruvian bulb, of which some account has been given, with a figure (at pp. 627, 890), under the name of Urceolina aurea.—*Macleania pulchra*, a handsome glabrous evergreen shrub, said to be a native of New Grenada, and cultivated under the name of Thibaudia floribunda, with which it does not agree. It has elongated pendent branches, and glossy elliptical or oblong leaves, from whose axils proceed the aggregated pendent flowers, which are large and very handsome, tubular, bright scarlet tipped with yellow.—*Cypripedium caricinum*, the pretty Peruvian Lady's Slipper which has been exhibited during the summer by Mr. Veitch, under the provisional name of Pearcii, applied to it by Mr. Bateman. It however proves to be a plant previously described from Bolivian specimens under the name of caricinum. "Dr. Lindley's specific name happily designates the grassy or Sedge-like appearance of the plant, which in this respect, as well as in its long creeping rhizome, is entirely unlike any other Cypripedium with which we are at present acquainted. It would be a Selenipedium if Prof. Reichenbach's genus of that name were accepted, but I quite agree with Dr. Lindley that no sufficient case has yet been made for any such separation of the South American species from the rest of the Cypripedia." It seems probable that the plant will prefer cool treatment, and on account of its running rhizomes it should have plenty of space. The leaves are narrow, leathery, and acute; the flowers, several on a scape, are pale yellowish green, the petals narrow, twisted, and deflexed, the orifice of the lip bordered by dark brown spots, and the sterile stamen fringed with dark hairs like a pair of moustaches.—*Eranthemum Cooperi*, a New Caledonian shrub, introduced to Mr. Veitch's nursery by Sir D. Cooper, and having narrow lanceolate sinuately toothed leaves, and rather large white two-lipped flowers, the middle segment of the lower lip marked thickly with small purple spots. It is also found in the New Hebrides.—*Genetyllis fimbriata*, a very elegant greenhouse shrub, with small obtusely elliptic decussate leaves, and terminal drooping flower-heads surrounded by a large bell-shaped involucre, which is of a lively rose-colour, and fringed with short hairs. It is a South-west Australian plant introduced by Mr. Veitch. "It will be observed that it is not the flowers which constitute the beauty of this plant, for they are small and insignificant, but the coloured involucral scales resembling a large drooping bell-shaped flower."

Seemann's Journal of Botany contains a figure of a new species of *Villaresia* (*V. dichotoma*), with some remarks on the structure and affinities of the genus by Mr. Miers. Mr. Miers objects altogether to placing Villaresia among the Olacaceæ, and contends that it is correctly referred to Aquifoliaceæ. M. Dèsèglise describes a new British Rose under the name of R. Bakeri. This is the R. tomentella of Mr. Baker's North Yorkshire Flora, and has been found near Thirsk. The position of this Rose is, according to M. Dèsèglise, in the section Rubiginosæ by the side of R. fœtida of Bastard. Mr. W. G. Smith explains the view he has arrived at respecting the normal structure of Cruciferous flowers in this way:—"If we take a flower of Cheiranthus, carefully note the arrangement of the stamens and gland, &c., and assume that various organs are suppressed, the difficulty presents itself of ascertaining whether the gland-like bodies represent the elementary conditions of pod-cells, stamens, or petals. The question then naturally arises as to whether there may be any other genus of Cruciferæ where these arrangements are reversed—where organs suppressed in one are developed in another, and *vice versâ*. The unusual petal-form of Iberis prompted me to examine I. amara, and I was fully repaid for my pains. It was

manifest that whilst the two pod-cells were in the same line as the four long stamens in Cheiranthus, they were in the direction of the two short ones in Iberis. If we then assume the longitudinal cells suppressed in Cheiranthus, and the transverse ones developed, and the longitudinal cells of Iberis developed and the transverse suppressed, by supplying the missing cells of Cheiranthus from Iberis we get a four-celled pod—without doubt the normal condition of the fruit of Cruciferæ. Somewhat in proof of this, the two missing cells of Cheiranthus are indicated by two small gland-like bodies at the base of the pod, and between the two fully developed cells." Mr. Smith also argues from the structure of the same two genera, that the normal number of stamens in 16, disposed in two whorls of eight each. Dr. Alexander Braun contributes to this number a revision of the genus Naias, in which he describes eight species and several varieties. "The most important characters for the definition of species reside in the sheathing base of the leaves. The teeth of the blade of the leaves, in regard to their greater or lesser prominence, also furnish good though less important characters." Prof. Babington records the discovery of Hypericum undulatum near Helston, in Cornwall, by Mr. J. Cunnach, of that place, who has known it for several years, but being told it was H. perforatum, lost the chance of being the first to record it as a native of Britain.

The *Florist and Pomologist* has a figure of *Clematis Jackmanni*, the beautiful hardy hybrid Clematis raised by Messrs. G. Jackman & Son, of Woking, of which we have recently made special mention. Among the papers are good articles on Ornament in the kitchen garden, and on gathering and keeping fruit.

The *Floral Magazine* gives figures of the following plants:—*Pelargonium Italia Unita*, the best of the tricolor-leaved zonate varieties with silver margins. The popularity of the Pelargonium, it is remarked, has induced the promoters of our great flower shows to offer prizes for collections of both the plain-leaved and variegated kinds, but with very few exceptions the plants exhibited were unworthy of the class. That terrible love of formality which has so hindered the natural and consequently beautiful growth of many of our exhibition plants completely spoilt the effect. They were trained and tortured in a most piteous manner. We shall hope to see them better another year, for they are worthy subjects of exhibition, and grand specimens of those with highly coloured zonate leaves such as Mrs. Pollock, Lucy Grieve, Sunset, Italia Unita, and some others of similar character, would equal anything which our shows have produced.—*Tea Rose Alba Rosea*, a sort which is said to bear a great similarity to the fine old Rose Madame Bravy.—*Fancy Pansies: John M'Nab, Mrs. Dombrain, Mrs. R. Dean*, and *Mrs. Scott*, some of the novelties to be sent out by Messrs. Downie, Laird & Laing. The first and last are remarkable for their sulphur ground and purple lacing in addition to the central blotches, the others are pale grounds with large central blotches only. These fancy Pansies are rapidly improving.—*Pyrethrums: Annie Holborn*, white with lilac centre; *fulgens plenissima*, dark crimson; and *Nemesis*, rosy red. The choice varieties of this flower, after close propagation, require to be well established before they assume their proper character, and hence they do not, at first, in all cases yield the effect to be obtained from a vigorous batch of seedlings. It is, however, manifestly improving in quality.

The number of the *Journal of the Proceedings of the Linnean Society*, just issued, brings up the account of the proceedings to the close of the last session, and contains the anniversary address of the President, some passages of which we shall take an early opportunity of printing. The botanical portion of the number is principally taken up by Mr. J. Scott's observations on the functions and structure of the reproductive organs in the Primulaceæ; and on the zoological side will be found, among other subjects, a notice of the Dinornis skeleton recently found in New Zealand, an account of a new American swan, and a paper entitled Corynodinorum Recensio. Mr. Scott's observations, noticed by us briefly at the time the paper was read, are given in full detail, with tables showing the results of the different experiments.

CATALOGUES RECEIVED.—*E. G. Henderson & Son's List of Bulbs for* 1864 is one of the more elaborate lists, with a good deal of cultural information interspersed. Among other things we observe some 60 sorts of Lily, from the guinea auratum down to the three-penny candidum. There is also a long list of the beautiful families of Ixia, Sparaxis, &c.; and of Oxalis some 40 names or more are recorded.——*Catalogue des Ognons de Fleurs qui se trouvent chez Vilmorin-Andrieux & Cie., Paris*, is a pretty full list of Hyacinths, of Gladioli, and of a rather extensive series of miscellaneous bulbs.

Garden Memoranda.

MR. BARNES'S NURSERY, CAMBERWELL.—The principal subjects grown here indoors are Azaleas, among which are many fine specimens fit for exhibition, as well as multitudes of seedlings. Of the latter one batch was sown in February, 1863, the seed having been saved in the autumn of the previous year. The plants from this are now some 6 or 8 inches in height. They were raised from seed of Etoile du Gand, Gem, Variegata superba, Model, Madame A. Verschaffelt, and Madame Miellez, all these kinds being crossed one with the other.

In the shade of a friendly gable of one of the Azalea houses was a group of silver-foliaged Centaureas, among which were C. candidissima or ragusina, C. argentea, C. gymnocarpa and C. Marksii. The first however is by far the best of the lot. The propagation of C. candidissima has been pushed on with vigour whenever cuttings fit for the purpose presented themselves. Mr. Barnes strikes them in a moderate heat, generally furnished by a half-spent tan-bed.

In one house were some plants of Epiphyllum truncatum, worked on the usual stock, the old Cactus Pereskia. They were little standards with capital heads, and in this form are invaluable for dinner-table and conservatory decoration. A very few specimens were on their "own roots," as the Rosarians say; but these were not so vigorous or healthy as the worked plants; indeed so uniformly indifferent are they when grown thus, that Mr. Barnes now grafts all his plants on the stock just named.

Cyperus alternifolius variegatus may be seen here in beautiful condition, and it may be added that "T. C., of Lymington" (p. 845) follows exactly the mode of cultivation adopted here, viz., that of growing the plants in hungry peat and sand; thus treated, the variegation is all that can be desired.

Two stoves are full of tender ornamental plants, packed closely together. Among them is a good plant of Mr. Veitch's new Dracæna Cooperi, the handsome drooping habit of which, combined with the bright colour of the foliage, renders it a valuable addition to fine-foliaged plants. D. stricta has upright growing leaves, the colour of which is also very bright and striking. D. latifolia pendula has drooping foliage, as its name implies, but its colour is somewhat dull. Sphærogyne latifolia is a very handsome ornamental foliaged plant, but some care is required in its cultivation, to keep the singular marking of the leaves intact. Clerodendron Balfourdi is very much in the way of C. Thomsonæ, but has larger flowers. Caladium Lowii and C. Veitchii are, as is well known, both very fine plants of which Mr. Barnes is getting up a fine stock. The last does not increase so freely as C. Lowii, and therefore will remain scarce for some time to come. The old Æchmea discolor is now blooming here freely, and its heads of bright scarlet bracts with violet tips are very showy. Sonerila margaritacea looked as healthy as could be wished. Here it is wintered on a high dry shelf, and watered very sparingly indeed. It is a very pretty plant when in good condition, but with some it is difficult to manage. Aristolochia leuconeura is a handsome variegated foliaged stove creeper; and by its side was Sphærostema marmoratum, a conspicuous failure, for here, as elsewhere, when it grows vigorously the well-defined marking on the young plants becomes almost wholly lost.

A batch of the new Zonate and other bedding Pelargoniums are being grown here for trial. Carter's Snowball is a flower whose name is a misnomer; it is not white but pale flesh-colour. Bel Demonio is a salmon-coloured flower, really "good for nothing." Cybister, of the Nosegay section, is a very fine variety with fiery scarlet flowers. Helen Lindsay is of a very pleasing shade of rosy pink, of good habit, and very fine quality. The variety known as White Tom Thumb sent out by Messrs. E. G. Henderson & Son, is, like Snowball, a pale flesh-coloured flower and not white. Merrimac, an ochre and scarlet-coloured flower, is large and very fine. Merrimac (Smith's) is in colour a bright crimson, but not so good as the preceding. Another variety from the same raiser, named Excellent, has very fine fiery scarlet flowers. Spread Eagle is in the way of Cybister, but not so good. St. Fiacre is a very fine zonale variety, its colour being salmon tinged with pink. Lord of the Isles, sent out by Mr. G. Smith of Islington, in colour a bright cerise, is a very fine flower, one of the very best of this shade.

As an experiment, Mr. Barnes is grafting some of the best of the variegated Pelargoniums, such as Mrs. Pollock, Italia Unita, Countess, Mrs. Benyon and Sunset, on stocks of the old lemon-scented Geranium. His aim is to get some dwarf standard plants for dinner table or conservatory decoration. The grafts are looking very healthy, and promise to take. Three of these variegated Pelargoniums, viz., Mrs. Pollock, Mrs. Benyon and Sunset, had a very distinct edging of gold to the leaves; they appeared, together with Italia Unita, to be the very cream of this extremely handsome and interesting class of plants.

Miscellaneous.

Algum or Almug Trees (Heb. *algummim or almuggim*).—Mention of these is made in 1 Kings x. 11, 12, 2 Chr., ix., 10, 11, as having been brought in great plenty from Ophir, together with gold and precious stones, by the fleet of Hiram for Solomon's temple and house, and for the construction of musical instruments. "The king made of the Almug-trees pillars for the house of the Lord, and for the king's house, harps also and psalteries for singers; there came no such Almug-trees, nor were seen unto this day." In Chr. ii. 8, Solomon is represented as desiring Hiram to send him "Cedar-trees, Fir-trees, and Algum trees, (marg. Almuggim), out of Lebanon." From the passage in Kings, it seems clear Algum-trees came from Ophir; and as it is improbable that Lebanon should also have been a locality for them, the passage which appears to ascribe the growth of the Almug-tree to the mountains of Lebanon, must be considered either an interpolation of some transcriber, or else it must bear a different interpretation. Rosenmüller suggests (Bibl. Bot. 245 Norren's translation), that the wood had been brought from Ophir to Tyre, and that Solomon's instructions to Hiram were to send on to Jerusalem (*viâ* Joppa perhaps) the timber imported from Ophir that was lying at the port of Tyre, with the Cedars that had been cut in Mount Lebanon." The attempts at identification made by modern writers are these:—1. That the Thyine wood (Thuja articulata) is signified by Almug; but unfortunately this Thuja is not found in Asia. 2. Dr. Kitto supposes that it is the Deodar, on which Dr. Hooker remarks, "the Deodar is out of the question. It is no better than Cedar, and never could have been exported from Himalaya." 3. The late Dr. Royle, with more reason, is inclined to decide on the white Sandal-wood (Santalum album, see Cycl. Bib. Lit. art. Algum). 4. The Rabbins understand a wood commonly called brasil, of a deep red colour, used in dyeing. 5. Dr. Hooker says, "I have often heard the subject of the Almug-tree discussed, but never to any purpose. The Pterocarpus santalinus has occurred to me; but it is not found in large pieces, nor is it, I believe, now used for musical purposes." This tree, which belongs to the natural order Leguminosæ, and sub-order Papilionaceæ, is a native of India and Ceylon. The wood is very heavy, hard, and fine-grained, and of a beautiful garnet colour, as any one may see who has observed the medicinal preparation, the compound tincture of lavender, which is coloured by the wood of the sandal-tree. *Dr. Smith's Dictionary of the Bible: the latter part abridged.*

Tokay Wine.—The village of Tokay which gives its name to the wine is situated in Hungary on the top of a hill near the meeting of the Rodrog with the Theiss. The vineyards are to the west of the Rodrog and they occupy a space of 10 square miles. The earth is of yellow chalk mixed with large pebbles. The wine is white, and the vintage is commenced as late in the year as possible, but generally at the end of October. There are four different kinds of Tokay. The first is made by placing the Grapes when cleared of all rotten fruit in a wooden vat, with a double bottom, of which the one on which the Grapes rest is pierced with small holes. The vat is filled with Grapes and covered with boards. After a few hours the Grapes become heated to 80° Fahrenheit, and fermentation sets in. The fermentation destroys the tartaric acid, and the weight of the Grapes forces the juice through the holes in the bottom. The Grapes are then trodden under foot, and the wine is poured into small casks, where it remains exposed to the air for a month after having fermented for two days. This is the wine which is generally exported. When of good quality it has a silvery, oily colour, the taste sweet and mellow, with a peculiar earthy flavour, slightly astringent and aromatic, with good body. This wine may be preserved for an almost indefinite period, but it is not drinkable until it is three years old. Some Vine growers in the Arriège cultivate vineyards on the tops of the highest mountains in calcareous earth covered with stones similar to those found in the Vineyards near Tokay, but they have not as yet succeeded in producing anything as good as the Hungarian wine. *Moniteur Vinicole.*

Double Flowers.—In endeavouring to obtain double flowers, the following general propositions may be looked upon as guides. To obtain double flowers from seed, dependence must not be placed upon the influence of a stray stamen, but means must be taken to super-induce a highly elaborated plethoric habit in the seeds. The plant must be stimulated by high cultivation when the flower buds appear, and then by removing after flowering a great portion of the seeds. If the stimulus be applied too early it will be wasted in increasing the luxuriance of the plant, but if applied as the flowers make their appearance, a greater degree of strength is conveyed to them. By thinning the flowers or seed vessels as soon as they flower, so as only to have a very few seeds to ripen, these acquire a full habit, and it is well known that this state is opposed to fruitful productiveness, while the less luxuriant habit produces great fruitfulness. We do not expect much seed from a double flower. Such plants as Hollyhocks for instance, though often said to be double, are really not so, and the rendering them more double must be obtained by high cultivation and the seed thinning process. For the production of double flowers, a full exposure to light is as essential as an abundant supply of nourishment. Here the pruner may gain some information about keeping his trees thin for the production of fruit. I have proved that a due supply of moisture, a superabundant supply of decomposing organic matter to the roots and exposure to light, are the means of promoting excessive development of petals which compose double flowers. *Middlemiss, in Victorian Horticultural Gazette.* [This is very doubtful.]

Hyssop (ēzôb; ὕσσωπος).—Perhaps no plant mentioned in the Scriptures has given rise to greater differences of opinion than this. The question of the identification of the ēzôb of the Hebrews with any plant known to modern botanists was thought by Casaubon "adeo difficilis ut, &c." The chief difficulty arises from the fact that in the LXX the Greek word given above is the uniform rendering of the Hebrew

êzôb, and that this rendering is endorsed by the Apostle in the Epistle to the Hebrews (ix. 19, 21) when speaking of the ceremonial observances of the Levitical law. Whether the LXX made use of the Greek word as most nearly resembling the Hebrew in sound, as Stanley suggests (S. & P. 21, note), or as the true representative of the plant indicated by the latter, is a point which in all probability will never be decided. Botanists differ widely even with regard to the identification of the ὕσσωπος of Dioscorides. . . . . An elaborate and interesting paper by the late Dr. J. Forbes Royle on the Hyssop of Scripture in the Journal of the Royal Asiatic Society, viii. 193, goes far to throw light upon this difficult question. Dr. Royle, after a careful investigation of the subject, arrived at the conclusion that the Hyssop is no other than the Caper plant, or Capparis spinosa of Linnæus. The Arabic name of this plant, asuf, by which it is sometimes, though not commonly, described, bears considerable resemblance to the Hebrew. It is found in Lower Egypt . . . in the desert of Sinai, at Gaza, and at Jerusalem. It is thus met with in all the localities where the êzôb is mentioned in the Bible. With regard to its habitat, it grows in dry and rocky places and on walls. Finally, the Caper-plant is capable of producing a stick 3 or 4 feet in length. He thus concludes:—"A combination of circumstances, and some of them apparently too improbable to be united in one plant, I cannot believe to be accidental, and have, therefore, considered myself entitled to infer, what I hope I have succeeded in proving to the satisfaction of others, that the Caper-plant is the Hyssop of Scripture." Whether his conclusion is sound or not, his investigations are well worthy of attention; but it must be acknowledged that, setting aside the passage in John xix., which may possible admit of another solution, there seems no reason for supposing, that the properties of the êzôb of the Hebrews may not be found in some one of the plants with which the tradition of centuries has identified it. *Dr. Smith's Dictionary of the Bible.*

Calendar of Operations.

(For the ensuing week.)

FALLS of rain have been frequent during the past week in different parts of the country, and some of these have unfortunately been so sudden and heavy as to greatly impair the beauty of the more delicate kinds of bedding plants. Where, therefore, these or valuable specimens of any description are in danger of sustaining serious injury either from wet or frost, they had better be moved under some kind of shelter. A few late cuttings of choice bedding plants may still be put in, and among these do not overlook the Nosegay Pelargoniums Stella and Cybister, which are not only effective in beds and vases, but also make valuable pot plants.

FLOWER GARDEN AND PLANT HOUSES.

Hyacinths and other Dutch bulbs, if not already got, should now be procured and potted without delay. Orange trees meant for forcing in winter for the decoration of the conservatory or greenhouse should also be attended to. These and Daphnes are invaluable for winter blooming, and should be largely grown for that purpose. Look carefully after red spider on Bossiæas, Chorozemas, and anything else found to be liable to that pest, and see that it is eradicated before the plants get disfigured. Red spider is easily got rid of by laying the affected plant on its side, and well washing the under sides of the leaves with the engine, applying the water with as much force as the foliage will bear.

AZALEAS.—Get these tied into form as soon as can be done, in order to give them a neat appearance. In doing this, however, avoid too much formality, with which so much fault has justly been found during the past season. Also attend to the staking and training of specimen plants of other hard-wooded kinds as leisure time can be found for that purpose.

HEATHS.—Look carefully after the watering of large specimens of these in pots, which are soon injured by being either over or under-watered. Examine them often and carefully, and where they are found to be dry, water thoroughly, so as to moisten the whole of the ball; also look sharply after mildew on comparatively soft-wooded varieties, and dust with sulphur directly the enemy is perceived.

HOLLYHOCKS.—Great improvement has been effected in these showy border plants of late; even this season some excellent new kinds have been exhibited. Save seed from the best. Some adopt the plan of removing the upper part of the spike, leaving six or eight of the early blooms. When the plant throws up four or five stems, and propagation of the variety is an object, one or more of the spikes of flowers may be sacrificed; the stem may be split, cut in lengths, with a bud in each, and placed under a hand-glass, taking care that the small portion of shoot retained is covered with soil, leaving the point of the bud exposed. Strong young plants may often be raised in this way.

SALVIAS.—See to having plenty of the showy scarlet kind called splendens, which is extremely useful for mixing among Chrysanthemums. It is a good practice to place the largest specimens of this in a shady situation out of doors for a few weeks in autumn; plants so treated will be found to bloom more strongly, and last longer in beauty than others drawn up in a warm house.

TREE VIOLETS.—Keep these clear of their great enemy, red spider, by a liberal use of the syringe, and giving them plenty of manure water, which will assist in keeping them in vigorous health.

VAN THOL TULIPS.—Bulbs of these for forcing may be potted. Place them on coal ashes, cover them as recommended last week for Hyacinths, and early in November they may be placed in heat.

FORCING GARDEN.

CUCUMBERS.—Where a supply is required during winter, vigorous young plants should be secured at once from seed, as plants that have been bearing through the autumn, however promising they may look, seldom answer well for winter fruiting.

FIGS.—Where any are ripening, keep the atmosphere as dry as can conveniently be done, and also let the trees be on the side of dryness at the root, but avoid such a degree of drought as would be likely to injure the foliage or the bearing wood for next crop. Keep the shoots thin and neatly tied in, so as to expose them fairly to light and air, but avoid stopping at this season. Keep the atmosphere moist when the fruit is swelling, giving the foliage a good washing with the syringe frequently to prevent red spider, and give plants in pots or tubs a liberal supply of manure water.

PINES.—Any plants which may appear to require repotting should be examined and shifted at once, if this is found necessary, in order that the roots may get hold of the fresh soil before dull weather sets in, when it will not be safe to encourage free growth. And any necessary re-arrangement of plants growing in the open bed should also be effected as soon as possible. Encourage plants expected to show fruit next January to make vigorous growth, for these should be sufficiently advanced by the beginning of November to allow of keeping them rather cool and dry, so as to check and thoroughly ripen their growth, for unless this is attended to there will be considerable risk about getting them to show fruit at that season. Plants which have been prepared for fruiting, and which it is desired to get up at once, should be encouraged with a moist warm atmosphere, keeping the soil about their roots in a healthy state as to moisture. Some have a dread of applying water at the root in the case of plants that have been kept dry for a time to check growth, and withhold it until the fruit is perceptible; but this is a mistake, causing loss of time as well as injuring the plants, for unless root action is encouraged plants cannot be expected to start freely. If artificial treatment must be resorted to in order to get the plants to fruit at the desired time, there is no method so certain or so little injurious as keeping them cool and dry for a month, and then affording them a moist warm temperature and a brisk bottom-heat, giving sufficient water at the root to properly moisten the soil. Take off and pot, or plant out suckers at short intervals as they can be obtained of sufficient strength for that purpose.

VINES.—Give air freely whenever the weather is dry in houses where the ripening of the wood is an object, and if a little fire-heat is used with the air, this will be much more efficacious now than later. But except in the case of young Vines with a very gross habit it will hardly be necessary to use fire-heat if the weather is dry. Now that heavy rains have set in, as soon as the soil of outdoor borders has been sufficiently watered, we would advise covering that of the early house with dry stable litter, fern, or whatever can be obtained most conveniently that will answer the purpose of keeping the border comparatively dry. Nothing answers better for this purpose than clean straw, provided the border has a proper slope from the front of the house; in that case it is easily thatched so as to throw off the wet entirely. But straw is too valuable in most parts of the country to be used for this purpose, and wooden shutters or tarpauling would be found cheaper in the end. It will also be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary, with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary.

HARDY FRUIT AND KITCHEN GARDEN.

Pay every attention to getting the wood of Peaches and Apricots well ripened, by exposure, shortening, &c. Prepare for planting all kinds of fruit trees, by getting the ground in good order for the different kinds. On cold stiff soils it is advisable to plant on hillocks, 1 foot or 18 inches higher than the surrounding surface. The trees will not grow so fast in consequence, and will require more attention in summer in the way of mulching, but they will form short-jointed, well ripened, fruitful wood, which is the best preventive of canker, gum, &c., and will save the labour of resorting much to root-pruning.

APPLES AND PEARS.—Most kinds of Apples may be gathered during this and next month. Late Pears should, however, be left on the trees while the weather continues favourable for their ripening.

CAULIFLOWERS.—Use these before they get too large, and prepare a shed or pit to plant a quantity on the first approach of frost.

FRENCH BEANS.—These may require a slight protection at night.

POTATOS.—No opportunity should now be lost for getting Potatos that are ripe out of the ground, and stored in a dry condition. They may either be kept in narrow pits, with a little dry earth sprinkled among them, or in airy dark sheds. Before storing, however, take care to separate the bad ones, fortunately very scarce this season, from those that are sound.

SALADING.—Plant out Lettuces and Endive for spring use. If planted on the sloping sides of wide ridges they will stand better, damp being quite as destructive to them as frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Sept. 14, 1864, as observed at the Horticultural Garden

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 8	7	29.971	29.940	74	62	68.0	64	61½	S.W.	.00
Friday 9	☽	29.956	29.894	69	48	58.5	64	62	S.W.	.00
Satur. 10	9	30.012	29.882	64	45	54.5	62½	62	S.W.	.00
Sunday 11	10	29.890	29.774	66	32	49.0	61	61½	S.W.	.00
Mon. 12	11	29.981	29.958	68	34	51.0	59½	61	W.	.00
Tues. 13	12	29.952	29.822	66	48	57.0	60	60	S.W.	.02
Wed. 14	13	29.696	29.533	68	42	55.0	60	60	S.W.	.80
Average.		29.922	29 829	67.8	44.4	56.1	61.5	61.0		.82

Sept. 8—Densely overcast and windy; cloudy; overcast.
— 9—Cloudy and boisterous.
— 10—Lightly overcast, fine; overcast.
— 11—Low masses of white clouds, and windy; fine; slight frost.
— 12—Fine: low white clouds; fine; cold at night.
— 13—Lightly overcast; rain; fine; overcast.
— 14—Cloudy; boisterous; heavy rain.
Mean temperature of the week 1½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Sept. 24, 1864.

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	66 8	46.8	56.8	17	0.84 in.	3	8	3	1	2	10	6	5
Mon. 19	67.0	45.4	56.2	19	0.64	4	10	3	1	5	8	4	3
Tues. 20	66.9	43.9	55.4	16	0.45	3	5	5	4	3	8	6	4
Wed. 21	66.3	45.0	55.7	20	0.50	2	5	6	2	6	8	7	2
Thurs. 22	66.6	45.4	56.0	19	0.80	—	4	9	1	6	10	6	2
Friday 23	66.3	46.0	56.1	18	1.21	—	6	8	2	6	9	5	2
Satur. 24	65.7	44.7	55.2	18	0.75	2	8	3	1	6	11	6	1

The highest temperature during the above period occurred on the 20th, 1843; and the 24th, 1832—therm. 81 deg.; and the lowest on the 20th, 1840—therm. 32 deg.

Notices to Correspondents.

DISEASED CAULIFLOWERS: *Flowerdale* From your description of the roots, as being formed of "a succession of tubers," we presume the reason of their dying away suddenly, is, that they are affected by the disease called Clubbing. If so, you can only adopt preventive measures in the case of young plants, paring away the knob-like parts, and dropping a small portion of wood-ashes into the hole when they are planted.

FUMIGATING WITH TOBACCO: *A M.* The rule certainly is to fumigate when the plants are dry, and hence it is customary to ventilate a house or pit freely before commencing. The opposite practice is liable to injure the foliage of some plants.

GALLS: *E T.* Your gall is one of those to which Reaumur assigns the name of "Artichaut." Yours, however, is apparently derived from a female flower, and not from a bud; or if from a bud, from one just above the female inflorescence, and not on a barren summer shoot. You will find a good account of the production in "Annales des Sciences Naturelles," Series 3, Vol. 19, p. 349. *M. J. B.*

GRAPES: *Constant Reader.* The probable cause of your Vines producing long loose bunches, instead of compact and well set ones, is doubtless that you keep them too close and moist while growing. Try the effect of more air—judiciously administered of course.

INSECTS: *J G.* The caterpillars on your Pear leaves are the slimy larvæ of a small black-winged species of Saw-Fly, Selandria Æthiops. They may be destroyed by dusting the leaves with lime, or syringing them with lime water. If not destroyed they will injure the trees by stopping the action of the leaves.—*T S P.* Larva No. 1, with the sickle-shaped jaws, is that of one of the lace-winged flies, Chrysopa Perla—it feeds on aphides. The other is the caterpillar of some kind of moth. We are not acquainted with it, judging from the figure of the large size of the third pair of legs.—*R W K.* The insects on the Turnip leaves from North Shropshire are a species of Plant Louse, Aphis Brassicæ or Rapæ. The Ladybird, Coccinella 7-punctata, feeds on them, and consequently should not be destroyed.—*Old Sub.* We found no beetle with your query, and are not aware of any species which attacks the Box. The small chaffers reared in the ground adjacent to the rows of Box might probably take shelter in it by day. *W.*

MONSTERA: *G. Wheeler.* We shall shortly have something to say about this as a fruit-bearing plant.

MUSCAT HAMBURGH GRAPE: We learn from Messrs. Lane, of Great Berkhampsted, that their bunch of this variety exhibited the other day at the Crystal Palace weighed 4 lb. 13 oz.

NECTARINES CRACKING: *G W.* This results from excess of moisture at the root, more or less assisted probably by the dry atmosphere in which the fruit itself is kept, preventing the expansion of the skin. Some sorts are more subject to it than others—the Stanwick for example, and in such cases it is still more necessary than in others to secure dryness of the soil as the fruit approaches maturity.

NAMES OF PLANTS: *W J.* Spiranthes autumnalis, the Lady's Tresses.—*L T Davis.* Such plants cannot be satisfactorily named without flowers; 1, appears to be the bedding plant grown as Gnaphalium lanatum; 2. is a Sedum, perhaps carneum.—*T H.* Athyrium Filix-fœmina odontomanes.—*J B.* Oncidium cornigerum.—*A B C.* The paler coloured Heath is Erica retorta major, the other E. jasminiflora rubra.—*Old Sub., Paris.* The Cornelian Cherry, Cornus mas.—*W D.* We should refer the specimens to Quercus pedunculata, though the characters are somewhat intermediate.

SEEDLING PEACH: *J B.* Your seedling Peach has a good deal of the Noblesse character and flavour, and so far as its present condition enables us to judge, has nothing distinctive about it.

SOIL FOR PINES: *J. Grove.* The best soil for re-potting large Pines in, is good friable loam, well enriched, with the further addition of a small proportion of peat or leaf-mould. If your plants have lost their roots through too much bottom-heat, you must not blame the soil.

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PHOSPHO-GUANO, Carriage Free at any Railway Station or Shipping Port in the Kingdom, 11*l.* 10*s.* per ton, net cash, for 10 tons and upwards. Smaller quantities, 11*l.* 15*s.* per ton.
*** This Guano is admitted to be the best manure for Wheat, containing, as it does, 35 to 40 per cent. of Soluble Guano Phosphates, and 3½ per cent. of actual Ammonia, in addition to Potash. The advantage of applying it in autumn is, that the farmer is enabled to harrow the Guano well into the soil before sowing, which produces a better result than top-dressing in the Spring. The Phospho-Guano promotes a strong braird, vigorous growth, and a full and plump grain. Apply at the rate of 2 to 2½ cwt. per acre.
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2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
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PHOSPHATE of LIME COMPANY (LIMITED).—Capital, 150,000*l.*, in 10,000 shares of 15*l.* each, of which only 6000 will now be offered to the public. 1*l.* per share on application, 2*l.* on allotment. No calls for three months after allotment. Future calls not to exceed 3*l.* per share, and at intervals of not less than three months.
Chairman—SIR WILLIAM GORE OUSELEY, K.C.B.
Vice-Chairman—Professor WAY, late Consulting Chemist to the Royal Agricultural Society.
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This Company is formed for the purpose of purchasing and working the valuable and extensive deposits of Phosphate of Lime situated in Estremadura, Spain.
These deposits, long useless from the absence of a cheap mode of transport, have now been rendered practically available by the opening of the Railway from Lisbon to Merida, which is within a comparatively short distance of the quarries. This favourable alteration so far reduces the cost of transport that, upon a very low average of value, a dividend of 20 per cent. is confidently anticipated. The present proprietor guarantees a minimum dividend of 10 per cent. on the paid-up capital for three years; whilst the supply of Estremadura Phosphate is virtually inexhaustible, and the demand for Artificial Manures, of which it is a chief requisite, is yearly increasing.
Detailed Prospectuses and Forms of Application, by post, from the Offices, 199, Gresham House, Old Broad Street, E.C.

DIXON AND CARDUS'S LINSEED CAKE, Analysed and Reported upon by Dr. VOELCKER.
As considerable mortality amongst the Lambs has occurred in two or three districts in Hampshire, and in some cases our Linseed Cake, on which they were feeding, has been blamed as the cause of it, we requested Dr. Voelcker to investigate the subject and report upon it; which report we subjoin.
It will be seen that the Cake was of excellent quality, and free from any matter that could be injurious to the health of animals feeding upon it.
Diseases in Lambs in isolated districts are by no means uncommon; and no doubt excellent Cake is often branded as the cause of sudden outbreaks of disorders in Lambs, whereas these disorders are enveloped in such mystery that the best Veterinary Surgeons and the most experienced Flock-masters are at a loss to advance a rational theory in accounting for the sudden death which often affects the flocks in one district and not in another.
The four Samples of Cake sent for Analysis were marked:—
J. W. No. 1 and No. 2, from Mr. John Wallace, Houghton.
T. E. From Mr. Thomas Edwards, of Compton House, Stockbridge.
S. A. From Mr. Stephen Ayles, of Braishfield, Romsey.
DIXON & CARDUS.

Report of Dr. VOELCKER.
101, Leadenhall Street, London, July 8, 1864.
To Messrs. DIXON & CARDUS, Southampton.
DEAR SIRS,—I have now the pleasure of handing you the results of careful Analyses of four samples of your Cake. You will observe at once that these four samples show a close agreement in composition, which distinctly proves that the manufacture of your Cake is carried on uniformly in your mill.
The per centage of Oil (the most valuable constituent of Oil-cake) in all four samples is quite as high as in the best kinds of Linseed Cake; and that of flesh-forming matters a fair average proportion.
The small amount of sand, and the absence of obnoxious weed seeds, shows that Clean Linseed is used in the preparation of these four samples of Cake.
I have carefully examined your Cake for injurious foreign matters, and am decidedly of opinion that it contains nothing that can be regarded as at all likely to be injurious to the health of animals fed upon it. Its condition is fresh, it is free from mould, and is palatable; and in my opinion is a wholesome and nutritious Cake of good average quality.—Yours truly, AUGUSTUS VOELCKER.

COMPOSITION OF FOUR SAMPLES OF LINSEED CAKE, MANUFACTURED BY DIXON & CARDUS, NORTHAM, SOUTHAMPTON.

	Samples Marked.				
	J.W. No. 1.	J.W. No. 2.	T.E.	S.A.	Barrel American
Moisture	10.91	11.39	10.58	10.48	11.64
Oil	11.55	11.26	10.92	10.94	10.43
*Albuminous compounds (flesh forming matters)	25.62	25.25	27.43	26.43	24.01
Mucilage, Starch, Sugar, and digestible fibre	31.09	31.28	30.34	30.96	34.44
Woody Fibre (Cellulose)	14.04	13.46	14.46	15.09	14.26
**Mineral Matters (Ash)	6.79	7.36	6.27	6.10	5.22
	100.00	100.00	100.00	100.00	100.00
*Containing Nitrogen	4.10	4.04	4.39	4.23	3.84
**Containing Sand	2.12	2.34	1.64	1.13	1.42

AUGUSTUS VOELCKER.
London, 101, Leadenhall Street.—July 8, 1864.
N.B. We have in the above Table added an analysis of Barrel American Cake, made by Dr. Voelcker some time ago for us, which shows our cake to be even superior to Barrel American, which is considered by many as the standard of first-rate quality. D. & C.

GIRDWOOD'S MELOSSOON or SHEEP PROTECTING DIP.—This preparation, poisonous alone to Parasites, forms an artificial yolk of great value for the sheep and wool. It is the Best, Cheapest, and Safest of all Dipping Compounds.
Price 6*d.* per lb. Above a cwt. free to stations.
To be had of Mr. ROBERT GIRDWOOD, Tanfield, Edinburgh, or his Agents.

Early Feed.

FOR SALE, a quantity of EARLY BROAD-LEAVED SEED RYE, at 50*s.* per quarter. Sacks 2*s.* each.
The above can be recommended as a selection after several years observation from near 40 samples of the earliest Rye procurable, and may be relied upon as a very early and most productive variety.
Apply to Mr. W. W. GILLINGHAM, Seed Merchant, Rochford, Essex.

TRADE MARK.
HALLETT'S PEDIGREE NURSERY WHEAT.



Seed required { In September .. 1st half .. 4 bushels on 10 acres. / In October .. 2d half .. 4 bushels { On 8 acres. / On 6 acres. } / In November .. .. 4 bushels on 4 acres. }

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, without which the Wheat will in no case be sent.

APPLY TO FREDERIC F. HALLETT, ESQ., F.Z.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

Agriculture and Rural Economy.

PROFESSOR BUCKMAN, F.L.S., F.G.S., &c., late Lecturer on Botany, Geology, and Rural Economy at the Royal Agricultural College, will have a VACANCY for only ONE PUPIL at Michaelmas.—For particulars apply at Manor Farm, Bradford Abbas, Sherborne, Dorset.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.
President—His Grace The DUKE of BEAUFORT.
Vice-President—The MAYOR of BIRMINGHAM.
The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1.
Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1863, may be obtained from the Secretary. The ENTRIES CLOSE on NOVEMBER 1.
GEORGE BEECH, Secretary.
Offices: Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£794 10	BREEDING PIGS	£76 10
FAT SHEEP	299 5	CORN and ROOTS	71 8
FAT PIGS	60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	„ B.	For a Cow or Heifer (in any Class).
	„ C.	For a Beast in Extra Stock.
SHEEP.	„ D.	For a Pen of three Wethers (in any Class).
	„ E.	For a single sheep in Extra Stock.
PIGS.	„ F.	For a Pen of three Pigs (in any Class).
	„ G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

SMITHFIELD CLUB SHOW.
IMPLEMENT DEPARTMENT.
The LAST DAY for receiving ENTRIES for IMPLEMENTS and MACHINERY is October 1.
Printed forms of Certificates, with rules and regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half Moon Street, Piccadilly, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 17, 1864.

—— Many of our readers will be gratified to learn that Mons. F. R. DE LA TREHONNAIS, well known in English as well as French Agricultural circles, has been lately raised by the EMPEROR to the rank of Knight of the Legion of Honour, in recognition of the distinguished services which he has rendered to the cause of Agricultural progress. It is but a short time since we had to record a similar honour paid to M. DE LA TREHONNAIS on agricultural grounds by the QUEEN OF SPAIN, who had conferred on him the rank of Knight of the Order of CHARLES III.

"THE climate of this country indicates its especial fitness for the succulent growth of plants. It is not so well adapted to the ripening of seeds. Our rainfall, mists, and dews, our soils, our breeds of sheep and cattle, even our insular position, all point out the fitness of the country rather for the growth of green crops as food for our live stock than of bread corn for our population, which is so much more easily obtained by importation, and so much less easily produced at home."

This has been the outcry of the last few years. What do those who have helped to urge this popular opinion make of the past four or five months? It is well that tenant farmers, in the southern and midland counties at any rate, have not been wholly dependent like their live stock on succulent growth during the past summer. The pastures which we have been desired to extend have been burnt up. The extension of Clover and of green crop culture would this year at any rate have been but the extension of disaster.

In the northern counties and in Wales no doubt there are Turnips and Wurzels to be had; but all over the arable lands of Gloucestershire and Berkshire, and Oxfordshire, which also fairly represent the counties immediately around them, there are next to none.

The corn harvest has been tolerably satisfactory, or 1864 would have been a very disastrous year indeed; and as it is we shall be dependent to a very great extent this winter on imported grain for cattle food to make up for the lack of that provender and green food which our climate was so well adapted to ensure for us!

Apart, however, altogether from what may be

the rule of cultivation indicated by our ordinary seasons, it is plain that there is a question of very great importance and immediate urgency which this autumn in particular demands attention. How are our cattle to be kept during the next seven months? How is the meat manufacture to be carried on? And, what is of at least as much importance in its ultimate effect, how are our breeding stock and growing stock to be kept in good condition? for there cannot be a doubt that the quality of next summer's lambs and calves and also of our breeding stock next year, as well as of our existing growing stock all through their future career, depends on their condition during the next few months.

In order to enable the full discussion of these questions, we have applied widely for information on the probable food supply for the fold and farm-yard of the coming winter—and on the plans by which the deficiency of the ordinary supplies is intended to be met. And during the next few weeks we hope that our readers will contribute to the general fund of information on this subject. The following are one or two communications already received:—

One correspondent writes that he is seeking for information more immediately bearing on what is the most difficult position the farmers in the greater part of England have for many years had to encounter—the great scarcity of fodder occasioned by the unprecedented drought. "When I left Somersetshire a month ago," he says, "a green blade of Grass was hardly to be seen, and the Turnip crop had almost every where failed.

"All persons who have any practical knowledge of breeding and feeding stock must be aware of the great loss attending their being so stinted of food, as to become reduced in condition; and how difficult it is to recover their lost condition.

"This is one of the points to which I consider it desirable to direct attention, and to enforce the necessity of preventing it at almost any cost. I would beg to suggest as one of the most obvious measures the cutting up all the straw that can be spared, and using it for fodder in conjunction with meal of any sort, or of cake, according to the respective prices of each.

"The foregoing has reference to sheep as well as to cattle. In the case of the former, not only will the produce of wool be much lessened by hard keep, but its quality for combing purposes will be materially depreciated."

Mr. BURNISTON, of Henley, thus relates his experience in the use of Linseed-oil as an addition to straw chaff as provender for stock in store condition. He says:—"About 15 years ago, when under a very clever and practical farmer in Dorsetshire, I remember we fed 32 working oxen and other young stock very advantageously on chopped straw, a small proportion of hay chaff, and a sprinkling of Linseed-oil, and the animals thrived very well on the compound.

"Hay is dear and the Turnips are a failure this season, and I would suggest the following mixture to those who are short of feeding materials for their store cattle and sheep:—

lbs.		s.	d.
77	Chopped Oat-straw	*nil*	
28	Pollard	1	6
7	Pure Linseed-oil	2	3
112		3	9

"The above would cost 3*l*. 15*s*. per ton, containing about 10 per cent. of oil. The best Linseed-cake contains about 12 per cent. of oil, and is now selling freely at 12*l*. 5*s*. per ton.

"The Linseed-oil should be sprinkled over layers of chaff by a can and rose, and afterwards subjected to pressure to make the oil blend with the chaff and pollard. Animals are particularly fond of the Linseed-oil, and if it proves too laxative a greater proportion of straw chaff would correct its influence."

To this we have to add our own experience in the use of Linseed-meal. A lot of two-year old steers and heifers were kept all winter on a very few Turnips indeed, with straw chaff on which not more than a lb. of Linseed apiece, boiled into a thin and hot and saltish soup, had been poured. There is not only thus the direct addition of food, but this manner of applying it adds to the savouriness of the mess, and brings out the aroma of the provender, making it smell almost as sweet as hay. There cannot be a doubt that our live-stock during the coming winter, in the districts which have been so much injured by the drought, must do without litter. Sand and burnt clay, Fern and other leaf, expedients of that and other kinds, must suffice to provide them with bedding—the straw will have all to be turned to account as food. And it will be a timely and a useful thing to reproduce here the information which Dr. CAMERON of Dublin collected on this subject, and presented last year to the Royal Agricultural Society of Ireland.

It appears, according to him, that the following is the order in which our straws stand as regards nutritiveness:—

1, Pea haulm.
2, Oat straw.
3, Bean straw with pods.
4, Barley straw.
5, Wheat straw.
6, Bean straw without the pods.

The truth of this order of course hinges altogether on the condition in which the straw was harvested. Thus, no doubt, the Bean straw with pods was harvested before it became dead ripe, while that without pods was already brittle and hard, and lost its pods in threshing. Unfortunately for its serviceableness as food, there is no doubt that straw in general in the dry counties, has this year been harvested in a very hard and bright and dry condition. This fault in its condition as food must be corrected by some such cooking process as throwing hot Linseed soup over chaff, and beating it firm together in a heap for some hours before use, may amount to.

The following are some of the points to which Dr. CAMERON directed attention, and to which indeed we have already once before (1863) directed the attention of our readers.

He tells us that even in comparison with hay—taking into consideration the prices of both articles—Oat straw stands high, as will be seen by comparing the following analyses of common meadow hay, and properly harvested straw:—

	Meadow hay. (25 analyses.)	Oat straw (4 analyses.)
Water	14.61	14.0
Flesh-forming constituents	8.44	5.0
Respiratory and fatty matters	43.63	13.3
Woody fibre	27.16	63.1
Mineral matter (ash)	6.16	4.6
	100.00	100.00

As to the woody fibre of hay and straw, it appears to have been proved that it is a mistake to suppose it incapable of contributing to the nutrition of animals.

"In the summer of 1859 two German chemists, STOCKHARDT and SUSSDORF, made a series of experiments with the view of ascertaining whether or not the cellulose * of the food of the sheep is assimilated by that animal. The results of this inquiry are of importance, seeing that they clearly prove that even the hardest kinds of cellulose—lignine, in fact—are capable of being assimilated by the Ruminants. The animals selected were two wethers, aged respectively five and six years. They were fed—1st, upon hay alone; 2d, upon hay and Rye-straw; 3d, upon hay and the sawdust of Poplar wood, which had been exhausted with lye. (To induce the sheep to eat the sawdust, it was found necessary to mix through it some Rye-bran and a little salt); 4th, hay and Pine-wood sawdust, to which was added bran and salt; 5th, Spruce sawdust, bran, and salt; 6th, hay, pulp of linen rags (from the paper maker), and bran. The experiments were carried on from July till November, excepting a short time, during which the animals were turned out on pasture land, to recover from the injurious effects of the fifth series of experiments—produced probably by the resin of the Spruce. The animals, together with their food, drink, and ejecta, were weighed daily. The amount of cellulose in the food was determined, and the proportion of that substance in the ejecta was also ascertained; and as there was a considerable discrepancy between the two amounts, it was evident that the difference represented the weight of the cellulose assimilated by the animals. In this way it was ascertained that from 60 to 70 per cent. of the cellulose of hay, 40 to 60 per cent. of the cellulose of straw, 45 to 50 per cent. of the cellulose of the Poplar wood, 30 to 40 per cent. of the cellulose of the Pine, and 80 per cent. of the cellulose of the paper pulp, was digested."

In order to render a larger portion of this cellulose and lignine digestible, Dr. CAMERON recommends that straw should be cooked; and this recommendation is quite in accordance with the experience of farmers. "When straw in an unprepared state is consumed, a large proportion of its cellulose remains unappropriated, and it is certain that the hard woody fibre protects, by enveloping them, the soluble and easily digestible constituents of the straw, from the action of the gastric juice. He therefore recommends that straw should be either cooked or fermented before being used. An excellent mode of treating straw is to reduce it to chaff, subject it to the action of steam,* and mix it with roots and oil-cake or corn. A cheaper plan is to mix the straw with sliced roots, moisten the mass with water, and allow it to remain until a slight fermentation has set in. This process effectually softens and disintegrates, so to speak, woody fibre, and sets free the stores of nutritious matters which it envelopes.

Dr. CAMERON proceeded to quote Mr. BLUNDELL of Southampton, and other experienced men on the actual results of the use of straw in cattle feeding. Mr. BLUNDELL found that dairy cows, in the winter months, if fed on large quantities of roots, particularly Mangels and Carrots, will refuse to eat straw almost entirely and become very lean; but that they will always eat a full portion of sweet well harvested straw, when they get a small and moderate allowance of roots, say, for an ordinary sized cow, 15 lbs. of Mangel three times per day, the roots being given whole, just in the state they come from the store heap. Mr. BLUNDELL gives us the tabulated results of one of his experiments, proving that, by the use of straw, there is to be obtained something more than manure by the feeding of stock:—

COST OF FEEDING AN OX PER WEEK WITH STRAW, &c., ACCORDING TO MR. BLUNDELL.

		s.	d.
4 lbs. of oil-cake per day, or 38 lbs. per week, at 10*l*. per ton		2	6
64 lbs. of roots ditto, or 4 cwt. ditto, at 13*s*. 4*d*. ditto		2	8
20 lbs. of straw feeding, or 1¼ cwt. ditto, at 30*s*. ditto		1	10½
20 lbs. of straw litter, or 1¼ cwt. ditto, at 15*s*. ditto		0	11
Attendance, &c., per week		0	1
		8	0½
Deduct value of manure, per week		1	3½
		6	9
		s.	d.
Increased value of ox per week		10	0
Deduct cost of feeding		6	9
Profit		3	3

This is the ration of his fatting beasts—they will have to do with a less supply of litter this winter than has hitherto been allowed to them.

It is, however, chiefly from the chemical point of view that Dr. CAMERON regarded his subject. And assuming that 100 parts of Oat straw contain on an average—1 part of oil, 4 parts of flesh-formers, 10 parts of sugar, gum, and other fat-formers, and 30 parts of digestible fibre, he finds that the farmer buys in a ton of it for 30*s*. the following quantities of feeding material:—22½ lbs. of oil, 90 lbs. of flesh-forming material, 2 cwt. of starch and fat, and 6 cwt. of digestible fibre. Compare, now, this with what the farmer buys for 11*l*. in a ton of oilcake. He there purchases 582 lbs. of flesh-forming substances, 268 lbs. of oil, and 761 lbs. of gum, sugar, &c., and 74 lbs. of fibre. He pays 11*l*. for 2000 lbs. of nutriment in the cake, and 30*s*. for 1000 lbs. of nutriment in the straw. Straw is relatively deficient in the flesh-forming principles, and abounds in the fat-forming elements—of which, however, the most valuable, oil, is the least abundant. If, therefore, we add to it a due proportion of some substance very rich in flesh-formers and oil, the compound will possess, in nicely adjusted proportions, all the elements of nutrition. Perhaps the best kind of food which we could employ for this purpose is Linseed-meal. It contains about 24 per cent. of flesh-formers, 35 per cent. of a very bland oil, and 24 per cent. of gum, sugar, and mucilage. As Linseed possesses laxative properties, it cannot be largely employed; the addition, however, of Bean-meal—the binding tendency of which is well

* Cellulose is the term applied to the chemical substance which forms woody fibre. The latter is made up of very minute spindle-shaped tubes. In young and succulent plants these tubes are often lined with layers of soft cellulose. In many plants—such as trees—in a certain stage of development, the substance lining the cells is very hard, and is termed lignine. This substance is merely a modification of cellulose; and both resemble in composition sugar and starch so closely, that, by heating them with sulphuric acid, they may be converted into sugar.

* Mr. LAWRENCE, of Cirencester, describes his plan of using chaff as follows:—"We find that, taking a score of bullocks together fattening, they consume, per head per diem, 3 bushels of chaff mixed with just half a hundred weight of pulped roots, exclusive of cake or corn; that is to say, rather more than 2 bushels of chaff are mixed with the roots, and given at two feeds, morning and evening, and the remainder is given with the cake, &c., at the middle-day feed, thus:—We use the steaming apparatus of STANLEY, of Peterborough, consisting of a boiler in the centre, in which the steam is generated, and which is connected by a pipe on the left hand with a large galvanised iron receptacle for steaming food for pigs, and on the right with a large wooden tub lined with copper, in which the cake mixed with water is made into a thick soup. Adjoining this is a slate tank of sufficient size to contain one feed for the entire lot of bullocks feeding. Into this tank is laid chaff, about 1 foot deep, upon which a few ladles of soup are thrown in a boiling state; this is thoroughly mixed with the chaff with a three-grained fork, and pressed down firm; and this process is repeated until the slate tank is full, when it is covered down for an hour or two before feeding time. The soup is then found entirely absorbed by the chaff, which has become softened and prepared for ready digestion."

known—to a diet partly composed of Linseed, will neutralise the relaxing influence of the oily seed.

If oil-cakes be used as an adjunct to straw, Rape-cake will be found more economical than Linseed-cake. If it be free from Mustard, well steamed, and flavoured with a little treacle, or a small quantity of Locust Beans, it will be readily consumed, and even relished, by dairy and fattening stock.

This, then, is the practical conclusion to which all these theoretical considerations lead:—Along with a small proportion of green food in Swedes or Mangel Wurzel give cooked straw chaff, with which boiled Rape-cake or Linseed-meal, to the extent of from 2 lb. to 8 lb. according to the advanced state of the fatting beast, is added daily per head of the herd. We hope during the next few weeks to collect and publish information not only on the deficient supply of home-grown foods but on the actual and relative prices and values of the various foods for cattle to be purchased in the market.

SHORT-HORN CORRESPONDENCE.

(*Continued from* p. 875.)

[Mr. Bowly, of Siddington, has been so good as to place in our hands the letters on this subject of the late Henry Cottrell, Esq., of Rhodyate Lodge, Congresbury; and from them we extract the following correspondence in 1826 and 1827 between himself, Major Rudd, and the Rev. H. Berry.]

ON THE PEDIGREE OF HUBBACK.

6. *Major Rudd to Mr. Cottrell, Feb.* 8, 1827.—

"I have been at a loss to conceive the reason why a prejudice against Kyloe blood should exist in the minds of the breeders in the southern part of England, for here none exists, but, on the contrary, I find it is a recommendation to the Short-horns to have a certain portion of it. Your letter has resolved the reason. You tell me that you have never seen Kyloes with a mossy coat of hair. If a person of your great research and experience has never seen the real and genuine West Highland Kyloe, I am no longer surprised at the error which prevails amongst the agriculturists in general of the South of England. It is the very ground of distinction by which we know the real and true West Highland Kyloe. It may be called the touchstone by which they are known. It is their peculiar distinction to possess the real mossy coat of hair in a remarkable manner, and the Short-horns were never known to possess it in any instance until the cross with Hubback. The mossy coat is the true mark by which the descendants of Hubback are known, and this mark I have no doubt Hubback derived from the Kyloe. In truth it was from this very circumstance that the Short-horns descended from Hubback were long since suspected to be in part of Kyloe blood. I have heard repeatedly from both the Messrs. Colling that Hubback was the great cause of the improvement of that stock, and any report to the contrary originates wholly from the prejudice that exists against the Kyloe. I do not know any person more likely to spread these reports than Mr. George Coates, the author of the Herd Book, who I know has more than insinuated amongst the southern breeders that his own stock of Short-horns was superior to that of the Messrs. Colling. I saw Mr. George Coates' stock when he was a farmer, and lived near Driffield. I assure you I never saw any Short-horns with a worse coat of hair. I saw his boasted bull Patriot at Mr. Richardson's, at Horstow, in Lincolnshire, who was one of the purchasers of that bull. I never saw a worse coated bull nor a worse handler. You know that I purchased at Mr. Charles Colling's sale in 1810 his cow Peeress, the dam of Cecil. She was then in calf to Comet, and produced me a heifer called Princess. From Peeress and her daughter Princess I am now possessed of many cows and bulls which I kept quite distinct from any Kyloe cross, but I see their inferiority to those with a certain portion of Kyloe, say one-seventh or one-eighth. Peeress, you know, was direct from Hubback. I have now given you my genuine sentiments respecting the merit of the Kyloes and the cross between them and the Short-horns."

LETTERS FROM THE REV. H. BERRY.

7. *To Mr. Cottrell, Oct.* 17, 1826.—

"A long while ago I wrote to George Coates to be on the look out for something particular; something calculated to improve us in our girths, twists, and crops, and I really thought I had given the old fellow a job which would puzzle him. He reported, however, that he had made a point, and promised that the game should wait my pleasure. That I may tell my story in proper style, I must begin: 'Once upon a time' there grazed in the pastures about Ferrybridge, a very honest bull called Badsworth, who did a great deal of good in his way. Though moving about upon very short, little legs, and incumbered with a heavy carcase, he travelled far and near whenever his services were required by the distressed, particularly of the fairer sex, and good attended him whithersoever he went. Did sickness prevail in a family, Badsworth presented them with a healthy offspring. Was leanness the evil laboured under, he larded their carcases most disinterestedly from his own; in short, he was the sovereign remedy to which application was made in all the ins and outs which Short-horns can and do labour under. Comet was a fool to him; because whatever he might wish Comet could not perform like Badsworth; he appears, indeed, to have known no rivals but Major and Western Comet, and they emulated him at humble distance. But, alas! this apparently excellent beast was, like all sublunary goodness, tainted with a fault. He was, as Miss Cottrell can tell you, in part descended from Coates's blood, and therefore fashion condemned him. Fashion sent him to toil for vulgar beauties, while the less gifted of his compeers had at their command whole seraglios of the high bred. Among those, however, and there were a few, who estimated him properly was Sir J. Ramsden, and in his park (which has been held sacred from intruders, and therefore the public knew not what a treasure it contained), Coates had made his point, and to this sacred spot he introduced your humble servant, who speedily began transporting (in imagination at least) certain parts of Sir John's property to the more genial air of Worcestershire. To be brief, or I shall never finish, I was allowed to pick, and did select four toppers. First, a red cow, six years old, much in appearance like Millicent, quite as fat, and on the whole a great deal better, much more true in carcase, and with such a twist and girth as I never saw a cow possess in milk. I only think her neck a little too thin. Second, a roan, five years old, also in milk; Coates will have her called Magnum Bonum, and says she will be the flower of the flock. Her girth is wonderful, her twist good, and there exists no gap behind the shoulders to lay a finger in; not quite so fat as the other. Third, a three-year-old heifer, fatter and better than either, has had a calf, and is beyond all comparison the best I ever saw, taking her circumstances into consideration. She is a brilliant red and white. Her looks are most beautiful, and her depth of fore-quarters, neat shoulders, amazing girth round the chine and heart, prominent sides, handsome hind-quarters, and full twist render her a very picture. I took Mrs. Berry to see her, and thought she never would leave the ground. The fourth, two-years-old, and to calve in January, is half sister to the last, being out of the same cow, and is very capital, but her age prevents her showing so gaudily beside her elders. I believe the man who sold them is not in his senses; but what I think capital is that I bought them dog cheap. Alderson saw No. 3 for the first time when I did, and was struck speechless, and I wish you could have caught a peep at his long phiz when I met him the next day, and said I had bought the four, and had done my business at the sale. The fact is, a very illiberal prejudice has existed against Coates' blood and their black noses. Like Colling's they were good and bad, and they condemned the good ones because some people got hold of the bad and crossed them injudiciously. I would defy the world to produce more sweet heads and looks than these possess; in fact they are unusually fine. Now these animals have five or six good crosses, and then they owe their origin to Sir George Strickland's originals, which were derived from the same source as Colling's. Are they not then invaluable to me? So complete a cross with Wharfdale, in blood, and possessing the points which we so much want, they have put me in excellent humour. Coates says four such never travelled the southern road, and I believe him. At least I would not change with Whitaker for any four of his. In the spring (I hope early), when they have recovered from their fatigues, I shall summon you to pass judgment on them, and I hope neither you nor I will be disappointed. I have had several days with Coates, and you may be sure we have not been silent long. The old fellow fears he shall be trimmed for taking me from the sale, but I think he is in his heart pleased that somebody will have to do with his blood. I think you will now be of opinion I have given you enough in conscience. But mind, I will have no calling for your boots and setting out to see these wonders of wonders till the showman is on the spot, and I bargain that when at last you do, if Miss Cottrell comes, to say how I paint, whether flatteringly or truly."

8. *To Mr. Cottrell, Jan.* 2, 1827.—

"On my return from Acton this day I find your letter, and though I have not the necessary documents, I proceed to give my sentiments on the question proposed to me. Respecting the bull Hubback, it appears just to assume that there exists no certain evidence that he was either pure or cross bred. On this often agitated subject there is no proof, but strong presumption. Let us then inquire which is most striking and convincing. Until certain parties started the question he was always concluded to be a Short-horn; his colour and characteristics denoted that blood; his size and disposition to fatten only evincing a similitude to the Kyloe. But because he was small, and some of his stock small, does it follow he was of foreign extraction? Is my Minerva of Kyloe extraction because she is small? Or is any Kyloe which happens to attain great size necessarily therefore bred from a Short-horn? The size proves nothing unless accompanied by corroborative circumstances, which it is not. Where a fair presumption existed that this bull was purely bred, evidence ought to be brought rather than conjecture to affect strong probability. Such evidence has never been adduced. When Hubback flourished pedigree was little regarded, and a simple statement was made that he was so and so bred. No motive for fraud existed. Charles Colling could lose nothing by the disclosure of the truth had there been anything to conceal, and his successful crossing with the Galloway had rendered him independent of public opinion. He says he is convinced there was no Kyloe blood in him, and I have it under his hand that no produce, nor produce of produce of his were ever of Kyloe colour. All the improved Short-horns are not descended from him, indeed very few. Where then did they get their mellow touch and hair? With regard to contradictory dates, the consideration that at that time pedigree was disregarded and no accounts kept is sufficient to reconcile them; but if not, they alone are no evidence. It appears C. Colling had no motive for concealment. How stands the case with the parties attacking the pedigree? First there is Hutchinson annoyed at the celebrity of Colling, and sore for his pet Sockburns, he attacks Hubback because it had been said he did most service. He was anxious to give the Teeswater breed the credit of the improvement, and no other course lay open. But even he did not say much on the subject so long as he believed some of his stock were so descended. But when he found it was to Dalton Duke that he was to trace their descent, then the other bull was bastardised. Major Rudd has long bred Kyloes, and prefers them to the Short-horns. Can you not easily trace the grounds of his opinion? If he is possessed of evidence let the public decide upon it; so often reiterated at length [bring] it forth; but let us have evidence, not fiction or fancy. As to the men whose oaths could be had about it, what would they swear? To the fact that they thought such a thing. I can believe a man who records his opinion without the sanction of an oath; but if he is pleased to assert a thing at variance with circumstantial evidence, then something stronger than opinion is needed. In fact, in the same way in which this bull's breeding has been questioned, doubt might be thrown upon all the wonders C. Colling ever possessed, if it is concluded that they were pure bred because they possessed the recommendations which have consigned poor Hubback to disgrace, viz., good hair, good flesh, and (of greater size) the appearance in form of the Kyloe to which the most perfect animals naturally assimilate. To conclude, there is no proof how Hubback was descended, but there is strong probability he was a Short-horn. On the other hand, there exists no probability he was bred as they who desired to promote a particular interest asserted, and I do defy the whole agricultural world to state anything in support of such a charge, which I can show to be improbable, absurd, contradictory, and untrue."

9. *To Mr. Cottrell, March* 7, 1827.—

"An unfinished letter addressed to you on the subject of your last had long lain by me when I received your remembrancer, and before I proceed to do as you require, I shall only plead on my own behalf a most overpowering multiplicity of engagements, and submit to you that the inquiry respecting Hubback can really be productive of no good, unless evidence and probability could be produced to contradict and weaken the strong ground which the advocates for his purity of blood have taken. You will excuse my further observing that so much do I become more and more convinced that it is an unprofitable inquiry, I shall rest satisfied with a very brief redemption of my promise. In the first place we have a straightforward account of a bull bred at a distant period, on whose pedigree certain interested persons cast a slur, and when called on to produce evidence (for with them the *onus probandi* lies) they point to a discrepancy of dates. Such discrepancy may have occurred in many ways, and yet not easily be pointed out as to its source in the present day; but let it have arisen how or in whatsoever manner it may, it signifies just nothing. It has not been, and is not disputed that Hubback is the bull meant by both parties, though mentioned with different dates as to his being calved, and therefore this subject at best but affords room for a quibble, and I say, let they who can build upon it, speedily present to us their edifice. I observed in the outset that the question was raised by interested persons. I will now allude to them. Hutchinson, jealous of Colling's success, boasted that his were a pure breed, and when Wetherel, a Comet man, stigmatised Hutchinson's bull, shown in London, as descended from the Galloway, it became necessary to throw dirt at Hubback, just as a child, vexed to see its house of cards totter to the foundation, endeavours to throw down that of a play-fellow's. Yet this same Mr. Hutchinson could boast of the possession of Hubback's blood till the Herd Book set him right! He also proceeded to the length of charging the Collings with an indiscriminate use of Kyloe blood, though when called on for proof he could not produce one tittle, and I have in my possession Charles Colling's letter stating him to be egregiously wrong. Mr. Rooke, who has bred from Lady, vexed at finding the alloy so much talked of, also thought it necessary to blacken the Short-horns, called pure, but after a long controversy, the late editor of the *Farmers' Journal* declared I had satisfactorily proved him to be wrong. Major Rudd was also in a similar predicament, and had, moreover, bought Kyloes at fancy prices upon speculation; he also failed to produce proof or even probability, and no jury of wise men would allow his opinion, I cannot say evidence, an atom's weight. In Charles Colling's sale in 1810 there were some very fair lots bred with a Kyloe cross, and he publicly declared such to be the fact. Why then should he have feared to risk a similar declaration as to Hubback? The bull's qualities were unquestioned. The animals bred from him had succeeded, and Colling's successful experiment with Lady had rendered him and his measures independent of public opinion. What had he then to fear? And why did he not state as explicitly that Hubback was Kyloe bred, as he did that the above-mentioned lots were, and that Lady was descended from the Galloway? He stated it not because he knew it not, whatever he might believe. My good sir, it is too hard upon old Coates to hang a number of queries on a rope of sand, too fragile even to hold while he could answer them. Indeed you do require him to argue without grounds, and I don't see the old fellow can do more than remain silent. He has printed the date, and if he has discovered his error, does not like to contradict himself, particularly as it is a matter of no importance now."

DAIRY FARMING.—No. VI.

[The following are passages from the Sixth and concluding Lecture of the series lately given by Mr. Harrison, of Frocester Court, before the Royal Agricultural College, Cirencester.

1. *The Winter Management of Stock*, to which I have first to call your attention, is a matter of great importance to the dairy farmer. The first point I would impress upon you is, that before winter comes on it is desirable to cull out from the herd all the animals that are not intended to be kept during the following summer, so as to reduce the winter expenditure of food to a minimum, especially of hay, which it should ever be borne in mind is attended with great expense in making, and is not so remunerative to the farmer as it would have been if consumed green by his stock. The grazier has in this respect a great advantage where, with some arable land in occupation, he can purchase his full-grown cattle in the early spring, feed them on straw and roots with a little oilcake, and consume during the summer almost the whole of the Grass in its green state—his bullocks carrying off chiefly the fat-forming part of the food, and leaving the nitrogenous and phosphates as future most valuable manure—the system in this manner being an improving instead of an impoverishing one.

Some dairymen pursue a similar plan as mentioned by Mr. Harding, "feeding nearly all their land and selling the cows in the autumn, looking forward to replacing them in the spring." This, he remarks, seems to be an expensive mode of increasing dairy produce; but when the land produces a large quantity of milk, the Grass is of far more value than the hay. This is no doubt true, but it is not so unobjectionable as in the case of the grazier, for in the milk the dairy farmer carries off yearly a large quantity of nitrogen and phosphate of lime, and the result must be deteriorating instead of improving. We see in this the reason for the restriction in the agreements made by the Somersetshire owners of the rich marsh lands, that they shall not be stocked with dairy cattle. When the system is adopted, very excellent judgment must be exercised in the selection of stock, and there will probably be a drawback of about 6*l.* per head between the value of the cow in the spring and autumn. On the other hand there is the saving of the winter's keep and attendance, which cannot be put at less than 3*l.*, and the extra value of the crop consumed green in the summer; but there is more risk of introducing disease among the stock, and there is no improvement of stock, which should be the aim of the farmer. The winter food also is not consumed without some return in the shape of butter, sold generally at a high price, and milk for weaning calves, besides cheese, which we sometimes make throughout the year.

During winter we find the importance of knowing the time when the cows are likely to calve. We can then continue to milk them to within about 10 weeks of calving, feeding them accordingly, taking advantage of eight weeks to feed them on straw and roots and save the hay. For a fortnight before calving we feed them better.

The importance of housing for his stock presses itself on the farmer during winter. When he is obliged to keep them in the fields, much food is wasted, and the cattle so tread the land in wet weather that the Grass is kept back seriously in the spring, especially if the land is undrained, from the effect of which the plants frequently do not recover all the summer following.

Proper buildings then for winter housing are most important, and this for the landlord's interests as well as the tenant. The landlord's, that a quantity of manure may be made and an increasing fertility of the land encouraged; the tenant's, no less so for the same reason, and that he may economise his food, and lessen his risk from death among his cattle. There will always

be a difference of opinion as to whether the cattle should be tied up in stalls or kept free in open yards and sheds. I have both, but prefer the latter for dairy stock. The yards attached to sheds should be amply large, and the buildings properly spouted, and there should be good water in every yard.

The liquid manure from the yard should be carried to a tank from which, if possible, it may be conducted by gravitation over the land; pumping and carting is a very expensive process, which I have not found to repay the cost. The best plan when the manure cannot be taken by gravity over the land is to pump it upon a heap of ashes, &c.

During winter we find the advantage of some arable land, the straw and roots assisting materially; so much are they appreciated in some parts that the growth of corn becomes a secondary consideration. It is in many cases possible to apply the streams of water running through the farm as a power for pulping and chaff-cutting — when this can be done it is very important not to neglect it. I have used for many years a small supply of water in this manner with advantage; no power is so economically applied, and the saving from chaff-cutting and pulping is undoubted.

We find that our yearlings thrive well upon the following weekly allowance:—

35 lb. of hay, at 2*l.* per ton or .215*d.* per lb. ..	7½*d.*
300 lb. of roots, at 6*s.* 8*d.* per ton or .036*d.* per lb. ..	10¾*d.*
8 lb. of oilcake, at .75*d.* per lb.	6*d.*

Or, with attendance, about 2*s.* 3*d.* per week.

The two-year-olds out in the ground on hay only take 1 cwt. of hay per week, at 2*s.*, or much the same as the yearlings. They do not however thrive so well or show such improvement in the spring.

The in-calvers, 3 year olds, also in the fields, consume 1½ cwt. of hay per week at 2*s.* to 2*s.* 6*d.*, or with attendance about 2*s.* 9*d.* per week.

The cows in open courts and sheds eat per week for 8 weeks when dry:—

	s.	*d.*
1 cwt. of straw at 1*s.*	1	0
3½ cwt. roots at 4*d.*	1	2
	2	2

Or, with attendance, about 2*s.* 6*d.* per week.

When in milk:—

	s.	*d.*
1 cwt. of hay at 2*s.*	2	0
3½ cwt. in roots, at 4*d.*	1	2
	3	2

Or, with attendance, about 3*s.* 6*d.* per week.

From these data it is easy to estimate the absolute requirements of the stock for the winter, and the probable consumption of farm produce may be estimated.

2. *Profit and Loss.*—We have next to consider the question of profit and loss on dairy farming. The outgoings will consist first of rent.

The rent of a farm, such as we have supposed suitable for dairying and rearing young stock, we may take at 45*s.* an acre, or on 600 acres 1350*l.*

The rates, taxes, and insurance, at about 150*l.* This varies with locality, but should influence the rent accordingly.

The labour on a dairy farm will vary immensely according as there is or is not arable land; also whether the stock is kept through the winter or not. On a farm such as we are considering the labour would be about 25*s.* per acre, or 750*l.* per annum. On pasture farms, without any arable land, the labour per acre is probably not half of this.

For the deterioration on the dead stock we must allow 10 per cent. on 930*l.*, or 93*l.* per annum; from which we may fairly deduct the payments made for repairs and renewals. This at first would not probably exceed, if they amounted to 30*l.* per annum, and would increase as the implements grew older to 60*l.* a year. We must, therefore, the first year charge as an outgoing 60*l.*, and strike that sum off the amount of capital the following year. Thus the dead stock would in a few years appear reduced one-half in value, at which it would stand, as the annual repairs and additions would nearly maintain it constant.

We must charge interest at 5 per cent. on the capital, which we reckoned at 5100*l.*, or 255*l.*

Artificial manure would probably amount to 50*l.* a year.

Artificial food for calves and yearlings 50*l.* a-year; meal for pigs, 200*l.*; Oats for horses, 60*l.*

I have not allowed any extra food for the cows, as we should obtain probably a *quid pro quo*, and there is not generally much used for the purpose by dairy farmers.

We should also have to pay for seed Wheat, Beans, Clover, and Vetches.

These items together amount to:—

Rent of 600 acres, at 45*s.* per acre		£1350
Rates, taxes, and insurance		150
Labour		750
Deterioration of dead stock (reduction on capital)		60
Interest on 5100*l.*, at 5 per cent.		255
Artificial manures		50
Artificial food, oilcake £50		
Pig-meal 200		
Horses' Oats 60		
.. ..	—	310
Seed: Wheat 50		
Beans 25		
Clover 10	.. .. ..	95
Vetches 10		
30 Calves weaned, at 30*s.*		45
Veterinary surgeons' bill and losses from death, which depends very much on management ..		100
Bulls, say one each year		30
Milk for 30 calves, at 50*s.*		75
Total Payments ..		£3270

Our receipts would be first from the cows. I milked in 1861, 71 cows altogether. These gave:—

39,140 gallons of milk, or an average of 550 gallons per cow.
2,451 lbs. of butter, or an average of 34½ lbs. per cow.
32,312 lbs. of cheese, or an average of 455 lbs. per cow.
and in money 106*8l.*, or on an average of 15*l.* per cow.

The 1068*l.* was thus obtained:—

Butter sold and used	£130	0	8
Cheese sold and used	767	9	0
Milk sold and used	8	11	4
Milk given to calves	76	3	6
Whey and milk to pigs	86	2	0
	£1068	6	6

Thirty-three calves were weaned, thus costing about 50*s.* each for milk; this is charged for in the outgoings, and appears in the valuation of the stock for the following year. I have selected this case, because I find that the average return per cow in my dairy for several years (including the whey and milk as above given to the calves and pigs), has been 15*l.*, or exclusive of the whey to the pigs which I reckon at 1*l.* per head, 14*l.* This on 120 cows gives 1680*l.* This does not include the calf; we may allow therefore 100 calves at 25*s.* = 125*l.*, which allows for mishaps, &c.

We should have to sell off 30 cows yearly in the autumn at 12*l.*, or 360*l.*, also one bull, say 20*l.*, 120 pigs (say purchased at 2*l.*, and sold 10 score at 10*s.* per score at 5*l.*,) at 3*l.*, 360*l.* Thus returning the manure, and 40*l.* after paying for the meal and whey from the cows.

The return from sheep would depend upon the description kept, but with the stock we are supposing Downs would be the best, and as they are good mothers and we wish to fatten both sheep and lambs, they are well suited for this purpose; they would give us say 400 lbs. of wool at 1*s.* 6*d.* = 30*l.* We may reckon on 110 lambs at about 25*s.*, say 140*l.* And we might make 15*s.* per head upon the sheep the difference between the price, buying in in the autumn, and selling fat the following year, or 75*l.*

From the arable land we may expect on an average from 100 acres of Wheat at least 32 bushels per acre = 32,000 at 35*s.*, 800*l.* 25 acres of Beans, at 32 bushels = 800 bushels, at 4*s.* 6*d.*, 180*l.*

Potatos may on some land be grown with advantage in place of part of the Beans, and Oats or Barley substituted for the Wheat.

The sum of these items is:—

From dairy cows, 120, at 14*l.*	£1680
,, ,, 100 calves, at 25*s.*	125
Barren cows, 30, at 12*l.*	360
Bull, 1, at	20
Difference on purchase and sale of 120 pigs, at 3*l.* ..	360
Sheep: Wool .. 30 / Lambs 140 / Ewes .. 75 difference on purchase and sale	245
Arable land: Wheat, 800*l.* / Beans, 180*l.*	980
Total of receipts	£3770
Total of payments	3270
Leaving £	£500

as the tenant's profit and to meet expenses of housekeeping, after paying 5 per cent. on the capital. The rent of such dairy land, however, is frequently as high as 50*s.* an acre, which would reduce the tenant's profit to 350*l.* a year.

The first item of receipts, viz., that from dairy cows, will vary much under different systems of manufacture or selling it simply as milk. To these I will draw your attention for a few minutes.

In considering the disposal of the milk given by the cows and the return from it, I will assume the average quantity to be 540 gallons. This is probably not far from accurate when the feeding is not extraordinary. This we may dispose of—

1st. *Simply as Milk.*—For which, as I have before mentioned, the wholesale price would be 8*d.* per gallon, or 18*l.* per cow; this from 120 cows would return 2190*l.* The expenses attending this system would depend upon circumstances. If sent up to London by train, as the milk is from distances of 70 or 80 miles, they would probably exceed those attending cheese-making. When again the milk is produced from land near London or other large towns, the rent of the land is always much greater. There, however, brewers' grains, as we have seen, are largely used as food, increasing the quantity but injuring the quality of the milk.

2d. *For Fatting Calves.*—From experiments made by Dr. Müller, of Stockholm, it seems that 7 gallons of new milk produced 6 lb. of veal; thus from 540 gallons of milk we should have 463 lb. of veal. The money returns will depend upon the price of veal; at 8*d.* per lb. (not an uncommon price), the return would be 15*l.* 8*s.* 8*d.* per cow. Morton tells us 160 gallons of milk will give 1 cwt. of veal, or more than 8½ gallons of milk to 6 lb. of veal, and he reckons that each cow will fatten 4 cwt. of veal or more per annum, which is not very far from the above. On this system we may reckon the 120 cows to return 1852*l.* per annum.

3d. *Butter, the chief article, and Skim Cheese.*—Morton gives 1 lb. of butter for every 2¾ gallons of milk, and 1 skim cheese for every 1½ gallons of milk.

Thus 540 gallons would give 207 lb. of butter at 1*s.*	£10	7*s.*
496 gallons of skim milk would give 330 lb. of skim cheese at 3*d.*	4	3
To which we must add whey for pigs..	1	0
	£15	10

Here again the result depends upon the price in a very great measure. Dr. Voelcker's experiments give more per cow than this, but he reckons the cheese at 50*s.* a cwt., or more than 5½*d.* per lb., which is generally above the usual price. He remarks upon it, "Where a ready sale of butter can be found, I am inclined to think it is more profitable to make skim-milk cheese and butter, than to look only to the production of cheese of a better quality." He should have added, "and a ready sale for the cheese as well." My own experience is that skim cheese is not nearly so saleable as rich cheese. 120 cows at 15*l.* 10*s.* would return 1860*l.*

4th. *Single Gloucester cheese; butter about* 1 *lb. per cow per week, and pigs.*—This is the system I adopt. As I have given you the details before, I need not repeat them; the result is 15*l.* per cow, or for 120 cows 1800*l.*

5th. *Whole milk cheese and pig feeding.*—According to Dr. Voelcker's experiments, 540 gallons of milk would yield—

4½ cwt. of cheese at 70*s.*	£15	3*s.*	0*d.*
Whey for pigs	1	0	0
Or for 120 cows at 16*l.* 3*s.*, £1930.	£16	3	0

From all the data I have to form an opinion on this subject, I am inclined to think that circumstances must entirely decide the question of which system is the best. So very much depends upon the locality that it is impossible to lay down a rule; the best plan will generally be to follow the system of the neighbourhood as the rule, and other modes on a small scale as the exception, until you prove the decided superiority of one of them.

ON CONDITION IN LAND.—No. VI.

BEFORE proceeding to consider Condition with reference to Grass land, I venture to request room for a few lines in farther elucidation of the most useful points brought out by our previous inquiry, and also to correct some errors in figures, for which either I or the printer owe an apology. In the No. for July 25, p. 614, the net allowance for a ton of hay should be N. 22 lb. or 11*s.*, and for oilcake 25*s.* In the No. for July 16, p. 684, the second column is the amount of nitrogen in cwts. contained in the food consumed in the first column, and should be so added up at the foot of the second column. Also in the No. for July 30, p. 732, I have carried out too large a value for the dung, making the total theoretical value of the goods rather too large. These corrections will be evident to any one carefully following out the argument which the figures were designed to verify, but I fear that is an amount of attention that no writer has any business to expect. With these corrections I believe the views advocated in those papers are true, and if acted upon would tend very materially to the improvement of our farming. If the conclusions at p. 685 are true, that the unexhausted value of manure can be ascertained with sufficient correctness to reimburse an outgoing tenant for any outlay he has incurred, and were generally acted on, there would no longer be any temptation to get all that could be got out of land during the last years of a tenancy. And if it were generally received that a well-tilled and clean fallow was worth the price of 2 quarters of Wheat per acre, and that a want of cleanliness was a proportionate diminution of the rights of an incoming tenant, an equitable system of tenant-right would establish itself in a very short time as the custom of the country. Again, if the reasoning at p. 732 is correct, and manure can be made in almost any quantity at the cost of the straw only; and if the example of No. 4 in the farms tabulated at p. 684 can be successfully copied, and 9 or 10 quarters of corn can be sold off every acre in three years, what an enormous addition would this be to the corn-producing power of the country generally, and what an incitement to high farming. There is no want of capital in the country. There is no want of the necessary skill and judgment in many of our farmers. The only reason why more capital is not invested in the business is the general opinion of the uncertainty of the return, that the investment will not pay, but how do the results of the four farms just referred to bear out this idea?

No. 1 is an average specimen of clean farming with small capital. No. 3 is a high farmer on the usual 4-course system. No. 4 exceptionally high. Now I have no access to the balance sheets of these gentlemen, nor if I had should I have any reasonable expectation that they would find acceptance. I am quite conscious that a balance sheet will always be open to cavil. But I think we may gather from the returns of these four sums in p. 684, a tolerable idea of their relative net returns.

No. 1 on a farm of 100 acres, grows annually 50 in corn. His produce sold is 4 quarters per acre, at say 50*s.*, or 500*l.*:—

Deducting his rent, tithes and taxes, 30*s.* an acre ..	£150
Deducting his labour, seed and trade bills, 3*l.*, ...	300
Leaves him a profit of about 10*s.* an acre, ...	50
Total	£500

No. 3 on 150 acres grows 75 in corn. His produce is 4½ qrs. Wheat, and 6 qrs. of Barley, say 12*l.* per acre, = 900*l.*

Deduct as before rent, &c., 30*s.*	£825
Labour, seed, and bills, 3*l.*	450
Leaves him a profit = 30*s.* per acre..	225
	£900

No. 4 on 63 acres has 42 in corn. His produce is—

21 acres of Wheat, 5 qrs. at 50s. } 21 acres of Barley, 5 qrs. at 40s. }	say total	£450
Deducting 30s. for rent × 63 acres		£94 10
3l. 10s. for labour, &c.		220 10
Leaves a profit of 2l. 2s. 6d. per acre		135 0
Total ..		£450 0

The labour in all three cases is supposed to include the fallow; I have assumed the expenses of the fallow crop, as well as all the food and attendance on the stock, to be repaid and not more than repaid by them (see p. 732). I have allowed 10s. an acre more for the extra threshing, hoeing, carting, chaff-cutting, &c., attending the 4th system: he still makes a very good profit. The only impediment I know to his system being generally followed, besides the before-mentioned want of capital, is the want of sufficient accommodation for the necessary quantity of stock required; but this, like draining and other permanent improvements, would at once be met if the necessity of it were generally acknowledged. Near the metropolis, I fancy the straw and all other produce may be sold off and manure purchased. It matters not for my argument how this is procured, the only requisite being that for every bushel of corn grown by the land beyond what I have termed the annual productive capacity of the soil, 5 lb. of nitrogen must be introduced. We have seen that No. 4 does this on his farm; I think we may gather that he reaps an ample profit.

In the above considerations on the Condition of arable land, I have purposely omitted all mention of liming, boning, &c. I am aware there are many parts of England in which these mineral manures are requisite; but as regards them I have no experience and nothing new to suggest, and with reference to them the covenants usually introduced into the leases of those counties are sufficient to protect the interests of the different parties. When we come to consider Condition as applicable to Grass land, these mineral manures will require a more prominent place in our discussion. *J. B. M.*

Home Correspondence.

Uneven Germination of Swedes and Mangels.—In Swede and Mangel hoeing and regulating during the unusually dry season of this summer, I have been most anxious in directing that the soil in the vacant spaces in the rows should be as little disturbed as possible, and this because I felt sure that germination would take place on the occasion of sufficient moisture. It is then not a little interesting as showing how dry the soil has been here for some months on the one hand, and what the seed is capable of bearing on the other, to state that now the rain has come, in a crop of Swedes and Mangels in alternate bands of eight rows, each sown on the 17th and 18th May, and in a crop of Swedes sown as late as June 10th, plants of both kinds are making their appearance every day. Of course in both cases their germinating now is of little or no advantage, but had the rain come a month earlier it might have been different; still, it is curious to observe ranks being filled up by newly sprung seed intermixed with bulbs of more than a foot in circumference. As regards the growth of my roots this year—and I am better off than most of my neighbours—I may remark that the best results have been marked in those fields where winter cultivation was practicable; this I take to be due to the fact of a better admixture of manures and soils and the production of a finer and more even "tilth"—thus affording facilities for capillarity upwards, and the more ready absorption of atmospheric moisture—conditions, the reasoning upon which, if followed out to all their consequences, will lead to the conclusion that deep ploughing, winter cultivation, and an intimate admixture of materials, whether of common farmyard dung or artificials, are three of the chiefest points in root-growing—points upon which I shall hope soon to report the result of a series of experiments. *J. Buckman, Bradford Abbas.*

Turnips.—These are very severely attacked and destroyed at the roots by the caterpillar. It is only necessary to remove the earth around any Swede Turnip which is seriously checked in its growth, and two, three, or more caterpillars will be found, from ½ to 1¼ inch in length. I took three on the 17th of August from a root; one about half an inch, a second about three-quarters, and a third about an inch long; placed them in a small box, fed them with portions of the leaf-stalks of the Turnip they had fed upon for three or four days, and then, as I wished to force them into the chrysalis state, desisted giving them food. Their voracity was considerable, for the half-withered leaf-stalk was completely consumed by them in a few hours, and as the perfect insect or moth which breeds them is not known, it is interesting and important to endeavour to force Nature to expedite her work of development. Therefore the two best I suffered to be without food for nearly three weeks without their life seeming to be at all endangered, although their plumpness was abated. Thinking the starving had been applied too early in their age and growth, I took some more caterpillars from the Swede Turnips in the field—fine plump 1¼ inch long fellows, and placed them in the box with the former ones, and some Swede Turnip leaf-stalk. The first lot soon commenced to feed. It is clear that these caterpillars, like most caterpillars, can undergo very long abstinence from food without their lives being endangered. Those most valuable farmers' friends, the peewit and starling, for some time fed constantly in the surrounding Turnip fields, and where they congregate the most there was the greatest abundance of sickly Turnips, and numbers of these caterpillars. The crows also came in large flocks, and intermixed in the good work with the plover and starling; but of late, with the exception of a few peewits, I have not observed any, although the caterpillars are now fine large fat fellows. Perhaps the birds are satiated and tired of feeding so long upon one dish, or this insect may be so abundant that these birds are in less flocks, and employed in other districts. My own Turnips were, I think, the earliest around, and so would come in for the first benefit these most valuable farmers' friends bestow. *W. Wooler, Sadberge, Darlington, Sept.* 9.

Caterpillars.—I have been very much interested by the remarks of "Tasmanian" upon these creatures in Australia, from which I conclude that roots and other crops are attacked in that distant region by a grub somewhat similar to our own. I am, however, curious to know whether our pest has been derived from Australia, or whether it has been so-called acclimatised from thence; anyhow, I hope the attempt to introduce the rook into that colony will be successful, and if such caterpillar food is as abundant as described, I should look upon success as almost certain. The surface grub or caterpillar in this district has attacked every plant with sufficient succulence, young Stramonium plants, Potato haulm, and roots of all kinds, and this at the part just below the surface; he is now penetrating a little deeper, perhaps preparatory to entering the pupa state; but in this descent he does not quit his vegetable food, but may be found quietly ensconced in deep holes which have been eaten in the tubers of Potatos and in the bottoms of the larger bulboid Turnips and Mangels. "Tasmanian" concludes that a favourite food of the caterpillar is the common Hog-grass (Polygonum vulgare). Now we have in England a plant sometimes called the Hog-weed, which in the midland counties is known by the name of Fat-hen, and in the west by that of Bacon-weed (Chenopodium album) which is possibly identical with the Australian weed; if so, it is curious to note that in a plot of Swedes on my own farm this plant was very abundant, and the appetite of our caterpillar for this Chenopodium album was as great, if not more so, than for my roots. It is still a question as to the exact specific identification of our caterpillar. Cannot Mr. Westwood kindly enlighten us upon this matter? I have just turned out 32! of these creatures, averaging about 2 inches in length, from a single Belgian Carrot root. Potatos here are bored with the grub, and spoiled to the same extent as they formerly were with the disease. These ravages are worse near the village and places where the larger grub-eating birds would certainly be scared. *J. Buckman, Bradford Abbas.*

The Prize System.—In your leading article of the 3d you noticed my letter to the *Times* on the subject of local trials of implements, and remark that although my firm, on the occasion which brought up the question, took the first prize for a sheafing reaper, and although I do not condemn the prize system in itself, I assert the comparative uselessness of these local competitions. Nothing can be more correct as regards such "competitions," if they are to be taken as deciding upon the merits of the respective implements, but I could wish to see them multiplied to any extent, if, like local ploughing matches, they are held simply as trials of skill amongst the persons owning and using them. It is a grave matter for a few persons, however honest and experienced, to affix the stamp of superior excellence to any mechanism after a trial of a few minutes or some hours, under conditions, perhaps, where an equal chance to all competitors is impossible, and without the assistance of appliances, like the dynamometer, for forming a correct judgment. The case is quite different when the whole trial is regarded as a friendly contest amongst neighbours, which cannot fail to render the use of machinery popular not only with farmers but amongst the labourers using them. To show how much has still to be done in order to remove the prejudice against reaping machines, I will mention the case of one of my own neighbours—a man by no means without intelligence, who recently wished to borrow one of our reapers for cutting his stubbles, "the only purpose for which he could use it on his farm, his crops were always so heavy and so much laid," and who was very much surprised when told that a score of men within a few miles of him had cut every acre of their Grass and grain crops, standing and laid, by machinery this season. Contrast this with America, where the labourer, before engaging himself to a farmer, looks carefully round the implement shed and refuses to be hired if any of the usual labour-saving tools are not forthcoming. I will not in this letter enter into the merits of the prize system when administered under the most favourable conditions, as by the Royal Agricultural Society of England; my opinion on the subject, whether correct or not, is well known. Like several of the firms engaged in the manufacture of agricultural implements, I have fought hard against it, and I submit to it, because personally I find that the prizes which we gain are an excellent advertisement, and because the incontestable advantages of such large assemblages as those of the Royal, the Yorkshire, and other similar Societies, far outweigh any evils that may arise out of their more questionable accompaniments. *Bernhard Samuelson, Sept.* 10.

Reviews.

The Present Position and Future Prospects of English Agriculture. A paper read by R. C. Chawner, Esq., President of the Midland Farmers' Club, at their first meeting on June 23. H. Wright, New Street, Birmingham.

The general subject here treated of has been several times of late discussed by sufficiently competent men. Mr. Thompson's review of it in the Journal of the Royal Agricultural Society, and Mr. Morton's review of it in his paper before the Society of Arts, are both of them comprehensive. The influence of railways, markets, free trade, societies, relation of landlord and tenant, have thus all been discussed. In the present pamphlet Mr. Chawner discusses the influence of the landowner and the need of his co-operation—the education of the farmer—the propriety of extending green crop culture, the subject of agricultural statistics, and the position of the agricultural labourer. The following are extracts on all these points:—

1. *The Power of the Landlord for good.*—"If it be true that what man has done man can do, let us turn for a brief moment to consider the power of a landowner in leading the way to any agricultural improvement. My example shall be taken from Mr. Sidney's article in the 'Quarterly Review,' before referred to. He is there speaking of the late Lord Leicester, better known as 'Coke of Norfolk.' Mr. Coke used to describe the condition of his property by this remark, 'that he found two rabbits quarrelling for one blade of Grass.' Mr. Coke's estate required barns, and yards, and houses fit for first-class tenants: he accordingly laid out above 100,000*l.* in twenty years in dwellings and offices. In dealing with those who farmed under him, he showed the same wisdom as in his own tillage. He raised his rental to more thousands a year than it was hundreds when he inherited the estate, and had enriched a numerous tenantry into the bargain. He showed that no profession in the world was so lucrative as that of a landlord who devoted his life to the improvement of his property: the wealth, nevertheless, which accrued to himself was the smallest part of the gain. He was 'a national benefactor on a mighty scale, and was the cause, directly and indirectly, of adding a countless mass of corn and cattle, of beef and mutton, bread and beer, to the resources of the country.'

"I have already referred to the important question of tenure, and I may here remind you that a step in the right direction has been recently taken by the Lord Lieutenant of Staffordshire, a nobleman whose conscientious discharge of his public duties makes him an example to every man in his county. We are promised, as the result of his labours, a model agreement between owner and occupier, and I have little doubt that such agreement will be a great improvement upon the general run of agreements now in use. At the same time we must remember that such agreement will be an annual one, with, perhaps, a covenant giving a longer period than six months' notice to quit; I cannot, therefore, omit this opportunity of declaring my conviction that the best annual agreement which the combined wit and experience of man shall devise must of necessity be an insufficient substitute—a poor apology—for a long lease. 'If the case be argued on commercial principles alone,' says Mr. Thompson in his able paper, 'the advocates of leases have the best of the argument, and doubtless in the long run this view of the matter will prevail.' I rejoice to be able at this moment to add the opinion of such a nobleman and statesman as the present Lord Stanley. When presiding, the other day, over the Royal Agricultural Benevolent Institution, he is reported to have used these words—'and I, for my own part, do not hesitate to say that I wish every tenant farmer in this country had a lease.'"

2. *The Education of the Farmer.*—"His occupation is an ancient and a noble one; but in these days the individual must be, to a certain extent, an educated man, if he aspires to that position in society to which he is in all other respects eminently entitled. And here let us briefly contrast the Scotch with the English farmer. In Scotland, happily, for years past, has prevailed a national system of education, of which advantage the occupier of the land and the labourer have availed themselves; and in the superior position of the Scotch farmer, as regards tenure, we may recognise the truth of the maxim 'that knowledge is power.' We are not called upon, however, now to enter into details, or to examine the various plans proposed for the education of the middle classes in this country. Supposing a young man to have received the advantages of a sound commercial education, there remains for the cultivator of the soil a special training, to which he must pay a daily increasing attention. Within the last few years a great amount of attention has been paid by scientific men to what I may here call 'The Natural Laws of Husbandry,' that being the title of Baron Liebig's last work. Now, without expecting an accurate knowledge of chemistry or other sciences requiring the undivided attention of a whole life, we do expect that the results of other men's labours and research will be studied, and will be understood and applied to the practical cultivation of the land. Permit me to illustrate my meaning from the work just alluded to. 'From the soil plants receive the food necessary for their development; hence an acquaintance with its chemical and physical properties is important in helping

us to understand the nutritive processes of plants and the operations of agriculture.' This, I repeat, is the direction to which the daily education of the farmer should be pointed:—to study the qualities, the constitution of the soil he cultivates, the food elements of plants, their proportions, and the most efficient and at the same time economical means of restoring to the soil those fertilising qualities of which, by cropping, the land is annually deprived. For thus writes the great German chemist:—'The cultivation of plants exhausts the fertile soil, and renders it unfruitful. In selling the produce of his field, which serves as food for man and beast, the farmer removes a portion of his soil.' Thence arises the necessity of restoration, or as Liebig terms it, compensation, and he asks the question 'What is manure? whence comes it? All manure comes from the farmer's fields; it consists of straw, which has served as litter, of remains of plants, of the liquid and solid excrements of men and animals.' The law of compensation, the replacement of nutritive substances which the crops have carried away from the soil, is the foundation of rational husbandry; and this, of course, involves the great sewage question, which I hope will be discussed in this Club at some of our future meetings. Indeed, the further consideration of this question has recently become imperative by the seizure of the Chincha Islands by the Government of Spain. In addition to our own farm-yard manure, guano is largely used in this country, and the possibility of an interruption to that trade will compel the serious and immediate attention of all who are interested in the future of agriculture. I conclude this part of my subject by a quotation from a book which I earnestly recommend to the attention of our members, viz.: 'The Natural Laws of Husbandry,' by Justus von, Liebig. 'A rational pursuit of agriculture which with the greatest economy of capital and labour, can obtain from a field continuously without exhaustion the highest crops it is capable of yielding, requires a large compass of knowledge, observa on, and experience, more, perhaps, than in any other business. The rational agriculturist must be able to interpret what his field tells him in the phenomena which he observes in practice: in a word, he must be a thorough man, and not a half-and-half creature, who knows no more about his actions than a tom-cat with just skill enough to catch a gold fish in a basin of water.'"

3. *Extension of Green Crop Culture.*—"The continuous moisture, or drip, which we experience at uncertain intervals throughout the year, whilst it too frequently disappoints our hopes in harvest time, always promotes the growth of Grass and other green crops, and enables us to produce in abundance root crops upon which animals may be reared and fattened during the winter. Surely, then, this is the direction which necessity and sound policy points out for our future enterprise. In other words, stock-farming must henceforth be the foundation, the leading feature, of English agriculture. The recommendation so frequently made in reference to this subject, of laying down arable land to permanent pasture, I consider as coming from no sufficient authority, but rather from speculators and amateurs who are contented to take a bird's-eye view of agriculture. The great variety of green crops which may be produced upon arable farms, in great luxuriance, far exceeds the capacity of mere Grass land in the rearing and feeding of stock. When stock-farming shall be taken up through the length and breadth of the land, in a manner and to the extent which present necessity demands, then will the subject of green crops—in their several varieties, their powers of continuous succession, their comparative flesh and fat-forming proportions—be thoroughly studied and cultivated as the foundation of all future operations in husbandry. Again: if the system of free importation acts prejudicially as regards the price of Wheat in home markets, we derive an advantage from that system in the moderate prices of grain and other feeding materials, and this without reference to what are called 'feeding stuffs,' not excepting the patent food recently manufactured by the Legislature under the able directions and receipt of the Chancellor of the Exchequer. But here, gentlemen, arises the difficulty. We ask the farmers of England to multiply their flocks and herds, in order to supply butchers' meat to our population at reasonable prices; in other words, we ask them to double their present risks. Experience has painfully shown to what a fearful extent the ravages of disease and pestilence will reach amongst our herds and flocks. Small-pox amongst sheep, pleuro-pneumonia, diarrhœa, and other diseases amongst cattle at all ages, too frequently absorb the profits of former years, and imperil the future position of the agriculturist; and therefore it is that I maintain that we have here a difficulty which must be considered and dealt with, ere we can expect to see a sufficient capital embarked in carrying out satisfactorily the object we have in view. In reflecting upon this point I have frequently asked myself the question, Why cannot the farmer avail himself, in an equal degree, of that protection by which the merchant and ship-owner cover their risks and adventures? I allude, of course, to the principle of insurance."

4. *Agricultural Statistics.*—"It is the general belief that the occupiers of land are opposed to the collection of information desired by the public. I believe myself that the objections hitherto made refer to the proposed methods of collecting the desired information. The inquiries proposed to be made and the questions to be answered have appeared to farmers to be rather in the nature of an official prying into the business and proceedings of private individuals, than an honest desire to obtain information of undoubted public importance. The knowledge of the results of our own harvests must of necessity be useful to the manufacturers of food, for such knowledge would teach them when to sell and when to hold their produce, would regulate their future operations, and would afford them the safest insight into the probable action of the money market. Agricultural statistics of a reliable character can only be furnished by the voluntary action of the producers themselves, and as a beginning I would venture to offer the following suggestion for the consideration of the Club. The country is now pretty well divided into Unions for Poor Law purposes, and the relieving officers are, to a considerable extent, chosen by the occupiers of land. I would begin with ascertaining the result of the harvest as to bread corn. A return, giving the acreage and the estimated yield per acre, might be collected by the relieving officer from each occupier. These returns would be delivered to the clerks of Unions, and they would make to the Poor Law Office in London an aggregate return of the Wheat grown in each Union without any division or names of occupiers making the returns. This, if a partial, would still be a most useful return, and I cannot believe that any serious obstacles would be thrown in the way, because if the occupiers of the land claim as a protection for themselves the exercise of the *commercial principle*, they cannot object to the operation of the same principle when other interests are concerned as well as their own."

5. *The Condition of the Labourer.*—"Contrast the position of the farm labourer with that of all other labourers. Other labourers are generally working together under the same roof, and here the task of overlooking—the watching of labour—is easily and readily performed, and the comparative skill—the efficiency of each man's labour—is tested by a scale supplied by the labourers themselves. The farm labourers are of necessity scattered over a wide expanse of ground, where the watching of labour is rendered difficult, if possible, by the distant scenes of their labour. It is true that a certain proportion of farm labour may be, and is performed by contract; but still much remains to be performed in the routine of daily labour alone, and therefore the disposition of his mind towards his employer, and his task, is a point of the utmost importance. Permit me to illustrate my meaning by adding two familiar instances. In the one case, where the labourer is looked upon by his employer rather in the light of a partner, in a certain degree, with the owner and occupier of the land. His position may be thus described:—he has a dwelling where he can bring up his family with decency and comfort; his money wages enable him to sustain and recruit his own strength, to share with his family a sufficient supply of plain and wholesome food, as also to afford some education to his children, looking with hope to their future—it may be one more advanced than his own; for I know no reason why the motto of the present day, "Excelsior," may not be applied to the labourer as to other classes. This man goes forth to his daily task with a cheerful mind, willing to labour in that state of life to which it has pleased God to call him. Let us take the other instance, the man hired on the principle of supply and demand. Competition cuts down his money wages to an amount which makes his continued existence a problem. With insufficient food to restore the wear and tear of his daily work, he becomes careless of himself and his family, and then all the bitter consequences of a parent's neglect become in his children patent to the world. With a sense of ill-treatment ever present to his mind, he shirks his daily task, feeling under no obligation to his employer. Contrast the two cases and say, when measured by the strict rule of economy, in which case is the labour the cheapest and the best? And so it will continue, gentlemen, to the end of the chapter; until the agricultural labourer shall be looked upon in the light of a partner, to a certain degree, with the owner and the occupier of the land, and shall feel within himself that he is receiving his fair share of the fruits of the earth which his labour in so great a degree helps to produce."

The paper here published inaugurated the establishment of a midland agricultural institution, not for the exhibition of stock but for the discussion of agricultural topics. Birmingham, with its Midland Counties Agricultural Association, and this its Midland Counties Farmers' Club, takes a rank in agriculture as high as that which it holds in manufactures.

Farm Memoranda.

REPORT OF A SMALL FARM.—Having long been connected with farmers in supplying them with manures, seeds, and food for cattle, though I never had any land under my own cultivation, I thought I could combine practice with theory, and begin to try what I had previously recommended.

I this spring took a small farm of 53 acres of what may be called strong-bodied sand lying upon a good marl. Though this land had been professedly drained before, it required redraining; this cost about 70*s.* per acre, and I have drained upwards of 30 acres just before my occupation began. I may say I have taken the farm on a short lease, the proprietor being upwards of 80 years old, and not likely to expend much money, I have the draining to do myself, and as the gates are mostly worn out I have renewed them at my own expense. I got an allowance in rent, which for the whole term will pay nearly half the cost of draining.

Though the Wheat crop of 1863 was about 5 quarters to the acre, I consider the farm was in a low condition, as I believe the money expended in manure and cake during the last five years did not exceed 25*l.* per year, or say 10*s.* per acre. But it seems to me to be desirable to get it as early as possible into good condition at the commencement of a short lease. I have been willing to expend in manure as much as I think will be beneficial to the crop without endangering laying the corn, and I began by applying certain mixtures to the 11 acres of Grass at the rate of 40*s.* per acre, 3 acres of it being for hay, and the rest in pasture. I applied six different mixtures to the meadow field at the same rate, all of which did well; and though these were applied after the 6th of April (it being eaten bare up to this time), I got full three times the weight of hay that was got off the same field last year—that is, I got 6 tons of hay out of cock, and I understand the quantity obtained last year was about 1½ tons, most likely taken after the stack had heated. This field, though the highest in the farm, seemed the wettest when we were draining, and in it and the pasture there were a few Rushes growing in the furrows, and in the pasture there was a good deal of Moss. The Cow Grass and other good herbage are now plentiful in both the meadow and pasture, and I doubt not but the hard heads which still linger in the furrows will soon decrease, as just where the drains are the Grass is very sweet, and is eaten very bare. I attribute this to the roots of all the coarse Grasses and plants being cut and destroyed, and only the sweeter and shorter rooted plants being left.

I gave the Barley and seeds each 20*s.* per acre in mixed manures, which I think will pay in the additional crop. I also think that the Wheat crop to follow will benefit more from manure applied in this way than if given directly to itself. My Mangels did not come up well, as the farm-yard manure put in with them in spring has tended to make the seed-bed too dry, the more so in a summer like this. I have a good plant of Turnips in a field where I was told I could not get Turnips at all. I applied 45*s.* worth of mixed hand tillage, besides some fold-yard manure to part, and lime to the other part. I have planted about a dozen sorts of Potatos, and some of Paterson's Seedlings, which I got from him from Dundee; they look very strong in the stalk, and are much more vigorous than the old sorts that I got in the neighbourhood. When taken up I intend to report as to quantity and quality. My Wheat, which was sown by my predecessor, looks pretty well; it has been, however, attacked by the brown aphis, and will not exceed 26 bushels. My Oats, which I sowed on a field just drained, and gave 30*s.* per acre, are short, deficient, not over 4 qrs., which is the case with most of my neighbours. My land is troubled with a good many weeds, of which Coltsfoot seems the worst. Goose Grass is also difficult to keep under, and Sow Thistle is abundant. I have not much Twitch, Charlock, or Poppies. My seeds were also troubled a good deal this spring with three weeds—Chickweed, a small Bed-straw, and another weed—all of which spread over the ground, and were only attached to the ground by one small root, and I think if I had run a hand or horse-rake over it in spring it would have pulled a good deal of it up, and would not have injured the Clovers. It appears to me that Clover seed before sowing should be either very carefully dressed of weeds or the field carefully weeded early in the spring following the Barley crop, and I am not sure that the better plan would not be to sow Clover by itself and not amongst corn.

I sowed a small plot with the blue Lupines that are used on the continent for cattle food, but I cannot get any of my animals to eat them, and I suppose they will have to be put into the fold-yard for manure. I suppose cattle would eat them. I think Tares are an earlier and quite as heavy a crop as the Lupines.

Carrots not being sown early make nothing out, and a few Parsnips do not seem to get on. I think both these require sowing earlier, and the land should be cultivated earlier, say the autumn before.

From the darker colour and more vigorous appearance of the Oats and Barley where the drains are just cut, it seems a clear indication to me that we want to cultivate deeper, and if I cannot get the use of the steam plough, one of which I understand is coming into the neighbourhood, I intend to use one of the digging ploughs which are made by Cuthbert, and the same principle is used by Fowler with his steam tackle. The land has been so hard one could not break up seeds till rain came. Farmers seem to me not to be sufficiently particular in procuring the best seed corn—I intend to try some of Shirreff's and most likely Hallett's. I also think if we were to be at the pains of selecting some of the finest ears of Wheat and Barley, these would be more likely to produce a fine crop than taking them promiscuously; this of course following Hallett's plan of selection, but I do not mean carried so far as he does. It is well known that it is easy to lay a crop by too heavily manuring with a stimulating manure, but I believe if we are on poor land, constantly applying a manure containing not only some of the stimulating but also of the mineral principles, there will not be much

danger on land that is not rich in manure or vegetable matter to begin with; but the combination of judicious manuring, and deeper cultivation, is no doubt the most rational and lasting plan of cultivation. *H. E., Flaxlow, York.*

TIPTREE FARM.—A walk of a few miles brought me in sight of Tiptree Hall; and its first aspect relieved my mind of an impression which, in common with thousands better informed, I had entertained in reference to the establishment. An idea has generally prevailed among English farmers, and agriculturists of other countries who have heard of Alderman Mechi's experiments, that they were impracticable and almost valueless, because they would not pay; that the balance sheet of his operations did and must ever show such ruinous discrepancy between income and expenditure as must deter any man of less capital and reckless enthusiasm from following his lead into such unconsidered ventures. In short, he has been widely regarded at home and abroad as a bold and dashing novice in agricultural experience, ready to lavish upon his own hasty inventions a fortune acquired in his London warehouse; and all this to make himself famous as a great light in the agricultural world, which light, after all, was a mere will-o'-the-wisp sort of affair, leading its dupes into the veriest bog of bankruptcy.

From what I had read and heard of the Tiptree Hall estate, I expected to see a grand old baronial mansion, surrounded with elegant and costly buildings for housing horses, cattle, sheep, and other live stock, all erected on a scale which no *bonâ fide* farmer could adopt or approximately imitate. In a word, I fancied his barns and stables would even surpass in this respect the establishments of some of those New York or Boston merchants, who think they are stimulating country farmers to healthy emulation by lavishing from thirty to forty thousand dollars on a barn and its appurtenant outhouses. With these preconceived ideas, it was an unexpected satisfaction to see quite a simple-looking unassuming establishment, which any well-to-do farmer might make and own. The house is rather a large and solid-looking building, erected by Mr. Mechi himself, but not at all ostentatious of wealth or architectural taste. The barns and "steadings," or what we call cow-houses in America, are of a very ordinary cast, or such as any country-bred farmer would call economical and simple. The homestead occupies no picturesque site, and commands no interesting scenery. The farm consists of about 170 acres, which, in England, is regarded as a rather small holding. The land is naturally sterile and hard of cultivation, most of it apparently being heavily mixed with ferruginous matter. When ploughed deeply, the clods turned up look frequently like compact masses of iron ore. Every experienced farmer knows the natural poverty of such a soil, and the hard labour to man and beast it costs to till it.

To my great regret, Mr. Mechi was not at home, though he passes most of his time in summer at Tiptree. But his foreman, who enters into all the experiments and operations which have made the establishment so famous with almost equal interest and enthusiasm, took me through the farm-buildings and all the fields, and showed me the whole process and machinery employed. Any English or American agriculturist who has read of Alderman Mechi's operations would be inclined to ask, on looking for the first time at his buildings and the fields surrounding them, what is the great distinguishing specialty of his enterprise? His land is poor; his housings are simple; there is no outside show of uncommon taste or genius. Every acre is tile-drained, to be sure, but that is nothing new nor uncommon. Drainage is the order of the day. Any tenant-farmer in England can have his land drained by the Government by paying 6 per cent. annually on the cost of the job. His expenditure for artificial manures does not exceed that of hundreds of good farmers. He carries out the deep-tillage system most liberally. So do other scientific agriculturists in Europe and America. Of course, a few hours' observation would not suffice for a full and correct conclusion on this point, but it gave me the impression that the great operation which has won for the Tiptree farm its special distinction is its irrigation with liquid manure. In this respect it stands unrivalled, and perhaps unimitated. And this, probably, is the head and front of his offending to those who criticise his economy and decry his experiments.

This irrigation is performed through the medium of a small steam engine and 16 hydrants, so posted and supplied with hose as to reach every square foot of the 170 acres. The water used for this purpose is mostly, if not entirely, supplied from the draining pipes, even in the driest season. The manure thus liquified is made by a comparatively small number of animals. Calves to the value of 50*l.* are bought, and fat stock to that of 500*l.* are sold annually. They are all stabled throughout the year, except in harvest time, when they are turned out for a few weeks to rowen feed. The calves are housed until a year old in a large steading by themselves. They are then transferred to another building, and put upon the "boards"—that is, in a long stable or cow-house, with a flooring of slats, through which the manure drops into a cellar below, made water-tight. Here the busiest little engine in the world is brought to bear upon it, with all its faculties of suction and propulsion. Through one pipe it forces fresh water in upon this mass of manure, which, when liquified, runs down into a subterranean cistern or reservoir capable of holding over 100,000 gallons. From this it is propelled into any field to be irrigated. To prevent any sediment in the great reservoir, or to make an even mixture of the liquified manure, a hose is attached to the engine, and the other end dropped into the mass. Through this a constant volume of air is propelled with such force as to set the whole boiling and foaming like a little cataract. One man at the engine and two at the hose in the distant field perform the whole operation. The chapped and "baky" surface of the farm is thus softened and enriched at will, and rendered productive.

Now, this operation seems to constitute the present distinctive specialty of Alderman Mechi's Tiptree farm. Will it pay? ask a thousand voices. In how many years will he get his money back? Give us the balance sheet of the experiment. A New Englander, favourably impressed with the process, would be likely to answer these questions by another, and ask, will drainage pay? Not in one year assuredly, nor in five; not in ten perhaps. The British Government assumes that all the expenditure upon under-drainage will be paid back in 15 or 20 years at the farthest. It lends money to the landowner on this basis; and the landowner stipulates with his tenant that he shall reimburse him by annual instalments of six or seven per cent. until the whole cost of the operation is liquidated. Thus the tenant-farmer is willing to pay six, sometimes seven, per cent. annually for 20 years, for the increased capacity of production which drainage gives to the farm he cultivates. At the end of that period the Government is paid by the landlord, and the landlord by the tenant, and the tenant by his augmented crops for the whole original outlay upon the land. For aught either of the three parties to the operation knows to the contrary, it must all be done over again at the end of 20 years. The system is too young yet, even in England, for any one to say how long a course of tubing will last, or how often it must be re-laid.

One point, therefore, has been gained. No intelligent English farmer who has tried the system now asks if under-drainage will pay; nor does he expect that it will pay back the whole expenditure in less than 12 or 15 years. Here is a generous faith in the operation on the side of all the parties concerned. Then, why should not Alderman Mechi's irrigation system be put on the same footing in the matter of public confidence? It is nothing very uncommon even for a 200 hundred acre farmer in England to have a small locomotive or stationary steam-engine, and to find plenty of work for it, too, in threshing his grain, grinding his fodder, pulping his roots, cutting his hay and straw, and for other purposes. Mr. Mechi would doubtless have one for these objects alone. So its cost must not be charged to the account of irrigation. A single course of iron tubing, a third of a mile long, reaching to the centre of his farthest field, cannot cost more, with all the hose employed, than the drainage of that field, while it would be fair to assume that the iron pipes will last twice as long as those of burned clay. They might fairly be expected to hold good for 40 years. If, then, for this period, or less, the process yields ten per cent. of increased production annually over and above the effect of all other means employed, it is quite evident that it will pay as well as drainage.

But does it augment the yearly production of the farm by this amount? To say that it is the only process by which the baky and chappy soil of Tiptree can be thoroughly fertilised would not suffice to prove its necessity or value to other soils of different composition. One fact, however, may be sufficient to determine its virtue. The fields of Clover and Italian Rye-grass, &c., are mown three and even four times in one season, and afterwards fed with sheep. Certainly, no other system could produce all this cropping. The distinctive difference it makes in other crops cannot, perhaps, be made so palpable. The Wheat looked strong and heavy, with a fair promise of 45 bushels to an acre. The Oats, Beans, and roots showed equally well.

The irrigation and deep-tillage systems were going on simultaneously in the same field, affording me a good opportunity of seeing the operation of both. Two men were applying the hose upon a portion of the field which had already been mowed three times. Two teams were at work turning up the other, which had already been cropped once or twice. One of two horses went first, and with a common English plough, turned an ordinary furrow. Then the other followed, of twice the force of the first, in the same furrow with a subsoil plough held to the work beam deep. The iron-stones and ferruginous clods turned up by this "deep tillage" would make a prairie farmer of Illinois wonder, if not shudder, at the plucky and ingenious industry which competes with his easy toil and cheap land in providing bread for the landless millions of Great Britain.

The only exceptional feature or arrangement besides the irrigating machinery and process that I noticed was an iron hurdling for folding sheep. This at first sight might look to a practical farmer a little extravagant, indicating a city origin, or the notion of an amateur agriculturist more ambitious of the new than of the necessary. Each length of this iron fencing is apparently about a rod, and cost 1*l.*, or nearly five dollars. It is fitted to low wheels or rollers on an axle two or three feet in length, so that it can be moved easily and quickly in any direction. It would cost over 50*l.*, or 250 dollars to enclose an acre entirely with this kind of hurdling. Still Mr. Mechi would doubtless b able to show that this large expenditure is a good investment, and pays well in the long run. The folding of sheep for 24 or 48 hours on small patches of Clover, Trefoil, or Turnips, is a very important department of English farming, both for fattening them for the market and for putting the land in better heart than any other fertilising process could effect. Now, a man with this iron fencing on wheels must be able to make in two hours an enclosure that would cost him a day or more of busy labour with the old wooden hurdles.

On the whole, a practical farmer who has no other source of income than the single occupation of agriculture would be likely to ask, what is the realised value of Alderman Mechi's operations to the common grain and stock growers of the world? They have excited more attention or curiosity than any other experiments of the present day; but what is the real *résumé* of their results? What new principle has he laid down? What new economy has be reduced to a science that may be profitably utilised by the millions who get their living by farming? What has he actually done that anybody else has adopted or imitated to any tangible advantage? These are important questions; and this is the way he undertakes to answer them, beginning with the last.

About 20 years ago he inaugurated the system of under-draining the heavy tile-clay lands in Essex. Up to his experiment the process was deemed impracticable and worthless by the most intelligent farmers in the county. It was more confidently decried than his present irrigation system. The water would never find its way down into the drain-pipes through such clay. It stood to reason that it would do no such thing. Did not water stand in the track of the horse's hoof in such clay until evaporated by the sun? It might as well leak through an earthenware basin. It was all nonsense to bury a man's money in that style. He never would see a shilling of it back again. In the face of these opinions Mr. Mechi went on, training his pipes through field after field deep below the surface. And the water percolated through the clay into them, until all these long veins formed a continuous and rushing stream into the main artery that now furnishes an ample supply for his stable cattle, for his steam-engine, and for all the barn-yard wants. His tile-draining of clay lands was a capital success; and those who derided and opposed it have now adopted it to their great advantage, and to the vast augmentation of the value and production of the county. Here, then, is one thing which he has led, and others have followed, to a great practical result.

His next leading was in the way of agricultural machinery. He first introduced a steam-engine for farming purposes in a district containing a million of acres. That, too, at the outset, was a fantastic vagary in the opinion of thousands of solid and respectable farmers. They insisted the iron horse would be as dangerous in the barn-yard or rick-yard as the very dragon in Scripture; that he would set everything on fire; kill the men who had care of him; burst and blow up himself and all the buildings into the air; that all the horses, cows, and sheep would be frightened to death at the very sight of the monster, and never could be brought to lie down in peace and safety by his side, even when his blood was cold, and when he was fast asleep. To think of it! to have a tall chimney towering up over a barn-gable or barn-yard, and puffing out black coal smoke, cotton-factory-wise! Pretty talk! pretty terms to train an honest and virtuous farmer to mouth! Wouldn't it be edifying to hear him string the yarn of these new words! to hear him tell of his engineer and ploughman; of his pokers and pitchforks; six-horse power, valves, revolutions, stopcocks, 20 lb. of steam, &c.: mixing up all this ridiculous stuff with yearling calves, Turnips, horse-carts, oilcake, wool, bullocks, Beans, and sheep, and other vital things and interests, which 40 centuries have looked upon with reverence! To plough, thresh, cut Turnips, grind corn, and pump water for cattle by steam! What next?

Why, next, the farmers of the region round about

"First pitied, then embraced"

this new and powerful auxiliary to agricultural industry, after having watched its working and its worth. And now, thanks to such bold and spirited novices as Mr. Mechi—men who had the pluck to work steadily on under the pattering rain of derisive epithets—there are already nearly as many steam engines working at farm labour between Land's End and John o'Groat's as there are employed in the manufacture of cotton in Great Britain.

His irrigation system will doubtless be followed in the same order and interval by those who have poohpoohed it with the same derision and incredulity as the other innovations they have already adopted. The utilising of the sewage of large towns, especially of London, has now become a prominent idea and movement. Mr. Mechi's machinery and process are admirably adapted to the work of distributing a river of this fertilising material over any farm to which it may be conducted. Thus, there is good reason to believe that the very process he originated for softening and enriching the hard and sterile acres of his small farm in Essex will be adopted for saturating millions of acres in Great Britain with the millions of tons of manurial matter that have hitherto blackened and poisoned the rivers of the country on their wasteful way to the sea. This will be only an additional work for the farm engines now in operation, accomplished with but little increased

expense. A single fact may illustrate the irrigating capacity of Mr. Mechi's machinery. It throws upon a field a quantity of the fertilising fluid equal to one inch of rainfall at a time, or 100 tons per imperial acre; and as a proof of how deep it penetrates, the drains run freely with it, thus showing conclusively that the subsoil has been well saturated—a point of vital importance to the crop.

Deep tillage is another specialty that distinguished the Tiptree farm *régime* at the beginning, in which Mr. Mechi led, and in which he has been followed by the farmers of the country, although few have come up abreast of him as yet in the system.

Here, then, are four specific departments of improvement in agricultural industry which the Alderman has introduced. Every one of them has been ridiculed as an impracticable and useless innovation in its turn. Three of them have already been adopted, and virtually incorporated with agricultural science and economy; and the fourth, or irrigation by steam power, bids fair to find as much favour, and as many adherents in the end, as the others have done.

He has not only originated these improvements, or been the first to give them practical experiment, but he has laid down certain principles which will doubtless exercise much influence in shaping the industrial economy of agriculture hereafter in different countries. One of the best of these principles he puts in the form of a mathematical proposition. Thus: As the meat is to the manure, so is the crop to the land. Tell me, he says, how much meat you make, and I will tell you how much corn you make, to the acre. Meat, then, is the starting point with him; the basis of his annual production, to which he looks for a satisfactory decision of his balance-sheet. To show the value he attaches to this element, the fact will suffice that he usually keeps 65 bullocks, cows, and calves, 100 sheep, and a number of pigs, besides his horses, making one head to every acre on his farm. With this amount of live stock, he makes from 4*l.* to 5*l.* worth of meat per acre annually. Perhaps it would be safe to say that no other 170 acres of land in the world make more meat, manure, and grain in the year than the Tiptree farm. *Elihu Burritt's Walk from London to John o'Groat's.*

Miscellaneous.

Preserving Eggs.—M. Burnouf recommends in *Le Bélier*, a French journal of agriculture, the following method of preserving eggs:—Dissolve in two-thirds of warm olive oil one-third of bee's-wax, and cover each egg completely with a thin layer of this pomade with the end of the finger. The egg shell by degrees absorbs the oil, and each of its pores becomes filled with the wax, which hermetically seals them. M. Burnouf affirms that he has eaten eggs kept two years in this manner, in a place not exposed to too great extremes of temperature. He thinks also that the germ may in this manner be preserved for a considerable time. *The Reader.*

Barnet Great Cattle Fair.—This great autumn cattle fair, held annually at Barnet, chiefly for the sale of store beasts, was held last week, and brought together a very large gathering of agriculturists and others interested in cattle from nearly all counties. The supply of stock was in the aggregate far below the usual average. Welsh cattle did not comprise one-third the usual show, and were of inferior character. The Devon beasts were moderately represented by cattle in good condition. The Hereford stock were a miserable show, and consisted of culls and plain steers, most of the best cattle having been made off as beef. Short-horn steers were short in supply and in lean condition, and notwithstanding the very limited exhibition of store bullocks, the demand was exceedingly dull, which is attributable to the general failure in the growth of Swede Turnip crops this year, which forms the staple commodity in the fatting shed. This irretrievable loss of the root crop is to farmers "a calamity," and is suggestive of insurmountable impediments, as the necessity of fatting beasts for the purpose of obtaining manure is an essential element of high-class farming, which must this season be partially relinquished. The fair was divided into sections, each being denominated by the class of stock to which they were assigned. The following were the prices obtained: Welsh cattle, small, two-year old steers, 8*l.* to 9*l.*; ditto, heifers, 6*l.* to 7*l.*; full grown runts, in good condition, 13*l.* to 15*l.*; North Wales beasts (Anglesea and Carnarvon breed) realised 16*l.* to 18*l.* Many were not sold. Hereford Beasts.—Large beasts, 14*l.* to 16*l.*, and small inferior bred steers, 10*l.* to 11*l.* Business very limited. Devons.—In this division the demand was more active. Well bred steers (good bloods and well up in condition) made 14*l.* to 15*l.*; inferior ditto, 11*l.* to 12*l.*; and steers, one year off, 7*l.* to 8*l.* Short-horn beasts.—Large, well-grown steers, 13*l.* to 16*l.*; and second quality, 10*l.* to 12*l.*, and Shorthorn stock heifers, 9*l.* to 10*l.* The Scotch fair.—This section of the stock mart was a mere phantom as compared with previous fairs. The show consisted of Scotch runts, which sold at from 4 to 5 guineas. Some herds of Highland steers in high condition, brought 16*l.* to 17*l.*; Polled Scots, store steers, 12*l.* to 14*l.*; ditto heifers, 11*l.* to 13*l.* Much of the best descriptions sold off. Dairying cattle.—The fields apportioned for this class were well supplied. Large framed Yorkshire bred full milch cows sold readily to London cow-keepers at from 21*l.* to 25*l.*; small Short-horn dairying cows, 15*l.* to 18*l.*; Alderney cows in full milk, 13*l.* to 16*l.*; Dutch cows, 11*l.* to 12*l.*; well-bred Yorkshire bulls, 13*l.* to 18*l.*; and Short-horn in-calf heifers, 11*l.* to 14*l.* Irish heifers and steers, 4*l.* to 8*l.*; Dutch ditto, 5*l.* to 8*l.* There was a large herd of miscellaneous stock scattered over the town and roadside, and which did not command attention. In the horse fair there is a glut of horse-flesh of every description.

Memorandum.—In a conversation with Mr. C, Collings, at Monkend Croft, he told me that milk was not his sole object, but be got it if he could. He considered FOLJAMBE and PHŒNIX his best cattle, but the *Cherry*, *Daisy*, and *Duchess* tribes his best milkers. *Mr. Cottrell, of Rhodyate Lodge, Congresbury. May* 29, 1830.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATER, Strentley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Sept.	Inches.	°	°				°	°	°	°	Inches.
Thursday	8	29.93	65	63	S.	3	10	71	62	80	56	0.00
Friday	9	30.02	58	52	S.W.	0	10	70	51	81	46	0.00
Saturday	10	30.02	59	55	N.W.	3	5	64	48	81	38	0.10
Sunday	11	29.83	59	55	N.W.	2	2	63	47	77	38	0.10
Monday	12	30.02	62	57	N.W.	2	2	63	45	80	39	0.10
Tuesday	13	29.94	59	55	S.W.	2	10	63	45	80	39	0.10
Wednesday	14											
Thursday	15											

Calendar of Operations.

SEPTEMBER.

BERWICKSHIRE MERSE FARM, *Sept.* 10.—The fine harvest weather that prevailed throughout summer has failed us when most wanted. A beginning was made three weeks ago, and those who then cut their corn green, after the new fashion, have got decidedly the best of it. For, with the first day of this month, there came a tract of boisterous weather with showers, and it has rained heavily since mid-afternoon. Monday was a terrible day of wind; in exposed places full one-half of the grain was shed on the ground, and the general loss, perhaps 10 bushels, over a third of the acreage. Yesterday's gale was still worse, making a clean sweep of anything then standing; and in Lammermuir, we understand, little is left but the bare straw. Of course stocks have been flat all the week, and are in bad trim for wet weather, and much less is secured than would have been with moderate weather. Wheat, perhaps, has suffered less than other grains, being fully greener. Our opinion of the crop is in no way altered since August 1, except that deductions must be made for loss by wind. Barley, Wheat, Oats, was the order of merit, and Barley has suffered most. We should expect our farm horses to consume the most of the Oats at home. Clovers are pretty well planted, but not strong yet. Pastures are very bare, and much artificial food is required. Lambs have fallen in price, and no demand. Swedes on free land have all along looked well, but later sown Turnips have not made much root, though that may be looked for now. At Kelso sales yesterday there were sold 2200 shearling Leicester tups, mostly of the "Border" breed. The Mertoun lot averaged 26*l.* 10*s.* and two sheep brought 70*l.* and 61*l.* *J. T.*

Notices to Correspondents.

BISCUIT MEAL: *H E.* A sample of biscuit meal has been placed in our hands; it appears to be a clean, nutritious, and sweet food. The price, 11*l.* a ton. We have no information as to its composition. That is to be ascertained only by a costly analysis.

DODDER SEED. Thanks for a sample.

GRASS SEEDS: *B H.* It is not very satisfactory to determine a Grass merely from the seed; yours may possibly be that of some form of Agrostis alba, which is oftener red than any other colour.

PLANTS: *James James.* 1, Eyebright (Euphrasia officinalis); 2, Carnation Grass (Carex recurva); 3, Purging Flax (Linum catharticum). All these plants speak of a poor, hungry, and we should think, wet soil. Still, if it be drained, top-dressings of any kind of rubbish will do good, but drainage is the first requisite. As regards the question of the tendency to scour in purging Flax, it may be sufficient to say that we do not consider this to exert so active an agency in affecting sheep and cattle as the general poverty of the pasture as indicated by the three plants sent. *J B.*

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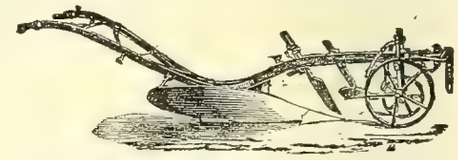
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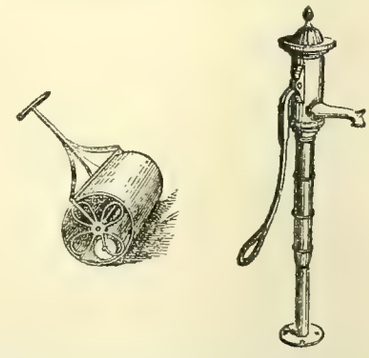
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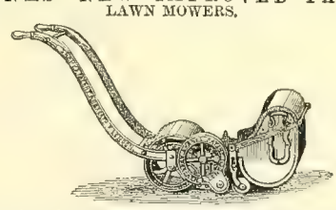
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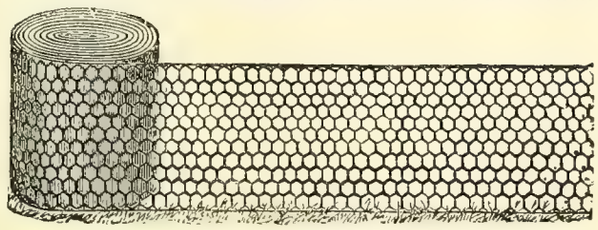
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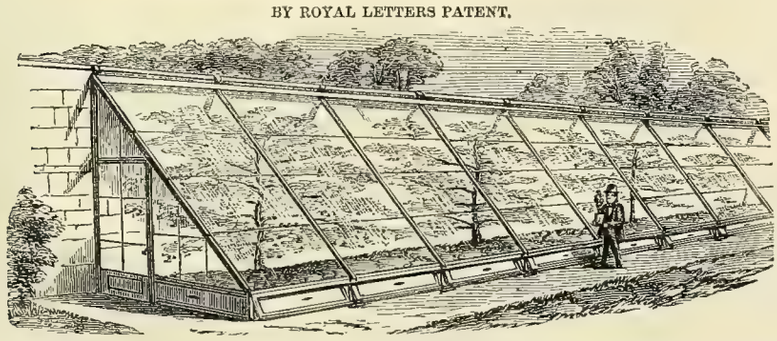
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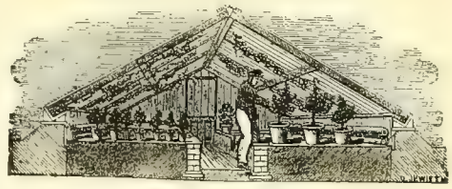
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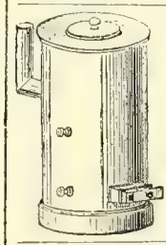
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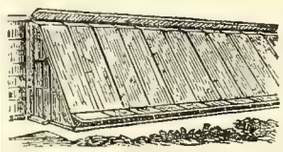


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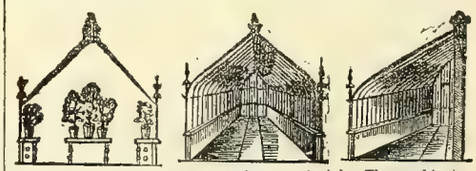
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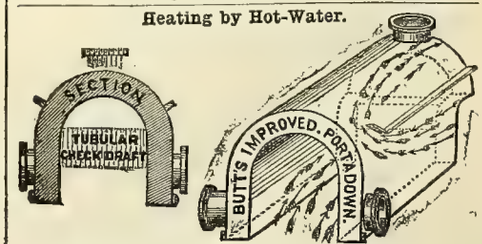
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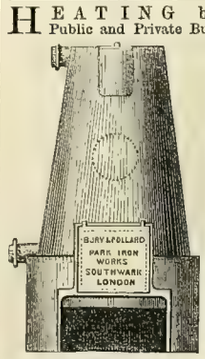
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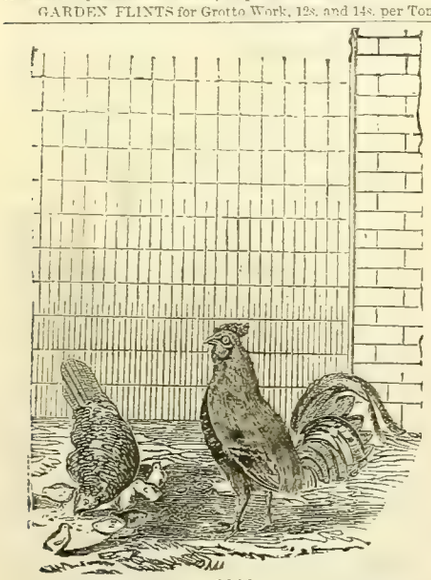
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12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
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THE RIGHT HON. LORD RIVERS, *Chairman*.
J. BAILEY DENTON, Esq., *Principal Engineer*.

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2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

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No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.

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To Market Gardeners, Nurserymen, and Others.

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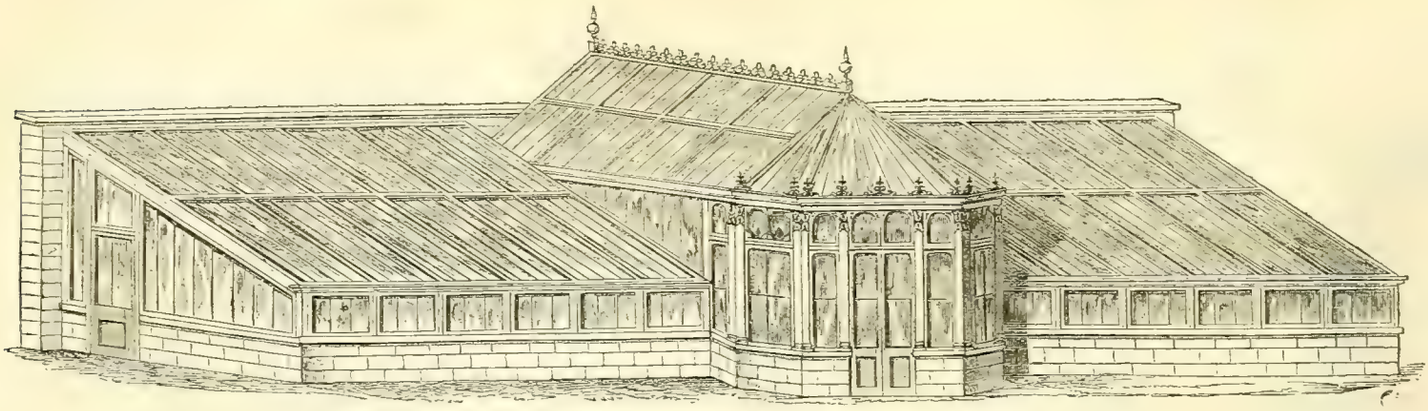
MESSRS. WATERER AND SON beg to announce that they have received instructions from Messrs. Chitty & Chapman to SELL by AUCTION, on TUESDAY, October 11, and following day, at 10 o'Clock, the WHOLE of the Young and Valuable NURSERY STOCK, the produce of Nine Acres.
Further particulars will be given in future Advertisements, and day be had by applying to the Auctioneer, Chertsey, Surrey.

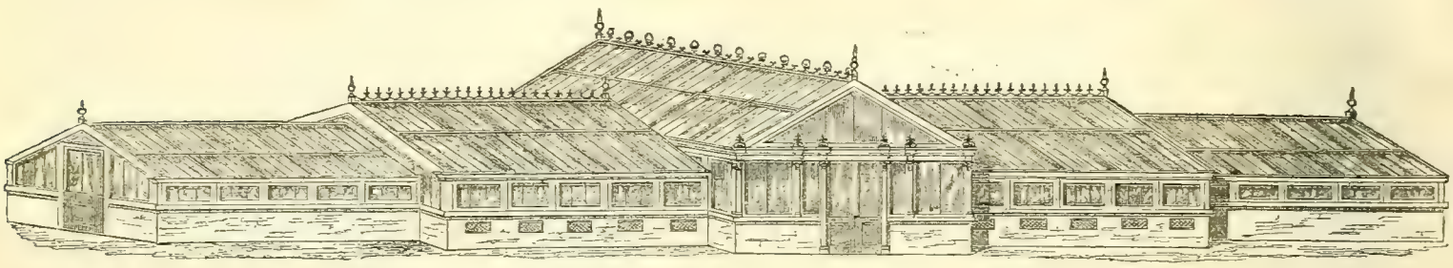
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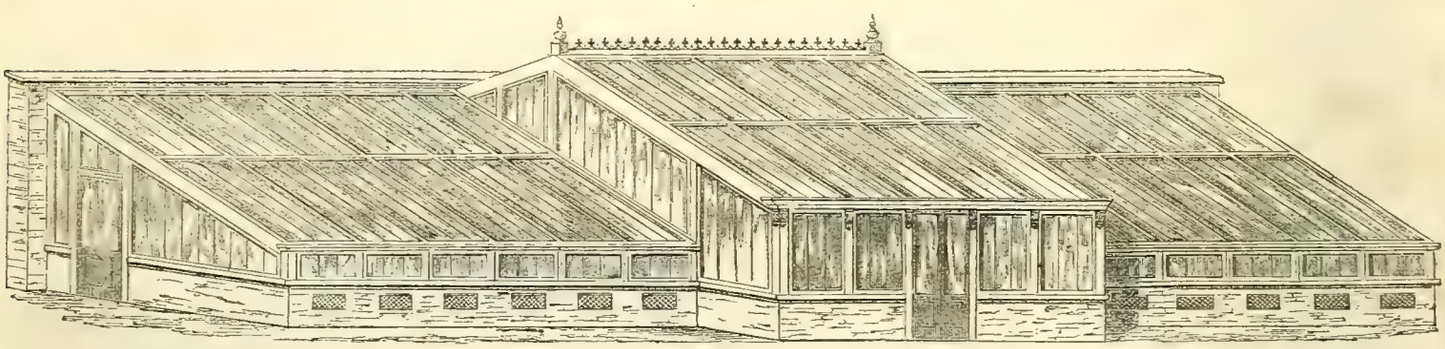
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LONDON: BRADBURY AND EVANS, 11, BOUVERIE STREET, E.C.







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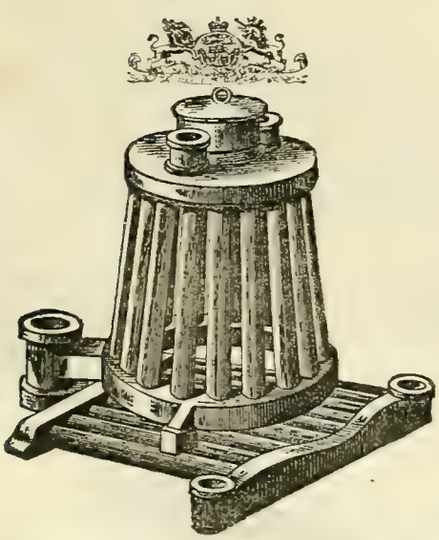
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HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 39.—1864.] SATURDAY, SEPTEMBER 24. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A MEETING of the FRUIT COMMITTEE will be held on TUESDAY, September 27, at South Kensington, to Examine such FRUITS and VEGETABLES as may be then submitted for the opinion of the Committee.

Communications and packages must be at the rooms by 10 o'Clock on the day of Meeting, and addressed to

ROBERT HOGG, LL.D., Honorary Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

A MEETING of this COMMITTEE will take place on TUESDAY, September 27, at 12 o'Clock. The Subjects for Examination must be at South Kensington for Entry by 11 A.M.

THOMAS MOORE, Secretary to the Committee.

MARKET GARDENERS' ASSOCIATION.—The THIRTY-SIXTH ANNIVERSARY DINNER will take place on TUESDAY, September 27, 1864, at Radley's Hotel, Bridge Street, Blackfriars. Dinner on table at 4 o'clock.

Stewards: Messrs. BAGLEY, LOBJOIT, MEYERS, and ALDERSON.

Secretary: WILLIAM THOMAS ATWOOD, Mortlake.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21s. per 100.

CHARLES TURNER, The Royal Nurseries, Slough.

The Kimberley Strawberry.

CHARLES KIMBERLEY can supply the above fine Strawberry, in strong plants that will Fruit well next season, at 10s. per 100.

London Agents: Messrs. HURST & SON, 6, Leadenhall Street.
Stoke Nursery, near Coventry.

RIPE PEACHES and NECTARINES on Bush Trees.—The largest crop of the above ever grown in the open ground in this country, without walls or any protection, may be seen at JOSIAH ILLMAN'S Nursery, Wellington Place, Strood, Kent.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Meredith's Black Alicante Grape.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, can supply excellent well-ripened CANES of this magnificent Grape, ready for immediate planting. It hangs considerably longer than Lady Downes, and is in every respect a first-rate Grape. Price on application.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Grapes and Vines.

H. LANE AND SON have succeeded in producing a house of VINES, in full bearing, containing all the leading varieties, in order that purchasers might have a chance to choose for themselves, so as to avoid disappointment. The above, with the fruiting Vines in pots, are unrivalled and worthy of any one's inspection. The Nurseries, Berkhampsted.

Very extra strong Vines from Eyes.

JAMES DICKSON AND SONS have ready all the leading kinds, which, if planted now, would produce a crop next season. Early purchasers will have 2000 to pick from. Price, very moderate, on application.

The "Newton" Nurseries, Chester.

Vines.

B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.

Paradise and Victoria Nurseries, Holloway, London, N.

Pines.

B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH CAYENNE, BLACK JAMAICA, &c. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Pine Suckers.

FOR SALE, a quantity of QUEEN PINE SUCKERS, also a few ENVILLE and OTAHEITE. The Queen Suckers 6d. each if 50 are taken. Warranted clean and free from scale.

Apply by letter, post paid, to J. HANNAN, Gardener, Cyfarthfa Castle, Merthyr Tydvil.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

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MESSRS. RIVERS AND SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.

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CHARLES TURNER'S CATALOGUE of the above is now ready. The roots have also arrived in fine condition. Orders will meet with prompt attention.

A fine stock of LILIUM AURATUM.

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Hyacinths and Dutch Bulbs.

Fine and at moderate prices.

PAUL AND SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.

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Large Importation of Flower Roots from the best Houses in Haarlem.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON beg to solicit early commands for BULBS, just arrived in most excellent order.

Prices as reasonable as any respectable house in the Trade.

DESCRIPTIVE CATALOGUES may be had on application.

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BUTLER AND MCCULLOCH'S CATALOGUES post free.

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Hyacinths, Tulips, Crocus, Narcissus, &c.

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The Best Twelve Hyacinths Imported by SUTTON AND SONS,

for Twelve Shillings.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To Hyacinth Growers.

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Imported Dutch Bulbs.—Now Ready, Part IV. of CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to

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J. SCOTT'S BULB CATALOGUE for 1864 is now ready, containing selected LISTS of DUTCH and other BULBS, with Descriptive and Cultural Directions; also numerous Hints on the Cultivation and Arrangement of the Winter and Spring Flower Garden, with Lists of Plants, post free for one stamp.

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Excellence and Economy.

H. BROWN'S PRICED DESCRIPTIVE AUTUMN CATALOGUE of BULBS, SEEDS, &c., will be sent free on application. The first importation has arrived, and the quality cannot be surpassed.

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See large Advertisement, *Gardeners' Chronicle*, Sept. 17.

Dutch Bulbs and other Flower Roots.

CONSISTING OF HYACINTHS, CROCUS, TULIPS, NARCISSUS, ANEMONES, LILIES, SNOWDROPS, &c.

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SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.

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WEST RIDING NURSERY and SEED COMPANY, St. John's, Wakefield.

DUTCH FLOWER ROOTS.—Two large importations have just been received in fine condition.

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New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.

WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.

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PAUL AND SON have still a fine show of the Autumnal varieties at the

"Old" Cheshunt Nurseries, Cheshunt, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

1864 and 1865 Rose Catalogue.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES, for the present season.

Nurseries, King's Acre, near Hereford.

Clianthus Dampieri splendens.

C. KIMBERLEY has just received a supply of the above fine Greenhouse Climber, direct from Australia, which he begs to offer in packets of six seeds for 1s. 6d.

Stoke Nursery, near Coventry.

West Riding Nursery and Seed Company.

LILIUM AURATUM.—Several Plants of this fine importation have Bloomed in this Nursery, and fully sustain its high character. Price per bulb or dozen on application to

WM. BARRATT, St. John's, Wakefield.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.

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Good Seeds, Carriage Free, at Market Prices.

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H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.

SPECIAL PRICED LIST of NEW SEEDS on application.

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To the Trade.

INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Calceolaria, Cineraria, Primula.

E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each.

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British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

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SKIRVING'S KING of the SWEDES.

DIXON'S IMPERIAL SWEDE PURPLE TOP.

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Genuine Italian Rye-grass.

PRODUCED FROM SECOND CROP FOREIGN SEED.

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Important to Hollyhock Growers.

FOR SALE, Cheap, a first-class Collection of HOLLYHOCKS, consisting of about 80 varieties; 100 old Stools and about 300 young Plants, the whole stock.

Apply to CHARLES LONGBOTHAM, Harrowgate, Yorkshire.

SPECIMEN PORTUGAL LAURELS.—Fine Plants, 8 to 10 feet round, 24s. to 30s. per dozen. Extra fine specimens of perfect form, 14 or more feet in circumference, 84s. to 105s. per dozen, or 7s. 6d. to 15s. each.

JAMES BACKHOUSE & SON, York Nurseries.

ACER MACROPHYLLUM.—WANTED, to ship to Belfast, a Quantity of good plants, for forming an Avenue about 2 miles; also a Quantity for the same purpose for the North of England.

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AMERICAN ALOES.—For IMMEDIATE DISPOSAL, TWO very fine PLANTS, which have been in the owner's possession 30 years. Lowest price 15 guineas for the two.

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Strong Transplanted Birch.

WANTED, 70,000 to 80,000, 2½ to 3 feet, for November delivery. State lowest cash price to FORESTER, care of Messrs. Fairhead & Son, Nurserymen and Seedsmen, Borough Market, London, S.E.

WANTED, ACORNS, &c.—Parties who will be able to supply good sound ACORNS, SPANISH CHESNUTS, or BEECH MAST, will oblige by forwarding lowest prices per bushel, delivered at the nearest Railway Station, and for Cash on delivery, to JAMES SMITH, Darley Dale Nurseries, near Matlock.

EARLY SPRING FEED,
For Present Sowing.
NEW ENGLISH ITALIAN RYE-GRASS,
Best Imported Ditto,
TRIFOLIUM INCARNATUM,
For Sowing on Stubbles and mending deficient plants of Grasses or Clovers.
WINTER BARLEY | WINTER OATS | COMMON RYE
GIANT RYE | WINTER TARES
For Early Spring Feed.
MUSTARD and RAPE, for sheep keep and ploughing in for manure.
Samples and prices on application to RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; and Basingstoke.

HERTFORDSHIRE HERO BARLEY.—Six-rowed, very productive, and stiff strawed; rather coarse but suitable for Winter or Spring Sowing, for Early Spring Feed, or an Early Crop for Harvest.
Price 50s. per quarter, delivered on Rail at Basingstoke.
Address, RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; or Basingstoke.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.
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BROWICK WHEAT.—Carefully screened samples for Seed, grown on stiff clay soil. Price 48s. per quarter (in hired sacks) at the Bedford Stations of the Midland, London and North-Western, or Bedford and Cambridge Railways.
Apply to Mr. THOMAS BOWICK, Manager of Messrs. Howard's Steam Cultivated Farms, Bedford.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 10s. per bushel, or 64s. per quarter, delivered at Braintree Station.
Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

HALLETT'S PEDIGREE WHEAT, off the Clay.—Grown with great care from Seed obtained of Mr. Hallett. Threshed by hand. Price 10s. 6d. per bushel, including bags. Also the following sorts, being grown on the Lois-Weedon system, which allows each plant to become fully developed, are peculiarly adapted for Seed:—SHIRREFF'S BEARDED WHITE and HOARY WHITE, 52s. per qr., Sacks extra. SHIRREFF'S BEARDED RED, GOLDEN DROP, and WHITE STRAWED BROWN, at 48s. per qr.
Apply, with remittance, to THOMAS GRANT, Shirley House, Maidstone.

New English Hybrid Perpetual Rose, King's Acre.

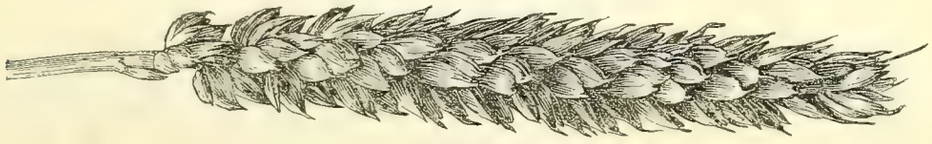
JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.
The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.
Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.
"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.
A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.
Nurseries, King's Acre, near Hereford.

MARSH AND PERKINS beg to offer the following to the Trade:—
ARBORVITÆ, AMERICAN, 1 year seedling, 1 year bedded, 10s. per 1000.
ARBORVITÆ, AMERICAN, 2 year seedling, 2 year bedded, 20s. per 1000.
ARBORVITÆ, CHINESE, 1 year seedling, in pans, 5s. per 1000.
" " 1 year seedling, 1 year bedded, 10s. per 1000.
" " 1 " " 2 " " 20s. per 1000.
BERBERIS AQUIFOLIA, 1 year seedling, 1 year bedded, 10s. per 1000.
" DULCIS, 1 " " 2 " " 20s. per 1000
" " 1 " " 2 " " 10s. per 1000.
BOX, GREEN, 1 to 1½ feet, 6s. per 100, 50s. per 1000.
BOX, VARIEGATED, 1 to 1½ feet, 6s. per 100, 50s. per 1000.
VINCA ELEGANTISSIMA, 2 year, 4s. per 100, 30s. per 1000.
PYACANTHA, in pots, 4s. per doz., 25s. per 100.
PRIVET, 1 to 1½ feet, 10s. per 1000.
Address, 42, Drapery, Northampton.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap.

TO GROWERS OF WHEAT.



NATURAL SIZE.

FARMERS WHO WISH TO GROW WHEAT TO ADVANTAGE SHOULD TRY

DAVEY'S PERFECTION PURE STOCK OF RED WHEAT,

SELECTED EVERY YEAR.

It supersedes all other Red Wheat that has been grown. It is free from blight, nor is it given to mildew, and is remarkable for its strength and size of straw just under the ear. Where it was sown last year it gave such universal satisfaction, that the gentlemen who used it intend sowing it largely this season. It may be had, at 26s. per coomb, by applying early to

MR. THOMAS DAVEY, GARBOLDISHAM LING, NORFOLK.

DUTCH ROOTS.

MESSRS. JOHN & CHARLES LEE

HAVE JUST RECEIVED THEIR

ANNUAL SUPPLY OF DUTCH ROOTS

IN GOOD CONDITION.

CATALOGUES free by post on application.

ROYAL VINEYARD NURSERY, HAMMERSMITH, LONDON, W.

ESTABLISHMENT for the INTRODUCTION of NEW PLANTS.

TO BE SENT OUT IN SEPTEMBER 1864.

AMBROISE VERSCHAFFELT, GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES:—

ACHYRANTHES VERSCHAFFELTII, Versch. (Illustration Horticole).—A splendid introduction; it is the rival of the charming Coleus Verschaffeltii, with the advantage that the Achyranthes is less delicate, and may be kept easily in a good greenhouse. It will be one of the finest plants for planting out in the summer. A beautiful bed can be now seen in my nursery. Obtained prizes in all the exhibitions to which I sent it—Ghent, Antwerp, Brussels (International Exhibition), &c. Fine plants, 8s each.

PHRYNIUM (MARANTA) VANDEN HECKEI, Versch. (Illustration Horticole).—This splendid Maranta was introduced by the botanic collector Baraquin, who discovered it in Para. It is one of the finest introductions I have made. Obtained several first medals. Fine plants, 20s. each.

ACER PSEUDO-PLATANUS var. LEOPOLDII (Illustration Horticole).—One of the best variegated Acers that we have. A correct Drawing may be seen in the September number of the "Illustration Horticole." Good plants, 8s. each; stronger, 16s. each.

AQUILEGIA SPECTABILIS (Illustration Horticole).—This is one of the finest Aquilegias; see figure in "Illustration Horticole." Good plants, 4s. each.

AZALEA PONTICA BOUQUET DE FLORE.—Splendid variety, large bouquet, rose, delicate, with stripes. A figure will be published shortly in the "Illustration Horticole." Good plants, 4s. each.

New Pears.

BEURRÉ SPAE (Illustration Horticole).—Fruit of first quality; see "Illustration Horticole." Good plants, 8s. each.

BEURRÉ VAN GEERT.—Fruit of first quality. A drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 8s. each.

ROSE (HYB. REMONTANTE) DUCHESS of MEDINACELI.—This is one of the best Roses that will be sent out this autumn. A Drawing will appear in the "Illustration Horticole" during the month of October. Good plants, 16s. each.

N.B. The NEW GENERAL CATALOGUE No. 75, is now ready, and can be obtained Free of my Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

All Letters containing Orders must be sent direct to
AMBROISE VERSCHAFFELT, GHENT, BELGIUM.

TRADE PEDIGREE MARK.

HALLETT'S | NURSERY WHEAT.



Seed required { In September .. .. 4 bushels on 10 acres. / In October .. { 1st half .. .. 4 bushels / 2d half .. On 8 acres. } / In November .. .. .. 4 bushels on 4 acres. }

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, without which the Wheat will in no case be sent.

APPLY TO FREDERIC F. HALLETT, ESQ., F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions:—

2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.

A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited.

Strong Planting Canes, 21s. each; extra strong Fruiting Canes 42s. each. Exotic Nursery, Tooting, Surrey, S.

ACER PSEUDO-PLATANUS, var. LEOPOLDII.—This splendid new hardy variety (of which A. VAN GEERT possesses the entire stock), with a brilliant carmine striped foliage, will be sent out in strict rotation from the 1st October. Fine grafted Trees, on stems, at 10 and 20 francs each. A Drawing may be had on application, and one plant over for every three taken.

A. VAN GEERT also offers fine plants of his new hardy RHODODENDRON AUGUSTE VAN GEERT, 5s. to 10s. 6d. each.

A VAN GEERT, Nurseryman, Ghent, Belgium.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade in general that his NEW CATALOGUE is just published, containing many interesting novelties, and may be had on application to his Agents, Messrs. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

CAMELLIAS, with flower buds, 6d. per 100.

INDIAN AZALEAS, best varieties, with flower buds, from 3l. 10s. and upwards.

New hardy Hybrid Rhododendrons, and Azalea indica Souvenir du Prince Albert (J. V.)

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following two new and beautiful hardy RHODODENDRONS, which he is now ready to send out for the first time, in strong plants at the undermentioned low prices, viz:—

RHODODENDRON PROFESSEUR LEMAIRE, strong plants, 12s. each.

RHODODENDRON VICOMTE DE BLOIS, 12s. each.

AZALEA INDICA SOUVENIR DU PRINCE ALBERT (J. V.) (the most distinct Azalea ever sent out). Dwarf grafted plants with nice heads, 8s. each. Per dozen, 4l.

All orders to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

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CAMELLIAS, best sorts, 1 to 1½ feet high, set with buds, at 6d. per 100.
" larger plants, 10l. per 100.
" 5s., 8s., and 12s. each, and upwards.

AZALEA INDICA (first-rate sorts), fine healthy plants, 4l. per 100.
" on stems 1½ to 2 feet high, 10l. per 100.

ARUNDO DONAX VERSICOLOR, fine strong plants, 24s. per doz.

LILIUM LANCIFOLIUM RUBRUM, extra large bulbs, 3l. per 100.
" " ALBUM, 2l. 8s. per 100.
" " PUNCTATUM (very scarce), extraordinary large sized bulbs, 4s. each.

CAMELLIA STOCKS, fit for immediate working, 28s. per 100.

AZALEA INDICA, fit for immediate working, 20s. per 100.

CAMELLIAS with buds being rather scarce this year, J. V. begs to solicit early orders, so as to ensure a good choice. All orders to be directed to

JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

Pæonies.

CHARLES VERDIER, FILS (successor to the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, has just published a Special and Descriptive CATALOGUE of the TREE and HERBACEOUS PÆONIES now disposable at his Nursery, which may be obtained, post free, either direct from him, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

The CATALOGUE of NEW ROSES and GLADIOLI will be published shortly, and will also be sent post free on application to the above.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3 Rue Dunois (late Rue des Trois Ormes), Paris, begs to inform Nurserymen, Seedsmen, Florists, and the Trade generally, that he will shortly publish his CATALOGUE of his unrivalled collection of GLADIOLI for this autumn, which may be had of him direct, or of his London Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C., upon prepaid application.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

Net prices to the Trade (without any discount).

NEW GLADIOLI for 1864, deliverable on the 1st Nov. next.

FULTON (SOUCHET).—Large flowers, finely formed; red vermilion, velvety, extra bright, magnificently coloured. Effective plants, 6 francs each.

MADAME FURTARDO (SOUCHET).—Very large and open flowers, disposed in long and beautiful spikes; very fine rose, diminishing to a light carnation, very strongly flamed with deep rose carmine. Extra fine varieties, 7 francs each.

MADAME DE SEVIGNÉ (SOUCHET).—Large flowers of a clear cherry rose, largely blotted and lined with pure white; a fine fresh colour, beautifully shaded. Very pretty varieties, 6 francs each.

MEYERBEER (SOUCHET).—Large well formed flowers, disposed in very long spikes; brilliant Nasturtium red, flamed vermilion, spotted amaranth red; perfection. Vigorous and splendid plants, 7 francs each.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application

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COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

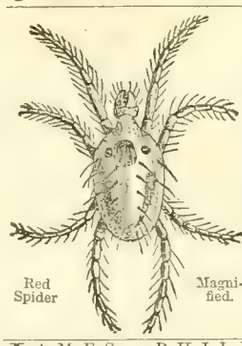
TOBACCO PAPER, good, 9d. per lb.
Price to the Trade on application.
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AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence.

Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs. BARR & SUGDEN, Seedsmen, King Street, Covent Garden.

CARTER'S FARMER'S VADE-MECUM.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

JAMES PHILLIPS AND CO., 180, Bishopsgate Street Without, beg to subjoin their prices of GLASS SLATES.

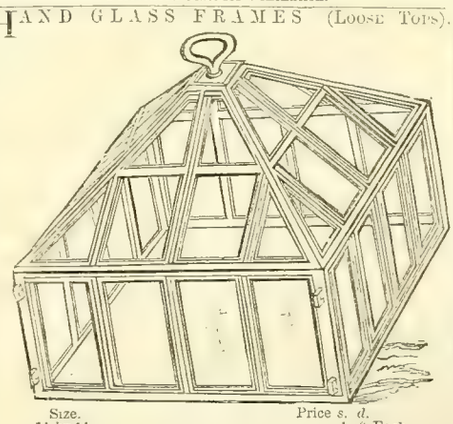
WITH DRILLED HOLES.	Size.	ROUGH PLATE. 3/16 inch thick.	ROUGH PLATE. 4 inch thick.	SHEET. 16 oz.	SHEET. 21 oz.	SHEET. 26 oz.	SHEET. 32 oz.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Duchess	21 by 12	1 5	1 6	1 9	0 9	0 11	0 1
Small Imperials	20 " 11	1 2	1 5	1 8	0 8	0 10	0 1
Small Duchess	22 " 12	1 2	1 5	1 8	0 8	1 1	1 3
Countess	20 " 10	0 11	1 1	1 3	0 7	0 10	0 1
Viscountess	18 " 10	0 10	1 0	1 1	1 0	0 6	0 9
Large Ladies	16 " 10	0 9	0 11	1 0	0 6	0 8	0 10
Ladies	16 " 8	0 9	0 10	0 5	4 0	7 0	8 0
Doubles	12 " 7	0 6	0 7	0 5	0 6	0 7	0 8

GLASS TILES.

ROUGH PLATE.	Each—s. d.	SHEET.	Each—s. d.
⅛ inch thick	0 10	16 ounce	0 6
3-16 inch thick	0 11	21 ounce	0 8
¼ inch thick	1 0	26 ounce	0 10
⅝ inch thick	1 6	32 ounce	1 0
½ inch thick	2 0		

GLASS TILES, quarter of an inch thick,
Packed in Cases containing 50. 17. 18s. 6d. per Case nett
3-16 inch Case of 60 .. £2 2 3 | ¼-inch Case of 60 .. £1 17 6
Cases, 2s. each extra, returnable at full price.
Glass Tiles and Slates will be found invaluable for Out-houses, Farm Buildings, Stables, and Factories.
Perforated Glass for Ventilation.

HAND GLASS FRAMES (LOOSE TOPS).



Size.	Price s. d.
14 by 14	4 0 Each.
18 by 18	5 9 "
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Delivered Free to any Station in England if 12 or more are ordered.
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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

FOR SALE, Three LEAN-TO GREENHOUSES, Size of do., 8 ft. by 7 ft., 12 ft. by 8 ft. 6½ in., 16 ft. by 9 ft. 10 in., with Glass ends. One, Two, and Three-light Garden Frames.
Apply to J. SMITH, Greenhouse Builder, 205, King St., Hammersmith.

GREEN'S PATENT LAWN MOWERS have proved to be the best in all cases of Competition.
Leeds, London, and Dublin.

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Illustrated Prospectus with Testimonials sent free on application.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free.
Price List free.
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For samples and prices apply to
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SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
Catalogues sent on receipt of 6 postage stamps.

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SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 1s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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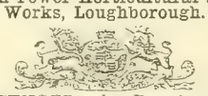


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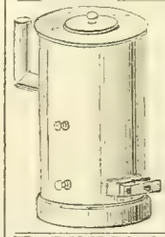
VINCENT SKINNER, Bridewell Street, Bristol.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.



T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.



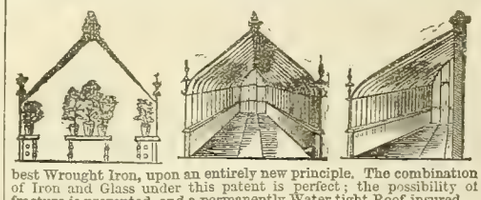
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3l. 10s.

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

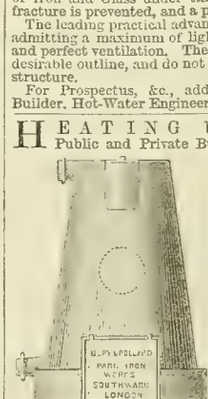
DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.



The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require no BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
Park Iron Works, 17, New Park Street, Southwark, London, S.E.
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD having completed the order for the India Board are now making another large Windmill and Pumps for the Government Gardens at Agra.

WIND ENGINES FOR ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY & POLLARD two years ago for Ascension as working most satisfactorily.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading Plants, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce in the landscape, many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post.

Orders by post promptly attended to. Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

Two Splendid Seedling Azaleas.

WILLIAM BARNES has great pleasure in announcing to his friends and the public that he will be prepared to send out on and after the 15th of October next, his two magnificent Seedling Azaleas, BRIDE of ABYDOS and PURITY.

BRIDE of ABYDOS is a splendid white, striped and splashed with pink; of fine vigorous growth, and an abundant bloomer. It was exhibited before the Floral Committee on May 6, 1862, when it met with their unanimous approval. The following description is given of it in the *Gardeners' Chronicle* upon the 10th of that month:—

"Mr. BARNES, of Southampton Street, Camberwell, contributed a beautiful Azalea named Bride of Abydos, the flowers of which are large, white, flaked with pink, and possess great substance; of this variety three plants were exhibited, all excellent in habit and evidently free in growth."

In the *Gardeners' Chronicle* of December 27, 1862, page 1217, in describing the new and most prominent Azaleas of the above year, are the following remarks:—

"As a free-flowering sort of vigorous habit adapted for decoration and exhibition, the Bride of Abydos is the most useful which has appeared amongst the whites, with occasional streaks of red."

Fine strong Grafted plants will be ready on the above date at 21s. and 31s. 6d. each.

PURITY is a beautiful clear white, fine large flower, with unusual substance and of the most perfect shape; it is of a fine robust habit. A variety of this description has long been required, viz.:—

A pure white, with fine shape, large flowers, and good vigorous habit. Plants will be ready on the above date at 21s. and 31s. 6d. each.

A few plants of each variety to offer in extra large plants, prices of which can be obtained on application to

WILLIAM BARNES, Camden Nursery, Camberwell, S.

WELLINGTONIA GIGANTEA.

Fine Plants from seed, 1½ to 2 feet, 30s. per dozen		
Do.	2 to 3 feet, 42s.	,,
Do.	Do.	4 to 6 feet, 10s. 6d. to 50s. each
Do.	Do.	6 to 7 feet, 42s. to 84s. ,,
Do.	Do.	7 to 9 feet, 63s. to 105s. ,,
CEDRUS DEODARA,		3 to 4 feet, 42s. per dozen
Do.		4 to 5 feet, 50s. to 60s. per dozen
Do.		5 to 6 feet, 60s. to 126s ,,

PINUS DON PEDRI, transplanted specimens, 2 to 3½ feet, 21s. ea. This noble species appears to be quite hardy; it bears monster cones, like Pine Apples, 16 to 18 inches long!

JAS. BACKHOUSE & SON, York Nurseries.

CORNELIUS WHITEHOUSE, Brereton Nursery, near Rugeley, Staffordshire, has to offer 200,000 Transplanted GREEN HOLLIES, from 7 inches to 5 feet; also, a large and well grown General NURSERY STOCK of Choice Evergreens of various sorts and sizes, American Plants, Conifers, Ornamental Trees, Variegated Hollies, Trained Fruit Trees, &c., Forest Trees, Strong Quicks, &c. The whole in fine condition for moving. The Trade liberally dealt with in Green Hollies, from 7 inches to 12 and 12 to 18 inches. Cash or reference is respectfully requested from unknown correspondents.

TO BE DISPOSED OF, close by the Chippenham Station:—

1 large AGAVE ALOE, in perfect condition, 38 years' growth. Length of leaves 4 feet.
1 Broad-leaved MYRTLE, handsomely grown.
1 healthy BLOOD-ORANGE TREE, well covered with leaves and fruit; 7 feet from tub; above 11 years' growth.
1 fine fruited LEMON TREE, same height.
1 CITRON TREE, in fine fruit, same size; matches well with the other plants.

Inquire of Mr. BISHOP, Cliff Cottage, Chippenham.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

INTERNATIONAL EXHIBITION 1862.

THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"

Containing full descriptions of 50 most desirable varieties of Vines, and complete Lists of imported Dutch Bulbs, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN, 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

FOR PRESENT PLANTING (Sent Carriage Paid).

DUTCH, CAPE, FRENCH, and ITALIAN FLOWERING BULBS,

FOR THE

ORNAMENTATION of the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.

THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, and 63*s.*

THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s*, and 63*s.*

THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*

HYACINTHS, 2*s.* 6*d.* to 15*s.* per dozen. CROCUS, 1*s.* 6*d.* to 4*s.* per 100. TULIPS, 3*s.* 6*d.* to 20*s.* per 100.

A Detailed List of the above Collections, and a General Priced List of Bulbs, sent Free and Post Paid on application.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

NEW PLANTS.

FISHER, HOLMES, & CO.,

Beg to announce that they are now prepared to send out their

NEW BERBERIS AND ABIES.

THE FOLLOWING ARE THE DESCRIPTIONS GIVEN OF THEM IN THE *GARDENERS' CHRONICLE*:—

BERBERIS STENOPHYLLA.

See page 460, May 14, 1864.

"A very hardy hybrid Berberis, between Darwinii and empetrifolia, which promises to be one of the best evergreen shrubs in cultivation. We call it B. stenophylla. The branches are hairy; the spines 3-parted; the leaves very dark green, about half an inch long, pale beneath, tipped with a short spine, and rolled backward at the edge, so as not to appear flat but to look almost cylindrical. The flowers are of the same charming apricot colour as that which renders Darwinii so ornamental, but they are smaller," &c.

August 13, page 770.

"At p. 460, we invited attention to a hybrid Berberry, from the Handsworth Nursery. The specimens we had then seen proved it to be a very handsome shrub in regard to its flowers, which were of a fine apricot colour, and produced in racemes of from 3 to 5 together from the leaf axils, instead of singly as in B. empetrifolia, of which this new shrub has something the character, but it is more vigorous. From samples which have recently been sent us, we are able to say that the bushes are at this season laden with purplish black berries, which must add greatly to their beauty, as well as prolong indefinitely the period of their effectiveness as ornamental shrubs. The berries, like the flowers, hang in racemes of from 3 to 5 from the leaf axils, and are about as large as Currants in the samples sent to us, but we learn that they are smaller than usual this year, owing to the excessive drought. When we add that this Handsworth hybrid is of a very hardy character, that it makes strong shoots 4 feet long in a season, that it is clothed with neat narrow evergreen foliage, and adorned with a profusion of gay orange-coloured blossoms in early summer, we shall have said enough to show that it is likely to prove a very decided acquisition, not only for our pleasure grounds and shrubberies, but also for our plantations and game preserves."

First size, strong plants in pots, 21s. each.
Second size, in pots, 15s. each. | Third size, in pots, 10s. 6d. each.

ABIES CANADENSIS MICROPHYLLA.

A beautiful Conifer of slender pyramidal habit, remarkable for the dumpy plump-looking blunt-end leaves which clothe its smaller twigs and branches, and which from their brevity and plumpness give it some peculiarity of aspect.

See p. 580 last year.

"The same exhibitors had an elegant North American Fir, very near the Hemlock Spruce, remarkable for its dumpy, plump, blunt-ended leaves."

Also in *Gardeners' Chronicle* for this year, p. 460, it states:—

"This Abies is of such singularly dwarf habit that it might almost be compared with a Heath. Leaves very dark green with a white streak beneath, rough at the edge, and no bigger than those of Menziesia polifolia. It may possibly be included in some catalogues under the name of Abies canadensis nana, but the leaves are much smaller than in the plants which we have seen bearing that name. Messrs. Fisher, Holmes & Co. have found it much more hardy than canadensis is itself, it not having suffered in the severe winter two years ago, when so many Conifers were injured."

Plants in pots, 42s. each.
A few extra sized Plants in pots, 63s. each.

Prices to the Trade on application.

N.B. CATALOGUES of FRUITS; FOREST, ORNAMENTAL, and EVERGREEN SHRUBS; ROSES; KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS; STOVE and GREENHOUSE PLANTS; DUTCH FLOWER ROOTS, &c., may be had Free in their respective seasons.

FISHER, HOLMES, AND CO., HANDSWORTH NURSERY SHEFFIELD.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	.. £4 4s.	12s.
Very fine ditto	.. 3 10	9
Good ditto	.. 2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Established Upwards of a Century.

BUTLER AND McCULLOCH,



SEED MERCHANTS, Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5l.	2l. 10s.	1l. 5s.	1l. 1s.	15s.	10s. 6d.

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5l.	3l.	2l.	1l. 5s.	1l. 1s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5l. 5s.	2l. 12s. 6d.	2l. 2s.	1l 1s.	15s.	10s. 6d.

These Collections include only Bulbs of first-class quality.
For full particulars see CATALOGUE, which may be obtained post free on application.
Orders amounting to 21s. and upwards sent Carriage-free.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS. For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post free on application.
Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., and 12s. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

WEST RIDING NURSERY and SEED COMPANY have received their immense Collections of BULBOUS ROOTS from Holland and France, fine sound Bulbs, and at prices lower than ever offered.
GREENHOUSE COLLECTIONS for FORCING, at 20s., 40s., 60s., 80s., 100s.
COLLECTIONS for BEDS and BORDERS, consisting of Hyacinths, Narcissus, Crocus, Jonquils, Snowdrops, Anemones, Ranunculus, Iris, Double and Single Tulips, &c.

500 roots in the above sorts, 20s.	2000 roots, correctly named, 80s.
1000 ditto correctly named, 40s.	2500 ditto, 100s.
1500 ditto, 60s.	No charge for Package.

CATALOGUES now ready.
WILLIAM BARRATT, St. John's, Wakefield.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out, some 1500 extra fine well ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

New Hardy British Ferns.

J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.
(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Sept. 24.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey, near Sunniugdale Station, South-Western Railway.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.
MRS. FITZGERALD, a very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT, brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH, dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL, dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR, clear rosy scarlet, very large truss, and fine foliage.
SURPRISE, a light lilac, with immense dark marking, which renders it very remarkable.
American Nursery, Bagshot, Surrey.

PLANTING SEASON.—100 sorts FOREST TREES, in all sizes; 300 do. EVERGREENS; 300 do. CONIFERÆ; 400 do. FLOWERING SHRUBS; 400 do. ROSES; 50 do. CLIMBERS; 1000 do. FRUIT TREES; 3000 do. Winter and Summer BEDDING PLANTS; 2000 do. general GREENHOUSE and STOVE PLANTS, FERNS, &c.
Apply to J. SCOTT, Merriott Nurseries, Somerset, for CATALOGUES. Fruit Tree, 7d.; Bedding Plant, 6d. General Nursery, Bulb, and Seed do., one stamp each. These Catalogues are allowed to be the best published, and when bound together, form a Vade Mecum, unsurpassed for Horticultural and Planting improvement.

CARTER'S GARDENER'S VADE-MECUM.

To the Trade.

MESSRS. DOBSON AND SONS will be happy to make arrangements with New Customers in the Trade to supply them with the choicest CALCEOLARIA, CINERARIA, PRIMULA and HOLLYHOCK SEED, ready made up in Sealed Packets, and which has given such great satisfaction to most of the leading firms in the United Kingdom. A liberal allowance made.
Woodlands Nursery, Isleworth, W.

Pelargoniums and Cinerarias.

J. DOBSON AND SONS have a large and unusually healthy stock of plants, which they will be happy to supply at very moderate prices; their collection contains all the leading Show and prize kinds, and intending purchasers will find it to their advantage to communicate with them previous to ordering.
Their new CATALOGUE is just published, and may be had on application.
Their New BULB LIST is now ready, post free.
Woodlands Nursery, Isleworth, W.

DOBSON AND SONS' SUPERB SEEDS.
CALCEOLARIA, unequalled, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
CINERARIA, 1s., 2s. 6d., and 5s.
PRIMULA SINENSIS FIMBRIATA extra, 1s., 2s. 6d., and 5s.
PELARGONIUM, extra fine, 2s. 6d. and 5s.
HOLLYHOCK, superb, 1s. and 2s. 6d.
A liberal allowance to the Trade.
Woodlands Nursery, Isleworth, W.

CHAS. SOUTHBY, NURSERYMAN, Clapham, London, S., offers a few Packets of the following SEEDS saved this season from Plants that obtained Prizes at the London Shows:—

CYCLAMEN PERSICUM, from 8 vars. ..	per pkt. 2s. 6d.
CINERARIA, very dwarf vars.	,, 1 6
CALCEOLARIA, the finest possible strain ..	,, 2 6
PANSY, from 24 best vars. out	,, 1 0

VINES from Eyes, strong Canes of all the leading kinds, 5s., 7s. 6d., and 10s. 6d. each.

ZONALE PELARGONIUM SEED, for present sowing, 2s. 6d. per pkt.—The above includes the newest and choicest varieties, and embraces the most distinct and diversified colours of this popular favourite. Amongst it are Mr. Bull's new kinds, so highly commended and universally admired at the great Flower Shows. This is a rare chance to amateurs of raising first-class sorts.
Mr. Bull's new SPOTTED HYBRID MIMULUS, 1s. per packet.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 24, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Sept. 27 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington.. Noon

A CORRESPONDENT has sent us a sample of perfectly sound and good POTATOS, in which the whole surface has little particles of dirt and vegetable matter attached to it by very short delicate threads. Whether he went so far as to examine the surface minutely with a lens we cannot say, but had he done so he would have seen that the whole is occupied by a close-pressed extremely fine network with wide meshes, the threads of which are of a deep copper purple. Here and there he might have seen these threads communicating with minute patches of the same colour, consisting of fine intermatted flocci.

The Fungus is in fact in a very early stage of development, and it required some acuteness on the part of our correspondent to notice its presence at all. In the course of a few weeks probably the whole would be invested with a coloured film, which if it did not impair the quality of the tubers, would at least render the crop unsaleable.

The Fungus is the common Copper Web (Rhizoctonia), which is so destructive in some districts to Lucerne and Asparagus, whose roots are killed by it. It is not, at least in its early stage, destructive to Potatos, and if the tubers are lifted at once it is possible that the spawn may not obtain any further development in the pit. The safer plan however would be to use them immediately.

We observe that the soil is full of fibrous matter derived apparently from a former crop, but whether this has had anything to do with the production of the Copper Web we are unable to say. *M. J. B.*

WE are reminded of the revolution wrought in our FRUIT GARDENS by the introduction of Pyramidal and Bush trees, and of the share which Mr. RIVERS has had in bringing it about, by the appearance of a twelfth edition of a capital little book * of his, which is devoted to this subject. The readers of the previous eleven editions must of necessity comprise a goodly company of cultivators, and of these it is a fair presumption that many have become converts to the practice.

If it be true, as doubtless it is, that for the bulk of our hardy fruit produce we must rely on our old-fashioned orchards, judiciously managed after the principles which Mr. Cox is so well explaining in our columns, it is unquestionable, on the other hand, that many of our choicer fruits may be satisfactorily grown in the miniature fruit garden, as Mr. RIVERS calls it, with such aid as is to be derived from Quince and other dwarfing stocks, and from the practice of root-pruning, biennial removal, and the summer pinching system of pruning applied to the formation of cordon, of pyramid, and of bush-formed trees.

This method of culture is eminently adapted for amateur gardeners who take a personal interest in the management of their own trees. Root-pruning and biennial removal are most essential features of it, and from the moderate size of the trees cannot be regarded as obstacles in the way of carrying it out. Their purport is to make and keep the trees healthy and fruitful by ensuring that their roots shall be kept near the surface within the influence of the sun and air. The ground over the roots of garden trees is too commonly dug once or twice a year and cropped, so that every surface fibre is destroyed, and the larger roots are driven downwards, with the certain result of imbibing crude watery sap, and developing a too surely fatal luxuriance—fatal because the wood scarcely ever ripens as it should do.

Perhaps of all hardy fruits the Pear is that which can be most profitably submitted to this discipline. Indeed, worked on the Quince and prepared by one or two removals, pyramidal Pears become a perfect mass of fibres, and the stems and branches literally clothed with blossom buds. Summer pinching, however, it is to be always remembered, is a most important element in the management of such trees; and so are winter transplanting and root-pruning, which, if not done annually, should at least be practised every two years, early in November.

The French gardeners, Mr. RIVERS tells us, have a curious yet interesting way of training Pear trees on the Quince stock, which they call training *en fuseau*, or distaff training, the most simple of all modes. A young tree, one year old from the bud, is planted; and every side shoot, as soon as it has made four leaves, has its top pinched off, leaving three. This is the first pinching, early in June. These pinched shoots all put forth young shoots which must be pinched to one leaf, and so on with all the young shoots during the summer. The leading shoot is topped when it has reached 12 inches in length, and as soon as two or three shoots break out from it, all but the leaders are pinched in in the way already described. This process is repeated every season, and a very complete distaff-like tree is the result. This, which is the cordon system applied to single-stemmed trees, is much to be recommended for small gardens, where it is desired to accommodate a considerable collection.

What the Quince stock is to the Pear, the Paradise stock is to the Apple, and the Mahaleb stock to the Cherry. On the Paradise stock Apples form pyramids of great beauty and utility. This stock, like the Quince, has a strong tendency to emit roots near the surface, and is therefore just suited for the practice of frequent transplantation. The sorts of Apples should be discriminated, those of close compact habit being suitable for pyramids, while those of horizontal or crooked growth must be treated as bush trees. The pinching in, which is the same in either case, may be practised with Apples as with Pears, and the results are equally successful. The Apple, too, may be profitably grown in the form of single horizontal cordons, as an edging to kitchen garden borders. The *modus operandi* is this:—Take a tree worked on the Paradise or Doucin stock, and having a single shoot; plant it in a sloping position, and train the shoot, at about 10 or 12 inches from the ground, along a wire supported by oak posts, standing one foot above the surface and 30 or 40 yards apart, the wire being passed through an eye at the top of iron pins placed at intervals of six feet. Plant the trees six feet apart, train them along the wire, and when they meet graft them into each other so as to form a continuous cordon. Every side shoot of these cordons is to be pinched in to three leaves all the summer; and the fruit, from being near the earth, and thus profiting largely by radiation, will be of very superior quality. Vertical cordon training may also be successfully adopted both with Apple and Pear trees. It is, however, found with respect to all cordon trained trees, that root-

* The Miniature Fruit Garden; or the Culture of Pyramidal and Bush Fruit Trees; with instructions for Root Pruning, &c., &c. By THOMAS RIVERS. Twelfth Edition. London. Longmans. 1864. Pp. 125.

pruning or removal is seldom required, the vital force of the plant being in most cases sufficiently reduced by the continuous pinching of the young shoots. All vertical cordon trees, too, should be supported by slight iron rods standing 6 feet above ground, and inserted 10 or 12 inches into the soil.

In respect to Plums, no stock has been found quite analogous in its effect on these trees to that of the Quince and Paradise stocks on the Pear and Apple respectively; but it has been found that trees worked on the Plum stock are readily dwarfed by the system of annual or biennial transplantation.

The most charming of all pyramid fruit trees, however, are found in the varieties of Duke and Morello Cherry worked on the Mahaleb stock. These, by following out the summer pinching and winter transplanting as with Pears and Plums, become, to use Mr. RIVERS's words, "in two or three years the most delightful fruit trees ever seen, for in spring they are perfect nosegays of flowers, and in summer clusters of fruit—if spared by spring frosts." As vertical cordons, too, nothing can be more charming than these kinds of Cherries.

As to frequency of removal, Mr. RIVERS lays down the following data. If the soil be very rich, so as to induce the trees to make shoots of 18 inches long in one season, they may be transplanted annually till this rate of growth is checked. If they only make a growth of 6 or 8 inches, they may be transplanted biennially. If the soil is such that the trees grow but very slowly, root-pruning is more advantageous than removal, as they sustain less check than by the latter operation.

Double grafting is another secret of success with respect to Pears; and this is the history which Mr. RIVERS gives of it. "I observed," he remarks, "when budding and grafting Pears on the Quince, that some varieties did not grow freely on it, especially Gansel's Bergamot, Knight's Monarch, and others. I found that the Beurré d'Amanlis formed a most perfect union with the stock, and seemed most enduring, for I had seen trees in France at least 50 years old. I therefore fixed on this sort for experiment, and had thrifty trees two-years old from the bud, grafted with Gansel's Bergamot. These grafts flourished, and became so prolific that when three or four years old they bore from three to four dozens of fruit. There are many Pears of the finest quality but of a delicate and unfertile habit, that may be much improved by double grafting. With Apples the plan is of less importance, the Paradise stock securing perfect health and fertility in most soils."

THE PLANTERS OF TREES AND SHRUBS in Scotland, with a few exceptions, have been rather behind those who live in the southern part of the United Kingdom in appreciating the value of new introductions from foreign countries. While ornamental or useful hardy plants are eagerly sought for and planted in the parks and gardens of England, but small encouragement has hitherto been given to such things in Scotland. We do not suppose that this state of apathy is owing to any unwillingness on the part of our northern brethren to incur a little extra expense in the purchase of novelties, but it probably has arisen either from a want of consideration, or from an indifference to the matter altogether.

In these days of rapid communication by telegraph and railroad, the indifference to which we allude could scarcely have proved lasting. And we are glad to be able to state that a marked change has taken place already, the effects of which are visible in several parts of the country. Within the last few years we have heard a good deal of some gardens in the vicinity of Falkirk, which were becoming remarkable for their beauty and interest, owing to the number and size of the exotic trees and shrubs which were growing in them. During a recent tour in Scotland we took occasion to pay a visit to Falkirk, and we must say that what we saw there far exceeded the expectations we had formed from the reports that had reached us. The gardens visited by us belonged to Mr. RUSSELL, Mr. GAIR, Mr. NIELSON, and to a sister of the gentleman first named, and there are probably others of the same kind in the neighbourhood. These gardens contained goodly-sized specimens of most of the new Pines and other trees and shrubs which have been introduced within the last 30 or 40 years. The plants are already extremely ornamental and interesting objects in the gardens where they grow, and they are producing a marked and beautiful effect upon the scenery about the town.

Our object at present is not so much to give a list of the names of the trees and shrubs we met with in these gardens, as to draw attention to the circumstance of their successful cultivation in that part of the country, and to the effect they are already producing upon the scenery. But we may mention that we observed large and handsome specimens of the Indian Deodar and its silver-leaved variety, of Wellingtonia gigantea, of Cryptomeria japonica, and of Abies Douglasii, Nordmanniana, nobilis, cephalonica, Pinsapo, Menziesii, orientalis, &c. All the new sorts of Thuja, Thujopsis, Cupressus, and Retinospora, were flourishing in an admirable manner. The little Japanese variegated-leaved Honeysuckle was used as an edging round beds, and had a pretty appearance when applied in this way. And we may remark farther, that the nurseries of Knaphill and Bagshot would seem to have been ransacked for the finest kinds of the Rhododendron, all of which were thriving luxuriantly in the Falkirk gardens. As a large proportion of these new trees and shrubs to which we have alluded are Evergreens, the effect they produce upon the landscape during the winter months must be even more striking than they were at the time of our visit.

We may hope that the example now set by the gentlemen of Falkirk will be speedily followed in other parts of Scotland. We are aware that much has been done in this way in Perthshire, and at some future time we may have the pleasure of visiting those places in that part of the country to which we alluded when drawing the attention of our readers to the beautiful set of photographs which were employed to illustrate Mr. MURRAY'S lecture on Conifers delivered to the Royal Horticultural Society at South Kensington.

The Scotch are naturally and justly proud of their country. That

> "Land of brown heath and shaggy wood,
> Land of the mountain and the flood,"

of which Sir WALTER SCOTT so charmingly sings in his "Lay of the Last Minstrel," has many charms. The thousands of tourists who, at this season of the year, are wandering about amongst its hills and valleys, will return to their homes much pleased with the scenery through which they have passed. But taking all this as granted, there is no country in the world which is more capable of being enriched and improved by the productions of other lands than Scotland. Its scenery may be made more interesting and more beautiful than it is now by the cultivation of those foreign hardy trees and shrubs which we have just been describing, and therefore we hail with a lively satisfaction any movement which has a tendency to this end.

There is another matter which came under our notice during our visit to these Falkirk gardens. The Falkirk people are also most successful in transplanting trees of almost any size, and in transporting them from one part of the country to another. Mr. SORLEY, a gardener in the town, is quite famous owing to his success in this department of his profession. Some account of his process will be found in our Volume for 1863, at p. 147. He has succeeded in moving an immense number of trees and shrubs, many of great size, and in bringing them safely home to Falkirk, oftentimes from a considerable distance. Jealous people even say that he is so enthusiastic in this matter that he is accustomed to look with an envious eye upon every fine specimen he meets with away from home, and that he does not rest until he has added it to the collections of his native town. We believe the secret of Mr. SORLEY'S success is simply this: he knows the best season for transplanting each particular tree, and he attaches the greatest importance to the preservation of the young roots, more especially in cases where the specimens happen to be large ones.

Before closing these remarks upon the introduction of foreign hardy trees and shrubs to Scotland, may we ask what progress the last expedition to North-west America is making? It was stated for some time to be full of promise, but we have not heard anything of it lately. There is, surely, still a fertile field in that quarter of the world, which will yield an abundant harvest of fine things for our woods and gardens.

—— WE understand that Mr. ROBERT WARNER has at the present time in flower at Broomfield, a magnificent plant of VANDA LOWII, a very fine species, presenting some curious points of structure. One of the most remarkable of these is the occurrence—on every spike apparently—of two flowers totally unlike all the rest. This was observed in the example originally flowered by Messrs. VEITCH, by whom the plant was introduced alive from Borneo about 1858, and was then supposed to be an accidental freak; but it is also recorded by Prof. REICHENBACH (who calls the plant Renanthera Lowii), as having occurred in the case of a plant flowered in 1861 by M. REICHENHEIM, of Berlin; and it occurs again, as we now learn, on all the seven flower spikes which are borne by Mr. WARNER'S plant—some idea of the character of which may be formed from the following particulars:—The plant is about 6 feet 6 inches high, and the leaves, which are rather less than 3 feet long, are slightly curved downwards, so that the breadth of the plant is about 4 feet 6 inches. There are three subordinate shoots of about a foot in height. All the flower spikes, seven in number, are, however, produced from the one main stem, a circumstance which our informant regards as unprecedented in the garden history of this Vanda, no cultivated plant having as yet produced so many spikes from one stem. The flower spikes are some of them 6 feet, some 8 feet long, and they are very pliant, and hang about in an extremely graceful manner. The number of flowers on each spike varies from 30 to 35, the lowermost ones placed about 4 inches apart, the others about 2 inches apart on the spike. The prevailing colour is a light buff marked with reddish brown bars and spots, but as already observed, the two lower flowers, that is to say the two nearest the stem, on each spike, are of a golden yellow with dark spots, and the sepals and petals in these are broader and blunter than in the others. The flowers on this plant are stated to have been already expanded for six weeks, and every one of them to be as fresh as ever! Now that it is found that this handsome and curious species, under proper treatment, can be made to yield its blossoms so freely, it will doubtless be much sought after by Orchid growers. We understand the specimen we have referred to is be figured in the new series of Mr. WARNER'S Orchidaceous Plants. The singular dimorphism which occurs in this plant does not appear to affect the essential organs of the flower, for, in the specimens examined by Prof. REICHENBACH, the pollen masses and the placentas are stated to be equally developed in both forms.

—— At the last meeting of the R.H.S. Flora Committee, Mr. TILLERY, of Welbeck, invited attention to a property in the HOLLYHOCK, which, if known to the initiated, does not appear to be commonly known or practised amongst cultivators generally. It is, that seedlings may be had to bloom satisfactorily the same year in which they are sown. Mr. TILLERY'S communication was accompanied by some remarkably fine-grown flowers, admirable subjects for garden decoration, in illustration of the treatment which he recommends to those who have not convenience for wintering a supply of plants. These flowers were in fact sent to show that the seeds of Hollyhocks sown in February will yield vigorous flowering plants the following September—a great desideratum in filling up shrubberies with masses of these gorgeous autumnal flowers, for which purpose, of course, seedlings of a "good strain," as the florists say, are exceedingly well adapted. It was explained that in the case in question, the seeds were sown in a Peach-house in the beginning of February. The seedlings were planted singly in small pots, and kept growing in heat till the beginning of April, when they were planted out, some in well-prepared garden soil, others in masses in the shrubberies. All have flowered, or are coming into flower. It is well-known, Mr. TILLERY observes, that severe or wet winters cause the Hollyhocks to rot, when not protected by frames; but by raising them from seeds every year, a supply can be kept with little trouble. It is also well-known that certain kinds of Hollyhocks may be reproduced almost true to colour and properties when raised from seeds, and such are of course very desirable parents to adopt when this method of treatment is carried out.

—— We have not yet got to the end of the NEW GRAPES, for which, in the form of seedlings or foundlings, the last few years have been remarkable. Only the other day, at South Kensington, Mr. WILLIAM PAUL exhibited one which, so far as can be judged from cut fruit, promises to take the highest rank of merit. It has the Hamburgh character of bunch and of berry, and something of the Hamburgh flavour, but with this is combined most distinctly that of the Frontignans. It is described as a cross between the Hamburgh and Frontignan, and this its peculiar flavour seems to confirm. The only drawback to this new Grape is its colour, which is of a rather reddish grizzly hue; but we suppose that after all the test of a Grape lies in its flavour. Its large rich succulent berries will place it on a par with the Muscat Champion, or, as it was formerly called, the Champion Hamburgh Muscat, which indeed it somewhat resembles in its outward aspect. We believe this, like the variety just mentioned, originates in the north.

INFLUENCE OF HEAT-FORCE ON VEGETABLE LIFE.

I CANNOT conclude my remarks upon the recent progress of biological science without alluding to the modern discovery of the dynamical theory of heat, or equivalence of heat and force—a wonderful theory, which the lectures of Tyndall have rendered practically clear even to the unscientific mind, but which, nevertheless, it is difficult to follow in all its details without feeling a certain bewilderment of the brain. I may refer to Dr. Carpenter's article "On the Application of

the Principle of Conservative Force to Physiology," in the "Quarterly Journal of Science" for January and April of the present year, for a general review of the influence of this force on vegetable and animal life; and for a more popular summary, to the graphic sketch of the relation of the sun to life, contained in the closing portion of Prof. Tyndall's twelfth lecture. But in this summary occur the following passages, which, however correct in regard to the great principle they are intended to illustrate, might yet, I think, without explanation, lead the ordinary reader into considerable error with regard to some great biological facts; and upon which therefore, on account of the high standing of the distinguished author, and the general circulation which the work must command, I think it necessary to offer a few observations.

"The earth's atmosphere contains carbonic acid, and the earth's surface bears living plants; the former is the nutriment of the latter. The plant apparently seizes the combined carbon and oxygen, tears them asunder, storing up the carbon, and letting the oxygen go free. By no special force, different in quality from other forces, do plants exercise this power: the real magician is here the sun." (P. 430.)

"But we cannot stop at vegetable life; for this is the source, mediate or immediate, of all animal life. In the animal body, vegetable substances are brought again into contact with their beloved oxygen, and they burn within us, as a fire burns in a grate. This is the source of all animal power, and the forces in play are the same in kind as those which operate in inorganic nature. In the plant the clock is wound up, in the animal it runs down. In the plant the atoms are separated, in the animal they recombine." (P. 431.)

The sun "rears, as I have said, the whole vegetable world, and through it the animal. The Lilies of the field are his workmanship, the verdure of the meadows, and the cattle upon a thousand hills. He forms the muscle; he urges the blood; he builds the brain. His fleetness is in the lion's foot; he springs in the panther; he soars in the eagle; he glides in the snake. He builds the forest, and hews it down—the power which raised the tree, and which wields the axe being one and the same. The Clover sprouts and blossoms, and the scythe of the mower swings, by the operation of the same force." (P. 432.)

Notwithstanding the assertion to the contrary, it must be admitted that there is here a little of poetry mixed with rigid mechanical truth; and we, as special investigators of the complex phenomena of animal and vegetable life and living beings, ought not to allow this quiet and summary dismissal of what is ordinarily, though perhaps erroneously, called "vital force," without remark. Life may not be a force in the sense which natural philosophers give to the term, but it is a power which so materially modifies the action of heat-force, that it comes within the general and more popular meaning of the word. Life cannot indeed be set in action without the operation of heat-force; but, on the other hand, the sun cannot build a tree without the assistance of life. What life really is we do not know: its origin is probably beyond our investigation; but its existence and continuity cannot be denied. Notwithstanding the objections of heterogeneists, I cannot but remind you that in the present state of science we have as yet no prospect of proofs that any new life is created, that any new living being is built, by the sun or any other force, out of matter organic or inorganic. Life is continuous, and has been so from a period beyond human cognizance. We witness its cessation, but it has never been known to commence. Every new being grows out of, and is a portion detached from, a pre-existing one. We cannot even fix precisely the moment when its independent life commences. It is not when the detached bud first shoots out its own roots, not when the seed bursts, or the egg-shell is broken, or the young animal is born; for the bud, the embryo or fœtus, had a previous existence, more or less independent of, or connected with, the parent, according to species. It is not at the moment of fertilisation; for the bud, and even the ovum in cases of parthenogenesis, may grow into independent beings without ever being impregnated. Nor can our most powerful instruments perceive the moment when the first embryo-cell receives that impress which has irrevocably determined the form which the perfect being is to assume, within those narrow limits which neither impregnation nor any other influences set in action by the sun can ever make it exceed. And if life is once stopped, if interrupted, be it for a moment, no force can set it in action again. It may lie dormant for a long (but not perhaps indefinite) succession of years; its action may be absolutely imperceptible or limited to the resistance of disorganisation, until recalled into more active operation by the action of the sun on surrounding influences; but if during the dormant period (of the seed, egg, &c.) life has once ceased, nothing will restore it: the action of the same sun upon the same surrounding influences will produce decomposition, not growth. The word "force" may indeed be properly limited to mechanical force, and it may be incorrect to say that life is a force different in quality from other forces; but as we must have some term equivalent to the popular sense, we may call life a power different in quality from force. Dr. Carpenter (p. 80) proposes to term it a germinal capacity; but it is surely much more than a capacity, to be paraphrased as the "power of utilising, after its own particular fashion, the heat which it receives, and of applying it as a constructive power to the building up of its fabric after its characteristic type" (p. 87). There is here this difference between the term and its paraphrase, that the one expresses a passive, the other an active idea.

"Vegetable substances, brought into contact with their beloved oxygen in the animal body, will burn within it as a fire burns in the grate." True; but that burning will be fermentation and corruption, unless brought under the influence of the living parts of the body to be converted into growth. I say growth, not building; for building the brain and the forest is a metaphor which must lead the unscientific mind far astray from all that science has as yet taught us. Nothing in life is built, in the ordinary "sense" of the term; no portion, no single cell, has been externally added to a living being; everything has grown out of it, every new cell is gradually compounded within a living cell.

"The plant apparently seizes the combined carbon and oxygen, tears them asunder, storing up the carbon, and letting the oxygen free." True; but it does much more. Every living being, animal or vegetable, absorbs compound substances, decomposes them, liberates at once a portion (chiefly oxygen in the case of most plants), and stores up a portion. Of this portion some may be deposited unchanged in visible particles in various parts of the animal or plant, but some also undergoes a further decomposition and dilution into a state hitherto concealed from our observation, from which it emerges recombined, having already received a peculiar impress, definitely differing in every species, or even in every individual—differences then inappreciable, it is true, to our senses, but evidenced by the forms the animal or plant is compelled to assume as it grows. And the process is substantially the same in animals and plants; both absorb, decompose, select, reject, and recombine. An animal may select what a tree rejects; but so also may one plant select what another rejects. None feed upon carbon or oxygen alone. Some are not satisfied without drawing their nutriment direct from the living plant or animal; many feed upon organic substances, in which the decomposition after death has scarcely commenced; and most, if not all, appear to require for their support some small portion, at least, of matter in which life is or has been. In both animals and vegetables the clock is wound up, and it runs down; in both, the atoms are separated and recombined, and in both, these operations take place in a totally different way from what they do in the same bodies under the same influences, the moment life is extinct, the moment the vital power ceases to act. It is this vital power, its continuity and infinite divisibility, its unity and infinite diversity, the concordances, discrepancies, and reciprocal action and influences of the infinity of forms it produces, that our Society is specially called upon to investigate. As systematists, we have so to discriminate, describe, and class these forms as to enable us readily to identify them, both individually and collectively, to comprehend one and another and ourselves in treating of them, and to retain and store in our minds and books what is known of their resemblances, differences, and peculiarities, of their influences and relations to each other and to the lifeless world, as a starting point for future observation. As biologists, we have to study life itself in all its phases, and the multifarious influences by which it is continued, preserved, multiplied, checked, injured, destroyed, or extinguished. But, in addition, we must not neglect to learn from natural philosophers what are those general forces which act on organic as well as on inorganic bodies, and whilst carefully watching every modification these forces undergo, when applied in combination with vital power, gratefully accept any proved identity of action in the living and inanimate world. *From the President's Address at Anniversary of Linnean Society.*

NOTES ON GARDENS.—No. XVII.

MANCHESTER BOTANIC GARDEN.

REJOICE, ye lovers of trees that dwell in the mighty Babylon, and cease your persistent grumblings, ye Horticulturists around it, for your trees are as the trees of the oasis, your dews as those of Hermon, compared with the blighted Oaks and inky vapours which it was my fortune to sail through in the neighbourhood of Stockport. I had previously thought London the worst place in the world for plants, but it was a mistake. Only a few days before I had seen the Planes in various places in the heart of London delightfully healthy and verdant; and now gaunt skeletons were flitting by whose last leaves of life were shed. Dead trees were, however, much more abundant on the road to Todmorden. "Oh!" said I, "if this is improved upon, there will be little need for the charming Perilla in the Manchester Botanic Garden."

However, Manchester is not the blackest of cities; and the Botanic Garden is situated pleasantly enough at a considerable distance from its busy and smoky parts. The air is free enough from gases and smoke to permit many plants to prosper in the garden, though the Rose is almost absent from the Rosary, and the Pine in a good state from the grounds through their influences. The garden was commenced many years ago, when the city was poor compared to its present condition; and was begun very spiritedly by its originators, to judge from the dignified and respectable entrance-gates, curator's house, and other works completed by them. I am very particular about curators' houses and the entrance gates of botanic gardens: they are rarely up to the mark of mediocrity. The curator's house in the Manchester Garden is one of the best I have seen, and is situated immediately within the gates, a corresponding building on the other side containing a council room, porter's room, a small museum, and other necessary offices. The entrance gates at Kew, though good, are not worthy of the praise they receive in the Guide Book. At Glasnevin the entrance is respectable and nearly worthy of the noble garden, but I cannot say so much for the external aspect of the director's house, though it may be commodious and comfortable in other respects. At Liverpool both entrance and house are satisfactory. At Oxford the entrance is massive, ancient, and interesting, the curator's house snug. At Edinburgh the entrance is backdoorish; of the curator's house I can say nothing, as during my visit it was undergoing extensive alterations. At Belfast the entrance is paltry, but the curator's house is neat, and beautifully, though rather too conspicuously situated. At the College Gardens, Dublin, there are entrance gates in the noble iron railing which separates the garden from the main road, but there is no curator's house.

If there is one spot where a building should be more truthful, chaste, and dignified than another, it is in a great garden, especially in a national one, and why? Because it is or ought to be surrounded by the most dignified and beautiful objects on the face of the earth, "builders with the shield" and "builders with the sword," as a great writer calls the noble Oaks and noble Pines;" and the work of man that stands in their midst should be reverent and unpretending, but worthy of its surroundings, and elegant enough to save us from being disgusted at the touch of art while admiring that of Nature. I have lately met with several barbarously hideous garden buildings, and hope to do justice to them by and by. The designer of one important structure in particular ought to be drummed out of the regiment of architects! But I am digressing.

The Manchester Garden is 16 acres in extent: and is the property of the Manchester Botanical and Horticultural Society—a number of shareholders who pay an annual subscription of two guineas, which entitles to admission on all occasions. The annual income, mainly derivable from subscriptions, is about 2000*l*., but 450*l*. of this are annually required for interest of debt. So rich a city as Manchester should be able to support a fine botanic garden, and I have no doubt that if the incubus of debt were removed, the garden would speedily improve in many respects, and be a credit to the city—a city I should say, which from its position, and the occupations of the mass of its people, requires a good botanic garden as much or more than any other.

During the past seven years the garden has been gradually brought from a state of poverty of interest and of funds, to one of great excellence as an indoor plant-growing establishment, and to a comparatively and progressively satisfactory financial state, by the present curator, Mr. Bruce Findlay, as is well known in the neighbourhood. However, his efforts cannot liquidate a heavy debt, though a sum is paid off annually; and, in consequence, striking improvements are for the present apparently very distant. The chief range of glass is about 360 feet long, and was built about 1828; it is an imposing range, and contains, without over-crowding, a very excellent collection of stove, greenhouse, fine-leaved, and miscellaneous plants, in a perfect state of health and cleanliness. I had better not furnish a catalogue of names, but I may say that most of our new plants were in those houses, with tree Ferns, fine Proteads, specimen Camellias, &c., in such a state as we rarely find them, except in private places of plant-growing notoriety.

Apart from the main range there is a very long one for growing young greenhouse things, and a supply of bedding plants, which are freely used in the garden. The Victoria was in a fine state, grown in a lean-to and apparently under difficulties; but I must say that it is by far better in the Regent's Park at present than I have seen it elsewhere this year. By-the-by it would have been almost lost to the country this season, had it not been that the curator at Sheffield happened to possess a lot of young plants, and supplied nearly all our great gardens. There is a Palm house in the centre of the main range, 30 feet high, small of course compared to recent erections in that way; but it is well even to be able to grow and display the habit of a few Palms in a botanic garden. In it was a plant of Cereus hexagonus, about 28 feet high, and flowering freely near the top, a grand old plant. There was a good and exceedingly well grown collection of Ferns in a house adjoining that in which the Victoria was grown; and amongst the Ferns any Orchids that happened to be in flower were placed, a good arrangement, as above all other plants they require some verdant and graceful surroundings. The Ouvirandra was grown here in a very free and cleanly state, planted in a large inverted bell-glass; soil, three parts of sand and the rest of leaf-mould and loam, town water being used. I understood that it was freely and abundantly grown at Lord Egerton's, in the neighbourhood, by Mr. Cliff, and without any attention whatever. When one considers the trouble that has been taken

with it in the immediate neighbourhood of London, and to little purpose, it is not too much to say that if the water is not the cause of the difficulty, this is a plant "that no fellar can understand." I believe that it is to Mr. Bain we are chiefly indebted for its remaining amongst us, for though many grow it now, and in some cases far larger than in the College Gardens, yet when it was very scarce he had it in abundance, and his method is more certain of keeping the plant alive than any other. I hope to explain it by-and-by.

Most of the best Orchids are well grown in the Manchester Garden, the newer species and varieties included, as Mr. Findlay, in addition to exchanging, finds means to give an occasional order to our great Orchid and new plant purveyors, which it is rarely in the power of botanic gardeners to do. I noticed all the obtainable species of Aërides, and the best species of several allied genera, in fine condition, but shall again abstain from a catalogue. They are grown, as the best of them always should be in a botanic garden, in a suitable house away from the main range.

Out of doors the chief features are a fine open lawn for promenading; a walk along the front of the main range of glass, 1000 feet long by 27 wide; a flower garden of the modern type in front of the pavilion—a building erected for flower shows; an irregular piece of water, and several small gardens for specialties. A collection of herbaceous plants has been but recently formed, and is not yet extensive. From causes previously alluded to the garden is far from the best for hardy plants, trees, and Coniferæ. The flower garden was very tastefully bedded out, but not having space to mention individually the fine house plants, I need hardly say that it is not my intention to describe the topographical and geometrical relations of Ageratum and Calceolaria as exhibited in it. To me the garden seemed too flat and monotonous, but a magnificent semicircle of Gladiolus brenchleyensis encompassed it, and to some extent relieved the picture. This Gladiolus also filled some immense beds beyond the margin of the flower garden, but adjacent to it, the ground from which the Gladioli sprang being covered with Saponaria. The display of Gladiolus was the finest I have seen in a public garden. Mr. Findlay stated his intention of breaking up and diversifying the surface of this flower garden with such things as the Pampas Grass, Yuccas, shrubs, &c.

Many are the flower gardens that require similar manipulation. My pen has lately been "frightened from her propriety" by the sight of several "flower gardens" in Ireland. In one famous place, situated amidst some of the grandest scenery in that country, where the aspects of Nature ought to have driven a little true taste into the brain of the veriest human donkey, I have been prevented saying a word in consequence of the only out-door "ornamental gardening" attempted being a hideous blotch of ugliness!—"a bad patchwork quilt," as I remarked to a gentleman of great horticultural taste and ability in the neighbourhood, who heartily acquiesced in the comparison. A large space was covered with flower beds, closely packed together, and filled with one kind of plant in each, while not a trace of verdure or grace could be detected over a space larger than that in which Mr. Wilkie makes the most fascinating of gardens and of pictures at his place in the Phœnix Park. Yes, over a large surface there was nothing more verdant than Lord Raglan, nothing more elegant than Perilla! Doubtless the modern genius who produced this scene considers himself a triumphant representative of the new school; but I have a far greater respect for the plant love and gardening taste of the Londoner who purchases and grows a penny pot of Musk, or the celebrated old woman who grew a Strawberry in a teapot, than for such an one.

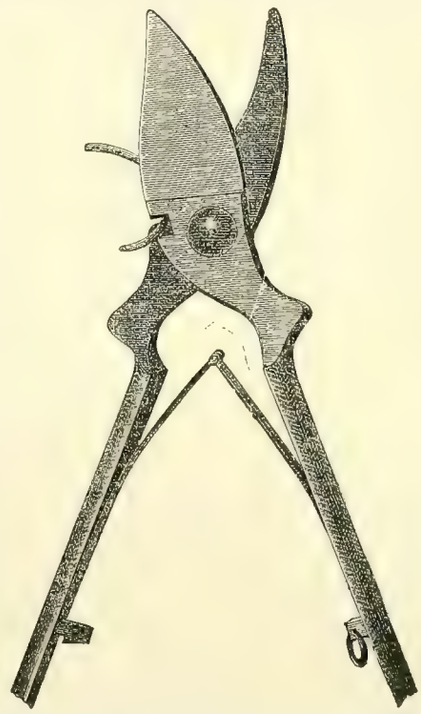
The exhibition building or Pavilion is about 230 feet long by 68 feet wide. It is a building of some dignity and character, very strongly made, though apparently with a view of using as much timber as possible in its construction. It is not heated, and in consequence is only used for accommodating nearly hardy plants, standard evergreens in tubs, &c. If funds could be spared to heat it, Mr. Findlay would very soon convert it into a comfortable winter garden, for which it is very well adapted. Three exhibitions are annually held in it by the Society, and the plants look as well in the Pavilion as they generally do in similar structures. The autumn show, which was held on the day of my visit, was a minor one, though it was an interesting exhibition and collected a very good company. The stove and greenhouse plants were fairly grown, and Orchids, though few in consequence of the absence of the chief exhibitor, were yet very creditable for the season. Dahlias were very poor; Asters and florists' flowers generally worse—probably from the parching season. Fuchsias were ridiculously badly grown, and Balsams far below mediocrity, but Ferns were exceedingly well done, not a few arborescent species being shown; while the collections of plants from nurserymen, contributed by Mr. Shaw and Mr. Stafford, were remarkably good, and contained scores of rare plants, and all the new ones obtainable. Fruit was very fairly shown, some displays of it, and of table decorations from the fruiterers, being particularly good, while vegetables were much better looking than they have been about London this season. Of vegetables, however, I have seen none like those shown at Kells from the rich lands of Meath. They would astonish the Cockney who has been labouring to drill through the woody tissue so well developed of late. At Dublin, too, fruits and vegetables were remarkably good; but I hope to speak a little of the Dublin Horticultural Society, its shows, rules, and tendencies, by and by.

The Manchester exhibitions are managed by the curator, with a very good result I believe; and I have no doubt, considering the excellent keeping of the garden and the vital improvement effected during his stewardship, that when the funds at all admit of it, the Pavilion—as a winter garden—and the herbaceous department will rapidly display the interest, health, and variety that are now so conspicuous in the plant houses. *Wm. Robinson.*

THE SÉCATEUR VAUTHIER.

In the *Revue Horticole*, M. Lachaume describes a new kind of Sécateur, or pruning nippers, invented by M. Vauthier, a cutler of Paris. It is said to be a very simple, solid, light, and convenient instrument. Its sloping semi-cylindrical handles have their outer side rough, which gives a firm hold; the springs, though strong, resist the action of the hand gently; the curvature of the blade and the adjustment are perfect; and lastly, the principal thing, the action is so easy as never to hurt the hand.

During the many years of my experience, observes M. Lachaume, I have, alas! a right to more than one *chevron* in the noble legion of arboriculturists; I have used tools of all kinds, and the tools have also used me



a little; but I have never met with anything which gave me so much satisfaction as the Sécateur Vauthier. Every desirable quality is combined in it, and I recommend it with perfect confidence. The strongest branch will not resist its cutting, nor a single branch, however well concealed, be inaccessible to it. Moreover, the double notch on the back of the blade, and hook (in which a wire is shown in the figure) will enable the operator when trimming his trees to cut every wire without using the pincers.

The price of this Sécateur is stated to be 8 francs. It will be seen that it differs somewhat in form from a similar instrument figured at p. 501 of our volume for 1862, and still more in the provision at the back for nipping wires.

SELECTION OF ROSES.

THE Catalogues begin to arrive. It may greatly help those commencing a Rosary, and also those who wish to increase their number of varieties, if I give a list of kinds that can be safely recommended. I will name none but good growers and constitutional and beautiful Roses, fit for exhibition and also for ornamental purposes. Such as do well here cannot do badly anywhere, if properly attended to.

Of SUMMER ROSES the following are the cream:—

Moss Roses.—The common Moss on its own roots, the Crested Moss, Gloire des Mousseusses, Lanei.

Damask.—La Ville de Bruxelles, Madame Zoetmans.

Rosa Gallica.—Boula de Nanteuil, Kean, Ohl, Napoleon, Schismaker, Tricolore de Flandre, William Tell, La Volupté, Triomphe de Jaussens, Transon Goubault, Cynthie, Adèle Prevost.

Hybrid China.—General Jacqueminot, Madeline, called also Emmeline, and the double-margined Hip, a very curious, beautiful, and distinct Rose. Mr. Tiley told me some years ago that the young ladies of Bath would not esteem a summer bouquet without Madeline.

Hybrid Bourbons.—Charles Lawson, Coupe d'Hébé, Paul Ricaut.

These are the best of the summer Roses, some of which are perfectly distinct, and are valuable for varying the monotony of the colours of rose and crimson autumnals. If your situation is very severe, leaving out the common Moss and Transon Goubault, select from the others; and if you cannot grow them, the sooner you give up Rose-growing and take to Hollyhocks the better. The season of summer Roses is short (about five weeks), but it is a glorious one. They do equally well upon Manetti and the Briar. If pole Roses are required, the following are good for the purpose, viz.: Madame Plantier, Triomphe de Bayeaux, Chénédolé, Brennus, Frederick the 2d, and Blairii No. 2. Most of the others are suitable for pole purposes, especially Lanei, La Ville de Bruxelles, M. Zoetmans, and the three Hybrid Bourbons.

OF AUTUMNAL ROSES the following are well worth cultivation:—

Moss Roses.—Madame Ory, the best; Salet, the hardiest and latest bloomer.

Damask.—Mogador, a distinct Rose, and fine bedder on Manetti.

Hybrid Perpetuals.—To save space, "M." before a name in the following list means Madame, "Mr." Monsieur. Alexandrine Bachmeteff, Alfred de Rougemont, Alphonse Damaizin, Anna Alexieff, Anna de Diesbach, Auguste Mie, Baronne Prevost, Beauty of Waltham, Cardinal Patrizzi, a perfect bedder on the Manetti stock; Caroline de Sansal, Charles Lefebvre, Comte de Nanteuil, Comtesse de Chabrillant, Deuil de P. Albert, Duc d'Anjou, Duc de Bassano, Duc de Cazes, Duc de Rohan, Duchess of Norfolk, Duchesse d'Orleans, Empereur de Maroc, best here on a Briar; Eugène Appert, François Arago, François Lacharme, General Washington, Gloire de Vitry, on own roots; Gloire de Santenay, grows well on a Briar here, but not on Manetti: it requires to be cut very hard every spring; Géant des Batailles, General Jacqueminot, Jean Bart, Jean Goujon, John Hopper, Jules Margottin, La Fontaine, L'Elegante, La Ville de St. Denis, Lord Macaulay, Lord Raglan, M. Alfred de Rougemont, M. Boll, M. Boutin, M. C. Crapelet, Mr. W. Paul, a first-rate bedder; Mrs. W. Paul, M. Knorr, M. C. Wood, M. Freeman, M. Julie Daran, Maréchal Vaillant, Maurice Bernardin, Mathurin Regnier, Mr. de Montigny, Pauline Lansezeur, Pius the 9th, Prairie de Terre Noire, President Lincoln, Prince Camille de Rohan, Princess Alice, Princess Mathilde, Professor Koch, Senateur Vaisse, Sœur des Anges, Souvenir de la Reine d'Angleterre, Triomphe d'Alençon, a red Baronne Prevost; Triomphe de l'Exposition, Triomphe de Paris, Vainqueur de Goliath, Vicomte Vigier, Turenne, honeycombed in the centre; W. Griffiths; Richard Smith, sometimes not full, but a splendid maroon corymb bouquet Rose. As a corymb Rose, François Lacharme is unequalled.

Almost all of these, here, are on the Manetti stock. Some are also on the Briar. Some are on both stocks, and on own roots. They are the very cream of *proven* Roses here. If the situation is very severe, perhaps Patrizzi and Maroc had better be left out. Probably, beginners had better not have Duchesse d'Orleans and Sœur des Anges. The best blushes for them are Malmaison and C. de Sansal. Let beginners test their capacity by M. L. Carique, Anna Alexieff, Acidalia, and Sir J. Paxton, the four best autumnal pole Roses; and if they fail here, there is not a ray of hope left.

Bourbons.—Acidalia, Souvenir de Malmaison, Mrs. Bosanquet, Emotion, lovely; and Sir J. Paxton. Baron Gonella (not here) is fine.

Tea Noisettes.—Solfaterre, Gloire de Dijon, Triomphe de Rennes, Celiine Forestier, Mdlle. Aristide. The three first are never out of bloom here, and rarely give a blind end. The Tea Noisettes require but little pruning; the two last less so than any. The last is the hardiest and most vigorous of all yellow Roses. With the exception of Dijon, they all require a south wall.

Tea Roses.—Devoniensis, Sombreuil, Souvenir d'un Ami, Adam, Souvenir d'Elise. If you cannot grow the second out of doors, you need not try any more. Under glass I specially recommend Elise Sauvage, Vicomtesse Decazes, and Smithii, three most beautiful yellow Roses. The proper place for Tea Roses is a conservatory. They are in that situation continuous bloomers, and most beautiful Roses.

As regards the Roses of 1864 I have not purchased any, and cannot tell you anything of my own knowledge. Mr. Rivers speaks highly of Guillot's Maréchal Suchet. A Yorkshire Rosarian says Maréchal de Serrurier is a "trump." Mr. Keynes says the very best Rose of the season is La Duchesse de Morny. Monsieur Eugène Verdier kindly sent me the picture of it. It is in paint a distinct and most lovely Rose. *W. F. Radclyffe, Rushton.*

Home Correspondence.

Notes on the Flora of Kildare.—Having spent some leisure hours during the past summer in exploring parts of this district, I will give you a brief sketch of our local Flora, and in doing so will begin with the Bog of Allan. Any of your English readers who have not seen an Irish bog, and especially the Bog of Allan, can have little idea of what a bog ought to be. The eye wanders over an immense tract of desolate country, relieved only by an occasional Furze bush. I speak at present c.

that part of the bog stretching away past the villages of Prosperous and Robertstown. Where it has not been subjected to the ameliorating influence of cultivation—and that can be said of thousands of acres—the bog is covered with a parched and stunted vegetation, consisting chiefly of common Ling, cross-leaved Heath, Reindeer Moss, and numerous patches of Scirpus setaceus. But on the edges of the bog, where for ages the spade of the turf cutter has been at work, the vegetation is much more varied and interesting. Here we find the two Sundews, Drosera rotundifolia and longifolia, displaying their pearly beauties in abundance. In the month of August this part of the bog is quite gay with Narthecium ossifragum, and here and there patches of Comarum palustre. In spots which have been excavated for turf, and which are standing full of bog water, tangled masses of the rather curious Utricularia minor are to be found. Here also are growing, more or less frequent, Tormentilla officinalis, Lycopodium Selago and selaginoides, and, in abundance, Sphagnum acutifolium and cymbifolium, and Polytrichum juniperinum. Creeping along the banks of marshy spots is the White-rot, Hydrocotyle vulgaris, and occasionally, but not common, Andromeda polifolia. The Grasses here, unlike the fertile parts of the country, are neither numerous, nor, as might be expected, of a good description. Besides the sweet Vernal Grass, what I found were chiefly the Bent Grasses, Agrostis canina and stolonifera, and Sesleria cœrulea. Turning our steps away from the bog, and tracing the fertile banks of the Liffey, we find the Glumales in numbers and luxuriance sufficient to convince us that the appellation of the "Emerald Isle" is appropriate. I picked about 40 species, representing 20 genera, within the bounds of one parish, Straffan. These included all the best of our pasture and meadow Grasses, as well as others that may be said to be ornamental when growing on the bank of a river, such as Phragmites communis and Digraphis arundinacea. Much of the soil along the banks of the Liffey is an alluvial deposit, and is clothed with a vegetation rich and varied. The greater number of the composite and umbelliferous plants are to be found here, with the representatives of many other natural orders. On the flat ground between Straffan and Maynooth, the following Orchids are growing in profusion, viz., Orchis Morio, mascula, pyramidalis, latifolia, maculata, and conopsea; viride is confined to one little spot. In the same fields there are spots carpeted over with the really pretty Bog Pimpernel, and the Grass of Parnassus. Here, also, on one spot are found growing side by side, the Mother of Thyme and the everlasting Gnaphalium dioicum, with Plantago media. On the Hill of Lyons is growing Viola lutea, and on the side of the hill Veronica montana. On the hill of Castle Warden Teucrium Scorodonia and the beautiful Bryum crudum. In Lyons demesne Myriophyllum verticillatum. In Carton demesne, the noble Typha latifolia, and Ranunculus Lingua. In a wood at Leixlip, Lysimachia nemorum and Melampyrum pratense. On the G. S. and W. Railway, Hyoscyamus niger; at Castleton, Veronica spicata; and at Straffan, Polygonum Raii, and Linaria minor. I have mentioned only a very few of the plants that are indigenous to the county, nor is it, indeed, probable that I have yet found the whole of them. Should any of your Botanical readers wish to exchange specimens, I will be glad to communicate with them. *J. Douglas, Straffan, Kildare.*

Ripe Fruit on Standard Peaches and Nectarines.—Surely there must have been unusually favouring circumstances about the time of the blossoming of Peach and Nectarine trees this spring; for not only have they set well on walls, but occasionally in the open ground without protection. In my exotic nursery, within the walls of this ancient city, I can now show a standard Nectarine with a 5-feet stem, and a head 6 or 8 feet through, that has between 40 and 50 full-sized fruit upon it, and which in a few days will ripen. At the fruit and forest tree nursery, which is about a mile from that where the Nectarines are growing, several Peaches are growing on plants in the quarters, as Almonds not unfrequently do. In a long life devoted to horticulture I have never seen a similar occurrence, and therefore I opine that the flowering time must have been unusually favourable. *William Masters, Exotic Nursery, Canterbury.*

Double Glazing.—I was glad to see Mr. Bewly's account (p. 869) of his double-glazed orchard houses, yet he did not answer the question asked in your Paper of the previous week, viz., whether fruits would ripen well under double glass? I much wish an answer to this, and also to another question, viz., will leaves scorch under double glass? I have a span-roofed pit 28 feet long, divided by glass in the middle, running north to south. The north division is heated with hot-water pipes; every plant therein is burnt with the sun—not a leaf is scorched in the southern division. Now, during most of the day the sun shines through two glasses to reach the northern division; while, in the east or west, it shines through but one glass, and then it is I fancy the mischief is done. *Ignoramus.*

Lælia versus *Cattleya.*—I noticed some ago that one of your reviewers, in remarking on a portion of Mr. Warner's Orchid book, took exception to some of the plants therein called Lælias, and maintained that they were Cattleyas. Now, I have seen Lælia elegans finely in flower and in great variety, and have been afforded the opportunity of dissection, and I maintain that it is a true Lælia. I have also been able to examine Lælia gigantea, and that too is a true Lælia; so is L. Turneri. If those who think otherwise would provide themselves with a magnifying glass, they might be able to see what I have found no difficulty in making out with the naked eye. If the whole series is to be Cattleya, as some suggest, well and good; but if the two families are to be kept apart, let us go by the evidence of our senses. *Observer.*

Orchard-house Fruit.—Would Mr. Wilson, who at page 893 says he won the prize for the best flavoured Pears at the Crystal Palace Show, be kind enough to say if they were grown entirely under glass, or whether the trees were moved out of doors after the bloom was set; might I also ask if the pots were plunged or whether they stood on the surface, and if there was much rooting through the bottom of the pots. I am about to commence orchard-house culture, and will feel greatly obliged by answers to these questions. *An Old Subscriber.*

Frogs.—In your Paper of the 3d inst. inquiry is made if it is a common thing for the frog to squeak. I can inform your Correspondent that I have often heard it do so, and I have no doubt that it arises from fear, as any one may prove for himself by causing one to jump until it does squeak; this it soon will do, as I accidentally discovered when a boy some 50 years ago. On seeing one jump vigorously to get out of my way I followed it, when to my astonishment, I heard a squeak, to me more like the plaintive cry of a cat than anything else with which I can compare it. This I caused it to repeat many times, until it became exhausted by fatigue, when I left it to recover, being instructed not to take the life of frogs, as they were harmless and useful. Not thus considered by me, however, was the unfortunate toad; for woe be to him at that time if he came in my way. I have, however, learned better now; I may also mention that since I have become more advanced in life, I have tried the same experiment mentioned above with regard to my jumping friend the frog, and always with the same result. *J. Budd, 20 Kidd Street, Woolwich.*——Frogs generally squeak if pursued for a few seconds in an open place. A rather singular thing happened to one here about 12 months ago; a mouse had got into a hole about a yard square, and attacked a frog which was there. The mouse every now and then nibbled the hind legs of the frog, which made him squeak so loud that he might have been heard more than a hundred yards off. The mouse continued his game for about an hour, when he retired, without doing much injury to the frog. *J. Bryan, Heydon House, Royston.*

A Young Date Palm found Growing in the Open Air at Weymouth.—On inspecting a spot in my kitchen garden that had not been disturbed for some time, I observed a shoot about three inches long. At first sight I took it to be some kind of Grass or Iris, but on looking closer I recognised what I had so often seen in India, the young shoot of a Date Palm. How did it come there? was the next question. Upon inquiry I found that in December last my children had planted some Date stones, which at once accounted for its presence. It has been carefully dug up, and may now be seen at Mr. Hawkins' nursery and flower garden, Gloucester Street, Weymouth. *E. Johnson, Alma Villa, Weymouth, Sept.* 13.

Societies.

ACCLIMATIZATION OF GREAT BRITAIN.—From the Fourth Annual Report of the Council it appears that the number of members has nearly doubled during the past year; and the financial report shows a banker's balance of 438*l*. The Duke of Newcastle has accepted the office of President. A meeting of the members (one of the contemplated objects of the Society being to hold periodical meetings for the purpose of reading papers and interchanging information and experience) was held in April, when Viscount Powerscourt, V.P., presided, and the following papers were read:—1. *On the Reports from Hong Kong, Labuan, Tasmania, and Western Australia, relating to Fauna and Flora suitable for Acclimatisation in Great Britain.* By Mr. Frank Buckland. 2. *On Oyster Culture.* By Mr. James Lowe. 3. *On the Game Birds and Animals of Canada.* By Mr. A. W. Crichton.

Among the most important events of the last year has been the issuing from the Colonial Office of a series of questions addressed to her Majesty's Ministers, Governors, and Consuls in various parts of the world, requesting information as to such animals, birds, fishes, insects, and vegetables as are likely to be of use or ornament, whether for domestication or for varying the common food of the people, or for manufacturing, or for any other useful purpose, and whose constitution and habits offer a reasonable prospect of successful cultivation. The Society continues to preserve an intercourse of the most friendly character with the various Acclimatization Societies throughout the world, and especially with the Société Impériale d'Acclimatation of France and the Acclimatization Societies of Victoria and Queensland. A Silver Medal having been awarded by the Council of the French Society to Mr. William Bennett, of Brockham Lodge, near Reigate, for his success in acclimatizing and domesticating the Emeu (Dromaius novæ hollandiæ), the medal was transmitted through the hands of the Secretaries of this Society to Mr. Bennett. Attention has been for some time past directed to the important subject of Pisciculture, it being thought highly desirable that the Society should institute operations for the purpose of distributing among its members the vivified ova and young fry of the more valuable kind of river fish, and especially of the Salmonidæ, and of such fish as could be introduced from abroad. These Piscicultural operations have been confided to Mr. Francis, under whose supervision a building and apparatus have been erected and constructed on his premises (The Firs, Twickenham), with a store pond and other conveniences attached. The results are considered satisfactory.

Among the introduced animals favourably reported on may be mentioned a herd of very fine red deer (Cervus Elephas) from Austria, and the Wapiti (Cervus canadensis) both located at Powerscourt. The Wombat (Phascolomys ursinus), three of which alive and well, are running wild about Mr. Bush's premises at Clapham; they are very tame, and their habits most interesting; and experience has shown that when in a state of domestication and where a habitation is provided for them, they do not burrow, but accommodate themselves to their altered circumstances. Among birds, Honduras Turkeys, Curassows, Indian jungle fowl, cross bred pheasants, Wonga Wonga pigeons (Leucosarcia picata), bronze-wing pigeons, Australian speckled doves, and green-wing pigeons, are some of those mentioned as doing well. The Society has also one Emeu from Queensland in excellent condition and very tame. These Emeus are highly amusing and ornamental creatures for a gentleman's park or lawn. In reference to insects it is reported that Lady Dorothy Nevill continues to have great success with her Ailantus silkworms. This spring they have laid well. Her ladyship hopes to have a large number of eggs this year, which she is willing to part with at a small price to cover the expenses. Mr. Bush and other members have also had considerable success in the cultivation of this interesting and valuable insect. Ailante-culture, which was first introduced into this country by Lady Dorothy Nevill, is thus gradually becoming developed. It is mentioned that several acres of what would be almost waste land, near Bagshot, have been enclosed for the purpose of hatching the Ailantus silkworm on a large scale. A new kind of silkworm is also under course of experiment by Lady Dorothy Nevill, viz., the Bombyx Yama Inai. Of vegetables the report is rather meagre. The Guernsey branch of the Society has been experimenting with the Chinese Yam (Dioscorea Batatas), Hook-podded Pea (Dolichos unguiculatus), and Lima Bean (Phaseolus limensis), all of which are proceeding satisfactorily. Favourable reports as to these vegetables have been received from other members of the Society, and also as to the Brazilian Arrowroot. The Council hope that the partial success in cultivating the Hook-podded Pea which has been achieved in Guernsey will stimulate the members to still further endeavours to accomplish the acclimatization of that highly desirable vegetable.

Notices of Books.

The Preparation and Mounting of Microscopic Objects. By Thomas Davies. London: Hardwicke. Pp. 156.

Those who are entering on, or who engage occasionally in microscopic pursuits, will be sure to meet with objects which they wish to preserve, and this little book will serve as a welcome guide to those who are so circumstanced, albeit that much of the success which may be realised in the mounting of subjects for microscopical examination must depend upon dexterity of manipulation, such as may be acquired only by practice. Here, however, at least, will be found hints and instructions to put the operator on the right track. The author promises that his pages will be found to yield information on all the most approved methods of mounting, whether practised by others, or the results of his own experience; and as they are intended to aid the beginner as well as the more advanced student, the very rudiments of the art have been explained. Where there is a diversity of opinion as to the best mode of proceeding, the different modes in practice have been pointed out. Thus the information given cannot fail to be of utility, especially to those who are just entering on the field of microscopy.

The book is divided into chapters, of which the first treats of the apparatus required; the second of mounting objects dry; the third of mounting in Canada balsam; the fourth of preservative liquids; the fifth of sections and how to cut them; the sixth of injection; and the seventh of various miscellaneous matters not coming under these heads. We quote the following passage as an example:—

"There is one class of objects for the polariscope which differs in preparation from any we have yet considered, and affords very beautiful specimens. Some plants, including many of the Grasses and the Equisetaceæ, (*i.e.*, horse tails), contain so large a quantity of silica, that when the vegetable and other perishable parts are removed, a skeleton of wonderful perfection remains. This skeleton must be mounted in balsam, the method of performing which will now be considered.

"Sometimes the cuticle of the Equisetum is removed from the plant, others dry the stem under pressure, whilst the Grasses of course require no preparation. The vegetable should be immersed in strong nitric acid, and boiled for a short time; an effervescence will go on as the alkalies are being removed, and when this has ceased more acid should be added. At this point the modes of treatment differ. Some remove the object from the acids and wash, and having dried burn it upon thin glass until all appears white, when it must be carefully mounted in balsam. I think, however, it is better to leave it in strong acid until all the substance, except the required portion, is removed; but this will take a length of time, varying according to the mass, &c., of the plant. Of course, when this latter method is used, the skeleton must be washed from the acid, &c., before being mounted in balsam.

"These siliceous cuticles are readily found. The straws of most of the cereals, Wheat, Oats, &c.; the husks also of some of these; many canes; the Equisetum as before described; and some of the Grasses. Many of these are everywhere procurable, so that the student can never want material for a splendid object for the polariscope."

The last number of *Van Houtte's Flore des Serres*, which has come to hand, contains a handsome set of *Herbaceous Calceolarias*; a group of the *Spotted Mimuli* bred by Mr. Bull and others; and another of double-flowered varieties of *Portulaca grandiflora*. There are also figures of *Hibiscus Cooperi*, *Goodyera pubescens*, and *Ourisia coccinea*; but the most beautiful of the plants represented in the present number is *Phalænopsis Schilleriana*, which well deserves the double plate here devoted to it.

CATALOGUES RECEIVED.—*Catalogue de l'Établissement Horticole d'Ambroise Verschaffelt, Gand:* No. 75,

Automne 1864 *et Printemps et Été* 1865. A very full list of stove, greenhouse, and hardy plants, comprising many novelties. Among the specialties are ample lists of Azaleas and Camellias; and of Tree Pæonies some 90 varieties are offered.——*Eugène Verdier fils aîné: Prix pour Marchands des Pivoines en arbres et Pivoines Herbacées* is a list of about 140 varieties of Tree Pæonies, varying in price from 100 fr. per 100 to 7 fr. each, and of a still larger number of herbaceous varieties, the prices of which range from 50 fr. per 100 to 3 fr. each. The same grower issues an extensive Trade List of Gladioli.

Garden Memoranda.

MR. MACINTOSH'S NURSERY, HAMMERSMITH.—China Asters, raised from Prussian seed, are now in fine bloom here, and they serve to set off the show house to excellent advantage. Whether in pots or out-of-doors few plants make a better display than these at this season of the year, and by means of successional sowings they may be had in beauty from the end of June to that of September. For early flowering, *i.e.*, in July and August, the seeds may be put in about the middle of March; and to have the best effect in September, they should be sown in the end of April or beginning of May. Let the young plants be raised in gentle heat in light soil, and when large enough to handle pricked off fouror five together into 3-inch pots; after potting place them in a cold frame, and keep them close for a few days. They may be kept thus until June or July, when they may be planted out into beds, if not done in the end of May, and those selected for pot culture should now receive a shift into 48-sized pots, in which they may be had beautifully in bloom for a period of from six weeks to two months at a time.

Another way practised by some is to prick them out at once into the open ground from the seed pans or frame in which they have been grown, and then when required for indoor decoration to take them up and pot them. Their beauty is, however, of less duration than when treated in the way just described. Weak liquid manure may be given to both these and the others, once or twice a week after the pots have become full of roots.

As regards dwarf kinds, one of the very best is the new white Chrysanthemum Aster, which does not grow more than half a foot in height, and flowers most abundantly. In pots it is very effective. Tall Chrysanthemum sorts, measuring about 18 inches in height, are also very showy; and their blooms measure from 3 to 4 inches in diameter, and are of various shades of colour from pure white to bright rose and deep violet; some of the varieties in this section are also charmingly striped with white.

Boltze's New Bouquet is a neat dwarf kind very suitable for pots, and an abundant bloomer. Its height varies from 9 inches to 1 foot; the flowers are of various colours, and, though small, very showy.

Ranunculus-flowered kinds are also pretty and well-suited for pots, as are likewise the New Imbricated Pompons, a small, neat-flowered section consisting of at least six colours.

Among other large-flowering Asters one of the most striking is Rose Emperor, a branching variety, with large blossoms bright in colour, and produced in great abundance. It grows from 12 to 18 inches in height. There are also other varieties in this class, but without the branching habit of the one just mentioned, and therefore they are not so suitable for pot-culture. All of them, however, have very large and handsome blossoms.

Truffaut's Pæony-flowered sorts are likewise very effective. The best among them belong to the Perfection class.

The globe-flowered German quilled kinds are very suitable for purposes of exhibition in the shape of cut blooms; but for pot culture they do not make so good a display as many of the other kinds.

With most people the improved Cockade or Crown Asters are especial favourites, owing to the fine contrast of colour which the blossoms present, the centre being white surrounded by a broad belt of bright rose or rich violet. Many fine varieties have lately been added to this section, the flowers of which are very suitable for bouquets. The plants themselves vary from 12 to 15 inches in height.

A variety called Victoria forms a vigorous branching bush about 1½ foot in height, and not unfrequently ornamented with from 20 to 30 showy blossoms, all in perfection at one time. These being of a bright carmine rose colour are very attractive, rendering this one of the most striking of all Asters as far as general display is concerned.

Among other plants we noticed a hybrid Solanum, the result of a cross between S. pseudo-capsicum and S. Capsicastrum. It forms a handsome bush, covered with bright orange-scarlet fruit for many weeks in succession, and in habit it is an improvement on both parents, being more dwarf and bushy than pseudo-capsicum, and on the other hand robust enough not to require the support of sticks. It will prove a valuable hardy greenhouse plant with ornamental fruit, and when it becomes better known cannot fail to be a favourite. The double variety of Datura violacea is now in bloom here, and quite scents the air in its neighbourhood with its fragrance. The Bean-leaved Sedum, mixed with Asters and other plants, as it is here, is a useful plant at this season of the year, as is also the gracefully-drooping Sedum Sieboldi. Of double white Feverfew Mr. Macintosh has an improved variety called compactum, the flowers of which are white as snow, a character which they maintain if the plants are raised from cuttings and not from seed; and among Campanulas the different varieties of fragilis, with drooping wreaths of large star-shaped pale blue blossoms, are very ornamental. Browallia elata, an old-fashioned annual with deep blue Forget-me-Not like blooms, is likewise not unworthy of notice for indoor autumnal decoration, contrasting as it does well with the pale blue flowers of Plumbago capensis, which although now consigned to outdoor work in summer, is nevertheless indispensable in greenhouses in winter.

Of Scarlet Zonate Pelargoniums we observed many promising seedlings, all furnished with conspicuous white eyes; and of Nosegay and Scented-leaved varieties of Pelargonium there is also here an excellent collection, especially of the latter, a class of plants not so much grown as they deserve to be. Here we noticed at least a dozen different kinds.

MESSRS. WATERER & GODFREY'S NURSERY, KNAP HILL, NEAR WOKING.—At p. 751 the upper division of this nursery was the subject of remark; let us now approach the lower portion of these interesting grounds. This department has all been thoroughly drained, the water is constantly running in a considerable stream, and the main drains being all open can be readily examined at any time; they have neat turf sides, and are admirably kept, and can be flooded back at any period if required, an advantage, more especially in a dry season like the present. The main walk from the packing grounds to this spot is 726 feet, and the walk is carried onwards from here to the extreme end of the ground, a distance of 1584 feet, making the whole 2310 feet—an area which will soon be extended through another field, which is now being broken up at the extreme end. The borders on either side of the walk just alluded to, are raised something like a foot above it, and are edged with turf. They are 40 feet in width, and are filled throughout the whole extent with remarkable specimens of American plants, both in the form of bushes, standards, and dwarf plants, illustrations of which might have been seen in the grand exhibition of American plants held in the immense suspension tent at South Kensington this season.

There is a row of the variegated Acer Negundo on either side, whose silvery foliage contrasts finely with the dark aspect of the Rhododendrons. The whole of the ground on either side of the lower portion of this walk is devoted exclusively to the cultivation of American plants; the walks are kept lower than the beds, and after the removal of each crop fresh peat and sand is added. The latter is procured on the ground, but the former is brought from a distance of several miles, and there are literally mountains of it stored up in every available space in the nursery until it is required for use. Shelter is obtained by beautifully kept hedges, and they are of great extent; some are formed of Box, Holly, and Thorn, but the greater portion is of Arborvitæ, somewhat lofty, not more than a foot at bottom, and 9 or 10 inches in width at top. They are most beautifully managed, being altogether faultless to the keenest eyes. Standard Rhododendrons are planted somewhat sparingly yet regularly over the open portion of the ground, in order that they may grow not only perfect in form but afford shelter and protection to the smaller nursery plants beneath, and this they do most effectually. There are also many other forms of fine plants scattered about this portion of the grounds. Magnolias are most attractive, and comprise many good specimens; auriculata is more than 40 feet in height, a fine object in the landscape. There are also several Tulip trees and a large Cedar of Lebanon, the latter contrasting well with the more upright-headed trees. In the more sheltered places are some noble specimens of Kalmias, Azaleas, &c. Andromeda floribunda is 12 feet high and 40 feet in circumference, and when in flower it is one of the most beautiful plants that can well be imagined. Here also is a remarkable plant, a standard Scotch Fir, with a clear stem some 5 feet in height, and a closely grown compact head. Lilium superbum is here finely in flower. Stuartia virginiana is also now in flower. Andromeda arborea is some 15 feet in height, its branches being crowned with loose panicles of white waxy flowers. Amongst these are vast numbers of stools for propagating purposes, both of Azaleas, Rhododendrons, Andromedas, Heaths, and other plants, and every available space is filled with young plants growing onwards into specimens.

This portion of the grounds is intersected by a broad walk extending the whole width of the nursery—proceeding from the western side, it is flanked on either hand with broad borders of American plants in the shape of large specimens, and is continued through a new piece of ground which was added in this direction last winter. This portion of the walk is 594 feet in length, and has been planted with long rows of choice shrubs in the following order:—

Deodars.
Upright Yews and Junipers—many of the former with golden heads; sparingly intermixed with Acer Negundo variegatum.
Pinus Cembra.
Chinese Juniper.
Thuja Lobbii, sparingly intermixed with Acer Negundo var.
Araucaria imbricata.
Cupressus Lawsoniana, sparingly intermixed with Acer Negundo variegatum.
Abies pygmæa and pumila.
Edging of dwarf Yew.

WALK.

Edging of dwarf Yew.
Picea pectinata pumila, and Pinus Strobus compacta, sparingly intermixed with Acer Negundo variegatum.
Picea nobilis.
Abies orientalis alba, &c. sparingly intermixed with Acer Negundo variegatum.
Wellingtonia gigantea.
Irish Junipers.
Abies Douglasii, sparingly intermixed with Acer Negundo variegatum.
Dovaston and other Yews.
Cedar of Lebanon.

Here these beautiful plants are shown to excellent advantage, and being intermixed with nice plants of the finely variegated Acer Negundo and Golden-headed Yews, the monotony of green colour is at once broken up and brightened by this pleasing contrast. On either sides of these borders are large breadths of Larch, Birch, Ash, Alder, and other forest trees, thriving admirably in this newly broken ground, which had been previously well prepared by trenching and subsoiling. The extreme lengths of this cross walk and borders are 1386 feet, and they extend the whole width of the nursery.

Another straight walk proceeding from Mr. Godfrey's house traverses the whole length of these grounds, and although of less width than the central main walk, to which it seems parallel, is nevertheless most interesting, as the borders on either side of it contain not only many remarkable specimens of fine trees, but also a multitude of other choice plants, among which we noticed the following, viz., Taxus Dovastonii horizontalis with an upright leader, a pretty plant; Pinus macrocarpa, some 40 feet or more in height, and 8 feet in girth at some distance from the ground; Abies cephalonica, 30 feet in height, and loaded with cones; A. alba, very interesting, its small pale green pendent cones producing a very nice effect; Cupressus Lawsoniana glauca, and the golden-blotched Arbor-vitæ Thuja occidentalis, both very beautiful. Amongst the vast numbers of dwarf Abies, Pinus, Picea, &c., with which the fronts of the borders are planted, are nice specimens of the Umbrella and Golden Pine; Juniperus Hudsonii, virginiana humilis, squamata, sibirica compacta, &c.; Elæagnus japonicus variegatus, Abies Hookeriana, Taxus monstrosa ericoides, Andromeda formosa, Retinospora, &c.; Fagus betuloides and Cunninghamii, both evergreen, some 5 or 6 feet in height; Ilex opaca, scotica, latifolia, &c., and Chinese and fragrant Junipers in nice specimens; there were also Picea grandis, Pinus palustris, Bungeana, and Sabiniana; Berberis empetrifolia, Darwinii and intermedia, &c., in compact forms. B. fascicularis is some 8 or 9 feet in height and 12 feet in diameter, an admirable specimen; Pinus Strobus compressa is 30 feet in height. A remarkable form of Weeping Beech intervenes; it is some 30 feet in height, and more than 100 feet in circumference; its pensile branches, loaded with ovate prickly fruit, weep to the ground. Onwards there are some noble round-headed specimens of Virgilia lutea, more than 20 feet in height. Large handsome forms of Pinus insignis, Silver-striped Beech, and the Golden Chesnut, the latter a beautiful tree, its bright colour contrasting well with all around. Pavia californica is also a most desirable plant; its numerous spikes of white flowers are in fine contrast with shining palmate leaves. Juniperus oblonga pendula, in a fine weeping form, is a beautiful plant. Cedrus Deodara monstrosa, Yuccas, Pampas Grass, and nice compact forms of variegated Hollies and Golden Yews are here scattered about. As the walk nears the American portion of the grounds, it passes between several large plants of Weeping Beech. From this spot there is an excellent view over the lower portion of the grounds, and when the Rhododendrons and other kindred plants are in flower, the scene is a most attractive one; and there are some noble forms of remarkable trees scattered about which add beauty to what would otherwise be a flat monotony of gaudy colours. There is a noble specimen of a silver-barked weeping form of Birch, more than 40 feet in height, which has an excellent effect. There are also fine examples of Tulip trees, Magnolias, American Weeping Willows, Ailantus, Purple Beech, deciduous Cypress in both its common and weeping varieties, Sorbus terminalis, Maiden-hair tree, &c.

On either side of these borders are large breadths of nursery plants, amongst which are numerous specimens of considerable size, and they comprise the more valuable kinds of Coniferæ, amongst which Picea nobilis in large plants are very conspicuous; there are also great numbers of admirable plants of Cupressus Lawsoniana, and of the lovely White Cedar, nearly 14 feet in height. There are also to be seen in great quantities both Silver-striped and Golden Hollies, and many upright forms of Irish Juniper, Irish and other Yews, many of the latter supporting large golden heads of many forms. Such are some of the plants with which these interesting borders are flanked.

Beyond the Weeping Beeches the walk is intersected by a cross path, and in the centre is a large circular

bed, in which some of the more choice Rhododendrons are growing; onward at the corners of the walks is a pair of handsome Swedish Junipers, nearly upright in shape, and attractive both on account of form and colour. On either side the walk is now bordered with fine specimens of Rhododendrons and other American plants.

Soon after passing the main cross walk of the nursery another large circle intervenes, which, with its flanking borders, is screened and protected by a lofty Arborvitæ hedge; these borders have just been drained, the subsoil removed, and new soil substituted. They will, therefore, now be planted with the more choice kinds of Rhododendrons; beyond these are some noble standards of striped Hollies amongst the Rhododendrons. On one of the last mornings of the May month, the American plants in these grounds as elsewhere were greatly injured by having their new made growth killed by frost; these damaged parts were cut off, and the plants have since made fresh growths, which the dryness of the season seems to be ripening satisfactorily. The small plants too are now much more bushy and perfect specimens than they otherwise would have been.

There is also a Fernery in this part of the ground, which it is proposed to extend and otherwise embellish in the autumn; here Osmunda, Scolopendrium, and many other species grow freely, and undisturbed. All the upper portion of the ground is a dark sandy loam, in which trees thrive admirably; the portion on the western side is divided by a broad drive, and the ground on either side is so arranged that rows of large specimen plants shelter the smaller ones; here there are large breadths of choice plants in every stage of growth, amongst which we particularly noticed Picea lasiocarpa, Nordmanniana, Pinsapo, and grandis, Cupressus Lawsoniana, and Thuja aurea, the two latter originally raised in these grounds. Associated with these were also African and Lebanon Cedars, Abies Albertiana, Wellingtonia, &c. There are likewise two long borders completely filled with Hollies of the most perfect form, both green and variegated kinds. Picea nobilis is some 30 feet in height, laden with cones. There is also a beautiful form of Picea Pinsapo, likewise producing cones. The double-flowering Horse Chesnut is in the month of May one of the most beautiful of trees; its flowers are equal to the most perfect Hyacinth, both in colour and formation. Here too are grown collections of Pentstemons, Hepaticas, Pæonias, Iris, &c.

In this portion of the ground is a series of turf pits for the raising of young plants of various kinds, but more particularly those sorts which naturally grow in peat. The pits are a yard in width and of indefinite length, and they are readily protected both from the ill effects of sun and frost. On the southern side of this ground, which abuts on the road, is a wide border filled with choice specimen plants admirably arranged; amongst these we noted neat standard specimens of Ligustrum japonicum, now nicely in flower; the variegated Weeping Mountain Ash, a very effective tree, its pendent coral-red berries contrasting well with its golden variegation; a beautiful specimen of the variegated Balm of Gilead Fir, also attractive; standard variegated Oaks, the broad silvery-margined foliage of which was very telling; Abies pygmæa, a standard, not more than 15 inches in height, with a clear stem, and densely formed compact head; there were also the Kilmarnock Weeping Willow, Pinus Llaveana, Sabiniana, and many other plants of equal interest. About this portion of the ground we also observed some nice bushes of the Golden Symphoria, Silver-foliaged Shepherdia, as well as many other plants.

Blue Gates Nursery, as it is called, is divided from the Home Nursery by the public road. It consists of a deep loamy soil, slopes in a north-western direction, and is some 16 acres in extent, divided by broad roads. It is well stocked with large breadths of standard and dwarf Roses of the most approved kinds, Deodars, Araucaria, Ivy, Cydonia japonica, Golden and other Yews, Aucuba japonica, Berberis, Cupressus, Juniperus, Thuja, &c. Here, too, are many admirable specimens of the singular-looking Acer Negundo, with finely variegated foliage. Large breadths of plants for forcing are also grown here, such as Asparagus, Sea-kale, Deutzia gracilis, Dielytra spectabilis, Lilies of the Valley in nice patches ready for potting, and a host of other plants of similar character. Here, too, are seed beds, in which are raised large quantities of hardy plants.

Dover's Nursery is another compartment divided from the Home Nursery by the public road, and from the Blue Gates ground by another road on the western side. The surface, which is nearly flat, comprises something more than 30 acres. The soil is a deep sandy loam, and has all been cleared of hedgerows and hedgerow timber, thoroughly drained and deeply cultivated, and gradually brought under nursery crop within the last three years. It is divided in the centre by means of a broad walk, ornamented on either side with specimen plants of the same character as those by which the principal walks in the Home Nursery are decorated. Amongst these we observed many beautiful specimens of Picea nobilis not more than 5 feet in height, producing cones very freely. This ground is also intersected by other walks and roads, and the whole is well stocked with plants which are making admirable growth. Here are large breadths of Roses, Fruit-tree stocks, Laurels, Picea nobilis, lasiocarpa, Abies Albertiana, Cupressus Lawsoniana, and other popular kinds of Conifers, Yews, &c. Fruit trees are in fine condition, especially Peaches, Nectarines, Pears, Apples, Plums, Cherries, and Apricots. Here also is a considerable space of ground appropriated to the cultivation of forest and other deciduous trees. The frontage of these nurseries bounds the public roads on either side for considerably more than a mile, and it is determined that next planting season the portion which has only recently been brought into cultivation shall be permanently fenced with a green Holly hedge, to be kept dwarf, and to be eventually surmounted by a worked crest of the fine Golden variety; inside of this will be a walk, and then a broad border, which will be filled with choice specimens from the vast treasures of these grounds.

The Farm Nursery closely adjoins the Home Nursery on the north-western side, being only separated from it by two fields, across which it is proposed to extend the unrivalled central walk, and onwards to the Chobham Road, and this portion of the grounds has the advantage not only of a large frontage on this road, but on the Guildford Road also. The surface is considerably varied, and the soil is of a deep sandy loamy character. Fifty acres of this ground have gradually been brought into cultivation within these last five or six years. A large portion is devoted to the cultivation of fruit trees, which are now in the course of training, and are nice specimens of their respective kinds. There are also vast breadths of Araucaria plants, Deodars, Green and Golden Hollies, Laurels, Elms; Scotch, Spruce, and Larch Firs, as well as fruit tree stocks, Roses, &c., all in the most robust character in this deeply cultivated newly broken soil.

The Well Field Nursery and field closely adjoining amount to something between 5 and 6 acres; the former is close to the Blue Gates Nursery, and occupies an eastern slope near the summit of Knap Hill. The soil is rather heavier than is the usual character of the district; it nevertheless suits Conifers, Oaks, Seakale, &c., exceedingly well. Here there is an overflowing spring, the water from which it is proposed to convey in iron pipes to the propagating ground in the Home Nursery. From here an excellent view is obtained of the immense Government buildings on the summit of the eastern peak of Knap Hill, and also delightful peeps of the beautiful scenery of the adjoining country, and for which the great county of Surrey is so remarkable. On the opposite side of the road is Woking Common, and near here, on the slope of the hill, the soil is wet and retentive, and Rushes, Equisetums, and such like plants form a scanty covering to the surface; a few scattered Oaks, too, are but of stunted character. Notwithstanding there is growing on the embankment which incloses a garden orchard from the waste a Cedar of Lebanon of the following formidable dimensions: it is considerably over 50 feet in height, and has a clean trunk of 20 feet, which at 4 feet from the ground is 13 feet in girth. There is also in this garden orchard an immense tree of Cob Nut, larger than any other of which we have any knowledge. It has a clear stem, and is 24 feet in height; its clean stem girths 3 feet 8 inches at some distance from the ground, and its round-headed spreading branches cover a space of 100 feet in circumference.

The Pirbright Nursery is some four miles distant, the road to which runs across Woking Common, passing on the left the immense new buildings of the Government, which are now rising up through a forest of scaffold poles, crossing the Basingstoke canal, and after passing beneath a bridge of the South-Western Railway, the Woking Necropolis is before us—a vast inclosure of more than ordinary interest. The ground about its beautiful chapels, lodges, and stations, appears to be judiciously laid out, and the monuments too clustered about are beginning to assume a somewhat dressed and clothed appearance by the introduction of Cypress and other trees of a mournful character. The road leads onward through the common, and rural village of Pirbright, when we soon reach the nursery. It is 8 acres in extent, on a flat surface of boggy well drained land, which is managed on the same system as the American grounds of the Home nursery. The whole of this nursery is devoted to the cultivation of American plants, with which it is well stocked.

Miscellaneous.

African Oil Seeds.—Of fruits, seeds, &c., having oleaginous properties, there are many. Cocoa-nut, Sesamum, and Ground Nuts are all articles of export from Zanzibar, chiefly to Marseilles. The Cocoa-nut grows in immense forests. The oil is not expressed for exportation, but the dry copperah is sent in large quantities for expression by European machinery; a large trade is also done in the seed of the Sesamum (Sesamum indicum), and Ground Nuts (Arachis hypogæa). Both these oils are well-known in this country, as much in the manufacture of soap as for burning in lamps. Sesamum oil is also much employed for adulterating olive oil. The principal African oil seed however is that now so well-known and so extensively used in the manufacture of candles, the Elais guineensis. This is a native of Western Africa, and is imported into Liverpool in immense quantities. The introduction of this oil by Price's Patent Candle Company has been the means of giving employment to thousands in this country as well as of establishing a profitable speculation in Western Africa, and in some measure supplanting the slave traffic. Of seeds which are at present quite unknown in commerce, but which would appear to have great claims upon the attention of the soap and candle maker, may be mentioned, firstly, those of Trichilia capitata, known on the Zambesi as "Motsakiri" seeds; these are small black seeds about half an inch long, and contain a large quantity of solid fat, which would no doubt prove a valuable addition to our oil seeds were they exported. These seeds are the produce of a large handsome tree, growing abundantly in the vicinity of rivers. The natives apply the wood to the manufacture of small canoes. The Castor Oil is also found growing wild in this part of Africa, and attains a height of from 12 to 14 feet. On the west side of Lake Nyassa, Dr. Kirk discovered a small oil Palm in habit quite unlike that of the West Coast, but more resembling the Date Palm. The albumen was found to contain an abundance of oil, very similar to Palm oil. It is not known to be in use in any way whatever amongst the natives. The tree, which grows to about 40 feet high, was not seen in great abundance anywhere. A nut much resembling an almond, both in shape and size, and called by the natives "Boma nut," yields an abundance of a sweet fluid oil, much used by the natives in their cooking. The fruit itself with the fleshy covering is about the size of a Walnut. The natives cultivate the trees abundantly near the Victoria Falls. It is also found in the Shire Valley, but does not extend further south than Lake Naomi; it is probably a species of Vitex. Moringa pterygosperma is another good oil seed, but it is found only in the neighbourhood of villages, and has probably been introduced. In Western Africa the seeds of Carapa guineensis furnish an oil much in use amongst the natives for burning in lamps, and also for anointing their bodies. In Sierra Leone it is given as a purgative medicine, one teaspoonful being considered a dose. It is imported into the South of France for soap-making. The seeds of Carapa Touloucouna also contain a large quantity of oil, the residual nut, after expression, making a good oil-cake for cattle. This plant is a native of Senegambia. The seeds of the Bassia Parkii are well known as furnishing the Shea butter of Western Africa. Mungo Park, in writing of this vegetable fat, says that the natives were then "employed everywhere in collecting the fruit of the Shea trees." The butter or fat, which is contained in large quantities in the seeds, is extracted by boiling in water, and is afterwards bleached. This butter is in great request by the natives for many domestic uses, and it forms one of the principal articles of inland commerce. The above-mentioned writer, speaking in high praise of the delicious flavour of this butter, says, "It is whiter, firmer, and, to my palate, a better flavour than the best butter I ever tasted made of cow's milk." I cannot, however, bear out this testimony, except as to its firmness and whiteness, for the specimens which I have had the opportunity of tasting have been of the most rank and disgusting flavour, though it is said it will keep perfectly sweet for several months. But if this butter or fat is not suited to a refined palate, it seems to have many advantages as an article of commerce, and would no doubt prove a valuable import for the purposes of soap and candle making. *Jackson in Technologist.*

Storing Fruits.—To gather fruit at the right time, to preserve it in good order, and to ripen it properly, is an art in itself, and one for which considerable accommodation and convenience are indispensably necessary; and yet, strange to say, but no more strange than true, a structure properly adapted for the keeping of fruit is only occasionally to be met with. In many places we find the most wretched make-shift for keeping fruit—a shed, cellar, or loft—the very opposite of those principles upon which a fruit-room should be built. In building a fruit-room, the principal points to be secured are a low uniform temperature, dryness, darkness, and means for thorough ventilation when required. The interior fittings should consist of boarded shelves and drawers. The boards for the shelves should be planed smoothly, and should be fitted close together. In most places it is usual to have the shelves made of narrow laths, with openings of an inch or more between, than which nothing can be worse, as all the finer or tender-skinned Pears get marked by the sharp edges of the laths, and in consequence never look well when dished up. All fruit intended for keeping should be most carefully hand-picked. This is one of the most important points to be attended to, as the slightest bruise or injury is fatal to their keeping; and yet it is too common a practice, even when hand-picked, to throw the fruit roughly into a basket, thereby seriously damaging a great portion of it. This is not perceived at the time, but after the fruit has been a short time in the fruit room, the spawn of Fungi soon establishes itself on those parts of the fruit which were injured; decay takes place long before people are aware of it, and when discovered they are astonished and say fruit keeps badly, not thinking that they themselves are to blame. Fruit should always be handled with the greatest care and gentleness, and not thrown roughly from one basket into another, and then on to the fruit room shelves. Some people make it a rule to gather the fruit at a stated time every year. This is a great mistake, as it is ready two or three weeks sooner some seasons than others. All fruit intended for immediate use, or that is fit soon after gathering, should remain on

the trees until nearly ripe; but all fruit intended for late keeping should be gathered before ripening proceeds too far, as when fruit once arrives at the proper state of ripening it begins to lose its quality, and ere long it will begin to decay naturally. Every sort should be gathered separately, and all the small, spotted, or shrivelled ones should be put aside; then the finer ones should be laid carefully on the shelves in single layers, if there be sufficient space for all the fruit; but, if not, the common sorts may at first be laid two or three or more layers deep, and as the earlier sorts are used they can then be laid thinner. After the fruit is got into the fruit room no light should be admitted, as it would cause the fruit to lose weight, and would accelerate maturity. Air should be admitted night and day until about the 1st of November; by that time the sweating of the fruit will to a great extent be over, and the house can be closed. The choicer kinds of Pears and Apples, after sweating, should be put, when quite dry, very carefully into the drawers. All the sorts should be properly labelled with the date when gathered, and the time they generally ripen at. The whole of the fruit should be carefully looked over every other day, and every fruit the moment the slightest spot or sign of decay is perceived should be removed as, if allowed to remain to decay, the spawn of the fungus will spread in all directions and settle on every fruit that has the smallest speck of injury. During the whole of the winter months ventilation should only be had recourse to when absolutely necessary to carry off any exhalations or impurities that may be in the atmosphere. A uniform, steady, low temperature, with a dry atmosphere, should at all times be maintained, and the fruit should be handled or touched as little as possible. By attending carefully to these matters I have never experienced the least difficulty in keeping Pears and Apples a long time in the best possible condition. Gathering the fruit carefully at the proper time; handling it as little as possible and with gentleness; keeping the atmosphere dry, and maintaining a low, steady, uniform temperatere of about from 40° to 45°; looking over the fruit frequently and picking out any that show the slightest symptoms of decay the moment it is perceived;—these are the great points to be attended to and when properly attended to they never fail to give the most satisfactory results. *M. Saul, in Florist and Pomologist.*

Mushrooms.—It is stated that enormous and almost unprecedented quantities of Mushrooms have been gathered in Devonshire this season, which is to be accounted for by the long drought and the rains following upon it. The *Times*, quoting from a local paper, gives some interesting particulars relative to Mushrooms, written for the unlearned in these matters by a scientific gentleman of Exeter. People, it is said, generally look upon Mushrooms as a sort of luxury, and not as an actual article of food. The inhabitants of Italy, France, Germany, and Russia, however, use large quantities of various species rejected by us as articles of food. Indeed, Fungi not only constitute for weeks together the sole diet of thousands, but the residue, either fresh or dried, is variously preserved in oil, vinegar, or brine, and sold to the poor. In the Italian market, which is perhaps more largely supplied than many others with Fungi, there is a regular inspector, whose business it is to look over the various lots brought into the market, and if any species or specimens of a poisonous nature are detected, those are at once thrown into the Tiber. Now, curious enough, the one we so highly prize, Agaricus campestris, is by the Italians considered unwholesome, and is consequently rejected by them. Dr. Badham, who has written a treatise on the edible species indigenous to this country, has enumerated upwards of 30 species that might be used as articles of food, but great caution must be used by those who gather them not to pick the doubtful ones. Although, generally speaking, there is but one species brought to our markets, another is frequently gathered with it. This, which generally grows to a much larger size, is not so tender, and has always a yellowish tinge on the top of the pileus or cap; it is the Agaricus exquisitus or Georgii, and notwithstanding its name, denoting exquisite flavour, is by far inferior to campestris and its varieties. This Agaricus exquisitus is largely used for making catsup; it grows in the salt marshes in the eastern counties in enormous quantities, and has been observed in the salt marshes, near Exeter, very fine. As a nutritious article of food, the Mushroom, perhaps, yields to none of the higher forms of the vegetable kingdom, being next in importance to butcher's meat. And curious enough, and which is indeed almost an anomaly, Mushrooms breathe or give off carbonic-acid gas the same as animals, and absorb oxygen. It is a very remarkable fact that these plants come nearer to the animal kingdom than the higher forms of the vegetable world. All Fungi do not absorb oxygen and give off carbonic acid, but so far as has been ascertained all the edible species do. Of all vegetable productions these are the most highly azotised—that is, they come nearer in their chemical composition to the flesh of animals than any other of the vegetable kingdom. Many of them, in addition to sugar, gum, and resin, have a peculiar acid, called frugic acid, and a variety of salts. They also furnish considerable quantities of albumen, adipocere, and osmazome; this last is the principle that gives its peculiar flavour to meat gravy. Besides the solid in Mushroom diet we have what is well known to almost everybody, the expressed juice called catsup, catchup, or ketchup. This word, which is spelt in various ways, is quite a puzzle to philologists; some suppose it to be derived from Kuck-hup, a Hindostanee word for turtle. In the "Cuisinier Royal, par Viart" it is mentioned among the "petites sauces" as ket-chop. If more attention were paid to these lowly forms of the vegetable kingdom, many a good meal might be obtained by those who now feel the pinch, or want a dinner.

Calendar of Operations.

(For the ensuing week.)

SINCE showery weather has set in, the growth of weeds as well as that of more useful plants has made rapid progress, and where no attempt has been made to keep them in check, the ground is literally carpeted with them. Where such a state of things exists, therefore, the work of extirpation must be commenced on the first favourable opportunity. The principal operations in regard to ornamental grounds for the present will be mowing and clearing up, and if anything like neatness is to be maintained, sweeping up of leaves will soon require daily attention. Gravel walks must also be thoroughly freed from weeds and Moss; roll them frequently so as to keep the surface hard and smooth.

FLOWER GARDEN AND PLANT HOUSES.

Summer-flowering twiners in greenhouses and conservatories, which usually become unsightly about this season, should be cut back rather freely, as also any others that will bear this treatment. Shade can now well be dispensed with; therefore not a spray that can be spared should be left to obstruct light. Acacias and other winter-flowering plants having been subjected to a period of comparatively dry treatment, to ensure their blooming profusely, should now be pretty liberally supplied with water at the root, in order to get them into flower during the dull season, when they will be much more esteemed than in spring, when flowers are plentiful.

ANNUALS.—Where these have sown themselves on borders, let them if possible be retained; they will bloom early and strongly in spring, especially the Californian kinds, and may then be transplanted if desired to other situations.

BEDDING PLANTS.—Cuttings of Calceolarias, zonate Pelargoniums, &c., may still be put in where the stock is deficient. The latter, with perhaps the exception of Mrs. Pollock, will root almost anywhere, but Calceolarias are not quite so accommodating, as cuttings taken from plants in the open ground are very liable to damp off in heat; these will be found to do very well, however, in a close pit or frame where there is the means of applying a little warmth when necessary to dispel damp. See to securing as many cuttings as possible of any scarce plants which it may be desirable to increase while there is a fair chance of rooting them, and also be prepared to protect choice Pelargoniums and other things which it may be intended to take up and winter, for we may expect frost any time after this period, and if such things can be protected so as to prevent the foliage and young wood from being injured they are much more easily wintered.

CHRYSANTHEMUMS.—These will soon be beginning to occupy attention; let them be tied out so as to display their blossoms to the best advantage, and where too thick, thin out the buds.

HOLLYHOCKS.—If the weather should become very wet, choice sorts of these may be taken up, potted, and wintered in a cool house; they will be exceedingly useful for furnishing cuttings, and these if got in early in spring will make excellent plants for next season.

FORCING GARDEN.

PINES.—As has been frequently mentioned, plants swelling their fruit should be assisted with a brisk temperature, say from 65° to 75° at night, regulating this according to the state of the external temperature, keeping the house rather close on sunny days, and allowing the thermometer to rise to 80° or 85° before giving air freely. Also endeavour to proportion the moisture to the temperature, for a high dry temperature is not favourable to the swelling of the fruit, and there is no chance of getting well swelled heavy fruit without plenty of warmth and moisture. Maintain a steady bottom-heat of about 85°, and use every care to keep the soil in a healthy state as to moisture. When watering is necessary, use clear manure-water; give sufficient to moisten the whole of the soil, and avoid frequent dribblings, for when this system of watering is practised it is nearly impossible to keep the under soil in a healthy state. Use the syringe sparingly, and only to dew the plants, as heavy syringings after this season are apt to keep the surface soil so moist as to render it difficult to judge as to when water should be given. Any young plants growing in pots which may require re-potting should be seen to at once, so as to allow an opportunity of getting them established in fresh pots, while they can be kept moderately warm. See that the balls are in a proper state as to moisture before repotting, as neglect of this is a frequent cause of young stock fruiting prematurely. Keep moist and rather warm for a time after shifting, so as to encourage the formation of fresh roots.

VINES.—Before wet comparatively sunless weather sets in, we would again advise covering the borders of houses in which it is intended to keep ripe Grapes fo any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary.

HARDY FRUIT AND KITCHEN GARDEN.

Get all spare ground deeply trenched and ridged up so as to expose it as much as possible to the weather, putting in plenty of good rotten manure, especially where crops of an exhausting character are to be planted.

APPLES AND PEARS.—As formerly recommended, look over kinds still remaining out of doors frequently, and gather them as they become fit for storing. Also examine those in the fruit room, as there will occasionally be found a few decaying for a few weeks after housing, and these should be removed as soon as perceived. Keep the fruit room cool and airy, in order to allow of the escape of moisture given off by the fruit, which is considerable for a few weeks at first. Where it is intended to make fresh plantations of trees this season, the ground should be prepared at the earliest convenience, and any fresh soil to be used for planting should be thoroughly exposed to the action of the weather, so as to have it in a mellow state when wanted for use.

CELERY.—The principal crop should now be kept rather closely earthed up, using quick lime and soot freely to destroy slugs.

LETTUCES.—Brown and Bath Cos, as well as Hammersmith Cabbage, for early spring work, should now be pricked out; more especially if getting what is technically termed proud.

STRAWBERRIES.—If not already done, clean and dress plantations of these, clearing away all useless runners, giving a good dressing of manure when necessary, but be careful to select that which is thoroughly decayed, and which can be covered without the necessity of digging deep or injuring the roots.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Sept. 21, 1864, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 15	○	29.611	29.489	66	37	51.5	60	60	S.	.16
Friday 16	14	29.320	29.302	65	40	52.5	60	59½	S.	.61
Satur. 17	15	29.521	29.421	64	41	52.5	60	59½	S.	.24
Sunday 18	16	29.535	29.607	64	37	50.5	59½	59	S.	.02
Mon. 19	17	29.781	29.694	66	32	49 0	59	59	S.W.	.00
Tues. 20	18	29.879	29.779	67	50	58.5	58½	59½	S.W.	.04
Wed. 21	19	29.762	29.721	67	48	57.5	59½	59	S.W.	.18
Average.		29.643	29 572	65.5	40.7	53.1	59.5	59.3		1.25

Sept. 15—Cloudy; sultry at intervals; showery.
— 16—Heavy rain; partially overcast; fine; very heavy rain at night.
— 17—Clear and cool; boisterous and showery; heavy rain.
— 18—Clear; quite cloudless; fine; slight rain.
— 19—Fine; very fine, at freezing at night.
— 20—Heavy dew; very fine; warm at night; rain.
— 21—Fine; very fine; rain at night.
Mean temperature of the week ¾ deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Oct. 1, 1864.

September and October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	65.7	43.6	54.6	18	0.30 in.	2	4	3	3	6	13	6	1
Mon. 26	65.2	44.2	54.7	19	1.68	—	5	6	2	9	1	3	3
Tues. 27	65.1	45.3	55 2	22	0.57	—	2	4	3	7	11	9	2
Wed. 28	64.6	44 3	54.4	21	1.44	1	4	4	1	10	10	5	3
Thurs. 29	65.2	44.4	54.8	24	0.43	2	3	5	4	8	13	3	2
Friday 30	65.0	43.6	54.3	23	0.38	3	2	3	4	7	9	9	1
Satur. 1	63.5	43.2	54.3	20	0.53	2	2	2	2	7	17	4	2

The highest temperature during the above period occurred on the 25th, 1832—therm. 82 deg.; and the lowest on the 26th, 1855—therm. 26 deg.

Notices to Correspondents.

CUBA BAST: *Pont-y-pool.* This is not the bark of the Lime tree, but of a West Indian tree called Paritium elatum.

INSECTS: *H J.* The wasps are attracted in vast numbers to the crevices of diseased Elm trees in hot summers to feast on the extravasated sap, which has undergone a change and become palatable to them and other insects. The pieces of Elm bark sent were attacked by the larvæ of Scolytus destructor—the Elm beetle. We should be glad to know the conditions of soil, drainage, and age of these Elms—whether, in fact, they have been brought into a state of disease by any of these circumstances so as to become palatable to the Scolyti, or whether the attacks of the latter have not brought the trees into their present state. *W.*

GARDEN REFUSE: *M M.* You cannot possibly do better than have it smother-burned along with any earthy matter at hand, such as ditch-scourings, turf parings, &c.; or if your soil is heavy, burn a quantity of that with it, and it will make excellent compost. This is much better than the more tedious process of rotting it, and the material is of more value when charred in this way.

HOLLY HEDGE: *C D.* Have the ground well prepared by trenching, if necessary, and plant at once, selecting the best transplanted Hollies you can find in the most convenient nursery. Be careful, however, to get plants that have been frequently as well as recently transplanted, so as to secure plenty of fibrous roots. Then, with ordinary care, you need have no fear of their growing away freely as soon as they get hold of the soil. The Holly prefers a loamy soil, rather sandy than otherwise, and not too moist.

NAMES OF PLANTS: *J E C.* Tropæolum speciosum.—*J Hodges.* The Dendrobium, which is one of the Pedilonum section, is probably new, but the specimen sent was not sufficient for determination.—*R A.* Physianthus albens.—*Ossian.* 1, Chrysanthemum acaule; 2, Tagetes signata nana.—*H H.* Senecio mikanoides.

VINEGAR PLANT: *Mary.* This is the spawn of a Fungus named Penicillium glaucum, in a peculiar condition. A portion placed in a weak sugary solution soon converts it into vinegar. It may be cut up into pieces of moderate size, every one of which will grow.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5
Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES. Offices; 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

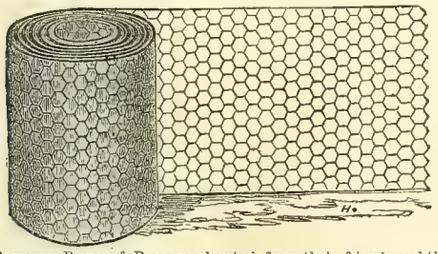
Autumn Wheat Sowing.

PHOSPHO-GUANO, Carriage Free at any Railway Station or Shipping Port in the Kingdom, 11*l.* 10*s.* per ton, net cash, for 10 tons and upwards. Smaller quantities, 11*l.* 15*s.* per ton.
*** This Guano is admitted to be the best manure for Wheat, containing, as it does, 35 to 40 per cent. of Soluble Guano Phosphates, and 3½ per cent. of actual Ammonia, in addition to Potash. The advantage of applying it in autumn is, that the farmer is enabled to harrow the Guano well into the soil before sowing, which produces a better result than top-dressing in the Spring. The Phospho-Guano promotes a strong braird, vigorous growth, and a full and plump grain. Apply at the rate of 2 to 2½ cwt. per acre.
PETER LAWSON & SON, Contractors, Edinburgh; and 28, King Street, Cheapside, London, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices—109, Fenchurch Street, London, E.C.
Manufactory—Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.
This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers.
Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices, 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per ton, delivered at any Railway or Wharf in London.

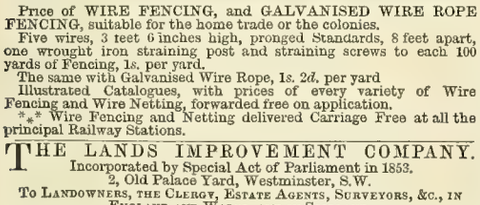
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BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch " " " .. "	18 ..	5 "	4 "
2-inch " " " .. "	17 ..	6½ "	5 "
2-inch " " " .. "	16 ..	8 "	6½ "
1½-inch " " " .. "	19 ..	4½ "	4 "
1½-inch " " " .. "	18 ..	6 "	4½ "
1½-inch " " " .. "	17 ..	7 "	5½ "
1½-inch " " " .. "	16 ..	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.
The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
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2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

Agriculture and Rural Economy.

PROFESSOR BUCKMAN, F.L.S., F.G.S., &c., late Lecturer on Botany, Geology, and Rural Economy at the Royal Agricultural College, will have a VACANCY for only ONE PUPIL at Michaelmas.—For particulars apply at Manor Farm, Bradford Abbas, Sherborne, Dorset.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	" B.	For a Cow or Heifer (in any Class).
	" C.	For a Beast in Extra Stock.
SHEEP.	" D.	For a Pen of three Wethers (in any Class).
	" E.	For a single sheep in Extra Stock.
PIGS.	" F.	For a Pen of three Pigs (in any Class).
	" G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to MR. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

SMITHFIELD CLUB SHOW.
IMPLEMENT DEPARTMENT.
The LAST DAY for receiving ENTRIES for IMPLEMENTS and MACHINERY is October 1.
Printed forms of Certificates, with rules and regulations, may be obtained of MR. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half Moon Street, Piccadilly, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 24, 1864.

THE reports from our correspondents in other columns declare what so good a harvest time as we have had, has already led us to expect—that the produce of our corn fields is certainly better than was anticipated in July. The Wheat crop of the country is probably an average one, and Barley is probably better than an average crop. Oats, however, are much below an average, and Beans and Peas are generally bad.

The certainty of at least an ordinary crop of Wheat and Barley is perhaps sufficient to justify Mr. DISRAELI'S account at Aylesbury last Wednesday of the corn harvest generally; but whatever may be thought of his opinion of our Wheat and Barley crops, there cannot be a doubt of the mistake he made in reference to the almost equally important subject of cattle food. The root crops, which, according to him, are "not so bad after all," are simply the greatest failure that the existing generation of farmers has known. All over Southern and Midland England the Turnip crop is a failure, and the Wurzels, everywhere extremely patchy, are, like the produce of our Grass fields, only half a crop.

The maintenance of our breeding and our young stock in healthy condition, and the maintenance of progress in our fattening stock, is the great agricultural difficulty of the coming winter; and the supply is so short that whether or not we have an autumn and a winter so mild as that of the year 1818, which is described by Mr. BOWLY in his interesting letter as having experienced a similar failure of food for stock, there cannot be a doubt that our flockmasters and cattle feeders will be put to very great straits indeed.

In these circumstances we are glad to give in the following pages the recommendations of a number of practical and experienced men as to what it is best to do. And we may direct the attention of our readers especially to the letter of Mr. LAWRENCE, of Cirencester, on the economical use of roots and straw. It is the principal alleviation of the difficulty which during the coming winter we have to bear that the crop of straw is generally both abundant and well harvested. And the use of the chaff-cutter, with subsequent additions of meal and water—linseed and other soups, in fact—to the chaff, will be our great resource. It is worth while to remember what one of our Correspondents points out—that at existing prices Wheat is one of the cheapest grains for cattle food.

IT will be one of the many great agricultural services rendered by the Royal Agricultural College if we shall receive from the teachers and professors there engaged manuals of the different branches of science and practice which they are severally engaged in teaching. The Manual of Instruction for the Laboratory, noticed in another page, is one book of the kind, and there is ample room for many others.

Our readers have, we are sure, appreciated the extracts we have already given here from time to time from the course of lectures on Dairy Farming delivered at the College by Mr. HARRISON, of Frocester Court. Were these collected, and, where necessary, extended and elaborated, we are sure that their publication would be welcomed as at once a most suggestive and most instructive guide to this particular section of the field which the instructions of the College traverse. We know of no treatise on the whole subject of dairy management, including both its theory and its practice, which is so well calculated to inform all classes—the landlord, the tenant, and even the dairyman — on their respective duties. And the references made throughout it to the geology and chemistry of the subject are well calculated to excite the attention and the thought of agriculturists in the dairy districts, where it is generally believed that less of movement and of novelty exists than in almost any other part of the country.

THERE is given in the following page an epitome of the Journals of the Manchester and Liverpool Agricultural Society for the past 14 years—in so far as these are occupied with reports of the farms which have successfully competed during those years for the prizes which this Society offers for good cultivation. We have to thank Mr. RYDER, the Secretary of the Society, for copies of the Journals, from which we have extracted the information thus condensed.

It appears to us, on a general review of this table, that there are reasons on the face of it which might well lead the Council of this Society to reconsider the whole scheme on which their elaborate and almost exhaustive prize list is founded. The prizes of Silver Medal and of 8*l.* and 10*l.* respectively offered to owners and occupiers for the best cultivated farms arranged in a dozen or more classes, according to their extent and character, do not appear to us to have been hitherto successful in inducing the general competition of the class of tenant-farmers who are really characteristic of Cheshire agriculture.

Cheshire is, as Sir H. MAINWARING properly declares it to be, essentially a dairy county; but one cannot look down the figures in many of these columns without perceiving that these, the prize farms of the county, are not exclusively nor even chiefly dairy farms. Look at the enormous purchases of stable manure and of night soil, at the great extent of Potato culture, and again at the comparatively small extent of Turnips and Mangel Wurzels in the green crop columns. Look also at the comparatively small number of cows, in all not more than 2000, over more than 14,000 acres; and it is obvious that on the average, and considering the totals of the past 14 years, these the prize farms of the Agricultural Society, are not strictly speaking characteristic Cheshire farms. Of course one can easily see that many of them are really Cheshire dairy farms. These are recognisable in some cases by the well known names of the tenants, and in others by the number of cows profitably kept on them per 100 acres, which after all is the true key to rank upon the scale of dairy merit. But whenever farms of this kind appear on the list, the columns for purchased manures are confined to records of bones and guano bought. Stable manure and night soil, of which such enormous purchases are here recorded, are the mainstay of the market gardener, or of the mere milkman and suburban farmer; and our conclusion from these lists is that the prizes of the Manchester and Liverpool Agricultural Society, do not, except in certain well known instances, touch upon the characteristic agriculture of the county to which its operations are directed.

—— THE National Association for the Promotion of Social Science, which is now holding its eighth annual meeting at York, this year for the first time comprises in its proceedings a section on subjects specially connected with agriculture. This section commences its business on Monday the 26th inst., and will be presided over by Mr. EDWARD HOLLAND, M.P., who will, we understand, open the proceedings with an address on the social effects of steam cultivation. Professor WILSON, of Edinburgh, will act as Honorary Secretary. There is no doubt that the establishment of this section occupies a field left vacant by our agricultural societies, and that its discussions may lead to valuable results in more than one direction.

THE PRIZE FARMS OF THE MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

NAME AND ADDRESS.	Total Extent.	Pasture.	Meadow.	Clover.	Corn Crops.	Green Crops.	Potatos.	Horses.	Colts.	Mares in Foal.	Bulls.	Cows.	Heifers.	Calves.	Fatting Beasts.	Sheep.	Pigs.	Manure. Made.	Manure. Bought.	Night Soil.	Guano.	Bones.	Superphosphate.	Character of Soil.
No. 1850.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	tons	tons	tons	tons	tons	cwt.	
1. R. C. Lowndes, Rice House, Liverpool ..	90½	20⅔	20½		27½	17⅓	3½	6	..	1	5	12	13	12	..	63	31	..	300	..	1½	..	..	Light sand
3. R. Birch, Netherton, Liverpool	250	12	55	54	60	10	27	12	..	..	1	12	16	8	..	..	12	400	900	300	..	..	..	Light black
3. W. Boyes, Speke, Liverpool	200	18½	97		65	10½	7	8	2	..	2	11	3	2	..	..	8	220	300	640	2½	..	..	Various
4. J. Birch, Orrell, Liverpool	121	12½	..	28	34½	12	22	7	2	..	1	11	8	7	..	..	7	350	150	600	5	..	..	Light loam
5. R. Dobell, Leftwich, Northwich ..	102	50	10	16½	9½	8½	4	2	2	..	1	26	16	5	..	164	10	200	..	..	1	6	..	Strong loam
5. E. Whitehead, Blackley, Manchester ..	70	27	41	..	..	..	..	4	..	..	1	38	..	..	..	..	15	400	..	..	..	..	..	Deep loam
8. W. Taylor, Roby, Prescot	75	4	27		23	6½	11½	3	1	..	..	2	*	1	..	..	11	50	150	..	..	..	..	Good loam
1851.																								
1. Mrs. Davenport, Capesthorne Hall	392	171	43		128	42	8	10	15*	..	5	12	79*	51	72	259	45	1500	..	..	4	..	40	....
3. W. Boyes, Speke	200	11¼	100½		60½	5	13½	8	2	..	1	11	3	2	..	..	10	250	300	700	4	..	..	....
4. A. Fairclough, Winstanley	111	5⅔	..	33	48	6	16	7	..	..	..	5	3	1	8	..	20	200	300	400	5	..	..	Black light
5. R. Mawdsley, Orrell, Liverpool ..	94½	10⅔	41		25	4	14	4	2	..	..	7	4	4	..	..	9	180	177	300	¾	32	..	....
5. J. Edwards, Aintree, Liverpool ..	81½	7	30⅔		25	7	10	4	2	..	1	4	4	4	..	..	8	150	200	400	..	..	..	Light black
8. J. Crowther, Blackley, Manchester ..	67	33	33	..	..	..	..	4	..	..	3	30	..	1	..	..	6	340	150	..	..	79	..	Heavy
9. J. Warburton, Sandway, Northwich ..	152½	63⅔	63		35	15	9	4	..	..	1	39	10	6	..	175	30	350	..	..	2	12	..	Various
9. W. Palin, Stapleford, Tarvin	250	116	49		45	24	9	7	5	2	2	52	23	12	..	100	40	560	..	..	..	..	..	....
10. R. Dobell, Leftwich, Northwich ..	102	51¼	18	..	16	8	5	3	2	..	2	32	9	8	..	184	9	200	20	..	..	9½	..	....
1852.																								
1. J. J. Blackburn, Hale, Warrington ..	242	80	52	..	71	18	13	10	2	..	..	15	3	4	10	450	30	450	..	..	10	1	20	Light sand
2. Colonel Clowes, Broughton Hall ..	14	52	26	..	42	18	..	6	5	..	1	13	20	..	..	60	62	700	..	..	..	..	..	Various
3. W. Atherton, Speke, Liverpool ..	163	21	2	65	53	8	12	7	4	..	1	16	8	4	..	..	21	300	200	800	2	..	..	Various
4. H. Clayton, Aintree, Liverpool ..	127	16	52		35	7	16	5	14	..	2	20	6	7	..	..	40	500	300	640	..	..	..	Light
5. J. Edwards, Aintree, Liverpool ..	81½	5⅔	20		28	5	11	4	2	..	1	4	4	5	..	..	4	150	200	400	1½	..	..	Light
7. E. J. Pemberton, Sankey, Warrington ..	128	14	64		19	9	19	4	1	..	..	8	2	1	..	..	23	200	..	200	1	..	..	Deep loam
9. W. Palin, Stapleford, Tarvin	250	117	53		55	18	9	7	4	..	2	56	16	18	..	77	30	560	..	..	£20		..	Various
1853.																								
3. J. Cartwright, Speke	163	10½	88		39½	8½	14	4	2	..	1	12	2	5	..	..	17	330	200	600	4½	..	..	Light sand
4. J. Dickenson, Upholland, Wigan ..	104	26	..	21	39	4½	12½	4	1	..	2	16	7	5	..	..	7	260	300	300	..	4½	..	Clay
5. W. Ashton, Speke, Liverpool	94½	3⅔	40½	..	34	2	10	5	1	..	..	8	5	3	..	..	7	255	80	480	1½	..	..	Light sand
9. Mrs. Cliff, Crewe	263		194		39	20	3	4	4	..	..	73	12	17	..	190	52	750			£55			Strong
10. H. B. Briscoe, Littleton, Chester ..	140	63	8	24	31	5	5	4	1	1	1	38	12	7	..	60	30	600	303		..	..	..	Rich loam
1854.																								
3. Mrs. Edwards, Speke, Liverpool ..	158⅔	3	77⅔		52	5	19	6	..	..	..	6	2	2	..	..		180	180	600	4	..	..	Sandy
4. J. Langshaw, Speke, Liverpool ..	110	5	42		43	6	12	6	6	..	..	8	5	5	..	..		200	150	320	4	..	..	Rich loam
5. J. Swinton, Ashley, Altrincham ..	90½	13	48	..	20	1	6½	3	2	..	1	28	..	..	..	..		400	..	..	..	..	..	Light
5. J. Langshaw, Speke, Liverpool ..	99	9½	39		34	2½	12	4	2	..	..	8	3	3	..	..		165	90	460	2⅔	..	..	Light
7. G. Halsall, Halewood, Prescot ..	134	6	80		30½	10⅓	6	5	1	..	..	4	4	5	..	..		250		..	8	..	..	Strong loam
10. J. Glassford, Lostock, Knutsford ..	108	35	..	17½	35	5½	12	4	2	..	1	13	11	9	..	55	?	400	..	..	..	5	..	Peaty loam
1855.																								
2. R. Watt, Speke, Liverpool	121	12	60½*		29	4	14	5	1	..	..	6	3	..	..	..	2	150	..	..	8	..	..	Light
3. Mrs. Jenkinson, Speke, Liverpool ..	189	20⅔	85½		56	6½	18	8	..	..	..	8	4	5	..	..	16	260	300	..	10	..	..	Good loam
5. T. Langshaw, Speke, Liverpool ..	99	7½	44½		30	2½	13½	4	1	..	..	8	4	2	..	..	7	165	90	320	6	4	..	Light sand
6. J. Rose, Hale, Warrington	249	26	134		63½	9	10½	8	1	..	1	8	..	..	..	72	54	650		1200	3	..	..	Strong loam
7. R. Richardson, Halewood, Prescot ..	128	13½	40		45⅔	7½	19½	6	3	..	..	3	3	1	9	230	27	250	544	..	6	5½	..	Stiff clay
7. J. Ellis, Halewood	137	20½	56½		48½*	16½	4½	6	40*	..	..	2	..	1	..	..	20	?	400	..	4	..	..	Strong loam
9. Mrs. Robinson, Lea Green, Minshull ..	257	115	69		45	8	5½	6	..	..	..	69	5	12	..	26	40	400	..	..	1	10	..	Strong loam
10. T. W. Swinton, Marston, Northwich ..	121½	40	30		39	1½	10	3	1	..	1	18	4	7	..	..	19	300	..	..	1	1	..	Strong loam
1856.																								
1. R. Bevan, Norley, Pemberton	206	60	48	29	49	9	5	4	..	..	..	16	6	1	..	..	2	360	100	..	4	3	..	Stiff clay
3. J. Birch, Sefton, Liverpool	206	16	93		52	13	30	8	2	..	..	20	14	10	..	..	8	220	400	300	15	..	..	Good loam
4. W. Atherton, Speke, Liverpool ..	104	6	51		30	4	10	5	..	..	..	6	3	4	..	..	6	200	150	..	5½	..	..	Various
5. E. Whitehead, Blackley, Manchester ..	70	27	34	..	6	1	1	4	1	..	..	37	..	2	..	3	..	300	..	60	..	..	31	Various
6. C. Garfitt, Tably, Knutsford	161	70	8½	9	50	6	4	8	2	..	..	5	35	..	..	170	20	400	..	..	2	3	5	....
7. J. Ellis, Halebank, Liverpool	134	28⅔	25		49½	19	7½	7	3	40*	..	2	1	..	..	..	30	880	450	..	5	6	..	Strong loam
8. T. Wright, Minshull, Nantwich ..	60	33	6	..	16	..	4	2	3	..	..	4	1	..	20	69	25	150	..	..	£20		..	Deep loam
9. P. Wright, Minshull, Middlewich ..	150	80	18	10	24	..	7	4	2	..	2	42	7	12	..	..	50	300	..	..	1	9	..	Loam
10. P. Percival, Daresbury, Warrington ..	124	48	6	24	20	5	20	2	1	..	2	31	8	10	..	..	16	300	..	..	3½	7	10	Strong loam
1857.																								
3. T. Atherton, Speke, Liverpool	153	22	59		45	5	20	6	1	..	..	15	11	6	..	..	8	300	15	..	15	3	..	Sandy loam
4. E. Holme, Speke, Liverpool	109	10	47		37	5	8	6	..	..	..	12	4	4	..	..	10	200	150	..	2	5½	..	Stiff loam
5. R. Edwards, Speke, Liverpool ..	88	4	41		25	2	14	5	2	..	..	5	2	3	..	..	10	100	200	..	3	2	..	Strong loam
5. S. Cook, Linacre, Liverpool	70	5½	28		15½	6	14	4	3	..	..	4	3	1	..	..	3	120	250	400	2	.	..	Light loam
7. E. W. Wilmot, Hulme, Congleton	120	13	18		34	33	3	4	2	..	..	26	..	..	2	100	10	?	2	100	5	..	..	Various
8. J. Hamnill, Denton, St. Helen's ..	70	9	25		20	5	8	3	..	..	1	13	6	4	..	..	5	250	?	..	4½	..	..	Various
9. H. Williamson, Orrell, Liverpool ..	48	..	4	17	18	1	7	3	..	..	..	..	..	..	..	..	2	20	260	250	1	..	..	Sandy loam
11. T. W. Swinton, Marston, Tabley ..	180	49	7	21	35	3	12	3	2	..	..	27	..	7	..	..	26	200	40	..	..	5	30	Clay loam
1858.																								
2. J. P. Heywood, Norris, Liverpool ..	135	30	38		41	19	7	10	4	..	1	11	10	8	..	..	15	500	..	350	10	..	..	Light land
5. H. Gibbons, Toxteth, Liverpool ..	70	4	..	11½	33	2	11	3	..	..	..	4	4	..	..	..	4	150	150	500	..	..	..	Light loam
6. J. Lathbury, Toxteth, Liverpool ..	157	2	63		52	2	30	5	..	..	..	3	1	..	..	..	15	150	390	..	2	..	..	Good loam
7. N. Twigge, Halewood, Liverpool ..	110	4½	28		50½	12	12	6	2	..	..	2	4	..	..	6	99	300	200	..	3½	..	..	Stiff loam
8. R. Ledger, Grove House, Liverpool ..	66½	5½	25		18½	5	8½	2	..	2	..	3	3	2	..	..	3	100	£62	..	..	..	..	Sandy loam
9. Mrs. Caldwell, Kirkby, Prescot ..	59½	3	11		31½	..	12¾	4	..	..	..	2	2	12	..	..	5	100	260	..	..	..	..	Sandy loam
10. T. Wild, Weavenham, Northwich ..	177	76	27	9	37	7	13	4	3	1	..	38	17	8	..	90	15	250	..	..	..	£60	..	Various
1859.																								
3. R. Birch, Netherton, Aintree	240	12	40	48	86	12	38	10	4	..	1	8	14	13	..	..	10	380	800	500	..	.	..	Light sand
4. T. Williamson, Linacre, Liverpool ..	102	12	10	22	39	4	12	6	2	..	..	12	1	2	..	.	4	220	280	300	3	..	..	Rich light loam
5. S. Cook, Linacre, Liverpool	70	3	32		19	3	12	4	2	..	..	3	5	3	..	..	10	120	300	300	2	..	..	Rich light loam
8. J. Gorst, Garston, Liverpool	64	8½	12½		26	5½	7½	3	2	1	..	7	2	3	..	..	3	200	190	200	..	..	..	Good deep loam
9. C. Musker, Booth, Liverpool	49½	..	10	10	14½	1	11	3	..	..	..	3	..	1	..	..	3	50	500	28	..	..	..	....
10. S. Davies, Eardswick, Minshull ..	207	100	44		44	12	5	3	1	2	2	55	10	7	..	..	57	400	..	.	£100		..	Very stiff soil
12. J. Birch, Sefton, Liverpool	205	35	70		52	15	26	8	..	..	..	27	20	9	..	..	10	250	500	400	6	3	..	Good light loam
13. G. Halsall, Haleback, Warrington ..	135	12	60		42	13	6	6	6	..	..	5	10	5	..	..	11	150	140	80	7	.	..	Strong loam
1860.																								
3. W. Atherton, Speke, Liverpool	198	6	97		62	11	20	8	3	..	..	8	22	5	..	..	7	400	500	..	10	9	..	....
4. W. G. Ashton, Roby, Prescot	116	5	43		39	10	18	5	8	..	..	3	..	2	..	..	4	200	250	600	2	..	..	Various
4. J. Edwards, Aintree, Liverpool ..	105	6	24	17	38	5	14	5	2	..	..	3	7	..	..	5	4	100	360	500	..	1	..	Light loam
5. J. Pilkington, Bearscough, Ormskirk ..	57	5	*	10	26	..	13	3	..	..	..	6	..	4	..	..	4	110	250	50	..	..	..	Light
8. S. Lees, Newton, Preston	162	70	27		40	2	20*	6	3	..	..	45	4	5	..	..	48	600		£317			..	....
9. J. Bowker, Aston by Budworth ..	64	18	13		22	3	7	2	2	..	..	16	2	3	..	..	14	130	..	..	..	5	..	Good loam
9. T. Rigby, Fennywood, Over	91	56	13		18	2½	1	3	..	..	1	23	4	..	..	44	10	100	..	..	£12	£30	..	Strong loam
11. S. Dorning, Swinton, Manchester ..	115	27	52		16	5	5	6	5	..	..	24	5	6*	..	..	..	500	59	200	..	..	..	Light loam
1861.																								
3. T. Booth, Moss Hall, Bolton	218	47	62	69	65	10	13½	6	3	..	..	16	11	2	..	75	7	100	500	500	..	..	..	Various
4. J. Dickinson, Upholland, Wigan ..	112	22	30½		38	4	14½	4	2	1	3	14	7	10	..	..	6	300	200	..	7	3	..	Clay
5. R. Webster, Old Stair, Litherland ..	83	9½	22½		31	8	9	6	2	..	..	12	4	3	..	..	5	250	250	350	1½	1	..	....
6. Mrs. C. Wood, Litherland	45	6	11		14	1½	11	3	1	..	..	3	2	2	..	..	2	50	175	100	3	..	..	Light
7. T. Moreton, Marton, Northwich ..	213	113	22	14	41	10	9	4	7	..	2	50	14	10	6	87	40	400	..	..	..	£100	£20	Half sand & clay
8. W. T. Pownall, Yarwood, Altrincham ..	140	93	6	..	26	11	1	4	2	..	1	..	9	..	40	149	14	200	..	..	..	S	10	Loam and clay
9. T. Rigby, Fennywood, Winsford ..	91	59	10		11	3	1	3	..	..	1	18	4	..	..	72	7	100	..	..	£10	£30	..	Loam and clay
10. H. Higson, New Hall, Pendleton ..	182	55	56		42	6	24	6	3	..	..	35	5	3	..	100	24	600	600	..	..	..	..	Good loam
12. E. Whitehead, Blackley	71	27	36		1½	1½	..	5	3	..	..	20*	..	..	..	..	17	..	..	..	..	..	..	Strong clay
1862.																								
2. J. Kay, Warburton, Warrington	305	82	55	28	83	12	54	12	7	..	1	54	..	..	35	124	10	?	500	1400	..	..	..	Various
4. T. Hurst, Tabley, Knutsford	117	47½	..	18	34	12	4	4	5	1	..	12	6	4	..	100	5	300	..	..	10	10	..	Light
5. R. Mawdsley, Orrell, Liverpool ..	98	9	30		33	3	16	4	2	..	..	6	6	3	..	..	8	180	..	280	4	..	..	....
7. W. Palin, Stapleford, Tarvin	250	114	38	15	46	17	7	8	6	..	..	50	14	17	..	220	40	400	..	..	..	..	..	Various
8. T. Bebbington, Oulton, Tarporley ..	152	82	30		37	..	..	3	1	..	2	41	12	12	..	25	30	?	..	..	..	..	..	Pure soil
9. J. Garner, Tattenhall	81	46	21		10	1	2	3	1	..	1	26	6	3	..	18	14	150	..	..	..	£38	..	Stiff clay
12. J. Aspinall, Kenyon, Manchester ..	77	10	67		..	..	..	2	2	..	..	12	4	4	..	..	4	100	..	..	..	£86	£45	Strong
1863.																								
1. J. J. Blackburn, Hale Hall, Warrington ..	242	48	86		75	5	15	10	4	..	..	15	7	4	..	300	30	250	200	70	11	1	..	Good loam
3. J. Fairhurst, Woodlands, Ormskirk ..	152	33	24		46	8	35	9	8	..	2	14	6	7	..	..	74	?	..	?	..	20	..	Sandy loam
4. H. Clayton, Aintree, Liverpool	125	18	40		42	6	16	5	4	..	..	22	16	6	..	..	25	?	500	400	5	..	..	Various
5. J. Ashton, Speke, Liverpool	90	3	44		29	..	14	6	..	..	..	7	..	4	..	..	8	..	180	..	5	24	..	Good loam
7. W. Whitlow, Crouchley, Lynn	239	128	40		46	3	19*	5	4	..	2	60	5	12	..	120	40	..	..	..	..	£100	..	Good loam
7. G. Jackson, Tattenhall	322	194	28		51	6	2	7	6	..	3	80	21	11	18	168½	54	..	..	..	..	£100	..	Various
8. C. Davenport, Stanthorne, Middlewich ..	120	54	15		37	1	10	4	1	..	..	23	5	9	..	50	20	..	..	..	£40		..	Strong loam
9. J. Rigby, Lower Whitby, Northwich ..	60	30	10		10	1	8	3	1	..	..	17	7	11	..	6	25	..	..	..	£55		..	....
10. H. Neild, Worsley, Manchester	400	160	90	14	75	23	35	10	5	4*	2	..	..	10	28	128	15	?			£200		..	Light boggy

* A veterinary establishment.

SHORT-HORN CORRESPONDENCE.

(*Continued from* p. 899.)

Among the letters and papers left by Mr. Cottrell, of Congresbury, and kindly placed at our disposal by Mr. Bowly, of Siddington, are copies of a voluminous correspondence, much of which appeared in the columns of Agricultural Journals upwards of 40 years ago. We make the following extracts:—]

1. *From Mr. Hutchinson, on the Origin of the Short-horn Breed.*

"Stockton-on-Tees, July 5, 1820.

"Sir—It is now clearly understood and allowed that it was in the year 1787 that the Sockburn bull carried off the premium of the Durham Society, the late Mr. Robert Colling receiving one guinea as second, but what bull it was of Mr. Colling's thus posted we have yet to learn.

"When Major Rudd's reply to my former letter was announced, I hoped to have seen this question answered, but, alas! he has left it still a mystery, upon which I trust, however, I am able to throw some light; not, let me assure you, with the intention of underrating the merits and properties of the improved Short-horned Ketton breed, or giving offence to their sole author (as Mr. Charles Colling is called), or to Major Rudd himself, my particular friend, but merely to apprise the public that there formerly was in this county, between the years 1760 and 1800 (and probably long before), a race of most excellent Short-horned cattle (unmixed with the Kyloe), as a breeder of which my late relation Mr. Thomas Hutchinson, who died at Sockburn in 1788, stood pre-eminent; that this breed still exists in full perfection; that it was not extinguished all at once by magic or an earthquake in the year 1785, when Mr. Charles Colling first began to breed, nor yet been washed away by the streams of pure blood that have since flowed through the land.

"Now Mr. Bailey, in his 'General View of the County of Durham,' printed in 1810, says: 'In the spring of the year, Mr. Basuett, of Darlington, purchased a cow with a bull calf at her foot, and putting her into a good pasture she got so fat it induced him to dispose of her to a butcher in the August following, and the calf was sold to a farmer in the neighbourhood.* At four years old he was purchased by Mr. Robert Colling and Mr. Waistell, of Ailhill, who at that time did not keep a bull for any other purpose than serving their feeding cows; but Mr. Colling, finding him to have a great propensity to get fat, sold him to his brother, Mr. Charles Colling, who was then beginning to breed, and anxious to select those with the best dispositions to fatten. For the same reasons, and with the same view, he soon after purchased of Mr. Maynard, of Ayreholm, a cow and a heifer, her daughter. This bull and cow, selected with so much judgment, are the original stock from which the celebrated Durham ox, &c., are descended.' And Major Rudd in his account of some of the celebrated stock of Short-horned cattle, &c., late belonging to Mr. Charles Colling (himself having purchased most spiritedly at the Ketton sale), confirms this statement by saying that 'the bull Hubback' (above alluded to) 'when four years old, was purchased by Mr. Robert Colling, of Barmpton, and Mr. Waistell, of Ailhill, for the purpose of serving their feeding cows. He had such an uncommon inclination to fatten as to excite the particular attention of Mr. Charles Colling, who purchased him of Mr. Robert Colling and Mr. Waistell in the year 1785. Now if Mr. Robert Colling and Mr. Waistell kept no bull in 1785, except just one for the purpose above stated, it cannot be supposed that they were breeders of note. And if Mr. Charles Colling was then really only just beginning to breed, and for this purpose did buy the only bull that his brother and Mr. Waistell possessed, may we not fairly conclude that they had not a choice of bulls amongst them to enable them to contend two years afterwards in 1787 for the premium at Durham? And, therefore, as none remember what beaten bull this was, I do venture to presume that it could be no other than the said bull, since called Hubback, the renowned patriarch of the improved Short-horned tribe. And further, that he must have been shown in Mr. Robert Colling's name (for Mr. Waistell was allowed to have nothing to do with him afterwards under five guineas a cow), and that some other bull which Mr. Waistell has bought in the meantime for the purpose of serving the feeding cows of himself and Mr. Robert Colling (perhaps) had been entered in Mr. Waistell's name, for it is a recorded fact that both these gentlemen were competitors for the premium. This bull Hubback, thus picked up in the first instance as it were at random, was no doubt in the estimation of the Messrs. Colling a superior animal (though I am credibly informed that Mr. Waistell parted with his interest in him for a very trifling sum, and very inadequate, as he soon afterwards found on being told that his serving price was fixed at five guineas a cow), or they could not have anticipated victory over the Sockburn bull, for which 50 guineas were that day offered, the property of a breeder of the first experience, eminent alike for his horned cattle† and his sheep, &c. I am, Sir, your humble servant, "JOHN HUTCHINSON."

2. *From Mr. John Rooke, on Improving the Breed of Horned Cattle.*

"Akehead, June 2, 1821.

"Sir—The means by which Mr. Charles Colling improved the Ketton Short-horns, and the admixture of the blood of that stock with others, afford a body of facts illustrated by experience, which perhaps throw considerable light upon the art of breeding horned cattle in general. The methods by which he proceeded demand peculiar attention. Use and profit was his constant aim, but the procurement of it was directed to obtaining the greatest value of carcase alone, in return for the food consumed. Had milk and carcase combined formed the basis of his selections, it may not be too much to say he would never have obtained that early maturity, excellent quality of flesh, aptitude to fatten, and perfect symmetry, by which his bull Comet was so pre-eminently distinguished. In his selections Mr. Colling wished to bring such animals together as in his judgment were most likely to attain the great end of his exertions. Whenever he found one suited to his purpose he endeavoured to become possessed of it, though the price were very considerable. Thus, for his cow Favourite, and her calf Strawberry, he paid Mr. Maynard 30 guineas at a time fully equal to 60 at present. He was, however, but little guided by long pedigrees and distinguished ancestors, though they may be well worth attending to at present in a breed selected with success.

"It is agreed on all hands, and the price paid for Mr. Maynard's cows corroborates it, that the Teeswater Short-horns were a valuable breed of cattle prior to their improvement by Mr. Colling. Indeed, some will have it, though ill-supported by subsequent facts, he made them no better than he found them. But how did he find them? Will anyone undertake to prove they were anything more than large useful animals that possessed about as much point (excellence in all points) as the polled breed of Galloway have at present, which when examined in particulars, nearly dwindles into no point at all, though the breed may be justly esteemed for its general properties.

"If the Short-horns possessed little or no point, how did Mr. Colling obtain it? We may readily suppose by using his bull Hubback. Much excellence, when examined in particulars, has been attributed to this bull. If this were not so, how does it happen all the valuable Short-horns are descended from him? Then what was Hubback? The breed of his sire has been satisfactorily ascertained, but of his dam little more is known than that she had that remarkable propensity to fatten, for which the improved Short-horns are distinguished. It is worthy of remark that the descendants of this bull, partaking of the excellent qualities of his dam, should have characters quite distinct from the general breed to which he belonged, namely, a capacious chest and prominent bosom, a thick mossy coat and mellow skin, a great deal of fine flesh spread equally over the whole carcase, particularly along the back and on the ribs, deep flanks drawn in a line with the sides, a broad level back, fine shoulders, a clean broad straight thigh, fine-boned short legs, and a great aptitude to fatten. Will any one tell us where Short-horns are to be found at the present time possessing these peculiarities and unmixed with that blood of Hubback? Or will anyone tell us of a breed of Short-horns, even mixed with that blood, which have them in so preeminent a degree as his real relatives? And is not what is called high blood uniformly estimated by their near kindred to his immediate descendants? Thus in producing a pedigree it is thought quite sufficient to show how nearly they are related to Foljambe, Lord Bolingbroke, Favourite, and Comet bulls, bred by Mr. Colling, and descended in a direct line from Hubback. What places Mr. Colling in a high point of view is the fact that he was the breeder of the whole line of these eminent bulls from Hubback without being indebted to any other person for a sire.

"Characters which are not to be met with in the common breed of Short-horns form the leading peculiarities of the Kyloe; besides there is a striking resemblance between the eye of the improved Short-horns and that breed. We may therefore reasonably conclude the dam of Hubback had some of that blood in her veins, and which communicated to the improved Short-horns those valuable properties for which the Highlander is noted.

"This opinion is not singular. Mr. Hutchinson (see July 5, 1820) observes: there formerly was in this county between the years 1760 and 1800 (and probably long after), a race of most excellent Short-horned cattle, unmixed with the Kyloe, which implies the improved Short-horns have a mixture of Kyloe in them. This is precisely the view I entertain, that the dam of Hubback owed her astonishing propensity to fatten to an admixture of Kyloe blood; that the acute and observing habits of Mr. Colling noticed the valuable qualities of her son and assimilated them with the best Short-horns he could procure.

"All the most valuable Short-horns have been produced in this way. The Chilton, Sockburn, and many other stocks had acquired considerable eminence before their admixture with Ketton bulls. What has placed the Chilton stock on a level with the Ketton and Barmpton Short-horns but this circumstance? Mr. Mason commenced upon a pure breed of Teeswater cattle which were crossed with Lord Bolingbroke, Favourite, Comet, and other bulls of great eminence. Perhaps no one had the use of these famous bulls to the same extent except the Messrs. Colling themselves; and since the Ketton and Barmpton stocks have been sold off, it is by many considered the best stock in the hands of any single individual.

"It may be worth while to inquire what have been the peculiar advantages derived from the intermixture of the Kyloe and Teeswater Short horns. The latter acquire a great size at an early age, and are tolerably well shaped, but naturally too thin of flesh, too strong boned, and deficient in those general requisites which denote a truly valuable breed. When crossed with Hubback, supposed to have been a mixture of Kyloe and Short-horn, the essentials wanted were acquired, though somewhat reduced in size; but as they had more flesh, less bone, and much neatness, they lost none of their weight; when fatted were considerably more valuable by the stone, and consumed less food, for large, raw-boned animals such as the common breed of Short-horns is at the present day consume more food in proportion to their value than such as are light of offal and have much rich roasting beef. Thus, when Mr. Hutchinson crossed his Sockburn cow with Petrarch, one of the highest bred bulls of the day, he tells us he obtained what Major Rudd never had—a Herod. Certainly then he was indebted to the new principles of breeding resorted to in rearing the Ketton stock for Herod. But what breeder would go to Herod for a pedigree in preference to Petrarch, his sire."

* William Fawcett, near Haughton.

† Between the years 1786 and 1800 the Sockburn stock won three premiums of the Society, two for cows, and one for the bull. A three years old white ox calved in March, and killed in March, at Sunderland, weighed 4 qrs. 9 stone, 14 lb. to the stone. A cow, full of milk at Martinmas, was also sold in March or April following to the same butcher at Sunderland, and weighed alive at Sunderland Bridge, where they weigh waggons, 136 stone. A four years old heifer, in 1800, was slaughtered by Mr. Otterburn, of Scarborough, weighing 4 qrs., near 80 stone, and several other instances of excellence I could recount.

THE CORN CROPS OF 1864.

Wheat.—There is considerable difficulty in conveying a correct idea about this crop, owing to that of last year proving an unusually great one, and of the natural tendency of the mind to compare this year's crop with that of what I fear we must regard as the crop of an exceptional year.

After careful examination, I am satisfied that we have this year, in bulk, a full average crop of Wheat; but I do not think, according to all the samples I have seen, and from all the other evidence I have obtained, that Wheat this year will weigh so much by 2 lb. per bushel as it did last year. A casual observer might say that is a trifling difference, but when it is remembered that the 2 lb. per bushel constitutes one thirty-second part of the whole crop, its serious importance will at once be admitted.

Wheat, however, in all the southern counties, and, indeed, as far north as York, has all been secured in excellent condition. I do not mean in condition to keep, but it is sufficiently dry to be at once brought into use, and most of it has been got in without a damaged grain. The samples I have procured, where the weight is really known, are mostly 63 lb. per bushel; the highest weight of all my samples is 66 lb. per bushel; this last is an uncommonly bold sample of Red Wheat from Norfolk.

A good deal of Wheat in the northern counties has been carried during the last few days, and, owing to the frequent showers we have had lately, its condition is much inferior to that of the southern counties. There is no fear of it keeping well, but much of it will not be fit to grind until it has had the benefit of October's winds.

Barley.—This crop varies a great deal, but over the whole kingdom I think it is unquestionably above an average crop. Owing to excessive drought and other circumstances, a greater proportion than usual will, I believe, be found unfit for malting purposes. For reasons I shall afterwards give, I do not think this will prove any loss to the farmer.

Oats are an irregular crop; on the whole under an average in bulk, but their condition is unusually good. I have before me some fine samples. I have one, grown in Yorkshire, plump, thin in the skin, and as white as rice; and in all districts where heavy crops of Oats are grown the sample will be found unusually free from inferior grains.

Beans.—This crop is a very unequal one; in some places it was good and well podded, in others not half a crop; in not a few fields they have been ploughed down. I have before me a beautiful sample I got in Cheshire, but the crop was a miserable one. On the whole the Bean crop is clearly under an average one.

Peas I think an average crop, and they have been got into the stackyard in unusually good condition.

Turnips.—I am deeply grieved to have to report very unfavourably on the crop of this important root; but there can, I think, be no doubt that over the kingdom the crop is not half so heavy as might reasonably have been expected. In many counties they have not a quarter of a crop; and it is lamentable to see acres upon acres of bare fallow where fine Swedes ought to have been growing. The Swedes of the northern counties, though much inferior in weight to what was hoped for, are far superior to those grown in the south; in a very regular crop which I examined yesterday I measured one which was fully 18 inches in circumference, and in another good field I walked over to-day I found one measuring fully 21 inches round it.

Grass.—With few exceptions, chiefly in Westmoreland and Cumberland, with some dales in Yorkshire, Grass land has been completely burnt up. Pastures have long ago lost their ordinary green colour, and have resembled a close-cut Oat stubble. Most farmers have found it absolutely necessary to give their stock cake or corn, and with such addition it is wonderful to see how well animals have kept their condition.

After-grass, or Fog, as it is called in Yorkshire, is absolutely worthless.

Hay was a moderate crop, and in consequence of the scarcity of Grass, is held at extravagant prices.

It will thus be seen that, owing to the total want of after-grass and of Grass in our pastures, our present means of making fat are much curtailed, and when the great failure in the Turnip crop is taken into consideration it seems clear that our ordinary mode of fattening stock during next winter will have to be considerably modified. A liberal supply of cake, or bruised Barley, or Oats, or inferior Wheat must be given to stock, along with a very limited quantity of roots. The rough Barley will come in well for this purpose, and reduce the outlay for cake; and, with beef and mutton at the high prices they are sure to bring, Barley used in this manner will probably make as much money as that sent to the maltster.

It will be observed that there is this year much variety in our crops, and several of them not so productive as one could have wished; still, there is very much to be thankful for; there is a fair crop of Wheat, which may now be said to have all been secured sound and good. Hence a great portion of the staff of life for the people is again secured for another year, and the late showers of rain, though too late to do much good to pastures, will put the land intended for autumn Wheat into good condition to receive seed for the crop of another year. *H. J. Turner, Land Agent, Richmond, Yorkshire, September* 13, *in the "Times."*

THE PAST HARVEST AND THE COMING WINTER.

CARMARTHENSHIRE: *Llanelly.*—I am sorry not to give you a good account of the harvest in this part. The past fortnight having been very wet and stormy, quite put a stop to all harvest operations; and there is in the late districts a great quantity still in the fields, and some of it in a very bad state, and will be only fit for pigs unless the weather clears up, of which there are no signs at present. I drove 20 miles through the country yesterday, and in many farms that I passed there was not a bit of corn in the yards; all in field mows, and I hope secure from the weather. The little Wheat I see at market is a very good sample, but the yield is not so good as was anticipated. The Barley and Oats are a good crop, with plenty of straw, which, if it can be well saved, will be valuable as fodder. The hay crop I consider all through the country is not more than half crop, but I think we are better off in this part for fodder than many places. Most farmers grow a small quantity of Gorse, which is very useful for cattle and horses, and a great saving of hay, and if carefully prepared they are very fond of it. Sheep are not kept to such an extent as in some places, and scarcely if ever see a bit of hay. There are no Beans or Peas grown here, and not a great quantity of Swedes or Mangels; there are some very fair crops of the former, the latter very indifferent. The Potatos I am glad to say will be a good crop, though smaller than usual, owing to such a length of dry weather. I have not seen a single diseased Potato this year, nor heard of any one that has, but what the consequence may be after so much rain as we have had of late I really am at a loss to know, but

I trust they are too far on to be injured much—the haulms are nearly ripe; the only danger I fear is their growing again, which I hear they are doing in some places. I should have been pleased to have given you a better account. *J. Burnell, Farm Agent, Pennyfair.*

GLOUCESTERSHIRE: (1) *Stapleton, near Bristol.*—Wheat and Barley are here about an average. Beans almost a lost crop; Peas, say half a crop; Mangels tolerable; Swedes, with few exceptions very bad indeed. You ask how stock is to be carried through the coming winter? I confess I have no great fears on this head, as, although hay is less than half the usual quantity, and is already high in price, yet, in a season like this, straw of every kind is excellent, and I have proved that with 4 lbs. daily of bruised Oats, Beans, or Peas, store cattle do well. The difficulty will be with cows in milk, and making meat; here the lack of Turnips and hay will be felt, and the flockmasters of Wiltshire will be sadly puzzled to carry on during the spring months. We always kept the ewes until lambing on Pea straw and a little corn. This year they must have a double portion of the latter in place of Swedes. This season proves how much better I should have fared with a greater proportion of arable land. My Mangels are good; Oats and Barley ditto; the straw of which alone is worth more per acre than the produce of as many acres of hay. I should have said that in Wiltshire we have a full crop of Wheat and Barley; hardly an average of Oats; Beans a failure, but Peas not amiss. *R. Stratton.*

GLOUCESTERSHIRE: (2) *Kingscote.*—On this portion of the Cotswolds the harvest has been finished about three weeks, except a few pieces of late-sown spring Wheat and Barley on farms far apart. I believe Wheat, Barley, and Oats are nearly, if not quite, an average crop and good quality of corn and straw. Beans and Peas are not much cultivated in this neighbourhood, and the few pieces I have seen have been very bad. The prospects of stock-keep for the coming winter are not bright. Hay, meadow and Clover, not more than one-fourth the usual crop. Roots about one-half (they are much improved within the last 10 days), and where there are plants of Swedes they will be large; with the exception of 3 acres that were eaten off with grub, I never saw them looking better on this farm. Cattle must be kept on straw cut into chaff with ground corn or cake, mixed up in a heap, and a few bucketsful of water thrown over it; but there are few cattle kept in this neighbourhood in comparison to sheep, and without they are folded over the land we may expect a very light crop of corn; therefore they must walk over the fields, stopping a night in each fold, and eat the small quantity of Clover hay there is cut in chaff and mixed with corn and Linseed-cake; the difference of price will decide which to use most of. The early harvest and fine weather have enabled the farmer to make great preparations for spring feed, a large portion of the Wheat stubbles have been cleaned, and are now green with Rape, Rye, Mustard, &c. *Francis Burnett.*

GLOUCESTERSHIRE: (3) *Cirencester.*—Although the Wheat on the light land was thin, the crops on the stronger land were good, and although not equal to last year, I think the crop will prove an average one. Barley is over an average; with the exception of a few late planted pieces, the crop is good everywhere. Oats are not much planted in this neighbourhood; the early-sown are good, the later deficient. The same may be said of Peas. Beans are a general failure; numbers of acres have been fed off with sheep, and those harvested not half a crop. The hay crop was very deficient, particularly the seeds; many not worth mowing, and the best of those harvested not half a crop, and certainly not equal to one-third of the produce of some years. Carrots and Mangels have stood the drought of the season pretty well, and some of the very early planted Swedes; and these, since the late rain, look fresh and growing. The root crop generally is very bad, some farms having scarcely any of any description upon them. There has been great complaint of the grub, but this is a pest we have every year, and I have known them much more abundant than this season, but from the plants not growing out of their way as they usually do, their ravages have been more apparent; indeed in many cases they destroyed the whole crop, and all are injured more or less with them. I have one piece of Swedes which have grown in spite of them; this was on land we ploughed long dung in before winter, and have not ploughed since, and I believe where land is sufficiently clean, this is the best cultivation for roots of all kinds. With this deficient crop of roots and hay the difficulty of getting through the winter will be great. The year most similar to the present was 1818, which is well remembered by many. The spring was very wet; the Barley was put in badly, and there being no rain on it till harvest time, it was so short it could not be mown, and rakes were made in order to rake it together, and the price began at 80*s.* a quarter, but gradually got down to 40*s.* In that year there was no rain the whole summer, and foddering the cattle became general in August; but abundance of rain came on the 23d of September, Reading Fair Day, well remembered by many, from cheese sinking in price 20*l.* a ton in a few days, to the loss of all and ruin of some cheese factors. After this rain, with a continuance of warm fogs, the growth of all vegetation was most extraordinary, and farmers have told me they did not fodder their cattle again till February. Should we again have such a season it will help us wonderfully. We have one great advantage now over 1818 in having an abundance of sweet and wholesome straw. The pulper and chaff cutter must be brought into extensive use so as to make the few roots go as far as possible. Oats are a very moderate price, but perhaps not cheaper than Wheat for feeding purposes, and the variety of all kinds of feeding stuff is so great that it is difficult to say which is the best—people must use their own discretion; no farmer in his senses will buy hay. Steaming straw makes it more palatable, otherwise I think it has no advantage, and where there is no steaming apparatus, watering the chaff and allowing it to stand a few hours will answer the same purpose. Being very short of keep I have been giving my lambs a pint of crushed Oats daily through the summer, and being careful to have them well supplied with wholesome water they have done remarkable well. I am making inquiries as to the price of low qualities of sugar, thinking it may be of advantage to mix with straw chaff. I think it probable there will be more nutriment in the roots this year than in wetter seasons; if so, a smaller quantity will be sufficient. There is a large quantity of stubble Turnips planted, and if we should have such a season as 1818, they will help wonderfully, but at present the nights are too cold for them to make great progress. Brewers' grains, malt dust, bran, and pollards, I shall have to mix with straw chaff, as the price may be. *Ed. Bowly, Siddington House.*

GLOUCESTERSHIRE: (4) *Cirencester.*—As to the late harvest in this neighbourhood, my own observation and the reports of several large farmers whose opinions I have collected amount to this, that on the deep and heavy lands the Wheat crop would equal that of average years, but on the Cotswold Hills, the Wheat with few exceptions is under average in quantity, but of good quality, and 2 lbs. per bushel under the weight of last year. Barley sown in good time, generally over average; Beans a general failure; and Peas about half a crop. The upper half of the straw of each entirely destroyed by vermin. My own crops of Beans and Peas were very promising up to Midsummer, the former quite free from their usual enemy the black blight; but ultimately smothered, as well as the Peas, by a white insect, apparently a species of aphis. The Swede and Turnip crops, with very rare exceptions, a complete failure. The Mangel has succeeded better; but the plant is generally very deficient. This has succeeded well in my own case, with the exception of one field which had been turned up deep with the steam plough last autumn, in which the Mangel failed entirely, and successive sowings of Swedes also. In other fields there is a good plant of Mangel. From some cause or other I have observed in travelling about, that fields of Mangel are always patchy, and deficient in plant. I attribute this to the want of attention at the usual time of setting them out. I secure a regular plant by sending women round with semicircular trowels just before cutting out the superfluous plants, to fill up all vacancies. One goes forward and scoops out a roomy hole, and another follows with a similar tool, and placing it well under the root of a young plant, lifts it bodily, with the soil attached, into the hole previously made. The removal thus made is little felt. This is quickly done over a field, as the parallel lines supply each other, without walking about and collecting plants for subsequent setting. I have found Kohl Rabi by much the most satisfactory plant this season. It has stood the drought better than anything, and has not been attacked by any enemy, while all other green crops have suffered terribly from the hard-coated grub which has been so destructive to every other crop. We have over 200 lambs doing well with a fresh piece of this daily, and a feed of straw and hay chaff, and a little bran sprinkled over it at night, and early in the morning.

Your inquiry for information on plans for eking out the supply of food for sheep and cattle which prevails in the southern counties is not so easily answered; and I fear comes somewhat too late. I observed, at the commencement of the spring corn harvest, the entire destruction of the Clovers on my farm by the long drought, and I found this very general, not only in the southern but in the midland counties, involving much anxiety on farms mainly under tillage, for a supply of food in early spring and summer. We sowed the dwarf Essex Rape over failures on the root quarter, and on some portion of land intended for Wheat, to be fed off late in the autumn; a very poor result, in consequence of the absence of rain long after sowing. On the failing Clovers we sowed a portion of Rye to come in first—to succeed that, another portion in Italian Rye-grass; all this is coming on favourably; then a portion of winter Oats, and lastly, Vetches to succeed the Oats early in June. A second sowing of Vetches will take place the first week of November, and a third early in May. The Rye and winter Oats may yet be successfully sown, but it is full late for the Italian Grass. For the economic feeding of stock during the coming winter, the first consideration would be shelter from wet and cold. Secondly, attention, in the preparation of food, to certain relative proportions of the nutritive and respiratory elements of food is material. It has I believe been found in practice, that food which contains one part of nutritive elements containing nitrogen, to from four to five of fattening, or carbonaceous elements, is in economical proportion. It must be borne in mind, it is the quantity of food which an animal can assimilate by thorough digestion, and not the quantity which an animal will eat, that is the economic consideration; for all the rest is waste, excepting as manure. Linseed-cake of prime quality at the present price, about 12*l.* per ton, is an extravagant food. Bran, at 5 guineas a ton, is far more economical. Lentils and Indian Corn, both at present to be bought at from 32*s.* to 34*s.* per quarter, are cheap foods. Wheat again is a cheap article to mix with Indian Corn. The former contains, in 100 parts, 20.82 of nutritive, and 50.38 of fattening matter; the latter 10.70 of the former, and 72.08 of the latter. Fattening bullocks and sheep naturally require a much less quantity of Swedes, &c., than is usually given them. Forty pounds per diem for bullocks, and 12 for sheep, thoroughly mixed with chaff, will be found a sufficient allowance. As you have extracted from my "Handy Book for Young Farmers," my mode of preparing food for fattening bullocks, I may add that we use only the best green Rape-cake, at little more than half the cost of equally good quality of Linseed-cake. I insist on the necessity of subjecting the Rape-cake to solution at a temperature not less than 212° boiling heat. It is not so palatable to cattle as the Linseed-cake, but they soon get accustomed to it; according to Professor Anderson, Linseed-cake contains of oil 12.79 parts in 100, and of albumen, 29.53; Rape-cake oil, 11.10; albumen, 29.53. These are the essential elements of each. Space will not admit of much detail of quantities. I have therefore only offered a few hints for such of your readers as may not have directed their attention to the economies of feeding stock. *Charles Lawrence, Cirencester, Sept.* 20.

HAMPSHIRE: *Southampton.*—I beg to hand you an estimate of the corn and cattle food crops in the district of South Hants. I don't at all know what I could do with my cattle under cover were it not for the supply I have now in use of the "Cattle Melons" which I cut daily for them and which is abundant, although I am obliged to reserve as many as possible for seed. Wheat, average; Barley, average: Oats, under average; Beans, very deficient; Peas, ditto; Potatos, short crop, but sound; Roots, the greatest failure within the past 20 years; Hay, short crop, and gone into consumption unusually early. *Joseph Blundell, Bursledon, Southampton.*

MID-LOTHIAN: *Bonnington, Ratho.*—Harvest is not yet completed in this neighbourhood, there being still a portion of Oats and Barley in the fields. The wind on the 5th and 9th shed out more grain from the uncut corn than in any year during the last 20. Luckily the breadth to cut was not great on each farm, though on individual farms from 30 to 100 acres were exposed to its fury, and there the loss must be estimated at several hundred pounds. Except in the very early district few farms entirely escaped. Now that the appearance of the stackyards can be judged of, there can be but one opinion as to their bulk, and that is that there is a deficiency of about one-sixth from that of an average year. The quality of the grain is above average, and the short-coming will be chiefly in Oats. However, Barley cannot be pronounced more than an average, and Wheat barely that. Turnips will be fully an average crop. They are now very much improved since the rains of the 2d and 6th, and the pastures are greener, while the foggage after hay is improving. Save from the shortcoming of straw and the rather light hay crop, the prospects of winter's food for our stock are much as usual. With plenty of fodder, now that grain is so low in price, the want of green food such as Turnips is less felt. On several farms last year where the Turnip crop failed from drought, nearly as many cattle were fed as usual, although these were of a lighter weight, and that almost entirely on corn and cake and uncut straw, with a very few Turnips. *James Melvin.*

SOMERSETSHIRE: *The Manor House, Brent Knoll, Weston-super-Mare.*—My immediate neighbourhood is mainly a Grass district, the crop of hay is at least one-half short, and the farmers will have nothing else to supply the want of it, if the winter is either a wet or a severe one. If the winter should be mild and dry, they will manage pretty well for their dairy cows, but little or no beef will be made. It is not, however, a county in which much beef is made in winter. On the other side of Bridgewater the Turnips are almost a universal failure, the Mangels not half a crop. The farmers have put in late stubble Turnips as a partial substitute, and some are buying Oats and cake, but they will, as a general rule, winter fewer sheep and cattle, and make little or no beef. I am at present staying in Shropshire, a great Turnip-growing county. Here, too, the failure of the Turnip crop is universal, and the remedy proposed is to feed no beasts in the stalls this winter. This portends high prices for meat next spring and summer, and unless the price of Oats and Indian Corn remains moderate, which can hardly be expected, there will be hard times for the young stock also. *G. J. Poole.*

SURREY: *Wanborough, near Guildford.*—So far as I am able to form an opinion as to the corn harvest, &c., in this district, the Wheat crop on all the deep well-cultivated land, commonly termed good holding land, is a fair average crop, and by average I mean to say ranging from six to nine sacks per acre. That has been the average for the past 14 years on this farm, and I put the present crop at, say, seven sacks per acre. On all the shallow soils, as sand or gravel, the Wheat has suffered much from the effects of the drought; it

has cut up short in the straw, thin and blighty, and has been stacked in a small compass. Of Barley many fine samples may be seen where early sown, and of this description the crop is probably good; all the backward sown crops are short in straw, and the corn thin and hard, only fit for grinding quality. Beans, Peas, and Oats are generally bad, with some exceptions where early sown. Upon looking round, the rick-yards do not present that well-filled appearance so characteristic of a good corn year, and point more than ever to the necessity for a deeper cultivation and earlier sowing, to enable the corn plants the better to withstand the extremes of the seasons. Although the present summer has been most delightful weather for field operations—no stoppage or hindrance of any kind—it may form perhaps in this respect an exception, viz., that it has been too dry for the growth of cereals; so remarkably free from all storms which generally prevail, and serve to counteract the effects of a season of drought. The failure in the root crop far surpasses anything I have ever witnessed. There seems to be literally nothing in the shape of Swedes or Turnips in prospect for the coming winter. Since the recent rains, the few roots that remain are putting on a growing appearance, and look like spots in a desert—the gaps are so numerous and extensive all around. I attribute my loss chiefly to the ravages of the grub, the usual accompaniment of a dry summer, for I had secured a good plant as I thought. Our friends the rooks helped to destroy the pest, but in vain, the crop seemed doomed to destruction. Mangels are a better crop, and are now growing nicely; there is, however, some loss of plant, which will be felt. I am thinking at present of collecting the scattered Swedes and Turnips for yard feeding, and all that I possibly can in the shape of chaff, sweet straw, &c., to form a basis for a feeding material of a more expensive kind, and fully expect to pay dearly for fatting this winter. The usual winter stock of sheep I keep, with the same feeding, would eat everything clean up by the end of November—such is the extent of the failure. Let us hope that a mild winter may mitigate the apparent scarcity of food for live stock; and, whatever it may cost to fatten, the flockmasters may not suffer in their breeding flocks. They will not require telling the condition must be kept up at any cost, for poverty is the first step towards disease. *W. Simmonds.*

SUFFOLK: *Framlingham.*—My former representations to you of the Wheat and Barley crops are fully borne out. The summer has been such as to suit our cold land—the quantity of Barley straw is beyond any year within my experience as a farmer of 34 years duration. The grain will very much of it be thin, harsh, and unkindly for malting; the Wheats not so extra as to straw, but still more than usual—5¼ acres make a good 6-yard bottom round stack—mown straw, which system has become universal. The yield of both grains is well spoken of. Beans and Peas not so good as expected; the attack of louse shortened the crop. All the corn secured in good order. The Pea straw is abundant, and will help the store of fodder; the second math of Clover not enough to mow. The change to showery weather has come too late to be of much use to either Mangels, Turnips, or Grass, yet the meadows are improved and give some late feed. The old school of farmers here keep their horses at pasture feed till the middle of November, and many who as a system always keep the horses in the yard will be obliged to go to the old system, as one means of sparing stover, and when taken in they will make shift with straw—happily that is all dry and sweet. The beasts, too, must be content with it, and have more cake and corn, whether for fatting or keeping them growing to resell as stores in the spring. This must apply also to cow stock. Just here, except on the larger farms, there is but little fatting; such as practise it will resort to pulping the small crop of roots. *G. Edwards.*

SUSSEX: *Lynch, Midhurst.*—The Wheat crop of this neighbourhood is, from all I can learn, an average crop; Barley above an average quality, not so good as was expected; Oats very light, above a third under average, Peas from 5 sacks to none per acre—a great many of the latter; Beans very bad—a great many never cut, some for litter, and some have enough to pay for harvesting; Potatos sound, but short crop. As respects the prospect for cattle and sheep it looks gloomy; Turnips are almost a failure; Swedes a few pieces, but very patchy, and the bulbs very much out of shape from the constant eating of the grub; Mangels bad; although much Turnips, Rape, and Mustard have been sown, a great quantity have again disappeared, the grubs or other insects carrying them off. The only really cheap thing the farmer has is Wheat, and that at under 9*l.* per ton must be used for cattle and sheep feed; and it is quite as safe as any other corn properly used. I have used a considerable quantity these last three years, mixed with Peas and Beans or either, and Barley or Oats, all ground together with a very little Linseed-cake; of course other things might be mixed in, such as Cotton-cake (which I have done), or Rape-cake, or Locust Beans; the thing is not to give too much of one thing. I believe a small portion of Linseed-cake, or better, Linseed meal, an excellent thing for cattle; it softens the skin, and assists the breathing, and so keeps the lungs in a healthy state; the whole should be mixed with a small portion of pulped roots, and hay and straw chaff; if no roots, moisten well the chaff, adding a little salt. The Grass does not grow kindly, although we have had some really good showers, which have well soaked the roots. Hay is very good, and very scarce and dear; straw is very good, but hard and stubborn this year. *James Eames.*

WIGTON: *Auchneal, Stranraer.*—The crops in this neighbourhood will be, I think, a full average if safely secured, though in some farms there has been a good deal of loss by the storm of the 9th inst. There is not a third of the grain of this district as yet secured, the weather being very wet. On some farms there is a part secured, on others it is all out standing, with very unsettled weather. The green crops generally will be a full average, the late rains having very greatly improved them. There is no apparent scarcity of keep for live stock in this quarter, if the crop be safely secured. *A. H. M'Clean.*

YORKSHIRE: *Bainesse, Catterick.*—The harvest is almost all over in the immediate neighbourhood; Barley, Oats, and Beans have taken off as good a crop as was expected, and good in sample. Wheat has taken off good in bulk but inferior in sample. The prospects of winter are more prosperous than they were three weeks ago, on account of having beautiful showers this last fortnight, which have made Turnips grow amazingly, and I think they will get to be very nice sheep fodder. I think the only substitute for the deficiency of Turnips will be grain, as the high price of oilcake and the scarcity of hay will not allow farmers to feed stock to a profit, and I think it will be much cheaper than any other substitute I can name according to the present prices. *John Outhwaite.*

THE WHEAT PLANT.

A SUMMARY of the history of civilisation, ancient and modern, is symbolised in this same field of Wheat. The history of nations, ancient and modern—the political and the military history of races, the course of emigrations and of immigrations—the tracks of trade, the rise and decay of the arts of life—the suffusion of races by colonisation—as to these things, and many such like things, of which you read in books, you may gather them up, in the way of meditation, while you follow a path through these corn fields. This one undulating sea of ears of Wheat carries me back without an effort to those boundless expanses of the ancient Mesopotamia that are spoken of by Herodotus; or to the corn fields of the ancient Egypt, or to the Wheat levels of Poland and southern Russia; or to the vaster levels of the Western world. If I pursue these suggested thoughts in their course of three or four thousand years, I find that in following them out to where they naturally lead, these meditations bring into view what may warrant the affirmation, that the history of the world, or rather the history of every people that has deserved a place in history, is identical with that of the Wheat culture. What have been the doings of this chief of all fruit-bearing plants? It was this that built Nineveh and Babylon; it was this that carried conquests to the far east, and to the far west, and to the south of the Mesopotamian centre; it was this, or its equivalent, that built the Pyramids, and the other architectural wonders of the valley of the Nile; it was this that sustained the Pharaohs, and afterwards the Ptolemies in their wide-spread despotisms; and this that governed Rome, when Rome governed the world; it was this that either sustained, or was the reason of, the invasions of the empire by Vandals, Goths, Huns, and others. It is the Wheat harvest that, in modern history, has favoured or thwarted the ambition of military despots: it is this—even the Wheat culture, that now holds the fate and fortunes of infant states in doubt, until it shall be known who it is that is destined to command the Ohio and the Mississippi. For good or for evil, for the better or the worse of nations—Wheat is the power that sways the world; and there might be meaning in the epigrammatic utterance that the sceptre of worldly dominion is—a straw!

This plant of power unites in itself qualities which, in combination, attach to no other vegetable kind. These properties are summarily the five following. (1.) The grain of Wheat-corn contains the three main ingredients of the nourishment that is required for the support of human life—viz., the starch, and the gluten, and the mucilage. (2.) Then the plant of Wheat is one of the hardiest—perhaps it is the hardiest of all plants (annuals) which are properly designated as esculents. (3.) Wheat culture, as dependent upon soil and climate, extends over a larger area than that of any other esculent. (4.) The grain of Wheat far excels all other vegetable esculents in its preservable property; for the produce of a harvest may be stored, not only from one harvest to the next, but through many years, even centuries: so it is that granaries have kept nations in existence through famines, from year to year. (5). Lastly, Wheat—although in a less degree than most other vegetable species liable to variations of kind by artificial means—is, in a very high degree, open to those methods of culture, the intention of which is to increase the quantity of the yield per acre.

A brief statement of some facts, in the way of an annual biography of the plant of Wheat, may properly claim a few minutes' attention; at least from those who, in taking their breakfast, seldom or perhaps never put the question—whence did the the baker obtain his material? The baker from the miller; this is true, no doubt, and the miller from the farmer, and he from the land: but how, and under what conditions? Some of these conditions might properly be spoken of—as I have already ventured to speak of them—as stipulations: for they are the terms of an unwritten, yet real and solid, covenant—as ancient as the human family, and which is still, as the lawyers say, *in viride observantiâ.* The due succession of crops would forbid that some one of the cereals should follow immediately some other one of the cereals. We infer therefore that last year there must have been, whether we remember it or not, Mangel Wurzel, or Tares, or Turnips, Turnips [Clover or Beans], inasmuch as now there is Wheat on these acres. This is a change of method in farming which, as the modern farmer has learned it, gives him more than an equivalent for the fallows of the bygone practice of husbandry. Fallows are still resorted to in a cycle of years; but not, as once they were, every year upon every field of corn-growing land.

Harvest well finished and housed, even to the remainders of the Beans, then the plough comes on to make preparation for the harvest of the next year. A goodly spectacle it is at the earliest daylight of a chill November morning, when a dozen well-fed horses—ridden by the men and the boys, sitting lady-fashion—are coming down the lane to accomplish their journée (not journey, as it has come to be pronounced). Two ploughings, and a cross-ploughing perhaps, are the commencement of these careful preparations, and if manure has not already been carried on to the land, it is because the drill must be brought forward to insert, in careful measured lines—not the grain, but the stimulus of vegetative life—the guano. Then comes the drill, with its charge of the precious grain; which itself, perhaps, has had a preparative steeping. Close at the heels of the drill follows the harrow; and alongside of both comes hopping the rook, accused of pilfering the Wheat, when in fact it is the grub that he covets.

A little time before Christmas, or it may be a little while after that merry season, the husbandman will come a-field to do all that he has to do for the Wheat crop (the principal Wheat). As for the hoeing, at a later time, it is an incidental operation:—it is only a keeping in check the rival weed that might otherwise choke and impoverish the plant by drawing the soil. So far as the labour or the watchfulness of man may avail, the husbandman will be at liberty to ride his horses home, and there await the issue:—it will be a hopeful, and yet an anxious waiting time of five months. But how severe is the trial which this plant of Wheat—these slender spikes—must pass through, even while they are still nothing more than green filaments—a very symbol of frailness. Little or no snow may have fallen in January: there has been perhaps no fleecy mantle to whelm itself over this tender growth; yet a frost of unpitying severity sets in before the winter has passed. The cold may be of such intensity that in the shrubbery all but the hardiest shrubs have been killed. Magnolias, Myrtles, Laurels, Laurustinus, have been smitten, never to recover. Nevertheless the Wheat has lived through all this arctic rigour. It must not be affirmed in absolute terms, that the Wheat crops sustain no injury in the course of an unusually severe winter: but of this prime support of human life it may be affirmed, as above, that it is the hardiest, or almost the hardiest, of all annual plants. Too much wet in spring is more perilous to Wheat than any ordinary intensity of frost. It is to be noted—and I take leave to remind my city readers of the fact, that it is only the principal Wheat that has to endure the trial of extreme cold. As to the spring-sown crops—the Barley, the Oats, they do not appear until winter has fairly blown over.

I have said that when the roller—or let us include the hoe also, have done their work; and while the plant of Wheat is, as you might think, a thing of very small pretensions—then it is that, as the farmer retires—his part of the covenant duly completed—then it is that the other party in this covenant advances to do His part, and He so comes as if He were minded to do it alone. In act, the creative force is always, even from the earliest moment of the germination of the grain; and at work, while so slender and frail a spike, as is the spike of Wheat, has worked itself—at the rate of an infinite slowness—through the rugged clods; and so until daylight has been reached, and the heavens have smiled upon it. But now the Almighty takes the work in hand alone: it is an instance that has no exact parallel. Everywhere and always, upon the solid surface, and in the air, and in the ocean does the Creator go on—silently—unfailingly—erring never—asking no advice—minding no criticism—desiring no spectators—waiting for no plaudits—the Creator is at work, giving to all creatures life and breath and all things. All this is true; and more than we can imagine is true; but the Wheat harvest claims regard by special privilege; and the principal Wheat comes into a foremost place in the marshalling of the vegetable orders. When we use the customary phrase, the vegetable kingdom, and speak of Wheat as standing foremost therein, we are emboldened (in no irreverent mood) to borrow from their place in the Gospels the words—"So is the kingdom of God as if a man should cast seed into the ground; and (when he has done his part) should sleep and rise night and day, and the seed should spring and grow up he knoweth not how: for the earth bringeth forth fruit of herself: first the blade, then the ear, after that the full corn in the ear: but when the fruit

is brought forth, immediately he putteth in the sickle because the harvest is come." *Good Words for Sept.* 1864. [This is doubtless the true lesson of the history, but it is taught by a very inaccurate historian.]

SEWAGE MANURE.

[The following are notes of two papers read on Wednesday before the British Association at Bath.]

(1). MR. W. GEE gave an account of the mode adopted at the Bradford Union (Wiltshire) for the utilisation of sewage:—"As chairman of a Wilts Poor Law Union, where the boys' and girls' schools' sewage has been for two years simply, clearly, and effectually deodorised and wholly saved by the Rev. H. Moule's earth method, I would most strongly advocate the 'dry way,' and not the 'wet way,' as the true method for half the population of this kingdom. All houses and cottages that are not in towns, all workhouses, hospitals, and prisons will find this plan easily available. I beg attention to what follows:—For 15 months ending Midsummer last there had been no removal of the product from the schools' shed, so that the heap of excreta and earth then apparent resulted from, say 45 children during that long period. It must be understood that whenever the soil became sufficiently dry, under cover, it was used over and over again, and it will be then credible that the whole quantity did not weigh 3 tons. Two tons were sold to neighbouring farmers, and I purchased about 1 cwt. of the remainder, of which I am able to send you a small box. It is quite inoffensive, and might be handled by a lady in potting flowers. Without disparaging Dr. H. C. Bird's plan for towns, pray contrast the one simple process I have mentioned —the mere mixing of exuviæ and dry earth—with the 13 heads of his (no doubt able) treatment of liquid sewage, where it cannot be taken to the fields direct, or coarsely filtered, and I venture to think you will advocate the adoption of the 'dry way' by every man who does not live in a street. Supposing even in any street persons were bold enough to try it (and pray let me repeat that I acknowledge all the difficulties of its adoption in a town—I only imply that it is possible), I will advance that, according to the above result, six families might, by one visit among them of one dust-cart in five months, be supplied with dry earth and relieved of a valuable product.

Dr. DAUBENY said the Mayor of Coventry had informed him that in that town the nightsoil was removed about two miles from the town, and was deodorised by street sweepings, and the expense and the proceeds about balanced each other.

In the course of the discussion the opinion was expressed that precipitation destroyed the value of sewage as manure, and that the only plan of making the ordinary sewage of towns available for agricultural purposes was to distribute it on the land in a liquid form.

(2.) Dr. J. HUGHES BENNETT, of Edinburgh, commenced by stating that this country annually lost about 10,000,000*l.* by the non-utilisation of sewage, and if account were taken of the cost of the works required to carry off the sewage, the extent of national loss might be doubled. The difficulties in the way of the application of sewage to agriculture arose from three sources —1. From the large admixture of sewage with water. 2. From certain ideas of its prejudicial influence on health. 3. Owing to the nuisance which it was thought by some would thereby be occasioned. All plans for the utilisation of this important material were more or less interfered with in consequence of the assumption that there was something pestiferous or unhealthy in the fermentation, exposure, and smell of sewage. He agreed with Mr. Rawlinson, who was examined before the Committee of the House of Commons, that the health of the people was the first consideration, but he could not agree with him that the risk to public health from the utilisation of sewage was such that it was better at any cost to remove it from towns and throw it into the sea. To prove the fallacy of that opinion, and remove some of the difficulties surrounding the question, he laid down the following propositions—1. That atmospheric air strongly impregnated with odours of various kinds was not necessarily injurious to health. 2. That atmospheric air without smell was often most deadly. From these two propositions he inferred—3. That there was no necessary connection between smell and deleterious gases. Smells by themselves might be considered as non-injurious. They were not even a nuisance to those who lived among them. The sense of odour was very easily paralysed. 4. That deleterious gases arising from excreta were injurious, being inhaled from pent-up drains. 5. That emanations from drains and sewage entering running streams were in no way dangerous. 6. That typhoid fever could not be proved to originate from excretal fermentation. 7. That the improvement of drainage by costly works did not necessarily diminish the amount of disease. Typhoid fever in Edinburgh appeared to follow improvement in drainage. Improper food and drink had much to do with fevers. The worst effects were produced by bad water. Decomposed animal matter, by means of cesspools, found its way into our wells. The general conclusion at which he arrived was this—that, so far from sewage being poisonous and injurious to man, it was a source of growth to the vegetable, and through that to the animal, world.

Dr. LIVINGSTONE begged leave to enter a protest against being thought an advocate for stinks; but it was most important to know that stinks had not been the cause of fever in Africa. This was the conclusion to which his experience led him, and Dr. Kirk, his companion, who was present, could testify the same thing. He would give one instance in which they had particularly noticed that a very bad smell had no effect whatever on health. When coming down the Shire last February they found, the river being in flood, that a large portion of water ran out of the river into a marsh about 10 miles broad, and the same water passing through the marsh fell into the river again at a point lower down. When the water came out of the marsh it was literally as black as ink, and had a most abominable smell. Part of the Mission was obliged to remain all night in the midst of this abominable smell, which was so strong they could not for a moment forget its presence. On the following morning they found that the white paint of both the vessels Pioneer and Nyanza was quite black. He thought they must reckon on a smart touch of fever, and inquired among the natives whether fever had followed it. They said no disease followed it, and such was actually the fact. They had no fever in consequence of spending the night in that atmosphere. From all his other experience he came to the conclusion that whatever the fever might be it did not come from bad smells. He thought bad smells ought to be got rid of as soon as possible; but it would be a great mistake if medical men or others supposed from the presence of a bad smell there must be fever.

RELATIVE VALUES OF FOODS.

[The following notes or extracts from Dr. Voelcker's Paper on the Chemistry of Food read before the London Farmers' Club are appropriate now.]

WE require constituents (1) which supply the muscle of animals; (2) which produce fat and feed respiration; and thirdly, constituents containing bone materials and mineral and saline matters. But as regards the proper admixture in which we should have these constituents no general rule can be laid down; because the wants of different kinds of animals, like the wants of animals of different ages, are so various. Fattening animals require food which is less nitrogenous and more abundant in fat-producing constituents. For the successful production of milk, we require food richer in nitrogenous matter. The most concentrated food that farmers are in the habit of using is oilcake. No doubt we can fatten animals on Linseed, if we use it judiciously, giving not more than 2 lb. per day per head in the case of bullocks—if we give it with food that is rather binding, with Bean-meal, straw, and hay. But Linseed-oil is too expensive. It only produces fat, and we can obtain fat from cheaper sources. Linseed-cake will be found more economical than Linseed itself. But Linseed-cake is often adulterated with bran, which is of inferior value, and is, moreover, liable to get mouldy.

In Cotton-seed cake, if made of the whole seed, the excess of the nitrogenous matter in the kernel is diluted with a substance like sawdust. Hence, undecorticated cake has frequently been found to produce a better practical result than decorticated; nevertheless the latter cake is the more valuable of the two. We ought to give decorticated cotton-cake with a good deal of straw, inferior hay, and roots; in other words, with some bulky material. It is of great importance, especially in the case of ruminating animals, to feed them with bulky materials, in order to fill out the stomach; and in this way we may make good use of straw and inferior hay. Cotton-cake by itself is too binding in its qualities; but mixed with Linseed-cake in equal proportions, it will, I believe, be found as useful as Linseed-cake given alone. Ground-nut cake decorticated is well fitted for young stock; but it is not so well adapted for fattening stock, on account of the great excess of nitrogenous matter which it contains. Leguminous seeds, Peas, Beans, and Lentils possess an analogous composition; but there is a good deal of difference in their relative digestibility. Lentils are more easily digested than Beans and Peas.

Barley-meal is justly valued as a fattening food for pigs, and as a finishing food for every description of stock. It is rich in starch, which is changed into fat. Wheat, when cheap, is perhaps still more valuable than Barley-meal. It contains about the same quantity of nitrogenous or flesh-forming, and a larger proportion of fattening material. Indian Corn is not so rich in flesh-forming constituents as Barley-meal or Wheat, and for this reason it is an exceedingly good mixture for such food as cake or Peas, or Beans or Lentils, which are rich in flesh-forming materials. Animals fed on Indian Corn exclusively get fat very quickly; but the substance of which the cellular tissues in which the fat is deposited consists, not being supplied by Indian Corn in sufficient quantity, is insufficiently formed, and the result is that the fat which is deposited in pigs or other stock is too soft. Bacon fries out, runs to waste, and becomes flabby. Rice dust is but a poor kind of food—inferior to Barley-meal. It is deficient in flesh-forming materials. Hay and Grass from irrigated meadows is inferior in point of nutrition to Grass from old pasture or herbage which is grown more slowly. A larger proportion of nitrogenous matter is found in the produce of irrigated meadows; but it is very questionable whether the nitrogen that occurs in the produce of irrigated meadows really exists in the form of albumen. Straw is not so universally used as food as it deserves to be. It is especially useful when it is not allowed to get over ripe. Oat straw is in this respect a most valuable description of food. It is wonderful how much further concentrated food, and a limited supply of roots, may be made to go, by giving along with the pulped and sliced roots and Linseed-cake, broken up into small bits, or made into a jelly, a due proportion of well-harvested straw, cut sufficiently fine into chaff. Oat straw is the most valuable description of straw among the cereals, but it is surpassed in nutritive power by Pea straw, and perhaps also by Bean straw, which, however, may be exceedingly good or exceedingly bad; it is entirely a question of harvesting. Pea straw is the most valuable, next to that Bean straw under ripe, then Oat straw, Wheat straw, Barley straw, and lastly, perhaps, Bean straw over ripe. With respect to green crops, the nutritive property depends upon the condition in which roots are harvested, very much on the amount of sugar, and not on the amount of nitrogenous matter which they contain. The old-fashioned way of testing the flesh-producing properties of roots, namely, by taking a bite at them to see whether they are sweet or not, is the best way of ascertaining whether a Mangel or a Swede is the better food. In conclusion, I would observe that, quite independently of the composition of food, its nutritive qualities are affected by the condition in which it is presented to animals. A mouldy condition is injurious; an imperfect mechanical condition is often detrimental. In this respect the cooking of food deserves attention. It will frequently enable us to mix inferior with more nutritious food, and the blending of food which separately would never be given very largely will enable us to make the best of our feeding materials. In this point of view malt well deserves our attention. I do not think malt will ever displace Barley-meal; I do not think it will ever be as much used as Barley-meal in feeding. But as an addition to inferior kinds of food, very good use may be made of malt. In the same light, perhaps, are some of the condiments to be regarded. I am not an advocate for the use of condiments, at all events not the use of purchased condiments. If farmers want condiments, let them make them for themselves. There are some condiments which may be used with advantage, but I have no hesitation in saying that every intelligent farmer can make his own condiments much better, and, by a judicious blending of food, obtain a better practical result, than by purchasing prepared food.

Home Correspondence.

On the Cultivation of Wheat.—In your Paper some weeks ago there appeared an article written by Mr. Wilkins, Wix Parsonage, on "Cereals and Germination." In the course of his remarks he had occasion to make some wonderful statements on the cultivation of Wheat on the same land 10 years consecutively, and from other lands he has rented for 17 years, during which period he had reaped 13 Wheat crops, the average of which was 44 bushels or 5½ quarters an acre. Mr. Wilkins further stated that there did not appear the least diminution in quantity, the straw not less than 6 feet high, and so strong that there was no fear of it being blown down by a storm, and the quantity of seed used did not exceed 2 pecks an acre. According to general experience in the cultivation of Wheat, farmers do not attempt two crops consecutively. I have known a second crop tried, but the last always proved a bad one. I feel certain it cannot be the natural quality of the land which can supply food for 10 Wheat crops consecutively, according to the present mode of cultivation, without showing a falling off in quantity. Mr. Wilkins must, therefore, by the application of some kind of manure not generally known, restore to the soil that food which the previous Wheat crop had consumed. If this could be done at a reasonable expense of manuring, there would be no necessity for that regular formality in the rotation of crops, so as to keep the land in a constant healthy condition. This desirable object Mr. Wilkins has evidently accomplished, and left his neighbours lagging behind, pursuing the old system of a regular course of cropping before they can restore the land to a proper condition to produce another crop of the same kind. Take for instance Red Clover, a most valuable crop to a farmer if a good one, but before he can get another crop from the same ground it takes four, eight, ten years, and sometimes a longer period. What, therefore, is the nature of the food upon which each crop feeds and extracts from the soil? Ability to produce any quantity of Wheat crops consecutively may prove a key to that food upon which other crops feed, and thus farmers may be enabled, and allowed, without any restriction, to grow such crops as are the most profitable without any fear of impoverishing the land. *H. Harrison, York.*

Capillary Attraction and Land Drainage.—I see that this question is again raised in your Paper of Sept. 10. It is overstating the case to say that a knowledge of capillary attraction "is not of any practical utility to those superintending draining operations in deuse homogeneous clays," simply because such knowledge will make us understand with what water the clay will part, and that which it will retain. If what I have said is of any value on this point, it may be found at some length in the *Agricultural Gazette* of July 23, 1853, p. 473. I merely wish now to record an experi-

ment which appears to me a good illustration of the quotation from Mr. Donald's pamphlet on land drainage, with which "A Roxburghshire Rustic" begins his letter. I placed 18 pieces of quite dry chalk, of various shapes and sizes, in a glass tube 1 inch in diameter and 2 feet 6 inches long, immersing one end in a solution of salt and water; though the point of contact between the pieces was very limited, they all became saturated in due time with the liquid, the salt appearing in the form of efflorescence, especially on the top piece, due of course to evaporation after it had been raised through the pieces of chalk below. *J. C. Clutterbuck, Sept.* 14.

Wheat-carrying by Grant's Portable Railway.—In your comparison of the cost of carts *versus* Grant's portable railway for carting corn you are quite correct as far as the experiment went, but the trial was not against time or cost, but to ascertain to a certainty if the rails could be applied advantageously for the purpose of carrying corn to the stack. I knew that the very same hands would be required to pitch, load, and stack as in the ordinary mode of carting and stacking, but there were other things to be proved, viz., whether the trucks with the wheels so near together would travel with a load of Wheat-sheaves without turning over; also whether the rails could be shifted so often as required without hindering the men pitching, &c.; and to be satisfied upon the above points I selected for the experiment a very uneven, irregular-shaped, and narrow field, in order to put the rails thoroughly to the test, and the way in which the work was accomplished quite surpassed my expectations, and I am now quite convinced that the railway is not only highly valuable in getting off roots, carting on manure, and for many other purposes on a large and tolerably level farm in wet seasons; but that it may be applied to carting corn in many places to great advantage. Now as to cost: you say "Men are dear and horses are cheap," but where horses are reduced through steam cultivation, and upon large farms, the rails must prove advantageous in filling up the deficiency in horses, as the practice is now generally adopted of stacking the corn near where it grows. The plan you name of carting corn by the acre is the proper one with the rails, and as the question resolves itself into the cost of the additional horses required for carting in the ordinary way against the cost of a man or man and boy to shift the rails, my firm opinion is the result will be found in favour of the latter; give the men 2*s.* 6*d.* extra in lieu of every horse saved by the use of the rails, and I have no doubt they will prefer them to the ordinary mode. Again, in many seasons, from the effect of wet, the corn is nearly all cut on a farm before carting commences, and then, when fine weather sets in, the rails would be found a great assistance, as hands would then be more plentiful than in the midst of cutting. Feeling that I had not properly explained the nature of the experiment, I trust you will take that as a sufficient excuse for troubling you with this long letter. *William L. Hubble, Barn Hill, Hunton via Staplehurst, Kent, Sept.* 13.

The Destruction of Grubs.—In all my searchings for them during the last week, when in two days I found a quart mugful (about 4000 in number), off 40 rods of land, or about 100 on each square rod from various plants, I have not found one feasting by daylight. By the use of a lighted lantern during the night-time, I have discovered them on the tenderest and youngest plants of Turnips, Cabbages, Broccoli, &c., gnawing them right off, or boring a hole through the plants just below the eye or heart, leaving only a short stump; then, when gorged, burying themselves just under the plant, about half an inch, which it last devoured, till the next night, when I have easily and as surely found and taken them in their haunts, which were indexed by a gnawed-off leaf, or the entire plant appearing withered. The grub does not burrow from plant to plant by day, as I believe most people have hitherto imagined; but from fear of some deadly enemy by day, lies dormant and hidden till night comes. I find the grubs feed upon various weeds, which accounts for the formidable havoc they are now making more than usual to all cultivated plants in the present season planted on barren ground, since unfortunately, if I may be allowed to use the expression, from the late severe drought there are but few weeds (their natural food) for them to live upon. On a patch of early Wheat planted this autumn at my favourite time, September 1, exactly three grains in each hole, to admit of various casualties it might be subjected to before and after the plants were up, which was in six days, not one missing; two days after, to my dismay and disappointment, I observed considerably more than half had been clipped off by those creatures during the night, and in nineteen cases out of twenty where I found the tender blade prostrated, there, as sure as fate, I found the grubs, sometimes diminutive, and others big and fat, hidden in the ground very close by. *A. H., Maldon.*

Societies.

AYLESBURY: *Mr. Disraeli on Agricultural Topics.*—At the annual meeting of the Bucks Agricultural Association, Mr. DISRAELI delivered an agricultural address, from which we make the following extracts:—

(1) I can upon this occasion congratulate you upon an event which, upon the whole, is the most important that can occur in a country—that is, the harvest. I congratulate you that you not only have a good harvest, but a very good harvest. My opinion is, from all I can learn, and from something which I have observed, that it is a capital harvest, and that the general result of the harvest has never been done justice to by the press, and, for some reason or other, there was an apparent attempt to persuade the people that Nature and Providence had not been so bountiful to them as they ought to have been. It is true that the root crops have not been so successful; but even the root crops are not so bad as many supposed them to be, after all. I want to impress upon you what an important event a good harvest really is. It is very expedient that the country should contemplate what is the effect upon its fortunes of the difference between a good and a bad harvest. A bad harvest is, in fact, a subtraction from the national wealth, which perhaps may be equal to the whole amount of those gold mines of which we have of late heard so much.

(2) There is another point on which, from what I have seen to-day, I cannot help touching, and that is a production which of late has very much interested farmers, and that is wool. That now is one of the most important features in our agricultural life, and is a source of very great profit to those who cultivate the soil. I cannot help being surprised that in this county, especially in South Bucks, with which I am more intimately acquainted, our flockmasters continue only to breed flocks which produce short wool. The great prizes are given for long wool, and I cannot understand why we continue to produce merely short wool in the county of Buckingham. I should have supposed it would have been very easy to cross with some of the Gloucestershire and Leicestershire breeds, and to produce a very choice long wool, with some of the advantageous characteristics of all this short wool, and when I look to the relative prices of long and short wool, I am surprised that we still go on adhering to the system of merely breeding Downs and producing short wool. I mentioned this fact to a friend of mine, a neighbour, who has a considerable flock. He perfectly agreed with me, and thought we ought to cross the Downs with the Cotswold. But, he said, "the great price of wool has been occasioned entirely by the American civil war, and I have just read in the newspapers that there is going to be peace in America." I could not help saying that I did not entirely agree with him that the high price of wool was mainly occasioned by the civil war in America. The tendency of late has been that all articles of raw material, particularly wool, have been rising in price, and when I look at the fact that mixed fabrics, that make the industry of Yorkshire, are becoming more popular in the market, it is clear that wool is an article of raw produce for which there is a greater demand, and if there had been no civil war you would have had a high price for wool, and it would have been the best wool; and therefore, to bring the point to a practical issue, the result of my speculation is that I shall cross my Downs with Cotswolds, and I do think that it is a deficiency on the part of the faamers of Bucks in adhering so closely to the old system of merely breeding Downs.

(3) There is another class of agriculture on which I should like to say a few words, and I will tell you my views on the subject, and that is with respect to the condition of the labourer. I think the condition of the agricultural labourer is one which requires and deserves great public consideration. I am not entering at all into the question of the remuneration which he receives. The wages of the agricultural labourer, like every other class of labourers, are totally independent of legislation. I consider it of the utmost importance that agricultural labourers should be well housed. In my opinion it is more important than a question of food or raiment. I believe we all eat quite enough, and many of us drink a great deal too much, but this I will venture to say, that no man can be too well housed. A perfect sanitary condition as regards habitations is one which, while it preserves and defends the inhabitant from the inclemency of the seasons, allows him to breathe pure and unvitiated air. For these reasons it is the truest source of health and wealth. It is, therefore, a matter of great importance to the farmers that the agricultural labourers should be well housed. There are great difficulties in the way, and the first difficulty is that it is an investment of capital which does not bring in directly an adequate return. This is an objection which I consider fallacious. The point is, what do you consider an adequate return? Ask the farmer whether he would like to have on his farm his labourers in healthy habitations or living two or three miles from the acres which they cultivate, in miserable hovels which engender sickness and weaken their energy and strength. The farmer will say directly, "Give me labourers who reside on my acres and reside in houses which allow them to come to their labour full of energy and vigour, energy and vigour given by sound sleep and pure air." The farm will then be more valuable to the tenant, and if so, it must be in the long run more valuable to the proprietor, and it does tell upon the rent. In this way the latter will find an adequate return for his investment. I do not say that this is an easy difficulty to combat. It is a great one, but it must be met. The question, however, is usually argued as if the proprietor was called upon suddenly to sweep away all the miserable tenements that he has inherited, and to cover his estate with model cottages. That is impossible, for you cannot, in an instant, effect this great change. You cannot unhouse the whole peasantry from an estate at once. It can only be done gradually. Every man cannot do what the Duke of Northumberland has done, but every man can do something. He may build a few cottages, or repair others. You ought to keep before your eye, clearly and closely, the object you have to attain, and avail yourselves of every opportunity of accomplishing the result. The question is becoming both in town and country one of paramount interest. The greatness of the country depends on the race that fills it, and, whatever our ancestors may have done to make the country great or famous, whatever liberty they may have acquired, whatever wealth they may have accumulated, if the race becomes inferior, you lose all those results and all those blessings. It is a question to which we must give our minds. I do not touch on the scenes of life in our great cities. They are familiar to all. They prove that wretchedness and crime are co-ordinate; but, while we deplore the condition of our working classes in our great cities, it is impossible any longer to shut our eyes to the condition of our agricultural labourers, and it is our duty to set an example on this subject. I was reading lately in an old book written more than 200 years ago, and I was surprised to find that this question, which is supposed to be one of modern origin discovered by the philosophers of the 19th century, had attracted the attention of society nearly 300 years ago. Nearly 300 years ago, to the honour and glory of the Church, intramural sepulture was forbidden. I may, then, say that there is nothing new under the sun, and what we look upon as the result of enlightenment and progress was practically considered a considerable time ago. A very great scholar observes that in his opinion the declaration of the wisest of mankind, "Vanity of vanities, all is vanity," was not a misprint, but a mistake of the copyist, and that he believed the words really were not "*Vanitas vanitatum, omnia vanitas,*" but "*Sanitas sanitatum, omnia sanitas.*" Now, I quite agree that it must have been a misquotation of the words of the wise King of [Israel, and, if so, that this would have constituted one of his best claims to be considered the wisest of mankind. I am willing to admit that there has been some improvement in the condition of the labouring class. I am sensible that as much fault lies with the labouring class themselves; and it is for this reason that I intend, with the permission of the committee, to offer a prize of 5*l.* for the cottage that is kept in the best condition. I think it has been said before, to show the uselessness of such prizes, that what we want is new cottages, and not rewards for keeping old ones in good order. I think that criticism is quite superfluous. What we want is to bring the attention of the people themselves to the subject. If you offer a prize you awake the attention of the community to the subject. They try to obtain a prize, and although only one man obtains a prize, in the research and pursuit of the prize they discover such sources of delight and such new causes of happiness and content that you educate them to that cleanliness and order which you want to instil into their minds. Therefore, I am of opinion that a prize of that kind, if I am permitted to offer it, will not be fruitless.

TIPPERARY.—At the Annual Meeting and Show of this Society during the past week, Lord STANLEY presided, and spoke thus of Irish Agriculture:—

"He might be too sanguine, but he could not bring himself to take a despondent view of the future of Ireland, and especially of that part of it. Recent bad seasons had operated against the farmer, and from all parts of Ireland, but especially from the South and West, there has been of late years a continuous outflow of emigration. They had no security against the recurrence of bad seasons, and the best course they could adopt was to guard against, in popular phrase, having too many eggs in their basket, or, in other words, placing too much dependence on any particular crop. The present year, happily, was the most prosperous since 1860, and the drought that prevailed had not been half so severely felt in Ireland as in England. If he thought that the drain of the population were to continue for any considerable time, that the country was to become a mere grazing-field, and cattle were to take the place of men, he would not be able to express himself hopefully, and, as an Englishman, he should deeply lament that the empire was derived of so many stout hearts and strong arms, so much capacity for labour and the heroic courage which had been tested long ago, and might be required again. But his reading and observations led him to doubt that the tide of emigration would continue to flow at the same rate, and, although he knew that a country so vast as America must always attract numbers to its shores, the facts of the war raging in the United States, where there was a Government expenditure of about half a million a-day, and the indications which he believed to exist of the approaching termination of that tremendous conflict, induced him to believe that when the war ceased, the release from the military service of about a million of men would reduce the demand for European labour. Moreover, he saw with pleasure the gradual increase of wages in Ireland, which, as it progressed, must remove many of the temptations to emigrate. As men became abundant in America, wages would diminish; as they decreased in Ireland, wages would increase, and thus, before long, the disparity which existed would be in a large measure removed. This led him to the reflection that the low-paid labourer, which had been the rule in Ireland, was not always cheap, and that the well-fed and well-paid labourer was likely to do more work than three men dieted and remunerated on the old scale. Ireland undoubtedly was a prolific country. Within the past few days he had seen many cabins where, alas, the occupants had few of the necessities and none of the comforts of life, but in every cabin some children were sprawling upon the floor. He might be asked, why, then, if the population of Ireland had fallen, that of England had increased? The reason was that England was a manufacturing country. In the English agricultural districts the population had also decreased, and thousands had been attracted to the large manufacturing towns. It was a significant fact that there were about 100,000 Irish living in and around Liverpool,

and the calculation was that there were over 800,000 Irish in the manufacturing districts of England and Scotland. People ought in fairness to recollect that these figures did not represent a movement from this country as a whole, but only a movement from one part of the empire to another. He, for one, hoped that the day would be very far distant when an Irishman would not be received with welcome in England and an Englishman in Ireland. His Lordship referred to the increasing cultivation of Flax in the south of Ireland as an experiment which might prove successful, which, at least for some years to come, should not be treated as any other than an experiment. They should not put their hands further than they could draw them back. He wished to end as he began. With respect to the value of land, he thought it ought to rise here, as in England and Scotland. The Irish climate, if damper, was milder, the soil was more fertile, the beauties of the scenery more frequent and remarkable. When the days of violence and outrage were over, when life and property were as safe in Tipperary as in Middlesex,—and that time, notwithstanding some parting indications of angry feeling, he rejoiced to believe was not far distant—the natural resources of the district would begin to be fairly developed. He knew Tipperary as long as he knew anywhere; he had seen great changes and expected to see many more. He believed that Ireland was deserving to be prosperous and happy, and it was in the belief that such agencies as that would contribute to so great a result that he asked them to drink "Success to the Tipperary Farming Society."

Reviews.

How we Managed the Night School. 1863. By a Clergyman's Wife. W. MacIntosh, 24, Paternoster Row.

We have here 15 small pages, describing a success which appears to have been attained without the use of any unusual means, and by the aid, so far as appears, solely of the female members of the clergyman's own family.

Why did none of the parishioners co-operate? Was it because those who should have co-operated were unwilling? Or was it because their co-operation, accompanied as that would necessarily be, by divided, or rather a shared authority and responsibility, was not desired?

Notes on Northern Farms and Farming. By John Wilson, Esq., F.R.S.E., Professor of Agriculture in the University of Edinburgh.

These notes, which were written by Professor Wilson for the *Newcastle Daily Chronicle* during the meeting of the English Agricultural Society last July, have here been collected; and will be valued by many readers out of the district referred to, for the picture of energetic agriculture and vigorous management on the part of both landlord and tenant which they describe.

The Laboratory Guide for Students of Agricultural Chemistry. Arranged by A. H. Church, M.A., Professor of Chemistry in the Royal Agricultural College.

A useful and explicit Manual of Instructions, which is thus sufficiently described in the Preface:—

"In the Qualitative part, not only all the rare elements, but also all those that are not necessary constituents of any agricultural material or produce, are omitted: in this way the processes of analysis have been simplified.

"In giving Quantitative methods, examples have been selected from the most important substances likely to engage the attention of the agricultural analyst. By a reference to the Table of Contents, it will be seen that the examination, not only of various kinds of cattle-food and manures, but also of waters and soils, is included.

"The ¶ 'Manual of Qualitative Analysis,' by Mr. Northcote and myself, has furnished some suggestions for the arrangement of the present work, while the processes adopted are, for the most part, those in common use in chemical laboratories. The plan of analysing superphosphates is due, I believe, to my predecessor in the Chair of Chemistry at Cirencester, while my assistant, Mr. Robert Warington, jun., has made considerable improvements in the process for determining phosphoric acid, &c. in coprolites; his aid has also been most important in testing other processes, and in collecting and arranging the materials for the book.

"The 'Guide' was intended primarily for the Royal Agricultural College, as a help in carrying out the system of practical instruction in chemistry, as applied to agriculture, there pursued. As no other complete and special organisation of the kind exists in this country, I thought the publication of part of its system might not only prove of interest, but also render a wider service."

Miscellaneous.

Health in the Country.—Family health, in a rural home—whether it be a mansion or a cottage—is—first, an inheritance: then it is the product of out-of-door occupation, and of sufficient revenues, and especially of an unrestricted command of the plainest food. As at the lodge, so at the Hall, prodigious breakfasts are consumed; no breakfast, no man: this is a hygienic canon. As to the dinner at the lodge, you might not fancy the bailiff's bill of fare; but neither he nor his family know anything about indigestion; and what is far better than this, neither he nor they know or think anything about digestion: they have no gastric consciousness any way. Family health in the mansion, or at the lodge, or in the cottage, is the normal condition of those (exceptions not forgotten) whose lot it is, and has always been, to imbibe life from sunshine, to breathe life in uncontaminated air, and to convert an abundance of aliment into chyle. No manual of health, no directory for reaching the ninetieth year, is needed by any, whatever their rank may be, whose lot includes the conditions abovenamed. If it were asked which of the three conditions may claim the foremost place, there might be a difficulty in deciding between Food and Light; none in rejecting the claim of pure air to the first place. I heartily wish that we might, to any good purpose, or to our own satisfaction, extend our walk from the bailiff's lodge to the cottage of the farm labourer, such as too often it is. Family health there might be in the cottage; but we find there, alas! the indications of a state of things which it is indeed pain to take notice of. Leaving the labourer's cottage, for the present, we go on to Long Acre field, where the plough is agoing. What sublime cattle are there! The horses at plough are genuine "Suffolks." I know them at a glance: they would do no discredit to one of Barclay & Perkins' drays: they stand 17 hands:—round in the barrel, clean in the shank, neat at the fetlock, powerful over the withers; and as to the hind quarters of these horses, such they are that you might cut a hippopotamus out of them and to spare. But now what shall we say of the poor fellow that is grasping the plough stilts? he staggers and hobbles along the stitch as he goes: manifestly he does not possess either the bodily weight—the mass, or the bulk of fibre in the arms, which his difficult task demands. There must be a fault of system here:—a great and very damaging misunderstanding of the farmer's own interests makes itself conspicuous in this instance. The farmer, if he could but understand what so much concerns him to know, would see to it that the cattle and the man shall be co-efficients; which they are not. If in explanation of this pitiable anomaly it is averred that the thoughtless fellow drinks his week's wages:—if it be so, then there is no help for this misery; or none concerning which this should be the place to discourse. If we return to the cottage, and if the man, in fact, is sober, and the wife is careful, we discover, in our talk with her, that, though they do just get on, most part of the year, there are weeks and weeks during which all that can be said of the family is, that they do not perish. At such times the man loses substance: the wife and the children become skeletons, the children show sandy heads of hair, and hollows over the collar bones. Then when work in the fields is procurable, the mother and the girls undertake it, immensely to their damage in every sense. If you talk to the farmer about his horses, and you say—well, it is certain that these splendid beasts of yours live well all the year round—I see you allow them Oats enough, whether they work or not, he shrewdly replies, "I never stint my cattle in Oats, for if I was once to let them fall out of condition, by grudging them a sack of corn, then, for every sack I grudged them, it would cost me three sacks extra to get them up again." It is just so as to these splendid greys:—but oh the dull brains, not only of farmers but of squires also. Do let somebody go round the country on a mission from Oxford to teach them logic. It is true that the farmer does get his land well ploughed for the principal Wheat, in October, because at that time the men are just out of harvest, and they have been in plenty for some weeks; but when the year opens, and the land is to be prepared for the Lent corn, and when the manure is to be carried, the men that should do it have just survived the winter; and in this time they have fallen out of condition, they have lost fibre, lost bulk in the limbs, lost the power to render a full day's work for their wages. A mistake! a mistake! through and through, there is here in our rural economy. The instance of the farm-labourer might seem to contradict what I affirm to be the law of health, but it does, in fact, confirm it. It is still true that 12, 14, 16 hours of the 24, spent out of doors, goes far in securing health; and the efficacy of this simple method is shown when conditions, the most unfavourable, are by this means passed through so well as they are. But alas! not merely is the diet of the labourer and his family often insufficient in quantity, but the bread that is distributed over a rural district from the village or centre-town is often very bad; the groceries dealt out by the rural shops are of inferior quality, and would be dear at half their price. Then the roof of the labourer's cottage has long been out of repair. If only a two or a three days' work were afforded, this time would also suffice for draining off from the back door a bog of filth. The man and his family do live, it is true, notwithstanding all these drawbacks—so great is the efficacy of out-of-door life. *Isaac Taylor, in Good Words.*

On Manuring.—Climate and present prices render it desirable that some modification should be made in our cropping; less corn and more stock food. The question occurs, Is it not practicable to lay down some of the poorer soils that yield a poor return as arable land? I am told that in many cases Grass will not last more than three years, and I am not here to doubt the statement; but I would ask whether a fair trial has been given? if the land has been properly prepared, and the soil in thorough cultivation and good heart? secondly, if a careful selection of the most suitable seeds has been obtained regardless of expense; not merely a lot of bad Clover and Rye-grass, but some 10 or 12 different kinds of Grasses, with four or five of the leguminous plants? Such a mixture will probably cost from 25*s.* to 30*s.* an acre. The character of the herbage will be influenced by the nature of the soil and the manures we apply; some particular Grasses will be developed at the expense of others; but, by starting with a considerable selection, we increase the chances of obtaining a thick sward. As to sowing the above with or without a crop, is a question that must be decided by experience in a district. I am inclined to believe you will succeed best by sowing alone, and perhaps adding 3 or 4 lb. of Rape; this will be especially the case if the soil is at all light or spongy, as the feeding the Rape in autumn will tend to give firmness to the soil and prevent injury from frost. Having prepared the soil by liberal manuring and thorough cultivation, extending to both soil and subsoil; and having secured a fine and firm surface, the seeds may be sown and brushed in, and the land kept firm by occasional rolling. We have got a good start: how is it to be maintained? At first we may expect a luxuriant growth; the second year will be equally good; about the third year a decided falling off is visible; many of the Grasses appear to die; much of the Clover disappears. This deterioration will vary much, according to the natural qualities of the soil, but in all cases it occurs; and, in almost all cases, if liberal and judicious treatment is employed, the sward will recover, although it may alter its character. We may have a more luxuriant growth than can be maintained, and the permanent sward will not be so good. What would be the state of our crops if no manure was applied? And, if therefore, under the most favourable circumstances, when you can cultivate, mix, and expose the soil to the atmosphere, you could not long succeed without manure, how, in the name of common sense, can you expect that Grass land should, year after year, produce good herbage without assistance? Before proceeding to apply manure the soil should be examined for lime, nitrogen, and mineral matters, as the phosphates and alkalies; the herbage in a natural state would often determine this. If we find a fair proportion of leguminous plants, Clover, Trefoil, &c., we may conclude that both lime and phosphates are present; if, on the other hand, these are absent, and the Rye-grass, Cock's-foot, &c., are strong, we may safely say that nitrogen is present in excess of the mineral matters; and lastly, if the Grasses proper are weak, and the leguminous plant deficient, we may be sure that the soil is wanting in most of the elements of fertility. Farm-yard manure must be applied, and, if possible, repeated every four to five years. Bones, either fresh or partially dissolved, with from one-third to one-fifth their weight of sulphuric acid, and a small quantity of either guano, nitrate of soda, or sulphate of ammonia, mixed up in a compost, with plenty of soil, to which lime may be added, or withheld, according to circumstances, would afford a capital dressing, and the more bulky our application the better. Five to 6 tons of rather fresh manure; 4 cwt. of partially dissolved bones, or an equivalent of fresh bone dust; 1 to 1½ cwt. of Peruvian guano, or nitrate of soda; 1 to 2 cwt. of salt. Such a compost applied during the winter, well spread and brushed in, would, I am convinced, have a most beneficial effect on young Grass; and whether we mow or feed, a dressing of some sort, the best we can give, should be put on every third year. The winter feeding of roots by sheep eating corn is an excellent method of improving Grass; indeed, the means are easy; the results are not so easily proved as with a crop on arable land, and consequently farmers are too often unwilling to incur the outlay. I am certain that nothing would pay them better. In conclusion, allow me very briefly to sum up some of the chief points that have been touched upon. 1. It was shown that in all cases where permanent fertility was the object, farm-yard manure must form the basis of our applications. 2. That the conversion of fresh into rotten manure, when properly managed, was not attended with the loss of any valuable constituents; but, on the contrary, the manure being rendered more concentrated and soluble was for many purposes much more valuable. 3. That the use of fresh or rotten manure was principaliy a question of soil; strong soils requiring the former, whilst on light porous soils small dressings of rotten dung immediately to the crop were desirable. 4. Artificial manures were to be looked upon more or less as stimulants, highly valuable to supplement farm-yard manure; and, by calling out the energies of the plant, enabling it to obtain an increased amount of food from the soil. 5. The importance of knowing the value of the different ingredients of manure and buying upon a guarantee or analysis was insisted upon, and instances of fraud pointed out. 6, and lastly. The advantages of a more liberal management of Grass land was recommended. *Professor J. Coleman, at Wigton.*

Cochineal.—Our cochineal was found to be already in use in its native Mexico when, early in the 16th century, the Spaniards arrived there; but for 100 years men were not sure whether it was an insect or a seed. The Cactus on which it is usually bred is called the Nopal, whence the plantations are known as nopaleries, and the chief part of the cochineal of commerce is produced from small nopaleries belonging to Indians who are very poor. These people establish their Nopal plantations on cleared ground, on the mountain slopes, two or three leagues from their

villages. Each planter buys stock in the spring in the shape of a few branches of Cactus laden with small cochineals recently hatched, known as semilla, or seeds. Such branches are sold for about 2*s.* 6*d.* the 100. They are kept for 20 days within the huts, then placed in the open air under a shed, and in August and September, the succulency of the plant having kept life in the Cactus branches, the female insects, big with young, are gathered and strewed on the Nopals to breed. In about 4 months the first gathering is made of a twelve-fold increase, and there may be two more profitable harvests in the course of the year. The cochineal has to be gathered from the Nopal with great care; the Indian women squat, therefore, for hours before a single Cactus, brushing at the insects with a squirrel's tail. They are killed by boiling water, by exposure in heaps to the sun, or by drying in ovens. It takes 70,000 of the dried insects to make a pound of cochineal, and England alone consumes 150,000 lbs. of cochineal, or 10,500,000,000 of insects. Cochineal, still produced most abundantly in Mexico, is now cultivated also in Spain, India, Algiers, &c. In Teneriffe it has superseded the Grape Vine. The cochineal grower must carefully avoid mixing different species of Coccus, and after a gathering his plants must be carefully washed with a sponge before they are strewn again with mother insects. M. Guérin Meneville lately discovered in the south of France, upon the Bean, an indigenous cochineal, of which the colouring matter is a peculiar scarlet, usually attainable by none but artificial means. It is not a carmine, and as every true Coccus yields carminium, this newly discovered insect is probably not a true cochineal, but an aphis, of which the dye is said to have decided advantages over cochineal in dyeing wool, if it could be multiplied so as to be cheap and abundant. *Dickens's "All the Year Round."*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level. At 9 A.M., Railway Time.	Thermometer. Reading of Dry Bulb.	Thermometer. Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0—6.	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Sept. 16	Inches. 29.31	°	°				°	°	°	°	Inches. 0.52*
Thursday ..	22	29.76	64	60	S.W.	1	4	65	53	77	48	0.03
Friday ..	23	29.77	64	59	N.W.	1	..	64	52	76	44	0.02
Saturday ..	24	29.90	59	55	S.W.	..	5	62	42	76	35	..
Sunday ..	25	29.64	60	56	S.W.	1	10	63	47	76	40	0.03
Monday ..	26	29.72	57	55	S.W.	1	1	62	43	74	41	0.17
Tuesday ..	27	29.64	59	55	S.W.	2	1	64	47	74	40	0.10
Wednesday ..	28	29.47	61	57	S.W.	2	5	61	43	75	36	0.52*
Thursday ..	29	29.31	61	57	S.W.	1	4	65	53	77	48	0.03

* The accumulation of three days.

Notices to Correspondents.

DODDER: Many thanks to Mr. Buckwell, Mr. McDonnell and others, for samples.

GROWING FLAX.—The following is the extent of Flax grown in Ireland in each of the following years:—1854, 151,403 acres; 1855, 97,075 acres; 1856, 106,311 acres; 1857, 97,721 acres; 1858, 91,646 acres; 1859, 136,282 acres; 1860, 128,595 acres; 1861, 147,957 acres; 1862, 149,859 acres.

MEASURE: *R M.* The sack of Potatos is in general 3 heaped bushels—in some places it is 4 bushels, in some places it is 1½ cwt., in others 2 cwt., in others 240 lbs., in others 280 lbs.

PRODUCE OF WHEAT: *Beta.* It is not possible to state absolutely what is the average produce of Wheat for soils of given annual value to rent, because a soil which will not grow Wheat at all (so to speak) may yet have a considerable agricultural value for other purposes. Still less is it possible to state the farm produce of such land for any one year, because two fields of equal value to rent may be affected the one favourably and the other unfavourably, by such a summer as we had this year. Nevertheless, taking the case of land neither heavy nor light, we should be inclined to say that if worth 30*s.* an acre to rent, it ought to yield 30 to 32 bushels of Wheat; if worth 25*s.*, it ought to yield 24 to 26 bushels of Wheat; if worth 20*s.*, it may yield 18 to 22 bushels; if worth 15*s.* per acre only, you can hardly expect to grow Wheat on it at all.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1*s.* 8*d.* per yard run.
Four yards wide .. .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

Also "Frigi Domo" Nettings, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been favoured with the receipt of the following

Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, ESQ., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

RICHARD GARRETT AND SONS, LEISTON WORKS, SUFFOLK.
Illustrated Catalogues.

BARROWS AND CARMICHAEL, Banbury, Manufacture STEAM CULTIVATING APPARATUS, the cheapest, most simple, and successful Tackle out.
PORTABLE STEAM ENGINES, more simple in construction, efficient at work, and consuming less coal than the old-fashioned Engines usually made.
THRESHING MACHINES, which will astonish those who work the ponderous and complicated Machines now so generally used.

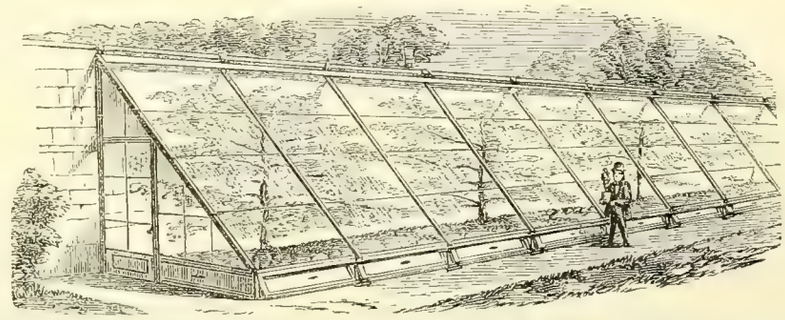
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OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



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Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
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HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

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Every description of IRONWORK. Lists Free.

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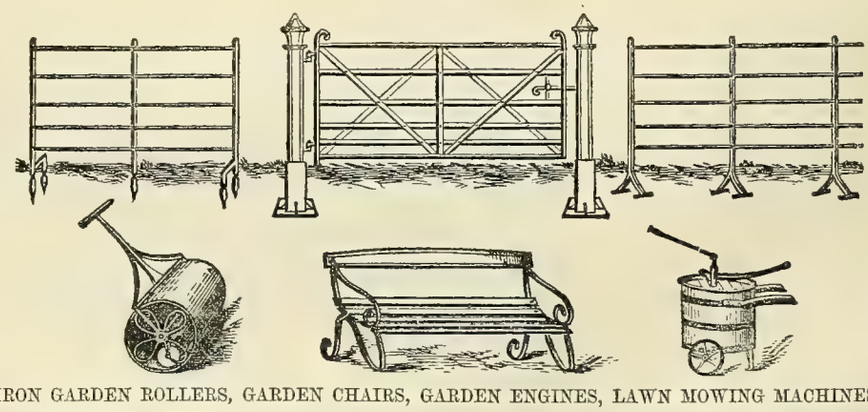
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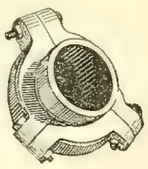
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SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark, OBTAIN WARRANTED, without which none are genuine.
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S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

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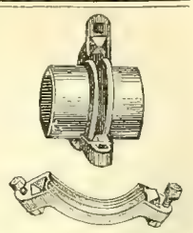
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TO BURN THE HYDRO-CARBON OILS.
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They are more easily trimmed and refilled than any other Lamp with similar burner.
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The above may be obtained of any Lamp Dealer.

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HOT-WATER APPARATUS,
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By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

For a few prices, see last week's advertisement.

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(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).
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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.
To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.
Sizes and Prices on application.

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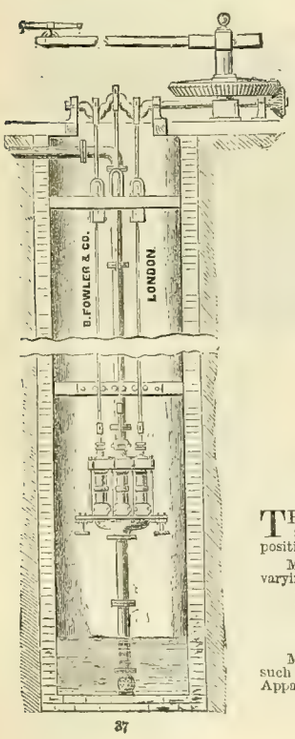
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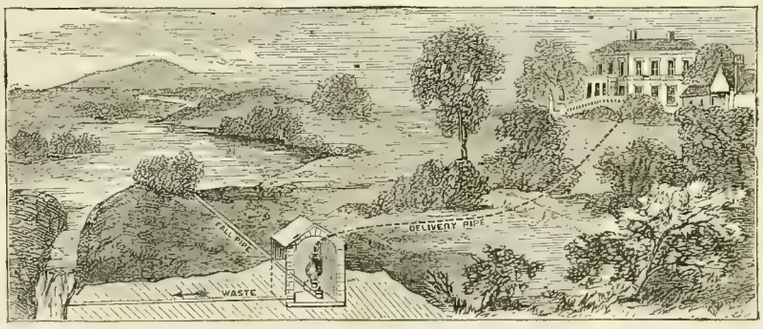

MILK PANS.

See Advertisement the first week in the month, or on application.



87

CLINTON & OWENS
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MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

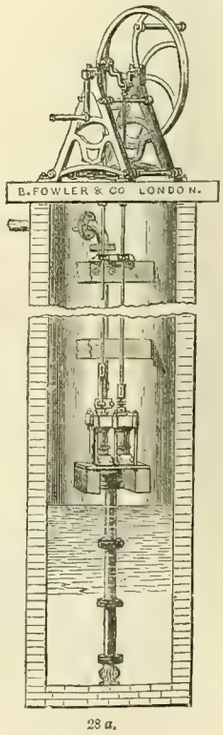
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No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

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Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.



28 *a*.

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Price 6d. per lb. Above a cwt. free to stations.
To be had of Mr. ROBERT GIRDWOOD, Tanfield, Edinburgh, or his Agents.

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DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.
A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

VICHY and LITHIA WATERS.
Established Remedies for Gout, Dyspepsia, Acidity, &c.
These Waters, as now prepared at the Malvern Springs, are VERY SUPERIOR to those ordinarily sold.
Six Dozen Hampers, carriage free, on application to Messrs. BURROW, Malvern.

Manufacturers to the Queen and Prince of Wales.
FRY'S | HOMŒOPATHIC ICELAND MOSS PEARL | COCOA.
FRY'S SOLUBLE CHOCOLATE.
J. S. FRY & SONS were the only English Manufacturers of Cocoa who obtained the Prize Medal, 1862.

Sauce.—Lea and Perrins'
WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS.
The public are respectfully cautioned against worthless imitations and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

TAYLOR BROTHERS' GENUINE MUSTARD.
Dr. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity, Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.

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CRANSTON'S PATENT.
Six SLIDES of different Houses, Post free for 50 Stamps.
Single SLIDES, 12 Stamps each.
DESCRIPTIVE BOOK, fully illustrated (Second Thousand), Post free for 20 Stamps, from the Author and Patentee, JAMES CRANSTON, Architect, 1, Temple Row West, Birmingham.

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Next Door to Somerset House, Strand, W.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads from	12s. 6d. to £20	0s. each.
Shower Baths, from	8s. 0d. to £6	0s. each.
Lamps (Moderateur) from ..	6s. 0d. to £8	10s. each.

(All other kinds at the same rate).
Pure Colza Oil .. .. 4s. per gallon.

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.
A small useful set guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread or Brunswick Pattern.	King's or Lily, &c.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 14 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 14 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls.	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls.	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

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To Agricultural Implement Makers and other Advertisers.
JOHNSON AND SHAW'S FARMERS' ALMANAC and CALENDAR for 1865 will be published as usual on NOVEMBER 1.
ADVERTISEMENTS must be sent not later than October 11 to the Publisher,
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MR. W. T. ATWOOD is instructed by Mr. Cork (who is quitting the Land), to SELL by AUCTION on the Premises, on TUESDAY, September 27, at 12 o'Clock punctually, the STOCK, comprising 157 3-light Boxes and Lights, 400 Hand Glasses, 350 Bell Glasses, 3 Market Carts, Light Spring Van, useful Cart Horse, Ware and Dung Barrows, Ware Tubs, Binding Boards, Flower Pots, Tools, Baskets, &c.; Crops of 3-year-old Asparagus for forcing, quantity of Rhubarb and Horse Radish Roots, and the remaining Household Furniture.
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MR. F. W. SEARLE will SELL by AUCTION, upon the Premises, near Dalston Gate, Dalston Lane, N.E., on TUESDAY, September 27, and following day, at 12 o'Clock each day, by order of the proprietor, who is relinquishing the Cultivation, the STOCK, comprising CAMELLIAS, well set for bloom, from 4 to 8 feet; large ACACIAS, AZALEAS, MYRTLES, CYTISUS, fine AMERICAN ALOES, CACTI, CRASSULA FALCATA, and other Greenhouse Plants; large EVERGREENS in pots, Lean-to GREENHOUSES and Effects.
On view day prior and Mornings of Sale. Catalogues at the Centre Avenue, Covent Garden, S.W.; of the principal Seedsmen in London, by post for one Stamp; and at the Auctioneer's Offices, 23, Coleman Street E.C.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.
Hyacinths, Tulips, and Crocuses.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 24, without reserve, at half-past 12 o'clock precisely, a splendid assortment of sound BULBS, some of the newest and best varieties from Holland.
On view the Morning of Sale, and Catalogues had.

Windlesham Nursery, near Bagshot, Surrey.
HIGHLY IMPORTANT SALE OF AMERICAN PLANTS.
MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER, 38, King Street, Covent Garden, London, W.C.) begs to announce that he has been favoured with instructions from Mr. G. Baker, to SELL by AUCTION, at the American Nursery, Windlesham, near Bagshot, Surrey, on TUESDAY, September 27, and three following days, at half-past 12 o'Clock precisely each day (in consequence of the Sunningdale and Cambridge Town Railway passing through part of the Nursery), a most valuable and extensive COLLECTION of about 20,000 STANDARD and DWARF RHODODENDRONS, KALMIAS, and AZALEAS, comprising some of the newest and choicest varieties; fine specimen CEDRUS DEODARA, CEDARS of LEBANON, and ARAUCARIA IMBRICATA, from 4 to 20 feet high, in fine state for removal; also some fine Piceas, Pinuses, and Thujas, 1500 Cupressus Lawsoniana, Variegated Hollies, Common and Portugal Laurels; also numerous first-class Evergreens and Deciduous Trees and Shrubs of various sizes.
On view the week prior and Morning of Sale; and Catalogues had by inclosing Two Stamps to Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C., and of Mr. G. BAKER, American Nursery, Windlesham, near Bagshot, Surrey.
The Nursery is one and a quarter miles from Sunningdale Station, on the London and South-Western Railway; and a Van will meet the 10.50 train from Waterloo, arriving at Sunningdale Station at three minutes past 12, to convey parties to the Sale.
Refreshments will be provided on the ground for parties attending the Sale. N.B. Mr. G. BAKER has a Machine for removing large Plants, and he will undertake to have them carefully packed and sent to any part of the country if desired.

Araucarias and other Plants from Sydney.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 1, an importation of three Wardian Cases, just arrived ex "Centurion" from Sydney, and for Sale without reserve, comprising ARAUCARIA RULEI, COOKII, and EXCELSA; DAMMARAS, ARECAS, FICUS, GARDENIAS, HOYAS, &c., many of which are quite new.
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Periodical Sale of Poultry and Pigeons.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on TUESDAY, October 4, at 12 o'Clock precisely, a choice ASSORTMENT of POULTRY, PIGEONS, and RABBITS, from the yards and lofts of well-known breeders and exhibitors.
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Important Sale of Japanese Plants.
MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 11 and 12, at half-past 12 o'Clock precisely each day WITHOUT RESERVE, in consequence of the agreement between Messrs. Standish and Fortune having terminated, the last portion of CHOICE and RARE PLANTS from JAPAN, many of them being the imported specimens and the largest in England, including the MALE AUCUBA JAPONICA.

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Woking.
PRELIMINARY NOTICE OF AN EXTENSIVE SALE OF NURSERY STOCK AND OTHER EFFECTS, WITH THE VALUABLE LEASES OF THE HOMESTEAD AND OF OTHER GROUNDS.
MESSRS. PROTHEROE AND MORRIS have received instructions from the Trustees of Mr. Robert Donald to offer for unreserved SALE by AUCTION, about the middle of October (if not previously disposed of by private contract), the valuable LEASES, and the whole of the NURSERY STOCK, extending over 150 Acres, and including Ornamental, Fruit, and Forest Trees; Evergreens, Coniferæ, and Deciduous Shrubs, in great variety and in considerable quantities; Greenhouse Plants, Greenhouses, &c., full particulars of which will be given in future advertisements.
American Nurseries, Leytonstone, N.E.

Strawberry Hill Nursery, Tunbridge Wells.
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MESSRS. PROTHEROE AND MORRIS have been favoured with instructions from Mr. Edwin Hollamby, to SELL by AUCTION, at the Strawberry Hill Nursery, Tunbridge Wells, NEXT MONTH, (of which due Notice will be given) in consequence of the Lease of the above Nursery being nearly expired, and the Land required for building purposes, the valuable NURSERY STOCK, comprising fine specimen Cedrus Deodara, Cedars of Lebanon, Red Cedars, Arbor-vitæs, Araucaria imbricata, Pinus insignis, Abies Pinsapo, Wellingtonia gigantea, Thuja aurea, Thujopsis borealis, Cupressus Lawsoniana, Thuja gigantea, Abies canadensis, Pinus excelsa, from 4 to 15 feet in height; having been constantly transplanted, they are in a fine state for removal. Also some thousands of Rhododendrons, bushy and well set with flowerbuds, Laurustinus, Arbutus, Green Hollies, Ligustrum ovalifolium, Specimen Portugal Laurels. Also many handsome Evergreens and Deciduous Shrubs of various sizes.
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SALTER, SIMPSON, AND BACON will SELL by AUCTION, at the Stock Mart, East Dereham, on FRIDAY, October 7, at 12 o'Clock, 20 Head of Choice Young BULLS and HEIFERS, bred from the Elmham Herd, some of which have obtained Prizes. The success which has attended Lord Sondes in taking Prizes this year at the Lynn and Newcastle Shows, as well as former years, as a Breeder of the above fashionable Stock, renders comment unnecessary.



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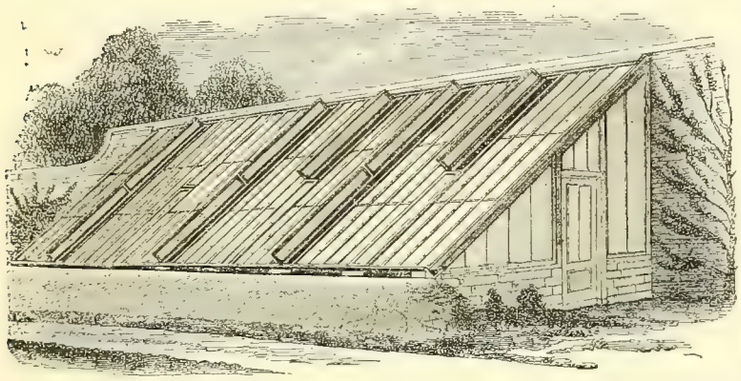
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TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. HEREMAN." "Yours &c., PORTMAN."

"27, Grosvenor Square, May 14, 1863.

"Sir,—I have much pleasure in reporting to you that I am quite satisfied with the Patent Glass Houses which you furnished in 1861. My gardener at Hackness is of opinion, as far as his experience of them up to this moment goes, that the system of ventilation which you adopt is quite equal, if not superior, to any other system which he has yet tried.

"Mr. S. HEREMAN." "I remain, &c., [Sir] JOHN V. B. JOHNSTONE."

"Woodcote [Newport, Salop], May, 1863.

"Mr. Cotes has much pleasure in stating that he considers the Glass Lights put up by Mr. Hereman to be a great addition to the Woodcote garden, and shall be always ready to testify as to their efficiency."

"Mr. S. HEREMAN, 7, Pall Mall East."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. HEREMAN." "Yours &c., ALFRED ELLIS."

"Johnson Hall, near Eccleshall, Staffordshire, May 11, 1863.

Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes a an angle of about 50 degrees, the lower or front wall being 3 feet high. Nothing can be more simpl than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. HEREMAN." "Yours. &c., EDWARD LYON."

"Shanmar, Acton, N., May 11, 1863.

"Sir,—In reply to your letter of the 9th inst., I am happy to say that I was so very well satisfied with the Lean-to Houses erected by you in my garden three years since, that I had another put up last November.

"Mr. S. HEREMAN." "I remain, &c., SAMUEL RICKARDS."

"Wath-upon-Dearne, near Rotherham, May 12, 1863.

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-failing source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market gardeners do not adopt them more generally.

"Mr. SAMUEL HEREMAN." "I remain, &c., G. P. NICHOLSON."

"Norfolk Villa, Eastbourne, May 12, 1863.

"Mrs. Baugh has much pleasure in informing Mr. Hereman that her Orchard House is perfect in every way, and answers admirably for the culture of fruit trees in pots. Mr. Hereman is at liberty to make whatever use he wishes of these few lines, as Mrs. Baugh thinks it a pity these houses should not be more general in this growing place."

"Inverary [Castle] Gardens, May 21, 1863.

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Glass Houses which you erected here for covering in Peach and Fig trees. Although our wall is 17 feet high, the fruit sets regularly over the whole surface, and, with the command of ventilation these houses have fruit can be forwarded or retarded at pleasure.

"Mr. S. HEREMAN." "I remain, &c., JOHN CAIE" [Gardener to His Grace the Duke of Argyll.]

"The Grove, Stanmore, May 12, 1863.

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers every expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your method of construction so amply secures.

"Mr. S. HEREMAN." "I remain, &c., W. LEWIS" [Gardener to Joseph Gillott, Esq.]

"Without any pretence to high finish or elaborate workmanship, which in such structures represent a mere waste of money, they are perfectly well made. Their arrangement is as simple as ingenuity can render them. No rafters obscure the light and make them cumbrous. No sashes have to be pushed up or let down by ever-breaking lines and weights, or by expensive mechanical contrivances; and yet all the ventilation requisite in such buildings is as perfectly secured. * * * * It is their perfect portability that must give them a peculiar value in the eyes of the public. If we hire a house for two or three years, and are enthusiastic enough to fix up a greenhouse, it remains the absolute property of the landlord at the end of the term. But, if instead of fixing up we drop down one of these Hereman's, we pack it up and remove it along with the watering-cans, wheel-barrows, and other implements."—*Dr. Lindley in* "THE GARDENERS' CHRONICLE," *July 28th*, 1860.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., to Designs can be had on application to

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The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, September 24, 1864.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1864.] SATURDAY, OCTOBER 1. {Price Fivepence. {Stamped Edition, 6d.

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		Elizabethan gardening	940 b

Pines.

B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH CAYENNE, BLACK JAMAICA, &c. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines.

B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines, extra strong, from Eyes.

WM. CUTBUSH AND SON have a large stock of the above for fruiting in pots or planting out. An inspection is solicited. Prices on application.
Highgate Nurseries, London, N.

Very extra strong Vines from Eyes.

JAMES DICKSON AND SONS have ready all the leading kinds, which, if planted now, would produce a crop next season. Early purchasers will have 2000 to pick from. Price, very moderate, on application.
The "Newton" Nurseries, Chester.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Meredith's Black Alicante Grape.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, can supply excellent well-ripened CANES of this magnificent Grape, ready for immediate planting. It hangs considerably longer than Lady Downes, and is in every respect a first-rate Grape. Price on application.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21s. per 100.
CHARLES TURNER, The Royal Nurseries, Slough.

The Kimberley Strawberry.

CHARLES KIMBERLEY can supply the above fine Strawberry, in strong plants that will Fruit well next season, at 10s. per 100.
London Agents: Messrs. HURST & SON, 6, Leadenhall Street.
Stoke Nursery, near Coventry.

WANTED, 1000 each New BLACK NAPLES CURRANT BUSHES and RED RASPBERRY CANES.
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard Houses.

MESSRS. RIVERS AND SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.
Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

CARTER'S GARDENER'S VADE-MECUM.

Carnations, Picotees, Auriculas, Pinks, Pansies, &c.

JOHN HOLLAND'S DESCRIPTIVE CATALOGUES are now ready, post free, on application.
Bradshaw Gardens, Chadderton, near Manchester.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS AND MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

PAUL'S NURSERIES, Waltham Cross, N.—WM. PAUL (Son and Successor to the late A. PAUL).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

The Best Twelve Hyacinths Imported by

SUTTON AND SONS,
for Twelve Shillings.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To Hyacinth Growers.

SUTTON'S DESCRIPTIVE LIST is NOW READY.
Post Free.
SUTTON & SONS, Reading, Berks.

Hyacinths and Dutch Bulbs.

Fine and at moderate prices.
PAUL AND SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
"Old" Cheshunt Nurseries, Cheshunt, N.

Large Importation of Flower Roots from the best Houses in Haarlem.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.
WM. WOOD AND SON beg to solicit early commands for BULBS, just arrived in most excellent order.
Prices as reasonable as any respectable house in the Trade.
DESCRIPTIVE CATALOGUES may be had on application.

Hyacinths, Tulips, Crocus, Narcissus, &c.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.

Dutch Bulbous Roots.

BUTLER AND MCCULLOCH'S CATALOGUES post free.
Covent Garden Market, London, W.C.

Dutch Bulbs, Late Tulips, &c.

CHARLES TURNER'S CATALOGUE of the above is now ready. The roots have also arrived in fine condition. Orders will meet with prompt attention.
A fine stock of LILIUM AURATUM.
The Royal Nurseries, Slough.

DUTCH BULBS.—Best named HYACINTHS, 6s. to 8s. per dozen.
Best DUTCH CROCUS, 1s. 6d. to 4s. per 100.
Send for J. H. COTTRELL'S CATALOGUE.
15, Bull Ring, Birmingham.

Imported Dutch Bulbs.—Now Ready, Part IV. of

CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Excellence and Economy.

H. BROWN'S PRICED DESCRIPTIVE AUTUMN CATALOGUE of BULBS, SEEDS, &c., will be sent free on application. The first importation has arrived, and the quality cannot be surpassed.
Wholesale and Retail Seed Warehouse, 4, Commutation Row, Liverpool.
See large Advertisement, *Gardeners' Chronicle*, Sept. 17.

Dutch Bulbs and other Flower Roots.

CONSISTING OF HYACINTHS, CROCUS, TULIPS, NARCISSUS, ANEMONES, LILIES, SNOWDROPS, &c.
JAMES FAIRHEAD AND SON beg to state that their BULBS and ROOTS have arrived this season in prime condition and very large size.
CATALOGUES free on application.
7, Borough Market, London, S.E.

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTION for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had Gratis and Post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Fresh Imported Dutch Bulbs.

SUTTON AND SONS have just received from Haarlem one of the most extensive and rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
Royal Berkshire Seed Establishment, Reading.

SUTTON'S AUTUMN CATALOGUE of BULBOUS FLOWER ROOTS, containing full Descriptive Lists of all the best sorts of Hyacinths, Tulips, Crocuses, Gladioli, &c.; and also a Select List of Seeds for Autumn Sowing, is now ready, and may be had gratis and post free on application to
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

WEST RIDING NURSERY and SEED COMPANY,
St. John's, Wakefield.
DUTCH FLOWER ROOTS.—Two large importations have just been received in fine condition.
CATALOGUES may be had on application to WM. BARRATT.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.

WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses.

PAUL AND SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

THE NEW ROSES for 1864.—Several Thousands of splendid Plants now ready. For List of Sorts and Prices, apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

1864 and 1865 Rose Catalogue.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES, for the present season.
Nurseries, King's Acre, near Hereford.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

To the Trade.

INTERMEDIATE STOCK SEED.—SCARLET and WHITE, fine strain.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Calceolaria, Cineraria, Primula.

E. G. HENDERSON AND SON offer SEED of the above in first-class quality, per packet, 1s., 2s. 6d., and 5s. each. The CALCEOLARIA is NOW magnificently in BLOOM at the Nursery; the others in their respective seasons.
Wellington Nursery, St. John's Wood, London, N.W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

ALPINE AURICULA SEED, Crop 1864.—Saved from a very Choice Collection.
In packets, 1s. and 2s. 6d. each, post free.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Bedding Pelargonium Mrs. Pollock.

ALFRED FRYER offers strong out-door struck Plants, well established, in 60-pots, at 3s. 6d. each or 36s. per dozen.
ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

Clianthus Dampieri splendens.

C. KIMBERLEY has just received a supply of the above fine Greenhouse Climber, direct from Australia, which he begs to offer in packets of six seeds for 1s. 6d.
Stoke Nursery, near Coventry.

West Riding Nursery and Seed Company.

LILIUM AURATUM.—Several Plants of this fine importation have Bloomed in this Nursery, and fully sustain its high character. Price per bulb or dozen on application to
WM. BARRATT, St. John's, Wakefield.

ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

SPECIMEN FOLIAGE PLANTS.—RHOPALA CORCOVADENSE, 9½ feet high, with beautiful foliage to the base; and STADMANNIA JONGHI, 7 feet high, in 15-inch pots, both splendid specimens.
For price apply to WOOD & INGRAM, Huntingdon.

ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

WANTED, ACORNS, &c.—Parties who will be able to supply good sound ACORNS, SPANISH CHESNUTS, or BEECH MAST, will oblige by forwarding lowest prices per bushel, delivered at the nearest Railway Station, and for Cash on delivery, to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

ACER MACROPHYLLUM.—WANTED, to ship to Belfast, a Quantity of good plants, for forming an Avenue about 2 miles; also a Quantity for the same purpose for the North of England.
Apply to Mr. NEWTON, Landscape Gardener, 30, Eastbourne Terrace, London, W.

WELLINGTONIA GIGANTEA.—Fine specimens of this noble Tree, 3, 4, and 5 feet, repeatedly transplanted, and being full of roots, will remove with perfect safety. Low in price.
JAMES DICKSON & SONS. The "Newton" Nurseries, Chester.

EVERGREENS.—All sorts and sizes, suitable for present Planting in large quantity, of very superior quality and on low terms, especially where a considerable order is given. All have undergone periodical transplanting, and will remove to any distance with safety. Special prices on application.
JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

1-year Seedling Thorn Quicks.

L. T. DAVIS has a large quantity of the above to offer this season. Price on application.
Ogle's Grove Nursery, Hillsborough, Co. Down, Ireland.

Aloes, &c.

FOR SALE, Cheap, Two Variegated AMERICAN ALOES, in large tubs; one Green ditto, in large pot.
Price very moderate, on application to Messrs. WM. CUTBUSH & SON, Highgate Nurseries, London, N.

TO BE SOLD, Cheap, very large ORNAMENTAL TREES, WEEPING ASH, BEECH, POPLAR, &c., very handsome.—Apply early to H. HERITAGE, Swiss Cottage, John Street, Albany Road, Old Kent Road, S.E.

ORANGE and LEMON TREES for SALE.—Four large Plants, in boxes, to be disposed of on very reasonable terms
For sizes and price apply to F. & A. SMITH, Dulwich, Surrey, S.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

DOBSON AND SONS' SUPERB SEEDS.
CALCEOLARIA, unequalled, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
CINERARIA, 1s., 2s. 6d., and 5s.
PRIMULA SINENSIS FIMBRIATA extra, 1s., 2s. 6d., and 5s.
PELARGONIUM, extra fine, 2s. 6d. and 5s.
HOLLYHOCK, superb, 1s. and 2s. 6d.
A liberal allowance to the Trade.
Woodlands Nursery, Isleworth, W.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

ONE PENNY NEWSPAPER

EUGÈNE VERDIER, Fils Aîné, Nurseryman, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET PRICES to the TRADE (without any discount).

NEW GLADIOLI for 1864, deliverable on the 1st Nov. next.

FULTON (Souchet).—Large flowers, finely formed; red vermilion, velvety, extra bright, magnificently coloured. Effective plants, 6 francs each.

MADAME FURTADO (Souchet).—Very large and open flowers, disposed in long and beautiful spikes; very fine rose, diminishing to a light carnation, very strongly flamed with deep rose carmine. Extra fine varieties, 7 francs each.

MADAME DE SEVIGNÉ (Souchet).—Large flowers of a clear cherry rose, largely blotted and lined with pure white; a fine fresh colour, beautifully shaded. Very pretty varieties, 6 francs each.

MEYERBEER (Souchet).—Large well formed flowers, disposed in very long spikes; brilliant Nasturtium red, flamed vermilion, spotted amaranth red; perfection. Vigorous and splendid plants, 7 francs each.

EUGÈNE VERDIER, Fils Aîné, Nurseryman, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET PRICES to the TRADE (without any discount).

NEW ROSES for the AUTUMN 1864.

Awarded a Silver Medal of the 1st Class in July last. Raised in the Establishment from Seed chosen from a considerable number.

Price, each variety, 25 fcs. Five plants of one variety, 100 fcs.

HYBRID PEPETUALS.

AUGUSTE RIVIÈRE.—Vigorous plant, flowers full, 9 to 10 cent. in diameter, globe-shaped, very regular, of a fine bright carmine red, reverse of petals paler, bordered whitish on the edges; very distinct, remarkable variety.

COMTESSE DE PARIS.—Vigorous plant, full flowered, 10 to 12 cent. in diameter, fine bright rose, whitish edges; very fine variety.

DOCTOR ANDRY.—Very vigorous plant, flowers full, 12 cent. diameter, perfectly imbricated, deep carmine red, very bright; variety of the first merit.

GÉNÉRAL D'HAUTPOULT.—Vigorous plant, flowers full, of 9 to 10 cent. in diameter, globe-shaped, 5 to 10 blooms in a head, very bright scarlet red, some of the centre petals marked with a white line; superb variety.

MADAME VERSCHAFFELT.—Strong plant, almost without thorns, flowers full, 10 to 12 cent. in diameter, well formed, beautiful delicate rose, petals strongly bordered; very fine variety.

RUSHTON RADCLIFFE.—Strong plant, full flowers, 10 to 12 cent. in diameter, perfectly imbricated, of a beautiful cherry red, clear and bright; very remarkable variety.

SOUVENIR DE WILLIAM WOOD.—Vigorous plant, flowers full, 9 to 10 cent. diameter, very deep black purple, shaded, in many respects like Prince Camille de Rohan, but deeper coloured; very effective variety.

PERPETUAL MOSS.

JAMES VEITCH.—Very strong plant, very full flowering, large flowers, 9 cent. in diameter, 3 to 5 in a head, deep slate violet, shaded; remarkable variety.

NEW TEA ROSE.

Obtained from Seed some years since by a Florist of Central France, never before sent out, and remaining until now little known, notwithstanding that several Gold Medals were awarded to it.

MARÉCHAL NIEL.—Very strong plant, long reddish healthy branches, the leaves composed of 3 to 5 leaflets, extra large and shining, full flowers, 12 to 14 cent. diameter, globe-shaped, of a beautiful deep yellow, exceedingly odoriferous.

This magnificent variety (the most beautiful of this class of Roses, to which belong Chromatella, Isabella Gray, Jean Hardy, Solfaterre, &c., which it surpasses in its habit and being a more abundant flowerer) will not be sold alone, but will be presented gratis to each buyer of the foregoing entire eight varieties.

An engraving of this superb variety will be sent to every buyer.

EUGÈNE VERDIER, Fils Aîné, Nurseryman, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris,

NET PRICES to the TRADE (without any discount).

NEW ROSES for the AUTUMN 1864.
Obtained from Seed by well-known Collectors.

HYBRID PERPETUALS.

ACHILLE GONOD (Gonod.)—Healthy plant, full-flowered, 9 to 10 cent. in diameter, well-formed, bright carmine red. Each 25 fcs.; the five plants, 110 fcs.

ABBÉ BERLÈSE (Guillot Fils).—Strong plant, flowers full, 10 cent. diameter, finely formed, colour varying from a bright cherry red to a carmine red. Each 20 fcs.; the five plants, 90 fcs.

BELLE ROSE (Touvais).—Very vigorous plant, full flowered, 10 to 12 cent. in diameter, globe-shaped, perfectly open, of an irreproachable form and habit, very fresh clear red. Each 25 fcs.; the five plants, 100 fcs.

CHARLES WOOD (Portemer Fils).—Strong plant, flowers full, 9 to 10 cent. in diameter, very finely formed, very deep red, shaded blackish. Each 25 fcs.; the five plants, 100 fcs.

DENIS HÉLYE (Gautreau).—Strong plant, flowers full, 12 to 14 cent. in diameter, firm and upright, a very pretty bright and fresh carmine rose colour, a grand and effective variety. Each 20 fcs.; the five plants, 75 fcs.

JEAN ROSENKRANTZ (Portemer Fils).—Very strong plant, full flowers, 9 to 10 cent. in diameter, well formed, very bright coral red. Each 25 fcs.; the five plants, 100 fcs.

MADAME HERMANN STENGER (Gonod).—Very vigorous plant, full flowers, 9 to 10 cent. diameter, of a fine form and bearing, beautiful bright rose, shaded sulphur in the centre. Each 25 fcs.; the five plants, 110 fcs.

MADAME MOREAU (Gonod).—Very strong plant, flowers full, 12 to 14 cent. in diameter, Peony formed, large petals, dazzling bright red, shaded violet. Each 25 fcs.; the five plants, 110 fcs.

MADAME ROUSSET (Guillot Fils).—Vigorous plant, flowers full, 8 to 10 cent. in diameter, fine rose shot with silver. Each 20 fcs.; the five plants, 90 fcs.

SEMIRAMIS (Touvais).—Strong plant, full flowers, 10 cent. in diameter, globe-shaped, fine form and habit, a tender carnation rose colour. Each 25 fcs.; the five plants, 100 fcs.

SOUVENIR DE BERNARDIN DE SAINT PIERRE (Guillot Fils).—Strong plant, full flowers, 10 to 12 cent. diameter, well formed, imbricated, colour varying from a velvety crimson red to a slate violet red, the centre shaded fiery velvet red. Each 25 fcs.; the five plants, 110 fcs.

SOUVENIR D'UNE MÈRE (Touvais).—Vigorous plant, full flowers, 10 to 12 cent. diameter, flat, large petals, exterior of a tender rose, the centre bright cherry, very fragrant. Each 25 fcs.; the five plants, 100 fcs.

All the other Novelties of Paris and elsewhere, as well as the past varieties, are always furnished by this establishment at the same prices as are charged by the growers themselves. Their names and descriptions are not yet published, so for the present I am unable to make them known.

NOTICE is HEREBY GIVEN, that the PARTNERSHIP heretofore subsisting between the Undersigned JOHN HOLLAND and JOHN BAYLEY, as Florists, &c., at Bradshaw Gardens, Chadderton, in the County of Lancaster, under the Firm of "Holland & Bayley," has been this day DISSOLVED, and will in future be carried on by JOHN HOLLAND.

All Debts Due and Owing to and by the said late Partnership will be received and paid by the said John Holland.

Dated this 10th day of September, 1864.

John Holland.
John Bayley.

JOHN HOLLAND begs respectfully to inform his numerous Friends that he has again taken the above GARDENS, and that they will in future be conducted by him; and in tendering his grateful acknowledgments for past favours, solicits a continuance of public patronage.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform Amateurs and the Trade in general that his NEW CATALOGUE is just published, containing many interesting novelties, and may be had on application to his Agents, Messrs. R. Silberrad, 5, Harp Lane, Great Tower Street, London, E.C.

CAMELLIAS, with flower buds, 6*l.* per 100.

INDIAN AZALEAS, best varieties, with flower buds, from 3*l.* 10*s.* and upwards.

ACER PSEUDO-PLATANUS, var. LEOPOLDII.—This splendid new hardy variety (of which A. Van Geert possesses the entire stock), with a brilliant carmine striped foliage, will be sent out in strict rotation from the 1st October. Fine grafted Trees, on stems, at 10 and 20 francs each. A Drawing may be had on application, and one plant over for every three taken.

A. Van Geert also offers fine plants of his new hardy RHODODENDRON AUGUSTE VAN GEERT, 5*s.* to 10*s.* 6*d.* each.

A. Van Geert, Nurseryman, Ghent, Belgium.

Pæonies.

CHARLES VERDIER, Fils (successor to the late firm of Victor Verdier Père & Charles Verdier, Fils), Nurseryman, 32, Rue du Marché aux Chevaux, Paris, has just published a Special and Descriptive CATALOGUE of the TREE and HERBACEOUS PÆONIES now disposable at his Nursery, which may be obtained, post free, either direct from him, or of his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

The CATALOGUE of NEW ROSES and GLADIOLI will be published shortly, and will also be sent post free on application to the above.

New hardy Hybrid Rhododendrons, and Azalea indica Souvenir du Prince Albert (J. V.)

JEAN VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer the following two new and beautiful hardy RHODODENDRONS, which he is now ready to send out for the first time, in strong plants at the undermentioned low prices, viz:—

RHODODENDRON PROFESSEUR LEMAIRE, strong plants, 12*s.* each.

RHODODENDRON VICOMTE DE BLOIS, 12*s.* each.

AZALEA INDICA SOUVENIR DU PRINCE ALBERT (J. V.) (the most distinct Azalea ever sent out). Dwarf grafted plants with nice heads, 8*s.* each. Per dozen, 4*l.*

All orders to be directed to Jean Verschaffelt, 43, Rue de la Caverne, Ghent, Belgium.

JEAN VERSCHAFFELT begs to offer the following PLANTS at the undermentioned low prices, viz.:—

CAMELLIAS, best sorts, 1 to 1½ feet high, set with buds, at 6*l.* per 100.
" larger plants, 10*l.* per 100.
" 5*s.*, 8*s.*, and 12*s.* each, and upwards.

AZALEA INDICA (first-rate sorts), fine healthy plants, 4*l.* per 100.
" on stems 1½ to 2 feet high, 10*l.* per 100.

ARUNDO DONAX VERSICOLOR, fine strong plants, 24*s.* per doz.

LILIUM LANCIFOLIUM RUBRUM, extra large bulbs, 3*l.* per 100.
" " ALBUM, 2*l.* 8*s.* per 100.
" " PUNCTATUM (very scarce), extraordinary large sized bulbs, 4*s.* each.

CAMELLIA STOCKS, fit for immediate working, 25*s.* per 100.

AZALEA INDICA, fit for immediate working, 20*s.* per 100.

CAMELLIAS with buds being rather scarce this year, J. V. begs to solicit early orders, so as to ensure a good choice. All orders to be directed to

Jean Verschaffelt, 43, Rue de la Caverne, Ghent, Belgium.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions:—

2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.

A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited

Strong Planting Canes, 21*s.* each; extra strong Fruiting Canes 42*s.* each. Exotic Nursery, Tooting, Surrey, S.

Special Notice.

J. MEIKLE, The Nurseries, Folkestone, Kent, begs to inform his customers (especially those whose orders he was unable to execute last season) that his Stock of ROSES are this season unusually fine, and includes most of the very best sorts in cultivation. Orders executed in strict rotation.

A DESCRIPTIVE and PRICED LIST free on application.

J. M. begs to offer a few fine Specimen Seedling THUJA JAPONICA and AUREA, fine varieties. Safe removal warranted. Price 5*s.* to 10*s.* each.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7*s.* 6*d.* each. The usual discount to the Trade when 3 or more are taken.

"Seedling Rose (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by Andrews, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

Two Splendid Seedling Azaleas.

WILLIAM BARNES has great pleasure in announcing to his friends and the public that he will be prepared to send out on and after the 15th of October next, his two magnificent Seedling Azaleas, BRIDE of ABYDOS and PURITY.

BRIDE of ABYDOS is a splendid white, striped and splashed with pink: of fine vigorous growth, and an abundant bloomer. It was exhibited before the Floral Committee on May 6, 1862, when it met with their unanimous approval. The following description is given of it in the *Gardeners' Chronicle* upon the 10th of that month:—

"Mr. Barnes, of Southampton Street, Camberwell, contributed a beautiful Azalea named Bride of Abydos, the flowers of which are large, white, flaked with pink, and possess great substance; of this variety three plants were exhibited, all excellent in habit and evidently free in growth."

In the *Gardeners' Chronicle* of December 27, 1862, page 1217, in describing the new and most prominent Azaleas of the above year, are the following remarks:—

"As a free-flowering sort of vigorous habit adapted for decoration and exhibition, the Bride of Abydos is the most useful which has appeared amongst the whites, with occasional streaks of red."

Fine strong Grafted plants will be ready on the above date at 21*s.* and 31*s.* 6*d.* each.

PURITY is a beautiful clear white, fine large flower, with unusual substance and of the most perfect shape; it is of a fine robust habit. A variety of this description has long been required, viz.:—

A pure white, with fine shape, large flowers, and good vigorous habit. Plants will be ready on the above date at 21*s.* and 31*s.* 6*d.* each.

A few plants of each variety to offer in extra large plants, prices of which can be obtained on application to

William Barnes, Camden Nursery, Camberwell, S.

TRADE MARK. HALLETT'S PEDIGREE NURSERY WHEAT.



Seed required { In September .. .. 4 bushels on 10 acres. / In October .. .. { 1st half / 2d half } 4 bushels { On 8 acres. / On 6 acres. } / In November .. .. 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

BROWICK WHEAT.—Carefully screened samples for Seed, grown on stiff clay soil. Price 48s. per quarter (in hired sacks) at the Bedford Stations of the Midland, London and North-Western, or Bedford and Cambridge Railways.
Apply to Mr. Thomas Bowick, Manager of Messrs. Howard's Steam Cultivated Farms, Bedford.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7s. 6d. per bushel, or 48s. per quarter, delivered at Braintree Station.
Apply to Henry Evershed, Park Hall, Gosfield, Halsted, Essex.

HALLETT'S PEDIGREE WHEAT, off the Clay.—Grown with great care from Seed obtained of Mr. Hallett. Threshed by hand. Price 10s. 6d. per bushel, including bags. Also the following sorts, being grown on the Lois-Weedon system, which allows each plant to become fully developed, are peculiarly adapted for Seed:—SHIRREFF'S BEARDED WHITE and HOARY WHITE, 52s. per qr., Sacks extra. SHIRREFF'S BEARDED RED, GOLDEN DROP, and WHITE STRAWED BROWN, at 48s. per qr.
Apply, with remittance, to Thomas Grant, Shirley House, Maidstone.

SEED WHEAT from the CHILTERN HILLS.

The CHILTERN WHITE, a new variety, offered to the public for first time; ear compact and handsome; grain of excellent quality; straw stiff and medium length. Price 56s. per qr.
The BURGHFIELD WHITE, noted for early maturity, superior quality, and productiveness in straw and grain. Price 48s. per qr.
The above were raised by the Advertiser from single corns. New sacks charged 2s. each. Delivery to Henley Station. Cash with Order.
Address, Mr. R. C. Young, Hambleden, Henley-on-Thames.

EARLY SPRING FEED,
For Present Sowing.
NEW ENGLISH ITALIAN RYE-GRASS,
Best Imported Ditto,
TRIFOLIUM INCARNATUM,
For Sowing on Stubbles and mending deficient plants of Grasses or Clovers.
WINTER BARLEY | WINTER OATS | COMMON RYE
GIANT RYE | WINTER TARES
For Early Spring Feed.
MUSTARD and RAPE, for sheep keep and ploughing in for manure.
Samples and prices on application to Raynbird, Caldecott, & Bawtree, 89, Seed Market, Mark Lane; and Basingstoke.

TO GROWERS OF WHEAT.



NATURAL SIZE.

FARMERS WHO WISH TO GROW WHEAT TO ADVANTAGE SHOULD TRY

DAVEY'S PERFECTION PURE STOCK OF RED WHEAT,

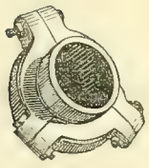
SELECTED EVERY YEAR.

It supersedes all other Red Wheat that has been grown. It is free from blight, nor is it given to mildew, and is remarkable for its strength and size of straw just under the ear. Where it was sown last year it gave such universal satisfaction, that the gentlemen who used it intend sowing it largely this season. It may be had, at 26s. per coomb, by applying early to

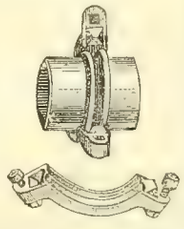
MR. THOMAS DAVEY, GARBOLDISHAM LING, NORFOLK.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

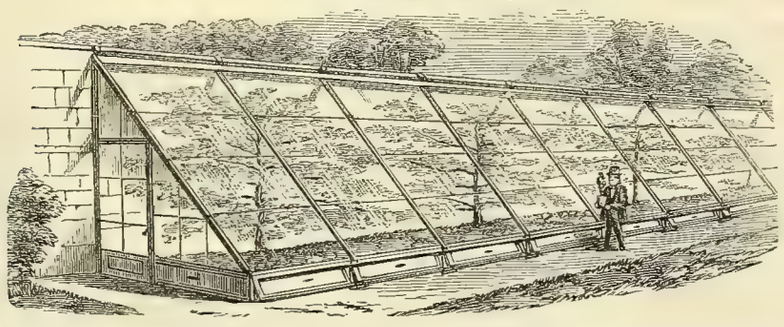
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of James Scott, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.
Apply to Henry Evershed, Park Hall, Gosfield, Halsted, Essex.

HERTFORDSHIRE HERO BARLEY.—Six-rowed, very productive, and stiff strawed; rather coarse but suitable for Winter or Spring Sowing, for Early Spring Feed, or an Early Crop for Harvest.
Price 50s. per quarter, delivered on Rail at Basingstoke.
Address, Raynbird, Caldecott, & Bawtree, 89, Seed Market, Mark Lane; or Basingstoke.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. John Cox, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—
"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."
Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.
Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

Genuine Italian Rye-grass.

Produced from Second Crop Foreign Seed.

MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has a good supply of the above, which has been thoroughly cleaned, and which will be offered to the Trade reasonable terms, and samples will be forwarded on application.

CARTER'S FARMER'S VADE-MECUM.

ZONALE PELARGONIUM SEED, for present sowing, 2s. 6d. per pkt.—The above includes the newest and choicest varieties, and embraces the most distinct and diversified colours of this popular favourite. Amongst it are Mr. Bull's new kinds, so highly commended and universally admired at the great Flower Shows. This is a rare chance to amateurs of raising first-class sorts.
Mr. Bull's new SPOTTED HYBRID MIMULUS, 1s. per packet.
Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

DUTCH HYACINTHS and EARLY TULIPS for FORCING.

12 Early Showy HYACINTHS	6s.
12 Early Choice HYACINTHS	8s.

The two dozen carriage free.
Single VAN THOL TULIPS, 8d. per dozen; 4s. 6d. per 100.
Double VAN THOL TULIPS, 6d. per dozen; 3s. 6d. per 100.
Double TOURNESOL TULIPS, 1s. per dozen; 7s. per 100.
All Dutch Roots are very fine and lower in price this season.
A PRICE LIST free by post.
Chas Southby, Seedsman, Clapham, S.

A GUINEA COLLECTION of FLOWER ROOTS.—12 choice named Hyacinths, 12 Border Hyacinths, 12 Corydalis, 4 Tritonias, 4 Sparaxis, 4 Babianas, 100 choice Crocus, 20 named varieties; choice Polyanthus Narcissus, 12 Anemones, 50 Double Snowdrops, 50 Winter Aconites, 24 Early Duc Van Thol Tulips, 12 Early Double Tournesol Tulips, 12 mixed Parrot Tulips, 12 Iris, 6 Scillas, package included, forwarded on receipt of a Post-office order for 21s. E. P. Dixon & Sons, 57, Queen Street, Hull.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application
W. Short, Sand and Peat Depôt, Reigate, Surrey.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

TOBACCO PAPER, good, 8d. per lb.
Price to the Trade on application.
H. Brown, 4, Commutation Row, Liverpool

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. Coronel, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence. In Canisters, 3s. 6d. and 2s., to be forwarded to all parts on receipt of order or stamps.
Agents: Henderson & Co., Florists, Pine-apple Place, Maida Vale; Newbery & Sons, St. Paul's Churchyard: Carter & Co., Seedsmen, High Holborn, W.C.: Hurst & Son, Seedsmen, Leadenhall Street; Messrs. Butler & McCulloch, Seedsmen, &c., Covent Garden, W.C.; and Messrs. Barr & Sugden, Seedsmen, King Street, Covent Garden.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibilty of fracture is prevented, and a permanently Water-tight Roof insured.
The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.
For Prospectus, &c., address T. H. P. Dennis, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

To the Trade.

MESSRS. DOBSON AND SONS will be happy to make arrangements with New Customers in the Trade to supply them with the choicest CALCEOLARIA, CINERARIA, PRIMULA and HOLLYHOCK SEED, ready made up in Sealed Packets, and which has given such great satisfaction to most of the leading firms in the United Kingdom. A liberal allowance made.
Woodlands Nursery, Isleworth, W.

Pelargoniums and Cinerarias.

J. DOBSON AND SONS have a large and unusually healthy stock of plants, which they will be happy to supply at very moderate prices; their collection contains all the leading Show and prize kinds, and intending purchasers will find it to their advantage to communicate with them previous to ordering.
Their new CATALOGUE is just published, and may be had on application.
Their New BULB LIST is now ready, post free.
Woodlands Nursery, Isleworth, W.

New Hardy British Ferns.

J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.
(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Oct. 1.

WEST RIDING NURSERY and SEED COMPANY have received their immense Collections of BULBOUS ROOTS from Holland and France, fine sound Bulbs, and at prices lower than ever offered.
GREENHOUSE COLLECTIONS for FORCING, at 20s., 40s., 60s., 80s., 100s.
COLLECTIONS for BEDS and BORDERS, consisting of Hyacinths, Narcissus, Crocus, Jonquils, Snowdrops, Anemones, Ranunculus, Iris, Double and Single Tulips, &c.
500 roots in the above sorts, 20s. | 2000 roots, correctly named, 80s.
1000 ditto correctly named, 40s. | 2500 ditto, 100s.
1500 ditto, 60s. | No charge for Package.
*** CATALOGUES now ready.
WILLIAM BARRATT, St. John's, Wakefield.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.
MRS. FITZGERALD, a very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT, brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH, dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL, dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR, clear rosy scarlet, very large truss, and fine foliage.
SURPRISE, a light lilac, with immense dark marking, which renders it very remarkable.
American Nursery, Bagshot, Surrey.

INTERNATIONAL EXHIBITION 1862.
THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"
Containing full descriptions of 50 most desirable varieties of Vines, and complete Lists of imported Dutch Bulbs, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

NOW READY, NEW HARDY CLIMBING PLANTS,
WELL ADAPTED FOR COVERING VERANDAHS, TRELLIS WORK, WALLS, PORTICOS, PILLARS, FESTOONS, &c.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.
Awarded by the Royal Horticultural Society, August 4, 1863.

Patronised by Her Majesty THE QUEEN, the Nobility and Gentry.

GEORGE JACKMAN & SON,
WOKING NURSERY, SURREY,

Have much pleasure in offering to the Public, for the first time, their beautiful rich coloured, free flowering, and vigorous-growing Clematises, that they can with confidence recommend, being convinced, when known, they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants will be sent out strictly in rotation.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Journal of Horticulture*, August 11, 1863; *Gardeners' Chronicle*, January 9, 1864; the *Florist and Pomologist Magazine*, September, 1864, with a Coloured Illustration; and *Gardeners' Chronicle*, August 27, 1864.

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

A CATALOGUE of GENERAL NURSERY STOCK free on application.

HUGH LOW & CO.

HAVE ON SALE A VERY LARGE QUANTITY OF FINE ONE-YEAR SEEDLING

ARAUCARIA IMBRICATA,

At a very moderate price. Purchasers of Five or Ten Thousand will be very liberally treated.

CLAPTON NURSERY, LONDON, N.E.

NEW PLANTS.

FISHER, HOLMES, & CO.,

Beg to announce that they are now prepared to send out their

NEW BERBERIS AND ABIES.

THE FOLLOWING ARE THE DESCRIPTIONS GIVEN OF THEM IN THE *GARDENERS' CHRONICLE*:—

BERBERIS STENOPHYLLA.

See page 460, May 14, 1864.

"A very hardy hybrid Berberis, between Darwinii and empetrifolia, which promises to be one of the best evergreen shrubs in cultivation. We call it B. stenophylla. The branches are hairy; the spines 3-parted; the leaves very dark green, about half an inch long, pale beneath, tipped with a short spine, and rolled backward at the edge, so as not to appear flat but to look almost cylindrical. The flowers are of the same charming apricot colour as that which renders Darwinii so ornamental, but they are smaller," &c.

August 13, page 770.

"At p. 460, we invited attention to a hybrid Berberry, from the Handsworth Nursery. The specimens we had then seen proved it to be a very handsome shrub in regard to its flowers, which were of a fine apricot colour, and produced in racemes of from 3 to 5 together from the leaf axils, instead of singly as in B. empetrifolia, of which this new shrub has something the character, but it is more vigorous. From samples which have recently been sent us, we are able to say that the bushes are at this season laden with purplish black berries, which must add greatly to their beauty, as well as prolong indefinitely the period of their effectiveness as ornamental shrubs. The berries, like the flowers, hang in racemes of from 3 to 5 from the leaf axils, and are about as large as Currants in the samples sent to us, but we learn that they are smaller than usual this year, owing to the excessive drought. When we add that this Handsworth hybrid is of a very hardy character, that it makes strong shoots 4 feet long in a season, that it is clothed with neat narrow evergreen foliage, and adorned with a profusion of gay orange-coloured blossoms in early summer, we shall have said enough to show that it is likely to prove a very decided acquisition, not only for our pleasure grounds and shrubberies, but also for our plantations and game preserves."

First size, strong plants in pots, 21s. each.
Second size, in pots, 15s. each. | Third size, in pots, 10s. 6d. each.

ABIES CANADENSIS MICROPHYLLA.

A beautiful Conifer of slender pyramidal habit, remarkable for the dumpy plump-looking blunt-end leaves which clothe its smaller twigs and branches, and which from their brevity and plumpness give it some peculiarity of aspect.

See p. 650 last year.

"The same exhibitors had an elegant North American Fir, very near the Hemlock Spruce, remarkable for its dumpy, plump, blunt-ended leaves."

Also in *Gardeners' Chronicle* for this year, p. 460, it states:—

"This Abies is of such singularly dwarf habit that it might almost be compared with a Heath. Leaves very dark green with a white streak beneath, rough at the edge, and no bigger than those of Menziesia polifolia. It may possibly be included in some catalogues under the name of Abies canadensis nana, but the leaves are much smaller than in the plants which we have seen bearing that name. Messrs. Fisher, Holmes & Co. have found it much more hardy than canadensis is itself, it not having suffered in the severe winter two years ago, when so many Conifers were injured."

Plants in pots, 42s. each.
A few extra sized Plants in pots, 63s. each.

Prices to the Trade on application.

N.B. CATALOGUES of FRUITS; FOREST, ORNAMENTAL, and EVERGREEN SHRUBS; ROSES; KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS; STOVE and GREENHOUSE PLANTS; DUTCH FLOWER ROOTS, &c., may be had Free in their respective seasons.

FISHER, HOLMES, AND CO., HANDSWORTH NURSERY, SHEFFIELD.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WM. PAUL (Son and Successor to the late A. Paul)

Respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce in the landscape, many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. Paul's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post.

Orders by post promptly attended to. Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

DUTCH ROOTS.

MESSRS. JOHN & CHARLES LEE

HAVE JUST RECEIVED THEIR

ANNUAL SUPPLY OF DUTCH ROOTS

IN GOOD CONDITION.

CATALOGUES free by post on application.

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DUTCH FLOWER ROOTS.

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ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

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J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.—Oct. 1.

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THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, and 63*s.*

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HYACINTHS, 2*s.* 6*d.* to 15*s.* per dozen. CROCUS, 1*s.* 6*d.* to 4*s.* per 100. TULIPS, 3*s.* 6*d.* to 20*s.* per 100.

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Choice HYACINTHS for Glasses or Pots, 6*s.*, 8*s.*, 10*s.*, and 12*s.* per dozen.

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HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by Wm. Cutbush & Son.

Twenty-four Prizes awarded to their Collections last Spring, Twenty-two being First Prizes.

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Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.

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HYACINTHS for EXHIBITION.

Fresh Imported Bulbs

SUTTON'S SELECTION.

		Per 100.	Dozen.
Finest sorts by name	..	£4 4*s.*	12*s.*
Very fine	ditto ..	3 10	9
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Good Hyacinths for Beds, Ribands, &c in separate colours (fresh imported), 21*s.* per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Established Upwards of a Century.

BUTLER and McCULLOCH,

Seed Merchants, Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5*l.*	2*l.* 10*s.*	1*l.* 5*s.*	1*l.* 1*s.*	15*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5*l.*	3*l.*	2*l.*	1*l.* 5*s.*	1*l.* 1*s.*	10*s.* 6*d.*

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5*l.* 5*s.*	2*l.* 12*s.* 6*d.*	2*l.* 2*s.*	1*l.* 1*s.*	15*s.*	10*s.* 6*d.*

These Collections include only Bulbs of first-class quality.

For full particulars see CATALOGUE, which may be obtained post free on application.

Orders amounting to 21*s.* and upwards sent Carriage-free.

CARTER'S GARDENER'S VADE-MECUM.

ROYAL HORTICULTURAL SOCIETY

FLORAL COMMITTEE.

LIST of AWARDS, SEPTEMBER 27, 1864.

FIRST-CLASS CERTIFICATES.

Asplenium resectum, from Mr. Barker, Godalming.
Cattleya exoniensis, from Mr. Veitch, Exeter.
Gladiolus Our Little Lucy, from Mr. Standish, Ascot.
Gladiolus Miss Mowbray Morris, from Mr. Standish.
Nerine coruscans major, from Mr. Watson, Gr. to C. Leach, Esq., Clapham.
Skimmia (oblata), from Mr. Standish.

SECOND-CLASS CERTIFICATES.

Achimenes Stella, from Mr. Parsons, Danesbury.
Dahlia Ne Plus Ultra, from Mr. C. J. Perry, Castle Bromwich.
Dahlia Purple King, from Mr. Rawlings. Romford.
Petunia Fame, from Mr. G. Smith, Hornsey Road.

COMMENDATION.

Callirhoe involucrata, from Mr. W. Thompson, Ipswich.

SPECIAL CERTIFICATES.

To Mr. Turner, for a large Collection of Roses.
To Mr. Turner, for a large Collection of Dahlias, "sent out" by himself.
To Mr. Veitch, for a fine group of Odontoglossum grande.

The next Ordinary Meeting of the Committee will take place on Tuesday, October 11, at noon.

Thomas Moore, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 1, 1864.

The garden at Elvaston Castle, near Derby, has been long celebrated as one of the most remarkable in England. There are few places in this country where one can see such noble avenues and drives of all our best and rarest Pines, Cypresses, Junipers, and Yews as those which have been produced there under the management of Mr. Barron. While most of our landed proprietors have been contented with planting a few specimens only of those Evergreen trees and shrubs which have been introduced to England of late years, we meet with such things at Elvaston in hundreds or thousands. Long avenues of the Indian Deodar, of Araucaria imbricata, of the Douglas Fir, of Abies canadensis, A. nobilis, and of Junipers and Yews, have been planted in many parts of the Park, and now form most remarkable and beautiful objects to look upon. Then in all parts of the grounds we meet with large specimens of Abies grandis, A. amabilis, A. Nordmanniana, A. Menziesii, A. cephalonica, and A. Pinsapo, together with Pinus Cembra, Cryptomeria japonica, and all the finest and rarest species of the most interesting family to which these trees belong. The common Yew has also been extensively planted. Remarkable specimens of this tree which have been found growing in various parts of the country have been taken up with Mr. Barron's transplanting machines and transported to Elvaston, where they are now growing as luxuriantly as if they had never been moved from the spots on which they

had been first planted. Some of the trees to which we have alluded were of great age at the time of their removal, a circumstance which renders the success which attended the operation still more remarkable. Several large Cedars of Lebanon, from 30 to 50 feet in height, have been transplanted, and in order to show what amount of success has attended the operation, we give the dimensions of four trees, showing the progress they have made since they were removed in 1831:—

Height of Trees in 1831.	Circumference of Trunks in 1831.	Height of Trees in 1864.	Circumference of Stem in 1864.
feet	feet	feet	ft. in.
28	4	50	7 2
32	3	59	7 10
35	3	62	7 7
33	6	48	9 6

Some extraordinary removals have been effected in summer. We may instance an Oak, 46 feet in height, which had been taken from the centre of a plantation in the month of July, when in full leaf, and the success of this operation may be judged of by the fact, that in the third year after the tree had been transplanted it made shoots fully 2 feet long. These results are very striking, and show the excellence of Mr. Barron's method of transplanting large trees.

In walking over the grounds at Elvaston we were particularly struck with the effect produced by variegated foliage. At one spot we came upon a variegated Pine (P. Pinaster) of a goodly size. The white or golden-coloured leaves, which it produced in tufts amongst its highest branches, had a remarkable appearance when viewed from a little distance. But the Golden Yew, which is largely grown at Elvaston, is the most effective plant for garden decoration which has come under our observation for many years. It quite lights up the landscape, and looks like a bed of flowers amongst evergreens. In the winter months its appearance must be even more remarkable and attractive than it was when we saw it a few days ago. We strongly recommend this shrub to all who wish to have an attractive object in their parks and pleasure grounds.

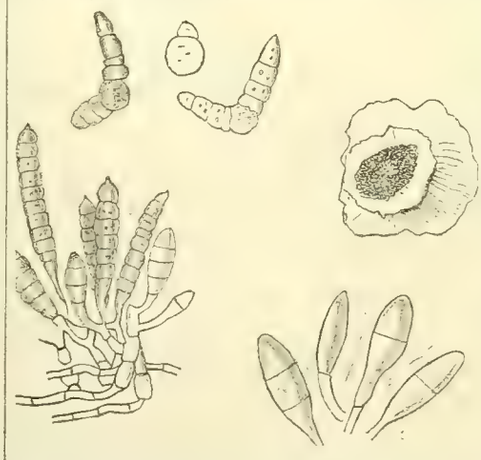
The scenery in the Park at Elvaston is ever-changing as one walks over it. Now it is a long avenue of rare Pines that we are looking upon, and now a little garden of Yews and Junipers meets the eye—some clipped into artificial forms, while others, although in a natural state, look almost as if they were artificial too. From many a spot in our progress we look upon some remarkable tree in the distance which is evidently a stranger in this country, and which, on a closer examination, proves to be, perhaps, a Douglas Fir, an Araucaria imbricata, or some other remarkable foreign introduction.

But passing onwards and leaving the avenues and artificial gardens behind us, we come to what must be regarded by every one as a complete triumph in landscape gardening. This is a lake, which, although entirely artificial, is yet the most natural-looking thing of the kind we ever remember to have seen. It is on a large scale, and is none of your petty little things of which the Chinese are said to be so fond, and in the construction of which, with the surrounding rock-work, they are supposed to be such adepts. At no one point can its extent or boundary be seen; it is studded with little islands clothed with trees and brushwood, and, as far as the stranger who looks upon it knows, it may be many miles in extent. Its sides are winding and irregular in form, so that different pictures are presented at every step of our progress round it, and very pretty these pictures are. The rockwork, which has been raised here and there on its edges and on the islands, is the most tasteful, natural, and effective thing of the kind we have ever met with, and the strange and beautiful forms of exotic and indigenous trees and shrubs have been most skilfully employed. Araucaria imbricata, the Chinese Juniper, the Irish Yew, Pinus Cembra, and Abies Menziesii, give a kind of boldness to the picture, which is filled up with such things as the Weeping Willow and other pendent trees. The variegated Elm, the purple Beech, and the golden-leaved Holly light up the scene with their bright tints, and the whole combined make one almost fancy himself in some enchanted fairy land. While looking upon it we thought there was only one thing wanting to make it perfect; we wished we had been able to throw in here and there a few of those glorious Maples which produce such wonderful effects in the landscapes of Japan. The late Duke of Wellington, when visiting Elvaston Castle, was highly pleased with this lake, and his remark upon it is still well remembered by Mr. Barron. "It is," said the Duke, "the only natural piece of artificial water I have ever seen."

We cannot close these remarks upon the gardens of Elvaston Castle, without a word or two upon Mr. Barron's nursery, which he is now removing from Elvaston to a good situation about a mile distant, and near the Railway Station of Burrowash. Here we noticed a fine stock of the Golden Yew we have already alluded to, the effect of which in brightening up the landscape cannot be overrated. We also observed beautiful examples of Abies Kæmpferi, 7 feet in height, of A. lasiocarpa, Parsonsi, Hookeri, Pinus Bungeana, and of all the new and rare kinds of Conifers. There are noble trees of Abies nobilis bearing cones, a sight of which is worth a journey from London to Derby. There are also many thousands of the seedlings of this fine species, which had been raised from the cones of former years, and all are in the highest state of health and vigour. Along with these we observed large quantities of seedlings of the Douglas Fir (a tree which produces its cones yearly at Elvaston), together with those of Abies Menziesii, Pinus Lambertiana, P. monticola, &c.

The seedling plants of our favourite Conifers will prove of great importance to all the planters of ornamental hardy trees. When we consider the great beauty of all the species we have named, and the value of the timber of some of them—as that of the Douglas Fir for example—the success which has attended the efforts of Mr. Barron in producing them would seem to be really of national importance.

We gave a few weeks since a short account of a disease which has attacked some specimens of Figs and Peaches during this autumn. Since that was published we have met in the garden of Sir Hugh Williams, at Bodelwyddan, in Flintshire (a garden which is known to many on account of the wonderful specimen of Brownea grandiceps, which flowers magnificently in the stove every year, and which this year ripened its seeds), with a disease confined to a single variety of Peach, the Barrington, produced by a mould which we have never seen before.



Shallow pits about half an inch in diameter appear on the surface of the fruit, the centre of which is occupied by a dark mould bearing a profusion of spores, so as to blacken the finger when touched. The mycelium penetrates deeply into the fruit, which if not gathered in good time becomes useless. The mycelium consists of more or less waved articulated threads, which give off here and there stouter erect flocci with shorter joints, branched slightly above, and producing at the tip of each joint a large spore. The spores are at first oblong and pale, showing one or two transverse septa. These rapidly acquire a dark tint, elongate, become more or less linear, and consist of from seven to eleven swollen divisions, of which the terminal one is mostly apiculate. Each division contains a few minute oil globules. The length varies from $\frac{1}{300}$ to $\frac{1}{250}$ of an inch. After the spores have fallen they frequently split in the centre and give out a globular body, which is in all probability reproductive. The mould apparently belongs to the genus Macrosporium, and may be named M. rhabdiferum.* It is, however, probable that like many similar parasites it is a condition of some common Sphæria, though we are not able to say to what particular species it probably belongs.

The present season, in consequence apparently of the small supply of water, has been peculiarly productive of such maladies. In an extensive collection of Gourds, to which the cold nights have been peculiarly unfavourable, we find a disposition to wither prematurely at the tips, and to produce a dark coloured mould, closely allied to that before us.

We have figured the general appearance of the mould as it appears in a dried specimen, together with a group of peculiarly large young spores, a tuft of mycelium with spores in different stages of growth, and the rupture of the fallen spores in consequence of which a globular body is formed. *M. J. B.*

* M. rhabdiferum sporis rectis multiseptatis, articulis torulosis.

A Grand International and Universal Horticultural and Industrial Exhibition is fixed to be held next year at Nice, under the auspices of the *Société Centrale d'Agriculture, d'Horticulture, et d'Acclimatation de Nice et des Alpes-Maritimes*, which holds its *Concours Régional* in the month of April next. It is announced that the project has met with the warmest encouragement from the Government, and will be carried out under the patronage of their Majesties the Emperor and Empress. The Exhibition is to be open from the 26th of April till the 1st of May; and the programme and regulations, together with the form of declaration to be used by exhibitors, may be had on application.

We may briefly indicate that those who intend to exhibit are required to apply for the necessary space to the Director of the organising Commission, at the Offices of the above Society, Rue Victor 45, before the 1st of March, 1865, and also to send in an exact list of the objects intended to be exhibited. The subjects will be grouped according to the degree of temperature they require, a part of the building being heated for the reception of hothouse plants. Artistic and industrial products and all large plants will be received up to the 20th of April; hothouse plants and all flowering plants up to the 25th of April; and bouquets and cut flowers up to the morning of the 26th of April, the day on which the exhibition is to be opened. The awards are to be made by a jury nominated from amongst the leading horticulturists of Europe; and the managers of the Regional Concourse undertake to pay the cost of transport, both going and returning, of all objects sent by the French railways, and by the steam-boats which go to Nice. It is to be hoped, in the name of good faith, that it may not (happen as was the case last May with the jurors and members of Congress in Belgium, under a similar engagement), that the latter half of this bargain—the return—will be repudiated.

Among the prizes which are announced are two Medals of Honour given by the Emperor to be awarded to the foreign exhibitor and exhibitor of the department respectively, who shall contribute most to the splendour of the exhibition. Another Medal of Honour is offered by the Empress, for the finest collection of flowering plants; and the ladies of Nice offer a Gold Medal to the exhibitor who shall produce the best group of three baskets of cut flowers. The general prize list contains about 80 classes.

—— We learn with much satisfaction that Mr. Meredith, of Garston, near Liverpool, whose remarkable examples of Grape growing have for the last three or four years won for him so much honour and for themselves so prominent a position at our metropolitan exhibitions of Fruits, has lately, with similar materials, been winning new laurels at some of the great continental fruit shows. At Antwerp, the first prize for a large collection of Grapes has been awarded to him; and in Paris a similar large collection has obtained for him the "Medal of Honour" for extraordinary cultivation, the highest award, as we are given to understand, which it was in the power of the jury to bestow. Those who have had the opportunity of seeing Mr. Meredith's achievements in the culture of the Vine, either at Garston, or as illustrated at our public exhibitions, will not, we are sure, be surprised at these results.

At the Paris exhibition, to which reference has just been made, we understand that the show of Pears and Apples was exceedingly fine. Pine Apples were not numerous, but those which were shown were very good indeed. And the Grapes were also good, a very fine collection from the open air of the South of France, containing bunches, which judging from their size, weighed from 4 lb. to 7 lb. each. At the same show the Gladioli were very beautiful, the improvement manifested in these charming flowers within the last two or three years being something remarkable.

—— We have good news for the admirers of t glorious new Japanese Lily, Lilium auratum, whi

is, doubtless, the grandest of all the flowering plants which Japan has sent us in recent times. Mr. Stevens announces, as will be seen in more detail in our advertising columns, a sale of nearly 700 plants of this Lily, many of the plants in full bloom, so that on this occasion, at least, the auction rooms in Covent Garden will be quite a flower show. The sale is to take place next Wednesday. No doubt amongst the different importations of bulbs we shall get considerable variety. Already some variations have been noticed, and we have to mention another — RUBRO-VITTATA — which has just been flowered by Mr. W. Bull, in which the yellow bandsare replaced by bands of deep red, tolerably well defined.

—— Mr. Stevens also announces another important Sale of Plants from Japan, the last portion of Mr. Fortune's valuable introductions from that country. Many of the original imported specimens will be offered. Among other things, we observe that this sale includes the stock of the male Aucuba, which has attracted so much interest at our exhibitions, and enabled us to see for the first time in English gardens, the real beauty of the Aucuba bush when laden with its coral-coloured berries. Forsythia Fortuni, Lychnis Senno, the Cowslip-scented Corylopsis spicata, the Jedo Vine, a hardy variety with a Frontignan flavour in the fruit, and much esteemed in Japan, together with many other valuable hardy things, will be offered. The whole are to be sold without reservation. This sale is fixed to take place on the 11th and 12th inst.

—— It is always an agreeable task to do honour to those who have long and well occupied a responsible position; and all the more so to horticulturists if that position has been a prominent one in the world of horticulture. Such a labour of love it has been proposed should now be undertaken by the gardening community, the object being to present a TESTIMONIAL to Mr. Thomas Ingram, her Majesty's Gardener at Frogmore, on the occasion of his completing his 50 years' charge of the Royal Gardens. We do not flatter Mr. Ingram when we say that he is in every way worthy of this mark of esteem from his associates in the ranks of horticulture of whatever class; and we shall be surprised if the testimonial which is contemplated does not assume a most substantial character. A committee of the leading horticulturists around the metropolis has been formed, with Mr. Brown, of Slough, as its Secretary, and no doubt public announcement will soon be made of the course which it is proposed to adopt for the purpose of realising this most appropriate proposition.

SPRING FLOWERING BULBS.

The Crocus.

This "sweet harbinger of spring" imparts a gay appearance to our gardens when all else is winter like. It shoots up through the earth immediately after stern winter has relaxed it from its icy grip. The Crocus, the Snowdrop, the Hepatica, the Primrose, the Aconite, and the Violet, all come forth to proclaim that

"The reign of violence is o'er,"

for a brief time at least.

Of this pleasing little flower there is great variety if the names in lists are to be trusted. My object is to direct attention to some of the best that have come under my own notice.

Among the blue or purple varieties, of which as many as 20 can be enumerated, there is a strong family likeness. The richest and darkest shade of colour is presented in the infantile flower, and as it increases in size and age it changes to violet, and from violet to lilac, becoming paler in colour hour by hour till dissolution ensues. To prove the identity of two or more varieties they must be grown side by side, for if the isolated blooms only are compared, in different stages of development, the chances are that the judgment will be misled, and an erroneous conclusion arrived at. In a collection that I looked over last spring I saw Grande Vidette, Prince Albert, and Prince of Wales, the last of which was announced to be new; if, however, there ever did exist a perceptible difference among them it had entirely disappeared. I find also that a variety known as Vulcan is identical with the foregoing. There is more of blue proper in these varieties than in any others classed as blues with which I am acquainted.

The following may be denominated purple, viz., David Rizzio, Brunel, Sir Joseph Paxton, and Sir John Franklin, the three last being in fact the "otherselves" of the former; unless it sometimes happens that a flower of a brighter shade of purple or purplish blue, called by some Lamplighter — with which is also identical a variety known as Lord Byron—is sent to England for Sir John Franklin. I do hold that a manifest difference exists between David Rizzio, Prince Albert, and Lamplighter, regarding these as types of the three shades of colour, the former being the darkest, and the last named the lightest shade.

Our importers are, however, at the mercy of the Dutchmen, and may not always get the same variety under the same name. There is yet another stage of the blue class represented by Lilaceus Superbus, Argus, and two new varieties called Perfection and Gloriosa. The colour is a bright lilac blue, flashed with pale lilac or white. It is a very beautiful shade of colour, and very striking. The light-edged varieties are as yet scarce. Ne plus ultra is the best if not the sole representative of this class, and with this I associate Martinet, which so much resembles it as to be pronounced by some identical with it.

The striped kinds are as numerous as the blues, but like the latter they offer but few real points of difference among themselves. Foremost is the old Versicolor or Cloth of Silver, I believe the parent of the finest striped kinds. This is a most profuse flowering variety, but like the Yellows has a tendency to produce a great deal of Grass when in the flowering state. There was once, and there may be still a difference between Versicolor and Cloth of Silver; the former is not so much striped as the latter, but the stripes are of greater width. Invariably, however, the largest bulbs are sent as Cloth of Silver, the smaller as Versicolor. Two new varieties of Versicolor have recently appeared, viz. Laureatus, like the original Cloth of Silver, and Formosus, very similar to the original Versicolor. I think, however, that these new varieties have a purer ground colour than those from which they are supposed to be derived. The large light-striped flowers form another division by themselves. They are Sir Walter Scott, Bride of Lammermoor, and Gallio. There is scarcely a perceptible difference between these three flowers. La Majestueuse is as large as the preceding, but the stripes are darker. The smaller-sized light-striped varieties are Argus, Sappho, Ida Pfeiffer, and Beauty of Albion. The flowers of darker stripes, but of intermediate size, are Albion, Spectabilis, Van Speyk, and Albertine, but the former will admirably represent the quartette.

Amongst the white varieties—and their names are almost legion—I find there are two distinct shades of colour—the pure white and the cream-coloured. Of the former, I have seen Lina, Hebe, Elfrida, Madame Hodson, Venus, Jeanne d'Arc, Maria Stuart, Victoria Regina, Albion, Mammoth, and Pomona; and excepting in a few cases the presence of a little pencilling of purple at the base of the flower, they might be credited with a common origin. Caroline Chisholm, or Mrs. Beecher Stowe, is a small dwarf pure white variety, that throws its yellow stamens well up above the flower. The cream-coloured division is represented by Calypso, Marie d'Ecosse, Bride of Abydos (sometimes I have seen this a pure white), Malvina, and sometimes by Jeanne d'Arc. This shade of colour is always most apparent when the flowers are young; as they become aged they change to a pure white.

We are sadly deficient in really good varieties of yellow Crocus. The best in colour is the old Cloth of Gold, and it is also the freest bloomer. It flowers early, and has sometimes shed its bloom ere the other varieties have put on theirs. The common yellow, on the other hand, is apt to be the latest of all in blooming; it also grows taller, and yields a large quantity of grass. I have seen a variety known as the Golden Yellow, that occupies a kind of intermediate stage of blooming, something between the other two yellows, and therefore in companionship with the blue, striped, and white varieties. The bulbs, however, were generally small, and this brought it into some disfavour. I have not seen it for the past three or four years, though I still observe it advertised in the leading retail catalogues. *Quo.*

NOTES ON GARDENS.—No. XVIII.

Sundry Manchester Gardens.

The neighbourhood of Manchester is well known to be a famous one for the Orchid fancier, and a fertile field for the nurseryman's traveller with Orchideous tendencies; in fact, there is none equal to it in this respect, except the vicinity of London, and even there it is doubtful if the private growers are more numerous. Time only permitted me a look at Mr. Baker's Cattleyas, and a short stay amongst Mr. Turner's famous collection at Pendlebury House. The Orchids are grown there in six neat and suitable houses. They include many of the best specimens in the country, and are in first-rate condition under the management of Mr. G. Toll.

In the East India house, the plants of Phalænopsis were very remarkable, especially P. Schilleriana, which, though not so numerous as at Mr. Day's, was in most vigorous health, some of the plants bearing six immense leaves. There was a very desirable variety amongst them, with the leaves, save a few spots, silvery throughout. Of Angræcum caudatum there was an immense plant, probably the largest in the country; and there was one of the most superb collections of Aërides which I have seen, some of the plants flowering for the second time during the season. Aërides suavissimum delicatum, a variety almost peculiar to the place, was of nearly as pure a white as A. quinquevulnera album, of which there were fine plants in flower, together with gigantic plants of Aërides nobile, and many fine specimens and varieties, some of them recently originated in the gardens, which I have no space to particularise. Mr. Toll finds the Phalænopsis do best suspended over water.

After one has seen Mr. Day's Saccolabiums it will not be an easy matter to be astonished with that genus, but there were here some unrivalled specimens, and amongst them the first plant of S. ampullaceum introduced to the country, having six strong shoots; and S. curvifolium nearly equally fine. Cattleya superba was on blocks in quantity; it requires more heat than any of its congeners.

The cool-house is kept at about from 70° to 75° in summer with sun-heat—at night 60°. In winter at about 60° during the day, and 50° to 55° at night. Odontoglossum crinitum, Phalænopsis, nævium, Pescatorei, and most of the rare ones were grown finely in it. Barkerias are extremely well grown and flowered by Mr. Toll. Being all shy bloomers except Skinneri, he takes them from the cool house when their young shoots are half-grown, and puts them in a temperate stove near the glass, which is of Hartley's rough plate, and never shaded. Treated thus they flower very freely. Barkeria melanocaulon and spectabilis had furnished sheets of bloom through receiving this treatment—no shade during growth. Pescatoria cerina and the Huntleyas were doing finely in the cool house. Luisia Psyche, a very curious looking leathery-lipped little thing, was in flower. The Burlingtonias were finely grown in baskets, thoroughly saturated with water. Of Pleiones there were large pansfull of lagenaria, Wallichiana, maculata, and others, in beautiful condition, being watered very freely during the growing season.

Some Orchids were in fine fruit. A plant of Dominy's hybrid Cattleya bore a pod fertilised by Cattleya crispa superba; C. Dominiana had also ripened fruit well. The old Cypripedium javanicum was bearing large pods. Lælia Lindleyi bore a large pod fertilised by L. superbiens. Zygopetalum maxillare was finely in flower, and was one of the most charming things to be seen at the time, which was the worst season for seeing Orchids in flower—and they are dry subjects when out of bloom. Two houses were filled almost solely with Cattleyas, one house being kept considerably cooler than the other. There were larger plants than I had before seen of many of the species, such as C. Wageneri, lobata, Warneri, Regnellii, quadricolor true, Warscewiczii, exoniensis one of Mr. Dominy's finest hybrids, and Turneri a fine one-leaved slender-bulbed kind with flowers the size of those of C. Mossiæ; and besides these, thero were scores of fine specimens worthy of special notice.

The largest Vandas were accommodated with a house to themselves, and were ranged in single file along each side of the central path. A perfect line of grenadiers they were, with Veitch's var. of Vanda suavis 6 feet high with as many breaks, and bearing fine fruit, fertilised by Vanda cristata and Vanda teres. A specimen of Vanda teres was 6 feet high and 4 feet in diameter; and there was the first plant of Vanda Hookeriana introduced to the country, with other Vandas of extraordinary size. A plant of Aërides suavissimum 8 feet high, with six shoots, had borne 18 spikes of flowers, each of them branched, and must have been grand.

Without space to specially mention the interesting and in many cases unrivalled specimens of Dendrobiums and Cypripediums, I must not forget to state that Cypripedium Schlimmii was finely grown in heat with plenty of moisture—as many say it should be grown cool. Oncidium phymatochilum was found to do best in Cocoa-nut fibre and Sphagnum Moss well mixed together, with plenty of drainage. Calanthes were remarkably well grown in baskets filled with peat, loam, cow-dung, and sand, and placed near the glass—rather a novel, but a very successful way of growing them. My few rapid notes, however, after all furnish but a very inadequate notion of the extensive and interesting Orchid treasures of Pendlebury House, which should be seen by all Orchid growers who have the opportunity.

—— The Sarracenias shown at Kensington during the past season by Mr. Baines, gardener to H. Micholls, Esq., at Bowdon, attracted me there to see how and where the plants were grown that won—almost by a walk over—Lady D. Nevill's prize, and astonished the best plantsmen at the show. That my visit was not without reward will be inferred from the following measurements:—Sarracenia Drummondii bore pitchers from 18 inches to 2 feet 10 inches long, the largest plant 2 feet in diameter. S. flava had pitchers 2 feet 6 inches long, the plant 2 feet in diameter. S. variolaris bore pitchers 18 inches long; S. purpurea had pitchers 10 inches long, the plant 2 feet 6 inches through. Many who have not seen the plants might suppose them to be "drawn" &c., but the reverse was the case, as they looked much firmer in texture, and bore better developed pitchers than I had previously seen, except on those grown at the College Gardens, Dublin—they looked, in fact, as firm as if cast in bronze.

The cultivation of these highly interesting plants has hitherto been as difficult as their conformation is singular, and I am sure plant growers will be pleased to hear that Mr. Baines has been good enough to fully explain to me his mode of growing them to a size and degree of perfection which few if any thought they were capable of attaining. Mr. Baines has found that in the cultivation of Sarracenias the great mistake made was that of keeping them too hot. "Under such treatment they appear to grow vigorously for a time, but soon become exhausted, and ultimately die. S. Drummondii will stand the most heat of any of the genus; at the same time it is much the most shy at forming its singular trumpet-shaped leaves. In strong heat with me it altogether refuses to make them, all the leaves coming plain. I have tried it in the stove amongst Ixoras, &c., the plants elevated to within 6 inches of the glass, but not a single leaf came in proper character." Mr. Baines

Grows all his Sarracenias together in the lightest corner of a span-roofed Fernery, the plants elevated to within a foot of the glass, and the temperature not more than 45° to 50° in winter, by night, with a rise of 5° or so during the day. About the beginning of March they show signs of growth, and require potting. He then removes as much of the old soil as possible, and uses care not to injure the roots, which are very brittle; repotting them in good fibry peat in lumps as large as hens' eggs, with as much as possible of the earthy matter shaken out, and with a fourth part of crocks, broken as small as Peas, added to it. "The pots are afterwards surfaced with green Sphagnum. The house is then kept about 5° warmer, and by the end of April the temperature is increased to 60° or 70° by day, with moderate air night and day. At that time, if all is well, they will be making vigorous growth, and should receive copious waterings every two or three days. As the season advances the temperature is prevented from getting too high, by shading the house, and admitting plenty of air. By the end of June they should have made their growth, but for two months afterwards they should be watered copiously. Some growers stand the pots during the growing season in pans of water; this I do not like, as it has a tendency to cause the soil to become sour, which is fatal to the plants. The method of propagating all the Sarracenias is by dividing the crowns, which must be separated with a sharp knife in spring just before they begin to grow, potting the pieces in 4 or 5-inch pots and giving them the same treatment as that recommended for the specimen plants. It is necessary to guard against thrips and scale, as if these are not watched they do the plants much injury. Until the young plants get strong I always pinch out the flowers as soon as they appear. As the plants get older I do not see that it does any harm to allow them to flower; and I find that the flower-stem always divides the crown from which it issues, thus giving the opportunity, if desired, of increasing the plants."

Dionæa muscipula is fully as well grown by Mr. Baines as are the Sarracenias, and in the same house with them. Here again, he says, "too much heat does the mischief, with insufficient light and air. I have seen it growing strongly for a time in heat, but it invariably goes off suddenly when so treated. I grow it with the Sarracenias, and in similar materials, broken much smaller. Each plant is grown in a thumb pot, well drained, the pots plunged in Sphagnum as thick as they can stand in a pan 20 inches in diameter, so as to cover as much as possible the whole surface of the pan with the curious traps, at the ends of the leaves, which in spring are frequently as much as 6 or 7 inches long. The plants are syringed overhead every day during the growing season, and never at any time must they be allowed to get dry. The plants are never covered with a bell-glass, except during the time of an exhibition; for keeping them constantly covered, as is often done, even if the glass is tilted, makes them much too tender and liable to damp off. The Dionæa is propagated by dividing the crowns in spring." It is but justice to Mr. Baines to state that all his pot-plants were remarkably well managed. It is, however, hardly necessary to say this of one who was A 1 with his Ferns and fine-leaved plants at the Regent's Park, and elsewhere, during the past exhibiting season.

—— One of the best laid-out, best-cropped, and most beautifully-situated nurseries which it has been my fortune to see, is that of Mr. J. Shaw, landscape gardener, and manufacturer of the famous tiffany, situated about half a mile from Bowdon. The owner's house, surrounded by a lawn dotted with the choicest shrubs and Conifers, is charmingly situated, and overlooks the nursery, and a considerable portion of the country around. Good taste and keeping seemed to prevail everywhere, even to the foreman's cottage, which is a very pretty thatched rustic one.

The houses were rich with the best Orchids and fine-leaved plants; and among them were several specimens of Shaw's patent Vinery, the peculiarity of which consists in its being well and freely aired by continuous glass-panelled ventilators placed in the front of the house and in the back wall, thus admitting of a fixed, and consequently very considerably cheaper roof, and doing away with the clumsy mode of sliding sashes, wooden shutters, brick perforations, &c. Another advantage of these houses is their adaptability to existing garden walls without increasing the height of brickwork, which is rarely desirable, and not at all times practicable. There can be no doubt that efficient ventilation in the back walls of most houses that possess such, is the true and by far the cheaper mode, as is now pretty generally admitted; though I have recently seen in several otherwise first-class lean-to houses in Ireland erected by a London firm, a little apparatus for regulating each sliding light, while in the same neighbourhood the whole back or front ventilation of houses for like uses was worked with less trouble than was required for the single sliding sash. My call was a very late one, but I could see that the "ribbon system" was very extensively displayed by Mr. Shaw, the lines composed however of Wellingtonias and the choicest of the Coniferæ—plants on which the eye could rest with pleasure; and there was enough to lead me to conclude that, should "the Honourable Governors and Company of the Guild of Nurserymen" ever appoint a landscape gardening official, Mr. Shaw would be a very likely candidate. *Wm. Robinson.*

GRAPE CULTURE.

ON reading your article (p. 799) respecting the culture of Grapes in pots on hot-water pipes, as seen with Mr. Rivers, I was induced to examine the mode of culture which seemed to me so novel. First, as regards the house: it is span-roofed, 10 feet wide, 5 feet high at the sides, and 10 feet high to the ridge. The roof is fixed, and the ventilation is on each side by shutters 15 in. wide, in 10-feet lengths, on hinges opening downwards; the lower part of the aperture near the surface of the ground is not more than 15 in. from it; at each end is an opening under the gable, closed at night. On each side of the house is a hot-air chamber about 3 feet 6 inches wide, in which are two 4-inch hot-water pipes, placed horizontally; over them is a pavement of slates supported by bricks fixed in mortar. On the floor of this heated chamber are Orange trees, cultivated so as to ripen their fruit in one season, and in early spring, Peach trees, in pots for forcing, are placed among them. On each side, close to the outer walls, are two 4-inch pipes, one over the other, so that eight pipes are employed to heat a house 10 feet wide and 10 feet high; the consequence is a great heating power, so necessary in early forcing. On the upper pipe of these last mentioned, at the sides of the house, are placed the Vines, the pots supported as you describe. Their growth, and the fruit they have given, are among those extraordinary things that one sometimes sees in matters appertaining to horticulture—less than a cubic foot of earth, and a rich compost, supporting a Vine that has made in the aggregate shoots 40 feet in length, after being repeatedly stopped while the fruit was growing, and having borne a fine crop of Grapes.

It is a fact well known to cultivators that the White Frontignan and Muscat Grapes rarely attain in England that rich bright amber colour, indicative of thorough ripeness, so peculiar to them in the south of France and in Spain. At our exhibitions in September, Grapes approaching to it are occasionally seen, and always admired; but the rich golden tint I allude to is, I think I may say, never seen. Now this is the striking peculiarity which I witnessed in Mr. Rivers's house as early as July, in several kinds of White Frontignan Grapes, on Vines in pots placed on a hot-water pipe. They were then thoroughly ripe, and their flavour rich and grateful in the extreme.

With regard to the facility of growing Grapes after Mr. R.'s method there is no question. With regard to the economy there is something to be said. Vines planted out in heated borders, and forced so as to have ripe Grapes in May, require much skill, attention, and expense. Vines in pots placed on a 4-inch hot-water pipe, and in a house heated as I have described, require less care and ripen much more rapidly. In the former but one crop in the season can be brought to maturity; in the latter two or even three crops may be ripened. In this way, supposing forcing to commence in November or December, the Grapes will be ripe in April and May; the second series of Vines may then be introduced, which will ripen their fruit in July and August; and then, if Vines in pots from a cool Vinery are introduced, they will ripen their fruit in September, and be kept till forcing has again commenced; so that in one house, with a cool Vinery at hand as a nursery, three abundant crops may be produced. Mr. R. calculates that each Vine with short stopping, *i. e.*, to stop the young shoot down to the bunch, requires 2 feet of space, so that a Vinery like his, 50 feet long, will allow of 25 Vines on each side, or 50 in the whole. If, however, the hot-air chamber is used for forcing Peaches in pots, each Vine should be allowed 3 feet, otherwise sufficient light would not be admitted. Forced Oranges seem to like the shade, and grow and bear well; and Figs would doubtless do the same.

I have been tempted to describe this, to me, new mode of culture, seeing in it a great future to Grape growers, whether for market or for the supply of families. Cheap span-roofed houses 10 feet wide with fixed roofs are now built by every village carpenter, and heating by hot water cheaply applied. *Vitis.*

[We received from Mr. Rivers in July several varieties of Frontignan Grapes from Vines in pots plcaed in the novel situation above described. They were all of a bright amber colour, and one, we believe called the Golden Frontignan, was particularly bright. The Tokay, Primavis, Trovéren, Early Smyrna, and Auvergne Frontignans were also remarkable for the bright colour and rich flavour of their berries.]

ELIZABETHAN GARDENING.

(*Continued from p.* 893.)

Another primary object of the Elizabethan horticulturist was to render the garden a pleasant adjunct to the family residence at all seasons, by producing a flush of flowers or a display of attractive herbage all the year round. They did not, as in the modern fashion, plant a garden intended for every-day use with a few exotics which require expensive care ten months in the year, just to produce a showy blaze of hot colours for a month or two in the hottest part of the year. They endeavoured to supply a source of pleasure and delight all the year round, and to tempt the household to enjoy healthy exercise in the garden in every month of the year. To larger mansions were attached pleasaunces, specially devoted to winter exercises, 'that when the wind blows sharp you may walk as in a gallery' (Bacon). Protected by thick Yew tree hedges, the 'alleys ever finely gravelled,' and the borders planted with Evergreens of various tints—some dark green, others light, some variegated gold, some silver, with a few light deciduous trees for contrast—the winter garden afforded, even in the dreariest season, a sheltered walk, full of interest and beauty to the lover of Nature. Such gardens are attached to many of the old Elizabethan mansions which still remain to attest how grandly and with what magnificent taste men could once build their domiciles.

Lord Bacon, whose ideas were always magnificent, says, 'I do hold it, in the royal ordering of gardens, there ought to be gardens for all the months of the year, in which, severally, things of beauty may be then in season. For December and January, and the latter part of November, you must take such things as are green all winter—Holly, Ivy, Bays, Juniper, Cypress trees, Yew, Pines, Fir trees, Rosemary, Lavender, Periwinkle—the white, the purple, and the blue; Germander, and Sweet Marjoram, warm set. There followeth, for the latter part of January and February, the Mezereon tree, which then bloometh; Crocus vernus, both the yellow and grey; Primroses, Anemones, the early Tulip, Hyacinthus, Chamæiris, Fritillaria, &c.' And then he gives lists for each month in the year, adding 'but my meaning is perceived, that you may have *ver perpetuum*, as the place affords.'

But not only in royal gardens was this principle carried out. It was the fundamental principle of the gardeners of the period, that the garden was to be made as attractive as possible at all seasons.

Parkinson lays down the same principle for the guidance of persons having gardens; and gives directions how to select flowers 'which do show forth their beauty and colour early in the year, that they seeme to make a garden of delight even in the winter time; and others which do give their flowers one after the other, so that whoever would have of every sort of these flowers, may have for every month several colours and varieties, even from Christmas until Midsummer, or after, and then until Christmas again; and that in some plenty, and that with great content, and without forcing; so that every man may have them in every place, at all times, if they will take any care of them.'

This is the true secret of ordinary domestic gardening for the private individual of every class, according to his means and the opportunities at his command, viz., so to order his garden that he may have delight in it at all seasons.

The modern horticulturist's idea of planting a garden is in such fashion that, for nine or ten months in the year, it shall be a desert without a flower or shrub of any interest. Your professed gardener has a limited catalogue of about a dozen plants, which he calls 'bedding-out plants,' consisting of Verbenas, Calceolarias, Tom Thumbs, Petunias, and a few others. On these he expends all your money and all his time and energies. He has but one idea; and that is, to force a few coarsely-contrasted plants, without scent, without variety, stiff and formless, to make a show of glaring colours during August and September. Hence it happens that we may visit a score of gardens in a year, and be unable to detect much difference between them. As to the form of the beds—at one time a sort of plaid prevails, at another the French carpet, at another the ribbon style. As to colour, there is no variety: the changes are rung on the same flowers—now it is Verbena, Lobelia, Geranium; then Geranium, Verbena, Lobelia; now yellow, white, blue, and scarlet; then scarlet, blue, yellow, and white. We just perceive distinctions without differences, until we become weary of the continued monotony, and fatigued with an oppressive blaze of vulgar colours.

This style may be all very well for the gentleman who visits his country seat for the shooting season, and spends the summer in London. It is sufficient for him to find his flower-beds as gay and glittering as the ladies who condescend to lighten the tedium of a country-house out of the season; but nothing can be more tasteless and absurd than for those who live at their houses during the greater part of the year, and want a garden all the year round, to adopt this expensive fashion. It is not to be denied that there is a certain kind of brilliancy in this fashionable garden. It is gay, glittering, and exciting; but it is safe to deny that a tawdry blaze of scarlets and yellows is consistent with good taste, or has one-tenth the play of harmonious beauty and richness which a border of mixed colours possesses. Besides, there is the weariness and monotony of it. Your beds once planted for the season, must remain the same. The pattern, so elaborately designed, seen and admired, must remain before your wearied eyes all the months of its blossoming. There is no change; no variety. The flower you see one morning you must see the next, and the next, in wearisome succession. It is incapable of enjoyment except during a few months in the autumn. Now, it unfortunately happens that this is the season when, to the perennial dweller in the country, the garden is least required for enjoyment. It is the season when he is most tempted to take the air in the open fields or wild paths of Nature, or to visit the Continent or the sea-side. It is the season when, during the day, the garden is hot and wearying—and rendered still more hot and

wearying by the blaze of the same colours day after day; and when the evenings are getting damp and chilly. The domestic garden is most wanted at seasons when Nature is least attractive; when the lanes are muddy, and the forest trees are bare of leaves; or else when the evenings are long, and the warm night air balmy and charged with perfume; when the blackbird is trilling his last good night, and the linnet is making its nest; and the black-cap and the nightingale,

> In some melodious plot
> Of beechen green and shadows numberless,
> Sing of summer in full-throated ease. *Keats.*

'Bedding-out' plants, too, are necessarily stiff and graceless, monotonous and uniform. They must not 'wander at their own sweet will,' but must conform to the requirements of the pattern elaborately designed on paper by the gardener. They are also generally deficient in one of the chief attractions of flowers—perfume. Moreover, they have no associations, no poetry, no sentiment; their names excite no pleasing fancies, no poetical associations, no historical connections. What possible idea can a Scarlet Verbena conjure up, except that of a flat patch of bright colour? but who can look even upon a Daisy without calling to mind that it was Chaucer's favourite flower; to do homage to which, at its first opening, he rose early in the morning—

> For to be at the resurrection
> Of this flower * * *
> Her cheer is plainly spread in the brightness
> Of the sun, for there it will unclose:
> Alas! that I ne had English rhyme or prose
> Suffisaunt this floure to praise aright;

or that Burns has immortalised it as the 'wee crimson-tippet flower;' or the numerous verses in which Wordsworth has eulogised it? What a fund of poetry, moreover, is there in the very names of the old flowers! Monkshood or Venus's car, Love in a Mist, our Lady's Slipper, our Lady's Smock, Maiden-hair, Venus's Looking-glass, Pansies, or Love in Idleness, Kiss at the Garden-gate, and the host of other pretty names for the Heartsease; Sweet William, Love lies Bleeding, and hundreds of other pretty fancies, almost forgotten, because your gentleman gardener won't let you have what he calls nasty common things—that is, plants which will grow and flourish without his skilful and well-paid manipulations.

We are quite aware of the difficulty which overrides all attempts to introduce a more wholesome taste in gardening. The owner knows little about it, and he is dependent on his gardener: the gardener is dependent on his trade for a livelihood; and his idea is, that his trade consists in producing, with as much labour and care as he can get paid for, several thousands of a dozen varieties of plants for 'bedding-out.' Having produced them with much care and at great expense, he is of course desirous to show them off to the best advantage; so everything else is rooted out of the garden under the name of 'common rubbish;' formal beds are cut in whatever form happens to be the fashion of the day; and each sort and colour of plant is planted in a separate bed, in contrast to some other plant in some other bed, that it may be as conspicuous and glaring as possible. Your gentleman gardener, who pretends to 'have a taste,' and who regards his master merely as 'the slave who pays'—which indeed for the most part he is,—does not condescend to know a common English flower. A Primrose or a Daisy is to him a mere weed, common and unclean; and if his master were to dare to ask him to introduce plants of this description into the garden in preference to his 'bedding-out plants,' he would attribute his wish to meanness, and plainly tell him 'he was no gentleman,' and quit his service. He does not know that God loves the commonest of His creatures as much as the rarest, and perhaps we might say more so; for that He has made them common seems to show that He loves them best and has more to teach us from them. At all events, it is not for man to call anything that God has made 'common or unclean;' and no right-minded man will despise or reject any of His works.

(To be continued.)

Home Correspondence.

Orchard Houses.—I have thrice reported the results of my experience of an orchard house, and other amateurs may be again interested to receive the results of my fourth year. I must repeat that the house in question is span-roof, 12 feet high and 20 feet in width, with flaps round the sides, which are left open all the year except during severe spring frosts. There is no roof ventilation. There is a centre bed and two borders at the sides. The trees are planted in the bed; on the borders they are placed in pots. The trees in the bed are taken up, root-pruned, and replanted every autumn. There is a good supply of water by pressure delivered from a hose pipe. The results of this fourth year are as follows:—Peaches a good crop, fair size, but again sadly wanting in sweetness and flavour, and this equally when in pots and in the bed. As the summer has given us more sunshine than usual, I fear this defect will not be overcome. But, strange to say, it does not affect the Nectarines. The crop was large, size small, but flavour perfect, and this alike at both ends of the house, in the shade as well as in the sun. The Stanwick has again ripened well, with high flavour, abundant crop, and partial splitting. Let me add that one of Mr. Rivers's new Nectarines, the Victoria, was placed by accident in the cold end of the house; nevertheless the fruit ripened well, and it deserves all its reputation; a more delicious Nectarine I never tasted. It appears to be a cross with the Stanwick; is it so? Pears are magnificent. In size and cleanness and flavour they are equal to anything produced in Jersey. This crop has never failed. Undoubtedly the orchard house is the paradise of the Pear tree; but I would recommend any reader about to stock a house to be very careful in his selection of sorts. I have about 20 sorts, but only a few of them are first-rate. It is bad economy to waste valuable space on inferior fruit. Many of the French Pears are coarse in texture, though sweet and rich in flavour. The best are the Van Mons Leon le Clerc, the Seckle, the Beurré Superfin, and the Autumn Bergamot. Do not fail to have two or three of each of these, instead of a larger variety, of which one-half are almost worthless. Plums a good crop, ripened well, but only three or four sorts worth planting—the Jefferson and Coe's Golden Drop are the best. Apricots again a fine crop, not large in size, but of luscious quality, studded with their golden fruit, averaging perhaps four or five dozen upon a tree; they were a beautiful picture. The orchard house appears to be admirably adapted for this valuable fruit. Figs have ripened well, and the crop enormous. Some choice Apples have attained a large size and handsome colours—but inasmuch as they can be produced out of doors, it is questionable whether they should occupy ground within that might yield fruit unattainable in the open garden. Some bushes of the Eugenia Ugni are loaded with their luscious berries, as plentiful as the leaves. I have utilised the upright posts that support the sides by planting Currant bushes against them. The fruit thus protected from birds is still hanging in great clusters, and will be acceptable a month hence. I purpose trying some Gooseberries in like manner Let me add that no heat is applied at any time. It is necessary to place galvanised netting over the open sides in the summer to exclude the birds. The operation of pinching is regularly performed through the summer. I agree with Mr. Rivers that the secret of the success of the orchard house is the perfect ventilation at the bottom of it, by which the under parts of the leaves are thoroughly aërated, and insects driven from a place that is too cold to keep them. Might not the same process of ventilation be found equally beneficial in greenhouses, conservatories, &c.? *E. W. Cox, Highwood, Hendon, Sept.* 26.

Further Notes on the Flora of Kildare.—If the county is rich in Grasses, it is poor in Ferns. It, however, can boast of the Royal Fern, which is found occasionally in the bogs. Old ruins, of which there are many, are often to be found covered with the scaly Hart's-tongue, accompanied by the common Polypody. Equally common on walls is the Wall Rue Spleenwort. A. Trichomanes and A. Adiantum-nigrum are also common, but local in their habitats. I may mention in passing, that another denizen of old buildings is sometimes found luxuriating on the crumbling masonry of a bygone age—I mean Cotyledon Umbilicus, Pennywort. I found it side by side on a very ancient ruin with Sedum acre. But to return to our Ferns. In a wood at Leixlip, magnificent plants of Lastrea dilatata and Polystichum angulare are scattered profusely under the shade of equally magnificent Beech trees; the latter Fern, indeed, is growing everywhere throughout the county, as is also the common Hart's-tongue. But I should like to ask a question as to Scolopendrium vulgare. Is it common for simple fronds and cut fronds to be growing on the same plant? I found this to be the case in one or two instances. Has it been noticed elsewhere? [Sometimes.] The only other Ferns that I have yet found are the male Fern, Lastrea Filix-mas; the northern hard Fern, Blechnum Spicant, and the common Brake. Kildare is not a mountainous county, and hence the absence of many Ferns elsewhere common. There are no natural lakes, but nevertheless plenty of water. The county is pierced by one main natural channel, the Liffey, and by two artificial ones, the Grand Canal and Royal Canal, and each of these has to some extent a vegetation of its own. The waters of the Liffey are not encumbered with many aquatic plants. This is no doubt partly owing to the high and very rapid floods that frequently pour down from its feeders in the mountains of Wicklow, causing the river often to overflow its banks far and wide. The stones in the bed of the river are often completely covered with the Moss called Fontinalis antipyretica, and here and there are patches of the floating Pondweed, Potamogeton fluitans. Masses also occur of the spiked Water Milfoil, Myriophyllum spicatum. Excepting these I know of nothing of any importance in the water. The overhanging banks are in some places completely covered with Marchantia polymorpha; and such plants as the Hemp-agrimony, Water Ragwort, purple Loosestrife, are common on the immediate banks. Forget-me-not is also present everywhere. The sluggish water of the Grand Canal is, as might be expected, much more favourable for the development of an aquatic vegetation. Our American cousin Anacharis Alsinastrum seems to have established its head-quarters here. So plentiful is it in this canal that I should think it sometimes impedes the operations of the bargeman. The Potamogeton densum, P. perfoliatum, and P. pusillum are also abundant. The beautiful Arrow-head, Sagittaria sagittifolia, with its white and violet flowers, is here, but not so plentiful as the others. So also is the fine-leaved Water Dropwort, Œnanthe Phellandrium. The Royal Canal I have not fully explored, and can only at present mention one plant spread extensively over it, viz., the Buck Bean, Menyanthes trifoliata. Deep and wide ditches occur everywhere, and often serve the two-fold purpose of affording water to the cattle and draining the land, as well as being fences. The plants most commonly found in these ditches are the two Water Plantains, Alisma Plantago and A. ranunculoides; the broad-leaved Water Parsnep, Sium latifolium, the great common Carex, Carex riparia; the two Speedwells, Veronica Beccabunga, and V. Anagallis; and the floating Ranunculus, which, by the way, I ought to have mentioned, is growing under at least two forms in the Liffey. There is a pretty fair sprinkling of Carices in the woods and on the banks of the ditches. In the wood at Leixlip, before mentioned, the great pendulous Carex, C. pendula, grows freely, and has a picturesque appearance. This would be worth planting on the margins of lakes and in moist woods. Some of the others commonly to be met with are C. remota, C. vulpina, C. sylvatica, C. flava, C. recurva, C. stricta, and C. vesicaria. While enumerating the Ferns I should have mentioned that the Adder's-tongue, Ophioglossum vulgatum, is found in abundance growing in some of the pastures about Straffan, near the Liffey. *J. Douglas, Straffan, Co. Kildare.*

Peaches and Nectarines on Standards.—Mr. Masters's statement concerning the existence of ripe Peaches and Nectarines on trees in the open ground without protection induces me to inform you that I have now at the present time a bush Peach tree 8 feet through and 10 feet high, with 500 ripe fruit upon it, after 700 have been taken off in thinning on the 9th of July. I have also a second tree with 400 ripe fruit upon it, from which I took 600 in thinning. A third tree has got 350 very fine fruit on it, nearly ripe, and 450 were taken from it at thinning time. For four successive years these trees have produced abundant crops of richly flavoured fruit; they were all planted in my nursery, which is in a very exposed situation, in February, 1859. I have nine sorts of Peaches now fruiting besides those just mentioned; they are very fine trees and yield good crops. I have also some very fine bush Nectarines which have even surpassed the Peaches. None of the above have had any protection whatever. My own experience leads me to believe that Peaches and Nectarines may be very profitably grown in this manner for market. *Josiah Illman, Wellington Nursery, Strood.*

Orchard-house Pears.—In answer to "An Old Subscriber's" questions, I beg to say that my Pear trees were moved out of doors about the end of June, that the pots were plunged to economise water, and that there was very little rooting through the bottom of the pots. If your Correspondent is ever in this neighbourhood, and would like to examine our trees, he is most welcome to do so. They are within five minutes' walk of the railway station. *George Wilson, Gishurst Cottage, Weybridge.*

Wistaria in Fruit.—Has the Wistaria sinensis ever fruited in this country? I have just discovered a seed pod on a plant growing in my nursery. *Charles Noble, Sunningdale Nursery, Bagshot.* [We have not met with this plant in fruit].

Societies.

Royal Horticultural: *Sept.* 27 (*Floral Committee*). — Several highly interesting subjects were exhibited on this occasion. Mr. Parsons, of Welwyn, received a Second-class Certificate for an Achimenes called Stella, a beautiful variety, with very rich deep purplish magenta flowers. Mr. Smith, of Hornsey, received a similar award for a Petunia named Fame, with well-formed white blossoms, broadly striped with rosy purple. Callirrhöe involucrata, with large purplish crimson Anemone-like flowers, white at the base inside, from Mr. Thompson, of Ipswich, was Commended. From Mr. Barker, of Godalming, came various charming Tropæolum blooms, and some rare and interesting Ferns from the Island of Ascension, to one of which, Asplenium resectum, a slender, shining, deep green-leaved kind, a First-class Certificate was awarded. Mr. Veitch furnished a basket full of charmingly-bloomed plants of Odontoglossum grande, the flowers of which were unusually large and highly coloured. For these a Special Certificate was given, which they well deserved. The same exhibitor also contributed a very fine hybrid Cattleya, named exoniensis, the result of a cross effected by Mr. Dominy between C. Mossiæ and C. crispa superba; it had delicate lilac sepals and petals, and a bold showy lip, deep purplish crimson at the top, and stained in the throat with bright orange. This received a First-class Certificate. A specimen of Odontoglossum Uro-Skinneri also came from the same establishment. A Brunsvigia, Hæmanthus, and other showy flowering Cape bulbs came from Mr. Watson, gr. to C. Leach, Esq., of Clapham, who received a First-class Certificate for Nerine coruscans major, a very fine robust variety, with brilliant scarlet blossoms. Mr. Bull sent an example of Alocasia longiloba, a species with slender marbled stems in the way of zebrina, but with leaves by no means as handsome as those of C. Lowii. Among Dahlias, of which considerable numbers were exhibited, was one from Mr.

Rawlings, called Purple King, a large compact lilac-shaded purple, to which a Second-class Certificate was awarded. Black Doctor, a variety exhibited on former occasions, was shown by Mr. Legge, and Brunette, previously reported on by us, by Mr. Hopkins. Ne Plus Ultra, a streaked bronzy rose, from Mr. C. J. Perry, received a Second-class Certificate. Mr. Turner contributed Leah, which must certainly be characterised as the flower of the season; also a collection of most of choice varieties sent out by himself, for which he was awarded a Special Certificate. No English Seedling Roses were shown on this occasion for Dr. Lindley's prize; but from Messrs. Paul & Son and Mr. Turner came beautiful collections of established varieties, among which was a boxful of charming blooms of Gloire de Dijon; also fine blooms of Souvenir de Malmaison, Madame Bravy, President, François Lacharme, John Hopper, Prince Leon, General Washington, Lamarque, Madame de Stella, Maréchal Vaillant, Senateur Vaisse, Lord Clyde, Beauty of Waltham, Maurice Bernardin, Madame C. Crapelet, Narcisse, Madame Falcot, Triomphe de Rennes, the white Hybrid Perpetual Madame Soupert, and other interesting sorts. To Mr. Turner was awarded a Special Certificate for his collection, in which were the fine blooms of Gloire de Dijon just mentioned. The last named exhibitor also showed a well-bloomed plant of Lilium auratum. From Mr. Standish came two kinds of Gladiolus, to which First-class Certificates were awarded. One named Our Little Lucy was a light-striped magenta rose, feathered with crimson; the other, Miss Mowbray Morris, was striped salmon streaked with purple. The same exhibitor also received a First-class Certificate for a Japanese Skimmia, a fine evergreen shrub with stiff fleshy leaves and upright terminal clusters of little crimson oblate fruit, rendering it when in this condition a highly ornamental plant.

Sept. 27 (*Fruit Committee*).—Some Grapes allied to Chasselas Musqué were shown from the Society's Garden; Foster's Seedling, a kind larger than the Sweetwater, and Golden Hamburgh Grapes were furnished by Mr. Richardson, gr., Southend, near Darlington. Various Apples came from Mr. Toogood of Westergate, near Arundel; and we also noticed some very good Pears and late Peaches. From. Mr Murdock, of Hendlip Hall, near Worcester, came an excellent Scarlet-fleshed Melon, to which a First-class Certificate was awarded.

MARKET GARDENERS', NURSERYMEN'S, AND FARMERS' ASSOCIATION.—On the occasion of the 36th Anniversary dinner of this Society, which took place on Tuesday last, it was thought desirable that some information should be given as to the usefulness of such an Association to market gardeners generally, in order to induce those who are not members to become so, especially when the great numbers who are cultivators of the soil and partakers, directly or indirectly, without membership, of the benefits secured by the Society in the many important cases taken up by the Committee, are considered. The rent and tolls of Covent Garden Market may be referred to in illustration. When, in the year 1828, the Market Bill was passing through Parliament, it was so attentively watched, that clauses were introduced, by the exertion of some gardeners uniting for the benefit of all the trade, securing the rent and tolls at the present moderate charge. This Society was then formed, and held its first meeting on the 26th of March, 1828. The objects proposed were to obtain funds to assist unfortunate members, and to protect the general interests of market gardeners; and since that time the most convincing proofs of usefulness have been shown. Among the benefits which the trade generally have received may be mentioned the horticultural horse duty taken off through the Society representing its injustice; the Weights and Measures Bill; the Sewers Rate upon Land reduced three-fourths; the Tenant's-rights Bill; the charges for tonnage by railway transit on vegetables sent from the markets greatly reduced; and the additional gaslights to Covent Garden Market without any cost to the holders of stands in the market—a boon obtained by the Society. The covering over of the market with glass has been petitioned for, and is now only a question of time, as it has become a necessity. Moreover it is promised by the Bedford authorities that the question will be fully entertained next year, when some leases fall in of adjoining house property, and great alterations will be made in the market. The existence of such a Society, open to all who are engaged in horticultural and agricultural pursuits, should be generally known. One striking fact should be noticed, namely, that one of the market gardeners who first suggested the formation of this Society, has through misfortune in business been the first applicant, and the first recipient of relief from the funds. It is hoped that when the Society is more generally known to market gardeners and others, the number of members will be increased, and therewith the success and prosperity of the Association. *Wm. J. Lobjoit, Henry Myers. Wm. Thomas Atwood, Secretary, Mortlake.*

ENTOMOLOGICAL: *Sept.* 5.—F. P. Pascoe, Esq., F.L.S., President, in the Chair. Mr. Dunning exhibited a number of living specimens of the caterpillar of a species of Agrotis (A. segetum?) which had proved extremely destructive in Yorkshire, the person from whom he had received them having had at least 150*l.* worth of Turnips entirely destroyed by them. Prof. Westwood gave an account of the ravages of the same insects in his own garden in Oxfordshire, where they had attacked Turnips, Beetroots, Carrots, various kinds of Greens and Cabbages, Celery, and Seakale. Their numbers were quite formidable; as many as 29, many of them 1½ inch long, having been found at the root of a single Broccoli plant. Hand-picking and setting of traps had proved the only means of stopping their ravages. Mr. Janson exhibited four small species of Staphylinidæ new to the British list of beetles. The Rev. Hamlet Clark exhibited a specimen of Buprestis ocellata, a beautiful beetle taken on board ship from India, when about 50 miles from Madagascar, it having been probably bred in wood in the ship; several instances were, however, mentioned by Mr. Lowne in which insects had been taken as far as 150 miles from land off the coast of Africa, carried by the N.E. trade winds. Mr. Lowne exhibited various Coleoptera and Diurnal Lepidoptera which he had collected in the Holy Land. Mr. Tegetmeier called the attention of the Society to the numerous incorrect and ridiculous statements relative to the economy of the hive-bee, which had appeared in a series of letters recently published in the *Times*. Professor Westwood and the Rev. Hamlet Clark also regretted the diffusion of so much error in a leading journal, and the unfair treatment to which Mr. Woodbury had been subjected. A paper by Mr. Hewitson, containing descriptions of some new species of butterflies, was read. Professor Westwood read descriptions of a number of new species of Sagrides and Megalopides, natives of Africa, Asia, and Australia. Lieutenant Beavan communicated "A few Remarks on the Tusseh Silkworm of Bengal." The Rev. H. Clark read a paper containing descriptions of new species of plant beetles of the genus Schematoza, remarkable for their great resemblance to species of Lycidæ.

Notices of Books.

Advanced Text Book of Physical Geography. By David Page, F.R.S.E., F.G.S., Pp. 296. Blackwood & Sons, Edinburgh and London, 1864.

Mr. Page's text books of Geology are deservedly popular with the student, because they contain just the very information which he requires, arranged too in the clearest manner. This is to a certain extent the character of the work before us on "Physical Geography," a charming subject, which has been beautifully treated by Captain Maury. In the book before us, a man of any taste will be frequently shocked by the pedantic introduction of high sounding words, and then again by an equally pedantic explanation of terms which require no explanation at all, as for instance Solar system (Lat. *sol*, the sun), Equator (Lat. *æquus*, equal), Negro (Lat. *niger*, black). Some people seem to think the adoption of an easy style and the use of simple words must be derogatory to the dignity of a *pædagogus*. We are of a different opinion. We hold it to be high treason to the cause of education, when people thus make pleasing subjects "hideous." What can be more barbarous than the concluding sentence of the book before us. "To observe and arrange the phenomena of the terraqueous surface, to discover their producing causes, and to give intelligible expression to the law that regulates, is the great object of our science, and it only partially performs its function when, in dealing with the human species, it fails to be guided by the same methods of research. Directed by these methods, and applying them to the whole field of Nature, the ordainings of our planet, amid all their myriad ramifications, assume a unity and completeness which it is the great object of science to discover, and the highest effort of philosophy to establish." Can anybody tell us what are "the ordainings of our planet?"

We don't mean to say that Mr. Page's book is not full of information, nor that it is ill arranged. Quite the contrary. There are also several choice extracts from the best authors, such as Baron Humboldt, Sir John Herschel, Captain Maury, Dr. Hooker, and the lamented Captain Speke, and the student who desires further information is told where he may find it. There is also a glossary and an index, and the book might have been a very good one.

The second and third numbers of the *Geological Magazine*, the commencement of which was noted at p. 846, keep up the character of this new serial. Among the original matter in the numbers before us are articles on the Bridlington Crag, with a list of fossils; on the skeleton of the Archæopteryx; on Acrodus, a genus of fishes of the secondary rocks; on the copper-bearing rocks of Alderley Edge, Cheshire; on the Miocene beds of the West Indian Islands; on the relationship of certain West Indian and Maltese strata; and descriptions of some new fossils. There is besides a variety of miscellaneous geological information. In reply to Col. Greenwood, who expresses a wholesome scepticism, as he calls it, as to the phrase "rainless district" used by geographers, regarding such a thing as a rainless district an impossibility, Mr. D. T. Ansted, after admitting that the north of Africa and the whole of Asia Minor are subject to occasional rains, in a certain sense seasonal, though for the most part, and sometimes for more than a year at a time, without rain, at least periodical rain (thus indicating the sense in which districts so circumstanced are called "rainless"), adds "there are other tracts, especially that on the west side of the Andes, where rain is so excessively rare that the inhabitants would regard it almost as a miracle. I remember being told some years ago, by a resident at Alicante, on the east coast of Spain, that there had been no rain in that district for 20 years."

Since our last notice of *L'Illustration Horticole*, the following are the most important of the subjects which have received illustration in its pages:—*Jacaranda digitaliflora*, the J. gloxiniæflora of gardens, a Brazilian shrub, with compoundly pinnated leaves, and compound panicles of large handsome lilac Foxglove-like flowers; it is compared with J. semiserrata. *Schizostylis coccinea*, Messrs. Backhouse's showy Kaffrarian Irid. *Camellia Petazzi*, an imbricated cerise-rose, having some of the central petals banded with white. Mr. Fortune's beautifully *Variegated Japanese Saxifrage*, under the name of S. Fortunei tricolor. *Aucuba japonica*, the normal plant, represented as shown by Mr. Standish last spring, laden with its coral berries. *Iriartea ventricosa*, a curious Palm, with slender stems, gouty in the centre, stilted on its adventitious roots, and crowned with a head of pinnately-parted leaves, having the segments truncate and deeply toothed at the apex. *Aquilegia spectabilis*, a very handsome plant from the Amoor river, producing dark purple flowers, of which the large spreading sepals are slightly tipped with green, and the petals, which converge in a bell-shaped form, much more decidedly tipped with lively yellow, while the spurs are very remarkably incurved. *Camellia alba ornatissima*, an Italian variety of great beauty, the flowers being pure white, and represented as perfect in regard to symmetry of form. *Cycas Riuminiana*, a remarkably fine species of Cycas, found in the Philippine Islands by M. Porte, with a trunk of 6 or 8 feet high, and a dense crown of pinnatisected leaves, having thorny petioles, and very long and numerous linear-lanceolate leaflets, of which the lower are shortly stalked, and the upper sessile and decurrent on the posterior side; they are particularly handsome on account of their Fern-like character, and their lively shining green colour. *Lapageria rosea albiflora*, one of the finest of greenhouse climbers. *Hippeastrum procerum*, a Brazilian Amaryllid, called Impératrice du Brésil, by its introducer M. Binot; this produces an umbel of purplish-lilac flowers; according to the figure the bulb is so much narrowed and elongated as to become like a stem or caudex, from the top of which the leaves depend, and out of the centre of which the scape issues. It is a remarkably distinct-looking plant amongst Hippeasters. *Achyranthes* (?) *Verschaffeltii*, a red-leaved plant with purplish veins, which has been exhibited in London under the name of Iresine Herbstii, given to it by Sir W. Hooker; the leaves are roundish in outline, and often so deeply emarginate as to appear bilobed, and they have the margins so much incurved that they become cupped; the plant has been recommended for bedding purposes on account of its deep blood-red leaves; and being a native of Brazil it may possibly prove more hardy than some of those already employed. *Camellia Giardino Schmitz*, a pretty pale rosy blush flower, very delicate in tint, and of good form, but scarcely, if we may judge from the figure, attaining to the middle size. The Æchmea distichantha of the "Botanical Magazine" M. Lemaire names Æ. Hookeri, on the ground that it is not the original Æ. distichantha published by himself. There is a figure of a good-looking Pear called *Beurré Spae*, a new Belgian variety.

BOOKS RECEIVED.—*Parts XVIII. and XIX. of Dictionary of Chemistry.* By Henry Watts, B.A., F.C.S. In the first of these Parts the article on Iron is concluded, and our eye has been attracted to a few pages on the curious subject of Isomerism. "This term is derived from ἴσος equal, and μέρος part, and its employment by chemists is an expression of the fact that very different chemical compounds have sometimes identically the same ultimate composition. Two or more different bodies which are composed of the same elements, and of the same proportions of those elements (*i. e.* which have the same percentage composition) are said to be Isomeric. The following organic substances may be cited by way of illustrating the employment of this term. Butyric acid, acetic ether, aldehyde, oxide of ethyline, four bodies which are quite different, and have the same percentage composition of carbon, hydrogen, and oxygen, and are represented, the two former by the chemical formula $C^4 H^8 O^2$, the two latter by $C^2 H^4 O$." Of inorganic bodies the elementary substances themselves offer many examples of isomerism. Thus, oxygen appears to be capable of existing in two allotropic states; in one condition it is known as ordinary oxygen, in the other as ozone. Hence the dictum—"It is of consequence how the atoms of a compound are arranged as well as what kind of atoms." And hence there may be very many totally different substances composed of the same ultimate atoms. This is in fact the whole philosophy of isomerism. Part XIX. contains a long article on Lead and the different modes of dealing with its ores, from the

backwoodsman's simple process of kindling a fire in an old stump of a tree, where he places some galena on the charred wood, and melts it down; and when it cools, finds the metal at the bottom of the hollow—to the elaborate methods which are adopted in this and foreign countries. The imports of lead into the United Kingdom for 1862 amounted in value to 460,536*l.*, and the exports for the same year to 770,590*l.*, upwards of a quarter of a million pounds worth having gone to the United States. There can be no doubt that this Dictionary of Chemistry is an admirable work.

Garden Memoranda.

Dr. Falls', Bournemouth.—Bournemouth, it need scarcely be remarked, now ranks among the most fashionable of English watering places, and is justly valued for its delightful quiet and comparative retirement. Its situation is near the western extremity of the south coast of Hampshire, and about two miles from Dorsetshire. It nestles snugly in the bosom of extensive woods of Scotch Fir and Pinaster, and the various detached villa residences of which it consists, standing as they do among the trees at irregular distances apart and at different elevations, have a very pretty appearance, especially when viewed from a distance, half concealed by their perpetual mantle of living green. The cliff, too, which is rugged and time-worn into innumerable crevices, fissures, ravines, and "chines," is not without its attractions; it rises high above the sea, and is crowned to within a few yards of its edge with Fir woods, through which are innumerable walks and drives, cool and shady, even in the brightest and hottest weather. Rhododendrons, Laurels, and other evergreens, clothe the sides and basin of the bay through which flows the little rivulet called the Bourne, and form an ornamental shrubbery traversed by walks of a most pleasant character. In addition, too, to these favourite places of public resort, nearly every house has its private garden of greater or less extent.

Among the latter, one of the most charming is that of Dr. Falls, situated in what is called Richmond Terrace, and which may be readily recognised by the neat conservatory entrance or circular-topped glass-covered way which connects that gentleman's residence with the public road. This is neatly floored with different coloured tiles, and is tastefully ornamented at the sides with hanging baskets and flowering plants in pots on stages, which it is hoped will be eventually over-canopied with Fuchsias, and such luxuriant-growing climbers as will cover the roof. Around the residence is a well-kept lawn cut off from a little kitchen garden by a Laurustinus hedge, which grows luxuriantly and blooms every year most satisfactorily, as do also Rhododendrons, the soil being suitable for these and similar sandy peat-loving plants. One side of this pretty little garden is screened from public observation by an avenue of Pinaster, the stems of which in several instances are overrun with Ivy; on another side is a shrubbery planted on root-supported terraces, and decorated in front with Ferns and other interesting plants. Arbours, rustic flower vases ornamented with split Fir cones, and beds of Pelargoniums, Verbenas, and Mesembryanthemums, all form prominent features of this delightful semi-rural retreat.

The glory of the place is, however, a tree of the Emperor Alexander Apple, the fruit of which, in point of colour, is as superior to that of ordinary Apples of that kind as the brilliant Coleus Verschaffeltii, as it is called, is to its near relation the old Nettle Geranium. How so much colour came to be infused into the red streaked greenish-yellow skin of the Emperor Alexander, it is not easy to say; but as "one stroke does not fell an Oak," so a combination of circumstances has doubtless contributed to bring about so favourable a result. The summer here as elsewhere has been unusually dry and bright, and that, in conjunction with the salt air from the sea and an open south-west aspect, may reasonably be expected to have had much to do with the matter. Be that as it may, the tree, which stands on the open lawn, has borne a heavy crop, the fine appearance of which has elicited universal admiration. The beauty of the fruit alone is, however, not all; for in flavour Dr. Falls' Emperors are very superior to ordinary fruit of that kind. They are in short as good as they look, which is saying a great deal, for finer fruit of this variety than those now under notice have perhaps never before been seen. Larger we acknowledge have been imported from Nova Scotia and elsewhere; but none so brilliant in colour. Other Apples and Pears are also excellent, especially Louise Bonne of Jersey and Baron de Mello, both valuable dessert Pears. Strawberries are likewise stated to succeed uncommonly well here; they come in early and are highly flavoured. In this warm climate Cuthill's Black Prince is indeed a right regal sort, and other varieties are equally good.

In a sheltered corner of this well cared for little garden is a tree of Paulovnia imperialis in robust health, its ample pale green leaves forming a fine contrast with the more sombre hue of some of its associates. Judas trees blossom here in great profusion, and Fuchsias grow with a vigour unknown to them in less favoured localities.

Dr. Falls is a keen meteorologist, and from accurate sets of instruments placed in his garden are compiled weather tables, which are periodically sent to Greenwich. From these it appears that in 1863 the thermometer fell below freezing on only five nights in January, eight in February, seven in March, four in May, and again two nights in November and five in December, while during the day time in that year it was found always to be above the freezing point; and in 1862 frost occurred only on one day. Need it be wondered at therefore that half-hardy plants winter here safely in turf pits, covered with straw mats, over which is spread a tarpauling to throw off wet. The chief enemy to be guarded against is damp, from which Cinerarias especially are apt to suffer when closely confined. The mean annual fall of rain in the last three years has been nearly 26 inches, being about 2 inches more than the mean at Chiswick, and we may add that it "seldom rains but it pours." Owing to the extreme porosity of the soil, however, rain dries up directly it falls; any quantity is immediately absorbed, and no sooner has the most copious fall poured down from a thunder storm ceased, than the ground becomes almost as dry as ever.

Coarse Grasses, Heath and Furze, both the summer and autumn-blooming varieties, cover the country for miles round this immediate neighbourhood, and also along the greater part of the line of railway from Southampton to Christchurch. The horticulture of the place is therefore limited; we may mention, however, that under proper management most of the finer kinds of hardy fruits acquire great perfection here, especially Figs, beautiful specimens of which have ripened this season on a standard in the Priory Garden at Christchurch.

Miscellaneous.

Duchess of Buccleuch Grape.—In the course of a short visit to Edinburgh, in the middle of September, we paid a hurried visit to Dalkeith, desirous of seeing those magnificent gardens again, and especially to see the new Grape, the Duchess of Buccleuch, under Mr. Thomson's management. In June last we saw three bunches of this Grape at the York Show, and were disappointed with it. It looked like a good Sweetwater Grape, and although a Frontignan flavour was perceptible, it made no impression on those who saw it. The fact is, the Grapes were not ripe or in proper character. Feeling confident Mr. Thomson was about the last man in the world to gull the public by sending out a worthless or second-rate fruit, we went to Dalkeith, anxious to see what the "Duchess" was doing there, and although only a bunch or two was left, we saw enough to convince us that the Duchess of Buccleuch will take its place amongst our best Grapes, and be a decided acquisition. It must do so, because it is a hardy Grape, a free setter, very prolific, makes a handsome tapering bunch, and ripens into a pleasing amber colour, with a most delicious Frontignan flavour. The flavour, hardiness, and free cropping qualities will carry this Grape through. But the best test of what the Grape is doing, and of the estimation in which it is held at home is to be found in the good orders the Scotch nurserymen are giving Mr. Parker, who is to send it out—one of them, Mr. Methven, having ordered 50 plants. There is another fine seedling Grape there, not named we think, although Mr. Thomson calls it the Golden Lady Downes', a name which very justly describes it. We shall be mistaken if this new Grape does not turn out a good one, and as it will be sent out in due course, it will soon get known. Talking of Lady Downes', Mr. Thomson has this fine kind in glorious trim just now—most superb bunches and berries. We cannot attempt to describe this magnificent place. Everything is A 1; the houses, the plants, Vines, Pines, everything! In walking through the whole place you neither see a bad plant nor a thing out of its place. It is a drawing-room garden in neatness and beauty, and yet there is enough glass to astonish even those accustomed to large places, and the bedding-out is grand! Seventy-eight thousand plants were put out this year, and these exclusive of Cerastium tomentosum, of which there must be several thousands. It is one of the finest gardens in the world, and we question if there is one superior to it. We have not seen one equal. *Midland Florists' Guide.*

Relative Strength of Deodar and Cedar of Lebanon.—Sometime since Mr. Tillery, gardener to the Duke of Portland, sent to the Royal Horticultural Society a polished slab of timber, being a longitudinal section of a tree, the lower half of which is a Cedar and the upper a Deodar. A Deodar had been inarched upon a Cedar when young, and after growing until the tree had reached about a foot in diameter, it had been cut down, and Mr. Tillery had sent it to illustrate the junction of the two kinds of timber, which can, with a little pains, be distinctly traced. Little difference, however, can be seen in the wood itself. Under the microscope the spiral tubes of the Deodar seem a little more open and more frequent than in the Cedar, but the difference is slight. It occurred to me that this was a good opportunity for testing by actual experiment the strength of the two different kinds of timber, and indirectly of throwing some light upon the much-disputed question of the identity of the two trees; for, of course, if the strength of the timber is different under exactly the same conditions, it would be an argument against this identity. Adequate comparative trials of the strength of these trees, and of the Atlantic Cedar, have never previously been made, for unles s made on trees of the same age, and which have grown under exactly the same conditions, the conclusions to be drawn from them are of no value. We know that the timber of a tree varies to a great extent according to its age, soil, exposure, and a multitude of other circumstances, as is well exemplified in the difference between old native Scotch Firs grown in Scotland or Norway, and young plants grown in plantations in England. In the present sample we have an identity of condition which can very rarely be secured—age, soil, exposure, climate, treatment, drainage, everything is the same down to the very roots. I caused a piece of wood one foot in length and one inch square to be cut from each end of Mr. Tillery's slab. Each piece was free from knots, and as similar to the other as possible. They were then each placed between supports 11 inches distant, and weights were suspended from the centre, the suspender bearing on the specimens being about a quarter of an inch broad, and placed exactly in the centre. The breakage was as follows:—the Cedar of Lebanon broke under a weight of 378 lbs.; the Deodar under a weight of 448 lbs., or about one-sixth more than the Cedar. But the deflection and mode of fracture were even more instructive. The Cedar showed scarcely any deflection at all; when weighed with 224 lbs. it deflected only 3-16ths of an inch; with 336 lbs. it deflected only 3-8ths of an inch, and at 378 lbs. it broke in two, with a short and sudden fracture like that of a carrot, and the slight deflection already indicated went back. The Deodar, on the other hand, did not begin to deflect until a weight had been put on it which broke the Cedar; but at 364 lbs. it deflected a whole inch; at 420 lbs. an inch and a half; and at 448 lbs. an inch and three quarters—nearly 2 inches. It then broke in three, with a sudden fracture and loud report, short on the under side, and half through it split in half from the centre to one end, the top side remained tough, and broke at about 2 inches from the centre, which remained permanently deflected. The inference to be drawn from this experiment, so far as comparison with the Cedar is concerned, is very favourable to the Deodar. It has considerably greater preliminary toughness, although when it does give way it shows a good deal of the same brittle qualities—wholly wanting the tough commixture of fibres which in some trees are so intimately blended that they will scarcely break, but are drawn and torn out, and will bend or twist in every way rather than break. Comparative trials with the Oak would indicate that it is five times as strong as the Deodar; but as the trials from which that result can be drawn can give no information as to the conditions of growth of the different trees, they are defective in one of the chief excellencies of this interesting experiment. *A. Murray, in Proceedings of Royal Horticultural Society.*

A Shower of Toads.—The local papers state that on Friday week, after a heavy shower of rain, the ground in and near Eton College swarmed with myriads of small toads, the main road, the Long Walk, and other places being literally alive with them. Many of the creatures had bodies an inch long, and with legs distended were in length 2 inches, although most of them were smaller. As they had not been observed before the down-pour, the general belief was that they had descended with the rain. Mr. Charles Knight's "Museum of Animated Nature," which combats the idea of a shower of these reptiles, says that it is generally in August, and after a season of drought, that these hordes of toads have made their appearance, and just such a time we have lately experienced. On the contrary, sailors have said that they have actually seen quantities of small frogs and toads on the deck of a vessel after a heavy shower, and if this statement could be trusted there might be reason to believe that the thousands of Ranidæ, seen at Eton College were really precipitated from the clouds with the heavy rain that had fallen in the early morning.

Origin of Animalcules.—In a paper addressed to the Academy of Sciences, M. Lemaire, one of the most determined opponents of M. Pouchet's theory of spontaneous generation, examines the question of the origin of all the microphytes and microzoaria which, he says, people the air at all altitudes—an assertion, by the way, in which he is not borne out by his leader, M. Pasteur, whose experiments tend to show that in the higher regions of the atmosphere there are no spores, germs, or animalcules of any sort. However that may be, M. Lemaire endeavours to prove that microphytes and microzoaria are carried up in the air by the gases generated by the fermentation caused by those minute organisms, and that a constant exchange of them takes place between the fermenting substances and the atmosphere. With this view M. Lemaire employs a bottle with two 'tubulatures,' connected by means of a tube with a retort containing a solution of pure glucose (the sweet principle of fruit, honey, &c.) in distilled water; the bottle, containing matter in a state of fermentation, emits gas which must pass through the glucose before it escapes into the atmosphere, and leave all the microphytes and microzoaria with which it may be charged behind in the solution. The first series of experiments was made with yeast; a quantity of cells of the Cryptococcus Cerevisiæ (a microphyte) and various semi-transparent ellipsoidal and cylindrical bodies were thus carried into the glucose. The smallest quantity of these was obtained in an experiment in which atmospheric air was excluded; the largest in

another in which a current of air was admitted by means of the gasometer. In the latter the quantity was so great as to give a milky appearance to the glucose. Twenty-four hours after the experiment the microscope showed that many of the cells were budding, but their development went no farther, the glucose not being a proper nutriment for those small plants. In another series of experiments a maceration of meat was used. This did not produce microphytes but microzcaria, which remained in the solution. These experiments, therefore, lead to the conclusion that the gases of fermentation do carry away animalcules and microphytes. M. Lemaire concludes by observing that when it is considered that a single drop (globule?) of steam emitted from putrified matter contains myriads of these small beings, and that fermentation exists everywhere, there is no reason for invoking their spontaneous generation in order to explain their prodigious number. *Daily Paper.*

The Ailantus Silkworm.—Mr. Lowe, by permission of the Council, presented us with about 50 caterpillars of the Bombyx Cynthia, a variety of silkworm introduced into Piedmont from China in the year 1856—a much more hardy creature than that which feeds exclusively on the leaf of the Mulberry. The rearing of this newly-introduced variety has already been attended with great commercial success in France; and, at her residence in Hampshire, Lady Dorothy Nevill has also succeeded in propagating it. Its cultivation promises to be a great source of wealth to any country in which it becomes acclimatized; and there can be little doubt of its thriving well in Guernsey, where the Ailantus glandulosa [(the tree which affords its natural nutriment) is perfectly naturalised, and capable of being easily propagated to any extent. It happened, fortunately, on Mr. Lowe's arrival, that several young plants perfectly adapted to the purpose required were found growing almost spontaneously in Mr. Willis's Nursery grounds. On these, surrounded by light netting to prevent the depredations of birds and insects, the worms were deposited on the 13th of August last. The largest and most vigorous (about 15 in number) attached themselves readily to the under surfaces of the leaves. They retained that position in spite of thunder, lightning, rain, and wind; eagerly consuming the food within their reach, which necessitated their removal to fresh plants—a process easily accomplished. As early as the 24th of August some of them had attained their fourth stage of growth, indicated by their measuring nearly an inch in length, and becoming gradually greener, with tubercles of the same colour on their bodies. Stormy weather, with heavy rain, succeeded; nevertheless, on the 17th of September one of the worms began to spin, others followed, and early in October 10 cocoons were collected. Up to a certain point, therefore, the first experiment in rearing the Bombyx Cynthia, thanks to the care and attention of Mr. Willis, has succeeded so as to afford a rational hope that it may be carried a step further in the course of the ensuing spring. The amount of practical experience already gained light though it be, affords proof that the propagation, of the Ailantus silkworm is not liable to the various causes of failure which attended attempts at rearing the Mulberry variety in this island. We have ascertained beyond doubt that the former is vigorous and tolerant of stormy weather; that it does not require to be fed; that it feeds itself on the plants which it prefers to all others, and that it requires very little attention, after being placed on the Ailantus, beyond that of protection, by means of netting. This precaution, however, we are told, is only required when the scale of cultivation is limited. Thus, according to the great experience of Messrs. Hebart and Lamotte-Barracé, "If, in a large plantation, wasps, ants, or birds do carry off some of the worms, the quantity is not missed; the same reasoning applies to this as to fields where cereals are grown, and in which the ravages of birds and insects are insignificant in comparison with the quantity of the crop." The quality of this new textile fabric has been examined by persons capable of judging as to its commercial merits. They have pronounced that "the strength of the silk is immense," and to this they attribute "the great durability of the Indian foulards, which are composed exclusively of this silk." L'Abbé Incarville states that "it lasts double the time of the Mulberry silk, does not spot so easily, and washes like linen. Monsieur de Jongh finds that "the gloss of the Ailantus silk far surpasses any of the other known kinds of Bourre de Soie." The weavers of Alsace report that "the cocoons are very easy to card and spin, that they are easily cleaned, and take a good dye. This culture, made on a large scale, will furnish in abundance a stronger and finer floss than the Mulberry silkworm, and will prove of immense utility in France and England. As to the supply of food in this island, there can be no difficulty. The plants destined for the reception of the worms should be planted about a yard apart, in order that their branches should approximate, so as to enable the worms to go from one plant to the other. The chief stem should be cut down every year, so that young shoots should spring up and produce tender leaves, which are essential, as the worms cannot easily devour old leaves produced by large trees, and without a constant supply of tender leaves most of them perish. *Report of Guernsey Branch of Acclimatization Society.*

Calendar of Operations.

(For the ensuing week.)

OWING to the fine weather with which we are now favoured, bedding plants are still in considerable beauty; Roses especially in many places are in fine bloom, the late rains have had a beneficial effect upon them, and Dahlias are also very satisfactory. Endeavour therefore to keep all neat and clean, in order that not only flowers but the garden generally may appear attractive for as lengthened a period as possible.

FLOWER GARDEN AND PLANT HOUSES.

Now is a good time for executing out-door alterations, and where these are in hand they should be prosecuted with the greatest possible despatch. Planting, or the removal of large evergreens, cannot be finished too soon; for it is of the utmost importance that the plants should be afforded some chance of making fresh roots before bad weather sets in. See to even small plants being secured against wind; for these are often greatly injured by being blown about after planting, which a small stake and a few minutes' work would prevent.

BEDDING PLANTS.—Cuttings of these should be carefully looked over to see that nothing has been omitted, and that a sufficient quantity of everything is in a promising state for making nice plants before winter; it should be borne in mind that things which are at all difficult to winter rooted after this season may be considerably thinned before spring, and also that they will not be sufficiently strong to furnish many cuttings for spring propagation; consequently a larger quantity than would have been necessary had the cuttings been put in earlier should be provided. But if there is a reserve stock of strong plants in pots, which is a safe practice where there is a large quantity of bedding things required, and proper convenience for growing them and propagating them in spring, these will furnish a large quantity of cuttings next March, which, as has been formerly stated, will form equally good plants by turning-out time as cuttings put in now. In the case of such things as Ageratums, Heliotropes, and dwarf Lobelias, it is useless wintering young stock, as these grow so freely in heat, and are so easily propagated from soft cuttings that a few good-sized old plants which require but little room or attention in winter will furnish a very large quantity of plants by bedding-out time. Attend to the potting of cuttings sufficiently rooted, and give every after attention to these in order to get them well established.

CARNATIONS AND PICOTEES.—If the stock of these is not already procured, defer increasing it till next spring. Late potted plants require much more care, and are more apt to get spotted and injured than those which are better established.

DAHLIAS.—These must now be carefully attended to. Having been much checked by drought during the summer, should the weather continue propitious, we may yet have a prolonged bloom. Draw a little earth round the crown of the roots, which will prevent damage by sudden frosts.

PANSIES.—These may bestruck from cuttings, choosing side shoots for the purpose; they will make good plants, either to send off, or to plant for next spring's blooming. Plant out seedlings, that they may get well established.

FORCING GARDEN.

MUSHROOMS.—Beds made early last month will now be bearing; it is a good plan to sprinkle or syringe the surface of the bed a week or so before the Mushrooms make their appearance; more especially in Mushroom houses where a fire may have been used occasionally; this is far better than watering after the Mushrooms are through. The water, however, must not be allowed to penetrate the manure—merely to soften the soil.

PINES.—Plants in bloom will require very careful management to prevent their being injured by damp, and the atmosphere must be kept dry, with a rather brisk temperature, admitting a little fresh air on every favourable opportunity; and if there is, as there should be, a proper ventilating apparatus, or the means of admitting air over the pipes, so that it may get warmed before coming in contact with the plants, a little should be admitted constantly. Plants in bloom should also be near the glass, and where they will catch every ray of sunshine. It is nearly impossible to get fruit to swell anything like properly at this season, therefore unless a succession of ripe fruit is indispensable, and cannot be secured except by driving plants that bloomed late, these had better be kept rather quiet until spring. Where an attempt must be made at present to get fruit to swell, a moist warm temperature of about 70° at night and 75° by day must be maintained, allowing it to rise to 80° with the assistance of sunshine, and the bottom-heat must be kept regular at about 85°, taking care to keep the soil in a healthy state as to moisture.

VINES.—As soon as the early house is closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of the syringe or evaporating pans.

HARDY FRUIT AND KITCHEN GARDEN.

If any transplanting or root pruning of fruit trees has to be done, let this be attended to as soon as the leaves are off, and see that those exposed to wind are securely staked before leaving them. Also get the ground prepared for fresh plantations.

CAULIFLOWERS.—Give plants of these under glass as much air as possible; indeed the sashes should only be used to throw off wet; the plants will do all the better for being kept hardy.

CELERY.—Let all earthing up required by this crop be done on a dry day.

LETTUCES.—Let any under glass be kept as open as circumstances will admit.

POTATOS.—At this time of the year it becomes an important consideration how to preserve Potatos for another season, especially those for seed. To this end three principles would seem to be of paramount importance, viz., low temperature, dryness, and a freedom from fermentation; the latter being perhaps of greater import than all other considerations together. Where fruit-room shelves are likely to remain unoccupied by fruit, they might be given up to the prime seed Potatos for garden planting. The latter may be placed several layers thick, provided some tolerably dry material is sprinkled in alternate layers between them. No two Potatos should be in contact, if possible.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Sept. 28, 1864, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 22	☾	29.785	29.740	69	44	56.5	60	59½	S.W.	.00
Friday 23	22	30.041	29.958	68	50	59.0	60	59½	S.W.	.06
Satur. 24	23	30.224	30.051	70	36	53.0	60	60	N.W.	.01
Sunday 25	24	30.308	30.283	70	40	55.0	60	59½	S.W.	.00
Mon. 26	25	30.332	30.229	72	38	55 0	60	59½	S.W.	.00
Tues. 27	26	30.263	30.217	68	32	50.0	59	59½	E.	.00
Wed. 28	27	30.239	30.162	70	33	51.5	58½	59	N.E.	.00
Average.		30.170	30 091	69.5	39.0	54.3	59.6	59.5		.07

Sept. 22—Clear; very fine; overcast.
— 23—Very fine; partially overcast; fine; mild at night; rain.
— 24—Drizzly; very fine throughout.
— 25—Foggy; very fine; heavy dew.
— 26—Foggy; hazy; fine at night.
— 27—Very foggy; very fine; at freezing at night.
— 28—Slight fog; fine; dry haze; cold at night.
Mean temperature of the week 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Oct. 8, 1864.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 2	64.5	44.2	54.3	19	0.48 in.	2	3	1	—	9	12	7	4
Mon. 3	63.8	44.6	54.2	18	1.01	2	3	1	1	11	12	5	3
Tues. 4	64.7	43.4	53.8	19	1.06	—	6	—	3	7	17	3	2
Wed. 5	63.2	41.1	52.2	19	0.82	4	4	2	1	6	13	7	1
Thurs. 6	62.0	44.0	53.0	21	0.78	1	4	6	3	5	11	6	2
Friday 7	62.6	44.6	53.6	19	0.58	2	6	4	2	4	14	5	1
Satur. 8	61.5	42.3	51.9	20	0.63	1	6	4	4	6	7	9	1

The highest temperature during the above period occurred on the 4th, 1859—therm. 80 deg.; and the lowest on the 2d, 1853—therm. 17 deg.

Notices to Correspondents.

BOOKS; *R. G. Nash.* You may perhaps find what you want in Kemp's How to Lay Out a Garden, which is a most trustworthy guide, but we are unable to recommend you a modern work treating of mazes. You will find a plan of a very good one in our Volume for 1849, p. 85.—*J G.* Bentham's Handbook of the British Flora, illustrated edition.—*H H B.* There is no very recent general garden Catalogue. Don's is the latest.—*S S S.* The Ladies' Assistant in the formation of their Flower Gardens, by Joshua Major, Knowsthorpe, Leeds; or Designs from Flower Beds and Gardens, by J. Marshall, Derby Road, Nottingham, both of which you will find advertised in our columns, will probably suit your purpose.—*Rainscombe.* Brown's Forester will give you the information required.

DISEASED LEAVES: *E K.* As far as we can judge from the appearance of your Primula leaves, it is probable that they have been attacked by Thrips. We ascertained last autumn that the spots in different species of Gloxinia and Achimenes which were so prevalent, were due to this cause, and those on your Primula leaves have exactly the same appearance. *M J B.*

LAUREL LEAVES: *A M.* The proper Laurel leaves to use for flavouring purposes are those of the true Laurel or Bay tree. Those of the Cherry Laurel, or as it is often called, the Common Laurel, as containing prussic acid, cannot be employed without hazard.

MOUNTAIN MEAL: *D T.* What is called mountain meal, consists of Diatomaceous remains, occurring in the shape of a white powder, and forming vast beds. It is stated to be mixed with flour in some parts of Sweden.

NAMES OF FRUITS: *A W.* 1, Gloria Mundi; 2, Keswick Codlin. Pear marked J. P., Bezi de Montigny.—*E. Franklin.* 2, Nonsuch; 3, Gloria Mundi; 4, Stone Pippin (Norfolk). — *B. Maller.* 1, Hacon's Incomparable; 3, Paradise d'Automne.‖

NAMES OF PLANTS: *B A.* 1, Nephrolepis tuberosa; 2, Pteris cretica.—*L T Davis.* 3, apparently Ostrya virginica.—*J B B.* Plants bundled up like a wisp of hay, are not fit specimens to examine. As far as we can make out after extricating some of the fragments, yours are—1, Atriplex hortensis; ., Festuca Myurus; 3, useless; 4, Polystichum aculeatum. We do not name more than four at one time.—*T S.* All forms of Lastrea Filix-mas: 1, var. deorso-lobata; 2, var. palescea; 3, var. cristata.—*E Franklin.* Celtis occidentalis.—*B C D.* The seeds are those of Abrus precatorius.

POTATO: *Anon.* Next week.

PYRACANTHA BERRIES: *F A P.* We are not aware that the berries of the Cratægus Pyracantha, or the Cotoneaster, are harmful, but they are not pleasant to eat; and this, perhaps, is the reason your children, who put them into their mouths, did not swallow them. Those of the Pyracantha are bitter.

UNDERWOOD FOR LARCH PLANTATION: *H S M*, who is about to thin a small Larch plantation, wants to grow some thick underwood in the place of the Larches removed, principally as cover for rabbits. The soil is gravel and sand. Can any correspondent who has had experience in the matter advise him?

MISC.: *S. M. E.* is requested to send to the Office for a number of letters received in answer to his Advert sement.

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MANGEL MANURE, &c. &c.
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This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers.
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DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.
A 9*d.* packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

GIRDWOOD'S MELOSSOON or SHEEP PROTECTING DIP.—This preparation, poisonous alone to Parasites, forms an artificial yolk of great value for the sheep and wool. It is the Best, Cheapest, and Safest of all Dipping Compounds.
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LEISTON WORKS, SUFFOLK.
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GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been favoured with the receipt of the following
Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
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An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
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Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

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Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
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MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
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ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
Deputy-Chairman—WILLIAM PORTER, Esq., Hembury Fort, Honiton.
TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
THE RIGHT HON. LORD RIVERS, *Chairman.*
J. BAILEY DENTON, Esq., *Principal Engineer.*
Offices: 52, Parliament Street, S.W.
Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, and it may be so adjusted that principal, interest, and all expenses will be included in an annual charge of 6*l.* per cent.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 52, Parliament Street, S.W.

AGRICULTURAL PUPIL.—Mr. HENRY EVERSHED has a VACANCY for a Pupil.
Park Hall, Gosfield, Halsted, Essex.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.
President—His Grace The DUKE of BEAUFORT.
Vice-President—The MAYOR of BIRMINGHAM.
The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1.
Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1863, may be obtained from the Secretary. The ENTRIES CLOSE on NOVEMBER 1.
GEORGE BEECH, Secretary.
Offices: Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE	.. £794 10	BREEDING PIGS	.. £76 10
FAT SHEEP..	.. 299 5	CORN and ROOTS	.. 71 8
FAT PIGS ..	.. 60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate form by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	„ B.	For a Cow or Heifer (in any Class).
	„ C.	For a Beast in Extra Stock.
SHEEP.	„ D.	For a Pen of three Wethers (in any Class).
	„ E.	For a single sheep in Extra Stock.
PIGS.	„ F.	For a Pen of three Pigs (in any Class).
	„ G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

SMITHFIELD CLUB SHOW.
IMPLEMENT DEPARTMENT.
The LAST DAY for receiving ENTRIES for IMPLEMENTS and MACHINERY is October 1.
Printed forms of Certificates, with rules and regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half Moon Street, Piccadilly, W.

The Agricultural Gazette.

SATURDAY, OCTOBER 1, 1864.

ECONOMY in preparing food for stock is one of the great questions that a season like the present renders all important. There are many farms where it is proposed to winter feed entirely on dry matter—straw of different kinds, prepared by cutting, and steaming and mixing with artificial materials. In other cases a very moderate supply of roots will be used as seasoning to a large quantity of straw. The chaff cutter and the pulper, the corn mill and the cake bruiser, are the means by which this division and mixture are to be effected. Any saving in the cost of working these invaluable machines will be most important, and we believe that in many instances the substitution of wind for water and coal, or to speak more correctly, the use of wind as an accessory to steam, will be found both practicable and valuable. There are many situations—we would especially instance the down country of England—where more or less wind is almost constantly felt; breezes, often coming directly from the sea, blow over such districts, bearing moisture to the grateful earth, and playing an important part in the economy of Nature. Why should we allow the wind to sweep by us without contributing to our welfare—why not arrest its course if but for a moment, and appropriate the mighty power, to economise our fuel, which is often a very heavy item in these particular districts. But we should be unjust to the wind engine if we confined its utility to the down country. Wherever the buildings are on open table land, so that wind reaches them from all quarters, then this power may be economically used; we may go further and state that as an occasional substitute for steam there is no situation so sheltered but that a wind engine might work. We lately inspected the wind engine made by BURY & POLLARD of Southwark, on Mr. WORTLEY'S farm at Ridlington, Rutland, where it has been erected upwards of four years, and where it has worked with great success. The farm for which it is the manufacturing power is about 500 acres in extent, 300 of which are arable. Threshing is, we think, very wisely not attempted. Messrs. BURY & POLLARD have some testimonials on this head; but we cannot believe that a power liable to such

fluctuations as wind, would answer for an operation that requires a very steady motion. No, the use of the wind-engine is for pumping and preparing food. The engine part varies according to the horse power; for farm purposes nothing less than a 4-horse, which costs 130*l.*, is advisable —we should prefer the 6-horse, costing 180*l.* It can be erected above any ordinary barn, or root and chaff house, and the only space consumed is the area occupied by the framework carrying the engine, which generally consists of three strong uprights fixed firmly in the ground and braced together. Motion is first conveyed to a vertical shaft, and passes on by means of cog-wheels to the ordinary barn shaft, and from this the different machines are driven by straps. It is of course desirable to have the power as nearly as possible in the centre of the shafting. The whole arrangements are so simple, that there is no difficulty and little expense in erection. The cost of the engine is very similar to a fixed engine and boiler of the same power. The economy is in the work and in saving of coal and labour. A strong lad was managing everything at Ridlington, and two men can cut chaff at the rate of 5 or 6 tons a day with an ordinary breeze. On very large farms, where steam would be required every day to provide a supply of food, the wind-engine could not be solely depended upon, but the shafting may be driven by a strap from a portable engine, which for threshing or steam cultivation is likely to be wanted. With good management, however, steam will not be required very often. Such operations as grinding corn can go on at night, and on one farm we were informed that they constantly went on work until the man went to bed—a good supply of corn being placed in the hopper, and the mill left for hours. Simplicity is a most important feature in all farm machinery, and we certainly have it in Bury & Pollard's wind engine.

That at Ridlington was nominally 4-horse power, working up to 8 in strong wind. The engine consists of eight sails, 14 feet long, capable of self-adjustment to a certain extent, so that in the event of a hurricane the surface exposed to wind is reduced. Of course this acts only to a limited extent, and irregularities of speed are unavoidable. The sails are adjusted by a lever, which instantly alters their angle; when required to stop the sails are placed edge to wind, and come to a standstill almost immediately. The sails are placed at varying angles, according to the force of wind and the work to be accomplished.

On Mr. Wortley's farm about 700 sheep and 50 head of horned stock are wintered. Not an acre of hay is mown, and everything is cut up and pulped. The wind engine has enabled him to do away with the haystack, and he is so well satisfied with the result in a pecuniary point of view, that he would not be without it on any account. We saw at work a capital chaff-cutter by Hayward of Derby, capable of cutting three lengths, and very simple in construction, noticeable for the absence of cogwheels and the use of straps, by a slight alteration of which the speed of flywheel is adjusted.

Mr. Wortley has one of the American grist mills, manufactured by Richard Watts, and which received a silver medal at Newcastle. It works admirably, the lad regulating the set of the mill so as to grind flour or merely kibble corn by turning a screw, which lowers or raises the concave box in which the cone revolves. If this machine stands its work it is certainly the best metal mill yet invented. With a very moderate breeze there was power enough to make good work. The feed is capable of alteration, and this is regulated by the attendant according to the power of wind.

Bentall's cake crusher and pulper are used and much liked—indeed the former implement is the best we have seen, as all sizes can be produced. All these machines, save the last, are on a raised floor, beneath which are compartments for the prepared material. At one end of the building, and adjoining it, at right angles, is a straw store, which proves very useful.

Our object at Ridlington was to inspect a wind engine in ordinary work. We have endeavoured to give our honest opinion as resulting from our visit. In conclusion perhaps we may be allowed to say a few words as to the farm, the stock, and the general management, for all are instructive. The farm is partly a good loam—very new soil—and partly strong nasty clay, which, if it could be made to grow Grass, would be better laid down, but unfortunately it is too poor to grow Grass, and so it is principally under the plough, and consumes a great deal of labour. The Grass is principally on the loam, and is good store land. We saw 6 acres of Mangels and 25 acres of Swedes; the best we have seen this season. The cultivation for the former consisted in shaving the stubbles, throwing up the land into high ridges, subsoiling the intervals during winter, in spring the ridges are harrowed down, land manured and ploughed, and the seed planted with 6 cwt. of Mangel manure. Mr. Wortley has abandoned the plan of drilling manure under the seed; he likes to have both the farm-yard manure and the artificial thoroughly incorporated through the soil, believing that in this way the roots are encouraged to spread more rapidly and completely through the soil, and thus obtain more moisture and food. This is rather an important point for consideration now that land is so thoroughly pulverised. The stubbles are all moved as soon after harvest as is practicable, either with Woolfe's parer or Hill & Smith's cultivator; and this year a peck of mustard was thrown on, and promises to make some useful keep in November. The Swedes are on comparatively light loam. Mr. Wortley attributes his success to keeping the land firm; every day the roller was put on the ground ploughed, and after drilling the land was again heavily rolled; the moisture in the soil was thus secured, and any shower that fell held up by the soil and prevented from rapidly passing away. They were sown the middle of June, 15 loads of muck and 6 cwt. of dissolved bones being applied; there was very little mildew, and the crops looked most growing. The rotation principally adopted is a seven years course, consisting of one root, four corn, and two years Swedes.

1. Roots manured with farm-yard and artificial dung—then two corn crops.

2. Spring Wheat, as Barley is not successful, followed by autumn Wheat, in which seeds are sown.

4 and 5. Seeds—White Clover Alsike and Italian Rye-grass, kept down two years and entirely fed—are broken up in the spring for Oats generally, sometimes Beans or Peas are substituted. Oats are followed by Wheat. There are many advantages in this system, and with land in high condition and naturally rather strong, it will answer well.

Mr. Wortley has a growing herd of useful Short-horns, originally derived a good deal from the blood of Mr. Baker, of Cottesmore, and lately crossed with bulls from Lady Pigott.

[It is to be understood that the wind engine is here recommended only for those operations of chaff-cutting, grinding for farm consumption, &c., in which case a sufficiency of work can be accomplished at once to last for several weeks if necessary. No power can be called economical which is liable to fail us when most wanted; and the wind-power, which has long since been abandoned for that of steam in the Lothians, is not recommended except when it can be used for the manufacture of a store of finished work in advance.]

A large portion of our Paper is this week occupied with reports of the past harvest, and with speculations as to the coming winter. In the multitude of counsellors there is wisdom, and our readers will therefore not object to the advice of our many correspondents, notwithstanding that it is somewhat monotonous. The unanimity of their recommendations proves them to be all the more trustworthy. The abundance of excellent straw for provender, and the power of making it palatable, and of adding to its feeding power by the addition of meal, Linseed, Carob pods, salt, and even sugar—this is what every one declares to be our great resource in the difficulty of an almost lost crop of Turnips and of a half crop of hay. The last named addition, which Mr. Burniston and Mr. Bowly have both suggested, is, perhaps, the most fattening of any. Mr. Banting tells us that "5 ounces of loaf sugar spread over seven days consumption will increase his weight above 1 lb. at the end of that week." This he has proved on many occasions, and he infers from it that sugar and saccharine matters are the main means of undue corpulence. If this be so, then, provided prices will allow of it, we cannot do better than attempt to render straw fodder palatable by sweetening it. What guide we have in the existing prices of meals and condiments must be the subject of future discussion, meanwhile we add here the following letter on the subject from the tenant of one of our largest City mills:—

"As to the cheapest and best meals and other produce of the same class available for cattle food, I would suggest that as we have had a very good harvest time, the straw will of course be quite sweet, and if cut into chaff and mixed with bran or pollard, it will, I think, do well for store cattle. For feeding purposes I think Indian Corn and Barley-meal will be as cheap and good as any article the farmer can command. Maize is now selling at 26*s.* per qr., or about 6*l.* per ton; we have large arrivals, and a great number of cargoes are known to be either loading or afloat. We may expect in all about 330,000 qrs., so that prices are not likely to go higher. The meal would require to be mixed with a large proportion of sharps or pollard, when it would make good feeding. Barley both in England and France is this year I believe very irregular in quality, and a large portion is unfit for malting, consequently it will be forced on the market for grinding purposes. It can now be bought at a price to make meal at 6*l.* 10*s.* per ton. I may also state that I think meal made from inferior Wheat could be used with advantage; it would mix well with Indian-meal, and tend to make it mellow; it would also make flesh fast. The average price, as you know, is only 40*s.* per qr., or not quite 9*l.* per ton; using Wheat for this purpose might also have a tendency to advance the price—if so, it would benefit the farmer in two ways."

Our readers are aware that agricultural education has been the subject of Government encouragement and superintendence in Ireland for some years past, and attention has been just directed to this by the announcement that Dr. Kirkpatrick, who has been the head inspector of the National Agricultural schools and farms in that country for the last 16 years, has been obliged, by failure of health, to retire from the inspectorship.

The system of agricultural instruction which the Commissioners of National Education have engrafted upon the ordinary branches of school education, was for some time confined to the central establishment at Glasnevin, in the neighbourhood of Dublin, and a few other National schools throughout the country, but the famine of 1846-47 induced the Board of National Education to extend the system of combined literary and agricultural instruction, and thus bring within the reach of a large mass of the small tenant farmers and labouring poor in Ireland, a knowledge of improved husbandry and general farm management. The Commissioners, in their Annual Report for the year 1837, remarked that, "considering the very backward state of agriculture in Ireland, and that it forms the only source of employment for a vast portion of the labouring poor, we think it particularly desirable that a better knowledge of it should be promoted, and that the schools under us should tend, as far as practicable, to bring forward an intelligent class of farmers and labourers." The extension of the system to which we have alluded was called for by the public, and strongly recommended by the "Devon Commission." In 1849 the Glasnevin Model Farm and Agricultural Training Institution, which, since the visit with which they were honoured by his Royal Highness the late Prince Consort in 1853, have been called the Albert Agricultural Institution and Model Farm, were enlarged. The Model Farm and Gardens now contain 180 statute acres, and the buildings for accommodating resident pupils, officers, and farm offices, are of considerable extent. The National Schools, having Agricultural departments annexed to them, were also extended by grants from the Board towards building purposes, salaries of teachers, and boarding, &c. of resident pupils. A number of the largest sized schools and farms are under the entire management of the Board, the farms being cultivated and managed on their account. Of this class the following are the principal:—

Munster Agricultural School and Farm, near Cork.			
Ulster	ditto	ditto	Belfast.
Limerick	ditto	ditto	Limerick.
Kilkenny	ditto	ditto	Kilkenny.
Athy	ditto	ditto	Athy, co. Kildare.

In several other cases the farms are let to, and cultivated on their own account by the agriculturists. There is a numerous and increasing class of minor establishments, which have but a very limited area of land annexed to ordinary national schools, and in those cases the literary and agricultural departments are conducted by the literary teacher, who receives from the Board 5*l.* yearly, in addition to his class literary salary, for giving a daily lesson in agriculture to a class of the advanced boys; the theoretical or in-door instruction being exemplified by systematic cropping, &c., on the plot of ground connected with the national school.

In the organising and working of this system of Agricultural Education, Dr. Kirkpatrick has had laborious and responsible duties to discharge, and we sincerely regret to learn that his health has been so impaired as to necessitate his retiring from

a situation which he has filled for the last 16 years with credit to himself and benefit to the public.

SHORT-HORN CORRESPONDENCE.

(*Continued from* p. 923.)

[Among the letters and papers left by Mr. Cottrell, of Congresbury, and kindly placed at our disposal by Mr. Bowly, of Siddington, are copies of a voluminous correspondence, much of which appeared in the columns of Agricultural Journals upwards of 40 years ago. We make the following extracts:—]

3. *Major Rudd on the Advantages of Crossing.*

"Marton Lodge, June 28, 1821.

"I am in possession of evidence which establishes the fact that the dam of Hubback owed her propensity to fatten to an admixture of Kyloe blood; and perhaps this letter will for the first time communicate publicly that the sire of Hubback had an admixture of Alderney or Norman blood. Hubback, therefore, who was the main root of the improved Short-horns, united three crosses, viz., the Dutch or old Short-horned breed, the Kyloe, and the Norman or Alderney.

"The sire of Hubback was descended from the stock of Sir James Pennyman, who obtained the breed from Sir William St. Quintin. I was intimately acquainted with Sir James Pennyman's steward, who has repeatedly assured me that Sir James told him that this breed was a cross between the old Short-horns and the Alderney. Some time ago I happened accidentally to read the 'New Farmers' Calendar,' 4th edition, 8vo, published in the year 1802, in which, at page 493, is the following passage: 'Yorkshire is famous for the Holderness or Short-horned cows. This large breed came originally from Holstein and the Low Countries, and were until of late years too coarse and Dutch built; they have been much improved in symmetry and fineness of bone and flesh by a judicious cross with the Norman cattle; for this improvement I understand the country is indebted to the exertions of the late Sir William St. Quintin. They are now very excellent and beautiful stock, and many of them are made fat at three years old.'

"Such then being the pedigree of Hubback, it follows that all the improved Short-horns are a mixed breed, the result of judicious crossing. Hubback was the sire of Fuljambe's dam; Fuljambe was the sire of Old Phœnix and of Lord Bolingbroke; Lord Bolingbroke was the sire and Old Phœnix the dam of Favourite; Favourite was the sire of Comet, and Comet's dam was by Favourite out of Old Phœnix. Hence Comet was full of Hubback's blood, and was of course of a mixed breed. This fact furnishes an experimental proof of the expediency of judicious crossing much stronger than any theoretical argument. It is unnecessary to mention that Comet was sold by public auction for 1000 guineas.

"Having thus given one practical illustration of the effects of crossing, I will add another equally strong and remarkable. The late Mr. Bakewell it is well known was the founder of the breed of sheep called the Dishley or New Leicesters. From the secrecy of his proceedings their origin was for a long time unknown to the public, and I do not remember ever yet reading in any publication any account of their origin. It is now, however, known to the most eminent breeders of the Dishley sheep, that they were a cross between the Lincolnshire and Peak of Derbyshire breeds of sheep. Mr. Robert Colling, who was one of the earliest disciples and a most intimate friend of the late Mr. Bakewell, told me that Mr. Bakewell once communicated to him their origin. One of the most eminent and most respectable of the present Leicestershire breeders has confirmed to me the above account of their origin. Mr. Bakewell, I believe, has let a ram of this breed for 1000 guineas the season."

4. *Mr. Hutchinson on the Origin of Short-horns.*

"Stockton-on-Tees, August, 1821.

"Your distinguished correspondent Mr. John Rooke in his luminous letter on this subject declares his object to be the promotion of open and liberal discussion, and desires to be corrected if in error. I take the liberty, therefore, before he returns to it, with all due submission to set him right in a very material point relating to the origin of the improved Kettons. What will be his surprise when I tell him, without the fear of contradiction, that the bull Hubback (as my friend Major Rudd and he have both erroneously asserted) was not the main root of the improved Short-horns or (as I say for metaphor's sake) the mainspring or source of this mighty stream of pure blood, but only a humble tributary, which instead of purifying, must, I fear, have rather contaminated it (if all be true that has lately been said of his Kyloe descent). Instead of Hubback, I pronounce the Blackwell premium bull of 1784, bred by Christopher Hill, Esq. (the sire of the Sockburn premium bull of 1787), to be the main root of this famous breed. Thus the Blackwell bull begot Mr. Richard Barker's bull of Oxneyfield; Mr. Barker's bull begot Fuljambe; Fuljambe begot Lord Bolingbroke, who begot Favourite, who begot Comet, who begot Petrarch, who begot (though last not least) Herod—a race of worthies in a direct line from the Blackwell bull, and not from Hubback, who was merely the sire of Fuljambe's dam. For what delusive purpose the pedigree of Mr. Barker's bull, the sire of Fuljambe (which Major Rudd has recorded to have been 'one of the best bulls of his day'), has been kept so long *incog.* I will not venture to guess, but that he was got by Mr. Hill's bull, and out of a cow from the white breed of Mr. Aisleby, of Studley Park, is as certain, as that I can prove it by a letter lately received from a nephew of Mr. Richard Barker, one not likely to deny his handwriting. I am now confirmed in my opinion that the obscure doubtful origin of Hubback (whose dam has been pronounced Kyloe breed, and as I have been told reared on the highways and hedges) is still *in statu quo*, though Major Rudd has in his letter to you of the 28th June so distinctly and positively made out his pedigree, forgetting perhaps that on a former occasion he ended a like statement with this more credible sentence: 'It is probable that Hubback may have been descended from this breed (Sir James Pennyman's), but the fact cannot be ascertained.' Mr. Editor and Gentlemen of the Jury, judge for yourselves, I will not touch upon Mr. Maynard's cow, for the account I have had of her from the facetious gentleman himself always creates a smile; nor Ralphy Alcock's surly bull, which I know myself as well as any man, having frequently seen him hounded out of Sockburn Holms across the Tees into his own pastures; a bull of taste I must say in his amours, for he well knew where to find a handsome heifer, and no bugle horn ever surpassed in melody his voice sounded in Beverley Wood."

5. *Mr. J. Rooke on Improving the Breeds of Horned Cattle.*

"Akehead, August 31, 1821.

"By my essay of the 2d June I intended to suggest that the judicious crossing of horned cattle is calculated to render them more profitable; and I therein attempted to prove the correctness of this proposal by showing that the improved Short-horns have been obtained in this way, nor am I aware that the worthy founder of the Ketton stock would raise any objection to cross breeding if the produce were more useful than their progenitors. But it was by no means my intention to point out any bull by which the Ketton breed of Short-horns may be still further improved.

"Perhaps, however, the great value of the Ketton breed of cows may be regarded in the same light as the improvement of the sluggish breed of cart-horses by putting heavy mares to blood horses, and thus obtaining more action and spirit. When the large 'Dutch built' breed of cows are put to Ketton bulls, the produce often turns out more profitable than the thorough blood on either side. But according to this rule the breeder must again go back to blood, if I may be allowed this term of the turf for future sires, else he may lose his symmetry, fine flesh, and aptitude to fatten. I never heard anything of the high blood of the celebrated ox called Capsall by the dam's side, but it is well known he was by one of Mr. Mason's bulls. It would then appear that the breeding of Short-horn stock for immediate use and that of rearing sires ought to be, and I believe is, conducted upon distinct principles, never losing sight of the usual rule that blood ought to be on the bull's side, except when bulls themselves are intended to be bred. I quarrel not then with improved Short-horns, they have my highest admiration, but I would limit them to their proper use—that of producing a race of sires, looking to their cross with large cows for profit.

"The very large ox bred at Rickerby, near Carlisle, and lately sold by Mr. Gibbs, near Dumfries, for a show animal, has horns of the Long-horned breed, rather flat in colour, a Short-horn with improved shoulders and Dutch thighs and rumps, and I think him a very great curiosity as a cross-bred animal, but to have preserved such an animal for a sire is out of the question.

"Probably the advocates of a direct cross between the West Highlander and the Short-horns have not followed the best course. Instead of going from the Short-horned sire to the Highland dam, ought they not to have gone from large fine-shaped and well-fleshed Highland bulls to large and useful Short-horned cows?

"Some attempts have been made of late years to improve the Galloway Polls by crossing them with the West Highlander. But it has been given up again in consequence of several of these crosses proving horned. Had they, however, persevered and bred back again wholly to the Galloway side, keeping as closely as possible to the Galloway character, there can be but little doubt they would have succeeded.

"In the same way I am strongly inclined to think a portion of improved Short-horns might be introduced into the Galloway Polls to great advantage.* However, in the commencement of the process much would depend upon breeding from a cross that have taken well, and looking steadily to the pure Galloway character ever afterwards.

"A very judicious and considerable farmer near Penrith, in this county, who possessed an excellent and entire stock of Long-horned cows, has for the last seven years been regularly crossing them with a Short-horned bull he had from the Earl of Lonsdale's stock, formerly kept at Lowther Castle.

"On trial he has found them more profitable than his original Long-horns, and some of his neighbours have been so convinced of their superiority that in a few instances the very best Long-horns have been put to the above Short-horned bull. I shall not, however, pretend to decide the question whether this be judicious crossing or not. It was commenced upon principle in the case to which I have alluded, and profit had led to its continuance.†

"The delicate manner in which Major Rudd reminds me of the passage in which I have said: 'Since the Ketton and Barmpton stocks have been sold off, it is (the Chilton stock) by many considered the best stock in the hands of any single individual,' requires an explicit answer on my part. This passage, intended for no other purpose but that of proving collaterally the advantages of judicious crossing, through inadverteuce, appears to overlook the fact that the purchasers of the pick of the Ketton and Barmpton stocks ought to have produce equal to the originals.

"Taking then the comparative excellence of the stocks of the present time as they stand in blood, Major Rudd's ought not to be placed as second to any one, since Countess, Lily, and Peeress have been considered the best cows in each of three of the most famous tribes disposed of at the Ketton sale, and Petrarch has usually been placed as the next best bull to Comet, then sold.

"I feel much obliged to Mr. Hutchinson for the correction he has made in my statement that Hubback was the sire of Fuljambe instead of Fuljambe's dam. But I trust he will not think me perverse in still believing that a portion of Kyloe blood might run into the veins of Fuljambe with just as much certainty through those of his dam as if Hubback had been his sire. And the question still comes to this—Are the improved Short-horns, possessing as they do fine symmetry and much rich roasting beef, the pure descendants of the Dutch built Short-horns of former days? My opinion is to the contrary, and that in some way or other Kyloe beef has been spread over large Dutch carcases—I am willing to think greatly to their advantage.

"I shall by no means quarrel with Mr. Hutchinson because he has made it appear that Herod is a bull of very great merit. But in support of crossing he will allow me to add that Western Comet, a son of old Major, the well known son of Lady, has got the best stock of any Short-horned bull ever brought into Cumberland. This is a fact which prejudice has been unable to gainsay."

6. *Major Rudd on Hubback.*

"Marton Lodge, September 15, 1821.

"The sire of Hubback belonged to Mr. George Snowden, who had been a tenant of Sir James Pennyman, and by that means derived his bull. Mr. George Snowdon I understand is still alive, and able to prove his descent from Sir James Pennyman's stock. It is certain that the late Mr. Robert Colling believed the descent of that bull to be from the stock of Sir James Pennyman and Sir William St. Quintin, for in his printed sale catalogue of his stock in 1818 he deduces the pedigrees from their stocks. Of these proofs I was not apprised when the notes were published, and surely, Mr. Editor, every person has a right to correct a statement when superior information is acquired.

"With respect to the Kyloe descent I can assure your correspondent from Worcestershire, who writes under the signature 'B.' that I have not given my account from mere conjecture, as he supposes. My information was derived from a most worthy and respectable person, who assured me he had it from Mr. John Hunter, of Hurworth, bricklayer, to whom the dam of Hubback belonged, and who bred Hubback, by sending this cow to Mr. George Snowden's bull. Mr. John Hunter is now dead, and therefore this evidence is the best that can be had, unless some living person knows the pedigree of Hubback's dam and can attest it. This I have never been able to obtain, and therefore I trust to the evidence I have stated, and I have no doubt of the fact. It is my conviction of the truth of my information which induced me to state the circumstance more positively. If any of your correspondents can give a well attested pedigree of Hubback's dam, I shall suppose my information to be incorrect, but not until such proof is given. I am an enemy to all mystery and concealment, and therefore I have given to the public the best information in my power, but I am a friend to the elucidation of truth, and shall be happy if any of your correspondents can give you more accurate information.

"My friend Mr. Hutchinson animadverts on my expression that Hubback was the main root of the improved Short-horns. I used this expression because the late Mr. Robert Colling and the present Mr. Charles Colling have assured me that Hubback was the grand cause of the improvement. I believe that to Hubback the Short-horns owe that mossy coat and silky hair for which the best of them are now distinguished, and which is the surest index of inclination to fatten. I honestly confess that I know of no other breed except the Kyloe which could give this great improvement to the old Dutch Short-horns. The old unimproved Short-horns are remarkable for the reverse of this index. I have no wish to disparage any man's stock, and least of all that of my worthy friend Mr. Hutchinson; but he must excuse me if I give the decided preference to the Ketton and Barmpton stock after a long experience of their comparative merits. It is my sincere and conscientious opinion formed after a trial of many years."

* Improved Short-horns and the common breed are here considered as two distinct sorts of cattle.

* This we are told has been done, but the advantage is doubtful; we have seen many of these snail-horned and coloured crosses in Smithfield. Edit. F. J.

† This may very well be, but does it make a better race than the Short-horns? Edit. F. J.

THE PAST HARVEST AND THE COMING WINTER.

Ayrshire: *Lagg, by Ayr.*—Wheat: being thin of roots, owing principally to the severe frosts in spring, will not be an average crop, but quality generally very good. Much damage wss done to standing crops on the 9th and 11th and 12th of the present month by the high winds. In some instances the loss could not have been less than a quarter per acre, but fortunately the greater part of the Wheat crop was at that time cut down. Oats: generally short of straw, but thick of roots. Will probably yield quite an average, except on very dry light soils, where drought affected them. In the inland parts of this county, where reaping is now not more than half over, I believe Oat crops will be considerably better than for the last three years. As very little Barley, Bere, or Rye is grown in this part of the county, I cannot speak with certainty as to these crops. Beans: generally a good crop and well filled out. Fully an average, and likely to be a remunerative crop to sowers. Although we do not suffer to anything like the extent (from the effects of drought) as the southern counties of England, still the shortness of straw and probable scarcity of fodder in spring must force us all to economise as much as possible. Turnips being likely to be at least a fair crop, we can best do this by chopping our straw and steaming it along with them, as it is well known that by giving straw or hay in its natural state to cattle for fodder, much of it is wasted. At the present price of Oats, nothing, I fancy, more economical could be used for feeding sheep, along with a few Turnips, which might be more advantageously used if pulped. The Oats should also be bruised and mixed with the Turnips, and perhaps a little chopped hay. *Andrew Ralston.*

Bedfordshire: *Beeston, Sandy.*—The agricultural prospects in this neighbourhood for the coming winter, are I think on the whole rather gloomy. It is true we have above an average crop of Wheat, an abundant yield of Barley of excellent quality, but the prices for these are likely to be very low so that the profit per acre may not be above an average. Our green crops are very bad. Not half the Turnip land is planted, and those who were forward in sowing their Swedes early, and have some appearance of a crop, will find them go off very fast when the sheep get to them. Mangels, I should say, will not be above one-third of a good crop. Kohl Rabi and Cabbage have done well. I have some very good, which appears to be equal to what I generally grow. I think it will be the worst winter for sheep farmers that they ever experienced. The supply of mutton, now sheep have arrived at such early maturity, is derived during the spring months from lamb hogs, but how these for the most part can be made fat without a plentiful supply of roots I know not; older sheep may by giving them cake and corn on Grass. I have been giving my lambs a small quantity of Cabbage and early-sown white Turnips daily on Grass and old seeds, and shall continue to do so for some time to come, with as much Cotton-cake as I think their constitutions will bear, in order to make them grow and keep them healthy until such time as I think I shall have roots enough to carry them through the winter by letting them have then as much of them as they can eat. Although we have a short crop of hay the Barley straw is excellent; and as Barley and Wheat will be very cheap, there is not much fear but that plenty of beef will be made. I fear that there will not be much work for our labourers, and consequently discontent will prevail, although bread will be cheap. *T. E. Pawlett.*

Berkshire: *Coleshill.*—With reference to the corn harvest generally, I should say the Wheat has rather exceeded our former expectation—a fair average, also Barley; Oats variable, but better than was expected. Peas and Beans generally a failure. There is some hope that we may get through the winter better than we anticipated, if the weather continues warm; after the rain we have had, late Swedes and Turnips are growing rapidly, and if we have a fine autumn a considerable quantity of keep will come forward—a large breadth of Rape and stubble Turnip has been sown. The hay crop, though short, is all of excellent quality, and will help much in mixing with less nutritious matter. I am not sanguine, but with present appearances hopeful that we shall get through our difficulties as to stock better than we could have expected a few weeks back. A variety of compensating circumstances seem always to be provided by a superintending Providence; with the bulk of the corn housed in

splendid condition we may "rest and be thankful," not of course slacking any effort in the use of means within our reach to meet our difficulties as to feeding of stock, but not "anxiously careful." *E. W. M.*

BUCKINGHAMSHIRE: *Woolston.* — The harvest in this neighbourhood finished as follows. Wheat various on heavy land, a little cut up a full crop, a good deal middling, and some very thin; all ripened pretty well on light land, a good deal very thin, and a little about an average crop—all ripened prematurely. Altogether we have not an average crop. Barley cut up generally good, yet ripened prematurely, therefore will not be much over an average. It is doubtful as to whether it will work well into malt. Oats cut up light and are much under an average. Beans were very much blighted, and are not more than half a crop. Peas are an average crop. Potatos are good though small, and will not yield much per acre. Roots are generally bad, especially the Swedes; in many cases a total failure. There will be a great loss in lamb hoggs this winter. Dry food must be given at once; where that is not done they will certainly die. Beans in the straw are good for toddering on Grass; the lambs will pick up every Bean leaf and pod. These, with the young Grasses (now we have had rain) will strengthen, and in some cases fatten the lambs. Cake and straw must be our great substitutes for our short crop of hay. *William Smith.*

CAMBRIDGESHIRE: *Chrishall Grange, Saffron Walden.* —In regard to our crops, I consider the Wheat rather under an average on our light lands; the Barley a full fair average, and very heavy; Oats, a large crop; Winter Beans, destroyed by the frost, and Peas put in instead, which are under an average. Of seeds we have none, and have had the most trying season for feed for our flocks I ever knew; and, bad as it has been, the worst is now coming. I have between 3000 and 4000 sheep, and little feed, having had no rain for 12 weeks until about 14 days back. The bad planted seed-land, after feeding it off in the spring, was all dunged, and sown with Rape, with 3 cwt. of blood manure per acre, but the Rape has not yet made its appearance until the last day or two, which is too late to be of much use. Our Turnips are small and stunted in growth, and large patches destroyed by the grub of the brown moth. A man with seven children to day in six hours dug up from the roots of Turnips quite three pecks: this was by taking the outer edge of the patches of Turnips. How we are to get through the winter I know not, but it must be done by using large quantities of chaff, with bran, malt combs, cake, and corn. I use straw-chaff largely. I have seven barns which used to be filled with corn, which I now use entirely for straw chaff; they now contain at least the straw produce of 200 acres of Wheat and Oats, cut into chaff last spring. I mix with the chaff when cut some green Tares or Rye cut into chaff, and salt also, and have a gang of six boys treading the chaff into the barn as it is carried in, so as to fill it as solid as possible; this causes a fermentation, and the chaff so expands from the heat that we are obliged to strengthen the outer walls by bars and iron rods across the buildings, and the chaff is as sweet as hay. I cut my chaff at the same time I thresh the corn, which enables me to do it for the same amount of labour I require to stack the straw. I have to use about 5 cwt. of coals extra for my engine, a 12-horse power one, so that I cut my straw into chaff at a cost of 1*s.* 6*d.* per acre, and it is astonishing the value of old chaff so made as compared with new fresh cut. *Samuel Jonas.*

CHESHIRE: (1) *Spital near Chester.*—From inquiries and personal inspection in this district, I find (though accounts are conflicting) that the Wheat crop will equal and in some cases exceed in yield the expectations of the growers, and may be put down as a fair average. The condition of it varies much, some samples are very damp. The quality of the Red Wheat is very fine, the White is not so good upon the whole. Oats will not prove a good crop generally; straw short, and samples lean, and the yield will be under the average. Barley is a good crop and quality fine, but there is but little grown here. Beans are short in the straw, and are not yet harvested; they are fairly podded, but will be under the average. With regard to the Turnip crop the late rains have just saved them from being almost a failure, and though the bulbs will be small they may yet reach three-fourths of an average, but of course greatly inferior to last year. Mangels have again been much blighted, and will be very small. Oat straw, which will form a large portion of the food for stock this winter, is scarce and dear, fetching in the market 3*l.* per ton. It will no doubt be nearly all cut up for use, and the Turnips pulped to mix with it. I do not feel myself qualified to recommend any particular articles to supply the deficiency of hay and roots. I am using, and intend to continue the use of good Rape cake and Locust Beans mixed with cut straw, and pulped Turnips and Mangels for my cow stock and sheep, and I expect that as both these articles are reasonable in price they will be largely used. *W. B. Burnham.*

CHESHIRE: (2) *Stapleford Hall, Chester.*—My impression is that Wheat will not be very productive; that there will be a deficiency as regards last year's crop of from 15 to 20 per cent. I have threshed out a little, and the yield is not very good, but the quality is tolerably fine. I think the same remark may be applied to Oats, which in many instances ripened prematurely. Barley is decidedly the best crop, and will, I think, prove an average, and it is generally of fine quality. The green crops are much improved by the rains, and some fields begin to have a very luxuriant appearance, but many crops of Mangels and Swedes, the latter more particularly, have been greatly injured by the "grub," and consequently are very irregular. Potatos too in some localities have suffered to a great extent from the same pest. Hay was a very light crop generally, in many instances not more than half the usual quantity, and a second crop of Clover is a thing rarely to be seen; it is now too late for the pastures to get ahead of the cattle, which are quite ready to receive the Grass as it springs; with these prospects it is to be feared that live stock of all kinds will suffer during the winter and spring months from being scantily fed, and the demand for all kinds of feeding stuffs will enhance their value and place them beyond the means of many farmers; of course much will depend upon the severity or mildness of the winter. Second crops, after early Potatos, such as planted Mangels, common Turnips, &c., are generally a failure; and purchased food, such as Indian Corn, Linseed-cake, Cotton-cake, Linseed-bran, &c., must be resorted to. It is however not too late to sow Rye, or Rye and Vetches, and they will be found very useful in the spring, and may be cleared off the land in time for a crop of Swedes; the first sowing should take place immediately upon very well manured land, and another about the middle of October. Molasses has been strongly recommended to me for cattle in scarce seasons, but I have never tried it, and the cost I have not yet considered. *William Palin.*

DEVONSHIRE: *Stancombe, Kingsbridge.*—Our Wheat crop proves to be far beyond an average, and samples as fine as I ever saw. Barley is about average in quantity, the samples varying much. Turnips and Mangels will probably prove a half crop, for such is the mildness of our climate, that the Turnips, which did not come up till after the rain of August 20, will generally be good. We have about half a crop of hay, and by the use of a good deal of grain hope to get through the winter; some of our farmers are giving Wheat to their cattle. *Samuel Cornish.*

GLOUCESTERSHIRE: (1) *Cullabine Farm, Dumbleton, Evesham.*—I consider the Wheat crop hardly an average, but Barley I should say is quite an average and of excellent quality—both have been harvested in first-rate condition. We had scarcely a storm during our harvest. Beans are almost a failure, unless on strong Bean land; Peas were attacked by the fly at much too early a period to come to a full crop; the early white Peas to some extent escaped, the later sorts were seriously affected. Potatos are very inferior in quantity, quality and size; they have been grown very sparingly with us this season, in consequence of the over supply last year. The root crop is almost a total failure; there is a tolerably good piece here and there, but they are few and far between, and the loss of so valuable a crop will be severely felt during the winter. How the loss is to be supplied will be a very serious consideration with many, myself among the number. I have hardly half my usual crop of hay, consequently it will have to be carefully used. For a considerable period I have cut up all my hay and straw into chaff, and pulped my roots this winter. My ordinary management of the live stock on Mr. Holland's farms will differ only in this: we have no roots to speak of, and the want raised by the loss of that important crop I purpose in a measure supplying by using meal and cake. I intend trying the Palm-nut cake, and if it answer, as I am assured it will, it will economise the cost of keep considerably. I can say nothing of it as yet, I must further test its feeding properties, but I remember Professor Coleman spoke highly of it when at the Cirencester College. The cattle eat at all times half hay and half straw steamed. To those of your readers who have not steam accommodation, I would recommend them to adopt the plan of mixing up their chaff with cold water, and let it lie 24 hours before using, it will then be in a state of fermentation, and will keep good two or three days, according to the state of the weather; should it heat too much spread it a little. I mean to mix with all my cattle food a little salt, as all animals are fond of it; it may induce them to eat coarser food with more appetite—at least, I mean to try it. The feeding beasts formerly had as much chaff as they would eat, and for a few weeks after they were stalled and daily had half a peck of flour, with about 14 lbs. of pulped Mangels, afterwards a peck of flour, until they were fit for the butcher; this season flour and cake must make up for the loss of roots. The dairy cows will have hay and straw chaff, with perhaps not a third of their former allowance of Cabbage, than which nothing is better for making good butter during winter, provided that no dead or withered leaves are used, these give a very objectionable taste to it; the dry season has also caused a considerable failure in this plant. The in-calf heifers will have one-third hay and two-thirds straw, with 4 lbs. of meal and cake; the two-year old animals will be put on Wheat, Pea and Barley straw chaff, with about 2 lbs. of meal. If I have much tail Wheat, I shall probably use that for feeding purposes, as I expect it will be as inexpensive as any meal the miller will supply me with; year-olds and calves will get one-third hay and two of straw in chaff, with 2 lbs. of meal or cake. In this neighbourhood Oats, Rye, Vetches, and Trifolium are being largely planted, in the hope of having some early spring keep; I am also drilling some Cabbage seed, risking the probability of the plants standing the winter, but of that I have not much fear, unless we have very severe weather. For several seasons I have planted Asparagus Kale, and have found it answer remarkably well; several gentlemen on my recommendation are going to try it. I have drilled 2 lbs. to the acre in drills 16 in. apart, on Wheat stubble, intending Swedes or Mangels to follow; I shall put my sheep on in the spring and eat it off as I would a Turnip crop. We shall have a few months' anxiety as to what food may be best and most inexpensive to supply the partial failures of this harvest, but "time and the hour runs through the roughest day," or season. *Charles G. Clarke.*

GLOUCESTERSHIRE: (2) *Didmarton, Chippenham.*—Nearly the whole of the cereal crops in this neighbourhood have been very early and well harvested; as regards the probable yield and quality, scarcely sufficient has been yet threshed to judge from; but a portion of Wheat and Barley from different fields yielded well to the straw, the Wheat very fine in quality, but the Barley rather thin and too white in colour. Both the above kinds will, I expect, yield rather better to the acre than was at one time expected. The Oat crop must be deficient in quantity and quality; Beans generally bad, and Peas variable. The hay crop being very short, all the straw of the last corn, and some of the Wheat straw must be husbanded for the cattle and sheep, and as the root crop is very bad, but few can be spared for the store stock; much artificial food and corn must consequently be used during the winter. From my own experience I would recommend the cutting of Oat or Pea straw with a little hay into fine chaff for the stock ewes, and chilver tegs, supposing they can have but a very few roots, or, if none, a moderate allowance of Linseed or some other kind of cake or artificial food, or inferior corn, as each person's judgment might dictate, and of course the sheep must have water if roots cannot be given. Cattle, including in-calf cows, will do very well part of the winter on straw, running out on the pasture; but as there is little old Grass, a little Linseed, or other cake given will help to keep them at straw much longer, to save hay; unless pulped roots can be mixed with it, it is not good practice to cut the straw into coarse chaff, but bad coarse hay will pay for cutting. When homesteads have the requisite conveniences, no doubt steamed or cooked food can be used with advantage, rendering hard, crude matter more palatable and digestible. It will be obvious that every stockowner, the coming winter, must use his best abilities in the economy of all food for stock, and certainly it will be unwise to let animals deteriorate, but each person, without any particular rule, must be influenced by local circumstances, the relative prices of artificial food, corn, markets, &c. On referring to farm memoranda of 1818, a season very similar to the present, it is stated that in August and September nearly all the sheep and cattle were obliged to be foddered from want of Grass food, the water also being very short, but on December 13, after fine rains, and a mild time till then, there was abundance of Grass, enabling the cows to be milked longer than usual, and all the cattle much benefited, I can only hope the next winter will be of like character. *Stiles Rich.*

GLOUCESTERSHIRE: (3) *Whitfield, Berkeley.*—The harvest in this neighbourhood has been secured in the best possible condition a month ago, but I hear of small pieces of Wheat and Barley being still in the fields on the hills above Wotton. We have not threshed any of the new crop yet, but judging from appearances at harvest time, I am of opinion that the yield of Wheat will not be so good as last year. Oats and Barley promise a fair average yield. Peas and Beans are all but a failure, and the bulk of straw in all the crops below that of last year. The root crops are more or less a failure for miles round this neighbourhood. Our own crops of Swedes and Turnips, with the exception of a few patches of Swedes, is completely cleared off by grubs, so that we have no root crops to look to for winter food but Mangels, and they are a rather ragged crop; and the hay crop being a very light one, about one-third an average, I hardly know how we are to get our stock through the winter. I have been thinking of cutting a mixture of straw and hay with chaff, damping it well with boiled Linseed, and mixing the whole with a portion of meal composed of Indian Corn, Peas, Barley, or Oats, or any tail corn, for the store sheep and cattle, adding a liberal allowance of good Linseed cake for the fatting stock. In this way I think a good deal of straw may be used as food for the stock, and still keep them healthy and in good condition. I am quite aware this plan will entail a heavy expense for corn and cake, which with the present price of Wheat can ill be borne, but in the absence of hay and roots I can think of no better or cheaper plan of wintering the stock. Our Mangels we shall keep for spring use, when it will be wanted for the ewes. We have been sowing a good breadth of Rye, Wheat and Vetches to come in for early spring feed, to be followed by Swedes or Turnips next summer. *John Cobban.*

HUNTINGDON: *Brampton.*—Our harvest in this district, both on the high lands and in the Fens, is now completed. I never knew the accounts in regard to the Wheat crop so conflicting; some farmers stating that they are not dissatisfied with their yield,

and others that they are much disappointed. The Wheat crop, in point of bulk, was certainly above an average, but I know crops which before harvest looked like five quarters an acre, are only turning out three. Generally the later Wheats are the best yielding, and those in the Fens are reported better than those in the higher districts. Yellow maggot and blight have lessened our prospects, and upon the whole I would say that Wheat nearly approaches, but is not quite, an average. Barley is a very fine crop—as fine, I think, as I ever saw it, and considerably beyond an average. A large breadth was sown, and our supplies will no doubt be very plentiful. As a crop it has been paying better than any other for the last few years, and this of course has given a fillip to its increased cultivation. Oats are a light crop, and thin in quality, as they generally are in a dry summer, and they are certainly under an average. Beans are very bad, the extreme dry and hot weather having brought a locust of flies upon them, which completely shrivelled up and prevented the pods from filling. The root crops are generally complete failures; occasionally you may see a field of Mangel Wurzel or Kohl Rabi with the prospect of a good half crop, but generally speaking the crops are past recovery. The disaster upon flock-masters will be the greater, inasmuch as the tendency of late has been to increase the flocks of sheep. The question is therefore a very important one—How are our herds of beasts and flocks of sheep to be kept over the coming winter? It is clear that both roots and hay must be economised in every given shape, and that the former must be cut up and pulped for the sheep and beasts, and all hay cut into chaff and used largely with straw. Of course artificial food must be largely drawn upon; but if good management be exercised in regard to every handful of food which is given to the stock, our present apparent difficulties may be got over better than we now anticipate. It generally happens that those ills which overtake us are attended sooner or later with good results; and it is the true philosophy of life to extract the greatest possible good from them whenever they come upon us. I believe that such will be the result in regard to the disaster which has happened to the root crops of this season. It will show more clearly to many, who have gone into the cultivation of these crops upon our clay soils with rather a niggardly and sneering spirit, their inestimable benefits, now that they are deprived of them, and at the same time the indispensable necessity for their extended cultivation. Indeed, if rents are to be paid upon our clay soils, it must not be from depending upon Wheat, now ranging under 5*s*. a bushel, but upon a large increase to our flocks of sheep, which are paying better than any other produce of the farm, and the supply of which at present does not seem to keep pace with the requirements and consumption of the country. But to carry out this system root crops are indispensable, Mangel Wurzel especially; and with proper cultivation this root may be grown successfully on our poorest clays. *Peter Purves.*

Kent: (1) *Marten, Dover.*—I think the result of the harvest will prove to be, on the whole, an average crop. Wheat not so good as last year, and some of it carried in rather poor condition, especially on the late soils. The quality of the Barley is, generally speaking, very good, though the later pieces were much washed. Oats various, in some cases good, in others very indifferent. With regard to the root crops they are worse than I ever knew them, and even now are failing. One of my neighbours counted no less than 213 slugs round one Turnip. The Rape, where there is any, does not seem to grow; I fear my sheep must almost live on corn and Pea straw a great part of the winter. The Pea straw I cut down with one of Richmond and Chandler's chaffcutters, and if I find my Pea straw likely to run short I must mix Oat straw with it. Surely the slug that now infests our fields is something fresh; no one seems to remember having their roots so much injured in this way until the last two years, and they seem to attack the crops as much where they are manured with artificial manure as where dung has been used. I am sorry I can give you no more information on the subject, as it must be a matter of vital importance to farmers. *Mark Sandford.*

Kent: (2) *Dumpton, Ramsgate.*—The corn in this neighbourhood was never harvested in finer condition, and there can be no doubt but the yield will be quite equal to or more than was expected at the commencement of harvest. The present price of Wheat is no inducement for farmers to thresh, but those who have threshed find the produce greater than they expected. The weight, colour, and condition is so good that in some cases seven bushels of Wheat will produce as much flour as eight bushels will in bad seasons. Barley will also prove a great crop; it varies much in quality, some being harsh (or steely, as our maltsters term it), but most of it is very heavy, and if not fit for malting will give a large amount of food for pigs and cattle. Oats were much shorter in the straw than usual, but they yield well in proportion to straw. Peas are quite as good as were expected. Beans are no better than I reported before—about half our usual crop. Our prospect of food for sheep and cattle is not so gloomy as it was six weeks since. The fine rains we have had, followed by warm growing weather, have much improved the appearance of things generally. Hay of all sorts is scarce and dear, but our Grass land, Clover, Sainfoin, &c., is now giving a good quantity of sheep keep. Mangel Wurzel generally planted well, and the growth of it has been such the last few weeks that it bids fair to be nearly if not quite an average crop. Swedes also planted well, but they have been, and still are, much punished by grub; nevertheless they will produce a greater weight per acre than was thought possible a short time since. But very few of the common Turnips ever vegetated; the few that were sown very early were a good plant, but they have suffered so much from the long drought that since the rain they have shown more tendency to rot than to grow. The plans adopted for eking out the scanty supply of food, &c., are so numerous that it is difficult if not impossible to define, as nearly all are doing something to lengthen out the food they have, or to supply the deficiency; and, should the winter prove mild, there is great reason to hope that no serious evil will result. Chaff-cutters and root-pulpers will be more generally used than they ever have been in this district, and we are not deficient in straw, and, from being so well harvested, it is nearly as sweet and nutritious as inferior hay. Cotton-cake and Maize have already been largely purchased by several of us, and the quantity of Rape and Mustard sown is of far greater breadth than was ever known. Those crops are growing very fast, and, should frost keep off, will keep our sheep with a little corn and cake and a good supply of good straw for a long time; but with all this there cannot be anything like the usual number of sheep and bullocks fatted. The most we can expect is to keep our store stock in good growing condition, experience having taught us that all animals that get poor in the autumn are difficult and troublesome to winter, therefore we are trying to keep them well at present. Our lambs since they were weaned have had an unlimited supply of Oats; they have not up to the present time consumed more than ½ lb. each per day. Our dairy cows and young stock have Linseed and Cotton-cake mixed, proportioned according to age and size; both sheep and cattle are doing well at present. Our Potatos are a good crop, no disease at present; it will entirely depend on price how they are disposed of; there were a great many tons last year consumed by pigs, sheep, and cattle, and I think the probability is they will be applied this year to the same purpose. Taking all things into consideration, and looking back to what they were in the middle of August, we have much more cause to be grateful than to complain. There is one thing in this neighbourhood that will be a serious loss to us. As I have not seen it noticed in any of our agricultural publications, I hope it is not general—it is the almost complete failure of our young Clovers and seeds of all kinds, sown in the spring; very many acres are already scarified or ploughed up. Some have been endeavouring to make good the deficiency by drilling Trifolium and Tares, but this at the best is only patchwork, a makeshift that is a little better than a perfect loss. *Wm. Manser.*

Lincolnshire: (1) *Panton House, Wragby.*—From the present threshings it is fully ascertained that all corn crops are not yielding so much by about 1 quarter or more per acre, as last year, although it is thought that they will weigh heavier per bushel. The bulk of straw is also less. The quality of the corn is good. With regard to the green crops, they are on the strong clay lands nearly a total failure, with the exception of the Mangels, which are good. On the lighter lands they are not more than half a crop, but they are now growing very fast. The plan to be adopted for carrying the stock through the winter will be to keep the sheep off the Turnip crop as long as possible, and hold them on the old seed and Grass lands, giving them cut Oats and Clover fodder, with artificial food. Also lead out Cabbage when so fortunate as to possess them. The present fine season is now flushing the Grass and seed land very much, and I think by economy and care we shall be able to carry over the stock in a healthy state up to next spring. The cattle will require a greater consumption of cakes and meals, &c. *William Dudding.*

Lincolnshire: (2) *Long Sutton.*—I shall venture to give my "opinion of the corn harvest," &c., comprising the country situate between the towns of Boston, Bourn, Peterborough, Ely, Downham, Lynn, *i.e.*, including a large tract of marsh land, high land, and fen land. The crops of Wheat and Peas are above a general average. Barley is a full average, Oats below an average, Beans a bad crop caused by aphis, Potatos a fair crop, but tubers small, Mangels very defective, Swedes the worst crop we remember, Turnips scarcely any to be found, Coleseed the worst crop ever known. Every stockowner is at his wits' end to know what to do. For cattle and horses, hay and straw provender may readily be made to suffice, with the customary additions of cake and corn. It is the winter management of the flock and young cattle wherein lies the difficulty. Old sheep will do very well upon horse and cattle food, but young sheep, (lambs) and young beasts, must have a ration of succulent food daily, however small it may be. In the district named above, sheep troughs are to be seen everywhere, thus giving evidence of preparation to supply the sheep with artificial food throughout the winter. Most farms have a small stock of green food. This must be eked out very sparingly and given along with cut straw, cut hay, cut Oat-sheaf chaff, Barley-sheaf chaff, cut Pea straw and well broken Bean straw, together with cake or meal, Oats, Barley, Bean and Pea meal, bran and offal sprinkled over the chaff. Young cattle, beasts, builings, yearlings, (I wish we had one general term for all), may do very well upon hay, or even good straw with cake, corn, bran, malt-comb, Linseed-meal. *J. C.*

Norfolk: (1) *Denver.*—Wheat will reach nearly a fair average, and of good quality, though not quite so fine as last year; it has been well harvested, and I believe is now completed in the fens adjoining this district, and I hear no cause of complaint, but that it will be an average crop in that district. Barley is a very fine crop, with a great variety of quality, and most of it harvested well where they were not in too great a hurry. The young Clover plant among the Barley is very weak, and in many instances I fear has perished on the hot gravelly soils, but on good soils I hope they will recover and be a middling plant: the late showers have improved them very much. Oats are only a middling crop. Beans are bad, and Peas, what few are grown, are very good. Our Mangels will be a fair crop on good soils, but the Turnips are wretched; where we had a good plant, what with the lice and grubs, they will be hardly half a crop, and as to the common Turnips there are hardly any, and what is to be done with the sheep I don't know. One thing, corn is cheap, and to that we must resort, hoping we may be favoured with a fine open winter. We are sowing lots of Rye and Italian Rye-grass, and Stone Turnip, &c., for spring feed. Stock are in a healthy state, though many of them are in low condition. *Thomas Brown.*

Norfolk: (2) *Norwich.*—I write from Tenby, where much corn is yet abroad (though of course all cut and placed in hand mows), and the Grass is ankle deep, and Swedes a capital crop. This exceptional appearance of Grass and roots does not reach beyond Swansea; eastward of that you know what a prospect and what a present dearth there is. My district in Norfolk, between Norwich and Yarmouth, is mostly a deep soil, resting on a cool brick earth; the summer has therefore suited our corn, and our Wheat is a good average crop; Barleys bulky, and will yield well, and the grain though white and steely is of fair body. Oats are short, and Beans and Peas an average. All straw light, well harvested, and free from vermin. Hay half a crop, but well saved. Mangel a fair plant, and on holding ground will be a three-quarter crop. Swedes patchy and very small, and were full of lice and terribly cut up with grub. White Turnips generally a failure for want of plant. I shall shred all my roots, and mix them with an equal bulk of cut straw or corn chaff; all the hay will be cut into chaff, save a little for the riding stable. Sheep will be daily driven to a well littered yard, and there remain some time; and where the land will not bear folding, will lodge in the yard all night. Of course oil-cake, Cotton-cake, and corn meal will be given to all stock in proportion to their size and state of fatness. I never exceed 4 lb. of Linseed-cake, 4 lb. of Cotton do., and half a peck of meal to a large ox; that, with 4 bushels of finely shredded roots and corn chaff (half and half), and a handful of hay chaff, I fancy is enough for the largest beast. I have also bought some treacle at 17*l*. per ton, fine and sugary; this I shall mix with warm water and sprinkle over chopped straw, and give at the rate of 2 lb. a day to small store cattle; a few roots will be added if there are any to spare. I am buying some spring Beans off marsh land that are 7 or 8 feet high, quite free from lice. They are yet green, and I am chopping them up with Oat straw for my cart-horses; and with 1 bushel of ground Oats each per week they are doing remarkably well. *Clare Sewell Read, of Plumstead.*

Roxburghshire: *Clarilaw.*—I think that the crop of corn in this neighbourhood is nearly an average, except Oats, which are a very poor crop, not two-thirds of an average; we have a great deal of the crop still standing out. I have not a fourth of it carried home yet. The Turnip crop looks well, but we shall have to keep fewer cattle. I do not know the best way to eke out the scarcity of the supply of food for sheep and cattle, but I think oilcake a very good help. *Patrick Brodie.*

Salop: *Baucott Munslow, Church Stretton.*—Harvest is all completed, and never was secured in finer condition. The Wheat is likely to yield less than people expected before harvest, and the quality not so good as last year. The Barley will be quite an average, and the grain a fine colour, but not so large as last year. Oats very good. The straw of every description is good, and will be eaten well by the stock. The Swedes in this district have made considerable progress since the rain, but common Turnips are a failure. I consider we are much better off than we were four years ago. Our Turnip crop was much worse, our hay spoiled, grain got badly, and straw worth less except as manure. There are considerable quantities of cake being used now, and will be as long as the cattle remain in the pastures. I have no doubt after cattle are taken to the yards there will be more grain used with cut chaff, pulped roots, &c., cake being the most economical food to use during the time the cattle are upon the pastures, and grain with a mixture in the yards. *Richard Shirley.*

Sussex: *Brighton.*—The harvest is rather better than it was expected to be. Cattle food for winter is scarce; Turnips a complete failure; Cabbage and

Carrots nearly as bad; Mangel, where there is a crop, good. Hay, oilcake, bran, brewer's grains, &c., very dear and scarce. Grass much improved by late rains, and store cattle will probably be out until Christmas. To shorten the winter early Rye and spring Rape will be had recourse to, but Italian Rye-grass freely irrigated now will grow during the next two months, and be ready before either. In my own case I sowed in August 20 lb. of Cabbage seed, which is now ready to plant out. The "Eastham" variety is ready in March, which will next year be a very critical period. Until nearly the middle of December, the under leaves of the Mangels, carefully stripped off, will furnish the bulk of our succulent farm food, and from that time to the middle of March, the roots themselves, with a few Cabbages, will be the main support. My roots are all put into pies, 8 feet wide and 4 feet high, and covered with earth. At every two cartloads carried in a bunch of straw is placed, and when the pie is ultimately covered a stake marks each 10 loads. The daily consumption can thus be accurately arranged, and half a cartload a day economised through 150 days leaves a most valuable reserve at the last. There is but very little autumn Rape for the sheep. *Fred. F. Hallett.*

WARWICKSHIRE: (1) *Stratford-on-Avon.*—The harvest having been concluded a sufficient time in this district to allow the threshing machines to be used to a considerable extent, it is found that the Wheat crop yields badly; although upon some of the best clays and deep soils fair crops are found, it is under an average, and considerably so on the lighter soils, as the plant was generally deficient. The Barley crop does not yield so well to the straw as at one time expected, the grain being generally thin in consequence of the continued dry weather throughout July, yet it must be a full average, although none of those large crops spoken of at one time from the great bulk of straw, and there seems a greater quantity than usual shed upon the ground. The Peas where sown early are a fair crop, and the straw being free from blight will be extremely valuable for fodder. The Beans are very various; upon some of the deepest and best-conditioned soils a fair crop, on others middling, down to very bad. The failure of Swedes and Turnips is very general, and as many parties grow none and others only a small quantity of Mangel Wurzel, they will be sadly put about to carry their stock through the winter without being meat producers. Some parties in this district are large growers of that excellent root, (and no doubt next season their number will be much increased) and as the crop is probably more than two-thirds of an average they will be in a position to take the benefit of the meat market in the spring, but will have to resort to unusual means to keep the store stock in fair condition through the winter and spring months; the failure of the young seeds is very disastrous; they are now being resown generally, some fields being left to be planted with Beans. A great effort is being made for spring feed in sowing Trifolium, Rape, Rye, winter Oats and Vetches, Italian Rye-grass, &c. The cutting up of different kinds of straw with a little hay and mixed with the flour of the cheapest kind of corn, malt-combs, &c., will be very extensively resorted to, and when used for cattle, the chaff being steamed, will make a good feed, but the best and cheapest we think is, where roots can be had to pulp and mix with it. If Wheat continues near its present price a considerable quantity no doubt will be used for feed in the room of cake, &c., and may perhaps have some effect on its price in the ensuing spring. Although the Grass fields are looking green they throw up but little keep, and the different brush Turnips sown grow but badly, being much eaten by the slug and fly, the weather apparently not being sufficiently warm for their growth. *G. A.*

WARWICKSHIRE: (2) *Milcote, Stratford-on-Avon.*—The harvest of this neighbourhood is entirely gathered, and I know no reason to alter the opinion I have previously given you of its probable results. On land suited to the growth of Wheat and well cultivated, that grain will prove a full average crop, but not as productive a one as that of 1863. Barley is beyond an average quantity, but much of it will be hard and thin, and fall far short of the fastidious desires of the maltsters, whose requirements become yearly more and more difficult for the English farmer to supply. Beans are a bad crop. The Mangels bore the extreme and continued dryness wonderfully; since the rain came, they have grown and are still growing rapidly, and promise to be a good crop. As this root is much cultivated, where a few years since Swedes would have been sown, many farms in this locality have about their usual quantity of winter sheep food upon them—but where Turnips have been the dependence, a different state of things is present, and numerous farmers will be greatly puzzled to keep their usual number of sheep during the coming winter. I have not heard of (nor can I suggest) any means to meet their exigencies. All fodder will doubtless be cut and afterwards mixed with flour or bruised grain, as a means of inducing the sheep to eat a larger quantity of such food than it would be deemed advantageous for them to eat, supposing roots were plentiful. *J. C. Adkins.*

WILTSHIRE: *Avebury, Chippenham.*—The harvest, I believe, is nearly all completed, with the exception of a few Beans, which, I am sorry to say, are a complete failure; Winter Beans I believe a fair crop. The harvest, I believe, never could have been better secured. Wheat, per acre, is beyond what was expected in quantity and quality also; weight of Wheat superior to that we are accustomed to, being unusually heavy; Barley very good, and well secured, a good crop, and likely to malt well, as it grows so well in the field; Oats on the whole a fair average crop; Tares come to market more plentiful than was expected, and still command a high price. I am pleased to observe since the rain where there are Swedes they have made wonderful progress. Everything that could be thought of has been sown as early spring food for sheep, which, with the improvement of the pasture land since the rain, will help to pass away time; the great abundance of old hay which is in many parts of our county, and which, I hope and think, will not be dearer than at present, with cut straw of every description, a few Oats or a little cake, and, in some instances, Beans, will enable us to rub through the winter; many people will cut up their Oats as they are and give to sheep. I have heard of Wheat straw cut into chaff, with a little hay and a pint of Oats given to ewes at the present time, do well; all kinds of straw are so particularly sweet this year, equal to bad hay, that I am of opinion, and trust if we have a mild winter things may not be so bad as may appear at the present time. Warmth is a great thing when food is short. I find there is a difference of opinion as to the Oat crop being an average. *Geo. Brown.*

YORKSHIRE: *Sturton Grange, Garforth, Leeds.*—With respect to the "corn harvest in this neighbourhood," the Wheat crop is under an average, having much small corn in the sample. Barley a good crop, I think the best that has been grown for years; Oats moderate. The harvest has been well secured, plenty of corn ready to thresh, selling at a bad price. White Turnips a failure; Swedes now growing well, and should the frosts keep off until the end of November there will be some good fields in this part of Yorkshire. Upon the strong lands Turnips are a lost crop. For the winter keep of sheep there will have to be a great outlay in either Barley, Malt-combs, Cotton-cake, and Locust Beans. I give my lambs which have been on Turnips three weeks, Cotton-cake at 5*l.* per ton, Locust-meal at 6*l.* 10*s.*, malt-combs at 4*l.* per ton, and shall also give Barley if under 1*s.* per stone. I think farmers ought to use as much corn as they require, which will raise the price and reduce oil-cake. My ewe flock will be wintered upon Grass, with an outlay of 6*d.* per head per week in artificial food. *B. Nicholson.*

Home Correspondence.

Linseed and Straw.—In the too probable scarcity of food for stock-masters during the coming winter and spring, it may be of great public utility that I make known a recipe once given me by a grazier, and which, when I kept two or three cows in a stable, I put to full and satisfactory proof. By the help either of this or of the waste from the kitchen, mixed with a small quantity of bran and Wheat straw, I was saved the necessity during twelve years of cow-keeping of buying a single truss of hay. And during one winter, when hay was selling at 6*l.* a ton, and when it cost the farmers and milkmen 12*s.* a week for each cow, my two cows together, with straw at 30*s.*, cost me only 9*s.* a week; and they were in better condition than any in the place, and gave as much milk as any. Let a peck of whole Linseed be steeped for 48 hours in 54 gallons of cold water, and let this be occasionally stirred, and at the end of that time the water will be thickened, my informant said, to the consistency of arrowroot. I must say, however, that his arrowroot must have been rather thin. Still, so much of the oily and glutinous matter escapes into the water, that, if you wish to warm it, boiling, because of the froth raised, is out of the question. I cannot, however, see any need of boiling or even simmering it. My opinion is that if those 54 gallons thus saturated be mixed with a quarter of a ton of straw, or even half a ton, it will make it equal to the best hay. My informant stated that he and the man who taught him had sometimes fatted a bullock, when put up in pretty good condition, with no other food than this. Can it be that the nutritious and fattening particles are extracted in so fine a form that the system of the animal immediately takes them up, and thus derives from them full and immediate benefit; whereas a vast portion of the oilcake and coarse Barley-meal commonly given passes through the animal in an undigested form? *Henry Moule, Dorchester.*

Gorse.—The corn crops have been pretty safely housed about here, in spite of the broken weather. The Wheat crop, of which there is but a limited sowing, yields very well; but a good deal is of inferior quality. Oats, although in some instances luxuriant, are disappointing in the yield, the grain being light, and consequently the produce very short. On an average, it is said not to exceed a half crop as compared with last year. The straw also is very short on light lands, and where it remained out in stooks, was very much blackened with rain. Barley is better in appearance, and has turned out more productive. Of Peas and Beans, the quantity cultivated hereabout is so small as to be hardly worth mentioning; it is a good crop. Potatos are a fine crop, both as to quantity and quality, and hitherto completely free from disease. Turnips and other roots will be very deficient. Th earlier sown ones will give from one half to two thirds of a full crop. The later sown crop will not produce anything; they were past recovery when the rains came. They are merely now putting out leaves, and make no show of bulbing. On the whole I should say that there will not be more than a half supply. The hay crop deficient by a third at least. The Grass was all dried up in the pastures, and the autumn growth which our graziers rely upon for the winter will come to nothing, for it is consumed as fast as it grows. There will be no stock of it to carry on, and stockmasters will have to draw on their fodder sooner than usual. Of aftermath there is none. A very large number of beasts must be kept over the winter, which under ordinary circumstances should have been sold out by this time. To meet these wants we shall have recourse to the use of Indian Corn, or at the present low prices, of inferior Wheat, Oats, Peas, and Beans, all of which are now cheaper than the various descriptions of cake. The practice of cooking the food is increasing very much, and is found economical. The use of Gorse is not yet sufficiently understood; otherwise, where practicable, it is the most economical of all fodder. From my experience of it I should say, "so much Gorse given so much hay saved.' This is only true when it is properly prepared, so that there is no waste of the material itself or of muscular power in the animals endeavouring to reduce it to a proper state by prolonged mastication. I send you a pamphlet by this post, illustrative of the machine I have invented, and of its usefulness. In it I have not mentioned the cost of the Furze when prepared, because that must vary according to circumstances. In no case can it exceed 20*s.* a ton. In my own case I never found it exceed 10*s.*, although I had to get the Gorse cut by hand off hedge-rows. Others have had it done much cheaper, especially when it is mowed in what are termed Furze meadows. The workers must be provided with proper appliances, such as gloves, hooks, &c. I have never found any difficulty in getting any animal to eat it excepting sheep, which are very whimsical about it. When snow is on the ground they eat it eagerly. Cows will eat it anywhere, in the house or on the Grass. Last winter there was a good deal of correspondence in the *Times* about this subject. I wrote twice to the Editor in answer to queries, but he did not condescend to insert my letters, although he published several very little to the purpose. *John Walsh, Stedatt, Balbriggan, Ireland, September* 26.

Farmers' Clubs.

BOTLEY: *Use of Superphosphate in Turnip Culture.*—Mr. SPOONER lately read a paper on this subject. The discovery of the use of superphosphate was due to a suggestion of Liebig. He himself was one of the early experimenters, for it was nearly 20 years ago since he won the R. A. S. prize for the best essay on the subject. Since then many papers have been written, and full directions given, of the different modes of dissolving bones by acid, amongst the worst of which was using a heap of ashes as a bed for the bones, as the ashes were sure to absorb and neutralise some of the acid. In order to supply this article in sufficient quantity to agriculturists, the world had been ransacked for the requisite materials, and he produced a specimen of fossilised bone earth imported from the island of Sombrero, and various phosphatic materials from this and other countries. The importance of chemical manures and the wants of agriculture, demanded that every encouragement should be given to the opening and development of new sources of supply, in order that the article might be supplied at as cheap a price as possible, and nothing can be more injurious to agriculturists than the attempt to induce them to rely on or employ one form of phosphate of lime alone, such as half-inch bones. If it be a desirable object to raise this useful manure some 50 per cent. in price, then by all means use it, and use it alone; but if otherwise, then give every encouragement to those who ransack the world for the supply of materials which, by the aid of chemical science, can be converted into food for mankind.

In applying sulphuric acid to bone phosphate, or tribasic phosphate of lime, as it was now termed, from its containing three equivalents of lime to one of phosphoric acid, the sulphuric acid abstracted two of these equivalents of lime and formed sulphate of lime or gypsum, whilst the remaining equivalent of lime formed with the phosphoric acid soluble phosphate, the principal and most valuable ingredient in commercial superphosphate. To show that it was really so, the lecturer dissolved some superphosphate in water, filtered it into a test tube, where it was quite colourless. To show its presence he poured in an alkali, which, uniting with some of the phosphoric acid, caused the remaining phosphate of lime again to become insoluble, and therefore visible in the form of a milky cloud. This latter was called precipitated phosphate, and was the form in which it was taken up by plants, whilst its previous soluble state was that in which it became distributed through the soil. The precipitated phosphate was in a much finer state of division than any mechanical means could reduce it to; so they must not delude themselves by the idea that by fermenting their bones, or by mixing them up with ashes, they can render the phosphate soluble. He had found on submitting both the soluble phosphate as well as the precipitated phosphate to a

microscopic examination, that the former was present in the form of exceedingly minute bodies, somewhat like the globules of the blood, whilst when precipitated the crystals were long and slender, like those of Epsom salts, thrown together, as it were, in all positions, and thus accounting for the bulky state of the precipitate. Mr. Spooner then alluded to an article in the Journal of the Royal Agricultural Society of England, by Dr. Voelcker, in which were detailed a number of experiments, which proved that the soils which derived most benefit from phosphate of lime were those in which it did not greatly abound, but which had the power of absorbing the soluble phosphate, and fixing it by means of their alkaline properties. Thus most strong soils possessed this capability, and chalky soils still more so, whilst many sandy soils were deficient in this power. This led the Doctor unwittingly into an erroneous statement, for he said that light soils had not the power of thus fixing the soluble phosphate, which was therefore not a desirable manure for them. Now we know that by far the great majority of light soils in this country were on the chalk, and there superphosphate succeeded best. Dr. Voelcker evidently applied, or rather confined, the term light to sandy soils alone. It was satisfactory to know that most soils retained superphosphate to a far greater extent than was ever applied, and the fear of its being washed out, which some imagined, was therefore altogether groundless. It was only when too small a quantity was used that it was likely to do harm. He considered that it was desirable to use bones with superphosphate, not because the latter alone would do any harm, but because more phosphate (although insoluble) could be thus applied for the money, with ammonia in addition, which was very useful in the latter stages of growth; and thus for the same reason bone dust was used with much advantage in making superphosphate, with other materials, still richer in phosphate of lime.

Mr. Blundell said his experience showed that whilst superphosphate answered very well for starting a crop of roots, it was not likely to be productive of successful results on loamy soils such as theirs, which were not chalky, unless they used some other manure in addition to it. He used bones fermented by mixing them with sand or ashes, and also guano. He could grow Mangels and Carrots much better than Swedes.

Mr. Scott contended that the result of numerous experiments was highly favourable to soluble phosphates, as now supplied by manufacturers, and quoted the following passage from a lecture by Mr. Sibson, F.G.S :—"Is it advisable for the farmer to make the superphosphate he requires for his own use? I should say, except under peculiar circumstances, certainly not, and for the following amongst other reasons: because it is impossible that it can be made so well on the small scale, by persons unaccustomed to the work, as on a large one by skilled hands; or with the simple apparatus the farmer is able to provide, or to extemporise on the spot, as with the machinery and appliances found by experience to economise labour and improve the result. Again, in places where bones are to be had cheap, acid will generally be dear; indeed, the carriage of vitriol in small quantities is so expensive, in consequence of the almost prohibitory rates charged by most of the railway companies for this article, that it can seldom be procured by farmers with advantage."

Mr. Spooner said those who were in favour of bone manure could not consistently condemn superphosphate, which possessed the same properties as bone earth, but supplied it in a more soluble and therefore more effective state. [In reply to the Chairman.]—Taking an equal weight of bone and Sombrero guano, if the former would supply the skeletons of 200 sheep, the latter would be equivalent to 300. He should not have alluded to the commercial aspect of the question at all had he not been told by a gentleman that, in a communication he had lately received, it was stated that a sack of bones weighing less than 1½ cwt., dissolved by 60 lbs. of vitriol, was equal to 4 cwt. of the very best superphosphate, a statement which was as incorrect as it was unfair and unjust. The former would make about 2¼ cwt. of superphosphate, and would contain somewhat more ammonia, but only one-half the phosphate of lime, and not one-third the soluble phosphate as the 4 cwt. of superphosphate. There was only one fair way of trying such experiments, and that was by applying each manure at the same expense per acre.

Blandford: *Stable Ventilation.*—Mr. Wills, V.S., read a paper on this subject, from which we make the following extracts:—

A few years ago, when a commission was appointed by Parliament to inquire into the subject of ventilating dwellings, in their report they state:—

"We began the work by endeavouring to ascertain, approximately, the amount of fresh air required to keep a sleeping-room healthy. Various attempts have been made at different times to settle this amount scientifically, but nearly every experimenter has arrived at a different estimate of the quantity. These differences in opinion have arisen from not sufficiently considering the various offices which fresh air has to perform in the ventilation of dwellings, and from not looking at the practical rather than the scientific view of the question. One set of experimenters have based their calculations on the quantity of air required to dilute the carbonic acid down to the proportion in which that gas exists in the external atmosphere. The estimates hence are various, and differ to the extent of one, two, or even four times, as to the amount of air required for health—a difference which proves how little is yet known, scientifically, on the subject." They go on to say, "The practical argument as to the amount of fresh air required to ventilate a room is, in our opinion, of far more weight than the mere scientific one. We find, for example, that Nature has provided in the atmosphere unlimited extent and constant means of purification and of movement. The building of dwellings interferes with those natural conditions, by enclosing the air in confined spaces, saturating that air with impurities, and rendering it stagnant. It may be fairly argued, as, indeed, has been proved by experience, that those dwellings are the most healthy in which the natural conditions of the atmosphere are most perfectly preserved."

This being our object, then the first point to be considered is the quantity of air vitiated by a single horse, and how much he will require in a given time to keep him in a healthy condition. To make this clear I must enter a little into estimates, but I will promise to make them as short as possible. An ordinary healthy atmosphere consists of the following constituents: Oxygen, 20.61 per cent.; nitrogen, 77.95 per cent.; carbonic acid, 04 per cent.; watery vapour, 1.40 per cent. Now, the oxygen is the important ingredient which supports life, the nitrogen being only a diluter of the oxygen. The carbonic acid gas is in scarcely appreciable quantity, and that is produced by the process of respiration and combustion on the surface of the earth, by which immense quantities are continually being formed; nevertheless the proportionate quantity scarcely varies; for this very gas, which is exceedingly destructive to animal life, is, as you know, the principal food upon which all the vegetable world live, absorbing this carbonic acid from the air, and decomposing it, retaining its carbon and giving off the oxygen, which is just what animals require. The destructive agency of this gas, viz., carbonic acid, on animal life, is well exemplified in certain places, where large quantities are evolved from the earth, the most striking instance being the celebrated valley of Java, which if any animal enters, it never leaves. If you are not familiar with it, I will read you a short but interesting account of this valley given by an eye-witness:—

"We took with us two dogs and some fowls to try experiments in this poisonous hollow. On arriving at the foot of the mountain we dismounted and scrambled up the side, about a quarter of a mile, holding on by the branches of trees. When within a few yards of the valley we experienced a strong nauseous suffocating smell, but on coming close to its edge, this disagreeable odour left us. The valley appeared to be about half-a-mile in circumference, oval, and the depth from 30 to 35 feet; the bottom quite flat; no vegetation; strewed with some very large (apparently) river stones, and the whole covered with the skeletons of human beings, tigers, pigs, deer, peacocks, and all sorts of birds. We could not perceive any vapour or any opening in the ground, which last appeared to us to be of a hard sandy substance. It was now proposed by one of the party to enter the valley, but at the spot where we were this was difficult, at least for me, as one false step would have brought us to eternity, seeing no assistance could be given. We lighted our cigars, and with the assistance of a bamboo, we went down within 18 feet of the bottom. Here we did not experience any difficulty in breathing, but an offensive nauseous smell annoyed us. We now fastened a dog to the end of a bamboo 18 feet long, and sent him in. We had our watches in our hands, and in 14 seconds he fell on his back, did not move his limbs or look round, but continued to breathe 18 minutes. We then sent in another, or rather he got loose, and walked in to where the other dog was lying. He then stood quite still, and in ten minutes fell on his face, and never afterwards moved his limbs; he continued to breathe seven minutes. We now tried a fowl, which died in a minute and a half. We threw in another, which died before touching the ground. During these experiments we experienced a heavy shower of rain; but we were so interested in the awful sight before us that we did not care for getting wet. On the opposite side, near a large stone, was the skeleton of a human being, who must have perished on his back, with his right hand under his head From being exposed to the weather the bones were bleached as white as ivory. I was anxious to procure this skeleton, but an attempt to get it would have been madness." Any animal shut up in a close stable affects the purity of the air in those very matters which are injurious to his health, viz.,—He withdraws oxygen by the process of respiration, and thus diminishes its proportionate quantity. He replaces the oxygen by an equivalent of carbonic acid, increasing its proportionate quantity. By the process of exhalation from the lungs and skin he increases the proportion of water in the air. In the moisture exhaled from the body is a quantity of excreted animal matter, disengaged from the system, which, were it retained, would be fatal to health and life. The respired air, therefore, is found to differ very much in composition; it has lost from 4 to 5 per cent. of its oxygen, and has acquired 4 or 5 per cent. of carbonic acid and a quantity of watery vapour. It has been calculated that the horse takes into his lungs at each inspiration 100 cubic inches of air; at the rate of eight respirations per minute he inspires 48,000 cubic inches of air per hour. Now I will not go into details of this kind further than I can help, but at the very least the quantity of carbonic acid evolved in 24 hours may be calculated at 24 cubic feet, containing 45 oz. of solid carbon. It must, however, be remembered that the carbonic acid is not the only injurious product. The exhalations from the skin and excretions, defective drainage, &c., all combine to produce a vitiated atmosphere. The amount of the cutaneous perspiration and the pulmonary transpiration is on an average 15 lb. weight daily, holding in solution a quantity of animal matter which very readily putrifies, and hence the moisture becomes the vehicle for a subtle aërial poison, which, when breathed for some time, poisons the blood and predisposes to disease. Now, having arrived at these data, that a horse passes through his lungs 800 cubic inches of air per minute, that in 24 hours he makes 24 cubic feet of carbonic acid, and that from his lungs and skin he adds about 15 lbs. weight of watery excretions, we will endeavour to adapt them practically. Keeping to my promise not to bore you with uninteresting scientific details, I will merely say that chemistry tells us that at least 1000 cubic feet of air per hour are required by a horse for the mere purposes of diluting the carbonic acid and water given off from the body to the same standard as they exist in the atmosphere itself. But chemistry takes no cognisance of those aërial poisons eliminated from the skin and lungs, and which, in stagnant air, are perfectly cognisable to the senses, even after the air has been diluted to the extent stated. Indeed the object to be served by ventilation is primarily the dilution and removal of those poisonous exhalations; and, if this be secured, the carbonic acid and water will be removed at the same time. Calculating on the experiments in reference to human beings, made by the commissioners, 6000 cubic feet of air should be supplied to each horse per hour. Now, in a stable of that capacity, viz., 6000 feet, for about 53 by 15 by 12 feet, you would place five horses; therefore the ventilation should be so contrived as to change the air five times every hour. I am making my calculations on readily practical grounds. It would be a different thing if you were about to build; I should then recommend twice as much space for each horse as that I have mentioned. Now, having settled that a horse having 1200 cubic feet of stable room requires that the air should be changed five times every hour, the first question that arises is, how can this be done? It is a well-known fact that air, like water, is governed by certain laws, and that its ingress and egress into and from rooms can be regulated by the observance of certain conditions. Respired air, warmed by being taken into the lungs, is specifically lighter, or takes up more space than pure, cold atmospheric air; it therefore ascends towards the ceiling, where it becomes condensed, and subsequently descends and mixes with the air of the whole room; in obedience to the remarkable law of the diffusion of gases, a portion escapes by any opening it can find at the top of doors, windows, &c., but if there is a fire most of it escapes by the chimney. This, by itself, is sufficient ventilation for a large room. Again, fresh air enters by doors, windows, &c. It has been calculated that eight cubic feet of air per minute will pass between each window frame and the sash, but free entrance and exit must be provided for the air; our ventilation must be self-acting in fact. Stables should have plenty of ventilators in the ridge of the roof, and a number of openings in the walls above the horses' heads; the heated air would then escape by the highest openings, and cold air enter by the lower ones, and immediately take the place of that escaping above, thus not blowing down on the horses at all. If this plan were thoroughly carried out I think it would be sufficient; but where, from a loft being over, this plan cannot be adopted, and you could not conveniently carry ventilators through the loft, try two rows of holes in the walls, both above the horses' heads; and if this is not sufficient, holes must be made along the bottom of the walls furthest from the horses. Do not be afraid of the draught; it has been proved that animals in a state of nature require very little more than food and shelter to preserve them in a healthy condition; but go into almost any stable you please, and what do you think of it? I suspect you will find more than shelter there: it probably is so warm and stifling that you can hardly breathe. You look at the ventilators, if there are any, and you will find them stuffed with straw, and every crack or hole in the wall or window effectually closed, for fear the horses should take cold. Well, gentlemen, continue this, and you will continue to have influenza, coughs, ophthalmia, and a variety of other diseases in your stables, and perhaps employ me to cure them; but if you wish never to have a case of the kind, take my advice, and thoroughly ventilate: far better have too much air than too little. As I said before, you must have plenty of pure air at any sacrifice: however inconveniently the ventilators may be placed they are better than none. I would rather have a stable full of cracks and holes, what you call tumbling down, to preserve the health of a horse, than the majority of stables throughout the country. There are times when, from the heat and stillness of the external atmosphere, the ventilation becomes stagnant: in such cases of course you must have adventitious aids, opening all your doors, windows, &c. I hope I have said enough to satisfy you that a horse confined in a stable destroys so rapidly a large proportion of atmospheric air, as to render it necessary that he should have a much larger space than has hitherto been allotted to him; that the system of ventilation must be self-acting, and of sufficient capacity to ensure the necessary supply of pure air; and that windows and doors should only be looked upon as adjuncts to the self-acting system during times of extreme heat and stagnation of the outer atmosphere, and not as the main provisions for ventilation. The evils attendant on the want of sufficient ventilation are only too well known to those whose duty it is to inquire into the causes of disease, but which are little suspected and rarely admitted by stock owners; but I assure you that a large number of the diseases affecting animals can principally be attributed to, or are promoted by, an accumulation and stagnation of the exhalations of the body. It is of little use running over a list of these. Take away the cause, and the effects will cease.

Mr. W. Spooner said that it was extremely necessary that ventilation should be more attended to than it had been. Horses gave off very large quantities of carbonic acid in the process of respiration, which gas, when present in excessive quantity in the air, was very fatal to animal life. Some time ago a striking instance of this occurred on his own premises. He had a tank under-ground, in which the gas liquor of some of the Southampton gas works was collected, and used for the purpose of obtaining ammonia. His men had a quantity of weak sulphuric acid, which they wanted to get rid of; so they emptied it into this tank, and closed it. Shortly after a man went to dip some water from a well about a dozen yards off, and he fell forward on his face. Another went to see what was the matter, and he fell down over him. A third then came up, and feeling a suffocating sensation, ran back, and, seeing some person coming by, pointed to the well, for he could not speak. The men were quickly rescued, otherwise in a few minutes their lives would have been sacrificed. The carbonic acid had been produced by the action of the sulphuric acid on the gas liquor, and, making its way through the earth, filled the well and overflowed it; for, being a very heavy gas, it rolled along the surface of the ground to some distance. He recommended that stables should be ventilated by both low and high openings, and that earth should be placed to the depth of a foot below the horses, instead of paving. It having the property of absorbing immense quantities of ammonia, it was the best natural deodoriser, and would be afterwards very valuable as a manure—nearly as good as his superphosphate, in fact, and would not require to be changed more than once in six months. A great number of diseases, as glanders, farcy, diseases of the eyes, &c., were frequently produced by defective ventilation. During the Peninsular war, some horses in a transport, in consequence of bad weather, were closely confined for some time, the hatches being battened down: when they were landed, all were found to be either glandered or farcied. He was satisfied that many diseases would be entirely prevented by effective ventilation.

Reviews.

Agriculture, Ancient and Modern; a Historical Account of its Principles and Practice. No. 5. By "The Old Norfolk Farmer." J. Virtue.

The present Number continues the history and description of the livestock of the country. The chapters on the breeds of Cattle are concluded, and those on the Sheep are begun.

The following are two extracts:—

1. *On the Selection of Cattle.*—"The purchase and selection of cattle, of whatever breed, and for whatever purpose, has been reduced of late years to what may be called a science. We have already observed that in the early and rude state of agriculture, the eye alone in the purchaser, and size chiefly in the animal, were the means of determining the merits of the subject under consideration; and such is still the case in those countries where agricultural improvement has made little or no progress. A large ox is preferred, however unpromising in other respects, to a small one whose symmetry and well defined excellencies of form indicate a better, quicker, and more profitable result. There is no doubt but that practice, and a keen faculty of discrimination, will enable a purchaser to make a good selection on a *prima facie* view; but no practical man of the modern school will trust to sight alone in the choice of cattle or sheep; he will exercise the sense of feeling as well, and this is far more demonstrative, but at the same time difficult, acquirement than choosing at sight. Most men possess some idea of the 'line of beauty,' whether in their own species, or in the inferior

animals; but the art of ascertaining by a few slighta touches upon certain parts of a bullock or sheep, whether it will lay on fat on the most valuable points, and in the most expeditious manner, can only be acquired by long practice and observation, and cannot be explained or communicated by words from one person to another. 'I have often,' says Culley, 'wished to convey in language that idea or sensation we acquire by touch or feeling of our fingers, which enables us to form a judgment, when we are handling an animal intended to be fattened; but I have as often found myself unequal to fulfil that wish. It is very easy to know where an animal is fattest that is already made fat, because we can evidently feel a substance or quantity of fat upon all those parts that are denominated 'the fattening points;' but the difficulty is to explain how we know or distinguish animals in a lean state, which will make fat, and which will not; or rather which will make fat on such and such parts or points, and not on others; which a person of judgment (in practice) can tell as it were instantaneously. I say in practice because I believe that the best judges out of practice are not able to judge with precision; at least, I am not. We say 'this beast touches nicely upon its hips, ribs,' &c., &c., because we find a mellow pleasant feeling upon those parts; but we do not say soft, because there are some of this same sort of animals which have a soft, loose handle, of which we do not approve, because, though soft and loose, they have not that mellow feel above mentioned. The one will make fat, the other will not.'

"It was observed by the same writer that the breeders of his day made a great mistake in breeding neat cattle, by endeavouring to unite great milkers with quick feeders (or fatteners). 'I am inclined to think,' he says, 'that this cannot be done; for wherever we attempt both we are sure to get neither to perfection. In proportion as we gain one, in the same proportion we lose the other. The more milk the less beef, and the more we pursue beef the less milk we get.' This is perfectly consistent with reason and analogy, and should never be lost sight of by the breeder or grazier. The Short-horned breed may be thought to disprove this, as they are said to excel any other breed in producing a greater quantity of beef, tallow, and milk from a given quantity of food. This, however, may be an error; for it is well known that the Short-horns are large feeders, and that their milk, though much in quantity, is poor in quality. Where they improve in this latter respect they lose their fattening propensity; and if they attain a large size and fatten readily, it is by consuming large quantities of food. In either case, however, they answer respectively the purposes of both the grazier and the dairyman, the object of the first being a quick return for his outlay, and of the second a large meal of milk irrespective of its quality. We close our account of neat cattle with a principle laid down by Culley, with which he also concludes his book:—

"'It would seem as though the same principle which we have all along endeavoured to establish held good through all the different classes of domestic animals which supply us with food, viz., that of all animals, of whatever kind, those which have the smallest, cleanest, finest bones, are in general the best proportioned, and covered with the best and finest grained meat. I believe they are also the hardiest, healthiest, and most inclined to feed, able to bear the most fatigue while living, and worth more per pound when dead.'"

2. *List of Original Breeds of Sheep.*—"The list of 'original' breeds of sheep is almost as numerous as that of counties. The old writers afford very little information on the subject, and we must, therefore, accept the statements of comparatively recent ones for the names of those which have been most prominent amongst graziers and breeders. The following is a list of those which were recognised at the commencement of the present century, and most of which are still admitted at the cattle shows:—

Name of Breed.	Kind of Wool.	Colour.	Horned or not.	Weight of Fleece.	Weight of Quarter.	Killed at Age.
				lbs.	lbs.	Years.
1. Teeswater	Long wool	White face	Horned	9	30	2
2. Lincoln	"	"	"	11	25	2
3. New Leicester	" fine	"	"	8	22	2
4. Cotswold	" "	"	"	9	24	2
5. Romney Marsh	" "	"	"	8	22	2
6. Dartmoor	" "	"	"	9	25	2
7. Exmoor	" coarse	"	"	6	16	2½
8. Heath	" "	Black face and legs	"	3	15	3½
9. Hereford, Ryeland	Short wool	White face and legs	Not horned	2½	14	3½
10. Dorset	"	White and speckled	Horned	3½	18	2½
11. Wilts	"	" "	"	3	20	3
12. Southdown	"	" "	Not horned	2½	18	2
13. Norfolk	"	Black and white	Horned	2	18	3½
14. Herdwick	"	White and speckled	"	2	10	4½
15. Cheviot	"	White face and legs	Not horned	3	16	4½
16. Dun faced	"	Dun face and legs	"	1½	7	4½
17. Shetland	" cottony	Various	"	1¾	8	4½
18. Spanish	" super.	White	Horned	3½	14	2½
19. Merino Cross	" "	"	"	2½	16	2

We have to repeat that the numerous illustrations of the work are mere garnishing and ornament—they are not generally instructive.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Sept.	Inches.	°	°				°	°	°	°	Inches.
Friday	23	30.02	65	60	S.W.	1	1	66	49	78	41	..
Saturday	24	30.13	61	58	W.	..	10	65	56	80	49	..
Sunday	25	30.33	53	52	E.	..	10	65	41	79	33	..
Monday	2	30 38	57	56	S.E.	1	7	67	43	81	36	..
Tuesday	27	30.26	61	58	S.E.	..	..	64	42	74	34	..
Wednesday	28	30.28	49	49	N.E.	1	..	68	41	76	33	..
Thursday	29	30.20	59	55	N.W.	..	..	68	48	82	36	.

Notices to Correspondents.

Grass: *W D, Grantham*, says, "Will the writer who signs himself 'H. R. Flaxlow, York,' in last number of the *Gardeners' Chronicle and Agricultural Gazette*, kindly state the nature of the mixtures applied to his 11 acres of Grass at the rate of 40*s.* per acre? [We do not believe in renovating Grass seeds. Apply 3 cwt. of Peruvian guano now or with the first shower if the land is drained and not liable to flood. That will be the best help to next year's hay crop. Or a good dressing of farm-yard manure.]

Rabbits: *Cor.* If there is anything specially adapted to meet the difficulty you name, a Correspondent to whom we have sent your letter will inform us for you.—*A Subscriber.* If your rabbits are kept in hutches, the troughs should be broad at top, narrow at the bottom, and fastened to the front. They should not be filled; but only sufficient bran or corn put in for the one meal. If the rabbits be at liberty in a pen, the trough should be too heavy for them to overturn, and should have bars over the top to prevent them from getting into it.

Weather in Cambridgeshire, &c. All the corn has been harvested in splendid condition. I do not know of enough corn having been threshed to give much information about the yield, but what Barley has been threshed has generally yielded well; but the quality of it is various, and I think not quite so good as was anticipated. Wheat has not proved so deficient as was expected from the many mis-set ears. The green crops are generally very bad; the Mangels and a few Turnips appear to be improved since the rain, and the late Coleseed and Turnips are now growing, but are not likely to be of much use for feed. Many of the Turnips have so suffered from being eaten by the grub and the dry weather as to appear past recovery. This beautiful weather has caused more feed on the pastures, which if it continue will prevent the roots being eaten quite so early; but I expect sheep and cattle will have to depend very much on artificial food this winter, and be kept at a considerable expense. Large quantities of chaff (principally straw, as there is a short crop of hay) with corn and cake will have to be used; good straw now cut in large quantities, salted, and made to heat, and well trodden (to make it solid), will be found very valuable in the winter. *H. Webb*.—Essex: The late heavy rains falling on the very dry and heated ground, have produced a close, steamy temperature, and a wonderfully rapid vegetation—so that Rape, Mangel, Turnips, and Grasses, all promise to be much better than was expected. Still Turnips can hardly be more than half a crop, they have been so infested with lice above, and brown grubs below, the latter cutting in two the main roots, and thus destroying the plants. *J Mechi.*

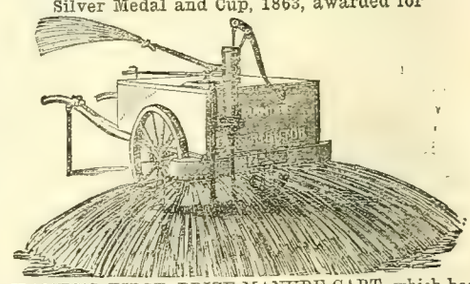
GREEN'S PATENT LAWN MOWERS have proved to be the best in all cases of Competition.
Leeds, London, and Dublin.

"THE HYDROPULT,"
142 & 143, Cheapside, London, E.C.
Illustrated Prospectus with Testimonials sent free on application.

HORTICULTURAL TOOLS.—Lawn Mowers, Garden Rollers, Garden Engines, Syringes, and Tools of all kinds; Wire Netting, Prize Churns, &c., delivered carriage free.
Price List free.
Burgess & Key, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

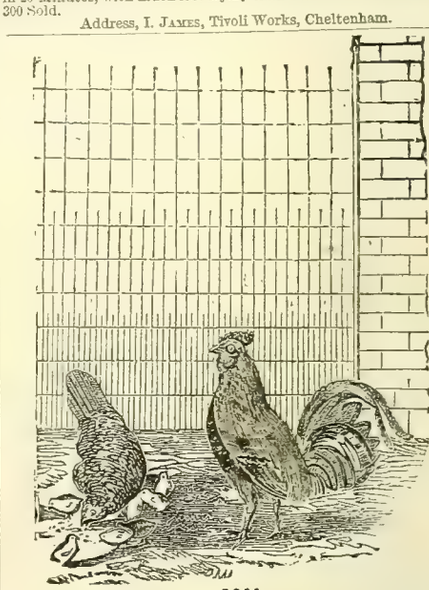
Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark, Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Silver Medal and Cup, 1863, awarded for



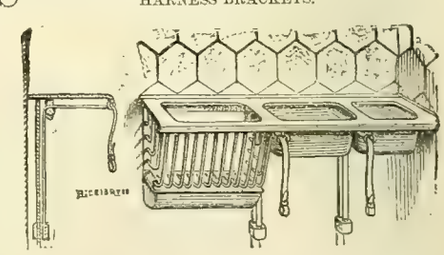
JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

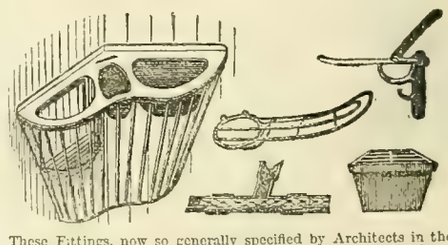
Washing.
The last great improvement in Washing Machines is in James's new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
Address, I. James, Tivoli Works, Cheltenham.



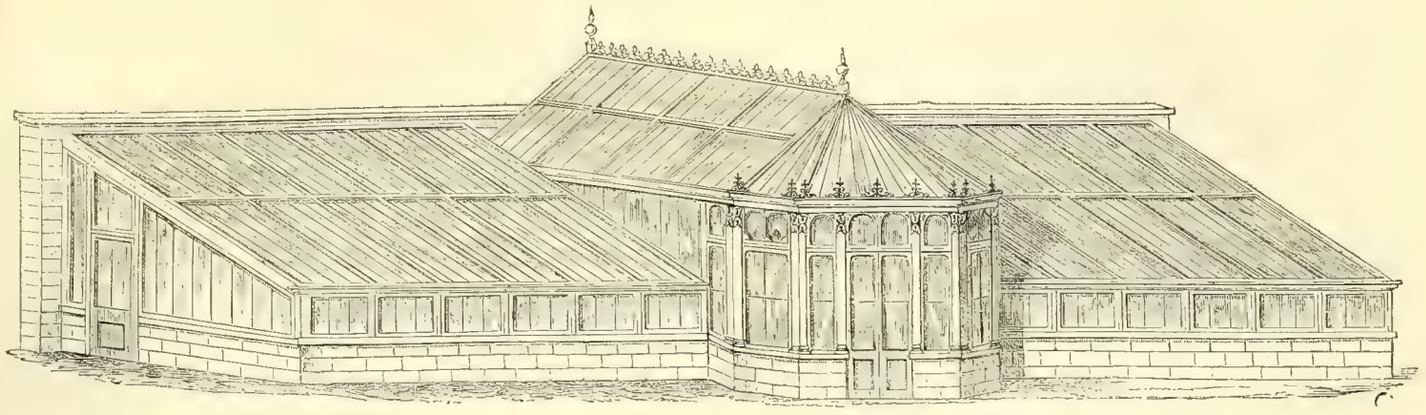
1864.
Just published, royal 8vo. 66 pp. and Wrapper, Illustrated with 78 Engravings,
COMPLETE ILLUSTRATED CATALOGUE of IRON and WIRE FENCES for PARKS, FARMS, GARDENS, SHEEP-FOLDS, POULTRY COURTS, GAME PRESERVES, &c., post free on receipt of 4 stamps addressed to
Greening & Co.'s Central Offices, 4, Warren Street, Manchester.

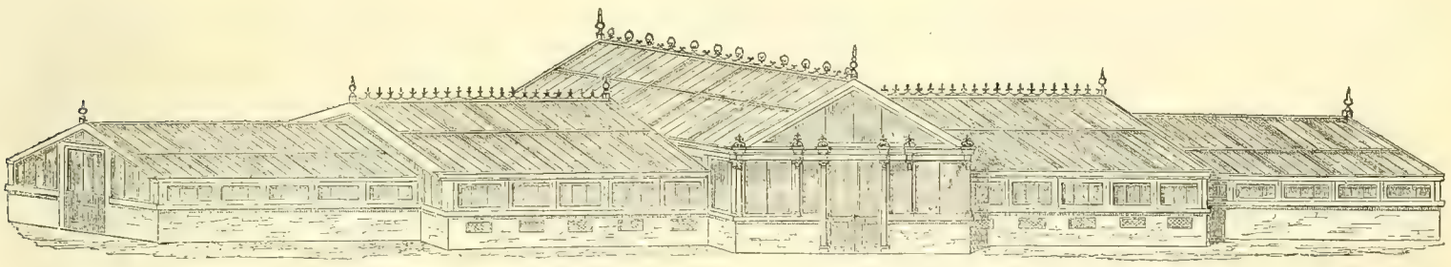
COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.

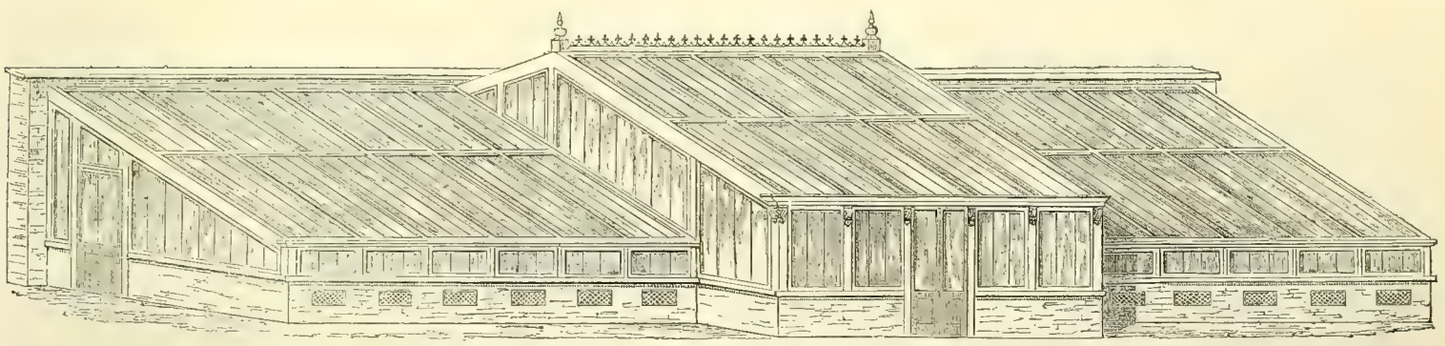




These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
Cottam & Company, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris), and 1862, for these Fittings.
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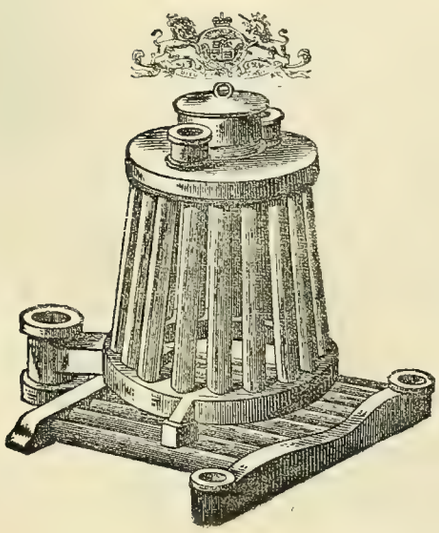
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ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.
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Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

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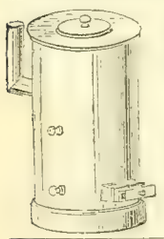
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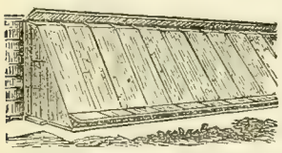
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

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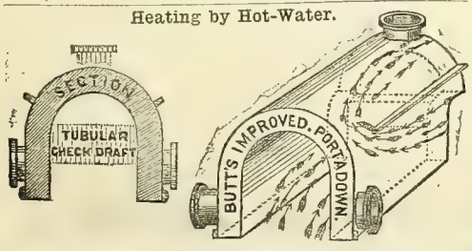
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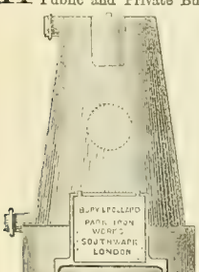
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THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

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(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
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HORTICULTURAL GLASS MERCHANTS,

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ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.* ..	7½*d.*
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Fourths	2¼*d.* ..	3¼*d.*

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Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

11 by 9	12 by 9	13 by 9	14 by 9	}	4ths.	3rds.	4ths.	3rds.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	}	10*s* 9*d*	12*s* 3*d*	12*s* 6*d*	14*s* 0*d*
13 „ 11	14 „ 11	..	..	}				
14 „ 12	15 „ 12	15 „ 11	16 „ 11	}				
18 „ 12	19 „ 12	16 „ 12	17 „ 12	}				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	}				
19 „ 13	20 „ 13	18 „ 13	..	}	11*s* 6*d*	13*s* 6*d*	13*s* 6*d*	16*s* 0*d*
16 „ 14	17 „ 14	21 „ 13	..	}				
19 „ 14	20 „ 14	18 „ 14	..	}	14 to 15 ozs. 16 to 17 ozs. to the foot.			

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ..	11*s.* 6*d.* ..	13*s.* 6*d.* ..	15*s.* 0*d.*
20 „ 13	Thirds ..	13*s.* 6*d.* ..	16*s.* 0*d.* ..	19*s.* 0*d.*
20 „ 14	Seconds ..	.. ..	English. ..	English.
20 „ 15	Best ..	.. ..	18*s.* 0*d.* ..	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 .. 6½ by 4½ ..	7 by 5 .. 7½ by 5½ ..	} 11*s.* 6*d.*
8 „ 6 .. 8½ „ 6⅝ ..	9 „ 7 .. 9½ „ 7½ ..	
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Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

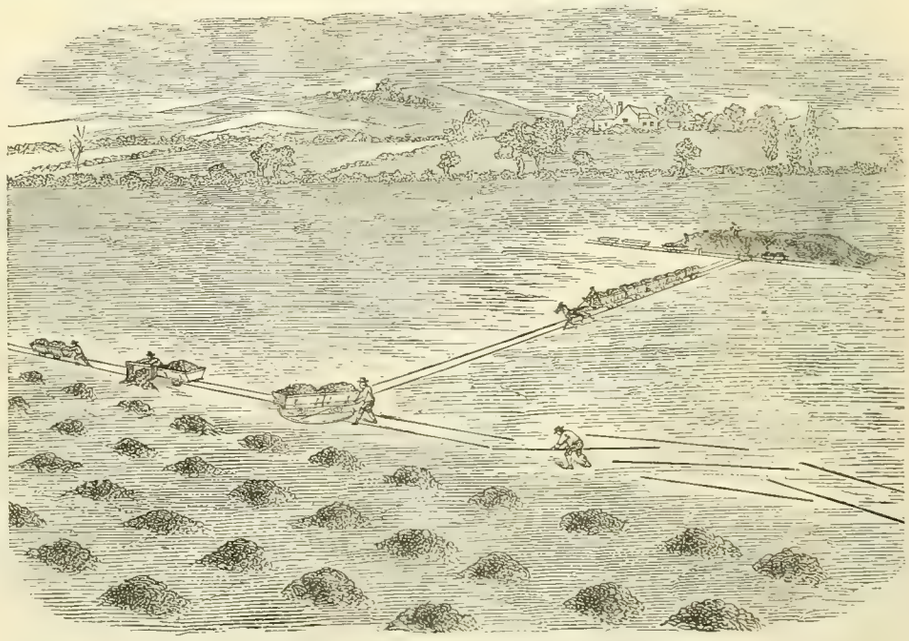
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GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	„ CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	„ PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

GRANT'S PORTABLE RAILWAY.



MANURING A FIELD BY GRANT'S PORTABLE RAILWAY,

Which is also adapted for clearing Root Crops off Wet Land, carrying Corn, and all kinds of Field Carting, and will be found to afford an immense saving over all kinds of Barrow work where the runs are long.

MANUFACTURED by the PATENTEE, J. GRANT, LINTON, KENT,
of whom full particulars may be obtained.

N.B. For particulars of the Wheat carrying on the 19th of August, 1864, see Correspondence in the *Gardeners' Chronicle*, &c., between Mr. W. L. Hubble, Steward to H. Bannerman, Esq., and the Editor, August 27, p. 830, September 10, p. 881*a*; and September 24, p. 927*a*.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient: have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

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Established A.D. 1700.

FOR SALE, a Great Bargain, a Portable, Good, and all but New ROOM, complete, 34 feet by 13 feet high and wide, Iron Roof, the sides Ground Glass with Blue margins. Can be seen at Chelsea. Also a very handsome CONSERVATORY, Circular Roof, which are all E. D. has left, and for which no reasonable offer will be refused.

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SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
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Universal Microscope. Price £5 5s.

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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

GARDEN SODS for Grotto Work, 12s. and 14s. per Ton.

SHARE'S LIST of TIFFANY. Large stock. Epsom samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

BENJAMIN EDGINGTON,
MARQUEE, TENT, FLAG, and RICK CLOTH MANUFACTURER,
By Special Appointment to Her Majesty.
An Illustrated Catalogue sent free by post.
Be particular to address BENJAMIN EDGINGTON (only),
2, Duke Street, foot of London Bridge, S.E.
No other Establishment.

To Users of Portable Steam Engines.

At the suggestion of the Principal Agricultural Engineers.

TURNER'S PATENT STRAP COMPANY are producing their PATENT STRAPS or BELTS, specially adapted for use with Portable Engines, when Driving Threshing or other Machinery unsheltered. These Engine Straps are made from the stout parts of the backs only of the primest hides, and they are offered with confidence as the best and most economical that can be employed. Price 60 feet long by 5 inches wide, 6l.; 5½ inches wide, 6l. 15s. Other lengths and widths in proportion. Turner's Patent Leather Driving Straps or Belts are made from hides prepared by a process which preserves and strengthens the natural fibre, instead of destroying it, as is the case with tanning. They have been tested for several years, and have been proved to drive higher velocities and transmit more power than any other kind of driving belt. When once properly adjusted to the pulleys they scarcely ever require taking up. They are cheaper than any other belts, not only in the first cost, but by reason of their greater durability, and they are suitable for all ordinary and out-door purposes, and wet and dry places The Patent Straps can be relied upon in all climates, and are, therefore, particularly deserving of the attention of exporters.

List of Prices:—Widths, 1 in., 2½d.; 1½ in., 3¾d.; 2 in., 5d.; 2½ in., 6¼d.; 3 in., 8d.; 3½ in., 10½d; 4 in., 1s.; 4½ in., 1s. 2d.; 5 in., 1s. 4d.; 5½ in., 1s. 6d.; 6 in., 1s. 8d.; 7 in., 2s.; 8 in., 2s. 4d.; 9 in., 2s. 8d.; 10 in., 3s.; 11 in., 3s. 6d.; 12 in., 4s. per foot lineal.

Double Straps, double price, and 7½ per cent. extra. Extra Strong Laces, 6s. per gross. Block Ropes, much stronger than hemp, 1s. 3d. per pound.

TURNER'S PATENT STRAP COMPANY.—Manufactory: Armit Works, Greenfield, near Manchester. Warehouse: 13, Hanover Street, Long Acre, London, W.C., where a Stock of the above is kept; and also of Whitehead's Patent Woollen Belts.

Agent: Mr. H. FERRABEE, 113, Leadenhall Street, London, E.C.

WARNER'S KOH-I-NOOR LAMPS,
TO BURN THE HYDRO-CARBON OILS.
PRODUCE A BRILLIANT LIGHT WITHOUT SMOKE OR SMELL.

They are more easily trimmed and refilled than any other Lamp with similar burner.

There is no danger of chimneys breaking, and the chimney cannot become smoked.

For designs of the above, adapted for the DINING-ROOM, DRAWING-ROOM, HALL, or LIBRARY, see Number 2 of this Journal. A REALLY GOOD LAMP.

The above may be obtained of any Lamp Dealer.

JOHN T. WILLMER,
HORTICULTURAL AGENT, AUCTIONEER, and VALUER,
Springfield Nursery, Sunbury, Middlesex, S.W.

Estate Improver and Landscape Gardener.

JOSEPH NEWTON, 30, Eastbourne Terrace, London, W., Author of "Picturesque Garden Plans," now Laying-out Grounds and Plantations near York, Newcastle, Dublin, and Belfast, offers Advice upon Alterations without charging travelling expense from London.

To Nurserymen and Gentlemen's Gardeners.

TO BE LET, with Immediate Possession, a SMALL NURSERY containing from 7000 to 8000 feet of Glass, within three miles of Covent Garden.

For further particulars apply to Mr. SHERMAN, Seedsman, Newington Butts, near the Elephant and Castle, S.

To Nurserymen.

TO BE LET on LEASE, for any term that may be agreed on, about 50 ACRES of LAND, well adapted for Growing Conifers and American Plants, part of which is at present under Nursery and remainder under Agriculture, upon which is two neat Cottage Residences, six Labourers' Cottages, and all necessary Buildings; a new Span-roof Forcing House for Propagating, and 43 Brick Pits, and all the other necessary Plant for Nursery purposes. The present stock to be taken off at valuation. The property is well situated for Road and Railway, being less than a mile to the new Salisbury Line and South-Western Railway, joining the Turnpike Road, being 6 miles from Christchurch, six from the fashionable watering place Bournemouth, 7 from Poole, and 4 from Ringwood.

For further particulars apply to the owner, Mr. JOHN BARTLETT, Ringwood, Hants.

Epsom.

To NURSERYMEN AND GENTLEMEN'S GARDENERS.

TO BE SOLD, with immediate possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. GEORGE S. DODS, the late Proprietor. The Grounds contain Five Acres of Land, have a large quantity of Glass, which is completely and economically Heated with Hot Water; also a valuable general NURSERY STOCK.

For further particulars apply at the Nursery.

Quick and Forest Trees.

THE ANNUAL SALE of QUICK and FOREST TREES upon the Lands of Mr. S. Robinson, Shaw House, Melbourne, near Derby, will take place about OCTOBER 20.

Further particulars in future Papers.
NEWBOLD & OLIVER, Auctioneers, Derby.

Glasshouses for Sale.

MR. J. C. STEVENS begs to announce that he has now on Sale by Private Contract, a VINERY and PEACH-HOUSE, 100 feet by 22 feet, well heated with 4-inch Hot-water Pipes, and planted with choice Vines and Peach trees, 3 years old. Also 4 SPAN-ROOFED HOUSES, 50 feet by 10½ feet.

38, King Street, Covent Garden, W.C.

Sales by Auction.

Dutch Bulbs and Ghent Camellias.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 1, at half-past 12 o'Clock precisely, 500 fine Specimen CAMELLIAS, 4 feet high, from a celebrated Ghent grower. Also a capital Assortment of DUTCH BULBS, comprising some of the best varieties in cultivation.

On view the Morning of Sale, and Catalogues had.

Important Sale of Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 11 and 12, at half-past 12 o'Clock precisely each day WITHOUT RESERVE, in consequence of the agreement between Messrs. Standish and Fortune having terminated, the last portion of CHOICE and RARE PLANTS from JAPAN, many of them being the imported specimens and the largest in England, including the MALE AUCUBA JAPONICA.

Aucuba japonica vera	Sciadopitys verticillata
,, longifolia	Thea variegata
Thujopsis Standishii	Retinospora pisifera aurea
Asplenum elegantulum	Yedo Vine
A new Oak	Skimmia japonica vera
Forsythia Fortunei	

And many other fine and rare species.

On view the Morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Important Sale of Wellingtonia gigantea at Edmonton.

MR. J. C. STEVENS is instructed to SELL by AUCTION, on the Premises, opposite the Golden Fleece, Edmonton, on THURSDAY and FRIDAY, Oct. 13 and 14, a splendid Stock of Specimen plants of WELLINGTONIA GIGANTEA, warranted from seed, and ranging from 1 to 3 feet in height; the plants are all in pots of various sizes, from 48's to 24's, and are in the highest state of health; also a large assortment of other choice hardy CONIFERS, comprising Pinus insignis, Picea Nordmanniana, Araucaria imbricata, Cupressus Lambertiana, Thuja gigantea, &c., all in pots and in vigorous health; also about 300 choice named CAMELLIAS, well-grown plants, and full of flower buds, from 3 to 5 feet in height; and a choice selection of INDIAN AZALEAS, of the best varieties, and well set for flower.

On view the Morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden London, W.C.

Bagshot, Surrey.—Final Clearance Sale.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. STANDISH, in consequence of removal to Ascot, to SELL by AUCTION on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South Western Railway, on TUESDAY, October 25, and two following days, at half-past 12 o'clock precisely, each day, without the least reserve, a VALUABLE COLLECTION of HARDY CONIFEROUS PLANTS, Specimens and others, American Plants in variety, Fruit Trees Trained and Standard; choice Collection of Shrubs and Trees, Roses in Pots, &c., all of which are in the finest possible health, and for Sale without the least reserve.

On view the day prior and Mornings of Sale. Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot, and of Mr. J. C. STEVENS, at the Auction Rooms, 38, King Street, Covent Garden, W.C.

Tulips.

MR. J. WILLMER will SELL by AUCTION, at the City Auction Rooms, Gracechurch Street, on WEDNESDAY, October 12, at 12 o'Clock, a choice collection of TULIPS, the property of Henry Goldham, Esq., of Mitcham.

On view the morning of Sale, and Catalogues had at the Rooms, or by forwarding a postage stamp to the Auctioneer, Springfield Nursery, Sunbury, S.W.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, October 13, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Tulips, Crocus, Snowdrops, &c.; also a fine assortment of 300 handsome STANDARD, HALF-STANDARD, and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully furnished with bloom buds, &c.

On view the Morning of Sale. Catalogues may be had at the Auction Rooms as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Snaresbrook.

SALE OF VERY HANDSOME SPECIMEN PLANTS, FRUIT TREES IN POTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by a Gentleman who is leaving the neighbourhood, to SELL by AUCTION on the Premises, Woodford Road, near the Eagle, and within five minutes walk of the Snaresbrook Railway Station, on SATURDAY, October 15 (unless previously disposed of privately, of which notice will be given), the whole of the Valuable Collection of GREENHOUSE and STOVE PLANTS, including some handsomely-trained specimens of Azalea indica and fine double Camellias, abundantly furnished with bloom buds; Orange Trees, Ericas, Epacris, Cytisus, Myrtles, Acacias, Veronicas, Cactus, Pimelia, Ardisia crenulata, Eriostemon Dilwinii, Pleroma elegans, Epiphyllum, Chorozema, Pelargoniums, Scarlet and other Geraniums, Roses, Lapageria rosea (fine specimen), Asclepias, Passiflora Bonaparten (fine plant), Swainsonia, Francisca, Begoniaa, Coleus, Euphorbia, Cissus, Ferns, Stephanotis floribunda (fine specimen), Cypripedium venustum, Gloxinias, Vines and Figs in Pots, &c.; also a quantity of healthy and handsome specimens of Fruit Trees, well established in Tubs; choice Rhododendrons, Azaleas, Garden Implements, and other effects.

May be viewed three days prior to the Sale. Catalogues may be had at the Eagle, Snaresbrook; at the Swan, Stratford; the Castle, Woodford; at the principal Seed Shops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Strawberry Hill Nursery, Tunbridge Wells.

HIGHLY IMPORTANT SALE OF ORNAMENTAL TREES AND SHRUBS.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions from Mr. Edwin Hollamby, to SELL by AUCTION, at the Strawberry Hill Nursery, Tunbridge Wells, the middle of THIS MONTH, (of which due Notice will be given) in consequence of the Lease of the above Nursery being nearly expired, and the Land required for building purposes, the valuable NURSERY STOCK, comprising fine specimen Cedrus Deodara, Cedars of Lebanon, Red Cedars, Arbor-vitæs, Araucaria imbricata, Pinus insignis, Abies Pinsapo, Wellingtonia gigantea, Thuja aurea, Thujopsis borealis, Cupressus Lawsoniana, Thuja gigantea, Abies canadensis, Pinus excelsa, from 4 to 15 feet in height; having been constantly transplanted, they are in a fine state for removal. Also some thousands of Rhododendrons, bushy and well set with flower-buds, Laurustinus, Arbutus, Green Hollies, Ligustrum ovalifolium, Specimen Portugal Laurels. Also many handsome Evergreens and Deciduous Shrubs of various sizes.

On view the week prior and Morning of Sale. Catalogues to be had by enclosing two postage stamps to Mr. E. HOLLAMBY, Parade, Tunbridge Wells; the Nursery, Groombridge, Kent; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Romford.

To GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Thompson to SELL by AUCTION on the Premises, Mercury Gardens, Romford, Essex, on FRIDAY, October 21, at 12 for 1 o'Clock precisely, without reserve, the Lease having expired, the whole of the valuable NURSERY STOCK, including a large quantity of Common and Portugal Laurels, Aucubas, Arborvitæs, Box, Yews, Firs, Red Cedars, Euonymus, Laurustinus, Hollies, Bays, Privet, Arbutus, Phillyreas, &c.; about 2000 Gooseberries and Currants, Standard Apples, Plums and Walnuts, Raspberries, &c.; Weeping and Mountain Ash, Willows, Thorns, Limes, Chesnuts, Standard and Dwarf Roses, a quantity of Ivies, Clematis, Pyracantha and other Climbers in Pots, about 3000 Sea Kale and Asparagus Plants, 500 yards of Box Edging, &c.; also the Greenhouse Plants, comprising fine Double Camellias, Geraniums, Pelargoniums, Genistas, Lilium lancifolium, &c.; together with two nest of Seed Drawers, a Weighing Machine, two Scales and Weights, set of Measures, 20 loads of capital old rotten Dung, Garden Tools, Ladders and Sundry Effects.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Woking.

PRELIMINARY NOTICE OF AN UNUSUAL EXTENSIVE SALE OF NURSERY STOCK AND OTHER EFFECTS, WITH THE VALUABLE LEASES.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Trustees of Mr. Robert Donald, to offer for unreserved SALE by AUCTION, on the Premises, Goldworth Nursery, Woking, Surrey, about one mile from the Woking Railway Station, on the South-Western line, on MONDAY, October 24, and following days, at 11 o'Clock each day, if not previously disposed of privately, the LEASES and the whole of the valuable NURSERY STOCK extending over 155 Acres, and including millions of Plants, consisting of Evergreens, Coniferæ, and Deciduous Shrubs, Ornamental Forest and Fruit Trees, Fruit Stocks and Seedlings, viz., 40,000 Hollies (Green), 15,000 Variegated Hollies, 150,000 Common Laurels, 10,000 Portugal Laurels, 5000 choice worked Rhododendrons of the leading kinds, 3000 Rhododendron Ponticum, 1000 Aucuba japonica, 50,000 Spruce Firs, 2000 Arbutus, 1000 Irish Yews, 5000 choice Taxus, 8000 Common Yews, 2000 Cupressus Lawsoniana, 1½ to 3 feet; 20,000 Retinospora ericoides, 3 to 18 inches; and Thuiodes variegata, 1000 Thuja americana, 3000 do. Wareana, 3000 Wellingtonia gigantea, 1000 Juniperus sorts, 3000 Pinus austriaca, 1 to 3 feet; 2090 Silver Firs, 500 Thuja gigantea, 500 Picea Nordmanniana, 400 do. nobilis, 700 Abies Pinsapo, 500 do. Menziesii, 50 do. lasiocarpa, fine from seed; 200 Abies Douglasii, 5 to 6 feet; 800 Thujopsis borealis, 2 feet; 300 Cedrus Libani, 2 to 6 feet; 500 Cedrus Deodara, 150 Pinus Lambertiana, 3 feet; 300 Cephalotaxus sorts, Pinus excelsa, Araucaria imbricata, 800 Tree Box, 1000 hardy Azaleas, 1000 Lilacs, 1000 Spiræas, 500 Wiegelas, 500 Gueldre Roses, 500 Syringas, 500 Red Dogwood, 500 Pyrus japonica, 500 Cytisus, 500 Forsythia, 500 Deutzia, 500 Ribes, 10,000 fine Standard and Dwarf Roses, 6000 Roses in bud worked on Manetti; many thousands of Climbers, viz., 5000 Ivies, 600 Lonicera aureo-reticulata, Clematis, Bignonias, Passiflora, Honeysuckles, Jasmines, Virginian Creepers, &c.; 4000 Hardy Heaths, 60 Lights of Coniferæ and other cuttings (struck), some Japaneso Plants; 30,000 Spanish Chesnuts, 20,000 Hornbeam, 3 to 5 feet; 10,000 Willows, 3000 Poplars, 2000 Limes, Planes, Crataegus, Weeping Ash, Birch, and 1½ acre of 1-year Seedling Quick, &c. There is a splendid collection of Specimen Shrubs and Trees in borders adapted for effective purposes; 10,000 full headed clean grown Standard Cherries, 20,000 Standard Apples, 10,000 Maiden Pears, 5000 Maiden Apples, 6000 Maiden and Trained Peaches, Nectarines, and Apricots; about 5000 Dwarf and Standard Plums, 10,000 Gooseberries and Currants, 1000 Filberts, 100,000 Crab Stocks, 100,000 Mussel, 100,000 Brussel, Brompton, Quince, &c., with 20,000 Pear Stocks, 500 vigorous Grape Vines from eyes, Figs, Medlars, Box Edgings, &c., together with Glass Erections, &c.

Five strong Cart Horses, useful Bay Cob, ditto Pony, 2 Heifers, 2 Waggons, 4 Carts, Ploughs, Harrows, Rollers, Drags, sets of Cart and Gig Harness, Saddles, 50 Sacks Barley, 2 Stacks Prime Meadow Hay, 2 do. Straw, 1 do. Oats, Wheelbarrows, Handlights, Garden Tools, 500 Cast Garden Pots, and numerous other effects.

May be viewed one week prior to the Sale. Catalogues may be had (1s. each) returnable to purchasers, with particulars of Leases when ready on the Premises; Percy's Albion Hotel, Woking; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

IMPORTANT SALE of LILIUM AURATUM.

MANY OF THE PLANTS IN FULL BLOOM, AND ALL WILL BLOOM MAGNIFICENTLY NEXT SUMMER.

MR. J. C. STEVENS

Has the pleasure to announce that he has been favoured with instructions from Mr. Wm. Catleugh, Florist, Chelsea, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 5, at half past 12 o'Clock precisely,

A LARGE QUANTITY OF LILIUM AURATUM.

Many of the Plants are in FULL BLOOM, and he has the authority of Mr. Fortune, who has examined them, to state that every Plant in the Sale is the true L. auratum. The Public will now have an opportunity of acquiring this magnificent Lily at a moderate price.

On view the Morning of Sale, and Catalogues had.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. RIVERS and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

AVERAGE THICKNESS, 15 TO 16 OZ.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about	1¼d. per foot.
3ds ,,	.. ..	,,	41 0	,,	1¾ ,,
2ds ,,	.. ..	,,	60 0	,,	2½ ,,
Best ,,	.. ..	,,	92 0	,,	3¾ ,,

AVERAGE THICKNESS, 21 OZ.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about	2d. per foot.
3ds ,,	.. ..	,,	42 0	,,	2½ ,,
2ds ,,	.. ..	,,	63 0	,,	3¾ ,,
Best ,,	.. ..	,,	89 0	,,	5½ ,,

AVERAGE THICKNESS, 26 OZ.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about	2¾d. per foot.
3ds ,,	.. ..	,,	56 0	,,	3½ ,,
2ds ,,	.. ..	,,	84 0	,,	5 ,,
Best ,,	.. ..	,,	116 0	,,	7

SHEET SQUARES, Cut to Order.

AVERAGE THICKNESS, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5

AVERAGE THICKNESS, 21 OZ.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

AVERAGE THICKNESS, 26 OZ.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5¼
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.				Per 100 feet.			
				4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16	11s. 6d.	13s. 8½ full pi by 8½ uality	16s.	18s.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

AVERAGE THICKNESS, 15 TO 16 OZ.

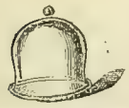
		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

AVERAGE THICKNESS, 21 OZ.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s.	4d.	each.	
4 ,, ..	0	5	,,	
5 ,, ..	0	6	,,	
6 ,, ..	0	7	,,	
8 ,, ..	0	10½	,,	
10 ,, ..	1	2	,,	
12 ,, ..	1	6	,,	
14 ,, ..	2	3	,,	
16 ,, ..	3	0	,,	
18 ,, ..	4	6	,,	
20 ,, ..	6	0	,,	



HAND GLASSES.

12 inches diam.	5s.	6d.	each.
14 ,, ..	6	6	,,
16 ,, ..	7	6	,,
18 ,, ..	8	6	,,
20 ,, ..	9	6	,,
22 ,, ..	10	6	,,
24 ,, ..	11	6	,,

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.		
3 ..	0s.	4d.	0	6	each.
4 ..	0	5½	0	8	,,
5 ..	0	7	0	10	,,
6 ..	0	9	1	1	,,
7 ..	0	10½	1	2	,,
8 ..	1	2	1	6	,,
9 ..	1	6	2	0	,,
10 ..	1	10	2	4	,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES. Ins. long.	each.	ROLLING PINS. each
12 ..	0s. 10d.	1s. 3d.
13 ..	0 11	1 4
14 ..	1 0	1 6
15 ..	1 1	1 8
16 ..	1 2	1 9
17 ..	1 3	1 10
18 ..	1 4	2 0
19 ..	1 5	2 2
20 ..	1 6	2 3
22 ..	1 7	2 4
24 ..	1 9	2 8



MILK PANS.

6 inches diam.	0s.	5d.	each.
8 ,,	0	8	,,
10 ,,	0	10½	,,
12 ,,	1	1	,,
14 ,,	1	6	,,
16 ,,	2	0	,,
18 ,,	2	5	,,
20 ,,	2	10	,,
22 ,,	3	4	,,
24 ,,	4	0	,,

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.		Qts.	each
8	¾ filled,	3..	1s. 3d.
9	,,	4..	2s.
10	,,	6..	2s. 6d
11	,,	8..	3s.
12	,,	9..	3s. 9d
13	At same average according to weight.		7d. per lb.
14			
15			
16			

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p. cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London W.C.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 41.—1864.] SATURDAY, OCTOBER 8. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
A Meeting of this Committee will take place on TUESDAY, October 11, at 12 o'Clock, at South Kensington.
Thomas Moore, Secretary to the Committee.

Vines, extra strong, from Eyes.
WM. CUTBUSH and SON have a large stock of the above for fruiting in pots or planting out. An inspection is solicited. Prices on application.
Highgate Nurseries, London, N.

VINES, VINES.—A fine stock of Healthy Vines now offered for Sale by
James Crawford, High Beech, Essex, N.E.

Grape Vines.
MRS. G. S. DODS begs to announce that she has a large and fine stock of VINES ready for Planting Out or Fruiting in Pots. BULB LIST is now ready on application.
Epsom Nursery, Epsom, Surrey.

Vines.
B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
Paradise and Victoria Nurseries, Holloway, London, N.

Pines.
B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH CAYENNE, BLACK JAMAICA, &c. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Choice Succession Pines.
TO BE DISPOSED OF, several Dozen vigorous PLANTS, comprising QUEEN, &c.; also some PINE APPLES. For full particulars apply, on Oct. 13, to Mr. Roff, North End, Hampstead, N.W.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. Meredith, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

NEW STRAWBERRY, SIR JOSEPH PAXTON.—The above approved variety obtained three First-class Certificates this season. Strong Plants, now ready, 21s. per 100.
Charles Turner, The Royal Nurseries, Slough.

The Kimberley Strawberry.
CHARLES KIMBERLEY can supply the above fine Strawberry, in strong plants that will Fruit well next season, at 10s. per 100.
London Agents: Messrs. Hurst & Son, 6, Leadenhall Street.
Stoke Nursery, near Coventry.

STRAWBERRIES.—British Queen, Black Prince, Eleanor, Elton Pine, Carolina Superba, Oscar, Prince of Wales, Sir C. Napier, Surprise, Victoria, Wizard of the North, Sir Harry, and Wonderful. Trade price 2s. per 100.
Geo. Cornwell & Co., Seedsmen, &c., Barnet, Herts, &c.

W. H. CARTER, Union Nursery, St. John's Hill, New Wandsworth, Surrey, S.W., begs to offer strong well-rooted STRAWBERRY PLANTS, Sir Charles Napier, at 2s. 6d. per 100, or £1 per thousand.
Also good strong SEAKALE, from 7s. 6d. to 10s. 6d. per hundred.
ROSE DE MEUX and PROVENCE ROSE, 4s. p. doz., or 30s. p. 100.
Strong 3-year old RED CURRANT, clean stem, 4s. per dozen, or 30s. per hundred.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard Houses.
MESSRS. RIVERS and SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.
Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

West Riding Nursery and Seed Company.
LILIUM AURATUM.—Several Plants of this fine importation have Bloomed in this Nursery, and fully sustain its high character. Price per bulb or dozen on application to
Wm. Barratt, St. John's, Wakefield.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

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*** Part II. (Exotic Ferns) will be issued as early as possible.
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Hyacinths, Tulips, Crocus, Narcissus, &c.
BARR and SUGDEN,
12, King Street, Covent Garden, W.C.

Imported Dutch Bulbs.—Now Ready, Part IV. of
CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to
James Carter & Co., 237, 238, High Holborn, London, W.C.

To Hyacinth Growers.
SUTTON'S DESCRIPTIVE LIST is NOW READY. Post Free.
Sutton & Sons, Reading, Berks.

The Best Twelve Hyacinths Imported by
SUTTON and SONS,
for Twelve Shillings.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

S. PONSFORD and SON beg to announce that their DUTCH BULB CATALOGUE (with Cultural notes) may be had on application to
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Dutch Bulbs, Late Tulips, &c.
CHARLES TURNER'S CATALOGUE of the above is now ready. The roots have also arrived in fine condition. Orders will meet with prompt attention.
A fine stock of LILIUM AURATUM.
The Royal Nurseries, Slough.

DUTCH BULBS.—Best named HYACINTHS, 6s. to 8s. per dozen.
Best DUTCH CROCUS, 1s. 6d. to 4s. per 100.
Send for J. H. Cottrell's CATALOGUE.
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Large Importation of Flower Roots from the best Houses in Haarlem.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
WM. WOOD and SON beg to solicit early commands for BULBS, just arrived in most excellent order.
Prices as reasonable as any respectable house in the Trade.
DESCRIPTIVE CATALOGUES may be had on application.

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Fine and at moderate prices.
PAUL and SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
"Old" Cheshunt Nurseries, Cheshunt, N.

Fresh Imported Dutch Bulbs.
SUTTON and SONS have just received from Haarlem one of the most extensive and rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
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Sutton's Unrivalled Collections of Bulbs.
SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
Sutton's GUINEA COLLECTION for BEDS and BORDERS.
For particulars see Sutton's AUTUMN CATALOGUE, which may be had Gratis and Post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

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Bulbs Carriage free.
HOOPER and CO.'S ETRUSCAN HYACINTH VASES.—See
Hooper & Co.'s AUTUMN CATALOGUE, forwarded free by post.
Covent Garden Market, London, W.C.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD and SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Rose Catalogue for 1864.
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Roses.
PAUL and SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

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1864 and 1865 Rose Catalogue.
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Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

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Carnations, Picotees, Auriculas, Pinks, Pansies, &c.
JOHN HOLLAND'S DESCRIPTIVE CATALOGUES are now ready, post free, on application.
Bradshaw Gardens, Chadderton, near Manchester.

Bedding Pelargonium Mrs. Pollock.
ALFRED FRYER offers strong out-door struck Plants, well established, in 60-pots, at 3s. 6d. each or 36s. per dozen.
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

CALCEOLARIA, CINERARIA, PRIMULA, HOLLYHOCK, and PELARGONIUM SEED.
The choicest strain in cultivation, may be had of
J. Dobson & Sons, Seedsmen, Isleworth, W.

Clianthus Dampieri splendens.
C. KIMBERLEY has just received a supply of the above fine Greenhouse Climber, direct from Australia, which he begs to offer in packets of six seeds for 1s. 6d.
Stoke Nursery, near Coventry.

Good Seeds, Carriage Free, at Market Prices.
SUTTON and SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

H. and F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

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Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

CARTER'S GARDENER'S VADE-MECUM.

Zonale Geranium Seed.
F. and A. SMITH beg to offer the above, saved this Season with the greatest care from their own Collection, which includes every variety of merit. This Seed is of most superior excellence and quality. Packets 1s. and 2s. 6d. each.
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ALOCASIA MACRORHIZA VARIEGATA, well variegated Plants, 7s. 6d. each; 60s. per dozen.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

ALPINE AURICULA SEED, Crop 1864.—Saved from a very Choice Collection.
In packets, 1s. and 2s. 6d. each, post free.
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EVERGREENS.—All sorts and sizes, suitable for present Planting in large quantity, of very superior quality and on low terms, especially where a considerable order is given. All have undergone periodical transplanting, and will remove to any distance with safety. Special prices on application.
James Dickson & Sons, The "Newton" Nurseries, Chester.

SPECIMEN PORTUGAL LAURELS.—Fine Plants, 8 to 10 feet round, 24s. to 30s. per dozen. Extra fine specimens of perfect form, 14 or more feet in circumference, 84s. to 105s. per dozen, or 7s. 6d. to 15s. each.
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LAURELS, Splendid Stuff, being stiff, bushy, and well rooted, 1½ to 2½ feet, 7l. per 1000, or 60l. for 10,000.
G. Frost, Nurseryman, Bampton, Devon.

50,000,000 WHITE THORN QUICK.
Samples and Prices to be had of
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

ACORNS.
For the above, apply to
W. Dillistone, Munro Nursery, Sible Hedingham, Essex.

WANTED, ACORNS, &c.—Parties who will be able to supply good sound ACORNS, SPANISH CHESNUTS, or BEECH MAST, will oblige by forwarding lowest prices per bushel, delivered at the nearest Railway Station, and for Cash on delivery, to
James Smith, Darley Dale Nurseries, near Matlock.

Larch Firs, 3 to 4 feet.
WANTED, a Large Quantity of the above.—Parties having such to offer would oblige by sending a sample, and stating quantity and price to
Z., care of R. Baxendine, Seedsman, High Street, Guildford.

WANTED in the Trade, a few Thousand 2-year Seedling PEARS, BEECH, SWEET CHESNUTS, MAPLE, HORNBEAM, MULBERRY, TULIP TREES. Terms cash.
Apply, stating price, E. Hale, Lansdowne Nursery, Lansdowne Road, South Lambeth, Surrey, S.

WANTED, HAZEL NUTS, &c.—Parties who will be able to supply good sound HAZEL NUTS and BLACK THORN, SLOES, will oblige by forwarding lowest price per bushel, for cash on delivery, delivered at the nearest Station, to
James Smith, Darley Dale Nurseries, near Matlock.

Autumn Crocus, or Saffron.
WANTED IMMEDIATELY, several Thousand strong BULBS. Nurserymen, Farmers and others are invited to state a Price Delivered. Address as below at per 100. Some Plants of the OSMUNDA REGALIS FERN also wanted.
Address, Mr. Taplin, 6, Dean Street, SohoSquare, London, W.

Double White Camellia.
FOR SALE, 8 feet high, 5 feet in width, covered with bloom buds in robust health.
Apply to G. Christmas, 2, Surrey Place, Grove Lane, Camberwell, S.

Cinerarias.
TO BE SOLD CHEAP, 5000 CINERARIAS, fine Young Plants, suitable for early purposes.
Apply to Mr. G. Wells, Grove Nursery, Coleman Street, Camberwell.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

Genuine Italian Rye-grass.
Produced from Second Crop Foreign Seed.
MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has a good supply of the above, which has been thoroughly cleaned, and which will be offered to the Trade on reasonable terms, and samples will be forwarded on application.

CARTER'S GARDENER'S VADE-MECUM.

Choice Pelargoniums.

GEO. SMITH begs to offer in good plants the following new and choice PELARGONIUMS, at 30s. per dozen, viz:—Achilles, Alexandra, Aristides, Amy, Belle of the Ball, Cynosure, Diadem, Disdar, Lord Eversley, Maggie, Philo, Princess Helena, Princess of Wales, Paris, Queen Bertha, Spotted Nonpareil, Scarlet Nonpareil, The Charmer, and The Prince.

Also the undermentioned ZONALES, including the newest and best in cultivation, at 18s. per dozen, viz:—Admiral Protet, Amelina Gresseau, Boule de Hesperides, Beauté de Parterre, Conqueror of Europe, Cedo Nulli, Eugénie Mezard, Etoile des Massifs, Francis Desbois, Henrietta Renard, L'Eclair, Picturatum, Ratazzi, Roi d'Italie, Resplendens, Senator, St. Fiacre, Vulcan, Villafranca, and Woodwardiana.

Lord of the Isles and Orange Globe, 2s. 6d. each.

G. S has also a first-class collection of all the leading kinds of French, Spotted, Fancy, and Variegated, with other varieties too numerous here to mention.—See CATALOGUE.

Tollington Nursery, Hornsey Road, Islington, London, N.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & SONS have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

Special Notice.

J. MEIKLE, The Nurseries, Folkestone, Kent, begs to inform his customers (especially those whose orders he was unable to execute last season) that his Stock of ROSES is this season unusually fine, and includes most of the very best sorts in cultivation. Orders executed in strict rotation.

A DESCRIPTIVE and PRICED LIST free on application.

J. M. begs to offer a few fine Specimen Seedling THUJA JAPONICA and AUREA, fine varieties. Safe removal warranted. Price 5s. to 10s. each.

Roses.—Notice to the Trade.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, has the honour to inform Nurserymen, Seedsmen, and the Trade generally, that he has just published his WHOLESALE PRICED CATALOGUE of ROSES, which may be obtained, post free, either from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

His CATALOGUE of GLADIOLI (also at wholesale prices for the Trade only) may also be obtained as above.

New Roses.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, begs to call attention to Two of the Handsomest and Best NEW ROSES of the Season, which he will be ready to send out next autumn.

HYBRID PERPETUALS.

DUCHESSE DE CAYLUS (CHARLES VERDIER).—Flowers clear, brilliant carmine, of most perfect form, large and full; growth vigorous. One plant, 1*l.*; five plants, 4*l.*

This Rose was exhibited at the Flower Show of the "Société Impériale et Centrale d'Horticulture de Paris" last July, and received the FIRST PRIZE (silver gilt medal) for New Roses.

DUC DE WELLINGTON (GRANGER).—Flowers velvety bright red, shaded with black, fiery red centre, large and full; growth very vigorous. One plant, 1*l.*; five plants, 4*l.*

C. VERDIER, FILS has also just published a List of 66 other New French Roses, which are to appear next season. This List can be obtained either direct from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Pæonies.

CHARLES VERDIER, FILS (Successor to the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, has just published a Special and Descriptive CATALOGUE of the TREE and HERBACEOUS PÆONIES now disposable at his Nursery, which may be obtained, post free, either direct from him, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

The CATALOGUE of NEW ROSES and GLADIOLI will be published shortly, and will also be sent post free on application to the above.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET PRICES to the TRADE (without any discount).

NEW GLADIOLI for 1864, deliverable on the 1st Nov. next.

FULTON (SOUCHET).—Large flowers, finely formed; red vermilion, velvety, extra bright, magnificently coloured. Effective plants, 6 francs each.

MADAME FURTADO (SOUCHET).—Very large and open flowers, disposed in long and beautiful spikes; very fine rose, diminishing to a light carnation, very strongly flamed with deep rose carmine, Extra fine varieties, 7 francs each.

MADAME DE SEVIGNÉ (SOUCHET).—Large flowers of a clear cherry rose, largely blotted and lined with pure white; a fine fresh colour, beautifully shaded. Very pretty varieties, 6 francs each.

MEYERBEER (SOUCHET).—Large well formed flowers, disposed in very long spikes; brilliant Nasturtium red, flamed vermilion, spotted amaranth red; perfection. Vigorous and splendid plants, 7 francs each.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET TRADE PRICES (without any abatement).

NEW ROSES for the AUTUMN 1864.

Obtained from Seed by different Collectors, and of which this Establishment has become the purchaser of the whole or part of them.

Price, each variety, 15 fcs. Five plants of the same variety, 60 fcs Each buyer of the whole Collection will receive Gratis one root of that magnificent Rose "Maréchal Niel."

HYBRID PERPETUALS.

ARDOISÉ DU CHALET.—Strong plant, full flowers, from 7 to 8 centimètres diameter, in bunches of from 5 to 15 together, of a perfect habit, slate-coloured purple, shaded deep red to violet.

CHARLOTTE CORDAY.—Very vigorous plant, flowers full, of about 10 cent. diameter, purple red, reverse of the petals whitish.

DUNOIS.—Vigorous plant, flowers full, 8 to 10 cent. diameter, carmine red, shaded bright red and violet, analogous to Vicomte Vigier.

FORSTER.—Very strong plant, full flowers, 8 to 9 cent. diameter, imbricated, fine bright poppy red, strongly shaded violet.

JOHN KEYNES.—Very vigorous plant, flowers full, 10 to 12 cent. diameter, bright scarlet, shaded chesnut.

L'ABONDANT.—Very vigorous, free, and full flowering plant, blooms 9 to 10 cent. diameter, globe shaped, in bouquets of from 3 to 10 together, fine bright red, shaded fiery red, very distinctly bordered whitish, reverse of petals silvered.

LA COQUETTE.—Strong abundant flowering plant, flowers full, 7 to 8 cent. diameter, finely formed and globular, in bunches of 3 to 15 together, very bright red, shaded deep red and violet, three or four of the exterior rows of petals of a dazzling red.

LÉONIE.—Strong plants, full flowers, 7 to 8 cent. diameter; well formed, in clusters of 5 to 10; red, reverse of petals lilac.

WILLIAM BULL.—Very vigorous plant, full flowers, 12 cent. diameter; globular, finely formed; pretty bright cherry red, superb.

MOSS ROSE.

DENIS HELYE.—Very strong, free flowering plant, flowers full, 8 to 9 cent. diameter; 6 to 12 in a bunch; purple violet, reverse of petals red.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

INTERNATIONAL EXHIBITION 1862.

THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"

Containing full descriptions of 50 most desirable varieties of VINES, and complete Lists of imported DUTCH BULBS, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN, 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WM. PAUL (SON AND SUCCESSOR TO THE LATE A. PAUL)

Respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce in the landscape, many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL'S possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

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Orders by post promptly attended to. Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

NEW FUCHSIAS, ETC.

ON AND AFTER OCTOBER 10, THE FOLLOWING NEW FUCHSIAS WILL BE SENT OUT

at 10s. 6d. each, or 31s. 6d. the set.

In offering these beautiful varieties, we need make no further remarks beyond calling the special attention of cultivators to the fact, that the kinds raised by Edward Banks, Esq., are always, where known, found in winning collections throughout the kingdom, and also upon the Continent, from year to year, whilst the generality of other collections brought into the market are discarded as soon as bloomed.

The re-appearance of the kinds in question (as the highest evidence of public favour) is the only test of sterling merit, and the best expression of unbiassed judgment as confirmed in the numerous awards given to Banks's premium Fuchsias for many years past.

LA TRAVIATA.—Flower good size, tube short, sepals broad, of a bright carmine scarlet tint, well recurved; corolla of good outline, evenly cup-shaped, proportionate, and firm in substance, rich lavender blue in colour. Habit of Rifleman (Banks'), well branched, and a profuse blooming variety, making an excellent front-rank exhibition plant.

ANNE BULLEYN.—Sepals broad and of firm substance, erectly recurved, of a rich carmine scarlet tint; corolla of good outline, evenly cup-shaped, in colour rich rosy lavender. A profuse bloomer; by its erect, well branched, and short-jointed growth, well adapted for pyramid exhibition specimens.

MARVELLOUS.—One of the finest varieties yet offered; flowers remarkably large, sepals of great width and substance, bright carmine scarlet, horizontally curved; corolla two inches in diameter, of a violet tinted plum colour, of firm texture, and smooth close margins. Adapted for conservatory, standard, or pyramid growth.

TROUBADOUR.—Sepals very broad, of firm smooth texture and elegantly curved; corolla cup-shaped, even, and proportionate; colour a rich olive black, nearer to the latter than any hitherto offered, not fading to a lower or different tint, but retaining its rich hue through sun and rain. Habit adapted for a cone or pyramid, requiring a free unchecked growth during its first pottings.

Among the foregoing are one or two of Mr. Banks' Seedlings, which were so highly noticed when exhibited as cut flowers at the Royal Horticultural Society, and pronounced a decided advance.

PYCNOSTACHYS URTICIFOLIA.—Strong plants for Winter Conservatory decoration, producing dense terminal racemes of beautiful bloom, equal in brilliancy of colour to Salvia patens. 3*s.* 6*d.*

CLEMATIS HYBRIDA SPLENDENS. 5*s.* each.

CLEMATIS JACKMANNI and C. RUBRO-VIOLACEA, splendid hybrid varieties of C. lanuginosa. 21*s.* each.

WINTER-FLOWERED MULE or HYBRID PINK, in white' carmine, and striped flowered varieties, 1*s.* 6*d.* each. Also, new rose-coloured ditto, 3*s.* 6*d.*

ACHYRANTHES VERSCHAFFELTI (syn. IRESINE HERBSTI). A highly ornamental new crimson-red leaved Amaranth-like plant, for bedding and decorative garden purposes. Plants 2*s* 6*d.* each, or post free 3*s.* 6*d.* each; 6 plants post free 17*s.* 6*d.*; coloured plate of the plant post free, 6*d.* each.

BOUVARDIA LONGIFLORA, full of flower buds, 18*s.* per dozen.

" (best scarlet) HOGARTH, 18*s.* per dozen.

" GRANDIFLORA, new white-flowered species, 3*s.* 6*d.*

BANKS'S NEW FUCHSIAS, sent out in the Spring of 1864, can be had in strong plants.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
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New hardy Hybrid Rhododendrons, and Azalea indica Souvenir du Prince Albert (J. V.)

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following two new and beautiful hardy RHODODENDRONS, which he is now ready to send out for the first time, in strong plants at the undermentioned low prices, viz :—
RHODODENDRON PROFESSEUR LEMAIRE, strong plants, 12s. each.
RHODODENDRON VICOMTE DE BLOIS, 12s. each.
AZALEA INDICA SOUVENIR DU PRINCE ALBERT (J. V.) (the most distinct Azalea ever sent out). Dwarf grafted plants with nice heads, 8s. each. Per dozen, 4l.

All orders to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

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CAMELLIAS, best sorts, 1 to 1½ feet high, set with buds, at 6l. per 100.
" larger plants, 10l. per 100.
" 5s., 8s., and 12s. each, and upwards.
AZALEA INDICA (first-rate sorts), fine healthy plants, 4l. per 100.
" on stems 1½ to 2 feet high, 10l. per 100.
ARUNDO DONAX VERSICOLOR, fine strong plants, 24s. per doz.
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" " ALBUM, 2l. 8s. per 100.
" " PUNCTATUM (very scarce), extra-ordinary large sized bulbs, 4s. each.
CAMELLIA STOCKS, fit for immediate working, 28s. per 100.
AZALEA INDICA, fit for immediate working, 20s. per 100.
CAMELLIAS with buds being rather scarce this year, J. V. begs to solicit early orders, so as to ensure a good choice. All orders to be directed to
JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

MR. ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that he is now ready to supply the following Plants (delivered freight free to London, but landing charges to be paid by the purchaser), viz. :—
CORREA CARDINALIS, well set with buds, 1s. each.
PIMELEA HENDERSONII, very fine, 1s. 3d. each.
MIMOSA PARADOXA, handsome pyramids, 3 feet high, well set with buds, 1s. 8d. each.
SAXIFRAGA FORTUNEI, fol. var., 2s. 6d. each.
GYMNOSTACHYUM VERSCHAFFELTI, 1s. 8d. each.
PAROCHETUS CŒRULEUS, new plant, with blue flowers, 1s. 0d. each.
EUONYMUS JAPONICUS LATIFOLIUS, ALBO-VAR., 1s. 8d. each.
" " RADICANS, ROSEUS, 10d. each.
" " ALBUS, 10d. each.
BORONIA POLYGALÆFOLIA, strong plants, well set with buds, 1s. each.
PULTENÆA STRICTA, well set with buds, 10d. each.
DIOSMA AMBIGUA, blooms all the winter, 10d. each, or 8s. per doz.
JASMIN D'ESPAGNE, fl. albo pleno, 10d. each, or 8s. per dozen.
PHYLICA CAPENSIS, strong plants, bloom all the winter, 1s. 3d. each, or 12s. per dozen.
LEUCOPHITON BROWNII, handsome new plant from the Cape, 1s. each.
SERISSA FŒTIDA, strong plants, to bloom this winter, 7s. per doz.
TROPÆOLUM TRICOLORUM GRANDIFLORUM, 8s. per dozen.
LILIUM LANCIFOLIUM RUBRUM, strong Bulbs, 2l. per 100.
" TIGRINUM, very handsome, 12s. per 100.
THUJA AUREA, 10d. each.
" very strong plants, 2s. 6d. each.
" RECURVA NANA, strong plants, 1s. 3d. each. [each.
JUNIPERUS ELEGANS, fol. var., very handsome new plant, 2s. 6d.
" SABINA, fol. var., strong tufts, 10d. each.
AZALEA INDICA, fine plants, well set with buds, 4l. per 100.
CAMELLIAS, fine plants, well set with buds, 6l. per 100.
" LAVINIA MAGGI, with buds, 3s. 6d. each.
" BONOMIANA, with buds, 3s. 6d. each.
These two last are the handsomest Camellias known.
Other plants (far too numerous to name) will be found in ALEXIS DALLIERE'S CATALOGUE, which may be had post free on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.
All letters containing orders should be sent direct to M. DALLIERE, addressed as above. Payment at 4 months from the date the plants are sent off.

NOTICE is HEREBY GIVEN, that the PARTNERSHIP heretofore subsisting between the Undersigned JOHN HOLLAND and JOHN BAYLEY, as FLORISTS, &c., at Bradshaw Gardens, Chadderton, in the County of Lancaster, under the Firm of "HOLLAND & BAYLEY," has been this day DISSOLVED, and will in future be carried on by JOHN HOLLAND.
All Debts Due and Owing to and by the said late Partnership will be received and paid by the said JOHN HOLLAND.
JOHN HOLLAND.
Dated this 10th day of September, 1864. JOHN BAYLEY.

JOHN HOLLAND begs respectfully to inform his numerous Friends that he has again taken the above GARDENS, and that they will in future be conducted by him; and in tendering his grateful acknowledgments for past favours, solicits a continuance of public patronage.

SEED WHEAT from the CHALK.—BROWICK RED, SPALDING, CLOVER'S RED, NURSERY, MORTON'S RED STRAW, and all the most approved varieties of Wheat. Also HALLETT'S PEDIGREE, SHIRREFF'S WHEATS, &c, supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices post free on application.
Address, Basingstoke; or 89, Seed Market, Mark Lane, E.C.
☞ R. C. & B can also supply from a clay soil improved stocks of RED BROWICK WHEAT and THICK-SET ESSEX RED, both carefully selected and hand picked, and recommended for productiveness and stiffness of straw.

SEED WHEAT from the CHILTERN HILLS.
The CHILTERN WHITE, a new variety, offered to the public for first time; ear compact and handsome; grain of excellent quality; straw stiff and medium length. Price 50s. per qr.
The BURGHFIELD WHITE, noted for early maturity, superior quality, and productiveness in straw and grain. Price 48s. per qr.
The above were raised by the Advertiser from single corns. New sacks charged 2s. each. Delivery to Henley Station. Cash with Order.
Address, Mr. R. C. YOUNG, Hambleden, Henley-on-Thames.

HALLETT'S PEDIGREE WHEAT, off the Clay.—Grown with great care from Seed obtained of Mr. Hallett. Threshed by hand. Price 10s. 6d. per bushel, including bags. Also the following sorts, being grown on the Lois-Weedon system, which allows each plant to become fully developed, are peculiarly adapted for Seed:—SHIRREFF'S BEARDED WHITE and HOARY WHITE, 52s. per qr., Sacks extra. SHIRREFF'S BEARDED RED, GOLDEN DROP, and WHITE STRAWED BROWN, at 48s. per qr.
Apply, with remittance, to THOMAS GRANT, Shirley House, Maidstone.

BROWICK WHEAT.—Carefully screened samples for Seed, grown on stiff clay soil. Price 48s. per quarter (in hired sacks) at the Bedford Stations of the Midland, London and North-Western, or Bedford and Cambridge Railways.
Apply to Mr. THOMAS BOWICK, Manager of Messrs. Howard's Steam Cultivated Farms, Bedford.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7s. 6d. per bushel, or 48s. per quarter, delivered at Braintree Station.
Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.
Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

HERTFORDSHIRE HERO BARLEY.—Six-rowed, very productive, and stiff strawed; rather coarse but suitable for Winter or Spring Sowing, for Early Spring Feed, or an Early Crop for Harvest.
Price 50s. per quarter, delivered on Rail at Basingstoke.
Address, RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; or Basingstoke.

CUTHILL'S EARLY PRINCE ALBERT WINTER CUCUMBER, 1s. per packet, or by the oz.; MUSHROOM SPAWN, 5s. per bushel. Pamphlet on ditto, 1s. 1d.; on the Strawberry, 1s. 1d.; on the Melon and Cucumber Forcing, 1s. 1d.; on Market Gardening, 1s. 6d.; on the Potato, with other Superior Vegetables, 1s. 6d.
JAMES CUTHILL, Camberwell, London, S.

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Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent :—
"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."
Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.
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EARLY SPRING FEED,
For Present Sowing.
NEW ENGLISH ITALIAN RYE-GRASS,
Best Imported Ditto,
TRIFOLIUM INCARNATUM,
For Sowing on Stubbles and mending deficient plants of Grasses or Clovers.
WINTER BARLEY | WINTER OATS | COMMON RYE
GIANT RYE | WINTER TARES
For Early Spring Feed.
MUSTARD and RAPE, for sheep keep and ploughing in for manure.
Samples and prices on application to RAYNBIRD, CALDECOTT, & BAWTREE, 89, Seed Market, Mark Lane; and Basingstoke.

CARTER'S FARMER'S VADE-MECUM.



Orders 21s. and upwards sent carriage paid.

LILIUM AURATUM, the most magnificent variety of this family, 10s. 6d. and 15s.; roots which have this autumn flowered, 21s.

DUTCH, CAPE, FRENCH, JAPAN, and ITALIAN FLOWERING BULBS,
For the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.
A Descriptive and Priced List with Cultural Hints free and post paid on application.
THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10s. 6d., 21s., 30s., 42s., and 63s.
HYACINTHS, 2s. 6d. to 15s. per dozen. CROCUS, 1s. 6d. to 4s. per 100. TULIPS, 3s. 6d. to 20s. per 100.

ZONALE PELARGONIUM, seed saved from the superb new varieties exhibited this last summer by Mr. Bull; colours scarlet, white, pink, cerise, rose, carmine, blush, salmon, rose-pink, orange-scarlet, &c., many of them with very distinct eyes, 2s. 6d. per packet. Mr. Bull's magnificent strain of MIMULUS, 1s. per packet. Mr. Holland's Prize CYCLAMEN PERSICUM, 1s. per packet. Now is a good time to sow these seeds.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap

To the Trade.

ANDREW G. DALY, Newry, Ireland, offers
2,000,000 1-year Seedling THORN QUICKS.
500,000 2-years' TRANSPLANTED Ditto.
500,000 BEDDED LAURELS, strong, well-rooted.
100,000 SEEDLING BERBERIS DARWINII.
10,000 TRANSPLANTED do, Bushy.
Prices moderate on application.
Delivered in Liverpool, Glasgow, or Dublin.

PLANTING SEASON.—100 sorts FOREST TREES, in all sizes; 300 do. EVERGREENS; 300 do. CONIFERÆ; 400 do. FLOWERING SHRUBS; 400 do. ROSES; 50 do. CLIMBERS; 1000 do. FRUIT TREES; 3000 do. Winter and Summer BEDDING PLANTS; 2000 do. general GREENHOUSE and STOVE PLANTS, FERNS, &c.
Apply to J. SCOTT, Merriott Nurseries, Somerset, for CATALOGUES. Fruit Tree, 7d.; Bedding Plant, 6d. General Nursery, Bulb, and Seed do., one stamp each. These Catalogues are allowed to be the best published, and when bound together, form a Vade Mecum, unsurpassed for Horticultural and Planting improvement.

WELLINGTONIA GIGANTEA.
Fine Plants from seed, 1½ to 2 feet, 30s. per dozen
Do. Do. 2 to 3 feet, 42s.
Do. Do. 4 to 6 feet, 10s. 6d. to 50s. each
Do. Do. 6 to 7 feet, 42s. to 84s. "
Do. Do. 7 to 9 feet, 63s. to 105s. "
CEDRUS DEODARA, 3 to 4 feet, 42s. per dozen "
Do. 4 to 5 feet, 50s to 60s. per dozen
Do. 5 to 6 feet, 60s. to 126s "
PINUS DON PEDRI, transplanted specimens, 2 to 3½ feet, 21s. ea.
This noble species appears to be quite hardy; it bears monster cones, like Pine Apples, 16 to 18 inches long!
JAS. BACKHOUSE & SON, York Nurseries.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

TOBACCO PAPER, good, 8d. per lb.
Price to the Trade on application.
H. BROWN, 4, Commutation Row, Liverpool

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AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence. In Canisters, 3s. 6d. and 2s., to be forwarded to all parts on receipt of order or stamps.
Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs. BARR & SUGDEN, Seedsmen, King Street, Covent Garden

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.
HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.
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Established A.D. 1700

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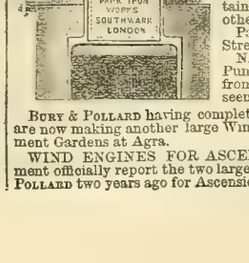
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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
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W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 16s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
Park Iron Works, 17, New Park Street, Southwark, London, S.E.
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.
BURY & POLLARD having completed the order for the India Board are now making another large Windmill and Pumps for the Government Gardens at Agra.
WIND ENGINES FOR ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY & POLLARD two years ago for Ascension as working most satisfactorily.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7*s.* 6*d.* each. The usual discount to the Trade when 3 or more are taken.

"Seedling Rose (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by Andrews, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

Two Splendid Seedling Azaleas.

WILLIAM BARNES has great pleasure in announcing to his friends and the public that he will be prepared to send out on and after the 15th of October next, his two magnificent Seedling Azaleas, BRIDE of ABYDOS and PURITY.

BRIDE of ABYDOS is a splendid white, striped and splashed with pink; of fine vigorous growth, and an abundant bloomer. It was exhibited before the Floral Committee on May 6, 1862, when it met with their unanimous approval. The following description is given of it in the *Gardeners' Chronicle* upon the 10th of that month:—

"Mr. Barnes, of Southampton Street, Camberwell, contributed a beautiful Azalea named Bride of Abydos, the flowers of which are large, white, flaked with pink, and possess great substance; of this variety three plants were exhibited, all excellent in habit and evidently free in growth."

In the *Gardeners' Chronicle* of December 27, 1862, page 1217, in describing the new and most prominent Azaleas of the above year, are the following remarks:—

"As a free-flowering sort of vigorous habit adapted for decoration and exhibition, the Bride of Abydos is the most useful which has appeared amongst the whites, with occasional streaks of red."

Fine strong Grafted plants will be ready on the above date at 21*s.* and 31*s.* 6*d.* each.

PURITY is a beautiful clear white, fine large flower, with unusual substance and of the most perfect shape; it is of a fine robust habit. A variety of this description has long been required, viz.:—

A pure white, with fine shape, large flowers, and good vigorous habit. Plants will be ready on the above date at 21*s.* and 31*s.* 6*d.* each.

A few plants of each variety to offer in extra large plants, prices of which can be obtained on application to

William Barnes, Camden Nursery, Camberwell, S.

SUTTON'S

UNRIVALLED COLLECTIONS OF

BULBOUS FLOWER ROOTS,

FOR BLOOMING DURING THE WINTER AND SPRING.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively. *As many of these sorts are at present unknown to English cultivators, we have considered it advisable to make up Collections* of the sorts which, after careful observation, we have found to be the best worthy of cultivation, being THE MOST SHOWY AND MOST CERTAIN TO THRIVE WELL under any ordinary treatment, and for which any good Garden soil (not particularly heavy) will be suitable.

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	*s.*	*d.*
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

		£	*s.*	*d.*
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

N.B. A complete LIST of the above may be had post free, and any article specified, if not required, will be omitted, and additional quantities of others included.

The very low charges now made for the above Choice Collections of Flower Roots will, it is believed, insure a continually increasing demand.

Early Orders are requested before the more scarce kinds are all sold.

SUTTON'S AUTUMN CATALOGUE,

Containing Descriptive Lists of the best varieties of HYACINTHS, GLADIOLI, ANEMONES, CROCUSES, and other Bulbous Roots, and Choice STOVE and GREENHOUSE PLANTS, FERNS, AMERICAN PLANTS, ROSES, CARNATIONS, and other Florists' Flowers, FRUIT TREES, New GARDEN SEEDS, &c., may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for cash payments.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

GREENHOUSE ORCHIDS.

NO FIRE HEAT, EXCEPT TO KEEP OFF FROST!

JAMES BACKHOUSE & SON

Offer good PLANTS of the following beautiful species, which may be easily grown in an ordinary Greenhouse or Vinery, for Cash Remittance:—

12 for Three Guineas.

LÆLIA SUPERBIENS.
" AUTUMNALIS.
CATTLEYA MOSSLÆ.
" CRISPA.
" SKINNERI.
CYPRIPEDIUM INSIGNE.
" VENUSTUM.
TRICHOPILIA TORTILIS.
LYCASTE SKINNERI.
" (MAXILLARIA) HARRISONIÆ.
BLETIA VERECUNDA.
ONCIDIUM FLEXUOSUM.

12 for Five Guineas.

ODONTOGLOSSUM GRANDE.
BROUGHTONIA SANGUINEA.
SCHOMBURGKIA UNDULATA.
LÆLIA SUPERBIENS.
" AUTUMNALIS.
ONCIDIUM AMPLIATUM MAJOR.
LYCASTE SKINNERI.
CATTLEYA GUTTATA.
" MOSSLÆ.
" CRISPA.
" SKINNERI.
MAXILLARIA HARRISONIÆ.

12 for Eight Guineas.

LÆLIA PURPURATA.
" SUPERBIENS.
" AUTUMNALIS.
DENDROBIUM MONILIFORME.
BARKERIA SKINNERI.
LYCASTE SKINNERI.
EPIDENDRUM VITELLINUM.
" ATRO-PURPUREUM.
ODONTOGLOSSUM GRANDE.
CATTLEYA ACKLANDIÆ.
" SKINNERI.
" CRISPA.

For 12 Guineas: the fine CATTLEYA WARSCEWICZII, C. PINELLI, ONCIDIUM AMPLIATUM MAJOR, and SOPHRONITIS GRANDIFLORA, would be added to the Third Collection.

YORK NURSERIES.—October 8, 1864.

NEW PLANTS.

FISHER, HOLMES, & CO.,

Beg to announce that they are now prepared to send out their

NEW BERBERIS AND ABIES.

THE FOLLOWING ARE THE DESCRIPTIONS GIVEN OF THEM IN THE *GARDENERS' CHRONICLE*:—

BERBERIS STENOPHYLLA.

See page 460, May 14, 1864.

"A very hardy hybrid Berberis, between Darwinii and empetrifolia, which promises to be one of the best evergreen shrubs in cultivation. We call it B. stenophylla. The branches are hairy; the spines 3-parted; the leaves very dark green, about half an inch long, pale beneath, tipped with a short spine, and rolled backward at the edge, so as not to appear flat but to look almost cylindrical. The flowers are of the same coarming apricot colour as that which renders Darwinii so ornamental, but they are smaller," &c.

August 13, page 770.

"At p. 460, we invited attention to a hybrid Berberry, from the Handsworth Nursery. The specimens we had then seen proved it to be a very handsome shrub in regard to its flowers, which were of a fine apricot colour, and produced in racemes of from 3 to 5 together from the leaf axils, instead of singly as in B. empetrifolia, of which this new shrub has something the character, but it is more vigorous. From samples which have recently been sent us, we are able to say that the bushes are at this season laden with purplish black berries, which must add greatly to their beauty, as well as prolong indefinitely the period of their effectiveness as ornamental shrubs. The berries, like the flowers, hang in racemes of from 3 to 5 from the leaf axils, and are about as large as Currants in the samples sent to us, but we learn that they are smaller than usual this year, owing to the excessive drought. When we add that this Handsworth hybrid is of a very hardy character, that it makes strong shoots 4 feet long in a season, that it is clothed with neat narrow evergreen foliage, and adorned with a profusion of gay orange-coloured blossoms in early summer, we shall have said enough to show that it is likely to prove a very decided acquisition, not only for our pleasure grounds and shrubberies, but also for our plantations and game preserves."

First size, strong plants in pots, 21s. each.
Second size, in pots, 15s. each. | Third size, in pots, 10s. 6d. each.

ABIES CANADENSIS MICROPHYLLA.

A beautiful Conifer of slender pyramidal habit, remarkable for the dumpy plump-looking blunt-end leaves which clothe its smaller twigs and branches, and which from their brevity and plumpness give it some peculiarity of aspect.

See p. 580 last year.

"The same exhibitors had an elegant North American Fir, very near the Hemlock Spruce, remarkable for its dumpy, plump, blunt-ended leaves."

Also in *Gardeners' Chronicle* for this year, p. 460, it states:—

"This Abies is of such singularly dwarf habit that it might almost be compared with a Heath. Leaves very dark green with a white streak beneath, rough at the edge, and no bigger than those o Menziesia polifolia. It may possibly be included in some catalogues under the name of Abies canadensis nana, but the leaves are much smaller than in the plants which we have seen bearing that name. Messrs. Fisher, Holmes & Co. have found it much more hardy than canadensis is itself, it not having suffered in the severe winter two years ago, when so many Conifers were injured."

Plants in pots, 42s. each.
A few extra sized Plants in pots, 63s. each.

Prices to the Trade on application.

N.B. CATALOGUES of FRUITS; FOREST, ORNAMENTAL, and EVERGREEN SHRUBS; ROSES; KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS; STOVE and GREENHOUSE PLANTS; DUTCH FLOWER ROOTS, &c., may be had Free in their respective seasons.

FISHER, HOLMES, AND CO., HANDSWORTH NURSERY, SHEFFIELD.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	.. £4 4s.	12s.
Very fine ditto	.. 3 10	9
Good ditto	.. 2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Dutch Bulbs and other Flower Roots.
CONSISTING OF HYACINTHS, CROCUS, TULIPS, NARCISSUS, ANEMONES, LILIES, SNOWDROPS, &c.

JAMES FAIRHEAD AND SON beg to state that their BULBS and ROOTS have arrived this season in prime condition and very large size.
CATALOGUES free on application.
7, Borough Market, London, S.E.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Hyacinths and other Choice Bulbs.
B. S. WILLIAMS can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS. For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post free on application.
Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., and 12s. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS, TULIPS, and other DUTCH BULBS,
Imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

WEST RIDING NURSERY and SEED COMPANY have received their immense Collections of BULBOUS ROOTS from Holland and France, fine sound Bulbs, and at prices lower than ever offered.
GREENHOUSE COLLECTIONS for FORCING, at 20s., 40s., 60s., 80s., 100s.
COLLECTIONS for BEDS and BORDERS, consisting of Hyacinths, Narcissus, Crocus, Jonquils, Snowdrops, Anemones, Ranunculus, Iris, Double and Single Tulips, &c.

500 roots in the above sorts, 20s. | 2000 roots, correctly named, 80s.
1000 ditto correctly named, 40s. | 2500 ditto, 100s.
1500 ditto, 60s. | No charge for Package.

*** CATALOGUES now ready.
WILLIAM BARRATT, St. John's, Wakefield.

New Hardy British Ferns.
J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.
(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONIÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Oct. 8.

New and Choice Plants.
B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

Ranunculuses, Anemones, &c.
C. TYSO, FLORIST and SEEDSMAN, Wallingford, Berks, begs to offer choice-named assortments:—

50 Splendid RANUNCULUS, one each	.. .. 14s. to £1	0s. 0d.
50 ditto, Tyso's SEEDLINGS, one each	.. .. 30s. to	3 0 0
50 Mixed ditto, fine quality	.. .. .. 4s., 8s., and	0 10 0
50 DOUBLE ANEMONES, one each	.. 10s. 6d. to	0 13 0
50 Ditto Single Mixed	.. .. 2s. 6d. to	0 3 6

IMPORTED DUTCH and other BULBS for spring flowering.
C. TYSO'S SOVEREIGN COLLECTION of RANUNCULUS and ANEMONES, sent post free for 21s.
CATALOGUES by post for one stamp.

Winter Flowering Plants.
F. AND A. SMITH, The Nurseries, Dulwich, S., beg to offer the following Plants at moderate prices, well budded, and in excellent condition:—ACACIAS, of sorts, APHELEXIS, AZALEAS, CAMELLIAS, CINERARIA, CYTISUS, DILLWYNIAS, DIOSMAS, ERICAS, EPACRIS, LESCHENAULTIAS, PELARGONIUMS, PHÆNOCOMA PROLIFERA, BARNESI, fine, PRIMULA SINENSIS, and many other fine things.
Lists and Prices on application.
Forced DUTCH BULBS throughout the Season.

Splendid New Pelargoniums raised by DOBSON AND SONS, Isleworth.
The following superb set is now offered for the first time, and are unequalled. For fuller description see CATALOGUE, gratis and post free.

THE RIVAL.—Rich orange salmon, 31s. 6d.
Received First-class Certificate.
SENSATION.—Vivid crimson, 21s.
Received First-class Certificate.
DUKE of CAMBRIDGE.—Crimson, 21s.
Received First-class Certificate.
METEOR.—Purplish rose, striped, 21s.
Received Second-class Certificate.
PASHA.—Fine large purple, 21s.
CONSTANCE.—Pale lilac, large, 21s.
SCARLET KING.—Vivid scarlet, 21s.
KING of LILACS.—Lilac, extra fine, 21s.
CLOTH of GOLD.—Orange scarlet, 21s.
MAJESTIC.—Purplish rose, extra large, 21s.
MISS KATE.—White, superb, 21s.
CALYPSO.—Salmon rose, 21s.
JESSIE.—White, distinct, 21s.
LORENZO.—Rich bright purple, 15s.

During upwards of 20 years' experience in raising Seedling Pelargoniums, so fine a set, the result of one season, by one raiser, has never before come under our notice.

DOBSON'S NEW CINERARIAS.
ACHILLES.—Bright crimson, white ring, 5s.
DUKE of CORNWALL.—White, rosy purple edge, 5s.
DARLING.—Rosy purple, pure white ring, 5s.
FAVORITE.—Mauve edge, white centre, 5s.
PRINCE ARTHUR.—Magenta self, 5s.
ROYAL PURPLE.—Shaded purple, 5s.
VANDYKE.—Rich deep crimson, 5s.
Ready the last week in October. Orders executed in rotation.
A general Collection of best sorts cheap.
J. DOBSON & SONS, Woodlands Nursery, Isleworth.

Rhododendrons.
JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.
JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.
MRS. FITZGERALD, a very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT, brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH, dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL, dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR, clear rosy scarlet, very large truss, and fine foliage.
SURPRISE, a light lilac, with immense dark marking, which renders it very remarkable.
American Nursery, Bagshot, Surrey.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW SUPPLEMENTARY CATALOGUE (No. 8), very rich in Novelties and good Plants, is now ready, and can be obtained on application either to himself or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street London, E.C

Vine Duchess of Buccleuch.
ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.
The following Certificates and Prizes have been awarded at various London and other Exhibitions:—
2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.
A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited
Strong Planting Canes, 21s. each; extra strong Fruiting Canes 42s. each. Exotic Nursery, Tooting, Surrey, S.

Vines, Vines—extra strong.
J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Vines—Extra Extra Strong.
FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 1500 extra-fine well-ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger," and if planted immediately a season will be gained. A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 8, 1864.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Oct. 11 { Royal Horticultural (Floral Committee), at South Kensington .. .. Noon

IN the years 1862 and 1863, a Pomological Congress for the EXAMINATION of CIDER and PERRY FRUITS, was held at Rouen. Before separating last year the members of the Congress decided that, as the study of these fruits in the session then terminated, had been productive of results that would unquestionably prove useful, a similar assembly should be held annually. Although the members of the Agricultural and Horticultural Societies of the departments where cider and perry fruits are cultivated, might be engaged in studying specially the productions of their respective departments, it was determined that there should be held annually a general meeting in some one of the localities most interested in the examination of the fruits in question, such general Congress to be held at the different places in rotation. It was further decided that the meeting for the present year should take place at Caen, from the 8th to the 13th of November.

The programme states that this Congress is for the special consideration of the Cider and Perry fruits of the north-west of France, consisting of the following departments:—Nord, Pas-de-Calais, Aisne, Oise, Somme, Seine-Inférieure, Eure, Calvados, Orne, Manche, Mayenne, Sarthe, Loire-Inférieure, Morbihan, Finistère, Côtes-du-Nord, and Ille-et-Vilaine. The exhibition will be opened on the 8th, and closed on the 13th of November, and on the latter day the prizes will be distributed. Horticulturists, landowners, and farmers are requested to send in collections of fruits, or even single fruits, remarkable for quality, beauty, or rarity. Exhibitions will be admitted collectively—that of the sorts of a district, parish, or country, for example; and the jury in making awards will make proper distinction between producers and collectors. Every exhibitor is requested to send three or four specimens of each variety of fruit, so as to show the different appearances which it may present, and to write legibly on a card attached to each variety the name which it bears in the part of the country where it has been produced. The subjects to be exhibited are to be sent to the Exhibition Hall, Hotel-de-Ville, Caen, on Monday, November 7, between the hours of 7 A.M. and 6 P.M.; and exhibitors are to inform the Secretary de Bureau de la Société d'Horticulture (Rue de Chanoine, 24, à Caen) a week beforehand, of the number of kinds which they propose to exhibit.

The Central Society of Horticulture of Caen and Calvados has decided that it will add, as accessory to this Congress, an Exhibition of TABLE FRUITS, consisting of Pears, Apples, and fruits of all kinds. Forms are sent out to be filled up by the exhibitors, containing columns for the number of the fruit; the name under which it is known; form of the tree, and nature of the soil if possible; growth and fertility; period of ripening; quality of the fruit; observations; and in the case of the table fruits there is a column to indicate whether from a wall or standard.

From the above it will be seen that our neighbours beyond the Channel are paying great attention to Cider and Perry fruits, of which there is a great variety, and some vastly superior to others. By the exhibition and examination of these as proposed, the good sorts will be brought into notice and substituted for the bad, and hence a general improvement may be expected to result. Such might also be the case in England, if similar means were adopted.‖

GRAPES really seem to be the offscouring of the earth as regards disease. Every week brings us something new, and unfortunately something for which we can suggest no remedy. We have now before us a portion of a fine bunch of Lady Downes' Grape, the only variety affected in a large house, which shows a form of disease which we have never met with before. The first indication is the appearance of a few white specks, which increase slowly, but surely, till the berries shrivel and dry up. Those before us, which are in rather an advanced stage of the disease, are pitted all over with little roundish shallow pits, not very different in colour from the rest of the surface. Most of these, when examined under a good lens, show one or two minute cracks, some of which, but not all, produce a little obscure white mould belonging to the genus Fusisporium, a genus which plays so constant a part in the wet form of the Potato murrain. Whether this little mould, however, is the cause or consequence of the disease we are unable from the materials before us to form any opinion. Sulphur has been tried in vain, and unless it could be accurately ascertained that the Fungus is really the cause of the disease, we are not inclined to recommend the application of any other chemicals.

These Grape diseases are so capricious in their attacks, that it is very difficult to come to any conclusion about them. They appear one year, and nothing more is known of them for many seasons, and it is frequently a single Vine only or a single variety which is affected. Spotting and shanking can in some measure be prevented by securing a healthy condition of the roots and free ventilation, but we have seen this year a fine healthy crop, probably in consequence of the dry sunny weather, in two houses which have for years been notorious for the bad condition of the produce. Where a disease like that before us is partial in its attack, one must submit with a good grace, for there is many a form of vegetable disease for which in all probability no remedy will ever be found, and in which the only philosophy is to grin and bear it. *M. J. B.*

THE curious plants called MONSTERAS have occasionally fruited in our gardens, and one of them, M. deliciosa, at least, has been recognised as yielding a fruit which is pleasant to the taste, but little, if anything, has yet been effected in the way of bringing them into cultivation, with the object of thereby supplying an occasional variety of a very acceptable character in our not very varied English desserts. And yet they seem deserving of more attention from this point of view than they have yet received.

In our Volume for 1858 (p. 883) will be found a brief account of the fruiting of a plant of M. deliciosa in the Royal Gardens at Kew, accompanied by a woodcut, which we reproduce on our next page. The quality of the fruit in this instance was remarkably good.

A few weeks since we were favoured by Mr. EWING, gr. to O. F. MEYRICK, Esq., of Bodorgan, with a sample of ripe Monstera fruit, accompanied by leaves and flowering specimens; and subse-

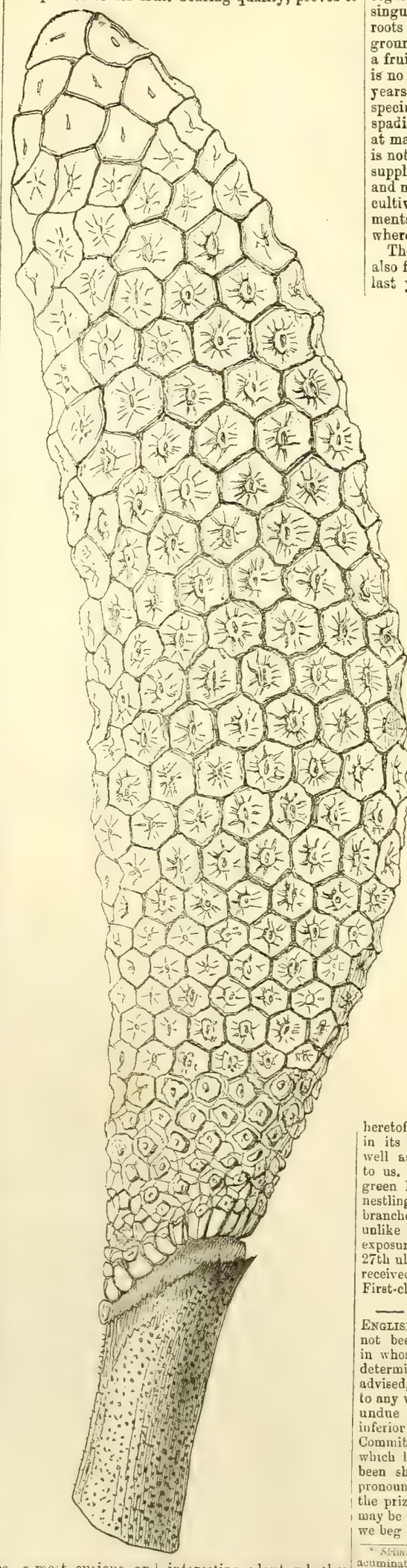
quently another sample has been received from Mr. Wheeler, gr. to H. Westcar, Esq., of Hersham, whose flowering of the plant is recorded at p. 534 of our last year's volume. The fruit in these instances appeared to be identical with each other, and with that which we have figured. This renewed testing of its quality enables us to report without hesitation, that the fruit of the Monstera is, when ripe, most delicious, so much so, indeed, that we think it might well be introduced to our desserts as one of the choicest of luxuries.

In all the cases alluded to, the species appears to be that called M. deliciosa, a plant which Mr. Ewing well describes as having a good deal the habit of a Pothos or Philodendron, that is to say, it has a scrambling mode of growth, especially adapting it for creeping over and about massive rockwork or rustic work or the back wall of a tropical house. The stout stem, as thick as a man's wrist, produces numerous pendent aërial roots, often as thick as one's finger, and from 30 to 40 feet in length. The plant at Bodorgan, the origin of which is not known, is believed to be about a dozen years old, and it is singular that an allied, if not identical species found in Amboyna, is said to come into fruit at about the same age, and to continue for an indefinite period. The plant is grown in a pot, is about 10 feet high, and is now fruiting for the first time. The leaf itself is highly interesting, the lamina, which is decurved at the top of the leaf-stalk, being upwards of 2 feet across, of a blunt ovate heart-shaped figure, and furnished between the principal veins with several series of oblong perforations, while the margin is deeply slashed half way to the mid-rib in a pinnatifid manner. "The young leaf is at first beautifully rolled up like a roll of paper, and as it keeps unfolding the points are held up by threads until they are able to bear their own weight. Without these filaments the tender portions of the leaf would not be able to support themselves."

The plant, as we further learn from Mr. Ewing, "produces from six to eight flower-spikes at a time, these becoming changed in twelve months into an equal number of succulent fruits, of most agreeable flavour, and having a Pine Apple-like scent." The flower spikes are produced from the main stem on stalks about a foot in length, and are each about 8 inches long, and 5 inches in circumference. The sessile flowers which form a close cylindrical scarcely tapered spike or spadix, are arranged in a spiral manner, and consist of hexagonal closely-pressed fleshy bodies marked on the face with an oblong umbilicate scar representing the stigma, and with the short stamens protruding from between them. The spadix is wrapped round by a broad boat-shaped fleshy-coriaceous pale-coloured spathe very little longer than itself, and having its margin slightly revolute and its apex acute.

The spadix, when in the fruiting state, becomes sensibly thicker than when in flower, but without otherwise materially altering in its appearance. Each "fruit," that is to say, each succulent compound spike, attains about a pound in weight; it is of an oblong cylindrical form, about 9 inches long, and nearly 8 inches in circumference. It is found to be composed like the Pine Apple of numerous "pips," which are arranged in spiral manner around a central column, from which however and from each other, unlike the Pine Apple, they separate readily when ripe. When whole the surface of the fruit is marked out into as many separate hexagonal meshes as there are pips, each being from a quarter to three-eighths of an inch across, of a sage-green, somewhat depressed around the centre, which is elevated in the form of a small oblong scar. This green portion separates from the edible portion, when ripe, in the form of a rind or scale, nearly the eighth of an inch in thickness. Each pip has its upper end hexagonal as just mentioned, but below it assumes the form of a blunt square-ended wedge, so that it has a linear-oblong attachment of about one-fourth of an inch long, whence a spiral series of linear-oblong depressions, surrounded by short dark-coloured scales, becomes marked on the central column. The wedge-shaped pips are of a fine fibry texture, and full of a rich fragrant juice, the flavour and aroma of which is something like that of a Pine Apple and Melon combined, very luscious and pleasant to the taste, but soon satisfying. These pips separate readily, lifting easily out from among the dark-coloured scales by which they are invested at the base. The stalks both of the leaves and spadices are thickly covered with harsh papillæ.

Mr. Ewing's Monstera luxuriates, he tells us, in the moist atmosphere of an Orchid house, and irrespective of its fruit-bearing quality, proves to be a most curious and interesting plant, whether



regarded from the point of view presented by its singular perforated and gashed leaves, the long roots which it sends out into the air and along the ground, or the peculiar inflorescence. Viewed as a fruit-bearing plant the interest of the Monstera is no less marked; for although the plant is some years growing up to a flowering age, and large specimens produce but a limited number of spadices, and even these are 12 months in arriving at maturity, and although consequently the fruit is not likely to be produced in any quantity, yet as supplying a novel article of dessert of the richest and most *recherché* character, it might be usefully cultivated for its produce in those garden establishments where a variety of fruits is prized, and where space is not too much restricted.

The sample forwarded by Mr. Wheeler was also from a plant which flowered for the first time last year. This bore two spadices, which had been a twelvemonth in ripening. The fruits in this case were of the following dimensions:—Length, 7¼ inches; circumference at an inch and a half from the base, 7¾ inches, and at an inch from the apex 6¼ inches. All who had tasted them pronounced them delicious.

We venture to hope, therefore, that by thus inviting special attention to the subject, this Monstera may become more generally grown for the sake of its fruits.

We have just received some of this year's shoots of the diseased Black Currant trees, which we noticed in this Journal, April 16, 1864. The disease seems still more prevalent than ever, and, as we stated before, is clearly not dependent on any sudden change from drought to moisture. As in the former instance, every bud seems to have a tendency to start, and to produce a short unhealthy twig instead of being contented to remain and bear fruit the following year. Another peculiarity consists in a great portion of the leaves, especially those above, being wedge-shaped at the base, while many of them are so small as to give the plant a very peculiar appearance. The cause remains as obscure as ever. We have in vain attempted to get the cuttings to strike in the hope of being able to study the malady more effectually. *M. J. B.*

— Our readers doubtless will remember that in the early part of the year we recorded the success which had attended the efforts of Mr. Standish to present our stay-at-home gardeners with a view of the berried Aucuba as seen by travellers in the far East. We have now to chronicle his exhibition of another most beautiful Japanese evergreen, with berries of the brightest vermilion red, and one which must become a valuable acquisition for our gardens and shrubberies. This also, like the Aucuba in question, was one of Mr. Fortune's discoveries, and is a species of Skimmia,* which proves to be most remarkably distinct from all other Skimmias as yet known, in the remarkably oblate figure of its bright red berries, so obviously different from the dull red oblong fruits of the Skimmias we have heretofore possessed. It is also remarkably distinct in its foliage, which is of a different texture, as well as in its habit, from the other species known to us. It is a free-growing shrub, with dense clear green leaves, the panicles of bright-coloured berries nestling amongst the foliage at the ends of the branches; and we are assured by Mr. Standish that unlike the other species we cultivate, this bears exposure to the sun. The parent plant was shown on the 27th ult. at the meeting of the Floral Committee, and received the unanimous and unhesitating award of a First-class Certificate.

— The prize offered by us for a Seedling, English Rose (see p. 699 of our volume for 1863) has not been awarded this year. The Floral Committee, in whose hands the prize was placed, has come to the determination, in which we have no doubt they are well advised, that a prize of this kind ought not to be given to any variety which was not of first-class character, lest undue prominence should be given to something of inferior quality. In this view we concur. The Committee has also decided, that none of the seedlings which have been submitted to it during the year, have been shown in a condition which will warrant it in pronouncing them first-rate. It is on this ground that the prize has been held back. We trust the growers may be more fortunate in their subsequent efforts; and we beg them distinctly to understand that the prize is

* *Skimmia oblata*: leaves rigid coriaceous obovate elliptic acuminate; flowers * * * *, in panicles; berries oblate, of a bright glossy deep vermilion red. *M.*

not lost to them by the accident of its not being now awarded. It is our wish to give the five annual prizes of 5*l.* each, as originally announced, provided that flowers of sufficient merit to satisfy the Floral Committee are forthcoming.

—— In the text which accompanies the beautiful figure of Phalænopsis Schilleriana, given in Van Houtte's *Flore*, occurs a correction of the statement with respect to the habitat of this fine plant, which is made in Warner's *Orchidaceous Plants*, which, as bearing somewhat on the treatment of the plant, it may be useful to record. In that work Phalænopsis Schilleriana is reported to grow in "moist shady places," but, observes M. Van Houtte, this contradicts the evidence of M. Porte himself, the discoverer of the plant, to whom even Mr. Warner must be indebted for his examples. M. Porte expresses himself thus:—The Phalænopsis amabilis in the Philippine Islands inhabits small and large forests in localities where the season of dryness is more or less regular, but one never meets with it in the forests which are sombre and constantly moist. The Phalænopsis Schilleriana is met with under nearly the same conditions, except that ordinarily it is found on the declivities of the mountains, at a height of 300-400 metres (about 375—500 yards.) Thus, according to M. Porte, P. Schilleriana affects a higher position than P. amabilis, which he says is never found in the sombre and constantly moist forests, and consequently is even less exposed than that to stagnant moisture.

DR. DAUBENY ON THE DECAY OF SPECIES,

AND ON THE NATURAL PROVISIONS FOR EXTENDING THEIR DURATION.

[A Paper read at the Natural History Section of the British Association in Bath, September 1864.]

It is usual amongst naturalists to distinguish between animals and plants, by saying that the former have a definite limit to their existence assigned to them by Nature, whilst the latter have not.

But in reality both are equally subject to that decree which has gone forth from the beginning of Time, and which renders death the inevitable termination of all created existences.

Animals, even if assumed to be protected from all external causes of injury, and from derangements of function incident upon errors of diet, or excesses of every kind, would perish eventually through the mere decay of their essential organs.

Nor would plants, regarded as individuals, be exempt from the same fate, although their existence may appear capable of indefinite extension, owing to the production of new individuals springing from previously formed organisms.

But it seems to be also a law of Nature that no organism can repeat itself indefinitely without becoming in the end worn out.

Thus cuttings from a plant are so apt to degenerate when grafted upon a foreign stock, that Andrew Knight actually imagined that all trees belonging to the same parent partook of one common individuality, so that when the original stock from which the cuttings were taken is worn out, the grafts also perish.

The hypothesis alluded to, although emanating from so high an authority, will probably meet with no supporters at the present day. Indeed M. Decaisne, the learned Professor at the Jardin des Plantes, has lately stated, that many varieties of Pear trees retain their characteristic properties after a century or two unchanged. He instances the Crassan, the Chaumontel, and others.

Dr. Lindley, also, in his "Theory and Practice of Horticulture," Ch. 17, has given the weight of his authority to the same side, and has adduced abundance of instances, in which plants propagated by cuttings have continued for a long time unchanged.

But, on the other hand, many practical cultivators adhere to the position, that certain plants, at least, wear out after long cultivation, of which, perhaps, the most trustworthy statement is that given by Mr. Masters, of Canterbury, in the *Gardeners' Chronicle* for 1853.

His long experience leads him to the conclusion, that many of our varieties of Apples, such as the Golden Pippin, Lemon Pippin, &c., have dwindled away, and even when they have maintained themselves in a state of pristine vigour, this has been brought about, according to Dr. Lindley, by transplanting them into a foreign soil, as into France and America, and then bringing them back again after a time to their native air. Granting, then, the decay of plants propagated by cuttings within a limited time to hold good with respect to any varieties at all, analogy would lead us to extend the same inference to the rest, and to suppose, that they differed only in a longer period of duration being assigned to their existence, and thus being regarded as permanent. At any rate the recent failure of Potatos and of other plants which are propagated by cuttings, seems to point to such a law of Nature as that which I began by announcing; and, if this be the case, any cause which brings about a certain degree of variation from the primæval type ought to be favourable to the duration of the species.

I am therefore inclined to think that one subsidiary end aimed at in the reproduction of plants through the instrumentality of parts analogous to the sexual organs of animals may have been to aid in producing these salutary though minute variations from the original type.

That the organs in question are in some cases essential to the perpetuation of the species cannot indeed be disputed.

Plants, such as Annuals, of which the roots, as well as the stem and branches, die at the expiration of a certain period, might be speedily exterminated if they did not produce seed. And even Perennials could hardly spread far, if limited to the range within which they are capable of extending themselves by suckers or offshoots; whereas through the agency of the winds, of insects, and the like, their seeds are carried to an unlimited distance, so as to bring about the dispersion of the species to any conceivable extent, unless checked by external obstacles, or by the interference of other plants possessing superior vigour of constitution, or greater fitness for the soil and climate.

But it is plain, that even amongst phanerogamous plants there are many, such as that American pest, the Anacharis, which in spite of all our efforts invade whole continents by the mere division of their parts; whilst others, like the Weeping Willow, do the same through man's assistance, although only one of the sexes may have been brought over from its original birth-place.

And amongst cryptogamous species there exist in the lowest grades no other means of propagation, except that of a simple division and development of the primary cell; whilst in the higher ones, it is found that the two processes go on, as it were, hand in hand, and seem to be equally intended for bringing about the production of new and distinct individuals.

Hence we may be permitted to seek out other uses for the sexual organs of plants besides that of the mere reproduction of the species, and it was with a view of pointing out what these might be, that I communicated to the Natural History Section of this body, at their last meeting in Oxford, a paper entitled, "On the Final Causes of the Sexuality of Plants," which was afterwards published as a separate pamphlet.

In the original paper I had stated rather too broadly, that no deviation from the primæval type could occur in a plant, except by sexual reproduction—a proposition which I modified in printing the communication afterwards, by admitting the existence of a few exceptions to the rule, in allusion to the cases of sporting, which occur occasionally in flowers produced from branches, as well as in the case of seeds.

The well-known example of the occurrence of isolated blue bunches of Grapes on stocks of white varieties, of isolated bunches of red Currants mingled with the white ones of the same stock, of isolated pure sulphur-yellow Roses amongst variegated flowers of the red Austrian Briar Rose, afford proofs of a tendency to variation, which can hardly be referred to the influence of pollen from a foreign source, and may therefore be regarded as illustrative of this point.

There is, however, one difference between the two cases, namely, that whilst in a bud the deviation from the primæval type is exceptional, arising probably from some morbid condition of growth, or from some modification in the external circumstances under which the plant had been placed, in a seed it is of constant occurrence, although existing in various degrees of intensity.

It may be stated as a general law, that no one individual, animal or vegetable, produced from an egg or from a seed, was in every respect like either of its parents; in all cases some divergence from the primitive type being brought about by the influence of the male organ upon the embryo of the female. Hence the existence of floral organs in plants, no less than the distinction of sexes in those animals of lower grade, which nevertheless propagate their kind without any sexual union having occurred, may be regarded as a provision against too great an uniformity in the aspect of Nature, and may be recognised, even by those who are unwilling to bind themselves to the acceptance, in its totality, of Darwin's hypothesis respecting the origin of species, as an expedient for increasing the number of originally created forms by means of the varieties in this manner introduced.

And amongst the ends aimed at by this arrangement, may be that of a provision for a longer continuation of the species than would otherwise be possible.

One obvious effect of this introduction of varieties more or less diverging from the primæval type, is one which the disciples of Darwin will be the first to appreciate, namely, that such slight differences in structure and constitution may contribute towards preventing the species from dying out, by giving rise to a progeny, some members of which are better adapted than their parents to live under any new conditions of climate, &c., to which they may be subjected.

For as the external circumstances are undergoing frequent alterations, so it may be necessary, that the organic beings themselves placed under their influence, should undergo a like modification.

Many years before Mr. Darwin brought forward his theory of natural selection, with which these facts, it must be confessed, harmonise well, Dean Herbert, in his Paper on Hybridisation,* had expressed himself as follows:—

"We cannot say, that the order to multiply after their kind meant that the produce should be precisely similar to the original type; and if the type was allowed to reproduce itself, who can pretend to say how much variation the Almighty allowed?

"Who can say, that His glorious scheme for peopling and clothing the earth was not the creation of a certain number of original animals and vegetables, predestined by Him in their reproduction to exhibit certain variations, which should hereafter become fixed characters, as well as those variations which even now frequently arise, and are nearly fixed characters, but not absolutely so, and those which are more variable, and very subject to relapse in reproduction."

But I am tempted to believe that these and other provisions for varying the type of a species may have a further object in view. For even when we have reason to believe the external conditions to remain unchanged, a gradual deterioration of the race would seem to occur from causes arising out of its own organisation, which deterioration would appear to be more or less rapid, according to the degree of variation incident to the species, taking place soonest in plants propagated by cuttings, and more slowly in those multiplied by seeds.

Dr. Lindley indeed lays it down as an axiom, that whilst individuals are mortal, species are eternal; but of course he cannot mean to use the latter term in its strict sense, or as implying more than that they will endure so long as the external conditions remain unaltered; and even this last position seems hardly reconcileable with the facts which he records as to the failure of Apple trees and other vegetables from some internal principle of decay.

With all deference therefore to this and other great authorities, I cannot but think the question still open to discussion, and for my own part am tempted to believe, that the blights which have affected the Potato and the Vine were primarily the consequences, rather than the causes, of the decay or unhealthiness of the plants which they infested, and would suggest, that their occurrence might arise from the circumstance, that both the plants alluded to are propagated mainly by cuttings; regarding the diseases which have proved so fatal in these two cases, no less than the fact already alluded to of the dying out of certain fruit-trees, as indicative of a law of Nature, which forbids the long continuance of a race, except its vitality be renewed by frequent variations from the primæval type.

(To be Continued).

* Journal of the Horticultural Society, vol. ii., 1847.

ORNAMENTAL PLANTING.—No. IV.

Winter.

It may probably startle some of my readers when I essay to speak of the "Beauties of Winter." But the real lover of nature who possesses the *mens sana in corpore sano* will find in the changes of the seasons pleasure rather than discomfort. To an individual thus soundly constituted, the balmy breezes of spring, the noontide heat of summer, the whirlwind of autumn, and the snows of winter, with their varying preliminaries, accompaniments, and sequences, are only so many fresh sources of knowledge, gratification, and delight.

To draw on one's own experience, I remember riding over a bleak plain one December day many years ago, in face of a biting north-east wind, with the thermometer 20° below the freezing point. Shortly afterwards I entered a wood of Scotch Pines, and was struck with the change of climate—a change of which the thermometer gave no adequate indication, and which deeply impressed me not only with the sense of increased personal comfort, but also with the value of shelter to the young and delicate objects of vegetable life. I thought then, and have thought since, that the horticulturist who measures the probable influences of the weather by the thermometer alone, does not rise to a correct estimate of the powers he has to contend with.

Thus, while I regard with no antipathy the biting frost and the searching wind, knowing that these things are of vast importance in the order of Nature's laws, it is my purpose to advocate the use of those objects and agencies which art and science have placed at our disposal to modify and subdue those influences uncongenial to the comforts of an English home.

The real value of Shelter can scarcely be too highly estimated in many of the delicate operations of modern gardening, and the idea of it when associated with warmth is no less pleasing to the mind in winter. On both grounds the free use of evergreens when forming new gardens or plantations is strongly advocated; they are invaluable for the shelter they afford, and the idea of warmth which they convey. But a garden or pleasure-ground, planted wholly with evergreens, few would be bold enough to advocate; such would be heavy in summer, and monotonous in winter. Evergreens may abound, but they must not superabound. To abound even, they require to be judiciously varied. The free and spreading forms should be mingled with the formal; the large-leaved and small-leaved kinds must be properly arranged and adjusted; the light green, the dark green, the glaucous and the variegated, must be represented in varying proportions to suit the character of the mansion and the surrounding scenery. A group of the Golden Holly forms a glowing picture in winter; the Silver Holly with its clusters of bright red berries is no less pleasing; the yellow green of the

Laurel, and the black green of the Yew, produce a beautiful contrast both in form and tint, and they may at times be brought in contact for the sake of contrast, and at times be separated and softened down by the intermediate tints of light and glaucous green.

But the beauty of our gardens out of doors in winter need not be wholly dependent on the forms of trees and the tints of their foliage. There are some few plants which bear berries, and these should be introduced without stint. Besides the common form of Holly so familiar to us through its bright red berries, there are also the yellow-berried and the orange-berried varieties, both noble trees, well worthy of general cultivation. Then there are the Thorns, alluded to in a former paper, which retain their fruit through a part of winter; the Pyracantha, the Arbutus, the Skimmia, the Cotoneaster, the Pernettya, the Privet (both black and yellow-berried), the Ivy, and others.

The beauty of the bark of certain deciduous trees in winter is also a feature which should not be lost sight of. The true Silver Birch, glittering in the sunshine and bright even in the gloom, is one of the most prominent of these; the golden-barked Ash, the yellow, purple and white-barked Willows, the red-barked Dogwood and the snake-barked Maple belong also to the same category. To those who are professionally interested in, or may have the leisure to study the subject, the spray of the leafless trees in winter opens up a boundless source of pleasure and instruction. Infinite is the variety of Nature; every kind of tree differs in the form, character, and direction of the spray, and it is at least a harmless pleasure to engage mentally in the disentanglement of the sinuous masses or to track their labyrinthine paths.

Again, there are trees whose leaves, though they change, remain on the branches during winter; the Beech, the Hornbeam, and the Turkey Oak are familiar examples of these, and their dress of rich russet brown provides both shelter and warmth.

Lastly, there are some few shrubs and trees which blossom even amidst the storms of winter; the Andromeda floribunda, with flowers chaste and pure as driven snow; the Chimonanthus, possessing at once a rare and delicate beauty, and an unapproachable fragrance; the Cornus, the Forsythia, and the Jasminum nudiflorum, belong to this class.

These are the beauties of Winter, and by a wise use of them the gardens of England, now often so bare and cheerless at that drear season, may be made bright, pleasant, and joyous. Comparative warmth and comfort may be secured within the charmed circle of the *sheltered* English home, while in the distance we hear "the stormy wind howling among the trees and raving over the plain." My next essay will form a classified list of materials for ornamental planting. *William Paul, Waltham Cross, N.*

HYPOCAUST HOTHOUSES.

I WRITE a few lines to accompany the more complete plans of my new hothouse, in order to report a few matters that have occurred since it was erected which may be useful to those who wish to erect similar buildings.

First, I have devised (and it has been tried by a neighbour) a better mode of constructing the floor than that which I at first adopted, viz., supporting the whole floor till the cement had set, by a wooden stage. It is much better to make the floor beforehand in large blocks, sufficient to reach from one of the intended supports to another; and, after leaving these blocks, or rather slabs, to harden for two or three days, to lay them in their places like paving-stones. The edges must be left as shown in Fig. 2 annexed, and the spaces filled in afterwards. If only one-third of sand is used, the cement will set in two days—if half it will require longer.

It is not easy to ascertain the cost of what one's own workmen build, as different jobs get mixed together, and the result is always more or less conjectural. My neighbour's new house having been built in the ordinary way by a tradesman, I am able to say that his floor, 20 feet by 10 feet, cost 6*l.* 2*s.* 6*d.*, or 3*l.* a square. But this included 17*s.* for a coating of cement all over to imitate stone pavement, leaving about 2*l.* 12*s.* 6*d.* a square for the tiles themselves, as used for a Vine border, when they are covered with earth and require no decoration.

The cost of the furnace may be much diminished when it is only of moderate size. The heat not being excessive, very little fire brick need be used. The horizontal flue is not required when the chimney can be placed opposite to the fire, and I am not sure that it is necessary in any case. When the fire and the chimney are at one and the same end of the house, a low partition of 4-inch work, continued to within 3 feet of the farther end, and then left open, may be used with advantage as a support to the floor, instead of the piers used in my own case, provided the house is not more than 12 feet wide. My neighbour's house is built in this way, and answers perfectly —the fire-place being merely one which once warmed a copper. It is not intended for Grapes, and has no Vine border, but I doubt not that a Vine border would work well, if the heat were admitted under it by means of openings in a second wall of support parallel to the other. Tile floors of this description are very commonly used by architects for other purposes, and it is ascertained that they will bear a considerable weight if supported by a rigid support every 6 feet. It is quite unnecessary to have a

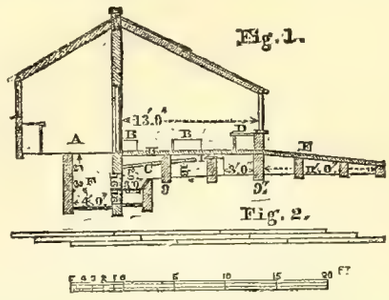


FIGURE 1.—A, Potting-shed; B B, Borders for Pines, Figs, &c.; C, Roof or top of Horizontal Flue; D, Stage for Plants; F, Paving of Tiles under Vine borders; F, Stokery of Furnace; H, Floor of Greenhouse [see an enlarged plan of this at Fig. 2.]; I, a piece of Cast iron, 2 ft. 6 in. square, placed over the mouth of horizontal flue to disperse the heat (this is not required where the house is not so large as to render a very large fire desirable).

FIGURE 2 shows how the tiles are arranged in three courses with a view to strength.

continual fire. The air chamber underneath retains its heat for several hours if the furnace door and the damper of the chimney are closed when the fire goes

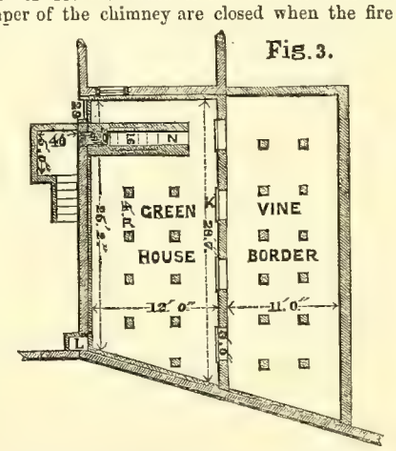


FIGURE 3.—K, Openings furnished with Shutters to prevent the heat passing under Vine border when not required; L, Chimney, furnished with a damper to regulate the draught; N, horizontal flue.—N.B. It is found when the sun becomes powerful that a sufficient supply of heat is produced by lighting the fire for a very short time in the evening, and then closing the door of the furnace and the damper of the chimney. The heated tiles, aided by the warm air in the chamber, which is 2 ft. 6 in. high, and extends under the whole house and Vine border, retain their heat for many hours.

out. I hope these fresh particulars may prove useful. *Charles Wykeham Martin, Leeds Castle.*

[We have no doubt that Mr. Wykeham Martin's plan is a most important step towards the construction of cheap and at the same time effective hothouses, and that it will ultimately be adopted in some shape or other. Something of the same kind has, indeed, already been tried successfully in other quarters, and one of our most eminent nurserymen and fruit growers has examined it thoroughly and highly approves of the system. The whole difficulty of construction is obviated by building the floor on a firm stage, which may be removed in a few days, leaving an extremely strong pavement, which does not readily part with its heat when it is once thoroughly warmed, added to which the temperature may be very easily regulated.]

BEES, HONEY, AND HIVES.—No. IV.

(*Continued from p.* 820)

[The following passages are from the *Times* "Beemaster's" rejoinders to the comments of Mr. Woodbury, printed at p. 820.]

"IT is well that bees have not learnt to read all that your correspondent, Mr. Woodbury, says about them, or they would send a battalion to Mount Radford, Exeter, and ere they returned would make their calumniator exhaust all his remedies for bee stings. I am immensely jealous for the honour and good name of my bees. Mr. Woodbury says that 'whatever virtues bees possess, honesty or even the slightest respect for *meum et tuum* is not among them.' A grosser libel on the apiarian race was never perpetrated. Their respect for *meum* is so intense that they will defend their queen and home to the death. Their respect for *tuum* is so entire that they never touch the property of another unless in circumstances which would justify men as well as bees in seizing the property of another. If Mr. Woodbury robs one of his stocks of its stores, or takes away for the market or his table too much of their accumulated wealth, can it be expected that 6000 or 10,000 bees will lie down and die martyr deaths in order to illustrate his theory of *meum et tuum?* He starves his bees, and when they forage denounces them as thieves. If a bee-master does his duty by protecting his hives, feeding the unfortunate and weak, no such freebooters will be found.

"Mr. Woodbury says, 'Mr. Harbeson, a sturdy citizen of the American Republic, considers the queen a simple machine for laying eggs.' He has only to extend this free philosophy, to see in Rose bushes machines for growing Roses, in birds machines for building nests, in Tennyson a machine for spinning poetry, and in Lord Palmerston a machine for turning out speeches. His exaggerated talk about bees being regicides is not true. That the queen, who has precedence of birth, destroys the princess next to her that might be her rival, I admitted and deplored as sad. But that bees are regicides is not true. They never kill their queen; they love and are loyal to her, and obey her commands. I said they hate republicanism and so they do, and so do I. Mr. Woodbury says cottagers cannot make Ayrshire hives. They do cleverer things. At all events, they can try. The Ayrshire hive is octagonal, I admit; but all I said was that my success as a bee-master led me to suspect they prefer a box similar to their combs, and therefore I intend this winter to have several hexagonal beehives.

"Your correspondent says, 'Common sugar (lump sugar is best) does not require to be exposed to a heat of 300° to be available to bees.' No wonder his weak stocks plunder his strong ones, for bees cannot and do not eat lump sugar or brown sugar. Their lambent organisation renders it impossible. I spoke of feeding with pure sugar, and stated that it is available in the shape of barley sugar only. That it can be presented as boiled up in beer or water I taught when I alluded to its being dissolved in ale. But whether in water or ale it smears their wings, clogs their feet, and is vastly inferior in all respects to barley-sugar. Mr. Woodbury adds, 'if any one has a swarm consisting of only 5000 or 6000 bees, let him not take the trouble of hiving it.' I mentioned 5000 or 6000 bees as a swarm. It is the lowest, I freely allow. But I will add to your correspondent's knowledge. I had a cast thrown off last year, at the end of June. I despaired of its weathering the winter, but I resolved to feed it richly with barley-sugar till March. The *maximum* number of bees was 5000. It filled the lower box with at least 40 lb. of honey by the middle of June this year. The bees had increased immensely. I opened the communication with a large super. This super has in it now not less than 36 lb. of the whitest cells and honey I ever saw. I have shown it to many whose mouths watered for a slice of it. I never join stocks. We feed cattle on oil-cake; why not feed weakly stocks with barley-sugar?

"Your correspondent says, again, 'Bees are never nursed by other bees; they are totally devoid of sympathy.' My reply to this is, I have seen the disabled bees tended with exquisite and unwearied attention, rolled in the sunshine on the bee board, and carried or helped into their homes. His testimony is negative, mine is positive.

"Reaumur, the eminent naturalist, observes that after the queen regnant has become a mother, 'the bees are constantly on the watch to make themselves useful to her, and to render her every kind office; they are for ever offering her honey; they lick her with the proboscis, and wherever she goes they form a court to attend her.' Huber writes—'I have seen the workers lavish the most tender care on such a queen.' These are facts noticed and recorded by the two most eminent and careful apiarian naturalists. They are, in the judgment of every one able to appreciate weight of evidence, conclusive disproofs of Mr. Woodbury's material and mechanical theory.

"Allow me now to select one or two of the most important practical inquiries which I have received. One asks, 'How am I to begin an apiary?' Let me tell him. Buy a stock in August or September for 20*s.*, taking good care that it is not old and weighs (inclusive of straw hive) not less than 30 lb. Erect a shed with sloping roof projecting sufficiently to carry the rain beyond the alighting board of the bees. The length may be 12 feet, the height about 5 feet, and width 2½ feet. Divide it into four equal sections or chambers. Make an exit in each 3 inches long by 2 inches high. Place your hive in the centre of one of them, with its opening directly opposite the opening in the chamber. Fix below each opening in the shed a bees' landing-board, sloping at an angle of 25°. If you can afford it, buy four stock hives. Next May cut out the top of each as I directed in a previous letter. Place on it a board with circular hole or a bell-glass rather narrower at the lower part than at the centre; cover each with its plaid nightcap, and you will have plenty of delicious honey in 1865. If, however, you do not mind loss of time, build your shed this autumn; make it smooth inside to discourage spiders, and next April send round the country to cottagers keeping bees and engage four good swarms, which ought not to cost more than 10*s.* each. In carrying them home pin over the entrance hole a piece of gauze, tie a towel or napkin underneath, fastening the four corners at the top, and do not jolt the young family unnecessarily. If the swarms can be had in May, and if it prove a fine summer, you may place a glass on each about the end of June. Do not forget the old adage—

> "A swarm in May is worth a load of hay;
> A swarm in June is worth a silver spoon;
> A swarm in July is worth a fly."

If your swarm is an early July one, you may save it by pushing three or four sticks of barley sugar into the hive by the exit aperture once a fortnight till March

Any little expense in feeding introduces you to your bees and helps them wonderfully, and is never a loss. If you want to tempt the bees to feed in your own garden, sow Mignonette, Salvia, and Sainfoin; plant plenty of Raspberry, Gooseberry, and Currant bushes. They like Lime, Poplars, Apple blossoms, Thyme, and above all, Borage. Bees never touch double flowers. Should the early summer prove very dry, place near your bee-shed two or three soup plates half full of water, taking care to put in as many pebbles as each will hold. The bees require stepping-stones for their tiny feet, and otherwise they are necessary to save them from drowning.

"I am giving directions to those who desire to work economically. But if you can lay out a little as an investment, and wish to combine interest and pleasure with profit, you cannot do better than call on Neighbour, either in Regent Street or Holborn, where I have seen many varieties of hives, of different prices and all of good workmanship. The lateral system is the most elegant, but least productive. I do not like the nadir system. Bees naturally ascend or traverse the same plain, but mostly prefer ascent. 'Excelsior' is their favourite aspiration.

"In answer to another inquiry—do I approve using stupifying fumes as of Puff-ball, in order to expel the bees from supers full of honey?—I say certainly not. It may not injure the bees if judiciously administered. But it is not necessary. The bees will leave the super on its being detached from the hive and carried to a little distance, and will return immediately to their home and their queen. The only case in which I have recourse to it is when any portion of the comb through accidental admission of wet, has become mouldy. A few whiffs of Puff-ball may be injected by means of an instrument sold for this purpose, during five minutes. As soon as the humming noise ceases, lift the hive and cut out the mouldy portion of the comb, replace it, and in 20 minutes the bees will again be at work. This is the only case in which I would employ either this or tobacco smoke, which answers as well.

"Your apiary or bee-shed should be placed as near your dwelling as possible, sheltered from the north and north-east winds, and at the greatest possible distance from poultry. Frequently, but quietly and unobtrusively, visit them, watch them at work in your bee-glasses, or by windows in your bee-boxes. Let your children play beside them. They are fond of children, and unless violently irritated they will not injure them. I can state this from very ample experience. At the same time it is proper to state that some few persons are so offensive to bees that they must not approach them. Plenty of soap and water and fastidious cleanliness are essential to a bee-master's continued popularity with his apiarian family."

Home Correspondence.

Land-fall in Norfolk.—On Thursday, Sept. 29, a singular phenomenon took place in a field on the farm of Mr. Hastings, of Longham, in Norfolk, on the estate of the Earl of Leicester. Suddenly, and without visible warning, for Mr. Hastings had driven over the spot 20 minutes before, the ground gave way, and there appeared a chasm of 30 feet in diameter, and of more than 17 in depth. Mr. Hastings may be said to have had a narrow escape; for if the surface had sunk, as it might well have done, beneath the concussion of his gig, he must have been buried alive. At first there was no sign of danger to the adjoining surface, but as crowds of country people have flocked to the spot, thinking that they were visiting the scene of an earthquake, the land under this unusual pressure seems likely to give way in other places. Cracks are plainly seen for a radius of 50 yards in every direction. From the immediate appearance of water it is supposed that the ground has been undermined by a subterraneous stream; but the science at command in a country place can do no more than guess at the cause of the phenomenon. One side of the chasm now looks as if it were the opening of a cave, the earth above which is a mere crust. There is a sensible depression of a foot or two over quite an acre of ground. Perhaps the cause is to be sought in the extraordinary dryness of the land, the like of which Mr. Hastings cannot remember during his occupation of half a century. Can any of your numerous readers assign any more probable cause for this singular and very unpleasant occurrence? *A. H., Oct.* 4.

Anacharis Alsinastum.—Your Paper contained a notice of the flowering of this plant in stagnant water near London during the hot weather in May. I had never seen it in blossom in the Thames until last year, when it bloomed abundantly, throwing up its white threads, terminated with their singular blossoms, from a considerable depth. They were all pistilliferous, but I noticed certain processes alternating with the pistils, which appeared like abortive stamens, as if the plant had some inclination to hermaphroditism. I recur to the subject because this year's observation enables me in rather an interesting way to fix pretty accurately the temperature needed to force this plant into bloom. Last year the time was the middle of August. The mean temperature of the river during July had been 66°, and during the week previous to the blossoming it had risen to 68°. This year the mean temperature of the river during July was only 64°; it rose to 67½° on the 6th of August, and numerous white threads began to show themselves; on the 8th, the temperature began rapidly to decline, and the threads disappeared without producing a single blossom. *J. S., Streatley Vicarage, Oct.* 5.

Relative Strength of Deodar and Cedar of Lebanon.—In your Paper of October 1st (p. 943), I observe an interesting article on this subject—interesting in so far as it shows how the timber of the two kinds of trees named may be assimilated, but I think it by no means shows their relative strength. It is well-known that the Cedar of Lebanon, grown in this country, is often as soft as the most degenerate variety of Scotch Fir, while small branches of Deodar have the appearance of yielding firm, resinous timber of great strength, like that which the tree has a reputation for in the Himalayas. In testing the strength of the Deodar and Cedar wood yielded by the slab from the engrafted tree, I think the Deodar gets scant justice, notwithstanding the statement of the writer that "in the present sample we have an identity of condition which can very rarely be secured. Age, soil, exposure, climate, treatment, drainage, everything is the same, down to the very roots." It is surely a very artificial mode of arriving at the conclusion to deprive the Deodar of its own roots, and place it on the stock of its soft-wooded relative; thus the timber which was produced by the Deodar was nourished, and sustained, through roots and channels not its own, and may well be supposed to have been deprived of that copious flow of turpentine and rigidity of fibre, so important in the test of strength. Besides all this, I expect some will agree with me in thinking, that the sap which ascended from the root and was elaborated in the leaves of the Deodar, and thence descended, forming the timber of the Cedar portion of the trunk, may have formed it of better quality than had it been prepared by the ordeal of its own leaves, thus showing, as stated in the article referred to, only a difference of about one-sixth in favour of the Deodar. I further think there is hardly room in this test, to point to the identity of age, for the stock must have been considerably older than the scion; and even supposing the timber of both sorts had been formed since the operation of grafting, is it not likely that a difference would arise to some extent from the medullary rays emerging from centres of various ages? Within the last few years the Deodar has not been in such favour as formerly, and is not planted to the extent it deserves; this has arisen from unfavourable seasons, sudden changes of the weather, and the attacks of Fungus, similar to the casualties which overtake the Larch. Still it is one of the most valuable timber trees lately introduced, well adapted for growing as a succeeding crop in thin plantations, where it has shelter and ordinary good soil, excellent for a cover to game, and thriving when partially shaded better than any other of the tribe, except the Silver Fir; and although I have not been able to test its durability as a post or railway sleeper, I expect it is far greater than that of the Oak, or any other tree we have of the same age. It was introduced with this character respecting its incorruptible power, a quality far more valuable than its strength in resisting weight, the last of which I believe to be very great, when the timber is thoroughly matured. *J. G.*

Underwood for Larch Plantation.—In answer to "H. S. M." I may say that if the soil, gravel, and sand is rich enough to grow Larch freely, Deodars will make an excellent underwood when the Larches are thinned. If the soil is too poor for Larch, common and American Juniper, Snowberry, Berberis Aquifolium, and Holly may be planted, but the latter should be established before the rabbits are introduced. *J. G.*

Standard Peaches and Nectarines.—It appears that the late long hot and dry summer has had a great deal or all to do with the ripening of out-door Standard and Bush Peaches and Nectarines. I have this day (October 5), tasted Peaches raised here from the kernel marked from Noblesse, and Royal Kensington, also Nectarines of the Violette Hâtive and Downton kinds, as finely flavoured as from orchard-house or wall; but of course not so large as from the latter. These are bush trees raised four years back in an orchard-house, and when one year old planted out into a calcareous soil, or such as Mr. Rivers calls full of comminuted chalk, loam, and but little or no sand, but on a sunny slope, and where Roses on the Manetti luxuriate, growing 6 to 8 feet, and making fine pillars in one season only from the bud. *S. Dillistone, Nurseries, Sturmer, Halstead, Essex.*

Wistaria sinensis.—In answer to Mr. Noble's inquiry as to whether the Wistaria has ever fruited in this country, I may remark that there is at present in the gardens here a plant of W. sinensis alba with four pods or legumes on it which will apparently ripen seeds, and although this is the first time I have personally seen it fruiting, I believe it has done so before on more occasions than one. Whether it did so formerly in dry hot seasons or not, I am unable to learn, although I think it most probable that the hot weather is the cause of its fruiting, and that on each occasion it was the same white variety. I have never seen the common W. sinensis set a single fruit. *G. L., Kew Gardens.*

Ancient Gardening.—I should be very much obliged if any one who possesses a treatise on gardening or even an Almanac one or two centuries old would have the kindness to look what date is given as the proper period for sowing Scarlet Runners or dwarf French Beans. I am anxious to ascertain, as far as is possible, whether these plants can now be sown at all earlier than was formerly the case. The title, date, and place of publication of any old treatise should be given. *Charles Darwin, Down, Bromley, Kent.*

Concluding Notes on the Flora of Kildare.—The geographical distribution of the flora of a country indicates in some measure the character of its soil. From the plants that I have already mentioned it will therefore be seen that that of Kildare varies greatly. Taking the Liffey as a starting point, and following a north-westerly direction, we gradually come into a poorer description of soil, with here and there fertile spots. On the Liffey many of the Umbellates grow most luxuriantly, especially Anthriscus vulgaris, Angelica sylvestris, Pastinaca sativa, and Pimpinella Saxifraga. A little to the northward we meet with Gentiana Amarella, and still farther on the pretty little Euphorbia exigua. Westward from this point, Chlora perfoliata finds a suitable habitat, and still further west is a region of Cotton Grasses. Nothing more in this direction particularly attracts attention until we find ourselves in the bog. Starting from the right bank of the Liffey in a south-easterly direction, we traverse an undulating country until we reach the foot of the Dublin mountains. On one spot, where the limestone rock crops up near the surface, I found Melilotus officinalis, and not far from that Malva moschata on a gravelly bank. Cnicus pratensis is found sparely scattered in a humid meadow in the same locality. Of the plants more generally distributed throughout the county, the two elegant white-flowered Stellarias, Holostea and glauca, are common in many localities. S. graminea and S. uliginosa also occur. In every quarry and gravel pit Reseda Luteola abounds. Hypericum quadrangulum is on every ditch, H. calycinum more sparingly scattered in some woods, and H. Androsæmum rare, an odd plant of which is only seldom seen on the road-sides. Both of these last St. John's Worts are well worthy planting about gentlemens' demesnes; calycinum in particular has very large and elegant flowers, and looks well near the sides of shady walks, planted among Laurels, &c. There is an extremely beautiful Alpine plant growing on some old walls in Carton demesne, viz. Erinus alpinus, than which nothing could be better for covering ruins and old walls; it spreads itself rapidly. On the lofty and picturesque rocks at Carton, Geranium lucidum and Poterium Sanguisorba are growing, but not very plentifully. Geranium molle and G. pyrenaicum are common; G. dissectum is rather scarce. Another graceful wall plant is sometimes found on old buildings, viz., Linaria Cymbalaria. The kind of plants most generally found in certain localities surely indicate the wet nature of the soil and consequent necessity of drainage. But as the county is almost exclusively devoted to grazing, draining is not so essential as in a tillage country. The reclaiming of bog land has been successfully attempted in some instances, and where that operation has been properly conducted, fine crops of Grass have been obtained. The turf cutters generally have a small bit of reclaimed bog under crops of Potatos or corn; but I should say that the want of manure baffles their efforts to a great extent. It was only the other day that I saw such a bit of ground as I am describing producing the poorest Potatos and finest plants of Senecio lividus and Chrysanthemum segetum that I ever saw. On the few farms where tillage is practised extensively, it is generally done in a very superior style, and fine crops both of cereals and green crops is the result; in fact, better Turnips than are growing in some parts of Kildare it would be difficult to find. I walked over the Curragh in the merry month of May, but it is useless to look for plants in flower there. The sheep leave it too bare for that. I saw nothing on it but the most closely cropped herbage, with Furze bushes dotted up and down over the immense plain, as neatly cropped in with the sheep as if a gardener had been at them with a pair of shears. At the lower end of the Curragh is situated the ancient town of Kildare. There I found the wild Wallflower blooming on one of the finest old round towers in the country. *J. Douglas, Straffan, Kildare.*

Societies.

British Association: *Sept.* 15.—We select from the reports of the various Sections a few passages which will interest our readers:—

In Section B (Chemical Science) Dr. Daubeny, in a paper 'On the Thermal Waters of Bath,' after alluding very briefly to the mineral constitution of the Bath waters, as affording no adequate explanation of the medicinal virtues ascribed to them, proceeded to one point of scientific interest connected with their appearance, namely, the large volume of gas which they have gone on continually disengaging, apparently from time immemorial. Judging from the circumstance that the majority of these springs are associated with volcanoes, and likewise that the same gas is freely evolved from the latter, both in an active and in a dormant condition, it was, he observed, fairly to be inferred that the evolution of nitrogen is in some way or other connected with the same widely-spread and deep-seated cause. And if this really be the case, the phenomenon in question acquires

an additional interest, as affording a possible clue to the true nature of the processes which give rise to volcanoes as well as to thermal springs. Now this evolution of nitrogen seems best to admit of explanation by supposing a process of combustion to be going on in the interior of the globe, by which oxygen may be abstracted from the common air which penetrates to these depths, whilst the residuary nitrogen is evolved. What may be the nature of the bodies by which this process of combustion is maintained must of course, from the depth at which the latter is carried on, be shrouded in mystery; but it is at least certain that whilst they cannot belong to the category of those which supply the fuel for the ordinary processes of combustion of which we are eye-witnesses, there is nothing in the nature of the products resulting from volcanic action inconsistent with the idea that metals possessing a strong affinity for oxygen, but not already combined with it, might, if they existed in the interior of the earth, be instrumental in producing the supposed combustion. And if we indulge in speculation, we might maintain with some show of probability that the bases of the earths and alkalies which constitute the present crust of the globe, would have existed originally uncombined with oxygen, and therefore they must at one time have been subjected to that very process of oxidation and combustion which we imagine to be at the present time continued. The author therefore suggested that volcanic action may be owing to certain chemical reactions proceeding in the interior of the earth, between the constituents of air and water on the one hand, and the metallic bases of the earths and alkalies on the other. After developing this theory, the paper concluded with pointing out a practical use to which the waste waters of the thermal springs of this city might be applied, suggesting that if, instead of being discharged at once into the river, they were first conveyed through underground pipes a few feet beneath the surface, within a given area, the warmth imparted to the soil would prove highly favourable to the culture of tender exotics, and, moreover, if the ground were further protected from the cold by a glass roof, a winter garden might be obtained with scarcely any expense beyond that of the original outlay.

In Section C (Geology), the President, Professor Phillips, in the course of his opening address, offered the following remarks on variations of climate:—"As in existing nature the amount of effect produced by known causes varies with the conditions of each case—as the sun's effect varies from hour to hour, from day to night, from summer to winter, and from year to year—as the force of moving water is greater or less according to the slope of the ground, and the sea's movement is modified by the age of the moon and the position of land—so, in earlier nature, the combinations of phenomena varied, and the measures of effect were modified accordingly. In another point of view, the aspect of nature is found to be variable, and subject to cycles of change, periods of greater and less effect of particular forces which, in their own nature, are constant. The distance of the earth from the sun is not constant; the form of its orbit is not constant; it was not always, nor will it always be, nearer to the sun in winter than in summer. From these varied conditions, which are measured by long astronomical periods, cycles of greater and less heating effect on the earth in general, and on parts of it in particular, arise; so that speculations as to the causes of the differences of climate during geological periods are entirely incomplete if we leave out of view these real and definite sources of terrestrial vicissitude. Whether they are sufficient, and justly applicable to the facts established in geology, is a proper subject of deliberate inquiry. Among the facts put in evidence by geology regarding the former condition of the land and sea, none are so convincing of great change and systematic diversity as the remains of plants and animals. By appeals to these innumerable witnesses, conclusions of much importance are maintained, touching the greater warmth of the carboniferous land, and the colder climate of the later Cainozoic seas. By the same testimony, it appears that over every part of the earth's surface, in every class of organic life, the whole series of created forms has been changed many times. Have we measured these changes of climate, and assigned their true physical causes? Have we determined the law of the successive variations of life, and declared the physiological principles on which the differences depend? No; the variations of climate must be further investigated, the limits of specific diversity more surely defined, before we can give clear answers to these critical questions. Late researches, partly archæological and partly geological, both in England and France, have been held to prove the contemporaneity of man and the mammoth in the northern zones of the world. Have we, then, been too confident in our belief that the human period was long posterior to, and strongly marked off from, that of the cavern bear and the woolly rhinoceros? Did the races of hyæna and hippopotamus remain inhabitants of Europe till a comparatively modern epoch, or was man in possession of the earth in times far earlier than history and tradition allow? The prevalent opinion seems to be that as variations of the forms of life are extremely slow in existing nature, for every case of considerable change in the predominant types of ancient plants and animals, very long intervals of time must be allowed to have elapsed. If in some thousands of years of human experience no very material change has happened in our wild plants or wild animals, or in cultivated grains, or domestic birds and quadrupeds, it is evident that no considerable changes of this kind can arise from such causes as are now in action without the aid of periods of time not contemplated in our chronology. Estimated in this way, the antiquity of the earth grows to be inconceivable—not to be counted by centuries, or myriads of years—not to be really compassed by the understanding of men, whose individual age is less than a century, and whose histories and traditions, however freely rendered, fall short of a hundred centuries. The whole human period as we have been accustomed to view it, is but a unit in the vast sum of elapsed time: yet in all those innumerable ages the same forces were seated in the same particles of matter; the same laws of combination prevailed in organic and in living bodies; the same general influences resided on the surfaces or governed the masses of the planets, in their ever-changing paths round the sun."

In Section D (Zoology and Botany), the President, Dr. J. E. Gray, delivered an address, in the course of which he made some observations on the subject of Public Museums. It may be well imagined, he observed, that, having during the whole of my life been intimately connected with the management of what I believe to be, at the present day, the most important zoological museum in the world, it is a subject that has long and deeply occupied my thoughts; and it will also be readily believed that it is only after serious and prolonged consideration that I have come to the conclusion, that the plan hitherto pursued in their arranagement has rendered them less useful to science and less interesting to the public at large than they might have been made under a different system. The purposes for which such a museum is established are twofold: first, for the diffusion of instruction and rational amusement among the mass of the people; and, secondly, for giving to the scientific student every possible means of examining and studying the specimens of which they consist. Now, it appears to me that, in the desire to combine these two objects, which are essentially distinct, the first object—namely, the general instruction of the people—has been to a great extent lost sight of, and sacrificed to the second, without any corresponding advantage to the latter, because the system itself has been thoroughly erroneous. What the largest class of visitors, the general public, want is a collection of the more interesting objects, so arranged as to afford the greatest possible amount of information in a moderate space, and to be obtained, as it were, at a glance. The students, on the other hand (and though these are undoubtedly the most important, they form but an infinitesimal proportion of the mass)—the scientific students require to have under their eyes, and in their hands, the most complete collection of specimens that can be brought together, and in such a condition as to admit of the most minute examination of their differences, whether of age, or sex, or state, or of whatever kind that can throw light upon all the innumerable questions that are continually arising in the progress of thought and opinion. In the futile attempt to combine these two purposes in one consecutive arrangement, the modern Museum entirely fails in both particulars. Dr. Gray is very much disposed to recur to something like the old plan of arranging each species or series of species in a special case, every case distinctly labelled with an account of the purpose for which it is prepared and exhibited, each specimen also having a label indicating why it is there placed. Such cases may advantageously be prepared to show—The classes of the animal kingdom by means of one or more typical examples of each class; the orders of each class; the families of each order; the genera of each family; the sections of each genus; a selection of a specimen of each of the more important or striking species of each genus or section; the changes of state, sex, habit and manner of well-known or otherwise interesting species; the economic uses to which they are applied, and such other particulars as the judgment and talent of the curator would select as best adapted for popular instruction. The time is approaching, he remarked, when a great change will be made in museums of natural history, and these observations were thrown out as suggestions, by which it appeared that their usefulness might be greatly extended.

Notices of Books.

The Knapsack Guide for Travellers in Switzerland. With Clue Maps, Plans, and Mountain Outlines. London: Murray. Pp. 555.

The Knapsack Guide for Travellers in Italy. Illustrated with Maps and Plans of Towns, Galleries, &c. London: Murray. Pp. 591.

These "Guides" are prepared to supply the want of some handbook, cheaper and more portable than the ordinary "Guides" to the Continent. The first is "not merely an abridgment of the Swiss Handbook, but a condensed and corrected revision, containing much new matter regarding places and passes in the Alps." The second is in a great measure an abridgment of the Handbooks of Northern, Central and Southern Italy, condensed, corrected, and revised to the latest moment," Rome being omitted for considerations of space. Their distinctive features are brevity, utility, and portability. The first of these features, indeed, rather neutralises the second, but for those who want fuller information than the "Knapsack Guides" afford, there remain the more bulky Handbooks just alluded to; while for those who can only take a rapid run over the ground, their small bulk and portability will be a great recommendation. There are several pages of very useful information on general matters, forming an introduction.

A Handbook for Visitors to Paris, &c., with Maps and Plans. London: Murray.

This portable little volume contains a description of the most remarkable objects in Paris, "with general advice and information for English travellers in that metropolis, and on the way to it." The subjects are arranged on an alphabetical plan as the most useful and convenient in practice; and by means of a clear and carefully prepared map, marked out in squares, with references corresponding to those inserted in the text, any place of which the name was known, might be found readily. The names of the most important buildings are engraved on this map. The information given is clear and concise, and from being alphabetically arranged is much more easily got at than when an index has also to be turned up. In the Introductory portion will be found general information as to money, hotels, restaurants, cafés, and reading-rooms, with a scheme for seeing Paris in 12 days, a classified list of objects of interest, and a stranger's diary of the principal objects to be visited. Altogether this Handbook will be found a very convenient one for visitors to the French capital.

Le Jardin Fruitier du Muséum. By Professor Decaisne.

We have received Parts 61 to 72, inclusive, of this valuable work. The plates continue to be beautifully executed, and it is almost needless to say that the descriptions are excellent, and impartial as regards the quality of the respective subjects, whether good or indifferent. Hitherto Pears have been the principal kind of fruit figured and described; but in the 12 Parts before us there are as many varieties of Peaches and Nectarines as there are of Pears.

The following extracts, combined with some remarks of our own, may probably be acceptable to those of our readers who have not the opportunity of seeing the work itself.

Pêcher de Chine à Fleur Blanche Double.—The white double-blossomed Chinese Peach. Leaves with reniform glands. Flowers very large, of a pure white, and double or semi-double. Fruit oval, rarely subglobose; skin greenish, or yellowish green; flesh adhering strongly to the stone, yellowish white, juicy, but rather astringent. This variety was introduced into England (by Mr. Fortune) in 1842; and from this country to France in 1854, where it is highly esteemed as an ornamental plant on account of its profusion of snow-white flowers. Professor Decaisne says there is ground to hope that it will constantly reproduce itself.

Pêcher Unique.—Syn. Emperor of Russia, Serrated leaf, New cut-leaved. According to Mr. Floy, this was found wild in the woods of New Jersey. It takes a high colour in France, where it is very good in warm seasons, but not in those that are cold and wet; whilst in England we know that at best it proves to be only of second-rate quality.

Poire Charbonnière.—Middle-sized, pyriform with a long stalk; skin greenish yellow, sprinkled with large fawn-coloured specks; flesh very white, melting, with a rich, acidulated, sugary juice. A summer Pear.

Poire Boutoc.—Syn. Poire de Notre Dame. Middle-sized, obovate or oblong, obtuse at the stalk; skin smooth, citron yellow on the shaded side, tinged with red next the sun; flesh white, fine, melting and juicy, slightly perfumed. Excellent, but soon decays. Season, end of August. Originated at the village of Boutoc, between Sauterne and Barsac, and is much cultivated in the department of Gironde under the name of Poire de Notre Dame. It is much esteemed by confectioners on account of the fineness and whiteness of its flesh.

Pêcher Chang-Hai.—Syn. Shanghae Peach. This is represented smaller than it grows in England, and we must conclude that the tree which produced the specimen figured and described, had not been in perfect health. The section of the fruit, exhibiting the bright rose-coloured rays of the flesh near the stone, is most beautiful. Its quality is described as being but very middling; but it keeps long in the fruit-room.

Avant-Pêche Rouge.—This is our Red Nutmeg.

Poire d'Angoisse.—Fruit middle-sized or small, obovate, brownish yellow, tinged with red next the sun; flesh breaking, sugary but astringent; a stewing Pear. A very very old variety, having been found at Angoisse, a village in Limousin, in 1094; and there are many trees of it in the department of Cher with a stem upwards of seven feet in circumference. It is a sure and most abundant bearer, and the fruit makes excellent perry.

Poire Syfran.—Rather small, obovate; skin yellow, speckled and marbled with brown; flesh breaking and coarse — therefore its cultivation should be discontinued.

Pêcher Reine des Vergers.—Syn. Monstrueuse de Doué, Monstrueuse de Douai. Leaves with reniform glands; flowers small. Fruit very large, roundish inclining to oval, highly coloured with

vermilion next the sun; flesh parting from the stone, where it is deep red, elsewhere greenish white, tolerably sweet, and perfumed. Should be gathered several days before it is used: it bears carriage well; ripens in the middle of September, and will afford a supply till the 1st of October. Keeps longer after being ripe than the Bellegarde, and in that respect better deserves this name than the excellent variety so called.

In *James's History and Antiquities of Northamptonshire* (Murray) we have a very interesting volume of Railway Reading of convenient size, and printed in good bold type. The author is impressed with the idea that local objects and scenes, and other far less romantic things and places teeming with the annals of history, and lying unheeded about every one's home, are the best starting points in all historical study. "History and Geography," writes Mr. James, "should begin at home. If we want a boy to know some day the families of the Herods and the Cæsars, let him start by learning who was his own grandfather. The Church Catechism rightly commences by making the child tell his own name; it would be in many cases a most puzzling, but in all cases and senses a most proper question to ask him further the names of his godfathers and godmothers; and so carrying him gradually onward, he would know, what seldom happens, the Kings of England, before he attempted those of Israel and Judah. The principle holds as true of place as of persons. The things that touch us nearest interest us most. Geography should begin from the school-walls. 'Which side of this room does the sun rise on?'—'Does Church Lane run west or north?' In this way the young scholar would in time be brought to comprehend the round world, and his own position on it; and probably with some clearer perception of the truth and relation of things than if he had begun by rote, 'The earth is a terraqueous globe, depressed at the poles, consisting of &c.' But we are all taught on the contrary plan. We began at the wrong end, for in the ladder of learning, Ego, not Adam, is the true No. 1." And so we are inclined to think. As regards the Northamptonshire gardens, Mr. James tells us they are not what they once were. "The fine Tulips of Mr. Mansel of Cosgrove, and Mr. Bateman of Sibbertoft, mentioned by Morton, exist no longer; and Lord Dysart's terraces at Harrington, and those of the Boughtons, must be added to the others we have deplored. Mr. Annesley's garden at Eydon (by a favouring pronunciation Eden) has become a proverb. Capability Brown has left the mark of his thumb at Burghley and Castle Ashby. Finedon has its arboricultural varieties, and Lamport a most choice rockwork of Alpine plants. Lilford and Bulwich rejoice in their formal borders. The flowers that gladden the village of Whittlebury may be traced to my lady's parterres close at hand; just as the rare plants found in the gardens near King's Cliffe are to be referred to the botanical proficiency of the rector."

Winter's Mathematical Exercises form a collection of questions selected from the examination papers of the College of Preceptors, the Civil Service, Sandhurst, Woolwich, and the Line, and offers good practice to those who are working up for these several examinations.

Garden Memoranda.

The Royal Horticultural Society's Garden, Chiswick.—Notwithstanding that the year has entered its last quarter, and that deciduous trees have put on "the sere and yellow leaf," a few notes on Pelargoniums and other plants placed out of doors here for trial under the supervision of the Floral Committee may not be without interest.

Among Variegated Pelargoniums, one of the whitest, as far as silvery-edged leaves are concerned, is still Mrs. Lenox; and Queen of Queens is also a most useful looking variety, with a compact and excellent habit. Silver Chain looks as if it might be suitable for edgings, provided the blossoms were removed; with them on, it promises to make an effective small rosy-salmon bed.

Among other kinds of Pelargonium, Flower of Spring is one of the finest of those with rosy salmon blossoms; Baron Ricasoli, with scarlet flowers, has an extremely neat horseshoe leaf; Garibaldi is a compact dwarf sort with scarlet flowers, and very strongly-marked small zonate leaves; Monitor, a Nosegay, has dull orange-scarlet blossoms, faint brown horseshoe-marked leaves, and a spreading habit; King of Italy (Roi d'Italie), has well-formed deep salmon-rose flowers, and good horseshoe leaves; Cheshire Hero, without zonate leaves, is a good soft scarlet; as is also Volcano, the foliage of which has likewise no horseshoe marking; Adonis, a brilliant scarlet with white eye, has zonate leaves, and being dwarf and very compact in growth, is a variety suitable alike for edgings or small masses; Attraction, scarlet, is also a fine variety, and like the last, being of dwarf habit, will likewise be found useful for small beds; Clipper, with strongly marked zonate foliage, is a good dwarf kind, the blossoms of which are brilliant scarlet; Faust is also dazzling in colour, but its leaves are without horseshoe marking; Agatha, with strongly marked zonate foliage, is a most profuse bloomer, and is also very brilliant; as is likewise Rev. Joshua Dix, a good scarlet: Vivid, a its name implies, is a bright scarlet, and without horseshoe marking; it is said to be the same as Hercules; Lucien Tisserand is brilliant scarlet, with a white eye, and has horseshoe marked leaves, altogether a very showy sort; Nora and Umpire are both rosy scarlet sorts, bearing fine trusses, and highly effective: the latter has faintly zonate leaves; in the former the horseshoe mark is more distinct; Lord of the Isles is a dwarf rosy scarlet with zonate foliage. The best of the stronger-habited scarlets, however, has been the old Punch.

Of varieties with other shades of colour, Eve, a paler sort, in the way of Christine, is promising, with faintly marked horseshoe leaves. St. Fiacre, a free-flowering kind, has zonate foliage and salmon blossoms, the colour becoming deeper as it approaches the centre. Roseum nanum, dwarf and pretty, has strongly marked horseshoe leaves and rosy-pink flowers. Lady Cullum is a dwarf lilac-pink variety, with faintly marked horseshoe foliage. Eugénie Mezard is salmon pink with a pale eye. Pink Pearl, a light magenta rose, is a good addition to the Nosegay class, of which Stella and Cybister, both scarlets bearing fine trusses of blossoms, stand in the first rank. Bridesmaid, cerise with pale edge, has good horseshoe leaves; as has also Hector, a kind with flowers of nearly the same shade of colour. Helen Lindsay is the best deep rosy pink, but of an intermediate shade none is better than Rose Queen, which is a free flowering variety, of good habit. Magenta has also a good habit, and fine horseshoe-marked leaves.

Among white or blush sorts with crimson or salmon centres, the best is Princess Mary, a vigorous variety, raised at Chiswick, and having strongly marked horseshoe leaves. Beauty is also a fine kind; as is likewise Léonie Nivelet, a sort with large trusses and boldly marked zonate leaves; and Amelina Grisseau, a dwarf kind.

Golden Baron Hugel will apparently be useful for bedding purposes; but of all Pelargoniums with yellow foliage the best here is Golden Fleece, a very dwarf sort with small scarlet blossoms, and comparatively small leaves bright yellow in colour.

Among Pelargoniums in pots indoors Cybister and Stella, both crimson scarlets, belonging to the Nosegay class, are certainly the most effective. Lord Palmerston, rosy crimson, is also a valuable addition to this class; François Chardine has large compact trusses, and slightly marked zonate leaves; Red Dragon, Garibaldi, and Victor Emmanuel, scarlets, and Minnie, rose-pink, are also all good sorts. Among whites the best is Perfection, a variety with good habit. Léonie Nivelet, salmon with pale edge, is likewise very effective in pots; as is also Souvenir du 8 Juin.

Among Verbenas, Lady Benning, scarlet with white eye, possesses that desirable quality, a good habit; as does also Velvet Cushion, a bright purplish crimson. Rival King differs from Purple King in being of a more decided shade of blue, and in having a pale eye. Among white sorts the best is Sylph, which has not only a good habit, but a hardy and excellent constitution. St. Clair, purplish plum colour, is also good.

Dahlias, like other things, have suffered from the effects of the late dry autumn. Of the Pompon sorts, Kleiner Preusse, a white-tipped free blooming purple, not much over a foot high, though not the smallest-flowered, is the dwarfest habited we have seen. Captain Ingram, purplish crimson, is a most abundant bloomer, and though not new is worth alluding to on that account; Crimson Gem, dark maroon, is dwarf, and like the variety just named, is also a most profuse flowerer. Gem of the Dwarfs, crimson scarlet tipped with white, is likewise a very free bloomer, and one which cannot fail to be a favourite.

Associated with the different varieties of plants in beds mentioned above, were various kinds of Castor-oil plants (Ricinus), Wigandias, Ferdinandas, Solanums, and the red-leaved Amaranthus melancholicus. To these however, as well as to other descriptions of plants grown for the beauty of their leaves, ample attention has been directed in our notice of Battersea Park.

Among other matters the Grapes in the large conservatory deserve a word of commendation; they have been equally fine this year as in former seasons, and although now half cut, many beautiful specimens yet remain to be seen. Conspicuous among them are bunches of Barbarossa, some of which weigh as much as 6 lb., and measure 18 inches across the shoulders, and as much in length. This variety, grafted on the Black Hamburgh, produces more compact and better coloured bunches than on its own roots, as well as ripening earlier Indeed, so compact and handsome are they, treated in this way, that they might easily be mistaken for Hamburghs. The Muscat Hamburgh, grafted on the Syrian, although larger in the berry, is, however, inferior in flavour to fruit of the same kind on its own roots. Burchardt's Prince, as yet comparatively little known, is well worth attention. It is a valuable late Black Grape, with a fine vinous flavour and is a good cropper. Golden Hamburgh has done well here this year, some of its bunches weighing as much as 2½ lbs. each, and they are very perfect both in shape and colour. Among Hamburghs, decidedly the best is the Frankenthal, large finely coloured bunches of which, nestling in the most natural way possible among the still bright green leaves, may yet be seen against the upright east end of this in all respects magnificent Grapery. The so called varieties of Muscat, to which particular attention was directed at p. 841 are nearly all cut.

Out-door fruit is here as elsewhere most abundant and good, and the fruit room is now becoming well filled with the contents of the orchard. Among Pears now fit for table are the Marie Louise, Louise Bonne of Jersey, Fondante d'Automne, Thompson's, Gansel's Bergamot, and sweetest of all, perhaps, the Seckel, whose only fault is its small size. Among Apples now in season are Ribston Pippin, King of the Pippins, Gravenstein, and many others, of all of which may be found here some very fine specimens.

Miscellaneous.

The Ivies of Europe, Africa, and Asia.—Whether there is only one species or several mixed up with the plants which now go in gardens and herbaria under the name of Hedera Helix, and make up the genus Hedera, as now circumscribed, and whether one or two species are indigenous to the British Islands, are still open questions. No botanist has, as yet, been successful in finding good characters for what have been considered as species; and though all other Hederaceæ have a limited geographical range, Helix is supposed to be an exception to this rule, and to be spread over three continents, Europe, Asia, and Africa, from the Canary Islands to Japan, and that this circumstance alone sufficiently accounts for the numerous existing varieties. After carefully investigating the subject, and examining every specimen I could lay my hands on, aided by contributions from botanical friends, I have arrived at a different conclusion. I can clearly distinguish three distinct species, which, though having each many varieties do not run into each other, and have each a distinct geographical range. If these different species had to be named anew, I would propose to call them respectively the European, the African, and the Asiatic. The European Ivy is Hedera Helix, Linn. It is not found out of Europe, and may at once be known by its uppermost leaves being ovate or elliptical, its umbels arranged in simple racemes, and its pedicels and calyx being covered with white stellate hairs, the hairs having from 6-8, but never more, rays. From time immemorial a variety with white and yellow variegated leaves has been cultivated in gardens; even Pliny mentions it; indeed it is one of the oldest, if not the oldest, variegated garden plant of which we have any record. The fruit of H. Helix in northern Europe is generally black; in Germany it occurs occasionally with white; and in European Turkey, Greece, and Italy with yellow berries. The black-fruited kind has always been considered as the true H. Helix, and the white as a variety of it, which indeed it is; but the yellow has been made, I think unjustly, into a distinct species, and named H. poetarum by Bertoloni, and some time previously H. chrysocarpa by Walsh. It is the latter plant which played so important a part in ancient Greece and Rome, its leaves supplying the materials for the wreaths with which poets were crowned, and at the festivals in honour of Dionysos all casks, vessels, amphoras, &c., were decorated; it was customary even to lie and sit upon Ivy branches on those occasions. It is believed traditionally that the yellow-fruited Ivy came from India with the worship of Bacchus; and the fact that the Nepal Ivy described by Wallich has yellow fruit, is regarded as a proof of the correctness of this tradition. But a close examination of the European yellow-fruited plant shows that it is specifically identical with H. Helix, and specifically different from the Nepal, and all other Asiatic specimens. If the worship of Dionysos gradually crept from India to Greece and Rome, and a yellow-fruited Ivy was deemed essential to its proper performance, there was no need of carrying the Asiatic plant into Europe, as an indigenous variety (chrysocarpa=poetarum) occurred at the very threshold; whilst the Asiatic Ivy, as we shall presently see, is spread from the central highlands to the most western confines of Asia—to ancient Colchis. The African Ivy is Hedera canariensis, Willd. It is found in the Canary Islands, Madeira, and the north of Africa, and may at once be known by its uppermost leaves being cordate, its umbels arranged in panicles, rarely and only in young plants in simple racemes, and its pedicels and calyx being covered with white stellate hairs, the hairs having from 13 to 15 rays. To this must probably be referred what is called in gardens Scotch or Irish Ivy. It is a much quicker-growing plant than H. Helix, and on that account more frequently planted in gardens, but is much more susceptible to cold, and in Germany often killed by frost. At some time or other this species is said to have been introduced into Ireland, and has hence received the name of H. hibernica in our gardens; but I have not been able to learn anything authentic about this introduction, or whether it has been introduced at all. At present, Dr. Moore, of Glasnevin, informs me it is found, to all intents and purposes wild in various parts of Ireland, growing together with H. Helix, and far away from cultivation. Mackay also mentions it as having been found in Ireland. I have not been able to examine any specimens of wild Irish Ivy, and our British Floras do not afford any information respecting it. The Asiatic Ivy is Hedera colchica, C. Koch. It is not found out of Asia, and may be known by its uppermost leaves being elliptical or lanceolate, its umbels arranged in simple racemes, and its pedicels and calyx being covered with yellowish two-lobed scales, the lobes being opposite each other, and divided into seven to ten segments. Our

first knowledge of this plant is derived from Kæmpfer, who two centuries ago found it in Japan, where it is called "Fotogi Ista (*i.e.*, simulacri seu idoli Hedera)." It was afterwards gathered by Wallich and other collectors in the Himalaya Mountains, by Fortune in Northern China, by Wright in the Loochoo Islands, and by C. Koch in the Trans-Caucasian countries. Wallich was the first to describe the plant, though he did not venture to separate it from H. Helix; in fact, the important character furnished by the scales escaped him. It was not until 1859 that C. Koch, who had seen it wild, named it colchica, and gave a correct diagnosis of it. It is owing to an authentic specimen kindly transmitted by him that I am able to identify this new species with the Asiatic Ivy—as I am indebted to the Rev. R. T. Lowe for a sight of the Madeira Ivy. Hedera colchica is now an inmate of our gardens, it having been found on the Caucasian coast of the Black Sea, by Mr. Rœgner, formerly curator of the Botanic Gardens of Odessa. Thus it found its way into our gardens, occurring here and there under the (I believe unpublished) name of Rœgneriana. The only two popular accounts of this plant are given by Wallich and C. Koch. In Nepal it is called Sagooke or Gooke, (*i.e.* the climber), and is, says Wallich, "one of the most common, as well as the most noble productions of Nepal, where it grows to a majestic size, and extends over trees and rocks." In Trans-Caucasia on the contrary, it is more stunted than the European Ivy, having reached its western geographical limit; and, says C. Koch, "I have never seen it ascend the tops of the numerous Beeches of that country, whilst the common Ivy climbed to the highest branches." Though there are several important peculiarities to distinguish the three species, the most ready way to make sure of them is to look at the character furnished by the hairs and scales. They are largest in H. Helix, where they may be seen distinctly with a common pocket lens; but in the other two species it requires a greater magnifying power to make their nature quite intelligible. *Dr. Seemann, in Journal of Botany.*

Chinese Yam.—In the year 1862 my plantation of Yams consisted of two rows, about 3 feet apart, occupying a space of 42 feet in length by nearly 6 feet in breadth. The ground had been trenched to a depth of about 2 feet 6 inches, and manured as for a crop of Potatos. Soon after the middle of March the sets were planted 12 inches apart, and about 3 inches below the surface of the ground, on the top of ridges 1 foot high. When the plants began to grow they were roughly staked with ends of Oak branches, that could not have been used for staking Peas. The crop was taken up about the end of November, and after having been kept in a dry place till the beginning of January, it was well cleaned, and its weight ascertained to be 70 lb. and a fraction, English weight. I calculate the produce to have been at the rate of 1 lb. for every 3½ square feet of ground. This year (1863) I planted three rows in a space exactly 48 feet long by 8 wide. The culture was the same as last year, and the crop, well dried and cleaned, weighed about 113 lb. This gives a weight of 1 lb. to 3.4 square feet—a result very similar to that of the preceding year. We, in our household, value the Chinese Yam so highly for the table, where it is especially useful at the season when the best-keeping Potatos begin to deteriorate in quality, that I intend to extend my culture of it considerably. If I have not done so more rapidly in the course of the last two years it was because, instead of subdividing my sets, so as to increase their numbers, I have generally planted them of full length (from 9 to 12 inches long—longer perhaps than is necessary), with the view to obtain tubers of a good size, and well suited for the table. *H. O. Carré, of Guernsey, in Report of Acclimatisation Society.*

Calendar of Operations.

(*For the ensuing week.*)

If not already done, lose no time in getting tender plants under protection, a kind of work the omission of which may peril the welfare of valuable stock that cannot be readily replaced. Where pits or frames are at liberty, or can be made so, by rooting up the remains of exhausted Cucumbers, Melons, &c., there is no absolute necessity for stationing every plant precisely where it is to remain through the winter. Protection of this sort, for a short period indeed will contribute more than housing to the production of sturdy and well-ripened wood, possessing a greater tendency to blossom, and more capable of enduring a severe winter. In such places they must be secured from the depredations of the earth-worm. This is easily accomplished, especially where the frames are raised above the common ground level, by a good soaking of lime-water, followed by a coating of cinder-ashes, three inches in thickness.

FLOWER GARDEN AND PLANT HOUSES.

As was stated last week, alterations of grounds and planting of Evergreens should now be carried on with dispatch, while the soil is in good condition for operations of this kind; the drier mould is when placed round the roots of newly planted shrubs (provided they are judiciously watered in) the sooner they will emit fresh roots. Mulching is, however, requisite to keep out frost, and earlier in the season to prevent evaporation. In greenhouses and conservatories climbers, at least some of the most rambling, will now want a smart dressing where they obstruct light in any material degree. Such as flower on the young wood, and which are now in a ripening condition, or approaching a state of rest, may be pruned in close. Others, such as the late-blooming Passifloras, Combretums, Echites, Ipomœas, Stephanotis, Thunbergias, Mandevillas, &c., which are still thriving, must be regulated with a more gentle hand, cutting away merely barren shoots, and drawing the remainder into somewhat closer festoons, in order to throw sunlight into the interior of the house.

Azaleas.—Keep these in an even condition with regard to water at the root. Stake or tie out if necessary, and do all that can be done to keep the plants clean, and to maintain them in good health.

Camellias.—Thin the blossom-buds if too thick, and give the plants plenty of air while the weather is favourable.

Cinerarias.—Those intended for late blooming will do very well in a cold pit if the weather should not prove unfavourable. Cuttings may still be put in, or young plants may be raised from seeds. The last will prove useful late in the season. Plants struck early may now require a shift.

Chrysanthemums.—These, though apparently late this season, will soon be the chief feature of attraction in-doors, and where largely grown, will require attention. They are very impatient of a close rather warm atmosphere, and if under glass and the house contains plants requiring this treatment, the Chrysanthemums should as far as practicable be placed in the coolest part, where air can be given freely on every favourable opportunity; for except they can be pretty fully exposed to air their foliage soon gets attacked and disfigured by mildew, especially if the plants are bushy and well grown. See also that they are kept well watered at the root.

Heaths.—If such things as Pelargoniums, Cinerarias, and Calceolarias must be wintered in the same house with these and other hard-wooded plants, they should be kept as much as possible by themselves, as they will require a somewhat closer temperature than hard-wooded plants, but where circumstances admit of it, Heaths especially should occupy a house or pit by themselves. They seldom succeed well if associated with soft-wooded plants.

Pelargoniums.—Of these there should now be a fine stock of healthy plants. Pinch out the centre of young stock in order to induce dwarf and bushy growth. Give any that require larger pots a shift, and water carefully when required. Keep down green-fly by repeated fumigations. Fancy varieties require to be kept a trifle warmer than ordinary kinds.

FORCING GARDEN.

Cucumbers.—Plants in bearing will now require fire-heat, at least at night. They will also enjoy a moist growing atmosphere.

Pines.—Plants expected to show early next year will be benefited by being kept in a comparatively dry state for a few weeks previous to subjecting them to a warm moist temperature. The atmosphere should be kept dry; also allow the soil about the roots to become as dry as can be done with safety. Do not, however, subject the plants to a very low temperature, but keep this at from 60° to 65° by means of fire-heat, for although they will bear a considerably low temperature without any apparent injury, those not subjected to any unnecessary extremes will produce the finest fruit; and a short period of comparatively dry treatment will ripen the growth and just as effectually induce a tendency to show fruit as checking the energies of the plant by an unnaturally low temperature, and without any of the ill effects of the latter method. Little dependence can be placed on the weather after this season, therefore see to plants in pits with insufficient means of heating being well protected by means of covering at night; and maintain the command of a rather high temperature by frequently renewing the linings, &c. so as to be prepared for any sudden decrease of heat. Avoid anything approaching excess of atmospheric moisture among young stock, whether in pits heated by linings, or in better arranged structures; it only tends to promote a too free growth for the amount of light.

Vines.—Where early forcing is to be carried out, attend to previous directions as to keeping the atmosphere moist, as there will be some difficulty in getting Vines to break freely except this is attended to. If circumstances allow of having a bed of fermenting manure inside the house, this will be found the best means of keeping the atmosphere regularly moist, but if this cannot be used the house must be sprinkled with the syringe frequently, and the evaporating troughs kept full. Also see that the roots are afforded a steady gentle warmth, until the buds are fairly swelled; keep the temperature about 50° by fire-heat at night, and 60° by day, letting it rise to 70° on sunny days.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit stores frequently to see that all is keeping well, and remove any fruit that may show symptoms of decay, so as to prevent the mischief from spreading; attend to gathering fruit as formerly directed.

Cauliflowers.—Plants heading must be frequently examined; those not wanted for immediate use should be taken up and stored till wanted.

Lettuces.—A good stock of these fit for use should be put into cold frames or turf pits, where they can be protected during frost by means of straw mats or some other efficient covering; also take care to secure a good supply of Endive for winter use.

Potatos.—Get these out of the ground as soon as they are fit for lifting; frequently inspecting them after they are stored, in order to separate any that may be bad, from the good.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Oct. 5, 1864, as observed at the Horticultural Gardens.

Sept. and October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 29	8	30.165	30.063	70	28	54.0	58	59	W.	.02
Friday 30	9	30.111	30.031	64	37	50.5	58½	58¼	W.	.00
Satur. 1	1	30.083	30.067	64	47	55.5	58	58	E.	.00
Sunday 2	2	30.240	30.140	61	40	50.5	57	58	E.	.00
Mon. 3	3	30.283	30.197	56	39	47.5	57	58	E.	.00
Tues. 4	4	30.154	30.063	59	36	47.5	55½	57	E.	.00
Wed. 5	5	30.020	29.985	59	25	42.0	54	56	E.	.00
Average.		30.151	30.085	61.8	37.4	49.6	56.8	57.8		1.00

Sept. 29—Fine; slight fog; very fine; overcast at night.
— 30—Very fine, overcast; cold at night.
Oct. 1—Hazy clouds; very fine throughout; slight rain.
— 2—Overcast; fine; boisterous at night.
— 3—Fine, with brisk wind; hazy clouds; fine.
— 4—Clear, cold and windy; dry, strong whirling wind; cold at night.
— 5—Dry cold haze; clear; fine; frosty at night.
Mean temperature of the week 4½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Oct. 15, 1864.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9	60.6	42.5	51.6	21	0.52 in.	—	7	2	2	5	14	6	2
Mon. 10	61.6	44.0	52.8	23	0.68	3	3	4	—	8	10	6	4
Tues. 11	62.0	42.8	52.4	20	0.34	2	5	2	2	4	13	5	5
Wed. 12	60.8	42.4	51.5	22	1.00	2	2	3	1	10	6	10	4
Thurs. 13	60.6	42.5	51.6	20	0.23	2	4	4	1	7	9	8	3
Friday 14	60.2	41.3	50.8	18	0.50	2	5	4	1	9	8	5	4
Satur. 15	61.5	41.1	51.3	19	1.04	2	2	4	1	11	6	4	8

The highest temperature during the above period occurred on the 15th, 1842—therm. 74 deg., and the lowest on the 15th, 1869—therm. 24 deg.

Notices to Correspondents.

Aromatic Orchids: *Anon.* Vanilla is not the only Orchid which yields aromatic fruit capable of being used for flavouring. There is Leptotes, the fruit of which, as long ago stated in the Botanical Register, is fragrant like the Tonquin Bean, and which when infused in cream gives it a mild agreeable flavour, sweeter than Vanilla, but less penetrating.

Double Senecio: *W. Dillistone.* The three varieties, one of which is magenta-coloured, and the others shades of deep crimson purple, are evidently of a fine double strain, and being as you say dwarf and compact growers, not over 4 or 5 inches in height, and blooming profusely, they are no doubt well adapted for bedding out and for ribbon borders.

Fuchsia: *F. Wattez.* The flower of the variety sent has the petals reduced in size and pedicellate. It is a curiosity, and will probably be constant, but though it may form an ornamental plant it has no special recommendation for general cultivation, and would be little valued by growers.

Fungi: *W.B.* Your Fungus is as you suppose Roestelia cancellata. You will find a figure in Sowerby's Fungi, towards the end of the third volume, with some account of it.—*J. B.* Your fungus is Roestelia cancellata. You can get rid of it only by burning the leaves as fast as they are infected. *M. J. B.*

Heating Orchard House: *Old Subscriber.* We should advise you to adopt, according to the means at your command, either a small Stephenson's conical boiler with pipes, or a furnace with some simple vessel as a boiler, and a cemented covered trough for the flow of hot water. The boiler setting might be inside, but the furnace would be better kept out. Such heating, however adapted to preserve bedding plants, will make yours a greenhouse rather than an orchard house.

Insects: *J L.* The minute scales on the leaf sent are the young states of the Aleyrodes Chelidonii, or Vaparorium, allied to the Aphides. We know no other means of destruction than syringing and fumigation.—*Subscriber.* The red and black insect sent is one of the bug tribe—Pyrrhocoris aptera. It is often found in great numbers crawling about footpaths in gardens and public promenades. *W.*

Laurier des Alpes: *W C.* There are two plants bearing this name: the Laurier-Rose des Alpes which is Rhododendron ferrugineum, and the Laurier Alexandrin des Alpes which is Streptopus amplexifolius.

Monstera deliciosa: *G Wheeler.* This plant is a native of Mexico.

Names of Fruits: *J. Kelly.* 2, Beauty of Kent; 4, Hughes's Golden Pippin; 5, Beurré Bosc; 6, Beurré Diel.—*H. D.* 1, Adams's Pearmain; 2, Northern Greening; 3, Braddick's Nonpareil; 1, Duchesse d'Angoulême; 2, Vicar of Winkfield.

Names of Plants: *W B G. No.* 2—there is no No. 1—No. 2 seems to be a miserable specimen of Stanhopea inodora; but it is too much crushed for certain identification.—*F S.* 1, Blechnum occidentale; 2, Asplenium cicutarium; 3, Adiantum pubescens: 4, Cheilanthes or Adiantopsis radiata.—*R R.* The so-called German Ivy is Senecio mikanoides.—*J B B.* 5, Athyrium Filix-fœmina; 6, Lastrea dilatata; 7, Lastrea spinulosa.—*R Pr.* Martynia fragrans.—*F D.* 1, Campyloneurum Phyllitidis; 2, Polystichum vestitum proliferum; 3, another form of P. vestitum; 4, Asplenium reclinatum, or as it is sometimes called, A. erectum proliferum. The price of the book you inquire about is 5*s.*

Poplar Roots: *J W P.* We know of no better mode of destroying them than by tracing the largest and most troublesome and grubbing them out; or if this cannot readily be done, cut off the suckers just below the surface, and fill up the hole with salt.

Thrips on Azaleas: *Learner.* The best mode of dealing with Azaleas nearly dead with thrips and red spider, would be to burn them; and replace them by clean healthy young plants. If you cannot do this, wash them repeatedly at intervals of three days with a strong solution of Gishurst Compound; this should be done by dipping them in the solution for a few minutes, and then syringing with clean water. You have kept them in too dry an atmosphere while the leaves were growing. If you persevere, and get rid of the insects in this way, start the plants into fresh growth by and by in a nice moist heat, and be more careful of them when the new leaves have formed.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5
Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES. Offices; 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices—109, Fenchurch Street, London, E.C.
Manufactory—Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.
This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers.
Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices, 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per ton, delivered at any Railway or Wharf in London.

WHEAT  SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.
A 9*d.* packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

CATTLE FATTENED in HALF the USUAL TIME through mixing THORLEY'S DELICIOUS CONDIMENT with the ordinary produce of the farm Only to be had in Penny Packets.
Sold by most respectable Corn Dealers, Grocers, Druggists, and Oilmen throughout the world. JOSEPH THORLEY, the inventor, Steam Mills and Factory, Thornhill Bridge, King's Cross, London, N. City Depôt, 145, Fleet Street, E.C.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been avoured with the receipt of the following
Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, ESQ., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE PEDIGREE MARK.

HALLETT'S NURSERY WHEAT.



4 bushels on 10 acres.
4 bushels { On 8 acres.
On 6 acres.
4 bushels on 4 acres.

Seed required { In September .. .. .. 1st half
In October .. .. .. 2d half
In November .. .. .. }

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, without which the Wheat will in no case be sent.

APPLY TO FREDERIC F. HALLETT, ESQ., F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

AGRICULTURAL PUPIL.—MR. HENRY EVERSHED has a VACANCY for a Pupil.
Park Hall, Gosfield, Halsted, Essex.

EDINBURGH NEW VETERINARY COLLEGE.

Classes.	Professors.
General and Descriptive Anatomy of the Domestic Animals	Mr. JAMES LAW.
Practical Anatomy	
Anatomical Demonstrations	
Physiology of the Domestic Animals ..	Mr. ALFRED THOMAS BRETT.
Chemistry	Dr. ARTHUR GAMGEE.
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Principles and Practice of Shoeing	Mr. GAMGEE, Sen.
Veterinary Medicine and Surgery	Mr. JOHN GAMGEE.
Clinical Instruction	Mr. GAMGEE, Sen. Mr. JOHN GAMGEE, and Mr. JAMES LAW.

INTRODUCTORY LECTURE on WEDNESDAY, Nov. 2, 1864.
For Prospectus apply to Professor JOHN GAMGEE, New Veterinary College, Edinburgh.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£794 10	BREEDING PIGS	£76 10
FAT SHEEP	299 5	CORN and ROOTS	71 8
FAT PIGS	60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	„ B.	For a Cow or Heifer (in any Class).
	„ C.	For a Beast in Extra Stock.
SHEEP.	„ D.	For a Pen of three Wethers (in any Class).
	„ E.	For a single sheep in Extra Stock.
PIGS.	„ F.	For a Pen of three Pigs (in any Class).
	„ G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to MR. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 8, 1864.

—— A CORRESPONDENT reminds us of the risks run by purchasers of manufactured foods and manures. And as cakes and meals and manufactured foods will this autumn no doubt be more largely bought than ever previously, we give all possible publicity to the warning which the following memorandum conveys:—

SUGGESTIONS TO PURCHASERS OF COMPOUNDED MANURES AND CATTLE FOOD ON ANALYSES.

Some of our Correspondents having received printed circulars from vendors of these articles, containing analyses by well-known chemists, accompanied by certificates purporting to have been signed by them, such analyses and certificates may be accepted, on such authority, with perfect faith, in reference to the specific sample of such compounds as were submitted for analysis. As the seller however invites the purchase by setting forth its *specific merits*, on such authority, it is but common honesty that he should deliver, in bulk, up to the same standard of quality and value as that indicated by the printed analysis. We would recommend farmers, thus induced to make purchases, to preserve the analysis, and require a guarantee from the seller to that extent.

IF the weekly quantity of milk yielded by a cow —recorded week by week—were represented by vertical lines of correspondent lengths stationed at equal intervals along a base line of sufficient length to receive 52 such lines upon it for the successive weeks of the year—they would in any ordinary case, where the cow had been kept in health and produce by a uniform method of feeding, commence at a maximum height and gradually dwindle. The curved line joining their extremities, whose distance from the base line, from point to point of the vertical lines thus joined, would show the varying yield of milk from week to week throughout the year, would commence at once, perhaps some time in March, at a maximum height, representing

possibly a produce of 20 or two dozen gallons weekly; it would maintain a nearly level course till after midsummer, and gradually dwindling through the autumn it would touch the base line, indicating an entire cessation of produce towards the end of the year. After 9 or 10 weeks of rest the cow coming to the pail again would jump to its full produce, and again maintain that produce for a month or two, and again dwindle for two or three months to nothing at the end of 40 weeks or more from the time of its commencement.

But there are many things upon a farm which interfere with this uniformity of the curve of individual weekly milk produce. And chief among them is the fact that cows are not uniformly fed. They begin on hay and roots, and by and by get on to Grass: this, with the circumstances under which it is consumed, improves for a few weeks: then, as the pastures get bare before haymaking time, it shrinks in quantity and perhaps in quality. After haymaking a large extent of aftermath is added to the resources of the farm, and the quantity of

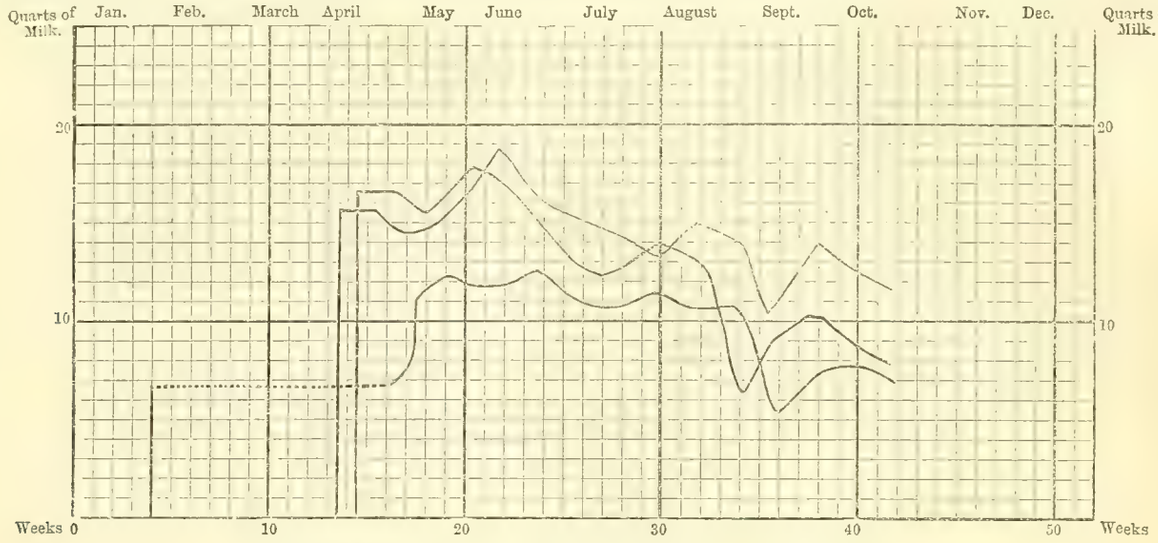


DIAGRAM SHOWING DAILY YIELD OF MILK FROM INDIVIDUAL COWS.

available food increases, but this dwindles with the autumn and ceases with the winter—and so the quality of the food fails along with the constitutional productiveness of the animal, and the curve drops and ceases sooner than it would.

Instead therefore of a milk curve of such uniformity as the first theory supposes, the actual line is irregular. Commencing with a distance from the base line correspondent to the produce when on hay and roots, it rises when the cow is turned out to Grass, drops again before hay harvest is completed, rises with the access of the herd to aftermath, and drops more rapidly than it might owing to the feeding on dry food when winter comes. Still the curve of the individual cow

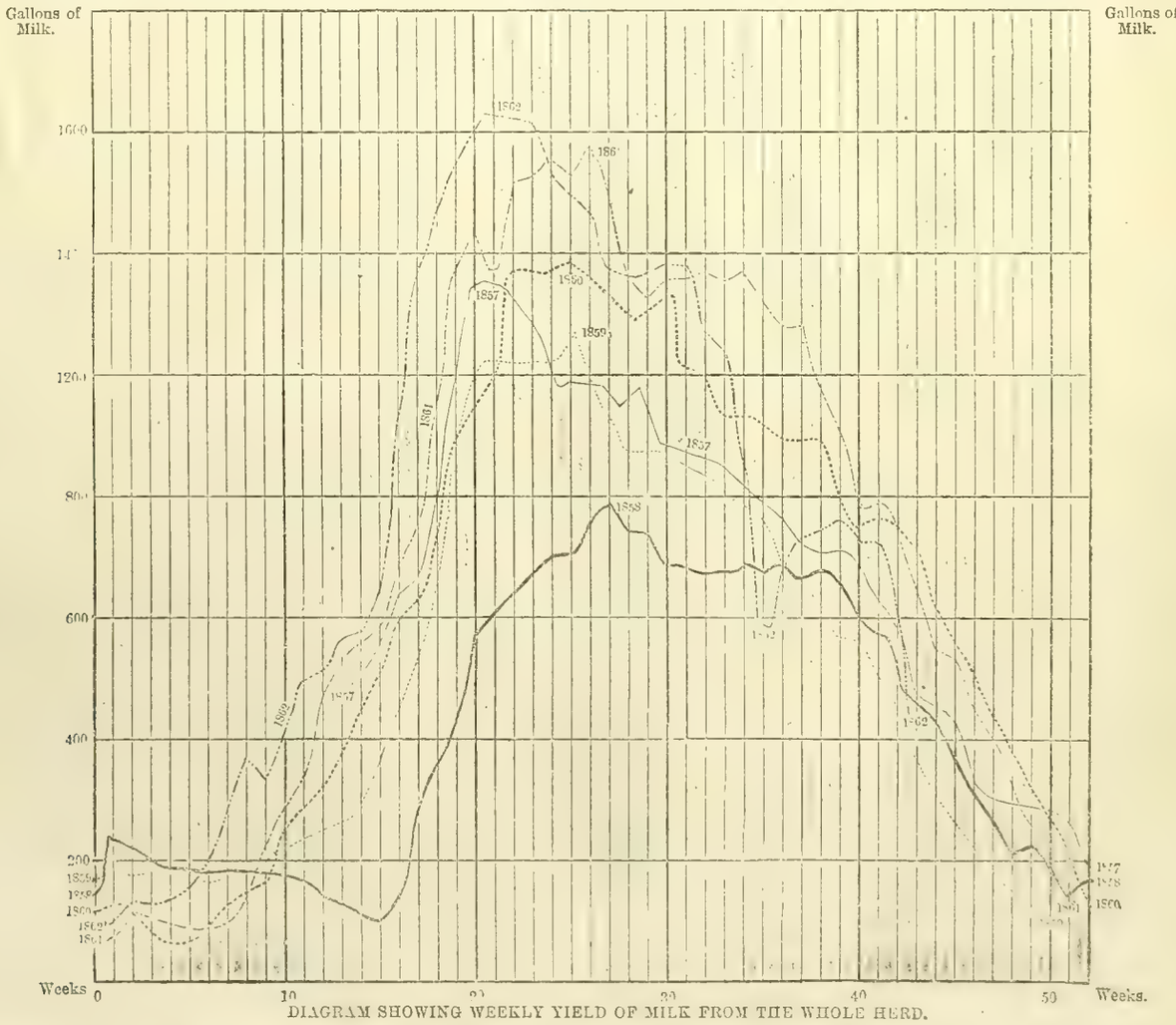


DIAGRAM SHOWING WEEKLY YIELD OF MILK FROM THE WHOLE HERD.

always commences at a considerable height, and ultimately ceases altogether. This appears in the upper diagram, where the lines for three cows are drawn indicating the average daily produce in successive weeks from the time of calving up to the first week in October, when they had just recovered from an attack of the foot and mouth disease, which had, as will be seen in every instance, greatly reduced their produce for several weeks. If the curves had been continued, they would have rapidly declined through October and November, and ceased in December.

If, however, we draw a curve indicating the weekly produce of the whole herd, a line of a very different form appears. The cows do not all come to the pail together; if they did, then the curve would resemble in its general features those in the diagram above. They come to their calving at different times during the first months of the year, and there is thus no week without some milk in the pail. The curve of weekly milk produce on the whole farm thus never touches the base line at all. It is lowest in December and January, and rises rapidly in the months of April and May. It reaches its maximum at the end of May or beginning of June, shrinks during June, and rises again a little after hay harvest, and if not affected by any general failure of health in the stock, falls gradually and uniformly throughout the autumn.

The lower diagram shows the curves of this kind of several successive years on the Frocester Court farm, near Stonehouse, Gloucestershire. It was published in these columns by Mr. Harrison's kind permission two years ago, and we reproduce it here at present in order that our readers may the better understand the statistics of the same farm during the past summer which have lately been supplied to us by Mr. Harrison, and which illustrate the effect of the drought of 1864 upon a dairy farm.

In the diagram to which the attention of our readers is now directed, it will be seen that all the curves exhibit the principal facts just named. In all there is some height above the base line even in the very ebb of the wave, indicating that the produce of milk never altogether ceased—in all there is the hollow in the wave's crest indicating the diminished supply of food between the end of May and the finishing of the hay harvest, and in the year 1862 there is the great depression about the 35th week of the year, indicating a general attack of foot-and-mouth disease, and its effect on the produce, which, it will be seen, was not entirely recovered on the departure of the illness. The principal point of difference in these curves is not so much in the general form which they all more or less exhibit, as in the height which in successive years they severally attained. But this was owing simply to the different number of cows which the herd in successive years contained. There were 55 cows milked in 1857, 52 in 1858, 60 in 1859, 66 in 1860, and 71 in 1862.

Suppose, now, that in place of representing the total amount of milk produced in successive weeks, the lines had represented only the average amount per cow per week. Suppose, for example, the total of 1620 gallons, which is seen to have been attained in the 21st week of 1862, had been divided by 71 (the number of cows milked that year,) so that the distance of the line from the base should have represented 22.8 gallons as the average weekly produce per cow at that time, and that the correspondent figures for the other lines had been similarly obtained—so that the 1270 gallons for example in the same week of 1857 had been divided by 55 cows, and 22,2 had thus been obtained for that week's produce per cow in that year. It is plain that, barring the effects of management and health, the curves would have been nearly identical one year with another; or, rather, they would have been influenced only by those differences in the food supply of the year, which, as the result of the climate of the season, are almost beyond the power of the farmer to affect. This is what has been done by Mr. Harrison in the comparison of 1863 and 1864, which our readers will now be able fully to understand.

The following figures represent the weekly produce *per cow* in the two years. Let any reader interested in the subject draw three columns on a sheet of paper, and on 52 lines across these columns write respectively the date of the 52 successive weeks of the year and the average produce per cow in each week in 1863 and 1864 respectively, and then from the outer line of the right-hand column draw horizontal lines of a length correspondent, at the rate of 4 gallons to an inch, to the produce of 1863 and 1864 respectively for every week of the year. The curves joining the extremities of the lines for 1863 and those for 1864 respectively will at once represent to the eye, what the reader will only laboriously extract by a study of the figures given below, the disastrous effect of the drought of 1864. It will be seen that all through May and June the curve for 1863 is outside that of 1864; and that, excepting only the first week—and that is more owing to the earlier hay harvest of the present year than to any other cause—the curve of 1864 drops far within that of 1863 all through July and August and September. But there were 90 cows milked in 1863 and only 80 in 1864, and the figures in the next column, which give the weekly produce per cow, great as is the loss which they represent —8, 9, 10, and 11 gallons per head per week in 1864 through the last two months in place of 11, 12, 13, and 14 gallons in 1863—therefore, do not show the whole loss which has been sustained. And in addition to this there has been an even greater extent of pasture taken up this year in feeding 80 cows with the reduced return per head, than kept 90 last year and made them yield nearly one-third more individually. It is plain, therefore, that the weather of the past summer, which has brought a good harvest to excellent maturity in our corn fields, has been unusually severe on all those farmers who depend on succulent growth for their returns, and nowhere more severe than in the dairy districts of the country. The following are Mr. Harrison's figures:—

Average Weekly Yield of Milk per Cow, on Frocester Court Farm, near Stonehouse.

Week Ending		1863.	1864.	Week Ending		1863.	1864.
		gallons.	gallons.			gallons.	gallons.
January	3	0.33	1.22	July	4	15.44	15.85
,,	10	0.94	2.85	,,	11	14.90	14.52
,,	17	0.98	3.42	,,	18	15.60	13.45
,,	24	1.77	3.20	,,	25	15.62	12.82
,,	31	2.42	3.42	August	1	14.60	12.17
February	7	2.53	3.50	,,	8	14.18	11.57
,,	14	2.70	3.27	,,	15	13.09	10.87
,,	21	2.90	3.16	,,	22	12.78	9.69
,,	28	4.28	3.64	,,	29	12.62	9 06
March	7	5.54	4.59	September	5	11.92	8.21
,,	14	7.53	4.44	,,	12	11.81	8 19
,,	21	7.44	5.45	,,	19	10.99	7.67
,,	28	8.70	6.87	,,	26	9.64	7.17
April	4	8.21	7.17	October	3	8.64	6.66
,,	11	8.21	6.72	,,	10	8.16	..
,,	18	8.94	7.57	,,	17	8.40	..
,,	25	9.11	9.01	,,	24	7.90	..
May	2	13.83	14.01	,,	31	7.35	..
,,	9	15.53	14.76	November	7	6.82	..
,,	16	16.94	15.61	,,	14	6.04	..
,,	23	18.41	16.95	,,	21	4.53	..
,,	30	18.43	18.18	,,	28	4.11	..
June	6	18.22	17.05	December	5	3.54	..
,,	13	17.83	16.64	,,	12	3.24	..
,,	20	17.89	16.10	,,	19	2.57	..
,,	27	16.60	15.41	,,	26	2.11	..
				,,	31	1.29	..

The present Part of the English Agricultural Society's Journal contains the prize report of Hertfordshire, supplemented by agricultural notes on the same county, by the Rev. J. C. Clutterbuck; a discussion of the agricultural aspects of the late Census returns, by J. D. Dent, M.P.; a short prize essay on the management of a suburban farm, by J. Bligh Monck; a very instructive paper, by Dr. Voelcker, on the absorption of potash by soils of known composition; Mr. Paget's paper on accidents through farm machinery; Mr. G. Jonas's prize essay on storing root crops, which we shall immediately transfer to our columns; a paper by the Editor on the improved construction of stables; Mr. Grantham's account of the disafforesting of Delamere; Mr. Herbert's periodical statistics on meat consumption in the metropolis; an account of experiments with salt on Mangels, by Dr. Voelcker; the general report on the Newcastle meeting by Mr. Coleman, including a very elaborate account of the steam cultivation trials, we presume by the same pen; the report, by Mr. Dent, M.P., on the live stock show at Newcastle; and a continuation of their elaborate account of experience in Wheat growing, by Messrs. Lawes & Gilbert. The addenda are a controversial paper by Baron Liebig; a paragraph by Mr. Mechi on green Beans as sheep food; a letter on sheep inoculation by Mr. Deacon; and reports of the occasional agricultural discussions before the Council during the session of last spring. In addition to these there are the prize lists of the Newcastle meeting, and a complete enumeration of the membership of the Society, with a list of all the privileges attaching to it.

There is thus a large volume full of good reading for farmers. Will they read it? Perhaps it would afford a clue to the best editorship of such a performance if we could ascertain which of the papers thus collected will be most read and earliest read by those to whom the volume is addressed. We have no doubt that the report of the implement judges will be read, and especially that of the steam plough judges. The paper, too, on storing roots, coming into the hands of the farmer just as he is about to direct the storage of his own scanty crop, will be at once referred to for information. Baron Liebig's last shot at Mr. Lawes will be listened to and looked at; the current notes on meteorology, prices, and supplies will be consulted, and very likely the reader may refresh his memory of some of the more interesting of the weekly discussions which were reported in the agricultural papers at the time of their occurrence. There may be a few who will turn to Mr. Monck's account of his experience as a suburban farmer, and no doubt a good many will look to see what the Professor of Chemistry has to say as the result of his most recent researches into the relations of soil, manure, and plant. The way to prepare a book which shall be read is to throw the chief weight of the performance upon subjects of immediate or of personal interest.

The point of all others on which information is now desired, is the most economical substitute for a deficient crop of hay and roots, but of information such as this—conspicuous by its absence—there is none in the present volume. An inquiry addressed to 40 or 50 of the leading practical men or the list of members would have obtained the information needed, and this would, through the pages of the Journal, have seasonably reached the 4000 or 5000 members of the Society, most of them just at this time sorely needing guidance on just this point. If instances of this prompt attention to the immediate wants of readers were the rule instead of the exception in the successive volumes as they appear —if it thus appeared that the Editor is wide awake to the current needs of English agriculture, he would ultimately obtain that general usage and perusal of his pages which they certainly do not now receive. It is confidently declared that not one-half of the copies of this work that are issued ever have their pages opened. Surely this is not a condition of things under which the Journal Committee are content to lie. What is to be the remedy for it? How shall the 1500*l.* per annum now spent upon this Journal by the Society be made to serve the intended purpose of so large an outlay? The subject certainly calls for serious and earnest inquiry and discussion.

SHORT-HORN CORRESPONDENCE.

(*Continued from* p. 947.)

[Among the letters and papers left by Mr. Cottrell, of Congresbury, and kindly placed at our disposal by Mr. Bowly, of Siddington, are copies of a voluminous correspondence, much of which appeared in the columns of Agricultural Journals upwards of 40 years ago. We make the following extracts:—]

7. *Mr. Hutchinson on Hubback.*

"Stockton, October 10, 1821.

"The bull Hubback being now pronounced the grand cause of the improvement instead of the main root of the Ketton and Barmptons, so celebrated above all other Short-horns, it behoves every breeder in the kingdom to prove his own stock related to this wonderful animal (if he can), which I conceive it by no means difficult for almost every breeder in this district to do, as no bull (as I will show) has been more easy of access. He served three years at W. Facett's, near Haughton-on-Skern, at 1*s.* a cow, before the late Mr. Robert Colling and Mr. Waistell purchased him (as we have it) for the sole purpose of serving feeding heifers, but I am now in possession of evidence to show that Mr. Waistell during the nine or ten months he remained a partnership bull, had his twelve breeding Short-horned cows served by him, and that he was open and free to the whole neighbourhood during that period. Mr. Charles Colling became possessed of him in October, 1785, he was then rising five years old, his price not more than 8*l.* 8*s.* (the late Mr. Robert Colling having declared his opinion to Mr. Waistell that he was not a good one), and in 1786* he purchased Mr. Maynard's cow and heifer for 3*l.* 10*s.* (bidding about the same time 50 guineas for Mr. Scott's Sockburn cow). Mr. Charles Colling was then an established breeder. In the spring of 1790 he exhibited in Darlington market his first two yearling bulls for sale, and succeeded in selling them both. Mr. Coates, of Smeaton, was the purchaser of one for 26*l.*, and Mr. Robert Thomas of the other for 23*l.* These bulls surely may be called improved Short horns, and immediately descended from Hubback (whether Mr. C. Colling and Major Rudd allow it or not) and as the latter of these bulls, which won the premium at Durham in 1793 in Mr. Ralph Grimstone's name,† was the sire of the great grandam of my cow Stranger, it will appear that my breed has perhaps as much of Hubback blood in it as any other breed in the kingdom (not even excepting that of the Messrs. Colling), as the Sockburn cows in my brother's time had access to both these bulls, and Chapman's Son of Punch surely had his proportion.

"But I am by no means reconciled to the idea that Mr. C. Colling himself ever thought so highly of this bull (for he only kept him two years), as is now so confidently held out, otherwise would he have parted with him at seven years old a nameless bull?—for it is well known that he was not called Hubback till many years after he had been sold to a gentleman of that name at North Seaton, in Northumberland. We hear indeed of sons of Hubback, and if ever Mr. Colling had any such, the two yearlings above alluded to must have been of them. Not one of Messrs. Colling's own bulls (their best bulls, as Major Rudd has it) could call him sire,‡ and it is surely most wonderful that they should have never thought it worth while to keep one of his begetting. The long lines of bulls from Fuljambe (the son of Mr. Barker's bull) to Cecil, and from Punch to Pilot, have sprung from the loins of Mr. Hill's Blackwell bull, and that no virtue is allowed to have been found in any blood, but in this drop of the Kyloe in the veins of Hubback, is most wonderful. Mr. Hill's bull, besides being the sire of Mr. Barker's bull and the Sockburn bull, was also the sire of George Coates' old bull, which won the premium in 1791."

8. *Mr. G. Baker on Hubback.*

"Elemore Hall, November 19, 1821.

"Attempts having been made through the channel of your paper, by hearsay evidence and otherwise, to question the blood of Hubback, I send you his pedigree. I have the authority of Mr. Charles Colling to say he always considered him a thoroughbred Short-horned bull. Mr. John Hunter, of Hurworth, who sold his dam with Hubback at her foot to Mr. Bassnet, of Darlington, says his father bought her of Mr. Stephenson, of Ketton, and that she was a pure bred Short-horn. Mr. Alexander Hall, of Sherraton Hill Top, who lived in that neighbourhood, and remembers her and her calf perfectly well, says she was a beautiful colour and handler, and when she got on to good land near Darlington, she got so fat she would not breed again. Hubback, he says, was got by Mr. Snowden's bull, a son of Mr. Robson's bull, of Dinsdale, who was bred by old Mr. Waistell, of Burdon, a very noted breeder, and got by Mr. James Masterman's bull, of Coatham, near Darlington, and was a true bred Short-horn. The above gentlemen will attest the same if necessary.

"I consider the name of Improved Short-horn to come from the breed of Hubback and Mr. Maynard's cows, which, from time and judicious crossing have brought them to their superior excellence. No cow or bull can ever be called a Short-horn with a cross of Scotch blood, for I would just as soon put the Duke of Grafton's Penelope to a Scotch pony to breed a racer as a cow to the grandson of Bolingbroke out of a Galloway cow to breed a Short-horn."

* No, not in 1786, for he had Phœnix from Mr. Maynard's Favourite in 1783.

† Mr. Hutchinson, you err! R. Grimstone's bull was got by Charger, son of Favourite.

‡ Yes! Broken Horned Bull and his dam, also the Lame Bull, and several cows, were got by this bull, with several young bulls not named, only called sons of Hubback.

9. "B" (*Rev. H. Berry*) *on Mr. Colling's stock.*

"Worcestershire, December 3, 1821.

"Your correspondent, Mr. Baker, has made a statement in his letter on the pedigree of Hubback, which seems calculated (though probably not so intended) to cast a slur upon certain of the stock purchased at Mr. Colling's sale. I beg, therefore, to make some observations on that statement. Mr. B. states thus:—No cow or bull can ever be called a Shorthorn with a cross of Scotch blood, for I would just as soon put the Duke of Grafton's Penelope to a Scotch pony to breed a racer as a cow to the grandson of Bolingbroke out of a Galloway cow to breed a Short-horn,

"Now, upon investigation it becomes immediately apparent that Mr. Colling (certainly not ignorant on this point) did think the stock got by the grandson of Bolingbroke properly called a Short-horned stock, and from the preference he gave to the tribe thus descended and from his unequivocal assertion to that effect, no doubt can be entertained that he thought them entitled to be considered the best of improved Short-horns. It is not for any person at the present day to dictate to Mr. Colling how his cattle ought to be derived in order to entitle them to a peculiar distinctive appellation.

"The merit of judicious selection, and, I will add, of crossing, were fairly and signally his own, and his breed will and must ever be distinguished by the designation with which he sent them forth to the world—Improved Shorthorns.

"Perhaps, were the inquiry to be made, it would be a difficult matter for Mr. Baker to satisfy persons possessed of any knowledge of Short-horns that Mr. Maynard's cows deserved to be so called, but as I consider what I have previously advanced is fully adequate to my purpose, that of preventing the influence of the ill founded opinions, I shall conclude my letter by stating that public estimation has confirmed Mr. Colling's opinion, in proof of which take the following facts:—Lady, by the grandson of Bolingbroke, sold for 206 guineas; Countess, her daughter, for 400 guineas; Laura, another daughter, for 210, and Celina, out of Countess, for 200 guineas. These facts, Mr. Editor, will I doubt not, as they ought, have more weight than new opinions offered upon a subject which has long been settled by the highest authorities. I am, your obedient servant, "B."

10. *Mr. J. Rooke on Improving the Breeds of Horned Cattle.*

"Akehead, March 7, 1822.

"Since I last addressed you on this subject it has been stated by Mr. Hutchinson, in his very interesting and valuable little book, entitled 'Origin and Pedigrees of the Sockburn Short-horns,' that he believes the Kyloe cross was more frequent in Mr. Robert Colling's stock than in that of Mr. Charles Colling; that a Kyloe bull has been seen ranging in his pastures for the whole summer amongst his Short-horn cows, and that any person of discernment may easily believe this who ever made a comparison between the last of the Barmpton bulls and any of Mr. Charles Colling's. He adds: 'Wellington and Barmpton were surely the neatest and the softest and shortest legged of his bulls, as was Moss Rose of his cows, and had more Highland hair, like all their descendants, than any I have ever seen of the Kettons.

"It has been asked by 'A Breeder,' 'what was Punch's pedigree by the mother's side?" On comparing this mysterious and pointed question with what has been stated by Mr. Hutchinson, and also with Major Rudd's pedigrees of some of Mr. Robert Colling's stock, it would seem as if Punch's dam was by a Kyloe bull. Punch was the sire of Ben, the sire of the dam of Redrose, and of the granddam of Wildhair. Punch was also the sire of the dam of North Star, the sire of Golden Pippin, and also the great granddam of Venus.

"On the subject of crosses, Mr. Bailey in his 'General View of the Agriculture of Durham,' observes: Mr. R. Colling has frequently crossed with the improved Short-horned bulls and the best Kyloe cows he could procure, the produce made very fat, and much earlier than the pure Kyloe, but he has given it up, finding that pure improved Short-horns are more profitable.

"Unquestionably 'pure improved Short horns' in the sense used by Mr. Colling had a very different meaning from 'pure Short-horns.' It would now seem that Mr. Colling meant to say a cross between a Kyloe bull and a Short-horned cow are more profitable than a cross between a Short-horned bull and a Kyloe cow, owing to their getting more size, and by way of distinction he called them 'Improved Short-horns,' which he was fully warranted in doing, as they had the exterior appearance of Short-horns 'improved.'

"In 1815 Mr. Robert Colling said in the presence of the writer of this article, 'Whatever I know of the art of breeding cattle I owe to the late Mr. George Cully,' and he also said 'Ben is the best blood.' In speaking of the Fifeshire breed of cattle Mr. Cully observes: 'You would at first imagine them a distinct breed, from their upright white horns and being exceedingly light eyed and thin thighed, but I am pretty clear it is only from their being more nearly allied to the Kyloes, and consequently less of the coarse kind of Short-horns in them.' Probably this was a portion of the valuable information which Mr. Colling owed to Mr. Cully, and hence I suspect the former of these eminent breeders considered the 'blood' of Ben the best, owing to their combining the size and appearance of the Short-horn with the valuable qualities of the Kyloe. What else was there in the pedigree of Ben to induce Mr. Colling to call his the best blood. For we are more ill-informed about his and his sire's pedigree than even Hubback himself, and yet they are the very foundation of the Barmpton stock, and immediately connected with that of the Ketton stock also.

"The public have stamped a value upon the 'judicious crosses' or 'improved Short-horns,' not 'pure Short-horns,' presented to their notice at the Ketton and Barmpton sales, which have no parallel in the history of breeding horned cattle; and it marks out the course to be followed by other improvers of any of the varieties of horned cattle with the greatest clearness, namely, to cross with the best Highland bulls, and so breed back again wholly to the dam's side. Perhaps the time may not be far distant when this mode of crossing will receive a fair trial even among the Long-horns.

"Where size and Kyloe qualities are the main objects of preservation, I think no female Kyloe ought to intervene, because it necessarily removes the process more remotely, and endangers a diminution of the properties sought after.

"As it has ever been your wish to guard the columns of your valuable journal against misrepresentation, either direct or indirect, I take the liberty of adding an important estimate of the prices of the different tribes of cows disposed of at the Ketton sale in 1810. This estimate, as you will find, is highly favourable to Lady and her progeny, and completely refutes the insinuation of 'A Breeder.'

No.	Tribes.	Amount in Guineas.	Average of each in Guineas.
15 ..	Lady	2368 ..	157
4 ..	Venus	640 ..	160
2 ..	Daisy	550 ..	275
5 ..	Cherry	618 ..	125
1 ..	Comet	1000	
21 ..	Not classed ..	1602 ..	75
48	Total amount	6778 guineas.	

"If we make due allowance for the age of the Lady tribe, which contained one very old cow (Lady herself, 14 years of age, sold for 206 guineas), two up in years, four calves, and only six animals in the prime of life; their prices were not only the highest at the Ketton sale, but fully equal to those brought by the Red Rose at the Barmpton sale, as the latter were mostly in the heyday of life. But as Venus was by Ben, and Daisy's granddam by Punch, so far as relates to Mr. Charles Colling's stock, the superiority of the 'pure improved Short-horn' is fully established, and what is ignorantly I believe called 'pure Short-horns' is evidently thrown into the shade.

"Nor have the public estimated the value of the Barmpton stock in favour of the 'pure Short-horns,' as appears by the following prices obtained at that sale:—

No.	Tribes.	Amount in Guineas.	Average of each in Guineas.
9 ..	Red Rose	2355 ..	261
9 ..	Wildhair	1345 ..	149
3 ..	Venus	487 ..	162
2 ..	Golden Pippin ..	297 ..	148
48 ..	Not classed.. ..	2985 ..	62
71	Total amount	7479 guineas.	

Thus establishing the advantages of 'judicious crossing' upon the clearest and most unquestionable evidence—the decision of the public, who were totally unacquainted with the grand secret, and also of the Messrs. Colling themselves, who, it is evident, have been decidedly partial to Lady and Venus, Red Rose and Wildhair.

"It would seem as if these distinguished breeders of cattle had gone to work systematically, and they were eminently successful. To use the words of Mr. Hutchinson, 'every man's stock in the county of Durham has been benefited more or less by the Kyloe mixture'

"Perhaps the closeness with which the Messrs. Colling have hitherto kept the grand secret has been highly advantageous to the public, as it has allowed the hand of time to stamp its sanction upon an experiment successfully carried on through 36 years, whereas, had the secret been prematurely divulged it would probably have given rise to that diversity of experiment and opinion which too frequently have a tendency to bury truth beneath a load of rubbish."

SOCIAL SCIENCE CONGRESS AT YORK.

[In the Agricultural Section, presided over by Mr. Holland, M.P., papers were read last week by the President, Mr. Strickland Mr. Gordon, and others, of which the following are abstracts.]

Steam Cultivation.—Mr. Holland, M.P., read a paper on the social effects arising from the introduction of machinery—more especially the application of steam power—in the culture of the soil. He said: In the limited area of this country there was a continual increase of population, and a large portion of land every year was taken from the producing area to increase civilisation. It was calculated that in our limited area the increase of population required an increase of houses equal to something like two Birminghams and a-half in area; railways and other wants of civilisation also took much land; so that, while more was required from the land, the space from which the produce was to be obtained grew less. This required the application of machinery and steam-power on land in the same way that the power-loom was called for to replace the common hand-loom in manufactories. The farmer hitherto had been more or less at the mercy of the season, and that was one cause for the slow movements in agriculture compared with the progress that had taken place in the sister sciences. There were causes—including the isolated life of the farmer before railways, the uneducated state in which he lived, the feudal rights by which he was still encompassed—trammelling his efforts to advance, and preventing his being a free agent in many ways. The rural districts at the commencement of the century were most depressed. The new Poor Law was the salvation of the country, and most beneficial to agricultural labourers. That law extended its protection to the really necessitous, increased the comfort of the aged and infirm, and raised the independent labourer; while the foundations of boards of guardians raised the character of the yeomen, accustomed them to the transaction of business in public, and under circumstances in which the conduct was scrutinised and the character formed. Without its previous existence and operation at the passing of the Bill in 1844, opening the ports and establishing free-trade, we should not have been able to compete with other countries in the production of food. From this period the introduction of machinery in agriculture became necessary. As a result of free-trade we had introduced the steam-plough. Steam tillage was the prominent triumph of British agriculture, and by it land previously drained was smashed up in a third of the time before necessary to cultivate it for inferior crops, while the saving in horse labour had been very satisfactory, and met almost the expenditure of working steam-power, and the capital required in establishing it, while the treading of horses, which did much harm, was obviated, and the evil consequences of bad seasons were overcome. Great economy of labour was obtained, as well as an increase of produce; but all this could not be accomplished without a great outlay of capital, and there was a corresponding requisite for security of property. The farmer of the present day was much better educated than farmers of former days. He made greater requirements from his landlords, consequent upon steam cultivation—desiring that fields might be made of proper shape and size; that hedges and timber be cut down so that the farmer might have full play for his machinery; he also required that the buildings should be adequate for his wants; moreover, he required from his landlord a greater security of tenure and freedom from feudal rights and customs. The farmer now selected his men, not because they happened to be parishioners, but because they were suitable to his requirements. The class of labourers was changed through the introduction of steam-ploughs. They were no longer sluggish and unwilling as in former days, and required to be well-housed and cared for. His experience told him that those connected with steam-ploughing and machinery required and obtained good cottages, and the most powerful thing in elevating the character of working men was the providing for them superior habitations and promoting respectability in dress. By the management of steam machinery labourers had become so altered that he had been able to shut up a public-house, the men enjoying the evening to a far greater extent in a large room provided with fire and light, where there were social enjoyments, whilst the evils of the public-house and drunkenness were far reduced among them—example, no doubt, having much to do with this. Example had had, and was having, also much effect on labourers' employers. In course of time it might be found that they might select their men in return for the purposes of steam management. In his own case he had a large steam-plough and two other steam-engines at work, and had not, in any case, been obliged to call in an engineer; the whole of the steam work in his occupation being done by labourers. The population of this country employed in agriculture was on the decline. In 1841 the rural population under the head of agriculture was — males, 1,082,165, and females, 56,398, making altogether employed in agriculture out of doors, 1,138,563. In 1861 the males were 914,301, females 43,964, making altogether 958,265, being a decrease of 180,298, from which many were in the habit of arguing that the country was in a state of decay, whereas it was just the reverse. It showed how well timed was the introduction of steam-culture, coming at the moment when the population employed in agriculture is becoming less, owing to the advanced state of the manufactures of the country, whilst the area was diminished in which food was to be produced, and whilst the wants of the increased population required them to make every exertion to meet the demands made upon them. The influence of steam culture had been to give the men better wages, superior home accommodation, so that they demanded as necessaries of life articles which were denied to them as luxuries a few years ago. The influence of the introduction of the steam culture of land was that labour was rapid as well as extraordinary. As the area of cultivation became less, as it obviously must, the cultivators of land would rank as manufacturers of food, and labourers would be described as skilled and intelligent artisans. The freedom from variableness of climate and deep cultivation producing a great increase of food would go far to make steam culture a lasting benefit to the country.

Agricultural Cottages.—Mr. C. W. Strickland, Howsham, York, read a paper "On the Obtaining of Good Plans for Agricultural Cottages, and the Political and Social Bearings of the Subject." He referred in the outset to what had already been done towards arriving at a knowledge of the principles of construction upon which the best and more economical cottages can be built; and he proceeded to point out what in his opinion is chiefly needed at the present time to carry that knowledge further; and, in the next place, he made a few remarks upon some collateral matters, especially respecting the question of cottages paying interest to those who build them. He said there was one form of cottages which had not yet been considered nearly so much as it deserved to be, but which ought to be generally useful if good plans of it were well known. This is a pair of cottages with two living rooms downstairs and two bed-rooms upstairs in the one, and with one living room downstairs and three upstairs bed-rooms in the other. This ought, he believed, to make a better pair of cottages, and for less money in proportion to the accommodation obtained, than any other, and throughout the agricultural districts would, he believed, be found to be the most useful of all forms of cottage. Speaking on the question of how cottage building is to pay, Mr. Strickland said he was abundantly convinced that the building of decent cottages never could be made to pay as a commercial speculation to a professional builder, except possibly—but by no means certainly—by some kind of legislative protection, as unjust as it would be impolitic—such as exemption of cottages from rates and taxes, or favouring them with a more rational mode of conveyance than that which other kinds of property are burdened with. But there could be little doubt that it would well repay landlords and employers of labour to provide fitting homes for their workpeople. After referring to the feelings of independence and self-respect which the possession of a cottage and garden are calculated to engender in the mind of a person employed in agricultural pursuits, he concluded with a few slight remarks upon the law of settlement and the manner in which it bears upon the subject. He concurred in the opinion that Government could do nothing but mischief by interfering in the matter, unless it be, perhaps, by increasing the facilities for borrowing money on advantageous terms for this purpose.

(*To be continued.*)

AGRICULTURAL STATISTICS, IRELAND, 1864.

[The following are the chief items in the report just presented by the Registrar-General.]

	acres.
The total area under crops this year is	5,672,980
In 1863 the area was	5,662,487
Showing an increase under crops in 1864 of	10,493

Of the Cereal Crops, the total extent under Wheat was greater in 1864 than in 1863 by 19,552 acres;

whilst the total area under Oats has diminished by 143,965 acres. Barley, Bere, and Rye increased by 1103, and Beans and Peas by 873 acres,—exhibiting on the whole a decrease in Cereals of 122,437 acres, as given in the following summary:—

Abstract of Cereal Crops.

	1863.	1864.	Increase in 1864.	Decrease in 1864.
	acres.	acres.	acres.	acres.
Wheat	260,311	279,863	19,552	..
Oats	1,953,883	1,809,918	..	143,965
Barley	171,892	172,662	770	..
Bere and Rye ..	8,659	8,992	333	.
Beans and Peas ..	15,153	16,026	873	..
Total ..	2,409,898	2,287,461	21,528	143,965

Decrease in Cereal Crops in 1864, 122,437 acres.

In Green Crops there is a slight decrease this year compared with last. Turnips show a diminution of 14,153 acres; Mangel Wurzel and Beet Root of 2328; Cabbage of 2369; and Vetches and Rape of 20 acres. Potatos, however, have increased by 15,868 acres, and Carrots and other green crops by 685 acres,—so that, on the whole, the green crops in 1864 have only diminished by 2317 acres, on a total amounting to nearly 1,500,000 acres.

The acreage under green crops in 1863 and 1864, and the increase or decrease in each crop, in the latter year, were as under:—

Abstract of Green Crops.

	1863.	1864.	Increase.	Decrease.
	acres.	acres.	acres.	acres.
Potatos	1,023,414	1,039,282	15,868	..
Turnips	351,436	337,283	..	14,153
Mangel Wurzel and Beet Root ..	16,434	14,106	..	2,328
Cabbage	34,125	31,756	..	2,369
Carrots, Parsnips, and other Green Crops	22,505	23,190	685	..
Vetches and Rape	29,938	29,918	..	20
Total ..	1,477,852	1,475,535	16,553	18,870

Decrease in Green Crops in 1864, 2317 acres.

The following Table gives the total area under the several crops in each of the years 1860 to 1864 inclusive:—

Crops.	1860.	1861.	1862.	1863.	1864.
	acres.	acres.	acres.	acres.	acres.
Wheat	1,966,314	1,999,160	1,977,528	1,953,883	1,809,918
Oats	468,415	401,243	356,321	260,311	279,863
Barley	181,009	198,955	192,302	171,892	172,662
Bere and Rye ..	12,734	11,582	12,128	8,659	8,992
Beans and Peas ..	12,832	14,017	15,202	15,153	16,026
Potatos	1,172,079	1,133,504	1,018,112	1,023,414	1,039,282
Turnips	318,540	334,104	376,715	351,436	337,283
Mangel and Beet Root	32,124	22,949	23,222	16,434	14,106
Cabbage	22,785	30,020	30,543	34,125	31,756
Carrots, Parsnips, and other Green Crops	21,633	19,559	17,713	22,505	23,190
Vetches and Rape	40,481	31,280	30,880	29,938	29,918
Flax	128,595	147,957	156,070	214,099	301,880
Meadow and Clover ..	1,594,518	1,546,206	1,562,924	1,560,638	1,608,124

The number of horses, cattle, sheep, and pigs, at the time of taking the agricultural statistics, in each year from 1855 to 1864, both inclusive, is given in the following Table:—

Total Number of Live Stock in Ireland, in each Year from 1855 to 1864, inclusive.

Years.	Number of Horses.	Number of Cattle.	Number of Sheep.	Number of Pigs.
1855	556,287	3,564,400	3,602,342	1,177,605
1856	573,408	3,587,858	3,694,294	918,525
1857	599,782	3,620,954	3,452,252	1,255,186
1858	611,321	3,667,304	3,494,993	1,409,883
1859	629,075	3,815,598	3,592,804	1,265,751
1860	619,811	3,606,374	3,542,080	1,271,072
1861	614,232	3,471,688	3,556,050	1,102,042
1862	602,894	3,254,890	3,456,132	1,154,324
1863	579,978	3,144,231	3,308,204	1,067,458
1864	561,361	3,257,309	3,363,068	1,056,249
Difference in No. between 1863 and 1864 ..	Decrease. 18,617	Increase. 113,078	Increase. 54,864	Decrease. 11,209

Notwithstanding the decrease in the number of horses and pigs, there is an increase in the estimated total value of stock this year compared with last, amounting to 632,411*l.*

This increase, combined with the larger extent of Flax—87,761 acres—and the consequent greater yield and value of that crop in 1864 compared with 1863, also the expected increase in the "average yield" of other crops this year, may be considered as affording fair hope of a return to more propitious seasons for the farmer, than Ireland has enjoyed for some years past.

Emigration.—According to the returns received, 84,586 persons left Ireland this year up to the 31st of July, who stated it was their intention not to return,—being an increase of 4080 on the number for last year. The entire number of emigrants since the date when their enumeration at the several ports of Ireland commenced,—1st May, 1851,—to the 31st of July last, amounted to 1,499,642 persons. *William Donnelly, Registrar-General, General Register Office, Dublin, 26th September*, 1864.

THE PAST HARVEST AND THE COMING WINTER.

Essex: *Tiptree Hall.*—Our harvest was completed before the 1st of September. As to finding food for my stock during the approaching winter I see no difficulty; I have, therefore, my full and usual number of live stock. My Mangels are good and my hay abundant—thanks to irrigation. Of Swedes I only grow a small acreage, and they will probably be two-thirds of a crop. These fine rains have now reached the subsoil, and the temperature being so high greatly favours the more complete growth of our root and green crops. On cold clay soils in our southern counties we should always make a Mangel crop our main dependence, for reasons which I will some day give in a separate paper. The Mangels can endure a higher and drier temperature than Turnips. My usual mode of winter feeding stock with pulped roots and pulped green crops mixed with chopped straw of every kind, and a considerable proportion of cake and meal with (for growing animals) malt combs and bran, will, I think, be largely adopted this winter. At most I never exceed 1 bushel of roots per day for each bullock. This season half a bushel will be about the quantity. Let those who are deprived of roots consult Mr. Horsfall's able papers (Royal Agricultural Society's Journal, vols. 17 and 18), and they will see how easily roots may be dispensed with by the use of a little Linseed-oil or Linseed. I find half a lb. to 1 lb. of Linseed meal always very useful when fattening bullocks. Let us always bear in mind that selling corn off the farm impoverishes it, whereas by selling it to our cattle, the bulk of it remains with us as manure. Again, if we are to fertilise our farms, let us feed with something that was not grown on our own farm. When will farmers learn the value of Bean-straw, chaffed and moistened by hot water, as a feeding stuff? This winter ought to teach every one the value of straw for feeding purposes. My old friends of the London Farmers' Club will no longer laugh at me for suggesting the use of straw in feeding, for straw chaff is now becoming the order of the day. For our ewes malt combs, bran, a little cake and Pea straw, will carry them well through the winter, especially with a pint or half a pint of Indian Corn. When corn is cheap and meat is dear we ought to make plenty of the latter. By-the-bye have any of your correspondents found that cotton-cake is apt to make the wool come off the sheep in the spring? I have heard of such cases, and fancy that mine were slightly affected. With regard to the crops hereabout, we consider Wheat an average in quantity and good in quality; better than average on the cold clays, and rather under on the warmer or mixed soils. Barley almost everywhere over average. Beans and Peas a very poor crop. (Mine are good.) Oats considerably under average. Clovers and Grass hay a very small crop. Mangel half a crop, generally much improved by the rains. Turnips quite a failure, past redemption; Rape only just coming up. Every one hoping and preparing to have a crop of some sort for spring food. I have a good crop of Mangel, plenty of Clover hay, and some good growing Cabbages, thanks to irrigation. Owing to the low price of Barley and Revett Wheat, much of it will be used for cattle and stock feeding, especially as roots are so short a crop. *J. J. Mechi.*

Cambridgeshire: *Chatteris.*—In this immediate neighbourhood we have reason to be satisfied with the harvest. Wheat, where threshed, has yielded well, and is heavy in weight and of good quality. Perhaps this district will equal last year. The spring crops can only be guessed at, as very little has been threshed; we must therefore defer our opinion upon these, and give it in a future report. We shall be short of winter keeping. Coleseeds are generally inferior, and where moderately good are realising almost fabulous prices. An effort will be made to keep sheep on Grass, which is now growing as long as possible, giving them cake or corn. As this is not a breeding country, flock-masters will not suffer so much, as they will buy according to their prospect for food. The present comparatively low price of lambs is a strong inducement to purchase as many as can possibly be kept during the winter. We purpose using cake on Grass from the middle of October till some time towards the end of November, and then put our lambs on Coleseed till the end of the year, and then into yards to eat Mangels. We have some fair crops of Mangels, and hope to be able to keep from 400 to 500 lambs in this way up to April, when they go on the pastures. Mangels on cool lands are a pretty good crop, but on other soils are poor. No Turnips are grown. *A. S. R.*

Cornwall: *South Petherwyn, Launceston.*—The harvest in this neighbourhood being completed for some time, many a farmer has put his threshing-machine to work under an idea that as a whole the prices are just after harvest as high as at any time for many months after. Our markets are therefore liberally supplied, which offers an opportunity of judging the real state of the different descriptions of grain. The Wheat is heavy and exceedingly good in quality, and a full average crop. The Barley varies greatly, some lands giving far above an average of excellent malting quality, others again not one-fourth, and that of such poor light sample as to be fit for nothing else but for feeding purposes. The Oats on thin dry soils are light, and almost worthless, but on land better suited to the growth of this grain some fields are very good indeed. The hay crop is light in the extreme, but very well made. Potatos good in quality, but small. Mangels and Swedes have suffered so much from the drought, that notwithstanding the great improvement that has taken place since the rain came, they cannot be more than two-thirds of an average crop. The white and others of the late sowings of Turnips are most promising. The Grass has been so very scarce, and the pastures so dry and brown, that on all farms fully stocked all sorts of shifts have been resorted to to keep the cattle alive. This is, as regards the produce of the land, the result of the dry, but still, as Mr. Du Boulay says, the beautiful summer of 1864. The last was the 36th harvest in succession we have gathered on this farm, and by way of showing how seasons affect the production of the land, time of harvest, and so forth, we give the following brief statement. In 1857 the spring was exceedingly wet and unfavourable for the Barley tillage, consequently it was very late. We sowed a field of thin dry land on the 7th of May; the summer proved favourable, the crop was very good indeed, both in quantity and quality, and put to stack in excellent condition the 31st of August. This year the same field was in Barley again, was sown the 15th of April, and a beautiful tillage made; and entirely from the want of rain the crop is not one-third of the year 1857; the quality very low, and harvested Aug. 18. The unusually dry summer of 1864 has not only given us a very short quantity of cattle food, but the supply of water also has been very short indeed. Pumps and wells that were never recollected to be dry before have been so, putting the people in too many cases in a most unhealthy and deplorable state. It has also placed the stock master in no enviable position, witnessing, as he has, his starving flocks and herds, and having no means of satisfying the cravings of the hungry animals that beset him in his usual vocation. Nor indeed is his anxiety over. On looking at his winter's provender he feels how inadequate it is to fill the stomachs and satisfy the animals that he most truly wishes to keep in a thriving condition. He is therefore put to his wits' end. Rape, Trifolium incarnatum, Italian Rye-grass, winter Oats, Vetches, &c., are sown as spring feed, and the best means to economise roots, hay, and straw, is occupying the mind of one and all. As might naturally be expected, various opinions are formed as to how this desirable work can best be accomplished. It is said, "Necessity is the mother of invention." Some good, no doubt, will result from the great scarcity. One thing we think is quite certain, that bullocks will not, as heretofore in too many cases, be over crammed with roots, but will have less roots, and more chaff, corn, or cake. Then again the farm horses will have some substitute for the amazing quantity of hay given them. We remember many, very many years ago (and we always think of it with delight) visiting Earl Ducie's Whitefield Example Farm, and seeing, amongst other rare and interesting sights, the fattest and best lot of farm horses we ever saw, as a whole, on any farm, and these splendid creatures never were allowed hay. We say to our brother farmers, as far as practicable, go and do likewise. *Jno. Wills.*

Dorsetshire: *Bridport.*—I may say that I consider the past harvest to have proved the opinion we formed of its "prospects" to have been correct. Wheat probably may be a better crop than was anticipated. Barley is a very heavy crop; I now look at a field which has yielded 17 sacks to the acre. Oats are good. Beans and Peas are a very indifferent crop. Potatos continue sound and good. Since the rain came roots have made surprising growth, and during my September rambles over many farms in this part of the country, I have noticed some very fair pieces of Swedes and common Turnips, though the general remark of sportsmen, "there is no cover for birds," proves the great deficiency in the Turnip crop. It was quite astonishing to see, after the first rain, the quantity of young plants springing up from seed, which had been lying in the ground for a period of two months or more. Mangels without doubt are small. The pastures have once more assumed a lively appearance, but too late

to enable us to get rid of the feeling that the farmers will require all his wits to "cut and contrive" to carry him through the coming winter. "What is to be done?" is the all-important and oft-mooted question. Hay certainly is well harvested, but still it cannot make up for the deficiency of roots, and moreover the very fact that it is so good will tend much to cause it to go the faster, if extra care be not exercised, but straw fortunately is unusually well saved, and consequently for feeding purposes will be of the greatest value. The Flax crop too was a satisfactory one, and yielded an abundance of seed, so the general opinion appears to be that to meet their difficulty, farmers must depend upon a judicious use of straw, oilcake, and Oats. The idea of grazing must be almost abandoned; we cannot expect to see many stalls of well-fed cattle. The ewes and lambs must have the best run of the pastures and Turnips, and be followed by the "dry" sheep, and they will be assisted with a little hay, oil-cake, or corn. The usual waste in the straw-yards must be entirely prevented, and an unusual quantity of straw will be cut into chaff. *W. I. P., West Dorset.*

FORFARSHIRE: *Ferryden Farm, by Montrose.*—With regard to the harvest in this neighbourhood, I am sorry I cannot report so favourably as I should have done three weeks ago; then there was the appearance of an average crop of Wheat and Barley, but the high winds we experienced in the beginning of the month, but more especially on the 9th, shed two-thirds of the Wheat and Barley crop that was uncut, of which on most farms there was a considerable breadth. Oats being a very light crop, suffered little. Potatos are improving in size, but will be a deficient crop. Turnips have grown considerably since we had rains, but small to what they should have been at this season. *Alex. Bell.*

GLOUCESTERSHIRE: *Salperton Park, Andoversford.*—I think our Wheat was quite an average on the Cotswold Hills, and the Barley also, being very fine in quality. Some very good Oat crops and some very bad; altogether I should not place them as an average. Peas good in quality, but do not yield well. Vetches promised well with a fine blossom, but are sadly blighted and not a tenth of a crop. The Swedes and Turnips have taught us a lesson this year if we would but learn it; the early sown are good, but in this cold country we get later and later in planting every year. I think we have more Swedes and forward Turnips than any district this side of Normanton. I never had my Swedes much better, or my Mangels, but have no Turnips. The question of stock is most alarming, especially in the great grazing counties; the cut of hay being short they must buy hay or straw, both of which will be very dear; but with hay and straw-chaff wetted, and some corn-flour, they will do very well with cattle. We are rather fearful of keeping sheep on straw-chaff with corn, as sheep greatly dislike wet food; when cake or corn becomes wet in their troughs they will not touch it, but we must try what can be done. Cake is so dear we shall not be able to buy it, but the great secret will be to mix many sorts of corn together; I shall use Wheat, Barley, Oats, and a little Linseed meal. I think now cake is so fearfully adulterated that Linseed will be more used, and surely it must be more nutritious with the oil, as strong beer is better than small beer. If I can get my sheep to eat straw-chaff with a mixture of corn-flour, and sprinkled with a little Linseed tea, I shall do very well. I shall also use Thorley's condiment. *T. Beale Browne.*

HEREFORDSHIRE.—I have great pleasure in complying with your wishes respecting our agricultural position and prospects, together with the course I have adopted to meet the deficiencies of this most trying year, which is one of an unparalleled nature; for although the year 1844 was extremely dry, and the prolonged drought of 1826 was greater than that of the present season, yet we had not the severe frosts by night, and chillingly cold north-east winds we have this year experienced, neither were there so many mouths to feed upon our broad acres as now. The growth of Turnips from artificial manures has so rapidly increased since those periods, that anything which interferes with that most valuable portion of our agricultural productions is a most serious matter, and in this peculiar year presents a difficulty with which the wisest of us know not how to grapple. An extremely light crop of hay, failing crops of seeds, and a light crop of straw (although each were well secured), tends greatly to increase that difficulty, and our prospect of seeds for another year is at present not a whit better, if so good as it was last autumn. I never knew as many acres of them ploughed up and put to green crop for spring feed, whilst scarcely a field not ploughed up has been allowed to remain without other seeds being harrowed in. This I thought wrong, and my ideas upon the matter have proved to be right, for since a merciful Providence has blessed us with a fine fall of rain, those not disturbed have greatly improved, and individually I do not despair of having a good stock; but in order to make sure of a substitute, should my expectations not prove correct, I well scarified a clean stubble, and sowed Trifolium incarnatum and Italian Rye-grass. I have also sown in a similar manner a large breadth of Mustard, another large breadth of Rape and stubble Turnips, the former for autumn and the latter for spring keep for breeding sheep, an increased breadth of Rye, drilled at length and across to insure an early cut; a larger quantity than usual of mixed winter Vetches and Rye, together with a few acres of Cabbages, constitute my provision for the spring, and I am happy to say the whole are bidding well to supply a portion of the deficiency caused by the very general failures of Swedes, Turnips, and Mangel Wurzel; for although each of those crops have greatly improved in appearance since the genial rains, and are growing rapidly under the influence of the brilliant weather with which we are now blessed, yet, taking the county through, they cannot be more than one-third of a crop. Upon thousands of acres the seeds remained in the ground seven or eight weeks without vegetating, and those that came up early, and at one time bid fair for a crop, were so generally attacked by grub (the ravages of which the extreme dryness of the season appeared greatly to favour) that they are scarcely worth remaining, and much of the early Turnips not previously destroyed are now going rapidly off with mildew; all this has had a depreciating effect upon the price of store animals, whilst fat stock has risen, and I consider must still further rise in value. I have for months past kept my feeding sheep and lambs running upon the pastures, but principally dependent upon cut hay and straw chaff, mixed with ground oil-cake and meal, equal portions of Wheat and Oats, with which they do well. The cattle which were intended to be fed on Grass have been months in the fold-yard and feeding boxes upon similar food, the chaff being scalded the day before used with boiling Linseed—thus the straw is rendered palatable and of easy digestion by fermentation, and my limited stores of winter fodder are not so much trenched upon as they otherwise would be, whilst the pastures are freed for the other portion of my stock, the whole of which come to the fold-yards by night to eat Barley straw, and thus eke out the limited amount of herbage to as lengthened a period as possible, as there will be no roots for them during the coming winter. The crops of corn were all secured in splendid condition, but as far as I am able to judge, and from all I hear, there will be a great deficiency, I have no doubt equal to from 25 to 30 per cent. below an average, taking the bulk of all kinds together. The effect of the aphis or Wheat louse, with which all our cereals were blackened for many days, together with the premature ripeness, the effect of extreme heat by day and frosty nights, have caused the corn to be small and irregular. The Apple and Pear crops are a great abundance, and I anticipate there will be some very first-class cider and perry made in the county this year. A short time since I saw you mentioned my success with pulping roots and cut straw, remaining mixed until it became sour. This is an error: I never allow it to be sour, but if too much fermentation takes place I have it turned to cool it. *T. Duckham, Baysham Court.*

HUNTINGDON: *St. Ives.*—After due observation and inquiry, my report of the appearance of the crops in this district before harvest has been generally borne out by the machine test. Wheat was then valued at barely an average, and on the high lands this would still be the estimate. The fen land will be a full average (if not more), but on weak and dry soils the yield must be under an average, both in quality and quantity. White varieties of Wheat yield best this season, and this being more generally grown in the fens, may to some extent account for the more favourable return there, although the constant claying, the deeper cultivation, and the liberal manuring this sort of soil has received of late years, is perhaps mainly the reason of its retaining sufficient moisture in a year like this to mature the kernel. Barley will be an average crop (at least), but of very uneven quality, and very little will make first qualities of malt; faith, however, in Mr. Gladstone, and his measure, may help us to get rid of some of the remainder, if it does not increase its value. Oats vary both in yield and quality more than any other crop, and will not yield above three-quarters of an average, although some plots were very fine, and yielding. Beans prove badly, and can hardly be quoted at more than half a crop. Peas will prove about an average, with a superior quality. Potatos—the earlier are generally a short crop, with small tubers; but late varieties, where they have been liberally treated, will make a fair average return—the size and quality will be very much determined by the extent of such liberality. Hay crops were fairly good on the low land, and nearly an average on the high land, but owing to the feeding pasture "burning up," the extent of crop was unusually small, and this, with a failure of seeds, hardly any stubble feed, wretched specimens of Turnip, and only a moderate crop of Mangel and Kohl Rabi, makes the keeping of stock (sheep especially), through next winter look sufficiently problematical to tax all our energies. On the whole this has been a year when high farming has "told its tale" as regards yield, although generally corn growers will not have much cause to complain on that score; but stock and flock-masters, and graziers, must have had a terrible season. Cake and corn has been the rule on the pastures and seeds, the water-cart constantly going. Stock, half-mad with thirst and flies, pounding away, "tails up," breaking hedges, &c., and requiring the owner's unwearied attention to keep both himself and them from "coming to grief." Wheat at 1s. per stone is certainly not a lively price, nor very suggestive of full pockets; nevertheless, we may congratulate ourselves upon having a good autumn seed-bed for the next crop, and until prices mend, we must endeavour to convert our present one into meat, which at current rates should be more remunerative. To do this the most economically, so as to keep our usual quantity of stock, and to preserve that stock in a healthy and feeding condition with our corn, and the small supply of roots at our disposal only, and without purchasing cake and other feeding stuffs, relatively much dearer than our own produce, is the little problem to be solved during the coming winter. *Fendrayton.*

NORTHUMBERLAND: *Anick Grange, Hexham.*—The harvest is scarcely completed here, but nearly so. The crops have all cut up much better than I anticipated when I sent you a report previous to harvest. Barley is decidedly over an average, and Wheat fully an average, if not over it. Oats are certainly under an average, and on poor thin soils a very deficient crop, but still better than I reported formerly. On the later farms there has been a very great loss by wind, especially on Friday the 9th inst. Turnips, both Swedes and White, will be a very deficient crop, and Yellow not half a crop. Acres have been eaten off by the larvæ of a midge; even large vigorous plants are attacked and destroyed. Keep must be scarce during winter in this district, but in the west I believe the Turnip crop is good. Even here, where they have escaped the vermin, they have greatly improved since the rains. I know of no expedients likely to be tried to eke out the supply, except stinting the quantity of roots and increasing the supply of cake, meal, &c. I don't think cooking is likely to be much practised, nor when I have tried it have I seen much profit result. My cattle are all eating 4 lbs. of Rape-cake per day, and are greedy of it. I enclose specimens from common White Turnip and Swede of the aphis, midge, or whatever they are, which are eating our Turnips by acres. *Thos. P. Dods.*

SURREY: *Hoe Bridge, Woking.*—I think the crop of Wheat in this district is about (as expected) an average, both in quantity and quality (but the price ruinously low); the Barley over an average in quantity, but not so good as expected in quality. Oats, Peas, and Beans, an exceedingly short crop. The late beautiful rains have improved the pasture feed wonderfully, and also brought up (very quickly) an abundant plant of Wheat. Barley (self-sown), Rye, Rape, Mustard, Trifolium, and Stubble Turnips, and almost every available acre has been sown with one or other of the above; these, with a fine open season till the close of the year, will be a good help for the flocks, but yet a very poor substitute for the Turnip and Swede crop, which is as near as possible a failure in this locality. Mangels are much improved, but still a very light crop. I think our ingenuity will be taxed to the utmost to provide for our cattle and sheep till next spring; and should the winter be severe and the spring late, whatever may be the price of beef and mutton it will cost more than they will make to produce them. *Edw. Hilder.*

WARWICKSHIRE: *The Chase, Kenilworth.*—I see no reason to alter the opinion I gave you two months ago. Wheat will, I still think, prove under average, Barley average, Oats nearly average, Peas average, and Beans about half a crop. The prospect of the coming winter for live stock is very serious; our crops of hay and Clover are not half an average, and I speak within bounds when I say Turnips are not one-fourth of an average. We have had fine rains, and our pastures are looking greener, but there is no amount of keep in them; most of my cattle are and have been for some time receiving fodder in some shape, nor do I see any probability of their doing without it. Fearing to cut the hay ricks, and in the total absence of any green food, my horses have been living almost entirely on unthreshed Barley, making but little waste. Seeds sown in the spring are almost a total failure with us. Under these circumstances I intend sowing my Barley and Oat stubbles with Wheat, using a liberal quantity of Wheat manure, and letting my seeds and second seeds remain for my sheep to run upon through the winter, hoping with a regular supply of corn and chaff to keep my young sheep in health; making them fat will be out of the question with me. This season is an exception to all other dry seasons within the last 46 years, inasmuch as with pastures utterly dried up we have a full average quantity of capital Barley and Oat straw, when in the dry seasons of 1826 and '44 the quantity of straw was very short, as well as of Grass and hay. We must take courage, hope for a mild winter, and adapt the various means on our respective farms in the best manner we can to the maintenance of our live stock. *J. H. Burbery.*

WILTSHIRE: *Chippenham.*—First, as to the harvest. It was all got up quick and in good condition; but of the yield it is impossible to form an opinion at present. The Wheat will I think be deficient; Oats promise well, and Barley I fancy is better than any one had a right to expect. Beans are very bad indeed. Mangel Wurzel and Turnips a decided failure, and this being a great cheese-making district, and hay crops very short, little of the latter can be spared for sheep or oxen. I cannot conceive what is to make up for the deficiency in the green crops; and as to the sheep, especially the large flocks on our down lands, a great deal of ingenuity will be required to keep them properly. That

which ought to be a good aftermath is not yet much more than green, little growth being visible, especially on the lands that were mown. If I now had a large farm and numerous stock, I should try cutting up one-third straw and two-thirds hay, and well mix, steaming it all well; dress my corn very high, and kibble it, and put it in amongst the above. Keep it closed and feed with it warm, the reason being that it goes further, owing to its being sweet and luscious, and makes the animals drink more. Beasts that are prepared for the butcher must be got up at a great loss; and now they are in a backward state to begin upon. When we know that hitherto beasts have been given as much as 60 lbs. of roots per day, what is to make up for the 420 lb. weight per week, which we have not got? *Avon.*

Worcestershire: *Pitchill, Evesham.*—Wheat is rather under an average. Barley is over average, quality good, but rather flinty; I should say the best crop ever grown. Beans is a very bad crop. Peas: on good Pea land rather under average, on strong soils a very bad crop. Oats were scarcely grown in our district. Potatos were a very short crop—not half the quantity of last year, but no appearance of disease. Young seeds are very bad, scarcely a good field of seeds can be found. A great deal of Trifolium and Rye-grass has been sown this autumn. Hay a very short crop; it is now worth about 6*l.* per ton. Mangels: a moderate crop, have grown very much lately. Swedes and Turnips a complete failure; not a good field within our district. As regards the keeping of our cow stock, having plenty of straw we can make up with corn and cake. I scarcely know how we shall manage with our sheep; we must put aside our cutters and use the pulper with our Mangels, and eke out our roots with cake and corn as best we can; nothing but the best management and strict economy will meet the deficiency. We must have meat very dear.—*R. Bomford.*

Home Correspondence.

Produce of a Cow.—I send you the year's produce of an old cow which dropped her 6th or 7th calf in last December, and is just now dry before calving again.

	No. of Weeks.	Butter lbs.	Butter value. £	s.	d.	Milk sold. £	s.	d.
1863.								
December	2	1½	1	6	2	0	3	4
1864.								
January	4	21½	2	2	0	0	9	4
February	4	23½	1	11	0	0	9	6
March	5	28	1	16	10	0	13	1
April	4	26¼	1	12	2	0	9	0
May	4	3¾	2	1	9	0	6	8
June	4	24½	1	6	6	0	6	2
July	5	24¼	1	10	3	0	7	5
August	4	23	1	10	8	....		
September	4	17¾	1	5	3	0	2	1
	40	251	16	2	6	3	6	7

The milk sold was skim-milk. Of the butter made some 2¼ or 3 lb. are weekly consumed in the house, and the price charged is what the remainder was sold at. But besides this a good deal of whole milk and cream was also consumed—so much so, that when we have been forced to buy it we have been charged upwards of 6*d.* daily. I except five weeks when we were from home in August and September, and give the cow credit for 3*s.* 6*d.* a week during 35 weeks for so much of its milk as was consumed at home. Its produce for the year thus stands:—

Butter consumed and sold, 251 lb.	£16 2 6
Skim-milk sold	3 6 7
Milk and cream consumed, 35 weeks at 3*s.* 6*d.* ..	6 2 6
Total produce	£25 11 7
Add the calf sold for	1 1 0
	£26 12 7

Streatley.

Liquid Manure.—Many farmers, from experience, have now become fully convinced of the fertilising qualities of liquid manure, and the advantages derived from its application where properly applied to the land. On the other hand, it is lamentable to see the disregard shown by others, allowing it to flow away from their farmsteads, and manifesting no more concern for its preservation than if it was only the rain from the clouds. I have conversed with many farmers on this subject, and pointed out to them the importance of preserving it, giving them instances of the great quantity of extra produce from its application, and I have found very few who would not readily admit its fertilising properties, but still they would not take one step towards making arrangements for its preservation, when it might be done with a small expense and a little extra trouble. How difficult it is to induce some people to leave the old beaten track in which they have moved for years. Those farmers who will not keep pace with the progress of agricultural improvements, but still disregard those helps and assistances which lay within their reach, will certainly have to succumb and give place to their more enterprising and more spirited neighbours, who will be enabled by adopting these new modes of management to pay higher rents and still live on those farms from which their predecessors had to retire. The preservation and application of liquid manure is so easy that every farmer might readily adopt the practice. The expense is only small, and the additional trouble is not great. There are two ways by which it may be beneficially applied to the land, the one in the liquid state and the other in combination with compost. If applied in the liquid state the spring is the best time, when vegetation shows signs of activity; and during summer, when it is desired to stimulate crops to a rapid growth. In this condition it readily passes to the roots, and is at once taken up by the plants to which it is applied. To use liquid manure in combination with refuse vegetable matter, soil, road-scrapings, ditch-cleanings, &c., is a method which has met with great favour by many, but to apply it with compost it should be put on the land when vegetation is in a state of inactivity. To collect this liquid manure every one is quite aware that a tank in a convenient place is required, into which the liquid should be conveyed, and it would be well in making it to avoid a common error of making it too small, for when once made it is difficult to alter it. After it has been received into the tank, care should be observed to preserve all the fertilising ingredients which liquid manure contains, and the most important is the ammonia. There are different opinions as to the best and cheapest means of fixing the ammonia, but the majority are in favour of gypsum, being the cheapest and easiest of application. Sulphuric or muriatic acids will fix it more effectually, but these acids should be used with care, which is inconvenient to farmers in general practice. To use gypsum nothing more is required than to bruise it small and put it into the tank, occasionally stirring it up and renewing it every nine or 12 months, first removing what is in the tank before putting in fresh. It is wonderful what may be accomplished by the proper application of liquid manure; it contains all the fertilising qualities contained in guano, in the quest of which ships are sent to all parts of the world, and for which farmers will readily pay a high price when it is brought to our shores. *H. Harrison, York, Sept.* 25.

Societies.

Bath and West of England.—At the usual monthly meeting of Council the Stock Prize Sheet Committee brought up the list of prizes proposed to be offered at the Hereford Meeting. The committee appeared to be divided as to the best time for commencing the breeding year for cattle; one party thinking with Mr. Duckham, editor of the Hereford Herd Book, that the date of calving should be computed from the 1st of January in each year, whilst the others inclined to the view of Mr. J. T. Davy, editor of the Devon Herd Book, that such an arrangement would have the effect of cutting the breeding year in two, and so prove, in the highest degree, inconvenient to breeders in Devon and Somerset. After a long and interesting discussion, the committee withdrew to re-consider the point, and on returning to the room announced that after mature deliberation they had thought it best to adhere to the same date as hitherto—viz., the 1st of June. After some further discussion the prize lists were ordered to be printed and circulated among the Members of Council, prior to the next meeting of Council, when certain points, not yet ripe for decision, will, doubtless, create very lively interest. At the meeting to-day, Mr. Duckham forcibly urged the importance of changing the date of shearing sheep so as to assimilate the rule to that of the Royal Society of England, and an important memorial in favour of this, received from upwards of 30 of the leading breeders of Cotswold and Shropshire sheep, was read, followed by several letters to the same effect, from Mr. Holland, M.P., Mr. Preece, and other distinguished agriculturists in various parts of England.

As the Committee had purposely left a blank for the date of shearing, Mr. Knollys gave notice that at the next meeting of Council he would specially call attention to the foregoing letters and memorial, and would move that the 1st of April be substituted for the 1st of May. This view was supported by Mr. John Gray and others, and in the mean time the memorial was directed by the President to be courteously acknowledged on behalf of the Society.

Reviews.

National Health and Wealth, instead of Disease, Nuisance, Expense, and Waste. By the Rev. H. Moule, M.A., Vicar of Fordington, Dorset. Third Edition, pp. 17. Bradbury & Evans.

This pamphlet describes the dry method of dealing with house sewage, which was the subject of an excellent paper by Mr. Moule in the "Journal of the English Agricultural Society." We last week shortly reported a testimony by Mr. Gee, of Bradford, to its value. Nothing can be more satisfactorily illustrated and indeed proved than the immense agricultural value of what is now wasted, and the facility with which, on Mr. Moule's plan, it might all be saved. Farmers ought to read and study this pamphlet carefully. The following passage is especially deserving their attention:—

"The introduction of earth for this purpose into houses, whether in town or country, even with the large allowance of 1 ton to every five individuals, for 12 months, would be as cheap and easy as the present large supply of water.

"The arrangement for the removal of the stable manure of the Cavalry Barracks at Dorchester (and I suppose that similar arrangements exist in other barracks) will serve to illustrate the readiness with which companies might be expected to supply earth for closets in towns, and the comparative facility of its removal. The farmer commonly supplies the straw required in the barracks free of all charge, and on the sole condition of receiving in return the manure made by it. For every load of straw, he in general receives back three loads of manure. Now that load of straw would sell for at least 30*s.* Add to this value, then, the wages of a man and boy, the use of horses, and the wear and tear of waggons, and each load of manure must cost at the least 12*s.* And I once convinced a farmer, who was rejoicing in having obtained the privilege of thus supplying straw to one wing of these barracks, that in the carriage of the straw to the stables, and of the manure from thence to his fields, and in manuring with it 100 acres at the rate of 10 loads to an acre, he would expend more than 500*l.*, and that three horses would have to travel, in performing this task, 2000 miles. Now, one load of the manure made in the way proposed in this pamphlet, would be equal to 15 or 20 of stable manure, and the earth or subsoil might in general be supplied for it at no other cost than that of labour and carriage."

Here again is a testimony to the value of the soil thus treated and prepared:—

"It has been doubted by some, but without any assigned reason for their doubts, whether the earth, absorbing and deodorising the soil at once, and before fermentation sets in, receives and retains the value of the manure. I think the following experiment will prove a satisfactory settlement of any such doubts. A farmer in my parish put in some Swede Turnips late in the spring, with some of the earth mentioned above as having been used five times in removing the soil of a family for seven months, averaging, during that time, 15 persons. It had lain in the shed full seven months after being used. The quantity applied to the ground was 1 cwt. to a quarter of an acre. Equal quantities of superphosphate were applied to 15 equal spaces of ground. The crop, though injured by the vast growth of weeds during a rainy summer, was one of the best in the neighbourhood. And though all that I had looked for was, that the piece manured with the mixed earth should be as good as those which had received the superphosphate, yet through the whole of their growth there could be no doubt as to the superior healthiness and strength of the plants grown in the former; and on pulling them, their roots weighed full one-third heavier than the others. The following year another farmer substituted earth which had passed seven times through an earth-closet for crushed bones, at the rate of 1 cwt. an acre. The ground was poor, the crop white Turnips, and several good judges expressed the opinion that a finer crop could scarcely have been grown. Mr. Dickinson, of New Park Farm, Hampshire, has asserted that such a mixture is equal to crushed bones in power, more immediate in its action, and that the benefit lasts three years in the ground."

The Quarterly Journal of Science. No. IV. J. Churchill & Son.

In the present Number the directly agricultural section of it calls attention to those agricultural uses of water which an unusually dry summer has brought into prominence. It refers to the advantage of drainage and deep tillage in a time of drought—to the subject of summer irrigation, and the experience of sewage meadows—to Mr. Bailey Denton's memorial on the treatment of the rainfall in the interests of the country generally rather than in those of each individual field or property by itself—and to the question of evaporation and dew deposit illustrated by the Berkshire dew ponds. It describes the most recent plans of steam cultivation as illustrated at the Newcastle meeting—alludes to Mr. Harrison's dairy lectures, to Sir H. Mainwaring's speeches, and to the question of agricultural education.

The volume generally is a most interesting picture of scientific progress and achievement. While it is real and thorough in the information which it conveys, our readers must not suppose it to be so profound and abstruse as to require special education or peculiar tastes for the appreciation of its merits. These will generally commend themselves to the popular reader as well as to the strictly scientific man. Mr. Stewart Balfour's paper on Radiant Light and Heat is a most delightful example of this—commending itself to the general reader by clever explanations and illustrations of its most interesting subject, as much as it does to the man of science by its exhaustion of all the facts.

Farm Memoranda.

Baysham Court in Ross.—The following report of Mr. Duckham's farm is abridged from the columns of the *Dorset County Chronicle*:—The farm lies well together, and contains a good deal of orchard ground, several pieces of which have lately been added to the occupation. In this great cider district, the trees are young and really pretty, and loaded with gorgeous crops of rosy-cheeked Apples. We found some forage still left in the meadow bottoms; but Swedes and Turnips have large blanks, or are entire failures; and autumn crops, and attempts at rearing Mustard, Rape, Rye, or other kinds of keep as substitutes, are everywhere made, in the hope of aid from a mild, moist fall.

Mr. Duckham's is a farm of medium size, carrying, in proportion to its extent, a larger head of live stock than any other in the vicinity, or perhaps in Herefordshire; for, as our readers already know, Mr. Duckham is an enterprising farmer. He knows the capabilities of the Hereford soil, and although he may, like others, be baffled and beaten by the difficulties of the season, we everywhere found him, as we passed along, fertile in resources. Here he had raised a grand supply of Cabbage, there he was bringing on patches of winter Greens in addition to the usual crops. But in fact it would puzzle the wits of the most astute to know what to do with the season's misfortunes. On various farms, as we passed along, the smell from the Turnip fields loudly declared that what few Mangels or other roots of any promise had been obtained by the growers at no end of superphosphate were unhappily "going." And, on inquiry, we discovered that the cause of this was the existence of five or six large grubs eating into the roots of every plant. Certainly the farmer will have long cause to remember the season of 1864. One thing more unfortunate than another seems successively to have fallen upon him all throughout the year, and the worst may be yet to come. Mr. Duckham undauntedly says, "Well; if I haven't the keep for my animals, I must put my hand in my pocket to purchase artificials;" and he does so, whilst at the same time using every legitimate endeavour after green crops to ameliorate the pressure. He is trying a good many experiments; one of which, consisting of some savoury cattle cookery, in which the ingredients are a peck of Linseed boiled in 60 gallons of water and mixed boiling hot with cut Wheat-straw, ordinary hay, and meal formed of equal parts of Wheat and Oats—a mess which the cattle relish hugely and devour greedily—smells, for all the world, like the genial aromatic gust of a good wholesome beer-brewing. His store cattle, of which the fold-yard contains not a few, are well supplied with uncut Barley straw, Several heifers and steers already tied up for Christmas will be magnificent specimens of the art of laying on flesh and fat upon the great square frames of the Herefords. The cattle in the yard make a manure which is, we really think, the perfection of farmyard, although or rather because of there being no tank and no drainings. This is avoided by the straw being given out to the beasts *ad libitum;* and whereas many farmers think it necessary to lay down 5 or 6 inches deep of fresh straw through which the liquid manure or droppings can never penetrate to the bottom—and we have consequently an illustration of what Mr. Wren Hoskyns means by "Farmer Drychaff's dung cart"—Mr. Duckham distributes the litter as often and as regularly as the food; and thus his well-made manure is got up in thin layers of perfectly mixed and saturated straw, much more effectually trodden down than it could ever be when piled up to any great depth.

[Then follows an examination and description of Mr. Duckham's well known Hereford herd, with a particular account of several individual animals intended for exportation, and of others—COMMODORE, FRANKY, CASTOR, &c., who have won honours at our annual shows.]

The eddish in the low meadow has wonderfully preserved its luxuriance throughout the drought; but the owner will soon be put to his mettle for the due supply of nourishment to his stock throughout the winter. We believe that Mr. Duckham's proposed experiments, however, will be interesting and valuable, and this winter must inevitably be productive of many such, dear bought as the experience may be. Besides the Herefords Mr. Duckham's lands carry a large head of sheep. The sheep and lambs are an excellent flock—the peculiar sheep stock of the district—Rylands originally crossed with the Leicester many years ago, and subsequently by the Cotswolds, but having always a tendency to come back to the Ryland, both in wool and general character. In fact, it is observed that the Cotswolds when brought into the Hereford district gradually undergo a modification of this kind in the wool.

Miscellaneous.

Co-operative Farming.—I shall be very glad if the enclosed appear in the October "Co-operator," with a request that whoever can give information about co-operative farming, will kindly write to me before November:—

A PLAN BY WHICH A FARMER MAY SHARE THE PROFITS OF HIS FARM WITH THE LABOURERS ON HIS FARM.

Let him say to them—I wish to share the profits of my farm with you, because I think such an arrangement would be profitable to me; at the same time, I think such an arrangement would be profitable to you. I propose to pay wages as heretofore; to take stock and draw up a proper balance-sheet once a year; and when that balance-sheet shows a profit, to share that profit with you in proportion to our wages. The word wages is used here to mean suitable interest for capital, equally with suitable interest for labour. Let every labourer who has been in my employment, either by piece or by time, during the whole or any part of a year, be entitled to his or her share of that year's profit, if any; and let the right to sell his or her chance of a dividend be acknowledged and arranged for in any way that may be found most convenient. For example—suppose the wages of the year to have amounted to 500*l.*, and the balance-sheet shows an increase of wealth of 1100*l.* Of this sum I take 1000*l.* as interest due to the capital I have invested. 100*l.* remains as profit to be divided among us. Of this sum 66*l.* 13*s.* 4*d.* is the share due to me on account of my capital, and 33*l.* 6*s.* 8*d.* in due to the labourers, and is divided among them in proportion to the wages they have received. Thus every labourer who has received wages during the year to the amount of 15*d.*, receives a profit of 1*d.*

Thanks for your note. I am most anxious to get information, but especially sound advice, about co-operative farming. I have visited Mr. Gurdon's farms. They are joint-stock farms. Please order 10*s.* worth of the October "Co operator" to be sent to me. I am a son of Sir Wilfrid Lawson, farming my own land. I think we are interesting the people hereabout in Co-operation; but there is not even a store yet, and I am in doubt as to whether we should aim at having a farm and a store separately, or a farm in combination with a store. Any useful suggestions on the subject before November will be most thankfully received. *William Lawson—in the Co-operator.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. STATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	6	30.22	53	50	E.	0	0	58	33	69	25	..
Friday ..	Sept. 30	30.13	58	56	N.E.	0	8	65	45	70	37	..
Saturday ..	Oct. 1	30.11	56	53	N.E.	2	9	61	41	78	31	..
Sunday ..	2	30.18	57	54	N.E.	2	9	60	43	76	32	..
Monday ..	3	30.31	53	49	E.	3	5	59	39	60	..	..
Tuesday ..	4	30.17	50	47	E.	4	0	55	42	60	33	..
Wednesday ..	5	30.06	52	46	E.	3	1	53	41	62	27	..
Thursday ..	6	30.22	53	50	E.	0	0	58	33	69	25	..

Calendar of Operations.

OCTOBER.

MERSE OF BERWICKSHIRE: *Oct.* 1.—Three weeks ago we reported the destructive gales which scattered so much corn, and the attendant rains which threatened to sprout the bulk of the crop then a-field. A shake is by far the most vexing kind of loss, and our estimate of it was below the mark. The rains, amounting for the month to 3 inches, continued until the 21st, and carting was done by snatches. Yet Barley and Wheat being previously well won, were stacked in good order. Oats had now been in stook three or four weeks, but having been cut green and small of straw, it was generally found that they were quite unfit for the stack. But just when we were at a loss what to do, five breezy days put all right, and a few selected sheaves of sprouted corn will embrace all the damage. Some of our more active farmers, however, have been engaged these few days in turning over their Oat stacks; for the 27th was exceedingly warm and still, and there has been little air since. The young seeds are a fair plant but very weak, and will not stand the lambs long. The root crop, except where late sown on strong land, was always well planted, and improved much during the rainy weather, but the return of dry days and cold nights is again checking growth. The bulbs are of very moderate size, especially Swedes, and have an unpromising set appearance. Draft ewes are difficult to sell for the south, and the demand for lean cattle is perhaps scarcely so brisk as we have been accustomed to for some years. The rearing of calves is coming in again, for it is believed the plunder goes to the breeder. Ewes are rather poor from want of Grass, but will be freshened up with Oat stubbles and Turnips. Some tup breeders have put the tups to already, by way of adding to the size of their lambs; but ordinary flocks will not do anything for a fortnight. When lambs come before Grass in spring, they are difficult to keep; and unless trouble be taken with them, they were better a month later. Potatos are a small crop, free from disease, but much thinned out by grubs in summer. The haulm was pretty well killed down on the morning of 27th of August, but of late they have sprung again, and are forming small tubers, at the expense of the large—if large they can be called. The frost was pretty sharp this morning, and promises to be so to-night; and we hope it will check useless and unseasonable growth, and admit of the crop being stored while the weather is so very suitable for it.

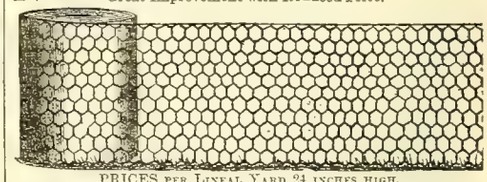
Notices to Correspondents.

BEECH MAST: *G L E* says: If any of your readers have experience with regard to feeding pigs on Beech mast, I should feel obliged to them for some information as to whether I shall succeed in fattening a pig on Beech mast (free from the husk or shields) and if so how many gallons a day I ought to give the pig, besides skim milk and butter-milk. The Beech being in inclosed ground I cannot turn the pig out.

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PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong Jap	Extra Strong Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
⅝ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

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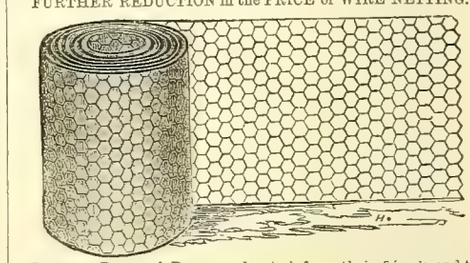
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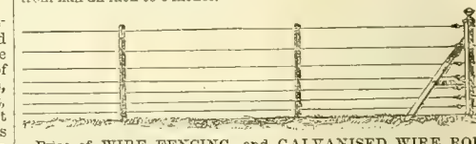


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2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch ,, ,, ,, .. ,,	18 ..	5 ,,	4 ,,
2-inch ,, ,, ,, .. ,,	17 ..	6½ ,,	5 ,,
2-inch ,, ,, ,, .. ,,	16 ..	8 ,,	6½ ,,
1½-inch ,, ,, ,, .. ,,	19 ..	4¾ ,,	4 ,,
1½-inch ,, ,, ,, .. ,,	18 ..	6 ,,	4½ ,,
1½-inch ,, ,, ,, .. ,,	17 ..	7 ,,	5½ ,,
1⅝-inch ,, ,, ,, .. ,,	16 ..	9 ,,	7 ,,

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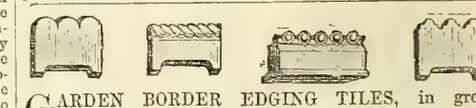
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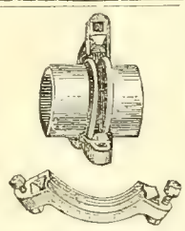
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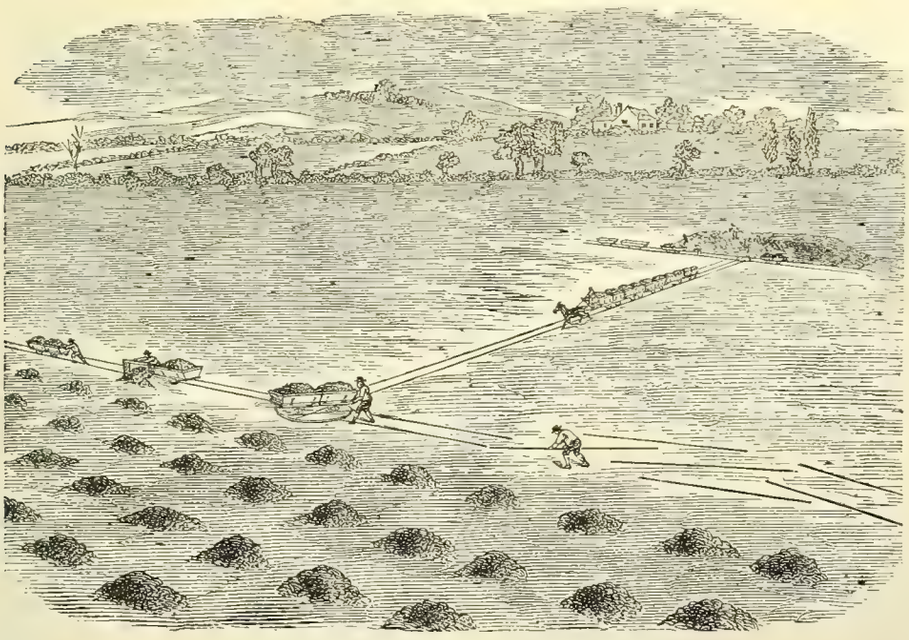
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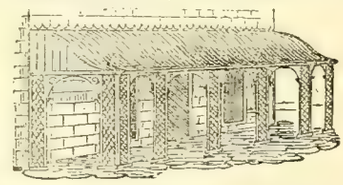
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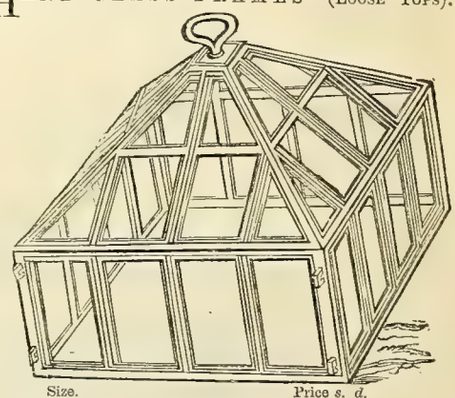
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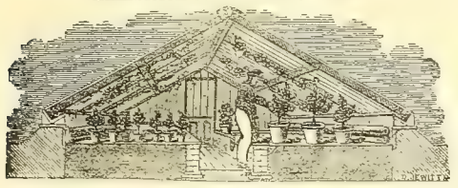
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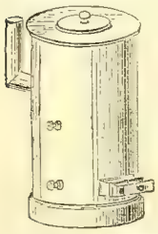
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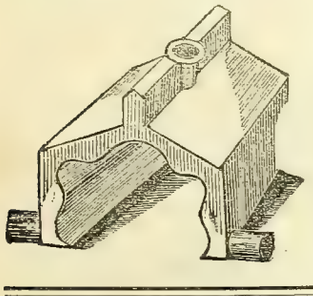
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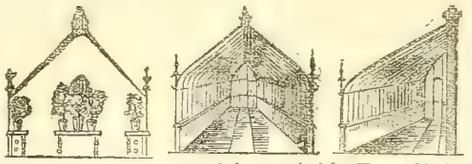




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12 Dessert Spoons	1	14	0	1	10	0	1	12	0	1	15	0
12 Tea Spoons	0	16	0	1	0	0	1	2	0	1	5	0
6 Egg Spoons, gt. bowls..	0	10	0	0	12	0	0	12	0	0	13	6
2 Sauce Ladles	0	6	0	0	8	0	0	8	0	0	9	0
1 Gravy Spoon	0	6	6	0	9	0	0	10	0	0	11	0
2 Salt Spoons, gt. bowls..	0	3	4	0	4	0	0	4	0	0	4	6
1 Mustard Spoon, gt. bwl.	0	1	8	0	2	0	0	2	0	0	2	3
1 Pair of Sugar Tongs ..	0	2	6	0	3	6	0	3	6	0	4	0
1 Pair of Fish Carvers ..	1	4	0	1	10	0	1	10	0	1	10	0
1 Butter Knife	0	2	6	0	4	0	0	5	6	0	6	0
1 Soup Ladle	0	10	0	0	12	0	0	16	0	0	17	0
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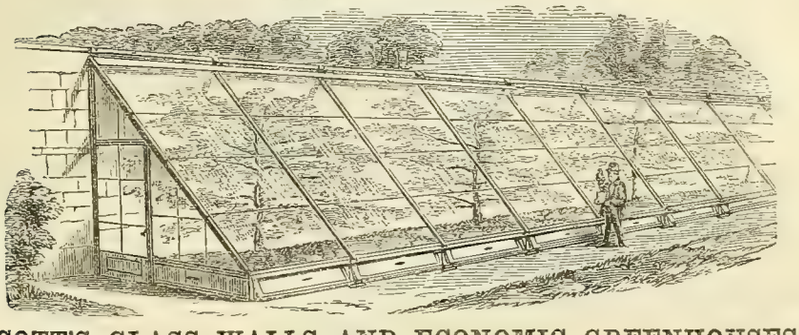
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50 AZALEA INDICA, strong plants, ou stems.
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150 ,, DOUGLASII TAXIFOLIA, 3 to 5 feet
40 ,, LOWII, 1½ to 2 feet
20 ,, ORIENTALIS, 2 to 3 feet
250 BERBERIS CONCINNA, 2 to 3 feet
250 ,, DARWINII, 1½ foot
250 ,, FASCICULARIS HYBRIDA, 1½ to 2 feet
150 CEDRUS DEODARA, 3 to 8 feet
200 CEPHALOTAXUS FORTUNEI, 2 to 4 feet
200 CHAMÆCYPARIS SPHÆROIDES, 2 to 3 feet
50 CUPRESSUS LAWSONIANA, 2 to 3 feet
1000 HOLLIES (Green), 2 to 3 feet
100 ,, (named sorts), 2 to 3 feet
100 ,, (variegated), 1½ to 3 feet
2000 LAURELS (common), 2 to 3 feet
500 PINUS AUSTRIACA, 2 to 5 feet
50 ,, BENTHAMIANA, 5 to 8 feet
100 ,, CEMBRA, 3 to 5 feet
100 ,, EXCELSA, 3 to 5 feet
20 ,, LAMBERTIANA, 3 to 3½ feet
700 PINUS STROBUS (WEYMOUTH PINE), 3 to 7 feet.
20 PICEA CEPHALONICA, 2 feet.
20 ,, NOBILIS, 2 to 3 feet.
20 ,, NORDMANNIANA, 1 to 1½ feet.
50 ,, PINSAPO, 1½ to 2 feet.
100 RED CEDAR, 4 to 5 feet.
250 RHODODENDRONS (named sorts), 2 to 4 feet.
250 ,, Hybrid Seedlings, 1½ to 2 feet.
200 ROSES, STANDARD.
500 ,, DWARF, on their own roots.
50 SALISBURIA ADIANTIFOLIA, 4 to 5 feet.
200 SILVER FIR, 2 to 3 feet.
200 TAXODIUM SEMPERVIRENS, 6 to 8 feet.
50 THUJA WAREANA, 5 to 6 feet.
1000 ,, Seedlings, 2 feet.
150 ,, LOBBI, 3 to 4 feet.
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500 APPLES, 4 to 7 feet, &c., &c.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42.—1864.] SATURDAY, OCTOBER 15. {Price Fivepence. {Stamped Edition, 6d.

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London Agents: Messrs. HURST & SON, 6, Leadenhall Street.
Stoke Nursery, near Coventry.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard Houses.

MESSRS. RIVERS AND SON invite all those interested in ORCHARD HOUSE CULTURE to Inspect their numerous houses, now full of bearing Trees.
Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway.

WALL-TRAINED FRUIT TREES, Bearing Size.—Very handsome well-ripened Trees of Fruiting Size, comprising Peaches, Nectarines, Apricots, Plums and Pears, standard and dwarf-trained; suited for giving a good crop the first year. An inspection invited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

S. PONSFORD AND SON beg to announce that their GENERAL NURSERY CATALOGUE is now ready, and may be had on application to
Loughboro' Park Nurseries, Brixton, Surrey, S.

Bedding Pelargonium Mrs. Pollock.

ALFRED FRYER offers strong out-door struck Plants, well established, in 60-pots, at 3s. 6d. each or 36s. per dozen.
ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

CALCEOLARIA, CINERARIA, PRIMULA, HOLLYHOCK, and PELARGONIUM SEED.
The choicest strain in cultivation, may be had of
J. DONSON & SONS, Seedsmen, Isleworth, W.

Cinerarias.

TO BE SOLD CHEAP, 5000 CINERARIAS, fine Young Plants, suitable for early purposes.
Apply to Mr. G. WELLS, Grove Nursery, Coleman Street, Camberwell.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot' Cray Nursery, S.E

Imported Dutch Bulbs.—Now Ready, Part IV. of

CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

S. PONSFORD AND SON beg to announce that their DUTCH BULB CATALOGUE (with Cultural notes) may be had on application to
Loughboro' Park Nurseries, Brixton, Surrey, S.

DUTCH BULBS.—Best named HYACINTHS, 6s. to 8s. per dozen.
Best DUTCH CROCUS, 1s. 6d. to 4s. per 100.
Send for J. H. COTTRELL'S CATALOGUE.
15, Bull Ring, Birmingham.

Hyacinths and Dutch Bulbs.

Fine and at moderate prices.
PAUL AND SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
"Old" Cheshunt Nurseries, Cheshunt, N.

Hyacinths, Tulips, Crocus, Narcissus, &c.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.

Bulbs Carriage free.

HOOPER AND CO.'S ETRUSCAN HYACINTH VASES.—See
HOOPER & Co.'s AUTUMN CATALOGUE, forwarded free by post.
Covent Garden Market, London, W.C.

Dutch Bulbs, Flower Roots, &c.

CHRISTMAS QUINCEY, SEEDSMAN, &c., Peterborough, begs to say that he has purchased for cash from Haarlem, a good assortment of HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c., and is now selling as low as any house in the Trade, town or provincial.
DESCRIPTIVE CATALOGUES free on application.

FINE MIXED DUTCH CROCUS, 10s. per 1000.
FINE DOUBLE SNOWDROPS, 13s. 6d. per 1000.
DOUBLE YELLOW ROSE, TOURNESOL, and REX RUBRORUM TULIPS, 6s. per 100.
CHOICE NAMED HYACINTHS, 4s. to 6s. per dozen.
CATALOGUES gratis and free per post on application to
EDWARD TAYLOR, Derwent Nurseries, Malton, Yorkshire.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.

WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

Rose Catalogue for 1864.

PAUL AND SON will have much pleasure in forwarding their NEW DESCRIPTIVE LIST. Post free on application.
"Old" Cheshunt Nurseries, N.

Roses.

PAUL AND SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

1864 and 1865 Rose Catalogue.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.
Nurseries, King's Acre, near Hereford.

Rose Catalogue for 1864 and 1865.

EDWARD P. FRANCIS'S DESCRIPTIVE CATALOGUE is now ready, and he will be happy to forward it gratis on application.
Nurseries, Hertford, Herts.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

AURICULA.—Plants of the Winning Show Varieties to Dispose of from the Surplus Stock of
EDWARD POHLMAN, Parkinson Lane, Halifax.

AURICULA.—For £5, 50 strong Plants in 20 Show and Prize-taking Varieties.
Apply to Mr. WM DOWSE, Cloon Rectory, Mohill, Ireland.

ALPINE AURICULA SEED, Crop 1864.—Saved from a very Choice Collection.
In packets, 1s. and 2s. 6d. each, post free.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Ficus elasticus.

J. WEST begs to offer fine Specimen Plants of the above, from 8 to 10 feet high, with straight stems and branching heads, well adapted for large Conservatories, &c.; also a quantity of Smaller Plants in first-rate condition.
Apply Walnut Tree Nursery, Green Lanes, Stoke Newington, N.

Clianthus Dampieri splendens.

C. KIMBERLEY has just received a supply of the above fine Greenhouse Climber, direct from Australia, which he begs to offer in packets of six seeds for 1s. 6d.
Stoke Nursery, near Coventry.

West Riding Nursery and Seed Company.

LILIUM AURATUM.—Several Plants of this fine importation have Bloomed in this Nursery, and fully sustain its high character. Price per bulb or dozen on application to
WM. BARRATT, St. John's, Wakefield.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and shall be forwarded to any address on receipt of one postage stamp.
N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW SUPPLEMENTARY CATALOGUE (No. 8), very rich in Novelties and good Plants, is now ready, and can be obtained on application either to himself or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street London, E.C

PAUL'S NURSERIES, Waltham Cross, N.—WM. PAUL (Son and Successor to the late A. PAUL).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

CARTER'S GARDENER'S VADE-MECUM.

ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

WELLINGTONIA GIGANTEA.—The Undersigned can supply good Seedling Plants in pots, at 40s. per 100. Fine plants in 48 and 32-pots, from 9 to 15 inches, fit for immediate planting, at 4l. and 6l. per 100.
J. HENCHMAN, Edmonton, London, N.

LARGE ENGLISH and IRISH YEWS.—Handsome well-formed Trees, 6, 7, 8, and 9 feet high. Price on application. An inspection invited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. THOMSON, The Nursery, Wimbledon, Surrey, S.W.

50,000,000 WHITE THORN QUICK.
Samples and Prices to be had of
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

1-year Seedling Thorn Quicks.

L. T. DAVIS has a large quantity of the above to offer this season. Price on application.
Ogle's Grove Nursery, Hillsborough, Co. Down, Ireland.

WANTED, SEEDLING THORN, LARCH, and BEECH, and about 2000 GOOSEBERRIES in a fruit-bearing state.—Say lowest price for cash, with particulars, to
JOSEPH TREMBLE & SONS, Penrith.

Laurels.

WANTED, several Thousand well-grown Plants of the above.
Apply, stating age, height, and price per 1000, to Mr. HAYNES, Cottles, Melksham, Wilts.

CUTHILL'S EARLY PRINCE ALBERT WINTER CUCUMBER, 1s. per packet, or by the oz.; MUSHROOM SPAWN, 5s. per bushel Pamphlet on ditto, 1s. 1d.; on the Strawberry, 1s. 1d.; on the Melon and Cucumber Forcing, 1s. 1d.; on Market Gardening, 1s. 6d.; on the Potato, with other Superior Vegetables, 1s. 6d.
JAMES CUTHILL, Camberwell, London, S.

DILLISTONE'S EARLY PEA, the Earliest known.—*Vide* Horticultural Society's Report.
Price 2s. 6d. per quart. Price to Trade on application.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

100,000 Rose-headed COLEWORT PLANTS for SALE at 3s. per 1000 by
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

WANTED, 50,000 to 100,000 CABBAGE PLANTS. Price per 1000, and name, to
H. G. K. BREAVINGTON, Vicarage Farm, Hounslow, W.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.
Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering; Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

SHIRREFF'S BEARDED WHITE WHEAT, of select growth and warranted genuine, is now being delivered. Price 52s. per quarter; Bags 2s. each. Other growths purchased on commission. Terms cash on reference to a person in Edinburgh.
PATRICK SHIRREFF, Haddington.

BROWICK WHEAT.—Carefully screened samples for Seed, grown on stiff clay soil. Price 48s. per quarter (in hired sacks) at the Bedford Stations of the Midland, London and North-Western, or Bedford and Cambridge Railways.
Apply to Mr. THOMAS BOWICK, Manager of Messrs. Howard's Steam Cultivated Farms, Bedford.

SEED WHEAT from the CHALK.—BROWICK RED, SPALDING, CLOVER'S RED, NURSERY, MORTON'S RED STRAW, and all the most approved varieties of Wheat. Also HALLETT'S PEDIGREE, SHIRREFF'S WHEATS, &c, supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices post free on application.
Address, Basingstoke; or 89, Seed Market, Mark Lane, E.C.
R., C., & B. can also supply from a clay soil improved stocks of RED BROWICK WHEAT and THICK-SET ESSEX RED, both carefully selected and hand picked, and recommended for productiveness and stiffness of straw.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7s. 6d. per bushel, or 48s. per quarter, delivered at Braintree Station.
Apply to HENRY EVERSHED, Park Hall, Gosfield, Halfted, Essex.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen
Finest sorts by name	.. £4 4s.	12s.
Very fine ditto	.. 3 10	9
Good ditto	.. 2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and Beautiful-foliaged Plants, Azalea Indica, Conifers, Exotic and Hardy Ferns, Fruit Trees, Grapes, Exotic Orchids, Greenhouse and Stove Plants, Miscellaneous Hardy Trees and Shrubs, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS.

For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post free on application.

Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., and 12s. per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS, TULIPS, and other DUTCH BULBS,
Imported by WM. CUTBUSH & SON.

TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.

The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.

Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.

Highgate Nurseries, London, N.

WEST RIDING NURSERY and SEED COMPANY have received their immense Collections of BULBOUS ROOTS from Holland and France, fine sound Bulbs, and at prices lower than ever offered.

GREENHOUSE COLLECTIONS for FORCING, at 20s., 40s., 60s., 80s., 100s.

COLLECTIONS for BEDS and BORDERS, consisting of Hyacinths, Narcissus, Crocus, Jonquils, Snowdrops, Anemones, Ranunculus, Iris, Double and Single Tulips, &c.

500 roots in the above sorts, 20s.	2000 roots, correctly named, 80s.
1000 ditto correctly named, 40s.	2500 ditto, 100s.
1500 ditto, 60s.	No charge for Package.

CATALOGUES now ready.

WILLIAM BARRATT, St. John's, Wakefield.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

New Hardy Rhododendrons.

WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—

MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; one or perhaps the most attractive and beautiful. 42s. each.
MRS. JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42s. each.
MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31s. 6d. each.
STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy; decidedly the best in its way; it is a very free bloomer. 31s. 6d. each.
LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31s. 6d. each.
CHARLES BAGLEY.—Cherry red, fine habit and truss. 31s. 6d. each.

Knap Hill Nursery, near Woking, Surrey.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Choice Pelargoniums.

GEO. SMITH begs to offer in good plants the following new and choice PELARGONIUMS, at 30s. per dozen, viz:—Achilles, Alexandra, Aristides, Amy, Belle of the Ball, Cynosure, Diadem, Display, Lord Eversley, Maggie, Philo, Princess Helena, Princess of Wales, Paris, Queen Bertha, Spotted Nonpareil, Scarlet Nonpareil, The Charmer, and The Prince.

Also the undermentioned ZONALES, including the newest and best in cultivation, at 15s. per dozen, viz:—Admiral Protet, Amelina Gresseau, Boule de Hesperides, Beauté de Parterre, Conqueror of Europe, Cedo Nulli, Eugénie Mezard, Etoile des Massifs, Francis Desbois, Henrietta Renard, L'Eclair, Picturatum, Ratazzi, Roi d'Italie, Resplendens, Senator, St. Fiacre, Vulcan, Villafranca, and Woodwardiana.

Lord of the Isles and Orange Globe, 2s. 6d. each.

G. S. has also a first-class collection of all the leading kinds of French, Spotted, Fancy, and Variegated, with other varieties too numerous here to mention.—See CATALOGUE.

Tollington Nursery, Hornsey Road, Islington, London, N.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET PRICES to the TRADE (without any discount).

NEW GLADIOLI for 1864, deliverable on the 1st Nov. next.

FULTON (SOUCHET).—Large flowers, finely formed; red vermilion, velvety, extra bright, magnificently coloured. Effective plants, 6 francs each.

MADAME FURTADO (SOUCHET).—Very large and open flowers, disposed in long and beautiful spikes; very fine rose, diminishing to a light carnation, very strongly flamed with deep rose carmine. Extra fine varieties, 7 francs each.

MADAME DE SEVIGNÉ (SOUCHET).—Large flowers of a clear cherry rose, largely blotted and lined with pure white; a fine fresh colour, beautifully shaded. Very pretty varieties, 6 francs each.

MEYERBEER (SOUCHET).—Large well formed flowers, disposed in very long spikes; brilliant Nasturtium red, flamed vermilion, spotted amaranth red; perfection. Vigorous and splendid plants, 7 francs each.

New Roses for 1864.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois, Paris, will shortly publish his CATALOGUE of all the NEW ROSES for 1864; they are 90 in number, and E. V. will be most happy at all times to give his correspondents any information that may be required respecting the most meritorious amongst them.

His CATALOGUES of NEW and other ROSES, GLADIOLI, and PEONIES can be obtained of Messrs. BETHAM & BLACKITH, COX'S Quay, Lower Thames Street, London, E.C.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET PRICES to the TRADE (without any discount).

NEW ROSES for the AUTUMN 1864.

Awarded a Silver Medal of the 1st Class in July last. Raised in the Establishment from Seed chosen from a considerable number.

Price, each variety, 25 fcs. Five plants of one variety, 100 fcs.

HYBRID PEPETUALS.

AUGUSTE RIVIÈRE.—Vigorous plant, flowers full, 9 to 10 cent. in diameter, globe-shaped, very regular, of a fine bright carmine red, reverse of petals paler, bordered whitish on the edges; very distinct, remarkable variety.

COMTESSE DE PARIS.—Vigorous plant, full flowered, 10 to 12 cent. in diameter, fine bright rose, whitish edges; very fine variety.

DOCTOR ANDRY.—Very vigorous plant, flowers full, 12 cent. diameter, perfectly imbricated, deep carmine red, very bright; variety of the first merit.

GÉNÉRAL D'HAUTPOULT.—Vigorous plant, flowers full, of 9 to 10 cent. in diameter, globe-shaped, 5 to 10 blooms in a head, very bright scarlet red, some of the centre petals marked with a white line; superb variety.

MADAME VERSCHAFFELT.—Strong plant, almost without thorns, flowers full, 10 to 12 cent. in diameter, well formed, beautiful delicate rose, petals strongly bordered; very fine variety.

RUSHTON RADCLIFFE.—Strong plant, full flowers, 10 to 12 cent. in diameter, perfectly imbricated, of a beautiful cherry red, clear and bright; very remarkable variety.

SOUVENIR DE WILLIAM WOOD.—Vigorous plant, flowers full, 9 to 10 cent. diameter, very deep black purple, shaded, in many respects like Prince Camille de Rohau, but deeper coloured; very effective variety.

PERPETUAL MOSS.

JAMES VEITCH.—Very strong plant, very full flowering, large flowers, 9 cent. in diameter, 3 to 8 in a head, deep slate violet, shaded; remarkable variety.

NEW TEA ROSE.

Obtained from Seed some years since by a Florist of Central France, never before sent out, and remaining until now little known, notwithstanding that several Gold Medals were awarded to it.

MARÉCHAL NIEL.—Very strong plant, long reddish healthy branches, the leaves composed of 3 to 5 leaflets, extra large and shining, full flowers, 12 to 14 cent. diameter, globe-shaped, of a beautiful deep yellow, exceedingly odoriferous.

This magnificent variety (the most beautiful of this class of Roses, to which belong Chromatella, Isabella Gray, Jean Hardy, Solfaterre, &c., which it surpasses in its habit and being a more abundant flowerer) will not be sold alone, but will be presented gratis to each buyer of the foregoing entire eight varieties.

An engraving of this superb variety will be sent to every buyer.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris,

NET PRICES to the TRADE (without any discount).

NEW ROSES for the AUTUMN 1864.
Obtained from Seed by well-known Collectors.

HYBRID PERPETUALS.

ACHILLE GONOD (GONOD.)—Healthy plant, full-flowered, 9 to 10 cent. in diameter, well-formed, bright carmine red. Each 25 fcs.; the five plants, 110 fcs.

ABBÉ BERLÈSE (GUILLOT FILS).—Strong plant, flowers full, 10 cent. diameter, finely formed, colour varying from a bright cherry red to a carmine red. Each 20 fcs.; the five plants, 90 fcs.

BELLE ROSE (TOUVAIS).—Very vigorous plant, full flowered, 10 to 12 cent. in diameter, globe-shaped, perfectly open, of an irreproachable form and habit, very fresh clear red. Each 25 fcs.; the five plants, 100 fcs.

CHARLES WOOD (PORTEMER FILS).—Strong plant, flowers full, 9 to 10 cent. in diameter, very finely formed, very deep red, shaded blackish. Each 25 fcs.; the five plants, 100 fcs.

DENIS HÉLYE (GAUTERAU).—Strong plant, flowers full, 12 to 14 cent in diameter, firm and upright, a very pretty bright and fresh carmine rose colour, a grand and effective variety. Each 20 fcs.; the five plants, 75 fcs.

JEAN ROSENKRANTZ (PORTEMER FILS).—Very strong plant, full flowers, 9 to 10 cent. in diameter, well formed, very bright coral red. Each 25 fcs.; the five plants, 100 fcs.

MADAME HERMANN STENGER (GONOD).—Very vigorous plant, full flowers, 9 to 10 cent. diameter, of a fine form and bearing, beautiful bright rose, shaded sulphur in the centre. Each 25 fcs.; the five plants, 110 fcs.

MADAME MOREAU (GONOD).—Very strong plant, flowers full, 12 to 14 cent. in diameter, Peony formed, large petals, dazzling bright red, shaded violet. Each 25 fcs.; the five plants, 110 fcs.

MADAME ROUSSET (GUILLOT FILS).—Vigorous plant, flowers full, 8 to 10 cent. in diameter, fine rose shot with silver. Each 20 fcs.; the five plants, 90 fcs.

SEMIRAMIS (TOUVAIS).—Strong plant, full flowers, 10 cent in diameter, globe-shaped, fine form and habit, a tender carnation rose colour. Each 25 fcs.; the five plants, 100 fcs.

SOUVENIR DE BERNARDIN DE SAINT PIERRE (GUILLOT FILS).—Strong plant, full flowers, 10 to 12 cent. diameter, well formed, imbricated, colour varying from a velvety crimson red to a slate violet red, the centre shaded fiery velvet red. Each 25 fcs.; the five plants, 110 fcs.

SOUVENIR D'UNE MÈRE (TOUVAIS).—Vigorous plant, full flowers, 10 to 12 cent. diameter, flat, large petals, exterior of a tender rose, the centre bright cherry, very fragrant. Each 25 fcs.; the five plants, 100 fcs.

All the other Novelties of Paris and elsewhere, as well as the past varieties, are always furnished by this establishment at the same prices as are charged by the growers themselves. Their names and descriptions are not yet published, so for the present I am unable to make them known.

Special Notice.

J. MEIKLE, The Nurseries, Folkestone, Kent, begs to inform his customers (especially those whose orders he was unable to execute last season) that his Stock of ROSES is this season unusually fine, and includes most of the very best sorts in cultivation. Orders executed in strict rotation.

A DESCRIPTIVE and PRICED LIST free on application.

J. M. begs to offer a few fine Specimen Seedling THUJA JAPONICA and AUREA, fine varieties. Safe removal warranted. Price 6s. to 10s. each.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & SONS have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

Roses.—Notice to the Trade.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, has the honour to inform Nurserymen, Seedsmen, and the Trade generally, that he has just published his WHOLESALE PRICED CATALOGUE of ROSES, which may be obtained, post free, either from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

His CATALOGUE of GLADIOLI (also at wholesale prices for the Trade only) may also be obtained as above.

New Roses.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, begs to call attention to Two of the Handsomest and Best NEW ROSES of the Season, which he will be ready to send out next autumn.

HYBRID PERPETUALS.

DUCHESSE DE CAYLUS (CHARLES VERDIER).—Flowers clear, brilliant carmine, of most perfect form, large and full; growth vigorous. One plant, 1*l.*; five plants, 4*l.*

This Rose was exhibited at the Flower Show of the "Société Imperiale et Centrale d'Horticulture de Paris" last July, and received the FIRST PRIZE (silver gilt medal) for New Roses.

DUC DE WELLINGTON (GRANGER).—Flowers velvety bright red, shaded with black, fiery red centre, large and full; growth very vigorous. One plant, 1*l.*; five plants, 4*l.*

C. VERDIER, FILS has also just published a List of 66 other New French Roses, which are to appear next season. This List can be obtained either direct from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

MR. ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that he is now ready to supply the following Plants (delivered freight free to London, but landing charges to be paid by the purchaser), viz.:—

CORREA CARDINALIS, well set with buds, 1s. each.
PIMELEA HENDERSONII, very fine, 1s. 3d. each.
MIMOSA PARADOXA, handsome pyramids, 3 feet high, well set with buds, 1s. 8d. each.
SAXIFRAGA FORTUNEI, fol. var., 2s. 6d. each.
GYMNOSTACHYUM VERSCHAFFELTI, 1s. 8d. each.
PAROCHETUS CŒRULEUS, new plant, with blue flowers, 1s. 0d. each.
EUONYMUS JAPONICUS LATIFOLIUS, ALBO-VAR., 1s. 8d. each.
" " RADICANS, ROSEUS, 10d. each.
" " ALBUS, 10d. each.
BORONIA POLYGALÆFOLIA, strong plants, well set with buds, 1s. each.
PULTENÆA STRICTA, well set with buds, 10d. each.
DIOSMA AMBIGUA, blooms all the winter, 10d. each, or 8s. per doz.
JASMIN D'ESPAGNE, fl. albo pleno, 10d. each, or 8s. per dozen.
PHYLICA CAPENSIS, strong plants, bloom all the winter, 1s. 3d. each, or 12s. per dozen.
LEUCOPHITON BROWNII, handsome new plant from the Cape, 1s. each.
SERISSA FŒTIDA, strong plants, to bloom this winter, 7s. per doz.
TROPÆOLUM TRICOLORUM GRANDIFLORUM, 8s. per dozen.
LILIUM LANCIFOLIUM RUBRUM, strong Bulbs, 2*l.* per 100.
" TIGRINUM, very handsome, 12s. per 100.
THUJA AUREA, 10d. each.
" " very strong plants, 2s. 6d. each.
" RECURVA NANA, strong plants, 1s. 3d. each. [each.
JUNIPERUS ELEGANS, fol. var., very handsome new plant, 2s. 6d.
" SABINA, fol. var., strong tufts, 10d. each.
AZALEA INDICA, fine plants, well set with buds, 4*l.* per 100.
CAMELLIAS, fine plants, well set with buds, 6*l.* per 100.
" LAVINIA MAGGI, with buds, 3s. 6d. each.
" BONOMIANA, with buds, 3s. 6d. each.
These two last are the handsomest Camellias known.

Other plants (far too numerous to name) will be found in ALEXIS DALLIERE'S CATALOGUE, which may be had post free on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

All letters containing orders should be sent direct to M. DALLIERE, addressed as above. Payment at 4 months from the date the plants are sent off.

Two Splendid Seedling Azaleas.

WILLIAM BARNES has great pleasure in announcing to his friends and the public that he will be prepared to send out on and after the 15th of October next, his two magnificent Seedling Azaleas, BRIDE of ABYDOS and PURITY.

BRIDE of ABYDOS is a splendid white, striped and splashed with pink; of fine vigorous growth, and an abundant bloomer. It was exhibited before the Floral Committee on May 6, 1862, when it met with their unanimous approval. The following description is given of it in the *Gardeners' Chronicle* upon the 10th of that month:—

"Mr. BARNES, of Southampton Street, Camberwell, contributed a beautiful Azalea named Bride of Abydos, the flowers of which are large, white, flaked with pink, and possess great substance; of this variety three plants were exhibited, all excellent in habit and evidently free in growth."

In the *Gardeners' Chronicle* of December 27, 1862, page 1217, in describing the new and most prominent Azaleas of the above year, are the following remarks:—

"As a free-flowering sort of vigorous habit adapted for decoration and exhibition, the Bride of Abydos is the most useful which has appeared amongst the whites, with occasional streaks of red."

Fine strong Grafted plants will be ready on the above date at 21s. and 31s. 6d. each.

PURITY is a beautiful clear white, fine large flower, with unusual substance and of the most perfect shape; it is of a fine robust habit. A variety of this description has long been required, viz.:—

A pure white, with fine shape, large flowers, and good vigorous habit. Plants will be ready on the above date at 21s. and 31s. 6d. each.

A few plants of each variety to offer in extra large plants, prices of which can be obtained on application to

WILLIAM BARNES, Camden Nursery, Camberwell, S.

NEW FUCHSIAS, &c.—On and after October 10, the following NEW FUCHSIAS will be sent out at 10s. 6d. each, or 31s. 6d. the set.

In offering these beautiful varieties, we need make no further remarks beyond calling the special attention of cultivators to the fact, that the kinds raised by Edward Banks, Esq., are always, where known, found in winning collections throughout the kingdom, and also upon the Continent, from year to year, whilst the generality of other collections brought into the market are discarded as soon as bloomed. The re-appearance of the kinds in question (as the highest evidence of public favour) is the only test of sterling merit, and the best expression of unbiassed judgment as confirmed in the numerous awards given to Banks's premium Fuchsias for many years past.

LA TRAVIATA.—Flower good size, tube short, sepals broad, of a bright carmine scarlet tint, well recurved; corolla of good outline, evenly cup-shaped, proportionate, and firm in substance, rich lavender blue in colour. Habit of Rifleman (Banks'), well branched, and a profuse blooming variety, making an excellent front-rank exhibition plant.

ANNE BULLEYN.—Sepals broad and of firm substance, erectly recurved, of a rich carmine scarlet tint; corolla of good outline, evenly cup-shaped, in colour rich rosy lavender. A profuse bloomer; by its erect, well branched, and short-jointed growth, well adapted for pyramid exhibition specimens.

MARVELLOUS.—One of the finest varieties yet offered; flowers remarkably large, sepals of great width and substance, bright carmine scarlet, horizontally curved; corolla two inches in diameter, of a violet tinted plum colour, of firm texture, and smooth close margins. Adapted for conservatory, standard, or pyramid growth.

TROUBADOUR.—Sepals very broad, of firm smooth texture and elegantly carved; corolla cup-shaped, even, and proportionate; colour a rich olive black, nearer to the latter than any hitherto offered, not fading to a lower or different tint, but retaining its rich hue through sun and rain. Habit adapted for a cone or pyramid, requiring a free unchecked growth during its first pottings.

Among the foregoing are one or two of Mr. Banks' Seedlings, which were so highly noticed when exhibited as cut flowers at the Royal Horticultural Society, and pronounced a decided advance.

PYCNOSTACHYS URTICIFOLIA.—Strong plants for Winter Conservatory decoration, producing dense terminal racemes of beautiful bloom, equal in brilliancy of colour to Salvia patens. 3s. 6d.

CLEMATIS HYBRIDA SPLENDENS. 5s. each.

CLEMATIS JACKMANNI and C. RUBRO-VIOLACEA, splendid hybrid varieties of C. lanuginosa. 21s. each.

WINTER-FLOWERED MULE or HYBRID PINK, in white, carmine, and striped flowered varieties, 1s. 6d. each. Also, new rose-coloured ditto, 3s. 6d.

ACHYRANTHES VERSCHAFFELTI (syn. IRESINE HERBSTI). A highly ornamental new crimson-red leaved Amaranth-like plant, for bedding and decorative garden purposes. Plants 2s. 6d. each, or post free 3s. 6d. each; 6 plants post free 17s. 6d.; coloured plate of the plant post free, 6d. each.

BOUVARDIA LONGIFLORA, full of flower buds, 18s. per dozen.
" (best scarlet) HOGARTH, 18s. per dozen.
" GRANDIFLORA, new white-flowered species, 3s. 6d.

BANKS'S NEW FUCHSIAS, sent out in the Spring of 1864, can be had in strong plants.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap

---

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in offering this distinct and valuable Early Grape, which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions:—

2 Certificates of Merit.
3 First-class Certificates.
2 First Prizes in open competition for the finest flavoured Grape of any colour.

A DESCRIPTIVE CIRCULAR will be forwarded to applicants, and visitors to Dalkeith Palace Gardens during the season will have opportunities of seeing and judging of its merits, as a number of Pot and permanent Vines are now fruiting at that establishment. Orders are now being booked, and will be executed in autumn in strict rotation, the stock being limited

Strong Planting Canes, 21s. each; extra strong Fruiting Canes 42s. each. Exotic Nursery, Tooting, Surrey, S.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 1500 extra-fine well-ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger." A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.

"Upton" Nurseries, Chester.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

FOR SALE, of the finest quality.—APPLE PIPS, clean, from choicest Devon fruit, produces finest Cider and hardy culinary fruit, and is the most lasting stock.
HOLLY BERRIES, sound and clean.
DAMASCENE PLUMS, fine young bushes for planting out; or for grafting at once.
SLOES or BLACKTHORN, clean.
ASPARAGUS ROOTS, fine, 2-years old.
Prices &c., on application to ROBERT H. POYNTER, The County Seed Establishment (A.D. 1800), Taunton, Somerset.

To Gentlemen Engaged in Planting.

TO BE DISPOSED OF, a Large Quantity of ORNAMENTAL TREES, DECIDUOUS FLOWERING SHRUBS, &c.

The Standard Ornamental Trees comprise Horse Chesnuts, 8 to 12 feet high; Walnuts, 10 to 15 feet high; Limes, 8 to 12 feet; Ash Leaf, Scarlet, and other Maples, 8 to 12 feet; New Single and Double Scarlet and other Thorns; Laburnums, Caraganas, Elms of sorts, Birch, Beech, Sycamore, Tulip-trees, Pyrus spectabilis, Siberian Crabs, Pinus excelsa, Ailantus, Almonds, Double-flowering Cherry, &c.

The Flowering Deciduous Shrubs consist of Ribes, Lilacs of sorts, Syringas, Spiræas, Guelder Rose, Sumach, &c. Most of them are from 3 to 6 feet high, and as wide in proportion.

Among the Evergreens will be found very handsome Spruce Firs, Box, Arbor-vitæs, Evergreen Oaks, Hollies, Junipers, Cedars, &c., varying in height from 3 to 7 feet.

All these Plants may be seen growing in the Plantations at Ashwicke, Marshfield, near Bath. All expenses connected with the removal of the Plants to be paid by the Purchasers.

Prices and particulars may be obtained on the spot, and the Plants seen on application to the Gardener.

CARTER'S FARMER'S VADE-MECUM.

TOBACCO PAPER, good, 8d. per lb.
Price to the Trade on application.
H. BROWN, 4, Commutation Row, Liverpool

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence. In Canisters, 3s. 6d. and 2s., to be forwarded to all parts on receipt of order or stamps.

Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs. BARR & SUGDEN, Seedsmen, King Street, Covent Garden.

SUTTON'S

UNRIVALLED COLLECTIONS OF

BULBOUS FLOWER ROOTS,

FOR BLOOMING DURING THE WINTER AND SPRING.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively. *As many of these sorts are at present unknown to English cultivators, we have considered it advisable to make up Collections* of the sorts which, after careful observation, we have found to be the best worthy of cultivation, being THE MOST SHOWY AND MOST CERTAIN TO THRIVE WELL under any ordinary treatment, and for which any good Garden soil (not particularly heavy) will be suitable.

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

		£	s.	d.
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

N.B. A complete LIST of the above may be had post free, and any article specified, if not required, will be omitted, and additional quantities of others included.

The very low charges now made for the above Choice Collections of Flower Roots will, it is believed, insure a continually increasing demand.

Early Orders are requested before the more scarce kinds are all sold.

SUTTON'S AUTUMN CATALOGUE,

Containing Descriptive Lists of the best varieties of HYACINTHS, GLADIOLI, ANEMONES, CROCUSES, and other Bulbous Roots, and Choice STOVE and GREENHOUSE PLANTS, FERNS, AMERICAN PLANTS, ROSES, CARNATIONS, and other Florists' Flowers, FRUIT TREES, New GARDEN SEEDS, &c., may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for cash payments.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

TRADE PEDIGREE MARK.

HALLETT'S NURSERY WHEAT.

FROM THE TOP OF THE CHALK DOWNS, ESPECIALLY SUITABLE FOR STRONG LAND IN GOOD CONDITION.



Seed required	In September	..	4 bushels on 10 acres.
	In October	..	4 bushels On 8 acres.
	In November	..	4 bushels On 6 acres.
		..	4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, without which the Wheat will in no case be sent.

IF PLANTED AS DIRECTED IT COSTS NO MORE PER ACRE THAN COMMON WHEAT.

APPLY TO FREDERIC F. HALLETT, ESQ., F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

Splendid New Pelargoniums raised by

DOBSON AND SONS, Isleworth

The following superb set is now offered for the first time, and are unequalled. For fuller description see CATALOGUE, gratis and post free.

THE RIVAL.—Rich orange salmon, 31s. 6d.
Received First-class Certificate.
SENSATION.—Vivid crimson, 21s.
Received First-class Certificate.
DUKE of CAMBRIDGE.—Crimson, 21s.
Received First-class Certificate.
METEOR.—Purplish rose, striped, 21s.
Received Second-class Certificate.
PASHA.—Fine large purple, 21s.
CONSTANCE.—Pale lilac, large, 21s.
SCARLET KING.—Vivid scarlet, 21s.
KING of LILACS.—Lilac, extra fine, 21s.
CLOTH of GOLD.—Orange scarlet, 21s.
MAJESTIC.—Purplish rose, extra large, 21s.
MISS KATE.—White, superb, 21s.
CALYPSO.—Salmon rose, 21s.
JESSIE.—White, distinct, 21s.
LORENZO.—Rich bright purple, 15s.

During upwards of 20 years' experience in raising Seedling Pelargoniums, so fine a set, the result of one season, by one raiser, has never before come under our notice.

DOBSON'S NEW CINERARIAS.

ACHILLES.—Bright crimson, white ring, 5s.
DUKE of CORNWALL.—White, rosy purple edge, 5s.
DARLING.—Rosy purple, pure white ring, 5s.
FAVORITE.—Mauve edge, white centre, 5s.
PRINCE ARTHUR.—Magenta self, 5s.
ROYAL PURPLE.—Shaded purple, 5s.
VANDYKE.—Rich deep crimson, 5s.

Ready the last week in October. Orders executed in rotation.
A general Collection of best sorts cheap
J. Dobson & Sons, Woodlands Nursery, Isleworth.

To Florists and Nurserymen.

AN AMATEUR having a first-rate Collection of DAHLIAS, is anxious to Dispose of them. He has upwards of 200 plants, containing upwards of 120 varieties, all warranted true to name, amongst which are nearly all the leading Show Flowers in cultivation. They will be Sold a Bargain; and, as a further inducement, the party can take 150 plants next spring in part payment. They can be seen in Bloom if required.

To a Florist beginning the Trade, or an Amateur wishing to have a first-rate Collection, such an opportunity seldom occurs.

For Catalogue and further particulars apply to A. B., Post Office, Carlisle.

Transplanted and Larch Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

American Plants.

As Exhibited in the Royal Horticultural Gardens, Kensington.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WM. PAUL (SON AND SUCCESSOR TO THE LATE A. PAUL)

Respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL'S possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post.

Orders by post promptly attended to. Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

NEW PLANTS.

MR. WILLIAM BULL

Begs to intimate that he has secured many of the VALUABLE JAPANESE PLANTS introduced by Mr. Fortune, and is now selling these marvellous importations, many of which are now offered for the first time. Among them are the following:—

The remarkable CORAL-BERRIED NEW SKIMMIA (now offered for the first time). This was described last week at page 962 of the *Gardeners' Chronicle*.

VITIS GLAUCESCENS, THE YEDO VINE.
(Now offered for the first time.)

SAXIFRAGA FORTUNI.
(Now offered for the first time.)

AUCUBA LONGIFOLIA.
(Now offered for the first time.)

CORYLOPSIS SPICATA.
(Now offered for the first time.)

LYCHNIS SENNO.
(Now offered for the first time.)

LYCHNIS SENNO STRIATA.
(Now offered for the first time.)

THE FISH-TAILED CAMELLIA.
(Now offered for the first time.)

FORSYTHIA FORTUNI.
(Now offered for the first time.)
Described at page 412 of the *Gardeners' Chronicle*.

MALE and FEMALE AUCUBAS, &c, &c., &c.

Mr. WILLIAM BULL will be happy to supply prices of any of the above on application, but as there are various sizes he begs to suggest that it would be more satisfactory to see the Plants. An inspection is therefore invited.

THREE NEW DOUBLE FLOWERING ZONALE PELARGONIUMS.

These extraordinary Novelties create quite a revolution in Bedding Pelargoniums, and will be the forerunners of an entirely new race.

MANY OTHER NOVELTIES ARE ALSO READY, AND A VISIT OF INSPECTION WILL REPAY TO

WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

NEW PLANTS.

FISHER, HOLMES, & CO.,

Beg to announce that they are now prepared to send out their

NEW BERBERIS AND ABIES.

THE FOLLOWING ARE THE DESCRIPTIONS GIVEN OF THEM IN THE *GARDENERS' CHRONICLE*:—

BERBERIS STENOPHYLLA.

See page 460, May 14, 1864.

"A very hardy hybrid Berberis, between Darwinii and empetrifolia, which promises to be one of the best evergreen shrubs in cultivation. We call it B. stenophylla. The branches are hairy; the spines 3-parted; the leaves very dark green, about half an inch long, pale beneath, tipped with a short spine, and rolled backward at the edge, so as not to appear flat but to look almost cylindrical. The flowers are of the same charming apricot colour as that which renders Darwinii so ornamental, but they are smaller,' &c.

August 13, page 770.

"At p. 460, we invited attention to a hybrid Berberry, from the Handsworth Nursery. The specimens we had then seen proved it to be a very handsome shrub in regard to its flowers, which were of a fine apricot colour, and produced in racemes of from 3 to 5 together from the leaf axils, instead of singly as in B. empetrifolia, of which this new shrub has something the character, but it is more vigorous. From samples which have recently been sent us, we are able to say that the bushes are at this season laden with purplish black berries, which must add greatly to their beauty, as well as prolong indefinitely the period of their effectiveness as ornamental shrubs. The berries, like the flowers, hang in racemes of from 3 to 5 from the leaf axils, and are about as large as Currants in the samples sent to us, but we learn that they are smaller than usual this year, owing to the excessive drought. When we add that this Handsworth hybrid is of a very hardy character, that it makes strong shoots 4 feet long in a season, that it is clothed with neat narrow evergreen foliage, and adorned with a profusion of gay orange-coloured blossoms in early summer, we shall have said enough to show that it is likely to prove a very decided acquisition, not only for our pleasure grounds and shrubberies, but also for our plantations and game preserves."

First size, strong plants in pots, 21s. each.
Second size, in pots, 15s. each. | Third size, in pots, 10s. 6d. each.

ABIES CANADENSIS MICROPHYLLA.

A beautiful Conifer of slender pyramidal habit, remarkable for the dumpy plump-looking blunt-end leaves which clothe its smaller twigs and branches, and which from their brevity and plumpness give it some peculiarity of aspect.

See p. 580 last year.

"The same exhibitors had an elegant North American Fir, very near the Hemlock Spruce remarkable for its dumpy, plump, blunt-ended leaves."

Also in *Gardeners' Chronicle* for this year, p. 460, it states:—

"This Abies is of such singularly dwarf habit that it might almost be compared with a Heath. Leaves very dark green with a white streak beneath, rough at the edge, and no bigger than those of Menziesia polifolia. It may possibly be included in some catalogues under the name of Abies canadensis nana, but the leaves are much smaller than in the plants which we have seen bearing that name. Messrs. Fisher, Holmes & Co. have found it much more hardy than canadensis is itself, it not having suffered in the severe winter two years ago, when so many Conifers were injured."

Plants in pots, 42s. each.
A few extra sized Plants in pots, 63s. each.

Prices to the Trade on application.

N.B. CATALOGUES of FRUITS; FOREST, ORNAMENTAL, and EVERGREEN SHRUBS; ROSES; KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS; STOVE and GREENHOUSE PLANTS; DUTCH FLOWER ROOTS, &c., may be had Free in their respective seasons.

FISHER, HOLMES, AND CO., HANDSWORTH NURSERY, SHEFFIELD.

INTERNATIONAL EXHIBITION 1862.

THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"
Containing full descriptions of 50 most desirable varieties of VINES, and complete Lists of imported DUTCH BULBS, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

BARR & SUGDEN 12 KING ST COVENT GARDEN

Orders 21s. and upwards sent carriage paid.

LILIUM AURATUM, the most magnificent variety of this family, 10s. 6d. and 15s.; roots which have this autumn flowered, 21s.

DUTCH, CAPE, FRENCH, JAPAN, and ITALIAN FLOWERING BULBS,
For the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.
A Descriptive and Priced List with Cultural Hints free and post paid on application.

THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.
THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10s. 6d., 21s., 30s., 42s., and 63s.
HYACINTHS, 2s. 6d. to 15s. per dozen. CROCUS, 1s. 6d. to 4s. per 100. TULIPS, 3s. 6d. to 20s. per 100.

ZONALE PELARGONIUM, seed saved from the superb new varieties exhibited this last summer by Mr. Bull; colours scarlet, white, pink, cerise, rose, carmine, blush, salmon, rose-pink, orange-scarlet, &c., many of them with very distinct eyes, 2s. 6d. per packet. Mr. Bull's magnificent strain of MIMULUS, 1s. per packet. Mr. Holland's Prize CYCLAMEN PERSICUM, 1s. per packet. Now is a good time to sow these seeds.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET,
COVENT GARDEN, W.C.

NOW READY, NEW HARDY CLIMBING PLANTS,

WELL ADAPTED FOR COVERING VERANDAHS, TRELLIS WORK, WALLS, PORTICOS, PILLARS, FESTOONS, &c.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.
Awarded by the Royal Horticultural Society, August 4, 1863.

Patronised by Her Majesty THE QUEEN, the Nobility and Gentry.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the Public, for the first time, their beautiful rich coloured, free flowering, and vigorous-growing Clematises, that they can with confidence recommend, being convinced, when known, they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants will be sent out strictly in rotation.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Journal of Horticulture*, August 11, 1863; *Gardeners' Chronicle*, January 9, 1864; the *Florist and Pomologist Magazine*, September, 1864, with a Coloured Illustration; and *Gardeners' Chronicle*, August 27, 1864.

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps

A CATALOGUE of GENERAL NURSERY STOCK free on application.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London N.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

New Hardy British Ferns.

JIVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.
(They have each received First-class Certificates from the Roya Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSIÆ, VERNONIÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Oct. 15.

Woodlands Nursery and Seed Warehouse,
MAPLESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON are now offering the following Collections of BULB

FOR CONSERVATORY and GREENHOUSE.

A.	B.	C.	C. C.
£4	£2	£1	10s.

FOR FLOWER GARDEN.

D.	E.	F.	F. F.
£4	£2	£1	10s.

FOR CONSERVATORY and FLOWER GARDEN.

G.	H.	I.	I. I.
£4	£2	£1	10s.

Full particulars of the above Collections are contained in the DESCRIPTIVE CATALOGUE of BULBS, which may be had free on application.

CARTER'S GARDENER'S VADE-MECUM.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
LIST of AWARDS, OCTOBER 11, 1864.

FIRST-CLASS CERTIFICATES.

AUCUBA JAPONICA PICTA (mas.), from Mr. Bull, Chelsea.
CATTLEYA DEVONIENSIS, from Mr. Veitch, Chelsea.
CATTLEYA DOMINIANA ALBA, from Mr. Veitch.
VARIEGATED PELARGONIUM LADY CULLUM, from Messrs. E. G. Henderson & Son, St. John's Wood.

SECOND-CLASS CERTIFICATES.

DAHLIA LIGHTNING, from Mr. Legge, Edmonton.
SOLANUM CAPSICASTRUM HYBRIDUM, from Mr. McIntosh, Hammersmith

The NEXT MEETING will take place on November 8.
THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 15, 1864.

MEETING FOR THE ENSUING WEEK.
WEDNESDAY, Oct. 19 { Royal Horticultural (Fruit and Vegetable Show), at S. Kensington .. 1 P.M.

MANY of the readers of this Journal are old enough to remember a time when the people of this country were all but excluded from our PUBLIC GARDENS, and had little to do with them except to assist in paying for their maintenance. These were the good old times, when most of the plants in such places had not their names placed in front of them as they usually have now, and if marked at all, had only a number painted on a label referring to some list which was carefully kept in the hands of the curator or superintendent. If the visitor happened to be particularly struck with the beauty of any plant which he met with in his walks, he had the satisfaction of knowing that it was number so and so, and that was probably all the information he could acquire. This state of things is changing as the world grows older, and as men get more liberal in their ideas. Our great public gardens, like Kew for example, are now thrown open to the people, and the collections in them are legibly named, so that "all who run may read." The same thing may be said of our public parks. As PATERFAMILIAS takes his family out for a walk in such places he can, without much knowledge of Botany, point out to them numberless objects of great interest which he must necessarily have passed by unnoticed in former days, when such things were without names. He can show them the Sugar and Tea plants, the proceeds of which had formed such an important item at the breakfast table from which they had just risen, or the Cotton which clothes them; or plants which yield dyes and medicines, together with a hundred other things of interest; and all this he can do, simply because the plants in our public gardens have their names placed in front of them. Our gardens, in this way, have an interest to the general public, and are daily turned to good account in the education of the people.

The greatest results oftentimes spring from the most simple causes. Who can imagine the difference which is produced upon the mind by one label which tells the visitor that the plant he stands in front of, is the Tea plant of China for example, and

another which gives him the information that it is No. say 680! And yet there is very little more trouble or expense in writing the name than there is in painting the number.

We fancy we hear some critical reader exclaim —"This may be all very true, but there is nothing of this kind now-a-days; we have changed all that." Well, we think not quite, although we allow that we have gone a long way in the right direction towards so desirable an object. There are more things in gardening than the naming of plants in public gardens to which our remarks apply. A short time ago, when noticing a most interesting exhibition of plants got up amongst the poor of London by the worthy and excellent rector of Bloomsbury and his assistants, we endeavoured to show how much more interest would have been added to the exhibition, if, instead of the large placards which were suspended over the collections merely showing the number of each class, the same placards had informed the visitor that the plants under his inspection had been grown in a certain poor and densely populated part of the parish, or by domestic servants, or by school children.

Our object to-day is to bring forward some other examples of a somewhat similar kind for a little friendly criticism, and we do so with the very best motives, and certainly with no spirit of fault finding. Our readers will have observed the articles published in our columns, describing the very meritorious and successful efforts which have been made in forming a sub-tropical garden at Battersea Park. There is no park round London which does more credit to its Superintendent than that at Battersea, and the efforts which have been made, and successfully made, to grow many strange and beautiful forms of tropical plants in the open air during the summer months, deserve the highest praise. We took an opportunity of paying a visit to the sub-tropical garden a short time ago, and were delighted with the effect which many of the plants produced. Crowds of people were inspecting the garden, and were evidently surprised and delighted with the treat which had been provided for them. But strange to say, but few, if any, of these curious and interesting objects were named. Now, in a park like that at Battersea, we do not attach very great importance to a long Latin name being placed in front of a plant, especially when it has no English one, and when it is of no known use, although such names would prove interesting to many, and would do no harm. But many of these plants are of great interest and produce articles of commercial value, which are well known to the poorest visitor. We observed, for example, specimens of the India-rubber tree, the Rice-paper plant of China, the Castor-oil plant, Indian Shot, and many other things of a similar stamp. What an amount of additional pleasure and instruction would not the names of these plants have given to the thousands of visitors who went to Battersea, and how easily could these names have been supplied! We hope this omission will be put right another year. We are sure the visitors will be grateful for the boon.

Another example of a similar kind was to be seen in the garden of the Royal Horticultural Society at Chiswick. A collection of half-hardy plants had been planted on the sides of the broad walk at the east end of the iron conservatory, under the auspices of the Floral Committee, with the view of testing their relative value. It would appear that these plants, or at least a portion of them, had been examined by the committee, who had awarded First, Second, and Third-class Certificates to the plants considered worthy of these distinctions. In examining this collection, then, we observed certain little marks in the form of crosses which had been made on some of the labels (the varieties are all named), the meaning of which we did not understand. And we should have left the ground in the same state of ignorance had we not happened to meet with a small placard at the end of one of the beds, which informed us what the said little crosses meant. The plants with three crosses on their label had received a First-class Certificate, those which had two crosses had received a Second-class Certificate, and those with one only had been awarded a Certificate of the Third class. Now how easy, and how much better it would have been to have given this information in a conspicuous way in front of each plant or group of plants, and how much interest this would have added to the collection. If it be worth while to get a collection of this kind together, to examine the different varieties critically, and to award prizes to the most deserving, surely the last and very important step of making plain the decision of the Committee should not be omitted. We are aware that the awards of the Committee will eventually be published in the "Proceedings" of the Society; but in the meantime—the Fellows of the Society and others having been invited to examine the plants at the gardens—we think it would have been more satisfactory to the visitors, as well as to the owners of the plants themselves, had the awards been shown in the manner we have suggested, instead of being written on a placard which at first sight looks like a notice requesting visitors "not to pluck the flowers or the fruits." We trust it is simply an omission, which needs only to be pointed out to be put right.

A good deal has been written about Fish-moulds, and few vegetables are more curious in point of structure, or more instructive as regards natural affinity, than the white floccose bodies which so frequently infest dead animal substances of various kinds immersed in water, and which sometimes attack the animals themselves when in a low state of vitality, and possibly on occasion induce a diseased condition in individuals which were previously healthy. Our attention has, however, been called lately to something very different, which is destructive to gold fish. Perfectly healthy individuals when transferred to certain waters gradually acquire a dark tinge, which rapidly increases in intensity, and in the course of a few weeks they perish. Specimens of the scales of a diseased fish from the banks of the Conway show that the affection is undoubtedly due to some vegetable production. When examined under a common lens the exposed part of each scale, and sometimes a portion of the colourless part, is found to be studded with little bright black spots, which exhibit a fibrous structure, and which are not altogether unlike that of the Asterineæ, which are so common on leaves from tropical or subtropical districts, though much smaller. This likeness however ceases when a higher power is employed. The spots then exhibit two forms, one which is more compact and which resembles an imbricated Lichen in miniature, and the other looser, which consists of very irregular threads swollen here and there, and producing obovate bodies which might at first sight be taken for fructification. The threads do not resemble very closely those of any Fungus with which we are acquainted, though they have the colour of those of many species of Helminthosporium, and we are inclined to refer the spots rather to some incipient aquatic Verrucaria, and possibly the same with one which we have noticed in the Dulas, a stream which runs down from the hills which border the lower part of the Conway, though in a different direction. For the present this is a mere conjecture, for we have not materials at this moment for more accurate investigation. Our notice will however call attention to a curious matter, on which better information will be acceptable. *M. J. B.*

— In his remarks on the Decay of Species published in our last Number (p. 963), Dr. Daubeny refers to "the well-known examples of the occurrence of isolated blue bunches of Grapes on stocks of white varieties, of isolated bunches of Red Currants mingled with white ones of the same stock, and of isolated pure sulphur-yellow Roses amongst variegated flowers of the red Austrian Briar Rose," as affording proofs of a Tendency to Variation amongst plants other than that which is referrible to the influence of pollen,—a tendency to which indeed we are indebted for many of our cultivated varieties, and for most, if not originally all, of our variegated plants. We have just received from Messrs. Lee, of Hammersmith, a most curious illustration of this sportive tendency in the case of fruits. It consists of a cluster of Frontignan Grapes, cut from a vine of the Black Frontignan variety, in which more than half the berries are white, exactly as in the White Frontignan, and the rest are in the normal black condition. The uppermost shoulder of the bunch is entirely black, and so is one of the lesser branches towards the apex; two or three others contain white and black berries intermixed, and the rest are entirely white, or occasionally white with a narrow streak or two of purple, the white berries in the whole cluster being more numerous than the black ones. Both white and black berries have the full Frontignan flavour. This curious bunch of Grapes had been grown at Clumber. A somewhat similar example, it will perhaps be remembered, occurred in the Italian collection of Grapes shown in 1862 at the International Fruit Show at South Kensington. One of the varieties in this collection, called the Switte, bore on the same bunch both black and amber-coloured berries, each of them perfectly matured, the difference being as clearly and as sharply defined as in the case of the Frontignan Grapes from Clumber, now lying before us.

— Scientific honours emanating from the Sovereign sometimes assume remarkable forms. Thus, as the *Athenæum* has lately told us, the King of Bavaria has bestowed on Dr. Hermann von Schlagintweit, chief of the scientific expedition to India and High Asia, the surname "Sakünlünski," the "ascender of the Künlün," he being the first European who had succeeded in crossing the Künlün mountains, in the year 1856, and advancing from India to Turkistan by the Asiatic mountain regions. It seems that the idea of conferring such an honour on a man of science has been suggested by the Government of Russia. If this fashion becomes general, remarks our contemporary, as it has been for some time in the Russian army (as, for instance, Mouravieff-Amurski, General Sabalkanski, &c.), our men of science will enjoy a nice appendage of unpronouuceable names. Mr. *Punch*, in the mean time, might get a list of them ready.

— We have just become acquainted with a remarkable fact bearing on the Wearing out of Races of fruit trees—a doctrine which has from time to time found many strenuous advocates. In the nursery of Mr. Rivers occurs a tree of the Golden Pippin Apple, which is some century old at least. This tree bears small scrubby fruit, of good quality nevertheless, but scarcely bigger than a large Walnut, and may be taken to represent the "degenerate" condition of this variety under ordinary, and not very favourable conditions. This tree is on the Crab stock. Grafts taken from this very tree, and worked on the Paradise stock, were submitted to pot culture in an orchard house, when lo! the fruit became at least trebled in size, acquiring the richest golden colour, and the choicest flavour. Verily, there was no trace of degeneracy in these.

There can be no doubt that this result was caused in great measure by the healthy root action set up under the improved climatal conditions to which these potted trees have been subjected. The trees were well fed by the generous top-dressing which is part of Mr. Rivers's system, and the roots were at the same time influenced by the warm air of the house acting on them through the sides of the pot, and were thus able to do their work thoroughly. Hence the well-swelled fruit, which under such circumstances was carried forward to perfect maturity, and altogether surpassed the choicest specimens of the olden time.

— Carnations and Picotees seem to be making more way in the north than the south, for while we hear and see little of them about the metropolis (partly no doubt owing to their not being invited to our great summer shows—that again being mainly, as we may hope, owing to their not exactly synchronising with them, rather than from intentional neglect), one of the Numbers of the *Midland Florists' Guide*, now before us, contains an account of two very successful exhibitions of the past summer, namely, that of the National Society, whose exhibition was held at Manchester, and that the West Riding Florists' Society, which was held at Leeds. At the latter, as we learn from our contemporary, the following Seedlings obtained First-class Certificates:—Dr. Foster, a decided acquisition, being a fine purple flake Carnation, with fine petal, very pure, decided in marking, and bright in colour; shown by Dr. Foster. Clara, a medium purple Picotee, very pure, with well-formed petal and fine guard, altogether a very fine flower; and Miss Sarah Dobson, a very refined light purple Picotee; both exhibited by Mr. Jackson. Juliet, a very chaste light purple Picotee, with beautiful petal, the marking lively, well laid on, and perfectly regular; shown by Mr. Simmonite. The following all received Second-class Certificates:—Benjamin Simmonite, a fine useful scarlet bizarre Carnation, boldly marked, and a fine petaled flower, but rather deficient in white; shown by Mr. Wood. Frank, a good useful scarlet flake Carnation, not very bright; Jonathan Jackson, a bright well-marked useful rose flake Carnation; and Desdemona, a light purple-edged Picotee, with good petal, pure, clean, and useful; all shown by Mr. Simmonite. Finally, Earl of Harewood, a purple flake Carnation, rather thin, but bright and well-marked; produced by Mr. Chadwick. Raisers of these interesting flowers, therefore, are still to be found. We should like to see these, and such like things, meet with better encouragement about London. Alas! that late hours should render any of our great Societies so constantly somnolent.

— Of New Hollyhocks which have turned up this season in the north, we find May's Purple Emperor, and Downie & Co.'s Countess of Craven spoken of with especial praise. Purple Emperor won a First-class Certificate at Bishop Auckland, and is of a distinct shade of purple, one of the finest flowers yet produced; and Countess of Craven is also spoken of as a first-class acquisition.

New Plants.

279. Delphinium Brunonianum, *Royle, Illustrations of Botany of the Himalaya*, p. 56; *Botanical Magazine*, t. 5461.

This very pretty Indian Larkspur, first made known by Dr. Royle, has lately been flowered at Kew, where it had been raised from seeds sent to

England by Dr. Cleghorn. It is remarkable, as Sir W. Hooker observes, for its very powerful odour of musk, which is not, however, peculiar to this, but exists also in other high alpine species, "which form a peculiar group with half-closed membranaceous flowers, whence the mountaineers erroneously suppose that the musk-deer feed upon them, and thereby communicate the peculiar odour to their glandular secretions. In consequence of this musky odour the plant has also obtained the name of Delphinium moschatum.

It is a dwarf herb, with simple or branched stems, everywhere viscoso-puberulous and musky. The stems grow from six inches to a foot or more in height, the lower long-stalked leaves being of kidney-shaped outline, deeply lobed and inciso-dentate, whilst the uppermost are three-parted. The flowers form a corymbose raceme, and are of large size, the five large roundish oval sepals pale blue, becoming bright purple towards the edge, the small central petals black, with a yellow spot on the face of the two lower ones, and both sepals



and petals hairy. The flowers have a short thick blunt spur. Their large size and varied colours—azure purple black and yellow—render the plant a very ornamental one in its class.

The species is a native of the lofty Alps of Western Thibet, at altitudes of from 14,000 to 18,000 feet. It is stated to have blossomed at Kew in the open border in the month of June, and to have quite died down to the ground early in July; and is supposed to be quite hardy.

DR. DAUBENY ON THE DECAY OF SPECIES,

AND ON THE NATURAL PROVISIONS FOR EXTENDING THEIR DURATION.

(*Concluded from p.* 963.)

It seems provided, that those vegetables, such as the Cerealia, which are most necessary for the subsistence of man and other animals, should be multiplied by seeds and not by buds, in order to obviate the occurrence of famines from the failure or dying out of the species.

Yet even here, in addition to that minute change of structure which may be effected each time by the process of sexual reproduction, a certain modification in the external circumstances under which they are placed seems favourable to their health and development, and hence perhaps may in some degree arise the success attending their introduction into a strange locality; and the renewal of vitality which we are told has been induced, in the case of Apples, by transplanting them into a foreign soil; whilst the failure of certain crops, such as the Clover, after a period of years, even with the most liberal supply of manure, and under the advantages of careful tillage, may perhaps be explained upon the same principle.

And thus we may account for the remarkable vigour, which plants introduced into a new locality, and especially into a far distant region, so frequently exhibit. Witness the spread of the American weed in our ponds and ditches; the equal luxuriance of our Water-cress in those of New Zealand; the Cardoons of Europe, so rampant in the Pampas of South America, &c. And this perhaps may be the object of those provisions against self-fertilisation, which Mr. Darwin has lately called attention to, and has illustrated in so ingenious a manner in several of his publications.

These contrivances may be classed under three heads:—

The first consists in the maturation of the stamens and pistils of a flower at different times, so that the latter are unsuited for receiving the influence of the pollen at the time when it is in a state of greatest efficiency.

This circumstance was pointed out long ago by Conrad Sprengel, who designated it by the name of *dichogamie*, distinguishing as *androgynous* that in which the stamens ripened first, and *gynandrous* that in which the pistils were first developed.

This want of synchronism occurs in some flowers abnormally, in others normally. Thus in the Campanulaceæ the anthers open and discharge their pollen before the corolla expands. In the Fig, the flowers first produced contain few male organs, and these generally are developed after the stigmas are dried up. The late Figs also have no male flowers.

M. Hooibrenk, in his Report on the artificial Fecundation of Wheat, which strikingly illustrates the advantage of impregnating the ovaries with strange pollen, states it as a general law, that the pistil is ready to be impregnated before its own pollen is matured. Hence in the ordinary course of Nature Cereals are only made to fructify by foreign pollen, and in order to produce this effect more completely, M. Hooibrenk adopts an artificial method for distributing the fertilising dust over a field of corn, by passing a rope along the surface of the crop at the time when the stamens are developed, thus accomplishing in a more certain way, what is done casually through the influence of the wind and by insects. By this simple contrivance he boasts that he has added 50 per cent. to the yield of the crop, and his method, after having been investigated by a special committee, has been honoured by a favourable notice in the Ministerial report on the present state of the French Empire.

The second mode resorted to by Nature for preventing self-fertilisation consists in establishing such a relation between the male and female organs, as will render it impossible for the former to operate upon the latter. To this head belong those beautiful contrivances, which Mr. Darwin has pointed out in his work on the Fertilisation of Orchids, and in his remarks on Dimorphous flowers.

In the Orchid tribe, where self-fertilisation is in most cases prevented by the very structure of the floral organs, and where, therefore, the reproduction of the species seems in a manner dependent upon the casual visits of insects, Nature would appear to have provided for the preservation of the species, by means of tuberous roots in the terrestrial species, and of pseudo-bulbs in the epiphytal ones.

Thus several of our British Orchises, by pushing out a tuber each year in advance of the one from which the stem and flowers proceed, travel in the course of time along the entire length of a field in search of fresh nutriment, and renew themselves by protruding a fresh flower-stalk every summer from the new root.

In the case of dimorphous flowers, self-fertilisation seems provided against, not only by the want of correspondence between the lengths of the stamens and pistils, but also by the greater efficiency of pollen taken from a neighbouring flower, as has been inferred by Mr. Darwin from an elaborate series of investigations.

The third mode of preventing self-fertilisation is dependent on the entire separation of the sexes, either by placing the male flowers on different stalks from the female ones, as in monœcious plants; or on distinct plants, as in dicœcious species.

Physiologically however the same result is obtained, where, as in the case of that curious plant Welwitschia, though the flowers are hermaphrodite, the female blossoms attached to the stamens are barren. And where, as stated by Braun in his Rejuvenescence of Species, the male and female catkins arise, not as co-ordinate sprouts from the same axes, but the male blossoms from the second generation on the male catkins, the female ones from the third generation on the female inflorescences, as happens in the Hornbeam and Oak, a still further provision for intermingling the races seems to be aimed at.

Thus the analogy between the two organic kingdoms of nature is maintained in its completeness throughout, extending to the individual no less than to the species.

In both the period of duration has certain definite limits prescribed to it, for although, it may be said, we are unable to pronounce in the case of a tree, that its life has a fixed duration, like that of an animal, yet the same uncertainty exists in the case of a polype, and for the same reason; whilst it is equally true of the individual shoots, as of the distinct polypidoms, that their separate existence as living beings has a certain fixed period assigned to it.

In both instances, the dying out of species, at the present time, as well as during those epochs of creation that have preceded the one now in progress, announces to us intelligibly enough, that the very same law, only one operating at an infinitely more distant period, applies to the race, as well as to the individual.

Indeed, that tendency to decay, which exists throughout Nature, and brings about the gradual extinction of species both amongst vegetables and animals, is illustrated in man and the higher mammalia by the impossibility of keeping up a breed to the same standard of excellence for any long period, and by the rare occurrence of any remarkable quality of mind or body in its full development, perpetuated in a race beyond the third or fourth generation.

In this instance we seem to trace the workings of two antagonistic principles; the first, that which aims at handing down to the offspring the leading characteristics of the parents; the second one, that which causes the vigour of the race gradually to decline, or its peculiar excellences to be effaced, owing to the balance, upon which the harmonous working of the system depends, being destroyed, through the undue preponderance of one element, or the diminution and loss of another.

In both instances, moreover, Nature seems to have provided means for postponing this inevitable termination for a longer or shorter interval of time; namely, by those variations from the primitive type, which are to a certain extent brought about by the mere process of sexual reproduction, and which are still further secured by those contrivances which have been pointed out in the present communication.

In animals the frequent union of individuals too nearly identical is checked by the power of locomotion which they possess, and a still further tendency to variation is brought about by the changes in climate, food, &c., which they have to encounter.

But in plants special contrivances against self-fertilisation appear to have been required for preventing the too rapid deterioration of the race, and hence, even in cases where the male and female organs grow together, it has been provided that the pollen of one flower should be conveyed in various ways to the stigmas of another; and it seems a significant fact, that in so much the greater majority of instances, trees and other plants of long duration, and of vigorous growth, should possess either monœcious or dicœcious flowers, as if it was intended by this arrangement to renovate more effectually the vitality of the plant, and thus to secure to the species a longer period of existence.

Yet with all these provisions for prolonging the life of a species, its days, like those of the individuals composing it, are numbered, and the only question that remains for us to consider, is, whether its dying out is to be regarded simply as the result of the altered conditions of climate, soil, &c., to which it has been subjected, or arises from some inherent tendency to decay in its own organisation. The former explanation is the most obvious one, and may prove satisfactory to many minds, for the gradual sinking of temperature which has taken place in the crust of the globe down to the glacial period, and its subsequent elevation during that in which we live, suggest causes for the disappearance of certain species, and for the substitution of others, which may be deemed sufficient to afford an adequate explanation. Nevertheless, if these effects are exclusively due to climate, certain other conditions, besides that of temperature, must be concerned in producing them.

Take for instance the case of the Wellingtonia. This tree, or one very nearly allied to it, existed generally throughout Europe during the Miocene period. The Lignite of Bovey Tracy in Devonshire is supposed to be principally made up of its remains, and an allied species is widely distributed over the miocene formations of Europe and America, from Italy to Greenland. At present its only native *habitat* is California, where it is confined to two valleys, yet it does not seem to have been limited to this one region by the gradually diminishing temperature, or it would not have survived the glacial period, or proved capable of resisting the present winters of Great Britain.

Mr. Bateman, who has introduced this tree largely into his plantations in Cheshire, considers it hardier than the Deodar; yet from some mysterious cause unconnected with temperature all his specimens were blighted last spring, whilst the Deodars did not suffer. Does not this fact suggest some unexplained condition of climate, which, operating upon the species during a long lapse of years, has at length reduced it to the narrow limits in which it is found native—unless indeed we fall back upon that higher law, which prescribes to each species a limited period of duration, and supposes that this period is arriving in the case of this remarkable vegetable production.

It may be said indeed that such an inference is contradicted by the vigorous growth and gigantic proportions which this tree assumes in the spots where it still exists. Yet the same remark applies to several other trees of great size and vigour, as the Dracæna Draco, the Callitris quadrivalvis, and the Glyptostrobus heterophyllus, now confined to one country, though formerly of much more extensive distribution.*

In these cases, also, it is difficult to point out what changes of climate could have led to their becoming thus restricted within their present range. In a late number of the "Annales des Sciences Naturelles" (tom. 16, ser. 4) Count de Saporta had pointed out facts which tend to show, that during the tertiary period several plants had died out, owing, as he thinks, not to a change of climate, but to some other unexplained circumstance.

The tertiary flora, indeed, of Provence, which was the subject of his researches, is made up of plants related, partly to those of the northern regions of Europe, partly to those of the southern hemisphere, and partly to those of sub-tropical regions; but the predominant character of its vegetation corresponded more nearly with that of the Cape of Good Hope and Australia at the present time, than with that of any other part of the globe. The mean temperature which

* Callitris, Con., found now in Algeria, in the miocene of Aix in Provence.—*Saporta.* Glyptostrobus, found now in China and Japan, formerly in tertiary rocks of Switzerland.—*Ibid.* Dracæna Draco, confined to Teneriffe.

must have existed at one time to allow of the development of many of these plants would seem to have been not less than from 69° to 77° Fahr., but their disappearance in the upper strata cannot, the Count thinks, be attributed to the lowering of the temperature, as certain species seem to have died out before the cold could have affected them, and as, during a certain period, sub-tropical, boreal, and arctic plants appear to have lived side by side.

In fact, says the author I quote, vegetable types seem endowed with a vitality of their own, proper to each kind. Individuals die of age or of accident: a species, which is nothing more than a repetition of the individual, or in other words an aggregate of similar beings, runs in like manner through the course of its existence, persisting so long as the external conditions allow of its doing so.

Yet, he adds, it seems impossible, even by reference to these conditions, to account altogether for the disappearing of species, and we are therefore driven to admit a sort of exhaustion of the type itself, which causes it to be reduced to the limits of an existence, which becomes gradually more and more precarious in proportion as its age increases.

RENANTHERA COCCINEA.

HAVING been successful in flowering this truly beautiful Orchid, I have thought that perhaps a few hints on its cultivation may be of interest to those who are also anxious to do so. Some few years since I had a long plant, which early in spring I cut into pieces, each about a foot in length, fastening each piece on a stick, and potting them round the inside of as many pots as were required, so as not to overcrowd them. Sphagnum and broken potsherds were used as the best materials for potting. When potted they were placed at the coldest end of the East India House, and plenty of moisture was given to them during the summer months, by syringing the stems once or twice a day. A few years afterwards I had a fine lot of young plants, varying in height; and I selected eight of the strongest stems, and fastened each to a stick about 1 inch in diameter. These I potted close to the side of a pot large enough to take them without over crowding, using the same kind of material as before, the pot being also well drained.

At the time when Camellias were started into growth, which would be in March or the beginning of April, this group of plants was suspended in the centre of the house, the top being only a few inches from the glass. As the stems grew, short hooks were added so as to lower them as often as required. Great attention was given to watering for two or three months, by syringing once or twice a day, or more if very hot. A rose syringe should be used so as to moisten the plant just above the pot, avoiding say at least a foot of the top of the plant, which should on no account ever be wetted. To prevent the sun from burning the leaves make some paste, allowing it to boil until it is rather thick, then adding a little whitening dissolved in hotwater, and stirring both together, so as to be about the thickness of paint; then take a paint brush, and lay the paste thinly over the glass on the outside, care being taken not to touch the rafters or the putty, as when the paste gets dry, it will cause the paint to peel off. This will be sufficient to prevent the plants from burning. The pasting ought to be done in dry weather, as it requires two or three days to get sufficiently set to stand heavy rain.

About June the plant should be examined, as the flower buds will probably begin to appear opposite the leaves and a little above them. The young roots always proceed from the side of the stem, therefore are easily known from the flower buds. When the buds appear, the plant should be removed into the coldest end of the East India house. The spikes will grow very rapidly. I had ten flower spikes on eight stems, but when the spikes were about two inches long, I cut two of them off, leaving one on each stem, in order to give the others more strength. I exhibited this plant a few years since at Cheltenham, on the 30th of August, but I have not the least doubt it could be brought into flower earlier in the season if its growth were commenced earlier. The principal points in its culture are thorough ripening, with vigorous growth. It was really surprising to see how fast these plants grew, and yet were strong and short-jointed.

I should like to see this beautiful Orchid brought out at our London exhibitions. The colour is very desirable amongst other Orchids, and the flowers will last fresh for two months or more. I may also mention that I have set it with flower buds for three successive years. The first year there were two stems, and two fine spikes, not more than two feet in height; the next year four stems and four spikes; the third year eight stems and ten spikes. This plant stood from four to five feet in height, the greater part of its surface covered with its long spreading panicles of scarlet flowers. It is evident that under such treatment it is by no means a shy-flowering orchid. *Thomas Brown, Exotic Nursery, Tooting.*

NOTES ON GARDENS.—No. XIX.

ROYAL BOTANIC GARDEN, GLASNEVIN.

TEN to fifteen thousand visitors and upwards on a single Sunday! Where do they come from, and what attracts so many from a city not numbering more than a tenth part of the population of London? They come from the odoriferous purlieus of the Coombe; from the stews of Church Street; from the many fair streets and suburbs of Dublin, and the many foul alleys on the banks of Liffey—for to do Dublin justice, there is no air so savoury in the neighbourhood of Petticoat Lane, E., as that which may be inhaled within a hundred yards of its grandest squares; from

> . . . "rows called Paradise
> Which Eve might quit without much sacrifice,"

—from all these they come to feast on the beauties of tree, and shrub, and herb, and enjoy the fragrance, the verdure, and the fascinating variety of surface, form, and colour presented by a noble garden, bounded on one side by what is perhaps the most desirable margin for a great establishment of the kind—a pleasant river—the Tolka. Yes, there on Sunday afternoons, the "intelligent workman"—a type of great rarity in many places, but not by any means so in Dublin—may admire the elegant arborescent Ferns, fellow-subjects of those that spring away from his antipodes, and garnish its ravines with groves of majestic grace; may wonder at the quaint and beautiful forms of the Cactuses and their many singular allies in succulence and conformation, looking almost as well under the cloudy skies of Hibernia and in Mr. Turner's elegant curvilinear hothouses, as if storing up the precious moisture on the hills and plains of South America and the Cape under their native sun; may walk under the shade of a forest of rising Palms and pleasantly study their uses as well as admire their exceeding grace, for those yielding wine and toddy, and fibre, and wax, and sugar, and food, and oil, and ivory are all there; may find food for astonishment in the many fine Proteads and beauties of the Australian flora, some of which will generally be found in flower, for the collection of plants at Glasnevin from that interesting region, is a very extensive one; may revel amongst the Ferns gathered for his convenience from a thousand shades; may see the sumptuous water-weeds of the great fresh waters of old earth, the Sacred Beans, the Euryale, the noble Water-lilies and the Victoria, as well as they may be seen anywhere away from their native waters; may see too, the always interesting beverage, food, and medicine-yielding plants, and the Orchids—from the exquisitely coloured species that charm even the South American Indian and the native of the hot and moist East, feasted as these must be on beautiful colour, to the more northern and southern quaint and singular embroiderings produced by that wondrous family on Nature's verdant mantle; and may ramble through more than 30 acres of out-door interest—interest made up to a very great extent of the Cypresses, Junipers, Arbor-vitæs and other choice Conifers of California and other regions of the northern hemisphere, plants which, as they are grown at Glasnevin, combine verdure, grace, and dignity as no other plants combine them, together with groves of the forest giants of Europe and America, and onwards down to the tiniest Heaths; of the Grasses that directly or indirectly sustain us so well; of the herbs that yield us other foods; the herbs that yield us medicine; the herbs of the old woman's pharmacopœia; the herbs of Britain; the herbs of the verdant North, and the Lilies of the gayer South; the exquisite evergreen herbs of the Swiss and other Alps; and the interesting though familiar plants of our British river-sides—Typha, Bulrush, Hottonia, Willow, Butterbur, Villarsia, and Bogbean—that richly grow along the banks of Tolka;

> "While, chance, some scatter'd Water Lily sails
> Down where the shallower wave still tells its bubbling tales."

Truly, these are charms sufficient to attract thousands from any city; but they are necessary in the Kew of Hibernia, for the natural beauties of the neighbourhood of Dublin are so fascinating and so easily visited by the citizens, that a garden to attract so many must be a noble one. Not rich in mere acres of unmeaning colour and monotony, but one which affords a home to every interesting and beautiful subject of the vegetable kingdom that can be gathered, from the sea shores to the Alpine fastnesses of this wonderful earth. When the Dubliner prepares for his "day out," numerous are the natural beauties that present themselves for his patronage. He may for a trifle steam from the Liffey to Kingstown through the beauteous bay—often compared to that of Naples—with the "big hill of Howth" on the left—often it is true spotted with cloud-shadows, but those he must forgive, for doubtless they lend much of its verdure to the country which from the shore on the right, wooded to its margin, rises away beautifully to the west and south till it reaches the hills of Killiney and Dalkey, and loses itself amongst the purple-topped mountains of Dublin; whilst from the shore of the bay he may take a "header" from the ramparts into the sparkling brine, free from the chalk mud and *debris* through which the unfortunate Cockney has to wallow in many a "fashionable watering-place." And then there is the park—the park of parks, with its wild glens where an anchoret might ramble without interruption; its herds of deer, its mountain views, its zoological garden, where the wild "baysts" may be seen on Sundays for a penny, its forests of old Hawthorn trees, and its views of the Liffey, working away seawards through the beautiful valley. The far-famed beauties of Wicklow, too, are for the most part within easy reach of the Dubliner; but easier still can he enjoy the mountain air and beautiful scenery from the top of "Three Rocks," and other mountains that look down on the city, the park, the valley of the Liffey, the bay and its islands, with the fashionable town, harbour, and yacht station of Kingstown; while the mountains around, earth's, ocean's plain below, "mixed in one mighty scene, with varied beauty glow." Truly these are charms, which, if planted in the neighbourhood of the Thames, would half empty London for a year of Sundays.

But it is quite time to commence describing the garden, which in diversity of surface is worthy of its neighbourhood; while the plants, coming as they do from "Greenland's icy mountains, from Afric's burning plain," and embracing as they do many thousands of the most distinct and beautiful things that garnish so wondrously this otherwise remorseless earth, from the tiny and most interesting Andromedas that in a wild state dwell near the everlasting ocean of ice, within view of the polar twilight, to the beautiful pellucid Ferns that display their beauties in the shadowy caves of New Zealand, offer a charming study alike to philosopher or costermonger.

For promoting the love of plants and a knowledge of the various branches of husbandry and gardening, the members of the Royal Dublin Society conceived the design of forming a Botanic Garden about the year 1790, and soon afterwards their suggestions were carried into effect, and the institution founded and endowed by the Irish Parliament. In March 1795 the Bishop of Kilmore reported to the Society, that after examining various situations none had been found so suitable as the ground at Glasnevin, and it is much to be regretted that later selections of garden sites have generally been the reverse of improvements on that of the good Bishop. Apart from beauty of surface and situation, the garden possesses interesting associations from its having once been the demesne of Tickell, the poet, "who is known to have planted many of the trees." The house in the garden, now occupied by Dr. Moore, was that in which Tickell enjoyed the society of Addison during the time the latter acted as private secretary to the Marquis of Wharton, in 1714. In Dr. Moore's parlour, Swift, Parnell, Addison, Dean Delany, Stella, and Tickell have all sat, so that if eloquence, wit, beauty, and botany are capable of making a house sacred or classical, the curator's residence at Glasnevin ought to be so. Indeed, there would be a touch of Vandalism in pulling it down, yet down it must come, for it is one of the three things in the garden that are not worthy of it; the others being the new Palm-house, and the museum. The Palm-house is externally 100 degrees too ugly, the museum paltry and insufficient in a like ratio, and the house nearly a century too old.

At one time the garden contained "a Linnean arrangement" for those who study plants "systematically," a "cattle garden," hay garden, esculent garden, dyer's garden, and Irish garden—arrangements which have been modified long ago; but a good old rule that the Professor should give lectures on botany, to which the public should be admitted gratis, is still continued. Dr. Wade was the first Professor, and Mr. J. Underwood was recommended by Mr. Curtis, author of the "Botanical Magazine," &c, to the practical department. Mr. Niven, now of the "Garden Farm," followed Mr. Underwood, and was succeeded in 1838 by Mr., now Dr. Moore, in whose hands both the practical and scientific work of the garden have remained since that date.

Through the houses I shall first go, though believing the hardy department of a garden in this country, in which so many fine plants can be grown, to be much more important and interesting than any collection of potted plants in existence; but I was driven in by a shower, and so shall take things as they came.

One of the first objects which strikes the visitor to Glasnevin is the octagon house long ago built to accommodate what was once considered the finest Norfolk Island Pine in the United Kingdom, a plant which was unfortunately broken and destroyed while being conveyed to its new home. This old house, which I had expected would have become useless and comparatively ugly before the march of progress in hothouse building, I was surprised to find looking almost classical compared to the astoundingly ugly new Palm house, and nobly filled for the most part with Tree Ferns in grand condition. A great philosopher has written of the "eternal verities," and I have lately arrived at the profound conclusion that good plants are the eternal verities of respectable gardening, as those who have thrown away or disposed of their succulents and other plants not remarkable for glaring colours, to ape the monotony and fashion of the hour, will find to their cost, when by-and-by their gardens are seen to be devoid of interest, compared to places where plants—not colour and vulgarity "well brought out"—are admired and cultivated. Verily a good Tree Fern is one of the most eternal of the verities of a good gardening establishment—especially a botanical one. Nothing like a Dicksonia or Cyathea, with well elevated crest, for a silent lecture on vegetation. A Dicksonia antarctica in this house, with trifid crest, looked rather novel, and then beside it were such fine plants of Balantium Culcita in great health, imported specimens, with the true Alsophila australis, more difficult to get than excelsa, and noble plants of Cyathea medullaris, raised from spores in the garden. One fine specimen was planted out in a Lycopod-covered mound of earth, a very sensible

way of growing Tree Ferns, for those who don't pant after the beauty of tubs. Alsophila Youngii, a slender little Tree Fern, looked very distinct among huge Dicksonias and Alsophilas recently imported, some of which were likely to prove new to gardens. The old Disandra prostrata flaunted over and around a tub here very gracefully. Where such oceanic tubs are used as are now to be seen in the Edinburgh and Dublin gardens, some graceful trailer might be advantageously used to hide the surface of earth and board. Pitching one's tent in such a tub, with the right side up, would by no means give an extreme idea of Spartan hardihood, or disregard of good housing. If the old Greeks possessed tubs of equal size, the famous philosopher may not have been so awkwardly lodged as is generally supposed; and if he came now-a-days to take a house, and was referred to Glasnevin or Edinburgh, doubtless he would in preference select a wheelbarrow. In the octagon house, too, with some tender Pines and Banksias, was a specimen of the Hand-plant, nearly 40 feet high, and very healthy, yet it has never flowered.

The Victoria house at Glasnevin is a very respectable ridge-and-furrow roofed structure, with a large central and four corner tanks, in all of which aquatics of the warmer temperate and tropical countries are luxuriantly grown. A miscellaneous collection of medicinal and other plants was also stood about in it; among these the Cassava plant was in great vigour: it is flowered and fruited in the garden during some seasons. The true Cow-tree, Brosimum Galactodendron, raised from seeds gathered from the famous American trees by Mr. Linden himself, was a very interesting plant, quite distinct looking from the one usually grown as the Milk tree.

Gower Street is not remarkable for picturesque or varied beauty, nor its houses for exciting the æsthetic susceptibilities of passing city clerks. Truth to tell, there are hundreds of horticultural Gower Streets—places in which one might as well look for an interesting plant, old or new, or for interest of any kind, as for a pretty Gothic cottage, or house of original design in the famous gutter-like street. Our gardeners ought to be ashamed of this! Let us hope they will be some day, and then the remedy will soon appear. But though here and there a botanic garden exhibits a good deal of this horticultural Gower-street-ism, there is none of it in Glasnevin, which is the very antithesis of such bedder-out-aping botanic gardens. Otacanthus cœruleus, a neat-growing Acanthad, was pointed out as a valuable new winter-flowering plant, and Jacquemontia violacea indicated its own elegant presence by exhibiting its lovely flowers, reminding one of the choicest Gentian, which make it so exquisite a climber. Yams were abundant, one unnamed species bearing bulbils (if such a term will do for bodies as big in some cases as large Potatos) in the axils of the leaves; and there was also the solid-stemmed Bamboo; a plant very like Gloriosa superba, introduced from Natal by Mr. Cooper; a fine leaved new Erythrina, said by Dr. Harvey to be a very curious one; the Durio; Amherstia nobilis the difficult-to-grow, doing very healthfully; with Cordia Sebestena, Barringtonia speciosa, and Sciadophyllum pulchrum, noble-looking plants, which ought to be oftener seen. Here, too, with Euterpe edulis, was Desmodium gyroides having apparently all the functions of the Moving plant, and the aspect too—only it was much larger; and Oxalis sensitiva was wild about on some of the larger pots and tubs. Vellozia candida looked somewhat like a little branched arborescent Yucca. I had not before seen it in cultivation, and no doubt when grown up and in flower it will prove a fine and interesting plant. Though exceedingly hot I very much enjoyed the water plants in the Victoria house, and no wonder, for the Victoria was grandly developed, and the ferocious Euryale had leaves in one or two cases 5 feet in diameter—a noble plant in that state.

I am very fond of water plants, and think a botanic garden without a good tropical and hardy aquarium deficient of one-fourth the interest which it ought to possess. There are only a few respectable tropical aquariums in the country; and it is as difficult, or more so, to see hardy water plants in a good state. Rarely does one see the Water-Chesnut in cultivation. I had not, previously, except in the Oxford Garden, but here it actually covered the tank in some places, and Mr. Orr told me that brogues were the most delicate things they could traverse the bottom of the tank with, from its being covered with the well-horned fruit of the Trapa. Mr. Orr, it is quite time to say, most efficiently superintends the indoor department at Glasnevin; but it must not be supposed that he is completely absorbed in the tubbing of gigantic Ferns or the growth of Victorias, for he has discovered on the trees of the garden, and in some of its hoary and slimy spots, several Mosses, Lichens, and other small fry, new to the Irish cryptogamist. Nymphæas were largely represented, and finely grown, and when they are well done half a dozen "regulation" greenhouses are not so well worth seeing. A rampant Pitcher Plant suspended its valuable mite of interest from the roof over the water, while the purple Sugar-cane grew much better in the aquarium than it does out of it; and underneath, for the curious in water plants, grew Aponogeton monostachyon, with all its leaves low under the water, unlike its graceful congener. There were also scores of things in and out of the water which I have no space to mention. However, I must say the Sacred Beans were nobly done, Nelumbium luteum blossoming rich and fragrant, a beautiful thing not often seen in flower. Unfathomable as any problem of science, inexplicable as the origin of species, the gullibility of the human species, is perhaps, after all, one of the greatest wonders. According to circumstances, birth, or teaching, we often find man believing everything of anything or something of nothing. But if the creature, even in his superstitions, exercises good taste, we should give him the benefit of it, and so we should vastly prefer the theology of the glowing and strict old Gheber—especially since the sun has been so vividly proved the propellor of all life—to that of those who bend the knee to a mahogany "dummy." So I say, all honour to those who made sacred the beautiful Nelumbium. *Wm. Robinson.*

(To be Continued.)

Home Correspondence.

Fruit in Gardens, and Birds.—How many thousands are there, who admitting the benefit done by birds, yet when fruit and Peas are ripening, *bless* their former friends. Now, is it not possible by simple contrivances to protect ourselves when we wish it, whilst allowing them to protect us by destroying insects when we have nothing to lose? I think it is. I beg, therefore, to suggest that some of the wholesale watch-makers should turn their attention to the manufacturing of a self-acting machine which should fire off a very noisy cap (which could be easily made) as often as required. It would only be necessary to cast a narrow iron drum with any given number of nipples, then on another drum let an ordinary gun-spring hammer be placed, and with simple clock-work machinery they might be made to turn round, lifting up and dropping the hammer as often as wished. A cast-iron circle of 2 ft. diameter would hold 144 nipples, allowing half an inch to each. By using one or more of them you might be virtually firing off a gun as often as you thought necessary, and in the very spot most beneficial—under your Gooseberries, or in your Pea-rows, and the trouble would be confined to putting on caps once or twice a day, according to the number of charges or discharges. *Alpha.*

Phalænopsis Schilleriana.—I observe at p. 963 a criticism of a statement in my work "Select Orchidaceous Plants." I suppose the writer believes he has discovered a vital error in my statement "moist shady places," because of the words Van Houtte extracts from M. Porte's notes, viz., that "P. amabilis is never found in the forests, which are sombre and constantly moist." The words "moist shady places" do not, I submit, convey the same idea as dark or sombre, and constantly moist. Allow me to say that M. Porte brought his first plants to Broomfield. They were placed in the situation he pointed out as suitable; they have been there ever since; and I should much like to see finer plants of either amabilis, rosea, or Schilleriana. It is then argued by Van Houtte that because amabilis is stated by Porte "to inhabit localities where the dry season is more or less regular," (are not all dry seasons more or less regular?) and that P. Schilleriana grows 500 yards up the sides of hills (an altitude only half that of Snowdon), therefore they are less exposed to stagnant moisture. But who recommends growing Phalænopsis in stagnant moisture? Assuredly I do not. No correction then has been made of my statement; but I will correct the statement in the paragraph referred to, that M. Porte discovered P. Schilleriana. I can bring evidence to prove that he was not the discoverer. *Robert Warner, Broomfield, Oct.* 11.

Ancient Gardening.—The following answer to Mr. Darwin (see p. 965) is taken from the 8th edition of Miller's Gardeners' Dictionary, published in 1768. In that work the author says: "All sorts of Kidney Beans are too tender to be sown in the open air before the middle of April. The first crop intended for the full ground should be put in about the middle of April; but this should have a warm situation and dry soil, otherwise the seeds will rot in the ground; or if the weather should prove so favourable as to bring up the plants, yet there will be danger of their being killed by morning frosts, which frequently happen the beginning of May." *J. Bryan, Heydon House, Royston.*——Mr. Darwin may find the information he requires, together with a good deal of curious matter relating to other plants in cultivation at that time, in the "Gardeners' Labyrinth," by Mountain (1594), the first English work published on gardening. It may sometimes be picked up from old book stalls in London at a mere nominal price. Though I cannot state positively (not having seen the book for some years), I believe it will be found, as regards French Beans, that with the exception of sowing a little earlier, there is no material difference in the time or method employed, from that now practised. *J. M., Bothwell.*——The "Herball," or "Generall Historie of Plantes, gathered by John Gerarde, of London. Imprinted at London by John Norton, 1597," says that French Beans should be "sowen in the spring, especially in the midst of Aprill." *A. G., Glenam, Clonmel.*

Large Pears.—I send you a specimen of Duchesse d'Angoulême, grown in a pot; its weight is 25½ oz. Two other fruit, weighing over a pound each, were gathered from the same tree (a small one, two years old from the graft), which was lifted from the open ground and potted last spring, just as the bloom-buds were swelling. It was grown in a cool Vinery until July; it was then turned out of doors into a warm situation, and left to take its chance. I had also fruit of Louise Bonne of Jersey and Williams's Bon Chrétien, treated in the same way, superior in size and flavour to those grown out of doors. *G. Blake, Ombersley Court, Droitwich.* [The Duchesse d'Angoulême received was equal in size to, and had all the appearance of, fruit of the same variety imported from the South of France. It measured 14½ inches one way and 13½ inches the other. The skin was bright yellow, and the flesh melting, juicy, and sweet.]

Large Apples.—An Apple tree of some 10 years' growth has fruited here this season for the first time, and has borne such large fruit that an account of its weight and size may be interesting. The tree was bought for Northern Wonder, and stands in deep loam on a south slope, sheltered. It produced five Apples only, the two largest of which weigh together 2 lb. 5 oz. avoirdupois; one measures 14½ inches in girth, and the other 14 inches. We have suffered generally from drought, as other districts have done, but these Apples have had no artificial aid. *John J. Rogers, Helston.*

Autumn blooming Orchids.—Would some of your Orchid-growing Correspondents kindly inform me the names of about a dozen Orchids that can be obtained at not extravagant prices, and be depended on to furnish six in flower at the end of August and beginning of September? *J. M., Dursley.*

Fruiting of Wistaria sinensis (see p. 965).—In the spring of 1859 I had this growing in a small pot. The roots had got pot-bound, and the plant was fast getting into bad health. As it was not wanted, I intended having it thrown away; but by some oversight it was put aside, receiving neither water nor other attention, until somewhere about September, when I noticed a miserable, stunted-looking seed-pod upon it. This is the only instance of the Wistaria fruiting with which I am acquainted. *J. M., Bothwell.*

Wasps and Sulphur.—On paying a visit to a gardener a short time ago, I was surprised to see a fine crop of Grapes and foliage partly destroyed. On asking the cause of the mishap, the gardener told me that his employer (a lady) had been using a hand-glass wasp trap in the house, and that after destroying the wasps in the trap with burning sulphur in a dust-pan, she had then held the burning sulphur in several parts of the house up to the bunches to destroy such wasps as were eating the berries. This, alas, destroyed not only the wasps, but also the foliage and Grapes. *Wry.* [Of course.]

Zizania aquatica.—I have found the seeds of this plant to vegetate best when dropped of their own accord into the water as soon as ripe. *C. G.* [The dry imported seeds are useless.]

Underwood for Larch Plantations (see pp. 944 & 965).—In reply to "H. S. M." respecting underwood beneath Larches, I venture to say that nothing will grow but Grass; at least this is the opinion of *An Old Experienced Planter of Larches.*

Societies.

Royal Horticultural: *October* 11 (*Floral Committee*).—Messrs. Veitch showed on this occasion some fine hybrid Cattleyas, to two of which, viz. C. Dominiana alba, a kind with delicate lilac sepals and petals, and pale sulphur-stained crimson veined lip, and C. devoniensis, First-class Certificates were awarded. The latter is a robust-growing kind with crimson lip, and greenish-white sepals and petals. C. exoniensis, shown at a former meeting, was also reproduced on this occasion by the same firm. Various cut specimens of Antirrhinums and Pentstemons were contributed by Messrs. Stuart & Mein. Mr. Macintosh received a Second-class Certificate for his Solanum Capsicastrum hybridum mentioned by us at p. 918; and a similiar mark of distinction was bestowed upon Dahlia Lightning, yellow striped with maroon, shown by Mr. Legge of Edmonton. To a zonate Pelargonium in the way of Mrs. Pollock, but with more red in the leaves, named Lady Cullum, from Messrs. E. G. Henderson, a First-class Certificate was awarded, and an equally handsome-leaved kind, called Lucy Grieve, was also shown by the same firm. Aucuba japonica picta, a yellow-leaved variety edged with green, a male plant in flower, from Mr. Bull, received a First-class Certificate, and the same exhibitor also showed A. japonica vera in fruit, as well as some interesting varieties of Ferns.

British Association: *Sept.* 16.—In Section B (Chemical Science), after a paper on the Utilisation of Sewage by Dr. Bird had been read, Mr. Tite remarked that the whole matter of the disposition of the London sewage had been before him for a considerable time. The London sewage was something enormous in quantity. It was collected in immense reservoirs, and then poured into the river at times when it would be swept out to sea. Thus, the whole of the sewage of London, containing important chemical constituents, was utterly wasted. He had no doubt that they should relieve the basin of the Thames completely of the sewage which fell into it from Chelsea to below London; but with regard to the utilisation of the sewage, they did not see their way clearly. They were too, in difficulty as to what was to become of the drainage of the large towns above their district, because it was

impossible to join them with London, and it was idle to seek to drain Oxford by any lateral drainage that could reach the sea. At the present time Kingston had made arrangements to pour its sewage into the Thames, but was stopped by an injunction obtained by the Conservators of the river, by which they had been taught that such nuisances could not be continued. The question then remained, what was to be done with it? Two facts had been proved. At Leicester, where the experiment had been carried on regardless of expense, it was proved that the deodorising of sewage by lime would purify water and prevent it becoming a nuisance to the stream. Since then it had been found that fish flourished, and the herbage and fruit, which before were poisoned, had now returned to their normal condition. This fact was also apparent, that the products which it had been thought would be sufficient to pay for these works, had proved an entire failure; and except for the lime, which was very useful for the fertilisation of land, it had proved utterly useless. The other fact was the experiment at Croydon, which certainly did appear successful. There the river formerly was polluted by the sewage. A farm of 40 acres was then taken; ordinary drains were cut, the sewage was turned into the land before it passed into the river, thus purifying it of its offensive ingredients, and proving of great advantage to the land. Croydon had thus solved the problem extremely well; but how such a system could be applied to London was a problem still unanswered. He described various propositions which had been submitted to the Metropolitan Board of Health, and stated that they had acted on the opinion of Mr. Rawlinson, the Government engineer and the adviser of the Government, who was of opinion with regard to London that it could never be made a commercial success, and must end in bankruptcy.

In Section E (Geography), in the course of a paper on the "Increasing Desiccation of Inner Southern Africa," Mr. J. F. Wilson remarked that the Calabari Desert is gaining in extent, gradually swallowing up large portions of habitable country on its borders. Springs of water have diminished in their flow, and pools are now either dry or rapidly becoming so. The great change had commenced long before the advent of Europeans, if we may trust native traditions, which are corroborated by the existence of an immense number of stumps and roots of Acacias in tracts where now not a single living tree is to be seen. The causes of this change lie in the physical characteristics of the country and in the customs of the inhabitants. The region drained by the Orange river is naturally arid, from the interposition of the Quathlamba mountains between it and the Indian Ocean, whence the chief rain-clouds are derived. The prevailing winds are from the north-east. The clouds, heavily laden with vapour from the Indian Ocean, are driven over Caffraria, watering those lands luxuriantly; but when the moisture-bearing nimbi arrive at the summits of the mountain range which divides Caffraria from the interior country, they are not only deprived already of part of their moisture, but they meet with the rarefied air of the central plains, and consequently rise higher and evaporate into thinner vapour. There are few spots, however, which are wholly destitute of vegetation, and large trees are frequent. There is no district which does not maintain its flocks of wild animals; but the diminution of even one or two inches of rain in the year is most severely felt. The author came to the conclusion, after a careful inquiry into the geological formations of the region and the sources of springs, that much water must lie, throughout wide tracts, deep below the surface of the soil, and that the boring of artesian wells would yield a permanent supply for irrigation. But as a remedy for the growing evil, he laid particular stress on legislative enactments to check the reckless felling of timber and burning of pastures, which has been long practised both by the natives and the European colonists.

In Section F (Economic Science) a report was presented by a Committee appointed to inquire into the best means of providing for a Uniformity of Weights and Measures. The Committee recommend, among other things, that it is desirable, in the interests of science, to adopt a decimal system of weights and measures; that in furtherance of this proposal it is desirable, from its scientific capabilities, to adopt the metric system; and that as the weights and measures of this country are gradually undergoing a process of decimalisation, it would be more advantageous, instead of drifting by degrees into a heterogeneous variety of systems, to change at once to a really convenient one. The Committee also suggest that in statistical documents issued by the Government relating to questions of international interest, and in communications respecting weights and measures, presented to foreign countries which have adopted the metric system, equivalents in the metric system should be given for the ordinary English expressions for length, capacity, bulk, and weight; and they recommend the authors of scientific communications, in all cases where the expense or labour involved would not be too great, to give the metric equivalents of the weights and measures mentioned. They consider that the influence of the British Association would be beneficially exerted in obtaining from Paris an authorised set of metric weights and measures to be placed in some public and frequented building in London; and that treatises explaining the metric system, with diagrams, should be forthwith laid before the public; that works on arithmetic should contain metric tables of weights and measures, with suitable exercises on those tables; and that inspectors of schools should examine candidates for pupil teachers in the metric system. On the subject of temperature, it is recommended that the authors of Reports to be presented to the British Association, relative to temperature, be requested to give the degrees of heat or cold according to both the Centigrade and Fahrenheit's thermometers; and it is proposed that the scales of thermometers constructed for scientific purposes should be divided both according to the Centigrade and Fahrenheit scales; and that barometric scales be divided into fractions of the mètre, as well as into those of the foot and inch.

The following table, by Mr. Samuel Brown, condenses the system of all the metric measures and weights into a small compass:—

SYSTEM OF METRIC MEASURES AND WEIGHTS.

		Length.	Surface.	Capacity.	Weight.
MULTIPLES.	Myria..	10,000	..	..	10,000
	Kilo ..	1,000	..	1,000	1,000
	Hecto ..	100	100	100	100
	Deka ..	10	..	10	10
	UNITS ..	Mètre.	Are.	Litre.	Gramme.
DIVISIONS.	Deci ..	.1	..	.1	.1
	Centi ..	.01	.01	.01	.01
	Milli ..	.001	..	..	.001

The multiples of the unit, in each case, are designated, in the metric system, by Greek prefixes:—*Myria*, 10,000; *Kilo*, or *Chilio*, 1,000; *Hecto*, or *Hecato*, 100; *Deka*, 10: whilst the divisions of the unit are expressed by Latin prefixes:—*Deci*, $\frac{1}{10}$th; *Centi*, $\frac{1}{100}$th; *Milli*, $\frac{1}{1000}$th. The English equivalents to the measures of length and capacity, and to the weights, according to the metric system, stand thus:—

METRIC MEASURES OF LENGTH, WITH ENGLISH EQUIVALENTS.

METRIC NAMES.	English Equivalents.			
	inches.			
Millimètre (1-1000th) ..	0 039			
Centimètre (1-100th) ..	0.394			
Décimètre (1-10th) ..	3.937	feet.	inches.	yards.
1 MÈTRE	39 371	3	3 371	1.094
Dékamètre (10 mètres) ..	..	32	9.708	10.936
Hectomètre (100 mètres)	..	..	..	109.363
Kilomètre (1000 mètres)	..	..	..	1093.633

METRIC MEASURES OF CAPACITY, WITH ENGLISH EQUIVALENTS.

METRIC NAMES.	English Equivalents.			
	gill.			
Centilitre	0 070			
Décilitre	0.704	quart.		
LITRE	..	0.880	gallons.	quart.
Dékalitre (10 litres) ..	..	..	2	0.804
Hectolitre (100 litres) ..	..	..	22	0.039

METRIC WEIGHTS, WITH ENGLISH EQUIVALENTS.

METRIC NAMES.	Avoirdupois.				Troy.
	cwt.	qrs.	lb.	oz. drms.	grains
1 décigramme (1-10th) ..	..	..	..	.. ..	1.543
1 GRAMME	..	..	..	.. ..	15.432
1 dékagramme (10 grammes)	..	..	..	5.644	
1 hectogramme (100 grammes)	..	..	3.527		
1 kilogramme, or kilo (1000 grammes) ..	..	..	2.205		
1 myriagramme (10 kilos)	..	..	22.046		
1 metric quintal (or 100 kilos)	1	3.574			
1 metric tonne (1 00 kilos)	19	2.736			

September 17.—In Section A (Physical Science), in a paper on the Rainfall of the British Isles in 1862—3, Mr. J. G. Symons remarked:—The broad outlines characterising the distribution of rain during 1862 and 1863 may be thus briefly sketched. Taking, first, the whole of the stations in England, Scotland, and Ireland, the average fall in each of the years 1860, 61, 62, and 63 is about 10 per cent. above the average of the last half-century; and the fall in the three years 1860, 61, 62 nearly equal, the difference being less than 2 per cent. of the total quantity; while 1863, which was rather drier than the others, only differed by 5 per cent. These very uniform results are surprising, considering that, in some districts, the fluctuation has been nearly 100 per cent. For instance, Holkham, 1860 was 35 inches, 1863 only 18 inches; Torosay Castle in 1860, was 70 inches, and in 1863 was 111 inches, differences the reverse of each other—in one case of 17 inches excess in 1860, in the other 41 inches in excess in 1863. Yet the general average throughout the country remains nearly constant; it is, in fact, a similar compensation in yearly totals to that which has prevailed during the drought now so much felt in the south of England at the very time that the north-west of Scotland has been suffering from want of dry weather. It is further evident, from the table of average fall, that there has been a series of three dry years in the midland counties of England, just as there has been a series of three wet ones in Ireland and along the west coast of Scotland. The drought at stations in the north midland counties has been more felt even than is warranted by the small fall in 1863, because the ground has had no chance of resuming its normal condition since the partial drought in 1861. The minimum recorded fall is 14·46 in 1863, at Southwell, Nottinghamshire, in which district seven stations return less than 17 inches. On the other hand, the maximum of 1863, namely, 173.84 at Seathwaite, is supported by 173 inches at Drishaig, by Dalmally, and by six other stations, with an annual fall between 100 and 150 inches.

September 19.—In Section D (Zoology and Botany), Dr. Daubeny read a paper on the "Decay of Species, and the Natural Provisions for extending their Duration," printed at length in pp. 963 and 987.

On the same day in Section E (Geography), Mr. R. Spruce read a paper on the "Physical Geography of the Peruvian Coast Valleys of Chira and Piura, and the adjacent Deserts." He gave an elaborate description of the soil and climate of those districts of northern Peru in which the different Peruvian varieties of the species of Cotton-tree named Gossypium barbadense, are so successfully cultivated. The memoir will be published by the Indian Government for distribution amongst the planters in India, where these varieties of the Cotton-plant were introduced by Mr. Clements Markham. The districts described are remarkable for the absence of rain, the only humid and fertile districts being the valleys of the numerous short streams which flow from the Andes to the Pacific. Seasons of heavy rain, nevertheless, occurred at long intervals, in some cases of 17 years.—Commodore Maury, in explaining the probable cause of the remarkable dryness and exceptional rains of northern Peru, described the equatorial cloud-belt of the earth, and said that it was a proof of the sharp limitation of this belt that at Guayaquil (which was covered by it) there was a humid climate, whilst at Piura, only 120 miles further south, but outside the belt, not a drop of rain fell for 17 years. The cloud-belt was suspended over that narrow zone which lay between the termini of the northern and southern trade winds, and he attributed the occasional rainy seasons at Piura to exceptional variations in these termini which caused the ordinary annual oscillation of the cloud-belt to extend a little further to the south than was usually the case.

Notices of Books.

Ootheca Wolleyana: an Illustrated Catalogue of a Collection of Birds' Eggs formed by the late John Wolley, F.Z.S. Edited by A. Newton, M.A., F.L.S. Pp. 160, 4to, 1864. London: Van Voorst.

The late Mr. Wolley was an enthusiast in the pursuit of Natural History. He died at the early age of 36, having left his egg-cabinet, with a note-book of its contents, to his friend and fellow-traveller Mr. Newton. These notes Mr. N. is now publishing, with descriptions and chromo-lithograph plates of the eggs; to which, in accordance with the supposed wishes of his friend, he has added the description of some others not originally in Mr. W.'s collection.

The notes give a history of each egg in the collection, whence it was obtained, and when. These little accounts are written in a pleasant lively style, and are well worth perusing for the daring feats of climbing by which alone, oftentimes, the precious eggs could be reached, and as this birds-nesting was not confined to the British Isles, a certain amount of foreign travel comes in.

In harrying the nests of the golden eagle (Aquila Chrysaëtus) in Sutherlandshire, Mr. Wolley gives a graphic description of the dangers which he encountered. There was a very high cliff overhanging a large loch. The nest was some little way down, and the adventurous gentleman was lowered by ropes over the edge of the precipice. The edge was very sharp, being a kind of mica-schist, which greatly increased the danger. But the exultation he felt at seeing the eggs and bagging them, is something charming to read of. For ourselves we had rather read his account than follow his example.

In taking some eggs of the osprey (Pandion Haliætus), the rock in which the nest was placed could only be reached by swimming, but, numbed with cold as he was, the enthusiast ventured. He writes: "I reached the peak. It was nearly perpendicular both above and below water, and no landing-place appeared. However, a bit of rock, twice as big as a walnut, projected; and higher up I stuck my claws into some roots of Polypodium, as in getting to an eagle's nest on a former occasion. My arms had hardly strength to hoist me up; but at last I reached the top and caught the cutting wind. At once I saw an egg, and in half a second two more, a little removed from the first—all beautiful. I tried to descend with my back to the rock, but it was no go, and I fell into the water. The peak might be 12 or 14 feet high. In tumbling off I did not strike against any sunken rock, so that my fall was easy. As soon as the men saw me fall into the water, they hauled hard upon the string; and I, coming across a sunken rock, disappeared beneath the surface. This frightened them, and they hauled the harder. As soon as I came to the top, I had just breath enough to shout 'Gently,' but on they dragged." He reached the shore quite exhausted, scratched, and bloody from the rocks, and almost perished with the cold. Such was the character of the egg-collector. He was not to be deterred by

trifles, and succeeded in forming a fine collection of birds' eggs.

Part I. of this work contains the *Accipitres;* another volume, containing the *Clamatores*, is promised in December. The part before us contains 9 fine chromo-lithographed plates of birds' eggs, and about as many more plates of the scenes of some of these adventures in the cause.

The Reptiles of British India. By Albert C. L. G. Günther, M.D., Ph.D., &c. Published for the Ray Society. Pp. 444. Imp. 4to. 1864. Robert Hardwicke, 192, Piccadilly.

This very beautiful work contains the descriptions of above 500 species of reptiles, not however altogether confined to the limits of British India, for it includes what is known of the reptiles of Affghanistan, Tibet, and Northern China. First Dr. Günther describes about 45 of the Chelonia; next the Saurians, which are far more numerous, extending to nearly 150. Then come the Ophidians, a still larger order; and finally about 52 Batrachians. The letter-press is clearly arranged and beautifully printed, and there are six-and-twenty superb lithographic plates of Mr. C. H. Ford's, executed to perfection by West. Altogether this volume is worthy of the learned and very useful Society by whose means it has been brought out.

Lord Oakburn's Daughters. By Mrs. Henry Wood, Author of "East Lynne," &c. London: Bradbury & Evans.

To all who are not satiated with what are called sensation novels, this book will be quite a treat. The story is charmingly told, and the three volumes are devoured and digested before you are aware that you are half way through them. The great secret of their intense interest is the skilful manner in which several of the personages are wrapped up in the most profound mystery. The hero, for example, never suspects his second wife to be sister to his first, until many years after marriage. The culprit who makes away with the first wife, is never found out or suspected till quite the end of the story. The ghost has every appearance of being an apparition, and keeps up the character well. Events happen so suddenly that you are quite breathless with surprise, and by the time you have recovered your equanimity, you are as much puzzled as ever to know what is coming next. To unromantic readers it seems strange that people should be so obtuse or so blind as never to put two and two together for themselves; but as stranger things are said to happen in real life than ever are dreamt of in fiction, we feel bound to believe that the persons in the novel were as unsuspecting as they are represented to have been.

Catalogues Received.—*Van Houtte's Catalogue des Plantes de Serres: Prix-courant* 104, is a very extensive and carefully compiled list of stove and green-house plants, Ferns, Gesnerworts, Orchids, Palms, Azaleas, Camellias, &c. M. Van Houtte, whose list of Camellias bears evidence of care in its compilation, gives Valle Vareda as the correct name of the fine variety grown generally as Valtevareda.—*Prix-courant pour* 1864-5 *des Plantes de Serre, et de Plein Air, d'Auguste Van Geert*, à Gand, is another ample general list, comprising amongst many other matters choice collections of Cacti, Camellias, Conifers, and Rhododendrons. Handsome stems of Alsophila excelsa, from four to ten feet high, are offered.—*Catalogue Général des Arbres à Fruits, &c., disponible dans l'établissement horticole d'Auguste-Napoléon Baumann*, à Bollwiller, is a descriptive catalogue of an extensive collection of fruit trees, accompanied by lists of hardy trees, shrubs, and herbaceous plants, and briefer ones of stove and green-house plants and Ferns.—*Paul & Son's Rose Catalogue for* 1864-5 comprises a select list of the more approved varieties, arranged under their respective groups. We notice a division of the class of Hybrid Perpetuals, which has some advantages, namely, the placing in distinct sections of varieties suitable for exhibition, and varieties suitable for garden decoration, but it has the defect of not indicating the best garden Roses amongst the former, while a third section, consisting wholly of the newest sorts, though perhaps necessary for want of information respecting them, will render the search for any particular Rose all the more tedious. We incline to think one continuous alphabetical arrangement would, however, be the most convenient of all, not only in the case of Roses, but perhaps of other things, the information now given by means of classification generally admitting of being readily supplied in other forms.——*Rose Catalogue for* 1864-5; *also Descriptive Catalogue of Hardy Ornamental Trees and Shrubs, by William Paul*, Waltham Cross. The first is a very full descriptive list of Roses; and the second an annotated list of a large collection of ornamental trees and shrubs, arranged under the divisions of Evergreens, Conifers and Taxads, Deciduous trees and shrubs, American plants, and Climbing and Twining plants. Both are very carefully prepared, and should be consulted by those who are about to carry out any planting operations.

Garden Memoranda.

"Coombe Abbey (Cwim or Combe, a low or hollow place), near Coventry, Earl Craven, a noble mansion, in part by Inigo Jones, in a park of 500 acres, well varied by wood and water." Such is the graphic description given by Loudon of this place in the Encyclopædia of Gardening, p. 1239, and from what we may judge of the state of it a few years ago, it was better to leave it thus than to describe it more minutely. Thanks however to the refined taste of its noble proprietor, the gardens of Coombe Abbey are fast rising into notoriety, and will fitly take their place amongst first class establishments of the kind in this country. The old and dilapidated garden walls and houses are swept away, and new walls and handsome and substantial houses have taken their place. A new residence has been built for the gardener, and new fruit-rooms, Mushroom-house, and young gardeners' rooms, potting-sheds, &c., have been erected in a substantial manner at the north end of the kitchen garden; in fact, every part of this destined to be fine place, is undergoing thorough revision.

The kitchen garden is almost close to the Abbey; hence the necessity of making it ornamental as well as useful. A walk 12 ft. wide leads from the Abbey through its centre, having the gardener's house for its termination. On either side of this walk are borders about 8 ft. wide, filled with flowering plants, and edged with the wild small-leaved Ivy from the woods. This Ivy is also employed for edging nearly all the walks in the kitchen garden; it is planted 6 inches wide, and is now, after two years' planting, so well established that it makes a very neat and ornamental bordering either for vegetables or flowers.

About half-way up this centre walk is a circular basin, 18 or 20 feet in diameter, furnished with five jets. The flower border is also carried around the basin, forming a happy combination when the water is playing, and at the same time affording a reservoir for the supply of the garden. There are two cross walks in the garden, and by the introduction of iron gates in the wall beautiful vistas are formed, running away a great distance into the park.

Midway between the fountain and the end of the garden a cross wall is introduced, leaving an opening in the centre 26 feet wide. Against this wall are placed two Peach houses, or Peach cases as they are denominated here, 75 ft. by 7 ft. The front glass is carried to the height of the wall, and the space covered with a flat span roof. An upright wire trellis, about 6 or 7 feet high, is placed against the front glass, and to this the trees are trained. The back wall is also planted with trees, and by this arrangement the front trees do not at all intercept the light from those planted at the back. Young trees were taken from the garden walls two years ago and planted in these houses where they have grown vigorously, and now almost cover the walls and trellises. These Peach houses form an excellent screen to the pits, Pine houses, &c., placed behind them, and keep up the ornamental appearance of the garden as seen from the end next the Abbey. At the back of this wall is placed a greenhouse 75 ft. by 18, also a stove and Fernery together, 75 ft. by 18; 35 feet being occupied by the Ferns, and the remainder by stove plants.

In the greenhouse are some nice specimens of Azaleas, and in the stove we noticed many good plants of Allamandas, Crotons, Begonias, Cyperus alternifolius, Dracænas, and a beautiful specimen of Hexacentris mysorensis, trained to an upright trellis about 5 feet high. In the Fernery an arrangement is made against the back wall upon a series of double arches for supporting two ornamental borders, into which Ferns are planted out of their pots, and are growing luxuriantly. Polypodium aureum, Pteris argyræa, and several others are in robust health; in front of these is a tank of heated water and a stage over it for setting Ferns on, an arrangement which amply supplies the peculiar wants of this interesting tribe of plants. The wall of the tank is finished with a hollow coping 9 inches diameter, which is filled with Lycopodium helveticum, a plan, judging from its effect, worthy of imitation.

Behind this are arranged on one side two houses 80 feet by 15, one for growing Cucumbers and Melons, the other for pot Vines, &c. The former is furnished with hot-water tank, and is well heated and ventilated.

On the S.E. side are two others, one 80 feet by 15, for growing succession Pines, the other 80 feet by 18, for a fruiting house; each of these four houses have a division in them. Queen, Providence, and Smooth Cayenne Pines are the principal kinds grown; they are all clean and in good health.

A noble range of glass 386 feet in length occupies a large portion of the wall facing S.S.E. This range has eight divisions, and is devoted entirely to the cultivation of Grapes and Peaches. The two centre houses are the widest, and are used as late Vineries—they are 50 feet by 18; two houses on either side of the centre are used as early Vineries, and are 45 feet by 15; two others for succession Vineries, 40 feet by 15; and the two outside houses are planted with Peach and Nectarine trees—these are each 50 feet by 12. The Vine and Peach trees were planted in June, 1862. The Peach trees were for the most part taken from the walls, and are now bearing good crops of fruit. The Vines are doing remarkably well, furnishing the rafters with bearing wood quite two-thirds of their length, and although they have been allowed to bear six or seven bunches of Grapes each this year, they are in good condition, and furnished with good fruiting wood for next season.

They are planted inside the house, the front of which being on arches permits the roots to pass partly outside. It is intended to make the outside border by instalments, only about 3 feet being at present made; this portion, being close to the house, is about 2 feet deep, and consists of good maiden loam, resting on about 9 in. of broken stones, which cannot fail to secure a good healthy root-action. All the most approved kinds of Grapes are planted here; the late houses contained such varieties as Lady Downes, Barbarossa, West's St. Peter's, Tokay, Muscats, &c. One Vine of the Barbarossa had six large bunches of Grapes, averaging pretty nearly 5 lbs. each, and tolerably well coloured. Between the late and early Vineries there is a break in the range on either side of about 8 feet, the houses being connected by a corridor. In these spaces two tanks are constructed, having a 4 in. pipe flow and return passing through them, thus keeping up a constant supply of hot water for the use of the houses; this is quite a novel arrangement, the value of which can scarcely be overrated. The tanks hold about 4000 gallons each.

Bordering the walks in the kitchen garden is a fine collection of Pear trees, trained for the most part in three flat tiers, resembling a round table with three tops—these tiers are about 1 foot 6 inches apart, the lower one being the largest in diameter and the top the smallest; they look well when bearing a good crop of fruit, as every fruit can be seen to advantage. Some Apple trees are trained in the same way. Several other methods of training are also adopted.

The garden slopes considerably to the south, and in order to keep the portion level where the houses are built, the lower part has been raised about 3 feet; steps are introduced in the central walk, the outside walks are carried up on an incline, and a Grass slope being made on their sides 3 feet deep at the top and running out to nothing at the bottom, a wide margin of Grass is carried all round the vegetable quarters in this division; this has a good effect in keeping up the ornamental character of the garden.

There is a large open space of ground on the south side of the garden outside the water, which is in course of formation; this is arranged so far in geometrical figures, and is intended to form a Rose garden, and probably a Rhododendron garden; and a large space is to be devoted to a miniature fruit garden. At the bottom nearest the Abbey is a croquet ground 300 feet by 90; beyond this a bank is raised and planted with shrubs to shut out the stables, &c. An outside walk 12 feet wide is carried round three sides of the garden, on two of which it is raised from 2 to 3 feet high, and forms a handsome terrace walk, with a wide margin of Grass on each side; a Grass walk 2 feet wide and 3 feet from the wall is also introduced here, and is a great improvement upon the principle generally adopted. Between this and the walk is a border about 10 feet wide, at the back of which is a row of standard Roses; the remainder is occupied with Geraniums, Verbenas, &c., as a ribbon border, and from its great length it is very effective. A part of the wall at the end of the garden, and facing the Abbey, is planted with choice hardy creepers, the centre being occupied by an ornamental screen designed by Mr. Nesfield. In front of this wall are arranged square beds of flowers. The whole of these arrangements, with the exception of the gardener's house, fruit rooms, &c., have been designed and carried out by Mr. William Miller, his lordship's gardener, and we think they cannot fail to be satisfactory both to the employer and employed.

The Abbey is undergoing thorough revision, and considerable additions are being made to it. A large serpentine lake in the park is being brought under the walls of the Abbey in the form of a moat on the north side, and extending some distance beyond the building. A handsome boat-house in connection with the Abbey is also in course of formation, and we understand that it is intended to form a beautiful terrace garden, extending up to the end of the moat, from plans to be furnished by Mr. Nesfield. Mr. Nesfield's son is the architect for the alterations and additions to the Abbey.

The park is extensive but flat; it contains much fine timber, and about 80 acres of water. Extensive drives are made through the woods, and others are in contemplation. In short, over the whole of the estate improvements are being made of such a character as cannot fail, and that at no distant date, to be attended with most beneficial results.

As some of the Scotch Firs here are beyond the ordinary size, it may be interesting to give the dimensions of a few. The measurements are taken at 3 feet from the ground:—No. 1, 12½ feet cir., height of bole 40 feet; 2, 12 feet cir., bole 40 feet; 3, 10 feet cir., bole 30 feet; 4, 10 feet cir., bole 30 feet; the heights of the trees are from 70 to 80 feet. These dimensions are superior to those quoted by Brown in his "Forester," (page 238), inasmuch as the measurements there stated were taken at only a foot from the ground, whereas the measurements just given are taken at 3 feet from the ground. These fine trees are growing partly in the park, and partly in the pleasure ground, and are not more than 60 yards distant from each other. *E.*

Miscellaneous.

Araucaria Bidwilli.—A cone of this Araucaria, measuring 26 inches in circumference, may now be seen in the window of Mr. Kennedy's new premises, Piazza, Covent Garden; also great slabs of rough bark of the Cork tree, which being light and durable will doubtless be found useful for indoor rock or other rustic work. Associated with Ferns and other ornamental plants may likewise be seen here green Australian Tree Frogs, Chameleons, and other interesting objects of Natural History.

Calendar of Operations.

(For the ensuing week.)

The general impression amongst practical men is that autumn planting is superior to that of the spring. We are decidedly of this opinion; and we would advise those who intend making new orchards, removing large fruit trees, or replacing decayed young ones, to commence operations of a preparatory character immediately. Such preparations should consist, in the first place, of a necessary provision of fresh and sound loam; and if this can be obtained with some rough turf in it so much the better; if not, it will be well to mix rough stable litter, straw, or any other coarse material with the loam when filling into the holes. The loam being provided and thrown into a high and sharp ridge, in order to throw off rain, the next thing is to thoroughly drain, if not already done, the site intended for planting; without this all subsequent operations will end in disappointment. Perfect drainage being secured, stations may be formed by making a hard bottom of broken stone rubble, broken bricks, or other hard material, and the practice of some is to throw a coating of cinders on this hard surface, to prevent the soil from entering the porous material beneath. As to depth great moderation must be observed if the kinds are in any way tender, and designed for the dwarfing system. For such, 18 inches in depth of soil will be amply sufficient, and if the ground be of a moist character one-third of the amount of soil should rise above the ordinary ground level; indeed, in most cases, it is well to raise it considerably. We will say something about selection of kinds when the period of removal arrives; in the meantime, we would advise a trench to be thrown out without delay around very large trees intended for removal. This will check late growth, and induce a disposition in the roots to throw out new fibres or small rootlets.

FLOWER GARDEN AND PLANT HOUSES.

Dutch Bulbs should be largely cultivated where a fine display is required; and where hardy shrubs are forced for the decoration of the conservatory, they should now be got ready for the purpose.

Auriculas.—See that frames in which these are to be wintered have a proper pitch, and that all the glass is sound, so that the plants may not be subjected to drip, which will infallibly ruin them. Free circulation of air should at all times be promoted. When properly managed few petted flowers are more hardy than the Auricula.

Carnations and Picotees.—In obtaining new varieties the best plan is to have them immediately; better plants can generally be got now than in spring, and they will have time to establish themselves before winter, which is highly necessary, if they are to be kept in a state of health till next spring.

Hyacinths.—These should now be procured, potted, and placed in a cool dark place free from frost to make root. Out of doors will do, provided they are well covered over with cinder ashes or Cocoa-nut refuse. When well rooted they may be started into growth in heat as required.

Pinks and Pansies.—These, we presume, are already planted; some of the plants of both are occasionally "long in the leg," and such should be supported with small sticks, or they are apt to be broken over by wind.

Tulips.—The time has now arrived when all Tulip beds ought to be properly arranged for planting, so that the bulbs may be got into the ground forthwith. Some means also should be adopted to shelter the bed or beds from heavy rain, as it is extremely prejudicial to the bulbs before they have begun to appear above ground; and in fact excess of moisture ought at all times to be avoided.

FORCING GARDEN.

Cucumbers.—Do not permit young plants to overbear themselves. It is much better to insure a constant moderate supply by judicious management, than to obtain overabundance at one time and nothing at another. Maintain a temperature of about 70°, and keep the atmosphere moist and agreeable for the growth of the plants.

Peaches.—Let the house which it is proposed to force early be got ready at the first convenient opportunity. The surface of the borders, if exhausted by repeated waterings, should be carefully taken off with a fork, and replaced with fresh soil. Worn-out trees if any, may also now be replaced by bearing trees from open walls.

Pines.—If circumstances should render it necessary to subject a portion of the stock intended for fruiting to a brisk temperature at once to induce it to start, the most promising plants should be very carefully selected, and placed in a small house or pit by themselves; and, where anything like a regular supply of ripe fruit is required, several houses, or separately heated compartments, should be at command. Indeed without this convenience no gardener can reasonably be blamed for having too many ripe at one time and none at others. It is not by any means desirable to start more plants into fruit at this early season than may be absolutely necessary, for they will produce finer fruit later in the season than can possibly be obtained from them now; and where a separate house cannot be commanded for those which must be subjected to a high temperature, we would advise that the plants selected for fruiting should be placed in the warmest part of the house at command, filling the rest of the compartment with young stock.

Vines.—Where early forcing is contemplated, the points of the shoots should be kept nearly on a level with the lowest part of the Vine, until the buds are fairly broken; and if this should not be found sufficient to induce the buds to start equally throughout the length of the Vine, the rods should be bent so as to bring the most forward buds to the lowest level, elevating those that are backward. Maintain a thoroughly moist atmosphere by frequently sprinkling the floor and passages, &c.; and syringe the Vines lightly at least twice a day until the leaves begin to appear, when the amount of moisture must be moderated.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit and other stores frequently in order to see that all is safe and sound. Standard trees which have been root-pruned must be firmly secured against injury from winds; also get any root-pruning to be done this season executed as soon as possible.

Asparagus.—Young plantations will probably still retain their freshness, in which case the tops ought not yet to be cut off. It is a common custom after the beds are cleaned to spread manure on the surface, and then to dig the alleys and cover the dung on the beds with part of the soil. This top-dressing of manure can only benefit the plant by the rain washing its nutritive particles down to the roots; it might therefore lie exposed all winter, and be forked in when the beds are dressed in spring. If the alleys are filled with roots they ought not to be dug out; a dressing of manure should be lightly turned in instead.

Parsley.—Endeavour as far as circumstances will permit to have a good supply of Parsley under safe protection; for there is generally a large demand for this, and in the event of a severe winter it is difficult to save it by the ordinary protection of hoops and mats.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Oct. 12, 1864, as observed at the Horticultural Gardens

October.	Moon's Age.	Barometer Max.	Barometer Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 6	5	30.180	30.101	61	31	45.5	54	56	N.E.	.00
Friday 7	6	30.246	30.177	63	27	45.0	54	55½	S.W.	.00
Satur. 8	7	30.188	30.142	61	44	52.5	54	55½	N.E.	.00
Sunday 9	8	30.142	30.130	57	42	49.5	54	55	N.E.	.03
Mon. 10	9	30.268	30.173	58	42	50.0	54	55	E.	.00
Tues. 11	10	30.308	30.147	60	45	52.5	55	55½	E.	.00
Wed. 12	11	30.239	30.068	62	41	51.5	55	55	N.W.	.00
Average.		30.218	30.134	60.3	38.7	49.5	54.3	55.3		.00

Oct. 6—Slight fog; cloudless; slight dry haze, frost at night.
— 7—Clear; fine throughout; sharp frost at night.
— 8—Fine, with slight haze; overcast; mild.
— 9—Overcast throughout; rain at night.
— 10—Fine; overcast; fine throughout.
— 11—Fine; very fine; overcast at night.
— 12—Overcast; fine with dry air; fine at night.
Mean temperature of the week 3 deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Oct. 22, 1864.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 16	58 8	40.2	49.5	17	0.66 in.	—	6	5	1	5	9	8	4
Mon. 17	59.4	41.0	49.7	16	0.31	—	5	5	—	2	11	10	5
Tues. 18	58.1	41.3	49.7	18	0.85	3	3	4	1	3	7	14	3
Wed. 19	59.7	40.2	49.9	19	0.61	2	3	6	3	2	9	9	4
Thurs. 20	59.2	40.2	49.7	13	0.34	—	6	1	3	6	9	10	3
Friday 21	58.4	39.8	49.1	16	0.64	2	7	3	4	5	9	5	2
Satur. 22	59.0	42.9	50.4	21	0.98	2	1	4	1	10	11	5	4

The highest temperature during the above period occurred on the 21st, 1831—therm. 73 deg.; and the lowest on the 21st, 1842—therm. 20 deg.

Notices to Correspondents.

Beet Root: *J W.* We do not know any variety of Beet root called Spanish, but the White or Sicilian Beet grows on the coasts of Spain. Do you mean the Spanish Radish?

Books: *J Chaffin.* Thomson on the Vine.—*Lady S.* The Octavo Nature-printed British Ferns, if you want figures and a book for home reference; but if a more portable manual, then Moore's Handbook will suit you.—*W B R.* The Elements of Botany can be ordered through any bookseller.—*J R.* Hogg's Fruit Manual, latest edition. The other book you mention we cannot recommend.

Censors at Exhibitions: *Nestroque.* Very much depends upon the rules of the Society. The best rule undoubtedly is that the decision of the Judges should be final; and we may add, that no Judge is fit for the office, who at the bidding of President or Committee, or any other official or officious person or persons, would consent to bend his own honest and carefully formed opinion to theirs. We cannot appreciate all the circumstances of your case from the few brief sentences in which you describe them, and therefore we cannot give an opinion which you would be justified in acting upon. But we think that in common fairness, if a mistake is discovered, (and you use this word mistake), it is competent for the managers to request the judges to reexamine any particular exhibitions, and competent for the judges to amend an erroneous award, before the exhibition closes. Something of the kind indeed occasionally happens at the great London shows; for there are generally disappointed exhibitors who think mistakes have been made, and who urge reconsideration; but it is always the wiser course for all concerned to acquiesce quietly in the decision of the judges, unless it is obvious that some important point has been overlooked. Even then the aggrieved person should prefer a respectful request that the matter may be reconsidered, to the officials, not to the judges, instead of indulging in the indecorous bluster with which losing exhibitors sometimes set forth their grievances. As to the 'power' of bringing back the judges, and the 'right' of reconsidering an award, we must declare them to exist by custom; but the less frequently they are called into exercise either by officials or exhibitors the better. There is very seldom any real ground for disturbing the first award,

Fungi: *W M.* Your Fungus on Reed is not the one which gives the reed cutters the headache. It is a very dusty Fungus, belonging to the genus Ustilago.—*W W.* Your Fungus is Puccinia Pruni. We shall probably advert to the case shortly. *M. J. B.*

Glazing: *Reader.* A quarter of an inch lap will be quite sufficient.

Hawthorn: *H. Saxby.* Haws are buried in heaps for 12 months as a saving of ground, because they do not vegetate till the second year, or at least only a few of them, and not a general crop. To macerate them in water for three months and afterwards to bury them for two months would not therefore, so far as our experience goes, answer the same purpose.

Hot-water Boiler: *W-W.* For a tank of the size you describe, the coil of Perkins' steam pipe which you have on hand will be quite sufficient to keep the water up to 70°.

Insects: *G E F,* Ratzeburg Forstinsecten, 2, p. 88, says little about the destruction of the Goat Moth. Kollar suggests thrusting a piece of wire up the holes in the trees to kill the larvæ; tobacco smoke blown into their holes is very offensive to them, and compels them to creep out, and the trunks of the trees should be searched in June and July for the perfect moths, which should be carefully destroyed.—*A B.* The Larch twigs are attacked by Chermes (Adelges) Laricis, which the past dry summer has allowed to propagate to a great extent. Its habits are like those of Aphis, and we can scarcely suggest any remedy to be applied in an extensive way. —*H T.* There seems no predisposing cause in the circumstances you mention why the particular Elm trees should have become diseased previous to the attacks of the Scolytus, which we therefore regard as the originators of the mischief. We would recommend, 1st, that pieces of the injured bark where most infected by the larvæ should be peeled off and burnt; and 2d, that a careful watch should be kept in the ensuing summer when the Scolytus is developed as a beetle, and the trunks of the adjacent sound trees might then be smeared with some sticky substance which would catch and retain such of the newly hatched Scolyti as might fly to the sound trees. —*T S P.* The moth of which you have sent drawings of the different states is Euplexia lucipara. The drawing of the larva hardly represents the extremity of the body sufficiently angulated. *W.*

Ivy: *R S.* The Silver-variegated Ivy, of which you sent leaves, agrees most nearly with that which is met with in trade collections under the name of Hedera Helix marginata elegantissima.

Manuring Vegetable Garden: *Inquirer.* For your shallow soil on a subsoil of gravel, on which you fail to get crops of Cauliflower and Onions, notwithstanding the free use of stable manure, you will find a good dressing of heavy compost of a marly or loamy texture better than manure. This should be well worked into the soil by forking, a little of the subsoil, if possible, being gradually brought up. Continue adding material of this sort till you get a suitable depth of good earth, and you will then find your stable manure tell upon the crops. Of course with a gravelly subsoil you may have to water freely in certain summers, especially in such as we have just experienced. In the meantime you may find benefit from the use of some guano, applied as a top dressing to the crops while growing.

Names of Fruits: *Anon.* Marked with figures, double lined. 1, Duchesse d'Angoulême; 2, Urbaniste; 3, Doyenne Blanc; 4, Beurré Diel; 5, Nouveau Poiteau; 6, Passe Colmar.—*Cheshire.* 1, Blenheim Pippin; 3, Court Pendu Plat; 1, 4, Blenheim Pippin; 5, Dumelow's Seedling.—*Hatfield.* Pears: 1, Thompson's; 2, Winter Nelis; Apple: 1, Downton.—*A V.* 1, Gooseberry Pippin, fruit of crop 1863, and ditto of 1864; the striped Apple is the Gravenstein, the other appears to be the Bedfordshire Foundling, highly coloured.—*A B.* 1, Alfriston; 2, Sam Young; 3, Northern Greening; 4, 5, Blenheim Pippin; 7, Wormsley Pippin; 8, Ribston Pippin.—*C Smith.* 1, Dutch Mignonne; 2, Bedfordshire Foundling; 3, Leadington. The rest appear to be worthless local Apples, not known.—*Trepps.* 1, Kirke's Golden Pippin; 2, Yellow Ingestrie, as is also that marked Downton; and that marked Kirke's Golden Pippin is the Old Golden Pippin. —*M M.* 1, Duchesse d'Angoulême; 2, 12, Beurré Diel; 3, Beurré de Capiaumont; 4 (decayed); 5, Beurré d'Aremberg; 7, Marie Louise; 10, Easter Beurré; 13, Ne plus Meuris.—*R C.* 2, Lincolnshire Holland Pippin; 3, Fearn's Pippin; 4, Sturmer Pippin; 6, Reinette du Canada.—*J F.* (Quite decayed.)‖

Names of Plants: *E G W.* 1, Athyrium Filix-fœmina; 2, Aparagia autumnalis; 3, Eriophorum angustifolium; 4, Cnicus pratensis.—*H S.* 1 and 3, Lastrea spinulosa; 4, L. dilatata; 2, is too imperfect, but is probably dilatata.—*C B.* Clethra alnifolia.—*W D P.* Cupressus Lawsoniana, and Cratægus Aronia.—*Old Subscriber.* The specimens are insufficient. One of them may be Pyrus torminalis; the other is quite unexaminable.—*J H M.* Rhodanthe Manglesii.

Pampas Grass: *W F.* We have not seen or heard of a Pampas Grass bearing plumes of red or mauve-coloured flowers, but the male plant, which has a more drooping panicle than the female, is of a pale dull purplish tint, and it is quite possible, as so many have been raised from seed, that some variation in colour may occur. Certainly no one with his eyes open could have mistaken for Pampas Grass the Tritoma Uvaria, with all deference to your opinion that when finely grown the latter does somewhat resemble it in foliage, and at a distance might have been taken for it.

Rose Cuttings: *J R G.* Rose cuttings put down about 12 months since, and which are fairly rooted and have grown pretty well, may be transplanted now if they belong to the hardy races, and if the position is a favourable one, but if in a cold damp situation, they had better be left till spring. If they are tender Roses, they must be left till spring. Either way they would be the better for a little mulching.

Snails: *D.* Next week.

Wintering Climbers: *Inquirer.* You may perhaps keep Eccremocarpus which has been growing out during summer, alive, by covering the root well up with coal ashes or Cocoa refuse, especially if it is against a wall; but Cobœa will be hardly likely to survive. Both should be wintered in a greenhouse. They may, however, be readily reared from seed, in heat, early in the year; and will make good flowering plants if pushed on vigorously.

Wire-worm: *Reader.* The best remedies we know of are hand-picking and spirits of tar; the former being assiduously practised when the ground is turned over, and the latter applied to the surface in the proportion of a gallon to every 60 square yards before the ground is dug or trenched. A top-dressing in spring either of salt or soot will both benefit the crops and destroy the slugs. Or you may give the ground a dressing of gas-lime, or of soda-ash at the rate of 2 cwt. to the acre before trenching.

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ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., c. CXLII.
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Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
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Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.
President—His Grace The DUKE of BEAUFORT.
Vice-President—The MAYOR of BIRMINGHAM.
The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1.
Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1863, may be obtained from the Secretary. The ENTRIES CLOSE on NOVEMBER 1.
GEORGE BEECH, Secretary.
Offices: Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC FOWLTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£794 10	BREEDING PIGS	£76 10
FAT SHEEP	299 5	CORN and ROOTS	71 8
FAT PIGS	60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	„ B.	For a Cow or Heifer (in any Class).
	„ C.	For a Beast in Extra Stock.
SHEEP.	„ D.	For a Pen of three Wethers (in any Class).
	„ E.	For a single sheep in Extra Stock.
PIGS.	„ F.	For a Pen of three Pigs (in any Class).
	„ G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 15, 1864.

—— A CORRESPONDENT has 16 acres of coarse neglected ground near his house, which he is desirous of reclaiming to good pasture. About one quarter of it is covered with Briars, Thorns, and Gorse, and this of course he will grub up. Of the remainder a specimen turf has been sent to us; it is full of Moss, the Grass is coarse, and many weeds abound. This he would pare and burn, but that there is not sufficient "staple." It appears to be a light and poor sandy soil, and his idea is that it should be limed and thereafter ploughed in before winter, manured in early spring, and sown with Grass seeds—possibly with the addition of Rape, "which would afford good keep for sheep during summer, while it protected and nourished the Grass seeds." The subsoil is a gravelly loam, varying in quality; and on some portions, where the ground has been used as Grass drives, there is a good and healthy sward; and it is believed that the condition of the remainder arises chiefly from long neglect, it having been allowed to run into a wild state in order to form a covert for game.

It seems to us that this last piece of intelligence gives a very trustworthy clue to the most economical method of improving this land.

The immediate result of neglect must of course be at once removed; the Gorse and Briars must be grubbed up and burned; but for the rest we would rely rather upon the treatment than upon the destruction of the existing surface. Nothing is more amenable to treatment than our pastures; the very neglect which they suffer shows it. The invariable contrast of the home paddock around the farmyard with the Grass fields at a distance from the dung-heap, is a proof of it. And our Correspondent's Grass drives amidst the wilderness of coarse and mossy pasture should be conclusive against his plan of breaking up the land and resowing it. Again, in its present poverty-stricken condition, we would not recommend liming as a first expedient, and when lime is added at all it should be in the form of compost with some vegetable material.

The proper treatment we believe to be to drain the land if necessary; to use the grubbing axe and hoe for the removal of Gorse and Thorn and coarse tussacks of Grass; to apply some 10 or 12 bushels of fine and rotten bone-dust per acre, if in previous compost with earth or ashes so much the better; to harrow the whole surface thoroughly and remove all Moss and rubbish—and to do all this before winter.

In early spring some ammoniacal manure should be applied, either gas-water in abundance, or sulphate of ammonia about 1½ cwt. per acre; or probably nitrate of soda, 1 cwt. per acre, might be usefully applied. If a dressing of good rich farmyard dung can be had, this would no doubt be better still. And in March a suitable mixture of Grass seeds should be sown, especially over the broken parts of the surface, and bush-harrowed and well rolled in. The land should be fed closely all the summer. And before next winter, or perhaps in the following year, a lime compost containing 50 or 60 bushels of lime per acre should be spread over the ground and harrowed in. A dressing of lime before some degree of enrichment of so poor a soil has been effected would not be desirable. Every opportunity should be taken by heavily stocking if necessary, feeding and foddering stock upon it, and by rolling to firm the surface of the ground. And if the lime could be applied in the form of a clay marl it would tend to the improvement of the land, by giving that firmer texture to the soil which pressure alone cannot confer.

—— Mr. SMITH, of Woolstone, has appeared in the *Times* with a very effective reply to Colonel FANE's criticisms on steam cultivation The latter imagines it to be excessively laborious and expensive, necessarily resulting in great costs for breakages and tear and wear. Mr. SMITH knows that in his own case it is both cheap and effective. And he ought to know. He has cultivated his farm now for 10 successive years by steam power. His cultivating tools have not been broken, and the wear is confined to the share points which have needed renewing. His original iron wire rope has indeed disappeared, but the steel rope costing 45*l.*, bought three years ago, is still in use. The four-wheeled windlass too bought in 1858, is still available. The coals consumed are five tons annually, the wages paid are not more now than they used to be when horses were employed, and of these his present number, for which he has little more than half work, is three fewer than it was. His apparatus is employed only 13 days in the year. His land was never better cultivated and never more productive. Although Mr. SMITH'S farm is but a little one, it is in effect two or three of ordinary cultivation, one over the other.

"Colonel FANE," says Mr. SMITH, "would do well to practise before he condemns, and he would do well to reflect over the four-inch-deep work that is generally practised over the country, and compare it with the foot in depth that I get by steam-power."

Mr. SMITH is, both by practice and by precept, one of our most efficient leaders in connection with this subject; and his present letter is a capital shot into that *vis inertiæ* by which it is still so generally opposed.

WE again give prominence to Mr. BLUNDELL'S account of his CATTLE MELON, of which we shall also be glad to receive reports from other correspondents. In a season when roots have been destroyed by grub, it is satisfactory to find a plant capable of yielding such useful produce, which seems to be safe from such attacks. And in a season when all late-sown green crops have proved

in the Southern Counties an utter failure, it is extremely satisfactory to hear of one which has maintained its usual productiveness.

Mr. BLUNDELL, writing from Bursledon, near Southampton, states the result of this year's cultivation of the Cattle Melon as follows:—

"Another year's experience in the cultivation of this valuable green crop has given me more confidence in recommending it to the notice of the agricultural community, not only as a crop capable of yielding a large amount of food for cattle, but as coming in use at the time of year when the old store of Mangel is usually exhausted, and before the new crop is fit for feeding, and also previous to the period of the different sorts of Swedes and Turnips being ripe for use, at the same time being available at the usual period of the greatest scarcity of Grass, viz., August, September, and October. The present season is an instance in which the Cattle Melon has proved invaluable. In my own case, having a good number of fatting and store cattle of different ages under cover, had it not been for the supply of this fruit, I must have sold the animals at a great sacrifice, or entered into enormous expenses to have kept them in condition entirely upon artificial and dry food; my store of old Mangel was finished on the 1st of September, since which time I have cut daily such of the Melons and Marrows as were not likely to ripen their seed, and cut them with GARDNER'S cutter, mixing with cake in the same manner as for feeding with Mangel, and I certainly never saw cattle do better with so limited a supply of succulent food.

"The stage at which the fruit are best for feeding I think is about the time the seed begins to form, say about two-thirds of the size attained when ripe. In order to ascertain the best varieties for cattle feeding, and for yielding the largest acreable production, I have been induced during the past season to get all the sorts I possibly could of Melons and Marrows, and the result of the growth of so many kinds has been not only very interesting, but has gone far to satisfy me that the Melons and Marrows have each a separate value for agricultural purposes; some sorts of Marrows have grown like a shrub, and produced from eight to 10 fruit, weighing 2 lbs. each and upwards, and this within a space of 2 ft. each way, certainly not more space than is required for a forward Turnip plant. Some others of the same habit of growth give fruit of an elongated shape, and grow to considerable size, producing from three to five fruits each, weighing on the average about 6 lb., within the before-named space of two feet; other kinds of Marrows require much room for the bine, similar to the Melons.

"The whole of the Marrows, however, are very valuable for feeding purposes, and come quicker to maturity, and are fit for use a month earlier than the Melons. I particularly noticed a variety of the Marrow producing good sized fruits, say 8 to 10 lb. each, and having no sign of seed forming, as solid as a Swede or Mangel, and as heavy, bulk for bulk, being also very sweet to the taste. I have seen no new feature in the growth of the Melons different from my last year's description of them. As, however, they take a good deal of room, I this year planted three rows of Mangel between each row of Melons, and this plan, without injuring the growth of the Mangel, gives room for the bine to spread, so necessary to their successful growth; in another field I planted two rows of Potatos between the Melons and Marrows. In both fields the seed came up unevenly owing to the dry weather, some making their appearance eight weeks after planting. I am therefore of opinion that they should be planted at the end of the month of April, in order to secure moisture sufficient to insure the vegetation of the seed. It is worthy of notice that the plants which did come passed through the ordeal of the dry summer admirably. Whilst the Mangel and Potatos between the rows of Melons and Marrows were almost destroyed by the grub, this insect however never attacked the Melon plants at all; but when the plants had nearly attained their full foliage, the leaves were attacked by the black aphis, which seemed to check them considerably, but after the rains of the 23rd of August they recovered greatly, threw out more foliage and produced fruit abundantly, although too late for seeding, yet well adapted for present feeding. On clearing some of my Marrows to-day I weighed a portion, forty fruits weighing 560 lbs. to the pole, being 40 tons to the acre, and being exactly the same weight per rod as thirty-seven fruits of the Melons of last year's growth."

Mr. BLUNDELL adds, that although the drought during the past season has diminished the crop, and also made the produce available at a later period, yet it has not suffered at all in proportion with the other root crops. It has, however, delayed the ripening of the fruit, and he will in consequence have much less seed to spare, and is much disappointed in this matter, as he had hoped to supply a large demand, so many last year having been unable to obtain seed, and having expressed a wish to be supplied by his growth of the following season.

SHORT-HORN CORRESPONDENCE.

(*Continued from* p. 972.)

[Among the letters and papers left by Mr. Cottrell, of Congresbury, and kindly placed at our disposal by Mr. Bowly, of Siddington, are copies of a voluminous correspondence, much of which appeared in the columns of Agricultural Journals upwards of 40 years ago. We make the following extracts:—]

11. *Rev. H. Berry on the Kyloe Cross.*

"Worcestershire, April 13, 1822.

"The ability with which Mr. Rooke writes, entitles him to the thanks of the public, who may benefit by his researches, and I doubt not that with equal liberality he will regard my dissent from some of his opinions.

"If, as he assumes, the Kyloe cross was ever introduced into the Ketton and Barmpton stocks, I think a moment's consideration must convince any person acquainted with them that such cross could not be frequent.

"If it had been so, we should have heard of calves bearing the Kyloe colour, and should have observed, as indicative of each additional cross, an increase of horn. But the contrary has been and is still the case. I believe it remains yet to be known that either a black or dun calf has ever been produced from any individuals of those celebrated stocks, and there is a remarkable smallness of horn observable in them all when compared with Mr. Colling's originals, and indeed with the generality of their congeners. Add to these considerations the fact that the improved Short-horns have not lost weight, a consequence, on Mr. Rooke's own showing, inevitable if the Kyloe cross were persevered in, and I think we are justified in pronouncing his opinion erroneous.

"How then has the beautiful and uniform colour of this breed been preserved, and from what cause arises rather a diminution of horn? Surely if by a cross, not by that with the diminutive black or dun Kyloe, but by some other of which we are yet uninformed.

"It has been stated that the mossy coat and soft touch of the Short-horns are derived from the Kyloe, and if I recollect Major Rudd's opinion on the subject, he thinks they could be obtained by no other means. It is unfortunate that these gentlemen should so invariably place their criterion of excellence near home. Had the worthy Major extended his research, he would have found other breeds boasting these qualifications in an equal degree. I will, however, only instance the improved Herefords, inferior in quality of flesh and coat to no cattle in the kingdom.

"Thus then it is not absolutely necessary to trace all perfections to the Kyloes in the first instance, and the more general the knowledge of our different breeds becomes, the more apparent will be this truth, added also to a conviction that in the worst breeds good individuals exist, requiring only judicious selection soon to constitute a valuable and pure breed.—I am, sir, your obedient servant, "B."

12. *Mr. Rooke on the Kyloe Cross.*

"Akehead, April 25, 1822.

"Hubback's colour was a red inclined to yellow, and North Star's dam (a daughter of the bull called Punch) was called the Yellow Cow. These are not common colours among the pure bred Short-horns. Now, there are Kyloes of this very colour, with as fine muzzles and horns as any Short-horns, and equal in size to the Galloway cattle to which Lady was related. Indeed, my creed on the art of breeding horned cattle is very short—'Aim at size and Kyloe qualities; these can be obtained only by an intermixture of Kyloe blood, either directly or indirectly.' This creed is established upon ascertained facts. As an instance, not more than 100 years ago it is known that the breed of cattle in Galloway were horned and similar to the West Highlanders, and that the polled character was obtained by crossing them with hornless bulls from a breed of cattle still prevalent in Cumberland and chiefly purchased at Rosley Hill fair, a well-known resort of the Galloway farmers. This hornless breed have all the characters of the Long-horns, except being polled. But from the unskilful manner in which this cross was managed defects have been entailed upon the Galloway breed, which I think can only be remedied by a further cross.

"From the known course which has been followed it would be no way difficult to produce cattle with all the leading characters of the Galloway, without having a single animal of that sort to breed from, and free from their peculiar defects. Thus, were a few of the best West Highland bulls introduced into Cumberland, and crossed with the largest and best shaped of our polled cows, some of which have been crossed with the improved Short-horns and turned out very large and excellent, there cannot be a single doubt about the result, as many of these cows have remained polled, though crossed with Long-horned bulls for several generations back. No bulls of this polled sort are now kept, but only a few years ago I knew of a stock of 19 or 20 milk cows and a bull wholly of this description.

"Had your correspondent 'B.' ever seen Mr. Bates' Kyloe cross by improved Short-horn bulls, formerly kept at Halton Castle, in Northumberland, he might have felt convinced that by breeding wholly back again to one side, the original characters of that side may be preserved, and I think a body of facts is laid before the public sufficient to warrant a conclusion that our improvements of the larger sorts of cattle have been chiefly effected by the introduction of a very limited portion of Kyloe blood, and that we have no other pure breed of cattle possessing the same excellent quality of flesh, early maturity, and aptitude to fatten as they do. What they want is size and docility, and hence crossing, and so breeding back again to the congeners of some large sized family is requisite, and in that way we may impart to cattle what characters we choose; they may be made to have either long horns, short horns, or no horns at all, or black, white, spotted, or mixed in colour.

"However desirable it may be to know the origin of Punch, it can hardly be expected that Mr. Charles Colling will give us any information, but at the request of the purchasers of cattle bought at his and his brother's sale and related to that bull. Let these purchasers say to him, 'we are fully satisfied with the purchases we have made of your's and your brother's cattle, but we wish the public to be informed of their origin, and I have no doubt but what Mr. Colling knows would be fully and freely communicated. Unquestionably Major Rudd would not shrink from such an inquiry, though he paid 410 guineas for Lily.

"In Mr. Hutchinson's book 'On the Pedigrees of the Sockburn Short-horns,' it is stated on the authority of John Hunter, the son of the proprietor of Hubback's dam, that 'she was a beautiful little Short horn cow.' Mr. Baker says, on the authority of Mr. A. Hall, 'she was a beautiful colour and handler, and when she got on to the good land near Darlington she got so fat she would not breed again.' Therefore she was a little well-thriven and beautiful-coloured Short-horned cow, similar to many hundreds of the Kyloe and Short-horned crosses of the present day, and from Mr. Hutchinson's and Mr. Baker's own showing she was quite unlike a pure bred Short-horn, if we may be allowed to judge from the description they have given of her.

"In my last letter I have inadvertently said that two Daisies sold for 550 guineas, or 275 guineas each; it ought to have been four Daisies, 716 guineas, at 179 guineas each.—I am, sir, your obedien servant, "JOHN ROOKE."

13. *Rev. H. Berry on the Kyloe Cross.*

"Worcestershire, October 29, 1822.

"I am now able to offer you such proof as can at this remote period be obtained, and the first object to which I am desirous of calling the attention of your readers is the pedigree of the bull Hubback, by whose means it has been asserted this alien blood was introduced.

"'Hubback (1777) was got by Mr. Snowden's bull, which was descended on the dam's side from Sir James Pennyman's stock, and got by William Robson's bull. Robson's bull bred by Mr. Waistell, and got by Mr. James Masterman's bull, out of Mr. Waistell's roan cow Barforth; Masterman's bull bred by Mr. Walker, near Leyburn, and got by the Studley bull, bred by Mr. Sharter, of Chilton.

"'Hubback's dam was got by a bull of Mr. Bank's, of Hurworth, and his granddam was purchased from Mr. Stephenson, of Ketton.'

"To this pedigree the certificate of Mr. Hunter's son, now about 80 years of age, will be annexed in the Short-horned Herd Book, about to be published.

"In confirmation of the evidence thus afforded, I have authority to state that Mr. C. Colling, Mr. Charge, and Mr. Coates, now the oldest persons living, intimately acquainted with the subject, have ever deemed Hubback to be a pure Short-horn. From him, nor from his descendants, whilst continued with the pure blood it has never been known that a calf black, blue-grey, dun, or black and white, sprung, nor has any mark been exhibited in their features which denoted a cross; on the contrary, the calves got by Hubback were all either red and white, yellow, roans, or white, in that, and in every other respect, bespeaking the true Short-horn; and in conclusion, Mr. Coates, the great depository, as I may call him, of information connected with Short-horns, who had daily access to Mr. Colling's stock, when pressed for his opinion, declares unequivocally that he never observed anything in that stock which could induce him for a moment to entertain a suspicion that the animals which have been designated pure Short-horns were either nearly or remotely allied to the Kyloe.

"Now is it not, I would ask, reasonable to yield to these statements, one confirming the other, as they do, and supported by facts, the credit which I give them, rather than to embrace Mr. Rooke's speculative opinions, unsupported by applicable reasoning, and destitute of fact in confirmation. And why should we remain more sceptical on this subject than we are on others to which we every day yield credence, without possessing evidence half so satisfactory.

"Having observed that no Kyloe feature exhibited itself in Hubback's descendants, I have recollected that it has been said the remarkably short legs and mossy coats of some of his descendants showed their Kyloe origin. Now by the same rule of argument, similar features in any breed of cattle must be ascribed to the same source, for I think it will be granted me that unimproved breeds are generally long in the legs, possessing hair of indifferent quality, judicious selection being necessary to counteract both. But if the qualities of short and small bone with good hair were obtained by a cross, the inevitable consequence must be that whilst they predominated in any useful degree, the black, dun, or blue-grey colours must occasionally show themselves.

"Upon the whole then, I trust I have brought this investigation to a satisfactory issue, and am, sir, your obedient servant, "B."

14. *Mr. J. Rooke on the Kyloe Cross.*

"Akehead, November 7, 1822.

"With every deference to the opinions of Mr. C. Colling, Mr. Charge, and Mr. Coates, I submit to them whether the thick mossy coat attributed to Hubback, and the quantity and quality of the flesh upon his carcase, were not more coincident with Kyloe characters than those of the pure Short-horns. But there is another question which may be very aptly put. Do these respectable breeders contend that the bull Punch was a pure Short-horn? We have had two bulls in this country his descendants—Layton, bred at Layton, and Young Barmpton, bred by the late Mr. R. Colling, both of which have been considered pure improved Short-horns, and yet they have produced stock in which the Kyloe characters are distinctly perceivable in the eye, the countenance, the coat, the leg, and the flesh. 'B,' of Worcestershire, may call these characters degeneracy if he chooses, most people, however, consider them as great perfections, and I still entertain an opinion that the surest method of improving our large breeds of horned cattle is by crossing them judiciously with Highland bulls.

Now, if Punch's dam was by a Kyloe Bull (and who has told us that she was not so bred?), there are but few improved Short-horns that can be called pure Short-horns. And are not those the most esteemed which have been bred from Punch through Favourite, Red Rose and Wildhair for instance.—I am, sir, your obedient servant, "JOHN ROOKE."

15. *Rev. H. Berry on the Kyloe Cross.*

"Worcestershire, December 6, 1822.

"The objections of Mr. Rooke to my inference in favour of pure Short-horns increase like Hydra's heads, but I entertain sanguine hopes of being able to crush them all. I state not this so much in reliance on my own sufficiency as impressed with the weakness of his arguments.

"I think it unnecessary further to notice his argument, drawn from the quick prominent eye, mossy coat, short bone, &c., than merely by inviting him to view all the improved breeds in the kingdom, and to inquire from their possessors where they obtained the same features. Without probably thinking ill of the Kyloe, they must scout the idea of a cross which common sense assures us never was made.

"But we are asked in a very imposing manner, "Who has told us that the dam of Punch was not by a Kyloe bull?" Now inauspiciously as this may sound for our purity in the ears of the uninitiated, it only in fact betrays Mr. Rooke's ignorance of the subject. No person was ever likely to tell him a thing so self evident, but to show to the public how far his doubts are entitled to attention, I will inform him, on Mr. C. Colling's own authority, how Punch's dam was bred, and then possibly will appear the reason for any preference of that bull's blood.

"Punch by broken-horned bull by Hubback dam by Broken Horn, granddam bred by George Best, of Mansfield.

"Broken Horn calved 1787, red roan, got by Hubback, dam by Hubback, grandam bred by Mr. Watson, of Mansfield.

"This is Mr. Colling's testimony, and he adds that he does not believe there was a drop of Kyloe blood in Hubback's or Punch's veins, and that the qualities of good hair, &c.—in other words, what are termed the Kyloe qualities were eminently possessed by Comet's dam. Will any person assert she was Kyloe bred? "B."

NOTES ON FEEDING STOCK.

THE failure of the root crops in many of the counties of England will doubtless be very seriously felt by farmers, and the question:—How to eke out the scanty supply of sheep food during the coming winter? is a difficult one to answer.

It appears, from what can be gathered from reports, that in the southern, western, and midland counties, the root crop cannot be more than one-third the usual

average, and that the hay crop is a very light one indeed. To place against these, the straw crop is an average one in bulk, and has been harvested, in most cases, in very excellent condition, and the latter must, to a great extent, take the place of hay. The deficiency of roots will have to be supplied from the farmers' pocket, in the shape of corn, meal, &c. Cake, I fear, will be too dear.

It is difficult, no doubt, to change the usual routine of feeding on a large arable farm, but this difficulty must be boldly met—it may even result in good, by teaching us greater economy in feeding our sheep flocks.

I think many will bear me out, when I say there is a vast amount of hay wasted on arable farms every year, by giving it to sheep in cribs. In many cases full half is pulled out by them and trodden under foot. The remedy for this is the chaff-cutter, and the feeding trough, in place of the wasteful crib.

On many arable farms it is the practice to give the breeding ewes as many roots and as much hay as they can possibly cram in. I believe a better result would be obtained if only one-fourth the usual quantity of roots were given to ewes before lambing, giving instead a larger portion of dry food. More live lambs and fewer dead ewes would, I feel sure, be the result.

As a large portion of straw will be required for sheep, the usual number of fatting beasts will, in many cases, have to be dispensed with. The breeding flock in any case must be kept. Their food may consist of one-third the usual quantity of roots, with straw and hay and meal. The straw and hay, in equal portions, cut into chaff, and sprinkled with water, adding to them meal of any kind found most convenient, at the rate of say one pound to two pounds of the chaff; a small quantity of salt would be an advantage, and the whole should be well mixed on a floor before carrying it to the sheep. The damping not only causes the meal, bran, or sharps to adhere to the chaff, but it prevents it being blown out of the troughs by the wind. In cases where the roots can be pulped and mixed with the chaff, the latter need not be damped.

Fed thus, they might be folded over the Turnip fields in the usual way, but where the fold is not absolutely necessary for the succeeding corn crop it might be preferable to feed the sheep in a sheltered yard near the homestead, and cart from the fields what few Turnips they contained.

No time should be lost in purchasing or providing corn or cake for feeding, as the price is sure to go up. Indian Corn can be purchased at 30*s.* to 32*s.* per quarter, and I am told even less than this, which is considerably under a penny per pound.

As to the weight of chaff and meal to be given to each sheep per day, along with the roots, this would soon be ascertained, but it would not be large. It may not be out of place to quote an experiment on feeding sheep by Mr. Lawes, published in the 23d volume of the Royal Agricultural Society, 1861. The sheep had no roots, nor any kind of green food, but had what water they liked. They were three-year old Hampshire Downs, and the experiment extended over a period of 32 weeks, viz., from January to September, 1861.

The following is the kind of food, the weight consumed, and the increased weight of each sheep per week:—

Lot 1. Fed entirely on meadow hay chaff and water. Each sheep consumed weekly 22 lb. 14 oz. of hay chaff and 40 lb. 4 oz. of water, and they gained in weight 8½ oz. each per week.

Lot 2. Fed on ground Beans, meadow hay chaff, and water. Each sheep consumed weekly 6 lb. 11¼ oz. of Beans, 18 lb. 9 oz. of hay chaff, and 43 lb. 3 oz. of water, and gained in weight 1 lb. each per week.

Lot 3. Fed on ground Barley, meadow hay chaff, and water. Each sheep consumed weekly 7 lb. Barley, 18 lb. 2 oz. hay chaff, and 40 lb. 10 oz. of water, and gained in weight 1 lb. and ½ oz. each per week over the whole period.

It would appear from the above statement, that when they lived entirely on hay chaff they consumed little more than 3 lb. each per day, and yet gained half a pound each per week, so that those who are totally destitute of roots need not despair. It is right to say the sheep were kept in sheds during the experiment, but any of the above plans may be advantageously adopted in the open fold, either wholly or partially, according to circumstances. *G. C.*

As you did me the honour to insert in the *Chronicle* my letter to the *Times* on the crops of 1864, I beg to hand you some notes on feeding stock, which seem, from inquiries I have had, to be a necessary pendent to that letter, and I shall be glad if you can find room for them. Swede Turnips have greatly improved in the north during the last three weeks, while Yellows seem at a stand-still; their leaves are falling and turning a bad colour, and altogether these common Turnips promise to be a bad crop and of most inferior quality. *H. J. Turner, Richmond, Yorkshire.*

In olden times Turnips were given by many farmers without limit to feeding cattle; in fact they had as many as they could be induced to eat, and with them frequently nothing else save Oat straw—a more wasteful mode of using Turnips could hardly be conceived. Farmers however have lately learnt that it was more profitable to reduce the quantity of Turnips given to cattle, and allow some Linseed cake with that reduced quantity. Sheep have still been folded on Turnips in most places, but an allowance of Linseed cake was also given to them. This season's scanty supply of Turnips seems to call for a different arrangement, and I will suggest a course which I think will be found to answer. It will however be necessary in the first place to ascertain the money value of the different sorts of food which may be used. I shall take their prices at the present market value. English Linseed cake 12*l.* per ton—1*s.* 6*d.* per stone; Wheat at 4*s.* 6*d.* per bushel of 63 lb.—1*s.* per stone; Barley at 3*s.* 9*d.* per bushel of 56 lb.—11¼*d.* per stone; Oats at 2*s.* 10*d.* per bushel of 42 lb.—11¼*d.* per stone. It will thus be seen that there is very little difference in the price per stone of Wheat, Barley, or Oats; while Linseed cake, weight for weight, is half as much more. From long and careful observation I am convinced that it is most profitable to mix the kinds of food as much as possible, and for cattle I recommend E. Linseed cake, 1½ stone per week, 2*s.*3*d.*; bruised Barley, 1½ stone per week, 1*s.*5*d.*: per week, 3*s.* 8*d.* With this I would allow a good feed of Turnips morning and evening, and as much unthreshed Oats, chopped, as the animals would eat clean up. Half the foregoing quantity of cake might be given for the first fortnight, and some time (say a month) before the animals go to the butcher the quantity of Barley might be doubled, I have selected Barley to be given with the cake, but Oats or Wheat can be substituted when either of those can be had at a cheaper rate. I deem it essential to successful feeding that the greatest regularity should be observed in the times of giving food, and that the greatest possible cleanliness should be observed in both food and troughs; it is also most desirable that the greatest quietness should prevail. The cattle after being fed should not be disturbed even by the feeder, but should be left to lie down, as they will soon do if they are thus regularly treated. For sheep I would recommend 3½ lb. each Linseed cake per week, 4½*d.*; 3½ lb. Barley per week, 2⅞*d.*; per week, 7½*d.* With this I should give a good feed of sliced Turnips morning and evening, with cut hay or unthreshed Oat-sheaf as much as they would eat clean up; but this cut meat should be given in small quantities at a time, and none that has got soiled by the sheep's breath, or spoiled by rain, should be allowed to remain in the troughs. The quantity of Barley may be increased after first month. Some persons will no doubt still fold their sheep on the Turnips (part of them probably being pulled and taken off the land); where this practice is followed I strongly advise a feed of chopped hay or Oat-sheaf to be given first thing in the morning. I scarcely know any pursuit where more vigilance or greater quickness of observation is required than in feeding stock; some men go stupidly about among animals as if their eyes were closed, while other men quickly note a dull eye, a staring coat, or abstinence from food, and immediately seek out the cause. If the complaint is not of a trivial character, and obviously capable of direct and speedy remedy, I always turn the animal over at once to the butcher, and in most cases this will be found the most profitable course. *H. J. Turner, Land Agent, Richmond, Yorkshire.*

ON STORING ROOTS.

[The following Prize Essay on this subject, by Mr. George Jonas, appears in the recently published Number of the Journal of the Royal Agricultural Society of England.]

This Essay is intended to embody the results of practical experience, derived from the management of about 700 acres of roots, grown annually under my superintendence. The chief points to be observed for ensuring success in storing are, first, to select dry and fine weather for the operation, and never, under any circumstances, to cart or store any which are the least frost-bitten; to cover up and keep them dry when carted, but never so closely covered as to prevent the escape of any slight heat arising from the heaps and clamps when first stored; to be exceedingly watchful in the spring, as soon as vegetation commences, to uncover the top or ridges of the stored roots, so as to allow the escape of any heat arising from their sprouting.

The general time for beginning this work is the middle or latter part of October, and it is not generally completed till the latter part of November, or in some mild seasons until the beginning of December. Fine weather not only ensures the safety of the crop, but allows of the roots being laid in larger heaps, and in a great measure protects the land from the injury caused by carting.

On heavy lands, ill suited for sheep, the whole of the Turnip crop is drawn for stall-feeding; but on light sheep farms, the general and best plan is to remove about one-fourth or one-fifth, according to the crop, taking five rows and leaving 15 or 20, or doubling these numbers. By this means the whole of the land is folded regularly, and Turnips enough for the cattle are procured without exhausting the land.

The Turnips required for immediate consumption in the yards should be drawn off, well cleaned and topped, then carted and stored in houses or sheds about the latter part of October. If the sheds be open, they should be covered with straw to protect them from the frost. All the Turnips that are to be consumed in the yards should be carried home and secured before the frost sets in; therefore, where there is not sufficient shed-room, they may be kept very well in large heaps, on the south side of walls or buildings, care being taken in the latter case that there is troughing to protect the heap from the dripping eaves. The base wall is formed by two rows of hurdles, set about 3 feet apart, the space between them being well stuffed with Barley-straw or some short Pulse to keep out the frost. The Turnips are laid up to the top of the hurdles and piled up against the wall, the heap being covered with a thick coat of straw from the hurdles to the top of the slope.

This winter about 100 loads, carted in fine weather, and laid up against a barn in this way, kept in capital condition, and there was not a bushel of decayed Turnips in the whole heap. It is a good plan to put a little straw at the bottom of the heap to keep the roots from the ground. Another plan is to lay them up in long heaps of a triangular shape about 8 feet wide at the base and 6 feet high, covering them over first with straw, and then with a slight layer of earth, but leaving the ridge without any earth on.

When stored in either of the above ways, the Turnips should be cleaned, and the crown or neck cut off close to the Turnip, so as to prevent their sprouting; if not thus treated they will begin to vegetate, which causes them to heat and decay very quickly. They will keep good till the end of February when properly stored. If it is required to keep them till March or April, they should be laid up in heaps from 15 to 20 yards long, about 3 feet high and 3½ feet wide at the base, tapering to the top, and covered with earth as a protection from the frost: the tops in this case are cut off, but the roots and earth hanging to them left on.

The cleaning the Turnips for carting home is done by women, at a cost of 4*s.* or 5*s.* per acre, or by a gang of children having a man to superintend them. For this purpose they use a knife or chopper, with which they remove all the earth from the Turnip and cut off the tops, throwing the roots in heaps ready for carting, as they are cleaned. All that are left in heaps in the field at night should be covered up with the leaves, to protect them from the weather.

The cost of filling into carts for carrying home would be about 2*s.* per acre.

Turnips are stored in a variety of ways for consumption in the field. When they are to be cut for sheep, they should be laid in heaps of about 30 bushels, with a little haulm or straw put on, and over this a covering of earth; a little piece of straw being left uncovered at the top to let any heat escape. All that are intended for use before the end of January should be cleaned and the leaves cut off before they are heaped up; but those for later feeding should be laid in heaps of about 10 or 12 bushels without being cleaned, as the earth thus left on tends to keep them fresher and in better condition. No straw is then used, a covering of 4 or 5 inches of earth alone being required.

The work of cleaning and throwing into heaps of about 30 bushels ready for covering up is done by women and children at a cost of from 4*s.* to 5*s.* per acre. The covering up with straw or haulm and earthing over will cost about 1*s.* 6*d.* per acre. Those that are heaped without being cleaned will cost about 1*s.* 6*d.* per acre to pull up and throw in heaps, and about 2*s.* per acre to cover over with earth.

Another plan of storing Turnips is to lay them in a furrow and plough them in. This is done by ploughing out two deep furrows up the centre of eight rows, the two centre rows being first pulled and laid aside; the Turnips are then pulled up by two children and handed to a man (who stands between them) to be placed in the furrow tops upwards; another furrow is then turned on to them on each side of the row, covering them up to the necks: 2*s.* 6*d.* an acre will be a fair price for pulling and placing in the furrows. Turnips will stand almost any amount of frost when stored in this way, and are much better than those left in the ground, even if they have escaped the frost; besides, they do not draw the land.

Another plan is to pack the Turnips in round patches, putting three or four loads in each patch. This is done by beginning in the centre to set them up with the tops uppermost, packing them close to each other till the patch is the required size, the leaves and all the soil hanging to the roots being left on; the outside row should be covered up to the neck with earth, and in very severe weather a little straw should be thrown over the top. This plan is best adapted for storing roots on the stubble-lands for spring consumption, so that the Turnip-land can be got ready for the Barley crop.

Mangel.—The general time for storing this crop is the latter part of October or the beginning of November, according to the season. If left later they are liable to be injured by the frost.

In taking up the crop the roots should be pulled up—care being taken not to bruise them by kicking them up—the leaves cut or twisted off, and the roots either thrown in heaps or loaded at once into carts. Twisting the leaves off is much better than cutting them off, as the Mangel are liable to get injured by the careless use of the knife; if the crown is cut, they very often decay.

Mangel left in the ground will stand a frost, if not very severe, as their leaves protect them; but when they are pulled a very little frost will injure them, therefore all the heaps left in the field at night should be covered up with the leaves.

They are best stored in long heaps of a triangular shape, about 6 feet wide at the base and 4 feet high. These heaps should receive an even coat of haulm or straw, about 12 inches thick, and about three or four days afterwards they should have a covering of earth of about 8 or 10 inches thick, taken from a trench made on either side: bunches of straw should be left, about 4 feet apart, sticking out at the top of the ridge to let out the heat. If this precaution is not taken, the roots will often decay from heating.

These heaps, or clamps as they are sometimes called, should be placed in some convenient spot close to the yards, and those that are to be consumed in the field by sheep should be placed on the headland of the field where Rye-grass, Rye, and Tares, or some other spring feed is sown. This will save much labour in carting them a second time.

The wringing the tops off and throwing the roots in heaps ready for carting is sometimes done by day-work with children, having a man to superintend them, at a cost of 4*s.* 6*d.* per acre; the filling into carts and clamping will cost from 2*s.* to 2*s.* 6*d.* per acre. When the work is done entirely by men, it may be taken as piece-work at 6*s.* or 6*s.* 6*d.* per acre, according to the crop; this includes pulling and wringing the tops off and filling into carts. The horse is, in this case, led up the centre of each six rows, so that the wheels will span the two centre rows; three men follow each cart, taking two rows each; one man will clamp (or stack) them as fast as six men can top and fill. The cost of horse-labour will depend upon the distance the roots are carried; one-horse carts should always be used, if possible, as there is no loss of time in changing the trace-horse; boys are generally employed to drive away. The covering with earth, if done by piece-work, costs 10*d.* to 1*s.* per rod in length—that is, for digging the earth and covering up; but the cheaper plan is to plough about eight furrows on each side the clamp as deep as possible, turning them to the heap; the furrows are then laid on with a fork or spade, and the loose moulds put on with a shovel to fill up the spaces left by the clods; this will cover each side of the heap within about two feet of the top; they should be left in this state for a few days to let out the heat, then a few more furrows should be ploughed in the bottom of the trenches, and thrown on to complete the covering to the top—bunches of straw or haulm being still left at intervals, as before mentioned, for ventilation.

The heaps should be partially uncovered in March, about two feet of earth being taken off the top, and at intervals of 4 or 5 yards a space 4 feet wide should be uncovered down to the bottom; this is done to let out the heat caused about this time by the sprouting of the roots: if this heat cannot escape, they will soon decay. Mangel so stored will keep till July.

Potatos.—The middle or end of October is the time for harvesting this crop, except the early sorts, which are begun in the latter part of September, and are taken up as required to supply the demand. As soon as the haulm has withered and begun to decay, the roots may be taken up and placed in houses, being laid in heaps, with straw or boards between them to separate the different sorts.

The first part of the process is, to pull up by hand the whole of the haulm or stalks, and lay them in bundles on the ground ready for burning, or carting into the yards; any Potatos that come up on the stems may be shaken off and left upon the ground; by this means the land is cleared ready for the diggers to follow. Each digger with his fork takes one ridge, women and children act as pickers.

Potatos are also ploughed out with a double mould-board plough, every other row being done alternately, so as to prevent covering up with the plough. After all the ridges have been ploughed, and the Potatos picked up, a light harrow is passed over the field, to bring any that may be left to the surface, so that they may be found by the pickers.

The work, if done entirely by hand—that is, the mere raising the Potatos with forks, and the women and children picking them up and putting them into sacks or carts—will cost from 21*s.* to 24*s.* per acre; but with the double plough the work is much facilitated, and its cost reduced. The ploughing will come to from 4*s.* or 5*s.*, and the picking to 6*s.* or 7*s.* per acre; so that the entire cost is reduced by more than half.

The two evils to guard against in storing Potatos (as in other root-crops) are fermentation and premature germination. If the former takes place, the tubers very soon decay; and if the latter, they not only lose much of their goodness as food, but are weakened for use as sets, since all the shoots have to be broken off before planting. To prevent this, it is of the utmost importance to have the tubers perfectly dry before they are stored for the winter.

Therefore, in the first place, fine weather should be selected for the work; when taken up, they should be put into sheds or houses, and left for two or three days, then turned over and sorted, small or unsound roots being picked out for the cattle stock. Those selected and reserved for sale should, when properly dry, be taken to the pits, where they are to be kept for the winter.

These pits or "pies," as they are sometimes called, are made by removing all the top soil to the depth of about a spit and a-half: some good dry Wheat straw is then laid in the bottom, and at the side, and the Potatos are then put in and are heaped up above the surface as high as they will lie, so as to make the sides as nearly upright as possible, the pressure of the earth being thus diminished; a thick coat of well-drawn dry Wheat-straw is then laid over them, and on this is placed a complete covering of earth about 6 inches thick. From two to three tons will be sufficient to put into each pit. On clay-lands the heaps are generally placed on the surface for the sake of dryness.

Some persons prefer storing the Potatos in houses made entirely for the purpose. Doubtless this is the best plan where it can be done, as the store can be looked over at any time during the winter, when the shoots that have begun to sprout may be rubbed off, and decayed tubers may be removed.

Carrots.—Carrots are usually harvested in the beginning of November; dry weather being selected for the work. They are usually lifted by men or women with a fork or spoon-shaped spade light enough to be used with one hand, so that the other hand may be applied to the tops of the Carrots. Great care should be taken to prevent the roots breaking off in the ground: when raised, they are laid in rows far enough apart to allow a cart to pass between them, and the tops are cut or twisted off by children. They should be left in the field a few hours to dry before being carted home, where they should be laid in long heaps about 3½ feet wide at the base, and 2¼ feet high, which like the Mangel store should taper to the top, and receive a covering of straw and earth.

In spring the heaps of unconsumed Carrots should be looked over, the decayed roots picked out, and the shoots rubbed from the sound ones; if they are required for late use, the crown should be cut off completely. After being looked over, the roots are heaped as before, but only covered with straw. Carrots are also stored in sheds, and covered over with straw. The cost of taking up carrots varies very much, according to the mode in which they are grown; the old plan was to sow them broadcast, but they are now commonly drilled, and the carrots are readily forked up when in rows.

For a crop sown broadcast the cost of taking up, topping, and laying in rows, would be from 18*s.* to 20*s.* but when drilled about 13*s.* per acre; the filling into carts is generally done by day-work at a cost of 3*s.* per acre, the unloading and stacking in heaps at about 1*s.* per acre. When stored in sheds the cost of stacking would not be so much; covering the heaps with straw and earth will cost about 5*d.* per rod if the heaps be ploughed round the same as for Mangel.

THE PAST HARVEST AND THE COMING WINTER.

Berwickshire: *Dunse.*—Harvest operations commenced with us on the 1st of the month, and cutting was finished on the 20th. The fields being prepared for the reaper the work was trimly done—an occasional breakage the only drawback. We should not like, however, to be left entirely to the mercy of the machine; on the contrary, still find the Irish contingent a most useful force. The prevalence of machine reaping has already reduced their numbers to a great extent, and with a harvest of heavy and lodged crops and a limit of extra hands, we can easily suppose a rather serious delay. The district has suffered severely from the high winds of Monday the 5th and Friday the 9th, the gale increasing to a hurricane for several hours on the Friday afternoon. It is difficult to estimate the damage. A portion of corn being green, escaped with the loss of a few bushels per acre; but a large breadth was ripe, and where exposed to the west wind the loss must be from one-third up to one-half, and in some places the whole crop has gone; several fields of Barley in this neighbourhood being nearly as clean threshed as the mill could do it. Throughout the county the loss is immense, only the earliest farms escaping; while on those stretches of arable land lying towards the hills the loss is estimated on many farms at from a half to a whole year's rent. Surely in the mad competition for land these casualties are not valued, as more money may be lost in one year by such a desolating wind than can be made in a year or two of propitious times; and those adverse breezes are not of such unfrequent occurrence, visiting good and bad crops, ill and well managed farms alike. But for the shake, the crop might have proved a fair one in point of yield; and the weather, although we have rain each night, keeps dry and breezy during the day, so that the ingathering is progressing wonderfully. To pass from corn to Turnip crops, we are glad to be able to speak favourably, at all events hopefully; and should the present fine growing weather continue we think the crop must be a good one. Of course there are large tracts of clay land where the Turnips look miserable, but these are not very trustworthy even in ordinary seasons. Prices of let Turnips are opening high, either from the expectation of a short supply or from the likelihood of very dear mutton in spring from the failure in the English crop. So far however as we can judge, there is no reason for alarm in the meantime, as this is the time that Turnips root best. Last season in wintering calves, we used corn and cake in place of Turnips, from the conviction that the Turnips were better bestowed on the sheep. We are satisfied, however, that cattle (at all events young cattle) should have a portion of Turnips allowed along with their cake. Both together do best, and should the price of grain continue low we have no doubt that it will be more extensively given to both store cattle and sheep. *John S. Bertram.*

Fife: *Pilmuir.*—Stackyards are all much smaller this year than usual. Very little has yet been threshed, and it is doubtful how the crops may yield. A good deal of the Wheat was straw-broken when cut up, which will cause an irregularity in the sample as well as more light. The straw however coloured well, and the grain is quite as fair as it was last season. Barley is the best crop, and taking quality and quantity, will prove a full average. Oats are almost universally light. On individual farms a great deal of grain has been shed by the winds. Wheat and Barley were most destroyed. The late rains will bring the Turnips nearly up to an average. If there is a market for the Potato crop, fewer sheep and cattle must be fattened this season. Grain of all kinds being relatively lower than cakes, will be used in larger proportions till the prices rise. Turnips have been so abundant for the last few years, that pulping or other means of economising the quantity, has not been much adopted. Nor is the deficiency of roots so much to complain of as to lead to any great change in the usual modes of feeding stock. *R. Russell.*

Lincolnshire: *Aylesby.*—I adhere to my former statement in thinking the Wheat crop not an average of the last 10 years, and short of last year by nearly one-fourth. Barley full average. Oats short of an average. As to how we shall get through the coming winter with our cattle and sheep is a matter of serious consideration. The Turnip crop in this part of Lincolnshire upon clay soils is to a great extent a failure; upon the Wolds they are somewhat better, but nothing near a full crop. Cattle for the most part must go without any roots, consequently there will be very few fatted. I intend to cut up the whole of my cattle Oat and Barley straw into chaff, mixed with about one-fourth Clover hay, well got (of which I am happy to say I have got a fair crop); that, with 4 to 5 lb. of best Linseed cake, I hope will bring my cattle up to their usual condition. Breeding ewes must be content with very few roots, but must be fed in the winter months with the cheapest food we can get at the time. I intend to eke out my Turnips to my other sheep by giving them a good liberal supply of artificial food, such as Linseed cake, Barley, and Locust Beans, from the beginning of winter. Those who are sellers of lambs are feeling the sad effects of shortness of keep; thousands are selling where they ought to have been kept; many of the best are going to the butcher. *Fra. Sowerby.*

Lincolnshire: *Decoy Farm, Spalding.*—The opinion I gave respecting the harvest when we commenced cutting has been confirmed by the threshing. We have fully an average crop of Wheat, both in corn and straw. Oats very deficient in both. Beans a very poor crop. All corn well harvested, and the Oat straw better fodder than we usually have, which will help out the very small crop of hay grown on the Fen lands. Our principal green crop in this locality, and indeed on all Fen soils, is Rape, which is very generally a failure, and cannot be a fourth of the usual crop; it is mostly all consumed by sheep during the next three months; it is of very feeding quality, and in ordinary years produces a great weight of mutton. I suppose that even with giving a very liberal allowance of cake or corn we shall not produce half the usual number of fat sheep. The Mangels will be a fair crop—not an average in weight—but good in quality. They are usually grown to be consumed in the yards, but this season will be cut or pulped and mixed with chaff and corn for sheep feeding; last winter I had some shearlings kept in that manner, and they throve very well. But with all these appliances I don't think we can winter nearly our usual quantity of sheep. By using a fair allowance of cake we shall be able to keep as many cattle as are requisite to consume the straw. *Thomas Aitken.*

Norfolk: *Bacton Abbey, North Walsham.*—The result of our corn harvest is satisfactory. Barley a heavy crop, quality various; Wheat better than was expected, above average, but not equal to last years crop. The root crop deficient, not so badly planted in this county, but the bulbs very small and of inferior quality. You ask my opinion as to the best plan of eking out the root crops. We shall in this county cut down a large portion of both Wheat and Barley for feeding purposes. There can be no policy in giving the English or foreign cake merchant from 10*l.* to 12*l.* per ton for adulterated Linseed-cake when the produce of our own farms is only now realising from 6*l.* 10*s.* to 8*l.* 10*s.* per ton. In the face of the worst hay crop and the worst root crop ever grown in England, it is highly politic to cut down a large portion of our corn for cattle feeding. That we are approaching a meat famine few can doubt. I see no means to avert it, save by the use of an almost unlimited amount of corn meal, with a limited quantity of roots. With meat at 1*s.* per lb., (which in all probability it will reach), cattle will pay for high feeding, nor will that be the only advantage. A large home consumption of corn will lessen the quantity for market, and, let us hope, give us some advance upon the present low and unremunerative prices. *W. Cubitt.*

Oxfordshire: *Sarsden.*—The harvest being all gathered in and some few pieces threshed, we can now

form some idea of the yield. Wheat on strong soils is equal to last year both in quantity and quality, but I fear the light sands and thin soils will fall sadly short. Barley full average crop, and a deal of very fine quality, although some pieces on the gravel and sand turned off too soon, and the red streak is still visible. Oats, Peas, and Beans under average and very small, the Beans suffered much with blight and lice. The great question—How are your Turnips, and what's to be done for keep? seems to puzzle all in this part. Never in any previous season has there been so much seed planted, and yet the Turnip fields are bare, although every fresh plan has been resorted to both in replanting, broad sharing, and stemming, but they won't grow; those who only harrowed down their land last spring and planted on the stale furrow, have decidedly the best roots, and the best are but bad. Every flock master has done much by planting Mustard, Rape, &c., for this autumn, but I fear the season is too far advanced for a crop; the dry weather and frosty nights have stunted its growth, and with our climate we cannot expect much feed. For the spring Trifolium, Italian Grass, Rye, winter Oats and Vetches, have all been planted, and more Vetches must yet be sown for spring seeds. Stock of all kinds will depend upon the chaff cutters and grinding mills for their winter food. I have found from experience when much straw is used—and a deal must be this winter, for hay is a short crop—it is best to cut the chaff very fine; a few pulped roots will flavour a large heap, besides the flour and cake, or whatever is used, mix so much better in fine chaff; a little Linseed water will also assist the animal's stomach. *Matthew Savidge.*

Home Correspondence.

Harvest Rejoicings at the Royal Agricultural College.—The proceedings which took place at this Institution on the completion of our harvest some three weeks since may probably interest some of your readers. I therefore venture (at this late date) to send you a brief report of our doings at the "harvest home." After a season of uninterrupted fine weather, it was unfortunate that on the day appointed for our festivities unfavourable changes should have occurred. The day however having been selected and due provision made for those who were to assemble, and everything arranged for a holiday upon the farm, the state of the weather was not to prevent the celebration of a ceremony which had been looked forward to with such pleasure by many amongst us. By 11 o'clock in the morning our labourers were wending their way homeward, and busy preparations commenced in the College, kitchen, and also upon the farm, whilst the labourers, their wives and children, were exchanging the working garb for their "Sunday best," and when they returned to the scene of rejoicing, a more respectable, well attired, happy party, you could not wish to see than the 40 men, women, and children assembled in the decorated cart-shed at the farm buildings. At length the chapel bell summoned us to more sober duties, and ere the last toll was heard, the seats of this most beautiful little building were crowded with numbers of both sexes, including the Principal's family, members of the staff, a fair proportion of students, and lastly the labourers themselves. The demeanour of the congregation showed that all alike felt the importance of the occasion, and were sensible of the sacredness of the service they were about to join in, composed as follows:—A selection from the Psalms, appropriate Lessons from the Old and New Testament, Prayers and Hymns specially chosen for the occasion, and finally an address from the Principal. The unpropitious state of the weather, and the probable discomfort to our out-door feast by exposing the provisions, did not escape the thoughts of our Principal; he kindly offered the use of the College Dining Hall. Soon accordingly we found ourselves seated around heavily laden, solid tables, in this spacious room, and one and all agreed it was a most comfortable and excellent proposal on the part of Mr. Constable. After the usual toasts, and rounds of cheers from the worthies (some of the latter having been on the farm since the first stone of the College was laid, now 18 years back), the merry party again mustered on the ground near the College, where no lack of amusements existed. Thanks to the students, ample exertions were speedily made to secure a diversity of fun; foot races, jumping in sacks, leaping, quoits, liberal rewards falling to the winners out of the handsome purse raised by the ladies and students present. Lastly, it was proposed to form sides for foot-ball, and professors, collegians, and farm labourers contested for victory, and fought the battle out on even terms. As the shades of night gathered round, we took warning and adjourned to our comfortable shed, now hung around with evergreens and flags, and properly lighted. The wants of the women and children were provided for at once, a good supply of tea, &c., being sent from the College. The men gathered round their tables, on which were placed jugs of ale, with here and there a supply of tobacco, and then commenced the round of provincial songs; cheers and laughter burst forth as some favourite words and airs fell upon their delighted ears, and not a little flattered did the company feel when a student favoured them with a song. At 9 o'clock the merry party rose to depart, having previously proposed and drunk the health of the farm manager, the compliment being acknowledged by Mr. Fletcher, in terms which proved that a right feeling prevailed on all sides. Not a regret was heard on that day, nor did one act of forgetfulness occur on the part of an individual, and we hope the rejoicings and festivities at the Royal Agricultural College harvest home may be annually chronicled hereafter. *J. L. F. Oct.* 4.

On Crossing the Breed of Animals.—I have been led to give this subject the greater consideration from what has passed at various agricultural meetings lately, and particularly that of Salthill, in which Mr. Disraeli took a prominent part. I shall confine my remarks principally to the theory, which appears a favourite one with the right hon. gentleman, of crossing Southdown ewes with a Cotswold ram. I cannot but think, with many others, that this is an erroneous, if not an absolutely retrograde movement; and I think I can prove it. First, from the "Observations on the Breeding and Form of Domestic Animals, by the late Henry Cline," a work but too little known by practical breeders, and next from my own unfortunate experience. What says Cline on the subject of putting large males to smaller females? "When the male is much larger than the female the offspring is generally of an imperfect form. If the female be proportionally larger than the male, the offspring is of an improved form. For instance, if a well-formed large ram be put to ewes proportionally smaller, the lambs will not be so well-shaped as their parents; but if a small ram be put to larger ewes, the lambs will be of an improved form. The proper method of improving the form of animals consists in selecting a well-formed female, proportionally larger than the male. The improvement depends on this principle—that the power of the female to supply her offspring with nourishment is in proportion to her size, and to the power of nourishing herself from the excellence of her constitution." Again, "The size of the fœtus is generally in proportion to that of the male parent; and therefore when the female parent is disproportionately small, the quantity of nutriment is deficient, and her offspring has all the disproportions of a starveling. But when the female, from her size and good constitution, is more than adequate to the nourishment of a fœtus of a smaller male than herself, the growth must be proportionately greater. The large female has also a greater quantity of milk, and her offspring is more abundantly supplied with nourishment after birth." He next proceeds to give "examples of the good effects of crossing the breed." "The great improvement of the breed of horses in England arose from crossing with those diminutive stallions, Barbs and Arabians; and the introduction of Flanders mares into this country was the source of improvement in the breed of cart-horses. The form of the swine has also been greatly improved by crossing with the small Chinese boar. Examples of the bad effects of crossing the breed.—"When it became the fashion in London to drive large bay horses, the farmers in Yorkshire put their mares to much larger stallions than usual, and thus" (mark the result!) "did infinite mischief to their breed, by producing a race of small-chested, long-legged, large-boned, worthless animals. A similar project was adopted in Normandy, to enlarge the breed of horses there, by the use of stallions from Holstein; and in consequence, the best breed of horses in France would have been spoiled, had not the farmers discovered their mistake in time, by observing the offspring much inferior in form to that of the native stallions. Some graziers in the Isle of Sheppy conceived that they could improve their sheep by large Lincolnshire rams, the produce of which, however, was much inferior in the shape of the carcase, and the quality of the wool; and their flocks were greatly injured by this attempt to improve them." With the following passage I conclude my extracts from Cline:—"The general mistake in crossing has arisen from an attempt to increase the size of a native race of animals; being a fruitless effort to counteract the laws of Nature." My own lamentable experience fully bears out the correctness of the above remarks. Once upon a time (I was younger then than I am now) I was persuaded to put a Leicester tup to a lot of Scotch ewes. In consequence of the larger size of the former, as compared with that of the latter, I lost about a fourth of the ewes in yeaning, or trying to yean. To say nothing of the actual money loss, I never was so ashamed of anything of the kind in my life. I had not then read Cline, or such a misadventure would never have happened. Mr. Disraeli calls upon us for facts; I have given them; and in all due courtesy would ask him in return upon what facts he relies for his statement that his cross would produce an improvement of 5*s.* per fleece? *S. Taylor, Gloucester, October* 10.

Societies.

Social Science Association, Leeds: *Sept.* 23.—In the Health Department an interesting paper was read by Mr. Godwin, F.R.S., "On the Over-crowding of Dwellings and Workshops."

Mr. Godwin said,—In a paper already before the Association I gave numerous special cases of overcrowding to show its prevalence, especially on that occasion, in London—cases of overcrowding in dwelling houses, workshops, barracks, and schools. I have re-visited within the last month many of the places described, and found them precisely in the same evil condition as before. Thus, in Lincoln Court, Drury Lane, to which attention was directed, the first house examined on this last occasion contained 37 persons in its eight rooms, and the second 45. In some, I was told, the number of the inhabitants was greater. Every room housed a family; some, surreptitiously, three. To get at the truth, as in all these cases, was difficult, but quite enough was admitted to prove that the conditions were not such as admit of healthful existence or decency. Of Charlotte's Place, Gray's Inn, the same may be said. The medical officer of that district speaks, in his last report, of small three-roomed houses, each containing seven families huddled together as closely and almost as promiscuously as sheep in a fold. In unhappy Bethnal Green, in Mile End New Town—in fact, in every direction—the same fearful state of things may be witnessed. The extent to which the evil is increased when illness prevails or death occurs can scarcely be imagined. In one room, near the Caledonian Road, Islington, were found amid a family a child dead from scarlet fever, and another ill with the same complaint. No washing had been done for a fortnight, and the clothes which had been worn by the sick child, and those which had been taken off the dead one, were stowed in the bottom of a cupboard, where the food of the family was kept; there were dirty slops in the room and on the staircase; the window had never been opened since the sickness began. The woman who lived here had buried three children, and the one lying dead was the fourth lost. The remaining rooms of the house were densely crowded; the drainage was not good; and two other children had died in the same place not long before. Concerning most of our provincial towns, and I have examined many of them, similar statements have to be made, and must be extended to Ireland and Scotland. Having described the disastrous influences, moral and physical, of overcrowding, Mr. Godwin proceeded to consider the second question—How could it be prevented? In reply, he said, I must reiterate my conviction that the first step should be the application of the Act for regulating common lodging-houses to all houses let in tenements to, say more than two families—that each house so let should be registered, inspected, and regulated, and moreover that this step should be taken immediately. The *Times*, in commenting on my previous paper, said—"The Legislature has a right to interfere at least on behalf of the innocent victims of their landlords' or neighbours' negligence, and by fixing a statutable minimum of breathing room in cases where such protection shall be proved to be most needed, may gradually enlighten public opinion on this subject." Other influential journals went even further in support of the proposition, and at the conference on the dwellings of the labouring classes, held at the instance of the Council of the Society of Arts in May last, the meeting came to the resolution that the Legislature might procure better dwelling-places for the poorer classes by, among other steps, "the improvement of the Lodging-house Act, as regards provision for sanitary purposes, and giving greater power to inspecting officers." Very large numbers of houses in the business centres of London, tenanted by the poor and the industrious classes, have been destroyed, not only for railways, but to give place to warehouses, printing establishments, offices, and such like; and although, knowing the miserable nature of many of these places—their total unfitness for occupation—I cannot, as some do, deplore this removal in an unqualified manner, it must be urged as a cogent reason why efforts should be made to supply fresh homes of a better character. Several large structures to be let in lodgings are in progress at this time in the metropolis, at the cost of the Corporation of London, the Peabody trustees, and other bodies, and will do some little towards supplying the want, but very little as compared with the magnitude of the population to be dealt with. In the meanwhile the old houses remain unimproved, and capitalists and speculators find it pays better to erect houses for another class. Among the causes that contribute more or less to this evil is the unequal manner in which parish rates are levied in different parts of the metropolis and elsewhere. Moreover, in places where a high levy is made, capitalists and speculators are even less disposed than elsewhere to erect such buildings as are needed, although it is in such localities they are more particularly required. Mr. Godwin then referred to the overcrowding that prevails in workshops, schools, barracks, and ships; and urged that the protecting supervision sought for ought not to be confined to dwelling-houses.

Great Budworth.—The late annual meeting of this Society was presided over by Sir H. Mainwaring, Bart., who congratulated the Society on the show, for he was informed that the dairy stock had been remarkably good. The milking cows were more to his mind than the animals he saw at the Knutsford show. With regard to the prize bulls he had seen, he congratulated the owners upon winning the prizes, but he should have congratulated them more on the prospect of getting rid of such animals. Short-horns were not suited to Cheshire dairy farms. He would like to say a word or two in reference to what was said at the dinner at Crewe last year, and at which several gentlemen had taken offence. It was not his intention to have offended any person; but Mr. France, of Bostock, in a speech he made at Middlewich last autumn, found

fault with what he had said about farmers' accounts, remarking that he had no business to pry into farmers' accounts, and he advised farmers not to let him see them. Now he was the last person in the world who would wish to pry into farmers' accounts; what he complained of was, not of the manner in which they kept accounts, but that they did not keep accounts at all. He asked one farmer what he paid for labour? what his horses cost him? how much for insurance? and such matters; and the man confessed that he did not know. His grievance was, that farmers kept no accounts at all. He had also offended Mr. Rigby, and Mr. Dutton was so savage as to say that he ought to speak on subjects that he understood; and he had grieved Mr. Cliff because he had stated that farmers were 25 years behind manufacturers. He never said anything of the sort—what he stated was that farmers were 35, not 25 years behind manufacturers. And so they are. At one time the landed interests—the owners and occupiers of land—had all the railways under their own thumbs. But they neglected the opportunities they then had. They sold shares at 100*l.* that are now worth 500*l.* Had they, as they might have done, kept the railways in their own hands, the farmers of Cheshire might have supplied all Warwickshire with Turnips, and might have taken them from Hartford to Rugby for 3*s.* per ton, instead of paying 23*s.* per ton. Then Mr. Stelfox, of Comberbach, had said that he had done his best, but for the life of him he could not grow Rushes! All he (Sir Harry) could say was that he liked a cheese got upon rushy land rather than on Clover land. He had also offended the *Agricultural Gazette*, which had declared that he was against sewerage, ploughing, and all matters of that sort. And so he was. Colonel Wilson Patten, too, had taken him up for saying, at Knutsford, that sheep farming in Cheshire was all nonsense; but he would allude to that subject presently. It was said in the *Saturday Review* some time ago, that the farmers of England did not make the percentage on their capital and industry, equal to other traders, and such as they deserved, from the very great risks they run, from the climate, vermin, and other causes. This he attributed to three of the great curses of Cheshire, draining, boning, and broad-breasted bulls. They must bear in mind that he was speaking of Cheshire farmers as they are; not as they will be. There will be a wide difference 50 years hence. Take the subject of draining. A man takes a farm of 100 acres, and tells his landlord he must have it drained. The landlord drains it, and then charges the tenant an additional rent of 6*s.* per acre for his drainage; whereas he ought to have done it for 2*s.* per acre. He (Sir Harry) considered that tenant farmers were badly used. He knew an instance of this near Sandbach, where the tenant now wishes all the draining tiles back in the kiln whence they came. Cheshire naturally is the best drained county in England. There is a natural fall in every field. He saw a drain in Cambridge the other day with only 4 inches of fall in a mile. All that the Cheshire farmer has to do is to put a few tiles down here and there, and the land will drain itself. Any one travelling from Brereton Green to Knutsford, crosses no less than eight streams in 10 miles. The land is naturally drained. He granted that it might be impossible to drain tillage land too much, but Grass land in Cheshire was not only drained too much, but at double the expense to the tenant it ought to cost. He was with a gentleman the other day who had drained "comprehensively," as he termed it, and he asked him whether he was aware which way the fall ran? He replied that "It ran into a brook down there," (pointing to the place); but when asked whether he knew which way the brook ran, whether towards the Weaver or the Bollin, he confessed that he did not know. Now, if that man had been living in a flat country, he would very soon have known which way the brook ran. Then having drained his land, he must bone it, according to the fashion, at 8*l.* per acre, whilst lime and soil, which are far superior to bones for pasture land—not for tillage land—would cost him not more than 30*s.* per acre. Bones are all very well for tillage land, but lime and soil are far superior for pastures, and far better for the cheese tub. Bones destroy the natural Grasses of the county—the rich, luscious Grasses; and the evil effect is that a crop of inferior Grasses follows, which are not to be compared with the old Grass either in quality or quantity, and the stock fall off in their yield. The farmer then wants more stock. Perhaps he purchases Short-horns at 18*l.* apiece, and then he goes to his landlord and wants his farm buildings enlarged, for which he has to pay an additional rent of say 7½ per cent. Thus he is burdened with drainage at 6*s.* per acre; boning at 8*l.* per acre, and 7½ per cent. on extravagant buildings; and then he becomes possessed of a "white elephant," which like its oriental prototype eats up its owner. Those charges coming upon the tenant in the shape of rent, draw down upon him the income-tax commissioner, who says, "You pay so much rent, never mind what it comes from;" 7*d.* in the £ is put upon him, and in the end come those gentlemen who seem to have been specially selected for their incapacity—the Parochial Assessment Committee. When in possession of his "white elephant" he plunges into tillage. He has already failed in making either Cheshire, Stilton, or Cheddar cheese, so he tries his hand at tillage farming. He grows corn, and gets machines, and sells Wheat worth not more than 4*s.* a bushel. Such was the farming they had in Cheshire. He was not referring to strong-backed farmers, such as there are in Aston, Budworth, and High Leigh; he alluded to the bulk of Cheshire farmers, and contended that their farming did not allow them to purchase implements. How therefore could they compete with men who can afford to purchase implements? There is a cry that a great change has come over Cheshire farming; and so there ought to be if the best milking cows are those that have never had calves; that the land tenure required great alteration; that all the farms in the county would fall into the hands of a few holders; and that steam power would do much to accomplish this. With regard to sheep farming, he would read an extract from the letter he addressed to Colonel Wilson-Patten in reply to one from him on sheep farming. He said:—

"Dairy farming and sheep farming, however well the land be drained, will not do together. A farmer, such as he is in Cheshire, knows nothing of sheep—nothing as to their age or diseases, or that dreadful scourge the foot-rot, which prevails in Cheshire in spite of draining tiles. He cannot have money at both ends. If he has a good crop of lambs in the spring, he cannot have a good crop of cheese in the autumn. He knows not how to buy sheep, and he must change his flock every October. Cheap sheep are ruinous. The sliding scale must prevail in sheep-farming: as is the rent of land, so must be the price of sheep—land at 40*s.* per acre, sheep at 40*s.* each. I know a farmer in Yorkshire who some years ago gave 40*s.* each for 100 ewes in October. He hired two tups at 10*l.* each for the season. At lambing time, the ewes were put on seeds with chaff, Mangels, and cake. At weaning time the lambs, 125 in number, were put on Rape, seeds, and Turnips, with hay and cake; and I saw them sold in York market, when they were about 13 or 14 months old, at 76*s.* each. Their fleeces were on, of course; but wool at that time was only 13*d.* per pound. Sheep farming in South Lancashire and Cheshire might if so managed, pay: but then the climate is against us, and if the winter was open and wet the loss of lambs would be great. And I ask you, Do you think that our Lancashire and Cheshire farmers, such as they are, are competent to farm in this manner; are they not better suited for dairy farming? Of course there are exceptions. There are strong-backed men living on the dry lands in our counties who may play with sheep-farming if they like it; but I do not think that you will, with all the characteristic shrewdness which the *Times* attributes to you and praises so highly, persuade, and I hope you will not succeed in persuading, our farmers to adopt sheep farming, even though the land be highly drained, and wool 2*s.* 6*d.* per lb."

He (Sir Harry) regarded draining, boning, and broad-breasted bulls, as the three great curses of Cheshire. The other three are tillage, sheep farming, and breeding hunters. When a Cheshire farmer takes to breeding hunters he must be very low indeed. He never desired Cheshire farmers to give up draining and boning altogether; what he would say was,—Drain mildly, put bones on tillage land, and lime and soil on pasture; and then he would promise them a long-horned bull if there was one to be found in the county of Lancashire. In conclusion he would ask,—How is a farmer to meet these large annual out-goings, viz.—6*s.* per acre for draining; 8*s.* per acre interest on bones; and 7½ per cent. for additional buildings. It is certain that his Short-horn cows, though giving plenty of milk, produce at the utmost only 2½ cwt. of cheese in the year, which will neither meet the large outlay, nor give him such per centage as he ought to have and as he deserves to have. It is equally certain that neither corn farming nor sheep farming will help him. He (Sir Harry) should be glad if any gentleman would give them an idea or plan by which these costs may be met.

Mr. WARBURTON (the Patron of the Society) proposed in complimentary terms the health of the President, to which

Sir HARRY MAINWARING briefly replied.

The CHAIRMAN said their proceedings were about to be agreeably diversified by the singing of a song by Mr. Tomkinson, who would give them some verses that had special reference to what he (Sir Harry) had been talking about.

Mr. Tomkinson then sang, amid much merriment, the following verses from the humorous pen of the Patron of the Association:—

SONG OF THE RUSH.

At Peover one day, as tradition discloses,
An infant was found in the water, like Moses;
In Rushes wrapp'd up, as you wrap a cream cheese,
Afloat in his cradle, he slumber'd at ease.
Fine old Rushes, fine old Rushes;
Stick to green Rushes wherever they grow.

To the Hall he was taken, and nurtur'd with care;
"Green grow the Rushes," his lullaby there;
When the nurse would the cry of this baby boy hush,
She had only to tickle his face with a Rush.

At Peover they fed him on cheese old and prime,
So a mighty man there he became in due time;
To prove that the tale which I tell is no myth,
When he speaks you will find him a man of much *pith*.

Says he, "My good friend, the advice that I give,
Is to stick to green Rushes as long as you live;
You may follow my counsel or not, as you please;
But if not, you will ne'er make a good Cheshire cheese!"

Much mistaken are they who consider him slow;
His crotchets as fast as a river stream flow;
Wrong ways to condemn, and false notions to crush,
When he comes down upon us, he comes with a *rush*!

There is nothing so cheap as to farm in his style;
'Tis a culture that needs neither bone-dust nor tile;
A green crop that grows without labour, and tends
To produce the lean kine he so much recommends.

A bird in the hand is worth two in the bush—
Worth two is one acre well covered with Rush—
And a bull fed on Rushes, depend upon that,
Is worth more for the dairy than three that are fat.

We all have our tastes, and we know that friend Dutton
Prefers a rook pie to a roast leg of mutton;
So at Peover's old pasture each cow, it is said,
Would rather on Rushes than Clover be fed.

Some think themselves mighty fine fellows indeed
When they win the first prize for an overgrown Swede;
But we need not to Sweden for Turnip seed go,
So long as green Rushes in England will grow.

Testimonials are now quite the fashion we know;
I will tell you the one we intend to bestow;
That he still may continue to guide us aright,
We have brought him a lantern to hold his *rush-light*!

Long life to Sir Harry, the farmer's best friend;
May our riches increase as our Rushes extend;
And whenever he dines at Big Budworth, take care
That the landlady gives him a *rush-bottom'd* chair.

The laughter with which the above lines were received having subsided, a short discussion ensued on "The Tenure of Land in Cheshire." On a call from the chair,

Mr. DUTTON said he had neither given notice of his intention to take part in any discussion on the Tenure of Land in Cheshire, nor was he prepared to enter into a debate upon it, but since he had been requested to introduce the subject, he would just observe that his notion was that the tenure of land should be regulated in such a manner as was calculated to lead the farmers to a better state of things; and one of the principal stepping stones to that was a good understanding between landlord and tenant. Such meetings as the present one had an admirable tendency to secure that result. Another question connected with the tenure of land was, whether leases, annual agreements, or short terms are best? And also the nature of the covenants.

These matters ought to be looked at from both sides. Tenants are apt to look at them from one point of view, and landlords from another; and having supposed antagonistic interests, it was not easy to reconcile them; but in approaching the question they should not look through the tenant's glasses, nor through the landlord's spectacles, if they would form a correct and unbiassed opinion. In the first place the landlord let his lands in the belief that the tenant is capable of improving it; then came the question, how to protect the tenant in the embarkation of his skill and his capital. The question of rent ought to be settled by mutual agreement—giving equal protection to the landlord and the tenant, for justice never can be done without some scheme that shall combine these two points. Then arises the question, Can this be accomplished best by lease or equitable annual agreements? As a rule—he would not say universally—leases are undesirable. The landlord's interest could not be fairly protected under a long lease. It was impossible to tell what changes might take place in reference to the property. It might be desirable to throw it into the market; and what was the position of property sold under a long lease?—invariably, it never fetched within 25 per cent. of its actual value. But the chief objection to long leases was that, as a rule, the tenant spends the first half of his term in laying as much out on the farm as possible; and during the latter half he applies himself to getting as much out of the land as he can. In all annual agreements, there ought to be a clause giving the tenant compensation for unexhausted improvements. He disliked all catchpenny clauses; nothing ought to be introduced that was not absolutely necessary for the protection of both interests. He would strike out all such clauses, and let the tenant have his fling—not as Sir Harry said, namely, applying all his bones to tillage land; but putting bones on Grass land and manure on the tillage. He, Mr. Dutton, agreed with the hon. baronet that there was a good deal of land in Cheshire that it would be undesirable to plough. With Wheat at 6*s.* per bushel, the farmer holding stiff clay land cannot make much profit by bringing it under the plough. On such land they had better keep the Grass uppermost. But chief of all, each side should observe a strict and honourable fulfilment of the covenant agreed upon between them, and whatever the terms are, they should be in black upon white. He did not like word-of-mouth agreements. If the tenant violates his covenant, he deserves to be punished; and the landlord equally deserves to suffer if he does not honestly and faithfully act his part. One of the best things which the Manchester and Liverpool Agricultural Society—which had more funds in hand than it could spend—could do, would be to offer a liberal premium to the tenant farmer who, on quitting his farm, leaves it in the best condition.

Mr. C. GARFIT, on a call from the chair, said he agreed with most of what Mr. Dutton had said; the great point was to create a feeling of confidence between the two sides. He agreed with the introduction of clauses giving the tenant compensation for unexhausted improvements. Annual tenancies were, to his mind, better than long leases, both for the landlord and the tenant. A farmer, for instance, takes a farm on a 14 years lease. The time soon passes away, and at the end of the term, the landlord naturally expects that the agreement is at an end, and that he has a right to send a disinterested farmer on the land to make a new valuation for the purposes of a fresh rental. It may be that owing to the energy and enterprise of the tenant, the farm has much improved during that time; whilst over the hedge may be another farm held on lease for the same period, but being in the hands of an indolent holder, has just as much deteriorated as the other has improved. The same valuer goes over both farms—one is rented at the same sum it was let at before; whilst the well-managed farm next door has an increased rental of one-third put upon it, which of course is a benefit to the landlord, but it is a tax upon the tenant's industry. Annual tenancies are much more satisfactory than leases, particularly when there no confidence between landlord and tenant. The tenant ought to be allowed for both boning and draining, when the claims for those matters come in the shape of unexhausted improvements; if this was faithfully observed as an universal rule, tenants would never be backward in laying out capital on their farms.

The CHAIRMAN said, in reference to the power which landlords and tenants had over each other, he knew instances in which that power had been abused. In the case of a tenant having notice given him on the 2d of August, he has full power over his landlord till the 2d of February, and he can plough up every inch of ground if he likes. [Mr. FAIR: No, no; the custom of the country would be against him.] He (Sir Harry) did not believe that any jury would give the landlord damages against his tenant in such a case. He knew an instance where a tenure of land was held from year to year, and without notice being given to the tenant to quit (although he paid his rent at Christmas) on the 27th of September he got a letter demanding payment of his rent on that day. Not being prepared, he omitted the rent; and the following day he got a letter from an attorney, and the day after the bailiffs were put in his house. Nothing could hinder any farmer who takes his land from year to year, from receiving on the 29th of this month notice to pay his rent on that day,—unless special proviso to the contrary was made in the covenant or agreement. He believed the whole tenure of land to be based on a wrong principle; and one of the results was that Cheshire was one of the worst farmed counties in England. The best farms were in Yorkshire and Nottinghamshire. In those counties, when a farm is taken everything is valued to the tenant, even to the gates; when he quits, the whole is valued again, and the tenant either receives or pays as the case may be; the result is that the best farming is the consequence. In Yorkshire, in the case of a farm changing hands, the tenant in possession

performs the ploughing at 8s. an acre, or he allows the incoming tenant to bring his horses and plough it; but he knew hundreds of instances in this county of farms being taken on 24 February, and when the incoming tenant brings horses to plough it, he cannot get stabling till 24 May. As to leases, he never saw a good lease yet; whether it was best to make them for 21 years or not, he really did not know.

This ended the discussion on the tenure of land, and the toast list was then continued.

Mr. Tomkinson sang "Taking it Easy."

Drainage in Cheshire.—The Vice-President, the Hon. A. Lascelles, in reply to the toast of his health, said it was difficult for a non-practical farmer to go over the same ground that had been travelled over year after year by men of science and experience. He would venture upon a new topic, and advert briefly to the principle upon which these associations act. He was inclined to think that they had had their day, and that another principle must either be added or supersede the one already followed. Hitherto the principle had been one of competition—it had made known their wants, and had supplied, in a great degree, an amount of scientific knowledge which they were all the better for. But in addition to this, or else in lieu of it, what was now wanted was co-operative associations, especially in the matter of draining in this county. Draining, he contended, ought to be carried on on a much larger scale. They executed their draining field by field, farm by farm, and estate by estate; whereas it should be carried out with the eye of an engineer, taking advantage of the natural falls of water and outlets, and combine in one system of drainage the most extended area they could practically get together, irrespective of fences, or farm boundaries, or estates; and by one co-operative plan, effect the drainage of the whole. Let the landlords and tenants of three or four townships adjoining each other, co-operate in draining the entire district upon some scientific principle. If one part of the country competed with another in the carrying out of a comprehensive scheme of that description, the spirit of competition might result in greater benefit than at present. A natural outflow ought to be made subsidiary to the drainage of a farm three miles off. At present natural out-falls are thrown away in making them merely sufficient for the drainage of a single farm, whereas by turning them to some engineering account, they might be made capable of draining a whole parish. One reason why, in spite of agricultural improvements, they had small crops in Cheshire was, because the draining was carried on on so small a scale. They drained their fields into a ditch at the end of their farms, and there the ditch remained a permanent necessity and a permanent nuisance. He was glad to see that Sir Philip Egerton was setting the example of draining on a new principle, with the ultimate idea of taking in a large area of land. Under the present system a farmer is liable to be swamped by his neighbour. The drainage of farm land should be carried out on a similar principle to what is followed in towns. In boroughs and towns they do not allow one man to drain his house on one plan, and another man in the same street to drain his house on another plan; but the drainage of every house and every street is effected upon one broad system, and so it ought to be with regard to farms. Economy and effectual drainage would be the ultimate result. So far from being an impediment to other improvements, such a system would be suggestive of them. The farmer going round his farm would find his ditches dry, and the first question that would occur to him would be, Of what use are they to me? He would also ask the same question respecting the great embankments growing nothing but Briar and Blackthorn, that disfigure some of the farms in this country; and he would not be long in discovering the advantage he would derive from filling up the ditches with the soil from the embankments and turning to profitable account the land reclaimed in both instances. He (Mr. Lascelles) felt convinced that some such plan as the one he had suggested would be acted upon. The land had been handed down to them scored and mutilated by their remote predecessors, with deep irregular ditches filled with water, which runs round the four sides of one field and then empties itself into the next, and does the same there. He ventured to think that the only way of effectually remedying this, and placing the drainage of the country on a sound principle, was by the adoption of such measures as those he had brought before their notice. *Abridged from the Macclesfield Courier.*

Reviews.

Walsh's Patent Furze Machine. Pp. 8. "Reporter" Office, Drogheda.

Mr. Walsh has repeatedly called attention in our columns to the use of Gorse as food for cattle. He here describes the machine by which the Furze shoots are reduced to an edible pulp. It acts by a number of saw-tooth discs revolving in to one another. When made with two rollers it is called a single machine, when with four rollers it is termed the double machine, and is then worked by power. A number of testimonials to the efficiency of the implement are published from well-known and trustworthy correspondents—Mr. Dawson A. Milward of Tullogher, and the Rev. W. D. Fox among them are known to us—and their favourable testimony may be accepted as perfectly conclusive.

The following is Mr. Walsh's statement on the subject:—

"The operation of it is to tear up, and at the same time to crush and soften the stuff, so that the prickles are rendered inert, and the woody parts made more easy of mastication. Of the numerous contrivances which have from time to time been applied to the purpose, none has been found to act so effectually, and at so little cost, or with so little labour, as this one. All those hitherto in use have failed to give complete satisfaction from various causes. Some, because their inventors, fancying it necessary that the material should be reduced to a perfect pulp, have, to that end, constructed, very complicated and expensive machines. These, requiring a vast deal of power, wasted much time and superfluous labour to produce a result which was not called for, and in quantities not at all adequate to the expense. On the other hand, machines are much in use which are supposed to cut the Furze into ¼ or ½ inch lengths. These are inefficient, inasmuch as they do not soften the stuff, so that a subsequent operation by pounding or rolling becomes necessary, without which horned cattle cannot take it freely. In that rough state horses may eat it, but cows will not, unless starved into doing so. The machine now described meets all these objections, neither doing too much nor too little, besides possessing this great adantage—that it offers the facility of preparing the stuff to different degrees of fineness, according to the class of animals it is required for, by passing it through once, twice, or three times. For horses, whose mouths are harder, it is sufficient to pass it once. For cows and stores, it is found best to pass it twice, which process does not involve as much labour as would appear at first sight, as the second run takes only half the time the first one does. A third run only requires half the time that the second one does; this is recommended only for calves and sheep, and for fattening cattle in the stalls. The application of Furze to the fattening of cattle is rather a new feature in the cultivation of this plant, probably unknown to many; but the practice of the last few years has proved it to be a most important auxiliary for that purpose, not only as taking the place of more expensive food, but as contributing to increase the digestive powers of the animals, and to improve the quality of the meat. With 4 stones of Turnips, 2 to 3 stones of Furze, and the usual allowance of meal daily, beasts have been fattened to 7 cwt. in a much shorter time than under the usual treatment. Without a suitable instrument for its preparation, these results would never have been arrived at; nor could the valuable nutritive properties of the plant, as shown by the annexed analyses, and confirmed by practice, have been brought out. It is true that many people have long been using Furze for horses and cattle by means of the old appliances; but, by referring to the accompanying letters, it will be seen that some of the writers had been using the ordinary chaff-cutters, but now make use of this machine in preference. It is simple in its construction and operation. It can be attached to any horse gear, one-horse power being sufficient for the double one; but a two-horse one will give more than a proportional increase in the amount of work done. The single one can be worked by power as well. In the cultivation of Furze, great stress has been laid upon the importance of having the Furze grown close and thick, so as to cause the shoots to be drawn up and tender, and more easily masticated when cut by the chaff-cutter. With the new machine, this precaution is unnecessary, as it will reduce the coarsest and most stubborn shoots that may be brought to it. Where it was first made use of, nothing was to be had but strong shoots, cut by hand off hedge-rows and bushes, sometimes with stalks more than half an inch thick. Of these, the machine would easily prepare 4 cwt. in the hour, passing it twice. This is given as the average quantity done in regular work, for a much larger quantity has been done when special trials were made."

Analyses are given by Dr. Voelcker, Dr. Cameron, and Mr. Masters, of Belfast. Dr. Cameron's analysis in April, puts the water present at 78 per cent.; the woody fibre, 10; the nitrogenous portions at 2.18; and the starch, &c., at 8·2. Mr. Masters, analysing a sample in September, of no doubt drier and riper stuff, found only 57 of water, 22½ of woody fibre, 8 of nitrogenous matter, and 10 of starch. While Dr. Voelcker, who examined a very much drier specimen, found only 33⅓ per cent. of water, and as much as 17½ per cent. of nitrogenous matter.

Farm Memoranda.

Lawrence End, Hertfordshire.—We give the following detailed account of the farming of Richard Oakley, Esq., of Lawrence End, as an example of what may be done on heavy land by summer feeding and early folding.

The corn crops on this farm are very heavy: 10 quarters of Oats per acre after Wheat are often grown in a locality where half that quantity is the general average. We believe Mr. Oakley finds, under his system of high-feeding, that the Barley crop is getting too strong for quality. He will probably have to crop a little faster with corn.

Mr. Oakley writes—

"I have in my own occupation about 1200 acres, about 1000 acres of which are arable, chiefly a heavy loam; the rest, Grass of a poor, weak kind; but with liberal supplies of cake or corn I manage to fatten some well-bred, moderate-sized Herefords, which greatly improves the Grass.

"My principal crops are Wheat and Barley; but I sow some 30 or 40 acres of black Tartarian Oats, top-dressed, after Clover-lea Wheat. I do not sow red Clover oftener than once in 8 or 10 years, substituting Trefoil to be fed off with sheep on cake or corn; the land ploughed up early in summer and sown with Rape (dressed with superphosphate), which is fed off by sheep with cake or corn in September or October, and sown with Wheat. I sow 20 or 30 acres of winter Tares on some of the strongest land for the horses, pigs, &c.; and, when they are off, the land is cultivated and laid up in ridges for Mangel in the following spring. This enables us to get the Mangel in early, whatever the weather may be. In April I begin to put in some early Turnips, with 3 cwt. of Lawes's manure, on some of the Wheat-stubbles on the strongest land, sowing about 3 acres every fortnight. I do not risk sowing many acres together so early; for, although mildew seldom affects them, they become pithy if they are not eaten at the proper time. We generally begin them early in August. Some few acres are sown with spring Tares, for fear that keep for the lambs may run short before the Turnips are quite ready; these are eaten off with cake or Corn, and the land made a tilth for Barley.

"I put 300 Hampshire Down ewes to a Cotswold ram. They are now lambing, and the lambs born in February are weaned early in May and put on Trefoil, having the first run. Some store-sheep are put behind them to clean up what they leave. The ewes are fattened off every year. The lambs have cake or corn all the summer, and, until they go to market at 11 to 13 months old, shorn. I have already sent 130 to market, which sold from 48s. to 53s each; these cut 8 lbs. of wool each. As soon as the ewes have lost their milk they are put on good keep and fattened off, and a fresh lot bought at Overton Fair on the 18th of July.

"Getting rid of my home-bred tegs so early, I am often enabled to buy in others advantageously in the early spring for summer-feeding; 50 of the best of the Down lambs so bought and kept to the age of 21 months, averaged last Christmas 5l. 3s. 6d. each. Mr. Slater, of Kensington, had 24 of them at 5s. 8d. per stone, which averaged 18 stone 2 lb. each.

"As to oxen, I put off two lots in the year, one from the Grass and the other from the yards. Forty or fifty well-bred polled Scots are bought at Barnet Fair in September, which run on the Grass till about 1st of November, when they are put into small, well-sheltered yards, 8 or 10 in each. They begin with 3 or 4 lb. of cake, and go up to 10 lbs. each. They have Clover-hay and Wheat-straw chaff cut together; 1 bushel of cut Swedes or Mangel and half a peck of ground Beans are mixed with the chaff. They are sold fat from April to June (according to the beef-trade) to some London butchers. Last year they weighed 115 to 130 stones, and made 5s. 4d. per stone.

"We put about as many store-pigs in the yard as there are oxen, which live chiefly on what the oxen drop. A polled Scot requires to be in yards 5 or 6 months to make him good, and will then have made manure enough to dress an acre of ground, and this I value at 4l. I generally have about 30 young Short-horns sent me from Durham in May: they are about 2 years old, very poor, and cost from 10l. 10s to 11l. 10s. They go behind the Herefords, eat up what they leave, and remain grazing about till Christmas if the weather continues open. They are then shut in yards, have a couple of bushels of cut Swedes or Mangels a day and ½ peck of ground Beans mixed with Wheat-straw chaff until they are turned out for summer grazing, when they have either cake or corn with the Grass, and they generally go off about August. Last year they averaged a little more than 108 stones, at 5s. per stone.

"I paid last year (in addition to home grown corn)—

For cake and corn	£1130	6	0
For manures	269	18	0
	£1400	4	0

This was rather less than usual.

"I always endeavour to be beforehand with the work of the farm."

Mr. Oakley also grows early Rape in preparation for Wheat: 5 lb. or 6 lb. of seed are drilled, 14 inches apart, with 3 cwt. of superphosphate per acre. The crop is folded at 8 or 10 weeks old, when about 18 inches high, and while young and luxuriant. At this age the sheep eat it to the ground without waste. Lambs on Rape are supplied with Clover-hay chaff, even in the hottest weather, and soon eat it freely.

The land is frequently ploughed up after folding, and again sown broadcast and without dressing, and a second crop obtained in time for Wheat to follow.

Twenty or 30 acres of Beans are grown on this farm by way of change.

Another excellent manager of stock has adopted the following system with profit. He buys cows to calve in January or February; the calves remain with their mothers until both are fat in the following May twelvemonth. They are summered on Grass, and the cows get about 5 lbs. of cake daily, or rather less while the Grass is at its best. As soon as the calf robs its mother's trough more cake is given, and by November the calves get 3 lbs. of cake each daily, and this is soon increased to 4 lbs. or 5 lbs.; they are wintered on cut roots, cake and meal, and straw-chaff. By May the calves which have remained by their mother's side will weigh about 60 stones, and sometimes more, selling occasionally for 19l. at 15 months old.

On farms with good pasture the calves should fall in May; in summer they should be taken into yards with their mothers during the heat of the day, and kept in yards or boxes through the winter and sold to the butcher in June or July. Mangel and Lucerne are provided for late spring-feeding. This young beef is not of the best quality, but it is quickly and profitably made. Of course the calf must be highly fed from birth, and must receive no check. It may be said of this, as of most systems of feeding, "the grazier's eye is worth 4 lb. of cake a day."

The following mixture of food for fattening oxen has been used on a large scale with success.

2 cwt. of meal	¼ sack malt coombs
1 ,, oilcake	8 sacks chaff
1 ,, pollard	3 lbs. salt

The composition of the meal varies with prices; at present it consists of

1 sack of Lentils	1 sack of Indian Corn
1 ,, Beans	1 ,, Oats

The chaff is one part of good hay, and two parts of the best straw.

The times of feeding, and the quantities for a large ox are—

7 o'clock,	7 lbs. of mixture.
10 ,,	1 bushel of roots.
3 ,,	7 lbs. of mixture.
5 ,,	7 ,, of hay for the night.
Two pails of water.	

Journal of the Royal Agricultural Society of England.

Calendar of Operations.

OCTOBER.

Wester Ross: *Oct.* 4.—The harvest is all but complete over the whole north of Scotland, and finer harvest weather and the crop in-gathered in better condition we have never had. Fears were entertained that as the weather had been so long dry a change might speedily come, and an untoward season set in; but all such fears were disappointed, and the harvest has been completed amidst much rejoicing. The crop, however, is of less bulk than it has been for several years, although the shortcoming in grain will not by any means be equal to the deficiency in straw. Wheat generally was somewhat thin, but is well-eared, and will thresh satisfactorily. The principal

short-coming both in corn and straw will be in Oats, but the grain is in good condition and the straw of fine quality. The crop was admirably adapted for being cut by the reaping machine, as there was scarcely a laid patch to be met with, and the large number of new machines introduced this year gave great satisfaction. This farm is so steep and hilly that it is unsuitable for the reaper, and consequently it was cut once again in the old way, The crop being light and the weather fine, the time spent in harvest work was short and the expense unusually small. On Monday August 29, eight scythemen began to cut 160 acres of Wheat, Barley, and Oats, and in 11¼ working days the whole was in stook, being about 1⅔ acres cut by each scytheman per day, and in 5½ days additional the whole crop was safely stacked; the harvest thus occupying 17 days. The harvest season, however, extended over four weeks, seven days of which were not occupied with purely harvest work. The wages given to the people employed were the same as last year, viz., 3*s.* per day to scythemen, 2*s.* 6*d.* to binders, 1*s.* 9*d.* to gatherers, and 1*s.* 2*d.* to rakers. The whole cost of cutting, binding, gathering, raking, stacking, and thatching was 26*l.*, or 3*s.* 3*d.* per acre. The wages of half-year servants are not included. So far as harvesting expense is concerned it would be vain to change this mode for any other, but we are satisfied that where the crops and the ground are suitable the reaper makes incomparably the better work, and ultimately the more economical. Although our stackyards are more scantily filled than usual, our prospects of winter keep are considerably brighter than those of our English brethren. Our Turnips have greatly improved of late, and promise to be an average crop. We are yet so scant of rain, that the green crop lot is turning up dry as ashes, and the leas presently cannot be broken up for Wheat.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Oct.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	7	30.25	53	51	E.	1	7	60	42	67	30	..
Saturday ..	8	30.23	57	53	E.	3	1	62	35	76	25	..
Sunday ..	9	30.19	56	51	N.E.	2	9	59	49	69	44	..
Monday ..	10	30.26	54	51	N.	2	1	55	46	62	38	..
Tuesday ..	11	30.38	49	48	N.	2	S	56	46	66	42	..
Wednesday ..	12	30.30	52	50	N.	0	10	56	46	67	42	0.00
Thursday ..	13	30.12	53	50	N.W.	2	10	58	50	67	48	.

Notices to Correspondents.

BOOKS: *B C D.* Young's "Farmers' Calendar" (Routledge) 10*s.* "Handbook of Farm Labour and Handbook of Dairy Husbandry" (Longmans) 1*s.* 6*d.*

CATTLE MELON.—Will "M. S." who wrote about Blundell's Cattle Melon in page 809 of the *Gardeners' Chronicle* of August 20, be good enough to give us his address.

GAS WATER: *Derwent* asks what solid matter is best to receive gas-water, in order that it may be applied as compost to the land. Any vegetable matter, loam or rotting vegetable fibre of any kind, which on putrefaction will yield food for plants, will answer the purpose. But as he has in the Grass land itself to which he applies it, just the vegetable mould to which it is thus proposed to apply it, the best plan will be to apply the gas-water sufficiently diluted directly as a liquid manuring to his pasture.

OATS: *Dublin Steward.* 10 to 15 lbs. of bruised Oats daily; an ample allowance with hay for a powerful carriage horse in constant work.

SCAB IN SHEEP: *W. Lewis.* It is analogous to the mange, and is essentially owing to the presence of minute insects called *acari*, which burrow under the skin and produce excessive irritation.

SOUTH AMERICAN MANURE: *Old Subscriber.* We should look with extreme distrust on any offer of a receipt for the manufacture of a manure. Read Mr. Lawes' writings, and those of your own countryman, Mr. Moule, of Dorchester, and you have then all the information on the wants of plants and the manufacture of manure that any advertiser can give you.

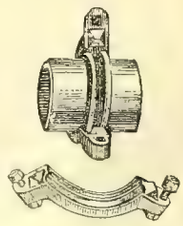
SOWS FARROWING: *J R B, Leyton.* The most probable cause of the abortion of the sows is from their eating the old stems of the Rye-grass, which they find in the large pasture of which they had the range. This Rye-grass is often affected with ergot, which powerfully excites the uterus or womb. It should be mown. *W. C. S.*

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20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

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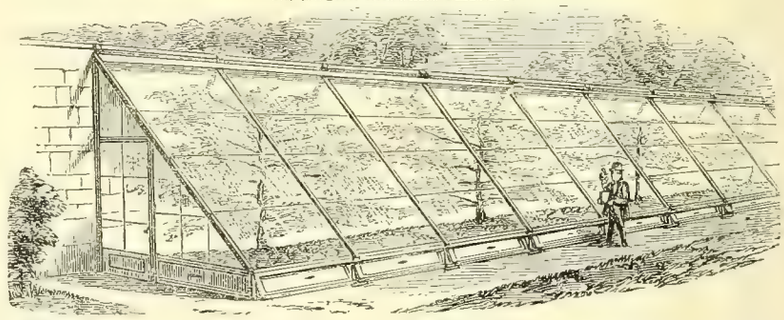
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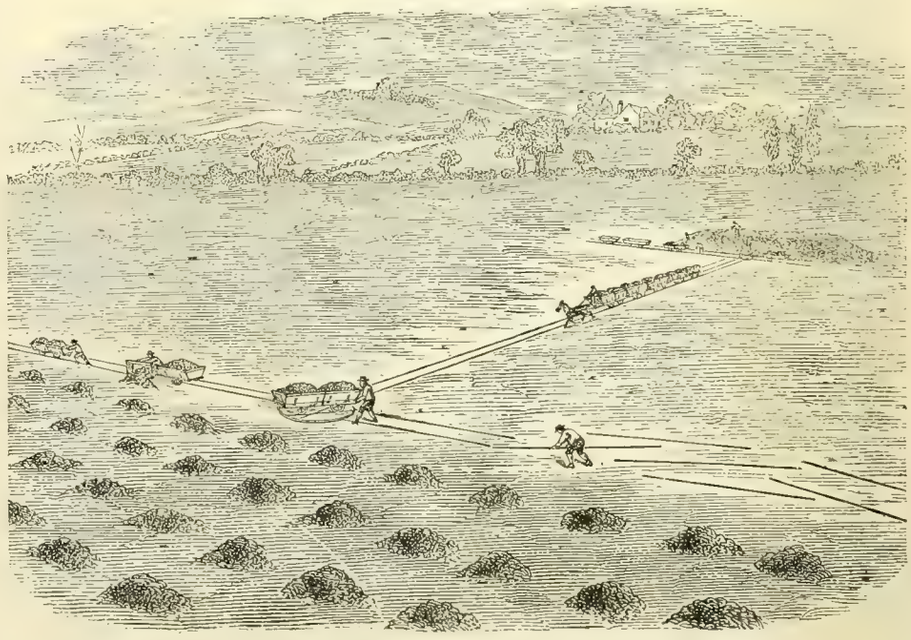
CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
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N.B. For particulars of the Wheat carrying on the 19th of August, 1864, see Correspondence in the *Gardeners' Chronicle*, &c., between Mr. W. L. Hubble, Steward to H. Bannerman, Esq., and the Editor, August 27, p. 830, September 10, p. 881*a*; and September 24, p. 927*a*.

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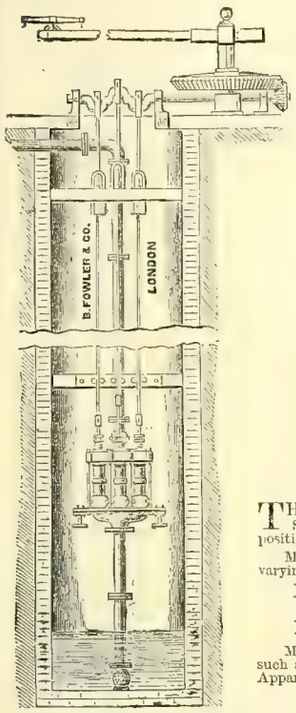
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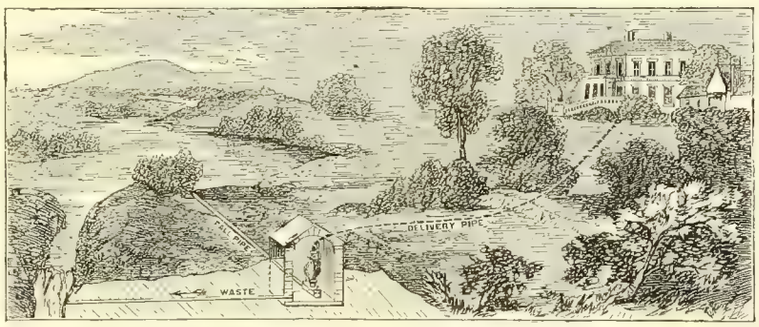
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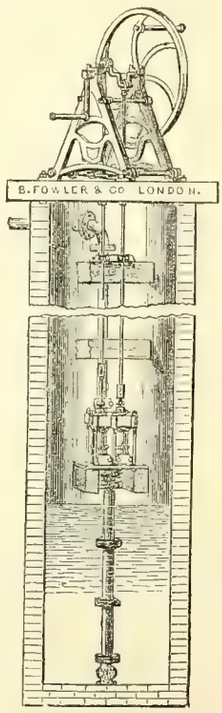
Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

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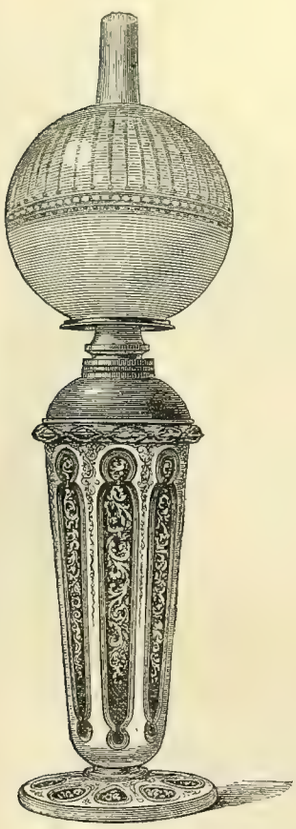
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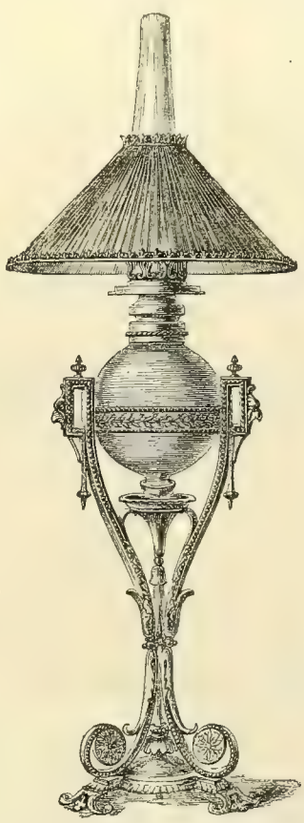
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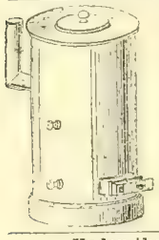
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Knotty Ash, near Liverpool.

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
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Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
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Under the Patronage of Her Majesty.

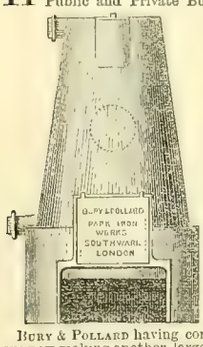
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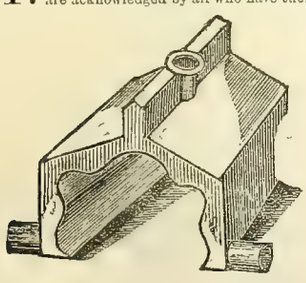


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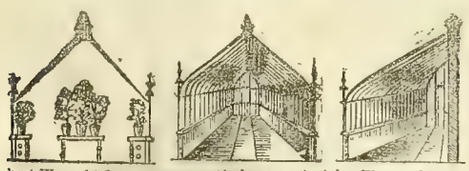
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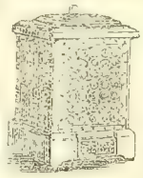
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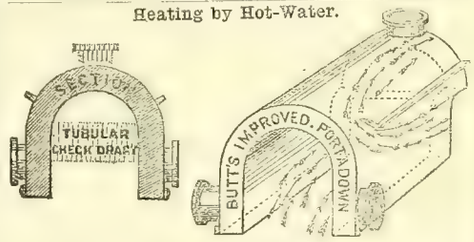
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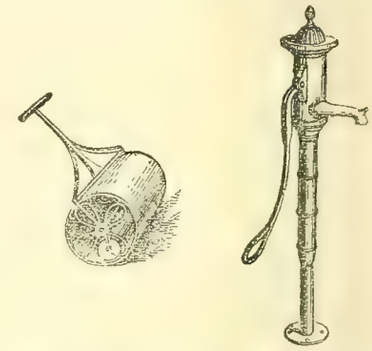
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Large Ladies ..	.. 16 „ 10	0 9	0 11	1 0	0 6	0 8	0 10	1 0
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HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

Glasshouses for Sale.

MR. J. C. STEVENS begs to announce that he has now on Sale by Private Contract, a VINERY and PEACH-HOUSE, 100 feet by 22 feet, well heated with 4-inch Hot-water Pipes, and planted with choice Vines and Peach trees, 3 years old. Also Four SPAN-ROOFED HOUSES, 50 feet by 10½ feet.
38, King Street, Covent Garden, W.C.

GLASS HOUSE for SALE, 224 feet long, 15 feet wide, 10 feet high.—Made last year; now in excellent condition, with modern improvements. Can be taken to pieces and packed easily. Price 170l., land being let for building. Also 50 PINE PLANTS and 100 Fine STANDARD FRUIT TREES to be Sold, on a gentleman's ground near London.
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Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark, Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complants to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide.. .. .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

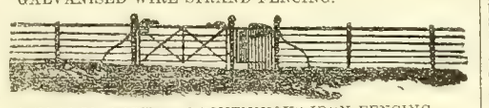
JOHN T. WILLMER,
Horticultural Agent, Auctioneer, and Valuer,
Springfield Nursery, Sunbury, Middlesex, S.W.

Horticultural Agent and Valuer.

MR. A. CHANDLER, of the late Firm of Chandler & Sons, continues to undertake all kinds of VALUATIONS connected with Horticulture.
1, Devonshire Terrace, Fulham Road, S.W.

John Geddes, late

H. J. MORTON AND CO.,
CORRUGATED GALVANISED IRON ROOFS & BUILDINGS.
GALVANISED WIRE STRAND FENCING.



HURDLES, GATES and CONTINUOUS IRON FENCING.
GALVANISED IRON WATER CISTERNS.
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GALVANISED IRON SWING WATER BARROWS.
ASPHALTE ROOFING FELT, 1d. per Square Foot.
Illustrated Catalogue and Estimates, free on application.
12, Great George Street, Leeds.

BEDSTEADS, BATHS, and LAMPS.—William S. Burton has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads from	12s. 6d. to £20	0s. each.
Shower Baths, from	8s. 0d. to £6	0s. each.
Lamps (Moderateur) from ..	6s. 0d. to £8	10s. each.
(All other kinds at the same rate).		
Pure Colza Oil	4s. per gallon.	

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by William S. Burton, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.
A small useful set guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern. £ s. d	Bead Pattern. £ s. d	Thread or Brunswick Pattern. £ s. d.	King's or Lily, &c. £ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 14 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 14 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.
William S. Burton, General Furnishing Ironmonger by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

TO BE LET, with Immediate Possession, the HOUSE and GARDENS late in the occupation of Mr. W. Saxelby, Gardener, Castle Donington, with Vinery and Greenhouse containing about 600 feet of Glass, built upon the newest principle. Rent moderate.
Apply to W. H. Saxelby, Castle Donington, or to Mr. Doughty, Auctioneer, Midland Road, Derby.

Nursery and Seed Business.

TO BE DISPOSED OF, the STOCK and GOOD-WILL of an OLD ESTABLISHED BUSINESS in the West of Scotland, with a good connection, which might be greatly extended; or a PARTNER acquainted with the Seed Department, could be admitted in room of the Senior Partner desirous of retiring.
Communications (from principals only) addressed W. M. Moss, Esq., of Messrs. Wrench & Sons, London Bridge, E.C., or Alexander Bruce, Esq., S.S.C., 2, Thistle Court, Edinburgh, will be attended to.

To Nurserymen.

TO BE LET on LEASE, for any term that may be agreed on, about 50 ACRES of LAND, well adapted for Growing Conifers and American Plants, part of which is at present under Nursery and remainder under Agriculture, upon which are two neat Cottage Residences, six Labourers' Cottages, and all necessary Buildings; a new Span-roof Forcing House for Propagating, and 43 Brick Pits, and all the other necessary Plant for Nursery purposes. The present stock to be taken off at valuation. The property is well situated for Road and Railway, being less than a mile to the new Salisbury Line and South-Western Railway, joining the Turnpike Road, being 6 miles from Christchurch, six from the fashionable watering place Bournemouth, 7 from Poole, and 4 from Ringwood.
For further particulars apply to the Owner, Mr. John Bartlett, Ringwood, Hants.

Sales by Auction.

Bow, Bromley, Middlesex.

To Market Gardeners, Nurserymen, and Florists.

MR. W. T. ATWOOD will SELL by AUCTION (by direction of Mr. Holden), on the Premises, Danvers Lane, Bow, on TUESDAY, October 18, at 12 o'Clock, the STOCK, comprising 63 Three-light Boxes and Lights (in good condition), 700 Hand-Glasses, Two Market Carts, and other effects, and a quantity of Rhubarb Roots.
May be viewed the day before and Morning of Sale. Catalogues had on the Premises, and of the Auctioneer, Mortlake, S.W.

Shaw House, Melbourne, near Derby.

Annual Sale of Quicks, Forest Trees, &c.

MESSRS. NEWBOLD AND OLIVER have received instructions from Mr. S. Robinson to OFFER by AUCTION, on TUESDAY, October 25, at 3 o'Clock, about 600,000 2, 3, and 4-years' Transplanted QUICK; 25,000 to 30,000 3-years' PRIVET; 5000 OAK, 3 to 7 feet high; 70,000 3-years' LARCH; 30,000 to 40,000 SPRUCE, in Lots to suit purchasers.
Catalogues may be had of the Auctioneers, Derby; or at the Melbourne Arms Inn, Melbourne, where the Sale will take place.

Strawberry Hill Nursery, Tunbridge Wells.

Highly Important Sale of Ornamental Trees and Shrubs.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions from Mr. Edwin Hollamby, to SELL by AUCTION, at the Strawberry Hill Nursery, Tunbridge Wells, on MONDAY, October 17, and following days, at 11 for 12 o'Clock, in consequence of the Lease of the above Nursery being nearly expired, and the Land required for building purposes, the valuable NURSERY STOCK, comprising fine specimen Cedrus Deodara, Cedars of Lebanon, Red Cedars, Arbor-vitæs, Araucaria imbricata, Pinus insignis, Abies Pinsapo, Wellingtonia gigantea, Thuja aurea, Thujopsis borealis, Cupressus Lawsoniana, Thuja gigantea, Abies canadensis, Pinus excelsa, from 4 to 15 feet in height; having been constantly transplanted, they are in a fine state for removal. Also some thousands of Rhododendrons, bushy and well set with flower-buds, Laurustinus, Arbutus, Green Hollies, Ligustrum ovalifolium, Specimen Portugal Laurels. Also many handsome Evergreens and Deciduous Shrubs of various sizes.
On view the week prior and Morning of Sale. Catalogues to be had by enclosing two postage stamps to Mr. E. Hollamby, Parade, Tunbridge Wells; the Nursery, Groombridge, Kent; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, October 20, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Tulips, Crocus, Snowdrops, &c., also a fine assortment of 300 handsome STANDARD, HALF-STANDARD, and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully furnished with bloom buds, &c.
On view the Morning of Sale. Catalogues may be had at the Auction Rooms as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Romford.

To Gentlemen, Nurserymen, and Others engaged in Planting.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Thompson to SELL by AUCTION on the Premises, Mercury Gardens, Romford, Essex, on FRIDAY, October 21, at 12 for 1 o'Clock precisely, without reserve, the Lease having expired, the whole of the valuable NURSERY STOCK, including a large quantity of Common and Portugal Laurels, Aucubas, Arborvitæs, Box, Yews, Firs, Red Cedars, Euonymus, Laurustinus, Hollies, Bays, Privet, Arbutus, Phillyreas, &c.; about 3000 Gooseberries and Currants, Standard Apples, Plums and Walnuts, Raspberries, &c.; Weeping and Mountain Ash, Willows, Thorns, Limes, Chesnuts, Standard and Dwarf Roses, a quantity of Ivies, Clematis, Pyracantha and other Climbers in Pots, about 3000 Sea Kale and Asparagus Plants, 500 yards of Box Edging, &c.; also the Greenhouse Plants, comprising fine Double Camellias, Geraniums, Pelargoniums, Genistas, Lilium lancifolium, &c.; together with two nest of Seed Drawers, a Weighing Machine, two Scales and Weights, set of Measures, 20 loads of capital old rotten Dung, Garden Tools, Ladders and Sundry Effects.
May be viewed one week prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Lewisham, Kent.

To Florists, Perfumers, and Others.

MESSRS. PROTHEROE and MORRIS are instructed to offer for UNRESERVED SALE by AUCTION, on the Premises, Rosenthal, Lewisham, Kent, about five minutes walk from the Catford Bridge Station, on the Mid Kent line, on FRIDAY, October 28, at 11 o'Clock, about 100,000 Dwarf, Provence, Cabbage, and other ROSES, in fine condition, and admirably adapted for potting or for other purposes. The Lots will be arranged to meet the convenience of all purchasers.
May be viewed two days prior to the Sale. Catalogues may be had of the Gardener on the Premises; at the Black Horse and Rising Sun, Lewisham; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Established and Imported Orchids, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 19, at half-past 12 o'Clock precisely, a valuable collection of ESTABLISHED ORCHIDS, consisting of the finest varieties of Aerides, Vandas, Odontoglossums, Saccolabiums, Cypripediums, Phalænopsis, Cattleyas, Angræcums, &c. Also, if received in time, an importation of Orchids from Ocana, New Grenada. A few lots of good Seed of Cupressus Lawsoniana, and a cask of Roots from Africa.

Dutch Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 22, at half-past 12 o'clock precisely, a COLLECTION of BULBS from Holland, consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, &c.
On view the Morning of Sale, and Catalogues had.

Bagshot, Surrey.—Final Clearance Sale.

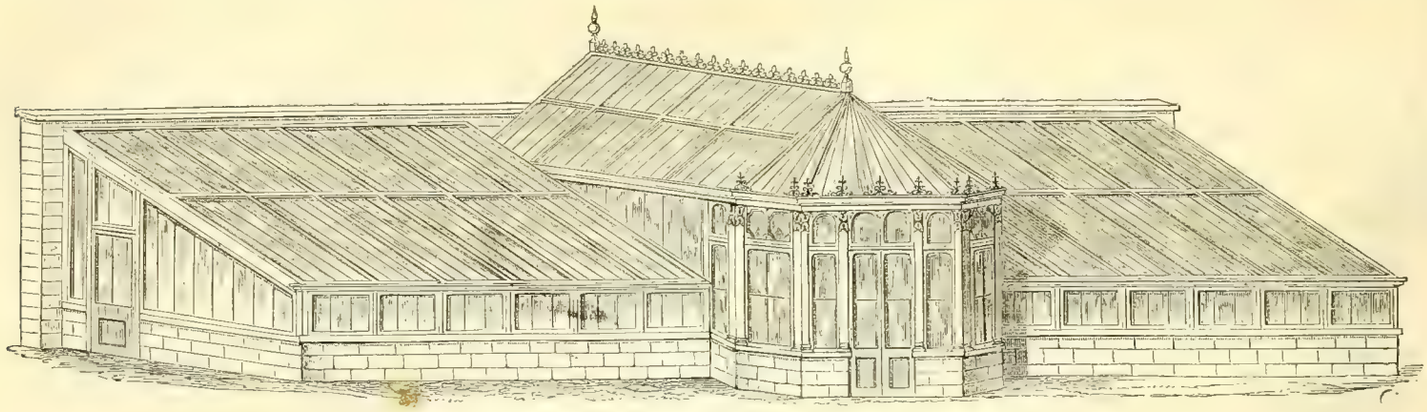
To Noblemen, Gentlemen, Nurserymen, and Others engaged in Planting.

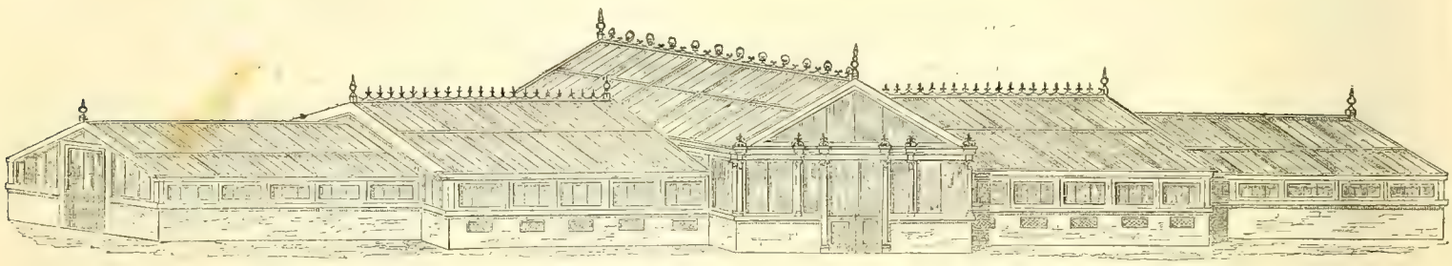
MR. J. C. STEVENS (Horticultural Auctioneer and Valuer), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South Western Railway, on TUESDAY, October 25, and two following days, at half-past 12 o'clock precisely, each day, without the least reserve, a VALUABLE COLLECTION of HARDY CONIFEROUS PLANTS, consisting of—

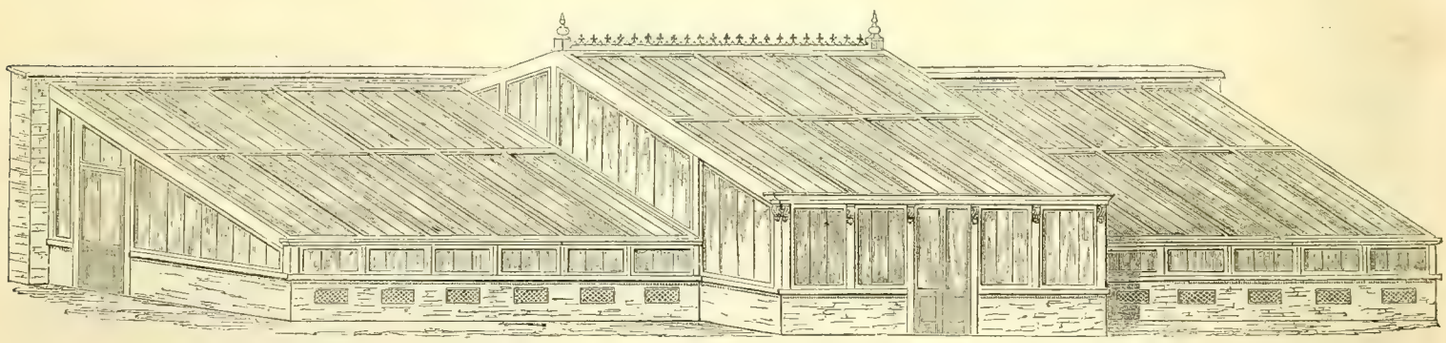
50 ARAUCARIA IMBRICATA, 1½ to 2½ feet
50 ABIES ALBERTI, 2½ to 3½ feet
150 „ DOUGLASII TAXIFOLIA, 3 to 5 feet
40 „ LOWII, 1½ to 2 feet
20 „ ORIENTALIS, 2 to 3 feet
250 BERBERIS CONCINNA, 2 to 3 feet
250 „ DARWINII, 1½ foot
250 „ FASCICULARIS HYBRIDA, 1½ to 2 feet
150 CEDRUS DEODARA, 3 to 8 feet
200 CEPHALOTAXUS FORTUNEI, 2 to 4 feet
200 CHAMÆCYPARIS SPHÆROIDES, 2 to 3 feet
50 CUPRESSUS LAWSONIANA, 2 to 3 feet
1000 HOLLIES (Green), 2 to 3 feet
100 „ (named sorts), 2 to 3 feet
100 „ (variegated), 1½ to 3 feet
2000 LAURELS (common), 2 to 3 feet
500 PINUS AUSTRIACA, 2 to 5 feet
50 „ BENTHAMIANA, 5 to 8 feet
100 „ CEMBRA, 3 to 5 feet
100 „ EXCELSA, 3 to 5 feet
20 „ LAMBERTIANA, 3 to 3½ feet
700 PINUS STROBUS (WEYMOUTH PINE), 3 to 7 feet
20 PICEA CEPHALONICA, 2 feet.
20 „ NOBILIS, 2 to 3 feet.
20 „ NORDMANNIANA, 1 to 1½ feet.
50 „ PINSAPO, 1½ to 2 feet.
100 RED CEDAR, 4 to 5 feet.
250 RHODODENDRONS (named sorts), 2 to 4 feet.
250 „ Hybrid Seedlings, 1½ to 2 feet.
200 ROSES, STANDARD.
500 „ DWARF, on their own roots.
50 SALISBURIA ADIANTIFOLIA, 4 to 5 feet.
200 SILVER FIR, 2 to 3 feet.
200 TAXODIUM SEMPERVIRENS, 6 to 8 feet.
50 THUJA WAREANA, 5 to 6 feet.
1000 „ Seedlings, 2 feet.
150 „ LOBBI, 3 to 4 feet.
100 WELLINGTONIA GIGANTEA, 1½ to 3 feet.
150 TRAINED APRICOTS, PEACHES, and NECTARINES.
300 PYRAMIDAL PEARS, 3 to 8 feet.
500 APPLES, 4 to 7 feet, &c., &c.

All of which are in the finest possible health.

On View the week prior and Morning of Sale; and Catalogues had at Mr. Standish's Nurseries, Bagshot and Ascot, and of Mr. J. C. Stevens, Auction Rooms, 38, King Street, Covent Garden, W.C.







HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

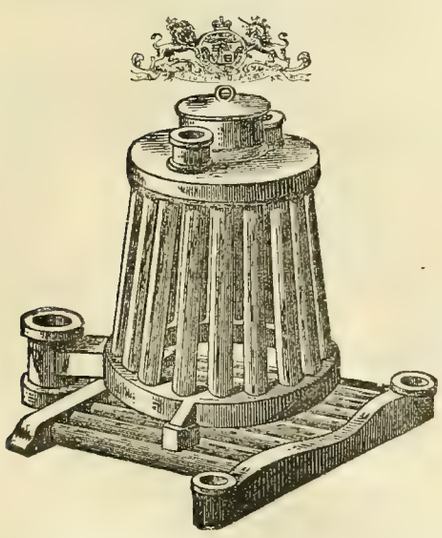
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S

ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.
ORMSON'S No. 2 BOILERS	„	600	„
ORMSON'S No. 3 BOILERS	„	1300	„
ORMSON'S No. 4 BOILERS	„	3500	„
ORMSON'S No. 5 BOILERS	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, Horticultural Builder to Her Majesty,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1864.] SATURDAY, OCTOBER 22. {Price Fivepence. {Stamped Edition, 6d.

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Vines, extra strong, from Eyes.

WM. CUTBUSH AND SON have a large stock of the above for fruiting in pots or planting out. An inspection is solicited. Prices on application.
Highgate Nurseries, London, N.

VINES, VINES.—A fine stock of Healthy Vines now offered for Sale by
JAMES CRAWFORD, High Beech, Essex, N.E.

VINES.—BLACK HAMBURGH, MILL HILL HAMBURGH, SWEET WATER, and BLACK CLUSTER, fine short-jointed strong Canes, in 10-inch pots, from Eyes, 3s. 6d. to 6s. each. CHAS. SOUTHBY, Nurseryman, Clapham, S.

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B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
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Paradise and Victoria Nurseries, Holloway, London, N.

Pines, Pines, Pines.

WANTED, good well-grown QUEENS and BLACK JAMAICAS from 2 lb. to 2½ lb. each. For delivery on November 7, for cash.
Letters prepaid to M. WEBBER & Co., Covent Garden, W.C., stating number.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

The Kimberley Strawberry.

CHARLES KIMBERLEY can supply the above fine Strawberry, in strong plants that will Fruit well next season, at 10s. per 100.
London Agents: MESSRS. HURST & SON, 6, Leadenhall Street.
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Now Ready.

JOHN HOLLAND'S CATALOGUES of extra fine Lancashire Show GOOSEBERRY TREES, CARNATIONS, PICOTEES, PINKS, AURICULAS, PANSIES, &c.
Bradshaw Gardens, Chadderton, near Manchester.

THE NEW PEAR, BRITISH QUEEN.
The NEW STRAWBERRY, SIR J. PAXTON.
See CHARLES TURNER'S NEW CATALOGUE now ready.
The Royal Nurseries, Slough.

NEW PEARS.—BEURRÉ SPAE, 8s.; BEURRÉ VAN GEERT, 8s. Both figured in the Illustration Horticole.
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PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseries, Worcester.

Dwarf-trained Trees.

BY THE THOUSAND, HUNDRED, OR DOZEN.
PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.
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FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
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ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
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DWARF-TRAINED and MAIDEN TREES.—PEACHES, NECTARINES, and CHERRIES, really good, clean, well-grown stuff, at very moderate prices for good quality; also good STANDARD and DWARF ROSES.
Apply to GEORGE GRAY & SON, Nurserymen, Brox, near Chertsey, Surrey.

WALL-TRAINED FRUIT TREES, Bearing Size.—Very handsome well-ripened Trees of Fruiting Size, comprising Peaches, Nectarines, Apricots, Plums and Pears, standard and dwarf-trained; suited for giving a good crop the first year. An inspection invited.
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Fruit Trees, Coniferæ, Shrubs, &c.

CHARLES TURNER'S CATALOGUE of the above may be had on application.
C. TURNER invites an inspection of his stock, the quality of which cannot fail to please.
The Royal Nurseries, Slough,

Hyacinths and Dutch Bulbs.

Fine and at moderate prices.
PAUL AND SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
"Old" Cheshunt Nurseries, Cheshunt, N.

Hyacinths, Tulips, Crocus, Narcissus, &c.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.

Dutch Bulbous Roots.

BUTLER AND MCCULLOCH'S CATALOGUES post free.
Covent Garden Market, London, W.C.

S. PONSFORD AND SON beg to announce that their DUTCH BULB CATALOGUE (with Cultural notes) may be had on application to
Loughboro' Park Nurseries, Brixton, Surrey, S.

Bulbs Carriage free.

HOOPER AND CO.'S ETRUSCAN HYACINTH VASES.—See
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Imported Dutch Bulbs.—Now Ready, Part IV. of

CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to
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Dutch Bulbs, Flower Roots, &c.

CHRISTMAS QUINCEY, SEEDSMAN, &c., Peterborough, begs to say that he has purchased for cash from Haarlem, a good assortment of HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c., and is now selling as low as any house in the Trade, town or provincial.
DESCRIPTIVE CATALOGUES free on application.

DUTCH BULBS.—HYACINTHS, best named, 6s. per dozen; Mixed do., 3s. and 4s. per dozen; 20s. per 100. DUTCH YELLOW CROCUS, 1s. per 100; 8s. per 1000, &c.
FERN CASES, filled complete, from 4s. 6d. each.
R. GREEN, 154, Kingsland Road; and Bedford Conservatories, Covent Garden Market, W.C.

H. AND F. SHARPE,
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SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Good Seeds, Carriage Free, at Market Prices.

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SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Seed Growers and Merchants, 7, Borough Market, London, S.E.

PAUL'S NURSERIES, Waltham Cross, N.—WM. PAUL (Son and Successor to the late A. PAUL).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

CARTER'S GARDENER'S VADE-MECUM.

Chrysanthemums.

WALTER P. HUME has a large stock of fine healthy Plants of the above just COMING into BLOOM, comprising the newest and best varieties. Own selection, 4s. and 9s. per dozen.
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S. PONSFORD AND SON beg to announce that their GENERAL NURSERY CATALOGUE is now ready, and may be had on application to
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DOBSON'S NEW PELARGONIUMS.—The most beautiful set ever offered. See last week's *Gardeners' Chronicle*, or Catalogue, gratis.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.
First-class CALCEOLARIA, CINERARIA and PRIMULA Seed.

NEW PELARGONIUMS, JOHN DOYLE and MARY HOYLE.—These unrivalled new varieties, with others, are now ready, and are fully described in CHARLES TURNER'S NEW CATALOGUE, which may be had on application.
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Bedding Pelargonium Mrs. Pollock.

ALFRED FRYER offers strong out-door struck Plants, well established in 60-pots, at 3s. 6d. each or 30s. per dozen.
ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Cinerarias.

TO BE SOLD CHEAP, 500 CINERARIAS, fine Young Plants, suitable for [illegible] purposes.
Apply to Mr. G. WELLS, Grove Nursery, [illegible]nan Street, Camberwell.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and shall be forwarded to any address on receipt of one postage stamp.
N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Clianthus Dampieri splendens.

C. KIMBERLEY has just received a supply of the above fine Greenhouse Climber, direct from Australia, which he begs to offer in packets of six seeds for 1s. 6d.
Stoke Nursery, near Coventry.

Roses.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE of the leading kinds is now ready. The plants are very strong, of the various heights, and also in pots.
The Royal Nurseries, Slough.

Rose Catalogue for 1864.

PAUL AND SON will have much pleasure in forwarding their NEW DESCRIPTIVE LIST. Post free on application.
"Old" Cheshunt Nurseries, N.

Roses.

PAUL AND SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

1864 and 1865 Rose Catalogue.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.
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Rose Catalogue for 1864 and 1865.

EDWARD P. FRANCIS'S DESCRIPTIVE CATALOGUE is now ready, and he will be happy to forward it gratis on application.
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ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1863, 24s. per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
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New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.

WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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Foot's Cray Nursery, S.E.

Winter Flowers.

RHODODENDRON PRÆCOX is the best of all Winter-blooming hardy plants if potted now. Nice bushes, with from 20 to 50 bloom buds, will be supplied at 3s. 6d., 5s., and 7s. 6d. each by the raiser,
ISAAC DAVIES, Larkfield Nursery, Wavertree, near Liverpool.

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LILIUM AURATUM.—Several Plants of this fine importation have Bloomed in this Nursery, and fully sustain its high character. Price per bulb or dozen on application to
WM. BARRATT, St. John's, Wakefield.

WELLINGTONIA GIGANTEA.—The Undersigned can supply good Seedling Plants in pots, at 40s. per 100. Fine plants in 48 and 32-pots, from 9 to 15 inches, fit for immediate planting, at 4d. and 6d. per 100.
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ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. THOMSON, The Nursery, Wimbledon, Surrey, S.W.

LARGE ENGLISH and IRISH YEWS.—Handsome well-formed Trees, 6, 7, 8, and 9 feet high. Price on application. An inspection invited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

LARGE LAURELS.—Several Thousand well-grown plants, from 5 to 7 feet high; SWEET BAYS, 3 to 4 feet, very fine; PHILLYREAS, 2 to 6 feet. A quantity of POPLARS, sorts, 15 to 20 feet, strong. A large stock of ORNAMENTAL TREES, suitable for planting where immediate shelter and effect is wanted. Prices on application, stating quantity required.
J. M. RONALD, Nurseryman, Chichester.

GOOD sound ACORNS, BEECH MAST, and HORSE CHESTNUTS, to be had at very moderate prices, f. o. b. at Waterford. For further particulars, apply to
D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

WANTED to PURCHASE, 700 OAK PLANTS, 6 feet high; also 3000 4, 3, and 2 feet high.
Apply to W. WILSON, Orchard Leigh Park, Frome, Somerset.

New Seeds for Autumn Sowing of this Year's Growth.

EARLY PEAS, MAZAGAN BEANS, CUCUMBER, CARROT, RADISH, &c.—Orders amounting to 21s. and upwards sent carriage free. PRICE LISTS on application.
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DILLISTONE'S EARLY PEA, the Earliest known.—*Vide* Horticultural Society's Report.
Price 2s. 6d. per quart. Price to Trade on application.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

POTATO ONIONS.—A fine lot offered to the Trade at a moderate price. In Barrels of 1¼ cwt. each. Freight (per steamers to London, which leave weekly), 2s. per Barrel.
100 Quarters NEW RAPE SEED, 60s.
Apply to GEORGE M. SPONG, Seed Merchant, Limerick.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.
Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

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NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
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HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by WM. CUTBUSH & SON.

TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.

The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.

Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.

Highgate Nurseries, London, N.

WEST RIDING NURSERY and SEED COMPANY have received their immense Collections of BULBOUS ROOTS from Holland and France, fine sound Bulbs, and at prices lower than ever offered.

GREENHOUSE COLLECTIONS for FORCING, at 20s., 40s., 60s., 80s., 100s.

COLLECTIONS for BEDS and BORDERS, consisting of Hyacinths, Narcissus, Crocus, Jonquils, Snowdrops, Anemones, Ranunculus, Iris, Double and Single Tulips, &c.

500 roots in the above sorts, 20s. | 2000 roots, correctly named, 80s.
1000 ditto correctly named, 40s. | 2500 ditto, 100s.
1500 ditto, 60s. | No charge for Package.

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Hyacinths and other Choice Bulbs.

B. S. WILLIAMS can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS. For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post free on application.

Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., and 12s. per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	£4 4s.	12s.
Very fine ditto	3 10	9
Good ditto	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Established Upwards of a Century.

BUTLER AND McCULLOCH,
SEED MERCHANTS, Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5l.	2l. 10s.	1l. 5s.	1l. 1s.	15s.	10s. 6d.

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5l.	3l.	2l.	1l. 5s.	1l. 1s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5l. 5s.	2l. 12s. 6d.	2l. 2s.	1l. 1s.	15s.	10s. 6d.

These Collections include only Bulbs of first-class quality.

For full particulars see CATALOGUE, which may be obtained post free on application.

Orders amounting to 21s. and upwards sent Carriage-free.

NEW FUCHSIAS, &c.—On and after October 10, the following NEW FUCHSIAS will be sent out at 10s. 6d. each, or 31s. 6d. the set.

In offering these beautiful varieties, we need make no further remarks beyond calling the special attention of cultivators to the fact, that the kinds raised by Edward Banks, Esq., are always, where known, found in winning collections throughout the kingdom, and also upon the Continent, from year to year, whilst the generality of other collections brought into the market are discarded as soon as bloomed. The re-appearance of the kinds in question (as the highest evidence of public favour) is the only test of sterling merit, and the best expression of unbiassed judgment as confirmed in the numerous awards given to Banks's premium Fuchsias for many years past.

LA TRAVIATA.—Flower good size, tube short, sepals broad, of a bright carmine scarlet tint, well recurved; corolla of good outline, evenly cup-shaped, proportionate, and firm in substance, rich lavender blue in colour. Habit of Rifleman (Banks'), well branched, and a profuse blooming variety, making an excellent front-rank exhibition plant.

ANNE BULLEYN.—Sepals broad and of firm substance, erectly recurved, of a rich carmine scarlet tint; corolla of good outline, evenly cup-shaped, in colour rich rosy lavender. A profuse bloomer; by its erect, well branched, and short-jointed growth, well adapted for pyramid exhibition specimens.

MARVELLOUS.—One of the finest varieties yet offered; flowers remarkably large, sepals of great width and substance, bright carmine scarlet, horizontally curved; corolla two inches in diameter, of a violet tinted plum colour, of firm texture, and smooth close margins. Adapted for conservatory, standard, or pyramid growth.

TROUBADOUR.—Sepals very broad, of firm smooth texture and elegantly curved; corolla cup-shaped, even, and proportionate; colour a rich olive black, nearer to the latter than any hitherto offered, not fading to a lower or different tint, but retaining its rich hue through sun and rain. Habit adapted for a cone or pyramid, requiring a free unchecked growth during its first pottings.

Among the foregoing are one or two of Mr. Banks' Seedlings, which were so highly noticed when exhibited as cut flowers at the Royal Horticultural Society, and pronounced a decided advance.

PYCNOSTACHYS URTICIFOLIA.—Strong plants for Winter Conservatory decoration, producing dense terminal racemes of beautiful bloom, equal in brilliancy of colour to Salvia patens. 3s. 6d.

CLEMATIS HYBRIDA SPLENDENS. 5s. each.

CLEMATIS JACKMANNI and C. RUBRO-VIOLACEA, splendid hybrid varieties of C. lanuginosa. 21s. each.

WINTER-FLOWERED MULE or HYBRID PINK, in white, carmine, and striped flowered varieties, 1s. 6d. each. Also, new rose-coloured ditto, 3s. 6d.

ACHYRANTHES VERSCHAFFELTI (syn. IRESINE HERBSTI). A highly ornamental new crimson-red leaved Amaranth-like plant, for bedding and decorative garden purposes. Plants 2s. 6d. each, or post free 3s. 6d. each; 6 plants post free 17s. 6d.; coloured plate of the plant post free, 6d. each.

BOUVARDIA LONGIFLORA, full of flower buds, 18s. per dozen.
" (best scarlet) HOGARTH, 18s. per dozen.
" GRANDIFLORA, new white-flowered species, 3s. 6d.

BANKS'S NEW FUCHSIAS, sent out in the Spring of 1864, can be had in strong plants.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Transplanted and Larch Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

SUTTON'S

UNRIVALLED COLLECTIONS OF

BULBOUS FLOWER ROOTS,

FOR BLOOMING DURING THE WINTER AND SPRING.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively. *As many of these sorts are at present unknown to English cultivators, we have considered it advisable to make up Collections* of the sorts which, after careful observation, we have found to be the best worthy of cultivation, being THE MOST SHOWY AND MOST CERTAIN TO THRIVE WELL under any ordinary treatment, and for which any good Garden soil (not particularly heavy) will be suitable.

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

N.B. A complete LIST of the above may be had post free, and any article specified, if not required, will be omitted, and additional quantities of others included.

The very low charges now made for the above Choice Collections of Flower Roots will, it is believed, insure a continually increasing demand.

Early Orders are requested before the more scarce kinds are all sold.

SUTTON'S AUTUMN CATALOGUE,

Containing Descriptive Lists of the best varieties of HYACINTHS, GLADIOLI, ANEMONES, CROCUSES, and other Bulbous Roots, and Choice STOVE and GREENHOUSE PLANTS, FERNS, AMERICAN PLANTS, ROSES, CARNATIONS, and other Florists' Flowers, FRUIT TREES, New GARDEN SEEDS, &c., may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for cash payments.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

Orders 21s. and upwards sent carriage paid.

LILIUM AURATUM, the most magnificent variety of this family, 10s. 6d. and 15s.; roots which have this autumn flowered, 21s.

DUTCH, CAPE, FRENCH, JAPAN, and ITALIAN FLOWERING BULBS,
For the SITTING-ROOM, CONSERVATORY, GREENHOUSE, and FLOWER GARDEN.

A Descriptive and Priced List with Cultural Hints free and post paid on application.

THE COVENT GARDEN COLLECTIONS of BULBS for In and Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.

THE PAXTONIAN COLLECTIONS of BULBS for Out-doors, 10s. 6d., 15s. 6d., 21s., 42s., and 63s.

THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS for Indoor Winter Gardens, 10s. 6d., 21s., 30s., 42s., and 63s.

HYACINTHS, 2s. 6d. to 15s. per dozen. CROCUS, 1s. 6d. to 4s. per 100. TULIPS, 3s. 6d. to 20s. per 100.

ZONALE PELARGONIUM, seed saved from the superb new varieties exhibited this last summer by Mr. Bull; colours scarlet, white, pink, cerise, rose, carmine, blush, salmon, rose-pink, orange-scarlet, &c., many of them with very distinct eyes, 2s. 6d. per packet. Mr. Bull's magnificent strain of MIMULUS, 1s. per packet. Mr. Holland's Prize CYCLAMEN PERSICUM, 1s. per packet. Now is a good time to sow these seeds.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WM. PAUL (SON AND SUCCESSOR TO THE LATE A. PAUL),

Respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post.

Orders by post promptly attended to. *Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.*

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

New Hardy Rhododendrons.

WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—

MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; one or perhaps the most attractive and beautiful. 42s. each.
MRS. JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42s. each.
MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31s. 6d. each.
STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy; decidedly the best in its way; it is a very free bloomer. 31s. 6d. each.
LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31s. 6d. each.
CHARLES BAGLEY.—Cherry red, fine habit and truss. 31s. 6d. each.

Knap Hill Nursery, near Woking, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Pansies.

THOMAS BARNES is now prepared to execute orders for his splendid SEEDLING PANSIES, a DESCRIPTIVE LIST of which may be had on application.

Very choice PANSY Seed, 1s. 6d., 2s. 6d., and 5s. per packet.
GLADIOLUS BOWIENSIS (bright glowing scarlet), in fine bulbs, per 100, 10s., 15s., and 20s.; per 1000, 90s., 125s., and 150s.

Dane Croft Nursery, Stowmarket, Suffolk.

Woodlands Nursery and Seed Warehouse,

MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON are now offering the following Collections of BULBS

FOR CONSERVATORY and GREENHOUSE.

A.	B.	C.	C. C.
£4	£2	£1	10s.

FOR FLOWER GARDEN.

D.	E.	F.	F. F.
£4	£2	£1	10s.

FOR CONSERVATORY and FLOWER GARDEN.

G.	H.	I.	I. I.
£4	£2	£1	10s.

Full particulars of the above Collections are contained in the DESCRIPTIVE CATALOGUE of BULBS, which may be had free on application.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & SONS have also a large number of EXTRA STRONG plants of the best HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | Strong Fruiting Canes, 42s. each.

INTERNATIONAL EXHIBITION 1862.

THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"

Containing full descriptions of 50 most desirable varieties of VINES, and complete Lists of imported DUTCH BULBS, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

SPLENDID NEW VARIETIES of AZALEA INDICA.

JAMES VEITCH

Has much pleasure in calling attention to the following NEW AZALEAS, which being of such sterling merit, and far surpassing all other known varieties in their class, will, he feels confident, find a place in every collection, however select.

Azalea (indica) Stella.

A vigorous growing variety, of a bright orange-scarlet colour, with a deep violet stain on the upper segments of the corolla, where it is also profusely spotted with lake.

The flowers are large, of fine substance and perfect form, and it is universally allowed to be one of the finest Azaleas ever raised.

It has been awarded First-class Certificates by both the Royal Botanic and Royal Horticultural Societies, and is described in the "Proceedings of the Royal Horticultural Society" as "A beautiful variety, of first-rate quality, quite the gem of the season."

The following, extracted from the *Gardeners' Chronicle* of June 25, 1864, p. 602, speaks for itself:—

"First and foremost amongst new Azaleas of the season we must place Mr. Veitch's Stella, a large and well formed flower, remarkable for its substance, and of a most telling colour, being one of the richest and brightest orange-scarlets to be found in the family, and marked with a Cactus-like glow of rich violet over the upper segments. It will thus be seen that the colouring is something like that of Duchesse Adelaide de Nassau, but the form is vastly superior."

Price 31s. 6d. each.

Azalea (indica) Vesuvius.

An exceedingly brilliant orange-scarlet flower, slightly tinted with purple on the upper petals. It is of moderate size, fine form and substance, and undoubtedly quite unequalled in the brilliancy of its colour. Its foliage is small, with a close compact habit.

This variety is considered by some critics to equal the foregoing, and is allowed by all to be a first-class novelty of sterling merit.

It was awarded a First-class Certificate at the June Exhibition of the Royal Horticultural Society.

"Another variety of the same style of colour, and from the same source, called Vesuvius, has been equally successful with the former (Stella) in gaining a First-class Certificate. We believe this also will prove a variety of superior character; and have very little hesitation in recommending both of these."—*Gardeners' Chronicle*, July 25, 1864, p. 602.

Price 21s. each.

Azalea (indica) Comet.

A bright salmon scarlet variety, with violet tinted upper petals, many of the flowers being half salmon and half bright violet.

Its habit is vigorous and good. This will doubtless prove a very novel and effective variety.

Price 21s. each.

The above Three Azaleas will be sold at the prices mentioned, if taken singly; or the Set of Three for 3*l.* 3*s.*

The usual discount to the Trade.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

CHARLES TURNER begs to recommend his extensive COLLECTIONS of the following, now ready:—

PELARGONIUMS, large and spotted, 18s. to 42s. per dozen.
FANCY PELARGONIUMS, 12s. to 30s. per dozen.
FRENCH PELARGONIUMS, 12s. to 21s. per dozen.
CINERARIAS, 12s. to 24s. per dozen.
AURICULAS, 18s to 63s per dozen.
CARNATIONS, 18s. to 30s. per dozen pairs.
PICOTEES, 18s. to 30s per dozen pairs.
PINKS, 9s. to 20s. per dozen pairs.

The Royal Nurseries, Slough.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

Roses.—Notice to the Trade.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, has the honour to inform Nurserymen, Seedsmen, and the Trade generally, that he has just published his WHOLESALE PRICED CATALOGUE of ROSES, which may be obtained, post free, either from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

His CATALOGUE of GLADIOLI (also at wholesale prices for the Trade only) may also be obtained as above.

New Roses.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, begs to call attention to Two of the Handsomest and Best NEW ROSES of the Season, which he will be ready to send out next autumn.

HYBRID PERPETUALS.

DUCHESSE DE CAYLUS (CHARLES VERDIER).—Flowers clear, brilliant carmine, of most perfect form, large and full; growth vigorous. One plant, 1*l.*; five plants, 4*l.*

This Rose was exhibited at the Flower Show of the "Société Imperiale et Centrale d'Horticulture de Paris" last July, and received the FIRST PRIZE (silver gilt medal) for New Roses.

DUC DE WELLINGTON (GRANGER).—Flowers velvety bright red, shaded with black, fiery red centre, large and full; growth very vigorous. One plant, 1*l.*; five plants, 4*l.*

C. VERDIER, FILS has also just published a List of 66 other New French Roses, which are to appear next season. This List can be obtained either direct from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Roses for 1864.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Duno's, Paris, will shortly publish his CATALOGUE of all the NEW ROSES for 1864; they are 90 in number, and E. V. will be most happy at all times to give his correspondents any information that may be required respecting the most meritorious amongst them.

His CATALOGUES of NEW and other ROSES, GLADIOLI, and PEONIES can be obtained of Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET TRADE PRICES (without any abatement).

NEW ROSES for the AUTUMN 1864.

Obtained from Seed by different Collectors, and of which this Establishment has become the purchaser of the whole or part of them.

Price, each variety, 15 fcs. Five plants of the same variety, 60 fcs. Each buyer of the whole Collection will receive Gratis one root of that magnificent Rose "Maréchal Niel."

HYBRID PERPETUALS.

ARDOISÉ DU CHALET.—Strong plant, full flowers, from 7 to 8 centimètres diameter, in bunches of from 5 to 15 together, of a perfect habit, slate-coloured purple, shaded deep red to violet.
CHARLOTTE CORDAY.—Very vigorous plant, flowers full, of about 10 cent. diameter, purple red, reverse of the petals whitish.
DUNOIS.—Vigorous plant, flowers full, 8 to 10 cent. diameter, carmine red, shaded bright red and violet, analogous to Vicomte Vigier.
FORSTER.—Very strong plant, full flowers, 8 to 9 cent. diameter, imbricated, fine bright poppy red, strongly shaded violet.
JOHN KEYNES.—Very vigorous plant, flowers full, 10 to 12 cent. diameter, bright scarlet, shaded chesnut.
L'ABONDANT.—Very vigorous, free, and full flowering plant, blooms 9 to 10 cent. diameter, globe shaped, in bouquets of from 3 to 10 together, fine bright red, shaded fiery red, very distinctly bordered whitish, reverse of petals silvered.
LA COQUETTE.—Strong abundant flowering plant, flowers full, 7 to 8 cent. diameter, finely formed and globular, in bunches of 3 to 15 together, very bright red, shaded deep red and violet, three or four of the exterior rows of petals of a dazzling red.
LÉONIE.—Strong plants, full flowers, 7 to 8 cent. diameter; well formed, in clusters of 5 to 10; red, reverse of petals lilac.
WILLIAM BULL.—Very vigorous plant, full flowers, 12 cent. diameter; globular, finely formed; pretty bright cherry red superb

MOSS ROSE.

DENIS HELYE.—Very strong, free flowering plant, flowers full, 8 to 9 cent. diameter; 6 to 12 in a bunch; purple violet, reverse of petals red.

GREENHOUSE ORCHIDS.

NO FIRE HEAT, EXCEPT TO KEEP OFF FROST!

JAMES BACKHOUSE & SON

Offer good PLANTS of the following beautiful species, which may be easily grown in an ordinary Greenhouse or Vinery, for Cash Remittance:—

12 for Three Guineas.

LÆLIA SUPERBIENS.
" AUTUMNALIS.
CATTLEYA MOSSIÆ.
" CRISPA.
" SKINNERI.
CYPRIPEDIUM INSIGNE.
" VENUSTUM.
TRICHOPILIA TORTILIS.
LYCASTE SKINNERI.
" (MAXILLARIA) HARRISONIÆ.
BLETIA VERECUNDA.
ONCIDIUM FLEXUOSUM.

12 for Five Guineas.

ODONTOGLOSSUM GRANDE.
BROUGHTONIA SANGUINEA.
SCHOMBURGKIA UNDULATA.
LÆLIA SUPERBIENS.
" AUTUMNALIS.
ONCIDIUM AMPLIATUM MAJOR.
LYCASTE SKINNERI.
CATTLEYA GUTTATA.
" MOSSIÆ.
" CRISPA.
" SKINNERI.
MAXILLARIA HARRISONIÆ.

12 for Eight Guineas.

LÆLIA PURPURATA.
" SUPERBIENS.
" AUTUMNALIS.
DENDROBIUM MONILIFORME.
BARKERIA SKINNERI.
LYCASTE SKINNERI.
EPIDENDRUM VITELLINUM.
" ATRO-PURPUREUM.
ODONTOGLOSSUM GRANDE.
CATTLEYA ACKLANDIÆ.
" SKINNERI.
" CRISPA.

For 12 Guineas: the fine CATTLEYA WARSCEWICZII, C. PINELLI, ONCIDIUM AMPLIATUM MAJOR, and SOPHRONITIS GRANDIFLORA, would be added to the Third Collection.

YORK NURSERIES.—October 22, 1864.

NEW PLANT, THE MALE AUCUBA.

MR. WILLIAM BULL

BEGS TO INTIMATE THAT HE IS NOW OFFERING THE ABOVE IMPORTANT PLANT.

AMONG New HARDY EVERGREEN SHRUBS the most desirable novelty is the MALE AUCUBA. Indeed this may be looked upon as the most permanently useful introduction of modern times. Many have been the novelties recently added to our collections from Japan, but for permanent importance none of them come up to this plant, and for this reason: the Common Aucuba is a shrub that grows and thrives better in towns and cities than any other evergreen shrub; it thrives vigorously where everything else dies, as some of the gardens of London could testify. To us, however, it has hitherto been a fruitless shrub, but now that we have the Male, and as soon as it becomes sufficiently circulated, all the Aucubas will be covered with large bunches of berries, about four times the size of those of the Common Holly, and of the brightest glossy red colour. This can now be seen at present in perfection at my Establishment, as well as the Male and Female plants in flower.

As some little misunderstanding exists about Aucubas, perhaps it may be as well to state that the Aucuba is a dioecious plant, that is to say, some of the individuals produce only male, and others only female; and that some 80 years ago the ordinary Aucuba was introduced from Japan, but the plant or plants so introduced happened to be females. By propagation the whole stock in Europe sprang from the original introduction, and Japan from that time being a sealed country, the Male plant could not be obtained. To the celebrated Chinese and Japanese traveller and collector, Mr. Robert Fortune, is due the merit of introducing the first Male plant with which we are acquainted. Now however there is flowering in my Establishment another new Aucuba, also a Male, introduced by Dr. Von Siebold, and a third variety from the same collector is reported to be a Male. Nothing in the way of hardy evergreen shrubs will at all compare with Aucubas, when laden with their coral-like red berries. Besides the Blotched and Variegated Aucubas, Japan has yielded us both male and female varieties, with plain green unspotted leaves, and India gives us Aucuba himalaica, which also has plain green leaves. This has proved itself to be a Female plant, and a valuable hardy evergreen shrub.

The Male Aucuba, "Aucuba japonica mascula," price 2 & 3 guineas each.

MANY OTHER NOVELTIES ARE ALSO READY (SEE ADVERTISEMENT OF LAST WEEK), AND A VISIT OF INSPECTION WILL REPAY TO

WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

VINE, DUCHESS OF BUCCLEUCH.

ROBERT PARKER

HAS MUCH PLEASURE IN ANNOUNCING THAT HE IS NOW DISTRIBUTING THIS

DISTINCT AND VALUABLE EARLY GRAPE,

Which will supply the long-felt desideratum of a White Grape with Muscat flavour, that may be grown and ripened with the same treatment as the Black Hamburgh.

The seed was taken from a berry of Muscat of Alexandria, fertilised with Chasselas Musqué. It has the vigorous habit and fine foliage of the former, sets freely, is a very abundant bearer, established Vines two years old producing fine symmetrical heavily-shouldered bunches 18 inches long. Berries round, medium-sized; these assume a golden colour when perfectly ripe. Flavour exquisite, combining Muscat with Frontignan, and superior to either.

The following Awards have been received at the undermentioned Exhibitions:—

Fruit Committee of Royal Horticultural Society, June 17, 1863—FIRST-CLASS CERTIFICATE.
Horticultural Society's Show, held in conjunction with Highland Agricultural Society's Cattle Show, &c., at Kelso, August 4, 1863—FIRST PRIZE, for the finest-flavoured Grape of any colour. Black Hamburgh, Chasselas Musqué, Frontignan, and Muscat of Alexandria competed for this Prize.
Glasgow and West of Scotland Horticultural Society's Show, June 8, 1864—CERTIFICATE of MERIT.
Edinburgh Horticultural Society's Show, June 15, 1864—FIRST-CLASS CERTIFICATE.
Edinburgh Horticultural Society's Show, June 15, 1864—FIRST PRIZE, for the finest flavoured Grape of any colour. Black Hamburgh, Chasselas Musqué, and Frontignan competed for this Prize.
Yorkshire Horticultural Society's Show, held at York, June 15 and 16, 1864—CERTIFICATE of MERIT.
Royal Botanic Society's Show, July 2, 1864—FIRST-CLASS CERTIFICATE.

The following are selected from many notices which have appeared in various Gardening Publications:—

Extract from "West of Scotland Horticultural Magazine" for April, 1864.

We saw the other day at Dalkeith the Vine named Duchess of Buccleuch, which is to be sent out next autumn. It does not, as we were led to suppose, take after the Royal Muscadine in any way whatsoever. It is a cross between the Muscat of Alexandria and Chasselas Musqué, presenting features, so far as size of bunch, constitution, and fruitfulness are concerned, greatly superior to either of its parents. Its flavour we are not yet in a position to speak of, but we shall be able to do so by and by. The eight pot Vines we saw of this variety were literally clothed with huge bunches on very strong foot-stalks. Judging from present appearances, we are fully of opinion that this will be a great acquisition among White Grapes."

Extract from Report of Royal Botanic Society's Show, July 2, 1864, in *Gardeners' Chronicle*, July 9, 1864.

"Grizzly Frontignan was shown in excellent condition, as was also Mr. Thomson's fine new Grape, Duchess of Buccleuch, of which favourable reports have already appeared in our columns."

Extract from Report of Royal Botanic Society's Show, July 2, 1864, in "Journal of Horticulture," July 12, 1864.

"Duchess of Buccleuch, from Mr. W. Thomson, of Dalkeith, attracted much attention; the three bunches were from a pot Vine, and weighed 3¼ lbs."

Visitors to Dalkeith Palace Gardens during the Season have had opportunities of seeing and judging of its merits, as a number of pot and permanent Vines have fruited at that Establishment.

Strong Planting Canes, 21s. each. Extra Strong Fruiting Canes, 42s. each.

EXOTIC NURSERY, TOOTING, SURREY, S.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London N.

TWO NEW FIMBRIATED PRIMULAS. Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

New Hardy British Ferns.

JIVERY and SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.

POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.

(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)

Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.

Dorking, Oct. 22.

Vines—Extra Extra Strong.

FRANCIS and ARTHUR DICKSON and SONS have now ready for sending out some 1500 extra-fine well-ripened VINES of all the new and leading kinds, True to Name. Many are as thick as the "little finger." A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.

"Upton" Nurseries, Chester.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

FOR SALE, of the finest quality.—APPLE PIPS, clean, from choicest Devon fruit, produces finest Cider and hardy culinary fruit, and is the most lasting stock.

HOLLY BERRIES, sound and clean.

DAMASCENE PLUMS, fine young bushes for planting out; or for grafting at once.

SLOES or BLACKTHORN, clean.

ASPARAGUS ROOTS, fine, 2-years old.

Prices &c., on application to Robert H. Poynter, The County Seed Establishment (A.D. 1800), Taunton, Somerset.

CARTER'S GARDENER'S VADE-MECUM.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of Buck's NEW and CHOICE VARIETIES for this season, and that he will be prepared to supply strong plants the end of this month.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, will be published in a few days and forwarded to all previous customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

American Plants.

As Exhibited in the Royal Horticultural Gardens, Kensington.

WATERER and GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers

Knap Hill Nursery, Woking, Surrey.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

Richard Smith, Nurseries, Worcester.

STRAWBERRIES: British Queen, Admiral Dundas Eleanor, Oscar, Wizard, 15s. per 1000; Black Prince, Elton Pine Carolina Superba, Prince of Wales, Sir Charles Napier, Victoria, Sir Harry, and Wonderful, 2s.

GOOSEBERRIES: Crown Bob, Warrington, Whitesmith, strong bearing plants, 10s. per 100. SEAKALE, &c.

Geo. Cornwell & Co., Seedsmen, &c., Barnet, Herts, N.

STRAWBERRIES for present planting that will produce a fine crop. Established in small pots, or suitable for potting on for Orchard-house culture:—

BRITISH QUEEN	OSCAR
EMPRESS EUGENIE	PREMIER
FROGMORE LATE PINE	PRESIDENT
KEEN'S SEEDLING	PRINCE ARTHUR
LA CONSTANTE	SIR CHARLES NAPIER
MARGUERITE	SIR HARRY

Price 10s. 6d. per 100; turned out of the pots, 9s.

Francis R. Kinghorn, Sheen Nursery, Richmond, S.W.

ROYAL HORTICULTURAL SOCIETY.

FRUIT AND VEGETABLE SHOW,

WEDNESDAY, OCTOBER 19, 1864, and TWO FOLLOWING DAYS.

AWARDS OF THE JUDGES.

FRUIT.

Class I.—PINE APPLE, QUEEN.

Mr. B. Mobbs, Gr. to W. B. Tyringham, Esq., Newport Pagnell, Second-class Certificate

Class II.—PINE APPLE, any variety except Queen.

Mr. T. Ingram, Gr. to Her Majesty the Queen, Frogmore, Windsor, First-class Certificate

Mr. J. Jefferson, Gr. to W. J. Gurside, Esq., Carlton House, Worksop, Second-class Certificate

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, Third-class Certificate

Class III.—GRAPES, WHITE, any variety, 3 bunches.

Mr. H. Meads, Gr. to R. Currie, Esq., Farnborough, Hants, First-class Certificate

Mr. A. Ingram, Gr. to J. J. Blandy, Esq, Reading, Second-class Certificate

Mr. J. Pottle, Gr. to B. D. Colvin, Esq., Little Bealings, Woodbridge, Suffolk, Third-class Certificate

Class IV.—GRAPES, BLACK, any variety, 3 bunches.

Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, First-class Certificate

Mr. J. W. Potts, Gr. to M. Philips, Esq., Stratford-upon-Avon, Equal Second-class Certificate

Mr. W. Meads, Gr. to R Currie, Esq., Farnborough, Hants, Equal Second-class Certificate

Class V.—APPLES, Dessert, 6 dishes, distinct kinds.

Mr. S Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, First-class Certificate

Mr. T. Ingram, Gr. to Her Majesty the Queen, Frogmore, Equal Second-class Certificate

Messrs. G. & J. Lane, Nurserymen, St. Mary's Cray, Kent, Equal Second-class Certificate

Mr. G. Buster, Goring, near Worthing, Sussex, Third-class Certificate

Class VI.—APPLES, Dessert, 3 dishes, distinct kinds.

Mr. S. Ford, Gr to W. E. Hubbard, Esq., near Horsham, Sussex, First-class Certificate

Mr. Wm. Hall, Gr. to Captain Tyrrell, R.N., Fordhook, Ealing, Second-class Certificate

Messrs. G. & J. Lane, Nurserymen, St. Mary's Cray, Kent, Third-class Certificate

Class VII.—APPLES, Kitchen, 3 dishes, distinct kinds.

Mr. Geo. Scrymger, Gr. to R. Palmer, Esq., Holme Park, Reading, First-cla s Certificate

Messrs. G. & J. Lane, Nurserymen, St. Mary's Cray, Kent, Equal Second-class Certificate

Mr. W. Lee, Gr. to F.-M. Viscount Combermere, Whitchurch, Salop, Equal Second-class Certificate

Mr. J. Sayers, Gr, to E. Ellis, Esq., Clay Hill House, Epsom, Equal Third-class Certificate

Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, Essex, Equal Third-class Certificate

Class VIII.—PEARS, Dessert, 6 dishes, distinct kinds.

Mr. T. Ingram, Gr. to Her Majesty the Queen, Frogmore, Windsor, First-class Certificate

Mr. G. Scrymger, Gr. to R. Palmer, Esq., Holme Park, Reading, Second-class Certificate

Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Highgrove, Reading, Third-class Certificate

Class IX.—PEARS, Dessert, 3 dishes, distinct kinds.

Mr. Geo. Sage, Gr. to Earl Brownlow, Ashridge, near Great Berkhampstead, First-class Certificate

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, Second-class Certificate

Mr. Wm. Lee, Gr. to F. M. Viscount Combermere, Whitchurch, Salop, Equal Third-class Certificate

Mr. Wm. Willcocks, Gr. to S. M. Aynsley, Esq., Underdown, Ledbury, Herefordshire, Equal Third-class Certificate

Class X.—PEARS, Kitchen, 3 dishes, distinct kinds.

Mr. H. Bentley, Gr. to Lord St. Leonard's, Thames Ditton, Surrey, First-class Certificate

Mr. C. Hadden, Esq., Rossway, near Great Berkhampstead, Second-class Certificate

Mr. J. Masters, West Hill, Highgate, Third-class Certificate

Class XI.—PEACHES, single dish.

Mr. T. Ingram, Gr. to Her Majesty the Queen, Frogmore, Windsor, First-class Certificate

Mr. W. J. Ward, Headington Hill, Oxford, Second-class Certificate

Class XII.—PLUMS, single dish.

Mr. B. Mobbs, Gr. to W. B. Tyringham, Esq., Newport Pagnell, First class Certificate

Mr. J. Sayers, Gr. to E. Ellis, Esq., Clay Hill House, Epsom, Second-class Certificate

Mr. H. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, W., Equal Third-class Certificate

Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, Equal Third-class Certificate

Class XIII.—CURRANTS, single dish.

Mr. George Tivey, Gr. to Lionel Ames, Esq., The Hyde, St. Alban's, First-class Certificate

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, Second-class Certificate

Mr. T. Ingram, Gr. to Her Majesty the Queen, Frogmore, Windsor, Third-class Certificate

Class XIV.—FIGS, single dish.

Mr. J. Sayers, Gr. to E. Ellis, Esq., Clay Hill House, Epsom, First-class Certificate

Mr. W. Rogerson, Gr. to E. B. Browne, Esq., Hanger Lane, Acton, Second-class Certificate

Class XV.—RASPBERRIES, single dish.

Class XVI.—MISCELLANEOUS.

Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, Collection of Cut Grapes, First-class Certificate

Mr. J. W. Potts, Gr. to M. Philips, Esq., Stratford-upon-Avon, for 1 Dish of Oranges, First-class Certificate

Mr. J. Williams, Gr. to the Hon. Mrs. Ives, Bentworth Hall, Alton, for a Basket of Citrons, First-class Certificate

A. Ingram, Gr. to J. J. Blandy, Esq., Highgrove, Reading, for Fruit of Eugenia Ugni, Second-class Certificate

FRUIT.

Class XVI.—MISCELLANEOUS.

Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, for a Melon, scarlet-fleshed, Meredith's Hybrid, Second-class Certificate

Mr. J. Williams, Gr. to the Hon. Mrs. Ives, Alton, Hants, for a Dish of Morello Cherries, Second-class Certificate

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, for a Dish of Quinces, Second-class Certificate

Mr. B. Mobbs, Gr. to W. B. Tyringham, Esq., Newport Pagnell, for a Punnet of Strawberries, Second-class Certificate

Mr. Geo. Thompson, Gr. to Mrs. Dixon, Stansted Park, near Emsworth, for Grapes Grown in an Orchard House without heat, Second-class Certificate

Mr. J. W. Potts, Gr. to M. Philips, Esq., Stratford-upon-Avon, for a Dish of Cherries, Third-class Certificate

Miss Mary Plincke, Kensington, for 3 Bunches of Grapes grown out of doors, Third-class Certificate

VEGETABLES and ROOTS.

Class I.—POTATOS, collection of.

Class II.—POTATOS, 6 kinds of KIDNEYS, 12 tubers of each.

Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, Essex, First-class Certificate

Class III.—POTATOS, 6 kinds, Rounds, 12 tubers of each.

Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, Essex, First-class Certificate

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., St. Leonard's Lodge, near Horsham, Sussex, Second-class Certificate

Class IV.—ONIONS, 12.

Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, First-class Certificate

Mr. Geo. Scrymger, Gr. to R. Palmer, Esq., Holme Park, Reading, Second-class Certificate

Mr. J. Masters, West Hill, Highgate, Third-class Certificate

Class V.—CARROTS, 12.

Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, First-class Certificate

Mr. J. Veitch, Royal Exotic Nursery, King's Road, Chelsea, Second-class Certificate

Class VI.—BEET, 6 roots.

Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, First-class Certificate

Mr. J. Drewett, Gr. to Mrs. Cubitt, The Denbies, Dorking, Surrey, Second-class Certificate

Mr. Wm. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, Third-class Certificate

Class VII.—TURNIPS, 6.

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, First-class Certificate

Mr. J. Drewett, Gr. to Mrs. Cubitt, The Denbies, Dorking, Surrey, Second-class Certificate

Mr. J. Sayers, Gr. to E. Ellis, Esq., Clay Hill House, Epsom, Third-class Certificate

Class VIII.—SALSIFY, 12 roots.

Mr. J. Drewett, Gr. to Mrs. Cubitt, Dorking, Surrey, First-class Certificate

Mr. E. Morris, Gr. to R. Bright, Esq., The Stocks, Aldbury, Herts, Second-class Certificate

Class IX.—SCORZONERA, 12 roots.

Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, First-class Certificate

Mr. J. Drewett, Gr. to Mrs. Cubitt, The Denbies, Dorking, Surrey, Second-class Certificate

Class X.—PEAS, 1 dish.

Mr. Geo. Tivey, Gr. to Lionel Ames, Esq., The Hyde, St. Alban's, Third-class Certificate

Class XI.—BRUSSELS SPROUTS, 3 plants.

Mr. Geo. Scrymger, Gr. to R. Palmer, Esq., Holme Park, Reading, First-class Certificate

Class XII.—BROCCOLI, 6 heads.

Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, First-class Certificate

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, Second-class Certificate

Class XIII.—CABBAGE, SAVOYS, 6 heads.

Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, First-class Certificate

Class XIV.—CABBAGE, any variety except Savoy, 6 heads.

Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, First-class Certificate

Class XV.—ENDIVE, 6 heads.

Mr. J. Masters, West Hill, Highgate, First-class Certificate

Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, Second-class Certificate

Mr. J. Veitch, Royal Exotic Nursery, Chelsea, Third-class Certificate

Class XVI.—MUSHROOMS, dish of

Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, First-class Certificate

Mr. W. Rogerson, Gr. to E. B. Browne, Esq., Hanger Lane, Acton, Second-class Certificate

Class XVII.—MISCELLANEOUS.

Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, for a large Gourd, weight 123 lb., First-class Certificate

Mr. H. Bentley, Gr. to Lord St. Leonard's, Thames Ditton, Surrey, for a dish of Potatos, First-class Certificate

Mr. J Veitch, Nurseryman, Chelsea, for Potato Chardon, for cattle feeding, First-class Certificate

Mr. J. W. Potts, Gr. to M. Philips, Esq., Stratford-upon-Avon, for a dish of Aubergines, Second-class Certificate

Mr. J. Salter, Nurseryman, Hammersmith, for a dish of Cherry Tomatos (Lycopersicum cerasiforme), Second-class Certificate

Mr. E. Morris, Gr. to R. Bright, Esq., Aldbury, Herts, for a dish of Tomatos, Second-class Certificate

Mr. J. B. Whiting, Gr. to Mrs. Hope, Dorking, for Celery Incomparable, Third-class Certificate.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 22, 1864.

Few seasons pass by in which we have not one or more applications respecting a disease which is common in Pear trees, and which is caused by a parasitic Fungus—Rœstelia cancellata. The only remedy we have been able to suggest is to pick the diseased leaves in good time, before the Fungus is mature, and to burn them at once. If this is neglected every fallen leaf only acts as a store-house of evil for the following season.

A suggestion has, however, been made by more than one writer in the *Revue Horticole* during the last year or two, that the Rœstelia is merely a stage of another Fungus which grows on the Savin (Juniperus Sabina), and that if this poisonous plant is carefully rooted out, the disease will entirely disappear.

The case, indeed, is exactly parallel with that of the supposed influence of the Berberry on Wheat, though here the more highly organised Fungus is supposed to produce the Rœstelia, while in the case of Wheat mildew, it is the closely allied Æcidium which is accused of producing the Puccinia. The same line of argument, however, will apply in the one case as in the other, for if there is really anything in the supposition, we must have recourse to the same principles.

Modern revelations respecting the different forms which it is possible for the same Fungus to assume, and the various modes of fructification or of propagation which it may present, are so wonderful, that our philosophy cannot easily be alarmed by the most startling assertions. Good authorities do not hesitate to affirm that the same parasitic leaf-Fungus may assume three distinct forms, that namely of an Uredo, such as rust; a Puccinia, such as Wheat mildew; or an Æcidium, like the allied Pear parasite of which we are speaking, or the well-known rust of Berberries. As regards the connection of the two first genera there is little hesitation, while their intimate connection with the third is more or less problematical.

Strong however as the assertions have been of the influence of the Berberry on Wheat, it can scarcely have escaped the notice of those who have paid the least serious attention to the subject, that Wheat mildew is universal, while the Berberry is comparatively rare. But this is not all; those districts in which mildew is most prevalent, as for example the Fens, are precisely those where not a single wild Berberry can be found, and where the cultivated plants are few and far between. Allowing as much weight as possible to the assertion that the Wheat mildew is simply a form of the Berberry Rust, we must rather imagine the Wheat injurious to the Berberry, than the reverse.

The case of the Pear and Juniper is just the

same. The Savin is comparatively rare in gardens. In many villages not a single plant can be found, as from the evil use which is too frequently made of it, it is for the most part carefully excluded; and the gelatinous Fungus (Podisoma fuscum) which attacks the Juniper, and which is so conspicuous after rain, though it may easily escape notice in dry weather, is still more rare; while the Rœstelia may be found in almost every garden where there is a Pear tree, and often in such abundance as to be very injurious. It is scarcely conceivable, therefore, that the most careful extirpation of the Savin would prove a remedy. Even supposing the two Fungi to be mere forms of one species, as in the case of the Wheat mildew, it is far more probable under the circumstances that the Pear Fungus should be the enemy of the Savin than the contrary. Be this, however, as it may, the case is interesting, and we recommend its consideration to some of our more experimental readers. The matter indeed does not rest here, for it is asserted that the extirpation of the Savin is equally beneficial to the Whitethorn, which is attacked by a parasite which has generally been regarded as specifically if not generically distinct from that of the Pear; and if this is the case, we must again alter our received notions as to their difference.

Unfortunately we are not able to refer to any very detailed account of the Rœstelia in any English book, but those who have access to the *Revue Horticole* will find a description of its structure by that excellent observer M. NAUDIN, in the volume for 1850, p. 463. A shorter account and figure, will, however, be found in this Journal, 1856, p. 693*, and in the same volume, at p. 804, is a notice of the gelatinous parasite of the Juniper. *M. J. B.*

THE last portion of the large and valuable collection of JAPANESE PLANTS introduced to this country by Mr. FORTUNE, was sold by Mr. STEVENS a few days ago, and is now dispersed over the kingdom. Many of these late importations have been noticed from time to time in our columns, such, for example, as the male plant of the common Aucuba, the green-leaved species of that genus, the different kinds of Osmanthus, the Retinosporas, Clematises, Lonicera aureo-reticulata, the Umbrella Pine, Skimmia oblata, Lilium auratum, and a host of other things, which are now well-known to our readers. The last sale however included some plants of considerable interest, which had not been previously offered to the public, and, as these have been scattered over Europe, it may be useful to draw attention to a few of them, which are, at present, all but unknown to gardeners and planters in this country.

Among the plants to which we have alluded, a few are of the deciduous class. One of these, Corylopsis spicata, is a small tree belonging to the Witch Hazel tribe, and although its flowers are not very large or showy, it is yet a plant worthy of cultivation. Its frill-like leaves are very pretty, and the little catkins of yellow blossoms which it produces are as sweet-scented as the Cowslip. Moreover, like many of these oriental plants, it blossoms very early in spring, when flowers are scarce with us, a circumstance which gives it an additional value. A species of Hamamelis—a plant which belongs to the same natural order as the Corylopsis—is also worthy of a place in our gardens. Then, there were some Glycines, from which much is expected, although no one in this country has yet seen them in blossom. One of them in particular is reported to be a very remarkable novelty, and if this proves to be the case, we shall doubtless hear more of it by and by.

In the class of Evergreens there were some fine things. One named in the catalogue a "Retinospora, with flat leaves," is a very beautiful plant, and probably will yet take the first rank amongst the introductions in this class. Its leaves are of a beautiful fresh green colour, and from the appearance it presents it will without doubt prove to be perfectly hardy in this country. There were also other Retinosporas, such as one with light and feathery foliage, and another dwarf variety, both of which are beautiful objects in Japanese gardens, and when better known will assuredly be highly prized in this country. Another shrub in this class worthy of some attention was described in the catalogue as a species of Osmanthus with green leaves. This also is a most promising plant.

Amongst variegated plants we observed a good many specimens of Podocarpus and Nageia, in a condition, however, which gave a very faint idea of their real beauty when carefully cultivated. These plants are not hardy in the central and northern parts of the Japanese Empire, and are probably natives of Loochoo, or some of the more southern islands. But when cultivated as pot plants by the Japanese gardeners they are charming things, and well repay a little protection and extra care in winter. Whole gardens are sometimes met with which are full of them, and they are evidently especial favourites. Some of the narrow-leaved varieties of the Podocarpus have silvery-coloured foliage of a light and feathery kind, while others have their leaves of a golden hue. The Nageias have their broad green leaves striped with white lines, as if they had been painted by the hand of an artist, but far more beautiful than any artist could have drawn. These plants will make very effective objects in our greenhouses and conservatories in Europe if they are properly cultivated, and we shall not be surprised to learn that our continental friends will be the first to find out their true value. We commend the matter to our good English gardeners, who would not fail if they will only try; and we can assure them they would produce objects worth bringing out to our horticultural exhibitions. We also noticed among the variegated plants an Umbrella Pine, with tufts of golden-coloured leaves, a variegated Tea plant, a variegated Orchid, and a variegated Palm! Verily everything in the vegetable kingdom has a variegated representative in Japan.

There was only one kind of herbaceous plant in the sale to which we are alluding. This was Lychnis Senno, a charming species which has already been exhibited at our flower shows. This plant is a great favourite with all the farmers and cottagers in Japan, and is met with in almost every garden. A variety of it which produces striped blossoms is said to be a very beautiful kind. When this variety was first seen by Mr. FORTUNE its leaves were quite green, and its crimson flowers were beautifully marked with pure white stripes. Strange to say when introduced to this country the leaves became variegated, and the flowers which were produced were less beautifully striped than when the leaves were quite green. The white colouring had apparently become spent by passing into the leaves. We may hope however that the old habit of the variety will return, and we advise those who possess it to endeavour to bring it back to the condition in which it exists in Japanese gardens, namely, with green leaves and crimson flowers striped with pure white.

We never remember seeing so many new ornamental hardy plants in this country at one time, and we are not likely to witness such a circumstance again. It is not every day that a country like Japan is opened up to foreign commerce after being all but closed for several hundred years. But numerous as the new plants are which have been introduced from that country, and which are now dispersed, there can be little doubt that many more are still left in those districts which were unexplored. At some future time these, doubtless, will find their way to the gardens of Europe.

AT the EXHIBITION OF FRUITS held this week at South Kensington, a collection of Grapes from the Garden of the Society at Chiswick formed an interesting feature, inasmuch as it afforded the means of comparing the different varieties as regards size, form, and colour, and consequently of forming an opinion as to the desirability of their cultivation. On looking them over with this view we were struck with the very great difference between two bunches of Black Barbarossa, one of which weighed 6 lbs. 13 oz., and the other 3 lb. 13 oz.; the latter however was by far the best, notwithstanding its lighter weight. It was more compact and more regularly formed than the other; the berries matched each other well in size, and were much larger and better coloured than those of the larger bunch; they were also covered with a fine bloom, and were without even the most obscure tinge of red, from which this variety is seldom entirely free. All this superiority is attributable to the Vine having been grafted on a stock of the Black Hamburgh; whilst the larger, but in other respects inferior bunch was borne by a Vine growing on its own roots.

The effect produced by the stock in this instance was so evident that no one who had an opportunity of seeing the two specimens could hesitate to use the Black Hamburgh, or even preferably the Frankenthal variety of it, for the Barbarossa. The inference derivable from this case, therefore, is that considerable advantage as regards other varieties of Grapes may result from employing this, or some other suitable stock for them. The larger bunch just referred to measured 18 inches in length, and 19 inches across the shoulders; the smaller was 13 inches long and 11 or 12 across.

The other varieties of Grapes in the collection from Chiswick were also remarkably fine, and did equal credit to Mr. BARRON'S management and Mr. EYLES' superintendence. Further remarks on the Barbarossa, as well as on some of the other kinds shown on this occasion, must be deferred till next week.

—— The vacancy in the CURATORSHIP OF THE CAMBRIDGE BOTANIC GARDEN has been filled by the election of Mr. W. MUDD. For many years he has had the charge of the extensive gardens and grounds of Great Ayton Hall, in Yorkshire, and taken an active part as exhibitor or judge at the horticultural shows in that neighbourhood. He is also well known to such botanists, both in this country and on the continent, as apply themselves to the study of the Lichens, by his valuable work, entitled "A Manual of British Lichens." It is the only extensive work that we possess upon our native Lichens which treats of them in accordance with the views held by modern cryptogamic botanists. The characters both of the genera and species are largely derived from the microscopic structure of the plants, and Mr. MUDD has appended to the book 130 highly magnified figures of the spores, drawn from nature, and engraved by himself. He deserves much credit for having succeeded, with small pecuniary means, in obtaining the requisite books and microscopes for the performance of this scientific work, and at the same time creditably supported a wife and family.

—— We are also glad to be able to state that the charge of the GARDENS AT TRENTHAM has been confided to Mr. Z. STEVENS, whose ability as a first-class cultivator has been abundantly demonstrated during the past year or two by his successful management of the monster Azaleas with which Mr. VEITCH has carried off some of the leading prizes which have been offered for these plants. With such productions vividly in recollection, one can feel no doubt that high-class cultivation will continue to be one of the characteristic features of the ducal gardens, and that they will maintain the high position they have acquired under the successive management of Mr. FLEMING and of Mr. HENDERSON.

—— There is at Castle Kennedy a beautiful tree of ARAUCARIA IMBRICATA VARIEGATA. The parent plant as we learn from a northern contemporary, has attained considerable size, and forms a most interesting and attractive object. From it Mr. FOWLER has obtained by process of grafting some hundred or more of young plants. The leaves are for the most part distinctly margined with yellow. We remember to have seen it shown at South Kensington in the early part of last year, when it was accompanied by a memorandum to the following effect, which explains its origin and history:—"The accompanying specimens have been taken from a seedling Araucaria imbricata raised here, and planted in the pleasure-grounds of the Earl of STAIR some 10 years ago. The plant is now upwards of 8 feet high, and about the same in diameter, very robust and healthy. The variegation was first observed when the plant was small, and it has since increased till five out of six of the last tier of branches show variegation. The marking is not confined to one branch or portion of the tree, but extends over fully one half of the entire foliage, occasionally alternating with the green. The effect is striking and unusual." We believe that, although regarded as a handsome sport, it was passed by on the occasion in question, on the ground of some doubt as to the extent to which it might admit of increase; but now, since it appears that it can be increased with tolerable facility, the distinct and decided markings of the leaves must cause it to be regarded as a decided acquisition amongst hardy Coniferous trees.

—— The necessity which exists for the more general dissemination of a knowledge of the properties of plants, has received a striking illustration in the case of POISONING BY YEW BERRIES which occurred last week at Finchley—a case in which, according to the evidence adduced, the gardener is stated to have seen his own child eating the Yew berries, without heeding the circumstance. The statement which has appeared in the daily papers is to this effect:—An inquiry was held a few days ago relative to the death of a little girl, three years of age, the daughter of the gardener at Finchley Cemetery. The child, it appears, had accompanied her mother to the ground, and had been observed by her father to eat one or two of the berries of an Irish Yew tree, but the circumstance was passed over unheeded. Shortly after the mother and child returned home to tea, the latter was taken with a kind of faintness. Brandy and other restoratives were administered in small quantities, and the child seemed to recover, and was put to bed, a dose of castor oil being also administered. In a short time, however, a relapse occurred, and medical assistance was obtained, but however before death had ensued. At the inquest, the

* We would also call attention to SOWERBY'S figures, t. 409 and 410, and to the notes which accompany them, in which some modern notions are anticipated.

surgeon (Mr. WHITE) deposed to being sent for about half-past seven o'clock in the evening, when he found the child dead. The post-mortem examination proved that death was the result of poison. In the stomach were found some partly digested Yew-tree berries—from 20 to 50 in number, the husks and seeds of which are poisonous, though the fleshy part of the berry is not. The stomach and intestines were inflamed, showing the irritant action of the poison. The Coroner (Dr. LANKESTER) remarked that this was a very important case, for Yew-trees were thickly planted in all the cemeteries. He hoped that through the fact becoming known that the berries were poisonous, greater watch would be kept upon children by those who had them under their care while visiting such gardens, so that similar disasters might in future be prevented. A verdict of Accidental Poisoning was returned. As too much caution cannot be exercised in cases of this kind, we think it would be well if the managers of cemeteries would cause a notice to be conspicuously placed near the entrance to their burial grounds, warning visitors of the danger of allowing children to pluck and eat berries of any kind whatever found growing in such situations.

NOTES ON GARDENS.—No. XX.

ROYAL BOTANIC GARDEN, GLASNEVIN.

(*Continued from p. 989*)

ORNAMENTAL, light, useful, and I may almost say everlasting, are Mr. Turner's Palm-houses and conservatories everywhere we see them. None of his works display these characteristics better than the curvilinear range, with Palm-house in the centre, adjacent to the Victoria house at Glasnevin. Much has been said for wooden houses, and undoubtedly they are worth much for forcing, ordinary plant growing, and small erections; but large buildings for plant accommodation, prominently placed in a botanic garden, should, I think, be of iron. At Kew, Belfast, Killakee, and the Regent's Park, the great conservatories and ranges erected by Mr. Turner are elegant enough to associate well with the best aspects of those gardens, while they—even the lightest of them, that in the Botanic Gardens, Regent's Park—are as sound and useful as when first built. Wooden houses built as long as some of these, would probably be half rotten by this time, and the cause of endless expense. This I remark in consequence of several very large and important garden buildings having been recently built of wood, and looking too ugly and angular to be in keeping with fine garden scenery. Any one however, who compares the two styles at Glasnevin, is not likely to become enamoured of the wood. The north wing, 150 feet long, of the beautiful range I allude to, is chiefly occupied by natives of the Cape, and of New Holland, especially of the latter country, whose vegetation is strongly represented at Glasnevin. The majority of the Australians were out of doors, but some were nicely in flower here, and among them Blandfordia flammea, a beautiful plant, which ought to be commonly grown. Of course it would be impossible for me to mention the hundreds of good and curious plants met with in these houses, nor would it be desirable, as my business is rather to record peculiar and striking excellencies, both of plants and cultivation; to help to bring from comparative obscurity neglected plants of first-class merit; and to inform the public of the leading merits and blemishes of horticulture in "ould Ireland." Hakea Victoriæ and others, with Banksias and their allies, formed however a predominant and highly interesting feature in this wing, while overhead Bignonia Cherere flaunted and flowered freely—a grand thing when allowed room in a dry conservatory; and there were also Dammara Moorei, the Weeping-Willow of Australia, with Restios, Babingtonia Camphorosmæ, Fuchsia corymbiflora—grand, when allowed to make a large shrub, and a lot of Mr. Saunders's curious succulents from the Cape. The old Rhodochiton volubile was producing a charming effect, as were the Swainsonas, S. Osbornii being particularly good, producing with grand plants of Lilium lancifolium, and such of the Heaths as were in flower, a very respectable display of bloom. Before taking leave of this wing and entering the old Palm house, I must state how well and densely Mutisia ilicifolia covered a portion of the back wall; and how much I was struck with an unnamed species of Callistemon, very showy and beautiful; and apologise to those I have not honoured by naming. Lapageria rosea was done well, but what's the use in mentioning that which is possessed by "everybody who has anything." No, it is the good old and comparatively unknown things we want to hunt from their privacy.

I am now—in spirit at all events—in the old Palm-house, but it must not be supposed to be either old or rickety, being an elegant curvilinear iron house, with every desirable quality but that of expansion, which it wanted very much when the Palms grew up; but lacking that, these ever-rising subjects were provided with the new wooden Palm-house, which may be seen a little to the west, while the older house for the past couple of years has done very useful duty as a cool Palm-house, conservatory, &c. Now, if a second, "very much enlarged" edition of this original Palm-house had been erected instead of the present new one, then, indeed, the conservatories of Glasnevin would—every one of them—be worthy of its plants and glades; would have crowned the garden with beauty in fact, for the new Palm-house occupies the highest, or one of the highest spots in the garden, but now—ah, well, I have to come to that yet. It is not too soon, however, to say what I thought when gazing through the curvilinear at the 'barnlinear' structure—that as Dove to Dodo, as white-winged Yankee clipper to swinish Monitor, as Gibson's Venus to a hideous gutta-percha faced Amazon of Dahomey, so is the old Palm-house at Glasnevin to the new. But our old Palm-house is yet one to some extent, for it accommodates Seaforthia elegans, Chamærops, and other Palms from cool countries, and a host of Cycads, Agaves, Dasylirions, Yuccas, &c., with the true Grass tree—a comparatively young though beautiful plant, only not yet showing the stem, and consequently not so striking as the fine specimens recently imported by the Messrs. Low. These latter ancient aborigines will not, I fear, adapt themselves to our northern clime and imprisonment after centuries of freedom in the scrub. When obtained young, however, they grow freely, and then far surpass in beauty your Dasylirions, Bonaparteas, and such like. Arundo Donax variegata was 14 feet high in this house, and the fine Mutisia decurrens, introduced by the Messrs. Veitch, was adorning a pillar and exhibiting its beautiful flowers; while here and there such things as Beaucarnea stricta—one of the chief verities; Macrozamia Dennisonii, Dasylirions unnamed, and Grevilleas of promise from Mr. C. Moore, of the Sydney Botanic Garden, attracted attention. Amongst Agaves, glaucescens and univittata were remarkable; and I may further mention Zamia mexicana, and the curious Coccoloba platyclada, with Phormium Cookeanum and Jacaranda mimosæfolia, exhibiting such an exquisitely graceful head of foliage as Jacarandas only can.

A fine stove and succulent house form the west wing of the curvilinear range, the latter being a very interesting house, containing a good collection of succulents, and also some curiosities, widely separated from them, such as the very singular Ceropegias, Boucheri and sororia, the latter even more remarkable than Boucheri; and, more remarkable than any of them, the snake-like Ceropegia stapeliæformis. Fine plants of the erect rigid and fleshy Euphorbias, such as E. tetragona, looked very stately indeed, and would, I am confident, produce a very pleasing effect if sparingly placed amongst the Ferns and graceful-leaved plants which are so much grown in some gardens. Curious, too, was "the Gout-plant," Jatropha podagrica, which with Wagneria tomentosa and Begonia macrophylla, was associated with the succulents, the last mentioned bearing leaves 2 feet across. If Begonias are to be grown for the beauty of their leaves, this species should lead off the selection. Cereus MacDonaldiæ was thought very highly of as a flowering plant of the first order, and so were many of its neighbours. But I might almost as well talk of the plants of Saturn as of these things to most of our advanced horticulturists, who as a rule have nothing more succulent in their neighbourhood than a bit of Ice plant; and though I should be the last to recommend a gardener to make a collection of these things, yet I cannot but regret the absence of at least a couple of dozen of the best and most distinct species from every good plant place. For what could be more telling or interesting in a select conservatory than some of the Echeverias, Echinocacti, Gasterias, &c., not to select from their numerous allies, nor even to mention Yuccas and Agaves, which are fast forcing their way into public favour, as may be seen at our shows. Solandra grandiflora, one of those things that must get room to give any satisfaction, was very strong round a pillar, where it flowers finely every year. In the great stove I had the satisfaction of seeing the Cascarilla plant Croton Cascarilla, with Croton Eleuteria and linearis, the Balsam of Tolu plant Myrospermum Pereira, Melaleuca Cajeputi, Mammea americana, the true Cinnamon plant from Sir Emerson Tennent, the Alligator Pear, Calophyllum Calaba, and a host of the more commonly grown medicinal and economical plants; besides a small tree of Brownea grandiceps, which Dr. Moore told me flowered very freely—a conspicuous object, which must be worth some trouble to see when in bloom; Aristolochia caudata; and a host of other interesting plants, which I must leave. I will therefore merely say how well this curvilinear range was filled with fine and suitable plants, apologising at the same time for want of space to mention the many plants, especially Australian ones, that were first introduced to the country by way of Glasnevin.

The next great range has one of its wings devoted to Orchids and Ferns, the other to Azaleas, Camellias, and the more popular greenhouse plants; while from the centre rises very conspicuously the new Palm-house, the external aspect of which, as I before indicated, is anything but elegant. Getting into chat with a son of the soil on my way to Glasnevin, we talked of the beauty of the gardens, in which he had evidently recently spent a few Sundays, for he was highly eulogistic of the "beauteeful plants and quare flowers" he had seen there, but added "they have built a big new greenhouse, but a very ugly one; it's like an ould gable end!" This transcends my power of description, leaving me little to add but that the "gable end" is 60 feet high, 60 deep, and 90 long, the gable end aspect being the front, and by very much the best one, as the back or north side, which is seen from the curvilinear range and from most important parts of the garden, is a rough stone wall against which a vast shed is raised, and in this shed is the breakneck wooden stairs by which adventurers who attempt the gallery climb up. There is an intensity of ugliness about this building, seen from the north side, which quite appals one. It is as if the demon of bad taste had been let loose, fully accredited, to attack the enemy in his strongest camp, and accordingly set to work and built his temple in the central scene of a beautiful garden, in the midst of the elegant leaf-builders, and over a host of graceful Palms! Inside the house is all that could be desired; it has a double roof, and was, I believe, designed and erected by the Board of Works. *William Robinson.*

(*To be Continued.*)

THE BEST SIZE FOR POTATO SETS.

DURING the last season I have carried out a series of experiments with the object of ascertaining what sized Potato-sets gave the most profitable crop, and the results have been so striking, and present such decided contrast to general practice, that they appear to me to be of sufficient importance to publish in your columns.

My experience during the past year convinces me that from one-fourth to one-third of the natural produce of the Potato crop is lost solely from insufficiently large Potatos being planted; and that by a proper selection of sets an increased crop, representing a clear profit of several tons per acre, can be obtained.

On the 16th of February I planted in rows 2 feet apart, and 1 foot from set to set in the rows, sixty uncut sets of Early Prolific Potatos, viz.:—

20 sets weighing 2 oz. each.
20 sets weighing 4 oz. each.
20 sets weighing 8 oz. each.

The 20 sets of 2 oz. each (2½ lb.) produced 21 lb. 5½ oz.
The 20 sets of 4 oz. each (5 lb.) produced 29 lb. 0½ oz.
The 20 sets of 8 oz. each (10 lb.) produced 35 lb. 3½ oz.

In the case of the twenty 4-oz sets, the extra 2½ lb. over and above the weight of the twenty 2-oz. sets produced a gross gain of 7 lb. 10¾ oz.; and a net gain, after deducting the difference in the weight of the sets, of 5 lb. 2¾ oz. of Potatos on 40 square feet of ground, or at the rate of 2 tons 5 cwt. 1 qr. 1 lb. per acre net profit.

In the case of the twenty 8-oz. sets, the extra 7½ lb. over and above the weight of the twenty 2-oz. sets produced a gross gain of 13 lb. 14 oz., and a net gain, after deducting the extra weight of the sets, of 6 lb. 6 oz. of Potatos on 40 square feet of ground; or at the rate of 3 tons 1 cwt. 3 qrs. 26 lb. net gain per acre over and above the extra weight of the seed.

It will be observed that there was a large profit on each advance in the weight of the sets, viz., on the 8-oz. sets over those of 4 oz., as well as on the 4-oz. over the 2-oz. sets.

Another experiment was made with Second Kidneys, planted at intervals of a foot, in rows 2 feet apart, on the 31st of March, viz.:—

20 sets of 1 oz. (1¼ lb.) producing 15 lb. 9 oz.
20 sets of 2 oz. (2½ lb.) producing 16 lb. 15 oz.
20 sets of 4 oz. (5 lb.) producing 19 lb. 15 oz.

Although the result in this case is not so striking as that of the Early Prolifics, each advance in the weight of the set produced more than an equivalent increase in the crop, leaving a clear profit on the extra seed.

On the 31st March I also planted four lots of Fluke Potatos, in rows 2 feet apart, each lot occupying 40 square feet of ground, viz.;—

20 sets, 1 foot apart, of 1 oz. each (1¼ lb.), producing 15 lb. 2 oz.
20 sets, 1 foot apart, of 2 oz. each (2½ lb.), producing 15 lb. 0 oz.
20 sets, 1 foot apart, of 4 oz. each (5 lb.), producing 18 lb. 12 oz.
16 sets, 1 ft. 3 apart, of 8 oz. each (8 lb.), producing 30 lb. 12¾ oz.

In the experiment with the Second Kidneys and the Flukes, it will be observed that there was little or no difference in the produce of the 1-oz. and 2-oz. sets, a small profit in favour of the 2-oz. Early Prolific sets, and a trifling loss in the Flukes; but in the advance from 2 oz. to 4 oz., and from 4 oz. to 8 oz., the result is quite consistent with the other experiments, and exhibits even a greater profit in the planting of large Potatos of 8 oz. each.

The twenty 4-oz. Flukes (5 lb.) produced 3 lb. 12 oz. of Potatos more than the twenty 2-oz. sets (2½ lb.,) leaving a net gain of 1¼ lb. of Potatos on 40 square feet of ground, or at the rate of 11 cwt. 3 qrs. 14 lb. per acre clear gain, after deducting the extra weight of seed.

The sixteen 8-oz. Flukes planted at intervals of 15 inches in rows 2 feet apart, produced 30 lb. 12¾ oz., so that the 5½ lb. extra weight of sets over those 2 oz. in weight increased the crop in the 40 square feet of ground by 15 lb. 12¾ oz., and after deducting the extra weight of the seed, left a clear profit of 10 lb. 4¾ oz., or at the rate of a trifle over 5 tons per acre clear gain.

The 3 lb. extra weight of sets in the sixteen 8-oz. sets over the twenty 4-oz. sets increased the crop on 40 square feet of ground by 12 lb. ¾ oz., and left a clear profit of 9 lb. ¾ oz., or at the rate of 4 tons 8 cwt. 0 qr. 27 lb. per acre clear gain, after deducting the extra weight of seed.

I also experimented with Lapstones and two varieties of Red Potato, but the former were inadvertently dug up and consumed without being weighed, and the Red Potatos prematurely withered in the tops, from a mole getting into part of the row, so that the results cannot be given; but in the other three experiments above

recorded, every care was taken to insure uniformity of condition in each set of trials. The details of the results vary slightly, but the general bearings are strikingly consistent as exhibiting a certain and large profit in the advance in weight from a 2-oz. up to an 8-oz. set, and it will be observed that in every step of advance in the weight of the set there was a clear profit over the extra weight of the Potato planted.

To generalise from these results it would seem that small sets cannot produce such a vigour of growth as to fully develop the Potato-bearing capabilities of the soil. I believe that Potato sets are seldom planted of much more than 2 oz. in weight; 4-oz. sets are certainly the exception; so that as a rule the Potato crop is starved from an insufficient vigour in the set.

This question is in no way related to that of thin seeding. The distance at which the sets should be placed is another matter, upon which I will not now enter, excepting to observe that I think when small sets are planted they are not put nearly thick enough in the rows. My experiments prove that the ground is capable of bearing a much greater weight of tubers than can be generated from 2-oz. or even 4 oz. sets, planted a foot apart, and I believe that such small sets, if placed at 6 inch or 8-inch intervals, would produce nearly as much to a root as if at the wider distance, and of course a much greater weight per acre; but upon this point I hope to experiment during another season.

What I now wish to establish is, that the produce of the crop depends, much more than ordinary practice would seem to admit, on the size and vigour of the individual sets. Small Potatos are diminutive in all their parts; the eyes are proportionately small, and cannot produce such strong shoots as full-sized tubers. All the 8 oz. sets I planted appeared above ground with remarkably strong and vigorous shoots, which maintained their superiority over those from the smaller sets throughout the whole period of growth, and no one who saw their splendid tops—nearly double the height of the others—could for a moment doubt what the result would be at the harvest.

I believe the mere question of inherited character has much to do with the extremely various weights produced from the different sized sets. Mr. Darwin has shown how almost any quality can be established by the selection of individuals tending in a particular direction, and Mr. Hallett has actually produced a race of long-eared Wheat by the simple process of selecting the longest ears and largest grains for three or four generations.

In almost any field or garden crop we all know how much under precisely identical circumstances the plants vary, but are apt to forget that this must be solely attributable to differences in the constitutional vigour of the individuals.

If it were possible—as in the case of Hallett's Wheat—to select the finest individual seeds for every sowing, a certain and permanent improvement in our crops must be the result, but with small seeds sown over large areas this is practically impossible at every generation, so that the weak and the strong must to a certain extent be perpetuated together.

With Potatos however nothing is easier than to select the largest tubers for planting. If the generation is to be conveyed through the smallest individuals of the crop, the gradual diminution of the produce is a matter of certainty, but if the Potato were treated like live stock, and the finest individuals only allowed to generate, its gradual but permanent improvement on the theory of inheritance would be as certain, and the immediate increase of the crop could not but leave a rich profit over the extra weight of Potatos planted.

This is a very simple matter of experience, which any one who has a garden can prove at little or no expense by planting a number of Potatos of various weights, and noticing whether the larger Potatos do not produce an excess of crop over the small sets vastly greater than the extra weight of the set planted. *George Maw, Benthall Hall, Broseley.*

THE COOL TREATMENT OF ORCHIDS.

[The following remarks, which we believe represent the course of cultivation carried out in a famous Orchid collection near Glasgow, are borrowed from the *West of Scotland Horticultural Magazine.*]

Now that the cultivation of Orchids is becoming more general, it may be well to introduce a few practical hints bearing on the temperature best suited to their wants, and the peculiar kind of nutriment, both in the atmosphere and at the root, necessary to ensure a vigorous plant and a proper development of flower. Errors in practice often occur, even in what are called the best collections in the country, not from any want of attention on the part of the cultivators, but mainly from a want of knowledge of the exact geographical position, temperature, and climate, whether wet or dry, that the imported plants were accustomed to. The fault did not, in days past at all events, lie so much with the practical gardener. Orchid cultivation was a branch of the business with which very few were familiar, and the few who had an opportunity and availed themselves of it, had an uphill battle with such an out-of-the-way order of plants. The greater number of those introduced for the first 10 years were grown in houses of a high temperature; some of them succeeded, and many died. The particular localities where they were distributed, and the nature of the climate, received little if any consideration. Information from collectors on the spot was not so greedily sought after then as now; and hence the many unsuccessful attempts, which have never been accurately recorded, of growing to perfection, or even growing at all, this beautiful section, which is found all over the Andes of New Grenada, Guatemala, and Mexico. When growers of large experience and sound general practice are baffled, there need be little wonder expressed at the failures of new beginners; and consequently, correctly speaking, there is less room for disappointment on the part of gentlemen than at first sight might appear. It is not a very agreeable sight for either gardener or employer to see valuable plants vanishing away; and although there are methods in practice, better adapted than others for prolonging existence, and for encouraging health, there will be always one or two that will pine away under the most skilful treatment. Temperature has a great deal to do with successful cultivation; so has material for the roots to run in; so has moisture; and so has cleanliness. A proper and intelligent observance of these conditions commands success.

Why, it may be asked, is it that the most choice Odontoglots are all but lost to the country? And how is it that those which are capable of standing most fatigue are only growing, judging from what we have seen, on half diet? The simple answer is that they have been roasted in too high and too dry a temperature. But what is too high a temperature for such plants? An East Indian house, or a temperature averaging from a winter minimum of 60° to a summer maximum of 95°, is not the temperature suited to the well-being of a single known example of Odontoglossum or Lycaste. A Cattleya house, ranging from a minimum of 55° to a maximum of 85°, is not exactly suited to either of the plants named, although such varieties as grande, citrosmum, bastilabium, bictoniense, crinitum, Phalænopsis, Reichenheimii, Insleayi, Uro-Skinneri and nebulosum will live, and remain tolerably healthy under such a temperature, if accompanied with a proper degree of moisture. In fact, for such a collection, and for the following rare and valuable plants—Epidendrum vitellinum and nemorale, Lycastes of sorts, Lælia cinnabarina, anceps, and flava, Cattleya Skinneri and citrina, Trichopilias of sorts, Anguloas of sorts, Dendrobium heterocarpum and Uropedium Lindenii—we would say that a minimum of 43° and a maximum of 75° during the heat of summer are, of all temperatures, best suited for the plants. Lower than 40° it had better never be, even in very cold weather, and some care must be shown to keep the plants during that time in a medium state of moisture. Higher than 50° at night during the dead of winter is not good practice, although the house may be allowed to rise to such a height during daytime before giving ventilation. Plenty of fresh air is of great importance during summer and autumn, to consolidate the pseudobulbs, and encourage free-flowering.

Again, there are a few Odontoglossums that thrive better subjected to even a lower temperature than what is named above. It is a very curious fact that in the choice collection of Odontoglossums grown at Meadowbank, Odontoglossum Pescatorei and cordatum, both plants considered to be the best of their kind in the country, stood uninjured in a house where the temperature fell to 32°, while O. Phalænopsis was all but killed, and O. nævium slightly injured, growing by their side. O. membranaceum, O. Ehrenbergii, O. Cervantesii (small plants), also stood uninjured. Doubtless, this is the lowest range that any Guatemalan Orchid has been subjected to. By a globule of air getting into the mercury, the thermometer indicated at 1 o'clock at night 45°, and at 7 in the morning 40°, while the real temperature, gauged by an accurate thermometer by way of comparison, proved that the house had been at the freezing point. The plants, of course, were closely shaded for a week, else the consequences might have been serious. There cannot be the slightest hesitation in affirming, after several years' trial, that a minimum of 35° is a good one for Odontoglossum Pescatorei, cordatum, membranaceum, Ehrenbergii, and Cervantesii, else the Meadowbank plants of the two former could not produce, as in the one case, something near 100 flowers from one pseudobulb; and 22 spikes, averaging from 12 to 15 flowers on each spike, on the other. The above are the extreme ranges of temperature that such plants can be subjected to. It must be borne in mind and carried out in practice, that in order to promote health the temperature in-doors must rise and fall with the temperature out of doors. A good proportion is from 5° to 8° during night, and from 8° to 12° during the day.

The whole of these plants delight to grow in good, rich, fibry matter, such as is to be had in mosses and plantations where vegetable fibre largely predominates. As many of the particles of earthy matter as can be conveniently got rid of should be separated from these turves. If there is the least inclination to soddenness, or a disposition of any kind to obstruct thorough aëration, a good quantity of Sphagnum should be introduced, which counteracts any bad effects in this way. It is sheer nonsense to impoverish these semi-terrestrial plants. Sheep, cow, or horse droppings, dried up into a proper state, can be added with the most beneficial results. There is a tendency occasionally to the propagation of Fungus, which in some instances is detrimental to the growing plants, but lengthened practice and judicious combination of material suggest the remedy, and prevent, in the first instance, its propagation.

No Odontoglot, or Lycaste, or Trichopilia, or Lælia we have named ought to be allowed to get dry at the roots. Nothing will cripple their powers of action so much as drought, and it requires months and sometimes years to get plants so subjected to become vigorous. It is necessary, occasionally, to induce floral development, to check the luxuriance of some particular kinds, which show little disposition to flower annually unless thus wrought upon by the hands of the cultivator; but there is a particular time when such treatment is requisite, and its duration must not be extended for too long a period. During the growing season no cessation of vigour must be encouraged; ample supplies of water, both at the roots and in the atmosphere, are what the system of the plants demands. If the material be of the proper description—so porous as to allow air to pass freely, and so fibrous as not to become sodden—watering once a day may, without injury, be resorted to.

To keep all plants free from the ravages of insects is of high importance—more especially is it so in Orchid collections. Their money value entitles them to be under the management of a skilful and attentive grower. Scale propagates itself among this tribe of plants at an alarming ratio; and if not at once kept under, gets upon the young shoots, and much deteriorates their health and appearance. Washing with pure water is the best and safest remedy, although for such things as Cattleyas, upon whose leaves they play much havoc, a little soft soap may be introduced. Thrip also attacks the more tender leaves of the various species. Fumigation is the most certain remedy for this, but great care and judgment are required to fumigate a miscellaneous collection, owing to so many of them being easily injured, among which might be named Odontoglossum citrosmum and Uro-Skinneri, as well as Lycaste Skinneri, and numerous others.

Home Correspondence.

Bananas.—I have under my charge several fine plants of Bananas, which showed fruit about the beginning of June. They have now a fine crop of nicely swelled fruit on them, but as yet do not show any appearance of ripening. Would some one be kind enough to inform me what treatment I should give them to assist them in ripening their fruit soon. *A Gardener.* [Give them plenty of heat, and they will attain maturity in their own time.]

Potatos from Seed.—My employer tells me that he last week saw a splendid crop of Potatos, grown from the Potato-apple, gathered last autumn; and he wishes me to make a trial next season in our garden. I have gathered a peck basketful of the berries from the farm, but I am quite at a loss how to manage them. If any correspondent has grown Potatos in this way, I should be much obliged for some information on the best mode of treatment. *J. C. N.*

Underwood for Larch.—If "H. S. M." wants stuff for protection of birds, then I think that in most situations Gorse will thrive, certainly if planted when Larch is young. *D.*

Frogs and the Viper Question again.—I have twice stood by frogs, and clearly saw them whilst they sent forth their cry. The first time it was in my garden, and I think caused by an adder, though I did not see it, for one was caught at the spot a few days afterwards; but the other time I heard the cry, and which I could compare to nothing so much as to that of a feeble infant's cry when in pain, it was caused by a hen pecking the frog. Both of these I clearly saw and watched for some time, whilst the frog was uttering its cry. As there is a little history about this adder I will give it, as it may be interesting to at least some. A literary contest had existed, and was rather warmly carried on between a learned gentleman of Colchester and myself respecting young vipers, when in danger, entering their parents' mouths to be conveyed away into places of safety until the danger should be over. My opponent maintained that it was impossible they should do so, for, if they did enter the parent viper's mouths, they must descend into their stomachs, and there, to use his own words, be killed by the gastric juices as quickly and effectually as they would if thrown into sulphuric acid. This was my opponent's reasoning, and, as he adds M.D. and F.L.S. to his name, my reasoning had but a poor chance against him. But the question with me was whether the young viper broods did enter their parents' mouths or not, for if they did, I was sure Nature would find for them a safe and innoxious retreat whence they might return into the open air, and sport themselves or not, when the danger was over, if the parents escaped with their lives. To support my side of the question I said I could produce fully a dozen gentlemen of high respectability and veracity, and also two ladies, who had absolutely seen the young enter the vipers' mouths; and that two of the gentlemen afterwards killed the old ones, and found the young within them. I myself had witnessed an example, but I did not urge that. I said, moreover that I had dissected vipers and found a provision, such as I had referred to, prepared by Nature for the reception of the young, and altogether independent of and unconnected with the stomach. But all this

would not do. My opponent stuck to his gastric juice and the stomach, from which no reasoning could stir him; and so I advertised for a viper, that I might in the same Literary Institution dissect it, and show the pouch, the provision I have referred to for the reception of the young. Singularly enough the only one brought to me was caught in my garden by a policeman, and at the very spot on some rubbish where I had seen and heard the first frog send forth its painful and piercing cry, —at least so I felt it to be. But I was spared the trouble of dissecting the adder, for Dr. Crisp, a well known and excellent naturalist, informed me that he had dissected fully 30 of the viper genus; that the pouch for the reception of the young to take protection in was natural to them, and of this he gave me an excellent drawing, which, together with his description, showed clearly that the young brood from the open air did not, and could not, enter the stomach at all, but descended into the pouch by another way, as I myself had discovered. This was further confirmed in a contemporary journal by the very excellent comparative anatomist, Dr. Cobbold; and Mr. Buckland showed further that the gastric juices even had no injurious effect whatever upon young living vipers. I do not know whether my learned and scientific opponent was convinced by these proofs that young vipers do, in times of danger, enter their parents' mouths or not; but if he was not, I add that I myself was, and that I am sure my readers will be so also. *G. Wilkins, Parsonage, Wix.*

Large Citrons.—Three specimens of Citrus medica, grown in the garden of G. Dunbar, Esq., Woburn House, Down, when weighed were found to have attained, though not arrived at maturity, the rather unusual weight of 6 lbs. all but an ounce. Forty seven had been previously gathered off the same plant—a young one, scarcely 5 feet by 4, worked on the Shaddock stock. During the spring, just when the plant was coming into flower, circumstances over which there was no control caused the temperature of the house in which the plant was growing to sink on several nights to within 1° or 2° of the freezing point. *Hibernicus.*

Cupressus Lawsoniana.—This year Lawson's Cypress has seeded abundantly here on trees from 6 to 12 feet in height. The cones are very small, not larger than good-sized Peas, and are full of good sound seed. Plants were raised here last year from seeds sown from the same trees, but the quantity saved was small compared with this season. In a few years there is no reason to doubt that seedling plants raised from trees in this country will be as plentiful as Larch. All intending planters ought therefore to secure plenty of this fine tree, to plant either in pleasure grounds or on a large scale for timber and shelter. The timber is described as good, clean, and easily worked, with a strong odour. This year, although the season was so dry, some of the trees here have made shoots more than 2 feet in height. The tree is perfectly hardy, and stands the wind well in bleak situations. Its habit is very graceful when it gets to the height of 10 and 12 feet, its branches bending gracefully, and forming a compact tree. It requires a little training when young, to keep the tree to one stem, as side branches often take a strong lead, which prevents the main stem from growing so fast, and spoils the outline of the tree. Cupressus nutkaënsis (syn. Thujopsis borealis) is another beautiful tree, if well pinched in when young, and kept to one stem. It does not however grow so fast as Lawsoniana, and its habit is stiffer and not so graceful. *William Tillery.*

Birds and Fruit Trees.—Wouldn't "Alpha's" contrivance, such as he indicates, be a little too expensive to be generally adopted? I think so; 114 nipples twice discharged would require 228 percussion caps, and in caps alone would cost 6*d.* per day for one machine. In a large garden five or six such machines would be required to be of much service. Instead of nipples and caps, I would suggest that he should substitute a loud discordant-toned bell for the hammer to strike upon, which would be equally effective in scaring the birds, and less expensive. But I think that a human machine would be more effectual than any mere mechanical contrivance. The more active the better, but one three parts worn out would do, plenty of which may be had in most parts of the country for 1*s.* per day, and might not only move about from one part of the garden to another without assistance, but might pull up a few weeds here and there, and do other little odd jobs—in fact earn his shilling, the bird scaring being done gratis. *T. Gell, St. Lawrence, Isle of Wight.*

Dahlias.—As the destruction of our Dahlias by frost is now imminent, perhaps the following record of dates at which these plants have been cut down during the last nine years in this part of North Lancashire, may prove interesting. The height of this place above sea level is 450 feet. In 1855, they were cut down on October 28; in 1856, on November 7; in 1857, they were quite fresh on October 27, but no further record was made; in 1858, they were cut down on October 29; in 1859, they were cut down (thick ice) on October 21; in 1860, they were cut down completely on October 12; in 1861, on November 4; in 1862, about October 25; in 1863, about October 31.; and in 1864, quite fresh up to October 17. *W. Robinson, Vale House, near Garstang.*

Deodar Timber.—I have noticed the discussion in your columns regarding the relative strength and durability of Deodar wood and that of Cedar of Lebanon with much interest, for I believe that I was the first to introduce the seeds of the Deodar into England in 1826, or rather into Scotland, for they were sent to Garloch Castle, Ross-shire. Some years ago, when shooting in the Himalayas, I had a Deodar cut down to make boxes for my specimens of natural history, and on measuring the planks of some of the old chests which I still have by me, I find that the dimensions of the largest are 4 feet 2 inches in length, and 2 feet 2 inches in width. Should the Curator of the Kew Museum, or any scientific society, wish to have a piece of wood of the above dimensions to make experiments upon, I shall be happy to send one, provided the carriage and all expenses are paid. I could also send a small phial of oil extracted from the Deodar tree, and much used by the natives of the Himalayas as a cure for itch and other cutaneous affections. *A. C., Braddan, Isle of Man.*

Ancient Gardening.—Mr. Darwin asks (Oct. 8) the date given in old Calendars for sowing French Beans. Evelyn's "Terra," first published 1675, in third edition 1706, Kalendarium Hortense, at p. 226, under "February," gives the following brief direction:—"Sow Beans, Pease," &c., naming other garden seeds. *J. J. R., Helston.*——If Mr. Darwin will refer to "The Whole Art of Husbandry," by J. Mortimer, Esq., F.R.S.; second edition, corrected, published 1708, he will find the following (at p. 456):—"French or Kidney Beans are a sort of Codware that are very pleasant wholesome food, being but lately brought in use amongst us, and are not yet sufficiently known; there are four sorts thereof. 1st. The Scarlet Bean, which has a red husk, and is not the best to eat in the shell, as Kidney Beans are usually eaten, but is reputed the best to be eaten in winter when dry and boiled. 2ndly. The Painted or Streaked Bean, which is the hardiest, though meanest of all. 3dly. The large White Bean, which yields a fair delicate pod. 4thly. The small White Bean, which saving in size is like the latter, but esteemed the sweeter. They delight in a warm fertile ground, which being about the beginning of May or very soon after, planted with them at a foot distance and two fingers deep, will yield an extraordinary crop; you may either set up tall sticks near for them to twine about, or let them lie on the ground: but if you are straitened in room, those on sticks will yield the greatest increase." On turning to p. 469 of the same volume I find the following, which will, I think, prove interesting:—"Potatos are planted in several parts of our country to a very good advantage, being easily increased by cutting the roots (tubers) into several pieces, each piece growing as well as the whole root. A good fat, rich mould is best for them: but they will grow indifferently in any, provided it is well dunged; the root is very near the nature of the Jerusalem Artichoke, but not so good or wholesome. These are planted either of the roots or seeds, and may probably be propagated in great quantities and prove good food for swine." *T. Gell, St. Lawrence, Isle of Wight.*

Foreign Correspondence.

Poisonous Gastrolobes.—"Having just returned from the Flinders River, I am in a position to give you some account of the road. The floods in January presented many difficulties to our reaching that country; but this was not all—a Poison Plant, which seems to confine itself to the range dividing the waters of the Thompson from the Burdekin, destroyed nearly one-third per cent. of the sheep which passed through it. The cattle were not so much affected, but still a very heavy loss was incurred. I think I am within the mark when I state that 250 head of cattle, and 10,000 sheep, besides a few horses and working bullocks, were destroyed by this plant. In fact, it seems fatal to all; and my description of it to old colonists is: compare it with a bush which the aborigines of South Australia use for poisoning fish. The growth of the plant varies, but it seems to reach perfection when 6 feet high. It is found upon the most barren ridges and rises, in soil of a light brown colour, and of a slaty description. The bush may be easily discerned in the distance by its very green, fresh-looking appearance. Care should be taken not to camp within easy access of it. The blossom is of a dark red colour, and similar in shape to the Pea or Indigo flower."

It may interest you to learn that the preceding paragraph, written by a correspondent of the *Northern Argus*, refers to Gastrolobium grandiflorum (Fragm. iii., 17), the only species as yet known out of S.W. Australia, and as poisonous as G. bilobum, G. calycinum, G. Drummondii, and G. oxylobioides. Since Mr. T. M. Stuart, the famous explorer, found the plant near the Roper River, in Arnhem's Land (Widrington Range) it is to be feared that this poisonous species extends a long way through the interior of tropical Australia, although I did not meet with it on any of the lines of my investigation. *Ferd. Mueller, Melbourne, July* 25.

Societies.

Royal Horticultural: *Oct.* 19 (*Fruit and Vegetable Show.*—The fruit shown on this occasion, though not remarkable as regards quantity, was all that could possibly be wished with respect to quality. Grapes, both black and white, were wonderfully fine. Pears, especially an exhibition of six dishes from her Majesty's Garden at Frogmore, were in excellent condition. Among Apples were magnificent specimens of Emperor Alexander, possessing a colour equal to that of a Géant des Batailles Rose, and measuring 13 inches in circumference; Mère de Ménage, six fruits of which weighed no less than 6lb. 10 oz., measured 14 inches in circumference, and had a skin like that of a purple Aubergine; Blenheim Orange and King of the Pippins, also large and fine in colour, as was indeed most of the fruit shown at this meeting, a circumstance doubtless attributable to the continental summer with which we have been favoured. Pine Apples were scarce; the best by far was an example of Smooth-leaved Cayenne from her Majesty's Garden at Frogmore. We also noticed one or two goo specimens of Black Jamaica and Enville.

Grapes, as has just been stated, were magnificent. Next to the glorious examples of Barbarossa shown from the Society's Garden at Chiswick, of which separate notice will be found in another column, must be placed an exhibition of three bunches of Muscat of Alexandria, from Mr. Meads, gr. to Raikes Currie, Esq, Minley Manor, near Farnborough. These were large, both in bunch and berry, and possessed that beautiful golden tinge which is the distinguishing characteristic of first-class fruit of this variety. The three bunches weighed together 11 lb. 13 oz. From Mr. Pottle, gr. to B. D. Colvin, Esq., and from Mr. Ingram, gr. to J. J. Blandy, Esq., also came large and fine fruit of this kind of Grape. Vines in pots, laden with fruit, were furnished by Messrs. Lane & Son, of Great Berkhampstead, who had also very fine examples of Grapes in a cut state. Among the latter were beautiful bunches of different kinds of Black Hamburgh, Golden Hamburgh, Buckland Sweetwater, admirable examples of Muscat Hamburgh, Esperione, Black Prince, Lady Downes', and others well ripened and altogether quite a credit to all concerned in their management. From Mr. Potts, gr. to M. Philips, Esq., came beautiful bunches of Barbarossa, three of which weighed together 12¾ lbs. From Mr. Meads also came very fine bunches of Black and Muscat Hamburgh, three bunches of both of which weighed nearly 9 lbs. Finally, from Mr. Ingram came beautiful examples of Grapes from the great Vine at Cumberland Lodge, which fills a house 138 feet in length and 19 feet in width. Its produce this year is excellent, and of even superior to that of former seasons.

Of Apples, six fine dishes were furnished by Mr. Ford, gr. to W. E. Hubbard, Esq., Horsham, Sussex. The sorts consisted of Adams', Scarlet, and Red Pearmain; Ribston Pippin, very fine Cornish Gilliflower, one of the best of all Apples as regards flavour; and beautiful examples of Blenheim Orange. From Mr. Ingram, gr. to her Majesty at Frogmore, came Fearn's Pippin, Scarlet and Frogmore Nonpareil, the latter a good Apple, which will keep from this time till March; Court Pendu Plat; and Gipsy King, a valuable yellow-fleshed variety, good from November till June. From Mr. Lane, St. Mary's Cray, came Ribston Pippin, Bull's Golden Reinette, Summer Nonpareil, Cornish Gilliflower, Blenheim Orange, and King of the Pippins. Mr. Buster, Goring, near Worthing, furnished Golden Reinette, Carl's Seedling, King of the Pippins, Blenheim Orange, Court Pendu Plat, and Celini. In collections from other growers we noticed Hughes' Golden Pippin, Besspool, and Sturmer Pippin, all excellent of their kind. In groups of three dishes the best came from Mr. Ford, who contributed what was labelled Golden Reinette, Blenheim Orange, and King of the Pippins; Mr. Hall, gr. to Captain Tyrrell, showed Blenheim Orange, Cox's Orange Pippin, and Ribston Pippin. From Mr. Lane came Fearn's Pippin, Winter Queening, and Scarlet Pearmain. Among Kitchen Apples the best were communicated by Mr. Scrymger, gr. to R. Palmer, Esq., Holme Park, near Reading. The sorts were the finely-coloured Emperor Alexander mentioned above, Yorkshire Greening, and Blenheim Orange. Mr. Lee, gr. to Viscount Combermere, furnished the large specimens of Mère de Ménage, Flower of Kent, and Blenheim Orange. From Mr. Sayers, gr. to E. Ellis, Esq., Epsom, came Gravenstein, Mère de Ménage, and Alfriston. Mr. Lane, St. Mary's Cray, furnished Waltham Abbey Seedling, Blenheim Orange, and Gloria Mundi. Mr. Moffat, gr. to Viscount Maynard, sent Dumelow's Seedling, Blenheim, and New Hawthornden. Among other sorts of Kitchen Apples we noticed Hollandbury, Fall Pippin, Hoary Morning, Golden Noble, and Rymer. A collection, consisting of 120 varieties of Apples, was contributed from the Society's Garden at Chiswick.

Among Dessert Pears the best came from Mr. Ingram, gr. to her Majesty at Frogmore, who furnished large handsome fruit of Van Mons Leon le Clerc, Beurré Diel, Beurré Clairgeau, Queen Victoria, a variety of which we have spoken favourably in former years; Glou Morceau, and Chaumontel. Mr. Scrymger sent Marie Louise, Beurré Rance, Vicar of Winkfield, Beurré Diel, Glou Morceau, and Beurré Bosc. Mr. Ingram, gr. to J. J. Blandy, Esq., contributed Beurré Bosc, Van Mons Leon le Clerc, Beurré Diel, Duchesse d'Angoulême, Marie Louise, and Glou Morceau. In the class of three dishes, the best came from Mr. Sage, gr. to Earl Brownlow, Ashridge, who sent Beurré Rance, Glou Morceau, and Duchesse d'Angoulême. From Mr. Ford came Thompson's, Marie Louise, and Glou Morceau. Mr. Lee furnished Styrian, Beurré Diel, and Marie Louise. From Mr. Wilcocks, gr. to S. M. Aynsley, Esq., came Beurré Diel, Marie Louise, and

Duchesse d'Angoulême. In groups from other growers were fine specimens of Seckel, Beurré de Capiaumont, Beurré Hardy, Brown Beurré, Gansel's Bergamot, Urbaniste, and Knight's Monarch. Of Kitchen varieties the best came from Mr. Bentley, gr. to Lord St. Leonard's, Thames Ditton, who furnished Beurré Langelier, Catillac, and Beurré Rance. From C. Hadden, Esq., Berkhampstead, came Black Pear of Worcester, Uvedale's St. Germain, and Catillac. Mr. Masters, West Hill, Highgate, sent Uvedale's St. Germain, Easter Beurré, and Catillac. From the Garden of the Society at Chiswick came a collection of 80 varieties of Pears, chiefly from Standards.

Of Figs excellent Brown Turkey came from Mr. Sayers, gr. to E. Ellis, Esq., Epsom, and good Lee's Perpetual from Mr. Rogerson, gr. to E. B. Brown, Esq., Acton.

Of Currants, both Red and White, there were some very fine examples of well retarded fruit. The best came from Mr. Tivey, gr. to L. Ames, Esq., The Hyde, near St. Alban's; Mr. Ford and Mr. Ingram, of Frogmore, also both contributed good dishes of Currants.

Plums from Messrs. Mobbs, Sayers, Beasley, and Lane, were good for the season. The sorts were chiefly Coe's Golden Drop, and Ickworth Imperatrice.

Peaches were confined to the Salway, a yellow variety, fine-looking fruit of which came from the Royal Gardens, Frogmore, and from Mr. Ward, of Oxford.

Melons were scarce. The best was Meredith's Hybrid, a scarlet-fleshed kind, excellent in flavour.

Cherries consisted wholly of Morello, good dishes of which were furnished by Mr. Williams and Mr. Potts.

Among Miscellaneous Fruit we noticed Oranges and Citrons, Quinces, Dutch Medlars; Wax Apple, a small orange-yellow sort; Cuthill's Black Prince Strawberry, gathered from plants in the open ground in Buckinghamshire; Eugenia Ugni, and Cydonia japonica. Some of the last were nearly as large as a middling-sized Apple, but by no means handsome, either in shape or colour. From Sir Wentworth Dilke, Bart., came a dish of good Blenheim Orange Apples; Mr. Fleming sent from Cliveden handsome fruit of the Gravenstein; and from Mr. Kaile came very highly coloured examples of Fearn's Pippin.

Vegetables were not very plentiful. The best Kidney Potatos came from Mr. Moffat, gr. to Viscount Maynard. They consisted of Flesh-skinned Kidney, Royal Ashleaf, Imperial Kidney, Prince of Wales, and Lemon Kidney. The same exhibitor also contributed the best six round Potatos, consisting of Daintree's Seedling, Ten Week, Transell's Seedling, Pheasant's Eye, Devonshire Red, and Painted Lady. Among other kinds we noticed the Fortyfold, both late and early, York Regents, Red Robin, and Red Regent. Of one dish of Kidney (Lemon) the best came from Mr. Bentley, gr. to Lord St. Leonard's; and Messrs. Veitch received a First-class Certificate for a great white Cattle Potato of Continental origin called Chardon. The Garden of the Society at Chiswick also furnished an interesting collection of Potatos.

Onions came from Mr. Whiting, Mr. Scrymger, and Mr Masters. The sorts were apparently the Reading and Strasburg.

Of Carrots, medium-sized clean skinned specimens came from Mr. Whiting and Mr. Drewitt, and of White Belgian samples were furnished by Messrs. Veitch.

Of Salsify and Scorzonera, fine roots were contributed by Messrs. Drewitt, Morris, and Whiting.

Turnips of the White Stone kind came from Messrs. Ford, Drewitt, Sayers and Whiting.

Beet, apparently the Fine Apple variety, came from Messrs. Whiting, Drewitt, Young, and others.

Of Broccoli, were some very white heads of Walcheren, from Mr. Whiting and Mr. Ford.

Among other vegetables we noticed very good Parsnips; very fine curled Parsley from Mr. Drewitt; Peas from Mr. Tivey; Incomparable White Celery from Mr. Whiting; Purple Aubergines from Mr. Potts; a Mammoth Gourd — weighing 123 lb. — from Mr. Young; finely-curled Endive from Messrs. Veitch; Dwarf green curled Savoy from Mr. Young; Early Dwarf York Cabbage from Mr. Ford; Giant Brussels Sprouts from Mr. Scrymger; ordinary Tomatos from Mr. Morris, and a small Pear-shaped Tomato from Mr. Salter. We also noticed dishes of Mushrooms from Mr. Young and Mr. Rogerson.

For a list of the awards on this occasion see p. 1009.

Entomological: *Oct.* 3.—F. Pascoe, Esq., F.L.S., President, in the chair. A collection of insects collected by Lieut. Beavan, including many rare species of different orders, was presented to the Society by that gentleman. Three species of Coleoptera of small size, belonging to the family Staphylinidæ, captured in Scotland by Mr. Sharp, were exhibited as new to the British Fauna. A box of insects collected on the coast of Brazil, from Rio to Monte Video, by Mr. Pullinger, R.N., was exhibited by Mr. Janson. Mr. Pascoe exhibited two curious Coleoptera belonging to the genera Atractocerus and Cyphagogus which he had received from Australia. Mr. Doran exhibited Botys annalis, a rare moth, captured at Lyme Regis in August last. Major Parry exhibited a case of Coleoptera collected at Gibraltar by his son; also a large weevil from Brazil, from which some long vegetable filaments of the genus Sphæria had grown. A memoir by Mr. Baly was read, containing descriptions of new species of exotic Phytophagous Beetles; and Mr. F. Bond stated that he had found the crops of partridges which he had shot filled with the larvæ of Agrotis segetum, which have this year proved so destructive to root crops all over the country.

Notices of Books.

British and Garden Botany; consisting of Descriptions of the Flowering Plants Ferns and Trees indigenous to Great Britain, with Notices of all Plants commonly cultivated in this country for use and ornament; preceded by an introduction to Structural and Physiological Botany. By Leo H. Grindon, Lecturer on Botany at the Royal School of Medicine, Manchester, &c. With numerous illustrations. London: Routledge Warne & Routledge. Small 8vo., pp. 869.

We look upon the plan of this book as a mistake. The volume is in truth neither more nor less than a British Flora, burdened with a very useless, because imperfect, account of a certain number of garden plants. Take in illustration of this last remark the following passage from the information on "garden plants" of the "Pea family:"—"Next to the Acacias come a multitude of pretty shrubs belonging to the genera Chorozema, Pultenæa, Eutaxia, Kennedya, &c., mostly with simple and often holly-edged leaves; and abundantly representing the papilionaceous part of the flora of Australia and southernmost Africa. Many of them are climbers or twiners, some are rush-like and nearly leafless; very odd and unexpected mixtures of colour frequently occur in their flowers, especially in the Chorozemas, and in many there is a dash of copper-brown, a colour elsewhere almost unknown." There is no further clue that we can find to Chorozema, for example, beyond that which points to the whole of the vast Leguminous order. Now, of what possible use can be such generalised gossip as this, in a book of reference professing to afford the means of ascertaining the names of the plants of which it treats. The book is really, as they say, neither fish, flesh, nor fowl, but a needlessly inconvenient and cumbrous volume. Besides, with Babington's and Bentham's works before him, no one can say that we have here the best account to be found of our British plants; indeed the arrangement, which occupies considerable space in working out the name of a plant by means of what are called analytical charts, a sharp critic would call mere muddle.

While we cannot then approve the plan of this book of British and Garden Botany, we are compelled to take a much more modest estimate of the merit of its execution than the author himself seems to hold, for he tells us in his preface, "that no work has ever been published in which the natural orders have been described in a way equally intelligible, or in which the idea and compass of the Natural System have been exhibited so fully for practical purposes." Surely with such an announcement we might look for correctness in the details of information given, but what do we find? We open the volume casually at p. 359, and there we read among other matters in illustration of the natural order Plumbaginaceæ—"Valoradia plumbaginoides, by some called Plumbago Larpentæ, is an annual from Shanghae"—a statement which any garden apprentice ought to be able to correct. Turning over to p. 395 we are told that "the gay autumnal flower called the 'Verbena' is the V. Melindres or hamædrifolia, a native of the neighbourhood of Buenos Ayres; the various colours it assumes render it a general favourite, as there is scarcely any contrast, except yellow, that it will not supply"—the fact being that V. Melindres has only a moderate share in the origin of our garden varieties, which have as much, if not more, of the blood of V. Tweediana, incisa, and teucrioides, to the latter of which Mr. Grindon erroneously attributes purple instead of pinkish white flowers. Opening again at p. 467, we find the author writing of what is evidently the plant called German Ivy, Senecio mikanioides, thus:—"Perhaps the best of this class [climbing composites] in cultivation is the Mikania scandens, not indeed in respect of its flowers, but as a foliage plant; the leaves are lobed Ivy-like, and of a most delicate and glistening light green," &c.,—the truth being that Mikania scandens is altogether a different thing. These are only a few random instances, but they do not convey a very favourable impression as to the authority of the statements made respecting garden plants.

Mr. Grindon, if we may judge from his Preface, prides himself on the practical simplicity of what he calls his analytical keys and charts. Some few cases wherein we have put them to the test work out very well; but it is hardly consistent in the author to condemn the analytical keys of his predecessors, because characters are employed derived from ripe fruits, and then, as in Geraniaceæ to wit, to make the ripe fruits furnish his own leading distinctions; nor can we at all agree with him that the character of "ovary two or more celled" is enigmatical in the case of such a plant as Solanum Dulcamara, though only seen in flower. Certainly, if found to be so, it is an enigma which a young botanist should lose no time in learning how to solve. The charts are not always clear if they are 'simple'; for instance, in the order Umbelliferæ, which almost above all others needs perspicuity, the primary sections are:—1. Abnormal species (*i. e.* in no respect resembling Conium (fig. 167). 2. Umbelliferæ of normal character, but with very striking individuality of feature or figure. 3. Normal Umbelliferæ with the leaves quasi-pinnate or simply pinnatifid, longer than broad. 4. Normal Umbelliferæ, with the leaves divided into 3—5—7 branches, &c. We can well imagine a student bewildered over this choice of alternatives. Surely too, Alexanders, Angelica, and Coriander, all put in Section 4, might reasonably have been looked for in Section 2—as much so at least as Fennel, Hemlock, or Celery which are placed there. In another of these 'simple practical' keys Centaurea nigra and C. Scabiosa are distinguished in part from C. Isnardi, by attributing to the two former crimson (!) and the latter purple flowers—rather a puzzling distinction we should think to those who can distinguish colours, and useless to those who cannot. And finally, passing on to the Ferns, among which we find such queer names as Rusty-back for Ceterach, and Centipede Spleenwort for Asplenium Trichomanes, we should be surprised indeed if any one skilled in the study of Ferns, much less a novice, were to find out the Holly Fern, Lady Fern, Beech Fern, Woodsia, and others by the leading character of "fronds simply pinnatifid or quasi-pinnate," under which they all appear.

To have been consistent with its title, this book should have included all popular garden plants in its tabular keys and charts, so that by its aid one might have worked out their names. Even then if kept of a portable size it must have been necessarily very incomplete. As it is, it is next to useless as a key to the names of garden flowers, and we cannot find a word to say in its favour.

In the *West of Scotland Horticultural Magazine* for last month, the question of exhibiting Azaleas is discussed. Gardeners who have toiled hard to get plants into form, and to have them looking their best on the day of exhibition, are quite indignant, it is said, at meddlesome critics interfering with their pet subjects, and are not slow in censuring what they call "unwarrantable attacks on first-class cultivation." As regards formality of training, it is urged that some tying is absolutely necessary, that a perfectly flowered plant must of necessity be formal, and that though uneven masses of flower may be less artificial looking, yet only the prominent parts of such plants will bear inspection in respect to the quality of the bloom. Then as to the necessity for more foliage to soften the glare of colour, it is shown that this necessity is admitted and acted on in every gentleman's establishment in the country. No gardener places all his flowering plants *en masse* in the conservatory, but introduces neutrals to soften the colours. There is something very grand, it is observed, at an exhibition, in a scarlet Azalea, 6 feet by 3, between two whites of equal dimensions; but the sight is too dazzling, and there is room for cavilling at want of arrangement, and justice in the outcry for green leaves. No one, however, can lay the blame of this at the exhibitor's door. He has done his duty; the work of several years is there to testify to his skill, and the only thing that is wanted to make the plants look more pleasing is the introduction of some of the graceful New Zealand Tree Ferns, which are now so much grown, or light green foliage, such as is to be found in some of the Palms, Cycads, and other ornamental plants to be seen at every show, but often placed anywhere but in the right position. The writer concludes that it is in the arrangement of the plants at our exhibitions that the fault lies, not in their cultivation or even in their training; and in this opinion we agree. There is in this same number a good account of the gardens at Castle Kennedy.

An article on Potato Culture in the *Scottish Gardener* contains the following passage, corroborative of the experiments of Mr. Maw, recorded at p. 1011:—In the selection of sets, there is no greater mistake than that of selecting small sets or of cutting large ones. I have proved this over and over again, and any one can do so, by planting a quarter of Potatos, beginning at one side, and planting a row of very small sets, then a row a size larger, and so on till the largest size is planted. It will be found at harvest time, that the small sets give the greatest proportion of small fry, and the largest will give the finest yield; in fact, the sample will be found according to the size of the sets, the largest having by far the heaviest crop of fine Potatos. Mr. D. Thomson considers Mrs. Pollock and Queen of Queens Pelargoniums, two of the finest bedding-plants of recent introduction.

The *Florists' Guide* for the months of September and October, contains amongst other articles a notice of the floricultural career of Richard Headly, Esq., intended to accompany his portrait, which however has been accidentally delayed. A well-merited tribute of praise is paid to the achievements of this gentleman amongst Auriculas, Pinks, Carnations, Picotees, Dahlias, and especially Tulips, of all which and many others he has been a most enthusiastic and successful grower and raiser, so much so as to have earned the distinction of being regarded as our leading amateur florist.

In the *Geological Magazine* for October is an interesting paper by Mr. S. P. Woodward, on the nature and origin of Banded Flints. The origin of these flints has been a puzzle to stone-breakers for the last 50 years. Those with the furrowed surface were

considered by Parkinson to be the wrinkled and petrified remains of the peduncle of the Duck-barnacle. Dr. Bowerbank considered them fossilized sponges—an opinion which few have shared with him. When slit and polished, the banded portions show no microscopic peculiarity to distinguish them from the adjacent unbanded flint, and no organic structure, save where they invade the texture of a sponge, or envelope Foraminifera, so-called Xanthidia, and other minute organisms with their hazy shroud. Mr. Woodward believes he has conclusive evidence that the coloured bands in flints are produced by infiltration, as taught by the late Professor Henslow. The paper is illustrated by two lithographic plates.

The *Botanists' Chronicle*, in reference to two rare Essex plants, remarks that Bupleurum falcatum grows plentifully on both sides the road from Chelmsford to Ongar, on the banks and in the hedges of several fields adjoining Norton Mandeville, and is extending its boundary in the direction of Chelmsford. It certainly increases by seed, and probably by its roots. Lathyrus tuberosus has a greater area than the Bupleurum. It grows in at least 10 or 12 fields in the parish of Fyfield, sometimes at the borders, sometimes at the centre, sometimes in contiguous fields, and sometimes in fields a mile apart. This year being both dry and hot, this Lathyrus, which has never before been known to produce pods, has been met with in fruit. A white-flowered variety of Epilobium hirsutum is recorded as plentiful at Southend, the corolla being pure white both inside and outside.

Garden Memoranda.

Gardens and Pleasure Grounds of Blythswood.—Blythswood, the seat of R. Campbell, Esq., is situated on the banks of the Clyde, immediately contiguous to the burgh of Renfrew, and about seven miles from Glasgow. The mansion, which is of comparatively recent erection, is in the modern English style of architecture, and presents a pleasing outline, although the lower suites of rooms are somewhat buried, owing to the low position selected for its site. The dress and pleasure grounds, which cover an extent of 30 acres, are in an admirable state of keeping, and are made up of a combination of those features which are generally aimed at in all landscape gardening. There are not the quantities of venerable trees which one sometimes stumbles upon in fine old baronial pleasure-grounds; but there is a sufficient number standing out in prominent places to give a furnished appearance to the landscape. Elm, Lime, Ash, and Sycamore predominate. Considerable attention seems to have been paid to the introduction and cultivation of Coniferæ, for not only are they to be seen standing out boldly as lawn plants in pairs to match, but here and there, in well chosen spots, irregular clumps and beltings of trees have been planted with the view of affording protection and shelter to the most decorative of those which have been proved to withstand the rigours of a northern climate. The importance of such belts cannot be overestimated, for we are all aware that some sort of shelter is absolutely necessary, even in more favoured localities than the one in question, to produce symmetrical specimens. Among the many sorts grown, the following are remarkable for luxuriance, viz., Wellingtonia gigantea, Abies Nordmanniana, Pinsapo, and nobilis, Araucaria imbricata, Cupressus Lawsoniana, and Thuja gigantea, and borealis. Of Rhododendrons, which are in robust health, there is a splendid assortment. The approach drives and walks are in the opinion of some persons too narrow, giving a contracted appearance to a park and pleasure grounds of rather extensive dimensions.

The flower, kitchen, and fruit gardens lie together, forming as a whole an irregular outline, surrounded by beltings of trees, flanked with underwood of Rhododendrons and other choice shrubs, of which may be mentioned the fine showy fruited Cratægus Pyracantha, and the sweetly [pretty flowered Cydonia japonica. The flower garden proper is of crescent form, and during our visit was very gay with bedding plants. It is not one of those formal gardens which are so designed as to present a blaze of colour without a relief point for the eye to rest upon. Choice shrubs and Conifers are introduced upon a Grass groundwork, and present an individuality which is pleasing after inspecting the arrangement of masses of colour in the respective figures. There was the usual amount of scarlet, yellow, white, purple, &c., which is to be seen in all modern flower gardens, produced by such things as Pelargoniums, Calceolarias, Gazanias, Cerastium, Alyssum, Lobelias, and Verbenas. Gazania and Lobelia mixed, as here grown, makes an admirable combination. Simplicity of design in the first instance, with a few colours well arranged, and planted correctly with material suitable as to size, is in most instances far more effective in the end than numerous geometrical figures of a complicated character, however well planted. Were this more studied, and suitable Coniferæ and other handsome plants made proper use of, less complaint would be made against the modern system of flower gardening.

The kitchen garden is large and commodious, and is surrounded with a lofty substantial brick wall. Upon the north wall is built a range of fruit houses of about 330 feet in length. In the centre of this range are three Vineries, each about 34 by 16; while on the one side are three Peach-houses, each about 34 by 10; and on the other, one Peach house, two Apricot houses, and one Fig house. The Vineries, especially those houses that are planted afresh and the borders renewed, are in very good order, showing good strong short-jointed canes. The Peaches are fully above the average, bearing large crops. The Apricots are of recent introduction, but, judging from the state of growth, they are likely to produce plenty of fruit buds. Figs are in extra fine order, the fruit gathered being both large and good. The wall trees, especially Plums and Pears, are in excellent order. Peaches and Apricots have never done so well in the more exposed localities of Scotland since the severe winter of 1861-2. In many places the old trees were all but killed. Young trees planted since have done moderately well; but there is a general disposition among fruit growers here to have walls covered with glass to insure a first-rate crop of good quality. Young Peach trees at Blythswood are in fine order. One thing is particularly well managed, viz., the standard Pears and Apples. Mr. Ross, the gardener, has certainly made the most of the trees he planted some eight or nine years ago. With careful attention to root-pruning and lifting, these trees now present a fruit-bearing tendency of no ordinary kind. Unlike numbers of those we have seen at even places of note, they have been allowed to get up to a very convenient size, and this season, which of course has been a favourable one, they are loaded with fruit. They are planted in rows round the borders of the principal walks, and are quite a treat to look upon. Foremost among those doing so well in our West of Scotland climate may be named among Pears—Beurré d'Amanlis, Beurré de Capiaumont, Beurré Diel, Beurré Langelier, Beurré Superfin, Beurré Rance, Bon Chrétien, Fondante, Citron des Carmes, Doyenné d'Été, Duchesse d'Angoulême, Forelle, Glou Morceau, Gratioli, Leon le Clerc, Louise Bonne of Jersey, Marie Louise, and Monarch (Knight's). Among Apples, the following were in fine bearing order, viz.:—Golden Pippin, Yellow Ingestre, Cornish Aromatic, Yorkshire Greening, Early Red Margaret, Irish Pitcher, Tam Montgomery, Paradise Pippin, Stone Pippin, Scarlet Nonpareil, Stirling Castle, Beauty of Kent, Cambusnethan Pippin, Lemon Pippin, and Keswick Codlin.

Leaving this garden, we enter a square block, upon which the various plant-houses have been built. To enumerate all the leading plants grown here would occupy too much space. In the two stoves, one measuring 35 feet by 18 feet, and the other 30 feet by 12 feet, there are numerous fine flowering and foliage plants, all in excellent health, many of which have been exhibited in Glasgow time after time. There is also a damp stove, 31 feet by 21 feet, well filled with decorative plants and Orchids together; as well as a dry house for Cacti, 26 feet by 10 feet. Fronting these are ranges of Pine pits, to the extent of 90 feet by about 9 feet wide, filled with vigorous plants, some of them bearing large well formed fruit. Of Melon and Cucumber pits there is a range at least 120 feet long and 10 feet wide, besides numerous cold pits for vegetables, bedding plants, &c.

The Conservatory in the flower garden is a well proportioned useful house for plant culture and plant showing, measuring 50 feet long by 27 feet wide. It was well filled with flowering plants. The greater part of the front stage contained Heaths, of which there is a good assortment, consisting of good plants of perspicua nana, Archeriana, Aitoniana, Turnbullii, Macnabiana, and others. There is also a good variety of other hard-wooded plants. The wood and glass work appeared to be substantially put up, and the general design, although plain, very neat. The heating is particularly well done, there being hot-water pipes, and sufficient of them to keep up a steady and lasting heat without having to resort in very cold weather to extreme firing, which is not at all desirable, either as a matter of economy or convenience. Much credit is due to Mr. Ross for his general good management, and to the critical taste and generous disposition of his worthy employer, Mr. Campbell. *M.*

Miscellaneous.

Fuchsias.—I wonder what old Leonard Fuchs would say if he were to rise from his grave in this year of grace 1864, and see the improvement made in the Fuchsia he brought from Chili, of which he said:—"The handsome form of the pendent flowers, their vivid colours, and the numbers which successively adorn the branches, will render this flower a beautiful ornament to the conservatory or parlour window." Looking back a very few years, I remember when the old longiflora, globosa, and then gracilis, were considered the gems of their tribe; but now one scarcely ever meets with either; the march of improvement has trampled them down in the estimation of the florist, and raised up almost numberless varieties, of nearly every conceivable shade of colour. I happened the other day to be in the neighbourhood of one of our large Fuchsia growers of the south, with a few minutes to spare, and I made up my mind to see the latest out. An obliging foreman very quickly introduced me to the hall where the representatives of old Fuchs held their court. As the eye encountered the "blaze of beauty," it was at once fixed upon a well-grown specimen of the new variegated Pillar of Gold, a rich golden variegation, with olive-green ground, the midrib and lateral veins being of a deep crimson colour, strongly marked, and heightened by its contrast with the golden colour of the leaf. The flower is of a medium size, violet purple corolla, scarlet crimson tube and sepals, the latter being well reflexed, and of good form and substance, the fine dark colours of the flowers appearing to great advantage against the brilliant auriferous foliage; it has obtained the certificate of the Horticultural Society. Gem of the North is a remarkably fine flower, with shaded crimson tube, and sepals of great width and substance, deep purple corolla, well reflexed, of good form, and destined, I think, to be a leading exhibition variety. Queen of Beauties, a first-class light Fuchsia, tube and sepals pure white, very broad, and of great substance, well recurved, exposing a bright rose-shaded crimson corolla. Minotaur, with glossy carmine sepals and monstrous double corolla, so formed as to show three corollas in one, of a lavender blue colour, really very pretty. Neptune, a large handsome double kind, with a bluish violet corolla, bright crimson tube and sepals, a well-proportioned flower, of good branching habit. Sunshine, rosy lavender, or mauve-coloured corolla; sepals pure carmine rose, finely reflexed, quite an acquisition. Amongst a large stock of varieties sent out in 1863, Empereur des Fuchsias, Hercules, and Madame Legrelle d'Hanis showed very prominent and striking. *Florists' Guide.*

A Word on Behalf of our Sea-Fish.—Sea-fish have innumerable enemies, and whilst the destruction, by millions, of herrings and mackerel in full roe is permitted and even encouraged by law, it is unreasonable to expect the stock of sea-fish to increase. For every female herring or mackerel destroyed whilst in roe, 500,000 ova perish, and whilst the salmon, trout, perch, and all freshwater fish are protected by Act of Parliament, there is no protection whatever for our sea-fisheries. The remedy is very simple. Let it be made illegal to destroy sea-fish whilst breeding, that is, give them a couple of months' immunity, and the supply of a good wholesome article of food for the poor man will be increased a hundred fold, and fish will be procurable in the London market at a tenth part of the present price. The subject is well worth the attention of the Legislature, and he will deserve well of the nation who shall first call the attention of Parliament to so important a matter, and one in which there is room for such a vast improvement. *Once a Week.*

Coloured Vision produced by Santonine.—"Semen contra vermes," or simply "Semen contra," is the name given to the mixed flowers and seeds of Artemisia judaica, a plant of Arabia and North Africa. In commerce there are various kinds of Semen contra. The French and Belgians call it sometimes Sementine or Barbotine. Artemisia Contra is another plant which furnishes it. These plants are met with also in Tartary and Persia, and are cultivated in our gardens. The semina santonici, or santonicum of pharmacy, is a powdery substance, with a strong aromatic odour and very bitter taste, resulting from the breaking up or coarse pulverisation of the flower heads and stalks adjoining; the flowers being partly gone to seed, the whole is a mixture of seed, flower-stalk and leaflets. This product is taken internally to kill intestinal worms, at a dose of about 1 drachm in powder alone, with honey or otherwise, repeated two or three times a day; and when it has been continued for some days, a strong purgative is administered, which completes the cure. Artemisia Absinthium, another plant of the same family, and in general, all the Wormwood tribe, possess more or less the same medical properties. In England we have a number of Artemisias, known as Wormwood, Southernwood, and Mugworts. All these plants contain the peculiar principle called santonine. The most curious property of santonine is certainly its physiological effect upon the vision. Experiments were made upon this peculiar action, almost at the same time, by myself and by M. de Martini, of Naples. At a quarter past 2 o'clock, on the 5th of February, 1859, I took five grains of santonine, and waited anxiously for the desired effect, namely, the production of coloured vision. For a considerable time I experienced nothing extraordinary, and began to think the experiment a failure. About 5 o'clock, however, I fancied that the white curtains of my room had a very pale greenish tint. I attributed the effect to imagination, and went out. At 6 o'clock I returned, the gas was lighted, and the fire burning brilliantly on the hearth; a singular phenomenon now presented itself. The fire and the glass globes which surrounded the gas jets appeared of the most gorgeous yellow it is impossible to imagine. It was a greenish-yellow, exceedingly rich and brilliant, resembling some kinds of burnished gold. It was the colour of chlorine gas, but much more intense. I communicated these effects to the persons near me, who, seeing the objects as usual in their natural colours, could not realise what I experienced. Everything in the room that was white and strongly lighted (as the table cloth for instance) appeared to me of the most brilliant greenish-yellow, the flames of the gas jets and the fire were most remarkable in this respect. The other objects of different colours, red, blue, yellow, appeared still red, blue, or yellow; it was only white objects and flames that appeared of that peculiar greenish yellow tint alluded to; but, doubtless, all tints must have been more or less affected by the state of my vision. It is, perhaps, needless to add that I experienced no disagreeable effects, at least not at the

time I experienced coloured vision, though some time before I felt slightly bilious. These effects continued without intermittance during the rest of the evening; they began to diminish about half-past 10, but were very distinct, though weak, at 12 o'clock, and even until two o'clock at night, when I retired to rest. The next day all effect had disappeared. The santonine employed in these experiments was extracted from Artemisia santonica or judaica, and was absolutely pure. M. de Martini made several experiments upon his patients and his pupils, in order to ascertain whether the coloration of vision by santonine was the same for every person, and whether the dose had any influence upon the colour seen. The results obtained are certainly remarkable. An invalid, who was taking santonine as a vermifuge, invariably noticed about 20 minutes after the prescribed dose had been administered, all external objects of an intense green colour; whilst a student, M. Cassano, constantly saw objects of a blue colour. But in the great majority of cases it was observed that persons who had taken santonine saw external objects of a straw-yellow or greenish-yellow tint. The dose appears to have a very decided influence upon the results. A young man who took five grains of santonine in the solid form saw external objects of a yellow colour; the dose was then doubled, and 36 minutes afterwards, objects no longer appeared green or yellow, but perfectly red; half an hour later they appeared bright orange, and later still, yellow as before. With M. Cassano, whether he took five grains or 10 grains, external objects always appeared to him of a bright blue colour, while his fellow student M. Pedretti saw objects always straw-yellow. Another curious fact was observed, which I have looked for in vain when experimenting upon myself, namely, an intermittence in the effects of coloured vision. As to the cause of this peculiar action of santonine, M. de Martini believes that it exercises a molecular action upon the retina or optic nerve; others, among whom are M. Miahle, of Paris, think that, on being introduced into the system, it induces a momentary bilious condition, which passes off in the course of the day. But it is far more probable that santonine is transformed into a new substance of an intensely greenish-yellow colour, to which I gave the name santoneine (obtained by boiling santonine with nitric acid). Admitting that it gets into the blood as the greenish-yellow substance santoneine, it is no longer so difficult to account for the production of coloured vision. The retina, or expansion of the optic nerve, is a translucid membrane which receives numerous branches of the ophthalmic artery, and sends a branch to the transparent vitreous humour of the eye, so that the ingestion of santonine colouring the serum of the blood, the latter is capable of colouring the transparent media of the eye sufficiently to produce the effects described. In the present state of our knowledge of the chemistry and physiology of santonine, this appears to me the only manner in which we can at all account for the production of coloured vision, for santonine does not appear to have any action whatever upon the nerves. *Dr. Phipson, in Intellectual Observer.*

Calendar of Operations.

(For the ensuing week.)

OWING to the wonderfully fine weather with which we are favoured, flower gardens are still comparatively gay. The beauty of the Pelargoniums, especially Cybister and Stella (Nosegays), is as yet in some places but little impaired; a small-flowered single yellow French Marigold is still in charming condition, as are likewise Dahlias, most of the Verbenas, and Gazania splendens. Keep all in connection with these outdoor floral decorations therefore neat and clean, so as to set them off to as much advantage as possible. Let weeds, still troublesome, be removed both from borders and walks, and keep the latter well rolled. All preparations for bulb planting should now be forwarded as much as possible, in order that active operations in reference to these matters may be commenced as soon as frost has put an end to the beauty of the bedding plants.

FLOWER GARDEN AND PLANT HOUSES.

In cool conservatories and greenhouses damp or insects soon do irreparable injury to soft-wooded plants at this season, and these must be attended to if the plants are to be wintered in first-rate condition.

CALCEOLARIAS.—These are subject to the attacks of thrips, unless afforded a moist atmosphere; they must therefore be narrowly watched, and fumigated lightly two or three evenings successively if this pest makes its appearance, keeping the atmosphere moist and giving air on every favourable opportunity to prevent the foliage from flagging.

CINERARIAS.—Plants for late blooming must now be kept cool and airy, and should not be allowed to suffer from want of pot-room. These must not be trusted in cold pits after this season, for they cannot endure frost without injury. Plants intended to flower early should be encouraged with a gentle heat, keeping them near the glass and admitting air whenever it can be done safely.

CROCUSES.—These may be planted whenever the weather is favourable, provided beds are ready for their reception; they like a deep, light, rich sandy soil, but will thrive in an ordinary soil or situation. In planting, the bulbs should be covered from 2 to 3 inches with fine mould; and if an effective display during the first season is desired, plant thickly—not more than 2 inches apart. For edging borders and beds the Crocus is exceedingly useful; and, where planted in lines along the margin of walks, or in clumps of 3, 6, 12, or more bulbs each, and allowed to remain in the ground for several years, the effect of the masses of flower which they produce is all that can be desired. We have seen a very effective display in a flower garden in March, produced by each bed having a broad edging of Crocus, the colours being nicely arranged and contrasted. This may be secured without interfering with either the spring or summer occupants; for the bulbs may be planted close to the outside of the bed, where they will scarcely be in the way, either in digging or in planting. Unless the bulbs become too numerous, and the leaves spread over more space than it may be desirable to have covered with them, they should not be disturbed, as they bloom more profusely when well established. Care must be exercised, however, to protect them from mice, which are exceedingly partial to Crocuses, especially in winter.

HYACINTHS.—For blooming in-doors, either in pots or in any of the various contrivances that are used instead of pots, strong bulbs should be selected and planted in succession; place them in any dark cool situation for three or four weeks, to allow of their making roots, before exciting them into growth. If pots are used—and these are doubtless the best, if not the most ornamental—use good rich, sandy soil, and secure perfect drainage; for a liberal supply of water is required during the blooming period, and if the drainage is defective, the soil is very apt to become soddened.

PELARGONIUMS.—These should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that all superfluous moisture may be dried up before the evening, avoiding the use of fire heat except when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air.

ROSES.—Examine those on pillars and trellis, and if the weather continues favourable see if the soil wants renewing or the kinds changing. For choice sorts roomy holes should be made capable of containing three or four barrow-loads of well prepared soil. Turfy loam of good quality is the chief thing; to this add a portion of rich rotten manure, and, if at hand, a little sandy peat or leaf-mould.

FORCING GARDEN.

CUCUMBERS.—Look sharply after woodlice, which sometimes do much mischief in little time to young plants. A cooked Potato put into a flower pot and covered with dry hay or Moss is a good trap. The best of all remedies, however, is Mr. Cuthill's plan of pouring boiling water round the insides of the pit or house close to the walls, care being taken not to injure the roots. Bearing plants in pots or boxes will now be benefited by being top-dressed with rich soil.

MUSHROOMS.—The Mushroom beds, made as directed in September, will now be bearing; it is a good plan to sprinkle or syringe the surface of the bed, a week or so before the Mushrooms make their appearance; more especially in Mushroom houses where a fire may have been used occasionally: this is far better than watering after the Mushrooms are through.

PEACHES.—Take advantage of rainy weather, should it occur, to prune, wash, and tie such trees as have not already undergone these operations.

PINES.—Water plants in pots as little as possible at this season. Where the general stock is grown in this manner it is a good plan to cover the pots over 2 or 3 inches with the plunging material; where the bottom-heat will permit that to be done it obviates the necessity of watering so frequently.

VINES.—Where forcing is commenced be careful to maintain a properly moist state of the atmosphere, and this must be especially attended to in the event of severe weather, particularly when the buds are bursting. The evaporating troughs must be kept constantly supplied with water, and the path, bed, &c., should be frequently syringed. If fermenting material is used for warming the border, this must be well covered with dry litter, and turned occasionally, adding some fresh material as may be necessary to keep the heat in the border regular.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground while the weather will permit these operations to be advantageously performed. This is particularly to be observed in gardens the soil of which is of a clayey character. Proceed with pruning fruit trees as soon as the leaves are fallen; let nothing of this sort remain till spring, which will bring its own labours. Get all superfluous nails and shreds drawn soon, in order to furnish in-doors work in bad weather.

ROOT CROPS.—Let all Carrots be taken up and stored away, likewise Beet; a few Parsnips for present use may be taken up; they will, however, keep well in the ground, and thus circumstanced they may have a coat of manure spread over them for the next crop and trenched out as wanted. Some recommend to cut the head of the Carrots completely off below the neck, thus checking their tendency to grow. They may then be put in pits like Potatos, raising a sharp ridge over them to keep out wet.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Oct. 19, 1864, as observed at the Horticultural Gardens

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 13	12	30.082	30.047	63	32	47.5	55	55½	N.W.	.00
Friday 14	13	30.007	29.999	60	28	44.0	54½	55½	W.	.00
Satur. 15	14	30.094	30.022	61	35	48.5	54	55½	W.	.06
Sunday 16	○	29.873	29.670	59	44	51.5	54	55	S.W.	.02
Mon. 17	16	29.652	29.612	61	45	53.0	54	55	S.W.	.6
Tues. 18	17	29.657	29.614	63	36	49.5	55	55	S.W.	.00
Wed. 19	18	29.351	29.028	65	40	52.5	55	55	S.W.	.03
Average.		29.815	29.713	61.7	37.3	49.5	54.5	55.2		.17

Oct. 13—Overcast; cloudy; cold at night.
— 14—Hazy; very fine, slight frost at night.
— 15—Clear; quite cloudless; very fine; rain.
— 16—Fine; very fine; fine at night; slight rain.
— 17—Cloudy; showery; mild at night.
— 18—Fine; exceedingly fine; overcast at night.
— 19—Very fine; fine; overcast; slight rain.
Mean temperature of the week ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Oct. 29, 1864.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 23	55.5	40.1	47.8	20	0.56 in.	3	2	1	3	4	14	8	3
Mon. 24	56.1	37.4	47.8	17	0.88	1	4	4	—	19	11	6	2
Tues. 25	55.7	38.6	47.2	18	0.80	4	6	6	3	4	7	5	3
Wed. 26	55.5	36.5	46.0	15	0.52	5	6	3	2	7	7	5	3
Thurs. 27	54.7	39.1	47.0	23	0.92	2	7	3	1	7	6	7	5
Friday 28	54.5	36.6	45.5	23	1.06	2	6	3	—	7	13	3	4
Satur. 29	53.5	34.3	44.2	18	0.63	4	7	4	1	5	11	1	2

The highest temperature during the above period occurred on the 28th, 1820, and 29th, 1833—therm. 67 deg.; and the lowest on the 23d, 1859—therm. 17 deg.

Notices to Correspondents.

APPLES: The following early sorts, and some that will succeed them, and tolerably early, will answer your purpose:—Early Harvest, Red Quarenden, Red Astrachan, Wormsley Pippin, Golden Reinette, Kerry Pippin, King of the Pippins, Ribston Pippin, Blenheim Pippin. The Wormsley, Ribston, and Blenheim Pippins will answer both for dessert and kitchen purposes. Better train as dwarfs.‖

BOOKS: *T W Clarke.* Glendinning or Hamilton on the Pine-apple—whichever may be procurable.

CUCUMBERS: *J W.* Your Cucumber roots appear to be perfectly healthy, and like yourself we cannot imagine what has made the two plants fail. It seems quite clear that you cannot account for their condition by anything wrong about the roots, and we have no data on which to found any decided opinion. *M. J. B.*

FUNGI: *J J R.* Your Fungus is the young state of a rare species, Thelephora biennis, which generally grows at the root of Oak trees, but appears first on the ground before it runs up the trunk. We do not think it likely to be injurious. It is figured by Bulliard precisely as you describe it. *M. J. B.*

INSECTS: *W. W. & Son.* Your Pear leaves are infested with the slimy larvæ of one of the Saw-flies, Tenthredo Æthiops, a small species with black wings, of which the history, with figures, is given in a former volume of the *Gardeners' Chronicle.* Lime-water is an excellent remedy against the larvæ.—*B C.* We could not find a single thrip on your Cucumber leaves, the blotches on which are most probably caused by improper treatment. *W.*

NAMES OF FRUITS: *J W.* 1, Court of Wick; 3, Wyken Pippin; 8, King of the Pippins; 9, Loan's Pearmain; 10, Dutch Mignonne; 11, Kerry Pippin; 13, Cockle Pippin; 14, Golden Russet.‖

NAMES OF PLANTS: *J F.* 1, Rhipsalis Cassytha; 2, Arthrolobium paniculatum; 3, Ficus repens; 4, Gymnogramma tartarea.—*C L Paxtonia.* Physianthus albens.—*William.* The berries appear to be those of the common Berberry, a native of this country, as nearly as we can tell without accompanying leaves.—*H W B.* Helianthus decapetalus.—*Tripolium.* The specimen is insufficient, but it appears to be near A. lævis. It has no doubt escaped from some garden.—*M J B.* We are somewhat at a loss in replying to your question about the Yucca grown in Battersea Park, several species and varieties being cultivated there in tolerable quantity, and the locality in the Park where that you noticed was growing, not being stated. Of hardy kinds Y. filamentosa, recurva, and gloriosa are grown; and of tender ones Y. aloifolia and aloifolia variegata; the two last were placed this season as single specimens on the Grass in the Sub-tropical garnen. The Œnothera is that known in gardens under the name of riparia.

PEAR SCALE: *Rusticus.* Scrape the branches with some blunt instrument that will not injure the bark, and then give them a good scrubbing with Gishurst Compound, mixed at the rate of one pound to a gallon of water, and put on with a stiff brush.

PELARGONIUM SPORT: *C D.* The flowers of your sported plant of Tom Thumb seemed to be blotched and shaded with rose-pink, which, if constant, must give them a very curious appearance, but they were a good deal crushed. The leaf, which, as you say, is very beautiful, has a well-marked golden blotched variegation. If permanent, this will form a very nice addition to the variegated Pelargoniums already known, from which it is quite distinct; but its constancy can only be tested by time. Many of our choice garden varieties have, however, originated in sports, in just the same manner as yours has appeared. We should advise you to raise some young plants from cuttings of the best-marked shoots, keeping the old plant also, of course.

SNAILS: *D.* The edible snail is that called Helix Pomatia. It is said to be peculiar to chalky and gravelly soils, and while some maintain that it has been introduced to this country, others regard it as indigenous. It is still regarded on the continent as a valuable article of food when boiled in the shell and eaten with rice; and in Switzerland and some parts of France, it is said to form a considerable article of commerce. The snails are kept in an *escargotoire*, or snaillery, which is generally a large boarded space with the floor covered half a foot deep with herbs, upon which the animals fatten. The ancient Romans are said to have fed them up to an enormous size. Our Correspondent is anxious to know in what localities this snail is found; by what exterior signs it is to be recognised; and whether there is any danger incurred in eating any other kind of snail. Will some one who is skilled in Helicology give him the information he desires? It is stated generally that the larger species of Helicidæ are all good food, but we have no experience.

STEWING PEARS. *W L Y.* Three excellent stewing Pears, and of fine colour, are the Chaumontel, Franc Réal d'Hiver, and Verulam; the latter stews of a splendid colour, without any artificial colouring matter, which should never be employed. If you send her this, in vain the cook may "vow that you have sent her the wrong sort."

TREE PICOTEE: *W Grove.* As sent to us the flower is too small; but the colours are pure, and the marking bright; so that if, as you say, it is a full-sized flower, it may be worth cultivating.

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THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.
President—His Grace The DUKE of BEAUFORT.
Vice-President—The MAYOR of BIRMINGHAM.
The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1.
Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1863, may be obtained from the Secretary. The ENTRIES CLOSE on NOVEMBER 1.
GEORGE BEECH, Secretary.
Offices: Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE	.. £794 10	BREEDING PIGS	.. £76 10
FAT SHEEP..	.. 299 5	CORN and ROOTS	.. 71 8
FAT PIGS	.. 60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	,, B.	For a Cow or Heifer (in any Class).
	,, C.	For a Beast in Extra Stock.
SHEEP.	,, D.	For a Pen of three Wethers (in any Class).
	,, E.	For a single sheep in Extra Stock.
PIGS.	,, F.	For a Pen of three Pigs (in any Class).
	,, G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 22, 1864.

It is a curious illustration of the diversity of farm practice and of agricultural opinion which prevails, that Societies should in one part of the country be offering prizes expressly for live stock fed on grain in addition to green food, and elsewhere for live stock fed on hay to the exclusion of either grain or green food. In Ireland we learn from the daily papers that the Royal Dublin Society have found a class of cattle to which justice has not been done, which has not received sufficient encouragement to grow fat,—namely, "out-fed cattle"—that is, cattle fed on Grass in the field, without the aid of artificial food of any kind. Hitherto they have stimulated competition only among the owners of stall-fed cattle—generally men of wealth, with whom the owners of Grass-fed cattle could not compete, though they supplied the market with the greatest number of animals for slaughter. Now, beef and mutton are very dear, and it is desirable to have them produced in greater abundance and of better quality. Besides, there is little demand for agricultural labour in the country, and it can only be increased by increasing tillage, and the question therefore is, how to render tillage more profitable. The grain which Ireland can produce best is Oats, but Oats are now only one halfpenny a pound, or 7*d.* a stone, which does not pay for cultivation, and thus tillage is going more and more out of use.

But if farmers with second-rate land, who are unwilling to compete with the wealthy owners of prime land in stall-feeding, can be induced to supplement their Grass feeding with Oats, and other kinds of artificial food, they will produce a greater quantity of beef and mutton of better quality, they will employ more labour, encourage tillage, improve their own circumstances, and increase the prosperity of the country.

Such is the gist of the considerations pressed upon the attention of a meeting held the other day at the house of the Royal Dublin Society, and ultimately it was resolved to add to the prizes already proposed to be awarded at the next winter show of the Royal Dublin Society the following prizes for out-fed cattle and sheep—10*l.* for the best three oxen, 10*l.* for the best three cows, 10*l.* for the best three heifers, 5*l.* for the best 10 wethers, and 5*l.* for the best 10 hogget wethers.

The effect of these prizes will be first to induce a riper condition in the cattle before they are brought to the shambles, and thus both economise food for beast and increase the store of it for man; and secondly, to add one more to the many considerations which ought to press upon the farmer before he lays his arable land down to permanent Grass, and on the landowner before he refuses the petition which tenant farmers in dairy and other districts are continually presenting for permission to break up an additional piece of pasture. We recommend those in Ireland and elsewhere who are for laying down all tillage lands and depending on live stock, dairying, and grazing, to read Mr. MILWARD'S excellent account before the Gowran Agricultural Society, given in another column, of his experience as a farmer of arable land in Ireland. His activity and energy in seizing upon every plan of diminishing expense and obtaining an increased return, together with the Dublin Society's proposal to the stock farmers of Grass-lands to use arable produce in the "finishing" of their beasts, ought to have a wholesome influence corrective of what is now certainly an excessive outcry against the plough.

But there is other produce of our plough lands still more important than the Oat crop to the breeder on our pastures. The great cost which the Grass-land tenant farmer incurs is in haymaking, which devotes one half the produce of the land to consumption in the most wasteful season of the year, and which at the same time involves what is generally a most unsatisfactory expenditure on labour. What, then, shall be thought of a prize list which we may contrast with that of the Royal Dublin Society, in which it is a condition that the cattle shall have been fed on hay and Grass only. If any one thing is clearer than another, it is that we must all depend upon an unusual consumption of straw this winter, sweetened and rendered palatable by cooking or by mixture with pulped roots and with meal and grain. But all these things are expressly excluded in the prize list of a Gloucestershire Agricultural Society. And a district which, more than any other that we know, would be benefited by the partial extension of arable culture—which, more than any other that we know, would benefit by an adoption of straw and roots for winter cow-food in place of the hay, which ought to be eaten green in summer air, and so converted economically and directly into cheese—is directed, if it would compete for the prize in question, to adopt the most wasteful style of management known to English Agriculture!

BARON LIEBIG'S letter on Town Sewage, given in another column, will be read with great interest and with some degree of disappointment. He declares in it that special instruction is needed by our farmers in the use of this manure, or "the labours of men like Lord ROBERT MONTAGU, Dr. BRADY, and others, will be lost." It is not a complete manure, and if it alone be depended on, then, as in the corresponding use of guano, "the same men who at first overrate its value will eventually curse its application." The fact is that sewage is deficient in phosphoric acid, and therefore though "on a soil rich (in its natural state) in phosphoric acid, it will have an excellent effect, producing for instance large crops of Grass, Turnips, and corn, if the soil supplies the quantity of phosphoric acid wanting in sewage, yet, as in each successive crop a certain quantity of phosphoric acid is abstracted, the total quantity in the soil is by the continual application of sewage gradually diminishing every year, and a time must come when the phosphoric acid is insufficient for further crops, and when sewage ceases to produce its former effects." Accordingly "for each crop the composition of the sewage ought to be corrected, according to the nature of the soil, by adding those ingredients which are wanting in sewage, and which the plants to be grown require in the largest proportion."

These words were not written by an agriculturist, but by a chemist; and by a chemist who is firmly convinced that "the natural laws which govern the permanent fertility of soils and the increase of produce are very little understood by the British farmer." British farmers can sit very contentedly under the criticism of their German friend. With all their ignorance they know how to grow more beef and bread per acre than any other body of agriculturists in the world; and we are inclined to think with them that it is not necessary for a man to understand the laws of percussion before he can successfully hit a nail on the head. But, indeed, this "ignorant" success seems to be an insular peculiarity of other occupations and engagements as well as agriculture.

Our engineers do not require a preliminary discussion of the whole theory involved in any operation before they undertake to do it. It is not necessary that every act directed by them should be consciously in accord with the whole range of physical truth as ascertained by the observation of ages, and arranged and classed by men of science. So long as the nail is driven home and holds they are satisfied. And our farmers, too, are more likely to follow the example of men who have done the thing, than take the advice of those who merely know how it ought to be done.

What then has experience hitherto taught us on the sewage question? In the first place it has taught us the immense advantage of getting rid of all this fœcal refuse; and so, contrary to all the relations of chemistry to agriculture, we are gladly sending every year from North London only, 100,000,000 tons of fertilising matter utterly to waste. In the next place it has taught us that the most successful growth of plants is achieved not by a particular examination and supply of the wants of each crop in succession, but by a liberal cultivation of the soil. Special manures are exaggerations of the time when Liebig first appeared as a teacher of agriculturists, and when it was supposed that an account current of the food supply could be accurately kept between the soil and the plant. We now aim at the maintenance of fertility by thorough tillage and by liberal manuring and by liberal stock-feeding; and we grow large crops of everything. And a great quantity of sewage, which must, if manure be food *minus* growth, contain most of what the soil has once already yielded, will undoubtedly help it to produce as much or more again. It does not contain all the elements of the food which comes into London. A portion of the phosphates consumed in bread and meat by every generation gets ultimately hoarded in the grave — but that is all that is abstracted from a lifetime's food: and so small a loss can hardly with propriety be made the subject of a solemn scientific warning.

Be this, however, as it may, and, lopsided as Liebig tells us that this manure must be, yet applied as experience tells us that it should be used in agriculture, its weakest side has superabundant strength. The Craigentinny meadows have yielded an increasing growth for a century or more, receiving nothing but the Edinburgh sewage, and yet being annually robbed of 40 or 50 tons of Grass per acre. And on the lower part of them, more recently reclaimed from the shore, where the Grass is literally battling with the sea-weed and the spray, and where nothing but sewage has been hitherto applied to the mere sea sand, the produce is bought yearly by the Edinburgh cowkeepers for 20*l.* and more per acre.

It is plain that Baron Liebig's letter has been written only in the interests of the scheme which proposes to utilise the sewage of London over many hundred thousand acres, whose small doses of the town waste must thus be supplemented according to recipes which can be "made out and put into the hands of every farmer using it." But we already have examples of successful sewage operations. At Craigentinny and at Rugby, at Croydon and at Watford, sewage is being converted into Grass and into milk with profit; and these, and not the theoretical considerations urged by chemists, will undoubtedly guide any future outlay of capital in the same direction. When the results already realised elsewhere shall have been thus achieved, it may then be time to try and realise the conceptions of the theorist, and by the refinements of scientific recipes endeavour to extend the fertilising influence of the now wasted manure.

Meanwhile agricultural experience has taught us thoroughly enough not only that the use of sewage should be at first confined to the abundant irrigation of Grass land, but also that Baron Liebig's recipes for the concoction of a perfect fertiliser cannot be accepted with the same degree of confidence which is willingly accorded to him while he keeps within the proper province of the scientific man.

THE WHEAT CROP OF 1864.

In October last you favoured me with space for a few remarks on the character of the Wheat crop of 1863. Founding my conclusions upon the produce obtained in a field of 14 acres, in which Wheat had been grown for 20 years in succession, on some portions without manure, and on others with different descriptions of manure, and also upon a careful comparison for many years past of the results obtained in that field with those of ordinary farming over a large area of the country, I gave it as my opinion that the crop of last year (1863) would turn out a remarkably abundant one; and such subsequent experience has proved it to have been. I now propose to direct the attention of your readers to a few of the results obtained in the same field during the season just past, which is the 21st of Wheat year after year on the same land.

Below are given, for the harvest of 1864, the number of bushels per acre, and the weight per bushel, of the dressed corn obtained—on a portion left entirely unmanured during the whole 21 years, on another manured with 14 tons of farm yard dung every year, and on others manured with certain artificial mixtures in each of the 21 years. And, for the sake of comparison with the results of the present season, there are given, in parallel columns, those of 1863, as well as the average over the last 12 years, during which period the description of artificial manure applied was the same year after year on the same plot as for the crop of 1864. It may be added that the different artificial mixtures contained the same mineral manure in each case, but in combination either with different quantities of ammonia-salts, or with nitrate of soda.

Bushels of Dressed Corn per Acre:—

Plots.		Harvests. 1863.	Harvests. 1864.	Average of 12 years. 1852-63.
3	Unmanured	17¼	16	15¼
2	Farm-yard manure ..	44	40	35⅝
7	Artificial manure	53⅝	45⅜	36⅜
8	,, ,, ...	55⅝	49⅜	38
9	,, ,, ...	55¼	51¼	34½
16	,, ,, ...	55⅞	51	38½

Weight per Bushel of Dressed Corn—lb.

Plots.		Harvests. 1863.	Harvests. 1864.	Average of 12 years. 1852-63.
3	Unmanured	62.7	62.0	56.5
2	Farm-yard manure ..	63 1	62 5	59.3
7	Artificial manure	62.6	63.1	58 4
8	,, ,, ...	62.3	63.5	57.8
9	,, ,, ...	62 1	62 6	57 1
16	,, ,, ...	62 4	63.2	57.6

It is seen that the produce of 1864 was in every case less than that of the extraordinary season of 1863, but that it was, on the other hand, in every case considerably higher than the average of the preceding 12 years. Indeed, on two of the plots the produce of the present season exceeded the average of the preceding 12 years. Indeed on two of the plots the produce of the present season exceeded the average of the preceding 12 years by about 12, and on one by more than 16 bushels per acre. The quality of the grain is also very high, as indicated by the weight per bushel, which is fully equal to that of 1863, and very much higher than that of the average of the preceding 12 years. It is remarkable, too, that in three of the experiments the produce of the last two years taken together has exceeded 100 bushels per acre. In no other instance during the 21 years has the produce of two consecutive seasons given such a result. The nearest approaches to it were in 1857 and 1858, when one plot gave 92 bushels, and in 1862 and 1863, when several plots gave over 90 bushels per acre in the two years.

Upon the whole I think it may be concluded that, on the heavier soils, if in good condition, the Wheat crop of 1864 will prove to be much above the average. On light and badly-farmed soils, on the other hand, I think the produce will generally be below an average. The quality is doubtless pretty universally good, and above the average. With such a crop following one of such unusual abundance as that of last year, it is not surprising that the price of Wheat should be so low.
J. B. Lawes, Rothamsted, Herts, Oct. 17. [This letter appeared in Wednesday's *Times*.]

LIEBIG ON LONDON SEWAGE.

[Lord Robert Montagu has received a letter on this subject from Baron Liebig, which he thus introduces to the readers of the *Morning Star*:—]

Sir,—I beg leave to enclose a letter which I have just received from Baron Liebig. As the subject now engrosses public attention, the letter of so eminent an authority will doubtless be read with much interest.—I remain, sir, your obedient servant, Robt. Montagu.

72, Inverness Terrace, Oct. 13.

Munich, Oct. 6.

My Lord,—The blue-book which Dr. Brady was so kind to send has reached me, and I have read it with great satisfaction; it contains an abundance of most valuable information. The perusal of your report and the resolution of the committee lead me to think that this important question, which has occupied my thoughts since 1840, and to which I tried incessantly to direct the attention of the people in my work on "Agricultural Chemistry" and my "Letters on Chemistry," is now progressing towards a solution. But while I rejoice at the prospect of seeing my views carried out, an anxiety, which is greater than I can describe, oppresses me. The natural laws which govern the permanent fertility of soils, and the increase of the produce are, from circumstances which I cannot detail here, very little understood by the British farmers, and hence arises a fear that the use of sewage, which ought to be a lasting benefit to agriculture, may be regarded after a few years as a veritable detriment by the same farmer, who in the first years of its application would assuredly give it his full approbation. In what may be termed its natural state sewage is not a universal manure like stable dung, which is efficacious at all times and on all localities, but a special manure, the continual application of which exclusively tends to impoverish the land.

Stable dung contains all, a special manure only some, of the elements which ought to be restored to the soil in order to render it permanently fertile. Peruvian guano, for instance, belongs to the class of special manures, and experience has shown that in certain countries of Germany and Scotland the application of guano on meadow land, which produced in the first years enormous crops of Grass or hay, had later no effect at all; and that the same man who at first overrated the value of guano eventually cursed its application. (See my "Natural Laws of Husbandry," pp. 261—263.) Sewage contains ammonia, potash, and phosphoric acid, like guano, but phosphoric acid in a much smaller proportion. On a soil rich (in its natural state) in phosphoric acid, sewage will have an excellent effect; it will produce, for instance, large crops of grass, Turnips, and corn, if the soil supplies the quantity of phosphoric acid wanting in sewage, but as in each successive crop a certain quantity of phosphoric acid is abstracted, the total quantity in the soil is, by continual application of sewage, gradually diminishing every year, and a time must arrive when the phosphoric acid is insufficient for further crops, and when sewage ceases to produce its former effects.

By having the Turnips eaten on the field, the soil (by the solid and liquid excrements) is exactly manured as if irrigated with a number of tons of sewage (containing the elements of voidings of the sheep), and the farmer knows that at the beginning of a new rotation he must manure his field with phosphates in order to get the former crop of Turnips, corn, &c., in succession. The same field could not be rendered equally fit to furnish the same quantity of produce in a new rotation if it was manured year after year by the voidings of sheep only —or its equivalent of sewage, which would be the same thing.

By the increase of his crops in the first years by sewage irrigation only, the farmer, ignorant of the natural law, would be led to believe that the same effect would continue, and that he could dispense with other manures altogether, except, perhaps, with the stable dung which his farm produces. But he would be mistaken; and on discovering his error, as he would soon do, the revulsion of feeling caused by it would be most baleful. The agriculturist must be made aware that by the introduction of sewage his whole system of farming undergoes a change, and that he has to make an apprenticeship to learn to apply it rightly and economically, and in order to benefit and not to injure his fields.

If the agriculturist is left without proper instruction on this head, the labours of years of men like yourself, Dr. Brady, and others, would be lost. It would take a long time to recover the lost ground. When I think of the possibility, indeed I may say the probability, of this occurring, that the millions necessary to realise the proposed scheme should be expended in vain, that the great and important example of England should thus be lost to Europe, I confess that my anxiety on the matter is very great. It would be one of the greatest misfortunes that could happen should this contingency really occur. Every means, therefore, must be employed to prevent any misunderstanding; to clear up any false view regarding the efficacy of sewage; and to guard against all error in the application of it. To you, therefore, my lord, I write on the subject, being sure you will give it your most serious consideration, and be willing to devise means for averting the threatened evil.

If clearly understood and properly managed, the employment of sewage will prove a blessing to agriculture, and those who by unwearied perseverance have at last seen the consummation of their labours may justly be looked upon as the benefactors of their fellow-men. But loud would be the outcry should the agriculturist, either by his own ignorance or the want of forethought in others, find himself misled. Our name would then become a by-word, and instead of gratitude be recollected with a curse. There are two things which must be done:—First, it must be made intelligible to all that sewage in its natural state does not replace stable dung in its entire efficacy, and that, if used exclusively, it will produce abundant crops only for a time; secondly, that for each crop the composition of sewage ought to be corrected according to the nature of the soil by adding those ingredients which are wanting in sewage, and which the plants to be grown require in the largest proportion.

The composition of sewage being once perfectly known, a recipe for what is to be added could be made out and put in the hands of every farmer who uses it, and it remains a question whether it is not possible for the Company itself to add those ingredients wanting in the sewage, according to the demand of the crop to be grown.

The interest with which I follow this highly important question is so great, that were I a younger man and not half lame, I, instead of my letter, should be now with your lordship, in order that in personal communication the matter might be talked over in all its bearings; but as Parliament has not yet decided upon the question, the matter is perhaps not yet ripe to bring my apprehensions and

scruples before the public, and therefore it may be better to wait.—I have the honour to be, my lord, your obedient servant, Justus Liebig.

To the Lord Robert Montagu, M.P.

THE PAST HARVEST AND THE COMING WINTER.

Gloucestershire: *Cirencester.*—The report we sent you in July last of the appearance of the crops in this neighbourhood was made after a rather careful inspection of the district, and consultation with some of the best agriculturists around here. The opinions we then expressed, it is interesting to observe, are generally speaking verified by the reports lately published in your Paper from Correspondents in this locality, so that we may feel contented with our attempt to anticipate the yield of corn and condition of agriculture in a season like the past. Our prognostications of the Wheat crop stated that on heavy and good medium soils it would be quite up to or over an average, but that on the light brashy land the yield would fall short. The result upon threshing our first rick of new Wheat fully corroborates the opinion we had formed. On 12 acres of Old Kent Red, after Peas, we have a return of 60 quarters. The quality of the grain is certainly superior to any we have before seen upon this farm, and it weighs 64 lbs. per bushel. The early-sown Barley proved, as we expected, the best in every respect. Still this crop has suffered generally from the drought; the quantity must be deficient, and the quality, although the grain was gathered in splendid weather, is far from good, being steely and colourless. Oats are light in corn and straw, and, being a good deal blighted in places, the foddering properties of the straw will be in a measure destroyed. Peas are barely half a crop, having been smitten shortly after the blossoming stage with the green aphis. The haulm of this otherwise valuable fodder crop is injured, and therefore of less value. Beans, excepting where winter sown and had escaped the frost, are an unusual failure, and in many cases will hardly pay the cost of harvesting. The harvesting of all our corn barely occupied a month; having commenced Wheat-cutting when the straw was in an apparently raw state, this crop was picked up with ease and regularity, and without any perceptible loss from shedding. The Barley gave us less anxiety and trouble, for this was carried immediately behind the reaper. The removal of this crop disclosed the melancholy fact of our young seeds being a failure; in fields where only the White and Hop Clovers had been sown with Perennial Rye-grass there appeared a promise of a small crop. The Red Clover, Alsike, and Cow-grass sown in other fields scarcely could be traced; perhaps the latter variety gives a little hope of coming to something. The greatest difficulty has been the scarcity of Grass. Off 45 acres we probably collected some 28 tons of material, and this is all the hay we possess; so that our 400 sheep, 30 head of horned cattle, and 10 cart horses will tax the energies of our commissariat during the ensuing winter, if all these animals remain to be provided for. Fortunately we have fared better than most of our neighbours for green forage crops. Commencing fully early enough with our Cow Cabbage on the 14th of August, our lambs did very fairly, with the range of 20 acres of Oat stubble, and an addition to their diet of a quarter of a pound of Linseed-cake, a small quantity of bran, with a limited allowance of hay chaff per day. Towards the end of September they were removed to a very fair piece of Rape, on which material they have thriven and done well, notwithstanding the crop is injured by mildew. Our Swedes are likewise stricken with this complaint, but being very growing and promising, we felt the prudence of feeding a most irregular patch of Mangels with our lambs, whilst the more hardy root is increasing in size and bulk. Our Mangels, although few in number, are very large for the season; and I believe we are economising our roots by eating the few we have upon the ground at this season in preference to pulling and threshing the crop in the usual manner. Not a particle of leaf is wasted. The lambs consume every scrap of the now juicy root without any cost for cutting, and the labour and expense of a Mangel harvest is saved. Of course we shall carefully watch the weather, and should threatenings of frost appear the roots must be sheltered with a little short straw. Our fear is that the material will be consumed before Jack Frost pays his accustomed visit. We have lost no opportunity to supply the place of those crops which the past trying season has denied us. Twenty acres of stubble Turnips sown after the first thorough rainfall since harvest, have fallen a victim to the insect life which appears to swarm in our soil. Our Oat stubble sown down with Clovers and Rye-grass in the spring, has been resown this autumn with a mixture of Trifolium incarnatum, White Dutch and Italian Rye-grass, and at this time the large Clover and Grass promise well. With such great uncertainty as to our position next spring, we have not ventured to break up 1 acre of old seeds, all our Wheat is therefore coming after our Pulse crop on land where Turnips have failed after winter Vetches, or after roots. I have no anxiety about our breeding flock; with plenty of good sweet Pea and Oat straw, we shall do very well until lambing begins, and then I hope 20 acres of Swedes, with a little hay chaff and bran, and a few Oats will do justice to the ewes and lambs. Our wether and ewe lambs with the theaves will go on to 30 acres of Swedes as necessity regulates. The chaff-cutter, bruiser, pulper, mill stones, and steaming apparatus will all do extra work this season. We hope to have a few Swedes for housed cattle; in such case this valuable food will be doled out with the utmost care, and mixed, as is our custom, with straw chaff, perhaps a few brewers' grains, the heap being allowed to ferment, when meal from our drop Wheat, and Barley, in proportions varying from 2 lb. to 6 lb. per head per day to our stock, according to their age and other circumstances, will be given, with a fair quantity of the fermented preparation. Our cart horses never get any hay, their daily rations consist of bruised Oats and a few crushed Beans, brewers' grains, and straw chaff, *ad lib.* With a rack full of cavings at night, no horses need look better, and the weekly cost of their keep could not well be less. The dietary for our stock during the ensuing winter, furnished by your numerous correspondents, as you justly observe, are somewhat monotonous, yet we should do wrong to act in opposition to the opinions of the experienced men who have suggested regimes for our animals. With an abundance of good clean straw surely every man of energy and sufficient capital will adopt measures for reducing this material to a convenient size, and will then cook it, or mix with his straw ingredients which shall render this substance not only palatable, but a nutritious food. Millers' offal, all descriptions of corn ground into meal, or a very small quantity of roots may be advantageously mixed with straw chaff which shall have been steamed or softened by fermentation, or those who prefer liquids may make decoctions of Linseed, Bean pods, or any oleaginous substance, or a syrup may be made from molasses, coarse sugar (perhaps malt), which mixtures might surely be profitably used in regular proportions with straw chaff. Anything to prevent a great reduction of the proper number of stock upon our farms, and so lessen the supply of manure. *J. Lynch Fletcher, R. A. College, Cirencester.*

Herefordshire: *Aconbury Court, near Hereford.*—The season for sowing winter Wheat in 1863 was unfavourable, and the braird proved imperfect; the plants did not tiller well in spring; the frosts in May and early June and the prevailing drought have had an unfavourable effect on the crop; the yield is below an average. Barley and Oats are also below an average, and there is an undue proportion of tail corn in all these crops. Beans and Peas are below half an average crop, owing to the swarms of green plant-flies which attacked them in July. Mangels are a very poor crop, and not much grown of late years. Swedes and Turnips are a deplorable failure, varying from a total loss to a mere fraction of the land sown. The welcome rain which fell last month has not exerted such a good effect on these crops as might have been anticipated. *A. Hepburn.*

Northumberland: *Manor House, Woodhorn, Morpeth.*—Harvest operations are now rapidly drawing to a close, and though there may still remain a few straggling fields of Oats to carry in late districts, all our east-coast farmers have completed their "white Corn" harvest, Beans alone remaining out; and, with another week's favourable weather, most of these will be under cover also. And now that the crop has been secured, much anxiety is felt as to the yield; for, what with the peculiarity of the season, and the terrific shake-winds on the 5th and 9th ult., which in exposed situations played such havoc among the standing corn, in many instances carrying away entire ears—the most hopeful anticipations have been sadly staggered. Without an exception, shaken or unshaken, wherever any Wheat has been threshed, it is reported sadly deficient and below an average, whilst present prices are not such as are likely to moderate this unfortunate state of affairs. Barley, a very bulky crop, has been secured in splendid condition, and where unshaken will thresh out an unusually good yield and sample. Oats are our worst crop, and weigh about 2 lbs. per bushel lighter than usual, whilst there cannot be much left for market on ordinary farms after the horses, &c., have been supplied; the straw, however, being well secured and short, will be excellent fodder. Beans are a very variable crop in this county, in some instances the aphis having rendered them almost valueless, though in our own case we never had them so bulky or so good a sample. Swedes are as good as need be on light and loamy soils, and although the welcome showers in August and September led us to believe that we should still get a few Yellows and Whites on the stronger soils wherever we had a braird, these hopes are fast vanishing, as we daily see acres of these formerly healthy plants assuming a yellowish tinge, and subsequently disappearing altogether. On examination the under side of the leaf is found covered with myriads of eggs and lice, due no doubt to the presence of an aphis The winter's prospect is indeed a sad one for the farmer; for, although his bulk of straw may be equal to former years, he will be obliged to resort to artificial means to supply some accompaniment as a substitute for roots. Pulping of roots will doubtless be resorted to by many in the north of England who up to this time have entertained a very strong antipathy to the system, so as to eke out as far as possible the present very limited supplies. Artificial foods, including oil-cakes of every description, will be greatly in demand, and I anticipate a very extended use of Palm nut cake, which deserves to be more generally known, for it is well worthy the attention of cake consumers, possessing as it does considerable feeding properties at a moderate price. The late showers, however, have put "a new face" on to our Grass land, so that with a moderately genial autumn our sheep stock may continue to do well enough on Grass alone till Christmas, with the addition of a bit of cut hay, and a portion of Oats or cake in case of a storm. *Jacob Wilson.*

Somersetshire: *Torweston.*—The blight by green fly or aphis the beginning of June, no doubt caused by the hot dry month of May, did great damage to many fields of Wheat in this neighbourhood; in some places where the aphis was very thick the Wheat was very seriously injured, and the grain so small that it is almost unfit for the millers; nevertheless, taking it as a whole, the Wheat crop of 1864 will be nearly, if not quite an average in this district. Barley, except a few pieces of late sown that were injured by the long drought, is very good, and of prime quality, and must be put much over an average crop. Beans, the early winter, where sown on good managed land, is a fair crop, but that on inferior, and late or spring sown, is very deficient, and was much damaged by fly; this must be barely half a crop. Peas were never known so bad; partly by the dry weather, and more considerably from the green fly, were almost a total failure. Grass has been very scarce through the months of June, July, and August; yet where stock have had a good supply of water they have done well, and are in good condition; and lambs, which have suffered so much for several years past from disease, are healthy. Mangel Wurzel, where sown in good season, with the exception of some failing plants, are a good crop, and have stood the dry weather much better than could have been expected; but late sown, and that planted on clay or heavy soils, are a deficient crop. Swedes an inferior crop; some fields on sandy and other soils adapted for Turnips, where sown early, are a fair crop, but far the greater part is very inferior. Turnips almost a complete failure throughout the vale, down from Taunton Dean to Dunster; a field here and there to be seen, mostly facing the north aspect, but a field of Turnips about here is a rarity. The rain which set in early in September has brought up the Turnips, and Rape seed, where sown, is now growing tolerably well, but must be too late to be anything like a crop. Scarcely ever was known such a failure of Turnips as this year in all the low lands, while on high colder districts, and on hill sides, the crops both of Mangels and Turnips are good. Hay also was a very light crop, consequently farmers have been driven to their wits' end in doing their best to prepare for the stock during the winter months. A very large quantity of Trifolium, Italian Rye and other seeds have been sown in all the fields where Grass seeds have gone off from the drought, and also on Wheat stubbles for spring food, besides also a large quantity of land drilled to Rape, Turnips, Mustard and Vetches, which the stormy fine weather of September is causing to grow nicely. The greatest difficulties to contend with are likely to be in the months of November, December, and January; after that the Swedes, with other feed in preparation for the spring, will be likely to meet the requirements needed, and I doubt not if we have a mild winter, food in the spring will be quite sufficient, if not in abundance. Owing to the scarcity of Grass many of the oxen and steers intended for the Christmas markets have been already sold, while many more that have been kept have been fed on hay and corn in a very expensive way, and both beef and mutton are likely to be very high for many months to come. Hay, oilcake, Beans and Peas being very high, will cause the sale of feeding corn to be very great, such as Indian Corn, Barley, Oats, and I doubt not but a large quantity of Wheat, which are all to be bought at a low price, and will be extensively and profitably used this winter as food both for fat and lean stock. *Richd. Corner.*

Yorkshire: *Kirkleatham, Redcar.*—The harvest in this district, a few Beans excepted, is now completed. In bulk the Wheat crop is quite an average, but the yield, from what I have seen and can learn, is scarcely so. Some of the forward Wheats that have been threshed are proving very bad indeed. I have seen some extremely poor shrivelled samples from crops which uncut promised to the casual observer quite 40 bushels per acre, but when tested by bushel and scale have realised little more than half that quantity. These were some of the earliest ripe Wheats in this district, and the cause assigned for their failure is the frosty nights we had during the time they were in bloom. Later Wheats are threshing out more satisfactorily, but they yield nothing out of the ordinary, and on the whole we believe an average crop has barely been obtained. Oats generally proved thin on the ground and short in straw; and the sample, though fine, is small, and both in bulk of straw and yield of grain we think this crop falls short of an average. Beans at one time gave promise to be *the* crop of the season, a more regular braird and vigorous healthy plant had scarcely been seen; but by the end of July a "change had come o'er the spirit of the dream," and, deep penetrators as the roots of Beans are, they fairly succumbed to the all-powerful drought. In straw I think we have about an average, but the pods are thinly set, many of the flowers, owing no doubt to want of moisture, proving barren, and many of the Beans in the pods we find are very small. Meadows

turned off a fair swathe, and the hay was secured in prime condition, but of aftermath we have none. Root crops are a great failure, nor can any amount of rain improve them, for we have no plants. The ensuing winter is looked forward to with considerable anxiety, and various plans will be resorted to to fill the void occasioned by the loss of this invaluable crop. In preference to cakes, which are now, and likely to remain, at high rates, home-grown corn will we think be largely used as a substitute. Wheat in common with other grain will be used. It is now selling at 38*s.* per quarter, and at that price will pay as well to consume as to sell. The result of this failure of the Turnip crop in this district will perhaps be less felt, or its effects less seen, as far as regards store cattle or sheep, as the few roots we have, supplemented with corn, will no doubt be supplied to keep them in condition; but the great want will be for roots to grow the winter-fed beef and mutton. These will not be forthcoming, and the consequence will be that the beef will not be made, to the serious loss of the farmer, and also to the community at large, for before we arrive at grass-fed beef prices will in all probability range fabulously high. On one farm in this immediate neighbourhood, where the usual stud of bullocks fattened on roots in winter ranged from 60 to 80 head, weighing from 50 to 70 imperial stones, in this winter it is contemplated to attempt fattening none, but to tide them over with straw and corn and fatten out on Grass, thus losing all the labour and six months of time. This course more or less will be adopted on many farms. *W. J. Moscrop.*

THE STEAM PLOUGHING TRIALS AT NEWCASTLE.

You did us the favour voluntarily to insert in your columns our protest against the awards of the Judges in the Steam Cultivating classes at the meeting of the Royal Agricultural Society of England in July last; may we now beg you kindly to insert this letter in review of the report of the Judges of Steam Cultivators, which has just appeared in the second part of the 25th volume of the Journal of the Society, more than two months after the trials took place.

We competed with a pair of Savory's Patent Steam Cultivating Engines, and feeling very dissatisfied with the awards of the judges we entered the protest referred to, and we therefore introduce the subject to the public notice in the present letter, as an explanation of the course we feel ourselves bound to follow after those trials. We entered for competition a pair of engines on Savory's principle, of our own manufacture, but these engines not being completed in time for trial, we exhibited a pair of engines which were manufactured last year by Messrs. Savory for Mr. Bomford, of Pitchill, near Evesham; on the 8th of July we informed the Secretary to the Royal Agricultural Society of England, by letter, that the engines we had sent were not of our manufacture, stating at the same time that if this circumstance would disqualify the engines should they be found worthy of a prize, we were desirous of withdrawing from the competitive trials; we received no reply to our communication before leaving for Newcastle, and on our arrival there, we at once represented the case to the Society's officials, by whom we were requested to proceed to trial. We mention this because we have been accused by one of the leading agricultural journals of "sailing under false colours."

We protested against the awards of the judges at Newcastle as soon as they were published, because we considered that in making those awards, they "took no notice of the main points in which our engines and tackle are manifestly superior;" a careful consideration of their report has confirmed us in this opinion. We were well aware that competing as we did with engines manufactured in the ordinary course of trade, and which had been through some six months' severe work in Mr. Bomford's hands, we should not stand in a good position with reference to the consumption of fuel, when compared with the performance of racing engines, manufactured expressly for competition.

Our experience in steam cultivation had, however, shown us that "consumption of fuel" is by no means the most important point to be considered by employers of steam-cultivating machinery, and we were rash enough to anticipate that some other elements would be taken into consideration by the judges in arriving at their final decision.

We believe the question of "wear and tear," with reference to the means employed for hauling the implement, stands uppermost in the minds of those men who have had any lengthened practical experience with steam-cultivating machinery, and we are convinced that the capability of performing a large amount of work in a given time, will be considered a very important point before steam will be generally adopted in preference to horse-labour in the cultivation of the soil.

A careful perusal of the judges' reports will show that in making their awards at Newcastle they were mainly guided by the consumption of fuel, thus reducing the whole trial to a simple test of the engines and boilers; no attempt was made to arrive at the comparative merits of the various systems brought under their notice, in other more important points.

With regard to "wear and tear," a paragraph attached to the tabular statement in page 397 of the Society's Catalogue, speaks for itself; "the same figures are adopted for wear and tear and interest, as in the Worcester report, viz., 12½ per cent. for wear and tear, and 5 per cent. for interest, divided over 200 days." With the following competitors before them, viz., 1st., Fowler's well known system with 14 horse-power engine and self-moving anchor; 2d, Fowler's double-engine system, "the chief novelty of the show;" 3d, Savory's engine with two winding drums and self-moving anchor, the first engine manufactured on this principle; and 4th, our double engines on Savory's principle, introduced at the Worcester Show, the judges surely cannot wish it to be understood that no one had the advantage in this important point.

Did the simple rule of three adopted at Worcester, apply to all equitably and justly? if so, the matter might have been settled by simply taking the selling price at which each apparatus was entered in the Society's catalogue, without going through the farce of a trial!

Do the consulting engineers of the Society endorse this? We are under the impression that the judges did not feel themselves competent with the opportunities afforded them of forming an opinion on the subject, and they get out of the difficulty by applying to "novelties" they had never before seen "the same figures as in the Worcester report;" can anything be imagined more unjust to the competitors, or more likely to mislead the public?

With reference to the capability of getting over a large amount of work, we are aware that to make "good looking" work with the plough, it must not travel beyond a certain speed. With the cultivator the case is different, and we see no reason why 20 to 30 acres of land may not be cultivated in a day with Savory's engines.

On reference to page 401 of the Society's Journal, it will be seen that we were working at the rate of 17.77 acres per 10 hours with two 12 horse-power engines, the price of which was 1028*l.* 10*s.* 0*d.*; Fowler's two nominal 7-horse power engines, costing 1034*l.*, worked at the rate of 13.58 acres in the same time; while Fowler's ordinary 14-horse power engines with travelling anchor, worked at the rate of 8.37 acres per day. Should this count for nothing? The judges think it ought, and instead of giving us credit for this performance, they say in a paragraph on page 402 of their Journal, "Notwithstanding the excessive pace the fuel consumed was enormous" (not so much, however, as with Fowler's single engine system!) from which we gather that with the excessive pace they expected a reduced consumption! This is scarcely to be credited in these days of "blockade runners" and "limited mail trains."

We still adhere to our protest, and maintain that the Judges at the Newcastle trials did not ascertain the relative merits of the competing systems of Steam Cultivation as regards "wear and tear;" that they did not give due consideration to the capability of performing a large amount of work in a given time, nor to the facility for moving the tackle from place to place and setting down for work, on which point we also contend that Savory's engines, as manufactured by us, "are manifestly superior to any others."

The Judges' awards, as the reports clearly show, were based on the consumption of fuel alone; thus, and on this point as we have explained, we were at a manifest disadvantage, but have no fear as to what the result would have been, if we had been working under the same conditions as our competitors.

The Judges awarded us a "high commendation" for "improvements in double engines," which under the circumstances, well known to the Society's officials, we were clearly not entitled to, the engines being Messrs. Savory's own manufacture; this "high commendation card" we returned to the Society with the best grace our feelings would allow, and notified our intention of finally withdrawing from the competitive trials of the Royal Agricultural Society of England, under the conviction that the system as at present carried out, is productive of no benefit to the manufacturers or employers of agricultural machinery.

We tender you our best thanks for the opportunity thus afforded us of bringing our case before the public, and with this explanation we are quite satisfied to abide by their verdict in the matter at issue between us and the Royal Agricultural Society of England. *R. Garrett & Son, Leiston Works, Suffolk, October* 10.

ON THE GERMINATION OF WHEAT.

I THANK "Mr. Harrison, of York," for again drawing my attention to this subject, and I lament he has had occasion to remind me of it a second time, but I wished before I wrote again to have threshed out my Wheat, although at present I have not been able to do so. I can, however, say that the crop was good, and the quality good; but this year in this neighbourhood the Wheat crops have been generally good, I may say excellent; and I have heard of weights of it heavier than I ever heard of before. But with reference to the germinating of Wheat, of which I have very much to say, and to which I shall chiefly confine myself in this letter, I can state, and with perfect confidence in this respect, that there is between one kind of Wheat and another, very little difference. I have grown most of the kinds cultivated in this neighbourhood, and some from other neighbourhoods; and from my system of thin seeding, if any of them had failed to grow, I must to my cost have found them out, since, as I put in my Wheat grain by grain with a drill I invented for the purpose, there would be gaps wherever a seed failed to grow; but I never found more gaps, or but to a slight extent, in the rows of one kind of Wheat than in those of others. All the bearded kinds being the most perfect, germinate rather better than the polled kinds, but the difference among them is very little. It is quite true that Wheat sometimes is deficient, and to a considerable extent, in the germinating principle, but one kind is as liable to this deficiency as another, since one kind is as much exposed to the causes of the deficiency as another. Thus, overthick seeding is one cause, as in that case the crop cannot freely blossom, as is very visible in over thick Bean crops, when the blossoms fall off, or are not formed; and rough and unpropitious weather just at the delicate time when a field of Wheat is in blossom, may blow away the fertilising pollen or destroy the blossoms altogether; in such cases the grain of course would be deficient in the vital and germinating principle. But one kind, I repeat, is nearly as liable to this misfortune as another, and whenever it does take place the Wheat, except by very thick seeders, should not be used for seed; but by them perhaps it might be used to some advantage. In common cases, when the whole or the greater portion of the seed germinates, if the spring and summer be propitious, with genial and fertilising showers, thick-seeded Wheat crops become so weak from over growth, that just before harvest any moderately brisk wind with rain lays them flat on the ground, and if this be done before the grains be well formed, the crops in such a condition are always nearly worthless, and sometimes completely so, as was the case in 1862 with almost the whole of the Talavera crops. These having been sown very early, and very thickly the autumn before, became so luxuriant in the spring that the weight of the superincumbent herbage on the drawn up and tender stalks caused thousands of acres of it to fall on the ground, and to become valueless, or not worth the expense of cutting, carting, and stacking. In those cases had one-half only or one-third of the seed germinated, the crop, instead of being valueless, would have been as good probably as could be grown, with good cultivation also. On the present system of farming, fortunate would it be for farmers if the germinating power of Wheat were as defective as by some it is said to be. But the last two years the cereal crops have been unusually good, so much so that in the memory of man for two consecutive years they never were better, if so good; and yet the seeding has been the same as when the crops were bad. How is this? I reply that in very dry seasons the growing crops do not tiller, or but to a small extent, if the plants be thick together, and hence, in such rare cases, the crops do not become very injuriously thick; and another thing, there were neither winds nor rain these two years to beat the crops down; but all stood gloriously up until they were fully ready for the sickle or the reaping-machine. But even this last year I saw a few Wheat crops rendered worthless, as the owners of them acknowledged to me, from over seeding; but still, fortunately, the weather was brilliantly fine and calm, and scarcely a zephyr breathing, and hence the glorious standing up crops which generally prevailed.

But even this last year, when the Wheat branched less from the causes I have stated than I ever knew it to do before, I myself had Wheat as thick as it could grow on the ground from one seed only to each square foot of ground, which, it will be remembered, I publicly invited all doubters to come and see, and challenged them to exhibit anything of theirs equal to it. And a neighbour of mine, who farms largely, had in the middle of a large field of Wheat sown with the usual quantity, a portion dibbled with 5 pints of seed an acre only, and, as he expressed to me, he was in doubt, before harvest, whether that or the part seeded with 7 pecks an acre would yield the best. A friend of mine, who is probably better known in the agricultural world than any other man, and is as justly esteemed as he is well known, had many acres of Wheat drilled with 1 peck an acre only; and I have no doubt whatever but the yields from those one pecks will be as great as from any quantity of seed per acre he ever before put in, and the Wheat will be as good if not much better, heavier, and of a finer quality.

But I give these examples chiefly to show that in general there can be but little deficiency in the germinating power of Wheat.

But can it be shown how long a farinaceous cereal seed—Wheat, for example—will retain vitality in it, supposing it was placed in the most favourable circumstances, and was known from proofs to have been quite perfect in the vital principle when reaped and threshed? As far as my inquiries have gone, and experiments made in conjunction with men of acknowledged science and acquirements, I should unhesitatingly state that by no art of man, and by no power of man, unless divinely bestowed for the purpose, can vitality in Wheat be kept for 30, and I think not for 20 years; the exact time, of course, cannot be known, but most certainly not longer than the time I here state.

But a learned and scientific M.D. in Colchester professes to possess the power of retaining life in Wheat for "thousands of years;" nay, to bestow immortality

upon it; or, to use his own language, so to act upon it, that "for it to die would be impossible." Not only to be endowed with this miraculous life preserving power himself; but, also, as it was reported in his lecture, to have such a superabundance of it, as to have been able to bestow a measure of it on his hearers, when they, in the exuberance of their grateful feelings, bestowed upon him in return their cordial vote of thanks; and some time afterwards some members of the institution, at a meeting called together on purpose, favoured me with their unanimous vote of censure, and adding also their deep regret, that their sapient townsman's powers should have been called in question by the Parson of Wix, and put to so much annoyance.

It is true, as my readers probably know, that this vegetable life-preserving power has been said to have been possessed in ancient times by the Egyptian mummy-makers, whose art was so much like the salting and drying of bacon, that were the poor and half-starved Egyptians who practised it imported into this country, they would be at home in their business, and make the fortunes of the importers of them. Is it possible that Egyptian mummy-makers, who were among the lowest and most ignorant of the community, possessed the art of preserving life beyond the time limited to it by the Creator? And is there any proof that they ever professed to possess this art? They knew how to salt and dry the bodies of fellow beings, but knew nothing of the principle by which their flesh, muscles, and bones were preserved, more than does the clown who salts and dries bacon, or, in other words, hogs. And when all the scientific and learned men, and as many of them are endowed also with what appears to unreflecting and common minds superhuman abilities, have been unable to preserve vitality in farinaceous cereal seeds for a quarter of a century only, can any rational man believe that those ancient embalmers, who knew nothing of chemical science—even for argument's sake admitting that they were not of the low and common race—accomplish what all men of science know is impossible to be done? But there is no reliable evidence that Wheat was ever found within the folds of a mummy at all, but if any ever was in, it is quite certain that it was put in by some impostor by design, or got in by accident.

But is there not a kind of Wheat called Mummy Wheat, and is there not a belief that it was obtained from a mummy? There is, and Mummy Peas also, and I have lately heard of Mummy Onions; yes, a gentleman assured me that Onions had actually been found in mummies! and that they were a most delicious kind, so mild and pleasant to the taste that he could almost live upon them; he ate them, he said, at every meal, so much did he like them, and so well did they agree with him more than any common Onions! Thus, one imposture and quackery begets another; from the Mummy Wheat imposture arose the Mummy Peas, and then the Onions, and the next, I presume, will be Mummy Potatos, Turnips, and Beet, &c., and the foundation of one imposture is the same of the others, the ignorance and credulity of the multitude always gaping after something they do not understand, and always ready to be deceived by any quack impostor, who with a bold plausibility appears before them. The Wheat called Mummy Wheat is, as the learned Calmet has shown, the oldest kind known, and analysis shows it to be the best, fullest of gluten and most nutritious, of course; and as Calmet also shows, it was grown in Egypt at the time of Joseph, and continued to be grown there till Calmet's time; and upwards of 200 years since it was also grown in England, and perhaps longer; and Tull grew it, and others of his time; and I have grown it for nearly 30 years, and hence it has been handed down from the earliest period to our time, not by preservation in mummies, but by successive cultivations of it.

In conclusion, I will inform my readers that in conjunction with some very scientific and learned friends, I have made many experiments for preserving vitality in cereal farinaceous seeds, and by methods recommended by men who appreciated the importance of the subject, but I never could get Wheat to germinate after being preserved for a dozen years only, and I feel confident that it never has been kept much beyond that time, and most certainly not for 20 years; I repeat, therefore, that if my Essex friend can, as he boasts, keep life in Wheat for thousands of years, he is more than mortal, and for this great achievement has been miraculously and superhumanly endowed by a higher Power. And here I stop for to-day. *Geo. Wilkins, Parsonage, Wix, September* 30.

WHEAT AS FOOD FOR STOCK.

The partial failure of our root crops gives unusual interest to the question, How shall we keep our stock this winter? The course I am adopting is the following:—

I boil daily a large copper full of Wheat, mix it with cut Barley straw; let the mixture stand a few hours, then add nearly an equal quantity of Wheat or Barley as meal, and serve it out to my sheep, young and old, to my cows, and cattle of all ages. The stock receive a very few pounds of Turnips or Cabbage in addition, and a little Cotton-cake. I have now no Linseed-cake on the farm.

About 10 gallons of water are required to each bushel of Wheat. The mixture, which must be stirred, takes about one hour before it boils, and is left boiling slowly for about half an hour more, till all the grains are burst. The gravy, *i. e.*, the water not absorbed by the Wheat, is poured over the chaff heap, and gives it in some measure the warmth and fragrance of steamed food. The meal added afterwards adheres to the wet chaff and takes up the superfluous moisture.

I will specify the food given to the hoggets, because practical men may have a special misgiving as to its fitness for young sheep. This lot, 246 head, has daily 1 bushel of boiled Wheat and 64 lb. of meal, half Wheat, half Barley. With this, even in the warmest days of September, they ate 6 sacks, or about 1½ cwt. of cut straw. They have also 56 lbs. of Cotton-cake, and 15 bushels of hard early-sown white Turnips, besides running for one or two hours over a bare Clover lea. When they lose this run they will have a few more roots—say 5 to 10 bushels. They have been on this food nearly a month, and the shepherd considers they are doing better than when they had Linseed-cake, and therefore asked to have boiled Wheat instead of cake for his ewes. The cost is less than for Linseed-cake.

The Wheat (or its equivalent in Barley) at 4*s.* 6*d.* per bushel costs per week	£3	3	0
The Cotton-cake	1	1	0
	£4	4	0

Or about 4*d.* per head per week.

As to the Barley chaff, I cut with Maynard's chaff-cutter at least 8 tons per day; allowing 28*s.* for the steam engine, cutter, and two men, (the letting price), 14*s.* for labour, and 6*s.* for coals and water, the cutting costs 6*s.* per ton, or about 3½*d.* per cwt. For my own part, I much doubt whether the manurial value of the straw is much affected by being passed through the animal. The few roots given each farmer may price for himself. When the ewes and wether hoggets are parted, the latter will probably have an increase of corn. These (Downs) are expected to be ripe for the butcher, and to weigh 10 stone, as soon as they are shorn.

These hoggets were all in good condition, and had without any drawback picked up all the Barley on the stubbles before they were put on to this diet. There is of course a right and a wrong way of bringing them to it, which, if the farmer cannot discern for himself, he can hardly be taught.

The ewes (300) have boiled Wheat and straw chaff, without the addition of meal. The bullocks get 2 stone of boiled Wheat, 2 stones of Wheat or Barley meal, and 2 stone of Cotton cake per head per week, costing together 5*s.* 6*d.* The milch cows in full profit have 5 stones of boiled Wheat and meal, and 1½ stone of Cotton-cake. The young stock have a similar mixture of food. The pigs also have boiled Wheat and meal.

In conclusion I will remark: 1st, After a month's trial all parties concerned are well pleased with the results so far obtained. I shall be glad to show them to any occupier of land, who will send notice of day and hour to Mr. Bennett, Dun Gate, near Cambridge, and will make his way to the Six-mile Bottom Station.

2d. There are many devices which may occur to an active-minded farmer which would be marred by their too general adoption; but this is not one of them. If this lead be generally followed, Wheat may possibly be raised 1*s.* a bushel, and Linseed-cake proportionately lowered in price; but our stock of Barley straw or our water supply is more likely to run short than the Wheat market to be seriously affected by the course which I suggest.

An American grist mill, costing 25*l.*, would be a useful adjunct to the other machinery required. *P. H. Frere, Dun Gate, Cambridge.*

SOCIAL SCIENCE CONGRESS AT YORK.

[In the Agricultural Section, presided over by Mr. Holland, M.P., papers were read by the President, Mr. Strickland, Mr. Gordon, and others, of which the following are abstracts.]

(*Continued from p.* 972.)

Co-operative Farms at Assington, Suffolk.—A communication was read from Mr. John Gurdon, in which he said:—About 34 years ago I formed a plan to raise the labourer in his class without taking him out of it, by giving him a stake in the country, and thus rendering him a serviceable man not only to his God but to his neighbours. All connected with agriculture must acknowledge that no labourer can exist upon 9*s.* or 10*s.* a-week with a wife and family. The consequence is that poaching and petty thefts are the crying evils of the age. I was induced in 1829 to offer an off-hand farm of 100 acres, more or less, to 20 labourers of my parish, offering to lend them capital without interest to cultivate the same, subject to rules and regulations—namely, that each member should advance 2*l.* as guarantee; that a manager, accountant, and stock-keeper should be selected for conducting the farm; that the capital be paid back as the profits arose; that quarterly meetings be held for transacting business, &c.; that all necessary articles be provided by the committee for the use of the members; that if any member be convicted of fraud or any other crime he should forfeit his share, which should be sold, and the monies arising therefrom should form a reserve fund for contingencies. Other salutary rules were added as to advancing to members, in case of unforeseen misfortunes, loans upon their shares, the disposal at death of such shares, filling up vacancies, &c. Upon the members subscribing their rules, I agreed to let the farm for the rent of land letting at that time, to be altered every 12 years during my life. As these members were now deprived of all parochial allowance, I called upon each member to insure in the Stocke and Welford Benefit Club for 10*s.* a week during sickness, 5*s.* a week after 65, and 5*l.* funeral expenses. The aforesaid club was established by me in 1828 upon Government principles, and owing to the energy and unwearied attention of the local clergy, who act as directors, we have at this time upwards of 25,000*l.* in hand. After a few years this society paid me off all the capital I had lent them, which induced me to let another isolated farm to 34 other members. This society has also paid off the monies I lent them; so that there are now on the two farms 54 labourers, farming about 350 acres, free of debt, and possessing as their own property all the stock and crops on the said land; and as each share has been valued at 50*l.* I have bestowed upon these 54 labourers the sum of 2700*l.* at only the loss of the interest of some 1000*l.* for a few years. Farmers at first were startled at my project; but when they found I was not taking their labourers out of their former position; that they had the use of these men as before, only a certain number being required for the cultivation of these two farms; and that they, moreover, had men they could depend upon, because conviction of any theft would deprive them of their share in the farms, and, also, that these labourers were exempt from any parish allowance, they altered their tone, and were willing to confess that the plan had every advantage without one drawback. I should here mention that these two societies have established a store shop with a brewery, which I am now building for them, after the Rochdale principle; and I hear they expect to pay their rents from their savings by paying ready money and getting every article at cost price. I know the plan will at first meet with much opposition from stewards, and country gentlemen would not like the trouble of first setting the society at work; still, from the numberless letters I have received from practical economists, not only in England, but in many parts of the Continent, I feel assured that the plan will be adopted, and the underpaid labourer will be remunerated for his toil. At present he has no stimulus to moral or just feeling. If a farmer's stacks are fired, his stock injured or stolen, he gets no sympathy from the labourer; but give him (the labourer) stacks and stock of his own, and then his neighbour's losses will be appreciated, and he will be able to sympathise. I have frequently attended their annual meetings, and been much struck with their business habits and shrewd remarks; while their better mode of living gives them power to fulfil their work with spirit and energy. Professor Fawcett expressed to me in a letter that he considered it the best plan that had yet been introduced for the agricultural labourer. Of this I feel assured after thirty-five years' experience. I should add that no land is better farmed or rents more punctually paid than by these labourers.

(*To be Continued*).

Home Correspondence.

The Metropolitan Farina Company.—As the suggestions in your leading article of last week might be considered to apply to this Company, which has lately been bringing more prominently before the principal agriculturists the analysis of their biscuit meal by Dr. Voelcker, and which shows the very high per centage of its feeding properties, I have been directed to state to you that the whole of the biscuit meal delivered from the factory of the Metropolitan Farina Company is precisely similar to the sample analysed by Dr. Voelcker, varying slightly only in colour, some batches being a little more brown than others. It is not a compound, but is entirely the produce of Wheat flour. *G. Cowley, for Metropolitan Farina Company.* [We gather from this that the Metropolitan Farina Company will guarantee the goods they sell to be of the quality indicated by the analysis: and thus do all that our Correspondent to whom Mr. Cowley refers, desires.]

Steam Cultivation.—The correspondence going on respecting the remarks of Colonel Fane on the subject of steam cultivation has interested me as well as other cultivators by steam, and in common with them I regret that that gentleman should have given such decided opinions upon a subject with which he has no practical acquaintance. It is quite possible that he may have a friend who has had a bad set of tackle, or it has been injudiciously or unfairly used, or from some cause or another he may have been unsuccessful, but we all know that not only as regards steam ploughs but in many other things different men work with very different results. At all events it has answered my purpose, and that being the case I think it only fair to the system, when cold water is thrown upon the invention by one who has no practical knowledge of it, that those who have experienced its advantages should record their opinions. During the seven years I have worked a steam cultivator, each year has brought an increase of produce. The working expenses of each year have been less, as the men know better how to use it, and breakages are fewer. My practice is to use steam only for the heavy work of breaking up, leaving all the minor operations and lighter labour to be done with horses.

It will never answer to keep an idle team to play with a steam plough. Each has its proper province, and it is the judicious use of each which makes the difference between success and the want of it. My farm is chiefly cultivated with tined implements, either by horses or steam, a plough being rarely used; and when it is wanted for an odd job it has to be hunted for and is probably found cast into some ditch. Increased produce, a cleaner farm, and a diminished labour bill, are pretty good proofs of success. In my opinion (on heavy land), a plough with four horses, plodding along the bottom of the furrow, is the worst implement that could be devised, and that opinion is confirmed by my neighbours, one after another, falling into the newer and better system. In conclusion I express my thorough conviction that the steam cultivator on all clay or heavy lands, under proper circumstances and in good hands, is the most splendid invention of the age, and I wish most heartily that all who have been instrumental in its introduction, may reap the reward they richly merit. *F. W. Bignell, Loughton.*

Societies.

GOWRAN.—The annual show was obviously much better, alike in quantity and quality of stock exhibited, than any which has yet taken place under the auspices of the Gowran Farming Society. There were 49 entries of horses, of which 4 were stallions; there were 14 brood mares, 17 draught colts, and a number of carriage colts and other horses. Last year there had been about 30 entries for horses, and it was then considered a very large show in that department. There were now no fewer than 25 bulls, 21 milch cows, 15 three-year-old heifers, 32 two-year-old heifers, 19 yearlings, 32 heifer calves, &c. In the sheep department there were 12 shearling rams, 8 two-shear rams, and several others of various ages; there were 59 breeding ewes, 56 hoggets, and 90 ewe lambs. The pigs numbered 68, comprising 4 sires, 2 fat beasts, 7 sows and litters, 7 sows in young, and various young animals. On the whole, the show was comprised of 49 horses, 146 head of horned cattle, 255 sheep, and 68 pigs, some of the classes showing nearly double the number that appeared last year.

The chair was taken by Sir John Power, Bart.

Mr. MILWARD, in proposing "The Royal Agricultural Society of Ireland," remarked that pretty hard tasks had been allotted to him that day, but he found the hardest of all was reserved till the evening—to make a speech. They knew what that Society had done in Gowran, and Kilkenny too, as they had a very good trial last year of the results likely to proceed from such institutions. The Royal Agricultural Society had been instituted for the purpose of encouraging agriculture in Ireland, and the way in which it did that was by helping on its children. The Royal Agricultural Society called itself the parent society, and they were its children; but they were pretty good sized children, as they showed from their exhibition that day; however, without the parent's help they could not get on. Some of them that day had received their prizes from the hands of Lady Desart, apparently consisting only of a piece of paper, but they would afterwards be exchanged for a medal from the Royal Agricultural Society, which encouraged them to compete with each other. It was for them to show what they were able to do, and he thought the show of the Gowran Society that day gave ample proof of how they were able to keep the ball going, as well as the advantages to be reaped from such societies. If they were willing to bear with him, while on his legs, he would refer to a subject of very great importance to the farmers, namely, the tillage and Grass system of farm management. They had been often told to give up tillage and sow Grass. They ought to do so, no doubt, but then they could not all do it; some of them should put their ground under tillage, as it would not give Grass. He had paid a good deal of attention to that subject, and notwithstanding all that had been said against it, had been farming on the principle of tillage, and tillage only. His method of farming was to increase the amount of crops as much as possible, and decrease the expense of growing them, if possible; and he could say without boasting or egotism that he had increased the crops and reduced the expenses at Tullogher; but in doing so there was one point which struck him enormously this year, This year he had to deal with two farms, one at Tullogher, and the other at Gowran, and had also to cut two harvests, and the thing which struck him so much was how the farmers could save in their expenses. He would not tell them how they could increase the crops, as they all knew how to do that very well, but there was one point he had taken the trouble of working, and that was the cost of cutting the harvest. It had cost to cut and save 53 acres of corn at Gowran, 14*s.* 3*d.* per acre exactly, and at Tullogher he got 105 Irish acres cut and saved at a cost of 4*s.* 8*d.* an acre. That struck him at the time as being a very serious difference, and he therefore wished to put it to them as it presented itself to him. They were all aware he had to deal with a great many tenants. Now, tenants will come to their agents occasionally and say their farms are too dear, and that they wish for a reduction of the rent; but when there was such a large sum as 10*s.* an acre to be saved in the mere cutting of the harvests, he did not know what the tenant had to say if he paid proper attention to the management of his farm. The way that difference arose was, that at Gowran he was obliged to cut the harvest by hand, at the increased wages of the day, whereas at Tullogher he was able to get it done by machine, and the consequence was the saving of 10*s.* an acre. Farm accounts he admitted were a very great help, but it was all "bosh" to say every farmer should or could keep accounts, as from experience he found it absolutely necessary to have a book-keeper for the exclusive purpose of keeping farm accounts. But he would ask them all to carefully consider the matter, and think among themselves about the expediency of introducing machinery on their farms when they could save so much in reaping, mowing, &c., and by which means they would be enabled to make a much larger profit than they do at present. The mere rent of the ground, of course, was a heavy item in the account of expenses, but all, as tenant farmers, should expect to make equally as much out of it as the landlord, and if they did not, it was all their own fault. They knew that a saving was practicable, and if they did not avail themselves of the means by which a profit was to be derived and put to the advantage of the tenant, why they had no one to blame but themselves. All these circumstances having made an indelible impression upon his mind as to the practicableness of a large saving by judicious management, he thought it but right to bring them before them in proposing the toast. There were other matters in the way of tillage which he had also given some little consideration to. It struck him as a very singular thing the enormous use the farmers made of lime in manuring their lands. It was a useful manure, to be sure, but, above all others in use, there was none so destructive as lime if abused by a too profuse application. Lime was intended for two purposes, chemical and mechanical. Mechanically it was used to open the ground, and chemically to start vegetable matter and make it good for plants. There were large numbers of people who destroyed their land and took all vegetable matter out of it by using lime in very large quantities for mechanical purposes, without considering its chemical or productive qualities at all. The results proceeding from the use of that manure were that in many places the vegetable matter in the land was so destroyed that it could not be expected crops would grow without the land being first rescued from its impoverished state by competent hands.

Farmers' Clubs.

DOCKING UNION: *Oct.* 7.—The Earl of LEICESTER, in responding to the toast of his health as Lord Lieutenant, said:—As I have been the possessor of steam cultivators for five years, having worked them both on strong and on light land, and as the attention of agriculturists will annually be more and more drawn to this subject, my experience and views on this matter may be of some service to you. I purchased my steam cultivators for the purpose of working the land I have reclaimed from the sea. This land for the most part consists of a strong alluvial soil; not exactly what would be called very stiff land, because it possesses a considerable quantity of fibrous matter, and there is a comparative absence of clay within reach of the plough; yet still, from its entire freedom from stones and other matter that would keep the land open it requires the same treatment as strong land would, and can only be worked effectually when it is thoroughly dry. By the aid of steam I am enabled to break up from 300 to 400 acres, from 10 to 18 inches deep, during the months of August, September, and October; and I find that if this land is broken up when it is thoroughly dry, and gets baked before the winter rains, it never runs together, and requires no further cultivation but the drag or harrow before the drill. By this means I obtain, also, what I may call a summer and a winter fallow, exposing this strong land to the air and the summer sun, which is as beneficial to it as I believe it to be injurious to light land. To plough with horses this same extent of land, at the same depth, and at the same time, would be almost impossible. Even if sufficient force could be obtained, the cost per acre would be very considerable, and the work would not be so effectually done. To my mind, too great stress has been placed upon the comparative cost of steam and horse power. Even if steam cost the most—which I deny—the difference between the produce under the one system and under the other has not been sufficiently considered. Strong land, thoroughly drained, and worked under the conditions that I have before stated, makes the occupier, to a great extent, independent of the seasons. Deep cultivation not only equalises the temperature of the soil, but also prevents injury from excess of moisture or excess of drought. And I would here state that the drains will work far more quickly and effectually on land that has been worked by steam than on land that has for a constant period of years been under the pressure of horses, forming thereby a smooth and hardened furrow. By the application of steam, horses would be reduced to a minimum. Effectually to work strong land with horses, a large force must be kept, in order to force on the work when the weather will permit; and for many weeks the horses must remain idle, as I find that on such land, or on strong land, the pressure of the hoof of either man or beast in wet weather is more or less injurious to it. Now as to the application of steam on light land. When I have completed my work on the strong land in the autumn, I have removed my machinery to my light-land farm in the park, in order to subsoil the Wheat stubbles for the root crop; I have subsoiled both on the chalk and on the gravel; I have carefully staked out those portions of the field that have been submitted to this treatment, the other parts of the field having been worked by the horse plough. On those portions of the field which have been subsoiled I have invariably found that the root crop is very much better than on those portions which have been ploughed with horses. I will admit that during the last dry summers the contrast between deep cultivation and shallow would probably be far greater than in wetter seasons; yet the obtaining a better root crop in such a season as the last is of very considerable advantage. Last November I ploughed with steam a field after Mangel; I ploughed about 9 inches deep, and I turned up a considerable amount of dead soil to the top—for which I was very considerably laughed at; but this was done early in the autumn, and the dead soil was exposed to the winter. On that field I grew the heaviest crop of Barley I ever saw grown in Holkham Park; and at this time I have got the very best layer of Red Clover, excepting Cinquefoin, that I have had in the park. I am so satisfied with the results of deep cultivation on every description of land that I have got in the park, that I intend to subsoil all that I can with steam, and where trees or other incumbrances exist, to do so with horse-power. Now the conclusion I have come to is this, that on a strong land arable farm of 400 acres or upwards steam cultivation might be profitably employed; the great saving in horseflesh, the more effectual working of the soil, the being to a certain extent independent of the seasons, the being able to do everything at the right time, and the certain results of obtaining a larger produce, would, in my opinion, make the purchase of steam machinery on such a farm a most desirable investment. On light land, on the contrary, if deep cultivation is considered desirable, this can be effected by horses. The pressure of horses on light land is not injurious to it. There are few days in the year on which our horses cannot be profitably employed on light land. We keep no more horses than are necessary for the in-gathering of the crop; consequently, the sole interest to be derived by the purchase of steam machinery must be from the increase of produce, and I am of opinion that even on a light-land farm of 1000 acres the increase in produce would not be sufficient to justify the purchase of steam machinery. Satisfied as I am of the advantage of possessing steam power for the 400 acres of strong arable land that I farm, I am still equally satisfied that if I did not farm that strong land, I should not purchase steam machinery to farm my 1000 acres of light-land. Should traction engines or tramways come into use, by which the number of horses kept on a light land farm might be considerably reduced, or should this most expensive machinery be considerably lessened in price, the case might be altered altogether.

Reviews.

The Ox and his Diseases. By J. R. Dobson, V.S. Longmans.

A very explicit and well illustrated book of veterinary treatment—particularly explicit and well illustrated in its discussion of the ordinary and extraordinary difficulties of parturition, but trustworthy and elaborate everywhere.

The following are extracts relating to some of the commoner attacks.

"*The Hoose in Calves.*—The cause of hoose is the presence of a vast number of parasitic worms* in the windpipe, of a fine thread-like form, and about half an inch long. The treatment of hoose consists simply in getting rid of the parasites. This, from their peculiar situation and tenacity of life, is no easy matter to effect. Some medicine must be given which will act immediately upon the parasite, and yet not endanger the life of the animal itself. One of the best—indeed, the only internal medicine to be depended upon—is the oil of turpentine, a medicine peculiarly destructive to worms of all kinds, when it can be brought into direct contact with them. Turpentine, when given internally, is absorbed from the stomach into the circulation, and thence, by the exhalents of the lungs, eliminated into the air passages, bringing its vapour into direct contact with the worms.

Linseed oil	12 ounces
Oil of turpentine	4 ,,

Give a wine-glassful, twice a day, in a little warm gruel."

"*On Pleuro-pneumonia.*—In summing up the researches made by modern science upon the treatment and prevention of this most distressing malady, we are compelled to confess how very futile all measures, both of prevention and cure, have hitherto proved in arresting the progress of the disease. In fact, practically speaking, it may be regarded as completely incurable, and the farmer will best consult his own interest who consigns his affected stock to the butcher upon the very first appearance of the complaint, taking proper precaution to isolate all stock which have been in contact with the diseased animals. To give the full benefit of isolation, however, it must be complete;

* The filariæ bronchiales.

there must be entire separation of healthy and diseased beasts—not only in removing them to distant and isolated places, but in providing separate attendants for those affected."

"*On the Foot and Mouth Disease.*—Eczema epizootica* is more commonly known as the 'mouth and foot complaint,' the 'murrain,' and the 'malignant epidemic murrain.' It consists of an inflammatory affection of the mucous membranes and skin, evidenced by the appearance of vesicles or small bladders, containing a colourless fluid, on the inside of the mouth, and those parts uncovered by hair.

"The history of the affection, like most epizootics, is involved in considerable obscurity, and it is by no means clear whether it was imported from abroad or whether it broke out spontaneously. It is said to have occurred in England as early as 1712; but although the symptoms of the epizootic in that year tally with those of eczema, it is not certain that it was the same affection, as it seems soon after to have entirely disappeared.

"The disease under notice first appeared in England in the spring of 1839, and spread rapidly over the whole of England, and subsequently Scotland and Ireland. When the disease first appeared fatal cases were of frequent occurrence, and in those which recovered the symptoms were of such severity as to often leave permanent traces of its effects. Of late years, however, not only have cases been of rarer occurrence, but of a much milder character. The disease remained in England for about two years, when it seemed gradually to wear itself out; the cases not only becoming more scarce, but the severity of the symptoms abating. Since that time we have had repeated returns of the malady, of more or less general prevalence."

"Of the causes of this most prevailing disease no good account can be given. Soil, situation, and food seem to have little or no influence on it; and like its congener, pleuro-pneumonia, it prevails alike in the badly ventilated and badly drained cow-shed, as in the clean, dry, and carefully tended establishment. Although the spontaneous appearance of eczema cannot be explained by any of those laws which govern epidemics in general, such as impure air, &c., yet it is an established fact that contagion is a great and widely-spread cause of the disease. This fact was made patent by a series of experiments conducted at the Royal Veterinary College, in which it was produced by saturating hay with the saliva of infected animals, and giving it to healthy ones. The effects were developed in 36 hours. Hence the necessity for legislative interference in preventing the introduction of diseased animals in fairs and markets, where by mixing with healthy stock disease is disseminated in districts till then free. Railway trucks are another source of contagion. It is also highly probable that the clothes of herdsmen attending on diseased stock is one means of spreading the infection. There is a loss of susceptibility in an animal once affected, although they may, and indeed often are, attacked more than once.

"In closing these brief remarks on the causes of eczema, it must not be supposed that it is a matter of indifference whether animals are kept in an ill or well condition, for although cattle carefully tended, and well fed and kept, are equally liable to an attack, yet cleanliness, good ventilation, and plentiful food enable them both to bear the attack better, and also to throw it off much sooner than animals in low condition."

"The treatment of eczema must be of the very simplest character, and in mild cases it is very much better to trust entirely to Nature, and do nothing at all. Occasionally, however, medical treatment may be required, as agriculturists have become so accustomed to regard the disease as beyond the power of medicine, that those measures are neglected which are absolutely required, and which, had they been pursued, might have saved a valuable animal from much suffering, and consequent depreciation in value.

"If the bowels are at all torpid (which they will often be at the commencement of a severe attack), a mild purgative may be given.

Epsom salts	12 ounces
Powdered ginger	1 ounce

"Cleanliness as to the feet is of course indispensable, and the animals should be at once removed from any situation where wet can obtain access to them. Clean dry straw as litter, and a careful removal of the manure, and daily cleansing the shed, will best fulfil these conditions. If, however, the beasts are out at Grass, they are—except in specially bad cases—best left to themselves. The mouth should be well looked to, and if the vesicles have broken, and ulcers formed, a little alum lotion may be useful.

Alum	1 ounce
Water	1 quart

Well sponge the mouth with this two or three times a day.

"To those on the udder an ointment may be used, as the alum ointment, or the ointment of acetate of copper.

"The feet will require special attention, and should be looked to daily, and any raw and ulcerated places, after being well washed, may be dressed with the alum ointment above mentioned, and diseased and exfoliated horn removed with a sharp knife. Should the ulceration be deep seated, and have a tendency to spread, a stronger application will be required: a very good one is the common Ægyptiacum or Liniment of sulphate of copper."

The following is an extract from the preface, declaring the intention of the author:—

"The author has endeavoured, as far as possible, to avoid the use of technical terms, so as to render the work comprehensible to those for whom it is chiefly written—the farmer and stock-keeper.

"He has, at the same time, no wish to make 'every man his own cattle-doctor,' feeling convinced that those best consult their own interests who, in all cases of difficulty or danger, at once call in the aid of the properly qualified professional man."

* The word Epizootic has been shortened into the flash term of 'Tic,' and by this name it is very commonly known by dealers and others.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday	Oct. 14	30.06	54	53	N.W.	1	10	55	50	53	47	..
Saturday	15	30.14	51	48	N.	0	4	58	37	64	39	..
Sunday	16	29.89	55	51	S.W.	1	7	56	46	65	42	..
Monday	17	29.69	55	53	S.W.	0	10	53	49	68	49	0.03
Tuesday	18	29.67	59	56	S.W.	0	6	59	49	66	43	0.02
Wednesday ..	19	29.23	60	57	S.W.	3	3	59	48	72	43	.
Thursday	20	29.25	56	53	S.W.	2	2	66	47	71	40	0.11

Miscellaneous.

Strength and Brittleness of Iron.—As soon as a bar of iron is strained in excess of the elastic limit, a certain amount of elasticity (or the power of temporary elongation) and of ductility (or the power of permanently elongating) is taken out of it. The amount of latent work it contained at the beginning is therefore diminished. If the experiment be carried still further, and the bar be broken three or four times, the bar at the last time of breakage will be found not to elongate at all, but its powers of resistance to a statically applied load are wonderfully increased. Taking longitudinal tension merely into consideration—as it may be called the representative strain of the major portion of most other strains—we see that the bar is elongated in a longitudinal direction, and that this elongation is accompanied by a contraction of its cross-sectional area, which actually brings the particles nearer together, probably causing them to very closely interlace each other. The hardness, therefore, of one bar, and, consequently, its powers of resistance to a static load, are immensely increased, but all its elasticity and ductility have been taken out of it. We will now cite a number of experiments in support of our explanation—experiments, however, which, from a more or less forgetfulness of mechanical principles, have, one and all, been actually cited in support of the supposition that a breaking load increases the "strength" of the iron. In one sense the "strength" was increased; but it was a hard or brittle strength; the tough strength, or the elasticity and ductility was, on the other hand, annihilated. [Then follows a list of examples.] *Inquirer.*

Notices to Correspondents.

Cattle Food: *C.* Thanks for Dr. Voelcker's analysis. It is the business of tradesmen to advertise their wares. If any one has any agricultural experience to relate of its use, we shall be most happy to publish it.

TRADE MARK.

HALLETT'S [PEDIGREE] NURSERY WHEAT.

FROM THE TOP OF THE CHALK DOWNS.

Seed required { In October, 2d half, 4 bushels on 6 acres. / In November, 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to Frederic F. Hallett, Esq., F.L.S., the Manor House, Brighton, Sussex.

See full advertisement with engraving of Ear in Numbers of *Agricultural Gazette* and *Mark Lane Express* for September and October, and in those of *Bell's Weekly Messenger* for October and November 1864.

SHIRREFF'S BEARDED WHITE WHEAT, of select growth and warranted genuine, is now being delivered. Price 52*s.* per quarter; Bags 2*s.* each. Other growths purchased on commission. Terms cash on reference to a person in Edinburgh.

Patrick Shirreff, Haddington.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7*s.* 6*d.* per bushel, or 48*s.* per quarter, delivered at Braintree Station.

Apply to Henry Eversheld, Park Hall, Gosfield, Halsted, Essex.

SEED WHEAT.—Superior Essex Rough-chaffed or Woolly-eared Early and Club-headed Prolific Whites, warranted true to Stocks, 47*s.* 6*d.* per quarter, free on rail; or f. o. board in London, 49*s.* 6*d.*; less than a quarter, 6*s.* or 6*s.* 3*d.*, per bushel. New Sack, 1*s.* 5*d.* Other varieties about 65 lbs. per bushel, but not guaranteed for Stock.

Apply to Abraham Hardy, Sen., General Land Agent (late the celebrated Seed Grower), Maldon, Essex, for samples and price. Remittances must accompany orders.

Reference for respectability and trustworthiness (if required), J. J. Mechi, Esq. Agent for "Hallett's Pedigree."

SEED WHEAT from the CHALK.—BROWICK RED, SPALDING, CLOVER'S RED, NURSERY, MORTON'S RED STRAW, and all the most approved varieties of Wheat. Also HALLETT'S PEDIGREE, SHIRREFF'S WHEATS, &c., supplied by Raynbird, Caldecott, & Bawtree. Samples and prices post free on application.

Address, Basingstoke; or 89, Seed Market, Mark Lane, E.C.

☞ R., C., & B. can also supply from a clay soil improved stocks of RED BROWICK WHEAT and THICK-SET ESSEX RED, both carefully selected and hand picked, and recommended for productiveness and stiffness of straw.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38*s.* per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45*s.* per quarter, delivered at Braintree Station.

Apply to Henry Eversheld, Park Hall, Gosfield, Halsted, Essex.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. John Cox, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3*s.* 6*d.* per quart. Trade price on application. Remittance requested from unknown correspondents.

Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

NEW ZONALE PELARGONIUMS.—The following will be sent out early in November by John Hally, Nurseryman and Florist, Blackheath.

1. VENUS.—A perfectly round flower, of good size, brilliant clear orange scarlet, with pure white eye, in good trusses, and very abundant. Leaf having a gold blotch in the centre. Zone very dark, breaking into light orange buff blotches, very effective when bedded out; habit very dwarf, with flower stems standing well above the foliage. Received First-class Certificate from the Royal Horticultural Society. 7*s.* 6*d.* each.
2. RED RIDING HOOD.—Brilliant deep scarlet variety, with white eye and perfect shape, a most profuse bloomer, of very close dwarf habit and deep horseshoe leaf. Received Certificate from Royal Horticultural Society, and marked * * * as 1st class in bedding department. 5*s.*
3. ENAMEL.—Flower a very clear bright rose, with large round petals of unusual substance; foliage a deep emerald green, with very dark zone. Habit very compact, and a free bloomer. 5*s.*
4. QUEEN MAB.—A very dwarf zonal variety, with large bright orange scarlet flowers, very distinct and free. 3*s.* 6*d.*
5. PYGMIE.—A remarkably dwarf close compact-growing plant, having large trusses of deep scarlet flowers, with large white eye, and very distinct yellow marbled foliage. 3*s.* 6*d.*
6. ROSE OF LEE.—Flowers large, of a scarlet rose colour, foliage light green with yellow blotch in centre, very distinct in colour. 3*s.* 6*d.*

The above set for 21*s.*, with the usual discount to the Trade.

Two Splendid Seedling Azaleas.

WILLIAM BARNES has great pleasure in announcing to his friends and the public that his two magnificent Seedling Azaleas, BRIDE of ABYDOS and PURITY, are now ready to send out.

BRIDE of ABYDOS is a splendid white, striped and splashed with pink; of fine vigorous growth, and an abundant bloomer. It was exhibited before the Floral Committee on May 6, 1862, when it met with their unanimous approval. The following description is given of it in the *Gardeners' Chronicle* upon the 10th of that month:—

"Mr. Barnes, of Southampton Street, Camberwell, contributed a beautiful Azalea named Bride of Abydos, the flowers of which are large, white, flaked with pink, and possess great substance; of this variety three plants were exhibited, all excellent in habit and evidently free in growth."

In the *Gardeners' Chronicle* of December 27, 1862, page 1217, in describing the new and most prominent Azaleas of the above year, are the following remarks:—

"As a free-flowering sort of vigorous habit adapted for decoration and exhibition, the Bride of Abydos is the most useful which has appeared amongst the whites, with occasional streaks of red."

Fine strong Grafted plants will be ready on the above date at 21*s* and 31*s.* 6*d.* each.

PURITY is a beautiful clear white, fine large flower, with unusual substance and of the most perfect shape; it is of a fine robust habit. A variety of this description has long been required, viz.:—

A pure white, with fine shape, large flowers, and good vigorous habit. Plants will be ready on the above date at 21*s.* and 31*s.* 6*d.* each

A few plants of each variety to offer in extra large plants, prices of which can be obtained on application to

William Barnes, Camden Nursery, Camberwell, S.

To Gentlemen Engaged in Planting.

TO BE DISPOSED OF, a Large Quantity of ORNAMENTAL TREES, DECIDUOUS FLOWERING SHRUBS, &c.

The Standard Ornamental Trees comprise Horse Chesnuts, 8 to 12 feet high; Walnuts, 10 to 15 feet high; Limes, 8 to 12 feet; Ash Leaf, Scarlet, and other Maples, 8 to 12 feet; New Single and Double Scarlet and other Thorns; Laburnums, Caraganas, Elms of sorts, Birch, Beech, Sycamore, Tulip-trees, Pyrus spectabilis, Siberian Crabs, Pinus excelsa, Ailantus, Almonds, Double-flowering Cherry, &c.

The Flowering Deciduous Shrubs consist of Ribes, Lilacs of sorts, Syringas, Spiræas, Guelder Rose, Sumach, &c. Most of them are from 3 to 6 feet high, and as wide in proportion.

Among the Evergreens will be found very handsome Spruce Firs, Box, Arbor-vitæs, Evergreen Oaks, Hollies, Junipers, Cedars, &c., varying in height from 3 to 7 feet.

All these Plants may be seen growing in the Plantations at Ashwicke, Marshfield, near Bath. All expenses connected with the removal of the Plants to be paid by the Purchasers.

Prices and particulars may be obtained on the spot, and the Plants seen on application to the Gardener.

RICHARD SMITH'S LIST of all the EVERGREEN or FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by Post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

Railway Nurseries, Watford.

E. R. GREENUS begs to offer for Sale this Season fine Trained Trees of PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, and APPLES, of most approved sorts.
Also Extra Large IRISH IVIES, in pots, from 4 to 8 feet high: and a General Stock of FOREST and ORNAMENTAL TREES, FLOWERING SHRUBS, EVERGREENS, ROSES, CONIFERÆ, &c., all in a most healthy state, and will remove with safety, and from his proximity to the Watford Station, London and North-Western Railway, E. R. G. can execute orders to any part of the country with promptitude and despatch.
N.B. A large Stock of extra strong CLIMBING ROSES in pots.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap.

PLANTING SEASON.—100 sorts FOREST TREES, in all sizes; 300 do. EVERGREENS; 300 do. CONIFERÆ; 400 do. FLOWERING SHRUBS; 400 do. ROSES; 50 do. CLIMBERS; 1000 do. FRUIT TREES; 3000 do. Winter and Summer BEDDING PLANTS; 2000 do. general GREENHOUSE and STOVE PLANTS, FERNS, &c.
Apply to J. SCOTT, Merriott Nurseries, Somerset, for CATALOGUES. Fruit Tree, 7*d.*; Bedding Plant, 6*d.* General Nursery, Bulb, and Seed do., one stamp each. These Catalogues are allowed to be the best published, and when bound together, form a Vade Mecum, unsurpassed for Horticultural and Planting improvement.

Cæsarean Nurseries, Jersey.

10,000 EVERGREEN OAKS, reared in pots, 2 to 6 feet high.
10,000 DURMAST OAKS, from rows, 2 to 4 feet high.
5,000 TURKEY OAKS, transplanted, 2 to 6 feet high.
5,000 GUERNSEY or UPRIGHT ELMS, grafted, 4 to 10 feet high.
1,000 LARGE SPRUCE FIRS, bushy and well-formed, 3 to 6 feet.
1,000 LARGE SILVER FIRS, bushy and well-formed, 2 to 3 feet.
1,000 LARGE CHINESE ARBOR VITÆS, 4 to 5 feet high.
The above are fine grown, well-rooted stuff, but are overstock, and to be sold cheap. For prices apply to
C. B. SAUNDERS, Nurseryman, &c., Jersey.

CARTER'S FARMER'S VADE-MECUM.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per ton; packed 16*s.* per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

To Nurserymen and Seedsmen.

TOBACCO PAPER, first-rate quality. Price on application to CHAS. BROWN, Greenheys, Manchester.

To Florists and Gardeners.

AROMATIC FUMIGATING TOBACCO, prepared by A. CORONEL, 256, High Holborn, W.C.—The only discovery yet known for the entire destruction of fly and other insects (the greatest enemies of a greenhouse), without injury to plants or to health, being void of all unpleasant smell. May also be used in hospitals and sick chambers with confidence. In Canisters, 3*s.* 6*d.* and 2*s.*, to be forwarded to all parts on receipt of order or stamps.
Agents: HENDERSON & Co., Florists, Pine-apple Place, Maida Vale; NEWBERY & SONS, St. Paul's Churchyard: CARTER & Co., Seedsmen, High Holborn, W.C.; HURST & SON, Seedsmen, Leadenhall Street; Messrs. BUTLER & MCCULLOCH, Seedsmen, &c., Covent Garden, W.C.; and Messrs. BARR & SUGDEN, Seedsmen, King Street, Covent Garden



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

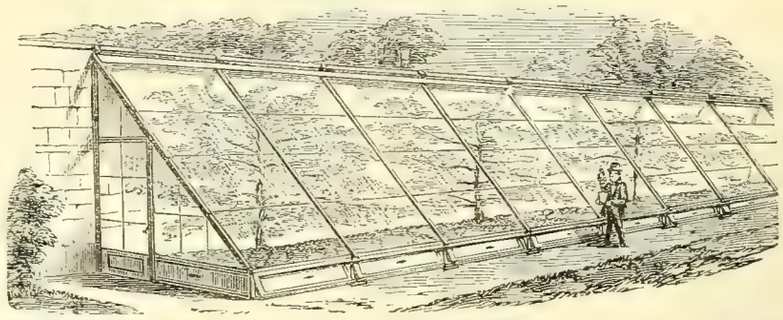
Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

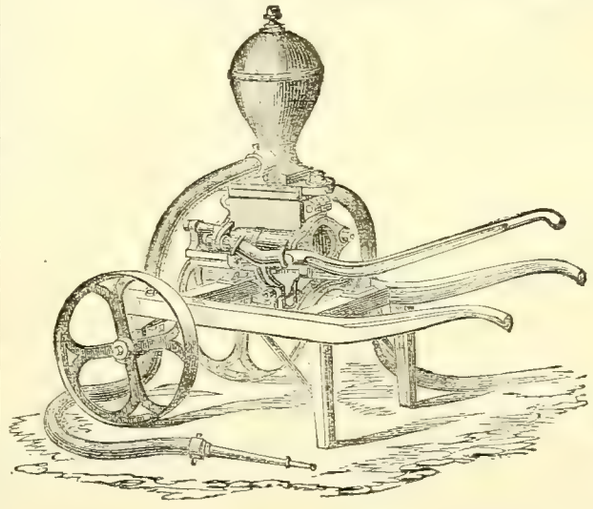
Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. Lists Free.

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THE CALIFORNIA LIFT and FORCE PUMP.



PRIZE MEDALS.
LONDON, 1862. | HAMBURG, 1863.

IN VARIOUS SIZES
AS A
GARDEN ENGINE,
LIQUID MANURE PUMP,
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FARM FIRE ENGINE.

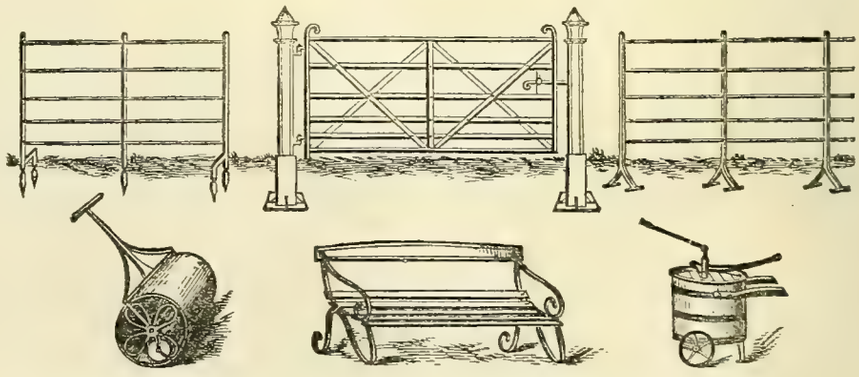
It is double acting, and can be taken to pieces and cleaned or repaired without trouble or delay.

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CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.
PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,
IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

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AWARDED A PRIZE MEDAL, 1862.

INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.



Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 6 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*; 86 ft. by 25 ft., 207*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

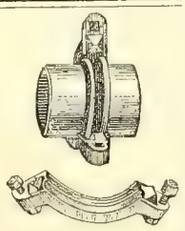
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A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. Hereman. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

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By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

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For a few prices, see last week's advertisement.

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THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

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FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to

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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

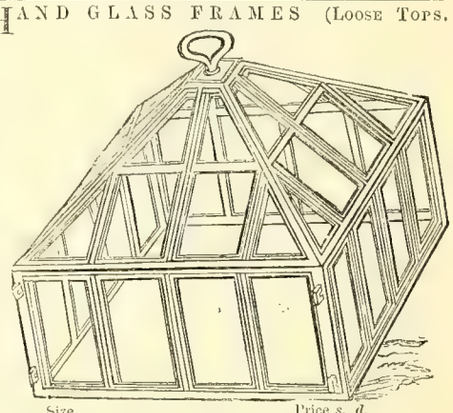
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
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An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

HAND GLASS FRAMES (Loose Tops.



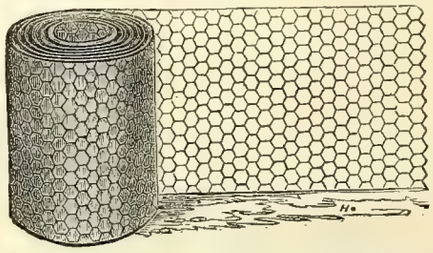
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18 by 18	5	9	,,
20 by 20	6	6	,,
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Delivered Free to any Station in England if 12 or more are ordered.

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FURTHER REDUCTION in the PRICE of WIRE NETTING.

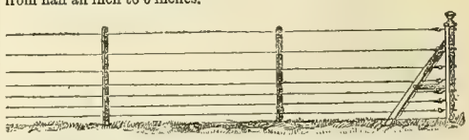


Barnard, Bishop, & Barnards beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch ,, ,, ,, .. ,,	18 ..	5 ,,	4 ,,
2-inch ,, ,, ,, .. ,,	17 ..	6½ ,,	5 ,,
2-inch ,, ,, ,, .. ,,	16 ..	8 ,,	6½ ,,
1½-inch ,, ,, ,, .. ,,	19 ..	4½ ,,	4 ,,
1½-inch ,, ,, ,, .. ,,	18 ..	6 ,,	4½ ,,
1½-inch ,, ,, ,, .. ,,	17 ..	7 ,,	5½ ,,
1½-inch ,, ,, ,, .. ,,	16 ..	9 ,,	7 ,,

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



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Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.

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*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

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HAND GLASSES.



PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

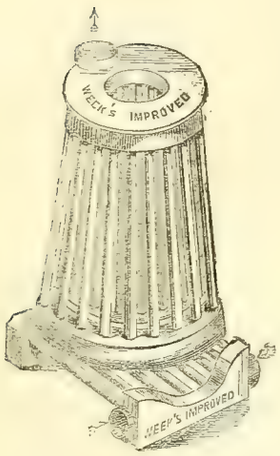


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WEEKS'S IMPROVED UPRIGHT TUBULAR BOILERS,

THE PROPRIETOR AND GARDENER HAVE KINDLY STATED THAT THE SAVING OF FUEL AND LABOUR DURING LAST SEASON ONLY, WAS £195.

SECOND:

THE ONLY BOILER EVER PRODUCED CAPABLE OF

HEATING 20,000 FEET OF 4-INCH PIPE IN FOUR HOURS WITH A GIVEN QUANTITY OF FUEL,

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Their Small Boilers are correspondingly powerful and economical.

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J. WARNER & SONS, MANUFACTURERS.



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HYDRO-CARBON LAMPS,

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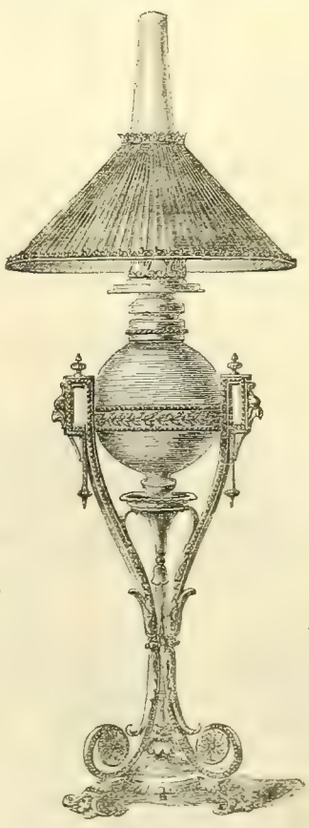
KOH-I-NOOR BURNER.

NO SMOKE,

NO SMELL,

NO BROKEN CHIMNEYS.

TRIMMED EASILY.



NOVEL in CONSTRUCTION,

ELEGANT in DESIGN,

Of Superior WORKMANSHIP,

for

DRAWING ROOM,

DINING ROOM,

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Prices from 18s. 6d. to 63s.

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GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.



T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

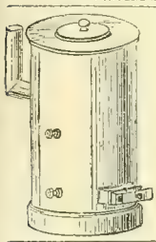
West of England, Ireland, and Wales.



VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

The only Stove without a Flue.



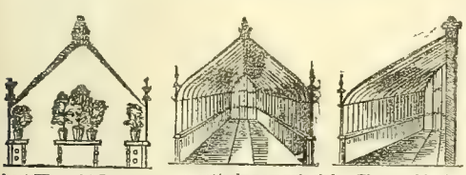
JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12s. 6d. each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2s. 3d. per bushel.

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best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility o fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day without extra fire. Success in all cases guaranteed. Estimates free References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c.



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(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

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N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

BURY & POLLARD having completed the order for the India Board are now making another large Windmill and Pumps for the Government Gardens at Agra.

WIND ENGINES FOR ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY & POLLARD two years ago for Ascension as working most satisfactorily.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—



PROPAGATING GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	6	0
11 ,, ,, ..	1	6			



HAND GLASSES, WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inch diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, per dozen, 2s. 6d. Improved shape, per dozen, 4s. 6d. Patent shape, per dozen, 6s. 6d.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

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Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted b th by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

BENJAMIN EDGINGTON,
MARQUEE, TENT, FLAG, and RICK CLOTH MANUFACTURER,
By Special Appointment to Her Majesty.
An Illustrated Catalogue sent free by post.
Be particular to address BENJAMIN EDGINGTON (only),
2, Duke Street, foot of London Bridge, S.E.
No other Establishment.

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been avoured with the receipt of the following

Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

TO BE SOLD, on very moderate terms, a SMALL GARDEN CONSERVATORY, 11 feet by 9 feet 9 in., with internal hot-air flue, Shelves and Stands for plants, glazed complete. The work, prepared in the best manner for a lady's garden, is entirely new, and has not yet been put up, owing to a change of plans.

Apply to Mr. GUY, Nursery Grounds, St. John's Wood Road, Regent's Park, N.W.

Nursery and Seed Business.

TO BE DISPOSED OF, the STOCK and GOOD-WILL of an OLD ESTABLISHED BUSINESS in the West of Scotland, with a good connection, which might be greatly extended; or a PARTNER acquainted with the Seed Department, could be admitted in room of the Senior Partner desirous of retiring.

Communications (from principals only) addressed W. M. Moss, Esq., of Messrs. WRENCH & SONS, London Bridge, E.C., or ALEXANDER BRUCE, Esq., S.S.C., 2, Thistle Court, Edinburgh, will be attended to.

Sales by Auction.

To Market Gardeners and Others.

EXPIRATION OF LEASE, THE GROUND BEING REQUIRED FOR BUILDING PURPOSES.

MR. KIRKE has received instructions from Mr. Burdon, to SELL by AUCTION, on the Premises, Hollywood Cottage, Hollywood Grove, West Brompton, on THURSDAY, October 27, at 12 for 1 o'Clock, the entire Stock, comprising EVERGREENS, MOSS ROSES, DAHLIAS of sorts, 10,000 Rhubarb Plants of sorts (2 to 3 years), Linnæus, Albert, Victoria, and Champagne, 200 load of Spit Dung, Frames and Lights, Long Ladders, Barrows, Water Tubs, Baskets, Tools, &c., 2 fine Cart Horses, Spring Van and Harness, also a small quantity of Furniture, Bedsteads, Mattresses, Tables, Chairs, Washstands, &c., and numerous other effects.

May be viewed the day prior to the Sale. Catalogues had on the Premises; at Messrs. BUTLER & MCCULLOCH, Seedsmen, Covent Garden, W.C.; and at the Offices of Mr. KIRKE, Auctioneer and House Agent, 114, Brompton Road, S.W.

North Warnborough Nursery, near Odiham, Hants.

MR. ALFRED WHITE will SELL by AUCTION (by order of the Assignees, under a Deed of Assignment) on MONDAY and TUESDAY, November 14 and 15, at 12 o'Clock each day, in convenient Lots, the whole of the remaining STOCK of the above-named NURSERY, comprising about 64,000 excellent PLANTS and SHRUBS, consisting of Arbor-vitæ, Tree Box, Irish Yew, Horse Chesnut, Deciduous and other Trees and Shrubs, &c.; 150 bushel of Potatos, 40 tons of Mangel, 20 tons of Swedes, a large quantity of Seakale, &c.

N.B. North Warnborough Nursery is three miles from the Winchfield Station on the London and South Western, and six miles from the stations at Basingstoke on the Great-Western, South-Western, and Exeter Railways.

May be viewed, and Catalogues obtained three days prior to the Sale at the place of Sale; the Broad Face Hotel, Reading; White Hart, Newbury; Royal Hotel, Winchester; Swan, Alresford; Swan, Alton; Lion and Lamb, Farnham; and of Mr. ALFRED WHITE, Auctioneer, Estate Agent, &c., Basingstoke and Greywell, near Odiham, Hants.

Donald's Sale, Woking.

PROTHEROE AND MORRIS beg most respectfully to inform the Public that the above SALE is POSTPONED.
Leytonstone, N.E.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, October 27, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Tulips, Crocus, Snowdrops, &c.; also a fine assortment of 300 handsome STANDARD, HALF-STANDARD, and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully furnished with bloom buds, &c.

On view the Morning of Sale. Catalogues may be had at the Auction Rooms as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Lewisham, Kent.

To FLORISTS, PERFUMERS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS are instructed to offer for UNRESERVED SALE by AUCTION, on the Premises, Rosenthal, Lewisham, Kent, about five minutes walk from the Catford Bridge Station, on the Mid Kent line, on FRIDAY, October 28, at 11 o'Clock, about 100,000 Dwarf, Provence, Cabbage, and other ROSES, in fine condition, and admirably adapted for potting or for other purposes. The Lots will be arranged to meet the convenience of all purchasers.

May be viewed two days prior to the Sale. Catalogues may be had of the Gardener on the Premises; at the Black Horse and Rising Sun, Lewisham; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Hornsey.

IMPORTANT SALE OF NURSERY STOCK, CAMELLIAS, AZALEAS, AND OTHER GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. CLEALL to SELL by AUCTION, on the Premises near the Railway Station, Hornsey, on MONDAY, November 7, at 11 for 12 o'Clock precisely, a portion of the ground being required for building, the valuable NURSERY STOCK, including 2000 fine Chinese Arbor-vitæ 2 to 4 feet, many of which are admirably adapted for potting, Cupressus Lawsoniana, Wellingtonia gigantea, 3000 Euonymus, 3000 Spruce Firs, Araucaria imbricata, Cedrus Deodara, Arbutus 3 feet, Common Laurels, Laurustinus 2 to 3 feet, Irish Ivies and Virginian Creepers in pots, Lilacs, large Fruiting Mulberries, Apples, Currants, Gooseberries, &c.; also 300 handsome Double Camellias 2 to 6 feet, and Azalea indica beautifully furnished with bloom buds, 2000 Chrysanthemums, Cloves, Primulas, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, SATURDAY, October 22, at half-past 12 o'Clock precisely, a Consignment of BULBS from Holland in fine condition.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 27, at half-past 12 o'Clock precisely, a fine COLLECTION of CAMELLIAS, AZALEAS, YUCCAS, LAURUSTINUS, DRACÆNAS, CONIFERS, and BULBS, just arrived from a celebrated grower at Ghent.

On view the Morning of Sale, and Catalogues had.

Dutch Bulbs and Ornamental Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 29, at half-past 12 o'Clock precisely, an Importation of BULBS from Holland, in capital condition, and comprising many very choice varieties. Some fine FOLIAGE PLANTS and Rare FERNS.

On view the Morning of Sale, and Catalogues had.

Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, October 31, at half-past 12 o'Clock precisely, some Choice SACCOLABIUMS, ODONTOGLOSSUMS, AERIDES, VANDAS, DENDROBIUMS, PHALÆNOPSIS, CATTLEYAS, and other good species, in fine condition.

On view the Morning of Sale, and Catalogues had.

Bagshot, Surrey.—Final Clearance Sale.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. STANDISH, in consequence of removal to Ascot, to SELL by AUCTION on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South Western Railway, on TUESDAY, October 25, and two following days, at half-past 12 o'clock precisely, each day, without the least reserve, a VALUABLE COLLECTION of HARDY CONIFEROUS PLANTS, consisting of—

50 ARAUCARIA IMBRICATA, 1½ to 2½ feet
50 ABIES ALBERTI, 2½ to 3½ feet
150 ,, DOUGLASII TAXIFOLIA, 3 to 5 feet
40 ,, LOWII, 1½ to 2 feet
20 ,, ORIENTALIS, 2 to 3 feet
250 BERBERIS CONCINNA, 2 to 3 feet
250 ,, DARWINII, 1½ foot
250 ,, FASCICULARIS HYBRIDA, 1½ to 2 feet
150 CEDRUS DEODARA, 3 to 8 feet
200 CEPHALOTAXUS FORTUNEI, 2 to 4 feet
200 CHAMÆCYPARIS SPHÆROIDES, 2 to 3 feet
50 CUPRESSUS LAWSONIANA, 2 to 3 feet
1000 HOLLIES (Green), 2 to 3 feet
100 ,, (named sorts), 2 to 3 feet
100 ,, (variegated), 1½ to 3 feet
2000 LAURELS (common), 2 to 3 feet
500 PINUS AUSTRIACA, 2 to 5 feet
50 ,, BENTHAMIANA, 5 to 8 feet
100 ,, CEMBRA, 3 to 5 feet
100 ,, EXCELSA, 3 to 5 feet
20 ,, LAMBERTIANA, 3 to 3½ feet
700 PINUS STROBUS (WEYMOUTH PINE), 3 to 7 feet.
20 PICEA CEPHALONICA, 2 feet.
20 ,, NOBILIS, 2 to 3 feet.
20 ,, NORDMANNIANA, 1 to 1½ feet.
50 ,, PINSAPO, 1½ to 2 feet.
100 RED CEDAR, 4 to 5 feet.
250 RHODODENDRONS (named sorts), 2 to 4 feet.
250 ,, Hybrid Seedlings, 1½ to 2 feet.
200 ROSES, STANDARD,
500 ,, DWARF, on their own roots.
50 SALISBURIA ADIANTIFOLIA, 4 to 5 feet.
200 SILVER FIR, 2 to 3 feet.
200 TAXODIUM SEMPERVIRENS, 6 to 8 feet.
50 THUJA WAREANA, 5 to 6 feet.
1000 ,, ,, Seedlings, 2 feet.
150 ,, LOBBI, 3 to 4 feet.
100 WELLINGTONIA GIGANTEA, 1½ to 3 feet.
150 TRAINED APRICOTS, PEACHES, and NECTARINES.
300 PYRAMIDAL PEARS, 3 to 8 feet.
500 APPLES, 4 to 7 feet, &c., &c.

All of which are in the finest possible health.

On View the week prior and Morning of Sale; and Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot, and of Mr. J. C. STEVENS, Auction Rooms, 38, King Street, Covent Garden, W.C.

Shaw House, Melbourne, near Derby.

ANNUAL SALE OF QUICKS, FOREST TREES, &c.

MESSRS. NEWBOLD AND OLIVER have received instructions from Mr. S. Robinson to OFFER by AUCTION, on TUESDAY, October 25, at 3 o'Clock, about 600,000 2, 3, and 4-years' Transplanted QUICK; 25,000 to 30,000 3-years' PRIVET; 5000 OAK, 3 to 7 feet high; 70,000 3-years' LARCH; 30,000 to 40,000 SPRUCE, in Lots to suit purchasers.

Catalogues may be had of the Auctioneers, Derby or at the Melbourne Arms Inn, Melbourne, where the Sale will take place,

HEATING BY HOT WATER.

J. JONES & SONS,

IRON MERCHANTS AND HORTICULTURAL ENGINEERS,

6, BANKSIDE, SOUTHWARK, LONDON, S.E.

It is now generally admitted that BUILDINGS of any kind can be more effectually warmed by HOT WATER than by any other means; but as so much depends on the way in which the APPARATUS is fixed, it is of the greatest importance that it be done by experienced men.

J. JONES and SONS are prepared to estimate for **WARMING**, to any extent—

GREENHOUSES.	FORCING PITS.	CHURCHES.	LECTURE HALLS.	FACTORIES.	DRYING ROOMS.
CONSERVATORIES.	PEACH HOUSES.	CHAPELS.	BILLIARD ROOMS.	OFFICES.	CELLARS.
VINERIES.	PINE STOVES.	SCHOOLS.	HALLS and PASSAGES.	WORKSHOPS.	COACH HOUSES.
HOT HOUSES.	ORCHARD HOUSES.	READING ROOMS.	BATHS.	WAREHOUSES.	HARNESS ROOMS.

J. Jones & Sons' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest CHAPEL or the largest CHURCH for PRIVATE OFFICES, or those of PUBLIC COMPANIES.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more BATHS may be heated from the same boiler, and a constant supply of Hot Water obtained in any part of the House.

For WAREHOUSES and WORKSHOPS this system of Heating is unsurpassed, as it is not only the means of keeping goods dry, but it also adds to the comfort of the workpeople, and thereby effects a saving in labour.

J. Jones & Sons recommend Boilers of all kinds being set in Brickwork, if possible; but Portable Boilers can be supplied, if required.

MATERIALS.—All Materials supplied will be of the best quality.

DELIVERY.—Boilers of various kinds, and Pipes and Connections, being always in stock, can, at a very short notice, be sent to any part.

FIXING.—The Fixing will be done by experienced men, fully capable of finishing properly any work they may undertake; and J. Jones & Sons are prepared to guarantee the effectual working of any Apparatus fixed by their own men.

ESTIMATES.—Plans and Estimates will be sent, on application.

LIST OF IRON WORK KEPT IN STOCK.

PIPES for GAS, WATER, or STEAM.	MANGERS and STABLE GUTTERS.	HYDROPULTS.
RAIN-WATER PIPES.	CAST and WROUGHT HAY RACKS.	GARDEN SEATS and CHAIRS.
MOULDED GUTTERS, of DIFFERENT PATTERNS.	PIG and CATTLE TROUGHS.	ORNAMENTAL and PLAIN GRATING.
HALF ROUND GUTTERS for FARM BUILDINGS.	WIRE NETTING.	WROUGHT IRON TUBING.
PUMPS.	HAND GLASS FRAMES.	MOWING MACHINES and GARDEN ROLLERS.
FLANGE PIPES for Ditto.	CAST IRON VASES.	LAMP POSTS.
PATENT KITCHEN SINKS.	FLOWER STANDS.	

J. JONES and SONS can also supply the following at a short notice, at Manufacturers' Prices :—

BAR, ROD, and HOOP IRON.	GIRDERS and COLUMNS, WROUGHT or CAST.	VERANDAHS.
IRON HURDLES.	PLAIN and GALVANIZED ROOFING.	IRON STAIRCASES.
STRAINED WIRE FENCING.	STABLE FITTINGS.	GARDEN ENGINES.
CAST IRON RAILING, ORNAMENTAL or PLAIN.	STOVES and RANGES of any size and shape.	GARDEN SYRINGES.
WROUGHT and CAST IRON GATES.	BATHS, with or without Fittings.	GARDEN ARCHES.
BOUNDARY POSTS.	IRON CONSERVATORIES.	AGRICULTURAL MACHINES.
TANKS and CISTERNS, PLAIN and GALVANIZED.	BALCONIES.	AGRICULTURAL IMPLEMENTS.
PAILS and BUCKETS, PLAIN and GALVANIZED.		

IRON WORK OF ANY KIND. PRICES AND ESTIMATES ON APPLICATION.

J. JONES AND SONS, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 44.—1864.] SATURDAY, OCTOBER 29. {Price Fivepence. {Stamped Edition, 6d

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Open to all England.

THE STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—The EIGHTEENTH ANNUAL FLOWER SHOW of the above Society will be held at the Kingsland Hall, on THURSDAY and FRIDAY, the 10th and 11th November, 1864. Admission, First Day, 1s.; Second Day, 6d.
W. T. Howe, Hon. Sec., Shacklewell, N.E.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SECOND GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on WEDNESDAY, November 23, 1864. For schedules, &c., apply to
Robert W. Ker, Hon. Sec., 4, Basnett Street, Liverpool.

Exhibition of Chrysanthemums.

JOHN SALTER'S collection of these beautiful flowers will be in BLOOM throughout NOVEMBER and DECEMBER. The WINTER GARDEN will be open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, near Kensington Railway Bridge.

Preliminary Announcement.

WM. E. DIXON, F.R.H.S., begs to inform his friends and patrons that he has RETIRED from the FIRM of E. P. Dixon & Sons, Hull, and intends entering immediately upon the NORWOOD NURSERY, BEVERLEY (occupied for many years by the late Alexander Laing), where he hopes to receive a share of their kind patronage.
The Exotic Nursery, Hull.—Oct. 29.

Fruiting Vines.

E. G. HENDERSON and SON offer the above, with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Vines.

B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines, extra strong, from Eyes.

WM. CUTBUSH and SON have a large stock of the above for fruiting in pots or planting out. An inspection is solicited. Prices on application.
Highgate Nurseries, London, N.

Pines.

B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH CAYENNE, BLACK JAMAICA, &c. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. Meredith, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

THE ROYAL HAUTBOIS STRAWBERRY (Rivers).—This is the largest and finest Strawberry of the race, and a most abundant bearer. Young Plants, 3s. per dozen; Large Bearing ditto, 6s. per dozen.
Thos. Rivers & Son, Nurseries, Sawbridgeworth, Herts.

Now Ready.

JOHN HOLLAND'S CATALOGUES of extra fine Lancashire Show GOOSEBERRY TREES, CARNATIONS, PICOTEES, PINKS, AURICULAS, PANSIES, &c.
Bradshaw Gardens, Chadderton, near Manchester.

THE NEW PEAR, BRITISH QUEEN.
The NEW STRAWBERRY, SIR J. PAXTON.
See Charles Turner's NEW CATALOGUE now ready.
The Royal Nurseries, Slough.

NEW PEARS.—BEURRE SPAE, 8s.; BEURRE VAN GEERT, 8s. Both figured in the Illustration Horticole.
NEW ROSE.—Hybrid rem. DUCHESSE DE MÉDINACÉLI, strong, 16s. Can be obtained of
Ambroise Verschaffelt, Nurseryman, Ghent, Belgium.

RED CURRANT PLANTS.—20,000 of the large RED GRAPE, up to 4 years old, which, to clear the ground, will be Sold at the nominal price of 4s. per thousand.
Thomas Mitton, Lampton, near Hounslow, W.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
Richard Smith, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

THE DESCRIPTIVE CATALOGUE of FRUITS, by Thomas Rivers (Large 8vo, 35 pages), is now ready, post free for six stamps, gratis to Customers.
The DESCRIPTIVE CATALOGUE of ROSES, 31st Annual Series, by Thomas Rivers, free on application.
Nurseries, Sawbridgeworth, Herts.

Hyacinths, Tulips, Crocus, Narcissus, &c.

BARR and SUGDEN, 12, King Street, Covent Garden, W.C.

S. PONSFORD and SON beg to announce that their DUTCH BULB CATALOGUE (with Cultural notes) may be had on application to
Loughboro' Park Nurseries, Brixton, Surrey, S.

Bulbs Carriage free.

HOOPER and CO.'S ETRUSCAN HYACINTH VASES.—See
Hooper & Co.'s AUTUMN CATALOGUE, forwarded free by post.
Covent Garden Market, London, W.C.

Imported Dutch Bulbs.—Now Ready, Part IV. of

CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to
James Carter & Co., 237, 238, High Holborn, London, W.C.

Dutch Bulbs, Flower Roots, &c.

CHRISTMAS QUINCEY, Seedsman, &c., Peterborough, begs to say that he has purchased for cash from Haarlem, a good assortment of HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c., and is now selling as low as any house in the Trade, town or provincial.
DESCRIPTIVE CATALOGUES free on application.

Hyacinths and Dutch Bulbs.

Fine and at moderate prices;
PAUL and SON'S PRICED DESCRIPTIVE LIST of the most desirable varieties is now ready, post free.
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DUTCH BULBS.—HYACINTHS, best named, 6s. per dozen; Mixed do., 3s. and 4s. per dozen; 20s. per 100. DUTCH YELLOW CROCUS, 1s. per 100; 8s. per 1000, &c.
FERN CASES, filled complete, from 4s. 6d. each.
R. Green, 154, Kingsland Road; and the Bedford Conservatories, Covent Garden Market, W.C.

To Gladiolus Growers.

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Seed Farmers and Merchants.
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PAUL'S NURSERIES, Waltham Cross, N.—Wm. Paul (Son and Successor to the late A. Paul).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
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Chrysanthemums.

WALTER P. HUME has a large Stock of fine healthy Plants of the above just COMING into BLOOM, comprising the newest and best varieties. Own selection, 6s. and 9s. per dozen.
Exotic Nursery, Gloucester.

S. PONSFORD and SON beg to announce that their GENERAL NURSERY CATALOGUE is now ready, and may be had on application to
Loughboro' Park Nurseries, Brixton, Surrey, S.

NEW PELARGONIUMS, JOHN HOYLE and MARY HOYLE.—These unrivalled new varieties, with others, are now ready, and are fully described in Charles Turner's NEW CATALOGUE, which may be had on application.
The Royal Nurseries, Slough.

Bedding Pelargonium Mrs. Pollock.

ALFRED FRYER offers strong out-door struck Plants, well established in 60-pots, at 3s. 6d. each or 36s. per dozen.
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

NEW PLANTS of 186— CATALOGUE of above at greatly reduced prices for one St[amp].
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J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Superb Double Hollyhocks.

Nurseries, Saffron Walden.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and shall be forwarded to any address on receipt of one postage stamp.
N.B. William Chater, Nurseries, Saffron Walden, Essex.

Cinerarias.

TO BE SOLD CHEAP, 5000 CINERARIAS, fine Young Plants, suitable for early purposes.
Apply to Mr. G. Wells, Grove Nursery, Coleman Street, Camberwell.

Cinerarias.

J. PYLE has a few Hundreds of the above, strong Plants in single pots, to dispose of, on account of his not having room for them. First-class sorts. Price 16s. per 100, package included.
Address, J. Pyle, St. John's Nursery, Upper Holloway, N.

Notice.—Beaton's Geraniums.

WM. PAUL begs to announce that in consequence of the large and unexpected demand for these GERANIUMS the DELIVERY will be DEFERRED till early in MAY next, by which means he hopes to be able to execute all orders that he has been and may be honoured with.
Waltham Cross, N.

Rose Catalogue for 1864.

PAUL and SON will have much pleasure in forwarding their NEW DESCRIPTIVE LIST. Post free on application.
"Old" Cheshunt Nurseries, N.

Roses.

PAUL and SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

1864 and 1865 Rose Catalogue.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.
Nurseries, King's Acre, near Hereford.

Rose Catalogue for 1864 and 1865.

EDWARD P. FRANCIS'S DESCRIPTIVE CATALOGUE is now ready, and he will be happy to forward it gratis on application.
Nurseries, Hertford, Herts.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1863, 24s. per dozen.
DESCRIPTIVE PRICED LISTS on application.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
Benjamin R. Cant, St. John's Street Nursery, Colchester.

Roses.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE of the leading kinds is now ready. The plants are very strong, of the various heights, and also in pots.
The Royal Nurseries, Slough.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.

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Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses established in 6-inch pots for Forcing, Greenhouse Culture, or Half Specimens for Exhibition.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD and SON have a very large and splendid Stock of well-grown Plants of the above to offer at 24s. to 30s. per dozen. The wood is well ripened, and will produce abundance of Bloom early in the season.

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E. G. HENDERSON and SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

CENTAUREA ARGENTEA.—Strong Cuttings at 3s. per 100. Apply to
S. Wilkinson, Nurseryman, Old Sleaford.

Laurustinus.

J. HARPUR, Nurseryman, Wexford, has a quantity of the above to Dispose of. Prices on application.

WELLINGTONIA GIGANTEA.—The Undersigned can supply good Seedling Plants in pots, at 40s. per 100. Fine plants in 48 and 32-pots, from 9 to 15 inches, fit for immediate planting, at 4l. and 6l. per 100.
J. Henchman, Edmonton London, N.

ACORNS.
For the above, apply to
W. Dillistone, Munro Nursery, Sible Hedingham, Essex.

GOOD sound ACORNS, BEECH MAST, and HORSE CHESTNUTS, to be had at very moderate prices, f. o. b. at Waterford. For further particulars, apply to
D. H. Higgins, The Nurseries, Clonmel, Ireland.

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. Thomson, The Nursery, Wimbledon, Surrey, S.W.

Fruit Trees, Coniferæ, Shrubs, &c.

CHARLES TURNER'S CATALOGUE of the above may be had on application.
C. Turner invites an inspection of his stock, the quality of which cannot fail to please.
The Royal Nurseries, Slough.

1-year Seedling Thorn Quicks.

L. T. DAVIS has a large quantity of the above to offer this season. Price on application.
Ogle's Grove Nursery, Hillsborough, Co. Down, Ireland.

LARGE ENGLISH and IRISH YEWS.—Handsome well-formed Trees, 6, 7, 8, and 9 feet high. Price on application. An inspection invited.
Thomas Jackson & Son, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

WANTED, good rooted COMMON BEECH, 7 to 10 feet high, stems straight. State quantity and price to
John Cattell, Westerham, Kent.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

Early Peas, Beans, Radish, and other Seeds
For Early Sowing, of the New Crop of 1864.

MESSRS. SUTTON are now prepared to supply the above of excellent quality and at very moderate prices.
The NEW SEED CATALOGUE for 1865 will shortly be published, and may be had gratis on application to
Royal Berks Seed Establishment, Reading.

New Seeds for Autumn Sowing of this Year's Growth.

EARLY PEAS, MAZAGAN BEANS, CUCUMBER, CARROT, RADISH, &c.—Orders amounting to 21s. and upwards sent carriage free. PRICE LISTS on application.
Butler & McCulloch, Seed Merchants, Covent Garden Market, W.C.

DILLISTONE'S EARLY PEA, the Earliest known.
Vide Horticultural Society's Report.
Price 2s. 6d. per quart. Price to Trade on application.
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

POTATO ONIONS.—A fine lot offered to the Trade at a moderate price. In Barrels of 1¼ cwt. each. Freight (per steamers to London, which leave weekly), 2s. per Barrel.
100 Quarters NEW RAPE SEED, 60s
Apply to George M. Spong, Seed Merchant, Limerick.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS.

For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post free on application.

Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., and 12s. per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by WM. CUTBUSH & SON.

TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.

The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.

Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.

Highgate Nurseries, London, N.

WEST RIDING NURSERY and SEED COMPANY have received their immense Collections of BULBOUS ROOTS from Holland and France, fine sound Bulbs, and at prices lower than ever offered.

GREENHOUSE COLLECTIONS for FORCING, at 20s., 40s., 60s., 80s., 100s.

COLLECTIONS for BEDS and BORDERS, consisting of Hyacinths, Narcissus, Crocus, Jonquils, Snowdrops, Anemones, Ranunculus, Iris, Double and Single Tulips, &c.

500 roots in the above sorts, 20s. | 2000 roots, correctly named, 80s.
1000 ditto correctly named, 40s. | 2500 ditto, 100s.
1500 ditto, 60s. | No charge for Package.

*** CATALOGUES now ready.

WILLIAM BARRATT, St. John's, Wakefield.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	£4 4s.	12s.
Very fine ditto	3 10	9
Good ditto	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in price, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Established Upwards of a Century.

BUTLER AND McCULLOCH.

Seed Merchants,

Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5l.	2l. 10s.	1l. 5s.	1l. 1s.	15s.	10s. 6d.

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5l.	3l.	2l.	1l. 5s.	1l. 1s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5l. 5s.	2l. 12s. 6d.	2l. 2s.	1l. 1s.	15s.	10s. 6d.

These Collections include only Bulbs of first-class quality.

For full particulars see CATALOGUE, which may be obtained post free on application.

Orders amounting to 21s. and upwards sent Carriage-free.

Notice to the Public.

HENRY STROUD, Successor to J. H. BIRD, Nurseryman, Green Lanes, Stoke Newington, N., has a surplus stock of fine DUTCH BULBS; consisting of 100,000 CROCUS, in upwards of 30 varieties: 10,000 HYACINTHS, in upwards of 50 varieties; 20,000 TULIPS and Large NARCISSUS in great variety.

The following Bulbs for 1l.:—40 Fine HYACINTHS, in 10, 20, 30, or 40 varieties; 200 Fine EARLY TULIPS, in varieties; 250 Splendid CROCUSES in named varieties; 12 very fine NARCISSUS, four sorts: and 1 LILIUM LANCIFOLIUM RUBRUM, true; half the above 10s. 6d. Fine Bulbs of Lilium lancifolium rubrum, 6s. per dozen, 40s. per 100, or 17l. per 1000.

To save trouble, all Orders to be prepaid. Prices to the Trade on application.

RHODODENDRONS, from 2 to 4 feet, suitable for Shrubberies, Belts, Covers, or large Plantations, are offered at the low price of 25s. per 100, or £10 per 1000, by W. H. ROGERS, Red Lodge Nursery, Southampton.

A PRICED CATALOGUE of one of the largest and finest Nursery Stocks in the Kingdom, including the recent introductions from Japan, may be had on application as above.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

New Hardy Rhododendrons.

WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—

MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; one of perhaps the most attractive and beautiful. 42s. each.
MRS. JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42s. each.
MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31s. 6d. each.
STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy: decidedly the best in its way; it is a very free bloomer. 31s. 6d. each.
LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31s. 6d. each.
CHARLES BAGLEY.—Cherry red, fine habit and truss. 31s. 6d. each.

Knap Hill Nursery, near Woking, Surrey.

New Hardy British Ferns.

J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.

POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.

(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)

Likewise ATHYRIUM FILIX-FŒMINA PARSONSIÆ, VERNONIÆ, and FISSIDENTO-EXCURRENS at 5s. each.

Dorking, Oct. 29.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

NEW ZONALE PELARGONIUMS.—The following will be sent out early in November by JOHN HALLY, Nurseryman and Florist, Blackheath.

1. VENUS.—A perfectly round flower, of good size, brilliant clear orange scarlet, with pure white eye, in good trusses, and very abundant. Leaf having a gold blotch in the centre. Zone very dark, breaking into bright orange buff blotches, very effective when bedded out; habit very dwarf, with flower stems standing well above the foliage. Received First-class Certificate from the Royal Horticultural Society. 7s. 6d. each.
2. RED RIDING HOOD.—Brilliant deep scarlet variety, with white eye and perfect shape, a most profuse bloomer, of very close dwarf habit and deep horseshoe leaf. Received Certificate from Royal Horticultural Society, and marked * * * as 1st class in bedding department. 5s.
3. ENAMEL.—Flower a very clear bright rose, with large round petals of unusual substance; foliage a deep emerald green, with very dark zone. Habit very compact, and a free bloomer. Highly Commended by Floral Committee of R. Horticultural Society. 5s.
4. QUEEN MAB.—A very dwarf zonal variety, with large bright orange scarlet flowers, very distinct and free. 3s. 6d.
5. PYGMIE.—A remarkably dwarf close compact-growing plant, having large trusses of deep scarlet flowers, with large white eye, and very distinct yellow marbled foliage. 2s. 6d.
6. ROSE OF LEE.—Flowers large, of a scarlet rose colour, foliage light green with yellow blotch in centre, very distinct in colour. 3s. 6d.

The above set for 21s., with the usual discount to the Trade.

Two Splendid Seedling Azaleas.

WILLIAM BARNES begs to announce that in consequence of the great demand he has had for small plants of his BRIDE of ABYDOS, he is unable to supply any more of this size.

PURITY.—A few small plants to offer at the prices advertised.

Plants of an extra size of both the above varieties can still be had, the Prices of which can be obtained upon application.

Camden Nursery, Camberwell.—Oct. 29.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, wants several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap.

The New Aucubas.

THOS. CRIPPS, NURSERYMAN, Tunbridge Wells, will be happy to supply Plants in Pots of the MALE AUCUBA (Aucuba japonica mas), 21s. each; GREEN-LEAVED BERRY-BEARING ditto (A. j. fœmina vera) 3s. 6d. to 5s. each. Packing 1s. extra. A remittance must accompany orders from unknown correspondents. Usual discount to the Trade.

A Splendid Stock.

CEDAR of LEBANON, from 6 to 12 feet; DEODARAS, 4 to 7 feet; PORTUGAL LAURELS, 5 to 6 feet, and as much through; ARBUTUS, 3 to 4 feet, and bushy. The above are such as are seldom to be procured, and will all move with perfect safety. To be Sold, a Bargain.

Apply to J. SCOTT, Merriott Nurseries, Somerset.

Seedling and Transplanted Larch, &c.

TO THE TRADE.

R. MORRISON has this season an immense Stock of the above. His 1 and 2-year Seedling LARCH are unusually fine, while the Transplanted are stout plants; and, being grown in a light sandy loam, in exposed ground, they stand removal well.

R. M. has also a very large stock of Seedling and Transplanted NATIVE SCOTCH FIR, SPRUCE, PINUS AUSTRIACA and LARICIO; PINUS MARITIMA or PINASTER, very suitable for Seaside Planting; OAK, ELM, ASH, THORN, BEECH, and other Hard Woods.

COMMON and PORTUGAL LAUREL, ENGLISH YEWS, &c.; Seedling and Transplanted PEAR and CRAB STOCKS, CHERRY, PLUM, &c. Samples and prices on application. Through rates by Rail to all parts of the country.

The Nurseries, Elgin.—Oct. 29.

To Noblemen and Others Planting.

JOSEPH TREMBLE AND SONS beg to intimate that they have this season a remarkably fine Stock of FOREST TREES of every description, adapted for sheltered or exposed situations, of which reasonable prices will be forwarded on application—embracing over 1½ Million strong LARCH, with a considerable quantity of THORN QUICKS, CRAB, BEECH, HORNBEAM, &c., for hedges. Our Yanwath Grounds are well adapted for LARCH, SILVER FIR, &c. Some fine specimens of Silver Fir are growing on each side of us, at Lowther Castle and Brougham Hall.

J. T. & Sons have many thousands of beautiful PORTUGAL LAURELS, RHODODENDRONS, and other EVERGREEN and FLOWERING SHRUBS, EVERGREENS, &c., as underwood in Game Preserves, Drives, &c., frequently removed, and will lift with fine roots; ROSES; FRUIT TREES for Walls, Orchards, and Orchard-houses; CONIFERS, &c.

Nurseries: Penrith, Cumberland; and Yanwath, Westmoreland. Offices: Victoria Road, Penrith.

HARDY GREENHOUSE AND STOVE PLANTS.

LOUIS VAN HOUTTE

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS No. 104 AND No. 105,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.



Orders amounting to 21s. sent carriage paid.

HOW IS SPRING GARDENING DONE AT CLIVEDEN,

THE SEAT OF HER GRACE THE DOWAGER DUCHESS OF SUTHERLAND?

(By planting the following liberally at the present season.)

Under the spirited superintendence of Mr. Fleming, it may be said of Cliveden, "There gardens are for all the months of the year, in which severally things of beauty are had in season."

Those who would associate floral beauty with the first dawn of Spring should now make their arrangements. The expense is trifling, the recompense great.

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

500 TULIPS Assorted	500 SNOWDROPS	200 ANEMONES	200 NARCISSUS
500 CROCUS	100 HYACINTHS	300 RANUNCULUS	200 WINTER ACONITES

100 SCILLAS.

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual Flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES
50 " " " Beautiful BLUE PANSIES		100 PINK DAISIES
50 " " " RICH PURPLE PANSIES		100 RICH BLUE FORGET-ME-NOT
50 Mixed POLYANTHUS		100 PINK SILENE

The above Collections can be modified to suit the requirements of purchasers.

THE CLIVEDEN PERPETUAL FLOWERING YELLOW PANSY, 4s. per doz.
" PERPETUAL FLOWERING BEAUTIFUL BLUE PANSY, 4s. per doz.
" PERPETUAL RICH PURPLE PANSY, 4s. per doz.
" WHITE DAISY, 2s. 6d. per doz.
" PINK DAISY, 2s. 6d. per doz.
" RICH BLUE FORGET-ME-NOT, 1s. 6d. per doz.
" PINK SILENE, 1s. 6d. per doz.
" MIXED POLYANTHUS, including the GIANT var., 3s. per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7*s.* 6*d.* each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & SONS have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

New Roses of 1864.

JOHN KEYNES has a fine stock of first-rate Plants in pots of all the best New Roses sent out in 1864. The following can be supplied by the dozen:—

HYBRID PERPETUALS.

André Leroy d'Angers	Kate Hausburgh
Admiral La Perouse	Leopold Premier
Claude Million	Louis Van Houtte
Gabriel de Peyronny	Maréchal Forey
George Paul	Maréchal Suchet (Damaizin)
George Prince	Parillon de Pregny
H. Laurentius	Pierre Notting
John Nesmith	Senateur Revoil
Joseph Fiala	Paul de la Mielleray
Joseph Durand	

B., Madame de Stella, Rev. H. Dombrain. TEA, Jaune d'Or

J. KEYNES'S, general stock of Roses are in fine condition, particularly the Roses of 1863, both Standards and Dwarfs. CATALOGUES sent on demand. Salisbury, October 29.

New Roses on Sale November 1.

DUCHER, Chemin des Quatre-Maisons, à la Guillotière, Lyon.

MARIE PERRACHON (hybrid).—Average vigour; flowers full, well imbricated, cup-shaped, and well made; colour dark purple, tinted violet. Seedling from Géant des Batailles. Price 20fr.

ROSA MUNDI (hybrid).—Very vigorous; flowers very large, and full and well made; colour, delicate blush. Price 20fr.

VASE D'ELECTION (hybrid).—Strong grower; flowers very full, cup-shaped, very well made. Colour, light pink; blooms perpetually. Seedling from William Jesse. Price 20fr.

MADAME VACHEZ (Ile Bourbon).—Small compact flowers, imbricated like a Camellia; colour, centre aurora shading to pure white; better made than Octavie Fontaine and Anne Pierron. Price 20fr.

N.B. The four together for 60fr.

New Roses.

CHARLES VERDIER, FILS (ex-Partner in, and Successor to, the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER, FILS), NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, begs to call attention to Two of the Handsomest and Best NEW ROSES of the Season, which he will be ready to send out next autumn.

HYBRID PERPETUALS.

DUCHESSE DE CAYLUS (CHARLES VERDIER). — Flowers clear, brilliant carmine, of most perfect form, large and full; growth vigorous. One plant, 1*l.*; five plants, 4*l.*

This Rose was exhibited at the Flower Show of the "Société Imperiale et Centrale d'Horticulture de Paris" last July, and received the FIRST PRIZE (silver gilt medal) for New Roses.

DUC DE WELLINGTON (GRANGER).—Flowers velvety bright red, shaded with black, fiery red centre, large and full; growth very vigorous. One plant, 1*l.*; five plants, 4*l.*

C. VERDIER, FILS has also just published a List of 66 other New French Roses, which are to appear next season. This List can be obtained either direct from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois (late Rue des Trois Ormes), Boulevard de la Gare d'Ivry, Paris.

NET PRICES to the TRADE (without any discount).

NEW ROSES for the AUTUMN 1864.

Awarded a Silver Medal of the 1st Class in July last. Raised in the Establishment from Seed chosen from a considerable number.

Price, each variety, 25 fcs. Five plants of one variety, 100 fcs.

HYBRID PEPETUALS.

AUGUSTE RIVIÈRE.—Vigorous plant, flowers full, 9 to 10 cent. in diameter, globe-shaped, very regular, of a fine bright carmine red, reverse of petals paler, bordered whitish on the edges; very distinct, remarkable variety.

COMTESSE DE PARIS.—Vigorous plant, full flowered, 10 to 12 cent. in diameter, fine bright rose, whitish edges; very fine variety.

DOCTOR ANDRY.—Very vigorous plant, flowers full, 12 cent. diameter, perfectly imbricated, deep carmine red, very bright; variety of the first merit.

GÉNÉRAL D'HAUTPOULT.— Vigorous plant, flowers full, of 9 to 10 cent. in diameter, globe-shaped, 5 to 10 blooms in a head, very bright scarlet red, some of the centre petals marked with a white line; superb variety.

MADAME VERSCHAFFELT.—Strong plant, almost without thorns, flowers full, 10 to 12 cent. in diameter, well formed, beautiful delicate rose, petals strongly bordered; very fine variety.

RUSHTON RADCLIFFE.—Strong plant, full flowers, 10 to 12 cent. in diameter, perfectly imbricated, of a beautiful cherry red, clear and bright; very remarkable variety.

SOUVENIR DE WILLIAM WOOD.—Vigorous plant, flowers full, 9 to 10 cent. diameter, very deep black purple, shaded, in many respects like Prince Camille de Rohan, but deeper coloured; very effective variety.

PERPETUAL MOSS.

JAMES VEITCH.—Very strong plant, very full flowering, large flowers, 9 cent. in diameter, 3 to 8 in a head, deep slate violet, shaded; remarkable variety.

NEW TEA ROSE.

Obtained from Seed some years since by a Florist of Central France, never before sent out, and remaining until now little known, notwithstanding that several Gold Medals were awarded to it.

MARÉCHAL NIEL. — Very strong plant, long reddish healthy branches, the leaves composed of 3 to 5 leaflets, extra large and shining, full flowers, 12 to 14 cent. diameter, globe-shaped, of a beautiful deep yel ow, exceedingly odoriferous.

This magnificent variety (the most beautiful of this class of Roses, to which belong Chromatella, Isabella Gray, Jean Hardy, Solfaterre, &c., which it surpasses in its habit and being a more abundant flowerer) will not be sold alone, but will be presented gratis to each buyer of the foregoing entire eight varieties.

An engraving of this superb variety will be sent to every buyer.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

CHARLES DALY AND SON will SELL for Cash only:
1-year SEEDLING THORNS, 1*s.* 6*d.*, 2*s.*, and 2*s.* 6*d.* per 1000.
2-years' TRANSPLANTED do., 7*s.* 6*d.* per 1000.
3-years' do., 10*s.* per 1000.
COMMON LAUREL, 1 to 1½ feet, 15*s.* per 1000.
PORTUGAL do. 4*s.* per 100.
UPRIGHT YEWS, 1 to 1½ foot, 12*s.* 6*d.* per 100.
RHODODENDRONS, 20*s.* per 100.
SWEET BAYS, 50*s.* per 100, and other Nursery Stock Cheap.
LISTS of which will be published shortly.
Coleraine, Oct. 29.

Cæsarean Nurseries, Jersey.

10,000 EVERGREEN OAKS, reared in pots, 2 to 6 feet high.

10,000 DURMAST OAKS, from rows, 2 to 4 feet high.
5,000 TURKEY OAKS, transplanted, 2 to 6 feet high.
5,000 GUERNSEY or UPRIGHT ELMS, grafted, 4 to 10 feet high.
1,000 LARGE SPRUCE FIRS, bushy and well-formed, 3 to 6 feet.
1,000 LARGE SILVER FIRS, bushy and well-formed, 2 to 3 feet.
1,000 LARGE CHINESE ARBOR VITÆS, 4 to 5 feet high.

The above are fine grown, well-rooted stuff, but are overstock, and to be sold cheap. For prices apply to
C. B. SAUNDERS, Nurseryman, &c., Jersey.

To Gentlemen Engaged in Planting.

TO BE DISPOSED OF, a Large Quantity of ORNAMENTAL TREES, DECIDUOUS FLOWERING SHRUBS, &c.

The Standard Ornamental Trees comprise Horse Chestnuts, 8 to 12 feet high; Walnuts, 10 to 15 feet high; Limes, 8 to 12 feet; Ash Leaf, Scarlet, and other Maples, 8 to 12 feet; New Single and Double Scarlet and other Thorns; Laburnums, Carraganas, Elms of sorts, Birch, Beech, Sycamore, Tulip-trees, Pyrus spectabilis, Siberian Crabs, Pinus excelsa, Ailantus, Almonds, Double-flowering Cherry, &c.

The Flowering Deciduous Shrubs consist of Ribes, Lilacs of sorts, Syringas, Spiræas, Guelder Rose, Sumach, &c. Most of them are from 3 to 6 feet high, and as wide in proportion.

Among the Evergreens will be found very handsome Spruce Firs, Box, Arbor-vitæs, Evergreen Oaks, Hollies, Junipers, Cedars, &c., varying in height from 3 to 7 feet.

All these Plants may be seen growing in the Plantations at Ashwicke, Marshfield, near Bath. All expenses connected with the removal of the Plants to be paid by the Purchasers.

Prices and particulars may be obtained on the spot, and the Plants seen on application to the Gardener.

CARTER'S FARMER'S VADE-MECUM.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38*s.* per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt of guano per acre. Price 45*s.* per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

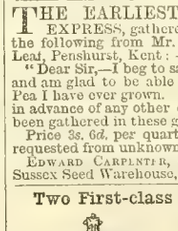
THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3*s.* 6*d.* per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

Two First-class New Early Peas, quite distinct.



SUTTON'S RINGLEADER AND SUTTON'S LONGPODDED TOM THUMB.

SUTTON & SONS have every confidence in offering the above as decidedly the forwardest Peas yet out, having been carefully tested last season against every other early Pea which has hitherto been offered to the public.

SUTTON'S RINGLEADER, 2½ feet. — This Pea is loaded with well-filled pods, which come in for gathering all at the same time. In Messrs. Sutton's Trial Grounds the haulm was cleared and the land planted with another green crop before the common early Peas were ready for gathering. Price 2*s.* 6*d.* per quart.

SUTTON'S LONGPODDED TOM THUMB, 1 foot.—This has all the merits of the old Tom Thumb and Beck's Gem, which are so useful for small gardens and forcing, with the greater advantage of being covered with pods full twice the length of the sorts named. Price 2*s.* 6*d.* per quart.

As the stock is limited early orders are requested.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.

The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

MR. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2*s.* 6*d.* per quart.

The Trade supplied at the usual discount. Testimonials forwarded on application.

Sible Hedingham, near Halstead, Essex.

To the Nursery and Seed Trade.

WM. E. DIXON, F.R.H.S., having purchased the NORWOOD NURSERY, BEVERLEY, intends entering upon it immediately; will be glad to have all Catalogues and communications addressed there after November 1.

The Exotic Nursery, Hull.—Oct. 29.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per ton; packed 16*s.* per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7*s.* 6*d.* per bushel, or 48*s.* per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

SEED WHEAT.—Superior Early Essex Rough-chaffed or Woolly-eared; Club-headed Prolific White, and other varieties of Red, about 65 lb. per bushel.

Apply to ABRAHAM HARDY, Sen., General Seed Agent (late the celebrated Seed Grower), Maldon, Essex, for samples and price.

Reference for respectability and trustworthiness (if required), J. J. Mechi, Esq. Agent for "Hallett's Pedigree."

SEED WHEAT from the CHALK.—BROWICK RED, SPALDING, CLOVER'S RED, NURSERY, MORTON'S RED STRAW, and all the most approved varieties of Wheat. Also HALLETT'S PEDIGREE, SHIRREFFS WHEATS, &c., supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices post free on application.

Address, Basingstoke; or 89, Seed Market, Mark Lane, E.C.

R., C., & B can also supply from a clay soil improved stocks of RED BROWICK WHEAT and THICK-SET ESSEX RED, both carefully selected and hand picked, and recommended for productiveness and stiffness of straw.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

FROM THE TOP OF THE CHALK DOWNS.

Seed required { In October, 2d half, 4 bushels on 6 acres. / In November, 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

See full advertisement with engraving of Ear in Numbers of *Agricultural Gazette* and *Mark Lane Express* for September and October, and in those of *Bell's Weekly Messenger* for October and November 1864.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

To Nurserymen and Seedsmen.

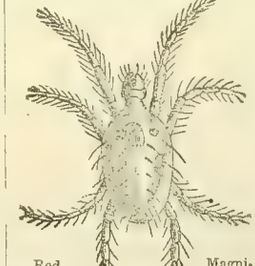
TOBACCO PAPER, first-rate quality. Price on application to CHAS. BROWN, Greenheys, Manchester.

MURRAY'S APHIS PASTILS, a New Invention.—The only cheap, convenient, and effectual means of Fumigating Greenhouses, Pits, Frames, and other Plant Structures. Can be strongly recommended.

Sold in packets 1*s.* and 2*s.* each; boxes 10*s.* each.

GOULDING'S HORTICULTURAL MANURE.—An invaluable stimulant for Roses in pots, Greenhouse Plants, and indeed all kinds of Plants, in or out of pots. In every respect equal to guano, but without its unpleasant smell. Sold in canisters, 1*s.* each.

Agents, Wholesale and Retail: BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Red Spider — Magnified.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

BENJAMIN EDGINGTON, MARQUEE, TENT, FLAG, and RICK CLOTH MANUFACTURER,
By Special Appointment to Her Majesty.
An Illustrated Catalogue sent free by post.
Be particular to address BENJAMIN EDGINGTON (only),
2, Duke Street, foot of London Bridge, S.E.
No other Establishment.

GARDEN TARPAULINGS, 32*s.* per doz., 8 ft. by 4 ft., with 8 Brass Eyelet Holes; other sizes in proportion. Waterproof Covers for Waggons; Horses' Loin Cloths, lined with Woollen, 7*s.*; Gardeners' large Capes, 4*s.* each; Police Capes, 24*s.* and 30*s.* per doz.; Driving Aprons, 8*s.* and 10*s.* Patent Roofing Felt, 1*d.* per foot.

R. RICHARDSON, 99, Euston Road, London, N.W.

GUTTA PERCHA TUBING for WATERING GARDENS, &c.—The Gutta Percha Company have been avoured with the receipt of the following

Testimonial from MR. J. FARRAH, *Gardener to* BOSWELL MIDDLETON JALLAND, ESQ., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing (in lengths of 100 feet each, with Union Joint) in use for the last twelve months for watering these Gardens, and I find it to answer better than anything I have yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the Tubing. I consider this Tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens with about one-half the labour formerly required."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, Wharf Road, City Road, London, E.C.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

To the Nursery Trade.

MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade 5000 DWARF-TRAINED PEACHES and NECTARINES, all the leading kinds, 1 and 2-year Trained. They are unusually fine clean-grown healthy Plants. Price 36s. to 42s. per dozen, according to size, &c. Their Trade NURSERY LIST may be had on application.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 1500 extra-fine well-ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger." A better lot of Vines they believe were never grown. Inspection invited. Price from 5s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1008.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

STRAWBERRIES for present planting that will produce a fine crop. Established in small pots, or suitable for potting on for Orchard-house culture:—

BRITISH QUEEN	OSCAR
EMPRESS EUGENIE	PREMIER
FROGMORE LATE PINE	PRESIDENT
KEEN'S SEEDLING	PRINCE ARTHUR
LA CONSTANTE	SIR CHARLES NAPIER
MARGUERITE	SIR HARRY

Price 10s. 6d. per 100; turned out of the pots, 9s.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Railway Nurseries, Watford.

E. R. GREENUS begs to offer for Sale this Season fine Trained Trees of PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, and APPLES, of most approved sorts.

Also Extra Large IRISH IVIES, in pots, from 4 to 8 feet high; and a General Stock of FOREST and ORNAMENTAL TREES, FLOWERING SHRUBS, EVERGREENS, ROSES, CONIFERÆ, &c., all in a most healthy state, and will remove with safety, and from his proximity to the Watford Station, London and North-Western Railway, E. R. G. can execute orders to any part of the country with promptitude and despatch.

N.B. A large Stock of extra strong CLIMBING ROSES in pots.

Dwarf-trained Trees.

BY THE THOUSAND, HUNDRED, OR DOZEN.

PEACHES, PEARS, PLUMS, and CHERRIES.—Fine, flat, well trained, of best quality and true to name.
RICHARD SMITH, Nurseries, Worcester.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.
RICHARD SMITH, Nurseries, Worcester.

DWARF-TRAINED and MAIDEN TREES.—PEACHES, NECTARINES, and CHERRIES, really good, clean, well-grown stuff, at very moderate prices for good quality; also good STANDARD and DWARF ROSES.
Apply to GEORGE GRAY & SON, Nurserymen, Brox, near Chertsey, Surrey.

WALL-TRAINED FRUIT TREES, Bearing Size.—Very handsome well-ripened Trees of Fruiting Size, comprising Peaches, Nectarines, Apricots, Plums and Pears, standard and dwarf-trained; suited for giving a good crop the first year. An inspection invited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

To Nurserymen.

WANTED to PURCHASE, for Planting, about 50 APPLE TREES; 15 PEAR do.; 10 PLUM, various; 5 DAMSONS; 10 CHERRIES; 20 PEACHES; 10 NECTARINES; 50 each of BLACK, RED, and WHITE CURRANTS; 20 GOOSEBERRIES; with other Trees for an Orchard and Garden.
Apply by letter only, A. B., Post Office, City Road.

CARTER'S GARDENER'S VADE-MECUM.

New Pansies.

THOMAS BARNES is now prepared to execute orders for his splendid SEEDLING PANSIES, a DESCRIPTIVE LIST of which may be had on application.

Very choice PANSY Seed. 1s. 6d., 2s. 6d., and 5s. per packet.

GLADIOLUS BOWIENSIS (bright glowing scarlet), in fine bulbs, per 100, 10s., 15s., and 20s.; per 1000, 90s., 125s., and 150s.
Dane Croft Nursery, Stowmarket, Suffolk.

ZONALE PELARGONIUM SEED (BARR & SUGDEN), saved from Mr. Bull's superb New Varieties; colours scarlet, white, pink, cerise, rose, carmine, blue, salmon, rose-pink, orange-scarlet, &c., many with very distinct eyes, 2s. 6d. per packet; Mr. Bull's magnificent MIMULUS, 1s. per packet; Mr. Holland's Prize CYCLAMEN PERSICUM, 1s. per packet. Trade packets of either of these Seeds, 2s. 6d. and 5s.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

JOHN HOLLAND is now prepared to send out a very superior heavy edged RED PICOTÉE, raised by W. Smith, Esq., of Darlington, Dr. EPPS, from Lauretta and Mrs. Hoyle. It inherits the strong habit of the former, with the broad bright band of red of the latter. Fine petal, free from bar, and good pod, 7s. 6d. per pair.
Bradshaw Gardens, Chadderton, near Manchester.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK'S NEW and CHOICE VARIETIES for this season, and that he will be prepared to supply strong plants the end of this month.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, will be published in a few days and forwarded to all previous customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

INTERNATIONAL EXHIBITION 1862.

THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"

Containing full descriptions of 50 most desirable varieties of VINES, and complete Lists of imported DUTCH BULBS, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN, 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

TO THE TRADE.



JAMES CARTER & CO.



BEG TO ANNOUNCE THAT THEY WILL SHORTLY OFFER THE FOLLOWING

NEW ANNUALS.

CLARKIA INTEGRIPETALA, fine double.	GODETIA LINDLEYANA, fine double. [double.
NEMOPHILA MACULATA PURPUREA.	CHRYSANTHEMUM TRICOLOR DUNNETTII, fine
WHITLAVIA GRANDIFLORA, pure white.	NASTURTIUM KING of TOM THUMBS.

NEW MEXICAN ANNUALS.

JAMES CARTER & Co. intend sending out the following beautiful and distinct Annuals in sealed collections, containing one packet of each. They were received from a correspondent in Mexico, and have since been flowered at J. C. & Co.'s Dedham Seed Farm.

GODETIA REPTANS? ALBA.	GILIA MINIMA? CŒRULEA.
GODETIA REPTANS? PURPUREA.	COLLINSIA CORYMBOSA?
ŒNOTHERA PARVIFLORA?	ŒNOTHERA DIVERSIFLORA?

A DESCRIPTIVE LIST of the above will be ready in a few days.

Coloured Drawings (price 1s. 6d.) will be ready in November.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WM. PAUL (SON AND SUCCESSOR TO THE LATE A. PAUL),

Respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post.

Orders by post promptly attended to. Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

NOW READY, NEW HARDY CLIMBING PLANTS,

WELL ADAPTED FOR COVERING VERANDAHS, TRELLIS WORK, WALLS, PORTICOS, PILLARS, FESTOONS, &c.

CLEMATIS JACKMANNI, First-class Certificate.
CLEMATIS RUBRO-VIOLACEA, First-class Certificate.

Awarded by the Royal Horticultural Society, August 4, 1863.

Patronised by HER MAJESTY THE QUEEN, the Nobility and Gentry.

GEORGE JACKMAN & SON,

WOKING NURSERY, SURREY,

Have much pleasure in offering to the Public, for the first time, their beautiful rich coloured, free flowering, and vigorous-growing Clematises, that they can with confidence recommend, being convinced, when known, they will occupy a very high position in climbing shrubs. Orders will now be taken, and the plants will be sent out strictly in rotation.

For further particulars of "their sterling merits," read our Large Advertisement, August 6, page 745; the Report of the Floral Committee, Royal Horticultural Society, August 4, 1863; *Gardeners' Chronicle*, November 21, 1863; *Journal of Horticulture*, August 11, 1863; *Gardeners' Chronicle*, January 9, 1864; the *Florist and Pomologist Magazine*, September, 1864, with a Coloured Illustration; and *Gardeners' Chronicle*, August 27, 1864.

Strong Plants, 21s. each.

The usual allowance to the Trade. Two Coloured Drawings by Andrews may be had post free for Twenty-four Stamps.

A CATALOGUE of GENERAL NURSERY STOCK free on application.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.; and
COOMBE WOOD, KINGSTON HILL, S.W.,

Begs to announce that the following CATALOGUES are now ready, and will be forwarded free on application.

A DESCRIPTIVE CATALOGUE of FRUIT TREES,

Comprising all the best kinds, including the latest Novelties.

A DESCRIPTIVE CATALOGUE of HARDY PLANTS,

Including the most recent introductions from Japan, Conifers, American Plants, Evergreen and Deciduous Ornamental Trees, Shrubs, &c.

A DESCRIPTIVE CATALOGUE of ROSES,

Containing a selection of all the finest and most popular sorts, together with the New Varieties for 1864.

ALSO MAY BE HAD

A GENERAL CATALOGUE of PLANTS,

Containing a choice selection of Ornamental Foliage and Flowering Stove and Greenhouse Plants, Camellias, Azalea indica, Orchids, Ferns, &c.

A CATALOGUE of NEW and RARE PLANTS for the Present Season.

JAMES VEITCH

HAS MUCH PLEASURE IN CALLING ATTENTION TO THE FOLLOWING

NEW VARIETIES of FRUITS,

Feeling confident that, from their sterling merit, they cannot fail to give general satisfaction :—

APRICOT SUKER PARA, or GREEN GAGE

This splendid variety was received from Syria, together with the now well-known Kaisha and other fine kinds, and is perhaps in many respects the best of the "sweet kernel" section.

The literal translation of the words Suker Para is a "bit of sugar," and was given it from the fact of the fruit being often left upon the trees until they become shrivelled and then eaten as a sweetmeat.

The fruit is of medium size, and in appearance very like a Green Gage Plum, from the smooth surface of the skin, small stone, and entire absence of down, while its flavour not merely equals but surpasses that of the Green Gage Plum.

It is admirably adapted for preserving, requiring no additions in the form of sugar, &c., and from its many desirable qualities, I have great confidence in recommending it, from a conviction that it will give general satisfaction.

Full-sized Dwarf Trained Trees, 21*s.* each.
One Year Dwarf Trained Trees, 15*s.* each.

PEAR PRINCESS of WALES.

This is a very fine variety, raised by the Rev. John Huyshe of Clysthydon, Devon, who has been so successful in making valuable additions to our collections of this splendid fruit.

It was obtained from the Marie Louise, hybridised with Gansel's Bergamot, and is sister to the well known Huyshe's Victoria and Huyshe's Princess of Wales (formerly known as Huyshe's Bergamot.)

Dr. Hogg, in the "Gardeners' Year Book" for 1864, says:—"This is one of the most delicious and richly-flavoured Pears I know. The flesh is of quite a yellow tint, as much so as the skin of some Pears is; melting and very juicy, sugary, and with a fine delicate bouquet."

The whole of the Stock has been placed in my hands by Mr. Huyshe for distribution.

Dwarf Maiden Trees, 10*s.* 6*d.* each.

A few Dwarf Trained, Pyramid and Standard Trees, 15*s.* each.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

SPLENDID NEW VARIETIES of AZALEA INDICA.

JAMES VEITCH

Has much pleasure in calling attention to the following NEW AZALEAS, which being of such sterling merit, and far surpassing all other known varieties in their class, will, he feels confident, find a place in every collection, however select.

Azalea (indica) Stella.

A vigorous growing variety, of a bright orange-scarlet colour, with a deep violet stain on the upper segments of the corolla, where it is also profusely spotted with lake.

The flowers are large, of fine substance and perfect form, and it is universally allowed to be one of the finest Azaleas ever raised.

It has been awarded First-class Certificates by both the Royal Botanic and Royal Horticultural Societies, and is described in the "Proceedings of the Royal Horticultural Society" as "A beautiful variety, of first-rate quality, quite the gem of the season."

The following, extracted from the *Gardeners' Chronicle* of June 25, 1864, p. 602, speaks for itself:—

"First and foremost amongst new Azaleas of the season we must place Mr. Veitch's Stella, a large and well formed flower, remarkable for its substance, and of a most telling colour, being one of the richest and brightest orange-scarlets to be found in the family, and marked with a Cactus-like glow of rich violet over the upper segments. It will thus be seen that the colouring is something like that of Duchesse Adelaide de Nassau, but the form is vastly superior."

Price 31s. 6d. each.

Azalea (indica) Vesuvius.

An exceedingly brilliant orange-scarlet flower, slightly tinted with purple on the upper petals. It is of moderate size, fine form and substance, and undoubtedly quite unequalled in the brilliancy of its colour. Its foliage is small, with a close compact habit.

This variety is considered by some critics to equal the foregoing, and is allowed by all to be a first-class novelty of sterling merit.

It was awarded a First-class Certificate at the June Exhibition of the Royal Horticultural Society.

"Another variety of the same style of colour, and from the same source, called Vesuvius, has been equally successful with the former (Stella) in gaining a First-class Certificate. We believe this also will prove a variety of superior character; and have very little hesitation in recommending both of these."—*Gardeners' Chronicle*, July 25, 1864, p. 602.

Price 21s. each.

Azalea (indica) Comet.

A bright salmon scarlet variety, with violet tinted upper petals, many of the flowers being half salmon and half bright violet.

Its habit is vigorous and good. This will doubtless prove a very novel and effective variety.

Price 21s. each.

The above Three Azaleas will be sold at the prices mentioned, if taken singly; or the Set of Three for 3*l.* 3*s.*

The usual discount to the Trade.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

CHARLES TURNER begs to recommend his extensive COLLECTIONS of the following, now ready :—

PELARGONIUMS, large and spotted, 18s. to 42s. per dozen.
FANCY PELARGONIUMS, 12s. to 30s. per dozen.
FRENCH PELARGONIUMS, 12s. to 21s. per dozen.
CINERARIAS, 12s. to 24s. per dozen.
AURICULAS, 18s. to 63s. per dozen.
CARNATIONS, 18s. to 30s. per dozen pairs.
PICOTEES, 18s. to 30s per dozen pairs.
PINKS, 9s. to 20s. per dozen pairs.

The Royal Nurseries, Slough.

FLOWER SEEDS. Post-free.

LAPAGERIA ROSEA	2s. 6d. and 5s. per pkt.
CLIANTHUS DAMPIERI	2s. 6d. ,,
MIMULUS, Extra choice	1s. and 2s. 6d. ,,
ZONALE PELARGONIUM, Extra fine,	1s. and 2s. 6d. ,,
ALPINE AURICULA	1s. and 2s. 6d. ,,

The above are all New Seeds of this year's growth, and guaranteed of the most genuine quality.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Woodlands Nursery and Seed Warehouse,

MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON are now offering the following Collections of BULBS

FOR CONSERVATORY and GREENHOUSE.

A.	B.	C.	C. C.
£4	£2	£1	10s.

FOR FLOWER GARDEN.

D.	E.	F.	F. F.
£4	£2	£1	10s.

FOR CONSERVATORY and FLOWER GARDEN.

G.	H.	I.	I. I.
£4	£2	£1	10s.

Full particulars of the above Collections are contained in the DESCRIPTIVE CATALOGUE of BULBS, which may be had free on application.

Polyanthus Seed.

MESSRS. WAITE, BURNELL, AND CO. beg to offer the above, saved by one of the most eminent Florists in England, selected from the finest laced flowers. Very superior. In packets 2s. 6d. and 5s. each.

Seed Warehouse, 181, High Holborn, London, W.C.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c.; amongst which are some very fine specimens. A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London N.

CARTER'S GARDENER'S VADE-MECUM.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 29, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Nov. 3—Linnean .. .. 8 P.M.

In an article on the influence of the EXCLUSION OF LIGHT ON VEGETATION by Monsieur H. EMERY, Professor of Natural History in the Lyceum of Versailles, which appeared in "Adansonia," vol. 3, 1863, p. 267, the author, after adverting to the numerous proofs which meet us everywhere, that the production of adventitious roots is facilitated by the exclusion of light, while that of adventitious buds depends rather on its presence, takes occasion to allude to an experiment of the Marquis DE GOUFFIER, published in the Abbé ROZIER'S Journal de Physique, May, 1778, of placing the bulb of a Hyacinth with its head downwards in water, while the base was exposed to the free air. Monsieur EMERY gives the following account of his repetition of the experiment, which may be easily made by any of our readers, and will be at least as interesting as the growth of an acorn in water, which was a few years ago so popular, and may be varied by observing the difference of growth in a transparent glass, and in a vessel which entirely excludes the light.

He chose for the experiment a vessel of stone ware with a wide neck, and having filled it with water he placed a Hyacinth bulb with the head downwards, so that the terminal point of the bulb was in the water, while the body of the bulb, on the contrary, was exposed to the free air. In doing so he altered the normal course of vegetation—1, in obliging the plant to change the direction of the poles of its major axis; 2, in immersing the part from which the stem must ultimately proceed, and depriving, on the contrary, the organ from which the roots proceed, of moisture; and 3, in keeping the stem and its appendages in darkness, and leaving the part destined to produce the roots and their dependences exposed to the action of light.

At first he felt strongly inclined to believe that the plant would not be developed under these conditions, or, supposing vegetation to take place at all, he expected at least to see roots spring

round the terminal bud, and others round the root-disc. At any rate, notwithstanding the Marquis Gouffier's record, he did not believe in the appearance of leaves in the water, being persuaded that these organs, if by any possibility they should begin to shoot, would be speedily decomposed by the liquid. All his persuasions, however, were completely contradicted by experience, a circumstance which so often happens in physiology, for after a few weeks the plant flourished in the water.

The state of the Hyacinth at the moment our author was writing was as follows:—The root disc was entirely free from roots, nor were any developed in any other part of the plant. This circumstance was not, however, new, for it was already indicated in the memoir of the Marquis de Gouffier. Besides, it is well known, says our author, to all who make Hyacinths vegetate with neither earth nor water, by placing them simply upon a mantelpiece or any other article of furniture. The leaves, though they had their ordinary consistence and dimensions, were blanched, possessing only the slightest tinge of yellow. The truss, before flowering, had curved its free extremity into the form of a hook, and the point had thus reassumed its ordinary direction; six buds were expanded, but the others were beginning to become decomposed without opening. The flowers had a reddish solferino tinge, and the usual perfume.

Another Hyacinth which was treated in the same way appears to have vegetated more vigorously. Its truss was laden with buds, which were beginning to expand, and showed a corolla of a bright blue.

The first Hyacinth put forth a second spike of flowers, which were still in bud. This, like the other, was beginning to curve back and direct its apex to the zenith. It is often said, though many facts could be brought forward against the notion, that it is the green organs only which have the faculty of directing themselves towards the light, but this was not the case here, as the two flower stems were of a yellowish white.

The leaves in the first plant had stomates presenting all the characters which are found in Hyacinth leaves developed under the ordinary conditions. On the contrary, the roots of another plant of the same variety, which vegetated with the base of the bulb immersed in a common transparent Hyacinth glass, and consequently exposed to the light, did not offer a trace of these organs. The sepals, moreover, of the blanched plant equally exhibited stomates. Finally, in examining one of the flowers after being expanded about 10 days, our author was struck at finding the pollen perfectly formed and intact (at least in appearance) in anthers whose walls were decomposed and reduced to pulp. The ovary contained a great quantity of ovules, but no pollen tubes were found, a circumstance which could scarcely be expected, as the abnormal duration of the flowers seemed to indicate that impregnation had not taken place.

It is certainly very remarkable that no adventitious roots appeared, as they occur so readily in many cases where the axis is inverted, as in the case of Gooseberry trees accidentally buried while their roots are free, or in common cuttings. The stems in such cases readily produce roots, while the roots give out buds. The same thing has been observed in Myrtles. M. Emery cites also the case of roots developed from the three-quarters grown fruit of Cactus Opuntia and other species, as observed by Thuin at the commencement of this century, and confirmed by Nevan at Liverpool, and more lately by Trécul. It seemed the more remarkable, because in Beans placed in water and shut up in a bureau, a multitude of roots were developed on the stem from the neck upwards for the space of from four to six inches, being confined to the first drawn out internode, and not proceeding from the vital knot, as is so commonly the case in Potatos.

M. Emery derives a conclusion from a consideration of adventitious roots and buds in general, and the indifference with which the same part may produce them if placed under altered circumstances, that the germs of them are scattered in profusion through the plant. But the more correct and philosophical view is not that these organs are simply latent, and waiting for an opportunity of development, but that the tissues of the plant are capable of originating either buds or roots, according to the conditions in which they may be placed, though roots and buds are by no means to be considered as identical, because either under given circumstances may originate from the division of the same cell. *M. J. B.*

The statement in Van Houtte's "Flore" regarding the habitat of the beautiful Phalænopsis Schilleriana and P. amabilis, to which we alluded at page 963, leads us to make a few remarks on the subject, which may have a bearing on the cultivation of these and other plants in this country. We can remember a time when the impression was pretty general amongst us that all Tropical Orchids grew in dense shady places in their natural habitats. The reasoning which led to this opinion being formed, was somewhat like the following:—"These things are air-plants; they grow upon the stems of trees in dense tropical forests, and consequently under the shade of trees, where the sun's rays can rarely penetrate." The opinion formed in this way was brought to bear upon the construction of our Orchid houses. It was considered necessary that such buildings should face the north, and some of our readers may still remember the old Orchid house in the garden of the Horticultural Society of London at Chiswick, in which the collection was cultivated for a number of years. In this case such an aspect was eventually considered unsuitable, and the Orchids were removed into a house which faced the south.

In so far as Phalænopsis amabilis is concerned, we are in a position to bear testimony to the truth of M. Porte's observation, that "one never meets with it in the forests, which are sombre and constantly moist." Some 20 years ago we had an opportunity of paying a short visit to the Philippine Islands, and were successful in procuring a large quantity of this plant, which at that time was very rare in England. Only one or two specimens had been introduced alive by Mr. Cuming, and the species was so rare and highly prized, that the late Duke of Devonshire had given the large sum of 100 guineas for one of them. During our travels in the interior of Luzon, we were careful to mark the conditions under which the plant grew in its native woods, and on referring to a journal kept at the time we find the following observations:—"The air-plants are not found so frequently in the dense shaded parts of the forests as on the edges of the woods, on trees by the road-sides, and in exposed situations. The genus Aërides is sometimes met with in the most dense parts of the forest, but Phalænopsis amabilis was not once observed in such a situation. The latter is commonly found growing on the branches of the Mango, in the cleared parts of the woods near the cottages of the natives, and sometimes on the tops of very tall trees, where it is fully exposed to the sun."

These observations, which were made on the spot to which the plant in question is indigenous, fully confirm what M. Porte has stated on this subject. We still recollect that to us the circumstance was somewhat unexpected, for we too had been led away with the common idea that Orchids flourished only when under the shade of trees. A personal inspection of their habits in the Philippine Islands, Java, the Eastern Archipelago, and India has however, corrected our earlier impressions, and has shown us that there are many species of this singular and beautiful family which luxuriate when under the direct rays of the sun. Some of the species would almost appear to be domestic in their habits, and are usually met with in most abundance on fruit trees which surround the dwellings of the natives. As a proof of this we have mentioned the preference which Phalænopsis amabilis has for the Mango trees which grow about the Indian villages.

Orchids are, in their habits, like many other plants in the vegetable kingdom. Some are found growing in shady situations only, while others would seem to delight in partial shade, or to succeed best in the full blaze of the sun. Every one knows that many of our evergreen shrubs grow in perfection under the shade of trees, while others will become sickly and eventually die in such situations.

In the Fern tribe we find that many of the species will live and thrive only in the shade, while others, as the common Brake for example, grow on our moorlands and other exposed places. It would be easy to bring forward many other examples of a similar kind.

The knowledge of the natural habitats of plants is oftentimes a matter of great importance to cultivators. Many valuable species have been lost to this country, owing to their natural requirements as to temperature, moisture, or shade having been imperfectly understood. We all remember the popular account of the introduction of the first Larches to Scotland; how, happening to be imported along with some Orange-trees and other exotics—natives of Italy, they were treated as tender plants and placed in a hothouse; how they withered under this treatment, and being supposed to be dead were thrown to the rubbish heap outside the garden; but that "being there covered with dead leaves and other rubbish, and aided by a wet season, they revived, and, sending forth shoots, soon became vigorous-growing trees."*

We know from observation and experience that plants, as well as animals, are formed for those situations on the earth's surface which they inhabit. The reason why some things flourish in the shade and others in the sun, although sometimes apparent on an examination of their structure, is not unfrequently hidden from us. We only know that an All-wise Providence, which "doeth all things well," has formed them in this way to clothe the earth's surface, and to be "good for food and pleasant to the eye."

At a Meeting of the Fruit Committee of the Royal Horticultural Society held in the autumn of 1860, a very noble bunch of Grapes was shown of the Black Barbarossa Vine, said to have been grafted upon the Black Hamburgh. These Grapes were very much finer than those of the Barbarossa generally are. This circumstance led in the spring of 1861 to a good strong rod of the Black Hamburgh being chosen, in the large Conservatory at Chiswick, as a stock for a graft of the Barbarossa, which was worked upon it about the latter end of April or the beginning of May, when the Vines had shot sufficiently to prevent bleeding. The graft grew rapidly, and by the end of the summer had grown to the top of the Conservatory. The following season it was cut down to about six eyes, and allowed to bear a bunch of Grapes; this proved to be an improvement upon the Barbarossa on its own roots, but not so marked as in the following season, when the berries were much larger and blacker than on the parent stock. In the present season, the Vine being strong, the bunches are larger, though not of the size of the Barbarossa itself, but the berries are infinitely superior, being nearly twice as large, and the colour is a jet black, covered with a magnificent bloom. This Vine bore about six bunches, some of which are superior in size to that which was shown last week at South Kensington. Some are still growing in the Conservatory at Chiswick, and are well worth a visit to see them. Many other Vines have also been grafted in the large Conservatory, all of which have produced satisfactory results, although not in so marked a manner as the one under notice.

This intermingling of blood, so to speak, in the Vine, has long been looked to with a strong belief in its power to improve the quality of the fruit; and these Barbarossas may be regarded as a strong example of what is likely to be effected. At all events it is certain, that with the aid of its Great Conservatory, which is only different from an ordinary Vinery in being far better suited to the constitution of the Grape, assisted by the admirable collection of Vines at Chiswick, and guided by Mr. Eyles, whose skill as a Vine grower is unsurpassable, the Royal Horticultural Society has here an opportunity to achieve a great success—an opportunity which has, so far, been turned to good account.

—— Mr. Perry has in a recent number of the *Florist* called attention to a method of turning Rose prunings to account, by treating them as Rose Cuttings. He observes that most growers of this flower adopt the very desirable practice of shortening the long shoots of standard Roses in October or November, lest the heads should be broken during winter by winds or snowstorms, and it is these prunings, which generally go to the rubbish heap, which he points out how to utilize, by converting them into plants "on their own roots." His recommendation is to cut the shoots into lengths of four eyes, to take off all leaves but the top one, to plant them in a sheltered out of the way spot in freshly dug ground, and so that one eye only with its leaf is to be left peeping out of the ground, and to tread them in quite firmly. No covering or care are required in winter, unless worms loosen the ground, when it is to be trodden down firmly again. The cuttings should be inserted thickly, as a large per centage will die off. Those that survive should be left till the next autumn before they are removed. From about a thousand cuttings of last season he has this year a hundred fine plants fit for removal to proper quarters. As to the advantages of this method, Mr. Perry points out, that with very little trouble or expenditure of time thousands of cuttings can be planted in a few square yards of ground; that the materials

* Loudon's "Arboretum Britannicum," p. 2359.

cost nothing, but would otherwise be thrown away as refuse; and that in this way stronger plants on their own roots are obtained than in any other. Some sorts, he adds, are almost certain to root, while others as certainly fail. Among the former are mentioned Jules Margottin, Duchesse d'Orleans, La Reine, Auguste Mie, and Général Jacqueminot, all particularly desirable kinds for garden decoration.

—— Bearing on the question of the best Stocks for Vines, alluded to in a previous page, we observe in a paper on the gardens at Castle Kennedy in the *West of Scotland Horticultural Magazine*, that the Trebbiano is strongly recommended for this purpose. "The stock of this Vine is found to be the best on which to graft the Muscat of Alexandria, which being a shy rooter, does much better when grafted on a strong grower like the Trebbiano. Such is Mr. Fowler's opinion." We believe in other quarters the Black Hamburgh is considered the best of all stocks, and we have both seen and heard of excellent results attending its use, as for example, in the case of the Muscat Hamburgh at Dalkeith, and the Barbarossa at Chiswick. The question is not without importance to Grape growers, and we should be very glad to elicit the opinions of such of our readers as may have given it their attention.

—— The Apple Crop in France seems, like our own, to have been very abundant. We gather from the statements in the papers that these fruits are so plentiful in the department of the Meurthe, and particularly in the district of Sarrebourg, that growers are willing to give two sacks of Apples for one of Potatos; and that while a bushel of Potatos is worth 15 sous, a bushel of Apples is worth only 8. In fact, the farmers in the Meurthe would be much embarrassed to dispose of their superabundant crop were it not for the Alsacians, who buy them up to be converted into cider and brandy.

—— Scolopendrium vulgare Couzensii is one of the most curious and interesting forms of its family. It was found by Mr. J. Schoit Couzens in a hedge-bank in Devonshire, and may be briefly set down as one of the dwarfest and most branched and crispy of the many branched crispy forms of the wondrously multiform Hart's-tongue Fern, which in its normal state is one of the simplest of all known Ferns, in regard to its form. The extreme height of this novel variety is from 4 to 5 inches, and the plant forms a close curly tuft, all frill so far as can be seen from a superficial examination, while its little crenato-lobate margins are abundantly proliferous. A better notion of this curious monstrosity will be formed from a description of a frond now before us (not one of the largest which the plant has produced), which scarcely exceeds 3 inches in height, whose stipes branches near the base into six parts of unequal strength, and in which the normal strap-shaped character is utterly obliterated. These branches are made up thus:—

1st branch: forks at an inch from its base, each division having three stipitate portions, the first small irregularly roundish; the second larger, having three divisions; the third with five divisions; the fourth with ten divisions; the fifth with six divisions; and the sixth with four divisions—29 divisions in all, each having a more or less decided flabellate outline, with, as everywhere, a wavy or frilled and crenato-lobate edge.

2nd branch: smaller and simple below, with a stipe-branch an inch long, the lamina also an inch long, dividing at top into six flabellate divisions.

3rd branch: small and slender, the stipe-branch and the lamina each an inch long, the latter spreading out into eight roundish fan-shaped divisions.

4th branch: stouter, with a stipe-branch an inch long, and above this dividing into two stipitate portions, the first shortly stalked and terminating in eight divisions, the second with a half-inch stalk, in two parts, one half with fifteen, the other with eighteen divisions—forty-one in all.

5th branch: slender, with an inch stipe-branch, the lamina forming two divaricate portions, one of which has nine and the other eight divisions—seventeen in all.

6th branch: a sort of offshoot of the next, with a short stipe-branch, and fourteen divisions.

7th branch: stout, with a stipe-branch an inch long, and an irregular crispy head of twenty-two divisions in one lobe, fourteen in another, and fifteen in a third—fifty-one in all.

It will thus appear that in this one frond, some three inches high, there are developed 166 of the little flabellate terminal lobes, and when it is remembered that each of these is itself frilled in a small way with numerous crenato-lobate marginal incisions, some notion may be formed of the complicated mass which a well grown tuft of this very interesting variety will present. *M.*

ORNAMENTAL PLANTING.

No. 5.—Pictorial Trees and Shrubs.

It is not my intention here to offer a general list of trees that can be used intact in ornamental planting. Information of that kind, to be of any value must be founded on a knowledge of the particular soil, situation, and objects in view. My purpose is merely to single out a few of the most prominent trees—representative trees, may I call them?—which it would seem desirable to introduce everywhere for the sake of their strongly marked characters, beauty, or distinctness. Around these, others of similar character may be gathered, should it be found necessary to extend the number of any particular group. From this point of view I shall arrange the materials which I propose to to select, under the two leading heads of Form and Colour.

Under the primary division of Form the following subdivisions appear warranted:—

1. Pyramidal trees and shrubs
2. Round-headed trees and shrubs
3. Spreading trees and shrubs.
4. Weeping trees and shrubs
5. Trees and shrubs with large compound leaves
6. Trees and shrubs with large simple leaves
7. Trees and shrubs with small simple leaves
8. Pillar climbing or wall plants
9. Trailing plants for low banks, rock-work, Ferneries, &c.

1. Pyramidal Trees and Shrubs.

Evergreen:—
Abies excelsa pyramidalis
Cupressus sempervirens
,, torulosa
Ilex Aquifolium argentea stricta
,, Aquifolium ovata
,, balearica
Juniperus excelsa
,, fragrans
,, hibernica
,, stricta
,, virginiana
Pinus Laricio
Quercus Ilex Fordii
Taxus baccata fastigiata
,, ,, pyramidalis
Thuja gigantea
,, pyramidalis
Deciduous:—
Alnus glutinosa laciniata
,, asplenifolia
Cratægus Oxyacantha stricta
Fraxinus monophylla
Larix europæa
Populus fastigiata
Pyrus Aria
Quercus Cerris
,, pedunculata fastigiata
Robinia Pseud-Acacia pyramidalis
Sambucus pyramidalis
Ulmus campestris stricta
,, montana fastigiata

2. Round-headed Trees and Shrubs.

These require to be grown as standards, and kept in this form by occasional pruning.

Evergreen:—
Buxus, of sorts
Cerasus Laurocerasus
,, ,, colchica
,, lusitanica
Ilex Aquifolium [vars.
Juniperus virginiana, in
Laurus nobilis
Viburnum Tinus
Taxus baccata, in varieties
Deciduous:—
Æsculus Hippocastanum
,, rubicunda
Caragana Chamlagu
Cerasus Chamæcerasus
,, vulgaris, fl. pl.
Cratægus, of sorts
Cytisus, of sorts
Ornus europæa
Prunus myrobalana
,, spinosa fl. pl.
,, prunifolia
Pyrus arbutifolia
Robinia Pseud-Acacia umbraculifera
Syringa persica
Viburnum Opulus sterilis

3. Spreading Trees and Shrubs.

This, the commonest form in the Vegetable Kingdom, will be sufficiently represented by the selections made under other heads.

4. Weeping Trees and Shrubs.

Evergreen:—
Cotoneaster buxifolia
,, microphylla
Ilex Aquifolium pendula
,, ,, albo-marginata pendula
Abies excelsa pendula
,, monstrosa
Glyptostrobus pendulus
Juniperus communis pendula
,, ,, oblonga pendula
,, virginiana pendula
,, ,, viridis
Taxus baccata Dovastoni
,, ,, Jacksoni
Deciduous:— [dula
Amygdalus communis pen-
Betula, three sorts
Cratægus Oxyacantha pendula
Cytisus, of sorts
Fagus, two sorts
Fraxinus, three sorts
Gleditschia Boqui
Juglans regia pendula
Ligustrum, two sorts
Populus, two sorts
Pyrus, two sorts
Quercus, two sorts
Robinia Pseud-Acacia pendula
Salix, four sorts
Sophora japonica pendula
Tilia alba pendula
Ulmus, four sorts

5. Trees and Shrubs with Large Compound Leaves.

Evergreen:—
Mahonia Aquifolium
Deciduous:—
Amorpha fruticosa
Ailantus glandulosa
Aralia japonica
Fraxinus, of sorts
Gleditschia, of sorts
Juglans, of sorts
Rhus typhina

6. Trees and Shrubs with Large Simple Leaves.

Evergreen:—
Aucuba, of sorts
Cerasus Laurocerasus
,, ,, colchica
,, lusitanica
Photinia serrulata
Yucca, of sorts
Deciduous:—
Acer, of sorts
Castanea, of sorts
Catalpa syringæfolia
Liriodendron tulipifera
Magnolia, of sorts
Paulownia imperialis
Platanus, of sorts
Populus candicans
Rhamnus latifolius

7. Trees and Shrubs with Small Simple Leaves.

Evergreen:—
Artemisia Abrotanum
Berberis, of sorts
Buxus, of sorts
Cotoneaster, of sorts
Fontanesia phillyræoides
Phillyræa, of sorts
Quercus Ilex
Abies, of sorts
Cedrus, of sorts
Picea, of sorts
Pinus, of sorts
Wellingtonia gigantea
Cupressus, of sorts
Juniperus, of sorts
Thuja, of sorts
Taxus, of sorts
Deciduous:—
Berberis, of sorts
Betula, of sorts
Coriaria myrtifolia
Cratægus, of sorts
Hippophaë, of sorts
Hypericum, of sorts
Populus, of sorts
Prunus, of sorts
Pyrus, of sorts
Salix, of sorts
Spiræa, of sorts
Ulmus, of sorts

8. Pillar Climbing or Wall Plants.

P. Pillar or Climbing.—W. Wall Plants.

Evergreen:—
Berberis Darwinii, W
Ceanothus, of sorts, W
Cotoneaster, of sorts, W
Cratægus Pyracantha, W
Escallonia, of sorts, W
Evergreens, of sorts, W
Eurya latifolia variegata, W
Garrya elliptica, W
Magnolia, of sorts, W
Osmanthus, of sorts, W
Photinia serrulata, W
Rhamnus Alaternus, of sorts, W
Hedera, of sorts, W.P.
Jasminum revolutum, W
Lonicera, of sorts, W.P.
Deciduous:—
Cercis Siliquastrum, W
Chimonanthus fragrans, W
Cydonia, of sorts, W
Forsythia viridissima, W
Magnolia, of sorts, W
Rosa, of sorts, W.P
Rubus, of sorts, W.P
Ampelopsis hederacea, W.P
Aristolochia Sipho, W.P
Atragene, of sorts, W.P
Bignonia, of sorts, W
Clematis, of sorts, W.P
Jasminum, of sorts, W.P
Lonicera, of sorts, W.P
Tecoma, of sorts, W.P.
Vitis, of sorts, W.P
Wistaria, of sorts, W.P

9. Trailing and Dwarf Flowering Plants for Low Banks, Rock-work, Ferneries, &c.

Evergreen:—
Cistus, of sorts
Cotoneaster, of sorts
Cratægus Pyracantha
Daphne Cneorum, of sorts
Helianthemum calycinum
Ruscus Hypoglossum
Skimmia japonica
Cryptomeria nana
Abies, dwarf sorts
Juniperus, trailing sorts
Arctostaphylos Uva ursi
Pernettia, of sorts
Polygonum vaccinifolium
Vaccinium Vitis idæa
Hedera, of sorts
Deciduous:—
Amygdalus, dwarf sorts
Cydonia, of sorts
Cytisus, of sorts
Genista, of sorts
Philadelphus coronarius nanus
Ribes alpinum pumilum
Rubus fruticosus fol. varie-
Salix, dwarf sorts [gatis
Ampelopsis hederacea
Aristolochia Sipho
Menispermum canadense
Periploca græca
Vinca, of sorts

In addition to the foregoing, sundry spring-flowering bulbs, as Snowdrops, Winter Aconites, Scillas, Lily of the Valley, Narcissus Bulbocodium and minor, Fritillarias, Erythronium, dwarf Iris, Leucojum vernum, may be added to the Fernery. They will flower early and disappear before the Ferns are in condition. *William Paul, Waltham Cross, N.*

NOTES ON GARDENS.—No. XXI.

Royal Botanic Garden, Glasnevin.

(*Continued from* p. 1011.)

There is a very good and extensive collection of Orchids for a botanic garden at Glasnevin, but of course, when Orchids are made such an extensive and expensive specialty of by some amateurs and nurserymen, public gardens rarely furnish those who have seen such collections as those of Mr. Warner, Mr. Day, and Mr. Turner, with astonishing interest. Where your great grower starts with as many of the best plants of a new thing as he likes to buy, the botanic garden begins with a small plant (if indeed one can be got), and so is always behind in the Orchid race—for money is the chief ingredient used in getting up a fine collection of Orchids, and this is rarely to spare in a botanic garden! Over the Orchids the largest Pitcher plant I have seen was hanging, running along the roof, while each pillar had a different species of Hoya wreathed around it. These, with a beautiful pyramidal Nutmeg bush, 10 feet high, and such fine-leaved plants as Cossignia borbonica and Theophrasta nobilis, threw a very desirable interest and variety amongst the Orchids, which comprise many new and rare kinds. Ferns of all sorts are very largely grown at Glasnevin—a spacious house devoted to the smaller exotic species containing an enormous number, many of which made their first appearance in this country at Glasnevin. But small Ferns have now become so abundant, that in private, and I think public places too, the old pruning-knife of selection will have to be applied to some of the genera. The pillars of the house were made verdant and interesting by binding Moss, &c., around them, and planting thereupon Lycopods and small Ferns. One beautiful, and I believe, rare Fern, Mohria achilleæfolia, I must mention, and regretfully leave all the others, new, curious, and rare—except by the by Lycopodium Phlegmaria, a great favourite of mine—in the obscurity of pencil-mark, and proceed to say something of the Palm-house, which is entered from the Fernery. One other inmate of the Fernery, however, I must not forget, and that is the common Ling, which had grown from seed in many of the baskets containing Ferns, and being allowed to grow away fell down very gracefully from being drawn and weakened of course, but was full of flower, which, strange to say, it yields exactly at the same time as the plants out of doors. Grown thus it forms an excellent basket plant.

However agitated the visitor's bile may be from the external aspect of the new Palm house, it is immediately allayed when he enters it, as a better filled, arranged or managed structure of the kind it would be difficult to find. Arborescent Ferns again were abundantly represented amongst the Palms, especially near the side of the house, the lead being taken by a magnificant Cyathea serra 20 feet across the crest and nearly as much high, followed by Cyathea elegans, Alsophila aculeata, Marattia ascensionis, Alsophila infesta and ferox, Marattia elegans and alata, both very distinct and noble Ferns, Alsophila glabra, and several recently imported varieties or species of the same genus unnamed; with Amphicosmia Beyrichiana, a rapid growing fine and distinct Tree Fern, and numerous others of good size and in the best possible condition. In fact it is mere justice to say, that never in any botanic garden have I seen these wonderful Tree Ferns in such great variety, and in such luxuriant health. With the Palms too were associated, and very appropriately, such plants as Musa Ensete, the Anchovy Pear, the Water-tree, Zamia Skinneri—the most remarkable leaved species we have; Urtica Gigas, the giant Nettle of Australia, which stings most horribly, and grows in its native clime 30 feet high; and Coccoloba pubescens, with leaves 3½ feet in diameter, trained to one vigorous single stem, and looking not only extraordinary but very effective. Is it too scarce to permit of us seeing the plant in a good state at our shows? Mr. Bain is successful in its propagation. In the Cambridge Garden I have recently seen a large old plant of it broken into a very bushy head, but in that state it is not at all so singular as when its full vigour is devoted to the leaves on a simple stem. The Cocoa-nut Palm was in excellent

health, and so was the Ivory-nut, but the same may be said of the whole collection—a very extensive one—the names of the best and rarest of which, with many other plants of interest, I must omit, or run in danger of writing of the place for weeks. A new Calamus from Moreton Bay was flowering on the ends of spiny peduncles as thin as wire, weeping very gracefully, and in many cases 6 feet long.

In the remaining wing of the Palm-house range Tree Ferns, such as Dicksonia Youngii and Alsophila Loddigesii, again turned up, with the Warratah in good health, and the Disa in flower; but this wing is chiefly devoted to Camellias, Azaleas, and popular greenhouse plants; interspersed, however, as every house at Glasnevin is, with plants of the greatest interest to the botanist.

The most precious of the filmy Ferns at Glasnevin are cultivated in a secret-looking old lean-to, built against the north wall of the curvilinear range, and redolent of river-bed and dripping cave. At one end of it a small compartment was partitioned off, into which a little stream from the roof was trickled over a healthy mass of the Irish Fern, while the end of the compartment built up with turf was covered with the British Hymenophyllums in the most luxuriant health and full of fruit. Standing amidst the Killarney Fern was a remarkably healthy and well-developed Trichomanes reniforme, evidently rejoicing in the conditions so suitable to our own filmy Ferns. Here, too, with Leptopteris (or rather Todea) Fraseri and superba, and a quantity of freshly imported Schizæa elegans, were two very diminutive subjects, probably new to cultivation—new to me at all events, —Symphyogyne subsimplex and hymenophylla—plants to some extent intermediate between Hymenophyllums and Jungermannias, one from New Zealand and the other from New South Wales. Among the Trichomanes a large batch of T. anceps fully displayed its very interesting fructification, and among the Australian Hymenophyllums were several bits of the Tunbridge Wells Fern, which often comes to Glasnevin from Australia. The Ouvirandras fenestralis and Berneriana were finely grown in a hot pit, built like the monitors, considerably below the wind and water-line to expose as little surface as possible to the enemy. The plants of both species were growing on large lumps of firm peat, the kind of peat least likely to decompose in water. Young Pitcher plants were very abundant in this the hottest and moistest of Glasnevin structures, and the rarer species were finely grown, there being a magnificent plant of Nepenthes sanguinea with N. lanata, Phyllamphora, lævis, Dominiana, ampullacea, picta, and Rafflesiana. The collection of Pitcher plants in fact is almost unique for a botanic garden. Fine and rare fruits and medicinal plants were here too, such as the Mangosteen, the Brazil Nut, the famous Manchineel tree, the true Doum Palm, Calyptrogyne sarapiquensis, the Stephensonia and other extremely rare young Palms, with choice succulents and Ferns requiring great heat; among the latter were a multitude of Trichiocarpa or Cionidium Moorei, the Golden Cheilanthes, and some new Lindsæas. At the extreme end of this structure was a partition of glass dividing off about one light's-length, and this being lined with turf was a capital place for raising choice Ferns from spores, growing Trichomanes, &c. Never before had I seen so many rare and choice things in a "pit," but there is yet a bye way or two of the indoor department to be explored, especially an intermediate "store house," in which were the Cinchonas, the Sarracenias, numerous plants received from Swan River, and many Cape bulbs. Here again was interest for the Fern-lover, contributed by rarities such as Ceterach aureum, Gleichenia alpina, rupestre, and others, the true Pteris argentea, Selaginella obtusa, and a little stock of Mohria achilleæfolia—a beautiful Fern. Drosera dichotoma was abundantly grown and flowered here—placed up close to the glass; and there was also a plant of the Wooden Pear, a new Tupa, Araucaria Rulei, a new Bougainvillea, and I believe the only flowering plant of Combretum macropetalum in the country.

Amongst the potted Alpines arranged behind this house a good many Laplanders were to be seen, but the Diapensias brought home by Dr. Moore were dead, proving themselves very difficult to cultivate. Rubus Chamæmorus, brought from the same region, was growing very fairly in a pan of wet peat against a north wall, roof-water being allowed to trickle over it from a spout. Woodsias were abundant, and Androsace Laggeri, a very distinct and rare Alpine, was also present. Many were the plants correctly catalogued "British," that for all most of us see of them in a living state, might as well inhabit the bogs and weird places of Patagonia, so that it is always acceptable to make the acquaintance of some of them in a botanic garden. In frames devoted to such subjects might be seen amongst other rarities, the Rhynchosporas, the Elatines, Isoetes of various species, Ceratiola ericoides a rarely seen American, Pyrolas in fine health, Herminium Monorchis, Pilularia globulifera, and Sturmia Lœselii.

New plants generally I have purposely omitted, as of course they all find their way to Glasnevin as soon as "sent out," but a very interesting, and probably very hardy Palm, Chamærops khasiana, must not be passed over. It is quite distinct fram Fortune's Palm, and the seeds from which the plants were raised were gathered in the Himalayan region by Major Madden "where there were 4 feet of snow at the base of the trees." Some of the Chamædoreas too, such as C. graminifolia and Ernesto-Augusta are well worth recommending for the decoration of large stoves, &c, as nothing can surpass the exquisite grace displayed by these plants at Glasnevin.

The Museum is a small shed-like building of iron, containing some useful and interesting collections, but from its small size and want of any conveniences for arranging objects, utterly unsuited for its purpose, and quite out of keeping with the garden. Surely, if it is impossible to get a grant for a museum building worthy of the garden, and of Dublin, it would be wise to remove the collection to some respectable Dublin museum, and hand the present building over for a lecture or garden store room, for either of which it is well adapted. But this is after all but a slight blemish, sure to be remedied at no distant day, and even if not, there are few who would miss the cut and dried department, where there is so much living interest and beauty. I have next to treat of the out-door attractions and arrangements, which it would be difficult indeed to increase or improve upon. *Wm. Robinson.*

(To be Continued.)

CLAY GARDEN SOILS.

THE following remarks have been thrown together principally in reply to an inquiry from a Correspondent at Newcastle, who desired to know how he could best improve the soil of a new garden, which soil was composed of 30 inches in depth of almost pure yellow clay, lying on a substratum of sandstone; and also the utility or otherwise of giving a dressing of river sand and lime. The subject is not without a certain degree of interest, and it is hoped that a rather extended reply may prove of more general use.

There are various methods in practice for improving both the texture and fertility of clay lands, such as what is sometimes called smother-burning; also the application of quicklime, and siliceous or other sharp materials. The two former act as amelioratorsand fertilizers; the latter contributes principally to the better working of the soil; but at the same time greatly assists the chemical action of manure, and the influence of the atmosphere by keeping the soil open and porous, so that such ingredients must be considered as indispensable to a state of fitness for cultural purposes.

The ultimate success or utility of whatever operations may be entered upon with a view to improve the texture and increase the fertility of clay soils, will greatly depend upon the porosity of the substratum. If it is not naturally sufficiently porous to carry off within a reasonable time all the superabundant water, it must be made so by thorough drainage. This is imperative, for it would be useless to break up and open the soil for the passage of water, if that water were permitted to lie at the bottom in a state of stagnation. Drainage then being indispensable, must be made efficient. Draining pipes alone are not efficient in pure clay; they are useful for the passage of air, and as a channel for the water to pass away, but they should be covered to a good depth with broken bricks, or stones, or even vitrified clinkers from furnaces. The depth at which the draining pipes should be laid must be regulated by circumstances. If the garden is intended for vegetable culture only, and the outfall is good, an average depth of 4 feet will be sufficient; but if fruit trees are contemplated to be grown after the ground is brought into a fit state to receive them, then an average depth of 5 feet is the least that can be allowed, and of that depth at least 18 inches of rubble should be laid over the pipes before filling in.

When this done the whole should be broken up, by the process of trenching, to the uniform depth of 2 feet, and as the operation proceeds the bottom of each trench should be covered with quicklime, a good dressing being also put over the next layer that is thrown in from the succeeding trench. The bottom spit of each trench should be thrown up roughly on the top in lumps rather larger than bricks, and when these lumps are sufficiently dry, it would be well to proceed to burn them at once. This may be done in a simple manner, in a neighbourhood where coal is abundant and cheap, by making up with wood and coals a good body of fire, and then heaping thereon the dried lumps of clay, taking care to strew small coals over the successive layers, which must be put on at intervals—that is to say, when it is found that the fire has got pretty good hold of the last layer, another is to be put on immediately. At the same time the process must be a gradual one, and too much must not be laid on at first; but when a large body of fire is obtained, it is best then to heap on a large supply, and to cover it with some of the finer soil so as to confine the fire, and thus to calcine the lumps of clay rather than incinerate them by burning to a red heat. In this method any amount of clay may be burned in one large heap, but for the convenience of after removal it is best to have several fires, according to the space to be operated upon. When the heaps are all calcined, and the fires exhausted and cooled down, let the whole be spread out equally over the whole surface; and in the case to which these remarks more immediately apply, I should not hesitate to cover the surface with as much as three inches of the river sand alluded to, and then leave the whole quiet for a month or two, according to the season.

Whilst these operations are in progress for the amelioration of the surface soil, the lime below will have been silently performing its due share of the work, as it is comparatively quick in its action on clay, and soon becomes assimilated with it, so that after the expiration of two months or so, as the case may require, the process of incorporation may be commenced by turning the whole over again down to the lime at the bottom of the trench, taking especial care to thoroughly mix all the ingredients together as the operation proceeds. There is, however, no objection to there being a few lumps of clay left in a disintegrated state, as they will help to keep the soil open.

The ground will now be in a fit state for cropping, but by no means must any manure be applied the first season, nor, indeed, until after another turning over, so that the lime may become more intimately assimilated with the soil; because lime and fresh manure do not act well together. And for this reason, the first dressing of quicklime ought to be a pretty good one, as it would not do to be often repeating the dose on fresh land which is under a course of manuring and cropping. With old garden soil, which has been manured year after year, the case is different, for then there is a quantity of inert vegetable matter which a good dressing of quicklime brings into immediate action.

Previous to cropping, as the soil will be found in damp weather to be very greasy and clammy, I would strongly recommend the operator to cover the whole surface with a couple of inches of finely sifted coal ashes, from which every particle of cinders or clinkers have been removed. This will greatly facilitate the operative part of cropping, on account of its being so clean to walk upon, and at the same it is one of the very best dressings which can be given to heavy clay land; and this dressing may be repeated with advantage at each successive cropping.

The following season, after the soil is again turned over and mixed, the application of manure may be commenced for such crops as require it. At the same time, if the clay still appears to predominate so as to make the soil difficult to work, more sharp materials must be added, and in a very few years the character of the soil will be entirely changed. *John Cox.*

Home Correspondence.

Pampas Grass.—I think you are under a mistake respecting the character of the male and female Pampas Grass (p. 992). I have two splendid plants 8 years old, in great beauty, male and female, the male a silver white, the female slightly tinged with red and drooping, now full of seed. I enclose a part of the flower of each. I have no doubt that seedlings vary—indeed I have another female plant with flowers twice as large and almost red, but the flowers are so heavy that the stem will not stand the winds. The Pampas Grass, when well grown and well managed, is one of the finest things that has ever been introduced. I was at Elvaston and Chatsworth a short time since, and was informed that at neither place could they grow it. Why?—because it was not planted in a suitable situation. It requires a deep—very deep—and rich soil, and wet. During the past summer I have given my two plants 15 to 20 gallons of water each, twice a week, and they have not a dead or drooping leaf. When winter approaches I place a good coating of long dung around the roots, and also some Spruce branches, say 2 to 3 feet thick. This keeps the plant in health during the winter. In May, as soon as the young shoots begin to grow, I put on a strong pair of gloves and pull out every dead flower-stem of last year and all the dead leaves, of which this spring I had a basket full. Wherever I have seen it grown this is neglected, and the consequence is an unsightly plant, and should a severe winter come, death—not, I think, from frost, but from the old leaves and stems retaining a great amount of moisture, which rots the plant at the heart. *J. D. W., Manley Rectory.* [What you send as the female, bearing seed, is in reality the male, with undeveloped stamens, as may be seen by carefully examining the forwardest of them as they protrude from the glumes. The silvery specimen is female, but a large proportion of the flowers appear to be abortive.]

Pear-tree Fungus. — Some years ago I was much troubled with this Fungus, and was recommended as a cure to pick off and destroy by burning the infected leaves. This would have been an endless work, and dangerous to the trees, as some of them had almost every leaf diseased, and few plants will stand such a denuding process while in active growth. I tried sulphur, and I am happy to say have entirely or almost entirely put the enemy to flight, so that for some years I can scarcely find a diseased leaf on trees that previously scarcely furnished a sound one. The time and mode of application were as follows: choosing the morning of a dry day just when the leaves were unfolding in spring, I syringed the trees thoroughly with water impregnated with flowers of sulphur—say a handful to five gallons; and also gave them a dusting of dry sulphur when done. To make sulphur mix with water kindly, moisten it previously with a little strong spirits or alcohol. The first season I think I did this twice,

and I was much gratified to find that the enemy had been routed, as the foliage remained quite healthy all the season. The following season I did the same, and I have now to add that I am entirely rid of the pest, for which I am truly thankful, as it had got so bad that I feared I should have been forced to root out the trees. *John Lyell, M.D., Newburgh, Fife.*

Orchard-house Fruit.—Seeing an account of some remarkable Pears in your columns (p. 989), I have been induced to send you the following remarks concerning a Duchesse d'Angoulême tree, grown in an 11-inch pot, three years old from the graft, which was exhibited by Mr. Thomas Tweedie, Merchant, Annan, and which drew forth especial notice at our Lower Annandale Horticultural Show; the tree bore eight Pears, the largest of which weighed 20 oz., and the eight collectively, 7 lb. 14 oz. I have had frequent opportunities of viewing Mr. Tweedie's garden and orchard-house, in which he practises with such success as an amateur, and I am sure that if others saw what he accomplishes with considerable care, but at comparatively small pecuniary cost, the luxury of an orchard-house would be much more generally indulged in. Mr. T. had plenty of Vines in pots with from 10 to 12 bunches on them, weighing upwards of 1 lb. per bunch. *Christopher Scott, Annan Nursery.*

Fruiting of Wistaria sinensis (see pp. 941, 965).—It may be worth recording that this fruited three times during the 10 years I was at Golder's Hill, Hampstead. We had a fine plant of it in the conservatory; the largest number produced in one year was seven pods, which contained five good seeds; these all vegetated and made strong plants, two of which flowered the second year after sowing. In the other seasons there were but three pods, with two good seeds in them. *T. Pilbeam, Nantwich, Cheshire.*

Bananas.—Seeing at p. 1012 a letter from a "Gardener" relative to Bananas, I beg to inform him that the usual custom, as seen by myself in Peru, was to cut the bunch of fruit from the Banana plant when quite "full" (the term used in that country) and to hang the bunch in a kitchen or warm room until yellow and ripe and fit for eating. *Sailor.*

Popular Names of Ferns.—Rusty Back is the common name for the Ceterach Fern here in the West of England, especially in Somersetshire and Devonshire, where I have seen it growing very abundantly, and it is a very much better one, I think, than Scaly Spleenwort, which it is called by in Moore's "British Ferns," and other books. For the Ceterach, as you know, is not a Spleenwort at all; [How then comes Sir W. Hooker to revert to the old Linnean name Asplenium Ceterach?] whereas the rusty appearance of the under surface of the fronds, especially as they get old, is very remarkable. The separate scales are like atoms of French lace, and one of the most beautiful objects I have ever seen in the microscope. The other Fern name you mention with disapproval, as employed by Mr. Grindon, Centipede Spleenwort for the Asplenium Trichomanes, appears to me one of the most ingenious ever applied, for the fronds as they lie pressed against the wall while young, curving hither and thither, with their rows of little green feet on either side, do certainly bear a most curious and striking resemblance to the creature in question. I hope you do not approve of the name of Common Maiden-hair Spleenwort, usually given to this pretty species. [It has been so these two centuries and more. Old Gerarde calls it the Common or English Maidenhaire, of which the very name Trichomanes is indeed suggestive.] Confounding the name of one genus of plants with another, and mixing them up in this way, leads the young botanist into the most serious and deeply-rooted errors; and I think we ought to be glad when any one suggests a new and expressive name that will prevent mistakes. I procured Mr. Grindon's book directly it came out, and have been quite delighted with the appropriateness of the English names in it, many of which I never heard before. Whether they are his own or not I do not know. *M. A. E., Penzance.* [Notwithstanding its aptness in the eyes of our Correspondent, the name "Centipede Spleenwort" might fairly be supposed to belong to Scolopendrium rather than to Asplenium Trichomanes, inasmuch as the Hart's-tongue was an Asplenium or Spleenwort no further back than the time of Linnæus, and the name Scolopendrium itself (from Scolopendra, a centipede), was given from a fancied resemblance to these creatures.]

Rosemary.—Can any one inform me in what part of England I am likely to find a supply of 50 to 100 plants fit for transplanting at this time? I do not find the plant mentioned by your Correspondent Mr. Cuthill amongst those which are cultivated at Mitcham, nor is it named in your more recent volumes as in cultivation at Hitchin. I had directed my gardener to procure some slips from the neighbouring cottagers last spring, and he now tells me that all the plants in this neighbourhood were killed by the frost of the winter 1860-61. *Diss.*

Edible Snails (see p. 1016.)—Helix pomatia is not the only species which affords wholesome food. H. aspersa is one of the species which furnishes the snail-feasts of the Newcastle glassblowers; the common banded Helix of our hedges is also occasionally eaten, and is used especially to make the snail-broth which is sometimes recommended in consumption. H. lucorum is eaten in Italy, and the large rosy-mouthed Helix of Teneriffe is sent off packed in barrels by myriads to the West Indies, where this kind of food is in request. As regards H. pomatia, it is a local species, and probably does not extend far north. It is however found at Woodford, in Northamptonshire, though a long time since an attempt to naturalise it was made at Kirby, in the same county, the seat of the Lord Keeper Hatton; some 10 miles further north, without success, as reported by Lister. It certainly likes a calcareous soil, its large shell and the false operculum with which it closes its aperture as winter advances requiring a considerable amount of lime. If your correspondent wishes for any further information, we recommend him to refer to Mr. J. Gwynne Jeffreys' British Conchology, where he will find a large amount of information respecting this and some other species, or to Mr. Lovell Reeve's Land and Fresh-water Shells. *M. J. B.*—Helix pomatia may be met with in abundance at Stonesfield, near Woodstock, Oxfordshire. It may be easily known by its large size, whitish colour, with three yellow or orange bands round it. The pretty Helix lapicida may also be found in the same locality. Dr. Gray's book on British Shells gives coloured drawings of all land and fresh-water shells of Britain. *J. S. Milne, Buckland, Faringdon, Berks, Oct.* 27.—The large brown snails gathered in gardens are very good eating, and by some persons are very much liked. A year or two ago the master of a French vessel obtained leave to gather them in the garden to take on board his vessel, and they were eaten by the whole ship's company; in return the master was good enough to gather, prepare, and serve the snails up for our family dinner party, which he joined, that he might be certain of the cooking being perfect. The instructions were to use only those snails whose shells were at the edges sufficiently hard to resist the nail without breaking; to be careful not to gather the snails from off either Ivy, Box, or other Evergreen, as snails so feeding were deemed unwholesome; to put them in water with a handful of salt to spit, that is, to cause them to clean themselves; and to boil them gently, when they come out of their shells with ease. We were then to prepare the frying pan with a little lard and Parsley, and to fry the snails delicately; they thus form a dish a poor man might feast on and a rich man enjoy. Bread crumbs might be added if liked, and the snails might be stewed, but the mode of cooking just given pleased our family best, and formed a dish we have often tried since we received the instructions from the master of the French merchant trader. *H.S.*—Much information about snails may be found in "Life in Normandy." In the south of France, Helix pomatia, H. aspersa, H. pisana, H. nemoralis, H. lactea, and vermiculata are eaten, but Helix aperta is preferred to all others. Kept for a week or so and fed on oatmeal, then fried in oil with vinegar, salt, and pepper, they are considered *bien délicats. A. C.*

Ancient Gardening (see p. 965).—For information relative to Mr. Darwin's question, I beg to refer him to the "Florest's Vade-mecum, by Samuel Gilbert, Phileremus. Third Edition. Printed for J. Taylor, at the Ship in Paul's Yard, London, 1702." In that book there are monthly directions for the Kitchen and Flower Garden for ever. He saith, set French Beans in April. John Parkinson in his "Paradisus Terrestris," printed in London, in the year 1656, speaks of the French or Kidney Bean at page 521, but saith nothing as to the time of sowing. *J. Mitchell, Tremorvah, Truro.*

Potato Sets (see p. 1011).—I have read with much interest your Correspondent's remarks on the economy of planting large-sized Potatos. The results are certainly very striking; but I think that further experiments are needed in order to settle the matter satisfactorily, such as planting the smaller Potatos nearer each other than is usually done, so as to have the same weight of sets put in per acre, and again trying the effect of large tubers cut into several sets each. This is the plan I generally adopt in order to have two or three haulms only to each root, which seem to stand a better chance of producing good sized tubers than when more are present, and to this end I think it would be advisable to take out some of the eyes when too numerous, and I believe those nearest the nose end of the Potato to be more vigorous than the eyes on the side. Your Correspondent intimates that Potatos might be improved (I suppose permanently), by selecting large sets according to Mr. Darwin's theory, and Mr. Hallett's practice with seed Wheat. This is of course impossible, as planting Potatos of any one kind is but continuing the life of one individual plant, originating from some one seed of a Potato berry (or apple). Mr. Hallett's plan could not be applied to Potatos, except by raising a lot from the berries. Fluke Potatos will continue to be Flukes, true to the original, varying in vigour of growth according to circumstances, until the sort dies out from old age, like some of our older kinds of fruit. *H. T. F., Burton-on-Trent.*

Roses on the Manetti Stock on Raised Banks.—Roses like plenty of heat, water, and manure. Though they are fond of water, however, they do not like standing in a swamp. If the summer is extra warm and dry, then they will do well in wet ground, because of the evaporation. In your Paper, and also in the "Florist," I gave an account of some Roses on raised banks and also of their treatment. Nothing could have done better than they have done here during their two seasons of trial. Some that were little pot plants two springs back have this year made shoots 8 feet high, and yet have bloomed continuously and abundantly. I have just made another, and planted in double lines 13 plants of La Duchesse de Morny, five of Lord Macaulay, three of Madame Victor Verdier, and three of Alpaide de Rotalier. I have also made two other banks to be planted with the four best crimson Roses known, namely, Maurice Bernardin, Charles Lefebvre, Senateur Vaisse, and Duc de Rohan. I have not named them in the order of merit, for they will occasionally beat each other, and they will take some beating. Gloire de Santenay is first-rate, but not quite certain. Nothing could surpass the beauty of the flowers of the two first and last of the above four Roses on raised banks this summer, or of the third, which is planted in large numbers on the flat. Instead of buying new untried Roses, I have multiplied my stock of these beautiful varieties. At the same time I have rejected many that are either superseded or unsuitable to my locality, or that never should have been propagated at all. Probably in high and dry situations, and where there is not free access to abundance of water, it would not be wise to plant them on raised banks, which in hot summers are like forcing houses out of doors. The sun acts on the centre and on both sides of the banks. Consequently abundant mulching with black dung, and burnt ashes on the top of the dung to retain moisture, and plenty of water once or twice a week poured into the centre of the banks, become necessary. This has been practised here for two summers, and myself and reviewers have been immensely gratified. It cannot be too hot for Roses, if manure and moisture are supplied sufficiently. I have no desire whatever to exalt the Manetti stock unjustly over the Briar; but I must say that here in two different soils, the one chalky, and the other shallow and gravelly, the Manetti Roses have always, and especially this summer, signally beaten the Briar varieties; indeed a great many of my home-budded Briar Roses have died this summer. As far as my situation is concerned, I would rather buy Manetti sorts, than, with a few exceptions, accept Briar Roses. I bud novelties on the Briar for earlier information, and because it is more agreeable than Manetti-budding. Taking this kingdom at large, I think ground plants will greatly supersede standard Roses. Instead of standards in lawn-holes, plant Manetti Roses, especially if the quality of the soil is inferior and dry. I have thrown away all the Briar Roses which were on my lawn, and shall supply their places wholly with Jules Margottin on the Manetti stock. There is an early beginning and scarcely any ending to the blooming of Roses here on the Manetti. The failures must be divided between the propagator and the cultivator. At my dinner party, Oct. 20th, I cut as fine Roses from the Manetti stocks as a man could wish to see. I have had a daily exhibition throughout the season. The earliest Rose out of doors on the Manetti stock was cut May 7th. A new era will set in when Manetti pot plants are planted on raised banks, and are properly attended to. *W. F. Radclyffe, Rushton.*

British Queen Pear.—When speaking of this in Mr. Ingram's collection, noticed at p. 1013, I observe you inadvertently call it Queen Victoria. As there is a great distinction between Victoria and British Queen, and as some confusion may result from allowing the error to pass unnoticed, I beg to say that British Queen, a celebrated kind, was that which was shown by Mr. Ingram on the occasion in question, and not Victoria. *J. P.*

Foreign Correspondence.

Report on the Brisbane Botanic Garden.—The following interesting particulars are taken from the Report of the Director, Mr. Walter Hill, to the Secretary for Lands and Works, dated July 18, 1864:—

The results obtained during the last two years confirm the success of the experiments made in the cultivation of Cotton, Tea, Coffee, Sugar, Cinnamon, Allspice, Ginger, Indigo, and Tobacco.

My anticipations, as expressed in my last Report, that the Peruvian variety of Cotton could not be grown with success, have been realised. The tree does not bear until the second year, and then yields only a small crop. The occasional high winds of the colony also prove destructive to it, and the Cotton is of an inferior quality. All the other varieties of Cotton that have been introduced can be successfully cultivated.

The Coffee plantation, formed two years ago from seeds taken from isolated trees in the garden, is thriving admirably, and a first crop may be expected the season after next. From one Coffee plant 8 lbs. weight of berries were gathered; and these, together with a large number of young plants, have been freely distributed to applicants, most of whom reside in the Northern Districts of the Colony.

A Cinnamon plantation has been formed from seed taken from the only tree we had in the garden; and the result proves that this tree of commerce is one of the numerous imported trees which may be successfully cultivated in Queensland. The following tropical plants, introduced into the garden within the last five years, have already produced fruit; viz: the Mangifera indica (Mango), Anona squamosa (Custard Apple), Anona Cherimolia (Cherimoyer), Anona muricata (Sweet Sop), Diospyros Kaki (Chinese Date Plum), Dimocarpus Longan (Longan), Ziziphus Jujuba (Jujube), Tamarindus officinalis (Tamarind), and Chrysophyllum Cainito (Star Apple). Also Artocarpus integrifolia (Jaca tree) is bearing fruit this year for the first time. This tree is much cultivated in the southern and warmer parts of India, for the sake of its nourishing fruit, and for its timber, which is in some requisition for dyeing and other purposes. I regard the fact of its bearing fruit here with great satisfaction, as indicating that other plants grown in those tropical regions where the Jaca tree flourishes, may also be introduced into the Colony with similar success.

An Oak plantation has been made between the bank of the

river and the lagoon containing the Water Lilies. It consists of a valuable assortment of 18 species of imported Oaks, indigenous to Europe, Asia, and America, including the Valonia Oak from the Levant, the bark of which is held in great esteem for tanning purposes. The plantation will prove a desirable ornament, and, in other ways, an acquisition to the arden.

A new Sugar-cane plantation has been formed near the clumps of Cinnamon and Coffee. This plantation is composed of several new varieties lately introduced into the colony, principally from the South Sea Islands and the Mauritius, being the varieties known as the "Walta," "Tiboo-ura," "Tiboo," "Chica-ga," "Pinang," "Diard," and "Guinghan." The object aimed at in the formation of this plantation is to test the relative value of the varieties of the cane which are suitable to the Colony, and their comparative adaptability to our soil and climate. Twelve months or more will have to elapse before any decisive opinion can be pronounced as to the relative merits of the varieties of cane referred to. All the varieties of cane comprised in the plantation which existed at the time of my last report have flourished. In these are included the ribbon, the green (or yellow), and the Tahitian cane. The last-named variety, so far as my experience is concerned, will not prove so profitable to the grower as the yellow cane, although a hardier plant, as it does not contain so much saccharine matter. The anticipations that the Sugar cane will be extensively cultivated in Queensland are, in my opinion, sure to be realized; and it gives me great pleasure to state that I have been enabled to distribute a great number of canes amongst intending growers, and that the demand for them far exceeds the supply which can be sent from this establishment without detriment to its interest.

The Cinchona Calisaya (the tree which yields quinine) is in a healthy condition, and I have written to Sir William Hooker, Royal Botanic Gardens, Kew, and to Sir William Denison, Governor of Madras, in order to procure the other species of this valuable tree. Its great commercial value is sufficiently proved by the strenuous exertions made during the last few years to introduce and propagate it in the East Indies, as well as in Ceylon, and in the West Indies. There is abundance of land in Queensland suited by soil and situation for the growth of the Cinchona, and its product must be extremely profitable to the grower, especially when we consider the high price which the Peruvian bark fetches at times in this country. It would certainly become a very general article of cultivation if we had the materials at our command, but at present the plant in the garden is the only one which has been imported into the colony.

In the Orange plantation, the varieties that have succeeded best are, the Mandarin, St. Michael's, Bahia, Siletta, Blood, and Parramatta; these bear a more abundant crop than the other varieties, and are not so liable to disease.

One of the first works which must be carried out in the garden will be the construction of a new lagoon for the reception of Water Lilies. The existing lagoon contains the Nelumbium Leichhardtii (pink Water Lily) and several species of the Nymphæa and Nuphar, and it is found that the rapid growth of the first is proving destructive to the other two kinds in the confined space in which they are enclosed. The formation of another lagoon for the reception of the Nymphæas, &c., would add another ornament to the garden, and is necessary for the preservation of the plants at present in our possession.

Amongst the plants of utility which have been introduced into this establishment during the last two years, are two new varieties of Banana, received from the Fiji Islands, through the kind instrumentality of T. Hood, Esq., Darling Downs. The Bread-fruit tree placed in the garden perished. The Bananas have flourished, and the fruit is of a flavour superior to the ordinary varieties. I have also received plants of the Jatropha Manihot (Cassava). The following interesting plants also have been introduced, viz :—Araucaria Rulei, Dammara Moorii, Stillingia sebifera, Jacaranda mimosæfolia, Berberis Leschenaultii, Ravenala madagascariensis, Poinciana regia, Argania Sideroxylon, Santalum album, Bowenia spectabilis, &c.

The Botanical Library and Museum are now open to the public. The former contains a number of books valuable to the botanist and to the horticulturist. The sum voted by the Legislature for 1862 and 1863 has been forwarded to Sir William Hooker, Royal Gardens, Kew, for expenditure in works most suitable for the Library. The Museum and Library are open to the public from 9 A.M. to 6 P.M. every day except Sunday. The gardeners employed in the establishment have access to the Library between the hours of 8 and 9 A.M. In other respects, they are on the same footing as the general public in this particular.

I regret that my increasing duties have precluded me from devoting so much time as I wished to collecting contributions to the work on the Australian Flora by Mr. George Bentham, President of the Linnean Society. My visit, however, to the northern shores last year, in H.M. ship "Pioneer," enabled me to collect some new specimens of the Flora, which were forwarded to Sir W. Hooker, Kew. It will not be out of place to mention, that during this visit I met with Santalum album, the tree which furnishes the Sandal wood of commerce, in the first place on the banks of the Endeavour River, and subsequently at Port Denison.

Societies.

British Association: *September* 20.—In Section D (Zoology and Botany), Dr. Riddell read a paper on "Balatta and other Gums regarded as a Substitute for Gutta Percha." The writer regarded the gum as a very excellent substitute for, and quite equal to, the adulterated or re-boiled gutta percha from Singapore. They were indebted to Dr. Van Holst, of Amsterdam, Berbice, for bringing this gum first into notice in 1860. It abounded in the forests of British Guiana, and was especially prolific at the time of the full moon. On the day of the full moon the yield of gum was from six to 10 times greater than at other times. After the tree had been tapped, it could be tapped again every two months. The wood was used for building purposes and for furniture, and he was informed the tree was not injured by being tapped. A tree yielding a gum similar in every respect was discovered by General Cullen and Colonel Cotton, in 1853, growing along the whole line of the Western Ghauts on the Malabar coast, Southern India, from lat. 8° 30′ to lat. 10° 30′ at an elevation of from 2500 to 3000 feet above the sea. The climate of the country where the Bullet tree is found in Berbice is unhealthy; but probably some of the free slaves of America might be induced to settle there and become traders.—The Rev. A. M. Norman, alluding to the fact mentioned by Dr. Riddell, of the sap flowing more freely at the time of the full moon, said, some people were inclined to laugh at such statements, but there could be no doubt that the moon had an important influence on the vegetable world.—Dr. Riddell said: It was well known to the natives of India, that Bamboo cut at the full moon was much more subject to the attacks of insects, rotted and decayed sooner than when cut during the dark nights.—Specimens of the gum in a liquid state, also in a large block, and rolled, as well as in a manufactured state, as vulcanised, hard and soft, and in a state of ebonite, were exhibited. Since the Exhibition, a patent has been taken out for working it, particularly for the insulation of electric wires, combined with caoutchouc and various other substances.

Prof. Buckman read a paper "On Datura Stramonium and Datura Tatula," the object of which was to show that these plants were identical in points of structure, and therefore could only be considered as varieties of a single species.

Of other botanical papers there were:—"Notice of some Rare Scotch Plants and their Localities," by Prof. Balfour; "On the Old Welsh Mistleto Cure for St. Vitus's Dance," by Mr. M. Moggridge; and "On Euphorbiaceæ," by Dr. Müller.

In Sub-section D (Physiology), Dr. Cobbold brought before the Association, in three separate papers, the question of "Food as a Source of Entozoa." The papers treated severally of meat, fruit and vegetables, and drink, all of which, it was stated, were more or less liable to harbour parasites of some kind or other. There was no doubt that entozoa were introduced with vegetable food. Small molluscs harboured larval parasites in prodigious quantities; and they were the source of one or more of the parasites that occasionally invaded the human form. These entozoa might be swallowed from water-drinking, but they were much more likely to be taken from Water-cresses, or other vegetables of the kind. It was necessary, with all vegetables, that the greatest cleanliness should be observed in preparing them for the table; and care should be taken to avoid swallowing these small molluscs, which were very likely to escape observation. A small species of fluke-worm, discovered in Egypt, would, he was afraid, be brought to this country at some time from our colonies; and, if ever it got place amongst us, it would be difficult of extermination. Eggs and living specimens had been found in this country, both in men and monkeys, but only to a very small extent. As to the little thread-worm, he had never been able to rear it in Apples and Pears; and there was no evidence to show that any species of entozoa was derivable from fruit. It was not likely that fruit was ever an intermediate habitation for any of the parasites which ordinarily occupied the human body. A great many evils in children were charged to eating unripe fruit; but, as far as entozoa were concerned, that fear was entirely groundless; and, if they should be so introduced, the chances were that the larvæ would be taken from the surface of the fruit. With regard to Celery, Cabbages, and all the ordinary market-garden vegetables, all decomposing animal and vegetable matter sustained entozoa; and the more filthy the water or liquid manure employed to secure the fertility of the garden, the more likely were entozoa to be supplied with the vegetables grown upon the land. The most careful washing was therefore required; and it had been suggested that vegetables should also be soaked in salt. Turning then to water as a source of entozoa, the first species to which attention was drawn was the ancient guinea-worm, which was supposed to be the fiery serpent of Moses. Parasitic larvæ might be found in water that was, to all appearance, perfectly pure; but, speaking generally, it might be inferred that fresh spring-water was perfectly innocuous. The same thing could not be said of water stored in large tanks in hot climates. The people of these islands suffered from entozoa, which must have been introduced by drink in some form or other. Amongst this class the smallest tape-worm, one-tenth of an inch long, carried 30,000 eggs, and went through marvellous transformations. The presence or absence of the larvæ of human entozoa in water was dependent upon the place from whence the supply came, and upon the condition of the water. The pork measle might be readily communicated to human beings in this way; and there was another species taken from water, the habit of which was to esconce itself in the brain, causing death, which the Registrar-General invariably set down to cerebral disease. The way in which it reached the brain was from the coats of the stomach, through the circulating medium. There was one kind inhabiting dogs which was often communicated to the human being. One-sixth of all persons who died in Iceland perished from a little creature so small that, in its adult state, it could scarcely be seen. If neither dog nor wolf existed we should get rid of these species altogether. No one need drink water impregnated with these entozoa. Water to which dogs had no access could not contain them; neither were they likely to be found in spring or well water. Open waters into which the carcases of dogs were occasionally thrown would probably contain them, and the eggs might be carried to food washed in such water. The danger would be got rid of if the water were always carefully boiled, filtered, or distilled; but a filter, to be effectual, ought not to pass anything larger than one-thousandth of an inch. Sand and charcoal filters were of very little use; paper filters should be employed. All entozoa not preserved for scientific experiments should be destroyed by fire, and under no circumstances should they be thrown aside as harmless refuse. Then as to beer, porter, &c., these fermented drinks were perfectly harmless. Even though impure waters should have been employed, the boiling of the wort would be alone sufficient to destroy any number of parasites. Unfortunately, we could not be perfectly certain about unfermented drinks, such as ginger-beer, lemonade, and the like. All must depend upon the source and the supply of water. It might, however, be concluded that the manufacturer would get his supply from the purest source open to him, and that, therefore, we need be under little or no apprehension. In regard to wines, the same remarks were applicable. Alcohol, added to water, was sufficient to destroy the parasitical eggs; but it was questionable whether the amount of spirit in our home-made wines was sufficient for the purpose.

September 21.—Prof. Buckman read a paper "On a Curious Form of Aquilegia vulgaris." In the usual flower of the Columbine each petal is so spurred as to produce a form not unlike a cornucopia. In the example under notice the claw and limb of each petal were so entirely flat as to give the flower the form and appearance of some of the more showy-coloured species of Clematis. This accidental form, so far assimilating itself with Clematis, Anemone, and others, gives rise to the following consideration:—Is not the patent unspurred form of Columbine its normal condition, and the spurred form a result of cultivation?—Professor Balfour did not agree with Professor Buckman that the spurred form was produced by cultivation. They often saw the common Columbine, in place of being spurred, become regular.—A paper "On some Specimens of Cycas revoluta, Cycas circinalis, and Ceratozomia mexicana," by Prof. Balfour, was also read.

Notices of Books.

Flora of the British West Indian Islands. By Dr Grisebach. 8vo. In 7 Parts. London: Reeve & Co.

This capital book is now completed, and does honour to its author, one of the most able of systematic botanists; but it does not descend lower than the Ferns. It has an ample index of names, which contribute much to its utility, among which we must not omit to mention most especially that called "Colonial," which consists of a complete list of the English terms for plants, together with the Latin names of each.

Le Jardin Fruitier du Muséum. By Prof. Decaisne.

(*Continued from p.* 967.)

Pêcher Galande.—Syn. Bellegarde, Noire de Montreuil, Grosse Noire de Montreuil, Belle de Tillemont. Leaves with globose glands; flowers small, bright rose—by which alone it may be distinguished from the Late Admirable, which has also small flowers, but they are pale dull red. The fruit is large, roundish, deep purplish red next the sun, clouded with a darker tint. From the very dark colour which it assumes when well exposed it acquired the name of Noire de Montreuil. The flesh is yellowish white, very fine, melting, and rich. [Although perfectly melting, it is of closer texture than many other melting sorts; and owing to this it keeps, and bears carriage, better than most other melting Peaches. We have known it to have been sent 500 miles by railway, and yet to have reached its destination in excellent condition. But it may be useful to observe that the Peaches which were conveyed so far and so safely were not *loosely* packed, nor was the packing lightly strewed amongst them. Cotton is perhaps the most convenient substance with which to line the box at the bottom and sides; and the Peaches may be individually wrapped in tissue paper; then the intervals between the fruits should be *firmly* packed with as much cotton as possibly can be introduced without actually bruising the fruit—just short of doing this the box may be considered properly packed; but whilst a particle more can be introduced, it is not. It often happens that when Peaches are ripe in the south, the owners of gardens there, and their friends, are far away in the north; and by the time they return, the crop, ripening in due season, and generally in superabundance, is all over without having been seen or tasted by those at whose expense it was grown. Of this they with reason complain; but as by attending to the above remarks, the cause of complaint may be remedied, this digression may be pardonable, and the cultivation of the Peach, seeing that its fruit can thus be better utilized, may be encouraged. A better melting sort to plant than the Bellegarde for the purpose of carriage cannot be recommended.] The Bellegarde is a very old variety. According to Triquel (*Instruction pour les Arbres fruitiers*, 1658), it was named after M. Galand, a great amateur of fruit trees.

Poire Petit Muscat. — Syn. Muscadelle, Sept-en-Gueule. This is perhaps the smallest and earliest of all Pears. Occasionally cultivated for its earliness. A branch or two of it is enough in any collection; a tree is too much, for the fruit keeps but very short time.

Poire d'Angora.—Fruit large, or very large, with a strong stalk, which is thickened and fleshy at its insertion; skin pale yellow; flesh melting, very granular, sweet, but not highly-flavoured. Season, end of October. The author remarks that the name of Poire d'Angora has been given to several large Pears, such as the Catillac, and Belle Angevine or Uvedale's St. Ger-

main. [The Pear received by the Horticultural Society as the Poire d'Angora proved to be the Catillac; but from these the one figured is very different. The first mention of this Pear was by Tournefort (*Voyage du Levant*, ii. 464). "The 2d of November," he says, "we left Angora for Brussa. Beibazar is a small town built on three hills, of nearly equal form and height, in a confined valley. Thence come the excellent Pears that are sold at Constantinople under the name of Poire d'Angora; but they are very late, and we had not the pleasure of tasting them." Now, Beibazar is situated 2788 feet above the level of the sea, and in latitude 40°. Constantinople is nearly 10° warmer than London in summer; but Beibazar from its elevation, if on a table land, should be about 11° colder than Constantinople, and consequently about 1° colder than London; but being in a confined valley, there is every probability that it is even warmer. Tournefort, however, describes the Poire d'Angora as being very late, so that in the beginning of November it was not fit to eat. After making what we consider a fair allowance for latitude and elevation, we cannot avoid coming to the conclusion that a Pear such as that figured in the work before us, and which ripens in the end of October, cannot be the same kind of Angora Pear as that described by Tournefort.]

Pêcher à fleur Blanche.—Syn. White Blossom, Snow Peach, Willow, Blanc d'Amerique. Leaves narrow like those of a Willow; glands reniform; flowers large, white. Fruit rather small; skin yellowish white, without any red, very thin, so that it will scarcely bear to be handled, and on this account it is not much esteemed in France, to which country it was introduced from America in 1829.

Pêcher Hunt's Tawny, or Brugnonnier Hunt's Tawny. This is Hunt's Tawny Nectarine. Contrary to that which is the case with Nectarines generally, it is found to do well in rather strong soil.

Poire Arbre Courbé.—Syn. Colmar Charnay. Fruit middle-sized or large, oblong-turbinate; skin yellowish, marbled and dotted with brown; flesh very melting; fine, and juicy, with an agreeable perfume. Season: September and October. A very good Pear. The raising of this variety is generally attributed to Van Mons; but it appears it was raised by M. Léon le Clerc, of Laval, previous to 1833, and to have been sent by him to Van Mons about that time.

Bergamotte Panachée.—Syn. Bergamotte d'Automne Panachée, Bergamotte Suisse. This is considered to be merely a striped variety of the Bergamotte d'Automne of the French, which is different from the Autumn Bergamot of the English, and not so well suited for this climate. It is often confounded with the Amoselle or the Double Fleur Panachée.

Pêcher de Malte.—Syn. Malta, Belle de Paris, Pêcher de Paris. Leaves serrated, without glands; flowers large; fruit nearly middle-sized, roundish obiate; skin pale green where shaded, red next the sun, marbled with darker red [like the Noblesse]; flesh whitish, parting from the stone, fine, melting, very juicy, sugary, very rich and agreeably perfumed. [Such is the character of this excellent fruit at Paris, and such we have found it to deserve in England. The author expresses his surprise that it is not more cultivated than it is; in this we agree. Owing to its not being so large nor so highly coloured as some others, he says it is probably not so good for sale. It is not so large, for instance, as the Noblesse, nor so highly coloured as the Royal George; nevertheless it is handsome, with a very rich aromatic flavour, and ought to be in every good collection. It is one which succeeds in the comparative cool climate of Normandy. It is said to reproduce itself from the stone without degenerating; if that hold good, it must be a valuable sort for our colonists, who have frequently neither stocks, nor time or skill to work them.]

In the *Botanical Magazine* for October the following plants are figured:—*Thladiantha dubia*, an elegant Cucurbit from China, having slender rambling stems, broadly ovate cordate velvety leaves, and bright yellow bell-shaped five lobed flowers, succeeded by oblong succulent berries. The plants flowered at Kew were received from Messrs. E. G. Henderson & Son.—*Dendrobium nodatum*, a handsome Moulmein species with knotted stems, oblong leaves, and gay solitary ochroleucous flowers with a deep orange-coloured lip having a pale tip and a deep red blotch at the base; it has been introduced by Messrs. Low.—*Cyanotis nodiflora*, a rather curious Commelynaceous plant from South Africa, introduced by W. W. Saunders, Esq., having erect simple or sparingly-branched stems, and lance-shaped leaves with a sheathing base, out of which issue the clusters of purple flowers chiefly remarkable for their long feathery stamens.—*Vitis Bainesii*, well designated a "gouty Vine," having a short thick Turnip-like succulent stem, from which grow short erect leafy branches, the leaves ternate, and the green cymose flowers quite inconspicuous; it was sent to Kew from Namaqua land by Mr. T. Baines, and is closely related to Dr. Welwitsch's C. macropus from Benguela.—*Amphiblemma cymosum*, a large-leaved pink-flowered stove Melastomad from the Niger country.—*Linum Macraei*, a gay Chilian Flax introduced by Mr. Veitch, and described as the most floribund of the genus, though as we have seen, it not carrying a sufficient head of flowers; it is a subshrubby herb, with twiggy branches, lanceolate leaves, and large bright orange-yellow flowers.

The *Florist and Pomologist* has a good figure of the handsome *Trichinium Manglesii* from Mr. Thompson's specimens. It has already been noticed by us at p. 555.

The *Floral Magazine* gives representations of the following subjects:—*Rose King's Acre*, a fine-looking Herefordshire seedling raised by Mr. Cranston, and described by him as a very hardy variety of a "bright vermilion rose," by which is indicated, according to the figure, one of these deep rosy carmine tints which are so common among Hybrid Perpetuals; *Linum Macraei*, under the name of L. Chamissonis; *Clematis rubro-violacea*, one of Mr. Jackman's fine hybrids; and *Pelargoniums John Hoyle* and *British Sailor*, two of Mr. Hoyle's fine varieties of the present year.

In *Seemann's Journal of Botany* is a figure of *Aphelandra ornata*, a Brazilian Acanthad, recently flowered by M. Linden. It has handsome oval oblong leaves, tapering down to the base of the petiole, and marked with a broad whitish band down the centre, and bears elongated spikes of bright yellow flowers elevated on purple leafless scapes. The principal papers are:—a continuation of the Revision of the Hederaceæ, by the Editor, this portion being devoted to genera with a single style; a long account of the Rice-paper tree, here called Tetrapanax papyriferum, by Dr. Bennett, who states that it is naturalised in New South Wales; and a supplementary list of Plants producing double-flowers. The whole number of species known to produce double flowers now amounts to 290, of which 242 are Exogens, and 48 Endogens.

Catalogues Received.—*Rivers's Catalogue of Fruit Trees* is a most useful descriptive list of all the best sorts of fruits, with a good many valuable cultural and practical remarks interspersed. Those who are about forming or extending a collection of fruits would do well to consult it.——*Rivers's Descriptive Catalogue of Roses*, 1864, has reached the 31st edition! It is made very select, and in the case of Hybrid Perpetuals divides the varieties into three groups, the first consisting of those which combine free growth with full size, fine shape, and perfect colour—such as may be selected from at random with full satisfaction; the second including popular sorts, but surpassed by those of the former list; and the third made up of those with brilliant or singular colours, not quite perfect enough, but "wondrously beautiful when viewed aright, *i.e.*, on a Rose tree in full bearing."——*Van Houtte's Catalogue des Plantes de Plein Air* is a very complete list of hardy trees and shrubs, including Conifers, Roses, and Rhododendrons; of hardy herbaceous plants with numerous specialties; and of hardy fruit trees, amongst which Pears predominate.——*Turner's Select List of New Pelargoniums, &c.*, contains Hoyle's new varieties; and a *Catalogue of Roses, Fruit Trees, &c.*, records a good variety of well selected sorts. Among Strawberries Mr. Turner offers the fine new variety called Sir Joseph Paxton, which is said to be a great acquisition.

Garden Memoranda.

Mr. Richard Smith's Nursery, St. John's, Worcester.—Among what are termed provincial nurseries this is one of the most important, both as regards extent and stock. Its principal entrance is from the Bransford Road, where, on entering, a straight avenue of nearly 1200 yards in length at once arrests attention. This is planted on either side with Conifers, varying in height from 1 foot to 8 feet, the border being backed up and set off to good advantage by a substantial Yew hedge. To the left of the entrance are Mr. Smith's offices and foreman's dwelling-house, the latter a commodious building surrounded by a well kept lawn, dotted about on which are many fine specimens of ornamental trees, chiefly Conifers, a class of plants for which this nursery is famous. On careful inspection it was found that an Araucaria imbricata growing here measured some 20 feet in height; Pinus Lambertiana, one of the largest of Californian Pines, was 18 feet in height and 10 feet through; a Chinese Juniper of equal height, close and compact—in short, forming quite a column, its width at the base being scarcely more than 3 feet; Juniperus excelsa, of similar height, was also very handsome. The same remark equally applies to Juniperus thurifera, 15 feet, to an Abies Douglasii, 25 feet, and to a noble Cedrus argentea, 11 feet high. Of Abies Menziesii we noticed a specimen 30 feet in height, and of the beauty of Pinsapo, nobilis, and Nordmanniana it is impossible to speak in too high terms, the soil of this locality, a light fertile loam, apparently furnishing all that such trees require for their perfect development. Among other Conifers planted as specimens we observed thriving examples of Abies Morinda, 16 feet in height, a handsome Wellingtonia about 9 feet high, Thuja aurea and japonica, the latter more upright in growth than the former, which was at least 7 feet in height. Among weeping Conifers was an example of Juniperus viridis pendula, 11 feet high, a capital tree for cemeteries, being deep green in colour and as pendulous as a Weeping Willow.

To one specimen of Abies nobilis special attention ought to be directed; it is 32 feet in height, and the stem 58 inches girth at the ground level; it has borne cones in abundance. This tree is unusually glaucous in aspect, and though grafted has done equally well with plants raised from seed. A. orientalis is a neat close growing kind; and of Pinus macrocarpa we noticed an example 25 feet in height. Thuja gigantea, some 10 or 12 feet in height, was so rich in colour, and altogether so charming in general appearance, that it would not be inaptly termed a tree Lycopod. Near the edges of the walks were planted Golden Yews, dwarf Arbor-vitæs, and pygmy Firs, the diameter of which though many years old, is not more than 18 inches.

Among other kinds of trees were Quercus Fordii, a small-leaved evergreen Oak, some 20 feet in height, and compact and handsome in growth; a magnificent specimen of Weeping Beech, concealing many square yards of turf beneath the sweep of its drooping branches; the Colchic Laurel, a seldom seen but very handsome sort; ornamental Hollies of different kinds, the Laurel-leaved Oak, and a plant of the close-headed prettily drooping Sophora japonica. The father of pendulous trees is, however, a weeping Ash, with sturdy trunk and noble head of drooping branches.

We were much pleased also with the appearance of the beds on the lawn, which during summer had been filled with flowers; they are now tastefully stocked with either silver Tree Ivy (in pots) or Golden Yew, Irish Yew, Aucuba, Pernettia, Retinospora, Irish Gorse, variegated Holly, Laurustinus, or some kind of shrub that looks well in a mass, and contrasts satisfactorily with the neighbouring beds, giving the lawn a pleasing effect during the dead months of winter. These little shrubs are planted in autumn, and are removed in May when the bedding plants are put out.

In a border, backed by a Yew hedge, by which the ornamental department is encircled and cut off from the propagating ground, are Gold-striped Yews, Thujopsis borealis, Irish Yews, Deodars, Thuja Wareana, Araucarias, and Standard Rhododendrons planted in alternate rows and graduated from 2 to 8 feet high.

On a tastefully formed rockwork, behind which is hidden a range of propagating houses, are planted Ferns, Irish Gorse, Berberis Darwinii, Tree and other Ivies, with Alpine and other plants, all so skilfully worked up as to furnish a charming illustration of wild Nature by no means unattractive even in the midst of highly dressed grounds.

On the right of the entrance is a house 117 feet in length and 17½ feet in width, appropriated to the growth of Vines for fruiting in pots, and adjoining it are two Orchard houses, each 25 feet in width, one 45 feet in length, and the other 115 feet in length. These are filled with young fruit trees in pots, consisting of Peaches, Nectarines, Apricots, Figs, Oranges, Apples, Pears, Plums and Cherries, all of which in their season produce capital crops of large and finely flavoured fruit. It was on a tree obtained from this collection that the fine Duchesse d'Angoulême Pear (see p. 989), which measured no less than 14 inches in circumference, was ripened, and it was as good in flavour as it was large in size. Orchard houses indeed possess in Mr. Smith a redoubtable champion, so thoroughly convinced of their utility as to be ready to defend them whenever required to do so. In addition to those just named, in another part of the ground he has one no less than 196 feet in length and 27½ feet in width, full of excellent young trees in pots, capable of bearing heavy crops next season, being thoroughly ripened in the wood and full of fruit-buds; this forms a portion of his trade, on which immense pains and labour are bestowed. Nor do the trees alone receive attention; the construction of the houses has also been well considered. They have fixed roofs, and are not only light and roomy but well ventilated. The last is effected by means of small lights in the roof, which lift up and let down as may be required, and at the sides lateral ventilation is secured by horizontal sliding boards 50 feet in length, having holes cut in them to correspond with apertures of similar size in the wall. Cheapness as well as efficiency has also been aimed at, and persons contemplating the erection of such houses would do well before commencing to inspect Mr. Smith's arrangements. In other glass houses, which are numerous, are grown stove, greenhouse, and other tender ornamental plants.

It is hardy stock, however, to which we more particularly wish to direct attention. For the propagation of this most ample means are provided, not only in the shape of uncovered brick-edged beds, occupying nearly 3 acres of ground, but also in the form of ranges of glass-covered pits, a thousand in number, in which are raised all the more valuable and choice Conifers and other evergreens, which must number some millions at the present time. These when large enough are transferred to open quarters, from which again the finest specimens are selected to decorate the sides of a drive which runs through the centre of the grounds, and which is more than a mile and a quarter in length. Both sides of this are ornamented chiefly with Conifers of the most beautifully formed and thriving description, the whole varying from 2 to 9 feet in height, disposed in rows of different colours in the style of our modern ribbon gardening. To furnish descriptions of these plants would occupy too much space; but persons desirous of obtaining them will find them given fully in Mr. Smith's carefully arranged and very excellent catalogue. We may add that great attention is paid to make every plant a specimen of its kind, a

remark which does not apply to fine things alone, but also to such as Yews, Laurels, and Spruce Firs. Stiffness and formality of outline are, however, carefully avoided. They are also all transplanted every two years or so, and, therefore, move well when wanted.

Roses are also grown largely here, upwards of 8 acres being employed in their cultivation; owing to the fine autumn with which we have been favoured; some good late blooms may even yet be obtained from Aimée Vibert, Gloire de Dijon, Mrs. Bosanquet, Queen of Bourbons, Général Jacqueminot, John Hopper, and others, the wood of which is clean, strong, and healthy, the soil being apparently equally suitable for them with that of Hertfordshire.

Young fruit trees may be obtained here in any quantity, 150,000 to 200,000 stocks being annually used in their propagation, and to this branch of Mr. Smith's business unusual attention is paid in order that everything may be true to name. The better to ensure this, a specimen tree of each kind is kept, and the operation of cutting off buds and grafts confided to the care of one man, who likewise examines the stock three times a year, viz., at the period of its coming into leaf, when the foliage is fully grown, and at its fall, with the view of ascertaining if all is correct. Under such active supervision, therefore, errors in nomenclature can hardly take place. Each tree is also a perfect specimen of its kind, summer-pinching being constantly exercised, and the soil being well tilled, their health and vigour, even during this dry season, are truly astonishing. Young shoots of Cherries were found to be, on actual measurement, 5 feet in length, those of Pears 6 feet. Plums 8 feet, and Apples 4 feet. Small trees, therefore, soon reach a fruit-bearing stature, and as regards form they may be had in the shape of dwarfs, pyramids, half-standards, and standards—in short, any shape required, both trained and untrained, some 40 acres being devoted to their culture. With respect to varieties Mr. Smith's Fruit-tree List will be found to furnish ample information.

About 30 acres are set apart for the culture of Conifers and other ornamental trees and shrubs, besides that used for what may be termed miscellaneous stock. Among the latter we noticed a fine variety of Weeping Spruce, and many fine examples of the variegated Acer Negundo. Of Standard and Pyramid Portugal Laurels, intended to be used as substitutes for Orange trees, we observed multitudes of handsome examples, as well as of what is called Quercus austriaca hybrida, a very hardy and useful looking Oak. We were also delighted with the beautifully glaucous colour of Abies nobilis, the stock of which is most extensive; quarters of Nordmanniana are also abundant; of these and Wellingtonias, Deodars, Araucarias, Thujopsis, Cupressus Lawsoniana, Thuja aurea, Chinese and other Junipers, Abies Douglasii, orientalis, and others, we likewise observed an immense stock, arranged according to sorts and graduated to facilitate selection. It will therefore be seen that among first-class establishments this holds no inferior position. Order, neatness, skilful management, and good cultivation are its distinguishing characteristics, and owing to the pure air and fertile soil of this fine county, blight and its attendant evils are unknown.

Miscellaneous.

Saxon Potato Society.—A society has been established at Planitz, in Saxony, under the title of "Society for the Cultivation of Potatos." The Society has already published a number of reports, in one of which it states that the best specimens of Potatos grown in sandy soil have quickly degenerated and given only an indifferent crop in the strong clayey land in the neighbourhood of Planitz. Since the foundation of the Society, in 1860, the members have made numerous experiments on strong, light, clayey, gravelly, and stony soils. The Society procured samples of every description of Potato sold, and they propagated those which produced the best results. After a year's trial they had generally found that the greatest number of Potatos succeed best in light and slaty land. They found, however, that the long Potato from Algiers became rotten in sandy soil, and produced large and perfectly sound Potatos in strong land. The white English Kidney Potato planted in stony ground produced Potatos quite red. The Society has lately offered 10 kilogrammes of seed Potatos to any cultivator who will contribute 5f. annually, on the sole condition that he will furnish the Society with a statement setting forth the quantity of Potatos produced and the nature of the soil in which they were planted. The cultivation of the Potato is of such importance to the Saxon population that the number of subscribers to the Society is rapidly increasing. *Times Correspondent.*

Calendar of Operations.

(*For the ensuing week.*)

Although the weather is still comparatively favourable, all half-hardy plants intended to be wintered out of doors should now, if not already done, receive some kind of protection. Various materials are used for this purpose, but the principal point to be aimed at is to keep the plants dry, as well as to protect them from cold; for it is well known that they will endure a much lower degree of temperature without injury if the ground is dry below them, and if the stems are kept dry, than when in a wet soil, and exposed to rain. Deciduous plants may be tied together as soon as the leaves have fallen; the ground about their roots may be covered with ashes or Cocoa-nut refuse, and the stems thatched over with Fern or straw. Evergreens may be protected with a covering of mats, or some other material of that description, put on so as to open towards the north in favourable weather. Leaves, ashes, old tan, and many other articles are all useful, and can be got together now for the protection of tender herbaceous plants. Branches of Evergreens are also extremely valuable for tying against plants on walls. Mats should now be got in readiness for covering frames and pits.

FLOWER GARDEN AND PLANT HOUSES.

At this season every effort should be employed to keep up a good display of bloom in Conservatories and Greenhouses. They will now be used much more than when the weather is favourable for out-door exercise; their inmates, if attractive, will therefore be much more valued now than they would be at any other period.

Chrysanthemums.—These are now coming fast into bloom, and care must be taken to see that they do not suffer from want of water. A little weak liquid manure given occasionally will also assist them in making a better display than they otherwise might do.

Crocuses.—While bulbs of these in pots are kept in a dark place, very little water need be given, merely sufficient to keep the soil, Moss, or sand from becoming too dry. When the roots have made some progress, the crowns will soon make their appearance; and as soon as these are observed, remove the plants to the greenhouse or conservatory.

FORCING GARDEN.

Cucumbers.—These must be well attended to in order to ensure success. A temperature of about 70° should be maintained artificially, which will allow of a little air being given on comparatively cool and dull days. Stop progressing shoots at every second joint, and pinch off all tendrils and young fruit that are not wanted to swell as soon as they appear.

Peaches and Nectarines.—Prune and otherwise prepare the trees in the earlier houses for forcing, which, however, except under particular circumstances, should not be commenced for several weeks yet; but let it be remembered that these fruits will not admit of rapid forcing in the early stages of the process, therefore fire-heat should be applied with caution, so that the night temperature does not exceed 50°, otherwise the blossoms will be weak and liable to drop; during the day the temperature may rise to 60°, with plenty of air on every favourable opportunity. Cover the outside border with leaves or litter, for the purpose of excluding frost and heavy rains. Tie in the trees in the later houses, and get all ready for starting when required.

Pines.—Portions of the stock expected to furnish the autumn supply next year should not be too much checked at present, indeed these may be kept growing slowly all the winter, which is perhaps the most certain method of preventing their starting too early in spring. Where the plants likely to fruit without making further growth are considered insufficient to meet the demand until next autumn the stronger plants of those for late fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for starting in April.

Vines.—Where early forcing is carried on, as soon as the buds are fairly started, the temperature should be increased to 60° at night and 65° by day, allowing it to rise 10° on bright days. Take every opportunity of admitting a little fresh air, but recollect that the foliage will not bear exposure to cold winds, therefore air should be admitted in contact with the heating apparatus. Where the border cannot be warmed, see that it is well protected from wet, &c., by a thick covering of dry litter. If fermenting material is used it will be advisable, however, to have some dung and leaves thrown up to heat, as there would be some danger of chilling the bed by turning it in the event of frosty weather, and mixing it with the dung or leaves which had not commenced fermenting. Houses which it is intended to commence forcing the beginning of next month should also have some fermenting materials placed on the borders so as to encourage the roots a little before the Vines are excited, which will be of great service towards getting the buds to push strongly and without loss of time.

HARDY FRUIT AND KITCHEN GARDEN.

Apple stores should now be often examined, picking out all that show symptoms of rotting. Any of the more choice varieties of Pears that do not ripen properly should be removed to a warm dry room for a few days, which will be found to greatly improve them. Keep all fruit as cool and dry as possible. If frost is excluded from the house it can scarcely be too cool, where the object is to preserve fruit plump and sound as long as possible.

Cabbages.—Where the late dry weather has hitherto prevented these from being planted, now that wet has come no time should be lost in getting them in. Where they have been well looked after they will be good sized plants, and if carefully transplanted they will be nearly as forward next spring as if they had been put in earlier.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Oct. 26, 1864, as observed at the Horticultural Gardens

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 20	19	29.308	29.197	68	30	49.0	55	55	S.W.	.00
Friday 21	20	29.481	29.292	60	45	52.5	55	55	E.	.28
Satur. 22	21	29.125	29.006	58	45	51.5	55	55	S.	.30
Sunday 23	22	29.217	29.038	57	27	42.0	55	55	S.W.	.01
Mon. 24	23	29.436	29.297	61	29	45.0	53	44½	S.W.	.00
Tues. 25	24	29.495	29.343	56	43	49.5	53	54	E.	.00
Wed. 26	25	29.425	29.194	56	49	52.5	53	54	N.E.	.59
Average.		29.355	29.196	59.4	38.2	48.8	54.1	56.4		1.18

Oct. 20—Clear and windy; fine, very slight frost.
— 21—Fine; partially overcast; overcast; rain.
— 22—Overcast and mild; densely clouded; boisterous with rain.
— 23—Cloudy and boisterous; fine at night; frosty.
— 24—Slight fog; exceedingly fine throughout.
— 25—Foggy; overcast; cloudy, overcast at night.
— 26—Hazy and mild; hazy, overcast; mild at night.
Mean temperature of the week ½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK

During the last 38 years, for the ensuing Week, ending Nov. 5, 1864.

October and Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 30	55.1	38.7	46.9	19	0.93 in.	3	8	3	3	5	13	2	1
Mon. 31	53.9	38.2	46.0	20	0.88	1	4	4	2	2	14	7	4
Tues. 1	54.4	38.2	46.3	22	0.58	3	2	5	3	4	8	10	3
Wed. 2	54.4	37.8	48.1	17	0.61	1	3	6	3	2	16	3	6
Thurs. 3	53.4	36.5	45.0	18	0.82	2	2	10	1	7	8	8	1
Friday 4	51.8	37.1	44.4	20	0.44	2	4	11	1	7	9	5	2
Satur. 5	53.1	38.0	45.6	19	0.69	4	2	4	4	5	12	3	4

The highest temperature during the above period occurred on the 30th, 1833, and 31st, 1854—therm. 67 deg.; and the lowest on the 3d, 1861—therm. 19 deg.

Notices to Correspondents.

Books: *M A B.* There is no better book that we know of for the names of garden plants than "Loudon's Encyclopædia of Plants" but it has the demerit of being too bulky, from including hosts of weeds now almost forgotten, and also that of not being brought down to the present day. How came you to fail to find Leycesteria by its aid, when it is so characteristically figured under Pentandria monogynia? And in the other book you mention, how came you to be able to connect holly-edged leaves and copper-brown flowers with each other, and with Chorozema, so as to make out your plant to belong to that genus? A really good book, giving the clue to the names of popular garden flowers, would be a boon to amateur plant-lovers.—*J C.* The Indoor Gardener, by Miss Maling, and Paxton's Botanical Dictionary, will probably answer your purpose.

Bulb-packing: *Bulb.* The name of the plant which furnishes the triquetrous nuts, the husks of which are used for packing imported Dutch flower roots, is Fagopyrum esculentum, or Buckwheat.

Corydalis speciosa: *Fumaria.* We believe this was first flowered at Glasnevin some year or two since. It is a fine plant with golden yellow flowers, and comes from the Amoor country.

Names of Fruits: *W S T.* 1, Brown Beurré; 2, Napoléon; 3, Bishop's Thumb; 4, Urbaniste; 5, Easter Beurré; 6, Beurré Diel.—*H H.* 1, Afriston; the other not known.—*J C.* Seedling Apple No. 1, regularly formed and pretty, but too acid; Seedling No. 2, small, conical, pale yellow, no flavour; 3, Blenheim Pippin: 4, Pennington's Seedling; 7, Syke House Russet; 9, King of the Pippins.—*D D.* Appears to be the Kentish Fill-basket. Apples next week.—*T. Smith.* The Trumpington or Eve Apple.—*T W.* 1, not known; 2, Court of Wick.—*R C.* 1, Carraway Russet, 2, King of the Pippins; 3, Court of Wick; 4, Dumelow's Seedling; 6, Gravenstein.

Names of Plants: *Anon.* Delphinium peregrinum.—*J R.* 1, Onoclea sensibilis; 2, Selaginella cuspidata; 3, Adiantum macrophyllum; 4, Phlebodium areolatum. We never name more than four plants at one time. We shall be quite ready to find space for your remarks on thrips, &c.—*M C W.* Salvia porphyrantha.—*T Elder.* 1, Scolopendrium vulgare, the frond peculiar at the base; 2, Onychium japonicum; 3, seedling Lastrea dilatata, with the toothing abnormal.—*R J.* Chrysopteris is only a synonym of Phlebodium, the type of which is the Polypodium aureum of Linnæus.—*P G.* 1, Asplenium Ruta-muraria; 2, Asplenium Trichomanes; 3, Asplenium Adiantum-nigrum; 4, Lastrea dilatata. *H.*—1, Athyrium Filix-fœmina; 2, Polystichum angulare; 3, Vicia sepium; 4, Crepis virens.—*W. K.* Platyloma falcatum.—*W. Hadwen.* Pteris hastata, and P. hastata macrophylla.

Packing and Storing Fruit: *Nobis.* The plan of packing and storing fruit in bran has been strongly recommended by Mr. Tillery, in a communication to the Royal Horticultural Society, of which the following is the substance. He writes:—"I find bran the best of all substances for packing late Apples and Pears in shallow boxes. They want no care afterwards, as all sweating and decay are dried up. When sand is used in jars and boxes it is usually too wet or too dry, and particles are left on the fruit about the eyes and stalk. Bran is likewise an excellent clean elastic substance in which to pack Peaches, Apricots, and Grapes to go long distances. I have used it to send fruit to Caithness, and they travelled quite safely all that great distance both by sea and and.

Pine Nuts: *R M.* It is the seeds of the Stone Pine, Pinus Pinea, which are eaten at dessert. They are largely used in Italy, and come chiefly from Tuscany and Ravenna. At Lisbon they are brought to market strung upon threads like beads. In the South of Europe they are called Pignons doux. In Switzerland the seeds of Pinus Cembra are eaten.

Pitcher Plants: *Charles.* These require a hot moist atmosphere, and do well in a damp stove trained over a water tank. You will not succeed except you can command plenty of both heat and moisture.

Polystichum: *C M F.* The proper mode of pronunciation is Pō-lys'-tĭchum, not Polysti'-chum. Your nurseryman friend who calls it Polly-stick-um is certainly not to be taken as a guide.

Tomato Sauce: *Eleanor.* There are many ways of making it. A good authority near at hand says, that after selecting sound ripe fruit, they are to be boiled without water for at least six hours till they have become wasted by evaporation. The pulp is then to be rubbed through a hair sieve till nothing but the skins and seeds remain. To a quart of this pulp add half a dozen pickling Onions, one ounce of bruised ginger-root, two blades of mace, a tablespoonful of white pepper, and two tablespoonsful of Chili vinegar, and then boil up again for half an hour, or until it is of such a consistency as to adhere to the spoon; it must be kept well stirred, and should be made in a glazed saucepan kept uncovered. When of the right consistency—that is not at all watery—it is ready for use. For keeping it should be bottled and kept air-tight. Small bottles are best. A few Chilis may with advantage be dropped into each bottle. Thus made it will keep for seven years.

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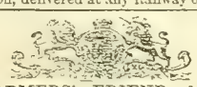
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All communications to be addressed to the Metropolitan Board of Works, Spring Gardens, and to be endorsed "Sewage of the Metropolis."

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MR. HOWARD REED, Author of the Pamphlet "Land: its Registration and Transfer," price 1*s.* (E. WILSON, 11, Royal Exchange, E.C.), is prepared to give ADVICE to LANDOWNERS wishing to avail themselves of the Land Registration Acts, and to conduct all proceedings necessary for obtaining an indefeasible title. Preliminary opinions given on abstract of Title, and terms stated beforehand. Communications personally or by letter.
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President—His Grace The DUKE of BEAUFORT.
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The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1.
Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1863, may be obtained from the Secretary. The ENTRIES CLOSE on NOVEMBER 1.
GEORGE BEECH, Secretary.
Offices: Rectory Chambers, Temple Row, Birmingham.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS, at BIRMINGHAM.
The LAST DAY for RECEIVING ENTRIES is TUESDAY NEXT, November 1.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1864.
The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1, when Prizes to the amount of £1995 will be awarded in the following Divisions, viz.:—

FAT CATTLE	.. £794 10	BREEDING PIGS	.. £76 10
FAT SHEEP..	.. 299 5	CORN and ROOTS	.. 71 8
FAT PIGS ..	.. 60 5	POULTRY and PIGEONS	693 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on TUESDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	,, B.	For a Cow or Heifer (in any Class).
	,, C.	For a Beast in Extra Stock.
SHEEP.	,, D.	For a Pen of three Wethers (in any Class).
	E.	For a single sheep in Extra Stock.
PIGS.	,, F.	For a Pen of three Pigs (in any Class).
	,, G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 29, 1864.

THE importance of the steam cultivation competition at Newcastle has no doubt led many who are interested in the progress of agriculture to study the report of the judges with considerable attention. The prizes offered by the Society show that steam culture has so far progressed that competition may now be encouraged in the details, and that there is no longer occasion to confine the prizes to entire systems.

"A." may have the best plough, "B." a superior cultivator, and "C.'s" mode of applying the steam-power may excel either of the others. But it is essential for a satisfactory award of the merit in each class, that the thing to be judged should be clearly understood, and this does not seem to have been generally well accomplished in Classes 1 and 2.

In the first place there was evidently an original misconception on the part of those who drew up the prize list as regards the latter of these classes, which was for "the best application of steam power adapted for small occupations," the intention being to give prizes for less powerful and costly machinery. The fact however is, that generally the large occupations of this country are on the light lands, which require less powerful machinery, and that the heavy clays, which demand the greatest power to work them efficiently, are in the hands of small occupiers. Instead of this being borne in mind, the land selected for the small occupation trials "was uniform in character and easily stirred."

Then, again, as regards both the classes. The point for the judges' decision was the "best application of steam power for the cultivation of the soil," and it is clear that all disturbing elements should have been removed as much as possible. This was done in the case of the other classes, in which prizes were offered for particular tools, by employing the same power for all the implements. Instead of this we find the same "application of steam power" entered and competing with a variety of implements, and when the cultivators were employed as the test, the judges appear to have discovered the absurdity of the case by their remark—"Mr. STEVENS having no *power* to draw his implement was unable to compete, which was of the less importance as it came into competition in Class 4." How could he compete at all for the best mode of applying power when he had no power to apply!

The work done by the engines, which for the trial of the application of power might have been merely the dragging to and fro of a certain weight, should have been uniform and independent of the superiority of one plough or cultivator over another. Instead of this we find Mr. FOWLER in one case "specially desirous of showing good ploughing"—with another set of machinery, "evidently desirous of showing economy of cost rather than excellence of work." And again with the cultivators: "his original intention was to use the 7-tined balance cultivator, but finding the soil too firm for this implement, he sent for a powerful 3-tined digger, using COTGREAVE'S forked breasts." Again, GARRETT, competing with HOWARD'S cultivator, does not work so deeply as FOWLER, and on being requested to work deeper, "the implement immediately clogged up." How was it possible for judges to come to a just decision with such varied elements interfering with the result?

Another remark which must be made upon the report relates to the occasional indefiniteness of which it is guilty. Instead of the judges remarking upon the "excessive" speed, the actual maximum speed of the ploughs and cultivators should have been specified, and each engine should have had the same plough or cultivator at the same depth to draw at the given velocity. Having the same work done by each engine or pair of engines, the expenditure of coal might then usefully be determined. This is an item no doubt of very great importance, but depending nevertheless quite as much on skill in the manufacture of the boiler and engines as upon "the mode of application of the steam-power." The work done being then in every case exactly the same, the other items of comparison would reveal the differences in the several systems; and then would arise the questions of facility of removal from field to field, expedition in getting to work, wear and tear of rope, complication of the machinery, as indicating liability to accident or otherwise, and all the other points on which a decision rests. These are the elements of a true award of merit, when the best application of steam-power has to be determined. And yet we have some of them passed over as constants from one yearly meeting to another! Certainly it appears to us that Messrs. GARRETT have, in this particular, good ground for the complaint which their recent letter makes.

Let each competitor be required to return the heating surface of the fire-box and tubes of his engine, as well as the diameter and stroke of the piston, and the judges will not have to remark upon "a nominal 7-horse engine doing the work of a 12 or 14-horse engine," and on "the greater extent of heating-surface in the boiler" in one engine as compared to another in proportion to the horse-power.

We throw out these hints for the consideration of those who may have to prepare future lists of prizes and make arrangements for future trials.

THE voluminous reports from many counties which we have published during the past few weeks, while they indicate how general the loss of the Turnip crop and the failure of the young Clover plant has been throughout the Southern and Midland counties of England, are yet not generally definite and precise enough in the specifications which they offer of the treatment which, in the absence of their usual food, the live stock of the farm is during the coming winter to receive. Probably Mr. STRATTON'S statement that he has found his cattle on straw and 4 or 5 lb. of Oats apiece a day to do as well as they used to do on hay and Turnips, is the most practical contribution that has been made to the discussion, and to this agrees Mr. CURTLER'S recommendation made at the recent meeting of the Worcester Agricultural Society. Mr. CURTLER has no Turnips, very few Mangels, and very little hay, but he has good crops of straw; so that he may be considered this season, as he no doubt is at all times, a good model farmer. What then is his remedy for the difficulties in which he is placed? He finds that he can buy good Irish Oats, weighing 39 lbs. a bushel, for 20*s.* per quarter, and of these he has been giving his lambs a quart a day; and, though they have but little to eat from the bare pastures, he finds that they are looking remarkably well. He can keep them for 1*d.* per day on these Oats, and if he chose he could do the same with Maize.

The following is the substance of what he is reported to have said on this subject:—

"He could afford to give his cows a peck of Maize per day, and by this means he could keep them at the rate of 4*s.* 6*d.* per head per week; but if they liked to keep their stock a bit better and get them fatter, they had nothing to do but to cut their Bean-straw into chaff, put it in a large vessel by the side of the engine

and wet it, adding to it so much corn per cow, and then they had a mucilage that would feed them and get them fat. In this he did not think there was more expense incurred than that which attended the growth of Turnips. The same system might be adopted with regard to their cart horses."

Mr. Cuetlee then alluded to the difference of price between oilcake and Maize, and wanted to know whether 1 lb. of oilcake was worth 2 lb. of Maize or of Oats? He thought there was no pretence for keeping up the former at the price for which it was sometimes sold, and farmers ought to determine, having found a substitute, not to buy it, so that in time the price would be brought down to what it ought to be. Oats and Maize for sheep and cattle, and for horses, and mixed with Barley and Wheat if they chose, would be proper food for stock during the winter, and it would be found that this could be supplied at a less price than Turnips could be grown.

Mr. Hudson followed with remarks on the importance of mixing food; and on the use of the chaff-cutter as enabling this.

The account given in a previous number of this Journal by our Correspondent Mr. Samuel Jonas, of the wholesale chaff cutting adopted in Cambridgeshire, where Maynard's chaff machine cuts up the straw as fast as it is threshed, so that it is at once stored in comparatively small space—a whole winter's food in one mass well trodden down along with a little salt—appears to us to deserve greater attention, and to describe a practice worthy of more general imitation than it has yet received.

"CONDITION" IN GRASS LANDS.—No. I.

Having studied that ambiguous term "condition," as applied to arable land; having seen that its value can be ascertained, and that it will pay, let us now consider the same questions as regards Grass land—and first, what Grass land? I have no experience or knowledge of the large tracts of feeding pastures, which, extending from the Lincolnshire coast across Great Britain, will fat out a bullock and half a dozen sheep per acre every summer with no more trouble or expense than casually looking at them—nor of the equally large tracts of dairy land in Wilts, Gloucester, and Somerset, devoted to cheese-making, which have been so ably treated in the admirable lectures of Mr. Harrison, lately reported in the *Agricultural Gazette*.

The Grass lands I propose to consider are the low-lying and neglected portions of farms interspersed among the arable lands of this country, which from their situation or want of drainage cannot be profitably ploughed—moory soils, frequently mown, seldom dressed, and left as nearly as may be in a state of nature. These lands are generally reckoned in with the farms to which they are attached at the average cost of 1*l.* an acre, including tithes, taxes, and all outgoings about 30*s.* per annum. The annual produce may be taken at three-quarters of a ton of hay—and about half that quantity of after feed, or about 7 tons of Grass per annum, taking 5 tons green to make 1 ton of hay. I have known large tracts lying near the banks of rivers from which this annual crop has been regularly mown and carried off for a series of years, and no dressing ever returned. We may take this, then, as the average annual productive capacity of such lands; and that if made into hay it will just pay the rent and expenses, leaving little or no profit to the tenant. The amount of chemical constituents thus annually removed appear to be—nitrogen, about 45 lb.; minerals, about 150 lb., containing potash, 36 lb.; phosphate of lime and silica, about 34 lb. each. This is a somewhat larger amount of chemical constituents, though very nearly in the same proportions, than are removed by 2 quarters of Wheat, which we found to be the annual productive capacity of arable land. Nothing evinces more strongly the enormous reproductive powers of Nature, or the inexhaustible resources of the great storehouse, the soil, than the annual removal of such a quantity of minerals. Here, if anywhere, might be expected to be realised Baron Liebig's prophecy of the eventual exhaustion of our land. We saw that in the case of arable land the organic elements were derived from the annual rainfall and the atmosphere, and that the minerals were for the most part returned in the dung. But here we see 150 lbs. weight carried off year by year with no return, and without the assistance of the aeration and subsoiling which added so much to the produce of corn. Yet here, with no cultivator but the earthworm, and no manure beyond the decay of the Mosses and roots of the annuals in winter, the Grass springs up green at the first blush of spring, and brings its annual tribute. Doubtless the crop in such cases is a poor one. There are no fine Grasses or Clovers in the sward; the stronger plants alone, which can dive deeper into the subsoil, have won the victory in this battle of life, and proclaim the poverty they conceal. On such Grass lands what is Condition, and will it pay?

The first requisite will probably be drainage of some sort. An occasional flooding in the winter will do no harm, if the water does not lie anywhere long, and if the general level of the water is more than 18 inches or two feet below the surface; but low spots where water stagnates must be cured, or no good Grasses will grow. The second requisite is generally greater firmness or consolidation of the surface. Where meadows are not fed constantly, the roots of the Clovers and finer Grasses, even if they exist, get thrown out of the ground during the winter, and Mosses take their place; perhaps the only cure for this is constant and hard feeding. And this, if effectually carried out, will be the great restorer of condition.

A heifer or store bullock per acre during the early summer months, assisted with a little corn or cake as the pasture gets bare, will gnaw down the coarser Grasses and consolidate the earth round the roots, and a flock of sheep penned over the same field in the autumn with a little corn before going on Turnips, will insure a finer herbage, and could this treatment be adopted for any time, the Clovers would gradually spring up, and the produce become not only earlier, but much more valuable as feed; and this system, if pursued with judgment and skill, we saw when calculating the profit of feeding stock would also be profitable. But I am aware that in many cases it would be impracticable to carry out. The price of hay, though chemically not superior to the Grass it is made from, shows its agricultural importance. A farmer generally cannot keep more stock during the summer months while the Grass is plentiful, than he can make off in the winter. He would otherwise be forced to buy in the dearest and sell in the cheapest season. And a good stack of sweet hay, though it can to some extent be substituted by straw chaff with Linseed, &c. is almost a necessity for the milch cows, horses and young stock. We must therefore continue to mow a large portion of our Grass. And having by draining and by feeding got our land into tolerable condition, I think we may do so without injury. But then comes the question of manure. Our hay crop we may fairly hope will even be better and earlier. We may expect, one year with another, to get more than a ton per acre, and of superior quality, worth 4*l.* instead of 3*l.*, and to be made in the month of June instead of July. We may also reckon the value of the aftermath to be 1*l.* instead of 10*s.* Our net returns, therefore (the expenses remaining the same) will be nearly or quite 2*l.* per acre more than the original calculation, and this extra return would be well purchased by an outlay of 1*l.*

Let us see whether, as in the case of the arable land, we can make 1*l.* in manure produce 2*l.* in the crop. Of this larger crop and of improved quality every time we mow an acre we shall remove, say 50 lb. of nitrogen and 30 lb. each of potash, of silica, and of phosphoric acid. Of the former, the greater part, we have seen, will be restored by the air. Of the minerals we must restore the greater part ourselves if we would secure the growth of Clovers, which are the most valuable of our mixed Grasses. A portion of all these ingredients will be returned by the cake and corn which must always be given with the afterfeed either to beasts or sheep, and which we know (p. 732) they will pay for. The remainder must be brought on as manure, either cart-dung or compost, or in liquid manure. This latter, by far the best and cheapest method, is I fear seldom available in the cases we are considering, where the meadows are at some distance from the homestead, and good spit dung (except near towns where it can be bought cheap, and hay, sold for 5*l.* the ton) will be too expensive a dressing. So we shall be driven to consider the application of composts. *J. B. M.*

MANAGEMENT OF STOCK.

[The following is an abridgment of a paper recently read on this subject before the Hungerford Farmers' Club by Mr. S. Wentworth.]

As we are anxiously thinking what to do with our flocks this winter, I cannot do better than confine my remarks principally to them. To begin with the breeding flock. About a fortnight before we intend turning out the sheep, which is in this neighbourhood about the middle of September, we ought to push the ewes on as fast as possible. Rape or Turnips just now is the best food they can have, with lattermath Grass; half a pint of corn to each is not thrown away; and if they have Rape or Turnips, a great many twins generally follow. The sheep used require proper management as well as the ewes. We often go to fairs and sales and buy rams and ram lambs which have always had the best of everything, bring them home, turn them out with ewes, often on the down, or where they have to work for their living, and the consequence is they require great care and good living all the winter to keep them alive. I gained my experience, having in one year lost three lambs out of ten that I bought, as they never recovered the hard living they had when with the ewes. In my opinion, rams are best kept by themselves in the day, with plenty of fresh food and corn, and turned with the ewes at night. After the breeding begins one generally looks round to see what roots he has; and this year, I am sorry to say, there is a poor prospect for every one. If you can afford to begin your roots with the ewes, so much the better. The morning, of course, is the time to give them, as the ewes do not then look for them all day as they would if given at night. If you have no roots to spare—and it will not do to begin without being able to keep on—hay at night, or a little corn, must be given in the morning.

It is very bad policy to let the ewes go back before the winter. Begin the dry food soon enough. There is not, however, much need of that caution this year, but sometimes a great many ewes cast their lambs from living too much on green food, and not having enough to keep them healthy. The best and cheapest corn I believe to be Indian Corn, Barley and Wheat mixed and ground or crushed together. Indian Corn is about 6*l.* 10*s.* per ton, Barley about 7*l.*, and Wheat 7*l.* 5*s.* to 7*l.* 10*s.* per ton. About a bushel to 100, mixed with a little hay-chaff. In the three months that the ewes will want it, they will eat rather more than a bushel each, or about 5*s.* per head, which, I think, is cheaper than hay at 6*l.* per ton, and the manure is better as well. After the Grass is gone, or when the wet, cold weather sets in, I should give them about one and a-half bushel in the morning or part in the morning and part at night, mixed with their chaff; but instead of having all hay, about half Oat straw, Oat caving or Wheat caving cut fine, they will eat very well. I know gentlemen in Hertfordshire who never think of giving hay to their ewes until after they have lambed. They certainly have generally plenty of roots; they cut all their straw, except what they want for litter and thatching, into chaff; they cut it fine and sift it, tread it firm into the mow of a barn, with a few bushels of salt to 20 or 30 tons of chaff, stored away like this, comes out very sweet, and all cattle and sheep are fond of it. In the middle of the day, having made a straw pen, I should let the ewes have what Oat, Barley, or Bean straw they would look over; Barley straw I believe to be of the least value. I have put it in the racks, but think they will eat more of it if put about the pen in small heaps. I only used the racks once. It is very requisite for the ewes with all dry food and no roots to have water always before them. They would drink to excess if kept short at any time. Salt is also very wholesome, and assists digestion. They require it more particularly with no roots, for all roots contain salt more or less. I should continue this until I could afford a few roots, when I should give a little less corn or less hay, if the hay ricks will not hold out. I think it advisable, a few weeks before the lambing season, to discontinue the corn altogether until after the lambs are in. I believe the ewes to be in a better state for lambing if they have only hay and water. My father lost 30 ewes one year, in a very short time, by giving them malt-dust when the lambs were falling; he discontinued the malt-dust, and saved his ewes. Two neighbours of mine last year, thinking their ewes were too poor just before lambing, gave them Oats. This forced the ewes, but a number of them died, until the Oats were left off This is the time for those who have any Pea-haulm to give it to the ewes in the middle of the day. They are fond of it, and I think it favourable for milk. A few other little things must be attended to as well as the food. Ewes when in lamb require a little gentle exercise every day. If the straw pen be made a little distance from their fold at night, it would answer the purpose; or else let them go out for an hour in the middle of the day in a field of rough pasture, or by ground, or on the down.

Another thing to be looked to is lodging. In wet weather the ewes ought to be taken to a pen well bedded up with straw, that they might be able to lie down, especially on some land which gets very dirty with a little rain. Numbers are very soon lost by not being able to lie down for several nights together because of the mud. I know an instance of a gentleman at Ham, who some years ago farmed land at the bottom of the hill and some at the top. He divided his flock into two parts—the young ewes were at Turnips under the hill, the old ones on the top. A fortnight's rain came on just before the lambing season, and the young ewes were unable to lie down in the mud the whole of the time, it was so wet. Out of 440, 100 died in the lambing season. The old ewes, between 200 and 300, being on stony ground which was clean, were able to lie down at night, and only one was lost. They had been living together nearly all the winter before. I am also very prejudiced against small lambing yards. I like a good large pen made in the open fields, and sheltered from the cold winds. Of course, much more straw is required; but I believe the extra expense is more than repaid by its being so much more healthy. I never like them to stop in any pen more than a month or five weeks. The manure gets hot and tainted, which is very injurious to both ewes and lambs. I am not fond of doctoring the ewes after lambing. If they are healthy, none is required; if they are in a bad state, then no medicine will scarcely ever save their lives. After the lambs are all in, I conclude every one to be able to give his ewes roots. I should not attempt to keep a breeding flock without any roots at all.

To start the lambs well, begin to give the ewes corn, Oats, and cake I think best now when the lambs are two or three weeks. I do not care to give them corn until after they are weaned. A little bran keeps them healthy; but I think it rather expensive food for lambs, as it does not show much in the land. I like the lambs to have plenty of room to run before the ewes, and to have a little of the best hay on the farm as soon as they will eat any. I do

not care to shut them up at night unless obliged to do it. Lambs which have the chance of always getting green food are not so likely to eat injurious things as those which are only let run forward at certain times. I think it better even on white frosty mornings for lambs to have the chance of running out if they are kept shut up till 10 or 11 o'clock. They often eat in a hurry the frosted leaves, and very often scour. I have found frosted Turnips injurious to the ewes, having lost seven in two mornings last year from red water, caused by eating too many Turnips on a white frosty morning. I moved them to Swedes, and gave them less. I lost no more afterwards. The lambs at that time were out early in the morning, but I never lost any from scour. It is rather a critical time when the lambs first begin the spring food. Rye I think quite safe, and winter Barley good feeding, but winter Oats are dangerous—very apt to scour the lambs unless it is much older than either Rye or Barley. Vetches follow, and the best of all feeding crops after that, Cabbage. I intended saying a few words on dry flocks, but had no time to write them down. I shall be glad to join in any discussion which may arise on their management, as well as on working stock, horses, and oxen, or growing stock, young cattle and colts, and fattening stock, both pigs and fattening sheep. The great art is to keep all stock improving, instead of going back.

Mr. Williams said Mr. Wentworth had forgotten to add that his father had sold some lambs at Weyhill on Monday at 53*s.* each, which was the top price realised.

Mr. Owen would not advise any one to keep a flock of ewes who had no roots to give them. He recommended looking after store stock, and said they could keep poor beasts in the yards as they would eat the straw with little difficulty. He thought there ought to be something mixed with the straw. He thought pigs were only profitable in the manure they made, as it was the best and most costly for land. He had also found the manure from a bullock's shed as good as sheep's. He thought there were no better roots than Mangel for ewes with lambs, when a root or two were thrown into them at a time; and they might do this any time of the year.

Mr. Stagg thought they could not give Mangels too early in the season. He was feeding the whole of his stock on Mangels now; and it only required additional care the earlier they fed them, giving them less at first. He thought it was necessary for them to see whether they could not grow something as a substitute for Turnips, and not be always dependent upon them. He had grown some Flax this year, and he had been feeding his lambs with the seed in the proportion of half a bushel of seed to 30 gallons of water, and he never saw lambs thrive better. The seed was mixed with chaff, of course. The Flax straw was a very valuable crop, and he thought it was a capital substitute for Turnips. Then, again, in his Bean country, they found that the produce of Beans would keep sheep longer than the Turnips grown on the same area.

Mr. Williams said there was no question every farmer would be put to his wits' end to get food in the month of May for stock; but there was no doubt the Almighty had provided the means if they would set about procuring it in the right way. Unfortunately, their hay-ricks were as scarce as the Turnips; but, on the other hand, they had been blessed with a harvest of straw superior to anything ever known, and there was no question the straw would form the bulk of the food which the cattle would consume this winter. The straw, however, unassisted, was poor stuff; and the question was how to improve it. With regard to growing Oats, he thought that crop would produce more money in the market than any other; and was it therefore wise to cut them up for food for cattle at home? The Chancellor of the Exchequer, he considered, had treated the farmers with the greatest contempt, and regularly insulted them in giving them the Malt Bill. Still, he could not help thinking that, if they were going to keep their stock in the most advantageous way, they should use that which they had had a first-rate crop of—viz., Barley. There was no question, as practical men had tested it, that malt was one of the finest things they could give to their cattle. It struck him that the steam chaff cutter would be a most valuable thing to use this winter; and that the Bill of the Chancellor of the Exchequer, which was never intended to do any good, except if possible to reduce the price of mutton 1*d.* per lb., might come to the rescue this winter. He had been told by an eminent gentleman that if they put a quarter of malt ground up with a quarter of Barley, the whole of the Barley instead of becoming starch would be converted into sugar by the law of affinity; that brewers did it, and they could do it if they chose. If there was straw chaff mixed with the malt, adulterated with linseed, he believed the whole would be so sweetened that the cattle would eat it with great avidity. By using the malt it would prevent the Barley from sinking in price, and the cattle would not lack for good food. Cattle kept in the yard and fed on dry food ought of course to have water constantly. He believed it was very damaging to keep it from sheep for two or three days at a time, as they became feverish and thirsty, and then when they got the water drank too much. He believed they would all be benefited by making use of the Malt Bill so far as they could this winter. He thought they should either give the lambs sufficient roots to moisten or none at all, and not to give half water and half roots, or they would have a good many dead lambs.

Mr. Wentworth said there was no one making malt for cattle, and he could not obtain any. He would be glad if he could,

Mr. Redman thought if they looked more to dry feeding and less to roots, they would be better farmers, and this season would teach a useful lesson in that respect.

LONDON SEWAGE.

One hundred millions of tons of sewage manure are now running every year to waste from North London only. This is a great improvement and advance upon the experience of recent years. Then it had to be declared that the fæcal matter contained in this enormous bulk was festering in the midst of three millions of people—putrifying in their cesspools, rolling to and fro in the channel of their river, and contaminating the air they breathed. It is now or soon to be the case that this nuisance is entirely abated. Life in London will be the longer, healthier, more vigorous for its removal; and that is, as we have said, an advantage which Londoners of 1864 possess over those of ten or a dozen years ago, and which they can hardly over estimate.

Nevertheless it is a scandalous fact, agriculturally, that the waste of 3,000,000 of people should be running to waste; and, therefore, though the Board of Works have done well to get rid of it as a nuisance, yet our agricultural teachers are very properly dissatisfied, and ratepayers think that the agricultural value of their wasted drainage is being lost to them, and engineers and promoters urge them and their representatives, and so Parliamentary Committees sit, and blue books are published. There are two principal schemes for dealing with it. One contemplates lifting the whole body of the waste to some enormous tank high enough to command perhaps a million acres, on to which it may flow at the rate of perhaps 100 tons per acre. Its promoters declare that it is worth 2*d.* per ton, and that 100 twopences will be an ordinary annual expenditure to make in manuring an acre of land—one that the farmer will, therefore, not be indisposed to make—and from which he will derive a large increase of produce and of profit. In the other scheme it is supposed that to lift the whole of London sewage, in order that the upper portions only of this great area may be thus manured, will involve an enormous waste of power. On to a large portion of this district the sewage will flow naturally; on to a still larger portion it will flow on being lifted a very few feet; and although it is probable that the highest parts of all will benefit the most, yet only a portion of the material needs to be lifted up so high. Moreover, it is said, that there is no experience to show that 100 tons per acre of this London sewage will materially benefit the land. On the contrary, all experience hitherto declares that many times that quantity are needed; at the very least it shows that all the instances of its fertilizing influence which can yet be enumerated have been obtained by the use of many times that quantity. One hundred times that quantity, and even more, have been applied so as to obtain the 30, 40, and 50 tons of succulent growth per acre, which are known to have been produced from Grass lands thus treated; and instead of one million acres receiving 100 tons per acre, 20,000 or 30,000 receiving 50 to 30 times that quantity per acre are all that any reasonable scheme requires. Instead, therefore, of Primrose Hill for a central reservoir, with a net-work of arteries, its distributors over 1200 square miles, it merely needs that the bulk of the sewage be lifted 30 or 40 feet, and that it be then set a flowing in a channel, "New River" fashion, along some contour line of gradual descent, say 1 foot to every mile, and delivered on the shore, if it should ever reach its terminus 40 miles away. Below this contour river there is land enough on to which its tenants will gladly welcome it. Would they not have welcomed it this summer, when growth has been retarded by a deficiency of at least 8 inches of rainfall—almost stopped for want of water? 100,000,000 tons, or say 50,000,000 only for the summer season, would have supplied the missing 8 inches for a great extent of land. And had it been available this summer, we can hardly doubt that a most successful beginning would have been effected in the agricultural usage of London sewage all along the northern shore of the Thames.

There are several special advantages connected with the second scheme for the utilisation of London sewage which must not be forgotten. The district where it would thus come into use is not a residential district. The country which would thus be fertilised is very thinly populated. And any nuisance which might be created would thus affect but very few. Again, at the end of the 40 miles of line, there is a tract of foreshore—the Maplin Sands and the Dengie Flats—where 20,000 acres or more might easily be embanked from the sea. So that here we have at once an estate to be fertilised, where every 10,000 tons of sewage may be converted into 30 or 40 tons of Grass, and this into about 5 or 6 cwt. of meat, or a corresponding value of milk, which will be sufficiently profitable both to tempt and pay expenditure. There would thus be an outlet at once for this 100,000,000 tons of sewage; and this poor land, which would need at first enormous supplies of fertilising matter, might thus for a few years receive nearly the whole of this enormous quantity. In the mean time all the low-lying land along the course of the new sewage river would gradually be receiving a portion here and there, as its tenants realised the advantage of the dressing, and ultimately, in all probability, only a portion of the material would reach the terminus estate, which would, however, by that time be in a condition to do with less. And ultimately, no doubt, if the supply should exceed the demand for both these purposes—reservoirs might be obtained here and there along the line, into which pumps will deliver portions of the manure, so as to command the higher land, for which a portion of the sewage may be wanted.

It seems to us that the South Essex scheme—using the sewage in the district towards which Mr. Bazalgette's channel already takes it—using it in a district where the nuisance it will create must be a minimum—taking it along a line where cheap land is to be had to a terminus where an absolute waste exists, which may be enclosed and fertilised—is most in accordance with the existing experience in the use of sewage. In its terminal inclosure, and the long line of suitable country which may ultimately be benefited—it combines all the elements of ultimate success. *Oxford Jour.*

THE PAST HARVEST AND THE COMING WINTER.

Gloucestershire: *Elkstone.*—So little of the produce of the late harvest has been threshed that little actual experience has been ascertained of the yield. Wheat and Barley, however, it is expected will give nearly an average yield, whilst the crops of Oats and Peas are much below the quantities usually grown. The all-absorbing consideration with the stock farmer is how to sustain the live stock with next to no food. The hay crop of last season is scarcely worth mentioning, and the roots are in many places an entire failure, whilst, where there is a plant, owing to the dry weather and the injury those not entirely destroyed by the grubs have sustained, the quantity of feed these fields will yield is exceedingly small. The Turnips and Swedes now alive present a most stunted appearance; indeed, in some cases, they are prematurely ripening. The straw from the cereal crops, however, is very good, and will have to be cut into chaff to a very great extent. The low price of grain will enable stock farmers to meet this great difficulty with less loss than if the corn were dearer, but this circumstance is portentous as regards the money receipts from the farm, for instead of the corn crop going to market to realise the usual receipts, it will be used for stock to make up the deficiency in the fodder supply, and which stock at the usual time for selling will not probably fetch as much money as in other seasons without this consumption of corn. *J. M. Read.*

THE CATTLE MELON.

Cassiobury Park, Watford.

Sir,—As you express a wish in your Journal of the 15th, that any of your Correspondents who may have tried Mr. Blundell's Cattle Melon should give their experience of it, I will venture to give mine. I obtained 1000 seeds last March or April from Mr. Blundell's agent at Southampton (1200 indeed, there were), for which I paid 2*l.* The middle of May I dibbled them in rows 2 yards apart, and about 1½ yard in the row, in excellent land, deep ploughed, and highly manured, as for Mangel Wurzel; but of the whole number of seeds so planted, only 184 vegetated, or at least appeared above ground. Five seeds taken at random I gave to my gardener to put singly into pots, of which only two vegetated, and the other three when afterwards picked out and examined were found to be quite light and effete. I am bound to own that many of the plants which did grow bore some very good fruit, though very far from the rate of 40 tons to the acre. There cannot be a doubt that a very large proportion of the seed was downright bad, and I cannot but think that when seeds are sold at the rate of nearly three farthings each (5*s.* per 100 when sold in that quantity), some test should be employed by the vendor to ascertain that they are really good and sound. If Mr. Blundell's salesman would send out none but such as sink in water, he would be more likely to give satisfaction to his customers. That test holds good with most seeds, for light floating seeds are generally more or less bad. Having, however, a great opinion myself of the plant, and of its great value at the season of year when it is fit to eat, I shall preserve my own seed this year in the hope of having better luck with my next crop.

Yours faithfully, Essex.

SMITHFIELD CLUB.

We beg to call the attention of our readers to the 1st of November being the last day for entries of Live Stock.

ON STORING ROOTS.

by T. Bowick.

A quarter of a century ago, much less care was bestowed on the winter storage of root crops than at present. And, in fact, much less care was needed. Even in Scotland, where the winter is more severe than in our southern or mid-England counties, Swedes used to keep well through the season without any—or at the most very little—care being bestowed upon them. A double mould plough might by some careful men be run up betwixt the ridges, say in November or December, throwing additional soil around the bulbs; but storing, in the present acceptation of the term, was then unknown.

What has led to such a change of practice? Have the winters become more severe? Or has the constitutional hardiness of our roots deteriorated? The latter may in some measure be the right suggestion, but it does not contain the whole truth. One or two causes can be mentioned as combining to produce this state of things.

In the first place, our seedsmen, in aiming at suiting the popular taste for large bulbs with small necks and tops, have probably been breeding from too fine a stock, generation after generation. Skirving of Liverpool, to whom all root growers are more or less indebted, remarked to us, a couple of years ago, at the Smithfield Show, that he had by repeated experimental

selections of this kind, managed to raise roots with scarcely any visible neck, and possessed of only two or three leaves sprouting from it. He, however, well knew that this was obtained at the expense of hardihood of constitution, and that such roots would be injured by even a very moderate frost. He therefore discarded that class of root for a more robust and larger topped development.

Again, in the race for bulk of individual specimens, and of large acreable returns, stimulating manures have been very extensively employed. Few will argue that this has been unattended by deterioration of constitution.

In many districts, too, an increase of game compels the farmer to secure his root crops from being gnawed and injured, and consequent loss sustained.

Hence it is only natural that more care should be bestowed in storing, than in bygone days. The Royal Agricultural Society of England—see Journal, Vol. 2, page 225—directed attention to this subject; but it is respectfully submitted that the plan there officially sanctioned is not now the best which can be availed of by the farmer. Neither is the generally adopted method of storing in small round heaps in the field free from objections. The drawbacks to this method are that the roots have generally to be thrown a considerable distance to the heap, all round—the skin is thereby injured, and decay too often follows. The fact of their being piled up, also, above the surface of the ground, exposes them much more to climatic influences; those near the surface on the sunny side of the heap begin sprouting apace: while the outlay in labour, with a large crop, is assuredly no mean item.

The writer has tried various plans of storing, but having found the following method to answer every purpose—to be at the same time economical and effective, he has no hesitation in recommending it.

For the main crop of Swedes, from the beginning of November to the second week of December is generally the most suitable period for raising. With a common ridge horse-hoe, run up betwixt the drills, cutting the rootlets and point of the tap root, at a sufficient depth in the ground. In order to do this, it is only necessary to set the cutting blades outwards instead of inwards. The pulling may follow at convenience, and that is very greatly expedited by the operation previously referred to. Then throw out, with a double turn of a common plough, an open furrow, at each 12 yards distance, throughout the field, and let the pullers store the roots in the furrow thus opened. Care has of course to be taken that the bulbs are not roughly used when thrown towards the furrow, so as to injure each other. This however is easily managed. We have been in the habit of cutting off only the tops, leaving the further cleaning and trimming until the Swedes are required for use. Their being so left does not entail greater expense at one time than at another, while we have no hesitation in affirming that they come out of the soil fresher by this plan than by any other. A double turn of the plough accomplishes the chief part of the covering—a neat finish being readily made by the spade. It will be observed that the stored roots are much less exposed to the change of weather by this mode than by throwing them together in round heaps above ground. Where a crop requires to be carted off before winter, a different method must of course be adopted, though even in that case we should strongly recommend a similar style of storing, upon any convenient headland.

With Mangels we have ere now successfully adopted the same plan. But as this crop is generally carted off for consumption elsewhere, it is better that they be stacked in the like way, where needed. A pit 9 feet in the base, if dug out 15 inches deep, will give soil enough for a moderate covering to the crop. At all events let us urge the covering with soil. An inch of soil is worth more, in a severe frost, than a foot of straw. If you want to thatch let the thatching be over all. For ventilation we generally employ a common 4-inch drain pipe, running the full length of the Mangel stores, and having an upright chimney of the same kind, at each 6 or 8 yards apart. Great attention should be paid to the handling of Mangels, as they are even more readily bruised and injured than Swedes. With them, too, we recommend that the roots remain untrimmed until required for use.

Potatos follow next. Our subject has to deal with the storing rather than the raising of roots, and we cannot therefore enter into the many different modes employed in raising. Where the soil and season are not too wet, we employ a Potato-raising body, attached to the frame of a common double mould plough. And, with the needful harrowing, one man and a pair of horses keeps a score of active pickers well at work. Our stores are formed 6 feet wide, dug out 10 inches deep, and continued of any length. A very light sprinkling of straw is strewed over the Potatos for the purpose of keeping the soil from getting too far in amongst them. The stores are ventilated in the same way as recommended for Mangels; and from such stores we were throughout the past winter regularly sending excellently conditioned esculents to the London market.

With Carrots some care and attention are needed in the raising, else the job will prove alike inefficient and costly. Run a subsoil plough, drawn by two horses yoked in tandem fashion, down betwixt the rows, thus slackening one row at a time.* They are then readily pulled without digging or forking, and the cost materially lightened. The crown should not be injured in cutting off the top, and pretty careful oversight is needed to secure this.

Let them be stored in oblong heaps of about the same width of base as the Potato stores. Ventilate similarly, and let especial attention be paid to the fact that the looser and more carelessly they are heaped together the better. That is, that they be not neatly and stylishly packed, with the crowns showing outwards in the way that farm labourers would generally prefer. Cover up also with loose earth 10 inches thick and sort over in February, when they should be found in first-rate condition. With care they will keep well for two months longer, but we know of no good end to be accomplished by so doing. Mangels or Swedes are better keepers for late spring feed, if stored according to the plans suggested.

PATERSON'S SEEDLING POTATOS.

RATHER more than a year ago we published the results of several remarkable experiments made by Mr. William Paterson, fruiterer, Union Street, Dundee, in the rearing of new varieties of Potatos from the apple. The productiveness of the new Potatos so greatly exceeded that of the old varieties that people who had not seen them unearthed as we did, at once set down our report as being, if not apocryphal, at least somewhat exaggerated.

That there might be no room for scepticism or gainsaying, the trial of the seedlings was gone into this year in presence of a competent jury. The assize was held in a field of about 16 acres on the farm of Balmydown, on the estate of Baldovan. The parties present on the occasion were the following, viz.:—Norman Ogilvy, Esq., Baldovan (representing his father, Sir John Ogilvy, Bart., M.P., who was unavoidably absent), Councillor James, Dundee; John Coutts, Esq., Potato-factor, Covent Garden, London; Edward Chapman, Esq., Potato-factor, Farringdon Market, London; Thomas Wordley, Esq., farmer, South Ockenden, Essex; George Sibbald, Esq., farmer and market gardener, Drumgeith; George Elder, Esq., farmer, Mains of Longforgan; Peter Luke, Esq., farmer, Logie; Charles Christie, Esq., Potato and fruit merchant, Dundee; and William Miller, Esq., farmer, Balmydown. A glance across the field was sufficient to show that its crop belonged to a more robust sept of the Potato race than those to be seen in neighbouring fields. Most of Mr. Paterson's varieties were growing as vigorously as if it had been the month of July, instead of the first week of October. One or two of the kinds were covered with blooms, and all of them were weighed down by a magnificent crop of fully developed apples—a spectacle by no means common in Potato-fields since the plant was so mysteriously smitten down by disease 18 years ago. Beginning at one side of the field, the digging was carried on right across, a yard of each kind being taken, and weighed with the following results:—

	lb.
Paterson's Regent	7½
Walker's Regent	4½
Paterson's Magenta, or Forfarshire Red	6
New Perthshire Red	10
Paterson's Blue	10½
Paterson's Red	10
Victoria (still in bloom)	12
Scotch Blue	11½
Irish Blue	11⅞
Goliah Kidney	8¾
Seedling Rock	8

With the exception of Walker's Regent, all the above varieties are Mr. Paterson's own seedlings. The produce, it will be observed, is very large—in the majority of cases, indeed, enormous. As regards one or two of the varieties, we find, on referring to our last year's report, that there has been a slight increase in production this season, notwithstanding that this year's Potato crop is in general much inferior in weight to that of last year. One variety, the "Victoria," shows 12 lbs. to the yard this year, while last year it produced, under similar conditions, no more than 9¾ lb. The Victoria is remarkable for symmetry and quality, as well as for its vigour and productiveness, and promises to become a general favourite with Potato-growers. It is well reported of by all who have given it a trial. Mr. Paterson has another seedling, which he has dubbed the "Napoleon," even more robust and healthy-looking than the Victoria; but as it was late in being planted, and not nearly ripe, no trial was made of it. When at maturity, however, its tubers are quite equal in point of quantity, quality, and shape to those of the Victoria. Its stems, which rise to 2 or 3 feet in height, are more like trees than Potato "shaws." One of the gentlemen present (Mr. Chapman) pulled up a plant of the New Perthshire Red, the produce of which weighed 7 lb.

The field on Balmydown Farm was manured by Mr. Miller with ordinary farmyard manure. Mr. Miller also gave it the horse labour, the manual labour having been done by Mr. Paterson. The treatment was in every respect similar to that generally adopted in field culture, so that the extraordinary productiveness of the crop must be owing entirely to the inherent qualities of the plants themselves, and not to any process of nursing or coddling on the part of the grower. We may add that the gentlemen above-named expressed their entire satisfaction with the means adopted to ascertain the weight of the different varieties, and also with the results. *Dundee Advertiser.*

* Mr. Smith, of Woolston, has managed the slackening still more readily and efficiently by the aid of steam power.

DEAR MEAT AND CHEAP STOCK.

YOUR meat producers in England are in many cases now puzzled as to how they shall produce food for their fattening or even store stock. Ours in Ireland are puzzled more sadly as to how they will dispose of their store stock when your stock feeders are in so many cases over-stocked. Your feeders are over-stocked because of the scarcity of ordinary feeding stuffs. Ours are over-stocked though we have an over-supply of such food. Some time ago store stock in Ireland ran so short as to induce one of our public instructors to recommend the enactment of a law to prohibit the slaughtering of calves and lambs. One of your public instructors went farther, and desired that such a law should extend to pigs and even poultry. People smiled at the honest simplicity of our instructor, but they laughed outright at the ridiculous nonsense of yours. We, I repeat, have now more store stock than your people can purchase, at prices remunerative to the holders; whilst they have at home, either on their own farms or near their own doors, feeding stuffs of the best kind which can be purchased so cheaply, and judiciously applied, would pay from 50 to 100 per cent. interest on the money thus expended.

We have not in many cases the money required to purchase such food, nor have those who own the stock in such cases the power of holding their own, even did they possess the food and the intelligence necessary to its economic application. No; they have their rents to pay in all cases, and the landlords can but in a few cases allow them to remain unpaid. Nay, more than that; many stockholders in Ireland purchased stock last April and May with money borrowed from cattle salemasters or usurious bill-brokers. The bills and rents are now due, and paid they must be, even though the stock purchased last April and May must sell for less money now than they then were bought for, leaving no margin to pay the rent of the land they fed upon, or the interest of the money borrowed to purchase them. That, so far from being an overdrawn picture, is but merely the outline, and the filling up of it would occupy more time than I can command, and more space than you could spare for it. Your people are exercising their great ingenuity, in which you are yourself ably helping them, to devise such means as will enable them to economise their food, by the application of windmills and steam-wrought machinery. We have as strong winds as you can have, and certainly not less regular in their action. But we have not the steam-power, nor the means of applying it if we had it, that you can command; not but we have as good fuel as you have, but another kind, were we in a position to use it.

We have what is better than wind or fire, because more regular in its action than the one, and far cheaper than the other—we have an abundance of water-power, passing idly by or through our farms, or in many cases, worse still, deluging and perishing both the lands, whose resources it is so well calculated to develope, and the stock and crops produced on them. Why is this a true description, so far, of such things, and what is the cause? There is one cause, and the primary one, which every man can discuss without fear of contradiction by any one, however humiliating it must be to all. The cause is ignorance; yes, downright and, to a certain extent, confirmed ignorance, which, with the exception of a few professional men and rent-paying farmers, pervades through all classes, from the highest peer of the realm in Ireland or out of it as a landed proprietor, to the lowest holder of a few acres in the wilds of Donegal, Connemara, Mayo, Kerry, or any other county in Ireland. You have for a long time devoted much attention, but more especially of late, to the consideration of agricultural education even in Ireland. In your last notice of it you have paid a marked compliment to Dr. Kirkpatrick, who has resigned the agricultural Inspectorship of national agricultural schools and model farms in Ireland. Every man who knew the doctor well would be disposed to join in that compliment in as far as good intentions went; but there was much more than good intentions required in such an affair; characteristics which, however indefatigable in his profession, and however amiable in his disposition, the doctor did not possess.

Even if he had possessed those characteristics in the fullest degree, it is very doubtful if the stringency observable in the conduct of the Board of National Education—constrained to it no doubt by the Government in each successive case—would permit him by example to remedy to any appreciable degree the evils I have just glanced at. Neither the doctor nor the Board, if he did his duty, can plead ignorance of the causes which led to the failure of those agricultural schools in remedying those evils, in as far as their influence should go and could have gone. The means that could and would have so far beneficially operated, were more than once described to him as within his reach, if put into requisition, which could have been readily done with

not only in any case very little additional outlay of capital, but with a saving of capital in some others, and an increase of it in many more.

What these means are, Ireland, poverty-stricken as she is, possesses within herself, and quite easy of application, and which I would now point for the consideration of your readers, who are numerous at both sides of the Channel, for the matter concerns all; but I prefer withholding them, pending the appointment of Dr. Kirkpatrick's successor, which appointment may be made at this moment for aught I know or can know.

Whoever the successful candidate may be in this important contest, I with, I hope, becoming respect, here warn him against the errors hitherto so observable in the agricultural teachings under the Board of National Education in Ireland. Attempts have been already made to expose the shortcomings of such teachings, but as they were made by men who were ignorant of what such teachings should be, or prejudiced against what they could be, their objections were quite unavailable for good, but fraught with some evil, no matter how intended. Your English readers may in some cases think this writing rather enigmatical, for such it must appear.

There may not be any occasion for further elucidation. However, if any such occasion should hereafter present itself, I promise them, if spared and that you permit it, they shall know why the Board of National Education in Ireland by its teachings, indirectly if not directly, rather encourages than removes the necessity for the sale of Spanish beef in the markets of Dublin, whilst we have Irish cattle in abundance, which, if fed on Irish produce equally abundant as to defy competition from Spain at least, besides giving an abundance of store stock, and if needs be crops to feed them, at a cheap rate to your stock feeders, would increase the profits of the producers in Ireland. How this can be done it will be, in part at least, the duty of the new Agricultural Inspector to show. *Edward Carroll, Dublin, Oct.* 3.

Home Correspondence.

On Crossing the Breed of Animals.—The cross-breeding of farm stock in England must be considered of great importance when it commands the attention of such a statesman as Mr. Disraeli. Be that as it may as regards English breeders, it is certainly of vast importance to Ireland as regards the breeding and feeding of stock; and hence it is I wish to offer a few remarks on it, and in doing so, supply so far the facts called for by your intelligent correspondent, Mr. S. Taylor, in your last week's issue. If in giving those facts I appear as if controverting some of the theories laid down by Mr. Taylor, I do so with becoming and respectful deference. Mr. Taylor writes, "But when the female from her size and good constitution is more adequate to the nourishment of the fœtus of a smaller male than herself, the growth must be proportionally greater." My experience in cross-breeding with every species and variety of farm stock, for now close upon half a century, leads me to entertain an opinion in many important cases directly in the opposite direction. I believe the discussion arose from Mr. Disraeli having recommended the crossing of the Southdown ewe with the Cotswold ram. If I am rightly informed, your fine Oxford Downs were obtained from such crossing. This much I know of my own knowledge: that in Ireland those very Oxford Downs have been increased in size, and in the weight of both mutton and wool, by another cross with the Cotswold ram. Mr. Taylor goes on—"The large female has also a greater quantity of milk, and her offspring is more abundantly supplied with nourishment after its birth." That I deny *in toto cœlo*, as regards three of the most important herds of the day compared with three others thought far less about. The important breeds I allude to are the Short-horned, the Hereford, and the Devon cows, compared with the Ayrshire, the Kyloe, and the little Kerry, to which I could add other distinct breeds if necessary. Those breeds I have crossed in both ways, and every way that I could conceive it possible to produce the best results with, and those were with the best bred Short-horned bull, and the larger, if well formed, the better, and each and every one of the smaller cows I have named. In these cases I have found the fœtus much larger, strange as it may appear to Mr. Taylor, and the respective dams to produce more milk, and of a better quality, than the majority of the finest, largest, and best bred Durham cows. Mr. Taylor proceeds, and quotes from Cline: "The great improvement of the breed of horses in England arose from crossing with those diminutive stallions, Barbs and Arabians, and the introduction of Flanders mares into this country was the source of improvement in the breed of cart-horses." This may have been the case in England for aught I know of my own knowledge to the contrary, but this much I know—that the great degeneracy of Irish horses is owing to the use of small though highly bred horses on every description of mare, whereas the contrary effect has been produced by using large well-bred horses of every variety on medium-sized and even small pony mares. These are facts which no good authority, in Ireland at least, will attempt to gainsay. Mr. T. still proceeds: "The form of the swine has also been greatly improved by crossing with the small Chinese boar." If my opinion on stock breeding of any kind is of more importance in any one class of stock than in another, it is on pig breeding. I have had the Chinese, the West Indians, the Westphalians, "the Irish greyhound pig," the Neapolitan, the Berkshire, the Yorkshire, large and small, and a great many others said to be distinct kinds, all under my charge at once and for a long time. I have crossed them, as Paddy would say, "hither and over;" and the best and most profitable crosses I ever had were with the largest and best Berkshire boar I could procure, on each and every one of the above breeds, large and small; whereas by crossing with any of the small boars I never could produce profitable stock on any sow, large or small, of any of the breeds, that is compared with the opposite crossing. In following Mr. Taylor I must again return to sheep. "Some of the graziers in the Island of Sheppy conceived that they could improve their sheep by large Lincolnshire rams, the produce of which however was much inferior in the shape of carcase, and the quality of the wool, and their flocks were greatly injured by this attempt to improve them." Personally I know nothing whatever of "the Island of Sheppy" or its sheep; but I know the highlands and mountains of Ireland well, and the different breeds of sheep found to do best on them, beginning with "the native Cotthough sheep." The Shrimoughs,* taking in the Scotch Highland "hornies," the Cheviots, the different "Downs," the large "Roscommons," the Cotswolds, the Lincolns, the pure Leicesters (if there be now such things), "the border Leicesters," *et hoc genus omne*, and the best crosses I have ever had, or have known to be had by any one else, were those from the large, strong, sound, well-bred rams, on every description of ewe, large or small, suited to such high and exposed situations, and the very worst from the small rams. And here again I would join issue with Mr. Taylor, both as regards the fœtus from, and the milking qualities of the small ewe compared with the largest, *cæteris paribus*. I would go even farther than Mr. T. has gone in supplying "facts," for I could, if necessary, give the cases also of dogs and poultry, nay, include hares and rabbits, for although no sportsman myself, having never seen a greyhound coursing match in my life, nor ever shot a hare or a game bird of any kind, I have had a great and varied experience nevertheless in contributing professionally, sometimes against my will, to the production of pabulum for those whose tastes and avocations were different to my own. If my object was to write an elaborate essay on the cross-breeding of stock, I would feel coerced to give in all cases exceptions to the rules thus cursorily glanced at, but like all exceptions, they would but prove the correctness of such rules. One rule I have made it a point to observe in all such cases—to guard against putting a large sire to a small female if the sire's head was a large one (I mean very broad across the forehead) as the only inconvenience I have ever experienced in such crossings arose during the period of parturition. In concluding this I fear over lengthened letter, permit me *pro bono publico* to ask Mr. Taylor and those who may think as he does in cross-breeding stock—How is it that the wild cattle, wild horses, wild pigs, and wild poultry, as well as our own deer, contrive to keep their species from degeneracy? Surely it is not by permitting the small and consequently weakest males to become lords of the respective harems. *Edward Carroll, College Hotel, College Street, Dublin, Oct.* 17.

* "Cotthough sheep" are sheep time immemorial found on the Irish hills and mountains. They are small sheep, with very small ears, and sometimes without any ears at all. "Shrimough sheep" are sheep with spotted black and white faces, which, as lambs, have brown ears, and brown legs; once common on our lower and medium quality of lands. They were good in their day as mutton and wool producers, and famous nurses. They are now, I fear, all but extinct, certainly so as a distinct breed. Nothing is known of their history, and less still of the sheep resembling the Merinos, in Ireland time immemorial. *E. C.*

Societies.

Social Science Congress at York: *Piece-work in Agriculture.*—Mr. E. Chadwick, C.B., read the following paper on this subject:—We have been requested to make provision in the section of Social Science for the discussion of agricultural economy. It may be advantageous to both to observe the application of the same economical principles under different conditions. I am only repeating the testimony of a person of wide experience as a land valuer and successful land improver in manufacturing districts, when I say that if the rudimentary economical principles to which the great progress in manufactures is due, were applied to the land, large differences in agricultural and economical results would be obtained. The contrast of the miserably low rates of wages in agriculture, as compared with the rates of wages in manufacture, is attended by corresponding slowness of operations, and differences of result. One advantage, however, on the side of manufactures, is the conditions which admit of the easy application of the principle of payment by the piece. It is admitted that manufactures, and certainly not the cotton manufacture, could not be carried on at the present rate or at the present net wages, if it were necessary to use the large population of day work that is used in agriculture. A great deal of this is due to the low education of farmers, many of whom have not had a common elementary education, and cannot write their own names, and are therefore unapt at laying out piece-work or keeping any account of it. Market garden agriculture, some of it on a very large scale near the metropolis, where three or four crops a year are obtained, where they have no fallows, presents examples of the more extended application of the principle of piece-work, with advanced results such as practical witnesses declare to be applicable to the working of farms. On the piece-work principle in market garden culture, the wages are brought up closely to moderate wages in towns, or a 30 per cent. in advance of the common agricultural wages. But what would be the progress of manufacturers if the manufacturer, before he hired a workman, were placed under a position in which he would have to inquire not as to his skill, but whether he belonged to that parish; and if he did not, were to have to refuse him, or only to engage him if he resided beyond it, and had often to do a large part of a day's work in returning to and from the place of work. Yet such are the obstructions to the free circulation of labour still maintained in a large proportion of parishes in the south by the retention of the law of parochial settlement in defiance of the evidence and conclusions presented upon it under the Poor Law Commission of inquiry. Agriculture, as compared with manufactures, labours not only under a greater deficiency of interest in the labour, but under a lack of interest in the results on the part of the superintendents of cultivation by farm bailiffs or stewards. This is a topic of greater economical importance to the whole of the industry of the country, commercial as well as manufacturing, than is yet apprehended, and merits the especial attention of this department of the Association. A provision in a Bill brought forward during the last session by Mr. Scholefield did not receive the attention which its importance demands. It enabled the principal, or the employer in any concern, to give to his subordinates shares of profits, and also imposed responsibility for losses without making them partners. Such a provision would be of peculiar importance for agriculture, especially in the case of owners engaged in professional and other pursuits who wish to farm their own lands, and to make improvements in their working. Improvers of this class commonly fail in the execution of their plans for want of superintendence and zeal to overcome difficulties which only a direct interest will impart. The piece-work principle is only efficient in agriculture when it is vigilantly and laboriously checked, and that is the point at which gentlemen farmers with other and various objects of attention particularly fail. It is only gentlemen farmers or persons of income from other sources who can afford the risk of trial works or experimental courses. New machines fail in the hands of labourers who have no interest in their success, or that are interested in their failure. Machine makers are often obliged to bribe farm labourers to work machines on their introduction. As it is, there is as much useful invention unused as there is of machinery used, and it is unused from the ignorance or the inaptitude, or want of interest of the labourers. I am informed by an eminent agriculturist of Holland, Mr. Amerfordt, the Mayor of Haarlem, that a system of agricultural payments for results in addition to fixed wages excites zeal and vigilance, and that it works excellently. The steam plough is introduced, and over and above the regular wages a certain extra payment is made for each hectare which is pronounced to be well ploughed; the payment being divided between the engine man and ploughman and boys in attendance. The horsekeeper, over and above his fixed wages, has a payment for each living foal got from a mare; the cowkeeper has an extra allowance for each living calf got; the shepherd, an extra allowance for each lamb sold or living six weeks after it is born; the poultry keeper, an extra allowance upon each hundred eggs delivered to the housekeeper, and upon each hen or cock sold; and the dairymaid, an extra allowance for each lot of butter and cheese sold, without reasonable objection to its quality from the purchaser. On this particular farm the cereals are at once worked up into bread for sale. The baker on the establishment has a fixed wage allowance, for which, however, he must sell not less than a given quantity of bread. For all that he sells above a given quantity, he has a per centage. Fines for irregularities, coming late, neglecting horses, are put in a common fund, which is every quarter divided equally amongst the men, so that the punctual and diligent have an interest in looking after the laggards. The principle of payments for results, of which, by the way, I believe I first talked in respect to school teaching, where it has been applied in a defective manner, has been applied in agriculture in Scotland in the payment of shepherds. In England there has, I am told, been a glimpse of the principle in one district in game preservers, who find it to their interest to make it the interest of farmers to be preservers too in paying them per covey of partridges preserved on their farms. This system, I am assured, works as persons conversant with manufactures would expect it to work. The stated agricultural action is replaced by a vivacious outlook and intelligence. The food manufacturer is saved the labour and distraction of superintendence and incessant fault-findings for carelessness. With us the benighted law of partnership would prevent the baker and other servants being

made responsible for losses as well as sharers in the profits, making them partners, and rendering the employer liable in his whole property for the defaults of each. The association would render much service to agriculture as well as to trade by agitating to free it from such injurious restraints, and advance the great social and administrative object of making interest coincident with duty.

Reviews.

The Journal of Agriculture and the Transactions of the Highland and Agricultural Society of Scotland. Blackwood.

The most interesting paper in the October number of this periodical is the account by "An Old Norfolk Farmer" of the deterioration of the Turnip plant, and of the late prosecutions in Ireland on that account. He quotes a great many passages from the oldest agricultural writers to show that it is no new misfortune that has befallen the plant, but that in all times, from those of Columella downwards, men have occasionally sown the seed of the Turnip, and have grown a Rape like plant which would not form a bulb.

The case at the Cavan Quarter Sessions, to which the article principally refers, was reported at the time in our columns. Mr. Drummond's evidence clearly proved that the seed of the Swedish Turnip does in this way exhibit great liability to sport; and the only ground, as it appears to us, on which the buyer of such seed can rest any hope of hereafter recovering damages against a seedsman lies in this—that this liability is to some extent the result of the previous education, so to speak, of the seed itself. It is not solely due to the peculiarities of treatment, soil, or climate which it experiences in the hands of the buyer, but it is owing to the character which it already possessed previous to its purchase. The grower of the seed is to some extent responsible for its character, and he has no right to send it into the market under false colours. If grown carefully from successive generations of transplanted and properly cultivated roots, the tendency to sport is reduced to a minimum; but it is still Turnip seed, though it may have been harvested from a late-sown crop, which never came to size enough for food, and therefore was allowed to stand another year and seed. In the latter case it is worth less than nothing, often doing a great deal of mischief. And the difference between the two ought to be specified by the salesman, and well paid for by the purchaser. There is a clear dishonesty in selling *that*, as likely to produce a crop of Turnips, which is likely only to produce a crop of leaf and stem.

The Old Norfolk Farmer concludes that there is a "decided tendency of the Turnip, and particularly of the Swede Turnip, to revert to its original character of Rape or napus (or navew, as the ancients called it) under various conditions, some of which, like the one just quoted, are well and strongly defined, whilst others are involved in mystery; but all of them are sufficiently characteristic to clear an honest seedsman from responsibility. As justly might a farmer claim compensation for the disease in a crop of Potatos from the person of whom he purchased the seed-tubers, though there might be no appearance of the disease upon them. We should expect that, after the light that has been thrown upon the subject by the evidence adduced on the late trials, and since, in the public prints, no seedsman will henceforth venture to give a guarantee with Turnip-seed, or fail to announce such a resolution at the head of his bills; for it is evident that in future, when such actions are brought into court, the question of damages must turn solely upon that of a guarantee; and if none is given, no responsibility can be adjudged."

He then recapitulates as follows the facts which his paper proves:—

"1st. That the Turnip plant, in all its varieties, is considered by naturalists to have been derived by cultivators from different species of Rape.

"2d. That there is a constant tendency in the plant to revert to its original state and character of Rape.

"3d. That this tendency has been known, observed, and recorded by agriculturists from the earliest ages, especially by those eminent writers of the first century of the Christian era, Pliny and Columella.

"4th. That this tendency in the Turnip plant to degenerate, or revert to its original condition of wildness, is promoted by various causes, as—

"(1.) By imperfect cultivation and want of draining.

"(2.) By the soil being either too poor or too rich.

"(3.) By sowing too thick.

"(4.) By the neglect of hoeing till it is too late for the plants to bulb properly.

"(5.) By the improper use of lime in a caustic state.

"(6.) By various causes of soil, climate, atmospheric phenomena, &c., too occult to be defined, but which are supposed to operate injuriously, particularly in Ireland, where this tendency of the Turnip to 'sport' is more prevalent than in England or Scotland.

"5th. That seed produced from the most carefully-selected and transplanted bulbs are not sufficient to insure the crop against deterioration or 'sporting,' to a greater or lesser extent.

"6th. That therefore to sue for damages against a seedsman, with no better proof of fraud than the simple fact of deterioration, is unjust, and can only be successful through the ignorance of both judge and jury of the character and history of the Turnip plant."

It is on the fifth point that his argument is not quite conclusive. Carefully grown seed is much less likely to sport than that which is without a good pedigree; and to sell the latter as though it were trustworthy like the former is a wrong for which we imagine that the law will still provide a remedy.

Outlines of Modern Farming. By Robert Scott Burn. Vol. IV. *The Management of the Dairy, Pigs, Poultry.* Virtue, Brothers: 1, Amen Corner.

Mr. Burn here presents us with another section of his rudimentary treatise for students of agriculture. The whole series will prove a very closely and well packed compilation, containing a multitude of facts relating to every part of the agricultural field, which a good index will make accessible to any one, whether mere student or a reader in actual farm practice. We extract a passage on the winter feeding of cows, appropriate to the present occasion:—

"Dr. Voelcker, as corroborative of the fact, which seems obvious enough, but, nevertheless, is really very much overlooked by dairymen, that the food has an influence on the quality of the milk, mentions that the cows of the Agricultural College, when taken in from the scanty supply of the Grass in the October fields, and placed in stalls, and fed with hay, roots, and meal, the quality of the milk increased at once, and gave 4½ per cent. of butter in place of 3½ per cent. when not so treated; the evening's milk, after the cows were out all day at Grass, yielded only 3 per cent. of butter. In the winter months the cows were wholly kept in doors, when the milk was at once more abundant and richer in quality. In February the daily food was as follows:—

At 6½ A.M. 12 lbs. of hay.
9 ,, 15 lbs. of Mangels, cut fine, and mixed with 3½ lbs. of straw chaff and 1 lb. of hay chaff.
11½ ,, 4 lbs. of Rape cake.
3½ P.M. 15 lbs. of Mangels, cut fine, and mixed with 3½ lbs. of straw chaff and 1 lb. of hay chaff.
5 ,, 12 lbs. of hay.

"We now give brief details of other modes of feeding, the first being taken from the *Agricultural Gazette*:—

"'Half a cwt. of Turnips, 16 lbs. of hay, and 24 lbs. of Wheat and Oat straw daily are very large rations for a small cow—say 6 score a quarter. Cut the straw into chaff, mixing a very small quantity of hay, and pulp the roots, mixing them all together. You will thus save much hay.'

"The following is the mode detailed in the Prize Essay on 'Dairy Management,' published by the Yorkshire Agricultural Society, and of which the Rev. Mr. Pulline is the author:—

"'It is a good plan to take up the cows as soon as the nights become cold—say the middle of October—as the white frosts which occur about that time cause them to run off their milk. They are turned out during the day till the middle of November, if the weather keep fine. From that period till May Day they are kept entirely in the house, except being turned out a few minutes every afternoon to water. They are milked at half-past 5 o'clock, morning and evening. As soon as the man who feeds them comes in the morning, the dung is all removed, and each cow has a feed of 28 lbs. of roots:—

At 7 A.M. 7 lbs. of chopped hay.
9 ,, A pail of water, with ½ lb. of Bean meal stirred into it.
10 ,, 2 lbs. of Linseed cake.
1 P.M. 7 lbs. of chopped hay.
2 ,, Turned out to water, and then 2 lbs. of Linseed cake.
5 ,, 28 lbs of roots.
8 ,, 7 lbs. of chopped hay.

"On this system of management five cows produced in seven weeks, from the 25th of March to the 10th of May, 191 rolls of butter, 24 ozs. to the roll—equal to about 254 lbs., 16 ozs. to the lb. To this must be added, 154 quarts of new milk, and 42 quarts of cream, consumed in the house. The milk was not regularly measured, but averaged about 60 quarts per day.'"

The present number of Mr. Burn's series contains a great deal of information on the treatment of live stock in disease, which has been prepared for it by a veterinary surgeon.

Farm Memoranda.

GLASNEVIN.—I was told that both at Cirencester and at Glasnevin the attempt to teach either the science or the practice of agriculture had entirely miscarried, besides incurring ruinous expense; and that the precedent should be taken rather as a warning than an example. I felt that if these assertions were true, it was at all events desirable to know what had been the causes of failure; and happening to be in Ireland, on a geological excursion, I resolved, on my way back through Dublin, to pay a visit to the Albert Training School. . . . Shortly after passing the Botanic Gardens I found myself driving by the side of a better trimmed Thorn hedge than any I had seen in Ireland, and over it I saw heavy crops of Oats, Mangels, and Italian Rye-grass, which unmistakably showed that I had reached the Model Farm of Glasnevin Training School. . . . Mr. Boyle, to whom I was referred on the occasion of my visit, is the agriculturist who, under Dr. Kirkpatrick, manages the model farm, and gives practical instruction to the pupils out of doors. He had himself been trained as a pupil at Glasnevin.

I was conducted first through the buildings—they are partly educational, partly farm offices. The educational consist of a large schoolroom, the walls of which are hung with maps and diagrams, bearing on agricultural questions. Adjoining the schoolroom there is a museum, a laboratory for chemical experiments, and a dispensary for veterinary medicines, &c. I was shown also a dining hall and a number of well ventilated dormitories capable of accommodating about 90 boarders.

The farm offices consist of dairy, cow, byre, cattle sheds, stables, and barn with steam engine. There are tanks for receiving and retaining the sewage of the establishment—and which at suitable times is pumped up by the steam engine for irrigating the fields of Italian Rye-grass.

The land attached to the buildings consists of a farm of about 164 acres, and a garden, which with the shrubberies extend to about 10 acres more.

There are two gardens—one has specimens of common plants indigenous to Ireland, botanically classified and named; the other, in which also there is a vinery and greenhouse, is devoted to fruit trees, vegetables, and flowers.

The farm bears the usual cereal, pasture, and green crops,—according to two systems of rotation. The heaviest crops of Oats and Wheat which I saw in Ireland were at Glasnevin, and were being carried to the stackyard on the day of my visit.

A large herd of dairy cows were in the pasture fields,—a cross between a Short-horned bull and the best Irish cows purchaseable in the Dublin market. The milk, so far as not consumed at Glasnevin, is sold in Dublin.

The pigs were of the Yorkshire and Berkshire breeds. I do not remember having noticed the sheep. There were well arranged and well-kept poultry-sheds and courts near the stackyard.

The whole establishment, both in and outside, had the appearance of neatness and tidiness. They presented in this respect a striking contrast to what is too general in Ireland, and read a lesson which the directors of the great Public Cemetery, and even the managers of the Botanic Gardens at Glasnevin would do well to profit by.

The farm buildings were in excellent order. The farmyard was clean, though at the busiest time of the year. The fields and hedges were remarkably free from weeds.

My conversation with Mr. Boyle, in the course of our forenoon walk, satisfied me that he was eminently qualified for his post. He is a thoroughly practical farmer;—has evidently had a good education; and he possesses a cheerful animated manner, which must be pleasant to his pupils.

Mr. Boyle was most frank and communicative on all the points which occurred to me for inquiry. Even on the tender point, "Does the farm pay?" he at once made the fullest avowals. . . .

It appears that last year the expenditure exceeded the returns by 93*l.*; and that the year before, the returns exceeded the expenditure by 109*l.*

It is only, however, fair to add that the farm is not debited, as it might be, with the labour of the pupils who are boarded at Glasnevin, and who work on the farm—Mr. Boyle thought that the value of their labour might be stated at from 150*l.* to 200*l.*

It will be observed that the farm is debited with a rent of nearly 4*l.* per acre, which is rigidly exacted; and which with reference to the apparent quality of the soil, seemed to me rather exorbitant.

This financial question, however, I consider a very subordinate one. The intention and use of the farm, as a pertinent and appendage of the school, is partly to illustrate and explain the lessons which are taught there, partly to familiarise the eyes and hands of the pupils with the implements, crops, stock, and general operations on a well managed farm. It can scarcely be expected that a farm which is conducted with a view to these objects chiefly, has much chance of yielding a profit, after paying a heavy rent. The absence of profit is just the price, which the managers of the Institution have to pay, for making the farm an auxiliary to the school, but the use which it is of, in that respect, is so important, that the price, or in other words the absence of profit, should not be grudged—if not excessive. Now, judging by the two years' balance sheets given above, I really think that it is wonderful that such returns as these show are obtained from the farm. They appear to me to prove that whilst the farm is made to serve for educational purposes, maxims of economy are not disregarded, and that everything is turned to the best account.

I shall now attempt to explain in what way the pupils are taught. I may just premise, that though I saw accommodation for 90 boarders,—the number during the last few years allowed to be at Glasnevin is only 60. This was a concession to a Parliamentary outcry for retrenchment.

The pupils when they enter Glasnevin must not be under 17 years of age; and they remain two years if they conduct themselves properly and conform to the rules of the Institution. During the last five years there had been only one case of dismissal.

Mr. Boyle informed me that so eagerly is the privilege of studying at Glasnevin as a boarder prized, that for every 20 vacancies there are generally from 70 to 80 candidates.

The candidates undergo two examinations, to ascertain that they are persons of intelligence and have had a good education. The admissions are half-yearly—viz, in January and July. Two months previously the first examination takes place, when if there are 20 vacancies, 30 of the best candidates are taken. These examinations are held in the country schools of the district, where the boys reside. These 30 are then sent to

Dublin to undergo a competitive examination, to decide which of them shall be admitted.

The instruction in the class-rooms is literary as well as agricultural. The literary classes are for Spelling, Grammar, Composition, Book-keeping, Writing, Mapping, &c. The agricultural classes comprise Husbandry, Chemistry, Botany, Geology, Surveying, and Mensuration. These classes are taught by professional men who are selected by the Commissioners.

The out of door instruction is partly in the gardens, and partly on the farm. In the gardens the pupils are made to dig,—to sow at the proper seasons,—to graft trees, and rear vegetables and flowers,—under the directions of an experienced practical gardener. On the farm, they not only receive from Mr. Boyle explanations of the several operations, but they are made to take part, and put their hand to everything going on.

In the garden I saw two lads digging a border in a very efficient manner,—using for that purpose a four-pronged steel fork, which seemed to do the work much better than a spade. On the farm I saw several lads in the corn fields and stack-yard, with their coats off, who I was told were pupils, helping to get the grain carted to the stacks. . . .

The Institution has now existed for 14 or 15 years, and on an average about 30 pupils annually have left it, trained and fitted for useful agricultural work of one kind or another. Upwards of 400 persons must therefore have gone forth possessing a large amount of agricultural knowledge, scientific and practical. Mr. Boyle informs me that about 100 of these are employed as agricultural teachers at model farms, national schools, and workhouse schools, and that of the remainder, the largest proportion are either farmers or stewards.

[The above are passages from an interesting report by Mr. D. Milne Home, of Milne Graden, Coldstream, in the *North British Agriculturist*.]

Cheshire.—We have now to add to our recent reports of the Cheshire prize farms the following particulars of those which have this year won the prizes of the Manchester and Liverpool Agricultural Society:—

Marthall.—Prize 10*l.*, for farm above 140 acres, to John Hope, Marthall.

The meadow land and Clover on this farm is in highly productive condition. The pasture, upwards of 70 acres, is in five fields, is well managed, and must have had great help, as the soil is not very fertile naturally. All the Wheat is one field, thick on the land, healthy and clean. Oats 22 acres, a specially nice crop, with Clover and other seeds sown, which show equal to the best we have seen this year. The Oats were in two fields, and both very good, except about 2 acres in one field, and near a gateway, which were somewhat shorter. The Potatos, 4 acres, in good state and well managed for the character of the land; being strong adhesive soil. Beans, 2 acres, not good. Beans on the whole are much deficient this year. Turnips, 2 acres, a healthy and clean crop. This farm appears to have been remodelled as to size and form of fields, and nearly all the fences are modern and growing well. The house is respectably kept; orchard and garden productive. Everything about the place seems to have due attention. The claimant produced vouchers which showed an expenditure of 289*l.* 8*s.* 10*d.* [on manures], in the last six years.

Mere.—Prize 8*l.*, for farm above 110 acres—to Charles Morrey, Mere.

The Clover and mowing land is 22 acres, all in high cultivation. The pasture is 56 acres, all equal to the best we have seen in our inspection. Wheat, after green crop, 12 acres, equal to the best we have seen. Oats, 12 acres, after leas; a very large and healthy crop, equal to the best seen in the district. Potatos 9 acres and upwards, seven marketed. Turnips, 3 acres—have seen none better in the locality. The farm altogether well managed, and has been entirely re-modelled at his expense, in 10 fields, in proper size and form. In the first 10 years, claimant states he expended 80*l.* or 90*l.* per annum in bone manure, and in the last six years he has expended in bones from 40*l.* to 50*l.* every year; and he showed the Inspectors 63 vouchers which corresponded with his statement. He showed the Inspectors the building he had done. All the fences planted are in a good growing state, and the farm altogether productive and in high condition.

Peover Inferior.—Prize 6*l.*, for farm above 80 acres, to Henry B. Leech, Peover Inferior.

This is a good farm, lying a little out of the way of good roads. The soil of good quality, generally, and the surface in gentle undulations, with a good supply of water. Not much old Grass, but the land allowed to lie four or five years between each course of cropping. Had 6 acres of early Potatos, mostly gone to market. Two acres of this land sown with Grass seeds, and were up when inspected. Four acres planted or sown with Turnips, Cabbage planted between the beds, before the Potatos even taken up. The winter Potatos very vigorous. These green crops and head-ridges very clean. Wheat, one-half a very light crop, the other half a full crop; all of good colour and ripe. Oats, a full average, Corn crops, clean. Clover, good produce for the season, and free of weeds. Grass, of from two to five years' down, pastured. Produce good herbage, but bare of Grass for want of rain. An old Grass field of 8 acres, mown this year, much the same as to quality of herbage. The Osiers, a tall thick crop. A well selected dairy stock, pigs, &c. Gates, posts, fences, water-courses, roads, and all the home premises, in very proper and neat order.

Marthall.—Prize 4*l.*, for farm above 50 acres, to Joseph Mason, Marthall.

This is a strong clay land farm, and a well cultivated dairy farm. Lies to a very good road, and near a railway. Roots, corn, hay, and straw, consumed at home. The land is in detached parts, which makes the occupation inconvenient, and spoils the appearance. The Swedes, Mangel and Potatos, all very clean and vigorous, and the headridges well fallowed, and crops dressed. Wheat and Oats, thick tall crops, and the corn well fed, with Clover and seeds, looking well, in the Wheat. Clover, of first year, the second cutting promising for a fair crop for the season. The old meadows produced good herbage, but the after-grass required rain. The old pastures showed evidence of having smelled of bone manure, and one field of 13 acres had more Grass upon it than can be seen on most fields this season. No coarse weeds on any of the Grass land or fences. These, the gates, posts, and entire home premises, in good and neat keeping. The live stock, mostly young, home-bred, and of a useful sort, showing care and attention. The farmer said he did not like work; but somebody did it, both in the house and out of it. Perhaps the wife did it all, as she was busy in the cheese tub.

Hale.—Extra prize, 2*l.*, given by Lord Egerton for farm above 50 acres, to John Goolden, Hale.

This is more an arable farm than a dairy one, and is under good cultivation. The fences, gates, posts, and home premises, are kept in neat and good order. The soil is a good strong loam generally—some portions a light soil and approaching to a peaty soil. Potatos a very vigorous-looking crop, grown in 3-feet drills, and very clean. The Swedes and Mangles promising, but wanted rain. Beans grown in 30-inch drills, and very clean, likely for an average crop, but were sown rather too thick. Oats and Wheat, full average crops; the latter in reaping, and very low and neatly done. Clover of first and second years, a good produce of good herbage. Old meadow appeared productive. The claimant is evidently a tidy, persevering, and industrious man.

Gardens.

First prize, 4*l.*, to James Hobson, Marthall.

This claimant's garden is about 40 perches, and has been mostly taken from waste on the public road side. It contains upwards of 50 fruit trees, Apple and Plums, of the best variety, especially Apples, bearing very fine fruit. The same remark also applies to the Plum trees. In vegetables there are Peas in variety, one new which we had not seen before. This showed a superior variety. Potatos, Celery, Strawberries, Raspberries, Cauliflowers, Cabbage, Parsley, and other edibles. Culinary herbs of variety. In flowers—Pinks of variety, Stocks varieties and superlatively well grown. Dahlias first sorts. A Water-cress bed in a small rivulet of water on one side of the garden; also a very small piscatorial conservatory. And amongst many other things, some ornamental, but mostly for use, a very neat green-house, of humble architecture to be sure, but very simple and tasteful; and in looking through and around this little paradise we might, we think, truly observe—

> Within this humble cot
> There plenty, peace, and pleasure dwell;
> When man's contented with his lot,
> Smiling joy can grace a cell.

Second prize, 2*l.*, Peter Falkner, Bradshaw Brook, Allostock.

This claimant's garden is upwards of 30 perches of land, apparently taken from a wide and neglected lane. It contains about 50 Apple trees, healthy and young, and including most of the best varieties now cultivated in the county. Also many Plum trees of various sorts and ages, including some good plants for sale. In culinary vegetables, Cauliflowers, Cabbages, of variety. In Peas a new variety, the thickest crop we have seen. Onions, Carrots, Beans, Potatos—in Peas three varieties, and everything luxuriant. In flowers, Dahlias in variety, Carnations, and other flowers. Also a frame with glass for raising Cucumbers and other tender plants. Every inch of ground well done in rustic simplicity. Cottage clean, and the walls inside scarcely a hand's breadth not covered with some device, print, painting, or engraving; all instructive, some grave, some divine, some incite the mind to a merry mood, and amongst this medley of rustic taste for literature and refinement, is an original painting of John Collier and his wife Mary, no doubt by the facetious Tim Bobbin himself, who wrote and published, near a century ago, the book known as the Lancashire Dialect. Of another character we took some lines from five stanzas in needle-work, framed and hanging against the house wall:—

> Forward and fear not, though trial be near,
> The Lord is thy refuge, whom then should thou fear?
> His staff is thy comfort—thy safeguard His rod,
> Be sober, be truthful, and hope in thy God.

Third prize, 2*l.*, to George Bowden, Budworth.

This claimant's garden is about 20 statute perches of land. It contains about 20 Apple trees of the best varieties, viz.: Suffields, Golden Spire, Potts' Seedlings, and others. Pear trees, Plum trees, Onions, Peas, Beans, Potatos, and almost all other vegetables for common culinary purposes, besides a forcing bed in frame and glass for more delicate plants, Cucumbers and Marrows, and Carrots. The garden is well protected with high fences, and in the interior, along with useful fruits and other vegetables, are cultivated many varieties of our best old English flowers. Everything is luxuriantly grown. The garden altogether and cottage very nicely kept.

Fourth prize, 1*l.*, Thomas Sorton, Tabley Superior.

This claimant's garden may be 20 perches. It contains in fruit trees, Apple, Plum, Pear, of sorts, some of them past the best; others in thriving state. In culinary vegetables, Cabbage, Rhubarb, Potatos, Celery, Beans, Peas, Broccoli, Cauliflower; with an assortment of various flowers. Also glass in frame for raising Cucumbers, &c. In fruit also, Gooseberries and Currants. This garden is well attended to, and is in useful cultivation. *Macclesfield Courier.*

Miscellaneous.

The Lichfield Agreement.—The following is a copy of the agreement referred to by Lord Lichfield in his speech at the meeting of the Staffordshire Agricultural Society:—

AN AGREEMENT entered into this day of between (who and whose heirs and assigns are hereafter represented by and comprised in the term landlord) of the one part, and (who and whose executors or administrators are hereafter represented by and comprised in the term tenant) of the other part.

WITNESSETH that the said landlord hereby agrees to let unto the said tenant, who hereby agrees to take all those buildings and lands, with the hereditaments and appurtenances belonging to the same, situate in the county of called now in the occupation of and containing particularly described in the schedule reserving all woods, trees, mines, minerals, and quarries, upon or under the same, with full power, and authority for the said land, or his agents, or servants, to fell, work up, bore, search for, get, and carry away the same respectively, and reserving all fish, hares, and game, and rabbits, except as hereinafter provided, with right to preserve the same, and with liberty to himself, his friends, and servants, to shoot and sport over the said land, at the yearly reserved rent of payable quarterly, the first payment whereof will become payable on the twenty-fourth day of June.

Landlord's Covenants.

1.—To pay the land-tax, chief rents, and landlord's property-tax.

2.—To put the buildings in repair at the commencement of the tenancy. To provide bricks, tiles, and lime, at the kiln, and timber in the rough, or five-sixths of the value in scantling, on the said premises, or within five miles thereof, for repairs when needed, and one-half the cost of painting the outside woodwork of the buildings, and the gates and gate posts adjoining the homestead, which shall be painted at least once in four years; and also to find gates at shillings each, and timber in the rough for gate posts. In case of fire to allow a fair proportion of rent for loss during the restoration of the buildings.

3.—To allow for any damage done to the tenant's crops in the exercise of the rights reserved in regard to the mines, minerals, quarries and timber.

4.—To permit the said tenant to destroy the rabbits by ferreting and digging, but not with guns or snares, in the fields and hedgerows (except the hedgerows of woods and plantations) from the first day of November to the first day of March, and to make compensation for damage done by game, if any be done over and above per acre allowed in the annual rental value of the farm for damage by game reserved.

5.—To allow for stubbles ploughed well in the autumn or winter preceding the end of the tenancy; also, for the cost of labour in carting and spreading manure upon the Clover seeds, and on meadow and pasture land.

6.—To pay for carrying out the conditions of clause 3 of tenant's covenants, so far as it relates to ditches, drains, water-courses, and irrigation, during the autumn, winter, and spring, previous to the end of the tenancy.

7.—To pay at the expiration of the tenancy the value of the out-going tenant's share of the growing Wheat, namely, two-thirds after well-manured summer-fallow, and one-half after Clover root, Potatos, Turnips, or Mangels; but if the extent sown shall exceed one-fourth of the arable land, the excess shall not be paid for.

8.—To allow a consuming price for hay, Clover, and straw which may be left unconsumed at the end of the tenancy, according to conditions in clause 15 of tenant's covenants.

9.—To allow for good clean Clover and Grass seeds according to clause 13 of tenant's covenants. To allow 30*s.* for every acre over and above one-fifth of the arable land which is left in good Clover and Grass seeds at the time of quitting.

10.—To allow for Linseed-cake consumed by stock (except horses) one-third of the amount consumed during the last year, and one-fourth of the amount consumed during the last year but one, in properly littered yards and close sheds, and by sheep while consuming Turnips on the land on which they are grown, or in littered yards or on boards under cover. To allow one-half the proper cost of all good purchased manures applied to root crops (except Potatos) during the last year of the tenancy, and one fourth of that applied during the previous year. Also for all good bones and lime, and for all burnt clay or marl, when the dressing of such clay or marl has not been less than 60 cubic yards to the acre, and if used on the farm during the last two years of the tenancy, as follows, two-thirds of the cost price for what has been properly used during the last year of the tenancy, and one-third of such properly used the preceding year. These allowances to extend only to manure and food purchased over and above and in excess of that purchased with the money realised for straw permitted to be sold.

For the following more permanent improvements, if they have been made at the sole cost of the tenant and with the consent in writing of the landlord or his principal agent.

11.—For pure bone manure properly applied, at the rate of not less than 1 ton or more than 25 cwt. to the statute acre, on lands described as pasture, deducting from the cost one-tenth part annually.

12.—For the pipes and labour of efficient pipe under-draining, deducting one-tenth part of the cost annually. The Lady Day next after the completion of the drainage to be considered the time from which the 10 years' allowance is to be computed.

13.—To provide the best Grass seeds for laying down to permanent pasture, if clean and in a good state of cultivation. And if, within eight years from the time of laying down the said land, the tenant shall quit, to allow such a fair proportion of rent for every acre of land so laid down, being in turf, and not having been mown, as the arbitrators or their umpire may award.

14.—For healthy fruit trees, planted within seven years, the fair cost price. For having reared new quickset fences, the same having been kept clean and well taken care of, the cost thereof, after deducting one-tenth part in respect to each entire period of twelve months that shall have expired since the date of their completion.

15.—For building, which has been efficiently erected at the cost of the tenant, such sum as may have been agreed upon in writing.

Tenant's Covenants.

1.—To pay the said rent as it becomes due, together with such additional payments as may hereafter be agreed upon.

2.—To pay all levies, rates, taxes, and assessments whatsoever, including tithe rent charge, but excepting land-tax, landlord's property-tax, and chief rents. At the expiration of the tenancy the landlord may deduct from the amount payable by him to the tenant under any of the covenants of this agreement, all rent and tithe rent charge due, and also a proportionate share of the accruing half-year's tithe rent charge to be calculated up to the day on which the tenancy shall expire.

3.—To keep the buildings, gates, stiles, hedges, ditches, fences, and every part of the said premises in good repair, order, and condition, until the time of quitting. The landlord finding materials, as provided in Clause 2 of landlord's covenants. To keep the fences against the private roads low and neatly cut, and also to keep the farming roads in good repair, and the farm homesteads and the roads about them as neat and clean as possible. Properly to clean out the ditches, drains, and watercourses, also the gutters and carriers of the irrigated meadows, and properly to irrigate them during the autumn, winter, and spring previous to the end of the tenancy.

4.—The landlord, or his agent, or whosoever shall be appointed by them, to be at liberty to enter upon the said lands and premises to view and inspect the same when the said landlord or his agent think fit; and if the buildings be not in good repair, the landlord, after giving two calendar months' notice to the tenant, may cause the necessary repairs to be undertaken and executed, and the tenant undertakes to pay the workmanship and his share of the materials at the next rent day after their completion.

5.—To preserve the game and fish on the said lands, except the rabbits, which the tenant has liberty to destroy in the manner and during the time stated in landlord's covenants, Clause 4—and at any time sign notices to persons trespassing, and permit his name to be used in any prosecution or action to be brought against such trespassers at the landlord's expense. And if the landlord should give up his reservation of the game, then the tenant agrees to pay as additional rent per acre.

6.—Not to lop, top, or crop any timber or other trees, poles, or underwood, except such Pollards as have been usually topped or lopped by the tenant.

7.—To cultivate, manure, and manage the said lands according to the best and most approved systems of husbandry.

8.—Not to convert into tillage any of the lands described in the schedule as meadow or mowing land, or pasture land.

9.—Not to graze the irrigated meadows or land described in the schedule as meadow or mowing land, after the tenth day of November preceding the end of the tenancy, and not to injure the turf land by the treading of heavy cattle.

10.—To prevent the Nettles, Thistles, and Docks on the farm from going to seed, also all weeds in the hedges, ditches, and waste lands.

11.—To plough in a proper manner in the autumn and winter such part of the lands as shall be in stubble in the autumn preceding the time of quitting, being allowed a proper compensation for the same, and on the second day of February preceding such time, to permit the landlord or any person appointed by him to plough and cultivate any other part of the said arable land to be sown with spring corn or to be fallowed, and, if practicable, to provide proper accommodation for horses so employed,

12.—To accept a compensation in money for share of the growing Wheat on quitting, and to bear the expense of reaping the whole crop, and not to claim any allowance for straw.

13.—Not to sow more than one-fourth (as near as the size of the fields permit) of the arable land with Wheat the autumn previous to the end of the tenancy. At the expiration of the tenancy not to have less than one-fifth of the arable land in good Clover and Grass seeds properly put in, with corn sown on clean well manured fallows, and which seeds shall be properly taken care of, and not be grazed after the first day of October preceding the termination of the tenancy.

14.—At the termination of the tenancy, to leave on the premises one-tenth part of the Wheat straw, and one-tenth or thereabout of the hay, Clover, and Oat and Barley straw grown during the preceding year, receiving a consuming price for the same. The usual number of stock shall be kept upon the farm until the 28th day of February preceding the termination of the tenancy; and at the termination of the tenancy, all farmyard manure and compost shall be the property of the landlord.

15.—Not to mow any of the lands described as pasture land, or meadow or mowing land, more than two years in succession without being sufficiently manured or improved by irrigation. Not to grow more than a due and proper proportion of Wheat or other corn in any one year. To consume on the lands and premises all Turnips, Mangel Wurzels, Potatos, Carrots, Cabbages, or other green vegetable crops, except acres of Potatos, which may be grown for sale in each year, save and except the last year of the tenancy. Not to remove from the said lands or premises any of the hay, Clover, straw, farmyard manure, soil, or compost arising therefrom, and to use and consume the same on the said lands and premises, according to the usages of good farming, except ten tons of straw for every hundred acres of the arable land, and in like proportion for a greater or less extent, bringing back to the farm and properly applying thereon, good manure of the value of the straw sold.

MUTUAL COVENANTS.

1.—If the tenant become bankrupt, or make an assignment of his property and effects to any person, or make any deed of assignment with his creditors, or in case of his underletting the premises without consent in writing, or in case the rent hereby reserved and made payable be in arrear and unpaid for nine calendar months next after the same shall become due, or in case the arbitrators, or their umpire appointed as herein directed, consider and report in writing that waste and injury have been done to the said premises, a twelvemonth's notice shall not be necessary, but the tenancy shall cease at the Lady Day following.

2.—It is mutually agreed that in case of any distress for rent or of an assignment, the hay, Clover, straw, Turnips, and other root crops shall become the property of the landlord, who shall allow a consuming price for the same, and the manure shall then be the property of the landlord, as in the case of the termination of the tenancy.

3.—Any damages or compensation payable, and any dispute or difference which may arise between the landlord and tenant during the tenancy, shall be settled from time to time as the same may arise, and every valuation to be made and compensation to be paid at the termination of the tenancy shall be determined on or about the 1st day of March previous thereto, and all such matters shall be determined by reference to two valuers, one to be chosen by the landlord and the other by the tenant, and all the provisions of the Common Law Procedure Act, 1854, relating to such a reference are hereby adopted, and this agreement shall be deemed a document authorising the reference; and the award to be made pursuant to it shall be final.

4.—Also that this agreement shall take place from the 25th day of March next, and continue in force from year to year until 12 calendar months' notice in writing shall be given by either of the said parties to the other to quit the possession of the said premises previously to the end of the first or any subsequent year that the same may be held by virtue of this agreement, except the tenancy be terminated by any of the cases set forth in Clause 1 of Mutual Covenants.

In witness whereof, the said landlord and tenant have hereunto respectively set their hands the day and year first above written.

Witness to the signature of the landlord, }
Witness to the signature of the tenant, }

Leases.—At the meeting of the North-west Bucks Agricultural Society the other day, Mr. J. Holdom, farmer, Thornborough, said: After the hearty concurrence given by the meeting to Sir Harry Verney's wish that some practical man should address them, he felt tempted to make some observations upon a subject of great importance. Before, however, he did so, he would ask the tenant-farmers at the other end of the room whether they were satisfied with having their land under the year-to-year system? (Considerable uproar, and cries of "No, no, no," from farmers addressed.) There had been several subjects discussed, but that was a matter to which no reference had been made. He would narrate an instance of the injurious working of the system, which had come to his knowledge that day. A young farmer competed the previous year for cultivating in the best manner. He did not get the prize, but his farming was of undoubted excellence, and was mentioned favourably. That young man's rent within the last few days had been raised 20 per cent. If he had taken the prize he competed for last year, it might have been 50 per cent. instead of 20. He would ask whether that treatment was a stimulus to good farming. For his own part, he knew what it was to live under both systems. At the present time he held a lease of one-and-twenty years, twelve of which had expired, and he had grown wonderfully during those 12 years. (At this point of the proceedings the room was in a state of uproar. Two or three individuals tried to prevent Mr. Holdom continuing his speech, while the farmers generally encouraged him to proceed. The noise was somewhat abating, when Mr. J. Osborne turned on Mr. Holdom and said, with reference to the system of which he complained, "I should think that is under Dr. Lee;" to which Mr. Holdom replied, "I don't know about that, Mr. Osborne; Dr. Lee is probably as good a landlord as you have got). Now, he could not understand why landlords should not grant leases to good tenants; but some people say the landlords cannot hold the tenants in their reins if they are not under the year-to-year system. A landlord ought not to have undue influence over his tenants; but for his part he never knew a tenant who would not oblige a good landlord, even though he held his farm by lease. If they were under the year-to-year system, they would not so much as plant a Currant or Gooseberry tree; and if the pigsty wanted repairing, they told John not to put more than one nail in the board, for they did not know how long it might be in their possession. They might depend upon what he said. It was a bad system. If the tenant-farmers would only take farms under landlords who would grant leases, they would see what could be done. If he might be allowed to address the landowners present, he would say—If you have a bad tenant, turn him out, but grant your good ones long leases. He had, no doubt, said too much to be liked by some gentlemen present. It was a matter of great importance, on which he felt and spoke warmly, but he would trespass on their time no longer.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Oct.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	21	29.48	49	48	S.	1	10	59	38	60	31	..
Saturday ..	22	29.08	53	52	S.E.	2	10	60	48	61	43	0.24
Sunday ..	23	29.03	53	51	S.W.	3	10	57	50	63	45	0.18
Monday ..	24	29.32	45	43	S.W.	1	9	55	35	62	29	..
Tuesday ..	25	29.50	52	50	E.	0	10	58	34	74	29	..
Wednesday	26	29.37	54	53	E.	2	10	55	48	60	41	..
Thursday ..	27	29.26	54	54	N.E.	0	10	58	52	63	50	0.65

Notices to Correspondents.

ANALYSIS: *Cor.* We will endeavour to give the analyses next week.

GRACE'S WHITE WHEAT: *R W P.* We recommend you to apply to Mr. Pawlett, of Beeston, Sandy, Beds.

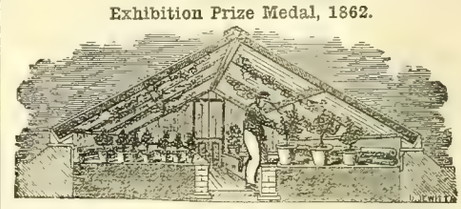
PUBLISHER: *T O G.* Mr. Moule's pamphlets are published by Bradbury & Evans, of Bouverie Street, Fleet Street. Mr. Lawes's papers have been published hitherto only in the Journal of the Agricultural Society (Murray). Mr. Cline's book is out of print.

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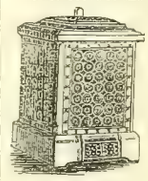
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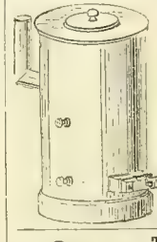
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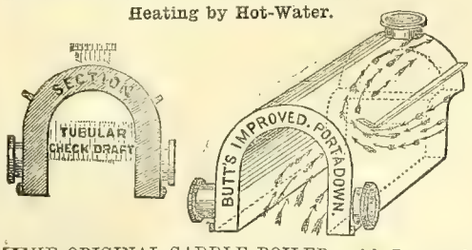
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7 ,, ,, .. 0	10	17 ,, ,, ..	4	0
8 ,, ,, .. 1	0	18 ,, ,, ..	5	0
9 ,, ,, .. 1	2	19 ,, ,, ..	6	0
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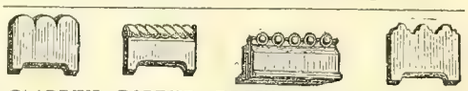
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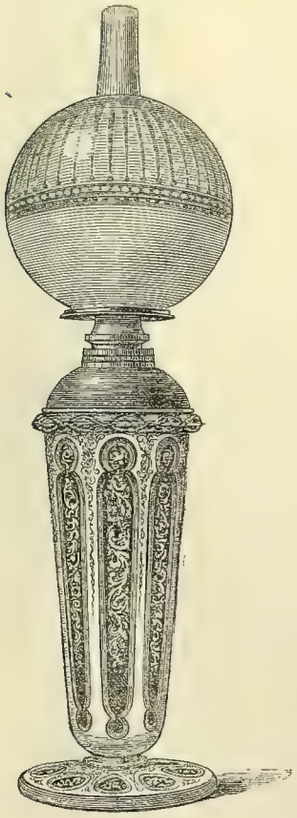
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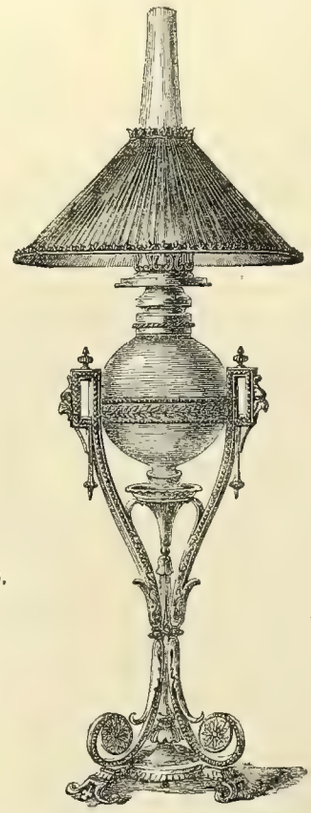
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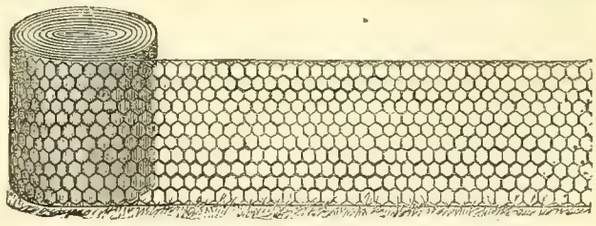


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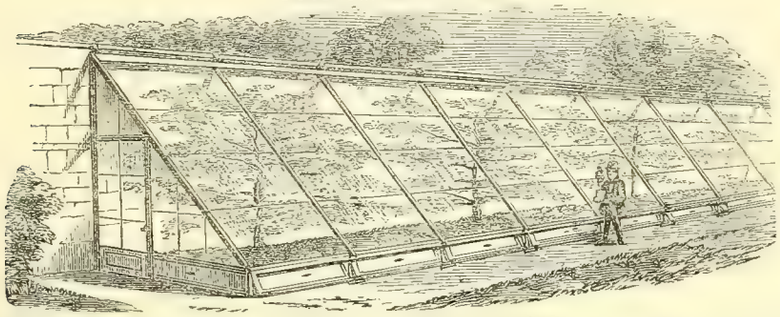
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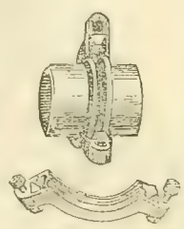
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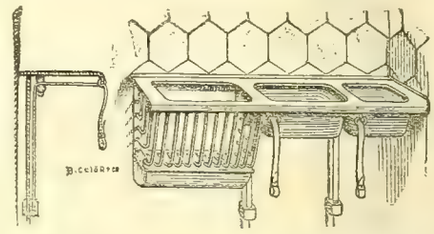
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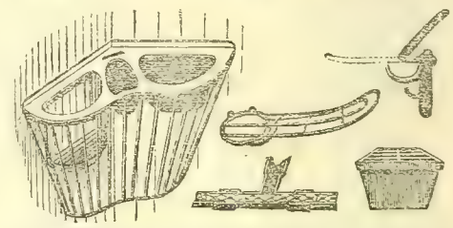
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MOIRÉS ANTIQUES.—SEWELL & Co. have the largest selection of SPITALFIELDS MOIRES ANTIQUES in White, Black, and all the new colours, at 4½ Guineas the Full Dress.
Compton House, Frith Street, and Old Compton Street, Soho, W.

The Furnishing of Bed Rooms.
HEAL AND SON have observed for some time that it would be advantageous to their customers to see a much larger selection of BED-ROOM FURNITURE than is usually displayed, and that to judge properly of the style and effect of the different descriptions of Furniture, it is necessary that each description should be placed in separate rooms. They have, therefore, erected large and additional Show Rooms, by which they are enabled not only to extend their show of Iron, Brass, and Wood Bedsteads and Bed Room Furniture, beyond what they believe has ever been attempted, but also to provide several small rooms for the purpose of keeping complete suites of Bed Room Furniture in the different styles.
Japanned Deal Goods may be seen in complete suites of five or six different colours, some of them light and ornamental, and others of a plainer description. Suites of Stained Deal Gothic Furniture, Polished Deal, Oak, and Walnut, are also set apart in separate rooms, so that customers are able to see the effect as it would appear in their own rooms. A Suite of very superior Gothic Oak Furniture will generally be kept in stock, and from time to time new and select Furniture in various woods will be added.
Bed Furnitures are fitted to the Bedsteads in large numbers, so that a complete assortment may be seen, and the effect of any particular pattern ascertained as it would appear on the Bedstead.
A very large stock of Bedding (HEAL & SON's original trade) is placed on the Bedsteads.
The stock of Mahogany goods for the better Bed Rooms, and Japanned Goods for plain and Servant's use, is very greatly increased. The entire Stock is arranged in eight rooms, six galleries (each 120 feet long), and two large ground floors, the whole forming as complete an assortment of Bed Room Furniture as they think can possibly be desired.
Every attention is paid to the manufacture of the Cabinet work, and they have just erected large Workshops on the premises for this purpose, that the manufacture may be under their own immediate care.
Their Bedding trade receives their constant and personal attention, every article being made on the Premises.
They particularly call attention to their Patent Spring Mattress, the Sommier Elastique Portatif. It is portable, durable, and elastic, and lower in price than the old Spring Mattress.
HEAL & SON'S ILLUSTRATED CATALOGUE of Bedsteads, Bedding, and Bed Room Furniture sent free by Post.
196, 197, 198, Tottenham Court Road, London, W.C.

THRESHER'S COLOURED FLANNEL SHIRTS
Next Door to Somerset House, Strand, W.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads from .. .. .. 12s. 6d. to £20 0s. each.
Shower Baths, from .. .. .. 8s. 0d. to £ 6 0s. each.
Lamps (Moderateur) from .. 6s. 0d. to £ 8 10s. each.
(All other kinds at the same rate).
Pure Colza Oil .. .. .. 4s. per gallon.

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small useful set guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Threa ¢or Brunswick Pattern.	King's or Lily, &c.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 14 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 14 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 18 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaselers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

VICHY and LITHIA WATERS.
Established Remedies for Gout, Dyspepsia, Acidity, &c.
These Waters, as now prepared at the Malvern Springs, are VERY SUPERIOR to those ordinarily sold.
Six Dozen Hampers, carriage free, on application to
Messrs. BURROW, Malvern.

Sauce.—Lea and Perrins'
WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS.
The public are respectfully cautioned against worthless imitations and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

TAYLOR BROTHERS' GENUINE MUSTARD
Dr. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by
DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

BORWICK'S BAKING POWDER, recommended by the Analyst to the *Lancet* and Author of "Adulterations Detected," for making DIGESTIVE BREAD without Yeast, and for rendering Puddings and Pastry light and wholesome. Sold everywhere

HAIR RESTORED, PRESERVED, IMPROVED and BEAUTIFIED by the use of ROWLAND'S MACASSAR OIL.—This elegant and fragrant Oil is universally held in high esteem for its wonderfully nourishing properties. For children it is invaluable, as forming the basis of a beautiful head of hair. Price 3s. 6d., 7s., 10s. 6d. (equal to four small), and 21s. per bottle.
Sold at 20, Hatton Garden, and by Chemists and Perfumers.

PERFECT DIGESTION, strong Nerves, sound Lungs, healthy Liver, refreshing Sleep, and functional regularity and energy to the most disordered or enfeebled are restored by
DU BARRY'S REVALENTA ARABICA FOOD.
Extract from 60,000 cures:—Cure No. 58,216, "of the Marchioness de Bréhan, Naples, of a fearful liver complaint, wasting away, with a nervous palpitation all over, bad digestion, constant sleeplessness, low spirits, and the most intolerable nervous agitation, which prevented even her sitting down for hours together, and which for seven years had resisted the careful treatment of the best French and English medical men."—Cure No. 1771: "Lord Stuart de Decies, Lord Lieutenant of Waterford, of many years' dyspepsia."—Cure No. 49,842, "Fifty years' indescribable agony from dyspepsia, nervousness asthma, cough, constipation, flatulency, spasms, sickness, and vomiting. Maria Jolly."—Cure No. 47,121: "Miss Elizabeth Jacobs, Nazing Vicarage, Waltham Cross, Herts, of extreme nervousness, indigestion, gatherings, low spirits, and nervous fancies."—Cure No. 54,816: "The Rev. James T. Campbell, Fakenham, Norfolk, of indigestion and torpidity of the liver, which had resisted all medical treatment."—Cure No. 54,812: "Miss Virginia Zeguers, of consumption." In Tins, 1lb., 2s. 9d.; 2lb. 4s. 6d.; 12lb. 22s.; 24lb. 40s.
BARRY DU BARRY & Co., 77, Regent Street, London, W.C.; also FORTNUM & MASON Piccadilly, W.; at PHILIPS's. Teadealers; BATTY's; PETTY & WOOD's; ABBIS's, 61, Gracechurch Street, E.C.; 4 Cheapside, E.C.; 63, 150, and 293, Oxford Street, S.W.; 54, Upper Baker Street, W.; 330, 440, and 451, Strand, W.C., 65 Charing Cross, S.W.; 103, Tottenham Court Road, W.; and all Grocers and Chemists.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period without pain or any inconvenience.—Forward address on a stamped envelope to W. GODDALL, Esq., Epsom, Surrey.

ANOTHER CURE of FOUR YEARS' ASTHMA by DR. LOCOCK'S PULMONIC WAFERS.—Matilda Shaw, of Harringhay, has been severely afflicted with asthma for four years, so that she could only lie in one position in bed; after taking three boxes of Wafers she is cured. Witness, E. SQUIRE, Bookseller, Louth. To singers and public speakers they are invaluable for the voice. They have a pleasant taste.—Price 1s. 1½d. and 2s. 9d. per box. Sold by all Druggists.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose
2. Engines or Machinery for Drainage or Irrigation.
3. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
4. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
5. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
Deputy-Chairman—WILLIAM PORTER, Esq., Heimbury Fort, Honiton.
TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
Offices: 52, Parliament Street, S.W.
DIRECTORS.
THE RIGHT HON. LORD RIVERS, *Chairman*.

George Thomas Clark, Esq.	William Fisher Hobbs, Esq.
John Chevalier Cobbold, Esq., M.P.	Edward John Hutchins, Esq.
	Sir Samuel M. Peto, Bart., M.P.
Col. the Hon. Wellington Cotton	William Tite, Esq., M.P.
Henry Currie, Esq.	William Wilshere, Esq.

J. BAILEY DENTON, *Principal Engineer*.
Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, and it may be so adjusted that principal, interest, and all expenses will be included in an annual charge of 6*l.* per cent.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

Epsom.
To NURSERYMEN AND GENTLEMEN'S GARDENERS.
TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. GEORGE S. DODS, the late Proprietor. The Grounds contain Five Acres of Land, have a large quantity of Glass, which is completely and economically Heated with Hot Water; also a valuable general NURSERY STOCK.
For further particulars apply at the Nursery.

Brighton.—To Gardeners, Florists, &c.
TO BE LET, situate in a rich valley, a good FAMILY RESIDENCE, with Large Gardens, Orchards, and Meadows; Hothouses, Forcing Pits, and every requisite for carrying on a most profitable undertaking. Within easy access to Brighton, where fruit and vegetables are in great demand, and fetch high prices.
This offers a good opportunity to an industrious person who understands the business.
For further particulars and permission to view, apply to Mr. LUDD CHRISTIAN, 13, Prince Albert Street, Brighton.

TO BE LET, a FAMILY RESIDENCE, with LAND, between Reigate and Dorking. The House accommodation consists of ten Bed-rooms, two Dressing-rooms, Library 21 feet by 16 feet, Dining-room 25 feet by 21 feet, two Drawing-rooms communicating with each other, 24 feet 6 inches by 22 feet and 18 feet by 12 feet 6 inches respectively, with ample Domestic Offices, Stabling, Kitchen Gardens, Cottage, Lodge, &c. The Land consists of Dress Grounds and small Park immediately around the house, and a Farm of about 150 acres. Arrangements may be made for the use of the whole or part of the Furniture now in the house, and additional Shooting may also be had.
For particulars and cards to view, apply to Messrs. CHINNOCK, GALSWORTHY & CHINNOCK, 11, Waterloo Place, Pall Mall, S.W.; or Mr. VIGERS, 3, Fredericks Place, Old Jewry, E.C.

Nursery and Seed Business.
TO BE DISPOSED OF, the STOCK and GOOD-WILL of an OLD ESTABLISHED BUSINESS in the West of Scotland, with a good connection, which might be greatly extended; or a PARTNER acquainted with the Seed Department could be admitted in room of the Senior Partner desirous of retiring.
Communications (from principals only) addressed W. M. Moss, Esq., of Messrs. WRENCH & SONS, London Bridge, E.C., or ALEXANDER BRUCE, Esq., S.S.C., 2, Thistle Court, Edinburgh, will be attended to.

JOHN T. WILLMER,
HORTICULTURAL AGENT, AUCTIONEER, AND VALUER,
Springfield Nursery, Sunbury, Middlesex, S.W.

Horticultural Agent and Valuer.
MR. A. CHANDLER, of the late Firm of CHANDLER & SONS, continues to undertake all kinds of VALUATIONS connected with Horticulture.
1, Devonshire Terrace, Fulham Road, S.W.

F. W. SEARLE, HORTICULTURAL AGENT and AUCTIONEER, begs to inform Nurserymen, Florists, and the Trade generally, that he undertakes SALES by AUCTION upon strictly moderate terms. Prompt Settlements.
Offices, 23, Coleman Street, Bank, E.C.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Dutch Bulbs and Ornamental Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 29, at half-past 12 o'Clock precisely, an Importation of BULBS from Holland, in capital condition, and comprising many very choice varieties. Some fine FOLIAGE PLANTS and Rare FERNS.
On view the Morning of Sale, and Catalogues had.

Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, October 31, at half-past 12 o'Clock precisely, some Choice SACCOLABIUMS, ODONTOGLOSSUMS, AERIDES, VANDAS, DENDROBIUMS, PHALÆNOPSIS, CATTLEYAS, and other good species, in fine condition.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 2, at half-past 12 o'clock precisely, a Collection of FRUIT TREES, ROSES, CONIFERS, RHODODENDRONS, and other Plants, from Holland.
On view the Morning of Sale, and Catalogues had.

Plants and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 5, at half-past 12 o'clock precisely, an Importation of PLANTS and BULBS, in capital condition, from Holland. On view the Morning of Sale, and Catalogues had.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, on WEDNESDAY, November 2, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Tulips, Crocus, Snowdrops, &c.; also a fine assortment of 300 handsome STANDARD, HALF-STANDARD, and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully furnished with bloom buds, &c.
On view the Morning of Sale. Catalogues may be had at the Auction Rooms as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Hornsey.

IMPORTANT SALE OF NURSERY STOCK, CAMELLIAS, AZALEAS, AND OTHER GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Cleall to SELL by AUCTION, on the Premises near the Railway Station, Hornsey, on MONDAY, November 7, at 11 for 12 o'Clock precisely, a portion of the ground being required for building, the valuable NURSERY STOCK, including 2000 fine Chinese Arbor-vitæ, 2 to 4 feet, many of which are admirably adapted for potting, Cupressus Lawsoniana, Wellingtonia gigantea, 3000 Euonymus, 3000 Spruce Firs, Araucaria imbricata, Cedrus Deodara, Arbutus 3 feet, Common Laurels, Laurustinus 2 to 3 feet, a fine assortment of Standard and Dwarf Roses, American Plants, Irish Ivies and Virginian Creepers in pots, Lilacs, large Fruiting Mulberries, Apples, Currants, Gooseberries, &c.; also 300 handsome Double Camellias 2 to 6 feet, and Azalea indica beautifully furnished with bloom buds, 2000 Chrysanthemums, Cloves, Primulas, &c.
May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Preliminary Notice.

PROTHEROE AND MORRIS respectfully announce that the undermentioned SALES will take place at the City Auction Rooms, Nos. 38 and 39, Gracechurch Street, E.C.:—
On TUESDAY, November 22.—1000 Selected STANDARD, HALF-STANDARD, DWARF, and CLIMBING ROSES; a fine variety of Conifers and other Evergreen Shrubs; a rich assortment of American Plants; clean grown Fruit Trees; Lilium lancifolium rubrum and album, &c.
On TUESDAY, November 29.—A CONSIGNMENT from GHENT, viz.:—400 Fine Double Camellias, 1 to 2 feet, beautiful compact plants, well furnished with bloom buds; 500 Lilium lancifolium rubrum and album (extra large bulbs); 500 Standard, Half-standard, and Dwarf Roses; American Plants.
CATALOGUES are being prepared, and when ready may be had at the Rooms, as above; and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Kentish Town.

NURSERY AND OTHER STOCK.—ABSOLUTE SALE.

MR. F. W. SEARLE will SELL by AUCTION, at the Nursery, Kentish Town Road, on TUESDAY NEXT, Nov. 1, at 12 o'Clock, by order of Mr. Winwood, who has Notice from the Railway Company, the entire NURSERY STOCK, consisting of Roses, Euonymus, Box, Yews, Hollies, Laburpums, Lilacs, Thorns, Ash, Willows, &c.; 170 fine Vines, Nectarines, Plums, Pears, and other Fruits in variety; Stocks for working, Pots, and Effects.
On view day prior and Morning of Sale. Catalogues of the principal Seedsmen, Place of Sale, and of F. W. SEARLE, Horticultural Agent and Auctioneer, 23, Coleman Street, Bank, E.C.

Langhedge Nursery, Edmonton.

MR. A. RICHARDS has received instructions to SELL by AUCTION on the Premises, on TUESDAY, November 8, at 11 o'clock, on account of the projected Railway taking a portion of the ground, a stock of superior FRUIT TREES of all descriptions, fine EVERGREENS, SHRUBS, ROSE TREES, &c.
May be viewed the day previous. Catalogues obtained on the Premises, and of the Auctioneer, Tottenham.

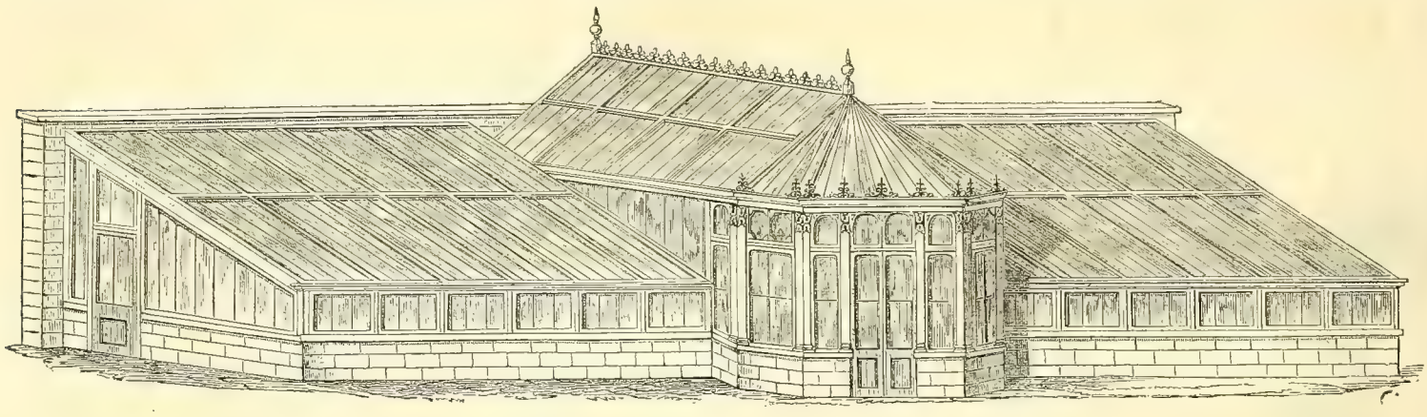
Lincoln Road Nursery, Newark-upon-Trent.

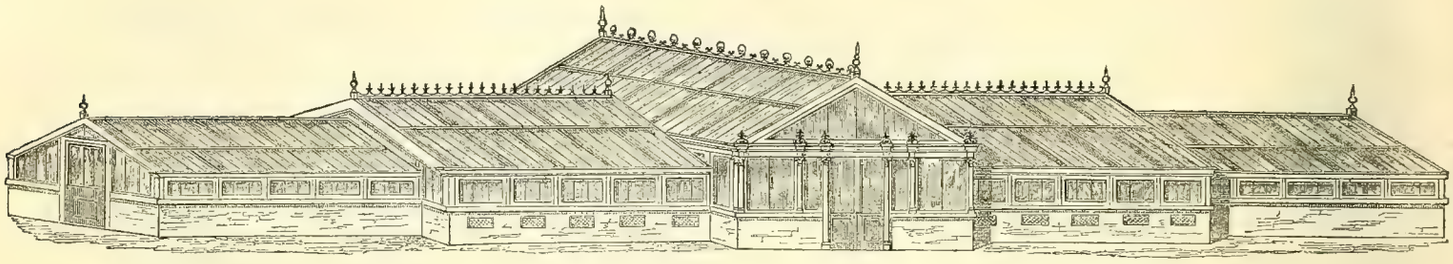
IMPORTANT SALE OF NURSERY STOCK.

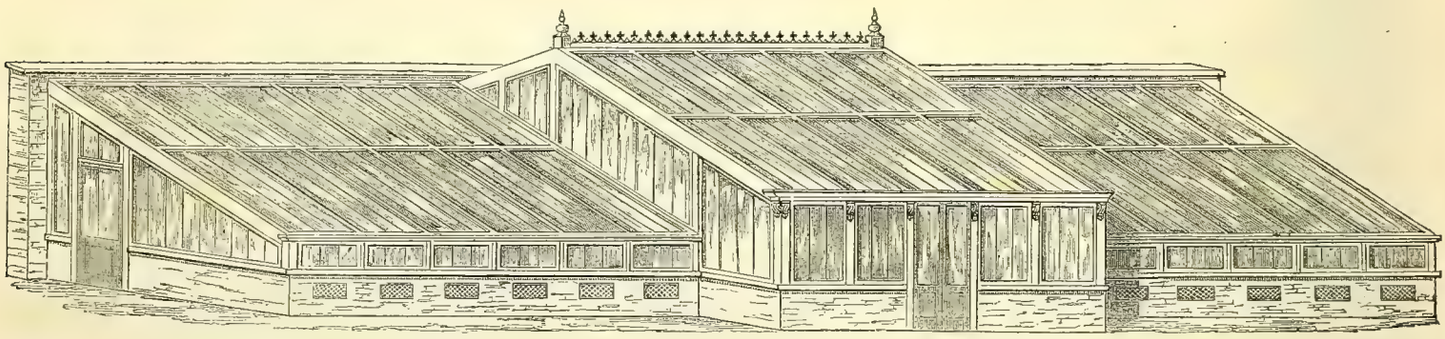
MR. WM. MOSS announces his instructions from Mr. J. T. Lilly (who has received notice to quit the Nursery, in consequence of the death of the owner of the land), to SELL by AUCTION, on WEDNESDAY, November 9, at the aforesaid Nursery, recently occupied by Mr. Girton, the WHOLE of the VALUABLE NURSERY STOCK, fully particularised in Catalogues, to be had of the AUCTIONEER, 83, Barnley Gate, Newar, Notts, on and after Wednesday next.

North Warnborough Nursery, near Odiham, Hants.

MR. ALFRED WHITE will SELL by AUCTION —by order of the Assignees, under a Deed of Assignment) on MONDAY and TUESDAY, November 14 and 15, at 12 o'Clock each day, in convenient Lots, the whole of the remaining STOCK of the above-named NURSERY, comprising about 64,000 excellent PLANTS and SHRUBS, consisting of Arbor-vitæ, Tree Box, Irish Yew, Horse Chesnut, Deciduous and other Trees and Shrubs, &c.; 150 bushel of Potatos, 40 tons of Mangel, 20 tons of Swedes, a large quantity of Seakale, &c.
N.B. North Warnborough Nursery is three miles from the Winchfield Station on the London and South Western, and six miles from the stations at Basingstoke on the Great-Western, South-Western, and Exeter Railways.
May be viewed, and Catalogues obtained three days prior to the Sale at the place of Sale; the Broad Face Hotel, Reading; White Hart, Newbury; Royal Hotel, Winchester; Swan, Alresford; Swan, Alton; Lion and Lamb, Farnham; and of Mr. ALFRED WHITE, Auctioneer, Estate Agent, &c., Basingstoke and Greywell, near Odiham, Hants.







HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

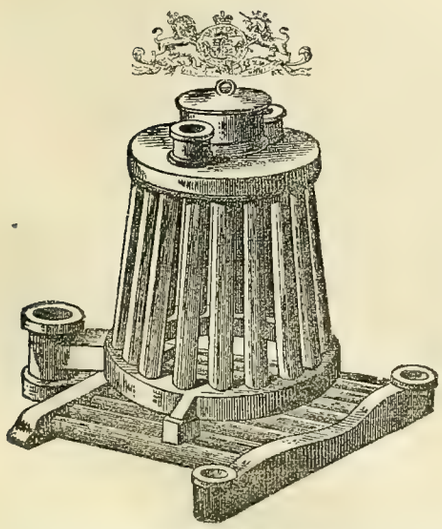
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IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 45.—1864.] SATURDAY, NOVEMBER 5. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
The CHRYSANTHEMUM SHOW will be held on WEDNESDAY, THURSDAY, and FRIDAY NEXT. Doors open at 12 o'Clock. Admission on Wednesday, 2s. 6d.; and 1s. on the following days.
LECTURE on the COTTON PLANT, by Major TREVOR CLARKE, on TUESDAY NEXT, at 2 o'Clock. Fellows and their friends free.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
The NEXT MEETING of this Committee will take place on TUESDAY, November 8, at 12 o'clock. The subjects to be examined must be at South Kensington for entry by 11 A.M.
THOMAS MOORE, Secretary to the Committee.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SECOND GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on WEDNESDAY, November 23, 1864. For schedules, &c., apply to ROBERT W. KER, Hon. Sec., 4, Basnett Street, Liverpool.

Exhibition of Chrysanthemums.
JOHN SALTER'S collection of these beautiful flowers will be in BLOOM throughout NOVEMBER and DECEMBER. The WINTER GARDEN will be open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, near Kensington Railway Bridge.

ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen at the Brunswick Nursery, Stoke Newington Road, opposite West Hackney Church, throughout the present month.

Chrysanthemums.
WALTER P. HUME has a large Stock of fine healthy Plants of the above just COMING into BLOOM, comprising the newest and best varieties. Own selection, 6s. and 9s. per dozen.
Exotic Nursery, Gloucester.

CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5s. per dozen. W. HOLMES, Frampton Park Nursery, Hackney.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.—Nurseries, King's Acre, near Hereford.

Rose Catalogue for 1864 and 1865.
EDWARD P. FRANCIS'S DESCRIPTIVE CATALOGUE is now ready, and he will be happy to forward it gratis on application. Nurseries, Hertford, Herts.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1863, 24s. per dozen. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Rose Catalogue for 1864.
PAUL AND SON will have much pleasure in forwarding their NEW DESCRIPTIVE LIST. Post free on application.
"Old" Cheshunt Nurseries, N.

Roses.
PAUL AND SON have still a fine show of the Autumnal varieties at the
"Old" Cheshunt Nurseries, Cheshunt, N.

Roses.
ALFRED GOSLING, Tower Nurseries, Heathfield, Sussex, will be pleased to forward on application, post free, his CATALOGUE of ROSES, which contains a list of the best varieties of well grown, strong, and healthy plants of Standard, Half-standard, Dwarf, &c., at the lowest prices ever offered. Early orders will oblige.

Hyacinths, Tulips, Crocus, Narcissus, &c.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
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E. G. HENDERSON AND SON offer the above, with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
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Hyacinths and Dutch Bulbs.
Fine and at moderate prices.
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The above are all New Seeds of this year's growth, and guaranteed of the most genuine quality.

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£4	£2	£1	10s.

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Very choice PANSY Seed, 1s. 6d., 2s. 6d., and 5s. per packet.

GLADIOLUS BOWIENSIS (bright glowing scarlet), in fine bulbs, per 100, 10s., 15s., and 20s.; per 1000, 90s., 125s., and 150s.

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*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Hardy British Ferns.

J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.

POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
„ „ „ GLOMERATUM.

(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)

Likewise ATHYRIUM FILIX-FEMINA PARSONSLÆ, VERNONLÆ, and FISSIDENTO-EXCURRENS at 5s. each.

Dorking, Nov. 5.

Two Splendid Seedling Azaleas.

WILLIAM BARNES begs to announce that in consequence of the great demand he has had for small plants of his BRIDE of ABYDOS, he is unable to supply any more of this size

PURITY.—A few small plants to offer at the prices advertised.

Plants of an extra size of both the above varieties can still be had, the Prices of which can be obtained upon application.

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The following Bulbs for 1*l.*:—40 Fine HYACINTHS, in 10, 20, 30, or 40 varieties; 200 Fine EARLY TULIPS, in varieties; 250 Splendid CROCUSES in named varieties; 12 very fine NARCISSUS, four sorts; and 1 LILIUM LANCIFOLIUM RUBRUM, true; half the above 10s. 6d. Fine Bulbs of Lilium lancifolium rubrum, 6s. per dozen, 40s. per 100, or 17*l.* per 1000.

To save trouble, all Orders to be prepaid. Prices to the Trade on application.

To Parties Engaged in Planting.

C. J. DYER, NURSERYMAN and SEED MERCHANT, Taunton, has to offer on very advantageous terms large quantities of the following, viz.:—

TREE BOX, suitable for making edges, 2½ to 3 feet, and 2 feet through; SWEET BRIAR, very strong; BERBERIS AQUIFOLIA, 1½ to 2 feet; SCARLET STANDARD THORNS, fine large heads; AUCUBA JAPONICA, 18 inches; COMMON HOLLY, 1½ to 2 feet; Ditto, 2 to 3 feet; TARTARIAN ARBOR-VITÆ, 2 to 2½ feet; WHITE BROOM, strong in pots; ARBUTUS UNEDO, 2 to 3 feet; PORTUGAL LAURELS, 2 to 3 feet; LAURUSTINUS, fine flowering bushy stuff; FILBERTS in a bearing state.

Prices, which will be very moderate, on application.

Seedling and Transplanted Larch, &c.

TO THE TRADE.

R. MORRISON has this season an immense Stock of the above. His 1 and 2-year Seedling LARCH are unusually fine, while the Transplanted are stout plants; and, being grown in a light sandy loam, in exposed ground, they stand removal well.

R. M. has also a very large stock of Seedling and Transplanted NATIVE SCOTCH FIR, SPRUCE, PINUS AUSTRIACA and LARICIO; PINUS MARITIMA or PINASTER, very suitable for Seaside Planting; OAK, ELM, ASH, THORN, BEECH, and other Hard Woods.

COMMON and PORTUGAL LAUREL, ENGLISH YEWS, &c.; Seedling and Transplanted PEAR and CRAB STOCKS, CHERRY, PLUM, &c. Samples and prices on application. Through rates by Rail to all parts of the country.

The Nurseries, Elgin.—Nov. 5.

Forest and Ornamental Trees.

PETER LAWSON AND SON'S CATALOGUE for SEASON 1864-65 is now ready, and will be forwarded free upon application.

PETER LAWSON & SON undertake the FORMATION of PLEASURE GROUNDS and GARDENS by Contract, under the Superintendence of competent Foremen.

28, King Street, Cheapside, London, E.C.; and at Edinburgh.

WALL-TRAINED FRUIT TREES, Bearing Size.—Very handsome well-ripened Trees of Fruiting Size, comprising Peaches, Nectarines, Apricots, Plums and Pears, standard and dwarf-trained; suited for giving a good crop the first year. An inspection invited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

EXTRA FINE FRUIT TREES.—Dwarf-trained Peaches, Nectarines, Plums, and Cherries, of all the leading kinds (true to name), 30s. per dozen; 12*l.* per 100—well trained, with from five to eight strong branches. Also extra fine Dwarf Maiden Peaches, Nectarines, Apricots, Cherries, and Plums, 60s. per 100; or 20*l.* per 1000—all very clean and good rooted.

GEORGE GRAY & SON, Nurserymen, Brex, near Chertsey, Surrey.

WELLINGTONIA GIGANTEA.—The Undersigned can supply good Seedling Plants in pots, at 40s. per 100. Fine plants in 48 and 32-pots, from 6 to 15 inches, fit for immediate planting, at 4*l.* and 6*l.* per 100.

CUPRESSUS LAWSONIANA, in pots, 1 foot, 25s. per 100.

ARAUCARIA IMBRICATA, in pots, 9 inches, 50s. per 100.

J. HENCHMAN, Edmonton, London, N.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, WANTS several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap.

The New Aucubas.

THOS. CRIPPS, NURSERYMAN, Tunbridge Wells, will be happy to supply Plants in Pots of the MALE AUCUBA (Aucuba japonica mas), 21s. each; GREEN-LEAVED BERRY-BEARING ditto (A. j. femina vera) 3s. 6d. to 5s. each. Packing 1s. extra. A remittance must accompany orders from unknown correspondents. Usual discount to the Trade.

CHARLES DALY AND SON will SELL for Cash only: 1-year SEEDLING THORNS, 1s. 6d., 2s., and 2s. 6d. per 1000; 2-years' TRANSPLANTED do., 7s. 6d. per 1000; 3-years' do. do., 10s. per 1000; COMMON LAUREL, 1 to 1½ ft., 15s. per 1000; PORTUGAL do., 4s. per 100; UPRIGHT YEWS, 1 to 1½ foot, 12s. 6d. per 100; RHODODENDRONS, 20s. per 100; SWEET BAYS, 50s. per 100, and other Nursery Stock Cheap. LISTS of which will be published shortly.

Coleraine, Nov. 5.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

1,500,000 Norway Spruce Firs,

For Coverts and Plantations, in various sizes from 1 foot up to 2½ feet, twice transplanted.

WILLIAM JACKSON AND CO., NURSERYMEN, Bedale, Yorkshire, have the above on Sale this season at very moderate prices, also the following NURSERY STOCK:—

	Per 100.—£	s.	d.
100 HANDSOME ORNAMENTAL TREES and EVERGREEN and FLOWERING SHRUBS	5	0	0
500 TRAINED HORSE CHESTNUTS for Avenues, 6 feet	5	0	0
100 NEW GOLD-STRIPED WEEPING TREE BOX, strong plants	10	0	0
100 BEST GHENT AZALEAS, 2 and 2½ feet, strong plants	7	10	0
100 RHODODENDRONS, in various good varieties, for names	2	0	0
100 RHODODENDRON CAMPANULATUM, 1½ to 2 feet, for coverts	1	0	0
100 RHODODENDRON JACKSONII and varieties, 2 feet, fine plants and neat growers, quite hardy; scarlets, crimsons, white, and salmon coloured	10	0	0
100 DWARF ROSES, in good varieties, strong plants ..	1	10	0
FRUIT TREES. Per 100.—£	s.	d.	
Strong Standard APPLE, PEAR, PLUM, and CHERRY TREES, of the most useful kinds, with good stems, 4 to 5½ feet .. .. 12s. per dozen	3	15	0
Strong three-years Dwarf-trained PEAR TREES, including MARIE LOUISE, BEURRÉ BOSC, JARGONELLE, BEURRE DIEL, &c. .. .. .. 20s. per dozen	7	0	0
CURRANT TREES, 2 to 2½ feet, strong fruiting plants ..	0	10	0

The Trade supplied.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

WANTED to PURCHASE, a quantity of COMMON LAURELS, PORTUGAL LAURELS, AUCUBAS, HOLLIES, COMMON and IRISH YEWS, LIMES, SWEET CHESNUTS, AUSTRIACA, INSIGNIS, and LARICIO PINES.

State height and price per 100 (delivered carriage paid to East Dereham) to W. T. COLLISON, East Bilney, Litcham, Norfolk

Cedrus Deodara.

WANTED to PURCHASE, 10 fine SPECIMEN TREES, about 7 to 8 feet in height. Each tree must be straight and well feathered, so as to form an even-shaped cone, the branches quite reaching to the ground; they must match well for size and shape. Also two very handsome Specimens of the same kind, from 10 to 14 feet high. Give price and any other particulars by post addressed X. Y. Z., *Gardeners' Chronicle* Office, W.C.

WANTED to PURCHASE.

50,000	TRANSPLANTED LARCH,	2 to 3 feet.
50,000	„	SCOTCH, 2 to 3 feet.
20,000	„	SPRUCE, 2 to 3 feet.
100,000	„	COMMON BEECH, 1½, 2, and 3 ft.
40,000	„	ENGLISH OAK, 2, 3, and 4 feet.

Apply with samples and price to C. J. DYER, Nurseryman and Seed Merchant, Taunton.

Cæsarean Nurseries, Jersey.

10,000 EVERGREEN OAKS, reared in pots, 2 to 6 feet high.

10,000 DURMAST OAKS, from rows, 2 to 4 feet high.
5,000 TURKEY OAKS, transplanted, 2 to 6 feet high.
5,000 GUERNSEY or UPRIGHT ELMS, grafted, 4 to 10 feet high.
1,000 LARGE SPRUCE FIRS, bushy and well-formed, 3 to 6 feet.
1,000 LARGE SILVER FIRS, bushy and well-formed, 2 to 3 feet.
1,000 LARGE CHINESE ARBOR VITÆS, 4 to 5 feet high.

The above are fine grown, well-rooted stuff, but are overstock, and to be sold cheap. For prices apply to

C. B. SAUNDERS, Nurseryman, &c., Jersey.

PLANTING SEASON.—100 sorts FOREST TREES, in all sizes; 500 do. EVERGREENS; 300 do. CONIFERÆ; 400 do. FLOWERING SHRUBS; 400 do. ROSES; 50 do. CLIMBERS; 1000 do. FRUIT TREES; 3000 do. Winter and Summer BEDDING PLANTS; 2000 do. general GREENHOUSE and STOVE PLANTS, FERNS, &c.

Apply to J. SCOTT, Merriott Nurseries, Somerset, for CATALOGUES. Fruit Tree, 7*d.*; Bedding Plant, 6*d.* General Nursery, Bulb, and Seed do., one stamp each. These Catalogues are allowed to be the best published, and when bound together, form a Vade Mecum, unsurpassed for Horticultural and Planting improvement.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

TWO TONS of EARLY ASHLEAF POTATOS, Select Stock, 8*l.* per Ton, to be Sold by Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

30,000 excellent DRUMHEAD CATTLE CABBAGE PLANTS, price 3s. per 1000, to be Sold by Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

New Seeds for Autumn Sowing of this Year's Growth.

EARLY PEAS, MAZAGAN BEANS, CUCUMBER, CARROT, RADISH, &c.—Orders amounting to 21s. and upwards sent carriage free. PRICE LISTS on application.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Early Peas, Beans, Radish, and other Seeds

FOR EARLY SOWING, OF THE NEW CROP OF 1864.

MESSRS. SUTTON are now prepared to supply the above of excellent quality and at very moderate prices.

The NEW SEED CATALOGUE for 1865 will shortly be published, and may be had gratis on application to Royal Berks Seed Establishment, Reading.

Two First-class New Early Peas, quite distinct.



SUTTON'S RINGLEADER AND SUTTON'S LONGPODDED TOM THUMB.

SUTTON & SONS have every confidence in offering the above as decidedly the forwardest Peas yet out, having been carefully tested last season against every other early Pea which has hitherto been offered to the public.

SUTTON'S RINGLEADER, 2½ feet.—This Pea is loaded with well-filled pods, which come in for gathering all at the same time. In Messrs. Sutton's Trial Grounds the haulm was cleared and the land planted with another green crop before the common early Peas were ready for gathering. Price 2s. 6*d.* per quart.

SUTTON'S LONGPODDED TOM THUMB, 1 foot.—This has all the merits of the old Tom Thumb and Beck's Gem, which are so useful for small gardens and forcing, with the greater advantage of being covered with pods full twice the length of the sorts named. Price 2s. 6*d.* per quart.

As the stock is limited early orders are requested.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6*d.* per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.

The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

Mr. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2s. 6*d.* per quart.

The Trade supplied at the usual discount. Testimonials forwarded on application.

Sible Hedingham, near Halstead, Essex.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7s. 6*d.* per bushel, or 4s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

FROM THE TOP OF THE CHALK DOWNS.

Seed required in November, 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

See full advertisement with engraving of Ear in Numbers of *Agricultural Gazette* and *Mark Lane Express* for September and October, and in those of *Bell's Weekly Messenger* for October and November 1864.

CARTER'S FARMER'S VADE-MECUM.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

Notice.

TO BE SOLD, reasonable, about 12 LOADS of well-rotted LEAF MOULD, in good condition.

Apply to GEORGE SMITH, Barnsbury Nursery, Thornhill Road, Islington, N.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6*d.* per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	per 300 feet case	32s. 6d.	or about 1½d. per foot.
3ds	,,	41 0	,, 1⅜ ,,
2ds	,,	60 0	,, 2½ ,,
Best	,,	92 0	,, 3¾ ,,

Average Thickness, 21 oz.

4ths quality	per 200 feet case	33s. 6d.	or about 2d. per foot.
3ds	,,	42 0	,, 2½ ,,
2ds	,,	63 0	,, 3⅜ ,,
Best	,,	89 0	,, 5¼ ,,

Average Thickness, 26 oz.

4ths quality	per 200 feet case	44s. 6d.	or about 2⅝d. per foot.
3ds	,,	56 0	,, 3½ ,,
2ds	,,	84 0	,, 5 ,,
Best	,,	116 0	,, 7

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1⅜d.	2 d.	2½d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5

Average Thickness, 21 oz.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

Average Thickness, 26 oz.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5¼
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				Per 100 feet.			
				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.				Per 100 feet.			
				4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16	11s. 6d.	13s. 6d.	16s.	18s.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.		11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..				
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

Average Thickness, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.		14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..				
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.	
4 ,, ..	0 5	,,	
5 ,, ..	0 6	,,	
6 ,, ..	0 7	,,	
8 ,, ..	0 10½	,,	
10 ,, ..	1 2	,,	
12 ,, ..	1 6	,,	
14 ,, ..	2 3	,,	
16 ,, ..	3 0	,,	
18 ,, ..	4 6	,,	
20 ,, ..	6 0	,,	



HAND GLASSES.

12 inches diam.	5s. 6d.	each.	
14 ,, ..	6 6	,,	
16 ,, ..	7 6	,,	
18 ,, ..	8 6	,,	
20 ,, ..	9 6	,,	
22 ,, ..	10 6	,,	
24 ,, ..	11 6	,,	

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	
3 ..	0s. 4d. ..	0 6	each.
4 ..	0 5½ ..	0 8	,,
5 ..	0 7 ..	0 10	,,
6 ..	0 9 ..	1 1	,,
7 ..	0 10½ ..	1 2	,,
8 ..	1 2 ..	1 6	,,
9 ..	1 6 ..	2 0	,,
10 ..	1 10 ..	2 4	,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES.			ROLLING PINS.
Ins.	long.	each.	each
12 ..	0s.	10d.	1s. 3d.
13 ..	0	11	1 4
14 ..	1	0	1 6
15 ..	1	1	1 8
16 ..	1	2	1 9
17 ..	1	3	1 10
18 ..	1	4	2 0
19 ..	1	5	2 2
20 ..	1	6	2 3
22 ..	1	7	2 4
24 ..	1	9	2 8



MILK PANS.

6 inches diam.	0s. 5d.	each.	
8 ,,	0 8	,,	
10 ,,	0 10½	,,	
12 ,,	1 1	,,	
14 ,,	1 6	,,	
16 ,,	2 0	,,	
18 ,,	2 5	,,	
20 ,,	2 10	,,	
22 ,,	3 4	,,	
24 ,,	4 0	,,	

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.		Qts.	each
8	¾ filled,	3..	1s. 3d.
9	,,	4..	2s.
10	,,	6..	2s. 6d
11	,,	8..	3s.
12	,,	9..	3s. 9d
13, 14, 15, 16	At same average according to weight.		7d. per lb.

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p.cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds
NETT CASH.

ZONALE PELARGONIUM SEED (BARR & SUGDEN), saved from Mr. Bull's superb New Varieties; colours scarlet, white, pink, cerise, rose, carmine, blush, salmon, rose-pink, orange-scarlet, &c., many with very distinct eyes, 2s. 6d. per packet; Mr. Bull's magnificent MIMULUS, 1s. per packet; Mr. Holland's Prize CYCLAMEN PERSICUM, 1s. per packet. Trade packets of either of these Seeds, 2s. 6d. and 5s.

BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK'S NEW and CHOICE VARIETIES for this season, and that he will be prepared to supply strong plants the end of this month.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, will be published in a few days and forwarded to all previous customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW ZONALE PELARGONIUMS.—The following will be sent out early in November by JOHN HALLY, Nurseryman and Florist, Blackheath.

1. VENUS.—A perfectly round flower, of good size, brilliant clear orange scarlet, with pure white eye, in good trusses, and very abundant. Leaf having a gold blotch in the centre Zone very dark, breaking into bright orange buff blotches, very effective when bedded out; habit very dwarf, with flower stems standing well above the foliage Received First class Certificate from the Royal Horticultural Society. 7s. 6d. each.
2. RED RIDING HOOD.—Brilliant deep scarlet variety, with white eye and perfect shape, a most profuse bloomer, of very close dwarf habit and deep horseshoe leaf. Received Certificate from Royal Horticultural Society, and marked * * * as 1st class in bedding department. 3s.
3. ENAMEL.—Flower a very clear bright rose, with large round petals of unusual substance; foliage a deep emerald green, with very dark zone. Habit very compact, and a free bloomer. Highly Commended by Floral Committee of R. Horticultural Society. 5s.
4. QUEEN MAB.—A very dwarf zonal variety, with large bright orange scarlet flowers, very distinct and free. 3s. 6d.
5. PYGMIE.—A remarkably dwarf close compact-growing plant, having large trusses of deep scarlet flowers, with large white eye, and very distinct yellow marbled foliage. 3s. 6d.
6. ROSE OF LEE.—Flowers large, of a scarlet rose colour, foliage light green with yellow blotch in centre, very distinct in colour. 3s. 6d.

The above set for 21s., with the usual discount to the Trade.

RHODODENDRONS, from 2 to 4 feet, suitable for Shrubberies, Belts, Covers, or large Plantations, are offered at the low price of 25s. per 100, or £10 per 1000, by W. H. ROGERS, Red Lodge Nursery, Southampton.

A PRICED CATALOGUE of one of the largest and finest Nursery Stocks in the Kingdom, including the recent introductions from Japan, may be had on application as above.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

New Hardy Rhododendrons.

WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—

MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; on or perhaps the most attractive and beautiful. 42s. each.
MRS. JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42s. each.
MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31s. 6d. each.
STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy; decidedly the best in its way; it is a very free bloomer. 31s. 6d. each.
LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31s. 6d. each.
CHARLES BAGLEY.—Cherry red, fine habit and truss. 31s. 6d. each.

Knap Hill Nursery, near Woking, Surrey.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Roses established in 6-inch pots for Forcing, Greenhouse Culture or Half Specimens for Exhibition.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have a very large and splendid Stock of well-grown Plants of the above to offer at 24s. to 30s. per dozen. The wood is well ripened, and will produce abundance of Bloom early in the season.

New Roses of 1864.

JOHN KEYNES has a fine stock of first-rate Plants in pots of all the best New Roses sent out in 1864. The following can be supplied by the dozen:—

HYBRID PERPETUALS.

André Leroy d'Angers	Kate Hausburgh
Admiral La Perouse	Leopold Premier
Claude Millon	Louis Van Houtte
Gabriel de Peyronny	Maréchal Forey
George Paul	Maréchal Suchet (Damaizin)
George Prince	Pavillon de Pregny
H. Laurentius	Pierre Notting
John Nesmith	Senateur Reveil
Joseph Fiala	Paul de la Mielleray
Joseph Durand	

B., Madame de Stella, Rev. H. Dombrain. TEA, Jaune d'Or

J. KEYNES'S general stock of Roses are in fine condition, particularly the Roses of 1863, both Standards and Dwarfs. CATALOGUES sent on demand. Salisbury, Nov. 5.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & SONS have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

CARTER'S GARDENER'S VADE-MECUM.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Peaches, Nectarines, and Apricots.

WILLIAM FLETCHER begs to announce that he has a large stock of the above named, in Dwarf Maiden Trees, good clean healthy plants; also Dwarf Cutbacks suitable for potting, Roses and all kinds of nursery stock.

Prices forwarded on application to WILLIAM FLETCHER, Ottershaw Nurseries, Chertsey, Surrey.

To the Nursery Trade.

MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade 5000 DWARF-TRAINED PEACHES and NECTARINES, all the leading kinds, 1 and 2-year Trained. They are unusually fine clean-grown healthy Plants. Price 36s. to 42s. per dozen, according to size, &c. Their Trade NURSERY LIST may be had on application.

Vines—Extra Extra Strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 1500 extra-fine well-ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger." A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.

"Upton" Nurseries, Chester.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.
Three First-class Certificates.
Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1003.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

NEW PEARS.—BEURRE SPAE, 8s.; BEURRÉ VAN GEERT, 3s. Both figured in the Illustration Horticole. NEW ROSE.—Hybrid rem. DUCHESSE DE MÉDINACÉLI, strong, 16s. Can be obtained of

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium.

STRAWBERRIES for present planting that will produce a fine crop. Established in small pots, or suitable for potting on for Orchard-house culture:—

BRITISH QUEEN	OSCAR
EMPRESS EUGENIE	PREMIER
FROGMORE LATE PINE	PRESIDENT
KEEN'S SEEDLING	PRINCE ARTHUR
LA CONSTANTE	SIR CHARLES NAPIER
MARGUERITE	SIR HARRY

Price 10s. 6d. per 100; turned out of the pots, 9s.

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Railway Nurseries, Watford.

E. R. GREENUS begs to offer for Sale this Season fine Trained Trees of PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, and APPLES, of most approved sorts.

Also Extra Large IRISH IVIES, in pots, from 4 to 8 feet high; and a General Stock of FOREST and ORNAMENTAL TREES, FLOWERING SHRUBS, EVERGREENS, ROSES, CONIFERÆ, &c., all in a most healthy state, and will remove with safety, and from his proximity to the Watford Station, London and North-Western Railway, E. R. G. can execute orders to any part of the country with promptitude and despatch.

N.B. A large Stock of extra strong CLIMBING ROSES in pots.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

PAUL & SON,

"OLD" CHESHUNT NURSERIES, CHESHUNT, N.,

HAVE MUCH PLEASURE IN DRAWING ATTENTION TO THE FINE STOCK OF

STANDARD, DWARF-STANDARD, and DWARF ROSES,

WHICH THEY HAVE NOW READY FOR REMOVAL.

SEVENTY PRIZES for CUT and POT ROSES have been awarded to their Collection during the present season, and these include the Six Premier Prizes of the Metropolitan and Provincial Rose Shows.

Carriage of all goods carriage paid to London.

PRICED CATALOGUES of ROSES, FRUITS, and HARDY SHRUBS, &c., Post Free on application.

GREENHOUSE ORCHIDS.

NO FIRE HEAT, EXCEPT TO KEEP OFF FROST!

JAMES BACKHOUSE & SON

Offer good PLANTS of the following beautiful species, which may be easily grown in an ordinary Greenhouse or Vinery, for Cash Remittance:—

12 for Three Guineas.

LÆLIA SUPERBIENS.
" AUTUMNALIS.
CATTLEYA MOSSLÆ.
" CRISPA.
" SKINNERI.
CYPRIPEDIUM INSIGNE.
" VENUSTUM.
TRICHOPILIA TORTILIS.
LYCASTE SKINNERI.
" (MAXILLARIA) HARRISONIÆ.
BLETIA VERECUNDA.
ONCIDIUM FLEXUOSUM.

12 for Five Guineas.

ODONTOGLOSSUM GRANDE.
BROUGHTONIA SANGUINEA.
SCHOMBURGKIA UNDULATA.
LÆLIA SUPERBIENS.
AUTUMNALIS.
ONCIDIUM AMPLIATUM MAJOR.
LYCASTE SKINNERI.
CATTLEYA GUTTATA.
" MOSSLÆ.
" CRISPA.
" SKINNERI.
MAXILLARIA HARRISONIÆ.

12 for Eight Guineas.

LÆLIA PURPURATA.
" SUPERBIENS.
" AUTUMNALIS.
DENDROBIUM MONILIFORME.
BARKERIA SKINNERI.
LYCASTE SKINNERI.
EPIDENDRUM VITELLINUM.
" ATRO-PURPUREUM.
ODONTOGLOSSUM GRANDE.
CATTLEYA ACLANDIÆ.
" SKINNERI.
" CRISPA.

For 12 Guineas: the fine CATTLEYA WARSCEWICZII, C. PINELLI, ONCIDIUM AMPLIATUM MAJOR, and SOPHRONITIS GRANDIFLORA, would be added to the Third Collection.

YORK NURSERIES.—November 5, 1864.

NEW GRAPE, ROYAL VINEYARD.

NOW READY FOR DELIVERY.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that he is now distributing this valuable GRAPE. It was raised several years since, and was fruited last and the previous season; therefore ample time has been allowed to fully test its qualities. It has been seen and reported most favourably upon by many of the best judges of the day, each describing it as the best late White Grape extant, and the best Grape that has been raised of late years. The stock is in excellent condition. Early orders are respectfully solicited.

PRICES:

Strong Planting Canes, 21s. each. | **Strong Fruiting Canes, 42s. each.**

INTERNATIONAL EXHIBITION 1862.

THE ONLY PRIZE MEDAL AWARDED FOR SEEDS.

VINES.



JAMES CARTER & CO.



Beg to call attention to their unrivalled stock of the above, numbering over 2000, in splendid condition for Fruiting in Pots or Planting out, all true to name, raised from Vines growing at their Nursery, selected from the most approved varieties in cultivation. The new varieties offered by others this season may also be had. A visit to the Nursery will well repay intending purchasers, when they can make their own selections from an immense stock.

The AUTUMN SUPPLEMENT to "CARTER'S VADE MECUM,"

Containing full descriptions of 50 most desirable varieties of VINES, and complete Lists of imported DUTCH BULBS, and Plants of every description for Autumn use, will be forwarded by Post on application.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WM. PAUL (SON AND SUCCESSOR TO THE LATE A. PAUL),

Respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the trees &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post.

Orders by post promptly attended to. *Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.*

BARR & SUGDEN

12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent carriage paid.

HOW IS SPRING GARDENING DONE AT CLIVEDEN,

THE SEAT OF HER GRACE THE DOWAGER DUCHESS OF SUTHERLAND?

(By planting the following liberally at the present season.)

Under the spirited superintendence of Mr. Fleming, it may be said of Cliveden, "There gardens are for all the months of the year, in which severally things of beauty are had in season."

Those who would associate floral beauty with the first dawn of Spring should now make their arrangements. The expense is trifling, the recompense great.

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

500 TULIPS Assorted	500 SNOWDROPS	200 ANEMONES	200 NARCISSUS
500 CROCUS	100 HYACINTHS	300 RANUNCULUS	200 WINTER ACONITES

100 SCILLAS.

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual Flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES	
50 " " "	Beautiful BLUE PANSIES	100 PINK DAISIES	
50 " " "	RICH PURPLE PANSIES	100 RICH BLUE FORGET-ME-NOT	
50 Mixed POLYANTHUS		100 PINK SILENE	

The above Collections can be modified to suit the requirements of purchasers.

THE CLIVEDEN PERPETUAL FLOWERING YELLOW PANSY, 4s. per doz.
" PERPETUAL FLOWERING BEAUTIFUL BLUE PANSY, 4s. per doz.
" PERPETUAL RICH PURPLE PANSY, 4s. per doz.
" WHITE DAISY, 2s. 6d. per doz.
" PINK DAISY, 2s. 6d. per doz.
" RICH BLUE FORGET-ME-NOT, 1s. 6d. per doz.
" PINK SILENE, 1s. 6d. per doz.
" MIXED POLYANTHUS, including the GIANT var., 3s. per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

CARTER'S GARDENER'S VADE-MECUM.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	£4 4s.	12s.
Very fine ditto	3 10	9
Good ditto	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS can now supply Roots of the finest quality of all the varieties of DUTCH and CAPE BULBS.

For prices and description of the appearance and colours of the various kinds, see CATALOGUE, which will be forwarded Post free on application.

Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., and 12s. per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by WM. CUTBUSH & SON.

TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.

The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.

Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.

Highgate Nurseries, London, N.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, Covent Garden Market, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5*l.*	2*l.* 10*s.*	1*l.* 5*s.*	1*l.* 1*s.*	15*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5*l.*	3*l.*	2*l.*	1*l.* 5*s.*	1*l.* 1*s.*	10*s.* 6*d.*

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5*l.* 5*s.*	2*l.* 12*s.* 6*d.*	2*l.* 2*s.*	1*l* 1*s.*	15*s.*	10*s.* 6*d.*

These Collections include only Bulbs of first-class quality.

For full particulars see CATALOGUE, which may be obtained post free on application.

Orders amounting to 21*s.* and upwards sent Carriage-free.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 5, 1864.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, November 8 — Royal Horticultural (Floral Committee, noon; Lecture by Major Trevor Clarke on the Cotton Plant; and Show of Cattleyas, with remarks by Mr. Bateman), at South Kensington, 2 P.M.

WEDNESDAY, — 9—11 — Royal Horticultural (Chrysanthemum Show), at S. Kensington.

DURING the last ten years the FRENCH have made great progress in two things—horseflesh and GARDENING—two points on which we English are apt, and justly, to pride ourselves. No matter where you walk, long vistas of street and of avenue are springing up, piercing, as if to avoid the charge of favouritism, every quarter of the town. New parks are being formed, new gardens planted, new barracks and stables built, and all with a rapidity which is not the least astonishing part of these marvellous alterations. The question naturally arises: Where do they get the money to carry on the works? Every one has heard of the splendour of the fêtes annually held at Paris and at Versailles, more than usually brilliant this year in honour of the King of SPAIN's visit; and unequalled in Europe beyond all word painting on such special occasions as the triumphant return of the army from Italy after the seven weeks' fighting of 1859. Like our own HENRY VII., NAPOLEON III. usually contrives to make his undertakings pay; and although the costs of these fêtes are enormous, yet after all expenses are defrayed, there is a handsome surplus left in the hands of the city administration, yielded from the immense harvest that accrues to trade generally. To understand this we must take a cursory view of the Parisian system of taxation, as with many peculiarities, they have one trait common to us all—a natural aversion of "rendering unto Cæsar" more than is actually necessary.

The French Government possesses two monopolies—salt and tobacco—and on the latter the price has been lately raised. Besides these trade licences and other taxes, there is an octroi, or town duty levied upon all articles of consumption—meat, butter, eggs, bread, or wine—vended in the city of Paris. For example, a cask of wine (four to the ton), which may cost from 200 to 2000 francs,

pays an equal duty of 45 francs, although to discourage the increase of public-houses there has been a deferential duty lately established in favour of private consumers. Thus anything that attracts a large influx of visitors, contributes very materially to the consumption of the necessaries of life, and the greater the consumption the greater the revenue raised from it by the octroi. The annual income from this source alone has been estimated as high as 5,000,000*l.* But allowing a considerable surplus from the octroi, how is it possible to meet such enormous expenditure? Well, land becomes dearer every day, and a new Boulevard is occupied, almost as quickly as it is run up; the plots not required for it are either let at increased ground rents, or sold for shops, hotels, or private residences, and thus a profit is realised on the original purchase money of the property, which goes far towards defraying the expenses of construction.

In forming a new Boulevard, they begin thus:—The plan has been carefully studied and arranged by the city engineers, so as to be equally available for commercial or military purposes. Perhaps 10,000 francs is asked for your house, they offer you 6000, when the matter is referred to a jury, and the case may be considered settled. Fabulous prices are nevertheless paid for buildings, land, and indemnity for loss of business. On the latter score, a few months ago, a house (something on the scale of SHOOLBRED'S), "Le grand Magasin de la Chaussée d'Antin," in the *entourage* of the grand opera now building, received no less than two and a-half millions of francs, equal to seven or eight years' purchase.

There is one class whose interests are for a time seriously affected by these improvements, and that is the lower orders. Driven from their usual haunts they hardly know where to lay their heads, and the outcry among them is very great. Nothing human is, however, perfect, and we may rest assured that the grievance will not be long allowed to remain without a remedy.

In forestry, or the after management of plantations, the French have yet to learn the simplest rudiments. It is true this is a sore point both at home and abroad, as OVID has sung—

"Of the impious axe he plies."*

But while yielding to none in the admiration of a noble tree, we hold it to be absolutely necessary for the attainment of this object to thin out young plantations as they increase in size, so as to preserve their beauty and secure their longevity. In fruit growing and pruning they still excel us. In agriculture again they are rather at a standstill, as there is not the same interest taken in it as by landed proprietors in England; for Monseigneur is in the habit of spending most of his cash amidst the stirring gaieties of the capital, and looks upon his château as a pleasant kind of "Botany Bay" retreat, admirably adapted to the requirements either of health or finance. The French farmer too is often a ploughman, while the English farmer is valuable to the nation, not only for the interest on his stock, but for his intelligence.

Everything French radiates upon one head, the EMPEROR! And in the wonderful organisation and centralisation of power we may trace the secret of their progress. The Government is at present engaged in sending out an expedition to Mexico for the purpose of advancing the sciences of geology, mineralogy, and botany, and from this we may anticipate many interesting novelties. The plantations and promenades, lately made over by the EMPEROR to the city, under certain conditions as to their future embellishment, form a branch of the "Travaux Municipals," under the immediate control of Baron HAUSSMAN, Prefet de la Seine, who has had the responsibility, and deserves the great credit not only of the improvements, but of the present high state of French gardening; and in acknowledgment of these services the rank of Senator has been conferred upon him. M. ALPHAND is the chief engineer, and M. BARILLET, head gardener to the city. The latter works hard, and most successfully, to keep the flower gardens of Paris if not in advance, certainly not in arrear of any other European capital.

And here we may learn a lesson that at once comes home to us. Of all the great cities in the world there is none so capable of acquiring that grandeur and beauty so intimately associated with power as London. Who would for a moment compare the Seine of Paris, the Spree of Berlin, the Danube at Vienna, or even the Neva of St. Petersburg, with the Thames of London! Where, again, are to be found such glorious expanse of wood and glade as in our Parks? And yet we may have a fine river, fine parks, and fine streets, though at present they are few and far between, but scarcely a fine city. Nor can we hope for so desirable a result so long as its embellishment is dependent upon an Office of Works, with a First Commissioner whose very existence hangs not only upon every general election, but upon every question, Home or Foreign, which affects the Ministry.

The difficulty then would appear to be this: the necessities of a constitutional government demand that in the House of Commons there shall be a representative to answer any questions relative to the expenditure of money voted. Such a post of course involves obligations which are incompatible with the duties of a professional man. Still there appears to be no reason why a permanent servant should not be appointed whose business it would be to superintend any improvement or alterations that might suggest themselves, and thus prevent the link of connection being broken by the accession to power of new men,

> "Whose glories float between the earth and heaven,
> Like clouds which seem pavilions of the sun,
> Yet are the playthings of the casual wind."
> *Richelieu.*

So long as we have a head like Mr. COWPER all goes well, but to-day he lives and to-morrow he politically dies—and another man reigns in his place, with new ideas, new interests of party to serve, and, may be, new lessons to learn in the special requirements of his office. What was to have been classic becomes Gothic, gardens full of promise are left to "wander at their own sweet will," and everything is liable to a check, which of itself is sufficient to account for our slow progress in all matters of national taste. *Z.*

* Spectator, No. 589.

WHEN lately inviting attention to the appearance of a 12th edition of Mr. RIVERS'S *Miniature Fruit Garden*, we casually referred to the great change in the aspect of our fruit gardens and our fruit rooms too, which had been brought about by the free introduction of Dwarf Fruit trees, the vegetative vigour of which had been diminished, while their prolificacy had been increased, by a judicious application of Quince and Paradise stocks, and a certain course of restrictive cultivation. The favourite form amongst these dwarf trees has been we suppose the Pyramidal, but our horticultural NESTOR points out in this new edition how readily and with what success the Bush form may be adopted. It is to these bush-formed trees that we now especially invite attention.

"I have reason to think," observes Mr. RIVERS, "that a great change may be brought about in suburban fruit culture by these bush trees. I have shown how Bush Pears on Quince stocks may be cultivated. Pears are, however, a luxury; Apples and Plums are necessaries to the families of countless thousands" who live in the vicinity of our large populous towns and cities; and a new chapter of the *Miniature Fruit Garden* is therefore devoted to an explanation of the manner in which Apples may be grown on bushes on the Paradise stock. There is this too, in addition to the question of profitableness, which may be urged in favour of bush-formed trees, that some good sorts which are not exactly tractable when the pyramid form is imposed upon them, are yet manageable enough under the less formal character of bushes, and such are exceedingly well adapted for small gardens.

The treatment of these bush trees is very simple, and the return, if they are judiciously managed, certain. First of all it is to be remembered that the trees are to be worked on the Paradise stock, and like other fruit trees, are all the better for going through a preparatory course of treatment in the nursery quarters. Trees of two or three years old are those recommended to be used, and such, if the preparation has been judicious, may be expected to commence bearing the first season after planting. The space originally allotted to them should be three feet from row to row, and three feet in the row, for ordinary sorts; but for large growers, such as Bedfordshire Foundling, a space of four feet should be allowed. When the trees have grown so as nearly to touch each other, every alternate one should be removed—these being available for another plantation—so that they may stand four and a-half feet apart in quincunx order, the formula for accomplishing which is to take away all the trees represented by odd numbers in the first and third rows, and those represented by even numbers in the second and fourth, and so on alternately, or *vice versâ*. The larger growers are to be thinned out upon the same plan. After the lapse of 16 or 20 years the trees of every alternate row must be taken away, and planted elsewhere.

Then as to the summer treatment of these trees, the principal feature is the assiduous carrying out of the mode of pruning denominated "summer pinching," which consists in regularly, from the beginning of June to the end of August, pinching or nipping off the end of every shoot "as soon as it has made five or six leaves, leaving from three to four *full-sized* ones;" or if the leaves are very thickly placed, as they are on some varieties, the rule may be to leave the shoots at from 3½ to 4 inches in length.

If it should happen that from the favourable condition or fertility of the soil, the trees are inclined to grow too vigorously, the cure is to remove them biennially, or rather to cut their roots, the plan Mr. RIVERS recommends being to dig a circular trench 1 foot from the stem of the tree, and introducing the spade under its roots to heave it up so as to detach them all from the soil; then to fill in the earth dug from the trench, and tread it gently on to the roots. If the "pinching in" suffices to moderate the vigour of the trees, and a state of healthful fertility is induced by this treatment alone, then the transplanting or root-cutting may be deferred for a longer period.

A plantation of bush Apple trees ought to be remunerative, and Mr. RIVERS instances his own plot of 100 trees of COX'S Orange Pippin planted in the spring of 1862, which bore a fine crop of most beautiful fruit in 1863, and an almost over-abundant one in the present year. These trees, which are on the Paradise stock, "will this season, the third of their growth in their present quarters, and the fourth of their age, give an average of a quarter of a peck from each tree, so that we might have from 4840 trees, growing on 1 acre of ground, 302 bushels of fine Apples, which even this abundant season would be (if COX'S Orange) worth 5*s.* per bushel, or 75*l.* In 1866, the trees, then averaging half a peck each, would double this sum, and make an acre of Apple trees a very agreeable and eligible investment." And that his readers may feel satisfied he is not theorising, but deducing facts from a sound basis, Mr. RIVERS points out that besides his plantation of COX'S Orange Pippin, he has another consisting of 400 bush trees, which has been in existence for upwards of 10 years, so that he may be accredited with ample experience of the subject.

Some further illustrations of this mode of cultivating Apples in its bearing on the future may be briefly referred to. Let us suppose, with our Mentor, "a rood of ground planted as described, with 1210 Bush Apple trees. In the course of eight or 10 years half of these, or 605, may be removed to a fresh plantation, in which they may be planted 6 feet apart; they will at once occupy half an acre of ground. At the end of 16 or 18 years, every alternate row of trees in the first plantation, the rood, will require to be removed, which will give 302 to be planted 6 feet apart, leaving 303 on the original rood. The 1210 trees will by this time occupy 1 acre of ground at 6 feet apart. With proper summer pruning or pinching they will not require any further change, but continue to grow and bear fruit as long as they are properly cultivated. The great advantage reaped by the planter is the constant productiveness of his trees; from the second year after planting they will be always 'paying their way.' The unprejudiced fruit cultivator will quickly find out the great advantage of my mode of Apple and Pear cultivation."

These pictures are tempting enough, we imagine, to set us all planting Bush Apple trees. That it is a very interesting as well as a profitable mode of culture seems unquestionable, that it is especially suited for the small gardens of amateurs is certain, and that it offers a very ready means of obtaining good samples of the choicer sorts of this most useful of fruits, and of securing a crop, too, from the ready manner in which protection might, if necessary, be afforded, is equally beyond doubt.

THE CHRYSANTHEMUM is once more pushing up its flower buds and expanding its blossoms in our dullest season of the year, when trees are leafless, and when both our indigenous and exotic flowers are comparatively few in number. We can scarcely imagine how dull and cheerless our gardens and conservatories would be at this time of the year if we had not this flower to enliven them. And then it is not one of those plants which requires the most careful treatment in order to induce it to

bloom freely; it is easily cultivated, and it will grow and flower readily almost anywhere.

About this time last year we made some observations in this Journal (p. 1107, 1863) on the history and cultivation of the Chrysanthemum, and showed what progress had been made in the introduction of new and improved varieties. We also drew the attention of our readers to the curious way in which certain individual plants throw off "sports," which bear flowers of a different colour from themselves, and in this way give us new kinds, and sometimes very pretty ones, without the trouble of reproducing new individuals from seed. It is, however, the remarks then made on the cultivation, and more particularly on the training of these plants, which induces us to return to the subject to-day.

In the article to which we allude, we noticed the barbarous system of training which is sometimes practised, and which ends in the plant having a long bare stem and a single bloom on the top of it; and we drew attention to the great importance of having leaves on the plant, as well as blossoms. "Our idea of perfection in cultivation would be a bushy plant covered with bloom, and at the same time exhibiting a green and healthy foliage all over it. * * * In all cases a green and healthy foliage adds greatly to the beauty of the specimen." We may now state that plants of this kind may be seen in the Garden of the Royal Horticultural Society at South Kensington. They have been placed in the covered entrances leading from the Prince Albert Road and the Exhibition Road into the Garden. Many of them are large specimens; all are in the highest state of health, exhibiting first-rate cultivation. They have not been twisted and tied down into ugly forms like some fashionable plants we have met with at former exhibitions of this flower, but are trained in a natural and pleasing way. Moreover, the plants are clothed with foliage of the healthiest green colour, which is very pleasing to the eye, and which at the same time brings out the colour of the blossoms in the most effective way.

We have great pleasure in directing attention to these plants, as they exhibit much skill in cultivation, and, what is almost of equal importance, an example of good taste in training. We need scarcely add that they will afford a rich treat to the Fellows of the Society, and to all who may have an opportunity of visiting the Garden during the time they remain in bloom.

We have alluded to the curious way in which Chrysanthemums "sport," and produce flowers of different colours. This habit is well-known in those Oriental countries to which the plant is indigenous, and is taken advantage of to propagate new varieties. A friend of ours tells us how an old lady in China astonished some missionaries by relating to them the way in which she had obtained the different varieties she cultivated in her garden. One day they were admiring her collection, which consisted of flowers of various colours, —of yellow, white, and lilac, when she told them that, originally, she had only one kind, and that all those they now saw had sprung from it. "You have raised the others from seed then?" was remarked by the missionaries. "Oh no, I have not done that," said the old lady; "the new kinds grew out of the old." The good missionaries were too wise to believe this, and went away wondering how it came to pass that these Orientals are so fond of telling lies! The old lady's story, however, was probably quite true, although it might appear rather strange to those unacquainted with the habits of the Chrysanthemum.

Mr. Salter, of the Versailles Nursery, Hammersmith, to whom we are indebted for a large number of our fine Chrysanthemums, and who is raising new ones year by year, is about to publish a book upon the subject. He is well able to give us much interesting information not only as to culture, but as to the history of the plant, to the mode of raising new kinds, and to many other matters connected with the way in which it has been brought to its present high state of perfection in our gardens.

—— We have to announce with regret the death of Mr. John Green, of Lower Cheam, Surrey, who passed from amongst us on Monday last, the 31st ult., in the 59th year of his age. He had been ailing for some considerable time, but his death was little expected until a few hours before it took place. Few Gardeners were better known than Mr. Green; he was one of the earliest and most successful Exhibitors at Chiswick in days gone by, and at other Great Shows in the neighbourhood of London he has played a foremost part even as late as the present season. The noble Azaleas shown by him at these great displays of horticultural skill will long be remembered by all who had the good fortune to see them. He was appointed Gardener and Steward to Sir Edmund Antrobus, Bart., when very young, and up to his death he enjoyed the utmost confidence of his employer. He died much respected by a wide circle of friends, and Horticulture has lost in him a staunch and warm supporter.

—— Whoever has traversed the streets of London in the season of ripe Strawberries must have become familiar with the fact that vast quantities of this excellent fruit are consumed by its inhabitants. But of the real magnitude either of Strawberry consumption in London, or of Strawberry production in places whence the bulk of the supply comes, we suppose very few persons would form an adequate conception. Some light is, however, thrown upon this matter by a paragraph from one of the Aberdeen papers, which has been going the round of the press, and which, as indicating only what has been done in a single locality, is strongly suggestive of the enormous aggregate weight of this perishable fruit which must be sent to market within a comparatively limited space of time—for very few weeks see the commencement and close of the Strawberry season. The Aberdeen market-gardeners, as we learn from the source just indicated, have long been highly successful cultivators of the Strawberry, but few people have any very tangible notion of the actual extent to which the cultivation of the Strawberry has grown in that distant locality. "We usually think of Strawberries in pints or quarts, not in hundredweights and tons; yet Strawberries by the ton have become an actual item of export 'from Aberdeen,' and during the present season the quantity brought into the market and sent southward, chiefly to London, to be manufactured into preserves, amounted to about 35 tons. This is independent of considerable quantities used at home for the manufacture of 'preserves' on the wholesale principle and for ordinary domestic use, &c., which must have brought up the total quantity to something like 50 tons; and, if we take into account that a ton of Strawberries is worth from 25*l.* to 30*l.* (probably only smaller quantities reaching the latter rate), it will be seen that this has become no unimportant branch of market gardening. It is a branch, moreover, that promises to extend. It is only a few years since Strawberries began to be exported southward at all; but the demand is, we understand, very keen, and even beyond the supply, and contracts to the extent of 30 tons have been already entered into for next season, while some of the principal growers are considerably extending the breadth they have under cultivation. Of the Strawberries preserved by wholesale 'curers' no inconsiderable part is exported to the Continent, and some even to India."

—— By a slip of the pen, the curious dwarf curly variety of Hart's-tongue, described at p. 1035, was called Couzensii, instead of Cousensii. The fortunate finder was Mr. J. Schott Cousens; and we may add, more exactly, that the habitat in which the plant was found was at Torrington, in North Devonshire.

SPRING FLOWERING BULBS.

The Narcissus.

Of the several classes of bulbs that make our windows and gardens gay in spring, this is by no means the least interesting. The flowers yield a rich perfume, which, however, in a confined atmosphere becomes sickly and unbearable. Maund, in his "Botanic Garden," says—"The agreeable perfume of this plant, when diffused through a close apartment, becomes decidedly deleterious, by producing headache, giddiness, and other affections of the brain. In the garden, when mingled with a wholesome and exhilarating atmosphere, amidst objects that awaken the most delightful sensations of our nature, these sweets are a part of our gratifications, and health is promoted as a consequence of enjoyment so pure."

Ovid informs us that the Narcissus commemorates a self-enamoured youth changed into this flower; but Pliny says: "It produces dull heavy headaches; hence it received its name from *narce* (torpidity), and not from the youth Narcissus, mentioned in the fable."

The section known as the Polyanthus Narcissus (Narcissus Tazetta vars.), from a similarity of arrangement of the flowers on the stalk with those of the Polyanthus, comprises the best of these interesting plants. The bulbs are annually imported from Holland in large quantities, and many of the varieties are to be obtained at a very reasonable rate. As regards cultivation, ordinary treatment is all they require; in or out of doors, they succeed well; and even under most disadvantageous circumstances they will flourish out of doors. They are, however, apt to suffer from frost, which sometimes makes sad shipwreck of the delicate tints and fragile structure of the flowers.

In regard to colour there are yellows, whites, whites with orange cups, and whites with citron and lemon cups. There is not much variety in these divisions of colour, on the contrary there is a great sameness among many of them; but Dutch growers either do not possess that skill in hybridization which exists in England, or the results of its application as regards this flower are very unsatisfactory indeed. Of white flowers there are the Single Italian, a paper white; Grand Souverain, Reine Blanche, and one or two others that appear to possess a plurality of names; with the exception of the first, which cannot be too highly recommended, the others are little grown. Of yellows there are Juno, Staaten General, La Favorite, Primo Sterkhoren, and L'Etoile d'Or, but, excepting the two first and the last, they are but little known. L'Etoile d'Or deserves a larger share of recognition than it has yet received; it is a dwarf kind, being only about 12 inches in height, and in colour deep golden yellow. It flowers very freely, and is therefore well adapted for pot culture; it cannot be too strongly recommended. The two largest divisions are those possessing white flowers with orange or with lemon or citron cups. Many of these flowers, though denominated white, are not really so, being suffused with a pale sulphur. There has not yet appeared what would indeed be a great desideratum, viz., a yellow or orange flower with a pure white cup. This may possibly however be in store for us, and that at no distant date, as the demand for new Hyacinths is giving an impetus likewise to the production of newer and better varieties of Polyanthus Narcissus.

The best of all the varieties having white flowers with yellow cups is Bazelman major. From the spathe surmounting the flower-stalk issues seven or eight very large and showy fragrant blossoms. Though this variety does not produce so many individual flowers as some of the others, the loss is amply compensated for in the unusual size of the blooms. No variety taxes the energies of our bulb importers to provide a sufficient supply of so much as this, the demand for it being great. Florence Nightingale and General Wyndham are two fine varieties, having white flowers with deep yellow cups; from the last named, and also from Czar Alexander, a sulphur flower with golden cups, have been seen flower-stalks surmounted with 18 or 20 blossoms. Other good varieties are Gloriosa, with yellow cups; Grand Primo and Grand Monarque, both with lemon cups; and Grootvorst, with citron cups. There are also yellow-flowered varieties of both Grand Monarque and Grand Primo, but it is the white-flowered kinds that generally find their way into the London market.

Of yellow flowers, with lemon or orange cups, we have Soleil d'Or, bright in colour, with lemon cups; Lord Canning, sulphur, with deep yellow cups; Sir Isaac Newton and Sulphurine, both with orange cups; and Belle Princesse, with bright golden cups.

In each division of colour sameness is inevitable, and the yellow flowers with orange or lemon cups seem to glide almost imperceptibly, as it were, into self yellow flowers. One half dozen varieties of Polyanthus Narciss, carefully selected, may be made to include all the real distinctness that exists among them.

The Double Roman Polyanthus Narciss has an individuality of its own, and there is no great anxiety on the part of growers of the Narcissus to have an addition to the double flowers, unless these should comprise a great increase of quality as well. The Double Roman blooms very early; were it not for this it would not be worth cultivation.

The Border Narcissi form a division round which a good deal of interest clusters. Maximus, or Trumpet Major, and Trumpet Sulphur, are two large and showy single varieties, the first yellow in colour. There is also Narcissus Bulbocodium, or the Hoop-petticoat Narciss, in colour bright golden yellow, and very effective for pot culture. The Poet's Narciss (*N. poeticus*) is so well known as not to need description, but everybody loves to see it in the spring. The common Daffodil (*N. Pseudo-Narcissus*) is also a familiar spring flower; but not so widely known are two aristocratic-looking Daffodils, known as the Orange Phœnix and Sulphur Kroon, apparently improvements on the common double white border flower (*N. alba plena*). The former has an orange blotch in the centre of the flower; the latter a sulphur blotch. A few bulbs in a large pot would make a good display in the conservatory about the end of March.

The Jonquils (*N. Jonquilla*) also deserve a word of notice. The double and single varieties are well known for their exquisite fragrance, and they succeed well either in pots or borders. The large-flowered single Campernelle is scarcely so well known perhaps as some others, but as a border plant it is very effective. The Jonquils are all yellow.

I have avoided making remarks on all the varieties that appear in the several divisions of this class of flowers, my object being more to record the results of my own observation, than to attempt in any way to give complete lists of the many flowers now under notice. *Quo.*

ROSE JUDGING.

I have never seen in London a manifestly unjust adjudication. I have seen Rose boxes so nearly equal that the prize might have been given either way, or what would have been better, they might have been placed as equals. As honour, and not money, is the compensation for travel and trouble, I think such cases would be better placed equal, especially as it enables the judges to award another prize to a meritorious box. In country places, either from ignorance or favouritism, the awards are so unrighteous, that I have made up my mind never to send my Roses for country adjudications. I could point to the cause of these unrighteous judgments, but in doing so, I must either point to individuals, or condemn a class of men among whom there are many

honourable exceptions. I can only say that nothing would induce me to favour my own brother; and that he is not to be envied who goes home after an unrighteous adjudication with the loss of floral credit and a dishonoured mind. It is to be feared that Rose-racing is much assimilated to horse-racing, and subject to similar mal-practices—a mere change of the "venue." From places where these things occur, I at once retire. Where unjust decisions, a breach of established rules, or the addition of foreign substances, as leaves, are permitted, I will not go. I withdrew from a society in another county on these accounts, and when requested to rejoin, I wrote a civil answer, stating my objections; and to myself I said, "They stole my hat last time, and if I go again they will have my wig!" Floral competitions are very nice, useful, and gratifying, when honourably conducted; but they become disgusting when they are made the instruments of dishonour. I can hardly expect that your readers will believe the following, but it is true. I sent some years ago 24 beautiful trebles into a neighbouring county to split a lance with the great Rose-grower of the county. The Roses opposed to me, so far as blooms were concerned, were about equal to mine, but mine were sent as cut from the tree with their buds and own foliage; mine opponent's had not a single leaf of their own! They were all dressed with foreign foliage, apparently that of "Kean" (a trago-comedic act!) without any attempt at concealment. One of the trebles was the famous Cloth of Gold! To this lot was accorded to my amazement, and to the disgust of the bystanders, (not of my own county) the first prize! and to myself the second! The dressing of Rose trusses with leaves of any kind is a gross fraud on the spectators, who are induced to buy a Rose that otherwise they would not buy, the foliage being the index of vigour and constitution, and therefore of endurance. Of course it is unjust towards a competitor, who, if he is a true rosarian, will not dress with extra leaves, even were he permitted to do so. In London one loose leaf that could not be fitted to its place on the truss, will disqualify the box.

The men usually selected to act as judges of Roses in London need no hints from me; but as few people grow Roses to any extent, or with concentrated observation, in the country, I have thought it might aid persons desirous of being just if I give a few hints to them previous to their undertaking the office of censor.

1. Do not suppose that a Rose is necessarily a show Rose because it is large, without reference to other excellences.

2. Do not suppose that a box containing all large Roses must necessarily deserve the prize.

3. Do not suppose that Roses out of condition, whatever their size may be, deserve a prize at all. A horse, ox, sheep, or pig cannot win unless it is in condition. Dahlias must be in condition, why should not Roses be required to be so?

4. Do not suppose that a box of Roses necessarily deserve a prize because they are well matched in size. If they are large and matched in size, they will usually lack variety and choiceness of colour. The maroons, blacks, yellows, and whites cannot be got large enough to match Roses in the commoner colours. Twenty-four splendid show Roses means very often 24 sprawlers, falling to pieces, or revealing a 2-shilling eye before the exhibition is over. It has been truly said "that some men judge Roses as some farmers judge a hayrick, that is, by the number of square yards in it, without reference to other qualities.

5. Do not suppose that you are to judge Roses by what they have been, but by what they are at the time of adjudication; and yet, though you are not answerable for the future, you ought, as a judge, to know whether they are in sufficient condition to last out the show.

Having cleared away the "debris," I will now point out what are excellences of Roses.

They are—1, correctness of outline; 2, fullness to the centre; 3, substance and quality of petal; 4, disposition of the petals; 5, smoothness of the edges of the petals; 6, roundness of the petals; 7, depth of the petals; 8, choiceness, intensity, and fixity of the colours; 9, general levelness of the flower; 10, good condition; 11, good foliage; 12, erect habit, or firmness of stalk.

Whether a Rose is big, medium, or small, these are the points to be looked to; and that is the best Rose in the box, whether it be big, medium, or small, that has got most of these excellences.

In country places, the 1st, 2d, and 3d prizes are usually decided by size only, and very frequently without much reference to the condition of the flowers.

People may be good judges of other flowers, but very bad judges of Roses. In country places, I think fairer adjudications would take place, if the judges of Roses were selected from the ladies, or dealers in Southdown sheep, both of whom have symmetrical eyes. *W. F. Radclyffe, Rushton, Oct.* 13.

ELIZABETHAN GARDENING.

(*Concluded from p.* 941.)

THE Elizabethan garden was never without sundry arbours for shade and rest: either a pleached arbour, or one of topiary-work. Care was taken, whatever the material it was composed of, that sweet-scented shrubs should surround and creep over it; either 'honeysuckles ripen'd by the sun, forbid the sun to enter,' o it was 'quite over-canopied with luscious Woodbine, with sweet Musk-roses and with Eglantine.' The Eglantine, from the sweet scent of its leaves, seems to have been invariably used as a part of the arbour—at least the Elizabethan poets rarely describe an arbour without it. Thus, Barnfield in 'The Affectionate Shepherd':—

> I would make cabinets for thee, my love—
> Sweet-smelling arbours made of Eglantine.

And W. Browne describes—

> An arbour shadowed with a Vine,
> Mixed with Rosemary and Eglantine.

In Spenser's 'Bower of Bliss' the Eglantine forms a principal feature:—

> ——Art, striving to compare
> With Nature, did an arbour green dispread,
> Framed of wanton Ivie, flow'ring faire,
> Through which the fragrant Eglantine did spread
> His pricking arms, entrayl'd with Roses red,
> Which dainty odours round about them threw;
> And all within with flowers was garnished,
> That, when mild Zephyrus amongst them blew,
> Did breathe out bounteous smells, and painted colours shew.

From what has been said, we may deduce that the principles regulating Elizabethan gardening were as follows:—

1. To lay out the garden in accordance with the domestic architecture of the period, viz, in long terraces and right lines (forthrights), to harmonise with the rectangular lines of the building, and the long galleries of the interior; and, at the same time, to break up the monotony of the straight lines with knots and beds, often of intricate patterns; in like manner as the bay windows, clustered chimneys, intricate tracery, and ornamented gables relieved the straight lines of the ground plot of the building.

2. To plant the beds with mixed flowers, and to let the colours so intermingle and blend together, that the whole should produce a mosaic of rich indeterminate colour; ever new and ever varying, as the flowers of different seasons succeeded each other.

3. To produce a garden of flowers and shrubs for all seasons, to tempt the owner to take pleasure and exercise therein at all times.

4. Another point which engaged the attention of the Elizabethan gardener — but which is necessarily neglected by the modern gardener, who is obliged to sacrifice everything to colour—was to give delight to the sense of smell as well as to the sense of vision. He was aware that to accommodate one sense at the expense of another could not afford any gratification; and he would not have filled his flower-beds with the strong aroma of Geraniums and Nasturtiums merely for the sake of their brilliant colour. So careful was he to avoid the least unpleasant taint within the precincts of the garden, that Box for edgings, though preferred on every other account, was objected to, because it was alleged to have an unpleasant smell; yet to modern olfactories the dwarf Box is nearly scentless. Great care was taken to introduce plants which should perfume the air of the garden at all seasons of the year, 'because the breath of flowers is far sweeter in the air (where it comes and goes like the warbling of music) than in the hand, therefore nothing is more fit for that delight than to know what be the flowers and plants that do best perfume the air.' (Bacon).

For this purpose, the evergreen sweet herbs were selected for border edgings; such as Germander, Thyme, Marjoram, Hyssop, &c.; and various sweet-scented shrubs and flowers were introduced into the borders merely for the sake of their perfume, though valueless for colour; and even, says Bacon, 'you are to set whole alleys of them, to have the pleasure when you walk or tread.' Indeed, our ancestors seem to have taken more delight in the scent of flowers and herbs than we do. They were not troubled by any fantastic notions about their being unwholesome, and did not fear to introduce them freely into their domestic apartments and places of resort. The great banqueting hall was freely strewn with Rushes (the sweet-scented Flag, Acorus calamus), Germander, Hyssop, and other sweet herbs grown especially for the purpose; and on high festivals the churches were strewn in like manner, and also decorated profusely with flowers—a custom still perpetuated in some country parishes, and of which the evergreen decoration of churches at Christmas is a universal remnant. Special times were appointed for the various plants to succeed each other; and the old recipe books contain elaborate directions for 'making a sweet strewing.' We learn from Drayton the names of some of the favourite kinds:—

> Some Lavender, with Rosemary and Bays—
> Sweet Marjoram, with her like, sweet Basil, rare for smell;
> The healthful Balm and Mint:—
> The scentful Camomile, the ver'rous Costmarie;
> Clear Hyssop, and therewith the comfortable Thyme;
> Germander with the rest, each thing then in her prime.
> Amongst these strewing kinds some others wild that grow,
> As Burnet, all abroad, and Meadow-wort they throw.

The times for changing the 'strewings,' we learn from a song of Herrick's. Christmas was ushered in with Rosemary and Bays, Mistleto and Holly; which at Candlemas gave place to Box until Easter, when Yew took its place; at Whitsuntide the Yew was succeeded by fresh budding twigs of Birch; after which the summer furnished Rushes, Bents, and cooler Oaken boughs,' till winter required Evergreens again. We are not prepared to try it ourselves; but we heartily recommend some of our friends who are far gone in mediævalism to substitute strewing herbs in their apartments for carpets, which, for the floor, are quite a modern innovation.

But seriously we do recommend that the Elizabethan house, be it large or small, should have the garden which adjoins it laid out in the style of the same period, since there is nothing in it incongruous to modern notions of convenience or taste. Like that of the house, it is a style suited to an abode of any extent, and it may be equally adapted to several acres of land, or to 500 square yards. Like that of the house, it is a style peculiarly domesticated and English, for it affords to its owner a smiling welcome all the year round. The flowers which deck it are for the most part old familiar faces, so long introduced into this country that they are almost like natives; many of them are familiar to our literature, are endeared by pleasing associations, and sanctified by the highest efforts of poetical genius. While they have enough of art to indicate that they pertain to the abode of man and owe their place to his care, they have enough of Nature to lead the mind to the works of the Great Author of Nature. Their subdued colours harmonise with the English climate; and the constant variety of form and colour which each day presents, as the flowers of the mixed border develop themselves, affords a constant source of pleasure and varied enjoyment. We cannot say the same of the modern fashionable garden. Its colours and forms being fixed for the season, there is no further interest in watching its progress, and there are no changes to note; its colours, well adapted to the climates whence the plants are brought, are, in this country, glaring, hot, and vulgar, and are rendered still more so by the manner in which a vulgar, uneducated taste violently contrasts them. They are so formal, harsh, and artificial that it is impossible to regard them as works of Nature; but only as the studied efforts of the professed gardener. They are strangers to us and have no familiar greetings to welcome us; no poet has sung their praises; no peasant has given them a loving and heart-stirring English name. They bloom but for two or three months, leaving the gardens desolate and unwelcome all the rest of the year, and are therefore unsuited to the residence of the great majority of Englishmen, who have but one abode, and spend the whole of their lives within it.

There is no reason why recently introduced plants should be excluded from the Elizabethan garden. It would be a ridiculous pedantry to limit its flowers to those only introduced in that period. On the contrary, we would imitate the Elizabethan gardener in this—that we would seek out new plants wherever we could find them. But even if some strict pedant were—like the modern mediævalist in church decorations—to insist that none but plants known at the period should be introduced into the garden, he would find an abundant supply in the old gardening books. He would from these be able to make a selection far more numerous than the modern horticulturist can boast of; for in gardening, as in many other things, the rage for novelty has superseded numerous valuable varieties of flowers, which have either wholly disappeared, or are only to be occasionally met with in some cottage garden or old-fashioned mansion.

Home Correspondence.

Ancient Gardening.—It was a pleasure to hunt up in a few old gardening books I have got, a little information for one who has opened up to us such a world of thought; but not finding accurate dates for the sowing of Kidney Beans, I deemed it better withheld, thinking some with good garden libraries would supply more ancient and useful information. The following may, however, be of use. In "A New System of Agriculture and Gardening, being a complete body of Husbandry and Gardening in all parts of them," &c., by John Lawrence, M.A. London, 1726, at p. 373 it is said:—"Although Kidney Beans is an ancient food, and was held in great esteem amongst the old Italians, yet it is not a century since it was accounted an extraordinary rarity in England. It is now indeed a known and much-admired food, either eaten by itself or as a boiled sallad to all sorts of meat, both boiled or roasted, lasting in season from the beginning of July till after Michaelmas; and it comes in sooner still if forwarded by hot-beds as the method about London is." After giving the number of varieties, "above 50," and other information, it relates that "eagerness to have this delicacy early tempts many to sow them in the beginning of April. But yet it is to very little purpose to sow before the beginning of May, because those sown a month sooner will not have above two days advantage in their ripening, and then they are subject to great hazards of wet and frost. In "The Compleat Gard'ner," &c., of De La Quintinye, "made English" by John Evelyn, Esq., London, 1693—a very interesting and curious book—at p. 188 "The *Aricó*, French or Kidney Beans, are," it is stated, "sown about the latter end of April, and all the month of May, and are very sensible of the frost." In the Calendar of works to be done in April, at p. 158, it is recommended that the first Haricots or French Beans be sown in April, "the second being to be sown about the middle, and the third at the latter end of May, that so we may have a crop of them about two months after sowing." There is an extensive and rather particular monthly Calendar of Operations in this book. Parkinson, in his delightful old book, says the Kidney Beans "are a dish more oftentimes at rich men's

tables than at the poor," but does not give the time of sowing. There is a great deal of interesting and amusing matter in "The Compleat Gard'ner" of M. De La Quintinye. In telling "How to make choice of a good gardener," he says, "I shall begin with the good qualifications of the outside, of which the eyes are the only and first judges; for often at first we find ourselves all of a sudden inclined either to a good liking and esteem, or scorn and aversion for the gard'ner that offers himself." *Wm. Robinson.*

Habitats of Orchids.—I can fully corroborate the statement in your last week's impression (p. 1034) relative to Orchids not generally growing in "dense shady places" in their native home. A residence of some four or five years in Jamaica enabled me to investigate to a considerable extent the habits of that remarkable and interesting family. In very few instances did I discover Orchids growing in "dense shady places;" almost invariably they were to be found in places exposed to the light and heat of the sun. I allude here only to epiphytal Orchids, for I have found terrestrial Orchids growing where there was a considerable amount of shade. Trees at the margins of woods were evidently their favourite habitats. I did not observe the epiphytes to affect particular trees. The larger number were possibly to be found on species of Bombax, whose nearly horizontal branches afforded a ready location, not only for Orchids, but also for Aroideæ, Filices, &c. The absence of large trees from most parts of the lowlands of Jamaica occasions a great paucity of Orchids in those districts. Amongst the glories, however, of the lowlands of the West India Islands, most assuredly stands first the lovely Broughtonia sanguinea, the location of which—with my preconceived notions of how Orchids grew—struck me as being remarkably strange, being none other than the nearly perpendicular scarped face of a limestone rock, facing the south-west, and in a notoriously dry district where rain very seldom fell. The plants (for there were possibly 50 within a space of 100 feet by 50), were growing most luxuriantly and flowering abundantly, the colour of the flowers being a bright reddish-purple, precisely the same as that seen in a glass of claret when held between the eye and the sun. It has, since my return from Jamaica, always struck me that the mode of growing Broughtonia sanguinea in this country is decidedly faulty, for with one solitary exception I have never seen the colour of the flower in an Orchid house in England other than a dull coppery hue. The exception to which I have alluded was in the Orchid house of the late Mr. George Loddiges, to whom I had mentioned the manner in which I had seen the plant growing in Jamaica. Mr. Loddiges had placed the plant close to the rafter of the house, consequently in a situation where it did not get a super-abundance of moisture, but a large share of light and heat, and the flowers certainly nearly approached in colour the rich hue they have in Jamaica. The only other Orchids I remember as growing in the immediate vicinity of the lowlands of the island, were two small species of Oncidium, with whitish or pale purple flowers, and the pretty Ionopsis pallida. These I have frequently found on railings or on the barkless branches of dead trees, but I never saw either of them growing on living trees—indicating thus an objection to a humid atmosphere. I often took plants of Broughtonia sanguinea to my mountain residence, which was surrounded by dense woods, and at an elevation of about 1500 to 1800 feet above the sea level; but I could never succeed in obtaining flowers of the same richness of colour they had in the lowlands, for what they produced were of the same coppery tinge that I have so often seen in this country. The leaves of the plants soon became discoloured and blotched with yellow patches, and in the course of two or three months the Broughtonia invariably died. *R. H.*

Greyia Sutherlandi.—I am induced to inquire through your columns something about Greyia Sutherlandi, which I hear is a new plant of unusual attraction. I know not to what natural order it belongs, but having this summer seen it in the collection of M. Linden at Brussels, I can only liken it to a rigid Pelargonium in growth. Its flowers, I am told, are strikingly beautiful, rendering it one of the most valuable greenhouse plants of recent introduction. Of what country is it a native? *A Devonian.* [Greyia Sutherlandi is, according to Dr. Harvey, a Saxifragaceous small tree or large shrub, with stalked roundish-cordate multilobulate and crenate leaves, and dense racemes of very handsome five-petaled crimson flowers; it grows in rocky exposed mountainous places, near Port Natal, at from 2000 to 6000 feet elevation. We presume the plants in cultivation want age before they can be expected to produce their flowers.]

Trebbiano Grape as a Stock.—It struck me last year, after reading the experiments of Mr. Thompson and Mr. Hill on the best stocks for Grapes, that the Trebbiano would answer well for shy rooting White Grapes. I intend this spring to inarch Chasselas Musqué, Muscat, White Frontignan, and some of the Sweetwaters, on strong young Vines of this variety. As the Trebbiano belongs to the Syrian section of Grapes, it is one of the strongest rooting and vigorous growing varieties with which I am acquainted, and it is easily known by its gross young shoots and large succulent downy leaves. Its root action in the winter months is likewise remarkable, for I have kept bunches on it quite plump and good till the beginning of April, although ripened in August, with the colour of the berries of a deeper amber than that of any White Grape I have yet seen. I have measured the stem of a particularly strong young Vine of this variety planted out six months ago, and I find it to be 6½ inches in circumference, or more than 2 inches in diameter. *William Tillery.* [Is excessive vigour in the stock advantageous either generally or specially? That seems to be one of the questions that require further elucidation; and upon which comparative experiments are desirable.]

Autumn-flowering Orchids (see p. 989).—With a little forcing or retarding, the following may be had in bloom at the end of August or beginning of September. They are all good, and moderate in price, viz.:—Phalænopsis grandiflora, Aërides suavissimum, Saccolabium Blumei majus, Vanda cœrulea, Epidendrum vitellinum majus, Miltonia spectabilis, Odontoglossum grande, Phaius albus, Zygopetalum maxillare, Cattleya crispa superba, C. Harrisoni, and C. hybrida. *G. Toll, Pendlebury, near Manchester.*

Scale on Plants.—Is borax and water ever used to eradicate this? It rather recalls babies and thrush. *A.C.*

Edible Snails.—Having noticed in your last Number a paper on this subject, I beg to observe that the Helix pomatia has existed for many years at Melchbourne, Bedfordshire, the tradition being that it was imported from Nice by a member of the St. John family, which may also account for its being found at Woodford, Northamptonshire, at that time part of the family possession. Can any of your correspondents trace a similar reason for its being found at Stonesfield, near Woodstock. *S.*

Potatos from Seed.—Your correspondent "J. C. N." should carefully wash his Potato berries, spread the seed in them out to dry, and keep it in that state till March. He should then sow it in a gentle heat, and when the young plants are up, prick them off, until large enough to plant out in the end of May. The first year the tubers will be about the size of marbles; they must be taken up in the autumn and stored in the usual way; and in the next spring planted out. This is the way I went to work years ago under the direction of an older head than my own, and the result was 26 varieties of fine Potatos. It would have been better if your Correspondent had carefully hybridised the sorts while in blossom. *J. Rust, Fulham.*

Primula sinensis fimbriata.—I have repeatedly bought seed thus named from eminent nurserymen, the produce of which has been most uncertain. I have also saved seed from the best flowers with similar results. To be certain of possessing the best flowers it is absolutely necessary to have three or four times the number of young plants one wishes to keep. I sow the seed in a pan and prick out each plant when it has pushed two rough leaves into a 60-sized pot. In about two months the first bloom generally appears, when I discard all that do not come up to what I am content with. The flower-stalks are then picked off such as I desire to retain, and I continue to do this until the plants get strong, and I wish to have them in bloom. In this way I get a good collection of fimbriated-flowered plants that remain in bloom during the winter and spring months. The young plants seem to grow best in a frame with a north or north-east aspect, and with abundance of air at all times when the weather is not frosty. *N.*

Woollen Refuse.—I directed attention in your columns to this material as a fertiliser some time ago (see pp. 1133 and 1181, 1863). I now send you a small bunch of Grapes, cut from Vines planted in a border composed of light garden loam mixed with this refuse to the extent of one-third of the whole. I may add that little or no artificial means have been required to ripen the fruit further than the protection of glass. My chief object in sending the bunch in question is to draw your attention to one quality which the berries possess in a superior degree to any Grapes grown by me in richly manured borders, namely, their rich saccharine juice. *J. T., Wortley, near Leeds.* [The Grapes received, though rubbed and otherwise injured by carriage, were sweet and well coloured, but not more so than fruit we have tasted from borders in which no woollen refuse had been used.]

Popular Names of Ferns (p. 1037).—I have no doubt that "M. A. E.," of Penzance, is able to answer your question as to the propriety of the Ceterach being called a Spleenwort by Sir W. Hooker. Perhaps I may be allowed, nevertheless, to interpose a remark or two, having lived much amongst Ferns, and been frequently brought in contact with Fern lovers, who have made me keenly conscious of the misunderstandings and disappointments that arise from mixing up generic names after the fashion of "Maidenhair Spleenwort." It is time such misleading names were abolished. Centipede Spleenwort for the Asplenum Trichomanes, though the novelty makes it sound at first a little odd, is certainly an improvement. If we are to retain certain two-century-old names, because they were used by Gerarde, and have been general since his time, however ill applied, it might be well if Mr. Bentham would give us back Cat's-ear, in place of Long-rooted Hypochæris; Forget-me-Not for Water Myosote, &c. [We quite agree.] As for the idea of likeness to a centipede being already expressed in the scientific name of the Hart's-tongue, and confusion being likely to happen in consequence, there is not one Fern-lover in a hundred who knows the literal meaning of Scolopendrium. The friend who is sitting by me while I write had no notion of it till this moment, and could not see the drift of your remark. Centipede is a familiar word, but it takes a Latin scholar to know the meaning of Scolopendrium. Hart's-tongue, moreover, is the sole and precise name for this fine old Fern. It involves no confusion of ideas, it was never given to any other Fern, and it is not likely that any one would desire to see it abolished, or think that Centipede Spleenwort could possibly apply to it, or be intended for it. A good and expressive name being given to one plant is no reason why a good one, based on the same idea, should not be given to another. If Centipede be objectionable, because we have already got Scolopendrium, how about Epidendrum and Dendrobium? As for the Ceterach being a Spleenwort, how is it that Bentham and Babington agree in keeping it distinct as a genus, and that Moore and other Fern authorities do the same? Would you recommend us to follow the one author or the many? Mr. Grindon does well in reverting to the good old West of England name of Rustyback, and is entitled to gratitude for his attempt to improve our current nomenclature. I may add that his analysis of the British Ferns is the easiest to make them out by that I ever met with. *J. L.* [Our Correspondent seems to overlook the circumstance that all or most of the genera of modern Asplenieæ have been cut out of Asplenium, and are by no means universally adopted, the old names being still employed by distinguished scientific men. Hence these plants might all fairly retain, as they do with those who hold such views, the popular name of Spleenwort. There would be nothing very startling in their doing so, even when different scientific names are adopted, for the thing is of common occurrence throughout our popular nomenclature. Probably some half dozen totally different genera bear the name of Cabbage, for example.]

Late Peas.—As a proof of the mildness of the season in this part of Ireland, I send you the names and date of sowing of two Peas which are yielding us a good supply now. They are Lord Raglan, and Hairs' Dwarf Green Mammoth; both were sown on the 15th June. Of the two, Lord Raglan is the best late Pea. I have also a good supply of Cherries from trees on a north wall without any other protection than a net. I may also mention that there is a fine bloom of Tea, and Noisette, and Hybrid Perpetual Roses here at the present time. I have a young Apple tree named Warner's King, planted in 1859, which fruited this season; four dozen of the fruit came to maturity, two of the largest weighing 1 lb. 11 oz. *James Maclean, Gardener to Col. Leslie, M.P., Glasslough, co. Monaghan, Ireland, Nov. 1.*

Foreign Correspondence.

Queensland Acclimatisation Society.—This Society is, we are informed, making considerable progress in its arrangements for collecting and acclimatising various descriptions of plants and animals. The Government has granted it a small island in Moreton Bay, which may, with some expenditure, be made a very eligible spot for the establishment of a zoological and horticultural pleasure ground. A quantity of ground at York's Hollow, in the immediate vicinity of the city, has been also granted to the Society, and has been cleared and enclosed. It is to be called Bowen Park. The laying out of the grounds, &c., has been confided to the superintendence of a sub-committee, who will secure the assistance of Mr. W. Hill, the director of the Botanical Gardens. The quantity of ground enclosed is about 32 acres, and it seems to be admirably adapted for the use to which the Society has applied it. There is a good deal of water, and it will be easy to form ornamental ponds, where various kinds of water fowl and aquatic plants can be reared.

Notices of Books.

Flora Australiensis, a Description of the Plants of the Australian Territory. By George Bentham, F.R.S., P.L.S., assisted by Ferdinand Mueller, M.D., F.R.S., F.L.S., Government Botanist, Melbourne, Victoria. Vol. II. Leguminosæ to Combretaceæ. Published under the authority of the several Governments of the Australian Colonies. London: Reeve & Co. 1864. Pp. 521.

The second volume of this most important Flora has been issued within the last week or two, and, like its predecessor, may be characterised as being in all respects a model of what such a work executed in English should be—accurate, concise, clear, with the genera and species judiciously limited, their descriptions conscientiously elaborated, their synonymy curtailed to practical limits, their habitats and discoverer's or collector's names properly grouped by districts. A slip at the beginning of the volume informs the reader that it contains less matter than its predecessor, and should have run to 600 pages; but that as this would have necessitated the partition of the great and most natural family Myrtaceæ in two volumes, it was judged expedient to close this second volume and enlarge the third proportionally.

The general plan pursued in the work was detailed in our review of the former volume, and need not again be

described; the chief feature of importance is the habitual prefix of admirable keys to the genera and species; but for which the labour of discovering a species in the huge unwieldy genera of so large a Flora as the Australian would be very great indeed.

The great feature of the volume is the order Leguminosæ, the second largest of flowering plants, whether in Australia or on the whole globe. Mr. Bentham describes no fewer than 92 genera (including between 900 and 1000 species) of which he observes that 34 are endemic (confined) to that continent, 33 are very generally distributed over the warmer regions of the globe, one is found only in Africa and Australia, and one other (Clianthus) only in New Zealand and Australia. The more showy genera, which include the most peculiar, belong to the tribes Podalyrieæ and Genisteæ, and are especially frequent on the south-west quarter of the continent; among these occur the genera Brachysema, Oxylobium, Chorozema, Gompholobium, Jacksonia, Platylobium, Pultenæa, and many others, of which a few species have been occasionally cultivated and admired, but which, either from rarely seeding in this country, or from not being readily propagated by cuttings, have never been extensively cultivated. Nevertheless, they include some of the most ornamental greenhouse plants that have ever been introduced, and which, from their flowering in winter and early spring, and from their neat habit and evergreen foliage, will surely one day be conspicuous features for winter decoration. And here it may be well to mention a fact of some importance as regards the cultivation of these plants, but which though (thanks to Mr. Darwin) it is well known to scientific botanists, is not sufficiently known to gardeners; viz., that most, if not all, Papilionaceous plants require artificial impregnation, which may in many cases be readily effected by moving the keel up and down, and thus brushing the pollen from the stamens on to the stigma.

Of the other genera of Leguminosæ, Acacia is in every way the most remarkable, as well as the most interesting to the horticulturist. Of this genus Mr. Bentham describes no fewer than 293 species, of which only one is found in any other part of the world. Of these 270 and upwards have the petiole of the leaf developed into a leaf-like blade (phyllodium), the leaflets being either wholly absent or seen only in the very young state of the plant. What the significance of this curious physiological modification is, has never been even surmised; it is almost confined to the Australian species, occurring otherwise only in a few species found in regions skirting the Australian. Rosaceæ, with seven genera and 17 species, present nothing worthy of remark, except the "Nonda" fruit, Parinarium Nonda, a plant related to the Chrysobalanus Icaco, and which bears one of the very few edible fruits of Australia.

The Saxifrageæ, with 20 genera and only 27 species, follow, including some well-known plants, as Cephalotus follicularis; the beautiful genus Bauera, one of the very prettiest greenhouse shrubs; Eucryphia Billardieri, a most handsome evergreen bush, covered at the flowering season with large white flowers, and which has never yet been introduced; Ceratopetalum gummiferum, one of the handsomest small trees in the world, which blossoms more profusely than the Lilac, and the flowers of which are of a lovely rose-red colour; and, lastly, Anopterus glandulosa, a brilliant green evergreen bush, with racemes of cream-white flowers, larger than those of Clethra; it is a native of Tasmania, and has flowered in the Royal Gardens, Kew, according to the Botanical Magazine (t. 4377).

Droseraceæ includes but two genera, viz, Byblis with two species, and Drosera with no less than 41 Australian species, which are almost exclusively endemic; many are most beautiful, and would certainly succeed under the same treatment as Cephalotus.

Halorageæ follow, with seven genera and 56 species, all, with the exception of the curious Loudonia, ugly weeds. Rhizophoreæ, the Mangrove family, is represented by five littoral Mangroves, all tropical or sub-tropical, and equally natives of the Asiatic shores; whilst Combretaceæ, a family of tropical trees and shrubs, with four genera and 24 species, none of any horticultural interest, concludes the volume.

As with the former volume, so with this, the genera and specific characters are worked up wholly by Mr. Bentham, and chiefly from the specimens contained in the Hookerian Herbarium at Kew, and that of Dr. Mueller transmitted from Victoria for this special purpose. The amount of synonymy is not so great as in the former volume, partly because so many of the Australian Leguminosæ, including all the most difficult endemic genera, have been long ago worked up by Mr. Bentham himself; partly because the species are to so great a degree endemic, and partly because comparatively few are in cultivation. Still the number of synonyms in the index almost exactly equals that of the species described!

We cannot conclude without congratulating our Australian brethren on the ability and expedition with which their Flora is being brought out. At the present rate they may expect to see it completed in five or six years at the outside; and we may add, that they are either singularly fortunate or remarkably well advised in having selected an author who is not only quite unrivalled as a descriptive systematist, but who has the leisure to devote himself to the task, the ability to do it the amplest justice, and the energy to prosecute it with the least possible delay.

An Essay on the Benevolent Distribution of the Sense of Pain. By G. A. Rowell, Hon. Mem. of the Ashmolean Society, and Assistant in the Oxford Museum. Pp. 48. Williams & Norgate. London, 1862.

It seems that in 1847 Mr. Rowell submitted to the Ashmolean Society a paper on the above subject, which was well received in various quarters, and subsequently printed. The view which he takes is very interesting; and is briefly this—"That the sense of pain is not an infliction, but one of the most useful and important senses we possess. That it is given to animals only in as great a degree as is necessary, and that no creature has a higher sense of pain than is required for the preservation of the class to which it belongs."

Man (he contends) is liable, from many causes, to injuries from which other creatures are exempt; he alone has a knowledge of, and uses, fire, edge tools, destructive chemicals, &c., for which and for other reasons he requires some protection, more than other creatures have, and this is given him in his possessing the sense of pain in a higher degree; while these animals are mostly adapted for the localities in which they dwell, and are clothed by Nature accordingly, man has no such covering, and the sense of pain drives him to self-protection, and the use of proper means enables him to live without injury either under tropical heat or arctic cold.

Mr. Rowell bids us observe that sensibility of touch must not be confused with sense of pain, for the actiniæ or sea-anemones have exquisitely sensitive tentaculæ, which carry food to their mouths, and yet these creatures may be cut in pieces, and each piece soon becomes a distinct and perfect organism.

If we look at the distribution of pain in the human body we find it almost confined to the skin. Exposed parts about the eye are exquisitely sensitive, but the back parts of the eye are not so. The heart, brain, and lungs, though the most vital organs, have no need of pain, because they are sufficiently protected from injury by their situation; and here we may observe that the famous Dr. Hervey was once enabled to get at and touch a man's heart, but it caused the patient no pain whatever, and he says, "this young nobleman knew not that we had touched the heart." Sir Charles Bell, speaking of the brain, tells us, "It is as insensible as the leather of our shoe, and a piece may be cut off without interrupting the patient in the sentence he is uttering." That which is sufficiently guarded needs not the extra guard of pain.

The painful sensation caused by extreme cold warns people of their danger, but if they despise this warning, the pain ceases when it becomes useless, and drowsiness succeeds, then insensibility, and a painless death. Pain, then, is manifestly and indispensably necessary for man, but is it so necessary for the inferior animals? We think not. Mr. R. hopes "to show cause for believing that the sense of pain is given to animals—let their degree of organisation be what it may—only as far as is necessary and useful to guard them from injury, or to compel them to the function they have to perform; and that many of the lower animals do not possess the sense of pain, as to them it would not only be useless, but an infliction. In fine, my object is to show (he says) that the distribution of the sense of pain, and the great law of nature, 'Eat and be eaten,' by which animals of one class live on those of another, are both conducive to the well-being and happiness of all classes of the animal creation, and afford the strongest evidence of the mercy and benevolence of the Creator."

As the question does not admit of absolute proof, the philosopher must be satisfied if he arrives at a fair and probable conclusion. We cannot, of course, give even an outline of the arguments used, but there are many points well worthy of attention. The common flesh-fly is spoken of as affording an apt illustration both of the fecundity of the lower animals, and the importance of the check Nature has provided against a superabundance of them. The mission of these flies is to do the scavenger work of the world wherever their wings can carry them, and their work must be done quickly too. Reaumur has stated that one fly will deposit 20,000 eggs; these are hatched almost as soon as deposited, and the young maggots then set to work in earnest. When their work is done they lie a short time in the pupa state, and no sooner do they change to the perfect fly than they become the prey of birds, bats, frogs, &c.; thus the balance is restored, and the flies become in their turn a source of sustenance and enjoyment to other animated beings. The necessity for this destruction is obvious. Reaumur has ascertained the number of eggs that a single fly will deposit. It takes from 16 to 20 days for the egg to develope into a perfect fly, but let us give a month for a generation of flies. If we suppose half the brood to be females, the sixth generation would amount to a number so prodigious, that it would cover the whole surface of the world—earth, sea, and all, to the depth of a mile and more. We have verified Mr. R.'s figures, and freely confess, that if there is a necessity for these flies to be produced in great numbers, there is a far greater necessity for their wholesale destruction: but, can there be any necessity for their feeling pain in their destruction? Pain would not assist them to discover and escape from their enemies; it could produce no moral effect upon them, as it assuredly does on man; they are created to be destroyed by a violent death, and pain to them would be simply an infliction.

Undoubtedly there is a good deal of misapprehension on the subject of pain. The cry of animals cannot be depended on as a proof of pain. A pig will make the most alarming outcry if you take it up ever so tenderly, and all wild animals may be expected to struggle violently when under restraint.

Very few hares or rabbits in a wild state die of old age—they are the natural prey of foxes, wild cats, martens, polecats, stoats and weasels, which could not exist without them. They have no means of defence when once caught, and therefore pain would be useless to them, either to warn them of danger, and to make them exert themselves to escape. But they have eyes, so prominently placed, that they can see before, behind, and all around them, ears that can catch the slightest sound, and a degree of timidity which keeps them always on the alert. Pinch a dog or cat and he will be highly indignant, and will bite and scratch you; but if the skin of a tame rabbit be pinched very hard, between the finger and thumb, the creature will scarcely wince.

There are numerous cases of horses, one of which having met with a dreadful accident was a spectacle of woe, yet nobody liked the task of putting the creature out of its misery, and while they looked on in horror it began to eat the beautiful green Grass around it. Carnivorous beetles sometimes get loose, and walk about with a pin through their bodies, and eat up the other specimens; even the sexual habits of animals appear to be little affected by injuries they have received. And, on the whole, there is reason to believe, that the system of prey, by which some animals feed on and destroy others, is productive of very little pain and misery; and much less than would be the result if all animals were to die by what is termed a natural death.

As to the pain felt at the moment of violent death, there is reason to think that it is next to nothing. Mr. Rowell was struck on the head by a flower-pot, which fell upon his shoulder and head. He felt nothing till they brought him to. A gentleman was hanged accidentally in a half-drunken frolic, and all he remembered was a flash of brilliant colours, at the moment, as he supposed, of his suspension. Dr. Livingstone had the misfortune to be seized by a lion, and was severely injured. Yet at the time, although he was fully aware of what had taken place, he felt no pain, or even fear. The excitement of the moment seemingly suspended both those senses; and he believed, that had he been killed at once his death would have been painless. Such also Dr. L. believed must be the case with all creatures under similar circumstances. Here, however, we must close this account, commending Mr. Rowell's pamphlet to the notice of our readers.

The Journal of British Ophthalmology, and Quarterly Report of Ophthalmic Medicine and Surgery. Edited by Jabez Hogg. London: J. Churchill & Sons, October, 1864.

It is a very common practice with second-rate men to depreciate everything that is done at home, and to laud to the skies all that comes in a foreign dress, whether it really proceeds from men of talent and invention, or from sources as little distinguished as themselves. In some such spirit it has been the fashion to cry down British Oculists, though most of the real improvements have originated at home, and to extol men like Graefe, who, whatever their real merits may be, have derived a great deal of their inspiration from this country. If this practice be combined with selfish motives, or a lazy disinclination for personal inquiry, and a consequent disposition to put up with anything which may pass current with the world, either from eccentricity or boldness of practice, especially where such indiscrimination leads to formidable results, it is high time that our own countrymen should bestir themselves, as well to take their proper place, as to prevent mischief—which seems otherwise inevitable.

It is with a laudable feeling to meet alleged practices of this kind that this new Quarterly Journal is put forward, and we must say that the Number is highly creditable for the varied, interesting, and important matter which it contains. In one or two articles there is perhaps too much of a controversial tone, inseparable possibly from the object in view, but it is not likely that this should be kept up to any extent, nor is it to be wished, as experience shows us that there is nothing which readers so soon get tired of as controversy. To the uninitiated there seems no necessity to use such words as synechiæ for adhesions, or mydriatic for dilative, though possibly good reasons may be given for retaining words which have been long in use—and the latter in its primitive form is as old as Celsus; while experience shows that the more needless technical terms we can get rid of the better.

It would be quite out of place in a journal like the present to enter upon any analysis of the contents, which, however valuable, are of little interest to the general reader. We may, however, mention that the Calabar Bean, the Ordeal Bean of Old Calabar, Physostigma venenosum, (not Physostygoma) belonging to the natural order Leguminosæ, the poisonous qualities of which so fatally affected several children at

Liverpool, as noticed at p. 800, has of late been much used on account of its active contraction of the iris, and its property of increasing refraction, on which account, as well as its antagonism to Belladona, it was first brought into use two years ago by Dr. Robertson.

The periodical professes to be a fair and impartial exponent of the views and practice of English Ophthalmic Surgeons, and if it is conducted according to the promise of this first number, it will be a welcome source of information to general practitioners.

The Useful Knowledge Society's Family Atlas, in 20 Parts. Edward Stanford, Charing Cross. 1864.

This capital Atlas is a new issue of a work, originally published under the superintendence of the Society for the Diffusion of Useful Knowledge. It comprises a selection of 80 maps, with the new discoveries, and other improvements to the latest date, and has in addition to the general index, what has been designated a thumb index, said to be particularly convenient for the purpose of rapid reference. The utility of the thing is admitted, but the expression thumb-index is surely singularly awkward. Many years ago, this most useful Society deservedly earned a high reputation for their publications, which combined what were before that time thought to be two seemingly impossible qualities, viz., cheapness and excellence, and from the first, their maps did them the greatest credit. Whether the maps of the United States of America were exceptionally good or not, it is certainly true that we have on many occasions found them particularly valuable of late, when people have been endeavouring to discover the locality of some recent battle, or to follow the course of the opposing armies in that land. Here we have often found the information which we had failed to obtain elsewhere. This is no small praise, when one considers the changes that are wrought in the face of a country by the railroads, especially in a go-ahead age like the present, and in a country like America. In addition to the causes glanced at above, which tend to render old maps obsolete faster than ever, immense fields of discovery have recently been opened to the enterprising traveller, in every quarter of the globe. British Columbia, Australia, and various parts of the great continent of Africa, are constantly furnishing matter for new maps, and even the laying down of railways in India and elsewhere demands continual attention.

We have before us more than half the numbers of this capital Family Atlas, and the unanimous opinion of all our friends who have looked at the maps, has coincided with our own, that it is a work extremely well executed, and one which may be confidently recommended. The size of the Atlas when bound will be about 19 inches by 16. The price is half a crown a number.

Miscellaneous.

Evils of Pot Culture.—Among the utensils for carrying on the operations of horticulture, the flower-pot is perhaps one of the most indispensable. At the same time the evils attending its use under certain circumstances are probably of more consequence than we are aware of, or if we are, we are not at sufficient pains to counteract them. I allude more particularly to the common system of growing our hothouse plants upon the exposed shelves and stages of our stoves and greenhouses. To the most superficial thinker such a system cannot appear otherwise than contrary to the most common laws of nature, and not at all in accordance with any plan which the least acquaintance with vegetable physiology would teach us to adopt. We readily comprehend the importance of maintaining an equable atmospheric temperature in our hothouses, and the evil consequences arising from neglect in such matters to the flowers and foliage of the plants. Of how much, and even more importance then, must it be to protect the roots with the same care, which are far more susceptible of injury from such causes; and yet in the majority of cases they receive the least attention. In fact, where plants are grown in the manner before referred to, it is hardly possible to suit the conditions of both. It is plain that the roots of a plant growing in its natural state cannot be subjected to the same variations of temperature and moisture to which the leaves and branches are. The nature of the medium in which the roots are developed prevents this, and every practical gardener knows the importance of guarding against such evils. Yet, in the case of plants grown in pots exposed to the sun and air, these evils have full play, and must affect health to a very considerable extent. The pot being an active conductor, and presenting a large radiating surface, it is to the ball of soil which it encloses, exactly what the wet cloth which the reaper wraps around his pitcher in the harvest field to keep the water cool is to the water. Let us take an instance. We shall suppose that the plant is watered in the morning until the ball of soil and the pot is moistened through; it turns out a bright sunny day; there is a dry circulation of air; rapid evaporation takes place from the side of the pot; the heat is carried off along with the moisture, and the temperature of the soil is reduced to the lowest point, just when the leaves and branches are enjoying the highest, and when in nature the roots would be also. Then follows a reaction; as evaporation ceases the heat increases; if the roots were frozen before they are roasted now, until—as often happens in the case of pot-bound plants—the ball of soil shrinks away from the side of the pot. Under such circumstances to lift the plant out of the pot entirely and set it upon the shelf would be an aggravation of the evil, but nothing more. No doubt strict attention to shading and watering lessens such evils considerably; but no amount of attention that the gardener is able to bestow can altogether compensate for the disadvantages of such a system. I fully believe that a large proportion of the diseases and difficulties that we encounter in the cultivation of some of our more select stove and greenhouse plants arise chiefly from this cause. The liability of some plants to the destructive attacks of red spider and thrips is greatly increased when grown in pots, and remarkable instances of this often come under the gardener's attention. I have seen pot Vines, when not plunged, brown with spider, while others that have been planted out beside them would escape almost unmolested; and it is well known that nurserymen who often plunge their pot Vines in order to save labour in watering and such like, seldom suffer to any extent. The prevalence of this disease more or less, which is certainly one of the most formidable that the gardener has got to contend with, is generally attributed to the character of the season—a cause no doubt that exerts great influence in inducing diseases, especially of the parasitical class; but the occurrence of red spider in particular cases cannot be accounted for by such general causes. In such cases the cause is entirely local, and one of the most common I believe to be dryness at the root. Evidence of this is abundant everywhere. It will be found that in shallow soils upon dry subsoils, fruit trees in general, and everything liable to its attacks, always suffer worst, and sometimes to a very great extent. Plants grown in pots, often and unavoidably subjected to severe checks from being irregularly supplied with moisture, suffer in the same way; and everyone who has forced a few Strawberries, knows that if he keeps their roots regularly supplied with moisture, he has little to fear from its attacks; but allow them to suffer but once or twice from drought, and the pest will develop itself with a rapidity that is perfectly astonishing. The same may be said of other things as well as Strawberries. When a plant is in a vigorous growing state and the leaves full of sap, red spider will seldom make its appearance. This fact is well known, and until Vines and Peach trees have about completed their growth, and commence to ripen their wood, gardeners seldom dread its appearance. If it does appear before then, it is owing to the causes before mentioned. This seems to confirm the idea that it is only when the leaves are suffering from an insufficient supply of moisture that the insect is able to make progress, as when the leaves and wood have attained their full growth, and the ripening process has commenced, the free and active circulation of the sap may be said to have ceased to a certain extent. *Scottish Gardener.*

Remarkable Portugal Laurel Tree.—I am requested by Lord Vernon to furnish, for the information of the Arboricultural Committee of the Royal Horticultural Society, some account of what was once a somewhat remarkable Portugal Laurel tree growing in the grounds of Sudbury Hall, unfortunately killed to the ground by the severe winter of 1860-1. What made this tree remarkable among its fellows, was that it had from one plant originally become a large group of trees by self-propagation. The points of the lower branches, by resting on the ground, had in time taken root, from which strong erect shoots had proceeded, and ultimately became independent plants; these, in their turn, as they became larger, laid their outer branches down and formed a second circle of trees, and so on in successional layers, until this group of Portugal Laurel was about 35 yards in diameter, having the appearance, at a short distance, of an immense bush, which in all probability would have gone on extending itself had its career not been cut short by the frost. Its height was not particularly remarkable, perhaps never much exceeding 20 feet, but the dense mass of shining green foliage made it an object of interest to all who saw it. Nor was it less interesting to walk through it on a fine summer day, with the sun's rays broken by the mass of foliage overhead, and examine the connecting links between the different trees as they still lay on the surface of the ground, after the manner of Strawberry runners, many of which not thicker than a rake or hoe handle, while there stood at each end of them upright trees, of sizes from the thickness of a man's leg to that of a diameter of 9 or 10 inches. Thus, it appears, that as soon as any branch took root near its point, it ceased to increase in size between the parent and young plant. The circumference of the whole group at the point of the branches was about 110 yards. I have no means of ascertaining the age of the original tree, which doubtless was considerable, as it had been in a state of decay some years previous to 1860; the stump of it, however, is still to be seen, the diameter of which is 3 feet 6 inches near the ground. On the breaking up of the frost of that disastrous winter mentioned above, it was hoped that this group would have escaped with little injury, and it was permitted to remain for a season to give it every chance of breaking again. This, however, it refused to do except at the surface of the ground, and it was therefore cut down to the living parts, but the feeble efforts at growth it has made since afford little hope of its ever again becoming an object of interest. It may be worthy of mention here, that this tree used to flower profusely, and produce immense quantities of fruit, which had a very rich appearance when ripe, and in time afforded a glorious feast for the wild birds. The fruit, however, perhaps owing to its extremely bitter taste, did not appear to tempt blackbirds or thrushes much until it was perfectly ripe, and other fruits getting somewhat scarce; they would then commence an attack upon it, and make short work of the immense quantities with which these trees used to be loaded in fine seasons—every berry disappearing in the course of a few days—and no wonder, when the number of birds is considered, which must have been seen to be believed. They seemed during those few days to have congregated here from every point of the compass. Situation rather sheltered; soil a stiffish loam, drained, but not very dry; subsoil gravelly clay. *Andrew Dick, in the Proceedings of the Royal Horticultural Society.*

The Cowslip and its Allies.—This plant is common in gardens, both in its original form and in its lovely progeny, the innumerable varieties of Polyanthus. Many varieties also occur which cannot be legitimately called by either name, having the form, though more luxuriantly, of the pasture Cowslip, with the colour, incipiently, of the Polyanthus. The most curious are those in which the calyx is partly or wholly changed into corolla. In one, tolerably common, and called King Charles, the calyx is half green and half crimson; in another, a very old-fashioned plant, called Hose-in-hose, the calyx is an exact duplicate of the corolla; and in a third it is formed of five distinct leaves, miniatures in every point of the ordinary foliage of the plant, excellently illustrating the physiological principle, that all the parts of flowers are resolvable into the leaf, as their common type. The grandest elucidation of modern botany is that the leaf, the sepal, the petal, the stamen, and the carpel, are so many different modifications of a single organic base, impressed with different forms and entrusted with different functions; but essentially the same, and under certain circumstances exchangeable one for the other. Whether the Primrose and the Cowslip be really distinct, is by many botanists doubted, and some do not hesitate to call them modifications of a single type. For my own part I believe them genuine species. Specific distinctiveness is not a matter wholly of shape. It includes the whole nature of a plant, its habits, tendencies, and capacities, and every circumstance connected with its life and position in the economy of the world. The Primrose loves shade, growing on sheltered banks and in sylvan retreats, and blooms with the Wood Anemone, or just as the latter is on the wane. The Cowslip on the other hand seldom or never seeks the protection of trees, but courts the sunshine in the open fields, blossoming in its wild state when the Primrose is past its prime, and keeping company with the Meadow Orchis, which rarely opens till the Anemones are all gone. The difficulty about them appears to have arisen in great measure from a long-standing confusion with regard to the Oxlip. The plant commonly called the Oxlip is frequent in the Cowslip and Primrose districts, growing with the former in the open fields, though always as a solitary individual. It is a great favourite in cottage gardens, and is figured in Curtis (iii., 458) as Primula elatior, under which name it is also described by authors generally, but to which it has no right. It resembles the Cowslip in its inflorescence, but the limb of the corolla is nearly flat, the stalk is stouter and taller, the flowers are of proportionately greater size, and half-erect, like those of the garden Polyanthus, of which it is probably one of the intermediate or proximate sources. Pale-flowered varieties remind us of the umbellated Primrose—in fact, it often resembles a handful of Primroses placed on the scape of a pasture Cowslip. The seeds produce, along with Oxlips resembling the parent, Cowslips, and even Primroses. This is good evidence of its being a mule or hybrid between the Cowslip and Primrose. Moreover, on the continent, where the Cowslip and Primrose are said to be rarely seen together, this common Oxlip appears to be unknown. There the Primrose is rather a southern plant, extending from France to the confines of Asia, while the Cowslip is more of a northern one, extending as far as Finland. Both Primrose and Cowslip occur, it is quite true, near together beyond the Alps, but the former always as a plant of warm valleys, the latter as one of the mountains, and too far apart from one another to hybridise. Their intermixture in England is a lively type of the twofold nature of our climate, and it is not surprising that they should issue a form partaking of the characters of both species. The true Oxlip is a very different plant, common on the Continent, but in England confined to the county of Essex. Though figured in Eng. Bot. in 1799, it was only determined to be a native of this country in 1842, when Mr. Doubleday, of Epping, discriminated it as the Bardfield Oxlip, by which name it is now known among botanists. It blossoms a month earlier than the hybrid; the flowers are scentless; they droop instead of standing nearly erect, and it reproduces itself unaltered, and without any intermixture of Primroses and Cowslips among its progeny. This, at least, is the experience of my friend Mr. Sidebotham, who has cultivated and carefully watched the plant for nearly 20 years. There are in England, accordingly, three genuine species—the Primrose, the Cowslip, and the

Bardfield Oxlip; and, in addition to these, the hybrid or common Oxlip. *Grindon's British and Garden Botany.*

Poisoning from Contact with Tobacco.—M. Namias has communicated to the French Academy an account of the case of a smuggler who suffered under strong symptoms of Tobacco poisoning, through hiding under his clothes and all over his body, in contact with his skin, a quantity of the leaves of the Tobacco plant.

A Horse Chestnut Tree.—Dr. Davy read a paper at Bath on *the* Horse Chestnut; will any one read a paper on *a* Horse Chestnut? The tree stands on a flat stone. Its root grows up through the air for 7 feet, turns over a wall, and descends 7 feet into the earth. So that the root passes for 14 feet through the air before it enters the earth. The celebrated Dutrochet, by experiment, convinced the still more celebrated De Candolle, and all European vegetable physiologists, that roots will only grow straight downwards. On this, I set to work to show that they will grow in any direction in which they can find food. If any one doubts this fact, let him inspect my tree, which is now 21 years old. In imitation of Dutrochet's beautiful experiment, I placed a great variety of seeds (single as well as double) in flower-pots, suspended them upside down on wire-work, and watered them from above. Each seed sent a tap-root down into the air, which died; but the branch roots (as I have named them) and the plants grew, and corn ripened in this way. But cuttings placed upside down, though they grew and bore fruit for years, showed no root below. I thus blundered on the fact that every seedling has a tap-root, whose downward determination nothing can pervert, a provision and contrivance for the fixing of the plant, and a beautiful proof of the design of a Creator. But the downward tap-root is as peculiar to the seedling as the "seed leaves" are, and all branch roots will grow in all directions. I published this in the second edition of the "Treelifter," in 1853, where the details may be seen. Those who have published it since have neglected to say where they got it from. I preserved one Horse Chestnut by placing it on a flat stone, and replacing the flower pot with a chimney pot full of earth, and, by degrees raised a column of chimney-pots. I then built up a column of earth on the opposite side of the wall, turned the roots into it, and when they were established in the ground, I took away the two columns of earth. I think that Virgil's tap-rooted Esculus (*quæ quantum vertice*, &c.) is the Horse Chestnut. Virgil (second book of Georgics) mentions it as distinct from the Quercus and Castanea, and Ovid (Met. x. 91) as distinct from the Fagus and Ilex. It is then a feat to make its radix tend to heaven instead of to Tartarus. With regard to the name from Esca, it is true that neither man, horses, nor pigs will eat Horse Chestnuts, but sheep, cows, and deer are ravenously eager for them. *Col. Greenwood, in Athenæum.*

Calendar of Operations.

(For the ensuing week.)

Now that we have had rain enough, all sorts of evergreens, if not already done, should be planted. Any shrubs or trees considered too tender for our climate should be planted in as warm situations as possible in order that their young wood may get well ripened. The stronger growing Roses may be at least partially pruned, to prevent the winds from swaying them so as to affect the roots. Tender Tea-scented varieties, in beds, in cold places, may be taken up and put in thickly by the heels in a sheltered place, or receive some kind of protection where they stand. Laying turf may still be proceeded with when the weather is open and mild. This is better done now than in spring.

FLOWER GARDEN AND PLANT HOUSES.

All walks and drives should now, if not already done, have a thorough cleaning; this will carry them through till next May or nearly so. Let lawns be well rolled, and receive a good mowing close on the heels of it, which will keep them in repair for a long time to come, unless unusually mild weather should occur.

CAMELLIAS.—Plants started early last spring will now or soon be again in flower; therefore these and others should be well attended to with water.

CINERARIAS.—If mildew is troublesome, dust with sulphur the moment the pest is perceived. Forward plants may require a shift, and if so use a rich compost for the purpose, consisting of good fibrous loam and well decayed leaf mould, with a proper admixture of silver sand. Let the plants be placed thinly on the shelves on which they stand, and as near the glass as possible. Fumigate occasionally to kill green fly. Keep the plants secure from frost, by which they are easily injured.

JAPAN LILIES.—As soon as the bulbs are sufficiently matured, which will be known by the decay of the leaves and stems, they had better be repotted; not that this is of importance at present, but it will economise space, and prevent the operation being neglected until after they have made fresh roots. The soil in which they have been growing ought to be entirely removed from the bulbs, and the latter divided as may be thought proper, for there will always be found about the crown of the parent some small bulbs, which may be placed in 4-inch pots. If the ripening has been complete, the roots will not be troublesome; but if not, there will be found a quantity of fresh roots remaining. When such is the case, leave them to themselves for some time longer; never pot while it is necessary to cut or break the stronger roots, but strip your fingers through them, in order to remove those that are decayed. The pots should be just sufficiently large to receive the bulb and strong roots adhering to it; give a moderate watering, to settle the soil, and place them in a greenhouse or cool pit. They will require no further attention until the season begins to excite vegetation, when they must be regularly attended to. Water as soon as you see signs of growth, but sparingly until they have made leaves, &c.. to draw up and give off moisture.

WINTER FLOWERING PLANTS.—Azaleas which set their buds early will readily push into flower, if placed in a warm moist temperature, and some of the early-blooming Rhododendrons require very little forcing to bring them into blossom at any time after this season; therefore where there is a good stock of these, and Ghent and other hardy Azaleas, well set for bloom, a portion of the plants should be placed in heat during the winter months at intervals of about three weeks, and as they are very showy and last long in beauty they will be invaluable for purposes of decoration. These, together with Camellias, Heaths, Epacrises, Acacias, Daphnes, Gesneras, Cyclamens, Cytisuses, Chinese Primulas, Cinerarias, Mignonette, Tree Violets, and other things which bloom naturally in winter, will afford a good display. Monochætum ensiferum is also an invaluable plant for winter decoration.

FORCING GARDEN.

CUCUMBERS.—Keep the Vines of these thin by means of constant stopping of laterals, and removing even main shoots where too much crowded. Keep up a bottom heat of about 85°, and a moist atmosphere. Let the top heat range from 65° to 70° by night, and from 70° to 75° by day.

PINES.—We now look forward to every day dawning duller and later than its predecessor, and as the power of the sun declines, so also must our artificial temperatures be somewhat decreased, and in exact accordance with the latter, must the amount of moisture be regulated. Till our hothouses are furnished with hygrometers of a simple construction, this matter must still be managed according to the best of our judgment, aided by practical experience. Take care that the moisture is not so excessive as to condense in quantity upon the glass, &c., close up the laps, or run down into the hearts of the plants. To prevent this, the evaporating trough should be more sparingly filled. In fine clear weather, when a greater quantity of air can be admitted, the amount of moisture may also be slightly increased. Watering should be done with great care, and syringing is only admissible on the mornings of very fine days. It should be done with a fine rose, and driven, not into the plants, but into the atmosphere of the house or pit with such force, that they may receive it in the shape of very fine dew.

VINES.—In the anxiety to keep houses containing fruit sufficiently dry, be careful to avoid the extreme, even in that direction. If the houses are kept too dry by fire heat, the berries will shrivel, an evil nearly as bad, with regard to some kinds, as decay, the result of opposite management. It is easy to comprehend what is wanted, viz., a dry but not an arid atmosphere; but to regulate it to this nicety requires more care and judgment than is generally found, except in a very experienced practical gardener. If not already done, let all spare time be now devoted to cleaning the sashes of the different structures, pits and frames included, from the dust and dirt accumulated upon them during the summer. Nothing conduces more to the health and well-being of their occupants than the free admission of light.

HARDY FRUIT AND KITCHEN GARDEN.

Storing fruit and root crops, wheeling manure and trenching and ridging will now be the chief work to be done here. All alterations required should also be proceeded with without delay while the weather is favourable.

CAULIFLOWERS.—Let those under handlights have all the air possible, protecting them only from frost, rain, and very cold winds. The lights should be quite closed during severe weather only, and the tops should be tilted in wet; but during fine mild weather they should be lifted off and set on bricks, to keep them clean. Watch closely for slugs, and check their ravages by timely applications of soot. A little finely sifted clean coal ashes is an excellent thing for covering the surface of the soil between young plants of any kind, as our slimy enemies have an insuperable objection to crawl over it.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Nov. 2, 1864, as observed at the Horticultural Gardens

October and Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 27	26	29.441	29.232	59	48	53.5	54	54	S.W.	.02
Friday 28	27	29.507	29.409	58	43	49.0	54½	54¼	N.E.	.00
Satur 29	28	29.837	29.608	61	44	52.5	55	55	N.E.	.00
Sunday 30	○	30.051	29.899	52	35	43.5	54	54½	E.	.00
Mon. 31	1	30.157	30.125	50	33	41.5	53	54½	E.	.00
Tues. 1	2	30.167	30.110	49	37	43.0	52	53	E.	.00
Wed. 2	3	30.123	30.100	51	32	41.5	51	53	N.E.	.00
Average.		29.902	29.778	51.3	38.4	46.3	53.3	54.1		.02

Oct. 27—Hazy and mild; cloudy; slight rain and warm at night,
" 28—Foggy; very fine; overcast at night.
" 29—Slight haze; overcast; dull and overcast.
" 30—Overcast; fine throughout.
" 31—Dry haze; cold wind; fine at night.
Nov. 1—Foggy; cold and dry; overcast.
" 2—Fine; cold and dry; fine, at freezing at night.
Mean temperature of the week equal to the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Nov. 12, 1864.

November	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	53.0	38.0	45.5	19	0.76 in.	2	6	2	3	5	14	4	2
Mon. 7	52.4	37.5	45.0	18	1.02	2	6	2	3	4	12	6	3
Tues. 8	51.1	37.0	43.1	18	0.58	2	5	1	2	2	15	6	5
Wed. 9	50.0	34.4	42.2	15	0.40	3	5	3	1	5	5	0	3
Thurs. 10	50.5	34.9	42.7	22	0.67	3	6	3	2	8	11	2	3
Friday 11	50.7	34.7	42.7	15	1.02	3	6	6	1	7	8	5	3
Satur. 12	50.4	33.7	42.0	16	0.50	4	5	7	3	3	7	7	2

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1854—therm. 18 deg.

Notices to Correspondents.

BERBERRIES: *Alpha.* There is a seedless Berberry, which is recommended for preserving, but it is said that it only puts on this character when of some age, and that suckers from a seedless tree will, while young, produce fruit with seeds.

BOOKS: *Mentor.* Read and study, and master if you can, the Theory and Practice of Horticulture. That, and Solly's Rural Chemistry will give you a good foundation to build upon by your own observation.—*Hortus.* The address you ask for is No. 22, West Howard Street, Glasgow.—*M H N.* The new edition of English Botany, by Syme, if you can afford it. If not, Bentham's Illustrated Handbook of the British Flora.—*T P.* M'Nicoll's Dictionary of Natural History Terms, and Henry's Glossary of Scientific Terms, will supply a good deal of the information you seek.—*A H* Reeve's Land and Fresh-water Mollusks, in which you will find much interesting information.—*W H H and others.* British and Garden Botany next week.

FRUIT TREES: *Loudham.* Cherries may be trained on a low wall, but of course they will succeed better on a high one. The sorts may be the May Duke, Knight's Early Black, Elton, and Late Duke. Late Pears for a wall with a N.E. aspect are not to be recommended; on such, certain kinds of Plums and Cherries will be more appropriate, but you may try Knight's Monarch, Ne Plus Meuris, and Winter Nelis. For Kitchen use you cannot do better than plant the Verulam. ‖

FUCHSIAS: *Young Gardener.* Twelve good Fuchsias, are Sir Robert Peel, Lord Warden, Souvenir de Chiswick, Constellation, Sir Colin Campbell, Universal, Madame Cornelissen, Princess of Prussia, Wiltshire Lass, Annie, Fairest of the Fair, and Minnie Banks.

NAMES OF FRUITS: *W S.* 1, Beurré Diel; 2, Beurré Rance; 3, Beurré de Capiaumont; 4, Easter Beurré; 5, Marie Louise; 15, Kentish Codlin; 17, Minchall Crab; 18, Blenheim Pippin; 19, 20, King of the Pippins.—*S B.* 1. Doyenné Gris; specimens of the others imperfect.—*J C.* 1, Belle et Boune, which is now called by the French Bergamotte sans Pepins; 3, Bon Chrétien Fondante; 4, Brown Beurré; 5, Chaumontel; 6 Winter Nelis; 7, Passe Colmar; 8, Easter Beurré; 9, Doyenné Blanc; 10, Vicar of Winkfield.—*Old Sub.* 1, Beurré Diel; 2, Glou Morceau; 4, Napoléon; 5, Hacon's Incomparable.—*W G.* 1, Orange Pippin; 2, Hanwell Souring; 3, King of the Pippins; 4, Joan's Pearmain; 6, Dumelow's Seedling.—*T F.* 1, Old Colmar; 2, Easter Beurré; 3, 4, Marie Louise; 5, Beurré Rance; 6. Hawthornden Apple.—*I G* Vicar of Winkfield Pear; 1, Downton Nonpareil; 4, 6, Dumelow's Seedling; 5, Cornish Aromatic.—*E T R.* 3, Winter Nelis; 4, Beurré Rance.—*F Kelly.* 1, Alexander; 2, Scarlet Crofton; 3, resembles the Ribston, but may be different.—*H B,* 1, Duchesse d'Angoulême; 2, Glou Morceau; 3, Bon Chrétien Fondante; 4, Winter Nelis; 5, Beurré d'Aremberg; 6, Passe Colmar ‖

NAMES OF PLANTS: *L V H.* One of the varieties of the Lucombe Oak.—*J R* 5, Pteris longifolia; 6, Nephrolepis exaltata; 7, Selaginella uncinata; 8, Adiantum Capillus-veneris; 11, Blechnum brasiliense. The others, both Selaginellas, were too much crushed.—*P G.* 5, Pteris aquilina; 6, Athyrium Filix-fœmina; 7, Polypodium vulgare.—*Usk.* Athyrium Filix-fœmina, and Lastrea dilatata.—*A B.* Bupleurum fruticosum.—*R S.* 1, Pteris cretica; 2, Pteris hastata macrophylla; 3, Woodwardia (Doodya) caudata; 4, Adiantum pubescens—probably, for the specimens are such starvelings, that they are not to be named with certainty.—*W B Page.* Allium intermedium.

PAMPAS GRASS: *H F.* Our autumns are not long enough, nor warm and dry enough to allow the ovaries to become perfect out of doors, at least we never remember to have heard of an instance of the plant bearing seed in the open air. If grown in a tub, and kept in a greenhouse, a panicle of the pulliniferous plant in a fit state (which may be got by cutting it when the anthers are fully grown, and allowing them to burst in the dry air of a greenhouse) being shaken over it when the stigmas are protruded, you would probably succeed. It certainly has been seeded when flowered indoors.

PETUNIA: *W D S H.* Your seedling is a well marked striped variety belonging to the large form of Petunia, the centre of each division of the flower having a bold white band. Its value will depend on its constancy in respect to this marking, and its habit and prolificacy of bloom. We should not regard it as so refined a flower as those exhibited by Mr. Holland, for instance, but it may be a very showy one.

RHODODENDRONS: *C W.* The leaves of Rhododendrons taken from small plants growing under the shade of Fir trees, have apparently been eaten by insects, but we see no further trace to indicate who were the depredators. Most likely the mischief was done by caterpillars, certainly not by ants.

SHRUBS FOR CHURCH WALL: *Diss.* We should recommend you to try, in the position you mention, some or all of the following, which are quite hardy:—Berberis Darwinii, Cotoneaster buxifolia and Symonsii, Garrya elliptica, Hedera Rœgneriana and some of the variegated Ivies, Ceanothus dentatus, rigidus, and several others, Cratægus Pyracantha, and Escallonia macrantha, among evergreens; and Lonicera brachypoda aureo-reticulata, Cydonia japonica, Forsythia viridissima, Jasminum nudiflorum, Ampelopsis heteracea, and Chimonanthus fragrans, among deciduous species. A single shoot of Wistaria sinensis, kept spurred in, carried along the top of the trellis, would form a beautiful border.

VEGETABLE MARROWS: *H F.* wishes to know the best way, or if there is any way, of preserving Vegetable Marrows for winter use.

VINES; *E C.* Your Vines have suffered from red spider. We see living specimens still running about. The whole appearance of the leaves indicates that the air of the house has been at some period of growth far too dry, and probably the roots have been dry too. The Grapes are well flavoured, though decaying. Have you kept your house too warm at night? This is a common source of mischief. The red spider would scarcely have attacked the leaves as they have, but for excessive dryness of the air within the house. The canes look very healthy. *M J B.*

WATERING: *S D.* This is no doubt one of the most important operations of plant culture, and should be so carried out that the roots may never know want or excess. It is better that one man should have the watering of a set of plants, because if he takes interest in his occupation—and if he does not he is not fit for a gardener—he should be in a position to know the wants of each. Many valuable plants are killed from insufficient watering—more perhaps than from the opposite extreme, because a condition of soddenness is more evident than internal dryness of the earth about the roots.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5
Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES. Offices; 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

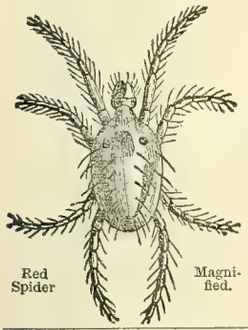
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Offices—109, Fenchurch Street, London, E.C.
Manufactory—Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.
This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers. Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices, 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per ton, delivered at any Railway or Wharf in London.


WHEAT SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.
A 9*d.* packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.


Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

To Nurserymen and Seedsmen.

TOBACCO PAPER, first-rate quality.
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MURRAY'S APHIS PASTILS, a New Invention.—The only cheap, convenient, and effectual means of Fumigating Greenhouses, Pits, Frames, and other Plant Structures. Can be strongly recommended.
Sold in packets 1*s.* and 2*s.* each; boxes 10*s.* each.
GOULDING'S HORTICULTURAL MANURE.—An invaluable stimulant for Roses in pots, Greenhouse Plants, and indeed all kinds of Plants, in or out of pots. In every respect equal to guano, but without its unpleasant smell. Sold in canisters, 1*s.* each.
Agents, Wholesale and Retail: BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing DAY'S EXTRACT and GASEOUS FLUID,
which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as paining in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2*s.* 6*d.* and 7*s.* per bottle; or quarter of dozen in wood box, 7*s.* 6*d.* "Gaseous Fluid," 1*s.* 8*d.* per bottle, or 20*s.* per dozen in wooden box. Plain directions for use given with every Article.
☞ *Caution.*—Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & CO.'S," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"
The "Key to Farriery," free by post for 13 stamps.
SAMPLE MEDICINE CHEST. 16*s.* 6*d.* Carriage paid.
Patrons, 70,000.
Address, 22, Dorset Street, Baker Street, London, W.; and Wantage, Berks. No other branch in the kingdom.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

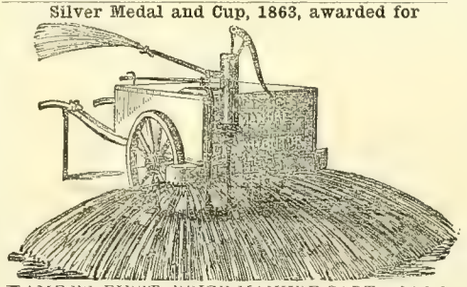



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

Silver Medal and Cup, 1863, awarded for

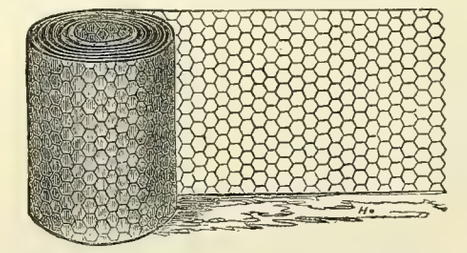


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The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
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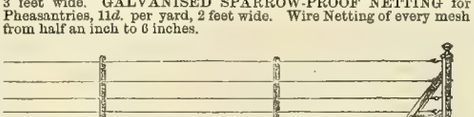
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FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch " " " .. "	18 ..	5 "	4 "
2-inch " " " .. "	17 ..	6½ "	5 "
2-inch " " " .. "	16 ..	8 "	6½ "
1¾-inch " " " .. "	19 ..	4¾ "	4 "
1¾-inch " " " .. "	18 ..	6 "	4¾ "
1¾-inch " " " .. "	17 ..	7 "	5½ "
1¾-inch " " " .. "	16 ..	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.
The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
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THE LANDS IMPROVEMENT COMPANY.
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose Engines or Machinery for Drainage or Irrigation.
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4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 5, and four following days.
Intending Exhibitors are requested to apply for Certificate forms by the reference letters as under:—

CATTLE.	Form A.	For an Ox or Steer (in any Class).
	" B.	For a Cow or Heifer (in any Class).
	" C.	For a Beast in Extra Stock.
SHEEP.	" D.	For a Pen of three Wethers (in any Class).
	" E.	For a single sheep in Extra Stock.
PIGS.	" F.	For a Pen of three Pigs (in any Class).
	" G.	For a single Pig in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the ASSISTANT SECRETARY, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, NOVEMBER 5, 1864.

THE deficiency in the supply of roots, although in some districts much greater than in others, appears to be on the average throughout the kingdom, as near as we can gather, about two-thirds—an enormous amount of food certainly to be made up, and of enormous value; for although a considerable amount is wasted every year from being given injudiciously and too profusely, filling the animal with double the quantity of water that health requires, yet, notwithstanding this, it is next to Grass the cheapest source of nourishment produced. Fortunately fodder is plentiful and well saved, although not enriched with young Clover; and Wheat and Barley are plentiful and cheap, and farmers have already commenced to feed largely on these grains, the more so as the Pulse crop was exceedingly deficient. Amongst the many useful suggestions that appear, some recommend the grain to be ground, others to be wetted or steeped or boiled, and some to be given whole. All these plans are, of course, "successful," for it is not customary to insert the numerous deaths that have occurred from giving Barley and Wheat in a crude state. There appears amongst many farmers, and we were rather surprised to observe it in a communication last week, a disposition to run a muck against the use of Linseed cake, with the view of reducing the price of this article materially, and enhancing that of Wheat and Barley. Now such attempted combinations are always unsuccessful; they are inconsistent with a state of peace, under which trade and commerce flourish; they belong rather to a state of war, without the organisation which is necessary to render war successful. Why do not farmers abstain from bringing any Wheat to market for several weeks, in order to enhance the price! Such a proceeding, equally reasonable, would no doubt meet the fate of most strikes, and would soon succumb to the law of supply and demand. What advantage there can be in buying foreign Oats for feeding in order to abstain from buying foreign cake or linseed it would puzzle a political economist to determine, yet such is the practice of many.

If a combination against the use of cake were to succeed, it would in the end be more injurious than beneficial to agriculturists, as the effect would be to deter importers from repeating their losses, and to induce them to employ their capital in other channels, and refrain from catering to the farmer's wants. By far the greatest amount of mutton

slaughtered in this country is derived from sheep that have not completed their full growth, and the great reason why fatting young animals is more profitable than older ones is, that the increase consists of bone and flesh as well as fat. Thus all the elements of the food are rendered more available. It is well to remember that a pound of fat requires for its production more than 2 lb. of starch or sugar, whilst a pound of flesh contains only the elements of a quarter of a pound of albumen, for three-fourths of flesh consists of water. Although thus diluted it is worth 9*d.* per lb. Again, the wool which has sold so well of late is a highly nitrogenised product; its yolk abounds with oil, and experience shows that no food conduces so much to the growth and quality of the wool, as Linseed-cake. As to the question of manure, there can be little dispute, for it can be proved, both by practice and science, that in this respect 1 lb. of cake is equal to 2½ lb. either of Barley or Wheat consumed by animals.

For these reasons we enter our protest against the advice now so generally given, to supplement the deficiency of roots wholly by giving a food still less nitrogenous. The proportion of this element to the carbonaceous in Barley is as 1 to 10, in Turnips it is (water excluded) as 1 to 5, and in milk, the true pabulum of a growing animal, the proportion is as 1 to 3. Does Nature err in supplying this proportion? or does she furnish these nitrogenous elements merely for the major part to be passed uselessly through the animal. And if Nature is right, shall we be far wrong if in preparing a diet for the still growing animal, we dispense in some measure from Nature's own recipe—and the more so when we find such food agree with the young animal's health. The use of Pulse and cake is found to accord well with young animals, and to conduce both to their health and their growth, and thus when the Pulse crop has to a great extent failed, it is scarcely consistent with science to recommend in its stead a total reliance on the food of pigs. Can we possibly do better than to ascertain the relative amount or proportion of nitrogenous and carbonaceous elements that is found to exist repectively in the most approved food for stock and for fatting animals, and to supply these elements in similar proportions from the various sources from which they can be best procured. If this is done, it will be found that however desirable it may be to employ Wheat and Barley, it is still more so to combine with them Linseed-cake or meal, which abounds in the two elements in which these grains are mostly deficient. It was thoroughly proved by the experiments at Woburn, that meal made from the best oilcake is superior in its effects, weight for weight, to that made from Linseed itself; or in other words that the albuminous and mucilaginous materials are more productive of increase than the oil pressed out, of which they occupy the place.

Some years since chemists were no doubt in the habit of assigning too great a preponderance of value to the nitrogenous element of food, and were in the habit of taking its amount as almost the only guide in estimating the relative value of different kinds of food. At the present day they are disposed to run into the opposite extreme, and because a much smaller amount of the nitrogenous element than of the carbonaceous is retained by the animal in its increase, they are almost inclined to regard it as a secondary constituent in the food of a fatting animal, forgetful of the fact that the nitrogenous element is in constant requisition in supplying the used up muscular and other tissues of the body, and that whilst the fatty deposition may remain comparatively unchanged, the muscular or fleshy parts are subject to constant wear and tear and continual renewal, and that the animal temperature may be sustained by the decomposition of these nitrogenous constituents as well as by that of the carbonaceous elements. The urine of an ox contains twice the percentage of nitrogenous elements as the dung, and forms also the largest portion of the excrements, and we may at any rate correctly assume that at least that portion of the nitrogenous food which is essentially found in the urine has performed its proper mission. This it has done by renewing in the first place the muscular fibre, and then in its turn becoming a portion of these used up tissues, and after contributing its carbon to the preservation of warmth, passing out of the body through the kidneys in a state of solution. We may equally assume that so long as an animal continues in a state of health we have no reason to consider that it consumes too much of the nitrogenous element of food, but that on the contrary such food is necessary to maintain the vital functions, increase the growth, and renovate the muscular system. It is extremely difficult to appraise respectively the values of the albuminous elements of food, and it can scarcely be done in any other way than by taking the average price of Beans and Oats. And as we find that the former steadily maintains a higher value than the latter, we are justified in taking the excess and placing it on the superior value of the albuminous element, of which Beans and Peas contain more than double as much as Oats. *W. C. S.*

—— MR. SCOTT, the Drainage Engineer, adds his estimate of the past harvest to those previously published in the daily papers by other writers. He considers Wheat "an average crop, or say 32 bushels per acre, of fine dry quality, much of it having had to be cut during the night, when the dew was on, to prevent it shedding; Barley a sixth over an average crop, or say 56 bushels; Oats one-third under, or 40 bushels; Beans two-thirds of a crop, or 36 bushels; Peas half a crop, or 22 bushels; Tares two fifths of a crop, or 16 bushels; hay (Clover and meadow) half a crop, or 18 cwt., and no second cutting has been obtained off meadow land for Rowen hay, nor for seed off Clovers, the light aftergrowth in both cases having been consumed by stock; Sainfoin hay, grown on chalks and corn brashes, four-fifths, or 32 cwt.; Hops, five-sixths, or 5 cwt. (some in Kent are total failures, and have not been picked); Potatos two-thirds of a crop, say 4 tons of very small, but generally sound tubers; Swedes are about a sixth of a crop on the land where the plants have been allowed to stand, or four tons; but one half the land sown with this important crop has been ploughed up, and the roots on the remainder are very small, woody, and inferior in quality. Mangel is about half a crop, or say 14 tons. Clover seed is about one-fourth, derived entirely from the first cutting, as no second, usually appropriated for seed, has been obtained almost anywhere. Rye-grass seed will be nearly a full crop."

His estimates of the green crop tally with our own; those of grain are much too high. It is probable that his descriptions of these may be nearly the truth, but the figures by which his descriptions are explained are unquestionably excessive.

Thirty-two bushels of Wheat, 48 bushels of Barley, 60 bushels of Oats, 54 bushels of Beans, and 44 bushels of Peas, at which he puts an average produce per acre of three crops respectively, are outrageously beyond the truth; 28, 34, 42, and 30 respectively would be much nearer the real average experience of the country.

THE current autumn is showing in several places the admirable qualities of Mr. SMITH'S (Woolston) combined steam cultivator and drill. We cannot speak too confidently of the merits of the tool; and we have no doubt that his patent rights in it are among the most valuable of those which he holds in connection with steam cultivation. Wheat may be sown at once by it upon a Bean stubble, Barley on a sheep-fold, without any preparation, and a most effective seed-bed thus receives its seed at any rate that may be desired, with a minimum of labour at a maximum of speed. Having seen the implement at work last spring, we are able to speak from personal knowledge of its merits, and the following testimony by Mr. BIGNELL, who farms a stiff clay land arable farm near Woolston, is conclusive. He says:—

"I have just returned from a visit to Woolston, whither I went yesterday for the purpose of seeing the combined drill and cultivator at work. Unfortunately when I got there (about 12 o'clock) the piece of 12 acres on the light land had just been completed. I mention the time thus particularly, as I was told that the work was only commenced at 9 40 the day before, so that nearly an acre an hour had been accomplished, and this included the headlands and about three acres of corner work to finish the field. A more perfect piece of steam work I have never yet seen, the land having been by one operation converted into splendid tilth, and the seed deposited.

"To-day I found them at work on the heavy land, the engine and tackle having in the meantime been removed two miles, and at 12 o'clock about 6 acres, including the headlands, had been done, and done in a manner that the most fastidious must have pronounced faultless. It is true the land was in very capital condition for working, perfectly clean, and, from previous deep culture, the draught was comparatively light; but it is steam to which that condition is due. Up to this time I have never been able to accord my full approval to this machine. It was cumbrous in appearance and had in my opinion other serious defects. It is now made lighter, the defects to which I have adverted have been remedied, and it has in other respects been so modified and improved that it bids fair to be a valuable addition to steam-drawn implements. I should have much liked Colonel FANE to have been there, to have seen what can be done on a regularly steam-cultivated farm with good machinery by men well accustomed to its use."

CONDITION IN GRASS LAND.—No. II.

WE found that draining and consolidation by feeding, with the addition of cake and corn, would raise the net value of Grass land some 2*l.* per acre. We also found that where this was necessarily mown, an application o mineral as well as nitrogenous manure was requisite to maintain its condition, and that the cost of the application must not exceed 1*l.* per annum. The reason of this may be worth a little farther inquiry. Upon an acre of arable land when well cleaned and cultivated, 2*s.* 6*d.* laid out in dung was proved to produce 5*s.* in corn, a full agricultural crop being worth 10*l.* per acre, while a crop of hay will not be worth more than 3*l.* on the ground. And it appears from Mr. Lawes's reported experiments on manuring Grass lands that it requires 400 lbs. of artificial manure, or 20 tons of good yard dung, per acre to produce an increase of 1 ton of hay, which will evidently not pay unless where hay can be sold off at a high price. We must also bear in mind the great difference between arable and Grass, as regards cultivation. On the former we found cleanliness and aeration equal to a good coat of dung; but here we can neither weed nor subsoil to any purpose. When we have eradicated the Docks and Thistles, and run the manure over the surface, we have done all that our present machinery permits. Therefore small doses, frequently applied, will be more likely to nourish the roots as they descend into the soil. The finest Grasses and Clovers, which it is our interest to foster, root nearest the surface. When a heavy dressing of chalk or marl has been laid on, it is found to descend through the soil at the rate of nearly an inch a year, until only the deepest-rooted Grasses can take advantage of it; and were it not for the annual labours of the earth-worm it would be utterly lost in a few years.

Next, as to the ingredients. Several treatises have been written advocating the use of lime, and as many different reasons have been given for its efficacy on as many different soils. Whether it is an ingredient of the vegetable organism in which the soil is deficient—whether it hastens the decomposition of dead vegetable matter, so as to fit it for re-absorption by the living rootlets—whether it acts chemically as a base in setting free the more valuable alkalies—whether it acts as a nitre bed in the soil, assisting in the absorption of ammonia from the air, or for some recondite reason not dreamt of yet in our philosophy, it certainly bears the first place in all composts. Whether put on as fresh lime, or in the form of gypsum, or gas lime, or as common chalk, must depend more on the locality than on any great superiority of one over the other. Practically it is a great sweetener of the herbage, and should be used more or less on all soils.

The next chief ingredient will be ashes. Where the house ashes from a town or from cottages can be procured, they will be a valuable adjunct to our compost heap. Where these are not procurable, all the vegetable refuse of the farm—Couch, Nettles, seeds of weeds, &c.—should be got together and burnt or charred in a heap, to which the scourings of ditches and parings of banks should be continually added. We saw that in every ton of hay we removed there were 30 lbs. of potash lost to the soil. The chief or only means by which a portion of this can be restored is by ashes. Large quantities of peat-ashes were until lately applied to the artificial Grasses, and as young Clovers seem to require and thrive upon this mineral, it was probably the potash contained in them which gave them their value, and it is worth inquiry whether the Clover sickness has not increased through their discontinuance.

These ashes and any other refuse, earthy or vegetable, that can be procured should be turned frequently, so as to mix intimately, and in the form of a powder to be sown or shovelled at once out of the cart over the Grass, and if possible in the summer time. There are several reasons for this recommendation. If spread at once out of the cart, a small quantity will go further and be distributed more evenly than if left in heaps, and the spots where heaps have lain are apt to be stained. If laid on in summer after the hay time, or when the Grass has been fed down, the manure penetrates to the roots while they are active and can at once assimilate it, as will be shown by the immediate change of colour where applied; whereas, if laid on in winter, while the roots are dormant, it runs the chance of being washed below the surface before they have time to reap the benefit of it, and the stronger-rooted Grasses would thus be encouraged at the expense of the finer. I shall content myself with referring any reader anxious to improve his Grass land economically to an able article in the Royal Agricul-

tural Journal for 1858, by the Rev. R. W. Bowditch, in which he will find this question of composts fully treated, as also the second question—will it pay? In answer to this we have already seen, p. 1042, that 1*l.* laid out in manure will produce 2*l.* in extra value of crop. But here again is to be noted a difference between arable and Grass. Half a crown laid out on well tilled land produced 5*s.* in the next crop of corn. But the improvement on Grass land is slower. It takes time to get rid of the coarse Grasses, and to introduce the Clovers and finer Grasses in their place. It also takes more time to reduce the condition of Grass when once improved. Hence the unwillingness of landlords to allow it to be broken up. From the comparative slowness of these processes arises, too, the backwardness of tenants to improve their Grass. But that the improvement of this is equally a paying speculation there is no reason to doubt, or that the interest of an outgoing tenant in such improvement might be equally assessed. At any rate the manurial value of the imported food, and the cost of the cart dung laid on since the last hay crop was removed, might be allowed, and would generally be cheerfully paid for.

I conclude these letters on Condition with my thanks for the space granted to me in these columns. I began them with the hope, not of teaching my brother farmers how to farm, but of showing them that the concentration of capital on the land is not only a profitable but also a secure investment; that the periodical beggaring of farms at the end of each lease is not a necessary but a very wasteful expedient; and that the extra condition may be assessed and would be willingly paid for. And if my conclusions are true, that 1*l.* laid out in manure will produce 2*l.* in extra crop, and the return of the capital invested may be secured, surely in these money-making days the improvement of our farming cannot be far distant. How much room there now exists for such an improvement any one travelling 10 miles over any part of England cannot fail to see. *J. B. M.*

SEWAGE.

Having been asked by a friend what I thought of "Sewage," I sent him the following answer:—On a hot July day, some years ago, I went to inspect two herds of cows, stall-fed, one for the dairy, the other for the butcher. There were about 30 in each shippon. They lay upon bare planks, each plank 4 inches wide, and 1 inch apart; a large tank below received all the "sewage," which was conveyed by pipes into a meadow, and poured over it. The cows were fed upon the Grass, then being cut for the third time. The dairy cows had, in addition, some dry crushed Oats with chop; the feeding cows had hot pudding composed of crushed Oats and Peas, Linseed, Irish Moss, and chop. In these hot unhealthy buildings, over stinking tanks, these wretched animals existed, day and night, week after week, month after month, breathing the same foul air, and eating the same unwholesome food—their own sewage in fact! Go to a farm-yard, look at the gutter down which sewage runs; you will see tall, broad-leaved dark-green Grasses growing, which neither horse nor cow will eat; go to the haystack made from these Grasses, cut in an unripe state, without seed, without nourishment in them—neither horse nor cow will grow fat upon such hay. Yet no doubt sewage is valuable. Sow it with Turnip seed, plant it with Mangels, throw it over exhausted tillage land, pour it over meadows, selling the hay—but do not eat butter or beef produced by it in establishments such as I have described. I am happy to say that both failed, and were given up, and I hope no similar establishments are now to be found in the country.

After all, the old Cheshire plan is the cleanest and the best; fill the cesspool with soil, and spread it, when dry, adding a little lime, upon Grass land. *Harry Maiwaring, Peover Hall, October* 17.

LOCAL AGRICULTURAL MEETINGS.

The yearly meeting of a local agricultural society is in theory, and according to the leading noblemen and gentlemen who talk on such occasions, a gathering where the landowners and their tenants meet, compare notes, learn something of the wants and wishes of each other, and offer sundry suggestions and explanations, which, if they do not directly promote agricultural improvement, at least tend to foster a community of sentiment and respect between the class of landlords and the class of tenant-farmers, and thereby indirectly promote that co-operation of the two classes, without which agricultural improvement remains a negative quantity. They have common interests in the advancement of the art and practice of husbandry, their opportunities of coming personally into contact are few and far between, it would be therefore most natural and wise on the part of the landowners to avail themselves of such an opportunity to discuss the topics which seriously affect such interests. When it was supposed that the repeal of the Corn Laws would injuriously affect these interests, there was no hesitation on the part of land-owners in urging at agricultural meetings all they could imagine or invent in support of their existing law of monopoly. Why, then, do we not occasionally hear, as we heard from Lord Stanley, something of the actual circumstances of local agriculture which are controllable by landlords or by tenants or by both? Are there not many such circumstances? And is it not an admitted, a proverbial fact, that by combined action on the part of landlords and tenants in nearly every district of England, a vast increase of produce might be obtained from the soil?

Why, then, is it that the landowners and public men, who obtain exclusive audience at the local agricultural meetings, so seldom even approach the topics which really and practically affect the interests of the farmers? This was forcibly illustrated at the Thame Agricultural Society, which met lately in Thame (Oxfordshire), and at which two of the county members, Colonel North and Colonel Fane, were present. What may be called party politics were, perhaps, wisely avoided, but the Rev. Mr. Ashurst gave the cue to a real consideration of agricultural questions, when he said, "In an agricultural district every one must feel peculiarly interested in the prosperity of agriculture. When the land was well tilled and brought to a high state of perfection, it was advantageous to the landlord, profitable to the tenant, and beneficial to the labourer in providing him with remunerative employment." The rev. gentleman then referred to the horticultural show, which was combined with the agricultural, and remarked that the only drawback on the enjoyment of the exhibition of the day was "the noise outside, and the obstruction caused by the shows and stalls at the entrance of the show ground."

Here we have the ball of "agricultural improvement" fairly set a rolling, and the farmers might reasonably have expected the two county members and landed magnates to take up the game and tell them something of the realities of local agriculture. It cannot be said that there are no improvements to be suggested, no omissions to be supplied on the part of the landlords and the tenants in the Thame district. We turn to the prize essay on "The Farming of Oxfordshire," in the 15th Vol. of the Royal Agricultural Society's Journal," and we find numerous statements as to the state of things agricultural in Oxfordshire generally, and around Thame in particular, which surely might have been deemed worthy of comment by the representatives of the landed interests in Oxfordshire.

Thus we are told that "The Thame stream [a tributary of the Thames] is in a dreadful state; in some parts the river is nearly silted up. A good rain is sure to send the waters out. There have been 17 floods in 12 months, and a third of the hay this season [1853] has been washed away. Many years ago a commission was appointed, and the bed of the river was cleared out; a rate being levied on the landowners to provide for the necessary outlay. This measure needs to be repeated, and the occupiers of the meadows would gladly submit to an annual charge of 5 per cent. on the cost. The banks of the river are planted with Willows, and weeds and Rushes for the most part enjoy unmolested security. . . . If all the proprietors of land intersected by this river would adopt the same plan, the destructive summer floods would become less frequent." Now has or has not the requisite improvement of the Thame been effected in the 10 years which have elapsed since 1853? If not, why not? If it has been done, surely a word of praise or encouragement might have been uttered by the county members at the Thame meeting. If it has not, how could the local representatives have more usefully occupied the attention of the landowners and farmers present than by explaining the facilities which recent Acts of Parliament have afforded for the execution of such works, and suggesting the propriety of availing themselves of those facilities? True, we have had a dry summer, and consequently no floods, but the farmers who have suffered losses from such floods would have recollected that all summers are not dry, and would have been well pleased to have heard their interests so practically advocated by their county members. Suggestion on this subject would have been useful to the landlords and gratifying to the farmers.

Again, Mr. C. S. Read, the prize-essayist, says, "In this county, where every agreement directs that the ditches and water-courses are to be well cleansed every year, the operation is performed about once in eight years. Half of the ditches now are choked with rubbish, or trodden nearly full by cattle. The water that may trickle into them has no chance of escape, and of course saturates and poisons the surrounding land. There is no doubt that at little cost an immense amount of benefit would accrue to stiff meadow lands by proper attention paid to ditches . . . . If scoured out every year, and proper means taken to convey the surface-water from the furrows rapidly into the ditch, much land now excessively wet would be comparatively dry without the expense of under-draining." And this applies especially to the Thame district, which is on a clay soil, and consists largely of "stiff meadow lands." Would not a hint on ditch-cleansing have been useful in the interest alike of the landlords and the tenants? Would not three or four sentences on this subject by Colonel North or Colonel Fane have excited attention to a grievous and wasteful omission on the part of the farmers of the district? And might not one of their body have made some practically useful statement in apology or explanation? Or again, Mr. Read says, "A well-arranged and convenient farm-steading is quite a wonder in Oxfordshire. . . . Nor are these evils easily got rid of. There are the buildings, and rearing new ones is an expensive affair. . . . Though most parts of the county are well off for building materials, and some good farm-buildings are to be found in various parts of the county, these are more frequently in the occupation of the landlord than enjoyed by the tenant."

Here, again, the representative of an agricultural district and the landed classes might have said a word in season with propriety and perhaps with effect. So in reference to that corner-stone of agricultural improvement, a lease, Mr. Read says that in Oxfordshire "Farm leases are the exception, not the rule; one may be found here and there, but almost all the land is held from yearto year, subject to six months' notice to quit. Landlords do not like granting leases, they still argue as they did in the days of Arthur Young; 'to grant leases is to give away your estate; it is to bind yourself and leave your tenant free.' . . . . But it may be asked where are gigantic and permanent improvements to be found?—in Oxfordshire or in the Lothians?—which estates have been most improved by the tenantry, Blenheim or Holkham? It is easy to say that a farmer with a lease can begin to exhaust his land with impunity. Under the year-to-year system he seldom puts his land into a condition that will admit of exhaustion. The clay lands of the county are in much the same state as they were a century ago. . . . . Every agriculturist must know the great difference between a farm where good and expensive management is exerted, and another in which the main object is to do as little as possible. Some of the tenants of this county follow the latter course, for they know that in six months time it is possible for them to be removed, and others will then enjoy the benefit of their improvements if they have made any."

Here, again, an agricultural representative might have noted past improvement, if any, and have stimulated the unready landowner or farmer.

Then, in 1853, it was reported that "The improvements still required are both numerous and important; the principal are of such magnitude that they can only be originated by the landlords. Throughout the county there is great need of better situated, more extensive, and more convenient farm-buildings; also the formation of good farm-roads, the extension of an improved system of drainage, the steady adoption of some effectual means of obviating summer inundations, and giving the occupiers of land increased security of tenure." Now, if anything material has been done since 1853 towards the then needful improvements, the two county members, when at an agricultural meeting, could not have allowed a theme so congenial to the occasion, and so creditable to the landowners of the county, to have remained unnoticed. Those who know the county well, say the improvements are still wanting, and this may, perhaps, account for the utter silence of Colonels North and Fane. For the former said not a word about agriculture or the economy of land and rural life, while Colonel Fane, overlooking Mr. Ashurst's challenge to refer to the circumstances on which the prosperity of agriculture depends, took up his reference to the noise and the show booths after an almost puerile fashion. He said, "He could not entirely agree in all the remarks which had fallen from his reverend friend, relative to the noise outside the show-ground, causing an interruption to the proceedings, and obstructing the access of the visitors. . . . He was accompanied by two ladies and two young children, and did not experience the slightest difficulty in obtaining access to the show-ground;" and then he wandered on about peep-shows and others of the juvenile entertainments common at rustic fairs, in a manner that produced shouts of ironical laughter from the farmers. He wound up by saying that he had not seen the ploughing, and that he believed with Mr. Henley "that after all the benefits derived from machinery there was nothing like the old plough," and intimated that steam ploughing can't pay.

The farmers don't want the great landowners and Parliament men to come down to their agricultural meetings to talk such childish twaddle as this, but they want to make these occasional public meetings of landowners and tenant-farmers the opportunities of some discussion of the realities of agriculture. *Economist.*

SOCIAL SCIENCE CONGRESS AT YORK.

[In the Agricultural Section, presided over by Mr. Holland, M.P., papers were read by the President, Mr. Strickland, Mr. Gordon, and others, of which the following are abstracts.]

(*Concluded from p.* 1046.)

Agricultural Gangs.—The Rev. T. Hutton, M.A., Rector of Stilton, read a paper on "Agricultural Gangs: their Influence upon the Morals and the Education of the Young." The paper described agricultural gangs as a form of organised labour which had sprung up within the last 25 years, and appeared to be mainly confined to the district of the Fens. There were gangs of women at Shippey, Spalding, Hull, New Romsey, and Lewes, which were the cause of a fearful amount of infanticide, illegitimacy, and immorality of every kind; but the writer wished to speak more especially of gangs of children which prevailed in Lincolnshire, Cambridgeshire, Huntingdonshire, and Northamptonshire. These gangs consisted of children of both sexes, numbering from 10 to 50 or 60 in each. An undertaker hired them from the parents, and then contracts for them with the farmers at so much per score per day, or per acre. The ages of the children

range from 5 to 16 years. They were employed in weeding, hoeing, thinning Mangels, and in almost all kinds of farm labour. They went from one parish to another, and had frequently to walk several miles to their work. The writer went on to show that this system had a most injurious effect upon the health, the education, and the morals of the children so employed in field labour in all weathers, and described a parish where the system was encouraged by the farmers, and in which there were eight gangs at work, containing about 40 children each, the educational status of the parish being 50 per cent. lower than that of the manufacturing districts of Lancashire and Yorkshire. The younger children were demoralised by constant association with hardened and wicked boys and girls of 15 and 16 years of age; and they might be frequently seen on a Saturday night at 10 o'clock going among the beer-shops, in search of their driver, for their week's wages. After noticing the various evils arising from the system, and the importance of providing some remedy, Mr. Hutton advocated the establishment of a half-time system, similar to that under the Factory Acts, and recommended that in the Act of Parliament establishing such a half-time system, mixed gangs of boys and girls ought to be suppressed, and children of tender years ought not to be allowed to work in gangs at all. If some half-time could be adopted embracing these conditions, not bearing with undue stringency upon the most busy seasons of field-labour, he was persuaded that such a measure would confer unspeakable benefit upon the farmers themselves, as well as the labouring classes, to say nothing of the general welfare of the country at large.

THE SALE AND TRANSPORT OF CATTLE.—The Rev. Dr. Burgess, of Chelsea, read a paper, written by Captain O'Brien, of The Mount, York, on "The Sale and Transport of Cattle." In the outset of his paper he referred to the prevalence of panics about unwholesome food which came like gusts of wind across the minds of the British public. Among these he classed the reports and statistics recently circulated as to the frequency of fatal cases of pleuro-pneumonia, and as to the foot-and-mouth disease being found in every parish. The trumpet of alarm, he said, was blown long and loud by a learned Professor in Edinburgh; and the excitement might be fairly described as approaching to panic if the anecdote, given in evidence, were true, that in the discussion of these matters in the Town Council of Edinburgh, an old gentleman, one of the Magistrates, declared he believed that he was now breeding tapeworm himself. As a summary of the evidence given before the late Select Committee, the writer gave the following: — Pleuro-pneumonia appeared in this country about 1842. It spreads very rapidly either by infection or contagion, and breaks out suddenly without apparent cause. It is intractable, and sometimes very fatal, carrying off occasionally three-fourths of a herd. It is aggravated by local circumstances (the loss on cows in the town dairies being very great) and also by atmospheric conditions. It may remain latent for a month and then suddenly develop itself and kill the animal in 24 hours. The foot-and-mouth disease appeared first in 1839. It is an eruptive fever; the gums, mouth, and tongue are affected; the animal slavers at the mouth; the hoofs crack, bleed, and in bad cases actually come off. It is seldom fatal, and is easily cured, though it greatly reduces the condition of fat animals. It is an epidemic, and also extraordinarily infectious or contagious. It is incredibly prevalent, from one-third to one-half of all the animals at a fair being affected by it. It may remain latent for three weeks, and then be suddenly developed by exposure to wet and cold, by change of weather, or by local causes. With dairy cows it produces an eruption on the teats, by which the milk is affected. The most horrible of all cattle maladies are the parasitic diseases, caused and subsequently propagated by eating diseased meat, chiefly pork. Measly pork contains the embryos of tapeworms; and when these pass into the human body, they develop into complete tapeworms. After some further remarks descriptive of the evidence as to the injury done by the trichina, a small worm, and also of what the writer termed "the horrors of pig-feeding," which were beyond belief, Captain O'Brien went on to quote a series of statistics produced in support of the Bills introduced into Parliament last session, which have already been published, after which he gave an abstract of the leading provisions in these Bills as originally introduced, and of the objections brought forward to the Cattle Diseases Prevention Bill by the Highland and Agricultural Society. He then went on to maintain that all the statistics which had been adduced must for the present be deemed wholly unreliable as a basis for legislation, as both parties in the late controversy had proved that nothing could be more fallacious than their opponents' facts except their figures. He passed over the whole subject of dead meat, including parasitic disorders, to come at once to the great question whether the meat of an animal affected by pleuro-pneumonia was or was not fit for human food. On this point he maintained that medical testimony absolutely, unimpeachably placed beyond doubt that this meat, at all events in all but the latest stages of the disease, was perfectly fit for food. This fact was of the last importance, not only in reference to the public health—for this meat was used in every household—but in regard to the spread of the disease. The Bill was therefore not necessary on the ground of the public health. Still, it might be expedient as a means of preventing disease. Its general character certainly raised a presumption against it. It was a Bill of restrictions and penalties, the effect of which, in the judgment of the men most competent to form a sound opinion, would have been to raise the price of meat 25 per cent. The foundation of all measures for preventing the spread of disease among living animals must be inspection, and the magnitude of the scale on which inspection must be established presented serious practical difficulties. The veterinary surgeons had no reliance on the butchers, the butchers had no confidence in any but themselves, and the largest salesman in London "does not attach to veterinary evidence the importance he does to practical experience." And yet the inspectors must be numerous, competent, above influence, and inspire confidence in their judgment. The expense of such inspection would probably be greater than the country would submit to. Inspection, too, would infallibly break down where it would be most wanted—at such great fairs as Weyhill, Ballinasloe, or Falkirk Tryst, where the number of animals collected together was so enormous—the sheep at Ballinasloe amounted to 70,000—as to render real inspection an impossibility. The whole system of legal regulation rested on inspection, and no one had yet suggested a practical way of dealing with the inspection of living animals; while those in the trade now state that they would place no value either on the inspection or the opinion of the inspector, and in fact scout the whole thing as an absurdity. Next in importance was the separation of infected from healthy cattle—that was indeed a cardinal point. Farmers, however, would never tolerate the interference of inspectors and constables on their own farms. Moreover, "unenclosed land" meant all the Highlands of Scotland, half of Ireland, and large districts in Cumberland, Westmoreland, Norfolk, Wiltshire and Hampshire. After some further criticism adverse to various provisions in the Bill, chiefly on the ground that they were unworkable, and that they would seriously injure the trade in cattle without preventing the spread of disease, Captain O'Brien proceeded as follows:—The foot-and-mouth disease is so catching that precautions by Act of Parliament against its spreading are vain. Being easily cured, the general opinion is that it should be left to the owners of the stock, whose pecuniary interest it is to take the best measures medical skill can devise to arrest the disorder. Pleuro-pneumonia, though not so prevalent, is far more fatal. With fat cattle the best and cheapest remedy is the knife the moment the disease appears, when the animal is not yet reduced in flesh, and while the meat is still good and wholesome, and will bring a fair price. If, as proposed, the sale of such meat had been prohibited, it would have been impossible to have got rid of the animals, and a great impulse would have been given to the spread of the disorder. Lean beasts present a difficulty. The only thing to be done is to send for the veterinary surgeon. There is little fear of their being sent to market, as one diseased beast would injure the sale of the whole lot, and possibly those of the owner on future occasions. The example of foreign countries is far from conclusive, especially as, in point of fact, their elaborate system of regulations had failed to stop the spread of pleuro-pneumonia. Mr. John Honck, a large importer of foreign cattle, said that in Slesvig and Holstein, where the Government had really taken the matter in hand, the remedy was worse than the disease—the precautions had not had the least effect, and had given the greatest dissatisfaction. The disease itself was one of those epidemics which from the earliest ages had occasionally passed over Europe, and after a time disappeared. There was already good reason to believe that this one would resemble its predecessor; that it was of a milder type than when it first appeared, and would gradually die out. The whole of the recent inquiry had again taught the good old English lesson that individual effort was better than Government assistance; that Government could hardly ever interfere in the course of trade without doing mischief; and that more could be effected by attention, care, and skill than by all the most stringent regulations of an Act of Parliament, or even an Order in Council. It certainly was very remarkable, and spoke volumes in favour of the good sense of the gentlemen who undertook the task of legislation, that, though they entered upon it with the view of enforcing regulations, much impressed with the necessity of doing something, and anxious to shape the crude proposal into a measure of some real utility, the only practical result was a recommendation to relax an Order in Council with reference to the examination and detention of foreign cattle.

THE PAST HARVEST AND THE COMING WINTER.

SUSSEX: *Mid Lavant.*—With regard to the past harvest in this neighbourhood, the Wheat crop is generally an average one, and stacked in first-rate condition. Oats and Barley, though deficient where late sown on very dry soils, will on the whole be quite up to the average. Beans are not grown, and the Pea crop is an almost total failure. Our prospects for the coming winter with regard to the keep of cattle and sheep are anything but bright. The failure of the Turnip crop over a large district, and a very light crop of Mangels, will of course very materially lessen the number of cattle and sheep fattened. We may consequently expect very high prices. Not since the year 1818, I believe, has the Turnip crop failed to the extent that it has done this. A full heavy crop is not to be seen in any of the fields; small patches are dotted about on some, others have a tinge of green now on them from the second sowing of seed put in since the harvest. If these, the "stubble variety," make any progress, and frosts do not set in too early, there will be yet time for them to make small "heads," but they grow very slowly. Other fields are quite bare of Turnips, and these in some cases have been drilled with winter Barley or winter Oats or Rye for spring feed. But little can be done at this time of the year to secure winter feed for sheep in any quantity; a kind growing autumn will be of the greatest benefit to us, by making the Grass hold out as long as possible; afterthat is gone, I expect a great many sheep will have to be kept in yards. Our straw this year is remarkably sweet and good, and it and a few Oats or other food will be all that a great many Down flocks will get through the winter. Where there is plenty of hay, it, with water, would be given; but few farms grow sufficient hay to keep their whole sheep stock entirely on it, and few farmers will buy hay at the price it will probably be this winter. The few Turnips and Mangels will be kept till after the lambing time. Much larger breadths than usual for spring feed have been sown of Rye, winter Barley, winter Oats, Tares, and of Trifolium incarnatum, and all these are looking well, being got in early this year. The late rains and mild weather are making the Grass grow very fast, and where possible, portions of meadow or down land are laid up for winter supply. We all hope for a late autumn and an early spring. *A Down Farmer.*

Home Correspondence.

The Cattle Melon.—As you intimate a wish for notes on the growth of this plant, I have much pleasure in contributing the results of my experience, though I fear it is but a case of want of success. A friend having given me nine seeds of Cattle Melon, I planted them singly in small mounds 6 feet apart, beneath which I had placed a little rotten manure. Only one seed came up, and as the season was so uncommonly dry, the plant was watered from time to time in the hope of securing some seed. In my single example the bine spread as much as three yards, but I have only one Melon, not so big as some Swedes and Mangels in the same field, and that is light and spongy in texture. Now the climate of Dorsetshire is quite mild, and in this case the plant was on a nice slope with a southern aspect, but the result made me feel glad that I had not a large space occupied with the Cattle Melon. We hear of from 40 to 50 tons of Melons being grown to the acre, but as I believe they contain more than 96 per cent. of water, I confess that I am not sanguine as to the future success of this crop. I can testify to the fact that sheep will readily eat Vegetable Marrows, for having had a superabundance of these this season, and some of them of large size, I have used them as sheep feed, but these have as much water, as little "proof" as the Cattle Melon. *J. B., Bradford Abbas.*——I beg to send you my experience in the cultivation of the Cattle Melon. Last April my employer procured from Mr. Blundell 50 seeds, at a cost of 2*s.* 6*d.* Enclosed with the seeds were printed instructions for sowing, &c. Now if I had followed these instructions the result would have been a plant here and there across the field, the seed being bad. The plan I took was this. The first week in May I sowed the seeds into flower-pots, and had them put into a cold frame. Out of the 50 seeds 13 came up. These I had carefully potted off singly, and every care taken of them till the first week in June. I then had a rod of ground measured off in the corner of a field, where it was good deep loamy soil, I had 10 cwt. of rotten farm-yard manure well trenched into it, to the depth of 18 inches. I then planted nine of the plants; the other four I put into an old Vine border in the gardens here, so that they might have plenty of room for the time to spread. Off the nine plants in the field I cut in September 15 fruits, the whole weighing within one pound of a hundredweight, which is at the rate of about 8 tons per acre. The four plants in the garden were rather better; the produce of them was nine fruit, weighing 1 cwt. 63¼ lb. I may add that both lots of plants had several good waterings during the dry weather, which seemed to do them a deal of good at the time. After midsummer the plants got much infested with the black aphis. After taking all things into consideration, in my opinion the Cattle Melon is a delusion and a snare, or in other words a catch-penny. *J. M'Indoe, The Gardens, Bromley Palace, Kent.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Nov.* 2, 1864.—Present, Sir E. C. Kerrison, Bart., M.P., President, in the Chair; the Earl of Powis, Lord Chesham, Lord Feversham, Lord Tredegar, Lord Walsingham, Major General the Hon. A. N. Hood, Hon. A. H. Vernon, Sir A. K. Macdonald, Bart.; Mr. Acland, Mr. Raymond Barker, Mr. Bramston, M.P.; Mr. Cantrell,

Colonel Challoner, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Lawrence, Mr. Milward, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Robert Smith, Mr. Wells, Mr. H. Wilson, Mr. Frere, Prof. Simonds and Dr. Voelcker. The following new members were elected:—

Alexander, James C., Herne Hill, Faversham.
Burroughes, Randall. Hoveton Hall, Norwich.
D'Azy, C. Benoist, 88, Rue de Grenelle, St. Germain, Paris.
Fenn, Thomas, Stonebrook House, Ludlow.
Gray, Frederick, Tarring Neville, Newhaven.
Ingham, William, Monkton Mains, Ripon.
Leigh, Joseph, Belmont Hall, Northwich.
Maple, John, Earlswood, Horley.
Musters, John, Annesley Park, Linby, Notts.
Newton, Martin, Oldfield, Altrincham, Cheshire.
Neame, Robert, Boughton Blean, Faversham.
Parr, George, Jun., Manchester.
Ruffle, John, 17, Edward Street, Portman Square, London, W.
Spencer, John, Bowood, Calne, Wilts.
Widdowson, James, Hucknell, Forkard, Nottingham.

FINANCES.—Major-General the Hon. A. N. Hood presented the Report, from which it appeared that the Secretary's receipts during the past three months had been examined by the committee and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on Oct. 31 was 2,366*l.* 6*s.* The balance sheet for the quarter ended September 30, and the statement of subscriptions and arrears, were laid upon the table; the amount of arrears then due being 1252*l.*

The Secretary, by the direction of the Committee, has recently issued a circular to those members in arrear of their subscriptions. The Committee recommend that the sum of 2000*l.*, part of 3000*l.* now on deposit with the London and Westminster Bank, be invested in the New Three per Cents. Stock. The report was adopted.

VETERINARY.—Mr. Raymond Barker presented the Report from the Governors of the Royal Veterinary College for the past year, which was read and referred to the Journal Committee. The annual grant of 200*l.* for the current year was voted to the College on the motion of Mr. Raymond Barker, seconded by Colonel Challoner.

GENERAL PLYMOUTH COMMITTEE.—Lord Feversham reported that Mr. Torr and Mr. Randell having been deputed by the Council in August last to settle with the Plymouth Executive Committee the exact boundaries of the Showyard there, have to report that on the 8th of that month they met the Chairman and other members of the said Committee at Plymouth, and exchanged with them the following memorandum:—

Royal Agricultural Society, Plymouth Meeting, 1865.

MEMORANDUM, August 18, 1864.

It is this day agreed by the Executive Committee and the undersigned Members of Council, that the land for the show yard shall be taken as shown upon the plan signed by the Chairman of the said committee and the said members of the Council, the extent being 35a. 0r. 30p.

That the fences within the said piece of land shall be removed, and the sites thereof sown with Grass seeds by the end of October next.

That the piece of land below the show yard marked A on plan, be made available as an approach to the entrances, and any necessary levelling within the showyard, as also the removal of the fences, to be done under the direction of Mr. Moore, assisted, subject to the approval of Mr. St. Aubyn, by Mr. Ash.

That the railway riding as shown upon the plan be considered as approved, and be carried out under the direction of Mr. Bush. (Signed) MASSEY LOPES,
Chairman of Executive Committee.

The plan of the Show-yard was approved, subject to such modifications as may be found necessary, the preliminary plan to be drawn on the scale of the preliminary plan at Worcester. The Committee recommend that 50 horse boxes of the strongest kind be ordered, 25 of the second kind, and that the contractors prepare a plan for improving the shedding for horses, so as to make them warmer and more comfortable than the ordinary open shed, at a cost not exceeding 2*l.* per horse, including the shedding; and also to state the cost of a rack and manger for each. The contractor would also be required to estimate the cost of boarding up the front of the cattle sheds to the height of 4 feet, and of entirely closing the ends of each shed. This report was adopted.

EDUCATION.—Mr. Holland, M.P., having moved that the Council from time to time appoint public examiners to conduct examinations in practical and scientific agriculture, on occasion of any request being made for such examiners, and complied with, the expenses to be disbursed by the Society. Mr. Acland moved the following amendment, which was seconded by Lord Feversham:—That it is desirable to obtain further information as to the institutions available for the examination or education of agriculturists before deciding in what way this Council may most effectually "take measures for the improvement of the education of those who depend upon the cultivation of the soil for their support."

On a show of hands the amendment was carried by 15 ayes to 6 noes.

The following resolution was then proposed by Mr. Acland, seconded by Lord Feversham, and carried unanimously: That the Committee on Education be instructed to endeavour to obtain such further information, and particularly to inquire into the willingness of existing examining bodies to co-operate with this Society.

PLYMOUTH MEETING.—On the motion of Mr. Milward, seconded by Lord Tredegar, Monday, July 17, 1865, was named for the opening of the Plymouth meeting.

CATTLE SHOW AT STETTIN.—The following letter was read:—

Foreign Office, October 18, 1864.

Sir,—I am directed by Earl Russell to transmit to you for the information of the President of the Royal Agricultural Society of England, the accompanying Prospectus of a Cattle Show and General Exhibition of Agricultural Produce, and also a copy of the Plan of the General Exhibition of Industry which will be simultaneously held at Stettin in the month of May next.

I have, &c. (Signed) JAMES MURRAY.

H. Hall Dare, Esq., Secretary
to the Royal Agricultural Society of England.

"In the second half of the month of May, 1865, will be held at Stettin, under the direction of the Pomeranian Agricultural Society, a General Cattle Show, as well as a General Exhibition of Agricultural, Silvicultural, and Horticultural Machines, Implements, Utensils, and Products, which will be open to Exhibitors of all countries.

"Competition will be free and prizes awarded.

"Extensive purchases will be made of all kinds of articles exhibited for the purpose of forming a Lottery; and, in so far as Exhibitors may deem it expedient, an auction of Exhibited Articles will take place.

"Free carriage of unsold Articles to the Railway Stations from which they were forwarded to the Exhibition has been secured on all the lines of the North German Railway Union, and, there are grounds for expecting, will be secured on the other German Railways also.

"No charge will be made for Exhibition Room.

"All the Machines, Implements, Utensils, and Products will be insured against fire at the Society's expense.

"A Special Prospectus will shortly be published.

"Stettin, Sept. 19th, 1864."

THE COMMITTEE.—A. v. Hagen-Promslaff, President of the Pomeranian Agricultural Society; Flügge Speck, Manorial Proprietor; v. Hellermann-Cartzin, Provincial Counsellor: Hering, Professor; v. Kuylenstjerna-Roggow, Manorial Proprietor; G. A. Toepffer, Merchant; Triest, Government Counsellor; Wartenberg, Head Ranger.

EVESHAM.—At the annual meeting of this Society, the chair was occupied by Sir J. S. PAKINGTON, M.P., G.C.B., who called attention to the subject of Leases, as one of the most important questions connected with the whole subject of agriculture. He held in his hand a series of regulations, which were adopted as the result of their deliberations, and which constituted a very well-devised code, showing how to give compensation to the outgoing tenant of a farm for unexhausted improvements made. He expressed his regret that, instead of that code of regulations, or at all events in conjunction with it, they had not recommended a system of long leases. The more he had reflected upon this subject, the more he was convinced that no system of tenant right, however well devised, would be a real and satisfactory substitute for the security given by leases. When he spoke of leases, he did not mean to speak of seven years' leases, for he believed that they would be little better than an annual holding. Now, what proportion of tenants was there in the whole county who held their land upon any security, who were not tenants from year to year, and who had no benefit from leases or tenant-right whatever? He believed they would find there was an overwhelming majority of those who held their land upon terms which he thought could not be considered satisfactory, and which he believed had not and never would conduce to a system of high cultivation. They heard it said on every side, "We are content, and do not want leases, as we have perfect confidence in our landlords." As a landowner he (Sir John) repudiated such an idea altogether. He certainly thought that confidence in a landlord was an excellent thing. But when they were talking of embarking their capital on the land, as they would do in large commercial transactions, he said, let them deal with it as they would do in commercial transactions of any kind, and instead of trusting in confidence to their landlords, to place their confidence in a written agreement, from the terms of which no landlord could depart. He had never heard but one serious objection made to the system of leases, and that was, that if a landlord let a farm on a long lease he was liable to have his farm worked out during the last two or three years of the occupancy. Well, every one knew that an enterprising farmer, with sufficient means to enter a large farm, would not work it quite on the same principles during the latter as he would do at the early part of his tenancy; but in a very large proportion of instances they would find that during the concluding years of a lease, where the farm had done well, the natural course would be that an arrangement would be entered into for a renewal. Of course that would not be the invariable rule, and cases would arise where the occupancy ceased with the expiration of the first lease. Mr. Randell was right when he said that they might have covenants introduced into their leases which would be of binding effect during the concluding years, and thus the objection, such as it was, would vanish. But was that fear of what might be done by a tenant during the concluding years of his lease the only motive which influenced the dislike to leases? He believed not. He was speaking with frankness, and he did not hesitate to express his belief that both on the part of the landlord and the tenant there were other motives at work. On the part of the tenant there was the fear, which many did not hesitate to avow, that bad times might come, that prices might fall, and that they might find themselves hampered by a farm for a great number of years, and that they would have to run the risk of being ruined. He, as a landowner, thought he should not be doing an injustice to some other landowners of England if he were to say that in some cases their objection was, that they did not like to deprive themselves of their power over the land. Well, what did those objections mean? The tenant's alarm might easily be disposed of, and, if the meeting would bear with him, he would appeal to that answer which was the result of practical experience, and which he believed to be the real fact with regard to those owners who entertained this view. On the part of the tenant, and on the part of the landowner as well, he had no hesitation in saying that their views were erroneous; and he was afraid that if they were to analyse the motives of many owners who said they did not like to part with their power over the land, and if they could dive into their minds, there would be found there lurking feelings about game and politics. He was afraid there might be some landowners who would not like what he had said, but he would tell them that they ought to come round to his views, and he believed the time would come for them to do so; at all events he considered the views held by them were short-sighted and erroneous. With regard to game in excess, he would say that he looked upon it as a money question on the part of those gentlemen who chose to indulge in it. If a gentleman was fond of game, and chose to have it to an injurious excess, he must make up his mind to two things—first, he could not expect to have good tenants; and next, a good income from his land. On the other hand, he thought the tenant-farmers as a body would not object to anything like moderation in game, which every owner of land had a right to enjoy without injury to others. He must frankly say, that still less did he think it worth the while of any man to subject his estate to an erroneous course of cultivation in order to maintain a large quantity of game; and much less was it right, on the ground of politics, for a man to make a lease of his estate, because at some election some Tory owner might coerce a Radical tenant, or some Radical landlord a Tory tenant.

Sir John then alluded to a pamphlet recently published, which he said was well worth the study of every agriculturist in England, with the exception of Mr. Holland, for he was one of those far-seeing men whose tenants had leases. The pamphlet was by Mr. Sanderson, a very eminent land agent, who delivered an address before the Oxford Farmers' Club, and at whose request it had been published. He had taken from it two or three extracts, which bore mainly upon the question whether it was for the interest of the landlord or the tenant to give long leases of a farm. The first fact he would mention was an agreeable one. In the south of Scotland, where long leases were granted, rents had risen during the last 35 years upwards of 37 per cent., but in England, where yearly tenancy prevailed, they had, during the same period, not risen 20. He would mention another case in the north of England, where farms were large and rents were high; it impressed his attention at the time he read it, and he hoped it would go forth through the usual channels to the public. Mr. Gray, of Dilstone, who was a very eminent man, a man of great experience, informed the Hexham Farmers' Club that he had two farms to let in 1856, and he offered them for competition by tender. For one of those farms, which was a large one, he had 2000*l.* rent per annum, and it was his (Mr. Gray's) proposal to those who wished to take it that it should be let under a lease for 15 or 21 years. He received a great many tenders, but there were only three who tendered for the short period of 15 years, and those three also tendered for the 21 years. Each made two tenders, and the first one offered for the farm under the 15 years' lease the sum of 1630*l.* per annum, and for the 21 years, 1760*l.*; the second offered for the 15 years' lease the sum of 1620*l.* per annum, and for the 21 years, 1730*l.*; and the third tender for the 15 years was 1400*l.*, and for the 21 years, 1626*l.* This was a fact which spoke for itself. No doubt the farmers who tendered were men of ability, men competent to deal properly with a large holding, and, as would be seen, there were differences in the first instance between the 15 and the 21 years' leases of 130*l.*, in the second of 110*l.*, and in the third of 226*l.*, *i.e.*, that the third man who tendered offered 226*l.* more for the farm under the 21 years' lease than he did under the 15 years. He thought this was a sufficient answer to the landowner, who said that he did not like to part with his power over the land. Was there anything that a landowner could set up in the right he enjoyed against those increased sums of additional income? They knew that such men would effect an improvement in the farms they held, and that improvement would bring increased rentals. Mr. Sanderson used these words:—"Sooner would such farmers give up their calling than change from a lease to annual tenure."

Sir John then called attention to the evidence given before Mr. Pusey's committee of the House of Commons on the "Tenant Right Bill." One of the most intelligent farmers in this country, in giving evidence as to his own parish, said there were 27 farms, six of which were held by owners, three were let on lease, and 18 were yearly holdings. Those held under security formed one-fourth of the parish, the others were the remaining three-fourths, and the witness said that there was as much stock kept up on the one-fourth as upon the remaining three-fourths. There was double the amount of stock fatted off the one-fourth, and there was 50 per cent. more labour employed on that one-fourth, with one-third more grain produced on it per acre, than upon the three-fourths. This was a tenant-farmer's view of the question. Great changes in farming could not be brought about in one year; they required time. They must first of all impress the minds of all concerned with the real importance of the points to be observed, then they must make the tenant fit for the occupation of a farm, and impress upon him the habits to be observed; and he (Sir John) thought that all such public occasions as the present, when all persons connected with agriculture could meet together to consider what best could be done with the land, were most valuable.

Mr. HOLLAND said—Upon the subject of the advancement of agriculture the right hon. baronet had in so liberal and ample a manner, so clearly, so distinctly, and so eloquently placed before them the present position of landlord and tenant, and the causes on the

part of each which prevented that advancement which they so much desired, that he (Mr. Holland) would not dwell long upon that question, but would make one general remark—that agriculturists, like those connected with any other great industrial process, had to wait for great changes; more particularly from that cause to which Sir John had alluded—that they lived separate and apart, and could not exchange their ideas without meeting together in Societies like that. He (Mr. Holland) might be wrong, but, taking the whole of England into consideration, his impression was that the objection on the part of the tenant to the lease was because he had not sufficient capital—(A voice: "That's it")—for capital was required to farm at the high pitch which was requisite to secure success at the present day. It might not be the case in all places, but there was a great deal of truth in what he had said. They found that it was better for a large amount of capital to be expended upon a fewer number of acres of land than for a small amount upon a larger number. He was sure that no one wished to hurt the small men, but, taking any branch of trade, what had been their history? They could not compete for any length of time with the large men. Many would remember the struggle which existed between the hand-loom and the power-loom weavers, but such things, such changes, could not be helped. It was the very nature of civilisation to improve, invent, and introduce machinery for the purpose of making an article which was sufficient to meet the increasing wants of an increasing population, and to allow people to have it cheaper. Then, if they went to their fields they would see steam smashing up the land, and doing that in a day which would formerly have occupied a week. By machinery they managed to counteract the change of seasons, so that in the present state of things it would be very difficult for the small farmer, with his small plough, to keep pace with the large farmer and his steam plough. Year by year the erection of houses, the construction of railways, and so forth, took away large quantities of land which used to be employed in growing food for the million, and hence, with a restricted breadth of land to cultivate, it was evident their utmost power would have to be exerted to make that which they had produced sufficient to meet the requirements of the population. He thought they were doing their utmost in this respect in the locality to which they belonged.

Mr. RANDELL said a vein of feeling ran through the right hon. baronet's speech, that the committee proposed tenant right as a substitute for leases. It was not so. (Sir John—Then I misunderstood you.) They had found that the question had not made so much way as they could have wished it to do, and that something more was required. They felt that something should be engrafted upon leases in the shape of compensation, for they all knew that when a man entered upon a farm the first two or three years were occupied in undoing that which his predecessor had done, in making improvements, and in putting the farm into proper order. That which they proposed was, such a code of regulations as would make it the interest of the outgoing tenant to farm the land to the end of his tenancy with the same skill and care that he had observed under the earlier part of his lease. It would then be to the benefit of a farmer to leave the land in a high state of cultivation rather than in a state which would be injurious to his successor.

Farmers' Clubs.

TRING.—At the recent agricultural meeting here, Mr. W. LONGMAN proposed "Prosperity to the Tring Agricultural Association," and congratulated them on the 23 years of success which the Society had experienced. A friend of his had recently told him that he was about to cut his fifth crop of Italian Rye-grass this season, by the aid of irrigation and sewage manure. Until within the last 30 years no one regarded town manure, it was considered worthless, and was poured into the rivers to pollute the waters and poison the fish; and even now we disregard the value of sewage, while we go thousands of miles to fetch manures, and let that which is at our own doors be wasted. He believed that next session measures would be brought forward for a general utilisation of town sewage, and that a gentleman would be entrusted to carry out the plans who had recently been making experiments with the sewage of a town containing a population of 1000 persons.

Mr. ABEL SMITH said: the great object of a farmer necessarily is to increase his produce and to decrease the cost of production; to give up those portions of his system of management which seem to have become unprofitable, and to take advantage of the best information which the Royal Agricultural Society offers, and which is so essential in a season like the present. It is evident that farmers must increase their stock: they cannot depend only on corn at the present prices; they must increase their stock—especially in sheep; for the consumption of meat has very much increased of late years, owing to the general prosperity of the country. I see by the statistics in the Royal Agricultural Society's Journal, that in the 10 years ending 1863 the price of beef has increased 20 per cent. and that of mutton 30 per cent. Gentlemen who have increased their stock have found their interest in so doing, and this is one way to remedy low prices. There is, however, great difficulty in doing this on heavy land farms: but I hope that steam cultivation will help them. There has been a great increase in steam cultivation. At the Royal Society's meeting at Newcastle in 1846 only one steam cultivator was exhibited, but about two years ago there were 135 steam engines, ploughs, and cultivators of different kinds. This shows how fast the system is increasing; and I hope it will keep on improving.

Mr. BROWN then read the report of the judges who had inspected the farms to award the prizes for best cultivation.

CLASS I. *Mr. Southernwood, Tring Grove.*—The farm is nearly 400 acres: arable, 300; grazing, 100. On this farm we find the crops as follows, viz.:—Wheat, 67 acres; Barley, 64 acres; Oats, 18 acres; Beans and Peas, 27 acres; Clover, 45 acres, 21 acres of which are fed off, 24 acres mown; Turnips, 53 acres; Mangel, 7½ acres; and Tares, 7 acres. As we find here that a regular course of cropping is not adhered to, we are unable to classify them; but having great facilities for manure by canal from London, are pleased to say we found all the crops exceedingly good, the Wheat so much so that we had great difficulty in riding through them: the Swedes are very good for the season; Mangel Wurzel very good indeed; the whole of the arable land being perfectly clean, and in an excellent state of cultivation. The grazing land, part of which is mown, the remainder being grazed by fattening bullocks, which have a little cake, and afterwards put in the yards and fed on flour, cake, &c. The sheep stock consists of 155 breeding ewes and 200 tegs, the latter we find at Turnips, having cake and corn. The whole of the stock we consider extremely well managed. The fences generally we find in good order, with the exception of a few old ones which are nearly worn out. The gates are in excellent repair. The stack-yard is well filled, a considerable quantity of old Wheat still remaining: ricks are well thatched and all very creditable. We consider him fully entitled to the 1st prize.

Mr. Underwood, Home Farm, Little Gaddesden.—Farm, 422 acres: arable, 234; pasture, 188 acres. This farm seems to be managed on the four course system. 1st, roots; 2d, Barley; 3d, Swedes, Beans, and Peas; 4th, Wheat. We find the crops as follows:—Wheat, 34 acres; Barley, 48 acres; Oats, 34 acres; Peas and Beans, 42 acres; all of which we consider good and clean considering the nature of the soil. Swedes, 49 acres, which are well managed, very clean, and a good crop for the season; seeds, 27 acres, part mown and part grazed. On this farm we find a large number of stock kept, viz.: cows and young cattle, 111; breeding and store sheep, 908; horses, 36; pigs, 56, which is more than this farm can carry for the year. A large quantity of corn is consumed, consequently being of great benefit to the land, likewise keeping the stock in excellent condition. The fences and gates are all in excellent order. The stackyard is well filled; the stacks creditably built and neatly thatched. We, therefore, consider him entitled to the 2d prize.

CLASS II. *Mr. T. Mead, Gubblecote.*—Extent of farm, 120 acres. Arable, 106 acres; grazing, 14 acres.—The system pursued on this farm is the four-course, viz.:—1st, roots: highly manured, very clean; Mangel Wurzel an excellent crop, Swedes and Turnips nearly a failure. 2d, Barley; 3d, seeds, Beans, or Peas; 4th, Wheat—all of which were very good, and remarkably clean. From this farm part of the straw is sent to the London market, in lieu of which a large quantity of London manure is returned: consequently, we found the farm in a high state of cultivation. There is also a large number of stock in proportion to the size of the farm, viz., 117 very good breeding ewes, 60 lambhogs, 9 cows, with a large number of excellent pigs fattening. The fences and gates are good, and in capital order. The stack yard is very neat, and well filled. The buildings also in good repair. We therefore award him the 1st prize.

Mr. J. K. Fowler, Prebendal Farm, Aylesbury.—Extent of farm, 195 acres; arable, 103; pasture, 92. We are not sure of a regular system of cropping being here carried out, and will therefore give the following, viz.:—Wheat, 35 acres; Barley, 20 acres; Beans, 15 acres; Clover, 15 acres; roots, 18 acres. The corn crops were all good, with the exception of a few acres of Wheat, which contained some Couch Grass and Charlock. The Swedes a fair crop for the season; Mangel Wurzel very good. The farm being close to Aylesbury, allowing great facilities for manure, we find the land as a whole in a high state of cultivation. Steam culture is here carried on, which we consider a great advantage. There are a number of cattle kept. Cattle, 37; grazing colts, 6; breeding ewes, 50 in winter, and in summer 60 wethers fed off. Gates and fences all in excellent repair. The stacks all carefully built, and neatly thatched. On the whole, we consider him a spirited farmer, and entitled to the 2d prize.

There are two or three farms which we might commend, and some highly, but have been advised—and think justly so—not to mention names, as it might deter others from coming forward in future years.

Mr. HAWKINS, of Pitstone, proposed "the healths of the judges of the land."

Mr. DOIG said: He believed the judges had done their duty to the best of their ability. They had been over about 3000 acres. He had examined every field, and every fence, and every gate; this was done in July, a busy time of the year, and they would agree with him that the judges had done a great deal. He thought it requisite to say something respecting the amount of stock on Mr. Underwood's farm. He found a greater number of stock on the farm than the land was qualified to hold; but it was not the large number of stock that gained the prize, it was entirely the general management, and he was fairly entitled to the prize he had received. He begged to make a remark or two on what had fallen from preceding speakers. They had been told not to expect prices for Wheat to be much higher; and if so, they had but a poor prospect before them. He agreed that they should strain every nerve to increase their flocks; but still they could not do without Wheat; and what were they to do if these prices lasted? There was a time when 70*s.* was considered only about a paying price; now, the price is 36*s.* and 38*s.*; and he would tell the landed proprietors that if that is to be the order of the day, the farmers must turn their attention to something else. It is all very well to say you must have more stock; but the question is, How are we to keep what we have got? I am no alarmist, but I tell you that I dread the coming winter. We have been told that this is a golden year. We grow our crops, Turnips, Swedes, Mangels, and Clover, but the fields are nearly all a failure; and with Wheat at 36*s.* to 38*s.* per quarter, I say we have a gloomy prospect before us. Now a word as to steam. One of the competitors has steam apparatus, but he is not the best farmer in the neighbourhood. Steam is a great improvement for a large occupier, but where one can do with it, hundreds will do better without it; you can't do much with it in small fields; and I was very much pleased to-day to see the ploughing so admirably done. I thank you cordially for the honour done us, and hope if we are spared to next year we shall see a greater competition for good cultivated farms. A gentleman has said to-night "I think I shall try myself next year," and all this tends to good, and to improved management. It is not only a question of a good beast, or a few good roots; but when the farm as a whole has to be taken into consideration, it is important that a right decision should be arrived at. Mr. Southernwood has obtained a purse of 50 guineas for the best farm in a well-cultivated district, and I have seldom seen a better cultivated farm, and I say it is an honour to agriculture for Mr. Southernwood to have obtained such an elegant prize. I say you cannot offer a better prize than that for the best cultivated farm, and I trust no landlord here, or about here, will take advantage of his tenants to raise their rents if they compete for the best cultivated farm. I am sorry to say such has been the case in our neighbourhood, where a farmer, who competed for a similar prize, has had his rent raised 25 per cent. Mr. D. again thanked the company for the honour done to the judges, and sat down amidst much applause.

Mr. BUTCHER said: a tenant of mine has taken the first prize for a good cultivated farm, and he need not fear any advance in his rent. I believe he has the farm at his own price; and if it is too dear, he has only to say so. I sincerely congratulate Mr. Southernwood, and it gives me great pleasure to think that he has taken such a prize. I consider I ought to be proud of having such a tenant. I consider a good tenant deserves a good landlord.

R. BRIGHT, Esq., proposed the health of the successful candidates for the special prizes. He said it was always considered that luck went a good way in the obtaining of prizes, but the class of prizes he had to allude to was one in which luck had no place at all, for it was the prizes for good cultivation. There were two classes of farmers, one under the old system and one under the new, and which some persons hoped would one day supplant everything else. He considered Mr. Southernwood as good a specimen of a farmer of the old system as could possibly be; but yesterday he saw Mr. Fowler's steam plough at work, and trusted the question of steam *versus* horse ploughing was an open question which would be discussed this evening. Whatever the merits of the steam plough might be, it had not gained the 1st prize for Mr. Fowler. He should be glad to hear from Mr. Fowler what he thought of the application of steam culture to the soils about Tring, for there were no chalky hills on his (Mr. F.'s) holding. He should also be glad to hear something of the economical working of the system.

Mr. FOWLER said the prize he had gained was the first result of the new system of farming he had adopted, and he should be glad if every one in the room would follow his example and profit by the experience he had acquired. Steam cultivation had led to his success to-day. He had succeeded entirely through using the steam plough. ("What's the cost per acre?") He was only a small farmer himself, and if it answered for him it would do so for other small farmers also. The cost of steam cultivation on his farm did not exceed 9*s.* per acre, and it would break up nine to ten acres daily. He was certain it was a most desirable thing to introduce; it broke up the land, fetched new soil to daylight, and almost made the farm a new one. He considered it a great honour to Buckinghamshire that a man of that county, Mr. Smith, of Woolston, should have introduced the steam cultivator, and progressed in spite of opposition and prejudice. He had been followed by Howard, Fowler, and others, and he hoped the system would soon become general. He had gone over 130 acres twice in 50 days, equal to 260 acres, at a cost of 50*s.* per day, including all cost of men and teams. He considered that he took the prize on account of his root crops chiefly, and that said something for Mr. Smith's plan. He believed that the steam cultivation was as well adapted for the farms about this locality as for any large farms in the north of England. ("How about the chalk hills?") He believed the cultivator was better adapted for the hills than for level land. If ploughing is done by the old-fashioned system on a hill side, the horses have to pull up a plough when they have often enough to do to get themselves up, so there is a loss of power which is important. But the steam engine is fixed and has only the implement to draw, and the extra power required to draw the ploughs up hill is almost imperceptible. He thanked them for listening to his remarks, and hoped they might long meet to compete together in a friendly spirit, and if he was spared in health and strength he hoped before many years to let them see on his farm that steam cultivation would triumph over everything else.

In reply to the toast of the judges, Mr. WOODMAN

returned thanks as the judge of thatching, and said he thought the price for the work ought to be fixed. One shilling per square was enough, and the prize ought to be awarded to the best work at that price. He wished to say one word with respect to the best managed farm. The farm in the highest condition is not always either the best managed or the best cultivated: the decision required great care, and he suggested that this should be taken into consideration. Then there had been something said about keeping more stock and growing less corn. It was an old saying that they must not look to the barn door for everything: and they did not wish to look to it any more than they were obliged; but in a season such as this, he should like to know where else they could look to, except to the barn door? He did not believe all the stock kept in the county of Hertford for the last seven years—cattle, pigs, and sheep, had paid 1*d.* profit on the cost of their keep, beyond the manure they had put on the land: there was nothing left beyond: and if they were to try and keep more stock this winter, he should like to know how they were to be fed? And then as to the land, before he got 1*d.* for himself he must make every acre of land produce him 7*l.* 10*s.* at least, and if it is Wheat, 8*l.* 10*s.*; but let them look at the Clover and say what chance there was of getting either 7*l.* 10*s.* or 8*l.* 10*s.* from that?—He thought the extra prizes awarded to-day would have a good effect on farming generally, but they could not make good crops when the seasons were against them, nor ensure their paying prices.

Mr. Mann, one of the judges for roots, next spoke. He alluded to Mr. Disraeli's advice as to crossing the Cotswolds and Downs, and said it was nothing new to many farmers in his locality, and the South Bucks farmers were not behind their time.

Mr. Valpy proposed Mr. Dawes, treasurer, and Mr. Brown, secretary to the Tring Agricultural Society.

Mr. Brown returned his sincere thanks for the honour done him in drinking his health after 23 years' service. He had hoped that with reference to a hint he threw out earlier in the evening, some observations would have been made on the question of how to feed cattle during the coming winter, which he knew must with many farmers be a difficult problem to solve. Mr. Longman had alluded to the question of utilisation of sewage. That was a question which cost him not only some time, for he had paid great attention to it, especially with regard to the sewage of London; but it had also cost him some money. He was guided by the late Mr. Smith of Deanston, in taking shares in the Metropolitan Sewage Company for the drainage of London, by which he had been a heavy loser; but still he had no doubt that ultimately the matter would be brought to bear, and the sewage profitably disposed of. There was no question but that it would be of immense benefit to the farmer, but then there was this question—how can it be got to him so that he can obtain it sufficiently low as to use it with profit? and in what shape can he have it, without its being deprived of its most valuable properties? All this deserved the attention of experienced scientific men, but hitherto little or nothing had been done in the way of attempting to utilise the sewage. All efforts hitherto had been merely those connected with draining and what was called purifying the towns. The sewage is drained off, dried, and got rid of. He hoped the question would be satisfactorily settled before long. The Metropolitan Board had done nothing at present towards making the sewage useful for the land; all their efforts hitherto had been directed to getting it away from London; but to get sewage out of the way was only half doing the thing. But the manure was wanted back on the land, and the country couldn't go on much longer wasting our best natural manures by sending the refuse of towns into rivers. What has happened in London will happen by-and-by to other places; the sewage must be got rid of; and the true value of sewage manure will force itself on public attention. The great point to ascertain is, how far the essential and soluble portions can be retained for agricultural purposes, and the other portions also made serviceable without dilution. He hoped that light would be thrown on the subject before long; it was one of the greatest importance; and the man who could render town-manure available for the land would be one of the greatest benefactors to his country. He thanked them all for the recognition of the services of Mr. Dawes and himself, and he felt especially gratified by the very flattering manner in which the toast had been introduced to their notice.

Mr. D. Griffin (one of the judges of root crops) said he wished to make a few remarks on the cultivation of farms. The judges had been over several farms to judge of the roots, and Mr. Taylor's farm was the best cultivated of any he had seen this year, or he might say that he had ever been over; but he had not got the prize, and never would so long as his farm had to feed such a number of hares and rabbits. He would never farm land himself to be eaten up with hares and rabbits in that way, because, do what a man might, it would beat him out of the field. As for rabbits, he didn't call them game, he called them vermin. Hares were bad enough, and there were more on many farms than he liked to see; but he never would try to farm against rabbits; the best farmer couldn't stand against them. He never remembered seeing any roots (we are not sure as to the number of acres that Mr. Griffin stated) so well cultivated as those of Mr. Taylor's (of Studham). But he would never get a prize so long as he was eaten up in that way, by his land being infested with vermin—for he could not help calling them so. He considered rabbits next to rats, the greatest curse a farmer could have. The landlords must do away with the rabbits, or the tenant farmers couldn't continue to farm their lands; and he considered it a shame that all the reward Mr. Taylor got for his good cultivation, was simply compliment, because the hares and rabbits on his farm prevented him getting the prize; and it was them and nothing else that did prevent him. *Herts Guardian.*

Wokingham.—At the recent annual meeting of this association, Mr. Walter said:—They all knew that they had great reason to be thankful for the unprecedented summer they had all enjoyed; even the youngest among them could not venture to hope to live to see the like again. Not only had it been a season of great enjoyment, but a season of more than an average fertility and prosperity. They had had a fine average crop of Wheat and Barley, and though Oats in many places were scanty, yet in some parishes there was a fair yield. It was true the root crops were small, and some farmers did not know what was to become of their stock next winter; but there was one very remarkable circumstance from which he had been able to learn, he believed, that there never had been a period in which stock had been in so healthy a condition. This was not only the case with sheep and stock of every kind but he was told the other day, during a day's walk with the Deputy-Surveyor of Windsor Forest, that he never recollected such a season for the deer; the herd of deer had never been so healthy, notwithstanding the apparent want of Grass. His gallant friend on the right had made some striking remarks about the wonderful improvement that had taken place in his profession during his lifetime, and every farmer must admit that great improvements had taken place in his walk of life. Agriculture had exhibited wonderful improvements during the last half-century, and when they met for these annual ploughing matches, and saw more or less favourable specimens of horse labour and the old-fashioned style of ploughing, they must look forward to the time when they would not be content with this alone, but demand to see exhibitions of steam ploughing. He could bear witness himself to the great merits of that invention, and the extraordinary effects it produced on the cultivation of land. No doubt a few years hence, instead of seeing rows of horses and men ploughing, they would see rows of steam ploughs, especially when they had such fine open fields for such a display as they had had that day. Recollect it was only a few years ago since threshing machines were introduced, and they had witnessed the great benefits arising from them. Some sentimental farmers might regret these changes; they might like to see the teams doing their work; no doubt it was a beautiful subject for a picture; but the time would come when practical considerations would take effect, when a great portion of that unnecessary labour would be done away with, and steam ploughing play its part in the cultivation of the land. He was much struck the other day, while looking over a curious book written by Cobbett 40 years ago, to meet with a passage having reference to that particular neighbourhood, and which served to illustrate how differently people looked at things at that period. Well, Cobbett thus wrote:—

"On leaving Oakingham for London you get upon what is called Windsor Forest—that is to say, upon as bleak, as barren, and as villainous a heath as ever man set his eyes on. However, here are new inclosures without end, and here are houses too, here and there, over the whole of this execrable tract of country. . . . At the end of this blackguard heath you come to a little place called Sunning Hill, which is on the western side of Windsor Park. It is a spot all made into grounds and gardens by tax-eaters. . . . . Considering the miserable soil I have passed over to-day (*i. e.*, from Burghclere westwards), I am rather surprised to find Oakingham so decent a town. It has a very handsome market-place, and is by no means an ugly country town."

They would admit that was not a very flattering description of the tract of country between there and Windsor 40 years ago. Since that time such changes had taken place as would entitle that tract of country to a very different description. He quoted that passage as showing how very differently a country would look, if it had been properly attended to and improved, after a lapse of 40 years. Mr. Disraeli seemed to think landlords wanted a great deal of encouragement, and that the landlord who built cottages ought to have a blue riband. He hoped Mr. Disraeli would succeed in getting a blue riband for so excellent an achievement. He (Mr. Walter) did not aspire to such a distinction. Some few years ago he offered a prize (which he hoped his friend Mr. Benyon was going to compete for) for the best number of new cottages in a particular district, but he had had no response to the appeal. They might depend upon it there was nothing like a good cottage to keep a good servant, and those who built them would get the best. It was not a cheap process; it would not pay as a matter of pounds, shillings, and pence, probably; but it would pay in the improved respectability, decency, and health of the labouring classes. There was another topic upon which the same distinguished speaker dwelt at the same meeting, and which was of a more purely agricultural character, and he (Mr. Walter) mentioned it by way of drawing attention to it, and eliciting opinions confirmatory or the reverse of its utility. For his own part, he confessed he had doubts upon the subject. Mr. Disraeli said he was very much struck by the want of improvement in the breed of sheep in Buckingham, and was surprised they did not cross with some of the Gloucestershire and Leicestershire breeds in order to produce long instead of short wool, as the former realised such high prices. Now he (Mr. Walter) thought the more they improved their wool, the more they were likely to deteriorate the quality of their mutton; they could not have it both ways, and he for one should not feel disposed to adopt the suggestion.

Farm Memoranda.

Mr. Lawes's Farm at Rothamsted.—The readers of the elaborate papers in which the results of the Rothamsted experiments are recorded can have no adequate conception of the exact and laborious system by which those results are obtained.

The experimental farm and laboratories are conducted on a scale that gives them rather more the character of a public institution than that of a private undertaking. About 50 acres of arable land and 6 acres of pasture are devoted entirely to the purpose of successive experiments on various crops. The results of these investigations find a sufficient record in the series of able and exhaustive papers published in this Journal. We will, therefore, confine our attention to a survey of the system of management adopted on this demesne farm of a Hertfordshire landowner, who possesses in an eminent degree the practical qualities requisite to make such an undertaking successful.

The home farm consists of about 450 acres, including 94 of park. The soil is a strong loam on a clay subsoil resting on chalk at a depth of about 12 feet, and sufficiently dry without artificial drainage. Chalking has been here practised by the method already described.

One or two fields were drained, with the idea that they might be sufficiently altered in texture to admit of their being folded by sheep in winter without injury to the land. The result, however, only confirmed Mr. Lawes in the opinion that on such strong soils Barley after winter folding is an unsafe crop, owing to the mechanical condition of the land, which is not corrected even by the frost.

"Barley," to quote Mr. Lawes, "will generally succeed better on this land after Wheat than after roots, provided it receives a proper application of artificial manure." The artificial manures for corn-crops are sown and harrowed in with the seed, and top-dressings are avoided as far as possible.

So wide an interest is felt in this well-known farm that a detailed summary of its cropping may be of service.

Number of Acres in Various Crops in each of the 14 Years.

Years.	Wheat.	Barley.	Oats.	Beans.	Roots and Tares.	Clover and Grasses.	Total.
							acres.
1850	73	..	..	..	97	75	245
1851	172	50	..	..	14	9	245
1852	23	108	5	..	63	46	245
1853	38	72	39	..	58	38	245
1854	95	63	..	14	33	40	245
1855	131	10	28	14	44	18	245
1856	42	25	82	..	52	56	237*
1857	56	32	32	5	66	46	237
1858	68	30	75	14	32	18	237
1859	42	33	66	..	46	50	237
1860	50	14	74	6	56	37	237
1861	43	..	86	..	52	56	237
1862	74	9	72	5	47	30	237
1863	43	36	72	..	34	52	237
	950	482	631	58	691	551	3366

The following is a summary of the number of acres in corn, in Beans, and in green crops in each of the 14 years:—

Summary of Cropping.

Date.	Corn Crops.	Beans.	Green Crops.	Total.
				acres.
1850	73	..	172	245
1851	222	..	23	..
1852	136	..	109	..
1853	149	..	96	..
1854	153	14	73	..
1855	169	14	62	..
1856	149	..	88	237
1857	120	5	112	..
1858	173	14	50	..
1859	141	..	96	..
1860	138	6	93	..
1861	129	..	108	..
1862	155	5	77	..
1863	151	..	86	..
	2063	58	1245	3366

The average yearly acreage of each crop has been:—Corn, $147\frac{5}{14}$; Beans, $4\frac{1}{7}$; green crops, $88\frac{13}{14}$.

An excess of horse-power is necessarily kept for occasional work connected with the estate and the experimental lands, giving a reserve force which can be concentrated on the farm when needed. Without this reserve, or that of steam, the above system of cropping would not be practicable. The fallows for roots are broken up in the autumn, with three or four

* Eight acres appropriated in 1856 to experimental purposes.

horses, to a depth of 9 or 10 inches; ploughed backh spring, then twice across, and bouted in 27-inch ridges. Swedes get 12 tons of dung per acre, and Mangel about 25 tons of dung; of which, part is applief in autumn, and the remainder in spring. 2 cwt. o guano are sown on the dung, and 2 cwt. of superphosphate drilled with the seed. Mangels are drilled the last week in April, Swedes the first week in June. They are horse-hoed, and cultivated in the usual way in all respects. The crop of Swedes averages 15 tons; of Mangels, 30 tons per acre. Both are commonly drawn off the land. Salt has on this land proved even injurious as a manure for Mangel. We saw a field just previous to storing (1863) where a trial of different weights of salt has been given at rates varying from 5 to 10 cwt. per acre, and in every instance the leaves looked yellow and the roots were smaller than when the salt was omitted, and the injurious effect was greater in proportion to the quantity of salt given. Wheat usually follows the roots after a 5-inch furrow, 2 bushels of seed per acre. Browick and Rostock (red varieties) are drilled in 9-inch rows from the first week in October till the end; average crop, 35 bushels per acre.

Chevalier Barley usually follows Wheat, or other corn, and proves of better quality than when grown after roots. The land is ploughed once with a 6-inch furrow, usually in December, and 2½ bushels of seed per acre are drilled, in 7-inch rows, in February or March; 2 cwt. of guano and 1 cwt. of superphosphate is the usual dressing. The crop averages 6 quarters per acre.

Tartarian Oats are drilled after corn, 7 inches apart, with once ploughing; 4 bushels of seed per acre, 2 cwt. of guano, and about 1 cwt. of sulphate of ammonia. Red and Canadian Oats are drilled after roots; 3 to 4 bushels of seed per acre, with 2 cwt. of guano. The Tartarian are sown in February, and the average crop is 10 quarters per acre. The red Oats average 8 to 10 quarters; and the Canadian, which are the last sown, 6 to 9 quarters.

All the corn crops are rolled in spring; they are kept clean without hoeing.

A good deal of straw is used for the estate and to thatch the little stacks on the experimental plots; some is sold.

A flock of 200 Southdown ewes is kept on the Grass-land, or on Clover with Mangel, and during the winter is brought into well-littered yards for the night. The details of management are the same as on any other well-managed heavy-land farms.

At present there is no indication of diminution in the productive power of the land. Corn undoubtedly bears frequent repetition on the same land better than roots, even if they be folded on the ground. Of this we saw a marked instance near Rothamsted. By grubbing up a fence some ill-farmed land, which had not been in roots for many years, was added to one of the fields cropped with Turnips in the usual rotation. The whole field, similarly treated as to manure and tillage, was sown with Swedes, and these, though healthy throughout, were more vigorous in growth and proved a heavier crop on the new land.

The practical lesson taught by this branch of Rothamsted farming is, that on strong land corn crops are more profitable than green crops; and that they may be repeated on such land for a series of years, without the usual intervention of fallow crops, with no apparent decrease in the productive power of the land. To carry out this system two conditions are essential,—a reserve of mechanical power on the farm, and a proper use of artificial manures. Mr. Lawes has endorsed his opinion and practice by letting a farm of 400 acres for 21 years without restrictions as to cropping. *Journal of the Royal Agricultural Society.*

Miscellaneous.

Sowing Grass Seeds.—I quite agree with Mr. Sutton's remarks, contained in the *Times*, on the sowing of Grass seeds for permanent pasture, and as to the advantage of sowing these without a crop; but as to the Grasses Mr. Sutton recommends, I am only afraid that the long and formidable array of botanical names enumerated, looking so very mysterious to many of our practical farmers, are enough to frighten them from "going into" the mixture. I find there are in all 21 Grasses and Clovers; six of the former are varieties of Fescue Grass. Now, my experience leads me to believe in only two sorts of Fescue worth distinguishing for agricultural purposes; these are the Meadow and the Hard. The Sheep's Fescue I consider, from its dwarf, tufty, and wiry growth, combined with its small narrow foliage, and consequent smallness of produce, to be of little use as a pasture Grass. The same objections may be made to the fine-leaved variety. The Red or Creeping Fescue is of little use to the agriculturist generally, but may be used to advantage on light lands. Perennial Rye-grass and the Clovers are, in my humble opinion, the groundwork of all pasture; but in this mixture I find only 7 lb. per acre allowed; this quantity consisting of three varieties—viz., Suttonii (no doubt a local name), Paceyanum (well known as Pacey's Rye-grass, a variety specially adapted for pasture from its permanent character and from the abundance of leaves which it produces), and Evergreen (a variety better suited for lawns than pasture, as, though it does not yield such a bulky crop as the Pacey's and some others, it retains its verdure longer than others). Then, again, I find Trifolium repens (white or Dutch Clover), and Trifolium repens perenne. May I ask where the difference lies? White Clover, whether saved in this country or on the continent, is a perennial; but I certainly give the preference to English-saved seed, for the produce will naturally be hardier and of a more robust constitution than seed saved in a warm climate, such as Germany. In these days, when stock of all kinds is bringing such high prices, and the growth of wool is of so much importance to the farmer, it would be well if those who have had experience in sowing down land for permanent pasture would state their experience. Cocksfoot, I find, is a coarse growing Grass, and cannot be too closely eaten down. It grows on a variety of soils, is one of the earliest Grasses, yields abundant produce, and on this account I give it a prominent place in my mixture. I prefer the month of April as being the safest month to sow without a crop. When sowing is deferred till August I would recommend a heavy roller to be put over the field before frost set in, so as to firm the Clover plants in the ground, and prevent them from being thrown out by the winter's frost. This may again be repeated in the spring. For the last 14 years I have been connected with the sowing down of many hundreds of acres with Grasses for permanent pasture, both with and without a crop; therefore I take the liberty of sending you these jottings, with the mixture I have been using without a crop for several years past, and which I find succeeds well on any common Barley land:—20 lb. Perennial Rye-grass, 4 lb. Italian Rye-grass, 4 lb. Cocksfoot, 2 lb. Timothy, 2 lb. Crested Dogstail, 2 lb. Rough-stalked Meadow-grass, 4 lb. White Clover, 3 lb. Alsike, 3 lb. Yellow, and 2 lb. Cow-grass. We prefer Perennial Rye-grass weighing from 26 lb. to 28 lb. per bushel to that of a lighter weight, and from the second year's crop, as being surer of being the true Perennial. The above mixture would cost about 25*s.* per acre. *W. M., in the Times.*

Calendar of Operations.

MERSE OF BERWICKSHIRE: *Oct.* 29.—At last we have got a soaking, enough and to spare. After our harvest the drought resumed as severe as ever; the land was firm as a road under the manure cart, and it took three horses to turn a good stubble furrow. But, on the 19th, 2 inches of rain moistened the land nicely through, and 3° of frost on the 21st showed thin ice on the pools. Next day it set in to rain from N.E., and has scarce been fair since. Last night the streams were higher than has been known for many a year, bringing down lots of Turnips; and the hollows are pools or lakes. The rainfall of these 11 days is just 8 inches, being as much as fell during 5½ months preceding. Those who bought cattle at Newcastle on Wednesday would make a bad beginning; but we believe most of the cattle already in hand were housed, or had housing ready for them, when the weather broke. We fear, however, that little has been done in the way of storing Turnips, and none but the lightest soils can be approached for many days to come. It has been a bad week for sheep. Of course they have got their Turnips laid down in Grass fields, and it has often been very difficult to wade for the needed supply. These rains have come not a day too soon to save the root crop, which, even on the deepest soils, was beginning to show signs of mildew. The temperature being mild, we may count upon a considerable increase in Swedes; and they may be a good crop, if we have fitting weather to store them by-and-by. Of the yield of corn little can yet be said, unless unfavourable; but it is astonishing to see how little of fine quality is shown in our bulk market. The wind got his share, and he likes the best. *J. T.*

Notices to Correspondents.

APPLE REFUSE: *A Young Farmer.* Apple "must" may be rammed into a heap in any walled corner, and it will keep very well for use during winter. Give it with any wash to the pigs, as you would 'grains.'

CATTLE MELON: *Constant Reader.* The following is Dr. Voelcker's Analysis:—

First General Composition.

Water	92.030
Organic matters	7.350
Mineral matters (ash)	.620
	100.000

Second Detailed Composition.

Water	92.030
† Soluble Albuminous Compounds	.619
* Insoluble Albuminous Compounds	.156
Sugar and Mucilage	4.661
Woody Fibre (crude)	1.914
Soluble Mineral Matters	.540
Insoluble Mineral Matters	.080
	100.000
† Containing Nitrogen	.099
* Ditto Ditto	.025
Total Nitrogen	.124
Equal to Albuminous Compounds (flesh-forming matters)	.775

CATTLE MELON: *M S*, of Newick, requests that any communications that Mr. Blundell or others may wish to make should be addressed to her Gardener, Mr. Richard Harbown, Kilcher, Newick, Uckfield.

POOLS: *X Y Z.* The art of making pools is well understood in chalk counties. We will endeavour to get a specification for you.

RECLAMATION OF LAND: *A Subscriber* says: with reference to the inquiries of a Correspondent as to the mode of reclaiming coarse and neglected ground, allowed to become wild and only a covert for game, permit me to direct your Correspondent's attention to a paper for which a prize was given to Joseph Lusk, Esq., by the Bath and West of England Agricultural Society, published in their Reports, which describes the process of reclaiming ground, of precisely the same nature as that alluded to by your Correspondent.

WALSH'S GORSE CRUSHER: *Agricola.* Apply to Mr. J. Walsh, Stedalt, Balbriggan, Ireland. See his Advertisement, p. 1003, col. *a.*

YEARLINGS "OCCASIONALLY" AT 19*l.*: *A Farmer.* You will see the account, as given by Mr. Oakley, of Lawrence End, himself, in Mr. Evershed's account of Hertfordshire, published in the late Number of the English Agricultural Journal.

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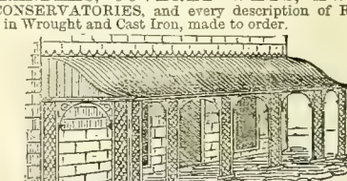
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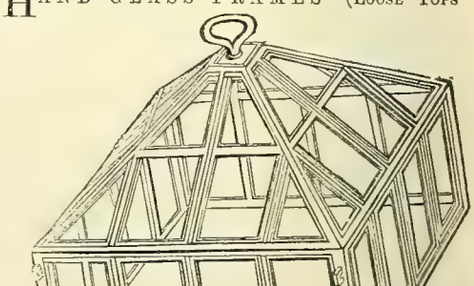
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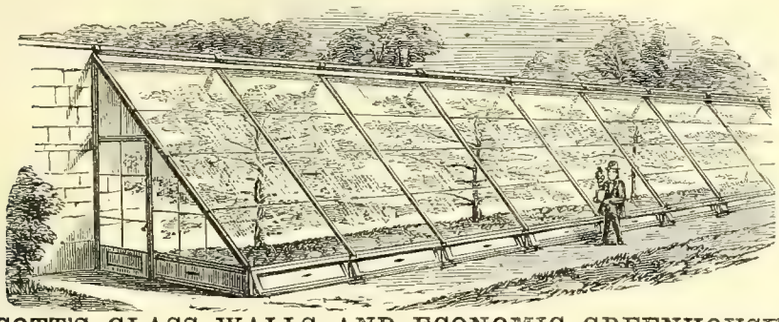
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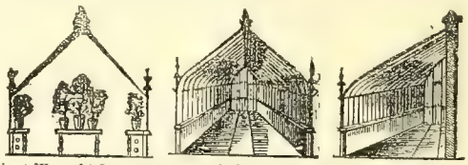
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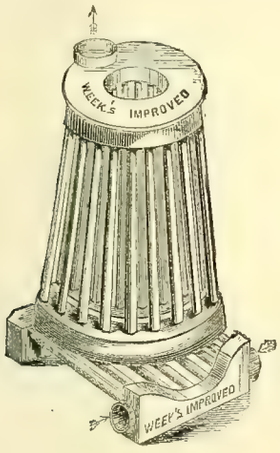
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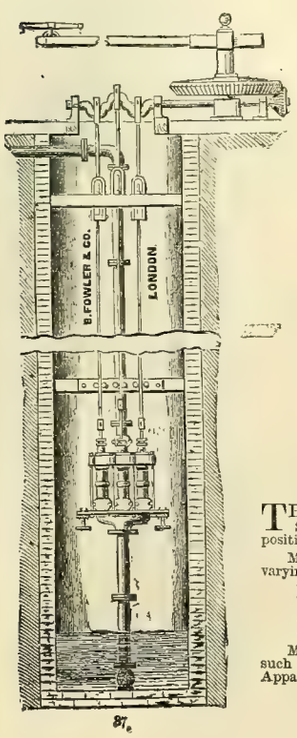
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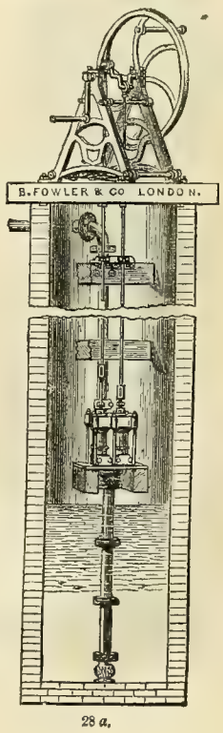
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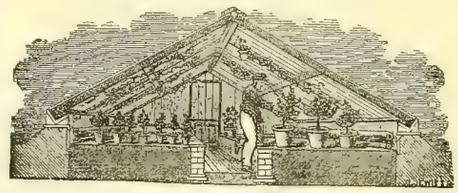
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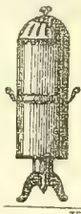


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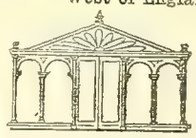
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STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2s. 3d. per bushel.

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253, Oxford Street, W.; and
119, Newgate Street, London, E.C.
Illustrated Catalogues post free.

West of England, Ireland, and Wales.



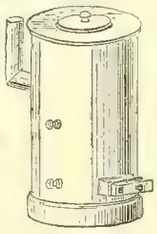
VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.
Illustrated Catalogues, Working Model, Plans and Estimates, free on application.



RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

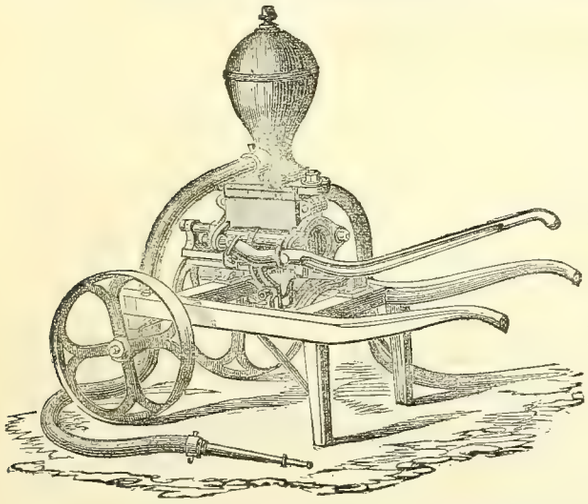
SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.
To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.
Sizes and Prices on application.

THE CALIFORNIA LIFT and FORCE PUMP.



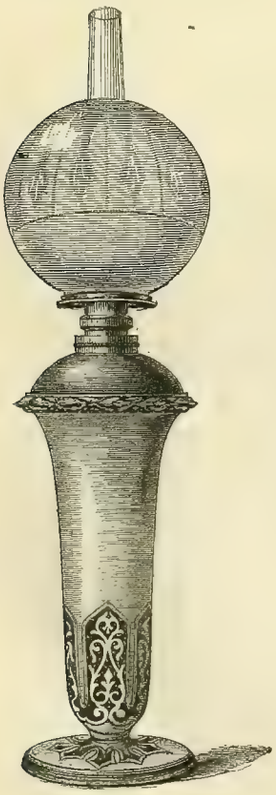
PRIZE MEDALS.
LONDON, 1862. | HAMBURG, 1863.

IN VARIOUS SIZES
AS A
GARDEN ENGINE,
LIQUID MANURE PUMP,
AND
FARM FIRE ENGINE.

It is double acting, and can be taken to pieces and cleaned or repaired without trouble or delay.

SOLE MAKERS IN LONDON:
HAYWARD, TYLER, AND CO.,
84 & 85, Upper Whitecross Street, E.C.
MAKERS OF
PUMPS, GARDEN ENGINES, SYRINGES, &c.

J. WARNER & SONS, MANUFACTURERS.



SUPERIOR
HYDRO-CARBON
LAMPS,
with the
KOH-I-NOOR BURNER.

NO SMOKE,
NO SMELL,
NO BROKEN CHIMNEYS.
TRIMMED EASILY.



NOVEL in CONSTRUCTION,
ELEGANT in DESIGN,
Of Superior WORKMANSHIP,
for
DRAWING ROOM,
DINING ROOM,
LIBRARY, STUDY,
WORK TABLE,
READING DESK,
HALLS and PASSAGES.



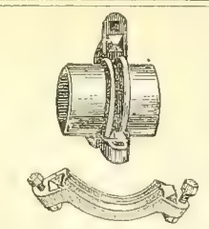
Prices from 18s. 6d. to 63s.

Illustrated Catalogues may be seen, and the Lamps obtained of every respectable Lamp Dealer in Town or Country.



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

For a few prices, see last week's advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	$5\frac{1}{2}d.$ ..	$7\frac{1}{2}d.$
Seconds	$3\frac{3}{4}d.$ ..	$5d.$
Thirds	$2\frac{1}{2}d.$ ..	$3\frac{1}{2}d.$
Fourths	$2\frac{1}{4}d.$ ..	$3\frac{1}{4}d.$

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

11 by 9, 12 by 9, 13 by 9, 14 by 9	4ths.	3rds.	4ths.	3rds.
12 ,, 10, 13 ,, 10, 14 ,, 10, 15 ,, 10	10s 9d	12s 3d	12s 6d	14s 0d
13 ,, 11, 14 ,, 11				
14 ,, 12, 15 ,, 12, 15 ,, 11, 16 ,, 11				
18 ,, 12, 19 ,, 12, 16 ,, 12, 17 ,, 12				
16 ,, 13, 17 ,, 13, 20 ,, 12, 21 ,, 14	11s 6d	13s 6d	13s 6d	16s 0d
19 ,, 13, 20 ,, 13, 18 ,, 13 ..				
16 ,, 14, 17 ,, 14, 21 ,, 13 ..	14 to 15 ozs.		16 to 17 ozs.	
19 ,, 14, 20 ,, 14, 18 ,, 14 ..	to the foot.			

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
	£ s. d.	£ s. d.	£ s. d.
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for OCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11s. 6d.	13s. 6d.	15s. 0d.
20 ,, 13	Thirds	13s. 6d.	16s. 0d.	19s. 0d.
20 ,, 14	Seconds	..	English.	English.
20 ,, 15	Best	..	18s. 0d.	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 .. $6\frac{1}{2}$ by $4\frac{1}{2}$ ..	7 by 5 .. $7\frac{1}{2}$ by $5\frac{1}{2}$ ..	11s.6d.
8 ,, 6 .. $8\frac{1}{2}$,, $6\frac{3}{8}$ ..	9 ,, 7 .. $9\frac{1}{2}$,, $7\frac{1}{2}$ ..	
	10 ,, 8 .. $10\frac{1}{2}$,, $8\frac{1}{2}$ ..	12s.6d.

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to $10\frac{1}{2}$ by $8\frac{1}{2}$ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

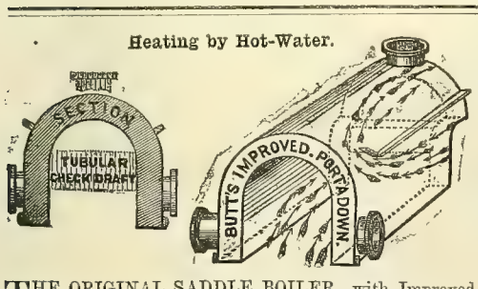
Glaziers' Diamonds from 10*s.* to 21*s.* each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	,, CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

JOHN T. WILLMER,
HORTICULTURAL AGENT, AUCTIONEER, and VALUER,
Springfield Nursery, Sunbury, Middlesex, S.W.

Horticultural Agent and Valuer.

MR. A. CHANDLER, of the late Firm of CHANDLER & SONS, continues to undertake all kinds of VALUATIONS connected with Horticulture.

1, Devonshire Terrace, Fulham Road, S.W.

HENRY McMILLAN, Manager of Mr. Veitch's Coombe Wood Nursery, from February, 1860, till October, 1864, begs to inform the Nobility and Gentry that for the future he intends devoting his time to Laying-out and Planting new, and Improving established, Gardens and Grounds. From the many years' extensive practice H. McM. has had with all kinds of Trees, Shrubs, &c., both new and old, few men are better capable of selecting plants most suitable to the various soils and situations. All kinds of Nursery Stock supplied true to name at the lowest remunerating prices.

Norbiton, Kingston-on-Thames.

SILVER PHEASANTS. — A Gentleman wishing to increase his stock of the above breed, wishes to procure THREE or FOUR HENS, of an age to lay eggs next spring. He will either purchase or give Young Cocks in exchange.

Apply by letter to X. Y. Z., care of Robertson & Scott, News Agents, South Hanover Street, Edinburgh.

To Nurserymen and Seedsmen.

TO BE SOLD, in a large increasing town in Hampshire, an old established BUSINESS, with first-class connection, Dwelling House, with good Shop attached, and about 3 acres of Land well stocked. Eighteen years' Lease (renewable) Price 300*l.*

Apply A. B., Post Office, Winchester, or Mr. GRAY, Estate Agent, 58, Pall Mall, S.W.

Sales by Auction.

Consignment of Plants from Holland,

CONSISTING OF FRUIT TREES, ROSES, HOLLIES, LAURELS, AND OTHER PLANTS FOR ABSOLUTE SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 9, at half-past 12 o'Clock precisely, DWARF-TRAINED and PYRAMID FRUIT TREES, RHODODENDRONS, HARDY AZALEAS, LAURELS, HOLLIES, CONIFERS, ROSES, CLEMATIS, SYRINGAS, VINES, BERBERIS, SPIRÆAS, AUCUBAS, &c., all well-rooted and fine Plants, in capital order, and for Sale without the least reserve. Also a fine Assortment of DUTCH BULBS, good varieties.

On view the Morning of Sale, and Catalogues had.

Langhedge Nursery, near the Bell Inn, Edmonton.

MR. A. RICHARDS will SELL by AUCTION, on the Premises, on TUESDAY, Nov. 8, at 11 o'Clock, notice having been received for the New Railway, the NURSERY STOCK, including fine trained Peach, Nectarine, Apricot, Cherry and Plum Trees, large Standard and Pyramid Apples, Pears, Plums, Cherries, &c.; fine Evergreens, consisting of Portugal and Common Laurels, Aucubas, Laurustinus, Arborvitæ, Yews, Hollies, Box, Rhododendrons, Firs, Pines, Cedrus Deodara, Limes, Laburnums, Thorns, Poplars, Privet, 100 Weeping Ash, 500 Choice Standard Roses, Dwarf and Climbing ditto, &c.

May be viewed, and Catalogues obtained on the Premises, and of the Auctioneer, Tottenham, N.

Hornsey.

IMPORTANT SALE OF NURSERY STOCK, CAMELLIAS, AZALEAS, AND OTHER GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Cleall to SELL by AUCTION, on the Premises near the Railway Station, Hornsey, on MONDAY, November 7, at 11 for 12 o'Clock precisely, a portion of the ground being required for building, the valuable NURSERY STOCK, including 2000 fine Chinese Arbor-vitæ 2 to 4 feet, many of which are admirably adapted for potting, Cupressus Lawsoniana, Wellingtonia gigantea, 3000 Euonymus, 3000 Spruce Firs, Araucaria imbricata, Cedrus Deodara, Arbutus 3 feet, Common Laurels, Laurustinus 2 to 3 feet, a fine assortment of Standard and Dwarf Roses, American Plants, Irish Ivies and Virginian Creepers in pots, Lilacs, large Fruiting Mulberries, Apples, Currants, Gooseberries, &c.; also 300 handsome Double Camellias 2 to 6 feet, and Azalea indica beautifully furnished with bloom buds, 2000 Chrysanthemums, Cloves, Primulas, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, on WEDNESDAY, November 9, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Tulips, Crocus, Snowdrops, &c.; also a fine assortment of 300 handsome STANDARD, HALF-STANDARD, and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully furnished with bloom buds, &c.

On view the Morning of Sale. Catalogues may be had at the Auction Rooms as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Uxbridge.

MESSRS. PROTHEROE AND MORRIS are directed to SELL by PUBLIC AUCTION, on the Premises, Uxbridge Nursery, Middlesex, on MONDAY, November 21, at 11 o'Clock, by order of the Proprietor, in consequence of the Lease having expired, the Valuable NURSERY STOCK consisting of the finest EVERGREENS and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, and FOREST TREES, STANDARD ROSES, &c. Further particulars will appear in future Advertisements.

American Nurseries, Leytonstone, Essex.

Liverpool.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Mee to SELL by AUCTION, without reserve, on the Premises, Prescott Nurseries, near Liverpool, on MONDAY, Nov. 21, and following days, at 11 o'Clock precisely each day (in consequence of the number of lots), the whole of the valuable NURSERY STOCK, consisting of Evergreens, Coniferæ, Deciduous Shrubs, Ornamental, Fruit, and Forest Trees, including 1000 Arbor Vitæ, 2 to 5 feet; 3000 Aucubas, 2 to 4 feet; 3000 Box and Bays, 3000 Green Hollies, 1 to 6 feet; 3000 Variegated Hollies, 2000 English Yews, 3 to 10 feet; 1000 Portugal Laurels, 2 to 6 feet; 500 Laurustinus, 12,000 Common Laurels, 1500 Berberis aquifolia, 75,000 Privet, 17,000 Scotch Firs, 2 to 4 feet; 18,000 Spruce Firs, 2 to 4 feet; 5000 Pinus austriaca, 500 Weymouth Pine, 100 Cedar of Lebanon, 300 Cedrus Deodara, 1000 Abies Smithii, 300 Vaccinium, 1000 Irish Ivies, 100 Araucaria imbricata, 1000 Ribes, sorts; 30,000 Larch, 2 to 4 feet; 700 Dogwood, 500 Roses, in pots; 500 Standard Roses, 2000 Sweet Briar. American Plants, comprising 1000 Andromeda floribunda, 20,000 choice Scarlet, hybrid Catawbiense, and Ponticum Rhododendrons, 1 to 5 feet; 8000 Kalmias, sorts, 1 to 3 feet; 2500 Ledums, sorts; 4000 Ghent and other hardy Azaleas, &c. Also 300 Weeping Elms, 6 to 12 feet; 100 do. Willows; 50 do. Limes, 8 to 12 feet; 150 do. Ash, 30,000 Elms, 3 to 10 feet; 1000 Maples, sorts; 4000 Limes, 4 to 12 feet; 500 Sycamore, 80,000 White Thorns, 1800 Standard do., 9000 Poplars, 5 to 15 feet; 7500 Hornbeam, 3 to 6 feet; 5000 Hazels, 2 to 3 feet; 600 Mountain Ash, 6000 Common do., 9000 Alders, 21,000 Birch, 5000 Scarlet, Horse, and Spanish Chestnuts, 150 Standard Cytisus, 1000 Laburnums, 20,000 Beech, 36,000 Turkey, Evergreen, and Scarlet Oaks, 6000 strong Seakale, 8000 two-year old Asparagus, 1000 Standard Dwarf and Trained Cherries, 3000 ditto Pears, 750 ditto Apples, 1000 Damsons and Plums, 800 Fruiting and Succession Pines in fine condition, 300 Vines in Pots, 8000 Black and Red Currants, 4000 Gooseberries, Raspberries, Rhubarb, 2000 Crab Stocks, &c.; together with Horses, Carts, Stacks of Hay, Tools, and numerous other effects.

May be viewed prior to the Sale. Catalogues may be had, 1*s.* each (returnable to purchasers) on the Premises; of the principal Seedsmen in London; the Nursery, Prescott; Mr. H. Mee, Gateacre Brow, Woolton; *Guardian* Office, *Courier* Office, *Examiner* Office, Manchester; *Mercury* Office, Leeds; *Midland Counties Herald* Office, Birmingham; Mr. White's Office, 12, Cases Street, Clayton Square, Liverpool; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Woking.

VERY IMPORTANT SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions to offer for unreserved SALE by AUCTION, on the Premises, Goldsworth Nurseries, Woking, Surrey, and within 10 minutes' walk of the Woking Railway Station, on MONDAY, November 28, and following days, at 11 for half-past 11 o'Clock each day precisely, in consequence of the number of lots, the unusually valuable NURSERY STOCK ranging over 150 Acres of ground, viz:—

8000 STANDARD APPLES.
6000 MAIDEN do.
2000 STANDARD PEARS.
8000 MAIDEN do.
2000 STANDARD CHERRIES.
6000 CURRANTS, of sorts.
5000 GOOSEBERRIES do.
200 FIGS, by name.
2000 DWARF CHERRIES.
4000 MAIDEN PEACHES, NECTARINES and APRICOTS
1000 TRAINED do. do.
1000 TRAINED APPLES, PEARS, and PLUMS.
150 Very strong GRAPE VINES.
200 STANDARD MEDLARS.
2000 FILBERTS.
1000 STANDARD PLUMS.
3000 HALF-STANDARD and DWARF do.
20,000 FLOWERING SHRUBS, of sorts.
100,000 EVERGREENS, of sorts and sizes.
150,000 GREEN HOLLY and VARIEGATED.
150,000 COMMON LAUREL.
50,000 PORTUGAL do.
6000 EVERGREEN PRIVET.
10,000 WILLOWS, of sorts.
4000 POPLARS, do.
1000 ORNAMENTAL THORNS.
100,000 COMMON and VARIEGATED YEW.
50,000 STANDARD H.P. DWARF and other ROSES.
100,000 RETINOSPORA ERICOIDES,

and a large variety of Nursery Stock, which will be more fully described in future advertisements.

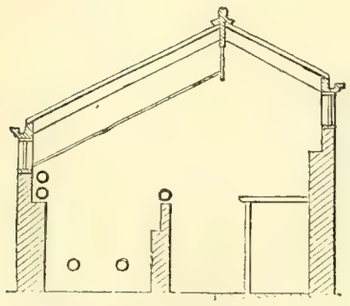
May be viewed prior to the Sale. Catalogues, when ready, may be had (1*s.* each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

North Warnborough Nursery, near Odiham, Hants.

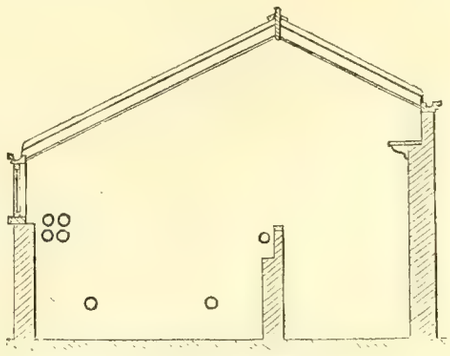
MR. ALFRED WHITE will SELL by AUCTION (by order of the Assignees, under a Deed of Assignment) on MONDAY and TUESDAY, November 14 and 15, at 12 o'Clock each day, in convenient Lots, the whole of the remaining STOCK of the above-named NURSERY, comprising about 64,000 excellent PLANTS and SHRUBS, consisting of Arbor-vitæ, Tree Box, Irish Yew, Horse Chestnut, Deciduous and other Trees and Shrubs, &c.; 150 bushel of Potatos, 40 tons of Mangel, 20 tons of Swedes, a large quantity of Seakale, &c.

N.B. North Warnborough Nursery is three miles from the Winchfield Station on the London and South Western, and six miles from the stations at Basingstoke on the Great-Western, South-Western, and Exeter Railways.

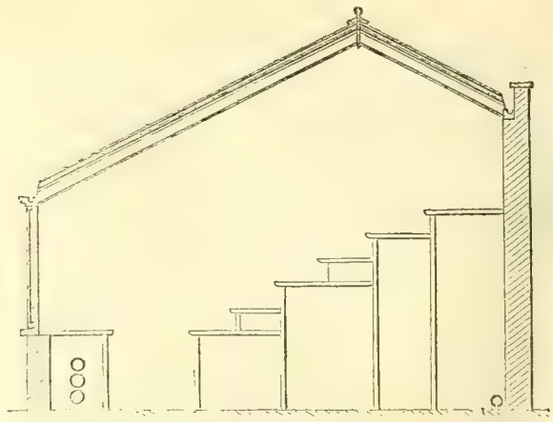
May be viewed, and Catalogues obtained three days prior to the Sale at the place of Sale; the Broad Face Hotel, Reading; White Hart, Newbury; Royal Hotel, Winchester; Swan, Alresford; Swan, Alton; Lion and Lamb, Farnham; and of Mr. ALFRED WHITE, Auctioneer, Estate Agent, &c., Basingstoke and Greywell, near Odiham, Hants.



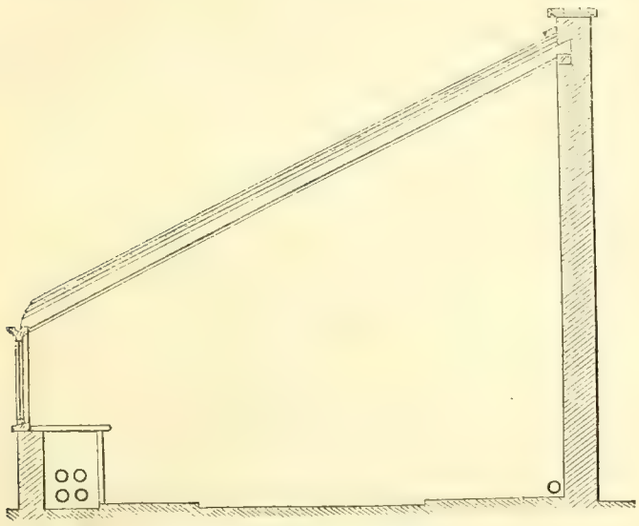
No. 1.—CUCUMBER and MELON PIT, 10 feet wide.



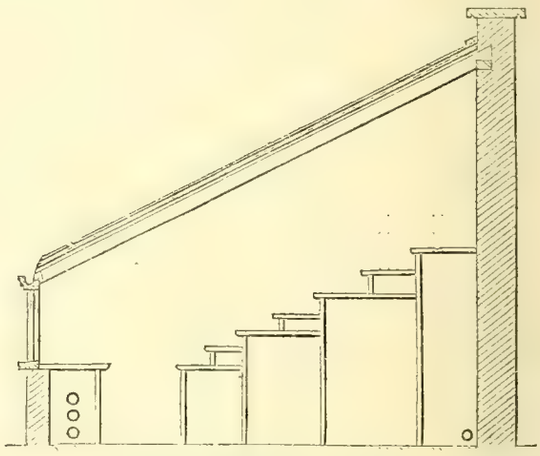
No. 2.—PINE PIT, 14 feet wide.



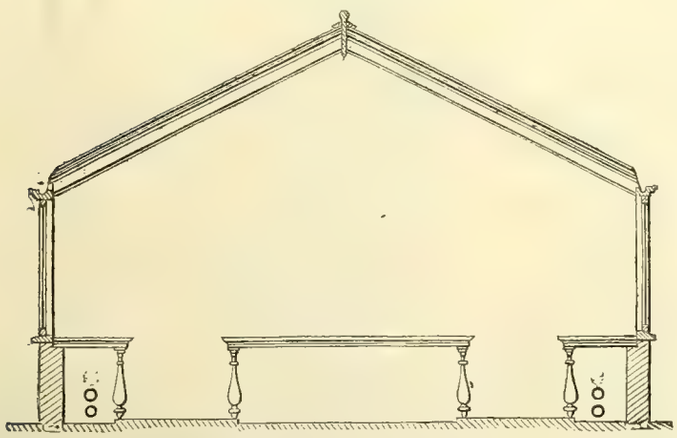
No. 3.—GREENHOUSE, from 14 to 15 feet wide.



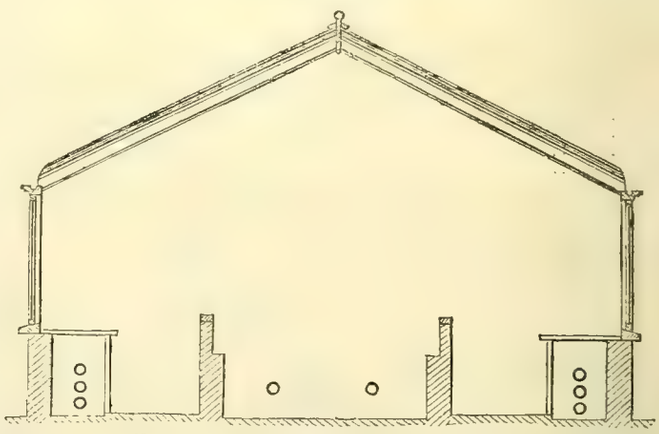
No. 4.—VINERY, from 15 to 18 feet wide.



No. 9.—GREENHOUSE, from 12 to 20 feet wide.



No. 6.—GREENHOUSE, from 18 to 20 feet wide.



No. 7.—FORCING HOUSE, from 18 to 20 feet wide.

HORTICULTURAL BUILDINGS MANUFACTURED BY STEAM POWER MACHINERY.

BEST MATERIALS AND LOWEST PRICES.

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Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

PARTIES DESIRING INFORMATION as to prices, &c., will, by referring to any of the above sections, receive immediate attention.

PLANS, SPECIFICATIONS, and ESTIMATES for plain and inexpensive practical Structures, and for the most elaborate Architectural Erections, either in Wood or Iron, forwarded on application.

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 46.—1864.] SATURDAY, NOVEMBER 12. {Price Fivepence. {Stamped Edition, 6d.

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AGRICULTURAL HALL, ISLINGTON.—SECOND GRAND FLOWER SHOW of CHRYSANTHEMUMS, POMPONS, and PLANTS, on WEDNESDAY, THURSDAY, and FRIDAY, November 16, 17, and 18. Bands of the Victoria Rifles and Metropolitan Police. Grand Concerts on Wednesday and Thursday Evenings, commencing at half-past 7 o'clock. Admission: Wednesday, 1s.; Thursday, to 6 P.M., 1s.; after 6, 6d. Friday, 6d.; after 6 P.M., 3d.; reserved seats, 6d. Entrance Islington Green only.
J. JEFFERIES, Hon. Sec.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SECOND GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on WEDNESDAY, November 23, 1864. For schedules, &c., apply to
ROBERT W. KER, Hon. Sec., 4, Basnett Street, Liverpool.

Entries Close on Thursday, November 24, for the
ANNUAL GREAT FRUIT and CHRYSANTHEMUM SHOW, at the Town Hall, Birmingham, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1. Prize Lists (which include a Ten Guinea Cup for a collection of Fruit) may be had of the Secretaries.
CHAS. JAS. PERRY, Castle Bromwich, } Hon. Secs.
GEORGE P. TYE, Handsworth. }

To Gardeners.—Notice.
GARDENERS whose NAMES appeared in connection with the Seats of the Nobility in HOGG'S GARDENERS' YEAR BOOK for 1864, will oblige by forwarding particulars of any change that may have occurred, so as to make the List for 1865 as complete as possible.—171, Fleet Street, E.C.

To Nurserymen and Seedsmen.—Notice.
THE GARDENERS' YEAR-BOOK, ALMANACK, and DIRECTORY for 1865, by ROBERT HOGG, LL.D., F.L.S., will be published on December 1. Any alterations in the style and Address of Firms are requested to be sent forthwith to the Editor, so that the necessary Corrections may be made in the Directory portion.
"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

Exhibition of Chrysanthemums.
JOHN SALTER'S Collection of these beautiful flowers will be in BLOOM throughout NOVEMBER and DECEMBER. The WINTER GARDEN will be open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, near Kensington Railway Bridge.

ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen at the Brunswick Nursery, Stoke Newington Road, opposite West Hackney Church, throughout the present month.

CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5s. per dozen. W. HOLMES, Frampton Park Nursery, Hackney.

ROSES.—CATALOGUES of the above may be had upon application to
H. LANE & SON, The Nurseries, Great Berkhampstead, Herts.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1864, 24s. per dozen. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.—Nurseries, King's Acre, near Hereford.

Roses established in 6-inch pots for Forcing. Greenhouse Culture or Half Specimens for Exhibition.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have a very large and splendid Stock of well-grown Plants of the above to offer at 24s. to 30s. per dozen. The wood is well ripened, and will produce abundance of Bloom early in the season.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Sp[illegible] l prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

PAUL'S NURSERIES, Waltham Cross, N.—WM. PAUL (Son and Successor to the late A. PAUL).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

CHOICE PRIMULA SEED, WILLIAMS's superb Strain, the finest fringed and best coloured flowers in cultivation, proved by numerous testimonials.
In sealed packets, Red, White, or mixed Seed, 2s. 6d., 3s. 6d., 5s.
A liberal allowance to the Trade.
Paradise and Victoria Nurseries, Holloway, London, N.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

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PAUL AND SON have their usual stock of well-ripened FRUITING and PLANTING VINES.
The "Old" Chesnunt Nurseries, N.

Vines.
B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines, extra strong, from Eyes.
WM. CUTBUSH AND SON have a large stock of the above for fruiting in pots or planting out. An inspection is solicited. Prices on application.
Highgate Nurseries, London, N.

Pine Plants and Vines.
T. PAPE can supply PROVIDENCE, BLACK PRINCE, MONTSERRAT, BLACK JAMAICA, and QUEEN PINE Plants, all sizes, warranted clean and healthy. Also strong VINES for fruiting in pots or planting out, of all the leading kinds, at moderate prices.
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Paradise and Victoria Nurseries, Holloway, London, N.

New Grape, Royal Vineyard.
B. S. WILLIAMS begs to announce that he is now distributing this valuable GRAPE, the best late White Grape extant. Strong planting canes, 21s. each; strong fruiting, 42s. each.
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THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

THE ROYAL HAUTBOIS STRAWBERRY (RIVERS).—This is the largest and finest Strawberry of the race, and a most abundant bearer. Young Plants, 3s. per dozen; Large Bearing ditto, 6s. per dozen.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

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AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
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ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
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APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well trained, of best quality and true to name.
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The DESCRIPTIVE CATALOGUE of ROSES, 31st Annual Series, by THOMAS RIVERS, free on application.
Nurseries, Sawbridgeworth, Herts.

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FOR SALE, Four Acres of good healthy strong EARLY CABBAGE PLANTS. Can be sent out in quantities to suit purchasers.—Apply to GEO. PEGLER, Fruiterer to Her Majesty and H.R.H. The Prince of Wales, Aberdeen.

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FOR SALE, Half an Acre of good strong Plants, fit for immediate planting.
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The Best Twelve Hyacinths Imported by
SUTTON AND SONS
for Twelve Shillings (Carriage free).
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SUTTON & SONS, Reading, Berks.

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HOW is SPRING GARDENING DONE at CLIVEDEN, the Seat of Her Grace the Dowager Duchess of Sutherland? See page 1080 of *Gardeners' Chronicle.*

H. LANE AND SON beg to inform their patrons that the following CATALOGUES, TREE and SHRUB, ROSE, FRUIT, and AZALEA, can now be had post free on application at The Nurseries, Great Berkhampstead, Herts.

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Superb Double Hollyhocks.
NURSERIES, SAFFRON WALDEN.
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BEECH MAST, sound and heavy; APPLE PIPS, do. do.; HOLLY BERRIES, clean from leaves. The above in any quantity, at low prices for the quality. Early orders solicited.
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Planting Season.
WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.

WILLIAM BARRON'S PRICED CATALOGUE of CONIFERÆ and other Ornamental PLANTS, &c., for the Autumn of 1864, and the Spring of 1865, is now ready, and may be had, post free, on application.
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COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
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THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

GEO. R. DAVIDSON, NURSERYMAN and SEEDSMAN, Newry, Ireland, offers to the Trade 2,000,000 Transplanted QUICK or THORNS, 6 to 15 inches; 500,000 Transplanted THORNS, 1½ to 2 feet; 500,000 LARCH, 2 to 3 feet. Samples and prices on application. The freight by steamer from Newry to Liverpool and Glasgow is moderate.

WANTED, a Quantity of ASH, 4 to 7 feet; also HAZEL, same size.
Apply to XENO, Post Office, Yeovil, Somerset, stating lowest Trade price for 10,000 to 20,000 of each.

NEWSPAPER

Woodlands Nursery and Seed Warehouse,

MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON are now offering the following Collections of BULBS

FOR CONSERVATORY and GREENHOUSE.

A.	B.	C.	C. C.
£4	£2	£1	10s.

FOR FLOWER GARDEN.

D.	E.	F.	F. F.
£4	£2	£1	10s.

FOR CONSERVATORY and FLOWER GARDEN.

G.	H.	I.	I. I.
£4	£2	£1	10s.

Full particulars of the above Collections are contained in the DESCRIPTIVE CATALOGUE of BULBS, which may be had free on application.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

New Roses of 1864.

JOHN KEYNES has a fine stock of first-rate Plants in pots of all the best New Roses sent out in 1864. The following can be supplied by the dozen:—

HYBRID PERPETUALS.

André Leroy d'Angers	Kate Hausburgh
Admiral La Perouse	Leopold Premier
Claude Million	Louis Van Houtte
Gabriel de Peyronny	Maréchal Forey
George Paul	Maréchal Suchet (Damaizin)
George Prince	Pavillon de Pregny
H. Laurentius	Pierre Notting
John Nesmith	Senateur Reveil
Joseph Fiala	Paul de la Mielleray
Joseph Durand	

B., Madame de Stella, Rev. H. Dombrain. TEA, Jaune d'Or

J. KEYNES's general stock of Roses are in fine condition, particularly the Roses of 1863, both Standards and Dwarfs. CATALOGUES sent on demand. Salisbury, Nov. 12.

20,000 Dwarf Roses in Pots on own Roots.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer 20,000 DWARF HYBRID PERPETUAL BOURBON and TEA-SCENTED ROSES, ON THEIR OWN ROOTS, in pots, including all the novelties and every variety of merit yet introduced. The plants are very STRONG and WELL ESTABLISHED, and if planted out now will bloom this Autumn.

F. & A. D. & SONS have also a large number of EXTRA STRONG plants of the BEST HYBRID PERPETUAL and TEA-SCENTED varieties, specially grown for Autumn and Winter forcing. Purchasers will be liberally dealt with.

Prices and all particulars on application as above.

JOHN KERNAN, SEEDSMAN, 4, Russell Street, Covent Garden, W.C., has the pleasure of announcing that the DUTCH and CAPE BULBS just received are in the choicest condition, especially the Hyacinths, Tulips, Crocus, Liliums, Jonquils, Hoop-Petticoat Narciss, and other Narcissus, &c.

Hyacinths, particularly large and extremely fine, are now offered at 6s. per dozen, including all the varieties puffed as bargains at 9s. by provincial advertisers, who, the more readily to gull the public to think them so, hold out as a bait the sending of them carriage free, for which purpose 6d. or a 1s. at the utmost would be required.

J. K. also offers excellent Hyacinths, in separate and distinct colours, at 2s. 6d. per dozen, quite equal, if not superior, to those advertised by puffing houses at 3s. 6d. per dozen; Intermediate Stock, Calceolaria, Cineraria, Winter Aconite, and Primula, from the finest collections, together with every description of Flower Seeds, including the latest novelties, which may be depended on.

J. K. recommends for immediate sowing early Peas and Beans, Short-horn Carrots (for forcing), Hardy Green Cabbage Lettuce, Lisbon Onion, Green Curled Endive, Olive Radish, Snowball Turnip, Ash-leaf and Handsworth Early Potatos (for forcing); Sion House and other early Cucumbers, Mushroom Spawn, &c. Scarlet Admirable Rhubarb, Myatt's Deptford Pine, British Queen, Emperor, Prince Albert, Princess Royal, Turner's Pine, Keen's Seedling, and Old Pine Strawberries; Carnations, Picotees, Pinks, and Heartsease (named).

Also as early food for Cattle, Imported Italian Rye-grass, Trifolium incarnatum, Winter Tares, St. John's Day Rye, Alsike Clover, all the finest varieties of natural Grasses, separate or mixed, for Permanent Pasture, Aira cæspitosa (most suitable for game coverts), Rape and Mustard for improving torpid Land (to be fed off by Sheep fatting on Linseed Cake), &c.

J. K. has constantly on sale Garden Syringes, Fumigators, Aphis Brushes, Japan Flax, Cuba Bass, Finest Knives (warranted the manufacture of Geo. Hall & Son, whose superiority over all competitors since the death of Mr. Saynor, to whom the head of this firm was Foreman, is universally acknowledged by all gardeners), and all other Garden Utensils.

J. K. is Agent for the AMERICAN MILKING APPARATUS, so saving of labour, and so highly beneficial for farmers, as ten cows can be milked in the time one takes by hand (with less distress to the cow, and leaving the milk free from hairs) whilst it is so portable as to be easily carried in the corner of a waistcoat pocket.

Puffing being no part of J. K.'s system, he must leave unto other so-called Seedsmen (who know, in reality, as little of their business as a cab horse does of a holiday) to represent the part of the "roaring lion," the more especially as they, like Bottom, have well qualified themselves for the performance, by previously enacting 'Moonshine" for their own benefit, trusting that the quality of his seeds, once tried, will speak for themselves, and obtain for him a long continuance of future favours.

The Trade supplied. CATALOGUES may be had on application

PAUL & SON,

"OLD" CHESHUNT NURSERIES, CHESHUNT, N.,

HAVE MUCH PLEASURE IN DRAWING ATTENTION TO THE FINE STOCK OF

STANDARD, DWARF-STANDARD, and DWARF ROSES,

WHICH THEY HAVE NOW READY FOR REMOVAL.

SEVENTY PRIZES for CUT and POT ROSES have been awarded to their Collection during the present season, and these include the Six Premier Prizes of the Metropolitan and Provincial Rose Shows.

Carriage of all goods carriage paid to London.

PRICED CATALOGUES of ROSES, FRUITS, and HARDY SHRUBS, &c., Post Free on application.



Orders amounting to 21s. sent carriage paid.

HOW IS SPRING GARDENING DONE AT CLIVEDEN,

THE SEAT OF HER GRACE THE DOWAGER DUCHESS OF SUTHERLAND?

(By planting the following liberally at the present season.)

Under the spirited superintendence of Mr. Fleming, it may be said of Cliveden, "There gardens are for all the months of the year, in which severally things of beauty are had in season."

Those who would associate floral beauty with the first dawn of Spring should now make their arrangements. The expense is trifling, the recompense great.

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

500 TULIPS Assorted	500 SNOWDROPS	200 ANEMONES	200 NARCISSUS
500 CROCUS	100 HYACINTHS	300 RANUNCULUS	200 WINTER ACONITES

100 SCILLAS.

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual Flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES	
50 " " "	Beautiful BLUE PANSIES	100 PINK DAISIES	
50 " " "	RICH PURPLE PANSIES	100 RICH BLUE FORGET-ME-NOT	
50 Mixed POLYANTHUS		100 PINK SILENE	

The above Collections can be modified to suit the requirements of purchasers.

THE CLIVEDEN PERPETUAL FLOWERING YELLOW PANSY, 4s. per doz.
" PERPETUAL FLOWERING BEAUTIFUL BLUE PANSY, 4s. per doz.
" PERPETUAL RICH PURPLE PANSY, 4s. per doz.
" WHITE DAISY, 2s. 6d. per doz.
" PINK DAISY, 2s. 6d. per doz.
" RICH BLUE FORGET-ME-NOT, 1s. 6d. per doz.
" PINK SILENE, 1s. 6d. per doz.
" MIXED POLYANTHUS, including the GIANT var., 3s. per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

WAITE'S ECLIPSE PURPLE-TOP YELLOW HYBRID TURNIP.

WAITE, BURNELL, & CO.

Beg to inform the public, that they can now supply SEED of this invaluable TURNIP. The ECLIPSE is a purple top, yellow-fleshed, and decanter-shaped variety, with a small top; it is a quickly growing Turnip, can be sown much later than the Swede, will store in the best condition till the end of May, and in the opinion of many farmers who have grown it, will keep better than the Swede. It is sound in flesh, rich in flavour, and preferred by Cattle to all other varieties.



This valuable TURNIP was introduced a few years ago by the late Mr. Waite, but from various causes, the stock has been nearly exhausted; after careful attention, W., B., & Co. have again secured a supply of the genuine and original stock.

Owing to the above circumstance the Purple-top Scotch (to which it is very superior) has been substituted by some houses for it, and great disappointment experienced, especially by those who know the Eclipse.

W., B. & Co. have considered it necessary to state that it is sent out by them in Canvas Bags, sealed, containing not less than a Half Bushel, and in Sacks marked

Price 50s. per bushel.

A Discount allowed to the Trade.

Labels supplied to the Trade for placing on smaller packages.

SEED WAREHOUSE, 181, HIGH HOLBORN, LONDON, W.C.

The New Aucubas.

THOS. CRIPPS, NURSERYMAN, Tunbridge Wells, will be happy to supply Plants in Pots of the MALE AUCUBA (Aucuba japonica mas), 21s. each; GREEN-LEAVED BERRY-BEARING ditto (A. j. femina vera) 3s. 6d. to 5s. each. Packing 1s. extra. A remittance must accompany orders from unknown correspondents. Usual discount to the Trade.

WELLINGTONIA GIGANTEA.—The Undersigned can supply good Seedling Plants in pots, at 40s. per 100. Fine plants in 48 and 32-pots, from 9 to 15 inches, fit for immediate planting, at 4l. and 6l. per 100.

CUPRESSUS LAWSONIANA, in pots, 1 foot, 25s. per 100.
ARAUCARIA IMBRICATA, in pots, 9 inches, 50s. per 100.
J. HENCHMAN, Edmonton, London, N.

Forest and Ornamental Trees.

PETER LAWSON AND SON'S CATALOGUE for SEASON 1864-65 is now ready, and will be forwarded free upon application.

PETER LAWSON & SON undertake the FORMATION of PLEASURE GROUNDS and GARDENS by Contract, under the Superintendence of competent Foremen.

28, King Street, Cheapside, London, E.C.; and at Edinburgh.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

A. GODWIN AND SON beg to intimate that their PRICED and DESCRIPTIVE CATALOGUE of FRUIT, FOREST, and HARDY ORNAMENTAL TREES and SHRUBS, is now ready, and will be forwarded to any address on receipt of one Stamp.

The Nurseries, Ashbourne, Derbyshire.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.

CATALOGUES and samples may be had free on application.

To Gentlemen and Nurserymen.

MR. CLAPHAM, Proprietor of the Royal Park, Leeds, WANTS several hundred LIMES, CHESTNUTS, ITALIAN and SILVER POPLARS, several CEDRUS DEODARA, and other ornamental Trees; Rhododendrons, Azaleas, Common and Portugal Laurels, and Evergreen Shrubs, Roses, &c. They are required as large as possible to transplant safely, and for immediate effect. As a quantity is required and ready cash will be paid, they must be cheap.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

HAWS, HOLLY BERRIES, HORSE CHESTNUTS, and ACORNS to be had at very moderate prices, f. o. b. at Waterford. For further particulars apply

D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

A large number of SPRUCE FIR, 1½ to 3 feet, will be sold under regular price.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

A Splendid Stock.

CEDAR of LEBANON, from 6 to 12 feet; DEODARS, 4 to 7 feet; PORTUGAL LAURELS, 5 to 6 feet, and as much through; ARBUTUS, 3 to 4 feet, and bushy. The above are such as are seldom to be procured, and will all move with perfect safety. To be Sold, a Bargain.

Apply to J. SCOTT, Merriott Nurseries, Somerset.

WANTED to PURCHASE, a quantity of COMMON LAURELS, PORTUGAL LAURELS, AUCUBAS, HOLLIES, COMMON and IRISH YEWS, LIMES, SWEET CHESNUTS, AUSTRIACA, INSIGNIS, and LARICIO PINES.

State height and price per 100 (delivered carriage paid to East Dereham) to W. T. COLLISON, East Bilney, Litcham, Norfolk.

WANTED to PURCHASE, 50,000 Transplanted LARCH, 2 to 3 feet; 50,000 do. SCOTCH, 2 to 3 feet; 20,000 do. SPRUCE, 2 to 3 feet; 100,000 do. COMMON BEECH, 1½, 2, and 3 ft.; 40,000 do. ENGLISH OAK, 2, 3, and 4 feet.—Apply with samples and price to C. J. DYER, Nurseryman and Seed Merchant, Taunton.

FOR SALE, 200,000 SEEDLING THORN. Small, 1s. 6d. per 1000; Strong, 2s. per 1000; Extra, 1 foot high, 3s. 6d. per 1000. Samples of 1000 sent by post on receipt of Postage Stamps for the amount.

100,000 Strong LARCH, 2 to 3 feet.
50,000 " from 1 foot.
30,000 Strong SPRUCE, well rooted.

Apply to WILLIAM TRESEDER, Nurseryman, Cardiff.

Cæsarean Nurseries, Jersey.

10,000 EVERGREEN OAKS, reared in pots, 2 to 6 feet high.
10,000 DURMAST OAKS, from rows, 2 to 4 feet high.
5,000 TURKEY OAKS, transplanted, 2 to 6 feet high.
5,000 GUERNSEY or UPRIGHT ELMS, grafted, 4 to 10 feet high.
1,000 LARGE SPRUCE FIRS, bushy and well-formed, 3 to 6 feet.
1,000 LARGE SILVER FIRS, bushy and well-formed, 2 to 3 feet.
1,000 LARGE CHINESE ARBOR VITÆS, 4 to 5 feet high.

The above are fine grown, well-rooted stuff, but are overstock, and to be sold cheap. For prices apply to

C. B. SAUNDERS, Nurseryman, &c., Jersey.

Seedling and Transplanted Larch, &c.

To the Trade.

R. MORRISON has this season an immense Stock of the above. His 1 and 2-year Seedling LARCH are unusually fine, while the Transplanted are stout plants; and, being grown in a light sandy loam, in exposed ground, they stand removal well.

R. M. has also a very large stock of Seedling and Transplanted NATIVE SCOTCH FIR, SPRUCE, PINUS AUSTRIACA and LARICIO; PINUS MARITIMA or PINASTER, very suitable for Seaside Planting; OAK, ELM, ASH, THORN, BEECH, and other Hard Woods.

COMMON and PORTUGAL LAUREL, ENGLISH YEWS, &c.; Seedling and Transplanted PEAR and CRAB STOCKS, CHERRY, PLUM, &c. Samples and prices on application. Through rates by Rail to all parts of the country.

The Nurseries, Elgin.—Nov. 12.

To Parties Engaged in Planting.

C. J. DYER, NURSERYMAN and SEED MERCHANT, Taunton, has to offer on very advantageous terms large quantities of the following, viz.:—

TREE BOX, suitable for making edges, 2½ to 3 feet, and 2 feet through; SWEET BRIAR, very strong; BERBERIS AQUIFOLIA, 1½ to 2 feet; SCARLET STANDARD THORNS, fine large heads; AUCUBA JAPONICA, 18 inches; COMMON HOLLY, 1½ to 2 feet; Ditto, 2 to 3 feet; TARTARIAN ARBOR-VITÆ, 2 to 2½ feet; WHITE BROOM, strong in pots; ARBUTUS UNEDO, 2 to 3 feet; PORTUGAL LAURELS, 2 to 3 feet; LAURUSTINUS, fine flowering bushy stuff; FILBERTS in a bearing state.

Prices, which will be very moderate, on application.

Now Ready,

NEW HARDY CLIMBING PLANTS, well adapted for covering Verandahs, Trellis-work, Walls, Porticos, Pillars and Festoons, &c.

CLEMATIS JACKMANNI, First-class Certificate,
CLEMATIS RUBRO-VIOLACEA, First-class Certificate,
Awarded by the Royal Horticultural Society, August 4, 1863.

PATRONISED BY
Her Majesty the Queen.
Royal Horticultural Society, London.
Royal Botanic Gardens, Edinburgh.
The Nobility and Gentry.

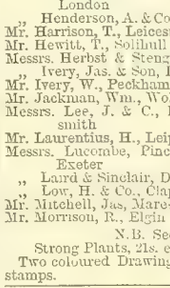
GEORGE JACKMAN & SON, Woking Nursery, Surrey, have much pleasure in informing the public that they may rely on the undermentioned Trade Firms having the Two New and Hardy Varieties of Clematises true to name, having been supplied direct from us.

Mr. Bell, Jno., Norwich
Mr. Bracher, B., Wincanton
Messrs. Bridgeford & Son, Dublin
Mr. Bunney, G. H., Stratford
Mr. Brewer, F., Birmingham
Mr. Baker, Geo., Windlesham
Mr. Barratt, W., Wakefield
Messrs. Backhouse & Son, York
Mr. Barnes, Wm., Camberwell
Mr. Bull, Wm., Chelsea
Mr. Cant, B. R., Colchester
Mr. Clarke, Geo., Brixton
Mr. Cole, J., Birmingham
Mr. Cripps, T., Tunbridge Wells
Mr. Cocker, J., Aberdeen
Mr. Cattell, J., Westerham
Mr. Cooling, E., Derby
Messrs. Campbell, A. & Son, Dublin
Mr. Coudrey, F. W., Birmingham
Messrs. Dickson, J. & Son, Chester
" Dickson, F. & A. & Son, Chester
" Dillistone & Co., Sturmer
Mr. Davies, Geo., Liverpool
Mr. Ewing, J. W., Norwich
Mr. Fraser, John, Lea Bridge Rd.
Messrs. Fisher Holmes & Co., Sheffield
" Garaway & Co., Bristol
Mr. Haage, F. A. Jun., Erfurt
Messrs. Henderson, E. G. & Son, London
" Henderson, A. & Co., London
Mr. Harrison, T., Leicester
Mr. Hewitt, T., Solihull [mond
Messrs. Herbst & Stenger, Rich-
" Ivery, Jas. & Son, Dorking
Mr. Ivery, W., Peckham
Mr. Jackman, Wm., Woking
Messrs. Lee, J. & C., Hammersmith
Mr. Laurentius, H., Leipzic
Messrs. Lucombe, Pince & Co., Exeter
" Laird & Sinclair, Dundee
" Low, H. & Co., Clapton
Mr. Mitchell, Jas, Maresfield
Mr. Morrison, R., Elgin
Mr. Morse, E., Epsom
Mr. Noble, Chas., Sunningdale
Mr. Nelson, Jno., Bristol
Mr. Oldroyd, H. J., Shrewsbury
Messrs. Osborn & Son, Fulham
" O'Keeffe, M. & C., Dublin
Mr. Perkins, John, Northampton
Mr. Parker, Robt., Tooting
Mr. Pope, Henry, Birmingham
Messrs. Pridham & Sanders, Croydon.
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Messrs. Pearson, J. R. & A., Chilwell
Mr. Palmer, John, Annan
Messrs. Rollisson, W. & Son, Tooting
" Rivers, T. & Son, Sawbridgeworth
Mr. Standish, John, Ascot
Mr. Shaw, John, Manchester
Messrs. Saltmarsh & Son, Chelmsford
" Stewart & Son, Dundee
Mr. Smith, Richard, Worcester
Mr. Spence, E. B., Darlington
Mr. Sandy, J., Stafford
Messrs. Toole & Co., Dublin
" Urquhart, W. & Son, Dundee
Mr. Veitch, Jas., Chelsea
Mr. Van Houtte, L., Ghent
Mr. Verschaffelt, Jean, Gheut
Messrs. Wood, W. & Son, Maresfield
" Waterer & Godfrey, Woking
Mr. Waterer, John, Bagshot
Mr. Wood, J., Rouen
Messrs. Wood & Ingram, Huntingdon
Mr. Walton, Hy., Marsden
Mr. Williams, B. S., Holloway
Mr. Wheeler, Geo., Warminster
Mr. Weick, Adolp., Strasbourg.
Mr. Wills, W., Leamington Spa
Mr. Warner, Thos, Leicester
Mr. Watkinson, Hy, Manchester
Mr. Yates, R. S., Sale

N.B. Second List will be Advertised.

Strong Plants, 21s. each. The usual allowance to the Trade.

Two coloured Drawings by Andrews may be had post free for 24 stamps.



"THE STUDENT" PARSNIP.—The FIRST PRIZE for PARSNIPS at the INTERNATIONAL SHOW of the Royal Horticultural Society, South Kensington, October, 1862, was awarded to "The Student," raised from Seed obtained of Messrs. SUTTON & SONS, Reading. It has also obtained many other Prizes this year.

The flavour of this Parsnip is far more agreeable than that of other kinds.

Those exhibited on Messrs. SUTTON'S Stand having been sown very late in the season were of more moderate size, and are thus described by the reporter for the "Gardeners' Weekly Magazine:"—"But the subject of most interest to the gardeners was a lot of roots of the Student Parsnip, a new sort raised by Professor Buckman by successive improvements of the wild Parsnip. The distinctness of this variety is perceptible in a moment; the roots are of moderate size, regularly tapering, and with a clean yellowish skin, without trace of canker."

SUTTON & SONS are now prepared to offer New Seed of this popular new Vegetable at 1s. per oz.; also to the Trade in larger quantities on liberal terms.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Two First-class New Early Peas, quite distinct.



SUTTON'S RINGLEADER
AND
SUTTON'S LONGPODDED TOM THUMB.

SUTTON & SONS have every confidence in offering the above as decidedly the forwardest Peas yet out, having been carefully tested last season against every other early Pea which has hitherto been offered to the public.

SUTTON'S RINGLEADER, 2½ feet.—This Pea is loaded with well-filled pods, which come in for gathering all at the same time. In Messrs. Sutton's Trial Grounds the haulm was cleared and the land planted with another green crop before the common early Peas were ready for gathering. Price 2s. 6d. per quart.

SUTTON'S LONGPODDED TOM THUMB, 1 foot.—This has all the merits of the old Tom Thumb and Beck's Gem, which are so useful for small gardens and forcing, with the greater advantage of being covered with pods full twice the length of the sorts named. Price 2s. 6d. per quart.

As the stock is limited early orders are requested.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.

The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

Mr. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2s. 6d. per quart.

The Trade supplied at the usual discount. Testimonials forwarded on application.

Sible Hedingham, near Halstead, Essex.

TWO TONS of EARLY ASHLEAF POTATOS, Select Stock, 8l. per Ton, to be Sold by Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

30,000 excellent DRUMHEAD CATTLE CABBAGE PLANTS, price 3s. per 1000, to be Sold by Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SONS, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

CARTER'S FARMER'S VADE-MECUM.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7s. 6d. per bushel, or 48s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

TRADE

HALLETT'S [PEDIGREE] NURSERY WHEAT.

MARK.

FROM THE TOP OF THE CHALK DOWNS.

Seed required in November, 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

See full advertisement with engraving of Ear in Numbers of *Agricultural Gazette* and *York Lane Express* for September and October, and in those of *Bell's Weekly Messenger* for October and November 1864.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Bog Mould, Sphagnum, Rock, Sand, Stone, &c. Circulars, containing List of Prices, with other information, post free on application

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



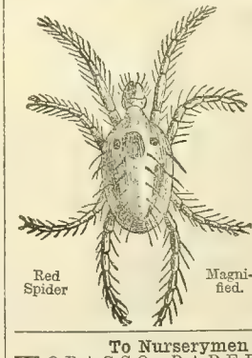
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

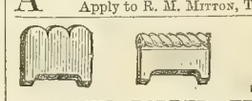
Red Spider — Magnified.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

To Nurserymen and Seedsmen.

TOBACCO PAPER, first-rate quality. Price on application to CHAS. BROWN, Greenheys, Manchester.

ARCHANGEL CARGO MATS on SALE. Apply to R. M. MITTON, The Baltic, London, E.C.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

SUTTON'S

Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.

SUTTON'S GUINEA COLLECTION for BEDS and BORDERS

For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.

SUTTON & SONS,
Royal Berks Seed Establishment,
Reading.

HYACINTHS, TULIPS, and other DUTCH BULBS,
Imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

CARTER'S GARDENER'S VADE-MECUM.

American Plants.
AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.
Knap Hill Nursery, Woking, Surrey.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

ZONALE PELARGONIUM SEED (BARR & SUGDEN), saved from Mr. Bull's superb New Varieties; colours scarlet, white, pink, cerise, rose, carmine, blush, salmon, rose-pink, orange-scarlet, &c., many with very distinct eyes, 2s. 6d. per packet; Mr. Bull's magnificent MIMULUS, 1s. per packet; Mr. Holland's Prize CYCLAMEN PERSICUM, 1s. per packet. Trade packets of either of these Seeds, 2s. 6d. and 5s.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

New Pelargoniums for 1864.
B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK'S NEW and CHOICE VARIETIES for this season, and that he will be prepared to supply strong plants the end of this month.
A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, will be published in a few days and forwarded to all previous customers and applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

New Hardy British Ferns.
J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.
POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.
(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)
Likewise ATHYRIUM FILIX-FŒMINA PARSONSIÆ, VERNONIÆ, and FISSIDENTO-EXCURRENS at 5s. each.
Dorking, Nov. 12.

New Pansies.
THOMAS BARNES is now prepared to execute orders for his splendid SEEDLING PANSIES, a DESCRIPTIVE LIST of which may be had on application.
Very choice PANSY Seed, 1s. 6d., 2s. 6d., and 5s. per packet.
GLADIOLUS BOWIENSIS (bright glowing scarlet), in fine bulbs, per 100, 10s., 15s., and 20s.; per 1000, 90s., 125s., and 150s.
Dane Croft Nursery, Stowmarket, Suffolk.

Two Splendid Seedling Azaleas.
WILLIAM BARNES begs to announce that in consequence of the great demand he has had for small plants of his BRIDE of ABYDOS, he is unable to supply any more of this size.
PURITY.—A few small plants to offer at the prices advertised.
Plants of an extra size of both the above varieties can still be had, the Prices of which can be obtained upon application.
Camden Nursery, Camberwell.—Nov. 12.

Rhododendrons.
JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.
JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.
MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.
American Nursery, Bagshot, Surrey.

New Hardy Rhododendrons.
WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—
MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; on or perhaps the most attractive and beautiful. 42s. each.
MRS. JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42s. each.
MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31s. 6d. each.
STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy; decidedly the best in its way; it is a very free bloomer. 31s. 6d. each.
LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31s. 6d. each.
CHARLES BAGLEY.—Cherry red, fine habit and truss. 31s. 6d. each
Knap Hill Nursery, near Woking, Surrey.

Catalogues.
H. LANE AND SON beg to inform their patrons that the following CATALOGUES are now issued post free.
TREE and SHRUB, containing Rhododendrons with descriptions, a large variety of Conifers, Ghent Azaleas, &c.
FRUIT.—All the finest in each division, and a large collection in pots.
ROSE.—A selection of the most popular sorts.
The Nurseries, Great Berkhampstead, Herts.

EDWARD TAYLOR, Derwent Nurseries, Malton, Yorkshire, having large Stocks of the following, he offers them at the annexed low prices:—
DOUBLE SNOWDROPS, 13s. 6d. per 1000.
Large BLUE DUTCH CROCUS, 10s. per 1000.
Large YELLOW DUTCH CROCUS, 10s. per 1000.
MIXED CROCUS, 10s. per 1000.
LILIUM LANCIFOLIUM ALBUM, fine roots, 9s. per dozen.
LILIUM LANCIFOLIUM RUBRUM, fine roots, 9s. per dozen.
Double VAN THOL TULIPS, 3s. per 100.
Double REX RUBRORUM, TOURNESOL, and YELLOW ROSE TULIPS, 5s. per 100.
Mixed BORDER HYACINTHS, 16s. per 100.
2-years' ASPARAGUS ROOTS, fine, 15s. per 1000.
3-years' ASPARAGUS ROOTS, fine, 20s. per 1000.
1-year SEAKALE, 3s. per 100.
2-years' SEAKALE, 5s. per 100.
DWARF ROSES, best named sorts, 40s. per 100.

Paul's Nurseries, Waltham Cross, N
WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the Trees, &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for Transplanting.
HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.
FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.
ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.
BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL'S possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.
BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.
His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.
PRICED CATALOGUES free by post. Orders by post promptly attended to.
Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

To the Nursery Trade.
MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade 5000 DWARF-TRAINED PEACHES and NECTARINES, all the leading kinds, 1 and 2-year Trained. They are unusually fine clean-grown healthy Plants. Price 36s. to 42s. per dozen, according to size, &c. Their Trade NURSERY LIST may be had on application.

Vines—Extra Extra Strong.
FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 1500 extra-fine well-ripened VINES of all the new and leading kinds, TRUE TO NAME. Many are as thick as the "little finger." A better lot of Vines they believe were never grown. Inspection invited. Price from 3s. 6d. to 15s. each, according to kinds and strength. List of kinds on application.
"Upton" Nurseries, Chester.

Vines, Vines—extra strong.
J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Vine Duchess of Buccleuch.
ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.
The following Certificates and Prizes have been awarded at various London and other Exhibitions.
Two Certificates of Merit.
Three First-class Certificates.
Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 942 and 1005.
Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Peaches, Nectarines, and Apricots.
WILLIAM FLETCHER begs to announce that he has a large stock of the above named, in Dwarf Maiden Trees, good clean healthy plants; also Dwarf Cubbacks suitable for potting. Roses and all kinds of nursery stock.
Prices forwarded on application to WILLIAM FLETCHER, Ottershaw Nurseries, Chertsey, Surrey.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.
RICHARD SMITH, Nurseries, Worcester.

WALL-TRAINED FRUIT TREES, Bearing Size.—Very handsome well-ripened Trees of Fruiting Size, comprising Peaches, Nectarines, Apricots, Plums and Pears, standard and dwarf-trained; suited for giving a good crop the first year. An inspection invited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston Station, South-Western Railway (Windsor Branch).

EXTRA FINE FRUIT TREES.—Dwarf-trained Peaches, Nectarines, Plums, and Cherries, of all the leading kinds (true to name), 30s. per dozen; 12l. per 100—well trained, with from five to eight strong branches. Also extra fine Dwarf Maiden Peaches, Nectarines, Apricots, Cherries, and Plums, 60s. per 100; or 29l. per 1000—all very clean and good rooted.
GEORGE GRAY & SON, Nurserymen, BROX, near Chertsey, Surrey.

Railway Nurseries, Watford.
E. R. GREENUS begs to offer for Sale this Season fine Trained Trees of PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, CHERRIES, and APPLES, of most approved sorts.
Also Extra Large IRISH IVIES, in pots, from 4 to 8 feet high; and a General Stock of FOREST and ORNAMENTAL TREES, FLOWERING SHRUBS, EVERGREENS, ROSES, CONIFERÆ, &c., all in a most healthy state, and will remove with safety, and from his proximity to the Watford Station, London and North-Western Railway, E. R. G. can execute orders to any part of the country with promptitude and despatch.
N.B. A large Stock of extra strong CLIMBING ROSES in pots.

CAMELLIAS and AZALEAS, full of Flower-buds, 21s. and 24s. per dozen. ORANGE TREES, full of fruit, 2s. 6d. and 3s. 6d. each. FERNS and FERN CASES, an immense variety. HYACINTHS, best named, 6s. per dozen; do. mixed, 20s. per 100. YELLOW DUTCH CROCUS, 1s. per 100, 8s. per 1000, &c.
R. GREEN, 154, Kingsland Road, N.E.; and Bedford Conservatories, Covent Garden Market, W.W.

TO BE SOLD, Two very fine and healthy Specimen Plants of CROTON VARIEGATA and PICTA, 5 feet high, and from 3 feet to 4 feet in diameter. May be had upon reasonable terms, by application to
P. R. DAVIDSON, Gardener to G. J. Yarburgh, Esq., Heslington Hall, near York.

ROYAL HORTICULTURAL SOCIETY.—A limited number of ORCHIDS, chiefly ODONTOGLOSSUMS, just received from the Society's Collector at Bogota, are ordered by the Council to be Disposed of to the Fellows in Collections of Five for Ten Guineas.
Applications to the Secretary will be entertained in the order in which they are received.

JAMES VEITCH

Has much pleasure in directing attention to the following NOVELTIES, feeling confident that from their sterling merit they cannot fail to give general satisfaction:—

SPLENDID NEW AZALEAS INDICA.

STELLA.
Bright orange scarlet, with deep violet stain on the upper segments of the corolla. The finest variety ever offered. Price 31s. 6d.

COMET.
Bright salmon scarlet, with violet tinted upper petals. Very beautiful and effective.
Price 21s.

VESUVIUS.
An exceedingly brilliant orange scarlet, tinted with purple on the upper petals. A splendid variety.
Price 21s.

The Set of Three, £3 3s. *The usual Discount to the Trade.*

NEW FRUITS.

APRICOT SUKER PARA or GREEN GAGE.
Full-sized Dwarf-trained trees, 21s. each.
One-year Dwarf-trained trees, 15s. each.

PEAR PRINCESS of WALES.
Dwarf Maiden trees, 10s. 6d. each.
A few Pyramid and Standard trees, 15s. each.

For full descriptions of these splendid Novelties see *Gardeners' Chronicle* for October 29, 1864, p. 1033.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

NEW PLANTS.

ONE HUNDRED and TWENTY PRIZES and AWARDS have been made to

WM. BULL

FOR NEW AND RARE PLANTS ALONE,

AT THE PRINCIPAL LONDON FLOWER SHOWS DURING THE PRESENT YEAR.

W. B.'S AUTUMN LIST OF NOVELTIES

is now ready and can be had on application.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

GENUINE NEW GARDEN SEEDS.



JAMES CARTER & CO.



ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

NEW KINDS OF FRUITS.

MESSRS. THOMAS RIVERS & SON

BEG TO CALL ATTENTION TO THE FOLLOWING

NEW OR RARE VARIETIES OF FRUITS,

all of which they can with confidence recommend.

Nectarines.

VICTORIA (RIVERS).—The finest known; bearing trees in pots, young Trained Trees and Standards. 10s. 6d. each.
PINE APPLE (RIVERS).—A large Orange Nectarine, bearing trees in pots, and young trained trees. 5s. each.
PRINCE OF WALES (RIVERS).—The latest; bearing trees in pots and young trained trees. 5s. each.

Peaches.

EARLY ALBERT (RIVERS).—Bearing trees in pots and young trained trees. 5s. each.
EARLY VICTORIA (RIVERS).—Bearing trees in pots, young trained trees, and standards. 5s. each.
PRINCE OF WALES (RIVERS).—Trees in pots, and Maiden trees, 5s. each.
PRINCESS OF WALES.—One of the largest of Peaches; bearing trees in pots and young trained trees. 10s. 6d. each.

Apricots.

OULLINS' EARLY PEACH.—Maiden trees, 3s. 6d; young trained trees, 5s. each.
EARLY MOOR PARK.—Maiden trees, 3s. 6d. each.

Cherries.

TRANSPARENT, LARGE, AND FINE.
EARLY RED BIGARREAU, very early.
LOVE APPLE, a Spanish sort.
LUDWIG'S BIGARREAU, large and early.
BIGARREAU REVERCHON, large and late.
RIVAL.—Black, very late.
Young trees, Pyramids and Dwarfs, 2s. 6d each.

Grapes.

EARLY SMYRNA FRONTIGNAN, the earliest and richest, bearing rods, 10s. 6d. each.
PRIMAVIS FRONTIGNAN, ditto, 5s. each.
SMYRNA FRONTIGNAN, ditto, 10s. 6d. each.
TOKAY FRONTIGNAN, ditto, 5s each.
TROVEREN FRONTIGNAN, ditto, 5s. each.

Pear.

SUMMER BEURRÉ D'AREMBERG (RIVERS).—Fine pyramids, 10s. 6d. each.

Strawberries.

ROYAL HAUTBOIS (RIVERS).—The largest and finest of the race. Plants, 3s. per dozen; strong bearing ditto, 6s. per dozen.
BLANCHE D'ORLEANS.—A large White Alpine, 3s. per dozen,

The above are all fully described in the CATALOGUE of FRUITS, by

THOS. RIVERS, NURSERIES, SAWBRIDGEWORTH, HERTS.

NEW SCARLET CLOVE CARNATION GARIBALDI.

YOUELL & CO.

Have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious clove scent which it possesses is not to be equalled in any of its class. 5s. per pair.

CARNATIONS and PICOTEES.

YOUELL & Co.'s Collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:—

CARNATIONS, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.
PICOTEES, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.
PICOTEES, on yellow grounds, 20s. and 30s. per dozen pairs.
Finest mixed BORDER CARNATIONS and PICOTEES, 9s. per dozen pairs.
True old Clove CARNATIONS, 12s. per dozen pairs.
Scarlet old Clove CARNATIONS, 18s. per dozen pairs.
FIRE KING, fine light scarlet CLOVE, very fragrant, 2s. 6d. per pair.
Wheeler's perpetual-flowering CLOVE, 12s. per dozen plants.
YOUELL'S KING of SCARLETS, new perpetual-flowering scarlet CLOVE, very brilliant and highly fragrant, 18s. per dozen plants.

NEW ITALIAN YELLOW CARNATIONS.

YOUELL & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction. Price 3s. 6d. per pair or 40s. per dozen pairs, of distinct kinds.

PERPETUAL FLOWERING or TREE CARNATIONS.

FLOWERING SUMMER AND WINTER.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended not only for their delightful fragrance but the brilliant display they afford during the autumn and winter months, either in the Greenhouse, Conservatory, or open Garden.

Price for 50 or 100 Pair to Trade on application.

ROYAL NURSERIES, GREAT YARMOUTH.

JAMES VEITCH begs to announce that the following CATALOGUES are now ready, and will be forwarded free on application.

A DESCRIPTIVE CATALOGUE of HARDY PLANTS.
A DESCRIPTIVE CATALOGUE of FRUIT TREES.
A DESCRIPTIVE CATALOGUE of ROSES.

Also may be had

A GENERAL CATALOGUE of STOVE and GREENHOUSE PLANTS (Ferns and Orchids being included).
A CATALOGUE of NEW and RARE PLANTS for 1864.

Royal Exotic Nursery, King's Road, Chelsea, S.W.

New Seeds, Growth of 1864.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.

The prices are moderate and the quality fine, owing to their having been harvested well.

Royal Berkshire Seed Establishment, Reading.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

CHRYSANTHEMUM SHOW, WEDNESDAY, November 9, 1864.

AWARDS OF THE JUDGES.

CHRYSANTHEMUMS.

CLASS I.—Six Plants, distinct varieties, on single stems.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

CLASS II.—Three Plants, distinct varieties, on single stems.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

CLASS III.—POMPONS: Six Plants, distinct varieties, on single stems.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate

CLASS IV.—POMPONS: Three Plants, distinct varieties, on single stems.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

CLASS V.—Six Standard Plants, Large flowers or Pompons.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

CLASS VI.—Six new varieties of last year.

CLASS VII.—Six new varieties of the current year.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

CLASS VIII.—Twenty-four Cut Blooms, distinct varieties.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

CLASS IX.—Twelve Cut Blooms, distinct varieties.

CLASS X.—Six Cut Blooms, distinct varieties.

CLASS XI.—One Specimen Plant, either Large flowers or Pompons.
Mr. A. Forsyth, Brunswick Nursery, Stoke Newington, First-class Certificate.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE,

LIST OF AWARDS, NOVEMBER 8, 1864.

FIRST-CLASS CERTIFICATES.

ATHYRIUM FILIX-FŒMINA VICTORIÆ, from Messrs. Ivery & Son, Dorking
ATHYRIUM FILIX-FŒMINA VERNONIÆ, from Messrs. Ivery & Son
CUPRESSUS LAWSONIANA ARGENTEA, from Messrs. Waterer & Godfrey, Knaphill
EPIDENDRUM AMABILE, from Messrs. J. & C. Lee, Hammersmith
EPIPHYLLUM TRUNCATUM TRICOLOR, from Messrs. J. & C. Lee
POLYSTICHUM ANGULARE GRANDICEPS, from Messrs. Ivery & Son
POLYSTICHUM ANGULARE ROTUNDATUM, from Messrs. Ivery & Son

SECOND-CLASS CERTIFICATES.

CHRYSANTHEMUM (POMPON) ALICE, from Mr. Ingram, Royal Gardens, Frogmore
CHRYSANTHEMUM (POMPON) PRINCESS BEATRICE, from Mr. Ingram
BEGONIA ORNATA (HYB.), from Major Trevor Clarke, Welton Park

SPECIAL CERTIFICATES.

To Messrs. Ivery & Son, for a collection of HARDY FERNS
To Messrs. Downie Laird & Laing, for CHRYSANTHEMUM blooms

The NEXT MEETING will take place on December 7, in conjunction with the International Fruit Show.

THOMAS MOORE, Secretary to the Floral Committee.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 12, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Nov. 17—Linnean .. .. 8 P.M.

WE resume some notice of the Collection of GRAPES exhibited from the Garden of the Royal Horticultural Society at Chiswick, October 19 to 21, 1864. It consisted of the following varieties:—

WHITE.

White Muscat of Alexandria
Canon Hall Muscat
Royal Muscadine
Reeves' Muscadine
White Frontignan
Golden Hamburgh
White Nice
Blussard Blanc
Raisin de Calabre

BLACK.

Black Hamburgh
Frankenthal
Dutch Hamburgh
Muscat Hamburgh
Violet Frontignan
Esperione
Black Prince
Morocco Prince
Burchardt's Prince
Oldaker's St. Peter's
Prune d'Herault
Lady Downes' Seedling
Black Morocco
Siderites Smyrna
Catalenesia Nera
Black Monukka

RED, OR ROSE COLOURED.

Chasselas Rose de Falloux
Tokay des Jardins
Ahbée

These Grapes were grown in the large Conservatory at Chiswick. The Vines were planted about seven years ago, but many of the original plants have since been removed and replaced, or grafted with other sorts. Half of them have their roots outside, while the other half are planted inside. The strongest plants, all other circumstances being equal, are those having their roots outside, and they bear the largest bunches and berries. No border was purposely made for them, except to a width of from 2½ to 3 feet from the wall, which was prepared with good soil for them to start in. Beyond this they had a terrace, level on the top, which was originally nearly 3 feet above the general level of the garden. This terrace was composed chiefly of clay loam from an excavation in the garden. Consolidated

from the time it was laid down nearly 30 years ago, it was not moved when the Vines were planted, and their roots had nothing more penetrable before them than this crude heterogeneous mass, which was intended to be gradually removed and replaced with more tender materials. The plants, however, as it appears, required only a little encouragement at the start, and then they proceeded to attack the more solid earthwork of the terrace, and succeeded in taking complete possession of it with their roots.

The varieties of Grape Vine above-mentioned form a part of the large collection which exists at Chiswick. The best for a general crop among the black sorts is unquestionably the Black Hamburgh, and especially that variety of it called the Frankenthal. The Dutch Hamburgh is larger, but comparatively coarse, and is by no means to be preferred. The Muscat Hamburgh is esteemed by those who like the Muscat flavour; its bunches and berries are improved in size by being grafted on the Black Hamburgh, on which it also sets better. The Esperione colours well, being of a bluish black; but we observe that under this name the true sort is not always met with. The Black Prince is well deserving of a place in a collection; some remarkably fine bunches of this old variety were exhibited in the past season. The Morocco Prince, said to have been raised between the Black Prince and Black Morocco, has a sprightly flavour. Burchardt's Prince is capable of being grown to a large size, but it requires rather more heat than the Black Hamburgh to develope it in full perfection; it hangs well, forming a succession to the Black Hamburgh varieties. The same may be said of the Black Morocco. As a late sort, Oldaker's West's St. Peter's must be reckoned very useful; although not so large as the Black Barbarossa, its bunches are more compact. As a late sort, however, Lady Downes' Seedling is perhaps the best for flavour, and it produces handsome bunches of a fine black colour. Catalenesia Nera has tolerably large bunches, black, as its name implies, but the berries are not sufficiently large. The Black Monukka forms a large bunch, with berries not very large, but stoneless. This being the case, it may become valuable as a stoneless raisin Grape in those countries or colonies which possess a climate sufficiently hot and dry for rendering the fruit an article of commerce. The Siderites Smyrna is a large late Grape, but coarse-fleshed and hollow.

Of the white Grapes exhibited, the White Muscat of Alexandria must still rank at the head; for although the Canon Hall Muscat is larger, both in bunch and berry, yet it is not so rich; still it is a noble looking Grape, and well deserves cultivation, but by no means to the exclusion of the old sort. The Royal Muscadine is a good bearer, and can be grown where a less degree of heat can only be afforded than that which the Muscats require. Reeves' Muscadine forms a compact bunch, will succeed in the same temperature as the preceding, and is deserving of cultivation. Of the old and deservedly much esteemed White Frontignan good bunches were exhibited; and there were very fine bunches of the Golden Hamburgh. The White Nice is not reckoned first-rate as regards flavour; but its bunches are large, hang long, and are sometimes ripened to tolerably good flavour. The Blussard Blanc is a wine Grape. The Raisin de Calabre is good looking, hangs long, and is sometimes desirable and useful on account of these properties; in quality it is tolerably good, but not rich.

Of red or rose-coloured Grapes, the Chasselas Rose de Falloux has a long slender bunch, with berries of a beautiful reddish tinge. The Tokay des Jardins resembles the preceding, but is not so good. The Ahbée, an Indian Grape, from the Deccan, is always much admired for its beautiful rose-coloured tinge; it has a Sweet-water flavour, but is not rich.

From this exhibition it will be seen that by fruiting the numerous varieties in the extensive collection of the Royal Horticultural Society at Chiswick that have yet to be proven, and exhibiting them, a knowledge of the best varieties may at length be disseminated amongst those interested in the cultivation of this excellent and highly useful fruit; and by making selections again and again, those most worthy of the expense and care attending their production need only be ultimately employed. Thus we may ensure in this country the finest Grapes in the world. This too, we may observe, is creditable and legitimate work for a Horticultural Society to engage in; and it alone stamps a value upon plain practical Chiswick, which is to be sought in vain in acres of fashionable parade ground.

OUR readers, who are not exclusively water drinkers, have probably each some particular beverage which they prefer, and of which, when it is to be had, they freely partake. It may be port or porter that is their usual choice, but they do not restrict themselves to it; they scruple not to drink any other good liquor that comes in their way; and the liberty they claim for themselves they concede to others. It is desirable that the same freedom should prevail as to STYLES IN FLOWER GARDENING. On this subject many have very narrow ideas, and can hardly speak of any tastes besides their own without a sneer or sarcasm. Not unfrequently quite an outcry is raised against the autumnal flower garden which is arranged and adorned on "the bedding-out system" as it is called. An able writer on "Elizabethan Gardening," whose article in *Fraser* has been given at length in our pages, remarks: "The modern horticulturist's idea of planting a garden is in such fashion, that for nine or ten months in the year, it shall be a desert without a flower or shrub of any interest. . . . He has but one idea, and that is to force a few coarsely contrasted plants, without scent, without variety, stiff and formless, to make a show of glaring colours in August and September." This censure is doubtless to some extent deserved by those who devote themselves to no other kind of flower gardening. They defraud themselves of much enjoyment. It is natural too for the botanist, and florist, strictly so called, to be disaffected towards this style of ornamentation. Those whose chief interest lies in particular plants will doubtless be indifferent to a blaze of colour.

It is not to be denied, however, that the *tout ensemble* of a fine autumnal flower garden is often magnificent. Few can stand in presence of a well executed example of this style, and resist the momentary fascination of the scene. And then it is to be remembered that its splendour lasts for three months at least, during our most agreeable season for walking out of doors. It goes on improving, too, till nearly its close—the Gazanias being less affected by passing clouds, and the Dahlias assuming a more graceful matronly shape, and producing more consummately perfect flowers as September draws to its cool and dewy close. The objection as to the want of variety of the plants employed might easily be obviated, and in fact is becoming every day less valid. The Geraniums now available for bedding purposes are a host in number, and are greatly diversified in variety—so are the Gladioli, and many other things.

Where a wall with a southern aspect borders the garden, it may be clothed with the greenhouse Tropæolums, Cobœa, Maurandia, Clematis, &c. Beds might be filled with Cannas, Tritonias, and other denizens of the greenhouse. In short, the gardener might easily fall into the *embarras des richesses*. If he would only contract his canvas, for he is generally too ambitious of extent, and refine and diversify his colours, he might easily produce a picture which even the most fastidious would regard with admiration.

It is admitted that this style is best fitted for the families that spend their summers in London, and visit their country seats only in autumn. But why should not their pleasure be consulted? If it is reasonable to arrange vegetable crops, and to force Vineries so that supply may be contemporaneous with demand, why should not flower gardens be dealt with in the same way? A member of Parliament or man of fashion, worn and wearied with London life, will be glad in autumn to find his residence in the country as gay as possible, and certainly he has a right to please himself. A casual visitor might as reasonably condemn the pattern of the carpet in a lady's boudoir, as the style which she selects for her flower garden.

Of course this reasoning does not apply when a gentleman resides on his property throughout the year. If he patronises exclusively the bedding-out system, he is like a man who addicts himself to a liquor which is in season only three months in the year; and he may be in danger of committing this absurdity. Clever gardeners, who very frequently train the tastes of their employers, may find that they cannot do anything effective in any other way, and naturally take to the bedding-out style of ornamentation: whence it is sometimes seen, especially in the north, even in kitchen gardens, and in incongruous conjunction with Peas and Cabbages, and other culinary articles. A gentleman, who is a constant resident on his property, should have a pleasure garden for every phase of the seasons. It is long since Lord BACON proposed winter, spring, and summer gardens; but it is seldom that his ideas have been adequately realised. Perhaps the arrangement and co-ordination of these season gardens are not so easy as at first may be imagined. We may hazard a few remarks on this subject at another time. Meanwhile we would beg to represent that there is little sense or taste in pouring contempt on the department in which the most complete success has been attained.

THE following letter having reference to the EXHIBITIONS OF THE ROYAL HORTICULTURAL SOCIETY in 1865, has been partially circulated amongst the Fellows of the Society:—

Royal Horticultural Society's Gardens,
South Kensington.

As Chairman of the Committee for re-organising the Shows of the Royal Horticultural Society, I beg leave to enclose for your consideration the accompanying List of Plants, which has been prepared with the view of ascertaining from yourself and other Fellows of the Society who are practically interested in Horticulture, how far it may be possible to establish among the Fellows of the Society during the year 1865 a weekly show of Flowers, Fruit, and Vegetables, each in their season.

The Committee are of opinion that a weekly show would be of interest to the Fellows, and useful to the progress of Horticulture.

They consider that it would not be difficult to organise it at South Kensington, where accommodation suitable at *all* seasons of the year, and with proper temperatures has been provided, and that all that is wanted is the hearty co-operation of the Fellows themselves to enable it to take place.

The Committee consider that a weekly show has the following advantages over the present system of Great Shows:—

1. It would greatly increase the number of exhibitors, the majority of whom refrain from contributing to a Great Show a solitary specimen of well-known species, however fine. A weekly show would enable exhibitors of all kinds to select their own time of the year for the exhibition of what they might think proper to send.

2. It would bring before the Fellows a much more complete representation of the current state of Horticulture throughout the year.

3. It would enable the specimens to be examined much more deliberately and usefully than it is possible to do during the bustle and excitement of a one day's great show, and would consequently be calculated to promote the steady progress of scientific Horticulture.

4. It would advantageously extend those limits to the varieties of plants necessarily imposed by the Schedules of Exhibitions drawn up for a single day.

5. The details of the weekly shows will be announced, but it may be stated that it is not intended that the weekly shows should supersede one or more great shows taking place during the year.

I am permitted to mention that Her Majesty the QUEEN has graciously consented to direct that specimens shall be furnished to the Weekly Shows from the Royal Gardens, and several of the most influential Fellows of the Society have promised to contribute to them.

I shall be greatly obliged by your marking on the accompanying list which of the plants you would undertake to cultivate with the view of being sent in 1865.

The Committee are in hopes that they will be able to obtain facilities from the Railways for the transmission of the specimens.

I have the honour to be, &c.
JOSEPH PAXTON.

The list referred to in the foregoing letter is annexed; and Fellows who are disposed to exhibit any of the plants, or others not named, at any time during the year 1865, have been requested to state at what date they will forward specimens:—

Acacia, Achimenes, Allamanda, Alocasia, Amaryllis, Anemone, Anthurium, Antirrhinum, Aphelandra, Aphelexis, Arum, Aster, Auricula, Azalea, Balsam, Begonia, Berberis, Bougainvillæa, Bouvardia, Bromelia, Buddlea; Cactus, Cereus, Opuntiæ, &c.; Caladium, Calceolaria, Callistemon, Calochortus, Cyclobothra, Camellia, Campanula, Candytuft, Canna, Carnation, Ceanothus, Chrysanthemum, Cineraria, Cistus and Helianthemum, Clematis, Clerodendron, Cockscomb, Convallaria, Correa, Cotton Plant; Crassula, Kalosanthes, &c.; Crinum, Crocus, Croton, Cuphea, Cyclamen, Cycas, Cytisus, Dahlia, Daisy, Daphne, Delphinium, Deutzia, Dielytra, Dieffenbachia, Dionæa, Diosma, Disa, Dorstenia; Double flowering Peach, Cherry, &c.; Draba, Dracæna, Epacris, Eranthemum, Eriostemon, Erythrina, Escallonia, Euphorbia, Ferns, Ficus, Fritillary, Fuchsia, Gardenia, Gentian, Geranium, Gesnera, Gladiolus, Gloxinia, Heath, Hedychium, Heliotrope, Hellebore, Hepatica, Hibiscus, Hollyhock, Honeysuckle, Hovea, Hoya, Hyacinth, Hydrangea; Iris, Ixia, &c.; Ixora, Jasmine, Lantana, Lapageria, Lilac, Lily, Lobelia, Lupine, Lychnis, Magnolia, Maranta, Mertensia, Mignonette, Mimulus, Mosses, Musa, Myrtle, Narcissus, Nasturtium, Nemophila, Nerium, Olea, Orchids, Oreopanax, Œnothera, Palms, Pandanus, Pansy, Passion Flower, Pea

Pelargonium, Pentstemon, Pæony, Petunia, Phlox, Picotee, Pimelea, Pine, Pink, Pitcher Plant, Polyanthus, Poppy, Potentilla, Primula, Pyrethrum, Ranunculus, Rhododendron, Rocket, Rose, Salvia, Saxifrage, Scabiosa, Scilla, Sedum, Solanum, Spiræa, Statice, Stock, Tea plant, Thibaudia, Tulip, Vaccinium, Vallota, Verbena, Veronica, Violet, Dog Tooth Violet, Russian Violet, Wallflower, Yucca, Zinnia, and other plants not specified above.

—— Conifers are grafted, it appears, with very great success at Castle Kennedy, the grafted plants, of which large numbers have been used, being quite equal in symmetry to those raised from seeds. By adopting the plan of wedge-grafting it is found that all danger of damage by wind is avoided, and in a short time the point of union between stock and scion becomes scarcely discernible. Mr. Fowler has by this means been enabled to furnish the grounds at this fine place with handsome plants many years sooner than it could have been done by means of seedlings. The grafting of Conifers, as observed by a northern contemporary, has sometimes been condemned, but any one who sees what has been accomplished by it at this place cannot fail to be convinced of the soundness of the practice.

New Plants.

280. Odontoglossum Alexandræ—The Princess of Wales' Odontoglot.

O. pseudobulbis ovatis compressis diphyllis, racemo simplici multifloro foliis subæquali, bracteis cucullatis acutis, floribus membranaceis pedicellis æquantibus, sepalis petalisque sæpius subæqualibus (interdum petalis multo latioribus), sepalis lanceolatis acuminatis petalis ovato-lanceolatis acutis laceris, labello breviore unguiculato acuto margine crispo apice recurvo disco maculato cristâ simplici bilamellatâ, columnâ arcuatâ clavatâ.

This splendid addition to the genus Odontoglossum has been lately received by the Horticultural Society from its collector Mr. Weir, who was fortunate enough to discover it in the gloomy forests of Santa Fé de Bogota at an elevation of 9000 feet above the sea level. It is allied to O. Pescatorei and O. crispum, but is quite distinct from both, and probably more lovely than either. Its flowers, according to its discoverer, vary in their form and size and colours, more or less of purple mingling in some cases with the usually pure white of the sepals and petals; while red spots and purple radiating lines, and a rich yellow stain down its centre, all contribute to the decoration of the lip.

As this new Odontoglot is eminently beautiful, and is certain to prove a universal favourite, I have not scrupled to dedicate it to the illustrious Princess whose name it is henceforth to bear. It will doubtless be of the easiest cultivation in a cool house. *J. B.*

ORCHIDS AND THEIR CULTIVATION.—No. I.

Time was when one could enumerate, in a line or two, all the collections of Orchids cultivated in this country. In days gone by their importation was not so much a matter of merchandise, because then very few people knew anything about the peculiar organization, and great diversity of colour, of the flowers; or had either heard of or seen the strange insect-like forms which they more or less represent. Commercial gentlemen who had business to do with foreign countries introduced a few to botanic gardens, and to such of their friends as would take the trouble to grow them; but very few availed themselves of the opportunity. It was only in botanic gardens, where the flowers as they opened came under scientific eyes, that their merits were brought before the notice of the public. Chatsworth, Wentworth, and Kew were once famous in this respect; but these collections are now completely eclipsed by those of many private growers in the country. Messrs. Loddiges' collection was also famous, but it is now scattered. The only very old one whose name has sounded familiar in our ears for 20 years at least, that may be said to have kept pace with the times, is that of Mr. Rucker, of Wandsworth. I am aware that more could be named, but these are a few of the principal in England. Turning to Scotland, the Botanic Garden at Glasgow, by the enterprise of her citizens, who trade largely abroad, had received importations again and again, many many years ago. They have, however, been chiefly of a common order. Edinburgh, though probably not to the same extent, has always had a good collection; for, go there when you may, you will always find something worth seeing. Smeaton and Dalvey, the one in the East Lothians, the other in Morayshire, both properties of private gentlemen, had very good collections many years ago; and still contain, as may be readily supposed, some unique plants; but judging these by the present standard they lag a long way behind. Twelve years ago Scotland could not boast of one other single collection worthy of the name, unless it were the few grown at Dalkeith and Bothwell Castle. But what is their history now? Hundreds of gentlemen are growing them for tens that grew them before, and their popularity is increasing every year. The more people know them the more they admire them, and the more anxious are they to become possessed of choice collections. They are the gems of all the flowers of the garden. Among them are found a variety and contrast of colours that may be sought for in vain in any other order. Ill disposed critics, and there are some of them in the world, who admire their own shadow, may laugh at your newly imported Cattleyas, and liken them to an assortment of dried bones standing up on end. They may point to the fleshy roots of some healthy specimen of the more prominent subdivisions of Vandeæ, which has a tendency to throw out roots all the way up the stem, and ask you to cut them off if you are anxious to have a really handsome plant in your possession; but some people know very well that all this hostile criticism only goes to show that if these parties consider themselves advanced students of Nature they are sadly mistaken.

However, let me illustrate these ideas practically. If you want to see a scene of gorgeous loveliness, where each individual flower will grow in your estimation the more minutely you examine it, go either by road or rail to Mr. Rucker's, at Wandsworth, and you will see such a variety of Brazilian Cattleyas of all shades of colour as will put you out of sorts with most flowers that commonly meet your gaze. Or go to Mr. Warner's at Broomfield, in the months of May and June, and you will see such a collection and variety of Cattleya Mossiæ, and its lovely congener Lælia purpurata, as I believe was never seen for purity and size of flower in La Guayra, in any part of Venezuela, or in Brazil. Again, if you want wreaths of rose, crimson, and white blended together in such a way as to defy the imitation of man, and make you for a moment pause, and get bewildered among such a forest of beauty and comeliness, go to Mr. Day's, at Tottenham, during the very same period, and you will find as many wreaths of Saccolabiums and Aërides as would supply the heads of all the fair sex who are privileged to attend "Her Majesty's Drawing-room," such a display and in such condition, I venture to say, as was never seen in Java or the East Indies. But oh! if you want purity of whiteness and chasteness of form, go to Low's, Veitch's, Williams's, or almost everywhere where collections are grown, and look at that moth-like flower which has been sent from Borneo, Java, and the Philippine Islands, and which forms festoons of flowers regularly and artistically disposed when under a high state of cultivation, and tell me if its equal has yet been found. If you want curiosity of form and a nearer approach to the animal kingdom, get the Dove-plant (Peristeria elata), and you will see an exact representation of the head and shoulders of this harmless bird nestling in the interior of a pure white dove-cot, and apparently ready to sip of the crystal stream in the font below; or the Butterfly Oncid (Oncidium Papilio majus), with its perfect antennæ, monkey-like face, perfect wings, small waist, and broad fluttering body; or the primrose-coloured Anguloa (Anguloa Clowesii), with its column and labellum, almost a fac-simile of the frontispiece of our humorous and highly popular publication—*Punch;* or Henshall's Bolbophyllum (Bolbophyllum Henshallii), with its curious jointed labellum that turns topsy-turvy, on a far more elegant pivot than human hands could make, and with a vast deal more simplicity than any mountebank that ever performed; or the three-toothed Catasetum (Catasetum tridentatum) which, when touched upon the stigma, sends its pollinia from its dark, cavern-like mouth, like a gun shot at its enemies.

Instead of amateurs sending out an occasional traveller on an exploring expedition, we now have them sent out by enterprising nurserymen in half dozens to ransack all the temperate and tropical regions of the earth. The names of Veitch and Rollisson have long been associated with Orchids and Orchid cultivation; so have those of Pescatore, Linden, and others on the Continent. All these gentlemen have done much in times past, and some of them are doing a great deal still, in introducing choice things, and showing the proper mode of cultivating them. Their ranks, however, have been recruited with new blood; and foremost among the names of those who have been catering for the public for the last few years, and with an energy which does him credit, is Mr. Stuart Low. One of our best cultivators has also entered the lists, and carries with him a knowledge of the proper cultivation of the family which few can boast of. Others, both at home and on the Continent, are driving a good trade in this way. Private speculation is not at an end, for numerous boxes are consigned to the popular Mr. Stevens, of Covent Garden notoriety. The boxfuls that come by the mail steamers from the far east, and the far west, have multiplied at least tenfold within the same number of years, as any will find who will take the trouble to read the *Times* summary of cargo arrived at port.

Now comes wonder the second—Where do they all grow? They must represent a fabulous lot of money. Everybody, it may be presumed, has heard about the value put upon a collection of Orchids, and many may think the sum ridiculously large. But before coming to a hasty conclusion, let any one estimate the amount of money that must be disbursed before valuable plants can be collected on the spot, then their consignment home, their liability to death on the way, and the considerable difficulty in getting many of the sorts not only to live but to reproduce themselves by division of the stem; and after reckoning all the care, the house-room, the fuel, the every little thing necessary to induce and maintain health, his ideas about extravagance will be a little sobered down. It is an astonishing, although it is nevertheless a pleasing fact for all lovers of flowers, to know that these imported plants do change hands, and that, too, in considerable quantities. Any one in the habit of walking round the London nurseries every year will find, in those places where Orchids are grown, that the greater bulk of the plants seen 12 months before are gone, and others are occupying their places. Specimen plants will probably be seen, time after time,—plants kept for exhibition during the season of the great shows. In all likelihood a few of the more common things may be also seen; but there are less of these remaining than was wont to be the case, and this clearly enough shows that the list of growers has been increasing.

On the Continent generally, I believe the trade will tell the same story. At least in Paris the growers for sale admit that they are driving a brisker trade than formerly. All this information goes to show that they are now pretty well scattered over the country. How tenaciously do some of our friends cling to new and rare plants of this order; and how difficult it is to get them, as it were, from their sight! Never was this better illustrated than when the writer visited the nurseries of Thibaut & Keteeler, and of M. Luddeman in the environs of Paris. Neither my friends Messrs. Keteeler or Luddeman, from whom I received much kindness and personal attention, would put a price upon a plant unless they had duplicates in their possession. There were, to my mind, something more than mere mercenary motives exemplified here, and all honour to them for it.

For the benefit of young growers, and with the view of placing upon record the intelligent practice of our own day, I shall proceed to investigate and treat upon the subject at length; and in the first place it will be well to discuss the style and formation of house which is best adapted for Orchid cultivation. *James Anderson, Meadowbank.*

NOTES ON GARDENS.—No. XXII.

Royal Botanic Garden, Glasnevin.

(*Continued from* p. 1036.)

The garden rests on calp limestone, and is in consequence unfavourable to the growth of many American plants, but the Pines seem thoroughly at home. The visitor on entering, instead of being confronted by a geometrical array of strongly contrasted colours—the most unnatural of all displays—or by angularity of any kind, finds himself easily led amongst beautifully grown Arbor-vitæs and Cypresses, with fine Wellingtonias and rare Pines among them; while here and there he meets with magnificent tufts of the Tritoma, (which does far better at Dublin, both as to size of plant and length of spike, than I have seen it on this side the Channel, the fine effect produced by these plants—never grown in lines or masses, but dotted about here and there—being very remarkable); and noble plants of Pampas Grass, which was first introduced to and distributed from Glasnevin. Pines are planted to a considerable extent in various parts of the garden, but particularly in its highest quarter, in some parts of which visitors might fancy themselves in a Pine country, so well are they developed. The largest Deodar in the Pinetum was once a cutting obtained from Skirving by Dr. Moore, and brought to Ireland in his travelling bag. The chiefs of the older Pines were two specimens of P. Pallasiana, venerable, grim, and about 70 feet high; and a fine old plant of P. Cembra, grafted—40 years ago—on the Scotch Fir. Picea nobilis bore many cones, and was 20 feet or more in height, a noble plant indeed in that state: and P. Nordmanniana, with Pinus Gerardiana, P. Montezumæ, and P. Coulteri, were also good specimens. The last named was raised by Mr. Niven from seeds which had been 20 years in Coulter's herbarium. Many beautiful and finely developed specimens of Cupressus are to be seen, particularly C. macrocarpa, Tournefortii, Goveniana, Uhdeana, funebris, and filiformis—C. Uhdeana being another travelling-bag importation. Of Pinus Gerardiana, a very handsome and distinct species, which affords food to the Nepalese, there was an excellent plant, thriving as well as those of Thujopsis borealis—the latter a great ornament to the garden. A plant very like to, if not identical with, the Stone Pine was pointed out to me by Dr. Moore as having been raised from some of the batch of seeds that saved Tweedie and a Spaniard from starvation when crossing from Buenos Ayres to Patagonia. Tweedie started with as much food as he calculated would suffice till a fresh supply could be obtained; but the rivers became swollen and impassable, and starvation disagreeably apparent, when he saw at a distance over the plains three dark objects, which proved to be Pines, on the seeds of which he and his companion lived for 10 days; from a packet of seeds from these trees the Glasnevin plant was raised. Widdringtonia juniperoides looked a very gem among the smaller Conifers. It was growing freely and compactly, and had been out for some years.

Among the Pines I met Paul Boshell, of whom the reader may ask—"Who is he?" Well, a hale old man who has been in the garden since its formation, who had the sagacity to run up a chimney in '98 when the rebels were reported near at hand, who could mow before my grandfather first opened his eyes, and who is still able to "cut around any man in the garden." The Mistleto was growing freely on a standard Rose

(Earl Talbot), and on numerous other plants; but though often tried on the common Oak, and on other species of Quercus, it had always failed to grow, though the seeds vegetated. On the branches of Quercus Daviesii there were many little dead plants of Mistleto, which had vegetated freely, but perished as soon as they endeavoured to penetrate for food. "Addison's Walk" is said to have been a favourite resort of the famous essayist, and it is margined and shaded over by massive old Yews, planted by Addison and Tickell.

Apart from the great central scene, containing the ornamental ground, houses, Pines, &c., there is a large natural arrangement of exotic herbs, one of British plants, one of hardy medical plants, a Willow garden, a very useful and important agricultural and horticultural garden, a reserve garden of considerable size, an arboretum arranged on the Linnean system, a garden of hardy fruit trees from which scions are distributed to those who apply for them, and a garden of Roses. In the ornamental ground there was a little "bedding-out," but no approach to the wall-paper type of decoration—geometrical figures, straight lines, and ceaseless repetition. Roses and numerous ornamental shrubs and plants were scattered about singly and very plentifully, the rings at the base of the standard Roses being in most cases planted with the little Phloxes, so that with abundance of Tritomas and a goodly sprinkling of other first-class herbaceous plants, bulbs, &c., there could be little lack of flower in the above department during nine months of the year.

Glasnevin is a great garden for herbaceous plants. They muster a goodly army in the natural arrangements, make a very select company in the reserve garden, display a numerous and, still choicer band in the borders that surround the two great ranges of glass, marshal scores of the really useful individuals in the economical garden, and as before indicated, present the most ornamental and graceful species here and there throughout the garden. The Lily, Daffodil, Allium, and Iris sections of the natural arrangement appeared to me quite unique for numbers of interesting species, and they must afford an extraordinary treat to the bulb-loving botanist during the flowering season. Walking round outside the houses at Glasnevin will, however, afford one of the greatest treats to a lover of herbaceous plants, &c. 'Every plant has a place,' if we could only find it, and for a great many choice and curious things that will not grow or may not be accommodated indoors, and will not do when fully exposed, that place is very often at the bottom of a wall, north, south, or as the plant may require. Whoever has seen Oxalis Boweana half so well done indoors or out as it may be seen in the Chelsea Garden, running wild along by the wall of a stove! I could find many other instances. If you see the curator of a botanic garden running a line of bedding "stuff," that would grow anywhere, along the front of his warm walls, where many curious and beautiful inhabitants of sunnier climes might sap out the congenial lime and warmth, it would not be too much to deduce from it that he had mistaken his vocation. In a narrow peaty border on the north side of the Palm house range at Glasnevin, the finer and rarer North American Ferns were beautifully grown, with Drimys Winteri, many shade-loving herbs of rarity, and the best developed specimens I have seen—numerous too—of Cypripedium spectabile. The flowers produced by these plants must have been worth some trouble to see. Those who have the plant in pots should, I think, plant it out in a similar situation, using a deep peat or other light moist soil. In narrow borders on the sunny side of the houses, Camellias, Nepal Saxifrages, Guernsey Lilies, Tritonia aurea, Abelia triflora, Dietes bicolor, Diplarrhena, Moræa, and Ficus repens, were all doing healthfully. Clerodendron fœtidum, an old stove plant, grew in luxuriant tufts, each shoot forming a flower truss; the plant, which is much valued for autumn flowering, is quite hardy, and quite wild in some parts of the garden; and along with it Abutilon vitifolium, which furnishes plenty of its large and pleasingly-coloured flowers; the fine Viburnum macrocephalum, curious Moluccellas, beautiful dwarf Irises, such as I. reticulata and cristata, and the very striking Carpesium Richii, a first-class plant, which from its neat habit, hardiness, and soft spherical beautiful yellow flower-heads, will assuredly become very popular. Sauromatum guttatum, which is sometimes grown in the stove in the neighbourhood of London, was also here, and is quite hardy at Glasnevin. This use of low walls and the making most of circumstances and capabilities, displays the real botanic gardener. A very singular little Hypericum, H. decussatum, grew here too, with Reaumuria hypericoides, a pretty and rare plant; Eurybia Gunneri, Arundo conspicua, Abelia floribunda, Convolvulus Cneorum, Libertia formosa, Cistuses, rather tender; and many other plants that could not be well and safely grown elsewhere in the gardens. Helianthus orgyalis and Silphium laciniatum were remarkable in the Compositæ bed; the former, one of the tall-growing hardy species, with narrow and somewhat gracefully drooping leaves, is much used on the continent for sub-tropical gardening; the latter, the Compass-plant of the American Indians, is, if anything, better suited for such decoration—certainly much more so than many plants I have seen used.

The note of preparation for this sub-tropical gardening is ringing loudly in some places, and I fear we shall have some wretched imitations of Battersea. Some are ardently waiting for the time to come round when they may turn out their best plants. I hope they won't lose them! The system must be tried with great caution, and to a very moderate extent. Overdone I think it a false system of gardening, and may find time to prove it so by and by. I believe the expense, time, and skill required to develope a great sub-tropical garden would, if well spent on hardy trees, Pines, flowering shrubs, and the finer herbs, such as Pampas Grass, Tritomas, and the thoroughly hardy but fine-leaved Composites and Umbelliferous plants, produce a scene superior to any to be made from plants carried out for the summer months; a scene moreover, which would be enjoyable almost every day in the year, and one of which the first would be the chief cost; whereas the continued plunging out and protecting of a vast number of tender plants must palpably be the cause of endless expense and trouble. If I dare criticise this natural arrangement of exotic herbs, it would be to the effect that one division of it occupies rather too central a position in the garden, though it could scarcely be removed now, unless by an addition being made to the extent of the latter, of which there are hopes, and certainly a fine opportunity, as a field of 10 acres with very tempting undulations lies to the north-west—runs by the river too—could be easily joined to the arboretum, and would make a most telling addition to Glasnevin.

And why not the herbaceous arrangement in a central position? Because a "natural" arrangement is one of the most monotonous ones conceivable, and in one sense the most unnatural, for it is the most diverse from that which I am not aware has yet displeased any—Nature's own admixture of tree, shrub, herb and Fern, sheltering, supporting, shading, nourishing, and beautifying each other. The system which places all the obtainable species of a genus together—subjects more like each other than anything else in nature, gives us the essence of monotony; and abhorring that, I say such an arrangement, if a necessary, should not be a conspicuous feature in a great garden. These collections of species too could be reduced with great advantage, as in many gardens half the number of species, or supposed species, would do the work as well, and the reduction would very much tend to correctness of nomenclature. A good mixed arrangement of herbaceous plants is worthy of a front rank in any garden, but that place is to be pitied which, being of limited extent, is necessarily covered by plants scientifically arranged, and has no room for glade, wood, or thicket. At Glasnevin a waving lawn decked by trees, Pines, and shrubs, of all ages and sizes, surround these scientific arrangements, and consequently the effects alluded to, so deplorably visible in some places, are unseen. *W. Robinson.*

(To be Continued).

Home Correspondence.

Rose Judging.—I have received the following approval of my remarks on this subject (see p. 1059) from a Nurseryman and Floral Secretary:—"Just a line," he observes, "to say that I think you have spoken out none too plainly respecting Rose judging and Rose judges. Your paper on the subject most wonderfully fits some persons. I am inclined to think that we want 'professional judges,' who might be engaged in the same way in which Mr. Baily, of Grosvenor Square, is engaged to judge poultry. I presume, however, that that would be too expensive for some Societies. Country exhibitions, as now managed, will never insure justice to exhibitors, since exhibitors are too frequently both judges and exhibitors; they are often appointed to decide the merits of things for which they have no reputation as growers. Then there are local influences at work. 'C.' gardener knows 'B.' gardener's plants, 'B.' gardener knows 'C.' gardener's fruits; and when the distinction is not great, the trifle is thrown in in favour of friends. I know this, and have been served badly in my time." With all this I agree; the difficulty is the expense. Such men as Mr. W. Paul, Mr. Wood, and others of equally well-known integrity would be the very men: but alas! we are in Dorset, over 100 miles S.W. of London. Still I think such men would be cheap at any money, and cause a wonderful impulse to country societies. People have no faith in the secretary, if professional, or the judges, if local and professional. Perhaps this will lead to observations from men more experienced than myself. I know nothing whatever of any flower but a Rose—I want no other; I will keep no other. I would rather be "knocked down" by a Rose than "picked up" by any other flower. To-day, Nov. 8, is my eldest brother's birthday, and also my own, and I shall irradiate him and 23 of his hunt at dinner to-day, with as beautiful a vase of Roses as heart could wish. I shall not cut a Rose after this day, as they have kept me in constant delight for six months, are in famous condition for next year, and deserve immunity from the knife! I may add that the Blandford Society is admirably managed, and that I have never heard of any complaint being made by competitors against the decisions of three of the gentlemen's gardeners selected from the neighbourhood. I believe Mr. White, of Poole, and Mr. Frederic Gill, of Blandford, nurserymen, to be good floral judges, and of the strictest integrity. No doubt there are others. If I were a nurseryman, I would not have anything to do with floral societies beyond exhibiting my commodities "gratis." *W. F. Radclyffe, Rushton, Blandford.*—I have read with pleasure Mr. Radclyffe's article upon Rose judging, and with your permission I will offer a remark or two upon that subject. I may state at once that I am totally at issue with your correspondent when he advocates the awarding of equal prizes. "I have seen (he says) stands of Roses so nearly equal that it would have been better to have placed them equal;" and as an additional argument he says that it would enable the Judges to award an extra prize to another meritorious collection. Now I contend that the awarding of equal prizes should never be resorted to except under very extraordinary circumstances, and certainly not when the contending productions are only *nearly* equal. If this mode of judging were to receive encouragement, I am of opinion that it would give universal dissatisfaction, and would open the door for loose and unjust awards, because if any difficulty presented itself, or any very nice point was to be decided, instead of resolutely facing such difficulty, a ready means of escape would present itself by the plea —"Oh, make them equal!" I contend that it is only when these very nice points are to be decided, and when it is required to make minute distinctions, that you discover whether your judges are up to their work or not; and it is upon occasions of this kind that the awards are canvassed, discussed, and—I think I may say—generally appreciated. With regard to your correspondent's suggestion that we should have Lady Judges for country Shows, I should stipulate that they be young ladies, for we have already too many old ladies in connection with country exhibitions. *W. H., Hackney.*

Potatos from Seed.—In the end of last March, when I sowed my Parsnips and Carrots, I sowed upon the same ground some seed of Potatos from the Alma and Alstone Kidneys, and by the end of May, when the Carrots were ready for thinning, the Potato plants were from 2 to 3 inches high. I had some drills drawn out, similar to those in which Peas are sown, upon a piece of ground that had been double dug during winter. The drills were then filled with fine mould and the Potatos planted 9 inches apart, in rows 2 feet asunder; they were watered two or three times during the dry weather, and twice moulded up. Finding that they grew freely, I had a stake put to each plant about 3 feet long, and I kept them tied to the stakes as they grew; ultimately they reached from 3 to 4 feet high. Last week I had them taken up, and I have selected 40 of the best looking roots of different kinds, and have put each sort into a flower-pot to plant in spring. Seven of the plants yielded as follows:—No. 1 bore 10 Potatos, weighing 1 lb. 1 oz.; one of them measures 5½ inches in length, 6½ inches in circumference, and weighs 7½ oz. No. 2 bore 22 Potatos, weighing 1 lb. 7 oz. No. 3, 16 Potatos, weighing 15 oz. No. 4, 18 Potatos, weighing 1 lb. 4 oz. No. 5, 22 Potatos, weighing 1 lb. 2 oz. No. 6, 22 Potatos, weighing 1 lb. 4 oz. No. 7, 11 Potatos, weighing 12 oz. Altogether I have about 2 bushels of Potatos from 220 seedlings. *Samuel Hodges, Imperial Nursery, Cheltenham.*

Sports in Grapes.—When I was at Clumber Park, Nottinghamshire, Mr. Moffat, the gardener there, pointed out to me a bunch of Grapes growing on the Black Frontignan Vine, the berries of which were half black and half white. This was the sample forwarded to you, and noticed at p. 986. I have never met with a similar case. I may mention in connection with this that Foster's Seedling white Grape was raised from a seed taken out of the same berry from which the Lady Downes' Seedling black Grape was raised. Both are curious facts. Perhaps some of your correspondents may be able to give some reasonable explanation of them. *Jno. Lee, Hammersmith.*

Trebbiano Grape as a Stock (see p. 1061).—A paragraph on this Vine in your last week's Paper contained a mistake which I wish to correct. Instead of the young Vine of this variety which measured 6½ inches in circumference being only six months planted, it should have been six years. *William Tillery.*

Grindon's British and Garden Botany.—The remarks made by your Reviewer upon the Key in this book induce me to express a wish I have long entertained, and for the expression of which your columns are eminently suitable, namely, that some veteran botanist would give us a Key to all plants ordinarily met with in this country, both wild and exotic;—a Key so constructed that it should meet all the practical requirements of the student, and at the same time be technical, or at all events not such as your Reviewer says "a sharp critic would call mere muddle." Loudon's Encyclopædia in some measure provides a clue to exotics, but a very large portion of it is wholly unpractical. I should be glad if it were only a Key to British plants in the first instance, published, say in the form of a pamphlet. The boon would be inestimable. The best that Mr. Babington has to say of the Key prefixed to his "Manual" is that it is "constructed on the plan of the analytical Keys used by the French school of botanists, but slightly modified so as to be less likely to mislead"! With Mr. Bentham's, prefixed to his "Handbook," I have succeeded pretty well. On the whole, the student has not much to complain of in it, nor is he foiled except with such plants as Paris quadrifolia, and Glaux maritima, the female plants of Lychnis dioica, or of Mercurialis perennis, or the female

individuals of almost any other dicœcious plant. When however he leaves the preliminary, and comes to use the secondary keys in the "Handbook," or those to the species contained in the large natural orders, whatever may be the merits of the former, he will, in several of them, break down as completely as with Mr. Babington. I am not designedly placing myself in antagonism with any reviewer; but I must beg leave to protest against the summary verdict pronounced by your own, and to invite your attention to a few facts in my own experience, bearing, as they do, on the desideratum of an accurate and unobjectionable Key, and having reference to a plant of the natural order which your Reviewer thinks Mr. Grindon has managed so badly. One of the commonest Umbelliferæ hereabout is the Ægopodium Podagraria. It flowers freely, but never ripens fruit; at least I have never been able to detect any, though I have carefully watched for it. Let any one try to make out this plant, in the only state in which we can get it, by Mr. Babington's Manual; and then let Mr. Bentham's Key be tried. In both cases the student will be stopped at the outset, by reference to characters founded on the perfectly ripe fruit. When, on the other hand, he takes Mr. Grindon's Key, he may work it out in five minutes. I have had similar difficulty on the one hand, and ease on the other, with Pimpinella Saxifraga, Helosciadium nodiflorum, and several other plants. In Mr. Bentham's Key to the Compositæ there is no adequate clue to the common Groundsel, and to the Coltsfoot. The object of this letter is to inquire if something cannot be constructed that shall possess simplicity, clearness, certainty, and practical value, and at the same time the technicality of Mr. Bentham's and Mr. Babington's. Allow me to submit the question thus publicly to the consideration of those gentlemen and our other distinguished working botanists. The subject cannot be unimportant, or those two eminent authors would not already have bestowed their time and skill on the construction of Keys, which, after all, do not serve the purpose they profess. Mr. Grindon's Key deserves a fair trial, to say the least. From my own knowledge I can state that his book has been extensively purchased in the Lancashire district, where floriculture is the pastime of all classes, and where the two largest Field Naturalists' Societies in the country now exist, and that it has been found to answer the requirements of the student and to be consistent with its professions. I find that a critic in the current number of the "Natural History Review," page 524, takes the same view of Mr. Babington's Key that I have expressed; and this reminds me that a reviewer in a late number of the "Reader," evidently an expert botanist, said that he had found Mr. Grindon's Key, as far as he had tried it, "absolutely correct." *William Henry Heys, Vine Cottage, Hazel Grove, near Stockport.*—I have to complain of misrepresentations made by your Reviewer with respect to certain particulars in my "British and Garden Botany." He states, truly, that I claim superiority for the Key to the above-named work, when compared with the Keys in Messrs. Bentham's and Babington's books, on the ground of my not commencing with characters taken from the fruit, the latter being often not procurable. He then charges me with inconsistently departing from my rule, and instances the British Geraniaceæ. On reference to my work it will be perceived that I do nothing of the kind, the characters furnished by the fruit being cited after those taken from the leaves, *i.e.*, as supplementary rather than initiative. He further leads the reader to suppose that I make distinctions of species to depend largely upon the colour of the flowers, and instances three species of Centaurea. Reference to my work will show that this likewise is contrary to fact. The allusion to the colour is merely incidental. I should not have cared to notice these matters had your Reviewer manifested anything like a spirit of fairness in his general comments. Give me credit at least for an honest effort to simplify the study of botany, and to extend the knowledge of plants. If I have failed, at all events do not let me be misrepresented. That I have made mistakes I am not surprised to learn, and I should like to be told of the book of 860 pages, dealing with thousands of facts, that is not blameworthy in the same respect. On again looking at the notice, I perceive it most unfairly refers to a portion only of my section-characters of the Ferns, leading your readers to suppose that it is the whole. Bad as the book may be, at all events do not misrepresent me. *Leo H. Grindon, Manchester, Nov.* 2. [We are not aware of any misrepresentation. In the case of the Geraniaceæ, as we read the book, the characters derived from the ripe fruit are made as prominent in defining the two leading divisions as those obtained from the leaves; they are not printed as alternatives or supplementary, but as part of the distinctions between sections A and B respectively. To say they are printed after the leaf-character is to beg the question; for both are printed alike, and stand as parts of the definitions, whatever may have been the intention. As to the Centaureas we can only repeat that the distinctions we mentioned are given among the marks by which to separate C. Isnardi from C. nigra and C. Scabiosa. Then leaving out of view the Ferns not affected by our remarks, the distinctions among these are put thus:—Fronds simply pinnatifid or quasi-pinnate, the margins of the segments entire or nearly so: e. g. Polypodium vulgare and Asplenium Trichomanes. Fronds simply pinnatifid or quasi-pinnate, none of the segments divided or cleft, but all with the margins notched serrate or crenate, especially towards the tip: e.g. Polypodium vulgare and Polystichum Lonchitis. Fronds simply pinnatifid or quasi-pinnate, the pinnules deeply cut into lobes or segments: e. g. Asplenium germanicum, Polypodium Phegopteris, Athyrium Filix-fœmina and Lastrea dilatata. If any one can comprehend this, we cannot. Mr. Grindon must not be angry with our Reviewer for intimating that he has spoilt his book by attempting too much. Let him economise the much waste space of the present volume caused by a double entry of each plant, make his 'keys' more brief, and more clearly contrasted, and cut out the gossip about exotics, occupying the space thus gained with clearly arranged analytical keys, briefly worded, of all the chief exotic garden plants, and he will have produced a useful book, and one for which there is a real want. The definitions in an analytical key should, however, be composed of short terse sentences, not long-winded descriptions, as are too many of those in the present book. We cannot find space to carry this discussion further.]

Pampas Grass.—I agree with your Correspondent (see p. 1036) that there is in many instances an apparent want of success in the cultivation of this Grass. In this neighbourhood its failure is attributed to its being planted in unsuitable situations. I am confident, however, that situation is not the only cause of failure. I have been most successful with it in a situation fully exposed to the sun, with a dry subsoil, and sheltered from high winds. If the shelter is not perfect, the flower stems are apt to get broken. When planted on turf and backed with evergreens, the dark green foliage and rich silvery plumes of this Grass are most effective. To insure rapid growth a deep rich soil well manured, with a little peat added, will be found most suitable. A dry state at the roots while dormant is best; but they should have an abundant supply of water during the period of active growth. Sloping banks of ornamental water afford a good situation for this Grass, which when planted in groups is remarkably effective; it seems to receive benefit from the vapour arising from the water. It also enjoys a little elevation above the ordinary level. In cold situations it is necessary to protect the plants during winter, and to maintain as far as possible dryness at the roots. I find straight Wheat straw to answer the purpose of protection best. Having tied the plant together, I place round it a few stakes which are brought together at the top, and otherwise made fast; then I apply a thin covering of straw tied round with a few coils of string to keep it in its place. This makes a very effective and neat protection, which throws off water, preserves the plants in a state of perfect health, and insures an early growth, without which we cannot depend on an annual supply of flower spikes. April is the best month in the year for transplanting large specimens of this Grass. It is quite requisite to move the Pampas Grass frequently, say every three or four years, or as often as the plants are perceived to be losing vigour. If it is found that the balls are too dry, they ought to have one or two thorough waterings a week or so preceding the operation of removal. After planting in the fresh compost finish with a good watering. May is perhaps the best time to turn Pampas Grass out of pots, and any extra care that may be bestowed upon it afterwards will be well repaid by its increased stateliness and beauty. *G. Westland, Kingston Hall, Derby.*—In your last impression you state that "you never remember to have heard of an instance of Pampas Grass bearing seed in the open air." I beg to inform you that perfect seeds have been produced here these two years, on a plant growing by the side of a brook; a male plant being on the other side, at a distance of 25 feet. No artificial means of impregnation have been adopted. Last year at this time I observed about a dozen fine plants growing on some Moss-covered stones in the brook. When the panicles of bloom growing on the plant assumed a downy state indicating ripeness, I secured two of the finest of them, from which I have this year raised a batch of healthy plants. *Thos. Gell, St. Lawrence, Ventnor, Isle of Wight.*

Societies.

Royal Horticultural: *Nov.* 8.—The following candidates were elected Fellows, viz.:—J. McClelland, Esq., Mrs. Alfred Bingley, Lady Edward Howard, Mrs. Ernest Lloyd, J. T. Ludlam, Esq., Mrs. Mathew, S. Mendel, Esq., Colonel P. Paget, Mrs. Rose, Lieutenant-Colonel Scott, R.E., J. C. Thurn, Esq., J. Willing, Esq., Mrs. Edward Wood, Dr. Woolley, Ordinary Fellows; and M. Casimir De Candolle, a Foreign Member.

J. Bateman, Esq., offered on this occasion a few remarks respecting Cattleyas and other Orchids, most of which came from Messrs. Low, of Clapton. One, the Brazilian Cattleya bicolor, with slender stems some two feet or so in height, and handsome flowers, numbering when in good condition as many as six on a spike, was said to be remarkable for the ease with which it may be cultivated, and for its richly-coloured lip being independent of the column, *i. e.*, not wrapped round the latter, as in most other kinds. This, when better known, cannot fail to be a favourite. Of a Cattleya sent home from New Grenada by the Horticultural Society's collector, Mr. Weir, it was said that it belonged to the labiata section; but it was shown tha its blossoms are much larger and finer than those of that well-known kind. It was stated to be what is termed a cool Orchid, and therefore a greater acquisition than kinds requiring warmer treatment. C. marginata, so named on account of the light edge possessed by its lip, was reported to be now, as it should be, generally known by the name of Lælia marginata, and of this C. Pinelli and others were stated to be synonyms. Of Sophronitis grandiflora, several small plants were exhibited in bloom; of this it was remarked that it is one of the few Orchids which have really scarlet blossoms; and that early collectors of it in the forests of Brazil stated that it literally wrapt the trunks of trees on which it grew in a sheet of flame. A very fine new rose-coloured Epidendrum from Messrs. Lee, named by Mr. Bateman E. amabile, and which is possibly a variety of E. dichromum, came under notice; as did also a new copper-eyed variety of Calanthe vestita named cuprea, exhibited by Messrs. Low, a very nice addition to these useful early winter-flowering plants.

Mr. Bateman then introduced Major Trevor Clarke, who delivered the following highly interesting lecture on the Cotton plant. The lecture was amply illustrated by samples of Cotton of the Major's own growth under glass in this country; also by living Cotton plants from his conservatory, in most instances well furnished with pods; and by others in blossom grown at Kensington.

In the spring of the present year I was one of a party of officers—of this Society, by whom the idea was started, that a series of short lectures, each illustrative of some one plant, should be undertaken by ourselves and other Fellows who might have made such plant or family of plants his particular study.

As it was known to some present that I had for several years turned my attention to the improvement of the Cotton plant, by cross breeding, with a view to its better cultivation in India, and as I happened to have one of the beautiful golden blossoms of the illustrious Sea Island plant in my button-hole, I was at once "told off" "to do" Cotton. I accepted the challenge, but I knew not what I had undertaken. The Cotton plant is a vast and difficult subject; its cultivation at home or abroad is yet a problem; its history and commercial statistics voluminous; its botany impossible. I use this word advisedly, and will explain presently why I do so. In the mean time, in deprecation of the many short-comings which will inevitably appear in my lecture, I must, in justice to myself, now glance at the difficulties I had to encounter.

Seed was scarcely to be had in England, and the habits of the different kinds under glass were almost unknown. Now, to carry out the scheme properly, I had to show the plant—its species and varieties—to the botanist in flower and fruit, to the horticulturist in pride of its strength and beauty; and to the commercial mind of our country it was due that I should display, not only the plant decked in its fleecy ornament, but should be able to turn out my own little harvest in as great variety and quantity as possible, accompanied by such specimens in the pod or seed, from the countries where it is cultivated, as I could get together in the time. Now, the different sorts come into bloom from about four months to eight from the sowing, and the fruit takes two other months after that to ripen. In some places the plant is scarcely adult the first year at all, and certain sorts, at any rate when cultivated in England, do not appear to show for flower, even in the second year, till October or November, when the weak and scanty sunlight of our English autumn and winter fails to keep the Cotton—essentially a sun-plant—in a growing state, with its reproductive powers unimpaired. Again, after the crop, a most valuable consideration to the cross-breeder, has been secured, the plants have become shabby and exhausted, and blossom is then out of the question; when one does appear it is "like a dying lady wan and pale," not like the last Rose of summer, bright in its decadence, and fair as ever.

In the summer time, however, but little ripe produce could be shown, and plants, under experiment, were too precious for removal. I could not now have produced this case of hybridised pods had I sent away my plants and lost my time at that working period of the year. And so November was decided upon as being upon the whole the best fixture for most purposes. I look forward, as I write, with great apprehension as to the appearance my collection will present, especially after their transit by railway; but, thanks to the unsurpassed horticultural skill of the Garden Superintendent, I am able to show you some splendidly grown specimens, in a younger state, from the Kensington department of our Society.

My present difficulty is simply this: how to say a very great deal in a very short space of time. To describe the various sorts, that is semina l or climatic varieties, with their ever-varying forms and their apparently great but really invalid points of difference, would be taking up your time to no present purpose; suffice it to say, they are as numerous as the kinds of Wheat in our corn fields or Peas in our kitchen gardens. In India especially, every great geographic division, seaboard central or peninsular, every district, nay, almost every mountain or valley, cultivates its own form or variety. Could all this be told in half an hour? For the same reason I am obliged to omit the history, rise, and progress of the trade and manufacture of the raw material.

Unwillingly I pass by the lives and labours of those gifted men who, starting from the simple distaff and wheel, and the rude handloom of the cottage weaver, invented and improved, modelled and re-modelled, the long series of mechanical contrivances, of which the crowning result was that wondrous and beautiful marvel, the self-acting Mule Jenny. It is a romance in itself, that story of the machines. It has been told, and told again, never too often, and the names of Hargreaves, Arkwright, Cartwright, and Crompton, are among the "household words" of the country of their birth. But our business is with the plant and its produce. Let us take its early history. The history of the Cotton plant is old, old: so old that no man may tell when or where it was—in the dim Cyclopean times, ages, incomprehensible ages ago—that the thoughtful observer first saw and plucked that fair and fleecy treasure from the tree—the "wool-tree," from which he might clothe himself without bloodshed, and which stood before him, as if planted by the hand of the Creator for the comfort of his creatures. Did he dream that those silver threads—and who shall view them through the optician's achromatic glass and say that they belie the designation?—did he dream that the silvery fibres of the pretty Cotton pod would be changed into gold by the magic of time, to the golden fleece half worshipped by a busy world. Perhaps it was a woman. It was, it must have been. I see her even now—the lithe Asiatic form, glowing in deep sun tints and instinct with life and beauty. She seems lost in admiration of some object before her. It is a little shrub of rare beauty; she plucks the fair blossom, cinque-spotted purple in its golden chalice, and weaves it in her crisped hair; then the ripe fruit pod, with its white and downy flocks of spotless purity. Now she plays with it—she pulls it from hand to hand, and while lost in thought unconsciously twists

it into a thread—the first thread ever twined by human fingers.

Certain it is that the Hindoo women 2000 years ago produced threads and wove muslins only very lately surpassed by the power loom and Mule Jenny. Spinning Jenny! still female.

The thread of my story has led me to the East. Let us follow the clue. To the well preserved literature of ancient India we owe the fact, that Cotton was well known and manufactured 800 years before the Christian era. In the book of the Institutes of Menu, perhaps the oldest law books in existence, occurs the following passage, "Let a weaver who has received ten palás of cotton wool give them back increased of eleven by the rice water and the like used in weaving; he who does otherwise shall pay a fine of 12 panás." So that sizing, and the abuse of it, is nothing new. Arrian mentions Cotton as an article of import into Rome, from India, and describes the means of transit, the principal marts, and the commerce in general. But it appears to have been costly, and only used sparingly by the higher classes, who stuck to the toga, and it is on record that Horace's father had no pocket handkerchief, Cotton or otherwise.* The Greeks were as perfectly acquainted with Dacca muslins as we are.

Nearchus describes the Indians as having garments of "tree-wool" which reached to the middle of the leg, a sheet folded about the shoulders, and a turban round the head. One would think it was but yesterday, the description is so perfectly that of the modern Mussulman in his outer man. Long before this, Herodotus, a young Greek nobleman, travelling in India for pleasure and information, speaks thus, in his own grand language, "*τα δε δενδρεα τα αγρια αυτοϊσι φερει καρτον ιφια καλλονη τε τροφιξοντα και αρετη των οιων· και τοϊσι ινδοι απο τουτων των δενδρεων χρεωνται.*" And in language "understanded of the people" as follows. "The trees of the field there bear wool as fruit, in beauty and quality surpassing that of sheep, and Indians use clothing from these trees." He came home, and, as was the custom in that classic and sporting land, recited his observations which were accurate, and his priest-imparted stories which were "crammers" at the Olympic Games. Fancy Lord Dufferin or Sir Gardner Wilkinson reading their experiences of Greece and Egypt at Tattenham Corner! The word "Cotton" occurs in many etymological forms, as Gotn, Kotun, and so on. Pliny first mentions it as Gossypium or Gossympium, while other old authors, and, following them, the earlier botanists, use the word Xylon. But the oldest designation of the manufactured article is the Sanscrit kurpasum. Hence the Greek *καρπασον*, the Latin carbasum, and our canvas and cambric. Cotton, as a cultivated crop, did not get into China till the 13th century, though they had long possessed the handsome red-flowered G. arboreum as a garden plant. It is curious that the Celestials, who never do anything like anybody else, seemed to have taken a fancy to the brownish yellow stapled sort produced principally by the Indian form called religiosum, but also by the American plant. This was imported, rather largely, at one time to make Nankin trousers for the English fashionables, having first attracted notice from its strength and durability. Seeing this, the crafty Chinaman began to dye his common white Cotton yellow, and the depreciated article lost him his trade. This sort is said to be one of those held sacred by the Asiatics, and, as such, used only for the head and upper parts of the body, while the British dandy's practice was just the contrary. Undoubtedly ancient as the use of Cotton was in Egypt, I fear the mummy clothes were not made of it. This, however, was long supposed to be the case, but the matter was settled a few years ago by my friend Sir Gardner Wilkinson, who pronounced it to be linen, and the microscope, in the able hands of Thompson and Bauer, confirmed his decision.

Old as our subject is in India, it can boast as high, and probably, a higher antiquity in the western world, and the botanical genealogy of the Occidental plant is far more inscrutable than that of the Oriental. Columbus found it in the West Indies, Magellan in Brazil. Ferdinand Cortez found the Mexican Court clad in Cotton, and presents of it were brought home by the gorgeous and cruel buccaneer to his Imperial master—better had they not been stained by the blood of Montezuma! Cotton, both in its raw state and beautifully woven, has been found in the ancient Peruvian tombs.

The Indian plant however appears to have been first cultivated by the British colonists in America prior to the French Revolution, before the high qualities of the indigenous Mexican form, so close at hand, were known. Cotton was grown on a limited scale in Maryland, in 1736, by Miss Lucas, daughter of the then Governor of Antigua. Again a lady! No conjured vision now, but an enterprising English girl. Listen to her journal: "July 1, 1739.—Wrote to my father to-day on the pains I had taken to bring the Indigo, Ginger, and Cotton to perfection, and that I had greater hopes," &c.

In 1775, just before the revolutionary war, the Southern States of America had begun to turn their attention to Cotton growing, and the cultivation of 33 acres, by one person, of "Green seed Cotton," probably the Xylon americanum præstantissimum semine virescente of the old botanist Schwatz, was considered a great feat in those days. After the peace in 1783 the independent spirit of the Americans was directed more to their own manufactures at home, than to their exports or imports, and Mr. Madison expressed his conviction that the United States, in the extensive regions south of Maryland, would certainly become a great Cotton country. Shortly after, an American gentleman came to England to purchase machinery. British law then forbade its exportation. So a Mr. Slater, who had been Arkwright's pupil, carried off the fruit of his master's brains to America, and working from recollection, his plans and models having been seized, made the first Cotton machinery ever used or seen in the United States. In 1784, eight bales had been shipped to Liverpool, and seized at the Custom House as an illicit importation of British colonial produce, but were restored to the consignees so soon as it was discovered that so "large" a quantity of Cotton could be grown on the American continent. Exportations have continued from that day to this. The Blockade can only be considered as a temporary inconvenience with a great resulting advantage. It has taught the world to grow Cotton. But enough of dry history; let us get to the botany.

I must now refer you back to a remark I made, perhaps a flippant one, but I am sure excusable in the case of any one who has painfully floundered through the subject as I have, "that the botany of Cotton was impossible." It is not alone I that have said this thing. Better men have given it up in despair, quieting their consciences by lumping the whole family—with its numerous and undefinable clanships—into two or three specific heads, leaving even these to fight it out like the cats of Kilkenny, till nothing be left to tell the tale, and one Gossypium, genus and species, be left alone in its glory.

All are agreed that the genus is good in law, but the specific differences are so slight, and the seminal variation so great, that botanists have always been in a perpetual puzzle on the subject; and what is worse, they seem to have shaken up their specimens and descriptions in one bag, and their names in another, put them together at random, and returned them to their herbariums to puzzle posterity. Linnæus admits five species; Lamarck follows with eight; Poiret describes four more; Roxburgh adds two more, and with reason, as they would appear to be stirpes or really wild forms; De Candolle enumerates, not insists upon, thirteen, and rests upon his oars, quietly remarking that all were uncertain, and that no genus more required the labours of a monographer, who could describe them from living specimens; and I believe our own Lindley is of much the same opinion. The distinguished botanist and traveller, Dr. Welwitsch, adds another undoubted wild species, G. microcarpum, Welw. from the district of Mossamede, near Loanda, in Western Africa. I shall have the gratification of being able to show you a specimen by and by, of this very curious plant, which I shall always be proud of as a present from the discoverer of Welwitschia mirabilis.

I need not say that the popular accounts of the plant present an amount of error and confusion past all understanding. But there is reason and excuse for all this. Cotton is a domesticated plant, and has been so through unknown ages, in every part of the world where the climate would bring it to perfection. What the Caninæ are to the Zoologist, fowls and pigeons to the Ornithologist, cereal grain, Potatos, Pinks, and Polyanthuses to the farmer, gardener, and florist, this has Cotton been to the Botanist. Naturalists know that no two reproductions of animal or vegetable life are exactly alike. However slight it may be, each has an individuality, more or less visibly stamped upon it. This disposition to sport, as it is termed, is enormously increased by cultivation, by which I mean, rich food and immunity from disturbing influences.

Upon any plant weeded, watered and manured, fenced in and fostered by the hand of man, Nature rings her weird changes with unbridled energy, and in no case more curiously than in the genus Gossypium. What are or were the countless Gossypian legionaries, Uplands and Lowlands, Sea Islands, and Bourbons, long staples and short staples, with the botanical hirsutums, glabrums, vitifoliums, and latifoliums of the West? what the albums, nigrums, rubrums and purpureums, palmatums and tricuspidatums of the Eastern World? They are mastiffs, greyhounds, pointers, setters, pugs, poodles, and turnspits, Taylor's Bright Venuses and Buck's George the Fourth's, White Talavera and Brown Lammas, beautiful man-made monsters, fair to the eye and good for food and raiment and other wants of the world, but inscrutable as to their origin and a stumbling block to systematism?

But it is time to get to work.—*Loquitur* Royle.

The genus Gossypium is distinguished, that is from other Mallow-worts, by having a double calyx, or in other words a simple calyx supported externally by three leaf-like bracts, forming an involucre, and a three to five-celled capsule, with seeds immersed in the wool-like substance, so well known by the name of Cotton. Time compels me to refer you to Royle or other reliable botanists for the general description.

Slight as are the real specific distinctions, in the strict scientific sense of the word, there is an outward physiognomic difference between at least two great and important races of the plant, to wit, those of the American and those of the Asiatic continent, which no person, however slightly acquainted with plants, can fail to observe. And this outward appearance is accompanied by an equally great and important difference in the commercial product. We will first take the American forms. These, according to the best and latest authorities, are but two in species, far the greater part of them being derivations of one Gossypium barbadense.

They are handsome, more or less short-lived trees, biennial or perennial in warm climates, annual wherever a true winter ends the year. The Bourbon plant is generally received as a type, or varietas princeps, of the species. It is supposed to be indigenous to the hottest regions, the Terras calientes of Mexico, whence it was taken to the Isle de Bourbon, Anguilla in the Antilles, the Mauritius, and finally to Barbados; and these islands were undoubtedly the Nurseries from whence came the stock which supplied plants to the Cotton producing States of America. The varieties into which this species runs, take their peculiar forms, and qualities of staple, from the various aspects, soils, sites and altitudes, in which they have been cultivated. Some of these variations are extremely curious, as in the case of seed, which in the same sort varies from a smooth black naked grain, parting from the wool with a very slight pull, to a distinct looking form, covered with a short green or brownish nap, to which the tufts of available fibre cling with more or less tenacity. The celebrated Sea-Island plant is the form taken by the Barbadian type when transferred to the warm, moist climate, and rich low-lying lands, on the Georgian coast, and in the adjacent islands. The fibre is long, strong, and of the highest excellence. Cultivated in Egypt it retains its properties, to a certain degree, is a good, useful, long cotton, and is much used for the same purposes. The appearance of the plant is slightly modified by the climate.

Uplands, or short-stapled American (not Surat) now includes, according to Royle, the produce of the interior and upland country of Georgia and Carolina, as well as of Alabama, Mississippi, Louisiana, and Tennessee—Bowed Georgian as it was once called, from having been first cleaned by the Indian contrivance of a bow and string, flicking the fibre from the seed. Just now the fashionable sort is called the Mexican Gulf Hill seed. I am indebted to the Cotton Supply Association for a sample of this. Three seeds of it produced me three very different looking plants. One nearly approaching the type, with glabrous foliage much angled and divided. Another with hirsute strong branches and more spreading habit; and another with the most remarkable foliage of any I have hitherto seen of its race: the lobes, especially the central one, are so long as to give the leaf almost the palmate appearance of the Indian plant, and the individual lobes are also curiously divided. The seed was peculiar and different from the rest in being very small and nearly clean or naked. There is a sort called Little Mexican or Petit Gulf; I think this may be it. Venezuelan seed, also from the Association, resembled this. The plants, however, were like the Gulf seed, but a little more hairy. These were all sown very early this spring, but have, at present, shown no signs of flowering.

But the favorite staple of the Manchester men is produced by the New Orleans plant; it has more of an herbaceous or annual habit than the Upland race, comes to maturity in a few months from the seed, rests for a few weeks after the effort of producing its beautiful wool, and either dies if touched by frost, or shoots forth again, bearing a second, and often the best crop. The flower is large and saucer-shaped, of a pale yellow tint, or nearly white, wanting the purple basal spots, with cream coloured anthers, and elliptical pod. I have here a beautiful coloured drawing of it done by my friend and neighbour Mrs. Hugh Wood, of Badby House, Northamptonshire. Closely allied to this sort, and indeed undistinguishable before the pod bursts, is the American Nankin plant.

The Sea Island is by no means so conspicuous an object, as far as the pod of fibre is concerned, though the fibre itself is more costly and showy. Its habit is different from that of the last. The whole plant is more or less glabrous, the branches slenderer, and set on at a more acute angle; the blossom is golden yellow, almost tubular from the convolution of the petals, each of which has a rich brown-purple spot at the base; the pod long-oval, often much acuminated, and rough, with pitted depressions. Like the New Orleans this comes quickly to maturity, and, like it, is often treated as an annual, though they will both live several years in a winterless climate. The seed is black, clean, and free from nap, except at the extremity or extremities, where there is a little tuft to which the lock of Cotton adheres loosely. It varies with an entire covering of greenish nap, which it is said to put on, as a gentleman puts on his great coat, when taken up to the hills or into a cooler climate. I have raised plants from both kinds of seed, and find the habit reproduced in the seedlings respectively. It has been said, upon the authority of Cotton farmers, that these two races interchange habit, appearance, and quality with each other after cultivation for a generation or two, under opposite conditions respectively.

I should feel very much obliged to any observer of the plant in its own climate, if he could tell me of any authentic instance where the change of appearance of seed was accompanied by a corresponding alteration in the flower—whether, in short, the Sea Island plant has ever put on the widely expanded, pale, self-coloured Hollyhock-like blossom and large smooth-elliptical pod, of the New Orleans or *vice versa*. Every monographer, or even pseudo-monographer, like myself, has a conceded right to a crotchet, and mine is that there exists, or has existed somewhere among the Aztecs or elsewhere, a typical Gossypium hirsutum distinct from the smooth barbadense.

Here is Mr. Wanklyn's superb "Vine Cotton," the seeds of which were kindly presented by him to our Society. The Vice Secretary sent me three, one of which grew into the plant before you. There must have been some misconception in the description given to Mr. Wanklyn as to its habit of rambling like a Vine. The plant is simply a gigantic form of New Orleans, differing only from the normal sort in a general exaltation of development in all its parts. The staple, although injured by the syringe, in the small propagating house here at Kensington, was pronounced by Dr. Forbes Watson to be of very high quality.—Away now westwards across the sultry continent: we have had enough of the Bourbons, like our neighbours.

Brazil and Peru boast of the most curious and distinct Cotton tree known. A noble great fellow he is; too much so for me. My hothouse is 14 feet high, and in another week he would have broken his neck against the lufter boards! The seeds in the species are agglomerated together into one kidney-shaped mass, to which the Cotton adheres so slightly that it is easily separable by the hand or machine. Some of you may remember to have seen a curious looking specimen, enshrined in a glass case here at Kensington, and labelled "native African." Of this my friend Mr. Murray surrendered me a seed or two, and here is the result. It produces I believe the Pernambuco staple or Pernams of the trade. The flower has not yet appeared, nor do I know what it will be like, but I think I can anticipate the bright yellow tube and purple spots of the Sea Island. And here, again, crops out my crotchet. In two separate pods of the Sea Island I found seeds adhering to each other by twos; they are, very like those of acuminatum, our present subject, and so is the whole plant except in stature.

I have another plant here very nearly resembling this in habit, size, and other particulars. It is the Peruvian Cotton of Mr. Clements Markham, well known on account of his services in the establishment of the Quinine plant in India. He has succeeded in introducing this fine Cotton also,* and the Indian grown produce has been pronounced most satisfactory. The seeds, however are free, and not massed as in the Kidney Cotton.

Away again, Eastward Ho! and we are in India with the anything but gentle Hindoo, and his despised Surat Cotton.

What a different plant it is, with its deeply cut five-fingered leaf, and dull-tinted foliage, sometimes a short and shrubby bush, sometimes tall and slender as a fairy fishing-rod. The flower is very handsome—purple and gold—like that of the Sea Island aristocrat, but the Cotton—the Cotton—is nowhere. It is usually short, harsh, and only useful in Manchester, when mixed with the medium-stapled sorts from America. Some varieties, however, have the silky quality. The fibre of these is also so extremely fine, that the native women, by their wonderful hereditary fine sense of touch, have been, and are still able, to spin those gossamer threads and weave those "webs of woven air" which have been the admiration of all times, and have been even sung in soft Sanscrit by the dusky poets of the land.

I have been able, by the kind assistance that has been given to me, to get together several of the numerous varieties of the Indian plant. Here is the celebrated Dacca sort—at least it pretty well answers the descriptions. Here is the Sacrosanete religiosum, if indeed religiosum it be: for, in hunting among the books, religiosum is generally found to be something else, and something else to be religiosum. It has broader lobed leaves than the common sorts, tinged and veined with brownish pink, and bears very decidedly green seeds. I have raised it from a sample sent me, under that name, by the Cotton Supply Association; and also mixed with the sort called Oopum, from the same source. The Oopum plant I have retained at home, in hopes of ripening the one single late-set pod which it produced. Very like it, with the same green seeds, but with more acute and numerously-divided lobes, is the very interesting species arboreum. I assume it to be such, upon the authority of the Botanic Garden of Saharunpore, associated as the name is with Royle and cotton. My plants were raised from seed received from thence through my friend Mr. Arthur Grote, of the Asiatic Society at Calcutta. Now this arboreum was, on many accounts, a desideratum—a desideratissimum. For years it eluded my search with the cunning of a fox. I was once fond of fox-hunting, and could hold my own across a country as well as my neighbours; but of all the foxes to hunt, for intense excitement, there is nothing like a scientific fox. I first "put up" the arboreum fox in the covers of my old friend Tenore, at Naples, kept it for years, and never could do anything with it as it always showed for bloom in November, and went leafless to rest in December. Again, I got the same plant from Chiswick, but now under the name of South Sea Island. I have it now just trying to ripen a pod. It is the acclimatised Bourbon of India. So for 10 years I was "running hare" I then took to books, botanic gardens, and friends in the tropics. Tropical friends sent big Bombaxes, and the eternal Bourbon again, with a sprinkling of acuminatum. Botanic gardens were out of the question, as they always stuck religiously to the label the captain in the navy, collector of customs, or consul's wife sent with the seed. Books were worse than botanic gardens, as almost every writer had a pet arboreum of his own. Now, for popular and general information, every Brahmin, you must know, wears a hank of Cotton of three threads round his neck for religious motives, and this arboreum, a plant nearly resembling the ordinary Indian Cotton in all respects, except in bearing a red flower, and being a decided perennial, is known to be cultivated in the gardens of priests and fakirs, and in the precincts of temples, for the purpose of furnishing the mystic threads. But travellers say that the large Kidney Cotton plant is used for the same purpose; and we read that Linnæus named another sort religiosum, as being a Cotton tree under the shade of which religious ceremonies were performed, and which furnished the sacred threads. It was afterwards said that this tree was simply a Bombax. Here I was running four foxes at once. Finally, I ran into my fox in Royle's Illustrations. Here it is; it answers pretty well to Royle's figure which I now exhibit. It has not yet flowered. It closely resembles religiosum in the tinted foliage and green seeds. From a sample of Kupas, or seed with the wool on it, labelled "good native Cotton, Dhollerah," I raised plants with very distinct habit and foliage, with short broad elliptical sometimes mucronate leaves, and many hirsute zig-zag branches. The segments of the outer calyx are much expanded, so as to give them a sort of butterfly appearance. The Cotton is long and soft, and approaching in quality to the American staple. Here is a very fine form of the Indian plant from one of Dr. Forbes Watson's samples, marked, "From Nymansing, Assam," with thick dark green leaves, lanceolate, and wanting the small supplementary lobes; the nearly entire bracts enclose large long pods, rivalling in size those of the American plant. This sort was detected by the keen eye

* *Quoties vidi patrem tuum digito se emungentem.*

* The Piura and Imbabura Cottons of Spruce.

f the Doctor among the Indian specimens sent over to the last Great Exhibition. The staple appears bulky, strong, and, I believe, is very good. Here is an exquisite drawing of it by Mrs. Wood. Seeds from the same packet produced a beautiful little miniature form, with small round pods. Another packet from Assam, gave me a plant somewhat like the last, but with a yellowish tint in the leaf, and smaller pods.

These comprise my Indian menagerie of cultivated kinds. And now I must show you perhaps the most curious and interesting thing in my whole collection, Dr. Welwitsch's wild African species. If we look with Darwin back into the dim pre historical ages and watch as it were our beautifully developed forms fading back into one first created wild type, I am afraid the dark lady of my dream would have had stiff work to spin a thread from this. Here is the seed with the Cotton on it. The colour of it is Nankin.

I must now, at the risk of wearying my audience, touch upon the all-important subject of the cultivation of American staple in India, and as it will be absolutely necessary to explain the commercial relations which the Indian and American staples bear to each other, I will read part of a capital speech made by Mr. Smith, once member for Stockport, which gives a short and masterly explanation of the subject. It is from a capital book—"The Cotton Trade," by George McHenry, published by Saunders & Otley. It has a strong Yankee leaning, but is exhaustive of the subject as a commercial history.

"The long staple, or long-fibre Cotton, is used for making the warp, as it is technically called, *i. e.*, the longitudinal threads of the woven tissue. These threads, when of the finer sorts—for all numbers, say above 50's—must be made of long-staple Cotton; for numbers below 50's they may be made of it, and would be so made were it as cheap as the lower qualities of the raw material. No other quality of Cotton is strong enough or long enough either to spin into the higher and finer numbers or to sustain the tension and friction to which the threads are exposed in the loom.

"The medium-staple Cotton, on the contrary, is used partly for the lower numbers of the warp (and as such enters largely into the production of the vast quantities of 'Cotton yarn' and sewing thread exported), but mainly for the weft, or transverse threads of the woven tissue. It is softer and silkier than the quality spoken of above, makes a fuller and rounder thread, and fills up the fabric better. The long-staple article is never used for this purpose, and could not, however cheap, be so used with advantage; it is ordinarily too harsh. For the warp, strength and length of fibre are required; for the weft, softness and fullness. Now, as the lower numbers of 'yarn' require a far larger amount of raw Cotton for their production than the higher, and constitute the chief portion (in weight), both of our export and consumption; and as, moreover, every yard of calico or Cotton-woven fabric technically called cloth, is composed of from two to five times as much weft as warp, it is obvious that we need a far larger supply of this peculiar character of Cotton, the medium-staple, than of any other.

"The short-staple Cotton is used almost exclusively for weft (except a little taken for candle-wicks), or for the very lowest numbers of warp, say 10's and under. But it is different in character from the second description, as well as shorter in fibre; it is drier, fuzzier—more like rough wool; and it cannot be substituted for it without impoverishing the nature of the cloth, and making it, especially after washing or bleaching, look thinner and more meagre; and for the same reason it can only be blended with it with much caution, and in very moderate proportions. But its colour is usually good, and its comparative cheapness its great recommendation.

"It will be seen, therefore, that while we require for the purposes of our manufacture, a limited quantity of the first and third qualities of raw Cotton, we need, and can consume, an almost unlimited supply of the second quality. In this fact lies our real difficulty; for, while several quarters of the world supply the first sort, and India could supply enormous quantities of the third sort, the United States of America alone have hitherto produced the second and most necessary kind."

I have read most attentively the history of the Indian experiments. They tell of the well directed skill, the stout and willing heart, the rough hard toil and untiring energy of the Royles, Wights, and other earlier and later labourers in the field of Indian experiment. They prove that good useful Cotton, such as goes by the name of good middling New Orleans in Manchester, can be, and has been, produced on Indian soil. The accounts, the authentic accounts, and the samples received from time to time, only strengthen the conviction. The long series of experiments carried on under the auspices of the Indian Government for now nearly a century, go to prove that the principal impediments to the production of good Surats, are the filthy habits of the gentle Hindoo, and the religious prejudices of his priesthood.

In the case of the cultivation of the exotic species by Europeans or Natives, the casualties would appear not to differ greatly from those to which every agricultural crop is subject in India or England either. Even the elements can be coaxed if not controlled. Irrigation is now no problem, and the periods of sowing can be so arranged that the wild monsoon may foster rather than injure. Each and all of these difficulties seem to have vanished wherever the strong will of these gallant pioneers had determined they should do so. Royle alludes to experiments in hybridisation once or twice, but no details or authenticated results have been recorded. A year or two ago, however, certain of the American sorts were intercrossed, both by myself and Dr. Bonavia, of Lucknow. We are now waiting the final report of the Doctor's experiments. Mine produced what is apparently a very beautiful and prolific Cotton, second only, according to Watson—the Cocker of Cotton fibre, to the best Sea Island.

I must here offer my tribute of thanks to all good friends who started me and helped me on my way. First and foremost to my kind friend Dr. Lindley, who, always ready alike to encourage an aspirant or smash an impostor, supplied me with advice and introductions. To Dr. Wight the same. To the Manchester Cotton Supply Association, Dr. Forbes Watson, Mr. Clements Markham, Mr. Arthur Grote, Mr. P. L. Simmonds, and Dr. Welwitsch, for plentiful supplies of seed of commercial or botanic interest; and last, but not least, to my friend Mr. A. Henderson, of Pine Apple Place, for the seeds of the Nankin and Sea Island, from which I produced my first cross-bred plant. In Cotton literature I have profited by and used largely the contents of Royle's great work, the prize Essays by Dr Shortt and others, and the Journal of the Agri-Horticultural Society of India. There was one want however which neither men nor books seemed able to supply. Search where I would I could not find "the poetry of Cotton." One could wander through ferny glades with Mr. Moore, and feel inspired; there was poetry in the fairy bells of the modern and in the mournful αι αι of the mythic Hyacinth; the Rose was bathed in it; but there was no poetry in Cotton. At last I found it—in a Negro melody: "picking Cotton in the field, there first I saw a yellow girl, her name was Lucy Neal." Nay, scoff not; Nigger melody though it be, it is one of the most exquisitely pathetic ballads of modern times. Listen to the last verse, the outpourings of the poor negro's profound love melancholy.

They bore her from my bosom, but the wound they cannot heal,
For my heart is breaking, breaking, for the love of Lucy Neal;
Ah! yes, and when I'm dying, and dark visions o'er me steal,
The last low murmur of this life shall be poor Lucy Neal.

Farewell now, my friends, and thank you for your kind attention. If I have mixed science and Lucy Neal, it was that you should not be sent home to your firesides with ears quite stuffed with Cotton.

Some very fine blooms of Chrysanthemums were shown by Messrs. Downie Laird & Laing; among them were the fine yellow kind called Jardin des Plantes, Queen of England, Lady H. St. Clair, which proves to be the same as White Queen of England, and Striped Queen. A neat small yellow Pompon Chrysanthemum called Alice came from Mr. Ingram, of the Royal Gardens, Frogmore, as did also a pretty brown kind edged with gold called Princess Beatrice. Messrs. Lee furnished a distinct-looking variety of Epiphyllum truncatum, called tricolor, a coppery red with purple throat. A charming glaucous variety of Cupressus Lawsoniana named argentea—a real acquisition—was shown by Messrs. Waterer and Godfrey; and from Messrs. Ivery, of Dorking, came a very fine collection of hardy Ferns, Polystichum angulare grandiceps, P. angulare rotundifolium, Athyrium Filix-fœmina Victoriæ, and A. Filix-fœmina Vernoniæ, receiving First-class Certificates.

An exhibition of Chrysanthemums was held under the auspices of this Society on Wednesday, Thursday, and Friday last, at which the whole of the awards (Certificates) were carried off by Mr. Forsyth, Nurseryman, Stoke Newington, who was nearly the only exhibitor. In order to improve the display the Society furnished some well-grown plants from its Garden at Chiswick.

Notices of Books.

Handbook of the British Flora. By George Bentham, F.R.S., &c. Parts XXI., XXII. Reeve & Co. 1864.

The numbers before us comprise the Hydrocharideæ, Orchidaceæ, Irideæ, Amaryllideæ, Dioscorideæ, Liliaceæ, and Juncaceæ. In no part of our Flora are there so many doubtful natives, and Mr. Bentham will scarcely be blamed for the eliminations which he has made, as he might fairly have carried them even farther. We think it quite right however that such species as Crocus nudiflorus should be retained. Any one who has seen the profusion in which it appears on the Derby race-course, and how perfectly it seems at home, would at once allow that it has very strong claims for admission, from whatever source it may have originally been derived. It is sometimes possible to assign the time when plants which are now widely diffused first made their appearance. Diplotaxis muralis is said to have been introduced into the Isle of Thanet, where it grows in great abundance, by the wreck of a ship laden with corn; and we ourselves recollect when Lepidium Draba was confined to a single spot, whereas it is now to be found in the greatest profusion all over the island, and must strike every botanist from the luxuriance in which it grows along the railroad leading to Ramsgate.

Some species of Lupine, probably Lupinus rivularis, is now naturalised in a single spot along the rocky banks of the Dee in Aberdeenshire, a few miles below Ballater. It is very likely that it will spread from that point, as it seems to flourish as vigorously there as in its native river beds. In all probability the plant was introduced from Balmoral, or from some garden at Ballater.

The Orchidaceæ, on the other hand, seem all legitimate natives, and within a few weeks an important addition has been made to the list in the discovery of Aceras secundiflora in Ireland, where, like Spiranthes cernua it appears at a considerable distance from what may be called its home.

It is so short a time since we noticed Mr. Bentham's work (see p. 674) that we have little to say in addition to our former remarks. To speak too highly of its execution is scarcely possible, whether as regards accuracy of definition, or judgment as to the limits of species. We do not, however, wish to condemn such Floras as are more discursive. They have their own use and merit, but whether that merit is of the highest order is questionable. A Flora like that of Mr. Babington, which gives accurate characters of the various forms which species of the same genus may assume, is not without its use, especially to beginners, though in the most natural genera, as Rosa, Rubus and Salix, the characters are so unstable that it is scarcely possible to make out many a supposed species accurately. The attempt indeed is often enough to make a young student who should unhappily attack them first, throw down the subject in despair. The end which Mr. Bentham has before him is, we think, far the most philosophical as regards the connection of botany with other sciences, or as a mental discipline, far more profitable. On this account, as on many others, the appearance of a new number is always an unmixed source of pleasure to us, and we rejoice in the hope that we shall soon have the work complete (*totus teres atque rotundus*).

Catalogue of Plants in the Royal Botanical Garden, Mauritius. By James Duncan. Folio 106 and viii. H. Plaideau, Government Printer, 1863.

The Botanical Gardens in our foreign possessions are not always considered, by those most nearly concerned in their support, as scientific institutions, so much as means of introducing plants of utility or ornament, or as convenient and agreeable promenades for the neighbouring residents. We must not therefore blame their directors if their condition does not always come up exactly to our own preconceived notions of what they ought to be. This has been pre-eminently the case in Ceylon, where the garden is under the care of a most diligent and accurate observer, who has been obliged to devote more time and space in accordance with the views of his employers than to pure science; and it is much the same in Mauritius, where science is apparently a very secondary consideration. The catalogue before us is an abundant proof of this, the collection of ornamental plants, as of Roses for example, being far more important than that in other departments. Mr. Duncan, who is an excellent cultivator and very worthy man, has however had another thing to contend against, which is the prevalence of terrible hurricanes, which sweep away in a few minutes what has cost years of anxious labour. To this cause, doubtless, it is owing that we miss in the list some of the most interesting plants, as for example, Telfairia pedata, which formerly existed in the collection. It is indeed a case where a man must of necessity, more or less, sow to the wind and reap the whirlwind. Some absentees, however, surprise us greatly. We do not see a trace of any of the more common species of Cucurbita, except the Cucumber and Melon, nor do we find the Water Melon, though the Sechium appears, of which a variety with very large fruit is cultivated.

The hurricanes indeed are not always of short duration. The last severe hurricane of February, 1861, lasted a whole week. During that week, says Mr. Duncan, "a large number of valuable plants perished, some of which we have not been able to reintroduce."

The Catalogue is arranged alphabetically, the natural order of each genus being appended, its popular name in Mauritius, where any exists, and the place from whence it comes. "It is hoped that it will not only be useful to the public of Mauritius, but also to correspondents in other countries, by affording them the means of readily ascertaining what the collection consists of, and thereby giving such information as is required to secure an advantageous system of exchange of plants to both parties." A few short notes are scattered here and there, one of which under Amaryllis is as follows: "I have raised upwards of 200 very distinct varieties, comprising many shades of scarlet, purple, white, striped, spotted, &c. Amaryllis may be considered the Tulip of the Tropics, and may, I think, be brought to such perfection as to rival that favourite flower in beauty and marking of colours."

Garden Memoranda.

Temple Garden Chrysanthemums. — Notwithstanding the dry and dusty summer we have had, and the unfavourableness of the season generally for fine out-door displays of flowers, these Chrysanthemums are about in as good condition as in former years, and viewed as a whole they have a gay and cheerful aspect, quite astonishing to Londoners during this dark and dreary month. Mr. Broome's principal border, which is about 75 yards in length, is well worth inspection. Of fine individual blooms we noticed beautiful examples of the following:—Queen of England, Alfred Salter, Seraph, a pale sulphur-coloured sort; General Slade, a variety in the way of Dupont de l'Eure, but an improvement on that fine old kind; and Chevalier Domage, a useful yellow sort for out-door work; also Formosum and Cassandra, both good whites; Progne, dark red; Rifleman, Hermione, Cassy, Antigone and Plutus—still a certain yellow; Beverley, white; and last, but not least, Lady Harding. Among Pompons one named Helen Lindsay, a blush kind, is remarkable for fine form; and Mr. Broome has also some charming sports from the well-known Cedo Nulli, which latter for purposes of bedding promises to be an acquisition. Borders and open beds are as gay as the season will permit, and tasteful in grouping, the plants being skilfully arranged as to size. Mr. Broome contrives to get four crops off his little beds in one year; the first is bulbs, the next annuals, then bedding-plants, and lastly Chrysanthemums—the whole wonderfully fine, considering they are in the very heart of London.

In the Middle Temple, Mr. Dale has also a beautiful display, especially of large kinds, on a wall under protection. Here some of the blooms are very perfect and of large size. Among the best are Queen, and its Golden variety; Novelty, Lord Palmerston, Cherub, Little Harry, General Slade, Lady Slade, Madame Poggi, Formosum, Yellow Perfection, Campestroni, and the Anemone-flowered sort called Fleur de Marie. Among other kinds were some charming blooms of Vesta, a well-known, but still most useful variety. Pompons bedded out are just in perfection, and they are well worth inspection, if only for the purpose of seeing how well small kinds are suited for ordinary London gardens. A few of the best for out-door purposes seem to be General Canrobert, Cedo Nulli, Hélène, Surprise, Duruflet, Mrs. Murray, Salamon, and Florence. As we have stated on former occasions, with these in beds, and some of the large flowered kinds in borders, suburban squares and gardens might be made to present a much more attractive appearance than they now do. An inspection of Mr. Dale's and Mr. Broome's collections may, therefore, furnish a useful lesson.

Mr. Salter's Nursery, Hammersmith.—Here as elsewhere the grand feature at present is Chrysanthe-

mums, of which there are fine collections in the open air and under glass. The sides of a walk, 500 feet long, are lined with all the leading varieties, and should the weather remain at all favourable, the collection will be well worth visiting during the next week or two. Two large houses converted into a winter garden are also full of Chrysanthemums beautifully arranged, and tastefully associated with other plants in picturesque groups.

By the side of a winding path which runs through the houses in question are small beds of Pompons and plants remarkable for the beauty of their leaves. Among the latter Centaureas have a very ornamental appearance, as have also some hanging baskets filled with Woodwardia radicans, a gracefully drooping Fern for such a purpose. In the principal bank of Chrysanthemums we observed many new sorts, of which some account will be given hereafter. Among fine blooms of the best varieties of former years were striking illustrations of Queen of England, a flower raised by Mr. Salter years ago, and one which still keeps a prominent place; Lady Harding, General Slade, Novelty, White Queen, Golden Queen, Dr. Bozas, Alfred Salter, Seraph, Little Harry, Lord Ranelagh, Golden Trilby, Vesta, Beauty, Prince Albert, Jardin des Plantes, one of the best yellows; Cherub, Sparkler, Yellow Perfection, Dido, Boadicea, Dupont de l'Eure, and Nil Desperandum. In a span-roofed house, adjoining the winter garden, are many very fine seedlings—some in flower; but others are not yet out. Of these a full account will be given as soon as they are in proper condition for inspection.

Miscellaneous.

The Mistleto in Herefordshire.—The favourite site of the Mistleto is certainly the Apple tree. There is scarcely an orchard of any standing in the county without it, and in many it grows far too luxuriantly. The proportion of Apple trees which bear Mistleto in the central districts of the county, as obtained by a separate examination of more than two thousand trees, as they came, in several orchards, is as follows:—In orchards of comparatively new kinds of fruits, principally French and Italian Apples, the average number of trees which bore Mistleto, ranged from 13 to about 30 per cent.; in old long established orchards, the proportion varied from 30, to as high as 90 per cent.; whilst the general average from all the trees marked down was 39 per cent. of Mistleto-bearing trees. The actual numbers were 784 with Mistleto, and 1218 without it. Whether the Viscum album shows any preference for any particular sorts of Apples, is a point requiring further investigation. There are certainly some facts which seem to show that this is the case. Some observers, with much orchard experience, think it likes best the more acid kinds of fruit, as the varieties of the Crab, the "Old Bromley," "Skyrme's Kernel," "Hampton's Delight," &c., and is much less common on the "Bitter Sweet," the "Royal Wilding," the Norman, French, and Italian fruits, and on "pot-fruits" in general. It has also been observed that trees bearing white-fleshed Apples are much more liable to be attacked by Mistleto than those which bear yellow-fleshed Apples. The former correspond to the acid fruits, whilst the latter embraces nearly the whole of the new and French fruits of recent introduction, called Bitter-sweet Apples, and from which the best and mildest cider is made. The Mistleto has now actually become an established export from this county, and there, perhaps, never was a year when so many people rejoiced in its presence at their Christmas festivities, as during that of 1863. The following is an approximation towards the correct return of the quantity of Mistleto actually sent out of this county last December. The exact returns are as follows:—

	Tons.	cwt.	qrs.
Hereford sent off	25	0	0
Withington	7	15	0
Ledbury	15	2	3
Moreton	2	11	1
Dinmore	3	3	0
Leominster	12	14	0
Berrington	0	16	0
Woofferton	2	0	0
Ludlow	0	1	3
Ross	15	0	0
Moorhampton	5	0	0

Making a total of 89 tons 3¾ cwt. actually sent off by invoice. But the guards and engine-drivers had the privilege of exporting Mistleto on their own account, and did so by almost every train that left the county during the early part of December. An immense quantity went off in this way, and I am told that I greatly under-estimate it when I put it down at 25 tons in addition—thus making a grand total of more than 114 tons. The places to which it was chiefly sent were Manchester and Liverpool—for their supply and that of towns further north,—London, and Birmingham. The established price paid for it, when delivered at the stations, was from 4*s.* to 5*s.* per cwt. according to its condition; and the average rate of charge for the transit was about 30*s.* per ton; so that the whole expense of delivery may be said be from 5*l.* to 6*l.* 10*s.* per ton. I have purposely given all these details; they are distinctive of the age in which we live. It is a practical, commercial, unpoetical period, when trains will wait for neither the peer nor the peasant, and when common-place railway trucks carry off romance—in the shape of Mistleto—at so much per ton! Had good Sir Walter Scott lived in these days, it would never have occurred to him to send his "merry men" to the "woods" for it—where, by the way, they would never have found it—but the Mistleto none the less would have reached him; and if he had chanced to look over his greengrocer's bill, he would, doubtless, have found some such items at these:—To a bunch of Mistleto, fine and full of berries, 1*l.*; to pieces of do. do., for decoration, 7*s.* 6*d.* *Transactions of the Woolhope Naturalists' Field Club*, 1864.

Calendar of Operations.

(For the ensuing week.)

THE beneficial influence exercised by light on vegetation is universally admitted, and at this time of the year it is of the utmost importance so to arrange stock in houses as to secure a due proportion of space to each plant, remembering especially those from brighter climes. All retarded autumn flowers should have as light a situation as possible. Above all things, let every sash receive a thorough washing, both those of the houses and also those of the frames or pits. In order to keep glass clean as long as possible, let mats and covering of all kinds be constantly suspended on rails or posts. This is absolutely necessary, not only for the glass, but for the sake of proper economy, as Russian mats are at all times rather expensive means of protection.

FLOWER GARDEN AND PLANT HOUSES.

If the weather should continue frosty, conservatories will require great nicety of management. Atmospheric humidity cannot by any means be entirely dispensed with, yet this if unskilfully applied will produce drip, which we need scarcely say is most prejudicial to the delicate texture of Camellia blooms and other gay plants. The best plan is to keep as low a temperature as can possibly be allowed, say from 40° to 45° at night, and to leave a little back and front air all night if the weather is at all favourable. The front air must be very moderate, or the atmospheric moisture, instead of passing quietly away by the back apertures, will be condensed as it arises. With a good roof covering in the case of small conservatories 40° would be sufficient, and then there would be atmospheric moisture enough at all times, without the special application of water.

CAPE HEATHS.—Let these have close attention as to watering; if they stand unfortunately near hotwater pipes, they may become suddenly very dry. Keep up a quiet ventilation day and night if possible; let the air steal in moderately, and dispense with strong fires.

PELARGONIUMS.—Give air whenever the weather will admit of it; but avoid cold draughts, and keep out frost. On the other hand, be careful, however, not to use too much fire-heat. Training and shifting must also receive attention.

ROSES.—Hitherto little has been said about the protection of tender Roses. No time should now, however, be lost in regard to this matter. The tops of standards, worked on ordinary stocks, may be protected by straw bands bound amongst and over their branches, or by tight canopies firmly fixed. Beds or masses of certain kinds of Teas, or other tender kinds, should have some porous material strewed amongst them, to afford a little protection, especially during very severe weather. Cocoa-nut refuse or even a coating of half-decayed leaves would answer the purpose of protecting their stems about the "collar." Four or five inches of such materials may keep them safe in the event of a severe winter. If it is desirable to protect the tops efficiently, mats thrown lightly on them will suffice, taking care on the breaking up of frost, to expose cauticusly, and not until after they have become thawed.

SOILS.—Compost yards, if not already filled with the different soils used for potting, must now have immediate attention. This most important adjunct of good gardening is doubtless, in many cases, still behind the improved practices of the present day, in point of good management. Such is not always the fault of the gardener, but, frequently arises from an inadequate supply of labour at certain periods. One of the most important points in this department is to see that the drenching autumn rains have every facility for escape. The best of soils, be they ever so well harvested, will become soured in a very short period by the lodgment of stagnant water. A good compost yard on this account should be a steadily inclined plane, and the soils or composts should invariably run the way of the descent in parallel ridges. Now, although the special mixing of soils a long time beforehand is by no means to be recommended, yet it so happens that in general gardening much surplus soil or vegetable matter comes to hand in the course of the year. Such in all cases cannot and need not remain separate; for in a mixed state there will soon arise a demand for it—if only in repairing the beds of the flower garden. Those who have not harvested their loam should lose no time; for assuredly a little should be obtained annually if possible. To the storing of this and of peat we have alluded on former occasions; it only remains, therefore, to repeat, that not only should such soils be kept clear of standing water, but that provision should be made to prevent the rain from entering. Those who are procuring loam now may let it remain on the ground where dug until hard frozen; it may then be carted away without destroying its texture.

FORCING GARDEN.

ASPARAGUS.—Where this is wanted early it may now be introduced into gentle heat. It must, however, have plenty of air on every favourable opportunity, and all the light that can possibly be given it will be of benefit to it.

CUCUMBERS.—Attend closely to these; a little neglect now would render all previous pains and labour useless. Give air as often as the weather will permit, but make it a point to shut up warm. Use additional coverings on cold nights, which will save fuel, and be better for the plants.

PINES.—Winter watering of Pines in pots is rather a doubtful proceeding; a better way with general stock is to cover over the pots with Cocoa-nut refuse, or some such material, 2 or 3 inches thick, provided the bottom-heat is in proper condition.

VINES.—If any portions of the stems of Vines now in forcing are near the influence of hotwater pipes, they should be bound with Moss, old mat, or any other material, to ward off the dry heat. Keep the temperature at present down to 60° in the case of sunshine in the day time, sinking to 50° at night. Do not give air unless to depress the thermometer, or to avoid a superabundance of rank steam from fermenting matter. Let the syringe be applied two or three times a day, suffering the wood to become dry between the applications.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground when frost permits; this is particularly to be observed in gardens inclining to a clayey texture. During frost let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps, either on the spot where it will be wanted, or as near as possible to it. That portion not required for immediate digging in should be piled in small mounds and soile l over, to prevent loss by evaporation.

FRUIT TREES.—Planting ought now to be pushed forward with vigour. With regard to bush fruit, if dressings with hot lime and soot when the trees are wet were more attended to, we should not hear so much of the ravages of birds upon the buds, and we would recommend their application also to standard Plum trees wherever practicable, as they not only keep them free from Moss and Lichen, but assist in the extirpation of those insects, in the search for which birds commit such ravages.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Nov. 9, 1864, as observed at the Horticultural Gardens

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 3	4	30.290	30.203	51	20	37.0	53½	52½	N.E	.60
Friday 4	5	30.339	30.317	51	22	38.0	49½	52	N.E.	.00
Satur 5	6	30.375	30.258	55	29	42.0	47	51	N.E	.01
Sunday 6	7	30.576	30.493	50	22	36.0	48	50	N.E	.00
Mon. 7	8	30.426	30.192	45	20	34.0	48	50	N.E.	.60
Tues. 8	9	30.094	30.066	49	26	37.5	46	50	W.	.00
Wed. 9	10	30.104	29.990	49	17	33.0	46	48½	E.	.00
Average.		30.323	30.218	51.3	22.3	36.3	47.8	50.5		.01

Nov. 3—Clear and fine; very fine; sharp frost at night
— 4—Frosty; clear and fine; frosty.
— 5—Foggy; slight fine drizzle; cloudy; fine at night.
— 6—Quite clear and cloudless; very fine; frosty.
— 7—Slight haze; fine but cold; sharp frost at night.
— 8—Overcast, hazy; fine; slight frost.
— 9—Fine throughout; sharp frost at night.
Mean temperature of the week 7¼ deg below the average.

STATE OF THE WEATHER AT CHISWICK.

During the last 38 years, for the ensuing Week, ending Nov. 19, 1864.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13..	49.6	35.5	42.6	20	1.16 in.	2	3	4	2	7	5	3	4
Mon. 14..	48.1	33.8	40.9	19	1.24	6	5	4	5	2	6	5	5
Tues. 15..	48.6	34.6	41.6	16	0.34	3	5	5	3	4	10	6	2
Wed. 16..	48.7	33.1	40.4	13	0.34	6	3	4	3	5	9	6	2
Thurs. 17..	47.7	31.1	39.4	17	0.38	9	5	3	1	7	8	2	3
Friday 18..	47.8	33.4	40.1	19	0.56	3	7	3	2	4	11	3	5
Satur. 19..	48.5	33.8	41.1	16	0.57	1	5	4	4	4	12	12	6

The highest temperature during the above period occurred on the 16th, 1840—therm. 62 deg.; and the lowest on the 15th, 1848—therm. 18 deg.

Notices to Correspondents.

CHOROZEMAS: *M A E.* Your connecting the two features of holly-like leaves and coppery-yellow flowers, and thus making out Chorozema, was a lucky accident, for your authority gives no such clue. These features do not indeed separate Chorozema from some other plants equally likely to be met with, Podophyllum to wit; nor do they indicate more than a few of the Chorozemas to be met with in gardens.

CUCUMBERS: *J R* writes, "I have two very good Cucumber houses well stocked with good strong plants, but to my great surprise they die off one after another, perishing in a few hours. The roots appear good. They have a bottom-heat of 65°; top heat, 70 at night; good soil, and quite clear of spider, &c. He wishes to know if any one can point out the cause of his plants dying off in this way. We should say a deficiency of bottom-heat to the extent of 20°.

GRAPES: *W B H.*, and others. Next week.

INSECTS: *P M, Reigate.* The minute insects which swarm in your kitchen are the troublesome house ant (Myrmica domestica). Find out their runs and nest if possible, and stuff bits of rag moistened with turpentine in the hole; or lay bits of meat in their way, and when they are upon it by hundreds, as they quickly will be, dip it in scalding water, and repeat the experiment till all are scalded to death. *W.*

NAMES OF PLANTS: *J B B.* Abies excelsa nigra.—*M M.* Phlebolium aureum.—*M P.* 1. Athyrium Filix-fœmina; 2, Lastrea Filix-mas; 3, Blechnum Spicant; 4, Polystichum angulare.—*Creeper.* Physianthus albens. The Quassia-like leaf is apparently that of some Paullinia, perhaps P. curassavica.—*Y.* 1, Catabrosia aquatica; 2, Molinia cœrulea; 3, Callitriche aquatica; 4, some imperfect Orthotrichum.—*H W G.* We have no knowledge of any plant called "Corracolus suaveolens." If you can give us any clue to what is meant, we may be able to answer your inquiries respecting it. —*Faber marinus.* Diplacus glutinosus, Abelia floribunda, Hakea suaveolens.

POTIRON: *M D H.* This word, which is more usually applied to a kind of Gourd, is sometimes used in France for the esculent Boleti. *M. J. B.*

Manures and Feeding Stuffs.

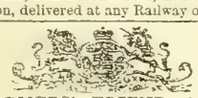
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TURNIP MANURE,
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MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
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2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
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Autumn Sowing.

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This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers. Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
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Price 7*l.* 10*s.* per ton, delivered at any Railway or Wharf in London.



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A 9*d.* packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
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Full directions for use are given with each packet.
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CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
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Works of Drainage of any extent, Irrigation, Enclosing, Wood-grubbing, Road-making, Farm Houses, Farm Buildings, and Labourers' Cottages, are executed on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate or collegiate; or Loans granted for the purpose to landowners who desire to execute the works by their own agents.
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ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
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TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
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Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
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Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.
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To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

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MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster.

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MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out

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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE NATIONAL EXHIBITION of DOGS.—The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held in Paradise Street (near Bingley Hall), BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1, the week of the Cattle and Poultry Show. For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

BINGLEY HALL, BIRMINGHAM.—The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and Dec. 1.
The Exhibitors and the Public will be admitted to Bingley Hall to WITNESS the JUDGING of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 26, at 9 o'Clock A.M., upon payment of 10*s.* each. There will be no admission to the Poultry Department until after the Judging is completed.
For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

The Agricultural Gazette.

SATURDAY, NOVEMBER 12, 1864.

MR. BAILEY DENTON'S recently completed volume on the FARM HOMESTEADS OF ENGLAND* is the noble execution of an admirable design. Desiring to urge the adoption of sound principles in farm architecture, the author has wisely sought his end by a description and discussion of actual performances and experience, rather than by an assertion and defence of mere proposals, schemes, or speculations of his own. Two dozen of the best homesteads of this country, already erected and in operation, are selected for representation by plan, perspective and elevation all admirably executed, and by well-chosen words, which relate such particulars of the farms on which they are built as will enable the reader to realise their fitness to their circumstances.

And at the close of this, the principal portion of the volume, the Editor collates the facts which have been thus collected and presented; and educes the general principles which ought to guide the erection of farm homesteads generally.

The purchaser of this handsome volume, than which no better illustration of English ability, whether of the publisher, the author, or the farmer, lies upon the shelves of the agricultural library, thus has within its pages the best specimens of existent farm architecture presented in detail as models to be copied, and at the same time such a study of the features common to all and of the general rules which have been more or less observed in all as will enable him to alter or correct any one of them up to a fitness for the special circumstances which his own estate or farm presents.

We shall next week discuss in more detail the main features of the volume. Meanwhile the author may be heartily congratulated on his most successful achievement of the large and ambitious plan which, in its programme, was laid down for the guidance of the work.

WHAT a magnificent seed time for the Wheat crop we are experiencing! The texture of the soil is at the least as important as its composition, so far as its character as a seed-bed is concerned. And great care is taken at this time of the year to provide just that texture which the young Wheat plant needs. A stale furrow slice is in most districts thought necessary, because of the firmness which it thus acquires. The Clover stubble is turned over as early as August, and lies many weeks undisturbed before being harrowed down for Wheat sowing. On the Cassiobury Park farm, the other day, we saw Wheat sowing proceeding upon light soil, which trod too loosely for the purpose; and here a flock of sheep was being herded to and fro, immediately behind the drill, to give the land the requisite firmness. During the previous week, all through South Essex, we had seen the Wheat sowing hurried on by the clay land cultivators there, who know that the time fit for dealing with their soil is generally short, and must all be turned to good account. The ridges are all made to suit the width of the tool; the harrows and the drill are drawn by horses walking in the furrows; not a hoof is allowed to tread the land, and the double mould-board plough follows immediately behind the sowing, to clean out the furrows, and provide that surface drainage of the land which is all that is there depended on. The weather of the last few weeks has suited both these clayey districts and the lighter lands extremely well. In the former the seed has been laid in well-tilled mould, whose natural tenacity ensures sufficient firmness of texture; in the latter artificial means, where needed—land pressers, clod crushers, the sheep-fold, and the like—have been satisfactorily employed. And thus the welfare of the young Wheat plant is secured until the period of rapid growth in spring.

There can be no doubt that even then it will find itself in circumstances made all the better for it by these mechanical processes. There is nothing which affects the texture of the soil which does not to some extent influence its composition also. Tillage, land drainage, the action of the harrow and the roller, all bring to activity and life what Dr. URE called the potential but dormant character of the land. Clays possess more of this dormant power than sand, and good tillage exercises a more important influence on their current fertility than on that of sand, but even on the latter both the disturbance and the pressure of the land in which tillage processes consist tend to that chemical reaction between soil and air, and between the component parts of the soil itself, which results in the preparation of food for plants. In spring however, when the plant is growing rapidly, the direct manuring of the soil, the direct supply of food for the crop, soon tells upon the rapidity and luxuriance of the growth. And it becomes us to consider what are the special foods which the Wheat plant needs under the natural circumstances of an ordinary soil.

Messrs. LAWES & GILBERT have given us in the last Number of the English Agricultural Society's Journal the result of their investigations, carried out now with the utmost care for 20 successive years. We presume that there is no such record extant of direct and immediate interest to the Wheat grower in this or any other country.

It appears that about 16 bushels of Wheat have been grown annually without manure for 20 successive years, on an ordinary, or, as we remember it, a rather 'unkind' clay loam resting on chalk. With a dressing of farm-yard manure applied every year, the crop has increased from 20 to 40 bushels during the same period, averaging 32 bushels per acre all that time.

With mineral manure alone hardly any increase of produce has taken place, the average produce having been little more than 16 bushels per acre. Nitrogenous manure alone on the other hand increased the produce very considerably for many years in succession, hence it is concluded that the soil in its practically exhausted condition has proved to be relatively much richer in available mineral constituents than in available nitrogen. The largest crops were obtained when animal and nitrogenous manures were employed together, and it was by such mixtures, even though they supplied no silica (nor carbon), that the produce by farm-yard manure was far exceeded, although the latter supplied not only both silica and carbon, but all other constituents in larger quantity than they were removed in the crops.

The authors infer from these facts, which they corroborate by the experience of similar observers elsewhere, that under the existing conditions of agriculture in this country the nitrogen in manures has justly a preponderating value attributed to it.

* CHAPMAN & HALL.

What these conditions are they discuss at length. They state the practice of good farmers as to the purchase and consumption of cattle foods and manures, and conclude from the history, "that the modern practices of this country, taken as a whole, do not tend to the injurious exhaustion of the mineral constituents in anything like the degree that has been assumed by some. Further than this," they say, "we think the evidence is more in favour of the supposition that, in a great majority of our soils, they are, by the combined aid of progressive liberation, and of restoration from without, becoming, in the course of cultivation, richer rather than poorer in immediately available mineral constituents relatively to immediately available nitrogen. So far as this is attained at the expense of the constituents of the soil itself, there is, of course, the less to fall back upon within a given depth from the surface. But it surely cannot be denied, that if there really is an annual liberation of mineral constituents in available form for the growth of plants, at least a portion of this may, with propriety, be sold off the farm for good and all.

"The exact amount of annual loss of mineral constituents which any soil, with its workable subsoil, can permanently support without injury, cannot, indeed, be proved. But such evidence as is at command goes to show, that, under the conditions at present existing, the nature and extent of the loss to which our soils are subject are such that the majority are deficient of available nitrogen rather than of available mineral constituents, so far as the requirements for full crops of the cereal grains are concerned.

"Insisting strongly, then, as we have always done, upon the absolute necessity of a full supply of available mineral constituents within the soil, relatively to that of nitrogen, we still believe that, in the actually existing conditions of British agriculture, it is not they, but the available nitrogen, that is generally found to be relatively deficient."

The question then arises, What are the sources of available nitrogen to which the farmer must look? The main resource is the adoption of such a rotation, including green and fodder crops, as shall conserve upon the farm in the form of manure the nitrogen which these crops by their expanded leaf systems have no doubt absorbed originally from the air. But besides this, there is the possibility of purchasing and applying directly nitrogenous manures. And the immediately practical inference from the whole discussion appears in the last paragraph of the paper, which we extract:—

"On many of our heavier soils, and even on lighter ones, if purchased cattle food be liberally employed, corn crops may be grown more frequently than is consistent with what have generally been considered the established rules of good farming, not only without injury to the soil, but with pecuniary benefit to the producer. On heavy soils Barley of better quality may be obtained after Wheat than after a root crop. But when corn is taken after corn, great attention should be paid to the cleaning of the land, and manure should be liberally applied. When Wheat follows another corn crop, not less than 50 to 60 lb. of ammonia (or its equivalent of nitrogen in some other form) should be applied per acre, and when Barley or Oats follow a corn crop, from 40 to 50 lb. The quantity of phosphate employed with the ammonia should be greater for spring than for autumn-sown corn crops. The manures should be applied at the time of sowing the seed."

Dr. VOELCKER'S experiments at Cirencester, recommending nitrate of soda at the rate of 1 cwt. or so per acre as a dressing to the corn crops of the farm, are quite in keeping with the conclusion to which English agricultural chemists have thus directed us.

ON THE STORING OF ROOTS.

THE SWEDE.

THE harvesting and securely storing the root crops is now generally admitted as one of the most important operations of the farm. The enhanced prices and increasing demand for butchers' meat of all kinds, as also the value to which wool has attained, and the ruinously low price of corn, render it imperatively necessary for the British farmer to use his utmost endeavour to increase the produce of his root crops by deeper cultivation, the use of artificial manures and every other modern appliance; as the man who can grow the heaviest crops, and consequently keep the greatest number of stock on his farm, will under present circumstances be most successful. After the great expense and anxiety attending the cultivation of the crops, and the effort so far being attended with success, the crop is still left exposed in the field to the deteriorating influence of a varying and uncertain climate, and should they be eaten by game, or destroyed by frost, the man who allows them to remain so deserves neither redress nor sympathy. Within the last few years a great advance has been made, and the harvesting the root crops now receives a greater degree of attention than formerly. Still, upon the whole, there is ample room for an extension of the system. Throughout a large district of good Turnip soil in the Midland Counties during the early part of 1855, the partial thaws, followed again by severe frosts, greatly injured, and in many places rendered the crops completely worthless.

At that time storing was the exception. Since that year the practice has been on the increase, till the present season, 1864. What was then the exception has now become the rule, and throughout the district before referred to, only a few crops remain unsecured. It is now freely admitted by intelligent agriculturists that beside the loss the root sustains, the land is likewise considerably exhausted by having to support a vegetation some feet in height, as is sometimes seen in many fields late in the spring, and as far as its feeding properties are concerned, of a small degree of value. The attacks of game also, and in many parts of the country the wood pigeon are very destructive to the growing crops.

During severe weather it is not an unfrequent occurrence to see whole fields denuded of their leaves, and the bulb attacked, and small cup-like cavities bored in the crown and sides of the roots. Those cavities become filled with water on the first fall of rain, which soon causes the root to rot. In some districts the practice still lingers of turning the sheep on the growing crops, particularly during the early part of the season when they are first put to Turnips; a large fold is set and the sheep turned in and left to graze them down pretty close to the ground, the best or most forward in condition having the first run, and are either followed by the lambs or stock ewes, who pick up the hulls or bottom part of what is left. Except as a pen or two for the lambs when first put on Turnips, in order that they may take to them more freely, we think the system neither economical as regards food, nor beneficial to the health of the animal, though we have often seen sheep do well which had the first run of a pen fed in the way referred to; but those who followed after were under the most favourable circumstances of weather, &c. A great quantity of earth must unavoidably be introduced into the system, which always acts injuriously on the health of the animal, more particularly on sandy soils. We have known great losses take place from this cause, the great quantity of sand taken into the system along with the food causing obstructions and inflammation of the urinary organs, which frequently terminate fatally.

The Swede crop after having been got up and pitted for some time undergoes a chemical change, a part of the acids being converted into sugar, as in the ripening of the Apple and other fruit. After this change has taken place, they become not only more nutritious, but they are also more palatable and wholesome as food for stock. It is a fact well known to all experienced flockmasters that there is great danger attending the changing of sheep from White Turnips to Swedes, requiring the utmost attention and discrimination on the part of the farmer, so that the change may be gradually and judiciously effected. The Turnips and Swedes should be mixed together for several days; by this means the ill effects of the Swede are counteracted, and the change becomes less felt. Great losses frequently take place, particularly when the sheep are in a forward state of condition, and the change has been rapidly made from White Turnips to Swedes, either growing or recently got up—inflammation being the disease from which they invariably suffer; and the writer has several times had to bleed and physic flocks of two or three hundred sheep, in order to arrest the progress of the inflammation brought on by a too rapid change. When the Swedes have been stored for some time, and have undergone the change elsewhere referred to, they become perfectly safe, and the change may be made from a full feed of White Turnips to the same of Swedes, without any danger or fatal results.

It is asserted by some that selection and forcing have rendered the Swede less hardy than formerly. This to a trifling extent may be the case, as we know some varieties in which a certain degree of hardness has been sacrificed for size. Still we think the change beneficial to the interests of the cultivator as producing a far greater weight of food, and if seasonably secured is equally valuable weight for weight in the one case as the other. The old hardy Green-top would, under favourable circumstances of soil, season, and cultivation, not produce more than 18 to 20 tons per acre, while Sutton's Champion or Skirving's Improved, under the same management would give a return of fully 5 tons per acre more, while a chemical analysis assigns to each the same feeding value. As a proof of the keeping qualities of the less hardy kinds, we have kept both Aberdeen Yellow and the common Green-top White, both quite sound till late in the spring. In each case they were got up without frost, and were stored perfectly dry. While on this point we would beg the reader's permission to be allowed to say that it is our opinion if a greater breadth of White Turnips were on many farms to be cultivated, and a less breadth of Swedes, the land, and eventually the occupier, would alike be benefited.

Like all other vegetable productions, soil and climate exercise a marked influence on the produce of the Swede crop, and throughout the greater part of the southern and midland counties of England, to ensure a heavy crop they must be sown from the 25th of May to the 10th of June, whereas for a good crop of many varieties of the common Turnip, a month to five weeks later will be a good time of sowing—an advantage if well employed of no mean importance, which all will admit is of great benefit, not only for cleansing but aërating the soil, and by being reduced to a fine state encouraging the vegetation, and consequently destroying myriads of annual weeds; this will give the land the partial benefit of a summer fallow, the good effects of which on some soils may be observed for years.

In these days of high farming, when large quantities of the most stimulating manures are used, the keeping qualities of the roots are said to be impaired from the application of highly forcing substances inducing a rapid growth, rendering the plant so grown more susceptible to the attack of frost. Crops so grown will not stand the winter so well if left exposed as others will do which have not been so forced is because an ample supply of suitable food properly prepared and ready for assimilation was placed within the reach of the plant, thus enabling it to arrive at an early maturity; and as nature cannot stand still, the natural decay and death of plants appear to follow the same law as the natural decay and death of animals. As it approaches maturity the sap flows more feebly through its vessels, and it is no longer propelled through every part. The opposite principle of chemical affinity begins to act, and the various elements that compose the plant fly off to combine with other elements, so as to form new substances. We believe the modern system of cultivation to exert a more destructive influence on the keeping properties of the Swedish Turnips when left growing on the land during winter than most other causes. The system of ridging or drilling at wide intervals, the frequent use of horse and hand-hoe, is well known to all experienced growers of roots to stimulate and encourage their development, and also to ward off the attacks of mildew; and yet the same operation that opens the soil, allows the air to penetrate, producing chemical changes, without which the vegetable and mineral matters contained in the soil could not become subservient to the requirement of the plant. This process of hoeing so often repeated leaves the tenderest part of the bulb more exposed to atmospherical influences by the earth being worked away from the roots than under the old system of broadcast cultivation, where one or at most two choppings over with the hand-hoe was all that was attempted. Under this system the roots, from being near together and the soil being little stirred, seldom attained a large size, but, burying themselves deep in the ground, could stand a much greater degree of frost than when grown on the modern system, from the reason already referred to. We have often observed during the months of March or April, following a severe winter, that the roots grown on wide cultivated ridges had suffered far more severely, a greater per centage being rotten, than those grown on the flat in the same field. During severe frosts—we may instance that of the past season, where sheep were feeding on Turnips, which had not been secured — the difficulty and expense of getting up and cutting them was very great. The sheep did not generally get a sufficient allowance to satisfy the cravings of hunger, except in cases where artificial food was freely used. Consequently the system was chilled, and instead of the animals progressing the opposite was the result. Where they were penned in and forced to gnaw the frozen roots in the ground the case was still worse, the exertion they had to make in order to bite them was painful to witness, and presented a strong contrast to others that were living on roots securely stored, and which came out of the heaps as clear and sound as if there had been no frost. *G. Murray, Overstone.*

(To be Continued.)

ON FURZE AS FOOD FOR CATTLE.

A CORRESPONDENT put his interrogatories formally, and I shall attempt to reply to them in the order in which they were put.

1st. Has any machine been yet invented which effectually bruises Furze at a paying cost, whether worked by steam, horse, or hand-power?

Mr. Walsh, of Balbriggan, has had his patent Furze pulping machine for some time before the public, and a paper in reference to it has just appeared in each of the two last numbers of the *Gardeners' Chronicle and Agricultural Gazette*. This machine was tried against time before the committee of the Agricultural Society of this county, and the result of the trial is published in the annual report of the Society for 1862. It was to the effect that the machine is capable of bruising and tearing the Furze into fragments so small as to offer not the least impediment to its use, not only by horses and cows, but even by calves and sheep; that, worked by means of a one-horse gear, it is capable of so preparing Furze at the rate of 3 cwt. per hour; that unless the greatest care be observed by the feeder to forward no more than the exact quantity it was capable of taking, it was liable to choke, and must be reversed before it could again work; and that it was adapted to meadow, and not to bush Furze, inasmuch as a bit of old stem, half an inch in diameter, might injure it. These defects the report stated must be remedied before the machine can be

considered efficient. No doubt it has been since improved, but of this I am not aware.

A millstone fixed vertically at the end of a pole, and moving round in a flagged path, being drawn by a donkey or horse, would pulp an immense quantity of Furze previously cut into 3 or 4-inch lengths, and at a very small cost. But, with the exception of Mr. R. Bolster, of Gleutane, near Mallow, in this county, who, by means of a small water wheel cuts the Furze into 2 or 3-inch lengths, and then bruises it in a bark mill, I know of no farmer in this part of the country who pulps his Furze. There cannot be a doubt that for calves and sheep, and probably for cows, pulping would greatly facilitate the consumption of Furze. I, however, adopt the common practice of the district, and cut it by means of a chaff-cutter into ½-inch lengths; and in this state cows (after a little time) consume it freely, and are very fond of it. Worked by a man of average strength, and fed by another, my machine cuts 20-stone weight per hour; or by a horse, in one-horse gear, which I obtained from Mr. M'Kenzie, of the Agricultural House, Cork, it easily cuts twice that quantity.

2nd. Would it pay to bruise Furze by steam for a dairy of 12 cows?

It certainly would not pay to provide steam power expressly for preparing food for 12 cows, nor for 20 cows; but wherever steam, water, wind, or horse power is constantly, or even two or three times a week, at work, meadow Furze may, by means of a pair of metal cylinders, be pulped, even without the trouble of previous chopping, at a merely nominal cost.

3rd. Must not the land be rich, deep, and dry to grow Furze successfully, and if drained by covered drains would they not be quickly choked by the roots of Furze, no matter how deep?

Dryness alone of the above conditions is essential to successful culture of Furze, at least beneath an elevation of 300 or 400 feet. My Furze meadow occupies a portion of the farm the soil of which is a shingly loam, with a subsoil of shingly clay over carboniferous shale. It does not require draining, and is value for about 10*s.* per statute acre, and the produce of two years' growth is about 12 tons. On better land in this county 12 tons of annual growth are obtained, but land still inferior to mine produces good Furze meadows, some of which have been mown each alternate year for 20 years and more, and continue, as I am informed, as productive as ever. I have met persons who have so high an opinion of this crop that they stated they would not hesitate to sow it on the very best land they could obtain. Judging from the known effect of the roots of trees and bushes in choking covered drains, even at a great distance, and of Mangel and other farm crops in plugging up drains 3 or 4 feet deep, I should say that the roots of Furze would speedily render covered drains useless; but if I were preparing wet land for Furze, I would dry it by open drains, such as are used in preparing wet land for planting with trees.

4th. If mown in winter, would not frost kill the plants?

I don't think it at all likely; at all events, I have never heard of anything of the kind occurring in this district.

5th. In places where the soil and climate are favourable to the growth of Turnips and Mangel, do you think it would be judicious to undertake the culture of Furze?

Except under the most favourable—indeed, unusual—circumstances, the cost of the manure and labour necessary to raise a good crop of these roots is a great drawback to their culture; whilst Furze on good land produces a large annual return at no cost for manure, and very little for labour. On the contrary, deriving, as it does, its mineral food from depths inaccessible to other cultivated crops, and yielding up these fertilising ingredients in the excreta of the animals which consume it, to be applied to other portions of the farm, it serves, like irrigated meadows, to maintain the fertility of the farm, and, consequently, to diminish the necessity of procuring auxiliary manures.

Another of your readers requested me to inform him what weight of Furze ought sound, dry land, which is good value for 1*l.* per acre, statute, produce annually, and what I consider to be the value of Furze as cattle food as compared to hay.

In reply, I would say that such land, under the elevation I have mentioned above, ought to yield an annual cutting of 10 tons per statute acre; and with regard to the comparative value of Furze as provender, we have in the report of the Cork Agricultural Society referred to above—viz., for 1862—the analysis of Furze by Dr. Blythe, the eminent chemist of the Queen's College, Cork, made for the express purpose of determining this question. The analysis in detail appeared in the *Farmers' Gazette* of the time; and a reference to and close consideration of it will well repay the trouble. I shall here only quote Dr. Blythe's summary, as given at the close of his report:—

	Fresh Furze.	Fresh Grass.	Fresh Clover.
	lbs.	lbs.	lbs.
Total albuminous (or flesh-forming) substances in 100 lbs.	4½	2 to 4	3 to 4
Total respiratory (or heat-producing) substances in 100 lbs.	8¾	10 to 13	6 to 9
Oil or fatty matter	2	½ to 1	½ to 1
Woody fibre	29	10 to 13	3 to 7
Mineral matter (ashes)	4	2 to 3	1 to 3
Water	51½	60 to 80	75 to 83

The ashes of these plants contain respectively—

	Potash. lbs.	Phosphoric acid. lbs.
In 100 lbs. of Furze	20	8¾
,, Grass	20 to 30	9
,, Clover	30	7

It must be borne in mind that the question proposed by the committee of the Society to Dr. Blythe was, to determine the feeding quality of Furze, and the amount of the two valuable ingredients in the ashes of plants, viz., potash and phosphoric acid. He, of course, also determined, as will be seen by a reference to the analysis, the percentage of nitrogen, which was nearly ¾ lb. in the 100 lb. of fresh Furze, or, more accurately, 0.71 per cent. The following are the doctor's conclusions:—"Thus, whilst the respiratory matters are nearly in the same proportions in 100 parts of fresh Furze, natural and artificial Grasses, in the first substance they are nearly all soluble in water, which is not the case in the others. The albuminous matters are also higher, and probably also soluble in larger proportion, in Furze than in the other two, and the oil is in much larger proportion. In the ashes the phosphoric acid is about the same in the three, but the potash is somewhat lower in Furze. A comparison of these analyses leaves no doubt, however, that fresh Furze is a more valuable feeding substance than natural Grasses, and, in some respects, is superior to Clovers; and the refuse matter from Furze is scarcely, if at all, inferior to that from the other two as manure." Now, if fresh Furze, as taken from the field, be weight for weight equal in feeding power to meadow Grass, and as hay is to Grass as from 1 to between 3 and 4, it follows that 1 ton of fairly saved hay is equal in feeding value to between 3 or 4 tons of Furze. My horses, which are somewhat over the ordinary size of farm horses in the district, consume 6 stone of chopped Furze as their night's provender, and I consider that they get through their work better, and certainly they look better, than when in spring—the Furze then coming into blossom and not being so palatable—from a stone and a half to two stone of hay is used as a substitute for the Furze.

Each of the gentlemen who have asked my opinion on this subject has requested that I would add to my reply anything on this matter which I think of importance. In doing so I would desire to guard persons about to cultivate Furze against an error into which I myself fell in my first endeavour, viz., take care to pulverise the land effectually previous to sowing, and, above all, do not stint the seed. For want of the experience I now possess in this respect, a four-acre field which I sowed with 30 instead of 50 lb. of seed per statute acre, and which was not sufficiently harrowed down before sowing, was much too thin, but is now thick enough from a second sowing over the thin parts. Since I used 50 lb., and made the surface perfectly fine, I have no further trouble. I find August or September as good months for sowing as March or April. I may also add that cows fed on Furze not only milk well, but produce as good flavoured butter as they do on the summer Grass.

I shall conclude a letter which has, I fear, made an unwarrantable demand on your space, by strongly advising every farmer, especially such of them as have a piece of dry land, no matter how poor, to break it up, fallow it until the sod is well reduced, and sow it down with good Furze seed, not less than 50 lbs. per statute acre. Of course, those who can prepare such land for a crop of Turnips, and feed them off with sheep, and then sow Furze, but without a Corn crop, will be well repaid by the superior strength and produce of their Furze meadow. In either case I can promise them they will not regret having taken the advice here given. *Michael Murphy, Horse Hill, Bandon, Oct.* 26, 1864, *in Dublin Farmers' Gazette.*

AGRICULTURAL LABOURERS' COTTAGES.

Doubtless it will be remembered by many of your subscribers, that in the month of November last the Society of Arts, London, (through the liberality of J. B. Denton, Esq.,) commenced a movement, the object of which was to improve in a moral and sanitary sense the wretched dwellings of this useful section of the labouring classes, and to inquire into the possibility of erecting suitable accommodation at a rent within their means.

Accordingly the Council of the Society advertised for designs, specifications, and estimates for the same, restricting competitors to carefully prepared conditions and other instructions, containing such dimensions for the various apartments as have been found practically to answer, and also a rate of prices for the various materials, upon which the estimates were to be based. Conforming the designs in point of construction and substantiality to the memorandum of the Inclosure Commissioners as applied to agricultural buildings under the several Improvement Acts, and limiting the cost of each cottage to 100*l.*, which sum had to embrace the perfect completion of the building, including fixtures, fittings, &c., and 25 per cent. for builder's profit and contingencies; for which two prizes with the Society's medals were offered. One specially to the members of the Architectural Association, London, and the other to the United Kingdom. In reply to which in January following, 134 designs, estimates, &c., were submitted from 107 competitors residing in all parts of the United Kingdom, and after a careful and minute examination of the various designs, specifications, &c, by the Judges appointed, viz.: C. F. Hayward, Esq, architect; John Clutton, Esq., land agent; and Geo. Dines, Esq., builder, only one prize was awarded, namely, that open to the United Kingdom.

Subsequently a Special Conference was held at the Society's house on the 26th and 27th of May last, when this important question was ably discussed and considered in all its points, from which I hope much good may result, and that the day is not far distant when the Legislature may be induced to take up the matter, and make provision for the proper lodging of the agricultural labourer, conducive to his moral and physical welfare and improvement.

The agricultural population has been for some time on the decrease, and will doubtless continue so long as they are suffered to huddle together in the wretched hovels so frequently to be met with in agricultural and other labouring districts—demoralized, degrading, and inconsistent with the present age. I hope that the labouring classes may be soon taught to know that it is essentially necessary for their own well-being and prosperity, as well as to the benefit of those to whom they are beholden, that they should have comfortable and decent dwellings, with separate sleeping apartments for the sexes of their family.

As the author of the design to which was awarded the prize open to the United Kingdom, and feeling anxious to add my humble effort to the cause so ably and laudably advanced by this Society, I am glad to place before your readers the annexed particulars of it, and beg to say that I have successfully adapted the plan to rows of similar buildings, thus effecting in the aggregate a considerable saving in the party walls, drainage, &c. *John Birch, Architect,* 55, *Page Street, Westminster, S.W.*

Extract from Specification and Estimate.—The several walls are proposed to be built with good sound hard burnt stock bricks, the ground floor, yard and out-buildings being paved with brick and tiles. A cesspool common to both cottages, with drainpipe to same from water-closets, is placed at the end of the garden, with liquid manure tanks to each cottager. To insure ventilation it is proposed to insert air bricks in the external walls at floor level, with moveable frames inside, and similar air bricks over the fireplaces near the ceiling communicating with the flues. The roofs are covered with countess slating, or well burnt plain tiles laid to close gauge. The timber used to be of the best Dantzic, Riga, or Memel Fir. The battens to be of best St. Petersburg, all the internal finishings (excepting ground floor) to be of the best white deal, carefully selected, free from knots, sap, shakes, and other defects, and thoroughly seasoned. A well is provided in the back porch, which by means of a double action force pump supplies the cisterns immediately over same, from which branch pipes are taken to the water-closets, sinks, and coppers in sculleries. The greatest portion of the rain-water is saved by the provision of a suitable water butt to each cottage, and the remainder is conducted into the soil drain by means of a small agricultural drain pipe round the building, and serves as a good flush to the water closet drain. The estimated cost of the pair of cottages is 203*l.*, which sum includes the entire buildings, paving, sinks, coppers, well, water supply, water butts, water-closets, drains, cesspool, and liquid manure tanks; also fixtures, comprising ranges with ovens, stoves, dwarf cupboards, shelving for books, &c., linen closets, plate racks in sculleries, towel rollers, hat and cloak plates, and every requisite necessary to render the cottages complete and fit for immediate occupation.

On the ground plan is Front Entrance Porch—Living Room, 12′ 6″ by 12′ 0″—Scullery, 10′ 9″ by 7′ 3″—Pantry—Fuel Store—Back Entrance Porch—Tool House—Yards—Dustbins—Water Butts—Cesspool and Liquid Tanks, end of garden—Gravel Walks—Superficial area of living room and scullery, 228 feet. Cubic feet of space in same, 1824 feet.

On the chamber plan are Bedroom, No. 1, 12′ 6″ by 9′ 6″—Bedroom, No. 2, 9′ 0″ by 8′ 0″—Bedroom, No. 3, 7′ 6″ by 6′ 0″—Stair Landing—Linen Press—Superficial area of bedrooms, 235 feet 9 inches. Cubic feet of space in same, 1886 feet.

Home Correspondence.

Flax Cropping in Mayo.—I have lately met Dr. Sullivan, Professor of Chemistry to the Catholic University, and of the same science in the Museum of Irish Industry, Dublin, just returned from a tour through the interesting barony of Costello in that county. Knowing him to be the highest scientific authority of the day in all things relating to Flax, its growth, management, and manipulation, as also possessing the best practical views I ever heard expressed by any such scientific man, I asked him his opinion on "the Flax movement," as it is called in the west. His answer was, "You know the lands of the barony of Costello, and the people engaged in their cultivation, better than I do, but I know what perhaps you had not an opportunity of seeing when assisting in the reclamation and valuing such lands. I saw with Mr. Thomas Strickland at his Flax mill, Castlemore, near Ballaghaderrin, steeped, retted, and dried, three and-a-half tons of Flax straw to the Irish acre, and whose produce in fine fibre alone was an average of 18½ per cent., which Mr. Strickland, when dressed, sold at 7*s.* per stone of 14 lb.,—you can now judge of it yourself;" adding—"I have also seen a higher produce per acre, whose per-centage in fine fibre was 22½ per cent., and whose marketable value would be 10*s.* a stone, but this was a pet crop, grown in highly cultivated land, and no fair criterion by which to judge of such crops as they are, though proving what they can, ought, and hereafter will be." At this rate of produce and average quality the gross sales of the fine fibre would stand somewhat thus:—

104 stones of Flax at 7*s.* a stone	£36 8
Seed, 40 bushels, at 6*s.* per bushel	12 0
Making a total of	£48 1

If in round numbers and for ease of calculation we set down 18*l.* 8*s.* as for rent, taxes, seed, and labour, there

will still remain 30*l.*, or over three times the average rent of any 20-acre farm which I have myself valued, for rent-paying purposes, about 10 years ago, and the rents remain so still, and will for 20 years yet to come, or the excellent system of management by Mr. Charles Strickland, Lord Dillon's agent, will be greatly changed for the worse, of which I have little fear and the tenants less. Let me turn to another crop or two that can be grown in rotation with Flax on such land compared with Wheat as sold in the Dublin markets. The crops I allude to are Rape and Italian Rye-grass. My opinions on the latter are too well known to your readers to require more being said by me about them just now. And I will confine my remarks to Rape as a marketable crop, being now less profitable to the grower than when used green for stock-feeding.

Produce per Irish acre.	Price per barrel of 20 stone.	Amount.
Rape seed, 10 barrels	.. at 30*s.*	£15 0 0
Wheat, 6 ditto	.. at 20	6 0 0
Balance in favour of Rape seed	..	£ 9 0 0

or one year's rent of 18 Irish or nearly 30 statute acres. There are as many thousands of acres on that immense property capable of growing more than 10 barrels of Rape-seed to the acre as there are scores of acres capable of growing even 5 barrels of Wheat to the acre. Barley is seldom if ever grown, because of the humidity of the climate. Oats, Turnips, and Cabbages grow to great perfection, though. This vast estate is but one out of thousands that are naturally better circumstanced, not only in Mayo, but in many other counties of Ireland sadly neglected. *E. Carroll, Dublin.*

Michaelmas Corn Averages.—Although the fluctuations in the average prices of Wheat, Barley, and Oats in the farmer's year ending Michaelmas, 1864, have been very moderate, it may be useful to those interested in agricultural pursuits to see the annexed weekly progress, which produces the following averages for the 53 weeks ending the 1st of October, 1864:—

Wheat	.. ..	40*s.* 9*d.* per imperial quarter.
Barley	.. ..	31 1 ,,
Oats	.. ..	19 11¼ ,,

The highest and lowest prices during the same period are as follows:—

	Highest Price.	Lowest Price.	Difference.
Wheat,	Aug. 12, 1864 44*s.* 1*d.* ..	May 13, 1864 .. 38*s.* 9*d.*	5*s.* 4*d.*
Barley,	Oct. 9, 1863 35 4 ..	July 8, 1864 .. 27 2	8 2
Oats,	Aug. 26, 1864 22 11 ..	3 Oct. and 13 Nov., 1863 18 7..	4 4

The fluctuation in the average price of Wheat—viz., 5*s.* 4*d.* per imperial quarter—has been less in any year ending Michaelmas since the passing of Sir Robert Peel's Corn Law Act on the 26th of June, 1846. The greatest fluctuation occurred in the year 1847, when it amounted to no less than 52*s.* 11*d.* per imperial quarter between the 29th May and 18th September.

WEEKLY AVERAGE PRICES OF WHEAT, BARLEY, AND OATS IN ENGLAND AND WALES, FOR 53 WEEKS ENDING OCT. 1, 1864.

Per *London Gazette.*		Wheat.		Barley.		Oats.	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
1863.							
October	9	42	2.485	35	4.559	19	8.807
	16	41	0.111	34	7.163	19	4.511
	23	40	4.013	34	0.591	18	8 903
	30	40	0.167	33	11.280	18	7.385
November	6	39	10.973	34	0.569	18	11.443
	13	40	0.967	34	2.513	18	7.862
	20	39	10.349	34	0.677	18	9.004
	27	39	11.868	33	11.813	19	11.662
December	4	40	3.457	33	7.359	19	7.788
	11	40	9.014	33	6.617	19	5.674
	18	41	1.831	32	10.740	19	3.325
	25	41	2.554	32	6.118	19	0.433
1864.							
January	1	40	5.265	32	0.089	19	0.815
	8	39	10.294	31	8.872	18	9.735
	15	40	2.236	31	7.877	18	8.094
	22	40	11.222	31	10.428	18	10.401
	29	41	3 763	32	5 012	18	9.500
February	5	40	8.152	32	1.779	18	11.016
	12	40	4 591	32	0.302	18	9.377
	19	40	8.671	31	11.517	19	1.615
	26	41	1.206	32	0.300	19	8 966
March	4	40	6.620	32	0 687	19	4.058
	11	40	2.325	31	6 037	19	10.455
	18	40	1.981	31	5.454	18	8 527
	25	39	9.233	31	4.009	19	2.789
April	1	39	11.518	30	10.798	19	0.300
	8	40	2.501	31	0.530	19	2.606
	15	40	1.363	30	9.687	18	11.809
	22	40	1.179	30	10.010	19	3.055
	29	39	7.595	31	1.001	19	9.018
May	6	39	2.506	30	6.995	19	4.671
	13	38	9 622	30	3.102	19	5.432
	20	39	3.512	29	9.312	19	8.180
	27	39	8.700	29	6.540	20	0.727
June	3	39	5.837	29	0.981	19	10.269
	10	38	11.522	29	6.214	19	10.872
	17	39	6.892	27	11.636	20	0.286
	24	40	3 794	27	6.345	20	4.348
July	1	40	0.425	28	0.176	20	8.124
	8	40	9.043	27	2 830	20	9.776
	15	41	9.188	27	8.513	21	10.179
	22	42	6.439	27	10.114	21	7.054
	29	43	0 562	27	3.122	21	0.358
August	5	44	0.055	27	7.268	22	4.434
	12	44	1.885	28	3.390	22	10.276
	19	43	6.044	28	1 574	22	0.057
	26	42	7.439	28	7.621	22	11.809
September	2	42	5.502	29	1.551	22	0.620
	9	42	3.008	31	1.601	22	5.446
	16	42	4.125	32	1.149	21	9.905
	23	42	0.809	32	2.089	20	11.331
	30	40	11.608	31	5.282	20	11.131
October	7	39	8.928	30	11.538	20	7.540
	53)	2160	8.419	1647	7.328	1059	1.708
		40	9.215	31	1.043	19	11.805

Charles M. Willich, Actuary University Life Assurance Society, 25, Suffolk Street, Pall Mall, S.W., Oct. 28.

The Potato Harvest.—There are many conflicting accounts relative to the present season's Potato crop. In many districts they are said to be small and unproductive; in others that they have ripened too soon, owing to drought, the produce therefore is short and defective; again they are said to be partially diseased, particularly some varieties. Again, some of the popular sorts have manifested symptoms of declension, while others are in the ascendant, and are improving in character. These and many other reports of the year's Potato crop are no doubt in substance perfectly true, but we incline to think that most of the unfavourable accounts may be entirely owing to the soil and season. It has been a most peculiar season. The early planted crops on mild soils have gone on prosperously from the first; and are now yielding the best crops known for many years. The later plantings on mild soils have done tolerably well, but on dry and stiff soils they have suffered surprisingly, and in some cases the crop was lost. No management, however good and judicious, can withstand such a summer as that of 1864. The drought has been so excessive as to penetrate beneath the Potato ridges on dry soils, and stop their growth; on mild, open porous soils many plants have died, thus rendering the crops thin and irregular. Of course growers are on the alert to ascertain the causes of failure or success, and many are the sage remarks that are hazarded respecting it, and much positive assertion is made relative to mismanagement and errors in practice. We think this is wrong, and displays no small degree of ignorance and presumption. Unquestionably it is the season, and the season only, that has chiefly caused so many failures and thin crops. We name this in order to deter growers from discarding good and well established varieties. It is also quite certain that some varieties have withstood the drought better than others, but that is not altogether a valid reason for discarding those which have been less prosperous. We know that only in the very last year some of these very sorts were decidedly the most profitable, and no doubt will be again under different circumstances, and under the best and most experienced modes of planting and culture. In an ordinary season, for instance, Potato sets of medium size will progress favourably; but in this season the large sets, or the large full-grown Potato, have produced by far the best crops. In the district from whence we write this is abundantly proved, so much so as to constitute it an established fact, and that henceforth our best growers will only plant the best and finest tubers, and these uncut, or at most just so much cut as to deprive the sets of any superabundance of eyes, and thus to produce fewer stems. The Potato harvest in Cambridgeshire, Lincolnshire, and many parts of Yorkshire, is exceedingly good, with scarcely a diseased one to be found. The crop has suffered very severely from the attacks of the larva of the dart moth and others, and thousands of tubers have holes drilled so far into them as to make them unsaleable. This will render good crops nearly unprofitable in money value, but they will leave a large bulk for stock consumption or future seed. The Fluke variety has this season yielded the lowest produce in bulk, and not first-rate in quality. This is a slow growing sort, and not prolific in top, therefore in a season like this it is sure to fail in some degree. It requires a fine free-growing season to produce profitable results. The best sorts of Regents yield admirably; Rocks have produced capital crops; the Snowball variety grow very large this year—100 picked tubers of this kind are said to weigh 2 cwt.; Early Dalmahoys have not done so well; the Red Regents (a new variety) have yielded well, and are of fine quality. The harvest is nearly got in, and in most excellent order. The graves or piles are very promising, and are laid up clean and dry. It is a source of great gratification and thankfulness to find the crop free from that dire pest, the Potato disease. *O. F.*

Steam Power.—The employment of steam power is of immense importance and advantage to those who are engaged in trade and commerce, and may not the English agriculturist also look forward to even a greater share of advantage from the employment of steam power in cultivating the soil. One-third of the arable land throughout the country might be laid down to permanent pasture for grazing and fattening of stock without diminishing the arable produce of the soil—for what would be lost in breadth could be obtained in depth by subsoil ploughing and deep cultivation, allowing the plants to send their roots freely through the soil in search of food, but it should be remembered that searching for food is not obtaining it. Subsoil ploughing and deep cultivation should be followed by a liberal supply of good yard manure, made under cover, and to obtain the best results from this system, the subsoil should be stirred to the depth of 20 inches at least once a year, the ordinary ploughings should be increased in depth by degrees until the depth of at least 12 inches of good soil is obtained. The arable land should be as near as possible to the farmstead. A deal of valuable time is lost in moving the steam tackle from field to field. A good solid road should pass through the centre, that the steamer may easily pass down its place of employment at the farm to the field. There would also be a great saving of expense in getting home the corn and roots. *B. Ransley, Perrysfield Farm, Oxted, Surrey, Nov. 3.*

Societies.

BATH AND WEST OF ENGLAND: *Nov.* 5.—The Hereford Meeting was fixed to commence on Monday, June 5, 1865, and it was directed that all entries of Stock must be made, the certificates properly filled up, signed, and returned to the Secretary, on or before the 15th of April. The Stock Prize Sheet was, after considerable discussion of minor details, ordered to be printed for immediate distribution. The amount of money offered by the Society will considerably exceed that given at any former meeting, and this will be augmented by the sum of 400*l.* offered by the Hereford Local Committee, thus making a total of 1500*l.* at Hereford, as against 1147*l.* at Bristol. The Council have decided to give a third prize in the 3-year old bull class of each breed, and to increase the prizes for cows in-calf or milk, from 12*l.*, 8*l.*, and 4*l.*, to 20*l.*, 10*l.*, and 5*l.* respectively. In the sheep classes, the Shropshire Downs are put on the same footing as the Leicesters and other breeds, and in each class, excepting that for mountain sheep, the prizes for pens of 5 yearling ewes will be increased from 5*l.* and 3*l.* to 10*l.* and 5*l.* In the horse classes there is not only an increase in the amount of prize money, but in the hope of bringing better animals into the show yard, all limitations as to the district in which they may serve, or be bred, have been swept away. Care, however, will be taken to ascertain that brood mares fully conform to the representations on their certificates. The prizes for shoeing smiths, offered by Mr. Miles, of Exeter, will be again renewed. The Hereford local prize list, as announced by Mr. T. Duckham, is not only very liberal, but also comprehensive in its range. Prizes to the amount of 150*l.* are offered for Hereford cattle; 15*l.* for Welsh cattle of any pure native breed; 50*l.* for Ryeland sheep, for which there are four classes; and also prizes for Shropshire Downs, long-woolled sheep, close-woolled white-faced sheep, and Welsh mountain sheep. In the horse classes, prizes are offered for hunter, hacks, and ponies; and there are special premiums for Hops, cider, and perry. A novel feature is the proposed competition in sheep shearing in the yard, on the first day of the exhibition; prizes to the amount of 10*l.* having been offered for this purpose by Mr. C. Anthony. The liberality of the Hereford Local Committee was cordially recognised by the Council, and to prevent any unnecessary delay in issuing the lists, a special Committee was appointed to sit at the close of the Council meeting, for the purpose of making all necessary arrangements. On the motion of Mr. Jonathan Gray, it was resolved that the same grant of money be made for music and horticulture at Hereford as on the occasion of the Bristol meeting. The Poultry prize list was brought up by Mr. Pitman, and will be confirmed at the next Council meeting.

Time of Shearing.—Mr. Knollys called attention to the memorial and letters addressed to the Council by breeders of Cotswold sheep and others, as to the proper time for shearing sheep intended for exhibition, and it was resolved, after some discussion, that as it was desirable to assimilate the practice to that of the Royal Agricultural Society, the time should be altered from the 1st of May to the 1st of April.

Farmers Clubs.

LONDON: *Nov.* 7.—The following paper on County Taxation, by Mr. W. Spearing, was read on Monday last, on the re-opening of the session of the London Farmers' Club:—

MR. SPEARING said—After the able paper which was read on this subject about two years and a half ago by Mr. Corbet, I trust I may be excused if I do not take you back to the commencement of county rates. I would rather endeavour, in the first place, to show, in my brief paper on this question, how in my own and neighbouring counties there is not due regard paid to the pockets of the rate-payers; and then with respect to local taxation, call your attention to some few items which are much larger than they ought to be, instead of opening up such a wide field of discussion as would necessarily arise from entering into the whole system of our local taxation. It appears, from an abstract of the accounts of the several county treasuries in England and Wales, that the receipts for the year ending Michaelmas, 1863, were 212,150*l.* 4*s.* 11¾*d.*, and the total disbursements 1,905,751*l.* 7*s.* 9¼*d.* It further appears from the same abstract, that the total assessments for the same year amounted to 71,339,174*l.* 1*s.* 4½*d.*, and the total amount of debt to 2,444,393*l.* 16*s.* 9*d.* So that this is no small matter as it affects the rate-paying community. To show the way in which this money has been spent, it is only necessary to notice the enormous outlay upon our county gaols, lunatic asylums, militia stores, &c., and this not merely as relates to the building, but to the continual alterations which are being made—the restless activity on the part of magistrates generally to be making what they deem improvements, but which may be more properly designated a wasteful expenditure of other people's money. In support of my assertion I would read the following extract from the report of the committee of visitors of the Wilts County Asylum, signed by Mr. Lowther the chairman:—

"The amount from the rates during the year has been 3,555*l.* 4*s.*; out of that sum 2000*l.* has been paid off—

1,441*l.* 14*s.* 4*d.* as interest on the debt; 750*l.* 10*s.* 8*d.* as balance on this account, which will be required for the payment of interest amounting to 503*l.* 6*s.* 7*d.* due before the Easter sessions."

2,000*l.* has been paid off during the year; but it has been necessary to borrow 2500*l.* by the authority of the sessions to meet the expenditure on the new buildings, leaving a present debt of 34,000*l.* Then under the head of "new buildings" from the same report, you have about as unsatisfactory a statement of the management of affairs as you can well find. The report says:—

"Your committee are glad to inform the Court that the new buildings are finished and occupied by the patients for whom they were designed, and that they fully answer the expectations of the medical superintendent. Additional accommodation has been supplied for 80 female patients. Much delay in the progress of these works has taken place, and complaints of the manner in which portions of the work have been executed have been made, and, in some instances, of the materials. These complaints have been investigated, and the things complained of rectified. The work appears to have been very substantial, and to have been now left in a satisfactory condition; but the final report of the surveyor has not been received."

And then, after having heard that complaints have been made of the work, we have the satisfactory announcement "that a considerable demand for extras has been sent in by the contractor, which has to be investigated by the county surveyor: but his report has not been received." It seems that after this report was issued an adjourned sessions was held in February last, and this expensive way of doing things, coupled with another matter, led to the resignation of the county surveyor; but in looking into the whole affair it has struck me that the unfortunate surveyor, who no doubt was to blame, was made a scapegoat for the committee's incapacity. The surveyor applied for extra remuneration, and it appears that he obtained about 90*l.* for his mistakes. It further appears with regard to some cottages, that these were built with only two bedrooms, three of course being soon required. Perhaps I cannot do better than read the remaks on this subject of Mr. R. P. Long, the member for Chippenham, to whom the ratepayers of Wilts are greatly indebted for the pains which he has taken to sift this and other matters, although he meets with little or no support from his brother magistrates. He said:—

"It was with great regret he expressed any opinion of his own upon acts which had already taken place; but at the same time he felt bound, as an independent magistrate, to speak out plainly. With regard to this particular work, it had been most unsatisfactory from beginning to end. These cottages, as he understood the figures which had been given to him, had up to Michaelmas last cost the county no less than 145*l.* each, exclusive of the proposed outlay of 184*l.* of the estimate of 620*l.* which had now been submitted to the Court, and of 300*l.* for the purchase of land adjoining; so that they would find, when they had finished building, repairing, and altering, that the 10 cottages would stand the county in upwards of 250*l.* each. These were very awkward figures; and looking at the unsatisfactory position in which the whole question now stood before the county—as the fact that the cottages were first of all most unfortunately placed, and that they were built in so unsatisfactory a manner as to require the outlay of so large a sum of money to make them decently habitable—he honestly thought that the best thing the county could do would be to wash its hands of them; to sell them to anybody who would buy them, and go back to the old plan of accepting the lodging allowance from the Government. That would, he was convinced, be the cheapest and the most satisfactory plan of repairing the mistake that had been made; and if the Court acquiesced, he would move that that be the course adopted. It would be most unsatisfactory to those who paid the rates, if matters like this were allowed to come before the Court, and to pass merely from a dislike to go into a disagreeable question. That laches existed somewhere—he would not say where; that there had been a great want of responsibility and control, first over the site and then over the plan, no one could gainsay, because no gentleman who built cottages in these days would think of doing so without providing three bed-rooms. To provide three bedrooms in a cottage was now considered a matter of course, and why the county should have been satisfied to build such cottages as no private individual would think of building, and that in a position below the level of the road, and below the dam of the canal, he could not understand. Nor was this all; the drainage appeared to be as defective as the cottages themselves. The only provision for the sewage underground was by ordinary unglazed unsocketed pipes, through which liquid matter would necessarily penetrate. In short, the whole affair showed that there had been great want of supervision on the part of the county surveyor, or on the part of those who directed him, and unless some explanation could be given which would completely exonerate the magistrates, he should oppose the extravagant outlay that was now suggested, and propose that the paragraph in the report which recommended it be struck out, and that the Court sell the cottages, and revert to the original plan of receiving lodging allowance for the militia staff from the Government."

It is hardly necessary to say that such a motion found little favour with the Court; and on its being put to the vote, only one hand besides Mr. Long's was held up for it, plainly showing how great a regard magistrates have for ratepayers' pockets. Then, again, there is the system of keeping so many prisons in the different counties, and the staff of officers necessary for the work. Take the county of Berks for instance, and observe the expense incurred by keeping up the different prisons. In order to show how business is transacted there, I would quote from what took place at the last Easter sessions in that county. After the report of the Finance Committee had been read by Mr. Crutchley, the Hon. P. P. Bouverie asked Mr. Crutchley—

"Whether the finances of the county were in such a position that he would be responsible for them?" adding that "that was the most heavily rated county in England, with perhaps one exception." Whereupon Mr. Crutchley said: "He only saw that things were paid for by the authority of the Court; the various officers gave the orders: he ordered nothing. He understood the county rate was a halfpenny less than last year." Mr. Bouverie said, "A year or two ago the Court refused to appoint a finance committee, Mr. Crutchley having kindly undertaken to discharge the duty. They were told some time ago that they were in fault in not knowing anything about the expenditure. Hereford was the only county that was rated higher than Berkshire, and he extremely regretted the decision the Court had come to, in not having a finance committee. They were binding themselves to a very considerable expenditure for the lunatic asylum. They were bound in fairness to the ratepayers to have a clear examination as to the position of their finances. He had reason to believe that some of their loans were not quite in accordance with what was thought right by those who examined the accounts. He thought they ought to have a finance committee." The Chairman then said: "There was a finance committee, and it was open to any person to attend." Whereupon Major Court made the sensible observation that "What is everybody's business is nobody's." Mr. Young said: "It appeared that Mr. Crutchley was only the auditor of the accounts. He thought, looking at the large indebtedness of the county, and the demands for the lunatic asylum, there was required something more than a mere audit. It should be clearly ascertained whether they borrowed money on the best terms, and whether it was laid out in the most judicious manner, and if it were moved, he should vote for a finance committee. Everybody was complaining that the rates were so high, and yet there was only a mere audit of the accounts going on." Mr. Bouverie rejoined: "The audit which Mr. Crutchley undertook was very imperfect. The treasurer was called upon to pay certain expenses of the police, and it was not in the treasurer's power to refuse the payment of these bills, if the charges were wrong in any way, and not according to scale, which they might occasionally be unless he were strengthened by a finance committee. In Somersetshire the expense of sending prisoners to gaol was set down at 100*l.*, while in Berkshire it was 600*l.* It was the duty of somebody to show that the money was laid out properly." And then, to conclude the matter, Major Court said: "There were charges frequently made by the police which might be avoided. The police made the expenses as high as they could, that the amount might appear to their credit."

I should not have taken up your time in reading these extracts, but I thought they would show better than any remarks of mine the way in which our money is squandered away; and if evidence were wanted to prove the unsatisfactory state of things, I am convinced we could not do better than by taking the report of what passes at the Quarter Sessions. There is, again, a heavy item in payment to coroners; but the present method of paying by a fixed salary is better than fees. The average expense of holding inquests for the seven years ending 1862 was about 65,000*l.* a-year, and the expense of each inquest 3*l.* 3*s.* Then, again, there is the expense of maintaining the police force—a very heavy item in our county expenditure. I think that ratepayers generally have great reason for complaint at the way in which this force is often employed, and the recent Act with regard to game has tended more to take them from what ought to be their legitimate employment, and made them less useful to those, who, considering their money payments, ought to have a greater share of their services. To illustrate this, I cannot do better than mention the case of Fuller the higgler, who was brought before the Norfolk bench of magistrates, and convicted on the evidence of two policemen, which case so miserably broke down in the Court of Queen's Bench; and upon which most of you have, no doubt, read the able article in the *Mark Lane Express*. I would congratulate the grand jury of Devon on the way in which they spoke out on this matter at the last Quarter Sessions at Exeter. These gentlemen having been engaged in several cases, from which it appeared the police were continually employed in watching preserves and endeavouring to apprehend poachers, instead of performing those duties that properly fall to their share, at the end of their labours made the following presentment to Sir S. Northcote, the Chairman:—

"The grand jury wish to represent to her Majesty's justices of the peace for the county of Devon, that the functions of the police are much misapplied by their being called upon to watch and assist in the preservation of game. As an instance of this position, they would draw the magistrates' attention to the case of Thomas Rice, charged with stealing gins."

Again, take the maintenance of prisoners and the keeping up of so many separate prisons, entailing a very heavy expense upon ratepayers. If calculations were accurately made, it would be found that the over-preservation of game tends not merely to injure tenant farmers as occupiers, but is the cause of a two-fold injustice, inasmuch as they have to pay a very heavy amount for the maintenance of those who, but for this temptation, would have no incentive to crime, and consequently we might hope would never become the inmates of a prison. And now, having glanced at the manner in which the county expenditure is managed, I will endeavour to show from my own experience how heavily it bears upon individual ratepayers. Living in a very small parish, and paying considerably more than half the rates, I am enabled to speak feelingly in this matter. I need hardly say I consider that county-rates would not be submitted to so quietly as they are, if the greater part of the ratepayers knew the amount they paid; but for some reason or other the county-rate has been jumbled together with the poor-rate, and except a little grumbling now and then about the expense of poor-rates, little is heard or thought of the subject. To show how heavy in a small parish the county-rate is, I give you the separate amounts paid each year since 1858, for the relief of the poor of my parish, the county-rate, and the common fund charges, distinguishing each:—

		£	*s.*	*d.*
Poor-rating for year ending Michaelmas	1858 ..	21	1	0
,, ,, ,, ,,	1859 ..	10	1	10
,, ,, ,, ,,	1860 ..	9	13	9½
,, ,, ,, ,,	1861 ..	11	15	1½
,, ,, ,, ,,	1862 ..	9	15	8½
,, ,, ,, ,,	1863 ..	14	16	10
Total ..	..	£77	13	3½

The county-rates during the same years are as follows:—

		£	*s.*	*d.*
Year ending Michaelmas,	1858	14	17	0
,, ,,	1859	13	10	2½
,, ,,	1860	15	5	3
,, ,,	1861	13	15	1½
,, ,,	1862	14	17	0
,, ,,	1863	17	6	6
	Total ..	£89	11	1

The common fund charges were as follows:—

		£	*s.*	*d.*
Year ending Michaelmas,	1858	£8	4	11½
,, ,,	1859	8	4	1
,, ,,	1860	9	13	9½
,, ,,	1861	10	0	4½
,, ,,	1862	9	15	8½
,, ,,	1863	33	0	0
	Total ..	£60	18	11

Being the amount after the alteration with regard to contribution to common fund now charged on the rateable value of the parish. You will see by these figures that our contribution to the county rate is considerably more than we pay to the relief of the poor of the parish, and would, but for the last year, have been equal in amount to the whole of our poor-rate and common fund charges. I have no doubt that all those present who reside in small parishes may be able to corroborate me. I might have given you the whole amount of the union, but I trust enough has been said to prove the burden these rates are upon the ratepayers. And now, having endeavoured to prove that the county rates are a heavy item in our expenditure, and that in many, if not most, instances they are considerably increased by mismanagement, I would ask, Who are the parties entrusted with their administration?

How often, if you read over the names of those who conduct this business at sessions, do you find the names of many gentlemen who have little or no stake in the county! Others—as, for example, some of our parochial clergy—though excellent men in their proper sphere, are not qualified, either as large ratepayers or otherwise, to assist in the spending of such a heavy amount. Why, I have a near neighbour, who has very lately become a considerable landed proprietor, the rateable value of whose farms must have been 3000*l.* per annum, and yet he has no voice in our county expenditure. Taxation without representation is inconsistent with those principles upon which our constitution is based; yet, as regards this matter, this principle is departed from, and the ratepayers, whose voices are heard through the guardians at the poor board and the waywardens at the highway board, are from some as yet unexplained cause debarred from voting in any way upon a question which concerns them as intimately as either of the foregoing. With regard to our local taxation, I will not now enter into the question whether the present mode of assessing to the poor-rate is a correct one, that subject having so lately been under discussion here; but there are items which, although seemingly small in themselves, ought to be considerably lessened: I allude more particularly to those which are classed under the head of "Costs of Proceedings before Justices," "Justices' Clerks' Fees," and the like, which seem to be regulated on no fixed principle, but are treated as amounts to be taken from the several parishes almost at the caprice of the clerk to the magistrates. These are matters which could be managed equally well by the board of guardians itself, as by the magistrates sitting at a petty sessions. We, as ratepayers, fill our parochial offices, and are often put to considerable inconvenience and expense by being called upon to attend the meetings. We are called upon to pay for our attendance, when, as I said before, the whole matter might as well be done elsewhere. Take, again, the Highway Act. It may prove, for aught I know to the contrary, a useful measure; but here, again, any disputed matter is referred—to whom? Why, to the very men who frequently know far less than the board of waywardens. We are bound to submit to the superior decision of a body who know little or nothing of the expenses attendant upon repairing what may very frequently prove a useless road. It behoves every ratepayer well to consider his position, and to see whether, under the plausible pretext of improvement in much of the legislation that takes place, there is not a clause or two in most Bills inserted which strikes at the root of local self-government. Take the question of church-rates—I do not allude in any way to their repeal or otherwise—but there are items under this heading which we are called upon to pay, small in many instances in amount, but still making a considerable sum in the course of a few years. Being a churchwarden, I cannot appreciate the privilege of having to pay out of my own pocket at every visitation something like 1*l.* or 1*l.* 10*s.* for "Pentecostals and Apparitors' Fees," and nobody knows what besides. These are not heavy items, but you have similar ones, as I have said before. What of your highway-rate you get in your poor-rate—and the total together makes something considerable. And it is to be traced to what I wish to impress upon you by this paper, namely, to the fact of the ratepayers not, either in their own persons or through their representatives, exercising a sufficient control over the expenditure.

And now, gentlemen, as to the question of a remedy for these grievances: I am ready to admit that I know of no other than that pointed out by Mr. Corbet, in his paper on this subject, and which has also been brought before the House of Commons, viz., the establishment of county financial boards, to consist of representatives either from the board of guardians, or the ratepayers themselves, and a like number from the magistrates of the county. I believe many of those gentlemen, equally with the ratepayers, would gladly submit to a plan by which our county finances may be subjected to a closer supervision; but it is difficult to reform anybody so little amenable to control as our county magistrates, viewing them financially. It may be stated that this is not a tenant's question; but surely, from the large amount invested by tenant farmers in land, any additional increase or burden is so much money drawn from their pockets, and equal to additional rent, and consequently they have as great an interest as any others in this matter. In conclusion, let me say that I should not have trespassed upon your time this evening had I not believed that now, on the eve of a general election, is the time for making ourselves heard. And in appealing to the ratepayers in our rural districts, I would impress upon them that this question of county finances is a matter the mismanagement of which causes them

to be really out of pocket. It is, if I may so term it, a breeches-pocket question. It is not dependent on dry or wet seasons, the poor-rate being enhanced very frequently one-third and sometimes one-half. This is a question which you must impress upon the candidates for suffrages at the next election. It is such questions as this, and the repeal of the malt-tax, and one or two others, that ought to decide our votes; and Conservative as I am, I cannot but confess that "measures, not men," should be the watchword of those who really mean to move in this matter. If we let this election pass over, we shall be reminded at our agricultural meetings of the advantages of high farming and such like questions; and unless we improve the present occasion, our debating here will be little better than idle talk. Finally, take every means of showing that you are suffering an injustice, that there are means by which that injustice may be remedied, and I have that confidence in the justice and wisdom that eventually prevail with Englishmen which leads me to believe that the remedy we seek will eventually be applied.

MIDLAND.—At a special meeting of this Club, held in Cannon Street, Birmingham, Mr. Osborn read a paper on the subject "How to provide food for cattle and sheep in the best manner during the coming winter." R. C. Chawner, Esq., presided, and there was a large attendance.

Mr. OSBORN commenced by remarking that gentlemen present must not expect that he was going to teach them any new plan of feeding, as he did not pretend to do anything of the kind; he should only lay before them a plain statement of his own case, and he hoped it would be the means of eliciting remarks which would throw some light on a subject wherein they were all so deeply interested. In order to comprehend the difficulties under which farmers were labouring, it would be necessary to bear in mind that the spring of 1863 was peculiarly unpropitious, and that in many cases the mixed seeds usually sown with the winter corn did not vegetate, while in others they had but a puny and sickly existence, until cut down by the winter's cold. Thus arable farmers were not only short of winter keep, but they had no place in which to depasture their animals in summer. In addition to this, the hay crop was one of the lightest which has been known since 1826, and many of the seeds are again a failure. From these facts it would at once be clear that it was impossible to exaggerate the importance of the crisis to stock farmers. The failure of the Turnip crop was, however, the greatest calamity the husbandman had to contend with. From inquiries he had made in various directions he was led to conclude that the root crops in the midland and southern counties did not come up to one-fourth of their usual average. His farm consisted of a little under 400 acres, 350 of which were arable; and as he was perfectly free from restrictions as to cropping, and had long been impressed with the importance and value of green crops, he had always grown as large a quantity of them as possible. His land requiring the mechanical pressure of sheep to consolidate it, he kept a flock of from eight to nine score Shropshire ewes, which, being a prolific race, give a large fall of lambs. These are kept until they are two years old, so that without purchases he usually commenced the winter with between 500 and 600 sheep, and generally reared 20 or 30 calves. His custom in feeding on Turnips was to draw off one-third of the crop for use in the sheds, giving them pulped and mixed with cut straw to the cattle, which were also allowed loose straw *ad libitum*. The feeding stock were fed upon Swedes, with an allowance of malt dust, Barley or other chaff, oilcake, and bran. The tegs were not generally allowed much corn during the first winter, except those which were the most forward, and which were selected for forcing, in order to get them ready for market soon after shearing day. He generally calculated upon having 1200 to 1600 tons of roots at this time of the year; but although he had sown about 100 acres with Turnips, Mangels, Rape, and Cabbages, he did not think he had more than 400 tons. It would thus be apparent to all that he must exercise the strictest economy in order to keep his usual quantity of stock upon one-fourth of his usual provision. The chaff engine and pulping machine would have to be in constant requisition; and these mechanical contrivances must be supplemented by a large quantity of corn and cake. Although it was necessary to give Mangel tops to animals with very great caution, yet, as the case was now so urgent, he proposed to pass them, with a large quantity of straw, through the chaff cutter, and thus he hoped, with very little adventitious aid, to make a good useful food for store stock. Immediately after harvest he sowed 50 acres of Wheat stubble with Rye, which was fast becoming a good pasture, and would probably keep about 200 tegs for six weeks or two months. The Cabbage crop had been a very precarious one, but he had a tolerably good crop on an acre or two of land. The largest and best of these would be pulped and mixed with other food, and thus form a nutritious compound. Mr. Osborn strongly advocated a more general cultivation of the Cabbage, notwithstanding the objection urged by some persons that it exhausts the soil. There was as much nutriment in 5 lb. of Cabbage as in 10 lb. of Turnips, and the former had also the advantage of being cultivated under peculiarly favourable circumstances. They were very good articles for lambs at weaning time, or at any time, when they were attacked with diarrhœa. It was pleasing to know that the straw of this year's growth, though light in quantity, was unusually bright and good, and was therefore very valuable when cut and mixed with meal and other preparations. Flax, also, with the aid of Linseed, was as good and cheap a food as could be procured. This winter he proposed to steep a peck of Linseed in about 30 gallons of water for three days, when the mixture would become mucilaginous, and (when sweetened with a little treacle, and poured upon a large quantity of chaff, and left to ferment for about 12 hours, would be eaten by the stock with great avidity. This mixture he should give to store cattle with about 3 lb. of mixed Barley and Pea meal, and 3 lb. of cotton cake, with as much Barley and Wheat straw as they liked to eat. Feeding beasts would of course require more liberal treatment, and he hoped to spare for the few he meant to stall-feed about 60 lb. of pulped Turnips per day, mixed with chaff prepared in the same way as that for store beasts. This quantity of Turnips should be added to two bushels of chaff, 6 lb. of meal, 4 lb. of cotton cake, and a small portion of Beach's farinaceous food, or Griffin & Morris's compound for cattle, both of which compositions were most valuable auxiliaries in inducing cattle to consume a large quantity of chaff. It was much more difficult to economise Turnips in feeding sheep than cattle, where land requires treading to prepare it for future crops, and his sheep would have pulped Turnips mixed with chaff and meal given to them on the ground where the Turnips grew. Some agriculturists were of opinion that they ought to take advantage of Mr. Gladstone's permission to use malt as food, but every practical man knew that the restrictions of the Act of that gentleman were so severe as to make the permission inoperative. It might be urged that his remarks were at present only serviceable to those persons who had a portion of a root crop, and the question might be asked, what are those farmers to do who have no roots at all? In answer to that he read Mr. Frere's letter published some weeks ago in our columns, on the use of Wheat as food. He knew several practical men who had adopted Mr. Frere's plan of using boiled Wheat, and were perfectly satisfied with the results. Mr. Osborn also read a letter from Mr. John Peel, M.P., and then said the practical conclusion to which he (Mr. Osborn) wished to direct attention was, that the use of the chaff cutter and pulping machine must become general, and that as long as only the present low prices could be obtained for their produce, it was better for them as agriculturists to use their corn liberally to fatten their stock than to draw it a long way to market, to sell it at a price which was not only unremunerative, but would not pay the cost of production.

Mr. WIGGIN recommended for cattle the use of grains with kibbled Oats and chaff of either Wheat or Barley straw, as he found cows did exceedingly well upon this kind of food, and gave a considerable quantity of milk, even at this period of the year. Such a consumption of Oats was much better than selling them at their present low price.

Mr. MAY referred to the necessity of taking into account the relative feeding properties of the various articles to which attention was directed, and distinguishing between the nitrogenous and carbonaceous elements of which they are composed. Beans and Peas stood first in regard to their flesh-forming elements. Next came Wheat, and then Linseed cake and cotton cake, which were reckoned of the same value, although farmers preferred the former. Bran was placed next by the chemist as a valuable food, being followed by Barley and Oats, the cheapest article being Indian Corn. The plan of supplementing other food by grains, alluded to by Mr. Wiggin, was adopted to a very large extent by many persons not only near to Burton-upon Trent, but at very long distances from it; but at 5*d*. per bushel up to the 1st of June, and 6*d*. per bushel during the rest of the year, the article appeared to be dear and bulky. Mr. May advocated the moderate use of treacle for lambs. Yeast was also a cheap and valuable article of food.

Mr. J. BALDWIN spoke of the great value of Indian Corn for feeding. At present prices it was cheaper than grains, could they be had for the mere fetching from Birmingham.

Mr. JOHN LOWE thought that the recent very dry season would to some extent be useful to the farmers in teaching them to husband their resources, and arrive at conclusions which would be beneficial to themselves, and also to future generations. He had lately been conversing with several gentlemen who were using cotton cake to a large extent, and they all spoke in high terms of its good feeding qualities. He thought it might be with advantage used more extensively in future.

Mr. WRIGHT said that in most of the communications to the public journals on the subject of feeding stock during the winter, he found it recommended that the chaff, meal, &c., should be sprinkled with something to moisten it before being used, and he ventured to suggest that hay tea would be found very useful for this purpose, and make the mixture fragrant and palatable. His attention had been drawn 20 years ago to the employment of hay tea for pigs, by reading what had been done by a gentleman in Gloucestershire, and he had used it frequently, and, he considered, with success; for it appeared admirably adapted for young growing stock, which became sleek and grew well upon it. The attention of a French chemist was drawn to hay tea some ten years ago, and the opinion he gave as to the result of his own analytical researches was that it appeared to form "a very rational drink, which independently of its aromatic, tonic, and stimulant qualities, offers to young animals, in a form which pleases them, a food which is rich in nitrogenous principles, and containing, moreover, in very considerable proportions, the principles necessary for the development of their bony structure." The process entailed very little trouble, the hay being pressed closely into a sack, which should be placed in a furnace filled with water and boiled for about half or three-quarters of an hour. The better the hay the better would be the tea, and perhaps Clover was the best of all to use for the purpose named. In some of the communications to which he had alluded, reference was also made to the use of Locust Beans, which, in conjunction with other articles, must be of considerable value as cattle food, containing, as they did, not less than 48 per cent. of sugar. A friend of his, who, like all other farmers, was making preparations to meet the coming winter, told him (Mr. W.) that he had last year used the Locusts for his stock, merely breaking the Beans for sheep, and boiling or mixing with hot water those required to use with other food for cattle. The question had arisen as to whether the seeds of the Locust Bean were injurious, but the friend to whom he referred said he believed they were not so to ruminants. He (Mr. W.) had on several occasions given this food to young growing pigs with good effect, but these appeared to reject the seeds, which were so hard that it was almost impossible to break them. Reference had been made by Mr. Osborn and other gentlemen to the cultivation of Cabbages for stock, and there appeared to be a general impression that this might be advantageously adopted to a much greater extent than had hitherto been the case. In the early part of the present year he had some conversation with Mr. Clarke, the intelligent farm agent of Mr. Holland, at Dumbleton, and that gentleman had informed him that he commenced with growing only a limited quantity of Cabbages, but finding them so very productive he had gone on increasing the acreage, and with perfect success. In anticipation of that meeting, he (Mr. W.) had written to Mr. Clarke, asking him to kindly supply a few facts as to his mode of cultivation, &c., and he had received a communication from that gentleman, which he would read, and one passage of which he thought might be considered, to some extent at least, to meet the statement that a crop of Cabbage unduly exhausted the soil. Mr. Clarke said:—"In reply to your enquiry, I have to state that I have grown Cabbage on all kinds of soil, but a deep clay suits it best; and, with a good dressing of farmyard manure, I have rarely failed in growing a good crop. This year, the early planted gave a good yield upon stone brash, where Cabbage has been grown five years out of seven, but the dry weather was too much for the later planted, although where the plants stood they have latterly grown rapidly. I am now planting, notwithstanding it is late, with the chance of getting some spring keep. I have no hesitation in saying this is a most valuable crop, and will feed all kinds of stock well, and produce a greater weight of keep per acre than any other crop. It should have five to seven loads per acre more manure than Swedes or Mangels; this would be equivalent to the artificial manure applied to the latter. Half the crop may be eaten off by sheep on the land, and the other half carted off for cattle. I pulp some, and mix with chaff and flour for my dairy cows, and the butter is as good in winter as when they are eating Grass in summer. I generally plant Wheeler's Imperial for my first crop, and Drumbead for autumn. The King of the Cabbage and Early York are good for intermediate planting.

Mr. H. ADKINS described the mortality which took place in his flock of sheep a few years ago, when 35 out of 50 died, as he believed, from the use of cotton cake.

Mr. PEEL said he had no doubt the losses spoken of were caused by adulteration. He was using five tons of cotton cake per month. There was nothing at all injurious in it when it was genuine; but it was sometimes adulterated with mustard seed, and the essential oil of mustard. He had used cotton cake in large quantities for three years, and his neighbours could testify that he had sent some tolerably good stock to market.

The PRESIDENT said he considered the present a very trying time, especially for those gentlemen who kept a large number of sheep. How they, and not the cattle, were to be fed formed the most difficult question to solve. Mr. Lowe had mentioned chaff cutters and pulping machines, but had he an engine to work such apparatus? He (Mr. Chawner) had for some time employed a small steam engine for this purpose, and he thought it the most useful article upon his farm. He concurred with what Mr. Baldwin said about Indian Corn, as he had kept a large number of cattle for 30 years, and had never found anything equal to it. He did not believe that they could find a more wholesome and flesh-producing article than Indian Corn, which could either be ground, broken up, or steeped. He always found in spring, when the root crops were exhausted, it came in very useful for the support of stock. The present crisis would be felt to be more pressing when the sheep began to look for something different to eat to what they receive from the troughs. Those persons would be the best off who had doubly manured those seeds and turf which were intended for the reception of stock. Such would bring their sheep free from disease and in best condition for market. They were obliged to Mr. Wright for his suggestions respecting Locust Beans and hay tea, the latter of which was very valuable for moistening the chaff. He also begged to thank Mr. Osborn for his valuable paper.

From the Midland Counties' Herald.

SMITHFIELD CLUB.—At last week's Meeting of the Council the judges to act at the ensuing December meeting were appointed. The House list of the eight Members whom the Council proposes for election in place of those who will have to retire (not re-eligible for one year) was prepared. Members can obtain a copy of this list by applying to the Secretary, either on the day of the General Meeting or on any of the three days previously (Sundays excepted) between the hours of 10 and 4 o'clock.

The Hon. Secretary requested the Council to define the arrangements under which the award shall be furnished to the Press on the day of adjudication, and suggested the following, which was carried unanimously.

1st. That for the information of the Agricultural and such other Journals as may wish to publish the awards the same evening, the winning numbers be posted on a placard in the galleries from time to time as the judges proceed.

2d. That the Reporters of the Press generally shall obtain the complete award by applying at the Hon. Secretary's office in the Hall at 3 o'clock, when a clerk will be in attendance to read over the numbers so that the Reporters may mark their Catalogues, as is usual at the country meetings of the Royal Agricultural Society of England.

Thirteen new members were elected.

Reviews.

Agriculture: Ancient and Modern. A Historical Account of its Principles and Practice, &c. Part VII. By "The Old Norfolk Farmer." J. S. Virtue.

The seventh part of this work pursues the description of farm crops—Wheat, Oats, Barley, Rye, Maize, Buck Wheat, Beans and Peas, Vetches, Grasses, artificial Grasses, the Turnip, Kohl Rabi, Parsnip, Carrot, Cabbage, and Potato.

The several sections in which these crops are described certainly give a good deal for the information of their cultivator; but they do not teach as they ought to do, their cultivation. The chapter on Potatos, for instance,

tells us the whole history of the plant—the statistics of the cultivation in the various countries of Europe, the chemical composition of it, the diseases to which it has proved liable, and the whole history of the Irish famine—but how many bushels of sets are needed to an acre, and how far apart and when they should be planted, and what the best method of cultivation is, we are not informed. In the section on Barley we are told a foolish story about the growth of Barley from seed of Oats, and we are assured that the doctrine of the transmutation of species in plants, although repudiated by the generality of naturalists as contrary to all rational science, yet has been proved true by so many experiments as to set all doubts at defiance! The Number is not a satisfactory one. We make the following extracts:—

1. *Of Transmutation of Species.*—"We will here give an account of a new variety of Barley which has not that we know of, yet received any name, but which was procured under such singular circumstances as to demand a notice. The circumstances were as follows:—In the summer of 1856 Mr. John Ekins, of Bluntisham, in Huntingdonshire, sowed some Oats in his garden in the beginning of June. It should be premised that this was done by way of experiment, to test the truth of the transmutation of Oats into Rye, which, it is affirmed, has frequently taken place under particular treatment. The plants were cut down when they had attained about 1 foot of height, and this was repeated thrice, after which, as the weather became cold, and they no longer grew rapidly, they were left to stand the winter. Those which survived till the spring threw out fresh tillers, and at the proper time shot forth ears, but, to the astonishment of the experimenter, neither of Rye nor Oats, but Barley. The produce was sown the next spring, and produced the same grain, but of a better quality; and since that period so superior has the variety proved, and so much esteemed by the maltsters, that it has been adopted generally by the farmers in the neighbourhood, who are satisfied both with the quality and the yield. We have now a sample of this Barley before us, which is pronounced by a corn-factor to be of excellent malting quality.

"The doctrine of the transmutation of species in plants, although repudiated by the generality of naturalists as contrary to all rational science, yet has been proved true by so many experiments as to set all doubts at defiance. The two instances we have already stated in the case of Wheat are of this nature; and this one of Oats transformed into Barley is not more wonderful, the two plants being of the same natural order. The following remarks by Dr. Keissenborne, a German naturalist, are confirmatory of the truth of the doctrine:—

"'With reference to the transmutation of Oats into Rye, this remarkable phenomenon has not only been verified by new experiments, but we have caused beds to be sown with Oats, in order that we may be able to silence disbelievers by producing Rye stalks which have sprung from the crown that still shows the withered leaves of the Oat plant of the previous year. I repeat that this transformation does take place (about mid-summer), the plants being cut twice (or thrice) as green fodder before shooting into the ear; the consequence of which is, that a considerable number of Oat plants do not die in the course of the winter, but are changed in the following spring into Rye, forming stalks that cannot be known from those of the finest Rye. The Society (agricultural) of Coburg takes credit to itself for perseverance in having struggled against the opinion of the public for several years, in order to establish a fact which no physiologist would believe, because people are always apt to confound the laws of nature with those of their own system.'"

2. *Turnip Feeding.*—"It has been asserted of late years by agriculturists of standing and eminence, that the Turnip and other root crops are so far from being profitable to the farmer, that when all expenses of cultivation and attendance upon the cattle are taken into the account, the balance-sheet would show a heavy loss at the end of the season, without reckoning the loss of animals by accident or disease, which is frequently also very heavy; and they argue from this, that farming would be more profitable if they could dispense with root crops and cattle grazing altogether, so far as the winter is concerned, the bullock shed being, at best, only a manure manufactory, and the cattle the working machines in it.

"This, however, is a very narrow view to take of the question; because, if it is admitted that the direct return for the expense of raising a Turnip crop and consuming it by bullocks is usually very small, and probably may sometimes exhibit a balance on the wrong side of the page, those expenses ought in fairness to be spread over the whole course of crops, which receive a double benefit, in the better condition and cleanness of the land, and in the unexhausted manure in the soil after the Turnips are removed. If we add to these the conversion of the straw into manure of a far superior quality to what was formerly made by lean cattle, it needs no calculation whatever to prove that the Turnip husbandry is the basis of agricultural prosperity; and we see the proofs of it in the condition of the land, as well as of its cultivators, as compared with what it was before the alternate culture and the Turnip husbandry were introduced.

"It is not always, however, that cattle winter grazing is unprofitable, or attended with a loss: and at the present, which seems likely to be the permanent, price of beef and mutton, we might expect to find the reverse to be the case, and that independent of the collateral advantages there would be a direct profit upon the consumption of the Turnip or Mangel crops. If we estimate the whole expense of raising them, in round numbers, as averaging 9*l.* per acre (which we believe to be not far from the truth), that quantity of Swedes will fatten a bullock of from 60 stone to 70 stone, that may be purchased at any of the fairs at Michaelmas for 14*l.* When fat, it will fetch 8*s.* per stone, or from 24*l.* to 28*l.*, which certainly will entail no loss on grazing. We have, however, given the extreme cost price of the lean animal, which may frequently be purchased for 12*l.* or 13*l.*; but the above estimate is sufficient to show that cattle grazing is not necessarily or invariably a losing game. If corn or cake are employed, the fattening process will be hastened, with a corresponding decrease in the consumption of the Turnips, so that it will benefit rather than injure the account."

Farm Memoranda.

Cassiobury Farm.—The Cassiobury Farm, within this district, presents a new feature of agricultural movement, in the application of town sewage by steam-power to arable and Grass land. It thus claims a notice as one of the remarkable farms of Hertfordshire. When the Health of Towns Act was adopted by the town of Watford, the Earl of Essex made an agreement with the Board to take the sewage for agricultural purposes at the point of its discharge, bordering on his land in the valley of the Colne, to the south-westward of the town, which consists principally of a long street, which rises with a gradual inclination of about 60 feet on the north bank of the river. It is well-calculated for the discharge of its drainage, assisted by an abundant supply of water. The population contributing its sewage matter is calculated at 4000.

The works where the sewage is received consist of a series of brick-built tanks on a back stream connecting with the river, from whence it is pumped by a 12-horse stationary engine by pipes, laid across the farm, which lies partly on the slope of the hill, but of which the greater part is a "plateau" of a superior soil of deep argillaceous loam resting on the chalk, naturally drained, therefore well fitted for the purpose, though perhaps not affording so good a test of this system as would be secured in an inferior soil. The farm is very generally cleared of all superfluous hedgerows.

The irrigation is by hose and hydrant, as in use where this system is carried out elsewhere. When the entire quantity of the liquid sewage is not wanted, or when the ordinary flow of the drainage is augmented by rain, the waste is turned through several covered filtering beds, which partly purify the liquid as it flows through them to the river. Not more than 50 or 60 acres of arable land of the farm are under this treatment; the application of the sewage is chiefly confined to 7 or 10 acres annually, which is under Rye-grass in rotation. The crop is used to soil cattle in the summer, and is mostly cut with the scythe four or five times during the year.

From the arable land the pipes are carried across the turnpike road leading from St. Alban's to Rickmansworth, which divides this (Harwood's) farm from Cassiobury Park, where the sewage is distributed over 36 acres of the green sward in the park. This space is enclosed by an iron fence, so that the crop may either be mowed for hay or fed with cattle. The results of this application of town sewage are deemed satisfactory in both these cases, of which fuller details may be found in the evidence of the Earl of Essex, given before a Committee of the House of Commons in March, 1862.

Before this experiment was commenced, the application of liquid manure had been carried out on another part of the Cassiobury estate, which is not described in his lordship's evidence. This was done on the home or dairy farm, where arrangements were made in a well constructed cow-house built for the purpose of catching the drainage from 24 stalled cows used for dairying. The liquid manure is diluted with water raised from the river which runs through the park, and is distributed after the manner before described, by a small steam engine. This has wonderfully improved a soil remarkably sterile by nature, on which it forces large green crops, especially Italian Rye-grass, used as fodder for the cows and some young stock raised on the estate; a system lately adopted and improved by the infusion of blood from the well-known stock of the late Mr. Stewart Marjoribanks, of Bushey Grove, in the neighbouring parish, from whence the dairy stock is to be gradually replenished.

The White Pigs kept on this farm are of a breed superior to that generally seen in this county. Though the buildings, with the exception of the dairy and cow-house, have not a model aspect, here and at Harwood's farm, the old buildings have been adapted to modern improvements. The yards are roofed over with ¾-inch boards, covered with asphalte felt, tarred and sanded, which, with well-seasoned Larch poles set in iron sockets, forms a sufficient but inexpensive covering at 5*s.* per square yard; by this means Lord Essex considers that a great saving is effected in the consumption and carting of straw converted into manure, thus saved from rainfall saturation. Though the herd of deer kept in the park curtails its use as a sheep walk, it assists in maintaining a flock, usually Sussex Downs, added to which a certain number of neat stock are grazed. At the present time a new flock of this breed is being formed by direct importation from Sussex. This stock, as has been specially urged, are fitted for park feeding, and should under no circumstances be in such cases crossed with other breeds. Much of the timber on this estate is worthy of notice; the Oak, Spanish Chestnut, and Beech are of noble growth, though the grove of Firs in the wood walks will attract the greatest attention.

The subsoil of this district serves to fertilise the surface. Chalking the loams and gravels is an old and general practice, extending its advantages over 20 years. The operation is simple; shafts are sunk through the gravel or loam to the chalk, of which the surface undulates in so-called pillars. It is then raised by a windlass and bucket and wheeled on to land; the barrows hold a bushel, of which 20 go to the load, by which the work is calculated. The expense by contract, with filling the pits, amounts to about 2*l.* per acre on the average. *J. C. C.*

Miscellaneous.

The Secretaryship of the Yorkshire Agricultural Society will be vacant at the end of the year, Mr. Hannam, who is so well known as an agriculturist and land agent, having tendered his resignation, "in consequence of extended professional and business engagements rendering him unable to give to the affairs of the Society that time and attention which is essential."

The Birmingham Show.—The Birmingham Show is so firmly established in public favour, and so well supported, that the Council are now enabled to put forth a most liberal prize list, and to make any changes from year to year which are proved to be desirable. In addition to the Society's prizes, the number of special premiums is also increasing, and as these are judiciously disposed of, the list in its complete form becomes one of the most attractive of the year. Amongst the special prizes for cattle this year, we may mention the following:—By the President, Lord Walsingham, a Silver Cup, value 25 guineas, for the best ox or steer of any age or breed, bred and fed by the exhibitor; by the Earl of Aylesford, 15*l.*, for the best Short-horn in the four classes for that breed; and by the Hotel and Inn-keepers of Birmingham, a Silver Cup, of the value of 25 guineas, for the best animal in the Cattle Classes; the four extra prizes, of 25*l.* each, for the best Hereford, Short-horn, Devon, and Scot, and the two Gold Medals, value 20*l.* each, the first for the best ox or steer, and the second for the best cow or heifer of any breed or age, being also continued. A class has been opened this year for the first time for Norfolk and Suffolk polled oxen or steers of any age, with first and second prizes of 10*l.* and 5*l.* The following new regulation is now in force:—"No ox, steer, cow, or heifer can be shown a second time in Bingley Hall." The show of sheep in Bingley Hall is steadily increasing in importance, and in this division we have pleasure in noticing the following special premiums:—By the Mayor of Birmingham (William Holliday, Esq.,) 10*l.*, for the best pen of long-woolled yearling sheep; by Mr. Alderman Hodgson and Mr. Councillor Baldwin, 10*l.* 10*s.*, for the best pen of South or other Down wethers; by C. N. Newdegate, Esq., M.P., a Silver Cup, value 10*l.* 10*s.*, for the best pen of Shropshire wethers; by the Linen and Woollen Drapers of Birmingham, 25*l.*, for the best pen of yearling wethers in the Exhibition; and by Messrs. Mapplebeck & Lowe, a Silver Cup, value 5*l.* 5*s.*, for the best single Shropshire wether, of any age. The classes for sheep are now arranged as follows:—Leicesters; Long-woolled not being Leicesters; South and other Down sheep, yearlings, and two-year olds; Shropshire sheep, two classes; single Shropshire wethers, of any age; Oxfordshire Downs: and cross-bred Sheep; there being also classes for single fat Leicester, Lincoln and Cotswold, South and other Down, and Shropshire ewes. Three Silver Cups, of the value of five guineas each, are offered for pigs, the first in the two classes for pigs not exceeding 10 and not exceeding 15 months old; the second for Berkshire breeding pigs, and the third for breeding pigs of a small breed; three extra silver medals being also placed at the disposal of the Judges as extra prices in the three classes for breeding pigs. In five of the classes for pigs, three premiums of 10*l.*, 5*l.*, and 3*l.* respectively are offered; and in the other class, for single fat pigs exceeding 15 months old, the prizes are 6*l.*, 3*l.*, and 2*l.* The experiment of offering prizes for grain last year proved a complete success, and similar classes form a portion of the list now before us, namely, for White Wheat, Red Wheat, Barley, Oats, Beans, White Peas, and Peas of any other variety, one bushel of each to be shown; and it is required that 20 ears, with the straw attached, be sent with the samples of Wheat, Barley, and Oats, and 10 stalks of Beans and Peas, with the corn unthreshed. No change has been made in the classes or prizes for roots, but there are two extra premiums offered, namely, by Messrs. Proctor & Ryland, of Birmingham, a Silver Cup, value 10 guineas, for the best collection of Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Carrots, six roots of each to be shown; and by Messrs.

Griffin, Morris, and Griffin, a similar prize for the best collection of Long and Globe Mangel Wurzel, Swedes, and Ox Cabbage, six of each kind to be shown, the Mangel to be selected from crops of not less than two acres, the Swedes from not less than five acres, and the Cabbage to be field culture. We may also call attention to the subjoined regulation:—"Exhibitors are expected to state the nature of the soil upon which the grain has been grown, the previous crop, kind of manure used, if any, date of sowing, and any other particulars, which will be printed in the catalogue of the exhibition;" and, with respect to the roots, it must be stated whether the crop was produced after a fallow or otherwise, the kind of manure used, and dates of sowing. Although this division of the show cannot be expected to prove equal to that of last year, still we are now receiving reports of some very fair root crops, and there is every probability that the competition will be much greater than might have been expected a couple of months ago, and that a number of fine specimens will be staged, especially from those districts where steam cultivation has been introduced. The space allotted for implements, seedsmen's stalls, &c., will be the same as last year, and will, we doubt not, be equally well filled, and form a valuable portion of the Exhibition. Some additions have been made this year to the Poultry Prize List, which, we think, will now be considered by exhibitors generally as very complete and satisfactory. Five premiums are offered in each of the classes for pens of Coloured Dorkings, viz., 5*l.*, 4*l.*, 3*l.*, 2*l.*, and 1*l.*, and the same for single cocks of this breed. Here, also, there are several special prizes to give increased attractions to the list, Mr. G. F. Greensill, of Birmingham, contributing a Silver Cup, value five guineas, for the best pen of Game Fowl in the exhibition; Messrs. M. Billing, Son, & Co., of Birmingham, a like premium for the best Game Cock in the classes for single birds; and a few amateurs 9*l.*, for the best pen of Black-breasted or other Red Bantams. This will be the 16th exhibition held in Birmingham, and the success which has attended these pleasant gatherings, and the wide influence they have exercised, proves what can be accomplished by judicious and liberal management, and an earnest desire to promote practical objects connected in various ways with one great branch of our national industry. *Midland Counties Herald.*

Death of Richard Booth, of Warlaby.—Many will learn with regret that this distinguished breeder of Shorthorns and most estimable gentleman, who has been confined to the house for about two years, died on Monday the 31st ult., about two o'clock.

Death of Mr. W. Bullock Webster.—This gentleman, so well known in the agricultural world from his researches and labours as a drainage engineer, died at Cairo, in Egypt, on the 5th of October, in the 46th year of his age. Mr. Webster had been for some time residing in Egypt, where, at one period, he was engaged upon some extensive operations. In the course of his career he published a number of pamphlets, as well as a work on the resources of Ireland, where, at one period, he was almost a continual resident. Of a kindly, generous disposition, and with the thorough feelings and manners of a gentleman, Mr. Webster was deservedly popular in society, even with those who did not coincide with his peculiar views or go to the full length of his sanguine expectations. *Mark Lane Express.*

Sale of Herefords.—The Westonbury Herefords' descended from the Monaughty herd (one of the oldest and the most celebrated herds of whitefaces ever founded), were lately sold, in consequence of the death of the owner, Mr. Rea. Several of the animals went to the royal herd, and the Hon. Noel Hill, Lord Wenlock, Mr. Arkwright, Mr. Shirley, of Bowcott, and the blind veteran, Monkhouse of the Stowe, were amongst the purchasers. There were about 100 lots, and many of the animals fetched great prices. Spangle the Second, by Wellington, and descended from Old Court, on the side of the dam, was purchased by Mr. Baldwin, of Luddington, Stratford-on-Avon, for 101 guineas; and her bull calf, by Sir Richard, was purchased by Mr. Taylor, of Thingehill Court, Herefordshire, for 121 guineas. Kate the Second, by Sir Benjamin, and Bella, by Grenadier, for 40 guineas each, to Mr. William Wiseman and Mr. Monkhouse respectively. Lucy, by Chieftain, and descended on the side of the dam from Old Court, 40 guineas, Mr. Lewis Breenton; and her calf, by Sir Benjamin, to Mr. Taylor, Showle Court, for 80 guineas. Isabella Second, by Sir Benjamin, for 39 guineas, to Hon. Noel Hill. Minnie Second, 36 guineas, Royal herd; Sir Richard, 50 guineas, to Hon. Noel Hill; Victor, 40 guineas, Mr. Burlton, Luntley; Sir Cornewall, 76 guineas, Mr. Bevan, Hyde; Earl Berkeley, 31 guineas, Mr. Shirley, Bowcott. At the conclusion of the sale it was found that the sum realised was from 4000*l.* to 5000*l.*

North British Columbarian Society.—Their Show of Pigeons and Canaries will be held at Glasgow on the 23d and 24th December. Entries close on the 7th. Hon. Sec., Jas. Ruthven.

Notices to Correspondents.

CIDER MAKING: *M D.* See last volume of the English Agricultural Society's Journal.

CORN AVERAGES: *J B.* The average of the year is given by Mr. Willich in another column. The average price of the last 7 years is 6*s.* 3½*d.* per bushel for Wheat; 4*s.* 5½*d.* for Barley; and 2*s.* 11½*d.* for Oats,

GORSE BRUISER: *Agricola.* Mr. Walsh must tell us where his machine is to be got in England. See another page.

ROOT PULPER: *H R W.* Messrs. Bentall, Maldon, Essex.

AGRICULTURAL IMPORTS during the Nine Months ended September 30, 1863-4—

ARTICLES.	Quantities Imported. 1863.	1864.
Animals Living—Oxen, Bulls, and Cows .. .. No	58,297	99,783
Calves	27,211	36,899
Sheep and Lambs	268,790	322,318
Swine and Hogs	12,173	46,909
Ashes, Pearl and Pot .. .. cwts	120,154	111,679
Flax .. .. cwts.	979,911	1,522,487
Guano .. .. tons	187,382	82,683
Hemp .. .. cwts.	649,663	694,434
Hides, dry and wet .. .. cwts.	477,561	395,695
Hides, tanned or dressed .. lbs	3,522,364	3,999,373
Hops .. .. cwts.	82,721	66,221
Oil Seed Cakes .. .. .. tons	62,538	65,761
Potatos .. .. cwts.	997,352	493,028
Provisions—Bacon and Hams cwts.	1,671,938	937,924
Beef, salt	206,367	250,028
Pork, salt	145,506	170,771
Butter	626,278	673,713
Cheese	454,637	533,186
Eggs .. .. No.	212,824,920	272,050,560
Lard .. .. cwts.	459,873	165,373
Rice not in the husk .. .. cwts.	1,708,456	1,450,588
Saltpetre	253,618	241,573
Cubic Nitre	305,421	474,900
Seeds—Cotton .. .. .. tons	52,870	61,752
Clover	246,486	192,517
Flaxseed .. .. qr.	683,464	915,910
Rape	168,982	144,159
Tallow .. .. cwts.	530,081	391,183
Wool, sheep and lambs' .. lbs	125,295,587	148,140,746
Wool, Alpaca and the Llama tribe ..	2,151,340	1,526,903
Yeast, dried .. .. .. cwts.	75,164	84,220
Corn*—Wheat—From Russia cwts.	2,919,800	2,825,463
Prussia	3,164,404	3,616,145
Denmark	395,542	853,056
Mecklenburg	253,223	466,392
Hanse Towns	197,435	405,647
France	61,338	481,073
Turkey and Wallachia and Moldavia	344,626	377,646
Egypt	1,969,669	366,860
United States	6,726,742	7,100,042
British North America	1,630,885	824,895
Other countries	406,488	346,293
Barley .. .. cwts.	5,088,372	3,798,086
Oats	5,506,952	3,825,533
Peas	1,037,489	752,310
Beans	1,495,817	602,632
Indian Corn, or Maize	10,892,375	3,636,560
Wheatmeal and Flour—From Hanse Towns .. .. .. cwts.	210,440	248,293
France	757,269	1,508,393
United States	2,083,194	1,631,103
British North America	685,156	336,655
Other countries	98,839	87,454
Indian Corn Meal	8,285	3,466

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	10	30.09	30	30	N.E.	0	0	51	25	55	19	..
Wednesday ..	9	30.18	40	39	N.E.	0	2	44	32	47	24	..
Tuesday ..	8	30.12	36	35	N.E.	0	10	43	27	50	21	..
Monday ..	7	30.51	33	31	N.E.	0	3	52	26	61	19	..
Sunday ..	6	30.59	40	38	N.E.	1	0	48	32	49	23	0.01
Saturday ..	5	30.33	41	41	N.E.	0	10	49	31	60	24	..
Friday ..	Nov. 4	Inches. 30.46	39	38	N.E.	0	0	57	27	61	22	..

* Since September last all kinds of imported Corn and grain (malt excepted) have been entered at the Custom House, and charged with duty by weight instead of measure as formerly.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

RICHARD GARRETT AND SONS,
LEISTON WORKS, SUFFOLK.
Illustrated Catalogues.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

GREEN'S PATENT LAWN MOWERS have proved to be the best in all cases of Competition.
Leeds, London, and Dublin.

"THE HYDROPULT,"
142 & 143, Cheapside, London, E.C.
Illustrated Prospectus with Testimonials sent free on application.

The Original Seed Bag Manufactory.
ALEXANDER NICOL AND CO.,
MANUFACTURERS of
SEED BAGS, CORN SACKS, &c.
Chalmers Street Works,
Arbroath, N.B.

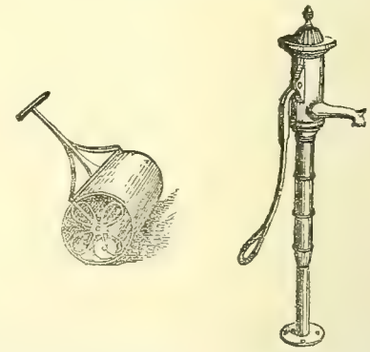
Mangel Wurzel and Swedes.
GRANT'S PORTABLE RAILWAY supplies a most complete and economical means of clearing crops of Mangel and Turnips off wet land without injury to the soil, thus overcoming the only serious objection to growing those valuable roots on heavy land.
For particulars apply to the Manufacturer and Patentee, J. GRANT, Linton, Kent.

AGRICULTURAL MACHINERY.—Chaff Cutters for hand or power, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters and Pulpers, and all kinds of Agricultural Implements; also the Prize Churn, Wire Netting, &c. Delivered carriage free. Price Lists on application.
BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at Lowengasse, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

Iron Works.
COTTAM AND CO.,
2, Winsley Street, Oxford Street, London, W.



COTTAM & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot-water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.
Illustrated Catalogues free of COTTAM & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

WILLIAM SMITH begs to call attention to his large Stock of LIGHTS of various sizes, suitable for any kind of house or pit. He also begs to state that he will make GREENHOUSES and CONSERVATORIES at 1*s.* 1*d.* per square foot. Ventilating Apparatus on the most approved principle. Two-inch Lights made to any size, with the best yellow deal, at 8*d.* per foot; ditto, unglazed, at 4*d.* per foot.
194, King Street, Hammersmith, W.

Span-Roofed Iron Greenhouse.
FOR SALE, a SPAN-ROOFED IRON GREENHOUSE, 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.
Particulars on application to A. SHANKS & SON, 27, Leadenhall Street, London, E.C.

By Royal Letters Patent.
AGATE'S GROOVED SASH-BARS for Greenhouses, Railway Stations, Warehouses, Photographic Studios, Skylights, Public Buildings, &c., manufactured by Steam Power, in either Wood or Metal.
Apply to R. AGATE, Horticultural and General Builder, Hornsey, N.
N.B. A GREENHOUSE for SALE, a Bargain, size 25 feet by 15 feet, with the Patent Grooved Sash-Bars; also a quantity of OLD LIGHTS. Greenhouses erected and heated on the most approved principles.

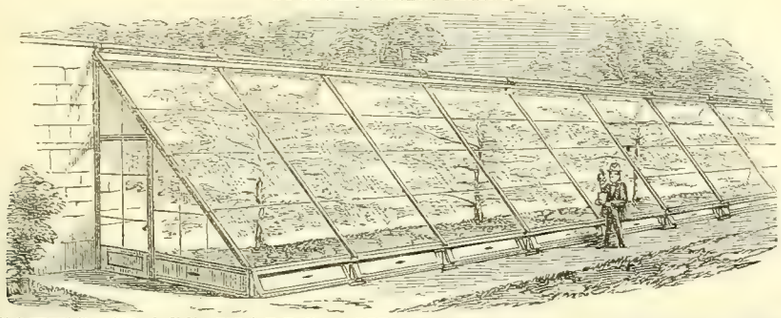
Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of James Scott, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

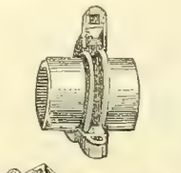
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

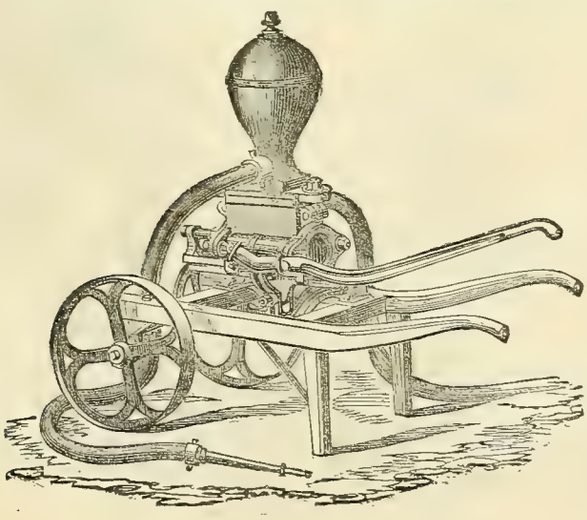
Erections beyond 25 miles of London, Railway Free for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

THE CALIFORNIA LIFT and FORCE PUMP.



PRIZE MEDALS.

London, 1862. | Hamburg, 1863.

IN VARIOUS SIZES

AS A

GARDEN ENGINE,

LIQUID MANURE PUMP,

AND

FARM FIRE ENGINE.

It is double acting, and can be taken to pieces and cleaned or repaired without trouble or delay.

SOLE MAKERS IN LONDON:

HAYWARD, TYLER, and CO.,

84 & 85, Upper Whitecross Street, E.C.

MAKERS OF

PUMPS, GARDEN ENGINES, SYRINGES, &c.

Card.

SAMUEL N. McGERROW,

General Horticultural Builder,

Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

W. J. HOLLANDS, Iron Merchant,

31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 30s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. Lanch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

The only Stove without a Flue.



JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12s. 6d. each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

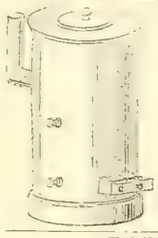
STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2s. 3d. per bushel.

Swan Nash, Patentee, Ironmonger,

253, Oxford Street, W.; and

119, Newgate Street, London, E.C.

Illustrated Catalogues post free.



RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

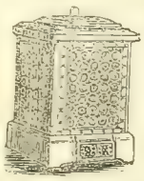
Price complete from 3l. 10s.

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d.; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

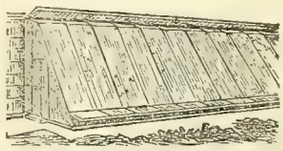
It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

Musgrave Brothers, Ann Street Iron Works, Belfast.

Under the Patronage of Her Majesty.

CLARK and HOPE (late Clark) 55, Lionel Street, Birmingham, Manufacturers of Metallic and Wooden Hothouses, Conservatories, Verandahs, &c., Copper and Wrought Iron Sashes, Skylights, &c., and Hot Water Apparatus for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. Dennis, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

SMITH, BECK, and BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

31, Cornhill, E.C.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

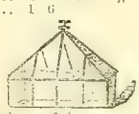
Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—



PROPAGATING GLASSES.

Each.—	s.	d.		Each.—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9	
3 „ „ ..	0	4½	13 „ „ ..	2	0	
4 „ „ ..	0	5½	14 „ „ ..	2	6	
5 „ „ ..	0	6½	15 „ „ ..	2	9	
6 „ „ ..	0	8	16 „ „ ..	3	6	
7 „ „ ..	0	10	17 „ „ ..	4	0	
8 „ „ ..	1	0	18 „ „ ..	5	6	
9 „ „ ..	1	2	19 „ „ ..	6	0	
10 „ „ ..	1	4	20 „ „ ..	6	0	
11 „ „ ..	1	6				



HAND GLASSES, WITH OPEN TOPS.

Each.—	s.	d.		Each.—	s.	d.
12 inches	6	6	18 inches	9	6	
14 „	7	6	20 „	10	6	
16 „	8	6	22 „	11	6	
			24 „	12	6	

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inch diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, per dozen, 2s. 6d. Improved shape, per dozen, 4s. 6d. Patent shape, per dozen, 6s. 6d.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads from .. .. .. 12s. 6d. to £20 0s. each.
Shower Baths, from .. .. 8s. 0d. to £6 0s. each.
Lamps (Moderateur) from .. 6s. 0d. to £5 10s. each.
(All other kinds at the same rate).
Pure Colza Oil .. .. .. 4s. per gallon.

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small useful set guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.			Bead Pattern.			Thread or Brunswick Pattern.			King's or Lily, &c.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
12 Table Forks	1	15	0	2	0	0	2	4	0	2	10	0
12 Table Spoons	1	15	0	2	0	0	2	1	0	2	10	0
12 Dessert Forks	1	14	0	1	10	0	1	12	0	1	15	0
12 Dessert Spoons	1	14	0	1	10	0	1	12	0	1	15	0
12 Tea Spoons	0	16	0	1	0	0	1	2	0	1	5	0
6 Egg Spoons, gt. bowls..	0	10	0	0	12	0	0	12	0	0	13	6
2 Sauce Ladles	0	6	0	0	8	0	0	8	0	0	9	0
1 Gravy Spoon	0	6	6	0	9	0	0	10	0	0	11	0
2 Salt Spoons, gt. bowls..	0	3	4	0	4	0	0	4	0	0	4	6
1 Mustard Spoon, gt. bowl	0	1	8	0	2	0	0	2	0	0	2	3
1 Pair of Sugar Tongs ..	0	2	6	0	3	6	0	3	6	0	4	0
1 Pair of Fish Carvers ..	1	0	0	1	10	0	1	10	0	1	10	0
1 Butter Knife	0	2	6	0	1	0	0	5	6	0	6	0
1 Soup Ladle	0	10	0	0	12	0	0	16	0	0	17	0
1 Sugar Sifter	0	3	6	0	4	6	0	4	6	0	5	0
Total	9	19	9	12	9	0	13	9	6	14	17	3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C. Established A.D. 1700.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

HEAL AND SON'S EIDER-DOWN QUILTS, from 24s. to 10 Guineas. Also GOOSE-DOWN QUILTS, from 10s. to 32s. Lists of prices and sizes sent free by post. HEAL & SON'S Illustrated Catalogue of Bedsteads and Priced List of Bedding, also sent post free on application to 196, Tottenham Court Road, W.

THRESHER'S COLOURED FLANNEL SHIRTS. Next Door to Somerset House, Strand, W.C.

NOVELTIES in CLOAKS for the SEASON.—Astracan Jackets; Real Sealskin Jackets, from 7 Guineas; Velvet Jackets, from 3½ Guineas.

SEWELL & Co., Compton House, Frith Street, Soho, W.

MOIRES ANTIQUES.—SEWELL & Co. have the largest selection of SPITALFIELDS MOIRES ANTIQUES in White, Black, and all the new colours, at 4½ Guineas the Full Dress.

Compton House, Frith Street, and Old Compton Street, Soho, W.

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing DAY'S EXTRACT and GASEOUS FLUID, which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as pauning in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2s. 6d. and 7s. per bottle; or quarter of dozen in wood box, 7s. 6d. "Gaseous Fluid," 1s. 6d. per bottle, or 20s. per dozen in wooden box. Plain directions for use given with every Article.

Caution.—Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & Co.'s," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"

The "Key to Farriery," free by post for 13 stamps.

SAMPLE MEDICINE CHEST, 10s. 6d. Carriage paid.

Patrons, 70,000.

Address, 22, Dorset Street, Baker Street, London, W.; and Wantage, Berks. No other branch in the kingdom.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

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HAND GLASSES.



PRESERVE JARS.

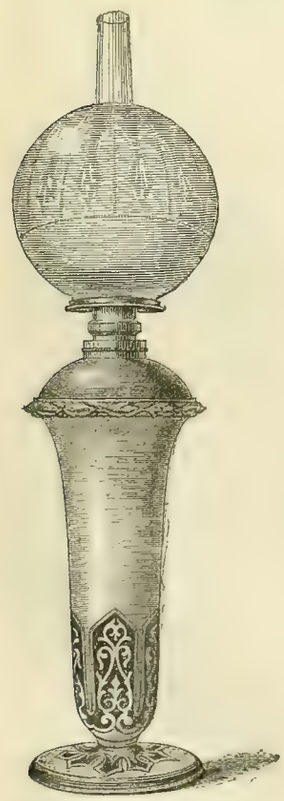


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LAMPS,

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KOH-I-NOOR BURNER.

NO SMOKE,

NO SMELL,

NO BROKEN CHIMNEYS.

TRIMMED EASILY.



NOVEL in CONSTRUCTION,

ELEGANT in DESIGN,

Of Superior WORKMANSHIP,

for

DRAWING ROOM,

DINING ROOM,

LIBRARY, STUDY,

WORK TABLE,

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HALLS and PASSAGES.



Prices from 18s. 6d. to 63s.

Illustrated Catalogues may be seen, and the Lamps obtained of every respectable Lamp Dealer in Town or Country.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

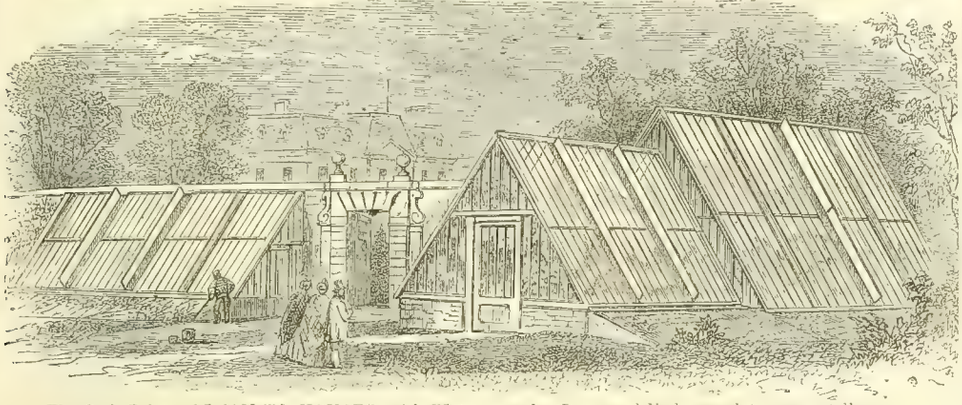
COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY.



BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

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The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights.	10 ft. Lights.	Ft. In.	12 ft. Lights.	14 ft. Lights.	16 ft. Lights.
20 7 in length ..	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length ..	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length ..	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length ..	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length ..	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length ..	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars, with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical."—*Cottage Gardener*, Oct. 6. 1863

VICHY and LITHIA WATERS.
Established Remedies for Gout, Dyspepsia, Acidity, &c.
These Waters, as now prepared at the Malvern Springs, are VERY SUPERIOR to those ordinarily sold.
Six Dozen Hampers, carriage free, on application to
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BORWICK'S BAKING POWDER, recommended by the Analyst to the *Lancet* and Author of "Adulterations Detected," for making DIGESTIVE BREAD without Yeast, and for rendering Puddings and Pastry light and wholesome. Sold everywhere

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS.
The public are respectfully cautioned against worthless imitations and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

TAYLOR BROTHERS' GENUINE MUSTARD.
Dr. HASSALL having subjected this Mustard to a rigorous microscopical examination and chemical analysis, reports that it contains the three essential properties of good Mustard, viz., Purity Pungency, and Delicate Flavour. See that each Package bears their Trade Mark the "Prize Ox," and Dr. Hassall's Report. Sold by all Grocers, &c., throughout the kingdom.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by
DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

IN CASES of RHEUMATISM, Debility, Stomach Complaints, Bile, Gravel, Cutaneous Affections, Headache, Indigestion, &c., take PARR'S LIFE PILLS. They give immediate relief, without the slightest pain or inconvenience. May be had of any Chemist.

PERFECT DIGESTION, strong Nerves, sound Lungs, healthy Liver, refreshing Sleep, and functional regularity and energy to the most disordered or enfeebled are restored by
DU BARRY'S REVALENTA ARABICA FOOD.
Extract from 60,000 cures:—Cure No. 58,216, "of the Marchioness de Bréhan, Naples, of a fearful liver complaint, wasting away, with a nervous palpitation all over, bad digestion, constant sleeplessness, low spirits, and the most intolerable nervous agitation, which prevented even her sitting down for hours together, and which for seven years had resisted the careful treatment of the best French and English medical men." In Tins, 1lb., 2*s.* 9*d.*; 2 lb. 4*s.* 6*d.*; 12 lb. 22*s.*; 24 lb. 40*s.*
BARRY DU BARRY & Co., 77, Regent Street, London, W.C.; also FORTNUM & MASON, Piccadilly, W.; at PHILLIPS'S, Teadealers; BATTY'S; PETTY & WOOD'S; ABBIS'S, 61, Gracechurch St., E.C.; 4, Cheapside, E.C.

THE GREENHOUSE in the STEREOSCOPE.
CRANSTON'S PATENT.
Six SLIDES of different Houses, Post free for 50 Stamps.
Single SLIDES, 12 Stamps each.
DESCRIPTIVE BOOK, fully illustrated (Second Thousand), Post free for 20 Stamps, from the Author and Patentee, JAMES CRANSTON, Architect, 1, Temple Row West, Birmingham.

HENRY McMILLAN, Manager of Mr. Veitch's Coombe Wood Nursery, from February, 1860, till October, 1864, begs to inform the Nobility and Gentry that for the future he intends devoting time to LAYING-OUT & PLANTING new, & Improving established, Gardens and Grounds. From the many years' extensive practice H. McM. has had with all kinds of Trees, Shrubs, &c., both new and old, few men are better capable of selecting plants most suitable to the various soils and situations. All kinds of Nursery Stock supplied true to name at the lowest remunerating prices.
Norbiton, Kingston-on-Thames.

LANDSCAPE GARDENING, Practical and Scientific.—Grounds of any extent laid out in good taste and correctness. Plans plain or elaborate to suit any situation and in any style.
For terms, references, &c., address Messrs. SETTERINGTON, 21, Ordnance Road, St. John's Wood, London, N.W.

JOHN T. WILLMER,
HORTICULTURAL AGENT, AUCTIONEER, and VALUER,
Springfield Nursery, Sunbury, Middlesex, S.W.

Horticultural Agent and Valuer.

MR. A. CHANDLER, of the late Firm of CHANDLER & SONS, continues to undertake all kinds of VALUATIONS connected with Horticulture.
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TO BE LET, PARK END NURSERY (without Stock), with immediate possession, one mile from Macclesfield. Apply to Mr. STEVENS; Architect, Macclesfield.

Epsom.

To NURSERYMEN AND GENTLEMEN'S GARDENERS.
TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. GEORGE S. DODS, the late Proprietor. The Grounds contain Five Acres of Land, have a large quantity of Glass, which is completely and economically Heated with Hot Water; also a valuable general NURSERY STOCK.
For further particulars apply at the Nursery.

Nursery Land, Reading, Berks.

TO BE LET on LEASE, about FOUR ACRES of excellent deep rich LOAM LAND, admirably adapted for the Growth of Fruit Trees, Shrubs, Flowers, and Garden Culture. With two sides of the land enclosed by walls, 270 yards in length, sheltering the land from the north and south-west winds, laying it open to the south; well arranged for Fruit and Glasshouses, situated just outside of the borough, but within one mile of the Railway Stations.
For particulars apply to Mr. G. SHUCKEL, Erleigh Cou.t, near Reading.

Brighton.

To BUTLERS, GENTLEMEN'S SERVANTS AND OTHERS, HAVING A KNOWLEDGE OF GARDENING.
TO BE LET, situate in a rich Valley, a good FAMILY RESIDENCE with large GARDENS, ORCHARDS, MEADOWS, HOT-HOUSES, various FORCING PITS, &c., and every requisite for carrying on a profitable undertaking within easy access to Brighton, where fruit and Vegetables are in great demand, and fetch high prices. This offers a rare opportunity to any one who would give his personal attention to the business.
For further particulars and permission to view, apply to Mr. LUDD CHRISTIAN, 13, Prince Albert Street, Brighton.

Preliminary Advertisement.

HANTS, in the healthy district between Southampton and Portsmouth, two miles from the Botley Station, and in the midst of a good Hunting Country.—In the ensuing Spring, if not previously disposed of by Private Contract.
A MOST desirable FREEHOLD ESTATE, comprising a capital Residence, of moderate size, and about 178 Acres of Land.
Further particulars may be obtained on application to Messrs. FRESHFIELDS & NEWMAN, 5, Bank Buildings; or Mr. FRANCIS VIGERS, 3, Frederick's Place, Old Jewry, E.C.

Sales by Auction.

Dutch Bulbs, Standard and Dwarf Roses, Stove and Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 19, at half-past 12 o'Clock precisely, a Splendid Assortment of BULBS from Holland, STANDARD and DWARF ROSES, HARDY CLIMBERS, GHENT AZALEAS, LAURELS, STOVE and GREENHOUSE PLANTS, &c.
On view the Morning of Sale, and Catalogues had.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, on WEDNESDAY, November 16, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Tulips, Crocus, Snowdrops, &c.; also a fine assortment of 300 handsome STANDARD, HALF-STANDARD, and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully furnished with bloom buds, &c.

On view the Morning of Sale. Catalogues may be had at the Auction Rooms as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

PROTHEROE & MORRIS will also include in the above Sale, at the City Auction Rooms, on Wednesday, Nov. 16, about 30,000 choice named CROCUS; 6000 selected Early Double and Single named TULIPS, and 1500 Double Scarlet RANUNCULUSES, from a celebrated Grower in Haarlem.

Uxbridge.

MESSRS. PROTHEROE AND MORRIS are directed to SELL by AUCTION, on the Premises, Uxbridge Nursery, on MONDAY, November 21, and two following days, at 11 for half-past 11 o'Clock precisely, by order of the Proprietor, the Lease having expired, the Valuable NURSERY STOCK, ranging over 9 Acres, which is particularly worthy the attention of Noblemen and Gentlemen improving their Estates as well as the Trade from its excellence, consisting of FRUIT, FOREST, and ORNAMENTAL TREES of every description and in considerable quantities; a large and rich assortment of EVERGREENS and DECIDUOUS SHRUBS of all sizes, AMERICAN PLANTS, STANDARD and DWARF ROSES, &c.

May be viewed prior to the Sale. Catalogues may be had (6*d.* each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Liverpool.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.
MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Mee to SELL by AUCTION, without reserve, on the Premises, Prescott Nurseries, near Liverpool, on MONDAY, Nov. 21, and following days, at 11 o'Clock precisely each day (in consequence of the number of lots), the whole of the valuable NURSERY STOCK, consisting of Evergreens, Conifera, Deciduous Shrubs, Ornamental Fruit, and Forest Trees, including 1000 Arbor Vitæ, 2 to 5 feet; 3000 Aucubas, 2 to 4 feet; 2000 Box and Bays, 3000 Green Hollies, 1 to 6 feet; 2000 Variegated Hollies, 2000 English Yews, 3 to 10 feet; 1000 Portugal Laurels, 2 to 6 feet; 500 Laurustinus, 12,000 Common Laurels, 1500 Berberis aquifolia, 75,000 Privet, 17,000 Scotch Firs, 2 to 4 feet; 18,000 Spruce Firs, 2 to 4 feet; 5000 Pinus austriaca, 500 Weymouth Pine, 100 Cedar of Lebanon, 350 Cedrus Deodara, 1000 Abies Smithii, 300 Vaccinium, 1000 Irish Ivies, 100 Araucaria imbricata, 1000 Ribes, sorts; 30,000 Larch, 2 to 4 feet; 700 Dogwood, 500 Roses, in pots; 500 Standard Roses, 2000 Sweet Briar. American Plants, comprising 1000 Andromeda floribunda, 20,000 choice Scarlet, hybrid Catawbiense, and Ponticum Rhododendrons, 1 to 5 feet; 8000 Kalmias, sorts, 1 to 3 feet; 2500 Leduns, sorts; 4000 Ghent and other hardy Azaleas, &c. 1500 Standard and Dwarf Roses, splendid plants, and including the finest sorts in cultivation. Also 300 Weeping Elms, 6 to 12 feet; 100 do. Willows; 50 do. Limes, 8 to 12 feet; 150 do. Ash, 30,000 Elms, 3 to 10 feet; 1000 Maples, sorts; 4000 Limes, 4 to 12 feet; 500 Sycamore, 80,000 White Thorns, 1800 Standard do., 9000 Poplars, 5 to 15 feet; 7500 Hornbeam, 3 to 6 feet; 5000 Hazels, 2 to 3 feet; 600 Mountain Ash, 6000 Common do., 9000 Alders, 21,000 Birch, 5000 Scarlet, Horse, and Spanish Chestnuts, 150 Standard Cytisus, 1000 Laburnums, 20,000 Beech, 30,000 Turkey, Evergreen, and Scarlet Oaks, 6000 strong Seakale, 8000 two-year old Asparagus, 1000 Standard Dwarf and Trained Cherries, 3000 ditto Pears, 750 ditto Apples, 1000 Damsons and Plums, 800 Fruiting and Succession Pines in fine condition, 300 Vines in Pots, 8000 Black and Red Currants, 4000 Gooseberries, Raspberries, Rhubarb, 2000. Crab Stocks, &c.; together with Horses, Carts, Stacks of Hay, Tools, and numerous other effects.

May be viewed prior to the Sale. Catalogues may be had, 1*s.* each (returnable to purchasers) on the Premises; of the principal Seedsmen in London; the Nursery, Prescott; Mr. H. Mee, Gateacre Brow, Woolton; *Guardian* Office, *Courier* Office, *Examiner* Office, Manchester; *Mercury* Office, Leeds; *Midland Counties Herald* Office, Birmingham; Mr. White's Office, 12, Cases Street, Clayton Square, Liverpool; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Woking.

VERY IMPORTANT SALE OF VALUABLE NURSERY STOCK.
MESSRS. PROTHEROE AND MORRIS have received instructions to offer for unreserved SALE by AUCTION, on the Premises, Goldsworth Nurseries, Woking, Surrey, and within 10 minutes' walk of the Woking Railway Station, on MONDAY, November 28, and following days, at 11 for half-past 11 o'Clock each day precisely, in consequence of the number of lots, the unusually valuable NURSERY STOCK ranging over 150 Acres of ground, viz:—

8000 STANDARD APPLES.
6000 MAIDEN do.
2000 STANDARD PEARS.
8000 MAIDEN do.
2000 STANDARD CHERRIES.
6000 CURRANTS, of sorts.
5000 GOOSEBERRIES do.
200 FIGS, by name.
2000 DWARF CHERRIES.
4000 MAIDEN PEACHES, NECTARINES and APRICOTS
1000 TRAINED do. do.
1000 TRAINED APPLES, PEARS, and PLUMS.
150 Very strong GRAPE VINES.
200 STANDARD MEDLARS.
2000 FILBERTS.
1000 STANDARD PLUMS.
3000 HALF-STANDARD and DWARF do.
20,000 FLOWERING SHRUBS, of sorts.
100,000 EVERGREENS, of sorts and sizes.
150,000 GREEN HOLLY and VARIEGATED.
150,000 COMMON LAUREL.
50,000 PORTUGAL do.
6000 EVERGREEN PRIVET.
10,000 WILLOWS, of sorts.
4000 POPLARS, do.
1000 ORNAMENTAL THORNS.
100,000 COMMON and VARIEGATED YEW.
50,000 STANDARD H.P. DWARF and other ROSES.
100,000 RETINOSPORA ERICOIDES.
3000 PICEA NOBILIS, NORDMANNIANA, PINSAPO, LASIOCARPA and GRANDIS,

and a large variety of Nursery Stock, which will be more fully described in future advertisements.

May be viewed prior to the Sale. Catalogues, when ready, may be had (1*s.* each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

North Warnborough Nursery, near Odiham, Hants.

MR. ALFRED WHITE will SELL by AUCTION (by order of the Assignees, under a Deed of Assignment) on MONDAY and TUESDAY, November 14 and 15, at 12 o'Clock each day, in convenient Lots, the whole of the remaining STOCK of the above-named NURSERY, comprising about 64,000 excellent PLANTS and SHRUBS, consisting of Arbor-vitæ, Tree Box, Irish Yew, Horse Chesnut, Deciduous and other Trees and Shrubs, &c.; 150 bushel of Potatos, 40 tons of Mangel, 20 tons of Swedes, a large quantity of Seakale, &c.

N.B. North Warnborough Nursery is three miles from the Winchfield Station on the London and South Western, and six miles from the stations at Basingstoke on the Great-Western, South-Western, and Exeter Railways.

May be viewed, and Catalogues obtained three days prior to the Sale at the place of Sale; the Broad Face Hotel, Reading; White Hart, Newbury; Royal Hotel, Winchester; Swan, Alresford; Swan, Alton; Lion and Lamb, Farnham; and of Mr. ALFRED WHITE, Auctioneer, Estate Agent, &c., Basingstoke and Greywell, near Odiham, Hants.

HEATING BY HOT WATER.

J. JONES & SONS,

IRON MERCHANTS AND HORTICULTURAL ENGINEERS,

6, BANKSIDE, SOUTHWARK, LONDON, S.E.

It is now generally admitted that BUILDINGS of any kind can be more effectually warmed by HOT WATER than by any other means; but as so much depends on the way in which the APPARATUS is fixed, it is of the greatest importance that it be done by experienced men.

J. JONES and SONS are prepared to estimate for WARMING, to any extent—

GREENHOUSES.	FORCING PITS.	CHURCHES.	LECTURE HALLS.	FACTORIES.	DRYING ROOMS.
CONSERVATORIES.	PEACH HOUSES.	CHAPELS.	BILLIARD ROOMS.	OFFICES.	CELLARS.
VINERIES.	PINE STOVES.	SCHOOLS.	HALLS and PASSAGES.	WORKSHOPS.	COACH HOUSES.
HOT HOUSES.	ORCHARD HOUSES.	READING ROOMS.	BATHS.	WAREHOUSES.	HARNESS ROOMS.

J. JONES & SONS' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest CHAPEL or the largest CHURCH, for PRIVATE OFFICES, or those of PUBLIC COMPANIES.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more BATHS may be heated from the same boiler, and a constant supply of Hot Water obtained in any part of the House.

For WAREHOUSES and WORKSHOPS this system of Heating is unsurpassed, as it is not only the means of keeping goods dry, but it also adds to the comfort of the workpeople, and thereby effects a saving in labour.

J. JONES & SONS recommend Boilers of all kinds being set in Brickwork, if possible; but Portable Boilers can be supplied, if required.

MATERIALS.—All Materials supplied will be of the best quality.

DELIVERY.—Boilers of various kinds, and Pipes and Connections, being always in stock, can, at a very short notice, be sent to any part.

FIXING.—The Fixing will be done by experienced men, fully capable of finishing properly any work they may undertake; and J. JONES & SONS are prepared to guarantee the effectual working of any Apparatus fixed by their own men.

ESTIMATES.—Plans and Estimates will be sent, on application.

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PAILS and BUCKETS, PLAIN and GALVANIZED.		

IRON WORK OF ANY KIND. PRICES AND ESTIMATES ON APPLICATION.

J. JONES AND SONS, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47.—1864.] SATURDAY, NOVEMBER 19. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.
The days fixed for the EXHIBITIONS next Season are—
GENERAL EXHIBITIONS:
WEDNESDAYS, May 24, June 14, July 5.
SPRING MEETINGS:
SATURDAYS, March 18, April 8, and 29.
By Order of the Council, J. DE C. SOWERBY, Secretary.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SECOND GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on WEDNESDAY, November 23, 1864. For schedules, &c., apply to ROBERT W. KER, Hon. Sec., 4, Basnett Street, Liverpool.

Entries Close on Thursday, November 24, for the
ANNUAL GREAT FRUIT and CHRYSANTHEMUM SHOW, at the Town Hall, Birmingham, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and December 1. Prize Lists (which include a Ten Guinea Cup for a collection of Fruit) may be had of the Secretaries.
CHAS. JAS. PERRY, Castle Bromwich, } Hon. Secs.
GEORGE P. TYE, Handsworth. }

Tooting Nursery,—Five Guineas Reward.
STOLEN on THURSDAY, the 11th inst., about Noon, from WILLIAM ROLLISSON & SONS' large Conservatory, a FRUIT or SEED-POD from the TACSONIA MOLLISSIMA.
Whoever will give such information as will lead to the discovery of the person who has stolen the Seed-pod, shall receive FIVE GUINEAS REWARD from WILLIAM ROLLISSON & SONS.
The Nurseries—Tooting, Nov. 19.

Exhibition of Chrysanthemums.
JOHN SALTER'S Collection of these beautiful flowers will be in BLOOM throughout NOVEMBER and DECEMBER. The WINTER GARDEN will be open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, near Kensington Railway Bridge.

ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen at the Brunswick Nursery, Stoke Newington Road, opposite West Hackney Church, throughout the present month.

CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5s. per dozen. W. HOLMES, Frampton Park Nursery, Hackney.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1864, 24s. per dozen. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.—Nurseries, King's Acre, near Hereford.

Roses established in 6-inch pots for Forcing, Greenhouse Culture or Half Specimens for Exhibition.
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WM. WOOD AND SON have a very large and splendid Stock of well-grown Plants of the above to offer at 24s. to 30s. per dozen. The wood is well ripened, and will produce abundance of Bloom early in the season.

Roses.
JOHN HARRISON'S CATALOGUE of ROSES may be had Gratis and Post-free on application. It contains all the best varieties in cultivation, and gives his method of Cultivating the Manetti Stock, which prevents the possibility of its springing suckers—the only valued objection against this useful Stock.
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MRS. POLLOCK GERANIUM.—For true, well ripened Seed of this, the best of all Bedding Geraniums, grown from the best stock in England. Packets, 2s. 6d. and 5s.
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E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
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NEWSPAPER

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George Prince	Pavillon de Pregny
H. Laurentius	Pierre Notting
John Nesmith	Senateur Reveil
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J. KEYNES's general stock of Roses are in fine condition, particularly the Roses of 1863, both Standards and Dwarfs. CATALOGUES sent on demand. Salisbury, Nov. 19.

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JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

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Paul's Nurseries, Waltham Cross, N

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ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post. Orders by post promptly attended to.

Entrance from the Platform, Waltham Station, Great Eastern Railway half an hour's ride from London.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, COVENT GARDEN MARKET, W.C.

COLLECTIONS of BULBS for GREENHOUSE and CONSERVATORY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
5*l.*	2*l.* 10*s.*	1*l.* 5*s.*	1*l.* 1*s.*	15*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN ONLY.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
5*l.*	3*l.*	2*l.*	1*l.* 5*s.*	1*l.* 1*s.*	10*s.* 6*d.*

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
5*l.* 5*s.*	2*l.* 12*s.* 6*d.*	2*l.* 2*s.*	1*l.* 1*s.*	15*s.*	10*s.* 6*d.*

These Collections include only Bulbs of first-class quality.

For full particulars see CATALOGUE, which may be obtained post free on application.

Orders amounting to 21*s.* and upwards sent Carriage-free.

Woodlands Nursery and Seed Warehouse,

MARISFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON are now offering the following Collections of BULBS

FOR CONSERVATORY and GREENHOUSE.

A.	B.	C.	C. C.
£4	£2	£1	10*s.*

FOR FLOWER GARDEN.

D.	E.	F.	F. F.
£4	£2	£1	10*s.*

FOR CONSERVATORY and FLOWER GARDEN.

G.	H.	I.	I. I.
£4	£2	£1	10*s.*

Full particulars of the above Collections are contained in the DESCRIPTIVE CATALOGUE of BULBS, which may be had free on application.

FLOWER SEEDS. Post-free.

LAPAGERIA ROSEA	2*s.* 6*d.* and 5*s.* per pkt.
CLIANTHUS DAMPIERI	2*s.* 6*d.* ,,
MIMULUS, Extra choice	1*s.* and 2*s.* 6*d.* ,,
ZONALE PELARGONIUM, Extra fine,	1*s.* and 2*s.* 6*d.* ,,
ALPINE AURICULA	1*s.* and 2*s.* 6*d.* ,,

The above are all New Seeds of this year's growth, and guaranteed of the most genuine quality.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

TWO NEW FIMBRIATED PRIMULAS.

Seed Packets, 2*s.* 6*d.* and 5*s.* each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

New Pansies.

THOMAS BARNES is now prepared to execute orders for his splendid SEEDLING PANSIES, a DESCRIPTIVE LIST of which may be had on application.

Very choice PANSY Seed, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* per packet.

GLADIOLUS BOWIENSIS (bright glowing scarlet), in fine bulbs, per 100, 10*s.*, 15*s.*, and 20*s.*; per 1000, 90*s.*, 125*s.*, and 150*s.*

Dane Croft Nursery, Stowmarket, Suffolk.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure of offering the following articles, at the very reasonable quoted prices; this being a favourable season for planting :—

		£	*s.*	*d.*
100	YOUNG, DOUBLE, and CHOICE CAMELLIAS, in 50 varieties, no buds	3	10	0
100	Ditto, INDIAN AZALEAS, mostly with buds	3	0	0
100	Ditto, NEW HOLLAND PLANTS	3	0	0
100	Ditto, HOT-HOUSE PLANTS	3	0	0
100	BULBS GLOXINIAS, in 20 varieties	1	10	0
100	FERNS, in many sorts	2	0	0
12	Fine Plants of DASYLIRION GRACILIS, GLAUCA, and ROBUSTA	1	16	0
12	Ditto, CHAMÆROPS HUMILIS	1	16	0
50	LATANIA BORBONICA	1	10	0
24	Strong Plants LOMARIA FLUVIALIS	1	10	0
24	Ditto, LOMARIA DISCOLOR	1	5	0
24	Ditto, WOODWARDIA JAPONICA	1	10	0
24	Ditto, PTERIS CRETICA FOLIIS ARGENTEIS	0	10	0
24	Ditto, PTERIS ARGYRÆA	1	0	0
24	PASSIFLORA CŒRULEA	0	10	0
12	POLYGALA DALMAISIANA	0	9	0
24	ERYTHRINA CRISTAGALLI	0	12	0
100	ROOTS of CANNAS, in 10 varieties	1	10	0
100	GHENT HARDY AZALEAS, mostly with flower buds, in 50 varieties	3	0	0
100	Hardy Choice RHODODENDRONS, in 50 varieties	3	0	0
100	Strong BULBS of LILIUM LANCIFOLIUM RUBRUM	2	0	0
100	Ditto ALBUM	1	10	0
12	Ditto AURATUM	5	0	0
100	ASCLEPIAS TUBEROSA	1	5	0
24	Fine Plants of YUCCA PENDULA	2	0	0
50	Varieties of Choice HERBACEOUS PÆONIAS	1	10	0
24	Ditto, TREE PÆONIA	2	10	0
12	Fine Plants of the New Hardy RHODODENDRON AUG. VAN GEERT	2	0	0
100	Fine STANDARD ROSES of the choicest varieties	5	0	0
100	Ditto, HALF STANDARDS	4	0	0
100	Ditto, DWARF	3	0	0
100	Ditto, on own roots	2	10	0
24	DWARF ACER NEGUNDO FOLIIS ARGENTEIS	1	0	0
50	Strong Plants, VIRGINIAN CREEPER	1	0	0
100	Strong Plants, GLYCINE SINENSIS	2	10	0
25	Ditto, BIGNONIA RADICANS	0	10	0
12	CLEMATIS AZUREA GRANDIFLORA	0	6	0
12	,, HELENA	0	6	0
12	,, SOPHIA	0	6	0
12	,, VITICELLA VENOSA	0	9	0
12	,, ODORATA	0	3	0
100	DELPHINIUM, in 20 varieties	1	10	0
100	,, FORMOSUM	0	10	0
25	EPIMEDIUMS, in 10 varieties	1	0	0
100	DEUTZIA GRACILIS	2	0	0
100	HEDERAS, in 4 varieties	1	0	0
100	ILEX, in many varieties, fine plants, 2 years grafted	3	10	0
100	HARDY CONIFERS, in 50 sorts	4	0	0
24	MAGNOLIA THOMSONIANA, 2 years grafted plants	2	0	0
24	,, PURPUREA, bushy	1	0	0
50	,, TRIPETALA, strong	2	0	0
12	,, MACROPHYLLA, in pots	1	10	0
100	RHODODENDRON MAXIMUM, 4 years	1	0	0
100	,, PONTICUM, fit for immediate grafting	0	12	0
12	LAURUSTINUS, on stems	1	10	0

N.B. Reference required from unknown correspondents.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

CARTER'S GARDENER'S VADE-MECUM.

ZONALE PELARGONIUM SEED (BARR & SUGDEN), saved from Mr. Bull's superb New Varieties; colours scarlet, white, pink, cerise, rose, carmine, blush, salmon, rose-pink, orange-scarlet, &c., many with very distinct eyes, 2*s.* 6*d.* per packet; Mr. Bull's magnificent MIMULUS, 1*s.* per packet; Mr. Holland's Prize CYCLAMEN PERSICUM, 1*s.* per packet. Trade packets of either of these Seeds, 2*s.* 6*d.* and 5*s.*

BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK's NEW and CHOICE VARIETIES for this season, and that he will be prepared to supply strong plants the end of this month.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, will be published in a few days and forwarded to all previous customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

CHOICE PRIMULA SEED, WILLIAMS's superb Strain, the finest fringed and best coloured flowers in cultivation, proved by numerous testimonials.

In sealed packets, Red, White, or mixed Seed, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*

A liberal allowance to the Trade.

Paradise and Victoria Nurseries, Holloway, London, N.

DOBSON'S CELEBRATED SEEDS.

The finest Strain in cultivation.

DOBSON'S SUPERB CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*

DOBSON'S SUPERB CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*

DOBSON'S SUPERB PRIMULA, 1*s.*, 2*s* 6*d.*, 5*s.*

A liberal allowance to the Trade.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Forest and Ornamental Trees.

PETER LAWSON AND SON'S CATALOGUE for SEASON 1864-65 is now ready, and will be forwarded free upon application.

PETER LAWSON & SON undertake the FORMATION of PLEASURE GROUNDS and GARDENS by Contract, under the Superintendence of competent Foremen.

28, King Street, Cheapside, London, E.C.; and at Edinburgh.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

FOR SALE, 200,000 SEEDLING THORN. Small, 1*s.* 6*d.* per 1000; Strong, 2*s.* per 1000; Extra, 1 foot high, 3*s.* 6*d.* per 1000. Samples of 1000 sent by Rail on receipt of Postage Stamps for the amount.

100,000 Strong LARCH, 2 to 3 feet.

50,000 ,, ,, from 1 foot.

20,000 Strong SPRUCE, well rooted.

Apply to WILLIAM TRESEDER, Nurseryman, Cardiff.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

500,000 STRONG LARCH.—Smaller in great abundance, with every description of NURSERY STOCK at cheap rate for quantities. Reference to Noblemen and Stewards whom we have supplied for nearly 50 years.

Prices, &c., on application.

JOSEPH TREMBLE & SONS, Penrith; and Yanwath, Westmoreland.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.

CATALOGUES and samples may be had free on application.

Forest Trees, Shrubs, &c.

THOMAS KENNEDY AND CO. beg to intimate that they have this Season a very large and superior stock of FOREST TREES and SHRUBS of various sizes, adapted for extensive Planting and for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c., and which they are now selling at very moderate prices.

Their NEW DESCRIPTIVE PRICED CATALOGUE for AUTUMN 1864, and SPRING 1865, of FOREST and ORNAMENTAL TREES, ROSES, BEDDING PLANTS, &c., is ready, and may be had free on application.

☞ Dumfries, from its central position and increased Railway accommodation, enables T. K. & Co. to transmit Goods daily to all parts of Great Britain and Ireland.

Nursery and Seed Establishment (Established 1787), Dumfries.

FOUR ACRES of LAND to be CLEARED this SEASON, containing as below, all twice transplanted, excepting that noted.

		p. doz		p 100		p.1000	
		s.	*d.*	*s.*	*d.*	*s.*	*d.*
5000	PRIVET, strong bushy stuff, cut down last spring, 2½ to 3 feet	1	0	3	0	25	0
2000	PORTUGAL LAURELS, good bushes, 1½ to 2 feet	2	0	12	6	100	0
1000	WEYMOUTH PINES, 1 to 1½ foot	1	0	6	0	50	0
1200	COB NUTS, good bushes, 2 to 3 feet	2	0	12	6	100	0
300	SPIRÆA, good, 2½ to 3 feet	2	6	20	0	..	..
1500	BERBERIS DULCIS, 2 to 2½ feet	1	6	7	6	60	0
2000	Do. ANGUSTIFOLIA, good bushes, 1 to 2 feet	2	0	8	6	80	0
25,000	QUICK, 1 to 1½ foot	..		1	3	10	0
1000	HORSE CHESNUTS, 1 to 2 feet	..		3	6	30	0
1000	,, ,, 2 to 3 feet	..		5	0	45	0
1000	,, ,, 3 to 4 feet	1	0	6	6	60	0
2000	,, ,, 4 to 5 feet	1	6	12	6	100	0
1000	,, ,, 5 to 6 feet	2	6	20	0	160	0
2000	AMERICAN ARBOR-VITÆ, good plants, 2 to 3 feet	1	6	12	6	120	0
6000	CHINESE do. (once transplanted), 1 to 1½ foot	1	0	6	0	50	0
5000	BEECH, 1 to 2 feet	..		2	0	17	6
2000	,, good, 2 to 3 feet	0	9	3	6	30	0
2000	,, very good, 3 to 5 feet	1	0	5	0	45	0
10,000	SPRUCE, 1 to 2 feet	1	0	5	0	40	0
1000	PINUS AUSTRIACA, 1 to 2 feet	1	0	6	0	50	0
2500	COMMON ELM, 3 to 5 feet	0	9	4	0	30	0
250	SNOWBERRY, 2 to 4 feet	1	6	12	6	..	
1000	STANDARD ROSES, good sorts, well grown	12	0	75	0	..	

A great number of ORNAMENTAL and FOREST TREES and SHRUBS equally cheap on the same ground.

Persons desiring to take the lot or any lot named will be treated liberally; and any one wishing for samples can have one dozen of each kind sent to their order for 20*s.*

25 pairs very fine IRISH YEWS, 6 to 7 feet, 7*s.* 6*d.* the pair.

Post-office orders payable at Boston Spa.

Apply to J. C. PADMAN, Boston Spa, near Tadcaster.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nurserv, S.E.

New Hardy British Ferns.

J. IVERY AND SON have the pleasure to offer the three undermentioned distinct and beautiful varieties, in good plants, showing their true characteristic forms, 10s. 6d. and 21s. each.

POLYSTICHUM ACULEATUM ACROCLADON,
ATHYRIUM FILIX-FŒMINA MUCRONATUM,
" " " GLOMERATUM.

(They have each received First-class Certificates from the Royal Horticultural Society, and Royal Botanic Society.)

Likewise ATHYRIUM FILIX-FŒMINA PARSONSLÆ, VERNONLE, and FISSIDENTO-EXCURRENS at 5s. each.

Dorking, Nov. 10.

Two Splendid Seedling Azaleas.

WILLIAM BARNES begs to announce that in consequence of the great demand he has had for small plants of his BRIDE of ABYDOS, he is unable to supply any more of this size.

PURITY.—A few small plants to offer at the prices advertised.

Plants of an extra size of both the above varieties can still be had, the Prices of which can be obtained upon application.

Camden Nursery, Camberwell.—Nov. 19.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SONS, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

WM. IVERY, Hanover Nursery, Peckham, S.E., has much pleasure in offering his superb SUMMER LETTUCE NONSUCH. Will stand without running to seed three weeks longer than any other variety. Orders already received this season by the following Seedsmen and Nurserymen, of whom it can be obtained true, 1s. per packet, sealed with initials, W. I. Price to the Trade on application.

Messrs. Beck, Henderson & Child, Strand	Messrs Hurst & Son, Leadenhall St
" Butler & McCulloch, Covent Garden	" Henderson & Son, Wellington Nursery
" Barr & Sugden, King St., Covent Garden	" Hooper & Co., Covent Garden
" Baskerville & Son, Bristol	Mr. J. Hodson, Birmingham
Mr. Buxton, Wandsworth Road	Mr. Harrison, Birmingham
Mr. T. Brigden, King William St.	Mr. J. Hathe, Chester
Mr. F. Boshell, Borough	Mr. J. S. Haywood, Worcester
Mr. F. Clark, Cheltenham	Messrs. J. Ivery & Son, Dorking
Mr. J. Clare, Cheltenham	" H. Low & Co., Clapton
Mr. J. Cottrell, Birmingham	" J. & C. Lee, Hammersmith
Mr. J. Chartres, King William St.	" Lowe & Co., Wolverhampton
Mr. Wm. Clark, Bishopsgate St.	Mr. J. Parsons, Leamington
Messrs. Cooper, Bolton & Co., Fleet Street	Mr. Wm. Paul, Waltham Cross
" Dickson & Brown, Manchester	Messrs. Paul & Son, Cheshunt
" James Dickson & Son, Chester	Mr. J. Sandy, Stafford
" James Dickson & Son, Manchester	Mr. J. Sealy, Bristol
Mr. A. Dancer, Fulham	Mr. Wm. Pritchard, Shrewsbury
Mr. W. Denyer, Gracechurch St.	Mr. J. Tomkins, Birmingham
Mr. B. J. Edwards, Strand	Mr. T. B. Thompson, Birmingham
Mr. J. Francis, Wrexham	Mr. C. Turner, Slough
Mr. J. Fryer, Camberwell	Mr. E. Tiley, Bath
Messrs. Fisher, Holmes & Co., Sheffield	Mr. J. Veitch, Chelsea
" Flanagan & Son, Mansion House Street	Mr. T. Whalley, Liverpool
" Garaway & Co., Bristol	Mr. H. Watkinson, Manchester
	Mr. A. Wood, Worcester
	Mr. Geo. Wingfield, Gloucester
	Messrs. Wrench & Sons, London Bridge
	" G. & W. Yates, Manchester

New Vegetables.

STUART AND MEIN, NURSERYMEN and SEEDSMEN, Kelso, N.B., beg to intimate that they have the pleasure of sending out this season for the first time, the ALBERT SPROUT. The Albert Sprout was raised by Mr. Melville, Dalmeny Park, is one of the most successful efforts of this ingenious hybridizer, and "will prove a most useful vegetable for both the peasant and the peer." It is a hybrid between the Drumhead Savoy and the Brussels Sprout. The stems are long, studded with Hearting Sprouts, and having a top resembling a small Savoy. As a late hardy winter vegetable it will be found most invaluable, being fit for use when other Sprouts are over, and vegetables are scarce.

"Coming in between the time when Brussels Sprouts are over and the coming in of Young Cabbage makes it doubly valuable." *Scottish Gardener*, June, 1864.

"The flavour after cooking was all that could be desired, being mild and mellow without any kind of coarseness." *Gardeners' Chronicle*, April 23, 1864. Price 1s. 6d. per packet.

DALMENY SPROUTS (MELVILLE).—A hybrid between the common Heading Cabbage and Brussels Sprouts. The growth is the same as that of Brussels Sprouts, being a tall stem, a foot high, thickly set with Sprouts or Small Cabbages, and terminated by a Cabbage of medium size. It differs from Brussels Sprouts in being altogether a Cabbage; while the latter is a form of the Savoy. The flavour is that of the Cabbage, and free from the Savoy Sprout taste. After the tops are cut off, a fine succession of Sprouts is obtained for a lengthened period. Awarded a First-class Certificate by the Royal Horticultural Society of London, April 9, 1861. Price 1s. per packet.

FEARNOUGHT CABBAGE (MELVILLE).—A hybrid between the early Dwarf Cabbage, and the Hearting Scotch Borecole. It is delicate and well-flavoured, and the hardiest of the Brassica family. Awarded First-class Certificate. 6d. per packet.

ROSEBERRY BRUSSELS SPROUTS (MELVILLE).—A tall grower with large Sprouts. The seed now offered was saved by the original raiser. 6d. per packet.

VARIEGATED GARNISHING BORECOLE (MELVILLE).—1s. per packet.

MONARCH CABBAGE (OLIVER).—A distinct dwarf variety and very early. 6d. per packet.

GIANT AYTON CASTLE SCOTCH LEEK (True).—6d. to 1s. per packet.

TRIPLE CURLED DARK-GREEN PARSLEY (MELVILLE).—A choice variety. 6d. per packet.

HARDY SCOTCH BROCCOLI.

DALMENY MAY (MELVILLE).—The heads are large and compact, and nearly as white as those of Cauliflower, extra fine.

LATE WHITE (SHEARER).—Heads large and compact, pure white, fit for use in April and May.

The above two Broccoli are strongly recommended for their hardiness and superior quality. 1s. per packet.

Prices of the above to the Trade may be had on application.

CATALOGUE of VEGETABLES and FLOWER SEEDS published in December, and will be found to include many choice Novelties.

WANTED, 100 LOADS of good rich LOAM, rather heavy in texture; about 30 LOADS of LIME RUBBISH, and 2 TONS of BROKEN BONES, about an inch square, delivered at Chislehurst Common.—Samples and lowest cash price for either, or all, to G. MARKS, Water Tower, Chislehurst, S.E.



"THE STUDENT" PARSNIP.—The FIRST PRIZE for PARSNIPS at the INTERNATIONAL SHOW of the Royal Horticultural Society, South Kensington, October, 1862, was awarded to "The Student," raised from Seed obtained of Messrs. SUTTON & SONS, Reading. It has also obtained many other Prizes this year.

The flavour of this Parsnip is far more agreeable than that of other kinds.

Those exhibited on Messrs. SUTTON'S Stand having been sown very late in the season were of more moderate size, and are thus described by the reporter for the "Gardeners' Weekly Magazine:"—"But the subject of most interest to the gardeners was a lot of roots of the Student Parsnip, a new sort raised by Professor Buckman by successive improvements of the wild Parsnip. The distinctness of this variety is perceptible in a moment; the roots are of moderate size, regularly tapering, and with a clean yellowish skin, without trace of canker"

SUTTON & SONS are now prepared to offer New Seed of this popular new Vegetable at 1s. per oz.; also to the Trade in larger quantities on liberal terms.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Two First-class New Early Peas, quite distinct.



SUTTON'S RINGLEADER AND SUTTON'S LONGPODDED TOM THUMB.

SUTTON & SONS have every confidence in offering the above as decidedly the forwardest Peas yet out, having been carefully tested last season against every other early Pea which has hitherto been offered to the public.

SUTTON'S RINGLEADER, 2½ feet.—This Pea is loaded with well-filled pods, which come in for gathering all at the same time. In Messrs Sutton's Trial Grounds the haulm was cleared and the land planted with another green crop before the common early Peas were ready for gathering. Price 2s. 6d. per quart.

SUTTON'S LONGPODDED TOM THUMB, 1 foot.—This has all the merits of the old Tom Thumb and Beck's Gem, which are so useful for small gardens and forcing, with the greater advantage of being covered with pods full twice the length of the sorts named. Price 2s. 6d. per quart.

As the stock is limited early orders are requested.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.

The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

Mr. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2s. 6d. per quart.

The Trade supplied at the usual discount. Testimonials forwarded on application.

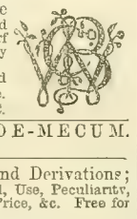
Sible Hedingham, near Halstead, Essex.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, & CO. have the pleasure to introduce this really true and pure stock of the Ashleaf variety. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames.



Supplied in sealed Bags marked Price 15s. per Bush. Discount allowed to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

CARTER'S FARMER'S VADE-MECUM.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

Seed Wheat.

MAMMOTH WHEAT, Selected by Mr. Teverson.—The most productive and valuable variety of Wheat ever grown by the Advertiser. It is hardy and vigorous in habit, not liable to blight, and adapted both to strong Wheat land and to light land. Price 7s. 6d. per bushel, or 48s. per quarter, delivered at Braintree Station.

Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

FROM THE TOP OF THE CHALK DOWNS.

Seed required in November, 4 bushels on 4 acres.

One Guinea a Bushel, or Seven Guineas a Quarter, including Bag, delivered at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, without which the Wheat will in no case be sent.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

See full advertisement with engraving of Ear in Numbers of *Agricultural Gazette* and *Mark Lane Express* for September and October, and in those of *Bell's Weekly Messenger* for October and November 1864.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per ton; packed 16s. per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Bog Mould, Sphagnum, Rock Sandstone, &c. Circulars, containing List of Prices, with other information, post free on application

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per Ton, at Swan Place: delivered five miles, or to any London Wharf or Railway 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire). Kentish and Hampshire PEATS, YELLOW LOAM, LEAF-MOULD, and COCOA FIBRE REFUSE.

JOHN KENNARD, Swan Place, Old Kent Road, London, S.E.



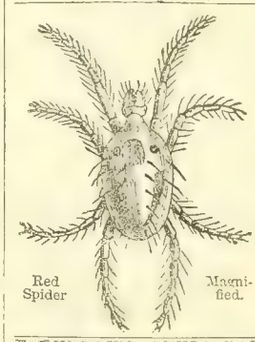
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

MURRAY'S APHIS PASTILS, a New Invention.—The only cheap, convenient, and effectual means of Fumigating Greenhouses, Pits, Frames, and other Plant Structures. Can be strongly recommended.

Sold in packets 1s. and 2s. each; boxes 10s. each.

GOULDING'S HORTICULTURAL MANURE.—An invaluable stimulant for Roses in pots, Greenhouse Plants, and indeed all kinds of Plants, in or out of pots. In every respect equal to guano, but without its unpleasant smell. Sold in canisters, 1s. each.

Agents, Wholesale and Retail: BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14s. per Ton, or 1s. 3d. per Bushel. 2s. per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

GARDEN FLINTS for Grotto Work, 12s. and 14s. per Ton.

SHAW'S TIFFANY.

For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

GREEN'S PATENT LAWN MOWERS have proved to be the best in all cases of Competition.

Leeds, London, and Dublin.

"THE HYDROPULT,"

142 & 143, Cheapside, London, E.C.

Illustrated Prospectus with Testimonials sent free on application.

GARDEN TAUPAULINGS, 32s. per dozen, 8 feet by 4 feet, with six Eyelet Holes; larger if required. Large WATERPROOF CAPES, 3 feet deep, 4s. each; POLICE CAPES, 18s. to 36s. per dozen; HORSES' LOIN CLOTHS, lined with woollen, 7s. each; CART and WAGGON COVERS, ROOFING FELT, &c.

R. RICHARDSON, 99, Euston Road, London, N.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

High Beech, Essex, N.E.

VINES.—A Large Stock of fine healthy Canes for Fruiting and Planting out at low prices. Also a select Collection of ROSES as Standards and in pots. An excellent selection of Hollyhocks, Dahlias, Evergreens, and Ornamental Shrubs. Hothouse and Greenhouse Plants in great variety.

A fine Collection of Exotic and Homogeneous Ferns, &c., offered by JAMES CRAWFORD.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1008.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Peaches, Nectarines, and Apricots.

WILLIAM FLETCHER begs to announce that he has a large stock of the above named, in Dwarf Maiden Trees, good clean healthy plants; also Dwarf Cutbacks suitable for potting. Roses and all kinds of nursery stock.

Prices forwarded on application to WILLIAM FLETCHER, Ottershaw Nurseries, Chertsey, Surrey.

To the Nursery Trade.

MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade 5000 DWARF-TRAINED PEACHES and NECTARINES, all the leading kinds, 1 and 2-year Trained. They are unusually fine clean-grown healthy Plants. Price 36s. to 42s. per dozen, according to size, &c. Their Trade NURSERY LIST may be had on application.

To Gentlemen, Nurserymen, and Filbert Growers.

HOOK'S celebrated SEEDLING COB-NUT and FILBERT TREES, from 3 to 6 years old. Likewise Succession Plants. Also a large quantity of BLACK CURRANT BUSHES.

Purchasers are requested to apply to Mr. W. T. ATWOOD, Land Agent, Mortlake, Surrey, S.W., where specimens may be seen, and prices obtained.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

Fruit Trees.

J. SCOTT, Merriott, Somerset, offers selections from one of the most complete Collections of FRUIT TREES in this country, numbering above 1000 sorts.

A DESCRIPTIVE CATALOGUE, 84 pages, for 7 stamps.

NEW GENERAL NURSERY STOCK CATALOGUE, one stamp, containing Forest Trees, Coniferæ, Flowering Shrubs, Evergreens, American Plants, Roses, Camellias, Heaths, &c.

New Seeds for Exportation.

THE SEEDS OF THE GROWTH OF 1864 BEING NOW ALL HARVESTED AND IN FINE DRY CONDITION FOR EXPORTATION,

MESSRS. SUTTON solicit the favour of Orders from such of their patrons as may be about to send or take out SEEDS to the COLONIES, and submit the following from among many testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—

July 9, 1864, *from* A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*

"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

September 16, 1864, *from* Messrs. CROUCH, *Portland, Victoria.*

"We may remark that Messrs. Sutton's shipment of Seeds have given the greatest satisfaction as far as they have been tried. The Grasses, Clovers, and Lucerne are up."

"We find the crop will be far too thick. If the vegetable seeds turn out as well, we may say that without exception they are the best lot of Seeds ever received in this place from Europe."

July 17, 1863, *from* G. MORRISON, Esq., *Superintendent of the Government and Oudh Agricultural and Horticultural Society's Gardens, Lucknow.*

"I received some Vegetable Seeds, also some Flower Seeds from your firm some 18 months ago, and they turned out first-rate."

May 15, 1863, *from* Sir R. MONTGOMERY, *Lieut.-Governor, Punjaub, India.*

"I am happy to tell you that the Seeds you sent last year answered very well. I carried off the first prize both for vegetables and flowers, as you will see by an extract from the *Lahore Chronicle*, which I enclose."

November 7, 1863, *from the* Rev. R. G. LAMB, *Green Point, Cape Town.*

"Your Seeds have answered right well; one pinch of such as yours is worth a handful of the stuff sold here, which generally goes to seed before coming to perfection."

October 6, 1863, *from* Mr. CHARLES HASELDEN, *Boyce Farm, near Auckland, New Zealand.*

"The Grass Seeds you sent me arrived in excellent condition, and already present a luxuriant appearance, with the promise of abundant feed early in the coming season."

Royal Berkshire Seed Establishment, Reading.

NEW PLANTS.

ONE HUNDRED and TWENTY PRIZES and AWARDS have been made to

WM. BULL

FOR NEW AND RARE PLANTS ALONE,

AT THE PRINCIPAL LONDON FLOWER SHOWS DURING THE PRESENT YEAR.

W. B.'S AUTUMN LIST OF NOVELTIES

is now ready and can be had on application.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

HARDY GREENHOUSE AND STOVE PLANTS.

LOUIS VAN HOUTTE

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS No. 104 AND No. 105,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5*s.* will be charged in the account for each package.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

Orders amounting to 21*s. sent carriage paid.*

HOW IS SPRING GARDENING DONE AT CLIVEDEN,

THE SEAT OF HER GRACE THE DOWAGER DUCHESS OF SUTHERLAND?

(By planting the following liberally at the present season.)

Under the spirited superintendence of Mr. Fleming, it may be said of Cliveden, "There gardens are for all the months of the year, in which severally things of beauty are had in season."

Those who would associate floral beauty with the first dawn of Spring should now make their arrangements. The expense is trifling, the recompense great.

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

500 TULIPS Assorted	500 SNOWDROPS	200 ANEMONES	200 NARCISSUS
500 CROCUS	100 HYACINTHS	300 RANUNCULUS	200 WINTER ACONITES
		100 SCILLAS.	

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual Flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES
50 " " Beautiful BLUE PANSIES		100 PINK DAISIES
50 " " RICH PURPLE PANSIES		100 RICH BLUE FORGET-ME-NOT
50 Mixed POLYANTHUS		100 PINK SILENE

The above Collections can be modified to suit the requirements of purchasers.

THE CLIVEDEN PERPETUAL FLOWERING YELLOW PANSY, 4*s.* per doz.
" PERPETUAL FLOWERING BEAUTIFUL BLUE PANSY, 4*s.* per doz.
" PERPETUAL RICH PURPLE PANSY, 4*s.* per doz.
" WHITE DAISY, 2*s.* 6*d.* per doz.
" PINK DAISY, 2*s.* 6*d.* per doz.
" RICH BLUE FORGET-ME-NOT, 1*s.* 6*d.* per doz.
" PINK SILENE, 1*s.* 6*d.* per doz.
" MIXED POLYANTHUS, including the GIANT var., 3*s.* per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

CHOICE ORCHIDS.

HUGH LOW & CO.

HAVE TO HAND, FROM THEIR COLLECTOR IN NEW GRENADA, MR. HENRY BLUNT,

LARGE SUPPLIES OF THE SPLENDID CATTLEYAS OF THAT COUNTRY,

Also ODONTOGLOSSUMS FROM THE VICINITY OF SANTA FÉ DE BOGOTA,

including the New Species described in *Gardeners' Chronicle* of November 12.

H. L. & CO. have also a fine stock of the very beautiful EPIDENDRUM DICHROMUM var. AMABILE, in well-established plants.

The whole are on Sale at very low prices.

CLAPTON NURSERY, LONDON, N.E.

GENUINE NEW GARDEN SEEDS.

JAMES CARTER & CO.

ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.



THE "FIRST CROP" PEA.

(THE EARLIEST PEA IN CULTIVATION.)



JAMES CARTER & CO.

Beg leave to announce that they can now offer the above FIRST-CLASS PEA, which they have grown for the last three years, and BEING FULLY AWARE OF THE IMPORTANCE OF TESTING AN EARLY PEA IN EVERY WAY BEFORE SENDING OUT, they wish to assure the public that they have thoroughly proved the "FIRST CROP" PEA against all the Early Peas at present in cultivation, and the result of these careful trials and comparisons enables them to state that

THE "FIRST CROP" PEA IS EARLIER THAN ANY PEA

ever offered, and also has another advantage over all other Early varieties in being the MOST PROLIFIC EARLY PEA in CULTIVATION. Height about 2½ feet, and the haulm is literally covered with Pods.

☞ *The above will be sent out in quart packages "sealed," price 2s. 6d. per quart.*

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.



CARTER'S

LIST OF NOVELTIES FOR 1865.



Clarkia integripetala flore-pleno.

To the fine class of entire-petaled Clarkias, of which we were the original producers, we have this season the gratification of adding this magnificent DOUBLE variety, which is by far the finest of its genus; the bloom is very double, large, of a rich magenta colour, and produced in the greatest profusion; we anticipate that this will supersede entirely every other variety of Clarkia in cultivation as soon as its great merits have been observed.

Nasturtium King of Tom Thumbs.

The great usefulness and beauty of the Tom Thumb Nasturtiums are now very generally appreciated throughout the whole Floricultural world, and any improvement upon them is very desirable; the variety now offered is by far the finest of all, and we much question whether any bedding plant of any kind can equal it in effect, the lustrous blue-green foliage, contrasting vividly with the intense scarlet of the blossoms, produces an unequalled blaze of brilliance, and the plant must become a universal favourite.

Nemophila maculata purpurea.

An extremely pretty variety of this well-known tribe, the old variety of which is generally considered the handsomest of its tribe; colour, purple, with a dark violet blotch at the apex of each petal; altogether a very novel and desirable acquisition.

Godetia Lindleyana flore-pleno.

A startling novelty among this much-admired profuse-blooming class of plants; we are not aware that, previous to the variety now under notice, there has ever been seen anything approaching to a double flower among the Godetias, so that we consider that we may fairly claim attention to this striking innovation; its colour, like that of its parent G. Lindleyana, is a rich rosy purple, the blossoms are perfectly double, and produced in the greatest profusion; strongly recommended.

Whitlavia grandiflora alba.

Since the introduction of the purple Whitlavia some 10 years ago, it has speedily risen into favour, and has now become a leading favourite amongst Annuals; we think therefore that we can pay no higher compliment to the variety now offered than to say that it possesses all the merits of its predecessor, with the additional value of being pure white in colour. It must necessarily rank in the first class of Californian Annuals, and we strongly recommend it as one of the best Novelties ever introduced.

Chrysanthemum tricolor Dunnetti, fl. pl.

This charming flower may be considered the Gem of the Season; it has been produced by the most careful and assiduous cultivation from the well-known Chrysanthemum tricolor. Its colour is snow-white, and its great charm consists in its immense superiority over the other varieties in being perfectly double, even as the Truffaut's Pæony Aster, and blooming at a time (June to August) when the Aster shows foliage only; to all admirers of the Annual Chrysanthemum we strongly recommend this variety, affording as it does another convincing proof of the great results that may be obtained by judicious selection and careful growth.

SEALED COLLECTIONS OF NEW MEXICAN ANNUALS.

For the first time this last 10 years we are enabled to offer an entirely New Collection of these popular favourites; among them will be found some Novelties of a peculiar and unique character, and we feel the greatest confidence in recommending them to public notice.

No. 1. GODETIA REPTANS(?) ALBA.—A charming trailing perennial, running close upon the ground, producing blossoms in the greatest profusion, especially in the second year of growth; colour similar to that of the beautiful Godetia rosco-alba, viz.: pure white, with a crimson blotch at the base of each petal. We think this flower will be found admirably adapted for rock-work, baskets, and banks, and being a perennial it increases in beauty each succeeding year. For decided novelty, prettiness, and general effect, we consider this one of the best introductions of late years.

No. 2. GODETIA REPTANS(?) PURPUREA.—Exactly similar to the former with the exception of colour, which in this instance is a rose pink, with a purple blotch on each petal; very charming.

No. 3. GILIA MINIMA CŒRULEA.—Another interesting addition to this numerous and pretty race of flowers; colour, pale blue; height 3 inches.

No. 4. ŒNOTHERA PARVIFLORA.—A very neat small blooming variety, totally dissimilar from any other.

No. 5. COLLINSIA CORYMBOSA.—A Collinsia of an eccentric and peculiar character, blooming in a corymbose or disc-like form, whereas all the other varieties are pyramidal; colour, pale lilac.

No. 6. ŒNOTHERA DIVERSIFLORA.—Another beautiful variety, similar to Nos. 1 and 2, with the exception of diversity of colour, this one producing its flowers sometimes white, sometimes rosy pink of various shades, but always with a crimson blotch at the base of each petal; extremely pretty.

*** *The foregoing were received from our North American Collector some few years since, and have all been carefully grown at our Seed Farms, so that the descriptions may be depended on as correct.*

ORNITHOGALUM THYRSOIDES ALBUM.

J. C. & Co. beg to announce that they have been successful in saving a small quantity of good growing Seed of the above splendid Novelty.

*** *Price of the above to the Trade on application. Coloured Drawings in a few days, price* 1s. 6d.

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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 19, 1864.

THE first fasciculus of an extended series of observations on what are called VEGETABLE MONSTROSITIES, by Dr. MARCHAND, has lately appeared, extracted in a separate form from the Number for last June of *Adansonia*. In another part of this Journal (p. 1111) we have made some observations on the subject while noticing the translation of GOETHE'S treatise edited by Dr. MASTERS. Our object now is to give a sketch of a very important example, amongst several others, as it includes a vast variety of changes, bearing upon almost everything except the development of pollen.

The instance occurred in the common field Pimpernel, Anagallis arvensis, and is quite intelligible without the aid of the excellent figures which accompany the memoir.

We will take that instance first in which the parts of the flower departed least from the more normal condition, and then the others in their proper order. In all the parts there was a greater or less tendency to assume a green tint; in some they were entirely green, in others the brighter colours were confined to the more recently developed parts.

1. In the first case then, the sepals and petals were in their normal position, though rather more dilated than usual; the anthers were fertile, the principal change existing in the ovary, the upper part of which was wanting, so that the ovules were exposed seated on the central placenta.

2. In the next step the calyx, more developed than usual, was separated from the corolla by a long peduncle, and the ovary, which was ovate, contained instead of a placenta a sort of plumule or young shoot.

3. In this case the corolla and calyx were distant from each other; there was no trace of stamens, but the axis was continued from the centre of the corolla, and ended in a leaf-bud.

4. The calyx and corolla nearly as before, but instead of stamens a whorl of little leaves was developed, in the centre of which the axis was continued, bearing at its tip two whorls of leaflets alternately three and three.

5. In this case two out of the five stamens were

normal, the other three changed into leaves, showing clearly the origin of the leaflets in the last case, which took the place of the stamens.

6. The ovary varied in different flowers. In some the placenta was crowned with ovules; in others the ovules were replaced by a single whorl of leaflets; in others there was every shade of change from ordinary ovules to perfect leaflets; while in others, again, every ovule was converted into a leaf with a long petiole.

7. We now come to another form in which shoots were developed in the axils of the sepals, or on the face of the petals between the point of their insertion and that of the stamens, and, what is most curious, in the interior of the ovaries round the foot of the placenta.

8. Here again we have a very singular condition: the calyx and corolla separated from each other, the stamens partly developed, the axis continued beyond the corolla, branched and bearing normal leaves so as exactly to resemble an ordinary stem, while in consequence of the calyx and corolla being bent down to the ground, adventitious roots were developed from the axis on the under side above each of them. In another case, where the calyx and corolla were approximated, the ovary was open above, and sent out six shoots from within, perfectly developed, clearly representing the central placenta and five axile buds, and each giving out a number of adventitious roots at its base.

Dr. MARCHAND does not enter into the deductions which arise from these curious facts, contenting himself with simply registering what he has observed, while he leaves to others the task of reconciling them with theory.

In this direction nothing can well be more important. This instance shows distinctly not only the conversion of sepals, petals, stamens, and ovary into leaves, but the axile nature of the placenta in Anagallis, together with the origin of at least the outer integument of the ovules from a leaf. Nay, more than this, we have not only the development of the axile bud from the sepals and petals, but also from the leaflets of which the ovary is composed. A more complete confirmation of the doctrine of metamorphosis, or of the true foliaceous origin of the several organs, with the exception of the central placenta, can scarcely be imagined, and we are greatly indebted to Dr. MARCHAND for his admirable illustration of the subject. *M. J. B.*

THE PROGRAMME of THE ROYAL HORTICULTURAL SOCIETY for the year 1865, which will be immediately laid before the public, and which has reached us too late to appear in our advertising columns to-day, will be seen to embrace some important changes both as regards the public and the Fellows. We have not yet had time to consider the bearing of all these changes, and therefore reserve our opinion as to the expediency of some of them. In the meantime we may lay before our readers a brief summary of the principal features which present themselves in this new programme.

As regards the Shows, we are glad to see that wiser counsels have prevailed, and that some of the blundering and absurd experiments which have been made during the past year are abandoned. Thus the attempt to keep the great shows open for more than one day has been given up. And at all the great and special shows next year, money prizes will be offered. The shows are all to be held on Saturdays. They are divided into three classes:—Great shows, special shows, and weekly shows. There are, as formerly, to be three of the great shows with which the public is familiar; and in addition to these, eight special shows, more of the nature of the old spring shows, are to be held. We see, for example, a special show for Hyacinths and Camellias; another for early Azaleas and spring flowers; a third for Orchids; a fourth for all kinds of Pelargoniums; and others for Azaleas, Liliaceæ, Amaryllidaceæ, plants of ornamental foliage, and Ferns and their allies. For all these special schedules are to be issued.

The weekly shows are a new feature. A show is to be held on every Saturday not preoccupied by a fête day. It is intended by these to secure a constant display of the greatest novelties and beauties of every season, as they successively come into bloom. It often happens that a gentleman has some plant of very great interest or beauty coming into flower at a time when there is no show to which to send it for exhibition. With this weekly show open every Saturday there will always be a place for its reception, where it can be seen and appreciated. If once fairly established, it will be the interest of every nurseryman to send there his greatest novelties; but the Council have not trusted to the chance support of the exhibitors for the success of these shows. They have appealed to the principal amateur horticulturists for their support, and the promises of contributions have, we understand, been most satisfactory. We learn that the QUEEN has been pleased to command that contributions shall be sent from the Royal Gardens, Frogmore, and many Fellows have followed HER MAJESTY'S example, and intimated their intention to contribute on particular weeks.

One result of having a show every Saturday will be that the Fellows will lose on that day their right to introduce friends, that privilege not extending to show days. On the other hand they will have the opportunity of always seeing something new and good in the Garden, and it is not unreasonable to expect that the Fellows, at least those in the neighbourhood, will soon acquire the habit of dropping in for a short time every Saturday to see what is new in the Horticultural Garden. We remember to have heard Sir JOSEPH PAXTON narrate how in the days of the late Duke of DEVONSHIRE it was part of his duty to provide such a succession of novelties at Chatsworth. A fresh plant, cultivated to the highest degree of perfection, was placed every day in a small conservatory room; his Grace saw it in the morning; and the beauty and fashion of the neighbourhood used to drive down in the afternoon to see the new plant. There is no reason why the Horticultural Society itself, without foreign aid, should not be able to make an interesting weekly exhibition. There are difficulties, however; and success must depend in a great measure on the support given to it by the Fellows themselves. Medals and Certificates, but not money prizes, are to be awarded at these meetings.

But this is not all for the Saturdays. Every other Saturday (except in August, September, and October), a meeting is to be held for the transaction of scientific business, for receiving the reports of the Floral and Fruit Committees, &c., and for comments upon any new or rare plants sent for exhibition.

The Conversaziones are to be repeated, and a *déjeûner*, reminding us of the bygone glories of Chiswick, is to be held on the 3d of June, the anniversary of the opening of the Garden by the PRINCE CONSORT.

A number of other accessory objects of interest are to be provided. Among others Mr. FRANK BUCKLAND'S fish-hatching apparatus, which has proved a source of unfailing interest to the Fellows; aquaria of Seaweeds; bee hives of different kinds; and the culture of the Ailantus silkworm, under the auspices of Lady DOROTHY NEVILL.

In the spring a continuous show of Tulips by Messrs. HENDERSON, of Wellington Nursery, is to be made in the open borders of the Garden. Those who have seen the sheets of bloom in the thickly crowded beds in the gardens at Haarlem, or even at Messrs. HENDERSON'S own nursery, will be able to form some idea of the display which will be made, when we state that upwards of 50,000 Tulips are to be employed for this purpose. Following this, Messrs. WATERER & GODFREY are to make a show of Rhododendrons under the great tent. Several shows throughout the year are also to be held at Chiswick.

Other matters more of interest in a national or horticultural point of view have, we are informed, occupied the attention of the Council. The scheme for the education of gardeners, about which so much was said last year, and in considering which the Council and a special committee had bestowed so much time and attention, has resulted in a system of examinations being instituted for all gardeners who may choose to present themselves. Prizes are to be given for the cultivation of gardens by soldiers in barracks, by sailors in homes, and by dockyard workmen, as well as for the window gardening of the working classes in the metropolis.

With regard to the privileges, some addition has been made to those of the Four-guinea Fellows; both of their tickets are to be transferable. None but Fellows or their friends or debenture holders, can enter the gardens before 1 o'clock on any day. On Sundays friends can only be admitted by personal introduction. A new class of tickets, conferring merely the right of personal admission every day in the year, has been established. The price of these is to be 20*s.* for summer, and 10*s.* for winter.

Another important new class is that of country subscribers, who by payment of one guinea subscription and one guinea admission fee, may secure that portion of the privileges which a person residing at a distance would most wish to possess, viz., occasional admission, the receipt of the Journal, and a share in the ballots for plants. They are to have the right of proposing country Horticultural Societies for union with the Royal Horticultural Society—a union which cannot fail to be of great benefit both to the parent and affiliated societies. These are some of the many promises of the programme for 1865.

Of one thing however, we must remark, there can be no doubt, and that is, that to ensure the public sympathy and support there must be real horticultural action as well as profession, and above all, the confidence which has been destroyed by the late jumbling management must be re-established. Then we believe all parties would work heartily together for the common good, but if not, not.

THE TUILERIES GARDENS should be seen on a fine day, when the life and animation of the gay Court of Le Grand Monarque may be conjured up in the throng of people crowding its shady avenues, some promenading chatting or flirting, others laughing at the comical scenes of the Theâtre de Bambochinet, or seated in varied though compact masses listening to the martial strains of music. Statues, vases, and Orange trees are ranged around in endless profusion, and the Zouave, Dragoon, and neatly dressed women of Paris assist in producing a brilliant *ensemble*.

During the reign of LOUIS XIV.—an epoch, not only memorable in the annals of France but of the world, and which seems, in the establishment of the French and English in America and India, in the extension of Dutch commerce with Africa, Japan, and the Indies; in the commencement of the Russian marine under PETER THE GREAT, and in the immense impetus given to the science of war by VAUBAN and BERNARD RENAUD, to have produced the seeds of the mighty changes only yet in process of development—French and English gardening received a great impulse. The present piece of ground, some 67 acres in extent, was partly occupied by a street immediately fronting the Palace, and a small garden comprising an echo, menagerie, fish ponds, dog kennels, and flower borders, all huddled together—if we may believe French authors—in a manner at once incongruous and disagreeable. EVELYN again describes them as "being kept with all imaginable accurateness as to the Orangery, precious shrubs, and rare fruits," and deemed it "a Paradise;" but whichever may be the true estimate of its beauty, there can be no doubt that in extent it was far too limited for such an important adjunct to a palace. In this reign, and contemporary with CLAUDE LORRAINE the painter, there rose into notice two men of extraordinary talent—LA QUINTINIE and LE NÔTRE. The former was a planter and cultivator, and to him we owe the fundamental principles of pruning and tree transplanting, as well as many improvements on the previous culture of fruit and vegetables. The latter, a man of different calibre and more refined taste than LA QUINTINIE, may be judged by the classical gardens of Versailles, St. Cloud, and the Tuileries, as well as the parks of Greenwich and St. James, which are sufficient to attest the general beauty of the magical transformations said to have been accomplished by him. And here we may remark in a friendly way that most of us are rather inclined to look down upon French gardening as the exemplification of all that BACON criticises so severely. Now MASON says: "in ADDISON'S* time France and Italy far excelled us in artificial rudenesses," and we should recollect that though of late years they have gleaned from us many of the ideas they originally imported, as well as many others exclusively English, we were much indebted to their originality in the first instance; and if they are sometimes obliged to come to us for a hint, we in turn may take many a good hint from them, especially in growing young trees, and in the culture of foliage plants; while, so far from the exchange of ideas being a robbery, it is highly creditable and beneficial to us both. To LE NÔTRE, then, was entrusted the arrangement of these grounds; the street was pulled down, the garden demolished, and the whole replanned and planted much as it is at present.

We will begin with the private Garden in front of the Palace. This is modern: and has been

* Spectator, No. 414.

ruled over with parallel strips of walks, Grass plots, and flower borders of Phlox, Zinnias, Salvias, Dahlias, Petunias, Geraniums, &c., planted cottage-garden fashion, and by no means palatial. In the middle of the Grass-plots right and left, though partially screened by shrubs, are round water basins, with a slight slope swelling towards the stone rim, so as to render nugatory as far as possible the effect of the water. There are also splendid Orange-trees, vases, and statuary; and a band of planting that separates it from the public garden answers the double purpose of ornament and seclusion, and partly returns on either side of the main central walk. This latter continues past a slope, sunk alley, and retaining wall (the boundary of the private garden) until it is stopped by a large circular basin, on which the first portion of the public garden radiates. Working round the basin through a Horse Chestnut avenue, with a wood on either side, it is checked again by a still larger octagonal basin, a favourite spot with children. Between the kerb of this basin designed by Le Nôtre, and those of the new fountains in the Rond-point des Champs Elysées, there is a striking contrast. The latter are some 9 inches above the turf, but the former is barely 3, and while just sufficient to keep dirt and gravel from falling over its edges, allows the eye at once to rest on the principal attraction, the water—on the picture and not the frame. In our own Trafalgar Square we find the basins are raised like most of the new fountains erected in Paris. Now some one says—not Mr. Ruskin, although he enlarges on the sky-blue reflections that may be seen even in a puddle—"Water naturally seeks the lowest level, and the lower it is placed unobstructed by intervening obstacles the more accessible it will be from any given point of sight." These fountains have afforded wags and critics a never-ending theme, from the thunder of the *Times* down to the good-natured squeaks of *Punch*; still they would appear rather to have been an oversight or mischance than a deliberate mistake, as Sir Charles Barry was not only in architecture one of the first men of his day, but might fairly have disputed precedence with many of the leading garden architects.

Beyond the octagonal basin a high wall, faced with a Hornbeam hedge, and supporting rampart terraces, defines this end of the garden; and encloses large parterres of Orange trees, mixed borders, and sunk Grass lawns in a semi-octagonal outline. Cross steps lead down from it on either side end towards the centre of the fountain; and curved gravel ramps 60 feet wide ascending towards two long terraces on the same level as the semi-octagonal ramparts, parallel with the Palace, and overlooking the Place de la Concorde, flank the termination of the main walk north and south, forming a crescent space below. Minor avenues stretch through the wood, and the Napoleon Column in the Place Vendôme forms the *point d'appui* of a central cross avenue. Between this and the Palace are two old bowling greens, said to have been designed by Robespierre and turned into gardens. The marble seats at one end of them are worthy of a more useful fate. We must not omit mention of the avenued terrace that bounds the Seine, of the Allée des Orangers, a perfect sea of heads on a Sunday afternoon, or of the main vista from the Palace towards the Arc de Triomphe, broken by the needle point of the Obelisk of Luxor steepling high above it. This is left unobstructed by means of an iron *grille* and entrance gates placed between the north and south terraces. The trees (particularly the Horse Chestnuts) are crowded and drawn up, and many of them in a very precarious condition, while the Imperial gardening is about as bad as it well can be.

As combining shady terraces for the views, shelter from draughts at all seasons of the year, and a certain amount of wood and water, this town garden is an admirable essay, but Le Nôtre, though endowed with a mighty genius, was lost even in the main features of detail, and his works generally leave the impression of a man who reversed the old proverb in being able to run though unable to walk. With magnificent ideas —and the centre canal at Versailles mingling its waters with the distance is unequalled in its way —the cost of his successes was so enormous as to be almost ruinous in itself; and these successes were moreover achieved somewhat after General Grant's fashion in America — by continually "pegging away" at every spare plot of ground with fountains, water basins, and avenues *ad nauseam*. Hence he becomes a dangerous model for any man who is not an artist, as it requires a nice discrimination to steer clear of his errors, and almost equal genius, and certainly equal patronage, to reproduce his grandeur.

The only attempt known to the generality of our readers is the garden of the Crystal Palace; and in order to judge how far this is successful or otherwise we will capitulate a few principles of geometrical composition. The first and greatest of all is Unity. However beautiful and complex the details may be in themselves, they can only be justified by their unison as component parts of simple symmetry. Take the noblest work in creation, for instance—Man. He is constructed with arms and legs symmetrically balanced, and pendants to one another. These are subordinate to, and are welded into unity by the trunk, and crowned again by an apex of exceeding grandeur in the head. At the Crystal Palace there are minor features, as vases, statues, and water basins in superabundance, subordinate and pendant to one another; but the connecting bond, the main feature, or the head, is wanting. "Whence it appears (as Knight says) neither quite regular nor irregular; but with that sort of lame and defective uniformity which we see in an animal that has lost a limb." What would Knight have said to an animal without either body or head? The fountains also are dispersed, and thus not only inadequately represent the enormous expenditure of water force, but are faulty in general arrangement. Water should be used rather as a principal than a subordinate, as its magnetism at once attracts the eye, and if misused distracts it by counteracting the focus of centralisation. In Nature we may often see a river winding from nearest foreground to extreme distance, tying together a whole landscape, as is charmingly illustrated in Turner's picture of the "Crossing of the Brook;" and in gardening something of the same kind has been attempted in Le Nôtre's geometrical canal at Versailles; but a series of pools scattered upon a plain, or worse still, upon the sides of a hill, become so many spots—the one destructive of the beauty of the other. The terraces, again, are mismanaged, for this reason, that they obstruct the views of the garden, especially from the main points of sight, instead of assisting them by means of their great elevation. The distant scenery nevertheless is enchanting, if not perfection, and insensibly pleads hard for the many errors of foreground. We will only suggest one thing, that a huge geometric sheet of water placed at the end of the garden, and backed by a portion of the once existing wood, might almost have equalled the thought of Le Nôtre, in the spirit of Madame de Staël's remark that "Nature seems to have placed lakes in the midst of her grandest scenes, in order to serve as mirrors, and multiply their charms." *Z.*

—— We observe that Messrs. Lawson & Son are to send out next autumn the Castle Kennedy Fig, a variety which was first observed growing untrained and unpruned against an old wall at Castle Kennedy, near Stranraer, in the south-west of Scotland. In that neglected state it was found in fine seasons to ripen abundant crops early in August. The large size and fine quality of the fruit arrested attention; and in due course provision was made to cultivate it under glass, where, for the last two seasons, it has produced extraordinary fruit, some of which weighed nearly seven ounces. At Castle Kennedy it also has occasionally ripened fruit when grown as a standard. It appears to have been successfully exhibited in Scotland, and among other awards obtained during last summer was a First-class Certificate from the Edinburgh Horticultural Society. Mr. Thomson, of Dalkeith, bears testimony to the great excellency of this Fig, which he says has borne him the largest Figs, by far, that he ever saw, the flavour being equal to that of any Fig known to him.

—— We may mention that the New Pomological Work published under the direction of the Society for Regulating and Improving the Varieties of Fruit-trees at Boskoop, *De Nederlandsche Boomgaard*, &c., the first part of which, with Dutch descriptions of the plates, was noticed by us at p. 678, is also to be issued under the title of *Le Jardin Fruitier Neerlandais*, with a French text by Dr. De Gavere, and with a Preface by Professor Karl Koch. Such a work, it is observed in the prospectus, representing faithfully the races of fruits, with all the distinguishing marks with which Nature has impressed them, and accompanied by clear and concise diagnoses, seems to be absolutely necessary as a means of clearing up the confusion which exists amongst fruits. The drawings are to be made from Nature by M. S. Berghuis, and the plates prepared in chromolithography by M. G. Severeyns, of Brussels. The work is to be published in 20 parts, each containing four plates, and descriptions of from 8 to 16 varieties of fruits, and eight parts are promised in one year, the price of each part being 5 francs to subscribers.

—— Twenty-one years ago the Handsworth Horticultural Society held its first show. Since that period four exhibitions have been held annually, and it is not too much to say that few if any provincial societies have done more to encourage the science than the one just mentioned. Three years since it was thought advisable to do away with the July show, and substitute for it an exhibition of Fruit and Chrysanthemums in the Town Hall, Birmingham, at the same period as the Cattle and Poultry shows are held. Hitherto these meetings have been highly instructive to those who wish to learn somewhat of pomology, a class being provided for exhibitors residing within 15 miles of Birmingham; and another class for fruits grown on the Continent, in the Channel Islands, or in any part of England. Some marvellous displays have been produced, and after so fine a fruit season as the one just past we anticipate that no falling off will take place this year. The noble Town Hall, the use of which is annually granted to the Society by the Mayor, is a fitting building for such a show, which all visitors to the Midland metropolis during the exhibition week, should not fail to see. The show commences on November 28th, and lasts till December 1st; but entries must be made on or before November 24th.

GRAFTING THE VINE.

In a recent Number of the *Gardeners' Chronicle* (see p. 1035), allusion is made to an opinion expressed by me in favour of the Trebbiano, as a stock for the Muscat of Alexandria Vine, which further experience has not justified.

In reflecting on subjects of this kind a few years ago, it occurred to me that by grafting the Muscat of Alexandria on the Trebbiano, one of the strongest growing and freest-rooting Vines we have, it would receive abundance of sap, and produce large bunches and berries, and perhaps carry a heavier crop than the Muscat usually does on its own roots. I did so, and the result up to a certain stage was all that could be desired. The wood was unusually strong, the clusters were large, the berries remarkable for their size. This is the first season the Vine so grafted has borne fruit. During the autumn I showed it to numerous gardeners and others visiting here, and all agreed with me in considering the stock a good one for the Muscat of Alexandria. All went merry as a marriage bell up to the period when the fruit was nearly ripe; the berries were plump, and the colour a fine amber, clean, and without a spot. The weather had been fine and dry for a considerable time previous; but rain now fell in abundance, and soon after the berries commenced to burst at the footstalks, and continued to do so till more than half had to be removed, the remainder soon becoming less or more discoloured, and the bunches being totally unfit for presenting at table. A fine crop of Muscats was growing alongside, not a berry of which suffered in this way, thus showing that the extra vigour of the stock was the cause of the bursting of the berries, discoloration, &c., by supplying more sap than the berries could at this stage assimilate; and tending to prove that we may err in using too vigorous stocks, as in this case I had done.

Few questions are at present occupying more attention among Grape growers than the selection of suitable stocks whereon to graft, at least some of their favourite Vines. There are various reasons for grafting Vines. Amongst others I may notice that weak-growing varieties, such as the Frontignans, want more vigorous stocks so as to increase their strength, and improve the quality and quantity of their fruit, and thus to aid in doing away with that tendency to shrink to which these high-flavoured varieties are so liable. The same reason may be given, but in a lesser degree, for grafting the Muscat Hamburgh, the Golden Hamburgh, and possibly that early and really highly-flavoured fine new Grape, the Duchess of Buccleuch.

By grafting some sorts, such as the Black Barbarossa, which takes nine or ten months hard forcing thoroughly to ripen its fruit, on a moderate-growing earlier stock, as has been done in the case of the Black Hamburgh, which is said somewhat to decrease the size of the bunch, but to improve the colour and size of the berries, we may expect to shorten the period of growth—an object of considerable importance in an economical point of view.

It is highly probable that if the Muscat of Alexandria were grafted on the Sweetwater, an old, hardy, early, and healthy variety, but a comparatively weak grower, it would ripen its fruit a fortnight, three weeks, or a month earlier than when on its own roots. This for early forcing would be very advantageous; and till we get an early variety with Muscat flavour, such a plan as this, if found to answer the purpose, would be worth adopting.

Although, for the reasons stated above, I am in favour of grafting some sorts of Vines, still I am one of those who believe that most varieties can be grown to great perfection on their own roots, as has again and again been demonstrated at our great Metropolitan and other fruit shows, where nearly all the Grapes shown have been thus grown. To do so with some varieties requires more favourable root conditions than is

necessary when they are grafted on hardier and otherwise suitable stocks; and this is often supplied in a well prepared border for a few years after it is formed, while it remains open and pervious. When, however, the border becomes consolidated, particularly if manure has been freely used in its composition, the effect is first seen on such shy rooters as the Frontignans, the Muscat Hamburgh, and the Muscat of Alexandria—in short, on all the very highly-flavoured varieties; and in a less degree on the free-rooting sorts, such as the Black Hamburgh, the Trebbiano, the White Nice, Lady Downes' Seedling, West's St. Peter's, and many others. All varieties of the Vine like a higher temperature than an ordinary Vine border supplies, unless artificially heated. This is particularly apparent in the more northern, cold, and wet localities of these kingdoms, and should induce those having to do with their formation, not only to take the utmost care in providing proper soil, &c., but also to use some artificial means to heat them, whether simply aërating, which in most cases will be found to answer the purpose, or by heating with hot-water pipes and flues, which for very early forcing is essential. *Archibald Fowler, Castle Kennedy, Stranraer.*

EARLY FLOWERING BULBS.

THE TULIP.

TULIPS with me are great favourites, whether grown in or out of doors. My intention now is to treat more particularly of the early single varieties, of which there s a large and imposing array. Within the last few years fresh vigour has been infused into their cultivation, and with this has come a corresponding extension of the varieties grown for exhibition, as well as for ordinary decorative purposes.

The wild Tulip (Tulipa sylvestris) may still be found in the northern and southern suburbs of London, and its bright yellow flowers, externally of a greenish hue, and somewhat fragrant, are always objects of interest. This variety seems to be identical with T. florentina odorata of bulb catalogues, and with it are associated some other members of this branch of the family, viz., T. cornuta, the yellow horn-flowered Tulip; T. Oculis solis, bright crimson with purple centre; T. persica, white with purple centre; and lastly, and best of all, T. Gesneriana, the parent of the almost numberless varieties of garden Tulips. It is surprising that this species is not more generally grown for garden decoration than it is. The flowers are of a deep crimson scarlet, very large and showy. I have seen beds of it on a Grass plot that were very effective indeed, quite startling to those who were not familiar with the beauty of this kind. It flowers rather later than the early single varieties, but it is not quite so late as that section known as the single late border Tulips, a strain identical in character with the fine exhibition varieties. It is not, however, adapted for pot culture, as it grows tall and lanky.

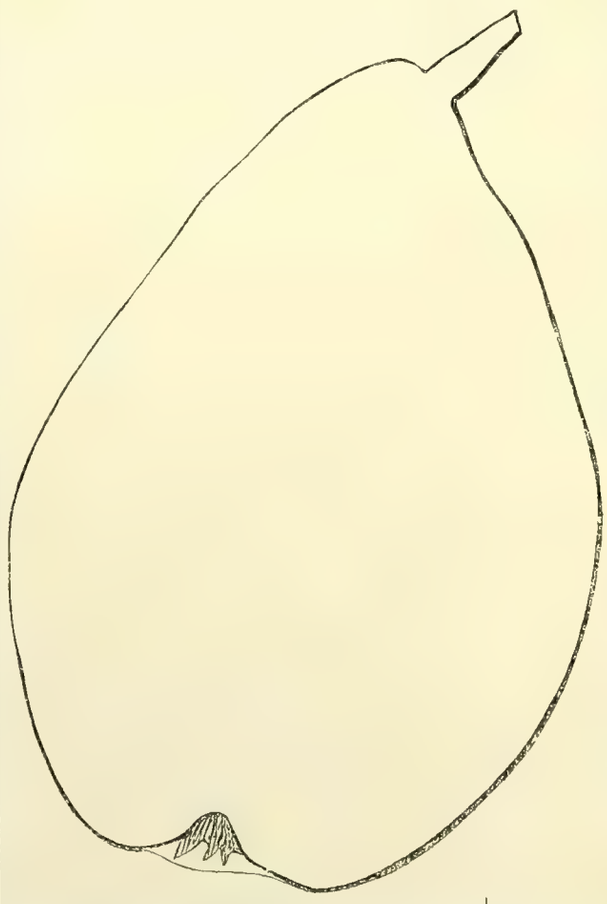
Early Tulips are divided into double and single flowered sorts; the latter are by far the best, and they are also earlier in blooming. The single Tulips branch out into three smaller divisions, the origin of which is to me unknown. All my inquiries in that direction have as yet been without any successful result. These divisions are the Van Thols, of which there are the common red and yellow, the earliest of all; the rose, yellow, scarlet, white or blush; and the gold striped, the last named being a scarlet flower striped with gold. With these must also be classed the well known old double variety. Among Van Thols the best is the scarlet, a very handsome flower for pot culture, being dwarf and very showy. Compared with this the others are hardly worth cultivation. The Pottebakkers indicate an advance on the Van Thols. Of these there are the yellow, red-striped, a pale yellow flower with small red stripes almost a self yellow, and the white variety. This is the best of the batch, and also the best white Tulip among the early single varieties. It is large, stout, and pure in colour, but under high cultivation I have seen it faintly striped with red. The Yellow Pottebakker ranks next in value, but the area of cultivation of the white trebles that of the others put together. An astonishing quantity of this variety is annually imported to England, and yet the demand always exceeds the supply.

I come now to the largest division of the early single Tulips, and my object will be to point out some of the best of each shade of colour in that class.

There are but very few white self-flowered sorts among them, probably because it is really difficult to get any great variety among pure white self-flowers. I have met with two, White Swan and Pax Albo; my impression is that these are the same, or if not, too much alike to be both grown where variety is sought for. Both come with a kind of sickly cast of cream colour spread over the white ground; and they bear no comparison with the white Pottebakker for size, purity, or effectiveness. Self-yellows are also somewhat scarce, but a really good flower like Yellow Prince, known also as Canary Bird, Canary Vogel, La Pluie d'Or, &c., amply supplies this colour, backed up by the yellow and striped Pottebakkers. In colour it is clear bright gold, and whether used for pot culture or for massing, it is alike invaluable for decorative purposes.

Prince de Ligne is spoken of as a good bright canary yellow, but I have not met with it. In Thomas Moore, another really good flower, the colour is golden buff suffused with orange. This variety should always be included among those planted in beds for spring decoration. A step farther on, and flowers are reached with fawn or chocolate grounds or edges, like Cerise Gris de Lin, rosy chocolate, edged with fawn. Flowers of this character are very scarce, and I do not think they will ever be popular. Among self-roses there are some really beautiful varieties. The old Rosa Mundi, light rose, is completely distanced by such splendid flowers as Proserpine, rich silken salmon rose; and Rose Luisante, and Rouge Luisante, both deeper in colour than Proserpine. Sometimes there is a deeper shade of colour in the last of these two; and occasionally I have seen them identical in character. Rose Gris de Lin is a very pretty pale pink flower; Florida, purplish violet; Fabiola, a very handsome white ground flower flamed with glossy rose; Le Matelas, deep rose; and Molière, purple, with yellow base. I have classed Fabiola with the self flowers; it is neither a self nor a striped kind, but it approaches nearest the former. Scarlet or crimson selfs are numerous and comprise some very fine varieties; foremost among them is Vermilion Brilliant, rich glowing vermilion, a flower somewhat difficult to get true, as very often Scarlet Van Thol, a smaller and slightly lighter-coloured flower, is sent to England for it. Next come Belle Alliance, Cramoise Superbe, cerise crimson; Couleur Cardinal, scarlet shaded with bright yellow; Feu Rouge, bright scarlet flamed with orange; and Epaminondas, rich deep crimson, sometimes faintly streaked with white.

Of Edged Flowers there are some fine varieties; prominent among them are Keizer's Kroon, or Grand Duc, rich red with golden yellow edges, very large and fine; Duc d'Aremberg, bronzy red with yellow edging, the border being of greater depth than that of Keizer's Kroon; Duchesse de Parma, bronzy crimson bordered with orange; Archduc d'Autriche, rich crimson edged with yellow; and Mathilde, pale crimson slightly feathered with white. This list by no means exhausts the best of the varieties of this section, but only some that I have seen.



Striped flowers are also very numerous, and comprise such varieties as Brind van Haarlem, white with red stripes; Royal Standard, white with rosy crimson; Grootmester van Maltha, deep rose, with broad flakes of white; Comte de Vergennes, white, slightly striped and feathered with rosy crimson; Cottage Maid, rosy pink with clear white stripes and feather, a small flower but very pretty; Roi Pepin, white with scarlet flakes, a very fine and beautiful flower; Globe de Rigaud, white, with rosy purple flakes; Marquis de Wessenrode, golden yellow, pencilled with red; and Marie de Medicis, yellow with crimson streaks, a flower of novel character.

Of double flowers but little can be said. With but one or two exceptions, in comparison with the single varieties they are not worth growing. The best of all of them is the old Tournesol, red with yellow edges; it is excellent for beds, and when the flowers are fully expanded they are very effective. The yellow Tournesol is smaller than the common one; the flowers are pale yellow with faint brown blotches. Yellow Rose is also a fair yellow flower, and in contrast with bright colours makes a good bed. The old scarlet Rex Rubrorum is hardly worth planting; Imperator Rubrorum is better, being quite destitute of those reddish green petals that always spoil the old variety. La Candeur is the only white I know of; its colour is creamy white, and it is also not worth planting. Bleu Celeste, or Blue Flag, is a poor purplish violet flower. Couronne Imperiale and Mariage de ma Fille are two white flowers, feathered and streaked with crimson, the last heavily streaked; they also flower very late. Duke of York is a rose ground flower with white border. Extremité d'Or, red, bordered with yellow; and Overwinnaar, or La Belle Alliance, white, densely striped with purple.

All spring garden decorators should grow Tulips for that purpose, but let them be single varieties, with the addition of the double-flowered Tournesol. As I have already said, double sorts are not nearly so effective as single varieties, they will never be such favourites, unless, indeed, there should occur a period of rapid improvement, of which, at present at least, we have no indications of the possible advent. *Quo.*

PITMASTON DUCHESSE D'ANGOULÊME PEAR.

FRUIT very large, 4¾ inches long, and 3¼ wide, oblong-obovate; stalk short, obliquely attached, projecting more on one side than the other; eye in a moderate sized depression, with the segments of the calyx erect, and projecting to the level of the fruit; skin soft, smooth, yellow, with slight thin russet near the stalk. Flesh yellowish white, exceedingly melting, buttery, very juicy, and rich.

Mr. Stevens, gardener to F. E. Williams, Esq., of Malvern Hall, Solihull, by whom the fruit of this Pear has been sent, informs us that it is a seedling raised by the late John Williams, Esq., of Pitmaston, in 1841, and is a cross between Duchesse d'Angoulême and Glou Morceau. Mr. Stevens writes:—"It is a vigorous grower and free bearer, and I think will attain great size in more favoured parts of the country. My employer has directed me to offer grafts of this variety to the Royal Horticultural Society, if it is considered worth distributing."

This is a very handsome and most excellent Pear. Ripe in the end of October, or in ordinary seasons it may probably keep till the middle of November. Few of the new Pears can compare with it as regards size, appearance, and quality. It partakes more of the nature of the Marie Louise than of the Glou Morceau. We regard it as quite an acquisition.‖

Home Correspondence.

Pampas Grass.—At p. 1064 it is said, "our autumns are not long enough, nor warm and dry enough to allow seed to become perfect out of doors." The seed inclosed was grown in the open air. Last summer I sowed a small quantity, and have got 30 plants about 2 feet high. The seed was sown and raised on a tan bed in June. Mr. Maule, of Bristol, who made and laid out this place in 1862, planted three small plants together; one proved to be a male, the other two females. In August 1863, they put up 11 fine spikes, four of which burst out on one morning. I observed fine pollen on another spike, such as I had not seen before; this I shook over the four just mentioned, and the result, without any further care, was the seed of which I send you a portion. The plants have never had protection at any time, though growing in cold stiff yellow clay; nor have they ever received any manure. They are now in fine bloom. *R. D., Bridgewater.* [This seed appears good. Both Bridgewater and the Isle of Wight (see p. 1085), however possess considerable climatal advantages.]

Gardeners a Century and a Quarter ago.—I have been looking over an old book called "New Principles of Gardening," by Batty Langley, published 1739, second edition. In that I find a long story about French Beans, which I will send you if Mr. Darwin wishes it. At present I have made the following extract, on quite another subject, which applies to the present time nearly as much as to that of Batty Langley himself. At all events it has amused me very much. It runs thus:—"I cannot well conclude this section without taking notice of the great happiness a gentleman possesses when he is so well fixed with a skilful industrious gardener, by whose judgment and care he is daily enjoying the pleasures and advantages of the best fruits, herbs, sallets, &c., in the greatest perfection, which recompence is all as can be received for the expences and labours thereof. And on the other hand, how unhappy it is for a gentleman to have an

unskilful person, descended from the tail of a coach, stable, &c., who taking upon him first a blew apron, and then the name of a gardener, assumes the government of choice trees, committed to his care because he has been much acquainted with cleaning knives, sweeping stables, &c., which he thinks are necessary towards their pruning, as well as making hotbeds, &c., without considering that those trees and plants were obtained with much labour, long time, and great expense, which, by his unskilful hand shall, in one or two years' time, be totally ruined, to the great loss of his master, and his eternal shame. I say where misfortunes of this nature happen, which is too frequent, it is a very great loss and disappointment, and a crime unpardonable; and therefore I cannot but take the liberty to say that a good gardener deserves a much greater respect and encouragement than that of stewards, butlers, &c., who oftentimes undeservedly possess a much larger share thereof." *J. Miller, Nurseries, Speen, Newbury.*

Rose Judging.—In my article on this subject (see p. 1059), I believe that I destroyed the force of the word "nearly," by adding that the prize might be given either way. I however thank "W. H., Hackney," for calling my attention to it. If a box is only "nearly" as good as another, of course it is inferior, and the two cannot be equal. I withdraw the word "nearly." It is only where two boxes of Roses are so equal that you cannot decide which is best, that you should place them "equal." I have had letters of thanks for my remarks on the subject. "W. H." will be in great favour with young ladies: but I advise him for awhile to steer clear of the "old ones." I remember observing to an old friend that "all flesh is Grass:" to which he replied "yes, yes, and old women are hay!" I advise "W. H." to stick to the Grass without offending the hay! To his other remarks I quite consent. *W. F. Radclyffe.*——Mr. Radclyffe is, I believe, quite correct in stating that the prizes at our metropolitan Rose Shows are as a rule awarded to the best stands of flowers. There was, however, one marked exception to this rule at the Crystal Palace Show last June. There the first prize was given in the class for 18 blooms shown by amateurs to one of the worst boxes of Roses in the whole class. I heard but one opinion expressed as to this award, viz. that it was altogether a mistake. There were 10 or 12 stands shown in the class, and I am certain that if they had been correctly judged, the box in question would not have received even a commendation. *P.B.R.*

Small Birds.—Owing to the dry character of the past summer it has been almost impossible to keep fruit from birds, especially in gardens near shrubberies and plantations. My employer being a strict preserver of them, they have multiplied lately with us to a great extent, and most kinds of culinary seeds and fruits have to be netted over, no expense being spared for that purpose. Some gardeners however have not the same means at command, and therefore if not constantly watching and shooting these depredators, damage is sustained. In order to show how daring birds are when short of their natural food, I will just record one instance which came under my notice this summer. Having sown some beds of early Cabbage seed one day in July, they were netted over, the nets being pegged close to the ground, and the beds well watered. Next morning there were found seven thrushes, three blackbirds, and a partridge, all of which had wriggled under the nets and had got fast. No doubt the damp beds had tempted them, especially the thrushes and blackbirds, to search for worms and grubs. Blackbirds and thrushes here will even get to Cherries through nets, unless the latter are held a good way off the wall by means of pegs or stays. A great deal of sentiment has lately been expended on the too great destruction of small birds, but in country places where they multiply fast, I think the best and safest way is to keep them within bounds. It is paying too dear for "their whistle" to have to go to the expense of always watching or netting the produce of our gardens and orchards in order to secure it. *W. T.*

Habitats of Orchids.—I regret that "R. H." (p. 1061) has not mentioned the part of Jamaica in which his researches were made. During my own residence in the parishes of Westmoreland and St. Elizabeth's, on the south side of the island, toward the western extremity, I, too, made some careful observations on the distribution of the Orchideæ, which I have recorded in "A Naturalist's Sojourn in Jamaica," pp. 481—489, *et passim*. In that locality many other species are common in the lowlands besides those "R. H." mentions, coming down to the very beach of the Caribbean Sea. Of these, Broughtonia sanguinea, Oncidium luridum (erroneously named O. carthaginense in my work above referred to), and Brasavola nodosa are by far the most abundant. The Broughtonia is found profusely on the stipes of a dwarf Fan-Palm (a species of Thrinax), in Crabpond Morass, a fœtid swamp, which actually margins the sea, and is often overflowed by it. The Palms constitute a close grove, scarcely exceeding 6 or 8 feet in height, and the dense tufts of Orchid bulbs cling to the stems, and throw out their elegantly pendent crimson racemes at about 4 feet from the ground. Here they are exposed to the full blaze of the sun; while all along that portion of the great sea-side road which leads from Bluefields to the Paradise River, the same species is continually detected far above our head, near the summits of the towering Figs and Silk-cotton trees, 100 feet and upwards beyond reach. Here again its elevation throws it fully into the glare of the sun. It is, moreover, often seen on the Calabash, the Hog Plum, and other moderate-sized trees in the open pastures of the lowland pens, and on the slopes of the secondary hills; but like "R. H.," I do not remember ever to have seen Broughtonia sanguinea in the mountain regions,—perhaps not more than 500 feet above the sea. With respect to the colour of this flower in cultivation, I may say that I have flowered it during this summer, and found it of the same lovely crimson hue as I had been familiar with in its wild state, and as compared with a carefully finished painting of a clump that I had made from Nature in Jamaica. I grew my specimen near the glass. I take this opportunity of noticing a curious peculiarity in my specimen of this charming Orchid. One of the spikes, having continued in bloom from May 30th to Aug. 26th, ceased, the last flower withering. But a few days after a new bud was seen pushing from about the middle of the old naked flower-stalk, which I had omitted to cut off; this rapidly developed a new subspike or branch of blossom, which continued from Sept. 16th to Oct. 20th. I have read that Phalænopsis will flower again from the old peduncle, but I have not seen it do so. To return, however, to Jamaica. The Oncidium luridum chiefly affects the main forks of middling-sized trees, as Crescentia, Citharexylon, Spondias, &c., that fringe the high-road and the open pastures. It seems to exercise very little selection of trees, the angle of a stout limb some 15 or 20 feet from the ground, of almost any species, serving its purpose. But it certainly is found mainly on the sun-facing side of the road, and in other situations, with no more shade than the foliage of its own tree affords. It is very abundant, and its large massive leaves render the clumps conspicuous at all times; but specially striking are they, when all at once, in the first week of April, the traveller to Savannah le Mar sees the wide and long straggling spikes some 8 or 10 feet long, from every tuft, which hitherto had been scarcely noticeable, burst into yellow and brown blossom, dangling in his face and brushing him as he rides along beneath the arching trees. Brasavola nodosa (or cordata, for I think they are but one species), more abundant than either, is the frequent companion of Broughtonia, and manifests the like indifference to the particular altitude of its site; any point of a tree-trunk, from 5 to 100 feet, suiting it equally well. It, too, loves the sun, but less exclusively, for it frequently occurs in tall woods; but not in humid, steamy woods, nor in mountainous districts. An Ionopsis (probably pallida, or utricularioides) sprawls about the hedges of Logwood that constitute the fences of much of the lowland pasture land. The Logwood bears the very closest resemblance to our own Hawthorn, so that a yard or two off, where you lose the individual forms of the leaves you would scarcely know the difference; on the scraggy, slender, thorny twigs, all matted and intertwined, sits the Ionopsis, and occasionally a nest of the great-leafed Oncidium too, so that if you suppose these Orchids lying on the summit of a compact Thorn hedge, you may guess how much of shelter from a tropical sun they enjoy. Besides these, many smaller sorts of Oncidium, many of Epidendrum, and other genera even less conspicuous for beauty, grow on the limbs of trees more or less exposed to the sun in the very lowest levels of western Jamaica; while others, on the same levels, evidently retire from the sun. A species with large round flattened bulbs, which I cannot name, as I saw it not in flower, grows in abundance on the Alligator Apple trees (Anona palustris) of a dark morass that borders the shore at Cave, always in the deepest shadow. And the very curious Angræcum funale, with beautiful cream-white flowers, but no vestige of leaves, throws out its plexus of long cord-like white roots from a branch of some low tree over a stream, but dares not face the sun's scorching beams. A most lovely Ionopsis, flowering in a compact spike of the richest violet purple (probably the I. tenera, var. E of the Fol. Orch.), I found rather sparsely in a sombre humid forest about half-way up the mountains of St. Elizabeth's, presenting a strong contrast in its habitat with the sun-loving kind of the Logwood hedges; and showing how much we may sometimes err in predicating the requirements of a plant from knowing those of its congeners. When we attain the summits of the mountains, as the Bluefields Range, from 2500 to 3000 feet above the sea, we meet with a much greater variety of epiphytal Orchideæ. Some of these do grow on single trees in open glades, which are dry and sunny; but the majority are found on trees at the margins, or a little way within them, of the tall dense woods; and not a few occur in the perpetual shadow of the heart of the grand old forests. But of such as affect the margins of the woods, the climate is very different from that of the lowland, roadside, seashore-loving species. The air is never more than temperately warm; in January and February, during the bluster of those winds emphatically called "Norths," it is uncomfortably cold, falling to 50° or lower; and the air, even during the protracted droughts which parch up the lower regions, remains always moist, so that each morning the great flat leaves of the Aroideæ are loaded with sparkling accumulations of water, the condensation of the copious night vapours; and the lowly vegetation of the ground—the Mosses and Lycopods and Ferns—feel to the tread like a saturated sponge. Numbers of kinds of Epidendrum, Oncidium, Brassia, Maxillaria, and humbler genera, are found in such conditions; exposed to a good deal of light, occasionally receiving the sun's full rays, but constantly, or at least habitually, surrounded by saturated air. Fear of trespassing on your valuable space prevents me from entering into fuller details; but I have said enough to show how varied may be the natural conditions of Orchids collected even in an island so small as Jamaica; and how differently we should treat Oncidium luridum from O. triquetrum, Epidendrum cochleatum from E. nutans, Ionopsis utricularioides from I. tenera, if we strictly imitated their original habitats and habits. This strictness is probably unnecessary; but a more perfect acquaintance with the conditions of elevation; temperature (including the extremes, and the average at different seasons, as well as the mean); moisture and dryness, with their alternations or respective perpetuity; sunlight or shadow, and the degree of either; aspect, if any particular one is affected; average height from the ground and its range; choice of trees, if any, and the positions normally chosen; and many other particulars difficult to be prescribed, would be valuable; and might be attained, if your travelled correspondents would kindly communicate to your columns what they themselves know, avoiding that tendency to a too hasty generalisation from insufficient data, to which all of us are liable. *P. H. Gosse, F.R.S., Torquay.*

Foreign Correspondence.

Parisian Gardens and Improvements.—A correspondent writing from Nice on the 14th inst., in reference to the remarks on the improvements going on in the French capital, at p. 1057, says:—

"Baron Haussman, the Prefect of the Seine, is the genius and right hand of the Emperor in everything connected with the reconstruction of Paris. I recollect well some five years ago, on the occasion of the marriage of his eldest daughter, his telling me that at that time the octroi of Paris exceeded 130,000,000 of francs. This was just before the extensive suburbs of Paris were subjected to the octroi, and owing to the stupendous buildings and public works now in progress, and the consequent influx of all varieties of workpeople concerned in the building trade; to the increase of the population, and the fact that all classes live better and consume more than they did a few years ago—for these and other reasons too long to detail, I should be inclined to estimate the present revenue from the octroi at seven to eight millions sterling, or say between 175 and 200,000,000 francs. In the time of the Bourbons it was known to fall short of 60,000,000 of francs, and the Tobacco duty, which till 1830 contributed no more than 55,000,000 of francs, and in 1846, 95,000,000, has gradually increased, till now it almost equals the whole octroi of Paris.

"The thermometer here is 60° F., and we have Roses, Heliotropes, Pinks, Stocks, Passion-flowers of all kinds, Geraniums, &c., growing splendidly, and shall soon be surrounded with a blaze of flowers. One bed of Pansies, sown in July, is magnificent, and in full bloom. The Tuberoses are also in good flower; and the Bignonia jasminiflora, the Lantana Queen Victoria, and Heliotrope, some 15 to 20 feet high, cover our galleries, but the gardens here are in a most wild and primitive state. What wonders might be accomplished in such a climate with a little more care and attention bestowed upon the gardening!"

Societies.

Amalgamated Metropolitan Chrysanthemum.—This Society held its exhibition this year in the Agricultural Hall, Islington, which was tastefully decorated for the occasion by Mr. Crute, and contained, thanks to the exertions of Mr. Jefferies, a large assemblage of well-grown Chrysanthemums, both in pots and in a cut state.

In the Class of Six Large-flowered Plants (Nurserymen) the best plants came from Mr. Forsyth, Stoke Newington, who contributed Lady Hardinge, Golden Christine, Annie Salter, Alma, Arigena, and White Christine. Mr. Merry, Stamford Hill, had Abbé Passaglia, Golden Eagle, King of the Netherlands, Duchess of Buckingham, Talbot, and Golden Christine.

In the Class of Three Large-flowered Plants, Mr. Forsyth, who was the only exhibitor, sent finely-grown and well bloomed examples of Insigne, Vesta, and Chevalier Domage.

In the Class of Six Pompons Mr. Forsyth contributed excellent specimens of Salamon, Cedo Nulli and its Golden and Lilac varieties, Hélène and St. Thais. Three plants of Pompons shown by the same exhibitor consisted of Cedo Nulli and its Lilac and Golden varieties.

A group of plants shown for effect was set up with much taste by Mr. Forsyth. It consisted both of Pompon and Large-flowered varieties, the two being intermixed in such a way as to present a very pretty appearance. Several of the Pompons were in the form of Standards, which, when in good condition, as these were, produce a very effective contrast with their more humble associates. Cedo Nulli and its varieties appear to suit this mode of training admirably, as did also Florence and Andromeda.

In the classes set apart for Cut Blooms (Nurserymen) the contest for prizes was confined to Messrs. Forsyth, Merry, and Saltmarsh, in all of whose stands were

many remarkably fine flowers, consisting of most of the leading varieties at present in cultivation. Queen of England, Jardin des Plantes (one of the best yellows in existence), Novelty, White Globe, and others could not measure less than 6 inches in diameter, the petals broad and fleshy, overlaying each other with wonderful regularity. In short, people who have not had the good fortune to see Chrysanthemum Shows got up as they are about London, have no conception of the size and beauty which these flowers can be made to acquire in skilful hands.

In the Class of Six Large-flowered Plants (Gentlemen's Gardeners) the best came from Mr. D. Monk, who showed well-bloomed examples of Annie Salter, Beauté du Nord, Defiance, Golden Christine, Alma, and White Christine. From Mr. Ward came Prince Albert, Golden Christine, Defiance, Annie Salter, Alma, and Lady Hardinge. Mr. Glover, who was placed 3d in point of merit, had very pretty plants, which were remarkable for uniformity not only of the plant but also of the flowers. His varieties were Jewess, Vesta, Christine and its Golden variety, Chevalier Domage, and Maréchal Duroc. Mr. George sent Little Harry, Defiance, Golden Christine, Alma, Little Annie, and Beauté du Nord.

In the Class of Three Large-flowered Plants, the best came from Mr. D. Monk, who contributed fine examples of Golden Eagle, Annie Salter, and Sparkler. Mr. Glover sent Prince Albert, Dr. Maclean, and Alma. From Mr. Beecher came well-bloomed medium-sized plants of Sparkler, Alma, and Mrs. W. Holborn, the last a useful white kind. Mr. George had Jewess, Christine, and Insigne. Mr. Ward and Mr. Rowe contributed Alma, Christine and its Golden variety, Annie Salter, and Beauté du Nord.

In the Class of Six Plants of Pompons, the best exhibition came from Mr. Ward, who furnished finely bloomed examples of General Canrobert, Cedo Nulli and its Golden and Lilac varieties, and Andromeda. From Mr. Beecher, who was second in point of merit, came Cedo Nulli and its Golden and Lilac varieties, Salamon, Madame Rousselon, and Duruflet. Mr. Weston sent flatly-trained examples of Attila, Miss Julia, Cedo Nulli and its Golden variety, Hélène, and Adonis. From Mr. Glover and Mr. Butcher came Salamon, Brilliant, a handsome red kind in the way of Bob, Cedo Nulli and its varieties, all of which rank among the handsomest of Pompons, Duruflet, General Canrobert, and Miss Julia.

In the Class of Three Plants of Pompons, Mr. Ward showed the different varieties of Cedo Nulli. Mr. Beecher, whose plants were drawn to "a face," sent Duruflet, and two varieties of Cedo Nulli. Mr. Glover had Andromeda, Hélène, and General Canrobert.

Respecting groups of plants set up for effect by gentlemen's gardeners we have little to remark. They consisted for the most part of two lines, the first of which was Pompons, the second Large-flowered varieties —all well bloomed and finely grown. In these sets of plants contrast of colour appeared to have received attention; but they wanted a few standards introduced among them to furnish variety. The exhibitors in this class were Messrs. Howe, Glover Brown, and Monk.

Of Cut Blooms shown by the exhibitors just named and others, there was a large display, in which were representatives of most of the varieties of Chrysanthemums in cultivation. The different varieties of Christine, Lady Hardinge, Julie Lagravère, Her Majesty, Jardin des Plantes, Alarm, Alfred Salter, Anaxo, Beverley, Cassandra, Cassy, Cherub, Chevalier Domage, Yellow and White Formosum, General Slade, White Globe, Hermione, Novelty, Queen of England, Rifleman, Queen of Isles, Vesta, were conspicuous among large kinds. Among Pompons were examples of most of the different varieties named in the classes recorded above; and among small Anemone-flowered sorts we noticed Antonius, Queen of Anemones, Marguerite de Wildemar, Madame Carnac, Mr. Astie, Mr. Frederick Smee, Perle, and Golden Drop. The white seedling named Princess Dagmar, from Mr. George, promises to be a fine addition to this class.

Amateurs' Classes were not so well supported as those in other departments of the Show. The productions contributed by Messrs. Parker, Bolton, Horwood, Hillary, Slade, James, Robinson, Moxham, Delvalle, and others however, did these enthusiastic cultivators credit, as did also the fine blooms of Queen of England, Prince Alfred, Jardin des Plantes, Princess Royal, and White Formosum, shown in the classes for plants grown in the parish of Islington, by Mr. Orson and Mr. Crute. The plants themselves, however, were of so tall and lanky a description as to be useful only when intermixed with others which would hide their naked stems.

Specimen Plants were in beautiful condition, and very effective. Among large-flowered kinds the best came from Messrs. Forsyth, Monk, and Glover; the best Pompons from Messrs. Bolton, Parker, and Ward. The varieties consisted of Christine and Sparkler among large kinds, and the different varieties of Cedo Nulli among small sorts.

Pompons trained in the shape of pyramids were shown in considerable numbers, and as objects of decoration they were exceedingly pretty. They were in 8-inch pots, stood nearly 3 feet in height, could scarcely measure more than a foot in width at the base, and being well flowered, were highly effective, more so even than standards. They came from Mr. Beecher and Mr. George, and were certainly good examples of skilful management.

Prizes offered by Mr. Salter for Prince Alfred and General Bainbridge induced Mr. Howe and others to furnish good blooms of these two fine kinds, and Mr. Alfred Smee's prize for Chrysanthemums mixed with Ivy, Fern leaves, and other foliage in glass stands for dinner-table decoration, elicited two fine exhibitions in that way—the first from Mr. Hill, the second from Mr. George.

We also noticed a charming little display of fine-foliaged plants in ornamental pots from Mr. Williams, of Holloway.

STOKE NEWINGTON CHRYSANTHEMUM.—The annual exhibition of this Society was held a few days ago in the Tabernacle, Kingsland Road, and was altogether highly successful. The display of specimen plants and cut blooms was even better than in former years.

For Six Plants, Mr. Ward was first, with Prince Albert, Golden Christine, Defiance, Annie Salter, Alma, and Lady Hardinge. Mr. George sent fine plants of Alma, Jewess, Little Harry, and Defiance. Mr. Forsyth furnished Vesta, Annie Salter, Lady Harding, and others.

In the Class of Three Plants, Mr. Howe had Vesta, large and fine; Riflemane, and Lady Harding. Mr. Forsyth sent Prince Albert in excellent condition.

In the Class of Six Pompons in 8-inch pots, Mr. Ward showed Salamon, General Canrobert, and Duruflet. Mr. Forsyth had, among others, fine specimens of Cedo Nulli, its Lilac variety, and Duruflet.

In the Class of Three Pyramid Pompons, Mr. Butcher sent good plants of Cedo Nulli, Andromeda, and General Canrobert; from Mr. George and Mr. Ward came Duruflet, General Canrobert, Cedo Nulli, and others.

In Collections, Mr. Howe showed Prince Alfred, large and fine, White Globe, at least 4 inches across, and beautifully incurved, also Lord Ranelagh, Lady Hardinge, Antonelli, Annie Salter, and Alma. Mr. Forsyth had Beverley, Chevalier Domage, and others; and among Pompons, Golden Circle, and Cedo Nulli in the form of a Standard.

Among Cut Blooms the following were remarkably fine, viz.:—Queen of England, Lady St. Clair, White Globe, Lady Harding, Themis, Princess of Wales, Prince Alfred, Jardin des Plantes, Beverley, Nil Desperandum, and others. Mr. Butt had a nice stand of Anemone-flowered varieties, and good stands of 36 Anemone Pompons came from Mr. Ward and Mr. James. Mr. George had a First-class Certificate for a seedling called Princess Dagmar, blush white with a full centre. Several extra prizes were offered by members of the Society to winners in certain classes; three by Mr. Salter, for blooms of Princess of Wales, and three for Robert James; three by Messrs. James and Howe for Robert James; and one by Mr. Snare for Jardin des Plantes. The last, from Mr. Cornwall, Kingsland, were of large size, and otherwise in very fine condition.

LINNEAN: *Nov.* 3.—G. Bentham, Esq., President, in the chair. H. Stevenson, Esq., was elected a Fellow. The following communications were read:—1. *Letters from Sir H. Barkly, K.C.B., Governor of the Mauritius, and from Swinburne Ward, Esq., Civil Commissioner,* in reply to the memorial of the Linnean Society, relative to the wanton destruction of the Coco de Mer, Lodoicea seychellarum. The Commissioner had reported to his Excellency that although in many parts where the Palm abounded, it has been destroyed by accidental conflagration and by ruthlessly cutting it down to make room for Mandioc cultivation, yet that on the southern point of the Island of Praslin he had found a valley surrounded by hills on the property of Mr. Campbell, the sides and crests of which were covered with the Lodoicea, several hundred in number, and in all stages of growth, from the sharp sword-shaped spathe just shooting from the ground, to trees of 120 feet high. He ascertained that though no nuts were planted, some were allowed to remain and take root where they fell. The leaves of the male plants are cut for the sake of the material they afford, and which is used for making hats and baskets, but those of the male only, which preponderates over the female, are so cut. Cutting the leaves prevents the blossoming of the trees, but inaccessible specimens which flower undisturbed are quite sufficient to fecundate all the female plants in the district. In Curieuse comparatively few trees were found, and these, smaller than those of Praslin, but directions have been given to keep up the supply by planting germinating nuts—in fact to plant all the germinating nuts that can be found. A Coco de Mer with a healthy germ a foot long had been forwarded to Kew. The Governor stated that as Praslin is almost entirely private property, the Government could only interfere in the way of exhortation and remonstrance, but that in Curieuse, which is still vested in the Crown, and used for a purpose which renders it inaccessible to the public, he trusted there would be no danger, under any circumstances, of the extinction of this interesting species.——2. *Observations on some Orchids of the South of Europe,* by J. T. Moggridge, Esq., communicated by the President. The Orchis longibracteata was said to be fertilised by Xylocopa violacea, a specimen of which the author had seen taken bearing the pollinia of this plant on its forehead, and, he added, "I have myself seen O. longibracteata visited by several species of hymenopterous and dipterous insects." At Mentone the author had never seen any tendency to self-fertilization in Ophrys Scolopax, a species closely analogous to O. arachnitis, but all the spikes of a large bundle sent to him from Cannes were so without exception. This material difference was stated to be accomplished by a very slight bend in the anther cells, which were prolonged into a beak of variable length in the case of the self-fertilising blossoms. It was mentioned as a remarkable coincidence, that at Mentone the Bee Ophrys is scarce, and at Cannes very abundant. So that, observed the author, within 30 miles of one another we have one spot where self-fertilisation is in full action, and another where it appears to be unknown.——3. *Notes on the Chatham Islands;* by H. H. Travers, Esq., in a letter to his father, W. F. L. Travers, Esq. Mr. Travers visited Chatham Island in October last. At Waitangi, the chief Maori settlement, he found a chapel of the Church of England natives, the inside walls of which were lined with fronds of Tree Ferns, from which the pinnules had been stripped, interwoven in a curious manner with leaves of Phormium tenax. The Maories cultivate large quantities of Potatos, Maize, Pumpkins, and Onions, which they supply to American whaling ships, and occasionally export to New Zealand. They did not appear to cultivate any European fruit, but they use largely that of a small species of Nightshade, indigenous to New Zealand, which they had introduced to the Chathams. The bush consisted principally of Eurybias, Coprosmas, Dracophyllum, Solanum, &c., along with several Tree Ferns, among which large numbers of Cyathea dealbata were seen. There were also a Lomaria near discolor, Phymatodes Billardieri and pustulata, and several others common in the bush in New Zealand. On the beach the Myosotidium nobile grew with rank luxuriance wherever it had not been invaded by the pigs, which feed eagerly on the roots. The Maories dry the leaves and smoke them as a substitute for Tobacco. On a sandy tract between Wangaroa and Tubong were large quantities of a small, but beautiful shrub, apparently belonging to the genus Leucopogon. The low country is covered with Grasses and Sedges, mixed with Pteris esculenta, and with here and there occasional patches of Phormium tenax. The general surface of Chatham Island, to the north of Petre Bay, is low and slightly undulating, with occasional hills; the peninsula to the south of Petre Bay is more hilly. The soil is peaty, and often 50 feet deep. In several parts of the island this peat has been on fire for years, burning at a considerable depth below the surface, which when sufficiently undermined, caves in and is consumed. The surface growth, exclusive of bush, consists principally of Grasses and Sedges, with patches of Fern. Several introduced plants are spreading rapidly, for example White Clover, English Daisy, Dock, Mustard, English Burr (which grows with the utmost rankness in the bush on Pitt's Island), the Polygonum found on Canterbury plains, Wild Strawberry, and others. Indeed, from the luxuriance and rapidity with which these plants grow, Mr. Travers had little doubt that if not checked they would soon overcome and replace the indigenous herbaceous vegetation. —— 4. *On the genera Sweetia of Sprengel and Glycine of Linnæus, simultaneously published under the name of Leptolobium.* By G. Bentham, Esq., President. Under the name Leptolobium, Dr. Vogel published a genus of Leguminosæ, which seemed to form the connecting link between Papilionaceæ and Cæsalpiniæ; while Mr. Bentham had described in the same year, under the same name, a plant which had before been commonly referred to Kennedya. The latter was changed to Leptocyamus, but it now turns out that neither one nor the other are tenable; for the former proves to be reducible to Sweetia, and the latter to Glycine. —— 5. *A Brief Account of the Myrmica Kirbii, as found in Southern India;* also 6. *Account of a Heronry and Breeding Place of other Water Birds in Southern India,* both by Dr. Shortt. ——It was announced that the third and concluding Part of Vol. 24 of the Society's Transactions was ready for distribution.

ROYAL.—The President and Council have caused the following balloting list for the election which takes place on November 30, to be circulated amongst the Fellows. The persons they recommend for election are the following:—*President:* Major-General E. Sabine, R.A. *Treasurer:* W. A. Miller, M.D. *Secretaries:* W. Sharpey, M.D.; G. G. Stokes, Esq., M.A. *Foreign Secretary:* Prof. W. H. Miller, M.A. *Other Members of Council:* *Prof. J. C. Adams, M.A.; J. Alderson, M.D.; G. Busk, Esq., Sec. L.S.; Colonel Sir G. Everest, C.B.; H. Falconer, M.A., M.D.; *J. P. Gassiot, Esq.; *J. E. Gray, Ph.D.; *T. A. Hirst, Ph.D.; *Sir H. Holland, Bart., M.D.; H. Bence Jones, M.A., M.D.; *Sir R. I. Murchison, K.C.B.; *W. Odling, M.B.; Prof. W. Pole, C.E.; *Rev. B. Price, M.A.; *Sir J. Rennie, Knt.; *The Lord Stanley. The Fellows whose names are marked with an asterisk were not members of the last Council. Here is a good example which other Societies might follow with much advantage.

Notices of Books.

Goethe's Essay on the Metamorphosis of Plants. Translated by Emily M. Cox; with Explanatory Notes by Maxwell T. Masters, M.D., F.L.S. 8vo, pp. 34. Reprinted from the Journal of Botany, December, 1863.

So much has been said about Goethe's merits as the discoverer of the doctrine of the conversion of leaves into the several parts of which the flower and fruit are composed, and so few have ever met with his treatise, that a faithful translation of it, especially when accompanied by explanatory notes and illustrations, of which it stands so much in need, is quite a boon to botanists who care to look a little beneath the surface. It is unfortunate that the essay was originally published without illustrations, and that besides the unhappy use of the word transformation instead of modification, there is so much of fanciful theory mixed up with accurate observation and legitimate deduction from indisputable facts, as these circumstances combined prevented in all probability the general acceptance of the justice of his views for some years, and in consequence retarded science. "An edition," says Dr. Masters, in one of his instructive notes, "of Goethe's papers on Natural History was published at Paris in 1837, by Dr. C. F. Martius, accompanied by an atlas containing the author's original drawings, as well as three by Turpin, with notes illustrative of the metamorphosis—thus carrying out a wish expressed by Goethe in a paper entitled "Wirkung dieser Schrift und weiterer Entfaltung der darin vorgetragenen Idee," 1830. (The working of this doctrine, and the further development of its leading idea.) Dr. Masters has himself accompanied the memoir with a plate containing a few well selected examples.

Goethe does not profess to be the prime mover in this doctrine. Linnæus, and more especially Wolff, in his Theory of Generation, anticipated him in some respects. The views of the latter were in many respects so just and sagacious that they accord wonderfully with the teachings of modern physiologists, while those of Linnæus were impeded by his theory of the part which the bark wood and pith, bore in the development of leaves, flowers, and fruit. Goethe had the merit of working out the subject as thoroughly as perhaps was possible in the existent state of science, and he is not to be blamed if in a few instances he was wrong, where science itself was imperfect. In such cases Dr. Masters has not failed to show what the right doctrine is, while Goethe's notions of the action of spiral vessels in the formation of organs, and the effect of pure fluids and gases fall to the ground, as being the creatures merely of his own imagination, and not resting at all on facts.

No Journal perhaps contains more important materials for the establishment of this doctrine than our own, as we have never lost a fitting opportunity of giving illustrations of such anomalous developments in flowers as serve to illustrate the doctrine that sepals, petals, stamens, pistils, and ovules are all, in whole or in part, modifications of leaves. In some cases it seems quite clear that we must take the axis also into account, as also perhaps in the case of ovules. Though it is quite clear from such examples as the common one of the White Clover, that the outer coat at least is foliaceous in its origin, it is very probable that the central part, from which the embryo sac is developed, is derived from the axis of the ovular bud. Whether, however, ovules be regarded as buds or not, this may equally hold good. The exact relations, indeed, of the different parts of which the ovule is composed in different plants are not at present clearly established. At any rate the embryo itself is an entirely new growth, with the poles of its axis in the first instance precisely contrary to those of the parent, at least in phænogamous plants, though this apparently is not the case in the higher Cryptogams.

It may be well for the information of those who would like to ascertain what the steps were by which the doctrine advanced, up to the time when Goethe took it up, to state, that Dr. Masters has supplied the requisite materials in an article entitled "Vegetable Morphology, its History and Present Condition," in the British and Foreign Medico-Chirurgical Review for January, 1862.

Contributions to the Knowledge of Spermatozoids in the Vegetable Kingdom. By Dr. Hermann Schacht. Berlin. 1864. 8vo, pp. 54. Tab. lith. 8.*

It is scarcely possible to overstate the importance of the subject to which Dr. Schacht has devoted this treatise. The discovery of organisms in the vegetable kingdom so closely resembling in many respects the minute bodies by which impregnation is effected in animals, was at first so startling that their analogy was scarcely allowed, much less their identity; and a sort of compromise was made by naming the vegetable organisms spermatozoids, while those of animals were called spermatozoa. We see however no valid reason for the difference, and the more so because no one in the present day believes that they are really animals allied to infusoria.

Dr. Schacht has with great expense of time and labour investigated these bodies in the vegetable kingdom so far as the higher Cryptogams are concerned, but his researches do not seem to have been extended equally to the lower Cryptogams.

It would be quite out of place in this Journal to enter into any details as to minute differences in their development. We must rather content ourselves with giving a portion of the results at which the author has arrived.

Spermatozoids are formed within mother cells, from which they at length become free, and consist of two parts, a soft variously-shaped body, furnished with two or more lash-like appendages, by means of which they move about with greater or less rapidity in water. They have the nature of cells, but are not surrounded by a covering of cellulose, nor in general do they possess any nucleus.

In Algæ the body is subglobose or subelliptic, bearing two or more cilia at some definite point. In Ferns and pseudo-Ferns, the body forms a flat spiral riband, attenuated at one end, and bearing there on one side a row of cilia. In Charads, Hepaticæ, and Mosses the body is much elongated, at first wrapped up spirally within the mother cell, and bearing at the extremity two long cilia.

We may then distinguish three typical forms of Spermatozoids in Cryptogams:—First, that of Algæ; secondly, that of Ferns and pseudo-Ferns; thirdly, that of Charads; and there exists, moreover, with respect to the germination and growth of the sexual organs, an intimate relation between the families which belong to each type.

In the Algæ we have the simplest sexual organs, and a direct germination. With the type of Ferns and pseudo-Ferns, on the contrary, we have the development of complicated sexual organs and a pro-embryo, or, if we include Lycopods and Rhizocarps, the growth of the female apparatus on the pro-embryo. Finally, with the type of Charads (including Hepaticæ and Mosses), we have similarly-constructed sexual organs on the fully developed plants; no direct germination, however, follows, but rather the formation of a pro-embryo from the spore, on which a knot is developed, from which the young plant springs. The Charad type is just intermediate between that of Algæ and Equiseta.

Spermatozoids closely resemble the zoospores of some Algæ and Fungi, but exact as the resemblance sometimes is, they differ in function, and in the impossibility of their being developed by germination into new individuals, as they never acquire a coating of cellulose. They are essentially short-lived organisms. The swarming cells of Algæ at length acquire an envelope of cellulose, which makes them far less transitory, and these give rise to new individuals.

* Die Spermatozoiden im Pflanzenreich ein Beitrag zur Kenntniss derselben von Hermann Schacht.

Garden Memoranda.

Witley Court, Worcestershire, the Seat of the Right Hon. the Earl of Dudley.—Among first-class garden establishments, this stands in the first rank. It is situate within nine miles of Worcester. The mansion, a princely building, apparently of Bath stone, with noble porticos and flights of stone stairs on three fronts, stands in the centre of a fine park well filled with deer, beautifully wooded, and enriched with that charming inequality of surface which might be looked for in a locality within sight of the Malvern Hills. The flooring under the porticos just alluded to, consists of polished marble of different colours and patterns, flights of steps, some 30 yards in width, leading to a beautiful turf-covered terrace, supported by a stone-faced wall 4½ feet in height, and traversed by a gravel walk 16 feet in width.

Attached to the mansion is a beautiful conservatory 90 feet in length and 60 feet in width, with upright sides some 20 feet in height, ornamented by handsome Corinthian pillars surmounted by a curvilinear roof of iron and glass. Trained against the back wall of this house are Camellias, Orange trees, and other attractive fine-leaved plants. In the beds is a rich and luxuriant vegetation, from among which rise stately Tree Ferns, Araucarias and Camellias, set off at the more prominent points with the red-coloured Coleus Verschaffeltii, Dasylirion serratifolium and other plants of an equally ornamental kind. Surrounding the beds, which are edged with dressed stone, are marble-paved pathways 7 feet in width, and in the centre is a small Convolvulus fountain and basin, which when playing has a beautiful effect, reflected as it is by a noble mirror placed in the back wall.

The flower garden stretches out in front of two sides of the mansion, and is cut off from the deer park by means of a neat balustraded wall enclosing some 8 acres of dress ground, circular in outline, and laid out with that taste and skill for which its designer, Mr. Nesfield, is distinguished. This garden occupies two sides of a valley, at the lowest level of which is an irregular oval-shaped piece of water, furnished with magnificent fountains, the main jet of which when in full operation rises to a height of 145 feet. The central design consists of Perseus and Andromeda, the former on horseback destroying some sea monster, from which the latter, chained to a rock, is apprehensive of danger. Cupids seated on dolphins at either end of the basin, throwing water towards the central group, together with other aquatic contrivances, all make up a series of water works unequalled of their kind. Another fountain, equally classic in design and effective in action, is placed so as to form a striking object looked at from another side of the mansion, and the two together, when in full play, throw out per minute no fewer than 12,000 gallons of water.

Entrance to the flower garden from the park is effected through richly gilt iron gates, as well as from the conservatory, which can be entered from the mansion without going out of doors. In a warm corner at one end of the conservatory is a series of neat flower beds, which are kept gay in summer with ordinary bedding plants, and in spring with bulbs, of which there is in this spot always an admirable display, the reflection from surrounding walls favouring their perfect development. Two colossal lions, chiselled out of huge blocks of white marble, guard the flight of steps by which the ornamental ground properly so called is reached from the terrace on which the mansion stands, and on the gently sloping declivity between this and the fountains in the hollow are fine masses of Rhododendrons, that give breadth and character to this part of the garden. On the corresponding slope on the opposite side are prettily designed beds on gravel, intermixed with Box embroidery work, which, viewed from the windows of the mansion, have a rich and pleasing appearance. A walk led round the entire garden, within a few feet of the boundary wall, passes in its course through two neat temples, one on each side of the grounds, furnished with seats and lighted at top through amber-coloured glass. The two temples just named are joined together by means of a straight grass walk, along the sides of which is a variety of small beds, surrounded by Box and gravel, neat and elegant in design. Irish Yews, pyramidal Box trees, standard Laurustinus, Roses, and plants of that description planted here and there in suitable positions, form appropriate ornaments in highly kept geometrically laid out grounds of this kind.

Another division of this garden, separated from that just alluded to by a noble terrace walk, contains an elaborate design laid down in Box and different coloured gravels, the whole in a sunken panel and substantially edged with stone. Among the embroidery work in Box are introduced bulbs in spring and bedding plants in summer. Choice Conifers are dotted about in the neighbourhood of this garden, as are also masses of Rhododendrons and hardy Azaleas, the latter surrounded by belts of Berberis Aquifolium, which, when in flower, look at a distance not unlike an edging of gold, and its glossy evergreen leaves also serve to give these otherwise rather naked looking beds a warm and comfortable aspect during winter. Vases and tazzas, brilliant with flowers, occupy prominent and effective positions in this garden, on the N.E. side of which is a deep thickly-wooded glen, through which the main approach to the mansion passes. Water, well stocked with fish, plays an important part in this woodland scenery, and also all along that side of the park next the carriage drive, where, in the form of a series of lakes, it has a fine effect, especially when viewed from the upper windows of the house.

Among Conifers planted as specimens we noticed a beautiful Wellingtonia, some 12 feet in height, with a wonderfully compact cone-like appearance; fine examples of Abies nobilis, Nordmanniana, Pinsapo, and other equally valuable varieties. A. cephalonica was also growing here, but its appearance plainly indicated that it was too tender to withstand spring frosts.

Among bedding plants Mrs. Pollock is a favourite Pelargonium, here as elsewhere, on account of its handsome foliage, as are also Golden Chain, Alma, and Mrs. Lenox; among other Pelargoniums we noticed Stella, a nosegay sort, which stands the weather well both in beds and vases, Trentham Rose, Tom Thumb, and Cerise Unique. Yellow Calceolarias were abundant, as was also Lobelia speciosa, which forms a fine edging next the light grey stone of the vases and of raised beds withheld by it. Gazania splendens makes a showy and excellent late bed. Among Dahlias were Crystal Palace Scarlet, Golden Ball, and Alba Floribunda, all dwarf free flowering sorts.

The kitchen gardens are worn out, and new ones, in a style commensurate with the grandeur of so fine an establishment, are about to be formed. Indeed, some of the brickwork connected with new ranges of glass houses is already up. Young Lettuces planted out in borders here are suffering greatly from the attacks of the surface caterpillar of a moth called Agrotis segetum, which this season has been exceedingly destructive to Turnips and other root crops throughout the country. Unfortunately we know of no more effectual remedy for it than handpicking—a tedious task, and at best something like "locking the door when the steed is stolen," inasmuch as the real guide to the whereabouts of the pest is the decay of the plant.

In the park and pleasure grounds are many noble specimens of Beech trees, some of which, broken and time-worn, have a highly picturesque appearance. On a few, unfortunately dying, we observed a cottony production, usually referred to Fungi, and sometimes called Psilonia nivea. It is, however, undoubtedly the work of an insect. We have seen it on healthy trees; but it probably destroys them sooner or later. The only remedy with which we are acquainted, is brushing the cottony substance off and rubbing the parts affected with a mixture of tar and grease. This, however, would be an expensive and tedious matter with trees of the size of those under notice.

The country around Witley is exceedingly beautiful

especially in autumn, when the Apple Orchards are red with ripe fruit to be used in cider making. On some farms as many as 500 hogsheads of this beverage are made in one season. Wood-clad hill tops rise up from among fertile fields and deep ravines, and the parish church, in connection with the mansion of Witley, adds to the interest of this fine place.

The management of the gardens and dress grounds under Mr. Lauder was all that could possibly be desired; the turf was in admirable condition, the walks scrupulously clean and well rolled, the flowers brilliant, the different shrubs planted out as specimens neat and trim without stiffness or formality, and the kitchen department so arranged as to meet the extensive demands that are daily made on it. In short, we found everything conducted so as to verify the old proverb that "the best goods are the cheapest."

Miscellaneous.

Royal Society's Medals.—The Copley, Royal, and Rumford medals have this year been awarded as follows:—Copley Medal—Mr. Charles Darwin, F.R.S., for his important researches in geology, zoology, and botanical physiology. Royal Medals—Mr. Jacob Lockhart Clarke, F.R.S., for his researches on the intimate structure of the spinal cord and brain, and on the development of the spinal cord; Mr. Warren De La Rue, F.R.S., for his observations on the total eclipse of the sun in 1860, and for his improvements in astronomical photography. Rumford Medal—Dr. John Tyndall, F.R.S., for his researches on the absorption and radiation of heat by gases and vapours. It is especially satisfactory to find the work of a philosopher, who, like Darwin, is not only the author of numerous monographs of the most varied as well as the most valuable description, but has revolutionised biology by the introduction of new fundamental conceptions, so early and so fully recognised by the Council of the Royal Society. *The Reader.*

Mr. Donald's Nursery Stock.—It will be seen by an advertisement in another column, that the valuable stock belonging to Mr. Donald, of the Goldworth Nurseries, Woking, is to be sold on Monday, Nov. 28, and following days, by Messrs. Protheroe & Morris. It is stated to consist of some thousands of fruit trees of all kinds, trained and standard; and an enormous quantity of evergreen shrubs, ornamental trees and Conifers, all of which are stated to be not inconveniently large and in good condition for moving. All who contemplate making new plantations, either for profit or ornament, should therefore embrace so favourable an opportunity of obtaining materials suitable for their purpose.

Trap-door Spider.—This spider, which comes from Corfu, makes a dwelling-place for himself by excavating in a sloping bank a circular hole about 3 inches in depth by one-third in diameter; this he lines with a silky web, and at the mouth of the hole he fixes, in a most artistic manner, a circular door with a hinge, composed of clay moistened with the glutinous substance of which the web is composed. This door he always shuts after going in or out. As soon as he finds a stranger at his door he secures it on the inside, possibly by holding it down with his claws, which are very powerful. It is necessary to use some force to open it. *R. F. Wright, at Meeting of British Association.*

Prolific Potatos.—Mr. Campbell, gardener at Colliston, dug from 1 yard of a drill of Potatos, containing three shaws, the enormous yield of 27 lb. One of the tubers weighed within half-an-ounce of 2 lb., and the united weight of 12 was 16 lb. The Potatos, which were of the sort called Paterson's Seedling Regents, got nothing but leaf-mould for manure. *Arbroath Guide.*

Calendar of Operations.

(*For the ensuing week.*)

THE rains which we are now experiencing will have the effect of softening the ground, left dry by the late hot summer and comparatively showerless autumn, and will enable all operations in the way of planting to be pushed forward under advantageous circumstances. Root pruning may also now be proceeded with. The principle upon which it rests, diminishing the supplies, is unquestionably correct, but the manner of applying it is in some instances that have come under our notice as unscientific as pruning Gooseberry trees with hedge-shears. In the cases just alluded to, a trench has been dug out within a short distance of the stem, and the whole of the roots, good, bad, and indifferent, cut off without distinction; the effects of this rude mutilation will doubtless have been made disagreeably apparent in many instances during the past summer. The same principle, however, carried out in a more efficient way has been productive of the very best results. In the case of wall trees, taking up and replanting generally gives them sufficient check. The strong downward growing and ill-placed roots can then be removed in proportion to the vigour of the trees, while those retained can be spread out in a proper position, that is, nearly horizontal. By this method (which also affords greater facilities for trenching, raising, or draining the border) a tree would suffer less, and yet be sufficiently checked to alter its habit; the roots being likewise brought to the surface and properly spread out, would be less liable to penetrate too deeply in the ground, which always tends to promote luxuriant growth and consequent barrenness. Old wall trees which, from their size, it is impracticable to transplant, we would root-prune; not, however, in the way alluded to above, but by undermining the roots and cutting off the lower and stronger ones only.

FLOWER GARDEN AND PLANT HOUSES.

Now that frost has left us, look carefully over half-hardy stock, and if any has not already received sufficient protection, let no time be lost in rendering it as secure as possible for the winter.

CLIMBERS.—Particular attention should be paid to ecuring as much light as possible in all structures containing plants; and where the rafters or roofs are used as trellises for climbers, the latter should be reduced within convenient bounds, as the growth of nearly all is or ought now to be completed. Late autumn-flowering sorts as yet unpruned, such as Mandevillas and Ipomœas, will now be sufficiently ripened for the purpose, but little more should be done after removing the changed leaves than to prune the weakest shoots; their final pruning should be deferred till March or April. If larger and stronger shoots are cut now, they are apt to commence growing, in spite of the moderate temperature, and thus expend the strength which ought to be reserved till spring. The shoots of Maurandyas should be considerably reduced in bulk, as they are affected by the slightest damp during winter. If any of the late growing Passion-flowers or other creepers impede the ingress of light, they should on this account be reduced; deferring, however, their final pruning until they are about to commence their new growth in spring.

FORCING PLANTS.—The free admission of light and air is indispensable to these, and especially the latter, in order that the plants may be kept moderately hardy, and thereby better enabled to bear moving about during cold weather.

PELARGONIUMS.—Give air whenever the weather will admit of it; but avoid cold draughts, and keep out frost. On the other hand, be careful, however, not to use too much fire-heat. Training and shifting must also receive attention.

FORCING GARDEN.

ASPARAGUS.—In forcing this for early use, guard particularly against too much heat in the bed, which would be sure to injure the roots. Upon the first indication of this give a good watering, and if the weather is at all favourable let the lights remain off. If these remedies do not answer, make holes in the sides of the bed with a pointed stake. Prepare materials for another bed for succession.

CUCUMBERS.—Give those growing in pits all the light possible by taking off the covering early in the morning when there is no frost, and keeping the glass clean. Be careful that red spider does not establish itself upon plants which may be in Pine stoves, where the drier atmosphere favours their increase.

PINES.—Do not allow cold weather to seal up the ventilators; the admission of air must, of course, be gradually reduced in accordance with the advancing season, but this is a very different matter to almost discontinuing it. Let water be very sparingly used during dull weather, but have an eye to those plants which stand near flues or hot-water pipes, as they are liable to get dry before their neighbours.

VINES.—In some instances houses from which the fruit is cut will by this time be converted into greenhouses; the Vines require to be kept cool and dry, and the plants want very nearly the same treatment; frost, however, must be carefully excluded. While the plants are in these temporary dormitories, particular care should be taken to keep them perfectly clean and free from insects of all descriptions, or these latter will leave broods behind them, which will be very troublesome another season. If possible, avoid putting plants into those houses in which the fruit is still hanging; but if it is necessary to do so, let them be of such kinds as require the smallest quantity of water during winter.

HARDY FRUIT AND KITCHEN GARDEN.

Examine fruit and root stores to see if all is in a state of good preservation. Trench and ridge all vacant ground.

CAULIFLOWERS.—These should be examined every three or four days, and those which have arrived at maturity, if not required for immediate use, should be lifted when dry, and after tying their leaves together, should be laid in by the heels in a sheltered situation, or hung up in an airy shed, where they will be protected from wet and frost.

PEAS AND BEANS.—Those who reside in favourable localities may now make a sowing of these vegetables for an early crop. The seeds should be sown on the leeward side of low ridges, the crowns of which will protect the young plants from cold winds, and the hollows between will aid in keeping the soil dry. Some chopped Furze, or other similar material, should be sown along with the seed, to prevent the depredations of mice. There is a chance, in warm dry localities, that these early sowings will produce good crops; but in medium or late situations the chance of success is very small. In the latter case there is less trouble, and more certainty, by sowing in boxes or turves early in spring, and planting them out with a slight shelter towards the end of March.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Nov. 16, 1864, as observed at the Horticultural Gardens

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 10	11	30.064	29.942	44	18	31.0	45	48	E.	.00
Friday 11	12	29.902	29.816	40	25	32.5	44	47½	E.	.00
Satur 12	13	29.806	29.679	46	30	38.0	44	46½	E.	.00
Sunday 13	○	29.379	28.813	54	40	47.0	44½	46½	S.W.	.09
Mon. 14	15	28.727	28.715	54	24	39.0	46	47	S.W.	.00
Tues. 15	16	28.905	28.727	48	39	43.5	46	47	N.E.	.01
Wed. 16	17	29.448	29.238	50	25	37.5	46	47½	E.	.00
Average.		29.446	29.282	48.1	28.7	38.3	45.1	47.1		.10

Nov. 10—Frosty; fine; thermometer lower at night than it has hitherto been this season.
— 11—Sharp frost, fine; overcast; frosty.
— 12—Foggy, hazy, overcast at night
— 13—Rain; barometer very low; rain at night.
— 14—Very clear, quite cloudless; barometer exceedingly low; frosty.
— 15—Dense fog; barometer still very low; foggy; drizzly.
— 16—Uniformly overcast; hazy and cold; fine at night.
Mean temperature of the week 2½ deg below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Nov. 26, 1864.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	48.8	34.8	41.8	13	0.35 in.	1	7	3	—	7	8	6	6
Mon. 21	49.4	35.5	42.9	23	0.41	4	5	4	3	5	11	4	2
Tues. 22	49.0	34.1	41.6	21	0.30	3	4	6	3	4	8	8	2
Wed. 23	47.2	34.4	40.3	16	0.36	1	6	3	2	5	12	8	3
Thurs. 24	47.3	32.4	39.9	12	0.61	5	8	3	2	6	8	2	5
Friday 25	46.3	33.5	39.9	19	0.34	3	4	7	3	7	8	3	3
Satur. 26	47.2	33.2	40.2	19	0.70	2	6	6	2	4	13	1	4

The highest temperature during the above period occurred on the 23d, 1853—therm. 33 deg.; and the lowest on the 23d, 1858—therm. 9 deg.

Notices to Correspondents.

AUBRIETIA HENDERSONI: *A C.* This is one of the most lovely of rock plants, and far in advance of the other Aubrietias commonly cultivated. The deep violet purple white-eyed flowers are very effective; the flowers are also better formed than those of the older kinds, and the habit appears to be closer or more tufted. We do not know its origin; perhaps some of our readers may be able to throw some light on this point.

AZALEAS: *R Pitt.* The best whites we know are Queen of Whites, Marie Vervaene, Reine Blanche, and Flag of Truce. The best striped whites, Flower of the Day, Madame Miellez, Tricolor, and Beauty of Reigate. For bright scarlets take Mars, rich orange scarlet; and Stella, orange-scarlet dashed with purple.

GRAPES: *T T H X.* Yours is certainly not a case of common shanking, nor do we consider your Grapes diseased. They have arrived at full maturity, and in the natural course of things are beginning to go off. It is probable that the richness of the soil, rather than any other cause, prevents their keeping so long as you would wish them. There is no tendency to mould, and therefore we suppose the house is properly ventilated.—*T J.* As your Vines ripen their wood and foliage early, you can scarcely expect your Grapes, which appear to be small though well flavoured, to hang so long as those which have come to perfect maturity at a later period. The mulching is rather in their favour, as, in all probability, the ground beneath is dry, and it is not desirable that there should be at the present moment too free a supply of water to the roots. Perhaps their being too dry in the summer has been the cause of the foliage ripening so soon. Your Grapes are a little mouldy, but the mould has perhaps grown since they were sent. *M J B.*

LARCH DISEASE: *J B.* After the most careful examination we can find no trace of an insect upon your Larch twigs. The affection appears to be a disease of the cellular tissue of the bark, very similar to one which sometimes takes place upon a large scale in the Scotch Fir. We shall hope to advert more fully to the subject before the end of the year. Meanwhile, would you kindly inform us whether the cankered spots appear on the trunk or larger branches, as well as the twigs, and whether the trees are in a plantation or nursery. *M J B.*

MEDLARS: *C R S.* The most recent explanation of the process of bletting is, that after vitality has ceased, certain chemical changes set in. Air enters the cells, and acts upon the sugar, causing alcoholic fermentation with disengagement of carbonic acid and formation of alcohol; and this is in turn acted on by the acids of the fruit and forms ether, to which the aroma is due. The air then attacks the cell itself, which becomes coloured yellow. See an article at p. 577.

NAMES OF FRUITS: Correspondents should not be unreasonable in their demands. We really cannot undertake to name whole baskets full of different fruits, and in future must make it a rule not to name more than six sorts whatever number may be sent.—*S B B.* 7, Scarlet Nonpareil; 18, Dutch Codlin; 35, Fearn's Pippin; 40, Thompson's. Several decayed.—*C M F.* From the sketch and description, perhaps the Louise Bonne.—*Philip Lang.* 1, 2, Thompson's; 3, Doyenné Gris; 6, Rouse Lench; 7, Glou Morceau; 8, Beurré Bosc; 9, La Fortunée de Parmentier; 12, Chaumontel.—*F C B.* 1, Cornish Aromatic; 2, 5, Blenheim Pippin; 3, Eastern Pippin.—*R W., Crofton.* B, King of the Pippins; C, London Pippin; E, Urbaniste; F, Brown Beurré.—*Wedgwood.* (Mostly decayed.) 1, Blenheim Pippin; 2, Sturmer Pippin; 3, Beurré d'Aremberg.—*T T H X.* 1, Ross Nonpareil; 2, Blenheim Pippin; 3, Herefordshire Pearmain; 4, a seedling (to be examined); 5, Rymer; 6, Golden Noble.—*T F.* 6, Court of Wick; 8, Herefordshire Pearmain; 10, Lemon Pippin; 12, Court Pendu Plat.—*X Y.* 2, Yorkshire Greening; 3, (worthless); 4, Winter Pearmain; 5, Autumn Pearmain; 6, Hollandbury.—*G H L.* 1, Blenheim Pippin; 2, Golden Reinette; 3, Fearn's Pippin.—*B J M.* Doyenné Blanc.—*G T.* Fine specimen of Beurré Clargeau.

NAMES OF PLANTS: *H Z.* Our rule is to name four plants at one time and no more. Your Ferns appear to be: 1, Gymnogramma peruviana; 3, Gymnogramma L'Herminieri; 2, a Polystichum, of the angulare group; 4, Polystichum vestitum pulcherrimum; but the scraps are insufficient for certain determination.—*T Davis.* Gnaphalium lanatum; it requires the same treatment as other half-hardy bedding plants. — *G B.* Lastrea Filix-mas. —*B W.* Callicarpa purpurea. — *W B.* 1, Nasturtium amphibium; 3, Senecio sylvatica; 4, Potamogeton crispum. We do not as yet recognise No. 2.

ORNITHOGALUM THYRSOIDES: *W P.* This fine Cape bulb is not new to gardens, but revived or reintroduced. You may not find the bulbs flower so finely the second year as the first after importation, but by careful cultivation of the leaves and thorough maturity, a very good bloom may be secured. This is indeed the secret of bulb growing—to take care of the leaves. The flowers will follow in due course.

ROYAL HORTICULTURAL SOCIETY'S PRIZES: *Inquirer, Clapham.* Apply to the Assistant Secretary, at South Kensington. We do not know when they will be distributed.

MISC.: *A Subscriber* will be glad if any one can furnish him with the address of Messrs. Adams & Co., Nurserymen, late of London Road, Gloucester.

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2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
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AWARDS MADE NOVEMBER 16.
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SECOND PRIZE for Pulled Roots of Swedes—Mr. George Palmer, Norcot Farm—SUTTON'S CHAMPION.

THE NATIONAL EXHIBITION of DOGS.—The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held in Paradise Street (near Bingley Hall), BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1, the week of the Cattle and Poultry Show.
For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

BINGLEY HALL, BIRMINGHAM.—The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and Dec. 1.
The Exhibitors and the Public will be admitted to Bingley Hall to WITNESS the JUDGING of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 26, at 9 o'Clock A.M., upon payment of 10*s.* each. There will be no admission to the Poultry Department until after the Judging is completed.
For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

The Agricultural Gazette.

SATURDAY, NOVEMBER 19, 1864.

THE sewage question seems to be on the point of a decision. The Sheffield magistrates are petitioning Government for a Bill to forbid the defilement of the rivers by the towns. The Main Drainage Committee of the Metropolitan Board of Works have been visiting Croydon, Rugby, Carlisle, and Edinburgh, and reported their observations to the Board last Tuesday. The Corporation of London have been informed by their Committee of the value of that "great estate" which Mr. THWAITES and his party, according to the *Times*, had gone north in search of—and their report, received last Saturday with great satisfaction, has been reported on by Messrs. NAPIER and HOPE, who are among the promoters of schemes for the utilisation of London sewage.

Let us look at the report to the Corporation and the comments which it has excited. At a special meeting of the Common Council last Saturday, this report, founded upon information given by Lord R. MONTAGU and Dr. BRADY, chairmen of recent committees of the House of Commons on this subject, was read. It declared that the sewage of the metropolis amounted to 266,052,440 tons per annum, containing ingredients which if extracted and dried would be equivalent to 212,842 tons of Peruvian guano, worth 2,899,972*l.* It quoted Lord ESSEX's experience at Cassiobury, Mr. MILES's experience at Kingsweston, and Mr. Alderman MECHI's experience at Tiptree, to show that in small quantities per acre, applied by hose and jet, the sewage will create an increased produce of all kinds of crops sufficient to yield a profit of 28*s.* per head of the population. And it declared, accordingly, that it is by careful and moderate dressings, applied by the hose and jet over large areas, and not by large applications flooded from open carriers over small areas, that the home supplies of food will be most increased by the utilisation of the metropolitan sewage, and that the farmers using that sewage will be best enabled to pay a fair price for the manure. And, having regard to the vast quantity of the metropolitan sewage, and to the fact that it will only be used in addition to the farmyard manure made on the land, it recommended that to insure its being sold at its value, works of distribution be laid down, so as to bring it within reach of a very extensive area—it having been stated by a competent witness before the Select Committee of the House of Commons that it should not be less than from 500,000 to 600,000 acres.

The report further quoted Baron LIEBIG in favour of this view; and concluded by insinuating charges inculpating the Metropolitan Board of Works. It was adopted after three hours conversation, in which almost every speaker was confident of the great value, not only intrinsically but to the rate-payers, of the material now flowing to waste. Mr. Deputy ELLIOTT had never before seen a more satisfactory report, or one which manifested more exhaustive good sense and ability. He believed that the present knowledge on the subject was comparatively little—so small, indeed, that it was impossible to institute any constructive measures. He would say nothing to those who carried out experiments upon insufficient data, beyond this—that if you fed men or horses, or raised Turnips, beyond a certain limit, you produced disease. There would shortly be an agricultural show in London, and there would then be seen beasts with diseased structures, simply because they had been overfed. In the same manner, if an excess of manure were applied to the land, he believed it would produce results far different from what was intended. This gentleman is clear for the extensive rather than the intensive system of agriculture. The Smithfield Club manufacture unwholesome beef and mutton—the Turnip crop is the worse for the discovery of guano and the invention of superphosphate—and even as regards men and horses it is plethora rather than starvation that is the cause for fear.

The Corporation report has been replied to by Mr. HOPE for himself and Mr. NAPIER. Lord ESSEX, who had been quoted on behalf of the extensive system, is shown to have given it for his opinion that he had erred in distributing the sewage of Watford over too large an area. He ought not to have laid down pipes for more than 60 acres, and we know that he now confines its use to 6 or 7. Mr. MILES, whose estimate of his return from sewage was quoted at 28*s.* per head of his household, had confessed that he really could not give the profit or loss of his operations. Mr. MECHI, whose opinion was also quoted, had had experience only of the liquid manure of the farm — none at all of town sewage. Baron LIEBIG, whose letter was appended to the report, declares that sewage does not contain all the elements necessary for the support of vegetable life, apparently ignorant of the fact that on the sea-sand of Craigentinny an uninterrupted succession of most luxuriant crops has been obtained for upwards of 40 years, and these crops were no poorer this year than the first year, nor poorer the first year than they were this year, showing, surely, that, as Lord ESSEX says, and Professor WAY and Mr. LAWES, and a host of other witnesses, Grass is the crop best adapted to utilise the manure contained in sewage, for growing Grass in sea-sand is like growing Mustard and Cress in flannel. The sand possesses no valuable property of its own; it is only the medium through which to apply the nutritive element.

It is plain that the extravagant anticipations of the Corporation Committee fall to pieces in the hands of Mr. HOPE, who thus concludes on the visionary and impracticable nature of the scheme of Dr. BRADY, Lord ROBERT MONTAGU, and Mr. ELLIS, which this Committee have adopted.

"They propose to pump the entire sewage of London, consisting of upwards of 70,000 tons per diem, to a height, we believe, of 400 feet, and from that lofty elevation to distribute it, through many thousands of miles of pipes, over several counties. Now, apart from the gigantic capital outlay required for such a project, and the ruinous expense of maintenance of such wide-spread works, we venture to draw your attention to the fact that the wages of the labourers through whose hands this enormous volume of liquid would have to pass in the hose and jet would eat up the whole of Dr. BRADY's and Mr. MECHI's and Mr. ELLIS's 2*d.* per ton. It would require no less than 20,000 men to hold 20,000 hose to dribble out the

sewage on their principle, and the wages of these would amount to 1,135,000*l.* a year."

We have only to add that a concession of North London sewage was on Tuesday last granted to Messrs. NAPIER & HOPE by the Metropolitan Board of Works, thereby adopting their plan of intensive application of the sewage over a comparatively small area at a distance from the metropolis.

AMONGST the earlier sets of tackle manufactured by Mr. FOWLER was the one sent to Elkstone, near Cheltenham. The position of the farm it has tilled, the circumstance that it had to take the place of 30 oxen which were sold off upon its arrival, and the fact that ever since then an exact record has been kept, both of the work it has done and of the cost of doing this work—all combine to make the history and progress of this implement peculiarly interesting in elucidating the capabilities and value of the steam plough.

We accordingly gave in 1861 a very full report of the behaviour of this tool during the first season of its use, and the owner, in his "Essay on Steam Cultivation," subsequently gave fully detailed particulars of its performances in 1862. No detailed account, however, has since appeared of its career, and having recently visited the scenes of its workings, and made ourselves acquainted with the particulars, we offer now, therefore, to our readers the result of our inquiries.

Let us in the first place briefly recapitulate some of the facts and circumstances connected with the introduction of the steam plough on the farm. Elkstone Manor Farm consists of 1026 acres, about 800 of which are under tillage. Some parts of this farm rise to an elevation of 1000 feet above the level of the sea, and having no shelter from neighbouring hills or woods, but rather affording these good offices to other localities, it is very much exposed, so as to render the cultivation of the cereals especially precarious.

On so poor a soil, and at an elevation which makes the climate very humid as well as cold, the land also being mostly an unyielding clay, when animal power alone was used to cultivate, the occupier was left, particularly in bad seasons, with this alternative—either inadequately to cultivate the farm, or else to use working animals in such numbers as to trench most inconveniently on the scanty fodder supply yielded by the land. Before steam was adopted at Elkstone, we are informed that 100*l.* was often lost in adverse seasons from the difficulty of getting the land properly tilled in season. With a large quantity of work to do, it frequently happened that a field was planted out of season and left to chance for a crop.

We propose now to give the quantities and cost of each year's work since the introduction of the steam-plough at Elkstone, and afterwards to compare the position of the tenant as regards the tillage of the farm now and as it was formerly under cattle cultivation.

In 1861 the tackle worked 1218 acres, at a cost of 8*s.* per acre. During the year following, owing to the incessant wet weather which prevailed, the steam plough did not accomplish so much; only 509 acres were ploughed, dug, or smashed, and this cost after the rate of 10*s.* per acre. Of these two performances the particulars and the details having been already fully discussed in our columns, we now merely give the totals of work and cost.

No detailed account has however yet been given of what this set of tackle has done in the years 1863 and 1864, and we now therefore give more copiously the results of these two seasons, and thus complete its history to the present time. The summer of 1863, unlike its predecessor 1862, was very dry, and the land, owing to the absence of frost, and the condition in which it had been previously worked, was very hard. Referring to the book in which Mr. READ has had all the records of his steam plough kept, we find that in 1863 it commenced working on February 24th, and finished on November the 12th. Steam was got up on 151 days; the tackle was shifted 45 times, occupying 15 days of 10 hours; the tackle was in actual work 101 days of 10 hours each day, and during the whole of the season 713 acres were tilled by the plough, and 436 acres dragged, making a total of 1149 acres. To accomplish this amount of work, 81 tons 11 cwt. of coals were used, and 19½ gallons of oil were consumed, and the cost of repairs was below that of the preceding years, so that the comparison of steam cultivation with that of cattle was still more favourable to the former.

On the 19th of March of this year the apparatus was again set to work and worked up till the 14th day of May, when, having done all the work upon Mr. READ's farm, it lay idle until the 16th of June, at which time its use was required on an adjoining farm under very peculiar circumstances, the particulars of which we shall immediately give. On the 29th of August it was again employed at home, and then it worked until all it had to do was done, which was accomplished by the 19th of October. The record informs us that steam was raised on 139 days; that during 791 hours of that time, or 79 days of 10 hours, it was engaged in actual work. It was shifted 38 times, occupying 11 days or 114 hours: 88 tons 4 cwt. of coals were used, and 18 gallons of oil.

During the whole season, inclusive of 586 acres, 3 rods, 30 perches done upon the adjoining farm, the total extent gone over by implements propelled by this steam-plough engine was 1184 acres. The land upon Elkstone Farm, from the mellowing frosts of the previous winter and the continued fine weather of the spring, worked easily, so that greater progress was made at less cost, and with fewer breakages, than in any previous year of its working.

If we put together the number of acres in the four seasons it has been in operation, which the steam plough tackle has done, it will appear that in 1861 no fewer than 1218 acres; in 1862, 509 acres; in 1863, 1149, and in 1864, 1184 acres have been tilled, making a total of 4060 acres worked by the same set of tackle. And as the management of the tackle has become better understood, so has the cost become less.

Let us now revert to the employment of the tackle during the interval between the 15th of June and August 9th. Its work then completely tested the capabilities of the steam plough under the most trying circumstances.

The adjoining farm, Coomb End, belongs to Mr. DUNN, of London, who in an unfortunate hour had granted a lease to an incompetent tenant. After this farm had been occupied for 8 or 9 years, unable to exact more from the land and landlord than he had already done, the tenant abandoned the farm and the country, and it was not until after suffering "the law's delay" for several months that the landlord could legally take possession, so that the farm lay for nearly six months without man or beast upon it.

In this neglected state the proprietor about the middle of June obtained possession. How was he to begin at this season of the year, without a labourer or a working animal? Mr. READ's steam plough had done all its summer work and was lying idle. The agent secured the services of this implement. On the 16th of June it was therefore set to work on this farm of 800 acres, about one half of which is in tillage.

The first field it did was one on which Swedes had been roughly planted the year previously, but it had not been touched since the crop was eaten off, and was then a perfect wilderness of Couch, Docks, Thistles, and Dandelions. The steam-plough ploughed this three times, and dragged it six or eight times over, and very soon the field was made perfectly clean and planted with Turnips. The next field received similar treatment. The third is of especial interest as illustrating the power of the steam-plough under the greatest disadvantages. It had been uncultivated for four or five years, having had only one crop planted upon it during that period. Its soil was matted together by a network of Couch, and to break up in the middle of the last dry summer this Couch-bound sun-hardened soil, seemed like attempting to break up a turnpike road. This field is 35 acres in extent, and the engine was set to work in it July 7th, and left it on the 22nd, having ploughed, cultivated, and dragged the most part of it six or eight times to a place.

Under the active and judicious management of Mr. JOHN ATTWATER, who had singularly propitious weather to help him, after the steam plough with drag attached had begun work, there followed drags, rolls, and harrows, with labourers to collect and burn the filth. And no sooner had the steam plough done it once than the same thing was repeated; and by this means in little over a fortnight this land, which was in a most wretched state, became perfectly clean, and now there is good plant of Turnips growing upon it. The exact quantity of work done and paid for on Coomb End from the 16th of June until the 9th of August was—

	A.	R.	P.
Ploughing	179	0	14
Cultivating	49	2	23
Draggings	358	0	28
	586	3	30

The farm is now restored to a comparatively clean state, and a greater triumph of steam cultivation we have never known.

The occupier of Elkstone by no means thinks of making it an example farm, but the advantages of the steam plough are very manifest upon it in the state of his land. And what appeared to us very satisfactory was that at so early a date this season as the 19th of October, the work of the farm, with the exception of such small fields as the steam plough is not applied to, had been done; and the apparatus is put by, stacked in straw—owing to the lack of suitable buildings on the farm—and thatched like a rick for the winter. *S.*

Two prosecutions for having diseased meat on sale are reported at great length in the Edinburgh papers. In both instances the presiding magistrates found the charge proven, and ordered the carcases to be confiscated. Professor DICK, the leading authority on veterinary subjects in Scotland, and Dr. ALEXANDER WOOD, a well-known and experienced Edinburgh physician, had nevertheless declared the meat to be sound and wholesome. On the other hand, the inspectors of markets had condemned the carcases, and Dr. LITTLEJOHN, the Medical Officer of Health, had declared the meat unsound; and Professor GAMGEE had agreed with them. The Act declares that "any person having in his possession a carcase, or any part of a carcase of any animal, which in the opinion of two competent judges is unfit for food, shall be liable to a penalty." The medical officers of the city had given their opinions, and the magistrate probably felt that he had no alternative but to pronounce accordingly. It seems nevertheless, not a little extraordinary that penalties should be inflicted in instances where the very highest scientific authority declares that no harm has been done.

It is not to hinder the trade in meat about which first-class medical opinions differ, but to put a stop to traffic in what no medical man will declare to be wholesome that is the object of the Act. Certainly Edinburgh would have every reason to be satisfied on this score if Professor DICK and Dr. ALEXANDER WOOD were its market inspectors. But these gentlemen would have confidently passed the meat which has been here condemned. And it seems plain to us that if convictions against such opinions as theirs are possible, the powers of the Act being overstrained must ultimately fail. Unless convictions under it are in accordance with the convictions of the public whom it protects, a mischievous reaction must ensue.

ON STORING ROOTS.

(*Continued from p.* 1090.)

THE MANGEL WURZEL.

THE best time for storing the Mangel crops is from the middle of October to the 10th of November. In some parts of the country the crop is stored in the fields and fed off by sheep in the spring in the same way as Turnips; where this practice is followed, they may be stored in small conical heaps in the way already described for Swedes. The system more generally obtains of consuming them by cattle in the yards during the spring and summer months, and they are then, when harvested, stored as near the homestead as circumstances will permit. Some are of opinion that in getting up the crop the tops should all be twisted off with the hand, as cutting them off with a hook or trimmer in the same way as Turnips would injure the bulb and endanger its keeping; our practical experience is not in favour of the system, separating the leaves from the bulb with the trimmer being more expeditious, consequently cheaper, and when carefully performed is equally as uninjurious to the keeping properties of the bulb. The principal thing to be guarded against in performing the operation of trimming is not to cut too closely to the crown of the root. The tops are only cut off, without any further cleaning. They are thrown in rows, a sufficient space being left for the carts to pass between each two rows, so that the fillers when loading them can easily work on each side of the cart; some prefer collecting the roots into small heaps in the field, and covering them with the tops, in which state they are generally allowed to remain for many days, in order it is said to prevent fermentation in the stack. We think the practice objectionable and attended with considerable danger to the safety of the crop, and should a severe night's frost occur under those circumstances, the crop will be permanently injured, and unless immediately used will certainly not keep sound through the winter. As soon as got up they should at once be carted away and properly stacked; they will then be equally secure, both from the attacks of frost and danger of injury by fermentation. We cannot too forcibly impress on the cultivator the great importance of daily carting and securing the crop as the work of pulling proceeds, as at the season of the year a single night's severe frost often produces most disastrous consequences. In making the stack or heap a dry piece of ground is selected, as near the farm-yard and as well sheltered from the north and east winds as possible. The bottom of the heap is set out about

9 feet wide; the roots are stacked up each side in regular courses, tapering to a single root at the top. The sides of the heap should not be carried up too steep, as they are apt to give way. The carts are backed to the heap as the work proceeds, and their contents tipped out every night. The heap should be covered with any short straw or stubble to the depth of several inches. In this state they will be safe from an ordinary degree of frost. If severe weather is likely to continue, the covering of straw must be increased. We always cover our heaps with about 18 inches thick of dry straw or stubble, and on the top of this thatch them neatly down with another thickness of 6 inches, or in all 2 feet of straw, which in our case has always been a sufficient preventive from frost, while at the same time it insures a free ventilation. Covered in the way we have already described, our Mangels were perfectly uninjured during the severe frost of 1860-61, which was one of the severest on record for the last quarter of a century. We always prefer placing the heaps north and south, not only as being more equally exposed to the sun's rays during severe frosts, but also, as the spring advances, when placed in a different direction they grow much more rapidly on the side of the heap facing the sun. On the 9th of November last, one of the wettest days of the whole season, we carted together and stacked the produce of 4 acres; they were placed by the side of an old hedge on one of the highest and most exposed parts of the farm, and were covered with straw and thatched down in the usual way. We now (February 25th), begin using them for the lambing ewes and found them perfectly dry and sound, while those belonging to a neighbour got up about the same time, without having been injured by frost, had to be uncovered and turned during the severe weather of January last, a part of them being rotten. During the last 15 years we have been a cultivator of Mangel on a considerable scale, and also a successful exhibitor in various places, and never during the whole of that time have we ever used earth as a covering, nor have we ever sustained any loss or injury from frost or overheating. We are well aware that in many places it is not practicable to cover the crop in the way we have described. To those who have no other alternative but earth, we would say, be careful to use means to ensure a good ventilation; this is best effected by placing a continuous row of faggots on the ground, running along the centre, and extending throughout the whole length of the heap, and there should also be a free communication at short distances, both with the sides and the top. When circumstances, or the caprice of the cultivator, necessitates the use of earth as a security from frost, we would recommend the heap to be covered with straw, and the final covering with the soil deferred to as late a period as would be deemed consistent with the safety of the roots, in order to afford the heating process time to have fairly subsided, so that the risk of loss by fermentation may thereby be lessened.

THE CARROT.

The Carrot as a field crop is less hardy and more susceptible to the attacks of frost than either the Mangel or Swede when once they are pulled, although when growing they will stand without injury a considerable amount of frost. So much is this the case that some growers prefer leaving the crop in the ground and getting them up as they are wanted for use. Even should they keep well, the system appears to us slovenly and unbusiness like, and would during severe weather be attended with great inconvenience, and at sometimes wholly impracticable, and as the spring advances, would be in the way and retard the necessary operations for preparing the land for the succeeding crop. We have kept Carrots in barns, and where the barns are not wanted for other purposes they may be kept well, and are easily got at at any time; still, they require constant attention to guard them from the attacks of frost, and should be turned at least once a month if in large heaps, in order to check fermentation, and each time they are turned any diseased roots thrown out, and thus prevent an extension of the evil. Of all the plans of storing Carrots now generally practised, we prefer that of placing in stacks, as we have already fully described for Mangel, with the exception that the heaps should be made much less. We generally make ours 4 feet wide at bottom, carefully stacking them with the crowns outward, the heap attaining the height of 3 feet. We have kept them both ways, but greatly prefer thatching as before described for Mangels to that of earthing; if earth is used it is essential that a sufficient number of spaces be left to ensure a thorough ventilation; if this be neglected they will seldom be found to keep well. In early spring, as soon as the weather will permit, they will require to be unearthed, and all turned and sorted by hand; those showing any signs of decay should be thrown out for immediate consumption; if not so treated, the diseased roots are not only sacrificed, they communicate the same to those coming in contact with them. The keeping of the Carrot in a sound state of preservation till an advanced period of the season depends in a great measure on the care and attention bestowed on the raising and trimming the roots, if much broken by careless pulling, or by wounding or cutting off the crown of the root in separating the leaves. We find the best tool for raising Carrots to be a straight two-tined fork from 12 to 16 inches in the tines; by thrusting this fork into the rows the roots are loosened, and so are easily pulled up without injury to the roots. They should all be laid with the tops in the same direction, when a boy or woman follows armed with a common Turnip trimmer or knife, separating the tops about half an inch above the crown of the root. Although, as the spring advances, they will shoot out more freely than when the crown of the root is cut off, yet we have always found them keep much better, as all who have paid any attention to storing of the Carrot must allow. We have often observed when trimming the heaps in the spring that where a few decayed roots were found in a heap, on a closer inspection they generally turned out to have the crown cut off, or to have been otherwise injured before being stored.

We have thus tried to record in a concise manner the observations and results gathered during a 15 years' practical experience of root cultivation on an extensive scale, and in conclusion we would still further endeavour to impress on the minds of the agriculturists of the country the great utility of early securing the root crops. The farmer who would neglect to secure his grain crops would be regarded as a disgrace to the locality in which he resided, and be scornfully pointed at by every passer by. Under present circumstances the Turnip crop is, in many cases, of equal value to that of a crop of corn, which, if fully considered, would insure it receiving a greater degree of care and attention in securing than has generally been bestowed upon it. *G. Murray, Overstone.*

DISCOURAGEMENTS TO HIGH FARMING.

At this season of the year, when the landed gentry are in the habit of meeting more frequently than usual their tenantry and others engaged in the cultivation of the soil—when at every agricultural gathering landlords and tenants are found mixing in social intercourse or engaged in friendly rivalry, it appears a favourable opportunity, in the crisis through which the farmer is now passing, to consider their relative rights and duties.

Since the collapse that followed the advent of Free Trade, the prospect of the British agriculturist has never been of so gloomy a character. With Wheat at 38*s.* a quarter—with the Bean crop in favourable instances perhaps half a crop, in many cases an utter failure—with no Turnips and a small haystack—with Oats not more than half a crop, there was nothing but a fair crop of Barley which the farmer could regard as being at all likely to be remunerative, and this his only hope, if the price continue to recede, will prove abortive.

We receive in after dinner speeches a great deal of good advice. We are told that we must not expect high prices for corn; our chief dependence must be on meat; but will any one be bold enough to assert that, by converting our Wheat into beef, it will make as much money per acre as will make it a paying crop?

Wheat on arable farms has ever been regarded as the chief reliance for raising money (it usually being all sold), while other cereals in all cases enter more or less into consumption. Hence the difference in price of these is less perceptibly felt. Three quarters of Wheat to the acre (which Mr. Caird, I believe, gives as the average) at 38*s.* per quarter, whether it is made from the stall or the barn door, will not leave much margin for rent or provision for a family. To the tenant on a moderate sized farm, who grows 300 quarters of Wheat, it makes a very considerable difference whether he gets 900*l.* or 570*l.* as his return, and 3*l.* a quarter is not an extravagant price.

We are told by others to improve our flocks by judicious crossing (a piece of very good advice too, and which might in many instances perhaps be resorted to with advantage), but there are many cases in which such a course is not desirable. This is, however, a matter on which every farmer is best able to form his own opinion. Farmers as a class are not less alive to their own interests than other men, and generally find out what pays best under the special circumstances in which they are placed.

In the present trying period it appears pretty plain that he will best tide over his difficulties who keeps the most stock and grows the most corn at the least expense.

Protection has gone, and gone for ever. We ask not for it back again, but we ask for that to which we believe ourselves entitled—free trade in its entirety, and security for our capital.

To grow the most corn at the least expense involves a heavier outlay of capital for stock and improved machinery, and no man can reasonably be expected to risk his money in the purchase of steam cultivators, reaping machines, and the like, or in the use of expensive manures, &c., without a permanent holding. Let us have leases on fair terms. Let us have free trade in Barley as well as Wheat.

As to the former of these propositions, many of us know to our cost that for the last few years rents, despite the prevalence of low prices, have risen. The reason for this is obvious. Land, like every other commodity, obeys the law of supply and demand. Now the natural tendency of an increasing population is to give an increase of farmers' sons who require to be placed. In addition to these the number of applicants for farms receives considerable additions from the professional and trading classes—men who are induced to adopt agricultural pursuits through having an eye to the pleasures of a country life, without sufficiently weighing the counterbalancing anxieties On the other hand the number of farms is yearly considerably diminishing, owing to the absorption of small farms into larger ones, and in many instances the breaking up of many large ones, on their falling in, to increase the size of other tenants' holdings. Hence, with fewer farms and more customers, increased competition is a natural consequence.

It is a knowledge of this fact which makes many a man submit to a rise of rent without concurring in its justice. He knows too well that if he goes elsewhere the screw will be put on in the event of a change of tenant, and he naturally thinks that he may as well endure that pleasant operation when he is on a farm with the capabilities of which he is acquainted, as venture on a new undertaking (which is always more or less uncertain), and incur the loss and trouble attendant on a removal.

Viewed abstractedly, both landlord and tenant have an interest in the land, and provided both have their fair share, neither has any business to grumble. Landlords ought not to be expected to give away their property. No tenant ought to expect to hold land at other than a fair rent. The letting and taking of land is a purely commercial transaction, and ought to be governed by commercial principles.

The point, however, that I wish to bring out is this. We will suppose A. and B. to have taken farms of equal extent, of equal capabilities, and at equal rents. Their farms we will regard as two machines which have been hired. A puts twice as much through his machine as B. In other words, he employs twice as much capital as well as more energy and skill. The result is, that his flocks and herd are greater, and his rickyard better filled. What is too often the consequence? After a few years perhaps the landlord thinks that A. must be getting money fast. His farm will stand the screw. Hence the man who has benefited the community indirectly by sending in more beef and bread to the market—thus in effect cheapening their prices—and shown himself to be the best friend of the working classes, as it is impossible to have enlarged produce without a more liberal expenditure for labour, has the disagreeable alternative of losing the legitimate fruits of his enterprise in an increase of rent, or leaving no mean portion of his capital behind him; while B., who has simply kept his talent wrapped in a napkin, escapes the screw. Doubtless A.'s farm would let for more than B.'s, as for one tenant who will venture on a farm that is foul and poor, 20 would be ready at an advance of rent to take one in a good state of cultivation and in good condition.

B., however, chuckles as he says, "See what Mr. A. has got with his fine farming and taking prizes at the agricultural show, and such like. He's under notice. None of your fine-fangled ways for me. I'll go on in my old way."

Is this justice? If a landlord, having let a farm at fair value, afterwards expends money in drainage, the erection of improved buildings, or in any way permanently improves the property, no reasonable tenant will object to pay a fair proportionate increase of rent. If the value of the land is enhanced by legislative alteration, a prolonged war, or other cause, the same rule will apply; but if the land is made more valuable solely by the tenant's skill and capital, he ought in common honesty to be allowed the advantage or receive fair compensation.

A very common reproach cast upon farmers is that they are a slow jog-trot race—that they cannot move out of the beaten track of their forefathers. The discouragements to which I have adverted have a tendency to keep them so. Let these be removed, and I will venture to say they will not contrast unfavourably with their trading brethren. Even as it is, I doubt if any class of men can be found who, as a rule, spend so much money on another man's property with no more than six months' security.

Now for my second proposition. "Give us free trade in Barley." I have during the last week given ten quarters of Barley for five quarters of malt, and this at their respective market prices was a fair exchange. I am thus obliged to give one five quarters to be allowed to convert the other into beer to give away. Is not this muzzling the ox? Had this malt been sent abroad, my foreign competitor might refresh his labourers with untaxed beer, or if he chose to give it to his beasts, his beef would cost him less in making than mine, and possibly be sent over to be sold in the same market. Is this justice?

Finally, I repeat, give us security of tenure on fair terms. Let us have fair trade. If these are conceded, I have no fear but the much abused British Farmer will hold his own. Let the landlords do all in their power to remove his discouragements, and the floodgates of a tide of high farming would burst open. There are plenty of men, with capital and skill, who are positively afraid to farm up to their means and knowledge. If these concessions are not made, there is no doubt but, like other evils, it will in time find its own remedy, but not until many a widow's sustenance and many a child's portion have been lost. Men will not continue to occupy land at advanced rents, with no prospect of advantage, for ever, and I honestly hope that our Legislators and our Landlords will see this in time. *F. W. Bignell, Loughton, in the Bucks Herald.*

THE CATTLE MELON.

AFTER the manner in which you had given prominence to my article upon the Cattle Melon in the *Gazette*, and also calling upon others to give their experience in their cultivation during the past season, it was to be expected that correspondents would have given their views and ideas relative to the advantage or otherwise of growing them as an agricultural crop. The first correspondent, the Earl of Essex, writing from Cassiobury Park, speaks favourably of them, and says he shall grow more another season, but reports unfavourably of the crop, and also complains of the seed being defective to a great extent, and I make no doubt his failure in obtaining a good acreable produce is to be attributed in a great measure to the circumstance of the seed proving bad, but partly also to the drought during 12 weeks of the summer; for in my own case I suffered in a similar way, the seed proving defective to a considerable extent, arising I fear from its being taken from the fruit too soon, and perhaps imperfectly dried before storing or seeding away for sale; this matter however shall be obviated this year under my own care and supervision, and I hope to send out no seed but will grow freely, either of "Melons" or "Marrows." In my desire to furnish the purchasers with as much seed as possible in order that the experiment might be extensively tested (for I could not obtain anything like half enough to supply the demand), I fear that care enough was not taken last year to select the seed previous to sending away. Another correspondent, "J. B., Bradford Abbas," also complains of defective seed, and at the same time speaks of the deficiency of his produce from the one plant which he saved. This deficiency we can readily trace to the great absence of moisture for such a lengthened period. He however goes on to speak of the feeding value of the Melons, and also of Marrows, and states that his fruit contained 96 per cent. water. Now last year Dr. Voelcker's analysis from a fruit I sent him was as follows:—

Water	92.030
Organic matters	7.350
Mineral matters (ash).. ..	.620
	100.000

This analysis I published last year when I sent out the seed, and I have never claimed for the fruit a feeding value equal to either Swedes or Mangel; but I still think that the best sorts I have grown this year being much more solid and weighty than the fruit analysed last year, will prove equal in value to common Turnips for fattening purposes. Common Turnips contain 90 per cent. water, and my best kinds of Melons I believe no more; but be that as it may, the difference is but slight. However, as regards feeding value for milch cows—for which purpose let it be borne in mind that I introduced the Melon as being especially adapted, as entirely free from all acid matter calculated to affect the quality of butter or milk—it stands pre-eminent at the period of the year I recommend their use, namely, August, September, and October, these being the months when Grass is usually scarce on the dry pastures. The last correspondent, Mr. J. M'Indoe, also complains of defective seed which he obtained from me, and states that had he followed my directions sent with the seed he would have had only a plant here and there. Of course, the seed being defective, the plant must be deficient. He then details to some extent how he proceeded to obtain his crop, viz., by raising the plants in flower pots, and afterwards potting off singly the first week in June, and then planting nine of them on a rod of well prepared loamy ground—the crop it appears was only 8 tons to the acre, after receiving several good waterings during the dry weather. Now, it should be well known by all gardeners, that it is better not to water such plants at all, unless it be continued at frequent intervals during a dry period, and last summer we had no rain to benefit vegetation for 12 weeks, viz. from May 16 to Aug. 23. Now several good waterings during a period like this are totally inadequate to the requirements of all Cucurbitaceous plants. Again, planting out is not equally advantageous to raising the plants in the field where they are intended to grow, as I have proved for some years, either in dry or moist seasons. Mr. J. M'Indoe, The Gardens, Bromley Palace, Kent, goes on to say, in his opinion the Cattle Melon is a delusion and a snare, or in other words, a catch-penny; and I must say, these observations exhibit a great want of intelligence and discretion in their author. I trust, however, that plenty of people will this year aid in the experiment of introducing the Cattle Melon for various feeding purposes, and for different kinds of cattle, pigs, &c. I must conclude by expressing my deep regret that the seed supplied last year to my customers should have proved defective, and I can only say that it will give me great satisfaction if the parties will send to Mr. Page, seedsman, of Southampton, their names and the number of seeds which proved bad in each case. I will then undertake to supply them gratis with good seed of this year's growth, both of Melons and Marrows, to the same number or extent that proved defective last year.

N.B. My seed of this year's growth will not be ready to send out before February or March next. *Joseph Blundell, Bursledon, Southampton, November* 14.

TOWN DAIRIES.

AT the re-opening of the New Veterinary College at Edinburgh the other day, Professor John Gamgee said:—I have striven for a number of years past to show that hitherto veterinarians have only gained an adequate livelihood by attendance on the horses which are chiefly kept for the pleasure and comfort of the wealthy. It is a well-known fact that we have been ill-paid and poorly encouraged to relieve the sufferings of the far larger number of animals employed for the purposes of trade. Agricultural stock suffers serious neglect. I venture to assert that 90 per cent. of the cattle which suffer from disease throughout the United Kingdom annually are never seen by veterinary surgeons. Indeed, the ignorance of those who have held foremost positions amongst us on the subject of the amount of disease in the country can only be explained by the fact that if we do not search for information regarding mortality amongst stock, we are not in the way of gleaning it in daily practice. For instance, in the city of Edinburgh we have 2000 cows; in London there are 12,000 or 14,000, and so on in proportion in other cities. Disease is raging frightfully without intermission. During 15 days of the past summer as many as 100 cows were taken, sick or dead, from the byres of this city, and last week I traced 16 within the short space of 24 hours sold in all stages of pleuro-pneumonia. In my report to the Privy Council in 1862, I published a table referring to the losses amongst cows in 12 months in the Edinburgh dairies. Inquiries conducted by me with the greatest care resulted in the remarkable revelation that out of 1839 cows kept in 88 dairies, 1075 were sold diseased to butchers. That table, which formed but a small part of the statistical information I collected for Government, has this year been attacked by Mr. Hall Maxwell, causing the dairymen of this city to assert that the table could not be correct, because they had not furnished me with any information on the subject. It is a remarkable fact that the figures above quoted were only deficient from the entire number of diseased cows not having been traced, and the truth is more fairly represented by asserting that, generally, the dairymen sell within the year as many animals in a state of disease as the number they usually have in their sheds. In fact, a dairyman who keeps 30 cows usually buys between 50 and 60 per annum, owing to the rapid manner in which town stock is destroyed. All the independent inquiries that have been made confirm this truth. This year I have secured on two occasions from gentlemen who wished to test the statistics published, evidence tending to confirm the results I had arrived at. The first I received on my return from London in June last, and referred to 10 dairies in this city, in which the losses were as follows:—

Dairy.	No. of Cows.	No. sold diseased.
1	30	27
2	25	20
3	35	41
4	30	25
5	6	5
6	11	9
7	9	4
8	40	20
9	35	21
10	26	14
	247	195

The rate per cent. sold diseased within 6 months in these 10 dairies amounts to 79.75. Another person who doubted the statements made was astonished by his visits to the dairies of this city, and favoured me, and that only last week, with the following notes:—One cowfeeder, visited on September 22, had 31 cows in his byre, and confessed to having sold 6 diseased within a month. A second, visited on the same day, keeps 4 cows, and he had sold 6 diseased since May. A third, who keeps 7 cows, has sold 7 diseased and dead since January last. A fourth, who keeps 6 cows, had sold 18 diseased and dead since last December. A fifth keeps 8 cows, and has sold 11 diseased since January. A sixth, with a stock of 20 cows, has sold 40 diseased in the same time. A seventh keeps 30 cows, and sold 17 diseased during the past summer. An eighth, visited on September 27, and who keeps 6 cows, has sold 12 dead or affected since Whitsunday last. A ninth, with a stock never exceeding 20 cows, sold 17 diseased in 4 months. A tenth, who owns 40 cows, was visited on September 30, and stated that he had sold 40 diseased cows since last January. The eleventh, who keeps 8 cows, visited on the same day, had 2 suffering from pleuro-pneumonia at the time, and had sold 16 dead or dying since the month of April last. A twelfth, with 11 cows, had disposed of 5 in a state of disease within a week. I am prepared at any time to praduce ample evidence of the truth of the above statements; and were it not that my statistical details are not well suited for the present occasion, I could add more to the facts above set forth. Truth must prevail in the end, gentlemen, and no better confirmation of all I have said can be obtained than that derived from the state of anxiety and alarm which now exists amongst the dairymen in this city in consequence of our Town Council having appointed an inspector, chosen on the recommendation of the Edinburgh butchers, and who, by condemning the carcases of diseased cows, threatens to ruin the dairymen of this city. It is true that stopping this sale here will cause the sale of the cows elsewhere; but why shall we not strive to prevent the extraordinary ravages by pestilence, which we can daily witness if we watch for them? Why shall we not frame measures to protect the dairymen? In their great difficulties they have adopted the only means which could protect them from ruin—viz, selling their diseased stock; and if we are determined to stop this for the public good, it is hoped that some system to substitute may be devised. I am altogether opposed to the oppression of any class of men, and I am confident that the Dutch plan of insurance, based on the prevention of disease, and the medical treatment of any animals which fall sick, will meet the case. Permit me to ask—What is being done in the way of prevention? Hotbeds of disease require to be dealt with in a special manner. If an outbreak of human cholera or small-pox occurs, we set to work and drain, ventilate, and vaccinate; but as cattle proprietors wish to preserve secrecy, and disregard all measures of sanitary reform, nothing is done. I was recently advised by a worthy friend not to trouble myself with the cattle-disease question, considering the temper and the feeling of stock owners on the point. It is needless to remind me of the ill-will I have incurred amongst those who bolster up a vicious and disgusting traffic, and it is equally needless to ask me to desist in my endeavours to supplant a system based on reckless folly and mismanagement by one which must contribute to the good of the country, and especially to the benefit of those who have been most loud and vindictive in their attacks on myself. If the farmers in this country think that their interests are looked after by those who strive for popularity in asserting that cattle with the foot-and-mouth disease should be allowed to come in from abroad —that animals with lung disease should be freely bought and sold, or conveyed by railway—that scabby sheep are too numerous to be inspected—and so on, all I say is, that the farmers deserve to suffer. I have no pity for them; and I must ask the public at large to refuse to be imposed upon by people who, always ready to impute bad motives to others, are guilty of the transparent expedient of trying to convince us that we must choose between starvation or buying diseased meat.

LAND DRAINAGE AND DEEP CULTIVATION, &c.

[The following is an extract from the first of a short series of Lectures by Mr. Wallace Fyfe, lately given before the Royal Agricultural College.]

THERE are a good many arguments in favour of deep cultivation, of which subsoiling is the first course and drainage the foundation. The difference of vegetation on cultivated and uncultivated land is sufficiently remarkable; the crops and produce of the deeply-cultivated gardens, as contrasted with ordinary tillage crops, equally so. What causes the difference? Is it not manifestly proportioned to the depth of cultivation? And why should deep culture not be prosecuted? The same original materials composed both soil and subsoil, the sole difference arising from the one having been stirred by the plough having become or remained accessible to the fertilising influences of the atmosphere, (which Mr. Parkes somewhere calls "Nature's grand storehouse of manure,") purified of noxious principles, deepened and made productive. The worst lands have been made productive by trenching and mixing. Trenching, as you are aware, is the foundation of all garden cropping, and the deep artificial garden soil always admits of that operation, whereby three or more spades deep of earth are removed and interchanged. But it has been remarked that the process applied to the best garden ground and the worst waste land has been neglected in the case of the superior arable lands of this country, which have never been moved beyond 9 inches deep, the ordinary depth of a plough furrow. A practical essay was recently published by an East Lothian agriculturist to show that double or treble that depth must produce larger crops and bring good lands to the highest pitch of their fertility. Nor can it be doubted that the limits of quantity in agricultural produce are far from being reached. Palestine and some southern countries yield a hundred fold, and even more. In Sir Gardiner Wilkinson's "Topography of Thebes" we have a statement respecting the cultivated plants of Egypt in which the returns are even larger, and certainly quicker, whether in the winter or the summer cultivation (for they have both). But it has been justly said that the British farmer would be thankful if, with all the aid of science, he could reap fifty after one. The preliminary drainage improvements having been so extensively effected, why should not the deepening of cultivation keep pace with the new opportunity of increasing our produce thus afforded? The Flemings, who have derived from long experience much of what we are now beginning to attain from scientific disclosures, have a custom of annually digging at intervals the bottoms of furrows, and laying the fresh earth on the surface. But how much less effective is this fertile culture than the systematic subsoiling of every furrow you are by this time in a position to judge. All naturally rich soils are deep, and composed of a variety of constituents intimately blended—subsoiling and deep cultivation following it up at an interval regulated by the nature of the materials (for the geological facts must be kept in view), merely copy Nature in this respect—moving and mixing a

greater bulk of materials—bringing new earth into action, making valuable additions to the soil. The chemical effect of this admixture is to bring mutual solvents into contact and liberate long dormant gases and principles to nourish vegetation. Take the case of pure clay and pure sand. Apart and unmixed each is the extreme of barrenness; but intermixed they constitute a fertile earth. It must not be forgotten as one of the permanent benefits of drainage that the new mechanical texture or composition imparted to the soil enables heat and moisture to be absorbed, retained, or parted with precisely as required by plants.

So fertile sometimes are soils whose ingredients are thoroughly intermixed, that Bakewell mentions "on the summit of Breedon Hill, in Leicestershire," having seen "a luxuriant crop of Barley growing on land that had borne a succession of 20 preceding crops without fallowing or manure."

Mr. Smith, of Deanston, declared before the Committee on Agricultural Distress in 1836 that he had employed his most formidable invention the subsoil plough through a first rotation on the farm of 200 acres formerly mentioned, and on beginning a second ploughed up the previously stirred subsoil, whereby the produce of Oats was increased from 24 or 30 bushels per acre to nearly thrice these quantities, superior in quality, and the rented value of the land raised from 15*s.* to 2*l.* Such immediate effects are not always to be expected from subsoiling, which is a mere preparative for deepening the cultivation, as drainage is for subsoiling itself. The full benefit cannot be obtained till the loosened soil is capable of being ploughed up and mingled with the active crust. The late Mr. Murray, of Polmaise, introduced a practice which he termed winter fallow, for it produced a crop, and was thus preferable to vacant summer fallowing of land, a resource reverted to, as we have seen, in the absence chiefly of the mechanical improvements we are this day discussing. At the removal of the crop he ribbed across drained land at right angles to the drains with the common plough, and subsoiled the space between the drills, split these drills in January, and then subsoiled the spaces on which they rested. A seed furrow afterwards levelled the surface and completed the preparation for Barley or other spring crops. The object of this operation was to keep dry tenacious lands, expose a greater surface to frosts, pulverise and mix the most stubborn materials, throw out the weeds, afford uniform depth and fertility of soil, and instead of the unequal growth seen on crown and furrow, a luxuriant crop ensues, covering the surface equally well. It is much in favour of deepening our ordinary cultivation that manure put into a deep furrow is certain to reach the plant, whose roots will either descend to it, or its influence will ascend to them. Lord Kaimes has a strange observation regarding churchyards, in which he notices that the earth is only enriched upwards. In fact the levity of the gases, decomposing substances, compels them to ascend. In like manner the very atmospheric action being deepened in the soil, if the atmosphere be as everyone who studies the provisions of nature and contemplates the extent and abundance of leafy surface spread abroad by the humblest flower or the hugest tree to catch its influence must acknowledge, an inexhaustible magazine of vegetable nutrition—this must promote the progress of plants. There are various prejudices against pushing these advantages fairly to an issue. The first is derived from the experience in deep ploughing undrained lands, which has been found to prepare a lodgment for water which has no outlet; but this it is the very business of drainage to cure. The second is derived from experience in subsoiling itself, as ploughing down the soil and up the subsoil is certainly attended with a temporary loss of fertility; but the precautions employed in subsoiling of stirring the subsoil without covering it up, and maturing it where it lies, before bringing it into use, remove this obstacle also. A third obstacle comes under the head of a besetting sin—for it is nothing but indolence—an apprehension of the severity of the work for man and beast; but even this our improvements go far to modify, since the soil, rendered more friable and easy in working, will become more so as steam ploughing is adopted, and manipulation proceeds. Such has been the influence of these miserable obstacles that the railway sections all over the kingdom have disclosed nothing more striking than the depth of our soil and the shallowness of our cultivation. If I were drawing you a rhetorical sketch of our agricultural deficiencies, no more ample scope could be found than in what is here exhibited for denouncing our whole operations as characterised by a wilful improvidence and rejection of the bounties of Nature and of God. Here lies the thin stratum of cultivated earth, tortured and exhausted by the extraction of all manner of crops, and underneath it depths of fertile substrata, not only untouched but walled down by the beaten road which the long and exhaustive operations of husbandry carried on above it have trodden so as completely to cut off its benefits.

Plants themselves send down their roots naturally to a depth which, strange to say, is so little known as scarcely to be credited. In the case of Beans, Turnips, and Red Clover, we are familiar with the fact that their roots penetrate to double the depth of ordinary ploughing; we raise up the Turnip on drills to help it, and we expect the Pulse and Grass crop to perforate and deepen the soil to help us. But there is not a cultivated plant which does not naturally send down its roots beyond 9 inches. The cereals on which our agriculture mainly depends are indeed endowed with the power of forcing their roots deep and far into the solid earth in search of food, and as the investigation of drainage obstructions has lately shown, it is impossible by any process short of actual tracing to fix the distance to which the roots of trees and hedge plants will penetrate—so is it found that Wheat and our other cultivated Grasses extend their roots much farther into the soil than is at all generally supposed. Johnston, in his drainage lecture, says that deep-rooted plants, such as Lucerne, often fail, even in moderately deep soils, because an excess of water or the presence of some noxious ingredient which deep drains would remove, prevents their natural descent in search of food. "Even plants," he adds, "which like Wheat or Clover do not usually send down their roots so far, will yet, where the subsoil is sound and dry, extend their fibres for 3 or more feet in depth, in quest of more abundant nourishment." But I repeat, it is not thoroughly understood how deeply the roots even of Wheat and Clover descend. The Earl of Macclesfield, in a letter to the Society of Arts, mentions that a few years ago Mr. Badcock, a shrewd, sensible, observing, and very considerable farmer at Pyrton, Oxon, having occasion to dig the foundation of a building on a field under Wheat, was much surprised by observing the small fibres of the roots of the Wheat much deeper in the earth than he had any idea of. Endeavouring to trace how deep they really went, he had the ground opened close to some plants, dug perpendicularly down to the depth of 6 feet, and having fixed a narrow board close against it, proceeded in the same manner on another side of the plant, and so on till he had secured the earth to that depth between four boards firmly lashed together. He then had it placed upon an inclined plane, and carefully removing the boards, with great caution and perseverance washed away all the earth adhering to the root and its very small fibres, and was much surprised at their extent. He repeated the trials on several other Wheat plants, and traced their depth to within five and six feet. The late Mr. Fane, M.P. for Oxfordshire, had one of these plants, now presented by Lord Macclesfield to the Society of Arts, secured in a close glass tube. My friend Dr. Atkin and myself have traced the roots of Wheat in Berwickshire to five or six feet of perpendicular depth in garden soil.

THE LICHFIELD AGREEMENT.

[Mr. Sanderson, the Land-Agent, of 15, Manchester Buildings, Westminster, has sent to us a copy of a letter to Lord Lichfield on the model agreement between Landlord and Tenant given in our columns the other day. We extract the following from it.]

(1). An objection of some force may be advanced against the agreement at the outset, viz, that the period (Lady Day) which it assigns for the termination of a tenancy is not the most suitable. At Michaelmas all the field operations essential to the raising and reaping of crops are completed, and then too commences the annual round of labour, which ends with the ingathering of the harvest. There is consequently at Michaelmas no clashing of interests between outgoing and in-coming tenants, the one paying for labour in the executing of which he had no control, and the other performing inefficient and unnecessary labour to increase his outgoing bill. Nor is Michaelmas entry less favourable to stock farmers, for then it is that fresh arrangements are required for the purchasing of store and fattening cattle, and for reproducing the annual yield of store sheep. Nature has therefore fitly assigned the end of harvest as the best season for farms to change occupiers, and man would act wisely in obeying its dictates.

(2). The agreement allows for Linseed-cake consumed by stock one-third of the amount consumed during the last year, and the same for Linseed-cake consumed by sheep while consuming Turnips on the land on which they are grown; to allow for Linseed cake consumed upon land on which Turnips are grown, and not when Turnips are consumed upon pasture land, appears to me to be unsound in theory and unwarranted by agricultural practice. The manurial value of oil-cake consumed upon pasture land is greater than that consumed on Turnip land of a clayey character; while there are many districts in which Turnips can only be consumed by sheep on Grass land. This clause, indeed, tends to lessen the area under Turnips, as valuable roots are produced upon land not suited to sheep folding. No allowance is made for Rape-cake, although equally valuable as Linseed-cake in a manurial point of view. The consumption of Oats and Barley for fattening stock is now very great, and all experience proves that these native products produce valuable manure. The agreement, however, ignores the manurial value of these foods altogether, and enjoins that the manure made from home food must be free, while that from purchased food must be paid for. So much for the outgoing tenant's interest in the extraneous food he uses. But, has the incoming tenant a sufficient guarantee that he obtains full value in the cake consumed by his predecessor for that which he has to pay? Suppose a case, where a tenant occupies two contiguous farms; his cake bills are no valid guarantee for the exact quantity of cake consumed on each. In many cases, too, is not the manurial value of cake rendered *nil* by dung being carelessly thrown upon sloping banks, and, therefore, its best ingredients allowed to be carried away by the stream?

(3). Allowance is made for bones applied to pasture land, if the quantity is not under 20 cwt. per acre, the allowance to be graduated over 10 years. This provision appears to me objectionable, first, because for any description of pasture land from 10 to 15 cwt. per acre is a sufficient dressing; secondly, supposing 20 cwt. of bones per acre are essential every 10 years, two applications of 10 cwt. per acre at an interval of five years are more efficient and less costly than one application of 20 cwt.; and, thirdly, because a tenant may indiscriminately apply bones to land, whether pastured with dairy or with fattening stock; or, in other words, to land rich in phosphates or otherwise. In short, this clause, as stated in the agreement, only allows the outgoing tenant for bones when he uses too great a quantity, and makes the incoming tenant pay for bones whether judiciously or injudiciously applied.

(4). Allowance for efficient drainage graduated over 10 years, seems at first sight to be equitable; yet it is open to grave objections, and affords scope for great abuse. Ten years is too short a term to repay the outlay on efficient drainage; and the clause assumes that all drainage will yield on the outlay 12 per cent., and that all land, rich or poor, will by drainage be increased in value 12*s.* per acre. In many cases farmers are compensated for draining in a shorter period than 10 years, as it allows them to carry out important improvements, which they could not otherwise do; but as the operation—if efficiently executed—is permanent, and involves a large outlay, and on some descriptions of land is several years before it yields the desired result, so the minimum term over which allowance should be made—if made at all—ought to be 14 years. But what security has the incoming tenant that he is paying for efficient drainage? I confess I cannot imagine, unless the drainage had been inspected and certified by a Government drainage inspector, and this would involve so much expense—as farmers generally drain a small area at a time—as to put an effectual stop to drainage altogether. To show that gross injustice is done to incoming tenants by charging them for inefficient drainage, the following is one of many similar cases which have come under my own observation. About four months since I was consulted by a landowner respecting the justice of an award for drainage which one of his tenants was asked to pay. I met the valuer for the incoming tenant upon the spot, who at once frankly admitted that he had not inspected the drainage at all, that he did not know whether it was efficient or not, and that he based the outgoing tenant's claim for drainage solely upon the statements of the latter. I at once carefully inspected the drains, and found the outlets blocked up, the drains from 20 inches to 2½ feet deep, and the pipes in several places broken and choked with sediment.

(5). Too much latitude is given to the outgoing tenant in clause 11 of tenant's covenants, which allows him to plough stubbles either in autumn or in winter; for when the ploughing of stubble land is delayed until winter the success of the Turnip crop is extremely hazardous.

(6). Clause 13 of tenant's covenants virtually enjoins that not less than one-fifth of the arable land shall be sown with Grass seeds every year, and that the same area each year shall be fallow. Covenants happily unsuited to few districts, and inconsistent with an advanced mode of husbandry.

(7). With the exception of 10 tons of straw for every 100 acres of arable land, and a few acres of Potatos not defined, the agreement provides that all roots, Clover, hay and straw shall be consumed on the farm. On farms situate in close proximity to towns this clause would operate adversely, while on all farms the restrictions it enforces are strikingly at variance with the liberal use of extraneous manures, and the extensive consumption of artificial food at the present time.

(8). As a tenant, according to the agreement, does not know until Lady Day whether he may occupy his farm for another year, so he cannot adopt the system which enlightened practice sanctions of planting prior to Lady Day the exact area of Potatos he is permitted to sell.

As time would fail me to dwell upon all the clauses, I shall merely mention some points in the agreement not already alluded to, which appear to me contradictory.

(9). Provision is made that farmyard manure, the value of which is easily ascertained, must be left free, while oilcake (the manurial value of which is doubtful) must be paid for; Potatos, which are an exhausting crop, are permitted to be sold, while Turnips, which are a fertilising crop, must be consumed on the farm. Purchased manures applied to Potatos the last year of the tenancy are not to be paid for by the incoming tenant, although the Potatos in the said year cannot be sold; and one-tenth of the straw left at the expiry of the tenancy must be paid for, while if the same had been converted into manure it would be left free.

(10). The agreement favours summer fallows—a system unworthy of progressive husbandry; recognises only a four and five-course rotation; underrates Turnip husbandry—the basis of all good farming; gives no countenance to the use of corn for stock; ignores autumn cultivation; overlooks the importance of many

agricultural improvements, and restricts the outlay essential to the developing of the resources of the soil.

(11). According to the agreement, the tenant, without the consent in writing of the landlord's agent, cannot drain his land, however wet; cannot lime it, however retentive; cannot manure it, however poor; in short, can effect no outlay which twelve months cannot recover. A tenant under this model agreement is indeed a mere tool in the agent's hands, and consequently has no inducement to follow any course other than that hand-to-mouth system which is invariably associated with a reduced fertility of soil, and with increasing poverty on the part of the tenant. I by no means say that there are not many agents who are eager to promote improvements, but it casts no stigma on these to assert that there are also agents who are totally ignorant of agricultural requirements.

The fact that in the agreement the landlord is made to represent the incoming tenant, by no means places it in a more favourable aspect. On the contrary, it may be reasonably assumed that the agents who are supposed to control and certify all improvements will in many cases be indifferent respecting the execution of work for which they know a tenant will readily pay.

I cannot imagine that the framers of the agreement believe that they have allowed for all requisite improvements; but surely they must see how far short it falls of proper security for outlay to a tenant, as it takes no cognisance of subsoiling, deep tillage, capital sunk upon costly implements, the grubbing of superfluous hedgerows, the straightening of fences, the removal of surface boulders, the filling up of ditches, and the transporting of soil from deep hollows to bare hillocks —improvements, the effects of which are not limited to a few years.

Viewing the agreement as a means of promoting good farming, of affording sufficient security to a tenant for carrying out necessary improvements, and as a means of equitably adjusting the respective rights and duties of landlords and tenants, I regard it, with all respect for its enlightened framers, as an absolute failure, and totally unworthy of an advanced age. If such, then, is the result of long study on the part of the enlightened agriculturists of Staffordshire, I would, seeing that all agreements associated with annual tenure, instead of promoting, retard agricultural progress, respectfully solicit your lordship to consider whether you would not greatly benefit the cause of agriculture by at once espousing the system of long leases—a system which affords the best security to a tenant, and yields the largest revenue to a landlord. Under this system tenants carry out costly improvements, and ask for no compensation; the outgoing tenant cannot defraud his successor, and landlords not only secure the highest rental, but frequently get their estates doubled in value without expending one shilling of their own.

One word respecting your lordship's speech at the meeting of the Staffordshire Agricultural Society. Your lordship is reported to have said, "That it will be a long time before you persuade all the landlords of this county that a lease is not a one-sided arrangement." Now, I respectfully submit, that while leases benefit both owners and occupiers, yet the greatest benefit must accrue to the party who has the permanent interest in the land. For myself, I have generally succeeded in making those landlords for whom I act change from the system of annual tenure to that of leases. I find, however, that there are others more strongly opposed to leases than landlords. Very recently I succeeded in advising a landowner in a Midland county where tenant right prevails to adopt granting leases. So soon as his intention became known, his local agent and the rector of the parish wrote to him not to carry out so foolish an act, as he would terrify his tenants, and introduce untried customs into the district. Ultimately, however, the landlord carried out his resolution, and has no cause to regret it, as I have obtained tenants of skill and capital, and an increase of 35 per cent. of rental. (As a guarantee of good faith, I forward you the name of the estate.) The question, indeed, between annual and leasehold tenure resolves itself into this, viz., whether landlords prefer retaining the powers of ejecting their tenants when they choose, and have inadequate rentals, estates undeveloped, a poor tenantry, and a pauper peasantry, to the granting of a 19 or 21 years' lease, which secures an industrious and prosperous tenantry, full value for land, and estates rapidly increasing in value? I would by no means grant a lease to a tenant without skill and capital; yet I have always found that the best mode of developing skill and of increasing capital is to give that security of tenure which a lease affords.

Home Correspondence.

Influence of London on Hertfordshire Farming.—It would be easier to treat this question as a matter of speculation than of fact. The latter is the only honest course; the nature of the difficulty is best known by those who are acquainted with the part of Hertfordshire nearest to London. As London increases in area and population its influence on the country at large will extend also; but coincidently with, and in part cause of its increase, a revolution has been wrought in the means of communication by railways. Thus, the butter and cream, eggs and poultry, which leave Devonshire to-day are on the tables in London to-morrow. Meat ready slaughtered comes from the remotest districts; fodder, litter, roots, in spite of their bulk, come from distances which show that the circle of supply is only limited by the shores of the sea-girt isle. How then is this question to be answered? A significant fact is taught by the increase in the disposition to sell stock in the country market and make the London butcher fetch his meat from thence. After due consideration the writer sees that the practice of the present has to do with the custom of the past, and that the trade, for instance, in hay and straw, which bears more directly on the interests of the farming of Hertfordshire, is rather a remnant of the past than a characteristic of the present. Before the railway was constructed, light carts with sorry horses were seen toiling to London with an overload of hay or straw, and returning on the morrow with manure only sufficient to clear the turnpike toll. And so it is still; how is the balance against the land settled between the two? Here the London market takes much and returns but little. To take a glance at the past: Walker speaks of manures from London, as soot, ashes, furriers' clippings, horn shavings, and sheeps' trotters—such things may be imported still. Again, Arthur Young took much pains to ascertain from Mr. Newman Hatley and Mr. Leach the advantage, if any, of dung from London, brought to their very doors by the canal. In one case it appears that only night soil and street sweepings were used; in another it is said that the practice of importing London dung did not answer, and that Mr. Leach and others had given it up; and A. Young says that the carriage by road to and fro goes on from the banks of the canal, and that "this does not answer when brought by navigation." This all tends to involve the question in difficulty. To turn to some known facts as illustrating some of the practices of the present time:—The hay farmers near London depend almost entirely on London manure to replace the crops they sell, and this is true as regards those in Hertfordshire, who occupy that part of the county which, like Middlesex, is under Grass. There is, moreover, a well-known instance of a large arable farm on the banks of the canal, from whence every atom of produce is sold; not a single head of stock is kept, and the cultivator depends entirely on manure brought by barge from London to replace the produce sold. It is clear that such a system as this is utterly at variance with all the acknowledged principles on which the best husbandry is carried out. *J. C. C.*

The Root Crops.—The rains here, which during the past month amounted to 1½ inch, have even at this advanced period of the season been productive of immense benefit to the Turnip crops generally, more particularly the late-sown common varieties. The Swedes have also made a fresh start, and are not only increasing in size, we find them also greatly improved in quality. Should the weather continue mild and open during the month, we expect even now a still further improvement in size; the great absence of rain, for which this season has been particularly remarkable, had previously prevented the manures from acting, still under the most favourable circumstances we think the crop cannot be less than from one-third to one-half deficient. On most farms this season the plants are thin on the ground, owing in great measure to the ravages of the surface grubs, which attacked the young plants during the early stages of their growth. The Mangel crop has been already secured; the produce is considerably under an average. We think the quality will generally be first-rate. The early completion of harvest and the fine weather since have all been fully taken advantage of, and a large breadth of different kinds of crops have been sown, in order to come in as spring food to meet the most critical period. Rape, Trifolium, Winter Oats, Rye, Tares, and Cabbages of various kinds, have all been extensively resorted to, so that with an ordinary winter and a mild spring we may not be so badly off after all. On November 4 we found wild Strawberry plants in full bloom at an elevation of 325 feet. *G. Murray, Overstone.*

Societies.

CHEMICO-AGRICULTURAL, ULSTER.—COUNCIL MEETING: *Nov.* 4.—Dr. HODGES said that at the present time the subject of cattle feeding was of pressing interest to the farmer, and he hoped that the members of the Society would give the results of their experience with respect to the most suitable and economical methods. He prefaced the consideration of the subject by some observations on the principles which should guide the farmer in the selection of food, and remarked that, from the result of experimental observations, there is reason to conclude that for every pound weight of nitrogenous matter which the fattening animal adds to its substance, it will gain 10 lbs. of fat and about 3 lbs. of water. If an animal receive a supply of food beyond the quantity required for the support of the processes of life, for the renewal of the matters which are incessantly, whilst life continues, being worn away, it gains in weight, but after a time the amount of food necessary to add to its weight becomes much greater, and its appropriation proceeds so slowly, that the amount of new material deposited ceases to meet the expense of the extra food consumed. In considering analyses of food, it must also be remembered that all the respiratory materials—starch, sugar, fat, &c.—do not possess an equal value in the production of fat. Thus, it has been found that while a pound of fat, or oil, is capable of adding a pound of fat to the animal's body, it requires 2½ lb. of starch or sugar to give a pound of fat. Bearing this fact in mind, we may derive much useful information from the analyses of cattle food, and learn how to supply the various kinds of food in the most suitable proportions, and in the most economical manner. As yet, much remains to be done in ascertaining the composition of our food plants, though we owe to Professors Voelcker, Way, and Anderson numerous trustworthy and instructive analyses; and in addition to purely chemical investigations, we require careful experimental inquiries into the effects of the various kinds of food on the organism of the animals fed on our farms. Considering that it is only within a few years that anything like scientific accuracy has been introduced into the investigation of this difficult subject, we have every reason, from the results already obtained, to expect that we shall yet obtain more accurate data to direct practice; and now that chemistry has given us so much useful information respecting the various articles employed as food, we shall be able to advance more rapidly in this most important branch of agriculture. He proceeded to point out that the food of the different classes of farm animals must be adapted to their organisations. The cow, provided with elaborate digestive organs, and with an arrangement for the complete mastication and insalivation of its food, by which it is submitted to the action of chewing and of the saliva, can extract from the bulky and crude mass which it collects in its stomach the constituents necessary for the support of its body; while the horse, and flesh-eating animals, with stomachs of small capacity, require more concentrated and a more frequent supply of grains and highly nutritious food. Dr. Hodges then directed attention to the rich store of nutriment contained in Flax-seed, an article 100 lb. of which were capable of yielding almost 34 lb. of fatty matters, while oil-cake contained only from 12 to 17 per cent. He gave the following analysis of a sample of mill dust which had been forwarded to him for examination by Mr. Carmichael, of Millisle. 100 parts of this dust contained as follows:—

Moisture	8·25
Nitrogenised (Plastic) Compounds	7·36
Fatty Matters	3·50
Starch	35·00
Fibre	27·89
Mineral Matters	8·00
	100·00

The oil was extracted by treatment with ether; the nitrogenised compounds were calculated from the amount of nitrogen in the ammonia, obtained by combustion of the sample with soda-lime, &c.

The CHAIRMAN remarked that at Crawfordsburn the mill dust, which was formerly neglected, was at present carefully collected by the farmers.

Mr. ANDREWS said that Dr. Hodges had some time ago analysed a sample of mill dust for him, and its composition showed its nutritive value to be high.

Farmers' Clubs.

DORCHESTER: *Manures for the Land.*—Mr. G. J WOOD spoke as follows on the occasion of a recent address to this Club:—

No consideration can be of greater importance to the farmer than the best method of fertilising the land, or, in other words, the best and most economical method of restoring and increasing its fructifying power. On the other hand, no consideration can more worthily occupy the attention of the country than that which is now occupying its attention, viz., the health of its inhabitants. To this the efforts of philanthropists have been directed, and the Government has very properly given them assistance; but in one special particular I submit they have taken a vicious and wasteful course. You are all aware that the present plan of cleansing cities and towns is by a system of sewers, which, being flushed with water, are emptied of their contents into rivers and estuaries; and you are all sufficiently aware how ineffectual the system has sometimes proved when the tides have been high and the springs low, to the insufferable pestilential annoyance of the inhabitants. But taking the commonwealth as our stand-point, how blindly prodigal of the resources which Nature has provided—how absolutely suicidal does the plan appear! Look at this proposition. A given area of land is capable of supporting in its normal or natural condition a hundred inhabitants. By a course of judicious cultivation, and the careful restoration to the land of all its products in the form of animal excreta, and without any extraneous aid, it is found equally capable of supporting a thousand population. Nor can you well find the limit of increasing productiveness, except it be the occupation of the space by the dwellings of the population. Or look at it in another form; a field is sown to roots, those roots are fed off by a flock of sheep, which are faithfully folded on the same field, and then the field is found in higher condition than it was in when the Turnips were sown; another field is sown to Wheat, and the results of the crop being faithfully restored to it in the form of animal excreta, that

field is found in higher condition than it was before the Wheat was sown. I believe this to be a wise and gracious provision of Nature, and the dictate of right reason is to act according to this law. Now see how fearfully this law is violated by the system of sewerage before alluded to. Do you say we see all this, but we know not the method by which it can be accomplished? Where, then, is the genius and the enterprise of the Anglo-Saxon? The Chinese do better than you; they prove to you that that can be done which you can do in a far better and less offensive method; earth is the best deodoriser. The system of sewerage is a very expensive one. Is this liquid mode of cleansing less expensive than a dry one, which would obtain a large pecuniary return? But from our commonwealth stand-point we take up the question of expense, and we say you have two grand national objects to accomplish, involved in one great issue, either of which, I venture to say, will pay, if taken separately; but which, if taken together, will be doubly profitable. The system of town sewerage cannot be too strongly reprehended. You cast aside as worthless the resources which Nature has provided at your hands, and to find a substitute you crown your folly by sending 7,000 miles for the dung of tropical birds. When will this question be taken up in a practical way? Surely it is time, now that you have discovered the fertilising properties of the organic remains of animals, and found out the way to utilise them—now that you profess to be able to detect the chemical elements which either the soil, or the crop to be sown thereon, requires; it is time, I say, to address yourselves to this important question. And here, I would say, we cannot too highly value the efforts of such men as the excellent Vicar of Fordington, who has indicated, I have no doubt, the right method of procedure in the plan of his earth-closets. It remains to be shown how some such plan can be brought into general operation, and to supplement it by a more public method, where from circumstances such a plan cannot be brought into operation at all. There is no need to show cause for giving prominence to the subject; but if an apology were needed, I might find it in the inaugural address of Lord Brougham at the Social Science Meeting, lately held in York, wherein he says, "An inquiry in the Commons upon the health of towns, as affected by sewerage, has led to a report of great importance, and the subject will be taken up in our sanitary department. It appears clearly that the process for cleansing towns has led to the greatest impurity in streams, and the report shows incontestably that all sewage may be conveyed into the country at a moderate cost, and even with a profit by the farmers who purchase the manure. At a time when the supply of guano is found less than the demand for it, nothing can be more valuable to agriculture than the process recommended by the report as so beneficial to the health of towns." Most welcome then is it to learn that the subject is being taken up by the Legislature, because it is obvious that the sanitary part of the question requires the regulation and enforcement of wholesome laws. But it will become, no doubt, the subject of large commercial transactions, and then it will become a serious consideration for us farmers to guard against imposition as to quality. We have had experience of this in the compounds that have been supplied to us under the name of superphosphate. Without possessing an adequate amount of chemical science, or the means of analysis, farmers have gone very much upon trust as to the quality of their purchases; and when we hear of large fortunes being made in the composition and trade of these articles, we can hardly avoid the entrance of suspicion that all has not been right. For myself I must testify, after more than 25 years' experience, I have never grown such Turnips as when I have bought bones and sulphuric acid and made the superphosphate at home; and I believe there is evidence that where the plan has been adopted this year, the crop has progressed against the drought better than those sown with the compounds sold in the market. I believe it is incorrect and deceptive to class all these manures under the name of superphosphates. Many of them made with coprolites should rather pass under the name of biphosphate, an article of inferior fertilising power. But all these are questions of detail, and there is no doubt of the general importance and wisdom of utilising the products of Nature for the purposes of reproduction, or of the folly of flying to the antipodes for that which Nature has provided at our feet.

Reviews.

The Farm Homesteads of England. A Collection of Plans of English Homesteads existing in different parts of the Country, carefully selected from the most approved Specimens of Farm Architecture to illustrate the Accommodation required under various Modes of Husbandry, with a Digest of the leading Principles recognised in the Construction and Arrangement of the Buildings. Edited by J. Bailey Denton, M. Inst. C.E., F.G.S., Honorary Member of the Royal Agricultural Society of Hanover, Engineer to the General Land Drainage and Improvement Company. Chapman & Hall, 193, Piccadilly.

We shall confine our present notice of this magnificent volume, which was alluded to last week, to an enumeration of its contents, leaving till another occasion a discussion of those principles of farm architecture which it inculcates. The work fills a large quarto volume, containing full plans and descriptions of 24 of the best homesteads in England. The Royal Flemish Farm homestead is the first of the series. It illustrates the plan of covered yards, which is one of the foremost methods now adopted by farm architects. There is here accommodation for 12 horses and 100 head of cattle.—Thorney Farm, in Cambridgeshire, the property of the Duke of Bedford, is then described. The homestead here is on the plan advocated by Professor Low, where the buildings, classed according to their uses, are arranged systematically in a long rectangle, with the open yards facing south. The parallelogram has this advantage, according to Mr. Mein, who erected these buildings, that where brick is the material used, as the shelter sheds divide the yards, they by their weight of roof protect the division walls from damage occasioned by the pressure of manure or the rubbing of heavy stock. Thorney is a fen farm of 500 acres. There is accommodation here for 76 head of cattle, in a succession of yards arranged end to end in a long parallelogram.—Brickden New Farm, the property of Colonel Linton, has a simple homestead accommodating 40 cattle and 12 horses. The buildings are here arranged around a square divided into two yards by a central detached piggery, &c. In the Maisemore farmery, near Gloucester, which is adapted mainly for the accommodation of stock, the central division is a main portion of this accommodation—the whole ground plan forming a trident, of which the central tine is thicker than the other, providing two rows of boxes. We hope hereafter to describe Maisemore Farm in detail, and to refer to the history of the capital herd of pure-bred Short-horns which Mr. Morris has here for many years cultivated.—Portland farmery is another trident arrangement, in which the central line of buildings are continued backwards, as it were, along the shaft of the tool.—The North Brook Farm at Kirtlington, near Oxford, is another capital illustration of the covered yard system, or rather of the combined covered and open-yard plan, in which provision is made for all kinds and ages of stock.—Toothill farm, the property of Lord Palmerston, is a trident arrangement, with a short prolongation of one of the side row buildings for the accommodation of horse power, gangway and hay loft.—The Down Place farm near Guildford, is another good specimen of the covered yard homestead.—Sancton Hill farm, Howden, is a large trident arrangement with great open courts between the lines of building, proper for illustration as one of a class of buildings, but not desirable as a model for imitation.—Haines Hill farm has been already illustrated in these columns. It is the property of T. C. Garth, Esq., near Twyford, Berkshire. It illustrates the covered yard plan as carried out by Mr. Chancellor of Chelmsford. The entire roofing of the ground plan, and the ventilation of the central yard by a lofty roof, are the chief features.—Uphampton farm near Shobdon, Herefordshire, is an instance of covering the ground plan by a lower and closer roof. There is here accommodation for 100 head of stock, and elaborate farm machinery for the preparation of food, threshing of produce, cider making, &c. The whole cost, with machinery, 4500*l.*, or 8*l.* per acre of the farm, of which it is the very complete equipment.—Longleat Park farm, in Wiltshire, is furnished with capital buildings by Mr. Wilkinson, architect, of Oxford. They cost 7000*l.*, and include large covered yards, stalls, boxes, barn and food stores, piggeries, &c. There is accommodation for 18 horses, 17 cows, 14 fatting beasts, 30 pigs, and 30 head of loose cattle.—The Brome Hill farmery in Suffolk is an extremely elaborate homestead, including covered and open yards, with other accommodation for all kinds of stock.—The Tattenhall Hall farm, in Cheshire, is an extremely well designed and very original arrangement, by which the labour of a large cow-house and dairy is reduced to a minimum. It accommodates 80 cows and 26 other stock, besides nine horses and many pigs; and the cost was only 1600*l.* The main feature is the central cow-house, with barns and food-houses, all in convenient connection. Stables and cart-sheds are detached. Many other examples of good homesteads are given, and with reference to each, the character of the farm—its mode of cropping—its quantity of stock—the character of the soil and of the rainfall—and the cost of the erection is given. Then follows a chapter on Farm Machinery, with particular descriptions and elevations of Lord Bateman's machinery at Uphampton, and of Mr. Hegan's machinery at Dawpool, and of Mr. Garth's machinery at Haines Hill, and of Mr. Page's machinery at Southminster. A chapter follows on Farm-houses, with ample illustrations, in which the same rule is followed of giving instances actually erected—and another on Labourers' Cottages, with a collection both of examples and designs.

The rest of the volume contains a digest of the principles recognised in the construction and arrangement of approved farm buildings, in which the facts so industriously collected and so perfectly presented to the reader in the former part of the volume are collated and discussed in order to bring out the principles which should guide the reader in adapting any of the examples before him to his own particular circumstances.

To this Digest we shall hereafter direct the attention of our readers.

Miscellaneous.

Death of Mr. Robert Ransome.—We have this week to record the death of a man who, through a long life, has been connected with the improvement of agriculture, and whose works and name are not only familiar to the farmers throughout this country, but to most of Europe and other more distant parts of the world—that of Mr. Robert Ransome, the senior partner in the great firm of Messrs. Ransomes & Sims, of the Orwell Works, Ipswich. As one of the pioneers who helped to clear away the old cumbrous instruments of culture, and introduce the modern class of implements on the farm, his name is entitled to remembrance and honour. Mr. Ransome had reached the good old age of 70 years; and his death, at last, appears to have been rather sudden. About the middle of last month he resolved on a continental tour, and left Ipswich for Germany and the Rhine in company with his nephew, Mr. Stafford Allen. On the Wednesday of last week a telegram was received by his friends in Ipswich, stating that, at a village called St. Stogar, about 20 miles from Coblentz, Mr. Ransome had become seriously indisposed. On the following day, a further and more alarming message was received, when his regular medical attendant, Dr. Hammond, in company with Dr. Otto Sillen, of the Orwell Works, left Ipswich on Friday morning, by mail train, to attend him. These gentlemen reached their destination on Saturday, and, after seeing their patient, at once telegraphed to the members of his family to hasten to his bedside, as there was no hope that his life could be saved, the deceased having received a fatal stroke of paralysis. On Sunday evening, the 6th inst., Mr. Ransome expired, before, it is feared, his children had reached him. The sad news was telegraphed to Ipswich on Monday, and caused considerable sorrow among a large circle of relatives and friends. Mr. Ransome, throughout a long life, took a deep interest in various religious and philanthropic movements. The last public meeting over which he presided was in connection with the British and Foreign Bible Society. The body was brought home on Thursday evening; and the funeral took place last Monday. The Mayor invited his fellow-townsmen to meet him at the Town Hall at half-past one, and join in the mournful procession, headed by the men employed at the Orwell Works, who desired to be allowed to join in this demonstration of respect to the memory of their departed employer. *Mark Lane Express.*

Is a Portable Steam Engine liable to Toll?—On the 10th inst. an information was laid by Thomas Jackson, the toll collector at the Small Briggs Bar of the Doncaster and Bawtry Turnpike Road, under the provisions of a local Act, against John Rowbottan, a servant of Messrs. Sellars, of Cantley, for passing through the gate without paying toll for a steam engine that was drawing a threshing machine, such toll being demanded of the toll collector. Mr. Shirley, who appeared for the defendant, contended upon that occasion that by the 14th and 15th Victoria, cap. 38, sec. 4, the words "implements of husbandry" (mentioned in the 3d of George IV. cap. 126, sec. 32) "were thereby declared to cover the threshing machine," and that, consequently, the steam engine attached to it and propelling it along the road was free of toll equally with the threshing machine itself. Mr. Jackson, in giving the decision of the Court—which had been reserved—alluded at great length to a case "The Queen against Matty," reported in the 27th volume of the *Law Journal* (Magistrates' Cases) page 59. In that case it was held that, although the steam engine was separate from the threshing machine, and drawn by horses, the two constituted an implement of husbandry within the meaning of the Act, and that toll could not be demanded. In the information now before the Doncaster Justices the evidence was that the defendant's steam engine and threshing machine were fastened together by a coupling chain, or something of the kind; that neither of them was drawn by horses (as in the case decided upon by the Court of Queen's Bench—that of "The Queen against Matty") but by the action of steam, and both were passing along the highroad from one farm to another to be used for the purposes for which they were employed in husbandry. It might be urged that the decision of the Court of Queen's Bench affected only such engines and machines as were drawn by horses, whereas this one was moved by steam. Did that in reality make any difference? The Bench were disposed to say that it did not. By the 3d of George IV. toll was not payable either for horses or carriages employed in carrying or conveying any implements of husbandry. The words were in the disjunctive—"horses or carriages," and, therefore, if by the ingenuity of man a carriage, which this engine was, was enabled to go without horses, and to pass along a road *ex suo motu*, by force of some active power within itself, and by means thereof could carry or convey an implement of industry, which both engine and machine were alike held to be, it did appear to the Bench that the exemption well applied to them both, and therefore ought to prevail. If these carriages were exempt when drawn by horses, *a fortiori* were they so without them. There was an Act of Parliament which was not referred to in the discussion, to which he (Mr. Jackson) would direct attention—the 24th and 25th of Victoria, cap. 70, commonly called "The Locomotive Act, 1861." It was entitled "An Act for Regulating the Use of Locomotives on Turn-

pike Roads, and Tolls to be Levied on such Locomotives," and as the waggons and carriages drawn or propelled by the same. This Act appeared to be applicable only to locomotives used for the carrying of goods for profit. At all events there was the following section, the 10th, which reserved existing exemptions from toll:—"All waggons, carts, or carriages as heretofore described, drawn by any locomotive loaded with any materials such as were now exempt from toll, under the provisions of any general or local Act, shall be entitled to the same exemption as they would be if drawn by animal power." Finding, therefore, as the Bench did, that moveable threshing machines were defined by statutes "implements of husbandry," and that steam engines therewith used had been held by the Court of Queen's Bench to be the same also, and believing as they did, that, whether carried or conveyed along the road by horses or by steam, both were intended to be exempt from payment of toll, they arrived at the conclusion that the information failed, and in their opinion, it must therefore be dismissed. Mr. Jackson added that this decision was that of the magistrates only who heard the case, and therefore if it was erroneous, as perchance it might be, they did not desire to compromise the rest of the Bench by anything they had said. This decision—unless it is overruled—decides that a steam engine drawing a threshing machine on a turnpike road, and when intended to work the same, is exempt from toll, as forming part of the machine itself.

The Highland Society's Show at Stirling.—Our readers will recollect that one of the most interesting and suggestive features of the Highland Society's Show in August last, was the novel exhibition of seeds, grain, and plants, of our esteemed townsmen Messrs. Drummond & Sons. The voluntary admiration which their tasteful collection elicited from every visitor to the show-yard, was perhaps as much reward as the Messrs. Drummond looked for. It must, however, be doubly gratifying to them, to have received the following official recognition of their efforts to make the Show, so far as they were concerned, a great success, viz.:—

'Excerpt from the Minutes of a Meeting of the Directors of the Highland and Agricultural Society at Edinburgh, 2d November, 1864.

"The directors having taken into consideration the exertions of Messrs. William Drummond & Sons to promote the success of the Stirling Show, resolved to record in the minutes of the Society the sense which the board entertains of the services rendered by these gentlemen, in having provided, at their own cost, so attractive and interesting a feature of the Show as their exhibition of seeds, grains, and plants, which, in extent, completeness, taste, and general effect, was worthy of the highest commendation.

"(Signed) ARGYLL."

Stirling Observer, Nov. 10, 1864.

African Palm Oil.—In the discussion which followed the reading of Capt. Burton's paper on the ascent of the Congo, at the recent meeting of the British Association at Bath, Mr. Crawfurd maintained the superiority of the west coast of Tropical Africa to the east coast, owing to its producing Palm oil, of which 1,300,000 gallons were exported in 1863. Palm oil was, he said, the great civiliser of Africa—more efficacious in suppressing the trade in slaves than the British squadron, but the east coast was deficient in oil-producing Palm trees. Dr. Kirk however stated that Dr. Livingstone and himself found a Palm tree which did not differ, except in size, from the Elais guineensis of West Africa, growing abundantly on the shores of Lake Nyassa, near the east coast, and he believed that the cultivation of the trade in the oil of this Palm would be a great blessing to the suffering nations of this populous region. It was true that the district was nearly 300 miles distant from the sea-coast, but there was water navigation nearly the whole way. The Mozambique country was rich also in other valuable oils; the Cotton was undoubtedly of good quality; but to make this and the oils of the country available, there must be free navigation of the Zambesi. *Athenæum.*

Calendar of Operations.

CHATTERIS, ISLE OF ELY.—We still continue to have but slight falls of rain, scarcely sufficient for agricultural purposes; the Wheat seeding has consequently been a difficult operation, and unsatisfactorily performed. We were 10 days later in commencing to sow than is our usual practice, and even then had to deposit the seed into soil where the surface was a mere dust-heap, but under which there appeared just moisture enough to enable it to vegetate. We hesitated before we took this step, but knowing the almost universal loss sustained on these lands by late sowing we ventured to take it, feeling persuaded that we were incurring the less of two evils; and subsequent observation leads us to infer that we acted prudently. Our land was all ploughed, so we were able to employ all our horse-power in putting in the seed, and in seven days we managed to sow 215 acres. We then had to wait, as our other lands designed for Wheat were not sufficiently comminuted to receive the seeds; but rain fell rather copiously in a few days, and we were enabled to recommence, and our 317 acres of Wheat were all sown in October. Those put in prior to the rain are now looking green, but the plant is not so strong as we usually have it, and it has not come with that regularity which is commonly discernible on our fen soils. On those spots containing the most moisture the Wheat has vegetated more quickly, whilst on those that were more droughty it has shown a slower growth; but as far as we can see we shall have a sufficient plant, although irregular as to size; but a few weeks of genial weather, with showers, and an average temperature, will soon hide all this. The continuance of dry weather has enabled us to put the manure on upwards of 60 acres, designed for Beans and Peas, an operation which generally has to be performed during a hard frost. We are now busily engaged in ploughing these lands, and find in one or two instances they are as hard and stubborn at bottom as they were immediately after harvest, the rain not having penetrated to nearly the depth we are ploughing. We steam cultivated 117 acres after harvest, 62 of which were Bean stubbles for Wheat, and the remainder lands designed for spring corn. This operation was most satisfactorily performed, as the season was so favourable. We are now wishful to commence steam-ploughing on those fen lands which we purpose fallowing and sowing with Coleseed for sheep feed another season, but our engine is at present occupied with threshing Oats and Barley to provide food for our cattle. We have upwards of 100 acres which we purpose ploughing in this way from 12 to 18 inches deep—the depth being regulated by the character and composition of the subsoil. We attach great importance to deep cultivation. We have taken up our Mangels, and find the crop, for the season, good. We had 21 acres, grown on cool-bottomed lands, and the bulbs are a fair size, fully as large as in favourable seasons; we grow them on dry soils, but not quite so large as these cool lands usually produce. We have 420 lambs which have been bought in the Lincolnshire fairs, at an average of about 34*s.* per head. These are at present on the pastures, which are good, having been reserved for them, and are getting a quarter of a pound of cake per day, Linseed and cotton mixed. Early in next month they will be put on Coleseeds, and then in January will come into the yards to be kept in our usual way on Mangels, cake, corn, &c. Our cattle have been in the yards for some weeks, and with straw get two pounds Linseed and two pounds cotton cake daily, and appear to thrive well. They were purchased in Scotland in September, and cost a little under 12*l.* per head. Our report of the harvest must be about the same as we have before given. Wheat yields well, and in our own case will prove a better crop than last year. Barley also yields well, but was not so bulky, and consequently not so abundant a crop as last year. Oats, even where a good crop of straw, are yielding badly, and are lighter in quality than we usually grow them. Beans and Peas are both deficient, and, in some instances, very much so. The corn trade is bad indeed, and the money return per acre will be small. Meat sells well, and gives a good profit to the grazier. *A. S. R., Nov.* 15.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Reading of Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Nov.	Inches.	°	°				°	°	°	°	Inches.
Thursday ..	17	29.31	47	40	S.E.	3	10	50	31	55	26	0.06
Wednesday	16	29.28	45	44	N.W.	3	10	51	39	57	34	..
Tuesday ..	15	28.74	45	44	S.	0	[3	55	32	60	24	..
Monday ..	14	28.76	48	46	S.W.	2	2	50	43	51	36	0.30
Sunday ..	13	29.33	46	40	S.E.	2	10	45	36	46	26	0.07
Saturday ..	12	29.80	38	36	S.W.	0	10	38	31	46	25	..
Friday ..	11	29.94	32	30	N.E.	0	10	49	25	56	17	..

Notices to Correspondents.

COUCH GRASS: *Subscriber.* You must get rid of it by breaking up the land, a thorough fallow and laying it down again with good Grass seeds. There is no other way.

FATTING BEASTS: *J Elmore.* A good sized fatting beast, being well fed and making good progress, should make a cwt. of beef in six weeks. That will be a clue to the answer to your question as to the time it takes to fatten a lean bullock, or a cow after drying her milk off. But the time will depend of course on the quality of the beast and the quality of its food.

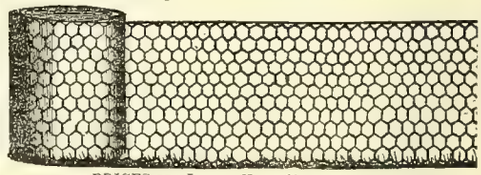
POULTRY MANAGEMENT IN FRANCE: *H S P.* The management of the broody hens, and the manner in which the young birds are reared in France, differ but little from our own modes, except that there the chickens play a much more important part in the revenue of the countryman than they do here, and consequently they get much more attention paid them. In some districts the farmers appropriate rooms called "couvoir" for their setting hens, round which are laid planks raised on tressels about 18 inches from the ground; on these planks are placed little baskets of Osier, close made at bottom and round the sides, but with widely barred tops; each of these baskets contain one hen. Some of these couvoirs are adapted to hold from 300 to 400 hens; which are all taken off at intervals to feed, and to have their legs washed and cleansed. The hens are generally set in lots of from 6 to 10, so that at hatching time the broods may be increased or diminished, according to the success of each hen. The coops in use for the broods are large, and a hen is often allowed from 18 to 24 chickens. As fast as the chickens are hatched they are taken with the hen that is selected to act as mother to them to an orchard or enclosed space, and are there fed and tended until big enough to shift for themselves. *J. B.*

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
⅝ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

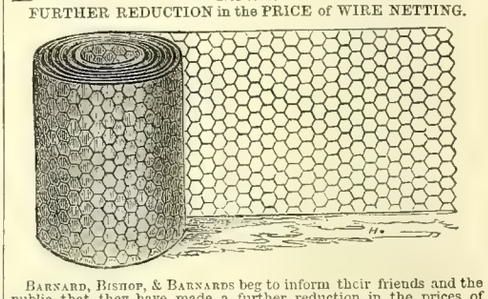
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

BARNARD, BISHOP, AND BARNARDS,
Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.

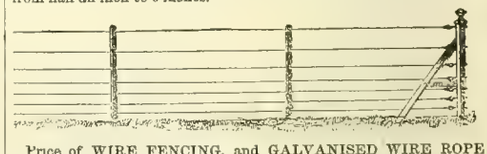


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch " " " .. .. "	18 ..	5 "	4 "
2-inch " " " .. .. "	17 ..	6½ "	5 "
2-inch " " " .. .. "	16 ..	8 "	6½ "
1⅝-inch " " " .. .. "	19 ..	4¾ "	4 "
1⅝-inch " " " .. .. "	18 ..	6 "	4½ "
1⅝-inch " " " .. .. "	17 ..	7 "	5½ "
1⅝-inch " " " .. .. "	16 ..	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

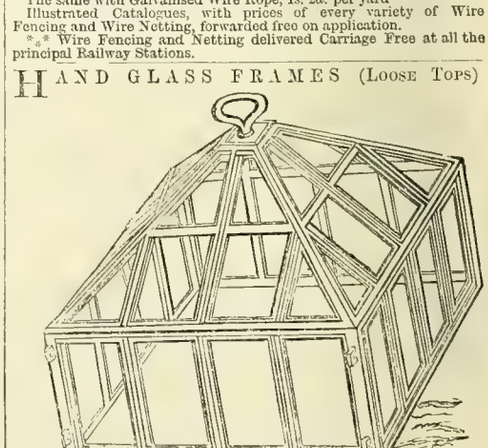
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.

The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

HAND GLASS FRAMES (LOOSE TOPS)



Size.	Price *s. d.*
14 by 14	4 0 Each.
18 by 18	5 9 "
20 by 20	6 6 "
22 by 22	7 6 "
24 by 24	8 6 "

Delivered Free to any Station in England if 12 or more are ordered.
J. JONES & SONS, 6, Bankside, London, S.E.

A SMALL GREENHOUSE for SALE, at 5, Henrietta Street, Covent Garden. Price £7 10s.

Span-Roofed Iron Greenhouse.

FOR SALE, a SPAN-ROOFED IRON GREENHOUSE, 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.

Particulars on application to A. Shanks & Son, 27, Leadenhall Street, London, E.C.

GREENHOUSE for SALE, Span-roof, 21 ft. by 12 ft.—This is a very neat and elegant House, and will be Sold Cheap.

For particulars apply to C. Blackwell, 24, Great Quebec Street, Marylebone, W.

WILLIAM SMITH begs to call attention to his large Stock of LIGHTS of various sizes, suitable for any kind of house or pit. He also begs to state that he will make GREENHOUSES and CONSERVATORIES at 1s. 1d. per square foot. Ventilating Apparatus on the most approved principle. Two-inch Lights made to any size, with the best yellow deal, at 8d. per foot; ditto, unglazed, at 4d. per foot.

194, King Street, Hammersmith, W.

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 16s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

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SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark, Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



Each.—	s.	d.	Each.—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	6	0
11 " " ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



Each.—	s.	d.	Each.—	s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inch diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, per dozen, 2s. 6d. Improved shape, per dozen, 4s. 6d. Patent shape, per dozen, 6s. 6d.

London Agents for Hartley's IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, Carson's PAINTS, PAINTS of various colours ground ready for use.

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RANSOMES & SIMS, Ipswich,

WILL EXHIBIT THEIR

NEWCASTLE PRIZE PLOUGHS,

Which won 4 prizes out of 6 at Newcastle, and 19 All England Prizes in competition with the best Ploughs of leading Makers. A practical trial will convince every impartial person that these Ploughs are at the present time THE BEST PLOUGHS IN THE WORLD.

PATENT ROTARY CORN SCREENS.

The only Screen which is adjustable, self-cleaning, and rotary. More than one thousand are in use, giving the greatest satisfaction.

R. & S. will also exhibit the following:—

PATENT ROOT PULPERS.

Which require less power and are far superior to any others.

BIDDELL'S PATENT MILLS.

Which have never yet been surpassed for durability and simplicity. Many thousands are in use, and they are in constant demand.

Full particulars of the above, and also of other Machines made by R. & S., may be had on application at their

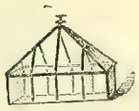
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NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

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HAND GLASSES.



PRESERVE JARS.

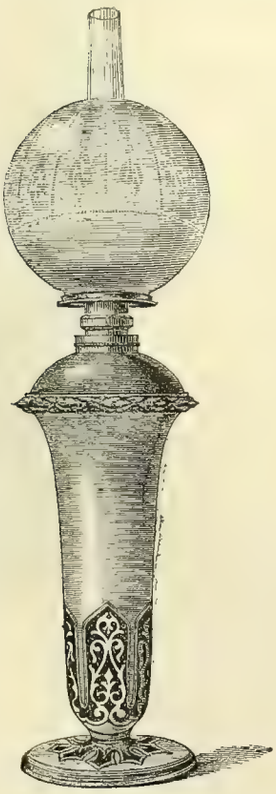
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



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SUPERIOR

HYDRO-CARBON

LAMPS,

with the

KOH-I-NOOR BURNER.

NO SMOKE,

NO SMELL,

NO BROKEN CHIMNEYS.

TRIMMED EASILY.



NOVEL in CONSTRUCTION,

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Of Superior WORKMANSHIP,

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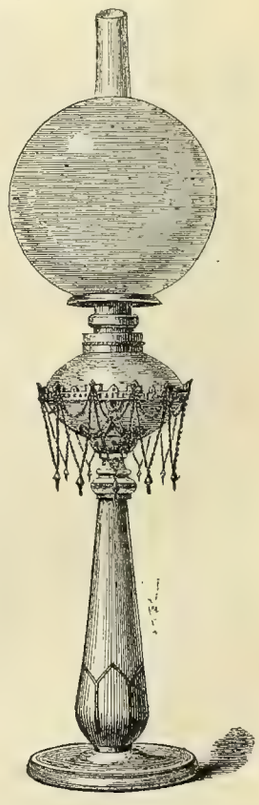
DINING ROOM,

LIBRARY, STUDY,

WORK TABLE,

READING DESK,

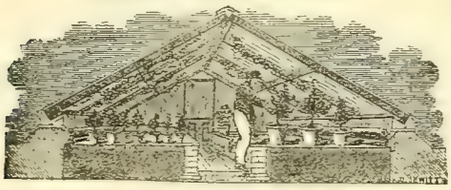
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Exhibition Prize Medal, 1862.

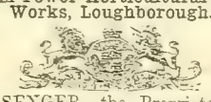


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 101*l.*

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Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

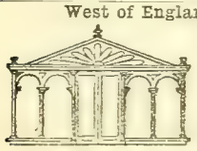
Midland Steam Power Horticultural and Hot-water Works, Loughborough.



T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

West of England, Ireland, and Wales.



VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

The only Stove without a Flue.

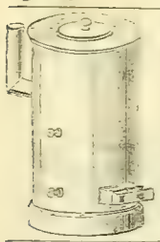


JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12*s.* 6*d.* each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2*s.* 3*d.* per bushel.

SWAN NASH, Patentee, Ironmonger,
253, Oxford Street, W.; and
119, Newgate Street, London, E.C.
Illustrated Catalogues post free.



RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

STOVES for GREENHOUSES, BEDROOMS, &c., burn coal 24 hours for 1*d.* without attention. Stoves for Carriages, Ships' Cabins, &c. No pipe, healthy heat, no effluvium, no charcoal, or other poisonous fuel. FEET WARMERS without fire or hot-water, at
47, Skinner Street, London; JOHN ROBERTS, Patentee, Upnor, Kent.

GARDENERS' CAPES, 3 feet deep, 4*s.* each, suitable for any one exposed to Rain or Cold, and quite Waterproof; also Second-hand POLICE CAPES, 18*s.* to 36*s.* per dozen. DRIVING APRONS, LOIN CLOTHS, TARPAULINGS.
N.B. The Gardeners' Capes, 4 yards round the bottom.
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Six SLIDES of different Houses, Post free for 50 Stamps.
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REAL SEAL SKIN JACKETS in every size.
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THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening Novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

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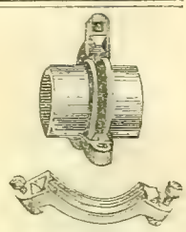
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These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

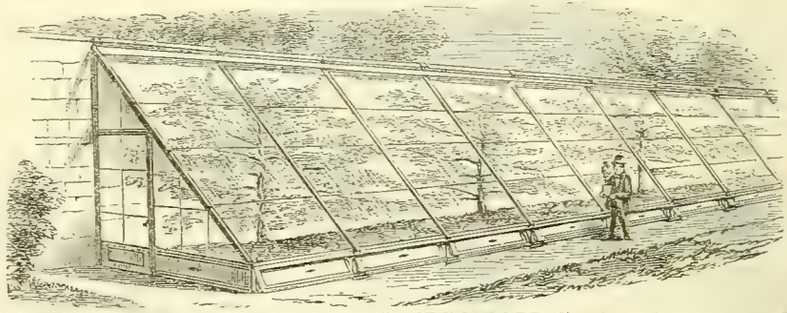
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BY ROYAL LETTERS PATENT.



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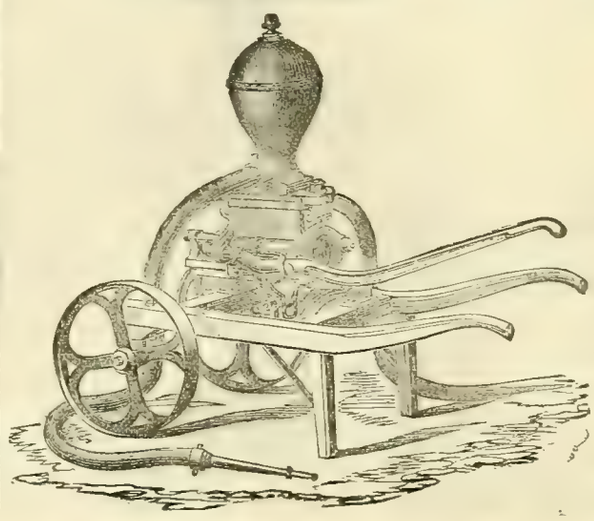
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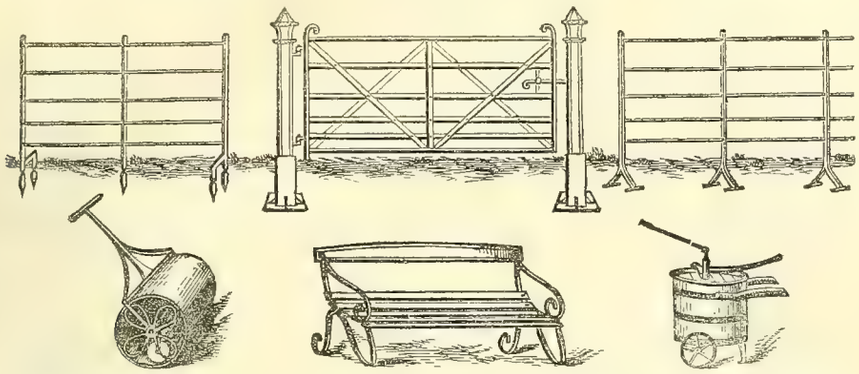
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BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads from	12s. 6d. to £20 0s. each.
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12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
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12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

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DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by

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PERFECT DIGESTION, strong Nerves, sound Lungs, healthy Liver, refreshing Sleep, and functional regularity and energy to the most disordered or enfeebled are restored by

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Extract from 60,000 cures:—Cure No. 58,216, "of the Marchioness de Bréhan, Naples, of a fearful liver complaint, wasting away, with a nervous palpitation all over, bad digestion, constant sleeplessness, low spirits, and the most intolerable nervous agitation, which prevented even her sitting down for hours together, and which for seven years had resisted the careful treatment of the best French and English medical men." In Tins, 1lb., 2s. 9d.; 2lb. 4s. 6d.; 12lb. 22s.; 24lb. 40s.

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TO BE LET, PARK END NURSERY (without Stock), with immediate possession, one mile from Macclesfield.

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TO BE LET, near the Crystal Palace, a very eligible PLOT of LAND for a NURSERY GROUND. The requisite Forcing Houses and Pits will be erected to suit the requirements of a Tenant.

For further particulars apply to A. B. FRENDE, Esq., Architect, 44, Bedford Row, W.C.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Dutch Bulbs, Standard and Dwarf Roses,

STOVE AND GREENHOUSE PLANTS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 19, at half-past 12 o'Clock precisely, a splendid assortment of BULBS from Holland, Standard and Dwarf Roses, Hardy Climbers, Ghent Azaleas, Laurels, Stove and Greenhouse Plants, Dwarf and Pyramid, Pear, Peach, Cherry, and Apricot Trees, from the Continent; Lily Bulbs, &c.

May be viewed on the Morning of Sale, and Catalogues had.

Importation of Orchids from Brazil.

AND TWO CASES OF ARAUCARIA IMBRICATA SEED IN FINE ORDER FROM CHILI. FOR SALE WITHOUT RESERVE.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 21, an Importation of CATTLEYAS and EPIDENDRUMS from Brazil, an Importation of ANGRÆCUM SUPERBUM from Madagascar, Two Cases of ARAUCARIA IMBRICATA SEED from Chili, 30 ounces of CUPRESSUS LAWSONIANA SEED, &c., all in fine order.

On view the Morning of Sale, and Catalogues had.

Standard Roses and Fruit Trees

FROM ONE OF THE FIRST GROWERS IN FRANCE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 21, at half-past 12 o'Clock precisely, without Reserve, a Consignment of splendid STANDARD ROSES and FRUIT TREES, comprising some of the newest and best varieties from one of the most celebrated growers in France.

On the view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 24, at half-past 12 o'clock precisely, a splendid COLLECTION of CAMELLIAS, AZALEAS, LILIES, ROSES, PEACH and APRICOT TREES, RHODODENDRONS, and various GREENHOUSE PLANTS, from a well-known Nurseryman in Ghent.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants and Bulbs from Holland.

MR. J C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 26, at half-past 12 o'Clock precisely, a Consignment from Holland of HYACINTHS, TULIPS, CROCUSES, and other BULBS; also some choice Rhododendrons, Conifers, Berberis, Spiræas, Azaleas, Roses, Fruit Trees, &c., in capital condition, and for Sale without reserve.

On view the Morning of Sale, and Catalogues had.

Uxbridge.

MESSRS. PROTHEROE AND MORRIS are directed to SELL by AUCTION, on the Premises, Uxbridge Nursery, on MONDAY, November 21, and two following days, at 11 for half past 11 o'Clock precisely, by order of the Proprietor, the Lease having expired, the Valuable NURSERY STOCK, ranging over 9 Acres, which is particularly worthy the attention of Noblemen and Gentlemen improving their Estates as well as the Trade from its excellence, consisting of FRUIT, FOREST, and ORNAMENTAL TREES of every description and in considerable quantities; a large and rich assortment of EVERGREENS and DECIDUOUS SHRUBS of all sizes, AMERICAN PLANTS, STANDARD and DWARF ROSES, &c.

May be viewed prior to the Sale. Catalogues may be had (6d. each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Liverpool.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Mee to SELL by AUCTION, without reserve, on the Premises, Prescott Nurseries, near Liverpool, on MONDAY, NOV. 21, and following days, at 11 o'Clock precisely each day (in consequence of the number of lots), the whole of the valuable NURSERY STOCK, consisting of Evergreens, Coniferæ, Deciduous Shrubs, Ornamental, Fruit, and Forest Trees, including 1000 Arbor Vitæs, 2 to 5 feet; 3000 Aucubas, 2 to 4 feet; 3000 Box and Bays, 3000 Green Hollies, 1 to 6 feet; 3000 Variegated Hollies, 2000 English Yews, 3 to 10 feet; 1000 Portugal Laurels, 2 to 6 feet; 500 Laurustinus, 12,000 Common Laurels, 1500 Berberis aquifolia, 75,000 Privet, 17,000 Scotch Firs, 2 to 4 feet; 18,000 Spruce Firs, 2 to 4 feet; 5000 Pinus austriaca, 500 Weymouth Pine, 100 Cedar of Lebanon, 300 Cedrus Deodara, 1000 Abies Smithii, 300 Vaccinium, 1000 Irish Ivies, 100 Araucaria imbricata, 1000 Ribes, sorts; 30,000 Larch, 2 to 4 feet; 700 Dogwood, 500 Roses, in pots; 500 Standard Roses, 2000 Sweet Briar. American Plants, comprising 1000 Andromeda floribunda, 20,000 choice Scarlet, hybrid Catawbiense, and Ponticum Rhododendrons, 1 to 5 feet; 8000 Kalmias, sorts, 1 to 3 feet; 2500 Ledums, sorts; 4000 Ghent and other hardy Azaleas, &c. 1500 Standard and Dwarf Roses, splendid plants, and including the finest sorts in cultivation. Also 300 Weeping Elms, 6 to 12 feet; 100 do. Willows; 50 do. Limes, 8 to 12 feet; 150 do. Ash, 30,000 Elms, 3 to 10 feet; 1000 Maples, sorts; 4000 Limes, 4 to 12 feet; 500 Sycamore, 80,000 White Thorns, 1500 Standard do., 9000 to Poplars, 5 to 15 feet; 7500 Hornbeam, 3 to 6 feet; 5000 Hazels, 2 to 3 feet; 600 Mountain Ash, 6000 Common do., 9000 Alders, 21,000 Birch, 5000 Scarlet, Horse, and Spanish Chestnuts, 150 Standard Cytisus, 1000 Laburnums, 20,000 Beech, 36,000 Turkey, Evergreen, and Scarlet Oaks, 6000 strong Seakale, 8000 two-year old Asparagus, 1000 Standard Dwarf and Trained Cherries, 3000 ditto Pears, 750 ditto Apples, 1000 Damsons and Plums, 800 Fruiting and Succession Pines in fine condition, 300 Vines in Pots, 8000 Black and Red Currants, 4000 Gooseberries, Raspberries, Rhubarb, 2000 Crab Stocks, &c.; together with Horses, Carts, Stacks of Hay, Tools, and numerous other effects.

May be viewed prior to the Sale. Catalogues may be had, 1s. each (returnable to purchasers) on the Premises; of the principal Seedsmen in London; the Nursery, Prescott; Mr. H. Mee, Gateacre Brow, Woolton; *Guardian* Office, *Courier* Office, *Examiner* Office, Manchester; *Mercury* Office, Leeds; *Midland Counties Herald* Office, Birmingham; Mr. White's Office, 12, Cases Street, Clayton Square, Liverpool; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Woking, Surrey.—Very Important Sale.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Goldworth Nurseries, Woking, Surrey, one mile from the Woking Railway Station, South-Western Railway, on MONDAY, November 28, and nine following days, without the least reserve, at half-past 11 o'Clock precisely, each day, in consequence of the number of lots, the extensive and valuable NURSERY STOCK, including an unlimited variety of choice Coniferæ, Evergreens, and Deciduous Shrubs, of vigorous growth, seldom to be met with, comprising 1000 Abies Douglasii, 1 to 6 feet; 1000 Abies Menziesii, 2000 Thujas, of sorts; 3000 Pinus austriaca, 200 Pinus Lambertiana, Sabiniana, excelsa; 100,000 Norway Spruce, 50,000 Retinospora, 2000 Silver Firs, 3000 Thujopsis borealis, 2000 Wellingtonia gigantea, 15,000 Larch Firs, 2000 Arbor-vitæ, 2000 Junipers, sorts; 200 Picea lasiocarpa (splendid specimens, 1 to 3 feet); 300 Picea nobilis, 1 to 3 feet; 500 Picea Nordmanniana, 2½ to 4 feet; 200 Picea Pinsapo, 9 inches to 1 foot; 100 Picea amabilis, 1 to 2½ feet; 5000 Cupressus, sorts; 200 Araucaria imbricata; 200 Cedrus Deodara, from 2 feet; 200 Cedrus robusta; 500 Cedrus Libani, Cryptomerias, &c.; 100,000 Common Laurels, 10,000 Portugal Laurels, 2000 Arbutus, 1000 Berberis aquifolia, 1000 Tree Box, 500 Escallonias, 2000 Evergreen Privet, 500 Euonymus, 100,000 green Hollies, 1 to 3 feet; 5000 choice Variegated Hollies, 500 Sweet Bays, 200 Magnolias, 100,000 Common Yews, 1000 Variegated Yews, 3000 Spiræas, of sorts; 500 Weigela rosea, 1000 Calycanthus, various; 500 Tamarisk, 2000 Deutzia gracilis, 500 Ligustrum, 500 Forsythia, 1000 Pyrus japonica, 500 Ribes, 1000 Guelder Roses, &c.; 3000 handsome Standard Roses, and 4000 ditto on the Manetti, fine plants, including the best varieties in cultivation; 3000 ditto Dwarf, on their own roots; choice American Plants, consisting of 3000 of the finest named varieties of Rhododendrons; 20,000 choice ditto Seedlings; 2000 Azaleas, the best hardy kinds; 2000 hardy Heaths, Kalmia latifolia, Ledums, Vaccinums, Gaultheria; 1000 Menziesia polifolia, &c.; Fruit, Ornamental, and Forest Trees, comprising 7000 Standard and Dwarf Apples, 6000 ditto Pears, 3000 ditto Plums, 3000 ditto Cherries, 1000 Peaches, 1000 Nectarines, 1000 Apricots, 4000 Gooseberries, 3000 Currants, 500 Filberts, 150 Grape Vines, 200 Medlars, 200 Figs, &c.; 1000 Limes, 2000 Sycamores, 1000 Horse Chestnuts, 2000 Norway Maples, 1000 Turkey Oaks, 2000 Poplars, 6000 Ash, 1000 English Elm, 20,000 Hornbeam, Birch, Beech, &c.; Hardy Creepers, including 4000 choice Ivies, sorts; 2000 Lonicera, sorts; 2000 Clematis, 1000 Wistaria sinensis and alba, 100 Passifloras, 1000 Jasminum, Bignonia radicans.

May be viewed until the Sale. Catalogues may be obtained, (1s. each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

PROTHEROE & MORRIS are enabled to state that in the event of severe frost setting in, a reasonable time will be given for the clearance of the Stock, and arrangements may be made by purchasers with Mr. Abraham, the Manager pro tem. on the Premises, Goldworth Nurseries, to have their Lots carefully taken up, packed and conveyed to the Woking Station, at the cost of labour thereby incurred.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the City Auction Rooms, 38 and 39, Gracechurch Street, City, on SATURDAY, November 26, at 1 o'Clock precisely, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Anemones, Ranunculus, Snowdrops, &c.; also a fine assortment of 300 STANDARD and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c.; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully set with bloom buds, &c.

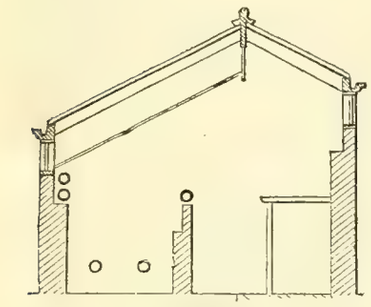
On view the Morning of Sale. Catalogues may be had as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

P. & M. will also include in the above Sale, at the City Auction Rooms, on Saturday, Nov. 29, about 30,000 choice named CROCUS; 6000 selected Early Double and Single TULIPS, and 1500 Double Scarlet RANUNCULUSES, from a celebrated Grower in Haarlem.

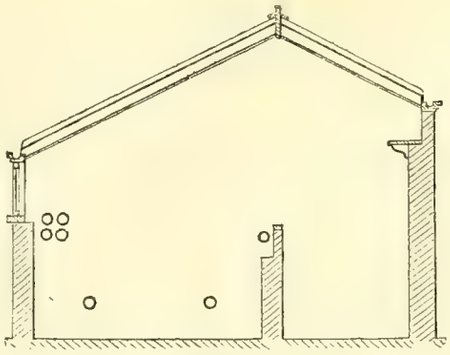
Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on SATURDAY, December 3, at half-past 12 o'Clock precisely, about 400 choice DOUBLE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, well set with bloom-buds; 300 handsome Standard and Dwarf Roses, including the newest and most approved kinds; selected American Plants; 1000 fine bulbs Lilium lancifolium rubrum and album; 10,000 Crocus; also Hyacinths, Narcissus, Early Tulips, Snowdrops, Anemones, Gladiolus, Ranunculus, &c.

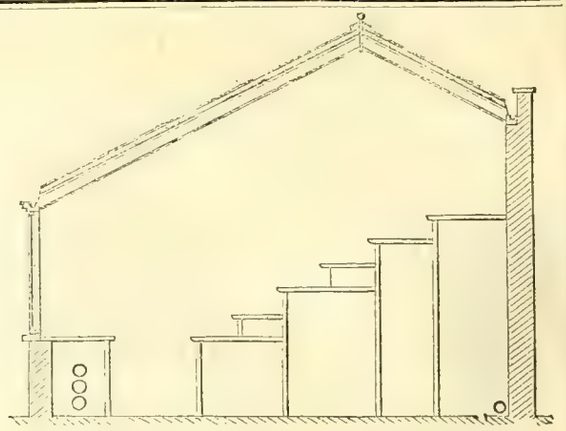
On view the Morning of Sale. Catalogues may be had as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.



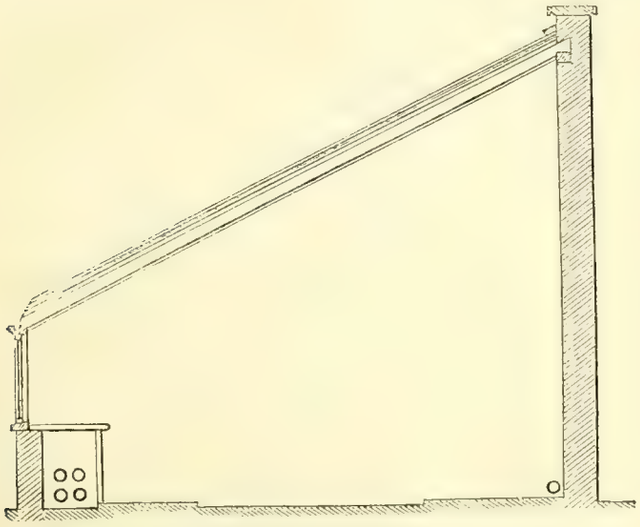
No. 1.—CUCUMBE and MELON PIT, 10 feet wide.



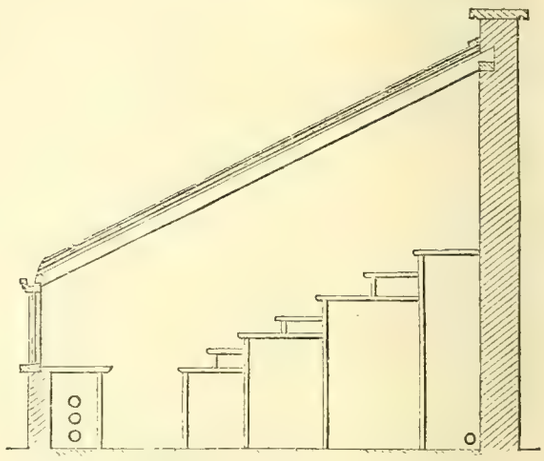
No. 2.—PINE PIT, 14 feet wide.



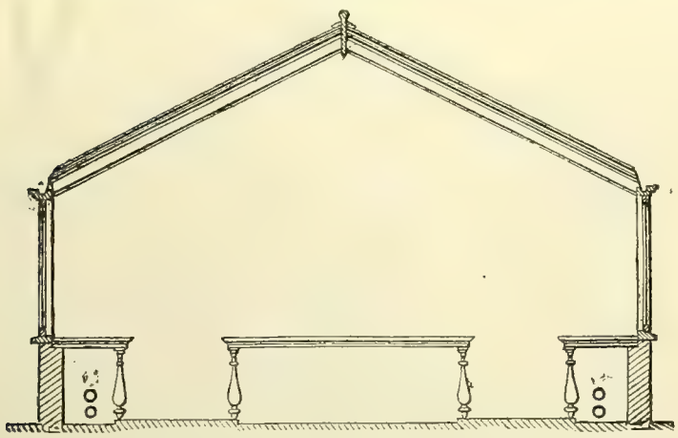
No. 3.—GREENHOUSE, from 14 to 18 feet wide.



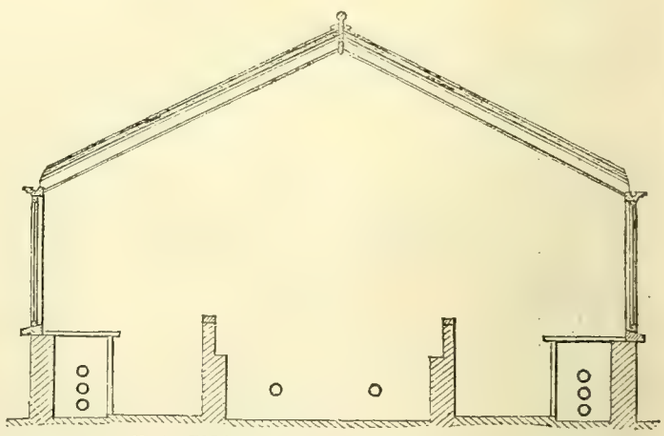
No. 4.—VINERY, from 15 to 18 feet wide.



No. 9.—GREENHOUSE, from 12 to 20 feet wide.



No. 6.—GREENHOUSE, from 18 to 20 feet wide.



No. 7.—FORCING HOUSE, from 18 to 20 feet wide.

HORTICULTURAL BUILDINGS MANUFACTURED BY STEAM POWER MACHINERY.

BEST MATERIALS AND LOWEST PRICES.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Deeply grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours, and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

PARTIES DESIRING INFORMATION as to prices, &c., will, by referring to any of the above sections, receive immediate attention.

PLANS, SPECIFICATIONS, and ESTIMATES for plain and inexpensive practical Structures, and for the most elaborate Architectural Erections, either in Wood or Iron, forwarded on application.

ORMSON'S PATENT JOINTLESS TUBULAR BOILERS

CONTINUE TO GIVE THE GREATEST SATISFACTION.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, November 19, 1864.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 48.—1864.] SATURDAY, NOVEMBER 26. {Price Fivepence. {Stamped Edition, 6d.

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ANNUAL GREAT FRUIT and FLOWER SHOW at the TOWN HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY NEXT, November 28, 29, 30, and Dec. 1 (simultaneously with the Cattle and Dog Shows). Admission: Private View on Monday, from 1 to 6 o'Clock, 2s. 6d.; after that hour, and from 10 A.M. to 9 P.M. each day, 1s.
CHAS. JAS. PERRY } Hon. Secs.
GEORGE P. TYE }

WITH the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAYS, December 3 and 10 (the weeks before and after the Cattle Show), will be published a SUPPLEMENT containing full particulars of the SHOW of STOCK and IMPLEMENTS at the AGRICULTURAL HALL, ISLINGTON. ADVERTISEMENTS intended for either of these Numbers should be sent to the Office not later than THURSDAY in each week. A Copy sent for Six Stamps.
Office for Advertisements, 41, Wellington Street, Strand, W.C.

Exhibition of Chrysanthemums.
JOHN SALTER'S Collection of these beautiful flowers will be in BLOOM throughout NOVEMBER and DECEMBER. The WINTER GARDEN will be open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, near Kensington Railway Bridge.

CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5s. per dozen. W. HOLMES, Frampton Park Nursery, Hackney.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

New Rose Catalogue and New Bulb Catalogue for 1864 and 1865.
WM. WOOD AND SON are now issuing copies of their NEW CATALOGUES, as above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.—Nurseries, King's Acre, near Hereford.

Roses established in 6-inch pots for Forcing, Greenhouse Culture, or Half Specimens for Exhibition.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have a very large and splendid Stock of well-grown Plants of the above to offer at 24s. to 30s. per dozen. The wood is well ripened, and will produce abundance of Bloom early in the season.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1864, 24s. per dozen. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

MANETTI STOCKS.—Parties having the above for Disposal are requested to state quantity and price per 1000 to E. COOLING, Mile Ash Nurseries, Derby.

New Japanese Plants.
EDWIN COOLING will have pleasure in forwarding a new and very complete CATALOGUE of the above, with prices and descriptions; also his NEW LIST of ROSES, FRUIT TREES, EVERGREENS, Winter Blooming Plants, &c., free on application. Mile Ash Nurseries, Derby.

DOBSON'S UNEQUALLED NEW PELARGONIUMS.—Plants now ready and sending out. For full description of these splendid varieties, see CATALOGUE, gratis.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

PELARGONIUMS and CINERARIAS.—Our Stock is large, all the best sorts, in strong Plants, requiring an immediate repotting; 9s., 12s., 21s., 30s., and 42s. per dozen.
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Gladioli.
B. S. WILLIAMS is now prepared to supply strong Bulbs of all the best kinds, price 4s., 6s., 8s., 10s., and 12s. per doz.
Paradise and Victoria Nurseries, Holloway, London, N.

Gladiolus Brenchleyensis.
J. BATES, Oxford, begs to offer to the Trade many Thousands of fine Bulbs at £3, £4, and £5 per 1000; or 7s. 6d., 10s., and 12s. 6d. per 100.

DUTCH FLOWER ROOTS, for present planting, cheap and good.—For 10s. 6d., 12 choice Hyacinths, 12 Narciss, 20 Single and 20 Double Tulips, 12 Jonquils, 20 Iris, 12 Anemones, 100 mixed Crocus, 12 Gladiolus, 50 Snowdrops, 50 Ranunculus, 20 Aconites, of WM. DENYER, Florist, 82, Gracechurch Street, E.C.

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Superb Double Hollyhocks.
NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and will be forwarded to any address on receipt of one postage stamp.
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B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
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Vines, extra strong, from Eyes.
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Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
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PAUL AND SON have their usual stock of well-ripened FRUITING and PLANTING VINES.
The "Old" Cheshunt Nurseries, N.

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B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH and PRICKLY CAYENNE, BLACK JAMAICA, &c. Prices on application.
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THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Magnificent Dwarf-trained Morello Cherries.
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AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseries, Worcester.

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JOHN COLQUHOUN, FRUIT MERCHANT, Glasgow, is in WANT of fine DESSERT GRAPES and PINE APPLES. Parties having such to dispose of will receive good value and cash payment for the same.
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Dwarf-trained Trees.
BY THE THOUSAND, HUNDRED, OR DOZEN.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well trained, of best quality and true to name.
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Now Ready.
JOHN HOLLAND'S CATALOGUES of extra fine Lancashire Show GOOSEBERRY TREES, CARNATIONS, PICOTEES, PINKS, AURICULAS, PANSIES, &c.
Bradshaw Gardens, Chadderton, near Manchester.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to
Mr. WEBB, Calcot Gardens, Reading.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

CARTER'S GARDENER'S VADE-MECUM.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS AND MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Crocuses.—To the Trade.
H. STROUD, The Nursery, Green Lanes, Stoke Newington, N., has above 20,000 left in upwards of 20 varieties, which he offers very cheap. Price on application.

100,000 IMPORTED DUTCH CROCUS, Surplus Stock,
1s. to 3s. per 100, or 9s. 6d. to 21s. per 1000.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

New Fuchsias.
E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

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J. STEDMAN begs to announce that he has now a fine healthy stock of the different sorts of VIOLET Plants in full Bloom, including the NEAPOLITAN, TREE, RUSSIAN GIANT, &c. CATALOGUE of prices on application.
Thornton Heath, Croydon, Surrey, S.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

AGRICULTURAL and GARDEN SEEDS.
CHARLES SHARPE & Co., Seed Growers, Sleaford.

THE LONDON SEED COMPANY, LIMITED,
68, Welbeck Street, Cavendish Square, London, W.
The GENERAL PRICE CURRENT will be ready in December.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Seed Growers and Merchants, 7, Borough Market, London, S.E.

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Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

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Elvaston Nurseries, Derby.
WILLIAM BARRON'S PRICED CATALOGUE of CONIFERÆ and other Ornamental PLANTS, &c., for the Autumn of 1864, and the Spring of 1865, is now ready, and may be had, post free, on application.

Planting Season.
WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.

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JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have a large overstock of very fine Seedling and Transplanted LARCHES, Transplanted NORWAY SPRUCE, DEODARS, and other Forest Trees. Prices on application.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50s. to 75s. per 100; or from 6d. to 2s. 6d. each, according to size and quality.
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One-year Seedling Thorn Quicks.
L. T. DAVIS, having an immense Stock of the above, will offer them at unusually low prices, which may be had on application. Carriage free to Belfast.
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COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
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WANTED, COMMON LAURELS, 3 feet. Address, with price per 100, to RD. BROWN, Nurseryman, Stamford.

WANTED, 500 TREES, 1000 SHRUBS, and 200 FRUIT TREES, all quite young.—Send List, with sizes and prices of each sort per score for cash, to be delivered on ground at Ealing.—Mr. WEEKS, 3, Selsley Place, Whitehead's Grove, Chelsea.

WANTED, 18 HORSE CHESTNUT TREES, of good size, straight stems; also 18 WOOD or IRON TREE GUARDS. Address A. M., with price, Mr. Eyre's, 20, Carey Street, Lincoln's Inn.

LARCH WANTED, Extra Large.—The Undersigned require LARCH, 4 to 5 feet (not less than 4 feet), which must be EXTRA STRONG. Give price and all particulars to
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

FOR SALE, 100 CEDRUS DEODARA, 5 to 8 ft. high.—Apply to the GARDENER, Nyman's, Handcross, near Crawley, Sussex.

FOR SALE, a very handsome healthy Plant of ARAUCARIA EXCELSA, 6 feet from the pot (it being too large for Advertiser's houses.)
Apply to H. BOYCE, Clapham Road Nursery, Stockwell, S.

WHEELER'S LITTLE BOOK on GRASSES.
Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

CLIMAX or NAPOLEON (WRINKLED) PEAS.—A few Quarters of this fine variety for Sale at 60s. per quarter; also a quantity of BEDMAN'S IMPERIAL PEAS at 52s. per qr.
Apply to Mr. S. A. DAINTREE, Fendrayton, St. Ives, Hunts.

CUCUMBER SEED.—BEDFORDSHIRE LONG RIDGE: abundant bearer and select stock, taken by the Grower from very handsome fruit, 3s. per oz., post free.
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

OSBORN'S WHITE WINTER BROCCOLI. Price 2s. 6d. per packet. Special offer to the Trade on application.
A PRICED LIST of select GARDEN SEEDS will be printed in December, and may be had free on application.
OSBORN & SONS, The Nursery, Fulham, London, S.W.

Cabbage Plants.
FOR SALE, good Strong Plants, fit for immediate planting.
For price, apply to W. MYATT, Manor Farm, Deptford, S.E.

Cabbage Plants.
FOR SALE, Four Acres of good healthy strong EARLY CABBAGE PLANTS. Can be sent out in quantities to suit purchasers.—Apply to GEO. PEGLER, Fruiterer to Her Majesty and H.R.H. The Prince of Wales, Aberdeen.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.
Application at the Gardens at Calcot, near Reading.

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MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade 5000 DWARF-TRAINED PEACHES and NECTARINES, all the leading kinds, 1 and 2-year Trained. They are unusually fine clean-grown healthy Plants. Price 36s. to 42s. per dozen, according to size, &c. Their Trade NURSERY LIST may be had on application.

Peaches, Nectarines, and Apricots.

WILLIAM FLETCHER begs to announce that he has a large stock of the above named, in Dwarf Maiden Trees, good clean healthy plants; also Dwarf Cutbacks suitable for potting. Roses and all kinds of nursery stock.

Prices forwarded on application to WILLIAM FLETCHER, Ottershaw Nurseries, Chertsey, Surrey.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1008.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each: a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.

Edinburgh and London.—November 29.

STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome; AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at

WOOD & Co.'s, Barbourne Nurseries, Worcester.

Prices upon application.

3000 Extra Strong STRAWBERRY PLANTS for forcing, in 32-size pots (many of the pots having two plants in each) consisting of the following varieties, viz., ADMIRAL NAPIER, BRITISH QUEEN, KEEN'S SEEDLING, &c., 50s. per 100: also Plants of the above, and also of ELTON PINE for Planting, 3s. 6d. per 100.

A Large Stock of fine sound Pot Roots of DAHLIAS (suitable for exportation), comprising most of the Leading Varieties in Cultivation, 42s. per 100.

Address, THOS. ANSELL, Camden Nursery, Grafton Road, Kentish Town, London, N.W.

EXTRA FINE FRUIT TREES.—Dwarf-trained Peaches, Nectarines, Plums, and Cherries, of all the leading kinds (true to name), 30s. per dozen; 12l. per 100—well trained, with from five to eight strong branches. Also extra fine Dwarf Maiden Peaches, Nectarines, Apricots, Cherries, and Plums, 60s. per 100; or 20l. per 1000—all very clean and good rooted.

GEORGE GRAY & SON, Nurserymen, Brox, near Chertsey, Surrey.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK'S NEW and CHOICE VARIETIES for this season, and that he is now prepared to supply strong plants.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, can be had post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Woodlands Nursery and Seed Warehouse,

MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON are now offering the following Collections of BULBS

FOR CONSERVATORY and GREENHOUSE.

A.	B.	C.	C. C.
£4	£2	£1	10s.

FOR FLOWER GARDEN.

D.	E.	F.	F. F.
£4	£2	£1	10s.

FOR CONSERVATORY and FLOWER GARDEN.

G.	H.	I.	I. I.
£4	£2	£1	10s.

Full particulars of the above Collections are contained in the DESCRIPTIVE CATALOGUE of BULBS, which may be had free on application.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

Standard Roses.

JEAN VERSCHAFFELT begs to offer a nice Stock of STANDARD ROSES, on fine stems, well rooted, and fine sorts, at the low rate of £5 per 100. All orders to be directed to

Jean Verschaffelt, 43, Rue de la Caverne, Ghent, Belgium.

Agents in London: Messrs. L. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

GENUINE NEW GARDEN SEEDS.

JAMES CARTER & CO.

ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.



THE "FIRST CROP" PEA.

(THE EARLIEST PEA IN CULTIVATION.)



JAMES CARTER & CO.

Beg leave to announce that they can now offer the above FIRST-CLASS PEA, which they have grown for the last three years, and BEING FULLY AWARE OF THE IMPORTANCE OF TESTING AN EARLY PEA IN EVERY WAY BEFORE SENDING OUT, they wish to assure the public that they have thoroughly proved the "FIRST CROP" PEA against all the Early Peas at present in cultivation, and the result of these careful trials and comparisons enables them to state that

THE "FIRST CROP" PEA IS EARLIER THAN ANY PEA

ever offered, and also has another advantage over all other Early varieties in being the MOST PROLIFIC EARLY PEA in CULTIVATION. Height about 2½ feet, and the haulm is literally covered with Pods.

☞ *The above will be sent out in quart packages "sealed," price 2s. 6d. per quart.*

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.



CARTER'S

LIST OF NOVELTIES FOR 1865.



Clarkia integripetala flore-pleno.

To the fine class of entire-petaled Clarkias, of which we were the original producers, we have this season the gratification of adding this magnificent DOUBLE variety, which is by far the finest of its genus; the bloom is very double, large, of a rich magenta colour, and produced in the greatest profusion; we anticipate that this will supersede entirely every other variety of Clarkia in cultivation as soon as its great merits have been observed.

Nasturtium King of Tom Thumbs.

The great usefulness and beauty of the Tom Thumb Nasturtiums are now very generally appreciated throughout the whole Floricultural world, and any improvement upon them is very desirable; the variety now offered is by far the finest of all, and we much question whether any bedding plant of any kind can equal it in effect, the lustrous blue-green foliage, contrasting vividly with the intense scarlet of the blossoms, produces an unequalled blaze of brilliance, and the plant must become a universal favourite.

Nemophila maculata purpurea.

An extremely pretty variety of this well-known tribe, the old variety of which is generally considered the handsomest of its tribe; colour, purple, with a dark violet blotch at the apex of each petal; altogether a very novel and desirable acquisition.

Godetia Lindleyana flore-pleno.

A startling novelty among this much-admired profuse-blooming class of plants; we are not aware that, previous to the variety now under notice, there has ever been seen anything approaching to a double flower among the Godetias, so that we consider that we may fairly claim attention to this striking innovation; its colour, like that of its parent G. Lindleyana, is a rich rosy purple, the blossoms are perfectly double, and produced in the greatest profusion; strongly recommended.

Whitlavia grandiflora alba.

Since the introduction of the purple Whitlavia some 10 years ago, it has speedily risen into favour, and has now become a leading favourite amongst Annuals; we think therefore that we can pay no higher compliment to the variety now offered than to say that it possesses all the merits of its predecessor, with the additional value of being pure white in colour. It must necessarily rank in the first class of Californian Annuals, and we strongly recommend it as one of the best Novelties ever introduced.

Chrysanthemum tricolor Dunnetti, fl. pl.

This charming flower may be considered the Gem of the Season; it has been produced by the most careful and assiduous cultivation from the well-known Chrysanthemum tricolor. Its colour is snow-white, and its great charm consists in its immense superiority over the other varieties in being perfectly double, even as the Truffaut's Pæony Aster, and blooming at a time (June to August) when the Aster shows foliage only; to all admirers of the Annual Chrysanthemum we strongly recommend this variety, affording as it does another convincing proof of the great results that may be obtained by judicious selection and careful growth.

SEALED COLLECTIONS OF NEW MEXICAN ANNUALS.

For the first time this last 10 years we are enabled to offer an entirely New Collection of these popular favourites; among them will be found some Novelties of a peculiar and unique character, and we feel the greatest confidence in recommending them to public notice.

No. 1. GODETIA REPTANS(?) ALBA.—A charming trailing perennial, running close upon the ground, producing blossoms in the greatest profusion, especially in the second year of growth; colour similar to that of the beautiful Godetia rosea-alba, viz.: pure white, with a crimson blotch at the base of each petal. We think this flower will be found admirably adapted for rock-work, baskets, and banks, and being a perennial it increases in beauty each succeeding year. For decided novelty, prettiness, and general effect, we consider this one of the best introductions of late years.

No. 2. GODETIA REPTANS(?) PURPUREA.—Exactly similar to the former with the exception of colour, which in this instance is a rose pink, with a purple blotch on each petal; very charming.

No. 3. GILIA MINIMA CERULEA.—Another interesting addition to this numerous and pretty race of flowers; colour, pale blue; height 3 inches.

No. 4. ŒNOTHERA PARVIFLORA.—A very neat small blooming variety, totally dissimilar from any other.

No. 5. COLLINSIA CORYMBOSA.—A Collinsia of an eccentric and peculiar character, blooming in a corymbose or disc-like form, whereas all the other varieties are pyramidal; colour, pale lilac.

No. 6. ŒNOTHERA DIVERSIFLORA.—Another beautiful variety, similar to Nos. 1 and 2, with the exception of diversity of colour, this one producing its flowers sometimes white, sometimes rosy pink of various shades, but always with a crimson blotch at the base of each petal; extremely pretty.

*** *The foregoing were received from our North American Collector some few years since, and have all been carefully grown at our Seed Farms, so that the descriptions may be depended on as correct.*

ORNITHOGALUM THYRSOIDES ALBUM.

J. C. & Co. beg to announce that they have been successful in saving a small quantity of good growing Seed of the above splendid Novelty.

*** *Price of the above to the Trade on application. Coloured Drawings in a few days, price 1s. 6d.*

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the Trees, &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for Transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post. Orders by post promptly attended to.

Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

EDWARD TAYLOR, Derwent Nurseries, Malton, Yorkshire, having large Stocks of the following, offers them at the low prices affixed:—

Large YELLOW DUTCH CROCUS, 10s. per 1000
Large BLUE DUTCH CROCUS, 10s. per 1000
CROCUS, mixed colours, 10s. per 1000
Double SNOWDROPS, 13s. 6d. per 1000
DUTCH BORDER HYACINTHS, separate colours, 16s. per 100
POLYANTHUS NARCISSUS, in variety. 12s. 6d. per 100
Double YELLOW ROSE TULIPS, 5s. per 100
Finest ENGLISH SHOW TULIPS, 5s. per 100
Choice MIXED RANUNCULUS, 3s. 6d. per 100
Fine Double Mixed ANEMONES, 4s. per 100
Fine Single Mixed ANEMONES, 4s. per 100
Single SCARLET ANEMONES, 4s. per 100
LILIUM LANCIFOLIUM ALBUM, fine roots, 9s. per doz.
LILIUM LANCIFOLIUM RUBRUM, fine roots, 9s. per doz.
LILIUM LANCIFOLIUM ROSEUM, fine roots, 9s
DEAL WOOD LABELS, 3½ inches long, 2s. per 1000, or 1s. 9d. if 20,000 be taken.

DWARF ROSES on the Manetti Stocks, the best named sorts, 40s. per 100

ASPARAGUS and SEAKALE ROOTS, TRANSPLANTED LARCH and SPRUCE FIRS, BEECH, TURKEY OAKS, HORSE CHESTNUTS, &c., &c. in large quantities.

Price to be had on application.

PAUL & SON,

"OLD" CHESHUNT NURSERIES, CHESHUNT, N.,

HAVE MUCH PLEASURE IN DRAWING ATTENTION TO THE FINE STOCK OF

STANDARD, DWARF-STANDARD, and DWARF ROSES,

WHICH THEY HAVE NOW READY FOR REMOVAL.

SEVENTY PRIZES for CUT and POT ROSES have been awarded to their Collection during the present season, and these include the Six Premier Prizes of the Metropolitan and Provincial Rose Shows.

Carriage of all goods carriage paid to London.

PRICED CATALOGUES of ROSES, FRUITS, and HARDY SHRUBS, &c., Post Free on application.

HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN, GHENT, BELGIUM,

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS Nos. 103, 104, 105, AND 106,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The Goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged in the account for each package.

The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.

TWO FIRST-CLASS NEW EARLY PEAS, QUITE DISTINCT.

SUTTON'S RINGLEADER and SUTTON'S LONGPODDED TOM THUMB.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON & SONS

Have every confidence in offering the above as decidedly the forwardest PEAS yet out, having been carefully tested last season against every other Early Pea which has hitherto been offered to the public.

The undermentioned Wholesale Houses having ordered freely of the RINGLEADER and LONGPODDED TOM THUMB PEAS, and the stock being very limited, Messrs. SUTTON regret that they cannot supply more TO THE TRADE, but Messrs. SUTTON can still supply both sorts in small quantities at

2s. 6d. per quart.

Messrs. HURST & SON, 6, Leadenhall Street, London.
Messrs. COOPER & BOLTON, 152, Fleet Street, London.
Messrs. BATT, RUTLEY, & SILVERLOCK, Strand, London.
Messrs. BECK, HENDERSON, & CHILD, Upper Thames Street, London, E.C.
Messrs. NUTTING & SON, 60, Barbican, London, E.C.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

"THE STUDENT" PARSNIP.

The FIRST PRIZE for PARSNIPS at the INTERNATIONAL SHOW of the Royal Horticultural Society, South Kensington, October, 1862, was awarded to "THE STUDENT," raised from Seed obtained at Messrs. SUTTON & SONS, Reading. It has also obtained many other Prizes this year.

The flavour of this PARSNIP is far more agreeable than that of other kinds.

Those exhibited on Messrs. SUTTON'S Stand having been sown very late in the season were of more moderate size, and are thus described by the reporter for the "Gardeners' Weekly Magazine:"—"But the subject of most interest to the gardeners was a lot of roots of the Student Parsnip, a new sort raised by Professor Buckman by successive improvements of the Wild Parsnip. The distinctness of this variety is perceptible in a moment; the roots are of moderate size, regularly tapering, and with a clean yellowish skin, without trace of canker."

SUTTON & SONS are now prepared to offer New Seed of this popular new Vegetable at

8d. per ounce, or 7s. per pound.

Also to the Trade in larger quantities on liberal terms.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.

WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—

MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; on or perhaps the most attractive and beautiful. 42s. each.
MRS JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42s. each.
MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31s. 6d. each.
STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy; decidedly the best in its way; it is a very free bloomer. 31s. 6d. each.
LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31s. 6d. each.
CHARLES BAGLEY.—Cherry red, fine habit and truss. 31s. 6d. each

Knap Hill Nursery, near Woking, Surrey.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

CAMELLIAS and AZALEAS, full of Flower Buds, 18s., 24s., and 24s. per doz. DUTCH BULBS, an immense quantity, to be sold much below the usual prices. FERNS and FERN CASES, an immense variety.

R. GREEN, 154, Kingsland Road, N.E.; and Bedford Conservatories, Covent Garden Market, W.C.

Notice, Seed Trade.

F. W. WENDEL'S, Erfurt, WHOLESALE SEED CATALOGUE, now ready, and will be forwarded Free and Post paid on application to F. W. W.'s English Agent,
GEORGE MACINTOSH, Exotic Nursery, High Road, Hammersmith, W.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

New Plants.

AMBROISE VERSCHAFFELT'S NEW CATALOGUE, No. 75, can be obtained free at Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

THE ILLUSTRATION HORTICOLE. By AMBROISE VERSCHAFFELT, Ghent, Belgium. The OCTOBER Number contains:—
NEW PEAR BEURRE VAN GEERT | AZALEA PONTICA BOUQUET DE FLORE
CLEMATIS JACKMANNI.
The NOVEMBER Number contains:—
ROSE HYB. REM. DUCHESSE DE MEDINACELI | VANDA LOWII
CAMELLIA ISABELLA ORSINI.
Price 14s. 6d. per year, free.

Now Ready,

NEW HARDY CLIMBING PLANTS, well adapted for covering Verandahs, Trellis-work, Walls, Porticos, Pillars and Festoons, &c.

CLEMATIS JACKMANNI, First-class Certificate,
CLEMATIS RUBRO-VIOLACEA, First-class Certificate,
Awarded by the Royal Horticultural Society, August 4, 1863.

PATRONISED BY
Her Majesty the Queen.
Royal Horticultural Society, London.
Royal Botanic Gardens, Edinburgh.
The Nobility and Gentry.

GEORGE JACKMAN & SON, Woking Nursery, Surrey, have much pleasure in informing the public that they may rely on the undermentioned Trade Firms having the Two New and Hardy Varieties of Clematises true to name, having been supplied direct from us.

Mr. Bell, Jno., Norwich
Mr. Bracher, B., Wincanton
Messrs. Bridgeford & Son, Dublin
Mr. Bunney, G. H., Stratford
Mr. Brewer, F., Birmingham
Mr. Baker, Geo., Windlesham
Mr. Barratt, W., Wakefield
Messrs. Backhouse & Son, York
Mr. Barnes, Wm., Camberwell
Mr. Bull, Wm., Chelsea
Mr. Cant, B. R., Colchester
Mr. Clarke, Geo., Brixton
Mr. Cole, J., Birmingham
Mr. Cripps, T., Tunbridge Wells
Mr. Cocker, J., Aberdeen
Mr. Cattell, J., Westerham
Mr. Cooling, E., Derby
Messrs. Campbell, A. & Son, Dublin
Mr. Coudrey, F. W., Birmingham
Messrs. Dickson, J. & Son, Chester
" Dickson, F. & A. & Son, Chester
" Dillistone & Co., Sturmer
Mr. Davies, Geo., Liverpool
Mr. Ewing, J. W., Norwich
Mr. Fraser, John, Lea Bridge Rd.
Messrs. Fisher Holmes & Co., Sheffield
" Garaway & Co., Bristol
Mr. Haage, F. A. Jun., Erfurt
Messrs. Henderson, E. G. & Son, London
" Henderson, A. & Co., London
Mr. Harrison, T., Leicester
Mr. Hewitt, T., Solihull [mond
Messrs. Herbst & Stenger, Rich-
" Ivery, Jas. & Son, Dorking
Mr. Ivery, W., Peckham
Mr. Jackman, Wm., Woking
Messrs. Lee, J. & C., Hammersmith
Mr. Laurentius, H., Leipzic
Messrs. Lucombe, Pince & Co., Exeter
" Laird & Sinclair, Dundee
" Low, H. & Co., Clapton
Mr. Mitchell, Jas, Maresfield
Mr. Morrison, R., Elgin
Mr. Morse, E., Epsom
Mr. Noble, Chas., Sunningdale
Mr. Nelson, Jno., Bristol
Mr. Oldroyd, H. J., Shrewsbury
Messrs. Osborn & Son, Fulham
" O'Keeffe, M. & C., Dublin
Mr. Perkins, John, Northampton
Mr. Parker, Robt., Tooting
Mr. Pope, Henry, Birmingham
Messrs. Pridham & Sanders, Croydon.
Mr. Perkins, E., Leamington Spa
Messrs. Pearson, J. R. & A., Chilwell
Mr. Palmer, John, Annan
Messrs. Rollisson, W. & Son, Tooting
" Rivers, T. & Son, Sawbridgeworth
Mr. Standish, John, Ascot
Mr. Shaw, John, Manchester
Messrs. Saltmarsh & Son, Chelmsford
" Stewart & Son, Dundee
Mr. Smith, Richard, Worcester
Mr. Spence, E. B., Darlington
Mr. Sandy, J., Stafford
Messrs. Toole & Co., Dublin
" Urquhart, W. & Son, Dundee
Mr. Veitch, Jas., Chelsea
Mr. Van Houtte, L., Ghent
Mr. Verschaffelt, Jean, Ghent
Messrs. Wood, W. & Son, Marcesfield
" Waterer & Godfrey, Woking
Mr. Waterer, John, Bagshot
Mr. Wood, J., Rouen
Messrs. Wood & Ingram, Huntingdon
Mr. Walton, Hy., Marsden
Mr. Williams, B. S., Holloway
Mr. Wheeler, Geo., Warminster
Mr. Weick, Adolp., Strasbourg.
Mr. Wills, W., Leamington Spa
Mr. Warner, Thos, Leicester
Mr. Watkinson, Hy., Manchester
Mr. Yates, R. S., Sale

N.B. Second List will be Advertised.

Strong Plants, 21s. each. The usual allowance to the Trade.

Two Coloured Drawings by Andrews may be had post free for 24 stamps.

Splendid Named Hybrid Gladioli.

JAMES VEITCH is prepared to supply Selections from a MAGNIFICENT COLLECTION of the above at 12s., 18s., 30s., and 42s. per dozen.
CATALOGUES will be forwarded free on application.
Royal Exotic Nursery, King's Road, Chelsea, S.W.

JAMES VEITCH begs to announce that the following CATALOGUES are now ready, and will be forwarded free on application.
A DESCRIPTIVE CATALOGUE of HARDY PLANTS.
A DESCRIPTIVE CATALOGUE of FRUIT TREES.
A DESCRIPTIVE CATALOGUE of ROSES.
Also may be had
A GENERAL CATALOGUE of STOVE and GREENHOUSE PLANTS (Ferns and Orchids being included).
A CATALOGUE of NEW and RARE PLANTS for 1864.
Royal Exotic Nursery, King's Road, Chelsea, S.W.

New Seeds, Growth of 1864.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.
The prices are moderate and the quality fine, owing to their having been harvested well.
Royal Berkshire Seed Establishment, Reading.

DOBSON'S CELEBRATED SEEDS.
The finest Strain in cultivation.
DOBSON'S SUPERB CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., 5s.
DOBSON'S SUPERB CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PRIMULA, 1s., 2s. 6d., 5s.
A liberal allowance to the Trade.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

To the Seed Trade.

NEW ANNUALS for 1865.

WAITZIA AUREA,
Brilliant Yellow Everlasting, from Swan River.
WAITZIA CORYMBOSA,
Red and White Everlasting, from Swan River.
VERONICA GLAUCA,
Dwarf Blue, from Greece.
CALLIRRHOE INVOLUCRATA,
Crimson, from N. America.

W. THOMPSON, Tavern Street, Ipswich, respectfully announces to the Trade that he is now ready to supply Seed of the above interesting Novelties, of which full descriptions and prices will be forwarded on application. Of the three last only a very small quantity remains available for distribution.

CARTER'S GARDENER'S VADE-MECUM.

CHOICE PRIMULA SEED, WILLIAMS's superb Strain, the finest fringed and best coloured flowers in cultivation, proved by numerous testimonials.
In sealed packets, Red, White, or mixed Seed, 2s. 6d., 3s. 6d., 5s.
A liberal allowance to the Trade.
Paradise and Victoria Nurseries, Holloway, London, N.

New Pansies.

THOMAS BARNES is now prepared to execute orders for his splendid SEEDLING PANSIES, a DESCRIPTIVE LIST of which may be had on application.
Very choice PANSY Seed, 1s. 6d., 2s. 6d., and 5s. per packet.
GLADIOLUS BOWIENSIS (bright glowing scarlet), in fine bulbs, per 100, 10s., 15s., and 20s.; per 1000, 90s., 125s., and 150s.
Dane Croft Nursery, Stowmarket, Suffolk.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.
Knap Hill Nursery, Woking, Surrey.

HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by WM. CUTBUSH & SON.
TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.
The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.
Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.
Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

New Acer.

ACER PSEUDO PLATANUS, var. LEOPOLDII,
Figured in "Illustration Horticole."
This magnificent novelty may be had of A. VAN GEERT, Nurseryman, Ghent, Belgium. Price 7s. 6d. to 16s. each; one over for every three taken.

CHOICE SEEDS, CROP 1864.—AURICULA, LAPAGERIA ROSEA, ZONALE PELARGONIUM, Ditto VARIEGATED, CALCEOLARIA, PRIMULA, CARNATION, PICOTEE, HOLLYHOCK, MOTTLED and SPOTTED MIMULUS, CYCLAMEN PERSICUM, &c. Each 1s. and 2s. 6d. per packet.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Two Splendid Seedling Azaleas.

WILLIAM BARNES begs to announce that in consequence of the great demand he has had for small plants of his BRIDE of ABYDOS, he is unable to supply any more of this size
PURITY.—A few small plants to offer at the prices advertised.
Plants of an extra size of both the above varieties can still be had, the Prices of which can be obtained upon application.
Camden Nursery, Camberwell.—Nov. 26.

ORCHIDS.—Any Amateur having a surplus Stock of ORCHIDS, and wishing to Exchange for other Plants, such as Camellias, Azaleas, Rhododendrons, New Holland Plants, Palms, &c., May apply to A. VAN GEERT, Nurseryman, Ghent.
CATALOGUES may be had of Messrs. R. SILBERRAD & SON, 5, Harp Lane, Tower Street, London, E.C.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HE IS

NOW DISTRIBUTING THIS VALUABLE GRAPE,

THE BEST LATE WHITE GRAPE EXTANT.

Strong Planting Canes, 21s. each; Strong Fruiting, 42s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

NEW MELON "MALVERN HALL."

B. S. WILLIAMS

HAS MUCH PLEASURE IN OFFERING FOR THE FIRST TIME

THIS VALUABLE MELON,

Which has been fully proved, after three seasons competitive trial with all the best sorts in cultivation, to be the earliest to ripen and the first in setting its fruit. It has taken many First Prizes during the last and previous seasons at different Provincial Shows.

The following description is supplied by the Raiser, Mr. STEVENS:—"Plant of robust habit and vigorous growth, a very free setter and sure cropper; quite ten days earlier than any other variety. Fruit from one to two pounds in weight; scarlet flesh, rind tender, yellow mottled and streaked with dark green; fine flavour.

Price 2s. per packet.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

TO THE TRADE.—NOLANA LANCEOLATA.

JAMES VEITCH

HAS MUCH PLEASURE IN DIRECTING ATTENTION TO THIS

BEAUTIFUL NEW ANNUAL,

Which he has received from his South American Collector, Mr. PEARCE.

It is a native of Chili, and the following is Mr. Pearce's description:—"It is one of the prettiest Annuals I ever saw, with trailing branches, bearing a profusion of large blue Convolvulus-like blooms of the most lovely tint, the throat being white, giving the flower a very striking appearance; it is quite distinct and very much larger than N. paradoxa, which belongs to the same section."

Subsequent trials in this country have proved that it is a most valuable addition to this already beautiful genus of Trailing Plants, and it will doubtless become one of the most useful and admired Annuals for Rockwork, Hanging Baskets, &c., ever introduced.

Sir W. Hooker, in the "Botanical Magazine," says:—"This charming and as yet little known Annual promises to be a great acquisition to our parterres in summer. It is a compact growing plant, and its large brilliant blue flowers (a colour so valuable in our Flower Borders), with a clear distinct white eye, are both numerous and striking."

It was awarded a Medal by the Floral Committee of the Royal Horticultural Society in 1862, and has been universally admired by all who have seen it.

Price on application.

A Beautiful COLOURED PLATE, by Mr. W. H. FITCH, will be presented to purchasers.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent carriage paid.

100,000 Imported DUTCH CROCUS (Surplus Stock), 1s. to 3s. per 100, or 9s. 6d. to 21s. per 1000.

SPRING GARDENING IS DONE AT CLIVEDEN

BY PLANTING THE FOLLOWING LIBERALLY AT THE PRESENT SEASON:—

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

600 TULIPS Assorted	500 SNOWDROPS	300 ANEMONES	200 NARCISSUS
1000 CROCUS	100 SCILLAS.	300 RANUNCULUS	200 WINTER ACONITES

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual-flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES	
50 " " "	Beautiful BLUE PANSIES	100 PINK DAISIES	
50 " " "	RICH PURPLE PANSIES	100 RICH BLUE FORGET-ME-NOT	
50 Mixed POLYANTHUS		100 PINK SILENE	

The above Collections can be modified to suit the requirements of purchasers.

The Cliveden Perpetual-flowering YELLOW PANSY, 4s. per dozen.
Ditto Perpetual-flowering beautiful BLUE PANSY, 4s. per dozen.
Ditto Perpetual RICH PURPLE PANSY, 4s. per dozen.
Ditto WHITE DAISY, 2s. 6d. per dozen.
The Cliveden PINK DAISY, 2s. 6d. per dozen.
Ditto RICH BLUE FORGET-ME-NOT, 1s. 6d. per dozen
Ditto PINK SILENE, 1s. 6d. per dozen.
Ditto Mixed POLYANTHUS, including the GIANT var., 3s. per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

CHOICE SEEDS.—CROP 1864.

AURICULA, POLYANTHUS, ZONALE PELARGONIUM, do. VARIEGATED, FRENCH, ENGLISH, and FANCY PELARGONIUMS, CYCLAMEN PERSICUM, PANSY, LAPAGERIA ROSEA, CARNATION, PICOTEE, &c., 1s. and 2s. 6d. per packet.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

ROYAL HORTICULTURAL SOCIETY,

SOUTH KENSINGTON.

Patron—HER MAJESTY THE QUEEN.

President—THE DUKE OF BUCCLEUCH, K.G., ETC., ETC.

REGULATIONS FOR THE YEAR 1865.

1. The Society has two Gardens, one at South Kensington, the other for experimental Horticulture at Chiswick. The Chief Exhibitions, Fêtes, and Promenades are held at South Kensington.

2. For convenience in the necessary arrangements the year is divided into two seasons, an out-of-door and an in-door season. The out-of-door season is from the 1st May to the 31st October, the in-door season from the 1st November to the 30th April.

3. During the out-of-door season, Plants and Flowers are Exhibited as far as possible in the Gardens; during the in-door season the South Kensington Exhibitions and Promenades take place in the Conservatory, Glazed Arcades, Pavilions, Orchard Houses, &c. These buildings afford an uninterrupted walk of about the third of a mile, and are protected from draughts. They are warmed to the temperature required for the various plants exhibited.

ADMISSION TO THE GARDENS.

4. The Gardens at South Kensington are open to Fellows on all ordinary days throughout the year from 9 A.M. till sunset, except Sundays, when they are opened at 2. On week days, except on certain fête days, the Gardens are private to the Fellows and their friends up to 1 o'clock: after 1 o'clock the public are admitted on payment.

5. The Garden at Chiswick is open to Fellows and the public daily, except on Sundays, from 9 A.M. till sunset. On Sundays it is closed.

FÊTE DAYS.

6. The following are established fête days in each year:—The Queen's birthday or the day on which it is appointed to be held: the 26th August, the anniversary of the birthday of the Prince Consort, the founder of the South Kensington Gardens; when it falls on Sunday it will be held the Monday following: the 5th June, the anniversary of the opening of the Gardens in 1861, when a Horticultural *déjeuner*, limited to Fellows, will take place; the 1st May and 1st November, the first days of the out-of-door and in-door season; (if any of the three last days fall on a Sunday, these fêtes will be held on the preceding Saturday); also Easter Monday and Tuesday, and Whit Monday and Tuesday. One or more bands will play on all fête days.

SHOWS.

7. All Shows at South Kensington take place, or commence, on Saturdays throughout the year. At the weekly Shows, medals and certificates of merit only will be given. At the other Shows, money prizes as well as medals and certificates of merit will be offered.

The following Shows are fixed for the year 1865. Schedules will be duly issued.

GREAT SHOWS.

A Great Show of all kinds of Flowers, Plants, and Fruit, will be held on the Saturday in June, which falls between Ascot and Derby weeks, viz., 10th June. The Show will last only a single day.

A Great Show of Roses on the first Saturday in July. (1st July). It will last only a single day.

A Great Show of Fruit and Vegetables on the fourth Saturday in July. (22d July.)

SPECIAL SHOWS.

A Show of Hyacinths and Camellias on the third Saturday in March. (18th March).

A Show of Early Azaleas and Spring Flowers on the second Saturday in April. (8th April).

A Show of Orchids on the second Saturday in May. (13th May).

A Show of Pelargoniums, including scarlet and variegated varieties, on the first Saturday in June. (3d June).

A Show of Azaleas, with the flowers trained, partially trained, or in their natural growth, on the third Saturday in June. (17th June).

A Show of Plants of Ornamental and Variegated Foliage on the second Saturday in July. (8th July).

A Show of Liliaceæ and Amaryllidæ on the third Saturday in July. (15th July).

A Show of Ferns and their allies on the last Saturday in July. (29th July).

FLORAL DECORATION SHOW.

8. A Show of Decorations for Dinner and Supper Tables, and of Bouquet holders. This Show will be held on the fourth Saturday in June (24th June), and will also be open in the evening.

SHOWS BY INDIVIDUAL NURSERYMEN.

9. A continuous Show of Tulips will be held in the spring by Messrs. Henderson, of Wellington Nursery, St. John's Wood Road.

10. A continuous Show of Rhododendrons will be held in the summer under the Great Tent by Messrs. Waterer and Godfrey, of Knap Hill, Woking.

11. A continuous Show of Chrysanthemums will be held in the winter.

INTERNATIONAL SHOWS.

12. An International Show of Horticultural Implements will be held during the month of July.

13. An International Show of Fruit and Vegetables will be held during the second week in December.

FORTNIGHTLY MEETINGS AT SOUTH KENSINGTON.

14. Fortnightly meetings for the election of Fellows, reading of papers, and transaction of scientific business, will be held in the Council Room, except in the months of August, September, and October, on every other Saturday throughout the year that is not preoccupied as a fête day, or for one of the Great Shows. Chair to be taken by the President, or in his absence by some Fellow, at 12 o'clock.

15. At these meetings notice will be taken of flowers, fruit, and vegetables sent for exhibition, and certificates of merit will be awarded.

WEEKLY SHOWS AND PROMENADES AT SOUTH KENSINGTON.

16. On the afternoon of every Saturday throughout the year there will be an Exhibition of Flowers in Pots, and of Fruit and Vegetables by the Fellows and others. The Shows will commence at 2 o'clock, and will be continued until the following Wednesday.

17. Medals and certificates of merit will be given.

18. The Queen has been pleased to command that contributions shall be sent from the Royal Gardens, Frogmore, to these Shows, and numerous Fellows have promised to exhibit.

19. There will always be a promenade with music at these Shows at 3 o'clock in the out-door season, and at 2 o'clock in the in-door season

VARIOUS EXHIBITIONS.

20. In addition to the above Shows there will be continuous exhibitions at South Kensington of the hatching and growth of trout and salmon directed by Mr. Frank Buckland; of sea plants; of bees and beehives; and of the Ailantus silkworms, belonging to Lady Dorothy Nevill.

PRIZES.

21. Prizes for the best plants and vegetables cultivated by soldiers in barracks, by sailors in homes, by coastguard men, and by workmen employed in Her Majesty's Dockyards, will be awarded on the first Monday in August. A schedule will be issued.

22. Prizes given for specimens of Window Gardening among the working classes in metropolitan parishes will be awarded at a public fête on the first Monday in September. A schedule will be issued.

CONVERSAZIONI.

23. There will be two Conversazioni which are open to Fellows only, and not to the public. The evenings will be appointed by the President in May and June.

CHISWICK SHOWS.

24. Strawberry Show and fête in June, Show of the Chiswick Trial Flowers in August, and Show of Vines and Fruit grown at Chiswick, in September. These Shows will be held on Wednesdays hereafter to be fixed according to the general character of the season.

EXAMINATIONS AND CERTIFICATES FOR GARDENERS.

25. Central Examinations of Gardeners in Theoretical and Practical Gardening will be held annually at South Kensington, and local examinations will be held in the country. Certificates of competency and prizes will be awarded at both examinations.

FELLOWS AND THEIR PRIVILEGES.

TWO GUINEA F.R.H.S.

26. Fellows paying an entrance fee of two guineas, and an annual subscription of two guineas, have personal admission every day, and to all Shows, fêtes, and Promenades, both at Chiswick and South Kensington. They have also the right of introducing personally two friends, on Mondays, Tuesdays, Wednesdays, Thursdays, Fridays, and Sundays, but not on Saturdays. In addition to these privileges they receive 20 tickets which are each of the value of one shilling, and are available for any day when the entrance is one shilling or less; a copy of the Journal of Proceedings of the Society is gratuitously issued to them; they share in the distribution of seeds, and they have the right to enter the ballot for rare plants, and to purchase fruit from Chiswick. They have admission to the Conversazioni.

FOUR GUINEA F.R.H.S.

Fellows paying four guineas have double the privileges of two guinea Fellows, as respects the right of introducing friends, the distribution of seeds, the ballot for plants, and the number of tickets they receive, with the further advantage that both their yearly tickets are transferable. They have also the privilege of purchasing any number of transferable tickets for two guineas each. These transferable tickets confer on their bearers all the privileges of personal admission, and of introducing friends, which the Fellows themselves could exercise. Admission to the Conversazioni is limited to Fellows, the holders of transferable tickets, debenture holders and their nominees.

The Fellows of the Royal Horticultural Society have the privilege of purchasing tickets for the Shows at a reduced price before the day of the Show, viz.:—

At 3*s.* 6*d.* for each of the Great Shows, and 2*s.* 6*d.* for each of the Special Shows.

COUNTRY SUBSCRIBERS.

27. Persons residing beyond 20 miles from the metropolis may be admitted to limited privileges. On payment of one guinea entrance and one guinea annually, they receive a copy of the Journal gratis; and they obtain admission to the Gardens at Kensington and Chiswick by means of tickets of the value of the annual subscription. They have no votes and cannot attend general meetings. They may nominate local Horticultural Societies to enter into union with the Royal Horticultural Society.

TOWN SUBSCRIBERS FOR SEASON TICKETS.

28. Personal Season Tickets, not transferable, may be purchased for 20*s.* for the out-door season and 10*s.* for the in-door season. These will give admission for every day in the year, including all Shows, Promenades, and day fêtes, at South Kensington. These tickets do not confer any of the special rights of Fellows.

DEBENTURE HOLDERS.

29. Persons holding debentures, and their nominees, have the privilege of free admission to the Gardens whenever they are open.

CHISWICK SEASON TICKETS.

30. Annual Season Tickets, not transferable, and giving admission only to the experimental Chiswick Gardens and Shows, may be purchased by residents at Chiswick and others, for 10*s.* each.

ADMISSION OF THE PUBLIC.

31. Admission to each of the Great Shows is obtained by the public by tickets, to be purchased for 5*s.* each before the day, and for 7*s.* 6*d.* on the day of the Show.

32. Admission to each of the Special Shows is obtained by the public by tickets, to be purchased for 3*s.* 6*d.* each before the day, and for 5*s.* each on the day of the Show.

33. The admission to the first day of all other Shows at South Kensington, and to the Saturday weekly Shows, is 2*s.* 6*d.*, except in August, September, and October, when it is reduced to 1*s.*

34. The admission to the Shows held at Chiswick will be 2*s.* 6*d.*

35. Admission to the South Kensington Gardens after 1 o'clock on the days mentioned below, not being Show, fête, or Promenade days, will during the London season be as follows:—

Saturdays, 2*s.* 6*d.*

Sundays, the Gardens are closed to the public but open to Fellows and their friends personally introduced.

Mondays, 6*d.*

Tuesdays, Wednesdays, Thursdays, and Fridays, 1*s.*

Admission during the months of August, September, and October, when the London season is over, 3*d.* every day but Saturday. On Saturday it is 1*s.*

Admission on the Queen's Birthday, 1*s.*; on Easter Monday and Tuesday, and Whit Monday and Tuesday, 3*d.* each day.

36. On the 26th August, the Anniversary of the Birthday of the Prince Consort, the founder of the South Kensington Gardens, these Gardens are open free at the wish of Her Majesty. Above 153,000 persons visited them on the 26th August, 1864.

37. Admission to the Experimental Garden at Chiswick, excepting on Show Days, 1*s.* daily, throughout the year.

GUIDE BOOK.

38. A Guide Book to the South Kensington Gardens, price 6*d.*, is to be had at the Gardens and of all booksellers.

TESTIMONIAL to MR. INGRAM, CHIEF GARDENER to HER MAJESTY at FROGMORE.

The following Gentlemen have consented to form a GENERAL COMMITTEE for carrying out the above object:—

The Viscount Kirkaldie, Windsor.
The Hon. and Very Rev. Dr. Wellesley, Dean of Windsor.
Major-Gen. Hood, Cumberland Lodge, Windsor.
The Rev. E. Coleridge, Eton College.
The Rev. Joshua Dix, M.A., London.
The Right Hon. Charles Lawson, Lord Provost of Edinburgh.
The Right Hon. Sir W. G. Hayter, M.P., South Hill Park, Bracknell.
Sir James Clark, M.D., Bagshot Park.
Sir Joseph Paxton, M.P., Sydenham.
Mr. G. Allen, Old Windsor.
J. J. Blandy, Esq., Reading.
Mr. Brebner, Norfolk Farm, Windsor.
Mr. Carmichael, Sandringham.
Mr. George Eyles, Chiswick.
Mr. John Fleming, Cliveden.
E. B. Foster, Esq., Clewer Manor, Windsor.
A. F. Godson, Esq., Inner Temple, London.
Mr. James Gray, Chelsea.
Mr. Arthur Henderson, Edgware Road.
Dr. Robert Hogg, Pimlico.
G. W. Johnson, Esq., London.
Mr. Joseph Knight, Hampton Court.
Mr. John Keynes, Salisbury.
Mr. John Lee, Hammersmith.
Mr. Charles Lee, Hammersmith.
Mr. Mackenzie, Alexandra Park.
Mr. J. McIntosh, Drumlanrig.
Mr. W. Menzies, Windsor Great Park.
Mr. J. F. Meston, Kentish Town.
Dr. Moore, Glasnevin.
Thomas Moore, Esq., Chelsea.
Mr. Richard Oxley, Windsor.
Mr. William Paul, Waltham Cross.
Mr. Thomas Rivers, Sawbridgeworth.
Mr. John Salter, Hammersmith.
Mr. John Spencer, Bowood.
Richard Stains, Esq., London.
Mr. John Standish, Ascot.
Mr. Henry Tait, Shaw Farm, Windsor.
Mr. William Thomson, Dalkeith.
Mr. Charles Turner, Slough.
Mr. James Veitch, Chelsea.
Mr. B. S. Williams, Holloway.

COMMITTEE OF MANAGEMENT.

Chairman—Dr. ROBERT HOGG.

Mr. G. Allen.
Mr. Brebner.
The Rev. Joshua Dix, M.A.
Mr. George Eyles.
Mr. John Fleming.
A. F. Godson, Esq.
Mr. James Gray.
Mr. Arthur Henderson.
Mr. J. Keynes.
Mr. Joseph Knight.
Mr. John Lee.
Mr. Charles Lee.
Mr. Mackenzie.
Mr. J. F. Meston.
Thomas Moore, Esq.
Mr. William Paul.
Mr. Rivers.
Mr. J. Salter.
Richard Stains, Esq.
Mr. J. Standish.
Mr. Henry Tait.
Mr. Charles Turner.
Mr. James Veitch.
Mr. B. S. Williams.

Honorary Secretary—Mr. EDWARD BROWN, Slough, Bucks.

Honorary Secretary for Scotland—Mr. WILLIAM THOMSON, The Gardens, Dalkeith Park.

Honorary Secretary for Ireland—Dr. DAVID MOORE, Glasnevin Botanic Garden, Dublin.

It has been well observed—"That it is always an agreeable task to do honour to those who have long and well occupied a responsible position, and all the more so to Horticulturists, if that position has been a prominent one in the world of Horticulture."

It is but rarely indeed, that an opportunity presents itself for the recognition of the fulfilment of arduous and important duties for the prolonged period of half a century with so much credit and so as to win universal respect, such as that which occurs in the case of Mr. INGRAM, who has entered on the FIFTIETH YEAR OF SERVICE in the ROYAL GARDENS at WINDSOR.

Most of the Members of the gardening community are aware of the great interest which Mr. INGRAM has always manifested in the cause of Horticulture; and appreciate the correctness of his endeavours, and the success that has attended his labours for the advancement of that science. His great experience and general knowledge; his readiness at all times to impart information; and the kindness and courtesy which has invariably characterised his intercourse with all, have naturally and justly engendered a feeling of the deepest respect.

It is, therefore, proposed that a TESTIMONIAL should be presented to Mr. INGRAM as a mark of the high esteem and cordial regard universally entertained for him, and that a SUBSCRIPTION be at once opened to enable the Committee to carry out this desirable object. The co-operation and support of the Horticultural public, and of the numerous friends of Mr. INGRAM, is hereby respectfully solicited.

Subscribers in England are requested to send their Contributions, with their names and addresses in full, to Mr. EDWARD BROWN, Slough, Bucks. The amount of subscriptions is not limited. Post Office Orders should be made payable at Slough; and Cheques crosse "REID & Co.," Windsor.

With the view of facilitating the collection of Subscriptions, it has been arranged that two Secretaries should be appointed for Scotland and Ireland respectively, to act jointly with Mr. E. BROWN; and Mr. W. THOMSON, the Gardens, Dalkeith Park, who has consented to act in Scotland, and Dr. DAVID MOORE, Glasnevin Botanic Garden, Dublin, in Ireland, are authorized to receive Subscriptions that may be sent to them for the Testimonial Fund.

Committee Room, Anderton's Hotel,
Fleet Street, London.—Nov. 1864.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 26, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Dec. 1—Linnean .. .. 8 P.M.

WE have received from P. L. HINDS, Esq., of Byfleet Lodge, Surrey, a fruit of the PAPAW, Carica Papaya, which has just been ripened in a small tropical fruit stove at Byfleet, under the care of that gentleman's gardener, Mr. CARR.

The plant from which the fruit was gathered has been subjected to strong bottom-heat, which seems necessary to its success, and which is supplied at Byfleet by means of tan and hot-water pipes combined. The plant itself is young, and the fruit consequently small; nevertheless it measures 11½ inches in circumference, and 7 inches in length from the stalk to the apex, the form being long-ovate and obsoletely angular, and the colour a uniform dull orange. The flesh is throughout of the same orange colour as the skin, and in texture and succulency resembles that of a ripe Melon, but such flavour as it possesses is mawkish, and altogether wanting in the qualities looked for in a dessert fruit. Mr. HINDS is of opinion that next year he will be able to obtain fruit twice or three times the size of that which has been produced this season.

We fear, however, that the Papaw is not destined to take a high position amongst our cultivated dessert fruits. The specimen which Sir W. HOOKER figured in the *Botanical Magazine*, so long since as 1829, was not very highly spoken of as regards its flavour; nor does that which was figured in the *Botanical Register* in 1820 from the gardens at Syon, appear to have been more highly esteemed. In fact it is generally held that when ripened in our stoves it does not acquire such a flavour as to render it grateful to the palate, what-

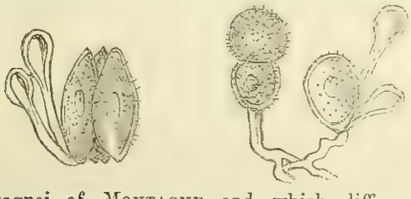
ever may happen in the tropics. MILLER indeed went so far as to say that those which had ripened in England were detestable, and their only use after soaking them in salt water, was to form a pickle, which is a good substitute for that of Mangos.

Though the Papaw is largely cultivated in most tropical countries, its fruit is, we believe, seldom eaten raw. When ripe it is occasionally eaten with pepper and sugar, and is thought agreeable by some persons; but usually it is made into a sauce or preserved in sugar, and the unripe fruit is either pickled, or boiled and eaten like Turnips. Thus cooked it is esteemed by some persons, but it has little to recommend it. The chief value of the Papaw fruit is that in an unripe state its juice is a most powerful vermifuge; and it is worthy of remark that a constituent of this juice is fibrine, a principle formerly supposed to be peculiar to the animal kingdom and to Fungi. The tree, moreover, as well as its acrid milky juice, and an infusion of its fruit and leaves, has the singular property of rendering the toughest animal substances tender, by causing a separation of the muscular fibre.

WE received, two or three weeks since, some PEACH LEAVES from a correspondent, with a request that we would inform him as to the cause of their discoloration, about which he felt anxious, as nearly all the leaves were in the same condition, and the fruit was dwarfed and withered. On opening his letter we were at once struck with the exact resemblance which the spots on the leaves bore to some which appeared on Peach leaves sent to us from Madeira by Mr. SALWEY, and others from South Carolina, transmitted by Mr. CURTIS.

Our suspicion as to their identity was not, however, confirmed on closer examination—a warning amongst so many others against hasty judgments, for the parasite to which the spots were due proved none other than the common Puccinia Pruni, which is so frequent on many varieties of Plum, accompanied by its secondary form of fruit, which is published by LÉVEILLÉ as Lecythea Pruni spinosæ. Of this we give a figure (that at the right hand of our woodcut) representing two of the barren cells which surround the little cushion-like tuft, under a high magnifying power; one of the stylospores or secondary fruit, and the completely developed Puccinia, which is about $\frac{1}{111}$th of an inch in length, while the stylospores measure about $\frac{1}{1500}$th.

The species occurs in all parts of Europe, and has moreover been found at Smyrna by LÉVEILLÉ on the Apricot. M. CASTAGNE has detected it at Marseilles on the Plum, and this is the most southern European station which is at present known. M. CASTAGNE, however, finds another parasite at Marseilles on the Apricot, which we believe is Uredo



Castagnei of MONTAGNE, and which differs in having the secondary form of fruit far more elongated, though varying from $\frac{1}{1666}$th to $\frac{1}{833}$rd of an inch in length. The perfect form of this species has not been at present discovered, but as will be seen from our left-hand figure, the stylospores are accompanied by abortive cells as in the more common European species. M. CASTAGNE'S plant on the Apricot is the same with that of Madeira and South Carolina on the Peach, and as our correspondent's parasite proves different, we may at present congratulate ourselves that we are spared the introduction of a new pest. And indeed the more so, because it frequently happens that plants are not the most luxuriant in the country from which they were originally derived. This is notoriously the case with Phænogams, and if, as there is some reason to believe, the Potato mould was of South American origin, the same remark would hold good with respect at least to one Cryptogam. *M. J. B.*

THE death of Mr. JOHN GREEN, to which we alluded at p. 1059, recalls to mind a long period of progress in horticulture, which he was one of the first to commence, and in which he has had many worthy competitors. At the meetings of the Horticultural Society of London, some 20 or 30 years ago, all along up to the present time, the name of "Mr. GREEN, gardener to Sir EDMUND ANTROBUS, Bart.," is constantly met with in the prize lists. Along with him, and running the same race in the earlier part of his career, were the gardeners of Mrs. MARRYAT, of Wimbledon, Mrs. LAWRENCE, of Ealing Park, and Mr. NORMAN, of Bromley. Other names, too, will no doubt be recalled to memory, such for example as those of the gardeners to Mr. RUCKER of Wandsworth, Mr. ALLNUTT of Clapham, Mr. ARCHDALE PALMER, and Mr. BOYD MILLER, who were also early competitors with Mr. GREEN.

At the commencement of the time to which we are alluding, there were comparatively few cultivators of plants in this country who were able to produce such specimens of horticultural skill as those which Mr. GREEN and his rivals brought out to our exhibitions, although it is probable that they had little knowledge of the climate and natural habitats of the gorgeous Azaleas, Cactuses, Ixoras, Chorozemas, Boronias, Pimeleas, and other plants which they cultivated with so much success. This only leads us to give them a greater amount of praise for that keenness of observation which enabled them to hit upon the right mode of culture. We well remember that many persons who looked with admiration on Mr. GREEN'S large collections at our exhibitions were astonished when they visited him at home, and saw the small amount of space which he was able to devote to their cultivation. But he had studied carefully all the requirements of his plants. He knew the importance of having the young wood well ripened, in order that his specimens might be covered with flowers in the following year; and he knew also that most of them required a period of rest, during which time he could put them away in odd corners, and so economise his limited space. The false and stupid system of giving water indiscriminately, and having an even temperature all the year round, he entirely repudiated. And so, by thus giving certain plants what they required at the proper season of the year, he could get, at other times, the space they occupied for the cultivation of others whose requirements were of a different nature.

The old Horticultural Society of London has done much to encourage and stimulate the progress of gardening in this country. By means of the rewards which it offered at the Chiswick and Regent Street meetings, the best plants in the country were brought out, and cultivators were enabled to see each other's productions and induced to make greater exertions in friendly rivalry. The meetings that used to be held in Regent Street were probably of more importance than even the great exhibitions at Chiswick. As the former were held at stated intervals all the year round, everything that was beautiful and rare in the vegetable kingdom was brought forward in turn on these occasions; and everyone interested in such things came to see them. Botanists, country gentlemen, ladies, and all who had parks and gardens, or who had a love for gardening pursuits, were wont to crowd the rooms, and appeared to take a deep interest in what was brought under their notice. New plants were described and named, and successful examples of cultivation were pointed out and rewarded. In these days it was really necessary for nurserymen, and for all who were interested in the progress of horticulture, to attend the meetings of the Society. "Then," as Sir JOSEPH PAXTON so forcibly remarks in his late letter to the Assistant-Secretary, published in the last Part of the "Proceedings" of the Society, "a Certificate of Merit from the Society meant something, and was prized at a high rate; it insured the sale of any plant which received it, and often practically represented a prize of some hundreds of pounds sterling—as many nurserymen had orders before the exhibition closed for very large amounts."

A new race of cultivators has arisen since the early times of which we are writing, and the art of cultivation has been steadily progressing, year by year; indeed, it would seem as if the art had almost arrived at perfection, so large have our specimens become, and so magnificent are their blossoms. It is our duty and our privilege to encourage and assist the efforts that gardeners have made to cultivate with success those beautiful exotic plants which add so much to the charms of our gardens and public shows, and we have, therefore, more than once, pointed out the great importance of their acquiring a knowledge of the CLIMATE of those countries to which the plants they cultivate are indigenous. That knowledge is far more easily acquired now than in those days when the gardeners to whom we have alluded began their career. This is a travelling age in which we live, and we now know much of the climate and seasons of almost every country of the globe.

WE learn from an official programme that it is intended to hold an INTERNATIONAL HORTICULTURAL EXHIBITION AT VIENNA in the course of next spring. This Exhibition, which is to be devoted to Plants, Flowers, Fruit, and Vegetables, as well as to objects of art-manufacture relating to Horticulture, and in which foreigners are invited to take part, is to be held in the new Hotel of the Imperial Horticultural Society of that city, and is to be open from the 22d to the 27th of April, 1865. Those who propose to take part in the competition are required to send in lists of the objects they will exhibit to the Secretary, J. G. BEER, at the Hotel of the Society, "Ringstrasse, gegenuber dem Stadtparke, Wien," before the 18th of April, in order that they may be included in the printed catalogue of the Exhibition; and those who propose to compete for the principal prize, the Large Gold Medal, are required to send in, signed and sealed, by the 15th of April, a list of the plants intended to be shown. This latter prize is for a group of 12 new plants remarkable either for the beauty of their flowers or foliage, and in a high state of cultivation; the proportion of plants likely to become popular favourites to be taken into account in making the award.

The time devoted to the reception and arrangement of objects of competition is from the morning of April 18th to the evening of April 20th; at 10 A.M., on the 21st, the juries are to proceed to make the awards; from the 22d to the 27th the Exhibition is to remain open; and on the 28th a public sale of the subjects exhibited by nurserymen is to take place. Nothing will be allowed to be removed from the building till the Exhibition closes. The schedule contains 52 classes, comprising the various subjects usually met with at continental exhibitions.

It is announced in the same programme, that HIS IMPERIAL MAJESTY will give annually to Austrian nurserymen, two prizes, one of 40 gold ducats, (18*l.* 6*s.* 8*d.*,) the other of 10 ducats (4*l.* 11*s.* 8*d.*), to be called the Emperor's Prizes, and to be awarded for specially important contributions in the department of Horticulture. What a stimulus might we not expect to see given to some of the languishing Shows nearer home, if this example of the Austrian Kaiser were to be emulated in other high places?

A UNIVERSAL HORTICULTURAL EXHIBITION is announced to be held next spring at AMSTERDAM, in the Palais de l'Industrie, under the patronage of the QUEEN of the NETHERLANDS, the Honorary Presidency of the PRINCE of ORANGE, and the direction of the Royal Netherlands Society for the Encouragement of Horticulture, conjointly with the principal Horticultural and Agricultural Societies and Institutions of the Low Countries. This Exhibition, the date of which is not precisely fixed, will it is intimated open towards the middle of April, 1865; and an International Congress of Botanists and Horticulturists will be convoked at Amsterdam at the same time. An International Jury of distinguished botanists and horticulturists will award the prizes. The schedule of prizes, which extends to 175 classes, is already issued, and may be had on application to M. J. H. KRELAGE, of Haarlem, Principal Secretary of the Directing Commission.

— WE seem not unlikely to be as much overrun with NEW CALADIUMS as we were with Variegated Begonias. There will be this advantage in the one case, as in the other, that we shall all the sooner set about selecting from amongst old and new, a few of the very choicest for general cultivation, and consign the rest to oblivion. Caladiums, after having made a start in the conspicuous importations from Pará which took place a few years since, are now being hybridised, and seedlings are being produced, though not perhaps in such numbers as was the case with the Begonias in their brief day. We are not indeed in the secrets of the raisers as to the origin of the most recent kinds which have found their way into commerce, but we are not without suspicion that they are rather to be attributed to Paris than Pará—to the plant hybridist rather than the plant importer. We have lately received specimens from Mr. BULL of some varieties of professedly hybrid origin which go to confirm this suspicion. Of course the true beauty of these novelties can only be brought out by the highest cultivation, and even then it will be necessary to see the best old sorts in the same highly-grown state before any certainty as to which are the best varieties can be arrived at. So far as appearances go, one called Chantinii fulgens, from having the red colouring arranged in more decided lines, and the white flecks more evenly distributed, may prove better

than its older namesake. Another called Lamartine, marked in the same way, only with red instead of white flecks, looks distinct, and will probably be effective. A third, Madame Andrieu, has red ribs, with a few reddish flecks distributed over the central portion of the leaf. These, as we are informed, are hybrids from C. pœcile, fertilised with Chantinii. Another, called Duc de Morny, raised from pœcile fertilised with Verschaffeltii, has the whole central portion of the leaf-blade of a deep crimson. Verily there is work for the Floral Committee to collect and test the numerous varieties.

—— We are much amused at the great change that has come over planters. Twenty years ago gardeners all decided that planting Pears on Quince stocks and root pruning were charlatanish, and to be avoided by all sound thinking men. Twelve years ago they said the same of orchard houses. The tables are now turned; the demand for such trees has always been large, but this season, we understand, it is beyond belief.

NOTES ON GARDENS.—No. XXIII.

Royal Botanic Garden, Glasnevin.

(*Concluded from p.* 1084.)

The reserve ground is a walled-in garden, chiefly devoted to rare and new herbaceous things difficult to get or keep; things that like to dwell amongst the moisture of Senecio vulgaris, and other creatures of peculiar temperament. Here in a peat border, slightly shaded by a wall, was a rapidly increasing stock of Andromeda or Cassiope fastigiata, a rare and singularly beautiful Himalayan Alpine shrub; Andromeda hypnoides, too, but that not as healthy as could be wished, it being so much more difficult to grow than either of the other species. The new and interesting A. fastigiata will probably prove the easiest of cultivation, as it is now "looking very much at home" in the open air of the N.W. district of the Himalayan agglomeration of brick, where A. tetragona is rather delicate. Epigæa repens was here too, and of necessity, for it is most fastidious; and so were the Parnassias and Lilium Michauxii, evidently a great thing amongst Lilies, being about 8 feet high, and with evidence of having flowered very freely a few weeks before my visit. It had been received from America, is in the way of L. superbum, and will, I hope, increase sufficiently for distribution ere long. At the base of the wall, Orobanche Hedera, growing on Ivy of course, was very abundant; and in front a whole collection of the varieties of Erica mediterranea, with Arum triphyllum, Arisarum erubescens, and a little nursery bed of Dodecatheon Jeffreyii—a gigantic American Cowslip—respecting which I say to all lovers of "good things" in the hardy way, the sooner you have it located with some deep rich and light soil in a snug spot of your garden, the better for your self-respect. If, however, there is an individual who is only acquainted with the beauties of the stuff used for bedding, and who is accustomed to the flower garden in May being as destitute of floral interest as the war-ploughed fields of Virginia are at present, let him learn that D. Jeffreyi is not a rising Cabbage, for when well grown it has a brassicaceous development, and is quite a Banting amongst Dodecatheons—of course considering Mr. Banting as he used to be. Megacarpæa polyandra was also plentiful here, as were interesting and rare Grasses and Carices brought from Lapland and Norway, collected by Dr. Moore; but these, like the alpines, &c., from high latitudes and elevations, were difficult to cultivate, and consequently devoid of the intermingling proclivities of their British brethren. Hellebores, Epimediums, Gentians, Tritoma pumila, Indian Meconopsis, Fortune's Pæonias; rare British plants, such as Allium carinatum and the Linnæa, with the two Spigelias, and such interesting plants to the botanist as the small Gunneras, were well cultivated in this private enclosure, of which I have said enough to prove it worth asking the privilege of exploring. I must add, however, that there were some curious things on the walls, and among them Hydrangea radicans (?), which rooted and clung to the wall as compactly as Ivy.

The Agricultural and Horticultural Garden, as it is called, pleased me very much from its real utility to the young gardener, and farmer too, as far as beds of the agricultural Grasses, and forage plants correctly named can benefit the latter, but capable of being of the greatest benefit to the former. There have been weak attempts at such a useful arrangement as this economical garden in other places; but while they have run into a muddle and been given up, this at Glasnevin is an old-established success. A gardener of the slightest pretension should know at least the more important herbs and hardy economical plants, British poisonous plants, &c.; but how is he to get such information, when, as a rule, such interesting plants are banished from private places, and when, considering the time a young gardener has at his disposal, it is almost impossible for him to glean the required knowledge from an ordinary natural or Linnean arrangement. I really don't know of any garden which efficiently teaches this very desirable knowledge, besides this of Glasnevin. The department contained a small kitchen garden, with a square plot of each vegetable in common use; and collections of plants yielding oils, yielding dyes, and yielding fibres. In it was the collection of Grasses, a very extensive, and though it is dangerous to say so, yet I think very well named collection. The plants were grown in lines, with a considerable distance between, and also between the species; and thus they were kept far more distinct than usual. A complete collection of pasture and Meadow Grasses was a most useful feature, each species being grown in a bed by itself, 4 feet wide by 10 feet in length. Near this were lines of the sand-binding plants, such as Carex arenaria, as well for giving away to the experimentalist as for giving instruction to the student: for they are liberal in this way, and even provide Biddy Donohue, M.D. in her own estimation, with something "good for a cure" from the herb garden when she applies for it.

In a collection of forage plants I was glad to meet with the famous Hay plant, Prangos pabularia, very rare, by-the-by, in a true state. I have seen a Cow-Parsnip passing muster for it in a herbaceous arrangement. I was informed by Mr. McArdle, who has had charge for many years of the vast hardy department, from Alpines upwards, that the roots of this Prangos descend 10 feet into the ground. Mr. McArdle is very curious in grafts, and in his own little garden showed me a novelty in that line—14 distinct Rosaceous plants grafted and thriving on the common Quince, the whole forming a close head in which the mixture of pinnate and simple leaves, woolly and smooth-leaved Pears, Mountain-ash and Medlar, was very striking. Near the hardy Ferns, which are plentifully grown both in exposed beds in the natural arrangement and on shady rockwork, was a little half circle of Ivy hedge, shading from the mid-day sun and sheltering a little bed of the Pyrolas, and they seemed to like the plan. Near the entrance there is a lecture-room, in which the journeymen and apprentices of the garden, with others who wish to attend, hear lectures on Botany from Dr. Moore, who also delivers two courses during the season to the students of the Albert Model Farm, which is situated in the neighbourhood.

A walk round the Glasnevin Garden is, from the very fortunate diversity and beauty of the grounds, a very pleasing one. On entering the visitor may see the graceful and healthy forms of Cypresses, Irish Yews, Arbor-vitæs, &c., thrown into fine relief by the long, white, and beautiful curvilinear range beyond, and may congratulate himself that it is not a flat display of colour formed to "associate" with artificial buildings that occupies the precious space, but plants of everlasting beauty and interest, always occupying the ground and embellishing it, displaying distinct tints of the ever-grateful colour in spring and summer, waving majestically before the gusts of autumn, and tellingly beautiful when supporting on their deepest green the snows of winter. In front of and about the houses ornamental plants of all kinds on the verdant turf, afford interest to all tastes; and then down by the river, there is a solemn walk shaded by high banks and trees, but varied and easy all along till the glade begins to open, and the banks receding on both sides of the river, are covered by well grown wood, with here and there a hoary old Cedar or Pine, now and then a gigantic Willow, or perhaps rare Oak, such as Quercus Lowetti. There also is the aquarium, a long waving pond for the Water Lilies and smaller aquatics on the left; a little islet for Arundinaria falcata and other plants; and beside it an excavation getting ready for a "flow-bog" to grow many indigenous and other plants, rarely seen, as they ought to be, in botanic gardens, with the river still on the right till the northern extremity of the garden is reached. Then the visitor turns to the left and surveys the beautiful garden valley, with stream and pond and rising wood. And then up the ascent, and amongst the Pines, from which very pleasing views of the houses, the garden, and its vegetation may be had, passing through the arboretum, and by a large perfectly covered wigwam, made by growing Aristolochia Sipho luxuriantly over old branches—a thing well worthy of imitation in other gardens; and, finally, along many pleasant walks through the central portions of the garden, from whence O'Connell's monument, situated in the adjacent grounds—in shape like one of the beautiful and mysterious ancient round towers of Ireland, may be seen.

So now in concluding my notes on this really worthy national garden—of which the only blemish is the new Palm house, and that most fortunately is of wood and but a fleeting flaw, I plead the vastness of the subject and shortness of time for its examination as excuses for important omissions, if such have been made. That I have not needlessly lengthened matters will be apparent when it is stated that many score more plants than I have named were put down as worthy of remark, which space forbids me to indulge in. I must apologise also for sundry digressions. But where is one to talk if not in a garden after his own heart?

The people thoroughly enjoy without at all injuring the plants and beauties of Glasnevin. This of course must be gratifying to those who proclaimed the beneficial effects of opening the gardens on Sundays; and surely the great good effected—thousands brought from the miserable Sunday afternoon attractions of the whiskey-shop, and from the many coarse amusements which will and certainly always have been the resource of a great mass of the people on Sunday, to the pure delights of a garden conserving so much of the world's plant beauty, must be equally grateful to those who opposed the measure. Even long ago, before railways were heard of, before the London Parks were free to the people, and when it might be supposed that they must "stay at home and be good," did not the youthful Byron, after describing the sanguinary gusto of a Spanish multitude for the horrible bull-fighting "sport" which took place on the Sabbath, sing

"London! right well thou know'st the day of prayer:
Then thy spruce citizen, wash'd artisan,
And smug apprentice gulp their weekly air:
Thy coach of hackney, whiskey, one-horse chair,
And humblest gig through sundry suburbs whirl;
To Hampstead, Brentford, Harrow, make repair."

Hampstead and Harrow are sweet and pleasant places, but though donkey-riding at Hampstead may minister to the hilarity of the Cockney, yet it will hardly be doubted that neither this nor any other Sunday recreation can rival the equally healthful yet instructive and pure delight of an evening spent amidst the beauties and wonders of Kew. And so of the neighbourhood of Dublin. Why, it is within the bounds of possibility that some of the very "boys" who attend at Glasnevin and elsewhere, while the thousands enjoy and admire, might themselves be worse employed than at such a useful duty—might actually be forgetting dull care over a pipe and a "dhrop." What a treat to the thoughtful and quieter portion of humanity is this luxury of a garden, and what a bounteous feast for those who wittingly or unwittingly follow the creed of Coleridge, and love well "all things both great and small;" and then surely no place is so well calculated to foster the aspirations of the most devout, who of course do not alone to their Maker pray—

"In Gothic domes of mouldering stone."

W. Robinson.

ORNAMENTAL PLANTING.

No. 6.—Pictorial Trees and Shrubs.

In continuation of my last paper (p. 1035). I come to speak of the second division, Colour, under the following heads:—

1. Trees and shrubs with the leaves light green.
2. Trees and shrubs with the leaves dark green.
3. Trees and shrubs with the leaves purple.
4. Trees and shrubs with the leaves yellow.
5. Trees and shrubs with the leaves white.
6. Trees and shrubs whose leaves acquire bright colours in autumn.
7. Trees and shrubs with red, yellow, or white bark.
8. Flowering trees and shrubs.
9. Trees and shrubs which retain their berries.

1. Trees and Shrubs with Light Green Leaves.

Evergreen:—
- Abies excelsa rubra
- ,, orientalis
- Berberis fascicularis hybrida
- Buxus balearica
- Cedrus Deodara
- Chamæcyparis sphæroidea
- Ilex balearica
- Juniperus chinensis
- ,, oblonga pendula
- ,, thurifera
- ,, virginiana
- Pinus pyrenaica
- Ruscus racemosus
- Thuja Wareana
- ,, orientalis
- Wellingtonia gigantea

Deciduous:—
- Acer platanoides
- ,, Pseudo-Platanus
- Ampelopsis hederacea
- Catalpa syringæfolia
- Chionanthus virginica
- Cistus capitatus
- Coriaria myrtifolia
- Gleditschia triacanthos
- Juglans monophylla
- ,, laciniata
- Lonicera hybrida nova
- ,, Magnevillea
- Negundo fraxinifolium
- Quercus laciniata
- Rhus Cotinus
- Taxodium distichum
- Tilia europæa
- Vitis vinifera apiifolia

2. Trees and Shrubs with Dark Green Leaves.

Evergreen:—
- Araucaria imbricata
- Berberis Darwinii
- ,, dulcis
- Cerasus lusitanica
- Cotoneaster microphylla
- Cupressus Lambertiana
- Garrya elliptica
- Hedera Regneriana
- Ilex Aquifolium
- ,, ,, fructu-luteo
- ,, ,, laurifolia
- ,, ,, scotica
- ,, ,, Shepherdi
- Ligustrum japonicum
- Mahonia Aquifolium
- Pernettia mucronata
- Picea, of sorts
- Pinus, of sorts
- Phillyræa, of sorts
- Quercus Ilex, of sorts
- Taxus, of sorts

Deciduous:—
- Alnus, of sorts
- Castanea, two sorts
- Euonymus, two sorts
- Clematis odorata azurea
- Cytisus Laburnum
- Fraxinus, two sorts
- Liquidambar
- Pavia, two sorts
- Potentilla dahurica
- Prunus, of sorts
- Ornus europæa
- Salix Caprea pendula
- Sophora japonica

3. Trees and Shrubs with Purple Leaves.

Deciduous:—
- Acer Pseudo-Platanus purpurea
- ,, japonicum atropurpureum
- Berberis vulgaris foliis purpureis
- Corylus Avellana purpurea
- Daphne Mezereum foliis purpureis
- Euonymus atropurpureus
- Fagus sylvatica purpurea
- Quercus pedunculata purpurea
- ,, ,, nigra
- Ulmus montana purpurea

4. Trees and Shrubs with Yellow Leaves.

The leaves here are not absolutely yellow, but the effect in the landscape is that of this colour.

Evergreen:—
- Abies excelsa finedonensis
- Aucuba japonica
- Buxus sempervirens aurea
- Cupressus thyoides variegata
- Euonymus japonicus foliis aureis
- Ilex Aquifolium aurea, &c.
- Juniperus virginiana aurea
- Hedera canariensis foliis aureis [gatus
- Osmanthus ilicifolius varie-
- Pinus Pinaster variegata
- Rhamnus Alaternus foliis aureis
- ,, ,, maculatis
- Retinospora pisifera aurea
- Rhododendron ponticum variegatum
- Taxus fastigiata aurea
- ,, baccata aurea
- Thuja aurea
- Vinca elegantissima

Deciduous:—
- Æsculus Hippocastanum aureo-variegatum
- Acer Pseudo-Platanus variegatum
- Cornus mas foliis variegatis
- Castanea vesca variegata
- Fagus sylvatica foliis aureis
- Fraxinus aucubæfolia
- Hibiscus syriacus foliis variegatis
- Ligustrum vulgare variegatum [variegatum
- Liriodendron tulipiferum
- Quercus Cerris variegata
- Sambucus nigra foliis aureis
- Symphoricarpus vulgaris foliis aureis
- Spiræa opulifolia lutea
- Weigela rosea variegata

5. TREES AND SHRUBS WITH WHITE LEAVES.

Here as before the leaves are not absolutely white, but the effect in the landscape is that of that colour.

EVERGREEN:—
Abies alba glauca
Astragalus Tragacantha
Bupleurum fruticosum
Cedrus Deodara
Chamæcyparis sphæroidea atrovirens
Cineraria, of sorts
Euonymus japonicus foliis argenteis
,, radicans variegatus
Ilex Aquifolium argentea, of sorts
Juniperus virginiana glauca
,, ,, foliis argenteis
,, Sabina depressa
,, ,, variegata
Lavandula Spica
Phlomis fruticosus
Pinus excelsa
,, Strobus nivea
,, monticola
Rhamnus Alaternus foliis argenteis
Santolina Chamæcyparissus
Taxus, two sorts

DECIDUOUS:—
Amygdalus communis foliis variegatis
Cistus algarvensis
Cratægus Oxyacantha foliis argenteis
Elæagnus argentea
,, fulva
Hippophaë rhamnoides
Negundo fraxinifolium foliis variegatis
Philadelphus coronarius variegatus
Populus alba
,, argentea
Pyrus Aucuparia foliis variegatis
Pyrus salicifolia
,, Malus foliis variegatis
Rubus fruticosus foliis variegatis
Ulmus campestris foliis variegatis
,, montana variegata

6. TREES WHOSE LEAVES CHANGE TO RED, SCARLET, OR YELLOW IN AUTUMN.

DECIDUOUS (RED):—
Ampelopsis hederacea
Acer circinatum
,, rubrum
Azalea, of sorts
Berberis vulgaris
Cornus alba
,, mas
Cratægus punctata
,, prunifolia
Cerasus nana flore-pleno
Diervilla humilis
Euonymus atropurpureus
Liquidambar
Ostrya virginica
Pyrus, of sorts
Quercus coccinea and others
Ribes aureum
Rhus Cotinus
,, Toxicodendron
,, typhina
Spiræa ariæfolia
,, prunifolia flore-pleno
Viburnum Lentago
,, Opulus

DECIDUOUS (yellow):—
Æsculus Hippocastanum
Acer platanoides
,, Pseudo-Platanus
,, saccharinum
Amelanchier Botryapium
Amygdalus nana
Betula of sorts
Cerasus Padus bracteosa
,, virginiana
Cratægus coccinea maxima
,, grandiflora
,, Oxyacantha aurea
,, pentagyna
Euonymus latifolius
Hydrangea nivea
Gleditschia triacanthos
Kolreuteria paniculata
Liriodendron tulipiferum
Magnolia tripetala
Morus alba
Pavia flava
Populus, three sorts
Pyrus torminalis
Salisburia adiantifolia
Spiræa lævigata
,, opulifolia
,, ulmifolia
Syringa vulgaris
Tilia europæa

7. TREES AND SHRUBS WITH WHITE, YELLOW, OR RED BARK.

DECIDUOUS:—
Acer striatum (white)
Betula alba (white)
Cornus alba (red)
Hippophaë rhamnoides (white)
Fraxinus excelsa aurea (yellow)
Populus argentea (white)
Salix glauca (white)
,, purpurea (purple)
,, vitellina (yellow)

8. FLOWERING TREES AND SHRUBS.

EVERGREEN:—
Andromeda floribunda
Arbutus, of sorts
Berberis Darwinii
,, dulcis
Ceanothus, of sorts
Cistus, of sorts
Daphne, of sorts
Erica, of sorts
Garrya elliptica
Helianthemum, of sorts
Kalmia latifolia
,, myrtifolia
Ligustrum lucidum
Magnolia exoniensis
Mahonia, of sorts
Rhododendrons, of sorts
Spartium junceum
Ulex europæa flore pleno
Viburnum Tinus

DECIDUOUS:—
Æsculus, of sorts
Amelanchier Botryapium
Amygdalus, of sorts
Azalea, of sorts
Berberis, of sorts
Buddlea globosa
Calycanthus floridus
Cerasus, of sorts
Chimonanthus fragrans
Clematis, of sorts
Cornus mas
Coronilla Emerus
Cratægus, of sorts
Cydonia japonica
,, ,, flore-albo
Cytisus, of sorts
Daphne Mezereum
Deutzia, of sorts
Forsythia viridissima
,, suspensa
Fuchsia, 2 sorts
Genista, 2 sorts
Halesia tetraptera
Hibiscus, of sorts
Hydrangea nivea
Hypericum Kalmianum
Jasminum, of sorts
Kalmia latifolia
Lonicera, of sorts
Liriodendron tulipiferum
Magnolia, of sorts
Pavia, of sorts
Persica, of sorts
Philadelphus, of sorts
Prunus, of sorts
Pyrus spectabilis
Rhus Cotinus
,, typhina
Ribes aureum
,, sanguineum
,, ,, albidum
,, speciosum
Robinia hispida
,, viscosa
Rosa, of sorts
Spiræa, of sorts
Syringa, of sorts
Tecoma, of sorts
Viburnum Opulus sterilis
,, macrocephalum
,, plicatum
Weigela amabilis
,, rosea
Wistaria sinensis

9. TREES AND SHRUBS WHICH RETAIN THEIR BERRIES.

EVERGREEN:—
Arbutus Unedo
Aucuba japonica (vera)
Berberis Darwinii
,, dulcis
Cotoneaster microphylla
,, buxifolia
Cratægus Pyracantha
Ilex Aquifolium, in varieties
Gaultheria, two sorts
Hedera, of sorts
Ligustrum sempervirens
Mahonia Aquifolium
Pernettia mucronata
Skimmia japonica
Skimmia oblata
Vaccinium Vitis idæa

DECIDUOUS:—
Berberis vulgaris
,, ,, foliis purpureis
Cotoneaster lævis
Cratægus Oxyacantha aurea
,, coccinea maxima
,, Layii
Ligustrum vulgare
,, vulgare xanthocarpum
Pyrus Aucuparia
,, ,, fructu-luteo
,, Malus astracanica
,, ,, prunifolia

I have now reached the end of the task which I proposed to myself; and on reviewing these papers find that I have touched but slightly on certain points of interest and importance which appear well worthy of fuller treatment. It strikes me that the subject would be rendered of more interest to the readers of the *Gardeners' Chronicle*, if such were taken up by other hands. Fresh ideas would likely thus find utterance, and the purpose of my labour be more fully accomplished. *William Paul, Waltham Cross, N.*

THE CURCUMA.

SOME of the Curcumas are fine ornamental plants, on account of their exceeding singularity and beauty. There are many species, but I will only refer to three of the best that I am acquainted with.

C. Roscoeana has handsome Maranta-like leaves, about 3 feet in height, and about 6 inches in width, slightly undulated and recurving; and its flower spikes are thrown up from the centre of the plant and grow from 18 inches to 2 feet high, the flowers being arranged in five rows, and forming a beautiful spike. The principal beauty resides in the bracts, which are not unlike shell pockets; a fair spike should have as many as 40 of these bracts, which are of a glowing reddish orange, while the flowers are yellow, produced in their axils. After the flowers have perished the bracts remain perfect for a considerable time. The flowers are produced in August or September. I can strongly recommend this plant to the notice of any cultivator who is in the habit of exhibiting at the autumn flower-shows. It is a fine subject for such a purpose; a specimen with 10 or 12 spikes is a very attractive object. It is also very useful for home decoration.

C. cordata is perhaps not so showy as C. Roscoeana, but being very distinct is worthy of a place in a collection of stove plants. The bracts of this species are deep green, except a few on the top of the spike, which are of a light violet tipped with reddish purple. It is similar in habit to C. Roscoeana, but the leaves are somewhat broader, and not so long.

C. rubricaulis is a fine ornamental foliage plant, with long stems, of a deep red or crimson, bearing long Musa-like leaves, the midrib of which is of a deep red; the plant grows from 5 to 7 feet in height.

The compost for these plants should consist of rich fibrous loam and leaf-mould, or if leaf-mould cannot be procured, fibrous peat may be used instead, and if not sufficiently porous, a little grit or coarse sand must be added. The pots should be thoroughly drained. Early in spring the tubers should be shaken out of the pots, and divided as may be required; they should then be repotted into say 4-inch pots, and plunged in a strong bottom-heat, giving at first no water, and applying very little until they break into growth. They are occasionally a long time in breaking, and should therefore be examined from time to time. Indeed they frequently make roots before shoots. When they begin to root, if the bed is very hot, the pots should only be partially plunged, so that the roots may not be burned. The supply of water must be increased as the plants advance in growth; and as soon as the pots are well filled the plants will require repotting into 6 or 7-inch pots, and then they may be placed on the bed or on the stage. They grow very fast and will soon fill their pots with roots, and when this is the case they must have their final shift. If for decorative use employ the size pot which is most convenient—either 8, 9, or 10-inch; but if for a specimen for exhibition put as many of them together as can be got into one large pot. When they get well rooted after this final shift they must have plenty of heat and light, and a constant supply of weak liquid manure-water. I use nothing else in watering from the time the pots are full of roots to the time of their flowering.

When they have done flowering, water must be given more sparingly, and they must be allowed to go gradually to rest. When the leaves are yellow the pots may be laid under the stage, keeping them perfectly dry. These plants belong to the same family as the Ginger, and have tubers very much like those of that plant. *T. Brown, Tooting.*

Home Correspondence.

Oaks.—In your Number for Feb. 13 (p. 150), I promised to afford your correspondent "Diss" the following information, namely, "Whether the largest Oaks in Powis Castle Park were of the species pedunculata or sessiliflora?" I beg to state that I have this autumn carefully examined the large Oaks in the park here, and also large Oaks in the park of E. L. Winder, Esq., of Vaenor, along with Mr. Barnett, the gardener there. In both these parks I find that the largest and finest trees belong to pedunculata. This I ascertained by the acorns being placed on long fruit stalks, and by the leaves being short in the stalk; whereas the leaves of sessiliflora are long in the stalk, and the acorns grow in clusters close to the twigs or branches. Having raised all the Oaks from acorns that have been planted from time to time on my employer's estates hereabout, during a period of nearly 36 years up to this date, I have always had the acorns gathered from the finest trees, and those belong to pedunculata. I think it would be well therefore for nurserymen to have all acorns they sow or sell gathered from pedunculata. *Geo. Brown.*

Royal Horticultural Society's Shows for 1865.—I took upon myself last year the liberty of tendering advice to the managers of this Society, touching a two-days' show of cut Roses. That advice was not taken; and I was informed that the second day's Show was a poor affair, and would have been "worse had the sun shone out." I am glad to see that the second day's show of Roses is to be given up. In page 1106 of your Paper I am sorry to read that "all" the Shows, including of course the National Rose Show, are to be on a Saturday. I do not speak for other clergymen, of whom there are several, and most distinguished men, that exhibit: as, for instance, the Hon. Secretary, the Rev. S. R. Hole, to whose zeal we owe the origination of the Society, and the regeneration of the Rose cause; Canon Fisher, of Salisbury; the Rev. Henry Helyar, Pendomer, Somerset; and the Rev. G. E. Maunsell, of Thorpe Malsor, Nottinghamshire, besides, I dare say, many others; but I speak as a single exhibitor, and believe that in so speaking, I shall, if heard, benefit the Rose cause. Saturday is a most inconvenient, if not an impossible day, for the clergy, who, being debarred from other secular recreations, are, generally speaking, the most numerous florists in the kingdom; in country parishes they are mainly the growers of Roses. For a National Rose Show we want exhibitors from all parts. We have never yet had a *national* representation of the Rose cause, or anything like it. Money is a vulgar subject, I know; but if to expense you add a mighty inconvenience, entailing most likely still further expense, I fear that as regards amateur classes, which are by no means supported by Rosarians, from one cause or other, as they should be, the Society will find a further deficiency of exhibitors. If a National Rose Show means anything, it means that it is open to the nation, and that the day is so fixed (being neither Monday nor Saturday) that persons from all parts of the nation may come. The Crystal Palace Shows are usually on a Saturday. I, therefore, for one, have never been able to go to them. Saturday is a capital Metropolitan day, but it is a bad day for distant travellers, especially for the clergy. It may be said that the clergyman may send his servant, and bide at home. No man who has had any experience, I believe, will agree with this. The conveyance of Roses in condition, and their location and protection, is beyond the experience and mental acquirements of most servants. A Saturday's exhibition in London will entail a night's travel into Sunday morning, and a total unfitness for the highest and most honourable duty in the world. I merely ask the Society to give the subject a further consideration, limiting the request to the National Rose Show. In regard to the day of exhibition, as few if any Northerns attend, Mr. Turner as well as myself think that the day should not be later than the 25th of June. The small holders are bloomed out even by that time, unless their lands are very cold. I hope that the Society will also turn their attention to this point. *W. F. Radclyffe, Rushton.*—— The proposed arrangement of the Royal Horticultural Society to have its Great Shows and weekly exhibitions on Saturdays will prove very inconvenient to many exhibitors and spectators. Residing at some distance from town it would be quite impossible for me to return home the same evening, and would oblige me to remain the Sunday in London, which would be both expensive and disagreeable. It would also, with a slight exception, "disqualify" the whole of the clergy. Why fix on Saturday? Would not Wednesday or Thursday do equally well? Any way the sittings of the Floral Committee on Tuesdays will, I trust, not be altered. *Exhibitor.*—— Having seen it stated that the proposed Great Shows of the Royal Horticultural Society are to be held on Saturdays, I beg to state, as an exhibitor, that the day is anything but suitable to exhibitors generally. As the Royal Botanic Society has fixed its forthcoming summer Exhibitions for Wednesdays, as the exhibitors wished, the latter cannot, and I may say will not, take their productions to the Royal Horticultural on Saturdays. The best course for the Society to adopt would be to change to some more suitable day, if it is wished to have a good exhibition. *J. W., Stamford Hill.*

Rose Judging.—Allow me to correct an error into which your correspondent "P. B. R." has fallen (p. 1109), when he says, "that at the Crystal Palace Rose Show in June last, the 1st prize was awarded to one of the worst stands in the exhibition." The 1st prize was awarded to J. T. Hedge, Esq., for 18 magnificent blooms. It is the award of the 3d prize of which I think your correspondent "P. B. R." must intend to question the justice. In the opinion of myself and many others, these 18 blooms were much the worst in the exhibition, and the most slovenly set up. I think an explanation is due to exhibitors and the public from the judges in this class, as to the rules by which they were guided in arriving at their decision in this case. I think that some explanation should also be given as to the circumstances which brought one of the judges into the anomalous and undignified position of judge and exhibitor. *Senator Vaisse.*

Spiders' Webs.—When we walk on a bright summer's morning alongside our garden walls, those who have a very quick eyesight or a common eye-glass, may see the net-like webs of the common garden spider studded with minute drops glittering like dew; but as these do not evaporate when the sun advances, they must be something more substantial. Under the microscope they will be seen arranged with beautiful regularity on the cross bars of the web only. They are viscid to the touch; the web, in this way, being delicately

limed to take the smallest insects striking against it. When mounted as objects for the microscope, as they often are, the surprising fact at length grows upon us, that these minute beads of fluid, though kept in dry rooms and cabinets for months, and even years, never dry up, and apparently never change. What makes up these little persistent globules, and how are they arranged so evenly? If a newly spun web is brought down upon a slip of glass, and made to adhere to it, the viscid drops spread upon the surface, and show a little nucleus or core of gum in the centre of each; it will be seen too, that the viscid fluid surrounds not only the cores but the whole line of the cross bar, being collected only more copiously on the little cores dotted along it, and which have served as centres of attraction; but for these, the fluid, when poured upon the web, would have run into larger drops and fallen to the ground, or at least have been unequally distributed. The cores adhere but loosely to the web, and may be easily moved with a fine mounted hair; and in doing so it will be found that the cross bars, unlike the other lines of the web, are highly elastic. If the fresh viscid drops (still under the microscope) are made to touch blue litmus paper, they instantly sink into and redden it. The common solution of chloride of calcium also reddens the test paper; and it seems not unlikely that to the presence of this, or some other highly deliquescent salt, the undrying nature of the viscid fluid may be due. This spider's web is a complicated structure, and is composed of various materials: the side and radial lines of a fluid, which like silk, hardens as it leaves the spinneret; the elastic cross bars, which never harden; the little cores of transparent gum dotted along them; and the saline and viscid fluid poured over all; and yet, upon close examination of the spinneret, it is comprehensible that the web should be completed at one operation, that is, that no part of it should be gone over twice. A view of the insect at her work might clear up this point, and our Fern-cases might perhaps be turned to further good account for this purpose. But the spiders have now gone into winter quarters, and we must wait another summer. Meantime these few facts and queries may show us that there is something yet to learn of this curious and beautiful structure—the web of the garden spider. *S. S., Brighton.*

Stoneless Berberry.—At p. 1064, under "Notices to Correspondents," you say "there is a seedless Berberry." I can confirm it by having often eaten the jam, but is it not singular that I cannot obtain the tree? Will you say which sort it is that becomes seedless on attaining a certain age. I have a dozen trees in my garden, some over 20 years of age, but all, both old and young, have seeds in the fruit. Neither McIntosh nor Veitch in their fruit lists mention Berberry; Paxton's Botanical Dictionary has a list of 29 sorts under Berberis. Which of these in its old age bears the fruit for making such capital seedless jelly? I have been to two old experienced nurserymen in the country, and neither of them have ever known Berberries to bear fruit without seeds. These facts are curious. *H. S.* [The stoneless Berberry is Berberis vulgaris var. asperma, and has been known since the days of Bauhin, who calls it Berberis sine nucleo. Two stoneless varieties, a yellow and a purple, once grew at Chiswick.]

Habitats of Orchids.—With reference to Mr. Gosse's wish to be informed of the precise locality of the habitat of Broughtonia sanguinea, mentioned in my communication (p. 1061), I have to state, in reply, that it was at a short distance from Alligator Pond Wharf, in the parish of Manchester, where I first detected the mass of the plant referred to in my previous observations. I had frequently met with the species in the same neighbourhood, but never in such abundance as on that particular scarped rock—possibly from the circumstance that a large proportion of the plants were growing in perfectly inaccessible places; indeed, without a very lofty ladder few could have been procured. I found Broughtonia sanguinea also in the eastern part of the parish of St. Elizabeth (the only part I visited), at about the same height from the sea level as in Manchester, but certainly not in such abundance. Epidendrum cochleatum and Brassia caudata were always very conspicuous objects from growing in exposed situations—my remarks here more particularly refer to the parish of Manchester. The forest trees that margined the Coffee pieces (fields) were most frequently decorated with them. Oncidium luridum was of very common occurrence, not only on trees in small tufts, but more particularly in large masses, 18 to 25 feet in circumference, perched on flat rocks by the road-side. The vitality of this plant, under discouraging circumstances, is somewhat remarkable. I have often seen one of the large masses that had been detached from its resting place, either by the force of the wind, or oftener by wain-drivers on their journeyings, making its way to the base of the hill road, sometimes for two or three miles from where it was detached; but notwithstanding this rough treatment, it would yet produce flowers with the same vigour and beauty as if it had never been disturbed. I was struck, like Mr. Gosse, with the singular resemblance a Logwood fence bears to a Hawthorn hedge: it always brought home recollections very vividly before me. *R. H.*

The Regent's Park Avenue Gardens.—To my mind the Avenue Gardens, to which you referred in a Leading Article at p. 889, are quite equal, if not superior in design to any existing continental gardens, with all the merits of good simple English gardening superadded; and I have no doubt that in a year or two they will so develope themselves as to show their real merit. The laying out of the ground between them and the Colosseum would be a further improvement. What appears to me to be the great point of these gardens is, that wherever you are you have a grand vista, and of all formal features the view down an avenue is certainly the grandest. The Poplar avenue again forms a subordinate vista at either end, and by narrowing the view not only aids the perspective of distance, but by the contrast of its width gives greater breadth to the open and central portions, while the Elms, always towering above it, lose nothing in continuity. It gives space. As an object is large or small only by comparison, so I think the Avenue Gardens satisfy the mind by the proportions of their details, and leave an impression rather of great length than extreme narrowness. I do not know any other town garden that can in an equal degree present a general leading feature of equal interest as a compensation for the beauties of distant scenery so inevitably denied us. Sometimes of an evening, when the haze begins to settle mysteriously at the ends, there is an air of melancholy grandeur about it that pleases me immensely, and I like it almost better under that aspect than with the light and shade of the morning sun playing fitfully across it, although the gleams of colour in light shine with an intense brilliancy from contrast with their fellows subdued by the cast shadow of the trees. It is the same with colour as with size or form; everything either loses or gains by contrast, such contrast producing comparison. So far from partial shade being a disadvantage in growing flowers, it is of the greatest benefit in preserving the bloom, on the same principle that a conservatory with a north aspect is infinitely preferable to one with a south aspect. Already we have here nearly an evergreen garden, such as you suggest. There are beds of Golden Hollies edged by Green Hollies; Rhododendron ponticum edged by dwarf Ericas, or long lines of dwarf Box trees; and large numbers of Rhododendron ferrugineum, the beautiful Alpine Laurel-Rose. The whole of the Lilac belt, too, is interspersed with Ferns, and when the shrubs make head they will form a very pretty undergrowth. To conclude, I must observe that as all art is founded upon Nature, we can only produce good art by studying her, paying great respect and veneration to the principles that those who have worked and gone before us have deduced from her lessons, and so humbly try to add our own mite towards the improvement and maintenance of taste. *A Londoner who enjoys the Parks.*

Royal Horticultural Society.—As you have given your readers some account of the promises of the Royal Horticultural Society for next year, can you tell such of us as are Fellows of the Society, how another promise of some standing—to wit, that of submitting a new and liberalised code of bye-laws, by which the Fellows might obtain some share in the nomination for members of Council, &c., is progressing towards fulfilment. Time is flying, and yet we have heard nothing about this bye-law question, since the promise was made. *F.R.H.S.* [We are unable to give our correspondent any information on this point.]

Figs.—About three years ago a Fig plant appeared at the base of my fruit wall, and it has since become a large tree. My gardener nailed it to the wall, and has kept it pruned. It has not yet borne any fruit. Being self-sown, the growth I suppose of some seed dropped by a bird from the wall, will it bear fruit of itself without any grafting or inoculation with another Fig plant? and if so, when may I expect fruit from it? Shall I not do well to restrict the pruning to the nailing in of the leading branches, allowing the top ones to grow pretty wild? I fear my gardener has done too much with his knife, in order to keep up the shape of a regularly grown wall tree. *Constant Reader.* [Your Fig will doubtless bear fruit sooner or later; but being a seedling it may not become fruitful soon without resorting to artificial means. Budding and grafting you would probably find difficult. And so long as its roots are in a rich border it will throw up crop after crop of luxuriant shoots, like Willows that are annually cut down. This exuberance of growth must be checked by limiting the supply of nourishment for the roots. In the first place, therefore, take up the tree, reduce its roots, dig out the rich soil, and in the bottom of the hole place a layer of chalk a foot thick, ram it down firmly, and on this replant your Fig tree, covering the roots with sandy loam. By adopting this mode of proceeding you will probably soon be able to ascertain whether it is valuable or not.]

Vine Stocks.—I do not see that Mr. Fowler has any occasion to retract the opinion he formerly expressed respecting the utility of the Trebbiano as a stock on which to graft the Muscat of Alexandria, as according to his statement in your last issue, "all went merry as a marriage bell up to the period when the fruit was nearly ripe; the berries were plump, and the colour a fine amber, clean, and without a spot. The weather had been fine for a considerable time previous; but rain now fell in abundance, and soon after the berries commenced to burst at the footstalks." Now, I am of opinion that this is what any one might have expected, for, according to Mr. Fowler's statement, that heavy fall of rain was the cause of the mischief; therefore I still hold that if the rain had been kept out of the border the result would have been in favour of the Trebbiano as a stock for the Muscat. I should be glad if Mr. Fowler would reconsider this matter, and give us his opinion on this point. *W. W. D. P.*

Extraordinary Produce of Two Potatos.—Two large sized Potatos planted in Mr. Grimston's garden at Clifford, near Tadcaster, in Yorkshire, were dug up the other day, and were found to have produced 199 tubers, weighing in the aggregate 84 lbs. Half a dozen weighed 11 lbs. 3 oz. And one single Potato, selected from the half dozen, weighed 2 lbs. 9 oz. *Robert Abbey, Whitburn, near Sunderland.*

Aubrietia Campbellii, alias *Hendersoni.*—As information has been asked respecting the origin of this variety (see p. 1112), on which the very highest commendations have been bestowed by the *Gardeners' Chronicle*, I am induced to give you the following particulars:—Early in July, 1860, some seed of Aubrietia was sown. The seedlings were potted off in the middle of the following month, three or four in a pot, and were kept in a cold frame during the winter. In May, 1861, they were planted out, and the next spring they flowered freely. With the exception of one tuft they produced flowers much of the usual colour. This one plant, which bore "deep violet purple flowers, with a white eye," was allowed to remain undisturbed (with some of the others for comparison), and again in the following year (1863), when all were in bloom, it was still found as before to have better flowers, of a deeper colour. Being in the habit of submitting blooms of seedling flowers, &c., to Messrs. E. G. Henderson & Son, I forwarded some of this Aubrietia; and, as it met with their approval, they purchased the stock of it, conditionally that it should be called A. Campbellii. Last May it was exhibited by Messrs. Henderson & Son at the Regent's Park Show, where it was awarded a First-class Certificate, and was very greatly admired, but it was shown under the name of A. Hendersoni! However, in a letter now before me, Messrs. H. remark that this name was employed by mistake, and that they will alter it, and sell the plants by the name of Campbellii. When this new Aubrietia comes to be offered for sale, the above statement will explain any misconception that may arise as to its name. *E. Campbell, Queen's Graperies and Nursery, Brighton, Nov.* 21.

Societies.

Liverpool Horticultural: *Nov.* 23.—A Chrysanthemum and Fruit Show was held in St. George's Hall on Wednesday last, and appeared to be satisfactorily supported, not only the magnificent Hall itself, but also the different avenues which led to it, being thronged during the afternoon with a gay and fashionable attendance.

Fruit and Miscellaneous Stove and Greenhouse Plants, together with many remarkable for the beauty of their leaves, were arranged on three tables running nearly the whole length of the Hall, while the sides and one end were devoted to Chrysanthemums, the whole producing a display well worth travelling miles to see, especially when lit up in the evening,

As regards Chrysanthemums it was universally admitted that, owing to "a leaf having been taken out of Mr. Broome's book," they were shown in much better condition this season than formerly. There is, nevertheless however, room for improvement; and if we may judge from the minute way in which some of the less successful cultivators were examining the modes of growth and training represented by the exhibitions of their more fortunate brethren, material may be expected next year to furnish a show of this useful flower in all respects equal to those held about London. Some of the collections of Pompons were all that could be desired, both with respect to growth and flower; but with one or two exceptions large-flowered varieties were not so satisfactory. Cut blooms were a failure; they were few in number, and set up without taste, the boxes on which they were shown being of all kinds, and of various heights and sizes.

In the Class of Nine Large-flowered Chrysanthemums, the 1st prize was carried off by Mr. Dunbar, gr. to F. Brawn, Esq., who furnished well-flowered compact medium-sized plants of Edwin Landseer, Golden Queen of England, Chevalier Domage, Christine, Prince Albert, Gluck, Lady Hardinge, Her Majesty, and Sparkler. Mr. Allan, gr. to E. Banner, Esq., showed tall plants, which formed a somewhat unfavourable contrast with those just alluded to. They consisted of Rifleman, Annie Salter, Baron Scalebert, Christine and its White variety, Julie Lagravère, Alma, Lady Hardinge, and Sparkler. Mr. Sorley, gr. to E. Zwilchenbart, Esq., also showed nine plants.

In groups of Six Chrysanthemums the best came from Mr. Hutchinson, gr. to S. Withers, Esq., who contributed Chevalier Domage, Alma, Snowball, Queen of England, and Jardin des Plantes. Mr. Dunbar showed Ariadne, Christine and its Golden variety, Alma, General Slade, and Golden Hermione. Mr. Sorley also showed in this class.

Three Chrysanthemums, consisting of Queen of England, Lord of the Isles, and Christine, came from Mr. Hignett, gr. to C. Rowe, Esq., who also took the 2d prize for three plants. Mr. Hutchinson was 3d, and an extra prize was awarded to Mr. Turner, gr. to W. Preston, Esq. Among the varieties of which these collections consisted there was nothing new, nor could

it be readily ascertained where one group ended and another began, the marks dividing them not being in some instances sufficiently indicated.

A few plants were shown as single specimens, but with the exception of Alma from Mr. Woollam, gr. to N. Bousfield, Esq., none of them were remarkable for fine growth. Let us hope that this portion of the exhibition may be better supported next season.

In the Class of Nine Pompons the best plants came from Mr. Hignett, who showed a beautiful collection of dwarf well-bloomed plants, consisting of Andromeda, Dahlah, Julie Lagravère, Cedo Nulli and its Golden variety, Roseum majesticum, Mrs. Calvert, a pretty yellow kind; Bob, one of the best reds; and Léonie Nives. Mr. Turner, gr. to W. Preston, Esq., and Mr. Sorley also showed in this class.

Groups of Six Pompons were furnished in good condition by Mr. Lythgoe, gr. to H. Christian, Esq.; Mr. Hutchinson, Mr. Woollam, and Mr. Fleetwood, gr. to Mrs. Bird. In these collections the varieties most worthy of mention were Ninon, Salamon, Duruflet, Satanella, a fine old yellow; Golden Cedo Nulli, and Hélène.

Collections of Three Pompons, in which were good yellow and white Cedo Nulli, Bob, and others, came from Messrs. Hignett, Woollam, and Turner.

The best specimen Pompons were contributed by Messrs. Hignett, Hutchinson, Allan, and Dunbar, and the varieties selected for competition were chiefly Cedo Nulli and its Golden variety.

Standard Chrysanthemums were produced by Mr. Dunbar and Mr. Turner, both of whom furnished well managed plants.

Well-bloomed fringed and double Primulas were shown, and made an effective edging to one of the long side tables. The best came from Mr. Morris, gr. to W. D. Holt, Esq.; Mr. Davies, gr. to M. Dowie, Esq.; Mr. Fleetwood; and Mr. Leadbetter, gr. to R. D. Holt, Esq.

Stove and Greenhouse Ferns, very well grown and tastefully arranged, occupied a corresponding side table. The best collections of them were contributed by Mr. Brown, gr. to the Misses Yates; Mr. Morris; and Mr. Wright, gr. to Mrs. Liversage. The varieties did not differ sufficiently from those sent to our London shows to render a repetition of their names necessary.

Plants with variegated leaves were furnished by Mr. Hignett, Mr. Wright, and Mr. Everitt, gr. to J. Campbell, Esq. Among these we noticed Farfugium grande, well furnished with yellow blossoms, Dracænas, and other well-known ornamental foliaged plants.

Among specimen Stove and Greenhouse Plants, examples of which came from Mr. Wilson, gr. to J. E. Reynolds, Esq.; Mr. Fleetwood; and Mr. Jones, gr. to J. Hutchinson, Esq., was a wonderfully fine plant of Sweet Indian Daphne, literally loaded with blossoms so fragrant as to quite load the air in its neighbourhood with a delicious perfume. This came from Mr. Wilson, on whose skilful management it reflected great credit. Good bushes of Veronica Andersoni were also shown, as well as of Statice Holfordii, Æschynanthus, and other plants. Mignonette, both tree and in the ordinary form, was shown in tolerably good condition for the season. It, however, wanted the fragrance and healthy appearance of spring-bloomed plants of it.

Orchids were confined to the charming Calanthe vestita, examples of the red-eyed variety of which came from Mr. Fleetwood and Mr. Everitt.

Of Hand Bouquets several were produced, but we could not heartily approve of any of them. That to which the first prize was awarded had a somewhat confused appearance, and the rest were put together with no great amount of taste. One composed of Chrysanthemums was shown by Mr. Turner. Flowers and Ferns exhibited by Major Walter, and arranged with considerable skill on three of March's glass stands for dinner-table decoration, were very effective, and received, as they deserved, general admiration.

From Mr. Ker, the energetic Secretary of the Society, to whom the members must be much indebted for his activity and business habits in matters of arrangement, came plants of the charming gold-striped Lilium auratum; from Mr. Newman also came this fine Lily, with more red in its stripes than is generally found in this variety, which if constant will render it an acquisition. Some beautifully variegated Kale came from Mr. Ker, and a Cotton plant, both in flower and with pods on it, from Mr. Holt. Panfuls of Early Roman Hyacinth came from Mr. Morris and Mr. Turner; and Mr. Tyerman kindly supplied some handsome-leaved plants from the Botanic Garden for the purpose of decorating the Hall.

Fruit was extensively shown, and for the most part in excellent condition

Pine Apples, though not numerous, were beautiful specimens of good cultivation. The best came from Mr. Meredith, of the Vineyard, Garston; and Mr. Freeman, gr. to the Earl of Derby. Among the varieties were Smooth-leaved Cayenne, Black Jamaica, and Queen; of the last a beautiful fruit came from Mr. Dutton, gr. to J. Naylor, Esq.

Grapes were wonderfully fine, especially white kinds, most of which exhibited that fine rich golden tinge so desirable in fruit of this description. The best came from Mr. Manderson, gr. to B. H. Jones, Esq.; Mr. Smith, gr. to H. Littledale, Esq.; and Mr. Skinner, Aigburth Hall. Among the sorts shown were Muscat of Alexandria, Trebbiano, what was called Charlesworth Tokay, and Buckland Sweetwater. Black Grapes were equally good, especially the Alicante, beautiful bunches of which were shown by Mr. Smith. Messrs. Lane, of Berkhampstead, contributed Barbarossa, two bunches of which were stated to weigh 8 lbs. The last named exhibitors likewise received a first prize for Black Hamburghs. Mr. Turner and Mr. Wilson also both showed this variety. From Mr. Meredith came magnificent bunches of the following Grapes, labelled "not for competition;" viz. White Tokay, Black Prince, West's St. Peter's, Child of Hale, a promising new variety; Barbarossa, Trebbiano, Lady Downes' Seedling, Muscat of Alexandria, and a splendid bunch of Black Alicante.

Collections of fruit, in which were Red Currants in a state of good preservation, Pine Apples, Grapes, Pears and Apples, were shown by Mr. Smith and Mr. Davies.

In the Class of Eight Dishes of Dessert Pears, the best fruit came from Mr. Sorley, who contributed Crassane, Beurré Rance, Beurré Diel, Glou Morceau, Duchesse d'Angoulême, Passe Colmar Dorée, Josephine de Malines, and Easter Beurré. From Mr. Maries, gr. to Colonel Clifton, came Beurré Clairgeau, well coloured; Brown Beurré, Easter Beurré, Winter Nelis, Beurré Diel, Marie Louise, Napoleon, and Comte de Flandres. Mr. Copple, gr. to the Rev. W. S. Fielden, sent Marie Louise, Colmar, Napoleon, Beurré Diel, Winter Nelis, Beurré Rance, Easter Beurré, and Glou Morceau.

In Collections of Four Dessert Pears, the 1st prize was again awarded to Mr. Sorley, who had good fruit of Marie Louise, Glou Morceau, Easter Beurré, and Duchesse d'Angoulême. Mr. Smith was 2d with Hacon's Incomparable, Glou Morceau, Napoleon, and Beurré Diel. From Mr. Turner, gr. to E. Bates, Esq., came Vicar of Winkfield, Beurré Diel, Glou Morceau, and Marie Louise.

The best dish of ripe Pears came from Mr. Rylance, Town Green, who showed very fine fruit of Marie Louise. Winter Nelis came next in point of flavour.

Apples are stated to be more plentiful in this locality this season than they have been for these 14 years, and though not so large as they sometimes are, they are for the most part well-coloured.

For Four Dessert varieties the 1st prize was awarded to Mr. Smith, the 2d to Mr. Maries, and the 3d to Mr. Rylance. Among the sorts were Court of Wick, Ribston Pippin, Court Pendu Plat, and Blenheim Orange, which was also called Combermere Apple.

The best dish of Dessert Apples came from Mr. Smith, and consisted of Ribston Pippin. The same exhibitor also had Orange Pearmain ripe. From others came Pomona and King of the Pippins.

In the Class of Eight Kitchen Apples Mr. Smith showed fine fruit of Pearmain, Dumelow's Seedling, Mère de Ménage, well coloured, but not nearly so large as fruit of this sort sent this season to South Kensington; Emperor Alexander, also comparatively small; Blenheim Orange, Beauty of Kent, Wareham Russett, and Gloria Mundi. From Mr. Rylance came well coloured fruit of Cellini, Lord Derby, good examples of New Hawthornden, York Pippin, King of Apples which appeared to be Gloria Mundi; Blenheim Orange, Mère de Ménage, and Rose of Sharon. Mr. Rylance sent Lord Suffield, a useful Apple in most localities; Lord Derby, Alfriston, Dumelow's Seedling, White Pippin, a small pale-coloured fruit; Gloria Mundi, Cellini, and Scotch Bridget, a small rough fruit.

In Collections of Four Kitchen Apples, equally good fruit were contributed by Messrs. Smith and Rylance. The sorts were chiefly those just named.

The best dish of Kitchen Apples consisted of Gloria Mundi from Mr. Smith; and Mr. Rylance, who was placed second, had the same variety called King of Apples.

Among Miscellaneous fruit was a fine bunch of Banana from Mr. Lythgoe, gr. to T. B. Horsfall, Esq., M.P. It was hung up at the end of one of the tables, and seemed to be considered by many to be a great curiosity.

Notices of Books.

Homes without Hands. By the Rev. J. G. Wood, M.A., F.L.S. With numerous Illustrations. In 20 parts. London: Longman & Co.

This is by no means the first time that we have derived pleasure from the perusal of Mr. Wood's charming books on Natural History. He writes in a lively, natural, and perspicuous style, and has the requisite skill to make the subjects he treats of acceptable to the scientific reader; while, at the same time, he is most successful in rendering the information which he gives pleasant and intelligible to the unscientific.

It is perhaps rather a novelty in this little work that Mr. Wood has relinquished the usual method of classification, and adopted one founded upon the kind of habitation which the creatures he notices construct or dwell in. His method has its advantages, for these 'Homes without Hands," as he quaintly styles them, must necessarily depend in great measure upon the tools with which the little architects have been furnished, and serve to make us acquainted with the marvellous instincts with which they have been endowed. The curious construction of many of these homes, and their wonderful adaptation to the wants of their inhabitants, are sure to prove attractive to readers of all classes. There is abundant matter, also, to call forth the admiration of young people, and lead them to the contemplation of the great Creator's wisdom and goodness. And the fact that the homes are usually so much more durable than the creatures that made them is likely to induce many persons to begin forming a little collection for themselves, and that beginning may ripen into the systematic study of natural history. We hold that the man who renders any branch of human study pleasant and delightsome deserves the praise of his fellow men. Our readers will be able to judge from a few extracts whether Mr. Wood is entitled to this praise or not. We begin with a marine stone-borer:—

"A good example of the burrowing molluscs is the well known Pholas, popularly called the Piddock (Pholas dactylus), the shells of which are extremely plentiful upon our coasts, whether empty and thrown upon the beach, or still adhering to the living animal and deeply sunken in the rock. Almost in every part of our shores the Piddock is to be found wherever there is rock, and its dimensions and general appearance vary together with the locality.

"The shell itself is extremely fragile, and of a rather soft texture, and its outer surface is covered with ridges, that sweep in the most graceful curves from the hinge to the edge, and bear some resemblance to the projections upon a file. Yet practical naturalists have proved that, by means of these tiny points and ridges, the Pholas is able to work its way into the rock; for not only can a similar hole be bored by using a shell as a brad-awl is used to pierce wood, but the creature has actually been watched while in the act of insinuating itself into the chalk rock, a feat which was performed by gently turning the shell from right to left and back again."

Speaking of the Scorpion, Mr. Wood says:—

"The burrows of the scorpion can always be detected by the peculiar shape of the entrance, which is of a semilunar form, exactly fitting the outline of the animal which digs it. The shape of the aperture is not unlike that of the hole which is cut in the seats of wooden stools for the purpose of introducing the hand when they are lifted.

"In order to find out whether the scorpion is at home, a jug full of water is poured into the burrow. Scorpions detest water, and when they feel the stream pouring upon them, they issue from their holes in high dudgeon, their pincers preceding them and snapping wildly at the enemy. A fork or spade is then driven under the scorpion, and its retreat being thus cut off it is easily killed.

The experiment of surrounding the scorpion with a ring of fire has often been tried, and it has invariably stung itself to death. "The fiery circle was about 15 inches in diameter, and composed of smouldering ashes. In every instance the scorpion ran about for some minutes, trying to escape, and then deliberately bent its tail over its back, inserted the point of its sting between two of the segments of the body, and speedily died. The experiment was repeated seven or eight times, and always with the same results, so that a further repetition would have been but a useless cruelty."

As to the story of the gigantic hairy spider of Surinam, which was said to attack and kill birds, a tale which naturalists seriously doubted, the question has been satisfactorily set at rest, for Mr. H. W. Bates, who spent 11 years upon the banks of the Amazon River, was actually eye-witness to the murder of a small bird by a great spider. The spider was nearly 2 inches in length of body, but the legs expanded 7 inches; yet this repulsive creature does not inspire the natives with much disgust, for the same gentleman once saw a group of children amusing themselves with a gigantic spider of the kind which they had secured by a string round its waist, and were leading about as if it had been a dog.

Mr. Wood tells us that of all the burrowing spiders none is so admirable an excavator as the Trap-door spider of Jamaica, which constructs a flap of the same substance as the tube it lives in, circular in shape, and working on a sort of hinge, and fitting with such perfect accuracy, and so cleverly sprinkled over with particles of the adjacent earth, that the spectator who has actually seen the little lid lifted up and startled the spider in the act of peering about, often has to search in vain for the hole down which it has in an instant vanished.

We pass over very interesting descriptions of ants, and the whole race of earth-burrowing hymenoptera, because their habits are comparatively better known than those of other insects; merely remarking that at the conclusion of a capital account of the domestic economy of wasps, Mr. Wood does what lies in his power to vindicate their character, which he thinks has been calumniously aspersed.

Mr. Wood's method of classification enables him sometimes to draw attention to the habits of an insect on account of peculiarities in its perfect state, at other times from its conduct in the larval state. The well-known Ant-lion (Myrmeleon formicarius) presents little worthy of remark when perfect, but is a truly wonderful being in its larval condition.

"Though predacious, and feeding chiefly on the most active insects, it is itself slow, and totally unable to chase them; and were it not furnished with some quality which serves it in the lieu of speed, it would soon die of hunger. The very look of the larva is enough to make the observer marvel as to its method of obtaining food. Thick, short, soft, and fleshy, the body is supported on

six very feeble legs, of which the hinder pair only are employed for locomotion, and these can only drag it slowly backwards. Indeed, the general outline of the body and head bears no small resemblance to that of a fat-bodied garden spider. So feeble are its limbs, that they are practically of very little use in locomotion, and even when they are cut off, the creature can move nearly as well as when they were in their places. From the front of the head project a pair of long, slender, curved mandibles, which give the first intimation that the grub has anything formidable in its nature. These mandibles are curiously made, being deeply grooved throughout their length, and permitting the maxillæ, or inner pair of jaws, to play up and down them.

"Inert and helpless as it may seem, this grub is a ruthless destroyer of the more active insects, and, moreover, seldom catches any but the most active. Choosing some sandy spot, where the soil is as far as possible free from stones, it begins to form the celebrated pitfalls by which it is enabled to entrap ants and other insects. Depressing the end of its abdomen, and crawling backwards in a circular direction, it traces a shallow trench, the circle varying from one to three inches in diameter. It then makes another round, starting just within the first circle, and so it proceeds, continually scooping up the sand with its head, and jerking it outside the limits of its trench. By continuing this process, and always tracing smaller and smaller circles, the grub at last completes a conical pit, and then buries itself in the sand, holding the mandibles widely extended.

"Should an insect, an ant, for example, happen to pass near the pitfall, it will be sure to go and look into the cavity, partly out of the insatiable curiosity which distinguishes ants, cats, monkeys, and children, and partly out of a desire to obtain food. No sooner has the ant approached the margin of the pitfall, than the treacherous soil gives way, the poor insect goes tumbling and rolling down the yielding sides of the pit, and falls into the extended jaws that are waiting for it at the bottom. A smart bite kills the ant, the juices are extracted, and the empty carcase is jerked out of the pit, and the Ant-lion settles itself in readiness for another victim."

We must now call attention to the extremely beautiful wood engravings with which these pages are profusely adorned; they are from original drawings made by the well known artists Messrs. Keyl and E. A. Smith, under Mr. Wood's own superintendence, and expressly for this work, thus enabling the student to take in knowledge by the eye, and forming a most attractive part of the work.

These illustrations are not confined to the homes of the insect tribe. There are some of pensile birds-nests and nests of various kinds. One of the most beautiful is that of the Harvest mouse (Micromys minutus), the smallest example of the mammalia in England, and nearly in the world. "This elegant little creature is so tiny that, when full-grown it weighs scarcely more than the sixth of an ounce, whereas the ordinary mouse weighs almost an entire ounce. Its colour is of a very warm brown above, almost amounting to chestnut, and below it is pure white, the line of demarcation being strongly defined. The genuine harvest mouse can be distinguished by its very small size and the bright ruddy hue of the back and the white of the abdomen. Moreover, its ears are shorter in proportion than those of the ordinary mouse, the head is larger and more slender, and the eyes are not so projecting. The harvest mouse surpasses all its congeners in the beauty and elegance of its home, which is not only constructed with remarkable neatness, but is suspended above the ground in such a manner as to entitle it to the name of a true pensile nest. Generally it is hung to several stout Grass-stems; sometimes it is fastened to Wheat-straws; and in one case mentioned by Gilbert White, it was suspended from the head of a Thistle.

"It is a very beautiful structure, being made of very narrow Grasses, and woven so carefully as to form a hollow globe rather larger than a cricket ball, and very nearly as round. How this little creature contrives to form so complicated an object as a hollow sphere with thin walls is still a problem. It is another problem how the young are placed in it, and another how they are fed. The walls are so thin that an object inside the nest can be easily seen from any part of the exterior; there is no opening whatever, and when the young are in the nest they are packed so tightly that their bodies press against the wall in every direction. As there is no defined opening, and as the walls are so loosely woven, it is probable that the mother is able to push her way between the meshes, and so to arrange or feed her young."

A single extract from the birds and we have done:—

"There is a wonderful little bird, popularly known by the name of the Tailor Bird, its scientific name being Orthotomus longicaudus. The manner in which it constructs its pensile nest is very singular. Choosing a convenient leaf, generally one which hangs from the end of a slender twig, it pierces a row of holes along each edge, using its beak in the same manner that a shoemaker uses his awl, the two instruments being very similar to each other in shape though not in material. These holes are not at all regular, and in some cases there are so many of them, that the bird seems to have found some special gratification in making them, just as a boy who has a new knife makes havoc on every piece of wood which he can obtain.

"When the holes are completed, the bird next procures its thread, which is a long fibre of some plant, generally much longer than is needed for the task which it performs. Having found its thread, the feathered tailor begins to pass it through the holes, drawing the sides of the leaf towards each other, so as to form a kind of hollow cone, the point downwards. Generally a single leaf is used for this purpose, but whenever the bird cannot find one that is sufficiently large, it sews two together, or even fetches another leaf and fastens it with the fibre. Within the hollow thus formed the bird next deposits a quantity of soft white down, like short cotton wool, and thus constructs a warm, light, and elegant nest, which is scarcely visible among the leafage of the tree, and which is safe from almost every foe except man.

"There are several nests of the Tailor Bird in the British Museum, one composed of several leaves, and the other in which one leaf is used. It is a pity that in all instances the leaf has been plucked from the twig on which it grew; and it is to be wished that when other specimens are brought to England the twig will be cut off, and that if the leaf should fall off, it may be replaced on the spot whereon it grew. Beautiful as is the detached nest, it does not give nearly so vivid an idea of its object as if it were still suspended to its branch."

Here, however, we must close our notice, once more thanking Mr. Wood for the entertainment which he has afforded us, and expressing our admiration of his charming book and its beautiful illustrations. If intrinsic excellence and moderate price (one shilling per number) go for anything, his "Homes without Hands" will assuredly meet with an extensive circulation.

Catalogues Received.—*William Bull's Retail List of New Plants* 1864-5, is a very full list of new Stove, Greenhouse and Hardy Plants, among which perhaps the most novel are some double-flowered zonal Pelargoniums, of which three varieties are offered: one Maréchal de Chanflourd, described as ranunculus-formed bright carmine with white centre, another Triomphe de Gergoviat large double bright red with white centre, and a third Auguste Ferrier, vermilion and semi-double.—*Peter Lawson & Son's List of Forest Trees and Shrubs*, October 1864, is a very carefully compiled classified list of subjects for planting at this season of the year. In most cases the size of the plants as well as their price, is given.—*William Chater's Catalogue of Hollyhocks* 1864, the 18th annual edition, contains descriptions of the many sterling novelties which have appeared during the season, 10 of which have won First-class Certificates, supplemented by an alphabetical descriptive list of the general collection, amounting to about 250 varieties.—*B. S. Williams's Catalogue of New Pelargoniums* contains Mr. Beck's novelties of the present season.—*Narcisse Gaujard's (successeur de Ad. Papeleu à Gand) Extrait et Supplément du Catalogue Général* is an extensive and partially descriptive list of fruit trees and of hardy ornamental trees and shrubs, accompanied by illustrations of several modes of training the former.

Garden Memoranda.

Seaforth Hall, Seafield, Liverpool.—In taking a retrospective glance amongst gardens, one does not require to be very old to see that gigantic strides have taken place in every department. It is not necessary for men in the prime of life to take down musty volumes from their library, and perplex their brain in finding out the length and breadth of the horticulture of the past, and the earlier portion of the present century, in order to make out a case that this branch of science and art has at least kept pace with the times. Twenty years ago gardening did progress steadily though slowly; but compare its progression since, year by year, and what do we find? Instead of a limited acreage of garden for the cultivation of hardy fruit and vegetables, with a small modicum of flowers, as possessed then by gentlemen of respectability, we have now as much in proportion covered with glass to furnish, both in season and out of season, all the luxuries in fruit, vegetables and flowers that could be named. Luxuries of this kind a few years ago were chiefly confined to noblemen and other lords of the soil. Commercial men scarcely ever dreamt of such a thing, but the mania has got hold of them, and that dogged and enterprising spirit, which is ever prominent in commercial transactions, actuates these gentlemen in this particular, and prompts them to rival if not eclipse their titled brethren. Such indeed is laudable ambition.

It may be that they cannot get possession of broad acres, a fine baronial mansion with historical associations, a splendid park, and huge specimens of trees dotted over the landscape. Such things cannot be created in a day, and are not often in the market. Those then who hold such enviable treasures may revert with pride to them, and mock at the puny attempts to imitate what requires the work of centuries to complete. Splendid palatial-like structures, with all the modern improvements known to architecture, however, can be raised. Acres of glass can be laid down in a block of ground to furnish all that is rare and beautiful in Nature, and can be put up to please the æsthetic eye, and form a grand feature in companionship with such a mansion. Grounds can be laid out by the garden architect so pleasing, and upon the whole so beautiful, as to be almost a perfect Eden.

Seaforth Hall, the seat of — Fernie, Esq., is one of those places which possess more or less of what has been indicated. Mr. Fernie is evidently one of those gentlemen who do not do things of the sort by instalments. The whole place has risen up in two years. What was a barren piece of sand driven at pleasure by the furious waves of the Mersey, at the mouth of which it stands, is now transformed into quite a fairy-land scene. At first a strong retaining wall, which was supposed to have been proof against wind and tide, was built, but the waves mocked both builder and wall, sapped its foundation, and utterly destroyed it. Go now and examine the piece of masonry that has recently been raised, and you will at once see the determination and spirit of the man who owns it. It is exactly 665 feet long by 70 feet wide, and 14 feet deep—a piece of solid masonry! The stones that make it up are ashlar, firmly cemented together, all quarried and brought from Yorkshire. Ye who know the price of mason work per cubic yard, estimate this! Deduct, however, the superficies of an artificial piece of fresh water, 600 × 24 × 3 feet, which considerably lessens the expense and adds to the beauty of the spacious promenade. This, of course, would make admirable groundwork in proper weather for skating and curling. Curling, however, is a Scotch game, as peculiar to that country as cricketing is to England, and may not be resorted to by Mr. Fernie and his friends. A neat cast-iron balustrade surrounds this piece of water, and one of the same pattern forms the extreme boundary line seawards.

The piece of ground is something less than 700 feet long, and judging by the eye cannot be very much wider. The mansion is situated in the centre of the block, and is a square pile of handsome outline, built wholly of stone in 6-inch courses, and looks well from any point of view. The back of it faces the sea; the lower and principal suites of rooms are well raised above the common level; and the topmost, besides being built with the same material as the lower ones, is overlaid with Welsh slates of uniform size, the better to ward off the cutting winds from the seaward.

Attached to the mansion is a glass corridor, 300 feet long by 18 feet wide, which forms a spacious promenade to the block of stove houses, greenhouses, and forcing houses that are erected in an open square at the extremity. This corridor is an exceedingly neat span-roofed erection, with perpendiculars about 9 feet high, the one of wood and glass, giving the promenader a glimpse of the river scenery, and the corresponding one of the same height being a dead wall faced up with cement and finished off to imitate stone work. The legs of the span run up at about an angle of 50° to longitudinal rafters, placed about 2 feet apart, from which aperture is a raised hood-like triangular top, so fitted up with gearing that a lever at one end turns the glass panels on a pivot so that air can be admitted at pleasure. The simplicity of both the lever and pinion systems, which are equally simple and effective, is admirable, and leads to their general adoption in all recent erections. The time saved in working either of the methods soon reimburses any additional primary outlay. Further, no style of erecting houses now-a-days can be considered complete where the architect does not stipulate for the principal sashes to be fixtures. Houses that have sloping sashes moving up and down are little better than huge shower baths in stormy wet weather. As a matter of economy, then, not to speak of the more handsome finish which houses with hood-like tops present, ventilation ought to be provided for in some such way as the one in question.

This spacious promenade, 18 feet wide, is equally divided into three parts—6 feet for the borders on each side of a 6 feet path. The path is of polished stone, with a handsome rounded curb-stone on either side. An ornamental cast-iron grating, 1 foot wide, is let in on either side for the better diffusion of heat from pipes underneath. The system of heating is very good; there are two rows of pipes at front and back, besides these double rows under the passage. The goddess of Fashion emphatically demands a spacious walk; and standing at one end and looking up this vista, one is compelled to admit that taste is moving in the right direction, for however admirable the finish and general contour of a house may be, it loses half its grandeur if you have not breadth of walking space to move along in. Ornamental wrought-iron arches, with arms welded on to support the roof, are placed at regular distances along this conservatory arcade, and form admirable supports for climbers, which run up and throw their branches like festoons from this pretty gilded archway. The rafters are toned up with light blue—Crystal Palace fashion—and the astragals are white, which colouring, taken with the broad panes of Hartley's rough plate, has a very pleasing appearance.

All this is very grand of itself, all very spacious. Without plants, however, and plants too of considerable age, and diverse in kind, it would not look one whit better than a splendid, gilded, stuccoed room unfurnished. Ranges of Vineries are got up in a twinkling, and furnished at comparatively little expense, but the gentleman who is ambitious enough to erect what might be called a winter garden like this, must count the cost beforehand, and be prepared

to furnish it on a scale of magnificence. It is scarcely necessary to say that in this case it has not been done niggardly. The first thing that strikes the eye on opening the side door of the mansion and stepping inwards, is a collection of huge Camellias, as thickly set with buds at most of the points as bunches of Filberts, and as vigorous and dark green in the leaf as those unique plants that grow wild in a dark Conservatory at Bretton Hall—a place somewhat famous as having been under the superintendence of a Marnock, who lives an honour to the country; and, alas! of a McEwen, who faded away in the prime of life. How these plants, which are not less than 13 feet high, and from 6 to 7 feet at the widest part, mostly clothed with foliage to the bottom, and having stems as clean and smooth as a fast grown Ash, were brought from Scotland unscathed, so as to be in such condition a twelvemonth afterwards, we cannot pretend to say. If there is one bud on the largest old White (alba plena) there are a thousand, and the flowers which were expanding were no puny substanceless things, but large in the extreme. They were in large green painted square boxes, with ornamental knobs, and one of them weighed 2 tons. These Camellias certainly are a credit to the gardener who produced them. Lady Hume's Blush, which is well-known to practical men as a straggling grower, is one of the plants, and far exceeds anything of its kind we ever saw; it is a pyramidal plant, measuring by the eye about 12 feet by 5 feet. In London, Glasgow, or Edinburgh, the blooms of these plants on gala days would bring a large sum of money. Camellias, like Orchids, when well managed, are always growing into money. What admirable decorative plants for a house of this sort are the varieties of Yucca, forming as they do here handsome individual objects in prominent places. Then again, what graceful spray from the frondage of that old Protead, Grevillea robusta, of which there is a fine specimen. Moving along, we observe shining out among grosser foliage, a fine squatty specimen of Eugenia Ugni, with its red berries, glistening like beads, making admirable contrast to the vigorous specimen of the Crested Lady Fern that stands near to it. How seldom do we stumble upon that fine Ericaceous shrub, Clethra arborea, and how well it looked here! Acacias make capital specimen plants when kept in limits, and form admirable leafage in all conservatories. Here they were tolerably numerous. Prominently stood out a couple of match plants of the most handsome of the whole race of them, being more easily kept within bounds, and more ornamental when well bloomed—A. Drummondii; these stood 7 feet by 4, clothed to the pot rim. Sikkim and the Himalaya mountains were well represented in numerous Rhododendrons, which are quite at home in this sort of temperature. Maddeni was well set with bloom; so was Nuttallii, Edgworthii of which there was a unique specimen, Dalhousiæ, and one or two of the dwarfer species—these being just the sort of plants to mix among Ferns, and such things as the handsome Cycas revoluta, which at all times catches the eye in any arrangement. Of New Holland specimens there were numerous examples—all valuable plants, which it would serve little purpose to name. We must not, however, omit to mention the handsome specimen of that charming Leguminous plant, which finds so much favour with the ladies—Bossiæa linearis. These houses are brightened up with flowering plants in season, brought from the other houses. Fuchsia Dominiana, with its long brilliant-coloured flowers, looked very well; so did Aster argophyllus, with its glaucous silvery foliage.

But let us glance a moment at the climbers which are twining round the arches, as well as those that are neatly trained against the dead wall. First and foremost there is Eccremocarpus scaber, with its showy orange and red trumpet-shaped flowers standing prominently out. Then there is Cobœa scandens variegata, quite as useful in its way. The variegated Honeysuckle, recently introduced, would also make an admirable clothing for one of these arches; and Mr. Hughes, the intelligent gardener, fully alive to this, has some in process of training, to be brought in when of some appearance. Hibbertia dentata makes a fine plant for a wall, throwing its yellow, rosaceous-looking flowers, in tolerable profusion; while Swainsona elegans, Heliotropes of sorts, Clematises, Tropæolums, Jasminum elegans, and a few others of less interest, are all effectively used. *J. A.*

Calendar of Operations.

(For the ensuing week.)

Now that all the great operations of fruit tree and other planting are about to be commenced, it may not be amiss to direct attention to the extreme importance of thoroughly breaking up the land that is to be planted, wherever that is practicable. No mistake can be more fatal to success in many parts of the country than to imagine that because the surface soil is loose and works easily, that therefore no further disturbance of the land is required. How often do we hear of lamentations over plantations, not only of fruit trees, but also of other things, which fail because the land burns in summer, or because it is water-logged in winter. A frequent cause of these evils is the presence of a hard "pan" a short distance below the surface, which cuts off the upper soil from the under. This hard layer must be broken up; but this is not all; there must also be thorough drainage—not mere gutters, but good deep drains, sufficiently numerous to rid the land entirely of stagnant water. This necessarily involves a considerable outlay of capital; but not to a greater extent than the nature of so important an operation demands. After having incurred a heavy charge, it is most unwise to refuse so much more in addition as will insure success, especially when withholding it is to insure failure. To the proper preparation of ground for planting therefore too much attention can hardly be paid.

FLOWER GARDEN AND PLANT HOUSES.

Indoors maintain a steady temperature, and employ sufficient moisture only to keep the plants in a healthy condition. In most gardens leaves can be collected, and when properly managed they form perhaps the most useful source of bottom-heat with which we are acquainted, except, of course, hot water. If not already done, all the leaves necessary for carrying on the business of the ensuing year should therefore be collected as early as possible, and laid close together to heat. After fermenting for three weeks or a month, they will be in excellent order for use; in this state they will both heat with more certainty and tread more closely.

CAMELLIAS.—Owing to the comparative mildness of the weather some of the very earliest Camellias may now be coming into bloom; and where that is the case take care to keep as low a temperature as possible, in order to prolong their beauty. All drip must also be avoided.

HYACINTHS.—The earliest varieties will soon be in flower, and with care, a succession of them may be kept up till spring. For late flowering bulbs the best pots are 5-inch ones (forty-eights) for one bulb, and 6 or 7 inch ones (thirty-twos and twenty-fours) for three bulbs; where a fine display is sought for, three grown together in one pot will secure that object much better than single bulbs. For potting, the soil should be as rich as possible; such as one-half fresh loam, cut from a pasture with the turf decayed in it, and well-decomposed cow or horse manure, and a small quantity of clean sand well intermixed. If, however, this kind of compost cannot be obtained, then the lightest and richest at command must be employed instead. Drain efficiently, and, after filling the pots lightly with the soil, place the bulbs upon the surface, slightly pressing them into the soil. After watering, set the pots out of doors on a dry bottom, and cover them with old tan, ashes, sawdust, leaf-soil, Cocoa-nut refuse, or any other light material. After remaining thus for a month or so, the bulbs will be sufficiently rooted to render it safe to remove them to a gentle bottom heat of about 55°, introducing the pots in numbers proportionate to the demand, at intervals of about a fortnight; in this manner, a succession of flowers will be secured. In forcing, endeavour to prevent the roots from penetrating the fermenting material.

FORCING GARDEN.

ASPARAGUS.—Three or 4 inches of additional covering should be laid over the roots when the stems appear at the surface, and if the bed has not yet received any water, some may be necessary. This may be ascertained by examining the mould about the roots. Prepare leaves and dung for a successional bed.

CUCUMBERS.—Bearing plants in pots and boxes should be fed once or twice a week with manure water, but take care that it is not too strong or cooler than the air of the house. If young plants have already been raised on a dung bed, they must be carefully guarded against damp and steam from the hot dung. A layer of sand over the surface will check the ascent of vapour through the light material with which seed beds are usually covered.

PEACHES.—Begin to force very gradually, giving air on every opportunity, and leaving a circulation day and night, if possible.

PINES.—Atmospheric moisture must not be withheld from Pines in a swelling state, although we have arrived at the dark days. Nothing has a greater tendency to premature ripening. Give little or no air at this season, except under the pipes. There should, however, be slight ventilation of this kind all day, and sometimes all night while the weather is mild.

VINES.—Where the buds on very early Vines are beginning to swell, or are starting a little, increase of temperature must be allowed—say 60° by day and 55° by night. Take care that plenty of atmospheric moisture is maintained by syringing or otherwise. Do not, however, keep them constantly wet. Allow the stems to become comparatively dry at intervals. The oftener the fermenting materials placed inside are turned the better. Let newly-introduced Vines be bent down where practicable, to equalise the flow of sap. As soon as the Grapes are all cut in late Vineries, let the Vines be pruned immediately. Whether taken out to rest or not depends, of course, on other arrangements. If they are taken out, be sure to cover them well with old mats and litter.

HARDY FRUIT AND KITCHEN GARDEN.

According as the weather is more or less favourable, the various operations of pruning, nailing, or digging amongst the smaller fruit trees should be forwarded. Should the weather set in frosty, wheel out manure as has been before recommended to all vacant plots of ground, where heaps may be made, and cover it with soil till wanted. In many cases, however, it may be trenched in at once, especially where Carrots, Parsnips, Beet, or Onions are to be grown. All these require to have the soil turned up previous to sowing time.

CAULIFLOWERS.—Great attention must be paid to plants of these in frames, and under handlights; stir the surface round them in mild weather, and give frequent dressings of dry soot, lime, and ashes, taking care also to give air whenever practicable.

WINTER GREENS.—All late Cabbages, &c., should be earthed up if not already done, and if dry leaves are plentiful they may be laid very thickly between rows of choice Broccoli, and confined there by sticking Birch boughs round the outside of the beds. Snow's Winter Broccoli, if coming in, should be taken up and protected whenever the heads are large enough for use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Nov. 23, 1864, as observed at the Horticultural Gardens

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 17	18	29.372	29.109	55	44	49.5	46	47½	S.	.22
Friday 18	19	29.676	29.118	55	25	40.0	48	48	S.W.	.00
Satur. 19	20	29.822	29.632	54	41	47.5	48	48	S.	.10
Sunday 20	21	29.603	29.509	54	28	41.0	48	48½	S.W.	.09
Mon. 21	22	29.860	29.742	53	39	46.0	49	48½	S.	.00
Tues. 22	0	29.604	29.465	56	29	42.5	49	49	S.W.	.03
Wed. 23	24	29.631	29.373	48	37	42.5	48	49	S.	.95
Average.		29.652	29.421	53.5	34.7	44.1	48.0	48.3		

Nov. 17—Rain, with strong wind; fine at night.
— 18—Cloudy; boisterous; frosty at night.
— 19—Fine; very fine throughout.
— 20—Overcast; very fine; overcast; slight frost.
— 21—Dense fog; fine; rain at night.
— 22—Rain, with strong S.W. wind; fine at night.
— 23—Rain; fine; partially overcast; very heavy rain at night.
Mean temperature of the week 3 deg above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Dec. 3, 1864.

November and December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	47.0	34.4	40.7	17	0.88 in.	1	5	5	1	7	9	6	4
Mon. 28	48.2	34.9	41.5	18	1.21	2	4	3	2	9	7	7	4
Tues. 29	47.1	34.3	41.0	19	0.56	4	1	8	3	5	11	4	2
Wed. 30	48.0	34.7	41.3	20	0.30	4	4	4	3	3	10	3	2
Thurs. 1	48.4	35.4	41.9	18	0.25	2	2	3	4	5	7	11	4
Friday 2	47.7	34.2	40.4	17	0.53	2	4	4	1	5	12	3	7
Satur. 3	46.9	35.2	41.0	20	0.26	1	6	5	2	4	11	8	1

The highest temperature during the above period occurred on the 1st, 1857—therm. 62 deg.; and the lowest on the 30th, 1856—therm. 14 deg.

Notices to Correspondents.

BOOKS: *J Leman.* The last Supplement to Loudon's Hortus Britanicus bears date March, 1850; there is no similar list bearing a later date.—*R D.* You are not likely to meet with Martyn's Flora Rustica except at a second-hand book shop. You should commission some dealer in old books to look it up for you.—*J Pegler.* The last edition of Loudon's Encyclopædia of Plants is brought down to March, 1855. The last edition of Loudon's Hortus Britannicus bears the date of 1850.

DODDER: *Cuscuta* will find a very good account of British species of this genus of parasites in the second volume of the Transactions of the Botanical Society of Edinburgh. He may also consult Mr. Bentham's Handbook with advantage.

EVERGREENS FOR A TOWN GARDEN: *Constant Reader.* You will find Aucuba indispensible. To this add such plants as Euonymus japonicus, green or variegated; Hollies green or variegated, especially the vigorous broad-leaved sorts, such as Shepherdi; Laurustinus; and the hardy Yuccas. It would, however, be only fair to the plants to have the soil made as far as possible congenial to them. With this proviso, Rhododendrons may be introduced with every prospect of success. We cannot recommend Conifers generally, but Araucaria imbricata would most likely succeed.

FIG TREES: *Constant Reader.* The small fruits which appeared about September on your out-door Fig trees are useless, and will perish with the cold of winter; but if you apply a little shelter, so as to preserve the embryo fruits just visible now towards the tips of the shoots, they may produce you a crop next summer if all goes well. A sort of thatch of thick straw fringes, suspended tier above tier, and securely fastened, will probably afford sufficient protection, unless the situation is very unfavourable.

NAMES OF FRUITS: *B H.* The Grape from the Vine which you sent from Damascus is the Stoneless Oval Berried, which differs only from the White Corinth or White Kishmish in having the berries oval instead of round.—*D D D.* 1, 3, 5, Passe Colmar; 2, 4, 6, Glou Morceau.—*J Evans.* 1, Autumn Bergamot; 2, Beurré d'Yelle; 3, Golden Noble; 4, Alexander; 5, Beauty of Kent.—*W J C.* 1, 4, Franklin's Golden Pippin; 2, Rhode Island Greening; 5, Glou Morceau,—*F D H.* 1, 2, Glou Morceau and Passe Colmar (labels misplaced); 3, Glou Morceau; 4, Easter Beurré; 5, Aston Town? 6, Scarlet Pearmain.—*An Old Sub.* The scarlet Apple you describe, with pink flesh, is most probably the Sops of Wine.—*T T U X.* Your seedling Apple, No. 4, is very handsome, like the Alexander in size and form, with uniform blush of deep red next the sun; it may do for kitchen use.

NAMES OF PLANTS: *J D.* Your Moss appears to be an aquatic form of the common Hypnum rutabulum; but without fructification it is often very difficult to name Mosses, indeed they are not sufficiently horticultural.—*M J C.* 1, Polypodium vulgare; 2, Blechnum Spicant; 3, Asplenium Trichomanes: 4, Asplenium Adiantum-nigrum.—*W B.* No. 2 is only a very luxuriant form of Tare, Vicia sativa.—*Faber marinus.* Rhaphiolepis indica.—*H Z.* 5, Asplenium præmorsum; 6, Pteris tremula; 7, Asplenium bulbiferum; 8, Cheilanthes elegans.—*B C D.* Asplenium Adiantum-nigrum.—*A B C.* Gymnogramma pulchella, and Cestrum aurantiacum.—*Wm.* We do not name Mosses; they are not of sufficient horticultural importance.—*J H.* Your Australian leaf is probably Tecoma diversifolia.—*H D.* It is impossible to name mere scraps of leaves; 2 is some Xanthoxylum; 3 is a Pleroma, perhaps heteromalla; the others not recognisable. You must send them in a more complete state.

WALNUTS: *G F* asks what is the best method of keeping Walnuts, for he has always failed to prevent them from becoming mouldy, notwithstanding that he has tried them packed closely in jars, spread out on shelves, and also packed in sawdust.

WHITE HOLLY: *W C B., Hexham.* We have no knowledge of any case in which a pure Albino like yours has been preserved for any length of time. Though yours has kept constant since the summer of 1861, its life has doubtless been dependent on the more normal portions of the tree. The most likely way to increase it would be by grafting; but the grafts must be kept in a close frame, and protected.

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Smithfield Club Cattle Show.
STAND No. 97.

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Smithfield Club Cattle Show 1864,
(IN THE GALLERY.)

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See full advertisement with engraving of Ear in Numbers of *Agricultural Gazette* and *Mark Lane Express* for September and October, and in those of *Bell's Weekly Messenger* for October and November 1864.

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July 9, 1864, *from* A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*
"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."
September 16, 1864, *from* Messrs. CROUCH, *Portland, Victoria.*
"We may remark that Messrs. Sutton's shipment of Seeds have given the greatest satisfaction as far as they have been tried. The Grasses, Clovers, and Lucerne are up."
"We find the crop will be far too thick. If the vegetable seeds turn out as well, we may say that without exception they are the best lot of Seeds ever received in this place from Europe."
July 17, 1863, *from* G. MORRISON, Esq., *Superintendent of the Government and Oudh Agricultural and Horticultural Society's Gardens, Lucknow.*
"I received some Vegetable Seeds, also some Flower Seeds from your firm some 18 months ago, and they turned out first-rate."
May 15, 1863, *from* Sir R. MONTGOMERY, *Lieut.-Governor, Punjaub, India.*
"I am happy to tell you that the Seeds you sent last year answered very well. I carried off the first prize both for vegetables and flowers, as you will see by an extract from the *Lahore Chronicle*, which I enclose."
November 7, 1863, *from the* Rev. R. G. LAMB, *Green Point, Cape Town.*
"Your Seeds have answered right well; one pinch of such as yours is worth a handful of the stuff sold here, which generally goes to seed before coming to perfection."
October 6, 1863, *from* Mr. CHARLES HASELDEN, *Boyce Farm, near Auckland, New Zealand.*
"The Grass Seeds you sent me arrived in excellent condition, and already present a luxuriant appearance, with the promise of abundant feed early in the coming season."
Royal Berkshire Seed Establishment, Reading.

Smithfield Club Show.—Agricultural Hall.
JAMES CARTER AND CO.'s STAND of PRIZE ROOTS, No. 96.

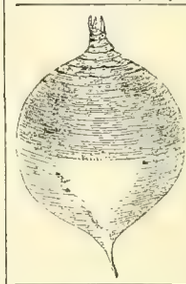
Smithfield Club Show.
STAND No. 98—GALLERIES.
WILLIAM SKIRVING begs to announce to his Friends and the Public that he will ATTEND, as usual, at the ensuing LONDON CATTLE SHOW (AGRICULTURAL HALL, ISLINGTON), to Exhibit Roots and Take Orders for AGRICULTURAL SEEDS of the most approved kinds.
Liverpool.—Nov. 26.

Smithfield Club Show.—Agricultural Hall.
DECEMBER 5, 6, 7, 8, 9, 1864.
STAND 56.
MESSRS. J. C. WHEELER AND SON, of Gloucester, will exhibit specimens of their well-known WHEELER'S IMPERIAL SWEDE, and ORANGE GLOBE MANGEL: and, by the kind permission of the Growers, the PRIZE WHEAT and BARLEY shown at the Gloucestershire Root and Grain Show; also, specimens of a NEW POTATO, of extraordinarily fine quality, called MILKY WHITE.
J. C. WHEELER & SON, Seed Growers, Gloucester.
STAND 56, Smithfield Club Show.
Seedsmen to the Gloucestershire Agricultural Society.

The Great International Show of Roots, Gourds, &c.
AT S. KENSINGTON, FRIDAY, DEC. 7, TO WEDNESDAY, DEC. 16.
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SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Smithfield Club Cattle Show.
SUTTON AND SONS, SEEDSMEN to the QUEEN, respectfully invite the attention of their Patrons and Agriculturists to their magnificent STAND in the GALLERY of the AGRICULTURAL HALL, Islington, at the forthcoming Show, consisting of 200 distinct varieties of GRASSES for PERMANENT PASTURE and other purposes, all grown by themselves in their Trial Grounds, Reading; a large and choice Collection of GRASS SEEDS in canvas bags, and some very excellent specimens of their Improved MANGEL WURZEL, CHAMPION and other SWEDES, Yellow and White-fleshed TURNIPS, POTATOS, &c. Grown by their customers in various parts of the United Kingdom.
One of the Firm will attend at the Stand, where orders will be received for Seeds at moderate prices.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Bingley Hall, Birmingham.
SUTTON AND SONS, SEEDSMEN to the QUEEN, respectfully call the attention of their Patrons and Agriculturists generally to their Magnificent STAND in the GALLERY of BINGLEY HALL at the forthcoming CATTLE SHOW, consisting of 200 distinct specimens of GRASSES for Permanent Pasture, Lawns, &c., all grown by themselves in their Trial Grounds, Reading. A large and choice Collection of GRASS SEEDS in bags, and some very excellent specimens of their improved varieties of MANGEL WURZEL, CHAMPION and other Swedes, Yellow and White-fleshed TURNIPS, POTATOS, &c., grown by their customers in various parts of the United Kingdom.
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Specimens of
SUTTON'S CHAMPION SWEDE,
(which has taken numerous Prizes again this season), may be seen on
MESSRS. SUTTON'S STAND,
BINGLEY HALL, BIRMINGHAM,
where Orders will be received.
Royal Berkshire Seed Establishment, Reading.

THE MIDLAND FARMERS' CLUB.—A SPECIAL MEETING of the MIDLAND FARMERS' CLUB will be held at the Lecture Theatre of the Philosophical Institution, Cannon Street, Birmingham, on THURSDAY NEXT, December 1, at 3 o'Clock.
Subject for Discussion: "THE TENURE of LAND," which will be introduced by Mr. R. H. MASFEN.
Members will be enrolled on the day of the Meeting, for which purpose a Committee Meeting will be held at the same place, half an hour previous to the Special Meeting, and Members nominated at this Meeting will be eligible to attend the reading of the paper.
It is intended to publish the discussion for the use of Members.
Nov. 26, 1864. JOHN B. LYTHALL, Secretary.

THE NATIONAL EXHIBITION of DOGS.—The FIFTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held in Paradise Street (near Bingley Hall), BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, and 30, and December 1, the week of the Cattle and Poultry Show.
For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

BINGLEY HALL, BIRMINGHAM.—The SIXTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 28, 29, 30, and Dec. 1.
The Exhibitors and the Public will be admitted to Bingley Hall to WITNESS the JUDGING of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 26, at 9 o'Clock A.M., upon payment of 10*s.* each. There will be no admission to the Poultry Department until after the Judging is completed.
For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

WITH the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAYS, December 3 and 10 (the weeks before and after the Cattle Show), will be published a SUPPLEMENT containing full particulars of the SHOW of STOCK and IMPLEMENTS at the AGRICULTURAL HALL, ISLINGTON. ADVERTISEMENTS intended for either of these Numbers should be sent to the Office not later than THURSDAY in each week. A Copy sent for Six Stamps.
Office for Advertisements, 41, Wellington Street, Strand, W.C.

WAITE'S ECLIPSE PURPLE-TOP YELLOW HYBRID TURNIP.

WAITE, BURNELL, & CO.

Beg to inform the public, that they can now supply SEED of this invaluable TURNIP. The ECLIPSE is a purple top, yellow-fleshed, and decanter-shaped variety, with a small top; it is a quickly growing Turnip, can be sown much later than the Swede, will store in the best condition till the end of May, and in the opinion of many farmers who have grown it, will keep better than the Swede. It is sound in flesh, rich in flavour, and preferred by Cattle to all other varieties.



This valuable TURNIP was introduced a few years ago by the late Mr. Waite, but from various causes, the stock has been nearly exhausted; after careful attention, W., B., & Co. have again secured a supply of the genuine and original stock.

Owing to the above circumstance the Purple-top Scotch (to which it is very superior) has been substituted by some houses for it, and great disappointment experienced, especially by those who know the Eclipse.

W., B. & Co. have considered it necessary to state that it is sent out by them in Canvas Bags, sealed, containing not less than a Half Bushel, and in Sacks marked

Price 50s. per bushel. *A Discount allowed to the Trade.*

Labels supplied to the Trade for placing on smaller packages.

SEED WAREHOUSE, 181, HIGH HOLBORN, LONDON, W.C.

The Agricultural Gazette.
SATURDAY, NOVEMBER 26, 1864.

IT is the noblest agricultural distinction of 1864 that especial attention has during it been paid to the important subject of Cottage Architecture. The conference on that subject, in which so many public-spirited and benevolent men took part before the Society of Arts—the prizes for good plans offered by Mr. BAILEY DENTON, and awarded after a competition superintended by the same Society—and the publication by Mr. C. W. STRICKLAND of a work* containing the results of similar competitions, superintended by the Yorkshire Agricultural Society—all honourably distinguish the past year. Mr. STRICKLAND'S volume, dedicated to his "fellow workmen in CHRIST'S kingdom, for whose sake he has studied the subject therein treated of," is a treatise not merely on the social importance of good cottages, which, as may be gathered from its dedication, is a point on which the author feels strongly, but on the practical details of cottage construction, which are so

* On Cottage Construction and Design: by C. W. STRICKLAND. MACMILLAN & Co.—Lady C. KERRISON'S book of Cottage Plans must not be omitted from the list of this year's performances.

presented to the reader as to enable him both satisfactorily to estimate, and, if he thinks proper, easily to follow the author's guidance. The chapters are 1st, introductory, 2nd, on the arrangement of the plan of cottage, 3rd, on details of construction, 4th, on cottage design, and 5th, on details of design. The whole is fully illustrated with plans and elevations of all kinds of arrangements, including plans of cottages, (*a*) with a living room and scullery on the ground floor, and three upstairs rooms; (*b*) with only two upstairs rooms; (*c*) with parlour and kitchen and scullery on the ground floor, and either two or three upstairs rooms; and (*d*) pairs of cottages in which the rooms are arranged differently in the two cottages. Of most of these, several examples are represented and discussed in detail. Ample specifications are appended to the book of the work to be done by excavator, mason, carpenter, slater, plasterer, plumber and glazier, and ironmonger respectively, in order to the completion of good work; and the book concludes with a particular specification by the author of those whom he includes within the terms of his dedication.

We greatly prefer the general to the particular terms in which his dedication is couched. Mr. STRICKLAND entertains and expresses an altogether unjustifiable abhorrence of trades unions, and of strikes. These may have been generally mischievous enough, and doubtless men have been oppressed by them, and employers have been bullied by them often enough. But these results are not the object or the "purpose" of these unions. Their purpose is a lawful one; and whether it be in any particular instance practicable or not, it is perfectly possible to conceive of right-minded men uniting for the attainment of it. The author of this book has therefore no right to use the following words which we find in its concluding pages:—

"Let it not for a moment be supposed that, amongst my fellow-workmen in Christ's kingdom, I can include men who enter into unions, the purpose of which is to bully their employers and to oppress their fellow-workmen. The man who has sold his conscience to a club, and has become the slave of a club delegate, is no longer a servant of the Prince of Peace, but has become a worshipper of Baal, and his idol is lawless power. He can have no sympathy with the work that I am engaged in."

These words, however, do but little affect the value of the work, and, we repeat it, Mr. STRICKLAND'S book is a thoroughly practical and useful treatise on the construction of cottages.

We referred the other day to the cottage plans of Mr. JOHN BIRCH, architect (55, Page Street, Westminster), which carried off Mr. BAILEY DENTON'S prize offered through the Society of Arts. With greater elegance of design than many of those in Mr. STRICKLAND'S volume, it unites the same accommodation—living room, scullery, and pantry on the ground floor, and three bedrooms on the upper floor—which is provided in several of the plans already named. There appears to us less waste of room, too, in passages and staircase; but on the other hand the plan offends against one of the principles of comfortable arrangement on which Mr. STRICKLAND very properly insists, viz., that living rooms ought not to be passages. The living room in Mr. BIRCH'S plan is 12 feet 6 inches by 12 feet; but the way from the front to the back door lies through it and the scullery. The three bedrooms are 12 feet 6 inches by 9 feet 6 inches, 9 feet by 8 feet, and 7 feet 6 inches by 6 feet respectively. The cost of the pair of cottages, with a very complete equipment of offices, is declared to be, under ordinary circumstances, 203*l*.

AN advertisement announces that Mr. MARRIAGE, of Grasmere, near Mitcham, Surrey, is prepared to direct and superintend works for the agricultural utilisation of town sewage. We call attention to this advertisement, for Mr. MARRIAGE is, we believe, the only person whose experience hitherto can be safely quoted in anticipation of a profitable solution of this difficult problem. He alone can speak of having dealt with so large a quantity as one million gallons of town sewage daily. And although this is only 1 per cent. of the quantity at the disposal of the Metropolitan Board of Works on the North side of the Thames, it is more, we believe, than falls to be dealt with artificially anywhere else. It has been declared that the Croydon sewage which is utilised on the farm at Grasmere is wastefully mismanaged; and that it is no example to be followed. To this the conclusive answer is that the stream which washes Croydon out comes turbid and filthy on to the upper end of Mr. MARRIAGE'S farm, and leaves it clean and limpid. It is clean water when it leaves the farm, and if so, its fertilising ingredients have been all extracted and turned to account. The filthy water which leaves the town is cleansed, and thus a nuisance is abated; it is cleansed, too, by a profitable conversion of its filth into vegetable growth. And Mr. MARRIAGE, who has succeeded here, is the best possible adviser of those who may be in similar difficulties elsewhere.

—— The Edinburgh papers announce the formation of a Chamber of Agriculture and Scottish Farmers' Club. The advantages of such an institution were thus fitly declared by Mr. HOPE of Fenton Barns at the meeting held last week to receive a report from the committee appointed at a previous meeting to make the necessary preparations for its establishment. He said:—

"It appears to me the establishment of such an association might prove of immense advantage to practical agriculture, and to the social and material interests of all connected with land. Doubtless, the Highland Society and other kindred, though humbler, institutions do much to further the progress of scientific and practical agriculture and to spread that knowledge abroad; but a Farmers' Club, if it embraced members from all parts of Scotland, would afford facilities which do not at present exist in any other institution whatever for personal communication and the formation of friendships amongst members of the body, which would stir up and excite a generous rivalry in the agricultural body from one end of Scotland to the other. A Chamber of Agriculture would tend much to unite together agriculturists as tenant-farmers. It would foster a spirit of manliness and independence, and enable them to act together in a way to ensure respect for their sentiments on all Legislative enactments affecting their interests in the Imperial Parliament. In such questions as the Law of Hypothec and the Cattle Diseases Bill, surely the united voice of the farmers of Scotland would not speak in vain. There are many other practical questions that would be more justly dealt with, and more satisfactorily settled, if half-a-dozen farmers had seats in Parliament, even if that class as a whole made that use of their influence which their numbers entitle them to."

During the subsequent proceedings the discussion turned on the question whether the proposed institution should be merely a Chamber of Agriculture or a Farmers' Club. The latter idea, including the item of hotel accommodation, was ultimately adopted unanimously, although the former view was at first strongly advocated by Mr. SCOT SKIRVING, who thus declared his preference of a merely discussional Chamber. He said:—

"In the first place, if gentlemen from a distance are so lukewarm that they will only join the association in consideration of the association giving something like bed and board, I would not be very anxious to open my arms to them, and on the other hand, it is perfectly delusive to suppose that the Club could give these advantages. No club could give all the farmers of Scotland bed and board. The wealthy clubs of Edinburgh, the members of which pay some 30 guineas of entry-money, and some five or six guineas a year, totally fail, when there is a large meeting in Edinburgh, to accommodate its members. It is only a few who are so fortunate as to get accommodation by sending previous notice. The Club, therefore, so far as giving beds to the far north, would be totally delusive. As to meeting with each other, it is very pleasant to meet one's fellows, but we do not just travel some 50 miles to meet a gentleman whom we see at home every day. When our friend the advocate or the writer to the signet in Edinburgh meets us, he says 'Will you look in at 6? I have asked some of your friends to meet me at dinner;' we would rather meet some strangers than those we meet every day, that we may hear nothing of agriculture, but get some new ideas. Then the table of the club-house is to be covered with agricultural journals. Why, we get those at home. I should like to see the men from the far north get the "Saturday Review" for a change, to get some new ideas, because we have all the agricultural journals at home. Then I fear the market will be carried into the Club; and the manure-merchant will have the mantelpiece covered with his samples, and the grain merchant with his cards, and there will be no escape from business. (Cries of 'No, no.') Why no? I see no reason why this should not be done; and if I were a manure-merchant I should be inclined to do what I could to sell my manure at the Club. I think it a great pity to put in this dead weight to one of the best proposals that was ever made for having a Chamber of Agriculture; and that is the reason why we have got so few members. For two or three guineas a year we can never get a good Club. We can only have a cheap and nasty Club at such a sum; but for 10*s*., or 1*l*. at most, we may organise the means of calling meetings together—we may organise an association, and have secretaries, and make a very powerful association for one-third of the money; but with the 3*l*. we shall do nothing.

Mr. SKIRVING'S opinions were not generally accepted by the meeting; and its feeling being manifestly in favour of the combined Club and Chamber, he at length withdrew his opposition, and seconded Mr. M'LAGAN'S motion for the immediate adoption of the proposal for a combined Farmers' Club and Agricultural Chamber.

—— We have the satisfaction of announcing that Mr. THOMAS BALDWIN, of Glasnevin, whose name has been long and favourably known in the agricultural world and to agricultural readers, has been appointed to the office of Inspector of Agricultural Schools in Ireland, lately resigned by Dr. KIRKPATRICK.

STEAM CULTIVATION.

AUTUMN SEED TIME.

I SHOULD imagine there is scarcely a clay-land farmer who has not at some time or other felt the great disadvantage and loss arising from the fact of his being in arrears of work when the autumn seed time arrives: it being of the utmost importance that the work at all times on heavy land should be kept well forward, in order the better to contend with adverse weather. This does not indeed apply in any degree to the present season; in these parts Wheat sowing having progressed under very favourable circumstances. The reverse of this is not unfrequently the case when the autumn rains set in early; it then becomes an anxious period for the occupier of heavy land, and in addition to wet weather he may have to contend with a large amount of work in arrear, and the seed time is rapidly closing in upon him. The same amount of horse labour which would in earlier days easily and satisfactorily finish off the nine and ten acres per day, now with much difficulty and hard labour both to man and beast accomplishes but six or seven; neither is the work anything like so well done. The land is fast becoming extremely wet and unmanageable, and the drying winds of one day are succeeded by heavy drenching rains the next. The sun no longer shines with any power sufficient to cause any evaporation, and day by day the land becomes wetter and sodden with moisture, and now commence a series of disastrous complications. The drill machine refuses to work in a proper manner, and the unsatisfactory method of broad-casting is had recourse to, for somehow or other the Wheat must be got in. The small lands, too, or bouts, or ridges, or whatever other terms may be applied to those singular inventions of mankind for carrying off the water from the land when Providence ordains it should pass through and enrich it, now become useless at a critical time, failing when they are most wanted, and the poor horses sink fetlock deep in the miry furrows. The small birds, too, the farmers' friends in an ordinary sense, now become his bitter enemies, with appetites sharpened by the increasing cold, perseveringly follow the drill, not a seed escaping left uncovered, and attacking with avidity the spearing of the corn; the two or three bushels sown late produce not so good a plant as the bushel per acre sown at Michaelmas. It is a most unpleasant position to be in, and serious thoughts arise as to whether the Wheat sowing will be completed at all. Still hoping and persevering, the unfortunate individual struggles on, wet, frost, and bad weather dead against him, until finally winter comes on in real earnest, and puts a stop to all further progress; the elements apparently punishing severely for that want of activity and diligence which admits of no such day as to-morrow in its calendar.

It is not so, however, in another case where a good steam-engine is at command. A portable double cylinder 10-horse power engine will be all that is necessary to work the heaviest description of land; and, indeed, much better than one of greater power, for it must not be forgotten that ploughing is inconsistent with the true principle of economical working, and such a form of cultivation antagonistic to the motive power of steam. To overcome the great resistance afforded by the passage through the soil of three or four ploughs yoked abreast, and the transit of an engine on a common road instead of metal surface, a costly and powerful locomotive has been manufactured, which must ultimately succumb to the lighter portable engine, and the simple yet efficient steam cultivator. Let us imagine that the clay-land farmer is well provided with steam-power, that his root sowing is completed, and he is beginning in the July month to prepare for Wheat sowing—early days certainly, but not a whit too soon.

He commences with carting out his manure upon his leas, &c., and while his staff of horses is thus employed, carting and ploughing, his steam engine is at the same time smashing up his bare fallows, both powers working extremely well at this season of the year. This work is continued, save where interrupted by harvest, and by the time it is completed a large breadth of land is ready for the reception of the Wheat seed, and with the first autumn rainfall sowing commences. The stubborn clods, mellowed and reduced by alternate changes in the weather, break down into excellent

tilth, and a novice would scarcely believe such land to be heavy and wet clay while making such an excellent seed bed. A small quantity of seed, too, suffices, every grain almost forming a plant, and in a very short time the first great blow for the successful management of heavy clay land is completed; all other agricultural operations for the ensuing twelvemonth deriving benefit from an early and successful Wheat sowing. *W. S.*

ON STORING ROOTS.

(*Concluded from p.* 1115.)

Having laid before the reader a few ot the many important benefits attending the storing the Swede crop, we will now more closely confine our remarks to the subject of this paper—the best method of storing the crop. We will therefore proceed by considering the different methods now generally practised of securing it from the attacks of frost, from heating, &c. On most farms a considerable quantity of the roots is consumed in the yards by cattle. Here good root houses are a valuable acquisition to the farmer, where a large amount of food can be safely secured without fear of injury from frost, and also easily accessible during the most severe weather, the value of which can only be appreciated by those who have experienced the difficulty, expense, and loss attending the carting the daily supply for a large number of beasts from distant fields, through deep snows, or in severe frosts. The best root houses we have seen are on the home farm of John Shaw Leigh, Esq., Hoo Park, Luton, Bedfordshire, and that of Earl Radnor, Coleshill, near Faringdon, Berks, the former of which is capable of containing 1300 tons of clean roots; but as root-houses form the exception, we will confine our remarks to the different systems of storing practised in the field and the homestead. In some places a deep furrow is opened with the plough going about and throwing a furrow to each side, thus leaving a considerable opening, into which is placed as many roots as it will hold; they are put in either entire, topped and tailed, or topped only, in accordance with the practice followed by different individuals, when one bout of the plough throwing a deep furrow over each side, and meeting at the top, completes the operation; by this method a large breadth can be quickly secured at a small cost. They generally keep well, and when wanted for use are turned out either by the plough passing through the middle of the row, or by hand, using a common three-tined fork; when the plough is used it is necessary to take out the coulter, and run the plough fairly under the roots, otherwise there is some danger of injuring them. Four years ago a neighbour of ours secured a field of Swedes in this way, and we could distinctly traces the lines where the roots had lain, not only throughout the following crop of Barley but also in the succeeding crop of seeds, the Barley on those parts being much more luxuriant, and lodged before harvest, while the other parts of the crop stood up. The following year the seeds were grazed, and here again the lines were plainly distinguishable by their lighter green colour, and on a closer examination by an almost total absence of Clover, though the rest of the field was well stocked with that plant. This can be easily accounted for, as the roots were covered without having been either topped or tailed, the tops decomposing greatly enriching the soil, and still further by a great quantity of manure adhering to the fibrous roots being collected together and deposited there. Another system of storing, termed 'placing,' is practised in some parts: a piece of sound dry old turf, or a gravelled courtyard is selected, and the Swedes pulled and carted there with both roots and tops left on; they are then placed as closely together as they can be put, with the roots downwards, the tops forming all the covering they receive. The system is not suited to an extensive scale, and is principally confined to the mild climate of the west of England. In storing the crop in the field to be consumed by sheep some prefer making large heaps, drawing them together with horses and carts; fortunately for the interests of the farmer the practice is now happily nearly abandoned. The damage and loss arising from fermentation, the unsatisfactory progress of the flocks from being too long and closely confined on the same ground, and the irregular state in which the manure was deposited over the land, were too objectionable to warrant its continuance. After repeated trials of all the different methods used for storing roots in the field, we think that of throwing into conical heaps, distant from each other about half a chain (of course the distance will vary according to the crop) not only the cheaper, but by far the safest way of securing either Turnips or Swedes, as both may be kept equally well by the same means. They are pulled by hand, and the tops only cut off, care being taken not to cut too close so as to injure the crown of the bulb; no trimming-knife should be allowed to be used having a hook on the back, which can be struck into the root, in order to assist in pulling it from the ground, while it endangers the keeping of the root. After being rounded up in a conical form, they are covered with from 4 to 6 inches of earth; the heaps being made at regular distances vary but little in size, which is of considerable importance when they come to be consumed. In light land we do not use straw, but prefer covering with earth only; some stick a wisp of straw in the top of the heap as a ventilator. In small heaps this is quite unnecessary, as it acts as a conductor of rain and frost, and according to our experience is more injurious than useful on heavy soils. If straw is abundant, a light covering might be used with advantage, as they strip more clean, though during the frosts of 18° on the 9th and 16° on the 10th of February of the present year, the frost had penetrated more into the heap covered with stubble and the same quantity of earth, than others in the same field, which were covered with earth only. This we attribute to the greater quantity of air in the heap where the stubble was used; stored in this way we have found them to withstand the most severe weather, and keep well till far in the summer. The only objection is, unless the utmost care is taken to spread the roots that are trimmed off when the crop is consumed, the following crop of corn will be lodged and worthless on those spots where the root-heaps stood, from the reasons before alluded to. This being more particularly the case in a dry season, as the bulbs are much more rooty, showing another of the wonderful provisions of Nature, by which the plant can accommodate itself to a variety of circumstances; with an absence of rain, the food is less soluble, consequently must be more widely sought for. One of the most fruitful causes of the roots becoming rotten in the heaps, is being put together in a frozen state; however slight the frost, the concussion breaks the fibrous cells, and hence they never keep well, if got up they had better be kept untouched till the frost is completely gone. If possible there should be a sufficient number of hands employed to pull, heap and cover, so that the work is completed as it proceeds, or the hands might pull in the morning and heap and cover in the afternoon, as the weather at this season of the year is generally changeable, and the roots that are pulled and exposed suffer much more from a severe night's frost than those that are growing will do. We have tried storing in the field the cleaned roots, that is, topped and tailed, but find they do not keep so well as when the roots are left on; they also become deteriorated in value by the loss of a quantity of juices from the bleeding of the roots at the wounds made in cleaning them; and even if perfectly clean when stored, if left undisturbed till late in the spring, they begin to throw out many small rootlets, to which the earth adheres, and unless they are cleaned a second time, the stock fed on them will not progress satisfactorily. That portion of the crop to be consumed by cattle in the fold-yard, generally one-fourth, is commonly carted home to some convenient place adjacent to the feeding houses; at the same time the bulk of the crop is stored in the field, where root-houses are not used. The best way to store them is in heaps, 8 feet wide at the bottom, stacked rather flatly, with the crowns of the roots outwards, and tapering to a single root at the top. A piece of sound Grass or old turf is the best place on which to store them; they are covered with straw or stubble, and the whole neatly thatched down and secured with pegs and ropes to prevent the wind blowing it away. In rainy districts it is necessary to dig a small channel round the heaps, in order to prevent the rain-water flowing in and causing the roots to rot. Except a sufficient quantity for present use during the early part of the season, all those left unconsumed till after Christmas we greatly prefer incurring the extra expenses of carriage, &c., of the fibrous roots and earth adhering to them, as also recarting the same to dress some weak part of the field where the roots have been consumed, as we find them not only keep much better, but the stock fed on them thrive infinitely better than where the roots had been topped and tailed when put into the heap. The cost of securing the crop in the way we have described varies with the locality, the value of labour, and the kind of labour employed. Women and boys, with a trusty man to superintend them, are the best and cheapest for the purpose, as activity in this case is more necessary than strength. When well trained, a boy at 8*d.* per day will do as much as a man at 2*s.*, so that the price for the same work may vary from 5*s.* to 12*s.* per acre. Last November we knew both prices to be paid within a few miles of each other. We had 60 acres of Swedes and 10 acres of Mangels got up by contract; one-fourth of the Swedes and the whole of the Mangels were drawn home, the contractor filling them into the carts, and heaping and covering those left to be consumed upon the land. The price we paid for the whole was 6*s.* per acre. *G. Murray, Overstone.*

WINTER ECONOMY OF FOOD.

Let us now refer to Turnip-cutters, chaff-cutters, and machines for economising and utilising food. Referring to the Turnip-cutter, Mr. Pusey said:—"Its advantage is two-fold—saving the teeth of old ewes, for which the Swedish Turnips especially are too hard—saving the waste of this valuable root, which, when partially scooped out by the sheep, is rotted and trampled about with great waste. The economy effected by this simple machine has been stated to us, by an authority which would at once be admitted as very high, to be no less than one-third of the whole produce."*

The chaff-cutter, again, had long been well known to agriculturists; and, as named by Mr. Pusey, its use had that year been the subject of discussion before the Harleston Farmers' Club. The use of both of these machines has, however, latterly enormously extended. Chaff-cutters are turned out annually in thousands by single firms; and a single maker supplies to order nearly 5000 Turnip-cutters a-year. Cake-breakers and corn-crushers—implements of the same class—rarely used when Mr. Pusey wrote, are even more rapidly coming into general employment. The following are the numbers of cake-breakers made during the last five years by a firm not specially noted, that I have ever heard, for this particular implement—they were 172, 332, 264, 399, and 822, respectively. The winter of 1859-60, to which this last large number related, was indeed a great stimulant to the manufacture and the use of the whole of this class of machines. Scarcity of food enforced every possible method of economising it; and no other is so efficient as the mixture of palatable and nutritious food with that which, though nutritious, is not particularly palatable. Chaff-cutters cut up poor hay and straw; and Turnip-cutters, and root-pulpers, and corn-crushers, and cake-breakers reduce roots, and corn, and cake to a condition in which they can be mixed with this chaff, and so induce cattle to consume it.

Another manufacturer of oilcake breakers, who had made 50 or 60 annually (only 49 in 1859), had orders for 107 in 1860; and his manufacture of corn-crushers has exceeded 400 annually during the past six years. A third gives the following as his manufacture of chaff-cutters for the four past years—200, 420, 550, 760; while his corn-crushers during the same four years have been 40, 90, 110, and 130. And, as showing the increase of demand in a particular locality, I add the figures of a Shropshire manufacturer, whose name appears but rarely at the show-yards of our leading societies During the past few years he has made of chaff-cutters annually, 16, 18, 22, 28, 90, 135, respectively. These items, then, are evidence enough of the increasing use of this class of implements.

The economical use of much food that has hitherto been wasted, which we owe to the increased employment of Turnip-cutters and chaff-cutters, &c., has latterly rapidly extended since the invention of the root-pulper—an instrument of which the manufacture dates only from about four years ago, but which has come most rapidly into use.

The Turnip or the Mangel Wurzel is by this machine reduced much more nearly to pulp than it can be by any Turnip-cutter—not even excepting Moody's of Warminster, to which, however, very satisfactory testimony is given in the sequel—and thus a more thorough mixture of dry chaff of straw or hay with the juices of the root can be effected; and so an agreeable taste is substituted for that which, in the case of inferior hay, is unpalatable, and makes it less valuable as food than its composition indicates.

The use of the pulper shared with that of all other machines of this class an enormous extension during the winter of 1859 and 1860. The extreme difficultie in which stock-farmers, especially in the north o England and in Scotland, were placed by the destruc tion both of the Turnip and the Mangel Wurzel crops led to every possible expedient for economising food The following is a report of the position in which the farmer was that season placed:—

"The principal difficulties of the Westmoreland farmer commenced in October, 1859. The extremely short crop of hay, together with a very slender growth of corn, added to the failure of the Turnip and Mangel, placed him in a situation to dread a stormy winter, and this commenced in that month and continued at intervals through the succeeding months till April, 1860, creating such a scantiness of fodder as had not been experienced in the memory of any one living; indeed, had it not been for the importations of foreign hay, much live-stock must necessarily have perished; even as it was, great numbers of mountain-sheep sunk under the privation, and the cost of supply was such as to embarrass the farmer greatly, the money provided for spring-rents being absorbed by the purchase of cattle-sustenance. Up to this moment (Jan. 1861) the cattle have not recovered their usual condition, nor has the farmer replenished his wasted means."

Mr. Dent, M.P., of Ribston Hall, Wetherby, thus describes the state of things in Yorkshire:—

"On my own farm and on the whole of this estate (about 5000 acres) the Turnips of last year were a miserable failure. They never promised well, grew badly all the summer, and were destroyed by the frost. My own were only half a crop originally, and after the October frost rotted away, until, in March, two out of three were bad; and this was generally the case here."

Mr. Dent adds that the Mangels in that neighbourhood, grown successfully and rather extensively, suffered from the October frosts; the Globes, however, continuing good till late in the spring; but the Long Reds being very rotten, so that much grain and cake had to be consumed with them. In the southern part of the island the severe October frost of 1859 caused an even greater destruction of roots; and a short supply of hay brought chaff-cutters and Turnip-pulpers in general use for turning such roots and hay as were available to the best account, along with an unusually large admixture of straw for quantity, and cake and grain for quality. It is in the use of these two classes of machines, rather than in that of steaming apparatus, that the ordinary practical farmer will find his cheapest plan of turning inferior fodder to account. Steaming apparatus is nevertheless coming more rapidly than hitherto into general use. A single manufacturer, who during the 10 years previous to 1855 had made 200 sets of apparatus for this purpose, has made 300 in the five years since that time, of which 95 were sent out in 1860. He says:—

"Owing to the scarcity and bad quality of all sorts of fodder this year, the demand at the present time for an apparatus for

* Royal Agri. Soc. Journ., vol. i.

steaming hay and chaff is unprecedented. As a proof of the economy of using this portable apparatus, price 18*l.*, we have only to say that it will steam sufficient roots, hay, or chaff, and boil water or compounds, for 30 head of cattle and as many pigs, at a cost not exceeding 9*d.* per day of 12 hours, supposing coal to cost 1*s.* per cwt. As to the effect of the process on different kinds of food, our experience leads us to believe that bean-straw as fodder improves more under it than any other kind; and we know that thousands of pounds worth of Potatos (diseased) might be made available for cattle-food annually, if steaming were universal."

Though, however, there is abundant and unquestionable evidence of the advantages of steaming cattle-food, I am bound to add that the prevalent testimony on the subject of economising and cheaply utilising food for cattle points to the use of pulper and chaff-cutter rather than of steamers for the purpose. A Herefordshire farmer wrote thus to the *Mark Lane Express* early last winter:—

"Unquestionably the most important consideration to the farmer is how best to economise food, and, as a primary step, the two best friends he can take into his confidence are a first-rate chaff-cutter and root-pulper; but there is something more required in this exceptional year, and when the damaged hay and straw are reduced to chaff, the deficiency in the nutritive and savoury qualities of both must be supplied from some other source.

"The steaming process is to some extent good, although I think the necessity of this expedient may be dispensed with, by blending the pulped roots with the chaff the day before the mixture is required, and then giving it to the animals in a state of sweet fermentation."

Here the use of all the implements just named is indicated, and the steamer is placed lowest on the list; and the use of grain or cake along with a diminished quantity of roots mixed or fermented along with an increased supply of chaffed fodder is pointed out. On these points I quote the following from a letter with which I have been favoured by Mr. Paget, M.P., Ruddington Grange, Nottingham. He says:—

"I am satisfied that I formerly gave both Swedes and Mangels in too large quantities. If cattle will eat straw enough, 80 lbs. of Mangel are quite as good as 120 lbs., and the pulping-machine enables the farmer to regulate the proportion of root and straw. I believe this applies to Swedes as well."

Mr. R. Bell, of Mosbro' Hall, St. Helen's, Lancashire, says:—

"The plan I adopt to economise my roots and fodder is to pulp the roots and cut the straw into chaff, ferment a little by mixing in a large heap, 24 hours before using in mild weather, 48 hours in cold, frosty weather. Hay, however spoiled, may be mixed in this way, and the cattle will eat it well—in fact, will prefer it so mixed to the best hay given in the usual way."

Mr. Bowley, of Siddington, near Cirencester, speaking of the untoward season and the casualties of 1859, says:—

"The consequence of all these misfortunes is an almost universal short supply of food for cattle of nearly every description, which, however, is much relieved by the now general use of the pulper. I use Moody's cutter myself, which cuts the roots into ribbons, and answers equally well for mixing with straw-chaff, and is worked more easily. I consider my cattle fed on this mixture are doing much better than those which are fed on hay."

Mr. Adkins, of Milcote, near Stratford-on-Avon, says:—

"I cannot too strongly express my sense of the advantage derived from pulping Mangels and mixing them, when sound, with cut-straw, allowing the mixture to ferment 24 hours before using. By this plan all the objections to the root as food for cattle appear to be removed, the animals fed on such mixture thriving most satisfactorily, and being entirely free from relaxed bowels, &c., so often consequent on the usual method of using it. My experience leads me to believe that something approaching 50 per cent. of the Mangel is economised by thus preparing it."

The following is the testimony of Mr. T. Duckham, of Baysham Court, Ross, Herefordshire:—

"As regards the economy of food, I consider the pulper a most valuable acquisition. I use pulped roots and cut straw until February, when I commence giving a small portion of hay, increasing the quantity of the latter as the spring advances. When the roots were gone last spring, I had Linseed boiled and damped the cut straw and limited quantity of hay with it, adding a little miller's-refuse, and was thus enabled not only to save a considerable quantity of hay for this winter, but to keep the stock in good healthy condition to go out to Grass. This autumn I am giving the cattle cut straw, boiled Linseed and bran, in order to reserve sufficient roots to carry on with after they once commence eating them, until they leave the fold-yards."

The following is the Scottish experience—1st, of Mr. Simpson, of Teawig, Inverness:—

"Last winter, when our Turnip-crop was a very short one—hay too valuable (selling in April for 10*l.* per ton), for feeding cattle, and straw but little more than half an ordinary bulk—I derived much advantage from chaffing the straw and pulping the roots. I am continuing the same practice this season with very satisfactory results. Apart from the saving of roots and straw, which is fully to the extent of 50 per cent. (*i. e.*, you can feed 75 beasts with the same provender as would in the former system have been consumed by 50), there is superior health and more uniform progress in the cattle, and a freedom from all risk of choking or swelling. When short of roots you can use oil-cake, rape-cake, or meal at discretion."

Secondly, of Mr. M'Lagan, of Pumpherston, West Lothian:—

"I was enabled to economise my roots very much last winter by pulping them and mixing them with cut straw and chaff. I mixed with the pulp Indian Corn-meal, Rape-cake, and Bean-meal.

"My experience of last winter has convinced me that the farmers in Scotland do not derive the full benefit of the Turnip-crop, from giving the roots in the large quantities they do to live-stock. By pulping them and using them judiciously with Rape-cake or other oleaginous and farinaceous foods, they increase the value of the roots and the profits of feeding. I never was paid better by my ewe-stock than I was last year; and, though I have abundance of Turnips this season, I am feeding the ewes with pulp and mixed food very much in the same way as last year."

Coming back to the district of our own Society, we quote one more witness, whose evidence on the use of pulping roots may be regarded as conclusive. Mr. R. Corner, of Torweston, Bridgwater, says:—

"No roots of mine are used in any other way. All pass through Bentall's pulper, driven by water-power, and mixed with hay and straw chaff, and I put hay, more or less, as needed, and according to the condition of the bullock fattening. For some I put no hay at all. Hay can be made to go much farther, and a person can keep fully one-third more stock in the winter, with adopting the chaff-system over the old way of giving bullocks hay alone."

I add to these reports from correspondents the following, by Mr. Maynard, of Whittlesford, Cambridge, on the subject of chaff-cutting:—

"On this," he says, "I wish to offer a few remarks, as furnishing a lesson which I am somewhat surprised to find is yet to be learned by a large majority of the farmers of England.

"For years it has been the practice of the farmers here and in the counties around me to store cut straw, although from the paucity of means of cutting it the system was not carried out to the desired extent till within the last 14 years, when, to meet the wants of the farmers hereabout, I invented a chaff-engine for horse-power, suitable for easy removal from place to place, and capable of cutting much faster than any before brought out. The consequence was, that every one in the habit of letting out machinery to hire procured one, and it formed a new branch in the business to go from farm to farm with one of these engines, driven by the horse-power of his threshing machine, to cut up the straw he had previously threshed, which he was able to do at the rate of 800 bushels per day. After the introduction of steam, a demand arose for something easy of removal, to be used in the same manner and driven by that power. This want I met by a suitable machine, and sold many till 1856, when I took out a patent for a portable chaff engine, which is found not only capable of cutting very fast, but at the same time preparing the chaff for the chaff-house, by separating it from the imperfectly cut, and so saving a great amount of manual labour. I was not aware till afterwards that the practice of storing cut straw was only local; I find, however, that it is scarcely known except hereabout. Let me recommend to your notice a letter by Samuel Jonas, Esq., appended to Mr. Evershed's Prize Essay in the Royal Agricultural Society of England's Journal, last number.

"It is a pity the system is not carried out in all parts of the country, which I believe is only owing to its advantages not being known; and if you can say anything to extend it, it will benefit the agricultural interest generally. One of my neighbours cut sometimes as much as 50,000 to 100,000 bushels at one time, and he now has chaff cut nine months ago, made from straw only, which, having been fermented in the manner described by Mr. Jonas, has the scent and nutritive qualities of good hay."

Mr. Jonas's letter, referred to by Mr. Maynard, describes his method of storing the chaff. He mixes a little "green fodder or hay or tares" with the straw, cuts it into chaff, and treads it down in the chaff-house, mixing a bushel of salt with every ton. There it lies for several months, and slightly ferments. "Within the last few days," he says (July 17), "I have threshed and dressed the corn, and at the same time cut the straw into chaff, from about 80 acres of Wheat, at a cost, too, not exceeding 45*s.*, or 7*d.* per acre, for cutting the straw produced on an acre of Wheat." This refers to the small extra expense incurred when the process of chaff-cutting is carried on together with the threshing. "If the straw is stacked as threshed, and cut into chaff afterwards, the expense of cutting and sifting with Maynard's chaff-cutter would be as follows:—

1 man to move the straw from stack	£0	2	0
4 men to "yelm" the straw	0	8	0
2 men to carry away chaff	0	4	0
3 lads to tread chaff down	0	1	6
Hire of engine and chaff-cutter (including 1 man to feed chaff-cutter, and engine-man)	1	10	0
Coals, 5 cwt.	0	4	6
Water-carting	0	2	0
	£2	12	0

This will cut 600 to 900 fans * per day, according to the length of cut, the first cut being about 3-16ths of an inch in length, the latter about 3-8ths. The cost would thus be,—the very short cut 1*d.* per fan, the latter cut one-third of a 1*d.* per fan; but by cutting the chaff at the same time you thresh, you save 47*s.* per day, and in fact cut 800 fans for 4*s.* 6*d.*" So economical a method of turning to account that which is in itself a great economy of cattle food, is certainly among the lessons of recent agricultural experience. *J. C. Morton on Agricultural Experience, in Bath and West of England Agricultural Journal*, 1861.

* A fan is 5 bushels, and weighs 28 lb.

IRISH AGRICULTURE.

CORN growing in Ireland, as formerly disposed of, will not "pay" even in the best seasons, one of which we have just passed through. We have now Wheat weighing 60 to 66 lbs. per bushel selling in our markets at from 20*s.* to 25*s.* per barrel of 20 stone. We have Barley weighing 50 to 56 lbs. per bushel selling at from 12*s.* to 16*s.* per barrel of 16 stone, and Oats weighing 40 to 44 lbs. per bushel selling from 7*s.* to 10*s.* 6*d.* per barrel of 14 stone. And we have Flax seed weighing from 54 to 58 lbs. per bushel, except in very few cases not husbanded or sold at all, but let rot in the steep ponds, permitted to pollute the streams, poison the fish, and subject the owner to an action of law by the fishery boards and commissioners. In your last issue you report Mr. Curtler as saying "He finds that he can buy good Irish Oats weighing 39 lbs. per bushel, for 20*s.* per quarter, * * * and feed his lambs on it at 1*d.* per day." If your quarter, as some of us in Ireland think, weighs 280 lbs., at 20*s.* the price of one barrel of 196 would be about 14*s.* These Oats we sell at just half that price, and even less in some inland markets. So that we can feed our lambs at just one half what it would cost Mr. Curtler to feed his. Again he says, "He could afford to give his cows a peck of Maize per day, and by this means he could keep them at the rate of 4*s.* 6*d.* per head per week." What will that intelligent gentleman say to us, who can feed our milch cows on Wheat at 3*s.* per week, and by the use of such auxiliary food increase our milk 100, and our butter 50 per cent. Now that is done at an establishment whose agricultural operations I once had the honour of directing—Clongowes Wood College, County of Kildare; and the results will be better by and by, when a cheaper arrangement will be made for cooking the cattle food. Of this, if an opportunity offers, I may tell you more in a future letter. You are aware that the Agricultural Committee of the Royal Dublin Society give special prizes for Grass-fed beef and mutton at their winter show of agricultural produce. As in preparing for all such shows of stock there has been some "jockeyism" in competing for these prizes, as some exhibitors stall-fed their stock by expensive means on imported foods during the previous summer months; nay, it has been said that preparations for competition had been going on during the previous two years, and hence a new class is being formed, and prizes made up by subscription, for fat stock that must be proved to have been fed outside of both sheds and houses during the previous autumn and summer—fed on Grass with or without any auxiliary food. This no doubt will be a check against the former jockeyism. Still many people fear, and I am myself of the number, that it will leave room for a new species of that significant term amongst men of fertile imaginations, of which there are a good many at both sides of George's Channel, as well as at both sides the Tweed, and the great Atlantic itself. But we shall see if our apprehensions be well founded, if not called to a more serious account at the other side the grave, and to prepare for which let us in the meantime seek to help each other as best we can.

Auxiliary stock-feeding on pastures is not a novelty to all men in Ireland. Necessity has long since compelled me and many others to adopt it on bad Grass lands. Even in dry summers some of those holding the best Grass lands had to adopt it.

The advantages of this I can, I think, best explain by giving you, though briefly, two examples in two cases, rather in the extreme each, as to the quality of the land. One is that of a friend, a business man in this city, who has a paddock of one acre, at a rent of 10*l.*, in the suburbs; this he used to let his horse out on during the summer months. He has a property in a southern county, where a small farm of dry land, resting on a limestone subsoil, was thrown on his hands last March, which he stocked soon after with an ordinary description of Kerry heifers, bought at an average of 6*l.* 10*s.* each. By the 31st of July they were starving of thirst as well as hunger. He offered five of them for sale, and could not get for them what they cost originally. He withdrew the horse from the paddock, and brought up these five heifers and put them in it. He fed them by additional food bought in the Dublin market, consisting of refuse Potatos, brewers' grains, bran, and cotton-cake.

He had them at Smithfield market last Thursday, and, though it was a dull one for such stock, refused a price that would pay him 50 per cent. interest on the money expended in purchasing the food, 5 per cent. interest on the capital invested in the purchase of the stock, besides charging them with a fair weekly proportion of the rent of the paddock, and attendance; and in addition to this he has the paddock so far additionally enriched as to be considered at least 25 per cent. better for any purpose next year than it was when he got it last May.

Thus far for auxiliary feeding on a rich pasture, and now a word on such feeding on a poor one.

A small farmer in the interior of the country had a small dairy of 10 cows, which, like the heifers of my other friend, were starving late in July last. He offered four of them for sale to make up his rent and meet some other liabilities, then pressed to pay. He had not his usual butter to meet those demands. He was offered 40*l.* for the cows, being little more than he had paid for two of them last autumn twelvemonths; but instead of selling them at that ruinous price he borrowed 40*l.* from a usurer at 10 per cent. interest. His tillage crops were ripe in the following order:—Flax, Dunwinter Oats, Barley, and Wheat; all good in their way on a well tilled but poor farm. He saved his Flax seed, which was worth 6*s.* a bushel, or about 1*s.* 6*d.* a stone of 19 lbs.; his Wheat, worth 20*s.* a barrel, or 1*s.* a stone; his Barley, 12*s.* a barrel, or 9*d.* a stone; and his Oats, 8*s.* 2*d.* a barrel, or 7*d.* a stone. He had those all ground together in the following proportions, and at the above rates of value:—

Flax seed, 2 stone, at 1*s.* 6*d.*	3*s.* 0*d.*
Wheat, 3 do., at 1*s.*	3 0
Barley, 4 do., at 9*d.*	3 0
Oats, 5 do., at 7*d.*	2 11
	11 11

Or in round numbers, for ease of calculation, 12*s.*

He had the four cows put into a field of 2 acres, and fed with the above food weekly at the rate of 3*s.* per cow per week. When I last heard from him he said he was offered 15*l.* apiece from a butcher for the cows, which would pay him 100 per cent. over what the food would sell for in the market, the full interest on the money borrowed from the usurer, the full rent of the two poor acres, now vastly improved by the stock feeding on them.

With these facts, and many others of comparatively

equal importance which I could cite to show how much more profitable it would be to us to use our farm produce at home than to sell them to be exported and resold to such gentlemen as Mr. Curtler for feeding their stock? Well, paradoxical though to some it may appear, Mr. Curtler need not fear a dearth of such exports from us, for the following reasons, perhaps more paradoxical still: We will not adopt such systems of economy, because we cannot do so for the reasons assigned by me in a former letter, to which I could add others of which "the least said is soonest mended." But is it not possible that we could grow those crops, and sell them with profit at such prices in your markets as would defy competition from our foreign mutual friends, who may sooner or later become our mutual enemies?

Yes; it is not only possible, but easy of accomplishment, if the people of the United Kingdom would but become, as they should, and sooner or later must become, united, though I do not expect to see the happy day. We have in Ireland some six million acres of bogs and reclaimable lands, now comparatively valueless. These, if brought into cultivation, would give your stock feeders cheap stock and cheap food to fatten them; give your artizans and manufacturers cheaper food and cheaper materials to work upon, leaving all concerned fair profits; give the Irish landlords rents for lands now paying little or no rents; lessen the taxation on all by an increase of taxable property; create consumers of manufactures;—in a word, add strength to the nation in one of its weakest points. This must appear to your readers who know Ireland a threadbare story without facts to sustain my statements. Those who may think so would quite mistake both me and this country, for I could give facts from my own knowledge in abundance to prove all I say, and much more than ever I have said; and I will conclude this letter with an additional new one, that might not be credited were it not a public one.

At the late agricultural dinner of the Drumahair Agricultural Society, in the county of Leitrim, near the town of Sligo, the chairman, Joshua Kell, Esq., in speaking of one of the tenant farmer competitors in green cropping, said, "I cannot pass over Mr. Terence Cosgrave's crop of Turnips. He has 6 acres of Swedes that may challenge either England or Ireland to produce better." I do not of my own knowledge know whether those Swedes were grown on ordinary arable or reclaimed bog land, but suspect they were grown on the latter; otherwise the judges of those crops would scarcely have given the following as the leading feature in their report. "In awarding the above premiums, in any doubtful case, the judges deemed it right to give the preference to Turnips grown in clay soils." Some readers may suppose the judges in this case, by this preference seemed to give encouragement to the owners of the clay soils, and a discouragement to the growers of such crops on boggy soils. But such was not the case, or at least ought not to be so, in my mind at least. But hear the judges out: "And they also recommend, that so far as practicable, a distinction should be made in the premium sheet hereafter, as the farmers occupying dry (re-claimed) bogs have a decided advantage over the clay soil farmers." Observe, good reader, that the words "clay soils" in Connaught do not bear the literal meaning attached to "clay soils" in England, or I am much mistaken. A clay soil with you, I think, means a thin cold surface resting on colder impervious clay subsoil. A clay soil in Connaught means a rich, strong, arable, deep surface, resting on a calcareous subsoil, or limestone bed; such a soil as an Englishman would delight in using his steam-wrought cultivators on for the growth of any farm crop. Yet those very bogs in Connaught, and many other parts of Ireland, when rendered dry, are better calculated to grow Swedes and many other crops than their best arable lands. Can they be cheaply rendered dry? Oh yes, they can—yes, the very deepest bogs, by the use of steam-wrought machinery, with fuel and water on the spot; and by such power do away with the cry that the cost of labour in such reclamation would be too great at any time, but now more especially, as the effect of emigration.

Steam power applied to such reclamation will effect a greater revolution in this respect than it has already effected in general cultivation in England. I may return to this latter subject again. *Edward Carroll, College Hotel, College Street, Nov.* 6.

ON THE GERMINATING AND CULTIVATING OF CEREALS.

In my other letters on this subject I have treated of the germinating powers of the different kinds of Wheat, and I showed, from long experience and many experiments, that it was nearly the same in all, or the difference was not sufficient to affect the crops of one kind more than another, or but to a very small extent: but of the several kinds, I stated the Bearded, being the hardiest and most perfect, are the least affected by the causes which injure the vital principle in the whole; but it is but seldom, I repeat, that any are so seriously injured as to affect the crop to any injurious extent, except when a homœopathic quantity alone has been sown, which is but very seldom indeed, but in other cases, according to the common quantity now sown, if one-half or two-thirds of it should refuse to germinate and grow, the crops would be all the better for it.

But Mr. H. Harrison has asked me to explain how 13 crops of Wheat can be grown on the same land in 17 years, or 10 crops in 10 successive years, and to these inquiries I now apply myself; but, first, I will state that the late Mr. Piper, of Colne Engame, a gentleman well known in these parts, grew 14 crops of Wheat on the same land in so many successive years, and every succeeding crop was better in quality and quantity than the preceding one, which I think proves, and incontestably, that more can be done in this way than what I stated in the letter wherein Mr. Harrison asks for an explanation.

The principle then is at the onset to get the land into complete working order. Let it be so deeply and thoroughly drained that it may receive the fertilising rains from the atmosphere without their running off it, but to percolate through it down to the deep drains, leaving the ammonia and other fertilising properties in the soil as it passes through it, like as water is purified in passing through a domestic water filter. By such a draining the temperature of the soil is also raised, and consequently the additional warmth to the roots causes them to grow and expand and stretch out here and there and everywhere within their reach after food proper for them to feed upon for the nourishment and development of the growing plants, that is, if the land has been previously treated as it ought to have been, by deep and thorough draining, and deep and thorough cultivation by the plough or whatever other implement or implements may have been used. By deep and thorough ploughing I do not mean that the land should be cut into slices and turned hither and thither, first one way and then another, 3 or 4 inches deep only, and then scratched over and made fine on the surface only; nor should I be satisfied with even 7 or 8 inches deep, if the soil would admit of going 10 or 12 inches, and it is certain it will in the great majority of cases where assurance is made by practical men that such depth could not be obtained. It is quite certain also that nine-tenths of the failures of the crops attributed to the seasons are caused by insufficient or no draining, shallow and imperfect cultivation, and over-thick and ruinous seeding. Had I space I would undertake to show, also, that the midge and other pests on Wheat, and the louse on Beans and Peas, are wholly, or nearly so, the effects of insufficient draining and cultivation; indeed, nowhere in this kingdom of enlightenment are the lands more than merely nominally cultivated; but let this be done, and effectually, by whatever instruments and machinery and moving powers be applied, and nine-tenths of the grumblings against the failures of the crops and badness of the seasons would cease to be heard: indeed, reflecting men with candid minds would not only be ashamed to utter such complaints, but feel humiliated when given utterance to by others. My own opinion is, that the lands of England are capable of growing food enough for all the inhabitants of England, or at least corn and meat enough, and I do not despair but some day or other, and perhaps ere long, this will be the case, and that this noble and highly favoured country will be rescued from the painful and dangerous and abnormal state it is now in, of being indebted to almost all other corn-growing countries in the world for a sufficiency of daily food.

But to return to my subject, which is to show how cereals, especially Wheat, can be successfully grown on the same land for many years in succession. For this, after thoroughly draining and thoroughly cultivating, the land must have supplied to it the requisite plant constituents, if it have them not naturally before, and this supply must be kept up as often as crops are taken off the land, and the supply must be of the proper kinds also, just as a man must keep replenishing his strong box and his purse who is constantly drawing the precious articles from them, and with the same kind of precious articles also, or both his strong box and his purse will soon become mere worthless lumber to him.

But having performed these preliminaries, the judicious farmer will put in his seed, and grain by grain, or one or two grains only in a place, or a hole, and not throw it into furrows by cupsful, or into holes by children's handsful, as the common custom is, namely, 6, 8, 10, 12, ay, and I have often counted near 20 in a hole; but I repeat, let there be but one or two cereal seeds only, and especially of Wheat, in one place, and whatever land-cultivator, whether landlord or tenant, should act in this obviously rational manner, he will find that it will be impossible for him to get into his land more than 2 pecks of seed an acre, let his rows be as near together as they will; and he will further find, that his crops will grow up healthier and stronger, his straw thicker and stronger also, and the ears on it larger and fuller, and the grain in them finer and plumper; and further, he will fear neither winds nor storms nor rains, for such will be the strength of the straw that it will bid defiance to all kinds of weathers—indeed, bending their heads, and bowing, and smiling, and laughing at rude Boreas and all his progeny, as we read, or I read, for I know nothing more, polite and polished courtiers bow and smile to their sovereigns and their lords.

But by so acting, any agriculturist, whether landlord or tenant, may turn his profession into a pleasure, and his fields will smile and laugh at and with him whenever he enters into them, and that will be as often as he shall have an opportunity; and, moreover, he will be able, should it be his pleasure so to do, to grow cereals, Wheat, Barley, or Oats, on the same land in succession for very many years, if, as I have explained, it be generously treated, and as a generous steed should be, always ready for his work, and never overworked, nor heavier burdens laid upon it than he is able to bear: so exactly should farmers treat their lands.

My readers will also allow me to warn them against all kinds of quackery. To poison seed Wheat in the darkest ages of our history might have been excusable; but to do so now is a satire upon our age. To suppose that the wetting of seed Wheat with poisonous compounds will prevent smut is of a kin to the nailing horseshoes on stable doors to keep out witches; but if gentlemen must do something, let them in this way: let them have their seed Wheat charmed, which will be equally efficacious for good, of less expense and trouble, and can do no harm. But above all, let thin-seeders rely upon nothing but skill and industry, and then they will be sure to succeed. *Geo. Wilkins, Wix Parsonage, Nov.* 4.

Home Correspondence.

The Important Subject of What is to be done with Sewerage occupies the attention of town commissioners and agriculturists. The desire of the former is to get rid of it at any cost, under the idea that in all states the effluvium arising from it is prejudicial to health. The latter are anxious to use it as a manure to increase the produce of the land. Though drains may be extremely disagreeable it does not always follow that the locality in which they exist is unwholesome; much depends upon the manner in which the fluid has been treated. If kept closed up in cesspools, without access to the air, the gases generated are dangerous to human life, and their escape in or near inhabited houses might produce fever; but the liquid passing through drains, as a running stream, would no doubt be offensive to the nose, yet changed in its deleterious properties, and comparatively innocuous. It is not the strong perfume proceeding from common drains or manure that engenders disease. Low damp situations throwing off vapours which are not perceptible, or scarcely so, to the olfactory nerves, are more insidious than a good honest farmyard compost, about which there can be no mistake in regard to smell. Needless alarm is often created by apparent danger, where real mischief is overlooked. Deodorising sewerage is both difficult and expensive, and in its natural state, to be remunerative as a dressing for green crops, the necessary quantity seems fabulous, and proves the value of the refuse to be small unless extravagantly employed in point of measure. Can liquid manure be profitably used on arable land? It appears so from experiments tried in a garden. Carrying the contents on to Grass land not having answered the purpose anticipated on a former occasion, in the spring of 1864, before turning over the muck heap, preparing for Mangel and Potato planting, it was well saturated with manure-water. The result was most satisfactory. In spite of the dry summer and autumn the crops were fine, the Potatos a capital sample, and the Mangel abundant. From these facts it may be presumed that the beneficial effects in the garden, and on the manure heap, were caused by the rapid absorption of the soluble salts, and the failure on the Grass would probably be in consequence of immediate evaporation on land not broken up. *Falcon.*

Pasture versus Arable Land.—During the last few months the conversion of arable land to pasture has been prominently before the public; it is considered by many that its adoption to some extent would be beneficial to the interests of the agriculturist. That the change would be attended with considerable expenditure either on the part of the landlord or his tenant does not admit of doubt. To change arable land to pasture involves not only the sowing of seeds, manuring, &c.; it requirestime before it becomes of much value for grazing purposes, so that before making extensive alterations in that direction, or laying out much capital, it would be well to count the cost and consider the probable results. Much of the arable land of this country, from the effects of soil, of climate, or it may be from a combination of causes, is under the most liberal treatment and judicious management incapable of becoming good Grass land; at the same time we think much of the existing permanent pasture might be made to produce a greater return, in the shape of beef or mutton and wool. Considerable improvement has been made within the last few years, and with the increasing intelligence and energy of the British farmer we expect yet to see still greater; the use of bones in some localities, and of lime in others, has in many instances nearly doubled the produce of the land. The rearing or grazing of young growing animals has greatly deteriorated some of our best old pastures. This practice, if adhered to or a series of years without extraneous aids, soon reduces the best feeding pastures to ordinary store land. A great portion of the light, and some of the medium soils of this country will produce a much greater quantity of meat under tillage than they would if laid down to Grass, and it is not by turning the arable land into Grass, but by converting the produce of the arable land into beef or mutton and wool, that the British farmer can enter into competition with foreigners. More manure would be produced, and of a better quality,

a saving would be effected both in the purchase of manures and artificial foods, and thus the soil would be enriched, and would give a greater return. One argument held out in favour of converting tillage into Grass is the increasing cost of labour; as far as the wages of the labourer is concerned we admit the fact. The wages of the agricultural labourer has in many counties increased from 10 to 25 per cent. within the last 20 years. Yet in almost every department of farm management the use of agricultural machinery has considerably lessened the cost of the different operations; the facilities afforded by railway communication have also been of great value to the farmer. *G. Murray.*

Rational Seeding.—Several years have elapsed since I advanced the results of my experience on "thin seeding." All I could say and write then on the astonishing fecundity and producing capabilities of grains of Wheat, Barley, and Oats, singly and early planted, was considered frivolous, and put down as downright falsehood, and I was even openly avowed by prejudiced persons for "new-fangled notions" as not trustworthy it was said, and that such statements as the following were declared "injurious to the interests of agriculturists generally, and the public weal was actually endangered thereby," namely, that "all cereals rightly managed, as I had grown many specimens and publicly exhibited them, were capable of producing four thousand fold! whilst from the general order of sowing, not more than 20 issue were realised from each grain sown (much less than one good common ear), in the United Kingdom." (Mr. Caird writes 8!) And Mr. Alderman J. J. Mechi stated in his late letter in the *Times* and elsewhere, that he has this year on a large scale on cheap land realised "236 grains for one," or 59 bushels per acre from 1 peck of seed. In order to appease the anger of my brother agriculturists for my advocating thin seeding at a vengeance, I resolved several years back on making the word "thin" for my own use obsolete, rendering it "rational" seeding, viz., advocating 1 bushel per acre—thus, for safety, drawing a line of distinction between the two extremes, 1 peck and 2 or 3 bushels, contending, as I had done 20 years before, and do still maintain, that 1 bushel per acre, early and well planted on perfectly cultivated land, is quite sufficient of any good grain to be planted on any soils or situation, allowing for all casualties the Wheat plant is subjected to from frosts, various insects, vermin, game, and its pursuers, snails, &c., during its growth. Now that Mr. Caird, F. F. Hallett, Esq., and moreover my esteemed friend, and, I venture to write, the most noble and distinguished examplar of all agriculturists, Alderman Mechi, has thought well of it, more than he used to think, and has acquired such admirable yields from my practice, and has of late, in the *Times* and other journals, come to my rescue, declaring his success, from similar proceedings, unmistakeable, I therefore venture boldly once more to assert my knowledge from repeated trials that for the best of producing plants of Wheat generally on all soils and situations, not more than half of Wheat seed and other cereals in current use is sufficient to produce the best of crops. I have at this moment some Wheat, two varieties, though I admit not on a large extent of ground, which I planted on the 1st of September in single grains, at less than 1 peck per acre, which would gratify any interested person to travel seven miles out of his way from the Great Eastern Railway Junction at Witham to Maldon, to witness, and even our worthy exemplars Alderman Mechi, F. F. Hallett, Esq., and other distinguished gentlemen. Each plant is already tillered or branched surprisingly, forming very many forthcoming ears, and presenting an appearance like plants of Pinks, as large as common tea saucers or plates, completely covering the ground with luxuriant foliage, and so strong and robust, and deep-rooted, as to defy any serious attacks on them from frosts or insects to destroy them during winter. In short, they are worthy of the notice, if not the admiration of all those who have set their minds against believing the truth of it; though there is nothing in the crop new and astonishing to myself. *Experimenter.*

Farmers' Clubs.

CROYDON: *On the Errors of Modern Farming.*—Mr. WOOD, of Wrotham Park, Sevenoaks, said: They heard of high farming, and low or dirty farming, but what they wanted to find out was good farming. He should say it was the practically finding and carrying out the full development of the soil, so that the greatest amount of produce might be obtained with a profit to the grower, on an average of years, for his capital and labour.

(1). On the present rage for converting arable land into pasture on account of the low price of corn. Having had some experience in laying down many acres, he would treat a little on the subject. That there were a great many acres of land that might pay much better as pasture than as arable, there was little doubt; but the time and expense required to get a good pasture was a great drawback even to an owner, much more to a tenant farmer; and from experience he believed that much of the land now being laid down would produce more and pay better under the plough by farming for roots, &c., for sheep and cattle, with some corn, than it could do for very many years to come as pasture. If they looked back at the improvements made by agriculturists in the last 60 years, it would be found that the increase of beef, mutton, &c., had been more from the improved system of farming arable land, by growing root and other green crops—Norfolk and Lincolnshire to wit—than from all that had been done by the increase of, and improvements in, meadow and pasture land. He therefore thought it would be well to look at the improvements made in arable land in many counties, before they went to the expense of laying down too much as permanent pasture.

(2). On the sowing more small seeds by farmers. There was, he thought, at the present time, and he might say had been for some years, a great error made by the farmer—more so now the price of Wheat was so low—in not sowing more Clover, Sainfoin, and many other seeds that they could sell or exchange with each other, instead of buying seeds that came from foreign countries, which they knew nothing about, and which often, if the seed would grow, many of them rarely brought a good crop, particularly Clover and Sainfoin. To the honour of the farmers, he could say he had never been deceived by them. He wished he could say as much of the dealers and mixers.

(3). On the keeping a sufficiency of farm horses in good condition for work. That much was lost by keeping them badly was certain—and what was often the reason assigned? Because they consumed so much of the produce of the farm; at the same time a farmer would keep cattle on a farm not adapted for it; would buy artificial food for them, and also consume much of the hay, &c., grown on the farm, sometimes at a loss, to make manure for his land, and by so doing would get his horses out of condition to the detriment of his farm and his pocket; when, by feeding his horses well, he would often make as much and better manure with his horses. And often there were not enough horses kept for the work there was to do. He was inclined to think there was more money lost by not keeping enough than by keeping too many, so that many things got neglected and not done at all, or only half done; and he always found over working and under feeding horses a losing game. He mentioned the error of fattening cattle, sheep, &c., on soils and situations not adapted for it. The farming for stock sheep would be a more profitable method in many such localities for the pocket, as well as for manuring the farm; and let the good pas ures and warmer situations fat for the butcher, would mostly prove a benefit to both.

(4). On the losses sustained in threshing corn out of doors. The losses from the present system, so generally, he might say universally, practised of threshing corn in the south of England was a great evil—almost a sin. The waste of straw, cavil, and chaff, sometimes unavoidable, but oftener from the insufficiency of hands to secure it as threshed, and often the straw stacks not being thatched at all, must be very great. The system pursued by many of tying the straw in a single band was often objectionable, as it was often done in such a hurry, and stacked so badly, that it was much more likely to be injured if not immediately thatched, than if stacked loose; if well built and raked down hard, it would not be so much injured if not thatched at all. It was very questionable if the threshing the whole of the produce of the land by steam in the south of England was the best policy, even if it really was so in the north. The losses were so great, and as he said, often unavoidable, that if a portion of it was threshed in the old way by the flail, the straw, chaff, &c., would be found to be of much more benefit, particularly in the present season, when hay was so scarce and dear. If there was a good floor or two to the barns it would be a great saving to have men to thresh; during the winter months at any rate, and especially on small farms, it must be much to their advantage to thresh a portion, if not the whole, of the corn in the old way.

(5.) On the necessity and use of clear or whole summer fallows. He would endeavour to show them that good and profitable farming could not be carried out without them. And that was really necessary, particularly on many farms, where Hops were grown, many of which were but very middling for growing corn or anything else, as the Hops require so much of the manure, that little could be grown without fallows. Some of them might say that there was plenty of manure to be got; but it was not so, and for many reasons, as a great many farms were taken by men of small means, particularly poor ones (as men of capital knew better than to take them), so that they could not, if they were so inclined, farm and manure them to the best advantage, or as many of them would like to do. But allowing that men of capital could be found to take them, he would like to know where all the manures were to come from, as not only were all the manures made in this country put on the land somewhere, but an immense quantity of artificial manures, many of which were of little or no use, were bought and used for that purpose. They sent nearly all over the world for bones and many other things, and the demand for them was so great that they were continually getting dearer. And who was it who got the best of the guano, bones, &c.? The men of capital who used the best land, which must tend to get the worse still poorer; and he should think there were but few counties in the United Kingdom to which these remarks would not apply. Now, if they admitted that he was right in his ideas, how were the poor heavy land farms in the country to be farmed with any benefit to the occupier without summer fallows? and how could a large portion of the better land be managed to the best advantage without them? He still believed they could not, and that the land required rest to produce the greatest and best continual good crops, as much as men and horses require rest on Sunday. Many might ask, what was the use of the fallow to the land? Why should it be idle the whole year? In the first place, why was it they heard so much of the wireworm, slug, and many other insects eating up and destroying the crops? and of the Thistles and other weeds growing to the extent they did, and impoverishing the land; that they could not get the Turnips, Swedes, Clovers, &c., to grow as they used to do? He believed the grand secret lay in the continual cropping without fallows. What could they do to exterminate the insects, weeds, &c., so effectually as a whole year's fallow? They could not starve the insects and destroy many of the weeds so effectually in any other way. So that for the want of a small portion of fallow, on nearly all soils, they often obtain but a middling crop. tWhat effect had the present bad crop of Turnips, Swedes, &c., had on the land sown with them this season? It was full of grubs and worms; but they would not find them in a clean fallow. Let any one try 1 acre of a field intended for Turnips, &c., or where he intends a crop of Peas, &c., and mark the result in four or five years' rotation; and, from his own experience, he firmly believed, if universally carried out, at the end of five years there would be more clean fallows in one year than there are now in five. Although he advocated fallows, at the same time he thought that much of the land was ploughed more than was necessary, and that if the scarifier was more used, as it was by Mr. Marmaduke Walker and others, a great saving would be the result, and often better crops. And he was still of the opinion that he had expressed there, that many of the foul fallows intended for Turnips and other roots were ploughed too deep (if not cleaned in the autumn), and would be much easier and more effectually cleaned by being ploughed only half the depth they often were; or even by raftering—that is putting one half on the other—or only half ploughing; and when cleaned in the spring, ploughed to the depth required, as the summer sun would benefit the soil more than the winter frost and snow, although both might be beneficial.

(6). On the finding constant employment for agricultural and other labourers, and the benefit that must ensue if carried out. What was it that caused many gentlemen as well as farmers to do with as small a number of hands in the winter months as they [illegible] could? There was much work that might be done [illegible] cheaply in the short cold days as in the long hot ones. He was satisfied that a man could either by the day, or the piece, do as much work in eight hours in the winter as he could in 12 hours in the summer, and with less fatigue. And how many things might be done, such as grubbing, digging, filling, and spreading dung, mould, chalk, marl, &c., where it would do good, and which was known to pay on many soils? Besides, if things were left to the spring, how many things were left undone altogether! Mechanics could do many things to expedite the work in the spring, and which would be much better both for the employer and employed than to get them to make eight days a week in the summer months, and earn so much, that often some of the best hands keep "Saint Monday" a great part of the week, to the injury of themselves and employers. When they saw the amount of money expended on able-bodied men in the unions, and for unproductive labour, which in the 64 years of the present century must have been immense, if it stopped it would be well, but taken in a broad and national point of view, what had it done? It had been the principal cause of thousands of their best labourers becoming poachers, which generally resulted in crimes of deeper dye, and ended in imprisonment, and transportation, or something worse, which created expenses severely felt by all classes, but more particularly by the landed interests of the country in poor, county, and other rates and taxes.

(7). That the limited use of both lime and chalk of late years in the process of agriculture—and the want of it began to be felt on very many soils—was one of the principal causes of so much of the land, even with good farming, often disappointing them in not obtaining crops as good as they felt they had a right to expect. Lime and chalk were known to be such sweeteners and purifiers to the land on most soils that he thought there could be little doubt that a general use of them would much improve their Root, Clover, and other crops, and that it was really what they required. If they would allow such was the case, what a field it opened for a great portion of the surplus labourers of this country in the cold winter months! Surely such a state of things as he had described could not be allowed by the landlords and tenants of their favoured country to continue any longer, and he hoped that all who wished its well-doing would set their hearts and minds to work to find as much labour as they possibly could, to employ their increasing population in the winter months. Mr. Wood concluded by thanking the members present for their kind attention, and resumed his seat amidst an outburst of applause.

Dr. SHORTHOUSE said—With regard to fallows, Mr. Wood had said that all land required to be fallowed.

Surely he did not mean to say that all light land required fallows? When they got a good level soil they generally had to pay such a high rent that he was quite sure they could not leave it for any length of time, for they could not afford to do so; and if they did not pay the rent required some one else would. About the land requiring rest, he would direct their attention to the market gardens at New Cross, where a weed was never to be seen, for the land was turned over and over, and therefore he was entirely against fallowing. Continued cropping was in his (Dr. Shorthouse's) opinion far better for extirminating weeds than fallowing.

Mr. Walker said Mr. Wood had headed his paper "On the Errors of Modern Farming," but he thought it would have been much better if he had headed his subject, "It was an error to farm at all." As to converting arable into pasture, if it was not first-rate pasture it would not pay. As to growing their own seeds, he (Mr. Walker) generally grew the Dutch seeds, and he did not lose a single plant. As to labourers, he did not employ more labourers in summer than he did in winter—for he could always find enough for them to do.

Mr. Brown said he had laid down some land to pasture, and it had grown a little, but he was obliged to plough it up; at the same time he thought that if it had been his own land, he might have been able to have got it into a middling state in time. He had a few fields that he had laid down for eight or nine years, and with draining them well they were now a great deal better. These fields had cost him something, for he had manured them to some extent, and he thought that if they continued for another seven or eight years they would then begin to pay him; but he was quite sure that he had lost by them up to the present time. He agreed with Mr. Wood, that if they made good fallows, the land was safe to grow Clover. Threshing out of doors he was almost disgusted with. He was in favour of the use of chalk on the land, and he was chalking at the present time, but it was an expensive process. Lime was a sweetener of the land and killed insects. *Abridged from Surrey Standard.*

Farm Memoranda.

Canisbay, Caithness.—We recently announced that the Earl of Caithness had purchased a steam plough from the celebrated Messrs. Howard, of Bedford, and was about to employ it on his estate in Canisbay in this [illegible]. The plough arrived some weeks ago, and it [illegible] feat [illegible]ny of notice that on the first occasion on which [illegible] has been employed in ploughing and similar purposes in the north of Scotland it has been set to work in the immediate vicinity of the Pentland Firth, in sight of the "stormy Orcades," in the most northerly parish in Scotland, and by the Lord-Lieutenant of the county, who a short time ago entered the county in triumph on a steam locomotive.

Philip's Mains, besides being attractive on this occasion, has features of peculiar interest. It has been, we may say, entirely reclaimed from moor by the enterprise of the Earl within the last few years, and is already yielding a suitable return for the outlay which the improvements necessarily involved. It contains some beautiful fields of grain and Turnips; good farm roads have been made upon it, and a really fine farm steading is in course of construction; the servants' houses, besides being externally attractive and excellent in architectural features, being internally models for comfort and compactness, while the stables and other houses in course of construction are in all respects suited to such a farm, and in every feature creditable to the taste of Lord Caithness and those in his employment.

The field chosen for the display of the feats of the iron horse was one of stubble land, certainly not fitted, either by its dry or otherwise favourable condition, for giving an undue advantage to the Messrs. Howard. The soil was excessively wet, and was otherwise unfavourable for a first exhibition of a new implement, notwithstanding which the ploughing was well and speedily executed, and the entire exhibition was in all respects eminently satisfactory.

The makers, as the result of information acquired from various sources, state the following as some of the advantages to be gained by applying steam power for agricultural purposes:—

1. That for the hard work of the farm, steam is a cheaper power than horse power.

2. That deeper and more efficient cultivation is obtained.

3. That it enables the farmer to perform his tillage operations at the best season of the year.

4. That better crops with less manure can be obtained, especially on clays and loams.

5. That the land may be more quickly and effectually cleaned and freed from weeds.

6. That tenacious soils are rendered more friable and porous; good drainage is promoted by stirring the subsoil and breaking the "pan," and open furrows are unnecessary, even on the strongest land.

7. That the steam cultivator, plough, or harrows may be frequently worked to advantage in an unfavourable season, when it would be impossible to work with horses.

8. That not only a considerable diminution in the number of horses employed can be effected, but that the horses which are still necessary can be kept at less expense.

The plough was employed for nearly two hours, and it was found that notwithstanding the unfavourable state of the land, an acre was ploughed in an hour and 20 minutes, the furrows being straight and equal, and the depth about 10 inches. The agriculturists present, who naturally watched the execution of the work with great interest, expressed themselves as entirely satisfied with the manner in which it was done,

Thereafter his lordship had the grubber put in operation for a few minutes, and here too the work was quite satisfactory.

It may be useful here to quote the opinion of these implements of one of the most intelligent and spirited farmers in Scotland, Mr. Hope of Fenton Barns, who thus writes the makers:—

"Fenton Barns, Drem, Nov. 20, 1863.

"Dear Sirs,—As I have now finished sowing winter Wheat, and have had a fair trial of your Steam Cultivator, I beg to tell you how very much pleased I have been with its performances ever since we commenced work on the 25th of September last.

"We first cultivated 50 imperial acres of stubbled land, intended for next year's Turnip crop. Since then we have done upwards of 110 acres after Beans and Potatos, which have been sown with Wheat. We have thus gone over fully 160 imperial acres, and might have done considerably more stubble, if the engine had not been kept statiouary to get Wheat sown, as Potatos were removed from the ground.

"I count the working expenses to be about 4s. per acre on what I have done. The interest on the cost price of machinery, with allowance for tear and wear, may be 3s. 6d. per acre more. This of course depends on the number of acres gone over; but if we succeed as well with spring work as we have done hitherto, the sum named will be amply sufficient in my case. Indeed, I think I have rather over than understated the expenses, but I consider the work cheaply performed at the money. Though we have come on numerous boulder stones, our breakages are scarcely worth mentioning, as they do not amount to 1cs. together,

"Our people understood readily the working of both engine and tackle, and took to it heartily. Everything from the first day has gone on smoothly and satisfactorily, and with every added day's experience of steam-cultivation I like it better, if possible, and value it more highly.

"I am, dear sirs, yours faithfully, George Hope."

"Messrs. J. & F. Howard, Bedford."

Similar testimonies are given by many leading English landlords and farmers, who unite in testifying to the completeness and simplicity of the machinery, its efficiency for the purposes indicated, and its cheapness, when compared with manual labour.

Three and a half hours being now spent in the exceedingly interesting exhibition, the whole of which was most satisfactory, and proved the simplicity, applicability, ease of working, and other of the implements' features, the company broke up, grateful to the noble Earl for having given an opportunity of seeing the steam plough at work for the first time in Caithness, and gratified to a degree with the complete success of its performance. *Northern Ensign.*

Miscellaneous.

Fattening Poultry.—Chickens intended for market should be separated from the older fowls, and confined in more restricted quarters and fed liberally with a variety of food, of which grain of some sort should form the basis. They should be regularly fed three times a day—the first time as soon after daybreak as possible or convenient. It is hopeless to attempt to fatten chickens while they are at liberty and growing; they must be confined, and during their confinement they must be supplied with abundance of pure fresh water, gravel, old lime mortar, crushed bones, or broken clam or oyster shells, if to be had. In about three weeks they will be in condition for marketing. It is equally hopeless to attempt to fatten older fowls unless confined in a proper coop; and this, like most other appurtenances, need not be expensive. To fatten a dozen adult fowls, of common size, a coop may be made 3 feet long, 18 inches deep, made entirely of slats, open on all sides, top and bottom. Discretion must be used according to the size of fowls cooped. They do not require much space—indeed, the closer the better, if they can all stand up at the same time. Fowls selected to fatten should be in good health. One diseased fowl might contaminate the whole. Besides, if there are any that seem inclined to be quarrelsome, they should be removed at once. Quarrelsome fowls will not fatten kindly. Care must be taken to put up such as have been accustomed to be together or they will fight, and, like other bad examples, it soon finds imitators. The food should be ground Oats, Indian meal mixed with water or milk. The latter is the best. It should be slaked, forming a pulp or paste. The food should be varied. Barley, Buckwheat and Wheat-screenings, boiled or baked Potatos, form excellent fattening materials for fowls. Regularity when fed should always be observed in the hours of feeding, also in the quantity of food given—not to surfeit them one day and starve them the next, but give the fowls their food as regular as you take your own meals. They must be well fed three or four times a-day—the first time as soon after daybreak as possible or convenient, and then at intervals of four hours. No animal is easier kept than fowls. No kind of food comes amiss to them. When at liberty they obtain their living promiscuously, and pick up everything that can be made use of as food in the barnyard. Even the worms, grubs, and bugs give them the most nutritious food. And if insectivorous food is wanted, there is nothing perhaps more easily obtained, at almost any season, than by what the French term a *verminer*. Procure a deep crock, in which put some bran, and on it lay a piece of carrion or other flesh. Cover it with a glass cap so as to admit light, but exclude rain. In a few days it will be a moving mass of living insects or worms, which may be thrown out to young poultry, young turkeys in particular. There is nothing they will devour more greedily; but they should be sparingly given, as the fowls are so fond of them that if given abundantly it will prevent them taking their usual food. We have practised another method for fattening fowls, which has proved successful. We confined a number of fowls, ducks, and turkeys, in the month of November in a small, dark room, only giving them light when feeding. By depriving them of light they were kept perfectly quiet, nothing to do but eat, drink, and grow fat, spending most of the time quietly on the roost. Feed was kept constantly before them in a flat box, consisting of a mixture of Corn, Oats, Barley, and Buckwheat, with pure fresh water supplied daily. They were also provided with broken bones, oyster shells, gravel, and pulverised charcoal, of which they ate quite a large quantity. *C. N. Bement, in Genesee Farmer.*

Royal Berkshire Root Show, Reading.—This root show, which has now become one of the largest in the kingdom, was held on Saturday last in the large and capacious warehouse of Messrs. Sutton, Reading. The roots exhibited were beyond what could be expected from such a dry and unfavourable season as the one which has just passed, and came up to any previous year. There were a great many different lots set down from various parts of the United Kingdom, the finest specimens coming from the South and West of England, and from Ireland. The root-growers, however, in the county of Berkshire sent some very creditable specimens, amongst which we noticed some fine Mangel Wurzel and Kohl Rabi from Mr. Wren, and equally fine Wurzel from Messrs. Ayres, both of Whitley; some remarkable Wurzel, Kohl Rabi, Swedes, and Carrots from Lord Boston, R. Benyon, Esq., M.P., Rev. Thos. Stevens, and J. H. Clark, Esq. B. H. W. Way, Esq., of Denham Place, Uxbridge, sent a good and well-grown collection; Wm. Fox, Esq., of St. Bees Abbey, sent Champion Swedes, which were certainly perfection, both as regards size and symmetry of form, and by far the best we have seen for some time past. We must not omit some enormous Champion Swedes (23 lb. in weight), and Yellow Globe Mangel (31 lb. in weight), from Henry Crawshay, Esq., Oatlands Park, Newnham. The show was visited during the day by a large number of the neighbouring gentry and agriculturists.

Death of Mr. R. Ransome.—Born in Ipswich on the 27th February, 1795, the son of Mr. Ransome, of Norwich, who established himself in this town as an ironfounder towards the close of the last century—in 1809 he became apprentice to his father and brother, and in 1818 he joined them in partnership in the business, which has since attained not merely great eminence but a world-wide reputation. He was thus for 50 years connected with and nearly all the time actively engaged in the management of the largest agricultural implement manufactory in the world. His strong natural sense, sound judgment, and habits of attention, qualified him well for public business, and these qualities, combined with his affectionate and social habits, contributed greatly to promote th extension and interests of the firm . . . [Mr. Ransomee as has been already announced, died at St. Goar,, Rhenish Prussia, on the morning of Sunday, the 6th of November.] There has thus passed from among us a man who, early trained to business under the example of a high-minded and industrious parent, manifested throughout a long life a line of conduct that caused him to be deservedly respected and universally esteemed. His active and persevering habits, his broad, liberal, and practical views, joined with his love of method, order, and punctuality, and, above all, his sterling conscientious integrity, combined to fit him for a high eminence as a man of business. He had that strong common sense which enabled him to adopt the right view of a subject, as well as the foresight and promptitude to avail himself of first opportunities. These qualities gained for him the respect of intelligent men, whilst the integrity, affability, and benevolence, evinced in his intercourse with the 1000 or 1200 hands employed by the "firm," won from the mass of them strong personal attachment. Rarely, indeed, was there a case of severe illness amongst the workmen in which the patient's wants were not relieved by the master's purse, or his feelings gratified by the master's frequent presence at his bedside. Perhaps the best testimony that can be offered to the conscientiousness of his disposition, and the affectionateness of his manner, can be found in the frequency with which he was appealed to for the settling of disputes. He was looked upon as the "peacemaker," and both sides were willing to submit to his decision. He invariably encouraged the well-disposed, and reproved with calmness and excessive mildness where reproof was necessary. Though strict, indeed, in his notions of right and wrong, he was tender in the extreme to the failings of others, and invariably endeavoured to speak the truth in love. He was gifted with great benevolence of disposition, and his hand was always open to administer relief, as he made diffusive charity the channel in which that benevolence should flow. There was in him a fervent desire to use the wealth entrusted to his care "as a faithful steward"

for his brothers' benefit, and his Master's glory, and his experience and sound judgment guided his good heart in such a manner as enabled him to discriminate between the meritorious and the profligate, but at the same time to contribute to the necessities of all. Few lives that have extended over so long a period can be named which have exhibited such a continued and successful application of the best principles to their proper objects—mechanical improvements, industrial and educational progress, benevolence, philanthropy, and religion. *Ipswich Paper.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday	Nov. 18	29.20	51	48	S.W.	4	9	54	49	55	43	0.42
Saturday	19	29.82	44	43	S.W.	1	10	56	37	59	31	..
Sunday	20	29.52	49	48	S.E.	2	10	53	44	59	40	..
Monday	21	29.85	42	42	S.W.	0	10	54	36	59	31	0.02
Tuesday	22	29.55	50	49	S.W.	1	5	52	41	59	41	0.17
Wednesday ..	23	29.63	40	40	S.W.	0	4	55	34	57	29	0.03
Thursday	24	29.27	37	37	N.W.	1	10	47	35	48	33	0.97

Calendar of Operations.

NOVEMBER.

WEST SUSSEX: *Nov.* 22.—There is little now of great importance going on upon the farm; work is perhaps slacker than has been known at this time for many years. Wheat sowing is finished, except where any temporary crop, such as Rape or Mustard, has to be got off, and has been got in in the best of order, and is mostly all up and looking well; we do not find the slug at it yet, although everything has been so infested with it during the past summer. There has been a good deal of threshing going on since harvest; the yield is better than was expected, and the quality perhaps was never surpassed—it weighs from 64 to 68 lb. per bushel; but the price is low, and some are using it for cattle and pig fatting, along with Barley, and there is no doubt there will be more corn consumed on farms this year than has been for many years, especially in pig fatting, as they not requiring roots are better suited to the present circumstances of the farmer; though it is not likely that they will pay much, as the lean ones are bought so very much dearer than usual. There is not likely to be so many cattle fed, and no doubt good beef will be dear during the coming winter. Barley has turned out well, and is of good quality, but the price is not at all what was expected, 30*s.* to 34*s.* being the price, and some of it weighs from 56 lbs. to 58 lbs. per bushel; and what, according to quality, would often sell for malting, is not considered nt for that purpose this year. Altogether this will not be one of the best of years for farmers. Work being so far advanced, a little may be saved in labour, and as there are many public works going on the labourer need not be worse off; but perhaps many of those that are the first to be spared from the farm are not those that will be most useful as navvies. Mangels are all stored, and a very light crop they are in most cases. Swedes are perhaps a little better, but far from an average crop. Turnips may be said to be almost a complete failure, the early sown having rotted off, while the later have not grown. There is little work now going on except threshing, attending cattle, carting chalk, dung, &c.; and horses are perhaps cheaper now than they have been for a long time. *G. S.*

Notices to Correspondents.

APPLE WASTE: *D D.* Can any of our readers inform us how the seed can be readily cleaned from the must or pulp that comes from the cider mill, for which we should be much obliged.

LEASES: *E H.* Inquiry has to be made—hence the delay of a week.

CARTER'S FARMER'S VADE-MECUM.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38*s.* per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45*s.* per quarter, delivered at Braintree Station.
Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1*s.* per packet.
E. P. DIXON & SONS, 57, Queen Street, Hull.
May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOODFORD'S MARROW	DILLISTONE'S FIRST EARLY
BEDMAN'S IMPERIAL	

Samples and Prices on application.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leat, Penshurst, Kent:—
"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."
Price 3*s.* 6*d.* per quart. Trade price on application. Remittance requested from unknown correspondents.
EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.
The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.
MR. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2*s.* 6*d.* per quart.
The Trade supplied at the usual discount. Testimonials forwarded on application.
Sible Hedingham, near Halstead, Essex.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.
Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

New Vegetables.

STUART AND MEIN, NURSERYMEN and SEEDSMEN, Kelso, N.B., beg to intimate that they have the pleasure of sending out this season for the first time, the ALBERT SPROUT. The Albert Sprout was raised by Mr. Melville, Dalmeny Park, is one of the most successful efforts of this ingenious hybridizer, and "will prove a most useful vegetable for both the peasant and the peer." It is a hybrid between the Drumhead Savoy and the Brussels Sprout. The stems are long, studded with Hearting Sprouts, and having a top resembling a small Savoy. As a late hardy winter vegetable it will be found most invaluable, being fit for use when other Sprouts are over, and vegetables are scarce.
"Coming in between the time when Brussels Sprouts are over and the coming in of Young Cabbage makes it doubly valuable." *Scottish Gardener*, June, 1864.
"The flavour after cooking was all that could be desired, being mild and mellow without any kind of coarseness." *Gardeners' Chronicle*, April 23, 1864. Price 1*s.* 6*d.* per packet.
DALMENY SPROUTS (MELVILLE).—A hybrid between the common Heading Cabbage and Brussels Sprouts. The growth is the same as that of Brussels Sprouts, being a tall stem, a foot high, thickly set with Sprouts or Small Cabbages, and terminated by a Cabbage of medium size. It differs from Brussels Sprouts in being altogether a Cabbage; while the latter is a form of the Savoy. The flavour is that of the Cabbage, and free from the Savoy Sprout taste. After the tops are cut off, a fine succession of Sprouts is obtained for a lengthened period. Awarded a First-class Certificate by the Royal Horticultural Society of London, April 9, 1861. Price 1*s.* per packet.
FEARNOUGHT CABBAGE (MELVILLE).—A hybrid between the early dwarf Cabbage, and the Hearting Scotch Borecole. It is delicate and well-flavoured, and the hardiest of the Brassica family. Awarded First-class Certificate. 6*d.* per packet.
ROSEBERRY BRUSSELS SPROUTS (MELVILLE).—A tall grower with large Sprouts. The seed now offered was saved by the original raiser. 6*d.* per packet.
VARIEGATED GARNISHING BORECOLE (MELVILLE).—1*s.* per packet.
MONARCH CABBAGE (OLIVER).—A distinct dwarf variety and very early. 6*d.* per packet.
GIANT AYTON CASTLE SCOTCH LEEK (True).—6*d.* to 1*s.* per packet.
TRIPLE CURLED DARK-GREEN PARSLEY (MELVILLE).—A choice variety. 6*d.* per packet.
HARDY SCOTCH BROCCOLI.
DALMENY MAY (MELVILLE).—The heads are large and compact, and nearly as white as those of Cauliflower, extra fine.
LATE WHITE (SHARER).—Heads large and compact, pure white, fit for use in April and May.
The above two Broccoli are strongly recommended for their hardiness and superior quality. 1*s.* per packet.
Prices of the above to the Trade may be had on application.
CATALOGUE of VEGETABLES and FLOWER SEEDS published in December, and will be found to include many choice Novelties.

Quicks for Sale.

To the TRADE and RAILWAY CONTRACTORS.

500,000 THORN QUICKS to be Sold, of various ages and strength, together with corresponding Stocks of Forest, Evergreens and Ornamental Trees.
Apply to JOSEPH SMITH, Son., Tansley Nursery, Matlock, Derbyshire.

HAWS, HOLLY BERRIES, HORSE CHESTNUTS, and ACORNS to be had at very moderate prices, f. o. b. at Waterford. For further particulars apply
D. H. HIGGINS, The Nurseries, Clonmel, Ireland.
A large number of SPRUCE FIR, 1½ to 3 feet, will be sold under regular price.

Forest Trees, Shrubs, &c.

THOMAS KENNEDY AND CO. beg to intimate that they have this Season a very large and super or stock of FOREST TREES and SHRUBS of various sizes, adapted for extensive Planting and for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c., and which they are now selling at very moderate prices.
Their NEW DESCRIPTIVE PRICED CATALOGUE for AUTUMN 1864, and SPRING 1865, of FOREST and ORNAMENTAL TREES, ROSES, BEDDING PLANTS, &c., is ready, and may be had free on application.
☞ Dumfries, from its central position and increased Railway accommodation, enables T. K. & Co. to transmit Goods daily to all parts of Great Britain and Ireland.
Nursery and Seed Establishment (Established 1787), Dumfries.

Forest and Ornamental Trees.

PETER LAWSON AND SON'S CATALOGUE for SEASON 1864-65 is now ready, and will be forwarded free upon application.
PETER LAWSON & SON undertake the FORMATION of PLEASURE GROUNDS and GARDENS by Contract, under the Superintendence of competent Foremen.
28, King Street, Cheapside, London, E.C.; and at Edinburgh.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.
CATALOGUES and samples may be had free on application.

A Splendid Stock.

CEDAR of LEBANON, from 6 to 12 feet; DEODARS, 4 to 7 feet; PORTUGAL LAURELS, 5 to 6 feet, and as much through; ARBUTUS, 3 to 4 feet, and bushy. The above are such as are seldom to be procured, and will all move with perfect safety. To be Sold, a Bargain.
Apply to J. SCOTT, Merriott Nurseries, Somerset.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.
RHODODENDRON PONTICUM, from 3 to 18 inches.
Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.
For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

LAND to be CLEARED this SEASON, which contains as below, all having been twice transplanted, except those noted.

	p. doz	p 100	p.1000
	s. d.	s. d.	s. d.
5000 PRIVET, strong bushy stuff, cut down last spring	0 9	3 0	25 0
1000 WEYMOUTH PINES, 1 to 1½ foot	1 0	6 0	50 0
600 COB NUTS, good bushes, 2 to 3 feet	2 0	12 6	110 0
300 SPIRÆA, good, 2½ to 3 feet	2 6	25 0	..
1000 BERBERIS DULCIS, 2 to 2½ feet	1 6	7 6	60 0
2000 Do. ANGUSTIFOLIA, good bushes, 1 to 2 feet	2 0	10 0	90 0
25,000 QUICK, 1 to 1½ foot, stiff stuff	..	1 6	10 0
1000 HORSE CHESNUTS, 1 to 2 feet	..	3 6	30 0
1000 ,, ,, 2 to 3 feet	..	5 0	45 0
1000 ,, ,, 3 to 4 feet	1 0	6 6	60 0
2000 ,, ,, 4 to 5 feet	1 9	12 0	100 0
1000 ,, ,, 5 to 6 feet	3 0	20 0	160 0
1000 AMERICAN ARBOR-VITÆ, 3 to 4 feet	1 9	12 6	120 0
4000 CHINESE do. (once transplanted), 1 to 1½ foot	1 0	6 0	50 0
3000 BEECH, 1 to 2 feet	..	2 0	17 6
2000 ,, good, 2 to 3 feet	0 9	3 0	25 0
2000 ,, very good, 3 to 5 feet	1 0	5 6	40 0
10,000 SPRUCE, 1 to 2 feet	..	5 0	30 to 40
500 PINUS AUSTRIACA, 1 to 2 feet	1 0	6 0	50 0
2500 COMMON ELM, 3 to 5 feet	0 9	4 0	30 0
250 SNOWBERRY, 2 to 4 feet	1 6	12 6	..
1000 STANDARD ROSES, well grown and good sorts	12 0	75 0	600 0

25 pairs very fine IRISH YEWS, 6 to 7 feet high, 7*s.* 6*d.* the pair.
All orders executed in strict rotation. Delivered free on to the N. E. Rails at Thorp Arch Station on the Ch. Fenton and Harrogate Branch. Post-office orders payable at Boston Spa.
For further particulars apply to J. C. P., Providence Nurseries, Boston Spa, near Tadcaster.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure of offering the following articles, at the very reasonable quoted prices; this being a favourable season for planting:—

	£ s. d.
100 YOUNG, DOUBLE, and CHOICE CAMELLIAS, in 50 varieties, no buds	3 10 0
100 Ditto, INDIAN AZALEAS, mostly with buds	3 0 0
100 Ditto, NEW HOLLAND PLANTS	3 0 0
100 Ditto, HOT-HOUSE PLANTS	3 0 0
100 BULBS GLOXINIAS, in 20 varieties	1 10 0
100 FERNS, in many sorts	2 0 0
12 Fine Plants of DASYLIRION GRACILIS, GLAUCA, and ROBUSTA	1 16 0
12 Ditto, CHAMÆROPS HUMILIS	1 16 0
50 LATANIA BORBONICA	1 10 0
24 Strong Plants LOMARIA FLUVIALIS	1 10 0
24 Ditto, LOMARIA DISCOLOR	1 5 0
24 Ditto, WOODWARDIA JAPONICA	1 10 0
24 Ditto, PTERIS CRETICA FOLIIS ARGENTEIS	0 10 0
24 Ditto, PTERIS ARGYRÆA	1 0 0
24 PASSIFLORA CŒRULEA	0 10 0
12 POLYGALA DALMAISIANA	0 9 0
24 ERYTHRINA CRISTAGALLI	0 12 0
100 ROOTS of CANNAS, in 10 varieties	1 10 0
100 GHENT HARDY AZALEAS, mostly with flower buds, in 50 varieties	3 0 0
100 Hardy Choice RHODODENDRONS, in 50 varieties	3 0 0
100 Strong BULBS of LILIUM LANCIFOLIUM RUBRUM	2 0 0
100 Ditto ALBUM	1 10 0
12 Ditto AURATUM	5 0 0
100 ASCLEPIAS TUBEROSA	1 5 0
24 Fine Plants of YUCCA PENDULA	2 0 0
50 Varieties of Choice HERBACEOUS PÆONIAS	1 10 0
24 Ditto, TREE PÆONIA	2 10 0
12 Fine Plants of the New Hardy RHODODENDRON AUG. VAN GEERT	2 0 0
100 Fine STANDARD ROSES of the choicest varieties	5 0 0
100 Ditto, HALF STANDARDS	4 0 0
100 Ditto, DWARF	3 0 0
100 Ditto, on own roots	2 10 0
24 DWARF ACER NEGUNDO FOLIIS ARGENTEIS	1 0 0
50 Strong Plants, VIRGINIAN CREEPER	1 0 0
100 Strong Plants, GLYCINE SINENSIS	2 10 0
25 Ditto, BIGNONIA RADICANS	0 10 0
12 CLEMATIS AZUREA GRANDIFLORA	0 6 0
12 ,, HELENA	0 6 0
12 ,, SOPHIA	0 6 0
12 ,, VITICELLA VENOSA	0 9 0
12 ,, ODORATA	0 3 0
100 DELPHINIUM, in 20 varieties	1 10 0
100 ,, FORMOSUM	0 10 0
50 EPIMEDIUMS, in 10 varieties	1 0 0
100 DEUTZIA GRACILIS	2 0 0
100 HEDERAS, in 4 varieties	1 0 0
100 ILEX, in many varieties, fine plants, 2 years grafted	3 10 0
100 HARDY CONIFERS, in 50 sorts	4 0 0
24 MAGNOLIA THOMSONIANA, 2 years grafted plants	2 0 0
24 ,, PURPUREA, bushy	1 0 0
50 ,, TRIPETALA, strong	2 0 0
12 ,, MACROPHYLLA, in pots	1 10 0
100 RHODODENDRON MAXIMUM, 4 years	1 6 0
100 ,, PONTICUM, fit for immediate grafting	0 12 0
12 LAURUSTINUS, on stems	1 10 0

N.B. Reference required from unknown correspondents
Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per ton; packed 16*s.* per ton, delivered to Reigate Station. Various kinds of excellent Peat and Loam, Bog Mould, Sphagnum, Rock Sandstone, &c. Circulars, containing List of Prices, with other information, post free on application
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per Ton, at Swan Place; delivered five miles, or to any London Wharf or Railway 10*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire). Kentish and Hampshire PEATS, YELLOW LOAM, LEAF-MOULD, and COCOA FIBRE REFUSE.
JOHN KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

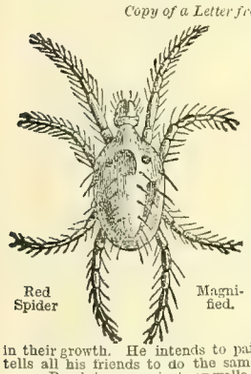
GENUINE TOBACCO PAPER, in 4-lb. packets.—Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

Trade Offer.

TOBACCO PAPER, SNOWDROPS, REX RUBRORUM TULIPS, GRAND MONARQUE NARCISSUS, GARLIC, SHALLOTS. Price and quantity on application.
H. BROWN, Seedsman, Liverpool.

WINTER DRESS all FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from MR. RIVERS.

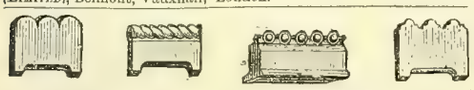


"Nurseries, Sawbridgeworth, Herts, 22d Oct., 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall, to which Peach-trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to 8 the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple-trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall-trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach-trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house trees 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED), Belmont, Vauxhall, London.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.
Orders forwarded by Railway with despatch.

SILVER SAND (Best Quality), of F. & G. ROSHER, at the addresses above—14*s.* per Ton, or 1*s.* 3*d.* per Bushel. 2*s.* per ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
GARDEN FLINTS for Grotto Work, 12*s.* and 14*s.* per Ton.

Small Seed Drawers.

WANTED, a SET of the above (about 100 Drawers). State price and size to E. COOLING, Seedsman, Derby.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

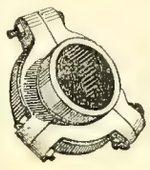
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

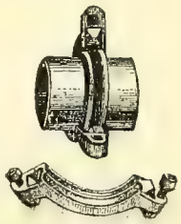
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erections beyond 25 miles of London, Railway Free for one Man charged extra.

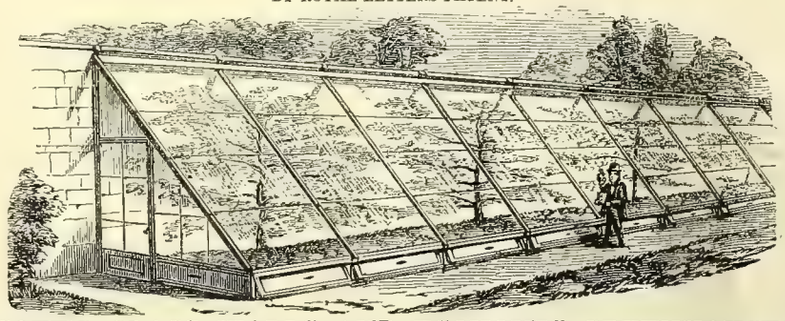
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

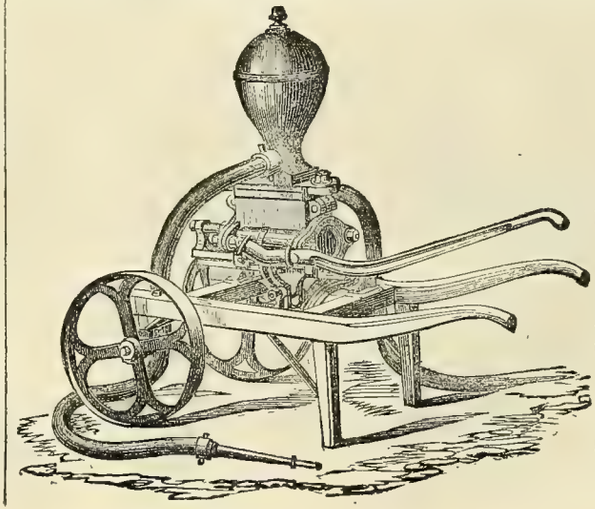
Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

THE CALIFORNIA LIFT and FORCE PUMP.



PRIZE MEDALS.
LONDON, 1862. | HAMBURG, 1863.

IN VARIOUS SIZES
AS A
GARDEN ENGINE,
LIQUID MANURE PUMP,
AND
FARM FIRE ENGINE.

It is double acting, and can be taken to pieces and cleaned or repaired without trouble or delay.

SOLE MAKERS IN LONDON:
HAYWARD, TYLER, AND CO.,
84 & 85, Upper Whitecross Street, E.C.
MAKERS OF
PUMPS, GARDEN ENGINES, SYRINGES, &c.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

Span-Roofed Iron Greenhouse.

FOR SALE, a SPAN-ROOFED IRON GREENHOUSE 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.

Particulars on application to A. SHANKS & SON, 27, Leadenhall Street, London, E.C.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Glass for Garden Purposes.

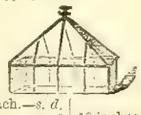
JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



	Each.—s.	d.		Each.—s.	d.
2 inches in diameter	.. 0	3½	12 inches in diameter	.. 1	9
3 ,, ,,	.. 0	4½	13 ,, ,,	.. 2	0
4 ,, ,,	.. 0	5½	14 ,, ,,	.. 2	6
5 ,, ,,	.. 0	6½	15 ,, ,,	.. 3	0
6 ,, ,,	.. 0	8	16 ,, ,,	.. 3	6
7 ,, ,,	.. 0	10	17 ,, ,,	.. 4	0
8 ,, ,,	.. 1	0	18 ,, ,,	.. 5	0
9 ,, ,,	.. 1	2	19 ,, ,,	.. 6	0
10 ,, ,,	.. 1	4	20 ,, ,,	.. 6	0
11 ,, ,,	.. 1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.
6 inch diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.
Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.
Common shape, per dozen, 2s. 6d. Improved shape, per dozen, 4s. 6d.
Patent shape, per dozen, 6s. 6d.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

LOYSEL'S HYDROSTATIC TEA AND COFFEE PERCOLATORS

WILL EFFECT A SAVING OF AT LEAST 50 PER CENT.



IN USE BY

UPWARDS OF 150,000 FAMILIES,

AND AT

MOST LARGE ESTABLISHMENTS

IN THE

UNITED KINGDOM.

The Times says:—
"Loysel's Machine for making either Tea or Coffee is justly considered as one of the most complete inventions of its kind."

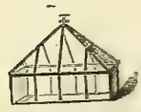
These URNS are Manufactured in TIN, COPPER, BRONZE, ELECTRO-PLATE, and SILVER.

An ILLUSTRATED PROSPECTUS, with TESTIMONIALS, sent Free on application to
CHARLES POMEROY BUTTON,
142 and 143, CHEAPSIDE, LONDON, E.C.

N.B. The Trade supplied only by
WILLIAM CHAVAM,
8, BROAD STREET BUILDINGS, LONDON, E.C.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,
GLASS AND COLOUR MERCHANT,
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.


HAND GLASSES.

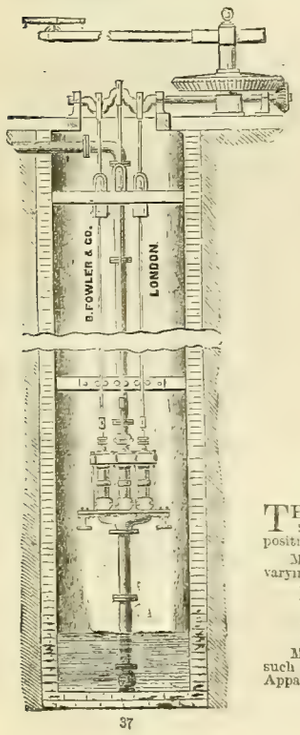

PRESERVE JARS.


MILK PANS.

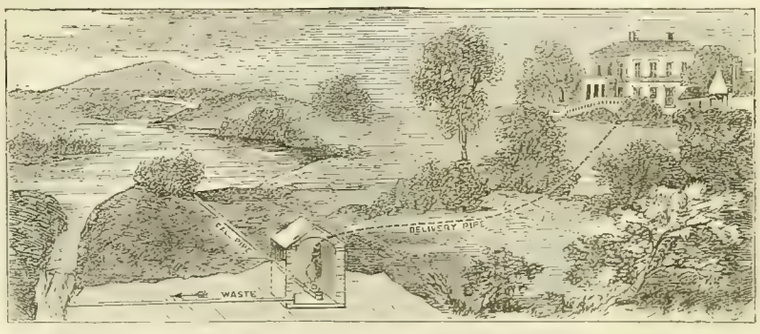
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

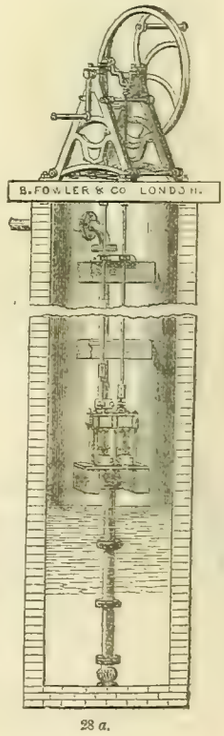
See Advertisement the first week in the month, or on application.

CLINTON & OWENS
(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



37





28 a.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 50 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

SMITHFIELD CLUB CATTLE SHOW 1864.—STAND No. 20.

RANSOMES & SIMS, IPSWICH,

WILL EXHIBIT THEIR

NEWCASTLE PRIZE PLOUGHS,

Which won 4 prizes out of 6 at Newcastle, and 20 All England Prizes in competition with the best Ploughs of leading Makers. A practical trial will convince every impartial person that these Ploughs are at the present time THE BEST PLOUGHS IN THE WORLD.

R. & S. will also exhibit the following:—

PATENT ROOT PULPERS.

Which require less power and are far superior to any others.

PATENT ROTARY CORN SCREENS.

The only Screen which is adjustable, self-cleaning, and rotary. More than one thousand are in use, giving the greatest satisfaction.

BIDDELL'S PATENT MILLS.

Which have never yet been surpassed for durability and simplicity. Many thousands are in use, and they are in constant demand.

Full particulars of the above, and also of other Machines made by R. & S., may be had on application at their

STAND No. 20; or at the ORWELL WORKS, IPSWICH.

SMITHFIELD CLUB CATTLE SHOW.—STAND No. 18.



MARSHALL, SONS, & CO., LIMITED,

WILL EXHIBIT AT THE ABOVE SHOW

A PORTABLE STEAM ENGINE, A COMBINED THRESHING MACHINE, AND A CIRCULAR SAW BENCH.

They were awarded

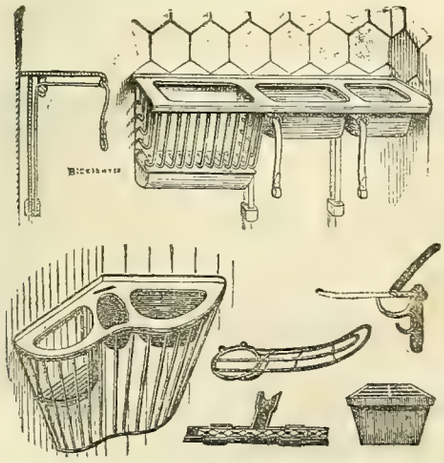
The GOLD MEDAL and DIPLOMA of HONOUR at the INTERNATIONAL EXHIBITION, MUNICH.
The LARGE SILVER MEDAL and DIPLOMA of HONOUR at the INTERNATIONAL EXHIBITION, HAMBURG.
The LARGE SILVER MEDAL at the INTERNATIONAL EXHIBITION, CHAMBERY.

MARSHALL, SONS, AND CO., LIMITED, ENGINEERS, BRITANNIA IRON WORKS, GAINSBOROUGH, LINCOLNSHIRE.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.



These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

NOTICE is HEREBY GIVEN, that the PARTNERSHIP heretofore subsisting between us the Undersigned, EDMUND PHILIP DIXON, WILLIAM ETHERINGTON DIXON, and JOHN ETHERINGTON DIXON, carrying on Business as SEED MERCHANTS, NURSERYMEN and FLORISTS, under the style of E. P. DIXON & SONS, at the Town and County of the Town of Kingston-upon-Hull, is this day DISSOLVED by mutual consent, so far as regards the said WILLIAM ETHERINGTON DIXON. All Debts owing to and by the said Partnership will be received and paid by the said EDMUND PHILIP DIXON and JOHN ETHERINGTON DIXON, by whom the business will in future be carried on.—Witness our hands, this 1st day of November, 1864.
EDMD P. DIXON.
WM. E. DIXON.
JNO E. DIXON.

NOTICE to CREDITORS.—All persons having claim on the Estate of the late CHARLES GRIMBLY, Albion Nursery, Stoke Newington, London, are requested to send their Account to OWEN GRIMBLY, Summertown Villa, near Oxford, before the 5th of December next. After which time those persons who have not sent in their claim will be excluded any benefit from the same Estate.

PARTNERSHIP.—WANTED, an ACTIVE JUNIOR PARTNER for an OLD ESTABLISHED WHOLESALE and RETAIL SEED BUSINESS in EDINBURGH, who can command from £1000 to £2000. One who has a good connection amongst SEED MERCHANTS, FARMERS and GARDENERS, will be preferred, as he will require to Travel occasionally for the Firm. NONE but PRINCIPALS will be treated with, and who are requested to apply by Letter only to C. W. WRIGHT, of Alexander Wright & Son, Seed Merchants, Edinburgh.

JOHN T. WILLMER,
HORTICULTURAL AGENT, AUCTIONEER, and VALUER,
Springfield Nursery, Sunbury, Middlesex, S.W.

LANDSCAPE GARDENING, Practical and Scientific.—Grounds of any extent laid out in good taste and correctness. Plans, plain or elaborate, to suit any situation and in any style.
For terms, references, &c., address Messrs. SETTERINGTON, 21, Ordnance Road, St. John's Wood, London, N.W.

Dried Natural Flowers.

MESSRS. BOETTNER BROTHERS, NURSERYMEN, Greussen, near Erfurt, Prussia, beg to call attention to their artificially dried Everlasting Flowers, which they have now brought to so great a state of perfection that it is almost impossible to distinguish them from those freshly cut from the plants.
DESCRIPTIVE PRICE LISTS may be had, and specimens seen at their Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

WANTED on a LEASE, from 7 to 21 years, a NURSERY or MARKET GARDEN, or combined the two from 6 to 20 Acres of Land. If near a large Town would be preferred.
Address, stating terms, &c., G. WILLIAMSON, Knowsley, Prescot, Lancashire.

TO BE LET, PARK END NURSERY (without Stock), with immediate possession, one mile from Macclesfield.
Apply to Mr. STEVENS, Architect, Macclesfield.

To Nurserymen and Florists.

TO BE LET, near the Crystal Palace, a very eligible PLOT of LAND for a NURSERY GROUND. The requisite Forcing Houses and Pits will be erected to suit the requirements of a Tenant.
For further particulars apply to A. B. FREND, Esq., Architect, 44, Bedford Row, W.C.

To Landscape Gardeners and Others.

TO BE LET, The PARK NURSERIES, Singleton Brook, Higher Broughton, Manchester, late in the occupation of William Lodge, deceased. It contains Seed Shop, Offices, Hothouses, Greenhouses, Stoves and Propagating Houses, well heated with Hot-Water on the most improved principle, and a Cottage for Foreman. The Stock, which has been reduced, consists of fine specimen Evergreens and Flowering Shrubs, Stove and Greenhouse Plants, &c., which can be taken at a valuation, at the option of the tenant. It is well supplied with water, situated in the healthiest part of Manchester, and surrounded with Gentlemen's Mansions, and many new ones are in course of erection. This is a good opportunity for any one wishing to commence business, as it is the only place of the kind in the neighbourhood. A suitable tenant will be favourably treated with.
For further particulars apply to Mr. J. LODGE, Union Street, Church Street, Manchester; to MRS. LODGE, Broughton Lane; or the Nurseries, as above.

Sales by Auction.

Consignment of Plants and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 26, at half-past 12 o'Clock precisely, a Consignment from Holland of HYACINTHS, TULIPS, CROCUSES, and other BULBS; also some choice Rhododendrons, Conifers, Berberis, Spiræas, Azaleas, Roses, Fruit Trees, &c., in capital condition, and for Sale without reserve.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Antwerp, Bulbs from Haarlem, and Fruit Trees from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 29, at half-past 12 o'Clock precisely, a splendid assortment of PYRAMID and DWARF PEARS, PEACH, APRICOT, and CHERRY TREES, from a celebrated French grower; a consignment of RHODODENDRONS, CAMELLIAS, AZALEAS, VARIEGATED HOLLIES, LILIES, and other Greenhouse Plants from Antwerp; and an importation of BULBS from Holland.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 3, at half-past 12 o'Clock precisely, a fine assortment of HOLLIES, JUNIPERS, RHODODENDRONS, THUJAS, CEDARS, ROSES; DWARF-TRAINED, STANDARD, and PYRAMID FRUIT TREES, and a variety of other Hardy and Ornamental Trees and Shrubs, from a celebrated Nurseryman in Holland.
On view the Morning of Sale, and Catalogues had.

Woking, Surrey.—Very Important Sale.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Goldworth Nurseries, Woking, Surrey, one mile from the Woking Railway Station, South-Western Railway, on MONDAY, November 28, and nine following days, without the least reserve, at half-past 11 o'Clock precisely, each day, in consequence of the number of lots, the extensive and valuable NURSERY STOCK, including an unlimited variety of choice Coniferæ, Evergreens, and Deciduous Shrubs, of vigorous growth, seldom to be met with, comprising 1000 Abies Douglasii, 1 to 6 feet; 1000 Abies Menziesii, 2000 Thujas, of sorts; 3000 Pinus austriaca, 200 Pinus Lambertiana, Sabiniana, excelsa; 100,000 Norway Spruce, 50,000 Retinospora, 2000 Silver Firs, 3000 Thujopsis borealis, 2000 Wellingtonia gigantea, 15,000 Larch Firs, 2000 Arbor-vitæ, 2000 Junipers, sorts; 200 Picea lasiocarpa (splendid specimens, 1 to 3 feet); 300 Picea nobilis, 1 to 3 feet; 500 Picea Nordmanniana, 2½ to 4 feet; 200 Picea Pinsapo, 9 inches to 1 foot; 100 Picea amabilis, 1 to 2½ feet; 5000 Cupressus, sorts; 200 Araucaria imbricata; 200 Cedrus Deodara, from 2 feet; 200 Cedrus robusta; 500 Cedrus Libani, Cryptomerias, &c.; 100,000 Common Laurels, 10,000 Portugal Laurels, 2000 Arbutus, 1000 Berberis aquifolia, 1000 Tree Box, 500 Escallonias, 2000 Evergreen Privet, 500 Euonymus, 100,000 green Hollies, 1 to 3 feet; 5000 choice Variegated Hollies, 500 Sweet Bays, 200 Magnolias, 100,000 Common Yews, 1000 Variegated Yews, 3000 Spiræas, of sorts; 500 Weigela rosea, 1000 Calycanthus, various; 500 Tamarisk, 2000 Deutzia gracilis, 500 Ligustrum, 500 Forsythia, 1000 Pyrus japonica, 500 Ribes, 1000 Guelder Roses, &c.; 3000 handsome Standard Roses, and 4000 ditto on the Manetti, fine plants, including the best varieties in cultivation; 3000 ditto Dwarf, on their own roots; choice American Plants, consisting of 3000 of the finest named varieties of Rhododendrons; 20,000 choice ditto Seedlings; 2000 Azaleas, the best hardy kinds; 2000 hardy Heaths, Kalmia latifolia, Ledums, Vacciniums, Gaultheria; 1000 Menziesia polifolia, &c.; Fruit, Ornamental, and Forest Trees, comprising 7000 Standard and Dwarf Apples, 6000 ditto Pears, 3000 ditto Plums, 3000 ditto Cherries, 1000 Peaches, 1000 Nectarines, 1000 Apricots, 4000 Gooseberries, 3000 Currants, 500 Filberts, 150 Grape Vines, 200 Medlars, 200 Figs, &c.; 1000 Limes, 2000 Sycamores, 1000 Horse Chestnuts, 2000 Norway Maples, 1000 Turkey Oaks, 2000 Poplars, 6000 Ash, 1000 English Elm, 20,000 Hornbeam, Birch, Beech, &c.; Hardy Creepers, including 4000 choice Ivies, sorts; 2000 Loniceras, sorts; 2000 Clematis, 1000 Wistaria sinensis and alba, 100 Passifloras, 1000 Jasminum, Bignonia radicans.
May be viewed until the Sale. Catalogues may be obtained, (1s. each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.
PROTHEROE & MORRIS are enabled to state that in the event of severe frost setting in, a reasonable time will be given for the clearance of the Stock, and arrangements may be made by purchasers with Mr. Abraham, the Manager pro tem. on the Premises, Goldworth Nurseries, to have their Lots carefully taken up, packed and conveyed to the Woking Station, at the cost of labour thereby incurred.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on WEDNESDAY, November 30, at 1 o'Clock precisely, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Anemones, Ranunculus, Snowdrops, &c. Also a fine assortment of 300 STANDARD and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c. Selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully set with bloom buds, &c.
On view the Morning of Sale. Catalogues may be had as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on SATURDAY, December 3, at half-past 12 o'Clock precisely, about 400 choice DOUBLE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, well set with bloom-buds; 300 handsome Standard and Dwarf Roses, including the newest and most approved kinds; selected American Plants; 1000 fine bulbs Lilium lancifolium rubrum and album; 10,000 Crocus; also Hyacinths, Narcissus, Early Tulips, Snowdrops, Anemones, Gladiolus, Ranunculus, &c.
On view the Morning of Sale. Catalogues may be had as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

DICKSON'S FIRST AND BEST EARLY PEA.

THE EARLIEST EVER OFFERED.

FRANCIS & ARTHUR DICKSON & SONS

HAVE GREAT SATISFACTION IN DIRECTING THE ATTENTION OF "ALL WHO HAVE A GARDEN" TO THE ABOVE

NEW AND DISTINCT PEA,

Which has been satisfactorily proved to be both the *earliest variety ever raised*, and *much superior* to any other Early Pea in general good qualities. It will undoubtedly become as popular as their DICKSON'S EARLY FAVOURITE, which they had the pleasure to introduce some eight years ago, and which still retains its position as one of the best Peas of its season. In addition to its extreme earliness, the FIRST and BEST EARLY is very *prolific*, of *fine quality* and *flavour*, *dwarf* habit (about 2½ feet), and altogether an unmistakable acquisition. It has been tried against the earliest known Pea, Dillistone's Early Prolific, and has been found to come into *bearing* fully a *week* (or in some instances *ten days*) *earlier*. (*See Testimonials.*) They have also tested it at their own proof grounds the last two years, and their experience fully corroborates this statement.

Price per Quart, 3s. 6d.; Pints, 2s., in sealed packages only, to be had direct from the "House," and most of the leading Seedsmen in the Kingdom.

The following TESTIMONIALS (selected from many others), will sufficiently establish its claim to be considered the FIRST and BEST EARLY PEA:—

From Mr. EDWIN WILLIAMS, *Gr. to the* Right Hon. the EARL of LICHFIELD.

"Orgreave Hall, Lichfield, June 28, 1864.

"I think your new Pea is a great acquisition to the kitchen garden. It is invaluable as an early Pea, and also for its productiveness and quality. It produces a profusion of pods on a little haulm; it is of a dwarf habit, and it is certain to become a general favourite."

From Mr. A. NEILSON, *Gr. to the* Right Hon. EARL BECTIVE.

"Underley Hall, Westmoreland, July 28, 1864.

"I have grown your new Early Pea by the side of Sangster's No. 1 and Dillistone's Early, and I find that your Pea is many days earlier than either; it is also a heavy cropper. Altogether I consider it second to none in cultivation, and shall in future use it as an early Pea."

From Mr. GEO. BOND, *Gr. to the* Right Hon. EARL POWIS.

"Walcot, Salop, June 30, 1864.

"The Early Pea you sent me is a most valuable sort. I sowed it on a south border in March, with Daniel O'Rourke and Sangster's No. 1, and gathered from it on June 25, but was not able to gather from the others until July 7. It is very dwarf; the Peas are large for an early variety, and the haulm well hung with pods. As it is so decidedly an early Pea, please let me have three qrts. for next season."

From Mr. JOHN MILLER, *Gr. to the* Right Hon. Lord FOLEY.

"Worksop Manor, Notts, June 30, 1864.

"Your new Pea is an excellent cropper, and is everything a gardener could wish for. It comes into bearing many days before any other Pea in cultivation."

From Mr. W. B. TILLERY, *Gr. to the* Right Hon. Lord BOYNE.

"Burwarton Hall, Salop, July 12, 1864.

"I am very much pleased with your Early Pea sent to me this season. I find it is an excellent cropper, and very early; much superior to any Pea I have yet met with."

From Mr. R. MACKENZIE, *Gr. to the* Right Hon. Lord FIELDING.

"Downing Hall, Flint, July 23, 1864.

"I tried your new Early Pea by the side of Sangster's No. 1 and Daniel O'Rourke, and I could pick from it at least 10 days earlier than from the others. It is a good cropper, of excellent flavour; and you can confidently recommend it to the Public as a first-rate and valuable new Pea."

From Mr. WM. WHITTAKER, *Gr. to the* Right Hon. Lord CREWE.

"Crewe Hall, Staffordshire, June 29, 1864.

"I can bear my testimony to the earliness, good flavour, and productiveness of your new Early Pea, which I consider to be the very earliest and best Pea for a first crop. It came into bearing 11 days before Sangster's No. 1. Your Pea is much superior to Dillistone's in every respect."

From Mr. R. ROBERTSON, *Gr. to the* Lady EMILY FOLEY.

"Stoke Edith Park, Herefordshire, June 30, 1864.

"Your new Early Pea was sown with Sangster's No. 1 on March 26, and a dish was gathered on June 15. Sangster's No. 1 was not ready till July 1. I consider your early Pea the earliest in cultivation, and to those requiring a very early supply it will form a valuable acquisition."

From Mr. GEORGE EDWARDS, *Gr. to the* Hon. E. COKE.

"Longford Hall, Derbyshire, July 9, 1864.

"Your Early Pea is quite 10 days earlier than Daniel O'Rourke; very productive, of good flavour, and in every respect a first-class early Pea."

From Mr. J. GARDNER, *Gr. to the* Hon. E. S. P. JERVIS.

"Little Aston Hall, Warwickshire, June 30, 1864.

"I have great pleasure in giving you my opinion on the merits of your new Pea. I sowed it by the side of Sangster's No. 1 on a south border, where it proved to be fully 10 days earlier than that variety. Your Pea grows about 2 feet in height; is very productive; of excellent quality; and, I may add, very hardy."

From E. C. WALKER, Esq.

"Lead Works, Chester, June 29, 1864.

"The new Pea you sent me was sown on March 2 by the side of a row of Daniel O'Rourke. I gathered a good dish from yours on June 12, and was unable to gather from Daniel O'Rourke until June 24. I consider your Pea a most valuable introduction. It is early, a good bearer, and excellent on the table."

From Mr. W. HILL, *Gr. to* R. SNEYD, Esq.

"Keele Hall, Staffordshire, June 27, 1864.

"I have great pleasure in reporting favourably of the Early Pea you sent me for trial. They were sown on the same day (March 17) as Sangster's No. 1, Carter's First Early, Sutton's Early Champion, and Dillistone's Early Prolific, and proved earlier by some days than either. Dillistone's comes in next to it, but it is not so prolific as yours. The new Pea was ready for table by the middle of June."

From Mr. T. TOWNSEND, *Gr. to* R. P. LONG, Esq.

"Dolforgan Hall, Newtown, July 6, 1864

"The new Pea you sent me I sowed on March 2 by the side of Dillistone's Early Prolific, Tom Thumb, Sangster's No. 1, and Early Emperor. They were fit to gather on June 7, four days earlier than Dillistone's, a week earlier than Tom Thumb, and a fortnight before Sangster's No. 1 and Early Emperor. With me it grows the same height as Dillistone's, but it is a better cropper, both pod and Peas being larger; it also continues bearing longer."

From Mr. THOS. GORTON, *Gr. to* T. P. PURTON, Esq.

"Faintree Hall, Salop, July 29, 1864.

"The new Early Pea you sent me is, I beg to say, as compared with Dillistone's, a week or nine days earlier than that variety, dwarfer, and more productive; and in future I intend to grow it as my first early Pea."

From Mr. WILLIAM LANDON, *Gr. to* A. R. B. KNIGHT, Esq.

"Dounton Castle, Herefordshire, June 28, 1864.

"I beg to state that your Early Pea has proved itself to be a great acquisition as regards earliness; it is very prolific and of excellent flavour. It was sown by the side of Sangster's No. 1, and it came into bearing fully nine days earlier. I consider it the best early Pea in cultivation."

From Mr. WILLIAM BLACKLAWS, Jun., *Gr. to* J. N. FLEMING, Esq.

"Kilkerran Gardens, Ayrshire, July 6, 1864.

"I have to state that I sowed your new Early Pea on moderately rich ground along with Dillistone's Early Prolific and Sangster's No. 1. In point of earliness your Pea is a great acquisition; it comes into use exactly 12 weeks after date of sowing. It is about a week earlier than Dillistone's, and nearly three weeks earlier than Sangster's No. 1. It is very productive, being covered with a profusion of small pods, generally containing six Peas in each, of excellent quality."

From Mr. JAMES TURNER, *Gr. to* BASIL FITZHERBERT, Esq.

"Swinnerton Park, Staffordshire, July 2, 1864.

"I was much pleased with your Early Pea. It was sown here on the same day and by the side of Sangster's No. 1, and it was fit to gather quite a fortnight before that variety. It is very prolific, the flavour is excellent; I consider it the best early Pea in cultivation."

From Mr. WILLIAM BROWN, *Gr.* to W. S. DUGDALE, Esq.

"Merivale Hall, Warwickshire, June 29, 1864.

"Your Early Pea came into bearing 10 days before Sangster's No. 1. It appears to be the best early Pea that we have. It is an excellent kind for forcing in pots, or for orchard-house culture."

From Mr. J. KNIGHT, *Gr. to* C. SHAKESPEARE, Esq.

"Langley Priory, Leicestershire, July 2, 1864.

"I sowed your new Pea by the use of Sangster's No. 1 on February 15. It was up fully a week before it, and I gathered on June 6. Sangster's No. 1 were not fit for use until June 26. I sowed your Pea again on April 8, and I gathered from it at the same time as I did Sangster's sown as above. The haulm was well laden with pods, containing from five to seven Peas of good size and flavour. I consider it a very valuable early Pea, and shall grow it in preference to any other early variety."

From Mr. DANIEL WHITE, *Gr. to* A. H. SMITH BARRY, Esq.

"Marbury Hall, Cheshire, July 4, 1864.

"Your Early Pea came into use fully 10 days before Sangster's No. 1; I consider it to be a first-rate and distinct early Pea."

ALL KINDS OF AGRICULTURAL, GARDEN, AND FLOWER SEEDS

OF THE CHOICEST STOCKS AND BEST QUALITY.

A PRICED DESCRIPTIVE CATALOGUE POST FREE ON APPLICATION.

FRANCIS AND ARTHUR DICKSON AND SONS,

THE OLD ESTABLISHED SEED AND IMPLEMENT WAREHOUSE,

106, EASTGATE STREET, CHESTER.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 49.—1864.] SATURDAY, DECEMBER 3. {Price Fivepence. Stamped Edition, 6d.

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☞ NOTICE TO ADVERTISERS.—*An Enlarged Sheet of the* GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE *will be published on Saturday, December* 10, *the week after the* CATTLE SHOW.

ADVERTISEMENTS *intended for this Number should be sent to the Office not later than* THURSDAY.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
An INTERNATIONAL SHOW of FRUIT and VEGETABLES will take place from the 7th to 16th DECEMBER inclusive.
Admission on the 7th and 14th, 2*s.* 6*d.*; 8th, 9th, 10th, 13th, 15th, and 16th, 1*s.* Monday, 12th, 6*d.*

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
The NEXT MEETING of this Committee will take place on WEDNESDAY, December 7, at 10 o'clock. The subjects for examination must be in the Garden by half-past 8, in accordance with the regulations for the International Fruit Show, which opens on the same day. THOMAS MOORE, Secretary to the Committee.

Exhibition of Chrysanthemums.
JOHN SALTER'S Collection of these beautiful flowers will be in BLOOM throughout DECEMBER. The WINTER GARDEN will be open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, near Kensington Railway Bridge.

CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5*s.* per dozen. W. HOLMES, Frampton Park Nursery, Hackney.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.—Nurseries, King's Acre, near Hereford.

ROSES.—Superb STANDARDS, 15*s.* to 18*s.* per dozen; DWARFS, 9*s.* to 12*s.* per dozen. NEW ROSES of 1864, 24*s.* per dozen. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To the Trade.
ROSES.—The finest plants ever sent out of all the leading varieties at very low prices, both STANDARDS and DWARFS. Price upon application to
W. H. DAVIS, Nurseryman, Newbury.

Roses.
H. LANE AND SON have a fine Stock of STANDARD and DWARF ROSES, both worked and own roots. Also a fine Collection of small Specimen INDIAN AZALEAS. CATALOGUES of each of which may be had upon application at The Nurseries, Great Berkhampstead.

TO BE SOLD, Cheap, surplus Stock of TEA and CHINA ROSES in Pots; fine strong bushy plants of the very best varieties, three years old.—For names and prices apply to
ISAAC DAVIES, Larkfield Nursery, Wavertree, near Liverpool.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

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CHARLES SHARPE & Co., Seed Growers, Sleaford.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Paul's Nurseries, Waltham Cross, N.
WM. PAUL (Son and Successor to the late A. PAUL).
Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
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W. VIRGO AND SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

New Fuchsias.
E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10*s.* 6*d.* each; the set, 30*s.*
Wellington Nursery, St. John's Wood, London, N.W.

WHEELER'S LITTLE BOOK on GRASSES.
Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

Vines! Vines!
WM. CUTBUSH AND SON invite inspection of their Stock of the above for Fruiting in pots or Planting out. None finer in the Trade. Price on application.
Highgate Nurseries, London, N.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.
LIST of SORTS sent on application.
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PAUL AND SON have their usual stock of well-ripened FRUITING and PLANTING VINES.
The "Old" Cheshunt Nurseries, N.

Vines.
B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
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B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH and PRICKLY CAYENNE, BLACK JAMAICA, &c. Prices on application.
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THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Strong Standard Apples and English Elms.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham, has a fine stock of the above, and a general assortment of Nursery Stock.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
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THE ROYAL HAUTBOIS STRAWBERRY (RIVERS).—This is the largest and finest Strawberry of the race, and a most abundant bearer. Young Plants, 3*s.* per dozen; Large Bearing ditto, 6*s.* per dozen.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

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GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to
Mr. WEBB, Calcot Gardens, Reading.

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WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
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STEPHEN BROWN'S CATALOGUE (Cultural and Descriptive), containing his extensive and first-class Collection of Gladioli, sent free on application.
Seed and Nursery Establishment, Sudbury, Suffolk.

GLADIOLI for 1864-65.—First Prize at Crystal Palace, Reading, and Bath, with Nine other First Prizes, have been awarded during this season to
KELWAY & SON, The Nurseries, Langport, Somerset.
Priced LIST now ready. Practical Hints on their Culture enclosed.

Gladiolus Brenchleyensis.
J. BATES, Oxford, begs to offer to the Trade many Thousands of fine Bulbs at £3, £4, and £5 per 1000; or 7*s.* 6*d.*, 10*s.*, and 12*s.* 6*d.* per 100.

DOBSON'S UNEQUALLED NEW PELARGONIUMS.—Plants now ready and sending out. For full description of these splendid varieties, see CATALOGUE, gratis.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

PELARGONIUMS and CINERARIAS.—Our Stock is large, all the best sorts, in strong Plants, requiring an immediate repotting; 9*s.*, 12*s.*, 21*s.*, 30*s.*, and 42*s.* per dozen.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Superb Double Hollyhocks.
NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and will be forwarded to any address on receipt of one postage stamp.
N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

FOR CARTER'S LIST of NOVELTIES for 1865, See *Gardeners' Chronicle*, Nov. 26, page 1126.

CARTER'S GARDENER'S VADE-MECUM.

Violets.
J. STEDMAN begs to announce that he has now a fine healthy stock of the different sorts of VIOLET Plants in full Bloom, including the NEAPOLITAN, TREE, RUSSIAN GIANT, &c. CATALOGUE of prices on application.
Thornton Heath, Croydon, Surrey, S.

STANHOPEA INSIGNIS.—A quantity of large healthy specimens in Hanging Baskets of this Magnificent Orchid to be Sold Cheap. For price, apply to
GEORGE BATLEY, Rugby Nursery.

COLLECTIONS of MOSSES in good preservation can be supplied, accurately named after Wilson's "Bryologia Britannica," at the following prices:—30 Species for 5*s.*; 60, 7*s.* 6*d.*; 100, 12*s.* Sent post free.
MRS. MILNE, Buckland, Faringdon, Berks.

SILVER VARIEGATED IVY.—A large quantity of the best variety of SMALL-LEAVED SILVER IVY, so suitable for Ornamental Edging or for Covering Low Walls, can be had Cheap of
GEORGE BATLEY, The Rugby Nursery.

Elvaston Nurseries, Derby.
WILLIAM BARRON'S PRICED CATALOGUE of CONIFERÆ and other Ornamental PLANTS, &c., for the Autumn of 1864, and the Spring of 1865, is now ready, and may be had, post free, on application.

To the Trade.
JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have a large overstock of very fine Seedling and Transplanted LARCHES, Transplanted NORWAY SPRUCE, DEODARS, and other Forest Trees. Prices on application.

To the Trade.
CHESTNUT (HORSE), 1 year, 7*s.* per 1000.
YELLOW CROCUS, 7*s.* per 1000.
F. WARWICK, Seed Warehouse, East Gate, Sleaford.

ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Transplanted Quick.
CHARLES SHARPE AND CO., NURSERYMEN, Sleaford, have a large stock of the above, strong well-rooted Plants. Samples and prices will be forwarded on application.

One-year Seedling Thorn Quicks.
L. T. DAVIS, having an immense Stock of the above, will offer them at unusually low prices, which may be had on application. Carriage free to Belfast.
Ogle's Grove Nursery, Hillsborough, Co. Down.

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. THOMSON, The Nursery, Wimbledon, Surrey, S.W.

Sloe or Blackthorn.
WANTED, the above, 2 to 2½ feet high.—Apply to
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.—Dec. 3.

WANTED, ASH and ALDER, stout and well-rooted, about 4 to 6 feet high. State height and price to
JOHN CATTELL, Nurseryman, Westerham.

WANTED, SYCAMORE, BIRCH, and LARCH, 3 to 4 feet.—Parties having the above to offer will oblige by sending samples and price to
FISHER, HOLMES, & Co., Handsworth Nurseries, Sheffield.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50*s.* to 75*s.* per 100; or from 6*d.* to 2*s.* 6*d.* each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

SPRUCE FIRS, from 2 to 3½ feet high, bushy and well rooted.
DICKSON'S FAVOURITE and BLUE SCIMITAR PEAS.
Prices on application to
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

PEAS.—NAPOLEON or CLIMAX, 60*s.* per Quarter; EARLY EMPEROR, 52*s.* per Quarter.
Address, F. WARWICK, North Road Nursery, Sleaford.

JOHN LUFF offers several Thousand fine strong 2-year ASPARAGUS at 3*s.* per 100, or 25*s.* per 1000. Price to the Trade on application. A sample of 25 sent on receipt of 12 postage stamps.
St. Mary's Nursery, Battle, Sussex.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s.* per bushel.
Application at the Gardens at Calcot, near Reading.

OSBORN'S WHITE WINTER BROCCOLI.—Price 2*s.* 6*d.* per packet. Special offer to the Trade on application.
A PRICED LIST of select GARDEN SEEDS will be printed in December, and may be had free on application.
OSBORN & SONS, The Nursery, Fulham, London, S.W.

KING of the CUCUMBERS, selected from a prime stock of the Long Prickly, the most hardy and abundant cropper, 10*s.* per ounce. LONG PRICKLY PRINCE, 3*s.* per ounce.
Post Free from the Grower,
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

CUCUMBER SEED.—BEDFORDSHIRE LONG RIDGE: abundant bearer and select stock, taken by the Grower from very handsome fruit, 3*s.* per oz., post free.
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

Seakale.
H. LANE AND SON have to offer a large quantity of Extra Strong SEAKALE, for Forcing. Also, Strong 3-years old ASPARAGUS. Prices upon application.
The Nurseries, Great Berkhampstead, Herts.

Cabbage Plants.
FOR SALE, good Strong Plants, fit for immediate planting.
For price, apply to W. MYATT, Manor Farm, Deptford, S.E.

Cabbage Plants.
FOR SALE, Four Acres of good healthy strong EARLY CABBAGE PLANTS. Can be sent out in quantities to suit purchasers.—Apply to GEO. PEGLER, Fruiterer to Her Majesty and H.R.H. The Prince of Wales, Aberdeen.

GARDENERS' CHRONICLE ONE PENNY NEWSPAPER

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK'S NEW and CHOICE VARIETIES for this season, and that he is now prepared to supply strong plants.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, can be had post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

DUTCH FLOWER ROOTS, for present planting, cheap and good.—For 10s. 6d., 12 choice Hyacinths, 12 Narcass, 20 Single and 20 Double Tulips, 12 Jonquils, 20 Iris, 12 Anemones, 100 mixed Crocus, 12 Gladiolus, 50 Snowdrops, 50 Ranunculus, 20 Aconites, of WM. DENYER, Florist, 82, Gracechurch Street, E.C.

100,000 IMPORTED DUTCH CROCUS, Surplus Stock, 1s. to 3s. per 100, or 9s. 6d. to 21s. per 1000.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Imported Dutch Bulbs.—Now Ready. Part IV. of CARTER'S GARDENER'S VADE-MECUM, comprising LISTS of all Descriptions of BULBS and PLANTS for Autumn planting, with Cultural Directions. Forwarded gratis and post paid on application to

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

HYACINTHS, TULIPS, and other DUTCH BULBS, Imported by WM. CUTBUSH & SON.

TWENTY-FOUR PRIZES awarded to their Collections last Spring, TWENTY-TWO being FIRST PRIZES.

The DESCRIPTIVE PRICED CATALOGUE, with numerous Cultural remarks, post free on application.

Early orders earnestly solicited, as the supply cannot possibly meet the increasing demand.

Highgate Nurseries, London, N.

New Acer.

ACER PSEUDO PLATANUS, var. LEOPOLDII. Figured in "Illustration Horticole."

This magnificent novelty may be had of A. VAN GEERT, Nurseryman, Ghent, Belgium. Price 7s. 6d. to 16s. each; one over for every three taken.

Notice, Seed Trade.

F. W. WENDEL'S, Erfurt, WHOLESALE SEED CATALOGUE, now ready, and will be forwarded Free and Post paid on application to F. W. W.'s English Agent,

GEORGE MACINTOSH, Exotic Nursery, High Road, Hammersmith, W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

Paul's Nurseries, Waltham Cross, N

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the Trees, &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for Transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL'S possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post. Orders by post promptly attended to.

Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

ORCHIDS.—Any Amateur having a surplus Stock of ORCHIDS, and wishing to Exchange for other Plants, such as Camellias, Azaleas, Rhododendrons, New Holland Plants, Palms, &c., May apply to A. VAN GEERT, Nurseryman, Ghent.

CATALOGUES may be had of Messrs. R. SILBERRAD & SON, 5, Harp Lane, Tower Street, London, E.C.



GENUINE NEW GARDEN SEEDS.



JAMES CARTER & CO.

ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HE IS

NOW DISTRIBUTING THIS VALUABLE GRAPE,

THE BEST LATE WHITE GRAPE EXTANT.

Strong Planting Canes, 21s. each; Strong Fruiting, 42s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

BARR & SUGDEN
12 KING ST COVENT GARDEN

Orders amounting to 21s. sent carriage paid.

100,000 Imported DUTCH CROCUS (Surplus Stock), 1s. to 3s. per 100, or 9s. 6d. to 21s. per 1000.

SPRING GARDENING IS DONE AT CLIVEDEN

BY PLANTING THE FOLLOWING LIBERALLY AT THE PRESENT SEASON:—

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

600 TULIPS Assorted	500 SNOWDROPS	300 ANEMONES	200 NARCISSUS
1000 CROCUS	100 SCILLAS.	300 RANUNCULUS	200 WINTER ACONITES

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual-flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES	
50 " " "	Beautiful BLUE PANSIES	100 PINK DAISIES	
50 " " "	RICH PURPLE PANSIES	100 RICH BLUE FORGET-ME-NOT	
50 Mixed POLYANTHUS		100 PINK SILENE	

The above Collections can be modified to suit the requirements of purchasers.

The Cliveden Perpetual-flowering YELLOW PANSY, 4s. per dozen.	The Cliveden PINK DAISY, 2s 6d. per dozen.
Ditto Perpetual-flowering beautiful BLUE PANSY, 4s. per dozen.	Ditto RICH BLUE FORGET-ME-NOT, 1s. 6d. per dozen
Ditto Perpetual RICH PURPLE PANSY, 4s. per dozen.	Ditto PINK SILENE, 1s. 6d. per dozen.
Ditto WHITE DAISY, 2s. 6d. per dozen.	Ditto Mixed POLYANTHUS, including the GIANT var., 3s. per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

CHOICE SEEDS.—CROP 1864.

AURICULA, POLYANTHUS, ZONALE PELARGONIUM, do. VARIEGATED, FRENCH, ENGLISH, and FANCY PELARGONIUMS, CYCLAMEN PERSICUM, PANSY, LAPAGERIA ROSEA, CARNATION, PICOTEE, &c., 1s. and 2s. 6d. per packet.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

GREENHOUSE AND VINERY ORCHIDS.

JAMES BACKHOUSE & SON

CONTINUE TO SUPPLY GOOD PLANTS OF THE ABOVE IN COLLECTIONS AS FOLLOWS, FOR CASH.

12 for 4 Guineas.

LÆLIA SUPERBIENS	BIFRENARIA HARRISONIÆ.	CATTLEYA MOSSIÆ.
" AUTUMNALIS.	ODONTOGLOSSUM GRANDE.	" CRISPA.
LYCASTE SKINNERI.	CYPRIPEDIUM INSIGNE	" SKINNERI.
BLETIA VERECUNDA.	DENDROBIUM PULCHELLUM.	EPIDENDRUM VITELLINUM.

20 for 7 Guineas.

The following 8 in addition to the 12 already named.

LÆLIA PURPURATA.	MAXILLARIA TENUIFOLIA.	DENDROBIUM CHRYSANTHUM.	RODRIGUEZIA DECORA.
STANHOPEA OCULATA or S. TIGRINA.	DENDROBIUM SPECIOSUM.	CYPRIPEDIUM VENUSTUM.	CŒLOGYNE CRISTATA.

12 for 8 Guineas.

CATTLEYA ACLANDIÆ.	LÆLIA AUTUMNALIS.	DENDROBIUM PULCHELLUM.
" MOSSIÆ.	LYCASTE SKINNERI.	CŒLOGYNE CRISTATA.
LÆLIA PURPURATA.	ODONTOGLOSSUM GRANDE.	ONCIDIUM BICALLOSUM.
" SUPERBIENS.	EPIDENDRUM VITELLINUM.	SCHOMBURGKIA UNDULATA.

For 14 Guineas the following (making 20) will be added to the Third Collection, viz.:—CATTLEYA WARSCEWICZII, C. CRISPA, ODONTOGLOSSUM PULCHELLUM, O. CERVANTESII or MEMBRANACEUM, DENDROBIUM CHRYSANTHUM, D. FIMBRIATUM, ONCIDIUM TRIQUETRUM or O. VARIEGATUM, ONCIDIUM CRISPUM or LEPTOTES BICOLOR.

With the Third and Fourth Collections Fine Plants of CYPRIPEDIUM INSIGNE and C. VENUSTUM will be presented to compensate for Carriage.

A CATALOGUE of COOL ORCHIDS, slightly descriptive, and with information as to treatment, temperature, &c., may be had by enclosing 4 postage stamps, and free to purchasers.

YORK NURSERIES.—December, 1864.

CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leat, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOODFORD'S MARROW	DILLISTONE'S FIRST
BEDMAN'S IMPERIAL	EARLY

Samples and Prices on application.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation, will stand one month longer than any other without running to seed. See *Gardeners' Chronicle*, November 19, with names of present purchasers, of whom it may be had true. 1s. per packet, sealed with initials W. I.

Price per dozen or hundred on application.
Hanover Nursery, Peckham, S.E.

HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN, GHENT, BELGIUM,

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS Nos. 103, 104, 105, AND 106,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The Goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged in the account for each package.

The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.



THE "FIRST CROP" PEA.

(THE EARLIEST PEA IN CULTIVATION.)



JAMES CARTER & CO.

Beg leave to announce that they can now offer the above FIRST-CLASS PEA, which they have grown for the last three years and BEING FULLY AWARE OF THE IMPORTANCE OF TESTING AN EARLY PEA IN EVERY WAY BEFORE SENDING OUT, they wish to assure the public that they have thoroughly proved the "FIRST CROP" PEA against all the Early Peas at present in cultivation, and the result of these careful trials and comparisons enables them to state that

THE "FIRST CROP" PEA IS EARLIER THAN ANY PEA

ever offered in previous years, and also has another advantage over all other Early varieties in being the MOST PROLIFIC EARLY PEA in CULTIVATION. Height about 2½ feet, and the haulm is literally covered with Pods.

☞ *The above will be sent out in quart packages "sealed," price 2s. 6d. per quart.*

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

DIXON'S "YORKSHIRE HERO" PEA.

EDMUND PHILIP DIXON & SON

HAVE PLEASURE IN ANNOUNCING THEIR INTENTION OF AGAIN OFFERING THEIR

NEW DWARF GREEN WRINKLED MARROW PEA,

"THE YORKSHIRE HERO,"

Which has during the past season fully maintained the character given of it. It is similar in appearance to Veitch's Perfection, but much dwarfer, considerably earlier, and more prolific; upwards of 70 pods have been counted upon a stem. We subjoin a few Testimonials; many more might have been added, but we are quite convinced it would be unnecessary.

All who have tried this Pea have pronounced it the best variety of its class, and one which will become a great favourite in every garden.

We may remark that the crop this season, through the extreme drought, is not more than one fourth what was anticipated; the consequence is that the price is the same as last season.

TESTIMONIALS.

From Mr. THOMAS GIBB, *Gardener to the* Right Hon. the EARL of YARBOROUGH, *Brocklesby Park Gardens.*

"I grew the Yorkshire Hero Pea the last season, and found it an abundant bearer and an excellent Pea of the Marrow sort. It resisted the hot dry weather of July, and remained quite green to the last, while other sorts at the same time were covered with mildew."

From Mr. WILLIAM BROWN, *Gardener to* Sir T. A. CLIFFORD CONSTABLE, Bart., *Burton Constable Gardens.*

"I am highly pleased with your new Pea, the Yorkshire Hero, and shall give it my best recommendation. I believe it to be the best Dwarf Pea grown, and much superior to Veitch's Perfection, as it is dwarfer, much earlier, and more prolific."

From Mr. JAMES ROBERTSON, *Gardener to the* DOWAGER COUNTESS of RIPON, *Nocton Hall Gardens.*

"It gives me great pleasure to contribute my meed of praise to the very excellent Pea sent out by you last season, under the name of the Yorkshire Hero. I sowed it in the months of March, May, and June, each of which sowings were equally productive, indeed very prolific, and in point of flavour cannot be surpassed. Several gentlemen in this neighbourhood tasted and spoke very highly of it, and I think it a remarkably distinct variety, and one that will become a general favourite."

From Mr. WALTER HARDIE, *Forester to the* Right Hon. the EARL of YARBOROUGH, *Brocklesby Park Nursery.*

"Having grown the Yorkshire Hero Pea, I can bear testimony to its excellence in every respect, especially its delicious flavour and productiveness."

From Mr. GEORGE FAIRBANKS, *Gardener to* JOSEPH ROBINSON PEASE, Esq., *Hesslewood House, near Hull.*

"I had some of the Yorkshire Hero Peas from you the past season, and can truly say that it is a most excellent sort; being early, dwarf, of most delicious flavour, and an extraordinary bearer, it withstood the mildew better than any other Pea we had."

From Mr. W. KEMP, *late Gardener to* Sir THOMAS BECKETT, Bart., *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer, requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour, and very thin in the skin, full 10 days or a fortnight earlier than Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved six pecks of well-ripened Peas, which I can easily dispose of at 5s. per quart to those who saw them in bearing."

From R. R. BROWN, Esq., *Bridlington Quay.*

"I have great pleasure in subscribing my testimony in favour of the wonderfully productive qualities of your Yorkshire Hero Pea; they are very large, and at the same time very delicious eating, and I can pronounce them with the greatest degree of truth to be the best Dwarf Pea I have ever grown."

Price 5s. per quart, 2s. 6d. per pint. In printed wrappers.

	Per packet.—s.	d.
BROWN'S INCOMPARABLE NEW DWARF WHITE BROCCOLI, the largest and dwarfest yet sent out ..	2	6
DIXON'S NEW MAMMOTH WHITE CELERY, a very early variety, attaining an enormous size, remarkably solid and crisp	1	0
DIXON'S NEW CHAMPION GREEN COS LETTUCE, the largest and sweetest kind yet introduced, weight from 6 to 10 lbs. each .. .. 6d. and	1	0

EDMUND PHILIP DIXON AND SON, THE YORKSHIRE SEED ESTABLISHMENT, 57, QUEEN STREET, HULL.

New Seeds for Exportation.

THE SEEDS OF THE GROWTH OF 1864 BEING NOW ALL HARVESTED AND IN FINE DRY CONDITION FOR EXPORTATION,

MESSRS. SUTTON solicit the favour of Orders from such of their Patrons as may be about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—

July 9, 1864, *from* A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*

"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

September 16, 1864, *from* Messrs. CROUCH, *Portland, Victoria.*

"We may remark that Messrs. Sutton's shipment of Seeds have given the greatest satisfaction as far as they have been tried. The Grasses, Clovers, and Lucerne are up."

"We find the crop will be far too thick. If the vegetable seeds turn out as well, we may say that without exception they are the best lot of Seeds ever received in this place from Europe."

July 17, 1863, *from* G. MORRISON, Esq., *Superintendent of the Government and Oudh Agricultural and Horticultural Society's Gardens, Lucknow.*

"I received some Vegetable Seeds, also some Flower Seeds from your firm some 18 months ago, and they turned out first-rate."

May 15, 1863, *from* Sir R. MONTGOMERY, *Lieut.-Governor, Punjaub, India.*

"I am happy to tell you that the Seeds you sent last year answered very well. I carried off the first prize both for vegetables and flowers, as you will see by an extract from the *Lahore Chronicle*, which I enclose."

November 7, 1863, *from the* Rev. R. G. LAMB, *Green Point, Cape Town.*

"Your Seeds have answered right well; one pinch of such as yours is worth a handful of the stuff sold here, which generally goes to seed before coming to perfection."

October 6, 1863, *from* Mr. CHARLES HASELDEN, *Boyce Farm, near Auckland, New Zealand.*

"The Grass Seeds you sent me arrived in excellent condition, and already present a luxuriant appearance, with the promise of abundant feed early in the coming season."

Royal Berkshire Seed Establishment, Reading.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, & CO. have the pleasure to introduce this really true and pure stock of the Ashleaf variety. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames.



Supplied in sealed Bags marked
Price 15s. per Bush. Discount allowed to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

New Potato Chardon.



JAMES VEITCH is prepared to supply this FINE LARGE CATTLE POTATO, for which he was awarded a First-class Certificate by the Royal Horticultural Society. Price per bushel, 5s.

Royal Exotic Nursery, King's Road, Chelsea, S.W.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SON, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

Important to Cucumber Growers.

ABBOTT'S EARLY PROLIFIC CUCUMBER.—Having grown the above sort for seven seasons, I can recommend it as one of the most useful sorts in cultivation. It has taken many Prizes; is a hybrid; grows from 18 to 24 inches long; fit for table. I can now offer Seed saved from fruit that was 24 to 31 inches in length. A finer lot not often seen. In packets, 1s., 2s. 6d., 3s. 6d., and 5s. each, warranted true. The Trade supplied.

Plants now ready, 1s. to 1s. 6d. each, and kept on sale all the season.
E. ABBOTT, Railway Nursery, Ardleigh, Essex, near Colchester.

WINTER BARLEY.—Hardy Two-rowed Barley for Autumn sowing. Crop last year, 10 quarters per acre; sold at 38s. per quarter for malting. It is of vigorous growth, and succeeds well sown on a Wheat stubble, with 2½ cwt. of guano per acre. Price 45s. per quarter, delivered at Braintree Station.

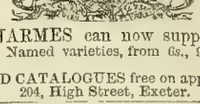
Apply to HENRY EVERSHED, Park Hall, Gosfield, Halsted, Essex.

DOBSON'S CELEBRATED SEEDS.
The finest Strain in cultivation.

DOBSON'S SUPERB CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., 5s.
DOBSON'S SUPERB CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB PRIMULA, 1s., 2s. 6d., 5s.
A liberal allowance to the Trade.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Splendid Hybrid Gladioli.



THOMAS CHARMES can now supply Collections of the above, in Named varieties, from 6s., 9s., 12s., 18s., 21s., to 24s. per dozen.

PRICED CATALOGUES free on application.
204, High Street, Exeter.

Hardy American Plants.

FREDERICK ADOLPHUS HAAGE, JUN., NURSERYMAN and SEEDSMAN, Erfurt, Prussia, respectfully begs to inform the Trade that he has received the undermentioned HARDY AMERICAN PLANTS, in excellent condition, which he offers at the following low prices, carriage paid to London:—

GOODYERA PUBESCENS (Roots), 36s. per 100 roots; 5s. per dozen
SARRACENIA PURPUREA, 1s. 6d. each.
ERYTHRONIUM AMERICANUM, 40s. per 100; 5s. 6d. per dozen
LILIUM PHILADELPHICUM (SUPERBUM), 35s. per 100
5s. per dozen.
LIPPARIS LILIIFOLIA, 40s. per 100; 5s. 6d. per dozen.
CYPRIPEDIUM, different sorts, mixed, 10s. per dozen.
FAGUS FERRUGINEA, 2 years seedlings, 4s. per dozen.
EPIGÆA REPENS, 1s. each.
APIOS TUBEROSA, 3s. per dozen.
LYCOPODIUM ALOPECUROIDES, 6s. 6d. per dozen.
SELAGO, 1s. 6d. each.
ASPIDIUM, mixed, 9d. each.
BOTRYCHIUM LUNARIA, 2s. each.

The NEW TRADE SEED LIST for 1864-65 will be ready by the beginning of next month, and may be had on application to his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thame Street, London, E.C.

Erfurt.—December 3, 1864.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Japanese Plants.

EDWIN COOLING will have pleasure in forwarding a new and very complete CATALOGUE of the above, with prices and descriptions; also his NEW LIST of ROSES, FRUIT TREES, EVERGREENS, Winter Blooming Plants, &c., free on application. Mile Ash Nurseries, Derby.

Winter Flowers.

RHODODENDRON PRÆCOX is the best of all Winter-blooming hardy plants if potted now. Nice bushes, with from 20 to 50 bloom buds, will be supplied at 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each by the Raiser,

ISAAC DAVIES, Larkfield Nursery, Wavertree, near Liverpool.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21*s.* each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.

SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.

JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.

SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.

THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.

SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Hardy Rhododendrons.

WATERER AND GODFREY are prepared to supply the following NEW HARDY RHODODENDRONS, with the assurance that they are not only new, but perfectly hardy, distinct, and beautiful kinds:—

MRS. WM. BOVILL.—Rich rosy scarlet, large flower and truss; on or perhaps the most attractive and beautiful. 42*s.* each.

MRS. JOHN CLUTTON.—White, of the most exquisite shape, remaining longer in bloom than any other variety. We believe this is by far the most beautiful hardy White Rhododendron in cultivation. 42*s.* each.

MRS. R. S. HOLFORD.—Rich salmon, fine truss, quite a new colour in Rhododendrons, and very greatly admired. 31*s.* 6*d.* each.

STELLA.—Pale rose, with a large chocolate blotch on the upper petals, very showy; decidedly the best in its way; it is a very free bloomer. 31*s.* 6*d.* each.

LADY FRANCIS CROSSLEY.—Pink or flesh-colour, perfectly distinct and beautiful. 31*s.* 6*d.* each.

CHARLES BAGLEY.—Cherry red, fine habit and truss. 31*s.* 6*d.* each

Knap Hill Nursery, near Woking, Surrey.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unblomed Seedlings, 3*s.* and 6*s.* per dozen, or 20*s.* and 30*s.* per 100. Bloomed Seedlings with their colours attached, fine for borders, 6*s.* to 18*s.* per dozen, or 30*s.* per 100.

Seed saved only from finest varieties, new and very choice mixed, 2*s.* 6*d.* and 5*s.* per packet; in Collections of 12 separate named varieties, 4*s.* to 10*s.*

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Roses on the Manetti for Potting or Bedding.

W. H. DAVIS begs to offer large quantities of the above, which are worked CLOSE to the ROOT, and well adapted for Potting, for Greenhouse Culture, or for Bedding in large quantities, having from four to six well ripened shoots, and the finest plants ever offered. DESCRIPTIVE CATALOGUES gratis and post free upon application.

Rose Nurseries, Newbury.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7*s.* 6*d.* each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

New Plants.

AMBROISE VERSCHAFFELT'S NEW CATALOGUE, No. 75, can be obtained free at Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

THE ILLUSTRATION HORTICOLE. By AMBROISE VERSCHAFFELT, Ghent, Belgium. The OCTOBER Number contains:—

NEW PEAR BEURRE VAN GEERT | AZALEA PONTICA BOUQUET DE FLORE
CLEMATIS JACKMANNI.

The NOVEMBER Number contains:—

ROSE HYB. REM. DUCHESSE DE MEDINACELI | VANDA LOWII
CAMELLIA ISABELLA ORSINI.

Price 14*s.* 6*d.* per year, free.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

Quicks for Sale.

TO THE TRADE AND RAILWAY CONTRACTORS.

500,000 THORN QUICKS to be Sold, of various ages and strength, together with corresponding Stocks of Forest, Evergreens and Ornamental Trees.

Apply to JOSEPH SMITH, Sen., Tansley Nursery, Matlock, Derbyshire.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.

CATALOGUES and samples may be had free on application.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.

1 and 2 year Transplanted NATIVE SCOTCH FIR.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

Conifers, &c.

H. LANE AND SON have to offer a fine Collection of large handsome fine-shaped SPECIMEN TREES and CONIFERS, among which they beg to enumerate Araucaria imbricata, the finest lot in England; Cedrus Deodara, 6 to 10 feet; Cupressus Lambertiana, 6 to 10 feet; Lawsoniana, a large quantity; Juniperus hibernica (upright); J. suecica; Pinus excelsa, 12 to 14 feet, suitable for immediate effect; P. insignis, 4 to 7 feet, very green; Picea Nordmanniana, the best of the Piceas; P. nobilis, first-rate; Abies Douglasii, the handsomest specimens ever seen, 6 to 14 feet; Abies Mornda, suitable for immediate effect; Thujopsis borealis, very handsome; Wellingtonia gigantea, a large quantity; Yews in large variety. Also Ash, Beech, Berberis, Box, Chestnut (Horse), Elm, Hawthorn, Holly, Lime, Mountain Ash, Oak (English and Turkey), Poplar, Privet, Willow, &c., in large quantities and varieties. Also a large collection of superior sorts of Conifers, Trees, and Shrubs; and a general Selection of Nursery Stock, which can be confidently recommended.

CATALOGUES may be had upon application at the Nurseries, Great Berkhampstead.

REMAINS of FOUR ACRES of LAND to be CLEARED this SEASON for Cash, twice Transplanted.

Post-office orders payable to J. C. PADMAN, Boston Spa.

		p. doz	p. 100	p. 1000
		s. d.	*s. d.*	*s. d.*
500	LABURNUMS, 2 to 4 feet	1 6	10 0	..
500	,, 4 to 6 feet	2 6	20 0	..
300	COMMON LILAC, 2 to 3 feet	2 6	20 0	..
300	SCOTCH FIR, 1½ to 2½ feet	1 0	6 0	..
500	ACACIA, 6 to 10 feet	2 6	15 0	..
200	BIRCH, 2½ to 4 feet	1 0	5 0	..
200	RIBES, of sorts, 3 feet	2 6	15 0	..
100	SCARLET ELDER, 1½ to 2 feet	2 6	15 0	..
100	,, 3 to 4 feet	3 0	20 0	..
200	MOUNTAIN ASH, 3 to 5 feet	2 6	15 0	..
1000	AMERICAN ARBOR-VITÆ, 1½ to 2½ feet	1 6	10 0	90 0
300	SWEET BRIARS, 3 to 4 feet	1 6	10 0	..
100	RED HONEYSUCKLE, strong	2 0	12 6	..
200	RED DOGWOOD, 2 to 3 feet	2 0	12 6	..
350	BLACK WILLOW, 3 to 5 feet	2 0	12 6	..
500	BLACK ITALIAN POPLARS, 5 to 7 feet	2 0	10 0	..
100	,, 7 to 9 feet	3 0	20 0	..
400	LOMBARDY POPLARS, 4 to 6 feet	1 6	8 0	..
500	,, 7 to 9 feet	2 6	15 0	..
200	SERINGIA, 2½ to 3 feet	2 0	12 6	..
250	GUELDER ROSE, strong, 2 to 3 feet	2 0	12 6	..
500	SCARLET OAK, 1 to 1½ foot	1 6	8 0	..
1000	SCARLET MAPLE, 9 to 18 inches	1 6	8 0	60 0
500	,, 2 to 3 feet	2 6	15 0	..
2000	ASH, 1 to 2 feet	0 9	5 0	30 0
1000	,, 2 to 3 feet	1 0	6 6	40 0
400	,, 5 to 6 feet	1 6	8 0	..
700	WHITE AMERICAN SPRUCE, 9 to 18 ins.	1 6	8 0	..

Remains of QUICK, PRIVET, BERBERIS, HORSE CHESNUT, COMMON ELM, BEECH, PINUS AUSTRIACA, SPRUCE, IRISH YEWS, ROSES, &c., at prices as advertised in last week's *Gardeners' Chronicle*.

60 beautiful SPECIMEN PLANTS to be Sold Cheap.
1000 Mixed HYACINTHS, 12*s.* 6*d.* per 100, good strong bulbs.
12 ORCHIDS, of sorts, 50*s.*
Address Boston Spa, Tadcaster.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure of offering the following articles, at the very reasonable quoted prices; this being a favourable season for planting:—

		£ *s. d.*
100	YOUNG, DOUBLE, and CHOICE CAMELLIAS, in 50 varieties, no buds	3 10 0
100	Ditto, INDIAN AZALEAS, mostly with buds	3 0 0
100	Ditto, NEW HOLLAND PLANTS	3 0 0
100	Ditto, HOT-HOUSE PLANTS	3 0 0
100	BULBS GLOXINIAS, in 20 varieties	1 10 0
100	FERNS, in many sorts	2 0 0
12	Fine Plants of DASYLIRION GRACILIS, GLAUCA, and ROBUSTA	1 16 0
12	Ditto, CHAMÆROPS HUMILIS	1 16 0
50	LATANIA BORBONICA	1 10 0
24	Strong Plants LOMARIA FLUVIALIS	1 10 0
24	Ditto, LOMARIA DISCOLOR	1 5 0
24	Ditto, WOODWARDIA JAPONICA	1 10 0
24	Ditto, PTERIS CRETICA FOLIIS ARGENTEIS	0 10 0
24	Ditto, PTERIS ARGYRÆA	1 0 0
24	PASSIFLORA CŒRULEA	0 10 0
12	POLYGALA DALMAISIANA	0 9 0
24	ERYTHRINA CRISTAGALLI	0 12 0
100	ROOTS of CANNAS, in 10 varieties	1 10 0
100	GHENT HARDY AZALEAS, mostly with flower buds, in 50 varieties	3 0 0
100	Hardy Choice RHODODENDRONS, in 50 varieties	3 0 0
100	Strong BULBS of LILIUM LANCIFOLIUM RUBRUM	2 0 0
100	Ditto ALBUM	1 10 0
12	Ditto AURATUM	1 0 0
100	ASCLEPIAS TUBEROSA	1 5 0
24	Fine Plants of YUCCA PENDULA	2 0 0
50	Varieties of Choice HERBACEOUS PÆONIAS	1 10 0
24	Ditto, TREE PÆONIA	2 10 0
12	Fine Plants of the New Hardy RHODODENDRON AUG. VAN GEERT	2 6 0
100	Fine STANDARD ROSES of the choicest varieties	5 0 0
100	Ditto, HALF STANDARDS	4 0 0
100	Ditto, DWARF	3 0 0
100	Ditto, on own roots	2 10 0
24	DWARF ACER NEGUNDO FOLIIS ARGENTEIS	1 0 0
50	Strong Plants, VIRGINIAN CREEPER	1 0 0
100	Strong Plants, GLYCINE SINENSIS	2 10 0
25	Ditto, BIGNONIA RADICANS	0 10 0
12	CLEMATIS AZUREA GRANDIFLORA	0 6 0
12	,, HELENA	0 6 0
12	,, SOPHIA	0 6 0
12	,, VITICELLA VENOSA	0 9 0
12	,, ODORATA	0 3 0
100	DELPHINIUM, in 20 varieties	1 10 0
100	,, FORMOSUM	0 10 0
50	EPIMEDIUMS, in 10 varieties	1 0 0
100	DEUTZIA GRACILIS	2 0 0
100	HEDERAS, in 4 varieties	1 0 0
100	ILEX, in many varieties, fine plants, 2 years grafted	3 10 0
100	HARDY CONIFERS, in 50 sorts	4 0 0
24	MAGNOLIA THOMSONIANA, 2 years grafted plants	2 0 0
24	,, PURPUREA, bushy	1 0 0
50	,, TRIPETALA, strong	2 0 0
12	,, MACROPHYLLA, in pots	1 10 0
100	RHODODENDRON MAXIMUM, 4 years	1 0 0
100	,, PONTICUM, fit for immediate grafting	0 12 0
12	LAURUSTINUS, on stems	1 10 0

N.B. Reference required from unknown correspondents

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

RICHARD SMITH'S LIST of all the EVERGREEN or FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Forest Trees, Shrubs, &c.

THOMAS KENNEDY AND CO. beg to intimate that they have this Season a very large and superior stock of FOREST TREES and SHRUBS of various sizes, adapted for extensive Planting and for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c., and which they are now selling at very moderate prices.

Their NEW DESCRIPTIVE PRICED CATALOGUE for AUTUMN 1864, and SPRING 1865, of FOREST and ORNAMENTAL TREES, ROSES, BEDDING PLANTS, &c., is ready, and may be had free on application.

☞ Dumfries, from its central position and increased Railway accommodation, enables T. K. & Co. to transmit Goods daily to all parts of Great Britain and Ireland.

Nursery and Seed Establishment (Established 1787), Dumfries.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per Ton, delivered to Reigate Station. Excellent PEAT, LOAM, BOG MOULD, SPHAGNUM, ROCK SANDSTONE London-made FLOWER POTS, in every size. WORKING PLANS prepared for NEW GARDENS and ORNAMENTAL GROUNDS.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per Ton, at Swan Place; delivered five miles, or to any London Wharf or Railway 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire). Kentish and Hampshire PEATS, YELLOW LOAM, LEAF-MOULD, and COCOA FIBRE REFUSE.

JOHN KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

THE LONDON MANURE COMPANY have now ready in fine condition—

DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.

They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.

Works, Plough Wharf, Isle of Dogs.

Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at Market prices.

Address JOHN BENNET LAWES. Offices; 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

[Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.

Offices—109, Fenchurch Street, London, E.C.
Manufactory—Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.

This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers. Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices, 109, Fenchurch Street, London, E.C.

Price 7*l.* 10*s.* per ton, delivered at any Railway or Wharf in London.

To Manure Agents, &c.

WANTED, AGENTS for the SALE of a first-class ARTIFICIAL MANURE. Liberal commission.

Address, H., 40, Downshire Hill, Hampstead, N.W.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.

Address, 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

ON SALE, for STOCK FEEDING, SUGARY TREACLE, in Puncheons and Half Puncheons.

MACFIE & SONS, 34, Moorfields, Liverpool.

METROPOLITAN FARINA COMPANY, 9, Walmer Road, Notting Hill, W.

BISCUIT MEAL, £9; Do. for Pigs, £8; FLOUR WASTE, £6 per ton; PADDY MEAL (Rice), from £6 to £8 per ton; LINSEED CAKE, £10. Other Feeding Stuffs at market prices. RICE and BAKERS' CRUMBS for Poultry, 10*s.* per cwt.; RICE, from 10*s.* to 30*s.* per cwt., or 10*d.* to 2*s.* 4*d.* per 7 lbs. SAGO, ARROW-ROOT, &c., at wholesale prices. Samples by post or otherwise.

Dried Natural Flowers.

MESSRS. BOETTNER BROTHERS, NURSERYMEN, Greussen, near Erfurt, Prussia, beg to call attention to their artificially dried Everlasting Flowers, which they have now brought to so great a state of perfection that it is almost impossible to distinguish them from those freshly cut from the plants.

DESCRIPTIVE PRICE LISTS may be had, and specimens seen at their Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.



Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 16 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*; 86 ft. by 25 ft., 207*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

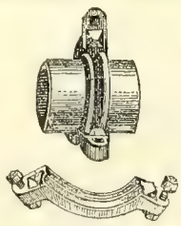
SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*



HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

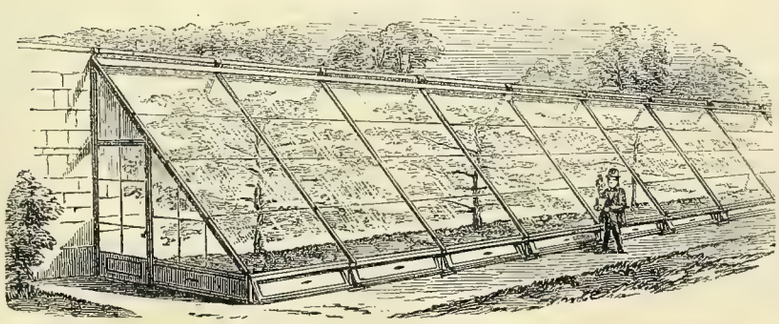
For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

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SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

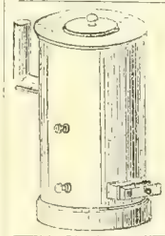
HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.



RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

West of England, Ireland, and Wales.



VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.



T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

The only Stove without a Flue.



JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12*s.* 6*d.* each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2*s.* 3*d.* per bushel.

SWAN NASH, Patentee, Ironmonger,
253, Oxford Street, W.; and
119, Newgate Street, London, E.C.
Illustrated Catalogues post free.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



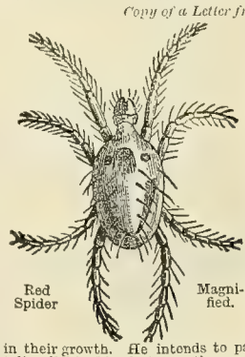
best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

WINTER DRESS all FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from MR. RIVERS.



"Nurseries, Sawbridgeworth Herts, 22d Oct., 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall, to which Peach-trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple-trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall-trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach-trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house trees 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY LIMITED, Belmont, Vauxhall, London.

Vines, Extra Strong, for Fruiting in Pots.

LUCOMBE, PINCE AND CO. beg to offer the above with excellent Canes, thoroughly ripened, having prominent Eyes, and certain of carrying a heavy crop of Fruit next season. Also a splendid stock of Extra Strong VINES, of all the leading sorts, for planting out.

PRICED LIST of SORTS sent on application.
Exeter Nursery, Exeter.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

High Beech, Essex, N.E.

VINES.—A Large Stock of fine healthy Canes for Fruiting and Planting out at low prices. Also a select Collection of ROSES as Standards and in pots. An excellent selection of Hollyhocks, Dahlias, Evergreens, and Ornamental Shrubs. Hothouse and Greenhouse Plants in great variety.

A fine Collection of Exotic and Homogeneous Ferns, &c., offered by JAMES CRAWFORD.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1005.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Melon "Malvern Hall."

B. S. WILLIAMS has much pleasure in offering for the first time this VALUABLE MELON, which has been fully proved, after three seasons, competitive trial with all the best sorts in cultivation, to be the earliest to ripen and the first in setting its fruit. It has taken many First Prizes during the last and previous seasons at different Provincial Shows.

The following description is supplied by the Raiser, Mr. STEVENS:—"Plant of robust habit and vigorous growth, a very free setter and sure cropper; quite ten days earlier than any other variety. Fruit from one to two pounds in weight; scarlet flesh, rind tender, yellow mottled and streaked with dark green; fine flavour."

Price 2s. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

Magnificent Dwarf-trained

MORELLO and MAY DUKE CHERRIES, ROYAL GEORGE PEACHES, MOOR PARK APRICOTS, PEARS, and PLUMS, of the best leading kinds.

WM. WOOD AND SON have to offer a large Stock of the above, grown on maiden soil. The trees are very large and have been most carefully trained. Finer trees could not possibly be wished for.

W. W. & S. have also some very fine Standard SCARLET HORSE CHESTNUTS, stems with fine heads.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.
Edinburgh and London.—Dec. 3.

To the Nursery Trade.

MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade 5000 DWARF-TRAINED PEACHES and NECTARINES, all the leading kinds, 1 and 2-year Trained. They are unusually fine clean-grown healthy Plants. Price 30s. to 42s. per dozen, according to size, &c. Their Trade NURSERY LIST may be had on application.

STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome: AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at

WOOD & CO.'S, Barbourne Nurseries, Worcester.
Prices upon application.

Fruit Trees.

J. SCOTT, Merriott, Somerset, offers selections from one of the most complete Collections of FRUIT TREES in this country, numbering above 1000 sorts.

A DESCRIPTIVE CATALOGUE, 84 pages, for 7 stamps.

NEW GENERAL NURSERY STOCK CATALOGUE, one stamp, containing Forest Trees, Conifers, Flowering Shrubs, Evergreens, American Plants, Roses, Camellias, Heaths, &c.

Fruit Trees in Pots.

H. LANE and SON having paid great attention to the above (of which the numerous Prizes they have received is a proof), are enabled to supply PEACHES, NECTARINES, APRICOTS, PLUMS, PEARS, APPLES, FIGS, &c.

All the different CATALOGUES may be had upon application at the Nurseries, Great Berkhampstead.

Dwarf-trained Trees.

BY THE THOUSAND, HUNDRED, OR DOZEN.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.
RICHARD SMITH, Nurseries, Worcester.

Extra Size Fruit Trees.

PYRAMIDAL PLUMS, PEARS, &c., of extra size and first quality, very handsome. Prices, names, and sizes, may be had on application.

Also the DESCRIPTIVE FRUIT CATALOGUE.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

Pyramidal Fruit Trees.

H. LANE AND SON have to offer a fine Stock of PYRAMIDAL APPLES, well set with Bloom Buds, Good and Strong, PLUMS, PEARS, &c. Also Standard and Dwarf-trained APPLES and PEARS. CATALOGUES may be had on application at The Nurseries, Great Berkhampstead.

Orchard House Trees.

JAMES VEITCH is commissioned by a Gentleman to offer for Sale the following PEACH and NECTARINE TREES. They are of fine pyramidal shape, 4 to 6 feet high in Pots, well furnished with good fruiting wood thoroughly ripened; for the last three or four years they have been fruited in an Orchard House, and to any one requiring such they are worthy of especial attention.

PEACHES.

1 ACTON SCOT	1 LATE ADMIRABLE
1 BARRINGTON	1 BELLE BEAUCE
1 GROSSE MIGNONNE	1 NOBLESSE
2 ROYAL GEORGE	1 ROYAL KENSINGTON
2 VIOLETTE HATIVE	1 WARBURTON ADMIRABLE

NECTARINES.

2 BRUGNON	2 DOWNTON
3 ELRUGE	1 HUNT'S TAWNY
1 PITMASTON ORANGE	1 VIOLETTE HATIVE

The trees are at Rochampton, and can be seen if required, previous to purchase

Royal Exotic Nursery, King's Road, Chelsea.

ROYAL HORTICULTURAL SOCIETY,

SOUTH KENSINGTON.

Patron—HER MAJESTY THE QUEEN.

President—THE DUKE OF BUCCLEUCH, K.G., ETC., ETC.

REGULATIONS FOR THE YEAR 1865.

1. The Society has two Gardens, one at South Kensington, the other for experimental Horticulture at Chiswick. The Chief Exhibitions, Fêtes, and Promenades are held at South Kensington.

2. For convenience in the necessary arrangements the year is divided into two seasons, an out-of-door and an in-door season. The out-of-door season is from the 1st May to the 31st October, the in-door season from the 1st November to the 30th April.

3. During the out-of-door season, Plants and Flowers are Exhibited as far as possible in the Gardens; during the in-door season the South Kensington Exhibitions and Promenades take place in the Conservatory, Glazed Arcades, Pavilions, Orchard Houses, &c. These buildings afford an uninterrupted walk of about the third of a mile, and are protected from draughts. They are warmed to the temperature required for the various plants exhibited.

ADMISSION TO THE GARDENS.

4. The Gardens at South Kensington are open to Fellows on all ordinary days throughout the year from 9 A.M. till sunset, except Sundays, when they are opened at 2. On week days, except on certain fête days, the Gardens are private to the Fellows and their friends up to 1 o'clock: after 1 o'clock the public are admitted on payment.

5. The Garden at Chiswick is open to Fellows and the public daily, except on Sundays, from 9 A.M. till sunset. On Sundays it is closed.

FÊTE DAYS.

6. The following are established fête days in each year:—The Queen's birthday or the day on which it is appointed to be held: the 26th August, the anniversary of the birthday of the Prince Consort, the founder of the South Kensington Gardens; when it falls on Sunday it will be held the Monday following: the 5th June, the anniversary of the opening of the Gardens in 1861, when a Horticultural *déjeuner*, limited to Fellows, will take place; the 1st May and 1st November, the first days of the out-of-door and in-door season; (if any of the three last days fall on a Sunday, those fêtes will be held on the preceding Saturday): also Easter Monday and Tuesday, and Whit Monday and Tuesday. One or more bands will play on all fête days.

SHOWS.

7. All Shows at South Kensington take place, or commence, on Saturdays throughout the year. At the weekly Shows, medals and certificates of merit only will be given. At the other Shows, money prizes as well as medals and certificates of merit will be offered.

The following Shows are fixed for the year 1865. Schedules will be duly issued.

GREAT SHOWS.

A Great Show of all kinds of Flowers, Plants, and Fruit, will be held on the Saturday in June, which falls between Ascot and Derby weeks, viz., 10th June. The Show will last only a single day.

A Great Show of Roses on the first Saturday in July. (1st July). It will last only a single day.

A Great Show of Fruit and Vegetables on the fourth Saturday in July. (22d July.)

SPECIAL SHOWS.

A Show of Hyacinths and Camellias on the third Saturday in March. (18th March).

A Show of Early Azaleas and Spring Flowers on the second Saturday in April. (8th April).

A Show of Orchids on the second Saturday in May. (13th May).

A Show of Pelargoniums, including scarlet and variegated varieties, on the first Saturday in June. (3d June).

A Show of Azaleas, with the flowers trained, partially trained, or in their natural growth, on the third Saturday in June. (17th June).

A Show of Plants of Ornamental and Variegated Foliage on the second Saturday in July. (8th July).

A Show of Liliaceæ and Amaryllidæ on the third Saturday in July. (15th July).

A Show of Ferns and their allies on the last Saturday in July. (29th July).

FLORAL DECORATION SHOW.

8. A Show of Decorations for Dinner and Supper Tables, and of Bouquet holders. This Show will be held on the fourth Saturday in June (24th June), and will also be open in the evening.

SHOWS BY INDIVIDUAL NURSERYMEN.

9. A continuous Show of Tulips will be held in the spring by Messrs. Henderson, of Wellington Nursery, St. John's Wood Road.

10. A continuous Show of Rhododendrons will be held in the summer under the Great Tent by Messrs. Waterer and Godfrey, of Knap Hill, Woking.

11. A continuous Show of Chrysanthemums will be held in the winter.

INTERNATIONAL SHOWS.

12. An International Show of Horticultural Implements will be held during the month of July.

13. An International Show of Fruit and Vegetables will be held during the second week in December.

FORTNIGHTLY MEETINGS AT SOUTH KENSINGTON.

14. Fortnightly meetings for the election of Fellows, reading of papers, and transaction of scientific business, will be held in the Council Room, except in the months of August, September, and October, on every other Saturday throughout the year that is not preoccupied as a fête day, or for one of the Great Shows. Chair to be taken by the President, or in his absence by some Fellow, at 12 o'clock.

15. At these meetings notice will be taken of flowers, fruit, and vegetables sent for exhibition, and certificates of merit will be awarded.

WEEKLY SHOWS AND PROMENADES AT SOUTH KENSINGTON.

16. On the afternoon of every Saturday throughout the year there will be an Exhibition of Flowers in Pots, and of Fruit and Vegetables by the Fellows and others. The Shows will commence at 2 o'clock, and will be continued until the following Wednesday.

17. Medals and certificates of merit will be given.

18. The Queen has been pleased to command that contributions shall be sent from the Royal Gardens, Frogmore, to these Shows, and numerous Fellows have promised to exhibit.

19. There will always be a promenade with music at these Shows at 3 o'clock in the out-door season, and at 2 o'clock in the in-door season.

VARIOUS EXHIBITIONS.

20. In addition to the above Shows there will be continuous exhibitions at South Kensington of the hatching and growth of trout and salmon directed by Mr. Frank Buckland; of sea plants; of bees and beehives; and of the Ailantus silkworms, belonging to Lady Dorothy Nevill.

PRIZES.

21. Prizes for the best plants and vegetables cultivated by soldiers in barracks, by sailors in homes, by coastguard men, and by workmen employed in Her Majesty's Dockyards, will be awarded on the first Monday in August. A schedule will be issued.

22. Prizes given for specimens of Window Gardening among the working classes in metropolitan parishes will be awarded at a public fête on the first Monday in September. A schedule will be issued.

CONVERSAZIONI.

23. There will be two Conversazioni which are open to Fellows only, and not to the public. The evenings will be appointed by the President in May and June.

CHISWICK SHOWS.

24. Strawberry Show and fête in June, Show of the Chiswick Trial Flowers in August, and Show of Vines and Fruit grown at Chiswick, in September. These Shows will be held on Wednesdays hereafter to be fixed according to the general character of the season.

EXAMINATIONS AND CERTIFICATES FOR GARDENERS.

25. Central Examinations of Gardeners in Theoretical and Practical Gardening will be held annually at South Kensington, and local examinations will be held in the country. Certificates of competency and prizes will be awarded at both examinations.

FELLOWS AND THEIR PRIVILEGES.

TWO GUINEA F.R.H.S.

26. Fellows paying an entrance fee of two guineas, and an annual subscription of two guineas, have personal admission every day, and to all Shows, fêtes, and Promenades, both at Chiswick and South Kensington. They have also the right of introducing personally two friends on Mondays, Tuesdays, Wednesdays, Thursdays, Fridays, and Sundays, but not on Saturdays. In addition to these privileges they receive 20 tickets which are each of the value of one shilling, and are available for any day when the entrance is one shilling or less; a copy of the Journal of Proceedings of the Society is gratuitously issued to them; they share in the distribution of seeds, and they have the right to enter the ballot for rare plants, and to purchase fruit from Chiswick. They have admission to the Conversazioni.

FOUR GUINEA F.R.H.S.

Fellows paying four guineas have double the privileges of two guinea Fellows, as respects the right of introducing friends, the distribution of seeds, the ballot for plants, and the number of tickets they receive, with the further advantage that both their yearly tickets are transferable. They have also the privilege of purchasing any number of transferable tickets for two guineas each. These transferable tickets confer on their bearers all the privileges of personal admission, and of introducing friends, which the Fellows themselves could exercise. Admission to the Conversazioni is limited to Fellows, the holders of transferable tickets, debenture holders and their nominees.

The Fellows of the Royal Horticultural Society have the privilege of purchasing tickets for the Shows at a reduced price before the day of the Show, viz.:—

At 3s. 6d. for each of the Great Shows, and 2s. 6d. for each of the Special Shows.

COUNTRY SUBSCRIBERS.

27. Persons residing beyond 20 miles from the metropolis may be admitted to limited privileges. On payment of one guinea entrance and one guinea annually, they receive a copy of the Journal gratis; and they obtain admission to the Gardens at Kensington and Chiswick by means of tickets of the value of the annual subscription. They have no votes and cannot attend general meetings. They may nominate local Horticultural Societies to enter into union with the Royal Horticultural Society.

TOWN SUBSCRIBERS FOR SEASON TICKETS.

28. Personal Season Tickets, not transferable, may be purchased for 20s. for the out-door season and 10s. for the in-door season. These will give admission for every day in the year, including all Shows, Promenades, and day fêtes, at South Kensington. These tickets do not confer any of the special rights of Fellows.

DEBENTURE HOLDERS.

29. Persons holding debentures, and their nominees, have the privilege of free admission to the Gardens whenever they are open.

CHISWICK SEASON TICKETS.

30. Annual Season Tickets, not transferable, and giving admission only to the experimental Chiswick Gardens and Shows, may be purchased by residents at Chiswick and others, for 10s. each.

ADMISSION OF THE PUBLIC.

31. Admission to each of the Great Shows is obtained by the public by tickets, to be purchased for 5s. each before the day, and for 7s. 6d. on the day of the Show.

32. Admission to each of the Special Shows is obtained by the public by tickets, to be purchased for 3s. 6d. each before the day, and for 5s. each on the day of the Show.

33. The admission to the first day of all other Shows at South Kensington, and to the Saturday weekly Shows, is 2s. 6d., except in August, September, and October, when it is reduced to 1s.

34. The admission to the Shows held at Chiswick will be 2s. 6d.

35. Admission to the South Kensington Gardens after 1 o'clock on the days mentioned below, not being Show, fête, or Promenade days, will during the London season be as follows:—

Saturdays, 2s. 6d.

Sundays, the Gardens are closed to the public but open to Fellows and their friends personally introduced.

Mondays, 6d.

Tuesdays, Wednesdays, Thursdays, and Fridays, 1s.

Admission during the months of August, September, and October, when the London season is over, 3d. every day but Saturday. On Saturday it is 1s.

Admission on the Queen's Birthday, 1s.; on Easter Monday and Tuesday, and Whit Monday and Tuesday, 3d. each day.

36. On the 26th August, the Anniversary of the Birthday of the Prince Consort, the founder of the South Kensington Gardens, these Gardens are open free at the wish of Her Majesty. Above 153,000 persons visited them on the 26th August, 1864.

37. Admission to the Experimental Garden at Chiswick, excepting on Show Days, 1s. daily, throughout the year.

GUIDE BOOK.

38. A Guide Book to the South Kensington Gardens, price 6d., is to be had at the Gardens and of all booksellers.

New Seeds Growth of 1864.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.
The prices are moderate and the quality fine, owing to their having been harvested well.
Royal Berkshire Seed Establishment, Reading.

To the Seed Trade.

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WAITZIA AUREA,
Brilliant Yellow Everlasting, from Swan River.
WAITZIA CORYMBOSA,
Red and White Everlasting, from Swan River.
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Dwarf Blue, from Greece
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W. THOMPSON, Tavern Street, Ipswich, respectfully announces to the Trade that he is now ready to supply Seed of the above interesting Novelties, of which full descriptions and prices will be forwarded on application. Of the three last only a very small quantity remains available for distribution.

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AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.
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CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

CARTER'S GARDENER'S VADE-MECUM.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 3, 1864.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Dec. 7—16 { Royal Horticultural (International Fruit and Vegetable Show), at South Kensington—Noon.
WEDNESDAY, Dec. 7 { Royal Horticultural (Floral Committee), at S. Kensington—10 A.M.

THE genus EPISTEPHIUM has long been known to botanists, having been originally established by HUMBOLDT and BONPLAND in their *Nova Genera et Species*, where a somewhat indifferent representation of E. elatum appeared more than half a century ago. Twenty years later a second species (E. amplexicaule) was figured by PŒPPIG; to which REICHENBACH has more recently added a third under the name of E. Friderici Augusti, and which forms one of the most interesting plates in that author's *Xenia Orchidacea*. But although the undoubted beauty of these plants naturally rendered them objects of desire to collectors, and although a few individuals have been occasionally imported, still no success appears to have attended their cultivation, and more than 30 years of the Orchid mania had passed away without an Epistephium having ever been seen in blossom in the hothouses of Europe! Happily, the reproach has at length been removed, for under the skilful auspices of Mr. SMITH, the new Curator of the Royal Gardens, Kew, a veritable species—making the fourth—of the genus has flowered beautifully during the autumn of the present year. Of this plant a figure has just appeared in the *Botanical Magazine*, which will enable our readers to judge of its attractiveness, and will likewise, we trust, induce nurserymen to redouble their exertions to obtain the other species in a living state.

The plant figured in the *Botanical Magazine* is called E. Williamsii, after the gentleman who sent it to this country from Bahia, its native habitat; it is therefore not impatient of heat, while the other kinds, being found at an elevation of from 4000 to 6000 feet on the Andes of New Grenada and Peru, naturally affect a lower temperature, and must be treated as belonging to the warm section of "cool" Orchids. It was no doubt through ignorance of, or inattention to this circumstance, that we lost some beautiful specimens that the luckless WARSCEWICZ had carefully transmitted to this country, and which we remember to have seen, soon after their arrival, in excellent condition at Messrs. VEITCH's nursery.

Epistephiums are terrestrial plants having somewhat the appearance of Sobralias, but their habit is much more compact, and their flowers are produced in conspicuous racemes at the end of stems covered with beautiful glossy leaves not unlike those of Epidendrum crassifolium. This compactness is itself a great merit, for as cultivators must have found to their mortification, some of the finest species of Sobralia—S. Liliastrum for instance—are practically worthless in consequence of the inordinate length to which their reedy stems attain.

AMONGST other seeds of Cucurbits kindly communicated to us last spring by M. NAUDIN, were those of a small-fruited hybrid, the produce of Cucumis trigonus, fertilised with the pollen of a Melon. The possibility of a cross between two species so widely different is a matter of such interest, and the fruit so pretty, that we are glad to be able to give a figure.

The stems, which creep widely, attain a length of several feet, and have not the slightest disposition to become perennial. The leaves are deeply cut, occasionally somewhat crisped, and slightly rougher to the touch than those of the Melon; and the fruit, which is obovate, pointed towards the stalk, and perfectly even, scarcely exceeds two inches in length, and is of a pale yellow shaded



with green, and variegated with about ten rays of green spots, between which is a delicate line, proceeding like a meridian line from pole to pole, but distinct only at the apex. The flesh is very thin, and the seeds, which are about two lines long and rather more than half a line broad, are attached by an evident stalk to the three-forked placentæ and immersed in a pale green pulp. There is very little if any bitter flavour, even in the rind, but the smell, and indeed the taste, is just like that of a ripe Cucumber. In our climate the plant will not succeed in the open air, but trained up against a trellis it might not prove an unwelcome guest in the stove. We shall be very curious to see what the produce of next year will be, as notwithstanding the evident tendency to revert to the type of Cucumis Melo, we can scarcely conceive that any series of self-impregnations could produce a moderately-sized well-flavoured Melon. As in the Cucumber, each seed is contained in a little gelatinous sac, a circumstance which we have also observed in two buff-seeded varieties of Cucurbita maxima.

It should be observed that the seeds were marked by Monsieur NAUDIN as those of the first generation, the result of which would probably be nearer to the Melon than to the female parent Cucumis trigonus, a fact not merely confirmed by habit, but by the absence of the intensely bitter taste. Our figure is exactly of the natural size. *M. J. B.*

THERE are some items in the ROYAL HORTICULTURAL SOCIETY'S PROGRAMME for 1865, of which we gave a hurried sketch at p. 1106, and which appeared in more detail in our advertising columns last week (p. 1129), of so much importance as regards their bearing upon the position of Horticulture and Horticulturists that we must devote a brief space to their consideration.

And first of all, viewing the Programme as a whole, we cannot but express our regret that it should contain so large a proportion of chaff to so little grain, and that so scanty a crop of progress should be the only result of all the past harrowings, and rakings, and seed-sowings. Dropping the figurative for the real, we may state more plainly, that for some time past the horticultural community has been waiting with resignation but with determination, to see what would be done by the present management towards carrying out the legitimate object for which the Society was chartered, namely, "the improvement of Horticulture," and for the "still further promoting" of which, a new charter was recently obtained. The soil had been well prepared, and abundant fertility was looked for, but under the magician's wand it has turned to—ashes. The field from which an abundant harvest of grain, in the shape of horticultural *work*, was expected, has brought forth little besides tares, and poppies, and rankling weeds.

Taking these new "Regulations" in detail, we come to the first great stumbling block at No. 7—"All shows at South Kensington take place or commence on Saturday throughout the year." What the exhibitors think of this announcement will be apparent from a letter from one of the most prominent among them, printed in another page, and we cannot doubt from what we hear, that the feeling thus honestly expressed is general if not universal amongst the exhibiting class. What then is the prospect? Exhibitors are too important a body to be thus cavalierly treated. Without exhibitors no "regulations" can make a show. If but a moiety of them stay away in consequence—as a moiety will certainly do—the show is damaged; if the bulk of them stay away, as is not improbable, the show is ruined. If it is still thought that exhibitors are to be marshalled like a company of engineers, and that it is only necessary to say to this man "go—and he goeth," and to another, "come—and he cometh," the empty benches of the past season should have taught a truer lesson. How easy to have avoided this fatal rock, as another Society, profiting by past experience, has wisely done! How much better to have sought judicious counsel, than thus to have floundered amongst the speculations of blundering amateur management!

Passing by some minor mistakes, such as fixing a show of Scarlet Pelargoniums six weeks before the plants can be properly in bloom, and naming the unnecessary and inconvenient hour of 12 o'clock for the fortnightly meetings, we come in No. 16 to the weekly shows, and these we must conclude have been fortuitously *almost* correctly designated—for that they will be, and must be of a weakly meagre nature, after the flush of novelty has passed, no one can doubt. We picture them as very much diluted copies of the present Floral Meetings. Seriously, the ever-recurring weekly show must be surfeiting. It can virtually prove to be nothing better than the Society itself is able to furnish, and the Society has hitherto had a capital perpetual show—thoroughly creditable to Mr. EYLES—in its own conservatory, so that nothing will be gained. Such a feverish expedient was utterly uncalled for. It would be far better to abolish the weekly shows and throw additional interest into the fortnightly meetings, which are correct in principle, if not in detail, and might then perhaps be worth a visit from those who live at some distance, as well as by "residents in the immediate neighbourhood."

We hasten past such expensive and anti-utilitarian toys as cultivating "sea plants" (bah!), and in No. 24 alight on some Chiswick shows. We have nothing to say against these. They are right so far as they go; but they go a very small way towards that recognition and utilisation of Chiswick on which a large body of Fellows have insisted, and will still insist.

It will be in the recollection of our readers that at the last anniversary meeting a good deal was

said about Chiswick, and the determination of the Fellows to maintain it as a school of horticulture was very clearly expressed. This led to the appointment of a Committee, which has very fully examined the whole subject, and laid before the Council a report in accordance with the general feeling expressed at the meeting referred to. This report has been—SHELVED. All that comes out of it is (No. 25) that "examinations of gardeners in theoretical and practical gardening will be held annually at South Kensington;" and the "school of horticulture at Chiswick," which was the very basis of the reference to the committee, and the sop o the meeting, is ignored.

The inference from all this, is, we fear, too obvious, namely, that Horticulture may go to the wall, and Horticulturists with it, for all that the present dominant party, or at least the acting portion of it, cares. It will however be a standing reproach to the country, if with so much prestige, and so fine an opportunity, the national Horticultural garden is suffered to dwindle into a mere aristocratic playground. The best possible arrangement that could be made under the circumstances, seeing that the Society is tied hand and foot by its wily patrons, would be to separate: the one party taking Kensington, and converting the Garden, as no doubt could be done with full success, to suit its own ends; the other taking Chiswick, notwithstanding the interested opposition thereto, and carrying out there the advanced Horticulture of the present day, with the view of imparting sound instruction to those into whose hands, in the ordinary course of things, the management of English gardens, public and private, will in due time fall. And as the horticultural body would perhaps not be able unaided to find the means of carrying out this desirable change, the Government might do worse than lend a helping hand; or in fact, Chiswick might be made a Government School of Horticulture, such as those which exist in Belgium.

WE print elsewhere (p. 1157) a letter from a gentleman who has won some fame as a raiser of new flowers, on a question bearing upon HORTICULTURAL EXHIBITIONS, which is not without importance, and which deserves to be calmly considered and temperately discussed. The question, indeed, which "Florist" has propounded, and which resolves itself into the inquiry Who is to win? appears to us to be very much one of private arrangement between gentlemen and their gardeners, for so far as the mere awarding of the prizes is concerned, it must be perfectly immaterial to the societies whether the award is made to A., or to B. gardener to A. The present practice has probably sprung up without design on either side; but so long as the subjects of competition are entered as coming from B. gardener to A., and not from A. himself, we do not see how any society is warranted in taking steps in the matter, because if A is aggrieved, the remedy is in his own hands.

We would not, however, convey the impression that this is an unimportant question, or altogether a private one; for if, as our correspondent alleges, the employers of gardeners are kept by the practice now followed, from taking any interest or even from taking so much interest as they otherwise would do, in horticultural exhibitions, such a state of things is manifestly detrimental to horticulture, and renders the question one of general interest and application. And it is on the ground that a different system would to a greater extent win the sympathies of the upper classes in the cause of gardening, and not as depreciating gardeners, that we understand our correspondent to rest his complaint. Indeed we can vouch that the latter is by no means his object, but rather that gardeners should be directly benefited by the greater impulse which, as he believes, would be given to horticultural pursuits if the plan he proposes were adopted.

The subject has been very fairly opened by our correspondent, and we shall be glad to learn whether the feeling to which he alludes is really so prevalent as he supposes, with the view of assisting if necessary in its removal, so far as it may be proved injurious to the interests of gardeners and gardening.

—— Messrs. STUART & MEIN, of Kelso, have sent us a sample of the FEARNOUGHT CABBAGE, a hybrid between the Early Dwarf Cabbage and the Hearting Scotch Borecole, raised by Mr. MELVILLE, the gardener at Dalmeney Park. The sample sent to us consisted of close-hearted ovate heads, which, when close-trimmed for cooking, weighed about 1½ lb. each. When boiled they were quite tender and well flavoured, as good, indeed, as any close-hearted winter Cabbage we have tasted. The merit which is more especially claimed for this Scottish Cabbage is, that it withstands frost and damp better than any other variety, and, moreover, that it is not so liable to burst when arrived at maturity. Hence it is held to be invaluable for winter use, more especially to amateurs and cottagers. Like most hybrids we learn that it has a tendency to sport, but the produce is described as being in all cases a valuable winter vegetable. That it is a tender good-eating sort we can bear testimony, but of its hardiness we have no personal knowledge.

OUR SUMMER AND AUTUMN PEARS IN 1864.

As far as my observations have gone, we have never had a more favourable season for the ripening of Pears than this of 1864. I am therefore tempted to notice a few sorts that have attracted my attention for their size, beauty, or excellence of their flavour. In doing so I shall divide them into three series—summer Pears, or those that ripened in July, August, early in September, or early autumn; those that ripened in September, October, and late autumn; those that have ripened during the month of November—premising that nearly all have been gathered from pyramids or low bushes grafted on the Quince stock and growing in a stiff calcareous loam inclining to clay, and in a deep sand highly calcareous; the site about 20 miles to the north-east of London.

Among the first series the first to ripen was the Summer Doyenné (Doyenné d'Eté); this was, I think, fully ripe by the middle of July, and quite as early as that favourite little Pear of our boyhood, the little Muscat, or "Primitive" as it used to be called here in old times. Our Doyenné Pear trees bore a most abundant crop, and when eaten from the trees before they were too yellow they were very nice. This sort is so fertile that when grafted on the Quince it often kills itself with overbearing; it is therefore more healthy when grown on the Pear stock, or double grafted on some free-growing sort on the Quince. One very old Pear, Citron des Carmes, ripened immediately after the above, and was unusually good, for owing to the dry warm weather it did not crack as usual. The tree is very liable to canker in some soils on the pear stock; on the Quince it is short-lived; when double grafted it forms a healthy tree, and is worthy of cultivation. Closely following the last mentioned was Beurré Giffard, decidedly one of our best very early Pears, with a grateful Noyau-ish flavour.

The Pears of our boyhood, the Green Chisel and the Yellow Chisel—Heaven knows the origin of the name of Chisel, unless the Green was the sort the costermongers chiselled the boys with in old times—bore large crops this season, and the former was quite juicy and agreeable. What large standard cankered trees of this sort used to exist in old gardens, bearing on the branches that were partially cankered immense clusters of fruit; these when gently yellowed by ripeness used to fall off—were they not delicious? I used to think so, and I endeavoured to think so this season, but I suppose the boy and the old man differ in their tastes; for I could not think so now. Ah! lack-a-day!

Among other July and August Pears were Précoce Goubault, much like Beurré Giffard, but not so good; and Duchesse de Berri d'Eté, a very nice early Pear, and quite distinct from Doyenné d'Eté; and then towards the end of August came a crowd of early Pears; the only feeling they created was surprise that such fine sounding names should ever have been given to them by their French raisers.

Our very old favourite Pear, the Jargonelle, was remarkably fine. There is one peculiarity in this sort deserving of notice; unlike many of our Pears, it is always excellent from wall trees, even on a warm exposure. It does not succeed well on the Quince; at least it is short-lived on most soils. Double grafted on some free-growing sort on the Quince, Beurré d'Amanlis for instance, it forms a nice healthy prolific tree in the open borders of the garden. There is another peculiarity about this sort: as a standard in the south, unless in the valley of the Thames, it is apt to canker and become unhealthy, while in some parts of Yorkshire it forms a prolific orchard tree. Williams's Bon Chrétien or "William," in the London costermonger's phraseology, was particularly abundant the past season, and, with the exception of fine handsome yellow specimens from wall trees, was very rich and excellent; the smaller fruit from standards, with dark specks and patches of russet, especially deserved this high character.

Beurré d'Amanlis, coming in seasoa just after the preceding, was remarkable for its size and beauty, and although not rich, was melting, juicy, and agreeable. This sort succeeds well in the north, and bears abundantly as a standard. Beurré Goubault, a very pretty round Pear, not large, ripened about the middle of September; this sort is remarkable for its bearing quality, even on the Pear stock. Madame Treyve, a new Pear from Troyes, ripened the end of August, and is a very excellent, large, melting summer Pear. Monseigneur de Hons, another new French summer Pear, ripened also quite the end of August, and as, like the preceding, it is free growing and hardy, it is likely to prove acceptable as an early Pear. Rokeby, a sort raised by M. Bivort, in Belgium, is one of the most prolific Pears known, for small bushes, not more than 18 inches high, were loaded with fruit, some of them resting on the ground; and Tyson, an American sort, rivalled it in fertility; these are both late summer Pears, juicy and agreeable, sometimes rich and good.

Among the second series I have been much struck with the richness, coupled with that most agreeable vinous flavour—peculiar to this type of the race—of the old Brown Beurré. Some specimens of this very old Pear, grown on a trellis covered with glass lights till the middle of June, were large and perfectly delicious; its two congeners, the Beurré Rouge and Beurré de Caen, differing only in the trees being hardier or the fruit of the former being longer and having a deep red cheek, were of equal excellence. The Crassane, a Pear now but little known or cultivated, gathered from the trellis above alluded to, has had its peculiarly rich flavour fully developed; but the Pear of Pears as regards richness of flavour is the Gansel's Bergamot. Specimens of this fine old Pear, gathered from a double-grafted tree growing on the trellis, were of unequalled richness; no Pear could be imagined more delicious. It will however illustrate the capriciousness of Pears as regards flavour that in 1862 and '63 fine specimens of this Pear, gathered from the same trellis and the same tree, were very inferior in flavour. The Pear ranking next in flavour is Beurré Superfin, one of the hardiest of trees, and bearing abundantly either as a bush or pyramid; its very rich flavour, large size, russety coat, and rosy cheek when growing in a sunny place, place it in the first rank for beauty and excellence among October Pears; no garden should be without a tree or two. Another October Pear, Beurré Hardy, deserves almost equal commendation; the tree has large foliage, a most robust habit, and forms in a short time a beautiful pyramid. The fruit is large, its skin nearly covered with russet (it is remarkable that all fruits, from the Nectarine and Green Gage Plum to the Apple and Pear, that are more or less russety, are distinguished by richness of flavour), and its flesh melting and beurré-ish, with a peculiar and most grateful aroma.

Doyenné Boussoch has been remarkable for its enormous size, weighing down the branches of the bush in which the fruit grew till they rested on the ground. Owing to the warm season it ripened in September; its flavour is almost too honey-like in its sweetness. A friend who sends his Pears to "The Garden," sent this autumn some specimens of this Pear properly named; his man was accosted by one of the London fruiterers, who was making his purchases in the market, as to the quality and name of the Pears, which he could not make out. On being told the proper name, Doyenné Boussoch, he replied indignantly, "Don't tell me about a dog's head and a Bussock, they are Gansel's Pears," and as Gansel's Bergamot Pears he bought them.

Colmar d'Eté, remarkable for the beauty of the tree as a natural pyramid, ripened early in September, and though not rich, the fruit were very juicy and agreeable. Duchesse d'Orleans, a large handsome Pear, and of the true pyriform shape, had a most agreeable Bergamot aroma, and is quite worthy of a place in the Pear garden. Fondante d'Automne, one of the best of our autumn Pears, ripened on the trees in September, and was not nearly so melting and rich as usual, but the trees with their neat pyramidal growth, and studded with their very handsome fruit were beautiful objects. Urbaniste ripened very early this season, and only just followed the preceding; it was very rich and good. No early autumn Pear could be more melting, juicy, and rich than Jalousie de Fontenay—not large, but like all the russety reddish Pears, most grateful on a warm September day; little compact bushes of this sort not more than 2 feet in height were perfect pictures of fertility.

Gratioli of Jersey, one of our most robust-growing and prolific Pears, ripened the end of September, and was as usual very rich and good, but of very short duration. One of the queens of autumn Pears, if not the queen, Louise Bonne, or, as they call it in that enlightened pomological district Covent Garden, "Bon Lewis," was more than usually beautiful and good. It is remarkable that the very large and beautiful specimens, either from a wall or pyramid, were not equal in flavour to those that were a little deformed; a crooked Louise Bonne, with a patch of russet in the hollow part, is a delicious morsel. Marie Louise, or "Marias" as the costermongers call them, has seldom been so abundant as this season; large yellow specimens of this well-known sort from walls, generally lacked piquancy—they were something like a beautiful young lady who distributes tracts and eschews dancing, but smaller fruit from pyramids or standards, when patched with a little russet, and a little cracked, were delicious. The most perfect method of growing this Pear is on pyramids or bushes in the open air, double grafted, but this only in climates with sufficient ripening power.

Marie Louise d'Uccle, so named from a village near Brussels, is a free-growing sort on the Quince, and very hardy; its russety yellow coat is a good sign, and it does not deceive, for it is a rich, melting, excellent Pear. The Seckle, as usual, was rich and delicious. Unless well cultivated this sort is apt to be small; it should be double-grafted on some free-growing sort on the Quince stock and cultivated as a pyramid. The Yat, a very old Dutch Pear, a free-growing hardy sort, was very rich and good, but like the Gratioli it passed too soon.

With respect to my third series it must be stated

that many kinds of Pears whose usual season is December, ripened this season in November, and were for the most part of excellent flavour. Alexandre Lambré, one of the hardiest and most prolific Pears known, is in this category, and specimens greatly covered with russet were excellent, but those of a fine clear yellow were not nearly so good.

Among these quasi-winter Pears the Beurré Diel has been the most remarkable; my specimens were very large and beautiful; some of them with a light rosy cheek—a most unusual feature—commenced to ripen early in November, and are now past their goodness. No Pear can be more capricious than this well known sort; five miles to the east of this place it is always reckoned the best dessert Pear known; five miles to the west it seldom or never ripens, and is used for baking or stewing only.

Conseiller or Maréchal de la Cour, one of the most robust free growing and hardy Pears known, has been this season of high excellence even in the north, and has been reported on by a Reverend Amateur gardener near Newark, Notts, as a Pear well adapted to the Midland counties; it is large, melting, and rich. Ranking with this in the beauty and hardihood of the tree and its free-growing nature on the Quince, is Doyenné du Comice; like the preceding, it is large, has a russety coat, and is melting, rich, and excellent. These two kinds, from their regular and robust growth on the Quince, would form an excellent Pear-tree hedge, and no summer blind can be imagined more interesting. General Todleben, a new kind, proves to be a very hardy free-growing tree on the Quince stock; its fruit, large, pyriform, and of a bright yellow, was melting and good, but with no remarkable aroma. Of all our late autumn Pears there is not one that surpasses in size, beauty, and excellence, Van Mons (Léon le Clerc); my specimens were large, of a bright yellow, tinted with russet, and delicious; the tree is however rather delicate in its habit in most soils, and should be double-grafted on some robust-growing sort on the Quince, such as Conseiller de la Cour or Beurré d'Amanlis.

I have thus far described a few of the most popular kinds of summer and autumn Pears, and I hope to be able some day to do the same by our winter and spring Pears, which up to this time look fine and promising. *T. R.*

TO WHOM SHOULD PRIZES BE AWARDED?

A system has become prevalent at the leading metropolitan horticultural exhibitions of allotting the prizes to the gardeners instead of the employers, and as I consider the custom highly injurious to floriculture in general, and more especially to floral exhibitions, I am led to trouble you with a few remarks on the subject.

The spirit of emulation is well known to be one of the leading motives of human exertion, and the reason of many persons coming forward in public who otherwise would shrink from so doing. Now this spirit, which works so advantageously in other pursuits, causing men to endeavour to excel at any cost of time or money, does not obtain in the case of floriculture under the present exhibition arrangements. Should a gentleman with ample means at his command happen to take a "Florist's fancy" for any flower—say the Rose, he hastens to make the finest collection he can of his favourite, and has it cultivated under his eye and superintendence to the highest pitch of excellence. Full of his fancy, he visits the great Rose shows, and sees stands obtaining first honours very inferior to what he thinks he could himself exhibit, and so determines the next season to enter the lists. But here a difficulty meets him which he cannot surmount. He notices the prizes are awarded to the gardeners and not to the masters, with a few exceptions, such as Messrs. Hedge, Hole, Radclyffe, &c., and so he would have to compete with persons who, though highly respectable, still were not his equals in position, but the "servants of his equals." A wet blanket is thus thrown upon his new-born zeal, and his Roses consigned to privacy and repose. But mark the consequence. Deprived of this incentive his fancy quickly wanes, and in a year or two, though still fond of his old favourites, he can no longer be termed a "florist." No more he searches the *Chronicle*, the *Florists' Guide*, the *Florist*, &c., for the contributions of his Rose friends Messrs. Hole and Radclyffe; nor diligently scans Rivers's, Paul's, Cranston's, and Turner's catalogues for the new varieties recommended, all which he at one time so eagerly purchased. No, his fancy has turned to the sere and yellow leaf, and soon comes to an untimely end, and he turns to other pursuits which afford more excitement and therefore more pleasure.

And now let us consider how this prize arrangement would work in other competitive amusements to which gentlemen turn their attention. If we take racing to begin with—on the principle in question the 1863 Leger and Doncaster Cups ought not to have been awarded to Lord St. Vincent and Mr. Naylor, but to the persons who trained Lord Clifden and Maccaroni for their engagements. But under this rule how long do we suppose would those gentlemen remain on the turf? Would they be satisfied with the privilege of paying the piper in a heavy bill for stakes and expenses, and leave the honour and profit to their trainers? Again, as to yachting; why should Lord Birmingham display on his sideboard the 100-guinea cup won mainly by the skill and energy of Captain Blowhard, his sailing master. So, also, with Short-horn sheep and pig exhibiting. We are all aware how proud the Prince Consort was of the many prizes he received for his improved Leicesters. And as to the cattle and sheep, have we not often seen noblemen like Lords Feversham and Walsingham carrying off the Royal Society's gold medals?—achievements of which we may be sure they are not a little proud. But had the Metropolitan Floral System prevailed, the medals would have adorned the Sunday coats of Wilson and Thompson, the men who attended on the premier bulls, groomed them, "Thorleyed" them, in short, got them up into prize condition; but in such case it may be easily guessed how many more prize bulls those noblemen would have been at the trouble and expense of rearing. Now let us scan the prize awards of the last Crystal Palace Poultry Show. We behold the Countess of Broadacres taking 1st prize for some beautiful Cochins, and Lady Elizabeth Hauton, the same for a pen of magnificent geese. But why was not the Crystal Palace Floral prize card custom followed out, and the prizes awarded to Hannah Smith and Betsy Brown, their ladyship's respective henwives? And lastly, let us consider this system when applied to floral exhibitions, and carried out to its legitimate results. It is said (see "Gossip of the Garden," 1862, p. 352) to be "absurd to award a prize for Parsley to Lady Mary Vyner, or for Carrots to the Bishop of Ripon." Now would it not be still more absurd to name as the prize takers Messrs. Jones and Robinson, their respective head gardeners, seeing that the said Messrs. Jones and Robinson had no more to do with those vegetables than their masters—nay, much less—the latter having found the seed, ground, and labour. If we are to go on the system of "Palmam qui meruit ferat," and such is, I presume, the argument on which the whole arrangement is supposed to rest, I say let it be thoroughly carried out. Assign at once the prizes to Messrs. Jemmy Green and Carroty Bob, the apprentices who had the entire management from youth to age of those valuable esculents.

I shall say no more, save that it will please me much should these remarks be the means of having the matter fully discussed and placed on a proper footing. It is not against gardeners I write, but in their behalf; for under the right system we should find gentlemen taking much more interest and delight in the cultivation of flowers, and a community of feeling would spring up between the employers and the employed, which could not but tend to the increased well-being of the latter. *Florist.*

THE PERISTERIA, OR DOVE-FLOWER.

This fine Orchid comes from Panama, where it is known by the name of El Spirito Santo, or Holy Ghost flower, the centre of each blossom exhibiting a striking resemblance to a waxen dove. It is a very strong-growing species, with large oblong pseudobulbs, measuring from 12 to 18 inches in circumference, and with leaves rising from the crown from 3 to 4 feet in height, and as much as 6 inches in width. In spring, when the plants show signs of growth they should be repotted, picking off from the ball all bad soil and decayed or damaged roots, and using a well-drained pot of moderate size. Good fibrous peat should be used; and if it can be obtained, the peat from a wood where the leaves of various plants have naturally become decomposed is preferable. It should be used in small pieces, all the fine soil being shaken out so as to leave it full of fibre, and a few broken potsherds being then mixed with it.

When potted, the coldest end of the East India house is a suitable place for the plants. Water must be given sparingly at first, and must be kept away from the young growth. When it is required, the morning is the best time for supplying it. They will soon emit roots from the young growth, and then water may be increased accordingly. It is from these young shoots that the flower spikes are thrown up, and if the pseudobulbs are strong, there will generally be two spikes from a bulb.

By the time the new growths have formed bulbs, and are beginning to swell, the pot ought to be full of roots. I would then recommend that the plant should be removed to the hottest end of the East India house, and should receive abundance of water. The temperature being high, say from 90° to 95°, the bulbs will swell rapidly, and by the end of October or middle of November they ought to be fully grown. Then the plants must be allowed to go to rest gradually, and may be removed to the coldest end of the East India house, very little water being given through the winter, only just sufficient to keep the bulbs from shrivelling.

When well grown, this is a very free-flowering plant. I have exhibited it many times at the autumn shows. The greatest number of flower spikes I ever exhibited at one time on a plant was ten, and these were from four to five feet in height. The flowers are yellowish-white, with a peculiar fragrance, and they last for six weeks or more, if kept in a dryish atmosphere. August is the natural time of flowering. *Thos. Brown, Exotic Nursery, Tooting.*

Home Correspondence.

The Horticultural Society's Exhibitions and Sir Joseph Paxton's Letter.—As an Exhibitor, I am very glad to find by your remarks (p. 1106), on the Programme of the Horticultural Society for next year, that we are likely (?) to escape the blundering management recently exercised in so far as regards the Great Shows; but I am sorry to see that Saturday Exhibitions have been determined on, for as regards exhibitors that day is a very inconvenient one, a great part of the Sunday after a show being taken up in getting our houses in order. Last year the exhibitors petitioned against the Saturday Shows at the Regent's Park, and the Council of the Royal Botanic Society, with its usual regard for the reasonable wishes of the exhibitors, and guided by its usual good taste, complied with their wishes. I trust, therefore, that every exhibitor will set his face against Saturday shows at the Horticultural Society. Many arguments might be used against Saturday exhibitions. One is the labour which it involves on the Sabbath. Another is, that most of our employers are at home on the Sunday, and, very naturally, like their establishment to be in order; but after (as is the case with many of us) being up the whole of the night previous to the show, and not getting home again with our plants until 1 or 2 o'clock on Sunday morning, we do not feel prepared to resume work at daylight, so as to get in trim by a respectable hour. If, moreover, Sir Joseph Paxton's remarks in reference to establishments from whence plants are shown, having bloom only two months in the year, were correct, it would be very important that none of this time should be lost, but that we should make the best display we could with our bloom when we had got it. *Apropos* of Sir Joseph's letter, which you hinted at as "opening up questions of general importance," I am much surprised to find that exhibitors have not displayed more interest in the question by replying to it. The only reason I can imagine for their not having done so is that their indignation predominates; and from the strong observations on the subject I have heard expressed by exhibitors, I think I am not far out in my conjectures. Sir Joseph has written about what he has never practised namely, growing plants for exhibitions. He might as well write down exhibitions altogether as write down the principles upon which alone plants can be exhibited. "Beautiful foliaged plants" are certainly "beautiful all the year round;" they are very good in their way, and require very much less 'training' than any other class of show plants; but they are of all others the last which a skilful gardener would boast of growing if he had a miscellaneous collection under his management. I would ask Sir Joseph how he would carry such plants as Azaleas, the most attractive of all show plants, over London stones, or along a rough country road, jolting in a van, to the rendezvous of an exhibition, without they were 'trained'—in other words without the flowers being so secured as to prevent oscillation. The same remark applies to Roses and Pelargoniums, and many others. It may be all very well to look at a rough old scrub at home, and say how natural it appears, but if that plant were taken to "win the stakes" the 'odds' would be at the 'tail' if 'backed for a winner,' and mark me, it would never go the 'round' again. I can most unequivocally assert that I should not like to meet my employer the morning after a show if I had exhibited any damageable plant without 'training.' Granted that Sir Joseph called to see what he says was a first-class London garden, while the plants were gone to 'win the stakes,' I can assure him that if the gardener had only six or eight plants left, the principle that was adopted "a good many years ago" would not do for the present day, or there would not be many stakes won. I could give some very different examples of plant-growing establishments of the present time. Let it first of all be understood that the gardens where exhibition plants are grown are not always the largest, or those where assistance is the most ample, or the houses of the most convenient class; neither are the 'spasmodic efforts,' which Sir Joseph thinks necessary for plant growing, always made in our employer's time, as few gentlemen really encourage plant growing, in consequence of the impression that the shows take the gardener away from his general garden duties. Many of us are on this account compelled to work early and late through the whole season to compensate for the time occupied by the shows in the summer months. I think my brother gardeners will bear me out that the six or seven shows that we attend are quite as many as we can possibly find time for; and if Sir Joseph's suggestion of continuous showing were to be adopted, some of us would be prohibited from showing altogether. Besides, is it not feasible that too many flower shows may altogether surfeit or damp the public interest in exhibitions? I beg further to differ with Sir Joseph when he states that gardeners who show are neglectful of having plants in bloom at other times than those in which the shows are held. If he were to make periodical visits to the best and most popular garden establishments during the asserted "ten months'" dearth of flowers, he would find the establishments from whence plants are shown to contrast favourably with those which do not show. It would be making a complete business of showing for gardeners to be taking their plants to exhibitions all the year round. Speaking plainly, no

gentleman would stand it. The solution would be this: we should have the anomaly of an exhibition without exhibitors. It may be all very well for the interest of the public, but gentlemen generally keep up their establishments for their private gratification rather than for that of the public; and plant showing is allowed as an encouragement to a persevering servant rather than from any great love the proprietor may have for his plants going to a flower show. I say therefore, let the system which exists elsewhere be taken as a guide by the Royal Horticultural Society. That it is a good system is proved by the flourishing condition of the Royal Botanic Society. Let the Horticultural go and do likewise. *G. B.*

Stoneless Berberry.—The two plants that were in the Chiswick collection, one of which bore pale yellow, the other purple fruit, when propagated and put in fresh soil, bore fruit with seeds. *R. T.*

Seedling Figs.—I have been advised to bring to your notice the following facts. In 1858 I found a seedling Fig growing under my south wall; it was destroyed by the winter of 1860. Last year another appeared, which is now a small tree; another has appeared this year some two feet from the first. I have also some ten seedlings in different parts of my garden. Is not this a rare instance of seedling Figs springing up spontaneously? I have no Fig tree here—*i. e.*, established tree—as the locality is too cold. Will some of your correspondents therefore say if the springing up of Figs in this way is a matter of common occurrence. *Adam Fitch, The Vicarage, Thornton Steward, Bedale.*

Pampas Grass.—I have seen in your columns lately a few notices about this Grass. There is a very good plant of the light variety of it here, which throws up beautifully plumed spikes. Our principal plant is a little over 40 yards from the sitting-room windows, and is planted in a rich deep loam, inclining at about 18 inches deep, to a brick earth. It is placed upon Grass and is well backed up with shrubs, principally Portugal Laurels, whose dark green foliage assists greatly to show this noble plant off to good advantage. It comes into full flower in the beginning of September, and unless when injured in some way or another it proves a most pleasing and effective object for months. Our soil is liable to shrink in very hot weather. It did so in some places last summer to such an extent that a person could have got his hand into fissures in it up to the elbow. We watered the Pampas Grass plants repeatedly during summer, and that with no sparing hand. They had four or five times a good liberal dose of manure-water from a tank in the garden. The one seen from the windows had on it in the early part of September 80 fully grown and well developed spikes of pleasing white plumes. They are not so long as I have seen them in former years, a circumstance no doubt attributable to the dry season we have had; for even if supplied at the root with water, the atmosphere has not been favourable to their growing to a large size. Unless the weather proves severe we do not give much protection to the roots; young plants have an old mat placed round them with some leaves inside of it, held in position by means of a few small sticks driven a little into the ground. In September we were visited by a strong gale of wind, which broke off a few spikes from our large plant; by way of protection from the storm, we drove into the ground a few Hazel stakes upon the windy side, and placed at different positions amongst the flower spikes strong bands of Cuba bast. These were very loosely tied so as to allow the Grass to remain as much as possible in its natural position; these, together with the Hazel stakes, not being very stiff, and yielding a little with a strong gale of wind, have up to this time saved the rest of the spikes. The diameter of the Grass, *i.e.*, the extent which its blades or leaves extend of themselves, is about 11 feet, but as most of the blades are over 7 feet long, they would, if held out, extend several feet more. *G. Dawson, Ryde, Isle of Wight.*

Apples.—I beg to send for your acceptance a collection of 50 varieties of Apples, grown here in the shape of pyramids and bushes on the Paradise stock, on a heavy clayey loam, with chalk in a comminuted state mixed with it. I may say that on this soil, upon the Crab and the common Apple stock, such Apples as Nonpareil, Golden Pippin, Ribston Pippin, and a few others, always get cankered and diseased; whereas on the dwarf Paradise stock scarcely an instance of canker is seen. The specimens sent are grown chiefly on trees planted from two to five years since, and have been (some of them) lifted once in that time. The Celini, Reinette du Canada, Old Nonpareil, and some others, were planted only two years ago. *S. Dillistone, Sturmer Nurseries, near Halstead, Essex.*—[Of the specimens sent—Mère de Ménage, Striped Beaufin, Flower of Kent (Beauty of Kent), Hawthornden, Celini, Dumelow's Seedling, Golden Noble, New Hawthornden, King of the Pippins, Yorkshire Greening, Reinette du Canada, Court Pendu Plat, Syke House Russet, Norfolk Beaufin, Paradise Pippin (Norfolk Paradise), and Fearn's Pippin, are a fair average size, and some rather larger than usual; Mannington's Pearmain, London Pippin, Wadhurst Pippin, Sturmer Pippin, Claygate Pearmain, Royal Russet, and Court of Wick, are about the medium size which they usually attain; Golden Reinette, Mank's Codlin, Herefordshire Pearmain, Wyken Pippin, Cornish Aromatic, Scarlet Nonpareil, Cockle Pippin, Rymer, and some others, have not acquired their full character and development. Those labelled Pitmaston, Nonpareil, Gravenstein, and Winter Queening are incorrect. There can be no question that in the case of bad subsoils, where Apple-trees are apt to canker, it is advisable to use the dwarf or Paradise stock; and also for limited space, and for early bearing. Doubtless there is yet much to be learned as regards the adaptation of certain kinds of stocks to certain varieties of Apples, as well as Pears, Vines, &c. Large-growing sorts of Apples, like several in the above list, have succeeded very well on this occasion; but whether they will continue to do so for many years, is a question which depends on time for its solution. ‖]

Rose Judging.—I am obliged to "Senator Vaisse" for pointing out my error (see p. 1132). Mr. Hedge was 1st, and deservedly so. It was the 3d prize box I intended to refer to as in no respect entitled to its position. *P. B. R.*

Preserving Walnuts.—Soon after they are gathered remove the husks, then pack them in boxes in dry sand, and they will keep in this way for months. When required for use, roll them well up and down in a sack, which removes the sand from the shells; they are then ready for table. *W. P.*

Figs.—I observe you announce that Messrs. Lawson will let out next autumn an extraordinary new Fig, called Castle Kennedy. I would suggest that if any of your readers think of investing their money in the purchase of a plant, they had better first satisfy themselves that it really differs both from the Brown Turkey and the Brunswick, which have already figured under so many names. During the ensuing summer, and before letting it out, Messrs. Lawson will have an opportunity of growing a plant side by side of the two above-named sorts, and be able to certify to their customers that there is some real difference. I am induced to make these remarks, notwithstanding the respectability of the parties concerned, in consequence of the Singleton, which came out under equally respectable authorities, turning out the common White Ischia. In the latter case, I wrote to the party who first heralded it in your columns, and told him that from his own description, it was probably the Ischia. He denied it at the time. The plants were sold, but most people are now of my opinion. *S. B.*

Vine Stocks.—Permit me to state, in reference to the most suitable stock for Vines, that about five years ago, in a Vinery here, there were more plants of the Chasselas Musqué than I thought desirable, and knowing something of the difficulty there is sometimes to get young Vines to grow freely in a border already occupied with the roots of older ones, though with considerable misgivings as to the result, I inarched the Chasselas with Black Hamburgh. All the Vines in the house have borne fine crops, though more remarkable for high finish and, of course, quality than great size; and, contrary to my expectations, the fruit from the inarched Vines have been invariably the largest both in bunch and berry, and they have ripened from a week to a fortnight earlier than the Hamburghs on their own roots. Although it may be premature to conclude from this that the Chasselas Musqué is really a good stock, yet the experiment tends to show that we may find what we want among the moderate rather than among the very strong growers. I may add, in reference to the grafted plant of the Barbarossa in the great Vinery at Chiswick, that that variety on its own roots here has yearly produced heavy crops perfectly coloured, with bunches as compact as could be desired. *J. Bell, Bretton Park, Wakefield.*

Gate Posts.—Can any of your Correspondents furnish me with information as to the best material for making these? From the enclosed paragraph cut from a weekly Paper, it seems that in some districts they are curious things. "All the landed proprietors in the south of England know to their cost the difficulty and expense of providing substantial and durable gate-posts, particularly if the boys in the village are fond of swinging on the gates, after the model of Gainsborough's celebrated picture. But in the Lake District there is no difficulty. The purpose is served by a heavy monolith of clay-slate, for the most part undressed, varying from 2 inches to 4 inches thick, and the breadth of the section of the wall, with the hinges sometimes batted in and sometimes fastened through with a bolt and nut."

Societies.

ENTOMOLOGICAL: *November 7.*—F. Pascoe, Esq., F.L.S., President, in the Chair. The Secretary read an address, which had been handsomely engrossed on vellum, to accompany the presentation of a beautiful piece of plate (in the shape of an epergne representing a Palm tree with outspreading branches and with insects sporting at its base), to W. Wilson Saunders, Esq., F.R.S., for which a subscription had been raised amongst the members, in order to acknowledge the uniform liberality shown by Mr. Saunders towards the cultivators of Entomology in general, and more particularly towards members of the Society. To this address Mr. Saunders returned a suitable reply. Mr. Sidebottom exhibited four species of Curculionidæ new to the British lists; and Mr. F. Smith a new British species of humble bee, Bombus Pomorum, both sexes of which had been taken at Deal. Mr. Saunders exhibited some galls found attached to the rootlets of Oaks at a considerable distance underground, from which a number of wingless (female) individuals of a species of Cynips had been produced. It was difficult to understand how these insects could make their escape to the surface of the ground, or how, when there, they could discover and reach the rootlets of the Oak at such depths to deposit their eggs. No males had, however, been reared, and Mr. Smith stated that not a single male in the genus Cynips had ever been detected. Attention was however directed to the curious statements relative to the alternation of generations in these insects recently published in the American and German entomological publications. Mr. Saunders directed attention to a remarkable web-like secretion deposited by these gall flies soon after they had become perfect insects and escaped from the galls. Mr. Saunders also exhibited several other kinds of galls observed by himself in Switzerland; and Mr. Stainton a remarkable gall found on the Oak by Mr. Broome, resembling a small bale of Cotton wool. A note was read from Mr. S. Stone, of Brighthampton, confirming the fact of wasps dragging out their young grubs from the nest when diseased, as they had been this autumn to a considerable extent, so that although wasps were extremely abundant at the beginning of the autumn, in a couple of weeks scarcely any were to be seen. Professor Westwood attributed the destruction of these grubs to an epidemic similar to that known in the hive bee under the name of "foul brood." Mr. Stone also stated that he had succeeded in rearing the parasitic Ripiphorus from wasp combs. Mr. Carter exhibited some beautiful specimens of Trochilium sphegiforme reared from Alder stalks in North Staffordshire. The Secretary gave an account of the recent exhibition of objects of natural history at Huddersfield. He also read a translation of a memoir recently published in the Mauritius on a species of Coccus which is very injurious to the Sugar Cane in that island. In the discussion which ensued on this paper, Mr. Saunders stated that diluted spirits of wine (one-half water) was the most effective remedy for the destruction of mealy bug and scale insects in hothouses.——A paper by Mr. Baly containing descriptions of a number of new exotic species of plant-beetles (Phytophaga) was read. Also a letter from Mr. Wilson, of Adelaide, South Australia, giving a general sketch of the Entomology of our South Australian Colonies. Between 11,000 and 12,000 species of insects had been discovered, of which 5000 were Coleoptera, while 200 belonged to the family Carabidæ, 600 to the Curculionidæ, 450 to the Chrysomelidæ, 250 to the Longicorn beetles, 300 to the Buprestidæ, &c.

HANDSWORTH HORTICULTURAL.—The annual Fruit and Chrysanthemum Show in connection with this Society, was opened in the Town Hall, Birmingham, on the 28th ult., and continued for the three following days. It was in all respects a success; and the hall had a very handsome appearance, being well filled with excellent plants of Chrysanthemums, which for the most part were well grown, being dwarf and finely bloomed; and with beautiful collections of Fruit, which from their charming colour produced a pleasing contrast, especially in the evening when the building was lighted with gas. The season just passed has perhaps been one of the best on record for the proper ripening of out-door fruits, consequently the colour of many varieties was more brilliant than we are in the habit of seeing. This was especially the case with Chaumontel, Catillac, Gilogil, and Beurré Clairgeau Pears; and Blenheim Orange, Wellington, Cox's Orange Pippin, and Court Pendu Plat Apples.

Among the Large-flowered Chrysanthemums the most conspicuous plants were:—Chevalier Domage, Defiance, Vesta, Golden Christine, Rifleman, Golden Trilby, Annie Salter, Gen. Slade, Queen of England, and Ne plus Ultra; and among Pompons the three varieties of Cedo Nulli, viz., White, Yellow and Lilac, Modèle, Hélène, Attila, Priscilla, Andromeda, and Bob.

AWARDS (Members only).—9 Large-flowered in pots: 1st, Mr. C. J. Perry, Castle Bromwich; 2d, Mr. C. Millward, Hall Green; 3d, Mr. T. Webley, Lillywick. Six plants in pots: 1st, Mr. T. Ryland, Erdington; 2d, Mr. C. J. Perry; 3d, Mr. J. Hall, Moseley. Single specimen: 1st, Mr. T. Ryland; 2d, Mr. C. Millward; 3d, Mr. T. Greaves. Cut Blooms: 1st, Mr. T. Webley; 2d, Mr. C. Milward; 3d, Mr. Greaves. Pompons: 9 in pots; 1st, Mr. C. J. Perry; 2d, Mr. T. Ryland. Six plants in pots: 1st, Mr. C. Millward; 2d, Mr. C. J. Perry: 3d, Mr. Fewkes. Single specimens: 1st, Mr. Fewkes, Tyburn; 2d, Mr. C. J. Perry; 3d, Mr. T. Ryland. Extra prize of one guinea, given by Mr. C. J. Perry, for the best three Pompons, in pots: Mr. T. Webley.

Conspicuous among the Apples and Pears grown within 15 miles of Birmingham, were Cox's Orange Pippin, Nonpareil, Wyken Pippin, Golden Pippin, Ribston Pippin, Blenheim Orange, Northern Greening, Kentish Fillbasket, Hawthornden, Emperor Alexander, and Reinette du Canada Apples; with Beurré Diel, Beurré Clairgeau, Marie Louise, Napoléon, Josephine de Malines, Beurré d'Anjou, Eyewood Bergamotte, and Hacon's Incomparable Pears.

AWARDS.—6 Dessert Apples, 8 of a kind: 1st, Mr C. J. Perry; 2d. Mr. T. Hargreaves, Curdworth; 3d, Mr. G. Redfern, Sandwell.—6 Kitchen Apples, 8 of a kind: 1st, Mr. G. Redfern; 2d, Mr. C. J. Perry; 3, Mr. H, Lowe.—6 Dessert Pears, 8 of a kind: 1st, Mr. C. J. Perry; 2d, Mr. T Hargreaves; 3d, Mr. G. Redfern.—6 Kitchen or Stewing Pears, 8 of a kind: 1st, Mr. T. Hargreaves.—Collection of Fruit, not more than 12 dishes: 1st, W. H. Dawes, Esq., Moseley; 2d, F. G. Williams, Esq. (gardener, Mr. Stevens), Solihull; 3d, Mr. G. Redfern.

In the Collections of Fruits, 24 varieties, open to all the world, some wonderful examples of Chaumontel,

Beurré Diel, and Bon Chrétien d'Hiver Pears were shown. Also fine Smooth Cayenne and Queen Pines, Barbarossa Grapes, an Indian Melon, very large Alfriston Apples, and beautiful dishes of Cox's Orange Pippin and King of the Pippins Apples. In the Collections of 12 varieties were excellent specimens of Muscat, Barbarossa, and Black Hamburgh Grapes, Smooth Cayenne Pine, Chaumontel and Easter Beurré Pears.

AWARDS (Open to All).—Collection of Fruit, 24 varieties: 1st, a Silver Cup, value 10*l.* 10*s.*, Mr. C. J. Perry; 2d, C. N. Newdegate, Esq., M.P. (gardener, Mr. Evans), Arbury, Nuneaton.—Collection of Fruit, 12 varieties: 1st, Mr. C. J. Perry; 2d, Mr. J. Cole, fruit-dealer, 6, Union Street, and Aston Lane Nurseries, Birchfields.

Collections of Dessert Pears, 12 varieties, were remarkably well shown. Among them most conspicuous were Huyske's Victoria, Beurré Clairgeau, Beurré Diel, Chaumontel, Duchesse d'Angoulême, Doyenné d'Alençon, Bezi Vaet, and Alexandre Lambré. In the Collections of Stewing Pears were very large and highly coloured specimens of Catillac, Belle de Jersey, Gilogil, Bon Chrétien Turc, and Governor of Boulogne.

AWARDS.—12 Dessert Pears, 8 of a kind: 1st, Mr. C. J. Perry; 2d, Mr. J. Pluck, fruit merchant, Jersey; 3d, A. H. Royd, Esq. (gardener, Mr. Cox).—12 Stewing and Baking Pears, 8 of a kind: 1st, Mr. C. J. Perry; 2d, Mr. J. Pluck; 3d, Mr. T. Burley, fruiterer, Birmingham.—Extra Prize, given by Mr. E. W. Field (pair of Plated Fruit Spoons), for the best Six Dishes of Stewing Pears, Mr. J. Pluck.

Dessert and Kitchen Apples were well represented. Among the former good dishes of Cox's Orange Pippin, Ribston Pippin, Golden Drop, Court Pendu Plat, Cockle Pippin, Cornish Gilliflower, Scarlet Nonpareil, Adam's Pearmain, and Pigonette were shown; and conspicuous among the latter were large specimens of Alfriston, Grenadier, Wellington, Mère de Ménage, Northern Greening, Bedfordshire Foundling, and Royal Russet, all of beautiful colour.

AWARDS.—12 Dessert Apples, 8 of a kind: 1st, Mr. C. J. Perry: 2d, C. N. Newdegate, Esq., M.P., (gardener, Mr. S. Evans); 3d, Mr. Macpherson, fruit-merchant, Highgate.—12 Kitchen Apples, 8 of a kind: 1st, Mr. C. J. Perry; 2d, A. H. Royd, Esq., Crown East Court, Worcestershire (gardener, Mr. Cox); 3d, Mr. Macpherson.

Gourds were few in number, but two or three specimens were very fine, including a Vegetable Marrow of great size. The 1st prize went to Mr. Perry.

Cut blooms of Chrysanthemums were well shown. Among them were superb blossoms of Novelty, Jardin des Plantes, Cassandra, Queen of England, Beauty, Etoile Polaire, Lady Slade, Rev. J. Dix, Cherub, Plutus, Abbé Passaglia, Mrs. Wm. Holborn, Lady Hardinge, Sir E. Bower, and Golden Eagle.

AWARDS.—24 Cut Blooms: 1st, Mr. Tomlin, Camois Hall, near Newmarket; 2d, Mr. George, Stamford Hill, London; 3d, Mr. T. Greaves. 18 blooms: 1st, Mr. George: 2d, Mr. Tomlin. 12 blooms: 1st, Mr. George; 2d, Mr. Tolmin; 3d, Mr. J. Carter, Wichnor Park, near Lichfield.

Primulas were not equal to those shown last year, although good. The 1st prize for 12 plants was awarded to Mr. T. Webley; and for six plants to Mr. T. Greaves.

Several thousand persons visited the exhibition during the four days, and the flowers remained in fair condition until the close.

Notices of Books.

Le Jardin Fruitier du Muséum. By Prof. Decaisne.

(*Continued from p.* 1039.)

Pêcher Admirable Jaune.—Syn. Admirable Jaune Tardive, Grosse Pêcher Jaune Tardive, Grosse Jaune, Scandalie, Sandalie, Hermaphrodite, Abricot, Orange, De Burai, De Bure, Abricotée. Leaves with reniform glands; flowers small. Flesh yellow, parting from the stone, tolerably good in warm dry seasons, but in those that are the contrary it is flavourless and mealy; ripens at Paris in the latter half of September. [The sort cultivated under the above names in England had large flowers, and ripened from the beginning to the middle of October. Duhamel, *Traité des Arbres fruitiers*, describes it as having large flowers; but he also mentions one under the same name as having small flowers, and this must be the variety described by Professor Decaisne, and that of the *Catalogue des Chartreux*, edition 1752, whilst in that of 1785 the flowers are described as large, as they are likewise by Le Berryais in 1789, and subsequently by Calvel and other Pomologists. The trees obtained by the Horticultural Society from various authorities had large flowers. It is thus evident that there are two yellow-fleshed Peaches to which the name of Admirable Jaune has been applied.]

Poire du Comice.—Syn. Doyenné du Comice. Middle-sized or large, obovate or turbinate, with a short thick stalk like that of the Doyenné Blanc; eye deep; skin bright yellow, tinged with red next the sun, marbled and dotted with brown. Flesh fine, melting, very juicy and sugary, slightly acidulated and perfumed. Ripens towards the end of autumn. This Pear was obtained by the Horticultural Committee of Maine-et-Loire, and was noticed for the first time in 1849.

Poire Dalbret.—Syn. Fondante d'Automne. Fruit middle-sized, pyriform; stalk rather thick, and of medium length; eye somewhat open; skin yellowish russet. Flesh white, fine, melting, very juicy, sugary, and rich. An excellent Pear. Season, November. This excellent variety was described by Poiteau under the name of Dalbret, but nurserymen have prefixed to this name the epithet of Beurré; in some Catalogues it appears under the name of Beurré *Delbret*, but it must not be confounded with the Beurré Delberg or Delbecq. It has the synonym of Fondante d'Automne, but what is known in England as such is very different. Jean-Baptiste Dalbret, after whom it was named, was born at Triel (Seine-et-Oise) in 1785; in 1811 he had charge of the culture of fruit trees at the Muséum, and published in 1834 a work entitled:—"*Cours théorique et pratique de la Taille des Arbres fruitiers.*"

Pêcher Téton de Vénus.—Leaves with globose glands; flowers large. Fruit very large, the height rather exceeding the breadth, generally more or less conical, and (mamelonné) terminating in a nipple-like point. [This nipple is made the principal distinction between it and the Late Admirable or Bourdine. To this latter the Téton de Vénus is made synonymous in the Horticultural Society's Catalogue of Fruits; and it was so after long and careful comparison of the fruits of many trees under these names, and grown under the same circumstances. Even some of the French authors admit that there is no difference between them. In treating of the Bourdine, the author of the work before us, states, that its fruit is very variable, so much so that on the same tree are produced fruits that are almost spherical, and others *très-sensiblement mamelonnés*, and similar to those of the Téton de Vénus. A difference of opinion has long existed on this subject. Are there no means of settling the question?—and presuming that the one might be found even but slightly constitutionally different and better than the other, is it not a legitimate question for Horticultural Societies to entertain?]

Pêcher Mignonne Hâtive.—Syn. Grosse Mignonne Hâtive, Mignonne Pourprée, Pourprée Hâtif à grandes fleurs. Leaves with globose glands; flowers large. [It is described as closely resembling the Grosse Mignonne, of which it is stated to be only a variety perpetuated by the graft, and of which the fruit ripens under the same circumstances, always a little earlier than that of the ordinary Grosse Mignonne, and it is with it that the Peach gathering season at Montreuil commences. There is a Pourprée Hâtive à Grandes fleurs which has leaves with reniform glands, and is consequently quite distinct from the one under consideration, and still earlier than it.]

Poire Chat Brulé. — Syn. Pucelle de Xaintonge, Rougeaude, Rouget. [A small russeted pyriform fruit, which takes a good colour in compotes, but is otherwise quite worthless.]

Poire Louise de Boulogne.—[A middle-sized, Bergamot-shaped fruit, which keeps till March; but its flesh is only half-melting, or intermediate between that of a kitchen and table Pear.]

A Cyclopædia of Practical Receipts, Processes, and Collateral Information in the Arts, Manufactures, Professions, and Trades, including Medicine, Pharmacy, and Domestic Economy. Fourth Edition. By Arnold J. Cooley and J. C. Brough. London: John Churchill & Sons, 1864. Pp. 1393.

Here are 1400 pages, closely printed in double columns, skilfully aided by the liberal use of abbreviations and condensations of every kind, and presenting the reader with a mass of information that would be bewildering, were it not so carefully arranged, upon every subject that can by possibility come within the wide limits indicated upon the title page. We find notices of the various substances forming the Materia Medica of our national Pharmacopœias, with brief and clear directions for ascertaining their purity and commercial value. We find the synonyms under which these substances are known among professional men or in medical works, in trade, at home and abroad; and then follows every kind of information that can possibly be wanted, whether for its production or for its use, by the scientific or the public, in the doctor's shop, laboratory, manufactory, or kitchen. We take at random the words "Hydrocyanic acid." After the synonyms, and a brief description, we have the ways of preparing—1, the anhydrous acid, according to the eminent chemists Gay Lussac, Liebig, and Vauquelin. Then 2, the dilute or medicinal, according to the London, Edinburgh, and Dublin Pharmacopœias, Apothecaries Hall, Dr. Clark, Everitt, Laming, Magendie, Scheele, Dr. R. D. Thomson, Winckler, and various Foreign Pharmacopœias: a most important piece of information, when it is found that these vary greatly in strength; Magendie's being six times as strong as the London. Next come the properties of the acid, the purity, tests, uses, effects as a poison, antidotes, &c.

Other matters are treated in the same comprehensive way. Under the head "Pills" there are about 22 pages, running through all the varieties, from Abernethy's to zinc pills. Medical receipts of course occupy a prominent place in this book; but every article of food; every substance used for clothing, fuel, or in the arts; every process and product of Nature, the laboratory, or the manufactory, has its share of space. Brewing, baking, wine-making, and similar processes are described, as carried on by the most successful in each department, either for private use or in the wholesale way, with a view to profit. The authorities are often given—Soyer for instance for the making of a pie; and we are sorry to add, there are directions given for the manufacture of British wines, as practised by the trade—from British Burgundy and Champagne, to port, sherry, and Tokay!

Most of the maladies to which the human frame is subject are briefly described, with symptoms and the treatment recommended in each case. We are told also what to do in accidents and emergencies, till a medical man can be sent for, as in cases of drowning, burns, or poisoning.

Then again we find good descriptions of the barometer, microscope, camera lucida, and other scientific instruments, with collateral information on a variety of subjects. Altogether, this is not only a first-rate authority on all pharmaceutical subjects (in which Mr. Cooley stands unrivalled), but it will be found extremely valuable, as a general book of reference, to persons engaged in trade or manufacture, as well as in the family.

It seems that a new Pharmacopœia has been issued this very year by the General Medical Council of the United Kingdom, in order "to reconcile the varying usages, in pharmacy and prescriptions, of the people of three countries." This is noticed in an Appendix of some length by Mr. Brough, who says that "its faults are very numerous," and some of these he points out.

The third and concluding part of the 24th volume of the *Transactions of the Linnean Society of London*, is one of the most bulky which the Society has ever issued, its bulk being owing to no fewer than about 200 pages and 4 plates being occupied by a first instalment of Mr. Murray's Monograph of the Nitidulariæ. There are several other papers referring to the lower orders of the animal kingdom. Among the botanical papers are:—Prof. Oliver on the Structure of the Legumes of Pentaclethra macrophylla, with one plate; Messrs. Mann and Wendland on the Palms of Tropical Western Africa, with six plates, two of them devoted to the natural habit of the plants, and the others to the details of structure; Mr. D. Hanbury on the species of Garcinia (G. Morella var. pedicellata) which affords Gamboge in Siam, with one plate; Mr. Currey's Notes on British Fungi, with one plate; Dr. Kirk on a new genus (Walleria) of Liliaceæ, from East Tropical Africa, with one plate; and Mr. Miers on the Conantheræ, with one plate.

A Classified List of Contributions from British India to the New Zealand Exhibition of 1865, by Dr. Forbes Watson, enumerates upwards of 1000 articles, in the several classes. Among the fibres, the most important for spinning and manufacturing purposes are Flax (Linum usitatissimum), Rhea (Böhmeria nivea), Puya (Böhmeria Puya), Nilgiri Nettle (Urtica heterophylla), Mudar (Calotropis gigantea), Bedolee Sutta (Pæderia fœtida); and for the manufacture of cordage Sunn Hemp (Crotolaria juncea), and Jubbulpore Hemp (Crotolaria tenuifolia). Of all Indian fibres, however, that which attracts most attention is that of the Rhea. When "arrangements have been effected for its production, along with that of other species of Nettle which abound in various parts of India, it is anticipated that fibres from this class of plants will eventually occupy a position second only in importance to that of Cotton and Flax. Late experiments have shown that the fibre of the Rhea can be turned to account for the manufacture of a variety of fabrics of a very valuable and useful description." The great desideratum is an efficient machine for the separation of the fibre.

Garden Memoranda.

MR. SALTER'S NURSERY, HAMMERSMITH.—We have already adverted (p. 1088) to Mr. Salter's fine display of Chrysanthemums, which goes on year by year improving, and we are glad to learn has this autumn attracted a very large number of visitors. We now propose to mention briefly some of the new varieties which the present season has added to the already extensive muster roll of this popular autumnal flower; and though what we have found in the Versailles Nursery may not quite have exhausted the new varieties of the year, yet as the head-quarters of the Chrysanthemum in this country, one may reckon on having made acquaintance there with all the most important of them.

The preponderance in numbers, and probably also in quality, rests with the class of Orange-reds, among which there are no fewer than four first-class incurved sorts, and one with quilled florets. Among these, taking first the proved sorts, Golden Ball will probably be the leading favourite, on account of its remarkable brilliancy of colour, as compared with most others of the group, all the other qualities being moreover of the highest order—the blooms large and full, and the florets beautifully incurved; the bright and cheering aspect of this variety is no less attributable to its lively tint of red than to the clearness of the golden tips which the incurving of the florets brings fully into view. Mr. Brunlees is another of this set, large, full, and incurved, the colour Indian red, with distinct yellow tips. Sam Weller, again, is another, also Indian red with golden tips, but somewhat heavier in tone of colour than either of the foregoing, though the globular outline leaves nothing to be desired in regard to form. Another of this colour, called Quilled Beauty, has the florets wholly quilled and somewhat thickened upwards, and is distinct and telling amongst this class of flowers, and likely we should think to make a good pot plant for conservatory decoration. To this group also belongs a seedling of the present year, to be called John Salter, a flower at once remarkable for its size, for the breadth of its florets, for prolificacy of bloom, and for vigour of foliage, a bright orange-red withal,

and likely, hereafter, to take the very highest position in this particular group.

Among Yellows we observed two fine novelties, which were sports, however, and not seedlings. They are respectively named Golden Beverley and Golden Dr. Brock, both decided acquisitions. We also noticed a pretty pale sulphur-coloured sort called Eve, which though rather too flat for a show flower, will be valued for decoration on account of its soft and delicate colouring. This latter is rather a late bloomer.

A very prince among the Purples is that called Prince of Wales, the blooms of which are of a deep purple amaranth somewhat paler at the back of the florets (as indeed is generally the case), and at the same time large full and incurved so as to form a fine show flower. Iago is a very dark Ranunculus-formed mulberry purple, somewhat darker, and some degrees better than Mulberry itself; while Ranunculus, another purple, duller and paler than the last, has small but thoroughly incurved blooms remarkable for the breadth of their florets. King of Denmark ranks amongst the finest flowers of the year, and is remarkable for the depth and fulness of its beautifully incurved blooms, the colour of which is a bright purplish-rose, with a silvery centre. Imogene is another decided acquisition, remarkable for its density, the florets being shorter than in most of the incurved sorts, neatly turned in and of a bright mottley rose, altogether quite first-rate. Lady Carey is a showy bright rose with silvery backs, the blooms very large and full. Albert Helyar, another large full incurving flower, is of a rosy tint, but with a paler centre, and changes with age to a deeper or purplish hue.

The paler rosy hues find a representative in Pink Pearl, which is a delicate pink, with a pearly tint towards the tips of the incurved florets; it is dwarf in habit, free and fine, and good either viewed as a show flower or for purposes of decoration. Attraction is of a totally different stamp, being large and reflexed, but it is admirably suited for conservatory decoration on account of its showy blooms, which are quite full, with broad florets, whitish with a faint margin of pale rose. Mrs. Kaines appears to be a late sort, not being fully expanded at the time of our visit; its blooms, however, are large, full, and incurved, of a delicate blush, with a decided tinge of yellow in the centre.

Among Whites we were thoroughly pleased with Virgin Queen, which bears profusely its rosettes of snowy whiteness, of faultless form, and of about medium size. Blanche of Castile, another full incurved medium-sized white, quite pure, seems admirably fitted for pot culture; while Album multiflorum, a decorative sort, is chiefly remarkable for its dwarfness and very free blooming habit.

Those who are fond of the Anemone-flowered Chrysanthemums, will no doubt be pleased with Princesse Marguerite, a very pretty large-flowered rosy-lilac with a silvery cast; and with Miss Margaret a large pure white, dwarf in habit, and prolific of blossoms. Another with remarkably large pale sulphur blooms having a golden centre, promising to be a grand acquisition in its way, is to be called Sunflower.

Miscellaneous.

Heat and Organisation.—The escape of heat by radiation from the earth's surface, varies according to soil, climate, and state of the weather. In clear, dry air it goes on with rapidity, so that frost at night follows a sweltering heat by day, and no animal or vegetable can live in such countries, unless fitted to bear sudden and violent extremes. Moisture, or vapour in the air, arrests the dispersion of heat by radiation, and hence climates that are temperate are never excessively dry. Even perfumes exert powerful effects. Most minute are the quantities of matter given off in the scent of flowers. No "chemist," as Professor Tyndall says, "ever weighed the perfume of a Rose," but the perfume of the Rose absorbs radiant heat with 30½ times the power of the air, and that of Aniseed with 372 times the air power. It would be idle to speculate on the quantities of matter implicated in these results. Probably they would have to be multiplied by millions to bring them up to the tension of ordinary air. Thus—

> "The sweet South,
> That breathes upon a bank of Violets,
> Stealing and giving odour,"

owes its sweetness to an agent which, though almost infinitely attenuated, may be more potent as an interceptor of terrestrial radiation than the entire atmosphere from bank to sky (Tyndall). In the present state of investigation it is impossible to state the precise limits of heat and cold beyond which all living organisms are destroyed. On Alpine snows the Protococcus, a simple confervoid plant, forms red patches, and grows in spite of the cold, while other members of the same family rejoice in warm situations. If we pass from low to high temperatures, we meet with some curious examples of vegetable life flourishing at a heat we might have fancied fatal to its existence. "In the hot springs near a river of Louisiana," for instance, "of the temperature of from 122° to 145°, there have been seen to grow, not merely Confervæ and other herbaceous plants, but shrubs and trees; and a hot spring in the Manilla islands, which raises the thermometer to 187°, has plants flourishing in it and on its borders. A species of Chara has been found growing, and reproducing itself in one of the hot springs of Iceland, which boiled an egg in four minutes; various Confervæ, &c., have been observed in the boiling springs of Arabia and the Cape of Good Hope; and at the island of New Amsterdam there is a mud spring, which though hotter than boiling water, gives birth to a species of Liverwort" (Carpenter). Dry spores of Uredo, according to Hoffman, are not killed by a heat of 128° C.; but the experiments of Julius Sachs on the highest temperature that vegetation can sustain, throw much doubt on the extreme statements of certain other observers. M. Sachs found that in the space of 10 to 20 minutes, a temperature of 51° C. in the air killed the most diverse kinds of plants, and 43° to 46° C. in water sufficed to cause death. It does not however follow that because plants that had been growing at lower temperatures were killed by such an augmentation of heat as he describes, that similar plants might not have germinated and grown above the temperature of his experiments. From these facts it will appear that both high and low kinds of plants will stand what might be deemed an excess of temperature in the direction of heat; but few plants, except those of low organisation, will survive extreme cold within the polar circle. The nearest approach to a tree is a minute Willow six inches high; but the short summer is gladdened with Rushes, and a few flowers, such as Potentilla, Ragged Robin, and Bachelor's Buttons. The greatest cold is sustained by Cryptogams, and the Yeast-plant will survive 76° below zero. *Intellectual Observer.*

Calendar of Operations.

(For the ensuing week.)

ROSES and other plants with woody stems not yet protected which run any risk from frost should have soil banked up over their roots, and a little Moss spread over them, fastened down so as to prevent it from being blown away. The branches may be tied up in straw. In beds of dwarf sorts some plant cuttings of Laurels and other evergreens in such a manner as to cause their branches to intermix with those of the Roses to be preserved, and by that means a lively appearance is added to the security afforded. Of course this can only be done where evergreens are plentiful. In one instance of this kind the cultivator had some round beds about a yard and a half in diameter filled with tender Roses, which were subjected to the following process:—Having a large number of layers of Laurustinus, well rooted, and not knowing exactly where to plant them to advantage, they were placed in these Rose beds, in the spaces between the plants. Thus the Laurustinus and Roses mutually protected each other in severe frosts; besides the mixture would not by any means have a bad effect even when the Roses were in bloom; and the young evergreens would be nursing up for a year or two as well there as anywhere else, and when too large for the beds might be permanently removed. In this way young trees located in a nursery might be made to increase the beauty of th garden, and afford protection to more tender objects.

FLOWER GARDEN AND PLANT HOUSES.

Little can now be added to what has been previously stated under this head. Where lawns have not been well attended to, through pressure of business, rolling and otherwise dressing them up for the winter may take place. The bulk of the dead leaves should be removed immediately preparatory to a general cleaning. If the shrubs require a compost it is a much more cleanly plan to bring back some decayed vegetable matter when a digging occurs. If any of the stock indoors appears too much crowded, endeavour to weed out inferior or half-hardy things, transferring them to other places of security.

CAMELLIAS.—The weather being still favourable, early kinds of Camellias will be coming into bloom; where that is the case take care to keep as low a temperature as possible, in order to prolong their beauty. All drip must also be avoided.

CHRYSANTHEMUMS.—After the beauty of these is over, move them to other quarters, and get such plants as had to be set aside for the time to make room taken back into their former situations, or so re-arrange matters that the whole may have a good effect. Any decayed Chrysanthemums removed should be cut down, suffered to become somewhat dry, and placed in cold frames. Those who cannot afford frame room may secure them in some shed or outhouse for a few weeks, covering them overhead with clean straw should frost occur. Young plants intended for next year's specimens should be at once secured.

FORCING GARDEN.

MUSHROOMS.—Where there is a proper house for the cultivation of these, it is often found to be one of the most useful structures about a garden. Seakale may be forced in constant succession with as little trouble as raising a crop of small Salad. The old plan of raising a bed of fermenting materials, over the crowns out of doors, is an uncertain process compared with this. It is equally well adapted for Rhubarb forcing. Nothing is needed but a long, narrow pit along the bottom of the house, on one or both sides, the top of the pit to be level with the floor. It should be 4 feet deep, and filled in portions as wanted, with any hot, fermenting material, to within half a yard of the top, which should be covered with a lid. The Kale and Rhubarb should be placed on the surface of the fermenting matter as thick as it can stand, and then filled in with soil or old tan. As to Mushrooms, make new beds as required to succeed those now in bearing.

PINES.—As previously stated, late-swelling fruiters, which have had little water, may receive a slight increase of tepid manure-water. There is, however, room for doubt as to whether it is absolutely necessary after this period. Plants managed in the old style (in houses or pits with flues), no doubt would require it. By modern plans, however, a much greater amount of atmospheric moisture is indulged in; and this should be duly considered. When sunshine occurs, instead of giving air, let the thermometer rise to 80° or even 90°, after which give air.

VINES.—Where forcing has commenced, and the roots are outside, every attention should be given to the borders. A proper degree of heat must be maintained in the fermenting material. Any kind of protection to throw off rain would be invaluable, and would improve the warming powers of the covering.

HARDY FRUIT AND KITCHEN GARDEN.

Push forward all work that can be done now with expedition. When things that might be done now are delayed until spring, there is sure to be a sacrifice of some importance. In wet weather let matting or bast required for the ensuing year be cut, sorted, and hung up ready for use. Besoms and baskets should also be prepared. The tool-house should be examined, and put in an efficient state, and in fact everything of this kind done that is possible.

CELERY.—Should frost set in, the best beds, if not already done, should be immediately covered with clean straw 6 inches thick.

PRUNING.—All pruning, except that of Figs and Apricots, and most of the nailing of wall trees, as well as the training of espaliers, should be finished as soon as possible, and the same may be said of bush fruit.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Nov. 30, 1864, as observed at the Horticultural Gardens

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 24	25	29.202	29.170	48	29	35.0	47½	49	W	.10
Friday 25	26	29.010	28.801	48	31	39.5	46	48	S.W.	.10
Satur 26	27	29.273	28.917	48	29	38.5	46	47½	S.W.	.01
Sunday 27	28	29.745	29.657	52	30	41.0	46	47	W.	.52
Mon. 28	29	29.910	29.659	55	38	46.5	46	47	S.	.02
Tues. 29	●	30.311	30.219	54	25	39.5	46½	47	S.	.00
Wed. 30	1	30.189	30.013	49	24	36.5	46	47	S.	.27
Average.		29.660	29.506	50.5	28.4	39.5	46.3	47.5		

Nov. 24—Hazy, overcast, fine; frosty at night.
— 25—Partially overcast, cloudy, boisterous, with rain at night.
— 26—Clear; very fine; fine at night; slight frost.
— 27—Clear, very fine, boisterous, with slight rain at night.
— 28—Densely clouded, rain; fine at night.
— 29—Very clear, and fine throughout; slight frost at night.
— 30—Overcast; partially overcast; very fine through the day; heavy rain at night.

Mean temperature of the week 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Dec. 10, 1864.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	47.7	35.9	41.8	17	0.39 in.	4	2	2	3	6	14	6	1
Mon. 5	48.5	34.5	41.5	23	0.25	1	3	2	1	5	12	11	4
Tues. 6	47.8	36.1	41.9	19	0.76	2	4	2	3	6	14	5	2
Wed. 7	48.2	36.2	42.2	18	1.02	1	6	2	3	4	13	6	3
Thurs. 8	44.0	34.2	39.1	17	0.58	2	5	1	2	2	15	6	5
Friday 9	46.6	35.5	41.1	16	0.49	3	4	3	3	5	19	4	7
Satur. 10	46.8	33.1	39.9	24	0.67	2	6	3	2	8	11	3	3

The highest temperature during the above period occurred on the 10th, 1848—therm. 60 deg.; and the lowest on the 5th and 6th, 1844—therm. 14 deg.

Notices to Correspondents.

COCOA-PLUM: *M B.* What is called the Cocoa-plum is not the Cocoa-nut, but a West Indian fruit borne by a tree called Chrysobalanus Icaco. These fruits have a sweet and agreeable pulp.

CONSERVATORY EDGING: *James Way.* A very neat and pleasing edging to groups of potted plants in a conservatory or greenhouse may be formed by filling sloping boxes of any convenient length with the common Selaginella denticulata, as in the plan contrived by Mr. Eyles for the conservatory at South Kensington, than which nothing can answer the purpose better.

FITZROYA: *J C.* This Conifer was named in compliment to its discoverer Captain Fitzroy. It will bear our ordinary winters without injury, and in Patagonia grows into an evergreen tree 100 feet high. It is not an expensive plant.

HOLLYHOCKS: *D C.* For a dozen good sorts, not very expensive, we recommend you to get the following:—Joshua Clark, Golden Fleece, Reine Blanche, St. Clair, Mrs. Chater, Illuminator, Mrs. Fyson, Candidissima, Electra, Excelsior, Lady King, Tyrian Prince.

HOT-AIR HEATING: *J M W.* You cannot do better than consult Hood's treatise on Warming and Ventilating, and the first volume of McIntosh's "Book of the Garden."

NAMES OF PLANTS: *W. Briggs.* Ruscus Hypoglossum.—*A Z.* 1, One of the forms of Selaginella Martensii; 2 Selaginella Galeotti; 3, not sufficient; 4, Nephrolepis tuberosa.—*J J.* The orange-berried shrub found in the stony beds of the Rhine and Rhone is Hippophäe rhamnoides.—*E K.* 1, Aspidistra lurida variegata; 2, Probably Cheilanthes profusa, but insufficient; 3, Lastrea spinulosa; 4, Pteris hastata.—*R B.* 3, Pinus Pinaster; 4, P. austriaca. We do not recognise the others, unless 1 is P. Pinea not fully developed.—*H Z.* 9 and 11, Asplenium (Allantodia) axillare; 10, Polystichum aculeatum; 12, Adiantum pubescens.

SHRUBBERY PLANTING: *C M F.* The filling out of an old shrubbery, which has been over thinned so that the remaining trees are nothing but bare poles, is not an easy matter. If the shrubs have only been cut down, some or all of them will break up and furnish an under growth. If they have been grubbed out, the bare ground as far as possible must be trenched and cleared of roots and replanted. Climbing Roses to cover the trunks of the bare trees would succeed, if you can feed them sufficiently; but without seeing the condition of the plantation we can offer no opinion as to whether they would succeed in your case. The free-growing Evergreen and Ayrshire varieties would suit the purpose best, and then there is Virginian Creeper, which might be sparingly introduced. If the soil is exhausted and very full of old roots, you had better sacrifice as many trees as can be spared, thoroughly trench the cleared ground, and replant it with evergreens.

Smithfield Club Cattle Show.

SUTTON AND SONS, SEEDSMEN to the QUEEN, respectfully invite the attention of their Patrons and Agriculturists to their magnificent STAND in the GALLERY of the AGRICULTURAL HALL, Islington, at the forthcoming Show, consisting of 200 distinct varieties of GRASSES for PERMANENT PASTURE and other purposes, all grown by themselves in their Trial Grounds, Reading; a large and choice Collection of GRASS SEEDS in canvas bags, and some very excellent specimens of their Improved MANGEL WURZEL, CHAMPION and other SWEDES, Yellow and White-fleshed TURNIPS, POTATOS, &c. Grown by their customers in various parts of the United Kingdom.

One of the Firm will attend at the Stand, where orders will be received for Seeds at moderate prices.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Specimens of



SUTTON'S CHAMPION SWEDE,

(which has taken numerous Prizes again this season), may be seen on

MESSRS. SUTTON'S STAND,

AGRICULTURAL HALL, ISLINGTON,

where Orders will be received.

Royal Berkshire Seed Establishment, Reading.

Smithfield Club Show.

STAND No. 98—GALLERIES.

WILLIAM SKIRVING begs to announce to his Friends and the Public that he will ATTEND, as usual, at the ensuing LONDON CATTLE SHOW (AGRICULTURAL HALL, ISLINGTON), to Exhibit Roots and Take Orders for AGRICULTURAL SEEDS of the most approved kinds.

Liverpool.—Dec. 3.

Smithfield Club Show.—Agricultural Hall.

DECEMBER 5, 6, 7, 8, 9, 1864.
STAND 56.

MESSRS. J. C. WHEELER AND SON, of Gloucester, will exhibit specimens of their well-known WHEELER'S IMPERIAL SWEDE, and ORANGE GLOBE MANGEL: and, by the kind permission of the Growers, the PRIZE WHEAT and BARLEY shown at the Gloucestershire Root and Grain Show; also, specimens of a NEW POTATO, of extraordinarily fine quality, called MILKY WHITE.

J. C. WHEELER & SON, Seed Growers, Gloucester.
STAND 56, Smithfield Club Show.
Seedsmen to the Gloucestershire Agricultural Society.

Smithfield Club Show.—Agricultural Hall.

JAMES CARTER AND CO.'S STAND of PRIZE ROOTS, No. 96.

CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

CARTER'S FARMER'S VADE-MECUM.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

TRADE MARK.

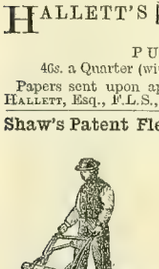
HALLETT'S [PEDIGREE] NURSERY WHEAT.

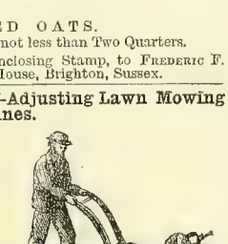
PURE SEED OATS.

40s. a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

Shaw's Patent Flexible Self-Adjusting Lawn Mowing Machines.





JOHN SHAW respectfully solicits an inspection of his improved LAWN MOWERS, at STAND No. 37, in the GALLERY of the SMITHFIELD CLUB FAT CATTLE SHOW, AGRICULTURAL HALL, ISLINGTON, on December 5, 6, 7, 8, and 9.

From the MARK LANE EXPRESS, *August* 15, 1864.

"SHAW'S 'Flexible' Lawn Mower is a decided improvement in that useful and much used class of implement. The handles being attached by hinged joints, enables the cutters to follow undulations of ground without affecting the height at which the workman holds the handles; and the Machine, by an instantaneous change, can be used as a simple Roller; and again, by another change, be most snugly folded up for convenient stowage in a tool house, or for travelling."

Illustrated Descriptive Price Lists, with Testimonials, may be obtained at the Stand, or post free direct from the Works, on application to

JOHN SHAW, Junction Works, New Wortley, Leeds.

Smithfield Club Cattle Show.

STAND No. 97.

BENJAMIN EDGINGTON (ONLY), MARQUEE, TENT, RICK CLOTH, FLAG, and TARPAULIN MANUFACTURER, 2, Duke Street, London Bridge, S.E.

No other Establishment.

Hoven or Choked Bullocks or Sheep.

CAUTION TO FARMERS.—"A flock of fine Ewes, all in Lamb, and amounting to nearly 900, were closely folded on Tuesday night upon Rape and Buckwheat at New Barn Farm, in the parish of Calbourne. On the shepherd paying a visit to his flock on Wednesday morning, 118 of them were already dead from the effects of gross feeding—the animals getting blown; they were soon choked and turned over on their backs, without the remotest hope of saving them."—*Hampshire Independent*, October 1.

READ'S IMPROVED HOLLOW PROBANGS are a safe and a sure REMEDY for BLOWN or CHOKED CATTLE, SHEEP, &c.

Manufactured only by RICHARD READ, 35, Regent Circus, London; and will be exhibited at the SMITHFIELD CLUB CATTLE SHOW, STAND 108.

Smithfield Club Cattle Show 1864,

(IN THE GALLERY.)

HENRY CLAYTON AND CO., of the Atlas Works, will exhibit some specimens of their Improved Patent
BRICK MAKING MACHINES, combining Crushing, Pugging and Moulding.
BRICK and TILE PRESSING MACHINES.
COMBINED MOULDING and PRESSING MACHINE for Fire Bricks.
TILE and PIPE MAKING MACHINES.
NEW PAN TILE MOULDING MACHINERY.
PORTABLE MORTAR MILLS.
PATENT "PNEUMATIC SYSTEM" for Drying Bricks and Tiles.

Catalogues free by post on application at their new Manufactory, Woodfield Road, Harrow Road, London, W., (late of Upper Park Place, Dorset Square.)

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

RICHARD GARRETT AND SONS, LEISTON WORKS, SUFFOLK.
Illustrated Catalogues.

Mangel Wurzel and Swedes.

GRANT'S PORTABLE RAILWAY supplies a most complete and economical means of clearing crops of Mangel and Turnips off wet land without injury to the soil, thus overcoming the only serious objection to growing those valuable roots on heavy land.

For particulars apply to the Manufacturer and Patentee, J. GRANT, Linton, Kent.

AGRICULTURAL MACHINERY.—Chaff Cutters for hand or power, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters and Pulpers, and all kinds of Agricultural Implements; also the Prize Churn, Wire Netting, &c. Delivered carriage free. Price Lists on application.

BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

Land Drainage

EXECUTED by CONTRACT OR ON COMMISSION, and LOANS OBTAINED by MR. THOS. SCOTT, LAND AGENT and VALUER, 18, Parliament Street, London, S.W.

N.B.—Mr. SCOTT has already Drained upwards of 10,000 Acres in England, and will be happy to show works in progress or completed.

Several most desirable Estates and Farms on hand for Sale and Letting.

Honourable Mention, International Exhibition, 1862.

SCOTT'S SELF-REGULATING SYPHON DRINKING TROUGHS for CATTLE and SHEEP.
Prices and Sketch sent on application to
Mr. THOS. SCOTT, 18, Parliament Street, London, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE BIRMINGHAM and MIDLAND COUNTIES EXHIBITION of CATTLE, SHEEP, PIGS, ROOTS, CORN, IMPLEMENTS, and POULTRY.

The ANNUAL GENERAL MEETING of the SUBSCRIBERS of the Birmingham and Midland Counties Exhibition was held on THURSDAY, December 1, at the Hen and Chickens Hotel, New Street.

Present, the MAYOR of BIRMINGHAM (H. Wiggin, Esq.), in the Chair.

The Advertisement calling the Meeting having been read, and the Minutes of the last Annual General Meeting confirmed and signed—

Proposed by Mr. J. MATHEWS; and seconded by Mr. J. LOWE; and—

Carried unanimously—

1. That the Right Honourable the Earl of HARROWBY be appointed President of the Society for the ensuing year.

Proposed by H. LUCKCOCK, Esq.; seconded by Mr. T. B. WRIGHT; and

Carried unanimously—

2. That the most grateful thanks of this meeting be presented to the Right Honourable Lord WALSINGHAM, for his liberal support and courteous attention to the interest of the Society during the past year.

Proposed by the MAYOR; seconded by G. M. CALDECOTT, Esq., and

Carried unanimously—

3. That the thanks of this Meeting be given to the Right Hon. Lord Walsingham, the President, for his Prize of 25 Guineas; to the Right Hon. the Earl of Aylesford, for his Prize of 15*l.*; to the Hotel and Innkeepers of Birmingham, for their Prize of 25 Guineas; to the Mayor of Birmingham (William Holliday, Esq.), for his Prize of 10*l.*; to Alderman Hodgson and Councillor Baldwin, for their Prize of 10 Guineas; to C. N. Newdegate, Esq., for his prize of 10 Guineas; to Messrs. Mapplebeck & Lowe, for their Prize of 5*l.* 5*s.*; to the Linen and Woollen Drapers of Birmingham, for their Prize of 25*l.*; to Messrs. Proctor & Ryland, for their Prize of 10 Guineas; to Messrs. Griffin, Morris, & Griffin, for their Prize of 10 Guineas; to Messrs. Billing, Son, & Co., for their Prize of 5 Guineas; to the Poultry Amateurs, for Prizes amounting to 9*l.*; and to Mr. G. F. Greensill, for his Prize of 5 Guineas.

Proposed by Mr. J. MATTHEWS; seconded by W. JAMES, Esq.; and

Carried unanimously—

4. That the best Thanks of this Meeting be given to Mr. JOHN SHACKEL, for his great exertions in the arduous duties of the office of Honorary Treasurer, which he has hitherto fulfilled, and that he be re-appointed Honorary Treasurer for the ensuing year.

Proposed by G. C. ADKINS, Esq.; seconded by Mr. Alderman HOLLIDAY: and

Carried unanimously—

5. That the Thanks of this Meeting be given to Mr. F. SMITH for his kindness in granting the free use of his room on this and former occasions.

Proposed by H. LUCKCOCK, Esq.; seconded by Mr. R. H. MASFEN, and

Carried unanimously—

6. That the following Noblemen and Gentlemen be the Council for the ensuing three years:—

Warwick, the Rt. Hon. the Earl of
Craven, the Rt. Hon. the Earl of
Hill, the Rt. Hon. the Viscount
Calthorpe, the Hon. F. H. W. G., M.P.
Chetwynd, Sir George, Bart.
Peel, Sir Robert, Bart., M.P.
Phillips, Sir G. R., Bart., M.P.
Newdegate, C. N., Esq., M.P.
Holland, Edward, Esq., M.P.
Adkins, G. C., Esq.
Chawner, R. C. Esq.
Jaffray, John, Esq.
James, William, Esq.
Lloyd, Thomas, Esq.
Matthews, William, Esq.
Muntz, G. F., Esq.
Holliday, William, Esq.
Ratcliff, C., Esq.
Whateley, John W., Esq.
Baldwin, Mr. James
Beach, Mr. William A.
Burbridge, Mr. Thomas
Burman, Mr. F. F.
Cattell, Mr. James
Chance, Mr. F. H.
Couchman, Mr. Charles
Dain, Mr. Benjamin
Druce, Mr. Samuel
Fowler, Mr. William, Jun.
Freer, Mr. E., Jun.
Gillott, Mr. Joseph
Gwyther, Mr. Edwin
Hodgson, Mr. T. R. T.
Horley, Mr. F., Jun.
Lort, Mr. W., Jun.
Lowe, Mr. Henry
Lowe, Mr. John
Mapplebeck, Mr. W. B.
Marshall, Mr. Henry
Matthews, Mr. W., Jun.
May, Mr. G. A.
Osborn, Mr. Henry
Ryland, Mr. T.
Sabin, Mr. F.
Scott, Mr. W. J. B.
Smith, Mr. Joseph
Umbers, Mr. Samuel
Woodward, Mr. William
Wright, Mr. T. B.

The Mayor having left the Chair, and the same having been taken by C. M. CALDECOTT, Esq., it was

Proposed by H. LUCKCOCK, Esq.; seconded by Mr. T. B. WRIGHT, and

Carried unanimously—

That the best Thanks of this Meeting be given to the Mayor, for his kindness in presiding on this occasion, and for his offer of a Prize of Twenty Guineas.

Sewage of Towns.

JOHN MARRIAGE, the Lessee of the Lands upon which the Croydon Sewage is applied, advises and assists Boards of Health, Corporations, Owners of Estates, and Agriculturists, &c., as to the APPLICATION of SEWAGE to LAND, the mode of its Distribution, the suitability and manner of laying out such Land, and all the details connected with the profitable utilisation of Sewage.

Grassmere, near Mitcham, Surrey, S.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.

22, Parliament Street, Westminster, S.W.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1864.

President.—The Right Hon. the Earl BATHURST.

Council.

The Rt. Hon. the Earl BATHURST. | The Rt. Hon. T. H. SOTHERON ESTCOURT, M.P.
Hon. WILLIAM BATHURST. | EDWARD HOLLAND, Esq., M.P.
The Rt. Hon. the Earl DUCIE.

Principal—The Rev. JOHN CONSTABLE, M.A. Trin. Col. Camb.

RESIDENT PROFESSORS.

Practical Agriculture—J. L. FLETCHER, Farm Manager. *T. BALDWIN, of Glasnevin. *R. SCOTT BURN, Co-Editor of the Book of Farm Buildings.

(*These Gentlemen will be in temporary residence.)

Chemistry.—ARTHUR H. CHURCH, M.A., Lincoln Coll., Oxon., F.C.S
Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S.
Botany.—JOHN BAYLDON, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. MURRAY, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. MEREDITH LANE, M.A., late Scholar of Trin. Coll. Camb.
Drawing.—JAMES MILLER.

SPECIAL LECTURERS.

FINLAY DUN—On the MANAGEMENT of STOCK.
W. C. SPOONER—On the FARM HORSE.
SAMUEL COPLAND, "The OLD NORFOLK FARMER."

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A COURSE of LECTURES.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.—The GENERAL MEETING of MEMBERS will be held at the Society's House, 12, Hanover Square, on THURSDAY, Dec. 8, at 12 o'Clock. By order of the Council,

London, December 1, 1864. H. HALL DARE, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 3, 1864.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec. 5 to 9		Smithfield Club Cattle Show in the Agricultural Hall, Islington.
FRIDAY,	— 9		
MONDAY,	— 5		London Farmers' Club (Mr. Mechi on Farm Profits), in the Great Room of the Society of Arts, St. John Street, Adelphi—5.30 P.M.
TUESDAY,	— 6		General Meeting of the Smithfield Club in the Agricultural Hall.
WEDNESDAY,	— 7		Council Meeting of Royal Agri. Soc.—11 A.M.
THURSDAY,	— 8		General Meeting of Royal Agri. Soc.—Noon.

—— THE paper entitled TWENTY-FIVE YEARS' WORK IN IRELAND, which is this day published in our columns, well deserves a careful perusal by every one interested in the social and agricultural improvement of our country districts; although especially inspiriting and instructive as regards the prospects of agriculture and of all the classes dependent upon it in the sister island, its influence will be useful everywhere — for everywhere it teaches the efficacy of example, precept, resolution, when these are directed by intelligence and justice. We are fortunate in having the history of so good an instance of estate management entrusted to our publication. But the object of the author no doubt is to relate his experience as widely as possible for the general good, and we hope that our agricultural contemporaries will help him to make it known.

THE old fiction that it is possible to increase the produce of a plant by dipping in some fertilising fluid the seed from which it springs is being reproduced. Twenty years ago a Mr. BICKES had the help of all the agricultural journals, our own among the rest, to make known the alleged advantages of such treatment in the case of Wheat. And at that time we superintended and directed a number of ½-acre experiments in a Wheat field, in which the usual quantities of seed were steeped in solutions of various ammoniacal and other salts before sowing. The results were sufficiently conclusive on the utter worthlessness of the application, so far as quantity of produce was concerned; and soon after the idea, which had originated in France, died away from public view. Another Frenchman however has come lately to the rescue.

"M. BOUTIN, an agriculturist, and formerly a chemist at Libourne, in the department of Gironde, France, who for many years past has devoted himself to the discovery of a manure which possessed the much-wished-for qualities of increasing the produce of seeds sown, and at the same time of diminishing the cost at

present indispensable to all who wish for abundant returns, claims to have succeeded in his researches, and the statements he makes are borne out by testimony which places the value of the discovery beyond all doubt. M. LÉON PLÉE, in a recent number of the *Siècle*, highly eulogises the process, which simply consists of the previous preparation of seeds by steeping them in a certain liquid, which imparts an extraordinarily revivifying force, and enables them to contend successfully against all the evil influences to which they are subjected after being committed to the earth.

"M. BOUTIN has met with his reward in seeing his fields covered with crops such as they never bore before, and such as were never dreamt of under the ordinary system of agriculture without a very great expense in the most costly manures at present known to science. The French Minister of Agriculture and other competent authorities have stated that 500 million francs are annually paid for the fertilising substances deposited in French soil; but M. BOUTIN knows nothing of this expenditure, as by his process he is enabled to raise his crops without resorting to the ordinary and much-vaunted manures. The method adopted is certainly not new, as VIRGIL informs us that, in his day, it was customary to steep seeds in nitre water or residue of oil—poorly fertilising processes at the best; but M. BOUTIN uses a liquid composed of powerful ingredients which forms around the grain a thin covering of quite a peculiar nature. This covering protects the seed against the enemies which habitually destroy it, and fortifies it in such a manner that some of the crops gathered from seeds thus prepared represent the astonishing increase of 2000 per cent."

A small barrel of liquid, we are informed, is sufficient to prepare seed for the sowing of a hectare of land. The Minister of Agriculture, M. ROUHER, appointed a commission to investigate the subject, and the following is stated to have been the result of their inquiry:—

"The soil offered by M. BOUTIN, and chosen by the Commission, was of a sandy nature, and was situated at a place called l'Epinette, near Libourne. It was known to possess but poor fertilising powers, but Wheat had been grown on it for two or three years without manure. It was arranged with M. BOUTIN that the Wheat should be sown on the land in the condition in which it then was, and that no manure or other fertilising substances should be laid on it without the knowledge of the Commission. One portion of the seed was treated in the ordinary method—that is, it was soaked in a solution of blue vitriol, and another portion was soaked in M. BOUTIN'S solution, the seed being sown on alternate furrows as proposed. On the 8th December, 1856, in presence of a sub-commission, 30 litres of seed prepared in the ordinary way and 45 steeped in M. BOUTIN'S solution were sown. Some portions were covered with stable manure, and some were not, but in the four portions of land on which the experiment was carried on no manure was used with the seed prepared with M. BOUTIN'S solution. Before the harvest on June 27, 1857, the commission inspected the growing Wheat, and, after a minute examination, it was decided that the parts sown with M. BOUTIN'S seed looked better than any of the others, even where manure had been used. On the 15th September following, after the whole of the Wheat had been reaped and threshed, the produce was measured and compared, when it was proved that the plots sown with grain which had been prepared with M. BOUTIN'S solution were more productive than any of the others. As a further test, some of the Wheat was weighed and ground, with a result equally satisfactory to the inventor.

"A company, having its seat in the Avenue des Ternes, at Paris, has been formed to carry out the discovery. Testimonials have been received from all parts of France. Six landowners residing at Libourne have also issued a certificate proving that for more than 10 years M. BOUTIN has cultivated his land with the aid of his solution without manure; that each year he has obtained magnificent crops on a soil by no means fertile; and that he has even raised many Wheat crops in succession."

Why have we heard nothing of this wonderful success till now, seeing that the Government Commission issued their report seven years ago? The great defect in all such statements as the above is the indefiniteness with which they are chargeable. It does not state actual quantities; but uses only qualitative terms. Moreover, no means seem to have been taken to determine the natural variation of productiveness in the plots compared. Great public good is done by the many inquisitive persons who are investigating the differences of growth and produce between plots of land and lots of cattle under different treatment; but even more good would be done if any one would undertake to examine and record the difference of growth and produce between plots of land and lots of cattle under *similar* treatment. Even greater differences would be occasionally observable, arising from no directed or observed agency whatever, than are sometimes the result, as is believed, of steeping seed for land, or using *e.g.* condiments in cattle food.

We need hardly say that we do not in the least believe in M. BOUTIN'S steeps for seed.

TWENTY-FIVE YEARS' WORK IN IRELAND.

IT may perhaps be useful to give some account of 25 years' work in the management and improvement of an estate in Ireland.

Five years ago much was heard of the greatly improved state of all classes in that country and their general prosperity. During the past two or three years, however, statements very much the reverse have been common. The gloomiest pictures have been drawn by some, and it has been doubted whether any substantial improvement in the condition of the people, especially the tenants, has taken place. It has been said the land is not paying even for outlay on drainage, that the settlers from England and Scotland are not thriving, and in short that hopelessness is as much the fate of Ireland as ever.

A plain narrative of what has actually been done on one estate may throw some light on these opposing accounts, and enable a judgment to be formed what degree of truth there is in either or both of them.

The estate is in the South of Ireland. It originally consisted of about 2000 acres, but has gradually been increased by purchase to near 4000. It had been left wholly to agents and thoroughly neglected. One hasty visit in two generations of owners was all the personal care known to have been given to it. It need hardly be said, no money had been laid out upon it. From accidental causes the farms were less sub-divided than on many estates. They averaged about 25 acres. Some contained 50 acres and over, and many were from 10 to 15 acres.

It is on the carboniferous slate formation. The surface is undulating, with somewhat rounded hills, 300 or 400 feet high. The soilon the hills is generally rather thin, *i. e.*, the rock not far from the surface and often breaking out, but in quality a fair Turnip loam. The bottoms and sometimes sides of the hills are wet with springs and peaty, often cut out peat bog, but occasionally deep good land. On the whole it is land of fair quality, but very little of it could be called thoroughly good land. The climate is one of the wettest in Europe, cool in summer and mild in winter.

The course of treatment (farming it can hardly be called) pursued formerly, was paring and burning for Potatos, with such manure as there was applied to the same crop. This manure was chiefly earth drawn the previous autumn to the yard, and mixed with such small quantity of dung as a starved horse or two and the few cattle kept made, and sometimes with calcareous sea-sand besides. The Potatos were followed by Wheat, and if the land would bear it, this again by Oats once or twice, and then left to rest, as it was called, three or four years, *i.e.*, to grow weeds, no Grass seeds or Clover whatever being usually sown, till some sort of skin was formed, enough to burn again. It may easily be judged what was the result of such a course. Very little stock could be kept; 20 bushels of Wheat per acre were thought a capital crop—12 bushels were more frequent. Green crops were almost unknown. Draining hardly thought of. Rents were very irregularly paid, and tenants were little better than paupers. A reduction of rents on the estate had been tried, but arrears still accumulated. There was never any certainty what money would be received, and it was a source of constant vexation and difficulty to the landlord, whilst the tenants were most of them always in trouble. All this was before the Potato failure was thought of.

It was at last resolved to try a system of improvement that had succeeded elsewhere.

An agent was altogether dispensed with. All former arrears of rent, with trifling exceptions, were wiped off, and it was announced that all future rent would be rigorously insisted on about three months after it fell due, on regular half yearly days, fixed to suit conveniently local fairs. Two or three of the worst tenants, believed to be incorrigible, were ejected *in terrorem*, and their farms divided among the better sort. The growth of small quantities of Clover and Turnips was made compulsory, and a Scotchman set to work to teach how to do so. Prizes of improved ploughs were offered for the best crops, and a small model farm was started.

It was uphill work for some time, and only carried out by personal influence and superintendence; but at the end of five years the stock on the estate had doubled, and the rent was regularly paid on a single day in each half year without trouble, whilst not more than six or eight tenants, including the first victims, had been turned out. It need hardly be added that the rest were better off than they had ever been before.

All this had been done by two or three visits in the year from England, but at this time circumstances led me to reside on the estate. Things went on thus improving for two or three more years, then the Potato failure and famine came, with the complete upset of the social state previously existing. By that time we had got into such a condition that the first failure of 1845 seemed hardly to affect the tenants. Even in the great failure of 1846 there was nothing like distress among them. The larger dependence upon stock, and the experience in the growth and use of Clover and Turnips, enabled them to face the troubles of the times much better than their neighbours; but when the summer of 1847 came with the great emigration, and prospect of still further failures, it became clear that the system that had formerly answered would no longer do so.

I think the direct effect of the break down of the social system in Ireland, depending on the Potato crop, has never been sufficiently observed in England. It was not merely a famine, where, as soon as it was over, people had only to go on again in the old ruts, but a great social upset, where, after it was over, quite new ways had to be entered on, which very few knew anything about, and in which no one could feel any confidence, whether he would succeed or fail. The difficulties to be got over were really immense.

In the district of which I am writing a complete truck system prevailed. The tenant provided the labourer with cabin, Potato land (the labourer manuring it himself), Grass for two or three sheep, the wool of which was spun into freize for coats, &c., by the labourer's wife, a small patch of Flax, spun in the same way for linen, and he drew home the turf which the labourer and his family had dried themselves. All this was paid for by work at so much per day, the man being himself fed on Potatos by the farmer, whilst at work besides. The farmer thus got his labour and a manured field for corn the following year without money out of pocket, whilst the labourer got all the chief necessaries of his life in exchange for his labour, also without money.

It is easy to see the effect of the Potato failure upon such a system. Money wages at once became indispensable. This was just what the farmer had not to give, whilst the labourer could not otherwise live. He therefore could not stay where he was, and so the farmer lost his labour and manured field, whilst the cabin became roofless. And hence an entirely different social state was forced in; farming became more of a business, requiring outlay of money at least to some extent, and so dairy and stock farming have increased, because needing less of such outlay than tillage. This again has caused less employment for the labourer, whilst from the day his labour was paid for in money, the attraction of the higher money price of such labour in America operated with double force, and hence increased emigration. To the smaller and poorer farmers, who had little or no stock, the change was doubly severe. In addition to other troubles they were forced to buy meal on credit for themselves and their families for many months of the year. Doubtful if any new plans would succeed, and without means to carry such out, they were indeed between the upper and nether millstones.

But to return from this digression. In the summer of 1847 several of the worst-off tenants on the estate proposed to give up their farms and emigrate, although a reduction of rent had been made, to continue whilst the bad times lasted. They were given some help to enable them to emigrate, and many of them went off.

But a general discouragement and unsettlement throughout the country now set in. No one, either landlord or tenant, felt any confidence in the future, or in fact could see what was the best course to follow. Throughout the country numbers of tenants were giving up their farms and going away. Often all the tenants of a plough land would run off by night to a distance with stock and crops, leaving the landlord to recover the possession of the land as he could by ejectment, perhaps 12 months afterwards, and with a heavy arrear of rates upon it. It was a common saying among the tenants that "the landlords and labourers would soon have the land all to themselves." It was a terribly anxious time. No one could tell from half year to half year what course things would take, and that he might not have every acre he owned thrown on his hands. To lay out capital at such a time on improvements and doubtful farming was felt to be nothing less than spending what might be wanted before long for actual subsistence. Few who went through that time of wretchedness will ever forget it.

Of course, under these circumstances, it was impossible to relet any land thus given up at the former rent. Yet if relet for less, it would have caused still more trouble among the remaining tenants, who would have resorted to all means in order to get a like reduction on their own farms. It was therefore resolved to keep in hand any land that could not be relet at the former rent. Four to five hundred acres were thus taken up. This was done simply to avoid worse evils. The land, in spite of the improved condition of the tenants, was still miserably poor, and of course it was the worst who failed. All the objections to "gentlemen's farming" were strongly felt, and no instance was known in the district of such farming having paid. The opinion of those best able to judge was, that tenants could make such land pay best, and there were many instances of gentlemen taking up considerable farms, and after spending largely on them for a few years, being glad to get out of them again. Of course there was the general consideration the other way: that improved farming, with reasonable skill and judgment and capital, ought to pay better than the wretched system prevailing. But no one was known to have done it, and the almost universal opinion of the country found loud expression in the saying, "He will soon be tired of that." No one who has not tried it can tell what is required to face the discouragement of having to work out a plan against the universal opinion of everybody about him. Still it had to be done. It was partly smoothed over by the idea

that at worst it would answer to improve somewhat the very poorest of the land, and perhaps in a year or two times would mend, and, it might be, relet at the former rent. During the famine years a good deal of draining and reclamation of waste land had been carried on for the sake of giving employment. It was intended that the tenants should pay the interest on this, but they were generally unable or unwilling to do so. So a good deal of this sort of land had also to be held.

Thus another new system was started. The buildings of the former model farm of 50 acres were enlarged, and partially adapted for 500 acres now in hand; and it was resolved to try sheep largely, as not requiring outlay for buildings. The land was greatly scattered, just as it happened to be given up by the tenants. Some of it was three miles from the buildings, but it was well placed for roads. It has since been constantly changing to some extent; parts being let to adjoining tenants when it could be done to advantage, and other farms of tenants who failed added instead. One advantage we had. Much tillage was clearly unsuitable, both to the soil and climate. The rainfall and constantly mild moist atmosphere, so unsuited to corn, were the very condition needed for Grass. There was no trouble in getting a close sole of Grass in three years, such as an English farmer might easily suppose was old pasture; and most good farmers agreed that dairy and stock farming paid better than anything else in this district, even before the famine.

The course of farming followed was to break up the land for Oats, where it would give a crop; then Turnips manured, half of them fed on the land by sheep with hay, and the rest given to cows and young stock in the yard, only a few head being fattened. The Turnips were followed by Oats again, and Grass-seed, and the land was then left in Grass for four or five years, or till it was convenient again to go over it. The poorest fields were first attacked, because it was thought if the land was let again in a few years, an improved face on these parts would help to let it, and ensure a better rent. But in truth they looked such utter starve-alls, that for the sake of one's own feelings it was needful to improve them. The effect of the Turnips fed off with sheep was little short of magical, even on the waste land. It never failed at once to give a good crop of Oats and seeds after, and to put the land thenceforth in a state to pay something.

On parts of the land that were suitable, and where the old buildings answered, small dairies were started; the cows being let to some of the best of the labourers, whose wives understood butter making. Any tenants who were turned out and did not emigrate, were, if they liked, employed with their families, but treated merely as other labourers. Some of these have proved our very best men, and are still with us. It has for years been their pride to go to mass better dressed than the small farmers around.

Yet the results of the first three or four years, as shown in the balance-sheets, were far from encouraging: 7*s.* or 8*s.* per acre for rent and interest was the best that could be made after charging all that could be fairly charged to capital as permanent improvements, and for this a large outlay was needful. The land that had been gone over no doubt had a very improved appearance, but the whole required the same process. The lea Oats seldom returned the seed and labour, and 50 or 60 acres manured in a year made slow progress over 500.

But in spite of discouragement it was resolved to go on. The former rent of the land taken up varied from 9*s.* 6*d.* to 20*s.* per acre. It averaged on the whole about 17*s.* At length in 1851 the return for rent and interest rose to 12*s.* per acre; 1852 was no better; but in 1853, a year of high prices for everything, the balance suddenly started to 27*s.* The next year, however, it went back to 22*s.* In 1855 it was 23*s.* 6*d.*, and in 1856 it fell off again to 21*s.* 6*d.* In 1859, however, another great step was gained, and 31*s.* was reached, though in 1858, from accidental causes, it again went back to 22*s.* 6*d.* 1859 was somewhat better, but only 25*s.* At last in 1860 and 1861 it again exceeded 30*s.* Then came 1862, the first of our series of wet years, only producing 20*s.*, and 1863, still worse, 18*s.* These deficiencies were however partly caused by 80 acres of poor land having been thrown in and by a change of bailiff, and throughout it must be remembered that additions of poor land and other accidental causes, partly account for the fluctuations.

May, 1864, again however brought the profit up to 28*s.* 6*d.* It is believed we have not yet nearly reached the highest profit to be made. It is certain all the land is capable of far higher condition. These results have been *bonâ fide* balances, after charging bailiff's salary and all expenses; not landlord's improvements, as buildings, drains, and fences. They have been made up always to May 1, because corn and stock had then been mostly sold and so little was left for valuation, except permanent stock which has been kept at a nearly uniform and rather low price. A good deal of guano and bones were used yearly, and all charged to the year, but not much cake or corn was used for feeding, though we are now beginning to do so largely. It need not be said the crops have improved, especially where the land has come a second time under manuring. Now that the land itself is in a different condition, its whole appearance is changed. It would be hard for any one who had not seen the process to believe it is the same land.

Now as to the effect on the rest of the estate. After the famine years were over, the same course as before was pursued with the tenants. Whatever rents they had promised were punctually enforced, unless for very definite causes, and any tenant that could not pay was considered unfit to remain on the land. On the other hand they were allowed to understand, that no one paying his rent would have it raised or be dispossessed during his life, unless for gross misconduct. The objections to so long a tenure were not overlooked, but on the whole it was considered an advisable concession to the feelings and prejudices prevailing in the country. Of course when a tenant died or gave up, his successor had to make a new bargain, and in this way a steady rise in the rental is going on. No sale of his interest (as it is called) by a tenant to a successor was ever allowed, directly or indirectly. The tenants saw before I did, that the farm was paying. And the first result was to put an end to all scheming. The talk, "He will soon be tired of that," gave place to, "No wonder he can make it pay, with capital and no rent to pay." It was useless to pretend poverty and neglect their farms in hope of getting a reduction of rent, or throw them up in order to spite the landlord. They saw that the more land was surrendered, the better profit would be made.

The rent being strictly enforced, and yet never raised during a tenant's life, there was one clear way of success left open, and only one, viz., industry and manuring the land. All saw that if they did not take this way, they would lose their farms, from which a better profit would be made, whilst if they did succeed, they were safe to reap the fruits themselves for a reasonable time. In bad years the utmost exertion and economy were no doubt necessary in order to pay the rent, but then when good years came, nothing was hanging over them, and all the profit was their own. Any thing like habitual neglect or extravagance thus very soon felt the pinch. It made constant steady exertion and self-reliance almost compulsory, and thus tended to correct a weakness of national character. It is a remarkable fact, that from beginning to end there was not a single instance of a really industrious tenant having failed. However bad the times, every honest hard-working man has got through. Something also was perhaps due to the tenants seeing a determination that somehow the estate should be thoroughly improved. Building, draining, fencing, reclamation of waste, were all steadily carried on. The opinion of the labourers, who found themselves better off than their neighbours, with constant work for themselves and their families, was also not without influence.

As soon as it was found practically that tenants could make money under such a strict system (as it was thought), a considerable moral effect was produced. One must live in Ireland fully to appreciate the difference between "a warm" or even "snug" Irish farmer, and the same man out at elbows. It is hard to believe they are of the same race. Nothing has been done for many years to urge or encourage particular crops, even Turnips. The one only exhortation has been "manure your land better." It was very early seen that more manure is all that is wanted to make the land pay, and that nothing else will do it. Whatever the causes however, it is certain the tenants have thriven wonderfully, and are thriving more and more every year. They have every appearance of prosperity about them. The arrears on the estate at the present time amount to 3*l.* The rent day, instead of a day of long faces and complaints on one side, and sharp words on the other, is got over by three or four hours work, with pleasant greetings and cheerful words. I do not think it is possible there should be a better feeling between landlord and tenant than exists. No driver (or under agent as such men now call themselves, the vilest class in the country) has been kept at all for many years. I believe there are very few on the estate who do not feel that though the management is strict, yet it is considerate, and that they are regarded with sincere good will and personal liking. I know that they show similar good will in return.

I have said that in the past 10 years near 2000 acres have been added to the estate by purchase. This has been done by separate purchases of 300 or 400 acres each. The same plan has been followed with these, except in one important point, which perhaps, more than anything else, proves how thorough the success has been. Any really idle or bad tenants have been at once got rid of (there were however very few of these). With the rest, whenever there were no leases, the rents were considerably raised. I was under no engagement, express or implied, with these tenants, and therefore felt at liberty to make my own terms with them. I accordingly let them the land at the highest rent in my judgment it was worth to them. This was often a very considerable advance on the former rent, but was still less than in my judgment the land was intrinsically worth, and that I believed I could make of it by farming it myself. It could not have been carried through, unless the men had known I should take up the land myself, if my offer was not accepted; but nevertheless there was terrible grumbling in every case, and vehement predictions of certain ruin under such a rent. Three or four years in every case have however altered the story. Every single man has thriven. They had no choice but industry and manuring the land, and these soon made a much greater difference to them than the higher rent, and both the tenants and farmers are now in quite other condition than that they were in when the purchases were made. I need not add the purchases pay a good deal better interest than that at which they were bought. Two unfortunates were so unwise as to refuse the offers made them; many and bitter have been their lamentations since.

So plain has the whole thing become, that having lately taken an old tenant, in whose judgment I had confidence, to help me in valuing land to be sold, I had to discuss with him how much the rents could be raised. In giving his opinion that a much higher rent might be charged, he added, "Of course they will grumble, and maybe at first have hard work to pay, but in five years they will be as well off as the rest of us." I was met not long ago with the following speech:—"I cannot understand how it is your property is let one-third higher than many others in the neighbourhood, and yet your tenants are twice as independent and well to do as those who are paying so much lower rents."

The answer, I believe, is in the facts stated above. And this is the result of 25 years' work. I need not point out what a rise of 5*s.* per acre in the rent means to the landlord, if at the same time his land is in as good or better condition. I believe, besides this, that if raising the condition of the tenants and labourers had been the one object aimed at (and in truth it was in great part the original object, as a matter of duty), it could not have been more successfully reached in the time.

To conclude. I believe deliberately, that there is a mine of wealth for both landlords and tenants in the land of Ireland. Both classes are nearly equally to blame for not working it. The capital required is sufficiently within the reach of both. The proportion of the rent that the repairs of an English estate cost, would do the landlord's part quite as fast as is desirable; while on every estate there are tenants enough with ample capital to farm the whole of it well, if the idle drones were gradually got rid of. Many landlords are greatly to blame for ignorant neglect of their estates. All that is wanting on their parts is, that they should make the most of their land, with fair dealing towards the tenants, as men do elsewhere, and with the clear recognition of the fact, that the interests of landlord and tenant are really inseparable. On the other hand the tenants are to be blamed for very unreasonable expectations. They look on a farm, literally as the possession of an inheritance, not as a business, subject to similar risks and conditions as any other business, and from which if a man can make a living whilst in it, and when he leaves it can carry away something more than he began with, he may be well satisfied. They think that any improvement in their farms gives them a claim to indefinite consideration. It may have repaid them 10 times over, but that goes for nothing, and they lose far greater profits to themselves, for fear their landlords might gain by a higher rent even years after. Nothing can better show their feeling than the fact, that a 21 years' lease is thought hardly worth having. The instances of landlords unduly taking advantage of a tenant's improvements are at least as rare as in England or Scotland, and there is nothing but these silly expectations and the suggestions of tenant-right agitators to hinder any prudent tenant from farming well.

In judging of the state of Ireland, I think very few realise how utterly low the condition of the country was in the year 1800, or any time in the previous century that may be taken as a starting point. It was a state of excessive backwardness, not to call it by the harsher name of barbarism; and if this is lost sight of, no one can judge fairly of the progress that has been made. I believe forgetfulness of this fact is the key to half the contradictory views of the condition of Ireland; and that the truth is, great progress has been made, though the state of things is still far short of what is to be wished for. In some districts the progress has been far greater than in others. In the district I have been writing of, I am of opinion it has been immense. We are in a wholly different state in all respects from that we were in 25 years ago. Men's ideas are quite changed. I can remember when the improvement of an estate and its tenantry was always spoken of as an impossibility, the dream of an inexperienced enthusiast. It is very different now. I doubt whether in the same time greater progress was ever made in any country; but bad years of course check progress, and we are apt to forget how long it takes to remove the recollection of past evils and abuses, and to break clear of their effects. There are many men still alive who can tell all the incidents of the rebellion of 1798 in their own neighbourhoods from what they saw as boys. It is only a few years since men were alive who could tell what they had themselves suffered from the penal laws. Nevertheless, numberless facts could be mentioned, showing the utter backwardness of the country 50 years ago. Above all, it is certain there is still plenty to do, and will be for many a long year, and those who only look at what is wanting will have no trouble in making a strong case.

Should any of your readers wish to see for themselves what has been above related, you are at liberty

to furnish them with my name whenever you have reason to suppose it is for a *bonâ fide* object. I shall be happy to show them the estate and accounts. *An Irish Landlord.*

Home Correspondence.

The Cattle Melon.—If the expression of my honest conviction in plain words is indicative of want of intelligence, as Mr. Blundell wishes you to believe, I am willing to join issue with him, as to the value of his Squashes for an agricultural crop in this country. In the first place there can be no doubt about his having sent out seed, a fraction only of which germinated. This shows a total want of caution, to say the least of it, but it is almost incredible that so large a proportion of bad seeds could have been produced naturally. However, it has been introduced as something new, and by the coinage of a name we are led to believe that we have some hybrid varieties of peculiar value, whereas in my opinion they are nothing more than varieties of common Squash. If so, Mr. Blundell can lay no claim to paternity, unless this is conferred upon him by the simple growth of them for two or three years upon a garden farm in the south of Hampshire; where, even if 40 tons per acre have been produced under the most favourable circumstances of climate, soil, and high cultivation, it would be no proof of their suitableness for general purposes; and I have no hesitation in saying that until our climate is so changed as to enable us to grow Pine Apples and other tropical fruits to perfection in the open air, it will be totally unsuited as an agricultural crop for ordinary cultivation in this country; but if it could be grown it would require fruit-houses by the mile to keep it, and would not prove half equal to Vegetable Marrow in productiveness, or possess any advantage over it in nutritive value. *J. M'Indoe, The Gardens, Bromley Palace. Kent.*

Walsh's Gorse Crusher.—On the 12th ult. you reproduced from the *Irish Farmers' Gazette* a letter upon feeding with Furze, in which there is a passage which I am bound to notice. It is an extract from a report on my Furze Crusher by a committee of the Cork Agricultural Society in Nov., 1862. The said report would make it appear that the machine requires extraordinary care in the feeding of it; and that it is liable to choke if overfed in the least degree, &c. This remark I attach no importance whatever to; I have never yet met any implement or contrivance that went right when not managed as it was meant to be. It further states that the introduction of a branch half an inch thick would be productive of serious injury. To the stick it would, decidedly. What I seriously object to in the report is the conclusion then put forward and now revived, that the machine is suited to meadow Furze only, and not to bush or hedge Furze—the fact being that for two years before that date and ever since the machine has been in use almost exclusively for this latter description of growth. A few days after the trial alluded to, in a letter published by Mr. Townsend, the great authority in Furze matters, who was present, he says:—"It is the only implement I have seen, which reduces the hard coarse Furze to a pulp so as to be easily eaten by all descriptions of cattle." In justice to myself, and in fairness to the public, I have felt under the necessity of making these remarks; at the same time I disclaim any appearance of reflection on the letter itself, one of the most lucid and practical, in my humble opinion, that I have met with for a long time on agricultural subjects. In another part of your Paper I am requested to say where the Furze crusher is to be had in England. In reply, I have to say, that it is not to be had for sale in England at present. There is no stock on hand, and it is only to be had by communicating with me or with my agents Messrs. Edmondson, Dame Street, Dublin; or Mr. Thos. M'Kenzie, Camden Quay, Cork. *John Walsh, Stedalt, Balbriggan, Ireland.*

Societies.

MIDLAND COUNTIES AGRICULTURAL ASSOCIATION.

BINGLEY HALL, BIRMINGHAM.—The 16th annual Show of the Midland Counties' Association excels all its predecessors in the numbers, and in some Classes the excellence exhibited. Although no very extraordinary specimens of any of the breeds illustrated are shown, yet in some of its sections, and even in some whole breeds the Show has never been surpassed. For instance, we suppose that there has never been a finer exhibition of the Berkshire breed of pigs, which, as here displayed, is for all purposes the very best breed the English farmer has. The Leicesters and Long-woolled sheep, too, are shown in unusual force; and Lord Walsingham's pens of Southdown wethers, so far in advance of his lordship's own pens on previous years, we may say have never been before equalled. In the Cattle Classes the Hereford breed is in great and successful strength, and the West Highland Classes are also unusually good. The Poultry Show has grown even upon the enormous dimensions of previous years. The Show of Agricultural Implements is as good as usual. The display of Roots, notwithstanding the dry summer, is excellent; and the seedsmen make the most of the wall and platform area allotted for the exhibition of vegetables and seeds.

The following figures, giving the number of entries, indicate the steady progress which the Show has of late years made:—

	1859.	1860.	1861.	1862.	1863.	1864.
Cattle ..	109	110	104	131	163	151
Sheep ..	44	42	66	110	92	104
Pigs ..	81	75	72	70	93	91
Roots ..	87	118	196	116	124	109
Corn ..	..	..	..	15	57	60
Poultry.	1342	1135	1397	1364	1505	1677
Pigeons.	214	168	220	232	275	290
Total..	1877	1648	2055	2038	2309	2482

The extraordinary liberality of the Prize List, which offers no less than 795*l.* for cattle, 299*l.* for sheep, 137*l.* for pigs, 71*l.* for corn and roots, and 693*l.* for poultry and pigeons, ensures a large competition. And besides the systematic 1st, 2d, and 3d awards in each class in accordance with the scheme of the Association—there are prizes offered by President, Companies, Guilds, and firms which make the possibilities of competition very large indeed. Take the following resumé of the offers in the Cattle Classes alone, as they are described in the Birmingham *Post*:—These special honours given partly by the Society and partly by individuals, number among them, in the cattle classes, a silver cup of the value of 25 guineas presented by Lord Walsingham, the President, for the best ox or steer, of any breed or age, fed and bred by the owner; an extra prize of 15*l.*, given by the Earl of Aylesford for the best Short-horn bred and fed by the exhibitor; a 25 guinea silver cup offered by the hotel and innkeepers of Birmingham, for the best animal in the cattle classes; four extra prizes of 25*l.* each, for the best Hereford, best Devon, best Short-horn, and best Scot; and two gold medals, value 20*l.* each, for the best ox or steer, and the best cow or heifer, of any breed or age, in the Exhibition, the six last-named prizes being given, as usual, by the Society. It thus appears that if a Short-horn, bred and fed by the exhibitor, happened to be the premier animal shown, he might carry off, in addition to the 15*l.* prize of his class, Lord Walsingham's 25 guineas, Lord Aylesford's 15*l.*, the Hotel-keepers' 25 guineas, with the Society's extra prize of 25*l.*, and gold medal of 20*l.*, making up the handsome total of 128*l.*, which, especially if it chanced to be repeated at the Smithfield Show, would constitute a liberal reward for the pains and skill bestowed on the animal's culture. It is seldom, however, that honours accumulate quite to this magnitude on one competitor, though it is an ordinary occurrence for them to reach close upon the value of 100*l.*

In fact Mr. Phillip's Hereford ox, which receives the Gold Medal as the best *ox* in the yard, the Silver Cup as the best *animal* in the cattle classes—the 1st prize in its class, and the prize as the best Hereford, thus clears off close upon 90*l.* at once.

The HEREFORD BREED has distinguished itself by carrying off both the prizes in which it comes into competition with other breeds. The best ox and the best heifer are both Herefords this year.

The older oxen number seven—a very even and well bred and well-fed class. Mr. Phillip's ox, with which he declares to have closed his career as a feeder for exhibition, is a grand, massive, and level beast, than which no Hereford breeder could wish for a better exponent of the merits of his stock. He was bred by Mr. Rawlings, of Stoke, near Tenbury. Lord Shrewsbury's 2d prize ox is also a thick-fleshed well-fed animal. The whole class is a capital illustration of the breed.

The younger oxen, a more numerous class, is hardly up to the merit of its seniors. Mr. Yeoman's 1st prize steer is a deep-sided, well-made beast, with good quality of flesh. Mr. Pitts' 2d prize is of great width and thickness of flesh over the back and loin; somewhat light in the thigh. Ten Hereford Cows represent the breed in the class which contains what in the official judgment is the best female in all the cattle classes. Mr. Stedman's cow is a heavily somewhat patchily fed animal. The Hereford Heifers are one of the prettiest classes in the yard. Mr. Baker, of Kidderminster, takes the 1st prize for a somewhat small but neat and compact heifer, which heads an uncommonly even and well matched company of seven. Mr. Baldwin's 2d prize, and Mr. Arkwright's 3d are two very well matched comparisons.

The SHORT-HORN Classes are more numerously filled than their competitors. No fewer than 45 compete in the four classes. The older oxen include 13 animals, Sir W. De Capel Brooke's 1st prize ox is a massive red and white well-made beast, thickly covered with first-rate quality of flesh. The younger class, containing many good animals, is headed by Mr. Pulver's Short-horn ox, which happening to be the best ox bred and fed by the same exhibitor, comes in for an extra prize of 25 guineas offered by the President. The Cow class contains 10 specimens, of which the 1st, 2d, and 3d prize animals were bred in Gloucestershire, the 1st and 3d by Mr. Stratton, the 2d by Mr. Stiles Rich. The Short-horn heifers are a remarkably good class of nine. The Duke of Sutherland, Mr. Spencer of Ashby-de-la-Zouch, and Earl Spencer, being respectively 1st, 2nd, and 3rd.

The DEVON Classes are scantily filled, not more than 12 being shown in all the classes, none of which contain anything very remarkable for merit—in either the butcher's or the breeder's eye.

The WEST HIGHLAND Classes are the principal feature of the Show. A remarkably fine collection of oxen is headed by a deep and massive well-fed animal exhibited by Lord Derby, possessing wonderful loin and rib and flank. And this is no especial exception to the general character of the class, which contains many good animals. The polled classes of Aberdeen cattle, not so well filled as regards numbers, contain many large and symmetrical and well-fed animals, exhibited by Mr. M'Combie, who takes the 1st and 2d prizes, Mr. Martin and others. The prize lists in these and the other classes are given in detail below.

The SHEEP classes are a larger show than has been usually exhibited in Bingley Hall. Mr. Foljambe takes the 1st and 2d prizes for Leicester wethers. Long-woolled sheep not Leicesters are represented by Yorkshire *Leicesters* (?) and Oxfordshire Cotswolds; Mr. Riley, of Beverley, taking the 1st prize, and Messrs. West and Faulkner, of Burford and Bletchington, taking 2d and 3d. They are a good class.

The Southdown classes are beautiful, as usual. There never were more perfect models of style and symmetry than the wethers of Lord Walsingham, which carry everything before them. Both the shearling and two-year wethers are heavier than those of last year. Lord Radnor's sheep are also exceedingly good.

The Shropshire sheep fill large and excellent classes. Yielding both wool and mutton of first-rate quality, and abundantly; possessing moreover a hardy constitution, and being in the hands of energetic and intelligent breeders—no wonder that this breed is no longer merely Shropshire, but is found in almost every county in England. The 1st prize sheep are exhibited by Mr. Smith, of Sutton Maddock. We understand that they are selected from a comparatively small flock, of which nearly one half the produce are yearly sold as rams! Lord Wenlock, Mr. Holland, M.P.; Colonel Dyott, and other well-known names, are among the other successful exhibitors. Oxfordshire Downs and Cross-bred sheep furnish good classes.

The CLASSES OF PIGS are of varying merit. The smaller breeds and the Berkshires are remarkably well represented. The class of five breeding pigs of the Berkshire breed of one litter has never been surpassed. The competition is very close; the results are given in the prize list below. Only one of the pens is disqualified by Professor Gamgee—three fat pigs declared littered on the 4th of March looking more like 14 or 15 months old, and convicted, on the evidence of the dentition, of being older than they are declared to be.

Among the larger Fat Pigs, those of the Countess of Chesterfield, the Hon. A. N. Hood, Mr. Melville Cartwright, Mr. Stearn, and others, may be named. The older fat pigs shown by General A. N. Hood, Mr. Morland, Mr. Wainman, are among the best.

The Breeding Pigs of a large breed are not a good show. Many of those of a smaller breed are excellent, and here again Major-General Hood, Mr. Morland, Mr. Sexton, Mr. Wainman, and Mr. Stearn may be named.

The walk round the Galleries where the roots and corn are exhibited is as interesting as usual. The weather of the past summer does not seem to have affected the growth of the specimen Turnips, Cabbages, and Mangel Wurzel. But, indeed, it is true here, as over the whole agricultural field, that agricultural maxima are utterly worthless as to any influence which they exert on average agricultural experience.

There were never more extraordinary Cabbages exhibited than those of Mr. Robinson, of Derbyshire. His six 1st prize Cabbages average 55 lb. each, and the six with which he takes the 2d prize, average 50 lb. apiece! One would like to know the precise history of these individual plants. The collections of Long and Globe Mangels, Swedes, and Carrots which compete for the 10-Guinea Cup offered by Messrs. Griffin, manure manufacturers, are first-rate. The 1st prize goes to Mr. Moore, of Warwick, who has now taken it three years successively. The collections of Mangel Wurzel are very good. Mr. Hall, of Westbury, Wilts, is successful with a remarkably fine collection of Mangels and Swedes and Carrots for Messrs. Proctor's prize.

The Kohl Rabi, shown by Colonel North, M.P., are wonderful. Swedes generally very good. Carrots not so large as usual. It will be seen that all the prizes for Swedes go to Ireland, which is significant of the difference of our climate, especially influential in a year like the past.

The collections of Corn are both numerous and good. The Prize List below contains all the information that words can convey, unless we had a history of the cultivation of the different lots.

The Implement department includes ploughs, Turnip cutters, rotary corn screens, and corn crushers, shown by Messrs. Ransome, of Ipswich; cart and plough by Mr. Ball, of Rugby; chain harrow, cake crushers, and mills, shown by Messrs. Mapplebeck & Lowe, of Birmingham; ploughs and harrows, shown by Messrs. Howard, of Bedford; cake crushers and chaffcutters and pulpers, shown by Mr. Bentall of Maldon; carts, &c., shown by Ball, of Northampton; corn crushers by Turner, of Ipswich; root pulper, by Corbett of Wellington; rotary harrows, small engine, steaming apparatus, &c., by Ashby, of Stamford; disc root pulper, washing machine, &c., shown by Messrs. Hornsby, of Grantham; roller, cake crushers, &c., and American grist mill by Amies & Barford, of Peterborough; 10-horse power steam engine, by Burrows of

Banbury; corn screen shown by Boby, of Bury St. Edmunds; engine and threshing machine shown by Clayton & Shuttleworth; chaff cutters, Turnip cutters, &c., shown by Messrs. Picksley & Sims, of Leigh; steam engine and threshing machine, by Underhill, of Newport Salop; chaffcutters, &c., by Richmond of Salford; grinding machine and pulper, by Woods & Cocksedge of Stowmarket. There are many stands by manure manufacturers, containing samples of their manures, and of the roots grown by means of them—the latter greatly inferior to what are shown by the seedsmen. Of these a very great display is made by Messrs. Sutton, of Reading, by Messrs. Dickson, of Chester, and others. Messrs. Sutton's stand, at the further end of the Hall, includes 200 distinct specimens of Grasses, both in straw and seed, for permanent pasture. There are also some excellent specimens of improved varieties of Mangel Wurzel, Champion, and other Swedes, yellow and white-flesh Turnips, Parsnips, Robinson's Champion Drumhead Cow Cabbages, Carrots, and Potatos, all grown in various parts of the kingdom. Samples are shown at the stand of Mr. Hewitt, of Stowmarket, of the new Malt and Linseed meal, which is passed duty free by the Excise. It is offered at 12*l.* per ton, and contains 10 per cent. of Linseed—the remainder being malt.

The following is the Prize List:—

JUDGES OF CATTLE.—Mr. William Sanday, Holme Pierrepont, Nottingham; Mr. J. E. Jones, Springfield, Breinton, Hereford; Mr. H. W. Keary, Aldenham, Bridgenorth; Mr. Samuel Bloxsidge, Warwick; Mr. A. Govan, Burton-upon-Trent.

JUDGES OF SHEEP AND PIGS.—Mr. John Moon, Maristow, Roborough, Plymouth; Mr. John B. Spearing, Oxford; Mr. E. Gough, Gravel Hill, Shrewsbury.

JUDGES OF ROOTS AND CORN.—Mr. J. Mathews, Edgbaston House, Birmingham; Mr. Edward Davenport, Erdington.

REFEREE FOR THE AGES OF STOCK.—Professor John Gamgee, New Veterinary College, Edinburgh.

VETERINARY INSPECTOR.—Mr. E. Stanley, Stephenson Place, Birmingham.

STEWARDS OF STOCK.—Mr. Henry Lowe, Mr. W. J. B. Scott, Mr. John Lowe, and Mr. Joseph Smith.

STEWARDS OF SHEEP AND PIGS.—Mr. T. T. Burman, and Mr. H. Osborn.

STEWARDS OF ROOTS AND CORN.—Mr. T. Burbidge, and Mr. T. Ryland.

GENERAL STEWARD.—Mr. T. B. Wright.

SUPERINTENDENT OF STOCK.—Mr. Shrubb.

TREASURER.—Mr. Councillor Shackel.

SECRETARY.—Mr. J. B. Lythall.

HEREFORDS.

CLASS 1. HEREFORD OXEN, OVER THREE YEARS AND THREE MONTHS OLD.—1st, 15*l.*, Extra Prize of 25*l.*, Gold Medal, and Hotel and Innkeepers' Prize of 25 guineas, as best ox or steer, Mr. Jos. Phillips, Ardington, near Wantage, Berks: breeder, Mr. Rawlings, Stoke, near Tenbury; 2d, 10*l.*, Earl of Shrewsbury and Talbot: breeder, Mr. Bedford, Hadfield, Leominster; 3d, 5*l.*, Mr. Lewis Loyd, Monks Orchard, Addington, Surrey: breeder, Mr. John Monkhouse, The Stow, Hereford. Commended: Mr. William Heath, Ludham Hall, Norwich.

CLASS 2. HEREFORD STEERS, UNDER THREE YEARS AND THREE MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, exhibitor and breeder, Mr. Henry Yeomans, Llowes Court, near Hay; 2d, 10*l.*, exhibitor and breeder, Mr. George Pitt, Chadnor Court, Dilwyn; 3d, 5*l.*, Mr. Henry Betteridge, East Hanney, Wantage: breeder, Mr. William Tudge, Adforton, Leintwardine. Commended: exhibitor and breeder, Mr. Richard Sibirley, Bancott, Munslow, Church Stretton.

CLASS 3. HEREFORD COWS.—1st, 15*l.*, and Silver Medal as breeder, and Gold Medal as best cow or heifer, exhibitor and breeder, Mr. William Stedman, Bucknell House, Shrewsbury; 2d, 10*l.*, Mr. John Baldwin, Luddington, Stratford-on-Avon: breeder, Mr. Okey, Thurston, Hereford; 3d, 5*l.*, exhibitor and breeder, Mr. William Groves, Walk Mills, Leebotwood, Salop. Commended: Mr. John Williams, St. Mary's, Kingsland, Hereford; Mr. Henry Betteridge, East Hanney, Wantage.

CLASS 4. HEREFORD HEIFERS.—1st, 15*l.*, Mr. George Baker, Waresley, Kidderminster: breeder, Mr. W. B. Mair, The Grove, Edgware, Middlesex; 2d, 10*l.*, Mr. John Baldwin, Luddington: breeder, Mr. Tudge, Adforton, Leintwardine; 3d, 5*l.*, exhibitor and breeder, John Hungerford Arkwright, Esq., Hampton Court. Highly Commended: exhibitor and breeder, Mr. Thomas Garrett, Shipston-on-Stour; exhibitor and breeder, Mr. Thomas Garrett. Commended: exhibitor and breeder, Colonel Richard Dyott, Freeford Hall, Lichfield; Mr. Joseph Cotton, Chesterton, near Bridgenorth.

SHORT-HORNS.

CLASS 5. SHORT-HORN OXEN, OVER THREE YEARS AND THREE MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, exhibitor and breeder, Sir W. De Capel Brooke, Bart., Geddington Grange, Kettering; 2d, 10*l.*, exhibitor and breeder, Mr. Francis Carr, Heslington, York; 3d, 5*l.*, exhibitor and breeder, Mr. Thomas Price Outhwaite, Goldsborough House, Knaresborough. Highly Commended: The Earl of Gainsborough, Mr. Richard Stratton, Walls Court, Stapleton. Commended: Mr. Robert Moir, Mikel Tarty, Aberdeenshire.

CLASS 6. SHORT-HORN STEERS, UNDER 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, Silver Medal as breeder, and the President's Prize of 25 guineas for the best ox or steer, exhibitor and breeder, Mr. Thomas Pulver, Broughton, Wellingborough; 2d, 10*l.*, exhibitor and breeder, Mr. William Henry Baker, Cottesmore, near Oakham; 3d, 5*l.*, exhibitor and breeder, Mr. Richard Stratton, Walls Court. Highly Commended: Mr. Robert Moir, Mikel Tarty. Commended: The Earl of Aylesford, the Earl Howe, Mr. William Hewer, Sevenhampton.

CLASS 7. SHORT-HORN COWS.—1st, 15*l.*, and Extra Prize of 25*l.* as the best Short-horn, Mr. Robert Sharpe, Courtlands, East Grinstead: breeder, Mr. Richard Stratton, Walls Court; 2d, 10*l.*, Mr. Henry Greenway, Hambrook, near Bristol: breeder, Mr. Stiles Rich, Didmarton; 3d, 5*l.*, Mr. Robert Sharpe, Courtlands: breeder, Mr. Richard Stratton. Highly Commended: Mr. Aaron Pike, Mitton, near Tewkesbury. Commended: Mr. John Clayden, Littlebury, near Saffron Walden.

CLASS 8. SHORT-HORN HEIFERS.—1st, 15*l.*, Silver Medal as breeder, and Earl of Aylesford's Prize of 15*l.*, exhibitor and breeder, his Grace the Duke of Sutherland; 2d, 10*l.*, Mr. Samuel Spencer, Snarestone, near Ashby-de-la-Zouch: breeder, Mrs. Dean, near Atherstone; 3d, 5*l.*, exhibitor and breeder, Earl Spencer, Althorp. Highly Commended: Mr. Richard Stratton; Mr. Thomas Forrest, Spurstow Hall, Tarporley. Commended: Earl Spencer; Mr. Thomas Pulver, Broughton; Mr. William Fletcher, Radmanthwaite, Mansfield.

DEVONS.

CLASS 9. DEVON OXEN OR STEERS, OVER 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, Mr. Walter Farthing, Stowey Court, Bridgewater: breeder, Sir A. A. Hood, Bart., M.P.; 2d, 10*l.*, Mr. William Smith, 85, Southernhay Street, Exeter: breeder, Mr. George Turner, Beacon Downes. Highly Commended: Mr. William Heath, Ludham Hall, Norwich. Commended: Major-Gen. the Honourable A. N. Hood, Cumberland Lodge, Windsor: breeder, his Royal Highness the Prince Consort; exhibitor and breeder, James John Farquharson, Esq., Langton House, Blandford.

CLASS 10. DEVON STEERS, NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, and Extra Prize of 25*l.*, Mr. William Smith, Exeter: breeder, Mr. George Turner; 2d, 10*l.*, Mr. Walter Farthing: breeder, Mr. Thomas Norrish, Shobrooke, Crediton, Devon. Highly Commended: Mr. William Smith. Commended: James John Farquharson, Esq.

CLASS 11. DEVON COWS.—1st, 15*l.*, exhibitor, Mr. Walter Farthing.

CLASS 12. DEVON HEIFERS.—1st, 15*l.*, Mr. William Smith: breeder, Mr. John Bodley, Stockleigh; 2d, 10*l.*, exhibitor and breeder, Mr. John Blomfield, Warham, near Wells-next-the-Sea, Norfolk.

LONG-HORNS.

CLASS 13. LONG-HORN OXEN OR STEERS.—1st, 10*l.*, and Silver Medal as breeder, exhibitor and breeder, Sir John Harpur Crewe, Bart., Calke Abbey, Derby; 2d, 5*l.*, exhibitor and breeder, Sir John Harpur Crewe, Bart. Highly Commended: W. T. Cox, Esq.

CLASS 14. LONG-HORN COWS OR HEIFERS.—1st, 10*l.*, Mr. John Faulkner, Bretby Farm, Burton-upon-Trent; 2d, 5*l.*, W. T. Cox, Esq., Spondon Hall, near Derby. Highly Commended: exhibitor and breeder, W. T. Cox, Esq., Mr. R. H. Chapman, Upton, near Nuneaton. Commended: Mr. Joseph H. Burbery, The Chase, Kenilworth.

SCOTCH BREEDS.

CLASS 15. POLLED OXEN OR STEERS.—1st, 15*l.*, Mr. William McCombie, Tillyfour, Aberdeen; 2d, 10*l.*, Mr. William McCombie; 3d, 5*l.*, Mr. James Stephen, Conglass, Inverury. Commended: J. S. Leigh, Esq., The Hoo, Luton, Bedfordshire.

CLASS 16. WEST HIGHLAND OXEN OR STEERS.—1st, 15*l.*, and extra, 25*l.*, Earl of Derby, Knowsley, Prescot; 2d, 10*l.*, Mr. Owen Wallis, Overstone Grange, Northampton; 3d, 5*l.*, Mr. Alexander Mennie, Brawlandknows, Gartly, Aberdeenshire. Highly Commended: Sir A. P. Gordon-Cumming, Bart., Altyre by Forres; B. E. Bennett, Esq., Marston Trussell Hall, Rugby. Commended: Duke of Athole. The whole Class generally commended.

CLASS 17. SCOTCH COWS OR HEIFERS.—1st, 10*l.*, Mr. R. Churnock Richards, Clifton Lodge, Preston. Commended: Duke of Beaufort, Earl of Southesk.

WELSH BREEDS.

CLASS 18. WELSH OXEN OR STEERS.—1st, 10*l.*, B. E. Bennett, Esq., Rugby; 2d, 5*l.*, Henry Platt, Esq., Bryn-y-Neuadd.

FOR OTHER PURE BREEDS AND CROSS-BRED ANIMALS.

CLASS 21. FAT OXEN OR STEERS.—1st, 10*l.*, Messrs. J. and W. Martin, Aberdeen; 2d, 5*l.*, Mr Andrew Longmore, Rattie, Banff. Highly Commended: Mr. John Faulkner, Bretby Farm. Commended: Mr. Robert Moir, Mikel Tarty.

CLASS 22. FAT COWS.—1st, 10*l.*, Mr. H. L. L. Morrison, Blair Guise, Whitehouse; 2d, 5*l.*, Mr. John Faulkner, Bretby Farm.

CLASS 23. FAT HEIFERS.—1st, 10*l.*, Sir A. P. Gordon-Cumming, Bart.; 2d, 5*l.*, Messrs. T. W. and C. Hardwick, Lower Court, Long Ashton, Bristol. Highly Commended: Mr. Andrew Longmore, Rattie. Commended: Mr. John Faulkner, Bretby Farm.

EXTRA CLASSES.

For Animals not qualified to compete in any of the preceding Classes.

CLASS 24. OXEN OR STEERS.—5*l.*, Messrs. J. and Isaac Bate, King's Heath, near Birmingham.

CLASS 25. COWS OR HEIFERS.—5*l.*, and Silver Medal as breeder, Sir Thomas Whichcote, Bart., Aswarby Park, Folkingham. Highly Commended: Rev. C. W. Holbech, Banbury: Mr. Roger Churnock Richards, Clifton Lodge. Commended: Earl Howe.

SHEEP.

LEICESTERS.

CLASS 26. FAT WETHERS, UNDER 22 MONTHS OLD.—1st, 15*l.*, extra prize of 10*l.* given by the Mayor of Birmingham, and Silver Medal as breeder, G. S. Foljambe, Esq., Osberton Hall, Worksop; 2d, 10*l.*, G. S. Foljambe, Esq.; 3d, 5*l.*, Mr. George Walmsley, Rudston, Bridlington. Commended: Lord Berners, Keythorpe Hall; Mr. Francis Jordan, Eastburn, Driffield.

LONG-WOOLLED SHEEP, NOT BEING LEICESTERS.

CLASS 27. FAT WETHERS, UNDER 22 MONTHS OLD.—1st, 15*l.*, Mr. Edmond Riley, Ripling Cotes Farm, Beverley; 2d, 10*l.*, Messrs. Thomas and George West, Greenhill Farm, Bletchington; 3d, 5*l.*, Mr. John Faulkner Mills, Westwell, near Burford. Commended: Mr. John King Tombs, Langford; Mr. John Faulkner Mills, Westwell.

SOUTH AND OTHER DOWN SHEEP.

CLASS 28. FAT WETHERS, UNDER 22 MONTHS OLD.—1st, 15*l.*, Extra Prize of 25*l.*, given by the Linen and Woollen Drapers of Birmingham, and Silver Medal as breeder, Lord Walsingham; 2d, 10*l.*, Lord Walsingham; 3d, 5*l.*, Earl of Radnor.

CLASS 29. FAT WETHERS, OVER 22 BUT UNDER 34 MONTHS OLD.—1st, 10*l.*, Extra Prize of 10*l.* 10s., given by Alderman Hodgson and Councillor Baldwin, and Silver Medal as breeder, Lord Walsingham; 2d, 5*l.*, Lord Walsingham. Highly Commended: G. S. Foljambe, Esq.

SHROPSHIRE SHEEP.

CLASS 30. FAT WETHERS, UNDER 22 MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, Mr. Henry Smith, Sutton Maddock, Shiffnal; 2d, 10*l.*, exhibitor and breeder, Edward Holland, Esq., M.P.; 3, 5*l.*, exhibitor and breeder, Henry J. Sheldon, Esq., Brailes House. Highly Commended: Mr. Thomas Horley, jun., The Fosse; Lord Wenlock, Messrs. Bowen and Jones, Ensdon House, near Shrewsbury. Commended: Edward Holland, Esq., M.P., Henry J. Sheldon, Esq., Mr. James Hand, Ludlow.

CLASS 31. FAT WETHERS, OVER 22 BUT UNDER 34 MONTHS OLD.—1st, 10*l.*, Extra Prize of 10*l.* 10s., given by C. N. Newdegate, Esq., M.P., and Silver Medal as breeder. Exhibitor and breeder, Lord Wenlock, Escrick Park; 2d, 5*l.*, Colonel Richard Dyott, Freeford, Lichfield. Highly Commended: Lord Wenlock, Colonel Richard Dyott. This class generally commended.

CLASS 32. SINGLE SHROPSHIRE WETHER.—Silver Cup, value 5 guineas, given by Messrs. Mapplebeck and Lowe, Lord Wenlock. Highly Commended: Mr. Thomas Horley, jun., The Fosse.

OXFORDSHIRE DOWNS.

CLASS 33. FAT WETHERS, UNDER 22 MONTHS OLD.—1st, 10*l.*, and Silver Medal as exhibitor and breeder, Mr. Samuel Druce, Eynsham; 2d, 5*l.*, Mr. John Shrimpton, Easington Farm, Chilton, Bucks. Highly Commended: Mr. Charles Hobbs, Maisey Hampton, Gloucestershire. Commended: Mr. Nathaniel Stilgoe, Adderbury Manor Farm, Banbury.

CROSS-BRED SHEEP.

CLASS 34. FAT WETHERS, UNDER 22 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder. Exhibitor and breeder, Mr. John Overman, Burnham Sutton, Lynn, Norfolk; 2d, 5*l.*, Mr. George Walmsley, Rudston, Bridlington. Highly Commended; Mr. Zachariah W. Stilgoe. Commended: Lieutenant-Colonel Loyd Lindsay.

LEICESTER EWES.

CLASS 35. FAT EWES, OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, Mr. Thomas B. Marshall, Branston, near Lincoln; 2d, 3*l.*, Mr. John Gregory Watkins, Woodfield, Ombersley, Droitwich. Highly Commended: Lord Berners, Keythorpe; Mr. Edmond Riley, Kipling Cotes Farm, Beverley. Commended: Mr. Thomas Marris, The Chase, Ulceby.

LINCOLN AND COTSWOLD EWES.

CLASS 36. FAT EWES, OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeder, Mr. Thomas B. Marshall, Branston, near Lincoln: 2d, 3*l.*, Mr. William Smith, Bibury. Highly Commended: Mr. Thomas B. Marshall, Mr. William Smith, Bibury. Commended: Mr. William Smith.

SOUTH AND OTHER DOWN EWES

CLASS 37. FAT EWES, OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeder, exhibitor and breeder, Lord Walsingham; 2d, 3*l.*, Lord Walsingham. Highly Commended: Duke of Marlborough.

SHROPSHIRE EWES.

CLASS 38. FAT EWES, OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeders, Messrs. Bowen & Jones, Ensdon House, near Shrewsbury; 2d, 3*l.*, Mr. Thomas Horley, jun., The Fosse. Highly Commended: Lady Willoughby de Broke, Mr. John Coxon, Freeford, Lichfield. The Class generally Commended.

FAT PIGS.

CLASS 39. THREE FAT PIGS OF ONE LITTER, UNDER 10 MONTHS OLD.—1st, 10*l.*; Extra Prize of 5*l.* 5s., and Silver Medal as breeder, exhibitor and breeder, T. R. B. Leslie Melville Cartwright, Esq., Aynhoe, Northamptonshire; 2d, 5*l.*, Mr. Samuel Geater Stearn, Brandeston, Wickham Market, Suffolk; 3d, 3*l.*, Countess of Chesterfield, Bretby Hall, Burton-upon-Trent. Disqualified: exhibitor, Mr. Francis Hooke, No. 64, Parade, Birmingham.

CLASS 40. THREE FAT PIGS OF ONE LITTER, UNDER 15 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, Geo. B. Morland, Esq., Chilton Farm, Steventon, Berkshire; 2d, 5*l.*, Major-General the Honourable A. N. Hood, Cumberland Lodge, Windsor; 3d, 3*l.*, Geo. B. Morland.

CLASS 41. FAT PIG, OVER 15 MONTHS OLD. — 1st, 6*l.*, and Silver Medal as breeder, William Bradley Wainman, Esq., Carhead, near Cross Hills; 2d, 3*l.*, Mr. Thomas Crisp, Butley Abbey, Wickham Market; 3d, 2*l.*, William Bradley Wainman, Esq., Carhead.

BREEDING PIGS.

PIGS OF THE BERKSHIRE BREED.

CLASS 42. FIVE PIGS OF ONE LITTER OVER THREE AND UNDER SIX MONTHS OLD.—1st, 10*l.*, Extra Prize of 5*l.* 5s., and Silver Medal as breeder, Mr. Joseph Smith, Henley-in-Arden; 2d, 5*l.*, Mr. William Yells, Round Robin Farm, Highworth, Wilts; 3d, 3*l.*, Mr. George Mander Allender, Lee Grange, Winslow, Bucks; Silver Medal, Mr. John King Tombs, Langford, Lechlade; Silver Medal, Mr. Richard Hawkes, Hunscote, Charlecote, Warwickshire. Highly Commended: Mr. T. B. Wright, The Quarry House, Great Barr, Staffordshire: Mr. W. J. B. Scott, Queen's Hotel, Birmingham; Mr. William James Sadler, Bentham, Calcutt, Crick. Highly Commended: Mr. Heber Humfrey, Kingstone Farm, Ashbury, Shrivenham. Commended: the Rev. C. W. Holbech, Farnborough, Banbury; the Rev. Edward Roberts, Harborne, Birmingham; the Rev. William Gover, Saltley Training College, near Birmingham; the Rev. Henry G. Baily, Swindon; Abraham Dixon, Esq., Birches Green, Birmingham; Mr. W. J. B. Scott, Queen's Hotel; Mr. Charles Felton, Erdington, near Birmingham.

PIGS OF OTHER LARGE BREEDS.

CLASS 43. FIVE PIGS OF ONE LITTER, OVER THREE AND UNDER SIX MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeders, Messrs. James & Frederick Howard, Britannia Farms, Bedford: 2d, 5*l.*, Thomas Walker, Esq., Berkswell Hall, Coventry. Third prize not awarded, there not being sufficient merit.

PIGS OF A SMALL BREED.

CLASS 44. FIVE PIGS OF ONE LITTER, OVER THREE AND UNDER SIX MONTHS OLD.—1st, 10*l.*, Extra Prize of 5*l.* 5s., and Silver Medal as breeder, Robert Berkley, Esq., Spetchley Park; 2d, 5*l.*, Mr. Samuel Geater Stearn, Brandeston; 3d, 3*l.*, Mr. George Mumford Sexton, Wherstead Hall, Ipswich. Highly Commended: William Bradley Wainman, Esq.; Mr. George Mumford Sexton. Commended: Geo. B. Morland, Esq.; Mr. Samuel Geater Stearn, Mr. Thomas Crisp, Butley Abbey.

PRIZES FOR GRAIN AND ROOTS.

CORN.

CLASS 1. WHITE WHEAT.—1st, 2*l.* 2s., Mr. Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1s., Mr. Frederick Lythall. Commended: Mr. Henry Hudson, The Elms, near Pershore.

CLASS 2. RED WHEAT.—1st, 2*l.* 2s., Mr. Henry Hudson; 2d, 1*l.* 1s., Mr. Thomas Horley, jun., The Fosse, near Leamington. Commended: Mr. Frederick Lythall.

BARLEY.

CLASS 3.—1st, 2*l.*, 2s., Mr. Joseph H. Clark, Altwood House, near Maidenhead; 2d, 1*l.* 1s., Mr. Robert Wortley, Suffield Hall, Aylsham, Norfolk. Commended: Mr. Henry Lowe, Comberford, near Tamworth.

OATS.

CLASS 4.—1st, 2*l.* 2s., Mr. Frederick Lythall; 2d, 1*l.* 1s., Mr. Frederick Lythall. Commended: Messrs. Raynbird, Caldecott, and Bawtree, Basingstoke.

BEANS.

CLASS 5.—1st, 2*l.* 2s., Mr. Frederick Lythall; 2d, 1*l.* 1s., Mr. Joseph H. Clark, Altwood House, near Maidenhead. Commended: Mr. Henry Hudson, Mr. Frederick Lythall.

PEAS.

CLASS 6. WHITE.—1st, 2*l.* 2s., Messrs. James and Frederick Howard, Britannia Farms, Bedford; 2d, 1*l.* 1s., Mr. Robert Raynbird, Hengrave, near Bury St. Edmunds.

CLASS 7. PEAS OF ANY OTHER VARIETY.—1st, 2*l.* 2s., Mr. Frederick Lythall; 2d, 1*l.* 1s., Messrs. James & Frederick Howard. Commended: Mr. Frederick Lythall.

ROOTS.

CLASS 1. A Silver Cup, or other article of Plate of the value of 10 guineas, offered by Messrs. Proctor & Ryland, of Birmingham, as a Prize for the best collection of the four following varieties, namely:—Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Carrots—six roots of each to be shown for this prize alone.—John Moore, Esq., Warwick. Sown, Carrots, April 12th; Mangels, April 18th and 19th; and Swedes, May 2d. Previous crop, for Mangels, roots; for Swedes, Wheat; for Carrots, Turnips. Manure used, for Swedes, raw farm-yard in autumn, and Griffin & Morris's when planted; for Mangels, farm-yard manure in autumn, and Proctor & Ryland's when planted; for Carrots, Proctor & Ryland's, and 4 cwt. of salt per acre; soil, sandy loam.

CLASS 2. A Silver Cup, or other article of Plate of the value of 10 guineas, offered by Messrs. Griffin, Morris, & Griffin, of Wolverhampton, for the best collection of Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Ox Cabbage. Six roots of each kind to be shown for this prize alone; the Mangel Wurzel to be selected from crops of not less than 2 acres, the Swedes not less than 5 acres, and the Cabbage to be field culture.—John Moore, Esq., Warwick. Sown, Mangels, April 18th and 19th; Cabbages, April 30th; Swedes, May 2d. Previous crops,

for Mangels, roots; for Swedes, Wheat; for Cabbages, Wheat. Manure used, for Swedes, raw farm-yard in autumn, and Griffin & Morris's in spring; for Mangels, dressing of farm-yard manure in autumn, and Proctor & Ryland's when planted; for Cabbages, farm-yard manure and lime; soil, stiff loam.

CLASS 3. KOHL RABI.—1st, 2*l.* 2*s.*, Colonel North, M.P., Wroxton Abbey, Banbury; 2d, 1*l.* 1*s*, Colonel North, M.P. Commended: Mr. Peter Lowe, Marston, Stafford; Mr. Frederick Lythall, Spittal Farm, Banbury.

CLASS 4. LONG MANGEL WURZEL.—1st, 2*l.* 2*s.*, John Moore Esq., Warwick; 2d, 1*l.* 1*s.*, Mr. Samuel Robinson, Shaw House' Melbourne, Derbyshire. Commended: Mr. Samuel Robinson, Mr. Alfred Hall, Westbury Farm, Westbury, Wilts; Mr. John K. Fowler, Prebendal Farms, Aylesbury.

CLASS 5. GLOBE MANGEL WURZEL.—1st, 2*l.* 2*s.*, Colonel North, M.P.; 2d, 1*l.* 1*s.*, the Rev. Thomas Stevens, Bradfield, Reading. Commended: Colonel North, M.P.; Mr. Samuel Robinson, Shaw House.

CLASS 6. SWEDES OF ANY VARIETY.—1st, 2*l.* 2*s.*, James Simson, Esq., Cloona Castle, Hollymount, county Mayo; 2d, 1*l.* 1*s.*, R. S. Doyne, Esq., Wells, county Wexford. Commended: James Simson, Esq.; R. S. Doyne, Esq.

CLASS 7. COMMON TURNIPS.—1st, 2*l.* 2*s.*, Mr. William McCombie, Tillyfour, Aberdeen; 2d, 1*l.* 1*s.*, the Rev. Thomas Stevens.

CLASS 8. CARROTS OF ANY VARIETY.—1st, 2*l.* 2*s.*, G. S. Foljambe, Esq., Osberton Hall; 2d, 1*l.* 1*s.*, G. S. Foljambe, Esq. Commended: G. S. Foljambe, Esq.; John Moore, Esq., Warwick; Mr. Frederick Lythall.

CLASS 9. OX CABBAGE.—1st, 2*l.* 2*s.*, Mr. Samuel Robinson, Shaw House, Melbourne, Derbyshire. (Champion.) Sown August 20th, 1863; transplanted beginning of April, 1864. Previous crop, Potatos; manured with a good quantity of ammoniacal liquor from gas works, put on the land in the winter, and cow and horse dung at time of transplanting; soil strong, inclined to be clayey. 2d, 1*l.* 1*s.*, Mr. Samuel Robinson, Shaw House, Melbourne, Derbyshire. (Champion.) Sown August 20th, 1863; transplanted beginning of April, 1864. Previous crop, Potatos; manured with a good quantity of ammoniacal liquor from gas works, put on the land in the winter, and cow and horse dung at time of transplanting; strong, inclined to be clayey.

CLASS 10. KIDNEY POTATOS.—1st, 2*l.* 2*s.*, Mr. Samuel Robinson, Shaw House, Melbourne, Derbyshire; 2d, 1*l.* 1*s.*, Mr George Mangles, Givendale, Ripon. Commended: Mr. Samuel Robinson.

CLASS 11. ROUND POTATOS.—1st, 2*l.* 2*s.*, G. S. Foljambe, Esq; 2d, 1*l.* 1*s.*, Mr. Isaac Aston, Meaford Farm, Stone.

POULTRY.

We this week record with feelings of great satisfaction the results of the 16th exhibition of the produce of the poultry yards of Great Britain. Held in a town where every one is more or less a fancier, and consequently a critic, the marvellous assemblage of the best birds of the kingdom, which is here annually to be seen, cannot fail to strike even the most uninterested as a great feature in our national progress. We would also venture to hope that our leading agriculturists who visit this Show for the sake of the departments of it that hitherto have interested them more closely, may be induced, by the improvements visible in the size and qualties of the various breeds, to give to poultry in England generally the place it deservedly holds abroad.

An idea of the magnitude of the exhibition may be formed from the fact that there were 1677 pens of poultry and 300 of pigeons.

It is a very healthy sign, and a promise of still further development, that new names are constantly appearing in the prize lists; it shows that competition is on the increase, and that progress is the order of the day.

As may be imagined, in the Dorking Classes the struggle was indeed severe, and to those who are at all conversant with the principal strains of this bird, the names of those who took honours in the Class for old birds will be guarantees of the excellence of their fowls. We give them in the order of the Prize List:—Viscountess Holmesdale, Captain Hornby, Mr. Tatham, and Mr. Statter. In the Class for birds of this year the entries were much more numerous, and the competition consequently keener if possible. It was considered a great result, and will doubtless lead to an increased entry another year, that birds sent from Dublin arrived so little the worse for their journey that they won the 4th prize. The 1st and 2d prizes were taken by Captain Hornby, the 3d by Sir St. George Gore, the 5th by Mr. Frost. So impressed were the judges by the excellence of this class that they added 18 commendations to the already liberal allowance of prizes.

The two very useful Classes devoted to Dorking Hens and Pullets were well filled; the 1st prizes went to Mr. Bartlam and Captain Hornby; Mr. Boyle, of Dublin, won the 2d prize for pullets. The White Dorkings, delicate and attractive in appearance, mustered fairly in numbers; but were of unusually good quality. The first prizes were carried off by Mr. John Robinson for adults, and by Mr. Henry Lingwood for chickens.

There are few breeds of fowls so generally admired as the Spanish; the genuine Cockney fancies himself a judge of them, as he has been accustomed to see them from his childhood picking up the scattered Oats on the cab-stand, or foraging in the gutters of the mews in his neighbourhood. It is hardly to be wondered that these favourites should appear to great advantage at Birmingham; but we may safely say that classes of greater average merit have never been met with. The condition of the birds was splendid; and the prizes and commendations were divided between 26 exhibitors from all parts of the kingdom. Next on the list come the Cochins, who deservedly stand high with all who prize the luxury of new-laid eggs through winter, and who require setting hens for the early spring. The vicissitudes of public favour and prejudice have been fully experienced by this breed, and it must be highly gratifying to those who have bred them through evil and good report to find that they have now a fair position, gained by their own valuable properties. At no exhibition have we seen them of so good an average quality as at this. The competition was very close and severe; the size, colour, and condition of the birds left nothing to wish for. The prizes endorsed the reputation of the old strains. In the Buff Classes, Captain Heaton took 1st both for adults and chickens; Mr. E. Smith took 1st for hens, and Mr. Yardley for pullets. The classes for Brown and Partridge-feathered birds of this breed brought out some immense specimens. The White were good, and well represented in numbers.

The Brahma Poutras were excellent, and are steadily making for themselves a very high name in the poultry world. We think there is no breed would better pay for development. Mrs. Hargreaves bore off the 1st prize for adult birds; and Mr. Boyle, of Dublin, that for chickens.

The Malays were good in quality, but seem to find but very few new admirers. The Rev. A. G. Brooke won the 1st prizes in both classes.

The Crèvecœurs are steadily making their way, and from their productiveness and docility are sure to find supporters. The Black Hamburghs formed a showy and attractive class. The Golden and Silver Pencilled Hamburghs were, as is their wont, in great force; but do not make as great progress in quality as could be wished. The Spangled were very good, the Golden especially. The Polands, the 1st prize birds of Mr. Adkins, were very much admired, as were those of Mr. T. P. Edwards; these very graceful and ornamental birds are worthy of a more extended patronage; they are good layers, and look very striking at a park lodge or gate. In the class for Fowls of any other variety, the 1st prize was taken by a pen of very good Cuckoo Dorkings, and 2d by a pen of La Flèche; these latter birds are a recent introduction; they are held in very high repute in France, and are said to be very excellent layers. It would be impossible to write a full report of the Game without considerably exceeding our limits; we can only say that the 14 classes were well supported by birds of great merit, shown in excellent condition and plumage.

The Classes for Single Cocks afford to breeders excellent opportunities for obtaining fresh blood, and from those now exhibited we may hope to see produce of still greater merit another season. The Dorkings were very fine, many of them of great size, as were the Cochin Chinas and Brahmah Poutras. The Spanish maintained their already high reputation. Game left nothing to wish for; the Polish were good in quality, and the Hamburghs told well both in number and excellence. The Bantam classes were objects of great curiosity. With the exception of the two varieties of white and black, the others may almost be considered as manufactures—the Sebright the produce of the last generation, and the Game of this. We are promised an additional attraction in the shape of Cochin Chinese Bantams.

We now come to a department of great interest and importance to agriculturists, namely, the classes for ducks, geese, and turkeys. We would ask serious attention to the weights of the winning pens, and hope that the effect of the exhibition of such may be the production of many more for the coming year.

Twenty-one pens of unusual quality contested for the honours allotted to the world-famous breed of Aylesbury. Mrs. Seamons of that town was 1st, with three birds weighing 27 lb.; the 2d prize pen pulled down 25 lb.; and the 3d, 24 lb. Next on the list, Class 84, and 50 pens of the breed of Rouen attempted an amicable Norman Conquest; they lost, however by 2 lb., the winning pen weighing 25 lb.

The Buenos Ayrean, or Black East Indian, for beauty of shape and colour never lack admirers: the class for any other variety brought a small collection combining the useful and ornamental. The Geese were a great feature—Mr. Duxbury's pen of old white ones weighed 84 lb., a marvellous difference when compared with our ordinary farm-yard stock. The young Toulouse birds came out well, the 1st prize pen pulling down 61 lb., the next 57 lb. The Turkeys were very numerous, and of high quality. The 1st prize for adult birds went to Mr. J. Smith, and for birds of this year to Mrs. Corbet Browne. In the foregoing many pens well deserving of praise are unavoidably unnoticed, as it would be impossible in a Show of such magnitude to condense into a report a description of all the good ones. The Committee were, as they always have been, most efficient and pains-taking. The Judges were—

The Rev. R. PULLEINE, Kirkby Wiske, Thirsk.
G. J. ANDREWS, Esq., Dorchester.
J. H. SMITH, Esq., Skelton Grange, York.
J. HINDSON, Esq., Everton, Liverpool.
Mr. BAILY, Mount Street, London.

We append to these remarks the following from the clever report of the *Times*:—

Perhaps admirers of the quadrupeds too much overlook the importance of these classes, wherein, strictly and literally, "birds of a feather flock together;" for it is no longer the mere fancy man who keeps fowls of some favourite "strain;" who talks of the "father" and "mother" of a chicken, and tells you on what day a particular duck was "born;" who watches the housing and feeding of his feathered live stock, or books his "winnings" of money and cups at the poultry shows now starting up in new districts every day. The number of fowls for land and water now kept in England is not half what it might be; and you can see by the size of quite young birds at Birmingham how your average "couples" sold to the cadgers are mere mouthfuls compared with pure-bred birds, and those obtained by a judicious crossing of the old barn-door sorts. But farmers are finding out that prize hens may lay the most and biggest eggs, that prize chickens may be heaviest and tenderest on the table, that a prize duck may weigh 9 lb. (as much as two ordinary ducks), that a turkey may be 23 lb. and a goose 26 lb. in living weight, and that the costly item of "attendance" had better be bestowed upon birds worth 5*s.* or 10*s.* apiece (to say nothing of so many sovereigns each at a show) than upon birds worth half that sum per couple. The improvement of British poultry is steadily progressing; pure-bred varieties cluck and crow and quack and gobble in hundreds of farmyards, and we may come some time to a published "Poultry Herd-book," as well as a "Poultry Chronicle" and a "Baily on Fowls."

No portion of Bingley Hall is so thronged throughout the week as this department of court-yard ornithology; and you can but admire the myriad choice specimens, whether of breeds for producing fresh-laid breakfast delicacies or for being offered as sweet-smelling sacrifices of savouriness on altars of either deal or mahogany. Take the perfect types of each fine variety. Captain Hornby's or Lady Holmesdale's "Dorkings,"—the broad, deep, substantial matrons, with their dark mottled-brown plumage and black neck-feathers; or, again, the "gray Dorking" hens, with sober ashen gray plumage and Robin breasts; true, homely, Partlets of the farmyard incomparable sitters and mothers. How handsome, too, their majestic protectors, with glossy black breasts, pale neck-feathers, saw-like combs, wattles pendant like patriarchal beards, arching tails of rich-looking green-lit black, and massive claws able to bear about the true king of fowls, bred for the dish, superlative in weight and quality of flesh. The "Cuckoo" Dorkings, again, are surely magnificent, every small feather having a rim tinged with lilac or lavender grey, like the petal of a Carnation. Again, Mr. Lane's handsome "Spanish"—black like ravens, but with beautifully contrasting light blue legs, pure white faces, and bright red combs—the cock bearing his erect, like a helmet crest, while his wives modestly droop their head-gear on one side. These birds are the friends of the town mechanic, the pets of his children, patient of confinement, picking up a subsistence in laystall and gutter, with little violence done to their hardy constitution. Of "Game" fowls we find an imposing brigade; brilliantly plumed, indeed, whether "Black-breasted Reds," "Duckwings," or "Piles," but their hardihood appearing even in the closeness and firmness of the feathering; born warriors, as visible in their upright dauntless carriage, the fiery eye, strong curved beak, fine snake-like head with "dubbed" comb, the sharp spurs, and wings compressed in readiness for a sudden spring. Lovers of bird beauty (as well as of eggs) linger before the cages of variegated "Hamburghs," enraptured over perfections of pencilling, spangling, barring, and lacing, of clouding, tinting, and blending, gold, silver, brown, black, and rich red, with marvellous nicety of finish in the hue and marking of each separate feather, all delightfully contrasted with blue legs, brilliantly-white ear-lobes, and thick vermilion combs of manifold spikes. A rare merit of these birds is their laying eggs in the season when others cease. Equally attractive are the "Polish" troops, in uniforms of spangled gold or silver; or black, with large white globular top-knots and dark-coloured legs. And you admire Mr. Adkins's noble birds, nodding their crests like bouquets of feathers and shining in argent plumage, in which each distinct feather has a ground colour of frosted silver imprinted with minutely regular black stripes, and at the end a single black spangle. Mr. Brooke's "Malays" (a breed that might be surnamed "longshanks") strike you with their tall, stalwart frames, yellow legs, hard plumage, cruel-looking faces, flat combs, throats naked even of down, and on the top of the breast, at the crop, and the ends of the wing-joints, singular red knobs of flesh. Their virtue is in laying eggs, which, though with dark-coloured shells, are highly esteemed for flavour, and they will live anywhere—"scratching in a dusthole and roosting under a waterbutt," still in good health and condition. With somewhat of awe you find yourself confronting, say, Captain Heaton's tremendous "Cochins," of dimensions almost fabulous; grotesque, too, in their knickerbockers of soft fluff, with their close-cut wings and denuded tails; and alarming in their loud, hoarse *sostenuto* vocalisation, when (to their hearts' delight) swelling the chorus of crowing that whirls through the whole show. Beautiful harmonising of tints, too, is seen upon all varieties of this breed; the bright yellow scaly legs supporting a mass of feather, coloured with every combination of umber, sienna, gamboge, and ochre. Hardy as ostriches and most docile in disposition, they are favourites in the farmyard for early and innumerable eggs, but by far too muscular for any sauce or stuffing of the epicure. The uninitiated critic may take "Bramah Pootras" to be cousins of this breed; the hens pencilled like silver pheasants, the cocks with mottled breasts, light neck-feathers, and dark tails, and the legs of all profusely clad with plumage. Exquisite

and amusing are those birds of Lilliput, the "Bantams,"—the "Game," impudent burlesques on a small scale of the figure, carriage, and expression marking the old English "Champion class," the gold and silver "Sebrights," drooping their mimic wings, and strutting with such outrageous coxcombry that tails and heads meet; and again, the old-fashioned Bantams, fussy and important, with mocassins of quill and feather to their very toes. Odd enough is the black "Crêvecœur" fowl, with beard, and top-knot, and comb, too; the latter ornament shaped like a pair of horns, sometimes with branches like the antlers of a young stag, giving the bird (says a French author) "the appearance of a devil." But it is a prime layer, and nice also on the dish. Then there is "La Flèche," like a Spanish fowl, with a comb compared to "the horn of a rhinoceros," but with black legs, unsightly on the table. Among ducks, you must admire Mrs. Seamons's "Aylesburys,"—milk-white, with flesh-coloured bills, and of amazing bulk and weight—27 lb. the three birds; and also Mr. Worrall's wonderful "Rouens," the weight 25 lb.; the ducks of a rich mottled brown, and the drakes resplendent with glossy green heads, white necklaces, chocolate-coloured bosoms, and silver-gray body plumage, delicately shaded—as in "stipple" or "mezzotint" waterfowl of Landseer. Both white and gray "geese" and ganders astonish by their colossal proportion, Mr. Duxbury's three weighing 80 lb.; Mrs. Seamons's, 61 lb.; and you never knew how grand and marvellous a bird a "Turkey" is till you saw him here caged for your near inspection.

A charming department is the columbine division of the show. No wonder that "the ancients" consecrated doves to the Goddess of Beauty, and that mothers offered them in temples on behalf of angelic babes. Carrier pigeons gyrated and darted off with the names of winners from the Olympic Games, just as they telegraph turf news in the present day. Roman generals used the birds in secret correspondence with besieged cities; and Cœur-de-Lion knew how to intercept the winged messengers by trained hawks, and again to let them fly with false *billets* on their feet. Pigeon fancying now-a-days is not all taste or whim, and you feel that they will pay for a little love and a little tending when you commonly sell "barbs," or "balds," or what not, at 5 or 10 guineas per bird, and not at half-a-crown per couple, to display their claws above a pie crust as an outward and visible sign of the luscious brown flesh that lies within. This year these beauties have a gallery range to themselves, visible at one view. One knows not which breed to fall in love with. Is your fancy for the arrowy, swift-looking "carrier," the greyhound of the air, with his wonderful eyes, encircled by rosettes of curious corrugated skin, or for the very similar "dragoon," noted for his impetuous flight? Is it for the dusky "barb," with full bosom, pert little globular head, with budding tuft at the back, and brilliant scarlet ring round his pearly eye? Are you pleased with the ludicrous "pouter,"—a fine bird, strutting and bowing, with crop inflated like a bladder, displaying his breast feathers glossed with metallic tints? Or by the little white "Fantail," extravagantly developed at the other extreme, with an Elizabethan frill of tail feathers; her round marble-of a head thrown too far back to feel if the caudal glory is properly erect and quivering, as usual, in its place? Have you special regard for the religious orders? for the elegant fawn-yellow "jacobine," with his silky feathers on back and neck folding a monk's cowl over his head and decking his bosom with a double frill; or the pensive-looking "nun," with snowy hood over her sable head? Is your taste delighted with a graceful "turbit," with beauteous large bright eyes, in a head of purest white, with a curly tuft or crest, and a "purl" of feather on the breast like an antique shirt, frill—the very picture of lovely innocence? Do you patronise the "trumpeter," with his tuft like a military plume, rising from his beak backward over the forehead, more wing-heeled than Mercury, with odd-looking gaiters of feather trailing all over his toes, and treating you to an undovelike cooing that rings like a clarion? Are you amused by the antics and gambols of the "bald" and "bearded" "tumblers," those aërial acrobats, leaping, toppling, and back-somersaulting in the ether "without box or spring-board?" Or do you prize a "scandaroon," an "owl," a "spot," or a soaring transcendental "archangel?" Here you can find every variety in large numbers and utmost perfection, with Messrs. Harrison Weir and T. J. Cottle judicially guiding you to the pets of rarest worth and virtue.

The Fifth Annual Exhibition of Dogs is decidedly the largest and best; and the prize list has risen to 700*l.*; the pecuniary success of the undertaking being so great that 1100*l.* (within 100*l.* of the receipts at Bingley Hall) was taken at the doors last year, while the total income amounted to 2400*l.* There is a fine show of bloodhounds, including Mr. Cowen's "Druid." Age seems to improve rather than deteriorate these handsome animals,—giving still greater length to their pendent lancet ears and hanging chops. The deer hounds are in strong force, including both the big powerful variety and the smaller and truer type, instantly recognised as the hounds of "Sir Walter" and "Sir Edwin." Out of many greyhounds few possess any distinguishing merit. In spite of the season, we find a good show of foxhounds, including Mr. North's celebrated "Saffron," the Duke of Beaufort's "Magic," and "Raglan," and hounds indeed from the South Warwickshire, North Warwickshire, Atherstone, and Badminton hunts. The harriers, beagles, and especially the fox terriers form capital classes. Pointers and setters are in great numbers, new classes being provided in order to multiply the prizes. The "black and tan" and Irish setters are pronounced "unequalled." Retrievers are for the first time divided into classes, for the "curly" coated (partaking of the Irish-water spaniel character) and for small and "wavy" coated (more like the Labrador or small Newfoundland breed).

The water spaniels and, indeed, the spaniels of all classes, are of extremely great merit, far surpassing their appearance of last year. Mastiffs and Newfoundlands are very fine; and of sheep dogs we have a large and most valuable collection, including the intelligent Scotch collies, and the rough grey English dogs. The class of terrible-looking, but really quiet, inoffensive, much calumniated bull-dogs, includes Mr. Lamphier's "King Dick," a most noted prize-winner. There is a new class of the real fighting dogs—bull-terriers, uniting all the activity and punishing qualities of the terrier with the staying and holding qualities of the bulldog. Skyes, Pomeranians, Blenheims, Maltese, King Charles', and Italian greyhounds are attractive as ever, and one of the toy terriers is only 2 lb. 3 oz. in weight. Pugs, of late so scarce, have again multiplied.

Probably purchasers will be favoured next year with classes of "puppies;" but, as dogs' teeth are matured at six months old, it will not be easy to check mistakes in the alleged ages of specimens entered for sale.

Farm Memoranda.

MILLHILL, FORFARSHIRE.—The farm of Millhill, to the east of Rossie Priory, the residence of Lord Kinnaird, is the one on which his lordship has chiefly wrought out his experiments; and he has now had it in his own hands for such a length of time as to establish most conclusively the pecuniary advantage of "high farming." Millhill, which is partly upland and partly lowland, and is now of some 410 acres in extent, was, to the extent of 300 acres, previous to 1836, in the hands of a tenant, who gave it up from inability to pay the rent; and on its being thrown on his lordship's hands, he resolved to seize the opportunity to try what he could effect with it on an improved system. He, therefore, placed his present factor, Mr. M'Laren, then a young man, in the management of the farm, he undertaking to pay the same rent as the former tenant to Lord Kinnaird's agents in Dundee. This has been regularly done out of the proceeds of the farm, after paying all current expenses, including his own salary, equivalent to a farmer's expenses in maintaining his family, and a good balance over and above remained to the proprietor as interest on the capital expended. The total capital for stocking and implements was, we understand, about 1300*l.* The farm was drained, cleaned, and manured out of the proceeds without any additional capital being expended, except for the construction of the tank and pipes for irrigation of the fields by liquid manure, and for additions to the steading in order to carry out the improved system of cultivation. The result of this system has in every respect been a triumphant success; for, not only has the farm paid its way and left a handsome surplus over, but, under the able management of Mr. M'Laren, the stocking on the farm has been more than doubled in value and the farm kept in excellent order.

On his lordship getting the farm into his own hands he set about "covering in" the open cattle court, and constructing a covered receptacle for the manure. The ordinary plan in Scotland is to collect the manure from byres and stables into one monstrous dung-heap in the open court behind—and sometimes in front of—the farm-house; where it lies exposed to the action of sun, rain, and atmosphere, and consequently loses, by evaporation and chemical action, some of its most fertilising properties. Most people—unconnected with farming—who bestow a thought upon the matter have an idea that the covering in of a manure heap is chiefly an improvement by removing an eyesore and purifying the atmosphere; but, agriculturally, the results of this simple-looking improvement are so great as to be quite startling to the unpractical mind. In order to test the pecuniary advantage of the new system—to see, in short, whether it would pay to enclose manure heaps (which few would be apt to suppose)—Lord Kinnaird instituted a series of very careful and extensive experiments. He had a field divided into two equal parts, manuring one-half with dung made in the ordinary manner—*i.e.*, by being taken out from byres into the open court, and afterwards applied to the land—and the other half with manure taken direct from the covered courts or boxes and ploughed in at once. The result was that the portions manured on the latter system yielded the first year about 4 tons of Potatos per Scotch acre more than the former; and the second year yielded an excess of about 11 bushels of Wheat and 60 stones of straw.

His lordship's next measure was to have a tank constructed for the purpose of containing all the liquid manure from the dwelling-house, and from the byres, the stables, and the covered heap not absorbed by the straw. Fortunately for the experiment the steading of Millhill, as its name implies, is situated on the slope of a hill, and though there is a large portion of the farm above the steading, there is also a considerable portion below. The tank was constructed on the brow of the slope immediately to the south of the steading, and pipes laid down to the fields to which its contents were to be applied, to the extent of about 50 acres. The tank, which is beneath the level of the ground, is built of brick, and arched over in the form of a section of a tunnel. It will contain 90,000 gallons, and is filled three times a year—there being thus some 270,000 gallons collected and distributed annually. This large quantity, however, it has been found, is only sufficient for from 5 to 7 acres; but these are very rich, and grow fine crops of Mangel Wurzel, Cabbages, and such like. It is found, however, that liquid manure is not well suited for cereals, as, though it yields heavy ears, it softens the straw, and the crop is easily laid; but for Grass and every description of green crop there is nothing like it.

We now proceed to the inside of the steading. Though assured of the pecuniary advantage of the out-door processes we had noticed, we are sceptical as to the fact of a "covered steading" yielding anything like a return upon the outlay; but are assured that a covered steading can actually be built more cheaply than one on the old open principle! The saving in hewn work, on doors, and windows, more than counterbalances the extra expense of roofing, while the cattle are much benefited. This covered court is devoted to the feeding of cattle, of which it can contain about 70. The feeding cattle are arranged in double rows, each having a space of about 10 feet square, and divided from each other by horizontal poles, which can be removed at pleasure, to facilitate the carting out of the manure. Between the two rows is a narrow railway, along which the waggons containing the food are hurled; and so great is the economy of labour effected by the disposing of the cattle in this manner, and the use of the miniature railway, that whereas in England, and on the old method, it is calculated that one man can attend to and feed only 20 cattle, here one man with ease feeds upwards of 100 animals! The whole staff in the feeding department consists of one cattleman, one man to attend the engine and machinery, and one woman. The feeding troughs are on each side of the tramway, so that all the attendant has to do is to slide the waggon along and push off the food into the receptacles on either hand. The majority of the cattle in this court are what is called "box fed"—*i.e.*, each has a space staked off to itself, within which it is at liberty to move about. There are also a few "stall-fed"—or tied up. These latter take up less space, being confined almost to one spot. The butchers, however, prefer the box-fed animals to the stall-fed, and though they require more space than the latter, there is another source of profit connected with them. They are kept well supplied with straw for bedding, which is frequently renewed, so as to prevent decomposition or smell, and it is not removed till it is some 4 or 5 feet in depth. The stall-fed animals, again, are on a flooring of stout wooden spars, with spaces between to permit the liquid to fall through to the floor of the court. The cattle are thus kept dry and clean on the spars; but less manure is obtained, because much less straw for bedding is required. Of course the liquid is run off to a pipe in connection with the tank. The ventilation of the court is very good, the roof being of tiles, so arranged as to admit free currents of air, without doing so unduly.

In another part of the buildings the food is prepared; and here a small steam engine of some three or four horse-power has been erected, in which sawdust mixed with dross coal is burned to drive machinery for washing and cutting Turnips, for bruising Oats and oilcake, and for making meal to mix with the messes of cooked food. The Turnip chopper is a very ingenious affair—being in fact a combination of machines. The Turnips are put into a large hopper at the end of a skeleton cylinder, which revolves with the Turnips over, and dipping into, a large water trough. The cylinder has a screw frame inside along which the Turnips are worked till they emerge at the other end. They are then caught by iron hooks on a revolving belt; carried up to the storey above; and emptied into the pulper, which, we understand, does its work better than any other pulper known, and is the only one in use. The washings of the Turnips—which are valuable from the fact that a certain portion of manure or fat earth generally adheres to the roots—are conveyed to the liquid manure tank by means of pipes, so that nothing is lost. *Dundee Advertiser.*

(*To be Continued*).

Miscellaneous.

Chambers of Agriculture v. *Farmers' Club Houses.*—At a recent discussion in Edinburgh, Mr. Alexander Graham, of Capellie, said he put the greatest importance upon the Farmers' Club, and comparatively little upon a Chamber of Agriculture. When he came to Edinburgh he might meet a Writer to the Signet, an Advocate, or even a Lord of Session, and might be

invited to dine with them; but so much was his heart devoted to the agricultural interest, that rather than go to a Lord of Session's dinner, or an Advocate's dinner, or a Writer to the Signet's dinner, he would 500 times go to a club-room where he could meet some honest farmer and have some useful conversation about farming. They had heard something said about these journals. He was in favour of the press; but the press was nothing to the human voice. If any one was speaking to him about some idea he had in agriculture and agricultural improvement, he could see by the look of his eye and the muscles of his countenance whether he was taking in and believing what he was saying; and he could illustrate it and make him hear and understand, whether he would or not. A sentence in a journal was dumb—they might read it by gas-light or candle-light—they might be half asleep, and they might not notice it—it was in a manner lost to them. It was a most excellent thing, but the best thing it could do was to be a text for a conversation among farmers. He would not oppose a Chamber of Agriculture—he thought it might be a very good thing; but he thought the first thing was the Farmers' Club, and out of that should arise a Chamber of Agriculture. Just take the case that they started with, a Farmers' Club, and no Chamber of Agriculture, what would the result be of their meeting so frequently? If there was any great public question, it would be the easiest thing for the members of the Club to call a meeting and have a public discussion upon that question. Therefore he would say that the first thing was the Farmers' Club, and he had no objection to combine with it a Chamber of Agriculture. He did not belong to the far west or the far north, or to anywhere about Edinburgh—he belonged to the near west in the neighbourhood of Glasgow; but he happened to be a farmer, and unfortunately for himself, his landlord was himself. But at the same time he took as minute an interest in every agricultural operation, in every chemical analysis, and in the best mixture of manures for growing crops; and he would like to weigh his own opinions and experience with such a gentleman as he saw in the chair.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday	Nov. 25	29.35	40	39	N.W.	0	0	41	37	48	31	0.00
Saturday	26	29.06	44	41	W.	1	5	46	37	53	29	0.18
Sunday	27	29.71	44	41	W.	2	5	44	37	53	29	..
Monday	28	29.63	54	53	S.W.	3	10	56	42	56	36	0.67
Tuesday	29	30.31	39	38	S.W.	0	0	53	36	55	30	0.05
Wednesday	30	30.16	47	45	S.W.	4	10	55	33	57	29	..
Thursday	Dec. 1	30.12	43	42	S.W.	1	0	49	37	51	31	0.38

Notices to Correspondents.

COW-HOUSES, &c.: *Subscriber* See Mr. Scott Burn's Book of Farm Buildings (Blackwoods) and Mr. Bailey Denton's Farm Homesteads of England (Chapman & Hall). The management of a small farm is not to be described in an answer here, but may be referred to hereafter.

THOUSAND-HEADED CABBAGE: *C D.* Will any of our correspondents give their experience of the cultivation of this crop for spring food for sheep. [We imagine they must be sown in June for transplanting about 1 yard every way in early August, on good loamy deeply tilled and well-manured land].

THE CATTLE MELON: *Mr. Newton* informs us that the seeds he received this spring failed altogether.

SMITHFIELD CLUB CATTLE SHOW.—STAND No. 65.

THE HYDROPULT.

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, LONDON, E.C.

THE HYDROPULT

is invaluable for use in

the

GARDEN

for

WATERING BEDS,

SPRINKLING

PLANTS,

DROWNING OUT

INSECTS,

CLEANSING TREES

FROM SMUTS,

DRESSING

with

LIQUID MANURE,

ETC. ETC.



THE HYDROPULT

is desirable in every

HOUSEHOLD

for

WASHING

WINDOWS,

WETTING

SIDEWALKS,

SPRINKLING

STREETS,

WASHING

CARRIAGES,

EMPTYING

CISTERNS,

FILLING BARRELS

A SPRAY BATH,

ETC. ETC.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,

32s. 6d.

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet.
Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of One Man.
It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a GARDEN IMPLEMENT, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

EDITORIAL, *written by* ROBERT HOGG, LL.D., F.L.S.

THE HYDROPULT.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything to equal the Hydropult, sent us by Mr. BUTTON. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health, and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory, which were smothered with greenfly during our temporary absence of ten days, but on our return a stout discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

EDITORIAL, *written by the* REV. HENRY H. DOMBRAIN, A.B.

THE HYDROPULT.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

EDITORIAL, *written by* SHIRLEY HIBBERD, ESQ., F.R.H.S.

THE HYDROPULT.—This is an invention introduced in a most spirited manner by Mr. C. P. BUTTON. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3¼ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed, the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a cistern, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

Price 35s.,

Complete with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede SYRINGES and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

HYDROPULT SHOW ROOMS, 142 and 143, CHEAPSIDE, LONDON, E.C.
CHARLES POMEROY BUTTON, PROPRIETOR.

SMITHFIELD CLUB CATTLE SHOW.—STAND No. 18.



MARSHALL, SONS, & CO., LIMITED,

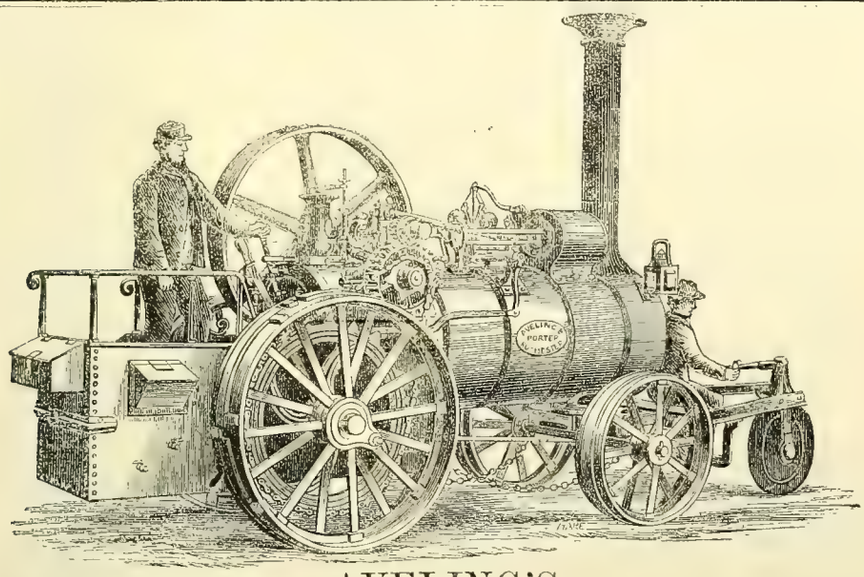
WILL EXHIBIT AT THE ABOVE SHOW

A PORTABLE STEAM ENGINE, A COMBINED THRESHING MACHINE, AND A CIRCULAR SAW BENCH.

They were awarded

The GOLD MEDAL and DIPLOMA of HONOUR at the INTERNATIONAL EXHIBITION, MUNICH.
The LARGE SILVER MEDAL and DIPLOMA of HONOUR at the INTERNATIONAL EXHIBITION, HAMBURG.
The LARGE SILVER MEDAL at the INTERNATIONAL EXHIBITION, CHAMBERY.

MARSHALL, SONS, AND CO., LIMITED, ENGINEERS, BRITANNIA IRON WORKS, GAINSBOROUGH, LINCOLNSHIRE.



AVELING'S

PATENT AGRICULTURAL LOCOMOTIVE ENGINE

WILL BE EXHIBITED AT THE

SMITHFIELD CLUB SHOW.—STAND No. 16.

Upwards of ONE HUNDRED and THIRTY of these ENGINES have now been sold for Ploughing, Threshing, &c. The great strength and simplicity of their construction enables them to be worked most advantageously, either as Fixed or Portable Engines.

AVELING AND PORTER WILL ALSO EXHIBIT THEIR

PATENT TRAVELLING ROPE PORTER,

Which obtained the First Prize at the recent Newcastle Meeting of the Royal Agricultural Society.

AVELING AND PORTER, ENGINEERS, ROCHESTER.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening Novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

Span-Roofed Iron Greenhouse.

FOR SALE, a SPAN-ROOFED IRON GREENHOUSE 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.

Particulars on application to A. SHANKS & SON, 27, Leadenhall Street, London, E.C.

HANCOCK'S IMPROVED HORSE-SINGEING APPARATUS, with India-rubber Tubing, Stop-cock, and Two Gas Burners Complete.

No. 1. Best quality, 9*s.* per Set. | No. 2. Second quality, 6*s.* per Set.

INDIA-RUBBER TUBING for DO.

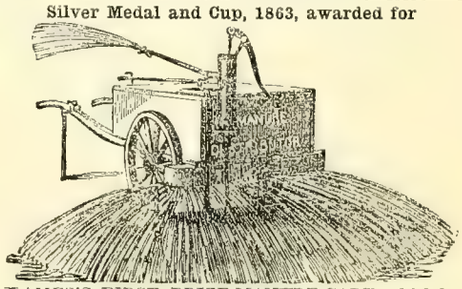
PLAIN (per foot).			SNAKE PATTERN (per foot).		
¼ in.	5/16 in.	⅜ in.	⅝ in.	7/16 in.	½ in.
2*d.*	2½*d.*	3*d.*	3½*d.*	4*d.*	5*d.*

HOSE PIPES for conveying Hot or Cold Water, Beer, Cyder, &c., for Brew Houses, Baths, Fire Engines, Gardens, &c.

Price Lists, with full particulars, on application.

JAMES LYNE HANCOCK, Vulcanized India-rubber Works, Goswell Mews, E.C.; and 266, Goswell Road, London, E.C.

Silver Medal and Cup, 1863, awarded for



JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

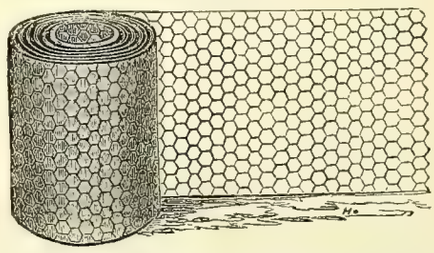
Washing.

The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. JAMES, Tivoli Works, Cheltenham.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

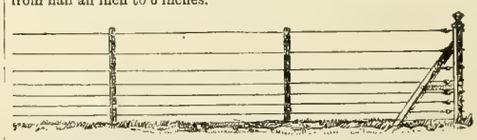


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19 ..	4½*d.* per yd.	3½*d.* per yd.
2-inch " " "	18 ..	5 "	4 "
2-inch " " "	17 ..	6½ "	5 "
2-inch " " "	16 ..	8 "	6½ "
1½-inch " " "	19 ..	4¾ "	4 "
1½-inch " " "	18 ..	6 "	4¾ "
1½-inch " " "	17 ..	7 "	5½ "
1½-inch " " "	16 ..	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong GALVANISED POULTRY NETTING, 7½*d.* per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 1*s.* per yard.

The same with Galvanised Wire Rope, 1*s.* 2*d.* per yard

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Patronised by 70,000 Stock Breeders.



DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs,

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scour in calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.*, securely packed, and carriage free. Sample case, usefully assorted, 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdon and Ireland sent free on application.

Established over One Quarter of a Century.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. RIVERS and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

AVERAGE THICKNESS, 15 TO 16 OZ.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about 1¼d. per foot.	
3ds	,, ...	,,	41 0	,, 1⅜	,,
2ds	,, ...	,,	60 0	,, 2	,,
Best	,, ...	,,	92 0	,, 3¾	,,

AVERAGE THICKNESS, 21 OZ.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about 2d. per foot.	
3ds	,, ...	,,	42 0	,, 2⅜	,,
2ds	,, ...	,,	63 0	,, 3¾	,,
Best	,, ...	,,	89 0	,, 5¼	,,

AVERAGE THICKNESS, 26 OZ.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about 2⅞d. per foot.	
3ds	,, ...	,,	56 0	,, 3½	,,
2ds	,, ...	,,	84 0	,, 5	,,
Best	,, ...	,,	116 0	,, 7	

SHEET SQUARES, Cut to Order.

AVERAGE THICKNESS, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1¼d.	1⅜d.	2 d.	2¼d.	2½d.	2⅝d.
3ds ,,	1⅜	2	2¼	2¾	3	3¼
2ds ,,	2	2½	2⅞	3	3½	4
Best ,,	2½	3	3½	4	4½	5

AVERAGE THICKNESS, 21 OZ.

4ths quality	2½d.	2⅝d.	3 d.	3½d.	3¾d.	4d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7

AVERAGE THICKNESS, 26 OZ.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4⅜	5	5½
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.				Per 100 feet.			
15½ by 11½	14 by 12	17 by 13	22 by 16	4ths.	3rds.	2nds.	Best.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17	..	11s. 6d.	13s. 6d.	15s.
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

AVERAGE THICKNESS, 15 TO 16 OZ.

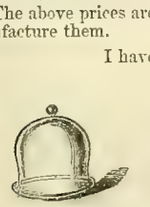
		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

AVERAGE THICKNESS, 21 OZ.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,					
20 ,, 15 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.



PROPAGATING GLASSES.

3 inches diam.	0s.	4d.	each.	
4 ,, ..	0	5	,,	
5 ,, ..	0	6	,,	
6 ,, ..	0	7	,,	
8 ,, ..	0	10½	,,	
10 ,, ..	1	2	,,	
12 ,, ..	1	6	,,	
14 ,, ..	2	3	,,	
16 ,, ..	3	0	,,	
18 ,, ..	4	6	,,	
20 ,, ..	6	0	,,	

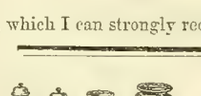


HAND GLASSES.

12 inches diam.	5s.	6d.	each.	
14 ,, ..	6	6	,,	
16 ,, ..	7	6	,,	
18 ,, ..	8	6	,,	
20 ,, ..	9	6	,,	
22 ,, ..	10	6	,,	
24 ,, ..	11	6	,,	

If removable tops, 1s. extra.

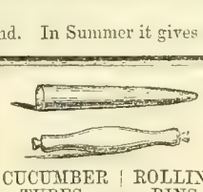
Painted and Glazed with Sheet Glass.



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0s. 4d.	..	0 6	each.
4 ..	0 5½	..	0 8	,,
5 ..	0 7	..	0 10	,,
6 ..	0 9	..	1 1	,,
7 ..	0 10½	..	1 2	,,
8 ..	1 2	..	1 6	,,
9 ..	1 6	..	2 9	,,
10 ..	1 10	..	2 4	,,

These will be found preferable to any other kind of Jar.

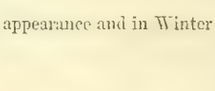


CUCUMBER TUBES.

Ins. long.			each.
12 ..	0s.	10d.	
13 ..	0	11	
14 ..	1	0	
15 ..	1	1	
16 ..	1	2	
17 ..	1	3	
18 ..	1	4	
19 ..	1	5	
20 ..	1	6	
22 ..	1	7	
24 ..	1	9	

ROLLING PINS.

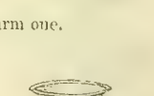
each	
1s. 3d.	
1 4	
1 6	
1 8	
1 9	
1 10	
2 0	
2 2	
2 3	
2 4	
2 8	



MILK PANS.

6 inches diam.	0s.	5d.	each.	
8 ,,	0	8	,,	
10 ,,	0	10½	,,	
12 ,,	1	1	,,	
14 ,,	1	6	,,	
16 ,,	2	0	,,	
18 ,,	2	5	,,	
20 ,,	2	10	,,	
22 ,,	3	4	,,	
24 ,,	4	0	,,	

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.	Qts. each	
8	¾ filled,	3..1s. 3d.
9	,,	4..2s.
10	,,	6..2s. 6d.
11	,,	8..3s.
12	,,	9..3s. 9d.
13, 14, 15, 16	At same average according to weight.	7d. per lb.

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

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BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

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Illustrated Priced List on application to L. CASELLA, Instrument Maker to the Admiralty, 23, Hatton Garden, London, E.C.

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RABBIT-PROOF WIRE WORK, 4½*d.* per square yard; in various widths, 6 feet wide, 9*d.*
R. RICHARDSON, 99, Euston Road, London, N.W.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.* ..	7½*d.*
Seconds	3¾*d.* ..	5*d.*
Thirds	2¼*d.* ..	3½*d.*
Fourths	2¼*d.* ..	3¼*d.*

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

11 by 9	12 by 9	12 by 9	14 by 9	4ths. 3rds. 4ths. 3rds.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10*s.* 9*d.* 12*s.* 3*d.* 12*s.* 6*d.* 14*s.* 6*d.*
13 „ 11	14 „ 11	..	..	
14 „ 12	15 „ 12	15 „ 11	16 „ 11	
18 „ 12	19 „ 12	16 „ 12	17 „ 12	
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11*s.* 6*d.* 13*s.* 6*d.* 13*s.* 6*d.* 16*s.* 0*d.*
19 „ 13	20 „ 13	18 „ 13	..	
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs. 16 to 17 ozs.
19 „ 14	20 „ 14	18 „ 14	..	to the foot.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
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Best ..	3 7 0	..	5 11 0
Seconds ..	2 10 0	..	4 13 0
Thirds		2 5 0	2 10 0
Fourths		1 15 0	2 0 0

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As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13	Thirds	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14	Seconds	.. ..	English.	English.
20 „ 15	Best	.. ..	18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

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In 100 feet Boxes.

6 by 4 ..	6½ by 4½ ..	7 by 5 ..	7½ by 5½ .. } 11*s.* 6*d.*
8 „ 6 ..	8½ „ 6⅜ ..	9 „ 7 ..	9½ „ 7½ .. }
		10 „ 8 ..	10½ „ 8½ .. 12*s.* 6*d.*

Boxes 2*s.* each, returnable at full price.

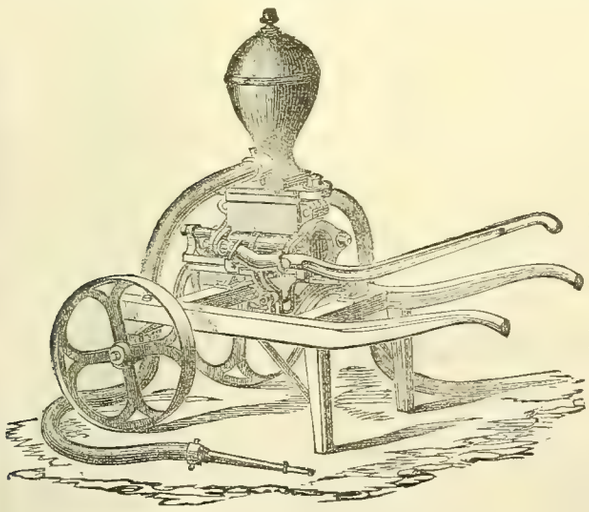
All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.
London Agents for Hartley's Patent Rough Plate.
Perforated Glass for Ventilation.
Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.
Glaziers' Diamonds from 10*s.* to 21*s.* each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

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ANTI-CORROSION PAINT.	„ „ CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

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LONDON, 1862. | HAMBURG, 1863.

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LIQUID MANURE PUMP,
AND
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84 & 85, Upper Whitecross Street, E.C.
MAKERS OF
PUMPS, GARDEN ENGINES, SYRINGES, &c.

SMITHFIELD CLUB CATTLE SHOW 1864.—STAND No. 20.

RANSOMES & SIMS, IPSWICH.

WILL EXHIBIT THEIR

NEWCASTLE PRIZE PLOUGHS,

Which won 4 prizes out of 6 at Newcastle, and 20 All England Prizes in competition with the best Ploughs of leading Makers. A practical trial will convince every impartial person that these Ploughs are at the present time THE BEST PLOUGHS IN THE WORLD.

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The only Screen which is adjustable, self-cleaning, and rotary. More than one thousand are in use, giving the greatest satisfaction.

R. & S. will also exhibit the following:—

PATENT ROOT PULPERS.

Which require less power and are far superior to any others.

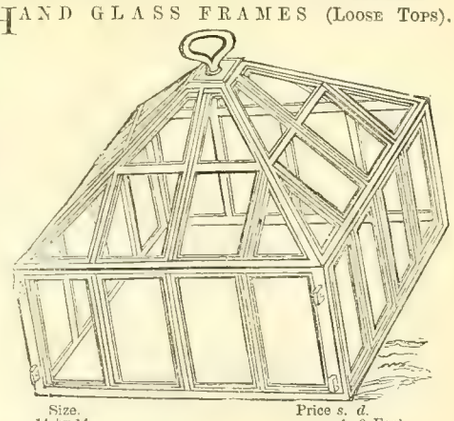
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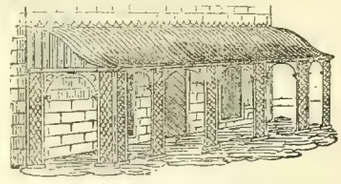
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Size.	Price *s.* *d.*
14 by 14	4 0 Each.
18 by 18	5 9 „
20 by 20	6 6 „
22 by 22	7 6 „
24 by 24	8 6 „

Delivered Free to any Station in England if 12 or more are ordered.
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HORTICULTURAL AGENT, AUCTIONEER, and VALUER,
Springfield Nursery, Sunbury, Middlesex, S.W.

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WANTED on a LEASE, from 7 to 21 years, a NURSERY or MARKET GARDEN, or combined the two from 6 to 20 Acres of Land. If near a large Town would be preferred.
Address, stating terms, &c., G. WILLIAMSON, Knowsley, Prescot, Lancashire.

WANTED to PURCHASE, either an ESTABLISHED NURSERY BUSINESS OR PARTNERSHIP.—The advertiser will devote his whole time to the business. His connections are such that will enable him to increase the business.
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For further particulars apply to EDWARD HALL, Wholesale and Retail Fruiterer, Cross Square, Wakefield.

To Nurserymen and Florists.

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On view the Morning of Sale, and Catalogues had.

Woking, Surrey.—Highly Important Sale.

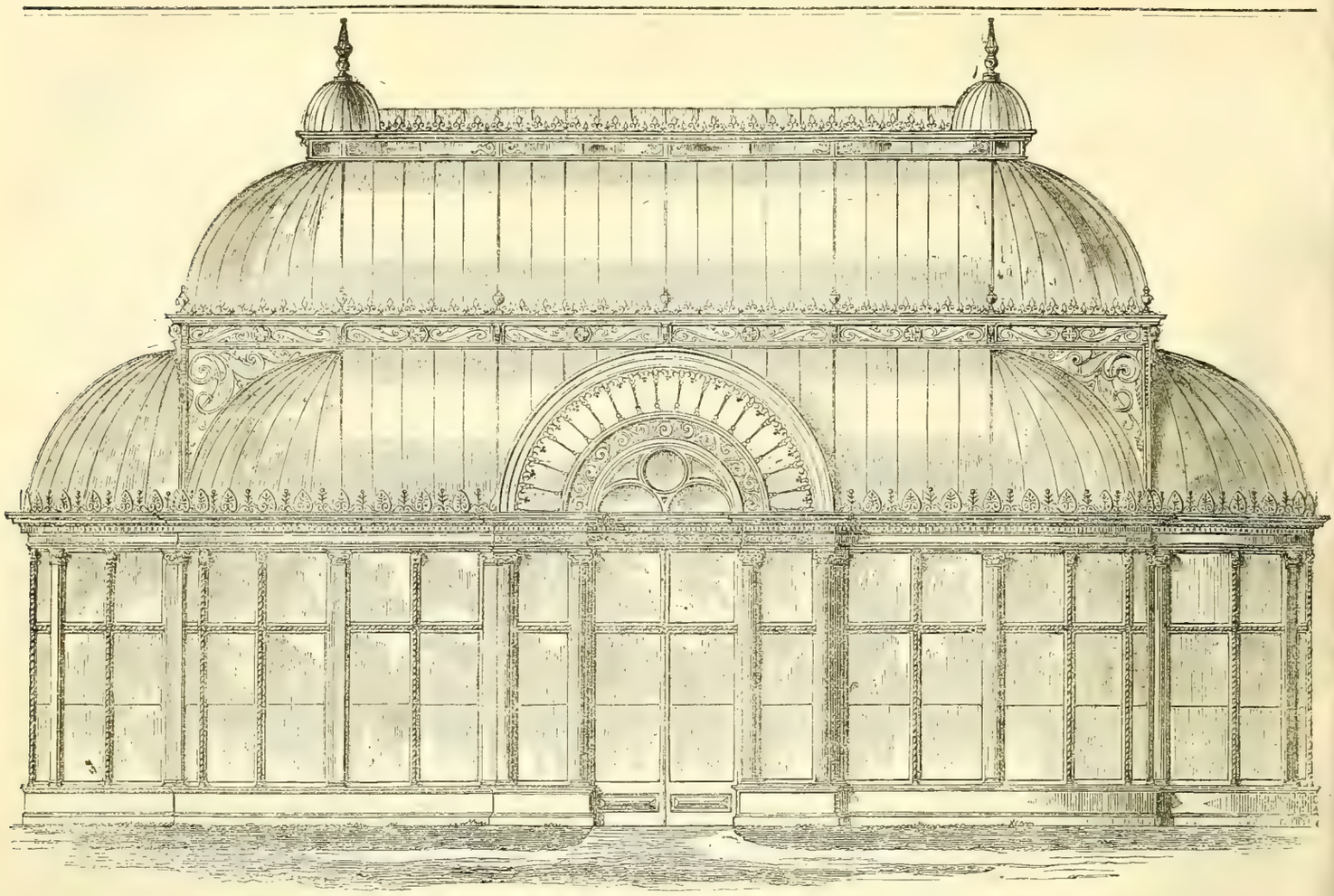
PROTHEROE AND MORRIS beg to announce that the large SALE of NURSERY STOCK at Woking, Surrey, will continue THIS DAY, on MONDAY NEXT, and three following days.
Catalogues may be had of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on WEDNESDAY, December 7, at 1 o'Clock precisely, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Anemones, Ranunculus, Snowdrops, &c. Also a fine assortment of 300 STANDARD and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c. Selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully set with bloom buds, &c.
On view the Morning of Sale. Catalogues may be had as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Aston-Clinton, Bucks—Prime Christmas Fat Stock.

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"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—*The Illustrated London News.*

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—*The Illustrated News of the World.*

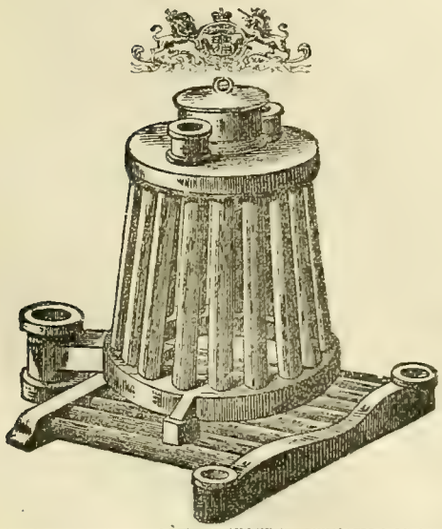
"The beauty of this structure is as good a lesson of the value of iron as any that could be furnished in the whole Exhibition."—*Gardener's Weekly Magazine.*

THE FOLLOWING IS THE REASON WHY

ORMSON'S

ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS are heating upwards of			250	feet of Pipe.
ORMSON'S No. 2 BOILERS	,,	,,	600	,,
ORMSON'S No. 3 BOILERS	,,	,,	1300	,,
ORMSON'S No. 4 BOILERS	,,	,,	3500	,,
ORMSON'S No. 5 BOILERS	,,	,,	7000	,,

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. ORMSON having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 50.—1864.] SATURDAY, DECEMBER 10. {Price Fivepence. {Stamped Edition, 6d.

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Exhibition of Chrysanthemums.

JOHN SALTER'S Collection of these beautiful flowers will be in BLOOM throughout DECEMBER. The WINTER GARDEN will be open every day except Sunday.
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CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5s. per dozen. W. HOLMES, Frampton Park Nursery, Hackney.

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1864 and 1865 Rose Catalogue.

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Good Seeds, Carriage Free, at Market Prices.

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W. VIRGO AND SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

New Fuchsias.

E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

Gladioli.

B. S. WILLIAMS is now prepared to supply strong Bulbs of all the best kinds, price 4s., 6s., 8s., 10s., and 12s. per doz.
Paradise and Victoria Nurseries, Holloway, London, N.

Gladioli.

STEPHEN BROWN'S CATALOGUE (Cultural and Descriptive), containing his extensive and first-class Collection of Gladioli, sent free on application.
Seed and Nursery Establishment, Sudbury, Suffolk.

GLADIOLI for 1864-65.—First Prize at Crystal Palace, Reading, and Bath, with Nine other First Prizes, have been awarded during this season to
KELWAY & SON, The Nurseries, Langport, Somerset.
Priced LIST now ready. Practical Hints on their Culture enclosed.

Notice, Seed Trade.

F. W. WENDEL'S, Erfurt, WHOLESALE SEED CATALOGUE, now ready, and will be forwarded Free and Post paid on application to F. W. W.'s English Agent,
GEORGE MACINTOSH, Exotic Nursery, High Road, Hammersmith, W.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above, with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Vines.

PAUL AND SON have their usual stock of well-ripened FRUITING and PLANTING VINES.
The "Old" Chesnut Nurseries, N.

Vines.

B. S. WILLIAMS begs to announce that he has a large and fine stock of VINES of various sizes for planting out or fruiting in pots.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines, Vines.

WM. CUTBUSH AND SON invite inspection of their Stock of the above for Fruiting in pots or Planting out. None finer in the Trade. Price on application.
Highgate Nurseries, London, N.

Pines.

B. S. WILLIAMS has a fine and healthy stock, including CHARLOTTE ROTHSCHILD, HURST HOUSE SEEDLING, SMOOTH and PRICKLY CAYENNE, BLACK JAMAICA, &c. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

THE TRUE BLACK ALICANTE, a magnificent Late GRAPE.—The above variety may be had genuine from J. MEREDITH, Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine Growing.

Dwarf-trained Peaches, Nectarines, and Apricots.

SALTMARSH AND SON are offering very superior Trees of the above at moderate prices, comprising the leading sorts, true to name. CATALOGUES with prices on application.
Moulsham Nurseries, Chelmsford.

TO THE TRADE. — APPLE, CHERRY, and PEAR STOCKS.—Extra stout, clean, and well rooted. Low Prices upon application to
JAMES DICKSON & SONS, The Newton Nurseries, Chester.

STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome; AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at
WOOD & Co.'s, Barbourne Nurseries, Worcester.
Prices upon application.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseries, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

RASPBERRIES, Trade Price.—CORNWELL'S SEEDLING (large punnet fruit), 14s.; CARTER'S PROLIFIC, 12s.; FILLBASKET, 10s.; RED PROLIFIC, ANTWERP SEEDLING, FASTOLFF and AUTUMN TINTED, 8s.; SEAKALE, strong, 5s. to 8s. per 100.
GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

THE ROYAL HAUTBOIS STRAWBERRY (RIVERS).—This is the largest and finest Strawberry of the race, and a most abundant bearer. Young Plants, 3s. per dozen; Large Bearing ditto, 6s. per dozen.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to
Mr. WEBB, Calcot Gardens, Reading.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

CHOICE PRIMULA SEED, WILLIAMS's superb Strain, the finest fringed and best coloured flowers in cultivation, proved by numerous testimonials.
In sealed packets, Red, White, or mixed Seed, 2s. 6d., 3s. 6d., 5s.
A liberal allowance to the Trade.
Paradise and Victoria Nurseries, Holloway, London, N.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and will be forwarded to any address on receipt of one postage stamp.
N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

New Japanese Plants.

EDWIN COOLING will have pleasure in forwarding a new and very complete CATALOGUE of the above, with prices and descriptions; also his NEW LIST of ROSES, FRUIT TREES, EVERGREENS, Winter Blooming Plants, &c., free on application. Mile Ash Nurseries, Derby.

Violets.

J. STEDMAN begs to announce that he has now a fine healthy stock of the different sorts of VIOLET Plants in full Bloom, including the NEAPOLITAN, CRIMEAN, RUSSIAN, GIANT, &c. CATALOGUE of prices on application.
Thornton Heath, Croydon, Surrey, S.

100,000 IMPORTED DUTCH CROCUS, Surplus Stock,
1s. to 3s. per 100, or 9s. 6d. to 21s. per 1000.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CHOICE SEEDS, CROP 1864.—AURICULA, LAPAGERIA ROSEA, ZONALE PELARGONIUM, Ditto VARIEGATED, CALCEOLARIA, PRIMULA, CARNATION, PICOTEE, HOLLYHOCK, MOTTLED and SPOTTED MIMULUS, CYCLAMEN PERSICUM, &c. Each 1s. and 2s. 6d. per packet.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S GARDENER'S VADE-MECUM.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

To the Trade.—Nolana lanceolata.

JAMES VEITCH begs to announce that in consequence of the great demand for this NEW HARDY ANNUAL, he will be unable to supply any further orders this season.
Royal Exotic Nursery, King's Road, Chelsea, S.W.

To the Trade.

CHESTNUT (HORSE), 1 year, 7s. per 1000.
YELLOW CROCUS, 7s. per 1000.
F. WARWICK, Seed Warehouse, East Gate, Sleaford.

ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. THOMSON, The Nursery, Wimbledon, Surrey, S.W.

SPRUCE FIRS, from 2 to 3½ feet high, bushy and well rooted.
DICKSON'S FAVOURITE and BLUE SCIMITAR PEAS.
Prices on application to
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50s. to 75s. per 100; or from 6d. to 2s. 6d. each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Transplanted Quick.

CHARLES SHARPE AND CO., NURSERYMEN, Sleaford, have a large stock of the above, strong well-rooted Plants. Samples and prices will be forwarded on application.

Planting Season.

WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES FERNS, and AURICULAS, may now be had on application.

BLACK THORNS, in large quantity, for Covert Planting.—Price on application to
J. PERKINS, 52, Market Square, Northampton.

WANTED, SYCAMORE, BIRCH, and LARCH, 3 to 4 feet.—Parties having the above to offer will oblige by sending samples and price to
FISHER, HOLMES, & Co., Handsworth Nurseries, Sheffield.

Yew Berries.

WANTED, a Quantity of YEW BERRIES.—Send Quantity and Price to
G. H. BUNNEY, Nurseryman, Stratford, Essex, E.

Sloe or Blackthorn.

WANTED, the above, 2 to 2½ feet high.—Apply to
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

PEAS.—NAPOLEON or CLIMAX, 60s. per Quarter; EARLY EMPEROR, 52s. per Quarter.
Address, F. WARWICK, North Road Nursery, Sleaford.

CLIMAX or NAPOLEON (WRINKLED) PEAS.—A few Quarters of this fine variety for Sale at 60s. per quarter, also a quantity of BEDMAN'S IMPERIAL PEAS at 52s. per qr.
Apply to Mr. S. A. DAINTREE, Fendrayton, St. Ives, Hunts.

JOHN LUFF offers several Thousand fine strong 2-year ASPARAGUS at 3s. per 100, or 25s. per 1000. Price to the Trade on application. A sample of 25 sent on receipt of 12 postage stamps.
St. Mary's Nursery, Battle, Sussex.

WANTED, Strong ASPARAGUS for FORCING.—State price and age to
JAMES GARAWAY & Co., Durdham Down Nursery, Bristol.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.
Application at the Gardens at Calcot, near Reading.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.
Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

KING of the CUCUMBERS, selected from a prime stock of the Long Prickly, the most hardy and abundant cropper, 10s. per ounce. LONG PRICKLY PRINCE, 3s. per ounce.
Post Free from the Grower,
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

Seakale.

H. LANE AND SON have to offer a large quantity of Extra Strong SEAKALE, for Forcing. Also, Strong 3-years old ASPARAGUS. Prices upon application.
The Nurseries, Great Berkhampstead, Herts.

Cabbage Plants.

FOR SALE, good Strong Plants, fit for immediate planting.
For price, apply to W. MYATT, Manor Farm, Deptford, S.E.

OSBORN'S WHITE WINTER BROCCOLI.
Price 2s. 6d. per packet.
Special offer to the Trade on application.
A PRICED LIST of select GARDEN SEEDS will be printed in December, and may be had free on application.
OSBORN & SONS, The Nursery, Fulham, London, S.W.

WHEELER'S LITTLE BOOK on GRASSES.
Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarities, Season, Growth, Increase, Time of Flowering, Pride, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

ONE PENNY NEWSPAPER

Vines, Extra Strong, for Fruiting in Pots.

LUCOMBE, PINCE AND CO. beg to offer the above with excellent Canes, thoroughly ripened, having prominent Eyes, and certain of carrying a heavy crop of Fruit next season. Also a splendid stock of Extra Strong VINES, of all the leading sorts, for planting out

PRICED LIST of SORTS sent on application.

Exeter Nursery, Exeter.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 913 and 1008.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

New Melon "Malvern Hall."

B. S. WILLIAMS has much pleasure in offering for the first time this VALUABLE MELON, which has been fully proved, after three seasons competitive trial with all the best sorts in cultivation, to be the earliest to ripen and the first in setting its fruit. It has taken many First Prizes during the last and previous seasons at different Provincial Shows.

The following description is supplied by the Raiser, Mr. STEVENS: "Plant of robust habit and vigorous growth, a very free setter and sure cropper; quite ten days earlier than any other variety. Fruit from one to two pounds in weight; scarlet flesh, rind tender, yellow mottled and streaked with dark green; fine flavour."

Price 2s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Magnificent Dwarf-trained

MORELLO and MAY DUKE CHERRIES, ROYAL GEORGE PEACHES, MOOR PARK APRICOTS, PEARS, and PLUMS, of the best leading kinds.

WM. WOOD AND SON have to offer a large Stock of the above, grown on maiden soil. The trees are very large and have been most carefully trained. Finer trees could not possibly be wished for.

W. W. & S. have also some very fine Standard SCARLET HORSE CHESTNUTS left, Stems with fine heads.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.

Edinburgh and London.—Dec. 10.

3000 Extra Strong STRAWBERRY PLANTS for forcing, in 32-size pots (many of the pots having two plants in each) consisting of the following varieties, viz., ADMIRAL NAPIER, BRITISH QUEEN, KEEN'S SEEDLING, &c., 50s. per 100; also Plants of the above, and also of ELTON PINE for Planting, 3s. 6d. per 100.

A Large Stock of fine sound Pot Roots of DAHLIAS (suitable for exportation), comprising most of the Leading Varieties in Cultivation, 42s. per 100.

Address, THOS. ANSELL, Camden Nursery, Grafton Road, Kentish Town, London, N.W.

MR. W. HOOK begs to inform the Public in general that he has now ready for Sale, at his ground, Vine Cottage, Gerrard's Cross, Bucks, a quantity of his celebrated SEEDLING NUTS, the earliest and finest bearers as yet out; also, some of his handsome SEEDLING COBS, all from three to five years' old. Likewise, several thousand three-year-old BLACK CURRANTS, a large quantity of LILY of the VALLEY roots, fit for forcing; and some fine NARCISSUS roots.

ORANGE TREES, full of Fruit, 2s. 6d. and 3s. 6d. each. CAMELLIAS and AZALEAS, full of Flower-buds, 18s., 21s., and 24s per doz. DUTCH BULBS, good and cheap. German Canaries in full song, 6s. each, 6 for 33s., 12 for 60s., Cages included; Belgians, do., extra fine.

R. GREEN, 1154, Kingsland Road, N.E.; and the Bedford Conservatories, Covent Garden Market, W.C.

Pyramidal Fruit Trees.

H. LANE AND SON have to offer a fine Stock of PYRAMIDAL APPLES, well set with Bloom Buds, Good and Strong, PLUMS, PEARS, &c. Also Standard and Dwarf-trained APPLES and PEARS. CATALOGUES may be had on application at The Nurseries, Great Berkhampstead.

Fruit Trees in Pots.

H. LANE and SON having paid great attention to the above (of which the numerous Prizes they have received is a proof), are enabled to supply PEACHES, NECTARINES, APRICOTS, PLUMS, PEARS, APPLES, FIGS, &c.

All the different CATALOGUES may be had upon application at the Nurseries, Great Berkhampstead.

Dwarf-trained Trees.

By the THOUSAND, HUNDRED, or DOZEN.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

Extra Size Fruit Trees.

PYRAMIDAL PLUMS, PEARS, &c., of extra size and first quality, very handsome. Prices, names, and sizes, may be had on application.

Also the DESCRIPTIVE FRUIT CATALOGUE.

STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

Fruit Trees.

J. SCOTT, Merriott, Somerset, offers selections from one of the most complete Collections of FRUIT TREES in this country, numbering above 1000 sorts.

A DESCRIPTIVE CATALOGUE, 84 pages, for 7 stamps.

NEW GENERAL NURSERY STOCK CATALOGUE, one stamp, containing Forest Trees, Conifers, Flowering Shrubs, Evergreens, American Plants, Roses, Camellias, Heaths, &c.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass: also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of Beck's NEW and CHOICE VARIETIES for this season, and that he is now prepared to supply strong plants.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, can be had post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HE IS

NOW DISTRIBUTING THIS VALUABLE GRAPE,

THE BEST LATE WHITE GRAPE EXTANT.

Strong Planting Canes, 21s. each; Strong Fruiting, 42s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

PAUL & SON,

"OLD" CHESHUNT NURSERIES, CHESHUNT, N.,

HAVE MUCH PLEASURE IN DRAWING ATTENTION TO THE FINE STOCK OF

STANDARD, DWARF-STANDARD, and DWARF ROSES,

WHICH THEY HAVE NOW READY FOR REMOVAL.

SEVENTY PRIZES for CUT and POT ROSES have been awarded to their Collection during the present season, and these include the Six Premier Prizes of the Metropolitan and Provincial Rose Shows.

Carriage of all goods carriage paid to London.

PRICED CATALOGUES of ROSES, FRUITS, and HARDY SHRUBS, &c., Post Free on application.

HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN, GHENT, BELGIUM,

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS Nos. 103, 104, 105, AND 106,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The Goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged in the account for each package.

The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.



GENUINE NEW GARDEN SEEDS.



JAMES CARTER & CO.

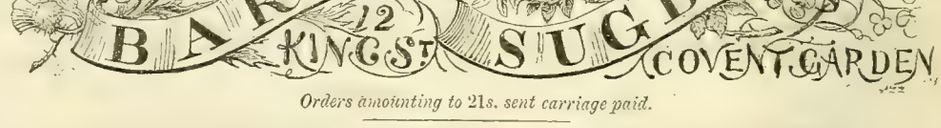
ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.



Orders amounting to 21s. sent carriage paid.

100,000 Imported DUTCH CROCUS (Surplus Stock), 1s. to 3s. per 100, or 9s. 6d. to 21s. per 1000.

SPRING GARDENING IS DONE AT CLIVEDEN

BY PLANTING THE FOLLOWING LIBERALLY AT THE PRESENT SEASON:—

The Cliveden Collection of Spring Flowering Bulbs, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

600 TULIPS Assorted	500 SNOWDROPS	300 ANEMONES	200 NARCISSUS
1000 CROCUS	100 SCILLAS.	300 RANUNCULUS	200 WINTER ACONITES

The Cliveden Collection of Spring Flowering Plants, true, drawn from the stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

50 Perpetual-flowering CLIVEDEN YELLOW PANSIES		100 WHITE DAISIES
50 " " " Beautiful BLUE PANSIES		100 PINK DAISIES
50 " " " RICH PURPLE PANSIES		100 RICH BLUE FORGET-ME-NOT
50 Mixed POLYANTHUS "		100 PINK SILENE

The above Collections can be modified to suit the requirements of purchasers.

The Cliveden Perpetual-flowering YELLOW PANSY, 4s. per dozen.
Ditto Perpetual-flowering beautiful BLUE PANSY, 4s. per dozen.
Ditto Perpetual RICH PURPLE PANSY, 4s. per dozen.
Ditto WHITE DAISY, 2s. 6d. per dozen.
The Cliveden PINK DAISY, 2s. 6d. per dozen.
Ditto RICH BLUE FORGET-ME-NOT, 1s. 6d. per dozen
Ditto PINK SILENE, 1s. 6d. per dozen.
Ditto Mixed POLYANTHUS, including the GIANT var., 3s. per doz.

Special quotations for the above Spring Flowering Bulbs and Plants by the 100 *or* 1000.

CHOICE SEEDS.—CROP 1864.

AURICULA, POLYANTHUS, ZONALE PELARGONIUM, do. VARIEGATED, FRENCH, ENGLISH, and FANCY PELARGONIUMS, CYCLAMEN PERSICUM, PANSY, LAPAGERIA ROSEA, CARNATION, PICOTEE, &c., 1s. and 2s. 6d. per packet.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

New Hardy Rhododendrons.

JOHN WATERER begs to offer the following SIX RHODODENDRONS, which will be sent out in the month of October next. Price 21s. each, with the usual discount to the Trade. They will be found to be perfectly distinct from any other varieties in cultivation, and are such kinds as he can confidently recommend.

MRS. FITZGERALD.—A very bright rosy scarlet, close compact truss, and good foliage.
SIDNEY HERBERT.—Brightest carmine, with dark eye, fine shape and free bloomer.
JOSEPH WHITWORTH.—Dark lake with dark spots, and immense truss with very fine foliage.
SIR ROBERT PEEL.—Dark rosy crimson, well and strongly marked with black spots, good foliage and habit.
THE WARRIOR.—Clear rosy scarlet, very large truss, and fine foliage.
SURPRISE.—A light lilac, with immense dark marking, which renders it very remarkable.

American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Cham Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

DUTCH CROCUS ROOTS, of sorts, 10s. per 1000; DOUBLE SNOWDROPS, 13s. 6d. per 1000; TRANSPLANTED LARCH, 1 to 4 ft.; GREEN HOLLIES, 9 in. to 2 ft.; SPRUCE FIRS, 1 to 3 ft.; 1, 2, and 3 years ASPARAGUS and SEA KALE ROOTS. And every other description of Nursery Stock.

A DESCRIPTIVE and PRICED CATALOGUE gratis and free through the post on application to

EDWARD TAYLOR, Derwent Nurseries, Malton, Yorkshire.

Paul's Nurseries, Waltham Cross, N

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the Trees, &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for Transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL'S possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post. Orders by post promptly attended to.

Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Splendid Hybrid Gladioli.



THOMAS CHARMES can now supply Collections of the above, in Named varieties, from 6s., 8s., 12s., 18s., 21s., to 24s. per dozen. PRICED CATALOGUES free on application.

204, High Street, Exeter.

New Plants.

AMBROISE VERSCHAFFELT'S NEW CATALOGUE, No. 75, can be obtained free at Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

THE ILLUSTRATION HORTICOLE. By AMBROISE VERSCHAFFELT, Ghent, Belgium. The OCTOBER Number contains:—
NEW PEAR BEURRE VAN GEERT | AZALEA PONTICA BOUQUET DE FLORE
CLEMATIS JACKMANNI.
The NOVEMBER Number contains:—
ROSE HYB. REM. DUCHESSE DE MEDINACELI | VANDA LOWII
CAMELLIA ISABELLA ORSINI.
Price 14s. 6d. per year, free.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.

CATALOGUES and samples may be had free on application.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.
1 and 2 year Transplanted NATIVE SCOTCH FIR.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

M. CROOK AND SONS, The Nurseries, Walton-le-Dale, Preston, have 100,000 to 500,000 LARCH FIRS from 2½ to 3½ feet high. The above are strong healthy-grown Plants. Prices reasonable.

CATALOGUE on application, which gives a general summary of their stock.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

TRANSPLANTED LARCH, 1 to 1½, 2 to 2½, & 3 feet.—We have an over stock of the above, and shall offer them very reasonable. They are grown on heavy soil in a high situation.

Extensive Stock of all kinds of FOREST TREES and HARDY SHRUBS. Reference to noblemen and their agents as to the quality of our stock. JOSEPH TREMBLE & SONS, Penrith.

LARCH, LARCH, LARCH, &c.
300,000 TRANSPLANTED LARCH, 1½ to 2½ ft.
150,000 " 3 to 4, & 4 ft., extra fine.
250,000 TRANSPLANTED THORN QUICKS.
10,000 Strong COMMON LAUREL, twice and three times Transplanted.

The above are growing on a high exposed situation, are fine stiff plants and extra well rooted. Samples and price on application to WILLIAM HALSTEAD, Nurseryman, Lancaster.

Trees and Plants.

JAMES DICKSON AND SONS beg to draw special attention to their unusually good and almost unlimited stock of FOREST TREES, QUICKS, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, STOVE and GREENHOUSE PLANTS, as well as of all other Trees and Plants.

Fully PRICED and DESCRIPTIVE LISTS of which they will be glad to forward post free upon application.

The "Newton" Nurseries, and 102, Eastgate Street, Chester; also Nurseries, Newtown, Montgomeryshire.

Seedling and Transplanted Forest Trees.

WOOD AND INGRAM have to offer the following, which may be depended upon as very fine stuff:—
ENGLISH ELMS, 1 year's Seedling, 6s. per 1000.
" " 3 years' Seedling, 8s. per 1000.
ENGLISH OAK, extra fine, 2 years' Seedling, 8s. per 1000.
SPRUCE FIRS, Transplanted, 1 to 1½ ft., 20s. per 1000.
" " " 1½ to 2 ft., 30s. per 1000.
" " " 2 to 2½ ft., 50s. per 1000.
BLACK ITALIAN POPLAR, 7 to 9 ft., 65s. per 1000.
Special offers for large quantities to the Trade.
The Nurseries, Huntingdon.

10,000 or 12,000 strong ASH, 1½ to 3 feet £1 per 1000.
10,000 or 12,000 SEEDLING CHESNUT PLANTS, 1 year.
300 or 400 strong LAURELS, bushy Plants, 2½ feet.
4000 good QUICK, 2 to 3½ feet.
1000 or 1200 strong PRIVET, 3 feet.
Apply to JAMES WELCH, Seedsman, &c., Riverhead, Sevenoaks.

Forest Trees, Shrubs, &c.

THOMAS KENNEDY AND CO. beg to intimate that they have this Season a very large and superior stock of FOREST TREES and SHRUBS of various sizes, adapted for extensive Planting and for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c., and which they are now selling at very moderate prices.

Their NEW DESCRIPTIVE PRICED CATALOGUE for AUTUMN 1864, and SPRING 1865, of FOREST and ORNAMENTAL TREES, ROSES, BEDDING PLANTS, &c., is ready, and may be had free on application.

☞ Dumfries, from its central position and increased Railway accommodation, enables T. K. & Co. to transmit Goods daily to all parts of Great Britain and Ireland.

Nursery and Seed Establishment (Established 1787), Dumfries.

Conifers, &c.

H. LANE AND SON have to offer a fine Collection of large handsome fine-shaped SPECIMEN TREES and CONIFERS, among which they beg to enumerate Araucaria imbricata, the finest lot in England; Cedrus Deodara, 6 to 10 feet; Cupressus Lambertiana, 6 to 10 feet; Lawsoniana, a large quantity; Juniperus hibernica (upright); J. succica; Pinus excelsa, 12 to 14 feet, suitable for immediate effect; P. insignis, 4 to 7 feet, very green; Picea Nordmanniana, the best of the Piceas; P. nobilis, first-rate; Abies Douglasii, the handsomest specimens ever seen, 6 to 14 feet; Abies Morinda, suitable for immediate effect; Thujopsis borealis, very handsome; Wellingtonia gigantea, a large quantity; Yews in large variety. Also Ash, Beech, Berberis, Box, Chestnut (Horse), Elm, Hawthorn, Holly, Lime, Mountain Ash, Oak (English and Turkey), Poplar, Privet, Willow, &c., in large quantities and varieties. Also a large collection of superior sorts of Conifers, Trees, and Shrubs; and a general Selection of Nursery Stock, which can be confidently recommended.

CATALOGUES may be had upon application at the Nurseries, Great Berkhampstead.

CARTER'S GARDENER'S VADE-MECUM.

CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

New Potato Chardon.



JAMES VEITCH is prepared to supply this FINE LARGE CATTLE POTATO, for which he was awarded a First-class Certificate by the Royal Horticultural Society. Price per bushel, 5s.

Royal Exotic Nursery, King's Road, Chelsea, S.W.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SON, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

WAITE'S ECLIPSE PURPLE-TOP YELLOW HYBRID TURNIP.

WAITE, BURNELL, & CO.

Beg to inform the public, that they can now supply SEED of this invaluable TURNIP. The ECLIPSE is a purple top, yellow-fleshed, and decanter-shaped variety, with a small top; it is a quickly growing Turnip, can be sown much later than the Swede, will store in the best condition till the end of May, and in the opinion of many farmers who have grown it, will keep better than the Swede. It is sound in flesh, rich in flavour, and preferred by Cattle to all other varieties.



This valuable TURNIP was introduced a few years ago by the late Mr. Waite, but from various causes, the stock has been nearly exhausted; after careful attention, W., B., & Co. have again secured a supply of the genuine and original stock.

Owing to the above circumstance the Purple-top Scotch (to which it is very superior) has been substituted by some houses for it, and great disappointment experienced, especially by those who know the Eclipse.

W., B. & Co. have considered it necessary to state that it is sent out by them in Canvas Bags, sealed, containing not less than a Half Bushel, and in Sacks marked

Price 50s. per bushel.

A Discount allowed to the Trade.

Labels supplied to the Trade for placing on smaller packages.

SEED WAREHOUSE, 181, HIGH HOLBORN, LONDON, W.C.

ROYAL HORTICULTURAL SOCIETY.

INTERNATIONAL SHOW of FRUIT, VEGETABLES, ROOTS, and GOURDS.

WEDNESDAY 7TH, TO FRIDAY 16TH DECEMBER, 1864.

AWARDS OF THE JUDGES.

FRUIT.

CLASS A.—COLLECTION of FRUIT. (Fruiterers only.)
Messrs. Webber & Co., Covent Garden, First-class Certificate
Monsieur C. J. Chevet, Palais Royal, Paris, Second-class Certificate

CLASS B.—COLLECTION of FRUIT, not more than 2 dishes of any one kind. (Private growers.)

CLASS C.—PINE APPLE, QUEEN.
Mr. R. Heather, Gr. to R. Pulford, Esq., Thames Ditton, Surrey, First-class Certificate
Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Sussex, Second-class Certificate
Mr. B. Mobbs, Gr. to W. B. Tyringham, Esq., Newport Pagnell, Third-class Certificate

CLASS D.—PINE APPLE, any kind except Queen.
Mr. T. Ingram, Gr. to Her Majesty the Queen, Windsor, First-class Certificate
Mr. T. Neale, Gr. to R. A. Cartwright, Banbury, Second-class Certificate
Mr. J. Wallis, Astle Park, Congleton, Cheshire, Third-class Certificate

CLASS E.—GRAPES, WHITE MUSCAT, 6 bunches.

CLASS F.—GRAPES, WHITE MUSCAT, 3 bunches.
Mr. G. Tillyard, Gr. to J. Kelk, Esq., Stanmore, Middlesex, First-class Certificate
Mr. A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, Second-class Certificate

CLASS G.—GRAPES, any kind except White Muscat, 3 bunches.

CLASS H.—GRAPES, BLACK HAMBURGH, 6 bunches.
Messrs. H. Lane & Son, Great Berkhampstead, Herts, First-class Certificate
Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, Second-class Certificate
Mr. C. Frisby, Gr. to H. Chapman, Esq., Sleaford, Lincolnshire, Third-class Certificate

CLASS I.—GRAPES, BLACK HAMBURGH, 3 bunches,
Messrs. H. Lane & Son, First-class Certificate
Mr. W. Hill, Second-class Certificate

CLASS J.—GRAPES, any kind except Black Hamburgh, 3 bunches.
Mr. G. Tillyard, First-class Certificate
Messrs. H. Lane & Son, Second-class Certificate
Mr. C. Frisby, Third-class Certificate

CLASS K.—PEARS, Dessert, 12 dishes, distinct kinds.
Mr. Thomas Ingram, First-class Certificate
Mr. J. Cox, Gr to W. Wells, Esq., Redleaf, Penshurst, Kent, Second-class Certificate
Mr. D. Lumsden, Gr. to Lady M C. N. Hamilton, Sleaford, Lincolnshire, Third-class Certificate

CLASS L.—PEARS, Dessert, 6 dishes, distinct kinds.
Mr. G. Tillyard, First-class Certificate
Mr. J. Phillips, Gr. to J. H. Barton, Esq., Pontefract, Yorkshire, Second-class Certificate
Mr. S. Ford, Third-class Certificate

CLASS M.—PEARS, Dessert, 3 dishes, Ripe Fruit, distinct kinds.
Mr. H. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, W., First-class Certificate
Mr. W. Earley, Gr. to F. Pryor, Esq., Digswell, Welwyn, Second-class Certificate
Mr. A. Ingram, Third-class Certificate

CLASS N.—PEARS, Dessert, single dish, ripe fruit, any kind.
Mr. S. Ford, First-class Certificate
Mr. T. Westbrook, Abingdon, Berks, Second-class Certificate
Mr. W. Plester, Gr. to Mrs. Rush, Stanstead, Essex, Third-class Certificate

CLASS O.—PEARS, Kitchen, single dish, any kind.
Mr. C. Ross, Gr. to C. Eyre, Esq., Welford Park, Newbury, First-class Certificate
Mr. G. Scrymger, Gr. to R. Palmer, Esq., Holme Park, Reading, Second-class Certificate
Mr. J. Cox, Third-class Certificate

CLASS P.—PEARS, Dessert, heaviest 5.
Mr. J. Murray, Gr. to the Rev. J. Williams, Tring Park, Herts, First-class Certificate
Mr. W. Plester, Second-class Certificate
Mr. J. Phillips, Third-class Certificate

CLASS Q.—APPLES, Dessert, 12 dishes, distinct kinds.
Mr. T. Ingram, First-class Certificate
The Fruit Growers' Association, Halifax, Nova Scotia, Second-class Certificate
Messrs. G. & J. Lane, St. Mary's Cray, Kent, Second-class Certificate
Mr. S. Ford, Second-class Certificate
Mr. J. Cox, Third-class Certificate
Mr. R. H. Betteridge, Milton Hill, near Steventon, Berks, Third-class Certificate

CLASS R.—APPLES, Dessert, 6 dishes, distinct kinds.
Mr. R. H. Betteridge, First-class Certificate
Fruit Growers' Association, Halifax, Nova Scotia, First-class Certificate
Mr. W. Kaile, Gr. to the Earl of Lovelace, East Horsley Towers, Ripley, Surrey, Second-class Certificate
Messrs. G. & J. Lane, Third-class Certificate

CLASS S.—APPLES, Dessert, 3 dishes, ripe fruit, distinct kinds.
Mr. R. H. Betteridge, First-class Certificate
Mr. S. Ford, Second-Class Certificate
Fruit Growers' Association, Halifax, Nova Scotia, Second-class Certificate
Mr. W. Kaile, Third-class Certificate
Mr. H. Bentley, Gr. to Lord St. Leonard's, Thames Ditton, Third-class Certificate

CLASS T.—APPLES, Dessert, single dish, ripe fruit, any kind.
Mr. W. Hall, Gr. to Capt. Tyrrell, R.N., Ealing Common, First-class Certificate
Fruit Growers' Association. Halifax, Nova Scotia, First-class Certificate
Mr. W. Plester, Second-class Certificate
Mr. S. Ford, Third-class Certificate

CLASS U.—APPLES, Kitchen, 12 dishes, distinct kinds.
Mr. R. H. Betteridge, First-class Certificate
Mr. J. Cox, Second-class Certificate
Fruit Growers' Association, Halifax, Nova Scotia, Second-class Certificate
Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, Essex, Third-class Certificate

CLASS V.—APPLES, Kitchen, 6 dishes, distinct kinds.
Mr. R. H. Betteridge, First-class Certificate
Fruit Growers' Association, Halifax, Nova Scotia, Second-class Certificate
Mr. T. Parsons, Gr. to R. Attenborough, Esq., Acton Green, Second-class Certificate
Mr. R. Heather, Third-class Certificate
Mr. W. Kaile, Third-class Certificate

CLASS W.—APPLES, Kitchen, 3 dishes, distinct kinds.
Fruit Growers' Association, Halifax, Nova Scotia, First-class Certificate
Mr. S. Ford, First-class Certificate
Mr. R. H. Betteridge, Second-class Certificate
Mr. S. Wells, Holme Lacy Gardens, Third-class Certificate
Mr. C. Ross, Third-class Certificate

FRUIT.

CLASS X.—APPLES, Kitchen, single dish.
Mr. W. Plester, First-class Certificate
Mr. S. Wells, Second-class Certificate
Mr. W. Earley, Third-class Certificate

CLASS Y.—APPLES, Kitchen, heaviest 5.
Fruit Growers' Association, Halifax, Nova Scotia, First-class Certificate
Mr. D. Lumsden, First-class Certificate
Mr. W. Young, Gr. to R. Barclay, Esq., West Hill House, Highgate, Second-class Certificate
Mr. J. Masters, West Hill, Highgate, N., Third-class Certificate

CLASS Z.—ORANGES, LEMONS, &c., collection of 1 dish of each.

CLASS AA.—Four ORANGE TREES, bearing fruit; in pots or boxes.

CLASS BB.—CURRANTS, single dish.
Mr. S. Ford, First-class Certificate
Mr. G. Curd, Gr. to M. G. Thoyts, Reading, Berks, Second-class Certificate
Mr. G. Tivey, Gr. to L. Ames, Esq., The Hyde, St. Albans, Herts, Third-class Certificate

CLASS CC.—FILBERT NUTS, collection of.

CLASS DD.—MISCELLANEOUS.
Mr. J. Hardie, Gr. to the Viceroy of Egypt, for Collection of Fruits from Egypt, First-class Certificate
Mr. J. J. Blandy, Esq., Reading, for Custard Apples from Madeira, First-class Certificate
The Fruit Growers' Association, Halifax, Nova Scotia, for Collection of Apples, First-class Certificate
Horticultural Society of Nova Scotia, for Collection of Apples, First-class Certificate
Mr. G. Tillyard, for a dish of Coe's Late Red Plum, Second-class Certificate
Mr. W. Young, for 1 dish of Medlars, Third-class Certificate
Mr. G. Scrymger, Gr. to R. Palmer, Esq., Reading, for 1 dish of Quinces, Third-class Certificate
Mr. B. Mobbs, for 1 dish of Strawberries, Third-class Certificate.

GOURDS.

CLASS I.—The finest collection, Foreign Growth.

CLASS II.—The finest collection, Home Growth.
Messrs. Sutton & Sons, First-class Certificate

CLASS III.—The HEAVIEST SINGLE SPECIMEN, Home Growth.

CLASS IV.—The HEAVIEST SINGLE SPECIMEN, Foreign Growth.

CLASS V.—The MOST EXTENSIVE COLLECTION, without regard to cultivation.

CLASS VI.—6 ORNAMENTAL GOURDS, whether eatable or not.
Messrs. Sutton & Son, Second-class Certificate

GARDEN ROOTS and VEGETABLES.

CLASS I.—POTATOS, collection of.
Mr. G. Curd, Gr. to M. G. Thoyts, Esq., Reading, First-class Certificate
Mr. T. Campbell, Winorick Hall, near Warrington, Second-class Certificate

CLASS II.—POTATOS, 6 kinds of KIDNEYS, 12 tubers of each.
Mr. C. Frisby, Gr. to H. Chapman, Esq., Sleaford, First-class Certificate
Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, Second-class Certificate
Mr. G. Curd, Third-class Certificate

CLASS III.—POTATOS, 6 kinds, ROUNDS, 12 tubers of each.
Mr. A. Moffat, First-class Certificate
Mr. G. Curd, Second-class Certificate
Mr. S. Ford, Gr. to W. E. Hubbard, Esq., near Horsham, Third-class Certificate

CLASS IV.—POTATOS, KIDNEYS, 12 tubers.
Mr. J. Veitch, Royal Exotic Nursery, Chelsea, First-class Certificate
Mr. J. Taylor, Hunton Bridge, Watford, Second-class Certificate
Mr. R. Budd, Gr. to the Earl of Darnley, Gravesend, Third-class Certificate

CLASS V.—POTATOS, any kind except Kidneys, 12 tubers.
Mr. J. Veitch, First-class Certificate
Mr. S. Ford, Second-class Certificate
Mr. S. Robinson, Melbourne, near Derby, Third-class Certificate
Mr. J. Masters, West Hill, Highgate, N., Third-class Certificate

CLASS VI.—ONIONS, 12.
Mr. T. Westbrook, Abingdon, Berks, First-class Certificate
Mr. W. Earley, Gr. to F. Pryor, Esq., Welwyn, Second-class Certificate
Mr. R. Budd, Third-class Certificate
Mr. G. Curd, Third-class Certificate

CLASS VII.—CARROTS, 12.
Mr. Geo. Curd, First-class Certificate
Mr. T. Coysh, Gr. to — Woods, Esq., Newbold Revel, Rugby, First-class Certificate
Mr. G. Scrymger, Gr. to R. Palmer, Esq., Reading, Second-class Certificate
Mr. J. Drewett, Gr. to Mrs. Cubitt, Dorking, Third-class Certificate

CLASS VIII.—PARSNIPS, 12.
Mr. R. Budd, First-class Certificate
Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, Second-class Certificate
Mr. G. Curd, Third-class Certificate
Mr. T. Coysh, Third-class Certificate

CLASS IX.—GLOBE ARTICHOKES, 12.

CLASS X.—LEEKS, 12.
Mr. Thos. Ingram, Gr. to Her Majesty The Queen, Windsor, First-class Certificate
Mr. R. Budd, Second-class Certificate
Mr. G. Scrymger, Third-class Certificate
Mr. J. Masters, Third-class Certificate

CLASS XI.—BEET, 6 roots.
Mr. C. Frisby, First-class Certificate
Mr. T. Westbrook, Second-class Certificate
Mr. J. Drewett, Third-class Certificate
Mr. W. Earley, Third-class Certificate

CLASS XII.—TURNIPS, 3 kinds, 6 of each.
Mr. S. Ford, First-class Certificate

CLASS XIII.—TURNIPS, 6 of one kind.
Mr. Thos. Ingram, First-class Certificate
Mr. R. Budd, Second-class Certificate
Mr. H. Bentley, Gr. to Lord St. Leonards, Thames Ditton, Third-class Certificate

GARDEN ROOTS and VEGETABLES.

CLASS XIV.—SALSAFY, 12 roots.
Mr. W. Earley, First-class Certificate
Mr. W. Kaile, Gr. to the Earl of Lovelace, Second-class Certificate
Mr. G. Curd, Third-class Certificate
Mr. T. Coysh, Third-class Certificate

CLASS XV.—SCORZONERA, 12 roots.
Mr. J. Drewett, First-class Certificate
Mr. C. Ross, Gr. to C. Eyre, Esq., Welford Park, Newbury, Second class Certificate
Mr. Thomas Ingram, Third-class Certificate

CLASS XVI.—PEAS, 1 dish.
Mr. C. Frisby, First-class Certificate
Mr. G. Tivey, Gr. to L. Ames, Esq., The Hyde, St. Alban's, Second Class Certificate

CLASS XVII.—BRUSSELS SPROUTS, 3 plants.
Mr. W. Earley, First-class Certificate
Mr. B. Mobbs, Gr. to W. B. Tyringham, Esq., Newport Pagnell, Second-class Certificate
Mr. C. Frisby, Third-class Certificate

CLASS XVIII.—BORECOLES, 6 kinds, 2 of each.
Mr. J. Veitch, First-class Certificate

CLASS XIX.—BROCCOLI, 6 heads.
Mr. R. Budd, First-class Certificate
Mr. S. Ford, Second-class Certificate
Mr. C. Frisby, Third-class Certificate

CLASS XX.—CABBAGE, SAVOYS, 6 heads.
Mr. R. Budd, First-class Certificate
Mr. C. Frisby, Second-class Certificate
Mr. Thomas Ingram, Second-class Certificate
Mr. J. Drewett, Third-class Certificate
Mr. S. Ford, Third-class Certificate

CLASS XXI.—CABBAGE, any kind, except Savoys, 6 heads.
Mr. S. Ford, First-class Certificate
Mr. R. Budd, Second-class Certificate
Mr. Thomas Ingram, Third-class Certificate

CLASS XXII.—DALMENY SPROUTS.
Mr. R. Budd, First-class Certificate
Mr. B. Mobbs, Second-class Certificate

CLASS XXIII.—YAMS, CHINESE, 6.
Messrs. J. Ivery & Son, Dorking and Reigate, First-class Certificate
Mr. G. Tillyard, Gr. to J. Kelk, Esq., Stanmore, First-class Certificate
Mr. W. Cruickshanks, Gr. to W. J. Loyd, Esq., Watford, Second-class Certificate
Messrs. Sutton & Sons, Reading, Third-class Certificate

CLASS XXIV.—CELERY, Red, 6 heads.
Mr. W. Hall, Gr. to Captain Tyrrell, R.N., Ealing Common, First-class Certificate
Mr. R. Budd, Second-class Certificate
Mr. W. Earley, Third-class Certificate

CLASS XXV.—CELERY, White, 6 heads.
Mr. W. Hall, First-class Certificate.
Mr. S. Ford, Second-class Certificate.
Mr. H. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, Third-class Certificate

CLASS XXVI.—ENDIVE, 6 heads.
Mr. J. Veitch, First-class Certificate.
Mr. C. Frisby, Second-class Certificate.
Mr. W. Earley, Third-class Certificate.

CLASS XXVII.—CARDOONS, 4 heads.

CLASS XXVIII.—MUSHROOMS, Dish.
Mr. A. Moffat, First-class Certificate.
Mr. Thomas Ingram, Second-class Ceritficate.
Mr. R. Budd, Third-class Certificate.

CLASS XXIX.—MISCELLANEOUS.
Mr. R. Budd, for a Dish of Seakale, First-class Certificate.
Mr. E. Stuart, Nice, for a new species of Lagenaria, First-class Certificate
Mr. G. Curd, for a Dish of Asparagus, Second-class Certificate.
Mr. A. Earley, for Cauliflowers, Lettuce, and Seakale, Second-class Certificate.
Mr. B. Mobbs, for a Dish of French Beans, Third-class Certificate.
Mr. G. Tillyard, for Horse Radish.
Mr. E. Spary, Queen's Graperies, Brighton, for the produce of one Potato, viz., 268 tubers, weighing 39 lb. 3 oz., Special Certificate

AGRICULTURAL ROOTS and VEGETABLES.

CLASS 1.—MANGEL WURZEL, Long Red, 3 roots.
Mr. S. Robinson, First-class Certificate
Messrs. Sutton & Sons, Second-class Certificate
Mr. J. Veitch, Third-class Certificate

CLASS 2.—MANGEL WURZEL, Long Yellow, 3 roots.
Messrs Sutton & Sons, First-class Certificate
Mr. J. Veitch, Second-class Certificate

CLASS 3.—MANGEL WURZEL, Yellow Globe, 3 roots.
Messrs. Sutton & Sons, First-class Certificate
Mr. J. Veitch, Second-class Certificate

CLASS 4.—MANGEL WURZEL, Red Globe, 3 roots.
Messrs. Sutton & Sons, First-class Certificate

CLASS 5.—BEET, WHITE SUGAR, 3 roots.

CLASS 6.—CARROTS, WHITE BELGIAN, 6 roots.
Mr. J. Veitch, First-class Certificate

CLASS 7.—CARROTS, ALTRINGHAM, 6 roots.
Mr. G. Scrymger, First-class Certificate

CLASS 8.—CABBAGE, CATTLE, the largest Head of.
Mr. S. Robinson, First-class Certificate
Mr. John Clutton, Esq., Reigate, Second-class Certificate

CLASS 9.—TURNIPS, SWEDES, 6 roots.
CLASS 10.—TURNIPS, YELLOW, 6 roots.
CLASS 11.—TURNIPS, WHITE, 6 roots.

CLASS 12.—KOHL RABI, 6 roots.
Messrs. Sutton & Sons, First-class Certificate.
Mr. J. Veitch, Second-class Certificate

CLASS 13.—CHICORY, 6 roots.
Mr. W. Earley, First-class Certificate

PRESERVED FRUITS and VEGETABLES.

CLASS 1.—PRESERVED FRUITS, ENGLISH.
Mr. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, W., First-class Certificate

CLASS 2.—PRESERVED FRUITS, FOREIGN.
Messrs. Fortnum, Mason, & Co., 182, Piccadilly, W., First-class Certificate

CLASS 3.—PRESERVED VEGETABLES, ENGLISH.

CLASS 4.—PRESERVED VEGETABLES, FOREIGN.
Messrs. Fortnum, Mason, & Co., 182, Piccadilly, First-class Certificate

CLASS 5.—PICKLES, ENGLISH.
Messrs. J. Burgess & Son, 107, Strand, First-class Certificate
Mr. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, Second-class Certificate

CLASS 6.—PICKLES, FOREIGN.
Messrs. J. Burgess & Son, First-class Certificate

ROYAL HORTICULTURAL SOCIETY,

SOUTH KENSINGTON.

Patron—HER MAJESTY THE QUEEN.

President—THE DUKE OF BUCCLEUCH, K.G., ETC., ETC.

REGULATIONS FOR THE YEAR 1865.

1. The Society has two Gardens, one at South Kensington, the other for experimental Horticulture at Chiswick. The Chief Exhibitions, Fêtes, and Promenades are held at South Kensington.

2. For convenience in the necessary arrangements the year is divided into two seasons, an out-of-door and an in-door season. The out-of-door season is from the 1st May to the 31st October, the in-door season from the 1st November to the 30th April.

3. During the out-of-door season, Plants and Flowers are Exhibited as far as possible in the Gardens; during the in-door season the South Kensington Exhibitions and Promenades take place in the Conservatory, Glazed Arcades, Pavilions, Orchard Houses, &c. These buildings afford an uninterrupted walk of about the third of a mile, and are protected from draughts. They are warmed to the temperature required for the various plants exhibited.

ADMISSION TO THE GARDENS.

4. The Gardens at South Kensington are open to Fellows on all ordinary days throughout the year from 9 A.M. till sunset, except Sundays, when they are opened at 2. On week days, except on certain fête days, the Gardens are private to the Fellows and their friends up to 1 o'clock: after 1 o'clock the public are admitted on payment.

5. The Garden at Chiswick is open to Fellows and the public daily, except on Sundays, from 9 A.M. till sunset. On Sundays it is closed.

FÊTE DAYS.

6. The following are established fête days in each year:—The Queen's Birthday or the day on which it is appointed to be held: the 26th August, the anniversary of the birthday of the Prince Consort, the founder of the South Kensington Gardens; when it falls on Sunday it will be held the Monday following: the 5th June, the anniversary of the opening of the Gardens in 1861, when a Horticultural *déjeuner*, limited to Fellows, will take place; the 1st May and 1st November, the first days of the out-of-door and in-door season; (if any of the three last days fall on a Sunday, these fêtes will be held on the preceding Saturday): also Easter Monday and Tuesday, and Whit Monday and Tuesday. One or more bands will play on all fête days.

SHOWS.

7. All Shows at South Kensington take place, or commence, on Saturdays throughout the year. At the weekly Shows, medals and certificates of merit only will be given. At the other Shows, money prizes as well as medals and certificates of merit will be offered.

The following Shows are fixed for the year 1865. Schedules will be duly issued.

GREAT SHOWS.

A Great Show of all kinds of Flowers, Plants, and Fruit, will be held on the Saturday in June, which falls between Ascot and Derby weeks, viz., 10th June. The Show will last only a single day.

A Great Show of Roses on the first Saturday in July. (1st July). It will last only a single day.

A Great Show of Fruit and Vegetables on the fourth Saturday in July. (22d July.)

SPECIAL SHOWS.

A Show of Hyacinths and Camellias on the third Saturday in March. (18th March).

A Show of Early Azaleas and Spring Flowers on the second Saturday in April. (8th April).

A Show of Orchids on the second Saturday in May. (13th May).

A Show of Pelargoniums, including scarlet and variegated varieties, on the first Saturday in June. (3d June).

A Show of Azaleas, with the flowers trained, partially trained, or in their natural growth, on the third Saturday in June. (17th June).

A Show of Plants of Ornamental and Variegated Foliage on the second Saturday in July. (8th July).

A Show of Liliaceæ and Amaryllidæ on the third Saturday in July. (15th July).

A Show of Ferns and their allies on the last Saturday in July. (29th July).

FLORAL DECORATION SHOW.

8. A Show of Decorations for Dinner and Supper Tables, and of Bouquet holders. This Show will be held on the fourth Saturday in June (24th June), and will also be open in the evening.

SHOWS BY INDIVIDUAL NURSERYMEN.

9. A continuous Show of Tulips will be held in the spring by Messrs. Henderson, of Wellington Nursery, St. John's Wood Road.

10. A continuous Show of Rhododendrons will be held in the summer under the Great Tent by Messrs. Waterer and Godfrey, of Knap Hill, Woking.

11. A continuous Show of Chrysanthemums will be held in the winter.

INTERNATIONAL SHOWS.

12. An International Show of Horticultural Implements will be held during the month of July.

13. An International Show of Fruit and Vegetables will be held during the second week in December.

FORTNIGHTLY MEETINGS AT SOUTH KENSINGTON.

14. Fortnightly meetings for the election of Fellows, reading of papers, and transaction of scientific business, will be held in the Council Room, except in the months of August, September, and October, on every other Saturday throughout the year that is not preoccupied as a fête day, or for one of the Great Shows. Chair to be taken by the President, or in his absence by some Fellow, at 12 o'clock.

15. At these meetings notice will be taken of flowers, fruit, and vegetables sent for exhibition, and certificates of merit will be awarded.

WEEKLY SHOWS AND PROMENADES AT SOUTH KENSINGTON.

16. On the afternoon of every Saturday throughout the year there will be an Exhibition of Flowers in Pots, and of Fruit and Vegetables by the Fellows and others. The Shows will commence at 2 o'clock, and will be continued until the following Wednesday.

17. Medals and certificates of merit will be given.

18. The Queen has been pleased to command that contributions shall be sent from the Royal Gardens, Frogmore, to these Shows, and numerous Fellows have promised to exhibit.

19. There will always be a promenade with music at these Shows at 3 o'clock in the out-door season, and at 2 o'clock in the in-door season.

VARIOUS EXHIBITIONS.

20. In addition to the above Shows there will be continuous exhibitions at South Kensington of the hatching and growth of trout and salmon directed by Mr. Frank Buckland; of sea plants; of bees and beehives; and of the Ailantus silkworms, belonging to Lady Dorothy Nevill.

PRIZES.

21. Prizes for the best plants and vegetables cultivated by soldiers in barracks, by sailors in homes, by coastguard men, and by workmen employed in Her Majesty's Dockyards, will be awarded on the first Monday in August. A schedule will be issued.

22. Prizes given for specimens of Window Gardening among the working classes in metropolitan parishes will be awarded at a public fête on the first Monday in September. A schedule will be issued.

CONVERSAZIONI.

23. There will be two Conversazioni which are open to Fellows only, and not to the public. The evenings will be appointed by the President in May and June.

CHISWICK SHOWS.

24. Strawberry Show and fête in June, Show of the Chiswick Trial Flowers in August, and Show of Vines and Fruit grown at Chiswick, in September. These Shows will be held on Wednesdays hereafter to be fixed according to the general character of the season.

EXAMINATIONS AND CERTIFICATES FOR GARDENERS.

25. Central Examinations of Gardeners in Theoretical and Practical Gardening will be held annually at South Kensington, and local examinations will be held in the country. Certificates of competency and prizes will be awarded at both examinations.

FELLOWS AND THEIR PRIVILEGES.

TWO GUINEA F.R.H.S.

26. Fellows paying an entrance fee of two guineas, and an annual subscription of two guineas, have personal admission every day, and to all Shows, fêtes, and Promenades, both at Chiswick and South Kensington. They have also the right of introducing personally two friends, on Mondays, Tuesdays, Wednesdays, Thursdays, Fridays, and Sundays, but not on Saturdays. In addition to these privileges they receive 20 tickets which are each of the value of one shilling, and are available for any day when the entrance is one shilling or less; a copy of the Journal of Proceedings of the Society is gratuitously issued to them; they share in the distribution of seeds, and they have the right to enter the ballot for rare plants, and to purchase fruit from Chiswick. They have admission to the Conversazioni.

FOUR GUINEA F.R.H.S.

Fellows paying four guineas have double the privileges of two guinea Fellows, as respects the right of introducing friends, the distribution of seeds, the ballot for plants, and the number of tickets they receive, with the further advantage that both their yearly tickets are transferable. They have also the privilege of purchasing any number of transferable tickets for two guineas each. These transferable tickets confer on their bearers all the privileges of personal admission, and of introducing friends, which the Fellows themselves could exercise. Admission to the Conversazioni is limited to Fellows, the holders of transferable tickets, debenture holders and their nominees.

The Fellows of the Royal Horticultural Society have the privilege of purchasing tickets for the Shows at a reduced price before the day of the Show, viz.:—

At 3*s.* 6*d.* for each of the Great Shows, and 2*s.* 6*d.* for each of the Special Shows.

COUNTRY SUBSCRIBERS.

27. Persons residing beyond 20 miles from the metropolis may be admitted to limited privileges. On payment of one guinea entrance and one guinea annually, they receive a copy of the Journal gratis; and they obtain admission to the Gardens at Kensington and Chiswick by means of tickets of the value of the annual subscription. They have no votes and cannot attend general meetings. They may nominate local Horticultural Societies to enter into union with the Royal Horticultural Society.

TOWN SUBSCRIBERS FOR SEASON TICKETS

28. Personal Season Tickets, not transferable, may be purchased for 20*s.* for the out-door season and 10*s.* for the in-door season. These will give admission for every day in the year, including all Shows, Promenades, and day fêtes, at South Kensington. These tickets do not confer any of the special rights of Fellows.

DEBENTURE HOLDERS.

29. Persons holding debentures, and their nominees, have the privilege of free admission to the Gardens whenever they are open.

CHISWICK SEASON TICKETS.

30. Annual Season Tickets, not transferable, and giving admission only to the experimental Chiswick Gardens and Shows, may be purchased by residents at Chiswick and others, for 10*s.* each.

ADMISSION OF THE PUBLIC.

31. Admission to each of the Great Shows is obtained by the public by tickets, to be purchased for 5*s.* each before the day, and for 7*s.* 6*d.* on the day of the Show.

32. Admission to each of the Special Shows is obtained by the public by tickets, to be purchased for 3*s.* 6*d.* each before the day, and for 5*s.* each on the day of the Show.

33. The admission to the first day of all other Shows at South Kensington, and to the Saturday weekly Shows, is 2*s.* 6*d.*, except in August, September, and October, when it is reduced to 1*s.*

34. The admission to the Shows held at Chiswick will be 2*s.* 6*d.*

35. Admission to the South Kensington Gardens after 1 o'clock on the days mentioned below, not being Show, fête, or Promenade days, will during the London season be as follows:—

Saturdays, 2*s.* 6*d.*

Sundays, the Gardens are closed to the public but open to Fellows and their friends personally introduced.

Mondays, 6*d.*

Tuesdays, Wednesdays, Thursdays, and Fridays, 1*s.*

Admission during the months of August, September, and October, when the London season is over, 3*d.* every day but Saturday. On Saturday it is 1*s.*

Admission on the Queen's Birthday, 1*s.*; on Easter Monday and Tuesday, and Whit Monday and Tuesday, 3*d.* each day.

36. On the 26th August, the Anniversary of the Birthday of the Prince Consort, the founder of the South Kensington Gardens, these Gardens are open free at the wish of Her Majesty. Above 153,000 persons visited them on the 26th August, 1864.

37. Admission to the Experimental Garden at Chiswick, excepting on Show Days, 1*s.* daily, throughout the year.

GUIDE BOOK.

38. A Guide Book to the South Kensington Gardens, price 6*d.*, is to be had at the Gardens and of all booksellers.

TESTIMONIAL to MR. INGRAM, CHIEF GARDENER to HER MAJESTY at FROGMORE.

The following Gentlemen have consented to form a GENERAL COMMITTEE for carrying out the above object:—

The Viscount Kirkaldie, Windsor.
The Hon. and Very Rev. Dr. Wellesley, Dean of Windsor.
Major-Gen. Hood, Cumberland Lodge, Windsor.
The Rev. E. Coleridge, Eton College.
The Rev. Joshua Dix, M.A., London.
The Right Hon. Charles Lawson, Lord Provost of Edinburgh.
The Right Hon. Sir W. G. Hayter, M.P., South Hill Park, Bracknell.
Sir James Clark, M.D., Bagshot Park.
Sir Joseph Paxton, M.P., Sydenham.
Mr. G. Allen, Old Windsor.
J. J. Blandy, Esq., Reading.
Mr. Brebner, Norfolk Farm, Windsor.
Mr. Carmichael, Sandringham.
Mr. George Eyles, Chiswick.
Mr. John Fleming, Cliveden.
E. B. Foster, Esq., Clewer Manor, Windsor.
A. F. Godson, Esq., Inner Temple, London.
Mr. James Gray, Chelsea.
Mr. Arthur Henderson, Edgware Road.
Dr. Robert Hogg, Pimlico.
G. W. Johnson, Esq., London.
Mr. Joseph Knight, Hampton Court.
Mr. John Keynes, Salisbury.
Mr. John Lee, Hammersmith.
Mr. Charles Lee, Hammersmith.
Mr. Mackenzie, Alexandra Park.
Mr. J. McIntosh, Drumlanrig.
Mr. W. Menzies, Windsor Great Park.
Mr. J. F. Meston, Kentish Town.
Dr. Moore, Glasnevin.
Thomas Moore, Esq., Chelsea.
Mr. Richard Oxley, Windsor.
Mr. William Paul, Waltham Cross.
Mr. Thomas Rivers, Sawbridge worth.
Mr. John Salter, Hammersmith.
Mr. John Spencer, Bowood.
Richard Stains, Esq., London.
Mr. John Standish, Ascot.
Mr. Henry Tait, Shaw Farm, Windsor.
Mr. William Thomson, Dalkeith.
Mr. Charles Turner, Slough.
Mr. James Veitch, Chelsea.
Mr. B. S. Williams, Holloway.

COMMITTEE OF MANAGEMENT.

Chairman—Dr. ROBERT HOGG.

Mr. G. Allen.
Mr. Brebner.
The Rev. Joshua Dix, M.A.
Mr. George Eyles.
Mr. John Fleming.
A. F. Godson, Esq.
Mr. James Gray.
Mr. Arthur Henderson.
Mr. J. Keynes.
Mr. Joseph Knight.
Mr. John Lee.
Mr. Charles Lee.
Mr. Mackenzie.
Mr. J. F. Meston.
Thomas Moore, Esq.
Mr. William Paul.
Mr. Rivers.
Mr. J. Salter.
Richard Stains, Esq.
Mr. J. Standish.
Mr. Henry Tait.
Mr. Charles Turner.
Mr. James Veitch.
Mr. B. S. Williams.

Honorary Secretary—Mr. EDWARD BROWN, Slough, Bucks.

Honorary Secretary for Scotland—Mr. WILLIAM THOMSON, The Gardens, Dalkeith Park.

Honorary Secretary for Ireland—Dr. DAVID MOORE, Glasnevin Botanic Garden, Dublin.

It has been well observed—"That it is always an agreeable task to do honour to those who have long and well occupied a responsible position, and all the more so to Horticulturists, if that position has been a prominent one in the world of Horticulture."

It is but rarely indeed, that an opportunity presents itself for the recognition of the fulfilment of arduous and important duties for the prolonged period of half a century with so much credit and so as to win universal respect, such as that which occurs in the case of Mr. INGRAM, who has entered on the FIFTIETH YEAR OF SERVICE in the ROYAL GARDENS at WINDSOR.

Most of the Members of the gardening community are aware of the great interest which Mr. INGRAM has always manifested in the cause of Horticulture; and appreciate the correctness of his endeavours, and the success that has attended his labours for the advancement of that science. His great experience and general knowledge; his readiness at all times to impart information; and the kindness and courtesy which has invariably characterised his intercourse with all, have naturally and justly engendered a feeling of the deepest respect.

It is, therefore, proposed that a TESTIMONIAL should be presented to Mr. INGRAM as a mark of the high esteem and cordial regard universally entertained for him, and that a SUBSCRIPTION be at once opened to enable the Committee to carry out this desirable object. The co-operation and support of the Horticultural public, and of the numerous friends of Mr. INGRAM, is hereby respectfully solicited.

Subscribers in England are requested to send their Contributions with their names and addresses in full, to Mr. EDWARD BROWN, Slough, Bucks. The amount of subscriptions is not limited. Post Office Orders should be made payable at Slough; and Cheques crossed "REID & Co.," Windsor.

With the view of facilitating the collection of Subscriptions, it has been arranged that two Secretaries should be appointed for Scotland and Ireland respectively, to act jointly with Mr. E. BROWN; and Mr. W. THOMSON, the Gardens, Dalkeith Park, who has consented to act in Scotland, and Dr. DAVID MOORE, Glasnevin Botanic Garden Dublin, in Ireland, are authorized to receive Subscriptions that may be sent to them for the Testimonial Fund.

Committee Room, Anderton's Hotel,
Fleet Street, London.—Nov. 1864.

CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

New Seeds, Growth of 1864.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.
The prices are moderate and the quality fine, owing to their having been harvested well.
Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.
SATURDAY, DECEMBER 10, 1864.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Dec. 15—Linnean .. .. 8 P.M.

THE remarks which we publish to-day at p. 1719, from Mr. BATEMAN, on the grievances of Orchid-buyers, touch a matter of considerable importance. His, however, is by no means the first complaint that has reached us on the subject. There can, we fear, be no doubt that the sale of Orchids under false names is an evil that of late years has increased, is increasing, and that ought, if possible, to be diminished. Nor do we see any great difficulty as to the application of an effectual remedy. If only purchasers would be induced to abstain from bidding for any lots to which the vendor's name was not attached, the evil complained of would speedily cure itself. And why should the vendor, if his intentions be honest, wish to withhold his name? There can be no more harm in disposing of the duplicates of a collection of Orchids than in selling the thinnings of a plantation, or the surplus stock of a farm. And in this, as in other matters, the most straightforward procedure has been always found to be the most profitable policy, for while uncertificated plants have realised exceedingly low rates, in the

recent sales of Mr. DAY and Mr. SKINNER—where the names of the vendors commanded the confidence of the buyers—the prices obtained must have surpassed expectation. But if such manifest advantages may be secured by simply giving the name of the party putting up his plants for sale, we may be quite sure that where an *incognito* is maintained there must be something in the background to account for so suspicious a course. And whatever that something may be, it should at all events make purchasers very chary of their biddings.

IN another page of this Journal (1180) we have given a translation of a memoir on SPOTS AND BURNS IN LEAVES, which appeared last year in a journal entitled *Adansonia*, not because we agree with all Monsieur NEUMANN'S arguments, but partly because of the importance and interest of the subject, and partly because he has taken great pains to acquire information, and has himself carefully investigated the matter. We should rejoice very much if the reproduction of this memoir should lead some of our more observant readers to record their own notions and experience, for it is quite certain that there is much to learn, and that any reliable information will be of much practical usefulness.

It must be remembered that spots and burns are of various kinds, and clearly arise from various causes. We must not then confound things which are essentially different.

If we take the subject of burns first, it is quite certain that some of them are caused by the direct action of heat or cold (for cold often performs the effect of heat), apart from any condensation or convergence of the heating rays of light. Leaves are not supplied rapidly enough with moisture, and they are scorched by the direct rays of the sun, especially while they are yet young and tender; or again they are in contact with the glass in a night of intense radiation, and their vitality is partially destroyed.

Some burns, however, arise from keeping up too high a temperature at night, in consequence of which, from the contrast of the temperature of the external air, dew is deposited in great quantities on the glass at the expense of the moisture contained in the air within the stove, and the leaves partially perish.

Burns again, such as one sees on a large scale occasionally in our more important stoves, arise frequently from the actual effect of the sun's rays. Every schoolboy knows that the intensity of heat produced by a pocket lens, does not depend so much on its magnifying power as on its size, even if he does not recollect the stories which he has heard of in Grecian history of ships being destroyed by large burning glasses. Lenses of great diameter, with very long foci, are quite capable of destroying the tissues of a leaf, and if the direction of the spots, which are often of considerable extent, is observed, it will be plain that no drop of water could run in such a way or through such a space as to produce the spot. Without, therefore, for a moment calling in question the correctness of M. NEUMANN'S observations, we would observe only that these sunburns may happen in more ways than one, and amongst others it is very possible that where water rests, the drop in connection with some lens in the glass may concentrate the rays sufficiently to produce mischief, though it is scarcely probable that by itself it could have sufficient power.

There are, however, other causes than the direct action of light, which may prove injurious, some of which our author has pointed out. Water resting for a long time on the leaves may act injuriously by causing a difference of temperature in the part with which it is in contact, especially where the air in the house is very dry, or by impeding evaporation from the part which it occupies, in consequence of which the juices stagnate at particular spots. Mr. IVISON, formerly gardener at Syon, told us some years ago that with a combination of water and a draught of cold air he could at once produce spotting in such tender plants as the Nutmeg and Cacao, a combination which we believe very often induces rust in Grapes. Monsieur NEUMANN'S observations in this direction deserve an attentive consideration.

We have not, however, done with possible causes of spotting. In Geraniums and many other cases the spotting, we believe, arises from the bad condition of the roots, sometimes induced by bad drainage, sometimes by over or under watering; and it is clear that spotting in Grapes, as also shanking, arises from some cause in the same direction. Some spotting again we believe to spring from constitutional weakness, the weaker portions of the leaf only failing while others remain sound, there not being sufficient vigour in the plant to effect the nourishment of the whole lamina. A similar weakness may be induced in plants where there has been no original defect, but where bad management of some kind or other has existed, it may be in respect of the soil, the supply of the requisite degree of moisture, or the want of sufficient ventilation and improper temperature. Such spotting is often attributed to thrips, where it is utterly impossible to find a single specimen of the insect, though occasionally an accurate search may show that the little insect is really the cause of evil.

Finally, in very many cases, spotting arises unquestionably from the attacks of parasitic Fungi, the spawn of which sometimes partially destroys the leaves, without ever coming to perfection. In some cases it is quite clear that the whole evil is due to the Fungus, while in others it is doubtful whether the parasite is a consequence or cause.

We have probably omitted some other known causes of spots, but the foregoing enumeration will not be useless, and we should receive gladly any information on the subject which is new. The use of blinds against direct sun light and nocturnal radiation, will assuredly prevent a good deal of mischief; and not suffering the air to get so dry as to wither the leaves, will prevent more. Where spotting arises from the condition of the roots, good cultivation will undoubtedly avail much, but as far as parasites are concerned, little or nothing can be done to prevent the growth of their spawn, and in a few cases only is there any remedy when the fungus has once arrived at perfection. *M. J. B.*

IT seems somewhat remarkable that so conspicuous a site as the PLACE DE LA CONCORDE of Paris should ever have been suffered to lie waste; but until the reign of LOUIS XV. it was an undedicated piece of ground separating the Gardens of the Tuileries (to which we have already adverted) from the avenues of the Champs Élysées, when the city corporation applied for and obtained leave to convert it into a square, the centre of which they occupied with an equestrian statue of the KING. This was melted down for cannon and coinage during the days of the Revolution, and by all accounts, whether considered as a work of art, or of historical interest, left little to be regretted in its destruction.

On emerging from the gates of the Tuileries, whose huge piers are crowned by groups of PERSEUS on Pegasus, and FAME on a winged steed, with pendants in the marble groups by COUSTOU at the entrance of the Champs Élysées, the Place de la Concorde* lies open before us. In the centre is the Obelisk of Luxor, a relic of ancient Egypt, said to have been one of two erected by RAMESES III. before the great temple of Thebes; and on either side bronze fountains cunningly wrought, but on the dumb-waiter principle, are scattering smoking wreaths of spray. The plan is a large parallelogram enclosed by a balustrade with carriage roads in the centre of each front, leading directly towards the Obelisk, and in the centre of each of its chamfered angles leading directly towards the fountains, where meeting they are cleft in their course, and diverge on either side of the fountains or the Obelisk. At each corner of the chamfered angles is a massive pier—little lodges in themselves, surmounted by representative figures of eight commercial towns of France. The four principal roads lead, one towards the gardens behind us, one towards the grand avenue of the Champs Elysées, with its long front of wood forming the west boundary; one to the south over the Pont de la Concorde towards a handsome building occupied by the Corps Législatif; and one on the opposite side, down the Rue Royale to the Madeleine Church, the classic rival of Notre-Dame, invisible from here, but not so from the bridge, where, under the afternoon sun, it retreats into silvery shade, behind the princely façade that lines the width of this, the north side of the Place. The elegant spires of the church of St. Marie, in the Faubourg St. Germain over this water, compose prettily from all parts of the Place, and further on to the south-west towers the turreted dome of the Hôtel des Invalides.

The Champs Élysées consist of a grand avenued road, with a gentle ascent at its extreme end, culminating at the Arc de l'Etoile. The latter, although very fine in the vast gloom of its central arch, is misplaced as a feature, being designed as a gateway, and not as a mere *point d'appui*; since this is analogous to a country gentleman building a church in his park for the sake of an object in the scenery, without further reference to its uses or association. A wood at this end, concealing gardens, stretches its whole front till it meets minor avenues or roads in a straight line with the outer or circumscribing roads of the Place. The left hand or south one skirting the Seine extends from beneath the rampart terraces of the Tuileries past the Place up the avenue to the Palais d'Industrie, and at the commencement of the Champs Elysées, the Seine changing its course, three side roads avenued with intermediate walks for foot passengers continue with it.

The ground about the Exhibition is a series of gardens with cafés, band houses for promenade concerts, and laid out in the "Vallon" style with beds of Wigandias, Caladiums, and Cannas of such giant growth as to give almost as much intricacy to the walks as the trees and shrubs themselves. The latter are mostly evergreen, and planted in homogeneous masses. At either end, and in front of the Exhibition, are geometric gardens with long ribbon borders of Ivy Geranium and Pyrethrum margining the plot in an unbroken line, the centre being hollowed, dish-shaped, and dressed with a small water basin. The consequence of this arrangement is that the outside border completely blots out the centre from the principal points of sight. A rotunda just beyond the Exhibition terminates the southern grove, and we arrive at the Rond-point of the Champs Élysées, beyond which there is but one avenue.

The Rond-point is a garden hexagonally divided by three cross roads, and defined by circular rows of Elm trees. The corner of each compartment nearest the junction of the roads is occupied by a fountain of bullrush jets, the basins themselves having been previously compared with LE NÔTRE'S in the garden of the Tuileries. Why these unfortunate little plots have been tortured into "vallons" is not quite clear. They are not only out of character with the surrounding accompaniments, but being depressed and chiefly noticeable from the foliage beds that peep out of them, lose much of their importance in the general effect. The southern grove has not been completed above two or three years; but we find, if not on so large a scale, a still greater number of cafés, concert rooms, roundabout seats, either chevaux des bois, Chinese boats with gaily coloured sails, or léonesque monsters terrible to look at; stalls for the sale of balls, hoops, gingerbread and sweetmeats; and winding walks margined by flower beds, shrubs and trees—many of the latter being large specimens of Pinus Pinsapo, Cembra and excelsa, lately transplanted, and in capital health.

The Place de la Concorde of London should be Portland Place. By this we do not mean that we should like to see an architectural display substituted for the existing trees. Quite the contrary, as it would be like putting old wine into new bottles, and would be sadly out of harmony with the unpretentious character of the adjacent buildings; but what we should like to see would be the road of Portland Place carried in its entirety up to the gates of the avenue in the Regent's Park, forming a direct vista in continuation of Regent Street, nearly a mile and a half in length. The details of the ground would become a question for after consideration, though we may surmise that their treatment should be simple, especially preserving the trees; while a landmark erected at the other end of the avenue would give a point and definition to the distance. It is useless to conceal that such a scheme as we have proposed would have to contend with considerable local opposition; but at the same time it is one of the easiest and most effective changes that could be made in the metropolis. And if carried out it would then be no longer possible to say of London that with all her ramifications of street, she was yet unable to point to a single connected feature worthy of her great name. *Z.*

* Formerly known as Place de Louis XV.

—— WE have, on more than one occasion, invited attention to the rich purple-flowered hybrids of Clematis raised by Mr. G. JACKMAN, and we now wish to point out in the CLEMATIS LANUGINOSA CANDIDA a beautiful pure-white variety, belonging to the same open-flowered race, which is admirably fitted to be grown in company with them for the sake of the contrast it affords. We are informed that it is a French variety, and reputedly a hybrid between C. cœrulea (patens) and C. lanuginosa. The plant has somewhat downy leaves, with a slightly undulated edge, and the flowers are of a pure white, thoroughly expanded, and

formed of six sepals, which have a cuspidate point. Judging from the appearance of the blossoms on a young and not very robust plant, the flowers will be of the full size of the ordinary forms of lanuginosa. We learn that another white-flowered hybrid has been received from the same source, under the name of C. LANUGINOSA NIVEA, but the flowers of this we have not seen. The plant which has furnished materials for this memorandum was sent by Mr. BULL, of Chelsea.

—— The admirers and collectors of the VARIETIES OF BRITISH FERNS will no doubt be glad to make acquaintance with the subjoined budget of novelties, all of which have lately come to our knowledge.

The first is a variety of the common Polypody, which we call SALTII, the distinguishing feature being the abbreviation of a portion of the segments after the manner which has become so thoroughly familiarised in the Frizelliæ form of Lady Fern. The whole frond, however, is not in this case affected, but about one-third either at or near the apex, the abbreviated segments being rounded and toothed, and the more normal portions somewhat eroso-sinuate and irregularly toothed. This was found near Bootle, in Cumberland, by Mr. Salt, of Ulverstone, and is the first indication among Polypodiums of a form of variation already familiar in the Lady Fern and Blechnum.

Then we have received from the neighbourhood of Loch Gilphead, where it was found by Mr. BROWN, a form of Lastrea dilatata (ATHYRIOIDES) so finely divided that at first sight it might be readily mistaken for one of the large deeply-cut forms of Lady Fern to which the name incisum is given. It is no undeveloped form of the plant, as will be evident when we state that the fronds are fully 2½ feet in height, and well proportioned, with a sturdy stipes and rachis. The outline of the specimen before us is broad lance-shaped; the pinnæ are equal-sided, the basal anterior and posterior pinnules being each about an inch long, pyramidato-lanceolate, and cut into about 10 or 12 pairs of adnate linear-oblong obtuse lobes, which are more or less deeply toothed according to their position. The sori are abundant, but in accordance with the small size of the segments, are of small size. In the equal-sided pinnæ and minute parts of the frond, combined with a perfectly normal-looking manner of growth, this is so far removed from typical dilatata, that had it turned up as an exotic plant, it would assuredly have been considered a distinct species.

Of Aspleniums we have received two or three well-marked forms from Mr. W. WILLISON, of Whitby. One them, A. FONTANUM RAMOSUM, is decidedly ramose from about the middle of the frond, and, as we learn, constantly so. A. TRICHOMANES WILLISONI has short dense barren fronds, the pinnæ of the upper half being confluent into a broad apex, and the remainder close overlapping and rounded. A. VIRIDE CRISTATUM has the apex three or four times dichotomously forked, forming a broad spreading multifid head, which in the frond before us consists of 13 terminal divisions. We are informed that all these Aspleniums prove constant under cultivation.

Among many forms of Hart's-tongue, we find two or three especially deserving of notice. Of these the variety REIDIÆ is one of the cristate series, in which the fronds are normal at the base, but developed at the apex into a glomerate crested tuft measuring about 3 inches through. This plant is growing in the Fernery of Mrs. REID, and has been brought under our notice by Mr. PARSONS. Another very remarkable form is CERATOPHYLLUM, received as the Stag's-horn Scolopendrium from Mr. WILLISON. The frond is about 3 inches high, the lower part irregularly toothed or incised, the toothing becoming deeper upwards, and more or less forked; at about one-third from the top it diverges into two ascending divergent antler-like branches, which are so much narrowed that the main rib is only slightly bordered, and furnished with distinct and rather distant forked linear tooth-like divisions. This is a seedling, as also is one called SEPTENTRIONALE, from its being strongly suggestive of Asplenium septentrionale in its small size and narrowed parts. Of the three minute fronds before us, one is an inch long, about half being stipes, and the other half a lanceolate blade with two or three prominent teeth. Another about an inch and a half long forks into two linear branches, the stipes and blades hardly distinguishable. A third of about the same length also forks into two branches, one of which terminates in a flabellate head of six linear teeth, and the other in two small divergent toothed arms. The plant we learn is not more than 2 inches high, and as much through, with from 40 to 50 fronds. It is certainly very curious, and very far removed from a normal Hart's-tongue Fern.

A batch of novel Lady Ferns and Polystichums must be reserved for some future occasion. *M.*

ORCHID SALES.

I SHALL, I think, be doing good service to the interests of Orchid growers if I briefly call your attention to certain abuses that detract very seriously from the manifold advantages of those well-known sales that take place from time to time in Mr. Stevens's Rooms at Covent Garden; and while taking this step, it is scarcely necessary for me to disclaim the intention of casting the slightest imputation upon Mr. Stevens himself, who is powerless to prevent what, in common with all his customers, he must unhesitatingly condemn. The abuses to which I allude are—first, the disreputable condition in which plants are sometimes offered for sale; and, secondly, the false names that are often—I wish I could believe *unwittingly*—given to them in the catalogues. In support of these allegations, I will briefly detail my own experiences during the past season.

My first purchases consisted of several new East Indian species, of which, though in apparent health, not one survived, a circumstance that need occasion no surprise, as the whole collection was frost-bitten—in fact virtually dead—at the time it was sent to be sold! I was next tempted by two New Grenada Orchids, purporting to be Odontoglossum auro-purpureum, and Brassia cinnabarina, on which I will only remark, that whatever they may be, they differ entirely from two plants that I received under the same names direct from M. Linden's establishment at Brussels. Disappointment the third was also connected with New Grenada Orchids, of which there was a sale about a month ago, comprising a so-called "Houlletia" and an "Odontoglossum? species." As I could not attend this sale myself, I purchased by proxy, under the above titles, an old and worthless Maxillaria, and an equally worthless Trigonidium! And to crown the vexations of the year, I have now in flower, after nursing it since 1861, a specimen of the common yellow Dendrobium densiflorum, which I had bought originally, and at a high rate, as the rare white variety of the species in question! Redress, as matters now stand, there can of course be none, for even if the clause in the conditions of sale as to "all faults and errors of description" did not effectually shield the vendors, I have no means of knowing who the delinquents are, they having discreetly kept their names concealed.

I have little doubt that many of your readers could make out a list of losses and disappointments much longer than my own; but what I have now stated may suffice to call attention to a great and growing evil—I say advisedly a growing evil, having particularly in view the popular Odontoglossa already beginning to appear at the Covent Garden sales—the species of which often resemble one another so entirely as to render it impossible for the intending purchaser, unless he can depend upon his Catalogue, to distinguish between the precious and the vile. *James Bateman, Biddulph Grange, Dec. 5.*

NOTES ON GARDENS.—No. XXIV.

KILLAKEE.

THE visitor to Dublin, fond of gardening, and fond too of beautiful scenery, cannot enjoy so satisfying a combination of both in any place with which I am acquainted, as at Killakee, situated about 7 miles from Dublin, on Montpelier, a ruin-crested hill, which may be distinctly seen from most parts of the Bay of Dublin. The house is built near the top of the hill on its east side, is surrounded by a fine and chaste terrace garden, and literally looks down on Dublin and its environs for miles around. The day of my visit was fortunately a pretty clear one, with a breeze to sweep away the vapours that often accumulate over the scene. To the north could be seen the mountains of Mourne mingling with the grey clouds, and nearer still the fertile and verdant champaign lands of Louth and Meath, merging gradually into the better wooded country south of Dublin, with Glasnevin, the valley of the Liffey, and the Phœnix Park, spread out like a map. To the east, between the Park and the sea, lay the fair city of Dublin itself. To the south the view was interrupted by the high hills of Killakee and others, forming an amphitheatre around that side of Dublin; but there were charming views of the hills of Killiney and Dalkey, with as good a bird's-eye view of Kingstown harbour as of Dublin; and then the country enclosed by these hills lying between Killakee and the sea was so well wooded and occupied by seats and villa gardens that its appearance was most picturesque: for many square miles scarcely anything being seen amongst the apparently dense wood, but the spires of churches, glimpses of villas, &c. This pleasant land is as refreshing to one used to the flats about London as it must have been to the sagacious old sea dogs the Danes, when, ages ago, they selected Dublin for a home and chief stronghold. Though the mountains around are bleak, rocky, and barren, Killakee has its woods and Pines, its Rhododendrons and rare shrubs, as well as the richest lowlands, all planted by the late Colonel Samuel White, and annually improved by Mrs. White, who has the gardens kept in the first style—the geometrical gardening, and the miles of wild bank and walk by rushing mountain brook, being equally cared for.

The entrance front of the house is to the west; the eastern one, looking towards Dublin, and perfectly commanding the view I have already alluded to, opens to the terrace garden; while on the north side of the house is a garden of American plants, and on the south a Rose garden of like dimensions. An exquisitely furnished saloon occupies the greater part of the front of the house, and from every window of this the lovely scene may be enjoyed from a fresh point of view. The central windows open, and by a wide flight of steps a walk nearly 400 feet long and 20 wide is reached. At the base of this terrace, and high slope of velvety Grass, are 18 circles of choice Roses: and at some distance from, but immediately in front of the great central flight of steps leading from the terrace to the lower level, is a fine circular fountain, with a bronze Neptune in his car of shells drawn by sea-horses, a pair of very symmetrical specimens of Araucaria imbricata, about 24 feet high, standing one on each side on the lawn to the right and left of the fountain.

I was glad to see but the slightest dash of "bedding out" proper, in this garden; a wide array of such would have spoilt the scene. But there were beds of a permanent and chaste character, containing Kalmias, Vacciniums, Rhododendrons, Heaths, Azaleas, and kindred shrubs, which highly relish the mountain air, and agreeably associate with the statuary placed about. The side descents from the terrace are in three levels instead of one, as in the central descent—each level having six beautiful specimens of Irish Yew, and each flight of steps four vases, one at each corner, the Yews being in line with the vases, which are filled with mixed plants, and, from being in each case immediately backed with the very dark verdure of the Irish Yews, afforded a most pleasing contrast.

On the north side of the house a variously planted American garden was very interesting, and was gracefully festooned and slightly shaded overhead by Ivy, Clematis, and other climbers, trained over a large, and, as far as I know, unique chain tent, the plan of the garden and chain tent being exactly paralleled on the opposite or south side of the house—the beds there being planted with the best Roses, and the chains of tent covered by climbing varieties. On the lower level single plants of the Pampas Grass stood boldly out, and as these plants grow in the neighbourhood of Dublin, few subjects in existence could produce a more graceful or more "sub-tropical" effect. Large bushes of the old Fuchsias were also very noticeable, being draped with flower, and so much more beautiful than Fuchsias are ever seen in pots. These plants are obtained by comfortably protecting in winter the stems, which grow four or six feet high, and giving them a rich and deep soil, and plenty of water in summer.

There was no "polychromatic" work in this garden. Such would have spoilt it, and prevented an unalloyed enjoyment of the scenery; for however desirable it might have been in La Quintinie's time, when the country was in a comparatively rude state, to encourage the draughtsman in ground and gravel, and astonish the natives with elegant twirlings on mother Earth, yet such a hash-up from the scenes depicted in old French garden books can in the present day and in this country, where it is almost impossible to get away from all sorts of artificial lines, be only productive of what it has already yielded—an abundant crop of well-deserved ridicule. No situation could be better calculated to display the beauties of a chaste geometrical garden than this at Killakee, for the balustrade cuts it off from the rapidly descending lawn, margined by wildly diversified woods, which, with the bleak hill-tops around—looking much as they did when our "noble savage" ancestors gleaned the Blackberry brakes for food, and ate the pig nuts when they could get them; and the lordly progenitors of our nobility dashed after the wild wolf when on the look out for a garment—contrast most pleasingly with the gardening around the house.

The drive, about a mile in length from the chief entrance lodge, passes down through the woods between the house and the abruptly-rising hill, which, to many persons, would present as great an attraction as the gardens by which the house is flanked. It is a huge bank of natural rock disappearing a considerable distance up amongst Pines and mixed wood, but planted for about 500 feet opposite the west front of the house, with a host of Rhododendrons, and amongst them Kalmias, Spiræas, Cotoneasters, Heaths, Azaleas, and many choice deciduous and evergreen shrubs, and above and behind these by large Bays, Hollies, and Weeping Ashes, conducting gradually to commoner Pines and trees above. In front of the bank, within the drive's breadth of the mansion, little streams trickle down, and hardy Ferns peep out and grow away quite naturally amongst them—quite at home, being Osmundas. The British Heaths and wild flowers too have full scope, and the whole combine to form one of the most beautiful scenes possible in garden or in wood—a scene, moreover, which may be said to have caused no expense since the first planting—a scene of surpassing beauty when the American plants are in flower, but verdant, interesting, and beautiful at all times, from the season of the Violet to that of the Snowberry.

Before passing down to the other gardens, I may say that no offices of any kind are attached to this finely situated mansion, these being at some distance and completely shut off from the house by wood. To the south of the lawn is a picturesque and densely wooded glen, with mountain rivulet running for several miles through the demesne; and in this glen the principal gardens are situated. Going from the house towards these, the old Pinetum, with many fine specimens, is first encountered, intimately associated with huge and precipitous banks of Rhododendrons, &c., dense woods around, and mountains again appearing in the background, with brawling little falls of the rivulet, beyond which a glimpse of the top of a circular conservatory is caught, standing at the lower end of an exquisite terraced flower garden, walled in, and entered by massive iron gates of elaborate design. This garden, or the greater part of it, has been

cut in the hill side, and from its wooded banks beyond the upper or southern end the visitor may look as plainly down upon the garden and its charms as I now do upon this paper. Knowing this, I preferred, instead of entering the garden at once, to make a circuit and enjoy the view: passing on the way numerous natural and artificial falls, and dark pools in which "the finny darter with the glittering scales" was very abundant—only not so handsomely glittering as the trout of a clear lowland stream, for the water of mountain bog embrowns him; passing the Kerry Saxifrages fringing the rocks; passing the kitchen gardens hidden from the stream and dale by wood. These there was no time to explore, so leaving the stream—which runs through wood like an abridged Dargle for a mile above and below the flower garden—and turning to the left to descend the hill, the desired point of view was soon reached. The scene from this point was most enchanting: for many feet below, were mapped out the beauties of this unique garden, most conspicuous being one of Mr. Turner's best efforts—a very ornamental circular conservatory with a wing of curvilinear houses on each side, the end houses being circular, and the whole range—which stretches across the further and lower level of the garden—being of almost faultless symmetry and elegance. Round this garden ran a border of Roses, mixed herbaceous plants, &c.—a border which I was glad to find had not been sacrificed to the mania for streaks of red, yellow, and blue. The chief entrance is at the side of its upper level, lines of specimen Portugal Laurels in tubs producing a very good effect along the upper walk, but that is forgotten when the visitor begins to descend the central walk leading to the conservatory, for on each level there are choice and varied floral charms, with statuary and Conifers most tastefully interspersed.

In the centre of each half of the top level was a statue, surrounded by a chain of 10 beds, well filled and well varied with plenty of verdure, and on it large cones of pillar Roses. Iron vases were placed at each corner of the steps leading from level to level; and at certain distances along the turf of each level, were handsome china vases filled with the newer Pelargoniums. The middle level was for the most part decorated with bedding plants, 30 neat beds of these surrounding a statue placed in the centre of either half, with handsome Araucarias and very symmetrical Irish Yews—indispensable in all such arrangements. Here again the bedding was remarkably well varied, and of course so much the more interesting. Space forbids me to follow the practice of naming the contents of these beds, but amongst old favourites and things not often used for bedding I will mention Sedum cœruleum, which made the softest and prettiest of little beds; pretty masses of Fuchsia, both white and red; and Manulea formosa. The Gazania was here in much better flower than I had seen it previously, and in greater vigour too, caused, I was informed, by growing it in stiff soil, and giving plenty of water, though this garden—100 feet lower than the view commanding the terrace and house—is 700 feet above the sea level, and of course much cooler, moister, and later than the lowland region about Dublin.

The lower level had a handsome fountain and basin on each half, with a single chain of 10 beds encircling them; ribbon borders to the right and left of the conservatory, and again handsome Araucarias, iron and China vases, &c. "Ribboning," as frequently done, I think the quintessence of vulgarity in gardening; but when it approaches so near to truth and beauty, as in one line here—a mixture of Tritoma and the China Rose—the back row of a ribbon border leading from this garden to the culinary one higher up the hill, one can hardly object to the system. From the seat on the hill, whence this garden is so well seen, with the embowering woods around, and park and mansion beyond them, the visitor may, by looking to the right, see one half of Dublin Bay, and apparently sleeping in it, the Hill of Howth—the bay of Dublin, and this beautiful geometrical garden, from one rustic chair!

The conservatory was very tastefully decorated with both planted out and potted specimens. High up above the creepers were Vines in capital fruiting condition, and as may be supposed, not less ornamental than any other climber. Of the houses, however, space forbids me to do more than mention a few peculiarities. Herbaceous Calceolarias, always very welcome if well done, are somehow very often precarious subjects to manage, as even in gardens famed for their culture we know they frequently fail for a year or two. At Killakee, to my knowledge, they are regularly, well, and abundantly grown by Mr. Rorke, the very successful and persevering gardener. They are sown about the first of August in a rather cool, moist and somewhat shaded intermediate house, in which they remain till about the month of February. From the germination till they are large and strong enough to be placed, first in a greenhouse and then in a cold pit, the slightest check never occurs. The plants grow so rapidly during the autumn and winter, that some of them require potting almost every week during that time; and the peculiar standstill and sickly condition in which these plants are often seen with the best cultivators, is never apparent at any stage. Pereskia Bleo was planted against the back wall of a stove, and had been grafted with 18 varieties and species of Epiphyllum and other suitable Cactaceæ. The magnificent display made by some huge Epiphyllums on the Pereskia every autumn no doubt suggested this grafting, which is likely to produce so interesting and gorgeous a drapery for a high back wall. It is singular that these autumn flowering Epiphyllums, which grow and flower so freely and profusely on the Pereskia, but scarcely live on their own roots, are not more commonly grown, for good plants of them are certainly among the most beautiful stove or intermediate house plants we have at this season. Behind the range erected by Mr. Turner is a suite of garden offices also erected by him, quite worthy of association with the curvilinear range; and then against the end wall of the garden—hidden of course from its general scenery by the iron houses, is a range of plant houses, well filled with new and popular plants. The most telling effect, however, was yielded by an old but grand subject, Passiflora princeps, which was planted out under, and formed the most showy and graceful wreaths over the front bench of a plant stove. This, as I learned from Mr. Rorke, was nearly always in flower; and most valuable for room decoration of all sorts. The Granadilla suspended five dozen of fruit from the roof of the same house. The plant yielded four dozen of fruit in June, and three dozen had been cut during the month of August, beside those on the plant at the time of my visit. I had never seen anything worthy to be called a crop on this plant before. This remarkable fertility causes the fruit to be used as a regular article of dessert at Killakee. Mr. Rorke fertilises all the flowers of the Granadilla when he wants it to fruit, and this probably explains why we so rarely see the plant in that state elsewhere. Expanding in the still dull atmosphere of our hothouses, the noble flower may be said to "waste its beauty on the desert air," as far as regards attracting the necessary insects, and unless the cultivator removes the vivifying pollen, and so does the work of West Indian breeze or exotic fly, we are only favoured with the flower. In the Melon house two plants of the Silverton Park Scarlet-flesh Melon bore a second crop of very good-looking fruit.

Outside the lower end of the terrace garden the hill rapidly falls away into a dense wood; but on the level remaining outside the garden wall, and against the latter, a remarkable structure was being erected, which is entered from the plant houses and hidden from external view on all points. It is a very singular and interesting Fernery, 60 feet long by about 20 feet wide, and 15 feet high. Gothic arches, as in Mr. Bewley's Fernery, only much more contrasted, are raised over the central walk, with a line of smaller arches parallel on each side, these arches already affording very pretty perspective views, though not yet planted. In addition to provisions for Ferns of all sorts, there were oval basins getting ready for Nymphæas, a cool and warm tank for other aquatics, a *jet d'eau* and an alcove with statue at the end of the central walk, which must afford a charming little vista when the arches are draped with verdure. Thus future visitors to Killakee may expect a novel addition to the charms of its gardens.

I know of no better example of the advantage of extensively planting and draining a barren and elevated district than is afforded by this demesne of 500 acres. The late Colonel White found it a barren waste, supporting here and there a few miserable cottiers; but before his death abundant wood had sheltered and beautified the scene; productive land began to yield ample return for outlay; garden beauty appeared upon hill and in ravine; and the last geometrical garden spoken of, replaced an impassable thicket of briars. The gardens were laid out by Mr. Niven, the well-known landscape-gardener, and were made by Mr. W. Roylance, who, first as gardener and since as general superintendent, has had charge of the place for nearly 20 years, during which time most of the gardens and garden improvements have been made. These however are still continued by Mrs. White, and superintended by Mr. Roylance, last winter's work being the formation of a new Pinetum in a hollow glen of the woods; while at present the new Fernery is in hand. General visitors are admitted by cards on certain days, but Mrs. White's kindness to gardeners is even more comprehensive, for they are readily admitted at all times, and are thus favoured with no ordinary boon, for, apart from the enchanting scenery to be surveyed from many parts of the demesne, I have not yet seen the place in which the unities, so to speak, of good taste in laying out and keeping gardens, both geometrical and natural in style, are better preserved than at "White's, of Killakee."

Wm. Robinson.

ON THE CAUSES OF BURNS AND SPOTS ON LEAVES, ESPECIALLY IN STOVES.

(TRANSLATED FROM "ADANSONIA," 1862, p. 312.)

FOR a great number of years, French and other horticulturists have endeavoured to explain the causes of those unhappily too frequent affections which spoil the foliage in cultivation, and often induce the death of plants; and this without arriving at any sound conclusion. All however have established the fact that the sun and water are the principal agents in this evil, but as to the manner in which they worked, the interpretations have been very different, and in many cases even contradictory.

It would be useless to reproduce here all that has been said on this subject, as it is not my object to write the history of these observations. I wish only to record certain facts which I have observed for some years Clever horticulturists have considered the burns and spots as being produced by lenses or faults which are frequently met with in the glass employed for covering stoves or frames. Others have assigned them to different causes, as, for example: water of condensation charged frequently with oxide of iron, where the frames are made of iron; stagnant moisture; inconstancy of temperature; copper instruments employed for syringing, &c. The first of these causes having obtained most credit, I shall dwell longer upon it, to show its impossibility. The most simple experiment will suffice to prove this. It is true that glass of the ordinary quality includes many faults or lenses, but the defective parts are in general too far from the plants for them to suffer from it. Besides, their inclination varies so much, without the effect ceasing to be produced, that it is difficult to accept this explanation of the phenomenon in question. We all know that to make a morsel of amadou take fire by help of a magnifying lens, it is indispensable that the object be very near the lens. Though the focus varies according to the thickness of the lens employed, it demands at most the distance of 2 or 3 inches. But vegetables in a stove or frame are at least a foot or a foot and a half from the glass, and frequently placed at a distance of many yards. Nevertheless they are attacked everywhere, even in the open air. This is not then the true explanation. Some English horticulturists have supposed that these lenses communicate with drops of water deposited on the leaves, and that the consequent warmth produced this mischief. In the *Gardeners' Chronicle* of 1858 a clever horticulturist attributes the spots to too great a degree of moisture combined with too low a temperature (at least for Orchids). Another practitioner in the same Journal, during the same year, says that by giving plenty of air and light, they are easily avoided. Such are the explanations most worthy of notice. Without rejecting them entirely, we may observe that they appear to be insufficient.

I remarked during 1861, in many Dracænas in the stoves of the Museum, burns which were produced in some instances in consequence of ill-timed syringing; that is to say when the sun was striking directly on the plants. I looked for the explanation of this in the direction of the glass, but though I found some faults capable of forming lenses, reason showed me immediately, that at so considerable a distance as that which existed between the injured leaves and the glass partition (about 9 feet) this cause was not admissible. I removed the plants, which were grievously injured by these burns, without being able to account for the causes which produced them. This year (1862) the same condition was induced in two fine plants of Cordyline australis in the same place, that is to say in front of the gates of entrance to the pavilion. The fine weather allowing me to leave them open, nothing at first took place, but as soon as the temperature without became too low for some delicate plants which were in the same stove, I kept them closed, and the first day, after a syringing made at too late an hour, there too the Cordylines were spotted. This time, then, I persevered longer in seeking the explanation of the phenomenon.

While the doors remained open I noticed nothing wrong. The first day that they were kept closed there were burns. The cause then evidently consisted in the suppression of free air from without. But how did the air prevent the injurious effect from being produced? This was the point which I wished to determine. I placed, then, drops of water on leaves which were uninjured, and closed the doors. At the end of some seconds the effect was produced before me. Each drop became strongly heated. As the thermometer rose its volume increased, and finally, following the inclination of the leaf, burnt the entire thickness of the leaf through the whole of its course.

After this experiment I opened the doors and moistened the leaves again. The rather strong breeze which entered made me presume that the same phenomenon would not be repeated in consequence of the instability of the leaves. That I might be perfectly satisfied on this point, I fastened some of the leaves by little threads, and I was able to see very clearly that when motionless they were burnt, though exposed to the air, and that it was only the motion of the leaves which could guard them from injury.

It remained, then, to ascertain, in admitting with some horticulturists that the drop of water now formed a lens, how it could burn while resting on the object. I made then some attempts with glasses of different convexities, and I acquired a certainty that the more spherical the lenses were, the more it was necessary to bring them near to the object, to obtain the result which I was trying to explain.

I do not pretend to attribute to the same cause all the spots which we frequently remark on plants in stoves, but I am sure that all those which are produced in a few seconds are due to the immobility of the leaves, when the plants are in a badly ventilated stove, and especially when they are watered too late or in too calm weather.

The water in resting too long on the leaves is likewise a cause of the disorganisation which we observe frequently in Orchideæ, Pelargonia, Begoniæ, Cacti, &c., but with a little attention we shall find that the effects are not the same in this case. The colour of the spots

moreover is very different. When there is a sunburn, the spots are yellow and all the thickness of the leaf is burnt. But when the lesion is due to the too long contact of moisture, it is frequently only the cuticle that is injured and the spots are black.

We may then recommend those who are occupied in cultivation to avoid watering and syringing the plants while the sun strikes on them directly, or rather to contrive that the water shall not rest on the leaves from 12 o'clock to 3 at least, and to ventilate the stoves and frames well, so as to take away the water of condensation or from the syringe, or in winter by the disengagement of dry heat or by currents of warm air. *L. Neumann.*

Home Correspondence.

Royal Horticultural Society's Regulations in Reference to Roses.—I see that July 1 is the marriage day of the Princess Alice. This is its only recommendation as a day for a National Rose Show. The temperature rises from the 6th of January to the 6th of July, and falls from the latter date to the former period. To hold a Rose show in July seems to imply that rosarians cannot get their Roses ready till the temperature is just upon declining; it, moreover, ignores the poet's substantial words, "the rosy month of June," and reduces them to an illusion, or poetic license—a license allowable to scholars, but not to rosarians. Now there are two Royal days "in the rosy month of June," which both happen to be Wednesdays, the most convenient days, viz., June 21, the Proclamation day, and June 28, the Coronation day of her Majesty. The former day, I believe, would bring most grist to the mill, as it would embrace the Summer Roses, the Teas, and Tea-scented Noisettes, as well as the other autumnals. Why have we so few Yellow Roses at the National Rose Show? Because of the lateness of the day. A day in July is a slur upon our climate, and also upon rosarians. It also rubs out of competition all the small holders, unless they live far North. If Rose plants are well managed and cut back from the 10th to the 15th of March, which is the best time for their future good, there will be legions of Roses (and increased competitors), more than there have ever yet been shown, and there will be centre blooms instead of side ones—a full truss instead of a broken one. It ought to be the object of the Society to encourage early blooming in June, and late blooming in September. The earlier Roses can be got into flower the better chance they will have of confirming their wood and of standing the severity of a premature winter, as in the case of 1860-1861. I found after that severe winter, that Rose plants that were cut back early, and which were never cut after they were in bloom, wintered perfectly well, as to their wood. The dropping off of the flower is the terminus in England, and the nearest approximation to the formation of seed, which is Nature's true terminus. If a quick succession of flowers is wanted, then the sooner the flower trusses are cut off the better, but it estops the maturation of wood. I should like much to try one year the 21st of June. If people know now that is to be the day, they will not of course move their Roses, or they will move them more carefully; and they will cut them back at the proper time, and also move up their land to let in sun-heat as soon as the severity of winter is over. It is "moonshine" to say that Roses in legions cannot be got by June the 21st. The fact is, out of the thousands who profess to grow Roses, or possess them, there are but few working and artistic men. A July show is a "bonus" for "large" stocks and "lazy" fellows. I am not surprised to find that other correspondents have d murred to Saturday as a day for a National Rose Show. *W. F. Radclyffe, Rushton.*

New Description of Vinery, &c.—I beg to send the following article for an opinion from some of your talented correspondents. The plan suggested is a bold experiment, but possibly none the worse for that, as some of our best things have been what may be called Utopian in their origin. There is another question I wish to ask. I have been working at Sclerogen microscopically, so as to get objects of all the structures I can; but I am struck with Sclerogen of the Pear as represented by Jussieu, and copied into Balfour's "Manual." I have examined all the Pears I have been able to get, yet not one of these possesses the slightest resemblance to the figure. I am therefore desirous to know if any of your correspondents have seen this structure, and are able to verify its accuracy. If so, will they kindly tell me in what Pear it is found. The following is the suggestion to which I first alluded. A friend of mine has repeatedly asked my opinion as to what I thought of the commercial value of an erection similar to what I am about to describe. This erection he thinks would be of great benefit to agriculturists, and produce an annual profit so as to eventually liquidate the expense of erection. The following is his plan:—To erect a place 30 feet high, and 30 yards square; the roof to be glass, the sides composed of a brick wall, 9 inches thick, from which would spring the glass roof. In the brickwork there would be iron columns every 5 feet, to the height at which the glass is intended to commence. At the base of these columns would be planted Vines, to be trained against them, and then connected wires from each side would form an arch underneath the glass roof. This, by means of the sun's rays, he thinks would ripen the Grapes, and he concludes that the produce would be such that in time it would pay for the erection by the sale of the Grapes. He would devote the interior to the housing of agricultural crops such as grain, and hay, which by being drawn in would prevent the necessity of thatching, and that would be a saving of some expense. Now the questions at issue according to my ideas are these: 1st, would not the opaque walls be detrimental to the growth of the Vines? 2dly, whether the height of the Vine also would not be detrimental, for there would be a direct growth of 30 feet before the rods reached the roof, and then the half of the roof of the house would be 45 feet on each side. 3dly, whether the produce for which the building is intended to be used would not by heating give out a gaseous product that would be seriously injurious to their healthy growth. There can be no doubt that beautiful berried fruit can be grown without artificial heat, for some of the finest I ever saw were grown without it; and I have also seen some of the finest Black Hamburgh Grapes grown in the Midland Counties on an east wall, without any protection. Therefore, it is not whether the fruit can be grown without artificial heat, but whether the height and size of the building and the exhalations arising from the produce intended to occupy the centre would not be detrimeutal to its success. I shall feel obliged if some of your Correspondents can give me information on this subject. *D. Westcott, Moseley, Birmingham.*

Berberries.—I have to-day eaten Berberry Jam without stones, and yet my trees bear fruit with stones. Surely this question ought to be decided by the authorities. *A.*

Ancient Gardening.—In the name of the Prophet, Beans! Availing myself of an unusual holiday, I have played, for the nonce, the part of "retired Leisure, that in trim gardens takes his pleasure;" and with a view to perform Mr. Darwin's behest, have wandered inquisitively amongst the pleached alleys, clipped Yews, peacocks, eagles, and battlemented hedgerows of our forefathers, caught each quaint old gardener by the button-hole, and plied him with the above startling apostrophe—In the name of the Prophet, Beans! The following clippings and cuttings are the result of my inquiry:—Petrus de Crescentiis: Ruralium Commodorum, lib. xii. 1471:—"Spargitur autem semen fabæ in locis calidis aut temperatis, Januario aut Februario. Sed et seri potest mense Martio." (This work, though published at the above date, was written early in the 14th century). Joannes Cuba: Ortus Sanitatis, De Herbis, Plantis, &c., 1491. (There is an earlier edition without date.)—"In principio mensis Novembris faba spurgenda est. In mensa Decembri faba circa septimum ydus potest seri." Book xiii., cap. i. Tusser: A hundreth good poyntes of husbandry. Imprynted at London in flete strete within Temple barre, at the signe of the hand and starre, by Richard Tottel, 1557.

"Novembre, verse 34.

> Set gardeine beanes after Saint Edmonde the King:
> The Moone in the wane thereon hangeth a thing.
> Thencrease of one gallonde well proved of some:
> Shall pleasure thy householde ere peskod time come.

Februarii, verse 62.

> In Fevorell rest not for taking thine ease:
> Get into the grounde with thy beanes and thy pease.

Marche, verse 71.

> Sow wheate in a meane, sow thy Rie not too thin;
> Let peason and beanes, here and there take therein."

Conradus Heresbachius: Foure Bookes of Husbandry, Conteyning the whole arte and trade of Husbandry. Newely Englished by Barnabe Googe, 1572. (The Latin version was published at Cologne in 1570):—"The beane is sowed fyrst of all other pulse in the spring tyme. French Beane. It is sowed of dyvers from the Ides of October to the Kalendar of November in some places, and with us in March. Book i. pp. 33—4. Maison Rustique, or the Countrie Farm. Compiled from the French Tongue, 1600 (1st French edit. 1586):—"Beanes may sowen at two times of the yeare, in Autumn, where it is a strong grounde, and the beanes be great, and in the Spring, the beanes being but small, but at what time soever you sowe them you must have special regard to sowe them all about the fifteenth daie after the change of the moon." The writer then goes on to inform us that "The flowers of beanes, notwithstanding they be of a pleasant and delightsome smell, doe hurt a weake braine, and such a one as is easily caried away and overcome and hereupon it commeth to passe that there are a great number of fooles, when beanes are in flower," pp. 694-5. Olivier de Serres, Seigneur de Pradel: Théatre d'Agriculture et Mesnage des Champs, 1619. (1st edit. 1600):—"Les pois hyvernaux se sement durant l'automne, en plusieurs fois, et tousjours en Lune estant vielle. En même terre, temps, et poinct de Lune, se logent les Feves de l'Hyver," p. 462. Blagrave's Epitome of Husbandry, 1669:—"Generally to sow after Candlemas, but especially let them be sown in the old of the moon," p. 18. Blome's Gentleman's Recreation, 1686:—"Beans delight in a rich, stiff, and deep mould; the season to set them is from Christmas to Candlemas, and also earlier or later," p. 218. Worlidge's Systema Agriculturæ. Kalendarium Rusticum:—"February—now sow Annise, Beans, Pease, &c., &c. November—Pease and beans may now be set," pp. 268 and 286. Dictionarium Rusticum Urbanicum et Botanicum, 1704:—"As for garden beans, they are usually set between St. Andrew's and Christmas at the wain of the moon; but the surest way is to stay till after Candlemass." Le mênage des Champs et de la ville, 1737:—"Il y en a qui les sement des l'avent pour en avoir des premières, d'autres qui attendant jusqu'à ce qu'il n'y ait plus rien à craindre du côté des gelées," p. 274. Dictionnaire Universel d'Agriculture et de Jardinage, 1751:—"On cultive les Feves dans les Champs et dans les jardins au printemps et après le moisson." La Nouvelle Maison Rustique, 1790:—"On seme les haricots au mois de Mai." There are several other ancient works on Gardening, in which the culture of Beans is described, but no precise date given for the sowing. Amongst these are Gervase Markham's "Farewell to Husbandry," 1620, and a quaint old tome called the "Country-man's Recreation," 1640. The Table of Contents in the latter concludes with the following quatrain:—

> "To God be praise on high
> in all our worldy Planting,
> And let us thank the Romanes also,
> for the Art of Graffing and Gardening."

T. Westwood, Brussels.

Pinus ponderosa.—I find my trees of this suffer sadly from the attacks of insects, which perforate the bark, and cause a vigorous discharge of turpentine; the evil seems to increase every year, and I fear I shall lose many of my best trees. I have rubbed the bark of some with oil, but this seems to do little, if any, good; I should be glad to know if any of your readers have found an effective remedy for this pest? *E. Solly.*

Prize-taking at Horticultural Exhibitions.—Has "Florist" (see p. 1157) considered what would be the result of his proposed system of awarding prizes if it were adopted? I hardly think he has, or he would never have written about garden productions in the same way as about pigs, sheep, and cattle. As every one knows, there are but few gentlemen or noblemen who would hesitate to give orders concerning their cattle and other live stock, as to how and with what food they were to be fed, and how to be treated; but did any one ever know of a gentleman telling his gardener to grow Parsley in one way and Carrots in another, Verbenas in this way or Pansies in that way? Certainly not; and yet "Florist" would have us believe that the gardener's employer was entitled to both praises and prizes, as much in one case as in the other. Or, does "Florist" intend for all gentlemen to become practical gardeners? for every gentleman who owns a garden to give his gardener orders what to do every day—to tell him when to start the early Vinery or Peach house, when to sow Mustard and Cress, when to pot Orchids, and when to plant Potatos? When employers do that, then prizes should be theirs; but I think it would be very unjust to give the Duke of A. a prize for Cucumbers, and Lord B. one for Melons, when these noblemen had been respectively 200 or 300 miles away from their gardens, from the time the seed was sown, to the time the fruits had reached perfection. So much for the injustice of the case. Now for the result. If the employer is to reap all the advantages of the gardener's extra exertions, exhibitions will speedily become a failure, for gardeners will then lose every substantial payment for their trouble; and although your correspondent declares emulation to be a leading motive, it is not the leading one in this instance, Let gardeners win as they have always won, and employers will have their share of the spoil in the shape of first-class flowers, fruits, and vegetables; but let employers claim the prizes, and where the productions are now first-class, inferior articles would, I fear, take their place. *G. G., Coventry.*

——Suppose that A., gardener to B., has been an exhibitor for several years, and bought one-half of his show plants with the profits from other shows, and the next season B. wishes to have all awards and profits turned over to him, what would "Florist" do under such circumstances? Does he suppose that A. would put himself to the inconvenience which is necessary for weeks or months before a show, to say nothing about disturbed slumbers? No; he may depend upon it that the exertions made by A. are a matter of £ *s. d.* to him, while the chief honour goes to his master. Again, unless Mr. B. had his best plants in true character, he would not like to compete against Squire C., and as a consequence half of the exhibitors would keep their plants at home. To use your own words, "exhibitors are too important a body to be thus cavalierly treated." Intelligent gardeners should not be classed with Betsy Brown. *J. C. N., Selby.*

Erianthus Ravennæ.—I shall be glad to learn whether any of your readers have succeeded in flowering this new Grass in the open ground; seeds of which have been offered in most seed lists for several years past. From my own experience I conclude that it requires a higher temperature than is usually attained in these latitudes. It seems tolerably hardy in winter, but makes no growth in summer, or but a scanty one; an imported root has given no better results than seedlings raised by myself. *Quis.*

Societies.

Royal Horticultural: *Dec. 7 to 16 (International Show of Fruit, Vegetables, Roots, and Gourds).*—In many respects this is an extremely interesting exhibition; the display of fruit especially is extensive, and that of roots and vegetables tolerably satisfactory Foreign produce, though not so plentiful as it was last

year, is also present in the shape of Apples from Nova Scotia, Pears from Belgium, collections of miscellaneous fruit from France, and last, but not least, some fine things from the garden of the Viceroy of Egypt.

In the Class set apart for productions from Fruiterers, M. Webber & Co., of Covent Garden, show a dozen enormous fruit of Uvedale's St. Germain Pear, the united weight of which is 29¼ lb.! The same exhibitors produce very fine specimens of Catillac, Monsieur le Curé, Easter Beurré, and Mathew's Eliza Pears, the last a rather new and good-looking variety; also beautiful examples of White Calville, Pomme d'Api, and Gloria Mundi Apples; excellent Tangierine Oranges; both Black and White Grapes, Pine Apples, and very fine fruit of Prickly Pear (Opuntia), which is now plentiful in London. From M. Chevet, the great French fruiterer of the Palais Royale, Paris, comes another collection, in which are nearly equally good Uvedale's St. Germain Pears, White Calville Apples, and other interesting fruit, among which occur specimens of two large kinds of Capsicum.

Pine Apples are not numerous; the best being a Smooth Cayenne, from the Royal Gardens at Frogmore; and the same variety being also furnished by Mr. Wallis, gr., Astle Park, Congleton. The best Queen comes from Mr. Heather, gr. to R. Pullford, Esq.

Grapes, likewise, though somewhat limited in quantity, proved excellent in quality. Of Muscat of Alexandria very fine specimens come from Mr. Tillyard, gr. to J. Kelk, Esq.; and three bunches, equally good in point of merit, are contributed by Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading. Of Black Grapes, there are some excellent examples, chiefly from Messrs. Lane, of Berkhampstead, who of late years seem to have turned their attention most successfully to Grape growing. The varieties shown by them on this occasion are Black Hamburgh, Esperione, West's St. Peter's, Barbarossa, and Black Prince—all beautiful fruit, black as Sloes, and covered with a fine bloom. From Mr. Hill also come some admirable Black Hamburghs for this season of the year; and we also found good bunches of the same variety from the great Vine at Cumberland Lodge.

Of Pears there is a good display, especially of varieties fit for dessert. In the class of 12 dishes of the latter, the best fruit come from Mr. Ingram, gr. to Her Majesty at Frogmore, who furnishes beautiful fruit of Princess Royal, Glou Morceau, Moccas, Prince Albert (a handsome high-coloured variety), Easter Beurré, Chaumontel, Vicar of Winkfield, Jean de Witte, Knight's Monarch, Winter Nelis, Passe Colmar, and Chobden Court. From Mr. Cox, gr. to J. Wells, Esq., of Redleaf, who has been placed 2d, come Josephine de Malines, Beurré d'Aremberg, Winter Nelis, Glou Morceau, Baronne de Mello, Beurré d'Hiver, Easter Beurré, Beurré Rance, Passe Colmar, Vicar of Winkfield, Old Colmar, and Chaumontel. The next best lot is shown by Mr. Lumsden, gr. to Lady M. N. Hamilton, Sleaford, whose fruit, though good, is smaller in size and greener than that grown in the neighbourhood of London.

In the Class of 6 dishes of Dessert Pears, the best are contributed by Mr. Tillyard, who has beautiful examples of Chaumontel, Passe Colmar, Josephine de Malines, Beurré Rance, Glou Morceau, and Easter Beurré. Mr. Phillips, gr. to J. H. Burton, Esq., Pontefract, was placed 2d with Easter Beurré, Glou Morceau, Beurré Rance, Winter Nelis, Hacon's Incomparable, and Passe Colmar. Many others who show under this head have been disqualified, either on account of their fruit not being in good condition, or from its not consisting wholly of dessert kinds.

In the Class of 3 dishes of ripe Pears, the best come from Mr. Beasley, gr. to T. Wood, Esq., Twyford Abbey, who sends Easter Beurré, Chaumontel, and Glou Morceau; 2d, Mr. Earley, gr. to P. F. Pryor, Esq., Digswell, who shows Passe Colmar, Beurré Rance, and Glou Morceau; 3d, Mr. Ingram, gr. to J. J. Blandy, Esq., who furnishes Glou Morceau, Winter Nelis, and Winter Crassane.

In the Class of single dishes of ripe Dessert Pears, the best was Glou Morceau from Mr. Ford, gr. to W. E. Hubbard, Esq., Horsham; Beurré Diel, from Mr. Westbrook, of Abingdon; and Glou Morceau, from Mr. Plester, gr. to Mrs. Rush, of Stanstead.

Of single dishes of the heaviest Dessert Pears, the best come from Mr. Murray, gr. to the Rev. D. Williams, Tring Park, who shows Glou Morceau; Mr. Plester has Chaumontel, and Mr. Phillips Glou Morceau.

Of other dishes of Pears shown for weight, the best are Catillac, furnished by Mr. Ross, gr. to C. Eyre, Esq., Welford Park, Newbury; the second best, Uvedale's St. Germain, shown by Mr. Scrymger, gr. to R. Palmer, Esq., of Reading; and the third best, the last-named variety, from Mr. Cox, Redleaf.

Apples are numerous, in some instances unusually highly-coloured, and altogether in excellent condition. The best 12 dishes of Dessert varieties come from Mr. Ingram, gr. to Her Majesty at Frogmore, and consist of very fine fruit of Cox's Orange Pippin, Old Nonpareil, Ribston Pippin, Court Pendu Plat, beautiful in colour; Rosemary Russet, Scarlet Nonpareil, Blenheim Orange, Small's Imperial Scarlet Russet, Fearn's Pippin, Claygate Pearmain, and Gipsy King. Mr. Ford, gr. to W. E. Hubbard, Esq., Horsham, who is placed 2d, has fine examples of King of the Pippins, Ribston Pippin, Pearson's Plate, Adams' Pearmain, New Rock Pippin, Cockle Pippin, Wickham's Pearmain, Scarlet Nonpareil, Cornish Gilliflower, remarkably fine; Blenheim Orange, small, but very fine in colour; Scarlet Pearmain and Golden Russet. The next best collection is that of Mr. Betteridge of Milton Hill, near Steventon, who shows small but finely-coloured fruit.

Of 6 Dishes of Dessert Apples the best come from Mr. Betteridge, who has finely-coloured examples, uniform in size, of Fearn's Pippin, Old Nonpareil, Blenheim Orange, King of the Pippins, Ribston Pippin, and Court Pendu Plat. Mr. Kaile, gr. to Lord Lovelace, contributes Ribston and Fearn's Pippins, Blenheim Orange, Scarlet Nonpareil, Loan's Pearmain, and King of the Pippins. From Mr. Lane, St. Mary's Cray, come Old Golden Reinette, Winter Queening, Blenheim Orange, Spanish Pearmain, a lemon-coloured variety, like the last in form but earlier and a better keeper; also King of the Pippins and Prince's Pippin, the last a small carnation-striped Apple, of American orlgin.

In the Class of 3 dishes of ripe Dessert Apples, the best come from Mr. Betteridge, and consist of Ribston Pippin, Blenheim Orange, and King of the Pippins, the last remarkable for their clear yellow skin beautifully flushed with red. Mr. Ford, gr. to W. E. Hubbard, Esq., is 2d, with Herefordshire Pearmain (miscalled Winter Pearmain), Blenheim Orange, and Golden Reinette, the last large and fine. Mr. Bentley, gr. to Lord St. Leonards, comes next, with fine fruit of Scarlet Nonpareil, Blenheim Orange, and Cornish Gilliflower.

Of single dishes of ripe Dessert Apples, the best are those of Mr. Hall, gr. to Capt. Tyrrell, Ealing, who has fine fruit of Cox's Orange Pippin. Mr. Plester, gr. to Mrs. Rush, contributes the same excellent variety, and beautifully ripened Blenheim Oranges come from Mr. Ford, gr. to W. E. Hubbard, Esq.

In the Class of 12 dishes of Kitchen Apples, the best come from Mr. Betteridge, who furnishes large and fine fruit of Blenheim Orange, Hollandbury, Minshull Crab, Lucas's Pride, Jersey Codlin, Kentish Fillbasket, Rymer, Glory of Kent, Kentish Broading, Maysbury Pippin, Alfriston, and Mère de Ménage, the last small, but bright red in colour. From Mr. Cox, of Redleaf, come some fine fruit, though not so uniformly bright in colour as those just named. They consist of Castle Major, Bromley Apple, Tower of Glammis, Bedfordshire Foundling, Yorkshire Greening, Gloria Mundi, large and fine; Poor Man's Profit, Emperor Alexander, Waltham Abbey Seedling, Beauty of Kent, Blenheim Orange, and Golden Noble. Mr. Moffat, gr. to Viscount Maynard, is 3d with New and Old Hawthornden, Manx Codlin, Hollandbury, Herefordshire Pearmain, Grieve's Pippin, Melon Apple, a handsome variety; Reinette du Canada, Beauty of Kent, and others.

Among 6 dishes of Kitchen Apples the best are those of Mr. Betteridge, who has fine fruit of Blenheim Orange, Glory of Kent, Jersey Codlin, Hollandbury, Kentish Broading, and Alfriston. Mr. Parsons, gr. to R. Attenborough, Esq., of Acton Green, sends Emperor Alexander, Alfriston, Golden Russet, Wellington, Golden Noble, and Blenheim Orange. Mr. Heather and Mr. Kaile also both show good fruit under this head.

Among 3 dishes of Kitchen Apples the best come from Mr. Ford, who contributes Wadhurst Pippin, Dumelow's Seedling, and Alfriston. Mr. Betteridge has Glory of Kent, Alfriston, and Beauty of Kent; the last finely carnation-striped. From Mr. Wells, Holme Lacy, are fine examples of Blenheim Orange, and Mr. Scrymger of Reading, large and beautiful fruit of the Emperor Alexander.

Among single dishes of Kitchen Apples the best, consisting of New Hawthornden, come from Mr. Plester, gr. to Mrs. Rush. Mr. Wells has very fine Blenheim Orange, and excellent fruit of the same variety comes from Mr. Earley.

The heaviest Five Apples come from Mr. Lumsden, gr. to Lady M. C. Hamilton, Sleaford, who shows Gloria Mundi; Mr. Young, gr. to R. Barclay, Esq., Highgate, sends Alfriston; and Mr. Masters, Highgate, Blenheim Orange.

Currants, both red and white, are shown in a good state of preservation, from Mr. Ford, who has Raby Castle; Mr. Curd, and Mr. Tivey, who furnish red and white Dutch.

Nova Scotia has contributed a tolerably extensive and beautiful collection of Apples, which have arrived in fair condition, and though generally rather smaller in size than last year's contributions from the same country, are yet sufficiently fine to win equal prizes with some of the best of our English fruits of the same class. Among them some of the more striking sorts are Emperor Alexander, Calkin Pippin, a variety in the way of Gloria Mundi; Sponge, a carnation-striped sort; Rose Apple, another red streaked variety, as are also Red Pearmain, Snow Apple, and Hubbertson's Nonsuch; Spitzenberg is a high-coloured kind; and of Golden Ball, Gloria Mundi, and Gravenstein, we observed many beautiful examples. The Red Baldwin is a handsome fruit. Ribstons are not better than our own, and the same may be said of Blenheim Orange and others. On the whole, however, the collection is a worthy representation of the Apple culture of the country around Halifax, from whence it comes.

From the garden of the Viceroy of Egypt, Mr. Hardie, the gardener there, has sent some wonderfully fine Pomegranates, one of the largest of which measures 18 inches in circumference. In the same collection are also very fine Citrons and Shaddocks, together with sweet and common Lemons, longish-shaped rough-skinned bitter Oranges, Blood or Maltese Oranges, Seville and common sweet Oranges, and a Mandarin variety, but not the best of that class; also some small Medlars, two kinds of Papaw, one round, large, and green, the other Pear-shaped, green, and ribbed; fruit of Psidium pyriferum; Dates attached to the branches on which they grow; and specimens of Custard Apple, the last, perhaps, hardly ripe—altogether an extremely interesting collection. Mr. Blandy also contributes examples of Custard Apple from Madeira.

Among Miscellaneous fruit we noticed some Quinces, small Imperatrice Plums, American Cranberries, and a dish of Cuthill's Black Prince Strawberries, perfectly ripe, and of good size. From E. Stuart, Esq., of Nice, are examples of a beautiful small green and white speckled Lagenaria from Port Natal.

A collection of Pickles of different kinds are exhibited by Messrs. Burgess & Son, 107, Strand, and from Messrs. Fortnum & Mason are extremely interesting examples of preserved fruits.

M. Gregoire, of Belgium, has furnished an extensive collection of Pears, which, however, arrived too late for the first day's show. Among them are some highly interesting varieties, which may be inspected with advantage.

Among Seedling fruits is a new Pear, raised by the Rev. Mr. Huyshe, and named Prince Consort, to which a First-class Certificate has been awarded. It is stated to be a cross between the Beurré d'Aremberg and Passe Colmar; and being of good size and fine flavour, will doubtless prove equally a favourite with other fine varieties, for which we are indebted to the same raiser.

The Vegetable department is not the least interesting portion of the Show. Of Potatos, Mr. Curd, gr. to M. G. Thoyts, Esq., Reading, sends an admirable collection, in which are Daintree's Seedling, a good medium-sized white sort; Devonshire Red, Fox's Seedling, Bath Kidney, King's Kidney, Fluke, Early Oxford, Dalmahoy, and Imperial, all useful looking varieties. From Mr. Campbell, Winorick Hall, near Warrington, come among others, Manchester Prize, a red kind; Oxford Red, German Foxes, a small clean-skinned sort; Scotch Dons, and other large kinds. Among Kidneys, Mr. Veitch has a splendid dish of Prince of Wales, and from Mr. Taylor, a cottager living near Watford, are beautiful specimens of Huntingdon Kidney. Mr. Frisby, gr. to H. Chapman, Esq., Sleaford, and Mr Moffat, gr. to Viscount Maynard, show among other Kidneys fine specimens of Lapstone, Jackson's Superb, Albion, Royal Ashleaf, Lemon, Flesh Skinned, Prince of Wales, apparently a fine variety; and Pink Fluke. Among round Potatos, the best come from Mr. Moffat and Mr. Curd, in whose collections are Pheasant's Eye, Painted Lady, Transell's Seedling, Early Ten-week, Early Shaw, Champion's China, and Red and White Regents. Among other kinds, Mr. Veitch has very fine examples of Early Frame; Mr. Ford, Horsham, Red Regents; Mr. Budd, gr. to Earl Darnley, Mona's Pride; and Mr. Masters and Mr. Robinson furnish good specimens of other varieties. Mr. Spary, of Brighton, shows the produce of one tuber which numbers 268 Potatos and weighs 39 lb. 3 oz.; it is a small round white Potato like a Regent.

Onions are not plentiful, and consist for the most part of the White Spanish, fine examples of which come from Mr. Westbrook, Abingdon; Mr. Earley, of Digswell, sends apparently the same variety; and Mr. Budd has James's Keeping.

Some remarkably fine Carrots come from Mr. Curd, whose specimens measure 14 inches long, and no less than a foot round the top. These are from the neighbourhood of Reading, whence also come some fine examples from Mr. Scrymger. Some very good Carrots of a useful size likewise come from Mr. Drewitt, The Denbies, near Dorking.

Parsnips are clean, straight, and in every way excellent. They consist of Hollow-crowned and Student, the difference between which in the specimens shown is not very apparent. Mr. Budd, Mr. Kaile, and Mr. Curd, are all exhibitors in this class.

Among Leeks are very fine specimens of London Flag, from Mr. Ingram, gr. to her Majesty at Frogmore. Others are not remarkable.

Beet consists of Nutting's and the Pine Apple, good examples of which are contributed by Mr. Westbrook and Mr. Drewitt. The former comes from Mr. Frisby.

Turnips are chiefly confined to the White Stone, the best of which are furnished by Mr. Ingram, from the Royal Gardens at Frogmore. Orange Jelly comes from Mr. Ford, and we also noticed the American Red-topped Stone.

Very good Salsafy is contributed by Mr. Earley, Digswell, who it may be remembered favoured us with his mode of cultivating it in our last year's volume (see p. 53, 1863). Mr. Kaile and Mr. Curd also show good roots of this esculent.

The best Scorzonera is supplied by Mr. Drewitt, The Denbies, near Dorking, and good specimens also come from Mr. Ross, gr. to C. Eyre, Esq.

Of late Peas a dish is contributed by Mr. Frisby from Lincolnshire; the sort is stated to be Ne plus Ultra.

Brussels Sprouts are excellent, especially some from Mr. Earley, Digswell. The Roseberry variety comes from Mr. Mobbs, Newport Pagnell, and Mr. Frisby. The Dalmeny Sprout is also shown. It is reported to

be milder and better tasted than the ordinary Brussels Sprout.

Of Borecoles good specimens are contributed by Mr. Veitch and others. We also noticed a few variegated varieties.

Broccoli appears to be all one sort, although Snow's, Osborne's, Walcheren and other names are applied to it. Good heads of it come from Mr. Budd, Mr. Ford, and Mr. Frisby.

Savoys of the kinds ordinarily cultivated are plentiful and good. They are furnished by Mr. Budd, Mr. Ingram, Mr. Frisby, Mr. Drewitt, and Mr. Ford.

Cabbage is chiefly confined to the Early Dwarf York kind. We, however, noticed examples of the Fearnought, which is very well spoken of; and of Lockhart's Rosette. The last comes from the Royal Gardens, Frogmore; the others from Mr. Ford, Mr. Budd and others.

Of Chinese Yams splendid specimens are shown by Mr. Tillyard, gr. to J. Kelk, Esq., who also has very fine sticks of Horse Radish, in the cultivation of both of which Mr. Tillyard is most successful.

Celery, notwithstanding the late dry season, appears to be good. The best red sort is Ivery's Nonsuch, from Mr. Hall, gr. to Captain Tyrrell, of Ealing; and the best white, called Wall's Invincible, is supplied by the same exhibitor. Mr. Budd and Mr. Ford also both show well in this class.

Endive, consisting of French, Moss, Curled, and Batavian, is exhibited by Messrs. Veitch, Frisby, and others.

Among Miscellaneous articles are Mushrooms, a Bromham Hall Melon, new Asparagus, French Beans, Seakale, Chicory roots, and an interesting collection of Gourds; the last from Messrs. Sutton, of Reading.

The last-named exhibitors also have a fine display of agricultural and other seeds, in little glazed cases; dried Grasses, Kohl Rabi, Long and Globe Mangel, Champion and other Swedes, Potatos, &c., all so tastefully arranged, and occupying so much room in the Western Arcade, as to form quite an agricultural exhibition of itself, well worth travelling to South Kensington to see. Mr. Veitch has also a good display of seeds and roots, consisting of Kohl Rabi, Mangel, Turnips, Parsnips, White Belgian Carrot; the Chardon, a large productive Cattle Potato; as well as Prince of Wales's, Lapstone, Royal Ashleaf, and other varieties, all neatly set up. Agricultural Cabbages and Roots also come from other exhibitors.

Among plants submitted to the inspection of the Floral Committee, the following received First-class Certificates, viz., a handsome scarlet-flowered Manettia, with good foliage, from Messrs. Veitch; and Asplenium palmatum cristatum, from R. J. Gray, Esq., of Exeter. The last is an extremely pretty variety.

Notices of Books.

De Nederlandsche Boomgaard. By the Society for Regulating and Improving the Varieties of Fruit Trees at Boskoop.

(*Continued from p.* 678).

Of this work we have now received both a French and German text for Parts 5 to 8, containing figures and descriptions of the following varieties of Apples:—

No. 9. *Süsser Paradies Apfel*, Pomme de Paradis Douce. Pretty, but described as only of third-rate quality.

No. 10. *Du Halder.* The authors of the *Annales de Pomologie* reckon it of first-rate quality; but it is only second-rate according to the work before us. It was raised by M. Loisel, at Faquemont, in the province of Limbourg, Belgium.

No. 11. *Dutch Mignonne*, Grosse Casseler Reinette of the Germans, or Hollandische Goldreinette. The synonyms to this well-known sort in the Horticultural Society's Catalogue of Fruits are given, with the exception of Paternoster Apfel, which, it is stated, belongs to another sort. It is considered good for table and kitchen use, and for drying.

No. 12. *Pomme de Vin Rouge.* This is the Roode Wijnappel of Knoop. Middle-sized, oval, red; it is one of those Apples which are covered with a "bloom" like a Plum, and must be considered second rate.

No. 13. *Herefordshire Pearmain.* Colour too green, that of the flesh too white. We do not think it is the correct sort.

No. 14. *White Winter Calville.* In Holland, as in France, this variety is said to be much esteemed. In England it does not succeed well except in an orchard [illegible].

Garden Memoranda.

Byfleet Lodge, the Seat of P. L. Hinds, Esq.—This interesting place is situated about two miles from Weybridge. The house is built in the Italian style, and has a conservatory attached to the drawing-room about 50 feet long and 20 feet wide. Three sides of it form part of the house, and it has a glass front facing the lawn; the roof is curvilinear, and it is ventilated at the sides and top. The walls are covered with Camellias, Acacias, Neriums, and Orange trees, and the roof is ornamented with Cobœas and Passion-flowers. A walk runs down and across the centre, and round the sides, making four borders, which are filled with flowering plants in pots. This arrangement is adopted in order that fresh supplies of plants might be introduced according to the season. Azaleas, Cinerarias, and other plants are in course of preparation for this purpose.

On the lawn in front of the house are some good specimens of Deodars and Araucarias, quite 20 feet in height; Taxodium sempervirens, 30 feet in height; Abies Pinsapo, 15 feet in height; and a fine bush of Magnolia, 15 feet in height, and as much through. The lawn is bordered by an ornamental lake, in which is an island, approached at its southern extremity by means of a bridge. On the island are several trees, whose branches form an agreeable shade in summer. There is also a boathouse, which, as seen from the lawn, is rather a pretty object. A gravel walk encircles the lake, which is margined here and there with large masses of Rhododendrons, and is fed through iron pipes from a canal about a mile and a half distant.

A low iron fence divides the lawn from the park, in which, planted here and there, are masses of Rhododendrons and fine specimen Conifers, which, seen from the windows, have an excellent effect. About two miles distant to the west is St. George's Hill, the property of the Countess of Ellesmere. It is covered with Scotch Fir, which has a comfortable appearance, especially in winter; to the south East Horsley Towers, the seat of the Earl of Lovelace, is seen in the distance. On the lawn is a fine specimen of the Tulip-tree, quite 70 feet high, and very symmetrical in form. During the past summer this has been covered with blossoms, many of the dead remnants of which are still hanging to the tree.

On the west side of the house are the fruit garden and houses. Foremost among the latter is a house for the growth of tropical fruits, which are Mr. Hinds' particular favourites; and as he has spent many years in the West Indies, where he studied the peculiar wants of these interesting plants, he has had this house built according to his own ideas as to what would be most suitable for their successful culture. This house was put up by Mr. Ormson in August, 1863, and the growth of the plants, which we shall proceed to give an account of, will serve best to show how far Mr. Hinds' plans have succeeded.

The house is 75 feet long, 35 feet wide, and 36 feet high. It is arranged so as to be divided, if necessary, into three compartments. The two outside ones have central walks and two borders; the centre is a square bed, 20 feet by 20 feet, without the central walk. All the beds have a hollow chamber for hot-water pipes; the central portion has eight 4-inch pipes, the other four beds have three 4-inch pipes to each. These are covered with slate slabs. There is a vault underneath the pipes, so that they can be examined with facility in case of any derangement. Eight 4-inch pipes are carried round the sides of the house, furnished at intervals with evaporating pans, and over these pipes is a slate bed 2 feet wide and 1 foot deep, filled with tan for plunging the plants in—3000 feet of 4-inch pipe are used for heating this house alone. All the beds are made on the floor, *i.e.*, they are not sunk, and the sides are raised about 3 feet 6 inches high. Wooden boxes 2 feet 6 inches square and the same in depth are placed all over these beds at certain distances apart, and in these the plants are placed. The intervals between the boxes are filled with good loam, in order to give the plants an opportunity of rooting into it when the boxes become decayed; and so desirous is Mr. Hinds of obtaining complete success in the culture of this class of fruits, that he has had a considerable portion of the soil the plants are found to thrive best in, in the West Indies, imported and mixed with the loam they are now growing in at Byfleet. At one end of the house is a large tank of water heated by hot pipes for the use of the plants, and at the other end is a similar tank with cold water. This we understood was all caught from the roof of the house.

The following are some of the most important plants growing here, viz. Musa paradisiaca, which is 15 feet high, with leaves 6 feet long; Musa sapientum equally large; and Musa vittata, 18 feet high. This latter plant was purchased from Mr. Van Houtte, but where well managed, as it is here, it loses much of its variegation. Musa Cavendishii grows very luxuriantly, and although this variety will thrive in a comparatively cool climate, it does not attain the size or exhibit the robust health of the plants grown here in a high temperature. A small variety of Musa imported from the West Indies, called the Fig Banana, is said to bear fruit of much better flavour and more juicy than any of the other Musas, although it is smaller. Here are also two fine plants of Eugenia Jambos, or Rose Apple, about 8 feet high. Of Guavas there are four species, viz, Psidium pomiferum, the common garden Apple of the West Indies; P. pyriferum, with fruit much resembling a Pear in form, but smaller; P. aromaticum, the leaves, and branches, and green fruit of which much resemble those of pyriferum; P. Cattleyanum, or common Guava. The Psidiums have grown vigorously, and many of them are quite 6 feet high. Laurus Cinnamomum, the true Cinnamon, is 2 feet high; Laurus Cassia is a fine healthy plant 5 feet high. Passiflora quadrangularis or Granadilla, and P. fœtida, or Love in a Mist, are likewise cultivated here. This last bears a very singular fruit, about the size of a small Gooseberry, covered by a beautiful lace-work; this plant is on a trellis about 3 feet high and 2 feet 6 inches through, which is literally covered with fruits, ripe examples of which have been picked for some months past, and it is now bearing a good second crop. Passiflora laurifolia is also grown here for the sake of its fruit, as are also Anona muricata, or Sour Sop; Anona reticulata, or Custard Apple; Anona squamosa, a fine plant, 8 feet high; and Spondias lutea and purpurea, both Hog Plums of the West Indies. Ochro is the native name of a Malvaceous plant which grows vigorously, and bears fruit used as a vegetable, and much esteemed. Kurrup tree, also a native name, represents a young plant with handsome foliage. The Cassava, or Manihot, from the roots of which is made the Cassava bread, also grows here, as does likewise the Carica Papaya, or Papaw tree, of which we noticed a vigorous young plant. In tropical countries they hang fresh meat up in this tree, with the view to make it tender. It also bears a fruit, which, though insipid to English tastes, is esteemed in the West Indies. Persea gratissima, so much esteemed in the West Indies as the Avocado Pear, is also in Mr. Hinds' collection; as are likewise Chrysophyllum Cainito, or Star Apple; Zizyphus Jujuba, or Jujube, which is said to be a very pleasant fruit; together with Aromatic Cherry? Achras Sapota, or Sapodilla Plum, which is used in its native country as an article of dessert; Mangifera indica, or Mango, which is reported to be the most delicious of all fruits; and Anacardium occidentale, or Cashew Nut.

In the third division we observed Eugenia malaccensis, the famed Rose-apple of the East; E. Korthalsii? in appearance like the last; E. acris; Galipea odoratissima, a large-leaved handsome plant, valued in its native country for its bark; Saccharum officinarum, the Sugar-cane; and S. violaceum, with stems of a violet colour. The Sugar-canes are growing very luxuriantly, and will soon get from 15 to 20 feet high. Andropogon Schœnanthus, or Lemon Grass, is also doing well. Eight beautiful Musas are placed at the end of this house, which alone gives it a noble aspect. The greater portion of these interesting plants have been raised from seeds or have been imported from the West Indies by Mr. Hinds, and cannot fail in the course of a year or two to form a feature of great attraction at Byfleet.

The West India Yam is planted out in the heated beds and is growing luxuriantly; the leaves and stems somewhat resembling those of a large Passiflora, and the tubers are said to be much superior to those of the Chinese Yam. The Nardoo Bean is also planted out here, and is very healthy.

Of many of the species here enumerated there are duplicates, and all may be truly said to be in perfect health. Ventilation is confined to the top lights, which slide down in the usual way, Mr. Hinds thinking bottom ventilation unnecessary and injurious for tropical fruits.

This noble house is placed on one side of a small walled garden, probably to give room for another of similar proportions if it should be required hereafter.

In the fruit garden, and near the tropical fruit house, is a Musa house, about 20 feet by 20 feet. This has a centre bed arranged and heated similar to that of the large tropical house. Four plants of Musa Cavendishii occupy the bed, each bearing a bunch of fruit, which must average when ripe from 60 to 80 or 90 lb. each. One of these fine bunches is nearly ripe. These specimens are planted in tubs and plunged into a bed of loam.

In this house Carica Papaya is bearing fruit in great abundance; it produced its first fruit just 3 feet from the ground, and already 11 ripe specimens have been taken from it, the heaviest of which weighed 1 lb. 9 oz. It has some eight fruit upon it of various sizes, all green, and about as many more at the top, with the flowers just fallen off; the latter are of a delicate yellow colour. The plant is also bearing flowers now, giving an indication of its being a perpetual bearer. The fruit is borne close to the stem, and is almost sessile. There is also a variety here called the Dwarf Carica, which has not yet fruited. In this house is a young plant of the dwarf Cocoa-nut tree raised from seed, apparently the same variety as the one that bore fruit at Syon, the leaves and stem having that peculiar yellow tinge.

Beyond this is a Pinery, similar in size to the Musa-house, filled with good healthy Pines turned out into the soil. A large collection of Capsicums is grown on the side shelves, many of which are very rare, collected for the most part in the West Indies by Mr. Hinds; one of these bears an almost black pod, and another a fruit almost white. Close to this is a range of pits, having in the centre accommodation for succession Pines, and two ends for French Beans, some of which are in bearing now, and others are just coming up.

On the back shelf of the Pine pit is a row of Strawberries in full bearing; the fruit looked well, but had very little flavour, doubtless on account of the absence of sun at this dull season of the year. The plants were forced in the spring, and in the summer were shaken out and repotted into 24-sized pots, and put into heat in October, and well they have repaid the trouble.

At the back of this house, against a south wall, is a long range of glass, an orchard house 65 feet by 12 feet, with the trees for the most part turned out and trained

to the back wall and a front trellis. This is used for stowing away greenhouse plants during winter; 102 dozen of Peaches and Nectarines were gathered from these trees last season.

Beyond this is a range of Vineries, 92 feet by 12 feet; the Vines in these are old and weakly, and they are in course of renewal, when the borders are to be heated, and everything is to be arranged upon the best principles of modern gardening. At each end of the Vineries are glazed lobbies where flowering plants are placed on low shelves; this is a good arrangement, as it prevents cold draughts into the Vineries during the early season when forcing is being carried on.

In a transverse position near the Musa house is a range of houses, span-roofed, 60 feet by 14 feet, consisting of a Cucumber house, a Vinery, and Peach house. The Vinery has heated borders, and is planted with Muscats on the south side, and Lady Downes' and Kempsey's Alicante on the north side. The Vines, which were planted last season, have done well; the canes are strong and well ripened.

The whole of the houses are heated by two of Ormson's large boilers.

Byfleet was purchased by Mr. Hinds about two and a-half years ago; since which time the greater portion of the houses has been built, and a new walled garden made. The garden for the supply of vegetables is some distance from the house, and near the river Wey, which forms on one side the boundary to the park. The gardens and park are under the management of Mr. Carr, and every department bear testimony to the assiduous care and attention he bestows upon them.

Miscellaneous.

The West African Oil Palm.—Throughout the tropics, Palms are amongst the most useful plants to mankind. This is more especially the case among people so little advanced in civilisation as the natives of West Africa, who obtain from them the source of many of their comforts. Foremost among the useful Palms of tropical Western Africa stands the Elæis guineensis. The oil of the mesocarp of the fruit of this Palm constitutes in most parts the chief food of the natives, who hardly ever take a meal in which it is not used in some way or other. It is nutritious, and of an agreeable flavour—so much so, indeed, that it generally becomes a favourite dish with Europeans. Besides being used as food, the natives also use it for oiling their bodies, partly to keep away insects, and partly as a substitute for clothing, of which they are entirely destitute. The Bubis or Boobees of the Island of Fernando Po make an excellent poultice of it, which they apply when the hand of any person, found guilty of adultery, has, in accordance with the usage of these people, been cut off. Among the more civilised natives it is used, as with us, in the manufacture of soap; and it is also employed for lighting their huts, but the oil extracted from the kernel of the nut is generally preferred for this purpose. The exportation of the seeds of this Palm is rapidly increasing, and already large quantities are shipped from Sierra Leone and its neighbourhood. Were there less jealousy and more energy among the European traders, and could they induce or force the natives of the coast to give up their monopoly, much larger supplies could be obtained at the chief sources of the trade, as at Bonny, Brass, and Old Calabar Rivers, and this oil would be found much superior to that now obtained from the mesocarp of the seeds. Elæis wine, a drink much liked by the natives, is obtained by cutting off the male flower spike. This wine is also used by the Europeans instead of yeast in making bread. The main nerves of the pinna and the exterior of the petiole are used for basket work, for the making of brooms, and similar purposes. Dr. Welwitsch says that at St. Paul de Loando, the fibre at the base of the leaves, and also that of the spathe, is used for stuffing cushions, &c.; the soft centre of the upper part of the stem, consisting of the undeveloped petioles, is much relished as a vegetable. Finger rings, bracelets, necklaces, and other ornaments are cut from the endocarp of the seed. Many as are the benefits derived from this Palm by the natives, they are comparatively few compared with the uses made of its products by Europeans; of these we need not speak, as all must be more or less acquainted with them. It may, however, be worthy of mention that during the last three years 130,381 tons of Palm oil, of the value of 5,605,913*l.*, have been imported into Great Britain. *Mann & Wendland, in Transactions of Linnean Society.*

Thermal Waters.—In the neighbourhood of Redruth is a district equally remarkable for the high temperature of its deep mine-workings and for the enormous value of the copper ores extracted from them within the last half century. The constituent rock of this region is mostly the clay-slate, or killas, intersected by dikes of elvan or granitic-porphyry. Above a quarter of a century ago a valuable series of observations on the temperature of the water of mines in Cornwall was made by Mr. W. J. Henwood, F.R.S.; and his exact tables of statement and deduction showed the Redruth district to be one of the most remarkable for the high temperature, in its deep working places, of the waters, whether issuing from the lodes or from the encasing rocks. In 1839, a perpendicular shaft having been sunk to a greater depth than that at which the Old Lode had been worked, a cross cut was driven from it at the 180 fathom level (about 225 fathoms deep), and a large feeder of water was encountered, of a much higher temperature than had before been observed. The shaft being deepened by successive stages, it has been found that, at each deeper point at which the chief flow of water has been seen, it has shown a marked accession of temperature. Although 122° was the highest degree of heat which I observed, I think it highly probable that, when the hotter level, the 225, is advanced a little, the temperature will be found somewhat higher. The circumstance of the hot springs being attendant upon the rich and cindery-looking loose-textured course of ore has induced many to look for the cause of the high temperature in the decomposition of the pyrites; but the absence of sulphates of copper and iron in the water, and the fact that, where most exposed to oxidation nearer the surface, the rich lodes never exhibit phenomena so remarkable, appear sufficiently to set aside such a hypothesis. We shall therefore have to look to deep-seated sources of heat, such as have been adverted to by Sir C. Lyell, for a more probable explanation of the observed appearances. As regards the increment of temperature, it is somewhat startling. Between my last two visits, made at an interval of 9 years, on both of which I carried down trustworthy thermometers, the point of issue of the hottest water had been deepened 30 fathoms, or 180 feet, and the temperature was increased by 8° F: this would give 1° for 22½ feet. Mr. Henwood's observations give a much higher ratio: 1° for 16 feet. The same uniform rate of increase would bring us to the boiling point of water at an additional depth of from 1440 to 2000 feet. The facts are thus so full of interest, physical as well as chemical, that it is to be hoped the commercial success of the last increase of depth may be great enough to lead to a further advance into the deep. *From a Paper by Mr. Warington Smyth, read at the Meeting of British Association.*

Calendar of Operations.

(For the ensuing week.)

CLEARING up for winter, if not already done, must now receive immediate attention. There may be abundance of evergreens and winter flowers, and yet the garden may present a very repulsive appearance. Grass-plots literally rough with worm-cast; dead leaves crowding into every corner; what were once flowers, dangling from the stakes which supported them, and numerous dry stems, rattling in the wind, are sights and sounds too often seen and heard in really good gardens in the winter months. This state of matters, where it exists, must not, however, be longer allowed still to continue. The very act of sweeping is beneficial, and can scarcely be performed too often at this season, for it removes worm-casts and destroys the incipient Mosses which will otherwise soon turn gravel into a smooth sheet of green. If this clearing process is persevered in, the garden will preserve throughout a healthy appearance, and confer pleasure upon its possessor. Rose trees may now be pruned and trained, and everything in short be put into the position it is to occupy until the spring. Flower borders may now be dug with advantage, taking care to incorporate with the soil some leaf-mould, or very rotten dung from an old pit or frame. As a stimulus to exertion in the operation of clearing, the great value of the rubbish-heap, to which leaves and other refuse are conveyed, should be remembered. For recruiting flower-beds, this refuse vegetable matter, where thoroughly rotted, or better still charred, is invaluable.

FLOWER GARDEN AND PLANT HOUSES.

Of all things watering requires most careful attention at this season. Adhere strictly to the directions we have so frequently given, never to water till the soil immediately below the surface is sufficiently dry to warrant a full supply. Have a sharp eye to detect on the first appearance anything like sourness in the surface of the soil, and let it be immediately examined and rectified; worms frequently also render this necessary. Keep the houses as dry as the external atmosphere will admit of; not by the excessive use of fire-heat, but by avoiding as much as possible the creation of unnecessary moisture by spilling water, &c., and by admitting such a quantity of fresh air as shall, in connection with moderate firing, remove any superabundant moisture unavoidably created by watering, &c.

CAMELLIAS.—See that plants in the forcing pit are properly supplied with water, or their advancing buds are apt to fall off.

CARNATIONS.—Take care that choice sorts do not suffer from damp, which is more injurious to them than cold.

MIGNONETTE.—Plants of this in pots must be very sparingly watered. If kept too wet it is liable to damp off.

FORCING GARDEN.

CHERRIES.—These will require to be kept much cooler than other kinds of fruits. The advantage of growing these fruits in pots is, that an early supply can be obtained, and even a succession kept up in the early season, without starting an entire house of established trees at a period of the year which is unfavourable for their growth, thus reserving the energies of these more valuable plants till a season more favourable for their development.

PINES.—It will be a trying task just now to manage these plants with no other heating material than fermenting litter. Every favourable opportunity should be taken to turn the linings, and add to them if required. Let them at least be protected by some kind of covering from the rain and snow; and if possible let them be entirely enclosed, that they may of themselves supply a sufficient amount of heat to do away with the necessity of keeping the pits covered during any portion of these short days. Young Pines are frequently much drawn during winter, and the mischief is not noticed until they are taken out in the spring to be repotted or planted; and then it is that the gardener repents not having given more air, and more light, by keeping the glass clean. If the bottom-heat is 80°, the top may occasionally be as low as 55° without the plant suffering; and particular care should be taken that no injury occurs from excessive dampness at the root from any cause.

VINES.—Plants in pots when first introduced into heat should receive gentle syringings twice or thrice a day, according to the state of the weather.

HARDY FRUIT AND KITCHEN GARDEN.

Before the general manuring and trenching of vacant ground takes place, it is necessary to decide on the rotation of crops which is to be adopted during the ensuing summer, that these operations may be carried out with special reference thereto. This arrangement should be made, not for one year only, but for a series or cycle of years. One of the first principles to be attended to is, that no annual crop be grown for two successive years in the same plot of ground. Another variation should be made by taking care that those crops which immediately succeed each other are not such as are liable to be preyed upon by the same kind of insects; as their increase is encouraged to a fearful extent by thus putting into their way the species of food which they are most fond of. It is important that both the manuring and the depth of the trenching be regulated by the requirements of the crops; and their rotation should be so arranged that the ground be not trenched to the same depth for two successive seasons, but so that different portions of the soil be brought to the surface in turn.

BUSH FRUIT.—This may now be pruned, and the ground between the rows manured if necessary, and dug, not so deeply, however, as to injure the roots.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Dec. 7, 1864, as observed at the Horticultural Gardens

Dec.	Months Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain
Thurs. 1	2	30.199	30.084	52	24	38.0	46	47	S.W.	.00
Friday 2	3	30.330	30.321	49	25	37.0	45	46½	S.W.	.02
Satur 3	4	30.292	30.273	51	42	46.5	45	46½	S.W.	.02
Sunday 4	5	30.267	30.221	54	43	48.5	46	47	S.W.	.00
Mon. 5	6	30.089	29.917	58	40	49.0	46½	47	S.	.00
Tues. 6	7	29.970	29.939	54	39	46.5	47	47	S.W.	.00
Wed. 7	8	29.878	29.725	54	40	47.0	47	47	S.W.	.02
Average.		30.146	30.064	53.1	36.1	44.6	46.1	46.9		

Dec. 1—Frosty; clear; fine; frosty at night.
— 2—Dense fog; fine; overcast at night.
— 3—Overcast; rain at night.
— 4—Uniformly overcast, cloudy; overcast.
— 5—Very fine; exceedingly fine throughout.
— 6—Overcast; fine; foggy at night.
— 7—Overcast; slight rain at night.
Mean temperature of the week 4½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Dec. 17, 1864.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.								
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
Sunday 11 .	45.7	32.6	39.2	16	1.02 in.	3	5	6	1	7	10	5	2	
Mon. 12..	45.8	33.5	39.7	16	0.56	3	4	7	3	3	7	8	2	
Tues. 13..	46.7	33.0	39.8	21	1.16	2	8	4	2	6	6	5	4	
Wed. 14..	45.1	33.6	39.9	19	1.24	6	5	4	5	2	6	6	4	
Thurs. 15..	46.2	34.7	40.4	16	0.34	2	3	6	3	5	14	3	2	
Friday 16..	45.7	34.3	40.0	13	0.34	8	3	1	3	6	8	6	2	
Satur. 17..	46.0	33.8	39.9	18	0.38	9	5	3	1	7	9	2	3	

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 8th, 1831—therm. 16 deg.

Notices to Correspondents.

DOGWOOD: *T P.* The name of this shrub has no reference to the animal, but comes, as Dr. Prior shows, from the French *dagué*, Spanish *daga*, and Old English *dagge*, equivalent to the German *dolch*, a dagger; a derivation which is supported by its synonym Prickwood.

EXHIBITING ROSES: *W L.* Mr. Radclyffe does not appear to have overstated the case. Of all the cut flowers which appear at exhibitions, Roses are the most ticklish to deal with—that is, to have them in first-rate condition, with all their natural glow and freshness preserved. It really requires some skill and forethought, and not a little care and watchfulness.

GAS STOVES: *Well Wisher.* If it possesses sufficient power to influence the temperature of the conservatory, and is exposed within the house, the stove would be unquestionably injurious to the plants. Such stoves are at best of doubtful utility, and should never be employed unless the fumes from them can be carried off entirely. A gas stove may, however, be so contrived as to work a hot-water apparatus of sufficient power to warm a very small house, or to drive out damp as you suggest; but the gas should be shut off completely from the atmosphere of the house, and an evaporating pan should be used if any part of the stove is at all exposed therein.

NAMES OF PLANTS: *R Locke.* The varieties of Holly appear to be:—1, Handsworthiana; 2, recurva, the Screw Holly; 3, compacta; 4, myrtifolia. 5 is some form of Arbutus Unedo. — *B S.* 3, Jasminum Lirsutum; 4, Gesnera elongata. —*S.* Cystopteris dentata.

WINTER PRUNING OF FRUIT TREES: *Young Gardener.* You will find this subject amply treated, with illustrations, in our volume for 1847. If you cannot obtain access to these, we may perhaps be able to reproduce some of the figures shortly.

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DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
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BLOOD MANURE for Barley and Roots,
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LAWES'S WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8l. per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME £6 6
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Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
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JOHN MARRIAGE, the Lessee of the Lands upon which the Croydon Sewage is applied, advises and assists Boards of Health, Corporations, Owners of Estates, and Agriculturists, &c., as to the APPLICATION of SEWAGE to LAND, the mode of its Distribution, the suitability and manner of laying out such Land, and all the details connected with the profitable cultivation of Sewage.
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MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5s. per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out

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MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5s. per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster.

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It may also be had of the undermentioned Firms, they having ordered it:—
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Messrs. J. & C. Lee, Nurserymen, Hammersmith.
Mr. B. S. Williams, Paradise Nursery, Holloway.
Messrs. Low & Co., Nurserymen, Clapton.
Messrs. A. Henderson, Pine Apple Place, London.
Messrs. Sutton & Sons, Reading.
Mr. Denyer, Seedsman, 82, Gracechurch Street, London.
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AND
SUTTON'S BERKSHIRE CHAMPION.
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" COOPER & BOLTON, 152, Fleet Street, London, E.C.
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WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.
THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.
The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.
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The Trade supplied at the usual discount. Testimonials forwarded on application.
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THE EARLIEST PEA IN CULTIVATION.
This Pea has been tested against all the earliest varieties known, and has been found to come into bearing from 8 to 10 days before any of them. It is very prolific, producing a profusion of pods, which contain on an average 7 to 8 peas of fine quality and flavour. The habit is dwarf, growing about 2½ feet, and bears profusely the whole length of the haulm. It has been pronounced by many of the first practical Gardeners in the Kingdom who have tried it (see our Advertisement with Testimonials, November 26) to be much superior to any other early Pea in cultivation, both for earliness and productiveness.
Price per quart, 3s. 6d.; per pint, 2s., in sealed packages only. None other are genuine.
F. & A. D. & SONS finding both their wholesale and retail demand to be so great, and their stock being very short in consequence of the dry weather, regret very much that they are unable to supply the Trade with any more of the above this season.
GARDEN, FLOWER, and AGRICULTURAL SEEDS of every description, and of superior quality. Each variety being carefully saved from the most select stocks in cultivation.
A PRICED DESCRIPTIVE CATALOGUE will be ready about the middle of December, and can be had post free on application.
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All who have tried this Pea have pronounced it the best variety of its class, and one which will become a great favourite in every garden.
We may remark that the crop this season, through the extreme drought, is not more than one fourth what was anticipated; the consequence is that the price is the same as last season.
For Testimonial, see page 1151.
Price 5s. per quart, 2s. 6d. per pint. In printed wrappers.

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BROWN'S INCOMPARABLE NEW DWARF WHITE BROCCOLI, the largest and dwarfest yet sent out	2 6
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PURE SEED OATS.
46s. a Quarter (with Sacks) for not less than Two Quarters.
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SUTTON AND SONS can supply good Seed, at very moderate prices, of the same sorts of MANGEL WURZEL and CHAMPION SWEDES which were so much admired on their Stands during the recent Shows at Birmingham, Islington Hall, and the Royal Horticultural Society's Gardens.
For prices, stating quantity required, apply to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

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(*These Gentlemen will be in temporary residence.)
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Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S
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THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A COURSE of LECTURES.

MIDLAND FARMERS' CLUB.—The ADJOURNED MEETING to discuss the subject of "The TENURE of LAND" (introduced by Mr. R. H. MASSEY), will be held at the Lecture Theatre of the Philosophical Institution, Cannon Street, Birmingham, on THURSDAY NEXT, December 15, at 3 o'Clock punctually.
Members will be enrolled on the day of Meeting, for which purpose a Committee Meeting will be held at the same place, half an hour previous to the Special Meeting, and Members nominated at this Meeting will be eligible to attend.
It is intended to publish the Discussion for the use of Members.
December 10. JOHN B. LYTHALL, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 10, 1864.

It has been a busy agricultural week in town. Mr. Alderman MECHI discoursed on Farm Profits, or rather on the lack of them, on Monday, at the Society of Arts, to the members of the London Farmers' Club. The Smithfield Club's magnificent exhibition has been open in the noble Agricultural Hall at Islington all the week. The Council meeting of the Royal Agricultural Society was held on Wednesday, and the Report to the members was read at a general meeting of the body on Thursday.

We particularly direct the attention of our readers to the report of the discussion there on the subject of Agricultural Education; and they will do well to read the letter by "A Farmer" on that subject in another column. It is plain that the Council are being misled by the proposal to undertake the supervision or guidance and improvement of general middle-class schools; and we hope that notwithstanding the immediate effect of the discussion has been to some extent neutralized by the blundering inexperience of the mover in it, it may nevertheless do good by turning attention to the only point where the Society can usefully interfere, namely, the promotion of professional agricultural education. Mr. MORTON had every reason to be satisfied with the discussion, and was willing that his addendum to the motion for the adoption of the report, in which the subject of professional agricultural education was recommended to the attention of the Council, should be withdrawn, in the belief that the discussion by itself would have all the effect which the formal motion would have had. But it appears that this has not been done; the addendum has been retained, and only the word "professional," in its allusion to Agricultural Education, has been cancelled. The subject is thus remitted to the Council without any of that formal guidance as to their treatment of it, which it was Mr. MORTON'S object to induce the General Meeting to give. We believe, however, that the

discussion, though somewhat stultified by the terms of the motion in which it ultimately issued, cannot fail to awaken the Society to one great power for good which it possesses, and which it has hitherto neglected. And it will moreover direct attention to the position of the Royal Agricultural College, and to that neglect of this Institution with which the Society has been hitherto chargeable.

The education of the labourer, no less than of his master, was referred to by the speakers, and Mr. MOORE, of Coleshill, who delivered by far the most practical and business-like speech of the morning, referred to the manner in which the over education, or rather, and in an important sense, the inadequate education given in our parish schools is creating a general prejudice amongst tenant farmers against the present educational system of the country—which is not sufficiently industrial in its tendency, not sufficiently directed to the adaptation of the child to its future lot.

Mr. ACLAND followed, and with what certainly appeared to us excessive extravagance, denounced that style of education (which Mr. MOORE had just been advocating, but) which he declared to be a mere effort to make the child of the labourer a better "tool" than his father. He hoped that the Society would never sanction so degrading an idea as that. The object of education, he declared, is to awaken and "evoke the soul of a man"—not to make a skilful drudge of him. And so strong is the degrading tendency (for this was really the nature of his argument) arising from the influence of the class immediately above the labourer, that he knew it needed "all the power of conscience and all the power of Christian love," to hinder the whole educational organisation of the country from degenerating into a mere machinery for making good hedgers and ditchers and good earners of wages.

And all this was addressed to the *Agricultural* Society! And we cannot doubt from it that Mr. ACLAND, who wishes the Society to undertake the middle-class education of the country, would probably still further confuse the individual duties of the members with those of the body in which for certain special purposes they have united. It is plain that his harangue leads to the belief that we are an institution also, for the purpose of awakening "the power of conscience and of Christian love." That, however, he surely needs not to be reminded, was never yet done by the loud talk of an excited partisan; and, moreover, it is no part of the duty of the Royal Agricultural Society of England. It is to be done only by the patient perseverance of a life at home, each one within the limits of his individual circle—by just such labour, in fact, as the excited speaker was unwittingly condemning in Mr. MOORE. But, indeed, the unfitness of Mr. ACLAND as a guide of the Council on this subject must have been plain enough, not only from the general nature of the harangue which he pronounced, but from the extravagance of his words on the other points to which he referred—whether it were the services of Mr. MORTON, or, shall we say, the advantage of a university education for agricultural editorship. Probably, however, the influence which he appears to exert on the Council in connection with this subject, notwithstanding the wildness of the views which he has expressed upon it, may be explained in this way:—that, after all, a man's conduct of affairs, and his expressions regarding them and regarding the principles involved in them, are inevitably to some extent diverse. Circumstances are stronger than will; and experience teaches us all that whatever opinion, whether, we must say, on personal or on general subjects, a man may express, his conduct relating to them does not always bear it out. We may therefore imagine, as the issue of the ambitious and inflated appeal to first principles to which English farmers had to listen on Thursday last, that even Mr. ACLAND may ultimately be found helping the Agricultural Society to discharge their comparatively humble duty of making labourers better handicraftsmen and farmers better agriculturists, leaving the directer exercises of "the power of conscience and of Christian love" (by both of which powers their discharge of this humbler duty will have been directed) within those circles of home and personal influence which severally belong to the individual Christian men of which the Society is composed.

Meanwhile the Council of the Royal Agricultural Society of England may be assured that the great body of English farmers accept the guidance of Mr. HOLLAND on this subject—not that of Mr. ACLAND. They choose to be led by the experience of a practical man who has been labouring all his life at agricultural education.

We are glad to add that immediately on Mr. ACLAND sitting down, Mr. MOORE not only vindicated, in the fewest possible words, his own well-known career of benevolent and successful effort for the real education of his neighbours of all classes, but firmly asserted the right of individual members to offer their suggestions at the general meetings of the Society, which really appeared to be endangered by the dogmatic condemnation with which Mr. ACLAND, as a member of the Council, had immediately followed his wise and practical suggestion.

—— We need hardly say that a gloom has been cast over the whole week's proceedings by the untimely death of Mr. JOHN FOWLER. An accident in the hunting field had laid him on his bed for a fortnight; but the broken limb was healing satisfactorily. On Friday of last week, however, symptoms of *tetanus* appeared, and he died on Sunday. He was only 38 years of age. There is no company of farmers in the kingdom who have not more or less taken interest of late years in his career, and his loss excites a universal feeling of sympathy and distress. It will be seen that reference was made to it at the general meeting of the Royal Agricultural Society.

MR. ALDERMAN MECHI's discursive paper, read before the London Farmers' Club, and reported in an abridged form in another page, was followed by an equally discursive discussion. As the worthy Alderman had himself mixed up many topics having but slight relationship either to the subject on the card or to one another, so his followers also had a great deal to say of Town Sewage and other topics which really had no relation whatever to the question of farm profits which was nominally under discussion. The debate was opened by Mr. WALTON. The causes of the want of farm profits were want of security for farm capital ("no man, either tenant or landowner, will obtain the use of capital for farming or any other purpose unless he offers good security")—want of attention to commercial principles ("never be a party to any but a written bargain")—want of good buildings ("of what use are the worthy Alderman's recommendations if the tenant cannot adopt them because the landlord does not equip the land with adequate accommodation"?)—want of a fair equalisation of rates and taxes—want of power to reduce the number of hares and rabbits, and to reduce the covert for game and weeds in hedges—want of political influence!—Mr. EDMONDS, of Rugby, declared that many of the difficulties in the way of the farmer to which Mr. MECHI had referred were such as are common to all professions and trades—inevitable, and therefore of no use to bring under discussion. The main point for the farmer's consideration is that he ought to have what he pays for. If he takes land he ought to have it to himself, and not in partnership with another, who retains the power of stocking it with an indefinite quantity of his own live stock.

Dr. VOELCKER referred to the question of town sewage which had been mooted by Mr. MECHI. He did not believe in the superior nutritiveness of sewaged Grass; on the contrary, all experience has proved that the more rapid the growth of a succulent plant, the worse is its quality as food. He believed that poor sands are the proper lands to irrigate with sewage; rich pastures will be spoiled by it. The scheme which proposed taking London sewage down to the Maplin sands, seemed to him the most likely to promise a successful result of any that had been mooted. Dr. VOELCKER disputed Mr. MECHI's statement that common salt is a good manure for Mangel Wurzel on clay lands. His experience, and that of his friend and colleague Professor COLEMAN, has been entirely to the contrary.

Mr. WILLIAMS, of Baydon, led the meeting into a discussion of the currency question, and of the way in which excessive importations of corn during low prices damage the British farmer. He quoted the case of a merchant who, during the troublous times of the Danish war, had ordered 100 cargoes of Wheat, and had suffered to the extent of 70,000*l.* himself and brought great injury upon others. Mr. WILLIAMS did not tell us, however, what remedy he proposed for the folly of individuals. —Mr. BRADSHAW, of Guildford, reverting to the sewage question, spoke of the way they adopt in Milan of utilising the solid contents of cesspools. —Mr. JAMES HOWARD, of Bedford, brought back the attention of the meeting to the consideration of capital, intelligence, and perseverance as the three great sources of profit in farming as in every other business. He spoke also of the need of agricultural education and of good middle-class schools.

Mr. SANDERSON, of Westminster, pronounced an eloquent discourse, in rather too grandiose a style, however, for the taste of the meeting, on security for capital as afforded only by a well drawn lease.—Mr. WILSON referred to insufficient use of the existing appliances at the disposal of the farmer as really at the bottom of the inadequate returns which are complained of. And if, on the other hand, a man wished to add to his profit by diminishing his expenditure, that was to be done by laying down arable land to Grass, and by substituting steam-power for that of hand labour. —Mr. HOWELL suggested that one reason why farmers looked with suspicion upon proposals to utilise town sewage, lay in the fact that they were conscious they did not do their duty by their own sewage at home. If it be the duty of towns to turn their sewage to account, it certainly is that of the agriculturist to take care of the liquid manure and house sewage at home, both of which at present generally go to waste.

Mr. DRING, of Saxby, closed the discussion with an exceedingly clever and telling address. There are causes for failure which the farmer cannot remove. We are all helplessly liable to disease, bad seasons, and low prices, and it is useless to discuss these points; but there are others which are within the power of the landlord and the tenant; and in reference to these he would give them a sure and certain "receipt" for always putting money in their pockets as the result of the year's proceedings. 1st. Let there be good farm buildings placed in the centre of the farm. 2d. Let there be good and sufficient cottage accommodation on the land for the labourers employed upon it. 3d. Let the fields be square and large, so that all the horse and steam power operations on them may be economically performed. 4th. Let the roads furnish easy and good access to the fields, farmery, and market. And, 5th, said Mr. DRING, "Be sure that you bring your personal and household expenditure within the margin of your profits!"

When the merriment which this bit of good sense and good humour produced had subsided, the CHAIRMAN closed a somewhat rambling but amusing discussion by a reference to splenic apoplexy and other diseases which have lately been destroying or curtailing the profits of graziers and farmers in his own neighbourhood.

AGRICULTURAL EDUCATION.

I HAVE lately seen a Pamphlet on the subject to which the attention of the Council of the Royal Agricultural Society has been called, namely, the education of youth intending to become farmers; and which, accordingly, professes to have been written and printed for the enlightenment of the Council on that subject. There is, however, a very small portion of this Essay devoted to that object. So far from suggesting to the Council any *modus operandi* in the performance of the duty imposed on the Society by their Charter, the main scope of it, on the contrary, would seem to have been to impress on the Council the very acceptable doctrine that the duty in question is incapable of performance, and that they need not trouble their heads about it.

The Council are thereupon invited to mount behind the author on his hobby, and dart forward at once into the general education of the "middle classes." I venture to say that the agricultural whippers-in will do wisely in keeping the Council to their text in their Charter, and not allow them to ramble off into the education of the "middle classes," with which they have nothing to do as the councillors of the Society.

The parents of the rising generation in the classes referred to are quite capable of taking care of their education, as they have abundantly shown of late years. Every one moving about amongst those classes, at this time of day, must be well aware that the necessity of any public agitation in reference to their education is a mere delusion, inasmuch as they constitute the class *par excellence* that has made, during the present century, far greater progress in the advancement of useful knowledge, applicable to the varied acquirements of their several callings, than any other class.

Schools abound suited to every section of that class, whether in respect of terms, kind, or extent of instruction; the supply, it is to be feared, is somewhat in excess of the demand, for in a large proportion of such schools competition has led to terms for board and tuition which can only leave a very scanty remuneration for competent instructors.

That many schools exist in which the teaching and general management may be defective may be assumed. There are to be found incompetent instructors in every department of the service of the public; the avoidance of such must be left to the discrimination of parents.

It is only after leaving such schools that the future

calling in life is usually determined—whether the lower departments of law and physic—the various trades of the merchant, the manufacturer, the engineer, the surveyor, the artizan, &c., for all of whom apprenticeships follow on the previous general education. The Charter of the Royal Agricultural Society has charged the Society with the duty of providing some such special provision for the training young men destined for agriculture.

Not many years ago the want was experienced of a class of schools by those who sought the benefits, but who could not afford the cost of Eton, Winchester, Westminster, Harrow, or Rugby. The want was quickly supplied (as such wants always are in this country), by the Cheltenham and Marlborough Colleges, and numerous other proprietary schools. Soon afterwards it was seen fit that the Civil Service of the State should be supplied by merit rather than by influence. Hence the examination of all competitors, and an invigorating effect on master as well as pupils.

It was not long before the formation of the Royal Agri. Society that agriculture assumed a rank amongst the sciences, and that the want felt of a more scientific training of young men destined for that pursuit was developed. Hence the establishment of the Royal Agricultural College in England—the establishment at Glasnevin in Ireland, and the professorships in that science, founded in Scotland. As that demand increases from an extended appreciation of the important development in scientific and practical agriculture, so will the supply, without the interference of the Royal Agricultural Society, or any other public body in establishing schools.

The duty of the Council of the Society would seem to be rather to visit, foster, and encourage existing colleges and schools dedicated to the especial training of young men for agricultural pursuits after the completion of their term in the schools for general education; and, as the want increases, which will ere long be felt in other parts of the kingdom, to encourage their extension. I have no doubt but that annual or biennial examination on practical agriculture and in some two or three of the dozen sciences held out *in terrorem* over the Council by the author of the essay referred to, resulting in honorary distinction, such as granting diplomas and the distribution of a few medals, would be attended with the same results as have followed similar proceedings in reference to other schools. *A Farmer.*

Home Correspondence.

On the Cultivation of Cereals.—I have read with much interest Mr. Wilkins' articles on germination and the cultivation of Cereals; they supply much useful information, and I agree with Mr. Wilkins that farmers commit a great error in over-seeding. It is a common practice for them to sow 8 or 10 pecks per acre, and no doubt less than half this quantity would produce better crops and better samples, besides the great saving in seed. I am of Mr. Wilkins' opinion that proper draining and deep cultivation is the best mode of management, as these means allow the rain to percolate through the soil, and it receives the fertilising ingredients of the rain, which raises the temperature of the soil, but all these conditions complied with, together with the ordinary manuring—let it be either vegetable, animal, or mineral—would not enable the farmer to produce any quantity of Wheat or other crops consecutively. As Mr. Wilkins observes, the land requires the plant constituents, and in this lies the secret—What are the plant constituents? Every plant draws from the soil and feeds upon a certain kind of food, and if farmers could return this food again to the land and restore it to the same condition it was in before the seed was sown, then I believe, with Mr. Wilkins, that farmers might produce a number of either Wheat or other crops in succession. *H. Harrison, York, Nov.* 29.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Dec.* 7, 1864.—Present, Sir Edward Kerrison, Bart., M.P., President, in the Chair; Viscount Eversley, Lord Berners, Lord Feversham, Lord Tredegar, Major-General the Hon. A. N. Hood, Sir A. Macdonald, Bart.; Sir T. Western, Bart., Sir Watkin W. Wynn, Bart., M.P.; Mr. Acland, Mr. Amos, Mr. Raymond Barker, Mr. Barthropp, Mr. Bowly, Mr. Burgess, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Hoskyns, Mr. Hudson, Mr. Hutton, Mr. Jonas, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Robert Smith, Mr. Thompson, M.P.; Mr. Torr, Mr. Turner, Mr. Wallis, Mr. Wells, Mr. Frere, Prof. Simonds, and Dr. Voelcker. The following New Members were elected:—

Beard, Frederick, Horton, Canterbury
Bethune, Alexander, Blebo, Cupar Fife, Fife, N.B.
Brooke, H., Wetheringsett, Stonham, Suffolk
Cookes, John Measures, Saudrock, Leamington
Foster, Henry West, Cranwell Lodge, Sleaford
Hardman, J. E., Mareham le Hill, Horncastle
Luttrell, Reginald F., Norfolk Farm, Staines
Normanby, Marquis of, Mulgrave Castle, Whitby
Pogson, Samuel, Anwick, Sleaford
Radcliffe, Godfrey, Rudding Park, Wetherby
Sebright, Sir John Cage Saunders, Bart., Beechwood, Dunstable
Shepperson, Thomas, Lenton, Nottingham
Simonds, Henry Adolphus, Iron Works, Reading
Suttle, William Benoni, Whalley Grange, Manchester
Sverdrup, Thorwald, Fredericksvaern, Norway
Jonge, William John, Morant's Court, Sevenoaks

Mr. Holland, M.P., presented the Annual Report.

FINANCES.—Major-General the Hon. A. N. Hood presented the Report, from which it appeared that the Secretary's receipts during the past three months had been examined by the committee and by Messrs. Quilter, Ball, and Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on Nov. 30, was 773*l.* 1*s.* 11*d.* The Committee recommended that 54 names of members in arrear of their subscriptions from various causes be erased from the list of the Society. Numerous applications having been made to most of these defaulters, it was found that several have died and others become bankrupt: they also recommended that 2030*l.* which will be received from Plymouth should be placed on deposit immediately on receipt. This report was adopted.

JOURNAL.—Mr. Thompson, M.P., reported that in Class VIII. the judges had awarded the prize of 10*l.* to the Essay bearing the motto, "Scientia est pecunia;" the motto paper having been opened by the President, it was announced that the writer is the Rev. N. M. Brown, of Fairy Fort, Newtonlimavady, co. Derry, Ireland. The Committee recommended that the first Weekly Council discussion shall take place on Wednesday, the 15th February, and that the subject for discussion shall be Sewage, to be opened by Mr. Lawes. They also recommended that Earl Fortescue be requested to allow his name to be added to the list of the Committee.

AGRICULTURAL EDUCATION.—Mr. Thompson, M.P., reported that the Committee recommended that authority be given to them to invite examining bodies, such as the Universities of Oxford and Cambridge and London, the Royal College of Preceptors, the Society of Arts, &c., to appoint one of their members to confer with the Committee.

CHEMICAL.—Dr. Voelcker laid before the Chemical Committee an annual report of the work done in his laboratory.

In consequence of the lecture on the chemical composition and properties of "water," a larger number of waters were received for analysis than in any previous year. Several samples of water were found to be quite unfit for drinking.

The report next refers to cases of poisoning which were brought under the notice of the Professor in the past season. It then gives the results of the following experiments:—

1. On the efficacy of salt as a fertiliser.
2. Manuring experiments upon Turnips and Swedes
3. Field experiments on Clover.
4. Top-dressings on Oats and Barley.

On account of the great practical importance of the discovery of extensive potash-deposits in Germany, Dr. Voelcker lately visited the salt mines at Strassfurt in Saxony, in which these potash-deposits occur. The Chemical Committee desired their chemical officer to deliver a lecture on this subject in March.

On the occasion of a recent visit to the Continent, Dr. Voelcker made an inquiry into the disposal of human excrement in some of the large towns on the Continent. The removal of these excrementitious matters entails a certain expense upon the inhabitants of Berlin, Dresden, Leipsic, Frankfort-on-Maine, Brussels, Antwerp, and probably all large towns on the continent. The question how human excrements are most economically removed from large towns and utilised without creating a nuisance, is as much agitated in Germany at the present time as in England.

The failure of the Turnip crop has given greater prominence to the cultivation of the Cattle Melon. Dr. Voelcker's analyses appear to give the nutritive value of Cattle Melon not higher than that of Common White Turnips.

The numbers of analyses made for members of the Society during the past season was a full average. The following analyses of interest to the feeder of stock are mentioned in the report in detail:—The Composition of Pea-shells, Locust or Carob Bean Meal, Biscuit Meal, Rice-dust as Meal.

The Committee ordered the Annual Report to be handed over to the Journal Committee.

GENERAL PLYMOUTH.—Lord Feversham reported that the Committee had considered several plans, and after making alterations, had decided on one. They recommended that the name of Mr. Moon be added to the list of the Committee, and that he be requested to obtain such quantities of forage as might be required. Wednesday, the 12th July, would be the first day for trial of implements. This report was adopted.

Mr. RIGDEN having called the attention of the Council to the present unsatisfactory state of the railway arrangements with regard to the conveyance of stock, and the necessity of taking immediate steps for correcting the same to the satisfaction of exhibitors and for the success of the Plymouth Meeting, the Council appointed a Committee, consisting of Mr. Pain, Mr. Rigden, Mr. Thompson, M.P.; and Mr. Turner, to take this subject into consideration.

The Council then adjourned to their Monthly Meeting on Wednesday the 1st.

The Annual Reports of all the Standing Committees were presented by the respective Chairmen.

The Standing Committees for 1865, viz., Finance Committee, Journal Committee, Chemical Committee, House Committee, Implement Committee, Veterinary Committee, and Stock Prizes Committee, were appointed.

The Council having prepared their Report to the ensuing General Meeting, adjourned to a Special Meeting, when the Reports of the Implement and Live Stock Prizes Committees were received, and the Prize Sheets ordered to be printed.

The Papers for the next Number of the Journal, No. I. of the New Series, are:—

1. The Composition of Mangels grown with different quantities of salt.
2. Some Causes of Sterility in Soils.
3. Composition of Palm-nut kernel, meal, and cake.
4. Short Paper on Top-dressings on Wheat.

The Lecture by the Professor of Chemistry will be on the Natural Potash Deposits in Germany, on a Wednesday in March.

The General Meeting of Members took place on Thursday at the Society's House in Hanover Square, under the presidency of Sir E. C. Kerrison, Bart, M.P. There was an average attendance, and amongst those present were the Earl of Feversham, Colonel Challoner, Mr. Holland, M.P., Mr. Thompson, M.P., Sir T. D. Acland, Sir J. Heron Maxwell, Messrs. C. Stokes, H. Corbet, Torr, Barthropp, Jacob Wilson, Caldwell, J. C. Morton, Moore, Frere, and Prof. Voelcker.

Mr. H. HALL DARE, the Secretary, read the following Report of the Council:—

The Council have to report that during the past half-year the Society has lost by deaths and resignations 35 of its members, while 478 new members have, during the same period, been enrolled on its lists, which is now constituted as follows:—

78	Life Governors
80	Annual ,,
1373	Life Members
4465	Annual ,,
17	Honorary ,,
Making a total of	6013

A new list of the governors and members of the Society having been published in the last Number of the Journal, the Council submit to the members on this occasion the following schedule, showing the districts to which they belong:—

	Number of Members	Amount of representation in the Council.		Number of Members.	Amount of representation in the Council.
ENGLAND—			ENGLAND—		
Beds	41	1	Sussex	153	4
Berks	148	2	Warwick	160	2
Bucks	73	3	Westmoreland	22	
Cambridge	58	1	Wilts	133	1
Chester	121	1	Worcester	176	1
Cornwall	48		York	293	6
Cumberland	6				
Derby	113	1	Total	5552	72
Devon	124	5			
Dorset	88	2	WALES—		
Durham	176		Anglesea	8	
Essex	147	4	Brecon	11	
Gloucester	202	4	Cardigan	11	
Hants	164	2	Carmarthen	24	
Hereford	158	2	Caernarvon	12	
Herts	100	1	Denbigh	27	1
Hunts	37		Flint	32	
Kent	229	1	Glamorgan	88	
Lancaster	177	1	Merioneth	7	
Leicester	63	1	Montgomery	17	1
Lincoln	199	4	Pembroke	32	
Middlesex	350	2	Radnor	9	
Monmouth	44	1			
Norfolk	152	4	Total	228	74
Northampton	103	1			
Northumberland	419	1	SCOTLAND	86	
Notts	137	3	IRELAND	79	
Oxon	122	3	CHANNEL ISLANDS and ISLE OF MAN	17	
Rutland	13				
Salop	166	1	FOREIGN COUNTRIES	51	
Somerset	149	2			
Staffs	134	1			
Suffolk	136	2	General Total	6013	74
Surrey	188	1			

This schedule will enable those friends of the Society and of agricultural improvement generally, who reside in districts where the number of members is below the average, to remedy the evil by recommending to the Council for election the names of candidates who will no doubt be ready to avail themselves of the numerous advantages offered by the Society, and by their personal influence aid in the dissemination of the valuable information afforded in the pages of the Journal, in the lectures delivered to the members, and in the showyard at the country meetings.

The Council have elected Mr. Wm. Burgess, of the firm of Burgess & Key, to fill the vacancy caused by translation of Major-General the Hon. A. N. Hood to the list of Vice-Presidents of the Society.

The half-yearly statement of accounts to the 30th of June, 1864, has been examined and approved by the Auditors and Accountants of the Society. The finances were never in a more satisfactory condition than at present, the sum of 2000*l.* having been lately added to the funded capital of the Society, which now amounts to 18,768*l.* 1*s.* 10*d*, stock in the New Three per Cents.

The Council have appointed a Committee to consider the subject of the "Improvement of the Education of those who depend upon the Cultivation of the Soil for their support," and in order to obtain information on this important subject the Council have offered a Prize of 50*l.* for an Essay on Agricultural Education, and they have authorised their Educational Committee to invite examining bodies such as the Universities of Oxford, Cambridge and London, the Royal College of Preceptors, the Society of Arts, &c., to appoint one of their members to confer with the Committee.

The meeting at Newcastle-upon-Tyne was highly successful in the amount and character of the live stock and implements. The means for testing the power given off by agricultural machinery having this year been perfected in a striking and satisfactory manner, by the consulting engineer, Mr. Amos (of the firm of Easton and Amos), who invented a dynamometer, a description of which will appear in the Journal.

The Council deemed it right to appropriate a large amount of money to the trials of steam cultivators, and feel convinced

that the members generally have every reason to be satisfied that this was a judicious appropriation of the funds of the Society, and a thorough test of the advance of this most important branch of Agricultural Machinery.

The General Meeting of the Society held in the show-yard conveyed to the Mayor and Corporation of Newcastle and to the Local Committee who had so zealously co-operated with the Council on the occasion, their cordial thanks for the kind attention they had paid to the wishes of the Society, and the admirable manner in which they had made every arrangement required for promoting the success of the meeting. The Society are indebted to some railway companies for the arrangements they have made at their annual show, but regret to say that in some instances facilities have not been afforded to Exhibitors for the conveyance of Stock at a reasonable rate.

The Council have decided that the Plymouth Meeting shall be held in the week commencing Monday, the 17th of July, and the Prize Sheets will shortly be ready for distribution. Land for the trial of drills, manure distributors, mowing, haymaking and reaping machines, and horse-rakes, has been already placed under the necessary cultivation, and prizes amounting to 440*l.* will be offered among these classes of Implements, and 2815*l.* for Stock.

The Council have from time to time been favoured with various Communications from Earl Russell, Her Majesty's Secretary of State for Foreign Affairs, the substance of which have been made public in the published proceedings of the meetings at which they were read.

Professor Simonds has delivered a Lecture before the Members of the Society on Small Pox in Sheep, which will appear in the Journal of the Society.

The Governors of the Royal Veterinary College have presented their annual report, by which it appears that more animals have been admitted into the Hospital of the College for treatment; also that there have been more consultations—and that other arrangements have been made tending to the further development of the veterinary art in respect to the pathology of cattle, sheep and pigs.

MR. J. C. MORTON, in moving the adoption of the Report, referred to the subject of Agricultural Education.

First, however, alluding to Mr. Fowler's death, he said:—Most unfortunately it falls to my lot, as happening to be the first of the general body of members who has risen to-day, to try to express the feeling of real distress, for it is nothing less, with which the members of this Society have heard and will hear of the sudden death of their late colleague and fellow-member—John Fowler. He has been taken away suddenly from the very midst of his busy and prosperous career, just as he was gaining that summit of success to which long years of persevering and most useful labour had given him so good a claim, and that surely is a fate which commands the sympathy and sorrow of any body of men. But it has an especial claim on ours; for we know of what usefulness in the agricultural world, and how serviceable to the great cause of agricultural progress his life has been—how large a share, in fact, of the usefulness of this Society has of late years been owing to the great ability, the untiring perseverance, and exuberant energy of which we now deplore the loss. I cannot doubt that before we leave to-day we shall have from our President, and from others of our leaders here, impressive testimony to the grievous and distressing loss which our Society has thus sustained.

I turn now to the subject of Agricultural Education.

I called attention last December to the fact that the promotion of agricultural education is specified in our Charter as one of the objects for which we are incorporated, and I then pointed out that up till then nothing whatever had been done in discharge of the duty thus imposed upon us. Since then one gathers from the columns of the agricultural papers, and from the pages of the Journal, and from the reports of the Council, that the subject has occupied a good deal of attention in this room. Mr. Holland has read a paper on it, and it has been remitted to a Committee of Council, who have reported their recommendation that a prize of 50*l.* be offered for the best essay on Middle-class Education in connection with those who are dependent on the cultivation of the land for their support. And that recommendation has been adopted by the Council. I may add that it is now several years since I mentioned to the chairman of the Journal Committee the existence of these hitherto neglected instructions in our Charter, and I then suggested to him the propriety, in accordance with these instructions, of publishing in our Journal a report on the existing means of agricultural education in this country. I do not mention this for self-justification at all, but simply for the purpose of pointing out the essential difference, as it seems to me, which exists between that proposal and the one which has been adopted by the Council. The one asked for a report on professional education for agriculturists, the other asks for a report on middle-class education for the children of farmers.

Now I venture to ask my brother members whether they think that the promotion of middle-class education is an object which this Society either should or can undertake. I do not think it is. It seems plain to me that although we may very properly be interested in the provision of professional agricultural education for those who are to be agriculturists, we have no more to do with the provision of middle class education for the families of agriculturists than we have to do with the provision of religious instruction for the families of agriculturists. But put the subject on the lowest ground in the first place. Our Charter does not speak of it. That must be read in the light of the time when it was written. The original promoters of this Society by whom this Charter was obtained never dreamt of it. Mr. Handley, in his letter to Earl Spencer, spoke on the proper application of farm manures—on the advantage of chalk and lime and gypsum and animal charcoal and common salt—on the practice of green manuring—on rotations of crops—on agricultural machinery, subsoil ploughing, and so on. It is plain that in his mind this Society was needed for the improvement of details and points in farm practice.

Lord Spencer, again, in his address at the Freemasons' Tavern, on May 9, 1838, spoke of the way in which the Highland Society had benefited Scottish agriculture, making that which was inferior to that of England its equal, and in places its superior. He also spoke of ploughing with four horses or with two, of drilling and broadcasting, and generally of diffusing amongst agriculturists the agricultural knowledge and agricultural superiority of particular districts. It is plain that he, too, imagined no other career for the Society than that of effort after practical improvement in the details of farm management. And neither have any of our leaders since ever imagined that it was the business of this Society to interest itself in any great social question, such as middle-class education. They have indeed fought altogether shy of great social questions. Even the relation of landlord and tenant—a strictly agricultural question, which lies at the bottom of all agricultural questions—has not been discussed in this room, or in the pages of our Journal, with anything like the fulness which its all importance might claim for it. And other points might be named illustrative of the unquestionable fact, and I will add the praiseworthy fact, that we have been engaged solely in effort after direct practical improvements in detail, and not with great social questions in which agriculture is only partly or incidentally concerned.

It may, however, be replied—and although I do not think it applies here, I entirely sympathise in the spirit of the rejoinder—it may perhaps be replied: "At any rate our Charter does not forbid our undertaking the promotion of middle-class education, and if it would be of agricultural use to do this, it would be a thing well done by the Agricultural Society."

To this, however, one rejoinder is:—The work is beyond our power. The Society of Arts has done a great work in this matter, and I suppose its great success is to be held out as our example. But the Society of Arts first associated with itself some hundreds of local and mechanics institutes, and thus organised a local agency all over the country. We have no such organisation. We know nothing here of the Farmers' Clubs of this country. We have kept ourselves aloof from all that, and pursued our independent and most useful course alone. And thus we have not the apparatus at our command which the Society of Arts possesses.

But apart from all this, and altogether silencing, as it seems to me, any further discussion of the point, I say there is obvious duty still neglected—duty which the Charter prescribes, remaining to be done, which certainly has the prior claim on our attention. The promotion of professional agricultural education is that duty—How is that duty to be discharged? One word more in answer to that question. Certainly not by the establishment or subsidizing of agricultural schools, but by such guidance and such stimulus offered to those which already exist, as public examinations would give. There are agricultural schools in this country. Let it be known that the Society recognises them, and will urge and guide them by its official examinations, and they will grow both in number and efficiency. In particular I must be allowed to say—although, strange to say, I believe it is for the first time in these rooms:—There is one large institution established so long ago as the year of the Society's meeting at Southampton—which, like ourselves, is incorporated by Royal Charter—which educates 70 or 80 students annually, and might educate twice that number. A thoroughly equipped school of agriculture; some 20,000*l.* or 30,000*l.* have been spent on its establishment and equipment. I believe it is the simple truth to say that this large and costly and well equipped institution has not only never been recognised by this Society, but notwithstanding that there is a condition in our Charter imposing on us the duty of promoting agricultural education, we have consciously, purposely, wilfully ignored its existence. The late Mr. Robert Brown, of Cirencester, by whose most praiseworthy labours it was founded, endeavoured at Southampton to enlist the sympathies of this Society in its behalf at that time. I know that he himself felt that he had nothing but cold water from us then. I see no trace or record of his subsequent success in the volumes of our Journal. There is no line in the index to these volumes pointing to the Royal Agricultural College. So strongly deterrent was the atmosphere of this room that even Mr. Holland, to whom we owe pretty nearly all we have in connection with the subject, did not venture in his recent lecture on Agricultural Education to call the attention of the members to the only school in England worthy of the name where a complete agricultural education is at this moment to be had. And I understand that a paper, descriptive of the College and its career, which was prepared for publication in the last volume of the Journal by the very ablest pen that could have undertaken the task, has been on one pretext after another postponed until the author is ready to withdraw it. Of course I admit it as possible that there *may* be a good reason for all this, but I respectfully submit to the Council of this Society, that we, the members whom they guide, ought to be informed what that reason is. I will engage to say that there is not a single member of this Society who has ever heard of the Royal Agricultural College but wishes it well. There is not one who has ever heard of the great sacrifices that have been made in its behalf, but sympathises admiringly with those who, at great personal cost and great personal labour and responsibility, have hitherto upheld it. And if in a matter so clearly within the Charter of our duties and responsibilities we all individually feel thus, why cannot we, in our corporate capacity, give some expression to this feeling and this judgment by our conduct? Our conduct has of course been under the guidance of the Council. I feel certain that many of the members join me in asking, "Why have we been guided thus?"

It will of course be cordially understood that I have no personal object whatever to serve by these remarks. Neither have I been asked by any one to make them. On the contrary, and as showing my entire independence in this matter, although I have taken no doubt a very small share in the great amount of unpaid labour which has been spent at Cirencester, I very much doubt whether the authorities there have sufficient confidence in my good will to entrust their case to me even if I am able to undertake its advocacy.

But indeed it is only incidentally that the College comes into the course of these remarks. Their case is certainly a glaring illustration of the way in which the duty which our Charter plainly imposes on us in reference to agricultural education has been hitherto neglected by us, and as such alone have I referred to it here. I hope no one imagines that either I, or I should think any other persons, want to see the Royal Agricultural College grafted as a department on this Society. Still less, however, do I want to see the whole middle-class education of our country districts attempted to be taken charge of here.

What I do want to see, and what I believe to be the duty which the Charter lays upon us, is the promotion of a sound professional agricultural education, by the organisation of such examinations by the Society's authority as will guide and stimulate not only the Royal Agricultural College, but every other institution which professes, or may hereafter profess, to turn out men with the knowledge and the skill which good farming now-a-days requires. And I think it is a thousand pities that Mr. Holland's proposal to this effect the other day in the Council was outvoted in order to a further delay in the hope, as it seemed to me, that meanwhile the opinion of the Council or the opinion of the Society might be guided towards ultimately taking part in that great movement for middle-class education which the Universities and which the Society of Arts have promoted, but which is as much outside us as it is outside Apothecaries Hall, or outside any of our great professional schools, military, medical, of divinity, or law.

If I might add one word more it would be to give entire credit—to give all honour to the motives of those whose plans I am opposing; and who have just wakened up to the fact that the *wording* of the Charter which I pointed out to them may perhaps enable them to convert this Society into a great middle-class educational institution for our country districts. It is impossible to imagine a nobler field of effort for those who think the middle classes of this country are unable to take care of themselves than that in which they are labouring; and, in particular, I don't in the least wonder that those who have acquired distinction by their labours in it, should want to bring every possible agency into work for their purpose. But then, we must not give exclusive credit to them. We have among us—happily, on our Council—one to whom more than to any other living man we owe whatever is good in the present condition of Agricultural Education in this country. And I say it is fortunate for us and for the Council that we can have the guidance of Mr. Holland in connection with this subject. But, indeed, I suppose we all want to do all the good we can. Well, then, I submit that one great means to that end is to keep things to their proper uses. The proper use of the Royal Agricultural Society of England unquestionably is to promote the improvement of the practical agriculture of the country. This it may do by seeing to the professional education of agriculturists, but it has nothing whatever to do with the subject of middle-class schools.

I now beg to move that the Report now read be adopted—and that the promotion of professional agricultural education be earnestly recommended to the attention of the Council.

MR. DUCKHAM, in seconding the motion, observed that Mr. Morton had occupied their time at such length, yet so very interestingly, that he should only make very few comments upon the Report. He felt, however, that there was one point in it which must be satisfactory to all the visitors to, and exhibitors at their annual meetings; he alluded to the paragraph which spoke of the accommodation afforded by the railways and the general arrangements at Newcastle. Reference was made to a want of liberality displayed by some railways in the kingdom. That want had been experienced in a great degree up to the present year, and he took occasion last year to mention the inconvenience the exhibitors were obliged to submit to in attending the annual shows. But their meeting at Newcastle had been everything that they could wish, and he felt that he should be wanting in his duty if he omitted to acknowledge the excellence of the arrangements made for that occasion, both by the railways and the town.

MR. THOMPSON.—As Mr. Morton has alluded to the General Committee and the want of sufficient notice on the subject of Education in the Council, as well as by the Society generally, I feel it necessary to make a few remarks upon the question, more especially as having been a member of the Council, and as having, I believe, been present on most occasions when the question of education has been considered, I should like to say something about the want of decided steps taken by this Society in futherance of that object. The question is, whether we have been right or wrong in taking such steps, because as to the subject of agricultural education having been neglected by the Council—that I entirely deny. It has been taken up from time to time; it has been considered, and the decision has been that we should not take any active steps, because we did not see our way to any active steps that were likely to be successful. The question of whether we are right or wrong may be tested by the results of the experiences acquired upon the sub ject in other places, because though we have not acted as a body, the individuals forming the Council have been by no means idle in their respective localities in furthering measures which seemed likely to promote the objects of agricultural education, and, according to their opinions, more efficiently by those measures being conducted by individuals than if the subject had been taken up by a general body like this. Speaking of those institutions which have been founded with this object, and especially the one which Mr. Morton has alluded to as the Agricultural College at Cirencester, one of the best tests I think that that institution has not fully carried out the objects with which it was founded is, that it has assumed the name now of an agricultural college—it having in the first place been called simply a school. It is really efficient as an agricultural college, but education of that full and scientific character which is given there must always be so costly, that the demand for it must necessarily be small. It has been shown to be so; because, even though the College offers only limited accommodation it is not full; and limited as it is, if it is not filled I think we may fairly assume that that species of institution had it been made general, or rather if there had been several of those institutions founded in the country, they would have been complete failures in a financial point of view. I myself took a considerable part in another institution of a somewhat different character, but intended for the promotion of agricultural education. It was called the Yeomanry School. It was successful in so far as getting up a good building went, a considerable subscription having been made when it first began; but still as a model school for agricultural education it did not answer the purpose for which it was intended. Let us try the method which Mr. Morton especially recommends—the appointment of examiners. He says nothing can be easier than to appoint examiners by this Society, who may test education, and thereby do a great deal of good. But this has been tried by a body which has, perhaps, the greatest facilities of any for carrying out such an experiment—the Highland Agricultural Society of Scotland. There is no society that is so thoroughly national as that—that has such ramifications throughout every county in Scotland—a society which, by its local committees, is in possession of the ground, and can call to its aid the best known and most eminently scientific and practical agriculturists of Scotland. And how has the experiment succeeded? If it is easy to appoint examiners anywhere, it would be easy there. They certainly have the aid of science enough. They have practical acquaintance with agriculture, as well as the best scientific knowledge of the subject in theory. They have also material to work upon which is decidedly superior to anything in this country; for taking the country through, I have no hesitation in saying that the education of the people of Scotland is higher than it is here. Not only have they the best means of examining, but there is a greater readiness you would think among the young agriculturists of Scotland to submit themselves to such a test. But what has been the result? Our President received a letter quite lately from the Highland Agricultural Society, stating, as the result, after appointing examiners and putting forward a curriculum well suited for the purpose, that in seven years only 15 candidates had offered themselves for examination—little more than two a year; and of those ten only had passed. Well, that is not an experiment which would seem to show that it is an easy matter to appoint examiners by a great agricultural society who would do much toward promoting the great object which we all have in view, viz., agricultural education. I do not hesitate to say that this is one of the most important subjects we can have to consider, and it is only on account of the difficulty of dealing with it that this Society has abstained from taking any active steps in the matter. The words of the Charter, which point out what were the intentions of the founders of the Society, are "to take measures for the improvement of the education of those who depend on the cultivation of the soil for their support." When we first took up this question we considered this the strongest and most important part of it, and that which seemed most relevant was the education of the labourers. We considered that those who depended upon the cultivation of the soil for their support were the agricultural labourers, who at that time had no provision for their education. In that view the question seemed so large a one that we, as a Society, recoiled from taking any steps in connection with it; because we thought it was above our means, and we did not see our way to a successful result, notwithstanding that many of those who took part in the discussion of those questions at that time did take a practical and active part in the carrying out of those measures which have successfully, as I think, grappled with the subject, and which, though not perfect—for what human work is perfect?—have certainly furthered, promoted and improved most materially the education of the labouring classes. The largest portion of the question is therefore now, we may say, set at rest as far as the Society is concerned—for it is in more powerful hands. But the question which remains to us is the education of the farmer. I will not yield to any one in the amount of interest I take in this question, or the anxiety I feel to promote any measure on this subject which will commend itself to my judgment as likely to be successful. A committee is now considering this question again, and there seems to be a better opening now to some practical result than there has been before in a more general consideration of the question on the part of the great middle classes themselves. This is one of the most important preliminaries to the success of any such measure. That is taking place now, and I think there is a better opening than there was some years ago, and that we are greatly indebted to Mr. Holland for bringing the matter forward when there is a chance of doing something useful in it. At the same time I will not by anything that falls from me to-day in any way prejudice or limit or hamper the question. I will only say that we have it before us—that we take an interest in it, and will be happy to assist in the promotion of any measure likely to be useful. I say that the Council of the Society have not neglected the subject—whether they have been wise or not in not doing anything may be a fair question. I take the want of success of the efforts by others as a fair argument that we have shown a wise discretion in not doing more than we have done.

MR. HOLLAND.—I must be allowed to set you right with regard to some of the expressions which have been used by Mr. Thompson as to the want of success at Cirencester. In first establishments, public or private, there are little domestic occurrences which sometimes interfere with the well-doing of an institution as of a private house. Such have arisen in the history of the Cirencester College. It started at first as a school expressly for farmers' sons, but always under the name of a college. The name has not been altered since its establishment. But when the original purpose failed, there came forward certain individuals who had the interest of the farmer at heart, and who determined, without reference to any other object but that of giving the best practical and scientific education in agriculture which it was possible to afford, to carry on the Institution. This has been done with success. In the first instance, the great object was to get a large number of pupils, and it was obtained under its late most effective and talented Principal. That Principal it was our misfortune to lose. Our system was still carried on, but we had to reform. We found that a large number of men came to us, not for the purpose of learning agriculture, but for the purpose of waiting until they obtained commissions in the army, or to idle away a certain amount of time. That was not the object for which the Institution was re-established, and therefore we got rid of those men, although at considerable burden to ourselves. In the course of time we have now, through the able assistance of our professors, established a system which is perfect, I should say, as far as it goes, in teaching both practical and scientific agriculture. It is easy to say so, but I look to facts. I yesterday had the pleasure of meeting at our annual dinner some old students of the Royal Agricultural College. We met about 30 in number, and though I did not take a census of those who were present, I believe that two-thirds were more or less tenant farmers or agents, and that they had obtained their position as agents, or had placed themselves in farms under better circumstances than ordinary farmers, in consequence of the instruction, practical and scientific, obtained at Cirencester. In course of time, and it is already occurring, these men are becoming noted throughout the land as agriculturists, and where a man has intellect, and capital, and talent, and is connected with agriculture, he is very likely to become a member of this Council. I therefore look forward to the day not being far distant when very many former students of the Royal Agricultural College, and many present students of the College, will also be members of this Council, and I have no fear of the results then of the nature of the education which will be adopted by this Council. In the meantime I can only say, with reference to your proceedings in Council, that I have no objection, as far as I am concerned, to go quietly and tardily to work, and I think Mr. Thompson will at all events admit that we have not been in a hurry in considering this subject. As to the want of success of the examinations of the Highland Society, and of their having stuff "to work upon in Scotland," five of our pupils of the Royal Agricultural College at Cirencester have gone up to those examinations, and have carried off the prizes. But those who have paid any attention to the examinations instituted at Cirencester will have remarked that nothing could be more *jejune* than purely scientific education—nothing more absurd than instruction in abstract agriculture. Although we vary in our views of the education belonging to this Council, and although some are in favour of starting with middle-class education, and having our attention directed to middle-class instruction generally, yet at the same time the duty of this Society is I believe to pay attention especially to practical instruction in agriculture, and I am of opinion that the words of the Charter apply to such a system of instruction—and that instruction we all agree can only be given after a boy has gone through this middle-class general education. Therefore I say that our way is clear; that we have no difficulties to contend with; that the success of Cirencester College, both in examinations and in practical and scientific agriculture, proves that everything is possible; that there is no experiment even to be tried; that a clear and straightforward path is before the Council of this Society, and that if they follow it they will be promoting scientific and practical education, and improving in that respect the position of the tenant farmer.

MR. MOORE.—I believe that no subject more important than this subject of agricultural education can engage the attention of the Council or the members of this Society. I myself sympathise very much with the observations of Mr. Morton. I think the professional education which he speaks of is the particular part of the subject with which this Society has to do; and although it is now impossible to enter into any detail upon the subject, what I am anxious for is that the Society should in some way or other, as the Council may think fit, adopt measures to obtain the sympathy of the members of the Association generally and of the country in this question of education—whether by farmers' clubs, or in any other way that may be deemed desirable. We have often had allusions to it in the Journal, and other subjects connected with it; and I think, considering the great expenditure that now takes place, the large sum paid to the Editor of the Journal, which appears somewhat out of proportion to the service—we might expect to have this and kindred subjects more thoroughly canvassed, and brought more prominently forward. I have no doubt that the Editor is a very able gentleman in every respect, but the country knows nothing about the operations of this Society. They do not seem to feel any interest in it, except on the occasions of its great annual shows. In the exhibitions of stock we see that the country does take an interest in our proceedings. I have always thought that the subject of education has not received the attention that it deserved. It has been again and again before the Council, but the members generally know nothing about their proceedings, or the amount of interest taken in it by them. Not knowing what has been done, we have felt that the question has been neglected. But now that the subject has been taken up, we hope that more will be done than has been done hitherto. An important part of the subject to which Mr. Thompson referred, is the education of the labourers. I feel the great difficulties of that question in all its aspects, but there is no doubt that the education of the working classes in the rural districts of this country has been to a great extent a failure. Whether this Society could communicate in any way with the Privy Council on Education so as to offer suggestions on the subject is a question for consideration; but what we want in the country is the industrial training of our labourers. It is no use sending them to school to harp on a great many strings which would be valueless to them hereafter. What we want to see is the boys and girls taught those things in which they will be occupied during their after lives, and what we feel is that no attention has been paid to that in this country as a rule. I have known of a great variety of schools in the country where the education is very good as far as it goes, but where the children are taught nothing of those occupations by which they will have to support themselves. I am not an opponent of education of any sort; but first you must teach the children their occupation, and then if any of them show ability to rise out of the position in which they find themselves, I believe they will rise in spite of the difficulties by which they are surrounded. I think it is a mistake in principle to instruct them in anything beyond what they are likely to reach. I have taken great interest in this question. I know there are difficulties connected with it, but I think upon the question of middle-class education, what the Royal Agricultural Society has to do is to indicate in some way or other the best mode of proceeding with regard to schools for farmers. As a rule, farmers in the country do not know where to send their children. They want now better education than their forefathers demanded. They find a good school too heavy in expense for them, and they do not like seuding their children to parochial schools. I am anxious for the commingling of classes of all who feel a common interest in what affects the welfare of ourselves and the country, but I do not think it desirable that the farmer should be compelled to send his children to the parochial school, to be educated perhaps by a young pupil teacher sent from a training school of that class that has made the very name of schoolmaster repugnant to the labouring classes. This is a question which is well deserving the consideration of the Council and the members of the Agricultural Society at large, and the one point which I wish particularly to dwell upon is this, that it would be desirable if the Society could in any way let the country know what they were doing more than they do now. We get the Journal twice a year, and the majority of us, I dare say, never read it at all. Some of the articles in it are fit to become standard works in our libraries, but they are not the kind of reading that is likely to suit the taste of farmers. What we want is means of communicating with the country—that the country may know what is taking place in Hanover Square, and that Hanover Square may know what are the feelings prevailing among the farmers. Another question is that of railway conveyance to our shows; I believe that that question has enjoyed the attention of the Council, and that it was to have been before them yesterday. It is a question of the greatest possible importance to members of the Society, and I am quite sure of this, that though the Show increases—it has increased this year, and will increase as means of communication are opened up throughout the country; yet what I fear is, that with the present system we shall continue to find a great many farmers whom we should like to see at our Shows kept away from them. Our object is not to see a great number of gentlemen from the country at our Shows every year, which we always see, but we want the great mass of the farmers of the country to become practically interested in them. Numbers of times men have spoken to me of the expense farmers are put to personally, and in the carriage of their animals. We have no favour to ask from the railway companies. We are bringing a large and profitable traffic over their lines, and what I would suggest to them is, that they should take our stock by special trains if there is enough; but if not, to give us at least the privilege of sending our animals in horse boxes by passenger trains and goods rates, instead of sending them by luggage trains and shunting them backwards and forwards, according to the convenience of other traffic. Men are constantly complaining that their sheep are injured by the delay of the present system of transit, and I think we are at least entitled to call upon the railway companies to give us a quick passage for our stock, over their lines, which they might accord to us without loss to themselves.

THE PRESIDENT: I am exceedingly glad, as I am sure many members of the Council must be, that a discussion has been raised on this most important question of Agricultural Education. I have to thank Mr. Morton for having gone fully into the subject, as it gives those who like myself, Mr. Holland, Mr. Thompson, and many others in the Council, take a deep interest in the question, as well as agriculturists generally, an opportunity of stating our opinions on the subject. At first I was afraid that it was the intention of Mr. Morton to throw cold water upon it; for, at the commencement of his speech he said, "we ought to read the Charter rather differently, considering the distant period when it was first made—so many years having since elapsed, the words of the Charter being 'to take measures for the improvement of the education of those who depend on the cultivation of the soil for their support.'" I was afraid that he was going to throw cold water on efforts to ameliorate the condition of that class. He mentioned the education of the Highland Society. He has paid great attention to agriculture, and is well versed in this particular matter. What did that Society think of the result of taking up the question of Agricultural Education? They had not in their first Charter, granted in 1787, any power to deal with Agricultural Education at all; but in 1856 they applied for a special provision to be added to enable them to deal with it—so great was the importance which their experience led them to attach to it. I understood Mr. Morton to say that he would object exceedingly to our having to do with the general middle-class education of the country—to our subsidising schools in various parts of England—to our taking up any schools. But does he suppose that we should do anything of the kind? Afterwards, however, in the course of his speech, he wishes us to have taken up a school in one sense, and that was the one at Cirencester alone. He said—why had we neglected our duties as a Council? Why had we not given prizes to Cirencester—one that was really the Agricultural College of England? We have heard much of Cirencester, but would a hundred Cirencesters enable the agriculturist to be properly educated? The price is such—some 80 guineas each pupil—that it would be impossible for the agriculturists to attend them. Is it possible for the farmers generally to pay that amount? Some can afford it no doubt, and it is satisfactory to those who can to have such an institution to send their children to. It is said we refused a paper, but we passed it this very week, and there will be entered as full an account of Cirencester, as far as I saw it, as it is possible for any person belonging to that school to desire. I hope therefore that we shall not hear any more about our having done anything against Cirencester or any other school in England. The principle on which we ought to act is to try to encourage the general education of the farmers throughout the country, and there is our great and single difficulty. We should much thank you, gentlemen, who are members of our Society, if you would give us your assistance in ascertaining the easiest and the readiest mode of accomplishing that object. The difficulty is one which requires the most careful possible treatment, and in order that we may, whilst we on the one hand by medals, or prizes, or whatever it may be the view of the Council to give, try to encourage sound education throughout the country, we should not on the other have pupils crammed up in order to be a means of drawing others into particular schools, or in point of fact endeavour to raise one school over the other. We should simply have an examination, basing the interest upon a prize given by the Society and open to all candidates that can be brought up to a certain standard of education throughout the whole of England. That is our view—whether we shall be enabled to carry it out is another question. If it has not been done, it is not because we have not considered the question, but because the difficulties are so great of submitting a proposition which would meet with the general approval of the Society. I trust before the next year is out that some motion will be taken in the matter, and in the very next month we are going to meet the body most able of any body of men to give us information upon it. There is hardly any other point to which reference has been made, except that of the education of agricultural labourers, upon which Mr. Moore spoke. I quite agree with him that it would be most useful for the farmers generally if we could in any way provide a more practical education for the sons of labourers; but there is immense difficulty in the way. It is very difficult to get the children of that class to attend a school, even for the shortest time. We know what the Privy Council exacts, and it is exacting year by year more and more. It exacts individual examination for each boy, and those schools which cannot live without the grant have to cram the boys up to a certain pitch to obtain it. The question is more for the farmers themselves to take boys and train them, and they have neglected one very easy method

of doing it. They used to take boys into their houses and train them to agriculture, but they do not do that so much now, and that useful aid to education has been withdrawn. We have been urged to induce the railways all over England to give us those facilities for our Shows that we had at Bath and in the West, and I hope the Committee already named, and which will shortly proceed to its labours, will be able to induce the companies to give us farther accommodation than some of them now do. I was glad to hear one gentleman allude to a railway near Newcastle that did as much as it could to assist us in the conveyance of our stock to this year's Show.

Mr. MORTON was not aware that he had charged the Council of the Society with not having taken up Cirencester—what he complained of was that they had neglected a whole class of schools, of which Cirencester was one. He thought it was too much for the leaders of the Society to claim any credit for their interest in the subject, seeing that this was the 25th year of the Society's existence, but only the first during which any particular action had been taken in connection with it.

Mr. ACLAND felt personally indebted to Mr. Morton for having brought the matter forward. All that those who were as anxious as Mr. Morton on the subject dreaded was silence. The more it was discussed, and the more objections which might fairly lie against any plan brought before the public on the subject of education were considered, the more they might be assured that the great body of English agriculturists would arrive at a safe conclusion. Mr. Morton himself was one of the best educators in England. He (Mr. Acland) had long been in the habit of reading with surprise and astonishment the able articles in the *Gardeners' Chronicle*, and when he saw the power of mind brought to bear sometimes upon foolish questions and sometimes upon weighty matters, and remembered the intelligent, the benevolent, and philanthropic spirit in which agriculture was treated, he could not but reverence and admire the man who displayed these qualities. With reference to the education of the labourers it had been suggested that they ought to be taught more of what they would have to do in future life. Undoubtedly all men wanted to be prepared for their future duties; but he should be extremely sorry for it to go forth to the public, to the employers of labour, schoolmasters, and ministers of religion in England, that the object which this Society sought was to make tools and instruments of labour; that they were going in the country parishes and in the schools to make the poor little half-starved creatures into better tools to make money by. God forbid that that should be the object of agricultural education! He knew that it required great force of conscience and Christian love to prevent that being the perverted object of agricultural education. They should teach those children the duties of their future life, as fathers, husbands, and faithful and good servants, and was that to be done by teaching them the skill to be better diggers, delvers, and drainers? Was that the way to make them better members of society? They had the school to call out the soul and mind, and their fathers and masters and skilled teachers would teach them a great deal more of their work than all the gentlemen in England could teach. This threw great light on the question of the education of the master. They did not want to make better tools in educating the labourers, and in striving for the education of the farmers they did not want to produce mere money-making machines. He did not consider the Editor of the Journal over-paid at 500*l*. a-year.

Mr. MOORE denied having advocated a system of education which would make children mere machines.

Sir J. W. MAXWELL hoped that it would not go forth to the public that in saying sufficient attention was not paid to technical education the Society wished to ignore altogether the general education of the children of agricultural labourers.

The PRESIDENT, upon the question of providing special technical education, said that at a school in Devon the rule generally was that the farmers' sons who were sent to be educated as farmers turned out tradesmen, and those who went to be educated as tradesmen became farmers. He suggested that Mr. Morton might be satisfied with the discussion that had taken place, and simply move the adoption of the Report, without binding the Council by the use of the word "professional."

Mr. MORTON expressed his willingness to adopt that course, and the motion, amended as suggested, was carried. The auditors having been re-elected, and a vote of thanks awarded to them for their past services,

Mr. DUCKHAM suggested for the consideration of the Council whether the time at which the annual Show was now held (July) did not interfere with the parturition of cows. The date was fixed so that the animals might be as near 1, 2, and 3 years old as possible at the time of the exhibition, but without the slightest idea that it would have the practical effect of driving the breeders of animals intended to compete to adopt the worst possible months for parturition.

The Earl of FEVERSHAM moved a vote of thanks to the President, to whose constant attention to the interests of the Society he paid a well-deserved compliment.

The motion having been carried, it was briefly acknowledged by Sir Edward Kerrison, who referred to the death of Mr. John Fowler as a great loss to agriculture.

The proceedings then terminated.

THE SMITHFIELD CLUB CATTLE SHOW.

AGRICULTURAL HALL, ISLINGTON.—It is a very large and grand exhibition—the noblest possible illustration of the perfection to which the English farmer has brought his animals, his plants, and his means of cultivation. The classes are both more numerous and larger than usual. The implement exhibitors as well as the live stock men have this year the advantage of a catalogue; and both the catalogues are wonderfully well filled. There is but one thing which has damped the success and heart of the exhibition, and that is the death of Mr. John Fowler, of Leeds, to which reference is made elsewhere. The news of it, which arrived on Monday afternoon, threw a gloom over the whole of the first day's proceedings, and has created a universal feeling of sympathy and distress.

The superiority of the Hall to any other building yet devoted to the purposes of agricultural exhibitions is manifest on every successive occasion of its use. The inspection of the animals alongside of them is rendered easy by the large and roomy access given, and by the prominent and easily read announcements of their class, exhibitor, age, and fortune as to prizes. The examination possible of many of the classes from the galleries is also of great advantage. Of the sheep and some of the cattle classes in particular, a capital opportunity of estimating their merit as to dimension and symmetry is given by the "ground plan" of them which this bird's-eye view presents. The galleries, too, afford roomy scope for the implement exhibitors and seedsmen. The lighting is however in places defective. The corners are in the dark during the day, and owing to the useless position of a whole row of lights, the range of gallery is inadequately lighted at night. The directors would do well to shift the lights which now hang in front of the spectator and dazzle him as he looks over the railing into the yard below, backwards into the space behind him; and the skylights which stretch overhead along the galleries should be extended so as to benefit the dark corners where some unfortunate exhibitors are at present lost.

THE CATTLE CLASSES.

The DEVON CLASSES, seen both alongside and from the gallery, present all the beauty and symmetry for which their best specimens are noted. They are much better filled than at Birmingham, though many of the prize animals there reappear and are again successful. Thus Mr. Farthing's 3 year and 11 months old ox is again 1st, and in a much larger class than it competed with at Birmingham. This older Class of Devon oxen is remarkable for the size of many of its animals. Mr. Senior's 4 years and 11 months' ox is enormous. The female Classes are scantily filled—only five in all; but they are good, and have all been thought deserving of prizes.

The HEREFORD CLASSES are very well filled. The younger class of oxen contains five animals, the 1st prize going to Mr. Pike for a wonderfully fine beast, so young as barely 2½ years old. The steers, between 2½ and 3½ years old, contain 11, the 1st prize going to Mr. Yeomans, for the very wide and well grown Hereford, which was 1st also at Bingley Hall. Mr. Pitt's ox shown there is here beaten by Mr. Druce and Mr. Hatcher. The older class of oxen contains 13 animals, and here Mr. Phillips's ox is again successful. He is an exceedingly long and very evenly fed beast—a true cylinder for an unusual length backwards, and of first-rate quality. The 2d and 3d are grand massive beasts, the 3d in particular covering an enormous quantity of ground in front. The heifer class contains only three, taking 1st, 2d, and 3d prize—not a very even lot. The cows are six in number. Mr. Steadman's cow is again successful; she is a thick heavily-fleshed beast—though perhaps rather patchily fed.

The SHORT-HORN CLASSES are unprecedentedly numerous, upwards of 70 competing in the various sections. The youngest class of oxen contains the best ox in the yard. He is only 2 years and 5 months old—and an extraordinary illustration of the precocity and early maturity of the breed—very deep and long, thickly and evenly covered, with wonderful rib and back and flank, and with capital coat of hair; he is a first-rate specimen of a good Short-horn. There is this interest attaching to him, that he is bred from the stock of Mr. Dixon, of Caistor, and is a grandson we believe of *Young Strawberry*, herself a granddaughter of one of the cows sold at Charles Colling's sale. So that here we have a Short-horn which cannot be very greatly altered from the type of half a century ago, beating all the best animals of the day. In the middle class of oxen Mr. Pulver's large upstanding heavy ox is again successful. The older class of oxen, also unusually numerous, contains the winners at Birmingham, and reproduces them in the rank there given, excepting this, that Mr. Carr's and Lord Gainsborough's were 2d and 3d there; they are 3d and 2d here; Sir W. De Capel Brooke's thick short-necked, massive red and white beast being at the head. The heifer class contains no fewer than 20 animals. And here, again, the Cup for the best heifer or cow in the yard is awarded to a capital specimen of a Short-horn in the younger class. Mr. Taylor's roan heifer is wonderfully fine in the bone, and thick everywhere else. The cow class contains many of the animals shown at Birmingham. There is a curious difference of judgment to record. Mr. Sharpe's 1st prize cow at Birmingham, bred by Mr. Stratton, was not entered for exhibition here; but his 3d prize cow there, also bred by Mr. Stratton, is shown and placed 1st in her class, over the head of Mr. Greenway's cow bred by Mr. Stiles Rich, 2d at Birmingham, and retaining its place as 2d here.

The SUSSEX CLASSES are not particularly well filled. The heifer class must be excepted, though, where Lord Leconfield and Mr. Shoosmith are respectively 1st and 2d, Neither are the Norfolk polled classes so well filled as usual; they are a massive, symmetrical, well-grown race, combining fitness for dairy and for the butcher in some respects better than any other breed in the country: and they thus well deserve the patronage of the Society. The Long-horns are perhaps hardly so deserving of it. They form here classes of considerable number and merit, and they are a picturesque addition to the exhibition; but it may be doubted whether the Society would not do better to confine its patronage to breeds of undoubted superiority.

The SCOTCH CLASSES are first-rate, Lord Derby's splendid ox, victorious over everything at Bingley Hall, is not here, but the class is very well filled as to quality, and sufficiently numerous. The Polled Classes too are exceedingly good; Mr. McCombie's grand and massive black Aberdeen being 1st again, as at Birmingham.

THE WELSH CLASSES and Irish Classes do not call for special report. The Irish Cattle may perhaps hereafter be better represented. At present one regrets that the money now spent on them is not devoted to a fuller reward for the large and important classes of Short-horns and Herefords, where the red and yellow prize cards stand about one to every six or seven animals, whereas almost every other of these smaller and inferior beasts is thus decorated.

The CROSS-BRED CLASSES are exceedingly interesting, many of them curiously successful in representing the mixture of blood which they contain. Mr. Martin's 1st prize great heavy ox, Short-horn and cross-bred, is, to all appearance, wholly Short-horn. Mr. Matthews' 2d prize Short-horn and Norfolk is also wholly Short-horn. Mr. Longmore's 3d prize Short-horn and Aberdeen is, on the other hand, barring the horns, almost wholly Aberdeen. On the other hand, Mr. Pollok's Short-horn and West Highland ox is a most complete mixture of the two breeds; so are Mr. Sewell's and Mr. Beare's Norfolk and Shorthorn.

The EXTRA STOCK CLASSES contain many good animals, and are a large class. Mr. Lewis Loyd's (of Addington) heavy and massive Hereford ox is the best, and decorated with the medal.

The following are the prizes awarded in the Cattle Classes:—

AWARD OF PRIZES.

CATTLE.

CLASS 1. DEVON STEERS UNDER 2 YEARS AND 6 MONTHS OLD.—20*l*., William Smith, of S5, Southernhay, Exeter, Devon. 10*l*., Robert Wortley, of Suffield, Aylsham.

CLASS 2. DEVON STEERS, UNDER 3 YEARS AND 3 MONTHS OLD.—30*l*., Harry Frampton, of Biandford; 20*l*., Robert Farthing, North Pethertón; 10*l*., C. F. Perkins, of The Grange, Taunton.

CLASS 3. DEVON OXEN, ABOVE 3 YEARS AND 3 MONTHS OLD.—30*l*., Walter Farthing, Stowey Court; 20*l*., H. H. Ball, West Monkton, Taunton; 10*l*., William Heath, Ludham Hall.

CLASS 4. DEVON HEIFERS UNDER 4 YEARS OLD.—25*l*., William Smith, Exeter; 15*l*., John Blomfield, of Warham, Norfolk.

CLASS 5. DEVON COWS, ABOVE 4 YEARS OLD.—25*l*., Walter Farthing; 15*l*., William Heath; 10*l*., James W. Buller, Crediton.

CLASS 6. HEREFORD STEERS, UNDER 2 YEARS AND 6 MONTHS OLD —20*l*., Aaron Pike, of Mitton, Tewkesbury; 10*l*, George Bedford, Leominster.

CLASS 7. HEREFORD STEERS, UNDER 3 YEARS AND 3 MONTHS OLD.—30*l*., Henry Yeomans, of Llowes Court, Hay; 20*l*., Samuel Druce, of Eynsham: 10*l*., John Hatcher, of Thornbury's

CLASS 8. HEREFORD OXEN, ABOVE 3 YEARS AND 3 MONTH, OLD.—30*l*., Joseph Phillips, of Ardington, Wantage; 20*l*., Robert Wortley, Aylsham, Norfolk; 10*l*., William Symonds, of Lambourne, Romford.

CLASS 9. HEREFORD HEIFERS, UNDER 4 YEARS OLD.—25*l*., John Baldwin, of Luddington, Stratford-on-Avon; 15*l*., John H. Arkwright, Leominster; 10*l*., Richard Dyott, of Freeford, Lichfield.

CLASS 10. HEREFORD COWS, ABOVE 4 YEARS OLD.—25*l*., William Stedman, Bucknell House, Shrewsbury; 15*l*., Henry Bettridge, of East Hanney, Wantage; 10*l*., William Groves, of Walk Mills, Lebotwood.

CLASS 11. SHORT-HORNED STEERS, UNDER 2 YEARS AND 6 MONTHS OLD.—20*l*., John Walesby Kirkham, of Biscathorpe House, Louth; 10*l*., The Earl of Aylesford.

CLASS 12. SHORT-HORNED STEERS, UNDER 3 YEARS AND 3 MONTHS OLD —30*l*., Thomas Pulver, of Broughton, Wellingborough; 20*l*., Frederick Leney & Son, of Wateringbury; 10*l*., Thomas Greetham, Wragby.

CLASS 13. SHORT-HORNED OXEN, ABOVE 3 YEARS AND 3 MONTHS OLD —30*l*., Sir William de Capeil Brooke, Bart., Kettering; 20*l*., The Earl of Gainsborough; 10*l*., Francis Carr, of Heslington, York.

CLASS 14. SHORT-HORNED HEIFERS, UNDER 4 YEARS OLD.—25*l*., Richard Taylor, of Kingham, Chipping Norton; 15*l*., The Duke of Sutherland; 10*l*., William Aldworth, of Abingdon.

CLASS 15. SHORT-HORNED COWS, ABOVE 4 YEARS OLD.—25*l*., Robert Sharpe, of Courtlands, East Grinstead; 15*l*., Henry Greenway, of Hambrooke; 10*l*., Robert Wortley.

CLASS 16. SUSSEX OXEN, UNDER 3 YEARS OLD.—30*l*., W. A. Langdale, Dorking; 10*l*., William Aird, of Cage Farm, Tonbridge.

CLASS 17. SUSSEX OXEN, ABOVE 3 YEARS OLD.—25*l*., Thomas Barton, Robertsbridge, Hurstgreen; 15*l*., John Shoosmith, of Berwick, Lewes; 10*l*., George C. Coote, of Tortington, Arundel.

CLASS 18. SUSSEX HEIFERS, UNDER 4 YEARS OLD.—20*l*., Lord Leconfield; 15*l*., John Shoosmith.

CLASS 19. SUSSEX COWS, ABOVE 4 YEARS OLD —No Entry.

CLASS 20. NORFOLK OR SUFFOLK POLLED OXEN, OF ANY AGE.—15*l*.. Edmund Beare, North Walsham; 10*l*., John Sewell, Swaffham, Norfolk.

CLASS 21. NORFOLK OR SUFFOLK POLLED HEIFERS OR COWS, OF ANY AGE. 15*l*.,John Overman, of Burnham, Sutton.

CLASS 22. LONG-HORNED OXEN, OF ANY AGE —10*l*., Sir John Harper Crewe, Bart.; 5*l*., W. T. Cox, of Spondon Hall, Derby.

CLASS 23. LONG-HORNED HEIFERS OR COWS, OF ANY AGE.—10*l*., John Faulkner, of Bretby Farm, Burton-on-Trent; 5*l*., W. T. Cox.

CLASS 24. SCOTCH HORNED OXEN, OF ANY AGE.—30*l*., James Maxwell, of The Hill, Thorney; 15*l*., Sir A. P. Gordon Cumming, Bart. (Class generally Commended).

CLASS 25. SCOTCH HORNED HEIFERS OR COWS, OF ANY AGE.—15*l*., Allan Pollok, of Lismany, Ballinasloe; 10*l*., James Stewart, Aberdeen.

CLASS 26, SCOTCH POLLED OXEN, OF ANY AGE.—30*l*., William McCombie, of Tillyfour; 15*l*., William Heath, of Ludham Hall.

CLASS 27. SCOTCH POLLED HEIFERS OR COWS, OF ANY AGE.—15*l*., The Earl of Southesk; 10*l*., J. and W. Martin, of Aberdeen.

CLASS 28. IRISH OXEN, OF ANY AGE.—10*l*., Allan Pollok.

CLASS 29. IRISH HEIFERS OR COWS, OF ANY AGE.—10*l*., Robert Christopher, of Swafield, North Walsham; 5*l*., Lord Berners.

CLASS 30. WELSH OXEN (RUNTS), OF ANY AGE.—20*l*., B. E. Bennett, of Theddingworth, Rugby; 10*l*, Francis Neal, of Pagham, Chichester.

CLASS 31. WELSH HEIFERS OR COWS, OF ANY AGE.—10*l*., W. B. Roberts, of Lovestone, Pembroke; 5*l*., John Ransome, of Wheathamstead, Bury, St. Albans.

CLASS 32. CROSS OR MIXED-BRED STEERS, NOT EXCEEDING 3 YEARS OLD.—20*l*., Thomas Dawson, of Poundsworth, Driffield; 15*l*., Robert Farthing; 10*l*., Robert Moir, of Meikle Tarty, Aberdeen.

CLASS 33. CROSS OR MIXED-BRED OXEN, ABOVE 3 YEARS OLD.—20*l*. J. and W. Martin, Aberdeen; 15*l*., Walter Matthews, of Cirbrook, Thetford; 10*l*., Andrew Longmore, of Rettie, Banff.

CLASS 34, CROSS OR MIXED BRED HEIFERS, UNDER 4 YEARS OLD.—15*l*., Sir A. P. Gordon Cumming, Bart.; 10*l*., R. Birkbeck, Reigate.

THE SHEEP CLASSES.

The LEICESTER BREED is well represented. Mr. Walmsley, of Bridlington, takes the 1st prize in the Class of Shearling Wethers with a pen of the true fine bred Leicester type. In the smaller classes of wethers,

too, the prizes are in every case awarded to quality, such as Lord Berners', Mr. Bradshaw's, and Mr. Foljambe's pens, respectively 1st, 2d, and 3d.

The COTSWOLDS are a small but excellent class, with wonderful fleeces of wool and large frames. It is a pity that the leading breeders do not more generally take these public opportunities of advertising their unequalled breed. Messrs. West take the 1st prize. Mr. Read shows a pen with wonderful fleeces.

The LINCOLNS are also a small class of large sheep, here shown apparently thicker and riper than the Cotswolds, and with apparently less length and weight of fleece.

The ROMNEY MARSH are another useful class fairly represented—the 1st prize pen however looking more like true Leicesters than anything else.

The Extra Stock Sheep are almost wholly Leicesters. Some fine Long-woolled wethers, Cotswolds, and Lincolns, are here also shown.

The SOUTH DOWN CLASSES are wonderfully fine. Lord Walsingham takes the 1st prize and silver cup for the best Southdowns in the yard. They are in the class of younger wethers. They are beautiful sheep, of great and uniform width from end to end, as can be seen from the galleries. The Duke of Richmond takes the 1st prize in the older class of wethers.

The WILTSHIRE DOWNS are well represented by a small class of very large and useful sheep. Mr. Canning's and Mr. Walter's pen are of great size, and carry a great deal of wool.

The SHROPSHIRES are a small class. Mr. H. Smith is again at the head of them with his Birmingham pen. His experience is perhaps unparalleled as a prize taker. He lambs only about 130 ewes, and sells 40 to 50 rams —he thus had only nine wethers from which to select the successful three which have beaten all England.

The OXFORDSHIRE SHEEP are also well represented. They are a thick heavily-fleeced breed, with capital quality of mutton. There are a few Mountain sheep exhibited for the prizes offered. The Somerset sheep are a compact and useful breed—but what shall we say of the Herdwicks? There is a pen here taking a prize of 10*l.*, which are certainly the worst animals of the sheep kind here. No doubt admirably adapted to their bleak mountain pastures—but hardly deserving of patronage at a metropolitan fat stock show. The extra stock classes of Southdowns are full of beautiful specimens. The Cross-breed sheep too in the extra stock classes are very fine.

The following are the prizes awarded in the Sheep Classes:—

SHEEP.

CLASS 35. FAT WETHERS (LEICESTERS UNDER 23 MONTHS).—20*l.*, G. Walmsley, of Rudston House, Bridlington; 15*l.*, F. Jordan, of Eastburn, Driffield; 5*l.*, the HON. Colonel Lowther, M.P.

CLASS 36. FAT WETHERS (LEICESTERS UNDER 23 MONTHS). EACH SHEEP NOT TO EXCEED 220 LB. LIVE WEIGHT.—20*l.*, Lord Berners; 15*l.*, C. J. Bradshaw, Burley-on-the-Hill; 5*l.*, G. S. Foljambe, Worksop.

CLASS 37. FAT WETHERS (COTSWOLDS UNDER 23 MONTHS).—20*l.*, T. and G. West, of Greenhill Farm, Bletchington; 15*l.*, J. F. Mills, of Burford; 5*l.*, J. K. Tombs, Lechlade.

CLASS 38. FAT WETHERS (LINCOLN, UNDER 23 MONTHS).—20*l.*, William Greetham, of Stainfield, Wragby; 15*l.*, John Edwards, of Buckworth, Kimbolton; 5*l.*, W. Cranfield, of Buckden, Huntingdon.

CLASS 39. FAT WETHERS (KENTISH, &c., UNDER 23 MONTHS).—15*l.*, Edmond Riley, Beverley, Yorks; 10*l.*, Frederick Murton, Ashford, Kent; 5*l.*, J. Newport, of Elmsted Court, Ashford.

CLASS 40. FAT WETHERS (SOUTHDOWN, UNDER 23 MONTHS).—20*l.*, Lord Walsingham; 10*l.*, Duke of Richmond; 5*l.*, G. S. Foljambe.

CLASS 41. FAT WETHERS (SOUTHDOWN, UNDER 23 MONTHS). EACH SHEEP NOT TO EXCEED 200 LBS. LIVE WEIGHT.—15*l.*, Duke of Richmond; 10*l.*, Lord Walsingham; 5*l.*, Sir Thomas Barrett Lennard, Bart.

CLASS 42. FAT WETHERS (SOUTHDOWN, ABOVE 23 AND UNDER 35 MONTHS).—20*l.*, Lord Walsingham; 10*l.*, Duke of Richmond; 5*l.*, John Overman, of Burnham Sutton.

CLASS 43. FAT WETHERS (HAMPSHIRE OR WILTSHIRE-DOWN, UNDER 23 MONTHS).—20*l.*, W. B. Canning, Devizes; 15*l.*, John Walter, M.P.; 5*l.*, Stephen King, Lambourn.

CLASS 44. FAT WETHERS (SHROPSHIRE, UNDER 23 MONTHS).—15*l.*, Henry Smith, of Sutton Maddock, Shiffnal; 5*l.*, Thomas Horley, Jun., of The Foss, near Leamington.

CLASS 45. FAT WETHERS (SHROPSHIRE, ABOVE 23 AND UNDER 35 MONTHS.)—15*l.*, Lord Wenlock; 5*l.*, Richard Dyott, of Freeford.

CLASS 46. FAT WETHERS (OXFORDSHIRE, UNDER 23 MONTHS.)—15*l.*, Henry Overman, of Weasenham, Rougham; 10*l.*, Samuel Druce, of Eynsham; 5*l.*, Arthur Overman, Norfolk.

CLASS 47. FAT WETHERS (WHITE-FACED MOUNTAIN BREED, OF ANY AGE.)—15*l.*, William Smith, Exeter; 10*l.*, John Tapp, of Twitchen, South Molton.

CLASS 48. FAT WETHERS (BLACK-FACED, OR SPECKLED-FACED MOUNTAIN BREED, OF ANY AGE.)—15*l.*, Jonathan Peel, of Knowlmere Manor, Clitheroe; 10*l.*, Richard Eastwood, of Thorney Holme, Clitheroe.

CLASS 49. FAT WETHERS (RYELAND, CHEVIOT, DORSET, OR ANY OTHER PURE BREED.)—15*l.*, John Bearcroft Downing, of Holm Lacy, Hereford; 10*l.*, Barwell Ewins Bennett, Rugby.

CLASS 50. CROSS-BRED FAT WETHERS (UNDER 23 MONTHS.)—20*l.*, John Overman, of Burnham-Sutton; 10*l.*, John White, of Parsonage Farm, Rickmansworth; 5*l.*, Clare Sewell Read, Norwich.

CLASS 51. CROSS-BRED WETHERS (UNDER 23 MONTHS.) EACH SHEEP NOT TO EXCEED 220 LBS. LIVE WEIGHT.—10*l.*, John Overman, of Burnham-Sutton; 5*l.*, George Hine, Jun., of Oakley, Bedford.

THE PIGS.

These are classed solely according to age. There are a greater number shown than have ever before been exhibited together under the auspices of the Smithfield Club, and several new names appear upon the prize list among the exhibitors.

Mrs. Warren, of Basingstoke, shows a very fine pen of black pigs. Mr. Stearn exhibits black pigs of great forwardness, and at the same time with plenty of hair and constitution. Mr. Morland's piebald appear in several of the classes as victorious. Mr. Stearn, too, Lord Radnor, Mr. Coates of Hammoon, the Hon. A. N. Hood, Mr. Crisp of Butleigh Abbey, the Countess of Chesterfield, and others, exhibit animals of great merit.

The prizes are as follows:—

PIGS.

CLASS 52. PIGS OF ANY BREED UNDER 6 MONTHS OLD.—15*l.*, Mrs. Pelham Warren, of Worting House, Basingstoke; 10*l.*, John Lynn, of Church Farm, Stroxton; 5*l.*, S. G. Stearn, of Brandeston, Wickham Market.

CLASS 53. PIGS OF ANY BREED, 6 TO 9 MONTHS OLD.—15*l.*, John Saunders, of Fifehead St. Quinton, Blandford; 10*l.*, John Kent, of Goodwood; 5*l.*, The Countess of Chesterfield. Commended: Class generally.

CLASS 54. PIGS OF ANY BREED, 9 TO 12 MONTHS OLD.—15*l.*, Geo. B. Morland, of Chilton, Steventon; 10*l.*, S. G. Stearn; 5*l.*, Christopher Cattle, of Wiseton Grange, Bawtry. Class generally Commended.

CLASS 55. PIGS OF ANY BREED, 12 TO 18 MONTHS OLD.—15*l.*, John Coate, of Hammoon, Blandford; 10*l.*, The Earl of Radnor; 5*l.*, G. B. Morland.

EXTRA STOCK.

Silver Medal, for the best Steer or Ox; also, 5*l.* Prize, Lewis Loyd, of Monks Orchard, Addington.

Silver Medal, for the best Heifer or Cow; also 5*l.* Prize, Robert Sharpe, of Courtlands, East Grinstead.

Silver Medal, for the best Leicester Wether Sheep, C. Jas. Bradshaw.

Silver Medal, for the best Leicester Ewe, The Hon. Colonel Lowther, M.P. Class generally Commended.

Silver Medal, for the best Long-woolled Sheep (not Leicester), Thos. B. Marshall, of Branston, near Lincoln.

Silver Medal, for the best South-down Wether Sheep, The Duke of Richmond.

Silver Medal, for the best Southdown Ewe, Lord Walsingham.

Silver Medal, for the best Short-woolled Sheep not Southdown), R. and J. Russell, of Horton Kirby, Dartford.

Silver Medal, for the best Cross-bred Sheep, John Overman, of Burnham Sutton.

Silver Medal, for the best Pig, Thomas Chamberlayne, of Cranbury Park, Winchester.

SILVER CUPS.

Silver Cup, value 40*l.*, for the best Steer or Ox in any of the classes, John Walesby Kirkham, of Biscathorpe House, Louth, Lincolnshire.

Silver Cup, value 40*l.*, for the best Heifer or Cow in any of the Classes, Rich. Taylor, of Kingham, Chipping Norton, Oxon.

Silver Cup, value 20*l.*, for the best pen of Leicesters, Cotswolds, Lincolns, Kentish, or other Long-woolled Breed, in any of the Classes, George Walmsley, of Rudston House, Bridlington, York.

Silver Cup, value 20*l.*, for the best pen of 1-year-old Southdowns, Hampshire, or Wiltshire Downs, Lord Walsingham.

Silver Cup, value 20*l.*, for the best pen of Shropshire, Oxfordshire, Cross-bred, or any other Breed of Sheep (not specified in Prize List) in any of the classes), John Overman, of Burnham Sutton, Burnham Market.

GOLD MEDAL.

Gold Medal, for the best pen of Pigs in any of the Classes, John Saunders, of Fifehead St. Quinton, Blandford, Dorset.

The GALLERIES and the space under them are filled with the usual admirable illustration of the energy of our machine makers and seedsmen. We cannot give a detailed report. The Catalogue is a book of 60 pages, and only two or three points will therefore be named to-day as deserving of notice.

Mr. Fowler's stand, containing his largest sized engine and plough, remained without a representative. At Mr. Howard's stand there is exhibited his new steam engine and windlass combined for cultivation purposes. It is a 12-horse engine placed with its boiler *across* the length of the framing, running on three wheels, which carries it, and the advantage is that there is thus afforded opportunity of side, single, or double drums which shall wind off and on their rope as the plough or cultivator is drawn to and fro—while the engine itself, stationed at the end of the furrow, stands transversely to its work, and thus able to resist the strain of the draught. It appears to be an exceedingly compact and well packed arrangement of parts, and some months experience of its fitness for its work has been now obtained, of which we hope soon to be able to give a report.

All the great manufacturers are here represented. Ransomes have a large and important stand, so have Clayton & Shuttleworth, Garrett, Hornsby, Crosskill, Samuelson, the Reading Company, Bentall, Burgess & Key, J. B. Brown & Co., and many others. Among the novelties may be mentioned Mr. Roby's clever Barley hummeller, Mr. Nalden's capital single, and compact and cheap rotary screen; Mr. Ferrabee's cheap, durable, and strong *untanned* leather straps; Greening's capital easily packed sheep-folding wire netting, which deserve to be known and used. It seems a very excellent thing, and costs 9*d.* per yard. Messrs. Garrett show a pair of Savory's steam-plough engines with winding drum.

The seedsmen are in great force. Messrs. Gibbs, of Halt Moon Street, have a splendid stand of roots, seeds, and Grasses; and Mr. Hallett here shows one of his wonderful cases of selected ears of Wheat, containing the result of four years education of an ear of Hunter's Wheat—the original ear, a good ordinary specimen—the dozen radiating monsters which have sprung from it, looking like any other of Mr. Hallett's well-known giant specimens.

Mr. Wright, of Great Bentley, shows good Mangel Wurzels and Swedes. Messrs. G. Gibbs & Co., of Down Street, show wonderful Cabbages, Blundell's Cattle Melon, Swedes, Mushrooms, &c. Messrs. Wheeler, of Gloucester, show capital roots and seeds, first-rate specimens of Wheat; so also do Messrs. Raynbird, of Basingstoke. Messrs. Carter have a very fine display of Swedes and Mangel Wurzels, Fosterton and Greystone and Green Globe Turnip, and a very large collection of Grasses and seeds; so also have Messrs. Sutton, of Reading, whose Mangels especially are of extraordinarily fine quality. By far the finest collection of Swedes, however,—looking like sections of a cylindrical pillar — is at the stand of Mr. Skirving, of Liverpool—one of the oldest Swede seed growers in the kingdom, and still unapproachable for the magnificent specimens he can show.

Messrs. Lawson show their Phospho-guano, which has now obtained a sale of close on 100,000 tons per annum! It is facts such as this which awaken one up to a realisation of the enormous scale and intense energy and activity which now pervade the agricultural world. There is at this stand a particularly interesting collection of Wheats, shown by Mr. Patrick Shirreff, of Haddington. We have a list of his Wheats and notes of their character, for which we cannot find room to-day. A cross between Talavera and the Bearded White Wheat produced an ear and grain of remarkably fine quality, and to the others reference will hereafter be made.

The daily attendance has been as large as usual, and the interest in farm produce taken by Londoners during the agricultural week has been in no degree diminished by the greater distance which they have now to traverse since the exhibition was removed from Baker Street to the Agricultural Hall.

We very much regret to learn that Mr. Sidney, the able, energetic, and courteous Secretary to the Agricultural Hall Company, has been disabled by illness during the week, when his services are so much needed. We have to thank Mr. Brandreth Gibbs, the Honorary Secretary to the Smithfield Club, for the facilities placed at the disposal of reporters on the first day of the show.

Farmers' Clubs.

LONDON: *Dec. 5.—Deficient Profits of Farming.*—This was the subject of a paper by Mr. Alderman MECHI, read before a large meeting of members, in the room of the Society of Arts, which had been kindly placed at the disposal of the Club for the evening.

The following is a very abridged report of Mr. Mechi's address. He said: In accordance with the notice on our paper of business, I purpose this evening to point out and investigate some of the causes that tend to render farming unprofitable. I shall classify them under the heads of uncontrollable and controllable, apportioning the latter between landlords and tenants, according to their responsibilities. In the tenants' department I shall consider the causes as affecting animal and vegetable management; also soil, climate, and manures. I need hardly say that it will be impossible to deal with so large a subject comprehensively within the time limited, but I will do my best to be brief, and, if possible, clear. If the farmers of Great Britain generally knew as well how to produce a profitable result as most of the gentlemen I now see before me, I should have no occasion to read this paper; but, as I have said before, this Club represents the sunny side of agriculture, and that is but a small area compared with the shady recesses of mismanagement, misfortune, and loss. "Plenty of meat and manure" must be, for the future, the motto of successful agriculture. The want of this is a prominent cause of unsuccess in farming. Farmers must learn to sell their crops to their animals, rather than to the miller: even with an immediate loss of 15 per cent., there is a greater gain in so doing. If sending away the crops from the farm impoverishes it, keeping them at home must produce an opposite result; and, therefore, if I want to know how a man is getting on, I ask him how many score pounds of meat per acre he makes over the whole area of his farm? 200 lb. per acre is a useful quantity. Apologising for this digression, I will now proceed to consider "some of the causes that tend to render farming unprofitable." Here is a long list of them:—

Not understanding the business of farming, especially th proper management of live stock; farming with insufficient capital, or taking too much land; extravagance in personal expenditure; not attending to your business; hiring your land without a lease; not stipulating for the power of selling or transferring that lease; hiring your land too dear; not suiting your crops to the soil and climate; buying too dear; selling too cheap; robbing, and thus starving, your Grass land; too many weeds, and too little hoeing; too shallow cultivation; too little manure; too little live stock; too little purchased food; too little purchased manures; too little good Grass land; the absence of steam power; fat horses and lazy ploughmen; the use of old-fashioned and improper implements; too many trees and fences; too small fields; bad roads and ill-placed homesteads; insufficient shelter for live stock, especially on heavy land; want of drainage on 20 millions of acres, according to Mr. Bailey Denton, one of our best authorities; being bound for an unsuccessful friend; too little experiment, and too much prejudice; not insuring against fire and hail-storms; family calamities; personal affliction; the seasons; murrain and blight; wind storm; incendiarism; inundation; local self-sufficiency, and want of general information and agricultural literature; difficulties in the transfer of land; want of agricultural statistics; a minimum crop causing a maximum per-centage of expense; too much seed; absence of piece-work; non-application of chalk or lime to poor, ferruginous, stiff clays; not having a good agricultural library; selling your produce on credit to unsafe persons; wire-worm; late sowing; being generally behind with your work; waste of manure; having a dishonest bailiff; having unskilled or incompetent labourers; neglecting the use of salt for animals and on the land; satisfaction with farming as it is; adulterated manures; adulterated oil-cakes; the want of selection and great care as to sowing the very best seed; the neglect of good parentage in live stock; breeding in-and-in with either live stock or poultry; being behind-hand in tillage, sowing, and the general work of the farm; the state of our laws as regarding the transfer of land; the want of associated capital for the purposes of agricultural improvement; the want of a desire on the part of landowners to seek the aid of associated capital; the want of improved arterial drainage; the want of water supply for summer irrigation.

In this list are many unavoidable causes, such as blight, murrain, and adverse seasons.

We have an illustration of the latter this year, when tens of thousands of acres on which nearly 10*l.* per acre have been expended in preparation for a root crop have partially or totally failed, owing to the protracted drought, thus depriving the farmer of that money return in meat on which he reasonably calculated, throwing him almost entirely upon his corn crop, which can only be disposed of at a very low price. Then, again, a cold wet season like 1861 deprived many a farmer of his year's profit, and in many cases trenched upon his capital. The furious gale that swept through parts of Scotland early in September, just at the period of harvesting, threshed out the corn and caused an immense amount of damage. Against these the farmer cannot insure, although he can against hail storms.

Slowness of return is also a natural cause of moderate profit.

We sow our Wheat, and wait 11 to 18 months for its conversion into money; while a dealer in stock, with a good connection, will make his return and realise his profit daily or weekly, accumulating frequently money enough to purchase and occupy large farms. A dealer can thus readily obtain advances from his banker, or assistance from a friend, because the article in which he deals is tangible and readily transferable; while the trammelled farmer, who has necessarily invested capital in the improvement of the soil, cannot deposit his lease as security, for he has not (as we have in towns) the power to transfer or dispose of it; and in case of premature death or failure, his family may be deprived of the value of his investment in improvements. This is an anomalous and unbusiness-like state of things, and tends to diminish the value of land, and discourages the introduction of wealthy and independent tenants. I should like to know what would become of business in towns, if we could not dispose of our leases when it suited us to do so.

In considering the shortcomings of landlords, I deal with the question nationally, and not individually.

Landlords are like other men—naturally and properly anxious to preserve their own rights and privileges. Many of them, noble by birth and vast in estate, have taken an advanced view of the proper condition of British agriculture. They have emerged from, and cast off, old-fashioned feudal restrictions and restraints, and have ceased to look upon farmers either as churls or vassals, and have attracted, encouraged, and I may say created, on their estates men of high intelligence and considerable capital. They have granted leases, valuations, &c., in a business manner. The tumble-down and insufficient sheds and hovels of antiquated farming have been swept away, and replaced by substantial buildings adapted to a large increase of stock, machinery, &c.; and such a class of tenants have been properly thought worthy of residential improvement. The labourer has no longer been looked upon as an incumbrance to be foisted on an adjoining parish; but a sufficiency of well-constructed cottages, with pure water, and the necessary area of garden, give evidence of a humanity and an intelligence highly conducive to diminished poor-rates and increased morality and efficiency. But has this emergence from feudal trammels abstracted aught from the dignity, the influence, the respect, or the esteem felt for these worthy landlords? Certainly not, but the reverse. Such men prefer intelligent respect to clownish or ignorant servility. It is gratifying to find noble dukes and great landlords treating agriculture as a business, and not ashamed to avail themselves of associated capital, to improve their estates and increase their rentals. I know some of them who prefer letting the shooting to their tenants, at 6*d.* or more per acre, rather than to strangers. Such a system does away with the heartburnings of game-preserving, and in some cases attract a superior class of tenants. But, unfortunately, the picture I have drawn does not apply generally, and there is abundant need of a more liberal and commercial system in letting land.

Farming Profits.—Farming is known to be proverbially a slow way of making money, although a healthy, pleasant, and independent occupation—permanent in its character, and not affected by fashionable changes, for appetite is ever recurring, and must be provided for; therefore, so long as there is a population to be fed, so long must the land be cultivated—farmed.

On well cultivated arable farms employing 10*l.* per acre capital, 1*l.* per acre profit would be certainly a good average; and I know many very good farmers who consider 500*l.* a year on a 500-acre farm a full remuneration, having their residence, stabling, &c., rent free, and some trifling advantages of the farmyard. Where much money is realised in agriculture, it often begins in rigid economy, combined with very superior ability in hiring, buying, selling, and dealing, by great vigilance in the economy and superintendence of manual and horse labour, and a thorough knowledge of stock management. We have many notable instances of great wealth and position attained by those who once followed their own plough, sowed their own seed, fed their own stock, and so got "the fore horse by the head." In fact, sound, practical agriculture is composed, like our good old city of London, of self-made men, who began at the lowest step in the ladder, and reached competence and independence by their own good qualities. So strong is the belief in the truth of this theory, that a respected practical friend of mine in Cambridgeshire said to me, "I never knew a young man succeed as a farmer who began with 10,000*l.* capital." And on asking him why, "Well," he said, "his habits are usually too expensive for a beginner; he trusts too much to others, and is not sufficiently impressed with the necessity for personal supervision, vigilance, frugality, and general economy in the management of his farm."

Mismanagement of Live Stock.—If a farmer is wrong in the management of his live stock, he must bid adieu to all hope of profit.

In the feeding of horses, and cattle too, I have often seen very great waste. If the loss of farm horses by mis-management could be ascertained, it would form a sum of astounding magnitude, and show a great deduction from the farmer's profits. Fat horses are, like fat men, unable to do a hard day's work. Plenty of muscle and condition, with good exercise and wind, pay better.

I hear of so many cases where, by the use of salt, disease and non-success in stock have been remedied, that I consider its absence as very prejudicial. I have always had rock-salt in the mangers; common salt will do as well.

Fit Labourers well Supervised.—The reverse of this causes much loss.

The labour on an arable highly-manured farm, with a large quantity of stock and steam machinery, is probably, including bailiff and engineer, 45*s.* per acre. Mismanagement or neglect in this matter to the extent of 20 per cent. would cause a loss of 9*s.* per acre, or nearly half the farmer's profit. I prefer piece-work where possible.

Damage by Game.—The influence of game upon the farmer's profits is a matter deserving our consideration.

I presume that we are all agreed that it is highly desirable that our great and dignified landowners should have every proper inducement and encouragement as residential notabilities. We all feel proud of our landed aristocracy, and know their residential value. I am myself an old and ardent sportsman, and therefore can appreciate the zest such an amusement affords to those who love it. Pheasants and partridges I look upon as real farmers' friends, assuming of course that sufficient food is provided for them by the landowner. The harm they do is trivial, compared with the benefit they confer as destroyers of grub and insect. The question of ground game presents a different aspect: hares and rabbits, however well fed, have a strong affection for the first shoot that comes from the germinating seed of Wheat in October or November. A hundred rabbits will clear off acres of these shoots in a single night: the consequence is, a deficient and blighted crop at harvest time. Hares take a wider range, and do less injury.

The Sewage Question.—Probably there is no more extensive or insidious cause of loss to agriculture than the waste of non-utilisation of our excreta.

The great want in farming is more meat, more manure, and more artificial manures. I have been making up my books to 31st October, my usual period, and find that after paying for 660*l.* of purchased food (300*l.* of which, as grain, was bought of myself at market prices), my live stock have left me 7*l.* per acre for root and green crops. It would have been 9*l.* per acre but for the loss of 70*l.* by calves, which died owing to being allowed to help themselves to some rich luxuriant Italian Rye-grass. The quantity of meat actually made on the whole farm, 170 acres landlord's measure, was 220 lb. for each acre. I am convinced that the system of shelter and preparation of food, combined with a few acres of sewaged Italian Rye-grass, is the key to true economy and profit. Starving, or half-starving the land is one of the most certain and serious causes of unprofitable farming. Although I make so much meat and manure, and consume so much purchased food, still I find it profitable to have recourse to artificial manures, especially the best Peruvian guano and superphosphate of lime, and some salt.

The Want of Sound Middle-class Education.—The establishment of middle-class colleges promises to effect a great good—a sound and suitable education is much needed among farmers in certain districts—agricultural literature and examinations should certainly form a prominent part of such education—and then we might expect to find in each farmery a small but useful library of agricultural books, containing the valuable experience and advice of good and clever men who are no longer with us.

In conclusion, there is, in perspective, a grand future for British agriculture, not merely by the reclamation of waste land, for of that there is but little left, but rather by intensifying our farming—by concentrating capital in a limited area. Taking out of view individual capability, which must ever vary, our general system will be based on commercial and manufacturing principles, looking rather to result than to cost. Education, intercourse, and intelligence, goaded by foreign competition, will cause our agriculture to emerge from its ancient customs and feudal restraints. Set free to act, the national character will exhibit in this—as in manufactures, commerce, and railways—a vigorous, I would say a gigantic, action; but all this can scarcely be effected without a re-mapping of the country. Our crooked ways and cramped and wooded enclosures must give place to rectilinear extension, but not bare or untimbered enclosures. Landowners should lead the way, supported by capitalists, and then the sturdy British yeoman will not be found wanting in the good work of cheap and abundant production.

The discussion which ensued is referred to in a leading article.

Home Correspondence.

Gorse.—As one of the oldest writers in your Paper to recommend the use of Gorse, I was much pleased at the letter upon it in your last, and hope it will lead many of your readers to try it. Now is just the time; the Gorse is at its best. Hay is very expensive, and it is a charity to employ an old man or two at this time of year to cut it. I used to recommend a common chaff cutter, passing the Gorse twice through; but last year and this I find Walsh's machine answer so much better that I use no other. The report of it, though most favourable in many respects, is unfair as regards its choking, and also as to a stick of Gorse stopping it. I went straight from the perusal of your Paper to my man feeding it. He said: "There is no difficulty whatever in feeding it as fast as you like, with the most moderate care;" and in answer to my question as to whether a stick of Gorse would do any harm, he said, "It must be a very big one then, for I have seen it crush many to pieces and never was stopped yet." I am speaking of the machine for horse-power. I have not used the smaller. My boy came to me with quite a long face some weeks since, saying, "I can't get the horses to eat any chaff now."—"Why not?"—"They won't now they can get Gorse." *W. D. F.*

On Laying down Grass.—I observe that you have lately inserted under "Miscellaneous," a letter on "Sowing Grass lands," which I sent to the *Times*. I regret to see that the *Times* has omitted three important permanent pasture Grasses, which I included in the mixture, viz., 2 lb. of each of the following:—Meadow Fescue, Hard Fescue, and Meadow Foxtail. The omission of the two former, after what I said of them in my letter, appears rather contradictory. To insure a permanency of the Grasses sown, the land to be "laid down" should be thoroughly drained, well limed, and manured, otherwise I find the coarser Grasses sooner or later attain the pre-eminence. In our border counties we prefer as the best manuring and preparation, the whole of the previous crop or crops of Turnips eaten off with sheep; the ploughing being a light furrow, kept as close as possible, and sown down without a crop. The mixture I recommended has been long used by us without a failure. Sown as previously directed, the "seeds" are ready for pasturage early in June, keeping a pretty heavy stock of sheep; no cattle being allowed, and commonly letting from 2*l.* 10*s.* to 2*l.* 15*s.* per. acre, while the succeeding seasons on ordinary soils from 5*l.* to 6*l.* is readily given. *William Mein.*

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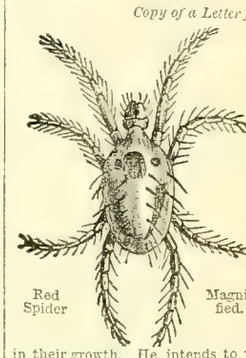
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

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CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

WINTER DRESS all FRUIT TREES with GISHURST COMPOUND.
Copy of a Letter from MR. RIVERS.



"Nurseries, Sawbridgeworth Herts, 22d Oct., 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall, to which Peach-trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple-trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall-trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach-trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house trees 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured

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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

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Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide..	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

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TO FARMERS.—In consequence of the increasing demand for THORLEY'S PENNY PACKETS of SPICY AROMATIC CONDIMENT, I am compelled to discontinue the manufacture of Condimental Meal, so as to devote the whole of my time to this important agricultural want.—JOSEPH THORLEY, Spice Merchant.

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Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs,

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scour in calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.*, securely packed, and carriage free. Sample case, usefully assorted, 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

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From the MARK LANE EXPRESS, *August* 15, 1864.

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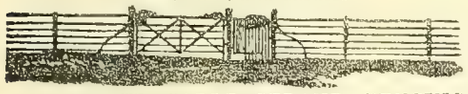
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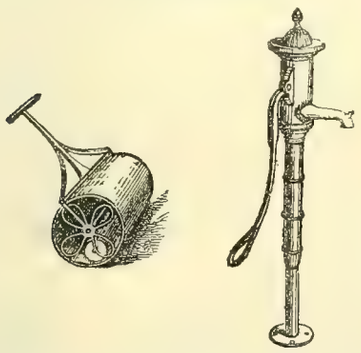


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COTTAM & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot-water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.

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PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

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Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

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MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.

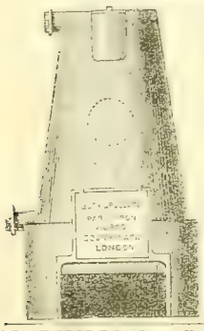


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

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HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

Bury & Pollard have just fixed at Wollaton Gardens, for Lord Middleton, several Boilers and long Ranges of Pipes.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which require no Brickwork, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

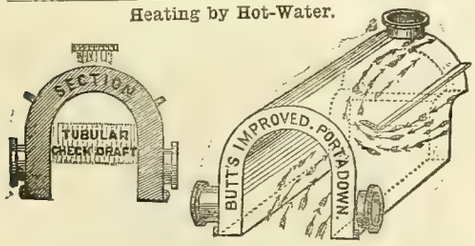


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. Dennis, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

Heating by Hot-Water.

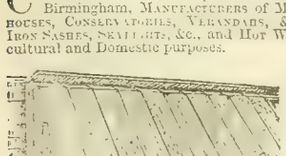


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Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to Frederick William Butt (of London), Portadown, Ireland.

Under the Patronage of Her Majesty.

CLARK AND HOPE (late Clark), 55, Lionel Street, Birmingham, Manufacturers of Metallic and Wooden Hothouses, Conservatories, Verandahs, &c., Copper and Wrought Iron Sashes, Skylights, &c., and Hot Water Apparatus for Horticultural and Domestic purposes.



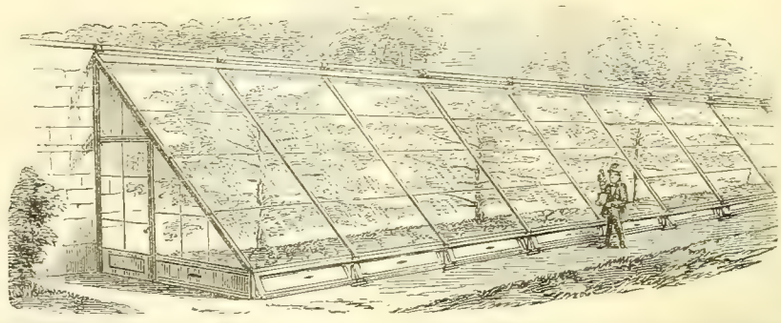
C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Coping for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

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BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of James Scott, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
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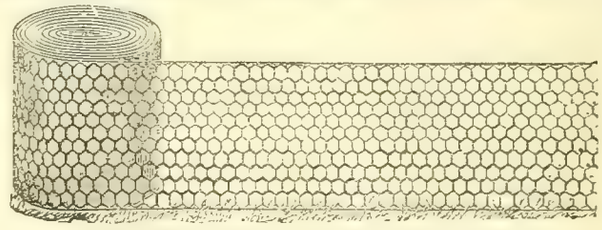
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Every description of IRONWORK. Lists Free.

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GREAT IMPROVEMENT,



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Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
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Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

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White	30*s.*
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ENTERED AT STATIONERS HALL.

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Bright Red	26*s.*
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THE BRITISH GOVERNMENT, THE RUSSIAN GOVERNMENT, | H.R.H. THE LATE PRINCE CONSORT, MOST of the NOBILITY and GENTRY, | RAILWAY and CANAL COMPANIES, COLLIERS, IRONMASTERS, &c.

The Anti-Corrosion Paint is extensively used at home and abroad for all kinds of

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and every kind of Brick, Stone, Compo, &c., it is unrivalled, presenting the appearance of fine cut stone, and will positively become harder than the same a few months after it is laid on. It is the only Paint that will stand on

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Three Cwt. and upwards Free to any Station in England and Wales, and per Steamer to most Ports in Ireland and Scotland. Sold in Casks of 28 lb., 56 lb., 112 lb., and upwards.

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Caution.—*All Casks bear the Trade Mark, without which none are genuine.*

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

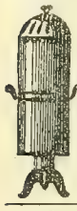
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

The only Stove without a Flue.



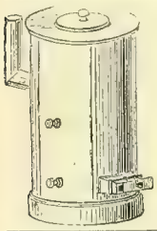
JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12s. 6d. each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2s. 3d. per bushel.

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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the Patentee's Warehouse, 155, Cheapside, London, E.C.

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Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

FOR SALE, SEVEN GREENHOUSES, warranted strongly made, of good Yellow Deal, and Glazed with 21-oz. British Sheet Glass, Painted, &c.

Span, Angle 15 deg., with excellent ventilating appliance, 25 ft. by 10 ft.				£55 0
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Ditto	Ditto	Ditto	23 ft. 6 in. by 12 ft. 8 in.	30 0
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JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



Each.—s. d.		Each.—s. d.	
2 inches in diameter	0 3½	12 inches in diameter	1 9
3 " "	0 4½	13 " "	2 0
4 " "	0 5½	14 " "	2 6
5 " "	0 6½	15 " "	3 0
6 " "	0 8	16 " "	3 6
7 " "	0 10	17 " "	4 0
8 " "	1 0	18 " "	5 0
9 " "	1 2	19 " "	6 0
10 " "	1 4	20 " "	6 0
11 " "	1 6		

HAND GLASSES, WITH OPEN TOPS.



Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
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Painted and Glazed with 16-oz. Sheet Glass.

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6 inch diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

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Common shape, per dozen, 2s. 6d. Improved shape, per dozen, 4s. 6d. Patent shape, per dozen, 6s. 6d.

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LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

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It becomes necessary therefore to call the attention of the present generation to the established character of the Manufactory, which after so many years practice has accumulated the largest quantity of Models that probably ever existed in one concern. An idea of them may be conveyed by the following summary:—

246 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
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17 FLOWER BASKETS, for WINDOWS, &c.
6 GARDEN SEATS, of ARCHITECTURAL DESIGN.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.

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Ask for BURGESS & KEY'S.

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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

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WANTED to PURCHASE, either an ESTABLISHED NURSERY BUSINESS or PARTNERSHIP.—The advertiser will devote his whole time to the business. His connections are such that will enable him to increase the business.

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TO BE LET, and may be Entered to Immediately, the SILCOATES NURSERY, near Wakefield, with a Four-Roomed House, Five Vineries and Greenhouses, Propagating House, Stable, Potting Shade, and other conveniences for carrying on the Nursery and Florist Business, &c. Valuation Low.

For further particulars apply to EDWARD HALL, Wholesale and Retail Fruiterer, Cross Square, Wakefield.

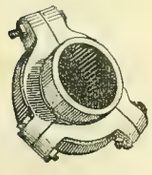
To Nurserymen and Florists.

TO BE LET, within 10 minutes' walk of Kilburn Gate, about THREE ACRES of LAND, well adapted for a Nursery Ground, with Residence and Shop if required. From the large number of first-class Villas being erected in the immediate neighbourhood, the above affords an excellent opportunity for a Nurseryman commencing business or requiring new premises.

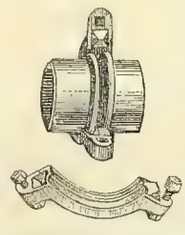
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PORTABLE HOT-WATER APPARATUS,

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Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

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SALE THIS DAY, AT HALF-PAST TWELVE PRECISELY.

Pyramid and Dwarf Fruit Trees,

ROSES, RHODODENDRONS, AZALEAS, BULBS, SHRUBS, GREENHOUSE PLANTS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 10, at half-past 12 o'Clock precisely, hardy RHODODENDRONS, AZALEAS, and LILY BULBS, from Belgium; Pyramid and Dwarf Fruit Trees from France; Tulips, Crocuses, &c., from Holland; some choice Yuccas, Dracænas, Ferns, and other Greenhouse Plants, and some Rustic Garden Seats, Baskets, Chairs, Tables, &c., from a celebrated Manufacturer.

On view the Morning of Sale, and Catalogues had.

Fancy Flower Baskets, Fern Cases and Stands,

Ornamental Flower Pots, &c., removed from the Crystal Palace at Sydenham. A quantity of Rustic Garden Seats and Stands. Also some choice Pyramid and Dwarf Fruit Trees, Shrubs, Evergreens, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 17, at half-past 12 o'Clock precisely, a splendid assortment of PYRAMID and DWARF PEAR, PEACH, Plum, Cherry, and Apricot Trees. Yews, Portugal Laurels, Berberis, Pinus austriaca, Cob-nuts, Hollies, &c., from France and Holland. Rustic Garden Seats, Chairs, Stools, &c. Also a variety of Fancy Wire Baskets for Conservatories, Brackets, Fern Cases and Ferns, Ornamental Flower Pots and Vases, Flower Stands, Hydropults, Syringes, Wardian Cases, &c., removed from a Stall at the Crystal Palace. On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 21, at half past 12 o'Clock precisely, a selection of CAMELLIAS, INDIAN and HARDY AZALEAS, STANDARD ROSES, VARIEGATED HOLLIES, ASCLEPIAS TUBEROSA and various ornamental Greenhouse Plants, HARDY RHODODENDRONS and choice herbaceous PÆONIES, from a celebrated Nurseryman at Ghent.

On view the Morning of Sale, and Catalogues had.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on WEDNESDAY, December 14, at 1 o'Clock precisely, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Anemones, Ranunculus, Snowdrops, &c. Also a fine assortment of 300 STANDARD and DWARF ROSES, comprising the choicest Hybrids, Perpetuals, Bourbons, Chinas, Noisettes, &c. Selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, beautifully set with bloom buds, &c.

On view the Morning of Sale. Catalogues may be had as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Great Sale of Roses, Fruit Trees, Liliums, Evergreens, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, December 17, at half-past 12 o'Clock precisely, a splendid assortment of 1000 Standard and Dwarf ROSES of remarkably fine growth; selected Fruit Trees, viz., very handsome Dwarf-trained PEACHES, NECTARINES, APRICOTS, Standard and Dwarf APPLES, PEARS, PLUMS, CHERRIES, &c.; CONIFERÆ, and other EVERGREEN SHRUBS; a choice collection of Hardy AMERICAN PLANTS, 1000 fine bulbs LILIUM LANCIFOLIUM RUBRUM and ALBUM from a celebrated grower in Belgium; Dutch Bulbs, &c.

On view the Morning of Sale. Catalogues had as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

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IRON MERCHANTS AND HORTICULTURAL ENGINEERS,

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GREENHOUSES.	FORCING PITS.	CHURCHES.	LECTURE HALLS.	FACTORIES.	DRYING ROOMS.
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HOT HOUSES.	ORCHARD HOUSES.	READING ROOMS.	BATHS.	WAREHOUSES.	HARNESS ROOMS.

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J. JONES & SONS recommend Boilers of all kinds being set in Brickwork, if possible; but Portable Boilers can be supplied, if required.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 51.—1864.] SATURDAY, DECEMBER 17. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
SATURDAY WEEKLY SHOWS, commencing JANUARY, 1865.
JAN. 7. SHOW of CHINESE PRIMULAS.
,, 14. SHOW of CYCLAMENS.
,, 21. SHOW of VIOLETS.
,, 28. SHOW of TULIPS and MIGNONETTE.
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GENERAL EXHIBITIONS:
WEDNESDAYS, May 24, June 14, July 5.
AMERICAN PLANTS—MONDAYS, June 5 and 12.
SPRING EXHIBITIONS—SATURDAYS, March 18, April 8, and 29.
By Order of the Council, J. De C. Sowerby, Secretary.

1864 and 1865 Rose Catalogue.
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A PRICED LIST of select GARDEN SEEDS will be printed in December, and may be had free on application.
Osborn & Sons, The Nursery, Fulham, London, S.W.

DIXON'S YORKSHIRE HERO PEA, the best Dwarf Pea in cultivation, 5s. per quart, 2s. 6d. per pint.
See Testimonials, page 1151.
E. P. Dixon & Son, 57, Queen Street, Hull.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.
Application at the Gardens at Calcot, near Reading.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.
Apply to H. & F. Sharpe, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

KING of the CUCUMBERS, selected from a prime stock of the Long Prickly, the most hardy and abundant cropper, 10s. per ounce. LONG PRICKLY PRINCE, 3s. per ounce.
Post Free from the Grower,
Mr. A. Wilkin, Tiptree Heath, Kelvedon, Essex.

Cabbage Plants.
FOR SALE, good Strong Plants, fit for immediate planting.
For price, apply to W. Myatt, Manor Farm, Deptford, S.E.

CABBAGE PLANTS, of the DRUMHEAD or OX CABBAGE, 3s. per 1000; 20,000 lots and upwards, 2s. 6d. per 1000.
Christmas Quincey, Seedsman, &c., Peterborough.

Green-top Kohl Rabi.
MR. S. DAINTREE, of Fendrayton, St. Ives, Hunts, has a good stock of the above, also of genuine ITALIAN RYEGRASS, from second cut Foreign Seed; both grown by himself.
For samples and prices apply as above.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, &c. Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.—Richard Smith, Seed Merchant, Worcester.

NEWSPAPER

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7*s.* 6*d.* each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1864 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

ALEXIS DALLIÈRE, NURSERYMAN, Ghent, Belgium, has now for Sale at his Establishment, fine strong STANDARD ROSES, of very superior quality, and of the best and leading varieties, at the very low price of 3*l.* per 100.

Unknown correspondents, who may honour A. DALLIÈRE with their orders, are requested to send a cheque for the amount to Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Pelargoniums for 1864.

B. S. WILLIAMS has much pleasure in announcing that he has been again entrusted with the distribution of BECK'S NEW and CHOICE VARIETIES for this season, and that he is now prepared to supply strong plants.

A DESCRIPTIVE CATALOGUE of which, with Select Lists of other choice Show, French and English Spotted and Fancy Pelargoniums, can be had post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Paul's Nurseries, Waltham Cross, N

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the Trees, &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for Transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL'S possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post. Orders by post promptly attended to.

Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

To Gentlemen, Nurserymen, Florists, and Others.

TO BE SOLD, Cheap, the following fine healthy well-grown Plants:—8 INDIAN AZALEAS, 4 to 5 feet in height, and the same in circumference, pyramidal trained; 10 ERICAS and EPACRIS, in 12-inch pots; 20 strong FRUITING VINES; and 500 STRAWBERRIES in pots, for Forcing, of the following:—Keens' Seedling, Sir C. Napier, and Trollope's Victoria.

For price and particulars apply to W. MILLER, The Nurseries, Bridge Street, Andover, Hants.

CARTER'S FARMER'S VADE-MECUM.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEO. CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4 feet high, of unexceptionable quality, also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength. Together with corresponding stocks of SPRUCE, SCOTCH, OAK, &c. A very large stock of superior EVERGREENS and ORNAMENTAL TREES, and many thousand STANDARD APPLES of superior quality.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

M. CROOK AND SONS, The Nurseries, Walton-le-Dale, Preston, have 400,000 to 500,000 LARCH FIRS from 2½ to 3½ feet high. The above are strong healthy-grown Plants. Prices reasonable.

CATALOGUE on application, which gives a general summary of their stock.

To Gentlemen and Planters.

GEORGE DAVISON, White Cross Nurseries, Hereford, offers the following Large Trees:—

HORSE CHESTNUTS, MAPLE, MOUNTAIN ASH and ELM, from 9 to 11 feet high, 9*s.* per dozen.
TURKEY OAK, 18*s.*; ONTARIO POPLAR, 18*s.*
SPANISH CHESTNUTS, 18*s.*
WEEPING BIRCH, 9 to 11 feet high, 15*s.*
LAURUSTINUS, 1½ to 2 feet through, 9*s.*
PORTUGAL LAUREL, fine bushes, 2½ to 3 feet, 15*s.*
LARCH, 2 to 3 feet, 25*s.* per 1000.
HAWTHORN QUICK, 2 to 3 feet, 20*s.* per 1000.
STANDARD ROSES, 18*s.* per dozen.
CHINESE ARBORVITÆ, 4, 5, and 6 feet, 15*s.* to 30*s.*
AMERICAN ditto, 4 feet, 12*s.*
ABIES ALBA, 5 to 6 feet, 2*s.* 6*d.* each.
" MENZIESII, 4 to 5 feet, 2*s.* 6*d.*
" MORINDA, 3 to 4 feet, 2*s.* 6*d.*
BIOTA AUREA, 1½ feet, 4*s.*; 2 to 2½ feet, 7*s.* 6*d.*
" MELDENSIS, 3 feet, 5*s.*
" COMPACTA, 2½ feet, 5*s.*
" GLAUCA, 4 feet, 7*s.* 6*d.*
PINUS EXCELSA, 6 to 7 feet, 5*s.* to 7*s.* 6*d.*
" CEMBRA, 4 to 5 feet, 5*s.* to 7*s.* 6*d.*
" INSIGNIS, 2½ to 3½ feet, 3*s.* 6*d.* to 5*s.*
" STROBUS, 7 to 8 feet, 2*s.* 6*d.*
SILVER FIRS, 7 feet, 2*s.* 6*d.*
TAXUS HIBERNICA, 6, 7, and 8 feet, 5*s.*, 7*s.*, and 10*s.* 6*d.*
THUJA GIGANTEA, 3, 4, and 5 feet, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
" WARREANA, 7 to 8 feet high, 3½ to 4 feet through, 21*s.* each.
" LOBBII, 4½ to 5½ feet, 5*s.* to 7*s.* 6*d.*
WELLINGTONIA, 2½ to 3 feet, 7*s.* 6*d.* to 10*s.* 6*d.*; 4 feet, 21*s.*; 6 feet, 42*s.*
NAMED FRUIT TREES, 3*s.* 6*d.* to 4*s.* 6*d.* each.
PYRAMID APPLES and PEARS, 2*s.* 6*d.* each.

The above are in the finest condition and have all been frequently transplanted.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Trees and Plants.

JAMES DICKSON AND SONS beg to draw special attention to their unusually good and almost unlimited stock of FOREST TREES, QUICKS, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, STOVE and GREENHOUSE PLANTS, as well as of all other Trees and Plants.

Fully PRICED and DESCRIPTIVE LISTS of which they will be glad to forward post free upon application.

The "Newton" Nurseries, and 102, Eastgate Street, Chester; also Nurseries, Newtown, Montgomeryshire.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.

CATALOGUES and samples may be had free on application.

Seedling and Transplanted Forest Trees.

WOOD AND INGRAM have to offer the following, which may be depended upon as very fine stuff:—

ENGLISH ELMS, 1 year's Seedling, 5*s.* per 1000.
" " 2 years' Seedling, 8*s.* per 1000.
ENGLISH OAK, extra fine, 2 years' Seedling, 8*s.* per 1000.
SPRUCE FIRS, Transplanted, 1 to 1½ ft., 20*s.* per 1000.
" " " 1½ to 2 ft., 30*s.* per 1000.
" " " 2 to 2½ ft., 50*s.* per 1000.
BLACK ITALIAN POPLAR, 7 to 9 ft., 55*s.* per 1000.

Special offers for large quantities to the Trade.

The Nurseries, Huntingdon.

WANTED, FOREST TREES.

ALDER, 2 to 2½ ft.	HORSE CHESTNUTS, 1½ to 2 ft.
ASH, about 1 to 3 ft.	HORSE CHESTNUTS, 2 to 3 ft.
BEECH, 2 to 3 ft., and 3 to 4 ft.	HORNBEAM, 2 to 3 ft.
BIRCH, 1 to 2 ft.	SCOTCH FIRS, 1 to 1½ ft.

PINUS AUSTRIACA, 2 ft. & 3 ft.

Parties having the above to dispose of, or any other kinds of Forest Trees, will oblige by furnishing price to

WM. WOOD & SON, Woodlands Nursery, Maresfield, Uckfield, Sussex.

LARGE BEECH, SYCAMORE, and SPRUCE FIR, also a few bushels of HOLLY BERRIES and BEECH MAST.

The above will be sold cheap, f. o. b. at Waterford.

WANTED, large HAZELS.

Apply to D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches: also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.

1 and 2 year Transplanted NATIVE SCOTCH FIR.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N. B.

Forest Trees, Shrubs, &c.

THOMAS KENNEDY AND CO. beg to intimate that they have this Season a very large and superior stock of FOREST TREES and SHRUBS of various sizes, adapted for extensive Planting and for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c., and which they are now selling at very moderate prices.

Their NEW DESCRIPTIVE PRICED CATALOGUE for AUTUMN 1864, and SPRING 1865, of FOREST and ORNAMENTAL TREES, ROSES, BEDDING PLANTS, &c., is ready, and may be had free on application.

☞ Dumfries, from its central position and increased Railway accommodation, enables T. K. & Co. to transmit Goods daily to all parts of Great Britain and Ireland.

Nursery and Seed Establishment (Established 1787), Dumfries.

J. SCOTT, Merriott Nurseries, Somerset, has to offer fine LARCH, 1½ to 2 feet, 22*s.* 6*d.* per 1000; do. 2 to 2½ feet, 25*s.* per 1000; SPRUCE, same sizes, 30*s.* and 35*s.* per 1000; BEECH, do., 25*s.* and 30*s.* per 1000; SPANISH CHESTNUT, do., 30*s.* and 35*s.* per 1000; SCOTCH, do., 25*s.* and 30*s.* per 1000; extra strong THORNS, 25*s.* per 1000; strong do., 20*s.* per 1000. The above have all been twice, and many of them three times transplanted. CEDARS of LEBANON, 5, 6, 7, 8, 9, to 10 feet, at 3*s.* 6*d.*, 5*s.*, 5*s.* 6*d.*, 6*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each; DEODARS, same sizes and same prices; PORTUGAL LAURELS, 3, 4, 5, 6, to 7 feet high, and as much through, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* to 7*s.* 6*d.* each. Besides the above, J. S. can offer one of the finest Collections of TREES and SHRUBS in England, at equally moderate prices, CATALOGUES of which will be forwarded for one stamp.

The New Edition of the FRUIT TREE CATALOGUE is now ready, with full descriptions of upwards of 1000 sorts of Fruits, with Instructions on Planting, Training, Root Pruning, the Formation of Miniature Orchards, Cordon Training, the Formation of Pyramids, and a host of other useful matter on Fruit Trees. Price 1*s.*, 88 pages.

TRADE

HALLETT'S [PEDIGREE] NURSERY WHEAT.

MARK.

PURE SEED OATS.

46*s.* a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

DIXON'S YORKSHIRE HERO PEA.—Mr. Kemp says:—"From the quart of seed I had from you I have saved SIX PECKS of well-ripened Peas, which I can readily dispose of at 5*s.* per quart to those who saw them in bearing."

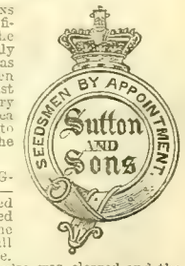
E. P. DIXON & SON, 37, Queen Street, Hull.

Two First-class New Early Peas, quite distinct.

SUTTON'S RINGLEADER and SUTTON'S LONGPODDED TOM THUMB.



SUTTON & SONS have every confidence in offering the above as decidedly the forwardest Peas yet out, having been carefully tested last season against every other early Pea which has hitherto been offered to the public.

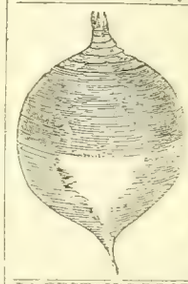


SUTTON'S RINGLEADER, 2½ feet.—This Pea is loaded with well-filled pods, which come in for gathering all at the same time. In Messrs. Sutton's Trial Grounds the haulm was cleared and the land planted with another green crop before the common early Peas were ready for gathering. Price 2*s.* 6*d.* per quart.

SUTTON'S LONGPODDED TOM THUMB, 1 foot.—This has all the merits of the old Tom Thumb and Beck's Gem, which are so useful for small gardens and forcing, with the greater advantage of being covered with pods full twice the length of the sorts named. Price 2*s.* 6*d.* per quart.

As the stock is limited early orders are requested.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.



Mangel Wurzel and Swede Seed.

SUTTON AND SONS can supply good Seed at very moderate prices, of the same sorts of MANGEL WURZEL and CHAMPION SWEDES which were so much admired on their Stands during the recent Shows at Birmingham, Islington Hall, and the Royal Horticultural Society's Gardens.

For prices, stating quantity required, apply to

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

BEESTON'S PROLIFIC FRAME CUCUMBER (NEW).—This will be found on trial to be the most prolific Cucumber at present known, producing, as it does, three and even four fruit at each joint. It is long, handsome, and of first-class quality, and has taken first honours wherever exhibited.

To be had only of the Subscribers, who feel sure it will be found to be as great an improvement upon the varieties now in use as was their "Newton Hero" (which at once became a standard variety) superior to those in use, when it was introduced by them.

In sealed packets, 2*s.* 6*d.* each, post free.

JAMES DICKSON & SONS, Seed Growers, &c., 102, Eastgate Street, Chester.

Hill's Incomparable Dwarf Cabbage.

E. P. FRANCIS has great pleasure in offering the above distinct and most valuable Cabbage, raised by Mr. J. Hill, Gardener to Robert Hanbury, Esq., Poles, near Ware, Herts. It is of a most remarkable dwarf and close-growing habit, yet producing a medium-size head. It will undoubtedly prove the best Cabbage extant, and when known will supersede every other variety.

Mr. Hill (the raiser) says:—"This is the best Cabbage I have ever seen. I have grown every known variety against it, and in its dwarf and compact character it has proved itself superior to all. As a sprouting variety it is unequalled."

The following Testimonials will be a strong guarantee of its excellence:—

From Mr. BEALE, *Gardener to* ABEL SMITH, Esq., M.P., *Woodhall Park, Watton, Herts.*

"Hill's Incomparable Cabbage I consider to be the best dwarf sprouting variety I have ever seen. It is very compact, and I can with great confidence strongly recommend it as a first-class Cabbage.'

From Mr. TERRY, *Gardener to* ARTHUR GILES PULLER, Esq., *Youngsbury, near Ware, Herts.*

"In my opinion Hill's Incomparable Cabbage is the best variety I have ever seen, and will, when known, be invaluable to every gentleman's gardener."

Price, in sealed packets, 2*s.* each.

It may also be had of the undermentioned Firms, they having ordered it:—

Messrs. Cooper & Bolton, 152, Fleet Street, London.
Mr. James Veitch, Exotic Nursery, Chelsea.
Messrs. J. & C. Lee, Nurserymen, Hammersmith.
Mr. B. S. Williams, Paradise Nursery, Holloway.
Messrs. Low & Co., Nurserymen, Clapton.
Messrs. A. Henderson, Pine Apple Place, London.
Messrs. Sutton & Sons, Reading.
Mr. Denyer, Seedsman, 82, Gracechurch Street, London.
Messrs. Fisher, Holmes, & Co., Sheffield.
Messrs. Rollisson & Sons, Nurserymen, Tooting, Surrey.

The Nurseries, Hertford, Herts.



Orders amounting to 21*s. sent Carriage Paid.*

20,000 GLADIOLI, the most effective for Massing, and the best for Exhibition.

5000 LILIUMS, embracing the splendid L. LANCIFOLIUM, varieties RUBRUM, ROSEUM and ALBUM, and the magnificent L. AURATUM.

SURPLUS STOCK OF BULBS

For Conservatory and Flower Garden Decoration, 42s.; half, 21s.; quarter, 10s. 6d.

50 HYACINTHS.	100 GARDEN NARCISSUS.	400 CROCUS.	12 WHITE LILIES.
50 POLYANTHUS NARCISSUS.	200 TULIPS.	50 IRIS.	100 WINTER ACONITES.

The Cliveden Collection of Spring Flowering Plants, true, drawn from the Stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

See last week's Advertisement, page 1174.

CHOICE SEEDS.—CROP 1864.

AURICULA, POLYANTHUS, ZONALE PELARGONIUM, do. VARIEGATED, FRENCH, ENGLISH, and FANCY PELARGONIUMS, CYCLAMEN PERSICUM, PANSY, LAPAGERIA ROSEA, CARNATION, PICOTEE, &c., 1*s.* and 2*s.* 6*d.* per packet.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

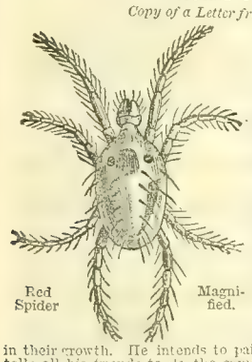
REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 30s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Railway rate to the Bricklayers' Arms Station, London, 2s. 6d. per ton, not less than 4 tons. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE. London-made FLOWER POTS, in every size.
N.B. Loaded trucks can be sent direct on all the Railways.
WORKING PLANS prepared for NEW GARDENS and ORNAMENTAL GROUNDS.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

GENUINE TOBACCO PAPER, in 4-lb. packets.—Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

WINTER DRESS all FRUIT TREES with GISHURST COMPOUND.
Copy of a Letter from MR. RIVERS.



"Nurseries, Sawbridgeworth, Herts, 22d Oct., 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall, to which Peach-trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple-trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall-trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach-trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."
For Orchard-house trees 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED), Belmont, Vauxhall, London.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

LAWES'S WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5
Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES. Offices; 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Autumn Sowing.
THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices—109, Fenchurch Street, London, E.C.
Manufactory—Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.
This Manure, specially prepared for AUTUMN SOWING, has been in use for upwards of 12 years, and has given great satisfaction to consumers. Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices, 109, Fenchurch Street, London, E.C.
Price 7*l.* 10s. per ton, delivered at any Railway or Wharf in London.

The Original Seed Bag Manufactory.
ALEXANDER NICOL AND CO.,
MANUFACTURERS of
SEED BAGS, CORN SACKS, &c.
Chalmers Street Works,
Arbroath, N.B.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealer in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

AUSTIN'S ARTIFICIAL STONE.
Invented by FELIX AUSTIN, 1826.
The close resemblance of this material to Portland or other Limestones (in strong distinction from Terra Cotta, and other kinds of pottery) causes it to be overlooked as a peculiar invention, and to be mistaken for the natural stone. There are consequently thousands of gardens where the work might be expected to act as an advertisement and recommendation, but where from the cause mentioned it fails to do so.
It becomes necessary therefore to call the attention of the present generation to the established character of the Manufactory, which after so many years practice has accumulated the largest quantity of Models that probably ever existed in one concern. An idea of them may be conveyed by the following summary:—
246 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS, from 1 to 10 feet diameter.
17 FLOWER BASKETS, for WINDOWS, &c.
6 GARDEN SEATS, of ARCHITECTURAL DESIGN.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.
AUSTIN, SEELEY, & Co., 369 to 375, Euston Road, Regent's Park, N.W.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

PROPAGATING  GLASSES.

Each.—s. d.				Each.—s. d.			
2 inches in diameter	..	..	0 3½	12 inches in diameter	..	..	1 9
3 "	"	..	0 4½	13 "	"	..	2 0
4 "	"	..	0 5½	14 "	"	..	2 6
5 "	"	..	0 6½	15 "	"	..	3 0
6 "	"	..	0 8	16 "	"	..	3 6
7 "	"	..	0 10	17 "	"	..	4 0
8 "	"	..	1 0	18 "	"	..	5 0
9 "	"	..	1 2	19 "	"	..	6 0
10 "	"	..	1 4	20 "	"	..	6 0
11 "	"	..	1 6				

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.				Each.—s. d.			
12 inches	..	..	.. 6 6	18 inches	..	..	.. 9 6
14 "	..	..	.. 7 6	20 "	"	..	.. 10 6
16 "	..	..	.. 8 6	22 "	"	..	.. 11 6
				24 "	"	..	.. 12 6

Painted and Glazed with 16-oz. Sheet Glass.
HYACINTH and FLOWER DISHES.
6 inch diameter, 1s.; 9 inches, 1s 6d.; 12 inches, 2s. 6d.
Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.
HYACINTH GLASSES.
Common shape, per dozen, 2s. 6d. Improved shape, per dozen, 4s. 6d. Patent shape, per dozen, 6s. 6d.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.


HAND GLASSES.

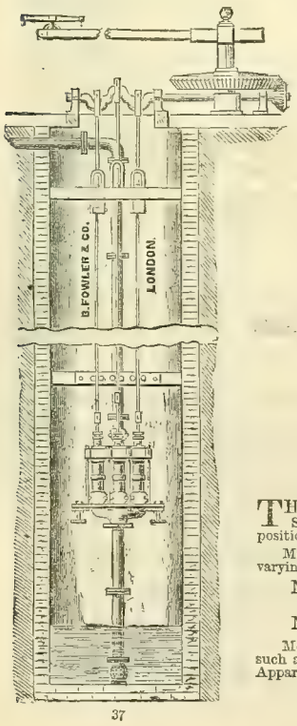

PRESERVE JARS.


MILK PANS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

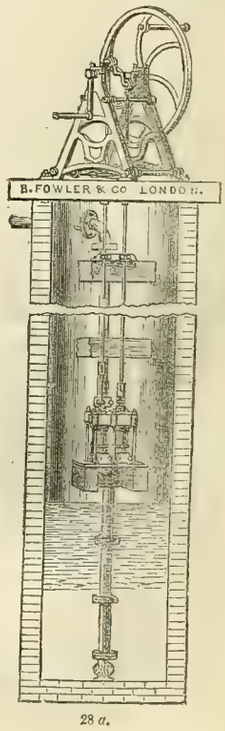
See Advertisement the first week in the month, or on application.

CLINTON & OWENS
(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



37





28 *a*.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.
Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.
No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.
No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.
Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.
Price Lists of Pumps, &c. free on application.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, & CO. have the pleasure to introduce this really true and pure stock of the Ashleaf variety. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames.

Supplied in sealed Bags marked

Price 15s. per Bush. Discount allowed to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

The New Chardon Cattle Potato.
Myatt's Prolific Ash-leaf Kidney Potato.

STUART AND MEIN, NURSERYMEN, Kelso, have several Tons of the above to offer, true stocks, and excellent samples. Prices on application.

The ALBERT SPROUT, DALMENY SPROUT, FEARNOUGHT CABBAGE, The HORTICULTURAL SUPERB LATE BROCCOLI. See Advertisement in *Gardeners' Chronicle* of November 26.

Descriptions and Wholesale prices of the above valuable New Vegetables and other Novelties, including Dalmeny May Broccoli, Shearer's Late White Broccoli, Triple-curled Dark Green Parsley (Melville), Roseberry, Brussels Sprouts (saved by the original raiser), New Chardon Potato, Smith's Early Potato, Nemophila Auriculaflora, Pentstemon compactum nanum, new dwarf bedding Tom Thumb Nasturtium, Tropæolum Prince of Wales, and Emperor or Dark Foliaged, &c., may be had on application.

Robinson's Champion Drumhead Ox Cabbage.

MR. ROBINSON begs to inform his Customers and the Public that he has again been successful in taking the First and Second Prizes in this Class at the Birmingham Show; and that the six largest specimens when dug out of the ground, before being denuded of their leaves, roots, and stems, but cleared from all soil, weighed the extraordinary weight of 391lb. Strong Plants may be obtained in the Spring from this first-class stock from the Grower,
Mr. ROBINSON, Shaw House, Melbourne, near Derby.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation, will stand one month longer than any other without running to seed. See *Gardeners' Chronicle*, November 19, with names of present purchasers, of whom it may be had true. 1s. per packet, sealed with initials W. I.

Price per dozen or hundred on application.
Hanover Nursery, Peckham, S.E.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SON, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

DIXON'S YORKSHIRE HERO PEA, price 5s. per quart, 2s. 6d. per pint, may be obtained of
HURST & SON, 6, Leadenhall Street, E.C.
COOPER & BOLTON, 152, Fleet Street, E.C.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOODFORD'S MARROW	DILLISTONE'S FIRST EARLY
BEDMAN'S IMPERIAL	

Samples and Prices on application.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.

The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

Mr. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2s. 6d. per quart.

The Trade supplied at the usual discount. Testimonials forwarded on application.

Sible Hedingham, near Halstead, Essex.

EDWARD TAYLOR, NURSERYMAN and SEEDSMAN, Malton, Yorkshire, offers the undermentioned PEAS, all hand-picked and true stocks, at the prices affixed:—

PRIZETAKER MARROW PEAS, 10s. per bushel.
SANGSTER'S No. 1 PEAS, true, 10s. per bushel.
DANIEL O'ROURKE PEAS, true, 10s. per bushel.
EARLY EMPEROR or MORNING STAR, 8s. per bushel.
WOODFORD'S GREEN MARROW, 8s. 6d. per bushel.
DUTCH CROCUS ROOTS, of sorts, 10s. per 1000.
DOUBLE SNOWDROPS, 13s. 6d. per 1000.
2-years' GIANT ASPARAGUS ROOTS, 15s. per 1000.
3-years' Ditto Ditto, 20s. per 1000.

A complete NURSERY LIST gratis and post free on application

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HE IS

NOW DISTRIBUTING THIS VALUABLE GRAPE,

THE BEST LATE WHITE GRAPE EXTANT.

Strong Planting Canes, 21s. each; Strong Fruiting, 42s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

GENUINE SEEDS.

JAMES VEITCH

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF KITCHEN GARDEN AND FLOWER SEEDS FOR 1865,

WITH LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

Is now Published, and will be forwarded Free on application.

J. V. devoting his personal attention to this department of his business, can warrant his Seeds TRUE to NAME, and of the most genuine description.

The CATALOGUE will be found to contain all NEW VEGETABLE and FLOWER SEEDS of merit, in addition to those kinds in general cultivation.

THE ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN, GHENT, BELGIUM,

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS Nos. 103, 104, 105, AND 106,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The Goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged in the account for each package.

The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.



GENUINE NEW GARDEN SEEDS.

JAMES CARTER & CO.



ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

DICKSON'S "FIRST and BEST" EARLY PEA.

THE EARLIEST PEA IN CULTIVATION.

This PEA has been tested against all the EARLIEST varieties known, and has been found to come into bearing from 8 to 10 days before any of them. It is very prolific, producing a profusion of pods, which contain on an average 7 to 8 peas of fine quality and flavour. The habit is Dwarf, growing about 2½ feet, and it bears profusely the whole length of the haulm. It has been pronounced by many of the first practical Gardeners in the Kingdom who have tried it (see our Advertisement with Testimonials, November 26) to be MUCH SUPERIOR to any other early Pea in cultivation, both for EARLINESS and PRODUCTIVENESS.

Price per quart, 3s. 6d.; per pint, 2s., in Sealed Packages only. None other are genuine.

F. & A. D. & SONS, finding both their Wholesale and Retail demand to be so great, and their Stock being very short (in consequence of the dry weather), regret very much that they are unable to supply the Trade with any more of the above this Season.

GARDEN, FLOWER, AND AGRICULTURAL SEEDS

Of every description, of superior quality, each variety being carefully saved from the most Select Stocks in cultivation.

A PRICED DESCRIPTIVE CATALOGUE will be ready about the middle of December, and can be had Post Free on application.

☞ *All Orders for Seeds of £2 value (Grain, &c. excepted) delivered Carriage Free to any part of the Kingdom.*

FRANCIS & ARTHUR DICKSON & SONS,
THE OLD ESTABLISHED SEED & IMPLEMENT WAREHOUSE, 106, EASTGATE STREET; and
THE "UPTON" NURSERIES, CHESTER.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.

Edinburgh and London.—Dec. 17.

Slater's New Hardy Prolific Melon.

J. SLATER AND SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted; shape, oval; flesh, pale green; thick and juicy. Price 2s. per packet, post free.

J. SLATER & SONS, Seedsmen, &c., Malton, Yorkshire.

London Agents:

Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, E.C.

New Melon "Malvern Hall."

B. S. WILLIAMS has much pleasure in offering for the first time this VALUABLE MELON, which has been fully proved, after three seasons competitive trial with all the best sorts in cultivation, to be the earliest to ripen and the first in setting its fruit. It has taken many First Prizes during the last and previous seasons at different Provincial Shows.

The following description is supplied by the Raiser, Mr. STEVENS:—"Plant of robust habit and vigorous growth, a very free setter and sure cropper; quite ten days earlier than any other variety. Fruit from one to two pounds in weight; scarlet flesh, rind tender, yellow mottled and streaked with dark green; fine flavour."

Price 2s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Vines, Vines—extra strong.

J. MEREDITH, The Vineyard, Garston, near Liverpool, begs to inform the public that he has a very fine stock of VINES of various sizes, both for planting out and fruiting in pots. The wood is thoroughly ripened, so that they may be forced early if necessary. The stock has been propagated from the Vines that produced the fine Grapes which have been so successful for the last four years at the London and Liverpool Exhibitions.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1008.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Magnificent Dwarf-trained

MORELLO and MAY DUKE CHERRIES, ROYAL GEORGE PEACHES, MOOR PARK APRICOTS, PEARS, and PLUMS, of the best leading kinds.

WM. WOOD AND SON have to offer a large Stock of the above, grown on maiden soil. The trees are very large and have been most carefully trained. Finer trees could not possibly be wished for.

W. W. & S. have also some very fine Standard SCARLET HORSE CHESTNUTS left. Stems with fine heads.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Dwarf-trained Trees.

By the THOUSAND, HUNDRED, or DOZEN.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

Extra Size Fruit Trees.

PYRAMIDAL PLUMS, PEARS, &c., of extra size and first quality, very handsome. Prices, names, and sizes, may be had on application.

Also the DESCRIPTIVE FRUIT CATALOGUE.

STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

Cheap and good Flower Seeds.

LOBELIA FAVOURITE and ERINUS MAJOR, 18 stamps.

FANCY PANSY, 24 stamps. | PRIMULA, 24 stamps.
CALCEOLARIA, 24 stamps. | CINERARIA, 18 stamps.

The above have been carefully saved from first-class varieties. Sent free by post by

ROBERT BULLEN, Seedsman, 52½, High Cross Street, Leicester.

TWO NEW FIMBRIATED PRIMULAS.

Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee of the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

CARTER'S GARDENER'S VADE-MECUM.

DIXON'S YORKSHIRE HERO PEA, the best new Dwarf Wrinkled Marrow.

Price 5s. per quart, 2s. 6d. per pint.

E. P. DIXON & SON, 57, Queen Street, Hull.

LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W.

Orders for all kinds of SEEDS can now be executed.

COLLECTIONS of KITCHEN GARDEN SEEDS, 10s. 6d., 15s., 20s., 30s., 60s., 100s.

Seeds of the value of 20s. delivered carriage free.

Notice, Seed Trade.

F. W. WENDEL'S, Erfurt, WHOLESALE SEED CATALOGUE, now ready, and will be forwarded Free and Post paid on application to F. W. W.'s English Agent,

GEORGE MACINTOSH, Exotic Nursery, High Road, Hammersmith, W.

To the Seed Trade.

NEW ANNUALS for 1865.

WAITZIA AUREA,
Brilliant Yellow Everlasting, from Swan River.
WAITZIA CORYMBOSA,
Red and White Everlasting, from Swan River.
VERONICA GLAUCA,
Dwarf Blue, from Greece
CALLIRRHOE INVOLUCRATA,
Crimson, from N. America.

W. THOMPSON, Tavern Street, Ipswich, respectfully announces to the Trade that he is now ready to supply Seed of the above interesting Novelties, of which full descriptions and prices will be forwarded on application. Of the three last only a very small quantity remains available for distribution.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Choice Camellia Blooms.

LUCOMBE, PINCE AND CO. have now a large quantity of extra fine CAMELLIA BLOOMS for disposal, which can be securely packed and sent to any distance with safety. Price on application. Exeter Nursery, Exeter.

Splendid Hybrid Gladioli.



THOMAS CHARMES can now supply Collections of the above, in Named varieties, from 6s., 9s., 12s., 18s., 21s., to 24s. per dozen. PRICED CATALOGUES free on application.

204, High Street, Exeter.

New Seeds, Growth of 1864.

ROYAL BERKSHIRE  SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.

The prices are moderate and the quality fine, owing to their having been harvested well.

Royal Berkshire Seed Establishment, Reading.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, DECEMBER 7, 1864.

FIRST-CLASS CERTIFICATES.

ASPLENIUM HEMIONITIS CRISTATUM, from R. J. Gray, Esq., Exeter.

MANETTIA CORDIFOLIA MAJOR, from Mr. Veitch, Chelsea.

SPECIAL CERTIFICATE.

To a Collection of DWARF SEEDLING PELARGONIUMS, from E. Stuart, Esq., Nice.

THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 17, 1864.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Dec. 24 } Royal Horticultural (Illustrations of the
to } Sources and Preparation of Perfumes), at
FRIDAY, — 31 } South Kensington.

THE CHRYSANTHEMUM EXHIBITIONS which have been held this year in the metropolis and in other parts of the kingdom have been fully equal in merit to those of former years. Perhaps there is no exotic cultivated in this country with which florists have been more successful than they have been with the Chrysanthemum, more particularly as regards the raising of new and improved varieties. We can remember a time when our collections included those kinds only which had been sent to us from abroad—some 50 or 60 in all. Thanks, however, to Mr. SALTER, of Hammersmith, and others, who have raised so many beautiful varieties from seeds, our gardens contain now upwards of a thousand new kinds. And then, too, with these new sorts we have obtained flowers of almost every hue of colour, the colours of many of them being particularly bright and effective.

On visiting the public exhibitions of this favourite autumnal flower we have been struck with the marked preference which exhibitors seem to show for those varieties which produce incurved blossoms. This is more particularly observable in the stands of "cut blooms." These flowers are evidently the fashion of the day, and anything else is looked down upon and considered as unworthy of notice. In looking along the tables on which these flowers are placed, one rarely, if ever, sees a bloom of the reflexed, or what we may perhaps be allowed to call the natural or normal form of this flower. Many of these incurved blooms are no doubt extremely beautiful, but nevertheless we cannot see why they should be considered so much superior to the reflexed ones. And then the colour of the incurved kinds is oftentimes entirely hidden by this peculiar form of growth. The bright colour of the flower is usually on the upper surface of its florets, and this surface is turned inwards and completely hidden from view in the incurved flower. We are aware that the preference to which we are alluding is chiefly confined to flowers exhibited singly as "cut blooms," yet we cannot see any good reason why the reflexed flowers should not be equally prized; indeed they used to be before fashion, or shall we say prejudice, introduced the change.

Prizes at our Exhibitions—where the encouragement of horticulture is the main object—ought to be given with a view to improve the productions of our gardens. Agriculturists at our cattle shows, in these enlightened days, pay more attention to the formation of good solid useful food, than to those mountains of fat so fashionable in the days that have gone by, and they are, no doubt, quite right in doing so. In like manner horticulturists should encourage those plants which are most effective as ornamental objects in our gardens and conservatories. And certainly Chrysanthemums which produce reflexed blossoms, although despised by many exhibitors of "cut blooms," are, speaking generally, far more useful and ornamental than many of those whose florets curve upwards and conceal their own bright colours.

While pleading for the despised race of reflexed flowers, we may urge in their favour the well-known fact that many of them are really quite up to the florist's mark as regards form. During a recent inspection of Mr. SALTER's collection, we took down the names of a few kinds, in order to use them as an illustration on the present occasion. Let any unprejudiced person recall to mind the following flowers, and then say whether they do not deserve a place at our Exhibitions, even in the stands of "cut blooms":—Julie Lagravère, dark velvety crimson; Lord Clyde, bright crimson; Progne, amaranth or crimson carmine; Alma, rose crimson; Annie Salter, golden yellow; Invincible, tasselled white; Ariadne, cream and rose; and Attraction, rose or blush, a new variety of great beauty. Many others might be named, but these are perhaps enough to explain our meaning.

In those countries to which the Chrysanthemum is indigenous, incurved flowers are rarely met with, so that this peculiar form would not appear to be a natural one. It is probably the effect of high cultivation. We have several varieties in this country, such as that named Vesta for example, which produce reflexed flowers when grown in the usual way, and incurved ones when highly stimulated, or when a few buds only are allowed to remain and expand upon the plant. Many of these incurved flowers are no doubt extremely beautiful, and in what we have urged we have no wish to discourage their cultivation. All we contend for is that the reflexed ones are of equal if not of greater importance from an ornamental point of view, and therefore they ought not to be disparaged.

Keeping in mind the principle we have laid down, namely that prizes ought to be given with a view to improve the breed of plants for ornamental purposes, we cannot approve what is called the "dressing" of Chrysanthemum blooms in order to enable them to gain prizes. In so far as first-rate cultivation is concerned, by means of which fine healthy plants with blooms of a large size and good form are produced, it is quite fair that such cultivation should be appreciated and rewarded. But "dressing" flowers for exhibition, by pulling out some of the parts and setting up others, has only a tendency to deceive the public and lead to disappointment when the plants which have attracted so much admiration on this account at our Exhibitions, are purchased and come to be cultivated at home. We believe the practice we are alluding to was carried to a much greater extent some years ago than it is now; indeed we have heard of instances in which the centre of the bloom was entirely removed, and the regular florets pressed inwards to fill up the vacant space. All such attempts to make flowers appear to be different from what they really are, ought to be discouraged, and we are therefore glad to learn that the more glaring mode of "dressing" we have noticed, would disqualify the stand in which it was observed.

AN old fable tells us that once upon a time the birds resolved upon forming a club, which at its first meeting took a debating turn, when each insisted upon what in his opinion constituted the quality or character most worthy of estimation. The Parrot very strongly demonstrated that the power of mimicry and a retentive memory proclaimed an evident superiority in the possessors of this amusing faculty. The Peacock treated with

great contempt so mean and insignificant a talent, which amounted to nothing more than mere buffoonery, fit only to please the vulgar, and by no means to be compared to his stately and majestic carriage, and incomparably rich plumage. The Dove also modestly put forth her claims, grounding them on her purity of manners and unostentatious discharge of her daily duties,—when the Kite, enraged beyond control at the discourse, dispersed the assembly, and substituted brute force for reason.

FASHION is very apt to exercise just such an INFLUENCE UPON GARDENING as the Kite did upon the assembly of birds; and while the Dutch, Chinese, English, Italian, and French styles are struggling for pre-eminence, to disclaim them all and remain sole master of the hour. In our columns lately may have been found some expression of opinion regarding the intrinsic merits of the different styles, as well as some remarks on the annual bedding out best suited to our climate and scenery. We would gladly see more general interest taken in this subject, as it is a question that concerns not only the gardening community, but the pleasures of a large portion of mankind. We would, however, impress upon each advocate that nothing can be more confusing than to hear a principle condemned, however ably the prosecution is conducted, without sufficient reason being adduced for the conscientious finding of a verdict.

It is not enough to decry or ridicule a system as bad. The world naturally seeks some explanation of the causes of its badness, and is not content with mere assertion without corresponding proof. Indeed a habit of superficial thought and hasty generalisation is most detrimental to the interests of true gardening, since censure thus pronounced may offend but can scarcely convince. And no man, who is really master of a subject, and aware of the manifold difficulties it presents in all its bearings, would trust himself to run down others' opinions, especially with any intention of bolstering up his own. The question of annual bedding out is at all events worthy of more general consideration. Without disputing what are our own merits, or the shortcomings of others, we may endeavour by the aid of mutual experience to glean a few hints, which may enable us to make such changes in the floral decorations of our gardens during the coming year, as may seem consistent with the principles of good taste. If there is an evil in our present system, let us unite in remedying it: but it is wise to hold fast to what we know before committing our bark to unknown seas, without either rudder, compass, oar, or pilot—drifting we know not whither.

—— WE alluded at p. 1135 to the existence of a race of DOUBLE-FLOWERED PELARGONIUMS, and we find in a recent Number of the *Revue Horticole* some particulars respecting another variety of similar character, called Gloire de Clermont, which has been raised by M. AMBLARD, a horticulturist of Clermont-Ferrand. Our contemporary states that it will take a high place in our gardens, and describes it as bearing flowers as full as a small Ranunculus; and as having been produced from seeds gathered from a semi-double variety of doubtful merit. It appears that seven plants were raised from the seeds of this semidouble parent. Some of them produced instead of petals little tufts of green leaves or sepals, compact and imbricated, forming a globular bud which scarcely opened; others yielded flowers with a little red at the tips of the sepals; a sixth had flowers of a lively colour, but they did not open; while the seventh bore magnificent flowers, full, well expanded, and bright in colour. The constancy of these features has been proved, for the variety has been propagated, and more than a score of plants of the progeny have yielded their flowers. M. LECOQ the Director of the Botanic Gardens at Clermont, who describes this very remarkable Pelargonium, observes, that upon the plant then before him was an umbel of 14 fine flowers, which if the foliage were not seen, might be mistaken for those of Lychnis chalcedonica. The variety is said to be of vigorous growth, and to have large undulating green leaves without any sign of a coloured zone, although by a slip of the pen the new variety is classed amongst the zonal Pelargoniums. The flower stalk is stiff, and bears from 10 to 15 flowers, so arranged as to form a bouquet. The buds are globular; the petals, upwards of 40 in number, are disposed like those of a double Ranunculus, and are oval in form, rounded at the top, and of a lively vermilion with a white eye; the stamens are completely wanting; and the pistil is represented by a small green tubercle. It appears that M. AMBLARD, not being specially occupied in the culture of this class of plants, is desirous of parting with the stock.

—— The Imperial L. C. Academy Naturæ Curiosorum has, as we learn from *Seemann's Journal*, recently conferred the degree of Doctor of Philosophy on Mr. G. H. K. THWAITES, the indefatigable and talented Superintendent of the Royal Botanic Garden at Peradenia; and author of an extremely well executed *Enumeration of Ceylon Plants*, of which the concluding Part has been lately issued.

—— Dr. SCHÜBELER has been elected Professor of Botany and Director of the Botanic Garden at Christiania.

—— We notice amongst the awards made during the past summer by the FLORAL COMMITTEE OF THE FRENCH SOCIÉTÉ CENTRALE D'HORTICULTURE — evidently a very useful working body, like that which imparts some show of reality to the operations of our own professedly 'Horticultural' Society—that First-class Certificates have been given to a Tea Rose called Maréchal Niel, produced by M. EUGÈNE VERDIER, of Paris. This variety, which is figured in *L'Horticulteur Français*, appears to be one of the noblest of the yellows, and is described as surpassing Chromatella, Solfaterre, Isabella Gray, &c., the flowers being large globular and very fragrant, and of a fine bright yellow colour. M. FONTAINE also obtained a similar award for his Seedling Phloxes M. Thibaut, Arthur Fontaine, and M. Pierson; as did M. ADOLPHE FONTAINE for Phlox President Malet. Second-class Certificates have been given to M. MÉZARD for a new striped zonal Pelargonium called Coquette de Rueil; also to M. YVON for Aster repertus. M. CHARDINE obtained a Third-class Certificate for a fine Dahlia named Empereur du Mexique; and a similar award was made to M. FOURNIER, of St. Germain-en-Laye, for a variety of Dactylis glomerata with striped foliage.

—— The ACER PSEUDO-PLATANUS ERYTHROCARPUM is a variety of Sycamore, obtained from seeds by M. FERRAND, of Cognac, about 12 years since. It is not remarkable for its foliage or flowers, but for its fruits, which are of a decided dark red colour, and contrast well with the deep green of the leaves. The fruits of many of the Maples have a tendency to become red. Those of Acer tataricum, as well as certain forms of Sycamore, have a tolerably well-marked red colour, but are very much inferior in this respect to the variety obtained by M. FERRAND. The colour is deepest when the fruits are young. A figure is given in the *Revue Horticole*; where also is mentioned another variety of the Sycamore, which has leaves of a pale green all over, and fruits like the leaves of a very light green colour, never tinged with any deeper shade. This form is said to be quite distinct, and bears the name of ALBESCENS.

—— Dr. REGEL figures in the *Gartenflora*, under the name of TREVESIA SUNDAICA of MIQUEL, the fine arborescent Araliad previously known under the names of Sciadophyllum palmatum and Brassaia palmata. This plant, which originally came from the mountains of Java, is remarkable for the size of its leaves, which measure about 2 feet across, and are palmately divided into from five to seven oblong lance-shaped lobes, narrowed to the base, and there connected by a web-like portion of the lamina. It is a fine plant for a temperate stove. In the same work Dr. REGEL figures under the name of ARALIA RACEMOSA SAGHALENSIS, a fine hardy decorative foliage plant for large gardens. It differs from A. racemosa in its more robust habit and larger leaves, and in its flowers being often hexamerous. This was found by M. SCHMIDT in the island of Saghan.

—— We find in a recent number of *L'Horticulteur Français*, a figure and description of a Yucca Treculeana, which appears to be exactly the YUCCA CANALICULATA, published in 1860 in the *Botanical Magazine* (t. 5201) by Sir W. HOOKER, having the same rigid channelled leaves, widened above the base and asperous beneath, the same compact inflorescence, the same subconnivent cream-coloured flowers, and the same kind of stamens bent like a figure 7. Mr. SAUNDERS, by whom the Y. canaliculata was flowered, had moreover, it would appear, obtained a young plant of the same species from Paris, though the history of his flowering plant is somewhat uncertain. We gather from M. HERINCQ'S account, that this is the largest of all the arborescent Yuccas. The French figure was made from a plant which had flowered in the collection of M. ALPHONSE LAVALLÉE at Segrez, and which was upwards of 7 feet in height before the flower stem appeared, and furnished with leaves almost from the base. The leaves were narrowed above their point of attachment, then much widened, and terminating in a stiff horny point, the under surface being rough like a rasp, and the edges cartilaginous, purple, and finely denticulated. Owing to the stem being cankered, the inflorescence was dwarfed, but it was dense and ovoid-oblong, with the creamy flowers in the axils of reddish-tinted bracts longer than the flower stalks. This Yucca was introduced from Mexico in 1849 to the garden of M. LOUIS NOISETTE, of Nancy, who found it amongst some imported Orchids. The original plant was acquired by M. LAVALLÉE in 1859, and was the finest example known in Europe, but has perished since flowering. It is satisfactory to learn from the experience of the French cultivators, that this fine species is hardy. At Nantes, in M. NOISETTE'S garden, it grew in the open air, and perfectly endured the winters which occur in that part of France. At Segrez, where it was at first protected by a case, it has been planted for two years in the open ground, sheltered only by a slight straw roofing, and has not shown any trace of injury from frost. We believe the same plant is cultivated in this country under the names of Yucca cornuta and concava.

New Plants.

281. LÆLIA GRANDIS, *Lindl. in Paxton's Flower Garden*, i. *Misc.* 91, *lign.* 38.

Although not strictly a new plant, this fine Lælia has virtually disappeared for upwards of ten years from our collections, where its name has been usurped by what is nothing more than a variety of a totally different species, viz. L. purpurata. The only time we ever remember to have seen it in flower was at one of the Regent's Park shows, where its singular flowers attracted considerable attention, being at least 4 or 5 inches across, with nankeen-coloured sepals and petals, and a white lip with purple veins. In habit it exactly resembles the one-leaved Cattleyas and Lælias, bearing two or three flowers on a scape. Messrs. Hugh Low & Co., of the Clapton Nursery, have at length succeeded in obtaining a limited number of plants from Bahia.

282. ODONTOGLOSSUM HYSTRIX, *Bateman.*

O. (Isanthium) pseudobulbis (?); racemo robusto erecto bipedali multifloro, bracteis scariosis brevibus acutis, pedicellis internodiis æquantibus, sepalis ovario longioribus oblongo-lanceolatis acuminatis undulatis integris, petalis minoribus unguiculatis ovato-lanceolatis sparsim laceris apice attenuatis, labelli breviter unguiculati limbo subpanduriformi apiculato, cristâ ad basin multidigitatâ, columnæ petalis triplo brevioris vix arcuatæ alis multifidis crinitis.

Habitat in montibus prope Santa Fé de Bogota, 8-9000 ped. —*Weir.*

This is another of Weir's remarkable discoveries in the vicinity of Bogota. It produces stout flower-scapes two feet high, bearing at least a dozen large handsome flowers, all of which appear, from the dried specimens, to have been in perfection at the same time. The sepals and petals are fully two inches long, and described as yellow spotted with rich brown. The crest of the lip when magnified seems to bristle with spines, which, when seen sideways, have no slight resemblance to "quills upon the fretful porcupine," and hence the name (*hystrix*, porcupine). It approaches in some respects the O. cristatum of Lindley, but that is a much smaller plant, and with a crest, lip, and column entirely different.

O. hystrix is no doubt among those lately received by the Horticultural Society, but in consequence of a confusion among the labels, it has been found impossible to identify the plants. *J. B.*

ORCHIDS AND THEIR CULTIVATION.—No II.

WHATEVER difference of opinion may exist among those who have studied the adaptability of one form of structure over another for plant cultivation, on this they agree, that it should be so planned as to offer the least opposing influences to a natural atmosphere. In other words, we are anxious to have a climate varying from a tropical to a temperate degree of heat, with all the accessories which such variable temperature demands. This we can only have, at best, in miniature, and not without the aid of glass.

Lengthened practice, which obviously confirms sound principles, points with singular unanimity to a style of house which presents the most direct surface to the morning and afternoon sun, and the least to the scorching rays of the sun in its meridian. A span-roofed house set due north and south exactly meets these requirements; and span-roofed houses set in that particular direction, or a point or two either east or west, are very generally built. Some, however, argue, and not without show of reason, that though houses constructed in this way are well enough adapted for six months in the year, yet during the other six months, which includes our darkest and most sunless period, the great body of the plants are not so favourably placed as they would be in a span-roofed house running east and west. Moreover, they reason to the effect that it is of less consequence to build a house mainly suitable for summer growing, which requires shading under any circumstances; whereas it is of the highest importance, in order to secure thoroughly consolidated pseudobulbs and foliage, and to promote the flowering properties of such plants as refuse to do so under unskilful treatment, to have a house or houses so constructed as to afford all available sun and light during autumn and winter. A few will also be found, and among them no less an authority than Mr. Bateman, who incline to believe that houses, especially for cool Orchids, ought to be built in a position facing the north, such as the north side of a wall, where no sun can influence or affect them at any season. Most people know that a house so situated is a capital medium for the cultivation of Ferns and Mosses; but the longer my practice extends, the more firm are my convictions that cool Orchids, of all others, arrive at the highest point of perfection in growth when placed in houses freely exposed to a circulation of air, and only slightly shaded from March to September, for about six hours of the day; and that they pine away and grow on sufferance in inverse proportion to the use or abuse of the system promulgated. Either of the first two positions spoken of are unobjectionable for either temperate or tropical plants. Some cultivators, indeed, seem to prefer the second mode, affording as it does some better positions for the enjoyment of solar light during winter; but what is gained in such cases is at the expense of the plants situated on the dark side of the house,

because the light is more obstructed in the one case than the other, especially where there is a centre stage. However it is only the common order of plants that stand in such positions; and very often Ferns and Club-mosses, and such others as luxuriate in shade, are introduced.

It is an axiom recognised by the general cultivator, that whatever the form of structure may be, the nearer the plant is brought to the glass so much the better will it grow. However much or however little we may require to shade our Orchid-houses, cultural success in a great measure depends upon a recognition and adoption of this principle. In planning a house, then, the first consideration is, what will be the maximum height of the plants about to be grown, and the probable quantity? I say the house may be 25 feet long, and it may be 250; but it must not be, unless under extraordinary circumstances, higher than 12 feet, and as low as practicable under that. For every foot of space an Orchid-house is raised unnecessarily, many difficulties for the gardener to contend with are created—such as a more rapid abstraction of moisture from the system of the plant without having the power to control it *ad libitum*, a demand for greater heating power, and worst of all, a certain degree of obstruction of light, all of which are more or less prejudicial to high culture. What we call spacious houses, that require breadth as well as length to give them a character, are not well suited for the uniform distribution of light, neither are the plants so easily examined from the pathways. For such things as Vanda, Aërides, and some of the taller Dendrobiums, a house wide enough to have a 6 or 7 feet centre stage, besides the usual passages and side stages, is indispensable; but for all the dwarfer growing species, narrow houses, with a path up the centre, are undoubtedly preferable.

In my opinion, the principal sashes of any house ought, on principles of economy, and with a view of reducing drip to a minimum, to be fixtures. Provision for ventilation should be made in some other way than interfering with either roof or side sashes, so as in the one case to prolong the stability of the house, and in the other to command a well-balanced system of circulation of air, upon which the health of all plants under glass so much depends. The question naturally occurs—what system can be recommended, and upon what grounds? All practical men have agreed that warm air should have an exit at the highest point of any plant or fruit house, and that the cold air which is introduced at the sides should, if possible, get heated to the general temperature of the house before it ascends among the plants. More than that, in obedience to natural laws, and to render the atmosphere of heated houses as little artificial as possible, the current of air ought to be introduced in an uninterrupted volume; and if it finds its passage out in the same undisturbed way, it is sure to circulate most advantageously for the plants within. So far this is sound practice. To obtain this there ought to be a clear vacuum of a foot right along both sides of span-roofed house, on the same level as the water pipes, which could be fitted with an ornamental cast-iron grating with a wooden shutter, hinged at top, and after being provided with self-acting gearing, could be turned out by means of a quadrant at one end. But what are we to fix our wall plate to for the support of the house? This can readily be supported by having cast-iron pillars placed at every 3 feet along the centre of the open grating. If this plan were adopted, the stone or brick-work on which the grating is placed need not be higher above the ground level than 6 inches, and the side sashes, be they high or low, made fixtures. With reference to ventilation at top there are diverse methods in practice, carrying out the principle of uniform distribution of air, and only differing in details. There are generally two longitudinal beams placed from 1 to 3 or more feet apart, as the case may be, upon which either side of the house is fixed. This aperture is often fitted with a dove-cot like ridge, the two sides of which could be furnished with gratings and wooden shutters, on the same principle as suggested for the sides. Only it would require a vertical rod convenient for manipulation in the interior.

This is what I call laying a good foundation for successful cultivation, and no house, however costly it may be got up, or however plain, more especially for cultivating valuable plants, can be considered up to the mark that has not special provision of this kind for a thoroughly tempered system of ventilation. It is no good to hem and ha, and mutter about what success has been attained with little or no ventilation at all, but only an occasional opening of the door in warm weather. Both theory and practice pronounce against such a course. Besides it is one thing to grow plants well, and another thing to grow them to a superlative condition of excellence.

Although many houses have come under my observation ventilated in the way I have described at the top, I do not know of a single instance of one so provided at the sides, that is, having an unbroken continuation of ventilating space, although due regard has evidently been paid to the position necessary for heating air as it enters. The best plant houses we have at Meadowbank are ventilated upon this principle, but with modifications. All our foundations are samples of red sandstone cut and dressed into ashlar form, and in cases where we have side sashes, never exceed 12 inches above the ground level. Only one-half of this space is made use of for ventilation purposes, the other half being the dead ashlar wall for support of the wall plate and superstructure. Were these, however, to be built again, I should recommend Mr. Dawson to adopt what I now consider the better plan.

It is a matter of little consequence for plant growing whether the structure be built of strong astragals alone, placed as they usually are, about 10 inches apart; or of rafters and sashes. There can be no comparison as to durability. My impression is, that the true way to study economy is to erect the most substantial structure at command in the first instance; for taking breakage and leakage into consideration, this plan is the cheapest in the end. No one practically acquainted with the subject will doubt that well-seasoned battens of Baltic Red Pine, cut out into rafters and sash-frames, will long outwear any other material that is introduced. Yellow Pine, which is generally free from knots, makes good enough astragals, but it ought never to be used as the main sinews of the house. Cheap 15-oz. glass, exposed as it is to expansion and contraction, more readily gives way than 21-oz.; and although the latter is about 1½*d.* dearer per foot, it is by far the most economical glass for hothouse building. *James Anderson, Meadowbank.*

TESTIMONIAL TO DR. LINDLEY.

[The following letter, addressed to Dr. Lindley, by Mr. Bateman, on behalf of the Contributors, together with Dr. Lindley's reply, has just been made public in the Proceedings of the Royal Horticultural Society.]

Biddulph Grange, Congleton, May 28, 1864.

DEAR DR. LINDLEY,—I conceive that I cannot better introduce the subject of the present communication than by referring you to a resolution in which you were personally concerned, and which was unanimously adopted on the motion of Mr. Alderman Copeland, at the annual meeting of the Royal Horticultural Society held at South Kensington in the spring of last year. It was to the following effect:—"That a circular be issued calling attention to the vote of thanks" (already passed) "to Dr. Lindley, and for presenting a Testimonial to him; each subscription to be limited to one guinea." This appeal—although by your own express desire but little publicity was given to it—called forth a most flattering response, and the subscription-list quickly numbered upwards of 200 names, amongst which were those of many individuals distinguished for their scientific attainments both in England and on the Continent. It now only remained for the promoters of the Testimonial to decide upon the mode in which the funds so liberally placed at their disposal might be most advantageously expended; and as the purchase of a piece of plate seemed to be the most natural alternative, they commissioned Mr. Williams, of Oxford Street, to furnish a design, which, while handsome in its general character, should also borrow some of the details of its ornamentation from the Orchids and other tribes of plants to which your studies have been more especially devoted. Mr. Williams having acquitted himself satisfactorily of the somewhat difficult task assigned to him, and having produced a work of much artistic taste and skill, your friends were desirous of presenting it to you through the medium of a deputation; and it was only at the instance of your medical advisers that this their intention has at last been reluctantly laid aside. Under these circumstances Mr. Williams has been instructed to deliver into your hands the Epergne which, on behalf of my colleagues in the Council of the R. H. S., and of the contributors generally, I have now the honour to offer to your acceptance; and be assured that this substantial token of our esteem is not unaccompanied by our prayers that you may ere long be again restored to your wonted health, and spared to prosecute for yet many years to come those scientific researches that have already secured you an imperishable name.—Pray believe me, dear Dr. Lindley, very sincerely yours,

(Signed) JAMES BATEMAN.

To Professor Lindley, F.R.S.

Acton Green, Turnham Green, London, W.
July 19, 1864.

MY DEAR MR. BATEMAN,—It is now some weeks since I received, through you, the very handsome piece of Plate with which some most kind friends have presented me, as a testimonial of their approbation of services rendered to the Royal Horticultural Society and Botanical Science.

I regret to say that the state of my health has hitherto been such as to prevent my acknowledging, in fitting terms, the receipt of the Plate; and even now I find myself unable to do so as I should have desired. I had hoped to be able to thank each subscriber separately for the kindness shown me, but, on looking over the long list of friends with whom I should have to communicate, I feel wholly unable, in my present state of health, to act as I would have wished.

Allow me therefore to express, through you, to the many friends to whom I am indebted for the Testimonial, my deep sense of gratitude for the honour that has been conferred upon me—an honour that I esteem the more highly as it has emanated solely from the kindest feelings towards myself on the part of my many dear personal friends

The delicate attention which has been shown in the design of the Epergne is, I assure you, thoroughly appreciated. My friends could not have selected anything more suitable to me; nor, let me add, could flowers, in my opinion, have been better executed in silver.

Pray, then, my dear Mr. Bateman, do me the service of conveying to the subscribers to the Testimonial my warmest and most grateful thanks, and accept the same yourself, for the kind and active part which you have personally taken in connection with it.

And believe me to be, most sincerely yours,

(Signed) JOHN LINDLEY.

James Bateman, Esq., F.R.S.

THE DAHLIAS OF 1864.

THE following notes upon the Seedling Dahlias of this year may be of service to some of your floricultural readers. The opinions expressed may or may not be correct, but I can honestly say they have not been hurriedly formed, but on the contrary are the result of a careful comparison of notes taken throughout the season. I shall place the varieties in accordance with my estimate of their merit, without reference to the awards which have been made. An unusually large number of Seedlings has this year been exhibited, but the majority of them have presented no improvement whatever upon existing varieties. Now for the list:—

LEAH (Turner).—This stands first and foremost amongst the new flowers, and may be regarded as a gem. If I were to buy but one new Dahlia it would be this; its form and outline are beautiful, and the colour a rich yet soft golden yellow.

GEORGE WHEELER (Keynes).—A thoroughly good flower of great depth, and with a well-finished centre; apparently very constant; its colour is lilac, with the back of every floret heavily tipped with rosy purple, giving the flower a novel and striking appearance.

CHAMPION (Keynes).—This is a noble and well formed flower of a rosy-purple colour; in the absence of Lord Derby this variety would have been highly prized; as it is, it must be grown.

SPITFIRE (Rawlings).—If this flower should prove constant it will be a favourite, notwithstanding its being rather small; there are but few new flowers of this season which possess more good properties than this; colour pale orange-red.

LADY MAUDE HERBERT (Keynes).—This is a well-built bold-looking flower, and will, I think, be a favourite; colour pale yellow, tinted or tipped with buff.

NE PLUS ULTRA (Perry).—This is a very distinct and somewhat striking flower, of a colour very difficult to describe: it is streaked and flaked with bronzy rose. Although this flower has only won a Second-class Certificate, I think it will take a place in the front rank of new flowers; the size is somewhat above the average, and the form is good, but I should have liked to have seen it brought out earlier in the season.

EDWARD SPARY (Keynes).—This promises to be a very useful flower, being of good form and build; the colour is distinct—a dark claret or mulberry.

PRINCESS ALEXANDRA (Collyer).—Yellow ground, striped with dull red, the outline extremely good. It was shown well at the Crystal Palace, but later in the season was rather deficient in the centre.

QUEEN OF SPORTS (Keynes).—This flower is very aptly named, it being very sportive in colour—white ground, tinted, flaked, and striped with purple. It will, I think, prove a very useful flower in this class.

MISS ROBERTS (Turner).—A large rosy lilac of a distinct shade; good florets, and appears to be a useful and constant flower, but rather flat upon the face.

GEORGE RAWLINGS.(Keynes).—A purple. As shown early in the season it was very promising, and I regret having lost sight of it for the remainder of the season.

QUEEN OF PRIMROSES (Keynes).—A good second-class flower, and as such, I think, a very useful Dahlia; colour canary yellow.

PURPLE KING (Rawlings).—A large useful purple.

LIGHTNING (Legge).—A fancy variety of average merit; colour yellow, striped with purple.

AMBASSADOR (Wheeler).—This flower was shown well in the early part of the season; colour claret, of full size; florets well cupped.

BRENTFORD HERO (Hopkins).—A very distinct and novel variety; colour yellowish ground, tipped with mulberry.

JOHN SALTER (Keynes).—A very showy striped variety; yellow flaked or striped with scarlet.

HAMLET (Keynes).—An Indian red, of fair average merit.

STRIPED PERFECTION (Keynes).—As shown early in the season this was a flower of considerable promise; colour whitish, striped with dark maroon.

—*William Holmes, Hackney.*

RETURNS FROM APPLE ORCHARDS.

BEING a fruit grower for market to some extent, I have read your article on the subject of dwarf trees (p. 1058), and as you seem to be of opinion that the plan recommended will be unquestionably profitable, you will, I am sure, excuse my putting forth a few statements founded on absolute facts, and then leave it for those concerned to explain in what way the mode recommended can be remunerative, even under the most favoured circumstances.

By the plan recommended in the work to which you allude, it will take 4840 trees to the acre, and putting these trees at 1*s.* 6*d.* each, which is not a high figure, we have an outlay at the onset of 363*l.* per acre for trees, a somewhat heavy item certainly; and as fruit trees as well as other things are liable to the vicissitudes common to all crops, no one would be disposed to invest capital in this way at less than 10 per cent., and few would ever embark it at that rate, in such an undertaking. Even then we have 36*l.* a year saddled on the crop as interest for the trees alone. Though the custom in some fruit-growing districts is to allow an outgoing tenant no compensation for fruit trees that have been planted more than six years, and some deny it at the end of four, I have given a more liberal allowance by spreading the outlay over ten years, instead of six or four, as it would be in reality. I will not go into the various expenses of cultivation, rent, and other charges for the land, but merely state a few plain facts connected with the sale and prices of fruit the present season, so that your readers may draw their own conclusions on profits in prospect, as compared with profits in reality.

A neighbour of mine, who has several acres of Apple trees, in what might be called the best condition as to age and appearance, and whose crop has extended to some 6000 or 7000 bushels, sold the whole on the trees in the early part of summer at 1*s.* per bushel, the buyer gathering and marketing them. The kinds were various, but in a general way were the popular market sorts, and the sample a good average one. The bargain, I might also say, was as far as I can judge, a fair one; certainly it was not all on the side of the buyer, for about the middle of October he offered to relinquish the portion that was left, about one half of the crop, and including all the later keeping kinds. Now this is not a solitary case; for plenty of growers, who market their own fruit, will not realise more than a shilling a bushel, clear of deductions. I have seen several market tickets which exhibited not more than 1*s.*, 1*s.* 2*d.*, or 1*s.* 3*d.* for as good King of the Pippins, Wellington, and Blenheim Orange Apples as need be seen anywhere; inferior fruit have been advertised at 6*d.* per bushel; and I incidentally heard of a grower offering 3000 bushels, in a lot, at 4*d.* per bushel. Another neighbour of mine, who had grown this season about 4000 bushels, told me his sale up to the present time averaged about 1*s.* 1*d.*, which is about the same as my own, and may be taken at about a general average for what has been sold; but be it remembered that, in these last cases, the small and inferior fruit were not sent to market at all. Some inexperienced growers who sent the inferior fruit, had the mortification of having to pay a penny or twopence per bushel to get rid of them.

This is no fancied picture, no imaginary grievance put forth to rebut a new proposition. It is simply a statement of facts, and low as the price of Apples is, there are growers who regard the present as the best season they have had for years, the quantity, even at a shilling, paying. But if every acre of our orchards were saddled with an interest of 36*l.* for the trees planted on it, as your miniature orchard must be, all chances of remuneration would be out of the question. I need not, however, say more on this head, but would simply point out that to make the miniature orchards return the 36*l.*, each tree must produce over half a bushel of fruit, which is more than is anticipated when they are full grown. In what way, therefore, this mode is likely to become a profitable one, I am unable to see. A plausible theory often enough reads very well, and calculation may be made to sound all right, but the harsh ordeal of actual practice knocks it all on the head. However valuable we may regard the pets of our own rearing, others have to be persuaded into the same opinion, or there is no trading. I question very much if blunt John Bull will be willing to give 5*s.* per bushel for fruit grown on small trees, when he can buy the same kinds and probably better for 1*s.* 6*d.* grown on larger specimens. If it can be pointed out how I am to make more of my orchards than I now do, by showing where a better price can be had for what I grow, I shall be especially grateful, but such arguments will be necessary to gain converts amongst those who grow fruit for market. It is no great assumption on our part if we assert our right to know the Dr. and Cr. side of fruit growing quite as well if not better than those who have only vague theories to base their views upon. I am however in no way prejudiced, and am still willing to learn. *A Kentish Fruit Grower.* [We believe Mr. Rivers' calculations to have been founded on actual results—at least so we understood. It must be remembered, moreover, that it was the very choicest dessert sorts that were principally referred to, and not the ordinary Apple crop.]

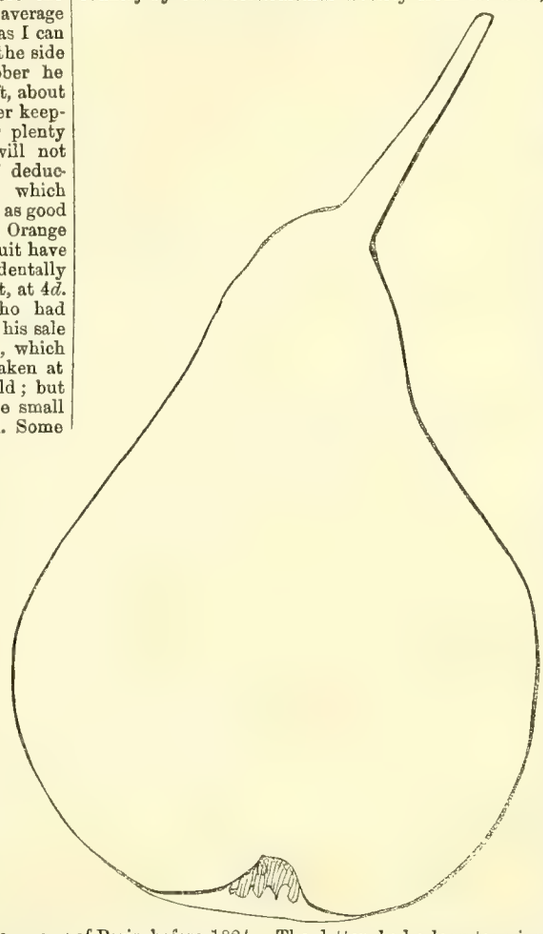
KEELE HALL BEURRÉ PEAR.

WE received a few weeks since, the following letter, accompanied by fruit of the Pear to which it alludes:—

I send you specimens of the (with us) excellent Pear, called the Styrian, from a south wall. The fruit is smaller this year than usual, owing no doubt to the dry season. We find it very useful, as it comes in just before Marie Louise, Louise Bonne of Jersey, &c. I am surprised to find this variety so little known. I never met with a gardener who knew it, nor can our principal nurserymen supply it. In the Gardeners' and Foresters' Record (Vol. I., for 1833) may be found a very poor figure of it, with the following description:—'This is a new and very scarce kind. The tree is a most excellent bearer, and will be found to answer as a standard in warm situations, but better as a wall tree. The fruit is juicy, sweet, and melting. It is a fine variety, in use from October to December.' I find its season with us is all through October, not later. By grafting on Citron des Carmes I have it ripe in September, at least a fortnight to three weeks earlier than on the Pear stock. We also find it one of the very few standards that succeed in this climate—anything but favourable for Standard Pears generally. *W. Hill, Keele Hall Gardens, Oct.* 19.

The fruit received from Mr. Hill was large, pyramidal, and broad at the top; stalk about 1½ inch in length, thick and fleshy at its junction with the fruit; skin smooth, yellow, bright red next the sun. Flesh yellowish white, melting, buttery, sugary, and very good.

The same Pear as that grown by Mr. Hill was undoubtedly figured under the name of Styrian in the "Gardeners' and Foresters' Record" for 1833. It is not, however, the Styrian which was first received in this country by the Horticultural Society from M. Bosc,



of Paris, before 1824. The latter had a long tapering form, and a beautiful bright red colour next the sun, and indeed nearly all over the fruit; the flesh moreover, was not so melting as it is in this sort. Hence, as the Pear now figured, which was found at Keele Hall by Mr. Hill on entering his situation 15 years ago, and deserves to be more extensively grown, has not hitherto been identified with any known variety, the name of Keele Hall Beurré may we think be very appropriately adopted.‖

Home Correspondence.

The "Jardin Fruitier" and its Pears.—On thinking over the highly finished figures of fruits given in this truly magnificent work, one is tempted to contrast the ways of the two Governments of France and England. We have only to suppose our present Government to have commissioned some one of our great pomological men to bring out a work of the kind, trusting entirely to him to select and figure the different varieties of fruits. Should we not pronounce it a "regular job" if month after month we saw the most worthless varieties of Apples grandly figured and lengthily described? I think so. Well, with much valuable information in the above-mentioned work, we have many—a great many—most inferior sorts of fruits figured, and pages of worthless—worthless because the subjects are so—descriptions written. Besides this we have a most capricious change of nomenclature, entirely uncalled for, and not followed by any of the experienced pomologists of France. Why should the Pear Doyenné du Comice, now well known throughout Europe, have its new name of Poire du Comice, and Beurré de Rance be changed to "Poire du Rance;" Beurré Diel to "Poire Diel;" Bergamotte Esperen to "Esperen;" Nelis d'Hiver, our Winter Nelis, to "Bonne Malinoise;" Beurré Giffard to "Giffard;" Beurré Bachelier to "Bachelier;" and Beurré Hardy to "Hardy?" And then we come to a list of the most abominably bad Pears ever known. The Burnt Cat (Chat Brulé) Pear, for instance; also Terrin de Boulogne, Impériale à Feuilles de Chine, Tuerlinckx, Angier, Sanguinole, and many others equally worthless, with many that, although not worthless, are yet of very inferior quality, and not worthy of cultivation at the present day. I am assuming that all the fruits described are figured—I have not seen any recent numbers of the work—and if so I think we must allow there is a great waste of talent and labour. Fruits and flowers that are not worthy of cultivation are, I think, not worthy of being immortalised; still there may be some scientific motive for the apparent waste of paper and print in this national work. *Pyrus.*

Heating.—May I venture to ask whether it is considered that the art of heating horticultural buildings—fruit houses of all kinds, has attained such perfection, that it is unnecessary and only troublesome to think of any other methods which may seem to be practicable, combining efficiency as regards heat (including bottom heat), economy, and the power of imparting more or less moisture to the atmosphere of the house? It is believed that these objects can be effected on a plan not hitherto practised, without the aid of an iron apparatus, which is necessarily expensive, however great its merits may be. We use what is called a hot-water apparatus, and no doubt it is so, but at the same time it produces only a perfectly dry heat, and does no impart any moisture to the atmosphere of the house, except by some contrivance apart from the mere circulation of the hot water in the pipes, which latter produces only a dry heat. If heat and moisture, both bottom heat and atmospheric temperature, can be imparted to a fruit house in such degrees and proportions as may be wanted, the various requirements of vegetation would seem to be provided for, and if moderation in cost, and simplicity in construction and workmanship, can be combined with these results, all objects would be attained. But it may be that no want is felt, and that existing arrangements are so perfect as to render it not worth while to think of any new system. *Heat.* [By no means].

Seedling Figs.—In reply to the question of your Correspondent "Adam Fitch" (p. 1158), I may state that it is probable that his plants come from the seeds of dried Smyrna Figs. These seeds germinate freely under glass, and would probably do so in the open ground. It is curious to observe the difference in the shape of the leaves of young and of old plants, the Fig, in this respect, resembling its congener the Mulberry. I recommend your Correspondent to destroy his seedlings. Even under glass they will tire out his patience before they fruit; and when they do, the chance is infinitesimal that they will be as good as our old varieties. One ought to have half-an-acre of ground, and that in the climate of Smyrna, to carry out such experiments fully, and bring them to a successful issue. *S. B.*

Should Prizes be awarded to the Masters or the Gardeners?—I have received a letter from "Florist" in reference to this subject, in which he wishes me to express an opinion concerning it. He writes, "I venture to address you, in the hope of obtaining your aid with a view to an alteration of the present metropolitan prize card system. I feel sure that you must entertain the same opinion as I do on the system of allotting the prizes to the gardeners and not to the masters; it prevents many gentlemen from exhibiting. A gentleman said to me, in the room of the Floral Committee, 'I purchased all Mr.——'s seedlings.'—'Do you not exhibit?' said I. 'Oh!' said he, 'that is quite out of the question, though I should like it; but I should have to bear all the expense and trouble, and my gardener would reap all the credit.'" I am very reluctant (to use a legal phrase), to "appear in the case." I am however always very tender of the interests of nurserymen and gentlemen's gardeners. Both are most excellent in their respective departments, the former most generous, and the latter, as a class, most meritorious and very inadequately paid. My gardening is in a very humble way. My worthy servant is "omnibus," but I never allow him to touch Roses, Strawberries, Peaches, Pears, or Raspberries—five things of my predilection. I never interfere with him in common culinary matters. If any one of these are exhibited, they stand in my name; and except in the case of Roses, I usually give him the prizes. There is a vast difference between such a man, and a head gardener to a great gentleman. Still I think that in all cases the prize should be awarded to its legitimate owner, and the gardener's name should be bracketed after the owner's. As regards prize money, it is the property of the owner of the commodity. The retention or donation of the prize money rests with the owner, in part, or wholly. Still I think that such hard working, intelligent, and generally ill-remunerated men as head gardeners usually are, should have a taste of, if not all of, the prize money. Where money is not an object to the exhibitor, I should be glad to know it was given to the gardener. In case of its being an object, it may be given to him, after deducting expenses, wholly, or in part; or it may be legitimately retained—whether beneficially to the owner and the public, I cannot say. The societies have nothing to do with the matter—it rests really with the masters. I can only say in conclusion, that whilst it is wise to encourage the masters, it is equally wise and just to encourage the servants. We all like glory, and there is no oil like "palm-oil." *W. T. Radcluffe, Rushton.*——Permit me to make a few comments on the complaint which "Florist" so well puts. I have often stated the same thing in private, and indeed the practice in question has been the principal reason why I have never joined the Royal Horticultural Society. I consider that gardeners have been put in the place of masters, and have in consequence gradually assumed some of their rights. The owner of race horses, of stock, or of poultry, gets the credit which is his due, and connoisseurs in such matters are well acquainted with the name of his trainer or bailiff; but gardeners appear before the public in quite a different light, and acquire a reputation, independent of their masters. This is somewhat fostered by the practice of nurserymen, who,

when a skilful man is out of place, gladly give him work, till by means of their recommendation and his public testimonials, he is able, to use a colonial expression, to obtain a run to his mind. I consider that whatever plants a gardener brings with him, or obtains by gift, or proper exchange with other gardeners, planted in the soil of and cultivated in the time of his master, become the property of the master, who, I hope, will never listen to any excuse for removing them. It is a matter of good feeling what presents he may make to a deserving man on his quitting him, or whether he will permit such an one to have a separate piece of land where he may call the plants his own, with perhaps some privileges in the hothouse, but I think such plants should be so marked as to leave no doubt as to their ownership. Now, as to the names of gardeners being habitually put before their masters' by reporters for the public press, I will give an example which occurs to me. The late Edmund Foster, Esq., was well known to all growers of Pelargoniums. Upon reading in the newspapers an account of a meeting of one of those benevolent societies, for the encouragement of which the late lamented Prince Consort was so conspicuous, I found words to this effect: "The tent was gaily decorated by Pelargoniums, sent by Mr. So-and-So, gardener to E. Foster, Esq." I have no doubt he never did such an impertinent thing, but was merely a willing agent in executing the orders of his master. If, however, the press writes up gardeners, let me not fall into the opposite error, by decrying a class raised both intellectually and morally above that from which they have sprung; many I know are deservedly held in the highest esteem by their employers. Let me only add that if, unfortunately, I should be obliged to change my gardener, I should consider it a disadvantage if any applicant had obtained prizes under the present system, and should forbid his contending whilst he remained in my service. *Faunus.* [We have been obliged to omit from this letter one or two paragraphs, which our Correspondent, on second thought, will, we doubt not, agree with us in regarding as unjust to gardeners as a class.]

Royal Horticultural Society's "Proceedings."—I am compelled to invoke your aid in what has at last become a most intolerable nuisance, viz., the delay in the issue of the Proceedings to the Fellows of the Royal Horticultural Society. The last Number is worse than all. It was delivered at my house in the S.W. postal district at 6 o'clock on the evening of the 13th inst.; and on the first page I find in the "Announcements by the Council" that a Special General Meeting of the Fellows will be held at 3 o'clock on Dec. 13th—just three hours previous to my receiving the notice. Is it to be wondered that the attendance at the meetings is so small? I also find that the band attended in the Garden on the 7th, 10th, and 12th inst. — a treat I should not have missed had I but known in time. Is one expected to wade through the advertisements of the newspapers in order to find out what the Society is going to do? If so, what is the use of spending so large a sum in printing the Proceedings? If this is to be the organ of communication with the Fellows, let us have it regularly published, so that we may know "what is to be" before, not after it has come to pass. *An Old F.R.H.S* [Similar complaints have reached us from several other quarters.]

Winter flowering Thorn.—A White Thorn is now, (December 13), full of buds and bursting into bloom, in a shrubbery near Chepstow. *M. P.* [It is probably the Glastonbury Thorn, Cratægus Oxyacantha præcox.]

Foreign Correspondence.

REPORT ON CINCHONA CULTIVATION AT DARJEELING.—The following passages from the report of Dr. T. Anderson, Superintendent of the Calcutta Botanic Garden, showing the progress made between the 1st April, 1863, and the 15th July, 1864, will be read with interest:—

The period to which this report refers may be considered as the second year of the experiment of cultivating Cinchonas in the Himalaya, as the cultivation was commenced on the 1st June, 1862. In the first annual report submitted on the 3d August last year I referred to the numerous obstacles that had to be overcome before commencing the cultivation, as well as the difficulties that still continued to retard the more rapid increase of the stock of plants. Through more extended acquaintance with Darjeeling I have been able successfully to contend with many of these difficulties; but I am sorry to have to report that all my operations have been retarded, and much unnecessary labour incurred by the want of permanent buildings belonging to the cultivation and situated on Government land near the site chosen for the open air cultivation. The propagation of the plants is still carried on at Lebong in a private garden, which I have been obliged to rent for a second year, that is, until the end of April 1865. This garden, besides a dwelling house occupied by the European gardener in charge of the cultivation, had not a single appliance of any kind for carrying on cultivation beyond a small conservatory manufactured out of old doors and windows, and so dilapidated that it had to be abandoned six months ago. In its place a temporary conservatory, consisting of a glass roof and wooden sides, was erected in January. The glass and wooden frames for this conservatory were sent from Calcutta, as it was impossible to procure them in Darjeeling.

On finding that the nurseries could not be removed to the permanent site till the end of another year I made arrangements for adding a flue to the conservatory erected in January, and also for building a second conservatory with a flue. This second conservatory was completed about 15 days ago, and the flue of the other house is also finished. These flues, though not required at this season, will be an invaluable aid in carrying on the propagation during the coming winter. Owing to the want of artificial heat, propagation was almost entirely stopped during the winter months. Twenty-five large frames with glass lights, and of the form usually known as Cucumber frames, were provided during the last year to meet the large increase in the number of plants. The rooting of the cuttings has always been carried on in these frames with the assistance of slight bottom heat obtained from the decay of heaps of vegetable matter. A large number of additional frames will be required almost immediately, as the rate of increase in the plants has now reached 6000 a month.

The last published record of the number of plants is that dated 15th June 1863. The total number of plants on that date was 6530. The number on the 15th July was 19,516. As Cinchona Pahudiana was not increased at all during this period, it must be excluded while calculating the rate of increase during the past year, which is then 400 per cent. It is however deserving of notice as showing the great suitability of the climate of Darjeeling for the species Cinchona officinalis (var. Chahuarguera) that the rate of increase of that species has been nearly 2000 per cent. during the same period. The rate of increase is now most satisfactory, and the cuttings obtained monthly are large and healthy. Cuttings root in from 15 days to three weeks, depending on the amount of sunshine. They root more quickly in sunshine than they can do in rainy weather. As I have already stated, the entire absence of artificial heat and of suitable conservatories prevented me attempting any propagation during the winter months, December, January, and February. A small increase was obtained in March, and since then the propagation has steadily increased every month. It is now about 6000 a month.

In the middle of June 1864 I selected a suitable spot on the Government reserved land as the commencement of the open air cultivation of Cinchona. This place is 3743 feet above the sea as determined by the barometer, and is situated on the south-eastern slopes of a long spur from Sinchul. It is known to the Lepchas as Rungbee, and I have adopted this name for the plantation. The elevation of the lowest part of the spur is about 1300 feet above the sea. The area of the land on it suitable for Cinchona cultivation is about 1500 acres, from which a considerable deduction must be made for cliffs and rocky ground. Below 4000 feet the land is partially cleared for the native cultivation of Maize, Millet, and Eleusine. In the forest within the range adopted for Cinchona cultivation are found Talauma Hodgsoni, Gordonia Wallichii, three species of Saurauja, Actinidia, several Cucurbitaceæ, several species of Begonia, Sapindaceæ, numerous Labiatæ, and at the lower altitudes, Albizzia and Bauhinia, with Clerodendron and Callicarpa, several Acanthaceæ, a lofty Artocarpus, and several species of Ficus. A large peltate-leaved Rottlera is found everywhere on the spur up to 5000 feet. Endogeneæ are abundant, though not numerous in species, and of them Musa forms the most marked feature of the vegetation of the spur up to 5590 feet. The trees are clothed with Pothos, Orchids, and epiphytic species of Zingiberaceæ (proving the extreme moisture and equability of the climate). Four species of Bamboo occur at different altitudes, one of them scandent and resembling in habit the Chusquea of the Andes.

Palms occur, of the genera Plectomia, Calamus, Areca, and Caryota. Ferns of the most tropical genera are abundant, and Tree Ferns are common from the base of the spur to 6000 feet. The temperature of the air at the plantation formed at 3743 feet has been frequently recorded since the end of June; the maximum temperature observed is 78°, and the minimum 64°.

After having fixed on the site for a plantation, a road had to be made to it through the dense jungle. From the point in the forest where the road made by the Public Works Department ends, a path has been made 5 miles in length: the first part through tangled and prickly masses of Plectomia, and this was completed to the first plantation by the end of June, when the ground was also ready for the plants, having been cleared, trenched, and surface drained.

At the Nursery at Lebong the Cinchonas intended for planting out were removed from their pots, packed in baskets with Cocoanut fibre, and carried by coolies to the forest. Tents had been pitched there for the European gardeners, Mr. Mann and Mr. Jaffrey, who were engaged in planting out the Cinchonas during the three following days. The plants, varying from 1 to 2½ feet in height, were placed 5 feet apart, each species by itself, and were left perfectly unprotected from the weather. A light fence was placed round the plantation to keep off cattle and wild animals. The number of Cinchonas placed in the plantation were:—Cinchona succirubra, 100; C. officinalis, 100; C. micrantha, 50; C. Calisaya, 2; C. Pahudiana, 271: total, 523.

From this experimental plantation at 3743 feet important results will, I hope, be obtained, as the comparative growth of plants of the different species alongside of each other and under the same condition, will enable me to form an opinion of the altitudes best adapted to each. From this point the plantations to be formed next year (30 or 40 acres for all species, exclusive of Cinchona Pahudiana) will radiate in all directions according to what are found to be the requirements of the plants. The plants were not in the most satisfactory state for experimenting on, as from their rapid growth and large size no further time could be lost either in planting them or making cuttings from them. They were therefore taken direct from the warm equable air of the greenhouse, and they will have greater difficulties to contend with than if they had been inured by degrees to the open air and all kinds of weather. All plants grown in the conservatories will, in future, go through the process called by gardeners "hardening off" before they are planted in the open ground. Sheds have been erected at the plantation at three different heights, at 3743, 2500, and 1760 feet above the sea. In these I have placed a considerable number of all the species (in the lowest C. succirubra alone), which having yielded a great many crops of cuttings have become exhausted. By exposure to the open air they will after a while yield more vigorous cuttings than they have done lately, and afford at the same time some data concerning the comparative rate of growth of the species at different altitudes.

In April last I received 200 seeds of Cinchona Calisaya from Dr. Junghuhn.* The seeds were produced in Java by one of the trees brought by Dr. Junghuhn from the Botanic Garden, Leyden, where it has been raised from seed sent from Bolivia by Dr. Weddell, the French Botanist. Only nine of these seeds of this valuable species have germinated, but the young plants obtained are healthy and have already three pairs of leaves. In the same month I received a quantity of seed of Cinchona petayensis from Mr. Markham. The seeds were sent to Mr. Markham from South America by Dr. Jameson of Quito. They were sown at Darjeeling in the first week of May in a slightly warm frame, but up to the 15th of July not one of them has germinated.

I am indebted to Sir W. Hooker for having nominated Mr. Gustav Mann for employment in the cultivation of Cinchona at Darjeeling. Mr. Mann had just returned from the West Coast of Africa, where he greatly distinguished himself in the capacity of Government Botanist under the orders of the Admiralty. Mr. Mann arrived in India on the 14th March last, and he has been appointed head gardener in charge of the Cinchona cultivation at Darjeeling. Mr. Jaffrey is attached to the cultivation as assistant gardener. Mr. Ryan as overseer has proved most useful in taking a general superintendence of the coolies; though not a trained gardener he has acquired several of the minor operations of gardening. It has been impossible to procure any class of natives except the lowest coolies. No sooner are these people taught to do the most ordinary work of the nursery without constant European superintendence, than they, either tired of the nature of the work or from some other cause, and almost usually without any notice, abscond with wages due to them. The annoyance and unnecessary waste of time in teaching fresh gangs of coolies, only to be deserted by them in a month or two, has become so serious an evil that I shall immediately on my return to Calcutta endeavour to procure a party of dhangur coolies on an engagement to remain in Darjeeling at least for two years. To secure such men a larger rate of wages must be given than I have estimated for.

Since last year the cultivation of Cinchona has been successfully commenced by two private individuals near Darjeeling, the plants having been obtained partly from Ootacamund and Ceylon. In one case the cultivation is carried on on a scale which it is evidently intended to extend with the increase of the plants. A European gardener conducts the operation, and the plants in the nursery already exceed 1000. The other experiment is on a smaller scale, and has been entirely conducted in the open air at an elevation of about 3000 feet, and with only one species, C. succirubra, but also with success. I have had application from other proprietors of Tea estates for assistance and advice in commencing similar experiments here, and in all cases I have rendered every assistance in my power.

* I have just received intelligence of the death of Dr. Junghuhn, who had charge for so many years of the Cinchona cultivation in Java

Societies.

ROYAL: *Nov.* 30 (*Anniversary*).—The following gentlemen were elected to form the Council for the ensuing year:—*President:* Major-General Sabine, R.A. *Treasurer:* W. A. Miller, M.D. *Secretaries:* W. Sharpey, M.D.; G. G. Stokes, M.A. *Foreign Secretary:* Professor W. H. Miller, M.A. *Other Members of the Council:* Professor J. C. Adams, M.A.; J. Alderson, M.D.; G. Busk, Sec. L.S.; Colonel Sir G. Everest, C.B.; H. Falconer, M.A., M.D.; J. P. Gassiot; J. E. Gray, Ph. D.; T. A. Hirst, Ph. D.; Sir H. Holland, M.D.; H. Bence Jones, M.A., M.D.; Sir Roderick I. Murchison, K.C.B.; W. Odling, M.B.; Professor W. Pole, C.E.; Rev. B. Price, M.A.; Sir John Rennie; and Lord Stanley.

ROYAL HORTICULTURAL: *Dec.* 13.—W. Wilson Saunders, Esq., in the Chair. A Special General Meeting was held on this occasion to receive a report from the Council on the new Bye-laws recommended to be drawn up at the last Anniversary Meeting.

Mr. Chester, one of the Committee appointed to prepare the draft, read over portions of it, and directed attention more particularly to the following points In reference to elections he stated that candidates for admission might be elected on the recommendation of two Fellows, instead of three as heretofore, the reason being that it was the wish of the Committee that as little difficulty should be placed in the way of admission as possible. After adverting to several increased advantages with regard to the privileges of Fellows, and stating that lady members might vote at General Meetings by proxy, he read the following new clauses, which had been introduced under Cap. XI. One of these is that "The Council may provide for the admission of any Horticultural Societies and their members into union with the Society, and partial participation in its privileges, upon such terms as the Council think fit." Another is, that "at the first meeting of the Council after the Annual General Meeting in each year, the Council shall appoint a Committee, to be called the "Education Committee," whose duties shall be to advise the Council what measures they can take for improving the education of gardeners, and to assist the Council in taking such measures as the Council may approve for that purpose." A third is, "That no member of Council shall at any exhibition of the Society receive any money prize, medal, or pecuniary reward of any description, in respect of any plant or other article belonging to him, or to any firm of which he is a member, or in the profits of which he is interested." After touching on the removal of members of Council from incapacity or otherwise, Mr. Chester stated, that it was provided that the election of members of Council and other officers, at the Annual Meeting, shall be conducted as follows:—

"The Council shall, in the month of January in every year, and on or before the 15th day of that month, cause to be prepared two balloting lists, in the forms marked F and G in the Appendix.

"The first of such balloting lists, Form F, shall state the vacancies (distinguishing in manner appearing in the said Form between the ordinary and extraordinary vacancies) created or expected to be created in the Council, and required to be filled up at the next Annual Meeting in the ensuing February.

"The second of such balloting lists, Form G, shall contain the names of such Fellows as the Council recommend to fill, during the ensuing year, the offices of President, Treasurer, Secretary, Expenses Committeemen, and Auditors. The balloting lists shall be circulated amongst the Fellows, either with the Journal of the Society or separately, some time in the month of January, not later than the 15th day of the month, and shall also be suspended in the Council Room.

"If any Fellow desire to substitute the name of any other Fellow for that of any one recommended by the Council for removal or election in the said balloting lists, such Fellow, within seven days after the said lists have been circulated, shall leave at the offices of the Society notice in writing of every such proposed substitution."

After adverting to one or two other points relative to financial matters, it was moved by Mr. Chester and seconded by Sir A. Scott Waugh,

that the draft of the Bye-laws now furnished to the meeting be adopted. At this stage of the proceedings some discussion took place, chiefly relative to the election of Members of Council, and the preponderance of power invested in the latter compared with that of the Fellows, and one or two amendments were proposed and lost. The following resolution was then read by the Chairman and adopted by the meeting, viz., "That the existing Bye-laws be repealed, and the new ones adopted, with the amendments made thereto." Mr. Chester also moved and Sir A. Waugh seconded—"That the meeting recommend the Council to take steps to get a new Charter."

After a vote of thanks to the Committee to whom the preparation of the new Bye-laws had been entrusted, and another vote of thanks to the Chairman, the meeting separated.

ENTOMOLOGICAL: *Dec.* 4.—F. Pascoe, Esq., F.L.S., President, in the chair. A large number of entomological publications presented to and purchased by the Society, were placed on the table. Mr. Jenner Weir exhibited a series of preparations for the microscope, consisting of the spiral tongues of different species of butterflies, which exhibited great diversity of structure, especially in the minute papillæ at the apex, even in closely allied species. Mr. F. Bond exhibited a drawing of the larva of Acronycta strigosa, and a photograph of a strange black variety of the common Magpie moth. The Rev. Hamlet Clark. exhibited a collection of minute beetles made by the Rev. P. Cambridge above Cairo, and also a number of species of ants from the Holy Land, collected by Mr. Lowne. Mr. F. Smith exhibited a curious wasp's nest arranged in different coloured layers, having been formed by two distinct species, Vespa germanica and V. vulgaris, working together at the same structure. This nest had been built, so to speak, under the direction of Mr. S. Stone, who had placed an incipient nest of one of this species outside the window of a bed room, and a similar nest of the other species in a window of an apartment beneath the bedroom, and whenever an inhabitant of the upper nest flew low, it mistook the nest, and entered and worked at the lower nest. Mr. Stone also made some observations on the wasp parasite Ripiphorus. Mr. Evans sent for exhibition some New Zealand wool, in which a number of specimens of a small cockchaffer of that country had become entangled. The President exhibited some small globular spiders' nests from South Australia, resembling the seeds of Leptospermum, whilst the spider, which guarded the nests, resembled a lump of bird's excrement, and was thus able to deceive its prey. Mr. S. Stevens read a letter from Mr. Du Chaillu, dated Fernand-Vaz River, Aug. 20, 1864, in which the writer announced the despatch of a number of insects to England, as well as a living gorilla, which had unfortunately got loose in the boat conveying it to the vessel, and had died. Mr. Hewitson sent a memoir, consisting of a monograph of the Satyrideous genus Ypthema, and two new allied genera. Mr. Kirby read some notes on the synonymical nomenclature of various British species of butterflies; and the second part of Captain Hutton's memoir on the Silk insects of India, especially with reference to the regeneration of the Bombyx Mori, was also read.

Notices of Books.

Chronicles and Memorials of the Reign of Richard I. Vol. 1. Edited by William Stubbs, M.A. Longman & Co., London. 1864. Pp. 468, 4to.

For this volume we are indebted to an excellent suggestion of the Master of the Rolls, which has already brought a great mass of information beforetime locked up in ancient manuscript, within reach of the student. The volume before us contains a valuable introduction by Mr. Stubbs, a short history of the Siege of Lisbon in Latin, by Osbern, an eye-witness; an account of the calamities of Cyprus, by Neophytus, in Greek, with an English translation; and the Itinerarium Regis Ricardi, in Latin, which is the great subject of the book.

The Introduction first discusses, briefly but extremely well, the history of the time included in the short reign of Richard I., and then very properly enters upon the quetion of who was the author of this Itinerarium, giving strong evidence for regarding it as the work of one author, and ascribing the authorship to Richard the Canon of the Holy Trinity in Aldgate. The Itinerarium was considered from the time of its first publication to be a work of elegant taste and beauty—indeed, one author, who regards it as a translation (though probably mistaken in that view) speaks of it as translated "*tam eleganti quam veraci stilo.*" The classical scholar of modern days might possibly find fault, but anybody acquainted with mediæval Latin would recognise the justice of this encomium, and could not fail to admire the sonorous rhythm and graphic descriptions which prevail throughout. Mr. Stubbs remarks that the Itinerarium has most of the requisites of a good epic.

After having said all he can about the MS. and its supposed author, the Editor gives a rapid glance at the history of the Crusades, which soon becomes a running commentary upon the work he has in hand. His remarks appear to be very just, and fully borne out by the statements in the text.

Mr. Stubbs points out that as the reign of Richard I. did not fall in a period of transition, but in the lull between the reigns of Henry II. and King John, when men's minds were occupied with foreign rather than domestic affairs, this period will be found barren of incidents for the constitutional historian. The list of Richard's politicians is confined to a very few names, and his best and bravest men were used up in the Holy Land and in his French wars; yet the history of his short reign brings us in contact with a variety of men, and complications in politics unequalled in interest by those of longer and more important reigns. The Crusades brought East and West together, and the Powers of Europe into close contact with each other. Moreover, the King's family connections involved him in the conflicting interests of Italy, France, Germany, and Spain. As King of England; lord of Ireland, Scotland, and Wales; duke of Normandy, Aquitaine, and Gascony; count of Maine, Anjou, and Poictou; and superior lord of Brittany, Auvergne, and Toulouse; king of Arles; conqueror of Cyprus, and for a time the ruler of the kingdom of Palestine, he was brought into collision with almost every potentate in Christendom. Richard, with all his faults, possessed many excellent qualities. His matchless bravery, and his undoubted genius for military affairs, gained him many and ardent admirers. He was the life and soul of the Crusade. His very presence struck terror into the enemy and turned defeat into victory. His exploits, as here recorded, approach the fabulous, and elicited the admiration of foes as well as friends. But this was not all; he possessed the power of winning the love of better men, had a wonderful facility in pardoning personal injuries, showed a rare tact in the choice of his ministers, strangely contrasted with his want of tact in the rest of his conduct, and a certain blind faith in human nature which made him slow to suspect evil in the worst of men. His vices were those of the camp, glaring indeed, but without the smallest suspicion of anything worse behind.

It was not likely that such a king should want an historian. Nor did he. Many have given the history of his reign, but the writer of the Itinerarium has a great advantage over all the others, in that he was manifestly present at the siege of Acre, and an eye-witness of many of the scenes which he describes. For this there is abundant internal evidence. It is manifest also that he was conversant with the best classical authors, and that he was capable of writing Latin verse as well as vigorous prose. These are some of the important marks which serve to identify the writer.

In the chapters describing the relief of Joppa, the exploits of Richard appear to have reached their culminating point, and certainly the reader's interest is raised to a very high pitch. The king is the first to leap from his galley, and wade to the shore, which is lined with troops to oppose his landing. When these are at length put to flight, the king is the first to enter the town, where he displays his banner upon the wall, and the besieged Christians, thus encouraged, sally from the castle, and make a terrible slaughter of the Turks, thus caught between two fires.

Next day the Mamelukes and Koords undertake to surprise Richard at midnight as he lies too securely in his camp; and very nearly succeeded in their attempt. An alarm is given; the king, suddenly roused from sleep, puts on his coat of mail, and scarcely gets together 10 horsemen, and those almost all that he possessed, when the enemy are upon him, rushing on with horrible yells amid a shower of missiles. The king however has arranged his foot soldiers, holding shield to shield with their left hands, and thus forming an impenetrable barrier, each man planting his right knee upon the ground, against which he also presses his right foot; the left leg is bent well forward, and the lances are held in the right hand, their points bristling against the enemy, and the reverse ends firmly dug into the soil. The cross-bowmen are ranged behind. On come the Mamelukes like a whirlwind and charge in seven bands, but none can penetrate the wall of shields. As each troop in turn recoils, the cross bowmen shoot down as many men and horses as they can.

Then King Richard sallies forth with his 10 horsemen, and charges into the hosts of the enemy, slaughtering multitudes, and slashing off the head, shoulder, and arm of a notable Emir at a single blow. He rescues the Earl of Leicester and a knight who had been overthrown, and were being dragged away as captives. He plunges again into the midst of the fray, and anon emerges bristling, man and horse, with darts and arrows like a hedgehog.

The whole account is splendidly told, and gives a vivid notion of the scene of Richard's last and greatest exploit in the Holy Land.

But all was of no avail. Richard saw the hopelessness of the contest, and in the words of Mr. Stubbs, "a truce for three years (purchased by the cession of Ascalon) was the lame and impotent conclusion of this great and costly undertaking."

Osbern's history of the Siege of Lisbon is chiefly interesting as a contrast, showing the amount of religious zeal which distinguished the Crusaders of 1147, so little of which appears in the history of the Third Crusade. Here a party of pious and earnest men, maintaining the strictest discipline from a sense of duty, and animated by episcopal exhortations, but under the conduct of no leader of any note, were eminently successful, while all the military prowess of Christendom effected absolutely nothing in the Holy Land.

The *Botanical Magazine* for November contains portraits of the following plants:—*Renanthera Lowii*, a folding plate, showing the very singular dimorphism, alluded to at p. 914, which occurs in this Bornean plant, better known as Vanda Lowii. The figure was taken from Mr. Rucker's plant, which is stated to be 9 feet high, and to have produced six flower spikes, each bearing from 40 to 50 blossoms, which lasted in perfection for a month. The spikes attained to such an extraordinary length that they had to be supported on props. The two basal dissimilar flowers of each spike are tawny yellow dotted with crimson, the remainder much undulated, pale green, almost wholly covered on the inner face by large irregular blotches of reddish brown.—*Masdevallia civilis*, a Peruvian Orchid, with tufted terete vaginate stems, bearing one linear oblong leaf, and short radical peduncles supporting the curious dull brownish-yellow purple-stained flowers.—*Aquilegia cærulea*, a handsome hardy perennial from the Rocky Mountains, the flowers remarkable for their long slender spurs, their spreading purple sepals and their pure white petals. Mr. Burke, by whom it was collected, calls it not only the Queen of Columbines but the most beautiful of all herbaceous plants. A. leptoceras is regarded as an ochroleucous variety.—*Mimulus luteus cupreus*, the Mimulus cupreus of gardens, which Sir W. Hooker is "satisfied is only one of the many varieties of the Linnean Mimulus luteus," of which guttatus, variegatus, rivularis, and Smithii are given as synonyms.—*Vitis macropus*, a herbaceous Vine with a turnip-like stem! It resembles the V. Bainesii mentioned at p. 1039, and like it, is from tropical West Africa, but differs in having the leaves five-parted instead of three-parted. It is a great curiosity but of no beauty. This species was found by Dr. Welwitsch in South Benguela. The thick gouty stem is quite succulent.

In the December Number we have pictures of:—*Acmena floribunda*, a New Holland evergreen greenhouse tree of the Myrtaceous order, with oval-lanceolate acuminate leaves, and thyrsoid panicles of small green unattractive flowers, succeeded by bright purple berries as large as peas, which are represented as very handsome. The old Eugenia elliptica is a white berried variety. The flowers appear in winter, "and the berries succeed them in early spring, causing the extremities of the slender branches to bend down by their weight."—*Aravja angustifolia*, a slender Asclepiadaceous climber, discovered in the forests of Uruguay. It has hastate leaves, with a white bar down their centre, and cylindrico-campanulate whitish axillary flowers, marked in the throat with purple. It is a graceful plant, but not very showy.—*Dendrobium japonicum*, or as Mr. Bateman proposes to call it, D. castum, an epiphyte from Japan and the Island of Tsu-Sima, with slender stems and moderate-sized pure white flowers, not of a showy character, but having a delicious fragrance, which "at once recommends it for cultivation."—*Bartonia nuda*, a North American (Missouri) biennial, with pinnatifidly-toothed leaves, and large spreading greenish-yellow flowers. Mr. Thompson, by whom it was introduced, observes that "it can hardly be looked upon as a hardy ornamental plant; the flowering only takes place late in the evening, and at a season, October, when it is too late for the ripening of the seeds."—*Veronica Hulkeana*, a slender shrubby greenhouse plant, quite distinct from all the forms of Speedwell hitherto familiar in gardens. It is of New Zealand origin, and is of erect habit, with ovate or elliptic toothed leaves, and a great terminal paniculate inflorescence, crowded with rosy lilac flowers. It has flowered at Kew in a cool greenhouse, but from its elevation (15-2000 feet) in the Middle Island of New Zealand, it is expected to prove hardy in our climate.—*Epistephium Williamsii*, a beautiful terrestrial Orchid, related to Sobralia, introduced from Bahia, and noticed more fully at p. 1155.

In the two last issues of the *Florist and Pomologist* are figures of the *Vicar of Winkfield Pear*, and *Clematis rubro-violacea*, one of Mr. Jackman's purple-flowered hybrids.

The *Floral Magazine* contains, amongst other less important subjects:—*Achimenes Rollissoni*, a very handsome hybrid raised at Tooting, and the result of a cross between A. gloxiniiflora (Plectopoma fimbriatum) and A. Scheerii (Scheeria mexicana). It is of robust habit, a free bloomer, the flowers very large, with a pale tube yellow at the base within, and speckled with crimson round the throat, the limb of a deep mauve purple; the flowers are represented as being 3 inches across.—*Iresine Herbstii*, one of the plants with dark brown-red leaves, and recommended by its introducers Messrs. Herbst and Stenger for summer bedding-out. It is said to branch freely, and to be much hardier than the Coleus, which is a strong recommendation, as the slight frosts to which we are liable as autumn approaches, often do irreparable injury to the latter long before the flower-garden season has been brought to a close. M. Verschaffelt has introduced the same plant, and published it under the name of Achyranthus Verschaffeltii, but as M. Verschaffelt's figure and description was not published till the end of August, and Sir W. Hooker's name of Iresine Herbstii was

printed, with descriptive notes of the plant, in our columns on July 9, the latter name takes precedence. —*Rhododendron Princess Helena*, one of Mr. Veitch's beautiful hybrids with pink long-tubed flowers, raised from R. jasminiflorum, crossed with an imported scarlet species which was not sent out. The flower-tubes are longer than in the variety called Princess Royal, to which it bears some resemblance.—The *three-coloured Japanese Saxifrage*, often called S. japonica tricolor, is represented under the manifestly erroneous name of S. Fortuni. The plant itself in its best variegated state—by the by it is rather capricious—is a very beautiful subject for suspended baskets in greenhouses or window conservatories.—*Gladiolus Eleanor Norman*, a handsome pink striped variety with crimson feather, while in the "sprouts," whatever they may be, there are semicircular spots of deep crimson. It is said to have been awarded a First-class Certificate by the Floral Committee [when?]—*Disa grandiflora superba*, the best form of this fine terrestrial Orchid.—*Pentstemons Princess of Wales* and *Attraction*, the first white tipped with pink, the second a white-throated rose-pink in the way of Mrs. Moore.

Garden Memoranda.

MESSRS. FRANCIS & ARTHUR DICKSON & SONS', UPTON NURSERIES, CHESTER. — Chester, one of the most ancient cities in the kingdom, is situated on the banks of the River Dee, and apart from its historical interest is well worth a visit on account of the peculiar form of its construction. It is encompassed by a wall of great strength, on the top of which is an agreeable promenade, from which not only the surrounding country, but also the antiquated architecture of the town may be inspected with advantage. On a circular tower in an angle of this wall is an inscription intimating the fact that from this spot Charles I. beheld the triumph of the Parliamentary forces over his own in the neighbouring plain on September 24th, 1645. It is, however, the horticulture of the place in which we are most interested, and foremost among establishments in that way stand the finely stocked and extensive Nurseries of Messrs. Francis & Arthur Dickson & Sons.

These are situated at Upton, about a mile and a half from Chester, and are remarkable not only for the excellence of their contents, but for the methodical way in which everything connected with their management is conducted. Some 80 or 90 acres are devoted to the cultivation of forest trees, and 10 or 20 acres to that of Roses and fruit trees, yet over all that extent of ground the utmost order and neatness are everywhere observable, and where necessary, numbers indicating varieties are boldly marked in good black paint on durable white painted Oak labels, in order that everything may be kept true to name—a matter the importance of which, especially in reference to fruit trees and Roses, can scarcely be overrated.

Bordering a drive leading from the entrance to the Counting-house and Offices are plantations of choice Conifers, among which we noticed beautifully formed plants of Abies Nordmanniana, nobilis, and Pinsapo; Thujopsis borealis, Wellingtonias, Cupressus Lawsoniana, Araucaria imbricata, Deodars, and others, all varying from 2 feet to 5 feet in height, well furnished with branches, and otherwise in excellent condition for planting on lawns or in other conspicuous situations. In the grounds connected with Mr. Francis Dickson's residence, a large and commodious building, are also some very fine examples of Conifers, conspicuous among which is a charming specimen of Araucaria imbricata nearly 30 feet in height, forming a complete cone, so thickly branched at the base as to effectually hide anything standing or growing behind it. Associated with this are beautiful plants of Abies nobilis, Pinsapo, and Nordmanniana, each measuring from 15 to 20 feet in height; other fine Conifers and trees of various descriptions, planted many years ago by Mr. F. Dickson, may also be found here.

In another part of the grounds is a second Araucaria imbricata, equally fine with that just referred to, but differing from it somewhat in habit, the branches having in this case a decidedly pendulous character, turning gracefully upwards at the points, and the leaves being stouter and broader than those in any other plant of the kind which we remember to have seen, thus giving the tree, a magnificent specimen, an unusually ornamental appearance. This stands in a small Pinetum, in which we noticed, among other things, a fine Wellingtonia gigantea about 12 feet in height; and examples of the different varieties of new Japanese plants, placed there with the view of testing their hardiness as well as adaptability for ornamental purposes.

This Nursery being fully exposed to the influence of west and north-west winds, which occasionally blow with great violence off the Welsh mountains and from the Irish Sea is well furnished with excellent hedges, which are about 8 feet in height, and so trimmed as to occupy little more room than that which would be required for ordinary brick walls of similar height. These consist of Beech, Hornbeam, Holly, Yew, and Privet; but for strength as well as fine appearance, Messrs. Dickson are of opinion that the best is a mixture of Thorn and Holly, which, if properly managed, makes a beautiful half evergreen fence.

Snugly nestling amid such security as these hedges afford, are the glass houses, which are both numerous and extensive, well filled with excellent half-hardy and other stock. Among them is a span-roofed house, 100 feet in length, in which are wintered Pelargoniums, both for in and out-door decoration in summer; another fine house, even of larger size, divided in the middle, contains a fine collection of stove plants in one compartment, and New Holland and other hard-wooded plants in the other; Camellias, well set with blossom buds, occupy another house; contiguous to which is a stageful of magnificent specimen Azaleas, admirably grown and tastefully trained, which when in flower must indeed have a gay and imposing appearance. Associated with the latter we noticed fine plants of Dracæna australis, and in another house are stored away Roses in pots of all the choicest kinds to supply cuttings for plants on their own roots, which are grown by thousands here.

Of Vines a most extensive collection is cultivated, and being well attended to during their season of growth they are now in excellent condition, either for cultivating in pots or for planting out in the usual way. They are wintered in a long skeleton span-roofed pit on which are placed wooden shutters to protect them from the weather. In summer when not required for Vines, and the shutters are off, these pits answer admirably for Roses, which are placed in them on a gently heated bed of fermenting material, in which they make excellent growth.

In front of one of the ranges of glass houses is a geometrical garden, tasteful in design, and in summer quite a blaze of floral beauty; and contiguous to it is a Rosery, consisting of a series of circular 4-feet wide beds, which are divided from each other by means of good gravel walks, the whole being intersected by two principal pathways in the form of a cross. This Rosery occupies a square piece of ground, surrounded partly by evergreen hedges and partly by the glass-houses, against the walls of which the more tender varieties of Noisette and Tea-scented Roses are trained.

A border of Hollies, consisting of all the best of the green-foliaged kinds, together with Gold and Silver-leaved varieties, planted ribbon fashion, connects the ornamental ground with that of the Nursery properly so called, and, being edged with a double row of Box, between which Variegated Ivy is pegged down, the whole has an extremely pretty appearance, equally pleasing both in summer and winter.

The light loamy soil of this district seems to suit Rhododendrons equally well with the sandy bog of Bagshot; they are, therefore, in consequence grown here in wonderfully large quantities, and as cover for game the more hardy kinds are invaluable. Nearly 200,000 three-year-old plants, about 9 to 12 inches high, may be found in one plantation, and of all the choicest and newest varieties of the late-flowering hybrids there is a large stock, specimen plants of each of which are kept for the purpose of supplying grafts or cuttings; correctness of nomenclature is therefore in this way effectually secured.

One of the principal crops cultivated in this nursery is Larch, of which there may now be seen some 12 millions of one-year old plants; and owing to the late dry summer proving less injurious in this quarter than in other districts, the plants are in remarkably fine condition, and unusually large and strong for their age. Transplanted Larch, covering some 10 acres in extent, is also equally satisfactory, the plants being placed sufficiently far apart to receive the benefit of plenty of light and air. Scotch Fir is found to grow well on ground previously occupied by Larch, therefore the two crops are planted on the same land alternately, and of course in equal quantities. We also remarked huge breadths of Austrian, Scotch, Spruce, and Highland Pines, Douglas Fir, and Yews, both Common and Golden varieties, which being reared under circumstances of great exposure, thrive with increased vigour when placed in more favourable situations. Of choice Conifers the collection embraces many thousands of the best and most desirable hardy varieties, including those of recent introduction; and, being frequently transplanted, they can be lifted with the greatest safety, not the slightest check being experienced by that operation.

Among dwarf Spruces the best is reported to be A. Gregoriana, of which we noticed some interesting examples, very suitable for the ornamentation of terrace gardens. To the cultivation of forest trees of other descriptions some 70 acres are devoted, consisting of endless quarters of English Oak, Spanish and Horse Chestnut, Sycamore, Ash, Beech, Elm, Lime, Birch, Hornbeam, Poplar, Hazel, and Thorn or "Quick," and evergreens and other ornamental shrubs may also be had here in almost any quantities. Of the Ailantus, the ample foliage of which forms the food of the Ailantus Silkworm, we likewise observed a good stock.

Prominent among other crops in this extensive establishment are plants suitable for game coverts. Among these, in addition to Rhododendrons, Holly, Laurustinus, and Portugal and Common Laurels, which are cultivated by thousands, and of all sizes, are Berberis Aquifolium and dulcis, Box, Blackthorn, what is called Canadian Gooseberry, a fruit-bearing prickly bush, Deutzia scabra, Dog Rose, and Sweet Briar, Elder, Hazel, Honeysuckles, Privet, Scarlet-flowered Currant, Snowberry, Yews, Pinus Pumilo, Gorse, Broom, Buckwheat, and some of the coarser growing Grasses.

The culture of fruit trees forms another important feature of the Nurseries now under notice, and on this branch of the business much labour and pains are bestowed to render the collection as perfect as possible, both in regard to kinds, growth, and modes of training. Among pyramids we remarked many thousands of thriving young specimens, and equal numbers exhibiting examples of other modes of treatment. Lancashire show varieties of Gooseberry may also be found here as well as all the finer smaller-fruited varieties, which, as far as flavour is concerned, are deservedly the greatest favourites.

In the Seed department, which is equally extensive with that relating to forest trees and shrubs, the greatest particularity is exercised to have everything true to name and the best of its kind, an assertion, ample evidence of the truth of which may be found in the case of their "First and Best" Early Pea, a whole page of testimonials in reference to which from well-known gardeners is given at p. 1148 of our advertising columns. In commodious warehouses and offices adjacent to the shop, are stored away for the spring trade, extensive stocks of the leading kinds of agricultural seeds, for the excellence of several of which, such as their Improved Bronze-top and Select Purple-top Swedes, Improved Green-top and Purple-top Scotch or large Yellow Turnips, they have achieved a wide reputation. At a recent exhibition at Bingley Hall, Birmingham, some of the most important prizes were awarded to roots from different parts of the country, grown from seeds supplied by Messrs. Dickson. They have also in store some 50 tons of the best natural Grasses for permanent pastures, Lawns, &c., besides Perennial and Italian Rye-grasses, Clovers, Mangel, &c., in equal proportions. Their mixtures for sowing down land to permanent pasture are in great request, and are deservedly highly commended. It will therefore be seen that the Nurseries of Messrs. Francis & Arthur Dickson & Sons stand in the very first rank among provincial establishments of this kind.

Miscellaneous.

Death of Mr. John Lawrence.—Among the deaths registered in our impression of to-day, Dec. 14, is that of one whose merits and good example claim some notice at our hands. We refer to the late Mr. John Lawrence, a native of Aberdeenshire, for many years head gardener at St. John's, near Ryde. He was well known to many of our readers, and esteemed by all; and many of our summer visitors will remember the courtesy with which he showed them his unique avenues of Fig-trees, and also his intelligent conversation. He was an earnest student of nature, and had familiarised himself with the microscope, in its application to the structure of plants. But, while such acquirements are especially to be commended in one whose day was spent in bodily labour (for he did not think his duty done by merely directing the work of others), we have a stronger motive for bringing Mr. Lawrence's name before our readers. Having been brought up in the gardens at Haddo Castle, belonging to the Earl of Aberdeen, and having perfected his skill under the best practical gardeners of the time, he became gardener to the late Sir Richard Simeon, at St. John's, and continued there in charge to serve his son and successor, the present Baronet, till the day of his death—a period somewhat exceeding 40 years. It is said, "That good masters make good servants," and, doubtless, the adage contains much truth. That this good servant was appreciated as he deserved, and that he is now deeply regretted, the following lines, written by Sir John Simeon to a friend respecting Mr. Lawrence, will clearly show:— "It is impossible," says the writer, "to exaggerate the loss my poor old friend is to me, or to over-rate his many admirable qualities. No family was ever more honoured by the service of a more faithful and affectionate friend than he was to my father and myself during a service of more than 40 years, and I feel that the idea of replacing him is perfectly hopeless." A fitting tribute, well deserved. *Isle of Wight Times.*

Common Ivy.—Ivy is not a parasite, as commonly supposed, but has its roots in the earth, and simply adheres to the trees or other props by which it is elevated into the air. If the thick stems, which may always be observed at the base, be cut through, it usually dies like any other plant. The diameter of these stems near the ground is often 10 or 12 inches, and many are often found standing side by side. The age attained by Ivy is probably to be reckoned by centuries, for though often found trailing weakly upon the ground, bordering sylvan walks, and entangled in hedges, its true place is the time-worn and roofless abbey, and the crumbling middle-age castle, from the romance of which it is inseparable, and with the history of which it descends, making antiquity picturesque, and affording at the same moment a powerful physical protection. Some of the largest Ivies in England are probably those at Brockley Hall, Somersetshire, where they brace up the old trees with their friendly clamps, rendering them at the same time, as is the wont of Ivy, cheerful in winter; and for beauty there are none to be found grander than those of

Kenilworth. The lower walls of this famous ruin they ornament with green and shining arabesque; and from the upper ones they roll out magnificently in rich and massive cornices. The variety in the leaves of Ivy is often thought to indicate a difference of kind. But it is a variety connected merely with different stages of growth. While young, and as long as the stems have a wall or tree to attach themselves to, that is to say, closely, as if they were glued, inch by inch, the leaves are angular and three to five-lobed in innumerable variety; at this time also they are often beautifully tinctured with red or purple, or veined with white, or wholly yellow, especially on the terminal and zigzag branchlets that run like vegetable centipedes up trees and over the surface of damp walls and rocks. Mounting upwards by means of their root-like suckers, which are thrown out abundantly from the surface, the stems in due time reach the top of their support. They now elongate but little, becoming woody, and forming large bushy heads, which produce flowers and fruit, and the leaves of which are all ovate or elliptical, but still possessed of the characteristic polish, and with long petioles. Such leaves are produced only upon the branches that float into the air when the plant is attached to trees or buildings; or that form a kind of hedge along the top, when growing against an old wall; and it is only upon these, literally the very tops of the plants, that flowers and fruit are found. If the stem have suckers upon it, there are neither. Examples are known of Ivy ascending to the height of a hundred feet before it becomes disengaged enough to blossom. Irish Ivy, a native of the Canary Islands, is distinguished by its scaly pedicels and large leaves. Besides this, there are many varieties with delicately shaped and variegated leaves, which adapt them well for tapestry to garden walls; also the golden-leaved, which in spring seems a mass of yellow flowers, and the yellow-berried, which is probably the kind referred to by Virgil when he speaks of the *pallentes ederas* of Œbalia. Everywhere in his classic country, Ivy, as in England, spreads its dark-green vesture over the ruin; when we have contemplated Kenilworth to our content, we may reflect that Ivy grows also upon the tomb of Cecilia Metella. *Grindon's British and Garden Botany.*

Habits of Beetles.—The chief function of this family [Nitidulariæ] is that of scavengers. Their main business is to clear off decaying substances from the face of the earth, especially those minute and neglected portions which have escaped the attention of other scavengers whose operations are conducted on a larger scale. We may characterise them in one point of view as retail scavengers. They are, so to speak, users-up of waste materials. After the beast of prey has satisfied his hunger on the animal he has slain; after the hyæna and the vulture have gorged themselves on its carrion; after the fly with its army of maggots has consumed the soft parts; after the burying-beetle and the Silphidæ have borne their part in the clearing away, and when nought but the bones remain, then come the Nitidulariæ to go over what they have left, to gnaw off every fragment of ligament or tendon, and to leave the bones as nearly in the state of phosphate of lime as external treatment can. In another point of view, however, their employment is wholesale and wide enough. They conduct their operations all over the world; their branches extend into the most remote districts; the materials with which they have to do, although mere waste, have no other limit to their variety or their number than the organised substances found on the surface of the globe. As in all great establishments, too, the principle of division of labour is carried to a great extent. Each different kind of substance has a different member of the firm told off to take charge of it. One species confines itself to rotten Oranges, another to bones, a third to putrid Fungi, a fourth to decaying Figs. Decaying wood, decaying bark, decaying flowers, decaying leaves, all furnish distinct employment to different species. They are not all scavengers, however. Many pass their lives in flowers; others feed upon fresh victuals; and Mr. Frederick Smith, of the British Museum, has, whilst I write, brought to my notice a species of Brachypeplus (B. auritus) which he has received from Australia in a wild bees' nest, where it feeds, both in the larva and perfect state, on the wax and honey. *A. Murray, in Transactions of Linnean Society.*

Calendar of Operations.

(*For the ensuing week.*)

SOME very fine specimens of retarded Grapes were shown at South Kensington the other day by Messrs. Lane and Mr. Hill, and as no fruit is more generally admired or more useful for dessert than good Grapes, a few words respecting the mode of preserving them in good condition until this late period may not be without interest. The keeping properties of Grapes, under proper circumstances, are astonishing. Three conditions are particularly necessary in order to ensure success:—1st, they must be well fed in the berry; 2d, they must be thoroughly ripened pretty early in autumn; and 3d, they should receive abundance of ventilation. To be well fed they must possess good root action, which is of more importance than overloading the border with manure; thorough drainage, and such a constitution of soil as will at all times readily transmit moisture, are also necessary in order to ensure healthy growth. To be thoroughly ripened, they must have plenty of warmth, a dry atmosphere, and a free circulation of air day and night. The argument about cold currents, and a host of consequent calamities, does not apply so much to late Grapes as to forced Vines, the berries of which are in a tender state. They should, moreover, be well coloured before sun heat becomes deficient. Attention to these principles will scarcely fail to ensure success. As to the application of fire-heat, if the house is too cold, or too damp, keep fire enough to remedy the evil.

FLOWER GARDEN AND PLANT HOUSES.

Advantage should be taken of frosty weather to do any rough work in the principal part of the pleasure-ground, such as pruning trees and shrubs, the doing of which involves a considerable mess, which can be more easily removed in such weather. A similar opportunity should be taken to wheel old exhausted soil from the flower-beds, and to replace it with fresh material, as this kind of work can be done during frost in half the time that it would take if done when the ground and walks are soft, and with a tithe of the injury to both which would be inevitable in the latter case. At this time of the year, it often happens that severe frost follows heavy wet. When plants are overdone with moisture, they are more susceptible of frost than when moderately dry. It is therefore good policy for the amateur to guard against extremes of either one or the other.

AURICULAS.—A double mat will be advisable over the Auricula frame at night, but should it be possible, even in severe weather, to give air, by all means let it be done.

BULBS.—Tulip beds will be more safe covered than exposed; and Ranunculus and Anemone beds had better be thrown up, in order to sweeten and insure the destruction of insects, &c.

CARNATIONS.—Should any one have Carnation layers only partially rooted at this season, they must be examined after a frost, and again pegged down.

POLYANTHUSES.—These will, perhaps, now claim extra notice. Those on beds, if parted at the usual time, will often have the collar exposed too much, and the roots comparatively bare; independent of this, earth-worms may have drawn leaves, &c., into their holes, which, with their castings, give the beds an untidy appearance. One plan is, to carefully fork up the soil, so as to disturb the fibres of the plants as little as possible, removing the decayed or broken leaves, then, with a mixture of decayed leaves and cow-manure, which had been prepared, and under cover some time previously, go carefully over the bed, filling up all inequalities, placing a couple of handfuls round each plant; in fact, giving them a complete top-dressing. This operation will prove highly satisfactory; and its result will be a strong and vigorous start in the spring.

FORCING GARDEN.

PINES.—Let the temperature of fruiting pits range from 55° to 60° by night, and from 65° to 75° during the day: bottom-heat should be about 80°. Admit as much fresh air as possible, moderating the quantity when the wind is very keen. The day temperature, and moisture, should be regulated by the clearness of the weather and the amount of air which can be admitted. Do not on any account allow the moisture to be in such abundance as to condense and run into the plants. Crownless and deformed fruit are the result of moisture being allowed to accumulate in the hearts of the plants at the time the fruit is coming up. Where the pot system is practised, the plants in all stages should be examined once in two or three weeks, and a portion of those whose roots have made the greatest progress should be repotted.

VINES.—In starting these, after washing the stems and glass, the woodwork, and everything else about the house, should be painted if not already done. If the outside border is not already covered with litter, this should be done before the Vines are started. Unless the roots extend into the interior of the house, the border should be covered with 18 inches of fermenting material, such as stable litter and leaves, to produce a gentle warmth in the soil before the inner temperature is raised higher than 50°. Before the litter is laid on, all loose or exhausted soil should be scraped off the border as far as the roots, and replaced by a top-dressing of charred turf, crushed bones, charcoal, and fresh horse-droppings. The inside border should also have the exhausted soil removed, and top-dressed with a similar mixture. Commence with a gentle heat of from 45° to 50° night temperature, and from 50° to 60° by day. The amount of moisture should be moderate at first, and increased gradually as the plants advance in growth. Syringe freely in fine weather.

HARDY FRUIT AND KITCHEN GARDEN.

Where fruit rooms are not furnished with a stove or a coil of hot-water pipes, considerable difficulty is often experienced at this season in excluding cold and damp. Of the two, perhaps, the latter is the greater enemy. It may, however, be remedied by spreading some unslaked lime in wide pans or drawers, exposing as much as possible of its surface to the atmosphere, and exchanging it for fresh as soon as its absorbing powers are somewhat satisfied. Frost should be excluded if possible; but if this is to be effected by the aid of artificial heat, the latter should always be used in connection with ventilation, that the moisture evaporated may be allowed to escape. If there are however no such conveniences, the simple means of matting up the doors and windows must be adopted; and if, in spite of these precautions the internal temperature falls below the freezing point, care must be taken to prevent a sudden thaw by keeping the room close and shaded for a short period after the return of warmer weather. This points out the advantage of constructing such places on the north side of a wall, as they are thereby preserved from extreme heat in summer and from sudden variations in winter. Many of the finest dessert Pears require placing in a temperature of 60° for a few days previous to use; there they will become quite ripe and will attain their full richness of flavour, while they would have lain in the cool fruit-room shrivelling till useless.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Dec. 14, 1864, as observed at the Horticultural Gardens

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 8	9	29.647	29.564	56	25	40.5	46½	47		.65
Friday 9	10	29.813	29.737	54	32	43.0	46	47		.60
Satur 10	11	29.814	29.776	48	26	37.0	46	47		.00
Sunday 11	12	29.713	29.573	55	40	47.5	46	46½		.00
Mon. 12	13	29.509	29.445	50	25	37.5	46½	46½		.02
Tues. 13	○	29.645	29.485	47	36	41.5	46	46½		.02
Wed. 14	15	29.756	29.716	42	33	37.5	45	46		.00
Average.		29.685	29.613	50.3	31.0	40.6	46.0	46.6		.10

Dec. 8—Rain; very fine; overcast at night; slight frost.
" 9—Foggy, very fine; overcast.
" 10—Slight haze; fine; very foggy.
" 11—Fine; very fine; dense fog, slight frost.
" 12—Cloudy; rain; fine at night.
" 13—Dense fog; hazy; overcast at night.
" 14—Slight rain; foggy; overcast.
Mean temperature of the week 1½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Dec. 24, 1864.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	44 9	32.8	38.9	19	0.56 in.	4	6	3	2	3	12	3	5
Mon. 19	44.8	33.3	39.0	16	0.87	1	4	4	4	3	12	3	7
Tues. 20	44.1	33.6	38.9	13	0.76	3	9	1	2	5	12	3	3
Wed. 21	43.3	33 8	38.5	15	0.20	1	8	3	2	2	14	3	5
Thurs. 22	44.8	32.8	38.7	19	0.37	6	7	3	1	2	11	6	2
Friday 23	44.3	32.0	38 2	20	1.13	6	8	2	2	1	12	3	4
Satur 24	44.0	31.6	37.8	16	0.30	4	4	4	2	1	15	4	4

The highest temperature during the above period occurred on the 23d, 1827, and 24th, 1839—therm. 57 deg.; and the lowest on the 24th, 1860—therm. 4 deg.

Notices to Correspondents.

BOOKS: *P Q.* Oliver's "Lessons in Elementary Botany" will give you the required information.—*Young Gardener.* Read carefully so as to understand the "Theory and Practice of Horticulture," and make the knowledge thus acquired the foundation of your daily practice.—*Lottie.* The title of Dr. Prior's book is "Popular Names of British Plants."

EXHIBITION PLANTS: *W C.* We do not agree with you that our exhibitions would be improved by cutting down the size of the "monster" plants, or by lessening the numbers in the several collections. We want both size and number, for effect. But great advantage would result from the better distribution of these masses of colour. They should certainly be relieved by the free intermixture of some of the fine foliaged plants which now often prove such dull-looking objects from being too much congregated. It should not be forgotten that these "monster" plants are noble examples of horticultural skill, even though some persons may think it misapplied. In our shows we want variety of arrangement, rather than change of material, and this not only as regards using the leaf-plants to set off the flower-plants, but *vice versâ*. What a charming effect would result from throwing out and lighting up with a background of colour some of the choice individuals amongst foliage plants, such as Tree Ferns, for example, which lose half their beauty when crowded amongst masses of similar objects.

FOXLEY'S BEADED BRICKS: *D D.* We have stated our favourable opinion of these at p. 698. The fact that they must conduce to the preservation of a garden wall by doing away with the necessity for pitting it with nail-holes, while at the same time they afford an efficient means of training trees over its surface, should be enough to recommend their adoption where fruit walls are in process of construction.

FUNGI: *A J.* Your Fungus is Rhytisma acerinum, accompanied by a little gall. *M J B.*

NAMES OF FRUITS: *D L B.* 1, Brabant Bellefleur; 4, Norfolk Stone Pippin; 5, Thorle Pippin; 6, Paradise Pippin; 7, Verulam.—*G W G.* 2, Cornish Gilliflower; 3, Rhode Island Greening; 5, Bedfordshire Foundling; *J B.* 1, Adams' Pearmain; 2, King of the Pippins; 3, Cornish Gilliflower; 4, Golden Reinette; 5, Turk's Cap; 6, Round Winter Nonsuch.—*Young Jasper.* 1, Glou Morceau; 2, Thompson's; 3, Beurré Rance (unless for stewing, a north wall is not the place for it); 4, Beurré Diel.—*T F.* 1, Passe Colmar; 2, Napoléon; 3, Red Calville; 4, Scarlet Crofton; 5, Norfolk Beaufin; 6, Adams' Pearmain.—*J B.* 1, Blenheim Pippin; 2, King of the Pippins.—*W Heale.* The Rymer Apple, well coloured.—*J T.* 4, Beurré Diel; the Apples, excessively acid and bad, are not known.—*C W.* Bruised.

NAMES OF PLANTS: *M W.* 1, Doodia caudata; 2, Doodia media; 3, Goniophlebium appendiculatum; 4, Asplenium fontanum.—*R G.* Pleopeltis Phymatodes; 2, Selaginella pubescens; 3, Selaginella cuspidata; 4, Nothochlæna nivea.—*S W.* Plumbago rosea.—*Louisa.* Adiantum hispidulum, *alias* pubescens.

PRUNING: *M.* Nuts, Filberts, and Damsons may be pruned now. ||

ROYAL HORTICULTURAL SOCIETY: *Anon.* We quite agree with you: it is most absurd. The national Agricultural Society is managed by agriculturists; and the learned and scientific societies respectively by learned and scientific men, identified with the objects of the societies; but we lament to say that it is the fate of the national Horticultural Society to fall under the hands of managers, among whom are men who don't know how Hollyhocks grow on their stems, and have never heard of a *Gardeners' Chronicle!*

VINES: *J M.* You state that you have a strong healthy Vine of the Golden Hamburgh, for which you wish to substitute Lady Downes' Seedling. Whether it would be most advantageous to inarch the former with the latter, or to take up the Golden Hamburgh and plant a strong Vine of the Lady Downes', depends on circumstances. If you could not remove the existing plant without disturbing the roots of other Vines in the border, then cut back the Golden Hamburgh now and graft with the other in spring, but not before the stock has pushed into leaf. The stock being vigorous, the rod from the graft should reach the top of the house in the ensuing summer. ||

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
AUTUMN SESSION, 1864.
President.—The Right Hon. the Earl BATHURST.
Council.
The Rt. Hon. the Earl BATHURST. | The Rt. Hon. T. H. SOTHERON ESTCOURT, M.P.
Hon. WILLIAM BATHURST. | EDWARD HOLLAND, Esq., M.P.
The Rt. Hon. the Earl DUCIE.
Principal—The Rev. JOHN CONSTABLE, M.A. Trin. Col. Camb.
RESIDENT PROFESSORS
Practical Agriculture—J. L. FLETCHER, Farm Manager. *T. BALDWIN, of Glasnevin. *R. SCOTT BURN, Co-Editor of the Book of Farm Buildings.
(*These Gentlemen will be in temporary residence.)
Chemistry.—ARTHUR H. CHURCH, M.A., Lincoln Coll., Oxon., F.C.S
Assistant to Chemical Professor.—R. WARINGTON, Jun., F.C.S
Botany.—JOHN BAYLDON, M.B., Lond. B. Sc.
Veterinary Surgery.—A. J. MURRAY, M.R.C.V.S.
Mathematics and Surveying.—The Rev. W. MEREDITH LANE, M.A., late Scholar of Trin. Coll. Camb.
Drawing.—JAMES MILLER
SPECIAL LECTURERS.
FINLAY DUN—On the MANAGEMENT of STOCK.
W. C. SPOONER—On the FARM HORSE.
SAMUEL COPLAND, "The OLD NORFOLK FARMER."
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A COURSE of LECTURES.

Drainage, &c.
MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
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EXECUTED by CONTRACT or on COMMISSION, and LOANS OBTAINED by
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N.B.—Mr. SCOTT has already Drained upwards of 10,000 Acres in England, and will be happy to show works in progress or completed.
Several most desirable Estates and Farms on hand for Sale and Letting.

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Samples and prices on application.

ON SALE, for STOCK FEEDING, SUGARY TREACLE, in Puncheons and Half Puncheons.
MACFIE & SONS, 34, Moorfields, Liverpool.

AGRICULTURAL PUPILS.—A Gentleman farming 400 Acres of Light and Heavy Land has a VACANCY for TWO RESIDENT PUPILS, who will have every opportunity of gaining a thorough knowledge of practical and scientific Agriculture, including Agricultural Chemistry.—Address G. G., Post Office, Windsor.

PROFESSOR J. BUCKMAN, F.L.S., F.G.S., &c., late Lecturer on Botany, Geology, and Rural Economy at the Royal Agricultural College, begs to acquaint Landed Proprietors and those connected with Agriculture that he may be professionally consulted on all Scientific matters relating to Farms and Estates, such as Mineral Products, Economic Materials, Water-bearing Strata, and Water Rights, Improvements in Pasture, Analysis of Seeds, &c.
J. BUCKMAN has a VACANCY for one more PUPIL.
For particulars apply at his residence, Manor Farm, Bradford Abbas, Sherborne, Dorset.

The Agricultural Gazette.

SATURDAY, DECEMBER 17, 1864.

ERRATUM:—For "Cirencester" in the 51st line of the second column of page 1189, read "Edinburgh." This correction of our report of the proceedings before the general meeting of the Royal Agricultural Society of England is necessary; for Mr. HOLLAND was endeavouring to explain not any failure at the Cirencester Agricultural College, which indeed he altogether denied, but the failure of the agricultural diploma scheme of the Highland and Agricultural Society. It appears that during so many years only 15 gentlemen have submitted to the Society's examinations, and this is declared to be owing to the character of the examinations, which, while jejune in the extreme as regards the sciences on which agriculture depends, is excessively detailed and severe on the circumstances, methods, and results of farm practice in the field.

AT the late meeting of the Kingscote (Gloucestershire) Association, the subject discussed was "The best and most economical plan of wintering stock under the present circumstances of hay and roots being so scarce." We give the results of the discussion thus prominently, both as relating to what is now a specially interesting subject, and as illustrating a capital way of putting farmers' clubs to good use.

The President (T. J. HARRISON, Esq., of Frocester Court) introduced the subject by reviewing the difficulties under which farmers are labouring, pointing out a few facts bearing directly upon the subject, and requesting the members present to give the results of their actual experience carefully in detail. This was willingly acceded to, and we are thus enabled to give some information on the subject, which we trust may prove useful to our readers in the present emergency.

Taking good hay as the standard food, Mr. HARRISON stated that store sheep, according to their size, would require from 14 to 20 lbs. of hay per week to keep them in fair condition—

Calves coming 1 year old	¾ cwt. per week
Yearlings coming 2 years old ..	1 ,, ,,
Two-year olds coming 3 years old ..	1¼ ,, ,,
Dry Cows	1¼ ,, ,,
Cows in Milk	1¾ ,, ,,

He stated also that 1 cwt. of good straw and 3¼ cwt. of roots per week according to his own experience; straw (probably 160 lbs.) and 28 lbs. of Oats, Beans, or Peas per week, according to Mr. RICHARD STRATTON; or straw (say 160 lbs.) and 21 lbs. of Linseed cake per week, according to the usage on the Cotswolds, would keep a cow in good store condition. And he pointed out how nearly the totals of flesh, fat, and heat-producing substances accord in these several dietaries.

He then drew attention to the relative value of feeding stuffs in the market, and showed that at present prices Barley, Indian Corn, and Cotton cake are among the cheapest and best to purchase.

The following Table gives the details of the actual practice of several of the members.

WEEKLY QUANTITIES AND COST OF FOOD.

NAME OF INFORMANT.	Hay.	Straw.	Roots.	Barley Meal.	Oats Crushed.	Indian Meal.	Pea Meal.	Bran.	Oilcake.	Cost per head per week.	REMARKS.
	lbs.	lbs	lbs.	lbs.	lbs.	lbs	lbs.	lbs.	lbs.	s. d.	
HORSES.											
Colonel Kingscote	..	147	105	..	72	..	..	..	..	8 4½	Barley straw chaff.
Mr. Thomas	..	168	..	10	16	26	..	11	..	7 5	
Mrs. Ford	..	119	..	9	..	18	..	41	..	6 2½	Wheat straw chaff, working horses and colts.
Mr. E. Drew	28	168	..	36	37½	..	..	..	..	9 4½	
SHEEP.											
BREEDING EWES.											
Mr. Ford	..	10½	175	7	..	..	..	1¾	..	1 10½	Cotswold—Green Globe Turnips.
FATTING TEGS.											
Colonel Kingscote	7	..	93	2	..	1¼	..	..	..	1 2	South Downs.
Mr. E. Drew	7	..	140	..	..	3½	3½	..	..	1 9	Cotswolds—Swedes.
Mr. Ford	..	8¾	147	7	..	..	..	1¾	..	1 9	Cotswolds—Green Globe Turnips.
FATTING EWES.											
Colonel Kingscote	8¾	..	128	3¾	..	3¾	..	..	..	1 9	South Downs.
OLD WETHERS.											
Colonel Kingscote	7	..	140	..	..	..	..	..	..	1 0½	South Downs.
STORE TEGS.											
Colonel Kingscote	8¾	..	77	..	..	..	..	..	..	0 8	South Downs.
Mr. Ford	..	8	77	..	1¾	..	..	1¾	..	0 10½	Cotswolds.
President	14	.	..	..	..	..	..	..	..	0 7½	According to size.
President	20	..	..	..	..	..	..	..	..	0 10½	
CATTLE											
CALVES COMING 1 YEAR OLD.											
President	84	..	..	..	..	..	..	..	..	3 9	
Mr. Blackwell	42	42	..	8⅓	..	..	..	..	..	3 2	
Colonel Kingscote	..	98	70	7	..	..	..	..	..	2 8½	*Barley straw chaff.
Mr. E. Drew	21	70	..	10	..	11	..	..	..	3 8	Meal to be increased to 28 lbs. per week in 6 weeks.
YEARLINGS COMING 2 YEARS OLD.											
President	112	..	..	..	..	..	..	..	..	5 0	
Colonel Kingscote	..	140	..	7	..	..	..	..	..	3 0	*Barley straw chaff.
Mr. Ford	..	84	..	11½	..	..	..	..	..	2 4	At Grass, Wheat straw, Meal boiled.
Mr. E. Drew	14	112	..	7	..	7	..	..	..	3 7	Meal to be increased to 21 lbs. per week in 6 weeks.
2 YEAR OLDS COMING 3 YEARS.											
President	140	..	..	..	..	..	..	..	..	6 3	
Colonel Kingscote	..	168	..	10½	..	..	..	..	..	3 9	*Barley straw chaff.
Mr. Ford	..	203	..	2	..	2	..	..	..	3 10	Barley straw chaff.
Mr. E. Drew	21	112	..	10	..	11	..	..	..	4 5	Meal to be increased to 28 lbs. per week in 6 weeks.—Steers.
DAIRY COWS DRY.											
President	140	..	..	..	..	..	..	..	..	6 3	
President	..	112	392	..	..	..	..	..	..	4 7	Chaff and pulp.
Mr. R. Stratton	..	160	..	..	28	..	..	..	..	4 9	Quantity of straw assumed.
President	..	160	21 lbs. of Linseed cake at 11*l.* 10*s.*							5 0	
Mr. Ford	..	112	..	11½	..	..	..	..	..	2 8	At Grass by day.
Mr. E. Drew	21	112	..	14	..	14	..	..	..	4 11	Graziers.
DAIRY COWS, IN MILK.											
President	196	..	..	..	..	..	..	..	..	8 8	
Colonel Kingscote	87	88	..	..	..	..	..	..	..	5 4½	At Grass by day.
Mr. Thomas	..	168	..	..	..	14	14	7	..	5 3½	At Grass, but hardly any of it.
Mr. Blackwell	80	80	..	25	..	..	..	..	..	6 9	Ditto.
FATTING CATTLE.											
Mr. Bennet	16	60	..	28	..	..	14	..	21	7 0	
Mr. Underwood	..	84	..	24½	..	..	..	..	28	6 1½	Wheat Meal mixed with the Barley Meal.
Mr. E. Drew	24	115	..	28	..	28	..	..	..	7 1	Chaff and Indian Corn steamed, Barley Meal added dry. Meal to be increased to 112 lbs. per week in 6 weeks.
Mr. Ford	..	168	..	50	..	50	..	25	..	11 6	Wheat and Pea straw.
Mr. Blackwell	84	28	..	62½	..	..	..	..	..	8 9	
WORKING OXEN.											
Mr. E. Drew	28	126	..	19	..	19	..	..	..	6 2	

* The food is mixed the night before it is given, and enough water is added to make it damp.

The weights are all in pounds, and the cost per week is carried out at the following prices:—

Hay ..	£5	0*s.* per ton	..	..	0.53 pence per lb.
Straw ..	2	0 ,,	..	..	0.21 ,,
Roots ..	0	15 ,,	..	..	0 08 ,,
Barley meal ..	8	5 ,,	..	..	0.88 ,,
Crushed Oats	8	0 ,,	..	..	0.85 ,,
Indian Corn	8	0 ,,	..	..	0.85 ,,
Pea meal ..	8	0 ,,	..	..	0.85 ,,
Bran	6	0 ,,	..	..	0 64 ,,
Linseed cake	11	10 ,,	..	..	1.23 ,,

THE following parochial circular deserves publication beyond the parish to which it is addressed. The profitable employment of winter evenings, in which the agricultural labourers of other countries are so superior to our own, is certainly a subject to which the attention of both master and men in country districts ought to be directed. And the plan here proposed seems so practicable and well considered, so certain to produce good fruit in individual cases, and so likely to exert a useful influence over the whole "country side," that having requested and obtained permission to publish it, we gladly lay it before our readers. The names and places, dates, &c., are all reproduced exactly as in the copy which has reached us, so that any one desiring to obtain, or, perhaps, able to give, further information may know where to address themselves. It can hardly be doubted that some attempts to copy so good an example will arise from this publication of it. Indeed we may say that we already know of instances in which the whole scheme, circular and all, has been literally copied in other particulars—and without acknowledgment! It doubtless matters very little to the Rev. R. E. BLACKWELL, of Amberley, who is the author of it, and whose object is no doubt served by the widest publication of his plan, whether its authorship be acknowledged or not; but it matters a good deal to us who are interested in the security of literary property; and it matters, we think, somewhat to the success of the appeal wherever made; for certainly industry is not likely to be effectually fostered and encouraged except by honesty.

The following is the Circular:—

Amberley, Stroud, Gloucestershire,
October 31, 1864.

MY DEAR FRIENDS (especially my Poorer Friends),—You all know how many evils, and how much unhappiness, *idleness*, during the hours of a winter evening, too frequently leads to. That person, then, is your friend who will suggest to you any occupation which may amuse you—which may put some money into your purse—which may keep you at home,—and which, in many other ways, may indirectly be for your good. Many of you are clever in making certain things. One can do one thing and one another:—

If you will all only *try*, you will find that you can do many more things than you think you can. This *trying* will be very useful to yourself and others; for one person working will soon set another person agoing. My plan, then, is to try and set *all of you*—MEN and WOMEN—BOYS and GIRLS, to work in a pleasant way in your own houses—at your odd moments—during this winter—and for you to gain something by it. At some suitable time in the spring I should like to have in our school-room what we may call, AN INDUSTRIAL EXHIBITION. During the winter months I would have you *all* work for this according to your own different tastes and powers; one making one thing and one another. Everything you make will be your own. At the time fixed for the Exhibition I will endeavour to gather together our friends throughout the neighbourhood—and sell for you the things you have made—if you wish them to be sold. I do not promise to sell them—but I will try to do so. If we cannot sell them they will be returned to you. Every article exhibited, I would suggest, should have the name of the maker written upon it—so that your friends will see by whom every article is made. Let me mention certain things which one and another of you can do or make, and which I have seen you at different times doing and making, as I have called in at your houses.

BASKETS.—All sorts—all sizes—made of anything—for workmen to carry their meals, or their tools in, or for anything else.

WORK IN STRAW, OR RUSH, OR WILLOW, OR FERN, OR GRASS-MATS.—Housemaids' knee'ers—flower pots—bee-hives, cradles for babies or dolls, &c.

RUSTIC SEATS, small and large—garden tables—stands for flowers, &c.

MODELS.—Any kind—of anything.

WORKS IN WOOD—Picture frames—towel-horses—cap-stands—boxes—knife trays—washing stands—wheel-barrows rough and smooth, large and small, &c.

WORKS IN STONE.—Carved ornaments—vases—flower-pots, sun-dial stands, &c.

NEEDLE WORK—All kinds, patch-work—quilts—bags, garden bonnets—knitting—netting—knotting—anything.

BIRDS STUFFED.—Collections of insects, &c.

TURNING.—Anything useful—pegs for hats—for door-handles—and for tobacco-stoppers.

STICKS FOR TYING FLOWERS TO.—Bundles in dozens—of Hazel sticks, or neatly split wood—or turned wood. Labels for flowers in dozens—little boys might make these.

ODDS AND ENDS.—Bits of cloth made useful, boys' caps—easy slippers—table covers—shoes made somehow and with anything. Drawings—children's toys—dolls—small wheelbarrows—fossils collected from quarries, and cleaned—glass covers for flowers—collections of different Mosses—or winter flowers in pots or dried, &c.

I would suggest that a Committee of Directors should be formed, such as Mr. C. PLAYNE, Mr. RICHES, Mr. BERRY, Mr. HARDING, Mr. GOUGH, Mr. ATLEY, Rev. EDWARD BLACKWELL. If the Committee see many working, and the thing likely to be a success, they would, previous to the Exhibition, print a Catalogue *of the principal articles about to be exhibited, with the name of the maker.* In certain cases the Committee might lend a few shillings to buy wood—locks—or other things—as might be required, to be repaid when the articles were sold. The Exhibition must be strictly confined to persons living in the parish of Amberley—or to those who belong to the Amberley church or schools. Every article exhibited must be made entirely by the person who sends it. Combined with the *Industrial Exhibition*, I would suggest, that any friends who have objects of interest to exhibit, should be requested to lend them for PUBLIC EXHIBITION on this occasion. The one exhibition would thus add interest, and give power to the other. The Exhibition to be open two or three mornings and evenings. The Amberley "Industrial" band to attend—when able. None of the things sold to be removed till the Exhibition is over. Such, dear friends, is a rough plan of my scheme. I am sure it would answer—and do good—if you would *all, big and little—men and women*—only *try* to do your best. *Let everybody make a something—however small or simple. Do not be shy—or hesitate* to join our band of workers. Let every person in the parish if possible *be an exhibitor*—and try and make something which will do him credit. Great moral benefits must result if we endeavour to spend our winter evenings in a profitable way. Let us look upon this effort in this light. Let us all remember the end we have in view. Let a family work together in common, and it must produce family love and union. The hearts of the fathers will be turned towards their children. If a small sum of money could be raised, we might bestow a few presents on those amongst our poor friends, where *industry and ingenuity* had been manifested—and where there had been *persevering effort*, amidst *poverty and difficulty.*—Your Minister and friend, R. EDWARD BLACKWELL.

P.S. It has been asked—could any rewards be given for lists of BOOKS, *read aloud*, by one member of a family whilst others are working; or to fathers who would keep a record of how many evenings, or part of evenings they devoted this winter to the instruction or training of their children. *R. E. B.*

—— WE have to announce that "THE FOWLER TESTIMONIAL" which, under the auspices of Lord PORTMAN, Mr. HOLLAND, M.P., and others, was rapidly approaching completion, will now take the form of a Memorial. We understand that a public meeting will shortly be held in London for the purpose of appointing a Committee for raising funds to erect a suitable monument in memory of one to whose untiring zeal the agricultural world is so much indebted.

Lord PORTMAN, the Earl of DUCIE, Mr. HOLLAND, M.P., Mr. H. THOMPSON, M.P., and others will act on the Committee.

OBSERVATIONS ON THE EFFECTS WHICH ARE PRODUCED BY FEEDING CATTLE AND SHEEP EXCLUSIVELY ON TURNIPS.

BY A. J. MURRAY,

Professor of Veterinary Surgery at the Royal Agricultural College, Cirencester.

AN examination of the conditions which favour the production of disease is of the greatest importance to farmers. The following remarks refer more especially to the effect produced on the system by the exclusive use of food composed of a single species of plants. I am well aware that among the more advanced agriculturists the advantages of a mixed diet are recognised. My own experience, however, is, that many agriculturists are not aware that food must supply to the blood a sufficient proportion of organic principles, and that if these are not supplied in sufficient proportion disease will result. It is true that the farmer may gain such knowledge by experience, but it must be acknowledged that such a method of acquiring information is rather expensive. It is desirable then that the experiments of a few persons should be of service to the public, so that others may not be under the necessity of acquiring information practically but painfully.

The Turnip, according to Dr. Voelcker, contains from 88 to 92 per cent. of water. It contains a very small proportion of the nitrogenised or flesh-producing matters—only between 1 and 2 per cent. The proportion of water is excessive, while the albuminous compounds are very deficient; and these two peculiarities explain why the exclusive use of the Turnip, as an article of food, is attended with such bad results. By comparing the composition of the Turnip with that of the Grasses, which may be regarded as the natural food of the sheep and ox, its deficiency is very marked. The proportion in which Nature has combined the various nutritive elements in the natural food of those animals must be adopted when they are kept under artificial conditions. The frequency of disease will thus be reduced to a minimum.

The disadvantages of a diet consisting exclusively of Turnips are—1st. That the introduction of a large quantity of water into the system, which in winter is frequently as low as 32° F., and must, when taken into the stomach, be raised to a temperature of at least 100° F., must greatly increase the consumption of the carbon and hydrogen compounds supplied to the blood in the food. The carbon and hydrogen consumed in this way are furnished by the oleaginous, starchy, mucilaginous, and saccharine principles of the food which have not been converted into tissue, and also by the disintegrated tissues themselves. A portion of the food which under more favourable circumstances would have increased the animal's bulk, is thus expended in maintaining animal heat, the wear of the body being at the same time accelerated.

2d. The digestive fluids are excessively diluted, so that digestion is imperfectly performed, and the nutritive elements which the food actually contains are not thoroughly dissolved out, and they consequently pass through the intestine with the innutritious matters. This frequently induces chronic disorder of the digestive system.

3d. The Turnip, as has already been shown, contains but a small proportion of the albuminous or flesh-forming constituents. The loss consequent on the wear and natural decay of the particles of the tissues is repaired by the incorporation of new nutritive principles into their substance. This process, however, can only be perfectly carried on when the elements contained in the food are identical with, and bear a certain proportion to those contained in the blood. When the proportion of any one of the nutritive elements is deficient, the blood does not obtain a sufficient supply of new materials, the wear of the body exceeds the process of reparation, and the animal consequently sickens and dies.

4th. Turnips are also injurious from the influence which such cold watery food exercises in depressing the action of the nervous system. The power of resisting depressing influences is thus impaired, and all the functions of the body are feebly performed.

The nutritive value of the Turnip is frequently reduced to a minimum by causes which I have not yet mentioned. The detrimental effects of frost and mildew on its feeding qualities are well known to the farmer. Turnips which have run to seed, and which consequently contain a large amount of woody fibre, are also innutritious and indigestible. In the disorders which have come under my observation, and which I have been able to trace to the exclusive, or the excessive use of a Turnip diet, I have occasionally noticed that the Turnips were affected by one or other of the above causes. Chronic indigestion and blood diseases are the usual results of such a diet, though we may have the one condition complicated by the presence of the other. The blood disorder consists chiefly in a diminution of the plastic or tissue-forming elements, and we may then have a disintegration of the blood globules which appear in the urine, giving it the red colour which is popularly known under the name of red water. In ewes and cows the effects of such a diet are usually noticed shortly before calving and lambing, and occasionally only after parturition, when the copious secretion of milk removes a large portion of the nutritive elements of the blood. This diet produces more injurious and fatal effects on female than on male animals, owing to the materials removed from the blood by the rapidly developing fœtus during pregnancy, and by the secretion of milk after parturition.

A case illustrating my previous remarks has lately been brought under my notice by a farmer. His ewes were taken from the ram during the first week in November; they were then fed exclusively on Turnips until the period of lambing. They appeared healthy, and even fattened well on this diet until about a fortnight before lambing, when some of them began to look dull, and they also gradually became weak. It was necessary latterly to have them in the fold, as they could not walk to the field, which was only 600 yards distant. They lay down in the yard until they lambed, after which some of the weakest ewes died in from one to three days. Some recovered after careful nursing and the administration of stimulants. The ewes most severely affected invariably had twin lambs, and though the lambs when dropped were tolerably strong, in a few days afterwards they generally sickened and died. In such cases nutritious food, such as hay, Oats, and oilcake must be given, combined with the administration of tonic and stimulant medicines. It will frequently, however, be found that the weakness induced by such a system of diet is so great, and that the digestive functions are so impaired, that the animal has no appetite for food. These lines, however, have been written not so much for the purpose of recommending treatment in disease as for the purpose of preventing disease. The importance of studying the causes of maladies was well estimated by Professor John Gamgee, when he said in a recent lecture at Edinburgh:—"Veterinary medicine is something more than the art of healing sick animals. It is the art of preserving animals from sickness."

THE GREAT CHRISTMAS METROPOLITAN MARKET.

THE enormous food-consuming capacity of this great metropolis, with its three millions of inhabitants, will have to put up with an unusually small supply as regards beef and mutton at the coming festive season. Suet for those British institutions, Christmas plum puddings and mince pies, will especially be limited in supply and correspondingly dear. The show of cattle, however, at the great Metropolitan mart on Monday last was of a far finer character than we, with the knowledge we have of the deficiency of the root crops throughout the country, could by any fair calculation have anticipated. But this remark applies only to the first-class stalls of cattle, and can be accounted for in a satisfactory manner. We have from time to time pointed out the want of ordinary meat-producing farm produce, and at the same time concluded or inferred that fat animals must be enormously dear unless great efforts were made, and the use of extraneous means adopted, by our leading graziers. This position has fortunately been fully realised by the farming community, and consumers generally may be pleased and gratified at the agricultural enterprise which has, under past difficulties, produced so good and useful a supply as is now distributed among the metropolitan butchers. This result is the more satisfactory to every one, as it is well known that the use of much corn and cake in the production of meat, particularly beef, at an average price, is sure to be done at a direct loss, and that only extraordinary prices, viz., low value of corn and high price of meat, can admit of a farmer being repaid, or the recipient of a direct profit, for such an investment. The first condition of this inducement to turn corn into meat has existed for some months, and although it is well known that much of the cause for the following high figures is due to the fact that even large graziers and feeders were obliged to sell many of their beasts off at a sacrifice in the autumn, it is to be hoped that they will be fairly recompensed for the hazardous speculations whereby the public has unexpectedly been so well served.

There is one important point of the present situation to which we must further refer, and this in a somewhat critical vein. But it is important to consumers and those who supply them, the butchers as well as farmers, that no interest or branch of the community should be misled. This attempt, it is quite clear, has been made by more than one London journal. The following flagrant instance, however, on the part of the *Standard* it is difficult to account for, particularly as this journal professes to be the daily organ of the country interest. On Tuesday morning, in the editorial "summary," no further than which the bulk of its readers look on such a subject, there is this statement:—"The number of beasts shown was greater than on any former occasion, and the quality was of a very high order—remarkably so when the drought of the preceding summer and the consequent decrease of food is taken into consideration." This deliberate falsification of facts is the more unaccountable, as in the previous evening edition of the same organ the statement of its own market reporter was merely adhered to, while the statements of the market officials had been published the previous evening. These facts show, that while there were only 8030 this

year, there were 10,370 last year, 8430 the year before, and 8840 the year before that. How, in the face of these facts, could it be said, "the number of beasts shown was greater than on any former occasion?" The mischief that will arise from these statements will not only be of a passing kind, but continuously injurious to the best interests of the country; for it is well known by all persons more directly connected with agriculture, that the supply of meat is, and will be so short, that the demand will naturally cause prices to rule high at the present season; and to lead people to think the contrary is the case, will cause a deal of unnecessary grumbling, and rob the graziers above referred to of that share of credit which is fairly their due. Besides, if the influential columns of the Press be employed to induce the "country interest" to believe that the present speculations in making meat from the corn they cannot sell at remunerative figures are founded on false opinions and hopes, the consumers of London and other large towns will be greater sufferers before the next Grass beef can be produced than they might otherwise have been. The market reports themselves have generally been pitched in a key that was quite high enough, if it were not too high. For although it has given us pleasure to point out that many of the beasts were of a very fine quality from skilled feeding, there were also many that were below middling condition; and of the 1000 foreign, a good many of them were young and only in store condition, many more were half fat, and what few prime Dutch heifers and oxen there were would not make this part of the market above satisfactory comments. To add, therefore, editorial extravagances to remarks which are certainly quite up to the highest point, if not overdrawn, is the way to produce and add to the mischief in question, while future supplies will be diminished by the same means, unless these matters are set right with the holders of fresh meaty animals.

To enter briefly into particulars, the Short-horns on the present occasion undoubtedly took the lead both as regards size and the condition to which they have been fed. Some of the stands of this breed were extraordinary; Mr. James Walton, of Stratford-on-Avon, had ten well fed and large ones belonging to Mr. Bicknell, of Witchurch, in the same neighbourhood, for which he was asking 40 guineas each. Butchers, however, early in the day were not disposed to give the prices which the salesmen demanded, on the strength of their confidence in the limited supply in the country. In this it will be seen their judgment was correct, for higher prices per stone have since been made at provincial markets, and particularly at the Auction Mart at Hitchin the following day, an account of which will be found elsewhere. Mr. Ellis Dean, of Dowersby Hall, near Lincoln, sold four immense Short-horns for 196*l.* or 49*l.* each, for one of which 55*l.* were refused. Another Lincolnshire feeder, Mr. Taylor, of Kirkby, near Sleaford, had 35 extraordinary good beasts for full flesh, firm fat, and great size; and these were expected, as they might fairly be, to average 45*l.* each. Mr. Broodnal had seven others from near Lincoln, that were the perfection of feeding. Mr. Vorley had five equally good ones, fed by Mr. Attenborough, of Titmarsh, Northampton.

It may be remarked here that some of the connoisseurs and critics of prize cattle would do themselves good by attending this market a few mornings during the run of a year. If this were done, so much nonsense could not be written next Christmas as has recently appeared. Take for example the splendidly fed young animal from Biscathorpe House. Hereford men, and writers who were "inspired" by Herefordshire jealousies, ran about to tell every one they knew that his superior touch and form were due to his having had three pails of milk a day. There were, however, hundreds of animals in the Cattle Market on Monday last that had a touch quite as rich, mellow, and firm as had the (so called) "gold medal" steer of the Smithfield Club. The facts of the progress of this steer are few. That he came from a renowned stock is already known. He, with others, had milk till he was 22 weeks old, when he was treated in the usual way in which Mr. Thomas Kirkham, the celebrated Lincolnshire ram breeder, feeds his animals. Fifteen months before the show this animal looked unusually promising, and Mr. Kirkham's son asked his father to sell him, when after some private banter a bargain was made. Since this time, last August twelvemonths, he has been done as well as possible, as his appearance indicated, but his food has been confined entirely to such farm produce as roots, hay, and corn, with Linseed oil-cake. The only thing special about this success is, Mr. J. W. Kirkham followed the advice given two years ago to practical men to step in and show what could be done with the noble breed of Short-horns. That he picked an animal out of his father's herd, and subsequently brought him to the perfection he did, not only proves the value of this advice, but also that the son in this instance inherits much of the judgment and skill in feeding which have made his father's name so well and widely known.

Of West of England beasts there was a good supply, the size and quality from good feeders of the Devons being superior to previous shows. Most of these, however, had eaten an unusual quantity of corn and cake. Mr. Senior, near Aylesbury, had 40, most of which were pure North Devons, and some of them of great size. One was sold to Mr. Radcliff, a butcher near Southall, Middlesex, for 50*l.*; and owing to their general excellence the lot averaged 40*l.* each. Mr. Coggins, of Creese, Taunton, had 10 worth about 35*l.* each. Mr. J. Bond, Petherton Park, Bridgewater, had 30 Devons, 3 years old, fed by himself, and they made a great average, one making 48*l.*, another 47*l.*, and the next 46*l.*, and so on. There were also some excellent Herefords.

Of the Scots, Mr. James Steward had 56 cattle of great size. Mr. Mac Combie, of Tillyfour, had also a long lot, fed with the excellence for which he is justly celebrated. Mr. Maurice, of Huntley, had 40 capital beasts. These were on the stand of Messrs. Giblett & Son, who said the Scotch crosses were much sought after from the excellence of their meat.

There were a few big old Gloucestershire beasts that had been worked, and some of them were well fed up. Mr. W. Fairbrother had 17 fed by Mr. Ludbrook, of Burton Desert, Warwickshire. These were sold at an average of 40*l.* each, one making 50*l.* Mr. Ludbrook, near Aylesbury, had 23 averaging 43*l.*, two making 50*l.* each.

There were, also, more good Welsh runts than we have seen together for a long time, some of them being fine specimens of this hardy but much neglected breed.

The sheep were much about the usual character, without anything calling for special comment. As an instance, however, of the way continental countries are improving their flocks, some of the improved breeds, or cross-breeds, from Holland sold at 78*s.* each.

The trade, as we have intimated above, was not generally active, although the business done was at very high prices. An occasionally fine Scot made 6*s.* per 8 lb., a few made 5*s.* 10*d.* ditto, the general top figure for beef being 5*s.* 8*d.* per 8 lb. The top price for Down mutton was 6*s.*, and prime half-breds 5*s.* 10*d.*, the pure white faces making 5*s.* 4*d.* and 5*s.* 6*d.* per 8 lb., according to size and quality.

The following facts are of the usual interest:—

The total imports of foreign stock into London last week, amounted to 13,802 head. In the corresponding week in 1863 we received 8040; in 1862, 4496; in 1861, 5192; in 1860, 4415; in 1859, 4364; and in 1858, 5734 head.

IMPORTS INTO LONDON LAST WEEK.

From whence.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
Antwerp	24	..	..	21	..
Boulogne.. ..	50	..	..	..	653
Bremen	34	47	..	..	..
Calais	..	..	..	13	84
Dordt	146	374	..	..	..
Dunkirk	..	..	..	..	202
Gibraltar	106	..	..	..	..
Hamburg ..	81	1022	..	..	..
Harlingen ..	36	1489	..	18	..
Medemblik ..	43	1895	..	..	..
Oporto	49	..	..	..	..
Ostend	52	..	..	20	..
Rotterdam ..	1398	4997	..	280	663
Total	2024	9824	..	352	1602

The yearly comparison of Weekly Imports is as follows:—

	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1863 ..	1205	6201	..	530	104
1862 ..	463	3630	..	391	12
1861 ..	368	4039	..	124	61

Per 8 lb. to sink the offal.

	s. d.	s. d.
Coarse and inferior Beasts	3 8 to	4 4
Second quality ditto	4 6	5 0
Prime large Oxen	5 2	5 4
Prime Scots, &c.	5 6	5 8
Coarse and inferior Sheep	4 0	4 8
Second quality ditto	4 10	5 2
Prime coarse-woolled ditto	5 4	5 8
Prime Southdown ditto	5 10	6 0
Large coarse Calves	4 4	5 0
Prime small ditto	5 2	5 6
Large Hogs	3 6	4 4
Neat small Porkers	4 6	4 10

Suckling Calves, 18*s.* to 22*s.*; and Quarter-old store Pigs, 20*s.* to 26*s.* each.

COMPARISON OF THE GREAT DAYS.

Per 8lbs. to sink the offal.

	Dec. 14, 1863.	Dec. 12, 1864.
	s. d. s. d.	s. d. s. d.
Coarse and inferior Beasts.	3 6 to 3 10	3 8 to 4 4
Second quality do... ..	4 0 4 6	4 6 5 0
Prime large Oxen	4 8 5 0	5 2 5 4
Prime Scots, &c.	5 0 5 2	5 6 5 8
Coarse and inferior Sheep .	4 0 4 6	4 0 4 8
Second quality do... ..	4 8 5 2	4 10 5 2
Prime coarse-woolled do...	5 4 5 8	5 4 5 8
Prime Southdown do. ..	5 10 6 0	5 10 6 0
Large Coarse Calves ..	4 0 4 8	4 4 5 0
Prime small do.	4 10 5 0	5 2 5 6
Large Hogs	3 6 4 2	3 6 4 4
Neat small Porkers ..	4 4 4 8	4 6 4 10

SUPPLIES ON SALE.

	Dec 14, 1863.	Dec. 12, 1864.
Beasts	10,370	7,030
Sheep	26,290	21,750
Calves	180	210
Pigs	360	390

SUPPLIES ON SALE.

	Dec. 15, 1862.	Dec. 16, 1861.
Beasts	8,430	8,840
Sheep	20,900	26,300
Calves	178	202
Pigs	420	460

GREAT CHRISTMAS SALE OF FAT STOCK AT HITCHIN.

Messrs. Page & Harding, auctioneers at St. Alban's, deserve all the success which has attended their enterprise and energy; for, irrespective of their having had erected the best arranged and perhaps the largest yard for a similar purpose in the kingdom, their energetic and straightforward manner of conducting their business has secured for them an amount of patronage in the neighbourhood of the above Midland Counties town which they themselves at the outset scarcely anticipated. Hitchin, however, is easily accessible from London, Cambridge, Peterborough, Bedford, and adjacent minor towns, and on Tuesday last there was a large attendance of butchers from these places, and particularly from the metropolis. These buyers repeat their visits because they have every confidence in the auctioneers and their patrons, being fully assured that no "running up" will be practised, and that every animal sent there is for absolute sale at the fall of the hammer. Where this confidence exists between auctioneer, graziers and butchers, there is no surer way of transacting business pleasantly, surely, and safely; indeed, it is a great relief to have this opportunity of disposing of stock ready for market on stated days without having to go through that bothering, haggling, and "legging" which too often occurs when rough dealers and butchers want to get, and succeed by fair pretensions in getting, the price of animals at home or in a public market.

The Hitchin Auction Mart consists of a large yard at the back of the Sun Hotel, through which it is easily reached from the market place. The sheep pens are of fixed iron hurdles, with asphalted floors, the alleys between them being brick-paved. The bullock pens are equally convenient and ample, and the "ring," covered as it is with glass and slate roofing, with complete waiting folds and entrance and exit gates, make the whole thing a thorough business-like and comfortable affair. To show that these matters are fully appreciated, we need only mention that this sale included 98 oxen and heifers, many of them being of first-class quality; 589 sheep, the greater part of which were above an average for size and condition; also 10 lambs, 3 calves, and 73 pigs.

The pigs and sheep were sold first, and made great prices, some of the latter, in lots of five, making as much as 75*s.* and 80*s.* each. Mr. Long's 10 averaged 88*s.* 6*d.* each. These were Hants and Wilts Downs and half-breds. Some extra good yard-fed sheep of the same breed, and crosses between Hants ewes and Lincoln and Cots rams, were sold singly. Mr. Richard Oakley, of Lawrence End, had six sold at an average, all but a trifle, of 5 guineas each. Mr. John Shaw Leigh, of Luton Hoo, had 18 Hants and half-bred, the two kinds making as near as possible equal prices, and the whole averaging 5*l.* 10*s.* 6*d.* each. One fat lamb made 38*s.*, and a calf weighing about 50 lb. per quarter made 7*l.* 2*s.* 6*d.*

But it was among the beef-yielding animals that the competition was most spirited. Seven 3 year-old Herefords, sent by Mr. C. Sworder, of Willian, made 244*l.*, or within 1*l.* of 35*l.* each; these were very nicely fed, but not thick. Mr. John Sworder had four Short-horns that, as things have turned out, might have been corn-fed sooner with advantage, but as it was they made 34*l.* 6*s.* each. Some thin young polled Scots made from 22*l.* to 25*l.* each, and a small Hereford cow from the same place (Mr. Long's, of Spondon), made 27*l.* 10*s.* Mr. Bates, of Piggott's Hill, sent a beautiful but not large 3-year-old Hereford, which made 41*l.* 10*s.* Mr. Fossey, of Cumberlow Green, sent two prime Short-horns, one making 40*l.* 5*s.* and the other 46*l.* 10*s.* Mr. Cole, of Tempsford, had two Short-horns sold respectively at 45*l.* and 43*l.* 5*s.* Mr. R. Oakley had two prime cross-breds (Devon Short-horns), which made 47*l.* and 44*l.* 10*s.* The climax of this spirited competition, however, very properly took place over the last four lots of two Highlanders and two polled Scots, sent by Mr. Leigh, of Luton Hoo. We never saw handsomer or better fed oxen. The first of the former made 43*l.* 10*s.* to Mr. Harris, of Hertford. The second 46*l.* to Mr. Brown, of Bedford. A black Galloway made 50*l.* to Mr. Crawley, of Luton; and a brindled Aberdeen, of small bone, but as ripe as we ever saw one, made 49*l.* 10*s.* to Mr. Walker, of Hitchin. These oxen were five years old, and they did great credit to the skill of their feeder. Their owner's name will be remembered as connected with two beasts and some sheep at Bingley Hall, and three Scots at the Agricultural Hall, Islington, one or more of which received "high commendations."

Besides the advantages referred to above, a respectable public sale of this kind has great influence in emulating neighbours to produce good stock. In point of fact this incitement is greater than that produced by a local agricultural show for prizes, for in the latter case there is much uncertainty from the taste and judgment of judges being biassed by preconceived notions, while in the former the test to which animals are subjected is their money value for consumption, estimated by the best possible judges, viz., the butchers, who obtain their profits by the skill with which they buy from week to week. The greatly improved character of Messrs. Page & Harding's show on Tuesday last, compared with previous sales, fully supports these views. The sale altogether realised nearly 5000*l.*

STEAM CULTIVATION.

AUTUMN SEED-TIME.

HAVING endeavoured to point out the great advantages to be derived from an early and successful Wheat sowing on heavy land, in connection with steam-power, I continue the subject, wishing to show how all other operations are benefited and materially aided by this first important step in the management. And I must mention an error in the former publication, where the steam-engine is described as breaking up the bare fallow; it should have been the Tare or Vetch fallow, or what is called in some places the Bastard Fallow, that is, where a crop of Tares has been fed off by sheep, and forming a most essential part in the rotation of cropping; the evil of treading, the great objection to folding on heavy land, being at that time of year avoided, and where fed off with corn or oilcake leaves the land in the finest possible condition for the ensuing Wheat crop; the bare or dead fallow being studiously avoided, and on no account forming a part in the regular course. I shall consider that the autumn seed-sowing has been finished by the first or second week in November at latest. My seed lair of 140 acres is all up and away from the birds, and will probably get well rooted before severe frost comes on; a consideration of very great importance, particularly where planted on thin chalky soil, which is very liable to be lifted or broken up in sharp weather, and when this takes place the effect will be seen at harvest time in the crop being termed by the reapers as "scrawled" or "root-fallen," a term misapplied or misunderstood, because the straw falls from want of a root, and is brought about chiefly by thick and backward sowing; want of nourishment from bad farming also will produce a like effect. The first great blow having been given in good time, nothing but excess of adverse weather will prevent from keeping so good a start in hand, and time will be given for atmospheric changes to work and pulverise the soil in a far better and more effectual manner than any implement could do; dispensing with all turnings back, cross-ploughings, clod-crushing, rolling, &c., those tedious operations which serve as obstacles to progress when seed time arrives. A rotation of cropping may be set out and depended on with the aid of steam, and with such a power at command it is very doubtful indeed whether the plans of which we hear so much, the conversion of arable land into pasture for the purpose of more stock-keeping, would be a right course to pursue. You say very truly that all that opportunity for growing those splendid crops of Tares, Mangel Wurzel, and other roots, and for which this description of land is especially favourable, is lost. The rule that a green crop should intervene between every grain crop, or two green crops to be followed by two corn crops, will probably hold its ground against any other system that may be brought to bear. A two years' lea is also an excellent plan where a good plant of Clover is obtained and the land is clean. I have some capital hay stacks, mainly owing to this plan, which will come in extremely useful in so scanty a season.

With such power for working the resources of the soil as steam is calculated to give, a climate and soil capable of growing the finest roots and Grasses, a largely increasing meat-consuming population, and a lease for the security and proper development of capital, there is nothing to fear from foreign competition; and although prices of corn just now are at a low point, I do not think there is ground for that "discouragement to high farming," which appeared a week or two since in your columns. It may perhaps appear a strange doctrine, but it is nevertheless a perfectly true one that in order to meet low prices an increased expenditure of capital is required, and hence the necessity of the lease for its security.

This may not apply with equal force to those occupiers of farms whose position is of long standing, and the good feeling that exists between landlord and tenant has been gained by an acquaintance and connection of many years. This good understanding, however, is liable to the grave objection of being broken at any moment by many an unforeseen occurrence, and may serve in some cases to afford a pretext for suspicion and mistrust where none should exist—consequently it is an unsafe and unsatisfactory system of tenure. Upon the subject of Leases I hope to say more at a future period. *W. S.*

NIGHT SCHOOLS AND EDUCATION FOR THE LABOURER.

[Lord Lyttelton has addressed the following letter to the *Times* newspaper.]

DURING the recent strike of the colliers in South Staffordshire I happened to remark, at a meeting of the South Staffordshire Adult Education Association, that some of the coalowners in the district attributed the evil of strikes to education among the working people, and were disposed in consequence to withdraw their aid from educational movements.

As this observation has attracted more notice than I had expected, and has been partly doubted and partly misunderstood, I shall be glad to be allowed, now that the strike is over, to say a little more on the subject.

I never meant it to be understood universally of the employers in the district. No one could think of applying it to Lord Dudley or Mr. Foster, or Messrs. Chance, or Messrs. Bagnall, or Mr. Lloyd, or the British Iron Company, or others who might be named. Nor did I say it of the coalowners as a class; but I say it is true of several of them.

I will give no names; but I can answer for the following having been said, and not on any merely private occasion, by some or other of the coalowners during the strike:

That they disapproved night schools; that the more a man was educated the worse workman he was; that they should for the future decline to assist the working classes in any way; that education and the —— penny papers had done all the mischief, and that publichouses were the proper place for working men to meet in; that they should leave the working classes to themselves for the future; that the more was done for the working classes the more ungrateful they were; that if education went much further there would soon be no colliers to be had, and that the utmost a working man should know was to read his Bible; that education had filled the men's heads with all kinds of nonsense; and that the best educated men misled the others.

I do not want to argue these points. In the general opinion of the country, as I conceive, they are beyond the region of argument. I would, however, say a word on the question of practicability.

These gentlemen are not speaking of education in the sense of moral training or discipline; they mean instruction or information. Now, that the information of the working men is very defective no one doubts, and there is some truth in the opinion that it had better be either more or less. These gentlemen wish it less. My belief is, that if it were less—suppose as it was 80 or 40 years ago—the then state of things would recur—quite as many strikes as now, in addition to outrages and disturbances which we are now free from. The recent strike was the worst we have had for 20 years, and there was some fear of serious disturbance; but nothing happened like what used to be a matter of course.

This, however, is not the point. No one can, in these days, diminish the amount of information diffused among the labourers. We may regulate or we may pervert it; we may cause it to be accompanied or unaccompanied by moral training and religious knowledge; but backwards towards mere ignorance we shall not go. They will get information,—*si possunt, rectè; si non, quocunque modo.*

Nor can they remain stationary. It follows that we should endeavour to increase and improve their knowledge. On this obvious truth I shall not dwell, only observing on a single point, that if the employers of labour here would but endeavour to get some acquaintance with the rudiments of political economy, of the laws that determine wages, into the heads of their men, they would, by that alone, do a good deal towards preventing any danger of the recurrence of these mischievous disturbances.

My main object, however, is to adduce a few positive facts with which I have been furnished as counter-evidence to the statements above recited.

The incumbent of one of the largest parishes in the district, full of colliers, tells me that only three of his parishioners took a leading part in the strike; that one of them was almost a professed infidel, and all three of them about 50 years old, and consequently uninfluenced in early life by our recent systems of education; that not one of the elder scholars of his schools joined the strike, and that the colliers, furnishing fewer boys to the schools than any other class, those boys, too, leaving school earlier than others, are the worst educated class among his people.

I have been favoured with a communication from an Inspector of Schools, acquainted with this district and with the cotton district. It is true that much must be attributed to the general advantage possessed by the latter in the regulative system of the Factory Acts, which apply to other things besides education, and some adaptation of which I hope is in store for this district. But the comparison as relates to school education is instructive.

I need not say that in the factory districts strikes and disagreements are far rarer than in the coal districts, and with regard to education these brief statistics seem nearly conclusive. Out of 500 worsted and woollen workers in the Halifax district night-schools, 95 per cent. could at least read easy narrative, full 70 per cent. could write from dictation. In the South Staffordshire night-schools 50 per cent. of the collier boys could not read easy narrative, between 30 and 40 per cent. of the iron-work boys could not read the New Testament.

There is another view of this subject. The collier population generally have some grievances. Much will be found about them in a volume called "Transactions of the Association of Coal, Lime, and Ironstone Miners," published at Leeds in November, 1863 (Longmans), of which an abstract and review will be found in the "*Spectator*" of the 6th August last. They are chiefly such as these—the demoralising employments still allowed to women; imperfect ventilation and imperfect inspection of the pits; want of proper provision for security; and employment of boys too young and too ill-educated. It is certain that the better the men are educated the more these grievances will be felt. But if any employers, consciously or unconsciously, make this an objection to education, they will assuredly meet with small sympathy in the country.

I may perhaps add, that I write with no prejudice against the masters connected with this strike; for, as a mere question of wages, though I have no practical acquaintance with the subject which could enable me to speak confidently, my belief is that the masters were right, and almost always have been right.

Home Correspondence.

Lord Kinnaird's Farming.—In the *Agricultural Gazette* of the 3d inst. I see you reprint from a Dundee newspaper an account of Lord Kinnaird's farm of Millhill, Perthshire, wherein several statements are made which are in the highest degree calculated to mislead. Since the thorough exposure which met the accounts of his high farming some 12 years ago there have been no further attempts to parade these results. It is certainly strange that now, when prices have again fallen to the low level they were at when the former accounts of his high farming were published, these should again reappear. To any one who has been engaged in ordinary farming in Scotland, be they landlord or tenant, some of the statements in the article in question must appear extremely absurd. Your southern readers, however, may be inclined to put some reliance on them. Seeing this, I wish to draw their attention to one or two of the statements there made. The first is one on which the whole fabric is reared, and as it is utterly absurd, the superstructure seems to be in the highest degree doubtful. We are told that "the total capital for stocking and implements was, we understand, about 1300*l.* The farm was drained, cleaned, and manured out of the proceeds without any additional capital being expended, except for irrigation purposes and the steading." The farm is said to contain 410 acres. Here then it is held forth that a capital of 3*l.* 3*s.* 5*d.* per acre is all that is required to produce results which are stated to have been a triumphant success. Of some eight or nine farms to which tenants have entered during the last two or three years, an equal sum has been expended the first year on manure alone, and I know no farms having any pretensions to high farming where a less sum than 2*l.* per acre is annually laid out on purchased manures. In all, on one farm near where I live, the tenant expended 20*l.* per acre before he received a single sixpence of return, another 16*l.* per acre, a third 15*l.*, and on others from 9*l.* to 14*l.* In the year 1836 a tenant entered to a farm of about 450 acres; and he expended the first year upwards of 2000*l.* on manure without it being considered more than was required. These instances are all of skilful, careful, industrious men who staked their all in farming and had no noble lord to back them, and who trusted and hope yet to be fairly repaid for their outlay when prices mend. It is in the highest degree hurtful to the cause of practical agriculture to lead landlords to believe or tenants to trust that 3*l.* 3*s.* is sufficient capital wherewith to begin farming. There is no better ascertained fact than this: that nine-tenths of all the failures of farmers have arisen from men with inadequate funds offering over-rents for land. Just now, when tenants of capital are shy to offer such enormous rents as formerly were promised, landlords will miserably deceive themselves if they listen to such statements as that proceeding from Millhill, and tenant farmers will richly deserve to suffer if they allow their ambition to over-ride their judgment, and take land with only 3*l.* 3*s.* per acre of capital. The next utterly absurd statement is as to manure made under cover. It may perhaps be the case that in Lord Kinnaird's farms it is the custom to "collect the manure from byres and stables into one monstrous dunghill in the open court behind, and sometimes in front of the farmhouse." Assuredly it is not the case as a rule over the country generally. Assuming that it is, the loss that arises from this mode of accumulating is not so great as represented by the Millhill experiments. I have tried box-made manure against open court-made dung, without discovering the least difference, and certainly the farmers of Scotland who have not covered courts for their dung are a set of obstinate fools for refusing to believe the accuracy or trustworthiness of Lord Kinnaird's experiments. When it is asserted that dung direct from covered courts or boxes produced four tons more Potatos per acre than a like quantity from the open court, as well as 11 bushels Wheat and 60 stones straw, such a statement as this is quite in keeping with 3*l.* 3*s.* per acre being capital enough to commence farming with. I do not mean to deny that when dung lies long exposed to the washing effects of rain it may become deteriorated, but this I can confidently assert, that when dung is carted direct from the beasts or boxes, put into a field dunghill, properly compacted by carting and pressure, then covered over with earth, there is not any great loss. It is quite right and proper that landlords should do what they can to introduce the most improved practices and best systems of cultivation. Neither they nor any one else can wish impossibilities, and assuredly few practical men in Scotland will give credit or act on the above facts said to come from Millhill. *A Scotch Farmer.*

Sewage Irrigation.—You will see by an advertisement in the *Gazette*, that I have to let in Wimbledon Park, 50 acres pasture land now irrigated with sewage from the town of Wimbledon by open channels and underground iron pipes and hydrants, and 50 acres

arable land that can be irrigated in the same way, and I call your attention to it, as it affords a good opportunity for making experiments, at the same time that it would be highly remunerative for good management. *Thomas Scott*, 18, *Parliament Street, S.W.*

Mr. Robinson's Cabbages.—In the account given in various papers of the Birmingham Show, I find it stated that the weight given of the six heaviest Cabbages shown by me is 326¾ lbs. This, I believe, is the same statement as given in the *Times*, but they proceed to state that this weight is given after their roots and outer leaves were denuded. I give you below a statement of each Cabbage when dug from the ground and cleared from all soil, weighed in the presence of four or five disinterested parties:—1st, 75 lb.; 2d, 69 lb.; 3d, 68 lb.; 4th, 60 lb.; 5th, 60 lb.; 6th, 59 lb.; total, 391 lb. As an old subscriber to your Paper I shall feel obliged if you will notice it in your next edition, as it will give a much more correct idea of their capabilities of production. *Samuel Robinson, Shaw House, Melbourne, Derbyshire.*

Trades' Unions and Strikes (see p. 1138).—You say that I am not justified in making the remarks which I have made respecting Trades' Unions. The passage which you quote is perhaps expressed in rather strong terms; but I think that the rest of what I have there said shows (as it certainly was meant to show) that I have no ill feeling towards the men who unhappily enter into these combinations, however strongly I may see the evil of the course which they pursue. It may be also, that in a book on Cottage Building it was not necessary to allude to the subject at all, and that it might have been better to have avoided it altogether. I certainly did not expect every one to agree with or approve of what I said. Far from it, in these days, when it is so much the fashion to flatter the working men, and to be afraid to tell them of their faults. But I have been for a great many years a subscriber to and an occasional contributor to the *Gardeners' Chronicle*, and am not indifferent to your opinion, and I therefore write these few lines to explain as well as I can why I have so bad an opinion of Trades' Unions. A Trades' Union is essentially a combination of workmen against their employers. It may be very well to say that it need not be this, and that it ought not to be. This is what in practice it always is, and what workmen and employers alike understand it to be. If this be a legitimate object of combination, then combinations of employers against workmen are equally praiseworthy, and civil war must be a good thing. The leaders of trades' unions certainly do think that it is a good thing if it tends to increase their power. For after all, the passion which really gives life to all these combinations is the craving for power. They talk of protecting the rights of working men, and of liberty, but to get more power is their real object. By looking at it thus, one may partly see why they should sympathise, as they so strangely do, with the promoters of the most terrible and the wickedest war that ever has been. For in America also the North are fighting professedly for freedom (of the negroes), but really for power. For the sake of their dream of earthly power they profess themselves ready (if they could do it) to exterminate the whole Southern population. Similarly the combinations of workmen against their employers have shown them to be ready to carry out their views by every species of violence and oppression. It is natural to expect that wrong principles should bring evil on the heads of those who act upon them. Surely the ruin, and misery, and degradation which strikes have brought upon thousands of working men, and their having completely broken up many branches of trade in places which before were prosperous, is sufficient to satisfy the doubts of any one upon this score. And again, what would be the result of such combinations amongst agricultural labourers? Most providentially the accursed principles of trades' unions (for I can call them by no other name), have not extended to the agricultural population. Think of the result of a strike over a large part of England, for four or five weeks in the middle of harvest! Yet if combinations of men against their masters be praiseworthy institutions, we should have no right to complain of such an event. Surely then, although the purpose of trades' unions may be as you say lawful in the sense of not being illegal, yet in a moral or a social, or a religious point of view, it is wholly and utterly wrong. It has always been a great object of mine to promote as far as possible a feeling of union and fellowship between employers and employed; and to make workmen feel an interest in their work for its own sake, and not only for the sake of what they get by it. And as far as the small amount of labour which I employ goes, I think that I have been successful. When, therefore, I see large and powerful combinations of men, whose purpose is the very opposite to this, who do everything to separate masters and men, and who treat their work solely as a means of getting money; when moreover I see them doing this with large pretensions of seeking the good and the improvement of working men, and when I see many excellent persons misled by these false professions, you must excuse me if I be a little too impatient and indignant at the sight of so monstrous an evil. *C. W. Strickland, Howsham, Dec.* 6.

The Cattle Melon.—The second letter from Mr. M'Indoe upon this subject being written in a deprecating style, I beg to make a few observations, and to say, when I first called public attention to the Cattle Melon, I spoke of them as varieties of the Gourd tribe which I had found from experience in the feeding of cattle and milch cows to possess valuable feeding properties not hitherto attributed to them in this country; but that such had been used by a friend of mine in America, in the State of Indiana, as cattle food for many years; it was therefore my wish, after having grown different varieties most suitable to our climate and having good feeding properties, to make it known to the agricultural world that these fruits were especially calculated to feed cattle, and particularly milking cows, at the most difficult period of the year, viz., August, September, and October, and this has been generally conceded; although Mr. M'Indoe in his letter says, "until our climate is so changed as to enable us to grow Pine Apples and other tropical fruits to perfection in the open air, it will be totally unsuited as an agricultural crop for ordinary cultivation." Now this is merely a bare assertion, in opposition to my own experiments given in detail, first by Dr. Voelcker's analysis, and my own experiments in bullock feeding and butter making, and also by my cultivation, in which I grew 40 tons per acre in the open field against 22 tons of Globe Mangel, the manure and tillage of the land being alike. The present season has further confirmed their value, for although the season was so dry, yet I kept all my cattle under cover upon the fruit for nine weeks, having no other kind of green food or roots to give them. Mr. M'Indoe continues: "but if it could be grown it would require fruit houses by the mile to keep it." I would remind my readers that I have never recommended the Cattle Melon as a crop to supersede Mangel, Swedes, and other roots, and they are therefore not intended to be kept, but to be cut as required for use during the three months before named. Mr. M'Indoe fails to see the advantages of the Cattle Melon, but goes on to say, "that they would not prove half equal to Vegetable Marrow in productiveness, or possess any advantage over it in nutritive value." This is, however, another bare assertion, in reply to which I beg to say, that I have used largely for cattle feeding not only the Cattle Melon but the best selection of the large kinds of Marrows, which I call Cattle Marrows, and have found but little difference in their feeding value, and I recommend parties to grow some of each, as the Marrows are rather earlier than the Melons, which will enable feeding to commence about a month earlier. It is difficult to conceive the object of Mr. M'Indoe in endeavouring to depreciate the value of the Cattle Melon, and I consider it would have been far more credit to him to have waited until he had some carefully tried experiments to back his assertions. This letter will close my correspondence as far as Mr. M'Indoe is concerned, but I hope to furnish an article for the *Gazette* about February upon the best method of cultivation, both of Melons and Marrows, this being the time I intend sending out my seed. *Joseph Blundell, Bursledon, Southampton.*

Societies.

SMITHFIELD CLUB.

THE following is the Report of the Council to the members at the recent General Meeting of the body.

The Council have the pleasure of laying before the General Meeting the annual report of their proceedings for the year 1864.

During the past year the Council have held three meetings, which have been well attended.

The following subjects have occupied their careful attention.

I. The preparation of the prize sheet for the present Show, including the suggestion made at the last General Meeting as to the date of calving. The Council determined not to alter the day to which the ages of animals have hitherto been calculated, viz. Dec. 1, but they have altered the classifications as to age. Instead of having two classes for steers and oxen, the one not exceeding 3 years and the other above 3 years, an additional class has been added to the Devon, Hereford, and Short-horn divisions, and the ages classified as follows:—

	Yrs.	Mos.
Steers or oxen under	2	6
Not exceeding	3	3
Above	3	3

In Sussex cattle a fresh class has been added, viz. heifers not exceeding 4 years old. The Council also determined to admit Freemartins (hitherto excluded) to compete in all the Heifer classes, and to establish a new class for Ryeland, Cheviot, and other breeds of sheep hitherto unprovided for by former prize sheets.

The classified ages of the pigs have been rearranged as suggested by the Veterinary Inspector last year, so as to obviate the objections pointed out in his report.

The total amount offered as prizes this year is 1965*l.*, together with two Silver Cups value 40*l.*, each for beasts; three Silver Cups value 20*l.*, each for sheep; one Gold Medal for pigs, 65 Silver Medals to the breeders of 1st prize animals, and one Silver Cup to the butcher who shall purchase stock out of the classes to the greatest amount.

II. The Council considered the suggestion for the admission of the members and exhibitors to the galleries during the adjudication of the prizes. This subject had previously to the suggestion being made been partially discussed by the Council, but as it was felt to be too late to make any alteration for last year's Show, the formal decision respecting it was deferred. The Council decided (with the consent of the Agricultural Hall Company) that this privilege should be granted.

III. The Council being anxious that the merits of the servants who are the actual feeders of animals should be recognised and rewarded, have determined to present to the feeder of the animals winning the 1st prizes in the respective classes a gratuity of a sovereign, together with a framed diploma.

IV. The following rules have been rescinded:—That which required the exhibitors of Mountain sheep to produce the breeder's certificate, and that requiring the Stewards to mark the ears of the one-year old sheep exhibited at the Clubs' Show.

V. It has been determined that all protests be delivered in not later than 6 P.M. on the Tuesday of the Show.

VI. The Council have deemed it necessary to check as far as possible the non-exhibition, without sufficient cause, of animals that had been entered for the Show, and they have therefore established the following rules respecting fines:—

"In order to prevent the non-exhibition of animals which have been entered for the Show, thus forming unnecessary preparations, expense, and the disarrangement of the Show-yard, a fine of 10*s.* will be levied for each entry of stock not exhibited, unless a certificate under the hand of the exhibitor, or his authorised agent, be lodged with the Secretary of the Club at least 14 days before the day of exhibition, certifying that such non-exhibition is caused either by—(1), the death of the animal or animals; or, (2), contagious or infectious disease (confirmed by the explanatory certificate of a veterinary surgeon). All persons who shall neglect to pay in due course the stated fines incurred for non-exhibition shall be debarred from exhibiting at the future meetings of the Club."

VII. Various minor amendments in the conditions of the Prize Sheet have been adopted.

VIII. The Implement Committee appointed by the Council have also amended the conditions for the exhibition of implements, &c. An Inspector under the direction of the Stewards and Hon. Secretary is employed to be in attendance during the Show, to see that the rules of the Club are not infringed by exhibitors or their representatives in that department of the Show.

IX. The increase in the number of Judges last year was attended with such beneficial results, that the Council determined to continue that arrangement. The selection of Judges was regulated in the following manner:—Each member of the Council was invited to send in a list of those he recommended to serve as Judges, and from the names so returned the requisite number of Judges was taken by ballot.

X. The Council have sanctioned the suggestion made by Messrs. Thomas, the Club's silversmith, that the winners of the silver cups should have the option of exchanging them for any other design or description of plate of equal value.

XI. It has been determined to use coloured rosettes to distinguish the prize animals, instead of the small cards used last year for this purpose.

XII. Some inconvenience has arisen from the practice hitherto followed of sending a manuscript copy of the awards to the different Journals. The Council have adopted a fresh arrangement by which the Journals have been enabled to obtain the information at an earlier hour than hitherto.

XIII. The gratifying result of the attendance at the special service for the men in charge of the live stock last year, induced the Council to request Rev. D. Wilson, M.A., the vicar of Islington, to repeat it this year, which he kindly consented to do, and the Honorary Secretary reports the number present to have been in excess of the former occasion, and that the conduct attention of the men was most exemplary.

XIV. In accordance with the bye-laws of the Club the Council have prepared a house list of the members they recommend to be elected to serve on the Council in lieu of the eight who will have to retire by rotation (not re-eligible for one year). The Council have deemed it right to include in this recommendation those gentlemen whose names were drawn by lot last year, and who had to retire after having only served during a few months.

XV. The Council beg to lay before the meeting the annual balance sheet up to December 1st inst., duly audited, which shows a balance in favour of the Club on that date amounting to 474*l.* 13*s.* 3*d.*, whilst the invested capital amounts to 269*l.* 4*s.* 3*d.* stock, 3 per Cent. Consols, including the sum of 150*l.*, accumulated surplus annual income invested some years back until required for current annual expenditure. The Council have ordered a further sum of 20*l.* to be invested.

XVI. It was the gratifying duty of the Council last year to report that the entries for the Show were in excess of any former occasion, and they have now the still greater satisfaction of recording that this year's exhibition exceeds that of last year by 92, viz., 1863—453 entries; 1864—545 entries.

In conclusion, the Council congratulate the Members on the prosperity of the Club, and express their wish to receive any suggestions which the Members may communicate to the Hon. Secretary from time to time to be laid before them.

MIDLAND COUNTIES: BIRMINGHAM.—The following are the statistics of the recent exhibitions here:—

CATTLE SHOW.

ATTENDANCE.—1861, 59,799; 1862, 60,961; 1863, 61,530; 1864, about 64,270.

RECEIPTS AT DOORS.—1861, 1341*l.* 6*s.* 4*d.*; 1862, 1257*l.* 5*s.* 6*d.*; 1863, 1226*l.* 17*s.* 3*d.*; 1864, 1330*l.* 17*s.* 4*d.*

DOG SHOW.

ATTENDANCE.—1861, 17,035; 1862, 20,137; 1863, 21,561; 1864, 23,629.

RECEIPTS AT DOOR.—1861, 792*l.* 11*s.*; 1862, 1302*l.* 17*s.* 10*d.*; 1863, 1114*l.* 15*s.* 9*d.*; 1864, 1193*l.* 8*s.*

SALE OF DOGS.—1861, 154*l.* 13*s.*; 1862, 368*l.* 11*s.* 5*d.*; 1863, 275*l.* 17*s*; 1864, 324*l.* 0*s.* 6*d.*

School Children admitted free 2636

BATH AND WEST OF ENGLAND.—At the last monthly meeting of the Council of this Society, after the routine business had been despatched, letters of invitation for 1866 were read from the authorities of Salisbury and Southampton, and eventually it was resolved, "That this Council, bearing in mind the fact that the Society was originally established in 1777 'for the encouragement of agriculture, manufactures, commerce, and the fine arts, in the counties of Somerset, Wilts, Gloucester, and Dorset,' is of opinion that it is desirable to hold a meeting in the county of Wilts at the earliest practicable period, and that the Council do send a deputation to visit the city of Salisbury, which shall report the result of their visit at the next meeting of Council, on the 4th of February." At a later stage of the proceedings it was arranged between the members of the Deputation and of the Local Committee then present, that the 25th of January will be the most convenient time, for all purposes, for the interview to take place.

DORCHESTER: *Nov.* 12.—*The best Mode of Utilising Sewage of Towns.*—The Rev. H. Moule, Vicar of Fordington, gave a lecture on this subject. After some

preliminary justification of his appearance in connection with this subject, Mr. Moule said:—

On the utilisation of sewage in a liquid form, such for instance as that which the metropolis pours forth at the rate of from 90,000,000 to 100,000,000 of gallons daily, I have nothing to say; nor do I believe that any one has anything to say that, in the true sense of utilisation, is either practical or practicable. I propose rather to consider the best mode of utilising the excrementitious matter and the animal and vegetable refuse of houses and towns.

By the adoption of the Dry Earth System then I assert and will show you that all the excrementitious matter of our population, whether in town or country, together with all the animal and vegetable refuse of our houses, may be utilised.

Now, as to an estimate of the value of these substances, I have met with none more reasonable in itself, nor resting on more simple and common-sense data, than that given me by one of your own society, Mr. R. Damen, and which, with his permission, I have inserted in the second and third editions of my pamphlet, "National Health and Wealth." That estimate is 1*l.* a-head annually for the members of a family or the population of a town; and he arrives at it in the following way:—He says that any intelligent farmer, who understands his business, will admit that one-third of the value of the corn, given to his cattle, goes on to his ground in the form of manure. And, applying this to the food and excrement of human beings (and I suppose he would include the kitchen waste) he reasons thus:—Take the average value of the meat and corn food of each individual, at 2*s.* a head per week or at 5*l.* a year; then, instead of one-third, take only one-fifth of this as the average value of the manure made by each person, and you have as that average value 1*l.* per annum. So that for this town of Dorchester the gross produce would stand for the whole population at 7000*l.*, and for Carlisle, a city of 30,000 inhabitants, of which I shall presently have to speak, it would stand at 30,000*l.*; while the manure that might be saved from the whole population of Great Britain and Ireland would, if rightly saved, be worth 30,000,000*l.* sterling a year. Many I know will think this estimate extravagant. If however the manure be saved without water, I am sure that it is not extravagant. But suppose for one moment that this value were reduced to one-half, or even one-third, and you estimate it for the whole country at 15,000,000*l.* or at 10,000,000*l.*, or for Carlisle at 15,000*l.* or 10,000*l.*, or for Dorchester at 3500*l.* or 2300*l.*—is not the question of the right mode of saving and utilising these substances a question relating not merely to the various towns and their immediate vicinities, but to the great agricultural interest as well, and to the whole country as affected by that interest? And yet, after a good deal of study of Parliamentary inquiry and evidence, I am bold to assert that hitherto there has been absolutely no reasonable attempt thus to deal with this question. Every mode of utilising the sewage of towns that I have seen has been either far too partial, far too limited, or far too expensive; and the highest idea which those recommending these modes seem to entertain of the word "utilise," is the prevention of absolute and entire waste.

Let me state then as the first requisite of a good mode of using that which is at the same time the most offensive and the most valuable portion of the refuse of our towns, that while improving the sanatory condition and the comfort of the town, it should make that refuse a source of profit, or at all events prevent its removal from being a matter of burdensome expense. Then, and in order to this, the manure, so saved and removed, must be of such power or virtue, and in such a form, and obtainable at a price so moderate, that it shall be able, by setting the inferior price against the perhaps inferior power, to compete with foreign and artificial manures, and so command a ready sale. And again it is requisite that it shall be as easy of transmission to the most distant parts of the country, and as easily applicable to the land as any of those manures. If these requisites can be provided, there will be no need of my saying that hill farms and down farms and farms that from a distance send their corn and meat to the towns, have as great a claim on that manure as the valley below any particular town or the heath in its immediate vicinity. Those farms in that case will take it, and the towns on their part will be ready enough to supply it. All this then I will now proceed to show you can, by the dry earth system, be easily effected, and that in a way the most conducive to health and decency and comfort, and by a process of removal far less expensive than any that has hitherto been devised. It will serve to strengthen my statements of the necessity and the value of the several requisites above mentioned, if, before I describe the dry earth system, I give you by way of contrast two or, three instances of what is considered a good mode of utilising the sewage of towns.

One person, who represents, I think, a company formed for utilising the sewage of the metropolis, states in his evidence before the committee of the House of Commons, that he would distribute that sewage over 30,000 acres. Another gentleman, and he quite an authority in such matters, says he should prefer 50,000 or 60,000 acres. Now take the lower estimates of the excrementitious matter and of other animal and vegetable substances together, namely, 10*s.* or 6*s.* 8*d.* a head, and add to this value the cost of public and of private works, and turning away your attention for one moment from the pollution of the Thames, say, is not this pouring of that, on so limited an area, which cannot be worth much less than 1,000,000*l.* sterling per annum, or say if you please 500,000*l.*, and removed at the cost of many millions, is not this to waste, or at least to squander rather than to utilise?

Next take the far-famed meadows near Edinburgh, which are irrigated by the sewage of that city. It is perfectly true that the produce of those meadows is almost fabulous. The sum of 40*l.*, and even 50*l.*, has been received as the rent of an acre; and every acre will carry 10 cows. But what is the amount and value of the manure given to this land? The sewage of 300,000 people, worth at the lowest estimate, if properly saved, 100,000*l.*, is poured over some 260 or 300 acres!

Then take Carlisle, which was placed in the schedule of the same Act of Parliament that placed this town of Dorchester under the Board of Health. If the cost of the works in that city bears the same proportion to the cost of ours as that population bears to this (I hope not, for Mr. Rawlinson carried those out himself), but if it does, then they must have spent on them from 60,000*l.* to 80,000*l.* At first they polluted their river, as we pollute ours—they thus throwing away 30,000*l.*, or if you please 10,000*l.*, and we 7000*l.* or 2300*l.* The sewage of 7000 of the population is avowedly thrown away. That of 23,000 deodorised by Mr. McDougal's admirable disinfecting powder is poured over 60 acres. 23,000*l.* worth of manure, or if you choose 8000*l.* worth, raised at such a cost, spent on 60 acres!! Is not this again to waste or to squander rather than to utilise?

Now then for the contrast. Water, as you see, does not deodorise. It rather increases within a few hours the offensiveness of the smell, and itself needs to be deodorised. Whereas a pint and a half of dry earth or clay, if the evil be taken at once and in detail, deodorises immediately, and at the same time preserves the value of the urine and of the solid fæces; while instead of diluting, as water does, it may for certain soils add to the value of the manure, as, for instance, when various clays and silicates shall be used and afterwards applied in this mixed state to our heaths and light lands.

Next, for the application of this system, no public works are required. For if by means of it you get rid of the excrementitious matter and of the kitchen refuse, you may then, without offence or injury, allow the water used in washing, to descend into a cesspool. Then, the cost of the private works would not be above one-third of that incurred in the water drainage system.

It will, perhaps, astonish some persons when I assert that the supply of earth or clay for many towns, such, for instance, as this town of Dorchester, would be easier and less expensive than the supply of water. The facility of this supply of earth to towns is the greater from that property of dry earth or subsoil, to which I wish to call special attention, namely, its capability of repeated action in the absorption and deodorisation of offensive substances. For if after use and removal it be intimately mixed with the offensive matter, it is easily and inoffensively dried; and when dried it absorbs and deodorises the tenth time as readily and effectively as at the first. In the country and in situations in which the manure can at once be deposited in the earth, this repeated use is unnecessary. But in the case of towns, in which a manure company would be formed for the purpose of the supply of earth and of its removal after use, and of its sale when manufactured into a saleable manure, it will be of the utmost importance to condense this manure as much as possible, with a view to rendering it easy of carriage and of application to the ground, either in the use of the drill or by sowing it. Before stating the probable quantity of earth required in any particular town, I would have you notice that the value of urine as manure is about eight or 10 times that of the solid fæces, and that by the adoption of urinals on this dry earth system both in public places, in large establishments, and at railway stations, and in the use of a contrivance of Mr. White's for the reception of night urine, that which is now to a great extent wasted and lost, may with vast increase of comfort and to the great promotion of decency be almost entirely saved.

Now, first reminding you that I am perfectly unscientific and no man of business, and admitting that the estimates and plans of one who has so little time for these matters, are open to much modification, let me give you a rough estimate of the supply of earth and of its treatment. For all circumstances above mentioned, for public and private places, for the family and the kitchen, for night and for day, I would estimate the quantity of dry earth per head at 12 lbs. a day; that is, supposing it to be used only once, at two tons a year. This, for a population such as that of Weymouth, which I think is 14,000, would in that case be 28,000 tons for the whole town. Don't be startled, however, at these figures. I am going to reduce them. For, supposing a drying shed to be erected, which in its erection and its operation might be very inexpensive, and supposing the earth were used in every case five times instead of once, this would render the quantity necessary for one year for 14,000 people only 5600 tons. And if that earth so prepared by admixture with the excrementitious and other matters, and (as it might be) mixed with some other valuable substance, were in a well pulverised state sold at 3*l.* a ton, there would be a gross value attached to it of 16,800*l.* Take, however, only two-thirds of that sum, say 12,000*l.*, and supposing you have to purchase the soil from many of the houses, and thus your expenses amount to half that sum, or 6000*l.*, then a clear profit might be derived to the company of 6000*l.* a year. And if this can be done, and that in a way more conducive than any other to the health and comfort of the inhabitants, and at the same time with vast advantage to the agriculturists of the neighbourhood—if 12,000*l.* worth of additional manure can be thus provided for their land, a manure applicable with ease to land in any position, then I think, gentlemen, this deserves to be styled a mode of utilising the sewage of such a town, and I venture to think it the best mode. Some perhaps may wonder whence the supply of earth is to be derived. Some of the Weymouth people, for instance, have asked this of me. To say nothing of other substances, there are clays around that town to supply its population for centuries. Some may be startled at the difficulty of the carriage of so much earth through the streets. Let such think of the carriage of coal and of ashes.

But, gentlemen, I would place before you, in as few words as I can, a scheme which has been suggested to me for the application of this system to such a town as I have just now mentioned. Let a company be formed with a capital of, say 30,000*l.* Remember, there would be no public works required, neither at the cost of the inhabitants nor of this company. All that the company would require would be, first, warehouses and drying sheds, and a staff of men and trucks and horses, with something of a mill for mixing and pulverising. Then they would have to supply, both for private houses and large establishments and other public places, closets and urinals, which would be their own (just as the gas meter is the property of the gas company), to keep in repair; and for the use of which, together with the removal of all this offensive matter, the owner or occupier of the property would pay a per centage of say 10 or 15 per cent. on the first cost. This for a cottage need not be above 5*s.* a year, and for some of the largest houses, in which several apparatuses would be required, 5*l.* or 6*l.* My belief is that the whole cost of these private works would not exceed for such a population 12,000*l.* or 15,000*l.* But then I would propose that the shares should be so many and at so low a figure, that the owner or occupier even of a 5*l.* cottage might take one, and that the shares should at first be taken in a number proportioned to the first outlay on the respective houses or properties. Now supposing the company should on its capital of 30,000*l.* make beyond the rental of 10 per cent. on 15,000*l.* a profit of 6000*l.*, that rental would be repaid to the inhabitants at least twice over. Instead of the removal then of offensive matters being to them a heavy burden, it would be a source of profit. This then again I say is to utilise; this I venture to think is the "best mode of utilising the sewage of towns."

The above passages from Mr. Moule's address constitute a mere abridgement of his paper, for the whole of which we regret we have not room.

In the course of the subsequent discussion Mr. MOULE said that Mr. Gee, vice-chairman of the Board of Guardians of Bradford, Wilts, who had taken great interest in the system, had applied it to a school of 55 children, and at the end of five months he wrote to say that, where formerly all was noxious pungency, everything was then sweet and wholesome. During that time 2 tons or putt loads of earth were used, and it was scarcely more than 2 tons afterwards. The truth was that what passed from the human system was chiefly water, which evaporated without any offence, owing to all the noxious elements being fixed by the earth. Mr. Gee had sold the 2 tons at 50*s.* a ton.

Mr. DAMEN said that it was as plain as possible that if they confined the question to corn alone, it would give 10*s.* a head as the value of the manure, so that, as the reverend gentleman said, the manure now thrown away in this town would be worth at the least 3500*l.* a year. This was a matter which ought not to be lost sight of. There was nothing that the people of England could not do if it was shown to be useful and profitable; and Mr. Moule, to his mind, had shown both. If not in his day, sooner or later the system must be brought to bear, and he believed that ultimately it would triumph.

LORD TREDEGAR'S STOCK SHOW.—The 46th anniversary of this meeting was held on Tuesday and Wednesday at Newport. Although one of the oldest stock shows in the country, and notwithstanding that the prize sheet retains somewhat of its primitive character in restricting the exhibition of animals except from particular localities, such as the counties of Glamorgan, Monmouth, Brecon, or within 25 miles of the town of Newport, there was a large exhibition of excellent animals, particularly in the open classes. For so important a show there seems reason to doubt the propriety of this exclusiveness, especially when nearly all local societies have abandoned these notions of having competing animals only from one locality.

Nearly all the prizes given consist of Silver Cups, which are distributed at the dinner table by the noble President, Lord Tredegar, to the successful exhibitors.

The Devons, as usual, were only represented in small numbers by the Rev. A. Morgan and the Hon. G. C. Morgan.

The Rev. A. Morgan won Lord Tredegar's Silver Cup, for the best yearling bull; and his 2-year old heifer was commended. For the best bull, cow, and offspring, the prize went to this herd without competition. For the best 2-year old heifer, the Hon. G. C. Morgan obtained the prize, and was highly commended for one in the same class.

For the best yearling Short-horn bull the Silver Cup was won by a large-boned, leggy animal belonging to Mr. Tombs, whilst one of Mr. Hitchman's was highly commended. Mr. Stratton's commended.

For the best 2-year-old Short-horn heifer Mr. Richard Stratton won the prize with an exceedingly fine specimen of his breed, of which we expect to hear further at some future date. Mr. Logan obtained a high commendation for quite a good heifer in the same class.

The next prize was for the best yearling bull of the Hereford breed, which was won with a very thick-fleshed, low-legged good animal belonging to Mr. Taylor, of Showle; Mr. Thomas being highly commended.

The prize for the best 2-year-old Hereford heifer breed was won by Mr. Rees Keene. This class, however, was but poorly represented.

The best yearling bull of the Short-horn breed was decided in favour of one of Mr. Geo. Garne's, of Churchhill Heath, a very promising animal, which scarcely eclipsed the commended one of Mr. R. Stratton.

For the best bull calf there were nine competitors, and so close was the competition that five were noticed by the judges—three of Mr. Logan's being commended, one of Mr. Robinson's being highly commended, whilst the prize was given to Mr. Thomas Garne, of Broadmore, for one of great merit.

Mr. Logan obtained the prize as the best heifer calf of the Short-horn breed, and was highly commended for another—the judges commending the whole class.

Mr. Thomas Bradstock took the next prize for the best Hereford bull calf.

The prize offered by W. T. Carlisle, Esq., for the best Hereford heifer calf, was won by Alethe, belonging to J. M. Read, of Elkstone, there being five other competitors, amongst which Mr. Edwards was highly commended.

The next class was one for the best yearling heifer, which contained Mr. Logan's splendid yearling, which has been exhibited seven times and obtained a 1st prize each time she has been exhibited; but now in addition she gets the Corporation prize, value 20*l.*, as the best horned animal in the yard. The competition, it is said, lay between Mr. Duckham's Commodore and her. She is of faultless form up to her hips, which may by some be considered too narrow, and the distance from the hip bones to the rump somewhat contracted; excellent in touch, and very heavy of flesh.

The Silver Cup offered by Colonel Wood for the best yearling heifer bred by a farmer not farming his own estate, was won by the Rev. W. H. Beever; Mr. Thomas's being commended, as well as the whole class.

Mr. Rennie's prize for the best 2-year-old heifers, the exhibitor residing in the county of Glamorgan or Monmouth, was won by Mr. Pride, of Llanvihangel Rogiet.

The Cup for the best pair of cows, given by Mr. Logan, was won by himself; Mr. Wigmore's Stately the Third being highly commended, the whole receiving a Commendation.

The next prize was one given by the Bank of Wales for the best stock bull above 2 years old and under 6. This was a strong class, composed of nine animals, and of Herefords and Short-horns, Mr. Duckham's "Commodore" being the successful animal; whilst Mr. J. M. Read's "Peremptorily" was highly commended; and Mr. Taylor's "Tamburine," the 1st prize winner at Newcastle, was only "commended;" as well as a Short-horn belonging to Bruce Pryce.

Mr. Justice's prize for the best fat cow was won by Mr. Robinson; and Mr. Keene took Lord Tredegar's prize for the best fat ox, both with no competition. To Mr. Henry Crawshaw was awarded Mr. Styles' Cup for the best fat cow, Mr. Farr being highly commended.

Two other prizes were offered for one of the exclusive Classes, but these and the six following prizes of the same sort we omit, as they provoked little competition and can only be of local interest.

We now come to the Sheep Classes, in which the prominent feature is the exceedingly fine show of local-bred Cotswolds, as well as some sent from their native place—the Cotswold Hills. So much do the Cotswolds flourish in this district, that notwithstanding Mr. Beale Browne and Mr. King Tombs sent some from the Hills, yet the local men took every prize. Indeed, so good a lot of Cotswold ram lambs we scarcely ever saw at this time of the year. To Mr. Thomas Thomas, of St. Hilary, Glamorganshire, who has bred Cotswolds in his county for fully 50 years, and in which county these Cotswolds have so overrun the native breed as now to be the principal breed of that county, was awarded the prize for the best long-woolled ram, and besides a commendation. There were no fewer than 15 Cotswold rams exhibited in this class, mostly out of Herefordshire, Monmouthshire, and Glamorganshire.

The next prize, for the best four shearling ewes, was won by Mr. Wigmore. The short-woolled sheep prizes were all won without competition by Mr. Moore, of Littlecot, with Hampshire Downs.

The prizes for Welsh sheep were taken by Mr. Ion Rhoswen and Mr. Edward Farr, of Remyworlodd.

The next three following prizes were taken by Cotswolds belonging to Mr. Thomas and Mr. Domne.

There were some excellent lots of Pigs exhibited for the respective prizes, amongst which the pig sent by the Royal Agricultural College, Cirencester, took the prize, and was deservedly much admired. The other prizes in pigs were taken by Mr. John Leys for the best boar; Mr. William Yells, of Round Robin Farm, for the best boar and sow under a year old; and Mr. H. Hall of Troston, for the best breeding sow with litter of pigs.

Amongst the winners for Horses, was Mr. Logan for the best yearling cart colt; Mr. Rees Parry Penlan, for the best 3-years-old cart colt or filly; Mr. Richard Williams of Tredunnock, for the best cart stallion.

In addition to these agricultural horse prizes, there were exhibitions of nags and hunters, besides some superb racing animals belonging to W. S. Cartwright, Esq.

Farmers' Clubs.

Hexham: *Breeding and Management of Black-faced Sheep.*—The following remarks are abridged from a paper recently read before this Club by Mr. Cook, the Secretary to the Club:—

In choosing Blackfaced ewes from which to breed, the mountain farmer must always have an eye to hardihood, for whatever other good properties the ewe may present, if she shows signs of softness, or want of constitution, I would-reject as worthless, as her progeny, if ever she managed to have any in such exposed situation, would in all probality inherit her defect and prove unremunerative. Having secured hardiness in a flock of ewes, I would then select those of good frame, with broad back, good shoulders and quarters, with a prominent breast, and standing a good width between the fore legs, as well as betwixt the hind legs, and they should stand well and straight on their legs, on a good-sized, well-shaped foot, as I would reject all those having knock-knees or knock-houghs; neither do I like a sheep too long in the legs. The ewe for breeding from should have a good-sized head, a clear full eye, lengthy face, and good open nostrils. The horns should come from the head with a graceful curve, of fair width, and towards the lowest part of the curve they should incline a little forward, as I do not approve of the black horned kind, and the horns should be of a fair size. But I neither like too slender horns, which indicate weakness of the constitution, or coarse, which indicate want of quality. The head ought to be set on a neck which rises well from the breast and shoulders, and which is not of too short a length; and having mentioned the head, I must say a word about the tail. I would like to see it of a fair thickness, and would reject all those with very small tails, as this also indicates old age or weakness of constitution. Having described the body of a breeding ewe in a very imperfect manner—as I am quite sure that on seeing a stock of ewes before me, I can satisfactorily describe their good and bad properties in a much better manner than I can on paper from memory—let me say a few words respecting the wool. The Black-faced ewe having to be exposed in the most ungenial climate of our kingdom to all the winter blasts, without, in general, having any shelter except what Nature furnishes her with, it is absolutely necessary that she should be well clothed with wool—this, in the first instance, to keep her comfortable, and, in the second, to render her profitable to the flock-master, as a great portion of the flock-master's returns arise from his clip of wool; and as that article has of late years commanded much higher prices than usual, this subject at present requires more particular attention. Well, then, I would choose my ewes well set with wool from the ears and cheeks, all over the body and tail, and well down the legs, but not on the shanks, below the knees and houghs. I would have the wool as thick-set as consistent with good quality and a fair length, but I would object to increase its thickness by choosing those animals whose wool is intermixed with kemp hair, as this breed of sheep is neither profitable to the farmer nor approved of by the woolstapler. Having described the selection of ewes for breeding, it now behoves me to describe the selection of a tup; and I may state that almost all I have said regarding the ewe applies with much greater force to the tup, inasmuch while the ewe seldom breeds more than one lamb in one year, the tup generally begets in one year threescore, so that any defect in a tup puts the whole flock out of order much sooner than the defects in a single ewe. I would select the tup with a robust constitution, a good firm horn, not coming too close to his cheeks (if possible) or not standing too wide; and I don't like a tup whose horns rise too much after leaving his head until they curve down, as such tups generally beget lambs of a light nature, which are generally very fatal to the ewes in parturition. I would also be very careful to reject all clud-horned tups—by this term I mean all tups whose horns do not separate before they leave the head. I would also reject all those having blood horns. Keeping in mind those remarks, and what I have here stated regarding ewes, I do not think any practical man would go far wrong selecting his tups, although I must say good ones are very difficult to lay hold of. The best time to put the Black-faced tup to the ewes on the Northumberland Hills is from the 11th to the 20th November, according to situation; but I would rather err by being a few days too late than by being too early, as the springs are so uncertain; and when the lambs arrive before the ewes have milk wherewith to suckle them, the loss of both is often extensive; and if these lambs do survive they are generally of stunted growth, while lambs in the same flock which are younger, but which have received plenty of milk from their birth, very soon outstrip them. I will not detain you longer respecting the breeding of Blackfaced sheep, but will pass on to the second subject—the management of Blackfaced sheep. In the management of Blackfaced sheep, a great deal depends on having a good sagacious shepherd to carry out in an effectual manner the instructions of his master; and I cannot do better than give you an extract from "Little Practical Observations on Mountain Sheep." Mr. Cook then read a long extract on the qualifications of the shepherd, pointing out more particularly that he should be active and careful in the training up of the young. I will take the management from the time of lambing in the spring. When the ewes are about to lamb, it is best to bring them into the most sheltered parts of the farm, and where there is the best bite of Grass for the ewe. After being lambed for a fortnight or so, according to the season, the ewe and lamb is generally turned out to the common, to afford a better bite for those ewes or gimmers which are latest in lambing, and so on until they are all lambed. About the middle of October the lambs are brought off the common and salved or smeared with a mixture of tar and butter or other preparation; but for high and exposed situations I have never found any plan answer so well as the mixture of tar and butter. After the lambs have undergone this preparation, they are placed in as sheltered a situation as is on the farm, or sent away to some more genial climate for the winter, where they remain until about the first week in April, and then return home to their native common. After the lambs are salved, the ewes and wethers undergo the same operation, after which the ewes are generally sorted for the tup. With regard to shearing, I may state Black-faced are usually shorn about the end of June or early part of July in each year. The wethers are generally kept till they are three years old, and are then usually sold for feeding purposes; but if they are not then sold, they are fed off on Grass during the summer, or on Turnips during the ensuing winter. The ewes are generally kept till they are about five years old, when they are sold as draft ewes, and their place in the breeding flock supplied by the shearling gimmers, which are at this age put to the tup as breeders.

Farm Memoranda.

Mill Hill.—In our last we described chiefly the system pursued in the tilling of the farm; in the economising of the manure, liquid and solid; in the housing of the cattle; and the machinery for bruising, chopping, &c. There now remains to be noted the cooking apparatus and the sheep loft. The steam pans, supplied with waste steam from the boiler, for preparing the messes given to the cattle a certain time before they are full-fed, are in the neighbourhood of the machinery. The chopped Turnips, the bruised Oats, the meal, &c., can all be emptied from conduits in a heap near the boilers, so that labour is saved in carrying. The steam tanks are put in use for about a couple of months before the cattle are sold, and the messes consist of Cabbage stalks, Mangel Wurzel, oil-cake, and meal—with, perhaps, a little Linseed or molasses. The cattle receive one feed of this steam mixture to two of Turnips and hay. The young stock are ranged in staked-off spaces by the edge of the railway, in the same way as the others. Water is here led on in pipes, and can be turned on at pleasure, and in every trough is a piece of rock-salt for the animal to lick. The sheep are in a large loft at the east end of the steading, but a line of rails is carried along this upper floor to the machine department, where the food is prepared; and the waggonettes are easily trundled along. The sheep are disposed in pens on each side of the line of rails in the same manner as the cattle; and in this loft we are informed that nearly 130 sheep can be fed and attended to by one woman, who also supplies with Turnips the washer when at work. The floor is sparred, so that the sheep manure drops into the covered heap below. At the outside of the covered heap is the refuse cartage—consisting of decayed vegetable matter collected from the fields, road scrapings, &c., which is decomposed by lime, and a layer of which is every now and then thrown into the sheep dropping pit, to cover the droppings, prevent smell, and form a still more suitable compost for the fields.

Lord Kinnaird has taken a great interest in arriving at a knowledge of which kind of sheep is the best and most profitable for wool combined with fattening qualities. It will be remembered that there was a discussion at the meeting of the Highland and Agricultural Society in Edinburgh as to the advisability of having two classes of the Leicester sheep at their Shows, and that a question was raised as to which of the Leicesters—the White or Border, or Blue or English, was the most profitable. The question, as Mr. M'Laren puts it, really came to be "to ascertain whether more sheep of small-boned and finer kind could be kept on the same amount of food than the larger kind; and whether, although when sold not worth so much as the large kind, the proportion of profit in their case might not be more evenly balanced as per acre of land than the selling price at first seemed to warrant." The result is recorded in a report made to the Highland Society by Mr. M'Laren, which states that four lots of 10 wether lambs each were selected—10 from the flocks of Colonel Inge, 10 from Mr. Robert Hardie, Kelso; and two lots of 10 each from Lord Kinnaird. One sheep in one of the lots got its leg broken; and one out of each of the other lots had to be cast aside, so that the experiment was carried out with four lots of nine each. The sheep were placed on the 26th August last on a piece of rich old pasture divided equally into four, in each of which divisions were feeding hurdles, which were moved three or four times a day, as required. The quantity of Grass consumed by each lot was thus found out. They were afterwards fed with Oats, hay, Indian Corn, meal, oilcake, &c.—the trial lasting for 12 months—and the following is the result:—

Average Cost of Feeding each Sheep, Nine to each Lot.

	£	s.	d.	
Colonel Inge	3	5	0	nearly.
Mr. Hardie	3	10	2	
Lord Kinnaird's Leicesters	2	19	5½	
Lord Kinnaird's Cotswolds	3	11	11¼	

Average Value of each Sheep.

Colonel Inge	3	15	0	
Mr. Hardie	4	1	10½	
Lord Kinnaird's Leicesters	3	11	3¼	
Lord Kinnaird's Cotswolds	4	8	10½	

This experiment proved conclusively that though the Cotswolds were the dearest and ate the most, they were yet the most profitable—the difference in favour of their value as against their cost being 17*s.* per sheep, as compared with 11*s.* 9¾*d.* for the Leicesters; 11*s.* 8¼*d.* for Mr. Hardie's; and 10*s.* for Colonel Inge's.

Lord Kinnaird has also prosecuted a series of experiments upon the feeding of cattle, the results of which were a few years ago presented to the Highland Society in a Report by Mr. M'Laren, his Lordship's farm manager. The point was to determine the comparative feeding value of pulped and of whole Turnips. To find out this, his Lordship had three lots of six cattle, each selected and tied up—the first being fed with whole Turnips and straw; the second with pulped Turnips, mixed with chaff, and given fresh; and the third with pulped Turnips, mixed with chaff, and fermented. The total weight of the first six cattle to be fed on whole Turnips and straw, on 18th October—the commencement of the trial—was 70 cwt. 24 lb.; and by the 1st March they had risen to 81 cwt. 77 lb.—an increase of 11 cwt. 53 lb. The second lot—fed on pulped Turnips, mixed with chaff and given fresh—weighed 70 cwt. 70 lb. at the commencement of the trial, and 81 cwt. 14 lb. at the end, being an increase of 10 cwt. 56 lb. The third lot—fed on pulped Turnips, mixed with chaff and fermented—weighed 70 cwt. 4 lb. at the commencement of the trial, and 82 cwt. 28 lb. at the end, being an increase of 12 cwt. 14 lb. It will thus be seen that the pulped Turnips and straw given fermented produced a much greater increase in weight than the other two methods of feeding; but from the feeding with whole Turnips being done at less expense, the increase on the cattle fed in that way seems to have paid better than on the others. The clear profit on each lot for Turnips consumed was 18*l.* 3*s.* 10½*d.* for those fed on whole Turnips; 13*l.* 2*s.* 10½*d.* on those fed with pulped Turnips mixed with chaff, and given fresh; and 17*l.* 13*s.* 10½*d.* on those fed on pulped Turnips mixed with chaff, and given fermented. From the following paragraph by Mr. M'Laren it will, however, be seen that he gives

the preference to the pulped Turnips for several very important reasons:—

"From the results of this experiment, it will be seen that, while whole Turnips, owing to the less expense in using them, leave the most free money per ton for the roots consumed, pulping and mixing with chaff, by enabling the feeder to keep from 10 to 15 per cent. more animals on the acre or crop (without taking into consideration the extra quantity of manure thereby obtained), gives the preference, in my opinion, to the latter mode of using them. One trial, however, does not seem enough to establish the success or failure of this or any system. I therefore hope that the experiment will be taken up by others, so that the farmer may shortly have sufficient data to enable him to judge which is the most economical way of producing meat for the increasing population of the country by the consumption of his root crops; at the same time keeping in view the very great importance of increasing the manure made on the farm."

Mr. M'Laren's confidence in the latter kind of feeding being the most profitable was remarkably verified by experiments in the succeeding year, when he again tied up three lots of Short-horned steers of six each, and fed them on the same three systems. The first increased during the time of trial 20 cwt. 58 lbs.; the second 24 cwt. 72 lbs.; and the third 23 cwt. 91 lbs. The profit on those fed on whole Turnips was only 15*l.* 17*s.* 4*d.*; on those fed with the Turnips pulped and chaff, given fresh, 23*l.* 15*s.* 10½*d.*; and on those with the Turnips pulped and chaff, fermented, 22*l.* 14*s.* 4½*d.* Thus the general result of the experiments has proved "that the pulping of the Turnips is a saving of the root in the feeding of cattle," and is well worth the attention of farmers and cattle-feeders.

Leaving the sheep loft and cattle-feeding court, we take a turn round the steading, and pass in our way a shed containing a number of implements, self-delivery reaping machines, improved by Lord Kinnaird, and for which his lordship got a prize at the Highland Society's Show at Aberdeen; a Potato digger, a Turnip sower, and several other minor machines. There are a number of matters of minor interest to be seen, but we have sketched the most important features of the management. We are assured that in every department the results of the system have been pecuniarily successful, and that, to parties interested, every information will be given for their guidance. *Abridged from Dundee Advertiser.*

Miscellaneous.

Agricultural Statistics.—Mr. Caird, M.P., in an address to his constituents the other day at Stirling, spoke thus on this subject:—On the discussion of the budget, I was fortunate enough to be able to persuade the Chancellor of the Exchequer to forego the intention he expressed of placing a duty on certain low-priced corn—Lentils, Millet, and Dari; and at a later period of the session I carried a resolution in favour of the collection of agricultural statistics. This is a question of growing importance to the general community. Previous to the repeal of the Corn Laws, it was computed that, in addition to our home supply, not much more than a fortnight's consumption of foreign corn was needed in the year. But during each of the last five years one-half of our population has been fed on foreign corn. This proves that the people are better fed, and also that much of the corn land in this country is being laid to Grass. But, dependent as we have thus become on foreign corn, it is of the utmost moment that we should have some knowledge of the extent of our home produce, and, consequently, of our foreign requirements. The only advantage our farmers now possess is being first in the market. To them beyond all others an early knowledge of the probable supply is of first importance. To the commercial and monetary interest it is scarcely of less moment. The mere movements of such vast supplies equal to 3,000,000 tons of grain, involving the employment of a great mercantile fleet, and the transfer of 30,000,000*l.* sterling of money, may, if not foreseen and provided for, most seriously embarrass the trade and commerce of the country. And here I cannot help again remarking on the influence which the two last bountiful harvests are already exercising on the welfare of the people. We shall this year pay 15,000,000*l.* less for imported corn than we have paid on the average of the four last years. The money pressure now being experienced is fortunately unaccompanied, as in former times, by dear bread. In 1817 and 1857, the periods of money panic, Wheat was 70*s* and 80*s.* a quarter. During the present year it has scarcely exceeded 40*s.* But though the price has been low the imports have been enormous, and the figures will show you that they must have materially affected the price of money. In the three years preceding the panic of 1847 we paid 26 millions sterling for foreign corn; in the three years preceding the panic of 1857 we paid 62 millions; but in the three years preceding 1864 we paid 98 millions. It need not, therefore, be matter of surprise that this, with the derangement of the cotton market, should have caused a pressure for money. But nothing can more clearly prove the prosperous condition of the people than the enormous increase in their consumption of food. Nor is it limited to corn. In 1859 we imported cattle, bacon, butter, cheese, and lard to the value of 5,285,000*l.* In 1863 we imported, of the same articles, to the value of 12,796,000*l.* All this has been accomplished during the life of the present Parliament, and is mainly due to the admirable financial policy of the Chancellor of the Exchequer.

The late Richard Booth.—The most celebrated breeder of Short-horns of the present day has passed away, in Mr. Richard Booth, of Warlaby, Yorkshire who has just died at the ripe age of 76. Mr. Richard Booth, though the most eminent breeder of his name, was one of a family of Short-horn breeders, and he carried the science of true breeding to such a pitch that for some years past "Booth blood" has been deemed essential to every herd pretending to fashion and fame. And it is a significant and suggestive fact, that Mr. Richard Booth steadily adhered to purity of blood, that is, he insisted on keeping within the narrow circle of a few tribes, and bred in-and-in, disregarding some absence of symmetry and a degree of coarseness in certain points, provided his animals were deep-fleshed and light in the offal. He was for many years a successful exhibitor of heifers and cows at the great agricultural shows, seldom exhibiting bulls, and he was amongst the first to show his stock in the high condition which has now become indispensable to prize-winning. We believe, however, that he did not over-feed the great body of his herd, but kept them in useful breeding condition, and hence in part came the extraordinary excellence of his bulls as sires in other herds. And it was chiefly to his bulls he owes his fame. The demand for his bulls on hire was generally greater than the supply, and for many years past his "bull rental" has amounted to 3000*l.* or 4000*l.* sterling per annum. Mr. Booth, a single man, devoted himself to the cultivation of his herd on a good estate of his own, favourably circumstanced in soil and climate for stock-breeding. He possessed many other requisites for a breeder. With a strong will and decided views as to the character of the animal he desired to produce, his judgment and perseverence carried him through some difficulties which might have diverted a less self-reliant man from his course. Indeed, so confident was he as to the merits of his own stock, that he listened with impatience to praises of other herds differing in type from his own, and was singularly uneasy under adverse decisions in the show-yard, commonly entering protests and complaining of the judges when the Warlaby animals were not awarded the positions in their classes which he considered they deserved. The well-known Short-horn correspondent of the *Mark Lane Express*, in a letter on Mr. Booth and his herd, mentions several characteristic circumstances and facts. He says:—"Some of his bulls might be 'idle,' or so rough in their points that 'Booth men' have chaffed at the bad tactics of a hirer in not sending them home before, or at least keeping them out of sight at a sale; but the grand old blood was there, though often under an ungainly guise, and go where there they might, they left a good and a lasting impression on a herd." This is a strong instance of the value of pure blood, producing, when united with females of lower breeding, but perhaps more general symmetry, a great improvement in the stock—improving at once the blood and the flesh. All the great prize-winning herds of modern days are largely indebted to Booth blood, and this sometimes formed the veterans consolation when his own animals were defeated in the show-yard. Mr. Booth's persistency in close breeding was sometimes blamed by the public. They knew the bulls of the season at Warlaby, and predicted that the herd must go down for lack of a cross. "But the old sage smiled at their fears, and some time before he died had a still better excuse for his 'prejudice' than even Queen of the Ocean, in two offers to take the herd at the 15,000*l.* valuation, or to send an unlimited cheque."

Calendar of Operations.

DECEMBER.

MERSE OF BERWICKSHIRE: *Dec.* 3.—November opened steady, with barometer high; yet, in the absence of dry winds the land recovered but slowly from the effects of the previous heavy rains. There was a frosty night or two, but generally it was quite soft and mild, excepting bare fallows, and they are confined to the strongest clays in these times of root culture. Nothing had been done in the way of Wheat-sowing. About the middle of the month Potato land and pieces first cleared of Turnips got into condition for ploughing, when rain resumed sufficient to prevent work, though not amounting to 3 inches. A beginning has now been made, but the wind is damp and slightly showery. We have often sown Wheat in December; but have not been so late in beginning since 1852-3, when none were sown until February 1. Unless the wind becomes drier, the mere absence of rain will not bring our stronger soils into proper order. A month of growing weather has wrought a change on the Swede crop, where not previously spoiled by mildew. But the puzzle is how to get them off the land, and we can only throw them into small heaps where they grow, and await the chances of frost or dry weather. The quality of White and Yellow Turnips is fine, not being too large, and cattle are doing capitally, with the addition of Barley-meal. The tupping season is over, and it has been remarked that ewes have not taken the sheep readily.

Notices to Correspondents.

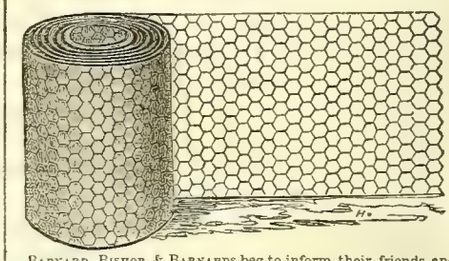
THE COW CABBAGE: *C D.* Seedlings from sowings at the end of March are generally fit for final planting out about the middle of May, and the crop will be in full use throughout autumn. Seedlings from sowings in May are fit for final transplanting in July and August, and are ripe now, and if the frost be not severe will be good in early spring. If sown about the end of June they will generally be fitter for spring use than if sown earlier. Seedlings from sowings in August are in good condition for planting out in March. Seedlings may be pricked out 4 inches apart when the leaves are 2 inches wide, and in three weeks they may be pricked out again in rows 30 inches apart, on deeply tilled and richly manured land.

INDIAN CORN: *A Subscriber.* It is a more fattening food than Beans or Peas, if either of them be given alone, or with roots and hay. But the mixture would be improved by the presence of both Beans and Indian Corn, the latter in the larger quantity.

AGRICULTURAL MACHINERY.—Chaff Cutters for hand or power, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters and Pulpers, and all kinds of Agricultural Implements; also the Prize Churn, Wire Netting, &c. Delivered carriage free. Price Lists on application.
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2-inch mesh, 24 inches wide	No. 19	4½*d.* per yd.	3½*d.* per yd.
2-inch " " "	18	5 "	4 "
2-inch " " "	17	6¼ "	5 "
2-inch " " "	16	8 "	6½ "
1½-inch " " "	19	4¾ "	4 "
1½-inch " " "	18	6 "	4¾ "
1½-inch " " "	17	7 "	5½ "
1½-inch " " "	16	9 "	7 "

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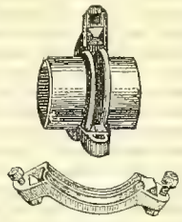


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One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scour in lyes, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.
One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.
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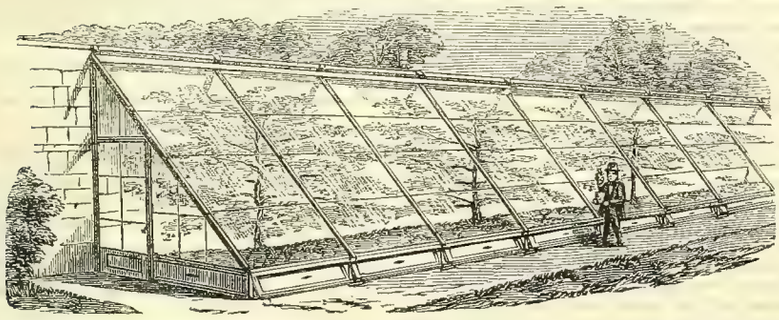
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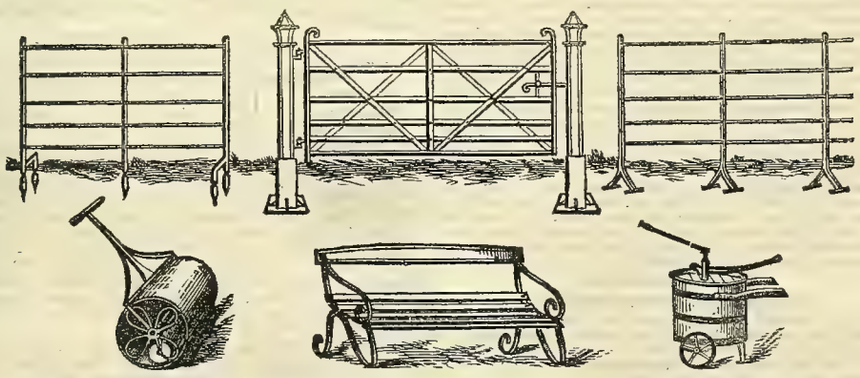
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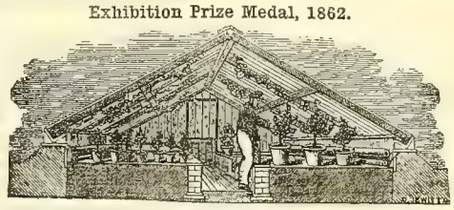
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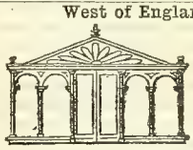


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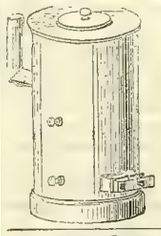
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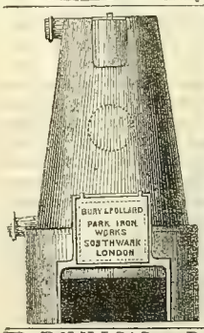


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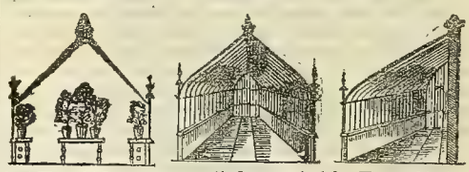
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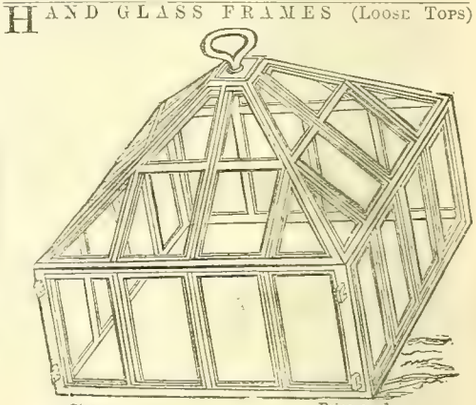
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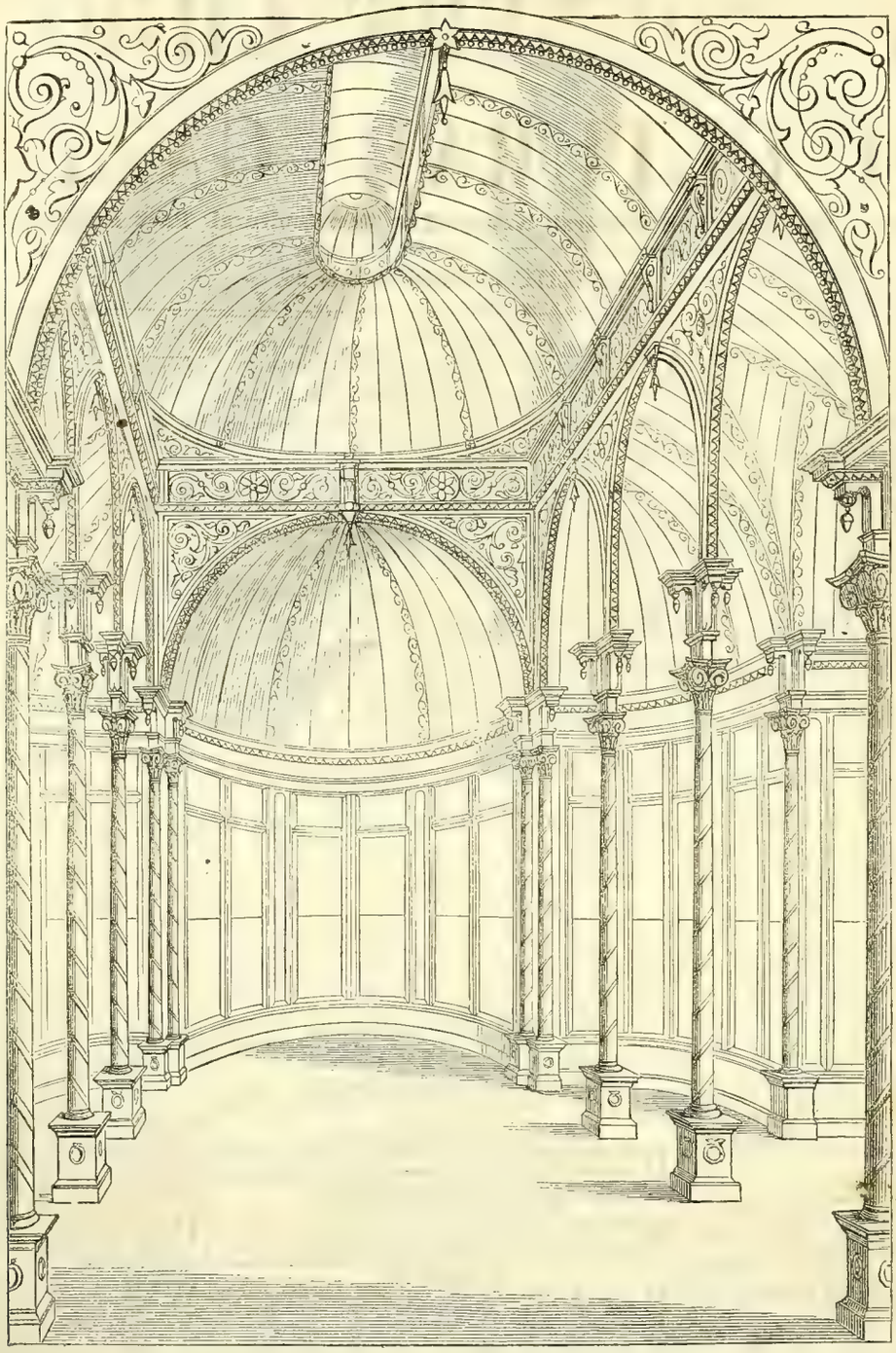
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WANTED, 1000 CROWN BOB GOOSEBERRIES. Age and price.
GEORGE W. HAY, Seedsman, Worcester.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to
Mr. WEBB, Calcot Gardens, Reading.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

New Fuchsias.
E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

THE LONDON SEED COMPANY, LIMITED. The GENERAL PRICE CURRENT of KITCHEN GARDEN and FLOWER SEEDS will be ready in a few days, and will be forwarded gratis and post free.
68, Welbeck Street, Cavendish Square, W.

SURPLUS STOCK of BULBS for SPRING BLOOMING. See large Advertisement, page 1223.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W.

WIRGO AND SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

Gladioli.
B. S. WILLIAMS is now prepared to supply strong Bulbs of all the best kinds, price 4s., 6s., 8s., 10s., and 12s. per doz.
Paradise and Victoria Nurseries, Holloway, London, N.

Gladioli.
STEPHEN BROWN'S CATALOGUE (Cultural and Descriptive), containing his extensive and first-class Collection of Gladioli, sent free on application.
Seed and Nursery Establishment, Sudbury, Suffolk.

GLADIOLI for 1864-65.—First Prize at Crystal Palace, Reading, and Bath, with Nine other First Prizes, have been awarded during this season to
KELWAY & SON, The Nurseries, Langport, Somerset.
Priced LIST now ready. Practical Hints on their Culture enclosed.

20,000 GLADIOLI, the most effective for Massing, and the best for Exhibition.
5000 LILIUMS, including the splendid L. LANCIFOLIUM, varieties RUBRUM, ROSEUM, and ALBUM, and the magnificent L. AURATUM.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Superb Double Hollyhocks.
NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and will be forwarded to any address on receipt of one postage stamp.
N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

SUTTON'S SPRING CATALOGUE is now ready.
CARTER'S GARDENER'S VADE-MECUM.

Paul's Nurseries, Waltham Cross, N.
WM. PAUL (Son and Successor to the late A. PAUL). Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

JAMES MELDRUM, The Nurseries, Kendal, has this Season a large Stock of fine well-grown PORTUGAL LAURELS of various sizes, which he can offer to the Trade cheap.
Kendal, Dec. 24.

TO GENTLEMEN REQUIRING NURSERY STOCK.—We abound in LARCH, and every description of NURSERY STOCK. Reference to Noblemen and their Agents as to the quality of our Trees. Prices, &c., on application.
JOSEPH TREMBLE & SONS, Penrith.

ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. THOMSON, The Nursery, Wimbledon, Surrey, S.W.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50s. to 75s. per 100; or from 6d. to 2s. 6d. each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Planting Season.
WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.

To the Trade.
JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have a large overstock of very fine Seedling and Transplanted LARCHES, Transplanted NORWAY SPRUCE, DEODARS, and other Forest Trees. Prices on applicaion.

Transplanted Quick.
CHARLES SHARPE AND CO., NURSERYMEN, Sleaford, have a large stock of the above, strong well-rooted Plants. Samples and prices will be forwarded on application.

BLACK THORNS, in large quantity, for Covert Planting.—Price on application to
J. PERKINS, 52, Market Square, Northampton.

LARGE BEECH, SYCAMORE, and SPRUCE FIR; also a few bushels of HOLLY BERRIES and BEECH MAST. The above will be sold cheap, f. o. b. at Waterford.
WANTED, large HAZELS.
Apply to D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

FOR SALE, a Bargain, upwards of 500,000 Transplanted LARCH, from 2 to 3 feet, in quantities, by special agreement.
Apply to DAVID DOW, Nurseryman and Seedsman, Falkirk, N.B.

WANTED, ASH, 2 to 3 feet; ASH, 3 to 4 feet; SPANISH CHESTNUT, 2 feet; BIRCH, 3 to 4 feet, &c. Price and quantity to EDWARD CARPENTER, Seed Merchant and Grower, 96, St. James's Street, Brighton.

WANTED, BEECH, SYCAMORE, and LARCH FIR, 12 to 14 ft. high. Also BEECH, 7 to 9 ft. Must be well rooted. Address, stating price and quantity, to GEO. J. WOOLLETT, Nurseries, Caterham, Surrey.

WANTED, 20,000 Seedling PONTICUM RHODODENDRONS, about 5 inches in height; also 10,000 1 or 2-year Seedling HOLLIES. Address, stating terms for ready cash, to WM. TAYLOR, Nurseryman and Florist, Davyhulme, near Manchester.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

CLIMAX or NAPOLEON (WRINKLED) PEAS.—A few Quarters' of this fine variety for Sale at 60s. per quarter, also a quantity of BEDMAN'S IMPERIAL PEAS at 52s. per qr.
Apply to Mr. S. A. DAINTREE, Fendrayton, St. Ives, Hunts.

KING of the CUCUMBERS, selected from a prime stock of the Long Prickly, the most hardy and abundant cropper, 10s. per ounce. LONG PRICKLY PRINCE, 3s. per ounce.
Post Free from the Grower,
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

OSBORN'S WHITE WINTER BROCCOLI.
Price 2s. 6d. per packet.
Special offer to the Trade on application.
A PRICED LIST of select GARDEN SEEDS will be printed in December, and may be had free on application.
OSBORN & SONS, The Nursery, Fulham, London, S.W.

TO the TRADE.—A quantity of WHITE SPANISH ONION SEED, Nett, growth of 1864, offered at 9l. 10s. per cwt., by WILLIAM CLARK, Wholesale Seedsman; removed to 42, Bishops gate Without, London, E.C.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.
Application at the Gardens at Calcot, near Reading.

SKIRVING' PURPLE-TOP SWEDISH TURNIP.—50 to 100 Bu els of the above, a fine true stock, nett seed, crop 1863. Price on application to
WM. TAYLOR, Nurseryman and Seedsman, Crossgate, Cupar Fife.

Seakale.
WANTED, several Thousand Plants for Planting Out.—Apply, stating size and price per thousand, to the GARDENER, The Grange, Sutton, Surrey.

Green-top Kohl Rabi.
MR. S. DAINTREE, of Fendrayton, St. Ives, Hunts, has a good stock of the above, also of genuine ITALIAN RYEGRASS, from second cut Foreign Seed; both grown by himself. For samples and prices apply as above.

FEATHER GRASS WANTED, in Large or Smaller Quantities. Price, Quantity, and Sample forwarded free to Mr. EDWARDS, 222, Strand, W.C., Temple Bar, for prompt Cash.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.—RICHARD SMITH, Seed Merchant, Worcester.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SON, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. CUTBER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

Broccoli, very Large.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI, White Large Late Dwarf protecting variety, 2s. 6d. per packet, by forwarding 30 postage stamps.

The habit and quality of the above Broccoli is of the very best; very large head, sits close to the ground; if well grown will be 14lb. weight, fit for market. The Wonderful Broccoli is not to be superseded if well grown. Sow early, plant out early, 2 feet apart each way, in good ground.

W. WANDLESS, Market Gardener, &c., Sunderland. Agents: HENRY CLARKE & SONS, Seedsmen, 20, King Street, Covent Garden, London, W.C.; and J. BACKHOUSE & SON, York Nurseries.

Hill's Incomparable Dwarf Cabbage.

EDWARD P. FRANCIS is now sending out the above new and valuable CABBAGE.

For description, &c., see large Advertisement in *Gardeners' Chronicle* of Saturday, Dec. 17.

Full printed particulars can be had on application. Price, in Sealed Packets, 2s. each.

His new SEED CATALOGUE is now ready.

The Nurseries, Hertford, Herts.

CARTER'S "FIRST CROP" PEA,
The EARLIEST in CULTIVATION.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOOLFORD'S MARROW	DILLISTONE'S FIRST
BEDMAN'S IMPERIAL	EARLY

Samples and Prices on application.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

To be had also of the following Nurserymen:—

Mr. W. Barnes	.. Camberwell
Messrs. Fewkes, Laird, & Lang ..	.. Sydenham
Messrs. Dunyard & Son	.. Maidstone
Messrs. Osborne & Son	.. Fulham
Mr. Stace	.. Chichester
Mr. C. Turner	.. Slough
Mr. C. Sweet	.. Taunton
Mr. Cattell	.. Westerham
Mr. Quincey	.. Peterborough

"The Essex Rival Pea."

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS AND OTHERS.

THOS. ELEY having succeeded, after five years' careful cultivation, in raising a Stock of the above Splendid PEA, is now in a position to offer it to the Public.

The above Pea is distinguished by the following excellent features, viz., it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

Mr. ELEY, desiring that the foregoing merits of this most valuable Early Pea should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the most flattering testimonials, fully endorsing the representations herein named. Price 2s. 6d. per quart.

The Trade supplied at the usual discount. Testimonials forwarded on application.

Sible Hedingham, near Halstead, Essex.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

The New Chardon Cattle Potato.
Myatt's Prolific Ash-leaf Kidney Potato.

STUART AND MEIN, NURSERYMEN, Kelso, have several Tons of the above to offer, true stocks, and excellent samples. Prices on application.

The ALBERT SPROUT, DALMENY SPROUT, FEARNOUGHT CABBAGE, The HORTICULTURAL SUPERB LATE BROCCOLI. See Advertisement in *Gardeners' Chronicle* of November 26.

Descriptions and Wholesale prices of the above valuable New Vegetables and other Novelties, including Dalmeny May Broccoli, Shearer's Late White Broccoli, Triple-curled Dark Green Parsley (Melville), Roseberry, Brussels Sprouts (saved by the original raiser), New Chardon Potato, Smith's Early Potato, Nemophila Auriculæflora, Pentstemon compactum nanum, new dwarf bedding Tom Thumb Nasturtium, Tropæolum Prince of Wales, and Emperor or Dark Foliaged, &c., may be had on application.

CHOICE SEEDS,
In Sealed Packets. Postage free.

CATTELL'S DWARF PURPLE-TOP BEET.—The best Red Beet in cultivation. 1s. per oz. packet.

CATTELL'S ECLIPSE BROCCOLI.—The latest, hardiest, and best White grown. 1s. 6d. per ¼-oz. packet.

CATTELL'S RELIANCE CABBAGE.—1s. per ½-oz. packet.

KIRKLEES HALL DEFIANCE CUCUMBER.—Quite true. 1s. 6d. per packet.

VARIEGATED GARNISHING KALE.—Mixed, Red, White, Purple, Green, &c.; very handsome. 1s. per packet.

Trade prices on application.

JOHN CATTELL, Seed Grower, Westerham, Kent.

Turnips, Carrots, Potatos, & Italian Rye-Grass Seed.

JOSEPH DIXON, SEED FACTOR, Kendal, offers any quantity of the above Agricultural Produce (beyond a 3-ton load of roots), at the following present Cash prices:—

SWEDES, 17s. per ton; CARROTS, 40s. per ton; FLUKES, 70s. per ton; Round variety, 60s. 4d. per ton; ITALIAN SEED, 28s. to 30s. per quarter.

N.B. Railway rate for roots, 2½d. per ton to (Camden Station) London.

Kendal, Dec. 24.

TRADE MARK.

HALLETT'S | PEDIGREE | NURSERY WHEAT.

PURE SEED OATS.

40s. a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

Trees and Plants.

JAMES DICKSON AND SONS beg to draw special attention to their unusually good and almost unlimited stock of FOREST TREES, QUICKS, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, STOVE and GREENHOUSE PLANTS, as well as of all other Trees and Plants.

Fully PRICED and DESCRIPTIVE LISTS of which they will be glad to forward post free upon application.

The "Newton" Nurseries, and 102, Eastgate Street, Chester; also Nurseries, Newtown, Montgomeryshire.

NEW GRAPE, ROYAL VINEYARD.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HE IS

NOW DISTRIBUTING THIS VALUABLE GRAPE,

THE BEST LATE WHITE GRAPE EXTANT.

Strong Planting Canes, 21s. each; Strong Fruiting, 42s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.



GENUINE NEW GARDEN SEEDS.

JAMES CARTER & CO.



ARE NOW PREPARED TO EXECUTE ORDERS FOR

EARLY PEAS, BEANS, CARROT, CUCUMBER, RADISH,

And other GARDEN SEEDS for AUTUMN and EARLY SPRING SOWING, from Seed saved at their Dedham and St. Osyth Seed Farms during the present Autumn.

☞ The Crop of most descriptions of Seeds is short, but the QUALITY is extremely good in consequence of the continued dry weather during the last Summer and Autumn.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.



THE "FIRST CROP" PEA.

(THE EARLIEST PEA IN CULTIVATION.)

JAMES CARTER & CO.



Beg leave to announce that they can now offer the above FIRST-CLASS PEA, which they have grown for the last three years, and BEING FULLY AWARE OF THE IMPORTANCE OF TESTING AN EARLY PEA IN EVERY WAY BEFORE SENDING OUT, they wish to assure the public that they have thoroughly proved the "FIRST CROP" PEA against all the Early Peas at present in cultivation, and the result of these careful trials and comparisons enables them to state that

THE "FIRST CROP" PEA IS EARLIER THAN ANY PEA

over offered in previous years, and also has another advantage over all other Early varieties in being the MOST PROLIFIC EARLY PEA in CULTIVATION. Height about 2½ feet, and the haulm is literally covered with Pods.

☞ *The above will be sent out in quart packages "sealed," price 2s. 6d. per quart.*

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, SYDENHAM, S.E.

WAITE'S ECLIPSE PURPLE-TOP YELLOW HYBRID TURNIP.

WAITE, BURNELL, & CO.

Beg to inform the public, that they can now supply SEED of this invaluable TURNIP. The ECLIPSE is a purple top, yellow-fleshed, and decanter-shaped variety, with a small top; it is a quickly growing Turnip, can be sown much later than the Swede, will store in the best condition till the end of May, and in the opinion of many farmers who have grown it, will keep better than the Swede. It is sound in flesh, rich in flavour, and preferred by Cattle to all other varieties.



This valuable TURNIP was introduced a few years ago by the late Mr. Waite, but from various causes, the stock has been nearly exhausted; after careful attention, W., B., & Co. have again secured a supply of the genuine and original stock.

Owing to the above circumstance the Purple-top Scotch (to which it is very superior) has been substituted by some houses for it, and great disappointment experienced, especially by those who know the Eclipse.

W., B. & Co. have considered it necessary to state that it is sent out by them in Canvas Bags, sealed, containing not less than a Half Bushel, and in Sacks marked

Price 50s. per bushel.

A Discount allowed to the Trade.

Labels supplied to the Trade for placing on smaller packages.

SEED WAREHOUSE, 181, HIGH HOLBORN, LONDON, W.C.

Larch, True Native Scotch Fir, Spruce, Oak, Quick, &c.

DICKSONS AND CO., 1, Waterloo Place, Edinburgh, have this season an extensive and very healthy stock of the above, as well as of all other kinds of Seedling and Transplanted FOREST and ORNAMENTAL TREES and SHRUBS. They are all well ripened, and are in excellent condition for present planting.

CATALOGUES and samples may be had free on application.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

To the Nursery Trade.

ONE and Two-Year Transplanted LARCH, 9 to 12, 12 to 18, 18 to 24, and 24 to 30 inches; also Seedling LARCHES, all well topped, healthy, and very hardy Plants, the produce of Scotch Seed.

RHODODENDRON PONTICUM, from 3 to 18 inches.

1 and 2 year Transplanted NATIVE SCOTCH FIR.

Trade Prices of these and other surplus Nursery Stock, on application to HOWDEN BROTHERS, Inverness, N.B.

WANTED, FOREST TREES.

ALDER, 2 to 2½ ft.	HORSE CHESTNUTS, 1½ to 2 ft.
ASH, about 1 to 3 ft.	HORSE CHESTNUTS, 2 to 3 ft.
BEECH, 2 to 3 ft., and 3 to 4 ft.	HORNBEAM, 2 to 3 ft.
BIRCH, 1 to 2 ft.	SCOTCH FIRS, 1 to 1½ ft.

PINUS AUSTRIACA, 2ft. & 3ft.

Parties having the above to dispose of, or any other kinds of Forest Trees, will oblige by furnishing price to

WM. WOOD & SON, Woodlands Nursery, Maresfield, Uckfield, Sussex.

To the Trade.

TRANSPLANTED SPRUCE FIR, 18 to 24 inches; LARCH, 24 to 30 inches; ALDER, 2 to 3 feet; THORNS, 18 to 24 inches; SILVER FIR, 9 to 12 inches. Stout, clean, and well-rooted. Low prices upon application.

WILLIAM TAYLOR, Cupar, Fife, N.B.

Seedling and Transplanted Forest Trees.

WOOD AND INGRAM have to offer the following, which may be depended upon as very fine stuff:—

ENGLISH ELMS, 1 year's Seedling, 5s. per 1000.
" " 3 years' Seedling, 8s per 1000.
ENGLISH OAK, extra fine, 2 years' Seedling, 8s. per 1000.
SPRUCE FIRS, Transplanted, 1 to 1½ ft., 20s. per 1000.
" " " 1½ to 2 ft., 30s. per 1000.
" " " 2 to 2½ ft., 50s. per 1000.
BLACK ITALIAN POPLAR, 7 to 9 ft., 55s. per 1000.

Special offers for large quantities to the Trade.

The Nurseries, Huntingdon.

Forest Trees, Shrubs, &c.

THOMAS KENNEDY AND CO. beg to intimate that they have this Season a very large and superior stock of FOREST TREES and SHRUBS of various sizes, adapted for extensive Planting and for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c., and which they are now selling at very moderate prices.

Their NEW DESCRIPTIVE PRICED CATALOGUE for AUTUMN 1864, and SPRING 1865, of FOREST and ORNAMENTAL TREES, ROSES, BEDDING PLANTS, &c., is ready, and may be had free on application.

☞ Dumfries, from its central position and increased Railway accommodation, enables T. K. & Co. to transmit Goods daily to all parts of Great Britain and Ireland.

Nursery and Seed Establishment (Established 1787), Dumfries.

To Gentlemen and Planters.

GEORGE DAVISON, White Cross Nurseries, Hereford, offers the following Large Trees:—

HORSE CHESTNUTS, MAPLE, MOUNTAIN ASH and ELM, from 9 to 11 feet high, 9s. per dozen.
TURKEY OAK, 18s.; ONTARIO POPLAR, 18s.
SPANISH CHESTNUTS, 18s.
WEEPING BIRCH, 9 to 11 feet high, 15s.
LAURUSTINUS, 1½ to 2 feet through, 9s.
PORTUGAL LAUREL, fine bushes, 2½ to 3 feet, 15s.
LARCH, 2 to 3 feet, 25s. per 1000.
HAWTHORN QUICK, 2 to 3 feet, 20s. per 1000.
STANDARD ROSES, 18s. per dozen.
CHINESE ARBORVITÆ, 4, 5, and 6 feet, 15s. to 30s.
AMERICAN ditto, 4 feet, 12s.
ABIES ALBA, 5 to 6 feet, 2s. 6d. each.
" MENZIESII, 4 to 5 feet, 2s. 6d
" MORINDA, 3 to 4 feet. 2s. 6d.
BIOTA AUREA, 1½ feet, 4s.; 2 to 2½ feet, 7s. 6d.
" MELDENSIS, 3 feet. 5s.
" COMPACTA, 2½ feet, 5s.
" GLAUCA, 4 feet, 7s. 6d.
PINUS EXCELSA, 6 to 7 feet, 5s. to 7s. 6d.
" CEMBRA, 4 to 5 feet, 5s. to 7s. 6d.
" INSIGNIS, 2½ to 3½ feet, 3s. 6d. to 5s.
" STROBUS, 7 to 8 feet, 2s. 6d.
SILVER FIRS, 7 feet, 2s. 6d.
TAXUS HIBERNICA, 6, 7, and 8 feet, 5s., 7s., and 10s. 6d.
THUJA GIGANTEA, 3, 4, and 5 feet, 5s; 7s. 6d., and 10s. 6d.
" WARREANA, 7 to 8 feet high, 3½ to 4 feet through, 21s each.
" LOBBII, 4½ to 5½ feet, 5s. to 7s. 6d.
WELLINGTONIA, 2½ to 3 feet, 7s. 6d. to 10s. 6d.; 4 feet, 21s; 6 feet, 42s.
NAMED FRUIT TREES, 3s. 6d. to 4s. 6d. each.
PYRAMID APPLES and PEARS, 2s. 6d. each.

The above are in the finest condition, and have all been frequently transplanted.

CARTER'S "FIRST CROP" PEA, The EARLIEST in CULTIVATION.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 30s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Railway rate to the Bricklayers' Arms Station, London, 2s. 6d. per ton, not less than 4 tons. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE. London-made FLOWER POTS, in every size.

N.B. Loaded trucks can be sent direct on all the Railways.

WORKING PLANS prepared for NEW GARDENS and ORNAMENTAL GROUNDS.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



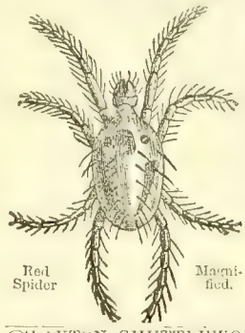
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider — Magnified.

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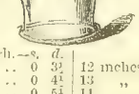
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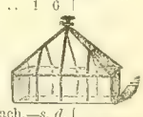
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6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
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3000 Extra Strong STRAWBERRY PLANTS for forcing, in 32-size pots (many of the pots having two plants in each) consisting of the following varieties, viz., ADMIRAL NAPIER, BRITISH QUEEN, KEEN'S SEEDLING, &c., 50s. per 100; also Plants of the above, and also of ELTON PINE for Planting, 3s. 6d. per 100.

A Large Stock of fine sound Pot Roots of DAHLIAS (suitable for exportation), comprising most of the Leading Varieties in Cultivation, 42s. per 100.

Address, THOS. ANSELL, Camden Nursery, Grafton Road, Kentish Town, London, N.W.

STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome; AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at

WOOD & Co.'s, Barbourne Nurseries, Worcester.

Prices upon application.

Dwarf-trained Trees.

BY THE THOUSAND, HUNDRED, OR DOZEN.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.

RICHARD SMITH, Nurseries, Worcester.

Extra Size Fruit Trees.

PYRAMIDAL PLUMS, PEARS, &c., of extra size and first quality, very handsome. Prices, names, and sizes, may be had on application.

Also the DESCRIPTIVE FRUIT CATALOGUE.

STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

To the Trade.

BUNYARD'S IMPROVED SCARLET TOM THUMB NASTURTIUM.

True KENTISH COB NUTS.

" KENTISH FILBERTS.

Extra fine THUJA AUREA.

STANDARD and HALF STANDARD ROSES.

Prices on application to THOMAS BUNYARD & SONS, The Old Established Nurseries, Maidstone, Kent.

TWO NEW FIMBRIATED PRIMULAS.

Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

Notice to the Trade.

CARTER'S "FIRST CROP" PEA.

JAMES CARTER AND CO. beg leave to inform the Trade that, in consequence of the great demand for the above PEA, they will in future be able to execute Orders for Small Quantities only.

CARTER'S "FIRST CROP" PEA,

The EARLIEST in CULTIVATION.

CARTER'S GARDENER'S VADE-MECUM.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee at the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Choice Camellia Blooms.

LUCOMBE, PINCE AND CO. have now a large quantity of extra fine CAMELLIA BLOOMS for disposal, which can be securely packed and sent to any distance with safety. Price on application. Exeter Nursery, Exeter.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 24, 1864.

MEETING FOR THE ENSUING WEEK.

MONDAY, Dec. 26 to FRIDAY, — 31 } Royal Horticultural (Illustrations of the Sources and Preparation of Perfumes), at South Kensington.

IN his celebrated Essay on Gardens, Lord BACON remarks:—"I hold it, in the Royal ordering of gardens, there ought to be gardens for all the months of the year, in which, severally, things of beauty may be then in season." He then proceeds to give a list of plants, mostly evergreen trees and shrubs, with which it is desirable to furnish grounds "for December, January, and the latter part of November," or which might form what we should now call a WINTER GARDEN. As with many of BACON'S other proposals, his suggestions were probably, for the most part, ideal. Few actual winter gardens have been executed in this country. Not unfrequently, however, pleasure-grounds, or what are sometimes called kept grounds, have, in whole or in part, been substantially winter gardens. The only thing to be regretted is, that this definite purpose has not been kept sufficiently in view, and on that account the results have not been altogether such as might be desired.

The characters or qualities to be aimed at in a winter garden are not far to seek. The following may be specified:—shelter from the north and east; a sunny exposure to the south and west; a dry subsoil, and an atmosphere genial and free from damp; easy access from the dwelling house, and good firm walks leading to it; and withal such an assemblage of trees and shrubs, as may pleasantly call the attention, and attract the steps of those who enjoy walking exercise in winter.

It must be owned that it is often easier to conceive of these requisites than to realise them in actual practice. Much must depend on the natural contour of the ground to be operated on. It is not always possible to take advantage of "boon Nature's old felicities." There are localities which have hardly any adaptation for this purpose. In inspecting the available ground, the designer may have the mortification to discover that the site best adapted naturally for a winter garden, is too distant for example from the mansion, or does not hold the position relatively to the other parts which he would wish it to have. In such a case, all that he is able to do, may be so to arrange the several departments of the kept grounds as naturally to lead the steps of the wanderer to the winter garden. It is a happy circumstance when the winter and spring gardens are contiguous, and when they pass by imperceptible degrees into each other. They should hardly ever be separated by fences, however carefully concealed. Indeed the most felicitous arrangement of the so-called seasonal gardens is, when, without the formality of distinct inclosures, each becomes successively a centre of special interest as the year rolls round. When the comfort and convenience of the proprietor is consulted, and due advantage is taken of the natural or acquired characters of the ground, all is accomplished that can reasonably be desired.

The style and materials of ornamentation in winter gardens are sufficiently obvious. The trees and shrubs should be chiefly evergreens, but not exclusively so; for they have no eye for natural beauty, who do not perceive that the forms and tints of deciduous trees, sparingly introduced, are essential elements in winter scenery. Unbroken masses of Evergreens, whether made up of the round-headed Portugal Laurel, or the spiry Spruce Fir, are formal and wearisome. Monotony, which is oppressive at all times, should be particularly avoided in the gloomy season of winter. Evergreens, however, particularly the Conifers, possess a considerable diversity of hue and form, and even in considerable masses, when properly handled, can be made to exhibit that intricacy and variety which charm the eye and sustain the attention. Small groves of Deodars, associated with the Cedars of Lebanon and Mount Atlas, may be introduced with advantage, as well as minor groups of Pines and Cypresses—either distinct or in combination. Single trees of Abies nobilis, Nordmanniana, Douglasii, &c., of the superb Wellingtonia, or the sturdy Araucaria, placed so as to stand out in full relief, may be made to afford examples of the most exquisite beauty. It may also be remarked that in a winter garden, seeing that it is a garden, the trees and shrubs should be rather of a *recherché* description—Scotch Firs and Wych Elms have no business there. On the other hand, an immense variety of single species is poor in the total effect, and provocative of irritation. A winter garden should no more be an arboretum, than an autumn garden should be a botanical arrangement; though a winter garden may have many of the charms of an arboretum. In certain gardens the well informed visitor has no difficulty in perceiving that the proprietor has got the sweepings of a nursery. A still worse fault is to be found in those long lines of Irish Yews, Junipers, &c., sometimes seen in places where there is an affectation of the Italian style; but which only remind one of the array of sheaves in a field of Beans, which have been reaped but not yet carried.

To these brief hints, which probably would require much expansion to be duly applied, it may be added that multitudes of Snowdrops, Winter Aconites, and early Crocuses, should be profusely scattered through the winter garden, particularly under the interspersed deciduous trees and shrubs. Along with these may be introduced Lilacs and Golden Daffodils for spring, and a Laburnum or two, with Harebells and whatever else will grow under shade in early summer. There is no reason why a winter garden should be destitute of a slight sprinkling of floral beauty at other seasons; for if the proprietor loves some magnificent specimen, say of Abies Douglasii, or Cupressus Lawsoniana, as he is sure to do if he has any taste at all, he will visit the winter garden in summer as well as in winter, and he will be glad to observe that while its main character is adequately preserved, it is not maintained with that pedantic exclusiveness which may be found in the works of man, but certainly not in the works of Nature.

WHY should the element of ornamentation be so often lost sight of, and the utilitarian principle made all in all in the planning and planting of KITCHEN GARDENS? This question has been suggested by some remarks which have been recently made by Mr. FLEMING, of Cliveden,* whose name will be sufficient to secure a candid hearing for any proposition he may submit to his professional brethren.

In kitchen gardens of course the primary object is to secure a good return of such esculents and fruits as the proprietor may happen to prefer; but if, besides securing this return, it may be converted at the same time into a pleasant promenade, that

* In the *Florist and Pomologist*, vol. iii., p. 219.

surely is an advantage not to be lightly estimated, the more especially when this pleasant state of things may, so to speak, be made to dovetail into the general arrangements for realising the primary object already referred to. Something of this kind is involved in the suggestion of Mr. FLEMING, which is, in the main, that fruit-trees should be planted along the sides of the walks, and both arched and inarched over them. Mr. FLEMING, indeed, only alludes to the amount of interest to be drawn from arches of Pears and Apples in "small gardens," where it is necessary to combine use with ornament as much as possible; but we do not see why larger gardens should not also share in this desirable combination. Hence we have taken the opportunity to invite attention to the suggestion.

We gather from Mr. FLEMING'S statement, that he has planted the walks of a kitchen garden with Pears, Apples, and Roses, in this way:—First, two Pear trees on each side opposite each other; then two pairs of Apple trees, and two pairs of Hybrid Perpetual Pillar Roses in the same way. This is continued throughout the garden. The walks are Grass, 6 feet wide, and the trees are planted close up to the edge; but a width of 8 feet is recommended as being preferable for the arch, giving a higher and better proportioned span, and taking the plants back from the edge of the Grass. The space between each arch is 10 feet. The result is spoken of as in every way satisfactory. It is however intended to introduce some of the beautiful-leaved American Vines during the present winter.

As to details, it is found that Pears and Apples simply require three upright stakes to each for a season or two, the trees when planted being headed back to within 18 inches of the ground, so as to get two lateral shoots, which are trained up at 2 feet from the stem to the height from which the arches spring. The arches are recommended to be of wood or some readily removeable material, on the score of economy, because it is part of the plan, that as soon as the trees have grown sufficiently over the top, the opposite branches should be inarched, and then, when they are sufficiently united, that the temporary supports should be removed. The trees will continue to support themselves afterwards, unless during the time the wood is young a very heavy crop should be borne. Pears and Apples, however, it is found seldom bear so heavily on young wood as to threaten injury from this cause, though arches of Plums have been completely broken down by the weight of the fruit, after having been three seasons inarched.

The varieties of Apples and Pears planted opposite each other are recommended to be of different varieties, not so much for the sake of variety in the crop, though that may be a desirable object too, but that by means of inarching, the trees may mutually benefit one another, the weaker moderating the luxuriance of the stronger by drawing off some of its surplusage of sap, and the stronger gaining in fertility in proportion to the degree in which it has assisted the weaker. It is hence evident that the habit and constitutions of the several varieties should be rather carefully examined into, before their places are assigned to them. The advantage of inarching in this way Mr. FLEMING enforces by an illustrative example:—Five very old and fine-looking wall trees, that never bore any fruit, were inarched one into the other seven years ago; the second year after they had a crop, and they have borne less or more ever since.

We have mentioned that for Apples and Pears temporary arches of wood are recommended because the trees will ultimately be able to support themselves; but for Plums, as well as Roses and Vines, and any similar habited plants it may be desired to introduce, the supports should be of a more durable material, such as iron.

We have referred to this subject chiefly for the sake of inviting attention to Mr. FLEMING'S FRUIT ARCHES, which, while they lend an ornament to the quarters of the commonplace utilitarian kitchen garden, may also do much towards yielding a supply of the choicer fruits, and at least may increase the capacity of a garden by economising the space occupied by the walks, whether of Grass or gravel. It is of course the intention that these trees should be submitted to the modern *régime* of regular root-pruning, although this is not enlarged upon in the paper to which reference has been made; and the same remark may also be applied to the pinching of the branches. This is evident from the concluding remark, which we quote *verbatim*:—"Orchard-house treatment demonstrates most distinctly, that nearly all our fruit trees become more productive under dwarfing treatment."

—— AMONG the PLANTS WITH REMARKABLE FOLIAGE employed by the Parisian gardeners for decorative purposes, we find MACLURA TRICUSPIDATA and GUNDELIA TOURNEFORTII are made use of. The latter is a great Composite of Syria and Asia Minor, with something the aspect of an Artichoke, and has been from time to time cultivated in Paris, but lost, as no doubt it has been with ourselves, until reintroduced by M. BALANSA in 1855. The plants raised from the seeds then obtained flowered in 1859, after M. DECAISNE had had them planted out. The bushy rigid aspect of the plant, which grows nearly a yard high, together with the form and elegance of its leaves, which are pinnatifid and spiny-toothed, the lower ones stalked, the upper somewhat stem-clasping, give it a very picturesque appearance. Unfortunately it is rare, and can only be multiplied by seeds. It is sufficiently hardy to survive in the climate of Paris, if planted in light deep soil not too moist, and protected by a hand-glass, surrounded by straw or dry leaves, and is therefore what we call half-hardy. The seeds (achenes) of this plant appear to be sometimes substituted for Coffee.

The Maclura was introduced to the Museum establishment in 1862, from China, and is remarkable for its leaves, which are very decidedly three-lobed. This is described by M. CARRIÈRE as a bushy well-branched shrub, milky in the younger parts, the branches somewhat pendent, and bearing in the axils of each leaf a simple sharp thorn. The leaves are deciduous, thick and shining, shortly stalked, and deeply three-lobed, with the middle lobe lengthened out. The leaves distinguish it at once from all the Macluras previously known. It is said to be very hardy, and independently of its merit from an ornamental point of view, it is suggested that it may probably become useful for hedges. The half-ripened wood, taken off in July, strikes freely enough under glass.

—— The scientific world has sustained several severe LOSSES BY DEATH during the year now soon to close. Without taking them in the order of their dates or of their importance, we may briefly mention the names of some of the botanists who have been taken from amongst us.—In January last M. NICOLAS TURCZANINOFF died at Charkow. He was a Councillor of State, and devoted himself for many years to botanical science; but owing to a fall, was latterly unable to apply himself with so much energy to his favourite studies. He was the author of several papers in the Transactions of the Moscow Academy.—M. CRÜGER, the Superintendent of the Botanic Garden of Trinidad, died in February. He was principally known by his physiological and morphological papers in the *Botanisches Zeitung*.—During the month of January, also, occurred the deaths of Mr. JOSEPH WOODS, a veteran British Botanist; and of M. GAY, one of the botanical magnates of Paris.—In May Germany lost one of the oldest of her botanical Professors in the person of M. TREVIRANUS of Bonn, a man whom Prof. MORREN calls the NESTOR of German botanists.— The traveller and naturalist JUNGHUHN died at Lembang in the month of April. He was Inspector of the Dutch Cinchona plantations in Java; and in his various capacities had accumulated a vast quantity of materials for scientific works—The death of M. HERMANN SCHACHT, Director of the Botanic Garden of the University of Bonn, took place in August last. Dr. SCHACHT was born in 1814 at Ochsenwerder on the Elbe, studied medicine at Altona, gained the prize offered by the Royal Academy of Sciences at Amsterdam for the best work on the origin of the embryo in phænogamous plants, and became assistant to Dr. SCHLEIDEN at Jena. He published a general treatise on botany, but his most distinguished work is an admirable treatise on the application of the microscope to the study of the vegetable kingdom, which has been translated into English. In 1860 he was appointed Professor to the University of Bonn, and director of the Botanic Garden there.—M. KICKX, Professor of Botany in the University of Ghent, died at Brussels in September, at the age of 61. He was author of several papers on the Cryptogamic portion of the Belgian Flora.—The Rev. A. SCHEELE died at Heersum, near Hildersheim, last September. He was author of several systematic papers published in the *Linnæa*.—In the month of July LEIBOLD, the well-known botanical explorer of Mexico and Cuba, died at Havana, whilst preparing for an exploration in Yucatan.

ALLAMANDAS.

HAVING been very successful in the pot culture of Allamandas, I beg to offer a few remarks on that subject. In this family are some beautiful species, which, when well grown, are very effective, especially for purposes of exhibition—Schottii, grandiflora, and Aubletii I consider to be the best. When sent out, violacea was expected to prove an acquisition, but, unfortunately it has turned out comparatively worthless. It is like the Scotchman's horse, bad to catch, and when caught of no value. Let us therefore return to Schottii. Like the rest of the family this species requires high cultivation; that is, it should be grown quickly until it shows flower; then it should be encouraged to ripen its wood perfectly, after which it must be well rested and properly pruned.

Allamandas are all easily propagated by means of cuttings, which strike readily in a brisk bottom heat. Let us, however, suppose that the cultivator has a nice established plant, say in February, with three or four shoots on it. In that case I would start it immediately by plunging it in a brisk bottom heat in a plant stove or hotbed, and as soon as growth had fairly commenced, I would prune each shoot back to the last two joints. When fairly broken, I would give a liberal shift, using the following compost for the purpose, viz., two parts rotten turf from a good pasture, and one part rough peat, well broken and mixed with the turf, the fine mould being sifted out of it. I would then add silver sand, and see that the drainage was perfect. I would now re-plunge into a brisk bottom heat, where the atmosphere was moist, and there was a considerable amount of light. Thus placed, the plants would make rapid progress, and would soon require stopping, which may be done when the young shoots are 2 feet long, shortening the strongest to two or three joints, and the weakly ones to one or the lowest joint. Suppose the young plant had four shoots on it when first pruned, it ought to have broken from two to four eyes on each shoot; there would therefore be at least 12 shoots to stop back. And the roots being in active progress, each of these would push from four to six eyes, when the plant would require another liberal shift, and as before, should be re-plunged in a brisk bottom heat, syringing overhead every evening, and watering frequently with liquid manure in a clear state—weak and often being the rule. The plant should now be kept as near the glass as may be convenient, and it will require stopping again for the last time. The exact period to perform this operation will depend on the time at which the plant is wanted to be in full flower. In ordinary seasons Schottii requires 12 weeks from the last stopping until it is in full blossom. Aubletii and cathartica take about 10 weeks, and the treatment just recorded is applicable to these also. At this last stopping each shoot ought to produce from four to six or more laterals, the whole thus amounting to 300 young flowering shoots.

During the latter period of their growth, and while in flower, Allamandas will require a very liberal supply of water, which should be for the most part weak liquid manure. When flowering is over, water should be gradually withheld to a certain extent, in order to aid the ripening of the wood, previous to wintering the plants in a lower temperature and a drier atmosphere. Early in the following February the plants may be pruned and started in bottom-heat as in the previous season. Prune back to from four to six joints from the commencement of last year's growth, and as soon as the plants have fairly broken they should be turned out of their pots, the balls reduced, and repotted into a smaller sized pot than that which they had previously occupied, and be treated as recommended for last season. This will be the third season, after which the plants may be destroyed.

At Darlington Flower Show, last year, I exhibited Aubletii, three years old, with upwards of 500 flowers open on it at one time; Schottii, with upwards of 300; and grandiflora, 18 months old, with upwards of 200 blooms. The last-named species requires to be treated somewhat differently from the others. The compost for it should consist of two parts rough turfy peat, of a fibrous nature, and one part turfy loam, with the fine material sifted out of it, together with silver sand and charcoal, to keep all open and porous. This plant being of a more delicate habit than any of the others, is also very likely to be infected with thrips, which immediately stops its growth. It therefore requires watching in order to be ready to fumigate it when necessary. Owing to its slender habit it will likewise not be prudent to stop it more than twice during the season, watering copiously with weak liquid manure, and mulching with sheep or deer dung, and using the precaution of fumigating with tobacco previous to the plant coming into flower. Grandiflora requires, moreover, to be pruned harder in than the three former varieties; it also requires longer to make a specimen plant, but as it is one of the best of the genus, it is well worthy of every attention. *Thomas Wilson, Upper Clapton.*

NOTES ON GARDENS.—No. XXV.

THE GARDEN-FARM AND NEW WINTER GARDEN, DUBLIN.

THE Garden-Farm is compounded of a very small infusion of farm, a good half of market-garden, a fourth of nursery garden, a slice of Alpine ground and two or three of experimental horticultural buildings, with a slight dash of the botanic garden, and a flavouring of the school for young gardeners — the whole spiced with fruit growing, and served up with an excellent illustration of economical rotation of garden crops. I have a distinct recollection of meeting with the Ivy-leaved Duck-weed in a small tank in the vicinity of young Wellingtonias, the Sea Heath not far from a capital crop of Asparagus, and several dozen varieties of Pears all growing on one tree, trained against Mr. Niven's house, within two minutes after passing through the very tasteful entrance gate and admiring its pretty surroundings. These were my first impres-

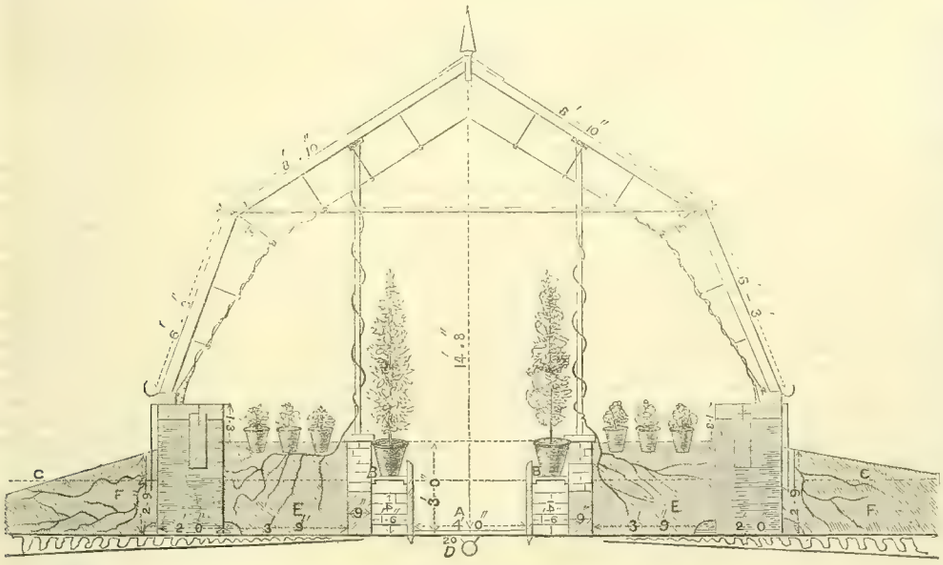
sions of the Garden-Farm, but they do not include the most remarkable, that having been furnished by the worthy owner himself, who, now far in his seventh decade, is still as active as ever. If Mr. Ninian Niven had gone to rest with John Claudius Loudon, it might have been with a happy feeling of duty done, for, years before the great worker for gardening and gardens had been laid in Kensal Green, Mr. Niven had, after effecting very great and improving changes there, resigned the curatorship of Glasnevin, to which he had been called from the superintendence of the Chief Secretary's garden—for many years back, as now, one of the very first of Irish gardens.

Since leaving Glasnevin, Mr. Niven has originated the Garden-Farm—before his occupation a wild and useless tract; and while very actively employed with its improvements and management, has regularly practised as a landscape gardener in all parts of Ireland. Men generally, including gardeners, are satisfied with the results of the hey-day of their matured energy, and rarely think of rooting up the successes of their 40th or 50th summer for new notions, whatever their source; but not so Mr. Niven. I question if more evidence of tact, youth, and life would be found in the gardens of our youngest workers than is manifest at the Garden-Farm, Drumcondra. A prettier, more healthful, or more suitable spot, for the *beau ideal* of a successful and first-class gardener to retire into, and peacefully, though actively, enjoy the autumn of life, is not fanned by mountain breeze—except, by the by, Mr. Wilkie's lodge in the Phœnix Park, to which I must give the palm of all gardener's gardens that I have yet seen. But Mr. Niven's is a commercial garden, and of course that makes all the difference.

On each side of the lawn before Mr. Niven's house the finer evergreens and Conifers are closely planted, some of the choicer kinds being in pots plunged in circular beds on Grass, in advance of plants arranged in the ordinary manner; and these, with the novel fruit-growing houses, which also run for some distance on each side of the walk leading to the house and some pretty pleasure-ground, effectually conceal the more commercial portion of the place. Cerastium arvense—a dwarf and compact form of it—acts as Mr. Niven's Spergula. I noticed it near the terrace on which his house stands in fair condition considering the season, and it possibly may be at least as useful as the Spergula for some purposes, such as greening rough banks, &c. Some of the beds containing mixed groups of choice Thujas and other Pines in pots (ready to be sold off and replaced) were edged with the best hardy Sempervivums and Sedums, and were indeed very ornamental and interesting.

Many acres of Strawberries and other small fruits are grown for the Dublin market, with abundance of vegetables and general nursery stuff, the cropping, &c., being so arranged that there is a continuous weekly series of returns from the Garden-Farm throughout the year. In December, January, and February, from the nursery department, by the sale of fruit trees, Pines, shrubs, &c.; in March, April, and May from the sale of vast quantities of Rhubarb, forced Strawberries, and other spring garden crops; in June, July, and August from Raspberries, outdoor Strawberries, small fruits of various kinds, and vegetables; and in the three remaining months from house Peaches and Grapes, Pears, Apples, and Plums, with of course general crops of vegetables.

The work of the place is chiefly done by lads and young men from 14 to 20 years of age, who are engaged as pupils for three years, and located within the gardens under Mr. Niven's discipline at all times.



SECTION OF MR. NIVEN'S VINERY.

A. Floor 3 steps below Ground Level
B. Wooden Trellis
C. Ground Level
D. Drain Pipe
E. Inside Border and raised Beds
F. Outside Border.

From amongst them two foremen, one for the indoor and the other for the outdoor department, are usually selected. I should say this is a capital course for a young gardener to begin with, as market garden work is generally a mystery to gardeners; and so is often the knack of packing, and the generally useful "nous" acquired in a good nursery, except to those who have gone the round of the London and other great establishments. The peculiarities of vegetable culture at Drumcondra would be well worth recounting for the benefit of gardeners, young and old; but I had not time to get accurate particulars. It may, however, be noted that the suds from a great washing establishment adjacent, is a very active agent which Mr. Niven carefully conducts to many of his crops.

Some rather new houses furnished the greatest novelty, one large orchard-house being very effectively heated by earthenware pipes with cemented joints; but the most remarkable houses were not artificially heated, except by using in spring a small American stove in each to prevent danger from frost at that season, and yet displayed excellent crops of Grapes and Peaches. They are span-roofed houses, having the pitch of the sides and roof adjusted so as to receive the sun's rays at nearly right angles during the whole day. The roofs are fixed, little top air being given but by the spaces over the doors, and some moveable panes in the top near the centre, but the side ventilation is very efficiently and simply effected by having a long light board with openings at regular intervals, sliding in a groove exterior to the similarly perforated, but of course fixed side of the house. The Vines feed in the outer and inner borders, and along the centre a path is sunk 3 feet deep, while at 2 feet high on each side there is a narrow step on which to place a single row of fruit trees in pots, the remainder of the space between these plants and the glass on each side being devoted to early Strawberry work and similar uses, for which it seems well adapted. A house of Peaches more than 100 feet long, built in this way (the plants trained on the rod principle, fan-shaped, but with the carefully spurred rods of each plant allowed to cross those of its neighbours, thus making a sort of open network for admission of light to the interior, fruit, &c.) displayed at the time of my visit a first-class crop of fruit in all respects, but this was by no means so astonishing as a Vinery of similar pattern. In it the Vines were trained horizontally, and the roof was literally covered with Grapes—not, it is true, as large in bunch or berry as those to be seen at the Regent's Park show in July, but good marketable fruit, and of the right colour too. So much has Mr. Niven done with glass, in the cloudy clime of Hibernia; and he told me of having matured the Muscat Grape without artificial heat in this way.

The latest house he has erected on this principle, with inclined sides, is a very handsome octagon, with Vines trained horizontally at wide intervals to admit plenty of light to the standard Peaches in the central bed. With Vines up the slender pillars, and festooned overhead, and furnished with benches for very dwarf trees in pots, and shelves for Strawberries, this house looked the most novel and prettiest of orchard-houses. These houses have been put up within the past four years, at an almost fabulously small cost, are quite ornamental, and I doubt not have already sent more produce to the Dublin fruit market than has sufficed to repay the cost of adding such pretty winter-garden promenades to the Garden-Farm—which is 30 acres in extent, all tilled by hand and with the "patent fork," and the labour and expenses of which Mr. Niven informed me averaged less than 200*l.* per annum.

The Winter Garden and Grounds of the "Dublin Crystal Palace Company" are very conveniently situated in the fashionable or "west" end of Dublin, within a few minutes' walk of the chief squares and best thoroughfares of the city, and within easy reach of all parts of it. There is a very large building for concert and refreshment rooms, and numerous other offices apart from the iron and glass division; but this portion, while forming the east, and I suppose general entrance front, will be completely hidden from the grounds by the winter garden, which, though not covered over when I saw it, was yet sufficiently advanced to show its capacity for rivalling under good management some of the best plant aspects of the Sydenham building. The garden, about 15 acres in extent, was, with the exception of the parts near the building, almost completed and planted.

To the east of the garden, bricks and slates were very conspicuous, and these Mr. Niven, the designer, has taken considerable pains to hide by raising sweeping irregular mounds on that side. The rustic, gardenesque, and geometrical styles of gardening are about equally displayed in the disposition of these grounds. The rustic portion—that most remote from the building—was finished or nearly so. Along the front of the Winter Garden is to run a terrace 500 or 600 feet long, which is to be "set off" in the best style with statuary, vases, &c. Descending from this terrace by the central walk, a chaste and ornamental though not over elaborate geometrical garden was in course of formation, with panels, fountains, &c., this occupying nearly the centre of the grounds. Beyond this Pines and shrubs began to appear, and the grounds to assume a mixed and easy character, till they merge on the left into the rustic style; in front into the sweeping banks before alluded to; and on the right into a deeply sunken oblong archery ground about 350 by 150 feet, which can be flooded in winter, and thus converted into a skating ground.

At the end of the central walk furthest from the main garden entrance to the Palace, the chief water display—a novel one—will occur. It will issue from a basin elevated about 26 feet above the level of the garden, and fall as a rusticated cascade from that height, covering about 25 feet wide of the precipitous rockwork, which will be hollied, and mossed, and saxifraged as much as possible about the water. The banks, contrived to shut out the "groves of chimneys," are raised against the back of this "elevated basin." A Turkish kiosk was being built, and there was a finished specimen of the inevitable but barbarous labyrinth. The south side of the garden comprehends a rosarium, American ground, rockeries, and rooteries planted abundantly with rock plants, &c. This portion is well done, and while giving a pleasing variety to the garden will also form a pretty sight from the galleries of the Palace. The free use of roots, however, I presumed to think a mistake; they are, for various reasons, objectionable except in very peculiar and rare situations; and in this case several of the rising banks looked a little too porcupinish. The main supply of water will be derived from the roofs of the various buildings, conducted into a large reservoir, which is made to afford an ornamental bit of water at the head of the archery ground, and thence is distributed by steam power to the fountains, cascade, &c., returning directly from these to the reservoir.

Considering that the site of this garden offered the least possible advantages to Mr. Niven, and that the ground is much too small in proportion to the Palace, though more was not obtainable—much too small, moreover, for a great garden, I could not but conclude that the best arrangements had been made to afford gratification to all sorts of tastes (that for flower shows, of which the garden is to be the scene, among them), and, in short, to make a very pleasant garden for the people of Dublin. There were no tender plants to be seen at the time of my visit; probably the palace is ready to accommodate them now, but till it is furnished and the gardens completed, it is scarcely fair to pronounce an opinion on the establishment. *Wm. Robinson.*

STRATIFICATION OF SEEDS.

This is the placing of seeds in layers, in the soil, or in sand, till the time of sowing them arrives, the object being to prevent the envelope of the seeds from drying and hardening, in consequence of which germination is liable to be injured or retarded. All seeds do not, however, require the same care. Stratification is chiefly necessary for the Cratægus, Mountain Ash, Cotoneaster, Cornus, Oak, Beech, Juniperus, Ivy, Æsculus, Rosa, Pavia, Pinus, Araucaria, Palms, Salisburia, &c., and generally all stone fruits, and those with hard coverings.

It is necessary in the first place that the box or vase intended for the seeds should be well drained. The seeds are then arranged as follows:—first, a layer of seed, then one of fine sand, or dry light soil; again, a layer of seed, then one of sand, or soil, and so on in alternate layers. The vase is then covered with glass, slate, or a board, so that insects may not get in; and it is then placed in a cellar, or better, in the open ground, at a depth sufficient to be out of the reach of frost.

Towards the end of February the seeds are examined. If at this time no signs of vegetation are apparent, a slight watering is given, and the vase is returned to its place, and some days after the seeds are again examined. They ought then to be swelling, and several of the germs ought to be bursting their envelopes.

The seeds should now be sown. For their reception some light fine soil should be previously prepared. In sowing, care should be taken not to break the germ of those that have pushed. The whole should be covered with a layer of vegetable mould, of greater or less thickness according to the size of the seeds, the smallest requiring to be but just barely covered. The mould is slightly pressed with the back of the spade, covered with a light straw mat, and then watered through the rose of a watering pot. The watering ought to be frequently repeated in dry weather, for if the seeds become dry in the soil, they lose their germinating powers.

I have mentioned the principal kinds of plants of which the seeds require the process of stratification; the others may be preserved in their natural envelopes, or in bags. But they ought to be kept in a place dry and airy, and in the dark rather than exposed to much light; and it is well to steep them in water for a night at least before sowing.

The seeds of aquatic plants require the same care; but in steeping them the water should be mixed with fine sand, and a little powdered wood charcoal. All seeds that are steeped should be sown as soon as they are taken out of the water. Stratification renders the germination of seeds more quick and certain. *Th. Denis, Curator of the Botanic Garden, Park de la Tête-d'Or, in Revue Horticole.*

Home Correspondence.

Castle Kennedy Fig.—In your Paper of the 3d inst. "S. B.," in speaking of this Fig, says:—"I would suggest that if any of your readers think of investing their money in the purchase of a plant, they had better satisfy themselves that it really differs both from the Brown Turkey and the Brunswick, which have already figured under so many names." By way of reply, I beg to inform "S. B." and your other readers, that there can be no reasonable doubt that it is neither the one variety named nor the other, for it not only differs, but that very greatly, both in size, flavour, and appearance, from both kinds alluded to. We have these two varieties of Figs growing side by side in the same house, all planted out and receiving the same treatment for these last two years, where they can be seen by "S. B." or any one else interested in the matter, next summer when in fruit. The Castle Kennedy appears as distinct from either of the Figs named, as a Ribston Pippin Apple is from a Keswick Codlin. The Castle Kennedy Fig is of a pale chestnut colour, growing on an average one-third larger than the Brunswick, which is one of the largest Figs in cultivation. I may state that last summer I weighed some of the largest specimens of fruit grown on two large plants trained against the back wall of one of the Fig-houses here, one of which is a Castle Kennedy, the other a Brunswick Fig. The largest Castle Kennedy Fig weighed nearly 7 ounces—two of a dish sent to Edinburgh for exhibition weighed upwards of 13½ ounces; while the largest Brunswick weighed only 4½ ounces—both trees being in full health and under similar treatment. All that is known of this Fig is already before the public. It has been shown at Edinburgh, Glasgow, and elsewhere: and as yet I have not met with any one who could name it, or say that it would not be an acquisition were it introduced into general cultivation. *Archibald Fowler, Castle Kennedy, Stranraer.*

Pampas Grass (see p. 1158).—We have here a good plant of the brown variety of this Grass, which this autumn has thrown up 99 beautiful spikes about 8 feet high. It was planted in the autumn of 1860 along with some shrubs on a mound raised about 2 feet above the ordinary ground level, and consisting of fresh stiff loam with clay underneath. Although very much exposed it has never had the slightest protection. The coachmen who used to drive between Hull and York, said that ours was the coldest place they passed on their journey, and there is no more shelter now than there was then. Our specimen has never been watered since it was planted, although our soil is liable to shrink in dry weather; it did so last summer, fissures taking place in it two or three feet deep, and two or three inches wide. I may add that this Grass has been admired by all who have seen it. *P., Hull.*—We have three plants of this fine Grass here, all that can be desired, planted on small banks of soil 18 inches high, each plant having about four barrow-loads of mould to itself. They have succeeded most satisfactorily. They get water twice a week during summer, but no protection whatever in winter. We think that climate has more to do with success than soil, as plants of Pampas Grass do well in any situation in the south of Hants. *Lymington.*

New Roses.—I have just received from M. Eugène Verdier one Maréchal Niel, on a standard Briar,—the wood is strong, denoting a good constitution. Also six on Manetti, of my namesake, Rushton Radclyffe, thus named by myself for brevity; they are capital plants; the wood is strong and healthy, and of the character of John Hopper, but a little twisted and more beset with thorns. I hope it will be a good Rose and please the "fancy." The pictures of Maréchal Niel, La Duchesse de Morny, and King's Acre have also been received. They are all very beautiful in the portraits, which I trust are faithful. King's Acre is a very superior Rose, globular, and of fine outline. La Duchesse de Morny is transcendental. If Maréchal Niel turns out equal to the portrait, it will shake all the yellows known. *W. F. Radclyffe.*

Poor Man's Friend Apple.—At the last September fruit and flower show at Brighton, I saw an Apple bearing this name; it was a splendid looking variety, equal in appearance to Lord Suffield or Reinette du Canada. I have not seen this name in any Nurseryman's Catalogue; perhaps, therefore, some of your Brighton Correspondents could inform me if Poor Man's Friend is a provincial name for another kind of Apple or perhaps the exhibitor might add some information respecting it. The finest specimens of Apples and Pears I ever saw, were shown this season at Brighton. *W. Brown, Merevale Hall, Atherstone.*

Hazard's Plan of Heating.—Can any of your correspondents inform me where Mr. Hazard is now living? After being 16 years in operation, my apparatus has taken damp, and one side has rusted and must be recast. The principle of this method of heating is the best I have seen, where a great degree of heat is not required, and perfect safety is essential. Mr. Hazard was living in Bristol when I first knew him, and then in chambers in St. Martin's Place, Trafalgar Square, London, but he has long since left both places. His method consists in warming currents of air admitted from without, but not "burning the air" by passing it over the heated body of the stove. *M.*

Ivy.—On reference to my scrap-book of last year, I find a note to the effect, that while on a visit to Kenilworth on Sept. 17, I noticed a fine old specimen of Ivy on the outer wall, left-hand side arriving from the lodge, and on measuring the stem, leaving one-third for the part closely attached to the wall, I found its circumference to be rather more than 8 feet. *James Ponsford, Loughborough Park Nurseries, Brixton.*

Spots and Burns.—Your observations on this subject remind me that some years ago I observed in my orchard-house that many Peach leaves were dying from their tips. The extreme point first became brown, and the leaf gradually died onwards, the part still unaffected appearing green and healthy. I sent you a leaf, and one of your Correspondents suggested that the evil originated from watering the plants with hard water. I also showed the leaves to some of our best living authorities, but they were unable either to tell the cause or suggest a remedy. I had no resource, therefore, but close examination and experiment, and these led me to the conclusion that the mischief was caused by the drops of water which hung on the tips of the more dependent leaves when they had their syringing at half-past 7 in the morning. It further appeared that when the tip was once killed, the death of the leaf progressed as a matter of course. For some time I felt unwilling to admit this solution, as morning syringing is prescribed both by Rivers and Pearson, and neither they, nor any other orchard-house cultivators seem to have experienced any evil from it. Their ventilation also commences, I presume, like mine, about 7 A.M. But desirous of testing the conclusion to which I had come, I omitted this year all morning syringing, and substituted a copious watering of the borders and paths, which was repeated in the middle of hot days. The plan has succeeded perfectly. Evening syringing was continued as usual. *S. B.*

Prize-taking at Horticultural Exhibitions (see p. 1181).—I am glad to find from "G." and "N.'s" letters (the only champions in favour of the present system) that my arguments were so unanswerable they were obliged to fall back upon the £ *s. d.* part of the question, as if I had written for the sole purpose of transferring the trifling money awards from the gardeners' to the masters' pockets! They have but beaten the air, as I have always considered it reasonable and proper the gardeners should receive the money—as a gift however, and not as of right. All I advocate is an alteration in the metropolitan system of placing the gardeners' names "first" on the prize cards, instead of that of the masters, and I still contend that the plan of placing the cart before the horse is inimical to the increase of gentlemen exhibitors, and consequently detrimental to the interests of nurserymen and gardeners. The rule at the leading country exhibitions is to award the prizes to the masters, placing the servants' names beneath; and I assert that were the masters to be ignored and country exhibitions to become a gardeners' concern alone, most of them would speedily come to grief. The "cart before horse" system must work injuriously when we find, as "N." states, some gardeners actually obliged to purchase the new flowers out of their own pockets to enable them to compete on equal terms. Were the master's fancy engaged, and were his flowers entered as of right in his own name, such necessity would no longer exist, for he himself would eagerly purchase all the new flowers, and his man would no longer be tied down to work in his "own time," but would receive every possible and needful assistance. I agree with "N." in thinking it absurd for a master to order his man when to sow Mustard, or when to fire the Vines, and for this reason: that the master keeps and pays an intelligent man for that purpose, and expects him to do his duty without telling; but because the man grows the Grapes to the best of his ability, as in duty bound, is he thereby justified in looking upon them as his own property, and in entering them at the Royal Horticultural Society and Crystal Palace in his own name instead of his master's? "N." states, that were the prizes awarded to the masters, then Mr. B. would not exhibit his plants against Squire C.'s if they were not up to the mark. Can a stronger argument be urged against the present system? Mr. B. now allows his plants to be exhibited, be they ever so ill grown, not caring in the least whether they obtain a prize or not, looking upon the exhibition as a mere gardeners' affair; whereas, were they entered in his own name he would take special good care they were up to the mark, and would be delighted at beating his neighbour Squire C. As it is, Mr. B.'s gardener shows his master's plants, though not fit for exhibition, enticed by the hope of the money award alone. Again, "G." says: let the gardeners receive the credit and money as at present, and let the masters be content with their share of the "spoil," (as he most appropriately and elegantly calls it,) in finer fruit and more beautiful flowers. Can there be a greater fallacy? Is it not a well-known fact, that as a rule, where growing for exhibition is the order of the day, except the fruit and flowers so grown, the remainder go more or less to the wall? Very many gentlemen will not allow their gardeners to exhibit, as, receiving none of the credit, they nevertheless reap all the expenses and inconveniences attending "growing for exhibition;" but give them, as I advocate, a direct interest in the matter, and these inconveniences and drawbacks will no longer be allowed to weigh, but, like Lord Walsingham and Mr. Foljambe, who send their sheep for exhibition to London, Birmingham, and Liverpool, they would derive equal pleasure and gratification with these gentlemen in seeing themselves in a leading position among the "Florists" of England. *Florist.*—Will you allow me to make the following remarks on this subject. I conclude that "Florist" is a gentleman amateur, and in that position he has an undoubted right to the honour and prize-money that may be awarded to his productions; his gardener or handy man merely follows his instructions, or possibly "Florist" may execute some portion of the work himself: in either case no responsibility rests with the man, therefore he can have no right to the prizes. But the same rule does not apply to establishments that are in the care of head gardeners. By such men are grown the fruit and flowers that grace the platforms of the principal London exhibitions, and the tables of the gentlemen who employ them; these productions are cultivated under their direct superintendence, and no head gardener would maintain his position unless he was equal to these duties. Be it remembered that all expenses of transit to and from exhibitions, let the distance be ever so great, are borne by the gardener, so that if he takes the prize money, it sometimes scarcely covers his expenditure. If "Florist" considers it beneath his dignity to meet a respectable gardener as a competitor in an open show, let an alteration be made in the "prize cards" to meet his views. Let the employer's name and residence be placed first, and the gardener's name in brackets, for it is an honour to both—to the employer who can send such specimens of horticultural skill from his garden, and to the gardener who knows how to grow them. *W. F.* [This is exactly what "Florist" urges. Other letters on this subject are necessarily deferred.]

Paxton Houses.—Do these answer equally well whether set from east to west or from north to south? *A.*

Mushroom House.—I believe you would oblige many if you gave detailed specifications of a thoroughly good Mushroom house, with bed for Seakale and Rhubarb. I have just put up a Mushroom house, and am not successful. *A.* [A plan of a Mushroom house, reported to answer perfectly, may be found in our volume for 1845, p. 99; it is, however, span-roofed. All that we have ourselves seen have been lean-to's, placed against a north wall, as at the Royal Gardens, Frogmore, and elsewhere.]

Gate Posts.—For the information of your Correspondent (see p. 1158), allow me to state that I find Spanish Chestnut the most durable of any wood for gate posts; it will last in the ground nearly as long again as Oak. I also find it equal to Oak for any purpose where bulk is required, and it is much more easily worked than Oak. Some 50 years ago a common was inclosed in this parish, on which was growing a quantity of Spanish Chestnut, whose tops were used for gate posts at the inclosure, some of which are still standing. I object to stone, because it is liable to be broken if a heavy load is driven against it—not an unfrequent occurrence. To any party purchasing I should say, buy wrought-iron gates and posts, they will be found the cheapest in the end; but on a well-timbered estate the less saleable portion of the wood can be converted into posts at no great expense. *Geo. Blake, Ombersley Court, near Droitwich.*

Joining Ligurian Queens to English Bees.—Introducing queens to fresh hives is always attended with risk, and I cannot find out the reason why one hive will sometimes not accept a queen that is offered to it and another stock will, while the hive that rejected the first queen will gladly accept another if given to it almost immediately afterwards. I had a case a short time ago illustrative of this point. Having imported several of the most beautiful Ligurian Queens that could be found in Europe, I placed one in a box, having a perforated zinc communication, for some hours on the top of a stock from which the queen had been removed two days. I then admitted to the box one bee at a time, and they behaved very well until half a

dozen had joined the queen, when they seized and attacked her, and I could not separate them from her without taking her up in my fingers and actually pulling the bees from her. This took place four times, when, seeing that the bees would not accept her, I put her over another stock, and when I admitted the bees in this instance they received her joyfully. I then offered the stock that had rejected the queen in question another of the imported Ligurian Queens, and in this case the bees received her in a friendly way, and conducted her in triumph into the hive. If some of your Correspondents could throw any light on this, to me apparent mystery, I should be obliged. *William Carr, Clayton Bridge Apiary, Newton Heath.*

Depredations of Mice in covered Vine Borders.—As it is the practice of provident gardeners at this season to cover their Vine borders with dry leaves, and these with a tarred cloth or some other contrivance to throw off heavy rains, I think it desirable to record an incident which occurred on the border of my Vinery last winter. Out of eight Vines, six were entirely killed, and two others were so much injured that they produced late in the season only very slender shoots. I was much surprised at finding the Vines did not break at the usual season, subjected as they had been for many years to the same treatment and covering in all respects. On a careful investigation it turned out that mice had established themselves in the bed of leaves for their snug winter quarters, and had barked the Vines just above the earth, five of them of nearly 20 years' growth. As respects the two Vines which showed some signs of vitality, the stems were not entirely denuded; but a small strip of bark only was left untouched. As the destruction of Vines in full bearing is a very serious loss, and the practice of similar covering is most commendable, I would recommend in such cases, that the surface of the soil should be drawn away from the stems of the Vines for a couple of inches in depth, the stem then coated with tar just under the surface, and for a space of an inch or two above the covering, and the soil returned, mixed with a little broken glass around the stem. On bringing our Peach, Apricot, and other trees in pots, placed at rest under a shed during the winter, into an orchard house in March, we found they had all been attacked by mice in the same way to a considerable extent, and were materially injured, though not actually killed. *C. Lawrence, Cirencester.*

Protecting Grapes from Wasps.—I may describe a very successful mode which I adopted this season for protecting Grapes under glass from injury by wasps and flies, which were so numerous last autumn, and which are generally so destructive to ripe Grapes. My orchard house is one of Paxton's, with ventilators at intervals, folding back from top to bottom, with a division in the centre, and with wooden shutters at intervals in the brickwork on which the glass roof is supported. I had perforated sheet galvanised iron, very thin, fitted into each opening of the upper ventilators, and also over the openings under the wooden shutters, and kept the lower sections of the glass ventilators always closed when the Grapes began to ripen. The openings left for the racks to open and close the upper ventilators were stopped with wool. This being the third winter since this house was planted, we fortunately had a very fine crop of Grapes to supply the failure of the old Vinery, and not a single wasp or fly has been seen in this house since the first Grapes were ripe. *Charles Lawrence.*

Broccoli.—Your report of the Royal Horticultural Society's International Show of Fruits and Vegetables at South Kensington is both interesting and instructive, and I have no doubt that many gardeners like myself who had not an opportunity of seeing the show in question, had much pleasure in reading the report, which with one exception is, to me at least, very satisfactory, and that exception is the Broccoli. Your report states that the Broccolis "appear to be one sort, although Snow's, Osborne's, Walcheren, and other names are applied to them. Now, here we have side by side, and all planted on the same day, Snow's, Osborne's, and Backhouse's Winter White Broccolis, and they are distinct in appearance from one another as Sangster's No. 1 Pea is from the Blue Prussian or Ne Plus Ultra. It would therefore be conferring a favour on many inquiring gardeners if the exhibitors who carried off the First-class Certificates for Broccoli, would give the correct names of the sorts in their respective lots. I may mention in passing that the centre leaves of Osborne's are damping off with us; is this the case generally, or is it only local? *An Inquiring Gardener.* [What was intended by our reporter, was that the samples shown under the names quoted were alike; not that the varieties themselves were so.]

Fearnought Cabbage (see p. 1156).—This variety of Cabbage, recommended for its hardiness, proved last winter to be more tender here than any other kind, not excepting even the "Couve Tronchuda," by the side of which it was planted; for while the former was so completely killed as not to push even a few sprouts in spring, the latter suffered but little. It formed good compact heads in the autumn, but they rotted directly the frost came, although the thermometer at 5 ft. from the ground never registered more than 15° below the freezing point. *Thos. Woodford, Eastwell Park, Ashford.*

——The Fearnought Cabbage and Brussels Sprouts were the only varieties of the Cabbage tribe that stood the severity of the winters here both in 1862 and '63. All Broccoli, Savoys, and even German Greens were killed, while the Fearnought feared nothing. In severe weather I found it very difficult to protect it from pheasants and wood-pigeons. At table it is a delicate tender vegetable, notwithstanding its rough sportive appearance in the garden; and, in a cold damp climate and soil like ours, I have found it a great acquisition. *J. L., Balgowan, Perthshire.*

Societies.

Botanical of Edinburgh: *November* 10.—Prof. Balfour, President, in the chair. Mr. John S. Muir, Leith, was elected a member. Among the donations to the Museum were:—A sample of leaf tobacco as used by the Indians of the East African coast; Tobacco cultivated and manufactured by the people of Lake Nyassa; specimens of native Cotton; bark cloth; wood of a small Euphorbiaceous tree, called Mokunite by the natives; and several other valuable woods from the lake districts of Zambesi, all from Dr. Kirk; and a bronze medal struck in honour of Prof. Philip von Martius, presented by the Academy of Sciences of Munich.

The President, in his opening address, congratulated the members on the continued prosperity of the Society. Uniting as it did advanced botanists and junior students, it had acted most beneficially in promoting the cause of botany, and in diffusing a taste for it. He observed that during the past session, papers had been read on structural, physiological, systematic, economical and fossil botany; accounts had been given of botanical excursions and of additions to the flora of Edinburgh; and records had been kept of the state of vegetation in the Botanic Garden. Extracts had also been read from correspondence in various parts of the world—more especially India, Africa, Canada, Demerara, and Columbia; and some of the junior members had given abstracts of valuable botanical papers published in foreign journals. He adverted to the valuable paper by Dr. Alexander Dickson on diplostemenous flowers, in which the mode of development of the staminal whorls in several natural orders, especially the Malvaceæ, was pointed out; also to a practical paper on the fertilisation of Orchids, by Dr. Rutherford, who had recently graduated at the University; to an elaborate paper on Canadian Ferns and filicoid plants by Dr. G. Lawson, now Professor of Chemistry in Dalhousie College, Halifax, Nova Scotia—who was long connected with the Society as assistant-secretary, and who, compelled by the want of management on the part of the University of Queen's College, Kingston, Canada, to resign his professorship there, had, he hoped, acquired a better position in Nova Scotia; and to papers on the sexual changes in the inflorescence of Zea Mays, and on the sexuality of the higher cryptogams, by Mr. John Scott, lately foreman at the Botanic Garden, whose experiments were conducted with great care and ability, and who had now gone to India under the auspices of Mr. Darwin. It was pleasing, he said, to find a gardener thus raising himself in science, and acquiring a merited reputation for accuracy of observation and correctness of detail. His papers on the fertilisation of Orchids attracted the notice of Mr. Darwin, who was thus led to encourage him in his researches, as well as to advance his prospects in life. The curious researches on the hybridity of plants by Naudin had been given in English by Mr. Lowe, a zealous botanical student; while another student, Mr. R. Bell, had replaced Dr. Lawson at Kingston. The cultivation of Tea, Cinchona, and Cotton continued to attract much attention, and the reports which had been received from our Indian possessions drawn up by Dr. T. Anderson, Mr. W. Jameson, and Dr. Alexander Hunter (all former Edinburgh students), had been most satisfactory. From the Botanic Garden had been sent to India within the last few years five or six gardeners, brought up chiefly under the direction of Mr. M'Nab, the able superintendent; these men were doing credit to the garden as a school of horticulture as well as of botany. We have had the pleasure of welcoming back our friend Dr. Kirk, who accompanied Livingstone in his explorations, and who has given us an excellent account of the products of Zambesi and of Southern Africa. As regards the localities of plants, we may record the addition made to our flora in the finding of Goodyera repens at Dalmeny by M. Claudio L. Serra. It was remarkable that a Portuguese student should thus discover a new plant in a district which had been so well examined by Scotch botanists. The same thing might be said of the discovery of Asplenium viride, near Cramond, by Dr. Carruthers. This year two new localities had been found for Corallorhiza innata—one of them by Dr. Dickson, and the other by Mr. Sandilands. During the past year 13 ordinary members had been added to the list, and one foreign member. The total number of ordinary members was stated to be 335; of honorary members, 23; of foreign members, 81; of life members (ladies), 11; associates, 25—in all, 475. The Society had lost five members by death during the year. Dr. Balfour then proceeded to remark:—Edinburgh has long been famous for its School of Botany, and I believe that our Society was the first of the kind instituted in Great Britain. In 1670 a botanic garden was established in Edinburgh under the name of the Physic Garden—a name which is still retained in the locality where it existed. In 1676 a Professorship of Botany was instituted, and James Sutherland was appointed professor. At that time the collection consisted chiefly of medicinal plants, and the professor, besides his lectures, gave demonstrations on the plants in the garden. In a document in the possession of the Royal College of Surgeons, Sutherland appeals for the support of the garden, and intimates his willingness to give instructions in medicinal plants to the apprentices of Fellows of the College, and to others who are studying the articles of the materia medica derived from the vegetable kingdom. The science of botany was then in its infancy, and little was known of structure and physiology. The student had chiefly to study the external forms of plants, and to know their uses in medicine. One of the professors who succeeded Sutherland, Mr. George Preston, exercised his calling also as a druggist in Edinburgh. Dr. Hope gave an impetus to the study of botany when he succeeded to the chair, and he seems to have encouraged practical botany by offering a prize for the best herbarium of plants gathered within a limited district round Edinburgh, the Gold Medal for which was gained in 1782, by his pupil Sir J. E. Smith. Little, however, appears to have been done in the way of field work and of excursions with pupils, until Dr. Graham became Professor of Botany. In 1821 he made his first excursion to the Highlands, accompanied by Mr. William M'Nab. Dr. Balfour then gave an account of the extended excursions made by the Professors of Botany in Edinburgh with their pupils from 1827 up to the present date—including excursions to Clova, Glenisla, Braemar, Ben Lawers, Arran, Galloway, Hebrides, Sutherland, Ross-shire, Ben Nevis, Ben Lomond, Ben Ledi, Moffat, Cumberland, Northumberland, Ireland, Isle of Wight and Jersey, Switzerland, &c. After alluding to some of the recent discoveries in physiology, and remarking on certain strange materialistic statements on vitality which had recently appeared, he concluded thus:—I shall not attempt to enter on a review of all that has been done in botany during the last year. I have generally endeavoured during the session to give from time to time *resumés* of what is being done in different departments, and that plan I hope still to continue. No science is better fitted to call forth the power of observation in young men, and to give them habits of diagnosis and powers of description with accuracy of definition. Hence its value to all classes of the community, and especially to those who are about to enter upon the study of medicine. I say about to enter on that study, because I believe that the study of the natural sciences ought to precede purely professional study. Until that plan is generally adopted, we cannot expect that proficiency will be attained. The institution of degrees in science is calculated to encourage the study of the sciences, and all we want in our universities are fellowships in natural science to induce young men to devote their time and attention to such pursuits. We hope that the example shown by men of fortune of late in establishing fellowships in arts will be followed by others in the direction of science. All our researches in science, while they tend to foster the spirit of genial friendship, are at the same time well fitted to enlarge our views of the wondrous plan of creation, and when prosecuted in the right way, to lead us to contemplate the infinite wisdom, power, and goodness of Him who is not only the Lord of creation, but the God of all grace. Let us ever cultivate science and pursue our researches in the humble spirit of those who are seeking for truth, and not in the vain-glorious strain of those who wish to magnify their own views. Let our work be done with calmness and dignity, conscientiousness and charity.——The following communications were read:—1. *On the Position of the Carpellary Groups in Malope and Kitaibelia.* By Alexander Dickson, M.D. The author finds that the development of the androecium, as regards the evolution of the staminal lobes, is essentially the same in both genera. The androecium at first appears in both as an even rim-like cushion, pentagonal externally, surrounding the flattened termination of the floral axis, which appears as a pentagonal depression. The external angles of the staminal cushion in both genera alternate with the sepals. The essential difference between the arrangements in the two genera consists in this—that in Malope the five angles of the central depression are superposed to the external angles of the cushion: that is to say, the sides of the depression are parallel to the outer sides of the staminal cushion; while in Kitaibelia, on the other hand, the angles of the central depression alternate with the external angles of the cushion, the sides of the depression thus lying crosswise to the outer sides of the cushion. This is seen long before there is any appearance of the carpels. In both genera five pairs of lobes, alternate with the sepals, and extending longitudinally in a radial direction, are developed on the surface of the cushion, which, as development advances, grows up as the staminal tube. The carpellary groups form the sides of a pentagon, which in each genus correspond to the sides of the original central pentagonal depression or cavity of the staminal tube. These groups are opposite the sepals in Malope and opposite the petals in Kitaibelia. Payer had observed this difference between the two genera, but has inverted the statement of the facts. A somewhat analogous case occurs in the Tiliaceæ, where the staminal groups are oppositipetalous in Tilia and oppositisepalous in Sparmannia.——2. *On the Discovery of Trichomanes radicans in Arran.* By Walter Galt, Esq; communicated by Mr. John Sadler. The author doubts that this Fern is native in Arran, and tries to show that in

all probability it has been planted.——3. *Note on the Discovery of Asplenium viride near Edinburgh.* By Mr. John Sadler. The writer, in company with Mr. Naylor, had been shown by Dr. Carruthers, of Cramond, this Fern growing abundantly near that place. It was first found there by Dr. Carruthers in 1862.——A letter was read from Mr. W. Bell, dated "Botanic Garden, Saharunpore, 15th September, 1864," in which he says—"The heat of the weather here is a subject that the people in this district never weary of talking about. It is generally allowed that this season has been one of the hottest ever experienced in India. During the whole of July I never saw the thermometer lower than 88° at night, and sometimes as high as 95°, and during several days it averaged from 108° to 114° in the shade. I placed the bulb of a thermometer one day about 2 inches in sandy ground; in less than 10 minutes it rose to 142°. The rains were nearly a month later than usual, and it was generally expected that there would be another famine. In some districts there has been quite an average fall, in others more scanty. In this district there has been a good fall. The Rice crops will be fair, although rather late. The Cotton crop will also be late; the last commodity was selling at the rate of 1*s.* per lb., while a few years ago any quantity could be got for 2*d.* per lb."

Notices of Books.

The Vine and its Fruit more especially in Relation to the Production of Wine; embracing an Historical and Descriptive Account of the Grape, its Culture and Treatment in all Countries, ancient and modern, derived from the best authorities, and incorporating a brief discourse on Wine. By James L. Denman, London, 8vo, 1864. Pp. xii. and 346.

The work before us contains a vast mass of information, but it is very far from being as satisfactory as we hoped it might prove on opening the very nicely printed and neatly-bound volume. The style is occasionally pretentious, dealing in such phrases as idyllian scenery, immobile nihility, &c.; the language not always correct, as where the word fictile is applied to glass vessels, and not to pottery; and the science very faulty, as where the author speaks of "parasitical plants of the class *oïdio*," where he talks of varieties as species, while he seems to have no notion that the American Fox Grapes belong really to a different, or different species from what may be called, though not with strict correctness, the European Vine; or again, where he uses such loose expressions as the "gas being compressed by chemical affinities," "mouldy zoophyte," instead of mould, &c. Such mistakes as "mucidines" may charitably be considered as errors of the press. The information on especial points is sometimes, if not incorrect, at least defective. No allusion, as far as we have seen, is made to the works of Mr. Forrester, who so unfortunately perished by the upsetting of a boat about two years since, though they abound with the most valuable information. The account that Mr. Forrester gives of the origin of using jeropija in the preparation of port wine for the English market, a practice which has entirely done away with that first-class wine which used formerly to be so much admired in this country, and the remainders of which command such a high price whenever they appear in the market (16*l.* per dozen having been given not long since for wine of the vintage of 1820) is we believe the true one, and may be contrasted with the more general one in the volume before us.

"The taste which has gradually led to this state of things probably was good, and occasioned by an extraordinarily fine vintage, such as that of 1820, when all the wines were naturally unusually full, sweet, and highly flavoured. The merchants, finding those wines much sought for, insisted upon having the like in all times; and as such wine could seldom be obtained pure, seasons so fine being extremely rare, recourse was had to adulteration (*that* after all *is* the right phrase) to produce something like it, for what the purchaser demands, good or bad, somebody will always try to furnish; and the struggle among many of the exporters (the larger number it is to be feared if not the most considerable persons) was to send wine, each fuller, sweeter, and higher coloured than that of his neighbours."

For this manufacture of the jeropija (called by Mr. Denman geropiga, and which he describes as a mixture of brandy and fresh must) Elder bushes are largely cultivated and often surround the vineyards. The mixture is made as follows: to 56 lbs. of dried Elder berry and 60 lbs. of coarse brown sugar or treacle, add 78 gallons of unfermented Grape juice and 39 gallons of the strongest brandy. Each pipe of wine has an addition of from 6 to 18 gallons of jeropija, and is then considered fit for the English market, and none receives a first-class certificate which is not more or less doctored.

Large quantities moreover of jeropija are imported into this country, and spurious port wine is very extensively manufactured by the mixture of it with cheap white wines. A variety of interesting details will be found in Mr. Forrester's works, which certainly might have been consulted with advantage.

We do not find the correct method of distinguishing good from indifferent brown sherry at all noticed. Brown sherry, it is well known, does not derive its dark tint immediately from the Grapes of which it is made. The paler sherry is either browned with burnt sugar, or with a mixture of sherry boiled down till it has acquired a dark tinge. The latter plan is the only one which is admissible in a first-class wine store. Where the wine is browned with sugar a disagreeable flavour is always left upon the palate, while this is not the case where boiled sherry is used.

Our author mentions the Raspberry flavour which is possessed by certain wines. We believe that where this is the case, the Isabella Grape enters very largely into their composition.

He speaks of powdered sulphur as a remedy for Vine mildew. This is not correct. Powdered sulphur will often be found quite inefficient; the true remedy is sublimed sulphur, the particles of which have frequently a portion of sulphurous acid clinging to them.

The wines of Upper Turkey are omitted altogether, though good ones are made in some districts. We have received some excellent wine in wooden bottles from Servia, which might compete with good Burgundy. Some details might have been given as to the deficiency of tartar in certain years, and fraudulent substitutes. We might add more on the score of indefinite or erroneous statement, but we have said enough to vindicate our good faith as critics. We prefer giving some notice of the contents of the volume, and an example of the more interesting matter.

The work then, commences with some general observations on the Vine, together with notices of the character of ancient vintages, and customs connected in early days with the use of wine; the character and qualities of modern Vines succeed; and then, in separate sections, notices of the wines of the several Vine-growing countries of Europe, South Africa, Madeira, and the Canaries, of Persia and other Asiatic and Australian countries, and finally of those of America. The foxy taste of most varieties of American Grapes will probably prevent the wines of the United States ever becoming first-class wines, though some of them command a high price. American Vines when introduced into Europe have the advantage of seldom if ever being attacked by the Vine Mildew, though they are not without their own share of diseases. European Vines do not succeed well in America, and are subject as at home to the Vine mildew.

As a favourable example of the kind of information to be found in the volume before us, we shall extract a portion of what is said about champagne.

"Perhaps there is no production of the soil that requires more care than the Grape, to make it yield those delicious wines in full perfection, and this may be the main cause of a standing complaint against champagne, that it cannot be obtained of uniform quality, which moreover will never be obviated by the mistaken practice of tunning it into barrels of 160 litres only in size. The wine of each separate cask must and will vary, for the minutest change in the process of development affects in some degree the precision it is wished to attain.

"Great skill and attention are employed to meet the difficulties arising from the circumstance that the wines do not ripen uniformly. Some will effervesce after being in bottle 15 days, others will demand as many months. One wine will require a change of temperature, and must be brought from a deep cellar to another on the surface; a second will not exhibit a forward state before August; another kind when patience is exhausted, and the expected development is almost hopeless, will flush up all of a sudden. The difference of the spot of growth, the mixture of fruit, the process in making, the storing and preservation in the wood, the glass of the bottles, the aspect, depth, and ventilation of the cellar, all have a varied and often inexplicable influence on the phenomena of effervescence.

"In the sparkling kinds the strength of the bottles and their uniform thickness are carefully ascertained. They must be new, are closely examined and jingled together in pairs against each other, and every one with an air-bubble in the glass, or with too long or too narrow a neck, or with the least imperfection or malformation, is put aside. The bottles when carefully and expeditiously filled are laid horizontally in piles 5 or 6 feet high. They are first placed in the coldest cellars, and afterwards gradually removed to warmer temperatures. In July and August considerable breakage happens, occasioned by the expansion of the carbonic acid gas, and a loss of 4 to 10 per cent. is usually occasioned. Sometimes however it amounts to 30 or 40 per cent."

Speaking of Hungary, which we have no doubt is some day destined to supply our market with a very large quantity of excellent if not first-rate wine, our author remarks that the vintage there is later than any where else in Europe, and it is generally deferred till the first three weeks in November, when the weather is not only cold but snow even has fallen—indeed at the very last moment, just before the winter frost sets in, and at the risk of losing all; for this primitive people are such sticklers for quality, that they would rather have none than not have the best—their axiom being that if the sun of summer ripens the Grapes, it is the cold of autumn that perfects the wine.

This delay is often attended by impunity, as the late autumn is usually dry, but from a letter received a few days since from Transylvania, we learn that this season has proved extremely disastrous to the vintage from the excessive rains.

The object, undoubtedly, of a late vintage is to get rid of as much water from the fruit as possible, an object which is sometimes attained by twisting the stalk a short time before the Grapes are gathered.

Had we room, many interesting passages might be quoted, but we must content ourselves with simply referring to the section on the wines of Greece and the Western Archipelago, as containing a good deal of matter of general interest.

Where there is so much worth reading we are sorry to have felt obliged to find fault; but should another edition be called for, which is not improbable, it would be worth while to get some scientific friend to revise those parts which require an especial acquaintance with the objects of which they treat, while a little more care in the construction of sentences, and the weeding out of a few more or less affected phrases, would make the perusal of the volume a far more grateful task, added to which we would recommend a copious index, which would greatly increase the usefulness of the work.

Dictionary of Geography and Gazetteer of the World. By Alex. Keith Johnston, F.R.S.E., F.R.G.S., F.G.S., &c. New Edition, revised to August, 1864. Pp. 1402, printed in double columns. Longman & Co.

It is no easy task to estimate the accuracy of a Gazetteer, for there are few places that one knows sufficiently well to give at once their acreage and population, their latitude and longitude, their imports and exports, and manifestly it is not quite fair to expect, that every insignificant and out of the way place in the whole world should be found in such a dictionary; and yet the beaten track must be departed from, if one would apply any real efficient test.

Okak and Hebron are stations of those devoted missionaries, the Moravians, on the coast of Labrador. They are places, it is true, of no commercial importance, but still they are interesting, and almost the only settlements on that inhospitable shore. They are not mentioned in the Dictionary; but the omission may be considered no great fault.

Some of our friends passed a part of their vacation at Sixt and Zermatt, in Switzerland. These are small places, it is true, but they are well known to most English tourists, and we find them in the map, on the same parallel, but not in the Gazetteer. We have friends at Kineton, in Australia. It is one of about eight large towns in the diocese of Goulburn; but no mention is made in the Gazetteer either of the town or of Goulburn.

In India we fared better, for often after a long search under some unusual form of spelling the place looked for turned up at last, but Coonoor, Vepery, and Nagode baffled us altogether. It is possible that the latter, which was once of importance as a military station, is so no longer. Still, in the recollection of Sir John Lawrence's "durbar," we did expect to find a local habitation for our good ally, the Rajah of Jheend, who did so much service to the British in their hour of need, and had deservedly a place of honour at that great reception. At home omissions are rare. We miss however Little Faringdon, a parish of Berks, near Lechlade, and Great Faringdon is stated to be in the valley of Whitehouse, a misprint for Whitehorse, and a new corn exchange which really belongs to this little market town is assigned to a very small village of the same name in Hants; no mention is made of the fact that Great Faringdon is connected with the Great Western by a branch railway.

Chichester is spoken of as communicating with Portsmouth and Arundel by a canal, which a friend from that city assures us it did, probably 30 years ago. He says also that there are no longer 22 parishes in Sussex which are peculiar, for peculiars were abolished about 10 years ago by Act of Parliament. Lowestoft is said to have as edifices a church, a free school, assembly rooms, &c., whereas it certainly has three churches; its theatre and assembly rooms, if any exist, cannot deserve a pompous announcement, nor the "two forts and battery" by which the town is "defended."

It is an invidious thing to speak at all disparagingly of a work, which, on the whole, must prove extensively useful, and which must have cost an infinity of labour. It must be repeated, that a Gazetteer, in one volume, cannot contain the name of every place in the world; but the information which it does give, ought to be correct.

Garden Memoranda.

THE EARL OF SEFTON'S, CROXTETH HALL, NEAR LIVERPOOL.—Croxteth Hall is situated in the centre of a very large park, which may be said to be bounded by the suburbs of Liverpool on the one side, and by the co-extensive park and domain of the Earl of Derby on the other. A very handsome Gothic lodge, recently built, having all the appearance of comfort and size in the interior—a desideratum by the way too much ignored in many similar erections, with an equally handsome gateway, forms the entrance to the park on the road from Liverpool. An approach drive, laid out with considerable taste, so far as graceful outline is concerned, but far too narrow and contracted for the length

and breadth of the park, leads up to the mansion. These narrow approaches are a cardinal mistake, and almost invariably meet the eye in all large domains, having a tendency to contract and dwarf the effects of park and pleasure ground scenery, however well conceived and carried out.

Forest trees in the locality do not seem to attain any considerable dimensions. Doubtless the want of shelter has something to do with this, but even in dense plantations, where one tree shelters another, the timber is not remarkable for size. The pernicious influences of the sea breezes from the west are apparent, every tree at all exposed being comparatively scanty of branches on the windward side, and all inclining to one direction. The outskirts of the park present a large pasturage surface, fully establishing that the visitor is entering upon grounds laid out and embellished to present the most pleasing aspect; while the swarming herds that feed on its surface convincingly show that agriculture has been carried to a high state of perfection.

From the level nature of the country the eye commands a large portion of the landscape, that until lately has not been wooded to such an extent, in the foreground especially, as is characteristic of many fine old places. Quite recently numerous irregular clumps have been introduced over the surface, and planted with such trees and evergreens as are most suitable for the locality, and sufficiently thick to nurse and shelter those intended to be permanent. Scotch Fir seems to be largely employed in the South for this purpose; but, as most foresters are aware, this fine tree, when fast grown, produces worthless timber—so different to the specimens that are grown in the Highlands, and in fact in the greater part of Scotland, where the wood grows so consolidated as to be a most valuable timber, tough, and quite full of turpentine and resinous matter. This tree is never more at home than when its roots penetrate the clefts of rocks, and where soil forms only a thin stratum, living like a parasite in bleak exposed altitudes. Larch is better adapted for nursing general plantations, because it can be cut out and made into durable fences in less time and to better purpose than any other wood. These groups we had only the pleasure of looking at in the distance; but as we drew nearer the mansion, and came more within the dress circle of gardening, we noted the great luxuriance of Rhododendrons and American shrubs of all kinds, here quite at home, apparently revelling in the soil in which they grow, and presenting every indication of exuberant health, and abundant bloom.

The mansion and the stables are situated in contiguity, the one being within speaking distance of the other, which seems to have been part of the plan when erected. The mansion is a large square pile, with little pretensions to architectural adornment; and the stables are after the same style. The late Earl of Sefton, we were told, wished to be on the most friendly terms with all dependent on him, and rather considered the situation of the offices a desirable one. Little or no attempt has been made until within these few years to screen either the offices or the garden from the mansion, which clearly enough evinces the homely tastes and generous impulses of the deceased nobleman. In speaking of him, Mr. Bisset, his much respected gardener, says—"He was a man who had more desire to study the wants of a numerous tenantry than to make a show at home," but he adds, "no man but his father before him, had more exquisite taste in fruit and vegetables."

The present Earl of Sefton, however, actuated by the spirit of progress, and while following his father's footsteps in matters of agriculture, has also given scope to Mr. Bisset's ideas in promoting and encouraging decorative gardening; and there are now numerous plant houses instead of a few structures for Grape and Pine culture, of the merits of which Croxteth 40 years ago could proudly boast. The cultivation of the Vine was not so well understood then as now; and Grapes under glass in those days would be considered somewhat of a rarity. Mr. Bisset states that in the old range of houses at one time Pines and Vines were grown simultaneously. The Vines were planted in an outside border, and after the fruit was cut in August and September and the wood ripened, the rods were taken out and wintered in a covering of straw. This treatment did well enough so long as early forcing was not attempted, but when the pressure of heat within upon the wood had to contend with that of cold without upon the roots—aggravated, as in this instance, with a border 4 feet deep—the constitution of the plants succumbed, and Mr. Bisset had them taken out, fresh borders prepared, and young Vines planted, and is now acting upon the principle of fair play to all, giving each separate accommodation. In this old range were some very good samples of Bowood Muscat, very highly amber coloured, and also some of that fine old late Grape, West's St. Peter's; Oldacre's St. Peter's was also here—both varieties similar in bunch, but the one always having a russety leaf, the other quite green. Lady Downes' was also good. In this range, which is built against a wall, there are six houses, those at either end having a semi-octagonal front, being plant houses, while the others are Vineries. The house at either end of the range has been recently put up, and gives a character and finish to those that existed before.

The conservatory has blue slate paths, and tables supported on wrought-iron pillars, and was filled with a gay assortment of flowering plants, such as Scarlet Pelargoniums, a very fine batch of Primulas, standard Heliotropes, sweet with perfume, and some rich spikes of Gladioli which stood out very prominent at the time of our visit. Tropæolum Ball of Fire, trained against the wall, was a sheet of flaming scarlet, dazzling the eye: very much finer here, planted out in a narrow strip of border against a back wall presenting full face to the sun, than we have seen under any other mode of culture. The corresponding plant house was full of finely budded Camellias in rude health; a few good Heaths and Epacrises, and some nice plants of Azaleas.

A new range of orchard houses had been completed during the past season. It is divided into three—one for Plums; the centre one, which is 2 feet wider, for Vines; and the other for Cherries. They are 12 feet wide, built against a wall, and ventilated on the self-acting principle both at top and bottom. In the Cherry and Plum houses the trees are planted against the wall, which is a very good arrangement, because the yield of fruit from the wall is likely to be nearly as great as it would be if trees were planted on a trellis at a given distance from the glass; and then on economical grounds such a method is greatly superior, owing to the numbers that can be grown and fruited in pots, between the glass and wall, without obstructing the sunlight in any appreciable degree from the trained trees. On the contrary, the Vinery orchard-house, which is a comparatively high temperature one, is planted with single canes trained up each rafter, the rafters being 4 feet apart. The object here is at once apparent: to take a crop of Vines, which have a prepared border for the roots to feed upon, and to fill up the open spaces in the centre of the sashes with Vines in pots, either trained up the trellis, or grown in bush form as may be deemed desirable. The whole of the permanent Vines in this house are Tynningham Muscat. The back wall is intended to furnish such sorts of tropical fruits as will best succeed. Meantime several sorts of Psidium, including pomiferum and Cattleyanum, and Passiflora edulis have been planted.

There is an excellent stove house, with a bed for the better diffusion of bottom heat, large and commodious without being too lofty, containing a miscellaneous collection, prominent among which were one or two good Crotons, a well managed plant of the lovely Franciscea eximia, and some nice pieces of Orchids, which Mr. Bisset seems desirous to cultivate; although in the late Lord Sefton's time, he tells me, they had to be concealed in some out of the way place, such as a Mushroom house. I am not sure, speaking generally, if my friend is far wrong when he says that "Mushrooms were then as now a thing of far greater importance." In another house we met that lovely Cinchonad, Bouvardia delicata, one of the prettiest and most chaste of late autumn-flowering plants, covered with bloom; and a most splendid example of Bougainvillea glabra with a large boxful of soil to grow in, at one end of a Cucumber house, with its branches trained close to the glass, as one sometimes sees Stephanotis floribunda, and literally a mass of those mauve bracts which, from their singular texture, look more artificial than real.

Pines are cultivated to a considerable extent, and well managed throughout. There seems to be a general impression in this locality that Black Jamaica is by far the best winter Pine for quality, and it is grown here and elsewhere in large numbers. These and Queens, with a few Smooth Cayennes, which is a most handsome fruit, and not over plentiful, form the chief sorts in these pits. There are also several ranges of useful pits for Melons, Cucumbers, Strawberries, French Beans, Potatos, and other desirable vegetables, which seem to be greatly run upon by the family, and must be supplied at all seasons. Strawberry plants for forcing were particularly fine. The sorts grown here are the ubiquitous Keens' Seedling, and Prince of Wales, which is a very fine late variety, and is one of the very best for packing, for when others get crushed and pulpy, rendering them unsightly for an aristocratic table, this sort will carry quite uninjured if due care is used. Another new sort, called Duc de Malakoff, seemed to have strong crowns, and was rather prepossessing; but it is questionable whether it will eclipse Keens' Seedling, though we understand that it is given out to possess all the merits of that sort, and to be a much better "traveller." Tomatos were also treated to a pit, and were finished up in capital style; the climate out of doors is quite unsuited to their wants.

What an agreeable surprise to see such a splendid batch of Neapolitan Violets in the height of vigour, and capable of yielding hundreds of flowers every day, mustering as the plants do in such strong force, covering dozens of yards of framing. The system in practice is to strike cuttings in spring, and keep them going in a light compost, shading from mid-day suns, and afterwards planting them out on an east wall border; then transferring them to frames. The greatest trouble afterwards seems to be gathering the flowers. In these useful pits was also a choice lot of plants for forcing in winter and spring; such things as Deutzias, Roses, and Azalea amœna. This latter is a pretty hose in hose gem, and is here grown in scores, both large and small, beautifully set with flower, the prettiest thing imaginable for drawing-room stands, bouquets, and ladies' plant cases, and which is not cultivated to half the extent it ought to be for such purposes.

The kitchen garden is not of great extent, although it is actually larger than at first sight appears, being not only surrounded but subdivided by brick walls, which are apt to mislead one in judging of extent. Pears and Apples generally do well; but owing to the excessive rainfall in that part of Cheshire, the one is better to be grafted on the Quince and the other on the Paradise stock. The past season had been an unusually dry one, and some of the samples were not so large as in ordinary years. Nevertheless there were some beautiful fruit of Marie Louise Pear ungathered in the middle of October on espaliers. By allowing them to hang as long as possible on the trees the succession is longer kept up; for those pulled and laid on the shelves of the fruit room were then up to the highest point of mellowness, and would decay before the ungathered ones were fit for table. Three old span-roofed houses glazed with small panes stand in the centre of this garden as a type of the days when the duty on glass was a matter of serious consideration in hothouse building. These have quite recently been gutted, but sufficient remains to show the narrow deal stages in tiers, amphitheatre-like, and only suitable for the cultivation of plants either very young or very small.

Passing out of this walled enclosure, alongside of a venerable Jargonelle Pear which has grown and covered a great space of wall on one side, and is then trained over to cover a large space on the other — by this means producing fruit in condition over an extended period, we find ourselves at one end of another handsome new range of fruit-houses, the two centre of which are wider and loftier than those at either end. Peaches and Vines occupy this range, and so far as they have gone, indicate good management. The Peaches have a curvilinear trellis at front in order to give all the light possible to trees on the back wall. A slight screen of shrubs divides this wall from the flower garden, which is not extensive, but laid out in detached geometrical beds, with the surroundings made up of evergreens of sorts, which are admirable material, disposed in irregular beltings, and intervening between pure flower garden and park scenery.

The fruit room has been erected and planned with good taste, while at the same time it seems well adapted for preserving purposes. Pears are in one department by themselves, and Apples in another. Besides Marie Louise, we observed good samples of Winter Nelis, Brown Beurré, Louise Bonne of Jersey, Beurré de Capiaumont, Beurré Clairgeau, Glou Morceau, and very fine Passe Colmar; while in Apples there were very good Cox's Orange Pippin, Court of Wick, King of Pippins, Wareham Russet, and Dumelow's Seedling, which is found to be a most excellent kitchen Apple. This altogether is a fine old place, and the general management reflects much credit on Mr. Bisset. *J. A.*

Miscellaneous.

Romance of the Mistleto.—There can be no question that the chief virtue ascribed to Mistleto from the Oak by the Druids, was the fructifying quality, as Talhesin has it, or of giving fertility to all animals, as described by Pliny; and it was for this virtue when worn as an amulet, or when drunk in infusion, that the sprig of Mistleto was so anxiously sought from the hands of the Arch-Druid on the New Year's Day festival. It is always necessary to remember this in endeavouring to trace down the domestic history of the Mistleto in succeeding ages. It explains fully the personal hold it had gained in the esteem of the people, and its continued private use in spite of all opposition. Though books ceased to mention it, tradition would perpetuate its use. This peculiar virtue may perhaps serve to explain some points with regard to it which have not been otherwise satisfactorily accounted for. In one of Colepeper's MSS. at the British Museum, in a curious notice of Sir Peter Freschville's house at Stavely, Derbyshire, is this passage: "Heare my Lord Freschville did live, and heare growes the famous Mistletoe tree, the only Oake in England that bears Mistletoe;" and to this tree the following letter from the Countess of Dauby to Mrs. Colepeper probably refers. It is without date, but was written between the years 1663 and 1682:—"Dear Cozen,—Pray if you have any of the Miselto of yor father's Oke, obligde me so far as to send sum of it to yor most affectionate servant Bridget Danby." It has occurred to me whether the "fructifying virtue," given to the Mistleto by the Druids, might not explain, in part, why this plant should never have been generally used in decorating our churches. As a symbol of the Paganism of the Druids, its significance has passed away centuries since; and if this were the objection to its use, the Holly also should be rejected. "It seems something like caprice," says a writer in the "Quarterly Review," "which has excluded the Mistleto as well from the decorations of our churches at present, as from their ancient sculpture and carvings. We know of one instance only of its occurrence—sprays of Mistleto, with leaf and berry, fill the spandrels of one of the very remarkable tombs in Bristol Cathedral, which were probably designed by some artist monk in the household of the Berkeley's, whose ample and broad lands are among the chief glories of the west country, in which the Mistleto is now for the most part found. We do not remember to have seen it elsewhere, even lurking among quaint devices of Miserere; whilst the Oak—every portion of which in the days of Celtic heathenism was almost as sacred as the Mistleto which grew on it—was one of the principal trees 'studied' by mediæval sculptors, when, during the so-called 'decorated' period,

they reproduced leaf and flower with such exquisite beauty and fidelity—witness the Oak leaves laid into the panels of the Cantalupe shrine at Hereford, or the twisted sprays of Oak, clustered with acorns, which form one of the most graceful corbels in the choir of Exeter Cathedral." "Certain it is"—says a writer in "Notes and Queries"—"that Mistleto formerly had place amongst Christmas decorations of churches, but was afterwards excluded. In the earlier ages of the Church many festivities not tending to edification had crept in—mutual kissing amongst the number; but as this soon led to indecorum, kissing and Mistleto were both properly bundled out of the church." The Mistleto still holds well its place in the esteem of the people, if not in their veneration. There is scarcely a house or cottage in this county that has not its bunch of Mistleto for New Year's Day. The ancient custom is still observed aright in most of the farm-houses through the county; by all the old true Herefordshire inhabitants, and especially by the lower classes. The Mistleto bough is cut on New Year's Eve, and hung up in state as the clock strikes 12. The old one which has hung throughout the year, is at the same time taken down and burnt. The Mistleto does not appear to have been considered a Christmas evergreen until the close of the 16th or the beginning of the 17th century. "We have Christmas Carols in praise of Holly and Ivy," says Timbs, "of even earlier date than the 15th century; but allusion to Mistleto as a Christmas evergreen can scarcely be found for two centuries later." The old New Year's Day custom, indeed, is rapidly changing—even here, in the very centre of the Mistleto district, and where, as I have shown, its traditions endure so tenaciously. Partly from lapse of time, perhaps, but chiefly from change of inhabitants, the Mistleto is changing its character as a symbol of New Year's Day, to take its place with the Holly as an emblem of the festivities of Christmas. *Dr. Bull, in Transactions of the Woolhope Naturalists' Field Club.*

Tropical African Palms.—With regard to their utility to the natives [of W. Tropical Africa] the various species of Raphia rank next to the Elæis. The petioles furnish the materials of which their huts and beds are made, while the pinnæ are used for roofing; and the epidermis of the leaflets gives the material from which their clothing is made. In places where the Elæis is scarce, the oily substance between the scaly exterior of the fruit and the kernel, although bitter, is eaten with Yam, Cassada, &c., and the oil pressed out of it is by the women thought superior to that of Elæis for dressing their hair. The pleasant taste of the wine obtained from R. Hookeri has even been sufficient to overcome the innate idleness of the natives of Old Calabar, and has induced them to cultivate it. The wine is procured by cutting out the terminal inflorescence as soon as it makes its appearance; the wine is then produced in large quantities. The natives of Old Calabar manufacture cloths, &c., from the epidermis of the leaflets of this Palm; and in the south, at St. Paul de Loando, R. Welwitschi is used for the same purpose, and the petioles of R. vinifera are employed as poles upon which to carry the palanquins. On the river Sherboro the natives make hammocks from the former material, as well as all sorts of basket-work, mats, &c. The roofing made of the leaflets of R. vinifera lasts for three years, while that made from R. Hookeri, it is said, requires to be renewed every year. Wine is also obtained from Phœnix spinosa, and the fruits of this Palm are much liked by the natives. The very young leaflets, before the leaves expand, are used for the plaiting of hats and caps at Accra. The outer part of the stems of the climbing Palms of Western Tropical Africa is used for binding together the materials of which the huts are constructed. The Bafan people also make large cylindrical baskets of this in which to carry the rubber manufactured by them, and the same people take large quantities of Calamus (Ancistrophyllum) secundiflorus with them as food when they go into the hills of the Sierra del Crystal to procure the rubber. For this purpose they choose the extremities of the stem, cutting off the leaves to make the bundles more portable, and when required for use they simply roast the whole in the fire and then eat the soft central part, which is, however, rather bitter and tough for persons not accustomed to such primitive fare. The fruits of Podococcus are also eaten. The leaves of Sclerosperma are used for roofing and constructing the walls of the huts, being tied between the petioles of Raphia. *Mann & Wendland, in Transactions of Linnean Society.*

Prevention of Rust in Iron.—Many a valuable hint is to be obtained from an intelligent practical labouring man, which may lead the philosopher into a train of ideas that may, perhaps, result in discoveries or inventions of great importance. When bricklayers leave off work for a day or two, as from Saturday to Monday, they push their trowel in and out of the soft mortar, so that the bright steel may be smeared all over with a film of it, and find this plan an effectual remedy against rust. In Wren's "Parentalia" there is a passage bearing upon this subject:—"In taking out iron cramps and ties from stonework, at least 400 years old, which were so bedded in mortar that all air was perfectly excluded, the iron appeared as fresh as from the forge." Oxygen, which is the main cause of rust, is abundant in the composition of both water and the atmosphere; and that quick-lime has an astonishing affinity for it is evinced in the homely practice of preserving polished steel or iron goods, such as fire-irons, fenders, and the fronts of "bright stoves," when not in use, by shaking a little powdered lime on them out of a muslin bag, which is found sufficient to prevent their rusting. Another instance, very different and far more delicate, bearing upon the same principles—the manufacturers of needles, watch-springs, cutlery, &c., generally introduce a small package of quicklime into the box or parcel with polished steel goods, as security from rust, before sending it to a distant consumer, or stowing it away for further use. These cases are extremely curious, because, as a general rule, bright steel or iron has a most powerful affinity for oxygen; consequently it is very readily acted upon by damp, and is rusted in a short time, either by decomposing the water and obtaining oxygen from that source, or direct from the atmosphere. *Building News.*

Children's Flower Shows.—A Chrysanthemum Show on a small scale took place at the Schoolroom of Summer Town, near Oxford, last Monday week, the exhibitors being the children educated there. With the view of fostering a love of flowers amongst the children, 100 young plants were distributed in the spring to about 30 of them, boys and girls, by a late resident [J. O. W.], the only restrictions being that the children undertook to cultivate the plants themselves without assistance. Small prizes were offered, not so much for fine flowers as for care bestowed on the plants. The late dry summer proved unfavourable for the experiment, but 17 of the children produced their plants on Monday last, to nine of whom prizes were accordingly given, several of the plants being carefully trained and nicely bloomed. The girls appeared to have bestowed as much pains on their plants as the boys. *Oxford Journal.*

Calendar of Operations.

(For the ensuing week.)

PROTECTION from frost demands attention in every department at this season, and particularly in regard to pits and frames. These usually contain some of the most useful plants for both in-door and out-door decoration, as well as the choicer and more tender kinds of vegetables, either for present use, or in a progressive state for removing to the open ground at a more advanced period. In protecting these useful structures effectually and economically, it is of the first importance to keep them, and everything about them, as dry as possible. This points out the superiority of wooden shutters over mats or any other textile manufacture which is not impervious to moisture. Another advantage is in their not lying too close to the glass, as a cavity is thus secured, which, in conjunction with the non-conductive properties of the wood, tends to prevent the escape of heat. To this we may add that they are more easily put on or removed, and prevent the breakage of glass, which is scarcely avoidable in handling frozen mats with cold fingers. They are a little expensive in the first outlay, but their durability, in conjunction with the advantages just enumerated, are sufficient to silence any objection upon that head. Where mats are used, they should be hung or spread in the most convenient place for drying them during the day, as they are by this attention rendered much more serviceable in excluding frost. During very severe weather it is a common practice to place a layer of hay or straw between the mats and the glass; it is however very objectionable on account of the litter and untidyness which it unavoidably creates.

FLOWER GARDEN AND PLANT HOUSES.

As soon as any of the flowering plants in the conservatory become shabby in appearance, they should be removed to make room for others which are coming into flower. And in arranging these, let the situation of each be suited as much as possible to the nature of the plant; some kinds prefer a shady situation, and *vice versâ*. With regard to temperature, also, some require to be placed in the warmest parts of the conservatory, while others will be satisfied with a simple protection from frost.

AURICULAS.—Give these air on all favourable occasions; remove dead leaves, and keep the surface of the soil free from Moss. Water sparingly.

AZALEAS.—A few of the most forward plants of these may now be placed in heat and pushed into flower for the decoration of the conservatory.

CAMELLIAS.—Such as are now coming into blossom should be liberally supplied with water. Air must also be given whenever the weather is favourable.

CHINESE PRIMULAS.—Forward plants must be well attended to with water, and carefully kept out of the way of cold currents of air. As soon as those now in beauty have faded, replace them with others coming into flower.

PELARGONIUMS. — Plants of these intended for flowering early should be placed as near the glass as possible. Let the night temperature range between 40° and 50°, and see that none of the plants suffer from want of water.

VIOLETS.—In some places these will now be in flower. Their beauty and fragrance will be increased by letting them have plenty of air whenever the weather is sufficiently mild for that purpose.

FORCING GARDEN.

CUCUMBERS.—Do not push these too much at this dull season; but keep down thrips and red spider in houses heated with hot water by maintaining a moist healthy atmosphere.

PINES.—Plants intended for fruiting during the summer must now have careful attention. Let them have a steady bottom-heat, and a top heat of about 65° at night, allowing the thermometer to rise 10° or 15° higher during the day time.

VINES.—Let the fermenting material upon borders be examined, to see that it does not get either too hot or too cold; the former will render it necessary to open it out or remove a portion of it; but in the latter case it should be turned over and a fresh portion be mixed up along with it. When the Vines are in flower a somewhat drier atmosphere must be maintained, and syringing the bunches must be avoided until the fruit is fairly set. Avoid a high temperature at night, and admit air freely in fine weather, using the side ventilators only when it is showery.

HARDY FRUIT AND KITCHEN GARDEN.

All kinds of pruning should be pushed forward with as much expedition as possible, while the weather is favourable for that kind of work. Also let trenching of vacant ground be done with all convenient despatch, unless when it is frozen, for the clods, if turned under in that state, will remain a long time before they thaw. Instances have been recorded of ground being trenched during severe frost, and of the clods being found only partially thawed at Midsummer.

CAULIFLOWERS.—These, together with Endive and Lettuces in frames, must be frequently examined, and divested of decaying foliage. A little lime and soot sprinkled upon the ground will also be beneficial in keeping them free from the ravages of slugs.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Dec. 21, 1864, as observed at the Horticultural Gardens

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 15	16	29.785	29.656	37	31	34.0	47	47	N.E.	.00
Friday 16	17	29.837	29.685	34	21	27.5	45	46	N.E.	.00
Satur. 17	18	29.794	29.735	30	10	20.0	43½	45	N.	.00
Sunday 18	19	29.795	29.765	37	18	27.5	43	44	S.E.	.00
Mon. 19	20	29.866	29.821	48	28	38.0	43	44½	S.	.00
Tues. 20	21	29.887	29.775	43	38	39.5	44½	44	S.	.10
Wed. 21	"	29.975	29.922	44	33	38.5	44	44	N.W.	.00
Average.		29.848	29.765	39.0	25.3	32.1	43.8	44.9		.10

Dec. 15—Overcast and cold, with N E. wind; overcast at night.
— 16—Uniformly overcast; cloudy and cold; frosty.
— 17—Snow; overcast and cold; severe frost at night,
— 18—Uniformly overcast; cloudy; sharp frost.
— 19—Hazy, thawing; clear and very fine; slight frost.
— 20—Hazy; very fine; overcast at night.
— 21—Hazy; fine; overcast.
Mean temperature of the week 7½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Dec. 31, 1864.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	44.62	32.47	38.54	9	0.45 in.	4	8	3	—	2	12	6	3
Mon. 26	45.39	32.63	39.03	13	0.39	3	6	3	4	4	10	5	3
Tues. 27	44.23	30.89	37.56	14	0.49	5	5	1	5	2	8	8	4
Wed. 28	45.47	30.92	38.19	11	0.21	5	4	4	3	3	7	10	2
Thurs. 29	45.78	32.00	38.89	17	0.62	2	5	1	4	5	8	8	5
Friday 30	44.47	32.47	38.47	15	0.18	1	7	2	2	4	10	11	1
Satur. 31	44.47	30.55	37.51	12	0.44	—	8	1	3	6	11	5	1

The highest temperature during the above period occurred on the 25th, 1827, and 26th, 1855—therm. 58 deg.; and the lowest on the 25th, 1860—therm. 1 deg. below zero.

Notices to Correspondents.

BOOKS: *M C.* Miss Maling's Indoor Gardener; and for our wild Ferns, Moore's Handbook of British Ferns.—*Colonist.* Dr. Hooker's Handbook of the New Zealand Flora will exactly suit you.

GROUND VINERY: *Enquiring Gardener.* This is the name applied to a cheap contrivance for growing Grapes. It consists of a low ridge of glass set over a furrow lined with slates or tiles, or over a paving of the same, the Vine stem being trained horizontally, and the Grapes either hanging down in the furrow or lying on the slate floor. The trench plan is the original, and the tile floor Mr. Rivers's improvement. The glass ridges are used in 7-feet lengths. The width at the base is 2 feet 6 inches for one Vine, and the depth in the centre 1 foot 6 inches. These rest on two rows of bricks placed endwise, with a 4-inch space between each for ventilation. The ends are closed with sheet iron, except a small aperture under the apex of the roof, which is left open to allow the escape of rarefied air.

MOOR BALLS: *T S W.* This is the common name of one of the fresh-water Algæ, Conferva ægagropila, which forms sponge-like balls at the bottom of lakes. The whole plant consists of a compact mass of branched jointed green threads. The balls vary in size from 2 to 4 inches in diameter.

NAMES OF FRUITS: *William Brown.* The Apple is the Scarlet Nonpareil; the Pear from S. wall is the Old Colmar, the other is the Crassane. The difference between early and late gathering as regards the keeping of the fruit will be noticed. *A Correspondent.* Beurré Diel.‖

NAMES OF PLANTS. : *R P.* Helichrysum vestitum.—*Devonian.* Chrysanthemum grandiflorum.—*M N.* 1, Athyrium Filix-fœmina; 2, Lastrea dilatata; 3, Lastrea spinulosa.—*C G.* Sparmannia africana, a fine old greenhouse shrub.

RHODODENDRONS. *Old Subscriber.* The Rhododendron being a hair-rooted plant, and always lifting with a good ball of earth, may be transplanted at any time when the weather is open; this may even be done late in the season, with proper attention as to moisture. For removing your large old plants we should now have preferred the first moist open weather after winter had passed; but as the plants are already lifted, rather than allow them to remain in that state, even though well covered at the root, we should plant at once, weather permitting. But, in truth, almost any convenient time may be taken for the work. You may prune them moderately any time before they start into growth, but if you require to head them back severely, it would be best to let them get a little established first.

ROYAL HORTICULTURAL SOCIETY: *F R H S. with a bad digestion.* Your letter is not gardening matter, and we will have nothing to do with it or any such grumbling, for which the columns of a Journal like this are not intended.

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No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
Deputy-Chairman—WILLIAM PORTER, Esq., Hembury Fort, Honiton.
TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

Land Drainage, & other Agricultural Improvements
MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster.

Drainage, &c.
MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE FOWLER MEMORIAL.
It is proposed to hold a PUBLIC MEETING in London, early in FEBRUARY next, to appoint a Committee for raising Funds for a suitable MEMORIAL in memory of the late JOHN FOWLER, to whose untiring zeal in the application of Steam Power to the Cultivation of the Soil, the Agricultural world is so much indebted.
PROMOTERS.
Signed, p. p.
DUCIE, Tortworth Court, Wotton-under-Edge.
PORTMAN, Bryanston, Blandford, Dorset.
A. N. HOOD, Cumberland Lodge, Windsor.
EDWD. HOLLAND, Dumbleton Park, Evesham.
CHARLES BARNETT, Stratton Park, Biggleswade.
THOMAS RAYMOND BARKER, Hambledon, Henley-on-Thames.
F. R. TEMPEST, Ackworth Grange, Pontefract.
H. S. THOMPSON, Kirby Hall, York.
A list of supporters will be given next week.
Communications may be addressed to CHARLES CLAY, Walton, near Wakefield, who has at the request of the promoters undertaken to act as the Hon. Secretary pro tem., and will publish further particulars in future Advertisements.
Any one wishing to support this movement, will oblige by forwarding his address in full as early as possible.

The Agricultural Gazette.

SATURDAY, DECEMBER 24, 1864.

WE called attention in general terms some time ago to the contents of the superb volume on the Farm Homesteads of England, lately published by Mr. BAILEY DENTON.* Particular reference was then made to the perfect style in which the whole work has been issued, as a credit alike to the agriculture of England, which it describes, and to the author and publisher by whom that description has been given to the world in so complete a manner.

One part of the volume, in which the details and examples here collected are collated, contrasted, and compared for the guidance of the reader, was not then alluded to. The digest of the principles recognized in the construction and arrangement of approved farm buildings, with which the work concludes, is an exhaustive discussion of those circumstances and conditions of English agriculture under which the different styles of farm management which it includes have arisen, and under which they can severally be the most profitably conducted. The pastoral, dairy, tillage, and mixed and suburban styles of farming, and the circumstances of soil and climate which have created these various classes of farms, are described. The temperature, rainfall, and winds which constitute the varying climate of the island—the varying altitude and character of soils, too, by which both climate and its influence upon agriculture are determined, all form the subject of elaborate discussion. And the value of the homestead as shelter—shelter for livestock, for produce, and manure, is sufficiently illustrated. We have thus a collection of all the existing knowledge on the relative value of yard and shed manure, and of all the facts on the economical consumption of food, on which after all the architecture of the farm ought to depend.

Thereafter, and as guided mainly by these considerations, the five "general principles" recognised in the erection of farm homesteads are discussed—namely, position with reference to the lands comprising the farm—the extent and arrangement of the buildings—the details of construction—the internal arrangement and furniture of each part—and the cost of the whole.

* Farm Homesteads of England, &c. By J. B. Denton, M. Inst. C.E. Chapman & Hall.

The true site of the buildings of a farm is of course the virtual centre of that farm—the point to which the annual carriage to and fro betwen the homestead and the fields will be a minimum. As to the extent and arrangement of the homestead, Mr. DENTON discusses at length the requirements of all the various classes of farms which he had enumerated, and points out how the examples he had already so elaborately described will enable each reader to determine for himself what are the real needs of any farm or estate in which he may be interested. The arrangement of the buildings, mainly dependent, as Mr. SCOTT BURN had pointed out, on the labour connected with the straw of the farm, is discussed in detail, and illustrative examples are quoted. The value of easy superintendence — of shelter against prevailing winds—of uniform rule as to breadth and other dimensions—of eastern aspect for those parts where early morning labour is required — of northern aspect for cart and implement sheds —of sunny aspect for cattle yards—of convenient proximity of those parts whose use is dependent on each other, as of stock to food—of good drainage, &c., are all illustrated and described in full detail.

Then come chapters on Construction; and we have an elaborate account of materials, foundations, walls, roofs (profusely illustrated), doors, windows, ventilation, flooring, water supply. The several arrangements connected with stack-yard, food and produce barns, with livestock houses, stables, accommodation for neat cattle, sheep, and swine, with the dairy, &c., are all illustrated with extreme fullness and elaboration. And finally there is a chapter on Cost. On this it appears that farms of 1000 acres and upwards of mixed husbandry require an expenditure of 4*l.* 10*s.* per acre for buildings—farms of 500 to 1000 acres need 6*l.* per acre—and farms of 200 to 500 acres cost 7*l.* per acre in buildings.

In many cases, however, these rates are exceeded, and 10*l.* an acre are sometimes profitably spent on the houses and buildings of a farm.

Mr. DENTON concludes his very full and admirable volume as follows:—"There still remains a considerable number of farmers who appreciate neither the advantages of well arranged buildings nor the saving of labour arising from centralisation. They would suffer considerable inconvenience rather than pay the increased rent due to an outlay on a good homestead; and if the justification of increased expenditure rested upon the evidence of this class of tenants, it would be indeed difficult to show that prudence was consulted by an outlay sufficient to meet the growing demands of an improved system of agriculture. But the fact is, farmers of this class are passing away, and a wide competition is arising for farms among men more liberally educated and better provided with the means of practically developing the resources of the land. Such men will not be content to inhabit the same description of house, and put up with the same buildings that have satisfied their predecessors, and this improved feeling affords the best assurance to the most rigid economist, since nothing can be more certain than that land farmed by well informed and wealthy and spirited tenants, provided with good buildings, becomes more remunerative both to owner and to occupier."

The volume which concludes with this passage is a capital example of a thoroughly exhaustive treatise upon a first-rate department of English agriculture.

—— WE direct attention to a remarkable specimen of thin seeding, as described in another column by Mr. HALLETT, of Brighton. The publication of the paragraph in question has been accidentally delayed.

THE GERMINATING AND CULTIVATING OF CEREALS.

IN pursuing this subject, I wish it to be understood that it is not the saving of seed that I am contending for, though this, whether on large or small farms, is of no small moment; but my object is to show that much more corn could be grown by pursuing the plans here recommended on given quantities of land, and at a much less expense than by the old and general, and I wish I could write, antiquated plans in common practice.

The plan I recommend, as I have many times shown, consists in the first place of putting the land as far as can be into good working condition, and as soon as this can be accomplished, for nothing can be more profitless or ruinous than to keep muddling on from year to year, as is too often done, on cold, wet, poverty,

stricken, undrained, and badly cultivated land, which in such cases is also generally full of Couch grass and other weeds. In land in such a state, and under such management, it is of no consequence as to what kind of seeding is adopted, whether thick or thin, for the crops must be wretchedly bad, and the farmer, whether land-owner or tenant, miserably poor. Nor are such cases so rare as many people might suppose; and especially when the means for draining, cultivating, putting in the seed, and keeping the crops clean from weeds are so easily attainable, for certainly the cost of performing these operations, and in a more efficient manner, is not more than half what it was some 30, 40, or 50 years back, if it be so much as half. But still, notwithstanding the improvements effected in machinery and husbandry implements, and the vast aids farmers have received from the science of chemistry and vegetable physiology, the cultivation of cereals and pulse remains very nearly the same it was as to principle in the days of Tull and the worthies who lived at or near his time, and for centuries before his time. I am aware that in this statement I shall bring upon me much censure from many worthy and excellent men. But half a century ago and more, I saw occasionally deeper and more complete cultivation than I do now, unless in rare cases, and equally as large crops as I do now, and those produced by the aid of farm-yard manures nearly alone, and certainly without any of those modern stimulating and exhausting compounds which for a few years—six, eight, 10, or 12—produce such unusually large crops, and then leave the land reduced so low, poor, and prostrate, that it will grow scarcely anything until renewed at a great expense. It is, however, as a set-off to all this, true on the other hand, and much to be rejoiced at, that the cultivation of root crops of all kinds appears to be nearly as perfect as labour and art will be able to accomplish. It may be asked therefore, how is this? Since cereals, Pulse, and roots are cultivated by the same men, how is it that those men are so perfect in the growing of one kind of crops, and, if I am right, so imperfect in the growing of other kinds? This inquiry is natural and interesting, and I think the solution of it is by no means difficult. For examples, root crops or Turnips, Potatos and Mangel are, comparatively writing, but mere modern introductions into this country, and especially the two latter, and as to the last I myself saw the first large crop of it that, I believe, was grown in this country, and which was all spoiled from having been placed in a closely shut up barn! But these being modern introductions, were first cultivated by scientific men, who applied all the art they were possessed of in the production of the largest and finest roots. Of Mangel Wurzel I myself can bear witness that such was decidedly the case, for the above crop of it, which I saw grown, was set out as wide apart, and some of the roots became as large as any I saw growing this last year. But the very nature of root crops also compels the cultivator of them to cultivate deeply for them, and to set them out thinly and singly, and to take care that they have a sufficiency of pabula for them to feed upon during their growth, both of a mineral and vegetable nature.

But the introduction of cereal and Pulse growing into this country and into Northern Europe also, was very different to this. Though introduced by a wise, polished, and learned people from the eastern parts of the world, the people were rude and without implements, among whom it was introduced; and though the Romans must have practised agriculture, and upon the best methods then known during the time they were in possession of this country, when they left it agriculture would sink down to the lowest possible state, and thus what little land was attempted to be cultivated, would be merely scratched over two or three inches deep only, and then a profusion of seed sown and worked in by the drag—an instrument then in use—in order to smother the weeds and herbage, or the weeds and herbage would have smothered the growing crops. And this was the origin of thick-seeding, practised as a necessity during those dark ages, when the cultivating implement was, under the misnomer of plough, hauled along by oxen, scarcely entered the ground; and the one to put the seed in with was somewhat like a rude harrow, and called a drag. The plough from this rude beginning, when it was little more than a crooked limb of a tree, in modern times has undergone many improvements, so much so that it is believed now to have nearly reached as great perfection as it can attain, or where the moving power of it is confined to animals. But the pre-Adamite Drag remains in its primitive simplicity to the present day, and was so only a few years since in Gloucestershire in full operation every spring and summer, covering over 3 and 4 bushels of cereal seeds an acre, lest on their germinating and growing as of yore, as I have said, the weeds should smother them instead of their smothering the weeds. But I must draw to a hasty conclusion by merely adding that in my next I shall show how I grew in the same land three crops of Wheat one of Barley, and two of Clover in 17 years, the other year being fallow, and that my seed never exceeded 2 pecks an acre, and that my 13 crops averaged 44 bushels an acre. To this I add that the late worthy Mr. Piper of Colne Engaine, grew 14 crops of Wheat on the same land in 14 successive years, and that the seed he used was only 1 peck an acre, and that the average yield of his crops was considerably more than mine. My readers, or some of them, will recollect that Mr. Piper was in the habit of inviting inspection of his crop every year, and of publishing his balance sheet, which gave him a good figure on the credit side every year.

Mr. Alderman Mechi also this last year had several acres drilled with 1 peck an acre, and when I saw them in the spring I could not discover but those acres promised to yield as much per acre as the rest of the worthy Alderman's acres, seeded with four or five times as much, would yield; indeed, though I did not afterwards see those crops, yet I will venture to state that the yield from the 1 peck per acre seed would equal anything I saw this last year elsewhere. I have also seen some acres done with Mr. Hallett's Wheat, the crops of which were very large indeed.

But my old-fashioned friends are still sceptical. I know they are, although I cannot see them shaking their heads and knocking the tobacco out of their pipes which they had only just lighted; but, my friends, be patient; I know you are a worthy race, and that by your labours and prudence, and I wish I could add science, it is that Great Britain is the pride and glory of her own sons, and the admiration, wonder, and envy of the rest of the world. But, my friends, although you are sceptical, unbelieving infidels as to the doings of what you call the new lights, I will finish this already too long letter by giving you an example of the doings of one of your own school. This gentleman last autumn had five pints of a superior kind of Wheat which he had dibbled on nearly an acre of ground down the middle of a large field, the rest part being drilled with 7 pecks an acre. In the summer he called upon me to ask me to go and see his "wonderful Wheat;" and I went several times, and every time it had improved from the previous visit. I went also after it was reaped and in shocks, when I liked it very much, the Wheat being beautifully fine and plump. But to be short: a fortnight since the owner called to tell me that he had threshed the Wheat from the acre, and, as he expressed it, "he never was so surprised in his life," for he believed that the produce, which was 10½ coombs or 42 bushels, was of more value than that of any other acre he had grown—and yet, my friends, he farms largely. Here, then, is an example from one of yourselves of the largest yield I have ever yet heard of from so very small a quantity of seed.

Geo. Wilkins, Parsonage, Wix, Dec. 2.

LAND DRAINAGE.

[The following is an extract from the second of a short course of Lectures lately given before the Royal Agricultural College, by Mr. Wallace Fyfe.]

Levelling.—The outfall is the first thing to be determined in drainage. The leading object is to secure a sufficient natural outfall from the leading or main drain. Fortunately water will flow on the very slightest incline, and there are very few situations in which a suitable outfall is not to be found, if only of 2 inches in 100 yards—for that in default of better will suffice. This dip or declination is so small that many agriculturists, although possessed of sufficient outfall, are often found harbouring the mistake that drainage is for them a thing impossible, when it is nothing of the sort. The eye, too, is often deceptive in regard to the ground level; and the use of instruments alone can determine the true state of the case.

Levelling is the easiest and most elementary task in surveying; yet it is one requiring the utmost nicety and attention. Various kinds of levels are constantly employed in setting off or finding the levels for drains. But in order to test the fall, cut the drain accurately and uniformly before laying in the tiles and other materials; three staves, two of equal length, about 2 feet, and one to suit itself in the drain to the height of these, having at one end cross pieces of wood 9 inches in length, are commonly employed where the ground is tolerably flat, and answer well when the drain is straight, though not when it is curved. The drain being first cut to the proper depth as far as the eye can judge, one short staff is held perpendicularly on the ground at the upper and another at the lower end of the drain, whilst the other staff, adjusted to stand at the correct height of the other two above the drain bottom, is moved along from one end to the other; the surveyor at one end of the drain bringing his eye down into the line with the upper edge of the cross-heads on the staves, notices whether or not that of the long staff keeps the eye line. According as in moving it along he perceives it rise above or sink below this line, the bottom of the drain must be altered so as to make the three cross-heads coincide. Care must, however, be taken to ascertain that the bottom does slope in the right direction, as these staves only test its regularity, not its inclination. Staves painted in strong contrast of colours are the most readily distinguishable.

The mason's plumb-level forms a very convenient instrument for the use of drainers. By making a mark as far off the plumb line as will subtend an angle equal to the intended fall of the drain, the leveller can always keep to the angle of inclination of the fall. Thompson's Workman's Level is an instrument calculated to enable drains to be carried out on a uniform slope. It differs only from the mason's plumb-level in having the uprights capable of being lengthened or shortened by shifting the hypothenuse, so that it will form any required angle with the base. There is an index head on which the rate of slope is indicated on a graduated scale; and the instrument is kept at any given point by tightening a nut in the index head. The instrument when in use is set in the slope of the drain, and all the workman has to do is to see that the plumb-line strikes the centre. Gillespie's patent inclinometer carries out the same principle by extending it from a triangle to a full parallelogram. In fact, when I first saw them applying it in levelling the drains on his estate of Tirbane Hill, I really think the machine was composed of the four spars of a common field gate, with a diagonal moving upon pins, which made the bottom spar down in the drain parallel with the top spar seen above it, when set to the required inclination. I thought the instrument very effective but ridiculously simple. But by the time it passed through the hands of the Patent Office, and I was called upon by the inventor to write the accompanying descriptive pamphlet which is issued with it by the makers, I found it had become quite complicated since I first saw it in its field-gate form; the top parallel necessarily represented to the eye the amount and direction of the slope, but now an additional limb or parallel was hinged at one end to the top bar, and from the other end depended a plummet. In action the moveable limb had to be raised from its parallel position to one perfectly horizontal, as indicated by the plummet, and thus marked the rate of slope on an index spirit level, which is placed in a japanned frame with brass graduated arch, and mounted on a tripod stand with levelling screws to bring it into adjustment. To this is adapted an iron frame carrying two sights with cross hairs, capable of turning round on a centre, and of being raised or lowered at pleasure. The rate of rise or fall is ascertained on inspection. By levelling and traversing the instrument in the plane of the horizon it will also indicate the most favourable fall. The cost with tripod stand is 1*l.* 18*s.*

Gravatt's "Dumpy" Level is more popular amongst surveyors, but it is principally employed where the levels require to be continued for miles, and the height of one point above another determined to an inch, as in the case of railways. This level would be found useful where it became necessary to conduct water from a spring head to a considerable distance. All that the surveyor would have to do would be to determine whether the level of the fountain head was above that of the place to which the water had to be conducted, for if higher the water would assuredly find its way in pipes, however rugged the intervening surface, care being always taken to guard at any point against too abrupt a fall, since the water might otherwise rush in too rapid a current; and thus it is better that the pipes should be laid more nearly to the level or even in a curve, so as to produce the same effect; pipes being sometimes directed even a little upwards before approaching the point of discharge to restrain the velocity of the current.

Main drains or ditches on level lands should always be directed as straight as possible—a feat which gives no trouble to experienced drainers. "A good ploughman," said Mr. Pusey, in that superb report of his already quoted, "will set up a pole a quarter of a mile distant or more, and keeping this mark, almost invisible, steadily in his view, will on land perfectly smooth, trace up to that goal, until his horses knock it down as they pass on each side, a furrow so true that no eye can trace any divergence from absolute straightness" Such is the absolute skill, fast dying out, however [!], which distinguishes the English agricultural labourer. The difference betwixt a straight drain and a crooked one tells powerfully on the rate of outfall. Thus in scouring an old watercourse of 1200 feet long with a fall of 1 inch in 100 feet, it was found that a new course, measuring only 800 feet long, might be executed, and the rate of inclination consequently increased half an inch in the 100 feet. But whether straightened or not the outfalls from main drains should be regularly secured, and the mouths of the leading drains kept clear of all obstructions; instead of the old indolent practice of allowing the ditches to become nearly choked before being cleaned, by simply scouring the ditches often, and never permitting them to become deeply filled with mud, the keeping them in order is found to cost a mere unfelt trifle compared with the huge task of cleansing them after long neglect, besides supplying a peculiar covering for the compost heaps formed at various periods, which, as we shall see, when we come to treat of the economy of manures, is an essential object in fixing and retaining their volatile constituents—and pond and ditch mud, though valuable, when thus applied is really of very little importance. Where however you happen to have a thing, and it has a value, I am a great advocate for using it up on a farm, whatever that value may be. The great reason however for scouring your outfalls is that you may not literally be found undoing at that point what it has been the sole object of your drainage to effect. The essential point in drainage is that water should never be suffered to remain stagnant either in or out of the drains; indeed the drains themselves will never draw efficiently whilst their outlet remains imperfect. In like manner to secure a free flow at all times from the smaller drains, outfalls and main drains must alike be rendered perfect. So important has this been judged, even in a national point of view, that the Act 10 and 11 Victoria, c. 38, was passed for

no other purpose than to facilitate improvements by way of drainage, and to empower owners of property, under certain conditions and restrictions, to enter upon lands belonging to other owners to obtain outfalls. It is true that by sect. 9 no entry is to be made on any land for these purposes, except with consent of the proprietors, until the amount of compensation for damage shall have been agreed upon or ascertained and paid; still the right of obtaining an outfall even upon payment is a powerful recognition of the value and importance of drainage improvements.

CONDIMENTAL FOOD.

ALTHOUGH every farmer may not have used, there are very few who have not heard of the "Condimental Food for Cattle." This famous nostrum is a compound of some of the ordinary food substances, with certain well-known aromatic and carminative ingredients. It possesses a very agreeable flavour, and it is, therefore, much relished by horses, and, indeed, by every kind of stock. The price of this compound was at first so much as 60*l.* per ton; but, owing to competition, and perhaps to the attacks made upon the enormously high price of this article, it is now to be obtained at prices varying from 9*l.* to 24*l* per ton.

The inventor of condimental food and the numerous fabricators of that compound claim for it merits of no ordinary nature. Its use, they assert, not only maintains the animal fed upon it in excellent health, but it also exercises so remarkably an energetic action upon the adipose tissues that fat accumulates to an extent which would alarm even Mr. Banting himself. Moreover, it is said that an animal supplied with a very moderate daily modicum of this wonderful compound will consume less of its ordinary food, though rapidly becoming fat.

Now, if these assertions were perfectly, or even approximately, true, Mr. Thorley would be well deserving of a niche in the Temple of Fame, and stock-feeders would ever regard him as a benefactor to his own and the bovine species; but we fear that Mr. Thorley's imagination outstripped his reason when he described in such glowing terms the wonderful virtues of his tonic food. Mr. J. B. Lawes, of Rothamstead, than whom there is no more accurate experimenter in agricultural practice, states that he made many careful trials with condimental food, and that he never found it to exercise the slightest influence upon the nutrition of the animals fed upon it.

This experimentalist, after describing the details of some of his experiments, remarks:—

"There is nothing, therefore, in the above results to recommend the use of Thorley's Condiment with inferior fattening food to those who feed pigs for profit. In fact, the following balance-sheet of the experiment, showing that in fattening for 12 weeks there was a balance of 1*l.* 10*s.* 11*d.* in favour of the lot fed without Thorley's food, notwithstanding that one of the pigs in that lot did badly throughout the experiment, as above stated:—

LOT 1.—WITH BARLEY-MEAL AND BRAN.

	£	s.	d.
4 pigs, bought in at 41*s.* 6*d.* each	8	6	0
1860¾ lbs Barley, at 37*s.* 6*d.* per quarter of 416 lbs., including grinding	8	7	8¾
1024¾ lbs. bran, at 5*s.* 6*d.* per cwt.	2	10	3¾
	19	4	0½
88 stone 5 lbs. pork, sold at 4*s.* 4*d.* per stone, sinking the offal	19	4	0½

LOT 2.—WITH BARLEY-MEAL, BRAN, AND THORLEY'S FOOD.

	£	s.	d.
4 pigs, bought in at 41*s.* 6*d.* each	8	6	0
1,862½ lb. Barley, at 37*s.* 6*d.* per quarter of 416 lb., including grinding	8	7	10¾
1,020¾ lb. bran, at 5*s.* 6*d.* per cwt.	2	10	1½
105 lb. Thorley's food, at 40*s.* per cwt.	1	17	6
	21	1	5¾
90 stone 1 lb. pork, sold at 4*s.* 4*d.* per stone, sinking the offal	19	10	6½
	£1	10	11¼

"The results of these experiments with pigs, in which Thorley's condiment was used with inferior fattening food, may be summed up as follows:—

"1. The addition of Thorley's condimental food increased the amount of food consumed by a given weight of animal within a given time.

"2. When Thorley's condiment was given, it required more food to produce a given amount of increase in live weight.

"3. In fattening for 12 weeks, there was a difference of 1*l.* 10*s.* 11*d.* on the lot of four pigs in favour of Barley-meal and bran alone over Barley-meal, bran, and Thorley's food in addition."

At a meeting of the Council of the Royal Agricultural Society of England, held some time ago, the subject of the nutrimental value of condimental cattle food was discussed. As there is scarcely any kind of quackery, from spirit manifestations to Holloway's pills, that has not got its believers, there were, as might have been anticipated, some voices raised at this meeting in favour of condimental food; but the sense of the meeting was dead against it. Professor Simonds pronounced it to be worthless; and Mr. Lawes, from the results of actual experiments, proved its inutility.

Although the greater number of equine proprietors and feeders of stock are too sensible to throw their money away in purchase of these costly foods, still there are by no means an insignificent number who employ it under the idea that it preserves the health of the animals. These stuffs are also highly appreciated by many grooms and herds. Now, for the information of all believers, we may state that there is no mystery whatever in the nature of condimental cattle foods. They consist in substance of such matters as Linseed cake, Indian Corn, Rice, Bean meal, Locust Beans, and malt combings. These substances are flavoured by the addition of Turmeric root, Ginger, Coriander Seed, Carraway Seed, Fenugreek Seed, Aniseed, Liquorice, and similar substances. In addition to the nutritive and flavorous articles employed in the manufacture of these foods, some medicinal substances are also made use of, under the idea that they would prove useful in maintaining the health and stimulating the appetite of the animals. These medicinal ingredients constitute but a small proportion of the compound, although they add considerably to the cost of the manufacture. The following is a formula for a condimental food, which, in every respect, will be found fully equal, if not superior, to the ordinary high-priced articles:—

	Cwt	qrs.	lb.
Linseed-meal or cake	7	0	0
Locust Beans (ground)	8	0	0
Indian Corn	4	1	0
Powdered turmeric	0	1	4
Ginger	0	0	3
Fenugreek seed	0	0	2
Gentian	0	0	10
Cream of tartar	0	0	2
Sulphur	0	0	20
Common salt	0	0	10
Coriander seed	0	0	5
	One ton.		

A ton of condimental food, manufactured according to this formula, will cost only about the same amount as an equal weight of Linseed, and will produce an effect fully equal to that of the food which at one time was sold at 60*l.* per ton.

Whatever may be the medicinal virtues of these foods, or however appropriate the term condimental which has been applied to them, it is quite certain that their whilom designation, concentrated, was a misnomer. Their composition shows that they possess a degree of nutritive power considerably below that of Linseed cake, and but little, if at all, superior to that of Indian corn.

The following analytical statement will give an insight into the nature of these articles:—

Analyses of Condimental Food.

	Thorley's.	Bradley's
Water	12 00	12 00
Nitrogenous or flesh-forming principles	14.92	10 36
Oil	6 08	5.80
Gum, sugar, mucilage, &c.	56 86	60.21
Woody fibre	5 46	5 32
Mineral matter (ash)	4.68	6.22
	100.00	100.00

As a ton of Linseed cake contains a greater amount of nutriment than an equal quantity of condimental food, the latter should be clearly proved to possess very valuable specific virtues in order to induce the feeder to use it extensively. Cattle and horses out of condition may be benefited by its carminative and tonic properties; but if they are, it surely must be a bad practice to feed healthy animals upon a substance which is a remedy in disease. It is asserted, and probably with some degree of truth, that when dainty, over-fed stock loathe their food, they are induced to eat greedily by mixing the condimental with their ordinary food. If such really be the case, let the feeder compound the article himself, and effect thereby a saving of 200 or 300 per cent. in the cost of it.

Irish Country Gentleman.

COMPOSITION OF OILCAKES.

THE great importance attached to the employment of artificial feeding stuffs as auxiliaries to natural food in the rearing and fattening of stock, and the successful result of the judicious employment of oil-cakes and other artificial feeding materials, has led me to consider that a reference to the composition and analyses of a large number of oilcakes might prove interesting, especially to the stock farmer and the dealer. I have accordingly prepared a table giving the percentage ingredients of 84 samples of oilcake which I have analysed professionally previous to the present year, and submit the results of these analyses with the following introductory remarks:—

The ordinary food of stock, consisting of Grass, hay, and Turnips, is very bulky in its nature, and contains comparatively only a small percentage of flesh-forming ingredients, accompanied by a large proportion of heat-producing constituents and refuse matter. The digestive systems of the sheep and ox are specially designed for making the best use of such food, but the fattening process proceeds slowly, unless an admixture of richer food is given. The oilcakes, which are now so extensively consumed by stock, supply in small bulk, and with comparatively little trouble to the animal, a large amount of fat and flesh-forming ingredients. The feeding qualities of oilcakes are mainly dependent on the presence of albuminous compounds to the extent of 20 to 35 per cent., accompanied by an average of 10 to 12 per cent. of oil; but besides these, there is a large amount of starchy and woody fibre, along with a little sugar and gum, and saline matter containing phosphates (the principal element in bones). In short, we have present in an oilcake the important feeding properties of the ordinary food of animals in a concentrated form, and readily capable, when partaken of by the animal, of becoming flesh and fat.

One of the great advantages of a feeding stuff with the composition of an oilcake is the presence of so much ready formed oil, as this is easily assimilated by the animal system, and is readily stored up as fat. At the same time the digestive powers act on the starch, gum, sugar, and part of the woody fibre, resolving these into compounds which, as they circulate through the blood, become elaborated into fat capable of being also deposited in the tissues. The albuminous constituents also become transformed before and after entering the blood, and ultimately are woven into flesh in the living structure, whilst the phosphates are taken up into the blood and supply the wants of the bones.

LINSEED CAKE is regarded as the first-class oilcake, and it is obtained from Linseed by bruising, steaming, and subjecting it to pressure in hair-cloth bags, when about 25 per cent. of oil is extracted, and Linseed cake is left. The better kinds contain 20 to 29 per cent. of albuminous compounds, and about 12 per cent. of oil. Linseed oilcake is liable to be mixed with inferior oil seeds, bran, and other cheap materials, which detract from its nourishing properties, and occasionally impart to it noxious properties. A simple way of examining Linseed-cake is to grate down about half-an-ounce, and put it in about half-a-tumbler of water, and stir for a short time. Good cake gives a light-coloured jelly, with an agreeable taste and smell. If other seeds be present as impurities, they communicate a disagreeable taste and an unpleasant odour, resembling refuse canary seed.

COTTONSEED CAKE is made from the seed of the Cotton plant in two ways. (1). The undecorticated cake, which is prepared by crushing the whole seed—husk and kernel—yielding a cake with about 20 per cent. of albuminous compounds and 7 to 10 per cent. of oil, and which is objectionable as an article of food, owing to the presence of the fragments of husk and much cotton fibre. (2). The decorticated cake, which is prepared by first shelling the seeds so as to remove the husk, and the kernel so obtained is compressed so as to extract some of the oil, and a very superior feeding cake is left, which contains from 30 to 35 per cent. of albuminous compounds and 15 to 18 per cent. of oil. In the shelled or decorticated cake no fragments of the husk should be observed. The newly-prepared or fresh cake is yellow in colour, somewhat resembling mustard, but becomes brown on the surface when exposed to the air—especially when damp—and the brown tint passes gradually to the centre as the cake gets aged.

RAPECAKE is one of the cheaper kinds of oilcake, but many varieties are equal to Linseed in composition, and in some cases have been found equally useful in the feeding of stock. It is prepared by bruising and compressing Rapeseed, which yields Rape oil, largely used as a lighting oil, and leaves in the bags the Rape-cake. This description of cake has naturally a pungent taste, which cattle and sheep rather dislike at the first, and very often it is found necessary to mix the bruised cake with Locust Beans, or merely to sprinkle the cake with treacle, which to a great extent masks or cloaks the pungency of the cake, and besides adds to the feeding properties. Rapecake is often mixed with other seeds, especially Mustard seed, which necessarily imparts blistering properties to the cake, and thus give rise to rather serious effects in the alimentary canal of the animal partaking of such a mixed cake. The presence of the Mustard seed may be easily determined by reducing the cake to powder, and mixing it into a thin paste with cold water in a pickle bottle, which can be corked up. If the quantity of Mustard is great, the characteristic smell of made-up Mustard will be decidedly apparent in a quarter of an hour; but failing its appearance then, the experiment may be allowed to go on for 24 hours, when, should no pungent odour be recognised, and the taste is not extra strong and pungent, then Mustard is not present in quantity to be at least productive of harm; but if the Mustard odour is obtained, and especially if a very strong pungent taste accompany it, Mustard may be present in quantity to be injurious to the health of animals partaking of the cake.

The judicious employment of the various kinds of cake in the feeding of animals is productive of the best results, but cakes of all descriptions are too rich to be given alone to feeding stock, and the daily quantity should be limited. In the feeding of sheep with cake, it would be safer if some plan could be adopted whereby each hogg would only obtain its allotted share. During every season several fatal cases happen, not only where a too liberal dose of the rapecake has been thoughtlessly given, but even where the proper quantity is weighed out for a given number of sheep; but as one sheep is allowed to appropriate its own and its neighbour's shares, evil consequences necessarily result.

In discussing the subject of oilcakes, special reference must be made to the very rich nature of the droppings, or manure obtained from stock fed on cake. The improvement in the nature of the manure through the instrumentality of the oilcake is mainly due to a part of the albuminous or nitrogenous compounds passing through the animal without having been taken up by the system. The proportion of the nitrogenous

ingredients of the oilcake which thus passes direct through the alimentary canal, and appears in the manure, is variously estimated at seven-eighths down to nine-twentieths of the whole, and therefore we may safely consider that the manure represents at least one-half of the total value of the oilcake.

[We have not space for the table, but that is the less to be regretted as Dr. Macadam summarises the results.]

In reviewing the analyses of the foregoing samples of oilcake, it will be observed that 42 samples are known to have been sold as Linseed cake, and in these, the principal-feeding elements—viz., the oil, or heat-producing element, and the albuminous or flesh-forming compounds—vary much in quantity. Thus, one sample of Linseed cake contained so little as 8.48 (8½) per cent. of oil, whilst another contained as much as 17.28 (17¼) per cent., and the average amount of oil in the 42 samples was 11.87 (12) per cent. And in regard to albuminous or flesh-forming compounds, one sample yielded only 17.25 (17¼) per cent., whilst another gave 29.50 (29½), and the average amount of albuminous compounds in the 42 samples was 22.85 per cent.

The Rapecake also varies much in composition. Thus in regard to oil, one sample only gave 6.72 (6¾) per cent., whilst another sample yielded 13.80 (13¾), and the average of 12 samples was 11.13 (11) per cent. In albuminous or flesh-forming compounds, the Rape cakes yielded from 17.50 (17½) per cent., which is the lowest amount, to 25.75 (25¾) which is the highest, and the average quantity of albuminous compounds in the 12 samples was 22.08 (22) per cent.

The Cotton-seed cake exhibits the greatest variation in composition, arising from the different conditions in which it is sent into market. The undecorticated cake, having the husk present in it, naturally contains more woody fibre, and correspondingly less oil and albuminous compounds; whilst the decorticated cake, being freed from the husk, has necessarily a larger proportion of oil and albuminous compounds—one sample of Cotton-seed cake yielded only 4.96 (5) per cent. of oil, whilst another sample gave 18.52 (18½), and the average of 12 samples was 12.59 (12½) per cent. of oil. The albuminous or flesh-forming constituents of the Cotton-seed cake varied from 14.81 (14¾) per cent. to 34.06 (34), and the average proportion in the 12 samples was 24.59 (24½) per cent.

Besides the Linseed, Rape, and Cotton-seed cakes, there are given in the table the analysis of 18 samples of cakes, seven of which have been sold simply as "feeding cakes," and the remaining 11 samples are of varieties which are less known in the market. Classifying these 18 samples under the one head of various, we find that the oil present in each varies from 5.04 (5) per cent. to 18.36 (18½), and the average amount of oil in the 18 samples is 10.87 (11) per cent.; while the albuminous or flesh-forming ingredients range from 3.12 (3) per cent. to 33.47 (33½), and the average amount in the 18 samples is 20.32 (20½) per cent.

It is interesting to observe that, whilst there are great variations in the relative proportions of oil and albuminous compounds in the 84 samples taken as one class, yet the average of the whole represents the proportion of the principal feeding elements in a first-class cake. Thus, whilst in the 84 samples the oil varies from 4.96 (5) per cent. to 18.52 (18½), the average is 11.65 (11 2-3ds) per cent.; and whilst the albuminous compounds in the 84 samples range from 3.12 (3) per cent. to 34.06 (34), the average is 22.44 (22½) per cent. It appears therefore that, whilst very inferior cakes are occasionally met with, there are other cakes in the market which are of such superior quality that, taking the average of a large number of samples, the deficiencies of the former are made up by the excellences of the latter. *Stevenson Macadam, Ph.D., F.R.S.E., Lecturer on Chemistry, Analytical Laboratory, Surgeons' Hall, Nicholson Street, Edinburgh, Nov.* 19, 1864, *in the Scottish Farmer.*

Home Correspondence.

Ireland.—Men who have not visited Ireland for the express purpose of obtaining information relating to the resources of the country, and the character of the people, can form but a faint idea upon these points from newspaper reports, which are violent and one-sided, and therefore not to be depended upon. There are two great obstacles to the development of the wealth of Ireland and the tranquillity of the people—absenteeism and religious animosity. The residence of landowners on their property would at once meet the first difficulty, and mitigate the second. However kind and able an agent may be, yet he cannot have, and has not, the same influence a landlord would possess over the tenantry. An Irishman is susceptible of, and appreciates sympathy, and is much attached to the old families who reside amongst them. Associating with such a people, and not opposing captiously their hereditary prejudices, is the only way to discover their estimable qualities. The natives are suspicious, and not without some reason, if it is recollected how, in days passed by, their natural protectors left them at the mercy of others. Though this neglect has been since corrected in a degree, yet in many districts the advice and the example of resident landlords is much required. Wherever abuses have existed, and mismanagement reigned supreme for a long period in any county, a reaction will be gradual, and confidence not easily established, without practical proof of a desire on the part of both landlord and tenant to act on the broad and neighbourly principle of Christian charity, so conducive to peace and happiness either in a small or large community. The climate of Ireland is mild, the soil, taking the average, productive; with these advantages a large increase of vegetable and animal food should be sent to the markets. Nature has been liberal to the island—have the industry and knowledge of man turned to account the bountiful gifts of Providence? There are circumstances which prevent a more general improvement in the country—not accidental, but within the control of active intelligence and steady perseverance. More of this hereafter. *Falcon.*

Sowing Grass Lands.—I have read with considerable interest the able letters which have appeared from time to time in your columns upon this important subject, but I was particularly struck with the letter signed "W. M.," as being the most practical of the lot, and regret the writer did not favour us with his name and address, as from my experience of laying down a considerable quantity of land I am satisfied it is a good mixture for any description of soil. The only alteration I advise is that the quantity of Alsike and Cow-grass be doubled. You can (if you are so inclined) have a mixture of seeds mystified through the introduction of botanical names (which few of us understand), and a lot of useless seeds which generally die off the first winter, and for which we are charged an extravagant price—but be assured that any one sowing our friend's mixture will have no cause for regret. There is no pursuit so open to chicanery as that of farming; you are urgently advised to use this or that manure—to buy a lot of useless tools and machinery, and to sow various kinds of seeds—all this goes off with a lot of money, and in the present depressed state of farming there are few who can afford the "luxury" of experiments, therefore it behoves all to look out for the best and most suitable article, and at the lowest price. *Joseph Kitchin, Westerham, Kent, Dec.* 16.

Sewerage.—In using sewerage, its destructive power on iron piping should not be forgotten. Experience proves that on unadulterated "gutta percha." liquid manure has no injurious effect, or very little. *Falcon.*

The Exhibition of Agricultural Produce held annually in the hall of the Royal Dublin Society, has been more than successful this season. The annexed list of prizes will corroborate this statement, and it at the same time adds much to the fame already obtained by Mr. Thomas Smith as one of our first Irish agriculturists. Leamore Park is situated on the coast near Newcastle, in the county of Wicklow, and although like others of his noble landlord's tenants, he holds his farm "at will," Mr. Smith is nothing daunted, but year after year improvements are seen in all departments. At least he deserves much praise for his taste and perseverance.

Parsnips, 12, weighing 56 lbs.	1st prize
White Carrots, 12, 54 lbs.	1st ,,
Red do., 12, 39 lbs.	1st ,,
6 Long Yellow Mangel, 113 lbs.	1st ,,
6 Long Red do., 104 lbs.	1st ,,
6 Yellow Globe do., 108 lbs.	1st ,,
6 Red Globe do., 92 lbs.	2d ,,
White Wheat, 64 lbs., Imperial bushel	1st ,,
Red do., 63 lbs. do.	1st ,,
Field Beans, 67½ lbs. do.	1st

E. A. M., Dublin.

Rational Seeding.—In a recent Number "Experimenter" stated he had a small piece of Wheat planted at less than a peck per acre. In support of the cause of "Rational Seeding," I may perhaps be allowed to say that I have a field of 7 acres drilled (in one day, with only the ordinary expense) with 12½ gallons of white Wheat on the whole 7 acres, which is and will be open to the inspection of any one who will give me an intimation of his intended visit. The wireworm attacked it severely, but I will venture to challenge its produce per acre and its millers' value per quarter against any other 7-acre field in the United Kingdom to be now named. The soil of my field is a poor one, and no manure was or will be applied to the crop. *Fred. F. Hallett, The Manor House, Brighton,*

Diseased Meat.—It is a well known fact that any amount of diseased meat may be, and is, sold in all the large towns in the United Kingdom. How can this monstrous evil be prevented? The traffic in unwholesome flesh is illegal; inspectors are appointed to guard against the public exhibition of meat not fit for food, nevertheless carcases of animals which have died from fever, inflammation, &c., are disposed of to men whose trade it is to dress them up for human consumption; and then surprise is expressed at the severity of dysentery, diarrhœa, typhus, and stomach complaints at particular seasons, just about the time, in the natural course of events, from change of food and temperature, oxen, sheep, and pigs, are subject to illness, too often neglected because of the cost of veterinary attendance, and the certainty of the owner being able to sell the dead animal, as a compensation for loss. The weather, drains, and many other things have the credit of bringing amongst us most distressing diseases, which may be mainly attributed to the cruel practice of imposing upon the working classes poisonous food, creating contagious disorders, and spreading death and destruction amongst high and low. Is the system of employing butchers to get rid of such carrion so common, and the deaths of animals so numerous, that the agricultural interest would suffer if the law was stringently enforced? *Falcon.*

Societies.

HIGHLAND AND AGRICULTURAL.—At a recent meeting of this Society, Professor Anderson, of Glasgow, delivered a lecture on *Sewage Manure in its Agricultural Relations*, from which we make the following extracts:—Experience teaches us that the laws of Nature cannot be transgressed with impunity; and if rightly considered, we shall see that the offensive and polluted state of our rivers is only the mode in which the necessity for preserving the food of plants reasserts its supremacy, and forces us for our own good to restore those adjustments we have ignorantly deranged. The great problem to be solved must be looked at from a sanitary as well as an agricultural point of view. The farmer is not permitted to take the excrementitious matters of towns in their natural state, but is compelled to receive them in the condition to which sanitary considerations have reduced them, though this may not be that in which they are most useful to him. If sanitary requirements were to be disregarded, and the wants of agriculture only to be considered, it seems probable that the whole system of disposing of the refuse of towns would be revolutionised; but it would be mere waste of time to discuss this question, for we are practically tied to the existing state of things, in which the refuse matters are washed away by abundant supplies of water, and all that can be done is to ascertain how they can be best used when in that condition. 1. The first question which has to be considered is the agricultural value, on which subject the most absurd and unreasonable statements have been made, and, though often contradicted, are still current.

There are two ways in which an estimate can be formed—1st, By ascertaining the actual value of the excrementitious matters per head of the population; 2d, By determining the average amount and composition of the sewage. As regards the first of these methods, the extreme value of the manurial matters contained in the urine and fæces may be set down at somewhere about 6*s.* per head. An adult male excretes daily the following quantities of valuable matters:—

	In Urine.	In Fæces.
Nitrogen	214 grains.	24 grains.
Equal to ammonia	260 ,,	29 ,,
Phosphoric acid	50 ,,	25 ,,
Potash	55 ,,	5 ,,

This gives for the total annual production:—

Ammonia	15 lb.
Phosphoric acid	3.3 ,,
Potash	3 ,,

If these matters be taken at the price at which they are sold in guano, then the annual value will be:—

	s.	*d.*
15 lb. of ammonia, at 6*d.*	7	6
3.3 lb. of phosphoric acid, at 1½*d.*	0	5
3 lb. of potash, at 2½*d.*	0	7½
Total value	8	6½

This estimate, it will be noticed, applies to the excretion of the adult healthy male. Those of the females are less valuable by a fifth; and of children the amount and consequent value depends upon their age. In fact, the quantity goes on gradually increasing to the period of maturity, and then again diminishes when the bodily functions become less active towards the close of life. When the proper allowance is made for these (for which a rather elaborate calculation is required, into the details of which it is unnecessary to enter), it appears that the average value of the substances contained in the solid and liquid refuse for the whole population of both sexes and all ages is almost exactly two-thirds of that above given, or, in round numbers, 6*s.* per head. As far as the composition of sewage is concerned, it differs greatly from day to day, and at different periods of the day and night. Some idea of the extent to which the composition of sewage varies may be formed from the analysis of that of the town of Rugby, made in connection with the experiments undertaken by the Royal Commission on the Sewage of Towns during the years 1861, 1862, and 1863. During these years average samples were taken at frequent intervals, and the following table gives the number of grains of ammonia per gallon it was found to contain:—

	Highest.	Lowest.
1861	15.5	3.0
1862	11 0	2.5
1863	12.0	3.0

Now, the quantity of ammonia may be safely taken as a measure of the relative values of different samples of sewage, because it is the most valuable constituent, and the amount of all the other matters rises and falls in proportion to it. It appears, therefore, that the Rugby sewage is sometimes more than six times as valuable as at others, and it is scarcely necessary to observe that equally great variations must exist in other towns. The investigations made at the instance of the Sewage Commissioners have shown that the average quantity of ammonia per gallon is between 6 and 7 grains; and this result is arrived at from the analysis of a great number of samples taken at definite intervals from the tank into which the sewage is pumped. In no other town is the composition of the sewage known with anything like accuracy; and even as to that of London itself, notwithstanding the extent of the inquiries which have been made there within the last six or eight years, the information is still very imperfect. Mr. Way has found seven grains of ammonia per gallon; and extended investigation of a large number of samples carefully selected by Dr. Hoffmann and Mr. Witt have given an average of 8.2 grains; while Dr. Letheby, from a still more extended series of analyses, gives a little over six grains per gallon as the average. If this be the state of our information regarding the average composition of sewage, the doubts which exist as to its quantity are still greater. I find scattered through the different Parliamentary reports on the subject estimates of the quantity of the sewage of London, varying from 132,000,000 up to 328,000,000 tons per annum. If we accept the results obtained by Dr. Hoffmann and Mr. Witt, then it follows that, if there be 328,000,000 tons of sewage annually, it must contain above 85,000,000 lb. of ammonia. Now, the quantity of ammonia contained in the urine and fæces of the population is known with as great certainty as any such fact can be, and it amounts to 30,000,000 lb. This would leave no less than 55,000,000 lb. to be accounted for—a quantity which far exceeds that which could possibly be derived from the urine of animals or other sources. It is clear, therefore, that one or other of these estimates must be inaccurate; and my impression is

that by further inquiry both will be found to exceed the truth. Although the facts at our disposal do not admit of an accurate determination of the total value of the sewage of any town, they may be used to give an approximate estimate for that of a given quantity. This has been done by Dr. Hoffmann by calculating according to the market prices of the manurial constituents of the sewage, and he deduces from his analyses 2*d.* as the value of the substances contained in a ton. If we apply the same data to Letheby's analyses, which give six grains of ammonia in place of eight, the value will be 1½*d.* The latter will probably be found to be nearest the truth; but in the Parliamentary reports the former is most frequently referred to, and appears to be generally accepted; and as it certainly does not underrate the value, we shall make use of it here. In the estimate now given, and in that of the urine and fæces of the population, it will be noticed that I have been careful to state that the value of the manurial matters in the former is 2*d.* per ton, and in the latter is 6*s.* per head; but it must not be supposed that I thereby mean to assert that a ton of sewage is worth 2*d.*, for the values in question apply to the nutritive elements in a dry and marketable condition, and not to them as they are in the urine or in the still more diluted state in which they exist in sewage water. In the latter state, their application is much more costly, and the farmer, in estimating their value to him, must take this into account, and make such deduction as may appear necessary. The necessity for this may be made more obvious by a particular example. Suppose a person had a cargo of guano, which turned out to be a mixture of the pure guano with 12 times its weight of sand, and were to offer it for sale at 1*l.* a ton, and justify the offer by saying that in every 13 tons of it there was a ton of guano worth 13*l.*, he would state what was strictly correct; but no man in his senses would accept the offer, because he would see at once that all the expenses—such as carriage, cost of application, &c.—would be increased 13 times, and it would be necessary for him to take this into account. If, for example, the charges in question amounted to 10*s.* per ton of guano, they would be the same on each ton of the mixture, and he would be compelled to strike off that sum from the price of it; so that, by dilution in this way, one-half of the value of the guano would be annihilated; and it is easy to see that, if carried still further, it might be totally extinguished. There are many familiar instances in which the *entire* value of a substance is thus annihilated, and an excellent illustration may be drawn from the soil itself. An ordinary Wheat soil contains about 3 per cent. of metallic iron, and, reckoning soil and subsoil at 20 inches in depth, they must contain on every acre about 60 tons of iron, which at 2*l.* 10*s.* per ton (the current price of the metal) would be worth 150*l.*, or more than the agricultural value of the land. But certainly no one would gravely propose to dig up the soil to smelt it for iron, or to reckon the price of the metal if he wanted to sell his estate. Sewage offers so far a parallel case that the manurial elements contained in it cannot be reckoned at the same prices as those they would have in a dry state; and we shall see afterwards that when we come to calculate its agricultural effect and take into account the conditions by which its application is hampered, we must allow for it a much lower price—not more, in fact, than a ½*d.* per ton.

2. *Modes of Application.*—We come now to consider the mode in which sewage may be made available for agricultural purposes, and two methods have been proposed for the purpose.

The first of these is the process of precipitation, which first attracted the attention of the public, as it was expected to fulfil both sanitary and agricultural requirements. It has failed at Leicester, Tottenham, and several other places for the precipitation of sewage. The only other mode in which sewage can be applied is to use it in the fluid form, and by the process of irrigation; and it is universally admitted that it is the only way in which either sanitary or agricultural requirements are likely to be fulfilled. The Craigentinny meadows, and the wonderful crops obtained from them, have been so often referred to, and held up as an illustration of what can be effected by the sewage of towns, that it may perhaps be best to consider them in the first instance, especially as there are some points respecting them which appear to me to have received less attention than they deserve. It is unnecessary here to enter into any description of the Craigentinny meadows, further than to remark that they extend to 250 acres, and receive the sewage of about 80,000 of the inhabitants of Edinburgh. The point which appears to me to be of most importance to notice is the enormous quantity of manurial matter which is annually passed through them, and which is far greater than is usually supposed, even by those who are engaged in their management. The late Mr. Austin, C.E., examined into this point, and having ascertained the average flow of the Foul burn, he satisfied himself that, deducting Sundays, and assuming that the sewage flows only during nine mouths in the year, the annual application must have been about 8400 tons. It is easy to see, however, that if the meadows really receive the sewage of 80,000 of the population, even this last estimate must fall short of the actual quantity. The water supply of Edinburgh at present amounts to 34 gallons per head per day, which gives, for 80,000 people, 12,140 tons per day. If then, we assume that this is discharged into the Craigentinny meadows during nine months of the year, excluding Sundays, it would give no less than 11,400 tons per acre. This, it will be observed, is the amount yielded by the water supply alone, and the drainage water and rainfall will certainly add 25 per cent. to the quantity, bringing it up to about 14,000 tons per acre. If we assume, however, that its value is the same as that of the London sewage, which it probably is, and accept Dr. Hoffmann's estimate of 2*d.* per ton, then if 14,000 tons be used, the annual value of the manurial matters per acre must amount to 115*l.*; and if 8400 tons be the quantity, it must be 70*l.* When looked at in this point of view, we cease to be astonished at the crops the sewaged land produces, or the rent, now averaging 22*l.* per acre, obtained for it. Nay, we are rather surprised that the application of a quantity of manurial matters which, could it be obtained in a dry state like guano, would be considered a liberal application to 20 or 30 acres of arable land, should not produce a larger effect than it actually does. It is obvious, in fact, that the method adopted at Craigentinny is far from being an economical one; and, accordingly, all those who have attempted to use sewage in other places have arranged their works in such a manner as to apply a very much smaller quantity of sewage per acre; and in place of the open gutters by which it is carried through the Craigentinny meadows, and which are no doubt objectionable in a sanitary point of view, pipes are employed, and the liquid is in some instances distributed by means of gutta-percha hose. This is the system formerly used at Rugby, where the sewage of about 8000 people is, or may be, distributed over about 500 acres of land; at Alnwick, where the population is 5300, and 268 acres of land are piped; and at Watford, where the refuse of about 4000 people is applied to 210 acres of land. In these cases the application per acre is very much smaller than at Craigentinny, because whereas in the latter each acre receives the sewage of 300 of the population, the average in these three cases is that of about 20. Even this is still a large application, for the value of the sewage, reckoning only the urine and fæces, thus applied to an acre would in the shape of guano be worth about 6*l.* per acre, which is more than twice as much as would be applied to arable land. *A priori*, therefore, it might be anticipated that the effect should be highly favourable, but experience has shown the reverse. Lord Essex, who uses the Watford sewage, states that the quantity is not sufficient for more than 60 or 70 acres—in other words, that to get a profitable result he must apply manure which in the shape of guano would be worth 18*l.* At Alnwick the farmers have declined to use the sewage, although they can at any time obtain it for the cost of pumping; and at Rugby it has been found most profitable to apply a much larger quantity of sewage per acre, and even then Mr. Walker thinks the advantage barely sufficient to cover the rent of 50*l.* a year which he pays to the town of Rugby. It appears from these facts that the agricultural value of sewage is much less than that which the substances it contains would have if they were extracted and used in the dry state; and it becomes an important question to determine its true value to the farmer, so as to form a guide to him in using it. It was with this object that the experiments at Rugby were undertaken by the Royal Commission on Sewage of Towns. These experiments were conducted during the years 1861, 1862, and 1863; but only the results of the first season have yet been published. Fifteen acres were set apart, and divided into three sections—one for the Grass to be given to oxen, another to cows, and a third on which the Grass was made into hay. Each section was divided into four plots—one unsewaged, and to the others the sewage was applied to the extent of 3000, 6000, and 9000 tons per annum respectively. The results are expressed in the following Table:—

Produce Given to Oxen.

Plot.	Sewage required per Annum.	Actually applied to end of October.	Total Grass per Acre.	Increase of Grass per 1000 tons sewage applied.
			ton. cwt. qr. lb.	ton. cwt. qr. lb.
1.	...	...	9 5 3 5	.. ..
2.	3000	1872	14 16 3 8	2 19 1 7
3.	6000	4423	27 1 0 10	4 0 1 9
4.	9000	6153	32 16 3 8	3 16 2 9

On the Grass given to milch cows the effect was similar, except that the produce per 1000 tons of the sewage was higher, and amounted to about 4½ tons, which gives on the average of both sections very nearly 4 tons. If we reckon the sewage to be worth 2*d.* per ton, there has here been expended 8*l.* worth of manurial matter to produce about 4 tons of Grass. The Grass obtained as already mentioned was employed both for feeding oxen and milch cows. For the former purpose it was found not to be well adapted, but for the latter it proved very advantageous. The results are expressed in the following Table:—

Sewage applied.	No. of weeks the produce kept a cow.	Gallons of milk per acre.	Value of milk at 8*d.* per gallon.	Value of milk from increased produce of 1000 tons sewage.
0	19	321	£10 14 3	£5 0 0
1387	40.9	570.7	19 0 6	5 19 10
2804	58 8	820.4	27 6 11	5 16 8
4226	68.9	961.3	32 0 10	5 0 11

It is obvious that the sewage here acted very beneficially, for it may be safely said that in no other way could the same amount of produce have been obtained from an acre of the Rugby soil; but at the same time it must be borne in mind that this successful effort is obtained by an enormous expenditure of manure, the estimated value of the sewage being 31*l.*, or almost as much as that of the milk produced. The experiments were extended to the composition of the Grass, and, without entering into the details of these points, it may be stated that the sewaged Grass contained a much smaller quantity of solid matters than the unsewaged; but, what is rather unexpected, it was richer in the nitrogenous matters, and it is to their abundance that the value of the Grass for the production of milk is no doubt due.

Farmers' Clubs.

Morayshire. — *On the Growing of Turnips.*—The question which had been propounded for discussion at a recent meeting was—"What is the experience of members in the growing of Turnips of late years, with reference to the different varieties, date of sowing, kinds of manure, and general management?"

Mr. Walker, jun., Altyre, said: The nature of the soil as well as the difference of climate had much to do with the rearing of Turnips; it affected not only the time of sowing, but the different varieties of seed, the different kinds of manure, and, in short, the general management. Speaking from his own experience and observation he would say, in a general way, with reference to the different varieties which formed the first point in question, that where the soil was good or suitable for the purpose, no doubt Swedish Turnips would be the more profitable crop. Along with these he would sow a few of the softer varieties, such as Purple-tops and Hybrids, to be used in the first place till the Swedes were come to maturity, say up till this season of the year, or three weeks or a month afterwards. At any rate, these softer kinds of Turnip, he should say, ought to be all used up by the 1st of the new year, when recourse would be had to the Swedes. If the land were deep loam, where the roots would sink deep into the soil, there was no doubt but the Swedes, as he had said, would be the more profitable crop, it being necessary, however, to grow as much of the softer and earlier varieties as would keep the cattle going until the Swedes were fully matured. As to the time of sowing he would say, judging from his own experience, commence about the 26th May, and get all your Turnip brake sown as soon after that as possible. Begin about the 26th May, and finish the whole as hard as you can work it off. As to manure, there were so many different kinds of manure now-a-days, it was a matter of some difficulty as well as delicacy to make a selection. It would depend so much, too, on the nature of the soil, the variety of crop to be raised, and various other circumstances that had to be taken into account. For himself, however, he would make farmyard manure and bones the staple, using along with these some of the lighter manures for forcing the growth of the plant—say a mixture of guano and superphosphate. If the land were good enough for the purpose, he would have it all in Swedes except four or five acres. If they were to let the Turnip stand to the spring, he would use some cake along with it. In reference to the storing of the crop, he would store the whole of it by the old term, or between that and the new year. The yellow Turnips he would "fur up." The Swedish Turnips for the use of sheep he would put up in heaps of cart-loads on the field, to be thrown out and sliced during the winter as the sheep might require them. As to the expense of taking up the Turnip crop in this way, he thought it would cost about 3*s.* an acre to pull, top, and tail them, and about half as much, or fully half as much, to heap them—say altogether from 4*s.* 6*d.* to 5*s.* an acre. As to the use of the shaws for covering, he did not care very much about using them, because they were apt to heat the heap and cause it to rot. Straw covered with a little earth would best answer the purpose. Earth was the best, and very little of it would suffice. Whenever it came frost, so that you could not pull Turnips from the drill, you had only to go and open up these heaps, and scatter out the fresh Turnips to the sheep, going on from heap to heap as occasion might require. The East Lothian Swede was as good as any. The Purple-top also was a very good Turnip. That, he thought, was the best Swede. It was not the Skirving Purple-top, but one very much like it. It was a low-set Swede, a very handsome bulb, growing well out of the ground, and there was no Turnip he grew of which he had such a crop as of this variety. Another variety he liked was the Greystone. His principal objection to the Greystone was that it was apt to shoot, and therefore if he were to grow this Turnip he would require to have it laid up now, by the month of November, so as to prevent its going to seed. It was particularly Hybrids he would sow for spring use; the Purple-top Yellow was one of the most successful he had grown, and he grew this variety instead of Globes. His rule in manuring, in so far as quantity was concerned, was to give as much as he could—always from 3 to 4 cwt., or he might even vary the quantity up to 6 cwt. an acre, in the form of a mixture of light manures—say 4 to 5 cwt. of these light manures, along with from 10 to 15 tons of farmyard manure. The artificial manures he would value at 9*s.* to 10*s.* a cwt., and the farmyard manure at from 4*s.* to 5*s.* a ton.

Mr. Williamson, Shempston, said that having but recently come into Morayshire as a farmer, he could not be expected to say much as to his experience of that county. His experience had hitherto been chiefly confined to Banffshire. In Banffshire they used to like to sow the whole of their Turnips before the 20th May. With regard to Morayshire, he thought it was perhaps otherwise. As for himself, he was very late this year in getting some of his Turnips sown; but these latest sown, from whatever cause, were making up to be the best crop. He was quite sure that, if they had been so late in sowing their Turnips in the neighbouring county of Banff, they would scarcely have had a crop at all. As to the different varieties of Turnips, he did not think there was anything like Skirving's Turnips for growth. They were decidedly the variety that produced the bulkiest crops, provided, of course, they were from a proper selection of seed—seed from proper bulbs, and bulbs that had been transplanted. He would appeal to Mr. Morrison, seedsman, whether it was not a most important point that the bulbs from which the seed was raised should be transplanted. Seed raised in this way was to be preferred to any other seed sold in the country; his opinion, in fact, being that none should be sold which is not raised from transplanted bulbs. He generally gave all his Turnips farmyard manure, and along with that three or four cwt. of these dissolved manures, which would come to 30*s.* or so per acre in addition to the farmyard manure.

Mr. Walker said he had tried the Greystone variety last year. This variety grew to a tremendous size certainly, but it was soft. By this time of the year it was as soft as fog, and worth little or nothing. This year he had the Pomeranian Globe, which he also got from Mr. Morrison, which was equally bulky, and which had the advantage of being hardier, and containing more saccharine matter than the Greystone variety. He would therefore prefer it to the Greystone—which was certainly not so hard as the name might seem to imply. They should be all eaten up by the 1st November, or at any rate by the 11th, because after that there was very little nourishment or feeding in them either for cows or otherwise. After that he would recommend the Aberdeenshire Yellow along with Swedes, on to the 1st February or even to the end of February, and then he would put them entirely on the Swedes. It had been said that Swedes were not so milky as Yellows, but he found that his dairy cows gave as much milk on Swedes as on Yellows. As to sheep, he thought they throve equally well on the one as on the other—his ewes in spring throve quite as well and were quite as milky. He did not slice his Turnips, properly speaking; he had a cross axe to cut them down with, and this served the purpose for calves and all; to his own mind this seemed the best plan. With regard to the storing of Turnips, he would store the whole if possible before the new year. He had been in the habit of "furring up" his Turnips to save them from the ravages of the hares; but he found it was not a good system for his soft land, which, in consequence

of the furrowing up, was found to be too soft when it came to be ploughed up for the seeding in spring. Than to furrow them up it would be better to get them all stored, and if they were stored properly they would be found sound and good as ever to the month of May. With regard to the manuring, he would say 12 or 14 tons of farmyard manure per acre, with about 4 cwt. of Kilbagie guano. Where he had not farmyard dung to go over the Yellows, he would strongly recommend a good proportion of bruised bones along with dissolved bones, because dissolved bones were very useful in forcing the braird, and the bruised bones were as good as the farmyard manure for carrying on the crop afterwards. As to the expense, he did not think that a good crop of Turnips could be raised under 3*l.* or 4*l.* an acre. Taking the dung and the light manure into account, he had found he could never do it under 3*l.* an acre, and was ready to admit that the cost came nearer to 4*l.* He valued the farmyard manure at 3*s.* to 4*s.* a ton, and the light manure at 30*s.* for the acre—say 43*s.* worth of the former and 30*s.* worth of the latter, which would make the cost per acre about 3*l.* 15*s.*

Mr. BROWN, Westerton, being next appealed to for his experience, said that, as to the date of sowing, in his district they were in the habit of beginning about the 10th May, or the 12th, according to the weather. They liked always to sow in dry weather, not simply because the machine did not work so well in wet weather, but they found that unless they sowed in dry weather, and laid the seed down when the land was in good condition, the crop did not braird well, nor did it succeed well afterwards. And these were not the only important considerations which made it advisable that sowing should take place in dry weather. Laying down the Turnips when the land was in bad condition not only affected the Turnip crop itself, but would affect a series of future crops. Then, as to the manuring of the Turnips, his views coincided pretty much with those which had been expressed by Mr. Walker. He would give them as much dung as he could, along with four or five cwt. of artificial manure per acre, valuing the artificial manure at about 10*s.* the cwt. As to the variety of Turnips, he would say the Globe variety for early use, and the Swede afterwards. He was of opinion that the Swedes ought not to be eaten sooner than the 1st of the new year. Sometimes people were obliged to take them earlier when there was nothing else to take; but, on principle, he thought that they ought not to be eaten until they were fully matured, which would not be until the 1st of the new year. One had to study the apportioning of the different varieties according to the size of the farm in relation to the time of sowing, and so forth. You ought to have a certain proportion of Globe varieties to keep you going till the 1st December. Then, after that, you might have Yellows until the middle of January, by which time the Swedes would be fit for use. The White Globe was particularly well adapted for young stock and sheep. He would say they should begin early to fatten their stock. No doubt the Swede, from the amount of saccharine matter it contained, was the best for fattening, but he did not think it was a particularly good feeding Turnip until it was fully matured. He did not think it should be eaten until December at any rate. As to the different varieties, there was a variety he had been sowing very successfully—Shepherd's Golden Globe. Then there was the Purple-top Swede. (He thought all the different varieties of this Purple-top Swede were so closely akin to each other as to be scarcely recognisable as distinct varieties). Shepherd's Globe was rather an improvement on the Green Globe; it was an easily raised Turnip, a Turnip of good quality, and one which would yield a good quantity per acre. As to the roots, a good deal depended on the weather. In a very dry season your Turnips would always have much more roots than in a wet season. So much indeed depended on the season, that it was almost impossible to answer any question on this point. He did not think it so much depended on the kind of Turnip. With regard to Shepherd's Globe, there was a peculiarity about it which he thought was of some importance; besides being a pretty well shaped Turnip otherwise, it rose well on the top with an easy slope, and this was the peculiarity which he wished to point out as a recommendation in its favour. He did not care about a Turnip that was broad on the top, but liked it to rise like this Shepherd's Globe, somewhat in the form of a Pear, with such a rounded slope as to carry off the rain, or prevent the water from standing on the top, which was very apt to make the Turnip rot. He thought, therefore, it would be worth while to keep this shape in view in discussing the merits of the different varieties.

Mr. MORRISON, seedsman, wished to make an observation or two in regard to some of the varieties of Turnips that had been mentioned. He wished to say a word on the Kinaldie or Lane's foliage variety, which had been praised by Mr. Walker, and which he himself had been trying to praise before. Just the other day, Thursday, he walked down after dinner to see a field of Turnips belonging to Mr. John Murdoch, carrier, who was a farmer as well, and who had sown one half of a field with Shepherd's Golden Globe, and the other half with the green Turnip that had been mentioned. On examining the field, he found that Shepherd's Golden Globe was one-third heavier than the green one which they had been talking about. Mr. Walker, jun., had been talking about the East Lothian Purple-top Swede. He (Mr. Morrison) thought it was the finest of any of them—the very best Swede. He had seven varieties of Swedes growing in his garden. He got them all under different names, but, except that East-Lothian variety, the fact was he could see little difference between them. There was Skirving's Swede, grown by a Mr. Fairhead, a Turnip which bulbed capitally, but had a long neck. Then there was Skirving's Golden Globe, which was rather better; then there was the so-called "King of the Swedes," which was much better; then the "Improved," or (as he called it himself) the Child Swede; then Marshall's Swede, and the East Lothian. These he got under these different names as different varieties, but he could scarcely see the difference, except with regard to the East Lothian. In reference to the alleged sameness of some of the so-called "varieties," he might mention as an illustration the prosecutions that had lately been conducted with reference to the Skirving Swede. He repeated that the Lothian Purple-top spoken of by Mr. Walker, jun., was the prettiest and best Swede of the whole. The Kinaldie was not a Purple-top Swede; he should say it was a Hybrid; properly, it was a Green-top Swede; he could not say whether it was as hardy as the others. The Green-top proper was hardy—it was the hardiest of any of them. He went on to say that he was in the way of selling a great many Turnip seeds to people in different localities, not only in Morayshire but in Banffshire, and all up and through Glenlivet, and he found that they generally began sowing very early in these parts—about the 10th May or the time mentioned by Mr. Brown. Some of them, indeed, began about the 1st May; and, in fact, if they did not begin to sow early, people ran the risk of not being able to sow at all. It was different, however, in milder localities, and he should say that, on Speyside—or on such a place as that of Mr. Geddes, Orbliston—the proper time to commence sowing would be about the 20th May, which would give a better chance of a crop than when sown too early.

(To be concluded next week.)

Reviews.

On the Chemistry of the Feeding of Animals for the Production of Meat and Manure. By J. B. Lawes, F.R.S., F.C.S.

This is the title of a paper read before the Royal Dublin Society in March this year. It has been printed, we presume, for private circulation; and we reproduce the greater portion of it here as appropriate both to the season of the year, and especially to the difficult circumstances in which stall feeders are this winter placed. The following accordingly is the substance of Mr. Lawes' paper in a series of extracts:—

1. *On the Composition of Oxen, Sheep, and Pigs, in the Store and Fat Condition.*—I shall assume that an ox or a sheep will increase in weight by about one-half, and that a pig will double its weight during the so-called fattening period. Accordingly, I shall direct your attention to the composition of each of these descriptions of animal when in the lean or store, and also when in the fat condition, after it has increased in the proportion above supposed. I shall then show the average amount of food required to produce 100 lbs. increase in live weight, and also the composition of the food, of the increase, and to some extent of the manure also; and in doing so I shall assume that the animals are liberally supplied with good fattening food.

TABLE I.—*Composition, per cent., of Oxen, Sheep, and Pigs, in the Store and in the Fat Condition.*

	Oxen.		Sheep.		Pigs.	
	Store.	Fat.	Store.	Fat.	Store.	Fat.
Nitrogenous substance	18.0	15.0	15.0	12.5	14.0	10.5
Non-nitrogenous substance (fat)	16.0	30.0	18.0	33.0	22 0	44.0
Mineral matter ..	5.2	4.0	3.5	3.0	2.8	1.8
Total dry substance	39.2	49 0	36.5	48.5	38 8	56.3
Water	60.8	51.0	63.5	51.5	61.2	43.7
Total	100.0	100.0	100 0	100 0	100.0	100.0

Table I. shows the composition, per cent., of oxen, sheep, and pigs, both in the store and in the fat condition, the constituents given being the nitrogenous substance (lean), the non-nitrogenous substance or fat, the mineral or incombustible matter, the sum of these or total dry substance, and the water.

Taking first the nitrogenous substance, it is seen that in each description of animal there are several per cent. less of it in the fat than in the store condition. Of fat, on the other hand, there is in the case of both the oxen and the sheep nearly, and in that of pigs fully, twice as much in 100 lb. live weight of the fat, as in the same weight of the store animals. The mineral matter, again, like the nitrogenous substance, is found in less proportion in the fat than in the store animal. Lastly, the proportion of total dry substance is seen to be considerably increased, and that of the water diminished, as the animal passes from the lean to the fat condition.

In fact, the fattening process may be said to consist mainly in the diminution of the proportion of water, and the increase of that of fat. The actual amounts of both the nitrogenous and the mineral matter do, indeed, augment during the fattening process, as will be seen presently, when I come to speak more directly of the composition of the increase itself; but as they do so in so much less proportion than the fat, it results that their proportion in a given live weight becomes less and less, whilst that of the fat increases as the animal matures.

2. *Proportion of Parts, in Animals of different Descriptions, and in different Conditions of Maturity.*—Passing from the question of the chemical composition of oxen, sheep, and pigs, it will be desirable, before considering the relation of the increase and manure produced to that of the food consumed, briefly to point out some characteristic differences of structure or relative proportion of certain of their internal organs, as in these will be found the key to the difference in the character and amount of food which the three descriptions of animal respectively require. Table II. illustrates this part of the subject.

TABLE II.—*Relation of Parts in Animals of different Descriptions and in different Conditions of Maturity.*

	Per Cent.					
	In different Animals.			In Sheep in different Conditions.		
	Oxen.	Sheep	Pigs.	Store.	Fat.	Very fat.
Average of	16	249	59	5	100	45
Stomachs and contents	11.6	7.5	1.3	9.1	7.0	5.6
Intestines and contents	2.7	3.6	6.2	5.3	3.8	2.8
	14.3	11.1	7.5	14.4	10.8	8.4
Internal loose fat ..	4.6	6.9	1.6	4.5	6.0	7.5
Heart, aorta, lungs, windpipe, liver, gall-bladder and contents, pancreas, spleen, and blood ..	7.0	7.3	6.6	8.4	7.7	6.5
Other offal parts ..	13.0	15.0	1.0	17.9	16.1	13.1
Total offal parts ..	38.9	40.3	16.7	45.2	40.6	35.5
Carcase	59.3	59.2	82.6	53.4	58.7	64.1
Loss by evaporation, &c.	1.8	0.5	0.7	1.4	0.7	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

It is seen that whilst 100 lb. live weight of the ox comprises about 11½ lb. of stomach and contents, that of the sheep contains only 7½, and that of the pig only 1½ lb. Of intestines and contents, on the other hand, the ox contains only 2¾, the sheep 3¾, and the pig 6¼ per cent. Again, of stomachs and intestines (and their respective contents), taken together, the ox contains about 14¼, sheep about 11, and pigs 7½ per cent. Thus, of the receptacles and first laboratories of the food, the oxen contain by far the largest, and pigs by far the smallest proportion, which would appear to indicate a great difference in the requirement for bulk of food, such, indeed, as we know in reality exists. Oxen require a larger proportion of woody fibre in their food than sheep, and sheep much more than pigs. On the other hand, the food of the pig contains much more starch, or allied digestible matter, than that of the sheep, and that of sheep more than that of oxen, reckoned in relation to the weight of the animal; and it is known that starch undergoes its primary change (into sugar) almost throughout the length of the intestinal canal. Accordingly, we observe that the pig has a larger proportion of intestines than the sheep, and the sheep more than the ox.

Of the further elaborating, or what may be called the skilled labour organs of the body, and their fluids—the heart, liver, lungs, blood, &c.—the proportion is seen to be nearly the same in the three descriptions of animal.

The proportion of internal or loose fat is greater in the sheep than in the oxen; but it should be observed that a large proportion of the sheep contributing to the average result given in the table were in a more advanced state of fatness than the oxen. The comparatively small proportion of internal fat in the pig is accounted for by the peculiaritics of the animal. The proportion of its internal organs is comparatively small, and its speciality is to lay on fat in a greater proportion outside the frame.

The second portion of the Table shows the varying proportion of the different parts in one and the same description of animal, according to its degree of maturity. The animals selected for illustration of this point are sheep. Records not given in the Table show that, as the animals grew and fattened, the actual amount, per head, of stomachs and contents increased considerably; that the intestines and contents did so in a much less degree; that the internal loose fat was more than trebled; and that the other internal parts, and their fluids, collectively, increased in nearly the same proportion as the stomachs and contents. The general result was, that the total offal parts increased in actual amount from the store to the very fat condition in the proportion of about 1 to 1⅔; but the total carcase parts augmented from 1 to nearly 2⅓—much more, therefore, than the total offal parts.

Turning now to the figures in the Table, it is seen that the per cent., or proportion in 100 parts, of all the internal organs and parts, excepting the loose fat, diminished very considerably as the animals matured and fattened. Whilst the total offal parts diminished from 45.2 in the store to 40.6 in the fat, and to 35.5 per cent. in the very fat condition, the carcase parts increased from 53.4 in the store, to 58.7 in the fat, and to 64.1 per cent. in the very fat condition. That is to say, the so-called offal parts, which are chiefly composed of the organs of reception, elaboration, and transmission of the food constituents, increase in very much less proportion than those parts which it is the object of the feeder should be produced from the food consumed.

3. *Relation of the Increase, Manure, and Loss by Respiration, to the Food consumed by different Animals.*—We now come to the question of the description and amount of food consumed by the different animals to produce a given amount of increase, and to the collateral questions of the relation of the constituents in the increase and in the manure to those in the food consumed.

Table III. shows the amounts of certain foods assumed to be required for the production of 100 lb. of increase in live weight—of oxen, sheep, and pigs, respectively. The amounts will, of course, vary, according to the quality of the animal, the stage of its development, the external conditions to which it is subjected, the description and quality of the food, and so on; but the quantities assumed are approximately those which will be required, taking the average of large numbers of animals over the whole period of fattening, and supposing foods of the descriptions indicated, and of good quality, are employed, and that other conditions are moderately favourable.

The quantities of the different foods recorded in the table have been adopted after a very careful consideration of the results of numerous experiments on feeding on the large scale; and after the illustrations which have been given of the different proportions of the organs in the different descriptions of animal, it will be seen how consistent are the variations in the quantity and quality of the food recorded as required by the different animals. Thus, to produce the same amount of increase, oxen consume a much larger proportion of hay, containing so much indigestible matter, than sheep; whilst pigs are fattened on a diet as concentrated and containing as little indigestible substance as corn alone. The actual amounts of

food assumed to be required for the production of 100 lb. increase in live weight are:—For oxen, 250 lb. of oilcake, 600 lb. of hay-chaff, and 3500 lb. of Swedes; for sheep, 250 lb. of oilcake, 300 lb. of hay-chaff, and 4000 lb. of Swedes; and for pigs, 500 lb. of Barley meal.

It will be remembered that, when speaking of the composition of the animals themselves, their constituents were grouped under the heads of nitrogenous substance, non-nitrogenous substance, mineral matter, and total dry substance, and the same classification is, for convenience of comparison, adopted in reference to the composition of the food, increase, and manure of the different animals as recorded in Table III. As the food of the pig is the most simple, I will direct your attention to the figures relating to it in the first place. These will be found in the lowest division of the Table.

The 500 lb. of Barley meal consumed in increasing the weight of the pig from 100 to 200 lb. contained 420 lb. of dry substance, and the 100 lb. increase in live weight produced by it not quite 74 lb.; about 70 lb. remain in the manure, and 276 out of the 420 lb. consumed were expended in respiration and other exhalations from the body. Nearly two-thirds of the whole dry substance consumed have thus been expended in keeping in working order the living meat and manure-making machine.

Looking to the column showing the composition of the 100 lb. of increase, it is seen that it contains only 7 lb. of nitrogenous substance, and 66 lb., or more than 9 times as much non-nitrogenous substance or fat, whilst the mineral matter does not amount to 1 per cent. The general result is, then, that nearly two-thirds of the fattening increase in live weight were pure fat itself, and only about one-fourteenth of it nitrogenous substance or lean meat.

But to produce the 7 lb. of nitrogenous substance in increase, 52 lb. were consumed in food; by far the greater part of the remainder being found in the manure. To produce the 66 lb. of fat, 357 lb. of non-nitrogenous substance were consumed; but as it existed in the food almost entirely in the form of starch, and as it requires about 2¼ parts of starch to form 1 of fat, it may be said that at least 165 lb. of the non-nitrogenous substance consumed contributed pretty directly to the formation of the 66 lb. of fat. Lastly, in reference to the increase:—Of the 11 lb. of mineral matter consumed, only about ⅔ lb. were stored up in the increase of the animal.

It is observed, then, that a comparatively small proportion of either the nitrogenous substance or the mineral matter of the food is retained in the increase; the manure, on the other hand, retains a very large proportion of the former, and nearly the whole of the latter.

Of 100 parts of gross dry substance consumed, 1.7 parts of nitrogenous substance, 15.7 of fat, and 0.2 of mineral matter—in all 17.6 parts—are stored up in the increase: 14.3 parts, consisting of highly nitrogenous organic matter, and 2.4 parts of mineral matter, making a total of 16.7 parts, are retained in the manure; and 65.7 parts, consisting chiefly of carbon, hydrogen, and oxygen, are lost by respiration, &c. Or, if we reckon the proportion of each class of constituents consumed which is stored up in the increase, the last column of the Table shows that of 100 of nitrogenous substance consumed, 13.5 parts; of 100 non-nitrogenous substance consumed, 18.5 parts; and of 100 mineral matter consumed, 7.3 parts are retained in the increase.

It will not be necessary to follow so closely the figures in the Table relating to the sheep and oxen. It will suffice to direct attention to the chief differences of result obtained with the three descriptions of animal.

Table III.—*Food, Increase, Manure, &c., of Fattening Animals.*

OXEN.

	250 lbs. Oil-cake .. .. 600 lbs. Clover Chaff .. .. 3500 lbs. Swedes .. .. Produce 100 lbs. Increase, and supply—				100 Total Dry Substance of Food supply—			
	In Food.	In 100 lbs. Increase.	In Manure.	In Respiration, &c.	In Increase.	In Manure.	In Respiration, &c.	Amount of each constituent stored up, for 100 of it consumed.
	lbs.	lbs.	lbs.	lbs.				
Nitrogenous substance ..	218	9.0	323.0	636	0.8	29.1	57.3	4.1
Non-nitrogenous substance	808	58.0			5.2			7.2
Mineral matter	83	1.6	81.4	..	0.2	7.4	..	1.9
Total dry substance ..	1109	68.6	404.4	636	6.2	36.5	57.3	..

SHEEP.

	250 lbs. Oil-cake .. .. 300 lbs. Clover Chaff .. .. 4000 lbs. Swedes .. .. Produce 100 lbs. Increase, and supply—				100 Total Dry Substance of Food supply—			
	In Food.	In 100 lbs. Increase.	In Manure.	In Respiration, &c.	In Increase.	In Manure.	In Respiration, &c.	Amount of each constituent stored up, for 100 of it consumed.
	lbs.	lbs.	lbs.	lbs.				
Nitrogenous substance ..	177	7.5	229	548.5	0.8	25.1	60.1	4.2
Non-nitrogenous substance	671	63.0			7.0			9.4
Mineral matter	64	2.0	62	..	0.2	6.8	..	3.1
Total dry substance ..	912	72.5	291	548.5	8.0	31.9	60.1	..

PIGS.

	500 lbs. Barley Meal produce 100 lbs. Increase, and supply—				100 Total Dry Substance of Food supply—			
	In Food.	In 100 lbs. Increase.	In Manure.	In Respiration, &c.	In Increase.	In Manure.	In Respiration, &c.	Amount of each constituent stored up, for 100 of it consumed.
	lbs.	lbs.	lbs.	lbs.				
Nitrogenous substance ..	52	7.0	59.8	276.2	1.7	14.3	65.7	13.5
Non-nitrogenous substance	357	66.0			15.7			18.5
Mineral matter	11	0.8	10.2	..	0.2	2.4	..	7.3
Total dry substance ..	420	73.8	70.0	276.2	17.6	16.7	65.7	..

Whilst the pig required only 420 lb., the sheep required 912 lb., and the oxen 1109 lb. of dry substance in food to produce 100 lb. increase in live weight. In other words, the sheep consumed more than twice as much, and the oxen more than two and a half times as much, to produce a given amount of increase, as the pig. But the food of the pig was of a much higher character than that of the other animals. Whilst it consisted entirely of highly elaborated grain, closely resembling human food, the food of the other animals contained a large amount both of woody fibre and of crude succulent roots; the dietary of the ox containing the largest proportion of hay, with its high percentage of indigestible woody matter.

Turning to the columns giving the composition of 100 parts of the increase, they show that whilst that of the pig contained 73.8 parts of dry substance, that of the sheep contained rather less, and that of the oxen rather less still. The proportion of fat also was greater in the increase of the pig than in that of sheep, and greater in that of the sheep than in that of the oxen. The contrary was, however, the case with the proportion of nitrogenous substance, which was the greatest (9 per cent.) in the increase of the oxen, less (7.5 per cent.) in that of sheep, and less still (7 per cent.) in that of pigs. It will be observed, too, that the percentage of mineral matter in the increase of the ox and sheep is considerably higher than in that of the pig; and it is even rather higher in the case of sheep than oxen. Independently of any essential differences of structure in the different animals, this result is partly due to the fact that sheep and oxen, especially sheep, develop bony structure during the fattening process more than pigs. It is true that both sheep and pigs are, compared with oxen, fattened at an earlier stage of their development; but not only is the pig more naturally disposed to fatten instead of grow in frame very early in his career, if only liberally supplied with proper food, but the practice of feeders, to meet the demands of the market, is to encourage growth as well as fattening much more in the case of sheep than of pigs.

Comparing the constituents stored up in increase for a given amount of dry substance of food consumed in each case, the Table shows that for 100 gross dry substance of food, the oxen and sheep stored up less than 1 per cent., and the pigs more than twice as much of nitrogenous substance; that of fat the oxen stored up only 5.2, the sheep 7, and the pigs 15.7 parts.

Or, looking at the subject from another point of view, the last column of the Table shows that for 100 nitrogenous substance of food consumed, the oxen and sheep stored up little more than 4, but the pig about 13.5 parts; that for 100 non-nitrogenous substance in food, the oxen yielded 7.2, the sheep 9.4, and the pigs 18.5 parts of fat in increase; and that for 100 mineral matter consumed, the oxen stored up 1.9, the sheep 3.1, and the pigs 7.3 parts.

That a very much larger proportion of the constituents of the food of the pig than of that of oxen and sheep should be stored up as increase is, however, only what we should expect, when we consider that the former consists of matured grain, and the latter chiefly of comparatively immatured vegetable produce, containing a large proportion of indigestible and woody matter, and also a larger amount of nitrogenous and mineral matter in proportion to its digestible and available non-nitrogenous constituents.

But whilst the pig, with his much higher character of food, gave so much more increase than the sheep for a given amount consumed, and the sheep more than the ox, the ox returned as manure 36.5 per cent. of the dry substance he consumed, the sheep not quite 32, and the pig only 16.7 per cent. The proportion of the consumed matter that was lost by respiration was, on the other hand, rather the lowest with the ox, namely, 57.3 per cent.; whilst with the sheep it was 60.1, and with the pig it was 65.7 per cent. Or, reckoned in proportion to a given amount of increase produced, the oxen gave, for 100 lb. of increase in live weight, 404 lb., the sheep 291, and the pigs only 70 lb. of dry substance in manure; and for the same amount of increase, the oxen lost of dry substance, by respiration, &c., 636 lb., the sheep 548.5 lb., and the pigs 276.2 lb.

4. Comparison of Animals as to Rapidity of Growth and Consumption.—There is another point from which it is desirable to view the difference of the result obtained with the different descriptions of animal. This is illustrated by the figures given in Table IV., which shows for oxen, sheep, and pigs, respectively, the amounts of increase yielded, and of dry substance consumed in food, voided as manure, and lost by respiration, per 100 lb. live weight per week.

The first column of this Table shows that whilst the pig increases from 6 to 6½ per cent. of its weight per week, the sheep increases only 1⅜, and the ox little more than 1 per cent. No wonder, then (to say nothing of the difference in the character of the food), that the oxen and sheep, requiring so much longer time to add a given proportion to the weight of their bodies, should consume so much more food, void so much more as manure, and expend so much more in respiration, for a given amount of increase produced, as we have seen they do.

The other columns of the Table show, however, that neither the amount of dry substance of food consumed, nor the amount lost by respiration, by a given weight of animal within a given time, is in excess with the pig in anything like the proportion that its increase exceeds that of the other animals. In other words, the much higher character of the food of the pig shows itself in the much greater rapidity, and the much greater proportion of its conversion into meat—the most valuable product of the feeding operation.

Table IV.—*Amount of Increase yielded, and of Dry Substance consumed in Food, recovered as Manure, and lost by Respiration, &c., per 100 lbs. live weight, per week.*

	Per 100 lbs. Live Weight, per Week.			
		Dry Substance.		
	Increase yielded.	Consumed in Food.	Recovered as Manure.	Lost by Respiration, &c.
	lbs.	lbs.	lbs.	lbs.
Oxen ..	1.13	12.5	4.56	7.16
Sheep ..	1.76	16.0	5.10	9.62
Pigs ..	6.43	27.0	4.51	17.74

Lastly in regard to the results in this Table, it is remarkable that, whilst, for a given weight of the body within a given time, the amounts of increase yielded, and of dry substance consumed in food, and lost by respiration, are so very different for the different animals, the amounts of dry substance voided in excrements are almost identical. I shall show further on that the limit of consumption is much regulated by the amount of non-nitrogenous substance contained in the food; and hence it would appear that the respiratory function had much to do with determining the amount of food consumed. It would also seem, from the equality of amount of dry substance voided by a given live weight of the different descriptions of animal within a given time, that the limit of consumption had also some connection with the amount of transformed and effete matter that the system could pass; and hence that the surplus available for increase was fixed by the necessary proportion of digestible and assimilable to effete matter in the appropriate food of the respective animals.

Conclusion.—To sum up the points thus far illustrated, it may be said:—

1. That during the fattening process the proportion, in a given weight of the body, of water, mineral matter, and nitrogenous compounds decreases, whilst that of the fat very considerably increases.

2. That the carcase parts, or saleable meat, increase more rapidly than the internal parts or offal.

3. That the amount of dry substance of food required to produce a given weight of increase is larger with the ox than with the sheep, and larger with the sheep than with the pig.

4. That the dry substance of the food of the ox contains a larger proportion of indigestible matter than that of sheep, and that of sheep more than that of pigs.

5. That oxen require from 5 to 6, and sheep from 3 to 4 times as much time to add a given proportion to the weight of their bodies as pigs.

6. That the greater portion of the nitrogenous and mineral matters of the food is recovered in the manure; and that the greater part of the non-nitrogenous substance is lost by respiration and other exhalations—a much smaller proportion being retained in the increase, or voided in the manure.

7. That for a given amount of increase produced, oxen void considerably more substance as manure, and expend more in respiration, &c., than sheep, and sheep very much more than pigs.

8. That for a given weight of dry substance consumed, oxen void more as manure than sheep, and sheep much more than pigs; but oxen respire rather less than sheep, and sheep rather less than pigs.

9. That in proportion to a given weight of animal, within a given time, oxen both consume and respire less dry substance of food than sheep, and sheep very much less than pigs; but they void almost identical amounts of dry substance as manure.

(To be Continued.)

Miscellaneous.

Lord Palmerston on Agriculture.—At the recent meeting of the Romsey Agricultural Society, Lord Palmerston said:—I thank you from the bottom of my heart for the kind manner in which this toast has been proposed, and in which it has been accepted by the company which I have now the honour to see assembled. It must at all times be most gratifying to any man to meet with the expression of the goodwill and approbation of his fellow-countrymen; but, perhaps, if there is any portion of his fellow-countrymen whose goodwill and approval he may be most anxious to secure, it must be those in whose neighbourhood he lives, who have opportunities of forming their judgment from seeing him and from knowing what he does better than those who may live at a distance can do. I am, therefore, peculiarly gratified at the expression of goodwill and of kindness which I invariably receive from the people of the neighbourhood of Romsey. I am glad and proud to meet you upon the present occasion. It is honourable, I think, to the town and neighbourhood of Romsey that we should have erected this handsome and capacious building, to provide for that which was obviously a great want in the accommodation of the town. Agriculture, like every other industry, is promoted by the intercourse of man with man, by the interchange of ideas, by the mutual intercommunication of knowledge, by one man telling others what he has done, how he has succeeded, and how he has failed. All these things tend to enlighten the ideas and to promote that industry with regard to which that intercourse takes place. Hitherto the farmers who assembled in this town have been exposed to the wind and the rain. I do not mean to say to say they are not stout fellows who do not care for the wind or the rain. The wind will not blow their good thoughts out of them, and the rain will not melt away their good qualities. But, nevertheless, it is very pleasant to meet in a comfort-

able spacious apartment like this, and I am convinced that the erection of a building like this will tend to the advantage of this interesting agricultural district. Although I have had the honour of presiding at this agricultural dinner, I do not intend to take upon myself the task of talking to farmers about farming. Nor do I imagine that anything I could say would enlighten their minds as to the practice of the industry in which they are engaged, but I think I may be permitted to observe that this show to-day, both of cattle and roots, is honourable to the progress of agricultural industry in this neighbourhood, and I trust we are tending to advance and to improve year by year. Although I do not pretend to lecture upon agriculture, yet there are things which strike the eye and appeal to the understanding of every layman, however little he may be acquainted with the details of agriculture, and there are one or two things which I may be permitted to mention. In the first place, I believe that the industry of agriculture is destined very much to increase. The introduction of machinery has progressively added to the produce of the soil, and it has reconciled itself even to those labourers whose employment may at first sight appear to diminish in consequence of the introduction of machinery. When the first threshing machines were introduced there was a revolt, I may say, among the flail men. They thought that the threshing machine would take the bread out of their mouths, and the threshing machines were destroyed in consequence of jealousy of the flail men. The other day when I was down in Hertfordshire I was told by a farmer that the labourers considered the flail too severe an employment, that they would not thrash by the flail, but only by machinery. Then comes the question of ploughing. The steam plough is a recent and modern application of science to agriculture. I cannot help thinking that it is destined to spread generally, so as to be of the greatest possible service; and, although it may not be within the scope of the resources of all farmers to go to the expense of buying a steam engine and its necessary apparatus, why should not persons procure the necessary apparatus and let it out as they do threshing machinery, and thus improve the cultivation of the country. The great advantage of the steam plough is that it ploughs deeper than can be done by any other process, and anyone knows that the deeper you go the more you will let in the air and all other fertilising influences, and thus increase the produce. Again, modern science has lightened greatly the vehicles used in agriculture. We no longer see those enormous masses of timber which were formerly drawn by horses in the shape of carts and waggons, which in themselves were heavier than the loads which they were intended to convey, which it was quite unnecessary to make so large and heavy, which were not stronger by reason of their weight, because their weight destroyed their usefulness, and which were dearer. A great improvement has taken place in that respect. Many complaints have been made this year that the crop of Turnips has been scanty, not because the crop of Charlock has been scanty. I have seen a good deal of the variety of colours that ornament our stubbles, and I think if there is one thing to which the energy of our agriculturists may be devoted more than another it is to the extirpation of these weeds, which draw from the soil those elements of growth which ought to be devoted entirely to corn, Grasses, and other useful things. I will not detain you longer, except to say that I am very proud of having the honour to preside on the present occasion. I trust this is a fresh point of departure for Romsey, and that we shall be able to mark this day as a day of increasing progress in agricultural prosperity in this district. I now propose, "The Health of the Chairman and Committee of the Romsey Corn Exchange, and Prosperity to that Institution."

The Wheat Crop in 1864.—In October last you favoured me with space for a few remarks on the character of the Wheat crop of 1863. Founding my conclusions upon the produce obtained in a field of 14 acres, in which Wheat had been grown for 20 years in succession, on some portions without manure, and on others with different descriptions of manure, and also upon a careful comparison for many years past of the results obtained in that field with those of ordinary farming over a large area of the country, I gave it as my opinion that the crop of last year (1863) would turn out a remarkably abundant one; and such subsequent experience has proved it to have been. I now propose to direct the attention of your readers to a few of the results obtained in the same field during the season just passed, which is the 21st of Wheat year after year on the same land. Below are given, for the harvest of 1864, the number of bushels per acre, and the weight per bushel of the dressed corn obtained—on a portion left entirely unmanured during the whole 21 years, on another manured with 14 tons of farm-yard dung every year, and on others manured with certain artificial mixtures in each of the 21 years. And, for the sake of comparison with the results of the present season, there are given, in parallel columns, those of 1863, as well as the average over the last 12 years, during which period the description of artificial manure applied was the same year after year on the same plot as for the crop of 1864. It may be added that the different artificial mixtures contained the same mineral manure in each case, but in combination either with different quantities of ammonia-salts or with nitrate of soda.

BUSHELS OF DRESSED CORN PER ACRE:—

Plots.		Harvests. 1863.	Harvests. 1864.	Average of 12 years. 1852-63.
3	Unmanured	17¼	16	15¼
2	Farm-yard manure ..	44	40	35⅔
7	Artificial manure	53⅔	45⅔	36⅔
8	,, ,, ...	55⅔	49⅔	38
9	,, ,, ...	55½	51¼	34½
16	,, ,, ...	55⅞	51	35½

WEIGHTS PER BUSHEL OF DRESSED CORN—lb.

Plots.		Harvests. 1863.	Harvests. 1864.	Average of 12 years. 1852-63.
3	Unmanured	62.7	62.0	56.5
2	Farm-yard manure ..	63 1	62.5	59.3
7	Artificial manure	62.6	63.1	58.4
8	,, ,, . ..	62.3	63.5	57.8
9	,, ,, ...	62.1	62 6	57.1
16	,, ,, ...	62 4	63.2	57.6

It is seen that the produce of 1864 was in every case less than that of the extraordinary season of 1863; but that it was, on the other hand, in every case considerably higher than the average of the preceding 12 years. Indeed, on two of the plots the produce of the present season exceeded the average of the preceding 12 years by about 12, and on one by more than 16 bushels per acre. The quality of the grain is also very high, as indicated by the weight per bushel, which is fully equal to that of 1863, and very much higher than that of the average of the preceding 12 years. It is remarkable, too, that in three of the experiments the produce of the last two years taken together has exceeded 100 bushels per acre. In no other instance during the 21 years has the produce of two consecutive seasons given such a result. The nearest approaches to it were in 1857 and 1858, when one plot gave 92 bushels, and in 1862 and 1863, when several plots gave over 90 bushels per acre in the two years. Upon the whole, I think it may be concluded that, on the heavier soils, if in good condition, the Wheat crop of 1864 will prove to be much above the average. On light and badly-farmed soils, on the other hand, I think the produce will generally be below an average. The quality is doubtless pretty universally good, and above the average. With such a crop following one of such unusual abundance as that of last year, it is not surprising that the price of Wheat should be so low. *J. B. Lawes, Rothamsted, Herts, in the Times.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	On Grass. Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	22	29.77	35	33	N.E.	1	10	42	35	48	32	..
Wednesday ..	21	30.03	40	39	N.W.	1	10	46	37	47	29	0.02
Tuesday ..	20	29.78	43	43	S.W.	0	10	43	25	44	25	0.39
Monday ..	19	29.38	26	26	S.E.	0	0	36	26	36	22	Show
Sunday ..	18	29.79	27	27	S.	2	4	33	20	36	15	Show
Saturday ..	17	29.83	33	33	N.E.	0	10	35	26	37	17	Show
Friday ..	16	29.77	35	33	N.E.	2	10	36	33	36	32	..
Thursday ..	Dec.	30.18	36	34	N.E.	1	10	42	35	48	32	..

Notices to Correspondents.

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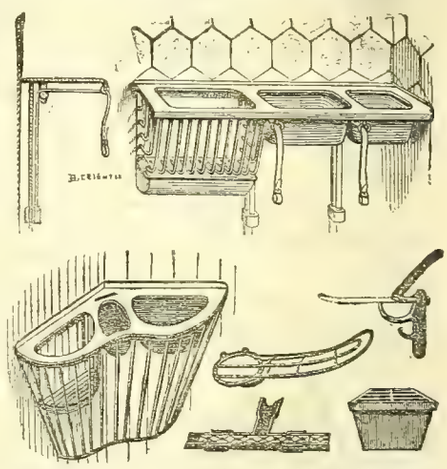
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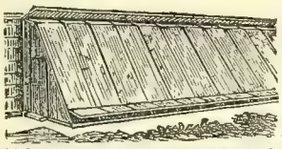
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CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's FIXTURE. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

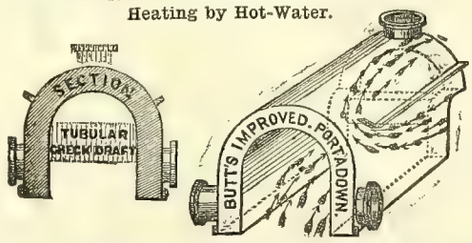
Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace BARS, Supply Cisterns, and Builders' Castings of every description in stock, at

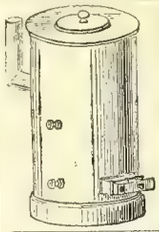
MR. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.



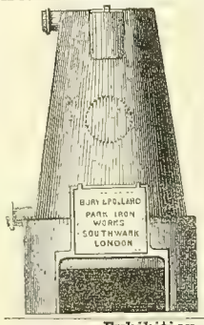
RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. IS perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.



HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

BURY & POLLARD have just fixed at Wollaton Gardens, for Lord Middleton, several Boilers and long Ranges of Pipes.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

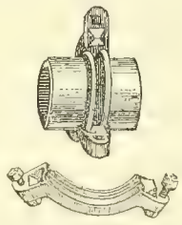
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

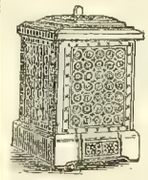
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.



This Stove is the nearest approach to Warming by Hot Water.

It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

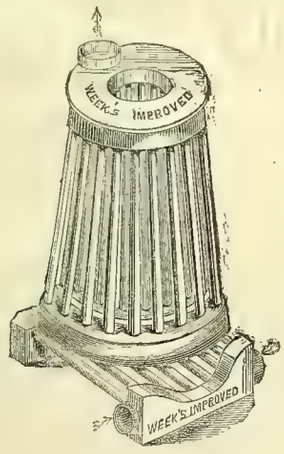
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 50*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.



FACTS EXTRAORDINARY.

SAVING OF £195.

FIRST:

IN ONE INSTANCE WHERE TWENTY-FOUR FURNACES WERE SUBSTITUTED

BY ONE OF

WEEKS'S IMPROVED UPRIGHT TUBULAR BOILERS,

THE PROPRIETOR AND GARDENER HAVE KINDLY STATED THAT THE SAVING OF FUEL AND LABOUR DURING LAST SEASON ONLY, WAS £195.

SECOND:

THE ONLY BOILER EVER PRODUCED CAPABLE OF

HEATING 20,000 FEET OF 4-INCH PIPE IN FOUR HOURS WITH A GIVEN QUANTITY OF FUEL,

IS THAT NOW MANUFACTURED BY

J. WEEKS AND COMPANY,
HORTICULTURAL BUILDERS and HOTWATER APPARATUS MANUFACTURERS,
KING'S ROAD, CHELSEA, LONDON, S.W.

Their Small Boilers are correspondingly powerful and economical.

☞ Please write for a copy of the last edition of their Illustrated Prospectus to J. WEEKS & Co., King's Road, Chelsea, S.W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

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HAND GLASSES.



PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



MILK PANS.

See Advertisement the first week in the month, or on application.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

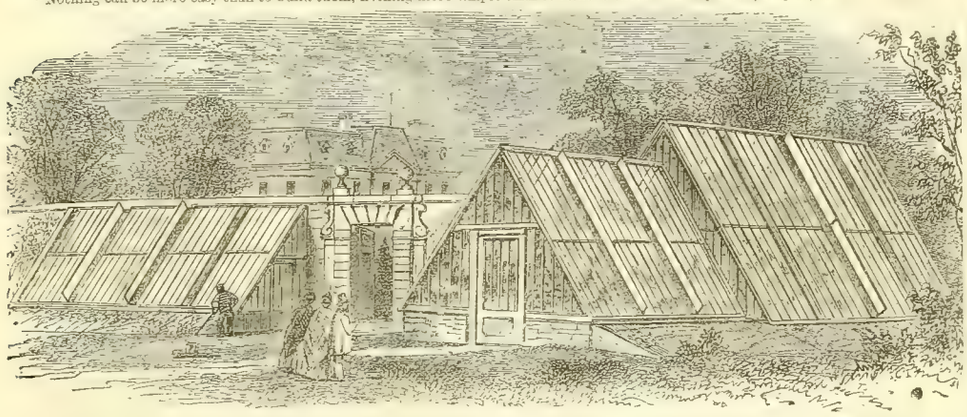
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COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

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The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights.	10 ft. Lights.	Ft. In.	12 ft. Lights.	14 ft. Lights.	16 ft. Lights.
20 7 in length ..	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length ..	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length ..	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length ..	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length ..	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length ..	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars, with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, AGENT, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1s.; post free, 1s. 1d.

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical."—*Cottage Gardener*, Oct. 6. 1863.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

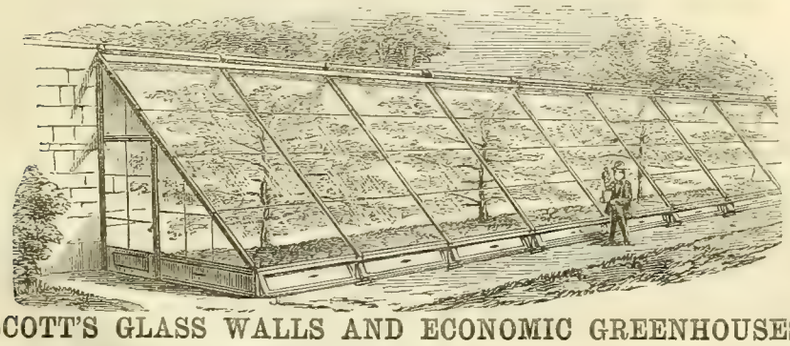
JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

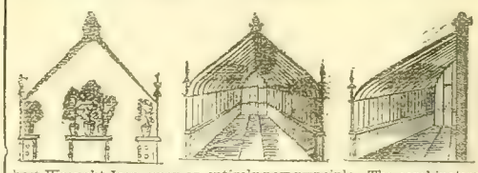
Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High Street, Chelmsford, Essex.

SELF-FLUED CYLINDER BOILER.—Requires no Brickwork, all Flues being in Iron. This Boiler combines the following advantages:—The great amount of surface exposed to the action of the fire, simplicity in feeding and cleaning, capacity for fuel, the great length of time it will heat by once feeding, economy in fuel and neatness in structure. Suitable for Halls, Greenhouses, Vineries, Churches, Chapels, &c.

Prices and other particulars to be had on application to JAMES BRADSHAW, Hot Water Apparatus Manufacturer, Alderley Edge, near Manchester.

TO BE DISPOSED OF, a Bargain, a Waggon-roofed CONSERVATORY, 40 feet by 22 feet, fitted with Iron Shelves and Stands on Rollers; the bottom is paved with Slate, and the house is heated with Hot Water, the whole of which is to be Sold Immediately.

Apply to Mr. F. W. DURRANT, 1, Holland Place, Kensington, W.

Span-Roofed Iron Greenhouse.

FOR SALE, a SPAN-ROOFED IRON GREENHOUSE, 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.

Particulars on application to A. SHANKS & SON, 27, Leadenhall Street, London, E.C.

FOR SALE, SEVEN GREENHOUSES, warranted strongly made, of good Yellow Deal, and Glazed with 21-oz. British Sheet Glass, Painted, &c.

Span, Angle 45 deg., with excellent ventilating appliance, 25 ft. by 10 ft.	£35 0
Span, 21 ft. by 16 ft.	25 0
Span, 16 ft. 6 in. by 10 ft.	18 10
Lean-to, ventilated by single movement, 25 ft. by 13 ft. 1 in ..	32 0
Ditto Ditto Ditto 23 ft. 6 in. by 12 ft. 8 in.	30 0
Ditto Ditto Ditto 45 ft. 6 in. by 14 ft. ..	65 0
Ditto 22 ft. by 11 ft. 10 in.	22 0

MELON FRAMES of an improved make.

ORCHARD HOUSES made to order, 1s. 1d. per ft.

N.B. Estimates given for effectually Heating by Hot-water.

Address, JOSEPH SMITH, New Road, Hammersmith, W.

AUSTIN'S ARTIFICIAL STONE.
Invented by FELIX AUSTIN, 1826.

The close resemblance of this material to Portland or other Limestones (in strong distinction from Terra Cotta, and other kinds of pottery) causes it to be overlooked as a peculiar invention, and to be mistaken for the natural stone. There are consequently thousands of gardens where the work might be expected to act as an advertisement and recommendation, but where from the cause mentioned it fails to do so.

It becomes necessary therefore to call the attention of the present generation to the established character of the Manufactory, which after so many years practice has accumulated the largest quantity of Models that probably ever existed in one concern. An idea of them may be conveyed by the following summary:—

240 DIFFERENT KINDS of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS, from 1 to 10 feet diameter.
17 FLOWER BASKETS, for WINDOWS, &c.
6 GARDEN SEATS, of ARCHITECTURAL DESIGN.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.

And a great variety of BALUSTRADING and PEDESTALS.

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SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & CO., 29, Oxford Street, Manchester.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

SAUSAGE and MINCING MACHINE.—The "Guinea" Universal Machine of BURGESS & KEY'S.
Best, simplest, and cleanest invented.
Sold by Ironmongers throughout the Kingdom; also by the Manufacturers, 95, Newgate Street, E.C.
Ask for BURGESS & KEY'S.

CARBOLIC ACID for Medical, Commercial, and Disinfecting purposes, at greatly reduced prices.
CALVERT, CLIFT, & CO., 7, Bond Street, Manchester.

CHRISTMAS PRESENTS and NEW YEAR'S GIFTS for the Promotion of Personal Attraction.—ROWLANDS' MACASSAR OIL creates and sustains a luxuriant Head of Hair. ROWLANDS' KALYDOR renders the Skin soft, fair, and blooming, and eradicates all defects. ROWLANDS' ODONTO, or Pearl Dentifrice, imparts a pearl-like whiteness to the Teeth, and a pleasing fragrance to the Breath.—Sold at 20, Hatton Garden, and by Chemists and Perfumers. ☞ Ask for "ROWLANDS'" Articles.

AT CHRISTMAS many SUFFER from INDIGESTION, and require some little assistance. PARR'S LIFE PILLS remove, without the slightest pain, uneasy or nauseous sensations, so familiar to those who have indulged a little too freely in good Christmas fare. May be had of any Chemist.

ANOTHER TESTIMONIAL this WEEK.—CURES of ASTHMA by DR. LOCOCK'S PULMONIC WAFERS.—From Mr. Forrester, Chemist, &c., Pittenweem: "Dec. 19th, 1864.—Dr. Locock's Wafers are highly famed in this locality; they prove very beneficial to those who are troubled with asthma, &c." They give instant relief, and rapidly cure asthma, consumption, coughs, and all disorders of the breath and lungs. Price 1s. 1½d., 2s. 9d., 4s. 6d., and 11s. per box. Sold by all Druggists.

AVOID PILLS and all other MEDICINES; they invariably aggravate and perpetuate diseases;—their annoyances disappointment, and all Doctors' Bills may be avoided by invalids sending their address to G. C. BARRY, Esq., 77, Regent Street, W., London, and they will receive free by post, "THE NATURAL RESTORER" of perfect Digestion, Strong Nerves, Sound Lungs and Liver, Refreshing Sleep, and Nervous and Muscular Energy to the most Enfeebled, Curing without Medicine, inconvenience or expense, Indigestion, Dyspepsia, Constipation, Distension, and Sickness at the Stomach, Haemorrhoids, Torpidity of the Liver, Nausea, Pains between the Shoulders and at the Pit of the Stomach, Debility, Nervousness, unfitness for Study, Fear, Palpitation, Cough, Asthma Consumption, Bronchitis, Dropsy, Diarrhœa, Dysentery, Biliousness, Fevers, Sore Throats, Catarrhs, Colds, Noises in the Head and Ears, Rheumatism, Gout, Impurities, Eruptions, Scrofula, Epilepsy, Paralysis, Hysteria, Neuralgia, Irritability, Sleeplessness, Acidity, Heartburn, Headache, Despondency, Cramp, Spasms, Sickness, Fits. This Guide contains copious extracts from 60,000 authentic cures, which had resisted all medicines!

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished rom real silver.

A small useful set guaranteed of first quality for finish and durability, as follows :—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread or Brunswick Pattern.	King's or Lily, &c.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 13 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 12 0	0 16 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2*l.* 15*s.* Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3¼-inch ivory handles	12 0	9 6	4 6
3½-inch fine ivory handles	15 0	11 6	4 6
4-inch ivory balance handles	18 0	14 0	5 0
4-inch fine ivory handles	24 0	18 0	7 3
4-inch finest African ivory handles	32 0	26 0	11 0
Ditto, with silver ferules	40 0	33 0	12 6
Ditto, carved handles, silver ferules ..	50 0	43 0	17 6
Nickel electro silver handles, any pattern .	25 0	19 0	7 6
Silver handles, of any pattern	84 0	54 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.	s. d.	s. d.	s. d.
White bone handles	11 0	8 6	2 6
Ditto, balance handles	21 0	17 0	4 6
Black horn rimmed shoulders	17 0	14 0	4 0
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PYRAMIDAL PLUMS, PEARS, &c., of extra size and first quality, very handsome. Prices, names, and sizes, may be had on application.
Also the DESCRIPTIVE FRUIT CATALOGUE.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

Choice Primula Seed.
WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., 5s.
Paradise and Victoria Nurseries, Holloway, London, N.

Beck's New Pelargoniums.
B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

CYPRIPEDIUM INSIGNIS MAULEI.—Some inconsiderate person or persons having distributed a spurious variety for this most distinct kind, W. MAULE & SONS will be happy to forward a Bloom from their original Imported Plant to any persons interested, on application.
The Nurseries, Bristol.

New Fuchsias.
E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

Notice, Seed Trade.
F. W. WENDEL'S, Erfurt, WHOLESALE SEED CATALOGUE, now ready, and will be forwarded Free and Post paid on application to F. W. W.'s English Agent,
GEORGE MACINTOSH, Exotic Nursery, High Road, Hammersmith, W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

W. VIRGO AND SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

New Japanese Plants.
EDWIN COOLING will have pleasure in forwarding a new and very complete CATALOGUE of the above, with prices and descriptions; also his NEW LIST of ROSES, FRUIT TREES, EVERGREENS, Winter Blooming Plants, &c., free on application. Mile Ash Nurseries, Derby.

SURPLUS STOCK of BULBS for SPRING BLOOMING. See large Advertisement, page 1248.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

NEW PLANTS of 1864.—CATALOGUE of above at greatly reduced prices for one Stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Good Seeds, Carriage Free, at Market Prices.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Paul's Nurseries, Waltham Cross, N.
WM. PAUL (Son and Successor to the late A. PAUL). Entrance from the Platform, Waltham Station, Great Eastern Railway. PRICED CATALOGUES free by post.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W.

AGRICULTURAL and GARDEN SEEDS.
CHARLES SHARPE & Co., Seed Growers, Sleaford.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

PETER S. ROBERTSON AND CO.'S SOWER'S GUIDE, containing a fully Descriptive and Priced List of their new and select stock of SEEDS suitable for all GARDEN and AGRICULTURAL purposes, with many useful Hints as to Culture, will be forwarded post free on receipt of six stamps.
33, St. Andrew Square, and Trinity Nursery, Edinburgh.

CHRYSANTHEMUMS.—All the New Varieties of the present year, in strong plants, well established in pots, at 5s. per dozen W. HOLMES, Frampton Park Nursery, Hackney.

Gladioli.
STEPHEN BROWN'S CATALOGUE (Cultural and Descriptive), containing his extensive and first-class Collection of Gladioli, sent free on application.
Seed and Nursery Establishment, Sudbury, Suffolk.

20,000 GLADIOLI, the most effective for Massing, and the best for Exhibition.
5000 LILIUMS, including the splendid L. LANCIFOLIUM, varieties RUBRUM, ROSEUM, and ALBUM, and the magnificent L. AURATUM.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Superb Double Hollyhocks.
NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, containing a full description of his splendid new Seedlings, &c., and will be forwarded to any address on receipt of one postage stamp.
N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

WHEELER'S LITTLE BOOK on GRASSES. Gratis and Post Free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.—RICHARD SMITH, Seed Merchant, Worcester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

SUTTON'S SPRING CATALOGUE is now ready.

STANDARD and DWARF ROSES.—Strong and very cheap, of the leading varieties. Price on application to
GEO. JACKMAN & SON, Woking Nursery, Surrey.

FOR NEW ROSE CATALOGUE for 1864 and 1865 apply to
BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

H. P. Rose Lord Clyde.
PAUL AND SON have still a large and fine Stock of this magnificent ROSE.
They regret Trade orders for DWARFS cannot be supplied.
"Old" Cheshunt Nurseries, N.

1864 and 1865 Rose Catalogue.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for the present season.—Nurseries, King's Acre, near Hereford.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1864, 24s. per dozen. DESCRIPTIVE PRICED LISTS on application
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

EXTRA strong DWARF ROSES on Manetti Stock, of the finest H.P.'s, unparalleled for health and beauty, 6s., 9s., 12s., and 18s. per dozen, according to quality, but all are good.
NURSERY STOCK of all kinds. CATALOGUES for one stamp.
Messrs. DILLISTONE BROTHERS & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.

To the Trade.
TRANSPLANTED SPRUCE FIR, 18 to 24 inches; LARCH, 24 to 30 inches; ALDER, 2 to 3 feet; THORNS, 18 to 24 inches; SILVER FIR, 9 to 12 inches. Stout, clean, and well-rooted. Low prices upon application.
WILLIAM TAYLOR, Cupar, Fife, N.B.

TWO and THREE YEARS' SEEDLING LARCH, £5 10s. per 100,000. Samples on application.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

JAMES MELDRUM, The Nurseries, Kendal, has this Season a large Stock of fine well-grown PORTUGAL LAURELS of various sizes, which he can offer to the Trade cheap.
Kendal, Dec. 31.

ACORNS.
For the above, apply to
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

COMMON LAURELS, very fine, in great quantities.—Shrubs in general very good, and in excellent condition for removal. Prices reasonable.
D. S. THOMSON, The Nursery, Wimbledon, Surrey, S.W.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50s. to 75s. per 100; or from 6d. to 2s. 6d. each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FOR SALE, a Bargain, upwards of 500,000 Transplanted LARCH, from 2 to 3 feet, in quantities, by special agreement.
Apply to DAVID DOW, Nurseryman and Seedsman, Falkirk, N.B.

LARGE BEECH, SYCAMORE, and SPRUCE FIR; also a few bushels of HOLLY BERRIES and BEECH MAST.
The above will be sold cheap, f. o. b. at Waterford.
WANTED, large HAZELS.
Apply to D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

Transplanted Quick.
CHARLES SHARPE AND CO., NURSERYMEN, Sleaford, have a large stock of the above, strong well-rooted Plants. Samples and prices will be forwarded on application.

Bitter Osiers.
WANTED, a few THOUSAND SETS of the above.
Apply, stating price, &c., to
Mr. HAYNES, Cottles, Melksham, Wilts.

DIXON'S YORKSHIRE HERO PEA, the best Dwarf Pea in cultivation, 5s. per quart, 2s. 6d. per pint.
See Testimonials, page 1151.
E. P. DIXON & SON, 57, Queen Street, Hull.

KING of the CUCUMBERS, selected from a prime stock of the Long Prickly, the most hardy and abundant cropper, 10s. per ounce. LONG PRICKLY PRINCE, 3s. per ounce.
Post Free from the Grower,
Mr. A. WILKIN, Tiptree Heath, Kelvedon, Essex.

THE most PROLIFIC, and by far the BEST WINTER CUCUMBER in cultivation is REYNOLDS'S PERPETUAL BEARER. Can be had in packets containing six seeds for 1s. 6d. of Messrs. HURST & SON, 6, Leadenhall Street, London; and at GEORGE EDWARDS, 1, King Street, York.

OSBORN'S WHITE WINTER BROCCOLI
Price 2s. 6d. per packet.
Special offer to the Trade on application.
A PRICED LIST of select GARDEN SEEDS will be printed December, and may be had free on application.
OSBORN & SONS, The Nursery, Fulham, London, S.W.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.
Application at the Gardens at Calcot, near Reading.

FOR SALE, 250 lbs. of BROWN GLOBE ONION SEED, also about 30 bushels of SANGSTER'S No. 1 PEA, own saving. Apply to
Mr. WILLIAM TURNER, Myrtle Gardens, Ipswich.

To the Trade.—McEwan's Cabbage, true.
PETER S. ROBERTSON AND CO. can offer the above at 4s. per lb., saved from a carefully selected stock.
33, St. Andrew Square, or Trinity Nursery, Edinburgh.

Green-top Kohl Rabi.
MR. S. DAINTREE, of Fendrayton, St. Ives, Hunts, has a good stock of the above, also of genuine ITALIAN RYE-GRASS, from second cut Foreign Seed; both grown by himself.
For samples and prices apply as above.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

PURE SEED OATS.

46s. a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

First Prize Potatos.



JAMES VEITCH is prepared to supply a very fine Stock of EARLY FRAME POTATOS, for which he was awarded by the Royal Horticultural Society a First-class Certificate as being "The best Round Potato exhibited at the International Fruit and Vegetable Show." Price 9s. per bushel.

Royal Exotic Nursery, King's Road, Chelsea, S.W.

Erin's Queen Dwarf Ashleaf Potato.



WAITE, BURNELL, & CO. have the pleasure to introduce this really true and pure stock of the Ashleaf variety. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames.

Supplied in sealed Bags marked

Price 15s. per Bush. Discount allowed to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

DIXON'S NEW MAMMOTH WHITE CELERY.—The best White Celery grown. It is very early, extremely solid and crisp, and wherever exhibited has always obtained the First Prize. To Market Gardeners we specially recommend this variety. Price 1s. per packet.

E. P. DIXON & SON, 57, Queen Street, Hull.

May be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.; Messrs. JACOB WRENCH & SONS, London Bridge, E.C.

Hill's Incomparable Dwarf Cabbage.

EDWARD P. FRANCIS is now sending out the above new and valuable CABBAGE.

For description, &c., see large Advertisement in *Gardeners' Chronicle* of Saturday, Dec. 17.

Full printed particulars can be had on application. Price, in Sealed Packets, 2s. each.

His new SEED CATALOGUE is now ready.

The Nurseries, Hertford, Herts.

THE TWO BEST CUCUMBERS IN CULTIVATION ARE



SWADLING'S BERKSHIRE CHALLENGE and SUTTON'S BERKSHIRE CHAMPION.

SWADLING'S BERKSHIRE CHALLENGE.—Mr. SWADLING, the raiser of this splendid new Cucumber, has during the last few years taken no less than Eleven First and several Second Prizes with this Cucumber at the Reading Horticultural Society, and has hitherto most carefully kept it exclusively in his own possession, but we have the honour of announcing that we have purchased the entire stock for a handsome sum. Swadling's Berkshire Challenge is one of the most finely formed White-spine varieties in cultivation; of fine form and good flavour. Price 2s. 6d. per packet (post free).

SUTTON'S BERKSHIRE CHAMPION.—This splendid variety, the best of the Grey-spine class, was sent out by us some years since, and has held to the present time its reputation; of fine form, free bearer, and great size. It has during the past season obtained for our customers several prizes, and we have every confidence in recommending it to the public. Price 1s. 6d. per packet (post free).

The undermentioned Seedsmen have ordered a supply of each sort:—

Messrs. BECK, HENDERSON, & CHILD, 221, Upper Thames Street, E.C.
" COOPER & BOLTON, 152, Fleet Street, London, E.C.
" HURST & SON, 6, Leadenhall Street, London, E.C.
" NUTTING & SON, 60, Barbican, London, E.C.
Mr. CHARLES TURNER, Royal Nursery, Slough.

The following very excellent Old Sorts can be supplied at 1s. per packet (post free):—

IMPROVED SYON HOUSE.
LANCASHIRE WITCH.
VICTORY of BATH.
LORD KENYON'S FAVORITE.
MILL'S JEWESS.
LYNCH'S STAR of the WEST.

Address:

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

DIXON'S YORKSHIRE HERO PEA, the best Dwarf Pea in cultivation, 5s. per quart, 2s. 6d. per pint. See Testimonials, page 1151.

E. P. DIXON & SON, 57, Queen Street, Hull.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE
PRIZETAKER
WOODFORD'S MARROW
BEDMAN'S IMPERIAL
SCIMITAR
DICKSON'S FAVOURITE
DILLISTONE'S FIRST EARLY

Samples and Prices on application.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

The following has been received from Messrs. Stuart & Mein, of Kelso:— " Dec. 27, 1864.

"Dear Sir,—A friend of ours, who is most particular in these matters, has just communicated the following information in reply to our inquiries about your Express Pea:—'I sowed CARPENTER'S Express, Sangster's No. 1, and Dillistone's Early Peas, on the same day. I found CARPENTER'S Express five or six days earlier than Dillistone's, and 10 or 12 days earlier than Sangster's; it is more prolific than Dillistone's. It is well worth a place in your New Seed List for its earliness. All were sown on the same piece of ground, and all had the same chance.' Have the goodness to send us ½ bushel as soon as possible and oblige. "Your obedient Servants,

"Mr. Carpenter." "STUART & MEIN."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

To be had also of the following Nurserymen:—

Mr. W. Barnes .. .. Camberwell
Messrs. Downie, Laird, & Laing .. .. Sydenham
Messrs. Bunyard & Son .. .. .. Maidstone
Messrs. Osborn & Son.. .. .. .. Fulham
Messrs. Stuart & Mein .. .. .. Kelso.
Mr. Scott.. .. .. Chichester
Mr. C. Turner .. .. Slough
Mr. C. Sweet .. .. Taunton
Mr. Cattell .. .. Westerham
Mr. Quincey .. .. Peterborough

THE ESSEX RIVAL PEA.

WORTHY THE ATTENTION OF GENTLEMEN, SEEDSMEN, GARDENERS, AMATEURS, AND OTHERS.

THOMAS ELEY,

HAVING SUCCEEDED, AFTER FIVE YEARS' CAREFUL CULTIVATION, IN

RAISING A STOCK OF THE ABOVE SPLENDID PEA,

Is now in a position to offer it to the Public.

The above PEA is distinguished by the following excellent features, viz.: it is hardy, very prolific, and early; and possessing the great desideratum of being far superior in flavour, and distinct from all other early varieties, a superiority is claimed for it over the general class of Early Pea.

Mr. ELEY, desiring that the foregoing merits of this most valuable EARLY PEA should be fully tested by competent and well-known authorities before its introduction to the Public, has submitted it for trial and cultivation to several of the leading Seedsmen and Gardeners in Essex, London, and elsewhere, from whom he has received the following most flattering TESTIMONIALS, fully endorsing the representations herein named—

"London, 28, King Street, Cheapside (near the Guildhall), and 15, Lawrence Lane, E.C., October 27, 1864.

"DEAR SIR,—The Gardener to whom we sent your new Pea for trial reports as follows:—I find it to be a few days later than Sangster's No. 1, but a much superior Pea. It is the best early Pea I ever saw.—We are, dear Sir, yours very faithfully, PETER LAWSON & SON.

"Mr. Taber, Rivenhall." "WM. BAXTER SMITH, Manager."

"Buildings, Gosfield, Oct. 15, 1864.

"SIR,—In reply to your letter received yesterday morning, I beg to say I have tried your early Peas called the Essex Rival two seasons, and am glad to speak very favourably of them. I consider them to be the finest, most productive, and best early variety I have ever grown, the flavour being more like that of a marrow kind, and quite distinct from all other early sorts. I planted them on the same day in November last year with Sutton's Early Champion and Early Emperor, and gathered from the Essex Rival the same time as the Champion, and one week before the Emperor. I give most decidedly the preference to the former, being much finer, far more productive, and superior in flavour. The family at the Hall speak most highly of them, and say they are the best early Pea they have ever had brought to table.—Yours most obediently,

"JAMES ELY, Gr. to S. Courtauld, Esq., Gosfield Hall.

"Mr. Thos. Eley, Sible Hedingham."

"St. John Street Nursery, Colchester, Oct. 15, 1864.

"DEAR SIR,—I gave your Pea, the Essex Rival, a trial by the side of Sangster's No. 1. I found the latter some few days earlier, but consider your Pea a more productive sort, and a decidedly good second early kind.—I am, dear Sir, yours truly,

"Mr. Thos. Ely." "BENJAMIN R. CANT."

"Great Yeldham, October 25, 1864.

"SIR,—I have tried your early Pea two seasons, and consider them to be the best cropping early Pea I ever had. Most excellent in quality, and very fine—worthy the attention of every gentleman's gardener.—I am, your obedient Servant,

"C. NEWBY, Gr. to Mrs. Way, Spencer Grange, Gt. Yeldham."

"Sible Hedingham, Halstead, October 25, 1864.

"SIR,—Several times during the past season I have tried your Pea, the Essex Rival, and I am very glad to have an opportunity of giving a favourable opinion of its excellent qualities, both as regards flavour and colour, and all the other requisites which a good Pea for the table ought to possess.—I am, yours truly,

"Mr. Thos. Eley, Sible Hedingham." "W. VILLIERS FOWKE."

"Moulsham Nurseries, and High Street, Chelmsford, Oct. 24, 1864.

"DEAR SIR,—We distributed a few of your Peas for trial, and enclose you the Testimonials we have received from the gentlemen to whom we sent them; and from what we have seen of them growing with other early kinds, we can fully endorse their statements.—We are, dear Sir, yours truly, "SALTMARSH & SON."

"The Gardens, Easton Lodge, Oct. 20, 1864.

"GENTLEMEN,—The Pea you sent me for trial is very handsome, very hardy, and a good bearer; grows about 4 feet high; is about four days later than Sangster's No. 1, but much more prolific and hardy than that esteemed kind.—I am, Gentlemen, yours truly,

"A. MOFFAT, Gr. to the Right Hon. Viscount Maynard, Easton Lodge, Dunmow.

"To Messrs. Saltmarsh & Son."

"Hylands Park, October 20, 1864.

"GENTLEMEN,—The Pea you sent me last Spring on trial I put out with Sangster's No. 1, side by side. I gathered No. 1 three days before yours, but yours in respect to robust growth and productiveness is superior to No. 1, or indeed to any of the early sorts which I have tried.—I am, Gentlemen, yours truly,

"JOHN HALLORAN, Gr. to A. Pryor, Esq., Hylands, Chelmsford.

"Messrs. Saltmarsh & Son."

"82, Bishopsgate Street Within, Oct. 13, 1864.

"DEAR SIR,—We are duly in receipt of your favour of the 12th inst. In reply we tried the Peas you sent in our trial garden, side by side with Sangster's No. 1 and Emperor; they were one week later than Sangster's, and about as early as the Emperor; height 3½ feet, good cropper. We consider it a good second early sort.—We are, your obedient Servants, "FRASER, RICHARDSON, & GOAD."

"Mr. Geo. Taber, Rivenhall."

"Hopwell Farm, Great Maplestead, Essex, October 29, 1864.

"SIR,—Having noticed the growth of your White Peas adjoining my land, I must think from their appearance they are a very prolific sort; and by your kind liberality in furnishing my table with a specimen, I can testify to their superior quality. "WM. H. KING."

"To Mr. Thos. Eley, Sible Hedingham."

"Braintree, November 2, 1864.

"SIR,—Having grown your early Pea Essex Rival with Sangster's No. 1 and Dillistone's Prolific, I believe it to be a valuable early variety for market purposes as well as for private gardens; the others were three or four days earlier than the Essex Rival; but its being a greater bearer and larger in the pod proves it to be a superior variety. I also sent it to three other private gardens, to give it a fair trial, and found in every case it was preferred to all others, being much larger and a more profuse bearer. I found in one garden, when growing under a warm wall, there was no difference in the time of gathering Essex Rival, producing double the quantity. Height from 3 to 3½ feet.—Yours truly, "J. F. CHATER."

"To Mr. Thos. Eley, Sible Hedingham."

"Haverhill, October, 1864.

"SIR,—The Peas you sent me under the name of the Essex Rival, I tried with Sangster's No. 1, under a south wall, and it came into bearing at the same time as Sangster's, and produced double the quantity. It was the best early Pea I ever grew; I should not think of growing any other for my first crop.—I am, Sir, yours truly, "WM. AMY."

"To Mr. J. Chater, Braintree."

"Sible Hedingham, October 26, 1864.

"SIR,—I have tried your early Pea, the Essex Rival, the two past seasons, and consider them to be the best early variety I have ever grown. I sowed them the first week in November, 1862, and gathered the first dish on the 18th May following. They are highly praised by my employer for their fine flavour; and as for productiveness, I never saw anything to equal them.—I am, your obedient servant, SAML. AMES, Gr. to C. Lewis, Esq., Sible Hedingham."

"Great Tey Rectory, Nov. 8, 1864.

"DEAR SIR,—In reply to your letter I have the pleasure of informing you that I have tried your early Pea, the Essex Rival, and find them the best I have yet grown. They are hardy, of an excellent flavour, and most productive.—I remain, yours very truly, "W. WALSH."

"Mr. Thos. Eley, Sible Hedingham."

"Lovington's, Gt. Yeldham, via Halstead, Essex, Nov. 1, 1864.

"DEAR SIR,—To yours of the 26th ultimo date I beg in reply to say that I have much pleasure in giving you my opinion with regard to your early Pea, called the Essex Rival. As an early white Pea I consider them the finest and most productive kind I ever had the pleasure of growing: and they were much admired by all who saw them.—I am, dear Sir, yours truly, "FRANCIS WHITLOCK."

"Mr. Thos. Eley, Tower Mill, Sible Hedingham, Essex."

"Bocking, Nov. 12, 1864.

"SIR,—I have great pleasure in testifying to the excellent qualities of your "Essex Rival" Pea. It is early, very good, and (my Gardener tells me) very prolific.—Yours obediently, "G. COURTAULD."

"To Mr. Thos. Eley, Sible Hedingham."

"Great Bardfield Hall, Nov. 4, 1864.

"SIR,—The Pea you sent me to try (Essex Rival), I found to be a very excellent early Pea; very large, a profuse bearer, and good flavour.—I am, Sir, your obedient Servant,

"Mr. Chater." "G. BRYANT, Gardener."

"Rivenhall, near Witham, Essex, Nov. 8, 1864.

"DEAR SIR,—I have seen several trials of your Essex Rival Pea. It is a few days later than a good stock of Sangster's No. 1, and four to six days earlier than a second-rate stock of No. 1, but a finer Pea, and much larger cropper. Keep for me 12 bushels for my own sowing.—Yours truly, "GEORGE TABER."

"To Mr. Thos. Eley."

"Halstead, Nov. 4, 1864.

"SIR,—The Pea called Essex Rival which I had of you last season proved very productive, and of an excellent flavour.—Yours very truly, "S. GRAY."

"To Mr. Thos. Eley."

"Peet Hall, West Mersea, Nov. 5. 1864.

"DEAR SIR,—In reply to your letter received this day, I beg to say I have grown your early Pea, the Essex Rival, three years, and have no hesitation in saying they are the very best bearers I ever saw, being double blossom, very fine, and as an early variety the most delicious I ever had put upon my table.—I am, dear Sir, yours truly,

"Mr. Thos. Eley." "JAS. MASON."

"Clare Downs, Belchamp, Nov. 8, 1864.

"DEAR SIR,—I have much pleasure in recommending your Essex Rival Pea, having proved them to be superior to any other early sort that I have yet seen, being of large size, very prolific, and of superior flavour.—I am, dear Sir, yours very truly, "THOS. EAGLE."

"Mr. Thos. Eley."

"Bell Commercial Inn, Sible Hedingham, Nov. 4, 1864.

"SIR,—I have grown your early Pea, the Essex Rival, three years. I have only one opinion of them, which is, that they are the best early variety (by far) I ever had, being very productive, fine, and early. By request from a Nurseryman I sowed some with Sangster's No. 1, in 1862, which he supplied me with, and the result was the Essex Rival were fit to gather before No. 1.—I am, Sir, yours most obediently.

"Mr. Thos. Eley." "W. DIGBY."

"Royal Berkshire Seed Establishment, Reading, Nov. 7, 1864.

"DEAR SIR,—Your Pea is certainly a very desirable kind for succession crop to the very earliest varieties; it being larger and of a richer flavour than the Daniel O'Rourke. It is also of a more convenient height than some of the Marrowfat Peas.—Yours truly,

"Mr. Eley." "SUTTON & SONS."

"Toppesfield Hall, Nov. 7, 1864.

"DEAR SIR,—I have much pleasure in answering your letter of yesterday, and am pleased to say I found the "Essex Rival Pea" answer all the good qualities that you gave them when growing in your garden in 1862, that is to say, an early Pea, excellent in flavour, and the best bearer I ever saw.—Yours truly, "R. R. HUTTON."

"Mr. Thos. Eley, Tower Mill, Sible Hedingham."

"Rectory, Great Bardfield, Nov. 7, 1864.

"SIR,—The Essex Rival Pea you sent me to grow I consider a very excellent early Pea, very large, and a free bearer.—I am, Sir, yours truly, "THOS. LEE, Gardener."

"Mr. Chater."

"Bakers', Weathersfield, Nov. 10, 1864.

"DEAR SIR,—Having grown some of your Peas I can speak to their good qualities. I consider them the best Pea I ever saw, both as to quality and to fineness of flavour; they are also very productive, and I have no doubt will one day be considered the best early Pea grown.—I remain, yours truly, "WALTER WHITLOCK."

"Pine Apple Place, Edgware Road, London, Nov. 16, 1864.

"DEAR SIR,—The Pea you sent me I tried very carefully. It was eight days after Carpenter's Express, and six days later than Sangster's No. 1, but it is a much better bearer; pods larger, with good flavour. This is the result of my opinion upon the Pea. I consider it first-rate, being such a heavy cropper, and pods so well filled.—I am, dear Sir, yours very truly, "A. HENDERSON.

"Mr. G. Taber."

"Manor House, Wethersfield, Nov. 15, 1864.

"SIR,—The Early Pea you sent me I tried with other early sorts. It was three days later than Dillistone's and Sangster's No. 1, but quite distinct, being a larger Pea, very productive, and of a superior quality.—I am, Sir, yours truly, "JOHN MORRIS,

"Mr. Chater." Gr. to T. G. G. White, Esq."

"Grays, Sible Hedingham, Nov. 9, 1864.

"DEAR SIR,—Having grown your early Peas in my garden for two seasons, I consider them prolific, early, and of superior quality.—Yours truly, "THOMAS RAYNER."

"Wash Farm, Sible Hedingham, Nov. 9, 1864.

"DEAR SIR,—Having during the past season grown your early Pea, called the Essex Rival, I feel great pleasure in stating them to be of a superior quality both in flavour and colour, and the most prolific I have ever seen.—I am, dear Sir, yours truly, "JOHN E. MOOR."

"Mr. Thos. Eley."

"E.C., 48a, Moorgate Street, Nov. 20, 1864.

"DEAR SIR,—I sowed the sample of White Peas you left with me alongside No. 1, and find that they are not quite so early, but produce nearly three times as many Peas, which are larger, better flavoured, and look much nicer on the table. You will please forward me soon as possible the quantity ordered, and oblige, yours faithfully, "G. W. DIXON.

"Mr. Geo. Taber.

"Orange Hall, Gasfield, near Halsted, Nov. 23, 1864.

"DEAR SIR,—I have much pleasure in bearing testimony to the excellent quality of your new Pea, the Essex Rival. I found them very early, most productive, and fine, and above all of excellent flavour.—I am, dear Sir, yours very truly, "JOHN SAVILL.

"Mr. Thos. Eley."

Price 2s. 6d. per Quart.

TO BE OBTAINED OF

MR. THOMAS ELEY, THE PROPRIETOR, SIBLE HEDINGHAM, near HALSTED, ESSEX.

ALSO OF THE FOLLOWING APPOINTED AGENTS:—

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Messrs. COOPER & BOLTON, 152, Fleet Street London.
Messrs. FRASER, RICHARDSON, & GOAD, 82, Bishopsgate Within, London.
Messrs. NUTTING & SONS, 60, Barbican, London.
Mr. G. W. DIXON, 48a, Moorgate Street, London.
Messrs. SUTTON & SONS, Reading, Berkshire.
Messrs. SALTMARSH & SON, Moulsham Nursery, Chelmsford, Essex.
Mr. GEORGE TABER, Rivenhall, near Witham, Essex.
Mr. J. F. CHATER, Braintree, Essex.

Mr. ELEY will esteem it a favour if persons who try the ESSEX RIVAL the coming season will send him a report.

N.B. Orders from unknown correspondents must be accompanied by a remittance.



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JAMES CARTER & CO.

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SELECT LIST OF NEW AND CHOICE

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LILIES, GLADIOLI, AND SUNDRY NEW PLANTS,

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NASTURTIUM KING of TOM THUMBS.
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SUTTON'S RINGLEADER and SUTTON'S LONGPODDED TOM THUMB.



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Have every confidence in offering the above as decidedly the forwardest PEAS yet out, having been carefully tested last season against every other Early Pea which has hitherto been offered to the public.

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Messrs. BATT, RUTLEY, & SILVERLOCK, Strand, London.
Messrs. BECK, HENDERSON, & CHILD, Upper Thames Street, London, E.C.
Messrs. NUTTING & SON, 60, Barbican, London, E.C.

Messrs. SUTTON regret that they cannot supply more TO THE TRADE, but can still supply both sorts in small quantities at

2s. 6d. per quart.

"THE STUDENT" PARSNIP.

The FIRST PRIZE for PARSNIPS at the INTERNATIONAL SHOW of the Royal Horticultural Society, South Kensington, October, 1862, was awarded to "THE STUDENT," raised from Seed obtained at Messrs. SUTTON & SONS, Reading. It has also obtained many other Prizes this year.

The flavour of this PARSNIP is far more agreeable than that of other kinds.

Those exhibited on Messrs. SUTTON'S Stand having been sown very late in the season were of more moderate size, and are thus described by the reporter for the "Gardeners' Weekly Magazine :"—"But the subject of most interest to the gardeners was a lot of roots of the Student Parsnip, a new sort raised by Professor Buckman by successive improvements of the Wild Parsnip. The distinctness of this variety is perceptible in a moment; the roots are of moderate size, regularly tapering, and with a clean yellowish skin, without trace of canker."

SUTTON & SONS are now prepared to offer New Seed of this popular new Vegetable at

8d. per ounce, or 7s. per pound.

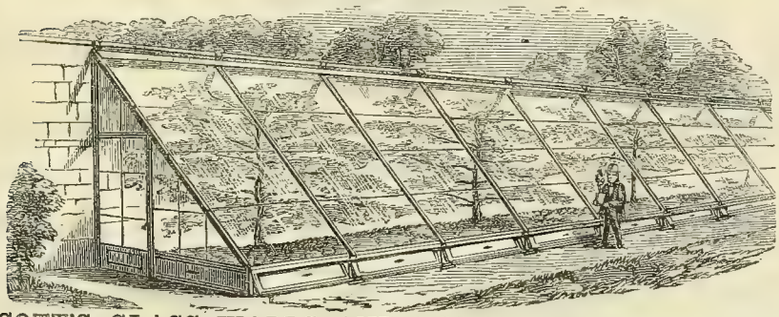
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CATTELL'S DWARF PURPLE-TOP BEET.—The best Red Beet in cultivation. 1s. per oz. packet.
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VARIEGATED GARNISHING KALE.—Mixed, Red, White, Purple, Green, &c. ; very handsome. 1s. per packet.
Trade prices on application.
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WANTED, extra large PEACHES and NECTARINES. —The undersigned require a number of large, handsome, well-trained Peaches and Nectarines in a bearing state, and of kinds suitable for a "Peach House."
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ALDER, 2 to 2½ ft.	HORSE CHESTNUTS, 1½ to 2 ft.
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BIRCH, 1 to 2 ft.	SCOTCH FIRS, 1 to 1½ ft.

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" CEMBRA, 4 to 5 feet, 5s. to 7s. 6d.
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" STROBUS, 7 to 8 feet, 2s. 6d.
SILVER FIRS, 7 feet, 2s. 6d.
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TRAINED FRUIT TREES, 3s. 6d. to 4s. 6d. each.
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The above are in the finest condition, and have been frequently all transplanted.

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BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

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Suited to Gardens of various sizes. They contain the most approved varieties, and such only as are best adapted to secure a succession of Vegetables from January to December. The Seeds are all of the very best quality.

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20,000 GLADIOLI, the most effective for Massing, and the best for Exhibition.

5000 LILIUMS, embracing the splendid L. LANCIFOLIUM, varieties RUBRUM, ROSEUM and ALBUM, and the magnificent and deliciously fragrant L. AURATUM.

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For Conservatory and Flower Garden Decoration, 42s.; half, 21s.; quarter, 10s. 6d.

50 HYACINTHS.	200 GARDEN NARCISSUS.	300 CROCUS.	12 WHITE LILIES.
50 POLYANTHUS NARCISSUS.	300 TULIPS.	60 IRIS.	100 WINTER ACONITES.

The Cliveden Collection of Spring Flowering Plants, true, drawn from the Stock at Cliveden, £5; Half, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

See previous Advertisement, page 1174.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.

Edinburgh and London.—Dec. 31.

Slater's New Hardy Prolific Melon.

J. SLATER AND SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted; shape, oval; flesh, pale green; thick and juicy. Price 2s. per packet, post free.

J. SLATER & SONS, Seedsmen, &c., Malton, Yorkshire.

London Agents:

Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, E.C.

Vine Duchess of Buccleuch.

ROBERT PARKER has much pleasure in announcing that he is now distributing this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see *Gardeners' Chronicle* of October 1st and 22d, pages 943 and 1008.

Also New GENERAL CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Magnificent Dwarf-trained

MORELLO and MAY DUKE CHERRIES, ROYAL GEORGE PEACHES, MOOR PARK APRICOTS, PEARS, and PLUMS, of the best leading kinds.

WM. WOOD AND SON have to offer a large Stock of the above, grown on maiden soil. The trees are very large and have been most carefully trained. Finer trees could not possibly be wished for.

W. W. & S. have also some very fine Standard SCARLET HORSE CHESTNUTS left, Stems with fine heads.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade.

BUNYARD'S IMPROVED SCARLET TOM THUMB NASTURTIUM.

True KENTISH COB NUTS.

" KENTISH FILBERTS.

Extra fine THUJA AUREA.

STANDARD and HALF STANDARD ROSES.

Prices on application to THOMAS BUNYARD & SONS, The Old Established Nurseries, Maidstone, Kent.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

TWO NEW FIMBRIATED PRIMULAS.

Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Superb Double Hollyhocks.

NURSERIES, SAFFRON WALDEN.

WILLIAM CHATER has now ready for sending out a fine healthy stock of Young Plants of all the old and approved varieties of the above; likewise a fine stock of his splendid New Seedlings shown by him in spikes before the Floral Committee at the Royal Horticultural Society will be ready for sending out in November. Older kinds can be supplied by the dozen, 100, or 1000. Prices on application. A very large stock of unbloomed Seedlings, 3s. and 6s. per dozen, or 20s. and 30s. per 100. Bloomed Seedlings with their colours attached, fine for borders, 6s. to 18s. per dozen, or 30s. per 100.

Seed saved only from finest varieties, new and very choice mixed, 2s. 6d. and 5s. per packet; in Collections of 12 separate named varieties, 4s. to 10s.

N.B. WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Surplus Stock of Bulbs.

TO BE DISPOSED OF, very Cheap, a Quantity of DUTCH BULBS, including several hundreds best named Hyacinths. Prices on application to

W. HAMMERTON, Nurseryman and Seedsman, High Street, Maidstone.

W. H.'s Wholesale CATALOGUE of SEEDS is now ready, and will be forwarded on application.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, has now for Sale at his Establishment, fine strong STANDARD ROSES, of very superior quality, and of the best and leading varieties, at the very low price of 3*l.* per 100.

Unknown correspondents, who may honour A. DALLIERE with their orders, are requested to send a cheque for the amount to Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

New English Hybrid Perpetual Rose, King's Acre.

JOHN CRANSTON has the pleasure to announce that his New English Seedling HYBRID PERPETUAL ROSE, KING'S ACRE, will be sent out this autumn.

The colour of this truly beautiful variety is bright vermilion rose, reverse of petals satiny; the flowers are extra large, globular, of remarkable depth and exquisitely formed, having large, smooth, shell-shaped petals of fine substance; the foliage is ample and of a fine rich dark green colour, while the habit of growth is all that can be desired, being vigorous and robust.

Assured that the above is worthy of a prominent place in the most select collection, either on the Exhibition tables or in the Rosery, J. C. respectfully solicits early orders, and observes that such will be executed in rotation. Price 7s. 6d. each. The usual discount to the Trade when 3 or more are taken.

"SEEDLING ROSE (*J. Cranston*).—We regret that we did not see your Rose King's Acre in the season, for when such beautiful flowers are produced now, after such a drought, we may well ask, what must it have been then? Those you sent were very fine, globular, and of a colour much wanted—purplish rose, with the reverse of petals light. It is a really fine flower, and if, as you say, vigorous, having withstood the season of 1860 as a seedling, it will be a valuable acquisition to our English raised Roses."—*Vide* Journal of Horticulture, Aug. 30, 1864.

A faithfully coloured Drawing, by ANDREWS, will be sent in exchange for 12 postage stamps.

Nurseries, King's Acre, near Hereford.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Paul's Nurseries, Waltham Cross, N

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites an early inspection of the following leading PLANTS, &c., cultivated in his Establishment. The soil of these Nurseries being cool and strong, the Trees, &c., have suffered nothing from the recent dry weather; having been frequently removed, they are in the finest possible condition for Transplanting.

HARDY FLOWERING TREES, SHRUBS and EVERGREENS.—One thousand species and varieties selected for the beauty or fragrance of their flowers and foliage, and for the effect they produce on the landscape; many handsome specimens of large size.

FRUIT TREES, for the Orchard, Garden and Orchard House, both in and out of pots.—Many thousands of fruit-bearing and other trees (including Grape Vines), healthy, handsome, and warranted true to name.

ROSES.—100,000 plants, Standards, Dwarf Standards, and Dwarfs on the Dog Rose, Manetti, and own roots, including his own seedlings "Beauty of Waltham," "Princess of Wales," and others about to be announced.

BEATON'S NEW HYBRID BEDDING GERANIUMS.—The greatest novelty of the season, containing the latest efforts of this successful hybridist, and at present exclusively in W. PAUL's possession. Some have flowers and trusses of enormous size, and colours entirely distinct. A new era in flower gardening will date from their introduction.

BULBS.—Hyacinths, Early Tulips, Crocuses, &c., the choicest of the stock from the most celebrated Bulb farms in Holland.

His Collections of these, exhibited before the Royal Horticultural and Royal Botanic Societies in March last, furnish the best evidence of their quality.

PRICED CATALOGUES free by post. Orders by post promptly attended to.

Entrance from the Platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

DIXON'S YORKSHIRE HERO PEA, the best Dwarf Pea in cultivation, 5s. per quart, 2s. 6d. per pint.

See Testimonials, page 1151.

E. P. DIXON & SON, 57, Queen Street, Hull.

Notice to the Trade.

CARTER'S "FIRST CROP" PEA.

JAMES CARTER AND CO. beg leave to inform the Trade that, in consequence of the great demand for the above PEA, they will in future be able to execute Orders for Small Quantities only.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Choice Camellia Blooms.

LUCOMBE, PINCE AND CO. have now a large quantity of extra fine CAMELLIA BLOOMS for disposal, which can be securely packed and sent to any distance with safety. Price on application.

Exeter Nursery, Exeter.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The ANNUAL GENERAL MEETING of the Subscribers to this Society will take place at the BEDFORD HOTEL, Covent Garden, on FRIDAY, JANUARY 13 NEXT, for the purpose of receiving the Report of the Committee, and Accounts for the present year, and Electing Officers for the ensuing year. The Chair to be taken at 7 o'Clock precisely.—By Order. EDWD. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 31, 1864.

MEETING FOR THE ENSUING WEEK.

SATURDAY, January 7 { Royal Horticultural (Show of Chinese Primulas), at S. Kensington—2 P.M.

THE centralisation that characterises the government of Paris is gradually erecting its own monument in the rearrangement of the city. Indeed this march of centralisation cannot be carried much further without involving the total destruction of the old city, at least on the north side of the river; and though this necessarily includes the summary ejection of the poorer orders, yet upon the whole, even to them, the gain becomes greater than the loss, as the influx of the wealthier classes from all quarters of the globe has created a market for labour which is quite unprecedented. Paris has long been called the capital of the world; and there could hardly be a more striking illustration of her grandeur than the view of the city as seen from the summit of the Arcade L'Etoile. The very roads which converge towards this point, and which seem, like the sons of JACOB, to spread themselves over the whole world, impress a spectator with a vastness and magnificence too great for the requirements of one nation. Ten years ago they were seven in number; now they are twelve; and the complete manner in which they have triumphed over all obstacles reflects the highest credit upon their engineer, M. ALPHAND, and upon the controlling powers that authorised their formation. At the end of one of them, the Avenue de la Reine Hortense, there are new gardens. We say "new" advisedly; because, though long celebrated for their laying out and keeping up, Time, that great destroyer of human handiwork, had been rather severe upon them of late, and had encouraged noxious weeds and undergrowth to choke up the once charming groves; so that five years ago, excepting a few fine outside trees, it would have been rather a difficult matter for the unlearned to have realised the germs of gardenesque beauty that have since been resuscitated, like a new creation from the ruins of a chaos. The happy facility with which the French hit off a pleasant expression suggestive of others' foibles attached to these grounds the nickname of "Les Folies de Chartres," and who shall say but what the enormous sums expended upon them justified the criticism? for in reference to these gardens M. DULAURE writes: "There may be found every embellishment that the fancy can conceive: Gothic grottos, Greek ruins and superb peristyles; baths adorned with statues; Egyptian obelisks and Turkish turrets, and all these magnificent objects form a striking contrast to the rural simplicities of fields, thickets, hillocks, vineyards, cottages, clusters of trees, rocks and winding rivulets, which present a most enchanting landscape." And the Abbé DELILLE, when speaking of gardens whose verdure is preserved by art even in time of frost, cites MONCEAU as an example, thus:—

> "J'en atteste, O MONCEAU, tes jardins toujours verts,
> Là des arbres absens, les tiges imitées,
> Les magiques berceaux, les grottes enchantées,
> Tout vous charme à la fois. Là, bravant les saisons,
> La rose apprend à naître au milieu des glaçons;
> Et les temps, les climats, vaincus par des prodiges,
> Semblent de la féerie épuiser les prestiges."

We might almost expect to meet TITANIA and her attendants in a scene like this. It is as well to recollect however, how neglect had marred this fair picture, or we shall fail in our estimate of the work that lay before M. BARILLET when he undertook its reconstruction. It is true that in extent the grounds have been much curtailed, but this is rather in their favour than otherwise, as it permits of quantity being combined with quality; since of all the gardens in Paris there is none that affords so much interest to the horticulturist, or such an agreeable diversity of trees, shrubs, neatly kept lawns, foliage plants, and flowers. In order that our readers may be enabled to judge for themselves, we will endeavour to depict their contents as faithfully as is possible without the assistance of a drawing.

Terminating the Avenue de la Reine Hortense are gilded gates in the Louis Quatorze style of workmanship, through which a straight short road flanked with trees leads directly into the Park. These Plane trees, upwards of 30 feet in height, and in admirable foliage, shelter side walks bordered by ribbons of China Roses, backed by Veronica maldensis, and enclosed with a simple grille trellised with creeping Tropæolum. Emerging from this entrance the road (28 feet in width) traverses the Park longitudinally in an ogee curve, until it arrives at an opposite entrance from the Boulevard Malesherbes, precisely similar in detail, with the exception that Convolvulus takes the place of Tropæolum. A second ogee road, 20 feet in width and of minor importance, with double gates, and a stately line of grille on either side of a rotunda, at once invades the grounds, and crossing the main road sweeps onwards through an entrance from the Rue Valois, similar to the one we approached by. Returning to this point, immediately at the end of the straight run of road, cross main walks branch off right and left, and ever and anon flirting with the boundary, pass over the minor road near its entrance, finishing at the Malesherbes end just as they began. From these main walks or roads, concealed from one another by mounds, trees, shrubs, and masses of foliage, loop paths diverge here and there, sometimes from caprice, and sometimes at the apparent suggestion of circumstances. If we stop about the middle of the main loop walk, between the Rotunda and the Malesherbes entrance, we shall see one* of the catalogue of wonders enumerated by DULAURE. A semi-amphitheatre of Corinthian colonnade embosomed among trees encloses one end of a piece of water in an architectural outline. This breaks off abruptly with shattered columns, and a few detached fragments stand ranged along the banks. A small island of green turf, with a triangular group of Elm, and an outriding Maple feathering gracefully over the water, seems to connect the pool with the rustic scenery about it: while the reflections on its dark surface are as vivid and distinct as the objects themselves, save where a gleam of sunlight, playfully dancing, penetrates the surrounding gloom. Round the columns Ivy is trained, harmonising their colour, and adding to the air of neglect. From this pool has been lately made a winding strip of water, that should be a brook, only the water is stagnant. This is crossed by a bridge of some pretensions, that leads you up an incline previous to ascending its flight of steps —*cui bono?*—merely to bring you down again in reward for the pedestrian exertion. Following

* A peristyle. There is also a small Egyptian pyramid, used as a tool house.

the course of the "brook," intercepted here by the main road, we see before us a mass of rockwork, caverned and planted with Ivy, shrubs and Ferns, and shaded by overhanging trees. Passages lead beneath it, over it, and about it. Now a rockwork cavern suggests incongruous ideas, as the component parts are so small that it becomes doubtful whether it should be regarded as an architectural building, or a rustic feature in imitation of nature. If the former, it is in a debased style, and moreover looks dangerous—if the latter, it is something quite new in geological stratification. As we are unable to praise it, perhaps the least said the sooner mended, as its author, M. BARILLET, is an indefatigable worker, and a very clever gardener, who has been the means of bringing into general cultivation many (subtropical) plants, some of which have already found their way into our gardens, and, thanks to Mr. GIBSON'S perseverance, are likely, we hope, to assume a permanent place there.

Long ribbons of the pink Solanum discolor, red and white Fuchsias, the violet Ageratum, and the warm yellow Cassia floribunda, the Daisy-white Chrysanthemum frutescens, and Scarlet Pelargonium, severally edge with broad bands of color masses of Rhododendron, Holly, Aucuba japonica, Privet, Lilacs both Persian and Common, and young plantations of trees. Then there are large oval beds of green Wigandia some 9 feet in height; of the glaucous Nicotiana, equally tall, and with leaves some 2 feet by 15 inches; of the sturdy Caladium esculentum and odorum, with leaves 3 feet by 2 feet 4 inches; of the spreading Aralia papyrifera, and the yellow-flowered Polymnia maculata, not less than 7 feet to 8 feet high; of the handsome Erythrina Crista-galli, an old favourite, of which many new varieties have been lately introduced; of the fine-growing Solanum marginatum, Solanum Sieglengii, in jungles, not less than 15 feet in height, and many others of this genus, though as yet not in numbers; and finally of the Hydrangea, which stands out all the winter. There are also long belts of bright green Canna Annæi, margined by the dusky hues of Canna nigricans, the whole tipped with scarlet flowers; the feathery and Fern-like Sonchus laciniatus, with its boldly thrown up yellow bunches; and flatter beds of the bronzed Coleus scutellarioides, edged by the bright madder-coloured Verschaffeltii, dotted near the walks. The beds themselves are raised rather high, and consequently form petty slopes that interfere somewhat with the general sweep of the ground. Single specimens of Datura humilis, of Ferdinanda eminens—like a large-leaved Plane tree, clothed to the ground and nearly 20 feet in height, of the giant Cow Parsnip, that grandly holds its own among the sub-tropical foliage, of Begonia ricinifolia with its flat leaves and outstretched flower-stalks, of Aloe-leaved Dracænas, of the frosted Eucalyptus, of Standard Hollies and Yews, and finally of Cupressus Lawsoniana and virginiana, Golden Thuja, Cedars of Lebanon and Deodars, P. austriaca and Cembra, and Wellingtonia gigantea, are sprinkled over the lawns; while free-growing climbers, such as the Ivy-leaved Delairea (Senecio mikanoides) and others, creep up the stems.

Some of the remains of the old wood are very beautiful, and there is a group of the Oriental cut-leaved Plane that in itself well repays a visit.

Groups of Maples, Ash, and Elm, mostly in separate masses, diversify the view, and all the young trees, consisting of Catalpas, Sophoras, and Magnolias (grandiflora) are thriving well, and making rapid progress. Under some of the groves Junipers have been planted, and being unfitted for the purpose should be removed as soon as possible. We shall allude at some future time to the ground work, which is in the Vallon style, and which can only be defended on formal principles, that is, in contradistinction to natural scenery, for the very name of a garden implies care and order, and the higher the state of keeping the more credit it reflects upon its gardener.

When the designer has finished his work, whether it be in the geometric, or whether it be in the English style, the success of a garden must henceforth rest with the gardener. The trees require gradual thinning, the shrubs have to be kept within bounds, the borders planted as the seasons come round, and those finishing touches annually bestowed, which, unlike the touches upon canvas, are ever in need of renewal. If carelessness be the order of the day, a masterly composition may yet, like one of TURNER'S pictures, retain its indication of a soul, but without that pre-Raphaelite beauty in detail so necessary for its general interpretation. Indeed this care in details is the more attractive, as appealing to all, and with the multitude often atones for the want of every other virtue. As it gives pleasure to all, so it is easily acquired by all, and its absence in a garden should argue on the part of its gardener either woeful incapacity or wilful neglect. *Z.*

CULTIVATORS are pretty well aware, thanks more especially to repeated notices in this Journal, of the damage that awaits the objects of cultivation on every side from the pernicious effects of FUNGOUS SPAWN ON DELICATE TISSUES. It is frequently however, only by repeated notices that attention is permanently directed to matters even of vital importance, and we therefore make no apology for once more adverting to the subject.

A large Greengage tree in the autumn of last year, which had been in perfect vigour early in the year, suddenly perished, and on being removed, the roots, as we suspected, proved to be infested with a large quantity of white spawn. It was desirable to replace it with another tree, and it was determined that the substitute should be a Peach tree, in spite of the prejudice against planting a tree of the same natural order as the successor to one that had died. The danger was, we believed, not from exhaustion of the soil, which admitted of easy remedy, but from the old roots. The ground accordingly was trenched deeply, and every particle of root, as far as possible, removed. The eye, however, could not spy out every particle of spawn which might be mixed with the soil, and we were curious, moreover, to see how the new plant would fare even if any danger threatened it. Nothing could be more promising than the tree, which broke admirably, and all went on well for some months. At length, however, the shoots looked sickly, the leaves fell, and a week ago we found that the tree was quite dead. At first we thought that the summer's drought might have proved injurious, but on examination we found that the young tree had made abundant roots, and that the spongelets in general were quite sound and healthy. In parts, however, there was the fatal spawn, which we believe was the true cause of evil, though it had not proved immediately fatal to the stock, while the budding had completely perished, without gumming or anything wrong at the point of insertion.

The mode of action of spawn on living tissues is somewhat mysterious. In very soft tissues like that of fruit, the mere contact of fungous threads with the cells seems frequently to induce a putrefactive change; but in harder tissues the effect is not so immediate. Our belief is that in every case, the contents of the threads, imbibed through the membranes of the fungus and those of the tender roots, act as a putrefactive ferment, which from peculiarities of condition may be more active on distant tissues than those which are immediately in contact. This indeed is mere theory, but it is more or less supported by facts.

These white mycelia are not, however, the only ones which prove fatal. There is a copper-coloured spawn, of uncertain origin, which is injurious to plants of various kinds. In this country diseased Potatos, Mint, Lucerne, Saffron, and Asparagus have in turns called attention to the evil, and the past autumn has not been without examples. The evil has long been known in France, and the TULASNES have published admirable illustrations of the forms under which it appears on Lucerne and Saffron. We have however lately met with a memoir by GASPARINI, published in 1863, in which he notices its effects in Italy, on Vines and the Indian Fig, where it has also been observed on Sambucus Ebulus, Saffron, and Asparagus. It appears therefore to be quite as much to be dreaded as the white spawn, which seems extremely indiscriminate in its attacks. When once it spreads, the white spawn destroys everything in its way, the largest trees perishing as well as the humblest shrubs, and even such plants as Strawberries, or seedlings in pots where imperfectly decayed leaf-mould is used, are not exempt. We have not heard of the Copper Mould attacking Vines in this country, but we have been informed of at least one instance where the white spawn proved fatal.

We have long insisted on the need of the examination of the roots of plants in every case where disease cannot with reason be referred to something immediately affecting the leaves or stem, and this consideration of the effects of fungous spawn upon the delicate roots or spongelets is an additional motive for caution in the same direction. A timely search may in many cases save a valuable tree, as we can ourselves bear witness; and it must ever be borne in mind that delays in this respect are especially dangerous, as the disease is too often past remedy when it has once obtained an ascendancy. *M. J. B.*

WHEN it was said the other day that the political Millennium had arrived, we thought the announcement somewhat hasty; but while pleading guilty to a want of sympathy, even with the wish, we seriously do think that partisanship is misplaced, when it is led by excess of zeal to confuse Art with Politics. Our attention has been drawn to a paragraph from the pages of a daily contemporary, containing a criticism on some alterations that are being made in the ST. JAMES'S and HYDE PARKS. The criticism we can understand, as what pleases one man may not please another; but when the bad taste alleged to have been shown in the arrangements, is advanced as a proof of the general incapacity of a Government, we confess to be as puzzled at the deduction, as at the language in which it is couched.

The facts of the case appear to be these:—A new ride is being made near the Birdcage Walk. It is an avenued road for equestrians, some 21 feet in width, and 400 to 500 yards long, and though narrow will bear favourable comparison in this respect with many of the rides lately formed in the Bois de Boulogne. The 8 acres of garden in the Hyde Park dwindled down, on nearer inspection, to about an acre and a half. We found also that the principal endeavour is to sweeten and enrich the ground so as to procure better turf, which is to be dressed eventually with a sprinkling of evergreen shrubs, without either flowers, foliage plants, or other gardenesque accompaniments. In this we can see no objection, as its proximity to Rotten Row and isolation from the rest of the Park, seems a reasonable excuse for bestowing a little extra care upon it.

We wish however to draw particular attention to the state of the trees near the Palace end of the Birdcage Walk. Some of them are so far gone as to be in a most precarious condition, and any one who has heard the crash of a falling Elm and seen the effect produced by it, or even the peal of thunder that accompanies the parting of a mighty bough, will understand the danger that is threatened to a thoroughfare, from the contiguity of thoroughly rotten Elm trees. Much has been done to avert calamity by the timely removal of the larger branches, but we trust the authorities will not rest content with these precautions, as although many of the trees may last for years, there are one or two that should be removed as soon as possible, since their loss, though no loss to the picturesque, would give increased security to the passing pedestriaan.

—— WE learn from the daily papers that the French Minister of Public Instruction has just addressed to the rectors under his authority, a circular, in which he suggests that great advantages may be derived, and the public wealth increased, by the introduction of additional fruit trees, vegetables, and plants into the plots of ground which are attached to the 27,000 normal schools of France, for the instruction of the pupils in gardening, and the most improved methods of agricultural cultivation. The Minister announces, that with this view he has concerted with the Minister of Agriculture, who has ordered the inspectors in his department to visit such schools as may be on their way, and give to the masters whatever counsels may be necessary. The French plan, or such a modification of it as would bring it into accordance with our institutions, might be adopted by the Government in this country with advantageous results; or failing this, it might afford scope for the energies of a National Horticultural Society—if we had one.

—— Amongst the manifest improvements which have been effected in the varieties of garden flowers, and the deviations from a normal condition, it is somewhat remarkable that we have, as yet, obtained so few really good STRIPED VERBENAS. There is the old Striata perfecta, now familiar to most growers of choice flowers, a constantly marked and really beautiful variety, with the limb segments of its flowers bluish lilac, regularly and distinctly margined with white. During the past season a variety has been brought into notice by Mr. COOLING, of Bath, which has flowers of the same character as those of Striata perfecta, only the ground colour is carmine. This variety is called Annie, and is a most welcome addition to the class of striped flowers—which we trust to see still further enriched by the addition of other colours marked in a similar way.

If there is a scarcity of good striped Verbenas there is no lack of bad ones. Those who have visited Chiswick during the past season, or have attended the summer exhibitions and meetings, or have visited the nurseries in which this class of flowers is cultivated, will probably have seen a long series of them, with a set of most

unpronounceable Italian names, which out-do, if possible, the unmanageable titles borne by some of the French Roses. The set of Verbenas we are now referring to is, it appears, of Italian origin, and we are sorry to say that in the whole series we have not yet met with one which was worth growing as a garden flower. They have poor, paltry, misshapen flowers, inconstant colours, and inveterately bad habits. Perhaps our cross-breeders may make something out of them, and we trust they may, for a greater variety of good striped Verbenas is very desirable. These Italian striped varieties are unevenly flaked with purple or red upon a white ground, as in the case of Carnations, not bordered with white like the English varieties before alluded to.

SOLANDRA GRANDIFLORA.

Of late years a great variety of new plants has been introduced to our gardens, and amongst them many which must be regarded as valuable acquisitions; but while welcoming all such as these, we should take care not to forget the good old plants, which is a thing very likely to happen.

Among these good old subjects may be classed the Solandra grandiflora. It is indeed a remarkably fine thing when well-flowered, and the way to obtain this success is as follows:—Take a healthy young plant about April, and give it a shift, putting it into the stove when there is a hot humid atmosphere, for all plants require excitement after repotting. Here it should have every encouragement, for it is a plant of free growth. Attention must be paid to nip off the top of every shoot at the third or fourth joint, and repotting must be frequent as the growth progresses, the branches meanwhile being staked and trained into a suitable shape. At the end of the summer the heat should be moderated, and moreover the soil should be kept rather dry. If it has done well, the plant may be started again in April as before; it will not require repotting, but perhaps a little top dressing, for it does not require a very large pot. The same attention to stopping the shoots must be given, and about the middle of the summer, when the plant is well filled with short shoots, the plant should be removed into a greenhouse, and should receive but little water. When the shoots appear to be somewhat hardened, the plant should be placed out of doors in a sunny aspect, and gradually allowed to get quite dry until the leaves drop off. It is on these short growths or spurs that the flowers are produced. Before the frost sets in, the plant should be removed into the coldest end of the stove, or into an intermediate house, keeping it quite dry. About March it may be placed on a shelf at the back of a Vinery where forcing has commenced, or at the hottest end of the stove, giving no water at first, but syringing overhead every sunny morning. The leaves and flower buds will soon appear, and then a little water should be given; and as the plant advances in growth, a more liberal supply is needed, and occasionally a little liquid-manure water is beneficial.

After the plant has done blooming, it should be treated as before recommended; it will not require repotting perhaps for years, but only a slight top dressing in spring. The flowers are very large, bell-shaped, and of a yellowish white. The best compost is good mellow fibrous loam; and the pots should be well drained. *Thos. Brown, Exotic Nursery, Tooting.*

THE DRUMSHEUGH RHODODENDRONS.

Miss Walker of Drumsheugh, has succeeded in procuring a set of Rhododendrons, so that one or other of them shall be in bloom during 12 successive months. We append a list of the varieties as they came into bloom, and the duration of the flowering of each. This list, we trust, will be found of importance to Rhododendron cultivators wishing a collection to flower in succession during the year. Had any of the plants been subjected to artificial heat, for the purpose of hastening their flowering, such a register would be fallacious; but as all the plants were exposed to the same treatment, the register becomes the more valuable, showing as it does the precise time of flowering, and the period each variety remained in bloom. It is not to be expected that the same variety will flower exactly at the same period each year, although in many cases they are not far removed. For instance, the identical plants of Rhododendron formosum, which flowered on 26th April, 1863, flowered this year on the 1st May; Rhododendron Edgworthii, which flowered on the 30th April, 1863, flowered this year on the 2d May; Rhododendron Dalhousiæ, which flowered on 26th April, 1863, flowered this year on the 3d May; and the Rhododendron Maddeni, which flowered last year on the 4th August, did not flower this year till the 15th August—and all under similar treatment each year. This variation depends much on the sunheat at the time the young growths are formed. If produced during dull weather, they become much elongated, and frequently run past flower-budding. If during fine sunny weather the growths are comparatively short, the greater are the chances of flower-buds being formed.

Of late years the Rhododendron has become such a favourite plant that some cultivators are giving their whole attention to the rearing of new varieties; and so successful have they been, that the British and foreign catalogues enumerate upwards of 800 named kinds, besides many thousand crosses raised from seeds, and cultivated without having received names. One of the chief points which Rhododendron fanciers should keep in view, is the rearing of a stock between parents consisting of those kinds which naturally bloom during the summer and autumn months. The winter and spring months are well represented by numerous free blooming kinds, and it is quite possible to mature or retard varieties to suit the late flowering sorts, and thus perpetuate a breed of summer and autumn varieties as numerous as the spring flowering kinds. It is now an ascertained fact that Rhododendrons flowered without the aid of artificial heat, beyond that derived from the mere protection of glass, continue their blooming season over a much longer period than the same species or varieties forced into bloom by artificial means, or even in the open air, where the uncertainty of the weather often experienced during the winter and spring months has also a tendency to shorten the period of flowering. During many seasons the flower-buds, however numerous, are often entirely destroyed by frost. To preserve the blooms, it is generally advisable to lift the best-budded plants late in autumn, and flower them in the conservatory, and return them to the borders again as soon as the period of flowering is over. Such plants, however, never have the same healthy appearance as plants cultivated in pots or tubs under glass, without artificial heat, as practised at Drumsheugh.

List of Rhododendrons flowered in the Cool Conservatory at Drumsheugh. (Copied from the Register kept at Drumsheugh.)

Name of Species or Variety.	Date of the First Bloom Expanding.	Date of Passing out of Bloom.
Nobleanum, No. 4	Oct. 19, 1863.	Jan. 8, 1864.
,, No. 1	Nov. 1, ,,	,, 23, ,,
,, Dark variety	,, 20, ,,	Feb. 14, ,,
,, lancifolium	,, 20, ,,	Jan. 10, ,,
,, pallidum	,, 28, ,,	,, 30, ,,
,, No. 3	Jan. 15, 1864.	April 12, ,,
,, No. 2	,, 19, ,,	,, 12, ,,
Atrovirens	,, 19, ,,	Mar. 21, ,,
Ciliatum	Mar. 22, ,,	May 4, ,,
Nobleanum, No. 5	,, 22, ,,	,, 8, ,,
Arboreum roseum	,, 23, ,,	April 30, ,,
Hamburg Lilac	April 1, ,,	May 28, ,,
Nobleanum, standard	,, 4, ,,	,, 24, ,,
Fleur de Marie	,, 12, ,,	,, 27, ,,
Nobleanum hybridum	,, 14, ,,	,, 30, ,,
,, scarlet standard	,, 14, ,,	June 4, ,,
Albertus	,, 14, ,,	May 13, ,,
Wallichii var.	,, 15, ,,	,, 14, ,,
Venus	,, 19, ,,	,, 20, ,,
Harrisonii	,, 19, ,,	,, 24, ,,
Campanulatum	,, 19, ,,	,, 30, ,,
Sir Walter Scott	,, 26, ,,	June 13, ,,
Glaucum	,, 26, ,,	,, 10, ,,
,, pallidum	,, 28, ,,	May 30, ,,
Apple blossom	,, 28, ,,	June 2, ,,
Formosum	May 1, ,,	,, 8, ,,
Javanicum	,, 1, ,,	,, 2, ,,
Lawsonianum	,, 1, ,,	,, 8, ,,
Edgworthii	,, 2, ,,	,, 4, ,,
Hendersonii	,, 2, ,,	,, 3, ,,
Venosum	,, 2, ,,	May 30, ,,
Maculatum nigrum	,, 2, ,,	June 10, ,,
Dalhousiæ	,, 3, ,,	,, 12, ,,
Aureum superbum	,, 3, ,,	,, 25, ,,
Coriaceum	,, 9, ,,	May 20, ,,
Purpureum grandiflorum	,, 11, ,,	,, 31, ,,
Captivation	,, 13, ,,	June 4, ,,
Sir Isaac Newton	,, 14, ,,	,, 10, ,,
Psulla	,, 14, ,,	,, 5, ,,
Punctatum	,, 14, ,,	,, 25, ,,
Everestianum	,, 14, ,,	,, 5, ,,
Pulchellum album	,, 15, ,,	,, 16, ,,
Aurantiacum	,, 15, ,,	,, 18, ,,
Brayanum	,, 19, ,,	,, 9, ,,
Blatteum	,, 19, ,,	,, 17, ,,
Fastuosum	,, 27, ,,	July 15, ,,
Indian Lilac	June 5, ,,	,, 27, ,,
Jenkinsii	,, 5, ,,	,, 30, ,,
Anthopogon	July 26, ,,	Aug. 29, ,,
Maddeni	Aug 15, ,,	Oct 18, ,,

Abridged from the Scottish Farmer.

THE PEACHES OF THE "JARDIN FRUITIER."

There are several varieties of the "Admirable Jaune" Peach (see p. 1159), varying only in the size of their flowers and leaves. If 20 stones of this sort are planted, the trees they produce will all give yellow-fleshed Peaches—some with large, some with small flowers, and varying in the same way as to glands; some giving reniform and others globose glands, but their quality as regards flavour seldom or never varies, except that a Pavie often occurs among them. I have one of this race, which unlike the freestone varieties of the same colour, is remarkably juicy and agreeable—still it is a Pavie.

These yellow-fleshed Peaches are common on the shores of the Mediterranean. In hot climates, as Pavies, they attain a monstrous size, but they become generally dry and flavourless. A few years since these large yellow Pavies made their appearance in Covent Garden, magnificent to look at, but wretched in flavour. Owing to their advent, yellow Peaches are not now popular in the "Garden;" and the Salway, which was a seedling raised in England from a yellow Italian Peach, although in some seasons quite passable, is nearly unsaleable. The finest yellow Peaches are those that have been raised in America, probably from the Admirable Jaune, which has for very many years been the only yellow Peach cultivated in France.

Owing to the fierce sun of the American climate, these yellow Peaches are there held in high esteem, being rich, sugary, and Apricot-like in flavour. One of the most popular as a market Peach in the "States" is Crawford's Early, and when grown here in orchard houses, suffering the trees to bear but very few fruit, it is very rich. But perhaps the best of all is the Golden or Yellow Rareripe,* properly in pure Saxon "Rathripe," or early ripe; this is as early as Crawford's Early, and remarkably beautiful with its red cheek on its deep orange-coloured skin. If a very few are left on the tree so as to attain a large size, say 10 inches in circumference, it is a very fine rich Peach; but if the tree is suffered to bear too many it is quite worthless. These two varieties are, as far as is known at present, more worthy of extra care in their cultivation than any other yellow American Peaches; but a sort called Exquisite, which ripens here much later than the above; and another called Canary, two sorts received from Georgia, U.S., have proved very good in the sunny climate of Guernsey, in the orchard house of the Rev. T. Bréhaut.

In the South of England these two, to which may be added the Susquehanna, may probably prove valuable. There are a great number of varieties of these yellow Peaches cultivated and highly esteemed in the various States of North America, a country which will one day have as many "principalities and powers" as formerly had India—many that are doubtless remarkably rich there, but in our mild even climate never seem to attain their full flavour even when forced; the fierce unclouded sun and the open air—Nature's best ripeners—seem requisite to give them their full flavour. Besides the varieties above mentioned, the following kinds of yellow American Peaches have been introduced:—Bergen's Yellow, large and good, but a shy bearer; Cole's Large Yellow, not good; Crawford's Late, large and late, but not good here; Poole's Large or Late Yellow, very late, ripening with the Salway, and, even on a south wall, sometimes juicy and very good at the end of October; and Columbia, from Georgia, United States, a most remarkable Peach, its coat thick and downy, of a dark drab colour, and its flesh bright orange and red. It is described in the catalogue of a nurseryman who, a few years since, had a nursery at Augusta—now devastated—as "rich, luscious, melting, and juicy;" here, like the red-fleshed Peach, the "Sanguinole" of France, probably its parent, it is not eatable.

The early kinds of yellow-fleshed Peaches will, I think, be found quite worthy of culture. No Peach can be more beautiful than well-grown specimens of the Golden Rathripe and Crawford's Early, and if large and well-ripened they are very rich. As a rule they are better liked by those to whom Peaches are rarities than by Peach connoisseurs.

The Peach "Téton de Venus," described in the "Jardin Fruitier" (see p. 1159) is a good late Peach, but the name should not be given in such a work. If it were the type of a race, the name, distasteful as it is, might have been retained; but it is, according to my experience, merely a seminal variation of that very old Peach accurately described by Duhamel, the Bourdine, Bourdin, or Boudin—pomologists as well as doctors will disagree; or it may be, that as the Téton de Venus is also described by him as ripening only a little later, that when so described, they were considered as distinct varieties. Seedlings of the Bourdin Peach as often give fruit with the terminating nipple as without, and scarcely vary at all in season or flavour, so that one name, and that the Bourdin, seems quite enough for this excellent late Peach. Our Late Admirable, Gregory's Late, Chevreuse Tardive, Desse Tardive, Ward's Late (an American Peach), Merveille d'Octobre, and the Chancellor are all of this race and very nearly related; they all produce small flowers, and are late in ripening.

The Grosse Mignonne Hâtive or Early Grosse Mignonne Peach (p. 1159) is very accurately described in the "Jardin Fruitier." This, it seems, is not a seedling, but originated in a sport—a branch of the type bearing early fruit, as do the trees propagated from it; it is an excellent early Peach, with the same large and beautiful flowers as the original. In some seasons it ripens fully 10 days earlier than that popular Peach, but, like the Mignonne Grosse Tardive of Lepère, it is variable. I am inclined to think that this variety of Lepère's also originated from a sporting branch, but am not certain. The parent sort, and the two varieties of this fine race of Peaches should ripen at intervals of about eight days between each, so that, commencing with the Early Grosse Mignonne, and ending with the Grosse Mignonne Tardive, the dessert may be supplied with them for a period of three weeks or so, They are, however, somewhat capricious, for I have known them all three to ripen in nine or ten days under the same circumstances with regard to position, but acted upon by that most mysterious of all causes to the fruit gardener—the season, which sometimes, even when wet and cool, makes our winter Pears ripen in autumn, entirely contrary to our expectations. *T. E.*

ORCHARD MANAGEMENT.—No. VIII.

We come now to the consideration of planting the trees; and the first question which arises is, as to how deep the roots should be placed below the surface. Taking into consideration the fact that all ulterior

* The corruption of this word must not be imputed to the Yankees. In Cornwall they have an Apple called the Rareripe.

success will, in a great measure, depend upon the attention paid to surface dressing, I am a strong advocate for shallow planting, but not indiscriminately so, for on this particular point we must be guided more by circumstances, such as the quality and condition of the soil, than by routine. For instance, if the soil is of a cold nature, and liable in its undrained state to be very retentive of moisture, however much its character may be changed by the routine of operations before mentioned, it will always retain such an amount of its original character, as to render it desirable to keep the roots on the surface. I should therefore in this case simply prick over the surface and place the roots on the ground level, and cover them with the prepared compost so as to form a large mound; but if, on the other hand, the soil is of a warm nature, on a dry bottom, and composed of a good sound loam of a moderate depth, it may be taken out from a hole having a larger diameter than the spread of the roots, to the depth of a foot, but certainly no more in any case whatever, and in filling in, some nice new compost should be placed about the roots alternately with the natural soil. Previously to filling in, it will be necessary in any case to take precautions to prevent the trees being swayed about by the wind, and this can be more efficiently performed without injury to the roots before they are covered.

As this is an important point, extra care should be taken at first, for then the trees will be sooner capable of standing without any support. I say an important point, because no fresh planted tree with a moderate sized head, can throw out new roots, so as to obtain a firm hold upon the soil, if it is not secured from swaying about. There are various methods of securing this object. I do not hold with fastening the tree to a single stake; two is much better than one, and three better than two. These should be very strong, and driven in very firmly at equal distances in a triangle, at from 18 inches to 2 feet from the stem of the tree. A very stout collar should then be made on the stem, large enough to allow an inch for play. The collar should be made of gaskin or twisted tow, and closely bound with tarred rope yarn. A hole should then be bored near the head of each stake pointing to the centre of the triangle, and a length of galvanised iron wire, ⅛th of an inch in diameter, passed through the hole, one end being bent round the collar and securely fastened; each wire being then drawn just as much as will bring the stem quite upright, and the other end fastened round the stake. The best of this triangular fastening is that from whatever quarter the wind blows, there is always a counteracting support. On the contrary a single stake, only protects in one direction. The stakes, as before advised, should be driven in previous to covering the roots, but the after operation of fastening to the stakes must be left until the soil is all thrown over the roots, to prevent them from being injured by trampling. The final operation after planting and securing, is to level the surface, and cover it with a good mulching of rotten dung.

It is presumed that, in accordance with a former recommendation, the spaces between the trees will be cultivated and cropped for a series of years after planting, but that the diameter of the circles left uncropped around each tree will be annually increased, until the extension of the roots and branches renders it desirable that the whole should be laid down in Grass, which will be necessary in a greater or less number of years, according as the preparation and after treatment are liberal or the reverse. Previous to sowing Grass, the ground should be carefully raked over so as to fill up all the little hollows, and then rolled firm; for I find by experience, that Grass seeds come up thicker and better on firm than on loose soil, so that after sowing, the roller should be freely used, until the whole is consolidated. In after years the operations of dredging and rolling, as generally practised on Grass land, will be highly beneficial.

In order that nothing may be omitted that is material to ensure success, it is necessary to observe that it is not at all desirable to mow the Grass of the orchard, for this will tend to the impoverishment of the soil. On the contrary, it is highly desirable that it should be fed off by sheep and cattle, because whatever they devour from it is returned to the soil in a condition calculated to increase its fertility; by which alone the trees are maintained in a vigorous state of health. At the same time it must be understood that this feeding off with sheep and cattle will not of itself suffice to keep the trees up to that point of perfection to which they may be brought by judicious assistance. It will therefore be advisable to give annually top dressings of good rotten manure and other composts of fresh fertilising materials, which should be well pulverised and spread equally over all the surface, which after a time should be well dredged over, and afterwards rolled down. The best time to apply such surface dressings is in the autumn, after all the fruit is gathered, and after dredging and rolling in spring all traces of it will disappear, and the ground be ready for spring feeding.

Whilst on this subject of top-dressing, I will detail a plan which has been adopted in many places with very great success, more particularly in the case of trees which show signs of debility; and that is to make a temporary enclosure of hurdles, at a distance of 8 or 10 yards around a tree or trees, as the case may be, and to turn therein several hogs; these must be regularly fed and confined to the space for some weeks, more or less according to the number folded on the space. Some bedding, and a temporary shelter for it, should be provided in one corner of the space enclosed, and when it is considered that the ground is well manured, and mixed up with the surface soil by the rooting and trampling of the swine, the whole should be shifted to another situation, when the process may be repeated. When I say well-manured, I do not wish it to be understood that I recommend an unlimited supply, because it is quite possible to overdo the matter. Apples are greatly benefited by regular supplies of manure mixed with other fresh compost, and applied on the surface in such proportions only as the trees will be able to assimilate in the course of the season; but if too much is applied at once, and more particularly if it is too strong, they become as it were gorged with rich food, and I have seen instances where young trees have been nearly killed by it. Very strong sewage manure will have this effect when used pure, but when diluted and moderately used it is highly beneficial. Even here, however, a distinction may be made between young and vigorous trees and old debilitated specimens; in the latter case a much stronger dose may be given with impunity, because most of the roots will be low down in the earth, and by well enriching the surface the roots will be induced to strike upwards to feed upon it.

Herein lies the great secret of success, and the profit to be derived from careful surface dressing, that the roots are thereby kept near the surface; for if the food is placed there in sufficient quantity they will come up to feed upon it, as I have proved over and over again; and although some of the principal roots may penetrate deep in the subsoil, it will be an advantage rather than otherwise, and the bad effects which in some cases result from that tendency, will be completely neutralised by the constant supply of suitable food kept on the surface. To this end all my observations have tended, and every point in practice is designed to lead up to the great end of encouraging the roots to remain near the surface. To ensure this the food must be there presented to them, and not, as is often the case, turned in deeply, under the idea that then other crops may be taken from the ground with impunity. This, in cases where the greatest perfection is required, is very short-sighted economy. If orchard trees are expected to pay well, it can only be by liberal treatment, and by making every other object entirely subservient to their culture. *John Cox.*

Home Correspondence.

Artificial Garden Manures.—Will any of your correspondents state their experience in the application of artificial manures to kitchen garden produce? We have in this neighbourhood a thriving Cottage Garden Society, where nearly all the cottagers of the neighbourhood exhibit, and in going amongst them I have been struck with the very great difficulty in procuring a sufficient supply of manure. Where no pig is kept, the cottager is thrown entirely on the resources of his household for the means of fertilisation, and when this cannot be added to by occasional road-scraping or purchase of manure, it is quite insufficient for the requirements of the garden. In this district stable manure cannot be purchased at a profitable rate, and if a portable artificial manure applicable to ordinary garden crops could be obtained, it would be a great boon to many of my poor neighbours. I have often wondered, whilst such success has attended the application of artificial manures to the Turnips and Mangel crops of the farm, that so little has been done in extending their use to the Potato, Carrot, Parsnip, Cabbage, Onion, and other staple crops of the garden. If Mr. Lawes would state his experience in the use of artificial manures to garden husbandry, and name the kinds of manure and the quantities per acre he considers would be applicable to each crop, I should like to institute a careful series of experiments on the subject. *George Maw, Benthall Hall, near Broseley.*

Origin of the Manetti Rose Stock.—I have received the following interesting particulars respecting this stock from my kind friend and valued correspondent, Mr. Rivers:—"It is just 30 years ago, this month," he says, "since I received one small rooted cutting of Manetti in a bookseller's parcel, through Messrs. Longman & Co. Its brother, raised in the same batch, came over with it, and was called 'Rosa indica grandiflora.' Our sort was called 'Rosa indica Manetti.' Both were raised by a Signor Crivelli, who dedicated the latter to Signor Manetti, the Director of the Botanic Garden at Monza, near Lago de Como. The first received was exactly like Manetti in leaves and habit, but not a cutting would grow. So, after some years, I destroyed it, which I now regret." Mr. Rivers further says, "So highly is the Manetti stock esteemed in the United States, that I have sent some hundreds of thousands there; and there is at this moment in the house an order for 50,000 for one nursery." *W. F. Radclyffe, Rushton.*

Prize-taking at Horticultural Exhibitions.—At most of the exhibitions in this part of the kingdom the prizes are nominally awarded to the employers, not to the gardeners: at the same time the employers do not receive a fraction of the prizes, but through a generous feeling, and as an incentive to further exertions, give them to their gardeners. Yet, from facts that have come under my own observation, I am convinced that the system does much mischief. I am acquainted with some gentlemen who refuse to exhibit altogether whilst the awards are made to the employers, knowing that mercenary motives may be, and in some cases are attributed to them. Through jealousy or personal feeling, Messrs. A., B., and C. directly insinuate that Messrs. D., E., and F. exhibit with a view to the money value of the prizes awarded to them. As a natural consequence, Messrs. D., E., and F. give up exhibiting altogether; and these I may add, are not imaginary cases which may possibly occur, but only a small portion of what have actually come to my own knowledge. Now if the awards had been made to the gardeners, there would have been no room for ill-natured insinuations. The prize animals, adduced by "Florist" in comparison with prize plants, do not strengthen his position—for this reason: the animal, to commence with, costs scores, and in some cases hundreds of pounds, while in the case of plants, with the exception, perhaps, of Orchids, the expense is not more than a few shillings. As the plant stands on the exhibition stage it is almost entirely a creation due to the gardener's skill and perseverance. It may be taken as a rule that the men who win the most prizes are not those who have the most money expended to enable them to do so. Gardening of the present day, as exemplified at the leading horticultural exhibitions of this kingdom, is certainly in advance of that of other countries; a circumstance directly attributable to the thoroughly liberal spirit which gentlemen have evinced towards their gardeners in all matters connected with their profession. Gardeners on the other hand have also done their best in order to make a suitable return for such favours; but if the views of "Florist" are to be carried out, I am afraid that a wet blanket would be thrown over their exertions. We have had some allusions lately from high authority to the effect that where showing is carried out, other things are neglected. It is possible that some gardeners may act short-sightedly in this matter; but, as a rule, I maintain that things are just the reverse. If I might be allowed to offer a word of advice, I should say to all gardeners who have the privilege of showing,—always make a point to fetch up in your own time that lost at exhibitions, and in preparing subjects for them. And if it is plants that are exhibited, be sure to have fruits and vegetables, and also the general keeping of the place, equal or even superior to those of men who do not show. Misrepresentations come from more sources than one in these matters. I know men who have tried their hands at exhibiting and who have been deficient in horticultural skill, and also in the necessary perseverance to insure success; such men have found it convenient to turn round and represent that it was not advisable to show, on account of loss of time, injury to plants, &c. At present, competitive exhibitions appear to be the mainsprings that move everything that is making progress—not in gardening only, but in other matters. I would suggest that all who write on matters of such importance as those relating to the regulation of exhibitions, should affix their signature to their observations, so that the public may be in a position to properly estimate the value of their opinions. *T. Baines, The Gardens, Summerfield, Bowdon, Cheshire.*——The system which "Florist" wishes to have altered, has been adopted and approved at the metropolitan exhibitions ever since their commencement, and that, it may be assumed, with the entire accord of employers generally, since they have the remedy in their own hands. "At country exhibitions," "Florist" tells us, "the prizes are awarded to the masters, and if the masters were to be ignored and the country exhibitions to become a gardeners' concern, they would speedily come to grief." This, however, is but an assertion, and requires proof. "Florist" goes on to say, "Mr. B. now allows his plants to be exhibited, be they ever so ill grown, not caring in the least whether they obtain a prize or not." I think if there be a solitary case of this kind, "Florist" might be able to trace it near home. I at least have seen many, many cases where the result has been the very opposite—where ladies and gentlemen have been delighted at their gardeners' success, and happy to receive the congratulations of their friends. Again, "Florist" says, "Is it not a well-known fact, that as a rule, when growing for exhibition is the order of the day, except the fruit and flowers so grown, the remainder go more or less to the wall." I say emphatically, no! If those who hold such a notion would take the trouble to visit the gardens of exhibitors, instead of taking it for granted that on show days there is nothing of interest left in them, they would find that, *as a rule*, everything is better done than in places where they do not exhibit. Again, "Florist" says, "Very many gentlemen (?) will not allow their gardeners to exhibit, as, receiving none of the credit, they nevertheless reap all the expenses and inconveniences attending growing for exhibition." Exhibitors would only be too glad to make "Florist" prove his words in this case; and if he had to make up the deficiency as a penalty for hazarding such random statements, he would find to his cost that the employers did not pay all the expenses, although it is well known that gentlemen and ladies too, reap an abundant harvest of gratification and real pleasure in looking at the beautiful specimens of their gardener's skill, and are quite willing to award him all the credit. I am surprised, if the alteration suggested would give gentlemen

the amount of gratification that "Florist" would have us believe, that it has not been adopted long ago, for, as you stated at the outset, the remedy has been in their own hands. But how does the matter stand? We will suppose that the gentleman buys all the plants and pays all expenses—they are decidedly his property. The gardener grows them and places them on the table for exhibition. What is the simple statement on the card? "Exhibited by Mr. A., gr. to Squire B.,"—clearly indicating the plants, and the gardener too, so to speak, as for the time being, the property of the employer. Viewed in this aspect, which I think is the right one, the gardener must be subordinate enough to satisfy even "Florist" himself. The fact of the custom having remained for so many years in force, is the best proof of its giving general satisfaction. *Antihumbug.*—— No person acquainted with the prize-taking gardeners and gardens of England, and with the relations existing between these gardeners and their masters, can for a moment suppose that the cry of "Florist" and others represents the feelings of the "rale gintlemin" of the country. The fair and true law on the subject is that where prizes are won manifestly by the exertions of the servant, it is only just that he should be named as the winner. A gentleman's name is not substituted for that of his ploughman when the latter wins a prize, and the gardener wins his prizes as fairly and as laboriously as any ploughman. Will "Florist" tell me why the prizes at the Poultry Show he alludes to were not given to the noble lords of the noble ladies? On his principle they should be given to the sole owner. He speaks as if a "community of feeling" did not exist between the gardeners of England and their masters. Well, you cannot expect those who are their own gardeners to know much about the matter; but they should not insinuate such an absurdity, for between no two classes of men so far apart in the social scale do such good relations exist, as between these. Every master may enter his plants in his own name, and I do not see why those who do so should be meanly jealous of men who have fairly won the merit awarded to them. The adoption of "Florist's" suggestions could, in my opinion, produce nothing but harm. *W.*—— It appears to me that there are very few of your correspondents who have written on this subject who are acquainted with the general principle upon which plants are shown. Those who have taken up the cudgels of war against the name of the gardeners being made prominent, generally appear to be florists. I have been looking attentively for the names of the employers of some of our great exhibiting men, but hitherto without being able to trace any of them. Not that I for one moment expected that they would trouble themselves about the matter, but as the agitation seems to continue, and because exhibitors generally have thought the entire subject unworthy their notice, "Florist" assumes he has carried all before him. If he has done so, it is by assertion, though he says his arguments are unanswerable, and that his opponents are obliged to fall back on the £ *s. d.* part of the question. Now those who know anything at all about specimen growing and showing are aware that the work is most laborious, and unless gardeners were remunerated for their exertions they would not injure their health by showing at all. I am not alluding to the cultivators of just one or two collections in the course of the season, but to the back and bone exhibitor—the men, in fact, on whom the societies are dependent to make their shows. If "Florist" will refer to my letter at p. 1157, he will find I there stated the secret as to how shows are supported. Taking the common sense view of the question, the prize cards at present indicate the facts. "So and So, gardener to A. B., Esq.," is the usual way in which the names appear, and, distort it how he may, I don't think "Florist" can improve the truth or the English. If any gentleman wished his plants exhibited in a manner so as to alter the reading of the sentence, he could always have it done, but it would imply no more than the existing plan, and would place him relatively in a lower scale. Passing by such trash as "Faunus" writes, I should think the managers of societies know their business too well to deviate from their present course, unless they received more authoritative testimony against it than any that has hitherto appeared. *G. B.* —— Let me ask if such non-contents as "Faunus" really know anything at all about exhibiting or the labour it entails; if they did, they would not grudge the gardener the hard-earned laurels he gets in the shape of reputation. Plant growing is only acquired by life-long experience and minute observation on the intricate mysteries connected therewith, and those who follow up showing year after year, as many do, know full well, to their cost of health and strength, that it is no child's play. Unless gardeners got some tangible benefits from their exertions they would be fools indeed to go through them. I can speak from experience of having had a far more liberal employer than "Faunus," as the more I got in shape of prizes the more he was pleased; and, thank justice, my case is no exception. *O. R., a Member of the Exhibitors' Society.*—— "Florist" questions the advisability of awarding prizes to the gardeners instead of the employers, and gives it as his opinion that the existing custom of awarding them to the former is highly injurious to floriculture and floral exhibitions. After an assertion of this kind, one naturally expects to find reasons advanced in support of the argument, but in vain is the article scanned to discover them, although the importance of the question in its various bearings is undoubtedly great. Had the desire of the writer been purely disinterested, it would probably have been largely discussed by more able pens, but an article so utterly devoid of even a single sensible argument is likely to have a larger portion of contempt than attention accorded to it. Allow me briefly to analyse that part of it which may be considered by some superficial readers to bear upon it the semblance of reason. Does your correspondent seriously entertain the idea that a spirit of emulation would be aroused if his suggestions were carried out? A gardener, in addition to being sufficiently acquainted with the various branches of his profession, to discharge his duties satisfactorily must have a tolerably good education, and devote a considerable amount of attention to this end; but when, in addition to this, a persevering and industrious man, desirous of improving his social condition, and zealous for the advancement of his art, bends all his corporeal and mental energies to the task to master the multitudinous and abstruse details thereof, he should, by every shadow of reasoning, be entitled to all the encouragement that can possibly be given to him; and on all occasions the employer should be ready to recognise him in every appropriate way. Can any rational being suppose that this desirable result can be secured by the employer systematically appropriating to himself any pecuniary benefit which his gardener has so praiseworthily earned through the extra and arduous duties which have devolved upon him, and which is therefore most justly his due. Besides, in a general way, the prizes that are awarded at floral exhibitions are not of any great value, only so far as they redound to the honour of the employer and credit of the employed. Stipulated wages to a conscientious servant will secure a faithful return of labour, and here I think the present system is found to work admirably well, for in however feeble a manner a man's services may be recognised, there is found in it the stimulating germ which will gradually develope itself, and inevitably be found practically to produce the most beneficial results. Where would be the incentive to progress if your Correspondent's remarks were adopted? I cannot consider his comparison of a gardener with a groom to be borne out by facts. Where is the analogy between them? There is none—the one being occupied in a purely mechanical way, and the other in a way requiring a combination of brain, highly refined taste, and numberless acquirements. In a fair and open competition for determining the merit of the various products in any particular branch of industry, happily the exploded notion that there is any dishonour in competing with "the servants of equals" is not generally considered a serious impediment. Intellect fortunately is that great desideratum in every department of trade, which most surely and steadily is asserting its supremacy and maintaining its sway; while the accidental advantages of birth, position, &c., without it, soon find their level. The cynical sneers of "Florist" will not terrify men who belong to the class of "Messrs. Jemmy Green and Carroty Bob." *A Gardener.*—— [Enough has been said on this subject. We printed "Florist's" letter in order to elicit whether the feeling to which he gave expression was at all generally felt amongst the employers of gardeners. Such does not appear to be the case, if we are to judge by the silence of those who are most interested; and indeed the general existence of such a feeling is all the less likely, inasmuch as employers could, if they had wished, at any time have altered the present system. Seriously we put it to our Correspondent "Florist," whether he can on mature consideration think it beneath him to meet a gardener in fair open competition at a garden exhibition.]

Vine-growing at North Elswick.—In the autumn of 1861 you published some remarks of mine relative to the Vineries at North Elswick, in the county of Northumberland, the borders of which were constructed by Mr. Milthorpe, of the Gowlands Nursery, upon a principle which was then comparatively unknown, but which I am glad to find is now becoming the rule in border-making rather than the exception. Formerly the construction of a Vine border was a very costly matter; the ground was first excavated to a considerable depth, then concreted, or otherwise rendered impervious to the filtration of water, the effect of which in many cases (especially where the concreted bottom had been made perfectly flat) was that the water collected at the bottom of the Vine border as in a reservoir, to the destruction of the roots of the Vines, thus producing the very evil which the concreted bottom was intended to guard against, viz., the penetration of the roots of the Vines into a wet and badly drained subsoil. The borders at North Elswick are altogether above the natural level of the adjoining ground, which, in the first place, was made to slope considerably towards a main drain along the south front of the border. There is a little border inside the house, slightly more elevated than the outside one. The Vines were planted outside, and were introduced under the wall plate, which is supported at intervals of about five feet by a small brick pillar. The roots have therefore full liberty to ramble both outside and inside, and are thus more independent of watering by hand within the house, and also enjoy the ameliorating atmospheric influences. On May 15, 1858, 38 Vines, one half of which were Black Hamburghs, and the other half Muscats and Frontignans, were planted. The same autumn the Vines reached the top of the rafters (about 16 feet) and half way down the back wall. In 1859, some of the canes were 3 inches in circumference. In 1860, the rods were superb, and were allowed to bear a few bunches, some of which weighed 4½ lbs. In 1861, there were 350 bunches, averaging 2 lb. each, but many weighing 3 and 4, and a few 5 lb. a-piece. This year (1861) owing in some degree, no doubt, to the appearance in your columns of the account of the extraordinary success of the North Elswick vineries, they were visited and inspected by great numbers of gardeners from this and the adjoining counties. No one could deny that wonderful results had been arrived at; that it was rare indeed to see such Vines and such crops the third year after planting; but "stop a little," said they, "this will soon come to an end, the Vines are overworked, they may bear a year or two longer, but nothing but 'ruination' can be the end of such cropping as this," and so, with many shrugs of the shoulders and much shaking of their heads, they returned to the places whence they came, prophesying the speedy extinction of the North Elswick Vines. In spite of this croaking, however, Mr. Macpherson, the gardener (who is now in his 87th year), went on and prospered. In 1862, the 28 Vines bore 698 bunches; in 1863, 705 bunches; and in 1864, 728 bunches, varying from 1 lb. to 4 lbs. each. The Vines show no signs of exhaustion; they continue to make splendid wood, many of the stems (measured last week) being 5¼ inches in circumference. They showed three and four bunches at the greater number of the buds, and it is a fact that 1700 bunches have this year been removed, leaving, as before stated, 728 bunches to come to maturity. Two Peach houses have been erected in 1863 at the ends of the Vineries; the same description of border has been constructed for them, and the result has been equally satisfactory. Seven Peaches and Nectarines were planted in the April of 1863, and each tree has this year borne on an average two dozen of exceedingly fine fruit. *X. Y. Z., Northumberland.*

Fearnought Cabbage.—In your Journal of the 24th inst. I observe a few remarks from Ashford upon this Cabbage, wherein the writer states that it did not stand the frost of last winter so well as the Couve Tronchuda. Owing to the Fearnought being a hybrid betwixt an early Cabbage and the Hearting Scotch (or Borecole Kail), of course like all hybrids it is apt to sport, some of the plants partaking more of the Cabbage than the Kail, and growing larger in the head than others. These are of course more susceptible of the influence of severe frost than more hardy seedlings; but I find from three years' experience, and comparative trials alongside of the Savoy, Late Drumhead Cabbage, and Broccoli of different sorts, that none stand frost so well as the Fearnought. In order to withstand a severe frost, I lay all my winter vegetables on their sides, facing the north, taking care not to remove any of their leaves. As to the merits of the Fearnought on the table as a winter vegetable, laying aside prejudice and giving it a fair trial against any of the Brassica tribe, even the most fastidious will at once pronounce it superior to anything until spring, when the Broccolis come in. The public are the best judges as to its value, and around where I reside the Fearnought Cabbage seems to have superseded in a great measure all other winter vegetables. *Francis Somner.*

Castle Kennedy Fig.—I consider the letter of Mr. Fowler, at p. 1228, quite satisfactory. From the description he gives of the fruit, it seems probable that the old and formerly neglected tree at Stranraer, remained the sole representative in this kingdom of a Fig cultivated by Miller, and which stands first on his list. Of Figs now cultivated here (except the recently imported Adam), the largest is the Brunswick. This was well known to Miller, who describes it. Yet he states that his No. 1 is decidedly the largest he knows, and therefore larger than the Brunswick. He speaks highly of its earliness, hardiness, and quality, nor does he say any thing disparaging, except its liability to crack in wet seasons, like many other thin-skinned fruits. He calls it the Large Brown or Chestnut Ischia; not the Small Brown Ischia, which is quite another thing. *S. B.*

Royal Horticultural Society's Programme.—I really was hopeful when I read your remarks on the Horticultural Society's Programme (p. 1106) that we were going to have some tangible improvements, but after looking most anxiously for the expected boon, and with the Regulations for 1865 before me, I am unable to learn anything remarkably satisfactory beyond this, that it looks very pretty on paper. As regards the promised Lilliputian (shall I say puppet?) shows, the mischief is that the managers are not catering for a Lilliputian public, but (leaving out entirely the interests of exhibitors) for the members of an aristocracy second to none in the world, and possessing refinement and true appreciation of all that is noble and good—thousands of whom if they visit the forthcoming pigmy affairs will look back with yearnings for the sound entertainment they used to enjoy at the old Chiswick shows. As an exhibitor for the last 14 years, during the latter 12 of which I have never missed any of the great metropolitan shows, I think I may be permitted, with a pardonable amount of egotism, to

assume having had some opportunity of observing the requirements of a good flower show, and the characteristic peculiarities of specimen plants generally. I beg, therefore, to offer a few remarks on the subject. In my opinion those who have anything to do with the management of horticultural exhibitions should most intensely study that magnetic word 'attraction' in all its practical bearings; and what is more attractive than a good flower show? See the thousands who throng the Royal Botanic Society's tent on one of their great gala days. On many occasions I have come in contact with visitors at the moment when they have entered the tent for the first time, and gazed upon that never yet eclipsed grandeur of floral display, and have listened to the exclamations of wondrous delight which have escaped their lips. The Council of the Royal Botanic Society know that a good flower show will attract the sight-seeing public, and they hold out practical inducements to exhibitors. The result is that miscellaneous groups of the finest specimen plants in Europe are staged, and the scene changes at every step by the judicious arrangement of dissimilar objects. They are not shows at which one species only is exhibited, or the prizes all taken by one or two individuals; but they contain all the cream of the aggregate productions procurable at the season. All this the authors of the Programme of the Royal Horticultural Society are neglecting to do, as effectually as they can. Let me ask any practical exhibitor of Orchids if he would choose the beginning of May for an exhibition of that family. Still more absurd is the time allotted to Azaleas, viz., the end of June, unless the Society wishes to see the kinds most adapted for late blooming, after every "spasmodic effort" has been made to keep them back to such a decidedly "unnatural state of things." But supposing the time fixed for these and the other pet special displays to be ever so seasonable, will the exhibitions of these particular species be any the better for this "family gathering?" Was the exhibition of Orchids any the better last season for the attempt at classification? I had it from the lips of one of the best growers of Orchids, and one of the most successful exhibitors, that he was disgusted with the arrangement, which only had the effect of introducing some specimens into collections for the purpose of "making up," which otherwise would have been left at home, while it prohibited more notable specimens from being shown, thoroughly proving the fact that the only quality portrayed was that of novelty. Nor will the scheme of 1865 make the subjects themselves any the better by the shows being especially devoted to one kind of plant. No! the isolated system will make the flowers of the Pelargoniums none the brighter, the Orchids none the choicer, the Azaleas none the more plentiful, and the foliage plants none the greener; but it will make the shows all the less attractive by placing only one kind of plant before the public; and I have the highest authority for adding that it will make the general body of exhibitors most dissatisfied. Who, in the name of common sense, are the Council trying to please? *O. R.*

Societies.

ROYAL HORTICULTURAL: *Dec.* 24 to 31.—An exhibition of Perfumes and of some of the plants from which they are derived, has been held at South Kensington during the past week, and has not been without interest. Ample illustrations of the most popular kinds of scents, both in the shape of solids and liquids, have been furnished by Messrs. Piesse and Lubin, and others, and lecturers on the different compounds shown have been delivered by Mr. Rimmel, of the Strand, and Dr. Piesse, of Bond Street, to tolerably large audiences daily.

In connection with the exhibition of perfumery, was a display of Egyptian fruit from Mr. Chapman, gr. to Halim Pacha, of Grand Cairo. It consisted chiefly of Citronworts, amounting to upwards of 20 dishes, among which were very fine Shaddocks, Oranges of different kinds, large and beautiful examples of Lemons, a Pomegranate, a Cucumber-shaped Gourd, long rod-like seed-pods of Cassia fistula, stated to be used by the Egyptians as medicine; Cotton, American, Egyptian, and South Sea Island; and a kind of Pepper, called by the natives Filfill—altogether an extremely interesting exhibition.

Mr. Rimmel's discourses on Perfumes related not only to modern, but also to the ancient uses made of them. After alluding to the history of the art of Perfumery, and adverting to the Linnean and other modes of classifying odours, he stated that his mode of arranging them was similar to that employed with regard to colours, the principle being that as there are primary colours from which all secondary shades are composed, so there are also primary odours or types by a combination of which most other aromas may be obtained. His odour types were stated to be the Rose, Jasmine, Orange-flower, Tuberose, Violet, Balsamic, Spice, Clove, Camphor, Sandal, Citrine, Lavender, Mint, Aniseed, Almond, Musk, Amber, and the aroma of fruit. With regard to these, however, and many other interesting matters relating to perfumery, ample information may be gleaned on the subject from a lecture by Mr. Rimmel, published in our volume for 1860. Dr. Piesse's observations on the subject are as follows:—

Perfumes derived from plants may be, for the purpose of description, conveniently divided into three classes.

CLASS I. are the most ancient, and have been in use from the earliest period of which there is record. They consist of the various odoriferous gum-resins, which exude naturally from the trees which yield them; and to increase the produce, the plants are often purposely wounded. The most important are Benzoin, Olibanum, Myrrh, and Camphor. No less than 5000 cwt. of these together, are annually imported into Britain. Gum-resins form the chief ingredients in incense, and in pastilles. These odorous bodies are principally consumed in certain religious ceremonies, and from the early custom of burning incense upon the holy altar, our word perfume, from *per fumus* (by smoke), has been derived. We may include in this class all those parts of plants which are fragrant, such as the long seed pod of the Vanilla plant; the Bean of the Dipterix odorata, or Tonquin Bean, which our grandfathers carried in their snuff boxes; the root of the Iris florentina, or Orris root, about 25 tons of which are consumed every year by Britannia at her toilet; the rhizome of an Indian Grass, known as vitivert or kus kus; fragrant woods, such as the Sandal, and the Myall, or violet-wood of Australia; odoriferous seeds, as Caraway and Nutmeg; in fact, our first division includes every vegetable substance which has a pleasing fragrance, like some dried flowers. Perfumers grind these several bodies to powder, then mix them in various proportions; the results are the various sachet powders in such universal use.

CLASS II. are those perfumes which are procured by distillation. This is the first step to separate the odorous principle from the material which contains it. As soon as the Greeks and the Romans learned the use of the still, which was an invention imported by them from Egypt, they quickly adapted it to the separation of the odorous principle from the numerous fragrance-bearing plants which are indigenous to Greece and Italy. An essential oil or otto thus procured from Orange flowers bears in commerce to this day the name of Neroli, supposed to be so named after the Emperor Nero. Long before that time, however, fragrant waters were in use in Arabia, as all may learn who read the Arabian Nights. Odour-bearing plants contain the fragrant principle in minute glands or sacs; these are found sometimes in the rind of the fruit, as the Lemon and Orange; in others it is in the leaves, as Sage, Mint, and Thyme; in wood, as Rosewood and Sandal-wood; in the bark, as Cassia and Cinnamon; in seeds, as Caraway and Nutmeg. These glands or bags of fragrance may be plainly seen in a thin cut stratum of Orange peel, from which the otto may be easily pressed out on to paper; so also in a Bay-leaf, if it be held up to the sunlight, all the oil cells may be seen like specks. All these fragrant-bearing substances yield by distillation an otto peculiar to each; thus is procured otto of Patchouly from the leaves of the Patchouly plant, Pogostemon Patchouly, a native of Burmah; otto of Caraway, from the Caraway-seed; otto of Geranium, from the leaves of the rose-scented Geranium; otto of Lemon, from Lemon-peel; and a hundred of others of more infinite variety.

All the various ottos are very slightly soluble in water, so that in the process of distillation the water which comes over is always fragrant. Thus, elder water, rose water, orange water, dill water, are, as it were, the residue of the distillation for obtaining the several ottos. A variety of these fragrant waters will be found here. We may distil so much of the plant with water as is just sufficient to render the water fragrant without any otto floating upon it. This is the practice when the water alone is the object of distillation. The process of distillation is very simple; the fragrant part of the plant is put into the still and covered with water, and when the water is made to boil the ottos rise along with the steam, are condensed with it in the pipe, and remain floating on the water, from which they are easily separated by decanting. Models of the still are here shown, and on the wall we have a sectional diagram of this wonderful instrument. In this way 100 pounds of Orange, Lemon, or Bergamot-fruit peel will yield about 10 ounces of the fragrant otto; 100 lb. of Cedar wood will give about 15 ounces of otto of Cedar; 100 lb. of Nutmeg will yield 60 to 70 ouuces of otto of Nutmeg; 100 lb. of Geranium leaves will yield 2 ounces of otto. A simple mode of procuring the ottos from Orange, Lemon, and Bergamot is practised in Italy. The fruit is rasped, and the pulp produced is then pressed. The odours of the fruit thus procured are much finer than those obtained by distillation.

Every fragrant substance varies in yield of essential otto. The variety of ottos are as numerous as fragrant plants; but there are a certain relationship among odours as among tints. The lemon-like odours are the most numerous, such as Verbena, Lemon, Bergamot, Orange, Citron, Citronella; then the almond-like odours, such as Heliotrope, Vanilla, Violet; then spice odours, Cloves, Cinnamon, Cassia. The whole may be classified into 12 well-defined groups. All these ottos are very soluble in alcohol, in fat, butter, and fixed oils. They also mix with soap, snuff, starch, sugar, chalk, and other bodies, to which they impart their fragrance. And it is thus that we are enabled to transfer the odorous principle from the plant that produces it to an inodorous body, wanting fragrance alone to make it of commercial value. The principal consumption of the various fragrant ottos is for scenting soap. Windsor soap, almond soap, rose soap, and a great variety of others, consist of various soaps made of oil and tallow, perfumed while in a melted state with the several named ottos or mixtures of them.

Though snuff is by no means so popular an article in the reign of Victoria as it was in Anne's time, yet the increased population, and still more increased exports to colonies, cause a positively increased production in scented snuff over that of 50 years past; snuff perfumed with bergamot is especially in demand in the fur countries of Northern Canada. There is a large consumption of fragrant essential oils in the manufacture of toilet powders; under the various names of rose powder, violet powder, &c., a mixture of starch and Orris root powdered, differently scented, is in general demand for drying the skin after the bath.

More than 200,000 lb. weight of various ottos were imported into Britain in 1860, and valued at over 180,000*l.*; to this must be added at least one-third as much again distilled in England. Of the imported articles enumerated, oils of Lemon and Bergamot, from the Two Sicilies, reached 128,809 lb., valued at 57,054*l.*

We now pass to CLASS III. These are the perfumes proper, such as are used for perfuming handkerchiefs. Contrary to the general belief, nearly all the perfumes derived from flowers are not made by distillation, but by the processes of *enfleurage* or inflowering, and by maceration or infusion.

The odours of flowers do not, as a general rule, exist in them as a store or in a gland, but they are developed as an exhalation. While the flower breathes it yields fragrance, but kill the flower, and fragrance ceases. It has not been ascertained when the discovery was made of condensing, as it were, the breath of the flower during life; what we know now is, that if a living flower be placed near to butter, grease, animal fat, or oil, these bodies absorb the odour given off by the blossom, and in turn themselves become fragrant. If we spread fresh unsalted butter upon the inside of two dessert-plates, and then fill one of the plates with gathered fragrant blossoms of Clematis, covering them over with the second greased plate, we shall find that after 24 hours the grease has become fragrant. The blossoms, though separated from the parent stem, do not die for some time, but live and exhale odour; which is absorbed by the fat. To remove the odour from the fat, the fat must be scraped off the plates and put into alcohol; the odour then leaves the grease and enters into the spirit, which thus becomes "scent," and the grease again becomes odourless.

The flower farmers of the Var follow precisely this method on a very large scale, with but a little practical variation, with the following flowers—Rose, Orange, Acacia, Violet, Jasmine, Tuberose, and Jonquil. The process is termed, as said before, *enfleurage* or inflowering. In the valley of the Var, there are acres of Jasmine, of Tuberose, of Violets, and the other flowers named; in due season the air is laden with fragrance—the flower harvest is at hand. Women and children gather the blossoms, which they place in little panniers like fishermen's baskets hung over the shoulders. They are then carried to the laboratory of flowers and weighed. In the laboratory the harvest of flowers has been anticipated. During the previous winter great quantities of grease, lard, and beef-suet have been collected, melted, washed, and clarified. The great success of this process depends on the absolute purity of the grease employed and no pains are spared to this end. In each laboratory there are several thousand *châsses* (sashes), or framed glasses, upon which the grease to be scented is spread, and upon this grease the blossoms are sprinkled or laid. The *châsse en verre* is, in fact, a frame with a glass in it as nearly as possible like a window-sash only that the frame is 2 inches thicker, so that when one châsse is placed on another, there is a space of 4 inches between every two glasses, thus allowing room for blossoms. Every châsse, or sash, is about 2 feet long by 18 inches broad. The flower blossoms are changed every day, or every other day, as is convenient in regard to the general work of the laboratory or flowering of the plants. The same grease, however, remains in the châsse so long as the particular plant being used yields blossoms. Each time the fresh flowers are put on, the grease is "worked"—that is, serrated with a knife—so as to offer a fresh surface of grease to absorb odour. The grease being inflowered in this way for three weeks or more—in fact, so long as the plants produce blossoms—is at last scraped off the châsse, melted, strained, and poured into tin canisters, and is now fit for exportation. In every moderate-sized flower laboratory there are employed from 2000 to 3000 sashes. Fat or oil is perfumed with these same flowers by the process of maceration; that is, infusion of the flowers in oil or melted fat. For this end, purified fat is melted in a *bain marie*, or warm bath, and the fresh blossoms are infused in it for several hours. Fresh flowers being procured, the spent blossoms are strained away, and new flowers added repeatedly, so long as they can be procured. The bain marie is used in order to prevent the grease becoming too hot from exposure to the naked fire; so long as the grease is

fluid, it is warm enough. Oil does not require to be warmed, but improved results are obtained when it is slightly heated. Jasmine and Tuberose produce the best perfumed grease by enfleurage, but Rose, Orange, and Acacia give more satisfactory products by maceration; while Violet and Jonquil grease is best obtained by the joint processes—enfleurage followed by maceration.

We have here a *châsse en fer*—this is for the enfleurage of oil. In the place of glass, the space is filled with a wire net, on which is laid a molleton, or thick cotton fabric—moleskin, soaked with oil; on this the flowers are laid, just as with solid grease. In due time—that is, after repeated changing of the flowers—the oil becomes fragrant, and it is then pressed out of the moleskin cloth. Oil of Jasmine, Tuberose, &c., are prepared in this way.

There is certainly something inscrutable to an Englishman about Olive oil. He only knows it as it were with a lamp-like odour; but the Olive oil that is pressed from the native fruit of the Valley of Cannes, has less taste and less odour than the finest Aylesbury fresh butter. Such oil therefore is admirably adapted for inflowering, for it is obvious that bodies which have no odour of their own, are more easily perfumed than those in which the original odour has to be overcome before they smell of the substance with which they are odorated.

In order now to obtain the perfume of these flowers in the form used for scenting handkerchiefs, we have to infuse the scented fat or oil, made by any of the above methods, in strong alcohol. In extracting the odour from solid fat it has to be chopped up fine as suet is chopped or melted, and then put into the spirit, and left to infuse for about a month. In the case of scented oil it has to be repeatedly agitated with the spirit. The result is, that the spirit extracts all the odour from the fatty body, becoming itself "perfume," while the grease again becomes odourless. Thus is procured the essence of Jasmine, essence of Orange flowers, essence of Violets, and others already named, Rose, Tuberose, Acacia, and Jonquil. It is remarkable that these flowers yield perfumes which, either separate or mixed in various proportions, are the types of nearly all flower odours; thus, when Jasmine and Orange flowers are blended, the scent produced is like Sweet Pea; when Jasmine and Tuberose are mixed, the perfume is that of the Hyacinth. All the various bouquets and nosegays, such as "frangipanni," "white roses," "sweet daphne," are made upon this principle.

The commercial importance of this branch of perfumes may be indicated by the quantity of flowers annually grown in the district of Cannes. Flower harvest: Orange blossoms, 1,475,000 lb.; Roses, 530,000 lb.; Jasmine, 100,000 lb.; Violets, 75,000 lb.; Acacia, 45,000 lb.; Geranium, 30,000 lb.; Tuberose, 24,000 lb.; Jonquil, 5000 lb. The quantity produced at Nice I have been unable to ascertain; with Violets and Orange there are more, but with Cassie less than here stated.

In growing flowers for perfumery the item of wages is of course important. In the Valley of the Var, the summer wages are 2*s.* 4*d.* a day for those men who do the heavy work of the fields, and 1*s.* 1*d.* a day for the women who attend to the flowers. In winter, which is of short duration, the wages are 2*s.* a day for men, and 10*d.* for women.

Nothing can be simpler or more primitive than the farming operations. Roses for example: the field is first scantily manured — especially with the refuse matter left after the distillation of various plants; it is then ploughed with oxen at the yoke; young plants of Roses, procured from layers in the usual way by tongueing and laying at a joint, are then planted, and Nature does the rest. The Cabbage or Provence Rose is the kind cultivated. In the second year a considerable quantity of flowers appears, but it is not until the fourth year that they are fully developed. A plantation of Roses well tended will last from six to eight years; but for this the land must be well drained. It requires about 7000 Rose plants to cover an acre, and this acre will produce, in an average season, 5000 lb. weight of Roses of the value of 1*d.* to 1½*d.* per lb., yielding, say 30*l.* an acre.

For Cassie (Acacia Farnesiana), the land is prepared in a similar way. The young plants are raised from seed, which is sown in beds. The best plants are left, the doubtful ones removed. In the third year they have generally a height of 2 or 3 feet, and are then planted out in fields, each tree requiring about 12 feet square. The blossoms of the Cassie are successive, some being ready for plucking, while the others are scarcely formed. This is immensely useful to the farmer, one lot of blossoms being gathered and passed through the laboratory before it is time to gather the others. After the third year the tree produces flowers, growing at the same time till they attain maturity, when they reach a height of 10 or 12 feet, with branches 6 feet long, and a stem as thick as a man's wrist. Each full-grown tree will produce about 2 lb. weight of flowers, value from 3*d.* to 4*d.* per pound, say 30*l.* to 40*l.* per acre.

The Jasmine is cultivated by slips of the Wild Jasmine (that which is seen in our English gardens), grafted at the end of two years with the Spanish Jasmine (Jasminum grandiflorum). This produces a blossom the size of a shilling, of intense fragrance. It requires about 8000 plants to stock an acre; and they are not in full bearing till the second year after grafting; but when mature, every thousand plants yield about 60 lb. weight of flowers annually. They are planted in rows, horizontal poles being thrust between them for support, the branches being woven in and out, somewhat as the Raspberry canes are arranged by the Chiswick gardeners. Every August — the Jasmine season—the fields are alive with women, old and young, and children, each having a little basket at her side suspended by a strap across her shoulders, both hands actively engaged in picking the flowers, and filling the baskets. As each basket is filled it is conveyed to the shaded laboratory, and there weighed. An acre of land will yield about 500 lb. weight of Jasmine blossoms. The value of the blossoms varies from 1*s.* to 1*s.* 6*d.* per pound,

The Tuberose needs more care than any other flower of the farm. It is the most difficult to rear, but the best worth rearing; a good plantation on a good soil will last for seven or eight years. It is a bulbous plant, and propagates as they do; it throws out a stem like a Hyacinth, covered with fleshy flowers. And oh! what a fragrance breathes from it! what a bouquet, snatching perfumes from every flower with a superb eclecticism!

> The Tuberose, with her silv'ry light,
> That in the garden of Malay
> Is called the mistress of the night,
> So like a bride, scented and bright,
> She comes out when the sun's away.

Orange trees are cultivated from seeds; at the third year they are grafted, either with the sweet Portugal or bitter Bigaradier. A tree requires 15 years to reach maturity, but will produce both flowers and fruit in four or five years. When in full vigour, each tree yields an average of 25 lbs. weight of blossoms annually. Many plantations of Orange trees at Nice are more than 100 years old. At Fontainebleau there are now to be seen Orange trees planted by an ancestor of mine 200 years ago. At Nice there is a public market for Orange-blossoms during the season: the bitter Orange flowers fetch 3*d.* per lb., the sweet about 2*d.* The Orange-tree yields not only the exquisite odour of the flowers by the enfleurage process, of which there are several examples here, but also the otto from the flowers by distillation; there is also quite a different smelling otto from the epidermis of the fruit, and also a very fine otto from the leaves. The market season for Orange-flowers at Nice lasts for more than a month, as an average, and during that time there are sold about 15 to 18 tons of flowers daily! and a ton of flowers will yield more than a kilogramme of otto, say 40 ounces, worth 20*l.* sterling; and the residuary water, highly saturated with odour, worth another 10*l.* note.

With us the Violet grows anywhere, and almost anyhow; but the terrible sun of Nice, during July and August, is but ill-borne by the Violet. Consequently, on the farms they are planted under the green shade of the Orange and Lemon trees, or close to walls and houses. The method of propagation is division of the roots. They are planted so as to grow in tufts or clusters about a foot apart all round; and this space enables the growers to gather the flowers without treading on them. A surface of land, equalling an acre of planting, yields 180 to 200 lbs. weight of flowers, valued as an average at 2 francs the lb. Violets may always be looked upon as an extra crop, growing as they do under the Orange and Lemon trees. The kind grown is the double Parma. About 25 tons weight of Violet blossoms are produced annually at Nice.

Oak or Rose-leaf Geraniums are grown for the sake of the Rose-like odour extracted by distillation from the leaves. A ton of leaves will yield about a kilogramme, or rather less, of otto. The Geranium is propagated by cuttings made in September, which are planted out in the spring.

Rosemary, Lavender and Thyme are also grown to a vast extent. One can hardly say "cultivated," since they grow like Brooms and Heaths on the wild wolds of Yorkshire. Any quantity may be found on the high regions of the Maritime Alps. Those persons who seek for the ottos of these plants carry the distilling apparatus up the hills upon the backs of mules, while they encamp themselves in tents near to some snow-stream. England has always been famous for the production of Lavender, and farms of it exist at Carshalton and Mitcham, in Surrey; also at Hitchin, in Hertfordshire. It requires about 3500 plants to an acre, and when the plant is in full bearing we can procure from this quantity about six to seven quarts of otto, which, at the present price of 54*s.* per lb., a good average price of ten years, yield 32*l.* per acre.

Although the mode of obtaining the odours from flowers by enfleurage and maceration has certainly been in practice for two centuries in the valley of the Var, in the south of France, it is only by my publications that the method has been made generally known in England.

The works published relating to perfumery are very few. In France, where this commerce has risen annually to the value of 3,000,000*l.* sterling, there are no published accounts or statistics by a native author relating to flower farming. My own little book, "The Art of Perfumery," has recently been translated into French, by Dr. Baveil of Paris, and is published by Ballaire. No cyclopædia, which is more than 10 years old, makes even mention of the enflowering process as a source of entrapping the exquisite odour of flowers, nor do any of the multitude of books relating to economic gardening notice this fact.

No wonder then that gardeners and horticulturists generally are unacquainted with this simple source of wealth, and if I interpret right the object of the Council of this Society now in bringing the subject of the odours of plants before the Fellows, it is that young gardeners, aspiring to emigrate to some of the warm British Colonies, may eventually lay there the foundation of a flower farm and perfume laboratory, such as can only at present be seen on the banks of the Var.

Notices of Books.

The Painless Extinction of Life in Animals designed for Human Food. By Henry MacCormac, M.D., Longman & Co.

Such is the title of a very small pamphlet addressed to the Society for the Prevention of Cruelty to Animals. Dr. M. thinks that if animals must be killed for food, we ought to take care that their departure out of life should be as painless as possible. He would forbid slaughter-houses in towns because they are disgusting. He would have none employed but skilled and competent persons. All this is very well; but when he asserts "that all the horrors of vivisection sink into nothingness contrasted with those of the slaughter-houses," Dr. M. is certainly not speaking from his own experience; he takes a mere spectator's view of the case, and we feel persuaded the unfortunate subject of vivisection, if he could speak, would give a very different account of the matter. All experience goes to prove that exquisite torture may be suffered while there need be nothing to disgust the beholder—no streaming blood, no crashing bones, no resounding blows. And, on the other hand, there are numerous cases to show that instantaneous death from a blow is in all probability absolutely painless.

Dr. MacCormac reminds us of the good-natured gardener, who was heard lamenting "Oh, dear! oh, dear, what am I to do! Miss Florence has told me to kill them snails, and says I must *do it tenderly*," so he sprinkled them over with salt.

The Doctor says the practice of "pithing" is good, but it is too delicate and difficult a process for general use. So are some other ingenious methods of killing, but the inhalation of carbonic acid gas he proposes as perfectly satisfactory. There is no need for him to prove that insensibility to pain may thus be instantly produced, we admit it: but a skilful blow with a pole-axe we maintain does the work just as well. If a prejudice exists against eating the flesh of animals that have not bled, the doctor says it is groundless, and in fact the loss of blood in slaughtered animals is actually a loss of food for man. "The blood is as wholesome and digestible as any portion of the flesh of animals, and there is no way in which it can so readily be made use of, as by leaving it in the tissues wherein it subsists in life." More than that, he says the retention of the blood gives meat a kind of gamey flavour. So Dr. M. proposes to have a carbonic acid gas generator fed with chalk and sulphuric acid. From this a trough or reservoir will be filled, or an india-rubber hood may be adjusted to the creature's head—one gulp of the gas, and your ox is dead.

Le Jardin Fruitier du Muséum. By Prof. Decaisne.

(*Continued from p.* 1159.)

Pêcher Belle de Doué.—Leaves with globose glands; flowers very small. Fruit very large, globular, somewhat depressed, with a wide spreading cavity at the base; skin covered with fine short down, strongly coloured with purplish red next the sun. Flesh parting from the sun, white, rayed with red at the stone, melting, juicy and sugary. Ripens about the same time as the Grosse Mignonne, for which it might be mistaken; but these two may always be perfectly distinguished, the Belle de Doué having small flowers, whereas the Grosse Mignonne has large. This variety was raised by M. Dimat, a Nurseryman at Doué, in the department of Maine-et-Loire; and it was introduced in the trade by M. Jamin, Nurseryman, Bourg la Reine, Paris, well-known for his excellent collection of fruit trees.

Brugnon Hâtif d'Angervilliers.—Syn. d'Angervilliers, Brugnon Violet Hâtif. Leaves with reniform glands; flowers very small. Fruit at first pale yellow, then cherry red, and finally deep violet where exposed to the sun; flesh yellowish white, rayed with red at the stone, from which it parts; juicy, perfumed, with a fine musky flavour. This variety was noticed by Réné Dahuron in 1738, under the name of Pêcher d'Angervilliers (Angervilliers Nectarine). Prof. Decaisne thinks it comes very near the Violette Hâtive; and it appears to us but very slightly different.

Poire d'Argent.—Fruit small, roundish or turbinate smooth, greenish or pale yellow; flesh white, fine, half melting, juicy, sugary, slightly perfumed. A very good Pear, though small. Season, August. This variety bears some resemblance to the Colmar d'Eté, but the trees differ considerably. It is seen in great abundance in the markets of Paris, either under the above name, or under the false one of Poire de Vache.

Poire de Saint-Ours.—Fruit small or middle-sized, turbinate, with a long stalk; skin yellow on the shaded side, and of a fine red, like the Seckel, next the sun. Flesh whitish, very juicy, firm, or half melting, very

sugary, slightly perfumed, with a peculiar but not musky flavour. Season, end of August or beginning of September. It was discovered towards the end of the last century, by the Comte de Galbert, when hunting in the wood of the mountain of l'Eschaillon; the original tree, 73 years of age, still exists at Brusse, Canton de Vavion, where it was transplanted.

Poire Liebart. — Syn. Chamoisine. Fruit large oblong, or obovate, with a remarkably short, very thick fleshy stalk; skin yellow, washed with brilliant carmine red next the sun; flesh white, breaking, dry and astringent. Season, September. This formed part of the collection of Van Mons, and is No. 512 of his Catalogue, 2d series. It is worthy of notice in order that it may be avoided; for its beauty is alluring, whilst its quality is decidedly bad.

Thompson's Pear.—Syn. Vlesembeek. Fruit large, oblong or turbinate, surface uneven; skin rather smooth, pale yellow or yellowish brown, with sometimes spots of fawn-coloured russet. Flesh white, very fine, melting, remarkably juicy and sugary, with slight perfume. Excellent. Season, September and October. The tree is a good bearer. After a very accurate and minute description of the tree, shoots, leaves, flowers, and fruit, Professor Decaisne states that he agrees completely with the opinion of M. Lesèble as regards this variety, which he says is "the best of Pears known, and ought to be in every first-rate selection;" but he cannot agree with M. Willermoz that it is a synonym of the Althorp Crassane, which is well-known to be a very different sort. It appears that at Professor Decaisne's request some account of what is known of the origin of this Pear was furnished to him by Mr. Thompson, and as the variety in question is becoming extensively cultivated, some of our readers may wish to know what that account was. Retranslated it is essentially as follows:—"As regards Thompson's Pear, it was not raised by me; it is one of the numerous varieties sent to the Horticultural Society by Dr. Van Mons about the year 1820. It had no name, but merely a number; and unfortunately another variety totally different, bore the same number. On fruiting [about 1830] it was found that a great number of the varieties sent by Van Mons were of inferior quality; but the one in question appeared to me highly deserving of cultivation; I mentioned this to the Secretary of the Society, and that it had no name; he proposed to name it Thompson's Pear. I agreed, remarking however, that if, amongst the numerous yet unknown varieties which existed in the collection of the Society, this one should be found with an original and better name, that of Thompson's should give place to it. I have not found it among the new Belgian varieties." No synonym is given in the work before us, in the article on the Pear above referred to; but subsequently in the list of fruits published, the Flemish one of Vlesembeek appears. By whatever name it may be called, the intrinsic merits of the Pear will always cause it to rank high in general estimation.

Garden Memoranda.

STREATLAM CASTLE, DARLINGTON.—About two years ago an account was given in our columns of some fine Orange trees which had been imported from France to the Gardens here, and which had suffered considerably from exposure in travelling—so much so that several of them became completely defoliated. These have not only become green and healthy, but have flowered most satisfactorily. They began to push vigorously in March, and by the end of June they had completed their growth. After that they were placed out of doors in order to ripen their wood. They remained thus situated until about the middle of September when they were placed in winter quarters. Water was then to some extent withheld, and indeed from September, to the middle of March very little was given them. At the last-named period their leaves received a thorough washing, and the surface soil of the tubs was renewed, when they get a good soaking of lukewarm water at the root—a matter of considerable importance, as warm water thus applied infuses activity into the soil, or rather into the roots, and invigorates the plants. A surface dressing was given, consisting of fresh maiden loam, leaf mould, and rotten cow dung, intermixed with a sprinkling of charcoal, the soil being applied in such a manner that the roots might receive the whole benefit of what water was applied to them. An occasional watering of liquid manure had also been found of much benefit to them. This had been made of a good handful of guano to every four gallons of rain water, made a sufficient time previous to allow the guano to settle to the bottom, so as to permit the liquid to be used clear. Trees thus treated are, in the opinion of Mr. Barclay, the gardener, calculated to blossom well every summer, sufficiently abundant to admit of Orange-flower water being made from them. Nothing in short could be more satisfactory than they are at present.

Miscellaneous.

The Jipijapa.—The Jipijapa (Carludovica palmata) is common in Panama and Darien, especially in half-shady places; but its geographical range is by no means confined to them. It is found all along the western shores of New Granada and Ecuador, and I have noticed it even at Salango, where, however, it seems to reach its most southern limit, thus extending over 12° of latitude, from the 10th north to the 2d south. The Jipijapa, or Panama hats, are principally manufactured in Veraguas and Western Panama. Not all, however, known in commerce by that name are plaited in the Isthmus; by far the greater proportion is made in Manta, Monte Christi, and other parts of Ecuador. The hats are worn almost in the whole American continent and the West Indies, and would probably be equally used in Europe, did not their high price, amounting often to 150 dollars for a single one, prevent their importation. They are distinguished from all others by consisting only of a single piece, and by their lightness and flexibility: they may be rolled up and put into the pocket without injury. In the rainy season they are apt to get black; but by washing them with soap and water, besmearing them with lime-juice or any other acid, and exposing them to the sun, their whiteness is easily restored. The "straw" (paja), previous to plaiting, has to go through several processes. The leaves are gathered before they unfold, all their ribs and coarser veins removed, and the rest, without being separated from the base of the leaf, is reduced to shreds. After having been put in the sun for a day, and tied into a knot, the straw is immersed in boiling water until it becomes white. It is then hung up a shady place, and subsequently bleached for two or three days. The straw is now ready for use, and in this state is sent to different places, especially to Peru, where the Indians manufacture from it, besides hats, those beautiful cigar-cases, which fetch sometimes more than 6*l.* apiece. The plaiting of the hats is done on a block, which is placed upon the knees; it commences at the crown, and finishes at the brim. According to the quality of the hats, more or less time is occupied in their completion: the coarser ones may be finished in two or three days, the finest take as many months. The best times for plaiting are the morning hours and the rainy season, when the air is moist: in the middle of the day and in dry clear weather, the straw is apt to break, which, when the hats are finished, is betrayed by knots, and much diminishes their value. *Seemann's Botany of the Herald.*

Deodar Cones.—There are cones of the Deodar now growing at Chiswick House (the Duchess of Sutherland's) near the fine Cedars of Lebanon, on which cones of this year are also growing. The colour of the cones at the same age is different—the cone of the Deodar being green, with the margin also green although of a different shade, while that of the Cedar has a narrow crimson margin to the green scales. *Proceedings of Royal Horticultural Society.*

Calendar of Operations.

(*For the ensuing week.*)

HYACINTHS, Narcissus, Crocuses, and other Bulbs placed either in pots or glasses, should be kept as close as possible to light, provided they are well furnished with roots and are commencing active growth. A slight amount of fire heat should be kept up in conservatories and greenhouses, in order to expel damp and keep out frost. All dead leaves on plants in these structures should be picked off and removed. Water should be given sparingly while the present dull weather lasts; and leaves, if dusty, should be carefully washed with a sponge. In short, thorough cleanliness should be enforced in every department.

FLOWER GARDEN AND PLANT HOUSES.

Conservatories should now be tolerably gay with such plants as Chinese Primulas, Correas, Luculia gratissima, than which a more useful plant at this season does not exist, Azaleas, Camellias, Violets, Mignonette, Roses, and forced hardy American plants. In removing the latter from the open border to force, where a stock is not already in pots, care should be taken to mutilate their roots as little as possible. An old Pine pit is a very suitable place in which to commence their forcing. They should have a bottom-heat of 75°, and an atmospheric temperature, averaging 65°, with abundance of atmospheric moisture permanently supplied. Out of doors attend to sweeping, rolling, and otherwise maintaining thorough cleanliness.

ACHIMENES.—A batch of these may now be started in heat for stove and warm conservatory decoration during next month. They may either be grown in pans or pots, according to the taste and requirements of the cultivator.

BEDDING PLANTS.—Cover securely at night, especially when frosty, but during favourable weather give air pretty freely during the day.

CALCEOLARIAS.—Herbaceous sorts potted last autumn will now be well established, and will require little attention beyond that of frequently fumigating them to keep down green-fly. Such as are required to bloom a little earlier than the others may soon be shifted and placed where they will have a temperature of about 45°, and a moist growing atmosphere. In shifting it is a good practice always to sink the ball a little, in order to admit of a top-dressing of fresh mould being put over the riper parts of the young wood, which thus treated soon emits roots, to the material increase of the strength of the plants. Thorough drainage, too, is a point to which particular attention must be paid if healthy well-bloomed specimens are desired.

FORCING GARDEN.

CHERRIES.—Follow Nature closely in the Cherry-house; no extreme heat will succeed. Plenty of air, permanency of atmospheric moisture, and a very moderate temperature, are the requisites.

PEACHES.—Proceed cautiously with these. Air can scarcely be given too freely if the weather is favourable, and the thermometer within can be maintained at 55°; let it, however, sink at night to 40° or 45°. If the roots inside have not been watered, or only slightly so, and the drainage can be relied on, apply a good watering with weak liquid manure.

PINES.—Plants expected to fruit early should now be allowed a slight rise of temperature. On light days let the thermometer indicate 70° or 75°, and should sunshine occur, 10° more may be indulged in.

POTATOS.—Endeavour to get a spare frame or pit for early Potatos; a bottom-heat of 70° that will last for a month will be amply sufficient; the sooner it dies away after that the better, as a continuance of bottom-heat too long will draw the halm.

VINES.—Ensure a permanent supply of atmospheric moisture to Vines breaking; if this is accomplished by fermenting materials so much the better. If not yet done, put abundance of covering on outside roots, and if it be slightly fermenting so much the better. In late houses in the majority of cases the last Lady Downes' and St. Peter's will now be cut; if the rods are to be taken out to rest let it be done forthwith. They are best laid on the ground, and covered up with straw to prevent injury by frost.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with digging, trenching, &c., whenever spare ground occurs, and time and weather permit. All fruit-tree planting not done should be proceeded with; wherever the subsoil is bad it should be entirely removed, and a platform of brick-bats, rubble, or cinder-ashes, rammed hard at about 1 foot below the ground level. On this place, if possible, a little rough turf in a fresh state, and be sure to mix some fresh maiden soil with the compost, using rather stiff loams for Apples and Pears; good mellow loam for Peaches, Apricots, &c., and free upland soil for Plums, Cherries, Vines, and Figs.

CAULIFLOWERS.—Plants in frames or under hand-glasses should now have free exposure, except during heavy rains. Should frost again suddenly occur, they must be protected.

CARROTS.—Sow Early Horn on a slight hot-bed.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Dec. 28, 1864, as observed at the Horticultural Garden.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind.	Rain.
Thurs. 22	23	30.242	30.126	36	23	32.0	43½	44	N.E.	.00
Friday 23	24	30.351	30.218	34	24	29.0	42	43½	N.E.	.00
Satur 24	25	30.497	30.460	31	29	31.5	41½	42	N.E.	.00
Sunday 25	26	30.417	30.314	35	30	32.5	41	43	N.E.	.00
Mon. 26	27	30.324	30.274	36	22	29.0	41	42½	N.E.	.00
Tues. 27	28	30.267	30.235	40	24	32.0	41	42½	E.	.00
Wed. 28	●	30.343	30.247	47	38	41.5	41	42½	W.	.00
Average.		30.348	30 296	37.4	27.5	32.5	41 5	42.8		.00

Dec. 22—Overcast and cold; frosty at night.
" 23—Overcast, cold and dry; frosty.
" 24—Overcast, with cold dry easterly wind; slight frost.
" 25—Hazy; fine; overcast.
" 26—Overcast; fine; overcast; frosty.
" 27—Clear and very fine; overcast; frosty.
" 28—Fine; very fine; overcast.
Mean temperature of the week 5½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Jan. 7, 1865.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1..	43 5	31.3	37.4	12	0.70 in.	5	5	3	3	4	9	5	5
Mon. 2..	42.5	29.6	36.1	15	0.21	3	4	2	2	4	11	6	7
Tues. 3..	42.8	30.8	36 8	19	0.56	1	3	7	1	6	11	4	6
Wed. 4..	42.3	31.3	36.8	17	0.88	4	7	6	5	2	10	3	2
Thurs. 5..	41.6	33.8	36.2	14	0.46	4	8	4	4	4	10	4	1
Friday 6..	41.0	28.9	34.9	14	0.33	4	7	5	3	5	10	3	2
Satur. 7..	41.4	23.6	33.0	15	0.34	3	6	5	3	2	8	7	

The highest temperature during the above period occurred on the 5th, 1844—therm. 54 deg.; and the lowest on the 14th, 1838—therm. 4 deg.

Notices to Correspondents.

EXHIBITORS AND PRIZES: *An Exhibitor.* You misunderstand us entirely. Our object has simply been to give both sides an opportunity of being heard. We do not at all agree with the sentiments to which you refer; but they have been answered by other Correspondents.—*Clever and Others.* The subject has now been amply discussed. We must decline to print your advice to gardeners not to show at all. That would not be conducive to horticultural progress.

GARDENERS' RIGHTS: *J D.* Even in the strong case you put, we believe there would be no legal right on the part of the gardener, unless there was a distinct agreement of some kind by which he acquired it. Morally speaking, no doubt he had the right on his side, but that is a very different thing from a legal right. The gardeners' best "rights" lie in the reciprocal goodwill which fortunately does exist, in the generality of cases, between employers and the employed—a feeling which it is desirable to foster, rather than to extinguish by ill-natured remarks.

NAMES OF FRUITS: *Henry Townshend.*—1, Scarlet Pearmain; 2, Kirke's Golden Pippin; 3, Gravenstein; 5, Hanwell Souring.—*S. Churchill.* 1, A sort of White Calville; 2, Beauty of Kent; 4, 5, 6, and 6 A., Syke House Russet.—*J. Wood.* 1, Verte Longue; 2, Glou Morceau; 3, 4, Thompson's.—*D. S.* 1, Beurré d'Aremberg; 2, Passe Colmar; Apple, 1 (of little merit); 2, Like Chester Pearmain.

THE PARKS: *Julius* will find the subject alluded to in another column. We are quite of his way of thinking, that people should never meddle with what they don't understand.

WORMS ON LAWNS: *Old Subscriber.* Give your worm-infested lawn a good watering with gas-lime water, such as may be had from the gas-works, but try its strength before applying it to a large surface. Or if this is not procurable, use lime-water, that is water with which caustic lime has been mixed; this, however, must be allowed to stand till it is clear before being used.

MISC.: *A B.* Thanks for your suggestion, which will be taken into consideration.

THE FOWLER MEMORIAL.

It is proposed to hold a PUBLIC MEETING in London, early in FEBRUARY next, to appoint a Committee for raising Funds for a suitable MEMORIAL in memory of the late JOHN FOWLER, to whose untiring zeal in the application of Steam Power to the Cultivation of the Soil, the Agricultural world is so much indebted.

PROMOTERS.

Signed, P. P.
DUCIE, Tortworth Court, Wotton-under-Edge.
PORTMAN, Bryanston, Blandford, Dorset.
A. N. HOOD, Cumberland Lodge, Windsor.
EDWD. HOLLAND, Dumbleton Park, Evesham.
CHARLES BARNETT, Stratton Park, Biggleswade.
THOMAS RAYMOND BARKER, Hambledon, Henley-on-Thames.
F. R. TEMPEST, Ackworth Grange, Pontefract.
H. S. THOMPSON, Kirby Hall, York.

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Kinnaird, Rossie Priory, Inchture.
Lt.-Col. Loyd Lindsay, Lockinge, Wantage.
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Frederick W. Kitson, Brierley Hill, Leeds.
Thos. Parrington, Secretary to the Yorkshire Agricultural Society, Normanby, York.
William Pepper, Clarendon Road, Leeds.
John Thornhill Harrison, Frocester Court, Stonehouse.
John Wilson, Edinburgh University.
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Communications may be addressed to CHARLES CLAY, Walton, near Wakefield, who has at the request of the Promoters undertaken to act as the Hon. Secretary pro tem., and will publish further particulars in future Advertisements.

Any one wishing to support this movement, will oblige by forwarding his address in full as early as possible.

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The Agricultural Gazette.

SATURDAY, DECEMBER 31, 1864.

IF all the theories for the profitable development of agriculture which have been advanced during the last quarter of a century were sound, practical farmers would need to be walking encyclopædias and chemists' shops combined; and now, according to a recent authority, a dissecting room would have to be added to the ordinary farm homestead. Mr. FREDERICK JAMES GANT, Pathological Anatomist and Surgeon to the Royal Free Hospital, addressed, during the Smithfield Show week, a letter to a London daily contemporary on the subject of "prize cattle," and by the arguments he used and the conclusions he came to he has outstripped Dr. LETHEBY and Professor GAMGEE as alarmists. No doubt agriculture has not yet arrived at practical perfection, and doubtless scientific knowledge and research can materially aid the development of our natural resources, but the time has not yet come for it to be necessary for us to call in hospital surgeons to teach us how we should breed and feed cattle for profit to farmers, and for supplying the public with the greatest possible quantity and best quality of meat. If a false system of breeding be pursued, the flock or herd in a very short time becomes unprofitable, and the practice is abandoned by introducing "new blood." This has occurred in a few instances with flocks of sheep and herds of cattle and swine, but this did not arise from practical men not knowing better, but because the animals happened to belong to enthusiasts or whimsical persons who had fallen in love with agricultural pursuits, and aimed more at "sensational" results than at spending their money with a view to profit or in judgment and good taste.

After using a variety of arguments that would be most alarming, if true, Mr. GANT comes to this conclusion, which would be even more alarming, if it were not altogether unfounded:—

"The truth is, the interest of the public and that of breeders and feeders of stock are apparently opposed. The ready production of fat in order to turn capital for reinvestment, and the gradual production of nutritious food, are certainly antagonistic."

This statement somewhat startled us, as it appeared just at the time when we were congratulating our friends on the almost perfect and faultless condition of the animals gathered together at the recent national fat-stock shows. And if the influence which such statements are calculated to have were confined to agriculturists, they might be allowed to pass, as they would only be laughed at; but, as the consumers of meat are largely interested in this question, and town-bred people have already been trained to believe that nothing in agriculture is properly done, such a theory put forth on such authority is calculated to create a variety of mischievous results, if the fallacy of it be not in some measure exposed.

The following extract will give a key to the grounds on which Mr. GANT made the above statement, and also afford some insight into the motives and reasons for his presuming to be a competent teacher on breeding and feeding cattle. Mr. GANT says:—

"Any reduction of the period assigned by nature for the maturity of a particular breed or species—any attempt to anticipate by coercion,—in short, any high-pressure feeding against time—induces a diseased process of nutrition, resulting in fatty degeneration of the heart, &c., and consequent deterioration of the flesh for human consumption. That such has been the result of early maturity, so called, was shown *by my investigations*, and such must continue to be the probable result so long as the early fattening of cattle is considered equivalent to maturity. It becomes also a grave question whether any breed thus prone to deterioration as human food will not, if encouraged, eventually undergo permanent degeneration as a breed."

If these views were in any degree true, then most of the advances and improvements of modern agriculture have simply been of no value, our high Turnip culture has been superfluous, and improving cattle by selection, so that they might be fit to eat in half the time the same breeds were in our forefathers' days, has been erroneous. If Mr. GANT be not a vegetarian, his common sense has certainly been lamentably extinguished. According to his notion, we ought to go back to the days of hay and straw feeding through the winter, and to being content with hard unmellowed lean joints, or pickled and dried barons, clods, and rounds, that were the animal food—excepting fish and game—of Christmas and Whitsuntide feasts a few generations ago. We should very much like to know how it has been proved that the joint of a ripe young steer or heifer, with its muscles well distended with fine fat—a condition so much praised by connoisseurs—is less digestible and less nutritious than that of a fully matured ox, which would require the digestion of a navvie or coalheaver to make it fit for assimilation? According to the best authorities we have heard discuss this point, a finely bred early maturing animal, if treated as is the usual custom of modern farmers, is far more nutritious than an animal that had been so badly bred or neglected as to be as promising to the eye and hand of a grazier as is a Pollard tree.

On the breeding question touched on by Mr. GANT it is only necessary to say, if he had made the commonest inquiry, he would have known that the production of prize fat cattle—no matter whether they are of the patchy character that were brought for show a few years ago, or of the almost perfect form and quality now produced, has not the slightest effect on causing animals to "deteriorate as human food," as these animals are not taken back for breeding, and in ordinary practice, almost without exception, animals are deprived of the power of breeding, or are set aside as unprofitable for that purpose before they are put to the fatting yard, or feeding stall.

Mr. GANT'S notions about the interest of breeders and feeders being opposed to the public wants, and the profit on feeding and the production of nutritious food antagonistic, are not only utterly absurd in themselves, and contrary to what the public taste—no very bad natural guide—prefers, but they are opposed to the well-known every day practice of the most eminent medical men. Mr. GANT'S theory goes to ignore the domestic value of butter, for prime beef suet and mutton fat are as nearly as possible of the same chemical character as that favourite lubricant and heat-generating substance. To fatten an animal is to produce, in another form, that which is, in the animal economy, of the same value as or equivalent to butter. Every intelligent person knows the value of fat as food in this variable climate in preserving the temperature of the body. Mutton fat and

milk, cream and cod-liver oil, are commonly recommended by physicians to persons attacked with pulmonary diseases, and this with the best effect, as the want of animal heat in such cases is restored by these pure and wholesome substances. And, in cases of weak digestion, the pure fat which runs from rashers of bacon is also advised and taken with equal advantage. When it is further considered that the lean meat of well-grown animals is more easily digested, and therefore more nutritious to persons following sedentary, mental, and confined occupations, it is perfectly clear that, so far as the system practised by farmers for making a profit goes, it is not antagonistic to the public weal; but, on the contrary, much of the fat which now goes into the tallow tub might be advisedly recommended to, and used by the semi-starving, pallid, wan, and needy inhabitants of our large towns and cities. If Mr. GANT has nothing better to say than he has said in the letter before us, he cannot teach farmers the way to improve and increase the production of lean meat, but he may employ his time and talents well in showing consumers generally how they may better use the increased quantity of fine fat which the great skill of our leading agriculturists now places at their command and disposal, in addition to the increase of lean by selecting thriving and early maturing animals.

PROFITS ON FLAX CULTURE IN IRELAND.

AT one time profitable Flax culture was, with some few exceptions, confined to the North of Ireland, not because, as was supposed, the lands in the North were the best adapted for it, nor, as was by others supposed, that the people there, though better instructed, were naturally more intelligent than those of the other parts of the island, but because the Flax growers there had a ready market for the prepared fibre at their own doors, without incurring the expenses of a long land carriage to market, the commissions on sales by Flax factors, and many other risks and contingencies, which those far from the markets were subject to. Since the partial, for it is yet but partial, opening of markets in the south-west and midlands, the Flax growers in these places are beating out the Northerns not only in the acreable produce and quality of fine fibre, but in economising the Flax seed for sowing again, or for oil-crushing or stock-feeding, for all of which it is so decidedly advantageous, such seed saving being but little attended to, if not totally neglected in the North. A few examples of this successful practice may be now interesting to your English readers, far less because Flax bids fairly to become a substitute for Cotton, than because increased successful Flax culture in Ireland will be the means of affording better, if not cheaper, Irish beef, mutton, butter, and wool, to your manufacturers, and more abundant store stock to your stock-feeders; and, above all, be the means of keeping Irishmen at home to supply the ranks of your army and navy in time of need, instead of swelling the ranks of those who may hereafter render with you an expensive army and navy necessary. Last spring, when this Flax movement, as it is called, was gaining ground, a great many landlords in Ireland did as much as they knew how to encourage it amongst their tenantry, and the results are every day by degrees telling in favour of such wise courses. Several of such results have been made public, yet some of the most important are still kept private, except to friends, who may or may not make them public, as I believe all should do, *pro bono publico*. A good many of these private communications have been made to me, less with the view of obtaining publicity than to elicit advice. Indeed, a great many of those who have been most successful in such proceedings, for reasons of a private nature, whose existence is to be deplored, do not wish to have their names made known to the public, however praiseworthy their examples—one of which, from a midland county, only will I now give you in connection with three others, one from the far west, one rather due south, and another from the north, and in the following order. That from the west consisted of eleven cases on the property of Mr. St. George, of Headford, co. Galway. Flax grown by 10 farmers on his estate, and the 11th by his own land steward on his demesne farm, was sent up and dressed by machinery at the Dublin Society's Exhibition on a late occasion. The soils on which it was grown all rested on a limestone subsoil, hitherto erroneously considered unfit for Flax culture. The preceding crops were in all cases but one corn crops of some kind or other, perhaps in many instances corn cropping repeated without the intervention of any green or fallow crop. The exceptional case was one grown after a Turnip crop, and from the inferiority of its fibre, as you will hereafter see, further justifies the objection raised against this mode of successional cropping.* The quantity of fine fibre compared with the weight of the straw from which it was produced, was but 15 per cent., whereas the percentages of fine fibre in the others varied from 18 to 27½ per cent. The quality of the fibres in the respective cases varied in value at from 4*s.* to 12*s.* per stone of 14 lb. In other words, admitting the acreable produce (which was not given) to have been in all cases equal, the value of the worst crop would be about 16*l.* the Irish acre, or little or nothing over the rent of the land and cost of production, whilst the value of the best, even without calculating anything for the seed, would be over rent, taxes and other incidental expenses, over 32*l.* per acre. So much for good and indifferent management of a crop grown on the same soil the same year, and from the same seed, which was in all cases imported Dutch. The next experiment publicly reported upon was from a crop grown on one of the model farms in the north of Ireland under the Board of National Education. This report is given very fully in detail, but of too great length for me to give *in extenso*, and I will confine the account to a general summary of debtor and creditor, which stands per statute and Irish acre thus:—

	Statute.	Irish.
Acreable profit	£11 7 0	£18 3 0
Ditto expenditure	8 3 1	13 1 0
Ditto gross receipts	19 10 0	31 4 0
Yield of fibre	52½ stones.	84 stones.

"The Fernikey model farm is a poor inferior clay soil resting on a subsoil of retentive 'till,' and though much improved by a judicious expenditure of capital and labour, the present Ordnance valuation of 1*l.* per statute acre, (or about 1*l.* 12*s.* 3*d.* the Irish acre), will give an adequate idea of its agricultural value."

The next is a report from a small farmer named John Nolan, in the neighbourhood of Limerick, who for experiment grew one fourth of an Irish acre, sown with imported Riga seed, a summary of whose account would stand thus per Irish acre.

Dr.	£	s.	d.	Cr.	£	s.	d.
To rent and taxes ..	3	8	0	By 88 stone fine fibre, at 9*d.* ..	39	12	0
To seed, 4 bls. at 17*s.* 3*d.*	3	9	0	By 72 stone tow, at 6*d.*	1	16	0
To labour expended	14	10	0				
To profit	20	1	0				
	£41	8	0		£41	8	0

It will be seen that the profits on the rich land of the south, charged with nearly 100 per. cent. higher rent, are greater than on the poor land in the north; and in either case, to use the words of the model farmer of the north, three times greater than would be on any corn crop. How much greater would they in each case be had the seed been saved, as was done in the case of the Midland farmer, which I will now give you in detail, taken from his letter, of which I am not permitted to even name the writer; although if I could give it in full it would throw some more light on how things go on for and against agricultural improvement in Ireland. The land which the crop I am now about to report upon was seven years ago what is called in Ireland "cut-away bog"—that is, land from which deep beds of peat are cut and carried away for fuel, leaving scarcely sufficient of the peat to form a soil of more than 10 inches deep in any place, and in many places none at all. The subsoil was a strong calcareous clay, studded with small stones and large boulders—and was valued by the Ordnance valuation at 5*s.* the statute, or about 8*s.* the Irish acre. The proprietor applied to the Board of Works to borrow money to improve it, and a Drainage Inspector was sent to value it, estimate the cost of reclamation and its value when reclaimed, in a manner to guide the Commissioners in their proceedings. He took the Ordnance valuation as his basis, and reported that it would take 10*l.* the statute, or over 16*l.* the Irish acre to drain, subsoil, and clear away the stones off it; and 2*l.* an acre to add a fair workable surface to it from an adjoining hill, and that then when reclaimed the increased value would not cover the Government interest charged at 6½ per cent., and the money to reclaim it was refused by the Board of Works. Acting on the advice of his estate agriculturist, who knew more of such things than did the Government inspector, the landlord set to reclaim it with his own money, and had the drainage, subsoiling, stone clearing, and claying done at less than 8*l.* the statute, or 12*l.* 10*s.* the plantation acre. The tenant has been cropping it ever since, and paying 10 per cent. interest over the Ordnance valuation in the capital expended in the reclamation, in the shape of rent and increased taxation.* He had it this year cropped with Wheat, Oats, Barley, Beans, Turnips, Mangels, Parsnips, Carrots, Italian Rye-grass, and once one of Flax for experiment.

The whole produce, including grain and straw, except the Flax straw and some Flax seed he is converting into flesh meat, butter, and wool by stock feeding, the results of which I may hereafter give you, confining myself now to the Flax crop alone:—

Dr.			
To rent according to Ordnance valuation per Irish acre	£0	8	0
To interest on 12*l.* 10*s.* at 10 per cent. ..	1	5	0
	£1	13	0
To Flax seed, 4 bushels, at 1*l.* per bushel	4	0	0
To labour of all kinds, exclusive of Flax dressing ..	15	7	0
To dressing 105 stone of Flax of 14 lb. each, at 1*s.* ..	5	5	0
To balance to help support and education of family..	42	11	0
Total	£68	16	0

Cr.			
By sale of fine fibre, 80 stone, at 10*s.*	£40	0	0
By sale of second class, 20 stone, at 8*s.*	8	0	0
By sale of inferior class, 5 stone, at 6*s.*	1	10	0
By sale of tow, 60 stone, at 6*d.*	1	10	0
By Flax seed retained for sowing, 20 bushels, at 12*s.* ..	12	0	0
By Flax seed sold to oil-crusher, 8 bushels, at 7*s.* ..	2	16	0
By Flax seed, inferior, for stock feeding, 10 bushels, 6*s.*	3	0	0
Total	£68	16	0

The land that produced the above return is now again cropped with Rape and Italian Rye-grass sown mixed for sheep-feeding next spring, and, as I am informed, bids fair to vie in value with the crops on the small farm managed by Mr. Baldwin, as a model for small farmers in connection with the large model farm at Glasnevin.

Now, Sir, when it is well known that we have in Ireland over 4,000,000 acres of reclaimable land, much of which is far superior, and very little of it at all inferior in quality to the land on which that Flax crop was grown, to say nothing of the many millions of acres of deep bog and high mountain reclaimable land, it may be asked how can we reconcile with common sense the idea of not only permitting but still driving our people to emigrate, and to reclaim and enrich other countries, and as a consequence expose our own to still greater poverty and weakness? Let the truth be told and reiterated. It is all owing to our own ignorance—an ignorance which, in as far as the state and resources of Ireland are concerned, a great many at your side the Channel deeply share.

But why in this age of enlightenment is such ignorance allowed to pervade the majority, if not all classes on both sides the Channel?

The question is quite easy of solution to thousands, of which I am one of the number, did it become me to show how readily it could be solved, or that you could permit your pages to be the medium of it, which you could not, even were I to advise you to do so, which is far from my intention. *Ne sutor ultra crepidam.*

Edward Carroll, 6, College Street, Dublin.

THE FARMER AND THE CHEMIST.

A SHREWD chemist, devoting himself to the missionary work of building up farming by the aid of his science, pays a parochial visit to one of the backsliders whom he counts most needful of reformation. The backslider—I will call him Nathan—is breaking up a field, and is applying the manure in an unfermented and unctious state—the very act of sinning, according to the particular theory of our chemist, perhaps, who urges that manures should be applied only after thorough fermentation. He approaches our ploughing farmer with a "Good morning."

"Morning," returns Nathan (who never wastes words in compliment.)

"I see you use your manure unfermented."

"Waal, I d'n'know—guess it's all right; smells pooty good, doan't it?"

"Yes, but don't you lose something in the smell?"

"Waal, d'n'know; kinder hard to bottle much of a smell, ain't it?"

"But why don't you compost it; pack up your long manure with turf and muck, so that they will absorb the ammonia?"

"The what?—(Gee Bright!)"

"Ammonia; precisely what makes the guano act so quickly."

"Ammony, is it? Waal,—guanner has a pooty good smell tew; my opinion is, that manure ought to have a pooty strong smell, or 'taint good for nuthin'."

Scientific gentleman a little on the hip; but revives under the pungency of the manure.

"But if you were to incorporate your long manure with turf and other material, you would make the turf good manure, and put all in a better state for plant food."

"Waal—(considering)—I've made compo's afore now; dooz pooty well for garden sass and sich like, but it seems to me kinder like puttin' water to half a glass o' sperit; it make a driuk a plaguey sight stronger'n water, no doubt o' that; but after all's said and duu—'taint so strong as the rum. (Haw, Buck; why don't ye haw!)"

Scientific gentleman wipes his spectacles, but follows after the plough.

"Do you think, neighbour, you're ploughing this sod as deeply as it should be?"

"Waal—(Gee, Bright!)—it's as folks think; I doan't like myself to turn up much o' the yaller; it's a kind o' cold sile."

"Yes, but if you exposed it to the air and light, wouldn't it change character, and so aid to the depth of your land?"

"can't know but it might; but I han't much opinion o' yaller dirt, nohow; I kinder like to put my corn and Potatos into a good black sile, if I can get it."

"But colour is a mere accidental circumstance, and has no relation to the quality of the soil."

"(Gee, Bright! gee!")

"There are a great many mineral elements of food lying below, which plants seek after; don't you find your Clover roots running down into the yellow soil?"

"Waal, Clover's a kind of a tap-rooted thing—nateral for it to run down; but if it runs down arter the yaller, what's the use o' bringing on it up?"

The scientific gentleman sees his chance for a dig.

"But if you can make the progress of the roots easier by loosening the subsoil, or incorporating a portion of it with the upper soil, you increase the facilities for growth and enlarge your crops."

"Waal, that's kinder rash'nal; and ef I could find a man that would undertake to do a little of the stirrin' of the yaller,

* Many practical men believe that Flax will not succeed well after a Turnip crop, but can give no satisfactory reason for it, save that they have failed to produce good Flax in such cases themselves. I have spoken with some of the most eminent organic chemists of the age on this matter, who agree with me in believing, as I do from experience, that the difficulty, if desirable under certain circumstances to be overcome, can be effected by mechanical better than by any chemical means yet discovered. *E. C.*

* Increased taxation on land thus improved is a tax upon labour, a tax upon industry, and a tax upon skill, when economically employed by the owner's own capital, but to which land extravagantly and often very imperfectly improved with money borrowed from the Board of Works, under the supervision of in many cases very ignorant officers employed by the Board but paid by the borrower, is exempt for a certain number of years, as if to deter proprietors from expending their own capital profitably, and to cause them to borrow from the Commissioners money to be expended in many cases very unprofitably, and in some to do mischief instead of effecting any good. *E. C*

without bringin' much on't up, and bord himself, I'd furnish half the team and let him go ahead."

"But wouldn't the increased product pay for all the additional labour?"

"Doan't b'lieve it would, nohow, between you and I. You see, you gentlemen with your pockets full o' money (scientific gentleman coughs—slightly), talk about diggin' here and diggin' there, and turnin' up the yaller, and making compo's but all that takes a thunderin' sight o' work. (Gee, Bright! g'lang, Buck!)"

The scientific gentleman wipes his spectacles, and tries a new entering wedge.

"How do you feed your cattle, neighbour?"

"Wial, good English hay; now and then a bite o' Oats, 'cordin' as the work is."

"But do you make no beeves?"

"Heh?"

"Do you fatten no cattle?"

"Yaas, long in the fall o' year I put up four or five head, about the time Turnips are comin' in."

"And have you ever paid any attention to their food with reference to its fat-producing qualities, or its albuminoids?"

"(Gee, Bright!)—bumy—what?"

"Albuminoids—name given to flesh-producers, in distinction from oily food."

"Oh—never used 'em. Much of a feed? (G'lang, Buck!)"

"They are constituent parts of a good many varieties of food; but they go only to make muscle; it isn't desirable, you know, to lay on too much fatty matter."

"Heh?—keep off the fat do they? (Gee, Bright!) Dum poor feed, then, in my opinion."

By this time the end of the furrow is reached, and the scientific gentleman walks pensively towards the fence; while Nathan's dog, that has been sleeping under a tree, wakes up, and sniffs sharply at the bottom of the stranger's pantaloons.

I have written thus much, in this vein, to show the defensible position of many of the old-style farmers, crusted over with their prejudices, many of them well based, it must be admitted, and armed with an inextinguishable shrewdness. The only way to prick through the rind is to show them a big crop grown at small cost, and an orderly and profitable method gradually outranking their slatternly husbandry.—*My Farm of Edgewood, quoted in the Scottish Farmer.*

UTILISATION OF SEWAGE.

Notwithstanding all that has been said and written upon this subject, it is to be feared that many persons regard it as an ordinary scientific discussion, which may be safely left in the hands of engineers and scientific men; but a little reflection will show that while it is a matter of special interest to all who are engaged in the cultivation of the soil, it has also an important bearing upon the future health and sustenance of every man, woman, and child in the kingdom. By the term "utilisation of the sewage" is implied the purification of our rivers and streams by the interception of organic matter, which now flows into them from our sewers, and the application of that matter to the broad acres of this country, so as considerably to augment their food-producing power. In fact the object sought to be attained is to convert what is now a source of disease and death into a source of life and health by the proper use of that which now pollutes our streams and generates poison in its most insidious form.

This question owes its origin, its growth, and its importance to the sanatory measures of the past few years. Thirty years ago every house had its cesspool, the contents of which were periodically restored to the land. But as population increased and science advanced, it was discovered that these cesspools were the breeding grounds of pestilence and the lurking places of death, and the sanatory laws which were passed swept them away from our doors, but only to create a wide-spread nuisance in another form. Drains were made, and the noisome matters were conveyed into the nearest stream, until our rivers and brooks have been transformed into open drains emitting noxious gases and spreading poison throughout their course. At the same time a lamentable waste was being committed, for the manure which formerly found its way from the cesspools to the land was all washed away, and to supply its place guano and other manures had to be imported or manufactured at great cost, thus entailing heavy loss upon the country. Efforts were then made in various directions to correct the evil, but it was found that a serious difficulty had been created, for the matter which was sought to be restored to the land, was now mixed with a large quantity of water, which neutralised to a great extent its fertilising qualities and rendered its application more difficult and expensive. Works were established in several parts of the country for the purpose of deodorising the sewage, but the experiments failed, as the process was expensive, and destroyed the active properties of the alkalies which the sewage contained. In the meantime, the river Thames had become a reeking nuisance, and it was imperative that something should be done. Various plans were proposed, and the utilisation of the London sewage was freely discussed. In 1858, during one of the discussions on the subject, Lord Ebury observed that "the plan of expending several millions of money in carrying the sewage away to be thrown into the sea was a satire upon the age in which we live." Yet this is what has actually been done. The authorities not only in London, but the local boards throughout the country have expended millions of money in conveying the sewage, not to the land, but to the sea. This having to some extent been accomplished, we have now returned to the consideration of the original question, viz., the utilisation of sewage. That it can be profitably applied has been so clearly established by the experiments at Rugby, Croydon, Carlisle, Edinburgh, and elsewhere, that influential parties are keenly contending for a concession of the northern portion of the metropolitan sewage, and application has been made to Parliament for powers to carry out one of the schemes. Calculations have been made to show the value of sewage, but they are as far from each other as they are probably wide of the mark. Alderman Mechi and other authorities put the value of sewage at 2*d.* per ton, and calculate that the sewage from the metropolis will produce from 2,000,000*l.* to 3,000,000*l.* per annum. This would indeed, if realised, be a source of wealth, but the cost of conveying the sewage to the land, where alone it can be of any value whatever, does not appear to have been taken into calculation.

The experiments which have been made, although generally successful, have not been attended with unvarying results. In most cases, however, where the sewage has been judiciously applied, the land has been doubled in value by the application, while in one or two special instances results almost fabulous have been obtained. In all these instances the sewage has been applied to the land in its liquidised form, but various plans have been proposed for the application of the animal and vegetable refuse of our houses and towns in a more solid form. With this object in view a proposition has been made for the deodorisation and absorption of offensive matter by the frequent application of dry soil. This scheme was ably handled in a lecture, an abridgment of which was published in the *Agricultural Gazette* of Dec. 17; but though the best was made of the theory, it would be found difficult or impossible in practice. It would involve the pulling of every house to pieces to make the receptacles, as well all the nuisance attending a constant application of soil and its frequent removal, not to mention the proposal for subsequently drying the soil and using it five or six times over. We do not despair of something being ultimately done in the way of consolidating the sewage, but until some feasible plan be proposed we must be content to apply the sewage in its present form. That it may be so applied with profit and advantage is clear, and there is no reason why that which has been done at Carlisle and elsewhere should not be accomplished in hundreds of towns and villages throughout the kingdom. The sewage is there, and the land is there. All that is required is the application of the one to the other, and under judicious management the most advantageous results cannot fail to ensue.

In closing this paper I would suggest that this question would form a legitimate subject for discussion at the meetings of county agricultural societies, and the experience of the members in the application of sewage might be elicited with the greatest possible advantage. It must be borne in mind, however, that sewage varies very much in its composition in different localities, that it is not equally adapted to all kinds of land, and should only be applied at periods favourable to the growth of the crop. *C. Stuart Barker*, 12, *Buckingham Street, Strand.*

Home Correspondence.

Royal Agricultural Society.—As there are only three general meetings of the members of the Royal Agricultural Society in the year, viz., the December, the May, and the July meetings, and as the business of the latter is so formal and uninteresting that it fails to attract either numbers or interest, and as the May meeting is also badly attended in consequence of the expense members are subjected to in order to attend it specially when they have no other business in London—there should, I think, be an endeavour to make the December meeting what really it was originally intended to be—one well attended by the members generally, who should thus have the opportunity of making any suggestions, or of expressing their approbation or otherwise of the acts of the Council during the year. As, however, it would be quite impossible to hold such a meeting in the very limited rooms in Hanover Square, it would be extremely desirable that such a meeting should be held in the board-room of the Agricultural Hall. Time would thus be very much economised, and no doubt every facility would be afforded, both by the Smithfield Club and the Agricultural Hall Company. Of course the entrance to the room for meeting would be from the Hall, so that the show would be rather benefited than otherwise. A better attended and more popular meeting than the present would tend to keep up the general interest of the Society's proceedings, and prevent the danger of the Council degenerating into cliques; and many of its members would be reminded of what they are otherwise very much disposed to forget, that there are amongst the large body of members which compose after all the real bone and sinew of the Society many who have paid their subscriptions for the last 20 years, and whose exertions have been quite as great, as continuous, and as successful, both in the cause of agriculture and in the interests of the Society itself, as that of the members of the Council. I observe a great improvement in the Smithfield Club as to the mode of appointing the Judges, viz., by ballot by the whole Council for the nomination of its members, which might be well commended for imitation to the Royal Agricultural Society, for nothing can be worse than the system of secret selection by a committee; for although the appointments are nominally with the Council they are really with the committee, and who may thus if they please select their private friends in preference to those who had proved their capabilities by their writings or their experience and services at any former meetings. One more suggestion I would venture to make in reference to the Smithfield Show. As it now lasts nearly a week, would it not be better for it to commence on the Wednesday instead of the Monday, and terminate on the following Tuesday? A day of rest in the middle of the Show would do both men and animals good. Of course such an alteration as this would be decided by the preponderance of the pros and the cons after being carefully weighed.

Molasses as Cattle Food.—In the valuable table of cattle and sheep food with prices in a recent Number (p. 1209) there is no allusion as to substitutes for Mangel or Turnips, of which this year shows so great a deficit. The straw of last season of all sorts is abundant; it is, therefore, obvious that fine cut straw should be given, and as much of it steamed as can be done conveniently and eaten fresh; but how is the saccharine quality of the Mangel, Beet, Turnip, or Carrot to be supplied by substitute? The reply seems to me to be clearly by mixing molasses with the fodder. (Molasses should be bought wholesale at any great port.) Can your practical readers who make experiments oblige the public with the price and labour? The Turnip pulling, &c., is saved by the want of them. *Jamaica.*

Root Storing.—I have been much pleased with Mr. Murray's interesting account of his experience on root storing, as I am convinced there are few operations on the farm less understood; nothing can be more mischievous than the common practice of throwing the roots of Mangels into small heaps and leaving them for some time in that state covered with tops. Mangels in the ground will resist 6° or 8° of frost. Many [illegible]se in heaps covered with tops will be rendered u[illegible] or storing by being exposed to 2° of frost. This season we commenced to lift and store on the 10th October, and finished on 3d November, the lifting and storing going on together, taking care to leave as few as possible from the store each night, as covering and uncovering, even if useful, is an expensive operation here. I cannot agree with Mr. Murray that cutting the top is either the best or most expeditious; however that is a matter of minor importance. The storing is the grand thing, and in that particular I think Mr. Murray is by far too kind. We have at least 1000 tons in our heap, and with a tithe of Mr. Murray's expense, I will venture to produce as good, if not better roots, by the 1st of next June, than he can. Our practice is this, to make the heap as large as practical, say 16 feet wide and 8 feet high; cover as you go on with any inferior straw or stubble 4 or 5 inches deep, and when you have finished storing, set the men to cover the heap with earth sufficient to resist any frost, with this exception, that not a spadefull of earth is put on the top of the heap in its entire length for a space of 24 inches wide. With this precaution I leave the Mangel and fermentation to settle the matter, with perfect confidence that I shall find sound, plump, with neither frosted nor contracted roots, which is often the case where too much ventilation is used. *P. Mitchell, Rainham, Essex.*

Suggestions on the Improvement of Grass Land.—Having for some years felt considerable interest in the improvement of Grass land, allow me to offer a few suggestions as to how it might readily be done. There is a great deal of poor Grass land held in tenancy from year to year, which would well repay a judicious outlay in manure, &c. which even tenants of capital do not consider themselves warranted in expending on their limited security, while in many cases the occupiers have not the capital to spare if they wished to improve it. Does not this suggest that it might be wise on the part of landlords to make some equitable arrangement for the improvement of such land? The payment for the manure, &c. might be spread over a limited number of years, so as not to involve any very great outlay on the tenant's part at first, and at the same time to allow of his deriving the benefit much in proportion as he incurred the expense. The term need not, I think, exceed four years, and if the land is dry the improved quantity and quality of the Grass over that time would in all probability repay the cost of tillage. For instance, the outlay required to improve poor Grass land would be from 2*l.* to 3*l.* per acre. Suppose 3*l.* worth of manure applied in March—I would say 1*l.* of this with half-year's interest on the 3*l.*, say 1*l.* 1*s.* 6*d.*, should be repaid in October; the next October another 1*l.* should be repaid toward capital, with one year's interest on the 2*l.*, viz., 2*s.*, and the following October the remainder of the debt, 1*l.*, with one year's interest, 1*s.* In this way the whole would be cleared off in two and a half years, the tenant would have had the benefit of three summers, and the condition of the land permanently improved. Now, if landlords or their agents would make some arrangement of this sort with their tenants, no doubt some of the manufacturers of manure would be willing, with such a guarantee, to become parties to such an arrangement, so as to spread the payment over such a limited period. After several years' careful observation, I am quite satisfied that much of the second-rate Grass land at some distance from large towns might, by an outlay of from 3*l.* to 4*l.* per

acre in draining, and 2*l.* to 3*l.* in manure, be made twice as valuable as it now is; and with the increased facilities now at our command, it seems a great pity it should remain in its unimproved state. I have this year made some careful experiments on the improvement of Grass land. After expending on a 3-acre meadow field 10*l.* in draining and 6*l.* in manure, I got 4 tons of hay more than the field had last year, and more than the land immediately adjoining. This, even at the ordinary price of hay, will repay the whole outlay, and leave the land in much better condition than before. *Henry Richardson, York, Dec.* 1.

Autumn v. *Spring Calving.*—In reply to the remarks I made at the recent meeting of the members of the Smithfield Club, Mr. Torr asserted that September was the best possible month in the year for cows to calve in; and Lord Feversham expressed himself opposed to the alteration I suggested, on the ground that it would prove destructive to the calf classes at the annual shows of the Royal Agricultural Society. With all due deference to such high authorities, I cannot help thinking that something more convincing than has hitherto been urged should be set forth as the reasons for upholding a system which is attended with so much practical inconvenience, expense, loss, and disappointment to those who follow it, and which is daily manifesting itself as a great national evil, inasmuch as it is professedly the best animals that are subjected to the unnatural treatment it involves. The questions of inconvenience and expense to the practical farmer I have repeatedly dwelt upon in my former letters. I now propose to account, on physiological grounds, for the loss and disappointment experienced by those who disregard Nature's laws, and endeavour to make them succumb to science, instead of bringing science to her aid. In order to do this I will take the case of a bull calf dropped in the autumn months. He is of necessity kept in the house, warm and well fed during the middle of the winter, and, if intended for exhibition, every kind of forcing food, with as much new milk as he can be induced to suck, form his diet. At 10 or 11 months old, when he has become so obese that he can scarcely walk, he is sent to the showyard, it may be to win a gold medal, and, having done so, he is the admiration of all who can look upon him without reflecting on the consequences of such a course of feeding. But, to the practical eye, his legs display something approaching deformity, and many are the expressions of regret that an animal which, under rational treatment, would have proved of great value, has been ruined, and his generating powers either destroyed or materially injured. After the show, if unsold, and it has been his good luck to escape cold or other illness from exposure to what, under different circumstances, would have been his natural element, he lives to return home, he is again placed within the walls of his house; and if intended for further exhibition, more forcing food is given, and it is usually in vain that his owner tries him to propagate his species, as his whole frame is (to use the words of Dr. Gant) diseased. But supposing he is not intended for further exhibition, and is to be used for stock purposes, great care and judicious treatment are absolutely requisite to reduce his condition, or death ensues. Besides, he has arrived at an age when he would be troublesome, or perhaps dangerous to be set at large; and therefore, from the day of his birth until his death, he never even beholds the green fields in which by Nature he was destined to graze. Is it, then, to be wondered at that loss and disappointment should be the result of the use of an animal so reared? That the cow put to him should refuse to breed? That abortion should follow his use? That his offspring should lack that constitution and flesh so absolutely requisite for the breeder's success, and which it may be the bull himself displayed? What, I would ask, would be the probable result if the human race were so treated? What if our children were confined in a room, and their appetites pampered with every luxury which the art and ingenuity of man could devise? Would they not soon degenerate? Compare the squalid appearance which the inhabitants of a closely-populated manufacturing town present with the ruddy complexion of the peasant, and ask—why is this? They are each natives of the same country, and the same blood runs through their veins; but—"they have not the same healthful occupation" must assuredly be the answer. I will now take the case of the bull calf dropped in the spring months (in accordance with Nature's laws). When a few weeks old he is turned out with his dam to partake of his natural food; the milk he sucks is enriched by the young and succulent Grasses; he playfully skips about the Grass fields, enjoys the race with others; has the care of his dam, with her rough tongue at once carding and washing his skin many times during the day; he does not fear the drenching rain by day nor the chilly dews by night; he grows strong and vigorous; and thus his constitution becomes established. Having arrived at a proper age for weaning, say 8 or 9 months, at the approach of winter he is placed in a yard with a hovel or shed to run in as he pleases; he continues to obtain healthy exercise, and the following July, if exhibited, at some 16 or 17 months old, he presents an appearance worthy of notice, his points are rapidly developing, and the judges and purchasers have each an infinitely better opportunity of judging of his merits than in the case of the fatted calf. Besides, we know that the Almighty has sent nothing in vain; therefore, it is not the mere affection of the animal for its young that induces the free use of the tongue of the dam; it is not for the mere sake of play that all young animals run and skip about; it is to create a healthful action of the skin, a healthy circulation of the blood, the full development of the muscles, and that the vital organs of the body shall become expanded and the constitution established. These things being so, I trust the Councils of our great national Societies will give this important subject that due consideration which in my humble opinion it merits. *T. Duckham, Baysham Court, Ross, Herefordshire, Dec.* 23.

English and Scotch Farming in Ireland.—During the last half century a great many English and Scotchmen commenced farming in Ireland, believing, and in many cases very justly, that in Ireland we had great room for improvement. The successes and failures of each are very varied. The Englishman did not so often succeed as did the Scotchman. The Englishman came from a country rich in many advantages and resources comparatively well developed ere he learned to farm, to a country poor because its resources were not developed, and the means he adopted were unsuited to the ends he had in view. The Scotchman came from a comparatively poor country, where he had learned many things well adapted to the land of his adoption. They both, though having learned much well adapted to the circumstances left behind them, had each something to unlearn under altered circumstances. John Bull was too full of pluck, and thought too much of himself to let him suppose he had anything to learn from or through Paddy. Sawney was more "canny," for though he knew he had many things to learn, even from Paddy's faults, he availed himself of every opportunity of doing so, but not only kept his ignorance but his skill as much a mystery to both John Bull and Paddy as he possibly could do, and "sucked the brains" of both without their feeling it. I have known many fine worthy Englishmen come to Ireland to farm, but who give it up, and return poorer, if not in sorrow. I have scarcely ever known a Scotchman to go back to his own country, except he was both richer and wiser. There were exceptions, it is true, in both cases, but they only helped to prove the general rule. Of those things I could give you many examples if needed. One or two of men who had nothing to unlearn but everything to learn, and one who had much to unlearn though he had fancied he could teach all Ireland and England, may suffice. About 30 or 40 years ago two Scotchmen, brothers, settled down to farm in a midland county. The younger had been all his lifetime ploughing and farming (well, I believe) in Scotland, whilst the elder from his childhood had been "ploughing the salt sea." The farms held by them stood beside each other, cheaply rented, and of a good but improvable quality. Here one would expect the man who had been bred to ploughing the land would have succeeded, and that in his agricultural operations the sailor would be more than ever "at sea." But the reverse was the case, for the sailor made a fortune, and the farmer became bankrupt; and then had to set to and learn from the sailor, whose education was obtained from having been a close observer of Paddy's trifling successes and his own brother's faults, which, when driven to necessity, he soon corrected; and he is now one of the most respectable and independent men of his class in the whole province, and in possession of his brother's property, who died without issue. Now for the case of an Englishman who had everything to learn and nothing to unlearn as a farmer. He was bred to another and a higher profession, where he had learned systematic habits and strict discipline. He acquired a new estate in the West, but on which circumstances did not admit of his residing, nor can he till the end of the next two years at nearest, as he must during that time remain in the south. To enable him to learn farming he purchased the tenant's interest in a small farm of 50 acres, on which to acquire that knowledge necessary for himself, and by which to help his tenantry when he goes to reside amongst them hereafter. The better to enable him to do so he engaged the services of an old Irishman to give him lessons on land cropping and stock feeding on a small scale for six months, and here are a few of the results of his experiments as I learned from himself this week at the Royal Dublin Society's Show. His land is high, dry, and kind for most kinds of cropping, but was, when he got it, dirty in the extreme; so much so that his Potato land produced last year over 10 tons of root-weeds, and but four of Potatos. Amongst his crops for experiment he had one acre of Beans; such were never cultivated within some score of miles of the place before. They were cultivated in various ways: by spade husbandry, in "lazy beds," and drills and ridgelets, respectively 15, 18, 21, 24, and 28 inches apart. The average produce of the whole proved to be 52 bushels per acre, for which he has refused from a seed merchant 5*s.* a bushel to retail again, or 14*l.* an acre (statute measure). But he will sell none of them, as he will sow the whole produce instead of cereal crops on his land that produced Potatos, Mangels, Carrots, Swedes, and rough-leaved Turnips. His Wheat on his cleanest and best prepared land paid him a little over 4*l.* per acre. His Mangels and Carrots, which were grown on alternate ridgelets, are valued, the former at 48*l.*, and the latter at 72*l.* per acre. For the former he was offered 1*l.*, the latter he is selling at 4*l.* 10*s.* per ton. [!] For his Potatos he is offered, according to variety, some being new and valuable ones, obtained from imported stocks, at from 35*l.* to 70*l.* per acre, to be retailed as seed stocks again. His farm stock is small in both number and variety. Indeed, those only worthy of especial notice are sheep of the Oxford Down variety. They are exceedingly fine, the parents having been imported from the best breeders in England—50 ewes at an average of 4*l.* each when at home, and a ram 20*l.*, making a total of 220*l.*

They reared 80 lambs, for which he has refused for breeding purposes 2*l.* 10*s.* each as an average ..	£200	0	0
Wool 250 lbs., sold at 2*s.* per lb.	25	0	0
	£225	0	0
First cost of sheep	200	0	0
Balance in their favour	£25	0	0
Value of ewes if now sold to a butcher, 40 at 3*l.* 10*s.* £140			
Ditto of rams if sold same way 5			
	145	0	0
Total for sheep alone ..	£170	0	0

Or more than the rent of his farm, supposed by some to be a dear one. Those sheep, except the culls, he intends to stock one of his large farms in the West, to which he will add pure Hereford cattle as breeders. The above is a mere sketch of an English farmer's career in Ireland. The poor ignorant farmers and labourers in his neighbourhood as he produced looked on him as a little insane, and some of the rich farmers, in their jealousy, wished him to be so. It should be observed that from the dirty state in which he found the land, the high rate of labour, and having much artificial food and artificial manures to purchase, his profits will not be so great as we would expect from his high produce in the crops and stock alluded to. His Oats were very fine, and Swedes and Turnips fair crops, all of which he is consuming in stock feeding. His advantages were: first, he had good security in his farm; secondly, he had had capital to work it; and thirdly, although in his experiments he made several mistakes (which will be of use to him), he soon acquired such a fair share of both theoretical and practical knowledge as to render him better adapted for such farming than a man would be who had much to unlearn. I look forward with much interets to his next year's proceedings, and with more still to the time at which he will embark in farming extensively on his own fine western property, on which are some fine reclaimable bogs, which he encourages his tenants thus to reclaim. The first year rent free; second, 1*s.* per acre, with a rise of 1*s.* on each year till the rent comes up to 5*s.* (the Irish) acre, beyond which he will not raise it till the expiration of 31 years from the time at which they commence to improve it. I enclose you, but not for publication, the names of all the parties adverted to in the foregoing. *Edward Carroll, Dublin, December* 17.

Societies.

COGGESHALL.—At the recent meeting of this Society, Mr. PATTISSON said it was a great satisfaction to himself, after having been connected with the Society for 25 years, to find it so well sustained, and that there were even more than the usual number of applications for prizes for long services and for other objects most beneficial to the community. He quite agreed with the Chairman that this was neither a religious nor a political Society. With regard to the subject which more immediately concerned this meeting—that of agriculture—they were all agreed that everything which tended to improve the cultivation of the soil, and to enable farmers to meet the low prices of the present day, was most important to be discussed. It was therefore with great pleasure that he read an address lately delivered at a certain Club in London; but at the same time he could not but smile that so many practical men should sit at the feet of Gamaliel to learn how it was that farming had become so unprofitable. Alderman Mechi, who had endeavoured to enlighten them upon that subject, was certainly entitled to speak upon it, for he had made use of all the appliances necessary to make farming profitable, if the absence of those appliances rendered it unprofitable. Mr. Mechi had employed capital, made use of almost every improved machine, and had a vast quantity of stock upon his farm; but he (Mr. Pattisson) did not think he satisfied his audience at the end by telling them the result of what he had done. Many of the statements which he made were no doubt true, such as the want of capital in taking a farm in many instances; but he did not to his (Mr. Pattisson's) mind go to the cause which prevented the farmer from reaping a profit, viz., the many heavy charges upon land. The farmer had to contend against very heavy charges, such as poor's rates, the maintenance of highways, the support of the Church by tithes, Burial Boards, and Sanitary Boards, all of which very much tended to lessen his profits; but the greatest of all the drawbacks was of course the competition of the foreigner. The English farmer, with these burdens, was not in a position to meet the competition which they had from America, Russia, and other parts of the world, where they were able to cultivate their land at a very trifling expense, and consequently in a position to supply the English consumer at a very reduced rate. The British agriculturist was

therefore not placed in a fair position as compared with the foreigner, and, although many scientific improvements had been introduced which were expected to afford him considerable assistance in meeting the competition from abroad, experience had proved that these inventions had not accomplished their desired object. The Chairman had mentioned steam as one of the instruments with which the farmer would be able to compete with the foreign producer; but so far as his own experience went he must confess that he had not found steam at all economical as compared with manual labour. He had used a steam threshing machine, and he maintained that corn could be threshed at as cheap a rate by manual labour as by steam. He would appeal to many practical men around him if that was not so. His impression, derived from his own experience, was that very little of the new machinery which had been introduced had tended to render farming less expensive—that they grew their corn at the present time at quite as great an expense as they did half a century back, and did not think they obtained so much work for their wages as formerly. He should be very glad if any scientific man would tell him farming could be made profitable by the recent inventions. Even if they ploughed by steam they must have horses to carry out their corn; and unless they could to a great extent get rid of the cost of horses he maintained that the use of steam was an additional expense. If Mr. Mechi could tell them how to make farming profitable they should be very much obliged to him, and they were pleased to meet him upon all occasions, because he always received everything that was said with the greatest good humour. He had much pleasure in proposing the health of Mr. Mechi; and if on this occasion he could throw a little light on the subject of agriculture, and teach him how to farm at present prices, he should be personally obliged to him.

Mr. MECHI said it was a very great pleasure to him to come once more among friends by whom he had always been received with kindness, even when questions of agricultural improvement were more warmly discussed than at the present time. He missed with regret many old friends, especially the two gentlemen who were Presidents of the Society; but at the same time he rejoiced that they had been succeeded by one whose standing in the neighbourhood so well qualified him for that position. He congratulated them upon the possession of such a President, and he congratulated them also upon having two such zealous upholders of the Society as Mr. Pattisson and Mr. Hills. With regard to agriculture, he believed they were living in stirring times, and, whatever Mr. Pattisson might say, he believed that progress and improvement were the order of the day in agriculture. They could not go back, and they could not stand still. He was sorry to hear Mr. Pattisson give his opinion against steam power in agriculture, because it was contrary to all experience.

Mr. PATTISSON: I mean on the question of economy.

Mr. MECHI: Of course; he admitted that unprofitable farming was wrong. The great makers of steam engines were selling more and more every week; and the purchase of steam engines by agriculturists themselves was the very best evidence of their conviction that the use of steam in agriculture, as in every thing else, had a tendency to economy. But he could speak practically upon the subject. He had used steam power for 16 or 17 years, in times when it was very unfashionable in this county; and if he could thresh 70 quarters per day from long-strawed Wheat for 1s. per quarter, or less, it would never answer to pay a labourer 2s. or 3s. 6d. per qr. for the same work. A saving of 50 per cent. was thought something of in manufactures, and he thought it ought to be so in agriculture; indeed, he should begin to think that the profits of agriculture were very large if a saving of 50 per cent. in any operation was thought to be no object. They had evidence before them in every shape that steam was their great friend; all they had of utility and cheapness was owing to steam. Without steam he could not have come there that evening; nor could he have done it so cheaply, because time was money; and he had yet to learn that in agriculture, as well as other matters, a saving of time was not an increase of profit. He had happened lately to meet many large farmers who lived by the profits of their land; and they told him they owed a great deal to the use of the steam plough, not so much in saving expense as in enabling them to do work at the proper time. One of them said his land was ploughed and ready for the next crop by the 1st of October before there was any wet; and they knew that if their heavy land could be broken up when it was dry they not only checked the growth of weeds, but the soil became aërated and fertilised; and in the spring the scarifier soon set everything right for the spring crops. What had been the effect of not using steam in early cultivation this year? Those who unluckily left their work to be done in the spring had failed in their Mangel crop, whereas those who, like himself and others, prepared their land in the autumn, were blessed with a good crop of Mangel, which this year was of the utmost possible consequence. If therefore in this heavy-land county they could by the use of steam do in one month what it would require two or three months to do by horses, they at once rendered themselves in a great degree independent of seasons, and put their land in a state more likely to produce a good result in the ensuing crop, whether it were corn or roots. Again, he found it folly to pay a miller 2s. 6d. a quarter to grind his corn when he could do it himself for 1s. 3d. A steam-engine had no nerves or muscles, and if they gave it fuel and water it wanted no rest; the engine driver might sit with his pipe, almost asleep, but still the engine went on untiringly, not only all day, but if necessary all night also. It was a subject generally accepted throughout the country; and if any one were to propose to the great manufacturers to go back to horse-power they would say that he must have risen from the grave after a sleep of 200 years, and could not belong to the present generation.

The Chairman had alluded to another important subject—that of sewage. He wrote upon that subject 20 years ago; he had been agitating it ever since, and he had been often called a nasty fellow for talking about it as he had done; but by the constant agitation of himself and others the question had become fashionable; they saw long leading articles upon it in the *Times*, and anticipations were formed of the profit it would some day yield to the rate-payers.

That was a hopeful sign; there was the same movement about sewage that there once was about gas. It had taken 50 years to bring gas into the rural districts, but the thing had been done, and so it would be with sewage. He had no doubt that when he should be dead and gone, and Tiptree almost forgotten, they would be able to turn on a tap of sewage made in London just as they now could a tap of gas or water. He was speaking seriously, and not jocularly, because the engineering evidence taken upon this subject was most important. It showed that they could raise 1000 tons of sewage, which was equal to the rainfall of half a year upon an acre of land, 300 feet (or 100 feet higher than the Monument), for 13s. or 14s. They had no hill of that height in Essex; even Tiptree was only 180 feet above the level of the sea, and if sewage could be pumped up 300 feet, it could be made to flow wherever it was wanted, each farmer having his tap and meter, and paying for what he took. He could see it all in the future, and he knew how it could be done, because he had done it on his farm for the last 12 or 14 years; and it was just as easy to supply sewage to any particular district as it was to supply water or gas. He need not tell them how absurd it would be, after feeding 3,000,000 sheep upon the best cotton cake and Turnips, not to let their excrement fall upon the land, but into some neighbouring river. Any one making such a proposition would be called insane, but that was just what they were doing in London; they were sending their 3,000,000 sheep, fed on the best produce of their farms, for consumption in the metropolis, and the result was poured into a river, to be wasted as far as nature would permit, instead of returning to the farm which had been exhausted to produce it. The subject was a large one; it was engaging the attention of thinking men in various parts of the kingdom; and ratepayers were beginning to see that they had got something which they ought to take care of instead of throwing it away. The legislators of the country too were beginning to think that they ought to make a law to prevent the pollution of rivers, and to render it an indictable offence to throw into a river that which ought to go upon the land. He hoped that a law of that kind would be carried, because it was a simple logical deduction that bringing back to the land what it had been exhausted in producing must be restorative and fertilising.

He would now tell them a little experiment he had made in thin sowing. He believed it was agreed that they were all getting thinner sowers and higher farmers than they used to be.

Mr. DENNIS: Where there is no game.

Mr. MECHI believed that partridges and pheasants were great friends of the farmer.

Mr. DENNIS: But not rabbits.

Mr. MECHI did not say rabbits, though sometimes when he was out shooting he wished there were more of them. On a Clover ley, which was first mowed for hay, then manured and folded with sheep fed on cake, he told his man to put in four stetches with one kernel in a hole 4½ inches apart, which he found only required one peck to the acre, and the remainder of the field was drilled with his usual quantity—one bushel of seed per acre. The Wheat came up, but as the single little shoots on the four stetches could scarcely be seen, some of his friends thought he had forgotten to plant it. So it went on till the spring, when the plants began to tiller and shoot out horizontally, so that the ground was covered with a thick network of stems, which in due time turned upwards, and ultimately the crop became the thickest in the field. There were 48 stems from one kernel, and in many cases from 20 to 30. As harvest approached his visitors were unanimously of opinion that it was the thickest crop and the most straw; and not knowing, of course, how much seed was put in, some of his thick-seeding friends thought he must have sowed a large quantity—2 or 3 bushels, according to their own practice; and when he told them he had only used 1 peck per acre they were astonished. At harvest they very carefully kept the crop separate, and measured the ground accurately, and the result was that of Crabb's Red Wheat he had 7 quarters 3 bushels (59 bushels) per acre; and, what was more remarkable, the straw weighed 2¾ tons per acre. On the other part of the field, sowed with rough chaff Wheat, 1 bushel per acre, the produce was 6 quarters 6 bushels per acre, with a much less quantity of straw than where there was only 1 peck of seed. They must not infer, however, that he advised 1 peck per acre under all circumstances; but he thought they might take it as an indication that if Wheat was put in at the right time and the land in high condition, they might expect and should obtain a larger crop at a less cost for seed than from thick sowing; and as with good farming they considered 1*l.* per acre a fair profit (and he believed there were some who did not make so much as that), surely the saving of only a few shillings per acre in seed must be a considerable object to every farmer. He hoped gentlemen would try the experiment themselves on a small scale, and so be able to form their own opinion upon it. Certainly it was a disgrace to the country that they should only get a return of 9 for 1 in the general crops grown—that for 1,000,000 quarters of seed they only got 9,000,000 quarters of corn—a fact that was shown by Mr. Caird's statistics; but if they multiplied his 59 bushels by 4 pecks it gave a return of 236 for one, which was certainly better than the average rate of increase. He was sure that in many cases a vast amount of loss was suffered from thick sowing. This year Barley had been a great crop because they happened to have a remarkably dry season, which, with the few frosts in the spring, where there was high farming, kept the crop standing; but if they had had a moist and warm season their Barleys would have been laid flat, the Clover would have grown through it, and the yield light and deficient in quality, very injurious to the general welfare of agriculture. Most people were very anxious about losses from thin seeding; but where thick seeding resulted in loss they heard very little about it. Well, then, were they perfect yet in British agriculture? The land of this country available for agriculture was something under 60,000,000 acres, of which many millions of acres, such as the chalks and sands, were drained naturally, but according to Mr. Bailey Denton, who was a great authority, they had at this moment 20,000,000 of acres that really required drainage, which, at 5*l.* per acre, would absorb 100,000,000*l.* There was, therefore, plenty of room for improvement and investment of capital; and when people said that farming was being done very well, he came to the conclusion that landlords and tenants must make up their minds that there was a great deal yet to be done—a great deal more intelligence and capital to be invested in British agriculture, before they arrived at the most profitable means of producing a result.

There were many other topics he should like to talk about did time permit. He was sometimes asked what farmers were to do with Wheat at present prices.

Undoubtedly present prices were low, and one piece of advice he would give them was that they should not sell their corn to the factor or the miller, but sell it to their bullocks, sheep, and pigs; and even if there should be an apparent loss of 10 per cent. they would know it had not gone off the farm, and that it would return again in the shape of increased production another year. He was glad to see many farmers were following his experience in this matter, because one of the greatest mistakes made in farming was that they did not send enough of their produce off upon four legs. As a great maker of meat he had gone closely into the question; this year he had made 11 score in weight to every acre of his farm; and as the pecuniary result upon a farm of 100 acres, after paying 600*l.* for purchased food, and allowing 70*l.* for his unfortunate loss in calves, he got 7*l.* for every acre of green or root crops upon his farm. Was that satisfactory? He did not think they could do as much without some acres of Italian Rye-grass and sewage; but if they could avail themselves of sewage for a certain number of acres of Rye-grass, if they grew a certain quantity of root crops, if they used food for their cattle upon the principle of cutting, pulping, steaming, and warming; and if instead of putting long straw under their cattle they had it cut up into chaff, they would find that all these things went to make profitable farming, for if they got a good return for their root crop, they need not fear getting a good return for their corn. His experience was that animals should be fed under cover; that the straw put under them instead of being used long should be cut up into inch lengths; and that what was carried from the sheds should not waste its fertilising qualities upon a dung heap, but be taken direct to the land, which saved expense as well as gave increased profit. These were not experiments with him: he had tried them for a long time; and if their landlords should appreciate their position and offer to build sheds for their cattle, and charge 5 or 6 per cent. interest for the outlay, they would be cheaper and far more useful than barns. A landlord should say this—"I will put you up sheds, but you shall feed your cattle under cover; you shall use steam power, and you shall not have dung-heaps" The differnces between their sheep-fold and their farm-yard manure was, that the qualities of the latter were wasted in the air or washed away by the rain; whereas shed manure was equal to any folding manure they could put upon their land. He must apologise for this very long story; he could say more: but he hoped at all events they would agree with him that landlords and tenants must pull together, the one finding the money for improvements, the other enterprise and capital for cultivation; and from that combination would arise improved intelligence and improved means for advancing British agriculture.

Mr. PATTISSON explained that he was not opposed to improvements or to the use of steam power: he had merely given the results of his own experience, viz., that manual labour was the cheapest. He could thresh his Barley by hand for 20*d.* per quarter, while by steam it cost him 2*s.*

Mr. MECHI: Have you a steam-engine of your own?

Mr. PATTISSON: No; I hire.

Mr. MECHI: That is another thing. My arguments had reference to a fixed engine.

Mr. PATTISSON said on a farm of 150 acres it was cheaper to hire.

Mr. MECHI: Not if you grind and do everything by steam.

Mr. PATTISSON: With regard to thin seeding, he had been a practical farmer nearly 40 years, and had grown as much corn as any of his neighbours, but he never had a large crop from a thin plant. His largest crops had always been from a thick plant.

Mr. MECHI: You could not call 20 or 30 stems for every 4½ inches a thin plant. I can assure you of one thing—that if the price of corn is low I have found farming more profitable than banking.

Mr. WOOD said: As a very young farmer he ought to apologise for the impertinence of speaking at all. Mr. Pattisson, whose experience was naturally of great weight among farmers, seemed to decry the aid of steam; while on the other hand Mr. Mechi, very little of whose profits probably were got by farming—[Mr. MECHI. 1*l.* an acre.]—seemed to think steam everything in agriculture; but he (Mr. Wood) thought there was a mean in everything, and independent of the question of expense, steam offered many advantages. If markets rose it was a great advantage to be able to thresh out their corn rapidly and send it in good condition to market. It was also a great advantage to cultivate their land very quickly after harvest; but at the same time he was not at all clear that incurring a very heavy expense to accomplish that object would be certain to yield a corresponding return of profit. The application of sewage, too, would no doubt do a great deal of good; but even gas, to which it had been compared, had not yet been brought into the rural districts, and how was a farmer to get his private tap for sewage? Whether by the use of steam or of sewage, he should be glad to know how to make farming pay with Wheat at 8*l.* a load, and although he hoped the Chairman was not right in saying he was going on like mad, he did not think farming could succeed in the present day with going a little a-head, which was all he aimed at doing.

Farmers' Clubs.

MORAYSHIRE: *Turnip Culture.*—(*Concluded from p.* 1238).—Mr. ROSE, Sheriffstou, spoke next on this subject. As to the time of sowing, he thought from the 12th to the 15th May was about the proper season for himself to commence getting the crop all laid down, between that time and the 27th, or at any rate by the end of May. He was speaking of Swedes, which he did not think should be sown after May. As for yellow Turnips, he would never sow them earlier than the 3d or 4th June, finishing about the 15th June. He would, however, have every Turnip sown by that time if possible. Generally speaking, he thought they had the best crop of Swedes by sowing from the 15th to 26th May or thereabout. As to the manuring, he would give the Swedes farmyard manure at the rate of 15 to 20 cartloads an acre. He gave them all crushed bones—8 bushels of crushed bones and a little artificial manure besides. About 15 or 20 good cartloads would be about 12 or 15 tons of manure. Of the artificial manures—such as dissolved bones and tide-drawn manure, or something of that sort—he would give 2 to 3 cwt. along with the 8 bushels of bones. This was what he would give the Swedes. As to the Yellow Turnips he seldom gave them any farmyard manure, because he had it not to give after expending so much on the Swedes. He would just give them a little more artificial manures—say three cwt. with from eight to ten bushels of crushed bones. He did not get his Yellows and soft Turnips dunged at all this year. As to the different varieties he would certainly prefer the Pomeranian White Globes to the Greystone, and thought them an equally heavy crop,

His Greystone was a very heavy crop this year certainly; but he thought it a very rough Turnip. He did not think there was much feeding in it. It was much rougher than the Pomeranian, which was equally heavy, and much more sweet and juicy in the bulb. He thought these soft Turnips should be all done by about this time of the year, or by the 1st November—at any rate by the middle of November, by which time he would use sliced Swedes. He would therefore give Swedes earlier than the 1st December, his own experience being that by this time they were capital feeding for any kind of cattle. He would, however, have them sliced, as they were too hard to eat otherwise. As to the storing, he would, if he could, store all his Turnips by the new year. Last year they had more frost probably than they had experienced for many years, a bare intense frost, without any snow to protect the Turnip in the drill. He had a good deal stored before the severe weather set in, and he was sure a ton so stored was worth two tons pulled after the frost. His mode of storing the Turnips was to put them in a heap in any open place, just as he would pit Potatos, fastening on the straw with raips, sticks, or something to keep it on. The first Turnips he stored were very often the last to be used (he always took Turnips from the field when he could, and only had recourse to the pit when he could not get any from the field), and he never yet found the stored Turnips fail, but, on the contrary, found them as fresh and fine in quality up to the 10th May as they were when first covered up. He was thoroughly convinced that if they had weather suitable for the storing, it would be to their profit to store all their Turnips by the beginning of the year. The way he took up his Turnips for storing was this:—He took the mould off an old plough, and putting that on to the plough in use, as a sort of "fling-out" from the feather of the sock, ran this up every drill. He sent the women over the drills first to take off the shaws. If it was a dry day—for it was only in dry weather that the process of storing could be successfully carried on—he would run the harrow over the drills after they had been run up with the plough in the manner described. The operation was quite simple and successful. The Turnips came up very clean, and when stored would keep nicely till the spring. He could not say exactly what the cost of taking up and storing might be, but, speaking from his own experience, he found the process cheap.

Mr. GEDDES next proceeded to give his views, taking up the several points in their order. In the first place, as to the different varieties of Turnips sown, he thought, as he had already suggested, that it very much depended on the kind of ground one occupied. But taking land such as his own—some good land, a good deal middling, and some very bad—he should say that a very fair proportion for that county, and in different parts of the county, would be 60 per cent. of the farm laid out in Swedish Turnips, 30 per cent. in Yellows, and 10 per cent. in Globes. He thought that proportion would suit best with regard to the date of sowing, and give the farmer the best chance of a crop. With regard to the different varieties he should say that, if they were to put 60 out of the 100 acres in Swedes, 30 in Yellows, and 10 in Globes, they would come very near the thing, taking into account the quality of the land, combined with their purposes. The varieties, and perhaps still more the distinct varieties, had been so much discussed, he scarcely required to go into that. He had found Skirving's Purple-top Yellow was the Turnip that gave him on the whole the best return, and it was the easiest grown. He was inclined to think that there did exist between all these Purple-tops the affinities which Mr. Morrison had spoken of. He thought, however, a distinct variety did not signify so much as to be sure that the seed you got was from a Turnip likely to be a proper variety of its kind. With regard to the Yellows he thought it was very immaterial. In that county he did not think they could grow Aberdeenshire Yellows on the generality of land. It was better to grow Swedes upon that land. One he had found to suit him very well was Fosterton's Hybrid, which was very easily grown, and of very good feeding quality. It was a Turnip, too, that was not apt to go wrong by anything except frost. It formed a capital Turnip up to the 1st of the new year, and was an excellent Turnip for lambed ewes. It was an improved variety of Dale's Hybrid. There was another Turnip he had grown for the last year or two—Drummond's Early Yellow—in connection with which he might mention a circumstance which he thought was of some importance. There was a field he sowed partly with Yellows, partly with Swedes, partly with Globes, partly with these Drummond's Early Yellows, and partly with Greystones. He did this for the sake of experiment. He put down some acres of Swedes, and put these varieties in six different rows. The result was that Drummond's took the lead, and kept it. They were never checked by fly or anything else. They were the first Turnips hoed, and had kept ahead of the others throughout. He had been told that this Turnip was next to the Aberdeenshire Yellow for standing the frost. As to variety, there was a great deal that might be said. He thought if they were going to consume Turnips about the 10th or 12th September, which was the time they ought to begin feeding their cattle and sheep, they could not get feeding so cheap as early grown Turnips. He would certainly begin feeding not later than the 10th or 12th September. Of course you must get very early grown Turnips to do the work of the first ten days, or to get you up to the 1st October, when the ordinary varieties would be fit for use. The first Turnip he was in the habit of sowing was the White Globe and the Green Globe. Between these, indeed, he could perceive very little difference. He did not care much whether the one or the other, so as he got an early enough Turnip. The point was to get a good Globe of any kind ready by the middle of September. He would sow them before his Swedes. As to the date of sowing these, his time was that which had been mentioned by Mr. Brown—commencing about the 10th or 12th May. Put in a few acres of Globe the first thing you do, and then go on with your Swedes. His own experience was that the earliest sown Turnips were on the whole the better crop. The Swedes required a long time to come to maturity, and if they would have them ready early, they must sow them early. By sowing them a little earlier, they might have them ready for use by the end of November, instead of December. He thought they could never be wrong to commence sowing their Swedes by the 12th May at any rate. It was different with Yellows. If they were sown earlier they did not keep so well. They ought to be used or stored, but most decidedly they were not the Turnips one could depend upon in spring, and certainly not up to the middle of May, as in the case of Swedes. They must be all consumed by the middle of April. In regard to the time of sowing, they had been advancing of late years. It was of the greatest possible advantage to know, from experience, that they could sow so early. Some years ago they never used to commence until the 10th or 12th June. Then they had a sweat to get them down by July, a sweat to get them hoed, and a sweat all over. Now, however, by commencing a month earlier—by the 10th or 12th May—they were never in a hurry, but might sow on to the month of June, and had lots of time to do everything that was necessary. In reference to the manuring of Turnips, he happened to see at Mr. Williamson's farm a quantity of dissolved coprolites and dissolved bones, and found that, by applying four or five cwt. of these, he could grow Turnips worth 8*l.* 10*s.* per acre. Thinking this was something worth inquiring into, he (Mr. Geddes) applied to his friend Mr. Kynoch, Keith, if he could procure him some of these dissolved coprolites. Mr. Kynoch replied that what he professed to sell was dissolved bones, and that by supplying dissolved coprolites he might place himself in an awkward position with regard to his customers. Mr. Kynoch, however, while anxious not to compromise himself in any way, kindly agreed to dissolve some coprolites for him, and sent them to him as such in terms of his special request. He (Mr. Geddes) had used these this season against every other manure, and, so far as he knew, there was not one bad or deficient Turnip in the lot. The crop was excellent, and at nearly half the usual expense. He did not say that the same would apply to every man's land, but such was the case with regard to his own. There was, however, this important consideration: so far as regarded dissolved bones, and those very light manures in use, they were of no permanent benefit to the land—their whole purpose was to get up a crop of Turnips, and they were not of the slightest benefit to the land after the growth of the Turnip crop. He mentioned the circumstance regarding the coprolites, because it was his experience this year. He put them into five or six different fields over an extent of Turnips, and he had asked Mr. Kynoch to come and look at them, and satisfy himself as to the result. The grieve on the farm had the drills marked, so as to be able to point out the Turnips in the different fields raised by means of the coprolites. In regard to the laying down of these Turnips, they had no advantage whatever over the other Turnips in the same fields; yet, though laid down at about half the expense, they were as good as any of them. He could discover no difference, and should not have known which was which if his grieve had not been able to point them out to him.

Mr. WALKER asked what quantity of coprolites had been used. Was it value for value, or weight for weight, against the other manures?

Mr. GEDDES said he gave 4 cwt. coprolites alone—not value for value, but weight for weight against the others.

After some words of conversation,

Mr. GEDDES then proceeded to say that he approved of the storing of Turnips. He stored about the month of November, and his experience was that, when taken out of the pit in spring, they were perfectly sound and good. The earlier they could be stored the better, provided the Turnips had made their growth; or they might be stored with advantage even though they had not quite attained to maturity. Generally speaking he should say that, if they could be stored dry, they could not be stored too soon after the month of November set in. He thought the success of the Turnip crop depended very much on the drilling. For his own part he allowed 30 inches between the drills on his good land, and 28 inches on the poorer soil. He had just been showing Mr. Brown Turnips drilled at 28 inches on as poor land as there was in the county. For his own part he always gave his Turnips plenty of room to grow, and he had no cause to regret it. For Swedes and all he allowed 12 to 14 inches between the plants. It had been said that they could grow from 15 up to 22, and even 32 tons an acre; but all he could say was that, taking the medium of these figures, any man who could grow 22 or 23 tons an acre might well "rest and be thankful."

The CHAIRMAN then summed up.

On the general features of the question they were pretty much at one. For instance, they had particularised the different kind of Turnips, but he thought most of them agreed that what was called the East-Lothian Swede was on the whole the best. Still, several gentlemen had shown that there were other varieties that suited their farms better than even this. In short, as to mere variety, it had been shown that if either of them was well managed, with a good soil and plenty of manure, there was no fear but there would be a good crop. Then, as regards the time of sowing, they seemed pretty much agreed that from the 20th to the 26th May was the best time for the general crop; and that for such portion of the crop as was intended to be used early, the sooner one could sow them the better. In every case it was evident that it was on the White Globe, the Green Globe, and the Yellow varieties that they must depend in order to carry them on successively through the months of September, October, or on to the beginning of the new year—sooner or later—according as the Swedes might be fully matured and ready for use. As to the question of manuring, there could be no doubt that the farmyard dung was the best for the land, and should be used so far as it would go—that it should be eked out with the different varieties of lighter manures that might be required for raising a crop, and which varieties must depend very much on the nature of the soil to be placed under crop. In regard to the general management, he found it had resolved itself now very much into the good old system that prevailed when he was fifty years younger. In his early days, the storing of Turnips was as regularly gone about as the storing of Potatos. There were various causes for that. In those days the fields were not so much enclosed, and if the farmer did not store his Turnips, they were liable to be destroyed by wandering sheep, the hare, and the red deer. Apart from this, however, he thought that the storing of Turnips was a matter of necessity, in order to secure their value. They had now become of more value than ever; and there was no doubt that the sowing, rearing, and storing of them were matters of immense importance to the farmer, because on the success of Turnip growing depended the value of his stock, which had now become the staple commodity for the market.

Abridged from the Banffshire Journal.

Reviews.

On the Chemistry of the Feeding of Animals for the Production of Meat and Manure. By J. B. Lawes, F.R.S., F.C.S.

(*Concluded from p.* 1239)

We continue the publication of this Paper read last spring before the Royal Dublin Society.

1. *Comparative Feeding Value of different Foods, according to their Composition.*—I have endeavoured to indicate the characteristic points of distinction between the food of the ox, the sheep, and the pig, and to show in what respects its constituents are differently disposed of by the different animals; and for the purposes of my illustration, I have supposed the animals to be fed on such foods as are recognised as appropriate to them, and in such proportion and amount as experience justifies. I now propose to say a few words on the relative feeding properties of different foods, according to their composition.

Leaving out of view, just now, the incombustible or mineral constituents, it will be convenient, as before, to consider the other constituents of food to be grouped under the heads of nitrogenous and non-nitrogenous substances.

Among the nitrogenous substances, the most important of those which enter into our stock foods are albumen, casein, legumin, and gluten; and chemists and physiologists are accustomed to speak of these—the nitrogenous compounds—as the flesh-forming substances.

The non-nitrogenous constituents of our stock foods are starch, sugar, gum, pectin, oil, and cellulose, or woody fibre in different conditions of digestibility or induration. The non-nitrogenous compounds are spoken of as the respiratory or heat-producing, and fat forming substances.

Now, writers on agricultural chemistry and physiology have generally assumed that it is chiefly the proportion of the nitrogenous or so-called flesh-forming substances contained in them, which determines the comparative value, for feeding purposes, of different foods.

[Mr. Lawes proceeds here to describe his experiments on feeding in relation to this point. His conclusions are stated as follows:—

Both the amount of food consumed by a given weight of animal within a given time, and that required to produce a given weight of increase, were determined by the amount of available non-nitrogenous substance which the food supplied. The quantities required would, doubtless, have varied within even narrower limits, had all the foods contained equal proportions of indigestible woody matter.

It may be observed that it is doubtful whether pigs are able to digest cellulose, or woody fibre, at all; but there is no doubt, as the investigations of ourselves and others on the point sufficiently prove, that oxen and sheep are able to digest a considerable portion of such matter, when it is not in too indurated a condition.

It will, of course, be understood that a certain amount and proportion of nitrogenous substance is essential in the food of animals; and if I were asked to state in general terms what was the approximate proportion of the nitrogenous to the digestible non-nitrogenous substances, below which they should not exist in the food of our stock, I should say (though with reservations), about such as we find them in the cereal grains; and since few of our stock foods are below, and many above, this in their proportion of nitrogenous substance, it results that we are more likely to give an excess than a deficiency of such constituents, so far as the requirements of the animal are concerned. The value of the manure depends, however, very much on the amount of the nitrogen which the food contains; but to this point I shall recur after directing attention to a few more points in connection with the comparative values of different foods as such.

Some years ago we published the results of some experiments on the equivalency of starch and sugar in foods, pigs being the subject of the trial. Several lots having each a fixed and limited quantity of Lentil-meal and bran allowed, one was permitted to take as much starch, another as much sugar, and another as much of the mixture of the two as they chose; whilst in another experiment the animals were allowed to select at discretion from Lentils, bran, sugar, or starch, each placed separately within their reach. The result was, that sugar and starch were found to have, weight for weight, practically the same value as constituents of food.

These results would, *à priori*, lead to an answer in the negative to the much agitated question, whether there is any

advantage in malting Barley for feeding purposes. The chief effect of the malting process is to convert starch into sugar—not, it is true, sugar of exactly the same description as that used in our experiments; but there is good reason for supposing that malt sugar would have a lower value than cane sugar as a food constituent; and direct experiments, made many years ago at Rothamsted, have shown that a given amount of malt, mixed with other food, gave less rather than more increase than the amount of Barley from which it was produced. It is obvious, too, that as the conversion of Barley into malt is a manufacturing process, attended with considerable cost, as well as actual loss of substance, the remission of the duty on malt employed for feeding purposes would not be likely to be of benefit to the farmer, unless either a given amount of malt sugar proved to be of considerably higher feeding value than the starch from which it was produced, or the other constituents were rendered more digestible and assimilable by the process.

This leads me, before leaving the subject of foods, to make a few remarks on some other manufactured foods for stock. Many complaints are made, and justly made, of the adulteration of oilcakes; and it is sometimes asserted that cheaper and better foods than the average of cakes now in use could be manufactured with advantage both to the maker and to the feeder. Linseed and other cakes are themselves, in one sense, manufactured foods. But the object of the manufacturer is not the production of cake, but of oil. If the farmer did not use the cake at all, it would still be made, and the oil would be sold for a higher price. As it is, the manufacturer makes the cake as a bye-product, and the price he gets for it enables him to sell his oil so much the cheaper.

But if manufactories were set up for the special purpose of preparing foods for stock, the whole cost of the undertakings must be charged upon the food. Lentils, Beans, Peas, Indian meal, Barley meal, Linseed, and other good staple foods must be used; and although it might be possible so to combine foods together that a given weight of the mixture would possess a somewhat higher feeding value than the component parts used singly, there is every reason to suppose that the increased cost would more than counterbalance any slight benefit that could be derived in that way. Nor do I anticipate that the progress of science will aid us much in this direction. Condimental foods have been tried, and found wanting; and I have little doubt that a similar result will attend the manufacture and use of simpler food mixtures. Our hopes as feeders must be in increased and cheap supplies of ordinary cattle foods of a good quality, rather than in submitting those we have to costly processes of manufacture.

The results arrived at in regard to this portion of the subject may be briefly summed up as follows:—

1. The comparative feeding value of our current stock foods depends more upon the proportion of the digestible non-nitrogenous substances they contain than upon their richness in nitrogenous compounds; but the richer the food in nitrogen, the more valuable will be the manure.

2. Of the non-nitrogenous constituents of food, starch and cane sugar have, weight for weight, nearly equal feeding values; malt sugar has probably rather a lower value than either cane sugar or starch; digestible cellulose, in moderate proportion, has, for ruminant animals, probably nearly the same value as starch; and fat or oil have probably about two and a half times the value of starch for the purposes of respiration, or the storing up of fat in the body.

3. Some advantage results, in a feeding point of view, from the judicious mixture of a variety of ordinary stock foods; but the benefit to be derived in this way is not such as to compensate for the extra cost of a special manufacturing process to attain it.

2. *Connection between the Value of the Manure and the Composition of the Food consumed.*—The next and last branch of the subject relates to the comparative value of the different constituents in the liquid and solid voidings of the animals, and to the connection between the value of the manure and the composition of the food from which it is produced.

I have already pointed out that the greater portion of the carbon, hydrogen, and oxygen of the food either passes into the increase or off in respiration, and that comparatively little of any of them is recovered in manure. By far the larger portion of the nitrogen, and nearly the whole of the mineral matter consumed are, however, so recovered.

To show the economic connection between the feeding of stock for the production of meat and manure, and the growth of corn, I propose to adduce a few results obtained in experiments on the growth of Wheat by different manures. In the experiments in question, Wheat has been grown for 20 successive seasons on the same land.

In Table V. are given the average annual produce of corn and straw, and the estimated yield of carbon, per acre, over the last 12 years respectively, without manure, with mineral manure alone, with mineral and nitrogenous manure (ammonia salts), and with farmyard manure.

TABLE V.—*Average Annual Produce of Wheat, and estimated Yield of Carbon, per Acre, over 12 Years.*

Manures per Acre per Annum.	Average Annual Produce per Acre.			
	Dressed Corn.	Total Corn.	Straw.	Carbon.
	bushels.	lbs.	lbs.	lbs.
Unmanured	15½	964	1662	1062
Mineral manure alone ..	18½	1157	1897	1234
Mineral manure and 400 lbs. ammonia salts ..	36½	2275	4212	2625
14 tons farm-yard manure	35½	2232	3869	2467

Where the farmyard manure was employed, more carbon, as well as more of every other constituent, was annually applied in manure than removed in the crop. In the other cases no carbon whatever was supplied in the manure; and yet it will be observed that where the mineral manure and ammonia salts were employed (the latter containing a large amount of nitrogen), the yield of carbon was greater than where a large amount of that substance was supplied by means of farmyard manure. This carbon must have been derived from the atmosphere. In several experiments in this field last year, from 1½ to 1¾ tons of carbon per acre were removed in the crop, without any being supplied in manure; but in these cases large quantities of nitrogen were supplied.

The quantity of carbonic acid required to yield 1½ tons of carbon to the crop is about as much as would be given off into the atmosphere in a year by 22 individuals of a mixed population of both sexes and all ages, and it will be seen that it is under the influence of ammoniacal or nitrogenous manure that this large amount of carbon has been fixed in the plant from the carbonic acid of the atmosphere.

The results given in Table III. showed how small was the proportion of the nitrogen consumed by an animal in its food that was stored up in its increase, and sent to market as meat. If there were none of the nitrogen of the food lost in the various exhalations from the body, the whole of that not stored up in increase would be found in the manure. But the investigations of ourselves and others show that a certain portion of the nitrogen is so lost. Our own experiments to determine the limit of this loss, and the circumstances under which it is greater or less, were commenced as far back as 1847, and have been resumed occasionally from that time to the present; and during the last few years we have collected a great deal of experimental data on the subject; but as the whole of the analytical work is not yet concluded, I do not feel that I am in a position to give any numerical statement of the results obtained. It may, however, be stated as beyond doubt, that by far the larger portion of the nitrogen consumed in food is rejected by the animals in their liquid and solid voidings; and that the higher the proportion of nitrogen in the food, the richer will be the excrements in that important constituent of manures.

Some years ago I published a Table, showing the estimated value of the manure obtained from the consumption of one ton of different articles of food used in ordinary farm practice. The valuation was founded upon a knowledge of the average composition of the different descriptions of food, and upon information, arrived at in the course of the experiments just referred to, as to the probable average amount of the constituents of food valuable for manure which will be obtained in the solid and liquid excrements of the animals.

Stating the results of these valuations in very general terms, it may be said that the estimated value of the manure from one ton of oilcake was considerably more than that from the same quantity of Linseed, Lentils, Tares, Beans, or Peas; from two to three times as much as that from one ton of Oats, Wheat, Indian Corn, Barley, or hay; from seven to ten times as much as from the same weight of Oat, Wheat, or Barley straw; and about 20 times as much as from one ton of roots.

It is obvious, therefore, that in the selection of purchased foods for stock, it is very important to consider their manuring as well as their feeding value. One illustration on this point will suffice. A ton of Locust Beans will certainly not yield nitrogen in the manure of the animals consuming it equal to more than, if to as much as, ¼ cwt., or 28 lb., of ammonia; but a ton of Rapecake will yield 1 cwt., or four times as much. If, therefore, we take the ammonia in the manure at 7d. per lb., the amount of it obtained from the consumption of a ton of Locust Beans will be worth only 16s. 4d.; whilst that from the ton of Rapecake will be 3l. 5s. 4d.

There is, in fact, far greater difference in the manuring than in the feeding value of most of the ordinary stock foods in the market.

In illustrating the comparative value of the manure obtained from different foods, by reference merely to the amounts of nitrogen or ammonia-yielding matter which they supply, it will not be understood that I in any way ignore or underrate the value of the mineral constituents associated with the nitrogenous matter in the excrements. But, inasmuch as the amount of mineral constituents voided is generally in excess of that required for the due effect as manure of the nitrogen with which they are accompanied, it results that the amount of the nitrogen or ammonia-yielding matter is practically the best index to the value of the manure.

3. *Appropriateness of Animal Food in the Diet of Man.*—It will be obvious that the importance of the subject which I have brought before you this evening rests upon the assumption that animal food is an important element in the diet of man. There are, indeed, some who maintain that a purely vegetable diet would be more suitable and natural than the mixed vegetable and animal one so generally preferred. If their view were adopted, we need no longer trouble ourselves about the connection between the food, the increase, and the manure of fattening oxen, sheep, and pigs. There are, however, various circumstances, economical and physiological, pointing to the appropriateness of admitting a certain proportion of animal food into the diet of man. To one or two of these I will briefly refer.

Walking is for man undoubtedly a very natural means of progression. Still, it is often very advantageous to ride, and so to employ the legs of a quadruped instead of our own. In eating meat we may be said to employ the stomachs of other animals to do that which we could not so well do with our own. As a few ounces of gold are separated from many tons of rock by the combined aid of mechanical and chemical processes, so the animals feeding upon crude, and often to us indigestible, vegetable matter, eliminate from it, and store up in their bodies some of its constituents in a form at once much more concentrated than that in which they consumed them, and much more easily appropriated by the human economy. A given amount of nitrogenous compounds in the form of meat is undoubtedly more easily digested and assimilated by man than if the same amount were supplied in the form of Beans. Then, again, the animals convert starch, sugar, &c. (and probably some of them cellulose, which we could not digest at all), into fat, which has twice and a half the respiratory and fat-storing capacity of the substances from which they produce it. It is, doubtless, true that man can produce fat, and keep up his respiratory function from starch and sugar; but it can hardly be doubted that there is some economy to his system in having a portion of fat supplied to him ready made.

Apart from the strong testimony of common experience on the subject, there is evidence in the comparative structure of man that he is adapted for a concentrated form of food. One illustration, in passing, may be adduced on this point. Table VI. shows the proportion of the stomach, by weight, in a given live weight of oxen, sheep, pigs, and man:—

TABLE VI.—*Proportion of Stomach in different Animals.*

Stomach in 100 lb. live weight:—

Oxen ..	51 ounces.	Sheep ..	39 ounces.
Pigs ..	14 ounces.	Man ..	6 ounces.

Relative weight does not, of course, necessarily represent with numerical exactness relative capacity or size. But there is little doubt that there is a gradation in the capacity of the stomach relatively to a given weight of the body in the animals enumerated, in the order, and to a great extent in the degree indicated by the figures given in the Table. Admitting this to be the case, we have seen that the sheep, with its less proportion of stomach than the ox, takes a somewhat more concentrated food; and that the pig, with its much less proportion of stomach than the sheep, requires a much more concentrated food than the latter. May we not conclude that man in his turn, with his less proportion of stomach than the pig, will also appropriately take a more concentrated food than his useful friend?

The food of man is, indeed, very closely allied, in a chemical point of view, to that of the pig. The staple of the food of both the fattening pig, and man, is cereal grain. The pig, it is true, consumes the husk as well as the farinal portion, whilst man does not; but we know that this proportion of indigestible woody matter is very nearly the limit of that which is appropriate for the fattening pig, and that on the addition of a small quantity of bran the proportion of increase diminishes, and that of the dry substance of the food voided as excrement increases. The only other essential difference is, that the pig takes, as a rule, the whole of his nitrogenous compounds in the form of vegetable products, and a much larger proportion of starch, and other non-nitrogenous compounds, more bulky in relation to their respiratory and fat-forming capacity than fat itself. Not, indeed, that the pig is at all unapt or unwilling to adopt even still more closely the diet of man; for he will take animal flesh and fat when he can get them, and, what is more, he likes them better cooked than raw.

Were it not, then, that man separates the husk from the flour, and that he gets lower animals to eliminate in an easily digestible form a portion of his nitrogenous aliment, from foods which he could not himself readily digest, and that he gets them also to provide him with a portion of his respiratory and fat storing food in the concentrated form of fat itself, we could hardly account for the less proportion to a given weight of the body of the stomach—the receptacle and first laboratory of the food—in his case than in that of the pig. We know, indeed, that in the cases where man is reduced to depend for nearly the whole of the non-nitrogenous constituents of his food upon starch, in the form of Potatos or Rice, there is a disposition to an enlargement of the abdominal organs, and to a diminution in physical and mental energy.

To conclude on this point, there can be no doubt whatever that the food of the labouring man is improved when he can add to his bread a portion of fat bacon, or butter, or fat in some other form, and it is better still if he can substitute or supplement a little butcher's meat. Indeed, that which common experience recognises as high quality of diet is, within certain limits, high proportion of animal to vegetable food, and with it high proportion of fat to starch and other non-nitrogenous compounds.

But not only do the animals which we fatten for our own food convert vegetable produce which we either could not digest at all, or could do much less easily than they, into concentrated and easily digestible and assimilable material for our use, but in doing this they supply carbonic acid to the atmosphere, and return the most important manurial constituents of their food in their excrements, thus providing, to both the soil and the atmosphere, from crude vegetable products, that which is necessary for the luxuriant growth of cereal grain, and other vegetable produce suited for the direct use as food for man.

Were it not for such compensations, by the increase of man and other animals upon the surface of the earth (if it could take place at all), by the enormous quantities of carbonic acid evolved into the atmosphere from the combustion of coal and from other sources, and by the gradual destruction of forests, which are the chief natural agents for restoring the balance, the purity of the atmosphere would become affected. But the Grasses, which supply so large a proportion of the food of beasts, and the cereals and the other plants of the same great family which supply food to man in almost every climate, serve to re-use the carbon given into the atmosphere in the form of carbonic acid. It may seem at first sight strange that the humble Grasses, and the corn crops, reaching only a few feet from the surface of the ground, should be able to take up more carbonic acid, and evolve more oxygen, over an acre of land than an acre covered with forest trees. Still, there can be little doubt that more carbon is fixed in an acre of luxuriant Wheat than over the same area of woodland; and there can be as little that an acre of sugar cane would fix more than an equal area of the most luxuriant tropical forest.

4. *Conclusions.*—With a few general remarks of a practical nature I will conclude my discourse. The great change which has taken place in the practice of feeding stock in modern times has consisted in bringing the animals much earlier to maturity by means of careful breeding and more liberal feeding. Scales and weights were seldom used in agricultural experiments until comparatively recently; but there are some few records of the results of feeding as practised at the latter end of the last century, which will serve us in instituting a comparison between the results then obtained and those which are possible, or even common, at the present day.

In 1794 the Duke of Bedford made some experiments to determine the comparative feeding qualities of Southdown, Leicester, Worcester, and Wiltshire sheep. Twenty of each were selected and weighed on November 19, 1794. To each lot were allotted 16 acres of pasture, and in the winter some Turnips were thrown upon the pasture, and a small quantity of hay was also provided. On February 16, 1795, after a period of 65 weeks of feeding, the experiment was concluded, and the sheep sent to market.

Over the whole period the sheep gave an average increase of between 40 and 50 lb. per head; and as their original weight was nearly 100 lb. per head, they increased nearly 50 per cent. from the store or lean to the fat condition, which is the same proportion as that assumed in the illustrations to which Table III. refers.

Some years ago I tried a set of experiments upon the comparative fattening qualities of Southdowns, Hampshire Downs, Cotswolds, Leicesters, and cross-bred wethers, and cross-bred ewes, each lot consisting of between 40 and 50 sheep. They were put up in November, when their weights were very nearly the same as those of the Duke of Bedford's sheep; and when fat they had increased in about the same degree, namely, to an average of about 150 lb. each. The Duke of Bedford's sheep were about 65 weeks in adding 50 lb. to their weight, and mine in some cases 20, and in others a little more, or about one-third the time. It is somewhat singular that in May—the period at which my sheep were consumed as mutton—the Duke of Bedford's were weighed for the first time since the commencement of the experiment, and were found to have increased only about 6 lb. per head.

The difference of result in these two cases was almost entirely due to the difference in the mode of feeding. Formerly, sheep received perhaps a few Turnips on their pasture, and but little dry food, and that not of high feeding quality; and the consequence was that during the colder months of the year they either lost weight or increased but little. Now they have a liberal allowance of good food, and are frequently protected from the inclemency of the weather. In my own experiments, just referred to, the sheep were allowed from ¾ lb. to 1 lb. of oil-cake per head per day, according to their weight, about the same amount of Clover chaff and as many Swedes as they chose to eat, and they gave an average increase of nearly 2 per cent. upon their weight per week.

There is no doubt that in rapidly fattening stock at an early age, quality of meat is to some extent sacrificed to quantity. But it is only by means of the modern system of liberal feeding and early maturity that meat can be brought within the reach of the masses of the population. The farmer, too, must look to that system which will pay him the best; and the difference between the price which the consumer will give for a pound of four-year-old and one-year-old mutton will, only under very exceptional circumstances of locality, remunerate him for the extra cost of production.

In conclusion I have only now to thank you for the very kind attention with which you have followed me through what I fear may be thought by many of you somewhat tedious detail. The subject of the chemistry of feeding is, however, essentially an intricate one; and I think you will have learnt from my lecture, if you did not know it before, that there still

remains much to be determined by careful investigation respecting it. But if I have in any degree succeeded in indicating the proper points of view from which this at once practical and scientific question should be studied, and in impressing upon your minds some prominent and important facts regarding it, so as to lead to improvement in practice by a better knowledge of principle, or to further inquiry, and so to an extension of our knowledge, I shall feel that the objects of my desire and endeavour in addressing you have been fully attained.

On the Utilisation of Night-Soil apart from Sewage. By a County Magistrate. J. Masters & Son, Bemrose, Derby.

This is a little tract advocating the solution of the sewage difficulty in detail, by the attention of each household separately. It is Mr. Moule's scheme over again, excepting that ashes and soot are to be used in place of mould. It is the earth system as against the water system that is here advocated.

The following are passages we have marked for extract:—

1. *On the Amount of Nuisance connected with the Two Plans.*—"I would ask any medical man or chemist to mix an equal quantity of night-soil and water together, and then an equal quantity of night-soil and dry dust, and keep each for a week, and say then which is the more valuable and which the least offensive to sight and smell; and I would point out that by the simple union of two substances—night-soil and dust or ashes, which are to be found in the poorest habitation, by a process the most simple, a valuable manure can be obtained, inoffensive to sight and smell, and removable in the same way that the cinders and sweepings of the houses are removed at present in all our large towns."

2. *The Practice of Eastern Nations.*—"There is probably nothing new to many in what I have said, but I repeat it because I consider the system I advocate has never had a fair trial in England. The Chinese, who consider themselves the most ancient people in the world, have practised it from time immemorial, and I am told they will even go the length of giving any one a meal of Rice on condition of remaining on the premises or returning for a certain purpose afterwards. With them nothing is wasted, all is returned to the soil and employed in agriculture.

"In India, where I lived many years, the same system prevails. Water is not used for removing night-soil, but it is not thought necessary to use earth as a deodoriser, although this in a dry state is abundant enough, and to this neglect may be attributed the unhealthiness of their towns, which we now see recorded and commented on in the newspapers. I will appeal to any one who has resided long in India, whether by the application of the earth system, as I have partially described it, the barracks of our European soldiers might not be rendered much more healthy than they are at present, and whether the soldiers, by the application of the manure thus obtained, might not be enabled to cultivate gardens, and amuse themselves beneficially and profitably at the same time. I remember once travelling in the Isle of France, and applying to my host for some place to which I might retire; his answer was in French, 'See, monsieur, there is the whole universe, and my own Sugar Canes in particular.'

"When staying at the Cape of Good Hope, I remember vessels coming seeking, as the phrase was, a cargo of guano, but they might have obtained this by remaining at home if they had adopted the directions of Mr. Moule in the second page of his pamphlet, 'Manure for the Million,' and used the same materials five or six times over."

3. *Practical Instruction.*—"The system I advocate, as applied to country villages, is most simple in operation, as may be seen in some houses in the village near to which I reside in Derbyshire; but supposing other villages to be unwilling or unable at once to adopt it, much may be readily done in the abatement of nuisances. We will suppose a privy or cesspool to have become offensive; this is caused by water from some channel or another having got into it in undue proportions. First stop this channel, and then apply a few barrowfuls, or a cart-load or two, of ashes or dry earth, and the whole can be removed and utilised at once without danger; and if in future the owners of the vault or privy would prevent water getting into it, and throw daily into it or even weekly the dust and ashes obtained from their houses, they would soon have a store of valuable manure for the garden. The system might also be employed most advantageously in small farms and more so even in large ones. We will suppose the small farmer to have no spare shed under which he could place his manure heap, but he might possibly have a spare stall, cow or horse, or he might erect a thatched shed. In this let him place daily the contributions of his cows, horses, and pigs, together or separately under cover, and daily place over them the dust obtained from his house or his cinders or dry road-scrapings or whatever of dried soil his farm affords, and in a few months he would have a collection of valuable manure exceeding in quantity anything he had before anticipated, and his straw would be all saved for chopping up; of course the large farmer might make more extensive and beneficial arrangements on the same principle."

The immediate purpose of the tract is to relate the perfect success of the plan as carried out at the Derby Gaol, and to recommend it elsewhere.

Miscellaneous.

Steam Cultivation.—Our 10-horse power steam engine, of Clayton and Shuttleworth's make, was taken from the railway station to a field of 33 acres, on Harmas farm. The cultivating tackle is Howard's patent. We began work with the narrow cultivator on September 6. As the land was full of rubbish, the object here was to shake and shake the surface, leaving the weeds at the top, and this was done thoroughly by the usual double operation, viz., once up the stetches (or lands), and then across. In each case we used five tines, armed with a share about 3 inches wide, stirring the soil 5 inches deep. Deep work, I may observe, turns over, and mixes soil and subsoil a great deal more, and would have turned in and planted the twitch. By a shallow stirring this legacy of the outgoing tenant was settled to our satisfaction. In this way we made very good work of that portion of the field enclosed by our 1400 yards of rope; but I wanted to get over more ground, having a great deal of stubble to break up, and not at all anticipating on September 6, the 40 working days which actually followed; so we broad-shared the rest of the field, once in a place, as deep as we could, and that in the excessively hard state of the land was only a few inches. The land was very well pared by the broadshares, but the surface was only slightly stirred, and as the harrows attached to the cultivator proved a hindrance, and did but little good, they were discontinued, and the broken surface dealt with by passing through it an implement drawn by horses, the teeth of which dropped through the tilth to the hard bottom and brought out all the rubbish. The tool thus used was a scarify-harrow, made by Mr. Ward, of Ford Street, near Colchester, which is the cleverest tool I have seen for surface stirring. So we got over 33 acres, less 2 acres of headland, &c., at a cost, according to the calculation appended, of 15*s.* per acre for the crossing, and 8*s.* per acre for once in a place. And now followed our first and only bad blunder. Over the hedge was a field of 8 acres, rectangular, but long and narrow; it is too narrow for a steam-cultivator ever to cross it with profit. But it was foul, and could be completed by running the rope through the hedge, without shifting the engine: so we set to work. The long way of the field was very well; but in crossing, the delay from short work was terrible, and, to make matters worse, the anchor on the hard headland, under the wood, kept slipping. This field, that is, the 7½ acres completed, cost 24*s.* 2*d.* per acre. At this date we have completed 138 acres, most of it crossed; some is done twice in a place the same way, which answers in some instances and saves shifting. To-day we are finishing, at once in a place, a 23-acre Mangel field, and are drilling it with Wheat in the finest order. We also drilled 11 acres of winter Beans and some Tares after the cultivator. Harmas farm of 220 acres, nearly all arable, came on hand this last Michaelmas. I bought for it five horses on October 2nd, and one since, and we have mastered the work, and shall complete Wheat sowing there and elsewhere by November 5th. But at another farm of 150 acres only, with fields too small for steam cultivation, we regularly employ six horses. To-morrow the cultivating tackle will go into winter quarters, and the engine will be put to work at the Barley stacks, and will have plenty to do grinding, bruising, cutting chaff, &c., for a head of stock which will shortly number 2000, chiefly sheep. The cost of our cultivation twice in a place has been 13*s.* to 15*s.* per acre. But this is too much, and we mean to reduce it. The pace being three miles an hour, and the cultivator being 4 feet 6 inches wide, 16 acres of ground should be completed in 10 hours; take the stoppages at the anchors and from all other causes at the enormous proportion of one-half the day, and you have 8 acres a day completed, costing 6*s.* per acre at once in a place, or 12*s.* at twice. As soon as we had increased our rope to 2200 yards, taking longer work, I found the cultivator was six minutes running from anchor to anchor, a distance of about 530 yards. But in small fields the anchors must, of course, be near each other, and the economy of the work entirely defeated. At starting in spring, we shall increase the speed to 4½ miles an hour for all but deep work, which I suspect can only be done at a slow speed. The depth of the work done, if measured fairly with a rule, did not anywhere exceed an average of 7 or 8 inches, though the subsoil was often torn up in lumps to a much greater depth. The roughness of the underneath portion of the work must approach to that of the surface, and this is a favourable condition of tillage as regards the percolation of water and aëration. The admixture of subsoil with the surface soil has, I think, been sufficient. In the spring, when the rain has penetrated, we shall pass a narrow-pointed share through the subsoil, without bringing it uppermost, at the greatest depth we can reach. The land here, though not of the stiffest, is of the very hardest. The depth described taxed the powerful engine to the utmost; and on trying to exceed it with only three tines, and those fitted with narrow points, the risk to the tackle was manifest, and I found by experience that while jolting over and against the firmly-bedded stones, a seat on the cultivator was anything but pleasant or secure. I ought to add that our men took kindly to the work, without any experience, except what one of them might have gained as anchor-man for a little while last year, when I hired steam-cultivating tackle. You are quite free to use these hastily-written notes of our first attempt, in any way you please. *H. Evershed, Park Hall, Gosfield, Halstead, Nov. 2, in Mark Lane Express.*

P.S. Some of my stubbles were cultivated the harvest before last with hired tackle, and left on the flat all the winter, and I shall leave them so again. Some heavy land cultivated after Turnips, and drilled with Mammoth Wheat on the flat, without a furrow, yielded this year the finest crop I ever grew.

ESTIMATE OF A DAY'S WORKING EXPENSES.

	£	s.	d.
Interest, depreciation, wear and tear, &c.	0	16	0
Labour	0	15	2
Half a ton of coal	0	10	0
Oil and grease	0	1	4
Water cart (except when we set down at a clay pit)	0	3	6
	£2	6	0

Removals and fixing have averaged 1*s.* an acre; beer 6*d.* an acre for twice in a place.

Steam on the Roads.—At the West Riding of Yorkshire Christmas Session it will be moved by J. W. Childers, Esq., "That application be made to one of her Majesty's principal Secretaries of State for an order pursuant to the provisions of the Locomotive Act, 1861, prohibiting the use of any kind of locomotive whatever, propelled by steam, or any other than animal power on the turnpike and other roads within the said West Riding, except between the hours of 12 o'clock at night and 6 o'clock in the morning, and also except in those parts of the said Riding where similar orders are already in force." Nothing can be more explicit; nothing more conclusive than this announcement. Steam is a nuisance. Steam shall be put down, at any rate in the enlightened West Riding of Yorkshire, or, as it is provided with admirable forethought, in those parts of the Riding where it is not put down already; or otherwise some sharp fellow might argue on the principle of two negatives making an affirmative, and so beat their Worships after all. Unfortunately, Mr. Morritt is a member for the North Riding, and not the West, or that honourable gentleman, as the story goes, might tell to his fellows on the bench, how once, when driving his team, he came at a narrow turn of the road quite unexpectedly, on such a *monstrum horrendum, informe, ingens!* and how, with the hand of a coachman, he stopped his horses, while the driver of the engine gave way at the same moment, and with a mutual compliment, something of that peculiar turn of the elbow so long associated with the courtesies of the road, each passed on his way rejoicing. We tremble, however, to think of what Mr. Childers would have done under similar circumstances. Would he have fainted outright, and left everything to the instinct of that noble animal the horse? Or would he have sworn that he went in bodily fear of that coke and coal-consuming cormorant, and had the offender up before a brother-beak? Or would he have done as he now has done, petitioned that such appalling appliances should only appear like evil spirits between the hours of 12 o'clock at night—awful hour!—and 6 o'clock in the morning? But why even then? Why these half measures? Or why not, as Hamlet has it, reform it altogether? Only assume, for instance, at this festive season more particularly, that Mr. Childers was about a little later than usual, singing the old year out, or dancing the new year in, and that as he drove home again between 2 and 3 on a hazy morning, he encountered one of these locomotives up betimes, as intent upon agricultural purposes. Why, at that dull, dreary period, the horrors of the infernal machine would be magnified and multiplied a hundred times over. Only imagine, for a moment, the peculiar glare of fitful light over the heavy looming body, the curious unaccustomed gait, and the strange seething sound with which it signalled its approach. The Fee-Fo-Fi-Fum! of the nursery giant is nothing to it; and what then would become of Mr. J. W. Childers, and his high-mettled horses, his dazed coachman, and his family carriage? Of what avail can be the interests of agriculture or the uses of steam when put in comparison with such a case as this? But, like Sterne, the picture we have raised is too painful to pursue, and we cannot go on. We have only to hope that the whole Commission of the West Riding will answer to the call, and in solemn conclave declare against these monstrous innovations, and so permit Mr. Childers to proceed in peace and quietness at his own jog-trot pace. It is true that we live in the 19th century, as that many years back a horse called Flying Childers is said to have run a mile in a minute, and so far, we ask no more for steam. But is Mr. Childers already unmindful of the fame of his ancestors? or is it that he owns to some little jealousy of the new locomotive? *Mark Lane Express.*

Calendar of Operations.

WESTER ROSS: *December.*—A continuation of finer autumn weather we could scarcely have had, and a large amount of out-door labour has been accomplished. A considerable quantity of rain has fallen, but the whole was needed, for the drought in summer was so severe that even after harvest the leas were all but unworkable, and our water mills were motionless from want of the propelling power; but for several weeks now the soil has been well saturated, and the mills have again been at work. Next year's green crop lot has received its winter's furrow, and a considerable breadth of Wheat has been sown in excellent condition. All the earlier sowings have come above ground rapidly, regularly, and beautifully; and so genial is the weather that the Grass fields are now more green than they were previous to harvest. The seed-furrowing of leas for Oats is now being proceeded with, and the work generally is far advanced. Should the weather con-

tinue fresh, we shall for some time be engaged in ploughing the remainder of the leas for Oats, in turning over the Turnip ground after the sheep for Wheat or Barley, in storing Turnips, and, should frost set in, the manure in the courts will require to be carted to the field. About harvest it was anticipated that the Turnip crop would be unusually light, and consequently there was a brisk demand for them at very high prices to be eaten off by sheep; but since that time, with the abundant rain and the very fine weather, the crop has so much improved that it is now a full average one, and prices are again declining. Both sheep and cattle are doing well, the former still having a good bite of Grass. Because of the high price of beef, and the low price of grain, a greater quantity of grain is being given to stock this season than perhaps was ever given in any previous year. Wheat is now fetching with us 36*s.*, Barley 21*s.*, and Oats 17*s.* per quarter. Last year the finer samples of our Barley were purchased for brewing purposes, and fetched a good price, but this year Barley of fine quality is so abundant in the south that our Barley is purchased only for distilation, and fetches, comparatively, a low price. There is little alteration in the wages of half-year servants, but labour is scarcer, and work-people are worse employed than they have been for several seasons. Only meal and Potatos are abundantly cheap, Should the projected northern railways be gone on with, which in all likelihood they will, there will be no lack of labour for several years to come. [The above was written in the second week of December.]

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Stratley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Dec.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	23	30.42	33	32	N.E.	3	10	36	31	38	28	..
Saturday ..	24	30.56	31	29	N.E.	1	6	33	27	35	21	..
Sunday ..	25	30.45	33	31	N.E.	0	10	33	29	38	29	..
Monday ..	26	30.32	33	30	N.E.	0	10	33	31	36	29	..
Tuesday ..	27	30.30	31	30	N.	0	10	33	29	36	24	..
Wednesday	28	30.33	34	33	N.	0	4	37	28	39	23	..
Thursday ..	29	30.37	42	41	S.W.	0	10	44	33	50	33	..

Notices to Correspondents.

DRAINAGE: *W C D.* By all means carry your drains in the direction of the inclination, otherwise, because water will not run up hill, one side only of your drains will work. In your clay by no means allow the distance from drain to drain to exceed 25 feet. You must scarcely expect to do your work, 4 feet deep, at less than 4*l.* 10*s.* per acre, considering the price of your pipes, and the stony subsoil. If you employ 1½-inch pipes for the first length of each drain, using 2-inch pipes when the accumulation of water shows it to be necessary, the outlay will be somewhat reduced. The article Drainage in "Morton's Encyclopædia of Agriculture" will afford much valuable information.

FLOUR MILL: *A Y.* We do not know the Conical Mill to which you refer, and you should give your name and address as a guarantee that the question is not simply an advertisement, before we can publish it.

FOOT ROT: *Wm. Sayer.* Sulphate of lime powdered, 1 oz.; Sulphate of zinc powdered, 1 oz.; Creosote, 1 scruple; Stockholm Tar, 4 oz.; Lard, 4 oz.; to be made into an ointment and applied occasionally to the feet of the sheep and between the claws. *W C S.*

MANURE FOR PASTURE: *A Londoner.* In the absence of farm yard or town dung, in all probability bone dust would be most beneficial to the Grass. If you get some well broken and mix it with some damp mould to heat and rot before applying, it will be more immediately active: 16 bushels an acre are a good dressing.—The Thorn and hedges of it are to be grown just as any other plant is cultivated, by planting in land properly prepared, and taking care that no other plant is growing with it. Clean the hedge, stir the earth about the roots, and cover them up with good compost mould.

STANDS AT SMITHFIELD SHOW: *Chester.* Exhibitors of roots, &c., can obtain any width and height they please (in reason) for their stands by making application early enough. The stands at the last Show were of all heights, widths, and depths within very large limits.

TAKING A FARM: *Ploughman.* It is usual to estimate farm capital at 10*l.* per acre. But 100 acres of good land cannot be stocked and managed for 1000*l.* A grazing or dairy farmer is liable to risks of a different kind, but often quite as serious as those of arable culture. Pleuro-pneumonia may destroy your profits for several years at a single blow.

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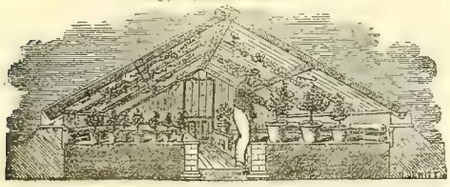
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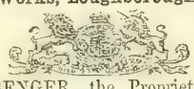


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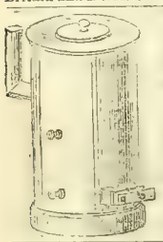
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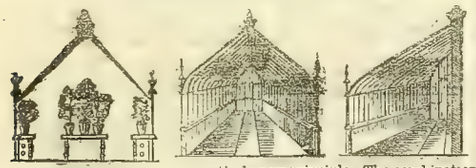
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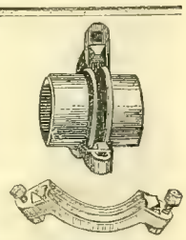
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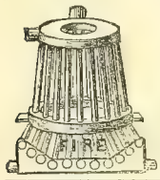
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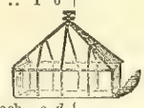
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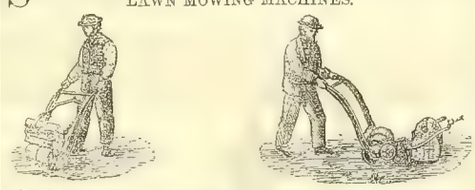
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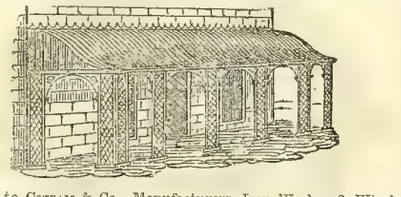
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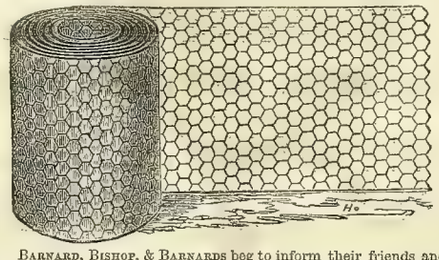
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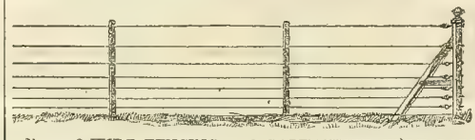


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2-inch „ „ „ .. „	16 ..	8 „	6½ „
1⅔-inch „ „ „ .. „	19 ..	4½ „	4 „
1⅔-inch „ „ „ .. „	18 ..	6 „	4¾ „
1⅔-inch „ „ „ .. „	17 ..	7 „	5½ „
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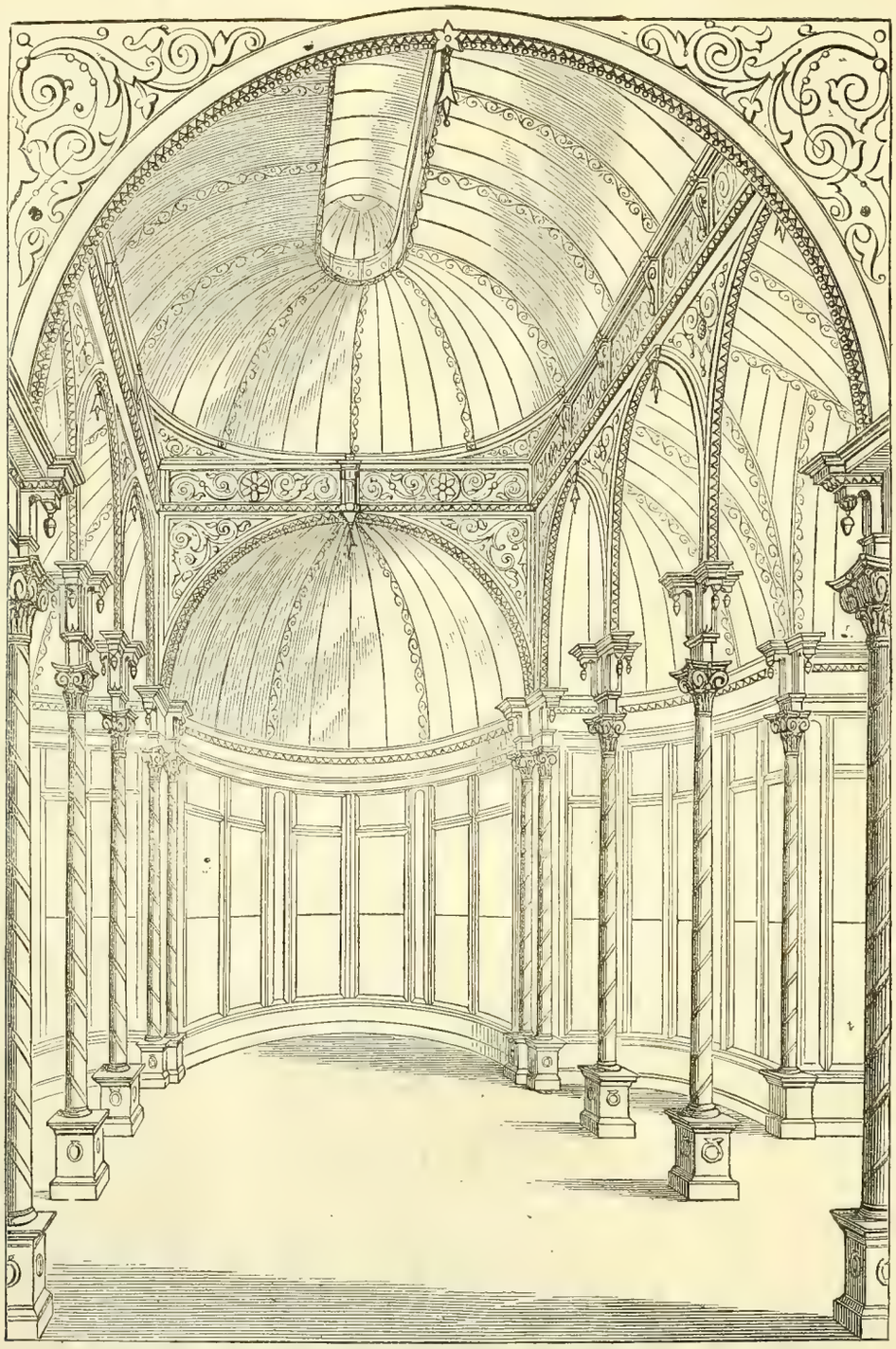
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